Meridian Solar Farm

EN010169

Volume 6

Environmental Statement

6.3 ES Appendix 9-11: Bat Activity Survey Report 2024

APFP Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

March 2026

This report is based on surveys undertaken between May-October 2024 and uses the Scheme terminology and extents defined at that stage. Since the preparation of this report, there have been minor updates to the Scheme, however, these do not impact on the conclusions of this report.

Contents

Executive Summary

Temple was commissioned in August 2023 to undertake activity surveys for bats and identify any likely associated constraints to the proposed development of Meridian Solar Farm, located within land to the south of Holbeach, Lincolnshire (henceforth referred to as 'the Site').

Surveys were recommended following a Preliminary Ecological Appraisal (PEA) which identified habitat suitable for foraging and commuting bats, including ditches, woodland and hedgerows (**ES Appendix 9-2: Preliminary Ecological Appraisal Report** (Doc. Ref 6.3)). The activity surveys comprised walked transects and static monitoring and were carried out during May, July and September/October 2024. The surveys covered land required for the PV Area only, which comprised four distinct land parcels as outlined within Appendix 1, Figure 1. The Land Parcels, labelled A, B, C, and D from west to east, are henceforth referred to as 'the Survey Area'.

Given the high levels of bat activity recorded within the proposed PV areas, and the presence of comparable habitats and landscape features across the wider Scheme, including the grid connection route and inter-array connections, further bat activity surveys in these areas are not considered proportionate to the likely information gain. In accordance with the proportionality principles set out in ODPM Circular 06/2005[1] and CIEEM guidelines[2], the existing survey data are sufficient to determine the presence of bats and to inform a robust assessment of likely significant effects.

The aim of the transect survey was to provide a preliminary overview of the overall levels of bat activity at the Survey Area, as well as identifying species present and any key habitat

[1] Office of the Deputy Prime Minister (2005) *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System (ODPM Circular 06/2005)*. London: The Stationery Office. Available at: https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-062005 (Accessed: 27 February 2026).

[2] Chartered Institute of Ecology and Environmental Management (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Updated 2019 and 2022. Winchester: CIEEM. Available at: https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/ (Accessed: 27 February 2026).

areas within the Survey Area, in order to provide an indication of the likely importance of the Survey Area for bats. The main findings are as follows:

- Foraging and commuting activity was recorded across the Survey Area from eleven species of bat, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, Natterer's bat, whiskered bat, noctule, serotine, Leisler's and barbastelle.
- Activity was recorded across the whole Survey Area, with water courses, woodland, hedges, and trees being identified as key foraging and commuting areas for bats as overall activity on the Survey Area was much lower away from these areas.
- The Survey Area has been identified as being important to bats at a National level based on the importance of bat assemblage in Bat Mitigation Guidelines[3].

Given the preliminary nature of the surveys and the development proposals, it is not possible at this stage to provide detailed recommendations for mitigation, compensation, or enhancement of the Survey Area for bats. However, based on the available data, it is considered that standard measures will be sufficient to mitigate any potential impacts. A key aspect of the Scheme design should be the avoidance of loss where feasible for important bat commuting and foraging habitats (e.g. hedgerows) which should be embedded into the design to largely avoid impacts on bats. Where impacts on key habitats during the construction phase are unavoidable, these will be managed through the Outline Construction Environmental Management Plan (OCEMP Doc. Ref. 7.10). Any habitat loss will be small-scale, localised, and carefully designed to minimise impacts. Compensatory planting will be provided where necessary to offset habitat loss. Overall, the ambitions for the scheme are likely to result in an enhancement for bat populations. This approach aligns with the mitigation hierarchy in the Bat Mitigation Guidlines, which prioritises the avoidance of disturbance to bats and their habitats as the preferred method before any mitigation measures are considered. Detailed surveys of buildings

[3] Reason, P.F. and Wray, S. (2023) *Bat Mitigation Guidelines*. Leeds: Chartered Institute of Ecology and Environmental Management (CIEEM). Available at: https://cieem.net/resource/bat-mitigation-guidelines/ (Accessed: 27 February 2026).

and trees will be required in the future if the project plans are expected to impact these features in any way.

1 Introduction

BACKGROUND TO COMMISSION

2.5 Temple was commissioned in August 2023 to undertake bat activity surveys at the proposed Meridian Solar Farm (hereafter referred to as 'the Scheme'), located to the south of Holbeach, Lincolnshire (hereafter referred to as 'the Site'). The surveys were carried out to provide ecological information as part of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP), to include photovoltaic (PV) arrays and associated infrastructure, the inter-array connections and the grid connection. The NSIP concerns the construction, operation (including maintenance) and decommissioning of a solar photovoltaic (PV) electricity generating facility with associated infrastructure including co-located battery storage and an approximately 13km Grid Connection, the 'Scheme'. The Scheme consists of three elements, the 'PV Area', the 'Grid Connection', and the 'Inter-Array'. The PV Area is the land proposed to contain the solar PV infrastructure, solar PV supporting infrastructure and On-Site Substation and Battery Energy Storage System (BESS) Compounds and is the subject of this report.

1.1 These surveys followed on from a Preliminary Ecological Appraisal (PEA) carried out by Temple between August 2023 and August 2024 (**ES Appendix 9-2: Preliminary Ecological Appraisal Report** (Doc. Ref 6.3)) which recommended further activity surveys for bats due to the presence of habitat with high suitability for foraging and commuting bats, comprising ditches, woodlands and hedgerows.

1.2 The activity surveys covered land and boundary features within the PV Area only (i.e. land required for the Scheme, excluding the Inter-Array Areas and Grid Connection Corridor) which comprised four discreet land parcels within the Site, indicated by a red line boundary (Appendix 1, Figure 1). The parcels are identified from west to east and hereafter referred to as Parcels A, B, C and D and collectively hereafter referred to as the 'Survey Area'.

1.3 Given the high levels of bat activity recorded within the proposed PV areas, and the presence of comparable habitats and landscape features across the wider Scheme, including the grid connection route and inter-array connections, further bat activity surveys in these areas are not considered proportionate to the likely information gain. In accordance with the proportionality principles set out in ODPM Circular 06/2005[4] and CIEEM guidelines[5], the existing survey data are sufficient to determine the presence of bats and to inform a robust assessment of likely significant effects.

SCOPE OF REPORT

1.4 This report outlines the methodologies and findings of the bat activity surveys conducted between May and October 2024 and provides an assessment of the importance of the Survey Area for foraging and/or commuting bats.

1.5 The assessment is based on the following sources of information, including that obtained from third parties and the results of surveys:

- a desk study including:

2.5 a data search for bat records within a 2km radius of the PV Development Areas;

  - an assessment of the surrounding habitats for their likely importance for bats;
  - the presence of any protected areas cited for their bat populations;
  - the location and status of any nearby historic or extant bat mitigation licenses within a 2km radius of the Site;
- three night-time bat walkover surveys of the Survey Area, once per season, split into nine transect routes undertaken in spring (May), summer (August), autumn (September/October) 2024.

[4] Office of the Deputy Prime Minister (2005) *Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and Their Impact within the Planning System (ODPM Circular 06/2005)*. London: The Stationery Office. Available at: https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-062005 (Accessed: 27 February 2026).

[5] Chartered Institute of Ecology and Environmental Management (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*. Updated 2019 and 2022. Winchester: CIEEM. Available at: https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/ (Accessed: 27 February 2026).

- Fourteen static bat detectors deployed across the Survey Area for one week each month from April 2024 to October 2024.

1.6 The surveys in this report will aid in the identification any potential ecological constraints associated with the proposed development and/or identify the need for additional survey work to further evaluate any impact that may risk contravention of legislation or policy relating to protected species and nature conservation.

1.7 This assessment has been prepared with reference to best practice guidance published by the Bat Conservation Trust[6], the UK Bat Mitigation Guidelines[7] published by the Chartered Institute for Ecology and Environmental Management (CIEEM), and as detailed in British Standard 42020:2013 *Biodiversity – Code of Practice for Biodiversity and Development*[8].

SITE CONTEXT AND STATUS

1.8 The total Solar Development Areas equal 1,067ha in size and are centred on Ordnance Survey National Grid TF 28970 13928. The Solar Development Area is approximately 1.7km north of Crowland and 9km south east of Spalding as shown in Appendix 1, Figure 1. The wider area is predominantly a typical Fenland landscape with open, low-lying arable agricultural land with individual field parcels separated by a vast network of ditches and Internal Drainage Board (IDB) main drains. The River Welland lies adjacent to the western-most boundary of the Survey Area, at Parcel A. The A16 carriageway runs north to south along the western boundary of Parcel B in the west of the Survey Area. Parcels C and D are bisected by minor roads, Martin's Road and Langary Gate Road respectively.

[6] Bat Conservation Trust (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition)*. London: Bat Conservation Trust. Available at: https://www.bats.org.uk/resources/guidance-for-professionals/bat-surveys-good-practice-guidelines (Accessed: 27 February 2026).

[7] Reason, P.F. and Wray, S. (2023) *Bat Mitigation Guidelines*. Leeds: Chartered Institute of Ecology and Environmental Management. Available at: https://cieem.net/resource/bat-mitigation-guidelines/ (Accessed: 27 February 2026).

[8] British Standards Institution (2013) *BS 42020:2013 Biodiversity — Code of practice for planning and development*. London: British Standards Institution.

SCHEME CONTEXT

1.9 Surveys were conducted to provide information as part of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP) near Spalding, Lincolnshire. The NSIP concerns the construction, operation (including maintenance) and decommissioning of a solar photovoltaic (PV) electricity generating facility with associated infrastructure including co-located battery storage and an approximately 13km Grid Connection, the 'Scheme'. The Scheme consists of three elements, the 'PV Area', the 'Grid Connection', and the 'Inter-Array'. The PV Area is the land proposed to contain the solar PV infrastructure, solar PV supporting infrastructure and On-Site Substation and Battery Energy Storage System (BESS) Compounds and is the subject of this appraisal.

RELEVANT LEGISLATION AND PLANNING POLICY

1.10 The following key pieces of nature conservation legislation are relevant to this assessment. A more detailed description of this legislation is provided in **ES Appendix 9-1 Legislation, Policy and Guidance** (Doc. Ref. 6.3).

- The Conservation of Habitats and Species Regulations 2017 (as amended)[9];
- The Wildlife and Countryside Act 1981 (as amended)[10];
- Natural Environment and Rural Communities (NERC) Act 2006[11];
- The Environment Act 2021[12]; and
- Wild Mammals (Protection) Act 1996[13].

[9] The Conservation of Habitats and Species Regulations 2017 (2017) *The Conservation of Habitats and Species Regulations 2017*. SI 2017/1012. London: The Stationery Office. Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents (Accessed: 27 February 2026).

[10] Wildlife and Countryside Act 1981 (1981) *Wildlife and Countryside Act 1981*. London: The Stationery Office. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents (Accessed: 27 February 2026).

[11] Natural Environment and Rural Communities Act 2006 (2006) *Natural Environment and Rural Communities Act 2006*. London: The Stationery Office. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents (Accessed: 27 February 2026).

[12] Environment Act 2021 (2021) *Environment Act 2021*. London: The Stationery Office. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents (Accessed: 27 February 2026).

[13] Wild Mammals (Protection) Act 1996 (1996) *Wild Mammals (Protection) Act 1996*. London: The Stationery Office. Available at: https://www.legislation.gov.uk/ukpga/1996/3/contents (Accessed: 27 February 2026).

1.11 All British species of bat are listed on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). Under this legislation it is an offence to deliberately capture, kill or disturb a bat and to damage, destroy or obstruct access to a bat roost. Seven species of bat (barbastelle *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bats *Rhinolophus hipposideros*) are also Species of Principal Importance under S41 of the NERC Act.

1.12 The National Planning Policy Framework[14] (NPPF) and The Environment Act 2021 requires local authorities to avoid and minimise impacts on biodiversity and to provide net gains in biodiversity when taking planning decisions. In addition, in England, under Section 40 of the Natural Environment and Rural Communities Act 2006, all public bodies are required to have regard to biodiversity conservation when carrying out their functions. The PEA (**ES Appendix 9-2: Preliminary Ecological Appraisal Report** (Doc. Ref 6.3)) includes text on the NPPF (and other national policy) relevant to NSIPs and energy schemes.

1.13 Other planning policies at the local level of relevance to this development include the South-East Lincolnshire Local Plan[15] and the Lincolnshire Biodiversity Action Plan[16]. Further information is provided in Appendix 3.

[14] Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework*. London: MHCLG. Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2 (Accessed: 27 February 2026).

[15] South East Lincolnshire Joint Strategic Planning Committee (2019) *South East Lincolnshire Local Plan 2011–2036*. Boston and Spalding: South East Lincolnshire Joint Strategic Planning Committee. Available at: https://www.southeastlincslocalplan.org/adopted-plan/ (Accessed: 27 February 2026).

[16] Greater Lincolnshire Nature Partnership (2015) *Lincolnshire Biodiversity Action Plan*. Lincoln: Greater Lincolnshire Nature Partnership. Available at: https://glnp.org.uk/partnership/nature-strategy/ (Accessed: 27 February 2026).

NOMENCLATURE

1.14 Common names of species, in accordance with the Natural History Museum Species Dictionary[17], are used throughout this report with scientific names given at first mention only for fauna.

[17] Natural History Museum (2024) *NHM Species Dictionary*. London: Natural History Museum. Available at: https://www.nhm.ac.uk/our-science/data/species-dictionary/ (Accessed: 27 February 2026).

2 Methodology

DESK STUDY

2.1 A desk study was conducted to obtain data relating to bats within a 2km radius of the Survey Area, as made available by Greater Lincolnshire Nature Partnership, the local Biological Records Centre.

2.2 Additional contextual information was compiled from publicly available data sources:

- MAGIC (http://www.magic.gov.uk) – the Government's on-line mapping service. Information was sought regarding: the presence of ancient semi-natural woodland (ASNW), statutory designated nature conservation sites and extant or historic mitigation licences for bats; and
- Ordnance Survey mapping and publicly available aerial photography to determine any features such as: running and standing water, woodland, tree lines, hedgerows, railway corridors and the surrounding landscape uses.

NIGHT-TIME BAT WALKOVER SURVEY

Personnel

2.3 The night-time walkover surveys were led by a Principal Ecologist with 13 years' experience and a Level 2 class licence for bats 2015-13434-CLS-CLS, a Senior Ecologist with nine years' experience and a Level 2 class licence, 2021-5031-CLS-CLS, a Principal Ecologist with 12 years' experience and a Level 1 class licence, 2019-40782 – CLS – CLS, an Ecologist with 10 years' experience and a Level 1 class licence 2017-32197-CLS-CLS and an Ecologist with over five years bat survey experience.

2.4 They were assisted by a Principal Ecologist with over 10 years' experience a Level 2 class licence (2020-44376-CLS-CLS, an Ecologist with eight years of bat survey experience, an Assistant Ecologist with five years' experience, an Assistant Ecologist

with two years' experience, an Assistant Ecologist with two years' experience and an Assistant Ecologist with one year experience.

Aims and objectives

2.5 The aims of the survey were to identify as far as possible:

- The bat species using the Survey Area;
- The relative frequency with which the Survey Area is used by any bat species;
- The nature of activity for different species, for example foraging, commuting or roosting; and,
- The habitats within the Survey Area that are of value for bats (i.e. by being frequently used; used by high numbers of bats; linking habitats beyond the Site and across the landscape).

Night-time bat walkover survey

2.6 The Survey Area was divided into nine separate transect routes to enable surveyors to effectively cover the entire area. Spring surveys were conducted in May, summer surveys in July and autumn surveys were split between September and October in suitable weather conditions (see Table 2 below). On each occasion, two surveyors began the survey before sunset, stationed near to potential flight lines at each transect. The surveyors remained in position for thirty minutes after sunset, at which time they began walking the pre-determined transect route, recording audio and visual bat activity throughout. The transects walked followed one continuous route with no stopping points, commencing at sunset and continuing for 120 minutes afterwards. The transect routes can be seen in Appendix 1, Figure 2. Transect routes and start points were varied slightly across the three visits due to factors such as impassible ditches and changes in access.

Table 2: Breakdown of night-time walkover survey dates

Transect surveyed	Date		
	Spring	Summer	Autumn
1	14/05/2024	29/07/2024	24/09/2024
2	14/05/2024	29/07/2024	24/09/2024
3	14/05/2024	29/07/2024	24/09/2024
4	15/05/2024	30/07/2024	09/10/2024
5	15/05/2024	30/07/2024	09/10/2024
6	15/05/2024	30/07/2024	09/10/2024
7	16/05/2024	31/07/2024	21/10/2024
8	16/05/2024	31/07/2024	22/10/2024
9	16/05/2024	31/07/2024	23/10/2024

2.7 Elekon Batlogger M bat detectors were used to record bat echolocation calls in full spectrum. During the activity transect the surveyors on site noted how many times each bat passed a location, as well as the flight path taken if seen. Recordings were later analysed using the Bat ExplorerTM to aid the identification of species according to Russ[18] and analyse the number of passes for each species. For the purpose of the activity surveys a pass is defined as each separate recording.

STATIC ACTIVITY SURVEYS

Personnel

2.8 The Song Meter Mini Bat 2 Ultrasonic Recorders were deployed each month from April to October 2024 by a Senior Ecologist with over six years' bat survey experience and an Ecologist with two years' experience. All other surveyors experience is listed above.

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

2.9 During each month, fourteen monitoring devices were deployed within suitable habitat across the Survey Area as shown in Appendix 1, Figure 2. Static device locations are given in Table 3 below.

2.10 Due to the large volume of static detector data, the manual identification of records returned from the static surveys was not considered practicable. Instead, the British Trust for Ornithology's (BTO) Acoustic Pipeline auto-identification software was used along with additional manual quality auditing. After recordings were processed through the BTO Acoustic Pipeline results were returned with a suggested species identification for each bat pass together with probability rating (0-100%) describing the confidence of that species identification. As with the walkover surveys a pass is defined as each separate recording. Following this, data with probabilities less than 0.5 (<50%) were removed from the dataset, a random 10% sample of each species of the remaining recordings and the noise/no ID files was checked manually, along with 100% of barbastelle recordings due to their very rare status[19].

[19] Reason, P.F. and Wray, S. (2023) *Bat Mitigation Guidelines*. Leeds: Chartered Institute of Ecology and Environmental Management. Available at: https://cieem.net/resource/bat-mitigation-guidelines/ (Accessed: 27 February 2026).

Table 3: Static device locations

Device number	Device location
Static 1	On the edge of a woodland in the south west of Land Parcel A (grid reference TF 23978 12813)
Static 2	On the edge of a woodland in the central area of Land Parcel A (grid reference TF 24483 13753)
Static 3	Within a tree line along the north of Land Parcel A (grid reference TF 24652 14228
Static 4	On the south edge of South Holland Main Drain to the north of Land Parcel B (grid reference TF 27294 15934)
Static 5	Adjacent to Queen's Bank Road to the north of Land Parcel B within a group of young trees (grid reference TF 26698 14824)
Static 6	On the southern side of the southern-most of three poplar trees in the central area of Land Parcel B (grid reference TF 27039 14182)
Static 7	On the edge of a woodland near the south boundary of Land Parcel B (grid reference TF 27356 13080)
Static 8	On a singular fence post next to a hedgerow, in the east of Land Parcel B (grid reference TF 28670 13666)
Static 9	On the edge of a compost heap in the south of Land Parcel C (grid reference TF 30446 12895)
Static 10	On a large willow tree in middle of a ditch and hedgerow on the northern boundary of Land Parcel C (grid reference TF 29966 14127)
Static 11	On the north edge of the South Holland Main Drain, in the north of Land Parcel D, on the edge of a strip of woodland (grid reference TF 35353 16488)
Static 12	Within a strip of woodland in the north east of Land Parcel D (grid reference TF 35207 15793)
Static 13	On the edge of a woodland to the east of Land Parcel D (grid reference TF 34813 14793). Land in which the static detector was located was within the Solar Development Area at the time of survey but has since been removed from the Scheme.
Static 14	To the south of Land Parcel D, on the edge of a small patch of trees, adjacent to Langary Gate Road (grid reference TF 34088 13765).

EVALUATION

2.11 Where sufficient baseline data are available, the ecological importance of the Survey Area has been evaluated broadly following the Bat Mitigation Guidelines[20] which ranks the nature conservation importance of a site according to a geographic scale of reference: international, national, regional (eastern England), metropolitan, county, vice-county or other local authority-wide area (Lincolnshire); and of importance at the zone of influence of the Survey Area only. In evaluating the nature conservation importance of the Survey Area, the following factors were considered: nature conservation designations; species/habitat rarity; naturalness; fragility and connectivity to other habitats. Where no importance has been assigned, this is due to insufficient information.

DATA VALIDITY AND LIMITATIONS

2.12 It should be noted that, whilst every effort has been made to provide a comprehensive description of the Survey Area, no investigation can ensure the complete characterisation and prediction of the natural environment. It is considered that this report accurately reflects the habitats present, their biodiversity values and the potential of the Survey Area to support foraging and commuting bats.

2.13 Data from bat surveys is valid for a period of 12-18 months, unless there are any significant changes to habitats within the Survey Area[21]. Data used to support a mitigation licence application to Natural England must be from the most recent survey season; depending on the timing of the application, this may mean from the same or previous year.

[20] Reason, P.F. and Wray, S. (2023) *Bat Mitigation Guidelines*. Leeds: Chartered Institute of Ecology and Environmental Management. Available at: https://cieem.net/resource/bat-mitigation-guidelines/ (Accessed: 27 February 2026).

[21] Chartered Institute of Ecology and Environmental Management (2019) *Advice Note on the Lifespan of Ecological Reports and Surveys*. Winchester: CIEEM. Available at: https://cieem.net/resource/advice-note-on-the-lifespan-of-ecological-reports-and-surveys/ (Accessed: 27 February 2026).

2.14 It is important to note that even where data are held, a lack of records for a defined geographical area does not necessarily mean that there is a lack of ecological interest; the area may be simply under-recorded.

2.15 Bats are highly mobile animals and can move over long distances in a single evening, they may emerge from roost sites and leave the Survey Area immediately. It is not possible to capture evidence of each potential bat flight path; these data are, however, indicative of the type of bat activity and number of species using the Survey Area.

2.16 Due to issues with data corruption, data was not collected in some locations in April, May, June, and October 2024 (marked as 'Failed' in Table 4 below). This is not seen as a major limitation however as sufficient numbers of species were identified across all locations and months to be able to discern which species are present and how they are using the Survey Area.

2.17 *Plecotus* species (long-eared bats) are often under-recorded as their calls are extremely quiet and are usually only recorded when within a few metres of the detector. They may therefore be present in higher numbers than indicated from the recordings. This is a limitation inherent in surveys of this nature, despite the high-quality equipment being used.

2.18 During the analysis stage, some species calls can be indistinguishable between certain bat genus groups, especially if a bat has modified its frequency, for example. For the purpose of this report, indistinguishable calls identifiable to genus are referred to by genus name as follows:

- *Pipistrelle* species – for indistinguishable calls of either common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle and (rarely) Nathusius' pipistrelle *Pipistrellus nathusii*;

- *Myotis* species – for indistinguishable calls of either Daubenton's bat *Myotis daubentonii* and Natterer's bat *Myotis nattereri*, and, less likely at this Site, whiskered bat *Myotis mystacinus* and Brandt's bat.
- *Nyctalus* species – for indistinguishable calls of either noctule or Leisler's bat *Nyctalus leisleri*.

2.19 Despite these limitations, it is considered that this report accurately reflects the bat species present and their use of the Survey Area.

3 Results

DESK STUDY

3.1 The desk study is presented in full in the PEA report (ES Appendix 9-2: Preliminary Ecological Appraisal Report Doc. Ref 6.3). Below is a summary of the pertinent data relating to bats.

3.2 The data search returned 470 records of bats from within the past ten years from at least seven species. Of these, 430 records were foraging/commuting bats within the search area of which 170 were identified to species level. These included Daubenton's bat, noctule, Nathusius's pipistrelle, common pipistrelle, soprano pipistrelle, whiskered/Brandt's and brown long-eared bat. The most recent record was from 2020 of pipistrelle bats near Holbeach Drove. The remaining 40 records were of bat roosts with four species identified: Daubenton's bat, common pipistrelle, soprano pipistrelle, and brown long-eared bat. The other records had not been identified down to species level. Four figure grid references only are provided for these records, as such accurate locations cannot be established. However, all the records are sited outside the Site boundary. The most recent roost record was from a brown long-eared bat near Gedney Hill in 2021.

3.3 There are no current or historic European Protected Species licences for bats within 2km of the Site boundary.

Significant landscape features

3.4 The Survey Area is typical of the wider Fenland landscape and features a mosaic of habitats, including large arable fields which, at the time of the surveys, were in various states of arable production, separated by a network of drainage ditches and IDB main drains, native hedgerows, woodlands, lines of trees, mixed scrub, and modified grassland. These habitats provide suitable foraging and commuting areas for various bat species and are linked by ditches to additional foraging grounds on all sides.

3.5 There are 19 parcels of deciduous woodland, and two traditional orchards within 2km of the Survey Area[22], 14 Coastal and Floodplain Grazing Marsh CFPGM parcels and four deciduous woodland parcels which are Habitats of Principal Importance (HPI) are adjacent to the Survey Area boundary. These contain optimal habitats for bats and the records indicate that at least six bat species use the wider area. Such habitats are likely to provide important foraging and commuting resources for bats locally.

BAT ACTIVITY TRANSECTS

Overview

3.6 During the transect walkovers, eight species of bats were recorded within the Survey Area for foraging and commuting activities; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, noctule, barbastelle and *Myotis* species. A further four species; whiskered bat, Natterer's bat, serotine *Eptesicus serotinus* and Leisler's bat were recorded during the static surveys. Bats were often recorded foraging along water courses, hedges, treelines and individual trees.

3.7 All transects produced evidence of bats, and the highest number of calls were attributed to common pipistrelle across all survey visits. Transect three had the greatest number of individual species recorded (common pipistrelle, soprano pipistrelle, noctule, Daubenton's bat, Myotis species, and brown long-eared bat).

3.8 This section provides a summary of the results of the transect surveys with the routes taken around the Survey Area mapped in Appendix 1.

[22] Natural England (2022) *Priority Habitat Inventory (England)*. Available at: https://naturalengland-defra.opendata.arcgis.com/datasets/priority-habitat-inventory-england (Accessed: 27 February 2026).

Dusk activity transect – route 1, survey 1, 14/05/2024 – Sunset 20:51

3.9 In total two species of bat, common pipistrelle and soprano pipistrelle, were recorded during the first activity survey along with one unknown bat heard by the surveyors but not recorded by the audio detector.

3.10 The majority of the passes were of common pipistrelle with this species first detected commuting north at 21:33 (42 minutes after sunset). The bat activity on this transect was spread around the transect route and was largely foraging along ditches and hedgerows/tree lines. Soprano pipistrelle was not detected until 22:02, then again at 22:06 and 22:26, all were foraging passes. The last recording was a foraging common pipistrelle at 22:55.

Dusk activity transect – route 1, survey 2, 29/07/2024 – Sunset 20:56

3.11 The same two species of bat were recorded during this survey as were detected during survey 1; common pipistrelle, soprano pipistrelle, additionally a noctule was recorded on this survey.

3.12 The majority of activity on this survey was limited to the south of the transect, with only one bat recorded outside of this area, this was also the first bat detected and was a noctule seen commuting east at 21:53. One more noctule was recorded foraging at 23:01.

3.13 The majority of the passes were of common pipistrelles foraging, the first recorded at 22:03 and the last at 23:15. Soprano pipistrelles were recorded foraging on three occasions. In keeping with the last survey the bat activity detected was largely foraging along water courses and hedgerows/tree lines.

Dusk activity transect – route 1, survey 3, September 24th 024 – Sunset 18 :52

3.14 The same three species of bat were recorded during this survey as were detected during the previous surveys; common pipistrelle, soprano pipistrelle and noctule, additionally a Daubenton's bat was recorded on this survey.

3.15 The first bat detected was a noctule commuting at 19:33 and the last bat was a common pipistrelle at 21:03. A myotis species was recorded foraging at 20:34. Foraging activity was recorded of common pipistrelles, soprano pipistrelles and noctules continuously throughout the survey. Bats were more frequently recorded foraging along the ditches and hedges/tree lines.

Dusk activity transect – route 2, survey 1, 14/05/2024 – Sunset 20:50

3.16 In total three species of bat, common pipistrelle, soprano pipistrelle and noctule were recorded during the first activity survey.

3.17 Common pipistrelles were the first bats to be recorded, foraging at 21:35; 45 minutes prior to sunset on the northeast corner of the transect. Common and soprano pipistrelles were both recorded foraging over arable fields, at 21:58. Activity was also recorded close to trees, hedges and the farm buildings to the north of the transect. The bat activity on this transect was largely spread across the northeast of the transect. The last bat recorded was a soprano pipistrelle foraging at 23:18.

