

# Gate Burton Energy Park Environmental Statement

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# 1. Introduction

1.1.1 This report on bats forms a technical appendix to the Environmental Statement (ES), specifically to accompany **ES Volume 1, Chapter 8: Ecology and Nature Conservation [EN010131/APP/3.1]**. Further information on the Scheme is included within **ES Volume 1, Chapter 2: The Scheme [EN010131/APP/3.1]**.

## 1.2 Report Objectives

1.2.1 The Preliminary Ecological Appraisal (PEA) Report (Ref 1) identified bat species that could be a potential constraint to the works or influence the design and implementation of the Scheme. Bats are protected under UK and European legislation (see section 2 of this report) and are Species of Principal Importance (listed under Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006 (Ref 2)).

1.2.2 The objective of the desk study and bat surveys, reported in this document, is:

- to determine the presence, assemblage and distribution of bat species within the Site; and
- assign a biodiversity importance to these and identify the potential impacts of the Scheme on bats.

1.2.3 This report includes the following information:

- relevant legislation and policy;
- methods for desk and field-based assessments undertaken in 2021 and 2022 respectively;
- limitations to the surveys undertaken and any assumptions made as a result of incomplete data;
- survey results, including preliminary roost appraisals and bat activity surveys;
- an assessment of biodiversity importance of the bat species and sites designated for bat species (where applicable); and
- conclusions.

## 2. Legislation and Planning Policy

### 2.1 Legislation

2.1.1 The following wildlife legislation is relevant to bats in relation to the Scheme:

- Wildlife and Countryside Act 1981 (as amended) (the WCA) (Ref 3);
- Countryside and Rights of Way (CROW) Act 2000 (Ref 4);
- Natural Environment and Rural Communities (NERC) Act 2006 (Ref 2);  
and
- Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 5).

2.1.2 The above legislation has been considered when planning and undertaking the commissioned survey work, using the methods described in Section 3; when identifying potential constraints to the Scheme; and when making recommendations for further survey, design options and mitigation, as discussed in Section 5. Compliance with legislation may require the attainment of relevant protected species licences prior to the implementation of the proposed development.

2.1.3 All bat species and their roosts are legally protected in the UK under the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 5), which implements the EC Directive 92/43/EEC (the Habitats Directive) (Ref 6). In addition, Barbastelle (*Barbastella barbastellus*), Lesser and Greater Horseshoe Bats (*Rhinolophus hipposideros* and *Rhinolophus ferrumequinum*) and Bechstein's Bat (*Myotis bechsteinii*) are listed in Annex II of the Habitats Directive (Ref 6), which requires sites to be designated in member states for their protection. Bats and their roosts are also protected under the WCA.

2.1.4 Taken together, the Conservation of Habitats and Species Regulations 2017 (Ref 5) and the WCA (Ref 3) make it illegal to:

- deliberately capture or intentionally take a bat;
- deliberately or intentionally kill or injure a bat;
- be in possession or control of any live or dead bat or any part of, or anything derived from a bat;
- damage or destroy a breeding site or resting place of a bat;
- intentionally or recklessly obstruct access to any place that a bat uses for shelter or protection;
- intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection; and
- deliberately disturb bats, in particular any disturbance which is likely to (i) impair their ability to survive, breed, reproduce or to rear or nurture their young; or in the case of hibernating or migratory species, to hibernate or migrate; or (ii) affect significantly the local distribution or abundance of the species to which they belong.

- 2.1.5 A bat roost is defined as any structure a bat uses for breeding, resting, shelter or protection. It is important to note that since bats tend to re-use the same roost sites, current legal opinion is that a bat roost is protected regardless of whether or not the bats are present at a specific point in time.
- 2.1.6 Section 40 of the NERC Act (Ref 2) places a legal obligation on public bodies in England to have regard to particular living organisms and types of habitat which are of the greatest conservation importance whilst carrying out their functions, whilst also having a general regard for protecting all biodiversity. Section 41 of the NERC Act (Ref 2) lists seven bat species: Barbastelle, Bechstein's bat, Noctule *Nyctalus noctula*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Lesser and Greater Horseshoe Bats as species of principal importance for the purpose of conserving biodiversity.

## 2.2 European Protected Species Mitigation Licences

- 2.2.1 Although the law provides strict protection for bats, it also allows this protection to be set aside (derogated) under Regulation 55 of the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 5) through the issuing of European Protected Species Mitigation Licences (EPSMLs). The three "derogation tests" are that:
- *"the development must be either for "public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment";*
  - *"that there is no satisfactory alternative"; and*
  - *"that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range".*
- 2.2.2 In accordance with the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 5) a licence can only be issued where the following requirements are satisfied:
- *"there is no satisfactory alternative"; and*
  - *"the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range".*
- 2.2.3 Favourable conservation status is defined in Article 1(i) of the Habitats Directive (Ref 6) as when:
- *"population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats";*
  - *"the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future"; and*

- *“there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis”.*

## 2.3 Local Biodiversity Action Plan Species

2.3.1 The Scheme is located in two counties: Lincolnshire and Nottinghamshire. The Lincolnshire Biodiversity Action Plan (BAP) (3rd edition) (Ref 7) and Nottinghamshire BAP (Ref 8) provide the local nature conservation strategy for identifying threats to species within each of the counties and set out the action plans necessary to conserve them. These action plans provide context to inform identification of threatened or uncommon species within the district and, or county. The plans also identify priorities for conservation and enhancement but confers no particular legislative or policy protection to the species identified, however in some cases this is provided through related legislation and local planning policy.

2.3.2 Both the Lincolnshire BAP (Ref 7) and Nottinghamshire BAP (Ref 8) have produced generic action plans for all species of bats.

2.3.3 The Lincolnshire BAP (Ref 7) lists the following threats to bat species within the county:

- loss of breeding and winter hibernation sites in buildings, old trees and farmyard features, especially old stone farmyard buildings; through decay, demolition or conversion of buildings to other uses; or felling trees without suitable mitigation;
- disturbance and destruction of roosts e.g. due to building work;
- reduction in insect prey due to widespread pesticide use and deterioration of water quality has also been shown to affect food supply: contamination from a range of sources including pesticides, oil and fertilisers can affect invertebrate populations;
- loss of feeding and commuting habitats – through reduction in the quality and quantity of hedgerows, mature trees, ditches, drains, ponds and riverside habitats. Continuing loss of permanent pasture is especially concerning for some species;
- widespread confusion over/ ignorance of/ flouting of the law regarding bats; and
- floodlighting of churches and other buildings causing disturbance.

2.3.4 The Nottinghamshire BAP (Ref 8) lists the following threats to bat species within the county:

- loss and fragmentation of suitable insect-rich feeding habitats such as wetlands and deciduous woodland;
- loss of linear features such as tree-lines and hedgerows, depriving bats of commuting routes between roosts and feeding areas;
- loss of and damage to roosting sites, including buildings, hollow trees, and underground structures (mines, tunnels, ice-houses, cellars, etc);
- ignorance or deliberate avoidance of consultation procedures legally required to protect bats, resulting in the loss of many roosts through



- demolition, inappropriate building practices, use of toxic timber treatment chemicals, intolerance by roost owners, and tree-felling; and
- reduction in the abundance and diversity of insect prey due to intensive agriculture, particularly over-grazing and the use of pesticides.

## 3. Methods

### 3.1 Desk Study

- 3.1.1 A desk study was undertaken as part of the Preliminary Ecological Appraisal (PEA) in October 2021 (see **ES Volume 3: Appendix 8-B [EN010131/APP/3.3]**). This desk study obtained records of bats within the preceding ten years and within a 2km radius of the Site from Greater Lincolnshire Nature Partnership (GLNP) and Nottinghamshire Biological and Geological Records Centre (NBGRC).
- 3.1.2 A search was also undertaken of freely available online resources, including 'MAGIC' (Ref 9), for Special Areas of Conservation (SACs) within 30km of the Site where bats are cited as one of the qualifying features; and also for granted licences (EPSML) in relation to bats within 2km of the Site.
- 3.1.3 Walkover surveys for bat activity were undertaken in May 2021 and August / September 2021 within the Solar and Energy Storage Park in 2021 and these data were reviewed for information relating to bats and pertinent to the Scheme (Ref 10).
- 3.1.4 The Nottinghamshire bat group website (Ref 11) and the Lincolnshire Biodiversity Action Plan (Ref 7) were reviewed for species distribution maps in these counties.

### 3.2 Field survey

- 3.2.1 All field surveys were led by competent ecologists, familiar with bat ecology and surveying, with the relevant Natural England bat survey class licences for the survey type, and/ or full or associate members of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 3.2.2 Prior to the start of the surveys in each new location, a daytime site visit was undertaken for each location by the lead surveyor in order to plan the works, assess any health and safety issues on the Site, and record the context of the survey locations.

#### Preliminary Roost Assessment

- 3.2.3 A preliminary roost assessment (PRA) survey was carried out on all relevant features identified within the Site, and up to a maximum of 50m from the Site (where indirect impacts were possible, and suitable habitat existed). Where access was permitted, this assessment of relevant buildings/ structures, woodland blocks and trees was undertaken at ground level for their suitability for roosting bats between April and September 2022.
- 3.2.4 The aim of the survey was to undertake a rapid assessment to identify:
- the presence of bats or their roost(s); and/ or

- features that were suitable for roosting bats, but for which the presence/absence of bats or their roosts could not be determined.
- 3.2.5 The PRA was undertaken in accordance with guidance in the *Bat Surveys: Good Practice Guidelines for Professional Ecologists 3rd Edition* (Ref 12). A global positioning system (GPS) was made to accurately record the location of individual trees, tree-lines, woodlands and structures along with photographs and notes on each feature. Detailed methods for the PRA survey are presented in Table 8B-1 and Table 8B-2 (Annex B). Where any signs of bats, such as staining and droppings were found, then these were also recorded.
- 3.2.6 Based on the overall suitability for use as a bat roost, each tree, woodland or structure was classified as negligible, low, moderate or high roost suitability, or as a confirmed roost, in accordance with best practice guidelines (Ref 12).
- 3.2.7 The results helped to inform the layout of the Scheme and any requirement for more detailed survey work to confirm the presence or likely absence of bat roosts, if roost features are likely to be impacted. It is important to note that none of these features will be impacted by the Scheme due to the embedded mitigation, on the basis of habitats being retained and a suitable buffer zone provided around potential roosting features to avoid roost loss or any significant disturbance. As such these assessments were carried out on a precautionary basis to inform any future amendments to the Scheme that may require further survey where potential roost disturbance or loss may occur.

### Bat Activity Surveys

- 3.2.8 The surveys for bat activity were undertaken within the Site, which comprises mostly low value suitability habitats for foraging and commuting bats, including large open intensively managed arable farmland and smaller areas of grassland/set-aside. Woodland, individual trees, ponds and hedges that are normally more frequently used by foraging and commuting bats will be retained by the Scheme. In accordance with the bat survey guidelines (Ref 12), habitats assessed as being of low value for foraging and commuting bats require three activity transect surveys within a year capturing spring, summer and autumn.
- 3.2.9 Bat activity surveys were undertaken in 2022 using four transect locations covering representative habitats across the Site. Each transect route (see Figure 8J-1 in Annex A) was surveyed in spring, summer and autumn (May, July and September). The survey route was designed to include potential flight paths or foraging areas within the Scheme and between such areas and potential roost sites.
- 3.2.10 Each activity survey involved two surveyors walking a transect route which included a series of counts at pre-determined points along the transect (presented as 'stopping' points on Figure 8J-1, Annex A). These stopping points were located at potentially higher value features with regards to foraging and, or commuting bats such as woodland edges and hedgerows. At each point, surveyors stopped and recorded bat activity for three minutes

using bat echolocation detectors. All bat activity encountered whilst walking between points was also noted. The direction of the transects was varied during each survey visit in order to ensure different areas of the transect were walked at different times.

- 3.2.11 Surveyors carried full spectrum bat echolocation detectors (Batlogger M or Anabat Scout) to determine which species were present. In accordance with survey guidelines (Ref 12), dusk surveys were carried out from sunset to at least two hours after sunset. The time, location, numbers, species (where possible) and direction of flight were recorded for each bat pass (a discrete burst of echolocation heard, or bat activity observed) during the survey. Echolocation calls detected were analysed with specialist software comprising Bat Explorer, Kaleidoscope and Analook W to verify bat calls. Survey visits were conducted in this way where weather conditions allowed, with surveys scheduled to avoid nights with cold (<7°C), wet or windy conditions.
- 3.2.12 In addition to the transect surveys, eight automated static bat detectors (two on each transect, comprising Anabat Express detectors with the same standard microphones and setting) were placed across the Scheme in representative habitats to record bat activity over a longer period of time (*i.e.* a minimum of five nights per season). This is double the recommended number of detectors required (normally one per transect for low value habitat) (Ref 12) and ensured better coverage of the Scheme due to the large geographic spread and the ability to consider small areas of higher value habitat within each transect location. The locations of the static detectors are presented on Figure 8J-1 in Annex A.
- 3.2.13 All microphones were located at least 1 metre above the ground on trees, and with clear of vegetation between the adjacent habitats and the microphone. All detectors were set on default settings to record in zero-crossing format. The static detectors were set up to record bat calls from sunset to sunrise for the recommended minimum of five consecutive nights per season in spring, summer and autumn (see deployment dates and weather conditions in Annex D).
- 3.2.14 Weather conditions were recorded, using the temperate log files on each static detector and rain/wind conditions recorded at the nearest weather station using online resources (Ref 13). Weather data were taken into consideration in the analysis. Where any prolonged period of strong wind >25mph or rain was experienced the static detectors were left for longer on site to obtain sufficient data during optimum weather conditions for bat activity.

## 3.3 Bat Data Analyses

### Activity Surveys

- 3.3.1 The transect data were described in relation to species, number of passes (and where possible number of bats), observed behaviour, temporal and spatial trends. The static bat detector data collected were analysed to determine the total number of bat passes for each species or species group

(depending on the level of identification possible from the recordings made) and then used to derive a metric - the Bat Activity Index (BAI) for the bat activity at each survey location.

3.3.2 These analyses provide an indication of:

- seasonal variation in species activity and composition at each survey location;
- relative levels of bat activity across the Scheme; and
- potential roosting sites, important foraging areas and commuting routes.

### Bat Activity Index (BAI)

3.3.3 BAI values were calculated by averaging the total number of bat passes per hour for each static bat detector unit at each location per month. The term 'pass' is defined as a single file made up of bat pulses of a single species *i.e.* this may be one bat in a recorded sound file or many bats in a single file.

3.3.4 Limited guidance is available on what constitutes low to high bat activity on a Site based on number of passes. As such, a relative scale is used by AECOM that follows the protocol used by Ecobat (Ref 14) in this report where:

- low activity: 0-20th percentiles;
- low to moderate activity: 21st-40th percentiles;
- moderate activity: 41st-60th percentiles;
- moderate to high activity: 61st-80th percentiles; and
- high activity: 81st-100th percentiles.

3.3.5 For transect data relative bat activity levels were described to aid the discussion. No guidance is available on what constitutes low, moderate or high bat activity based on number of passes during a transect survey (based on a transect survey time of 2 to 3 hours). As such a relative scale is used by AECOM in this report where:

- very low activity is up to 5 passes per survey;
- low activity is 6 to 25 passes per survey;
- moderate activity is 26 to 99 passes per survey; and
- high activity is 100 passes per survey.

3.3.6 Reference to surveyor observations, including numbers of individual bats seen, flight routes and behaviour and detectability of individual species are also made to inform the overall evaluation.

### Biodiversity Evaluation

3.3.7 A hierarchical geographical approach used to assign biodiversity importance (*i.e.* sensitivity) of any bat roosts, and bat foraging and commuting habitat associated with the Site is based upon the Chartered Institute for Ecological and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment (Ref 15), in *Valuing Bats in Ecological Assessment* (Ref 16) and using professional judgement. It is acknowledged that in CIEEM's guidelines (Ref 15), 'Importance' is used as opposed to 'Value' which is used in *Valuing*

Bats in Ecological Assessment (Ref 16). These geographical frames of reference and method of determination used in the assessment is similar and therefore the use of 'Importance' and/ or 'Value' for ecological features is interchangeable within this document. For full details on the methodology used to determine biodiversity importance, please refer to the Tables presented in Annex C.

3.3.8 Reference has also been made, where required, to:

- Natural England Joint Publication JP025: A Review of the Population and Conservation Status of British Mammals. (Ref 17);
- NERC Act Section 41 list of species of principal importance (Ref 2);
- Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals (Ref 18); and
- The State of the UK's Bats 2017: National Bat Monitoring Programme Populations Trends (Ref 19).

## 3.4 Assumptions and Limitations

### Desk Study

3.4.1 The aim of a desk study was to help characterise the baseline context of the Scheme and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of the desk study was dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular species does not necessarily mean that the species does not occur in the study area. Likewise, the presence of records of species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Scheme.

### Field Survey

3.4.2 Survey areas were chosen to provide a representative sample of the Site, based on the best quality areas in terms of potential for supporting bat roosting/foraging/commuting habitat which could be impacted as a result of the Scheme (*i.e.* mainly arable fields). As such, not all habitats were surveyed in detail, with woodlands, wetland, and hedgerows retained and buffered from the Scheme. In addition no activity surveys were undertaken along the grid connection corridor, with any works predicted to be temporary and limited in extent.

3.4.3 Owing to health and safety considerations of working near a live carriageway, the PRA survey could not be undertaken on trees alongside the A156 where there was no public footpath. Therefore, these trees have not been surveyed as part of the PRA, although it is anticipated that any impacts to trees within this area can be avoided, concordant with the requirements for protecting tree roots and avoiding indirect impacts (such as through lighting) and therefore any bat roosts (if present here) will not be affected. However, should this position change, then a PRA survey will be required in advance of construction

to classify the trees and identify whether further survey and mitigation is required.

### Data interpretation limitations

- 3.4.4 It is accepted that *Myotis* bat species are difficult or impossible to identify from echolocation alone, therefore these species are often aggregated as ‘*Myotis* species’. This aggregation, where undertaken, is widely accepted and does not affect the evaluation of the results of activity surveys.
- 3.4.5 The PRA surveys undertaken were aimed at determining the presence or likely absence of roosts, therefore there would be a need for further surveys on potential roosts if they are likely to be impacted by the Scheme. Whilst, not predicted, should future impacts be unavoidable, then sufficiently robust roost survey data are required to be collected for any future licence application (EPSML) for roost loss and, or modification and significant disturbance and to allow the Local Planning Authority to evaluate the planning submission and discharge its legal biodiversity duty in accordance with Natural England’s standing advice.
- 3.4.6 Bats are highly mobile and may roost in different locations each year where suitable roost features are present. Where required, a precautionary approach for mitigation would be proposed for trees or structures assessed with roost suitability but where roosts were not found.
- 3.4.7 These limitations did not significantly limit this report and assessment. Ecological data in relation to these species are valid for 18 months to 2 years based on best practice guidance (CIEEM, 2019) (Ref 20). After this time update surveys are likely to required.

## 4. Results

### 4.1 Desk study

- 4.1.1 There are no international statutory sites designated for bats within 30km of the Site. There are no national statutory sites designated for bats within 10km of the Site or relevant non-statutory sites within 2km of the Scheme.
- 4.1.2 A review of previous surveys within the Site identified that two bat activity surveys, comprising four transects across the Site, were undertaken in May and August/September 2021 (Ref 10) (with weather limitations during the May 2021 surveys) and those surveys recorded six species of bat: Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle, Noctule, Brown long-eared Bat, Leisler's Bat (*Nyctalus leisleri*), and unknown *Myotis* species.
- 4.1.3 Common Pipistrelle was the most commonly, widely and consistently recorded bat species, followed by Soprano Pipistrelle. Noctule bats were occasionally recorded across all transect routes. Leisler's and unknown *Myotis* species were recorded at a similar level to Noctules. A single encounter of a Brown Long-eared bat was also recorded.
- 4.1.4 The combined data search results from GLNP and NBGRC returned 137 bat records within 2km of the Site and within the last ten years. This included Brown Long-eared Bat, Common Pipistrelle, Noctule, Soprano Pipistrelle and other unidentified bats including unknown *Myotis* and Pipistrelle.
- 4.1.5 Several records related to confirmed roosts, although the grid references supplied were of 2km squares. However, records of roosting bats (at their closest point from the Site) comprised Pipistrelle species roosts in Upton (c. 1.5km north-east of the Site), Willingham by Stow (c.400m east of the Site), Lea (c.1km north-west of the Site) and Knaith (c.150m west of the Site); Common Pipistrelle roosts in Stow (c.400m east of the Site) and Lea (c.1km north-west of the Site); Soprano Pipistrelle roosts in Gate Burton (c.50m west of the Site); and a Brown Long-eared Bat roost in Lea (c.1km north-west of the Site).
- 4.1.6 A review of MAGIC (Ref 9) did not identify any bat mitigation licences within 2km of the Site.

### 4.2 Field survey

#### Preliminary Roost Assessment

- 4.2.1 The results of the PRA survey are presented in Annex D. The locations of all features surveyed are presented in Figure 8J-2 (Annex A).
- 4.2.2 In summary, this initial assessment has found; 19 features with high suitability bat roosting habitat, 20 features with moderate suitability, 84 features with low suitability and 248 features with negligible suitability (see Table 1). Some of these features, and most large woodlands, particularly those with moderate to



high suitability are likely to contain roosting bats, however none of the features identified will be directly or indirectly impacted by the Scheme due to retention of these features, and buffers around them (see discussion in Section 5).

**Table 1: Summary of PRA results**

Feature Type	Suitability for roosting bats			
	Negligible	Low	Moderate	High
Trees / tree-line / woodland (or copse) / group of trees	248	81	20	18
Buildings	-	3	-	1

## Bat Activity Surveys - walkovers

4.2.3 The results of these surveys and the Bat Activity Index (BAI) (as per the method in Section 3.3) are summarised below, with full results presented in Annex D. Transect mapping and static bat detector locations are presented in Figure 8J-1 (Annex A).

### Transect Surveys

4.2.4 A total of 12 transects were surveyed during 2022 to provide a representative coverage of the habitats within the Site. This comprised four transects (A, B, C and D as presented in Figure 8J-1 (Annex A)), each surveyed in the spring, summer and autumn of 2022. The transect included sampling representative habitats within the Site, comprising hedges/ tree lines, woodland edge, roadside verges and arable field margins.

4.2.5 Species recorded during the bat transect surveys comprised at least seven species: Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat, Noctule, Leisler's Bat, Whiskered Bat *Myotis mystacinus*, Daubenton's Bat *Myotis daubentonii*, *Myotis* species (Daubenton's, Whiskered and/ or other unknown *Myotis* species), *Nyctalus* species (Noctule and/or Leisler's Bat).

### Spring

4.2.6 Four transects were surveyed between 9<sup>th</sup> and 12<sup>th</sup> May 2022. On Transect A there was moderate activity overall comprising a total of 46 passes. This comprised low activity of Soprano Pipistrelle (24 passes) Common Pipistrelle (7 passes), Leisler's (7 passes) and very low activity of a Whiskered Bat (1 pass), Leisler's/Noctule (5 passes), Noctule (1 pass), Brown Long-eared Bat (1 pass) and an unknown *Myotis* species (1 pass). Most of the activity occurred along the northern edge of the central woodland, with other activity along boundary hedgerow and other woodland features.

4.2.7 There was no activity on Transect B. There was low activity overall on Transect C, comprising 18 passes of Common Pipistrelle, with very low activity of a *Myotis* species (3 passes) and Noctule/Leisler's Bat (1 pass). Most activity was of 1 or 2 Common Pipistrelle bats foraging close to a mature tree. The unknown *Myotis* species was present foraging in a barn.

4.2.8 There was low activity overall on Transect D, comprising 16 passes of Common Pipistrelle, with very low activity of Soprano Pipistrelle (2 passes) mainly recorded along a boundary hedge to the south-east of the transect route.

