Rampion 2 Wind Farm

Category 6: Environmental Statement

Volume 4, Appendix 22.8: Passive and active bat activity report

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1. Introduction

1.1 Background

1.1.1 This Appendix should be read in conjunction with **Chapter 22: Terrestrial ecology and nature conservation, Volume 2** of the ES (Document Reference 6.2.22) which is provided in support of the delivery of an Environmental Impact Assessment (EIA) associated with the Rampion 2 Offshore Wind Farm, hereafter referred to as the 'Proposed Development' or 'Rampion 2'.

1.1.2 Information on the Proposed Development is provided in **Chapter 4: The Proposed Development, Volume 2** of the ES (Document Reference 6.2.4).

1.1.3 Where appropriate, reference is also made in this Appendix to the 'Study Area', as shown on **Figure 22.8.1, Annex A**. The Study Area is defined as the area within the proposed DCO Order Limits plus an additional 50 metre (m) buffer to address the potential disturbance of bats. The inclusion of such a buffer is in line with good practice guidelines (Bat Tree Habitat Key, 2020; British Standards Institution, 2015; Collins, 2016).

1.1.4 The proposed DCO Order Limits evolved over time between 2020 and 2022, the period over which bat surveys were completed. This Appendix includes all bat data captured during this time, and while some of this data was captured in areas which are now distant to the proposed DCO Order Limits; it has been included as it provides valuable local-area context on bat activity.

1.1.5 Further bat surveys are being completed in 2023 to take account of new areas included within the proposed DCO Order Limits. Data captured as part of these 2023 surveys are beyond the remit of the current appendix.

1.2 Purpose of this Appendix

1.2.1 Habitats of suitability to support roosting, foraging and commuting bats were recorded within the Study Area during the Extended Phase 1 habitat surveys undertaken between 2020 and 2023. For the full results of those surveys, refer to **Appendix 22.3: Extended Phase 1 habitat survey report, Volume 4** of the ES (Document Reference 6.4.22.3).

1.2.2 Based on the findings of **Appendix 22.3: Extended Phase 1 habitat survey report, Volume 4** of the ES (Document Reference 6.4.22.3) it was recommended that specific survey for bats be undertaken. The purpose of these surveys has been to:

- establish what habitats are currently being utilised by bats;
- record bat species diversity;
- estimate relative bat activity levels; and
- highlight important bat foraging and commuting corridors.

1.2.3 This Appendix reports on surveys relating to bat activity monitoring. Full details of the roosting suitability of trees can be found at **Appendix 22.17: Bat tree ground level visual assessment survey report, Volume 4** of the ES (Document Reference 6.4.22.17).

1.2.4 This Appendix does not include requirements for mitigation and/or compensation in respect of bats, nor does it assess the potential effects that proposals might have upon them, as both issues are covered in detail as part of the EIA (**Chapter 22: Terrestrial ecology and nature conservation, Volume 2** of the ES (Document Reference 6.2.22)).

1.2.5 **Annex C** provides the scientific species names for bats described in this Appendix.

1.3 Structure of this Appendix

1.3.1 This Appendix is structured as follows:

- **Section 2: Methodology;**
- **Section 3: Deviations, Limitations and Constraints;**
- **Section 4: Results;**
- **Section 5: Summary;**
- **Section 6: Glossary of terms and abbreviations;**
- **Section 7: References;**
- **Annex A: Figures;**
- **Annex B: Full survey details;** and
- **Annex C: Scientific species names.**

2. Methodology

2.1 Overview

2.1.1 In line with good practice survey guidance and using professional experience; a variety of methods have been used to assess suitability of habitats within and close to the proposed DCO Order Limits to support bats. The Bat Conservation Trust's (BCT) third edition of *Good Practice Guidelines* (Collins, 2016) was the main source of guidance. In addition, the 'Bat Tree Habitat Key' (Andrews, 2020), '*Landscape and urban design for bats and biodiversity'* (Gunnell, Grant & Williams, 2021) and the '*British Standard 8596:2015*' (British Standards Institution, 2015) provided further guidance that has been considered when designing the survey methodology and programme of survey work.

2.1.2 The 'Bechstein's Bat survey protocol' (BCT, 2011), and 'Conserving Grey Long-eared Bats in our Landscape' (Razgour et al., 2013) were also consulted, as these species are known to be recorded within the Study Area.

2.1.3 The remainder of this Section describes the survey methods that have been applied throughout the survey work between 2020 and 2022. These are as follows:

- **Section 2.2: Desk study;**
- **Section 2.3: Habitat scoping;**
- **Section 2.4: Manual transects surveys;** and
- **Section 2.5: Survey methodology: Passive monitoring.**

2.1.4 This Section then goes on to describe the following elements:

- Methods used throughout field survey work to aid with species identification (**Section 2.6: Data processing and analysis: Manual transect surveys**);
- How environmental conditions were considered in survey design and recorded during field survey work (**Section 3**); and
- Limitations affecting the field surveys (**Section 3**).

2.2 Desk study

2.2.1 To inform the survey design, a desk study was undertaken in June 2020 (the '2020 desk study') to inform survey design with an update in May 2023 (the '2023 desk study') to inform assessment. Refer to **Appendix 22.2: Terrestrial ecology desk study, Volume 4** of the ES (Document Reference 6.4.22.2).

2.2.2 Ecological data for bats were obtained through data requests from a range of nature conservation organisations and review of publicly available databases. These data sources were as follows:

- Sussex Biodiversity Records Centre (SxBRC) (data request 2023);

- Multi Agency Geographic Information for the Countryside (MAGIC) (reviewed May 2023);
- South Downs National Park Authority (SDNPA);
- National Biodiversity Network (NBN) Gateway (reviewed May 2023);
- Mid Arun Valley Environmental Survey (MAVES) (online reports reviewed May 2023); and
- A27 Arundel Bypass Environmental Assessment Report, Highways England (2019) (online reports reviewed May 2023).

2.2.3 The desk study considered all records for bat species within a 5km radius from the proposed DCO Order Limits, and a search was carried out for statutory designated sites listing bats as the qualifying feature within a 12km radius.

2.2.4 Existing biodiversity survey reports produced to inform other development proposals in the wider area and in relation to previous works covering part of the Study Area were also reviewed as part of the desk study. These reports, which were available in the public domain, were as follows:

- RSK Environment Ltd (2012) Rampion Offshore Wind Farm, ES Section 24 – Terrestrial Ecology;
- RSK Environment Ltd (2012) Rampion Offshore Wind Farm, ES Section 24 – Terrestrial Ecology Appendix 24.1;
- RSK Environment Ltd (2012) Rampion Offshore Wind Farm, ES Section 24 – Terrestrial Ecology Appendix 24.4; and
- RSK Environment Ltd (2012) Rampion Offshore Wind Farm, ES Section 24 – Terrestrial Ecology Appendix 24.11.

2.3 Habitat scoping

2.3.1 Following good practice survey guidance (Collin, 2016) and professional judgement, a scoping exercise was undertaken to assess the suitability of the Study Area to support foraging and commuting bats.

2.3.2 The scoping exercise was informed using data collected during the 2020 desk study. Following this, it was assessed that the habitats within the Study Area were of 'Moderate' suitability to support foraging and community bats. Refer to **Table 2-1** for a description of how habitat features are used to determine suitability to support bats.

2.3.3 Details of suitable roosting suitability of trees can be found at **Appendix 22.17: Bat tree ground level visual assessment survey report, Volume 4** of the ES (Document Reference 6.4.22.17).

Table 2-1 Factors considered when determining the suitability of habitats within the Study Area

Suitability	Features
Negligible	No suitable habitat features present. No habitats considered suitable to foraging and commuting bats. This may be as result of no natural habitat present (for instance, intense urbanisation of highways and hardstanding) or because the natural habitats have been degraded. For example, habitats may be degraded due to habitat fragmentation, poor botanical diversity, lack of invertebrate species as a results of intensive farming practices, high-level of disturbance from noise pollution or light pollution.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated and not well connected to the surrounding landscape by other suitable habitats. Suitable but isolated habitat that could be used by small numbers of foraging bats such as a lone tree or patch of scrub. Habitat may be well-lit by artificial lighting in some areas.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub. Habitat connected to the wider landscape that could be used by bats for foraging such as woodlands, scrub, grassland, or open water. Habitat may be lit by artificial lighting, but this is low-level and/or only affects parts of it.
High	Continuous, high-quality habitat that is well connected to the wider landscape and likely to be regularly used by commuting bats. Includes habitats such as river valleys, vegetated streams, intact hedgerows, and woodland edge. High quality habitat that is well connected to the wider landscape and likely to be rich in invertebrate prey for foraging bats. Includes broadleaved woodland, tree-lined watercourses, water bodies and grazed parkland, among others. Habitat is typically unlit by artificial lighting.

Bechstein's bat: Woodland habitat suitability criteria

2.3.4 Sussex county is one of the UK's home ranges for the rare, Annex II listed[1] Bechstein's bat (*Myotis bechsteinii*). Bechstein's bats are strongly associated with ancient and mature woodlands with a closed canopy and well-developed understorey (BCT, 2011).

[1] Bechstein's bat and their places of rest are protected under Annex II of the Wildlife and Countryside Act (1981, amended 2017).

2.3.5 Acoustic survey of Bechstein's bat is difficult due to the overlapping call parameters of the *Myotis* genus. In addition, this species has a tendency to fly high in the canopy which, when combined with its relatively quiet calls; make its detection difficult. To account for this, the BCT woodland habitat suitability criteria (Collins, 2016) was used to assess woodlands within the Study Area for their likelihood to support this species. The initial criteria were as follows:

- Woodlands need to be at least 25 hectares (ha) in size:
  - This could be either 25ha of continuous woodland in a single block, or two to three close stands of well-connected woodland parcels.

2.3.6 Woodlands that meet the above size requirements, were then assessed using the full criteria as outlined in **Table 2-2**.

Table 2-2 BCT (2011) Woodland habitat selection criteria

Structure Layer	Criteria
Canopy	High canopy with at least 75% cover, this could be 50-74% cover if there is very well-developed understory and species rich herb layers.
Canopy composition	Predominantly native broadleaved woodland, preferably oak (or ash), or mixed, including a high proportion of old oak.
Understory cover	Well developed with at least 50% cover.
Understorey composition	Native species, especially hazel and hawthorn.

Grey long-eared bat: Foraging habitat selection

2.3.7 Sussex is also a home range for the rare grey long-eared bat (*Plecotus austriacus*). Grey long-eared bats use a range of habitat types such as woodland, hedgerows, unimproved grassland, and riparian habitats. Such habitats are all present within the Study Area.

2.3.8 Bats of the *Plecotus* genus, of which the grey long-eared is a species, are difficult to detect during acoustic surveys due to their quiet calls. In addition, the parameters of vocal calls produced by the two *Plecotus* species present in the UK (grey long-eared bat and brown long-eared bat) overlap significantly, making it extremely difficult to correctly classify the calls to species level in areas of England where both species are present.

2.3.9 A high-level habitat suitability assessment for likely presence of grey long-eared bat was undertaken using research from Razgour (2013), Extended Phase 1 habitat survey data collected from 2020 to 2023 (see **Appendix 22.3: Extended Phase 1 habitat survey report, Volume 4** of the ES (Document Reference 6.4.22.3)) and protected species records obtained from the desk study.

2.3.10 Habitat features used by grey long-eared bats are as follows, in order of preference (Razgour, 2013):

- High quality unimproved and semi-improved grassland such as lowland meadows and marshes;
- Riparian habitats that support woody banks/adjacent woody habitats such as dense scrub and woodlands;
- Mature broadleaved woodlands; and
- Field margins and hedgerows are used to commute between undesirable habitat types.

Habitat types that grey long-eared bats tend to avoid are:

- Arable fields; and
- Coniferous woodlands.

2.4 Manual transect surveys

Preliminary surveys 2020

2.4.1 Preliminary manual transect surveys were carried out in September 2020 and October 2020. These surveys were designed to sample a variety of different habitat types (where land access allowed) and to provide an overview of bat species composition within the Study Area. These data were then used to inform the design of the 2021 transects.

2.4.2 The habitat types targeted included linear features such as tree lines and hedgerows, and areas considered suitable for foraging, commuting and roosting bats. Four transect routes were created: Activity Transect (hereafter “AT”) AT01-AT04 and are shown in **Annex A, Figure 22.8.2**.

Main survey 2021

2.4.3 An additional five transect routes were added in 2021: AT05 to AT09. These additional manual transects were identified based on their habitat suitability and spatial relationship to the Study Area (see **Annex A** and **Figure 22.8.3**).

2.4.4 The manual transect routes were designed to sample the range of habitat types present, incorporating potential flightlines and foraging locations. An effort was made to cover a range of suitable habitats within the Study Area; however, due to land access restrictions, certain locations were not accessible, refer to **Section 3** for full details. Where land access allowed, the manual transect routes were designed to be approximately 3.5 to 4km in length. To aid analysis, each manual transect route was divided into seven sections. Division of sections occurred where habitat changed significantly.

2.4.5 **Annex B** provides the metadata and weather data according to when each manual transect routes were surveyed.

2.4.6 During each survey visit, the surveyors walked the manual transect route in a lap from Point 1 to Point 7 at least twice, from sunset until three hours after sunset. Surveyors recorded the number of bat passes of each species and the type of activity heard (foraging or social calls). Bat calls were recorded using full spectrum detectors (Elekon BatLogger M). Calls were subsequently analysed using BatExplorer software to aid species identification (refer to **Section 2.6**).

2.4.7 A "pass" is defined as the sequence of calls[2] a bat emits as it flies past, typically going from louder to softer as the distance between bat and surveyor changes.

2.4.8 Following Collins (2016), each of the manual transect routes was visited once per month from April to October inclusive in 2021. During July 2021, a second transect survey was undertaken before dawn and following the dusk visit. To allow sampling of each manual transect route at different periods of time after sunset, the starting point of each manual transect was varied between visits. Due to poor weather in July 2021, AT02, AT08 and AT09 dawn surveys were repeated in August 2021.

2.4.9 Manual transect routes were arranged into groups based on geographical location as follows:

- Group 1 – AT01, AT02, AT03;
- Group 2 – AT04, AT05, AT06; and
- Group 3 – AT07, AT08, AT09.

2.4.10 Where possible, manual transect routes remained the same between survey visits; however, land access restrictions resulted in a number of manual transect routes requiring modification. **Annex B, Table B2-2** highlights those manual transect routes affected and the amendments are shown in **Annex A, Figures 22.8.4 – 22.8.9**. In addition, where poor weather led to the cancellation of survey visits on a given night, it was not always possible to reschedule them concurrently. In these instances, the survey visits were rescheduled as close to each other as was feasible.

2.4.11 Note that the manual activity transect routes previously referred to as AT01-AT04 in 2020 were updated in 2021 (for example, transect location, transect length and habitat types) as per updates of the Proposed Development boundary in 2021.

Additional surveys 2022

2.4.12 In 2022, additional land access was granted to land parcels that allowed monitoring at two new locations AT10 and AT11 (see **Annex A, Figures 22.8.11 and 22.8.12**). These areas were identified as having potential to be affected by the Proposed Development due to direct land take, and so were surveyed as soon as access was granted.

Environmental conditions

2.4.13 Manual transect survey visits were undertaken in line with standard good practice guidance (Collins, 2016) with respect to optimal weather conditions. That is, when

[2] Bat "calls" are the individual clicks made by bats as they echolocate.

there was little or no rain, no excessive wind and the temperature was above 10° Celsius (C). Temperature, humidity, cloud cover and rainfall levels were recorded by the surveyors during each survey visit. Any other environmental conditions that might affect bat activity, such as high noise or artificial light levels, were also noted.

2.4.14 Full details of weather conditions experienced during active survey work are provided in **Annex B, Table B2-3** and conditions during passive monitoring in **Annex B, Table B2-3**.

2.5 Survey methodology: Passive monitoring

Passive monitoring 2020

2.5.1 To monitor bat activity throughout the night, passive detectors (Elekon Batlogger A+) were positioned at one fixed location[3] on each manual transect route each month from April to October. For all survey locations refer to **Annex A, Figure 22.8.10a to h**, and **Annex B, Table B2-5**.

2.5.2 Placement of passive detectors were decided using professional judgement by assessing key features likely to be used by bats for foraging or commuting, such as woodland and hedgerows and to provide broad geographic coverage. Some of the land parcels were open to the public; and when used for passive monitoring the monitoring locations were selected where the detector unit could be concealed from public view. Descriptions of all passive monitoring locations are presented in **Annex B, Table B2-1**.

2.5.3 Passive detectors were set to record from 30 minutes before sunset to 30 minutes after sunrise, and to record for a minimum of 10 consecutive nights each. Based on weather conditions, specifically related to consecutive days of optimal weather conditions for bat survey; five nights of data per month per transect route were selected for sound analysis. The dates chosen are presented in **Annex B, Table B2-6**. By selecting the dates for analysis in this way, nights with the best possible conditions for bat activity during the recording period were chosen. This gives the most robust and accurate assessment of bat activity in the area and prevents poor weather from leading to an 'undercounting' of bat activity.

Passive monitoring 2021

2.5.4 In 2021, improvements in land access and changes to the Study Area (as a result of amendments to the proposed DCO Order Limits) meant that further habitats per transect could be sampled.