Dusk activity transect – route 2, survey 2, 29/07/2024 – Sunset 20:56

3.18 In total three species of bat, common pipistrelle, soprano pipistrelle and myotis species were recorded during this activity survey.

3.19 The first bat to be recorded was a common pipistrelle at 22:15, foraging up and down a tree line near the farm buildings to the north of the Survey Area until 22:21. Activity on this survey was limited to the northeast of the Survey Area. The last bat recorded was a foraging common pipistrelle at 23:25.

Dusk activity transect – route 2, survey 3, 24/09/2024 – Sunset 20:56

3.20 In total six species of bat, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, barbastelle and myotis species were recorded on Site during this activity survey.

3.21 The first bats to be recorded were soprano pipistrelle and noctule foraging around haystacks at the north of the transect for three minutes at 19:24. A single barbastelle was seen commuting west at 19:33 near the northeast corner of the transect. A myotis species was recorded foraging at 21:14. Activity on this survey was spread across the whole transect and comprised largely of common and soprano pipistrelles foraging and commuting. The last bat recorded was a foraging common pipistrelle at 21:21.

Dusk activity transect – route 3, survey 1, 14/05/2024 – Sunset 20:50

3.22 Three species of bat, common pipistrelle, soprano pipistrelle and noctule, were recorded during the survey, utilising the Survey Area to forage and commute.

3.23 The first bat to be recorded was a common pipistrelle commuting east at 21:35. The majority of activity recorded on this survey was common pipistrelles foraging along ditches across the transect. A singular noctule was recorded commuting at 22:51. The last bat recorded was a common pipistrelle at 22:52

Dusk activity transect – route 3, survey 2, 29/07/2024 – Sunset 20:56

3.24 Two species of bat, common pipistrelle and soprano pipistrelle, were recorded during the survey, utilising the Survey Area to forage.

3.25 Activity was relatively low on this survey and after the first bat, a common pipistrelle at 21:57 comprised frequent passes from a mixture of single and multiple bats every few minutes until the last bat at 23:06, another common pipistrelle. Activity was limited to the north half of the transect.

Dusk activity transect – route 3, survey 3, 24/09/2024 – Sunset 18:52

3.26 Six species of bat, common pipistrelle, soprano pipistrelle, noctule, Daubenton's myotis species, and brown long-eared, were recorded on in the Survey Area during the survey, utilising the ditches and drains to forage.

3.27 The first bat to be recorded was a soprano pipistrelle at 19:58. Myotis species was recorded foraging along the ditch at 20:06 and a Daubenton's bat at 20:08. Two passes from a noctule were recorded at 20:19 and a single brown long-eared bat was recorded at 20:23. The last bat recorded was a common pipistrelle also foraging along a ditch at 20:49.

Dusk activity transect – route 4, survey 1, 15/05/2024 – Sunset 20:52

3.28 Two species of bat, common pipistrelle and soprano pipistrelle, were recorded during the survey.

3.29 The first bat to be recorded was a common pipistrelle at 22:45, commuting at the south tip of the transect. After this activity comprised frequent passes from a mixture of single and multiple bats every few minutes until the last bat at 22:36, a commuting soprano pipistrelle.

Dusk activity transect – route 4, survey 2, 30/07/2024 – Sunset 20:55

3.30 Three species of bat, common pipistrelle, soprano pipistrelle, and barbastelle were recorded during the survey, utilising the Survey Area to forage and commute.

3.31 The first bat recorded was a commuting common pipistrelle at 22:07. Common pipistrelles were the most common species, most often recorded foraging over ditches. The last bat recorded was a barbastelle at 23:24.

Dusk activity transect – route 4, survey 3, 09/10/2024 – Sunset 18:19

3.32 No bats were recorded on this survey.

Dusk activity transect – route 5, survey 1, 15/05/2024 – Sunset 20:51

3.33 At least two species of bat, common pipistrelle and soprano pipistrelle and were recorded on Survey Area during this activity survey.

3.34 The first bat was seen commuting south at 21:04, the species is unknown as the surveyors saw the bat, but it was not picked up by the detector. The most commonly

occurring bat was the common pipistrelle, bats utilised the Survey Area for foraging and commuting, with foraging being most prominent over ditches across the transect. The last bat was a common pipistrelle recorded foraging at 23:04 in the northeast.

Dusk activity transect – route 5, survey 2, 30/07/2024 – Sunset 20:55

3.35 At least three species of bat, common pipistrelle, soprano pipistrelle and noctule were recorded in the Survey Area during this survey. One unidentified bat was also seen but not recorded.

3.36 Common pipistrelles were the first bats to be recorded, foraging at 21:26; 31 minutes after sunset on the northwest of the transect. Noctules were recorded at 22:34 and 22:38. Common and soprano pipistrelles were both recorded foraging across the transect throughout the survey. A bat was seen at 23:17 commuting southeast, the species is unknown as it was not picked up by the detector. The last bat was a common pipistrelle foraging at 23:24 foraging for two minutes in the northeast corner of the transect.

Dusk activity transect – route 5, survey 3, 09/10/2024– Sunset 18:19

3.37 Two species of bat, common pipistrelle and soprano pipistrelle were recorded during this activity survey.

3.38 Soprano pipistrelles were the first bats to be recorded, commuting at 18:47 in the northeast corner of the transect. The last bat was a foraging common pipistrelle at 19:55. Low levels were detected overall, with most activity concentrated in the northwest of the transect.

Dusk activity transect – route 6, survey 1, 15/05/2024 – Sunset 20:51

3.39 One species of bat, the common pipistrelle was recorded during this activity survey, utilising the Survey Area to forage.

3.40 The first bat recorded was at 21:48 foraging for two minutes. Activity was comprised of foraging activity on the east half of the transect, concentrated around the ditches. The last bat was recorded at 22:41.

Dusk activity transect – route 6, survey 2, 30/07/2024 – Sunset 20:56

3.41 One species of bat, the common pipistrelle was recorded during this activity survey, utilising the Survey Area to forage.

3.42 The first bat recorded was at 22:10. Activity was comprised of foraging activity on the east half of the transect, concentrated around the ditches. The last bat was recorded at 22:40.

Dusk activity transect – route 6, survey 3, 09/10/2024 – Sunset 18:19

3.43 Two species of bat, common pipistrelle and noctule were recorded during this activity survey.

3.44 Only two bats were recorded during this survey. The first was a noctule at 18:46 seen commuting north at north of the transect, the second was a common pipistrelle recorded at 19:33 foraging for two minutes.

Dusk activity transect – route 7, survey 1, 16/05/2024 – Sunset 20:53

3.45 In total three species of bat, common pipistrelle, soprano pipistrelle and noctule were recorded during the first activity survey.

3.46 Common pipistrelles were the first bats to be recorded, commuting at 21:28. After this activity comprised frequent passes every few minutes, spread across the entire transect route. Soprano pipistrelle were recorded once at 21:50, commuting on the east of the transect, noctule were recorded once at 23:10. The majority of activity recorded was from foraging pipistrelles, often utilising the ditches. The last bat was a foraging common pipistrelle at 23:28.

Dusk activity transect – route 7, survey 2, 31/07/2024 – Sunset 20:53

3.47 One species of bat, the common pipistrelle was recorded during this activity survey, utilising the Survey Area to forage and commute.

3.48 The first bat recorded was commuting at 21:42 at the northeast of the transect. Activity was comprised of foraging and commuting activity on the east half of the transect, concentrated around the ditches. The last bat was recorded foraging at 22:44. Low levels were detected overall.

Dusk activity transect – route 7, survey 3, 21/10/2024 – Sunset 17:52

3.49 One species of bat, the common pipistrelle was recorded during this activity survey.

3.50 Activity was spread across the transect with the first bat recorded at 18:28. The last bat was recorded foraging at 19:44 for two minutes near the southeast of the transect. Low levels were detected overall.

Dusk activity transect – route 8, survey 1, 16/05/2024 – Sunset 20:53

3.51 One species of bat, the common pipistrelle, was recorded during this activity survey.

3.52 The first bat recorded was foraging west along a drainage ditch at 21:45 for three minutes. Activity was comprised of foraging and commuting activity spread across the transect, with concentrated foraging around the ditches. The last bat was recorded foraging at 23:09 for two minutes.

Dusk activity transect – route 8, survey 2, 31/07/2024 – Sunset 20:53

3.53 One species of bat, the common pipistrelle, was recorded during this activity survey utilising the Survey Area for foraging.

3.54 The first bat recorded was foraging at 21:52 in the northeast corner of the transect. Activity was comprised of foraging activity spread across the transect, concentrated around the ditches. The last bat was recorded foraging at 23:06 to the south of the transect.

Dusk activity transect – route 8, survey 3, 22/10/2024 – Sunset 17:50

3.55 One species of bat, the common pipistrelle was recorded during this activity survey utilising the Survey Area for foraging.

3.56 The first bat recorded was foraging at 21:57 in the northwest corner of the transect. Activity comprised frequent foraging after the first recording, concentrated along ditches. The last bat was recorded foraging at 23:03 for six minutes to the south of the transect.

Dusk activity transect – route 9, survey 1, 16/05/2024 – Sunset 20:53

3.57 Two species of bat, common pipistrelle and noctule, were recorded on Site during this activity survey.

3.58 Common pipistrelles were the first bats to be recorded, foraging at 21:49, on the east of the transect, they were recorded using the Survey Area to commute and foraging, particularly along ditches and a patch of trees located centrally in the transect. Activity comprised frequent recordings, every few minutes after the first detection. A single noctule call was recorded 22:53. The last bat recorded was a common pipistrelle foraging in the centre of the transect at 22:48.

Dusk activity transect – route 9, survey 2, 31/07/2024 – Sunset 20:53

3.59 In total Four species of bat, common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle and barbastelle were recorded during the activity survey.

3.60 Common pipistrelles were the first bats to be recorded, foraging at 21:33. Activity comprised frequent passes every few minutes after this, with the bats utilising the transect for foraging. Soprano pipistrelles were recorded foraging for a few minutes at 22:04, a single barbastelle at 22:12 was recorded foraging centrally in the north of the Survey Area, and at 22:18 a single foraging Nathusius' was recorded. The last bat was a common pipistrelle foraging at 23:45 for four minutes.

Dusk activity transect – route 9, survey 3, 23/10/2024 – Sunset 17:48

3.61 Two species of bat, common pipistrelle and soprano pipistrelle, were recorded during the activity survey utilising the Survey Area for commuting and foraging.

3.62 Common pipistrelles were the first bats to be recorded, commuting at 18:23. Most of the activity recorded was foraging by common pipistrelles and was spread across the entire transect. The last bat was a soprano pipistrelle foraging at 19:53 in the centre of the transect.

BAT STATIC SURVEYS

3.63 This section provides a summary of the recordings taken by the static monitoring devices deployed for seven days each month from April to October 2024. Tables 4-10 below provide a breakdown of all passes recorded on each device during each deployment. A map showing deployment locations can be found in Appendix 1, Figure 2.

April static deployment

3.64 A total of 14 static monitoring devices were deployed in April between 29 April 2024 and 05 May 2024. Device failures happened at five devices (statics 4, 5, 6, 7 and 12) meaning that recordings could not be taken at these locations on this month (see limitations section 2.16 for details).

3.65 Over the seven days of deployment, 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle. Over the seven days of deployment, 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle. Whiskered and serotine bats were only recorded on static device 3 located within a tree line along the northwest of the Survey Area. The highest number of barbastelle bats in April (62) were also recorded at static 3, with lower

numbers being recorded on static 8, located centrally within the Survey Area next to a hedgerow and static 10 on the northern boundary of the Survey Area. Comparatively high numbers of common pipistrelles were detected with 37,411 recordings being made across all devices.

May static deployment

3.66 A total of 14 static monitoring devices were deployed in May between 18 May 2024 and 24 May 2024. Device failures occurred on four devices (statics 7, 12, 13 and 14) meaning that recordings could not be taken at these locations on this month (see limitations section 2.16 for details

3.67 Over the seven days deployment 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle.

3.68 High numbers of common pipistrelle calls were recorded on device number 10 on the northern boundary of the Survey Area, with 18,868 passes being recorded. Comparatively low levels of all other species were recorded at this device on this month. Device 4 on the south edge of South Holland Main Drain to the north of the Survey Area boundary had a low number of recordings across all species with only 157 recordings being made in total.

June static deployment

3.69 A total of 14 static monitoring devices were deployed in June between 18 June 2024 and 24 June 2024. Device failures occurred on two devices (statics 10 and 11) meaning that recordings could not be taken at these locations on this month (see limitations section 2.16 for details).

3.70 Over the seven days deployment 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle.

3.71 Only one barbastelle was recorded in June, on static device 1 deployed at the edge of a woodland on the southwest Survey Area boundary. 37 noctule calls were also recorded on static device 1, the greatest amount recorded in June. Common pipistrelle and soprano pipistrelle were recorded across all locations.

July static deployment

3.72 A total of 14 static monitoring devices were deployed in July between 20 July 2024 and 26 July 2024.

3.73 Over the seven days deployment 10 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle. No whiskered bats were recorded in July.

3.74 Higher levels of Daubenton's bats were recorded on static device 4 to the north of the Survey Area boundary and device 5 just outside the Survey Area boundary also to the north of the Survey Area. Noctule were recorded at all device locations except number 11 on the southern edge of the South Holland Main Drain, at the northeast of the Survey Area. Common pipistrelles were recorded in relatively high levels on all detectors.

August static deployment

3.75 A total of 14 static monitoring devices were deployed in August between 20 August 2024 and 26 August 2024.

3.76 Over the seven days deployment 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle.

3.77 A total of 104 brown long eared bats were recorded throughout August, the highest amount recorded across all months. 49 of these were on device 1, deployed on the edge of a woodland on the southwest Site boundary, this device also delivered the

highest numbers of barbastelle and noctule during this month. 33 Natterers' bat calls were recorded on device 8, positioned relatively centrally within the Survey Area, no other devices recorded this species in August.

September static deployment

3.78 A total of 14 static monitoring devices were deployed in September between 19 September 2024 and 25 September 2024.

3.79 Over the seven days deployment 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle.

3.80 All 11 species were recorded on static devices 5, just outside the Site boundary to the north within a group of young trees, 6 to the north of the Survey Area and 7 on the edge of a woodland near the south boundary of the Survey Area. Comparatively device 12, located within a strip of woodland to the east of the Survey Area only returned calls from common pipistrelle, soprano pipistrelle and Daubenton's bat, and device 14 on the southeast of the Survey Area, on the edge of a small patch of trees, only returned calls from common pipistrelle, soprano pipistrelle and one Leisler's bat. September recorded the highest number of bat calls overall.

October static deployment

3.81 A total of 14 static monitoring devices were deployed in October between 11 October 2024 and 17 October 2024. Device failures occurred on two devices (statics 6 and 9) meaning that recordings could not be taken at these locations on this month (see limitations section 2.16 for details).

3.82 Over the seven days deployment 11 bat species were recorded: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle.

3.83 Devices 12 and 13, both located on the east of the Survey Area recorded only common pipistrelle and soprano pipistrelle. Device 10 deployed in a hedgerow on the northern boundary of the Survey Area was the only device that detected whiskered bats, 102 calls were recorded. Device 5, just outside the Survey Area boundary to the north recorded the only serotine call during this month.

Table 4: Breakdown of bat species recorded from static monitoring devices in April.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterer's bat	Whiskered bat	Barbastelle	Brown long-eared bat	Serotine	Noctule	Leisler's bat	
1	568	68	4	3	0	0	0	1	0	9	0	**653**
2	9843	37	2	5	0	0	0	4	0	16	4	**9911**
3	8075	191	34	33	21	2	62	0	1	24	15	**8458**
4	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
5	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
6	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
7	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
8	335	3	5	0	0	0	2	11	0	3	3	**362**
9	150	0	0	0	0	0	0	0	0	0	0	**150**
10	5195	500	2	1	0	0	4	0	0	2	9	**5713**
11	6971	69	8	6	0	0	0	0	0	5	1	**7060**
12	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
13	1532	2	0	6	2	0	0	4	0	0	0	**1546**
14	4742	44	3	3	0	0	0	6	0	1	0	**4799**
TOTAL	**37411**	**914**	**58**	**57**	**23**	**2**	**68**	**26**	**1**	**60**	**32**	**38652**

Table 5: Breakdown of bat species recorded from static monitoring devices in May.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterers'	Whiskered	Barbastelle	Brown Long-eared	Serotine	Noctule	Leisler's	
1	3660	1165	8	18	1	0	2	0	24	78	22	**4978**
2	4760	234	8	17	6	0	46	0	0	23	7	**5101**
3	4856	79	9	8	3	0	0	0	5	71	10	**5041**
4	150	1	2	1	0	0	0	0	0	1	2	**157**
5	815	25	23	24	0	0	7	5	4	4	22	**929**
6	1609	4	20	1	0	0	0	0	0	1	5	**1640**
7	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
8	581	5	0	1	0	0	0	4	0	3	6	**600**
9	1181	0	26	2	0	0	0	0	0	4	1	**1214**
10	18868	63	15	51	0	2	0	2	1	11	14	**19028**
11	660	5	2	2	0	0	0	3	0	1	1	**674**
12	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
13	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
14	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
TOTAL	**37140**	**1518**	**113**	**125**	**10**	**2**	**55**	**14**	**34**	**197**	**90**	**39362**

Table 6: Breakdown of bat species recorded from static monitoring devices in June.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterers'	Whiskered	Barbastelle	Brown Long-eared	Serotine	Noctule	Leisler's	
1	308	17	0	2	0	0	1	0	7	37	1	**373**
2	292	8	2	0	0	0	0	0	0	6	4	**312**
3	1007	35	1	1	2	0	0	1	0	0	0	**1047**
4	618	17	15	20	0	0	0	0	0	0	0	**670**
5	1033	53	11	89	2	1	0	1	0	6	2	**1198**
6	1815	7	6	2	0	0	0	0	0	0	1	**1831**
7	2335	4	0	4	0	2	0	0	0	2	2	**2349**
8	582	6	2	1	1	0	0	3	0	0	0	**595**
9	427	0	1	1	0	0	0	0	0	0	0	**429**
10	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
11	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
12	1073	0	0	0	0	0	0	1	0	1	0	**1075**
13	5398	1	3	4	0	0	0	0	0	0	0	**5406**
14	3604	1	0	0	0	0	0	0	0	0	0	**3605**
TOTAL	**18492**	**149**	**41**	**124**	**5**	**3**	**1**	**6**	**7**	**52**	**10**	**18890**

Table 7: Breakdown of bat species recorded from static monitoring devices in July.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterers'	Whiskered	Barbastelle	Brown Long-eared	Serotine	Noctule	Leisler's	
1	980	109	0	11	0	0	1	2	9	30	1	**1143**
2	626	42	1	1	0	0	0	0	12	50	0	**732**
3	146	5	0	2	4	0	0	0	6	35	1	**199**
4	2314	954	15	299	2	0	0	1	8	19	2	**3614**
5	962	54	0	280	0	0	1	4	8	20	5	**1334**
6	1943	9	1	8	0	0	0	0	1	26	3	**1991**
7	8729	9	0	7	0	0	1	1	6	20	1	**8774**
8	602	16	0	7	0	0	0	1	0	10	4	**640**
9	826	4	0	1	0	0	0	1	0	7	3	**842**
10	2758	82	0	19	4	0	0	5	2	6	1	**2877**
11	737	1	0	2	0	0	0	1	0	0	0	**741**
12	2598	31	0	1	0	0	0	2	0	3	1	**2636**
13	5391	0	0	0	0	0	0	1	0	1	0	**5393**
14	1940	0	0	0	0	0	0	0	0	1	0	**1941**
TOTAL	**30552**	**1316**	**17**	**638**	**10**	**0**	**3**	**19**	**52**	**228**	**22**	**32857**

Table 8: Breakdown of bat species recorded from static monitoring devices in August.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterers'	Whiskered	Barbastelle	Brown Long-eared	Serotine	Noctule	Leisler's	
1	6141	3266	1	24	0	1	16	49	7	25	4	**9534**
2	1052	24	0	0	0	0	0	0	9	4	17	**1106**
3	514	91	0	2	0	0	1	0	0	8	0	**616**
4	2138	181	7	24	0	0	0	7	4	4	10	**2375**
5	1999	160	2	84	0	3	14	11	3	1	7	**2284**
6	639	6	0	2	0	0	1	2	0	0	2	**652**
7	21406	10	0	56	0	0	11	3	1	3	11	**21501**
8	455	6	0	4	33	0	3	2	0	1	6	**510**
9	79	2	0	0	0	0	0	0	0	0	0	**81**
10	9302	10	0	10	0	0	3	6	0	1	6	**9338**
11	51	0	0	3	0	0	0	4	0	0	1	**59**
12	12498	333	0	19	0	0	2	19	0	1	0	**12872**
13	1702	12	0	1	0	0	1	0	1	0	0	**1717**
14	28	8	0	0	0	0	0	1	0	0	0	**37**
TOTAL	**58004**	**4109**	**10**	**229**	**33**	**4**	**52**	**104**	**25**	**48**	**64**	**62682**

Table 9: Breakdown of bat species recorded from static monitoring devices in September.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterers'	Whiskered	Barbastelle	Brown Long-eared	Serotine	Noctule	Leisler's	
1	72	62	1	2	0	1	2	1	0	10	3	**154**
2	680	42	1	1	1	0	160	1	4	4	0	**894**
3	4712	671	16	14	3	0	77	2	0	6	0	**5501**
4	6533	4655	452	94	0	0	1	1	0	14	4	**11754**
5	62	11	2	5	1	1	57	1	1	7	7	**155**
6	332	19	1	2	1	1	1	3	1	1	1	**363**
7	1701	51	1	2	1	1	7	1	1	1	1	**1768**
8	78	2	0	5	6	0	47	11	0	0	0	**149**
9	91	2	1	2	0	0	0	0	0	0	0	**96**
10	20138	1965	123	62	4	11	41	16	0	0	2	**22362**
11	8517	1490	6	2	0	0	0	0	0	0	0	**10015**
12	1470	17	0	3	0	0	0	0	0	0	0	**1490**
13	13812	24	11	5	1	0	0	2	0	0	0	**13855**
14	963	36	0	0	0	0	0	0	0	0	1	**1000**
TOTAL	**59161**	**9047**	**615**	**199**	**18**	**15**	**393**	**39**	**7**	**43**	**19**	**69556**

Table 10: Breakdown of bat species recorded from static monitoring devices in October.

Static number	Number of Passes (per species)											TOTAL
	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Daubenton's bat	Natterers'	Whiskered	Barbastelle	Brown Long-eared	Serotine	Noctule	Leisler's	
1	2799	1038	2	23	0	0	36	3	0	1	0	**3901**
2	2004	57	0	1	0	0	0	0	0	10	5	**2077**
3	6345	481	1	5	3	0	0	0	0	0	7	**6842**
4	1225	1251	115	20	2	0	0	0	0	0	0	**2613**
5	614	250	55	14	0	0	23	9	1	3	10	**979**
6	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
7	6985	33	3	17	0	0	5	1	0	1	0	**7045**
8	250	1	0	1	172	0	20	7	0	0	1	**452**
9	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	FAILED	**N/A**
10	7847	183	17	46	1	102	15	9	0	0	1	**8221**
11	3453	492	0	2	0	0	0	0	0	0	0	**3947**
12	825	47	0	0	0	0	0	0	0	0	0	**872**
13	350	9	0	0	0	0	0	0	0	0	0	**359**
14	1632	66	2	0	0	0	0	0	0	0	0	**1700**
TOTAL	**34329**	**3908**	**195**	**129**	**178**	**102**	**99**	**29**	**1**	**15**	**24**	**39008**

4 Evaluation

FORAGING AND COMMUTING

4.1 The Survey Area provides a function as a foraging and commuting resource used by at least 11 species of bat; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, whiskered bat, Natterers' bat, noctule, serotine, Leisler's bat, and barbastelle were recorded on Site, most likely utilising boundary vegetation and water courses for foraging and/or commuting. Of these species, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, noctule, whiskered bat, Natterers' bat and barbastelle are Species of Principal Importance (SPIs).

4.2 There is a network of ditches, drains, hedges and woodland/trees across the Survey Area that provide key foraging habitat and connectivity for a range of bat species. Based on the current survey data it is considered that the Survey Area represents an important site for foraging and commuting bats.

4.3 The number of bat passes does not directly equate to the number of individual bats, it is likely that on some occasions multiple passes will involve the same individual bat. Bats often fly back and forth along the same routes, particularly in areas where they are foraging or commuting. Therefore, while the number of bat passes can provide valuable insight into activity levels and use of the Survey Area, it does not reflect the exact number of individual bats present during the survey period.

4.4 According to the static detector data, September had the highest number of bat passes overall, totalling 69,556. 59,161 of these passes were common pipistrelle which may indicate that the Survey Area is being used by this species as a mating and swarming site along with using the key habitats as a valuable foraging source to store fat for winter. This could also indicate the presence of common pipistrelle transitional roosts within the Survey Area or nearby. Additionally, calls of soprano pipistrelles (9047), Nathusius' pipistrelles (615) and barbastelle bats (393) were

highest in September, therefore the same conclusions can be drawn for these species.

4.5 August had the second highest number of bat passes totalling 62,682. 58,004 of these were common pipistrelles, this supports the suggestion that mating common pipistrelles are using the Survey Area and indicates the presence of both adults and juveniles, meaning maternity roosts may present within the Survey Area or in neighbouring habitats. Soprano pipistrelle and brown long-eared bat calls followed this same trend in August suggesting the same could be true of these species.

4.6 Daubenton's, noctule and serotine calls were highest in July, (638, 228 and 52 respectively) which indicates the presence of maternity or summer roosts on or around the Survey Area. The highest number of calls for Natterers' and Whiskered Bats were recorded in October (178 and 102, respectively), while Leisler's bats had their highest call count in May (90). This suggests the presence of transitional roosts for these species within the Survey Area or the surrounding land.

4.7 In the context of the data, it is important to recognize that the observed higher abundance of common pipistrelle bats compared to other species is a reflection of their differing population densities and conservation statuses. Common pipistrelle bats are one of the most abundant and widespread bat species in Europe, their high numbers in the data are consistent with their general abundance in the environment. In contrast, barbastelle bats are a much rarer species, typically associated with specific habitats, such as mature woodlands, and are less commonly encountered. Their lower abundance aligns with their status as a nationally rare species, with populations declining due to habitat loss and other environmental pressures. Therefore, while the data shows a large number of common pipistrelle bats and fewer barbastelle bats, this distribution is not unexpected given the relative abundance of common pipistrelles compared to the rarity of barbastelles. This contextual understanding of species prevalence should be considered when interpreting the results, as the observed abundance reflects broader ecological trends and conservation challenges for the different species. Although the number

of common pipistrelles was highest other species recorded at lower levels of prevalence on the site are of a higher ecological importance.

4.8 The level of bat activity during the night-time walkover surveys varied between each survey route and survey visit, however bat activity was spread across the whole Survey Area. There were no transects that returned no bat calls and waterways, woodland/trees and hedges were consistently identified as key commuting/foraging habitats for all species. Table 11 below provides a breakdown of each species recorded on each transect route.

4.9 The majority of activity recorded was from generalist species such as common and soprano pipistrelle which are known to utilise a range of habitats including urban environments and are not considered to be overly light sensitive. However, the presence of other species, particularly brown long-eared bat and barbastelle, which are typically categorised as a more light sensitive species, also indicates that existing habitats have importance as a dark commuting and foraging areas within the landscape.

Table 11: Breakdown of species recorded

Transect route	Species recorded
1	Common pipistrelle, soprano pipistrelle, noctule, Daubenton's bat
2	Common pipistrelle, soprano pipistrelle, noctule, *Myotis* species, Nathusius' pipistrelle, barbastelle
3	Common pipistrelle, soprano pipistrelle, noctule, Daubenton's bat, *Myotis* species, Brown long-eared bat
4	Common pipistrelle, soprano pipistrelle, barbastelle
5	Common pipistrelle, soprano pipistrelle, noctule
6	Common pipistrelle, noctule
7	Common pipistrelle, soprano pipistrelle, noctule
8	Common pipistrelle
9	Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, barbastelle

SUMMARY OF THE SURVEY AREA IMPORTANCE TO BATS

4.10 Given habitats present and the high levels of activity recorded across the Survey Area from a large number of species, including the nationally rare barbastelle bat, it can be concluded that the Survey Area is likely to be important to bats at a National level. This conclusion is supported by using the Bat Mitigation Guidelines[23] to assess the importance of a bat assemblage. This conclusion is due to the number of different species utilising the Survey Area and the presence of rarer or restricted species including Nathusius' pipistrelle, serotine, Leisler's, and barbastelle.