### Summer

4.2.9 Four transects were surveyed between 11<sup>th</sup> and 13<sup>th</sup> July 2022. There was low activity overall on Transect A, comprising very low activity of Common Pipistrelle (1 pass), Soprano Pipistrelle (3 passes), Noctule (5 passes), Noctule/Leisler's Bat (1 pass) and Myotis species (1 pass) recorded along woodland edge habitats and the southern boundary hedge.

4.2.10 There was low activity overall on Transect B, comprising 12 passes of Common Pipistrelle, with very low activity of Soprano Pipistrelle (5 passes), Noctule (2 passes), Noctule/Leisler's Bat (1 pass) and Myotis species (1 pass) recorded along boundary hedgerow habitats.

4.2.11 There was very low activity overall on Transect C, comprising 4 passes of Common Pipistrelle along a drain and southern hedge and 1 pass of a Myotis species around the same barn as recorded during the spring transect.

4.2.12 On Transect D there was moderate activity overall comprising a total of 46 passes. This comprised moderate activity of Common Pipistrelle (33 passes), low activity of Soprano Pipistrelle (7 passes), and very low activity of a Myotis species, that included probable Daubenton's Bat (4 passes), and Brown Long-eared Bat (2 passes). Activity was located around Park Plantation/Broom Hills and along boundary hedgerow/woodland habitats.

### Autumn

4.2.13 Four transects were surveyed between 5<sup>th</sup> and 8<sup>th</sup> September 2022. There was low activity overall on Transect A, comprising low activity of Common Pipistrelle (7 passes), Soprano Pipistrelle (6 passes) and very low activity of other species; Leisler's Bat (5 passes), Noctule (2 passes), Leisler's Bat or Noctule (3 passes) and Brown Long-eared Bat (1 pass). Activity was recorded around the two woodlands and along boundary hedges.

4.2.14 There was moderate activity overall on Transect B, with 24 passes of Noctule, with the majority of these records comprising foraging bats along a single length of east-west hedgerow to the north of the transect. There was low activity of Common Pipistrelle (9 passes) and very low activity of Soprano Pipistrelle (2 passes) and Noctule/Leisler's Bat (4 passes) scattered around the boundary hedgerow habitats.

4.2.15 There was low activity overall on Transect C, comprising 8 passes of Common Pipistrelle, with very low activity of Myotis species (5 passes) and Soprano Pipistrelle (3 passes). These were recorded along boundary hedgerow habitats and close to buildings near the Site boundary.

4.2.16 There was low activity overall on Transect D, comprising 6 passes of Common Pipistrelle, with very low activity of Soprano Pipistrelle (3 passes), Noctule (2

passes), Brown Long-eared Bat (2 passes) and Myotis species (1 pass). These were recorded along boundary hedgerow habitats and woodland edge.

## Static Bat Detector Surveys

- 4.2.17 Species recorded on the static bat detectors at the eight locations across the four transect sites surveyed in 2022 comprised at least six species; Common Pipistrelle, Soprano Pipistrelle, Leisler’s Bat, Noctule, Daubenton’s Bat, unknown *Myotis* species (Daubenton’s Bat, Whiskered Bat and/or other species) and Brown Long-eared Bat. Full results are provided in Annex D with static detector locations presented on Figure 8J-1 (Annex A). A summary of the BAI from static detector surveys is presented in Table 2.
- 4.2.18 The highest activity (Moderate to High and High activity) was recorded along hedgerows along Willingham Road and Marton Road across the southern boundary of the Site at Static 1 in the spring, Static 3 in the summer, and Statics 5 and 6 in the autumn (see Table 2 and Chart 2). Moderate to high activity was also recorded at Burton Wood (Static 2). The lowest activity across all seasons was at Static 4 across all seasons (a hedge on Transect B).
- 4.2.19 In total 5,308 bat passes were recorded across the whole site based on 164 nights of data, from the eight static detectors (see Chart 1). The most commonly recorded species was Common Pipistrelle with 3,697 passes, followed by Soprano Pipistrelle with 693 passes, with 22 passes attributed to either species (as their calls overlap).
- 4.2.20 There were 664 passes of unknown Myotis species, including a peak of 201 passes on Static 1 during the spring. Based on direct field observations and the results of the transect surveys these are most likely attributable to Daubenton’s Bat and/ or Whiskered Bat with the possibility of Natterer’s Bat *Myotis nattereri* and/ or Brandt’s Bat *Myotis brandti* potentially also present. There were 17 passes identified as Daubenton’s bat.
- 4.2.21 Noctule and Leisler’s Bat were frequently recorded across the Site and throughout all seasons with 108 and 85 passes respectively, throughout the year with 16 of either species (as their calls overlap). There were six passes of Brown Long-eared Bats recorded.

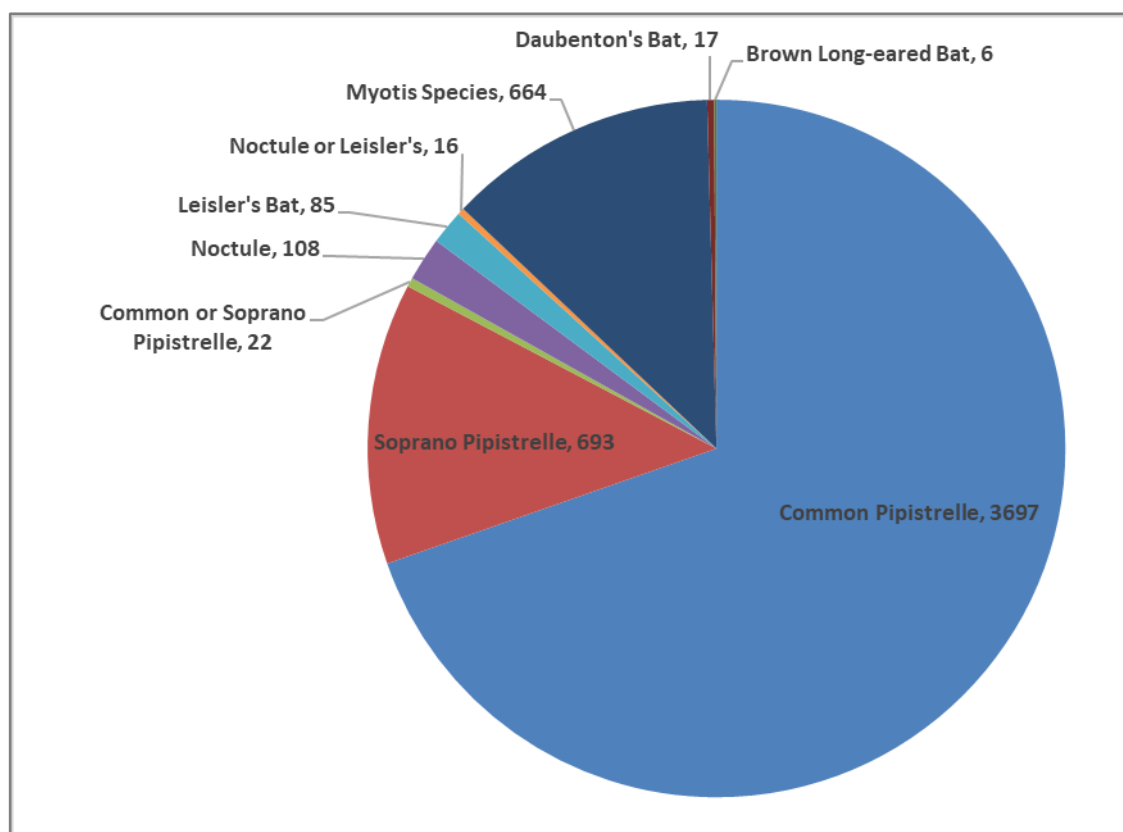
**Table 2: Summary of Bat Activity Index (BAI) from static detector surveys**

Season / Location	BAI* per hr	Activity Level	Season / Location	BAI* per hr	Activity Level	Season / Location	BAI* per hr	Activity Level
<b>Spring</b>			<b>Summer</b>			<b>Autumn</b>		
1	10.63	High	1	2.55	Moderate	1	5.69	Moderate-high
2	N/A		2	6.25	Moderate-high	2	1.65	Low-moderate
3	1.95	Low-moderate	3	7.03	High	3	4.63	Moderate-high
4	1.00	Low	4	0.29	Low	4	1.03	Low

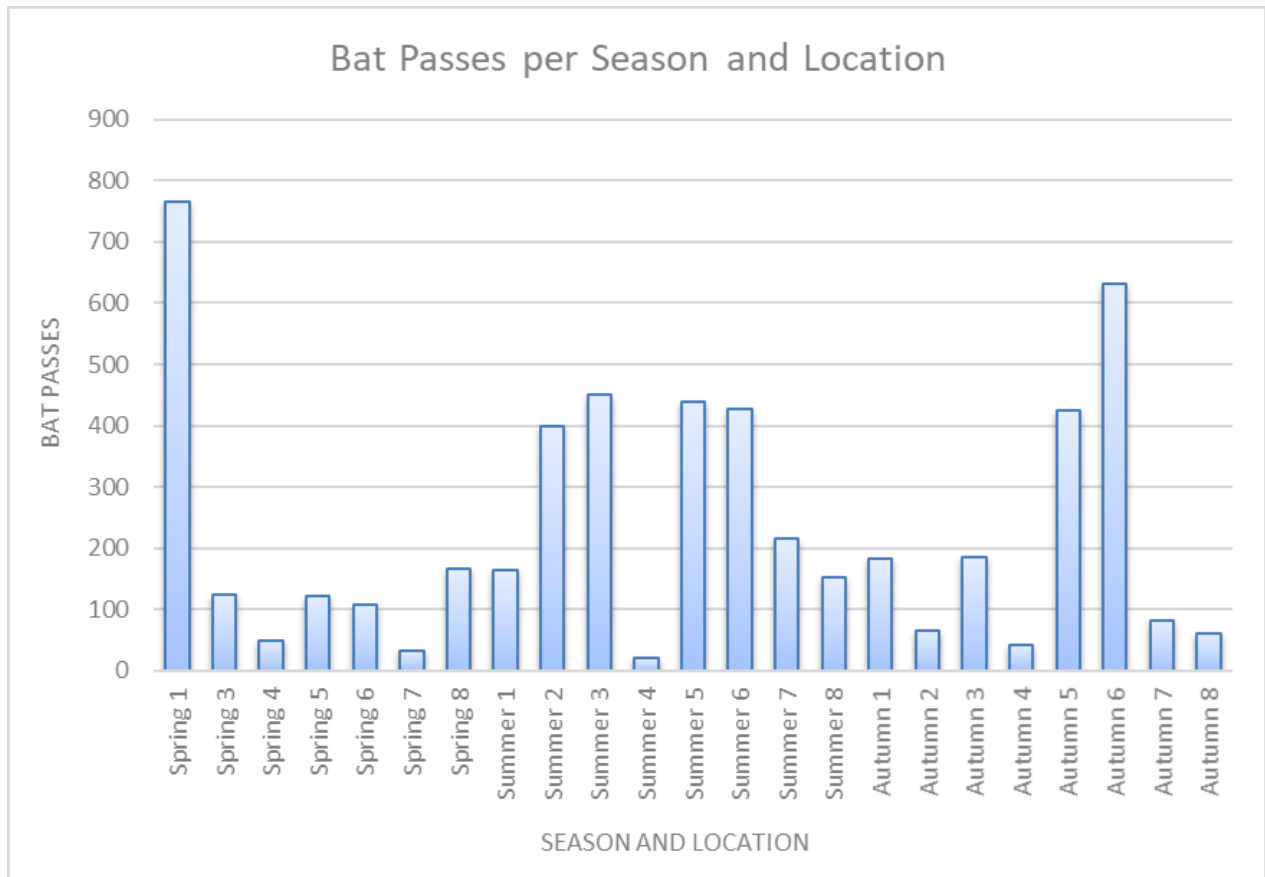
Season / Location	BAI* per hr	Activity Level	Season / Location	BAI* per hr	Activity Level	Season / Location	BAI* per hr	Activity Level
<b>Spring</b>			<b>Summer</b>			<b>Autumn</b>		
5	1.68	Low-moderate	5	6.11	Moderate-high	5	10.63	High
6	3.38	Moderate	6	5.92	Moderate-high	6	15.80	High
7	0.46	Low	7	2.99	Moderate	7	1.73	Low-moderate
8	2.32	Moderate	8	2.11	Moderate	8	1.25	Low-moderate

\* BAI = Bat Activity Index (overall number of bat passes per hour)

**Chart 1: Total number of passes per species**



**Chart 2: Number of Bat Passes per Season and Location**



## 5. Discussion / Evaluation

### 5.1 Nature Conservation Evaluation

#### Introduction

- 5.1.1 An evaluation of the biodiversity importance of bat species in relation to the Scheme in terms of potential roosts, foraging and commuting habitats is described below. Potential outline impacts and effects on bat species are also discussed.

#### Designated Sites

- 5.1.2 No designated sites of relevance to bats were identified or are likely to be impacted by the Scheme.

#### Roosts

- 5.1.3 There are no relevant roosts within the Scheme identified in the desk study. The nearest records of roosting bats (at their closest point from the Site) comprised Soprano Pipistrelle roosts in Gate Burton (c.50m west of the Site) with Common Pipistrelle roosts in Stow (c.400m east of the Site) and Lea (c.1km north-west of the Site); Common or Soprano Pipistrelle roosts in Upton (c. 1.5km north-east of the Site), Willingham by Stow (c.400m east of the Site), Lea (c.1km north-west of the Site) and Knaith (c.150m west of the Site); and a Brown Long-eared Bat roost in Lea (c.1km north-west of the Site).
- 5.1.4 None of the roosts identified in the desk study are of high conservation significance, as they comprise maternity or non-breeding roosts of more common species, (Brown long-eared Bat, Common or Soprano Pipistrelle). Bats from these roosts may use the Site for foraging and commuting.
- 5.1.5 Based on the field data collected from the PRA survey and bat activity surveys, there are likely to be roosts within or close to the Site of Common and Soprano Pipistrelle, Noctule, Leisler's Bat, *Myotis* bat species (e.g. Daubenton's Bat) and Brown Long-eared Bat. This is based on suitable habitat features such as suitable trees and buildings for roosting and the timing of observations in relation to expected emergence times (from static and transect data).
- 5.1.6 All roosts and potential roost features identified are outside the current footprint of the Scheme (due to avoidance of potential roosting features). As such no detailed roost presence/absence or characterisation has been undertaken to determine roost importance and therefore no specific biodiversity importance has been assigned. As a precautionary approach based on the data collected, bat roosts have been assigned of up to County Importance based on non-breeding and potential breeding and hibernation roosts of common species (i.e. Common and Soprano Pipistrelle and Brown Long-eared Bat) and rarer species such as Whiskered, Daubenton's, Noctule and Leisler's Bats.

## Commuting and Foraging Habitats

- 5.1.7 Species recorded on the activity surveys (activity transects and static bat detectors) in 2022 comprised at least seven species: Common Pipistrelle, Soprano Pipistrelle, Brown Long-eared Bat, Noctule, Leisler's Bat, Daubenton's Bat, Whiskered Bat and unknown *Myotis* species (Daubenton's Bat, Whiskered Bat and/or other *Myotis* species).
- 5.1.8 Biodiversity importance of foraging and commuting bats is based on species rarity, numbers, presence of nearby roosts and type/complexity of community/foraging features (see also Annex C). This also considers the lower detectability on bat detectors of species such as Brown Long-eared Bat and *Myotis* bats compared to species such as Common and Soprano Pipistrelle and Noctule (Ref 211).
- 5.1.9 The surveys identified a range of activity (including foraging, commuting and social calling) with multiple bats often recorded.
- 5.1.10 Foraging and commuting habitat with the highest relative bat activity, were present in the following locations (see Figure 8J-1 in Annex A):
- Long Nursery and Burton Woods on Transect A;
  - Hedgerows along Willingham and Marton Road on Transects A, B and C;
  - Hedgerow east of Long Nursery Woods towards Willingham on Transect B;
  - Park Plantation/Broom Hills and hedgerow network surrounding on Transect D; and
  - Hedgerow close to a Lake south of Tiger Holt (woodland) on Transect D.
- 5.1.11 Most of these areas with highest activity were located along linear features such as hedgerow and woodland edges, with very limited foraging and commuting observed over open fields or crops.
- 5.1.12 Based on the data collected in 2022 the commuting and foraging habitat for the overall bat assemblage is assessed as of up to County / District Importance (depending on the species, see Table 3 and guidance in Annex C). This is based on the species, estimated numbers, roosts nearby and habitat characteristics comprises well grown and well-connected hedgerows, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets.
- 5.1.13 The habitat is assessed as of County / District Importance for foraging/commuting Soprano and Common Pipistrelle (both common species) based on the presence of large numbers of bats, with numerous roosts (or potential roosts) within and close to the Site, suitable habitats and their use of the habitats described above.
- 5.1.14 The habitat is assessed as of Local Importance for all other species; Daubenton's Bat, Whiskered Bat, other *Myotis* species, Noctule, Leisler's Bat and Brown Long-eared Bat, based on the presence of individual bats or small numbers, with unknown/single roosts within or close to the Site and their use of the habitats as described above.

**Table 3: Summary of Biodiversity Importance of Commuting and Foraging Habitat**

Species	Rarity	Number of bats #	Roosts/ potential roosts nearby	Type and complexity of linear features/Foraging characteristics	Commuting & Foraging Importance
Common Pipistrelle	Common (2)	Large numbers (20)	Moderate number (4)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	County/District
Soprano Pipistrelle	Common (2)	Large numbers (20)	Moderate number (4)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	County/District
Noctule	Rarer (5)	Small numbers (10)	Moderate number (4)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	Local
Leisler's	Rarer (5)	Small numbers (10)	Moderate number (4)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	Local
Brown Long-eared Bat	Common (2)	Individual bats (5)	Moderate number (4)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	Local
Daubenton's Bat	Rarer (5)	Small numbers (10)	Small number (3)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	Local
Whiskered Bat	Rarer (5)	Individual bats (5)	Small number (3)	Well grown and well-connected hedgerow, larger or connected woodland	Local



Species	Rarity	Number of bats #	Roosts/ potential roosts nearby	Type and complexity of linear features/Foraging characteristics	Commuting & Foraging Importance
				blocks, mixed agriculture, and small villages/hamlets (4)	
Other Myotis species*	Rarer (5)	Small numbers (10)	Moderate number (4)	Well grown and well-connected hedgerow, larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)	Local

# Individual bats 1 or 2, Small numbers 3 to 10, Large numbers >10 bats. \* e.g. Natterer's or Brandt's Bats.

## Potential Impacts and Significance of Effects

- 5.1.15 The primary purpose of this document is to provide an assessment of the biodiversity importance of the bat population identified within the Scheme to inform **ES Volume 1, Chapter 8: Ecology and Nature Conservation [EN010131/APP/3.1]** and an assessment of potential impacts (considering embedded mitigation), any additional mitigation and residual effects. As all UK bat species are protected by European legislation, they must be considered in the Environmental Impact Assessment (EIA) for the Scheme and any unavoidable adverse impacts must be mitigated. Where avoidance is not possible, then appropriate mitigation and habitat compensation would be provided.
- 5.1.16 There is very limited experimental observational or theoretical scientific literature on the effect solar panels may have on bats. A comprehensive review of literature in 2016 (Ref 22) found no relevant studies on bats and solar farms. A study on the effects of solar farms on local biodiversity found a similar diversity of bat species at both the control and solar sites with lower numbers of bats at the solar site, however this was inconclusive due to potential issues with the survey method and it recommends further research into this area (Ref 23). Further studies (Ref 24) found limited impacts on bats, but found that bats can mistake horizontal surfaces for water bodies and vertical surfaces for open flight paths, although there is no evidence to suggest that this would result in collision in the context of solar photovoltaic (PV) panels.
- 5.1.17 Small schemes have not been routinely monitored and the first large scale (Nationally Significant Infrastructure Project (NSIP)) solar scheme (Cleve Hill in Kent) received planning consent in May 2020 and has not yet been constructed so it is too early to fully predict long-term effects on bat populations.
- 5.1.18 In the absence of comparative data, it is assumed that construction impacts are likely to be similar to other large-scale developments with habitat changes and losses, potential noise, dust, and lighting disturbance during construction and decommissioning works. Operational impacts and resulting effects will be based on the changes to habitats over time and the likely response of individual bat species. This will also require monitoring to improve confidence in the assessment of residual adverse or beneficial effects, to feedback into the landscape management plan and to provide a dataset for future large scale solar schemes.

## 6. Conclusions

- 6.1.1 The objective of the desk study and bat surveys, reported in this document, is to determine the presence, assemblage and distribution of bat species, within the Site assign a biodiversity importance to these and identify outline potential impacts of the Scheme on bats.
- 6.1.2 All roosts and potential roost features identified are outside the current footprint of the Scheme (due to avoidance of potential roosting features). As such, no detailed roost presence/ absence or characterisation has been undertaken to determine roost importance and therefore no specific biodiversity importance has been assigned. As a precautionary approach, based on the data collected, bat roosts have been assigned of up to County Importance based on potential maternity roosts of common and rarer bat species.
- 6.1.3 Prior to construction, the PRA should be updated to affirm the status of roost features. If any trees, woodlands, or buildings which are identified as being suitable for bat roosts are impacted as a result of the Scheme, then these should be surveyed in more detail through tree climbing, and/or emergence surveys to determine roost presence or likely absence and, where required, to characterise the roost/s.
- 6.1.4 The commuting and foraging habitat for bats is assessed as of up to County / District Importance. This is based on the species, estimated numbers, roosts nearby and habitat characteristics comprises well grown and well-connected hedgerows, some larger or connected woodland blocks, mixed agriculture, and small villages/hamlets. Impacts to commuting and foraging habitats are likely to be avoided.