2.5.5 Therefore, passive detectors were positioned at two locations on each manual transect route (**Section 2.4**). These were named with their respective transect number followed with an "a" or "b" suffix, as per the location descriptions in **Annex B, Table 2-3**. For all passive detector locations refer to **Annex A, Figure 22.8.10a**

[3] Note that due to significant land access restrictions it was only possible to securely deploy one static detector per transect during 2020. This was increased to two static detectors in 2021 in line with best practice guidance.

to h, and **Annex B, Table B2-7**. Dates selected for analysis are presented in **Table B2-8, Annex B.**

2.5.6 In September 2021, further land access was granted to a land parcel that allowed monitoring at location AT10a and AT10b. These areas were identified as having potential to be affected by direct land take from the Proposed Development and were surveyed when land access was granted.

Passive monitoring 2022

2.5.7 In 2022, further access was granted to a land parcel that allowed monitoring at location AT11a and AT11b. These areas were identified as having potential to be affected by the Proposed Development. Habitats at location AT10 were also re-sampled to add to the data collected from 2021 to ensure a full survey year of this area was complete for later comparison.

2.5.8 For all survey locations refer to **Figure 22.8.10a to h, Annex A** and **Table B2-9, Annex B**. Dates selected for analysis can be found in **Table B2-10, Annex B**.

2.6 Data processing and analysis: Manual transect surveys

Species identification

2.6.1 Analysis of bat call recordings were carried out using Elekon BatExplorer, with reference to Russ (2012) to aid species identification. Social and foraging calls were identified with reference to Middleton *et al*. (2014), to aid in providing an indication of behaviour and habitat use. Where records from the recordings were not identified to species level during the sound analysis process due to overlapping call parameters of some species, records were identified to genus / group, with the following groupings used:

- CP/SP (common pipistrelle or soprano pipistrelle);
- CP/NP (common pipistrelle or Nathusius' pipistrelle);
- NSL (noctule, serotine (*Eptesicus serotinus*) or Leisler's bat);
- *Nyctalus* sp. (noctule or Leisler's bat);
- *Myotis* sp. (bat species in the genus *Myotis*);
- *Plecotus* sp. (brown or grey long-eared bat); and
- *Chiroptera* sp. (calls that could not be ascribed to a species group).

2.7 Data processing and analysis: Passive surveys

2.7.1 Species identification was carried out using the same method as the manual transect surveys as described in **Section 2.6**.

2.7.2 Following the sound analysis of the bat recordings, further analysis of the data was carried out using Ecobat (The Mammal Society, 2017; updated 2022) software. The software enables the objective comparison of survey data within the Study

Area to bat records within 100km. This allows a standardised method of scoring activity levels, between 'low' to 'exceptional', at a similar time of year for the same region. Percentile values were assigned to each nights' survey data.

2.7.3 The programme identifies the number of nights in which species data collected by an automated detector could be considered to represent a 'high' (81st-100th percentile); 'moderate/high' (61st – 80th percentile); 'moderate' (41st to 60th percentile); 'low/moderate'; or 'low' level of activity compared with the average.

2.7.4 Total bat activity levels for species recorded at each passive detector location across all months were compared to the Ecobat database records within 100km. The Ecobat software allows comparisons of recordings identified to certain taxonomic levels, therefore the following groupings were used for comparison:

- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Soprano pipistrelle / common pipistrelle / Nathusius' pipistrelle;
- Noctule;
- Serotine;
- Leisler's bat;
- Noctule / serotine / Leisler's bat;
- *Myotis* species; and
- *Plecotus* species (brown and grey long-eared bats; due to the unknown restricted range of the grey long-eared bat, it is likely to be rare that this species would be recorded in the proposed DCO Order Limits however, their calls cannot be differentiated from brown long-eared bats, and therefore are referred to by the genus only).

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3. Deviations, limitations, and constraints

3.1 Land access limitations

3.1.1 Land access was requested for all land parcels assessed as having suitability to support foraging and commuting bats. As the survey season progressed, additional land parcels were included in surveys as land access became available, or as they were incorporated into areas of the proposed DCO Order Limits.

3.1.2 Field surveys have been conducted at locations within the Study Area where landowner permission was formally agreed, or where access was possible via Public Right of Way (PRoW). This has restricted coverage in some locations of the proposed DCO Order Limits where land access was not possible. A detailed overview of the bat survey coverage is provided in **Annex B Table B2-2**. Data for the spring months could be underrepresented due to these land access issues. For example, three of the passive detector locations recorded the highest number of passes in July were not accessible in April 2021. This could impact sampling the foraging areas bats will have been using as they came out of hibernation, and as a result, the data set is not necessarily comparable across all passive detector locations.

3.1.3 Land access restrictions constituted the primary limitation for the manual transect surveys. AT02 was entirely repositioned to similar habitats outside of the Study Area in order to utilise PRoWs for access. AT02 incorporated residential areas with high levels of artificial lighting, which is unsuitable for the rarer, light averse bat species which occur in the area. These areas would be avoided in particular by *Myotis* sp., *Plecotus* sp. and barbastelle (*Barbastella barbastellus*), in contrast with the darker fields which AT02 was initially designed to cover.

3.1.4 Multiple amendments to manual transect routes AT07, AT08, and AT09 over the survey period meant that different habitats or areas of similar habitat were surveyed, thus limiting scope for direct comparison of specific habitats over the season. Additionally, land access restrictions during the 2022 manual transect surveys meant that AT11 was not surveyed in June 2022.

3.1.5 Withdrawal of land access prevented the retrieval of detectors at several transect locations throughout the 2021 survey period. Due to this, data gaps exist as the following:

- April – AT01-AT02, AT05, A06b-AT09;
- May– AT01-AT02, AT05, AT07-08;
- June – AT02, AT05a, AT07b, AT08a;
- August – AT01-AT02, AT06a; and
- September – AT02.

3.1.6 Withdrawal of land access prevented the retrieval of the detectors at AT11 in June 2022 and July 2022, preventing any data collection for these months.

3.2 Weather limitations

3.2.1 In 2021, poor weather in June, July, and October resulted in cancellation of survey visits at the following:

- June, July and October 2021 – AT01, AT06, AT07, AT08;
- June 2021 – AT09;
- July 2021 dawn surveys – AT01, AT03, AT03, AT07, AT08, and AT09; and
- All manual transect routes in October 2021, the rescheduling of which was not feasible for the same month.

3.2.2 Dates of bat surveys and weather conditions can be found in **Table B2-3**, and **Table B2-4** in **Annex B**.

3.3 Ecological considerations

3.3.1 Differences in detectability between bat species means that some species may be underrepresented in the data. *Pipistrellus* species, *Nyctalus* species, and Serotine bats for example all produce loud, easy to detect calls. In comparison the *Plecotus* and *Myotis* species produce quieter calls that can often be missed during surveys. Therefore, it is important to note that low levels of detection do not necessarily equate to low activity or low numbers within an area.

3.3.2 In 2022, Sussex Bat Group recorded Kuhl's pipistrelle in Eastbourne. There is significant overlap in the echolocation parameters of Kuhl's and Nathusius' pipistrelle, making identification difficult when social calls are not present. Therefore, it is noteworthy that Kuhl's pipistrelle is possibly present in the area but may not have been detected or identifiable in the data collected. Again, it is important to note that low levels of detection do not necessarily equate to low activity or low numbers within an area.

3.4 Technical issues

3.4.1 Passive detector surveys aimed to record for a minimum of 10 nights per month at each monitoring location. However, this was not possible in certain months due to either technical failures with the bat detectors or a lack of access. A summary of such instances is provided as follows:

- 2020: **Annex B, Table B3-1**;
- 2020: **Annex B, Table B3-2**; and
- 2021 and 2022: **Annex B, Table B3-3**.

3.4.2 Where the passive detectors could not record for ten consecutive nights, it meant that selecting dates with the optimal weather conditions was sometimes not possible. Therefore, there were surveys where data was obtained under sub-

optimal conditions. Technical faults also sometimes resulted in fewer than five nights of data, so some passive detector locations are less comparable.

3.4.3 The passive detectors were set to record from 30 minutes before sunset to 30 minutes after sunrise. However, on occasion the internal software did not trigger and therefore no recording took place, or the recording occurred over the incorrect time period. This can be because the device did not acquire an accurate GPS location which affects the time it registers as sunset and sunrise. This in turn limits the ability to detect bats at time times of peak activity. Both detectors at AT10 in 2021 were recording between 45 minutes before sunset and 20 minutes after sunrise, due to a technical fault that could not be corrected. This fault occurred again in 2022, with all passive detectors recording 15 to 20 minutes after sunrise. In August in 2022, the passive detector at AT10b failed and did not record anything due to an internal fault. The same fault occurred in September for AT11b, and the passive detector was exchanged for another device. In October, AT11a had incorrect trigger times and only recorded for 30 minutes before sunrise and 30 minutes after sunrise.

3.4.4 Due to the nature of the passive detectors, quieter species of bats (for example *Plecotus* species) are often underrepresented as the microphones can fail to be triggered by their calls. Ecobat helps to put this into context by showing relative activity (survey area vs. surrounding region) by species.

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4. Results

4.1 Desk study results

Designated sites

4.1.1 There is one statutory site designated for bats within 12km of the Study Area. The Mens Species Area of Conservation (SAC) is located 11.2km north-west of the proposed DCO Order Limits. Although not the primary reason for this SAC's designation, the presence of maternity roosts of Annex II bat species barbastelle and supporting habitat are a qualifying feature for the SAC. Barbastelle have a large core sustenance zone[4] (CSZ) of 6km and up to 11km when in suitability connected habitats. Due to high mobility and the transient nature of bat tree roosts, The Mens SAC may still be connected to habitats within the Study Area and should be given consideration.

Record search

4.1.2 A summary of bat species identified during the desk study is presented in **Table 4-1** and is shown on **Annex A, Figure 22.8.13**.

Table 4-1 Desk study records of bat species recorded within 5km of the proposed DCO Order Limits

Species[5]	Data source				
	SxBRC	**Biodiversity desk study report**	**Rampion 1 report (2012)**	**AEWC Trapping survey (2016)**	**A27 Arundel Bypass Bat report (2019)**
Common pipistrelle	Yes	Y (M, H)	Yes	Yes	Yes
Soprano pipistrelle	Yes		Yes	Yes	Yes
Nathusius' pipistrelle	Yes			Yes	Yes
Myotis sp.			Yes		Yes

[4] CSZ is *'the area surrounding a communal bat roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost*'.
[5] Species' abbreviations are provided in **Annex C Scientific species names**

Species[5]	Data source				
	SxBRC	Biodiversity desk study report	Rampion 1 report (2012)	AEWC Trapping survey (2016)	A27 Arundel Bypass Bat report (2019)
Brandt's bat;	Yes				Yes
[redacted]	Yes			Yes (R)	
Daubenton's bat	Yes			Yes	Yes
Whiskered bat	Yes			Yes	Yes
Alcathoe's bat	Yes			Yes (R)	Yes
Natterer's bat	Yes			Yes	Yes
Nyctalus sp.			Yes		
Noctule	Yes			Yes	Yes
Leisler's bat	Yes				Yes
Serotine	Yes	Yes	Yes	Yes	Yes
Plecotus sp.	Yes			Yes	Yes
Brown long-eared bat	Yes	Yes (M, H)	Yes		Yes
[redacted]	Yes	Yes (M, H)		Yes	
Greater horseshoe bat					Yes

Key: Foraging = F, Commuting = C, R = Roost, Maternity Roost = M, Hibernaculum = H;

4.1.3 SxBRC provided records of at least 20 bat species within the search area, including records for foraging and commuting bats, maternity roosts and hibernaculum. The distance and direction of these bat roosts in relation to the proposed DCO Order Limits are described in **Table 4-2**.

Table 4-2 Desk study records of bat roosts recorded within 5km of proposed DCO Order Limits

Species	No. of records	Date range of records	Distance and direction from the proposed DCO Order Limits
Alcathoe bat Myotis alcathoe	Two roost records	May 2021	3.2km north-west
Bat (unspecified species)	11 roost records: one “maternity roost”, two “hibernacula roosts”, four “unspecified roosts”, two “unspecified roosts with droppings” and two records of “droppings”	2013 to 2021	[redacted]
[redacted]	One roost record. One adult male roosting.	May 2019	4.5km south-east
[redacted]	Four roost records. Each roost had one juvenile female present	2015 to 2019	2.4km north-west
Brown long-eared bat Plecotus auratus	42 roost records: Three “maternity roosts”, one “maternity roost with droppings”, two “hibernacula roosts”, two “feeding roosts”, 24 “unspecified roosts”, five “unspecified roosts with droppings” and five records of “droppings”.	2013 to 2022	[redacted]
Common pipistrelle Pipistrellus pipistrellus	63 roost records: Five “maternity roosts”, one “feeding roost”, 49 “unspecified roosts”; four “unspecified roosts with droppings” and four records of “droppings”.	2013 to 2022	[redacted]

Species	No. of records	Date range of records	Distance and direction from the proposed DCO Order Limits
Daubenton's bat Myotis daubentonii	13 roost records: Three "maternity roosts", five "hibernacula roost/unspecified roost" and five "hibernacula roosts".	2013 to 2019	[redacted]
Myotis bat (unspecified species)	Four roost records: three "unspecified roosts", one record of "droppings"	2016 to 2019	2.0km north-east
Natterer's bat Myotis natereri	18 roost records: Two "maternity roosts", six "hibernacula roosts", six "hibernacula roosts; unspecified roosts", two "unspecified roosts", one "unspecified roost with droppings" and one record of "droppings".	2013 to 2020	[redacted]
Noctule Nyctalus noctula	Three roost records: two "unspecified roosts", one "unspecified roost with droppings".	2016 to 2021	0.2km north
Pipistrelle bats (species unspecified)	12 roost records: one "maternity roost; feeding roost", one "feeding roost", four "unspecified roosts", four "unspecified roosts with droppings" and two records of "droppings".	2013 to 2019	[redacted]
Serotine Eptesicus serotinus	15 roost records: one "maternity roost; feeding roost", one "maternity roosts with droppings", one "maternity roost", one "feeding roost", seven "unspecified roosts", three "unspecified roosts with	2013 to 2019	[redacted]

Species	No. of records	Date range of records	Distance and direction from the proposed DCO Order Limits
	droppings" and one record of "droppings"		
Soprano pipistrelle Pipistrellus pygmaeus	45 roost records: One record of "maternity roost; mating/swarming site; droppings", two records of "maternity roost; droppings", two records of "maternity roost", one record of "hibernacula roost", 37 records of "unspecified roosts" and two records of "unspecified roost with droppings"	2013 to 2022	0.2km south
Whiskered bat Myotis mystacinus	Three roost records: one "maternity roost", one "unspecified roost" and one record of "droppings"	2017 to 2019	2km north-east
Whiskered bat / Brandt's bat Myotis brandtii	Five roost records: three records of "hibernacula roost; unspecified roost" and two records of "unspecified roost"	2014 to 2019	0.7km south

Secondary data: Historical reports and publications

AEWC Trapping Survey, Binsted Woods MAVES Group 2016

4.1.4 Advanced survey techniques included bat trapping and radio-tagging were used by Animal Ecology and Wildlife Consultants Limited (AEWC) in 2016 to assess habitats on behalf of the Mid-Arun Valley Environmental Survey Group (MAVES). Trapping surveys identified a total of thirteen species of bat within Binsted Woods, which lies approximately 3.2km east from the proposed DCO Order Limits.

4.1.5 Of the bats trapped, four were subsequently radio-tagged. These included a non-breeding female Alcathoe (*Myotis alcathoe*), a non-breeding female [redacted], a juvenile male[redacted], and a serotine bat.

4.1.6 Upon tracking the radio-tagged bats, the Alcathoe, barbastelle, and Bechstein's bat, were all found to be roosting in trees within Binsted Woods (see **Figure 22.8.14, Annex A**). A follow up emergence survey of the Bechstein's bat roost detected six additional bats within the same roost.

4.1.7 The serotine bat was located roosting in a residential property in Barham (north-west of Climping), approximately 4.9km to the west of the proposed DCO Order Limits.

4.1.8 Although these roosts do not fall directly within the proposed DCO Order Limits, the CSZ for the [redacted] roosts do. **Table 4-3** shows the calculated CSZ for each of the radio tracked species as per the BCT guidance (BCT, 2016) plus the distance of the closest tracked roost to the proposed DCO Order Limits. When considering those listed on Annex II of the Habitats Directive in suitable habitat it is appropriate to increase the CSZ by 3km to reflect the wider use of landscapes (BCT, 2020).

Table 4-3 Core Sustenance Zones (CSZ) of target bats

Species	Distance of previously identified roost to proposed DCO Order Limits (km)	CSZ radius (km)	Overlap (Yes / No)
[redacted]e	3	6 (up to 11 in suitable habitats)	Yes
[redacted]	2	3 (up to 6 in suitable habitats)	Yes
Alcathoe	3	1	No
Serotine	5	4	No

4.1.9 It is worth noting that although the bat roost records for serotine and Alcathoe currently exceed their recommended CSZ, the transient nature of tree roosts and the close proximity of Binsted Woods to the proposed DCO Order Limits suggests that these records should be considered.

A27 Arundel Bypass Bat Activity Baseline Survey report 2019, and A27 Arundel Bypass Bat Radiotracking report 2019

4.1.10 A study carried out in 2017 and 2018 to inform the A27 Arundel Bypass (Highways England, 2019) used a variety of advanced survey methods to determine the importance of the local bat population.