[23] Reason, P.F. and Wray, S. (2023) *Bat Mitigation Guidelines*. Leeds: Chartered Institute of Ecology and Environmental Management. Available at: https://cieem.net/resource/bat-mitigation-guidelines/ (Accessed: 27 February 2026).

5 Summary and Conclusions

SUMMARY

5.1 The surveys undertaken have informed an assessment of the importance of the Survey Area for foraging and commuting bats. The following ecological constraints have been identified:

- The surveys recorded activity from eleven species of bat: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, Daubenton's bat, Natterers' bat, whiskered, noctule, serotine, Leisler's bat, and barbastelle. Of these species, soprano pipistrelle, Nathusius' pipistrelle, brown long-eared bat, noctule, whiskered bat, Natterers' bat and barbastelle are Species of Principal Importance (SPIs).
- During the walked transect surveys most of the activity was located close to water courses, woodland, hedges and trees. These habitats are identified as being key foraging and commuting areas for bats as overall activity throughout the Survey Area was much lower away from these habitats.

CONCLUSIONS

5.2 The key habitats of importance to bats identified within the Survey Area are water courses, hedges and woodland/trees spread across whole Survey Area, impacting these habitats will be avoided wherever possible through the design of the Scheme and measures to avoid disturbance and impacts during the construction phase of development will be set out within the Outline Construction Environmental Management Plan. Mitigation measures will be required to ensure that the favourable conservation status of bats on the Site is maintained post-development if any loss of important habitat or corridors occurs.

Appendix 1: Survey Maps

Figure 1: Site Map showing Land Parcels of the Solar Development Area

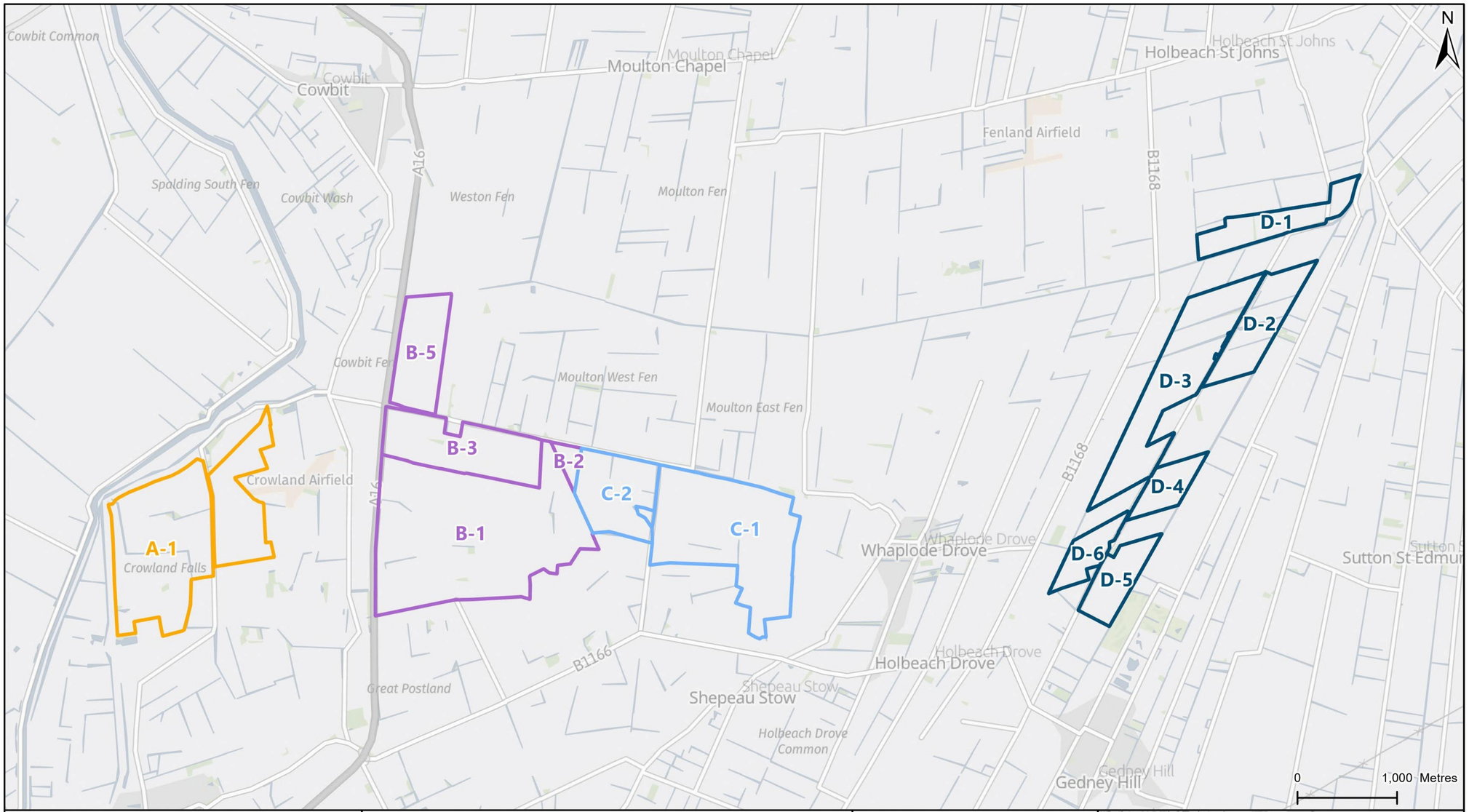
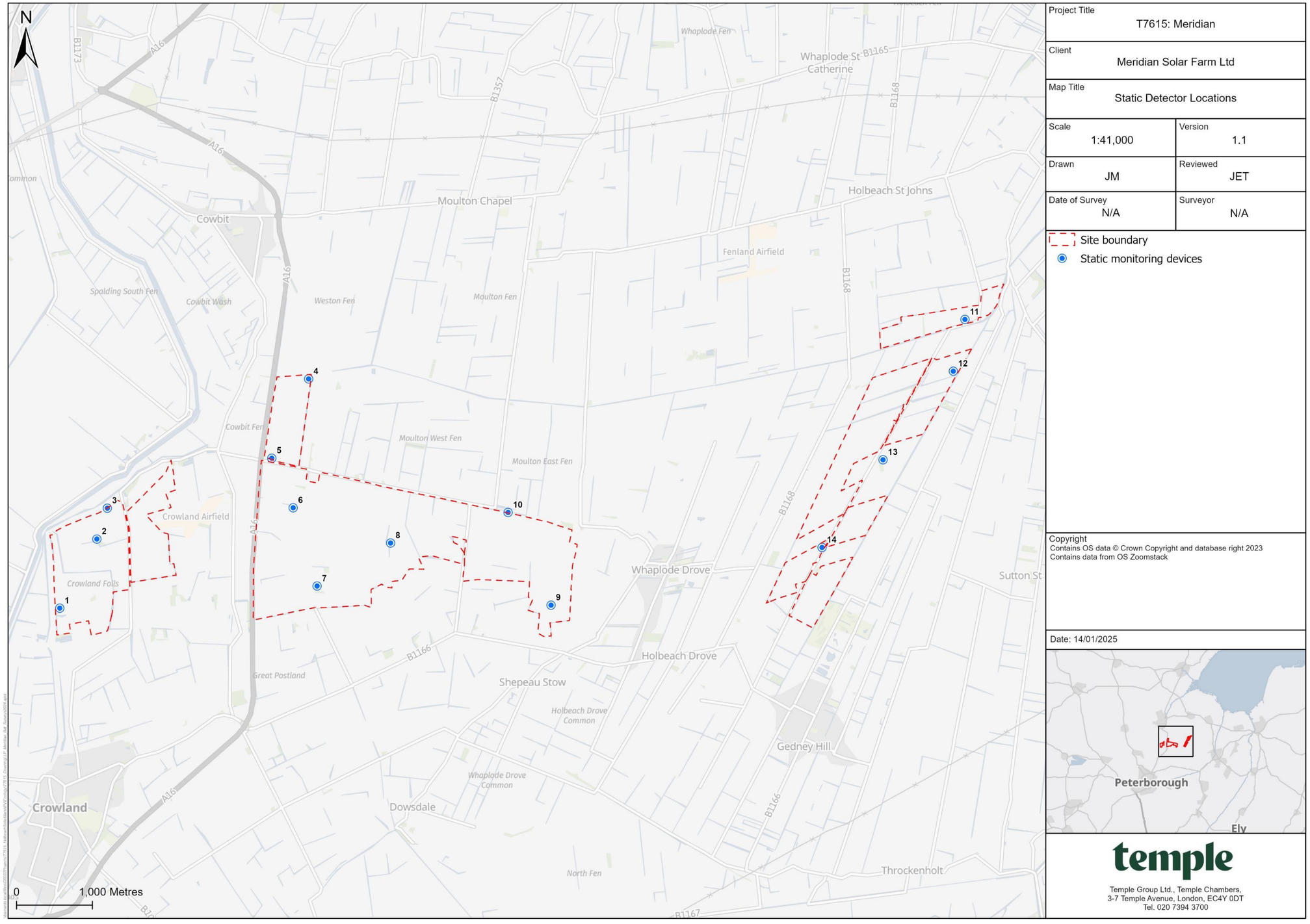


Figure 2: Location of static monitoring devices



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Static Detector Locations
Scale: 1:41,000	Version: 1.1
Drawn: JM	Reviewed: JET
Date of Survey: N/A	Surveyor: N/A

Site boundary
Static monitoring devices

Date: 14/01/2025

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Tel. 020 7394 3700

Figure 3: Survey map – Transect 1, visit 1, 14/05/2024

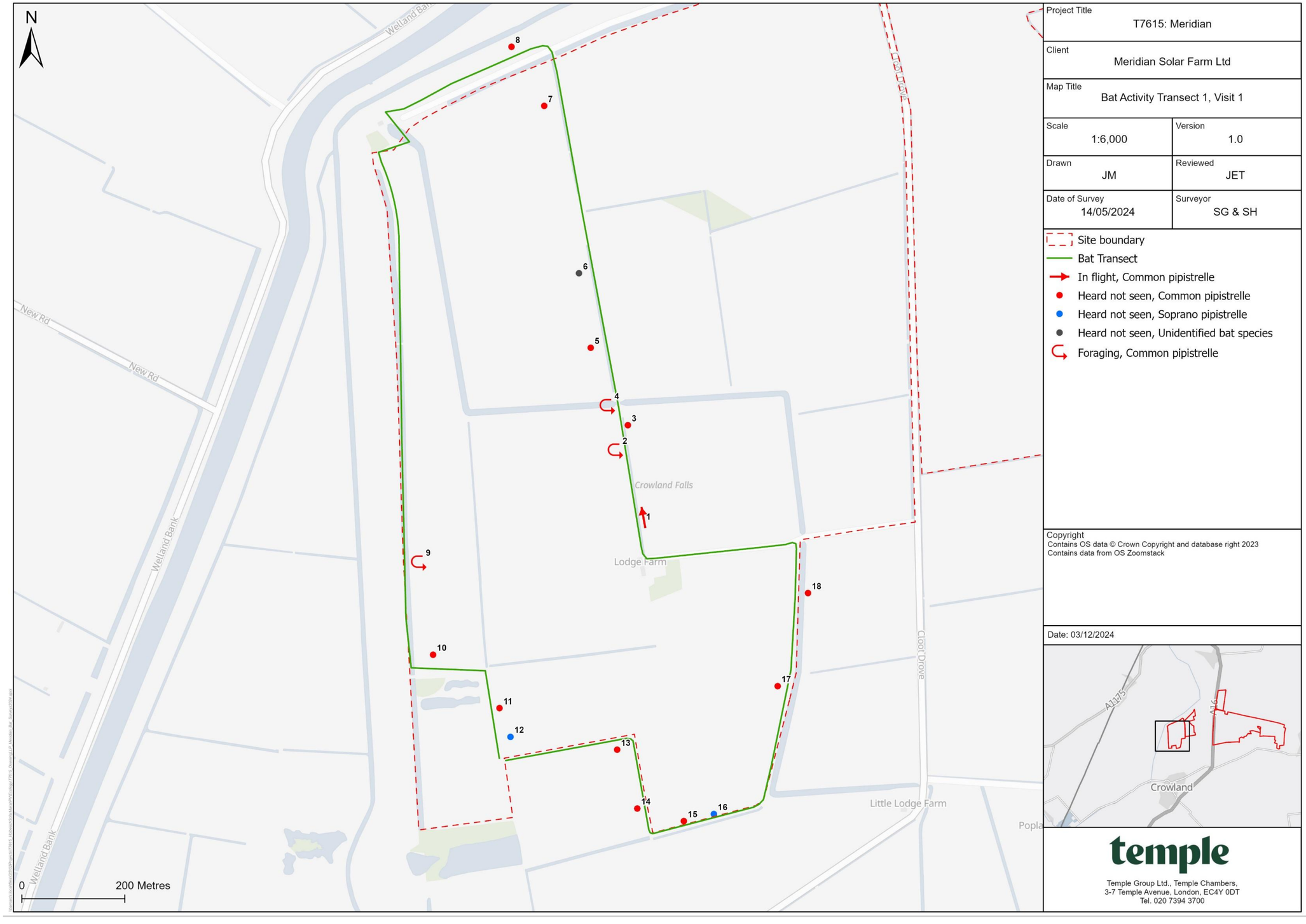
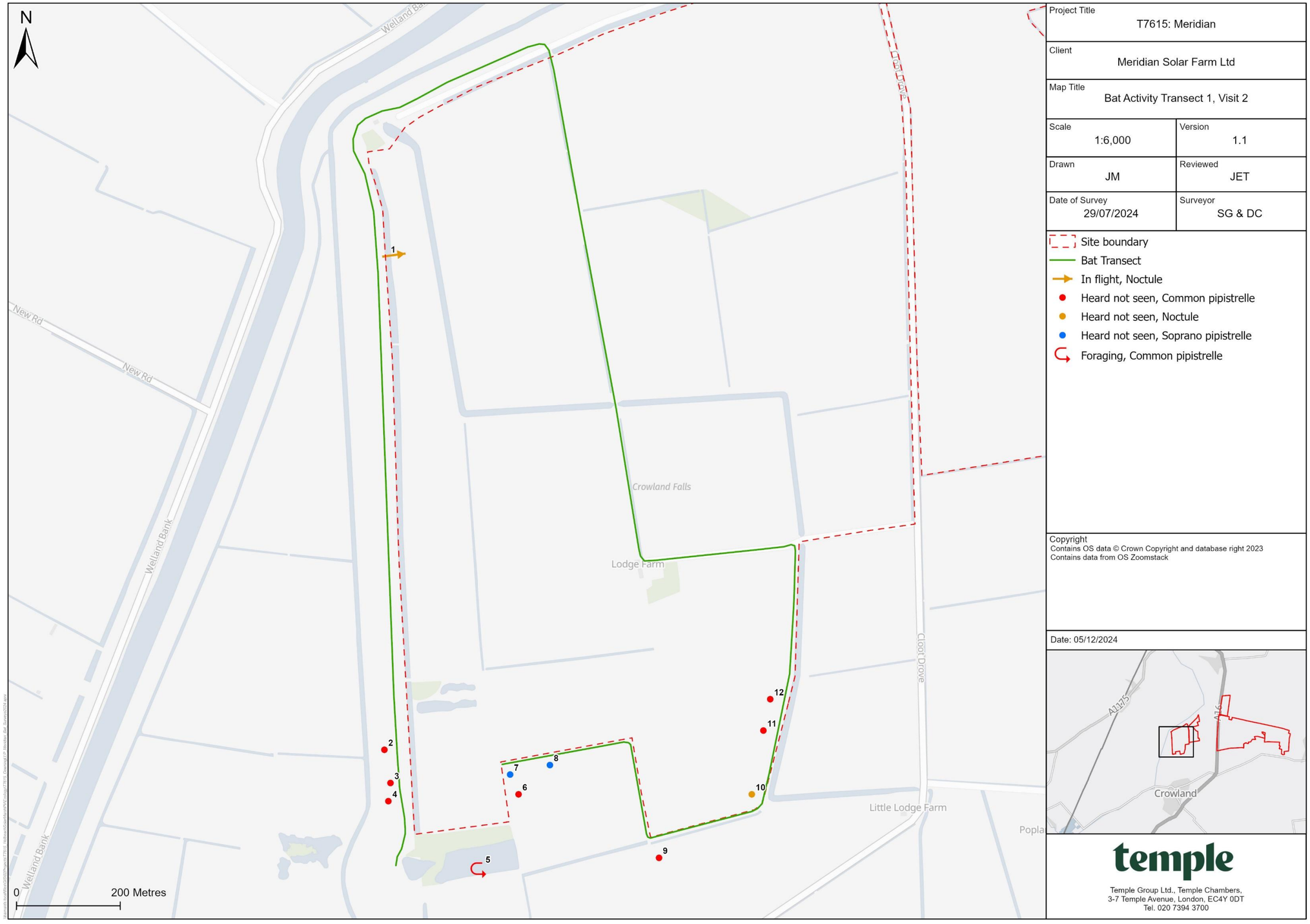


Figure 4: Survey map – Transect 1, visit 2, 29/07/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 1, Visit 2
Scale	1:6,000
Version	1.1
Drawn	JM
Reviewed	JET
Date of Survey	29/07/2024
Surveyor	SG & DC

- Site boundary
- Bat Transect
- In flight, Noctule
- Heard not seen, Common pipistrelle
- Heard not seen, Noctule
- Heard not seen, Soprano pipistrelle
- Foraging, Common pipistrelle

Date: 05/12/2024

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Figure 5: Survey map – Transect 1, visit 3, 24/09/2024