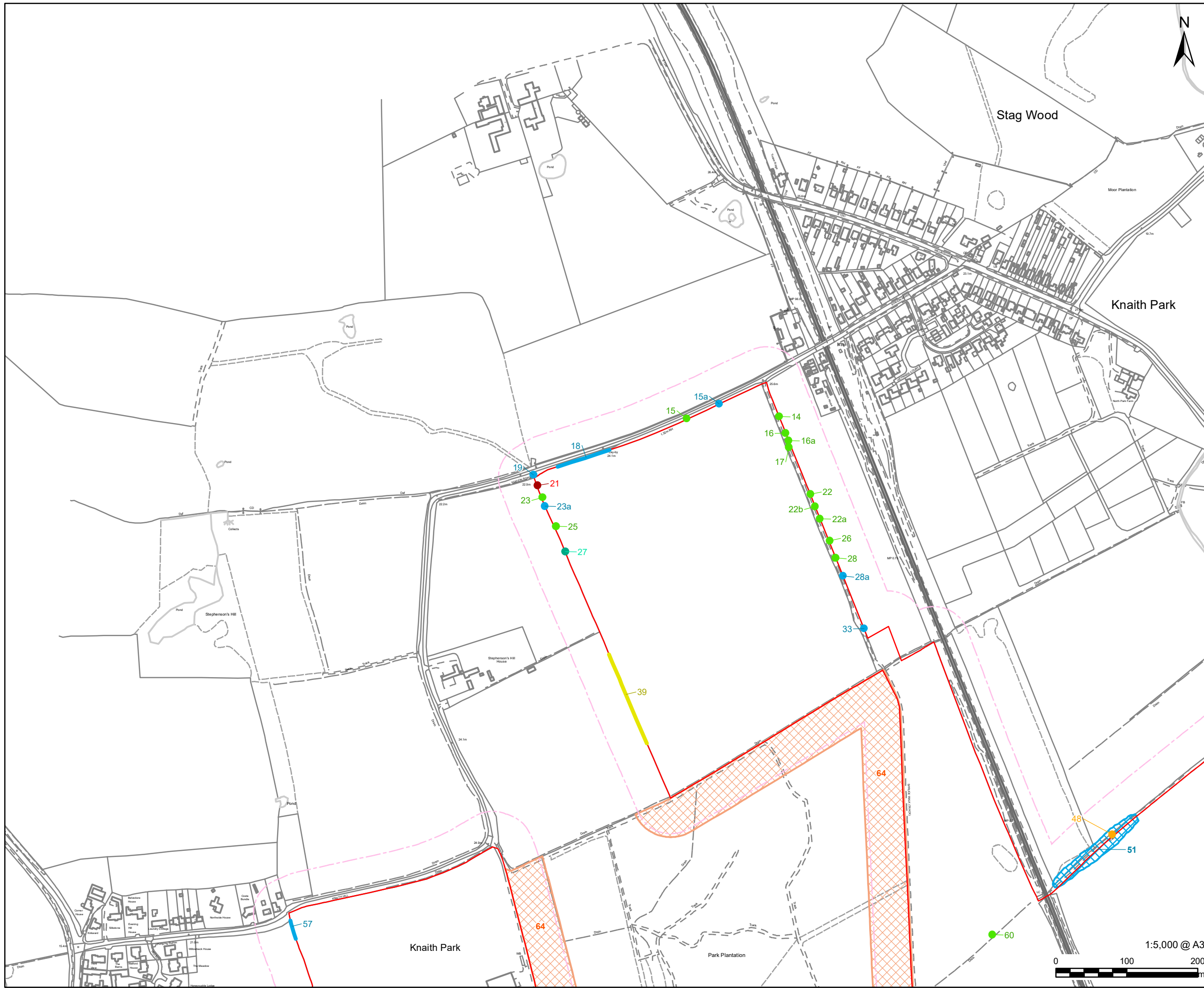
## 7. References

- Ref 1. AECOM (2022). Gate Burton Energy Park: Preliminary Ecological Appraisal.
- Ref 2. HMSO. (2006). The Natural Environment and Rural Communities Act. HMSO, London.
- Ref 3. HMSO. (1981). The Wildlife & Countryside Act 1981. HMSO, London.
- Ref 4. HMSO. (2000). Countryside and Rights of Way Act 2000. HMSO, London.
- Ref 5. HMSO. (2018). Conservation of Habitats and Species Regulations 2017 (as amended). HMSO, London.
- Ref 6. European Commission (EC). (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels.
- Ref 7. Lincolnshire Biodiversity Action Plan. (2012-2020) 3rd edition.
- Ref 8. Nottinghamshire Biodiversity Action Group (2008) Local Biodiversity Action Plan.
- Ref 9. Defra, Multi-Agency geographical information for the countryside (MAGIC) map. Available at: <https://magic.defra.gov.uk/MagicMap.aspx>
- Ref 10. Landscape and Science Consultancy (2021): Proposed solar farm Site gate Burton, Gainsborough, Bat Transect Survey Report
- Ref 11. Nottinghamshire Bat Group Website: [REDACTED]  
[Accessed July 2022]
- Ref 12. Collins, J. (editor) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd Edition. The Bat Conservation Trust, London
- Ref 13. Weather data: [REDACTED]
- Ref 14. Ecobat [Available at [REDACTED]]
- Ref 15. CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester
- Ref 16. Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. 2010. Valuing Bats in Ecological Impact Assessment, IEEM In-Practice issue 70, p 23-25
- Ref 17. Mathews, F., Kubasiewicz, L. M., Gurnell, J., Harrower, C. A., McDonald, R. A. and Shore, R. F. 2018. Natural England Joint Publication JP025: A Review of the Population and Conservation Status of British Mammals. A report by the Mammal Society under contract to Natural England, Natural Resources Wales and Scottish Natural Heritage.
- Ref 18. Andrews, H. 2018. Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals.
- Ref 19. Bat Conservation Trust. 2017. The State of the UK's Bats: National Bat Monitoring Programme Populations Trends.
- Ref 20. CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys.
- Ref 21. Barataud, M. 2015. Acoustic ecology of European bats. Species Identification and Studies of Their Habitats and Foraging Behaviour. Biotope Editions, Mèze; National Museum of Natural History, Paris (collection Inventaires et biodiversité), 340
- Ref 22. Harrison, C., Lloyd, H., and Field, C. 2016. Evidence review of the impact of solar farms on birds, bats and general ecology. Manchester Metropolitan University August 2016
- Ref 23. Montag, H., Parker, G. and Clarkson, T. 2016. The effects of solar farms on local biodiversity: a comparative study. Clarkson and Woods & Wychwood Biodiversity
- Ref 24. BSG, 2019. Potential ecological impacts of ground mounted photovoltaic solar panels: An introduction and literature review
- Ref 25. British Standard BS 8596:2015 – Surveying For Bats In Trees And Woodland












## 8. Annexes

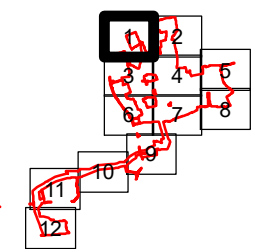
### Annex A: Figures

## Figure 8J-1 Bat Transect Results and Static Locations



**LEGEND**

-  Order Limits
-  Survey Area (50m RLB buffer)
- Bat Roost Potential**
- Tree Roost Suitability**
-  High
-  Moderate
-  Low
-  Negligible to Low
-  Negligible
- Tree Line Roost Suitability**
-  Negligible to Moderate
-  Negligible
- Woodland/Tree Group Roost Suitability**
-  Negligible to High
-  Negligible



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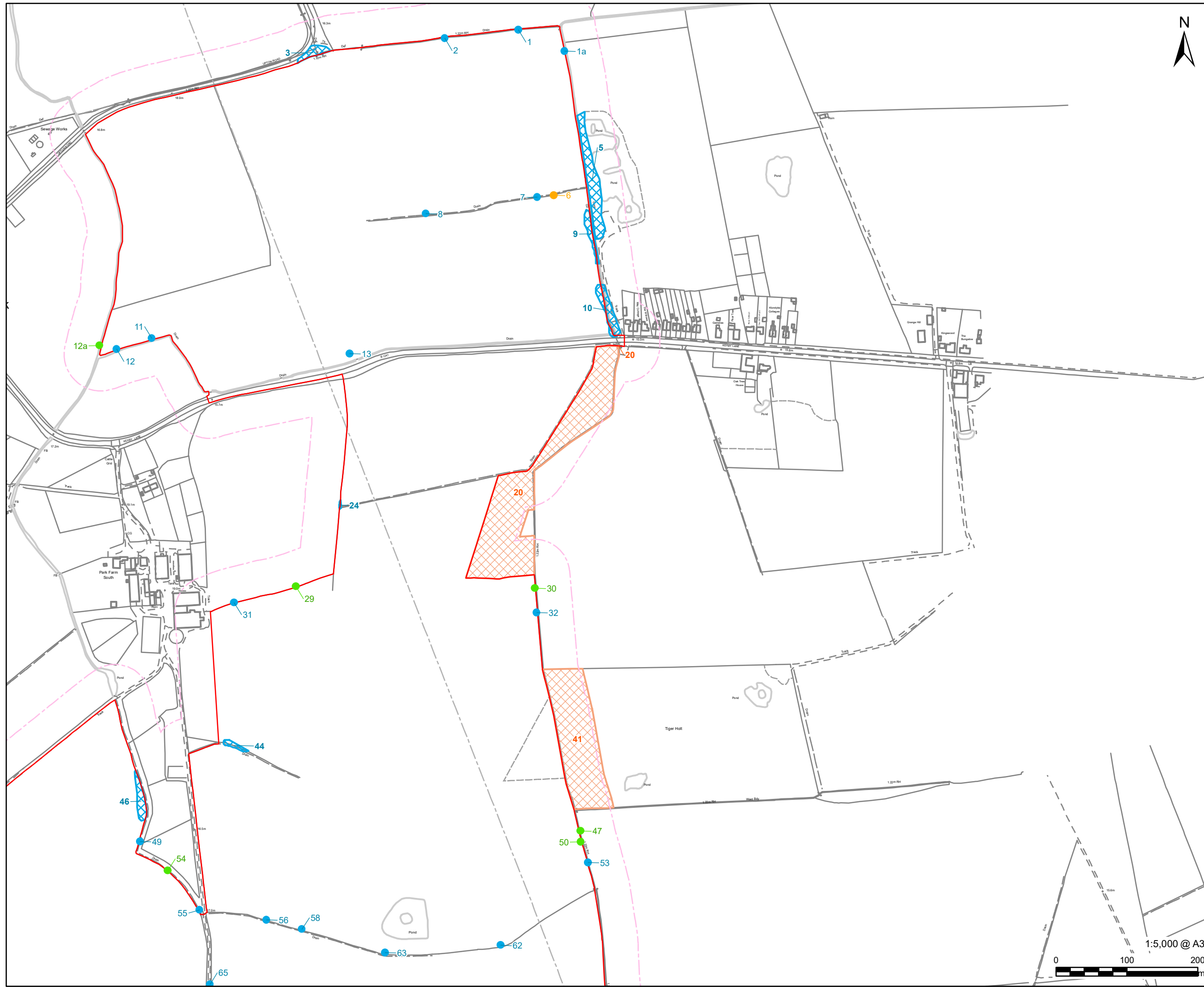
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Environmental Statement

**PROJECT NUMBER**  
60664324

**FIGURE TITLE**  
Bat Preliminary Roost Assessment

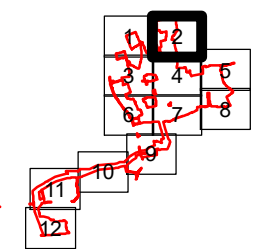
**SHEET 1 OF 12**

**FIGURE NUMBER**  
Figure 8J.1a



**LEGEND**

- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- Moderate
- Low
- Negligible
- Woodland/Tree Group Roost Suitability**
- Negligible to High
- Negligible



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**PROJECT NUMBER**  
60664324

**FIGURE TITLE**  
Bat Preliminary Roost Assessment

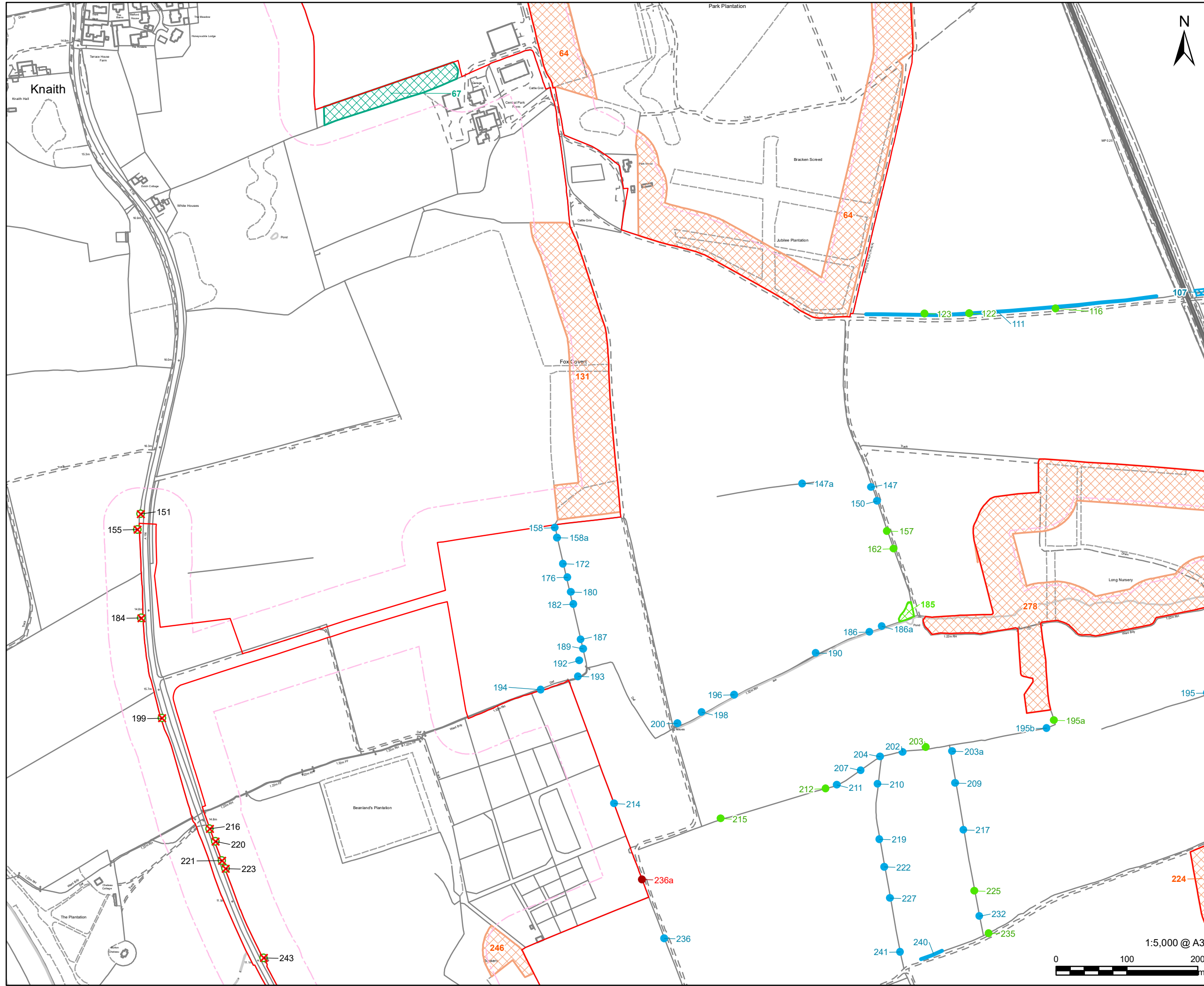
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**FIGURE NUMBER**  
Figure 8J.1b



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**PROJECT**  
Gate Burton Energy Park



**CONSULTANT**  
AECOM Limited  
Sunley House  
4 Bedford Park  
Surrey, CR0 2AP, UK  
www.aecom.com

**LEGEND**

- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- High
- Low
- Negligible
- Not Surveyed (due to Health & Safety Considerations or within Private Property)
- Tree Line Roost Suitability**
- Negligible
- Woodland/Tree Group Roost Suitability**
- Negligible to High
- Low
- Negligible to Low
- Negligible

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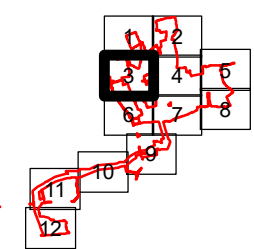
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**PROJECT NUMBER**  
60664324

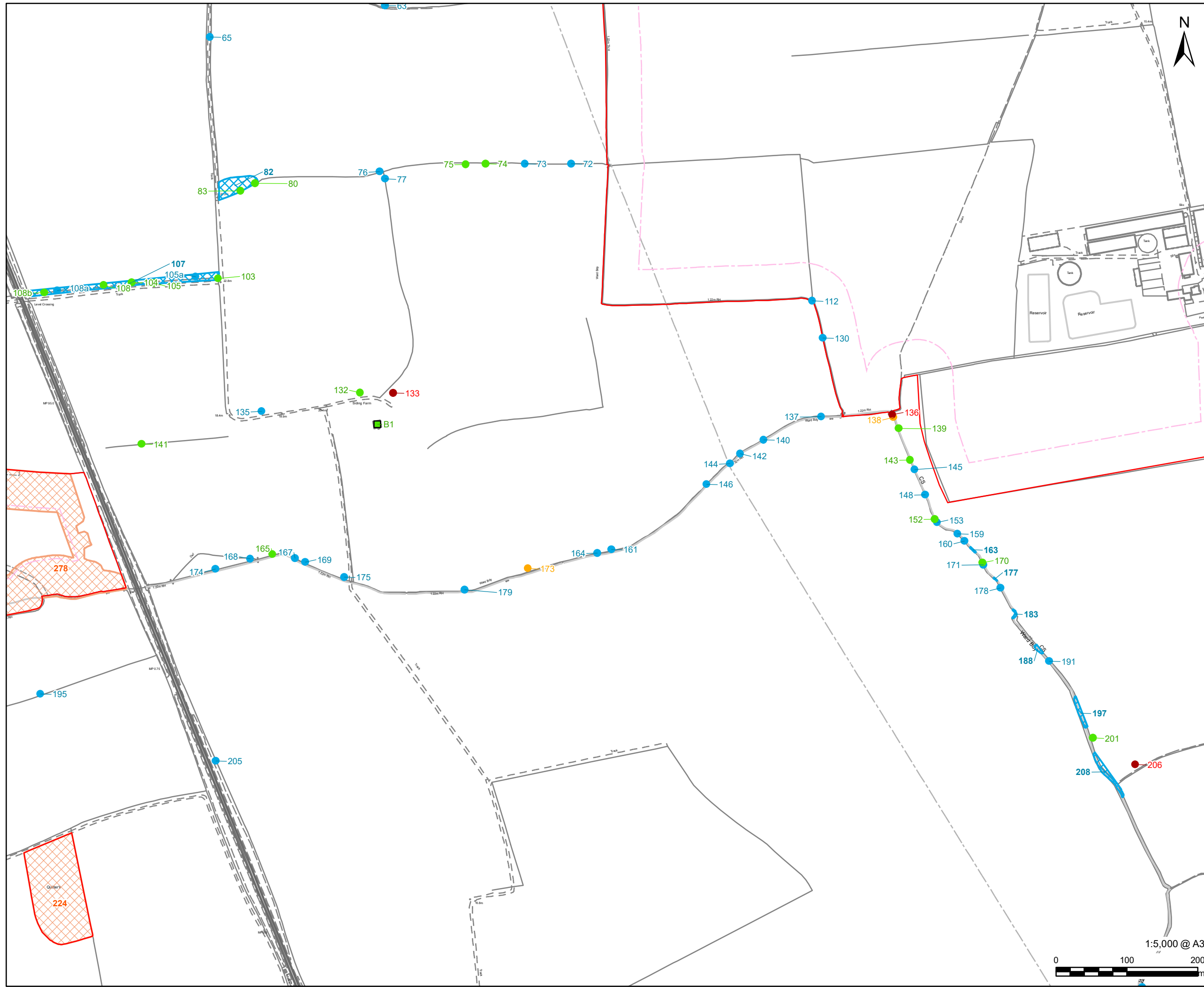
**FIGURE TITLE**  
Bat Preliminary Roost Assessment

**SHEET 3 OF 12**

**FIGURE NUMBER**  
Figure 8J.1c



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**LEGEND**

- Order Limits
- Survey Area (50m RLB)

**Bat Roost Potential**

**Tree Roost Suitability**

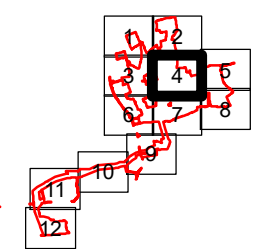
- High
- Moderate
- Low
- Negligible

**Structure Roost Suitability**

- Low

**Woodland/Tree Group Roost Suitability**

- Negligible to High
- Negligible



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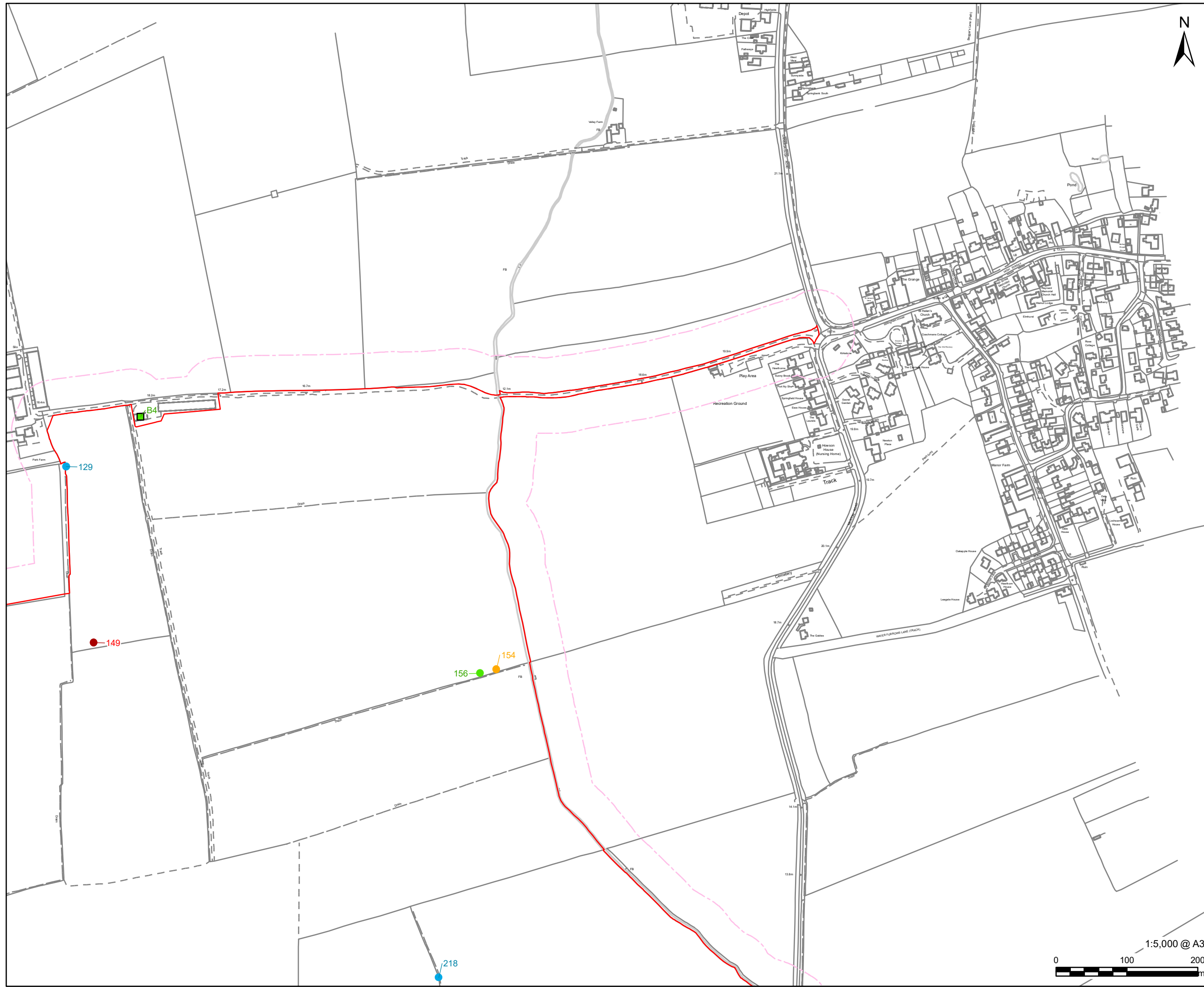
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**FIGURE TITLE**  
Bat Preliminary Roost Assessment

**SHEET 4 OF 12**

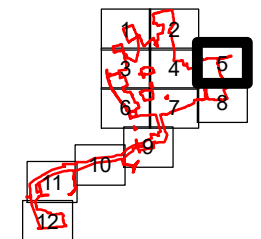
**FIGURE NUMBER**  
Figure 8J.1d





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- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- High
- Moderate
- Low
- Negligible
- Structure Roost Suitability**
- Low



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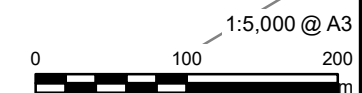
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Bat Preliminary Roost Assessment