4.1.11 Bat surveys were carried out near the towns / villages of Arundel, Crossbush, Tortington, Walberton, Avisford, and Slindon common. Although these areas do not fall directly within the proposed DCO Order Limits; the survey data is still potentially relevant due to the overlapping of the proposed DCO Order Limits and CSZ of bats identified.

4.1.12 The study identified eleven species including greater horseshoe bat as presented in **Table 4-1**.

4.1.13 The greater horseshoe recording was a single acoustic result from a manual transect visit in August 2017. It was located within conifer woodland, approximately 3km west of the proposed DCO Order Limits.

4.1.14 A total of twenty-seven confirmed roosts were identified during the surveys, including two [redacted], one Alcathoe's bat maternity roost, [redacted], four Natterer's bat maternity roosts, three whiskered bat maternity roosts, and two brown long-eared bat maternity roosts. These are particularly notable roosts because these species are protected under Annex IV of the European Habitats Directive.

4.1.15 The proposed DCO Limits fall within the CSZ for all 27 roosts detected other than those of the Alcathoe, and Whiskered. **Table 4-4** shows the distance of the closest roost the proposed DCO Order Limits and the CSZ for each species recorded.

Table 4-4 Distance of recorded roosts to proposed DCO Order Limits with species CSZ overlap indicated

Species	Distance of roost to proposed DCO Order Limits (km)	CSZ radius (km)	Overlap (Yes / No)
[redacted]	2	6 (up to 11 in suitable habitats)	Yes
[redacted]	2	3 (up to 6 in suitable habitats)	Yes
Alcathoe	2.5	1	No
Whiskered bat	2	1	No
Natterer's	2	4	Yes
Brown long-eared bat	2	3	Yes

4.2 Field survey – habitat assessments

Survey areas

4.2.1 The manual transect routes were designed to incorporate twelve habitat types. These habitat types were as follows:

- woodland;
- urban;

- parkland / amenity;
- arable;
- hedgerow / treeline;
- coastal;
- open pasture;
- ditch / stream;
- hedgerow (arable / pasture);
- pond / lake;
- agricultural buildings; and
- woodland edge.

4.2.2 The habitat type on each manual transect route is summarised in **Table B5-1 Annex B**.

Woodland habitat suitability for Bechstein's bat

4.2.3 The results of the extended Phase 1 habitat survey (see **Appendix 22.3: Extended Phase 1 habitat survey report, Volume 4** of the ES (Document Reference 6.4.22.3)) were assessed to determine if woodland within the Study Area meet the BCT wood habitat suitability criteria to support Bechstein's bat (BCT 2011). The results are shown on **Annex A, Figure 22.8.29a to d**.

Grey long-eared bat – foraging habitat selection

4.2.4 A review of the extended phase 1 data (see **Appendix 22.3: Extended Phase 1 habitat survey report, Volume 4** of the ES (Document Reference 6.4.22.3)) determined that although there are large areas of broadleaved woodland with well-connected hedgerows and field margins, the majority of grassland within the Study Area is classed as 'improved'. While areas of semi-improved or unimproved grassland are present, they are in small pockets. Therefore, it was determined that the Study Area does not contain optimal habitat to support grey long-eared bat and therefore this species is unlikely to be present.

4.2.5 Areas that were identified as sub-optimal habitat for grey long-eared bat are at Crossbush and Wepham, (AT03), Washington (AT05), Shermanbury (AT06, and Cowfold (AT07, AT08, and AT09), as they met three out of the four suggested requirements for grey long-eared bats **Figure 22.8.15a to l, Annex A**. While suboptimal, grey long-eared bats could still be present within these areas.

4.3 Manual transects

Manual transect survey 2020

4.3.1 Active manual transect surveys commenced in September 2020 and October 2020 and included four transects routes (**Figure 22.8.2, Annex A**).

4.3.2 Due to changes to the proposed DCO Order Limits, only one manual transect from 2020 currently falls within the Study Area: AT03. Although no longer directly impacted, the results from AT01, AT02, and AT04 are still relevant as they give an indication of the bat species present in the wider area.

4.3.3 The manual transect surveys confirmed at least five bat species utilising the habitats within the Study Area. These species are as follows:

- Common pipistrelle (CP);
- Soprano pipistrelle (SP);
- Serotine (S);
- *Myotis* sp (M); and
- *Plecotus* sp (LE).

4.3.4 In total, 498 bat passes were recorded during 2020 with AT01 recording the highest proportion of these bat calls (42 percent of all bat calls). AT01 was the southernmost sampling point and included woodland and well-connected hedgerows. Activity levels in descending order of highest activity was then AT02, AT04 and AT03. The lowest total bat passes were recorded for AT03 (8 percent of all bat calls), this transect notably supports arable habitats of highest intensification (for example large fields and lack of hedgerows bordering the arable fields).

4.3.5 It should be noted that only September and October visits were completed during 2020 to ascertain rough bat activity levels that were then feed into the design of the 2021 transect designs. Therefore, comparison of bat behaviour, peak activity and average bat passes per hour were not calculated. The surveys are only indicative of what bat species were present within the Study Area and do not constitute a full suite of surveys.

Manual transect survey 2021

4.3.6 Manual transect surveys focussed on areas of 'Moderate' suitability habitat. At least nine species of bat were confirmed to be using the Study Area during the manual transect survey work:

- Common pipistrelle (CP);
- Soprano pipistrelle (SP);
- Common / Nathusius' pipistrelle (CP/NP);
- Noctule (N);
- Leisler's bat (L);
- Serotine (S);
- *Myotis* sp (M);
- Barbastelle (B); and
- *Plecotus* sp (LE).

4.3.7 A total of 7,073 passes were recorded during the 2021 surveys. All results are presented in **Table B5-2, Annex B**.

4.3.8 **Table 4-5** and **Table 4-6**, and **Graphic 4-1** and **Graphic 4-2** summarise the results of the manual transect survey work in terms of the number of bat passes made by each species recorded within each month (**Table 4-5** and **Graphic 4-1**), on each transect (**Table 4-6** and **Graphic 4-2**). Where appropriate, the average number of bat passes per hour has also been calculated in order to allow bat activity levels to be compared between transects and months. It should be noted that these figures are intended to give an indication of relative levels of bat activity during each month, on each transect and by habitat type, and do not represent actual numbers of bats. A single bat may pass the surveyor several times, with each pass counted separately. Equally, the same bat may pass over more than one transect or habitat type in a single survey, therefore, being recorded by more than one surveyor or in more than one habitat type on the same date.

Table 4-5 Total number of bat passes (average number of passes per hour) for each species per month for all transects surveyed in 2021

Species	April	May	June	July (dusk)	July (dawn)	August (dusk)	August (dawn)	September	October	Total passes
CP	886 (32.8)	397 (14.7)	392 (14.5)	544 (20.1)	134 (5.0)	577 (21.4)	665 (24.6)	382 (14.1)	340 (12.6)	4,317
SP	77 (2.9)	354 (13.1)	147 (5.4)	103 (3.8)	76 (2.8)	360 (13.3)	140 (5.2)	179 (6.6)	178 (6.6)	1614
CP/SP	22 (0.8)	12 (0.4)	6 (0.2)	72 (2.7)	11 (0.4)	36 (1.3)	7 (0.3)	52 (1.9)	16 (0.6)	234
CP/NP	4 (0.1)	0 (0.0)	3 (0.1)	0 (0.0)	0 (0.0)	2 (0.1)	1 (0.0)	12 (0.4)	0 (0.0)	22
N	2 (0.1)	13 (0.5)	2 (0.1)	7 (0.3)	0 (0.0)	4 (0.1)	0 (0.0)	13 (0.5)	0 (0.0)	41
S	1 (0.0)	12 (0.4)	10 (0.4)	17 (0.6)	3 (0.1)	15 (0.6)	1 (0.0)	28 (1.0)	7 (0.3)	94
L	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	3
NSL	1 (0.0)	0 (0.0)	1 (0.0)	14 (0.5)	0 (0.0)	0 (0.0)	8 (0.3)	0 (0.0)	5 (0.2)	29
NYC	0 (0.0)	0 (0.0)	2 (0.0)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (0.1)	0 (0.0)	7

Species	April	May	June	July (dusk)	July (dawn)	August (dusk)	August (dawn)	September	October	Total passes
M	218 (8.1)	18 (0.7)	56 (2.0)	37 (1.4)	23 (0.9)	79 (2.9)	19 (0.7)	55 (2.0)	36 (1.3)	552
B	0 (0.0)	12 (0.4)	3 (0.1)	2 (0.1)	1 (0.0)	10 (0.4)	16 (0.6)	6 (0.2)	2 (0.1)	52
LE	16 (0.6)	17 (0.6)	6 (0.2)	6 (0.2)	0 (0.0)	35 (1.3)	5 (0.2)	16 (0.6)	4 (0.1)	106
M/LE	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	0 (0.0)	1
Bat	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1
Total passes all species	1227 (29.2)	835 (19.9)	640 (15.2)	803 (19.1)	248 (5.9)	1121 (26.7)	862 (20.5)	748 (17.8)	589 (14.0)	7,073

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC).

Graphic 4-1 Total number of bat passes recorded each month across all transects for 2021

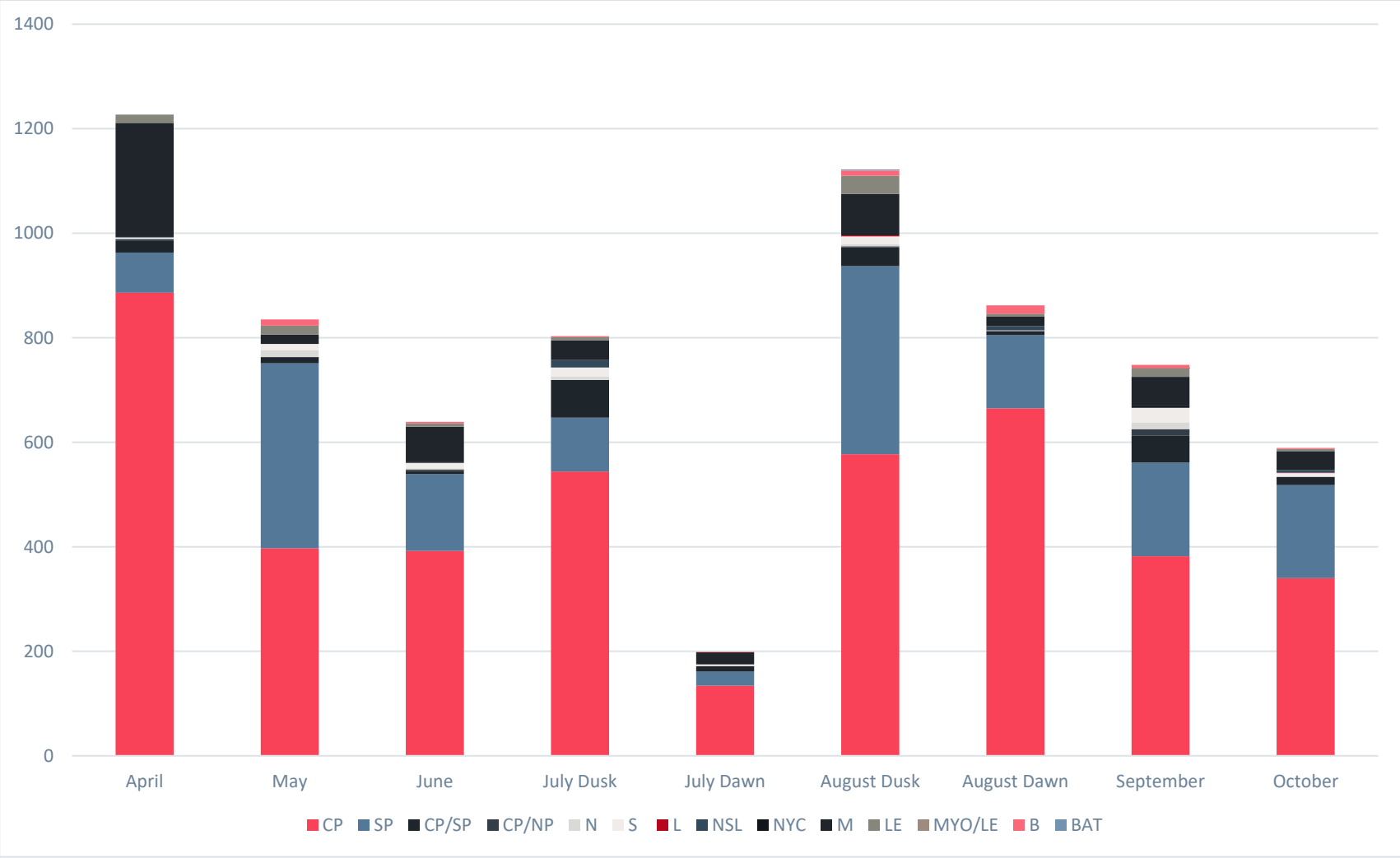


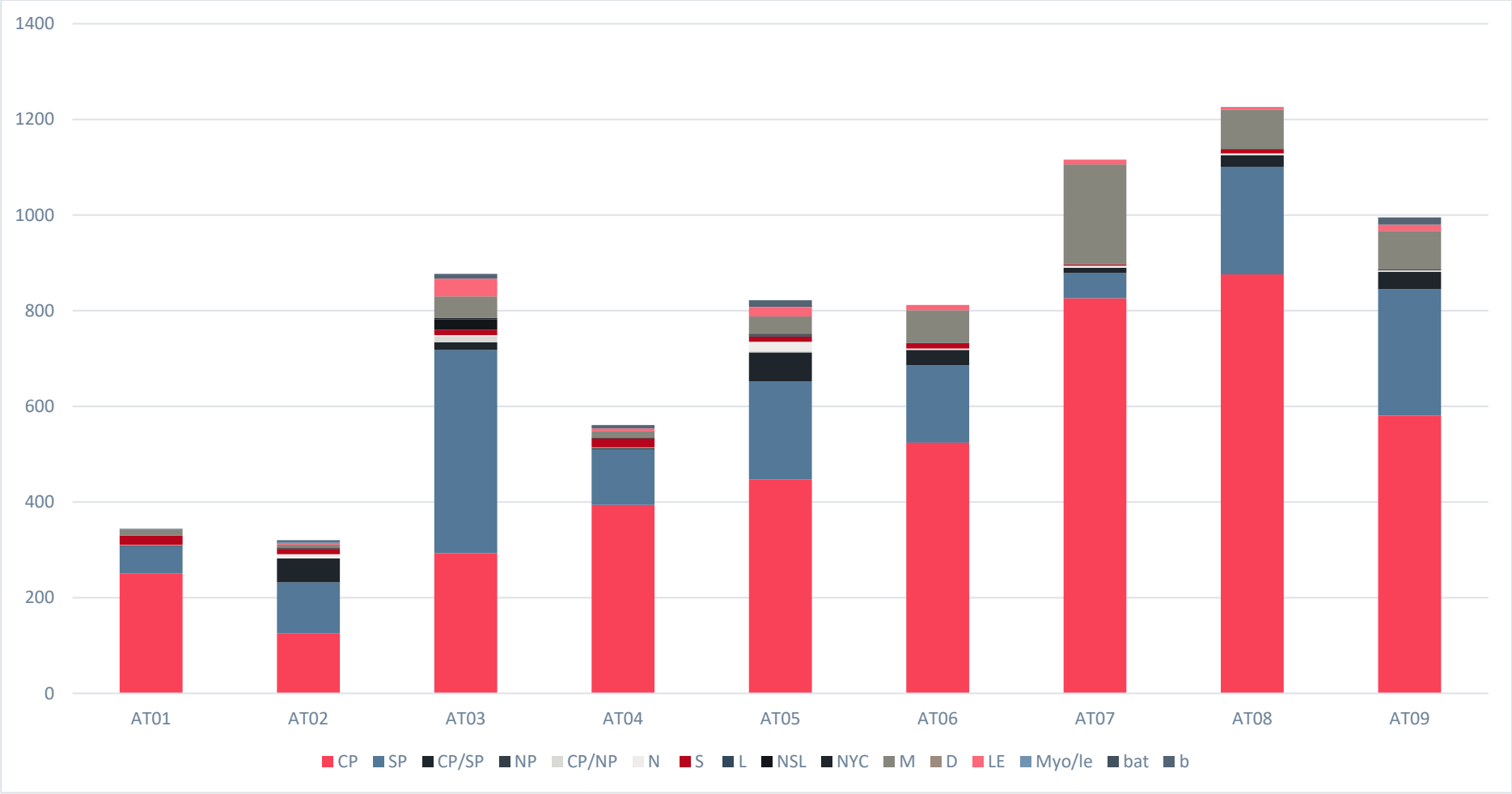
Table 4-6 Total number of bat passes per hour recorded on each transect, for all months in 2021

Species	AT01	AT02	AT03	AT04	AT05	AT06	AT07	AT08	AT09
CP	251 (9.3)	125 (4.6)	293 (10.9)	394 (14.6)	447 (16.6)	524 (19.4)	826 (30.6)	876 (32.4)	581 (21.5)
SP	57 (2.1)	107 (4.0)	425 (15.7)	116 (4.3)	205 (7.6)	162 (6.0)	53 (2.0)	225 (8.3)	264 (9.8)
CP/SP	1 (0.0)	50 (1.9)	16 (0.6)	3 (0.1)	61 (2.3)	32 (1.2)	11 (0.4)	24 (0.9)	36 (1.3)
CP/NP	0 (0.0)	0 (0.0)	13 (0.5)	0 (0.0)	3 (0.5)	1 (0.0)	0 (0.0)	1 (0.0)	4 (0.1)
N	0 (0.0)	9 (0.3)	2 (0.1)	1 (0.0)	19 (0.7)	2 (0.1)	4 (0.1)	3 (0.1)	0 (0.0)
S	1 (0.0)	11 (0.4)	11 (0.4)	19 (0.7)	11 (0.4)	11 (0.4)	3 (0.1)	8 (0.3)	0 (0.0)
L	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.1)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
NSL	0 (0.0)	1 (0.0)	22 (0.8)	1 (0.0)	2 (0.1)	0 (0.0)	0 (0.0)	1 (0.0)	2 (0.1)
NYC	0 (0.0)	2 (0.1)	3 (0.1)	0 (0.0)	2 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
M	12 (0.4)	6 (0.2)	45 (1.7)	14 (0.5)	36 (1.3)	68 (2.5)	209 (7.7)	82 (3.0)	80 (3.0)

Species	AT01	AT02	AT03	AT04	AT05	AT06	AT07	AT08	AT09
B	2 (0.1)	4 (0.1)	10 (0.4)	7 (0.3)	13 (0.5)	0 (0.0)	0 (0.0)	1 (0.0)	15 (0.6)
LE	0 (0.0)	4 (0.1)	37 (0.9)	6 (0.1)	20 (0.5)	11 (0.3)	10 (0.2)	5 (0.1)	13 (0.3)
M/LE	0 (0.0)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Bat	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	1 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Total passes all species	344 (12.7)	320 (11.9)	877 (32.5)	512 (20.8)	822 (30.4)	812 (30.1)	1116 (41.3)	1226 (45.4)	995 (36.9)

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat).