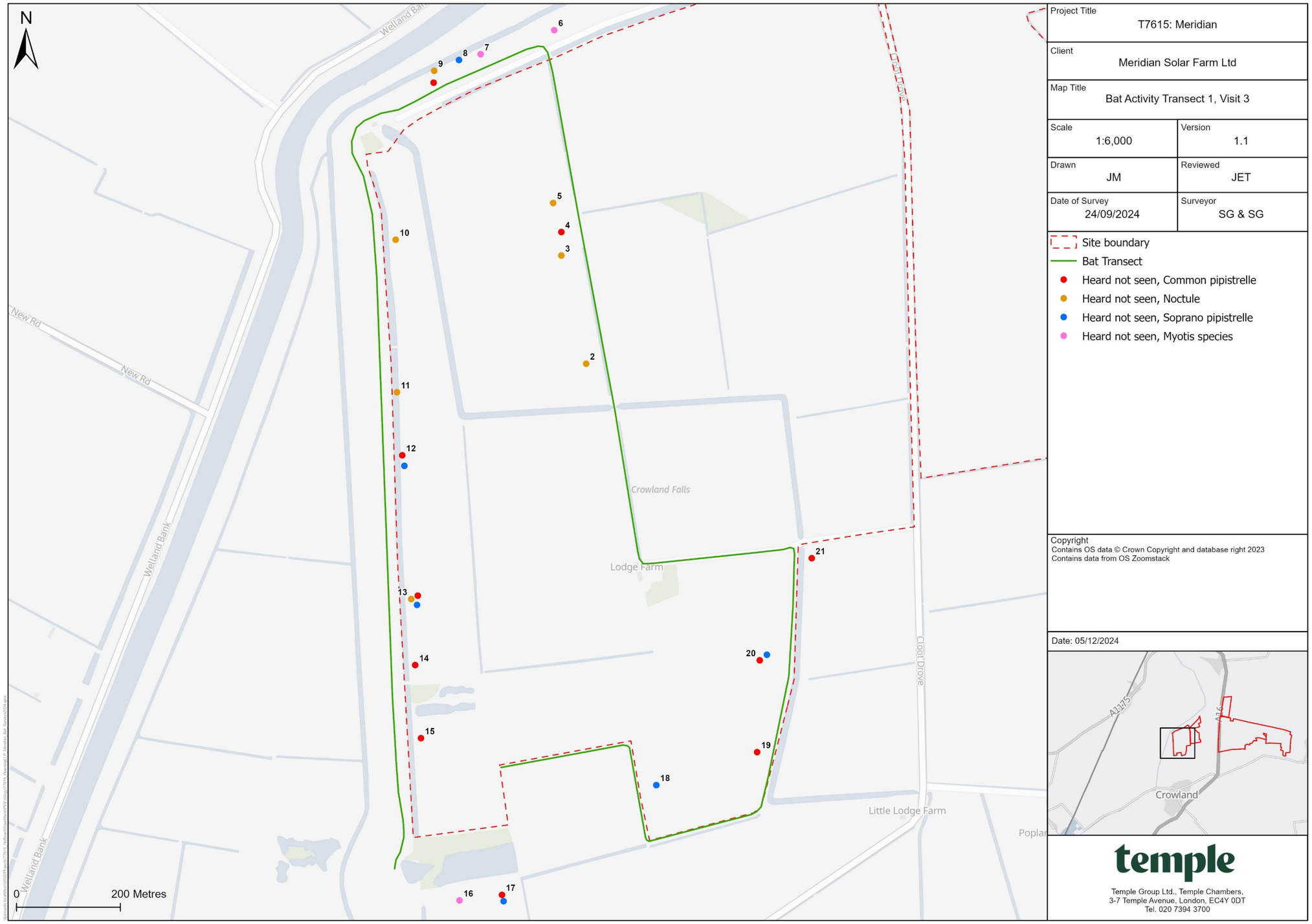


Figure 6: Survey map – Transect 2, visit 1, 14/05/2024

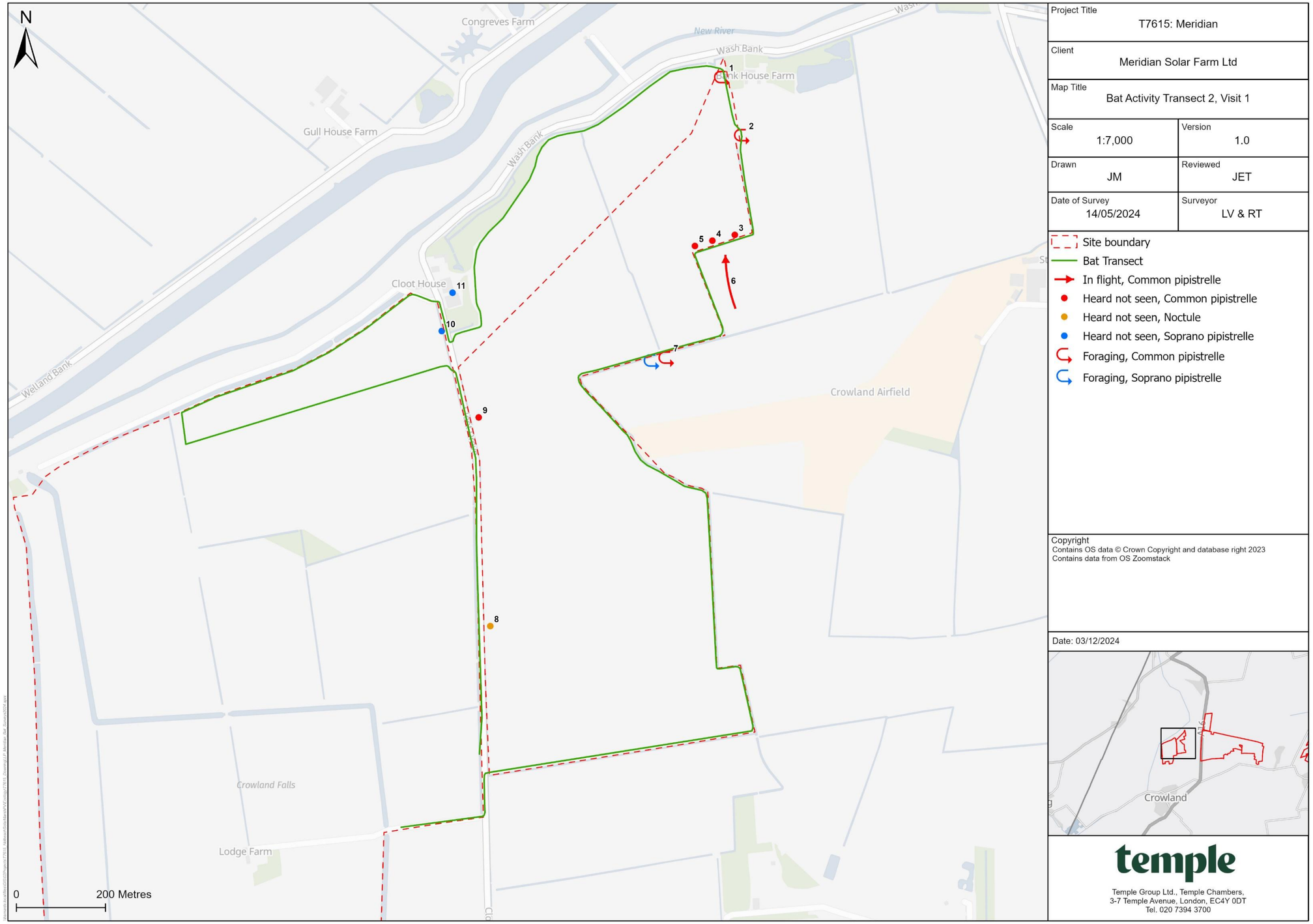


Figure 7: Survey map – Transect 2, visit 2, 29/07/2024

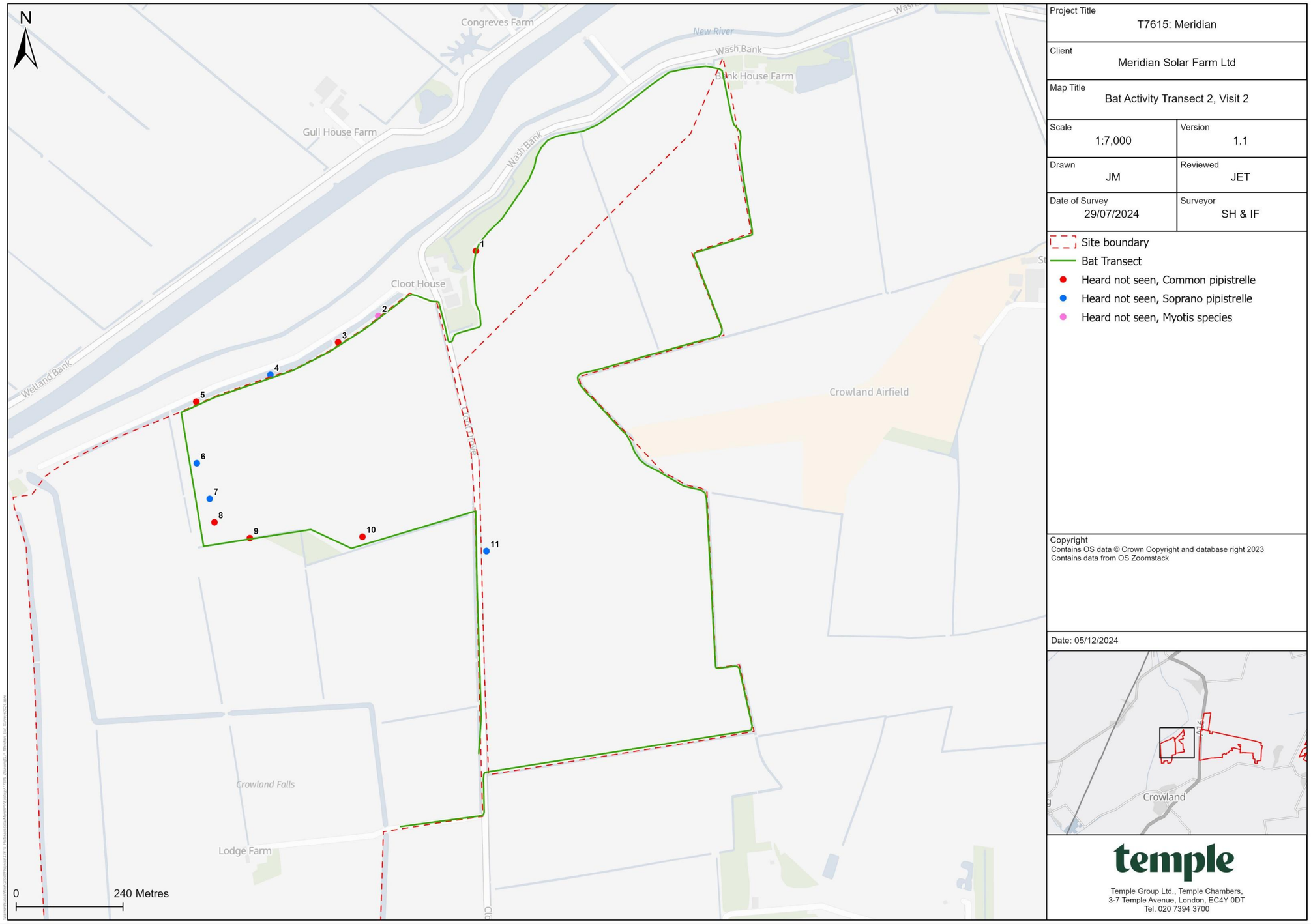


Figure 8: Survey map – Transect 2, visit 3, 24/09/2024

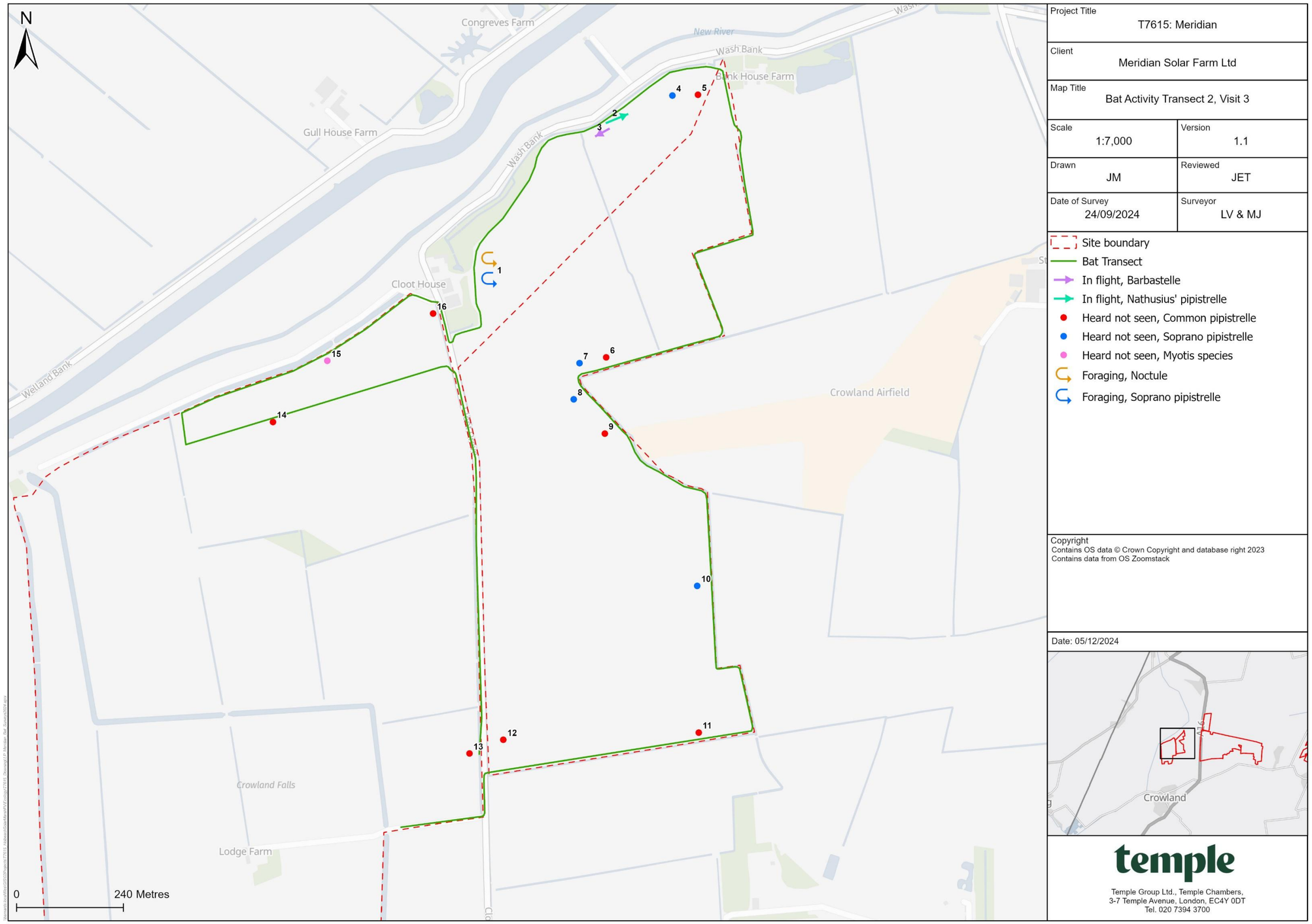
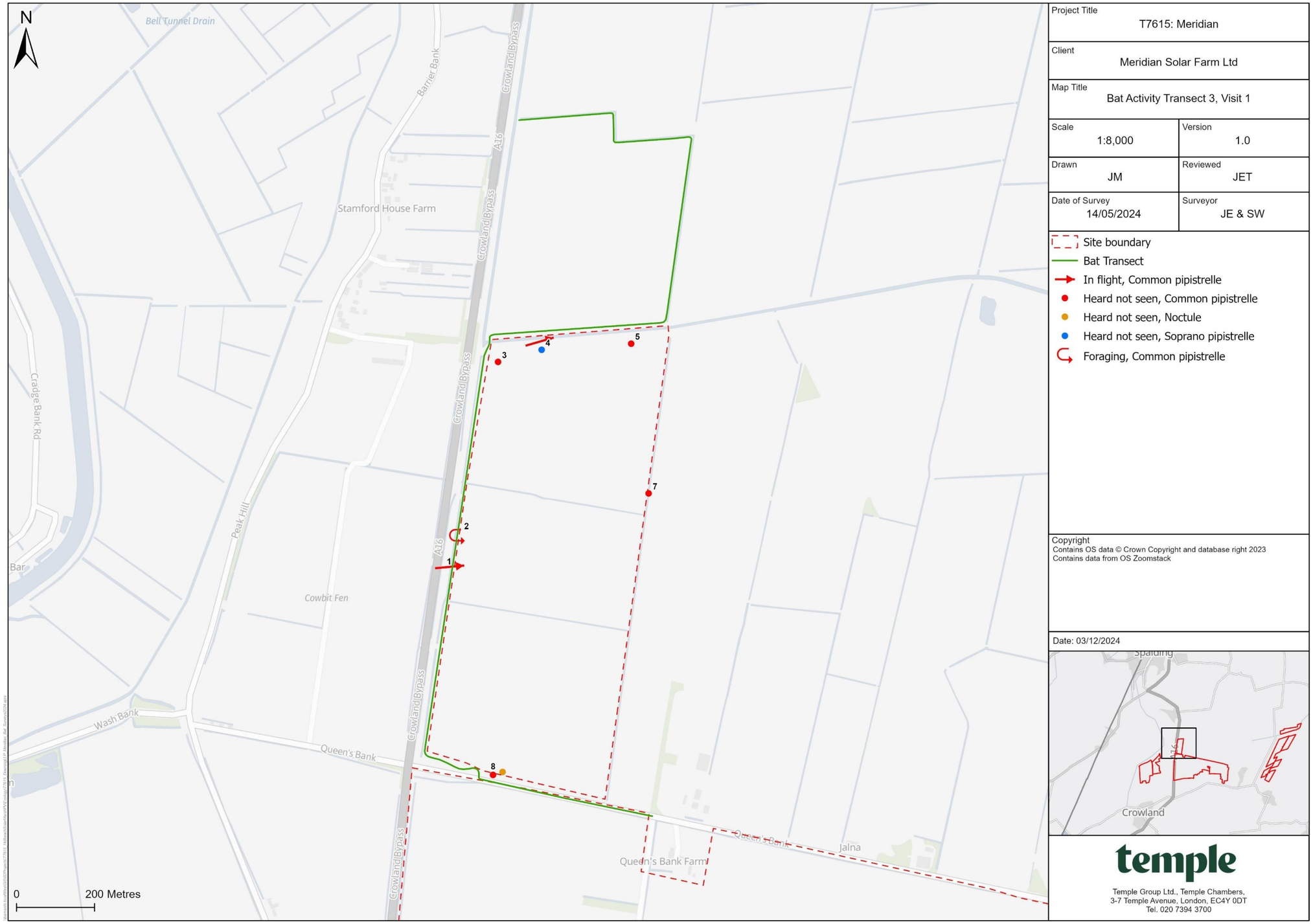


Figure 9: Survey map – Transect 3, visit 1, 14/05/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 3, Visit 1
Scale	1:8,000
Version	1.0
Drawn	JM
Reviewed	JET
Date of Survey	14/05/2024
Surveyor	JE & SW

- Site boundary
- Bat Transect
- In flight, Common pipistrelle
- Heard not seen, Common pipistrelle
- Heard not seen, Noctule
- Heard not seen, Soprano pipistrelle
- Foraging, Common pipistrelle

Date: 03/12/2024

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Figure 10: Survey map – Transect 3, visit 2, 29/07/2024

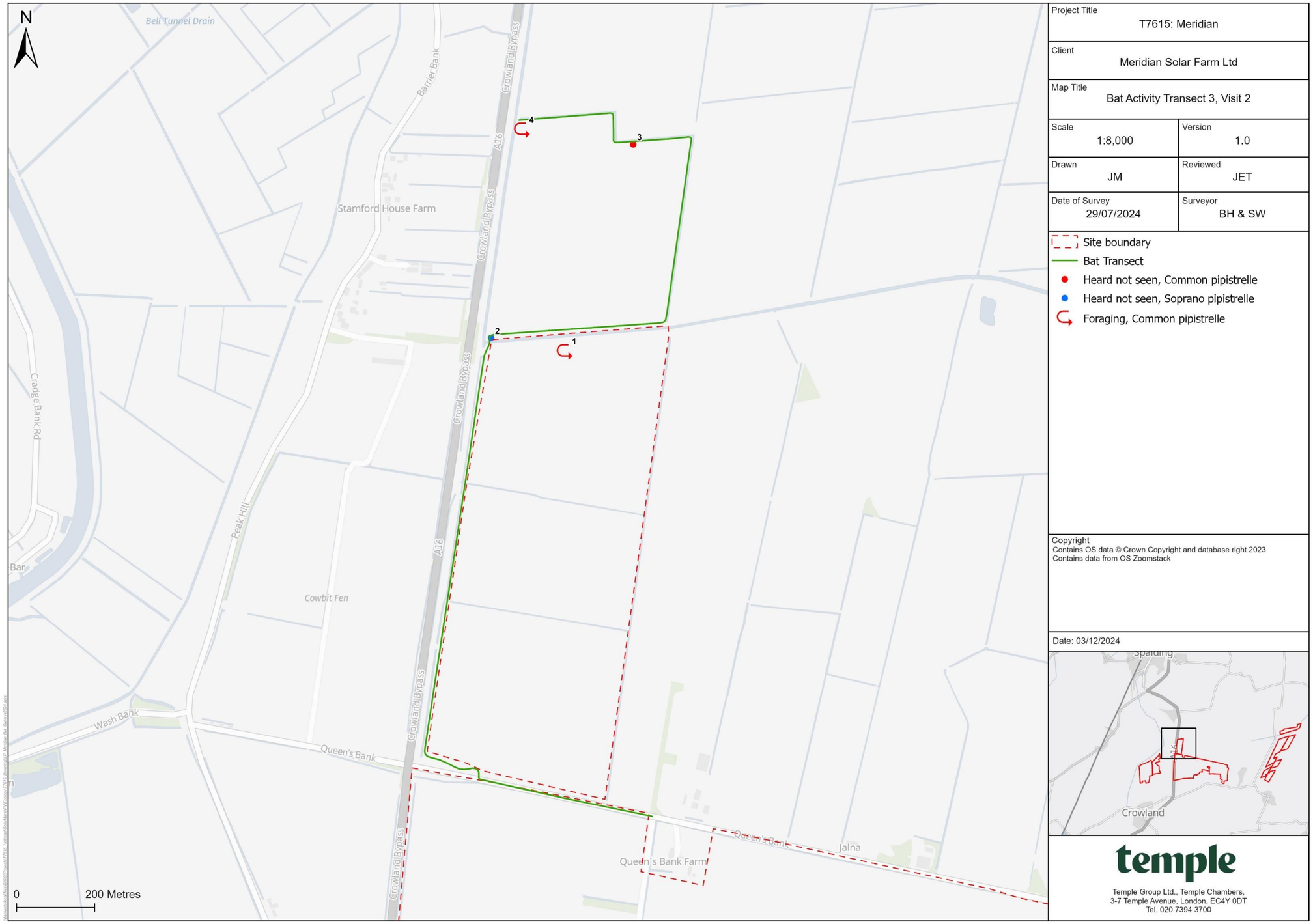
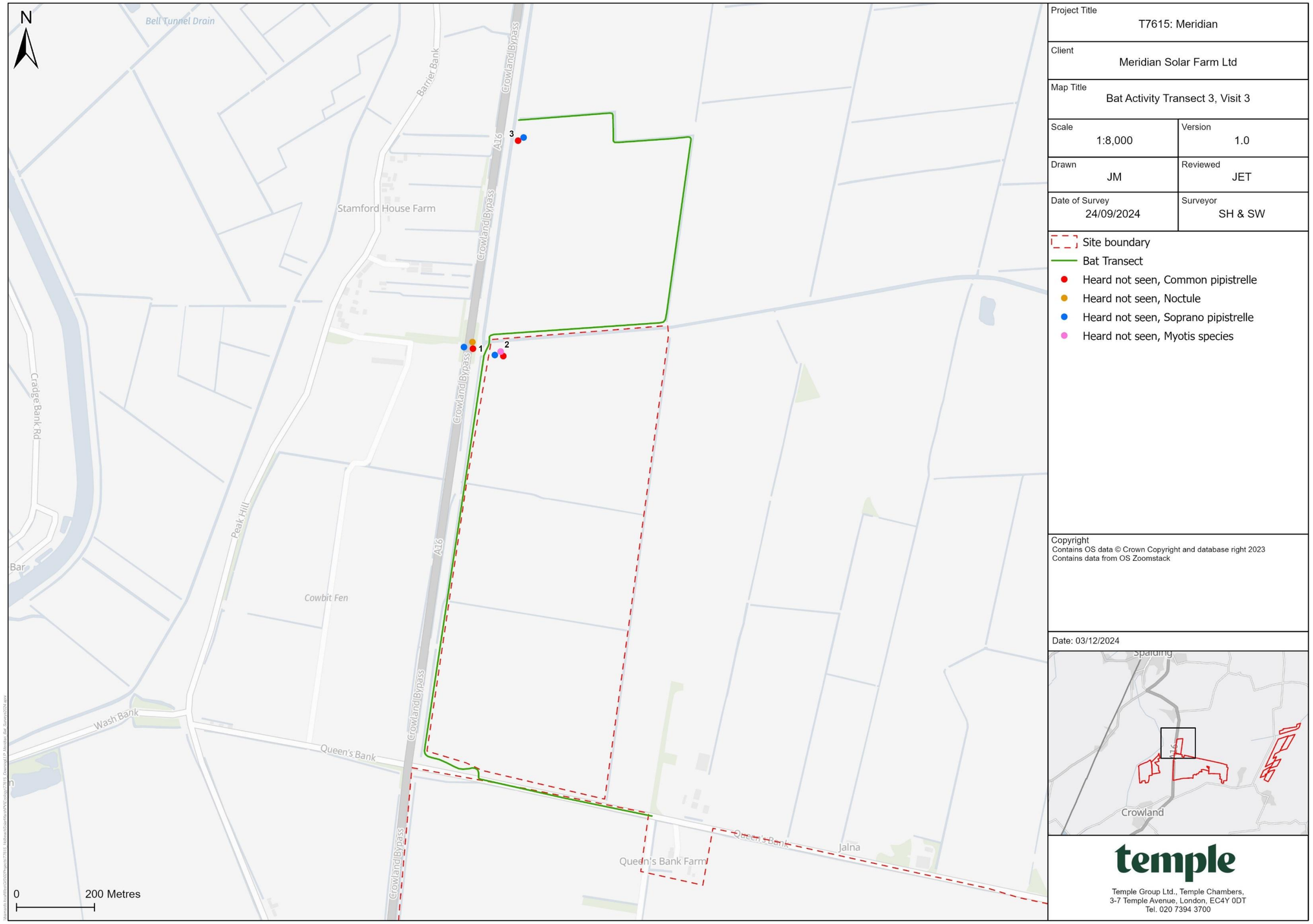


Figure 11: Survey map – Transect 3, visit 3, 24/09/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 3, Visit 3
Scale: 1:8,000	Version: 1.0
Drawn: JM	Reviewed: JET
Date of Survey: 24/09/2024	Surveyor: SH & SW

- Site boundary
- Bat Transect
- Heard not seen, Common pipistrelle
- Heard not seen, Noctule
- Heard not seen, Soprano pipistrelle
- Heard not seen, Myotis species

Date: 03/12/2024

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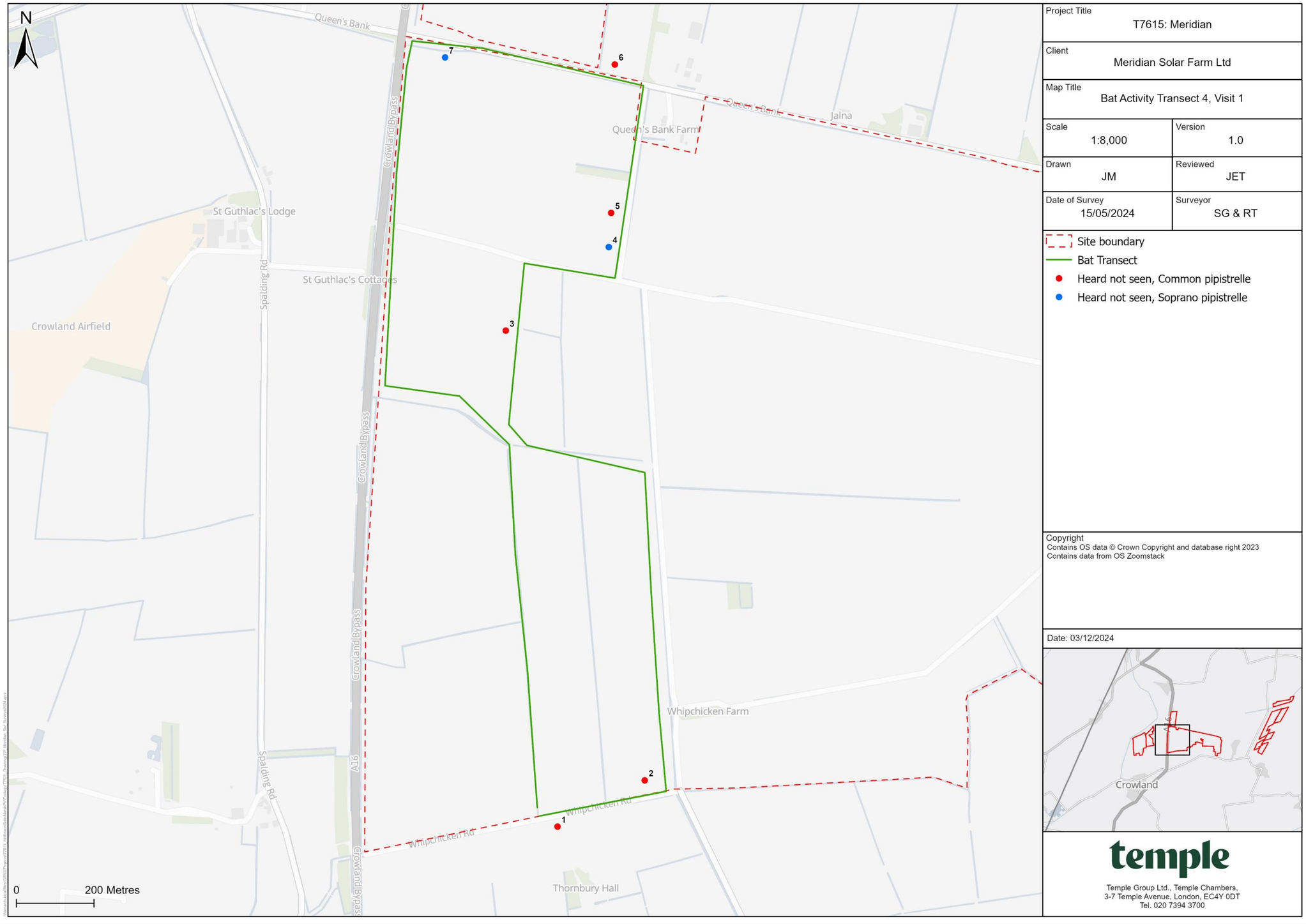
Figure 12: Survey map – Transect 4, visit 1, 15/05/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 4, Visit 1
Scale: 1:8,000	Version: 1.0
Drawn: JM	Reviewed: JET
Date of Survey: 15/05/2024	Surveyor: SG & RT

Site boundary
Bat Transect
Heard not seen, Common pipistrelle
Heard not seen, Soprano pipistrelle

Date: 03/12/2024

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Figure 13: Survey map – Transect 4, visit 2, 30/07/2024

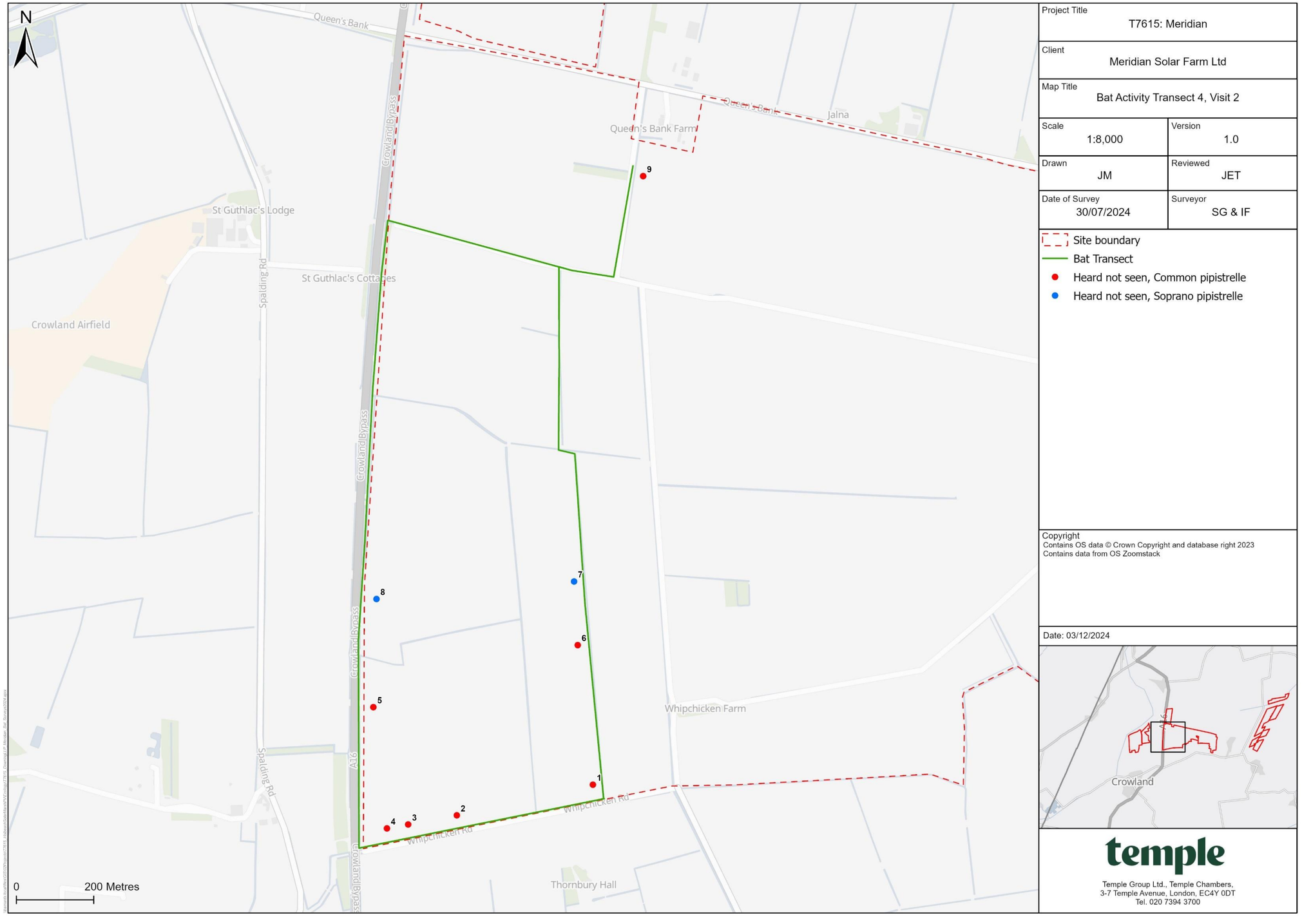
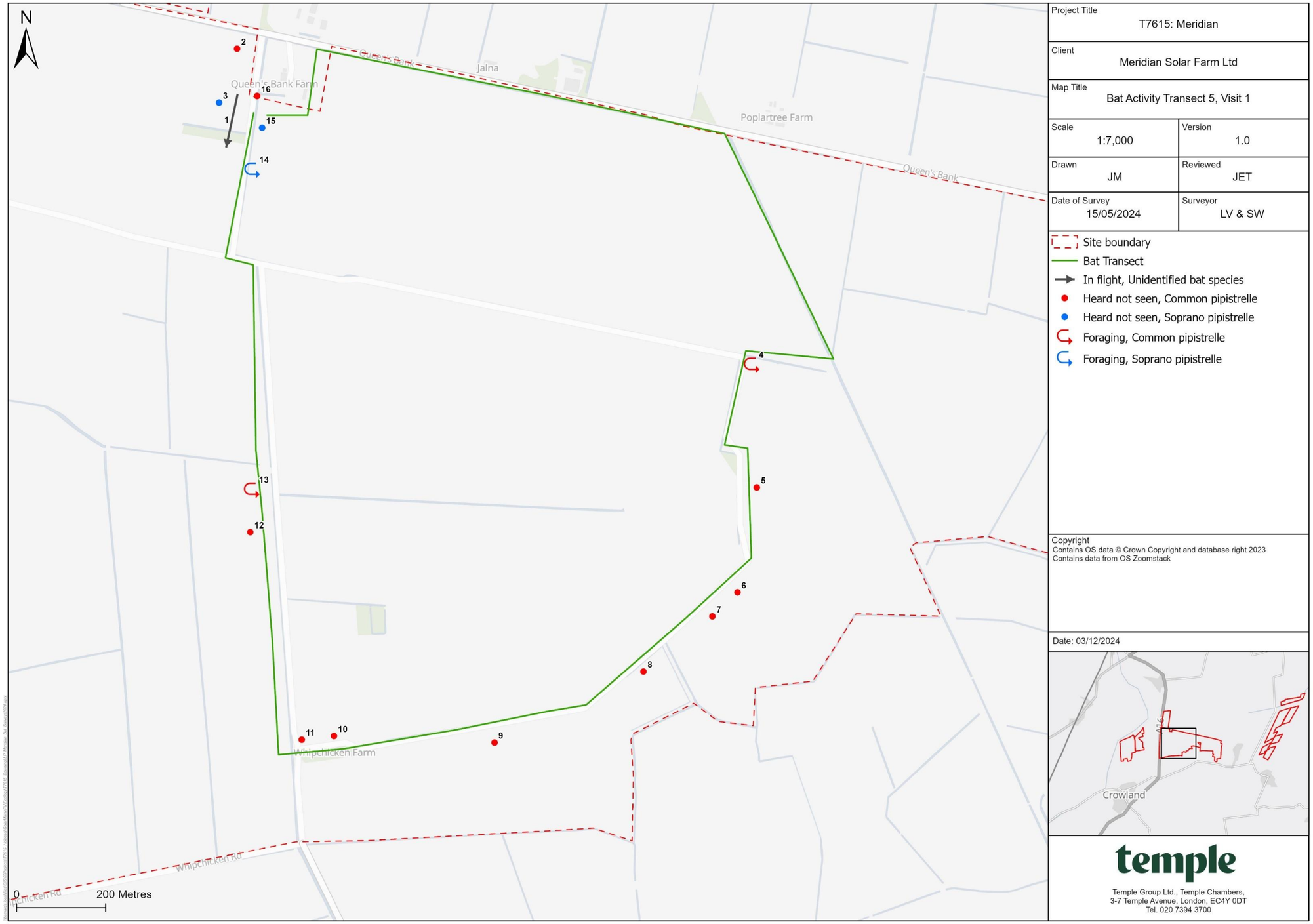


Figure 14: Survey map – Transect 5, visit 1, 15/05/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 5, Visit 1
Scale	1:7,000
Version	1.0
Drawn	JM
Reviewed	JET
Date of Survey	15/05/2024
Surveyor	LV & SW

- Site boundary
- Bat Transect
- In flight, Unidentified bat species
- Heard not seen, Common pipistrelle
- Heard not seen, Soprano pipistrelle
- Foraging, Common pipistrelle
- Foraging, Soprano pipistrelle