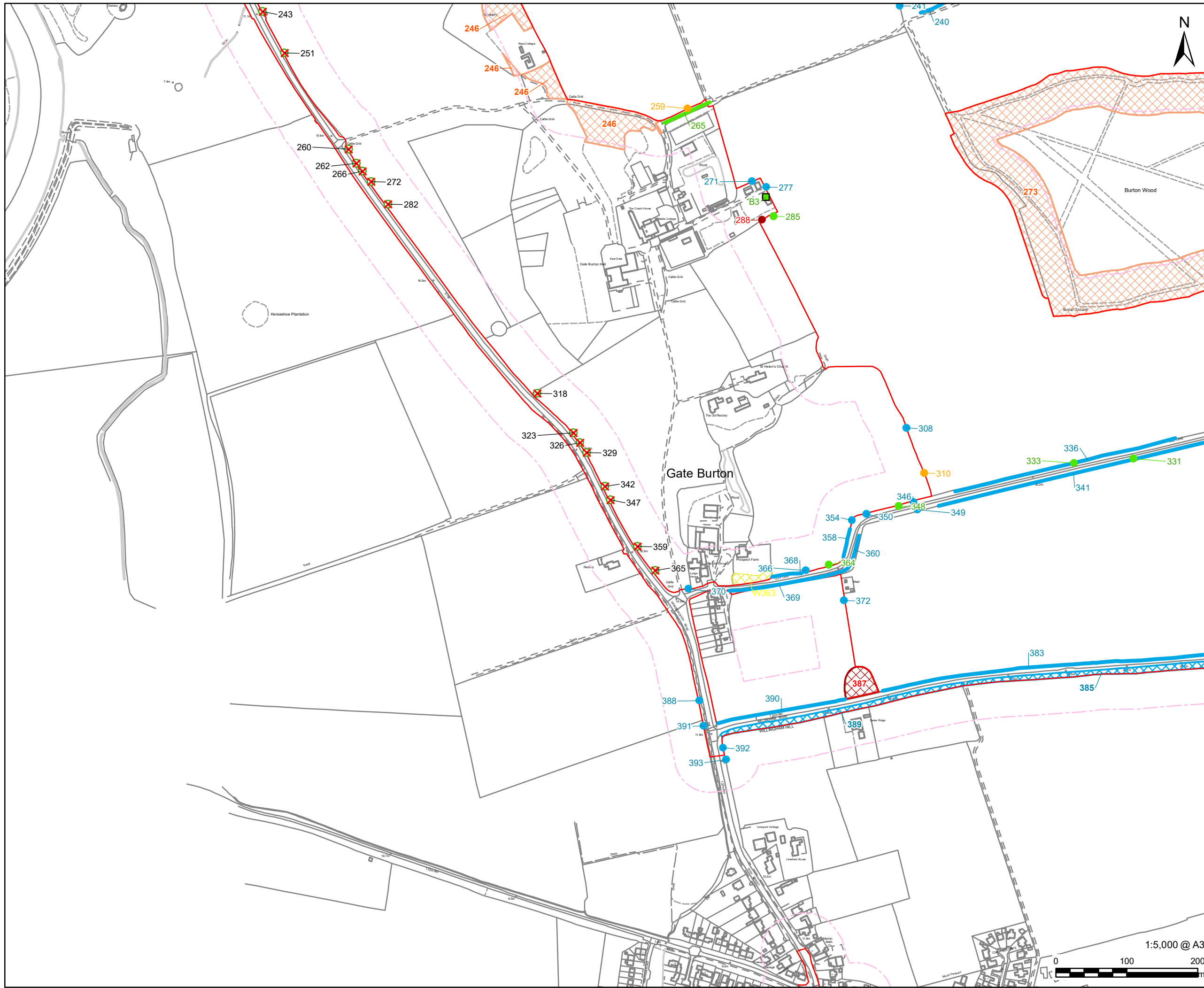
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Figure 8J.1e

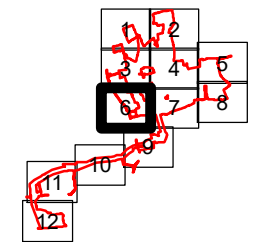


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- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- High
- Moderate
- Low
- Negligible
- ✕ Not Surveyed (due to Health & Safety Considerations or within Private Property)
- Structure Roost Suitability**
- Low
- Tree Line Roost Suitability**
- Low
- Negligible
- Woodland/Tree Group Roost Suitability**
- High
- Negligible to High
- Low to Moderate
- Negligible



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**ISSUE PURPOSE**

Environmental Statement

**PROJECT NUMBER**

60664324

**FIGURE TITLE**

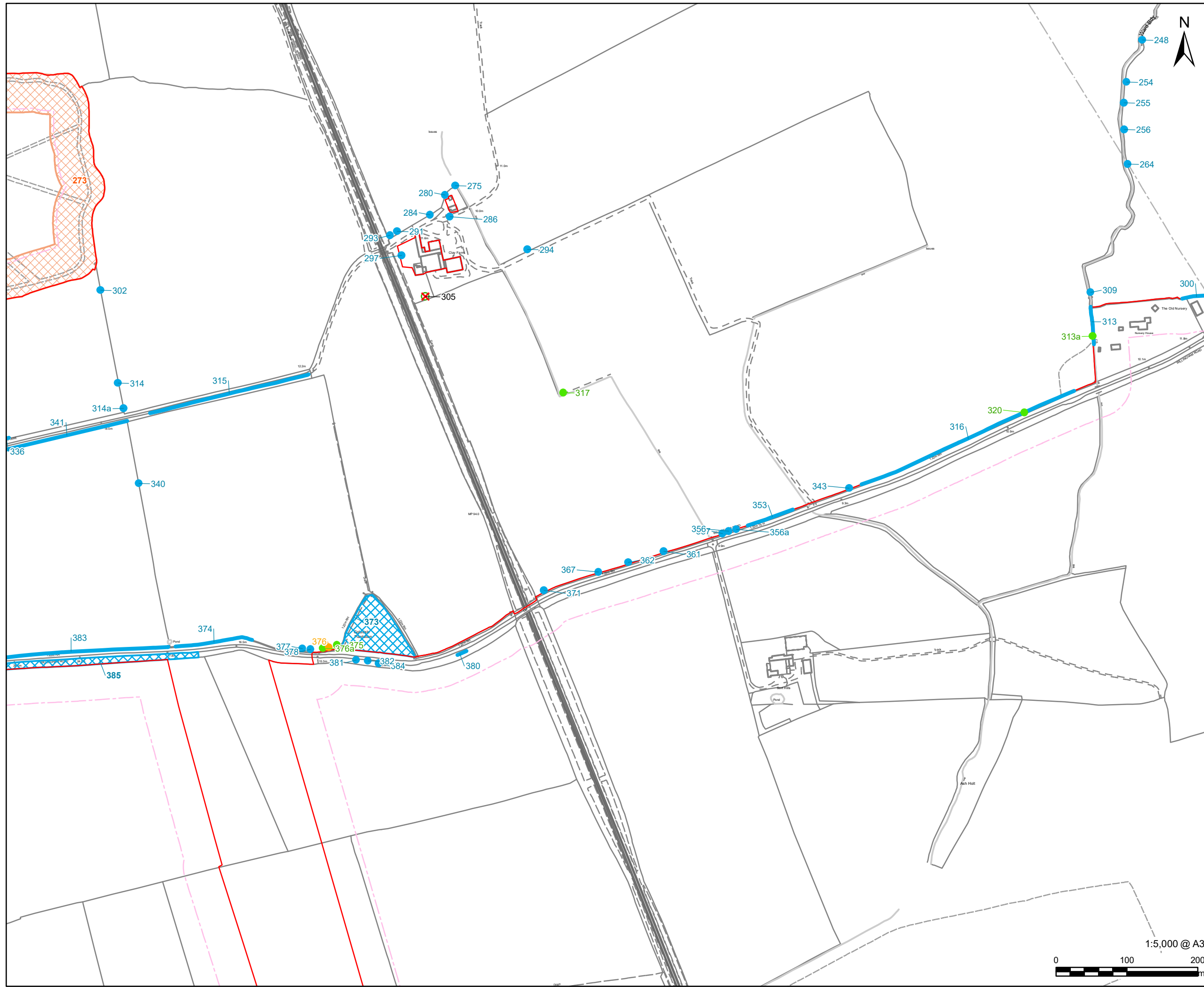
Bat Preliminary Roost Assessment

SHEET 6 OF 12

**FIGURE NUMBER**

Figure 8J.1f

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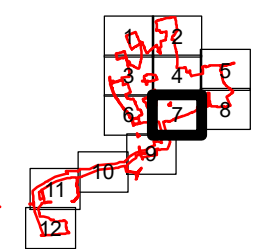
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**CLIENT**

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Sunley House  
4 Bedford Park  
Surrey, CR0 2AP, UK  
www.aecom.com

- LEGEND**
- Order Limits
  - Survey Area (50m RLB)
  - Bat Roost Potential**
  - Tree Roost Suitability**
  - Moderate
  - Low
  - Negligible
  - Not Surveyed (due to Health & Safety Considerations or within Private Property)
  - Tree Line Roost Suitability**
  - Negligible
  - Woodland/Tree Group Roost Suitability**
  - Negligible to High
  - Negligible



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**PROJECT NUMBER**  
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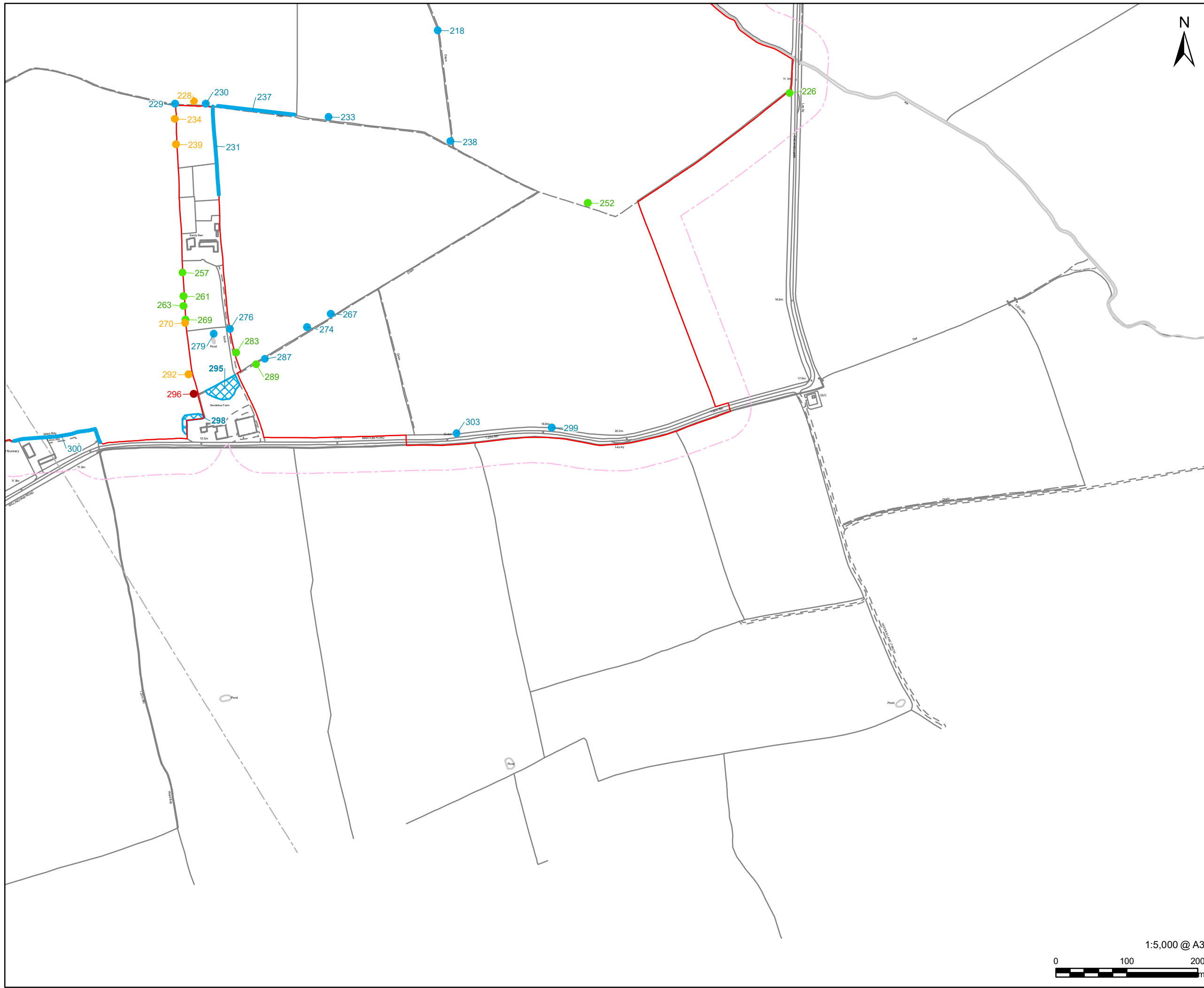
**FIGURE TITLE**  
Bat Preliminary Roost Assessment

**SHEET 7 OF 12**

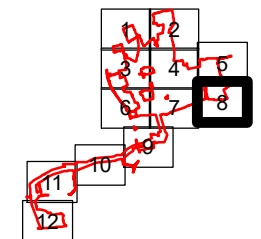
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Figure 8J.1g



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- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- High
- Moderate
- Low
- Negligible
- Tree Line Roost Suitability**
- Negligible
- Woodland/Tree Group Roost Suitability**
- Negligible



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**ISSUE PURPOSE**

Environmental Statement

**PROJECT NUMBER**

60664324

**FIGURE TITLE**

Bat Preliminary Roost Assessment

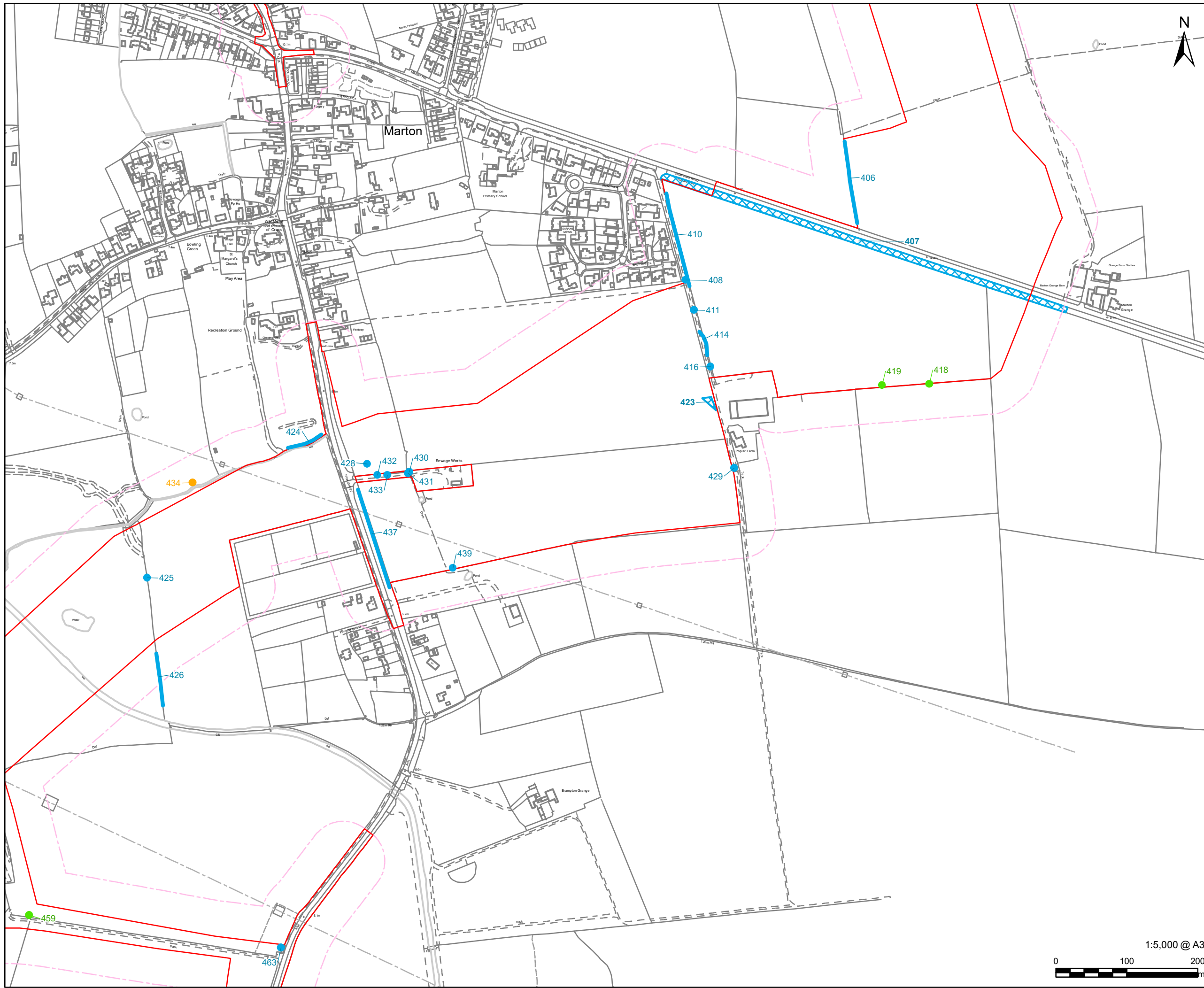
SHEET 8 OF 12

**FIGURE NUMBER**

Figure 8J.1h



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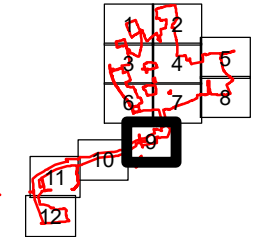
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- LEGEND
- Order Limits
  - Survey Area (50m RLB)
  - Bat Roost Potential**
  - Tree Roost Suitability
    - Moderate
    - Low
    - Negligible
  - Tree Line Roost Suitability
    - Negligible
  - Woodland/Tree Group Roost Suitability
    - Negligible



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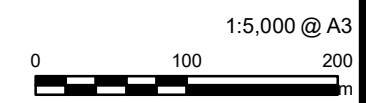
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Environmental Statement

PROJECT NUMBER  
60664324

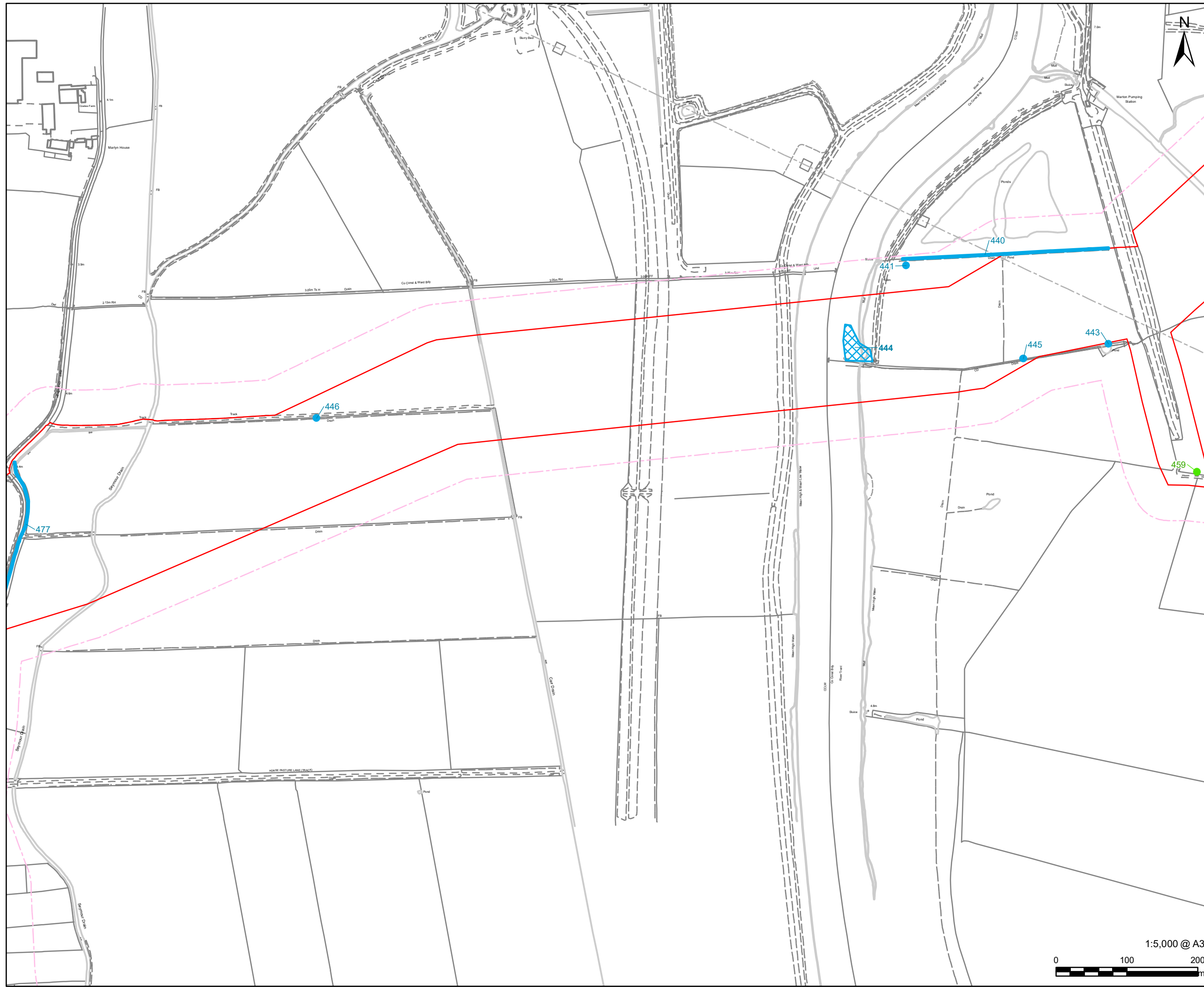
FIGURE TITLE  
Bat Preliminary Roost Assessment

SHEET 9 OF 12

FIGURE NUMBER  
Figure 8J.1i

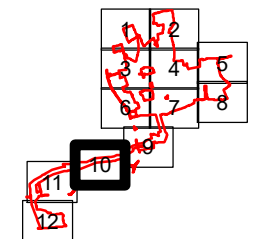


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- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- Low
- Negligible
- Tree Line Roost Suitability**
- Negligible
- Woodland/Tree Group Roost Suitability**
- Negligible



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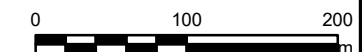
Environmental Statement