Graphic 4-2 Total number of bat passes recorded for all month per transect during 2021



4.3.9 Overall, as shown in **Table 4-5** and **Graphic 4-1**, bat activity levels for all species and all transects combined across the Study Area were highest during April and August (dusk) 2021, with an average of 29.2 and 26.7 bat passes recorded each hour, respectively. This was followed by May, July (dusk), and August (dawn) 2021, with an average of 19.9, 19.1, and 20.5 bat passes per hour, respectively, across all transects; and at the lowest during June, September, and October 2021 with an average of 15.2, 17.8, and 14.0 bat passes per hour respectively across all transects. As can be seen in **Table 4-6**, this pattern of activity over the year was not true for all species. Some species show peaks and troughs in activity in different months to those shown on the overall activity level graph. Temporal patterns for individual species will be discussed in the following sections, where appropriate.

4.3.10 Although July (dawn) 2021 shows an average of 5.9 bat passes per hour, only three out of nine dawn transects were carried out during this month due to adverse weather. Therefore, the data may not show a true reflection of activity levels for this month.

4.3.11 **Annex A, Figure 22.8.16a to k** and **Figure 22.8.17a to k** show that bat activity levels were highest around areas of broad-leaved and mixed woodland connected by intact species rich hedgerow and mature tree lines. Specifically, the areas of woodland to the north of the Study Area at AT07, AT08, and AT09, with an average of 41.3, 45.4, and 36.9 passes per hour respectively in 2021; and within the Crossbush at AT03, with a mean average of 32.5 passes per hour. Contrast, activity levels were lower in open habitats such as arable fields, parkland and amenity grassland, open pasture, and urban areas such as the housing estate on AT02.

[redacted]

4.3.12 [redacted] accounted for 0.7 percent (52 total passes) of all bat passes recorded. Activity levels were highest in May, August (dusk) and August (dawn) 2021 with an average on 0.2, 0.2, and 0.3 passes per hour respectively. The lowest level of activity was recorded during the July (dawn) 2021 survey with just one pass recorded on AT04, whilst no [redacted] records were made during the April 2021 transect surveys. [redacted] activity is shown in **Figure 22.8.18a to f, Annex A**.

4.3.13 Passes from this species were recorded on seven of the nine transect routes in 2021. The highest number or bat passes were recorded on AT03, AT05, and AT06 with an average of 0.4, 0.5, and 0.6 passes per hour respectively. The level of activity was highly associated with areas of woodland, and their connecting hedgerows, and treelines.

4.3.14 No barbastelle records were made on AT06 and AT07 in 2021 although habitat in these areas is suitable for this species.

4.3.15 The foraging behaviour of barbastelle can make them difficult to detect. Their propensity to use ‘stealth’ when foraging for moths mean that their echolocation calls are often weak or inaudible, often making them difficult to record. A low detection rate for this species therefore may not be representative of the

distribution of this species across the Study Area, and they are often under recorded compared to the 'louder', easier to detect species.

Common pipistrelle and soprano pipistrelle

4.3.16 Common and soprano pipistrelle bats were by far the most frequently recorded species throughout the survey period with passes by these two species combined accounting for 87 percent (6,165 total passes) of all bat passes (61 percent and 23 percent respectively, plus 3 percent that could not be assigned to one or the other due to overlapping call parameters). Common and soprano pipistrelle activity is shown in **Figure 22.8.19a to k, Annex A**.

4.3.17 The temporal pattern of common pipistrelle activity largely follows the trend of activity for all species, with the highest levels of activity being recorded in April, July and August (dusk and dawn) 2021 with an average of 32.8, 20.1, 21.4, and 24.6 bat passes per hour respectively. The lowest levels of activity were recorded in May, June, September and October 2021, with activity levels being relatively consistent across these months with an average of 14.7, 14.5, 14.1, and 12.6 passes respectively.

4.3.18 Conversely, activity levels were highest for soprano pipistrelle in May and August 2021 with an average of 13.1 and 13.3 passes per hour with April showing the lowest levels of activity across all survey months with an average of 2.9 passes per hour.

4.3.19 Both species were recorded on all transects and in all habitat types within the Study Area in 2021. Common pipistrelle activity levels were highest at AT07, AT08, and AT09; with an average of 30.6, 32.4, and 21.5 bat passes per hour respectively. In contrast, soprano pipistrelle activity was highest on AT03 with an average of 10.1 passes per hour. The lowest activity levels recorded for common pipistrelle were on AT02 with an average of 4.6 passes per hour and for soprano pipistrelle on AT01, AT04 and AT07, with an average of 2.1, 4.3, and 2 passes per hour respectively.

4.3.20 Both common and soprano pipistrelle were most frequently recorded in woodland and woodland edge habitats, and were least frequently recorded within arable and parkland and amenity grassland habitats.

4.3.21 Two common pipistrelle roosts and one pipistrelle species roost was recorded during the manual transect surveys. Two common pipistrelles were viewed emerging from a shed located on the woodland edge and adjacent to the ditch at AT03 during the October 2021 manual transect survey. Approximately fifteen common pipistrelle bats were seen emerging from weather boarding on the south-eastern elevation of the farmhouse at Wilcox Farm on AT09 during the July dusk 2021 transect. Conversations held with the homeowner of Upper Buncton House, located on AT05 noted that they had a pipistrelle roost present in the main building. All roost locations are shown in **Table B5-3, Annex B**.

Myotis species

4.3.22 *Myotis* species accounted for 7.8 percent (552 total passes) of all bat passes recorded during the transect surveys. *Myotis* activity was at its highest during April, with an average of 4.0 passes per hour. Moderate levels of *Myotis* activity were

recorded in June, August (dusk), and September 2021 with an average of 1.2, 1.5, and 1.0 passes hour respectively recorded during these months. In contrast with other species, August (dawn) 2021 had the lowest levels of *Myotis* activity with an average of 0.7 passes per hour recorded. *Myotis* activity is shown in **Figure 22.8.20a to k, Annex A**.

4.3.23 Myotis species were recorded on all nine transects in 2021, with highest levels of Myotis activity recorded on AT07 with an average 7.7 passes per hour. The lowest level of activity was recorded on AT02 with an average of 0.2 passes per hour.

4.3.24 *Myotis* species were recorded in five out of the nine habitat types identified with the majority of passes being recorded within woodland, woodland edge, and hedgerow habitat. Activity levels were highest in those areas best fitting the criteria of the Bechstein's Project: Wood Habitat Suitability Criteria, namely manual transect routes AT03, AT07, AT08, and AT09.

Noctule/serotine/Leisler's bat

4.3.25 Noctule, serotine and Leisler's bats calls combined accounted for 1.9 percent (174 total passes) of all bat passes recorded during the transect surveys. This included 0.6 percent confirmed noctule, 1.3 percent confirmed serotine, and <0.1 percent confirmed Leisler's bat. Where species could not be identified to species level due to overlapping call parameters, 0.1 percent were identified to the Nyctalus genus (including noctule and Leisler's bat), and 0.4 percent to the NSL 'big bat' group (including noctule, serotine and Leisler's bat). Noctule, serotine, and Leisler's bat activity is shown in **Figure 22.8.21a to l, Annex A**.

4.3.26 Activity levels over the year differed between the species, with noctule showing highest levels of activity in May and September 2021, Serotine showing the greatest activity levels in July, August, and September 2021, and bats assigned as NSL or *Nyctalus* sp., showing highest activity levels in July and September 2021 respectively.

4.3.27 The level of confirmed noctule bat activity in 2021 was highest on AT05 with an average of 0.7 passes per hour, and lowest on AT09 where no confirmed noctule bat passes were recorded. Confirmed serotine bat activity was recorded on eight transects (AT01, AT02, AT03, AT04, AT05, AT06, AT07, and AT08), with most activity recorded at AT04 with an average of 0.7 passes per hour. Three bat passes recorded within the survey period were confirmed as Leisler's bat, these were recorded on AT05, and AT06.

4.3.28 Confirmed noctule and serotine bats were recorded in all habitat types surveyed, but most frequently in open pasture and woodland edge habitat.

4.3.29 Three confirmed Leisler's bat passes were recorded over the entire survey period. These were recorded in open pasture habitat.

Plecotus species

4.3.30 *Plecotus* species accounted for 1.5 percent (106 total passes) of all bat passes recorded. The temporal pattern of activity was broadly similar to that recorded for all other bat species identified during the surveys; that is, with a peak in activity seen in August (dusk) 2021 and with an average of 1.3 passes per hour and

moderate levels of activity in April, May, and September 2021, with an average of 0.6 passes per hour respectively.

4.3.31 *Plecotus* species were recorded on all transects except AT01 and were found to be utilising vegetated habitats including hedgerow, treelines, woodland and edge habitats. They were very rarely recorded in urban and open pasture habitats.

4.3.32 It is characteristic of the species to record low levels of activity for *Plecotus* species during active transects. This is largely due to the species' very quiet echolocation calls that are typically only detectable on aural detectors within close range (approximately 5 m). As such, levels of *Plecotus* species are likely to be under-represented in the survey results, particularly when compared to the louder calling bat species (for example Pipistrellus species).

First and last recorded bat

4.3.33 The first bat of each species or species group recorded at each manual transect route was noted on dusk surveys, as were the last of each species or species recorded during the dawn survey. This was completed in an effort to determine the potential presence of nearby bat roosts. It is based on the logic that bats recorded close to sunset or sunrise are likely to be close to their roosts as they have either just emerged or are close to re-entering.

4.3.34 Different bat species have different emerge times and as Collins (2016) the first / last bat was considered to be potential roosting nearby if they were recorded within the following timeframes:

- *Pipistrellus*, *Nyctalus* and serotine bats: If recorded within half an hour after sunset or before sunrise,
- *Myotis*, barbastelle and *Plecotus* species: If recorded within one hour after sunset or before sunrise.

4.3.35 These periods encompass the typical emergence time for the species and are used an indicator only. Bats that were recorded within the timeframe in 2021 are as follows:

- Soprano pipistrelle were regularly recorded before sunset foraging in Priorsbush on AT07.
- On transects AT01, and AT03 to AT09; common and soprano pipistrelle were recorded on at least four occasions within half an hour after sunset.
- Noctule bats and noctule/serotine/Leisler's bat group were recorded within 30 minutes of sunset on AT08 during the July dusk and in September.
- Transect routes AT01, AT02, AT04, and AT05 each had one record of Noctule within half an hour of sunset. The earliest record was on 15 September 2021 on AT05 where a noctule was recorded three minutes after sunset.
- One Barbastelle was recorded within thirty-six minutes of sunset, in October on AT01. All other barbastelle records were made at least an hour and thirty minutes after sunset.

- *Myotis* species were recorded at AT02 three times within an hour of sunset, the earliest being thirty-three minutes after.
- AT01, AT05, and AT06 each had two records of *Myotis* species within one hour of sunset, whilst AT03, and AT07 each had one record.
- Passes of *Plecotus* species were recorded within one hour of sunset on four occasions; at AT07, AT06, and AT09. The record at AT07 was made five minutes before sunset in Priorsbush woodland.
- Two records of *Plecotus* species were made on AT06 in July (dusk) and October, and one record was made on AT09 in October.
- Common pipistrelle was recorded twenty-minutes before sunrise on manual transect routes AT03, AT05, and AT06.
- Soprano pipistrelle was recorded within thirty minutes of sunrise on manual transect routes AT02, AT03, and AT06.
- Myotis species was recorded within one hour of sunrise on manual transect routes AT03, AT05, and AT06.

Manual transect survey 2022

4.3.36 Active transect surveys were completed for land parcels with newly granted access. At least ten species of bat were confirmed to be using the Study Area during the 2022 manual transect survey work. These included the following species:

- Common pipistrelle;
- Soprano pipistrelle;
- Common / soprano pipistrelle;
- Common / Nathusius' pipistrelle;
- Noctule;
- Serotine;
- Noctule / Leisler's / serotine;
- *Myotis* species;
- [redacted]; and
- *Plecotus* species.

4.3.37 A total of 1,018 passes were recorded during between April 2022 and October 2022. Full results are presented in **Table B5-6, Annex B**.

4.3.38 **Table 4-7** and **Table 4-8** summarise the results of the active transect survey work in 2022 in terms of the number of bat passes made by each species recorded within each month (**Table 4-7**), and on each transect (**Table 4-7**)

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Table 4-7 Total number of bat passes (average number of passes per hour) for each species per month for all transects surveyed April to October 2022

Month	April	May	June*	July dusk*	July dawn*	August	September	October	Total passes
CP	2 (0.3)	203 (33.8)	10 (13.3)	16 (5.3)	17 (5.7)	120 (20.0)	29 (4.8)	24 (4.0)	421 (10.9)
SP	2 (0.3)	93 (15.5)	38 (12.7)	60 (20)	46 (15)	121 (20.2)	32 (5.3)	27 (4.5)	419 (10.7)
SP/CP	1 (0.2)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.3)	0 (0.0)	5 (0.8)	9 (0.2)
NP	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.1)
CP/NP	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.03)
N	1 (0.2)	7 (1.2)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.3)	0 (0.0)	0 (0.0)	10 (0.26)
S	0 (0.0)	9 (1.5)	0 (0.0)	0 (0.0)	0 (0.0)	21 (3.5)	1 (0.2)	0 (0.0)	31 (0.79)
NSL	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	1 (0.03)
M	7 (1.2)	25 (4.5)	2 (0.7)	9 (3)	8 (2.7)	9 (1.5)	30 (5.0)	24 (4.0)	114 (2.92)
LE	0 (0.0)	4 (0.7)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	6 (0.15)
B	0 (0.0)	2 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	1 (0.03)
BAT	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	3 (0.08)
Total	13 (2.2)	345 (57.5)	51 (17)	87 (29)	71 (23.7)	276 (46)	94 (15.7)	81 (13.5)	1,018 (26.10)

Based on 6 hours of total recording per month; aside from *June and *July 2022 were 3 hours of total recorder per month due to land access restrictions for AT11.
Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat).