Date: 03/12/2024

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Tel. 020 7394 3700

Figure 15: Survey map – Transect 5, visit 2, 30/07/2024

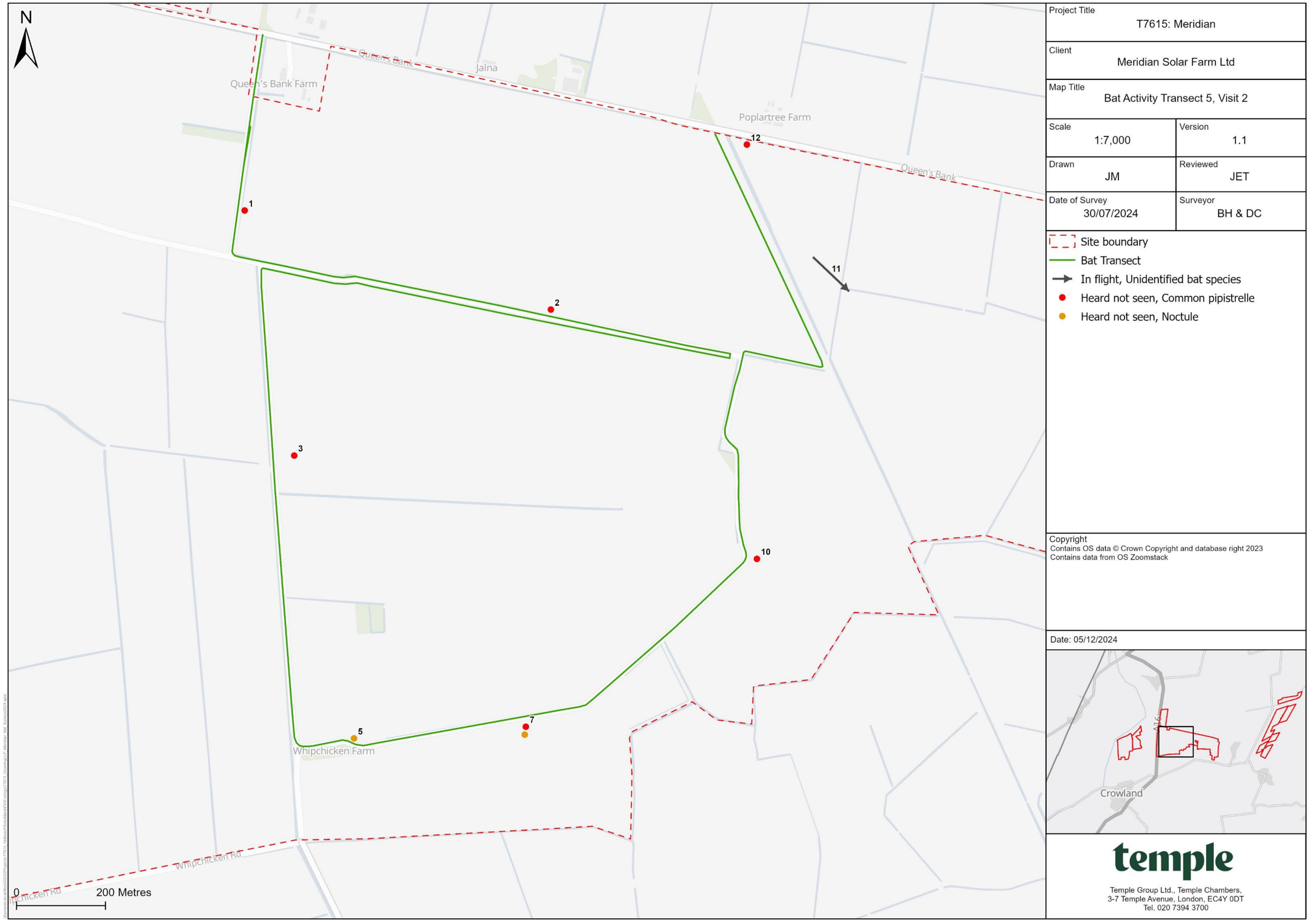
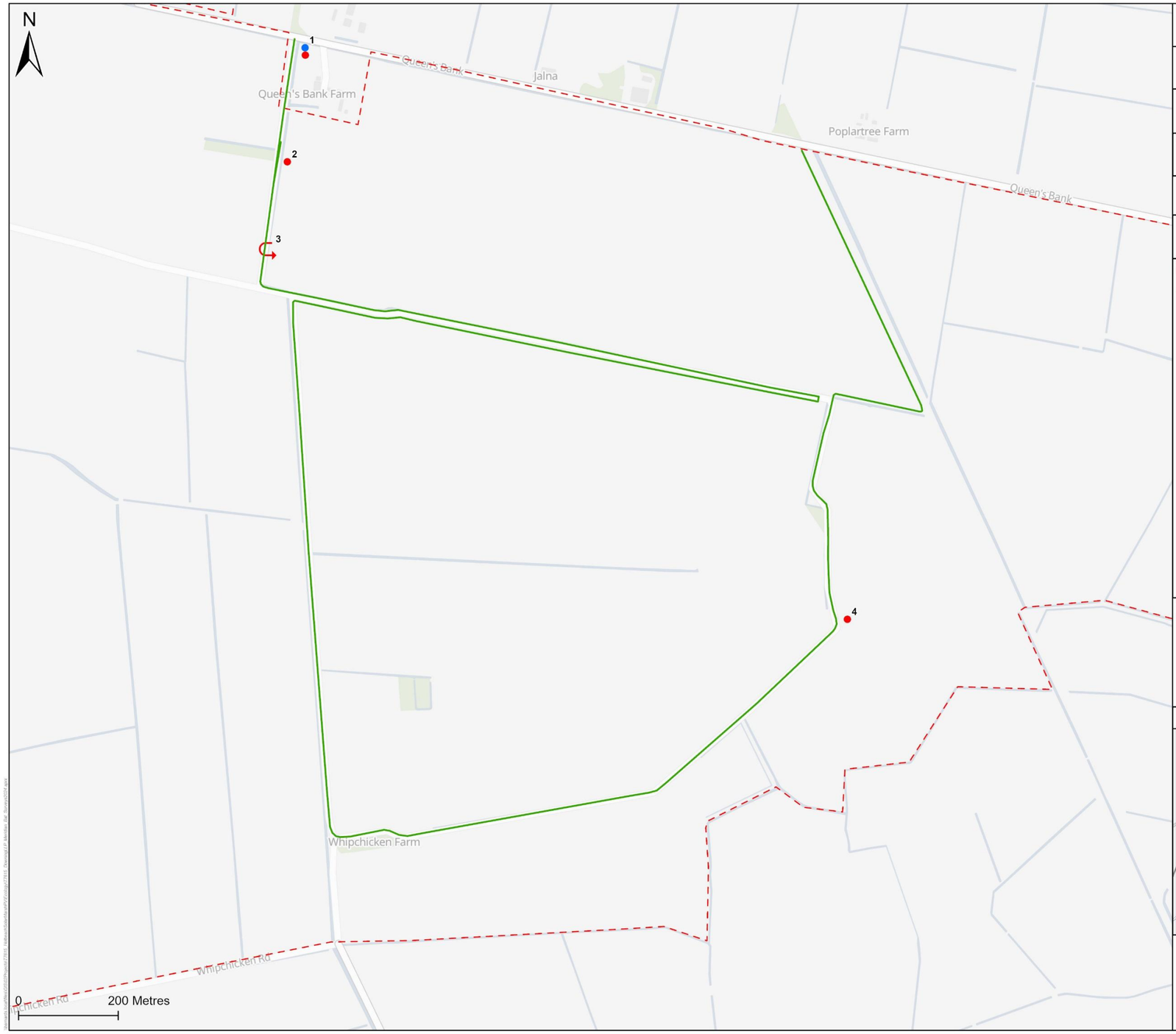


Figure 16: Survey map – Transect 5, visit 3, 09/10/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 5, Visit 3
Scale	1:7,000
Version	1.0
Drawn	JM
Reviewed	JET
Date of Survey	09/10/2024
Surveyor	LV & BH

Site boundary
Bat Transect
Heard not seen, Common pipistrelle
Heard not seen, Soprano pipistrelle
Foraging, Common pipistrelle

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Contains data from OS Zoomstack

Date: 03/12/2024

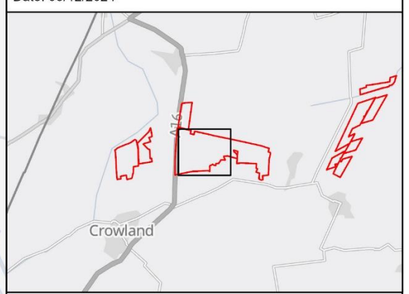

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Figure 17: Survey map – Transect 6, visit 1, 15/05/2024