60664324

Bat Preliminary Roost Assessment

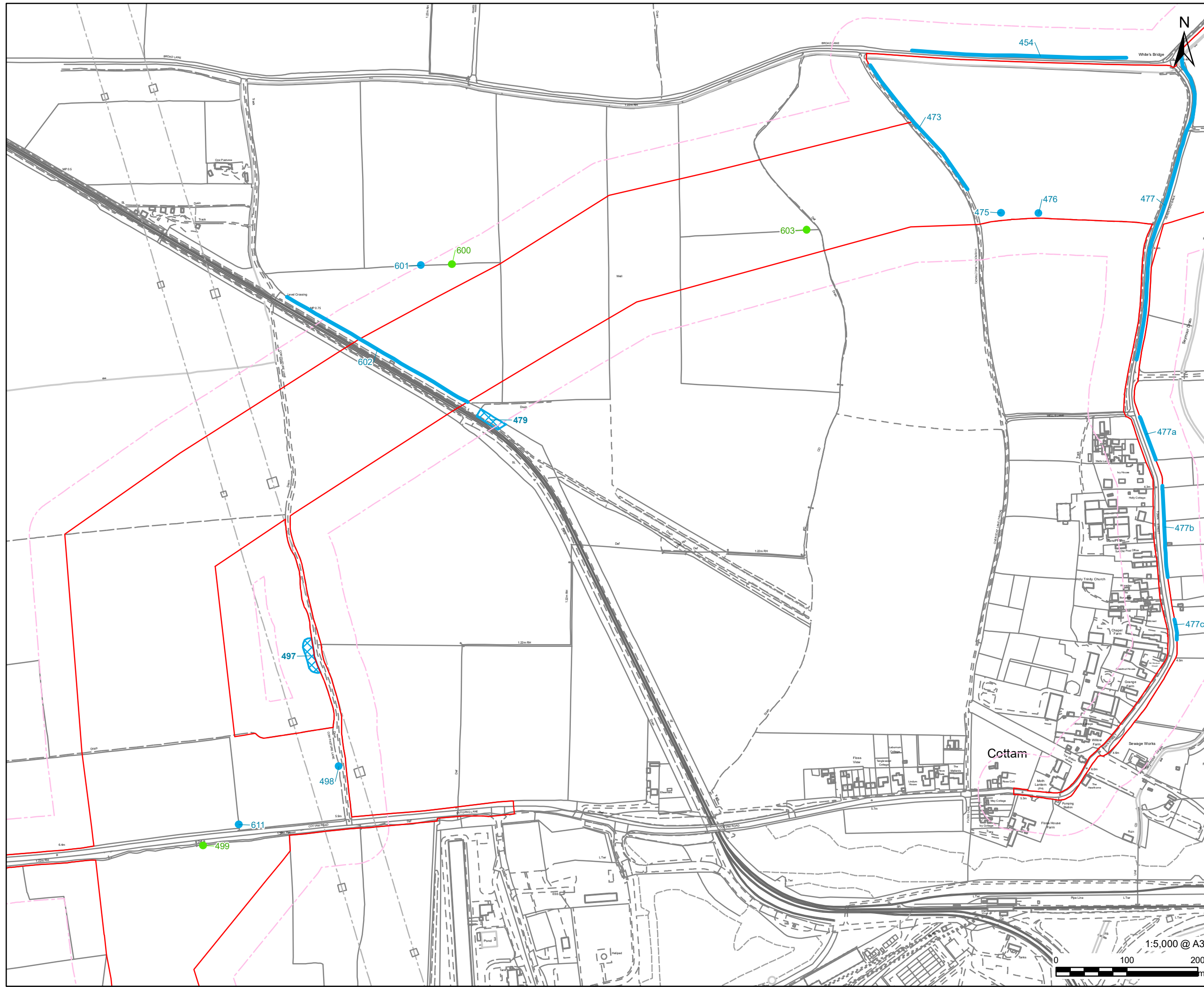
Figure 8J.1j

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- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- Low
- Negligible
- Tree Line Roost Suitability**
- Negligible
- Woodland/Tree Group Roost Suitability**
- Negligible

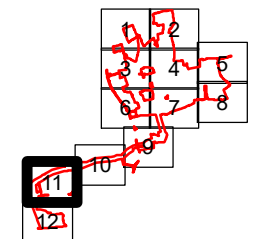
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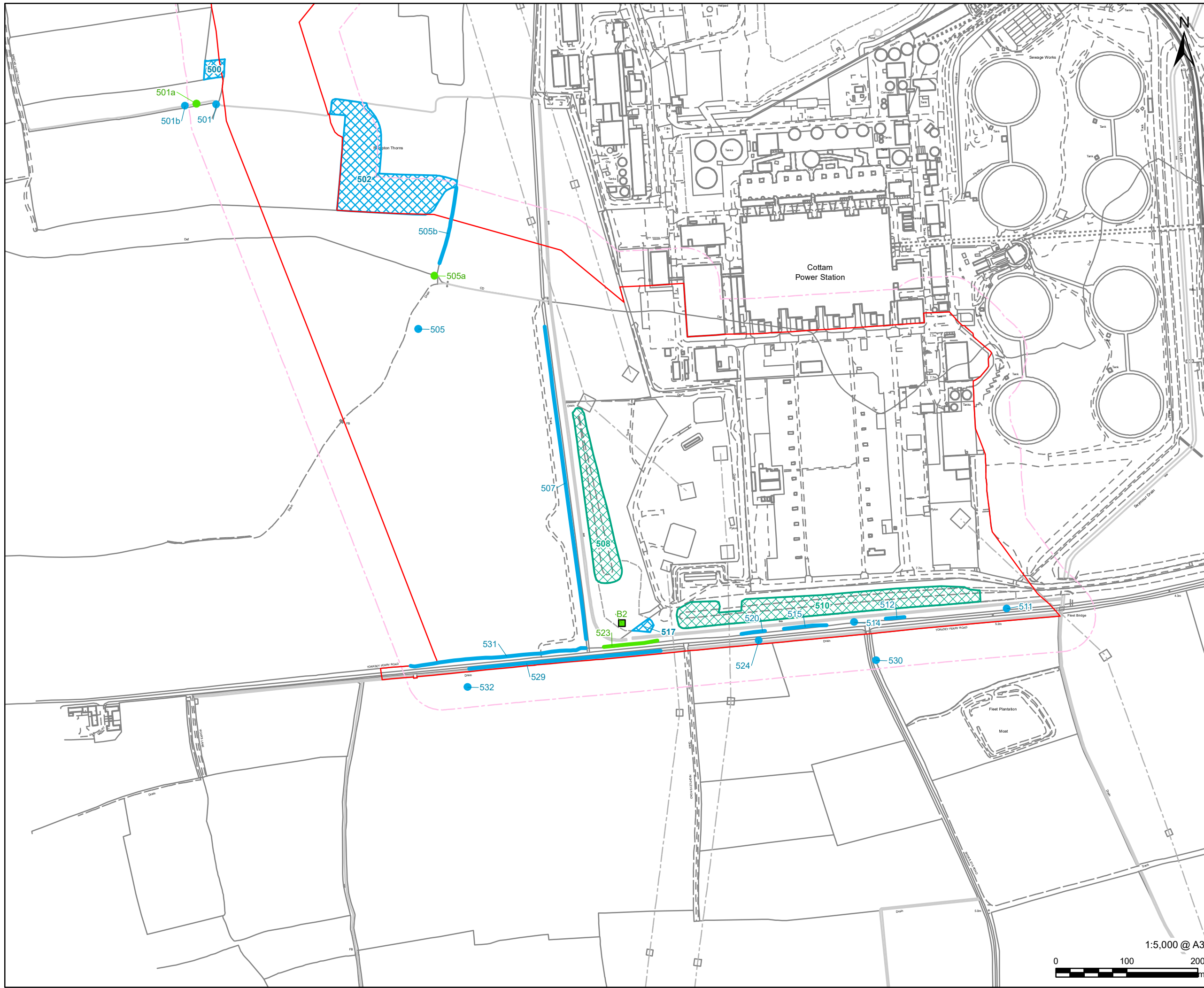
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Bat Preliminary Roost Assessment

Figure 8J.1k

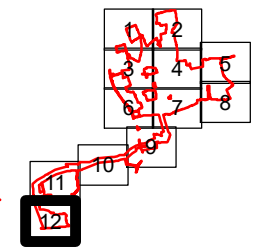


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**LEGEND**

- Order Limits
- Survey Area (50m RLB)
- Bat Roost Potential**
- Tree Roost Suitability**
- Low
- Negligible
- Structure Roost Suitability**
- Low
- Tree Line Roost Suitability**
- Low
- Negligible
- Woodland/Tree Group Roost Suitability**
- Negligible to Low
- Negligible



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**FIGURE TITLE**  
Bat Preliminary Roost Assessment

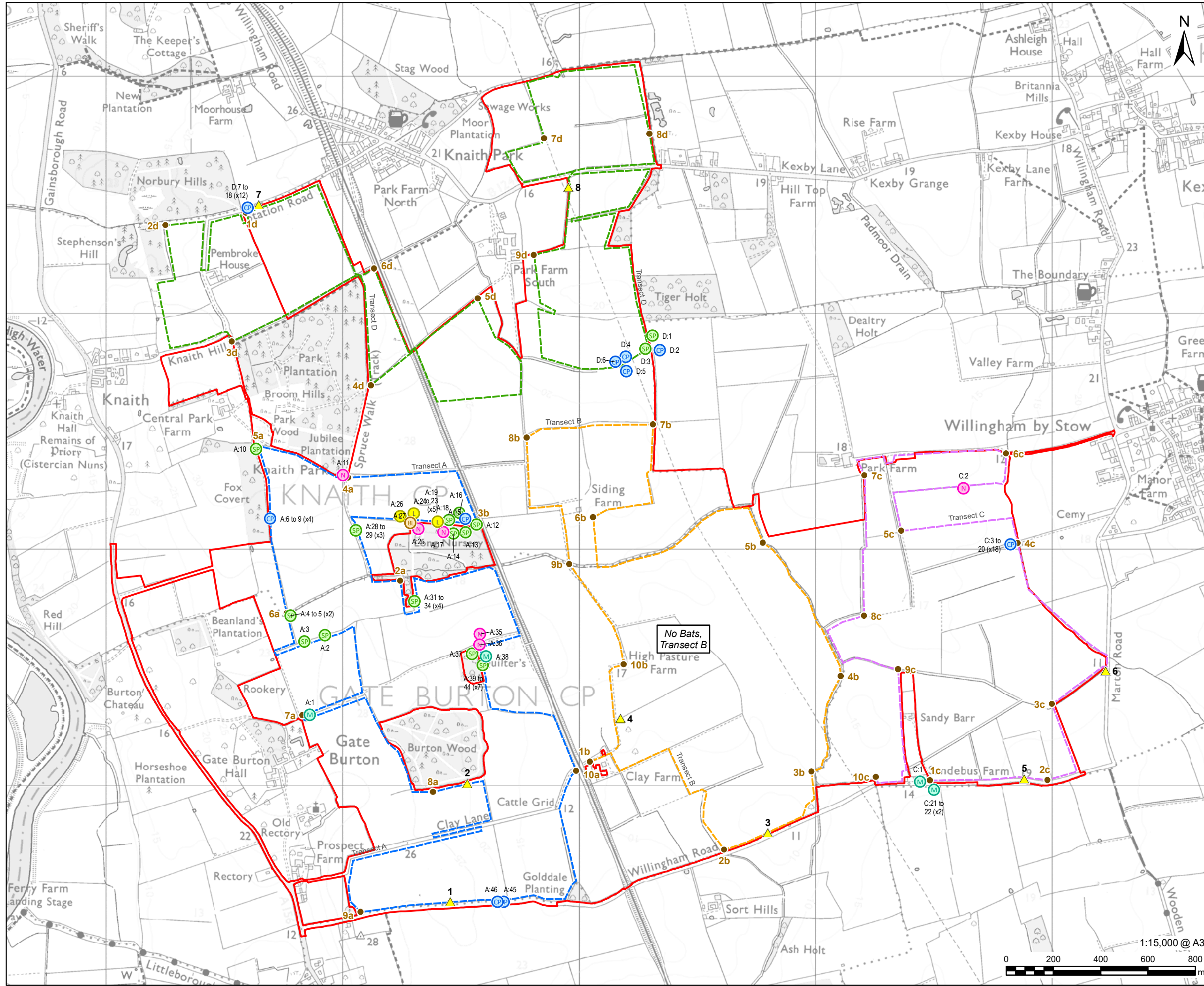
**SHEET 12 OF 12**

**FIGURE NUMBER**  
Figure 8J.11



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## Figure 8J-2 Bat PRA results



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LEGEND

- Solar and Energy Storage Park
- Bat Activity Survey
- Transect A
- Transect B
- Transect C
- Transect D
- Stopping Point
- ▲ Static Location

Bat records

- M Myotis Spec.
- L Nyctalus leisleri
- N Nyctalus Spec.
- P Pipistrellus Pipistrellus
- SP Pipistrellus Pygmaeus
- BL Plecotus Auritus

NOTES

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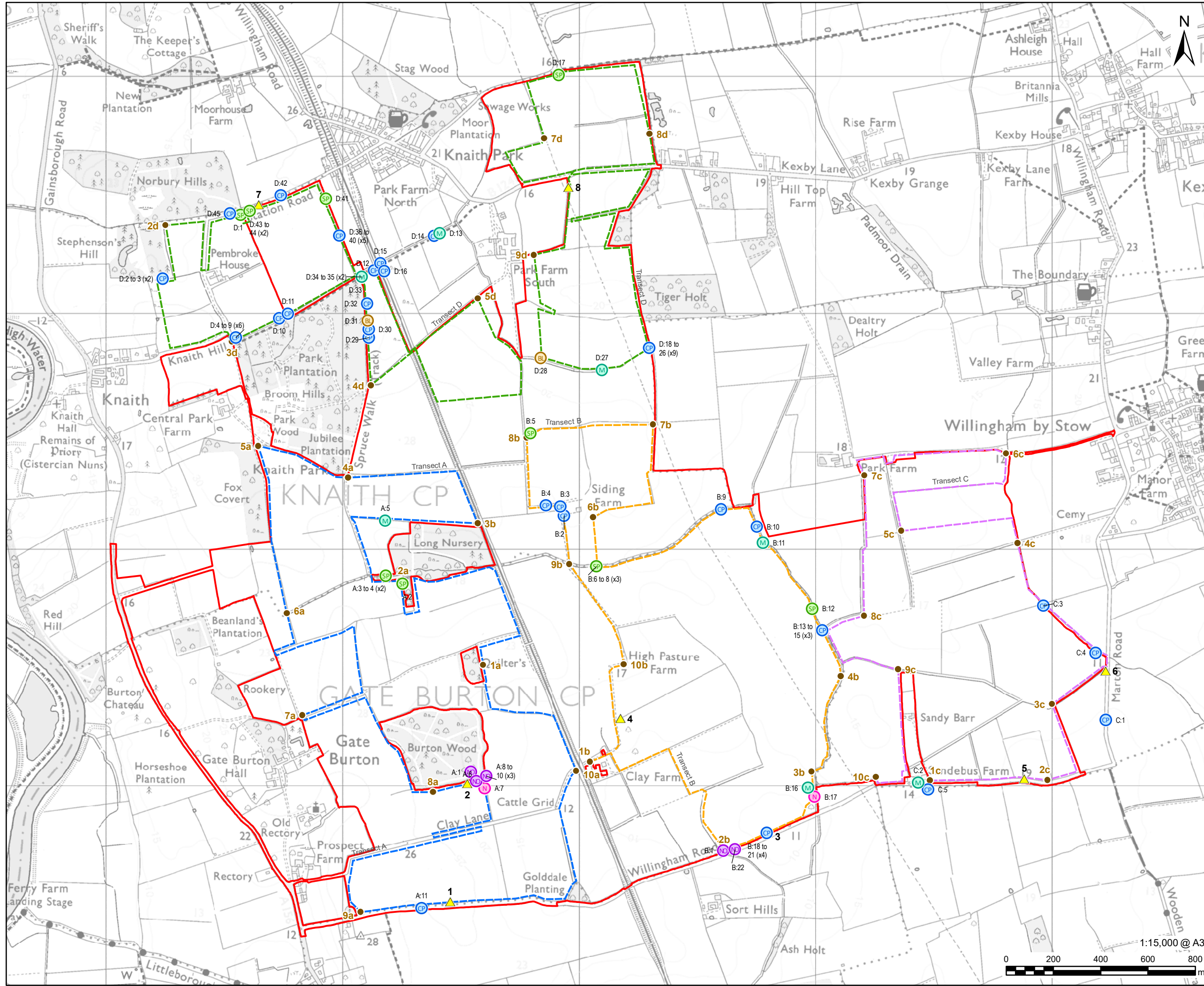
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Environment Statement

PROJECT NUMBER  
60664324

FIGURE TITLE  
Bat Activity Survey  
Spring 2022

FIGURE NUMBER  
Figure 8J.2a

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- LEGEND
- Solar and Energy Storage Park
  - Bat Activity Survey
  - - - Transect A
  - - - Transect B
  - - - Transect C
  - - - Transect D
  - Stopping Point
  - ▲ Static Location

- Bat records
- M Myotis Spec.
  - NO Nyctalus Noctula
  - N Nyctalus Spec.
  - CP Pipistrellus Pipistrellus
  - SP Pipistrellus Pygmaeus
  - BL Plecotus Auritus

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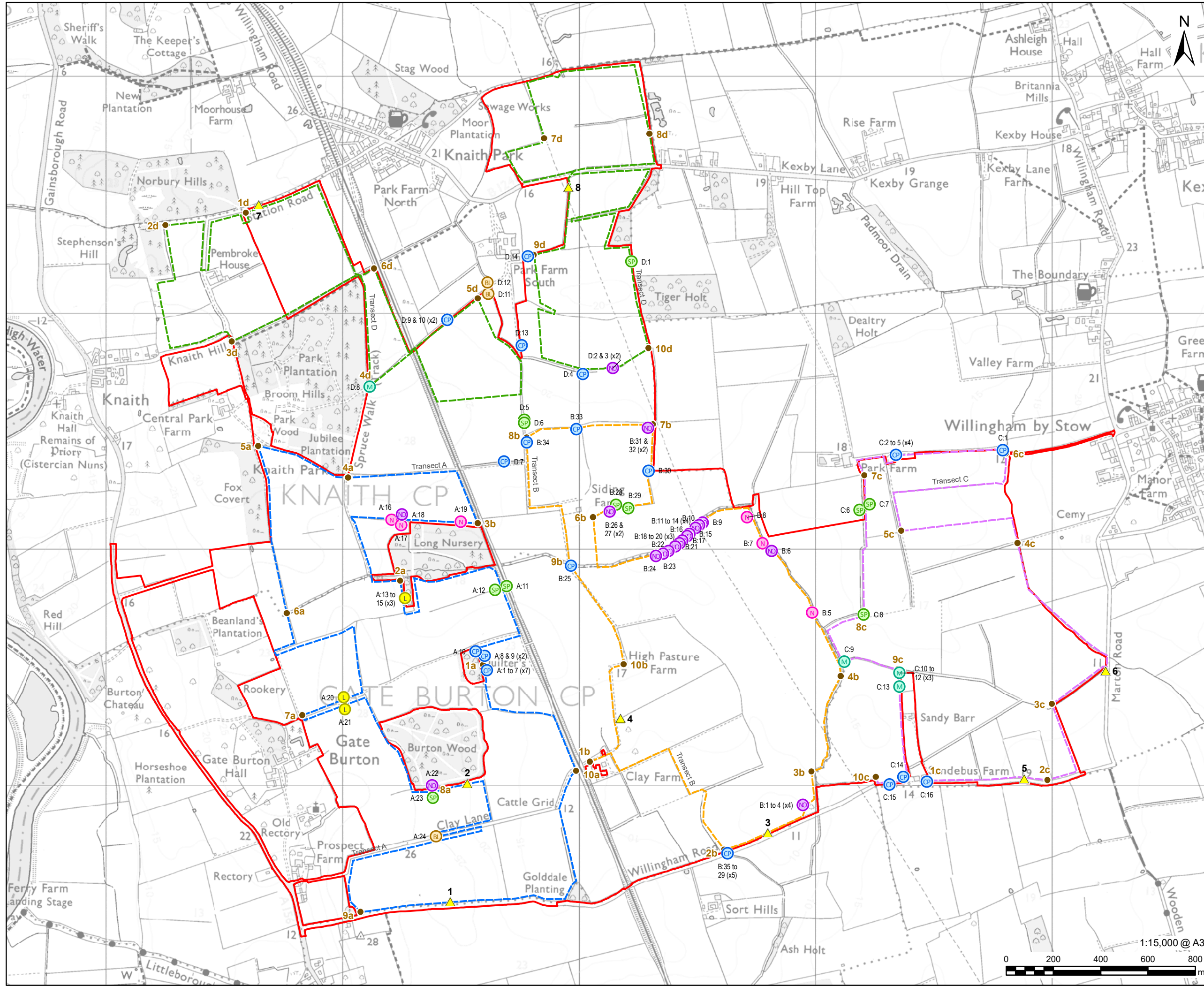
ISSUE PURPOSE  
Environment Statement

PROJECT NUMBER  
60664324

FIGURE TITLE  
Bat Activity Survey  
Summer 2022

FIGURE NUMBER  
Figure 8J.2b

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LEGEND

- Solar and Energy Storage Park
- Bat Activity Survey
- Transect A
- Transect B
- Transect C
- Transect D
- Stopping Point
- ▲ Static Location

Bat records

- M Myotis Spec.
- L Nyctalus leisleri
- N Nyctalus Noctula
- N Nyctalus Spec.
- CP Pipistrellus Pipistrellus
- SP Pipistrellus Pygmaeus
- BL Plecotus Auritus

NOTES

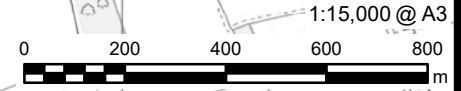
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ISSUE PURPOSE  
Environment Statement

PROJECT NUMBER  
60664324

FIGURE TITLE  
Bat Activity Survey  
Autumn 2022

FIGURE NUMBER  
Figure 8J.2c



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## Annex B: PRA Method

**Table 8B-1: Survey Methodology for Assessing the Potential Roost Features (PRFs) of Trees & Buildings**

### Trees

---

Surveys can be undertaken at any time of year but should preferably be carried out when the trees are not in full leaf, to aid the viewing of PRFs. Any constraints to surveys should always be noted.

The scoping survey (PRA) to identify the existence of PRFs included checks for the presence of the following features that bats might be able to use to determine features with the potential to support bats in accordance with criteria in the bat survey guidelines:

- natural holes (e.g. knot holes) arising from naturally shed branches, or branches previously pruned back to the branch collar;
- man-made holes (e.g. cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems;
- woodpecker holes;
- cracks/splits in stems or branches (both vertical and horizontal);
- partially detached or loose, platy bark;
- cankers (caused by localized bark death) in which cavities have developed;
- other hollows or cavities, including butt rots;
- compression forks with included bark, forming potential cavities;
- 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); and
- bird and bat boxes on trees; or other features that offer a place of shelter.

NOTE - Roosts of some species can occur very low on trees so PRFs can be found at all heights.

---

### Buildings

---

Bats utilise many different features in buildings for places of shelter and roosting. Features associated with each building are visually inspected for their suitability for use by roosting bats.

Equipment included close focusing binoculars to study the walls, eaves and roofs of the buildings.

Features that should be observed, noted and graded (in accordance with criteria in the bat survey guidelines during the survey of buildings includes:

- small gaps at least 20mm wide, however bats usually also require an area to land that is adjacent to the entrance hole and has a rough surface. Such features are looked for during the inspection.
- gaps in ridge tiles (where mortar is missing), gaps under roof tiles or slates, lead flashing around chimney stacks and around dormer windows, gaps under the fascia's and soffits, weatherboarding, missing mortar from joints in stone/ brickwork, roof valleys and hips.
- the presence of their droppings. Bats deposit droppings in both roost and social areas, but the use of such sites by bats can change due to prevailing weather conditions or the time of year. Special attention was paid to the areas directly below any potential access/ egress point in an attempt to identify any accumulation of bat droppings.

No work involving multi-sectional ladders over 5 m in height was undertaken as part of the survey. No access inside properties was undertaken.

---

**Table 8B-2: Criteria used to describe the level of suitability of a Potential Roost Feature (PRF) to support roosting bats**

Suitability / Risk	Description of Roosting Habitats
NEGLIGIBLE	Structure or tree with no or very limited roosting opportunities for bats. Feature may be isolated from foraging habitat.
LOW	Structure or tree 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>i.e.</i> unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRF(s) but with none seen from the ground or features seen with only very limited roosting potential with a limited number of roosting opportunities. Low proximity and connectivity to low or moderate quality foraging habitat.
MODERATE	Structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed). Often will have some connectivity and proximity to moderate or high quality foraging habitat.
HIGH	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially longer periods of time due to their size, shelter one or more species of bat. With good connectivity to high quality foraging habitat.
CONFIRMED ROOST	Presence of bats or evidence of bats. Confirmation of roost status may require further Roost Classification Survey.

**Notes:**

Collins, 2016 (Ref 12) uses the terms negligible, low, moderate and high to assess habitat suitability for bats as per the levels shown in the table above. The BS 8596:2015 Surveying for bats in trees and woodland (Ref 25) uses the term ‘Risk’ when assigning these categories to PRFs. In the absence of an industry standard this table can be used to help the ecologist determine the level of Habitat Suitability of PRFs to provide suitable roosting opportunities for bats.

The NEGLIGIBLE category is used where a feature has been inspected and found not to contain any features of use to bats, and hence provides confirmation that a feature has been inspected or considered.