Graphic 4-3 Total numbers of bat passes recorded each month across both transects for 2022

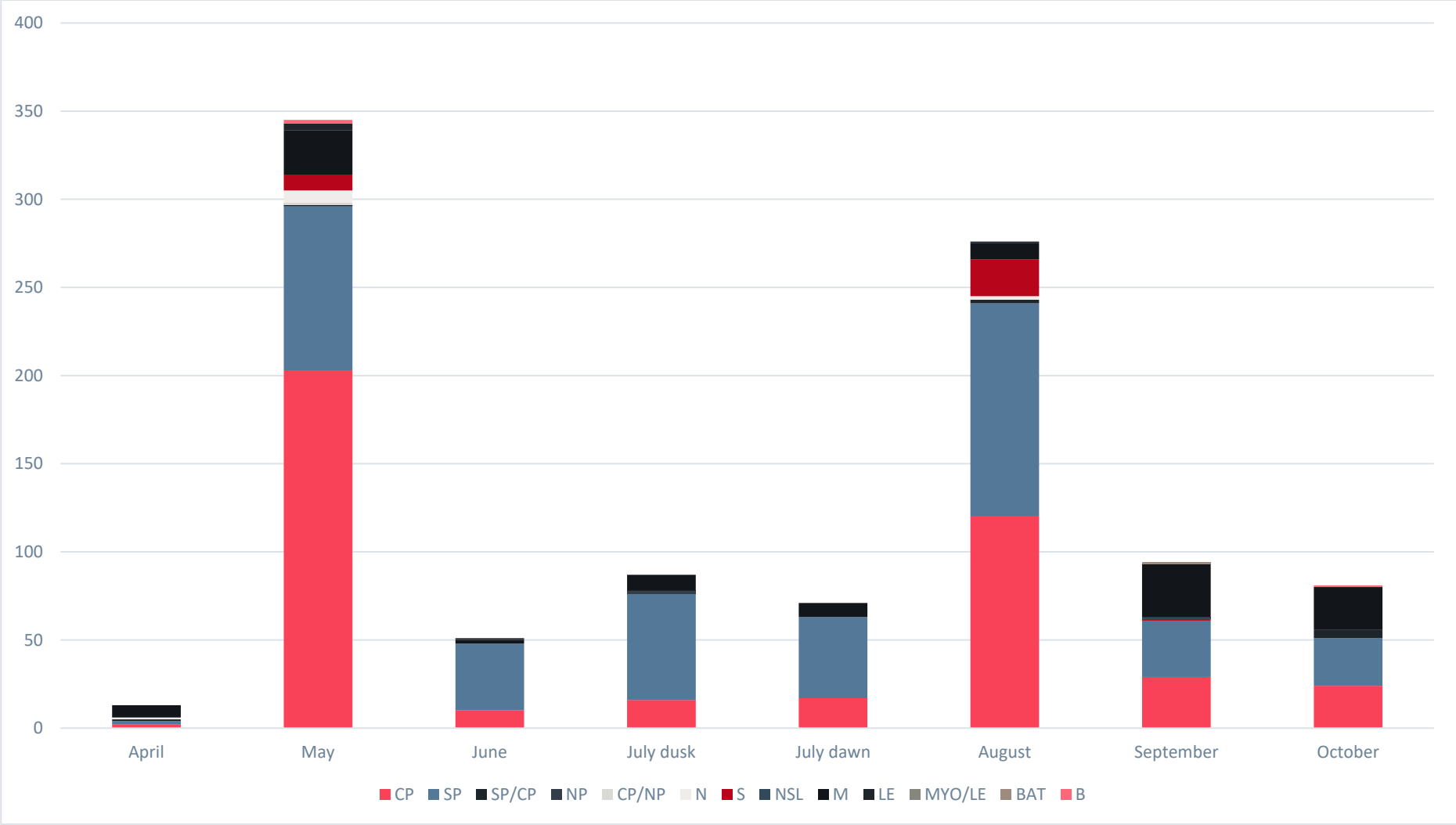

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Table 4-8 Total number of bat passes per hour (average number of passes per hour) recorded on each transect April to October 2022

	AT10*	AT11**
CP	119 (2.5)	302 (20.1)
SP	350 (7.3)	69 (4.6)
CP/SP	7 (0.1)	2 (0.4)
NP	2 (0.04)	0 (0.0)
CP/NP	0 (0.0)	1 (0.1)
N	2 (0.04)	8 (0.5)
S	7 (0.1)	24 (1.6)
L	0 (0.0)	0 (0.0)
NSL	0 (0.0)	1 (0.1)
M	66 (1.4)	48 (3.2)
D	0 (0.0)	0 (0.0)
LE	3 (0.06)	3 (0.2)
Bat	1 (0.02)	0 (0.0)
B	0 (0.0)	3 (0.2)
Total	557 (11.6)	461 (30.7)

*AT10 was divided by 48hrs to provide bat passes per hour.
**AT11 was divided by 15hrs to provide bat passes per hour.
Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

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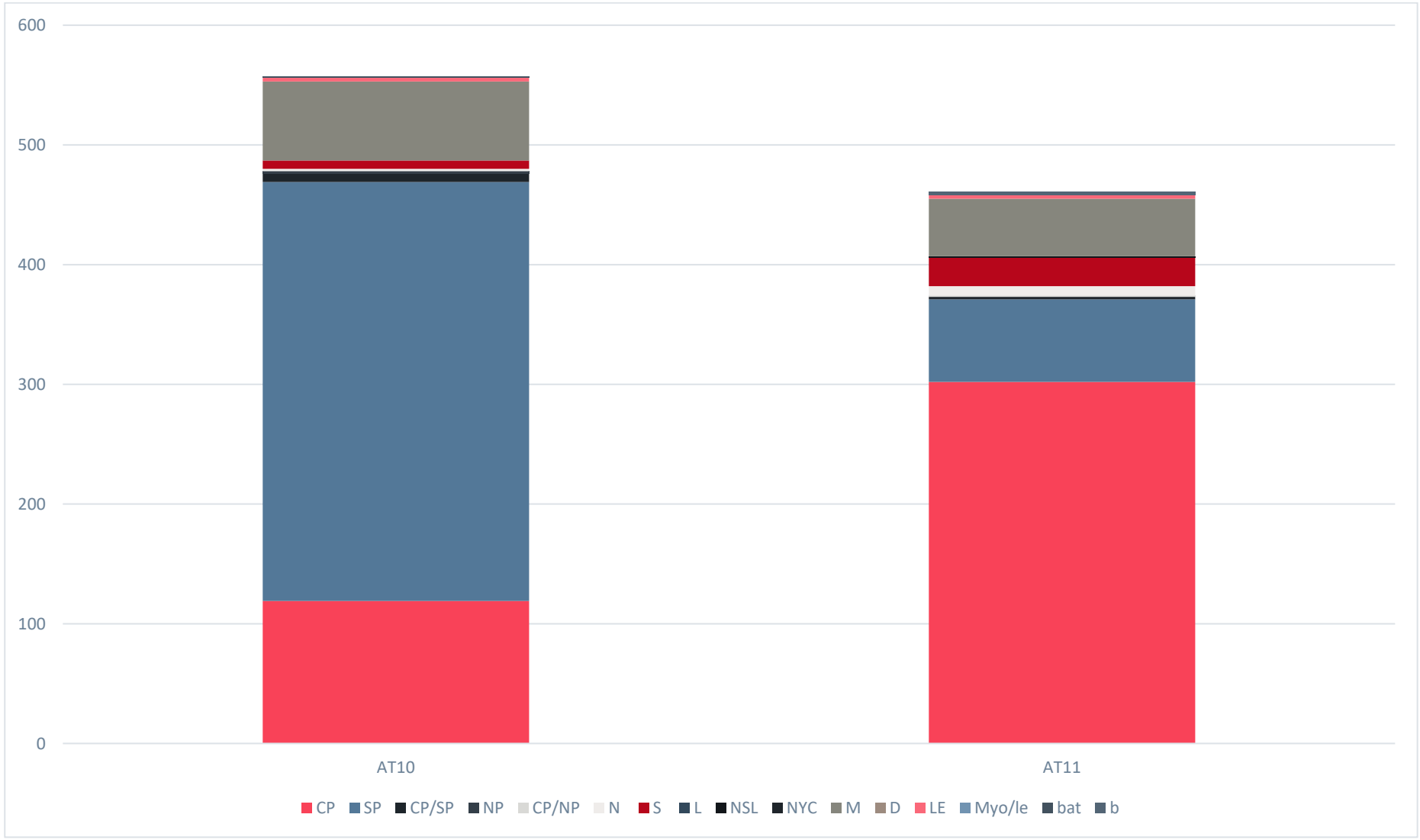
Graphic 4-4 Total number of bat passes recorded for all months per transect during 2022



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4.3.39 Overall, for 2022 and as shown in **Table 4-7**, bat activity for all species and all transects combined across the Study Area were highest during May 2022, with an average of 57.5 bat passes recorded each hour. This was closely followed by August 2022 with an average of 46 bat passes recorded each hour.

4.3.40 It should be noted that access restrictions in June and July 2022 for AT11 meant that no surveys were carried out during 2022. As a result, bat statistics for June and July 2022 are likely to be underrepresented.

[redacted]

4.3.41 [redacted] accounted for 0.1 percent (one total pass) of all bats recorded. [redacted] were only recorded at AT11 during May and October 2022. [redacted] activity was associated with woodland edge habitats.

Common pipistrelle and soprano pipistrelle

4.3.42 Common pipistrelle and soprano pipistrelle bats were the most frequently recorded bat species'. Passes by these two species combined accounted for 83 percent (840 total pass) of all bat passes recorded (42 percent and 41 percent respectively) in 2022.

4.3.43 When comparing AT10 and AT11, AT10 recorded a higher proportion of soprano pipistrelle (7.3 bat passes per hour for soprano pipistrelle and 2.5 passes per hour for common pipistrelle); whereas AT11 recorded a higher proportion of common pipistrelle (20.1 passes per hours for common pipistrelle and 4.6 passes per hours for soprano pipistrelle).

4.3.44 For both transects, pipistrelle bat activity appeared to be associated with hedgerows, treelines and woodland edge habitats.

Myotis species

4.3.45 Myotis species accounted for 11.2 percent (114 total passes) of all bat passes recorded during the transect survey visits. Activity levels were highest in September 2022, with an average of five passes per hour. This trend was represented at both AT10 and AT11.

4.3.46 For both transects, Myotis were strongly associated with hedgerow habitats.

Noctule / serotine / Leisler's bat

4.3.47 Noctule, serotine and Leisler's accounted for 4.1 percent (42 total passes) of all bat passes recorded during the surveys. This included 1 percent of noctule, 3 percent of serotine and 0.1 percent of noctule / serotine / Leisler's. Passes for noctule were highest in May 2022, at an average of 1.2 passes per hour recorded. Whereas for serotine passes were highest in August 2022 at an average of 3.5 passes per hour. These trends were present at both AT10 and AT11.

Plecotus species

4.3.48 *Plecotus* species accounted for 0.6 percent (total of six passes) of all bats recorded. Activity levels were highest in May 2022 with an average of 0.7 passes per hour. These trends were noted at both AT10 and AT11.

First and last recorded bat

4.3.49 Bats that were recorded within emergence / re-entry window and are therefore likely to be roosting close to transects are as follows:

- Common and soprano pipistrelle were recorded within 15 minutes of sunset on three separate occasions for transects AT10 and AT11.
- Noctule was recorded within 25 minutes of sunset on two sperate occasions for transects AT10 and AT11.
- *Myotis* was recoded within 20 minutes of sunset for transects AT10 and AT11.
- Barbastelle was recorded within 30 minutes of sunset for transect AT11.

4.4 Passive monitoring results

4.4.1 At least nine species of bat were confirmed to be using the Study Area (see **Figure 22.8.10a to h, Annex A** for locations) during the passive monitoring survey work between 2020 and 2022. These are as follows:

- [redacted];
- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Noctule;
- Serotine;
- Leisler's bat;
- *Myotis* species; and
- *Plecotus* species.

4.4.2 It should be noted that only September and October visits were completed during 2020.

4.4.3 **Table 4-9** to **Table 4-30** and **Graphic 4-5** to **Graphic 4-9** summarise the results of the passive monitoring survey in terms of the total number of recordings of each bat species recorded each month in 2020 (**Table 4-9** and **Graphic 4-5**), 2021 (**Table 4-11** and **Graphic 4-6**), and 2022 (**Table 4-12** and **Graphic 4-7**). The total number of recordings for each species obtained at each location throughout the survey period in 2021 (**Table 4-13** to **Table 4-23**, and **Graphic 4-8**), and 2022 (**Table 4-24** to **Table 4-30**, and **Graphic 4-9**), and the passive monitoring activity levels compared to the Ecobat database in 2020 (**Table 4-10**) and 2021 (**Table 4-13**) and 2022 (**Table 4-15**).

Table 4-9 2020: Summary of passive monitoring results. Total number of bat passes per hour recorded on each transect, for all months combined

Location	Total no. of files per species (Mean no. of files per night)														
	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01	31 (6.2)	59 (11.8)	6 (1.2)	2 (0.5)	0 (0)	56 (11.2)	297 (59.4)	37 (7.4)	0 (0)	1 (0.2)	49 (9.8)	13 (2.6)	41 (8.2)	1 (0.2)	593 (118.6)
AT02	415 (83)	51 (10.2)	3 (0.6)	4 (0.8)	0 (0)	13 (2.6)	161 (32.2)	4 (0.8)	0 (0)	0 (0)	160 (32)	24 (4.8)	10 (2)	0 (0)	845 (169.0)
AT03	77 (15.4)	42 (8.4)	0 (0)	1 (0.2)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	9 (1.8)	35 (7)	0 (0)	0 (0)	164 (32.8)

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

4.4.4 These figures are intended to give an indication of the relative levels of bat activity at each location, and do not represent actual numbers of bats. A single bat may pass the same location repeatedly during the same evening, thus increasing the number of files recorded at that location. Equally, the same bat may pass more than one monitoring location, therefore being recorded on more than one detector during the same recording period.

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Graphic 4-5 2020: Average number of bat passes recorded per night for each species per month for all monitoring locations

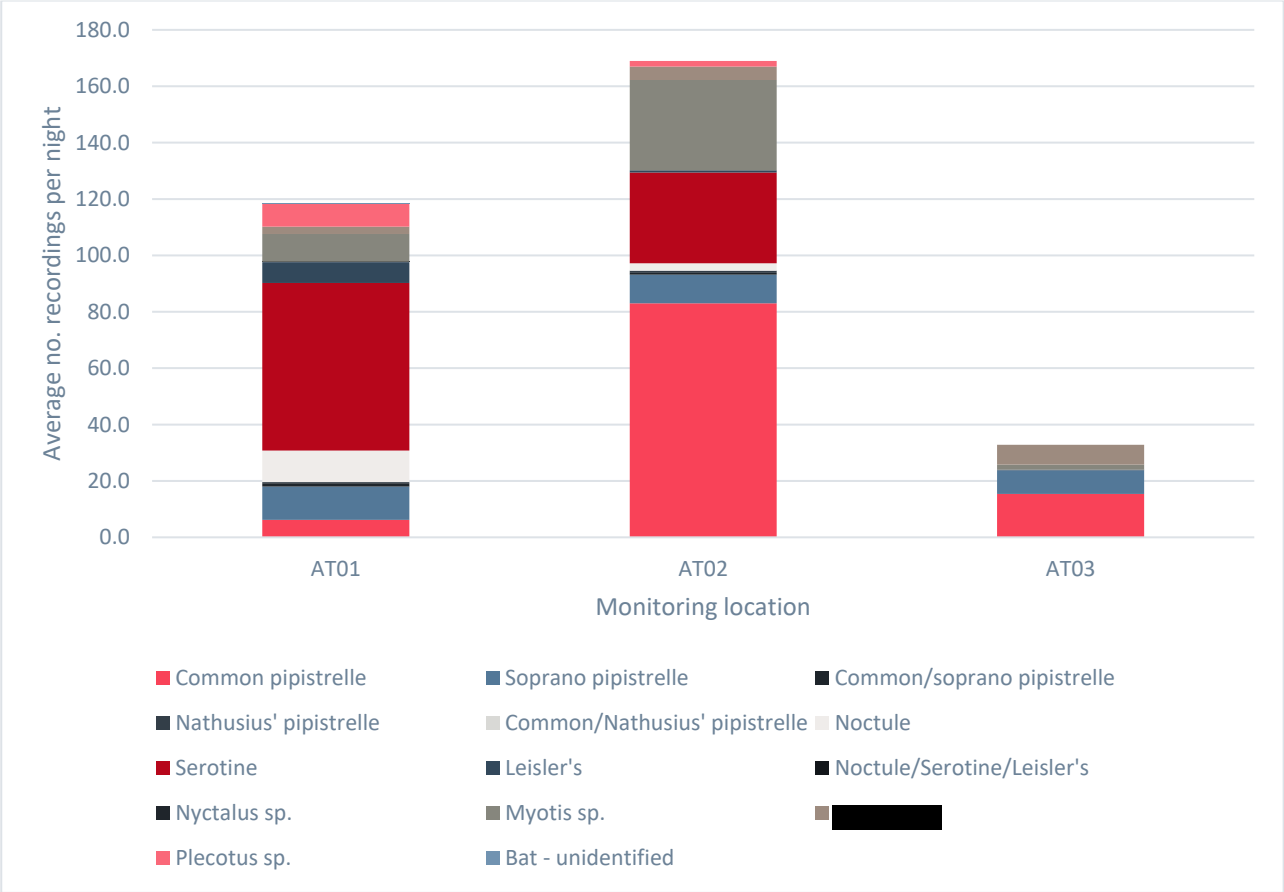

Table 4-10 2020: Activity levels for species recorded at each passive detector location across all months compared to Ecobat database records within 100km

Location	CP	SP	CP/ SP/ NP	NP	N	S	L	NSL	NYC	M	B	LE
AT01	M	M	-	L	L – M	-	L	-	M	M	M	M
AT02	M	M	-	L	M	L	L	-	-	M	M	L
AT03	M	M	-	L	-	L	-	-	-	L – M	M	-

** L = Low, M = Moderate, H = High

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-11 2021: Total number of recordings* (mean per night) for each species per month for all passive monitoring locations

Species **	April	May	June	July	August	September	October
CP	53 (10.6)	2,339 (775.4)	9,031 (1,812.4)	18,590 (3,718.3)	8,150 (1,818.7)	8,288 (1,761.6)	15,089 (2,955.3)
SP	15 (3.0)	1,579 (524.0)	2,798 (559.8)	7,420 (1,485.2)	5,268 (1,207.9)	9,105 (1,925.7)	6,252 (841.7)
CP/SP	2 (0.4)	3 (0.9)	319 (63.8)	998 (199.6)	1,351 (277.0)	1,234 (296.7)	573 (97.9)
NP	3 (0.6)	1 (0.3)	5 (1.0)	5 (1.0)	2 (0.5)	22 (4.9)	5 (1.3)
CP/NP	0 (0.0)	0 (0.0)	19 (3.9)	160 (32.0)	2 (0.5)	64 (14.5)	1 (0.0)
N	4 (0.8)	6 (1.8)	101 (20.3)	930 (204.0)	385 (83.1)	323 (69.2)	11 (2.4)
S	74 (14.8)	1 (0.3)	134 (26.8)	444 (89.7)	597 (142.0)	382 (96.5)	208 (68.8)
L	3 (0.6)	3 (0.8)	2 (0.4)	77 (15.4)	18 (3.8)	0 (0.0)	0 (0.0)
NSL	0 (0.0)	0 (0.0)	124 (24.8)	1,873 (374.6)	4,680 (937.5)	452 (91.1)	13 (1.9)
NYC	0 (0.0)	0 (0.0)	12 (2.4)	134 (26.8)	14 (3.0)	47 (9.5)	16 (4.9)
M	23 (4.6)	17 (5.1)	603 (121.1)	1,288 (260.6)	2,260 (503.0)	1,214 (255.9)	4,562 (312.5)
B	26 (5.2)	1 (0.3)	184 (36.9)	188 (37.6)	190 (40.7)	364 (80.6)	271 (42.7)
LE	3 (0.6)	10 (3.3)	210 (42.2)	548 (109.9)	301 (67.3)	319 (65.0)	65 (13.7)
Bat	0 (0.0)	0 (0.0)	105 (21.0)	907 (181.4)	482 (141.3)	2,834 (623.4)	289 (8.9)
Total	206 (41.2)	3,960 (1,312.2)	13,647 (2,736.7)	33,562 (6,736.1)	23,700 (5,226.2)	24,648 (5,260.2)	27,355 (4,352.1)

*During optimal conditions, five nights of analysed data per passive detector, per month, where the detector had no technical faults or access issues.