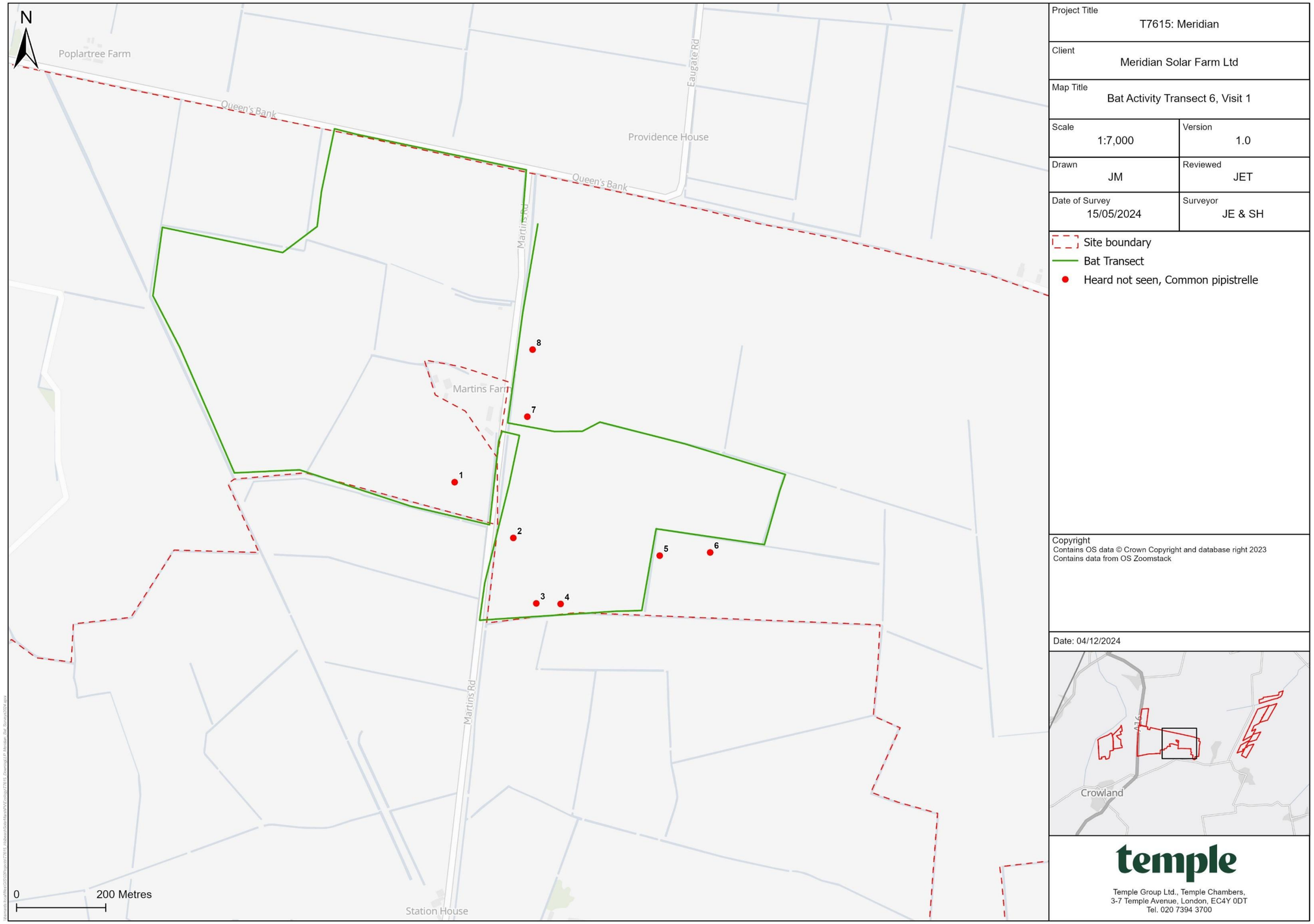


Figure 18: Survey map – Transect 6, visit 2, 30/07/2024

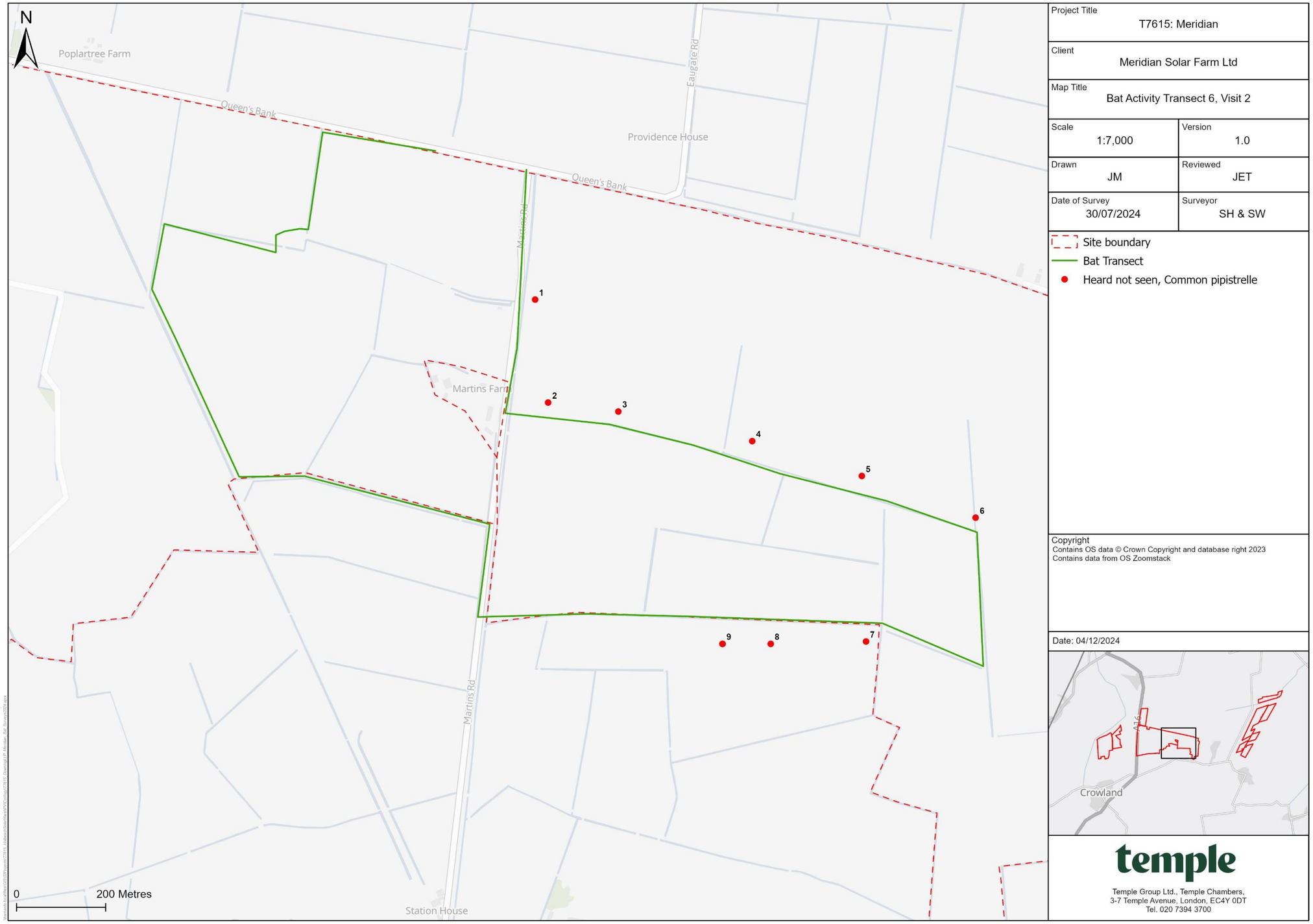


Figure 19: Survey map – Transect 6, visit 3, 09/10/2024

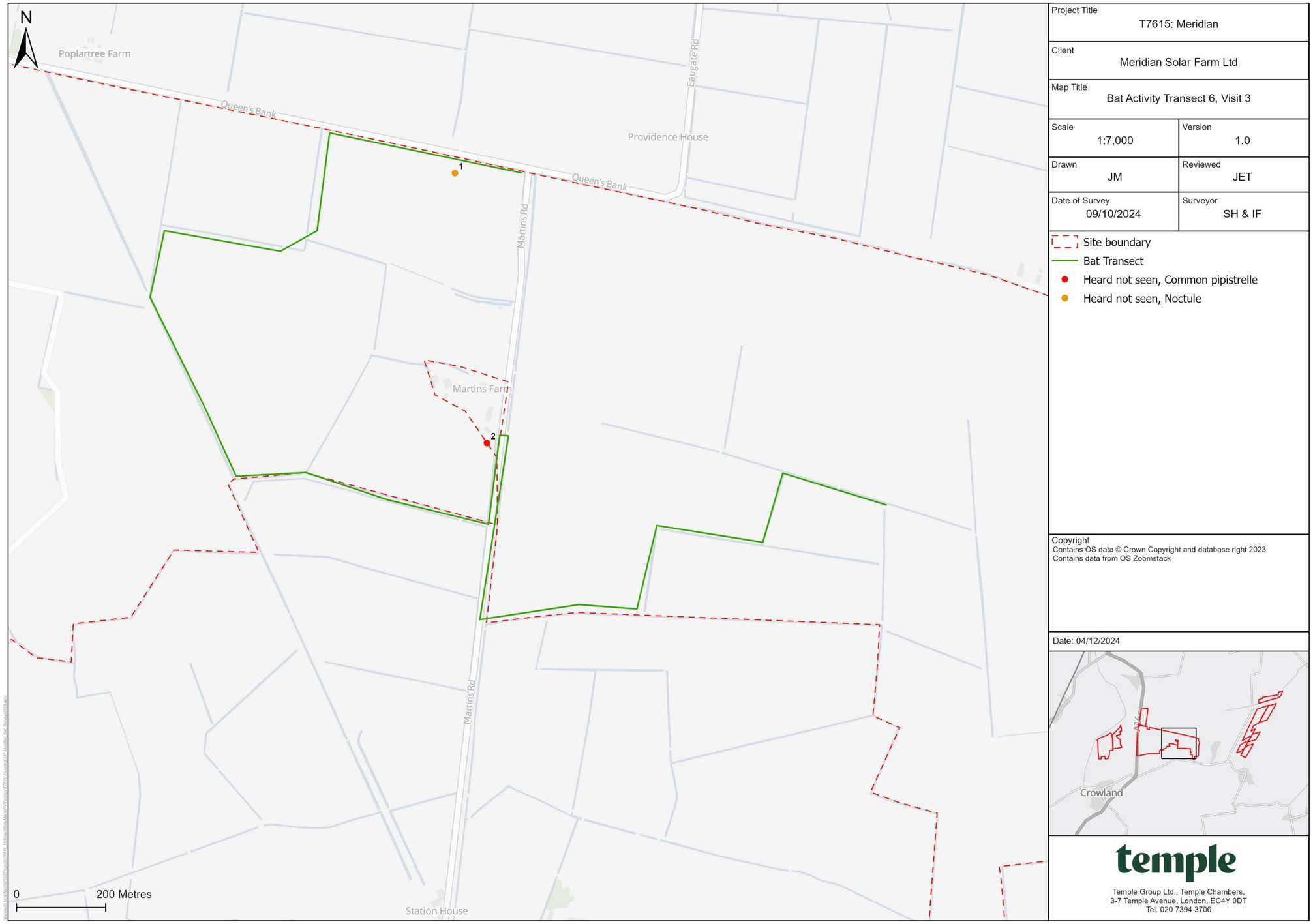


Figure 20: Survey map – Transect 7, visit 1, 16/05/2024

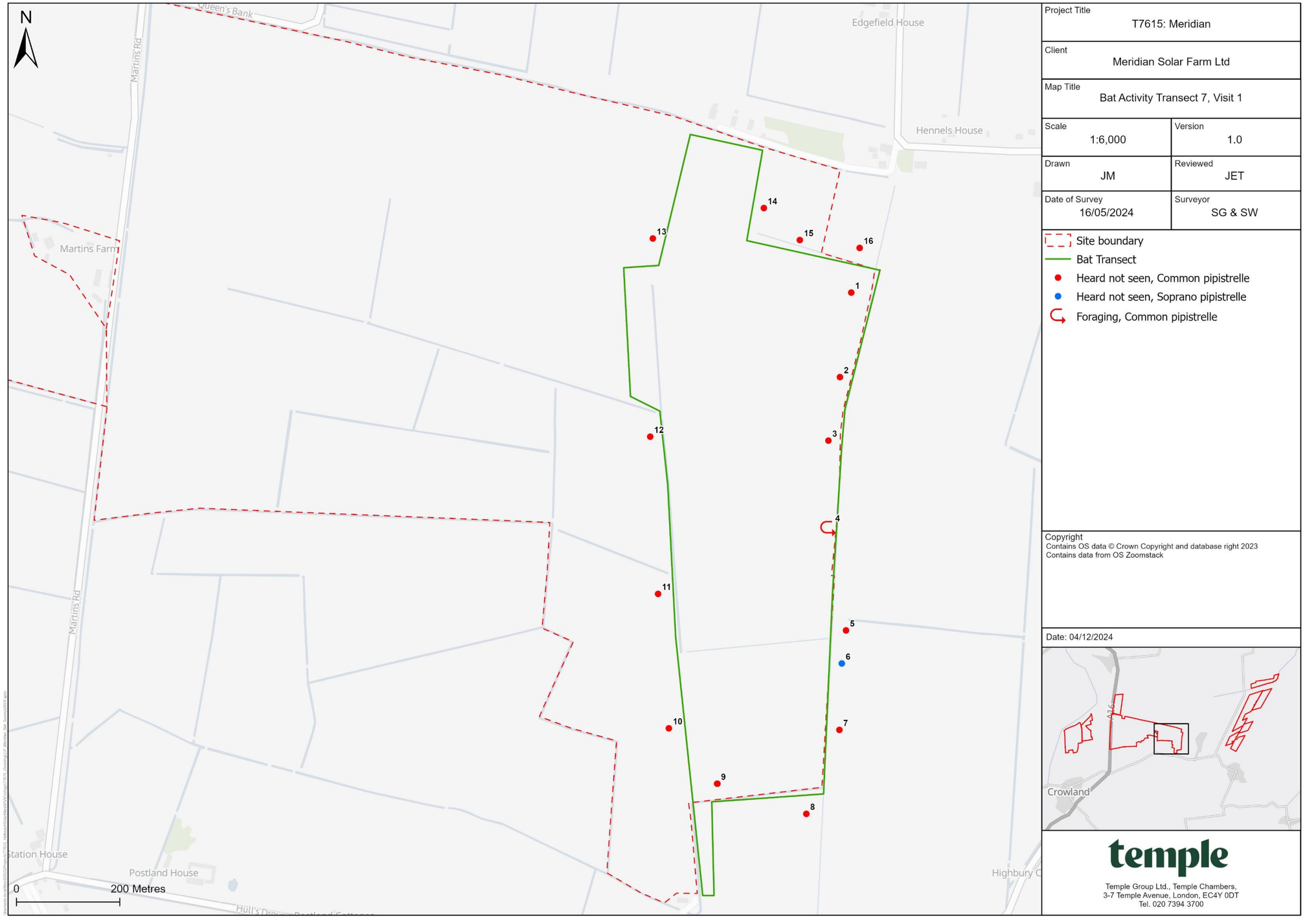


Figure 21: Survey map – Transect 7, visit 2, 31/07/2024

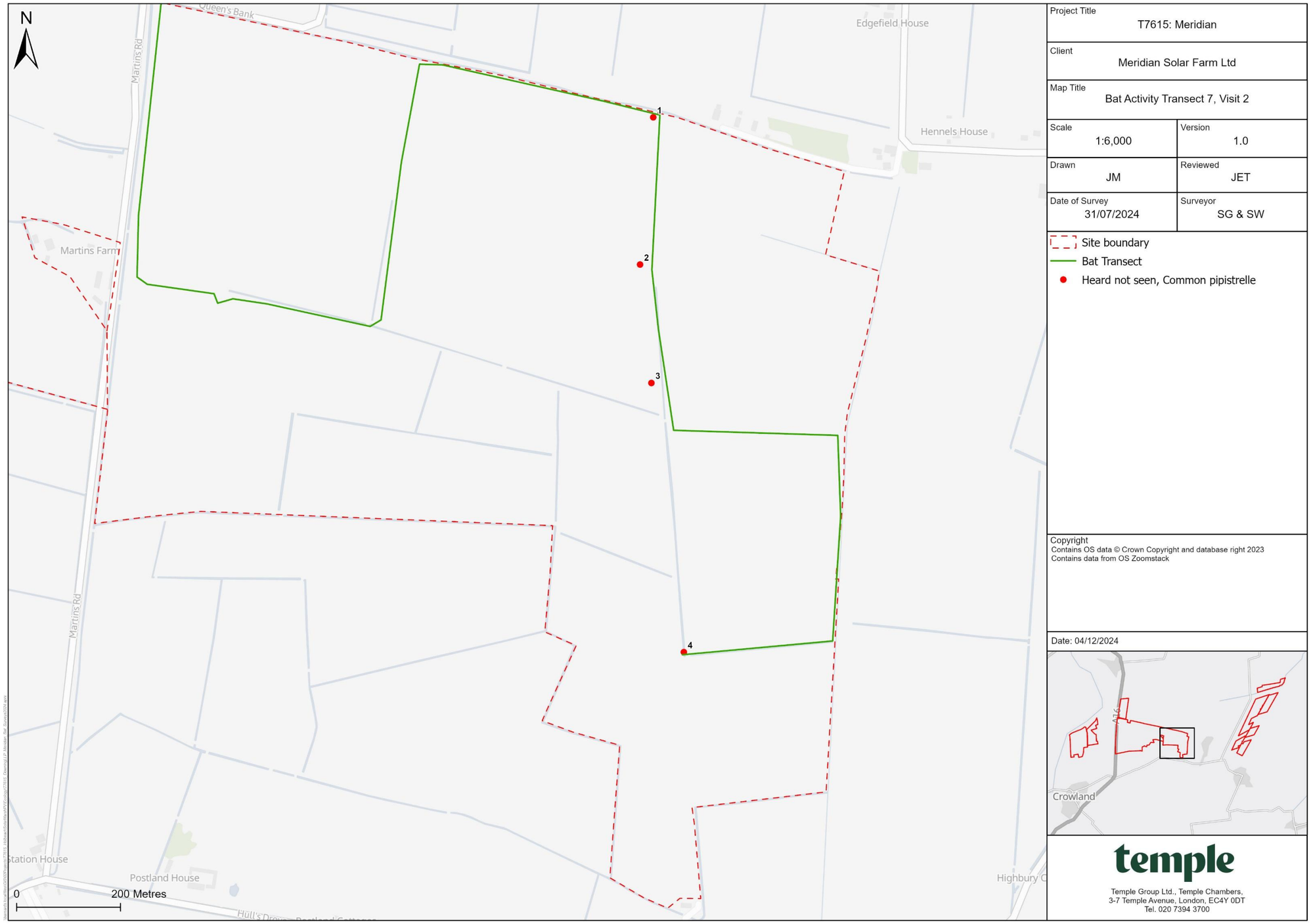


Figure 22: Survey map – Transect 7, visit 3, 21/10/2024

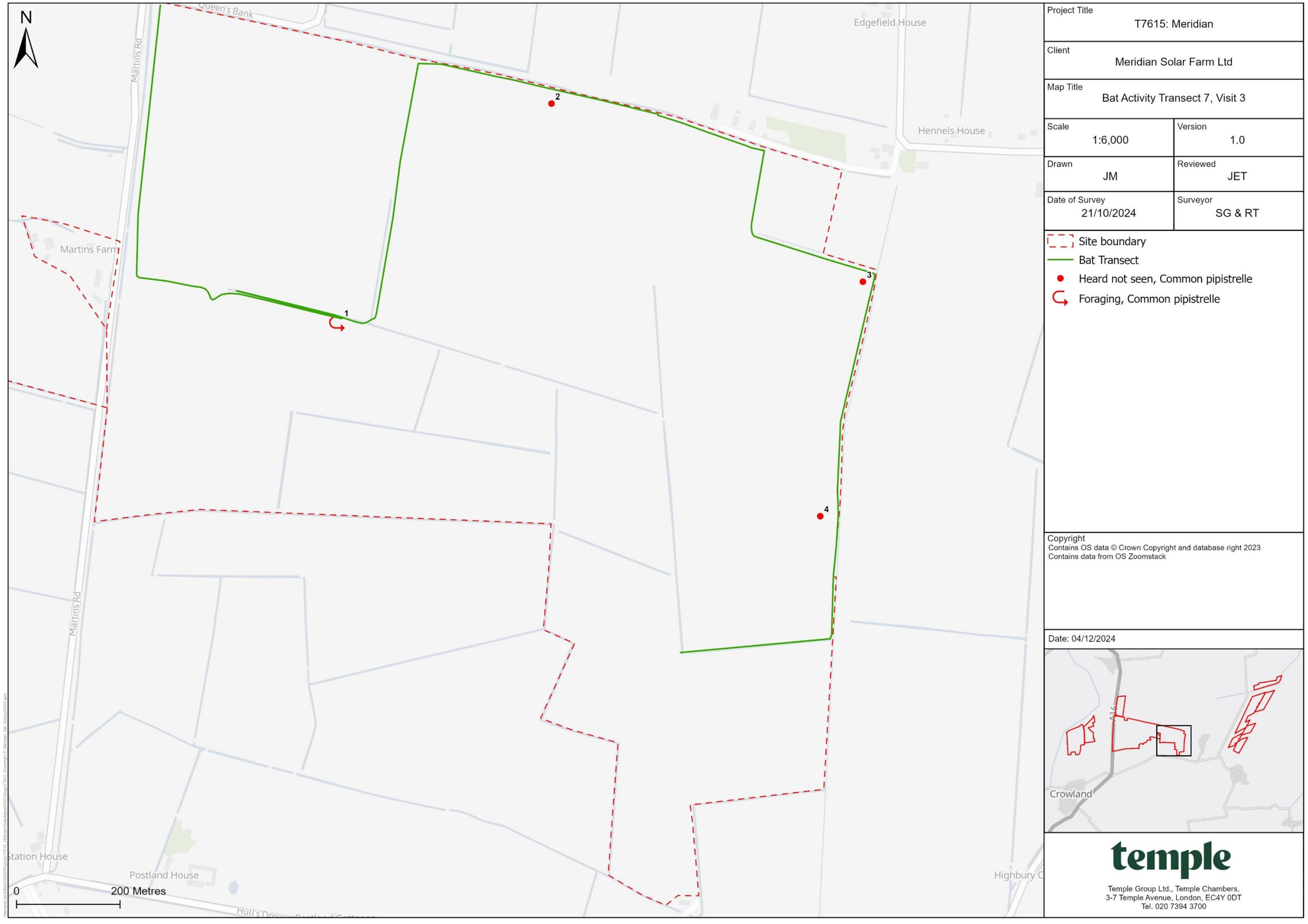
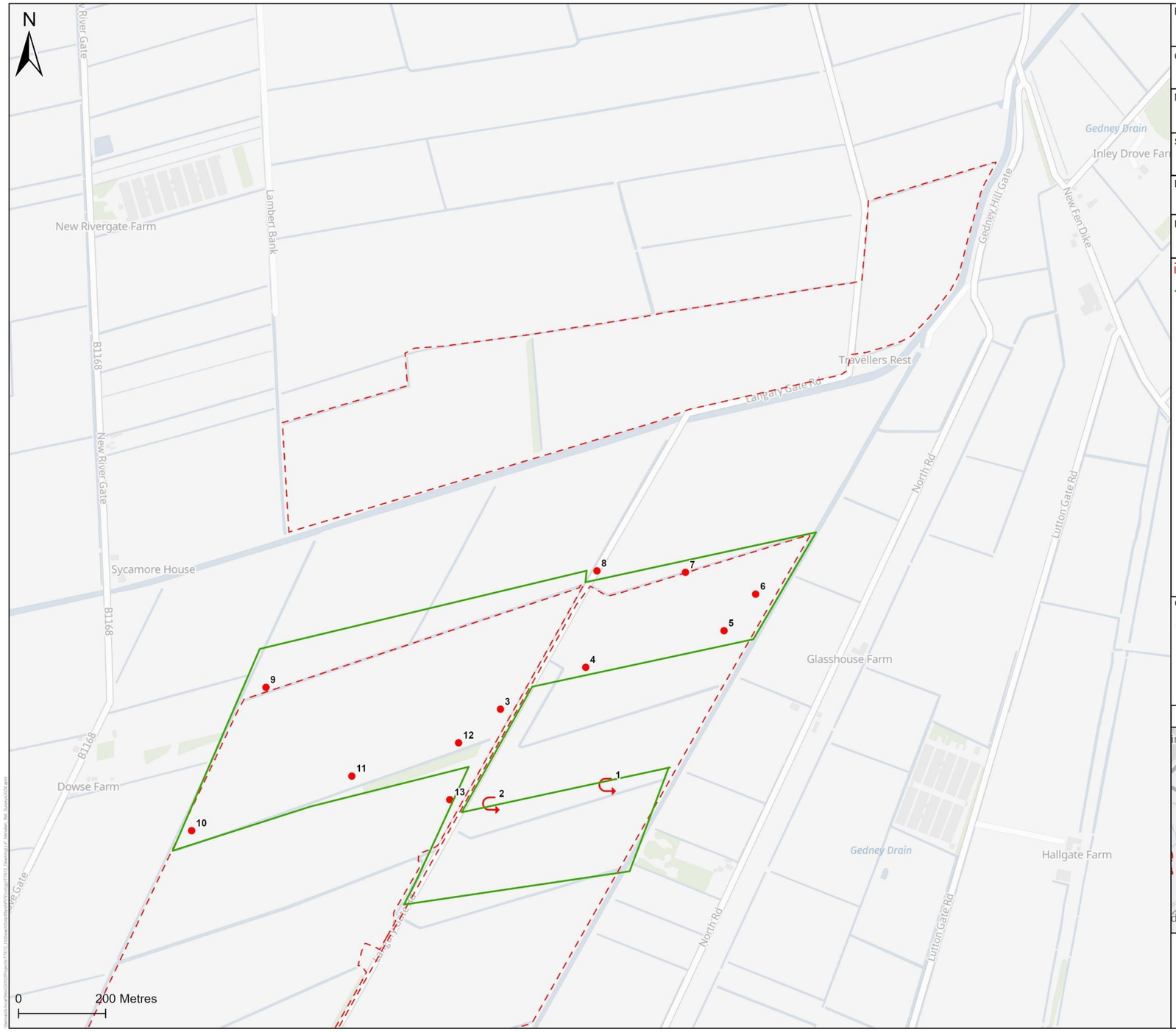


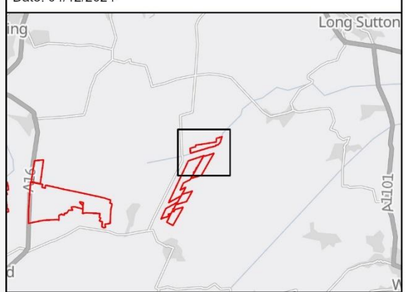
Figure 23: Survey map – Transect 8, visit 1, 16/05/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 8, Visit 1
Scale: 1:8,000	Version: 1.0
Drawn: JM	Reviewed: JET
Date of Survey: 16/05/2024	Surveyor: LV & SH

Site boundary
Bat Transect
Heard not seen, Common pipistrelle
Foraging, Common pipistrelle

Date: 04/12/2024



temple
Temple Group Ltd., Temple Chambers,
3-7 Temple Avenue, London, EC4Y 0DT
Tel. 020 7394 3700

Figure 24: Survey map – Transect 8, visit 2, 31/07/2024

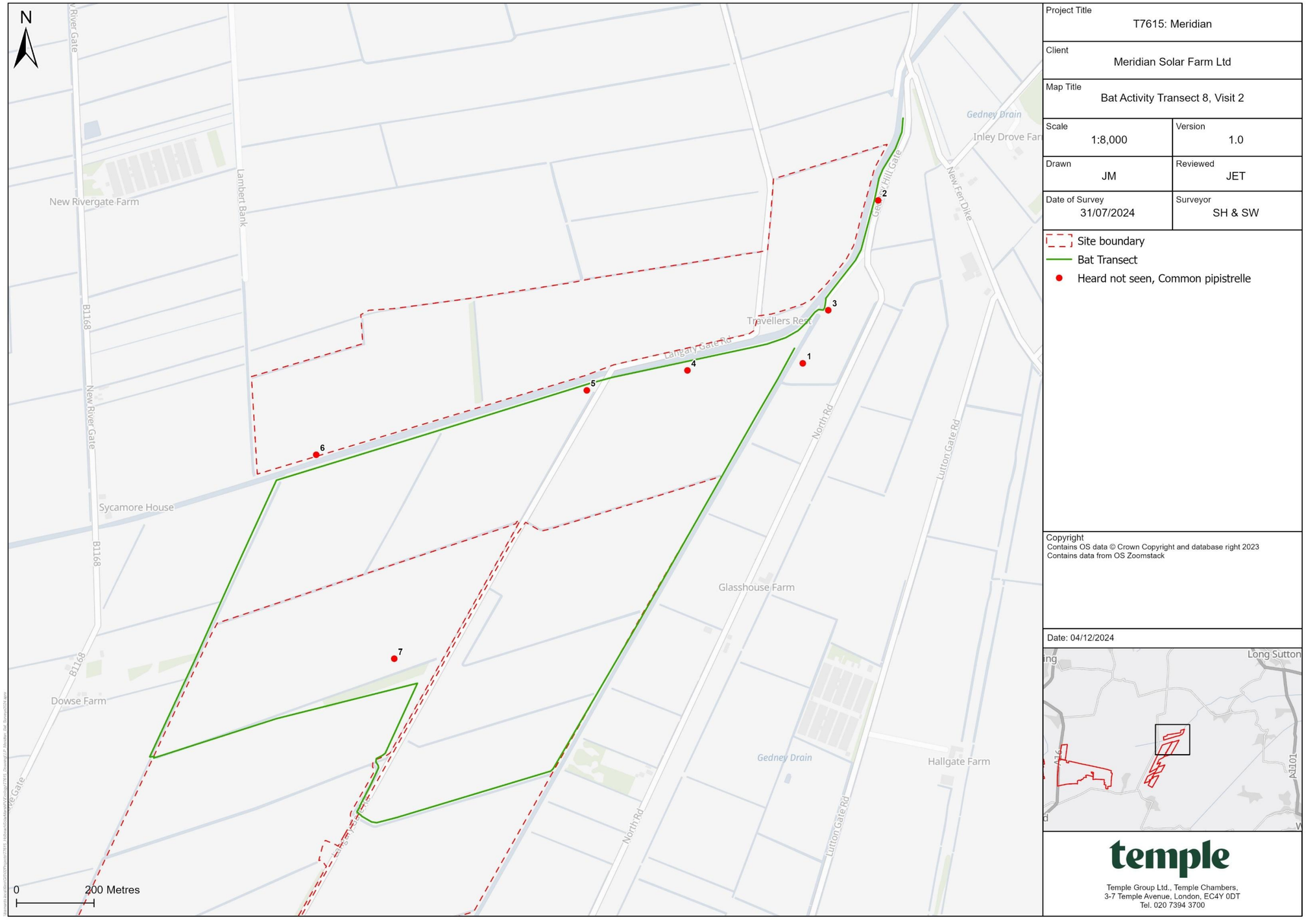


Figure 25: Survey map – Transect 8, visit 3, 22/10/2024

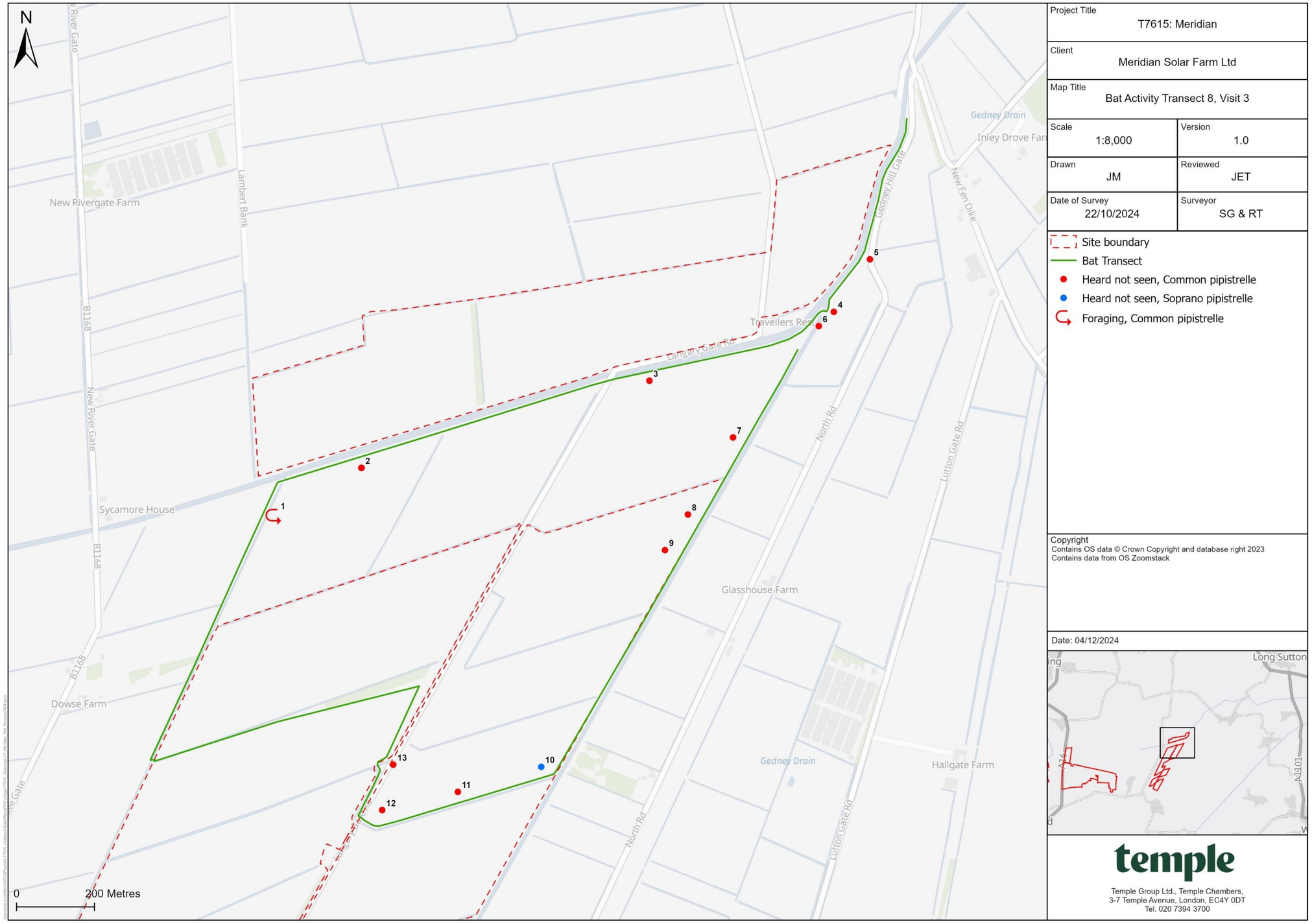


Figure 26: Survey map – Transect 9, visit 1, 16/05/2024

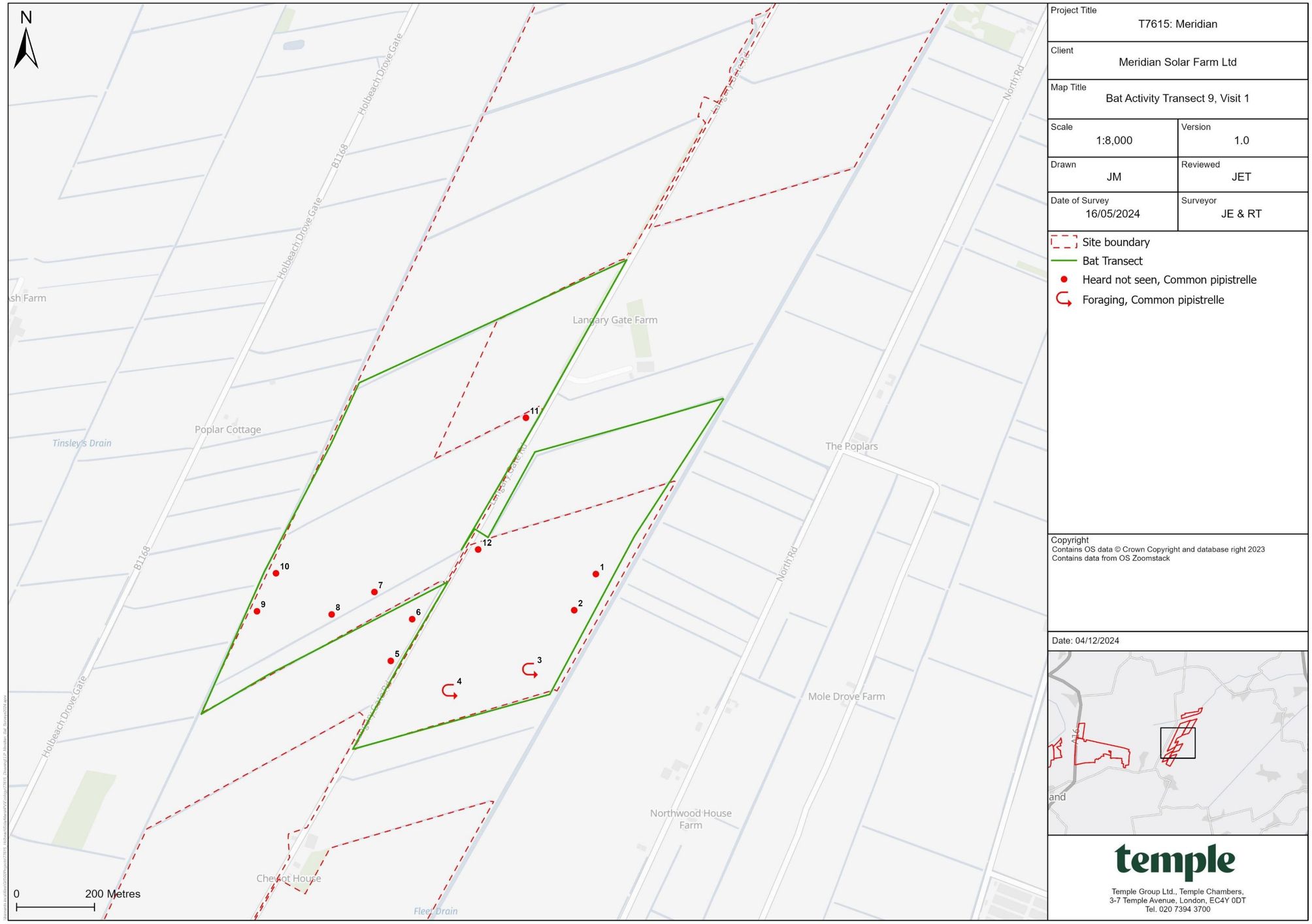
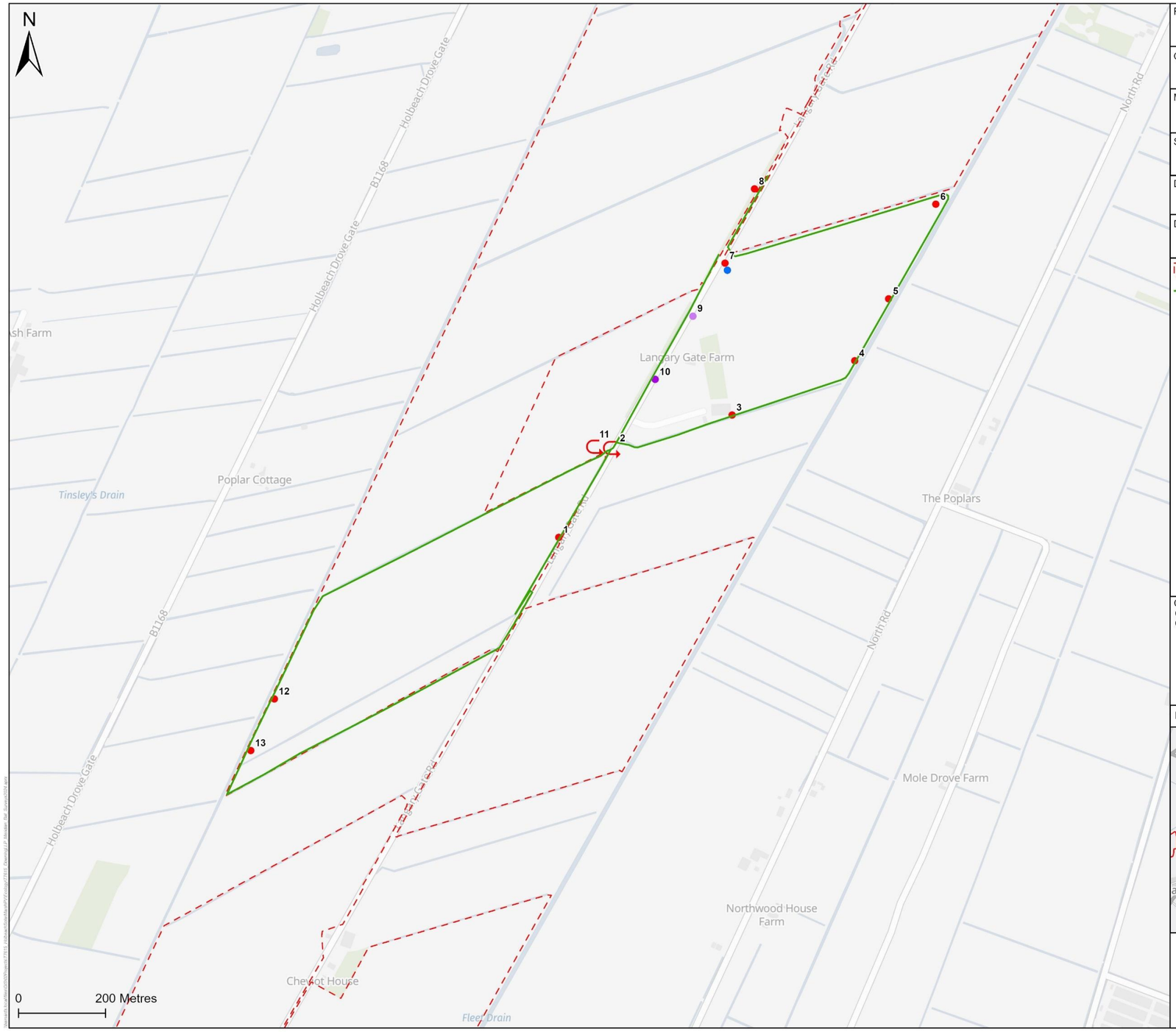


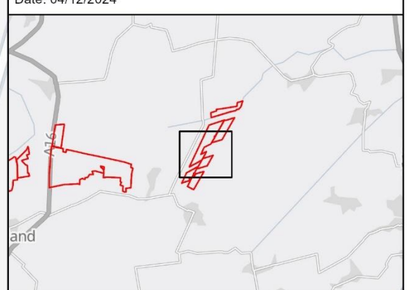
Figure 27: Survey map – Transect 9, visit 2, 31/07/2024



Project Title	T7615: Meridian
Client	Meridian Solar Farm Ltd
Map Title	Bat Activity Transect 9, Visit 2
Scale: 1:8,000	Version: 1.0
Drawn: JM	Reviewed: JET
Date of Survey: 31/07/2024	Surveyor: BH & IF

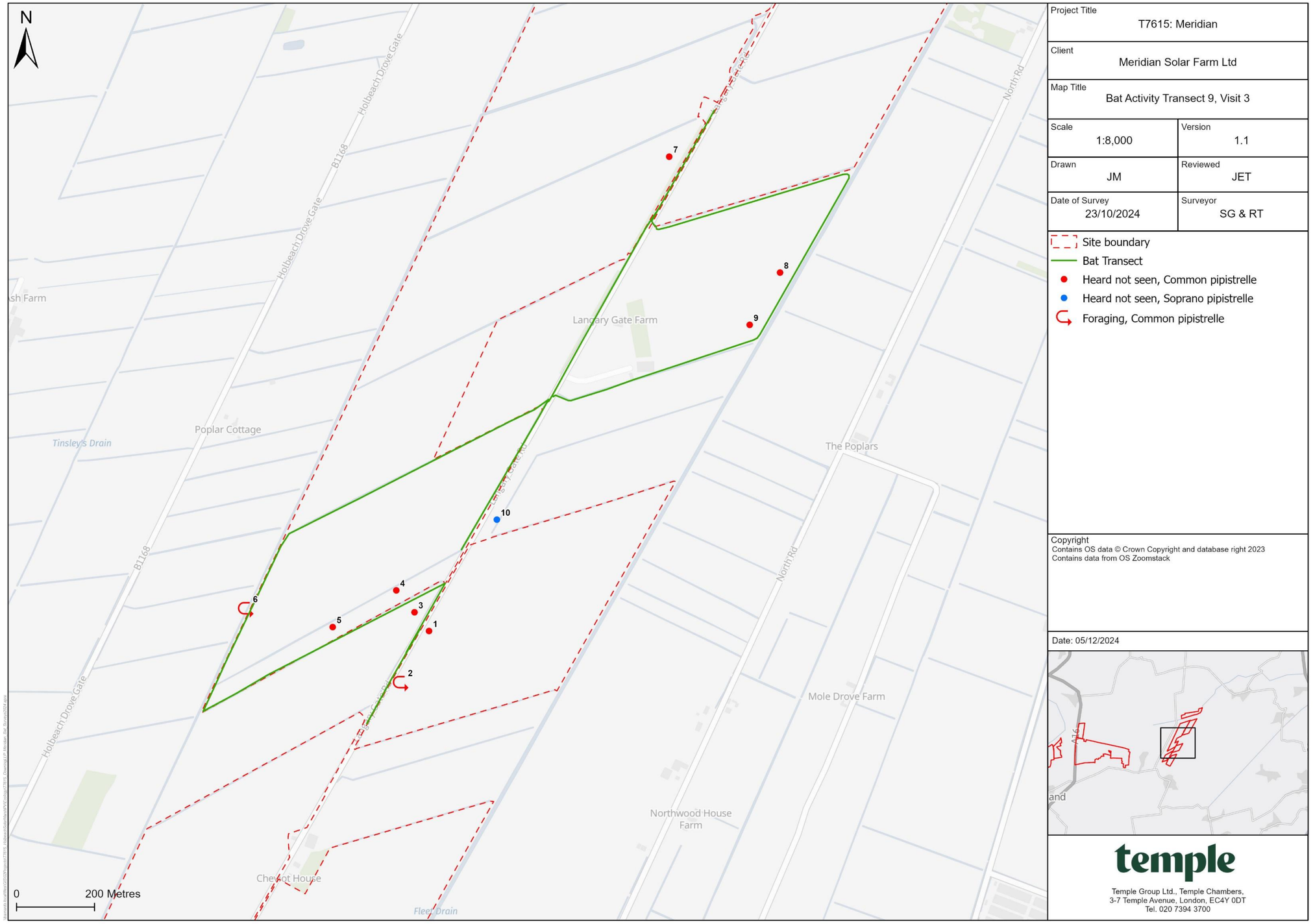
- Site boundary
- Bat Transect
- Heard not seen, Barbastelle
- Heard not seen, Common pipistrelle
- Heard not seen, Daubenton's
- Heard not seen, Soprano pipistrelle
- Foraging, Common pipistrelle

Date: 04/12/2024



temple
Temple Group Ltd., Temple Chambers,
3-7 Temple Avenue, London, EC4Y 0DT
Tel. 020 7394 3700

Figure 28: Survey map – Transect 9, visit 3, 23/10/2024



Project Title: T7615: Meridian

Client: Meridian Solar Farm Ltd

Map Title: Bat Activity Transect 9, Visit 3

Scale	Version
1:8,000	1.1
Drawn	**Reviewed**
JM	JET
Date of Survey	**Surveyor**
23/10/2024	SG & RT

- Site boundary
- Bat Transect
- Heard not seen, Common pipistrelle
- Heard not seen, Soprano pipistrelle
- Foraging, Common pipistrelle

Date: 05/12/2024

temple
Temple Group Ltd., Temple Chambers,
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Appendix 2: Survey Data

Table 12: Transect results, transect 1, visit 1.