For building/structures PRFs that are assessed at LOW to HIGH Risk and where impacts are predicted, further surveys are likely to be required (in accordance with standard survey guidance (Ref 12) to attempt to determine roost presence/absence). For tree PRFs that are assessed at MODERATE to HIGH Risk and where impacts are predicted, further surveys are likely to be required (in accordance with standard survey guidance (Ref 12) to attempt to determine roost presence/absence.

CONFIRMED ROOSTS would require Roost Characterisation Surveys to inform planning/mitigation requirements if impacts are predicted.



## Annex C: Valuing Bat Roosts Foraging and Commuting Habitats in Ecological Impact Assessment

The tables and valuation method presented here for bat roosts, foraging and commuting habitats are based on Wray *et. al.* (Ref 16), with the IUCN conservation status given for each species based on recent guidance in Mathews *et. al.* (Ref 17).

**Table 8C-6: Categorising bats by distribution and rarity**

**Rarity within range (UK)    Species and IUCN conservation status in England**

Rarest (popn. under 10,000)	Greater horseshoe ( <i>Rhinolophus ferrumequinum</i> ) Bechstein's ( <i>Myotis bechsteini</i> ) Alcahoo ( <i>Myotis alcahoo</i> ) (Data Deficient) Greater Mouse-eared ( <i>Myotis myotis</i> ) (Critically Endangered) Barbastelle ( <i>Barbastella barbastellus</i> ) (Vulnerable) Grey long-eared ( <i>Plecotus austriacus</i> )
Rarer (popn. 10,000 – 100,000)	Lesser horseshoe ( <i>Rhinolophus hipposideros</i> ) Whiskered ( <i>Myotis mystacinus</i> ) (Data Deficient) Brandt's ( <i>Myotis brandtii</i> ) (Data Deficient) Daubenton's ( <i>Myotis daubentonii</i> ) Natterer's ( <i>Myotis nattereri</i> ) Leisler's ( <i>Nyctalus leisleri</i> ) (Near Threatened) Noctule ( <i>Nyctalus noctula</i> ) Nathusius' Pipistrelle ( <i>Pipistrellus nathusii</i> ) (Near Threatened) Serotine ( <i>Eptesicus serotinus</i> ) (Vulnerable)
Common (popn. Over 100,000)	Common Pipistrelle ( <i>Pipistrellus pipistrellus</i> ) Soprano Pipistrelle ( <i>Pipistrellus pygmaeus</i> ) Brown long-eared ( <i>Plecotus auritus</i> )

**Table 8C-7: Valuing Bat Roosts**

**Geographic frame of reference    Roost Types**

District, Local or Parish	Feeding perches (common species) Individual bats (common species) Small numbers of non-breeding bats (common species) Mating sites (common species)
County	Maternity sites (common species) Small numbers of hibernating bats (common and rarer species) Feeding perches (rarer/rarest species) Individual bats (rarer/rarest species) Small numbers of non-breeding bats (rarer/rarest species)
Regional	Mating sites (rarer/rarest species) including well used swarming sites Maternity sites (rarer species)

**Geographic frame of reference**      **Roost Types**

	Hibernation sites (rarest species) Significant hibernation sites for rarer/rarest species or all species assemblages
National / UK	Maternity sites (rarest species) Sites meeting Site of Special Scientific Interest guidelines
International	Special Area of Conservation sites

**Table 8C-8: Valuing Commuting Routes with Scoring**

Species	Number of bats #	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Unvegetated fences/walls and large field sizes (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Walls, gappy or flailed hedgerows, isolated well grown hedgerows, and moderate field sizes (3)
		Large number of roosts, or close to a nationally important/protected site for the species (5)	Well-grown and well-connected hedgerows/tree lines, small field sizes (4)
Rarest (20)	Large number of bats (20)	Close to or within an internationally important/ protected site for the species (20)	Complex network of mature well-established hedgerows, tree line, small fields and rivers/streams (5)

# Individual bats - 1 or 2, Small numbers - 3 to 10, Large numbers - >10 bats

**Table 8C-9: Valuing Foraging Areas with Scoring**

Species	Number of bats #	Roosts/potential roosts nearby	Type and complexity of linear features
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established vegetation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)

Species	Number of bats #	Roosts/potential roosts nearby	Type and complexity of linear features
		Large number of roosts, or close to a nationally important site for the species (5)	Larger or connected woodland blocks, mixed agriculture, and small villages/hamlets (4)
Rarest (20)	Large number of bats (20)	Close to or within an SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

# Individual bats - 1 or 2, Small numbers - 3 to 10, Large numbers - >10 bats

Scores in the four columns of each table, above, are added up to provide an overall score to help determine the value or importance of commuting routes and foraging areas as presented in Table 8C-10.

**Table 8C-10: Scoring System for Valuing Commuting and Foraging Bats**

Geographic frame of reference	Score
International	>50
National	41 – 50
Regional	31 – 40
County / District*	21 – 30
Local	11 – 20
Not important (Site Level only)	1 - 10

\* Note that County and District has been combined to correspond to CIEEM EclA guidelines (Ref 15) (as presented in Table 8C-8).

**Table 8C-11: Importance of Ecological Features**

Importance of ecological features	Typical descriptors and examples of criteria
International or European	<p>An internationally designated site or candidate site including Special Area of Conservation (SAC), candidate or possible SACs (cSACs or pSACs<sup>1</sup>) where bats are cited as a qualifying feature.</p> <p>Resident or regularly occurring populations of species which may be considered at an international or European level<sup>2</sup> where:</p> <ul style="list-style-type: none"> <li>the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</li> <li>the population forms a critical part<sup>3</sup> of a wider population at this scale;</li> </ul> <p>or</p>

**Importance of ecological features**

**Typical descriptors and examples of criteria**

UK or National	<ul style="list-style-type: none"> <li>• the species is at a critical phase<sup>4</sup> of its life cycle at this scale.</li> </ul> <p>Sites designated at UK or national level e.g. Site of Special Scientific Interest (SSSI), where bats are included as an interest feature</p> <p>Resident or regularly occurring populations of species which may be considered at a UK or a national level<sup>5</sup> where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</li> <li>• the population forms a critical part of a wider population at this scale; or</li> </ul> <ul style="list-style-type: none"> <li>• the species is at a critical phase of its life cycle at this scale.</li> </ul>
Regional	<p>Populations of species of value at a regional level (<i>i.e.</i> East Midlands).</p> <p>Resident or regularly occurring populations of species which may be considered at a regional level<sup>6</sup> where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</li> <li>• the population forms a critical part of a wider population at this scale; or</li> </ul> <ul style="list-style-type: none"> <li>• the species is at a critical phase of its life cycle at this scale.</li> </ul>
County or Unitary Authority or District	<p>Populations of species of value at a County (Lincolnshire or Nottinghamshire) level or District (Bassetlaw or West Lindsey).</p> <p>Resident or regularly occurring populations of species which may be considered at a County (or District) level where:</p> <ul style="list-style-type: none"> <li>• the loss of these populations would adversely affect the conservation status or distribution of the species at this geographic scale;</li> <li>• the population forms a critical part of a wider population at this scale; or,</li> </ul> <ul style="list-style-type: none"> <li>• the species is at a critical phase of its life cycle at this scale.</li> </ul>
Local	<p>Species populations of value in a local (<i>i.e.</i> within ~ 5km of the site) context.</p> <p>Areas of habitat or populations and, or communities of species considered to appreciably enrich the habitat resource within the local context (such as veteran trees), including features of value for migration, dispersal or genetic exchange.</p>
Site	<p>Habitat that is of value in the context of the site only.</p> <p>Populations of common and widespread species.</p>

### Importance of ecological features





### Typical descriptors and examples of criteria





1. pSACs are sites which have been formally advised by to UK Government but have not yet been submitted to the European Commission. These sites should be valued at an international (European) level on the basis that they meet the relevant selection criteria for a SAC but are not yet designated as such.
2. Such species include those listed within Council Directive 92/43/EEC on the Conservation of natural habitats and of wild flora and fauna (*i.e.* Habitats Directive).
3. Such populations include sub-populations that are essential to maintenance of metapopulation dynamics e.g. critical emigration/ immigration links between otherwise discrete populations.
4. Seasonal activity or behaviour upon which survival or reproduction depends.
5. Species which may be considered at the UK or national level means; other animals which receive legal protection in the basis of their conservation interest (those listed within the Wildlife and Countryside Act 1981 (as amended) Schedule 5 and 8); species listed for their principal importance for biodiversity (in accordance with the Natural Environment and Communities Act 2006 Section 41 England); priority species listed within the UK Post 2010 Biodiversity Framework (*i.e.* UKBAP); or species listed within the Red Data Book.
6. Such species include those listed in the appropriate Natural Character Area and key/ priority species listed on the 2002 HABAP





As well as assigning importance there is also a need to identify all legally protected species that could be affected by the Scheme in order that measures can be taken to ensure that adherence to the relevant legislation is observed. This may include the adoption of mitigation and appropriate licensing which is acceptable to Natural England.

## Annex D: Survey Results





### D1. PRA Survey Results





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
1	Oak	10	50	Single tree in hedge	None	Negligible	
1a	Ash	12	30	Line of trees in hedge	None	Negligible	
2	Field Maple and Ash	10	40	Three trees in hedge	None	Negligible	
3	Ash	8	30	Group of young trees	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
5	Willow	Various, up to 10m	Various	Line of trees in hedge	None	Negligible	
6	Ash	6	40	Single tree along ditch	Single tree, split in main trunk on west facing branch	Moderate	
7	Oak	8	45	Single tree along ditch	None	Negligible	
8	Pussy Willow	6	40		None	Negligible	



Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
9	Willow	8-15	40	Line of six trees on eastern edge of field	None	Negligible	
10	Willow and Ash	6-10	30	Line of five trees on eastern edge of field	None	Negligible	
11	Alder	10	20	Single tree along ditch	None	Negligible	
12	Alder	10	20	Single tree along ditch	None	Negligible	











Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
12a	Willow	10	40	Tree in ditch, corner of the field	Bark concealed by Ivy growth	Low	
13	Oak	10	40	Single tree near road	None	Negligible	
14	Oak	12	50-60	Single tree next to footpath	Ivy covered trunk. Owl box on north side.	Low	
15	Oak	12	50	Tree next to road	Thick Ivy growth on trunk	Low	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
15a	Oak	10	20	Tree next to road	Light Ivy growth on trunk but not concealing cracks or splits etc	Negligible	
16	Oak	12	50-60	Single tree next to footpath	Ivy covered trunk.	Low	
16a	?	8	30	Dead stump, Ivy covered	Ivy	Low	
17	Oak	12	50-60	Single tree next to footpath	Ivy covered trunk.	Low	
18	Mixed	6-10	Mixed	6-7 young trees in mature hedge	None	Negligible	No photo





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
19	Oak	25	50	Single tree on field edge	Two trees on field edge / corner of field	Negligible	
20	Mixed woodland, including Oak	Various	Various	Woodland block	Some trees will have features suitable for roosting bats	Negligible to High	
21	Oak	25	100	Single tree on field edge	Large split /cavity along length of south-facing branch	High	
22	Oak	8	40	Single tree next to footpath	Ivy covered trunk.	Low	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
22a	Oak	8	40	Single tree next to footpath	Ivy covered trunk.	Low	
22b	Oak	8	40	Single tree next to footpath	Ivy (although dead) covered trunk.	Low	
23	Oak	22	40	Single tree on field edge	Single split / shallow cavity in south facing branch	Low	
23a	Oak	20	40	Single tree on field edge	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
24	Mixed deciduous	Various, up to 12m	Various, up to 20cm	Group of young, mixed deciduous trees	None	Negligible	
25	Oak	20-25	50	Single tree on field edge	Peeling bark	Low	
26	Oak	8	40	Single tree next to footpath	Ivy (although dead) covered trunk.	Low	
27	Oak	20-25	40-60	Two trees on western edge of field	Northernmost tree has splits and peeling bark	1 x Low, 1 x Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
28	Oak	8	40	Single tree next to footpath	Ivy (although dead) covered trunk.	Low	
28a	Ash	8	30	Single tree next to footpath	None	Negligible	
29	Ash	10	40	Single tree in hedge	Rot holes in main trunk	Low	
30	Ash	4-5	35	Single tree on field edge	Some splits and holes in main trunk, but open at top. Maybe small gaps where split	Low	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
31	Ash	5	20	Single tree in hedge	None	Negligible	
32	Oak	5-6	40	Single tree on edge of field	None	Negligible	
33	Oak	12	50	Single tree next to footpath	None	Negligible	
39	Oak	20-25	40-60	Tree-line (11 trees) on western edge of field	Cavities, splits and crack	2 x Negligible, 9 x Low to Moderate	








Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
41	Mixed, including Oak and Ash	Various	Various	Woodland	Woodland with some trees likely to include features suitable to support roosting bats	Negligible to High	
44	Ash and Oak	Various, up to 10	Various	Group of 30 trees	None	Negligible	
46	Mixed group	Various, up to 10	Various	Small group of trees	None	Negligible	No photo
47	Oak	15	40	Single tree in hedge	Woodpecker hole on east side, 10m high, some lifted bark on main trunk	Low	
48	Ash	7	40	Single tree within T51	Rot holes and apparent cavity in main trunk	Moderate	No photo
49	?	12	30	Single tree within hedge	None	Negligible	












Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
50	Oak	14	40	Single tree in hedge	Splits and peeling bark, main trunk. Tree decayed /dying	Low	
51	Mixed deciduous	Various	Various	Mixed deciduous tree-line	None	Negligible	No photo
53	Oak	15	40	Single tree in hedge	None	Negligible	
54	?	7	40	Single tree in hedge	Some light Ivy growth	Low	
55	Ash	6	30	Single tree in corner of field, by track	None	Negligible	

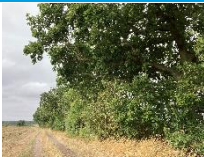



Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
56	Ash	6	15	Single tree in hedge	None	Negligible	
57	Mixed deciduous	15	30	Small group of mixed deciduous trees, corner of field	None	Negligible	No photo
58	Ash	6	30	Single tree in hedge	None	Negligible	
60	Ash	15	40-50	Single tree along ditch	Splits in northern branches	Low	
62	Field Maple	6-8	15	Single tree in hedge	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
63	Oak	5	25	Single tree in hedge	None	Negligible	
64	Mixed woodland, including Scot's Pine, Oak	Various, up to 30m	Various	Woodland block	Some trees will have features suitable for roosting bats	Negligible to High	
65	Pussy Willow	6	15	Single tree in hedge	None	Negligible	No photo
67	Mixed coniferous (with some deciduous)	Various	Various	Woodland block	Some features may be suitable to small numbers of individual bats	Negligible to Low	
72	Oak	6-8	60	Single tree in hedge	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
73	Ash	6-8	50	Single tree in hedge	Rotten at stem, splits and crevices but damp	Negligible	
		6-8		Single tree in hedge			
74	Oak	60	60	Single tree in hedge	1-2 splits in main trunk and lifted bark	Low	
		6-8		Single tree in hedge			
75	Oak	60	60	Single tree in hedge	1-2 splits in main trunk	Low	
		6-8		Single tree in hedge			
76	Oak	40	40		None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
		6-8					
77	Oak		40	Single tree in hedge	None	Negligible	
80	Ash	5	40	Dying tree on edge of group	Lifting bark on dead main trunk	Low	
82	Mixed, including Ash and Sycamore	Various, up to 10m	Various	c.40 trees in group, corner of field	None	Negligible	
83	Ash	10	30	Single tree on southern edge of group of trees	Knot holes	Low	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
103	Ash	8	50	Single tree in corner of field	Knot hole, north facing branch	Low	
104	Oak	8	40	Single Oak within tree-line	Lifted bark on main trunk	Low	
105	Oak	8	40	Single Oak within tree-line	Lifted bark on main trunk	Low	
105a	Oak	8-10	40	Single Oak in tree-line	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
107	Mixed, including Ash and Oak	Various, up to 10m	Various	c.40 trees in tree-line	None	Negligible	
108	Oak	8	50	Single Oak in gap along tree-line	Lifted bark, shallow splits and cracks in branches and main trunk	Low	
108a	Oak	8	40	Single Oak in tree-line	None	Negligible	
108b	Oak	8	50	Single Oak in tree-line	Dead, splits in trunk, peeling bark	Low	



Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
111	Oak	12	30	Tree-line, with c. 10 trees along track	None	Negligible	
112	Ash and Oak	3-6	30	Two trees in corner of field	None	Negligible	
116	Oak	12	30	Singe tree within treeline 111	Some splits and cracks	Low	No photo
122	Oak	12	30	Singe tree within treeline 111	Some splits and cracks	Low	No photo
123	Oak	12	30	Singe tree within treeline 111	Some splits and cracks	Low	No photo
129	Oak	6 to 8	-	Single tree, south of house	None	Negligible	No photo
130	Pussy Willow?	6	10	Single tree along ditch	None	Negligible	









Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
131	Mixed woodland	Various	Various	Woodland block	Some trees will have features suitable for roosting bats	Negligible to High	No photo
132	Oak	10	50	Single tree on west end of hedge. Owl box on tree	Shallow splits and cracks in main trunk	Low	
133	Oak	10	50-60	Single tree, corner of field	Many splits, cracks and holes in trunk. Large cavity on main trunk	High	
135	Oak	8	40	Single tree next to track	None	Negligible	
136	Ash	-	-	Single tree, corner of field	Splits and cavities	High	No photo





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
137	Oak	8	90	Single tree along ditch	None	Negligible	
138	Oak	-	-	Single tree in hedge	Broken crown, splits	Moderate	No photo
139	Ash	6	25	Single tree in hedge	Heavy Ivy growth on trunk	Low	No photo
140	Ash	5	30	Single tree along ditch	None	Negligible	
141	Oak	10	60	Single tree in hedge	Lifted bark on branch halfway up	Low	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
142	Oak	4	30	Single tree along ditch	None	Negligible	
143	Oak	5	25	Single tree along ditch	Peeling bark and shallow cavities	Low	No photo
144	Oak sp.	3	30	Single tree along ditch	None	Negligible	
145	1 x Oak and 1 x Ash	5	30	Two trees along ditch	None	Negligible	No photo
146	Willow	6	30	Single tree along ditch	None	Negligible	
147	Ash	20	30-40	Two trees in hedge	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
147a	Ash	18	25	Tree on eastern end of defunct hedge	None	Negligible	
148	Oak	5	40	Single tree along ditch	None	Negligible	No photo
149	Ash	5	40	Single tree along ditch	Woodpecker holes and rot holes	High	No photo
150	Ash	20	40	Single tree in hedge	None	Negligible	
151	See Limitations						
152	Oak	5	40	Single tree in ditch	Some Ivy growth on main trunk	Low	No photo
153	Ash	5	30	Single tree in ditch	None	Low	No photo




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
154	Ash	25	70	Single tree in hedge	Many broken limbs, splits, cracks and peeling bark	Moderate	
155	See Limitations						
156	Ash	20	40	Single tree in hedge	Narrow split in main trunk	Low	
157	Ash	20	40	Single tree in hedge	Small cracks in main trunk	Low	
158	Lime sp.	20	50	Single tree on corner of field	Some light Ivy growth	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
158a	1 x Oak, 1 x Ash	15	30	Two trees on field edge	None	Negligible	No photo
159	Oak	5	40	Single tree along ditch	None	Negligible	No photo
160	Ash	4	25	Single tree along ditch	None	Negligible	No photo
161	Oak	8	40	Single tree in ditch	None	Negligible	
162	Field Maple	20	40	Single tree in hedge	Extensive Ivy growth	Low	
163	Ash	3-4	20	Single tree in hedge	None	Negligible	No photo
164	Ash	6	30	Single tree along ditch	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
165	Oak	6	30	Single tree in hedge	Small cavity in trunk	Low	
166	Ash	6	10	Single tree in hedge Single tree in hedge	None	Negligible	
167	Ash	6	15	Single tree in hedge	None	Negligible	
168	Field Maple	6	20		None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
				Single tree in hedge			
169	Ash	6	15		None	Negligible	No photo
170	Oak	4	40	Single tree along ditch	Lifted bark	Low	No photo
171	Ash	4	20	Single tree along ditch	None	Negligible	No photo
172	Ash	10	30	Single tree on edge of field	None	Negligible	No photo
173	Oak	8-10	50-60	Two trees, one decayed / dying	Splits and cracks in both main trunks, woodpecker holes, lifted bark	Moderate	
174	Ash	7	25	Single tree in hedge	None	Negligible	










Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
175	Ash	6	15	Single tree at end of hedge	None	Negligible	
176	Oak	15	35	Single tree on edge of field	None	Negligible	 No photo
177	Ash	4	20	Single tree along ditch	None	Negligible	No photo
178	Oak	4	20	Single tree along ditch	None	Negligible	No photo
179	Ash	8	40	Single tree along ditch	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
180	Oak	15	35	Single tree on edge of field	None	Negligible	
182	Oak	20	60	Single tree on edge of field	Large cavities in main trunk	High	 No photo
183	Ash	3-4	20	Single tree along ditch	None	Negligible	
184	See Limitations						
185	Ash	10-15	30-40	Two trees within scrub area	Small splits in both trees	Low	



Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
186	Oak	10	20	Single tree in hedge	None	Negligible	
186a	-	-	-	Single tree in hedge	None	Negligible	
187	Oak	15	30	Single tree on edge of field	None	Negligible	
188	Ash	3-4	20	Single tree	None	Negligible	No photo
189	Oak	15	30	Single tree on edge of field	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
190	Ash	10	20	Single tree in hedge	Negligible	None	
191	Elm	4	25	Single tree	Negligible	None	No photo
192	Ash	15	30	Single tree on edge of field	Some rot, but no deep cavities and exposed to rainwater /damp	Negligible	
193	Oak and Ash	15	40	Two trees in corner of field	None	Negligible	
194	Ash	10	30	Single tree in field	None	Negligible	No photo




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
195	Oak	20	50	Single tree in hedge	Broken branches but no features suitable for roosting bats	Negligible	
195a	Oak	15	40	Single tree, south of woodland block, in hedge	Small split in eastern facing branch	Low	
195b	Ash	18	30	Single tree, south of woodland block, in hedge	Knot hole, but likely wet when it rains	Negligible	
196	Oak	9	20	Single tree in hedge	None	Negligible	
197	Ash	3-4	20	Single tree along ditch	None	Negligible	No photo




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
198	Ash	10	20	Single tree in hedge	None	Negligible	
199	See Limitations						
200	Ash	10	20	Single tree in hedge	None	Negligible	
201	Ash	4	-	Single tree	Split on eastern side but potentially exposed	Low	No photo
202	Ash	20	40	Split-trunk tree in hedge	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
203	Oak	20	60	Single tree in hedge	Peeling bark	Low	
203a	Ash	20	60	Single tree in hedge	None	Negligible	
204	Ash	20	40	Single tree in hedge	None	Negligible	
205	Oak	8	30	Single tree next to railway	None	Negligible	
206	Oak	5	-	Single tree, corner of field	Peeling bark on main trunk	High	No photo



Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
207	Ash	12	30	Single tree between arable fields	None	Negligible	
208	Ash	3-4	20	Group of trees along ditch	None	Negligible	No photo
209	Ash	12	30	Single tree between arable fields	None	Negligible	
210	Ash	20	30	Single tree in hedge	None	Negligible	No photo








Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
211	Ash	12	35	Single tree between arable fields	None	Negligible	
212	Ash	12	40	Single tree between arable fields	Couple of knot holes and broken branch from trunk – open but has potential for bats	Low	
214	Ash	10	20	Single tree in hedge	None	Negligible	


Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
215	Ash	10	25	Single tree between arable fields	Knot hole in branch	Low	
215a	Oak	14	50	Single tree between arable fields	Hole in trunk approx. 2m from base with two inner cavities	Moderate	
216	See Limitations						
217	Ash	10	20	Single tree between arable fields	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
							No photo
218	Oak	8	-	Single tree along ditch	None	Negligible	
	Ash	20	30	Single tree in hedge	None	Negligible	
219							
220	See Limitations						
221	See Limitations						
	Ash	20	30	Single tree in hedge	None	Negligible	
222							
223	See Limitations						
224	Mixed, including Oak	Various	Various	Woodland block	Some features suitable for roosting bats	Negligible to High	
							
225	Ash	12	35	Single tree between arable fields	Cavity in lowest branch	Low	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
226	Oak	10	40	Single tree by road	Knot holes and small splits	Low	No photo
227	Ash	20	30	Single tree in hedge	None	Negligible	No photo
228	Ash	9	-	Single tree, northern edge of residential	Woodpecker holes	Moderate	No photo
229	Ash	9	-	Single tree, northern edge of residential	None	Negligible	No photo
230	Ash	9	-	Single tree, northern edge of residential	None	Negligible	No photo
231	Mixed deciduous	Max 15m	Max 30cm	Tree-line, eastern edge of residential	None	Negligible	
232	Ash	12	30	Single tree between arable fields	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
233	Ash	8	-	Single tree	None	Negligible	No photo
234	Oak	10	-	Single tree, western edge of residential	Large cavity near base, south facing	Moderate	No photo
235	Ash	20	100+	Single tree in hedge	Splits and broken main trunk but mostly facing skywards, some other small splits	Low	
236	Ash	15	70	Mature Ash along hedge, next to track	None	Negligible	
236a	Ash	15	70	Mature Ash along hedge, next to track	Large cavity in main trunk	High	
237	Ash	Max 10m	Max 10cm	Five young trees	None	Negligible	
238	Oak	6	-	Single tree	None	Negligible	No photo




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
239	Ash	10	-	Single tree, western edge of residential	Woodpecker hole	Moderate	No photo
240	Ash	20	30	Three trees along hedge	None	Negligible	
241	Ash	20	40	Single tree in hedge	None	Negligible	
243	See Limitations						
246	Mixed deciduous	15-20	Various	Mixed woodland block	Some features will be suitable for roosting bats	Negligible to High	No photo
248	Ash	8	-	Single tree along ditch	None	Negligible	No photo
251	See Limitations						
252	Ash	8	-	Single tree along ditch	Woodpecker holes, but not deep	Low	No photo
254	Ash	7	-	Single tree along ditch	None	Negligible	No photo





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
255	Ash	7	-	Single tree along ditch	None	Negligible	No photo
256	Ash	6	-	Single tree along ditch	None	Negligible	No photo
257	Ash	7	-	Single tree	Knot hole	Low	No photo
259	Ash	25	30-40	Single tree within T265	Large cavities in main trunk	Moderate	
260	See Limitations						
261	Ash	9	-	Single tree	Knot hole but potentially damp inside	Low	No photo
262	See Limitations						
263	Ash	9	-	Single tree	Knot hole in main trunk	Low	No photo
264	Field Maple	5	-	Single tree along ditch	None	Negligible	No photo




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
265	Various, mostly Ash	20-25	Various	Ten trees along track edge	Some splits and cracks	Low	
266	See Limitations						
267	Ash	8	-	Single tree	None	Negligible	
269	Ash	8	-	Single tree	Woodpecker hole, but potentially open at top	Low	No photo
270	Ash	8	-	Single tree	Woodpecker hole	Moderate	No photo
271	Ash	22	30	Mature tree, field edge	None	Negligible	
272	See Limitations						








Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
273	Mixed woodland (Burton Wood)	Various	Various	Woodland block	Some features suitable for roosting bats	Negligible to High	
274	Ash	8	-	Single tree	None	Negligible	
275	Willow	8	35	Single tree in garden	None	Negligible	
276	Mixed deciduous	Various	Various	Tree-line along track to house	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
277	Ash	22	30	Two mature trees on field edge	None	Negligible	
278	Mixed deciduous woodland	Various	Various	Woodland block	Some trees will have features suitable for roosting bats	Negligible to High	
279	Mixed deciduous, including Willow sp.	Various	Various	Around pond	None	Negligible	No photo
280	Ash	8	15	Single tree in garden	None	Negligible	
282	See Limitations						
283	Ash	-	-	Single tree within a tree-line	Shallow knot-hole	Low	No photo





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
284	Willow	8	20	Single tree by house next to arable fields	None	Negligible	
285	Ash	25	70	Mature tree in field corner	Small splits and knot holes	Low	
286	Various including Willow, Ash and Maple	Various	Various	Four trees in garden near house	None	Negligible	
287	Ash	-	-	Single tree between two arable fields	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
288	Ash	25	60	Mature tree in field corner	Large cavity and knot holes, no cobwebs etc over hole	High	
289	Ash	-	-	Single tree near house driveway entrance	Shallow knot-holes	Low	
291	Field Maple	10	15	Single tree next to railway	None	Negligible	
292	Ash	8	-	Single tree, west side of residential garden	Small crevice	Moderate	No photo


Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
293	Wild Cherry	10	20	Single tree next to railway	None	Negligible	
294	Ash	10	35	Single tree between arable fields	None	Negligible	
295	Mixed deciduous	Various	Various	Approx.. 10 trees near entrance to residential property	None	Negligible	No photo
296	?	8	-	Single tree, west side of residential garden	Rot holes and cavities in main trunk, west facing	High	No photo





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
297	Conifer	15	15	Two trees in garden	None	Negligible	
298	Conifers	25	15	Tree-line of conifers	None	Negligible	
299	Ash	10	15	Single tree, south side of road	None	Negligible	
300	Mixed deciduous	Max 20m	Max 30cm	Tree-line around residential	None	Negligible	No photo




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
302	Mixed deciduous	10	20	Single tree, edge of field	None	Negligible	No photo
303	Ash	10	15	Single tree, south side of road	None	Negligible	
305	Not surveyed as within private residential property – not a limitation						
308	Ash	20	30	Mature tree in hedge	None	Negligible	
309	Ash	8-12	10-20	Three Ash trees between two field	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
310	Ash	20	40	Mature tree in hedge	Knot holes in eastern face of main trunk, looks deep	Moderate	
313	Mixed	12	20-40	Tree-line along residential edge	None	Negligible	
313a	Ash	-	-	Single tree, south side of 313	Small knot hole, splits	Low Negligible	No photo
314	?	12	20	Single tree, edge of field	None	Negligible	
314a	Field Maple	12	20	Single tree in hedge, north side of Clay Lane	None		










Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
315	Mixed deciduous	Max 10m	Max 20cm	Tree-line (c 25 trees) within hedge on south side of Clay Lane	None	Negligible	
316	Mixed deciduous	Various	Various	Tree-line, north of road	None	Negligible	No photo
317	Ash	-	-	Single tree along ditch		Low	No photo
318	See Limitations						
320	Ash	-	-	Single tree, north of road	Knot holes, peeling bark	Low	No photo
323	See Limitations						
326	See Limitations						
329	See Limitations						




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
331	Ash	20	30-40	Two Ash trees, south side of Clay Lane	Ivy growth and some small splits	Low	
333	Ash	15	30	Single tree, north side of Clay Lane	Some splits and cracks	Low	
336	Mixed deciduous	Various	Various	Tree-line, north side of Clay Lane	None	Negligible	
340	?	12	30	Single tree, edge of field	Crack up main trunk, but heavily wet and exposed	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
341	Mixed deciduous	Various	Various	Tree-line, south side of Clay Lane	None	Negligible	
342	See Limitations						
343	Willow sp.	12	30	In tree-line	None	Negligible	
346	Ash	15	20-30	Two Ash, north side of Clay Lane on corner	Some light Ivy growth	Negligible	
347	See Limitations						

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
348	Ash	20	30	Single tree, north side of Clay Lane	Small cavity / knot hole in north facing branch	Low	
349	Mixed deciduous	15	20-30	Mixed deciduous trees, south side Clay Lane on corner of road	None	Negligible	No photo
350	Ash	25	40	Single tree, corner of road	Cracks, but face skywards and exposure to rain	Negligible	
353	Mixed deciduous	6-8	10-20	Tree-line along road	None	Negligible	
354	Ash	15	30	Single tree, north of Clay Lane on corner	Some light Ivy growth, but not concealing features	Negligible	No photo





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
356	Ash	7	20	Single tree along road	None	Negligible	
356a	Oak	6	20	Single tree along road	None	Negligible	
357	Ash	7	20	Single tree along road	None	Negligible	
358	Mixed deciduous	12	25	Tree-line, north side of Clay Lane	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
359	See Limitations						
360	Mixed deciduous	12	25	Tree-line, south side of Clay Lane	None	Negligible	
361	Ash	8	25	Single tree along road	None	Negligible	
362	Willow sp.	10	30	Single tree along road	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
363	Ash	15-20	35	c. 12 mature trees on north side of Clay Lane	Easternmost tree with large cavity (moderate), others with Ivy growth (Low)	Low to Moderate	
364	Ash	25	40-50	Two trees	Some light Ivy growth and knot holes	Low	
365	See Limitations						
366	Ash	25	>100	Single tree in hedge, north side of road	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
367	Willow sp.	8	5	Single tree along road	None	Negligible	
368	Mixed deciduous	6-8	20	Tree-line, north side of Clay Lane	None	Negligible	
369	Mixed deciduous	6-8	20	Tree-line, c. 15 trees, south side of Clay Lane	None	Negligible	No photo
370	Willow	25	80	Single tree, corner of Clay Lane and A156	None	Negligible	











Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
371	Mixed deciduous, including Crab Apple	8-10	15-25	Five trees along road next to bridge	None	Negligible	
372	Ash	15-20	40	Single tree on edge of field	Ivy (thin) on trunk, but no splits, cracks and knot-holes	Negligible	
373	Plantation woodland	Max 10m	Max 20cm	Plantation woodland	None	Negligible	No photo
375	Ash	8	30	Single tree along road	Shallow cavity in trunk with hole into branch	Low	
376	Ash	10	40	Single tree along road	Multiple cavities in branches and trunks	Moderate	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
376a	Ash	8	30	Single tree along road	Cavity in trunk	Low	
378	Oak	10	40	Single tree	Broken crown	Negligible	No photo
380	Various, including Ash and Oak	10-12	15-25	Fifteen trees in tree-line	None	Negligible	
381	Ash	15	20	Single tree between road and field	None	Negligible	
382	Sycamore?	15	20	Single tree between road and field	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
383	Mixed, including Ash, Cherry, Crab-apple, Field Maple, Hawthorn	Various, up to 15m	Various	Tree-line along road, c. 200-250 young trees	None	Negligible	
384	Ash	18	30	Single tree between road and field	None	Negligible	
385	Mixed deciduous	Various	Various	Tree-line, south side of road	No features suitable for roosting bats	Negligible	No photo
387	Ash	15-20	40-50	Group of three mature trees on edge of younger group of trees	Ivy covered main trunks, splits, cracks and knot-holes on all trees	High	
388	?	10	20	Single tree, west side of A156	Some light Ivy growth	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
389	Mixed deciduous	Various	Various	Tree-line, south side of road	No features suitable for roosting bats	Negligible	
	Mixed deciduous	Various	Various	Tree-line, north side of road	No features suitable for roosting bats	Negligible	
390							
391	?	10	20	Single tree, west side of A156	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
392	?	8	25	Single tree, east side of A156	None	Negligible	
393	?	8	25	Single tree, east side of A156	None	Negligible	
406	Various, including Lime and Ash	Various, up to 12m	Various	Tree-line (c.10 trees) in mature hedge on edge of field	None	Negligible	
407	Ash	Various, up to 15m	Various	Tree-line (7 trees) in mature hedge next to main road	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
408	Ash	10	30	Single tree next to Public Right of Way and track	None	Negligible	
410	Mixed deciduous	15-20	Various	Tree-line on east end of track	None	Negligible	
411	Lime	15-20	40	Small group of Lime sp. next to track	None	Negligible	
414	Poplar sp, Ash and Lime sp.	20	Various	Tree-line of five Poplar, single Ash and Lime next to track	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
416	Sycamore	15-20	40	Single tree next to track	None	Negligible	
418	Ash	-	-	Single tree, edge of field	Some small holes / splits	Low	
419	Ash	-	-	Single tree, edge of field	Some light Ivy growth, potentially concealing features but no obvious features observed.	Low	
423	Sycamore	10	20	Group of young trees next to track	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
424	Conifers	15-20	30	Group of c.10 conifers	None	Negligible	
425	Ash	12	40	Single tree along hedge	Some knot holes but not deep	Negligible	No photo
426	Willow	10-15	20-30	Three trees along fence-line	Southern-most Willow has large break, but no cavities. Gaps or splits for roosting bats	Negligible	No photo
428	Pussy Willow	10	30	Single tree on edge of field	None	Negligible	
429	Ash	12-15	20	Single tree on edge of track, with Owl box	None	Negligible	










Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
430	Ash	15	30	Single tree next to track to water treatment works	None	Negligible	
431	Conifer	15	30	Single tree next to track to water treatment works	None	Negligible	
432	Ash	12	30	Single tree next to track to water treatment works	None	Negligible	
433	Willow	14	40-50	Single tree next to track to water treatment works	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
434	Ash	12-15	40	Single tree along hedge	-	Moderate	
437	Various, including Ash	10	Various	Line of c.10 trees along road-side / field edge	None	Negligible	
439	Willow	12-15	90	Single mature tree in hedge	None	Negligible	
440	Mixed deciduous	Various	Various	Tree-line	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
441	Mixed deciduous	Various	Various	Tree-line, near river	None	Negligible	
443	Willow	10	30	Single tree next to pond	None	Negligible	
444	Willow	10-12	40	Two trees next to river	None	Negligible	
445	Willow	10	20	Larger tree in mature hedge	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
446	Oak	12	30-40	Single tree along ditch	None	Negligible	
454	Mixed	Various, up to 10m	Various, up to 30cm	Roadside hedge with mature trees	None	Negligible	
459	Ash	10	40	Single tree in hedge, Owl box	Knot holes in main trunk and branches	Low	
463	Various, including Ash, Sycamore and Birch	Various, up to 10	Various	Group of c.20 young trees next to road	None	Negligible	




Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
473	Various, including Oak, Ash	Various, up to 12m	Various	Hedge with seven mature trees	None	Negligible	
475	Sallow	5	25	Single tree on field edge	None	Negligible	
476	Oak	6	30	Single tree on field edge	None	Negligible	
477	Sycamore	15-20	Various	Line of c.40 roadside trees	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
477a	Sycamore	15-20	Various	Line of roadside trees	None	Negligible	
477b	Sycamore	15-20	Various	Line of roadside trees	None	Negligible	
477c	Sycamore	15-20	Various	Line of roadside trees	None	Negligible	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
479	Various, including Birch	15	Various	Group of young trees	None	Negligible	
497	Ash	10-12	10	Group of young trees next to byway	None	Negligible	
498	Ash	15	40	Single tree next to byway	Think Ivy cover, no features	Negligible	
499	Ash	20	40	Single tree in hedge, next to road	Thick Ivy growth on trunk	Low	





Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
500	Mixed group, including Ash and Oak	15-20	Various, up to 20cm	Small group of trees on field edge	None	Negligible	
501	Ash	15	30	Single tree, south side of ditch	None	Negligible	
501a	Ash	12	30	Single tree, south side of ditch	Knot holes on main trunk and branches	Low	
501b	Ash	15	30	Four trees along ditch	No features, some light Ivy growth	Negligible	











Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
502	Woodland block, including Ash	Individual trees, up to 15m	Up to 50cm	Young woodland block, with some more mature trees	None	Negligible	
505	Ash	12	60	Single tree on edge of field	None	Negligible	No photo
505a	Ash	12	60	Single tree on edge of field	Some holes and splits	Low	No photo
505b	Ash	12	Various	Group of trees on field edge	None	Negligible	No photo
507	Mixed, including Ash and Hawthorn	10-15	Various	Tree-line, east side of field	None	Negligible	
508	Mixed	Various	Various	Block of mixed deciduous trees	Some trees had low suitability, with cracks and splits in trunks	Negligible to Low	
510	Mixed woodland block	Various	Various	Woodland block within Cottam Power Station	Mostly negligible trees, but some do have peeling bark and splits	Negligible to Low	



Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
511	Ash	10-12	30	Two trees next to track	None	Negligible	
512	Ash	10	20	Two tree next to track	None	Negligible	
514	Ash	10	35	Single tree, edge of track	None	Negligible	
515	Ash	10	20-30	Five trees, north side of track	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
517	Ash	15	20-30	Group of Ash trees	None	Negligible	
520	Ash and Willow	10	20-30	Three trees, two Ash, one Willow on north side of track	None	Negligible	
523	Ash	15	30	Four trees, north edge of track	Light Ivy growth on trunks	Low	
524	Oak	12	30	Single tree, south side of track	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
529	Mixed tree-line, including Ash	15	20-30	Treeline, south of track	None	Negligible	
530	Ash	8	20	Single tree adjacent to byway	None	Negligible	
531	Mixed tree-line, including Crab Apple, Ash and Field Maple	10-15	20-30	Treeline, north of track	None	Negligible	
532	Ash	20	40	Single tree in middle of field	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
534	?	10	15	Single tree in hedge	None	Negligible	
600	Ash	15-20	40	Single tree in hedge	Split in trunk	Low	
601	Ash	12	20-30	Two Ash trees in hedge	None	Negligible	
602	Various	10	20	Tree-line of young tree next to rail line	None	Negligible	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
603	Ash	15-20	40	Single track on eastern end of hedge	Some splits and cracks in trunk	Low	
610	Oak	20	40	Adjacent to railway	Knot holes in main trunk	Low	
611	Field Maple	8	15	Small group next to road, in hedge	None	Negligible	
<b>Buildings / Structures</b>							
Building 1	-	-	-	Old house	No windows, many features inside offering roosting potential, but no evidence found	High	

Feature / Photo Ref (see Figure 8J-2)	Tree species	Tree height (metres)	Diameter of tree at breast height (DBH) in centimetres	Description/ number of trees	PRF Description	Roost Suitability	Photograph
Building 2	-	-	-	Single building within SW corner of Cottam Power Station	No windows, small cracks within building offering roosting potential for low numbers of bats but no evidence of bats found	Low	
Building 3	-	-	-	Dilapidated asbestos outbuilding amongst trees	Not entered, but may be gaps and crevices for bats	Low	
Building 4	-	-	-	Single farm building	Not entered, but may be gaps and crevices for bats for bats to enter	Low	No photo

## D2. Bat Activity Transect Survey Results

Beaufort wind force scale: 0 No wind, 1 Light air smoke drifts, 2 Light Breeze leaves rustle, 3 Gentle Breeze small twigs move, 4 Mod Breeze small branches move 5 Fresh Breeze small trees sway, 6 Strong Breeze large branches move, 7 Mod Gale whole trees in motion

Rain Scale: 0-none, 1-drizzle 2-shower 3-rain 4-downpour 5-flood.

### Spring 2022 (See Figure 8J-1)

<b>Surveyor:</b>	MP, MC	<b>Temp °C:</b>	17 to 16
<b>Site:</b>	Transect A	<b>Wind:</b>	4 to 3
<b>Date:</b>	09/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:46	<b>Cloud:</b>	100%
<b>Start/end:</b>	20:40 to 23:25	<b>RH %:</b>	60
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
1	21:26	<i>Myotis mystacinus</i>	5
2	21:37	<i>Pipistrellus pygmaeus</i>	10
3	21:38	<i>Pipistrellus pygmaeus</i>	11
4	21:42	<i>Pipistrellus pygmaeus</i>	28
5	21:43	<i>Pipistrellus pygmaeus</i>	18
6	21:50	<i>Pipistrellus pipistrellus</i>	27
7	21:50	<i>Pipistrellus pipistrellus</i>	10
8	21:51	<i>Pipistrellus pipistrellus</i>	25
9	21:51	<i>Pipistrellus pipistrellus</i>	14
10	21:55	<i>Pipistrellus pygmaeus</i>	17
11	22:06	<i>Nyctalus spec.</i>	5
12	22:18	<i>Pipistrellus pygmaeus</i>	17
13	22:20	<i>Pipistrellus pygmaeus</i>	46
14	22:20	<i>Pipistrellus pygmaeus</i>	19
15	22:21	<i>Pipistrellus pipistrellus,</i> <i>Nyctalus noctula</i>	35
16	22:21	<i>Pipistrellus pygmaeus</i>	15
17	22:21	<i>Nyctalus spec.</i>	4
18	22:21	<i>Pipistrellus pygmaeus</i>	51
19	22:22	<i>Nyctalus leisleri</i>	8
20	22:22	<i>Nyctalus leisleri</i>	3
21	22:23	<i>Nyctalus leisleri</i>	14
22	22:23	<i>Nyctalus leisleri</i>	6
23	22:23	<i>Nyctalus leisleri</i>	3
24	22:24	<i>Nyctalus leisleri</i>	5
25	22:24	<i>Nyctalus spec.</i>	3
26	22:24	<i>Nyctalus leisleri</i>	6
27	22:24	<i>Plecotus auritus</i>	11
28	22:29	<i>Pipistrellus pygmaeus</i>	21
29	22:29	<i>Pipistrellus pygmaeus</i>	60
30	22:29	<i>Pipistrellus pygmaeus</i>	37
31	22:40	<i>Pipistrellus pygmaeus</i>	4



<b>Surveyor:</b>	MP, MC	<b>Temp °C:</b>	17 to 16
<b>Site:</b>	Transect A	<b>Wind:</b>	4 to 3
<b>Date:</b>	09/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:46	<b>Cloud:</b>	100%
<b>Start/end:</b>	20:40 to 23:25	<b>RH %:</b>	60
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
32	22:40	<i>Pipistrellus pygmaeus</i>	6
33	22:40	<i>Pipistrellus pygmaeus</i>	66
34	22:40	<i>Pipistrellus pygmaeus</i>	4
35	22:53	<i>Nyctalus spec.</i>	5
36	22:54	<i>Nyctalus spec.</i>	9
37	22:54	<i>Pipistrellus pygmaeus</i>	12
38	22:56	<i>Myotis spec.</i>	29
39	22:56	<i>Pipistrellus pygmaeus</i>	12
40	22:56	<i>Pipistrellus pygmaeus</i>	36
41	22:57	<i>Pipistrellus pygmaeus</i>	40
42	22:58	<i>Pipistrellus pygmaeus</i>	17
43	22:58	<i>Pipistrellus pygmaeus</i>	21
44	22:58	<i>Pipistrellus pygmaeus</i>	17
45	23:21	<i>Pipistrellus pipistrellus</i>	1
46	23:22	<i>Pipistrellus pipistrellus</i>	1

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	13 to 10
<b>Site:</b>	Transect B	<b>Wind:</b>	2
<b>Date:</b>	10/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:47	<b>Cloud:</b>	40%
<b>Start/end:</b>	20:40 to 23:05	<b>RH %:</b>	n/a
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
		No bats recorded	

<b>Surveyor:</b>	MP, MC	<b>Temp °C:</b>	12 to 8
<b>Site:</b>	Transect C	<b>Wind:</b>	3 to 2
<b>Date:</b>	11/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:49	<b>Cloud:</b>	0
<b>Start/end:</b>	20:40 to 23:25	<b>RH %:</b>	60
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
2	21:42	<i>Nyctalus spec.</i>	3
3	21:57	<i>Pipistrellus pipistrellus</i>	4
4	21:57	<i>Pipistrellus pipistrellus</i>	17
5	21:58	<i>Pipistrellus pipistrellus</i>	1
6	21:58	<i>Pipistrellus pipistrellus</i>	54
7	21:58	<i>Pipistrellus pipistrellus</i>	61