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Graphic 4-6 2021: Mean number of bat passes recorded per night for each species per month for all passive monitoring locations

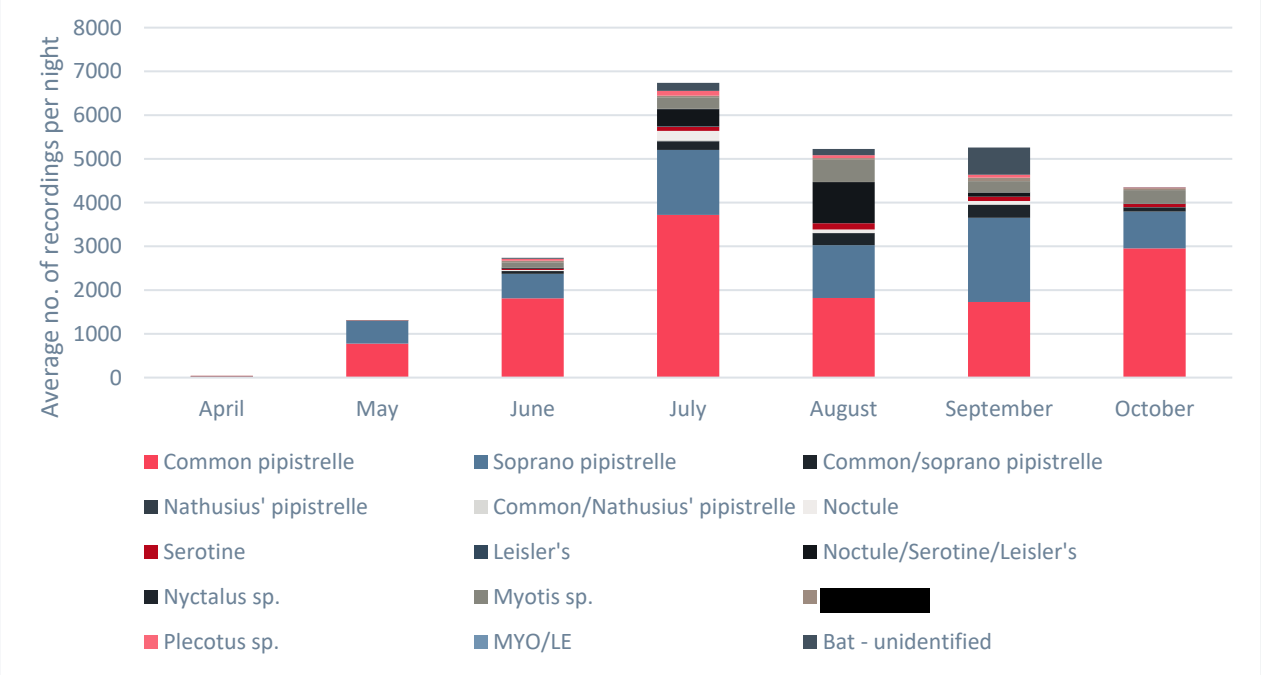

Table 4-12 2022: Total number of recordings* (mean per night) for each species per month for all passive monitoring locations

Species**	April	May	June	July	August	September	October
CP	827 (165.7)	20,556 (4,298.1)	1,521 (304.2)	172 (34.4)	7,158 (1,434.5)	251 (50.9)	141 (28.2)
SP	119 (23.8)	9,800 (2,058.1)	933 (186.6)	87 (17.4)	2,282 (460.2)	303 (60.7)	229 (45.8)
CP/SP	14 (2.8)	963 (201.9)	173 (34.6)	201 (40.2)	1,782 (357.9)	12 (2.4)	25 (5.0)
NP	2 (0.4)	2 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
CP/NP	3 (0.6)	8 (1.6)	2 (0.4)	7 (1.4)	0 (0.0)	0 (0.0)	2 (0.4)
N	3 (0.6)	200 (43.3)	45 (9.0)	5 (1.0)	272 (55.1)	0 (0.0)	23 (4.6)

Species**	April	May	June	July	August	September	October
S	0 (0.0)	30 (6.0)	1 (0.2)	2 (0.4)	78 (15.9)	0 (0.0)	0 (0.0)
L	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	32 (6.4)	0 (0.0)	0 (0.0)
NSL	0 (0.0)	61 (15.8)	8 (1.6)	5 (1.0)	209 (41.9)	0 (0.0)	1 (0.2)
NYC	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	73 (14.6)	0 (0.0)	0 (0.0)
M	284 (59.5)	4,949 (1,174.3)	472 (94.4)	37 (7.4)	214 (44.4)	158 (31.6)	1,977 (395.4)
B	1 (0.2)	97 (20.6)	1 (0.2)	0 (0.0)	31 (6.8)	2 (0.4)	7 (1.4)
LE	1 (0.2)	63 (12.6)	0 (0.0)	2 (0.4)	155 (31.1)	5 (1.0)	61 (12.2)
Bat	0 (0.0)	29 (6.4)	76 (15.2)	0 (0.0)	59 (11.8)	0 (0.0)	8 (1.6)
Total	1,259 (254.8)	36,758 (7,839.4)	3,232 (646.4)	518 (103.6)	12,345 (2,480.2)	731 (147.0)	2,474 (494.8)

*During optimal conditions, five nights of analysed data per passive detector, per month, where the detector had no technical faults or access issues.

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Graphic 4-7 2022: Mean number of bat passes recorded per night for each species per month for all passive monitoring locations

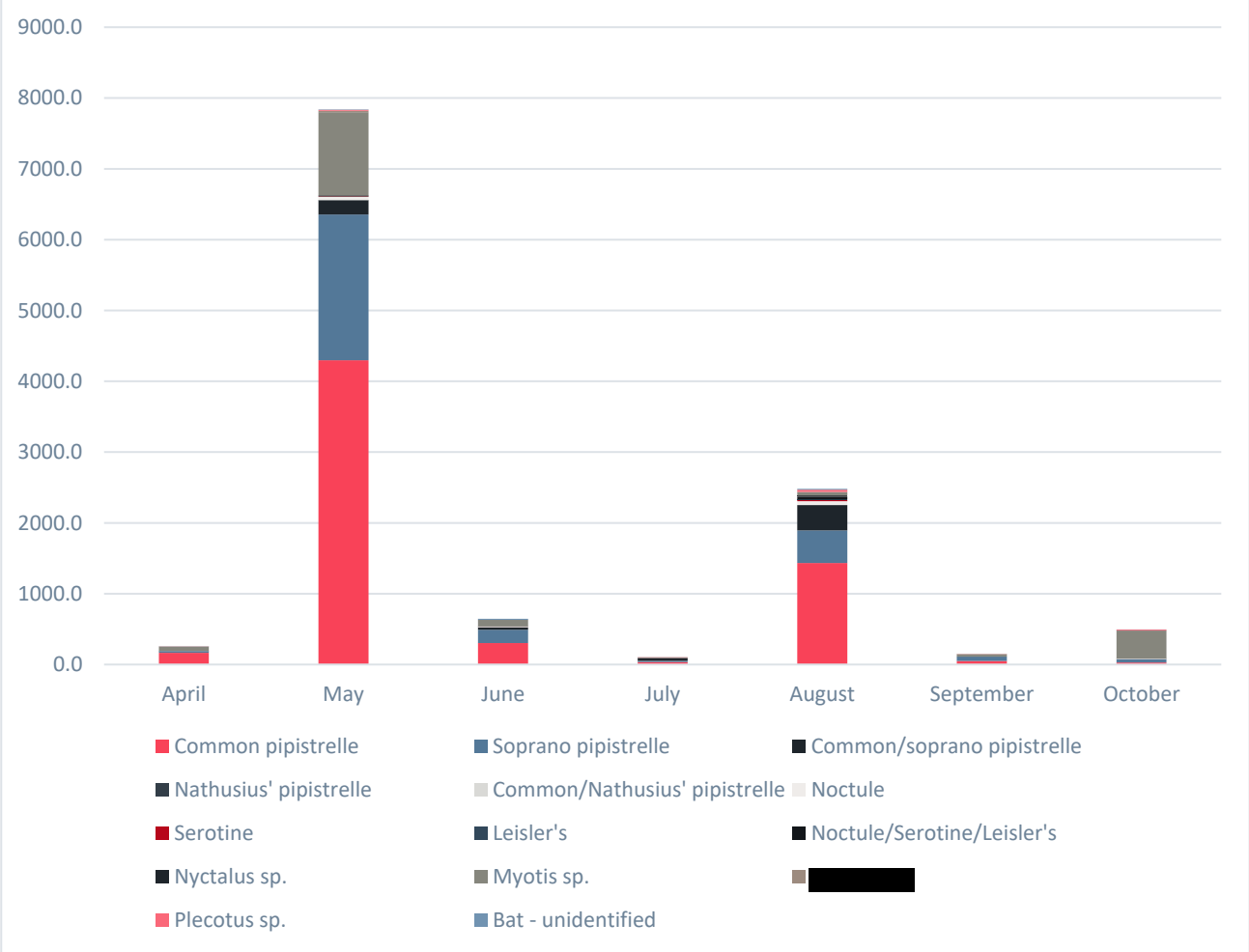

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Table 4-13 2021: Total number of recordings (mean per night) for each species at each passive monitoring location for all months

	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	879 (44.0)	158 (7.9)	6 (0.3)	5 (0.3)	0 (0.0)	10 (0.5)	10 (0.5)	1 (0.1)	0 (0.0)	0 (0.0)	6 (0.3)	3 (0.2)	1 (0.1)	0 (0.0)	1,079 (54.0)
AT01b	9,172 (458.6)	1,381 (69.1)	484 (24.2)	1 (0.1)	1 (0.1)	2 (0.4)	7 (0.4)	0 (0.0)	1 (0.1)	0 (0.0)	1,236 (61.8)	4 (0.2)	4 (0.2)	0 (0.0)	12,293 (614.7)
AT02a	1,117 (74.5)	3,814 (254.3)	7 (0.5)	9 (0.6)	0 (0.0)	177 (11.8)	314 (20.9)	6 (0.4)	0 (0.0)	0 (0.0)	104 (6.9)	5 (0.3)	10 (0.7)	0 (0.0)	5,563 (370.9)
AT02b	2,575 (286.1)	1,410 (156.7)	1,075 (119.4)	9 (1.0)	34 (3.8)	266 (29.6)	35 (3.9)	0 (0.0)	10 (1.1)	1 (0.1)	33 (3.7)	20 (2.2)	3 (0.3)	1,127 (125. 2)	6,598 (733.1)
AT03a	234 (8.1)	793 (27.3)	10 (0.3)	4 (0.1)	0 (0.0)	112 (3.9)	148 (5.1)	9 (0.3)	0 (0.0)	2 (0.1)	690 (23.8)	122 (4.2)	89 (3.1)	0 (0.0)	2,215 (76.4)
AT03b	579 (24.1)	2,034 (84.8)	306 (12.8)	5 (0.2)	0 (0.0)	144 (6.0)	716 (29.8)	4 (0.2)	5 (0.2)	14 (0.6)	217 (9.0)	101 (4.2)	27 (1.1)	18 (0.8)	4,170 (173.8)
AT04a	4,127 (137.6)	330 (11.0)	1 (0.0)	4 (0.1)	1 (0.0)	49 (1.6)	401 (13.4)	23 (0.8)	1 (0.0)	0 (0.0)	199 (6.6)	113 (3.8)	9 (0.3)	0 (0.0)	5,258 (175.3)
AT04b	1,278 (45.6)	138 (4.9)	13 (0.5)	1 (0.0)	2 (0.1)	46 (1.6)	24 (0.9)	2 (0.1)	0 (0.0)	0 (0.0)	152 (5.4)	107 (3.8)	33 (1.2)	0 (0.0)	1,796 (64.1)

	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT05a	3,428 (137.1)	528 (21.1)	216 (8.6)	0 (0.0)	0 (0.0)	49 (2.0)	35 (1.4)	8 (0.3)	0 (0.0)	1 (0.0)	365 (14.6)	371 (14.8)	66 (2.6)	16 (0.6)	5,083 (203.3)
AT05b	787 (78.7)	1,781 (178.1)	1 (0.1)	0 (0.0)	0 (0.0)	212 (21.2)	31 (3.1)	34 (3.4)	0 (0.0)	0 (0.0)	111 (11.1)	39 (3.9)	115 (11.5)	0 (0.0)	3,111 (311.1)
AT06a	1,223 (51.0)	196 (8.2)	0 (0.0)	0 (0.0)	0 (0.0)	24 (1.0)	18 (0.8)	11 (0.5)	0 (0.0)	0 (0.0)	227 (9.5)	7 (0.3)	35 (1.5)	0 (0.0)	1,741 (72.5)
AT06b	9,477 (351.0)	3,621 (134.1)	46 (1.7)	2 (0.1)	3 (0.1)	318 (11.8)	47 (1.7)	3 (0.1)	22 (0.8)	1 (0.0)	662 (24.5)	96 (3.6)	183 (6.8)	14 (0.5)	14,495 (563.9)
AT07a	313 (15.7)	568 (28.4)	86 (4.3)	0 (0.0)	0 (0.0)	11 (0.6)	4 (0.2)	0 (0.0)	8 (0.4)	3 (0.2)	698 (34.9)	2 (0.1)	62 (3.1)	343 (17.2)	2,098 (104.9)
AT07b	3,059 (218.5)	1,503 (107.4)	653 (46.6)	0 (0.0)	7 (0.5)	14 (1.0)	4 (0.3)	0 (0.0)	83 (5.9)	49 (3.5)	541 (38.6)	54 (3.9)	53 (3.8)	502 (35.9)	6,522 (465.9)
AT08a	2,223 (111.2)	942 (47.1)	45 (2.3)	0 (0.0)	0 (0.0)	45 (2.3)	4 (0.2)	0 (0.0)	255 (12.8)	93 (4.7)	204 (10.2)	17 (0.9)	3 (0.2)	209 (10.5)	4,040 (202.0)
AT08b	13,548 (541.9)	4,402 (176.1)	1,048 (41.9)	1 (0.0)	168 (6.7)	224 (9.0)	28 (1.1)	0 (0.0)	6,740 (269.6)	52 (2.1)	867 (34.7)	109 (4.4)	593 (23.7)	1,580 (63.2)	29,360 (1,174.4)

	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT09a	4,998 (217.3)	5,688 (247.3)	233 (10.1)	1 (0.0)	20 (0.9)	29 (1.3)	8 (0.3)	0 (0.0)	9 (0.4)	5 (0.2)	1,792 (77.9)	37 (1.6)	84 (3.7)	740 (32.2)	13,644 (593.2)
AT09b	1,923 (80.1)	2,273 (94.7)	250 (10.4)	1 (0.0)	10 (0.4)	28 (1.2)	6 (0.3)	2 (0.1)	6 (0.3)	2 (0.1)	1,786 (74.4)	14 (0.6)	62 (2.6)	66 (2.8)	6,429 (267.9)
AT10a	8 (0.3)	7 (0.3)	0 (0.0)	0 (0.0	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	12 (0.5)	0 (0.0)	1 (0.0)	0 (0.0)	28 (1.2)
AT10b	592 (24.7)	870 (36.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.0)	0 (0.0)	65 (2.7)	3 (0.1)	23 (1.0)	1 (0.0)	1,555 (64.8)

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Graphic 4-8 2021: Mean number of recordings per night at each monitoring location across all months