Surveyor		[redacted]		**Date**		14/05/24			
Survey no		1		**Survey start/end times**		20:51 - 22:58			
Sunset/rise time		20:51		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM17			
General weather conditions		Rainy all day but clear for start of survey						**Moon-phase**	Waxing Crescent
Limitations									
Temperature (℃ start and end)	13/13	**Cloud cover (Oktas 0-8)**	8/8	**Wind (Beaufort 0-12)**	4	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:33	Common pipistrelle	1	Seen	Commuting	North	Map ref 1			
21:37	Common pipistrelle	1	Seen	Foraging		Map ref 2 - Foraging over ditch			
21:37	Common pipistrelle	1	Not seen	Foraging		Map ref 2			
21:38	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - Foraging over ditch, 2 passes			
21:40	Common pipistrelle	1	Seen	Foraging		Map ref 4 - Continuous foraging until 21:44			
21:48	Common pipistrelle	1	Not seen	Foraging		Map ref 5			
21:56	Unknown	1	Not seen	Foraging		Map ref 6 - Heard by SH but not recorded by detector			

21:58	Common pipistrelle	1	Not seen	Foraging		Map ref 7
21:59	Common pipistrelle	1	Not seen	Foraging		Map ref 8
22:02	Common pipistrelle	1	Seen	Foraging		Map ref 9 - Foraging with bat below next to ditch
22:02	Soprano pipistrelle	1	Seen	Foraging		Map ref 9 - See above
22:03	Common pipistrelle	1	Not seen	Foraging		Map ref 10
22:05	Common pipistrelle	1	Not seen	Foraging		Map ref 11
22:06	Soprano pipistrelle	1	Not seen	Foraging		Map ref 12 - 2 passes
22:14	Common pipistrelle	1	Not seen	Foraging		Map ref 13
22:18	Common pipistrelle	1	Not seen			Picked up on analysis
22:19	Common pipistrelle	1	Not seen			Picked up on analysis 3 passes
22:21	Common pipistrelle	1	Not seen	Foraging		Map ref 14 - 3 passes
22:24	Common pipistrelle	1	Not seen	Foraging		Map ref 15 - a few passes
22:26	Soprano pipistrelle	2	Not seen	Foraging		Map ref 16 - 5+ passes until 22:27
22:28	Common pipistrelle	1	Not seen			Picked up on analysis - multiple passes until 22:29
22:40	Common pipistrelle	1	Not seen	Foraging		Map ref 17

22:48	Common pipistrelle	1	Not seen	Foraging		Map ref 18 - Continuous until 22:55

Table 13: Transect results, transect 1, visit 2.

Surveyor	[redacted]			**Date**		29/07/2024			
Survey no				**Survey start/end times**		20:56-23:16			
Sunset/rise time	20:56			**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1611-2401			
General weather conditions	Dry and warm, light breeze							**Moon-phase**	Waning Crescent
Limitations									
Temp(ºC start/end)	22/19	**Cloud cover (Oktas 0-8)**	4/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
21:53	Noctule	1	Seen	Commuting	East	Map reference 1
22:03	Common pipistrelle	1	Not seen			Picked up on analysis
22:15	Common pipistrelle	1	Not seen			Picked up on analysis
22:16	Common pipistrelle	1	Not seen	Foraging		Map reference 2 - a few passes for 2 mins
22:19	Common pipistrelle	1	Not seen	Foraging		3 passes, map reference 3
22:20	Soprano pipistrelle	1	Not seen	Foraging		Map reference 4 - Multiple passes over next 4 mins
22:21	Daubenton's	1	Not seen			Picked up on analysis
22:28	Common pipistrelle	1	Seen	Foraging		Map reference 5 - several passes over next 7 mins
22:31	Daubenton's	1				Picked up on analysis and again at 22:33
22:36	Soprano pipistrelle	1	Not seen	Foraging		
22:38	Common pipistrelle	1	Not seen	Foraging		Map reference 6 - continued over 2 mins
22:38	Soprano pipistrelle	1	Not seen	Foraging		5 passes over next 3 mins, map reference 7

22:44	Soprano pipistrelle	1	Not seen	Foraging		Map reference 8
22:49	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis - multiple passes over 2 mins
22:55	Common pipistrelle	1	Not seen	Foraging		Map reference 9
23:01	Noctule	1	Not seen	Foraging		Map reference 10
23:09	Common pipistrelle	1	Not seen	Foraging		Multiple passes over 2+ mins, map reference 11
23:13	Common pipistrelle	1	Not seen	Foraging		Map reference 12 - Multiple passes until 23:15, feeding buzz heard

Table 14: Transect results, transect 1, visit 3.

Surveyor	[redacted]			**Date**		24/09/2024			
Survey no	3			**Survey start/end times**		18:52 21:03			
Sunset/rise time	18:52			**Equipment reference e.g. BLA, BLM, Lux metre**		BLM11			
General weather conditions	Breezy, dry							**Moon-phase**	Waning Gibbous
Limitations	None								
Temperature (℃ start and end)	15,12	**Cloud cover (Oktas 0-8)**	7/8	**Wind (Beaufort 0-12)**	2	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
19:33	Noctule	1	Not seen	Commuting		Map reference 2 - 3 passes			
19:41	Noctule	1	Not seen	Commuting		Map reference 3			
19:42	Common pipistrelle	1	Not seen	Commuting		Map ref 4			
19:45	Noctule	1	Not seen	Commuting		Map ref 5			
19:52	Myotis sp.	1	Not seen			Map ref 6			
19:56	Myotis sp.		Not seen			Map ref 7			
19:57	Soprano pipistrelle	1	Not seen			Map ref 8 - 3 plus passes			
19:59	Noctule		Not seen			Map ref 9 - foraging along mature trees			
19:59	Common pipistrelle		Not seen			Map ref 9 - foraging along mature trees			

19:59	Soprano pipistrelle		Not seen			Map ref 9 - foraging along mature trees
20:06	Noctule		Not seen			Map ref 10
20:06	Common pipistrelle		Not seen			Map ref 10
20:10	Noctule	1	Not seen			Map ref 11
20:12	Common pipistrelle	1	Not seen	Foraging		Map ref 12 - cont. foraging
20:12	Soprano pipistrelle	1	Not seen	Foraging		Map ref 12 - cont. foraging
20:17	Common pipistrelle	1	Not seen	Foraging		Map ref 13
20:17	Soprano pipistrelle	1	Not seen	Foraging		Map ref 13
20:17	Noctule	1	Not seen	Foraging		Map ref 13
20:23	Common pipistrelle	1	Not seen	Foraging		Map ref 14
20:28	Common pipistrelle	1	Not seen	Foraging		Map ref 15
20:28	Soprano pipistrelle	1	Not seen	Foraging		Map ref 15
20:34	Myotis sp.	1	Not seen	Foraging		Map ref 16 - 2 passes
20:38	Common pipistrelle	1	Not seen	Foraging		Map ref 17 - foraging around pond
20:38	Soprano pipistrelle	1	Not seen	Foraging		Map ref 17 - foraging around pond
20:47	Soprano pipistrelle	1	Not seen	Foraging		Map ref 18
20:52	Common pipistrelle	1	Not seen	Foraging		Map ref 19 - 2 passes

20:54	Common pipistrelle	1	Not seen	Foraging		Map ref 20 - foraging up and down ditch
20:54	Soprano pipistrelle	1	Not seen	Foraging		Map ref 20 - foraging up and down ditch
21:03	Common pipistrelle	1	Not seen	Foraging		Map ref 21

Table 15: Transect results, transect 2, visit 1.

Surveyor		[redacted]		**Date**		14/05/2024			
Survey no		1		**Survey start/end times**		20:50-23:20			
Sunset/rise time		20:50		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM18			
General weather conditions								**Moon-phase**	Waxing Crescent
Limitations		None							
Temperature (℃ start and end)	14.3 - 14.0	**Cloud cover (Oktas 0-8)**	7/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
21:35	Common pipistrelle	1	Seen	Foraging		Map ref 1 - Close to trees
21:35	Soprano pipistrelle	1	Not seen			Picked up on analysis
21:35	Common pipistrelle	1	Not seen			Picked up on analysis
21:36	Soprano pipistrelle	1	Not seen			Picked up on analysis - 2 passes
21:37	Soprano pipistrelle	1	Not seen			Picked up on analysis
21:37	Common pipistrelle	1	Not seen			Picked up on analysis - continuous until 21:38
21:39	Soprano pipistrelle	1	Not seen			Picked up on analysis
21:40	Common pipistrelle	1	Not seen			Picked up on analysis - multiple passes

21:41	Common pipistrelle	2	Seen	Foraging		Map ref 2 - Around hedge
21:44	Common pipistrelle	1	Not seen	Other		Map ref 3 - Foraging/commuting
21:47	Common pipistrelle	1	Not seen	Commuting		Map ref 4
21:49	Common pipistrelle	1	Not seen	Commuting		Map ref 5
21:52	Common pipistrelle	1	Seen	Commuting	North	Map ref 6 - Distant
21:58	Common pipistrelle	1	Seen	Foraging		Map ref 7 - Foraging with bat below over fields
21:58	Soprano pipistrelle	1	Seen	Foraging		Map ref 7 - Foraging with bat above over fields
21:59	Common pipistrelle	1	Not seen			Picked up on analysis - multiple passes 21:59 - 22:00
22:44	Noctule	1	Not seen			Picked up on analysis
22:45	Noctule	1	Not seen	Commuting		Map ref 8 - Overhead
22:53	Common pipistrelle	1	Not seen	Foraging		Map ref 9 - Along road and trees (feed buzz heard)
22:54	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis
22:57	Soprano pipistrelle	1	Not seen	Foraging		Map ref 10 - Near farm buildings and trees
22:58	Soprano pipistrelle	1	Not seen			Picked up on analysis
23:18	Soprano pipistrelle	1	Not seen	Foraging		Map ref 11 - Over car - 2 passes

Table 16: Transect results, transect 2, visit 2.

Surveyor		[redacted]		**Date**		29/07/2024			
Survey no		2		**Survey start/end times**		20.56 - 23:16			
Sunset/rise time		20.56-05.18		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1612-2403			
General weather conditions		Dry, light wind, small amount of cloud						**Moon-phase**	Last Quarter
Limitations		No limitations							
Temp(℃ start/end)	23° 19°	**Cloud cover (Oktas 0-8)**	1/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	NA

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
22:15	Common pipistrelle	1	Not seen	Foraging		Map ref 1 - 5 passes up & down tree line until 22:21
22:21	Myotis	1	Not seen	Commuting		Map ref 2 - 1 pass tree line
22:24	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - Continuous for next 2 mins
22:30	Soprano pipistrelle	1	Not seen	Commuting		Map ref 4 - 1 pass tree line
22:36	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - 3+ passes over next 2 mins
22:42	Soprano pipistrelle	1	Not seen	Foraging		Map ref 6 - Continuous foraging over next 2 mins
22:47	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis - 1 pass
22:49	Soprano pipistrelle	1	Not seen	Foraging		Map ref 7 - 5 passes
22:50	Common pipistrelle	1	Not seen	Foraging		Map ref 8 - 3 passes
22:54	Common pipistrelle	1	Not seen	Foraging		Map ref 9 - Continuous over next 8 mins
23:11	Myotis	1	Not seen			Picked up on analysis - 1 pass
23:13	Common pipistrelle	4	Not seen	Foraging		Map ref 10 - Multiple bats doing multiple passes between 23:13 & 22:24

23:25	Soprano pipistrelle	1	Not seen	Foraging		Map ref 11 - 1 pass
23:25	Common pipistrelle	1	Not seen	Foraging		Map ref 11 - 1 pass

Table 17: Transect results, transect 2, visit 3.

Surveyor		[redacted]		**Date**		24/09/2024			
Survey no		3		**Survey start/end times**		18:52 - 21:21			
Sunset/rise time		18:52		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM18 BL-1719-2887			
General weather conditions		Breezy, dry						**Moon-phase**	Last Quarter
Limitations		None							
Temperature (℃ start and end)	14/11	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
19:24	Soprano pipistrelle	1	Seen	Foraging		Map ref 1 - foraging around haystack for 3 mins			
19:24	Noctule	1	Seen	Foraging		Map ref 1 - foraging around haystack, multiple passes			
19:31	Nathusius' pipistrelle	1	Seen	Commuting	East	Mep ref 2			
19:33	Barbastelle	1	Seen	Commuting	West	Map ref 3			
19:35	Common pipistrelle	1	Not seen			Picked up on analysis			
19:38	Soprano pipistrelle	1	Not seen	Commuting		Map ref 4			
19:40	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - 3+ passes			
19:57	Common pipistrelle	1	Not seen	Foraging		Map ref 6			

20:01	Soprano pipistrelle	1	Not seen	Foraging		Map ref 7
20:03	Soprano pipistrelle	1	Not seen	Foraging		Map ref 8
20:05	Common pipistrelle	1	Not seen	Foraging		Map ref 9
20:06	Common pipistrelle	1	Not seen	Foraging		Map ref 9
20:11	Soprano pipistrelle	1	Not seen	Foraging		Map ref 10 - 3 passes
20:21	Common pipistrelle	1	Not seen	Foraging		Map ref 11
20:28	Common pipistrelle	1	Not seen	Foraging		Continuous over next 4 mins - Map ref 12
20:32	Common pipistrelle	1	Not seen	Foraging		Continuous over next 4 mins - Map ref 13
20:34	Soprano pipistrelle	1	Not seen	Foraging		Multiple passes over next 3 mins - Map ref 13
20:46	Common pipistrelle	1	Not seen	Foraging		Continuous over next 6 mins - Map ref 13
21:05	Common pipistrelle	1	Not seen	Foraging		Map ref 14
21:14	Myotis sp.	1	Not seen	Foraging		Map ref 15
21:21	Common pipistrelle	1	Not seen	Foraging		Map ref 16

Table 18: Transect results, transect 3, visit 1.

Surveyor		[redacted]		**Date**		14/05/2024			
Survey no		1		**Survey start/end times**		20:50-22:50			
Sunset/rise time		20:50		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM20			
General weather conditions		Rainy all day but clear for start of survey						**Moon-phase**	Waxing Crescent
Limitations									
Temperature (℃ start and end)	13, 13	**Cloud cover (Oktas 0-8)**	7/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	1	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:35	Common pipistrelle	1	Seen	Commuting	East	Map ref 1 - Single pass from road/ditch into field			
21:38	Common pipistrelle	2	Seen	Foraging	E & W	Map ref 2 - 2 bats foraging around ditch/path, continuous until 21:43 (Flight direction East and West)			
21:55	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - Single pass			
21:57	Common pipistrelle	1	Seen	Foraging	East	Map ref 4 - Flying along ditch			
21:58	Common pipistrelle	1	Not seen			Picked up on analysis			
21:59	Common pipistrelle	1	Not seen			Picked up on analysis			
22:01	Common pipistrelle	1	Not seen			Map ref 4 - 3 passes			

22:03	Common pipistrelle	1	Not seen			Picked up on analysis - constant until 22:05
22:04	Soprano pipistrelle	1	Not seen			Multiple passes until 22:06
22:09	Common pipistrelle	1	Seen	Foraging		Map ref 5 - Foraging over ditch until 22:13
22:21	Unknown	1	Not seen			Map ref 6 - Not confirmed bat (28kh) - Analysis confirmed no bat at this time
22:24	Common pipistrelle	1	Not seen	Commuting		Map ref 7 - 2 brief passes, possibly 2 bats
22:51	Common pipistrelle	1	Not seen	Commuting		Map ref 8 - Single pass
22:51	Noctule	1	Not seen	Commuting		Map ref 8 - Single pass
22:52	Common pipistrelle	1	Not seen			Picked up on analysis

Table 19: Transect results, transect 3, visit 2.

Surveyor		[redacted]		**Date**		29/07/2024			
Survey no		2		**Survey start/end times**		20:56 - 23:06			
Sunset/rise time		20:56		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1533 - 224C			
General weather conditions		Warm, light breeze, little cloud cover						**Moon-phase**	Waning Crescent
Limitations									
Temperature (℃ start and end)	24/18	**Cloud cover (Oktas 0-8)**	2/8	**Wind (Beaufort 0-12)**	2	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:57	Common pipistrelle	1	Not seen			2 passes, picked up on analysis			
21:03	Common pipistrelle	1	Not seen			1 pass - picked up on analysis			
22:06	Common pipistrelle	1	Seen	Foraging		Map reference 1 - Continuous foraging behaviour for 2 mins			
22:14	Soprano pipistrelle	1	Not seen	Foraging		Map reference 2 - 2 passes			
22:15	Common pipistrelle	2	Not seen	Foraging		Map reference 3 - Multiple foraging passes over 3 mins			
22:24	Common pipistrelle	1	Not seen			1 pass, picked up on analysis			
22:37	Common pipistrelle	1	Seen	Foraging		Map reference 4 - Multiple foraging passes over next 4 mins			
22:50	Common pipistrelle	2	Not seen	Foraging		Map reference 5 - Multiple foraging passes over 3 mins, getting fainter towards South			

22:58	Common pipistrelle	1	Not seen	Foraging		2 passes, picked up on analysis
23:05	Soprano pipistrelle	1	Not seen			4 passes, picked up on analysis
23:06	Common pipistrelle	1	Not seen			Multiple passes picked up on analysis

Table 20: Transect results, transect 3, visit 3.

Surveyor		[redacted]		**Date**		24/09/2024			
Survey no		3		**Survey start/end times**		18:52 - 20:52			
Sunset/rise time		18:52		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM16			
General weather conditions		Cloudy, dry, light breeze						**Moon-phase**	Waning Gibbous
Limitations		Bright lights from traffic on Western boundary							
Temperature (℃ start and end)	14,13	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	4	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
19:58	Soprano pipistrelle	1	Not seen			Picked up on analysis			
20:00	Common pipistrelle	1	Not seen			2 passes - picked up on analysis			
20:02	Soprano pipistrelle	1	Not seen			Picked up on analysis - 2 passes			
20:04	Noctule	1	Not seen			Map ref 1 - Weak detection			
20:05	Common pipistrelle	1	Not seen	Foraging		A few passes			
20:05	Soprano pipistrelle	1	Not seen	Foraging		Picked up on analysis - multiple passes over 2 mins			
20:06	Daubentons	1	Not seen	Foraging		Map ref 2 - continuous foraging over main drain ditch			
20:06	Soprano pipistrelle	1	Not seen	Foraging		Map ref 2 - continuous foraging over main drain ditch for next 6 mins			

20:06	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - continuous foraging over main drain ditch for next 7 mins
20:08	Myotis sp.	1	Not seen	Foraging		Map ref 2 - continuous foraging over main drain ditch (daub)
20:10	Brown long-eared	1	Not seen			Picked up on analysis
20:19	Noctule	1	Not seen			Picked up on analysis - 2 passes
20:20	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis - sporadic over next 20 mins
20:23	Soprano pipistrelle	1	Not seen	Foraging		Picked up on analysis - multiple passes over next 10 mins
20:23	Brown long-eared	1	Not seen			Picked up on analysis
20:49	Soprano pipistrelle	1	Not seen	Foraging		Map ref 3 - few passes over ditch
20:49	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - few passes over ditch

Table 21: Transect results, transect 4, visit 1.

Surveyor		[redacted]		**Date**		15/05/2024			
Survey no		1		**Survey start/end times**		20:52 - 22:52			
Sunset/rise time		20:52		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM16			
General weather conditions		Shower prior to start but dry for survey						**Moon-phase**	First Quarter
Limitations									
Temperature (℃ start and end)	16/14	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	2	**Rain (0-5)**	0	**Lux level (survey end)**	
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:45	Common pipistrelle	1	Not seen	Commuting		Map ref 1 - 2 passes over 2 mins			
21:50	Common pipistrelle	1	Not seen	Commuting		Map ref 2 - 2 passes			
21:59	Common pipistrelle	1	Not seen			Picked up on analysis			
22:01	Common pipistrelle	1	Not seen			Picked up on analysis			
22:16	Common pipistrelle	1	Not seen	Commuting		Map ref 3			
22:20	Common pipistrelle	1	Not seen			Picked up on analysis			
22:23	Soprano pipistrelle	1	Not seen	Foraging		Map ref 4 - Foraging over ditch			

22:25	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - 2 passes (foraging over ditch)
22:26	Soprano pipistrelle	1	Not seen			Picked up on analysis
22:30	Common pipistrelle	1	Not seen	Foraging		Map ref 6 - A few passes (foraging near trees/over road)
22:33	Common pipistrelle	1	Not seen			Picked up on analysis
22:36	Soprano pipistrelle	1	Not seen	Commuting		Map ref 7

Table 22: Transect results, transect 4, visit 2.

Surveyor		SG & IF		**Date**		30/07/2024			
Survey no		2		**Survey start/end times**		20:55-23:29			
Sunset/rise time		20:55		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1611-2401			
General weather conditions		Dry and warm						**Moon-phase**	Waning Crescent
Limitations		Unable to cross some ditches, had to adapt transect accordingly							
Temp(°C start/end)	19/18	**Cloud cover (Oktas 0-8)**	5/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
22:07	Common pipistrelle	1	Not seen	Commuting		Map reference 1			
22:13	Common pipistrelle	1	Not seen	Foraging		2 passes, map reference 2			
22:16	Common pipistrelle	1	Not seen	Foraging		Map reference 3			
22:18	Common pipistrelle	1	Not seen	Foraging		Map reference 4			
22:20	Common pipistrelle	1	Not seen			1 pass, picked up on analysis			
22:24	Common pipistrelle	1	Not seen	Foraging		Map reference 5			
22:30	Common pipistrelle	1	Not seen	Foraging		1 pass, picked up on analysis			
22:45	Common pipistrelle	1	Not seen	Foraging		Map reference 6 - 5 plus passes over next 4 mins			
22:54	Common pipistrelle	1	Not seen	Foraging		1 pass, picked up on analysis			
22:57	Soprano pipistrelle	1	Not seen	Foraging		Map reference 7 - multiple passes over 2 mins.			
23:03	Soprano pipistrelle	1	Not seen	Foraging		Map reference 8 - CP also seen 20:03 on analysis			
23:10	Common pipistrelle	1	Not seen	Foraging		1 pass, picked up on analysis, another T 23:13			
23:16	Common pipistrelle	1	Not seen	Foraging		Map reference 9 - 3 passes over next 3 mins			
23:24	Barbastelle	1	Not seen			Picked up on analysis			

Table 23: Transect results, transect 4, visit 3.

Surveyor		[redacted]		**Date**		09/10/2024			
Survey no		3		**Survey start/end times**		18:19 - 20:49			
Sunset/rise time		18:19		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM17			
General weather conditions		Overcast, breezy, rain from 20:30						**Moon-phase**	Waxing Crescent
Limitations		Rain on and off before start of survey and at end, carried survey on longer in case of late emergence due to this							
Temperature (℃ start and end)	13, 12	**Cloud cover (Oktas 0-8)**	7/8	**Wind (Beaufort 0-12)**	4	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
						No bats recorded			

Table 24: Transect results, transect 5, visit 1.

Surveyor		[redacted]		**Date**		15/05/2024			
Survey no		1		**Survey start/end times**		20:51 - 22:51			
Sunset/rise time		20:51		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM11			
General weather conditions		Rain 30 mins before start						**Moon-phase**	First Quarter
Limitations									
Temperature (℃ start and end)	15.9, 14.4	**Cloud cover (Oktas 0-8)**	4/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:04	Unknown	1	Seen	Commuting	South	Map ref 1 - SW saw bat fly over but detector not triggered			
21:09	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - 3 passes			
21:21	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis			
21:22	Soprano pipistrelle	1	Not seen			Map ref 3 - Foraging/commuting			
22:00	Common pipistrelle	2	Seen	Foraging		Map ref 4 - Along ditch from woodland, continuous feeding buzzes until 22:05			
22:08	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - multiple passes until 22:12			
22:12	Common pipistrelle	1	Not seen	Foraging		Map ref 6			
22:14	Common pipistrelle	1	Not seen	Foraging		Map ref 7 - multiple passes			

22:17	Common pipistrelle	1	Not seen	Foraging		Map ref 8
22:19	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis
22:23	Common pipistrelle	1	Not seen	Foraging		Map ref 9
22:30	Common pipistrelle	1	Not seen	Foraging		Map ref 10
22:34	Common pipistrelle	1	Not seen	Foraging		Map ref 11 - multiple passes, feeding buzz heard
22:40	Common pipistrelle	1	Not seen	Foraging		Map ref 12
22:42	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis
22:45	Common pipistrelle	3	Seen	Foraging		Map ref 13 - Over ditch, feeding buzz heard - continuous until 22:55
22:59	Soprano pipistrelle	1	Seen	Foraging		Map ref 14
23:02	Soprano pipistrelle	1	Not seen	Foraging		Map ref 15
23:04	Common pipistrelle	1	Not seen	Foraging		Map ref 16 - multiple passes

Table 25: Transect results, transect 5, visit 2.

Surveyor		[redacted]		**Date**		30/07/2024			
Survey no		2		**Survey start/end times**		20:55 - 22:55			
Sunset/rise time		20:55		**Equipment reference e.g. BLA, BLM, Lux metre**		15533 - 2242			
General weather conditions								**Moon-phase**	Waning Crescent
Limitations									
Temperature (℃ start and end)	19	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:26	Common pipistrelle	1	Not seen			Map ref 1 - Barn owl hunting and toad seen here			
22:00	Common pipistrelle	1	Not seen			Map ref 1 - 2 passes			
22:16	Common pipistrelle	1	Not seen	Foraging		4 passes over next 2 mins - picked up on analysis			
22:23	Common pipistrelle	1	Not seen			Map ref 2			
22:27	Common pipistrelle	1	Not seen			Map ref 3			
		1	Not seen			Map ref 4 - Barn owl heard			
22:34	Noctule	1	Not seen			Map ref 5			
						Map ref 6 - Young barn owl in barn			
22:37	Common pipistrelle	1	Not seen			Map ref 6 - Multiple passes over next few mins			

22:44	Common pipistrelle	1	Not seen	Foraging		Map ref 7
22:47	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis
22:48	Noctule	1	Not seen			Map ref 7
						2 barn owls hunting across field
22:50	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis - 2 passes
22:54	Soprano pipistrelle	1	Not seen	Foraging		Picked up on analysis - 2 passes
23:00	Common pipistrelle	1	Not seen			Map ref 10 - multiple passes over next 4 mins
23:17	Unknown	1	Seen		South-east	Map ref 11 - Seen not heard
23:22	Common pipistrelle	1	Not seen	Foraging		2 passes - picked up on analysis
23:24	Common pipistrelle	1	Not seen	Foraging		Map ref 12 - Continuous over next 2 mins

Table 26: Transect results, transect 5, visit 3.

Surveyor		[redacted]		**Date**		09/10/2024			
Survey no		3		**Survey start/end times**		18:19 - 20:49			
Sunset/rise time		18:19		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM11			
General weather conditions		Overcast, breezy, rain from 20:30						**Moon-phase**	Waxing Crescent
Limitations		Rain on and off before start of survey and at end, carried survey on longer in case of late emergence due to this							
Temperature (℃ start and end)	13, 12	**Cloud cover (Oktas 0-8)**	8/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
18:47	Soprano pipistrelle	1	Not seen	Commuting		Map ref 1			
18:48	Common pipistrelle	1	Not seen	Commuting		Map ref 1			
18:49	Soprano pipistrelle	1	Not seen	Commuting		Map ref 1			
18:52	Common pipistrelle	1	Not seen	Commuting		Map ref 2			
18:56	Common pipistrelle	2	Seen	Foraging		Map ref 3 - Around S & E of large haystack			
19:55	Common pipistrelle	1	Not seen	Foraging		Map ref 4 - foraging around trees			

Table 27: Transect results, transect 6, visit 1.

Surveyor		[redacted]		**Date**		15/05/2024			
Survey no		1		**Survey start/end times**		20:51-22:51			
Sunset/rise time		20:51		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM20			
General weather conditions		Brief shower prior to start, dry, slight breeze, some cloud.						**Moon-phase**	First Quarter
Limitations		None							
Temperature (℃ start and end)	15/14	**Cloud cover (Oktas 0-8)**	5/8	**Wind (Beaufort 0-12)**	2	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:48	Common pipistrelle	1	Not seen	Foraging		Map ref 1 - A few passes, on road by ditch for 2+ mins			
21:56	Common pipistrelle	1	Not seen	Foraging		Map ref 1 - Same location, opposite side of ditch			
21:58	Common pipistrelle	2	Not seen	Foraging		Map ref 2 - Same bats plus additional, continuous further along ditch until 22:04			
22:05	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - A few passes			
22:08	Common pipistrelle	1	Not seen	Foraging		Map ref 4 - A few passes			
22:15	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - A few passes			
22:20	Common pipistrelle	1	Not seen	Foraging		Map ref 6 - A few passes			
22:28	Common pipistrelle	1	Not seen			Picked up on analysis			

22:37	Common pipistrelle	1	Not seen	Foraging		Map ref 7 - A few passes along ditch/road
22:41	Common pipistrelle	1	Not seen	Foraging		Map ref 8 - A few passes along ditch/road until 22:43

Table 28: Transect results, transect 6, visit 2.

Surveyor		[redacted]		**Date**		30/07/2024			
Survey no		2		**Survey start/end times**		20.56 - 23:16			
Sunset/rise time		20.56-05.18		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1612-2403			
General weather conditions		Dry light wind, small amount of cloud						**Moon-phase**	Waning Crescent
Limitations		Due to not being able to cross several ditches the route need to be modified							
Temp(℃ start/end)	19° 17°	**Cloud cover (Oktas 0-8)**	5/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
22:10	Common pipistrelle	1	Not seen	Foraging		1 pass - Map ref 1			
22:18	Common pipistrelle	1	Not seen	Foraging		2 passes - Map ref 2			
22:22	Common pipistrelle	1	Not seen	Foraging		1 passes - Map ref 3			
22:24	Common pipistrelle	1	Not seen	Foraging		2 passes - Map ref 4			
22:26	Common pipistrelle	1	Not seen	Foraging		1 passes along ditch - Map ref 5			
22:28	Common pipistrelle	1	Not seen	Foraging		1 passes along ditch - Map ref 6			
22:35	Common pipistrelle	1	Not seen	Foraging		1 pass - Map ref 7			
22:36	Common pipistrelle	1	Not seen	Foraging		1 pass - Map ref 8			
22:40	Common pipistrelle	1	Not seen	Foraging		1 pass - Map ref 9			

Table 29: Transect results, transect 6, visit 3.