<b>Surveyor:</b>	MP, MC	<b>Temp °C:</b>	12 to 8
<b>Site:</b>	Transect C	<b>Wind:</b>	3 to 2
<b>Date:</b>	11/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:49	<b>Cloud:</b>	0
<b>Start/end:</b>	20:40 to 23:25	<b>RH %:</b>	60
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
8	21:59	<i>Pipistrellus pipistrellus</i>	62
9	21:59	<i>Pipistrellus pipistrellus</i>	49
10	21:59	<i>Pipistrellus pipistrellus</i>	80
11	21:59	<i>Pipistrellus pipistrellus</i>	89
12	21:59	<i>Pipistrellus pipistrellus</i>	75
13	22:00	<i>Pipistrellus pipistrellus</i>	75
14	22:00	<i>Pipistrellus pipistrellus</i>	47
15	22:00	<i>Pipistrellus pipistrellus</i>	73
16	22:01	<i>Pipistrellus pipistrellus</i>	87
17	22:01	<i>Pipistrellus pipistrellus</i>	24
18	22:01	<i>Pipistrellus pipistrellus</i>	4
19	22:01	<i>Pipistrellus pipistrellus</i>	15
20	22:01	<i>Pipistrellus pipistrellus</i>	23
21	22:16	<i>Myotis spec.</i>	15
22	22:17	<i>Myotis spec.</i>	4
1	22:17	<i>Myotis spec.</i>	13

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	15 to 10
<b>Site:</b>	Transect D	<b>Wind:</b>	2
<b>Date:</b>	12/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:50	<b>Cloud:</b>	100%
<b>Start/end:</b>	20:44 to 23:07	<b>RH %:</b>	n/a
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
1	21:40	<i>Pipistrellus pygmaeus</i>	32
2	21:42	<i>Pipistrellus pipistrellus</i>	19
3	21:42	<i>Pipistrellus pygmaeus</i>	17
4	21:44	<i>Pipistrellus pipistrellus</i>	8
5	21:44	<i>Pipistrellus pipistrellus</i>	46
6	21:44	<i>Pipistrellus pipistrellus</i>	6
7	22:56	<i>Pipistrellus pipistrellus</i>	24
8	22:56	<i>Pipistrellus pipistrellus</i>	78
9	22:56	<i>Pipistrellus pipistrellus</i>	50
10	22:57	<i>Pipistrellus pipistrellus</i>	46
11	22:57	<i>Pipistrellus pipistrellus</i>	95
12	22:58	<i>Pipistrellus pipistrellus</i>	38
13	22:58	<i>Pipistrellus pipistrellus</i>	54

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	15 to 10
<b>Site:</b>	Transect D	<b>Wind:</b>	2
<b>Date:</b>	12/05/2022	<b>Rain:</b>	0
<b>Sunset:</b>	20:50	<b>Cloud:</b>	100%
<b>Start/end:</b>	20:44 to 23:07	<b>RH %:</b>	n/a
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
14	22:58	<i>Pipistrellus pipistrellus</i>	27
15	22:58	<i>Pipistrellus pipistrellus</i>	54
16	22:59	<i>Pipistrellus pipistrellus</i>	7
17	22:59	<i>Pipistrellus pipistrellus</i>	128
18	22:59	<i>Pipistrellus pipistrellus</i>	67

**Summer 2022 (See Figure 8J-1)**

<b>Surveyor:</b>	MP, MR	<b>Temp °C:</b>	26 to 19
<b>Site:</b>	Transect A	<b>Wind:</b>	2 to 1
<b>Date:</b>	11/07/2022	<b>Rain:</b>	0
<b>Sunset:</b>	21:28	<b>Cloud:</b>	80 to 100%
<b>Start/end:</b>	21:25 to 23:52	<b>RH %:</b>	55
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
2	22:07	<i>Pipistrellus pygmaeus</i>	15
3	22:11	<i>Pipistrellus pygmaeus</i>	4
4	22:11	<i>Pipistrellus pygmaeus</i>	4
5	22:19	<i>Myotis spec.</i>	5
6	23:26	<i>Nyctalus noctula</i>	12
7	23:26	<i>Nyctalus spec.</i>	7
8	23:26	<i>Nyctalus noctula</i>	21
9	23:26	<i>Nyctalus noctula</i>	24
10	23:26	<i>Nyctalus noctula</i>	12
1	23:27	<i>Nyctalus noctula</i>	36
11	23:47	<i>Pipistrellus pipistrellus</i>	26

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	26 to 18
<b>Site:</b>	Transect B	<b>Wind:</b>	2 to 1
<b>Date:</b>	11/07/2022	<b>Rain:</b>	0
<b>Sunset:</b>	21:28	<b>Cloud:</b>	80 to 100%
<b>Start/end:</b>	21:25 to 00:10	<b>RH %:</b>	55
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
2	22:01	<i>Pipistrellus pipistrellus</i>	13
3	22:01	<i>Pipistrellus pipistrellus</i>	23
4	22:04	<i>Pipistrellus pipistrellus</i>	16
5	22:14	<i>Pipistrellus pygmaeus</i>	11
6	22:50	<i>Pipistrellus pygmaeus</i>	45
7	22:50	<i>Pipistrellus pygmaeus</i>	24
8	22:50	<i>Pipistrellus pygmaeus</i>	26
9	23:03	<i>Pipistrellus pipistrellus</i>	10
10	23:06	<i>Pipistrellus pipistrellus</i>	15
11	23:08	<i>Myotis spec.</i>	31
12	23:21	<i>Pipistrellus pygmaeus</i>	14
13	23:22	<i>Pipistrellus pipistrellus</i>	3
14	23:23	<i>Pipistrellus pipistrellus</i>	11
15	23:26	<i>Pipistrellus pipistrellus</i>	50
16	23:45	<i>Myotis spec.</i>	11
17	23:46	<i>Nyctalus spec.</i>	6
18	23:53	<i>Pipistrellus pipistrellus</i>	19
19	23:53	<i>Pipistrellus pipistrellus</i>	10

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	26 to 18
<b>Site:</b>	Transect B	<b>Wind:</b>	2 to 1
<b>Date:</b>	11/07/2022	<b>Rain:</b>	0
<b>Sunset:</b>	21:28	<b>Cloud:</b>	80 to 100%
<b>Start/end:</b>	21:25 to 00:10	<b>RH %:</b>	55
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
20	00:01	<i>Pipistrellus pipistrellus</i>	23
21	00:01	<i>Pipistrellus pipistrellus</i>	30
22	00:05	<i>Nyctalus noctula</i>	10
1	00:06	<i>Nyctalus noctula</i>	15

<b>Surveyor:</b>	MP, MC	<b>Temp °C:</b>	17 to 12
<b>Site:</b>	Transect C	<b>Wind:</b>	3
<b>Date:</b>	13/07/2022	<b>Rain:</b>	0
<b>Sunset:</b>	21:25	<b>Cloud:</b>	40 to 20%
<b>Start/end:</b>	21:20 to 23:25	<b>RH %:</b>	52
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
2	22:24	<i>Myotis spec.</i>	9
3	22:54	<i>Pipistrellus pipistrellus</i>	20
4	23:00	<i>Pipistrellus pipistrellus</i>	19
1	23:06	<i>Pipistrellus pipistrellus</i>	11
5	23:11	<i>Pipistrellus pipistrellus</i>	20

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	17 to 15
<b>Site:</b>	Transect D	<b>Wind:</b>	2
<b>Date:</b>	12/07/2022	<b>Rain:</b>	0
<b>Sunset:</b>	21:26	<b>Cloud:</b>	100%
<b>Start/end:</b>	21:25 to 00:10	<b>RH %:</b>	n/a
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
2	21:50	<i>Pipistrellus pipistrellus</i>	49
3	21:51	<i>Pipistrellus pipistrellus</i>	23
4	22:05	<i>Pipistrellus pipistrellus</i>	15
5	22:07	<i>Pipistrellus pipistrellus</i>	13
6	22:07	<i>Pipistrellus pipistrellus</i>	14
7	22:07	<i>Pipistrellus pipistrellus</i>	13
8	22:08	<i>Pipistrellus pygmaeus</i>	7
9	22:08	<i>Pipistrellus pygmaeus</i>	5
10	22:11	<i>Pipistrellus pipistrellus</i>	13
11	22:12	<i>Pipistrellus pipistrellus</i>	26
12	22:36	<i>Pipistrellus pipistrellus</i>	18
13	22:42	<i>Myotis spec.(probably M. daubentonii),</i>	31

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	17 to 15
<b>Site:</b>	Transect D	<b>Wind:</b>	2
<b>Date:</b>	12/07/2022	<b>Rain:</b>	0
<b>Sunset:</b>	21:26	<b>Cloud:</b>	100%
<b>Start/end:</b>	21:25 to 00:10	<b>RH %:</b>	n/a
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
14	22:46	<i>Pipistrellus pipistrellus</i>	17
15	22:49	<i>Pipistrellus pipistrellus</i>	34
16	22:49	<i>Pipistrellus pipistrellus</i>	14
17	23:51	<i>Pipistrellus pygmaeus</i>	23
18	00:23	<i>Pipistrellus pipistrellus</i>	12
19	00:23	<i>Pipistrellus pipistrellus</i>	20
20	00:23	<i>Pipistrellus pipistrellus</i>	19
21	00:24	<i>Pipistrellus pipistrellus</i>	21
22	00:24	<i>Pipistrellus pipistrellus</i>	15
23	00:24	<i>Pipistrellus pipistrellus</i>	29
24	00:25	<i>Pipistrellus pipistrellus</i>	30
25	00:25	<i>Pipistrellus pipistrellus</i>	22
26	00:25	<i>Pipistrellus pipistrellus</i>	19
27	00:29	<i>Myotis spec.</i>	23
28	00:32	<i>Plecotus auritus</i>	20
29	00:50	<i>Pipistrellus pipistrellus</i>	8
30	00:50	<i>Pipistrellus pipistrellus</i>	16
31	00:51	<i>Plecotus auritus</i>	22
32	00:52	<i>Pipistrellus pipistrellus</i>	11
33	00:54	<i>Pipistrellus pipistrellus</i>	27
34	00:54	<i>Myotis spec. (probably M. daubentonii), Pipistrellus pipistrellus</i>	40
35	00:55	<i>Myotis spec., Pipistrellus pipistrellus</i>	34
36	00:58	<i>Pipistrellus pipistrellus</i>	16
37	00:58	<i>Pipistrellus pipistrellus</i>	17
38	00:58	<i>Pipistrellus pipistrellus</i>	39
39	00:59	<i>Pipistrellus pipistrellus</i>	54
40	00:59	<i>Pipistrellus pipistrellus</i>	12
41	01:00	<i>Pipistrellus pygmaeus</i>	5
42	01:04	<i>Pipistrellus pipistrellus</i>	13
43	01:05	<i>Pipistrellus pygmaeus</i>	19
44	01:05	<i>Pipistrellus pygmaeus</i>	28
45	01:06	<i>Pipistrellus pipistrellus</i>	24
1	01:06	<i>Pipistrellus pygmaeus</i>	14

Autumn 2022 (See Figure 8J-1)

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	18 to 17
<b>Site:</b>	Transect A	<b>Wind:</b>	1
<b>Date:</b>	05/09/2022	<b>Rain:</b>	0
<b>Sunset:</b>	19:42	<b>Cloud:</b>	20
<b>Start/end:</b>	19:40 to 22:10	<b>RH %:</b>	63
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
1	20:14	<i>Pipistrellus pygmaeus</i>	16
2	20:14	<i>Pipistrellus pygmaeus</i>	18
3	20:14	<i>Pipistrellus pygmaeus</i>	13
4	20:15	<i>Pipistrellus pipistrellus</i>	25
5	20:15	<i>Pipistrellus pipistrellus</i>	21
6	20:15	<i>Pipistrellus pipistrellus</i>	36
7	20:16	<i>Pipistrellus pipistrellus</i>	8
8	20:17	<i>Pipistrellus pipistrellus</i>	11
9	20:17	<i>Pipistrellus pipistrellus</i>	18
10	20:17	<i>Pipistrellus pipistrellus</i>	9
11	20:23	<i>Pipistrellus pygmaeus</i>	27
12	20:23	<i>Pipistrellus pygmaeus</i>	20
13	20:32	<i>Nyctalus leisleri</i>	6
14	20:32	<i>Nyctalus leisleri</i>	9
15	20:32	<i>Nyctalus leisleri</i>	27
16	20:47	<i>Nyctalus spec.</i>	4
17	20:47	<i>Nyctalus spec.</i>	4
18	20:47	<i>Nyctalus noctula</i>	1
19	20:51	<i>Nyctalus spec.</i>	4
20	21:42	<i>Eptesicus serotinus</i>	3
21	21:42	<i>Eptesicus serotinus</i>	10
22	21:58	<i>Nyctalus noctula</i>	11
23	21:58	<i>Pipistrellus pygmaeus</i>	9
24	22:07	<i>Plecotus auritus</i>	25

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	18 to 16
<b>Site:</b>	Transect B	<b>Wind:</b>	2 to 1
<b>Date:</b>	06/09/2022	<b>Rain:</b>	0
<b>Sunset:</b>	19:39	<b>Cloud:</b>	0
<b>Start/end:</b>	19:30 to 21:40	<b>RH %:</b>	68
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
1	19:43	<i>Nyctalus noctula</i>	6
2	19:43	<i>Nyctalus noctula</i>	3
3	19:43	<i>Nyctalus noctula</i>	24
4	19:43	<i>Nyctalus noctula</i>	3
5	20:02	<i>Nyctalus spec.</i>	13

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	18 to 16
<b>Site:</b>	Transect B	<b>Wind:</b>	2 to 1
<b>Date:</b>	06/09/2022	<b>Rain:</b>	0
<b>Sunset:</b>	19:39	<b>Cloud:</b>	0
<b>Start/end:</b>	19:30 to 21:40	<b>RH %:</b>	68
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
6	20:06	<i>Nyctalus noctula</i>	25
7	20:08	<i>Nyctalus spec.</i>	7
8	20:10	<i>Nyctalus spec.</i>	23
9	20:12	<i>Nyctalus noctula</i>	54
10	20:13	<i>Nyctalus noctula</i>	14
11	20:13	<i>Nyctalus spec.</i>	13
12	20:13	<i>Nyctalus noctula</i>	6
13	20:13	<i>Nyctalus noctula</i>	15
14	20:13	<i>Nyctalus noctula</i>	4
15	20:13	<i>Nyctalus noctula</i>	27
16	20:14	<i>Nyctalus noctula</i>	31
17	20:14	<i>Nyctalus noctula</i>	5
18	20:14	<i>Nyctalus noctula</i>	16
19	20:14	<i>Nyctalus noctula</i>	4
20	20:14	<i>Nyctalus noctula</i>	38
21	20:15	<i>Nyctalus noctula</i>	4
22	20:15	<i>Nyctalus noctula</i>	4
23	20:15	<i>Nyctalus noctula</i>	29
24	20:16	<i>Nyctalus noctula</i>	7
25	20:21	<i>Pipistrellus pipistrellus</i>	16
26	20:29	<i>Nyctalus noctula</i>	3
27	20:29	<i>Nyctalus noctula</i>	5
28	20:29	<i>Pipistrellus pygmaeus</i>	29
29	20:30	<i>Pipistrellus pygmaeus</i>	10
30	20:35	<i>Pipistrellus pipistrellus</i>	11
31	20:38	<i>Nyctalus noctula</i>	8
32	20:38	<i>Nyctalus noctula</i>	13
33	20:44	<i>Pipistrellus pipistrellus</i>	3
34	20:50	<i>Pipistrellus pipistrellus</i>	9
35	21:27	<i>Pipistrellus pipistrellus</i>	24
36	21:29	<i>Pipistrellus pipistrellus</i>	13
37	21:29	<i>Pipistrellus pipistrellus</i>	11
38	21:29	<i>Pipistrellus pipistrellus</i>	6
39	21:29	<i>Pipistrellus pipistrellus</i>	12



<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	15 to 14
<b>Site:</b>	Transect C	<b>Wind:</b>	1
<b>Date:</b>	07/09/2022	<b>Rain:</b>	0
<b>Sunset:</b>	19:37	<b>Cloud:</b>	60
<b>Start/end:</b>	19:30 to 21:40	<b>RH %:</b>	53
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
1	20:26	<i>Pipistrellus pipistrellus</i>	13
2	20:35	<i>Pipistrellus pipistrellus</i>	30
3	20:36	<i>Pipistrellus pipistrellus</i>	35
4	20:36	<i>Pipistrellus pipistrellus</i>	36
5	20:36	<i>Pipistrellus pipistrellus</i>	22
6	20:59	<i>Pipistrellus pygmaeus</i>	34
7	21:02	<i>Pipistrellus pygmaeus</i>	11
8	21:10	<i>Pipistrellus pygmaeus</i>	22
9	21:17	<i>Myotis spec.</i>	55
10	21:20	<i>Myotis spec.</i>	9
11	21:21	<i>Myotis spec.</i>	27
12	21:21	<i>Myotis spec.</i>	46
13	21:24	<i>Myotis spec.</i>	43
14	21:29	<i>Pipistrellus pipistrellus</i>	24
15	21:34	<i>Pipistrellus pipistrellus</i>	8
16	21:36	<i>Pipistrellus pipistrellus</i>	27

<b>Surveyor:</b>	AB, MC	<b>Temp °C:</b>	15 to 14
<b>Site:</b>	Transect D	<b>Wind:</b>	2
<b>Date:</b>	08/09/2022	<b>Rain:</b>	0
<b>Sunset:</b>	19:34	<b>Cloud:</b>	20
<b>Start/end:</b>	19:30 to 22:00	<b>RH %:</b>	67
<b>Figure ref.</b>	<b>Timestamp</b>	<b>Species</b>	<b>Calls [Pulses]</b>
1	19:54	<i>Pipistrellus pygmaeus</i>	29
2	20:04	<i>Nyctalus noctula</i>	3
3	20:04	<i>Nyctalus noctula</i>	5
4	20:06	<i>Pipistrellus pipistrellus</i>	24
5	20:12	<i>Pipistrellus pygmaeus</i>	39
6	20:13	<i>Pipistrellus pygmaeus</i>	23
7	20:16	<i>Pipistrellus pipistrellus</i>	14
8	21:08	<i>Myotis spec.</i>	4
9	21:14	<i>Pipistrellus pipistrellus</i>	2
10	21:14	<i>Pipistrellus pipistrellus</i>	8
11	21:17	<i>Plecotus auritus</i>	23
12	21:20	<i>Plecotus auritus</i>	12
13	21:33	<i>Pipistrellus pipistrellus</i>	2
14	21:39	<i>Pipistrellus pipistrellus</i>	17

### D3. Bat Activity Static Survey Results

Date/ Location	Location	Exact Dates Used	PIPI	PIPY	PISP	NYNO	NYLE	NYSP	MYSP	MYDA	PLAU	Species no.	Total	Nights	hrs/nt	BAI per hr	Activity Level
Spring	1	09/05/2022 - 18/05/2022	391	87	6	7	69		201		4	7	765	9	8.00	<b>10.63</b>	High Activity
Spring	2	No Data															
Spring	3	10/05/2022 - 18/05/2022	88	24	1		1		11			5	125	8	8.00	<b>1.95</b>	Low-moderate Activity
Spring	4	11/05/2022 - 18/05/2022	44	2					2			3	48	6	8.00	<b>1.00</b>	Low Activity
Spring	5	09/05/2022 - 18/05/2022	102	17					2			3	121	9	8.00	<b>1.68</b>	Low-moderate Activity
Spring	6	10/05/2022 - 14/05/2022	105	3								2	108	4	8.00	<b>3.38</b>	Moderate Activity
Spring	7	09/05/2022 - 18/05/2022	17	2		9		2	3			5	33	9	8.00	<b>0.46</b>	Low Activity
Spring	8	09/05/2022 - 18/05/2022	70	34					63			3	167	9	8.00	<b>2.32</b>	Moderate Activity
Summer	1	11/07/2022 - 19/07/2022	36	75	2	5		4	40	1		7	163	8	8.00	<b>2.55</b>	Moderate Activity
Summer	2	11/07/2022 - 19/07/2022	191	123	3	23	1	4	47	8		8	400	8	8.00	<b>6.25</b>	Moderate-high Activity
Summer	3	11/07/2022 - 19/07/2022	204	162	3	22	1	3	47	8		8	450	8	8.00	<b>7.03</b>	High Activity
Summer	4	11/07/2022 - 20/07/2022	17		1	1	2					4	21	9	8.00	<b>0.29</b>	Low Activity
Summer	5	11/07/2022 - 19/07/2022	423	3		1	1		12			5	440	9	8.00	<b>6.11</b>	Moderate-high Activity
Summer	6	11/07/2022 - 19/07/2022	407	5		1	1		12			5	426	9	8.00	<b>5.92</b>	Moderate-high Activity
Summer	7	11/07/2022 - 19/07/2022	105	23	4	18	4		61			6	215	9	8.00	<b>2.99</b>	Moderate Activity
Summer	8	11/07/2022 - 19/07/2022	124	6		1	1		19		1	6	152	9	8.00	<b>2.11</b>	Moderate Activity
Autumn	1	02/09/2022 - 06/09/2022	147	27					8			3	182	4	8.00	<b>5.69</b>	Moderate-high Activity
Autumn	2	09/09/2022 - 14/09/2022	4	10					52			3	66	5	8.00	<b>1.65</b>	Low-moderate Activity
Autumn	3	02/09/2022 - 07/09/2022	106	29	1	19	3	3	23		1	8	185	5	8.00	<b>4.63</b>	Moderate-high Activity
Autumn	4	09/09/2022 - 14/09/2022	35	6								2	41	5	8.00	<b>1.03</b>	Low Activity
Autumn	5	02/09/2022 - 07/09/2022	409	11					5			3	425	5	8.00	<b>10.63</b>	High Activity
Autumn	6	02/09/2022 - 07/09/2022	600	22	1	1	1		7			6	632	5	8.00	<b>15.80</b>	High Activity
Autumn	7	09/09/2022 - 15/09/2022	52	11					20			3	83	6	8.00	<b>1.73</b>	Low-moderate Activity
Autumn	8	09/09/2022 - 15/09/2022	20	11					29			3	60	6	8.00	<b>1.25</b>	Low-moderate Activity
<b>TOTALS</b>			<b>3697</b>	<b>693</b>	<b>22</b>	<b>108</b>	<b>85</b>	<b>16</b>	<b>664</b>	<b>17</b>	<b>6</b>		<b>5308</b>	<b>164</b>			

Key to Species: PIPI - Common Pipistrelle, PIPY - Soprano Pipistrelle, NYLE – Leisler's, PISP – Common or Soprano Pipistrelle, NYNO - Noctule, PLAU - Brown Long-eared Bat, MYSP - Myotis species, MYDA – Daubenton's Bat.

#### D4. Bat Activity Static Weather Data

Date	Minimum temperature (°C)	Maximum Temperature (°C)	Min. wind (mph)	Max. Wind (mph)	Rain
09-May	5	18.8	8	18	0
10-May	12.7	20	8	24	0
11-May	11.1	15	8	20	0
12-May	11.1	15	8	20	0
13-May	10	18.8	8	23	0
14-May	10	18.8	8	24	0
15-May	11.1	20	7	15	0
16-May	11.1	20	7	15	0
17-May	12.2	22.7	8	15	0
18-May	11.1	21.1	6	13	0
19-May	10	18.8	2	12	0
20-May	12.2	17.2	3	17	0
01-Jul	10	21	11	39	0
02-Jul	11	21	11	33	0
03-Jul	8	20	7	24	0
04-Jul	10	19	13	35	0
05-Jul	10	19	15	31	0
06-Jul	10	19	11	31	0
07-Jul	10	19	11	35	0
08-Jul	12	26	9	24	0
08-Sep	13	20	7	13	0
09-Sep	10	16	4	13	0
10-Sep	13	21	13	22	0
11-Sep	11	20	2	19	0
12-Sep	8	16	9	28	0
13-Sep	9	18	6	15	0
14-Sep	8	17	6	20	0
15-Sep	8	16	6	22	0
16-Sep	7	15	9	30	0
17-Sep	5	16	9	28	0
18-Sep	8	16	9	28	0