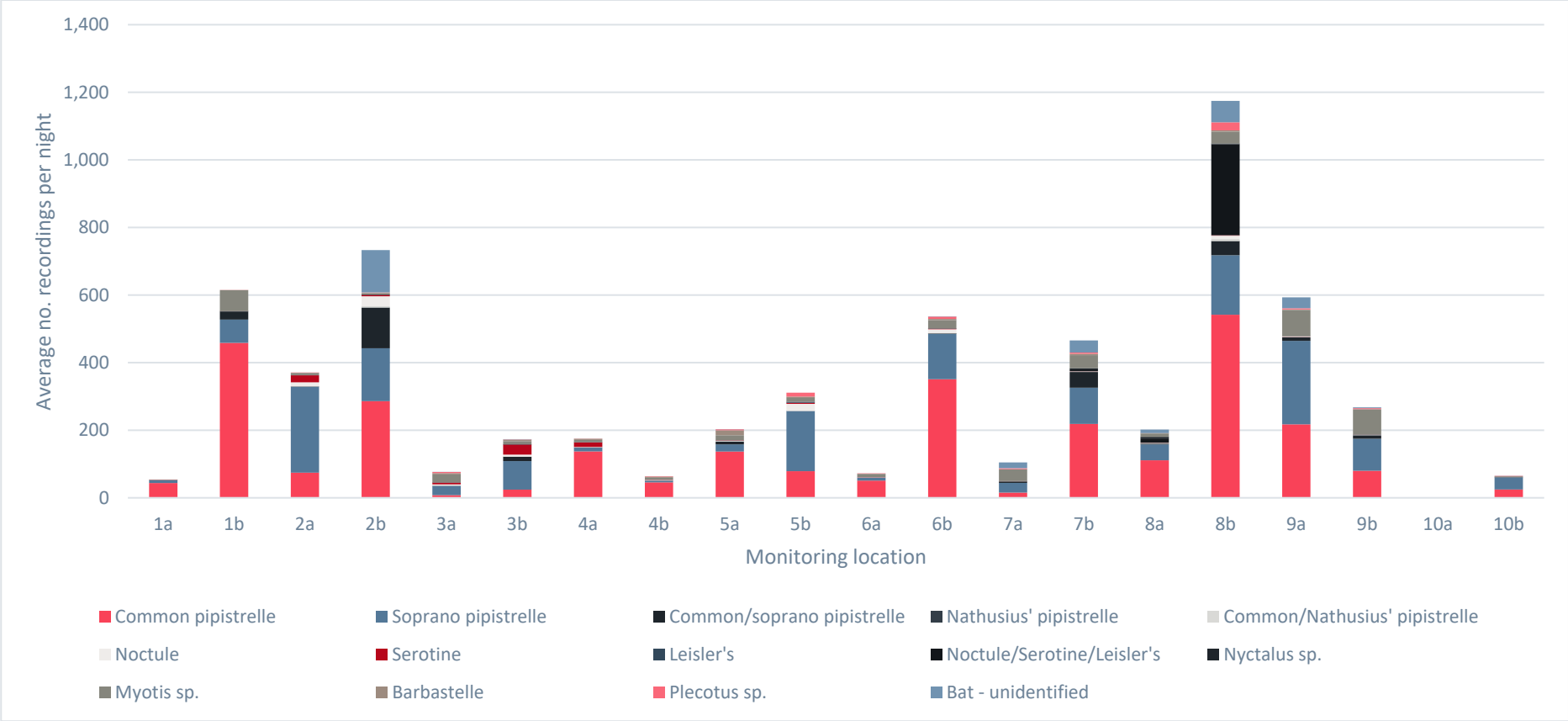

Table 4-14 Activity levels for species recorded at each passive detector location across all months compared to Ecobat database records within 100km for 2021

Location	CP	SP	CP/SP/ NP	NP	N	S	L	NSL	NYC	M	B	LE
AT01a	M – H	M	M – H	L – M	M	M	L	-	-	L – M	L	M
AT01b	M – H	M	H	-	-	-	-	-	-	-	-	L
AT02a	M – H	H	H	L – M	M – H	M – H	L – M	-	-	M – H	L – M	L – M
AT02b	M – H	H	H	M	M – H	M	-	M	M	M	M	L – M
AT03a	M	M – H	M – H	M	M – H	M -H	M	M	M – H	M – H	M – H	M – H
AT03b	M	M – H	M – H	L	M	M – H	L – M	M – H	-	M	M – H	L – M
AT04a	M – H	M	H	L – M	M	M – H	M	-	-	M – H	M – H	L – M
AT04b	M – H	M	M – H	L	M	M	-	-	-	M	M	L – M
AT05a	M – H	M	M – H	-	M	M	L – M	-	M	M – H	M – H	M
AT05b	M – H	M – H	H	-	M – H	M	M	M – H	M – H	M	M	M – H
AT06a	M – H	M	-	-	M – H	L – M	M	-	-	M	L – M	L – M
AT06b	H	H	H	L – M	H	M	M – H	M	-	M – H	M – H	M – H
AT07a	M – H	M	M – H	-	L – M	L – M	-	M	L – M	M – H	L	M
AT07b	M – H	M – H	H	-	L – M	L	-	M – H	M	M – H	L	M
AT08a	M – H	M	M – H	-	M	L – M	-	M – H	M	M	L – M	L – M

Location	CP	SP	CP/SP/ NP	NP	N	S	L	NSL	NYC	M	B	LE
AT08b	M – H	M – H	M – H	L	M – H	M	-	M – H	M – H	M – H	M	M
AT09a	M – H	M – H	M – H	L	M – H	L – M	L – M	L – M	L – M	M – H	L – M	M – H
AT09b	M – H	M – H	M – H	-	M	L – M	L – M	M	-	M – H	L – M	M
AT10a	-	-	-	-	-	-	-	-	-	-	-	-
AT10b	M – H	M – H	-	-	-	-	-	-	-	M	-	L – M

** L = Low, M = Moderate, H = High
Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-15 2022: Total number of recordings (mean per night) for each species at each passive monitoring location for all months

	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	468 (18.0)	742 (28.5)	85 (3.3)	0 (0.0)	5 (0.2)	97 (3.7)	7 (0.3)	0 (0.0)	53 (2.0)	0 (0.0)	2,063 (79.3)	16 (0.6)	63 (2.4)	22 (0.8)	3,621 (139.3)
AT10b	2,179 (103.8)	1,162 (55.3)	381 (18.1)	1 (0.0)	8 (0.4)	60 (2.9)	1 (0.0)	0 (0.0)	18 (0.9)	0 (0.0)	1,200 (57.1)	5 (0.2)	2 (0.1)	72 (3.4)	5,089 (242.3)
AT11a	25,695 (1,027.8)	11,211 (448.4)	2,327 (93.1)	3 (0.1)	9 (0.4)	89 (3.6)	32 (1.3)	0 (0.0)	5 (0.2)	0 (0.0)	4,526 (181.0)	62 (2.5)	135 (5.4)	19 (0.8)	44,113 (1,764.5)
AT11b	2,242 (112.1)	624 (31.2)	373 (18.7)	0 (0.0)	0 (0.0)	279 (14.0)	71 (3.6)	32 (1.6)	207 (10.4)	73 (3.7)	258 (12.9)	50 (2.5)	45 (2.3)	60 (3.0)	4,314 (215.7)

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Graphic 4-9 2022: Mean number of recordings per night at each monitoring location across all months

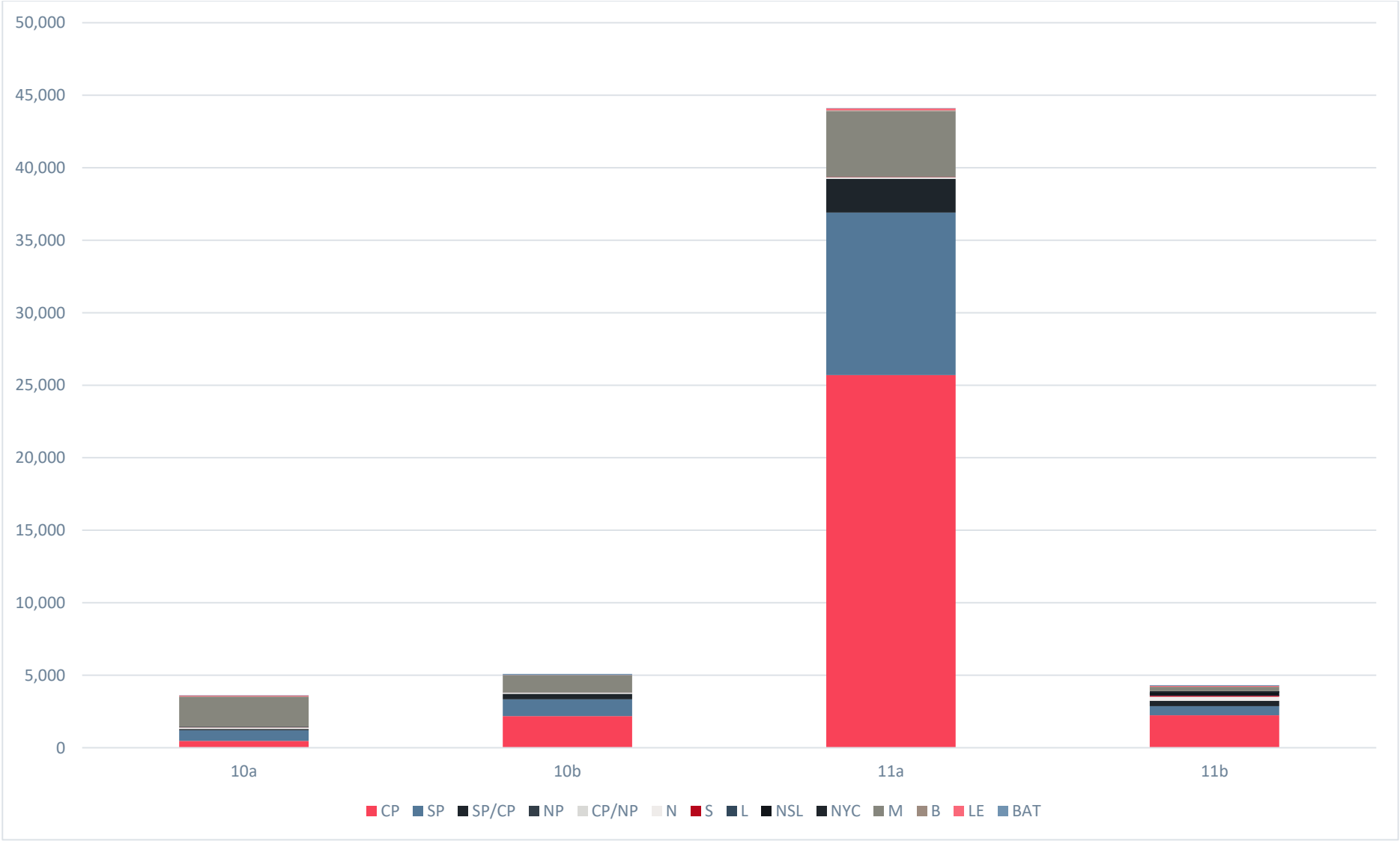

Table 4-16 2022: Activity levels for species recorded at each passive detector location across all months compared to Ecobat database records within 100km

Location	CP	SP	CP/SP/ NP	NP	N	S	L	NSL	NYC	M	B	LE
AT10a	L	L	L	-	L – M	L	-	L – M	-	L – H	L – M	L – M
AT10b	L	L – M	L – M	H	L – M	-	L	L	-	L – H	H	L
AT11a	L – E	L – E	L – E	H – E	L – M	L – M	-	L	-	L – E	M – H	L – E
AT11b	L – M	L	L – M	-	L – E	M – E	E	M – E	M – E	L	H – E	L – M

** L = Low, M = Moderate, H = High, E = Exceptional
Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-17 Passive monitoring survey results by month (Mean no. of passes per night): April 2021

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	No access														
AT01b	No access														
AT02a	No access														
AT02b	No access														
AT03a	Technical fault														
AT03b	7 (1.4)	12 (2.4)	2 (0.4)	1 (0.2)	0 (0)	4 (0.8)	8 (1.6)	0 (0)	0 (0)	0 (0)	10 (2.0)	4 (0.8)	3 (0.6)	0 (0)	51 (10.2)

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT04a	45 (9.0)	0 (0)	0 (0)	1 (0.2)	0 (0)	0 (0)	59 (11.8)	3 (0.6)	0 (0)	0 (0)	9 (1.8)	22 (4.4)	0 (0)	0 (0)	139 (27.8)
AT04b	1 (0.2)	0 (0)	0 (0)	1 (0.2)	0 (0)	0 (0)	7 (1.4)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	9 (1.8)
AT05a	No access														
AT05b	No access														
AT06a	0 (0)	3 (0.6)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	4 (0.8)	0 (0)	0 (0)	0 (0)	7 (1.4)
AT06b	No access														
AT07a	No access														
AT07b	No access														
AT08a	No access														
AT08b	No access														
AT09a	No access														
AT09b	No access														
AT10a	No access														
AT10b	No access														

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-18 Passive monitoring survey results by month (Mean no. of passes per night): May 2021

	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	No access														
AT01b	No access														
AT02a	No access														
AT02b	No access														
AT03a	6 (2.0)	6 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (1.0)	1 (0.3)	2 (0.7)	0 (0.0)	21 (7.0)
AT03b	51 (12.8)	28 (7.0)	1 (0.3)	0 (0.0)	0 (0.0)	3 (0.8)	0 (0.0)	3 (0.8)	0 (0.0)	0 (0.0)	7 (1.8)	0 (0.0)	1 (0.3)	0 (0.0)	94 (23.5)
AT04a	Technical fault														
AT04b	Technical fault														
AT05a	No access														
AT05b	No access														
AT06a	No access														
AT06b	2,282 (760.7)	1,545 (515.0)	2 (0.7)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	7 (2.3)	0 (0.0)	7 (2.3)	0 (0.0)	3,845 (1,281.7)
AT07a	No access														

	CP	SP	CP/ SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT07b	No access														
AT08a	No access														
AT08b	No access														
AT09a	58 (11.6)	103 (20.6)	4 (0.8)	2 (0.4	0 (0.0)	64 (12.8)	3 (0.6)	3 (0.6)	0 (0.0)	0 (0.0)	51 (10.2)	1 (0.2)	20 (4.0)	0 (0.0)	3 (0.6)	312 (62.4)
AT09b	586 (117.2)	1,578 (315. 6)	0 (0.0)	0 (0.0)	0 (0.0)	9 (1.8)	2 (1.8)	1 (0.4)	0 (0.0)	0 (0.0)	55 (11.0)	2 (0.4)	3 (0.6)	0 (0.0)	0 (0.0)	2,236 (447.2)
AT10a	No access														
AT10b	No access														

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-19 Passive monitoring survey results by month (Mean no. of files per night): June 2021

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	57 (11.4)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	60 (12.0)
AT01b	121 (24.2)	51 (10.2)	1 (0.2)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	174 (34.8)
AT02a	No access														

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT02b	No access														
AT03a	48 (9.6)	153 (30.6)	6 (1.2)	2 (0.4)	0 (0.0)	26 (5.2)	33 (6.6)	0 (0.0)	0 (0.0)	2 (0.4)	111 (22.2)	77 (15.4)	63 (12.6)	0 (0.0)	521 (104.2)
AT03b	30 (6.0)	955 (191.0)	136 (27.2)	0 (0.0)	0 (0.0)	15 (3.0)	44 (8.8)	0 (0.0)	4 (0.8)	0 (0.0)	24 (4.8)	67 (13.4)	2 (0.4)	5 (1.0)	1,282 (256.4)
AT04a	1,223 (244.6)	61 (12.2)	0 (0.0)	3 (0.6)	0 (0.0)	0 (0.0)	54 (10.8)	0 (0.0)	0 (0.0)	0 (0.0)	24 (4.8)	27 (5.4)	0 (0.0)	0 (0.0)	1,392 (278.4)
AT04b	124 (31.0)	4 (1.0)	0 (0.0)	0 (0.0)	1 (0.3)	1 (0.3)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	10 (2.5)	2 (0.5)	3 (0.8)	0 (0.0)	145 (36.3)
AT05a	62 (12.4)	13 (2.6)	16 (3.2)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	25 (5.0)	3 (0.6)	5 (1.0)	1 (0.2)	129 (25.8)
AT05b	No access														
AT06a	270 (54.0)	36 (7.2)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	16 (3.2)	2 (0.4)	0 (0.0)	0 (0.0)	327 (65.4)
AT06b	2,414 (482.8)	258 (51.6)	33 (6.6)	0 (0.0)	3 (0.6)	5 (1.0)	0 (0.0)	0 (0.0)	9 (1.8)	0 (0.0)	71 (14.2)	1 (0.2)	30 (6.0)	6 (1.2)	2,830 (566.0)
AT07a	148 (29.6)	155 (31.0)	1 (0.2)	0 (0.0)	0 (0.0)	8 (1.6)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	45 (9.0)	0 (0.0)	6 (1.2)	54 (10.8)	418 (83.6)
AT07b	No access														
AT08a	No access														

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT08b	4,332 (866.4)	497 (99.4)	33 (6.6)	0 (0.0)	12 (2.4)	11 (2.2)	0 (0.0)	0 (0.0)	110 (22.0)	9 (1.8)	229 (45.8)	5 (1.0)	97 (19.4)	39 (7.8)	5,374 (1,074.8)
AT09a	141 (28.2)	569 (113.8)	29 (5.8)	0 (0.0)	0 (0.0)	12 (2.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	34 (6.8)	0 (0.0)	4 (0.8)	0 (0.0)	789 (157.8)
AT09b	61 (12.2)	46 (9.2)	63 (12.6)	0 (0.0)	2 (0.4)	17 (3.4)	3 (0.6)	2 (0.4)	0 (0.0)	0 (0.0)	12 (2.4)	0 (0.0)	0 (0.0)	0 (0.0)	206 (41.2)
AT10a	No access														
AT10b	No access														