Surveyor		SH & IF		**Date**		09/10/2024			
Survey no		3		**Survey start/end times**		18:19 - 20:49			
Sunset/rise time		18:19		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM16			
General weather conditions		Mild, light wind, cloud. Dry at start but started raining at 20:30						**Moon-phase**	Waxing Crescent
Limitations		Rain on and off before start of survey and at end, carried survey on longer in case of late emergence due to this							
Temperature (℃ start and end)	15, 12	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Species - (CP=common pipistrelle, SP=soprano pipistrelle, LE=long-eared, N=Noctule, S=Serotine, M=Myotis, U=Unknown									
Activity type - (E = Emergence, R = Return to roost, C = Commuting, F = Foraging, S = Socialising)									
Check moonphase at https://moonphases.co.uk/									

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
18:46	Noctule	1	Not seen	Commuting	North	Single pass - Map ref 1
19:33	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - continuous foraging over next 2 mins

Table 30: Transect results, transect 7, visit 1.

Surveyor	[redacted]	**Date**	16/05/2024
Survey no	1	**Survey start/end times**	20:53 - 23:28
Sunset/rise time	20:53	**Equipment reference e.g. BLA, BLM, Lux metre**	BLM17
General weather conditions	Mild, cloudy, light breeze	**Moon-phase**	Waxing Gibbous
Limitations			

Temperature (℃ start and end)	14/14	**Cloud cover (Oktas 0-8)**	8/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
21:28	Common pipistrelle	1	Not seen	Commuting		Map ref 1 - 2 passes
21:36	Common pipistrelle	1	Not seen	Commuting		Map ref 2
21:40	Common pipistrelle	1	Not seen	Commuting		Map ref 3
21:43	Common pipistrelle	1	Seen	Foraging		Map ref 4 - 2 passes (foraging over ditch - feeding buzz heard)
21:48	Common pipistrelle	1	Not seen	Commuting		Map ref 5
21:50	Soprano pipistrelle	1	Not seen	Commuting		Map ref 6
21:50	Common pipistrelle	1	Not seen			Picked up on analysis
21:55	Common pipistrelle	1	Not seen	Foraging		Map ref 7

21:58	Common pipistrelle	1	Seen	Foraging		Map ref 8 - A few passes near ditch
22:00	Common pipistrelle	1	Not seen	Foraging		Map ref 8 - multiple passes over next 2 minutes
22:07	Common pipistrelle	1	Not seen	Foraging		Map ref 9 - 5+ passes until 22:08
22:27	Common pipistrelle	1	Not seen			Map ref 9
22:08	Common pipistrelle	1	Not seen			Picked up on analysis
22:41	Common pipistrelle	2	Not seen	Foraging		Map ref 10 - At least 2 bats, continuous foraging until 22:46
22:50	Common pipistrelle	1	Not seen	Foraging		Map ref 11 - Foraging continuous until 22:52
22:55	Common pipistrelle	1	Not seen	Foraging		Map ref 11
22:58	Common pipistrelle	1	Not seen	Foraging		Map ref 12 - 2 passes
23:00	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis
23:04	Common pipistrelle	1	Not seen	Foraging		Map ref 13
23:10	Noctule	1	Not seen			Picked up on analysis
23:17	Common pipistrelle	1	Not seen	Foraging		Map ref 14
23:23	Common pipistrelle	1	Not seen	Foraging		Map ref 15 - A few passes, feeding buzz heard
23:28	Common pipistrelle	1	Not seen	Foraging		Map ref 16

Table 31: Transect results, transect 7, visit 2.

Surveyor	[redacted]			**Date**		31/07/2024			
Survey no	2			**Survey start/end times**		20:53-22:53			
Sunset/rise time	20:53			**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1611-2401			
General weather conditions	Dry and warm							**Moon-phase**	Waning Crescent
Limitations	Unable to cross some ditches, had to adapt transect accordingly								
Temp(ºC start/end)	21/21	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:42	Common pipistrelle	1	Not seen	Commuting		Faint detection, map reference 1			
21:58	Common pipistrelle	1	Not seen	Commuting		Map reference 2			
22:02	Common pipistrelle	1	Not seen	Foraging		2 passes - Faint detection, map reference 3			
22:26	Common pipistrelle	1	Not seen	Foraging		1 pass. Picked up on analysis			
22:44	Common pipistrelle	1	Not seen	Foraging		Map reference 4			

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Table 32: Transect results, transect 7, visit 3.

Surveyor		[redacted]		**Date**		21/10/2024			
Survey no		3		**Survey start/end times**		17:52 - 19:52			
Sunset/rise time		17:52		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM16			
General weather conditions		Cloudy, calm, dry						**Moon-phase**	Waning Gibbous
Limitations									
Temperature (℃ start and end)	13-Dec	**Cloud cover (Oktas 0-8)**	7	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
18:28	Common pipistrelle	1	Not seen			2 passes - picked up on analysis			
18:38	Common pipistrelle	2	Seen	Foraging		Foraging up and down ditch, continuous over next 3 mins - Map ref 1			
18:54	Common pipistrelle	2	Not seen	Foraging		Continuous over next 4 mins - map ref 2			
19:10	Common pipistrelle	1	Not seen	Foraging		Map ref 3			
19:35	Common pipistrelle	1	Not seen	Foraging		3 passes - map ref 4			
19:38	Common pipistrelle	1	Not seen			1 pass - picked up on analysis			
19:44	Common pipistrelle	1	Not seen	Foraging		Multiple passes over next few mins - picked up on analysis			

Table 33: Transect results, transect 8, visit 1.

Surveyor	[redacted]	**Date**	16/05/2024
Survey no	1	**Survey start/end times**	20:53 - 23:12
Sunset/rise time	20:53	**Equipment reference e.g. BLA, BLM, Lux metre**	BLM20
General weather conditions	Cloudy, light breeze	**Moon-phase**	First Quarter
Limitations			

Temperature (℃ start and end)	14.4/12.5	**Cloud cover (Oktas 0-8)**	8/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
21:45	Common pipistrelle	1	Seen	Foraging	West	Map ref 1 - Along drain, continuous until 21:48
21:49	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis
21:50	Common pipistrelle	2	Seen	Foraging		Map ref 2 - Along drain, continuous until 21:54
21:55	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - continuous until 21:58
22:01	Common pipistrelle	1	Not seen	Foraging		Map ref 4
22:06	Common pipistrelle	2	Not seen	Foraging		Map ref 5 - continuous until 22:10
22:11	Common pipistrelle	2	Not seen	Foraging		Map ref 6 - continuous until 22:18
22:22	Common pipistrelle	1	Not seen			Map ref 7 - Foraging/commuting

22:28	Common pipistrelle	1	Not seen	Foraging		Map ref 8
22:41	Common pipistrelle	1	Not seen	Foraging		Map ref 9 - Several passes until 22:45
22:52	Common pipistrelle	1	Not seen	Foraging		Map ref 10
23:00	Common pipistrelle	1	Not seen			Map ref 11 - Foraging/commuting, brief pass
23:05	Common pipistrelle	2	Not seen	Foraging		Map ref 12 - At least 2, around trees by road, multiple passes until 23:07
23:09	Common pipistrelle	1	Not seen	Foraging		Map ref 13 - Along road, multiple passes until 23:11

Table 34: Transect results, transect 8, visit 2.

Surveyor	[redacted]			**Date**		31/07/2024			
Survey no	2			**Survey start/end times**		20.53 - 23:53			
Sunset/rise time	20.53-05.18			**Equipment reference e.g. BLA, BLM, Lux metre**		BLM 1612-2403			
General weather conditions	Dry light wind part cloudy							**Moon-phase**	Waxing Crescent
Limitations	N/A								
Temp(°C start/end)	21° 18°	**Cloud cover (Oktas 0-8)**	7/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:52	Common pipistrelle	1	Not seen	Foraging		Map ref 1 - 7 passes			
22:04	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - 5 passes			
22:04						Barn owl heard (Map ref 2)			
22:18	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - 11 passes along ditch			
22:21	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - 1 passes			
22:29	Common pipistrelle	1	Not seen	Foraging		Map ref 4 - 1 pass			
22:35	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - 6 pass			
22:48	Common pipistrelle	1	Not seen	Foraging		Map ref 6 - 6 passes			
23:06	Common pipistrelle	1	Not seen	Foraging		Map ref 7 - 1 pass			
						Barn owl heard/seen (Map ref 7)			

Table 35: Transect results, transect 8, visit 3.

Surveyor		[redacted]		**Date**		22/10/2024			
Survey no		3		**Survey start/end times**		17:50 - 20:13			
Sunset/rise time		17:50		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM16			
General weather conditions		Sunny with light cloud						**Moon-phase**	Waning Gibbous
Limitations									
Temperature (℃ start and end)	14, 12	**Cloud cover (Oktas 0-8)**	4	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
18:34	Common pipistrelle	1	Not seen			1 pass - picked up on analysis			
18:40	Common pipistrelle	1	Seen	Foraging		Map ref 1 - foraging over ditch, continuous over next few mins			
18:46	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - foraging over ditch, continued until 18:54			
19:00	Common pipistrelle	1	Not seen	Foraging		Map ref 3			
19:06	Common pipistrelle	1	Not seen	Foraging		Map ref 4			
19:22	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - 3 passes			
19:26	Common pipistrelle	1	Not seen	Foraging		Map ref 6 - 3 passes			
19:29	Common pipistrelle	1	Not seen	Foraging		Map ref 7 - 3 passes			

19:33	Common pipistrelle	1	Not seen	Foraging		Map ref 8 - 1 pass
19:35	Common pipistrelle	1	Not seen	Foraging		Map ref 9 - 3 passes
19:38	Common pipistrelle	1	Not seen	Foraging		Map ref 10
19:52	Common pipistrelle	2	Not seen	Foraging		Map ref 11 - cp and sp continued over next 2 mins
19:55	Common pipistrelle	1	Not seen	Foraging		Map ref 12 - 4 passes
19:58	Common pipistrelle	1	Not seen	Foraging		Map ref 13 - continued over next 2 mins
20:03	Common pipistrelle	1	Not seen	Foraging		Map ref 14 - Continued until 20:09

Table 36: Transect results, transect 9, visit 1.

Surveyor		[redacted]		**Date**		16/05/2024			
Survey no		1		**Survey start/end times**		20:53 - 22:53			
Sunset/rise time		20:53		**Equipment reference e.g. BLA, BLM, Lux metre**		BLM21			
General weather conditions		Overcast and cool						**Moon-phase**	Waxing Gibbous
Limitations		N/A							
Temperature (℃ start and end)	14	**Cloud cover (Oktas 0-8)**	8/8	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
21:49	Common pipistrelle	1	Not seen			Map ref 1 - Brief pass, next to ditch (foraging/commuting)			
21:53	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - Brief pass and few more over 3 mins			
22:00	Common pipistrelle	1	Seen	Foraging		Map ref 3 - Along ditch, a few passes			
22:07	Common pipistrelle	1	Seen	Foraging		Map ref 4 - Along ditch, a few passes over next 2 mins			
22:13	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - Along road			
22:17	Common pipistrelle	1	Not seen	Foraging		Map ref 6 - Along road			
22:26	Common pipistrelle	1	Not seen	Foraging		Map ref 7			
22:30	Common pipistrelle	1	Not seen	Foraging		Map ref 8 - A few passes			

22:32	Common pipistrelle	1	Not seen	Foraging		Picked up on analysis - feeding buzz
22:37	Common pipistrelle	1	Not seen	Commuting		Map ref 9
22:40	Common pipistrelle	2	Not seen	Foraging		Map ref 10 - a few passes
22:53	Common pipistrelle	1	Not seen	Foraging		Map ref 11 - Circling trees, few passes until 22:55
22:53	Noctule	1	Not seen			Picked up on analysis - multiple passes
22:58	Common pipistrelle	1	Not seen	Foraging		Map ref 12 - 2 passes

Table 37: Transect results, transect 9, visit 2.

Surveyor	[redacted]	**Date**	31/07/2024
Survey no	2	**Survey start/end times**	20:53-22:53
Sunset/rise time	20:53	**Equipment reference e.g. BLA, BLM, Lux metre**	BLM 15533-2242
General weather conditions	Dry, warm and cloudy	**Moon-phase**	Waning Crescent
Limitations	N/A		

Temperature (℃ start and end)	21/21	**Cloud cover (Oktas 0-8)**	6/8	**Wind (Beaufort 0-12)**	3	**Rain (0-5)**	0	**Lux level (survey end)**	N/A

Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**
21:33	Common pipistrelle	1	Not seen			Map ref 1
21:37	Common pipistrelle	1	Not seen	Foraging		Map ref 2 - several passes
21:39	Common pipistrelle	1	Not seen	Foraging		Map ref 3 - 2 passes
21:44	Common pipistrelle	1	Not seen	Foraging		Map ref 4 - Multiple passes over next few mins
21:51	Common pipistrelle	1	Not seen	Foraging		Map ref 5 - Multiple passes over next few mins
22:03	Common pipistrelle	1	Not seen	Foraging		Map ref 6 - 2 passes
22:04	Common pipistrelle	1	Not seen	Foraging		Map ref 7 - Multiple passes over next few mins
22:04	Soprano pipistrelle	1	Not seen	Foraging		Map ref 7 - multiple passes over next few mins

22:08	Common pipistrelle	1	Not seen	Foraging		Map ref 8 - Multiple passes over next few mins
22:12	Barbastelle	1	Not seen	Foraging		Map ref 9
22:18	Common pipistrelle	1	Not seen	Foraging		Map ref 10
22:18	Nathusius' pipistrelle	1	Not seen	Foraging		Map ref 10
22:26	Common pipistrelle	1	Not seen	Foraging		Map ref 11 - multiple passes over next 5 mins
22:35	Common pipistrelle	1	Not seen	Foraging		Map ref 12 - Continuous to 22:40
22:45	Common pipistrelle	2	Not seen	Foraging		Map ref 13 - Continuous until 22:49

Table 38: Transect results, transect 9, visit 3.

Surveyor	[redacted]			**Date**		23/10/2024			
Survey no	3			**Survey start/end times**		17:48 - 19:56			
Sunset/rise time	17:48			**Equipment reference e.g. BLA, BLM, Lux metre**		BLM16			
General weather conditions	Overcast, calm and dry							**Moon-phase**	Waning Gibbous
Limitations	None								
Temperature (℃ start and end)	14-Dec	**Cloud cover (Oktas 0-8)**	5	**Wind (Beaufort 0-12)**	1	**Rain (0-5)**	0	**Lux level (survey end)**	N/A
Time	**Species**	**Number of bats**	**Seen/not seen (S/NS)**	**Activity type**	**Direction of flight**	**Notes (inc map ref)**			
18:23	Common pipistrelle	1	Not seen	Commuting		Map ref 1			
18:26	Common pipistrelle	1	Seen	Foraging		3+ passes over next 4 mins, foraging around hedge/ditch - map ref 2			
18:37	Common pipistrelle	1	Not seen	Foraging		Few passes - map ref 3			
18:40	Common pipistrelle	1	Not seen	Foraging		2+ passes - Map ref 4			
18:43	Common pipistrelle	1	Not seen	Foraging		Map ref 5			
18:52	Common pipistrelle	2	Not seen	Foraging		2 passes, foraging along ditch - Map ref 6			
19:20	Common pipistrelle	1	Not seen	Foraging		Very faint - Map ref 7			
19:36	Common pipistrelle	1	Not seen	Foraging		Map ref 8			

19:38	Common pipistrelle	1	Not seen	Foraging		Map ref 9
19:53	Soprano pipistrelle	1	Not seen	Foraging		Faint, 2+ passes - map ref 10

Appendix 3: Legislation and Planning Policy

Important Notice: This section contains details of legislation applicable in England and Wales only (i.e. not including Scotland, the Isle of Man, Northern Ireland, the Republic of Ireland or the Channel Islands) and is provided for general guidance only. While every effort has been made to represent the current (at the time of writing) situation with respect to the UK's position outside of the EU and to ensure accuracy throughout, this section should not be relied upon as a definitive statement of the law.

Over the past few years, three important bills have been published which are intended to shape how growing pressures on the environment post-Brexit (post-transition period) are tackled. Both the Agriculture Bill and Fisheries Bill gained Royal Assent in November 2020 and are now the Agriculture Act 2020 and Fisheries Act 2020 respectively; and, more recently, the Environment Bill was passed into law in November 2021, becoming the Environment Act 2021. *N.B. as environment policy is a devolved matter, most of this Act applies to England only.*

LEGISLATION AFFORDED TO SPECIES

The objective of the EC Habitats Directive[24] is to conserve the various species of plant and animal which are considered rare across Europe. The Directive is transposed into UK law by **The Conservation of Habitats and Species Regulations 2017 (as amended)** and **The 'Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)**.

Various amendments to the 2017 Regulations in England and Wales have been made through the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. These changes came into effect on the 1 January 2021 following the UK's departure from the EU and the end of the Transition Period. The changes are largely limited to 'operability changes' that will ensure the Regulations can continue to have the same working effect as before.

[24] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora

The Wildlife and Countryside Act 1981 (as amended) is a key piece of national legislation which implements the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and implements the species protection obligations of Council Directive 2009/147/EC (formerly 79/409/EEC) on the Conservation of Wild Birds (EC Birds Directive) in Great Britain.

Since the passing of the Wildlife & Countryside Act 1981, various amendments have been made, details of which can be found on www.opsi.gov.uk. Key amendments have been made through the Countryside and Rights of Way (CRoW) Act (2000).

As well as delivering long-term targets to reduce waste and improve resource efficiency and improve air and water quality targets, the **Environment Act 2021** aims to halt the decline of nature by 2030, mandates Biodiversity Net Gain for developments in England and amends the Wildlife and Countryside Act 1981 (as amended) to introduce an additional purpose for granting a protected species licence in relation to development which is 'for reasons of overriding public interest'. The Act also introduces the Office for Environmental Protection (OEP), which will be a new public body intended to hold government and public authorities to account, although the government will be able to issue guidance to the OEP on how it enforces policies and legislation.

Some of the key biodiversity elements in the Act that will have a bearing on species protection in the UK include:

- A strengthened biodiversity duty on Local Planning Authorities;
- Biodiversity net gain to ensure developments, including Nationally Significant Infrastructure Projects (NSIP), deliver at least 10% increase in biodiversity;
- Local Nature Recovery Strategies to support a Nature Recovery Network;
- Duty upon Local Authorities to consult on street tree felling;
- Strengthen woodland protection enforcement measures;
- Conservation Covenants;
- Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature;

- Introduces the power for the Habitats Regulations to be amended or 'refocused' to 'to deliver creative public policy thinking that delivers results'.

This section does not provide further detail on the Environment Act 2021 as, at the time of writing (November 2021), the Act, in its final form, has not been published and it remains to be seen how and when the various elements will be enacted at a national and local level.

Other legislative Acts affording protection to wildlife and their habitats include:

- Salmon and Freshwater Fisheries Act 1975;
- Deer Act 1991;
- Protection of Badgers Act 1992;
- Wild Mammals (Protection) Act 1996;
- Countryside and Rights of Way (CRoW) Act 2000;
- Natural Environment & Rural Communities (NERC) Act 2006;
- The Eels (England and Wales) Regulations 2009; and
- Environment (Wales) Act 2016.

Species and species groups that are protected or otherwise regulated under the aforementioned legislation, and that are most likely to be affected by development activities, include herpetofauna (amphibians and reptiles), badger, bats, birds, dormouse, invasive species, otter, plants, red squirrel, water vole and white clawed crayfish.

Explanatory notes relating to species protected under The Conservation of Habitats and Species Regulations 2017 (as amended), which includes smooth snake, sand lizard, great crested newt, natterjack toad, all bat species, otter, dormouse and some plant, invertebrate and fish species, are given below. **These should be read in conjunction with the relevant species sections that follow.**

- In the Habitats Directive, the term 'deliberate' is interpreted as being somewhat wider than intentional and may be thought of as including an element of recklessness.

- The Conservation of Habitats and Species Regulations 2017 (as amended) does not define the act of 'migration' and therefore, as a precaution, it is recommended that short distance movement of animals for e.g. foraging, breeding or dispersal purposes are also considered where relevant.
- In order to obtain a mitigation licence for species protected under the Conservation of Habitats and Species Regulations 2017 (as amended), the application must demonstrate that it meets all of the following three 'tests': i) the action(s) are necessary for the purpose of preserving public health or safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequence of primary importance for the environment; ii) that there is no satisfactory alternative and iii) that the action authorised will not be detrimental to the maintenance of the species concerned at a favourable conservation status in their natural range.

Bats

All species of bat are fully protected under The Conservation of Habitats and Species Regulations 2017 (as amended) through their inclusion on Schedule 2. Regulation 41 prohibits:

- Deliberate killing, injuring or capturing of Schedule 2 species (e.g. all bats)
- Deliberate disturbance of bat species as:

  a) to impair their ability:
    - to survive, breed, or reproduce, or to rear or nurture young;
    - to hibernate or migrate

  b) to affect significantly the local distribution or abundance of the species
- Damage or destruction of a breeding site or resting place
- Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

Bats are also protected under the Wildlife and Countryside Act 1981 (as amended) in respect to sub-sections 9 (4) (b) and (c) and 9 (5) through their inclusion on Schedule 5. Under this Act, they are additionally protected from:

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

How is the legislation pertaining to bats liable to affect development works?

The appropriate licence issued by the relevant countryside agency (e.g. Natural England, Natural Resources Wales) will be required for works liable to affect a bat roost or for operations likely to result in a level of disturbance which might impair their ability to undertake those activities mentioned above (e.g. survive, breed, rear young and hibernate). The licence is to derogate from the relevant legislation but also to enable appropriate mitigation measures to be put in place and their efficacy to be monitored.

Though there is no case law to date, the legislation may also be interpreted such that, in certain circumstances, important foraging areas and/or commuting routes can be regarded as being afforded protection, for example, where it can be proven that the continued usage of such areas is crucial to maintaining the integrity and long-term viability of a bat roost[25].

PLANNING POLICY

NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework replaced PPS9 and emphasises the need for sustainable development. The Framework specifies the need for protection of designated sites and priority habitats and priority species (see Section D below). An emphasis is also made for the need for ecological networks via preservation, restoration and re-creation.

[25] Garland & Markham (2008) Is important bat foraging and commuting habitat legally protected? Mammal News, No. **150**. The Mammal Society, Southampton.

The protection and recovery of priority species is also listed as a requirement of planning policy. In determining planning application, planning authorities should aim to conserve and enhance biodiversity by ensuring that: designated sites are protected from adverse harm; there is appropriate mitigation or compensation where significant harm cannot be avoided; opportunities to incorporate biodiversity in and around developments are encouraged; planning permission is refused for development resulting in the loss or deterioration of irreplaceable habitats including aged or veteran trees and also ancient woodland.

THE NATURAL ENVIRONMENT AND RURAL COMMUNITIES ACT 2006 AND THE BIODIVERSITY DUTY

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

Section 41 of the Act (Section 42 in Wales) requires the Secretary of State to publish a list of habitats and species which are of 'principal importance for the conservation of biodiversity.' This list is intended to assist decision makers such as public bodies in implementing their duty under Section 40 of the Act. Under the Act these habitats and species are regarded as a material consideration in determining planning applications. A developer must show that their protection has been adequately addressed within a development proposal.

LOCAL PLANS

South-East Lincolnshire
Joint Strategic Planning Committee

Policy 28: The Natural Environment

A high quality, comprehensive ecological network of interconnected designated sites, sites of nature conservation importance and wildlife-friendly greenspace will be achieved by protecting, enhancing and managing natural assets:

1. Internationally-designated sites, on land or at sea:

a. development proposals that would cause harm to these assets will not be permitted, except in exceptional circumstances, where imperative reasons of overriding public interest exist, and the loss will be compensated by the creation of sites of equal or greater nature conservation value;

b. all major housing proposals within 10km of The Wash and the North Norfolk Coast European Marine Site, including the Sustainable Urban Extensions in Boston (site Sou006 & Wes002), Spalding (site Pin024/Pin045) and Holbeach West (site Hob048), will be the subject of a project-level Habitats Regulations Assessment (HRA) to assess the impact of recreational pressure on The Wash and North Norfolk Coast European Marine Site. This should include:

i. locally-specific information relating to access and site sensitivities;

Where the project-level HRA concludes that avoidance and/or mitigation measures are required, it is expected that:

ii. Suitable Alternative Natural Greenspace (SANGs) should be provided on site Sou006 and Wes002, site Pin024/Pin045 and site Hob048 as part of their package of mitigation measures; or

iii. all other major housing proposals should provide SANGs on-site and/or through a financial contribution to provide and/or enhance natural greenspace in the locality;

iv. Suitable Alternative Natural Greenspaces should be designed in accordance with capacity and facility requirements in relation to South-East Lincolnshire Local Plan 2011-36 the developments they mitigate for, best practice elsewhere and relevant evidence.

2. Nationally or locally-designated sites and protected or priority habitats and species:

a. development proposals that would directly or indirectly adversely affect these assets will not be permitted unless:

i. there are no alternative sites that would cause less or no harm; and

ii. the benefits of the development at the proposed site, clearly outweigh the adverse impacts on the features of the site and the wider network of natural habitats; and

iii. suitable prevention, mitigation and compensation measures are provided.

3. Addressing gaps in the ecological network: a. by ensuring that all development proposals shall provide an overall net gain in biodiversity, by:

i. protecting the biodiversity value of land, buildings and trees (including veteran trees) minimising the fragmentation of habitats;

ii. maximising the opportunities for restoration, enhancement and connection of natural habitats and species of principal importance;

iii. incorporating beneficial biodiversity conservation features on buildings, where appropriate; and maximising opportunities to enhance green infrastructure and ecological corridors, including water space; and

iv. conserving or enhancing biodiversity or geodiversity conservation features that will provide new habitat and help wildlife to adapt to climate change, and if the development is within a Nature Improvement Area (NIA), contributing to the aims and objectives of the NIA

BIODIVERSITY ACTION PLANS (BAPs)

Since the publication of the UK BAP in 1994, new strategies and frameworks have resulted in the development of biodiversity issues and changes in the terminology used to describe these habitats and species in England. This has been brought about through the replacement of the previous England Biodiversity Strategy with *Biodiversity 2020: A Strategy For England's Wildlife and Ecosystem Services* (2011) and the replacement of the UK BAP itself with the *UK Post-2010 Biodiversity Framework* (2012). All previous UK BAP species and habitats are still of material consideration in the planning process but are now referred to as Habitats and Species of Principal Importance (as described under the NERC Act 2006 above).

The distribution of BAP/priority habitats has been used to identify Biodiversity Opportunity Areas at a regional scale through Biodiversity Strategies/Partnerships. They represent a strategic landscape scale approach to habitat creation, restoration or expansion. They represent regional priority areas of opportunity to restore and create key habitats. They are therefore a spatial representation of targets for Habitats of Principal Importance and are areas of opportunity, not constraint.

LINCOLNSHIRE BIODIVERSITY ACTION PLAN

1.1 Vision statement

Lincolnshire and its neighbouring seas are much richer in biodiversity.

1.2 Aims

By working in partnership towards this vision, identifying priorities for action, and engaging with local stakeholders BAP Partners aim to…

- Conserve and enhance Lincolnshire's biodiversity; recreating habitats on a landscape scale and developing networks of interlinked natural areas – a 'living landscape' of which wildlife is an integral part, not confined to specially protected sites.
- Ensure that biodiversity is recognised as an essential element of life in the historic county of Lincolnshire: including its contributions to health and wellbeing; the economy, recreation and tourism; and provision of ecosystem services (such as flood protection, retention of water resources, carbon storage and crop pollination).
- Ensure biodiversity conservation is sustainable; the benefits are felt by society, the economy and the environment.
- Provide and gather biodiversity information to monitor progress and enable individuals and organisations to make decisions based on sound evidence.

- London: 4th Floor, Temple Chambers, 3-7 Temple Avenue, London EC4Y 0DT. T: +44 (0)20 7394 3700
- Haywards Heath: Unit 6 Basepoint; John De Mierre House, 20 Bridge Road, Haywards Heath, RH16 1UA. T: +44 (0)20 7394 3700
- Lewes: 3 Upper Stalls, Iford, Lewes, East Sussex, BN7 3EJ. T: +44 (0) 1273 813739
- Lichfield: 1-2 Trent Park, Eastern Avenue, Lichfield, Staffordshire, WS13 6RN. T: +44 (0)1543 229049
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