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-20 Passive monitoring survey results by month (Mean no. of passes per night): July 2021

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	667 (133.4)	119 (23.8)	5 (1.0)	5 (1.0)	0 (0.0)	4 (0.8)	3 (0.6)	1 (0.2)	0 (0.0)	0 (0.0)	1 (0.2)	2 (0.4)	1 (0.2)	0 (0.0)	808 (161.6)
AT01b	25 (5.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	25 (5.0)
AT02a	655 (131.0)	3,087 (617.4)	4 (0.8)	0 (0.0)	0 (0.0)	45 (9.0)	226 (45.2)	6 (1.2)	0 (0.0)	0 (0.0)	47 (9.4)	0 (0.0)	4 (0.8)	0 (0.0)	4,074 (814.8)

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT02b	1,459 (291.8)	512 (102.4)	531 (106.2)	0 (0.0)	0 (0.0)	245 (49.0)	35 (7.0)	0 (0.0)	0 (0.0)	0 (0.0)	6 (1.2)	9 (1.8)	3 (0.6)	0 (0.0)	2,800 (560.0)
AT03a	14 (2.8)	15 (3.0)	0 (0.0)	0 (0.0)	0 (0.0)	37 (7.4)	24 (4.8)	9 (1.8)	0 (0.0)	0 (0.0)	10 (2.0)	7 (1.4)	6 (1.2)	0 (0.0)	122 (24.4)
AT03b	1 (0.5)	4 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	60 (30.0)	3 (1.5)	0 (0.0)	0 (0.0)	0 (0.0)	10 (5.0)	0 (0.0)	1 (0.5)	0 (0.0)	79 (39.5)
AT04a	1,608 (321.6)	8 (1.6)	1 (0.2)	0 (0.0)	0 (0.0)	17 (3.4)	41 (8.2)	20 (4.0)	0 (0.0)	0 (0.0)	27 (5.4)	24 (4.8)	2 (0.4)	0 (0.0)	1,748 (349.6)
AT04b	946 (189.2)	47 (9.4)	1 (0.2)	0 (0.0)	0 (0.0)	31 (6.2)	7 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	58 (11.6)	13 (2.6)	2 (0.4)	0 (0.0)	1,105 (221.0)
AT05a	948 (189.6)	18 (3.6)	0 (0.0)	0 (0.0)	0 (0.0)	9 (1.8)	21 (4.2)	4 (0.8)	0 (0.0)	0 (0.0)	44 (8.8)	58 (11.6)	12 (2.4)	0 (0.0)	1,114 (222.8)
AT05b	559 (111.8)	296 (59.2)	0 (0.0)	0 (0.0)	0 (0.0)	123 (24.6)	21 (0.8)	23 (4.6)	0 (0.0)	0 (0.0)	28 (5.6)	22 (4.4)	27 (5.4)	0 (0.0)	1,099 (219.8)
AT06a	721 (144.2)	99 (19.8)	0 (0.0)	0 (0.0)	0 (0.0)	11 (2.2)	4 (4.6)	11 (2.2)	0 (0.0)	0 (0.0)	37 (7.4)	1 (0.2)	6 (1.2)	0 (0.0)	890 (178.0)
AT06b	1,314 (262.8)	646 (129.2)	0 (0.0)	0 (0.0)	0 (0.0)	191 (38.2)	23 (4.6)	3 (0.6)	0 (0.0)	0 (0.0)	82 (16.4)	4 (0.8)	42 (8.4)	0 (0.0)	2,305 (461.0)
AT07a	86 (17.2)	37 (7.4)	1 (0.2)	0 (0.0)	0 (0.0)	1 (0.2)	4 (0.8)	0 (0.0)	4 (0.8)	3 (0.6)	4 (0.8)	0 (0.0)	19 (3.8)	93 (18.6)	252 (50.4)

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT07b	1,710 (342.0)	276 (55.2)	33 (6.6)	0 (0.0)	2 (0.4)	6 (1.2)	0 (0.0)	0 (0.0)	61 (12.2)	6 (12.2)	269 (53.8)	1 (0.2)	36 (7.2)	443 (88.6)	2,843 (568.6)
AT08a	717 (143.4)	140 (28.0)	26 (5.2)	0 (0.0)	0 (0.0)	37 (7.4)	0 (0.0)	0 (0.0)	235 (47.0)	86 (47.0)	20 (4.0)	0 (0.0)	3 (0.6)	207 (41.4)	1,471 (294.2)
AT08b	3,236 (647.2)	916 (183.2)	181 (36.2)	0 (0.0)	139 (27.8)	101 (20.2)	25 (5.0)	0 (0.0)	1,568 (313.6)	37 (7.4)	96 (19.2)	9 (1.8)	349 (69.8)	113 (22.6)	6,770 (1,354.0)
AT09a	3,436 (691.8)	1,054 (210.8)	166 (33.2)	0 (0.0)	11 (2.2)	12 (2.4)	7 (1.4)	0 (0.0)	5 (1.0)	2 (0.4)	444 (88.8)	24 (4.8)	12 (2.4)	13 (2.6)	5,209 (1,041.8)
AT09b	465 (93.0)	146 (29.2)	49 (9.8)	(0.0)	8 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	105 (21.0)	14 (2.8)	23 (4.6)	38 (7.6)	848 (169.6)
AT10a	No access														
AT10b	No access														

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-21 Passive monitoring survey results by month (Mean no. of passes per night): August 2021

	CP	SP	CP/SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	145 (29.0)	34 (6.8)	0 (0.0)	0 (0.0)	0 (0.0)	6 (1.2)	7 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.6)	1 (0.2)	0 (0.0)	0 (0.0)	196 (39.2)
AT01b	1,409 (281.8)	208 (41.6)	455 (91.0)	1 (0.2)	0 (0.0)	2 (0.4)	7 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	271 (54.2)	2 (0.4)	2 (0.4)	0 (0.0)	2,357 (471.4)
AT02a	**No access**														
AT02b	**No access**														
AT03a	125 (25.0)	206 (41.2)	0 (0.0)	0 (0.0)	0 (0.0)	37 (7.4)	81 (16.2)	0 (0.0)	0 (0.0)	0 (0.0)	522 (104. 4)	37 (7.4)	15 (3.0)	0 (0.0)	1,023 (204.6)
AT03b	127 (31.8)	512 (128.0)	18 (4.5)	0 (0.0)	0 (0.0)	52 (13.0)	432 (108. 0)	1 (0.3)	0 (0.0)	0 (0.0)	49 (12.3)	10 (2.5)	3 (0.8)	0 (0.0)	1,204 (301.0)
AT04a	905 (181.0)	144 (28.8)	0 (0.0)	0 (0.0)	0 (0.0)	20 (4.0)	19 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)	43 (8.6)	12 (2.4)	6 (1.2)	0 (0.0)	1,149 (229.8)
AT04b	84 (21.0)	17 (4.3)	0 (0.0)	0 (0.0)	0 (0.0)	4 (1.0)	3 (0.8)	2 (0.5)	0 (0.0)	0 (0.0)	22 (5.5)	22 (5.5)	6 (1.5)	0 (0.0)	160 (40.0)
AT05a	419 (83.8)	82 (16.4)	1 (0.2)	0 (0.0)	0 (0.0)	11 (2.2)	4 (0.8)	4 (0.8)	0 (0.0)	0 (0.0)	76 (15.2)	51 (10.2)	18 (3.6)	1 (0.2)	667 (133.4)
AT05b	228 (45.6)	1,485 (297.0)	1 (0.2)	0 (0.0)	0 (0.0)	89 (17.8)	10 (2.0)	11 (2.2)	0 (0.0)	0 (0.0)	83 (16.6)	17 (3.4)	88 (17.6)	0 (0.0)	2,012 (402.4)

	CP	SP	CP/SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT06a No access															
AT06b	1,245 (311.3)	240 (60.0)	2 (0.5)	0 (0.0)	0 (0.0)	62 (15.5)	13 (3.3)	0 (0.0)	9 (2.3)	0 (0.0)	215 (53.8)	21 (5.3)	48 (12.0)	2 (0.5)	1,857 (464.3)
AT07a	0 (0.0)	73 (14.6)	45 (9.0)	0 (0.0)	0 (0.0)	2 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	27 (5.4)	0 (0.0)	16 (3.2)	100 (20.0)	263 (52.6)
AT07b	427 (106.8)	151 (37.8)	63 (15.8)	0 (0.0)	2 (0.5)	4 (1.0)	2 (0.5)	0 (0.0)	20 (5.0)	2 (0.5)	155 (38.8)	0 (0.0)	10 (2.5)	14 (3.5)	850 (212.5)
AT08a	204 (40.8)	52 (10.4)	9 (1.8)	0 (0.0)	0 (0.0)	7 (1.4)	2 (0.4)	0 (0.0)	6 (1.2)	3 (0.6)	55 (11.0)	8 (1.6)	0 (0.0)	0 (0.0)	346 (69.2)
AT08b	676 (135.2)	796 (159.2)	656 (131.2)	0 (0.0)	0 (0.0)	76 (15.2)	0 (0.0)	0 (0.0)	4,645 (929.0)	6 (1.2)	159 (31.8)	5 (31.8)	0 (0.0)	13 (2.6)	7,032 (1,406.4)
AT09a	709 (263.3)	812 (270.7)	20 (6.7)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.3)	0 (0.0)	0 (0.0)	1 (0.3)	217 (72.3)	0 (0.0)	28 (9.3)	331 (110.3)	2,120 (706.7)
AT09b	1,218 (243.6)	401 (80.2)	81 (16.2)	0 (0.0)	0 (0.0)	3 (0.6)	2 (0.4)	0 (0.0)	0 (0.0)	2 (0.4)	195 (39.0)	0 (0.0)	32 (6.4)	21 (4.2)	1,955 (391.0)
AT10a No access															
AT10b No access															

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-22 Passive monitoring survey results by month (Mean no. of passes per night): September 2021

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	No access														
AT01b	No access														
AT02a	462 (92.4)	727 (145.4)	3 (0.6)	9 (1.8)	0 (0.0)	132 (26.4)	88 (17.6)	0 (0.0)	0 (0.0)	0 (0.0)	57 (11.4)	5 (1.0)	6 (1.2)	0 (0.0)	1,489 (297.8)
AT02b	1,116 (279.0)	898 (224.5)	544 (136.0)	9 (2.3)	34 (8.5)	21 (5.3)	0 (0.0)	0 (0.0)	10 (2.5)	1 (0.3)	27 (6.8)	11 (2.8)	0 (0.0)	1,127 (281.8)	3,798 (949.5)
AT03a	28 (5.6)	389 (77.8)	1 (0.2)	2 (0.4)	0 (0.0)	8 (1.6)	9 (1.8)	0 (0.0)	1 (0.2)	0 (0.0)	41 (8.2)	0 (0.0)	0 (0.0)	0 (0.0)	479 (95.8)
AT03b	11 (11.0)	63 (63.0)	28 (28.0)	0 (0.0)	0 (0.0)	4 (4.0)	25 (25.0)	0 (0.0)	0 (0.0)	0 (0.0)	12 (12.0)	9 (9.0)	1 (1.0)	0 (0.0)	153 (153.0)
AT04a	338 (67.6)	100 (20.0)	0 (0.0)	0 (0.0)	1 (0.2)	11 (2.2)	228 (45.6)	0 (0.0)	0 (0.0)	0 (0.0)	78 (15.6)	23 (4.6)	1 (0.2)	0 (0.0)	780 (156.0)
AT04b	109 (21.8)	58 (11.6)	0 (0.0)	0 (0.0)	1 (0.2)	10 (2.0)	7 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	41 (8.2)	36 (7.2)	22 (4.4)	0 (0.0)	284 (56.8)
AT05a	743 (148.6)	140 (28.0)	8 (1.6)	0 (0.0)	0 (0.0)	26 (5.2)	10 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	160 (32.0)	177 (35.4)	29 (5.8)	0 (0.0)	1,293 (258.6)
AT05b	68 (34.0)	151 (75.5)	15 (7.5)	0 (0.0)	0 (0.0)	88 (44.0)	7 (3.5)	0 (0.0)	2 (1.0)	1 (0.5)	64 (32.0)	18 (9.0)	15 (7.5)	0 (0.0)	429 (214.5)
AT06a	No access														

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT06b	1,830 (366.0)	330 (66.0)	9 (1.8)	1 (2.0)	0 (0.0)	60 (12.0)	10 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	196 (39.2)	61 (12.2)	50 (10.0)	0 (0.0)	2,547 (509.4)
AT07a	0 (0.0)	48 (9.6)	8 (1.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	52 (10.4)	1 (0.2)	19 (3.8)	75 (15.0)	206 (41.2)
AT07b	693 (138.6)	533 (106.6)	477 (95.4)	0 (0.0)	3 (0.6)	3 (0.6)	2 (0.4)	0 (0.0)	2 (0.4)	40 (8.0)	59 (11.8)	0 (0.0)	5 (1.0)	43 (8.6)	1,860 (372.0)
AT08a	563 (112.6)	243 (48.6)	9 (1.8)	0 (0.0)	0 (0.0)	1 (0.2)	2 (0.4)	0 (0.0)	13 (2.6)	4 (0.8)	72 (14.4)	6 (1.2)	0 (0.0)	2 (0.4)	915 (183.0)
AT08b	1,186 (237.2)	1,351 (270.2)	125 (25.0)	1 (0.2)	17 (3.4)	36 (7.2)	0 (0.0)	0 (0.0)	417 (83.4)	0 (0.0)	242 (48.4)	33 (6.6)	119 (23.8)	1,414 (282.8)	4,941 (988.2)
AT09a	520 (104.0)	2,897 (579.4)	17 (3.4)	0 (0.0)	8 (1.6)	5 (1.0)	0 (0.0)	0 (0.0)	3 (0.6)	2 (0.4)	86 (17.2)	2 (0.4)	37 (7.4)	169 (33.8)	3,746 (749.2)
AT09b	108 (27.0)	188 (47.0)	5 (1.3)	0 (0.0)	0 (0.0)	6 (1.5)	1 (0.3)	0 (0.0)	3 (0.8)	0 (0.0)	43 (10.8)	0 (0.0)	7 (1.8)	4 (1.0)	365 (91.3)
At10a	Technical fault														
AT10b	581 (116.2)	845 (169.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	48 (9.6)	0 (0.0)	23 (4.6)	0 (0.0)	1,497 (299.4)

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-23 Passive monitoring survey results by month (Mean no. of passes per night): October 2021

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT01a	10 (2.0)	5 (1.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	15 (3.0)
AT01b	7,617 (1,523.4)	1,122 (224.4)	28 (5.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	965 (193.0)	2 (0.4)	2 (0.4)	0 (0.0)	9,737 (1,947.4)
AT02a	No access														
AT02b	No access														
AT03a	13 (2.6)	24 (4.8)	3 (0.6)	0 (0.0)	0 (0.0)	1 (0.2)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	3 (0.6)	1 (0.2)	49 (9.8)
AT03b	351 (117.3)	460 (153.3)	121 (40.3)	4 (1.3)	0 (0.0)	6 (2.0)	204 (68.0)	0 (0.0)	1 (0.3)	14 (4.7)	105 (35.0)	11 (3.7)	16 (5.3)	13 (4.3)	1,307 (435.7)
AT04a	8 (1.6)	17 (3.4)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	18 (3.6)	5 (1.0)	0 (0.0)	0 (0.0)	50 (10.0)
AT04b	14 (2.8)	12 (2.4)	12 (2.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	21 (4.2)	34 (6.8)	0 (0.0)	0 (0.0)	93 (18.6)
AT05a	1,256 (251.2)	275 (55.0)	191 (38.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	60 (12.0)	82 (16.4)	2 (0.4)	14 (2.8)	1,880 (376.0)
AT05b	No access														
AT06a	3 (0.8)	3 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	8 (2.0)

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT06b	392 (78.4)	602 (120.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	4 (0.8)	1 (0.2)	91 (18.2)	9 (1.8)	6 (1.2)	6 (1.2)	1,111 (222.2)
AT07a	79 (15.8)	255 (51.0)	31 (6.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	570 (114.0)	1 (0.2)	2 (0.4)	21 (4.2)	959 (191.8)
AT07b	229 (45.8)	248 (49.6)	80 (16.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	58 (11.6)	53 (10.6)	2 (0.4)	2 (0.4)	674 (134.8)
AT08a	739 (147.8)	507 (101.4)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	57 (11.4)	3 (0.6)	0 (0.0)	0 (0.0)	1,308 (261.6)
AT08b	4,118 (823.6)	842 (168.4)	53 (10.6)	0 (0.0)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	141 (28.2)	57 (11.4)	28 (5.6)	1 (0.2)	5,243 (1,048.6)
AT09a	169 (33.8)	356 (71.2)	1 (0.2)	0 (0.0)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	1,011 (202.2)	11 (2.2)	3 (0.6)	227 (45.4)	1,780 (356.0)
AT09b	71 (14.2)	1,492 (298.4)	52 (10.4)	1 (0.2)	0 (0.0)	2 (0.4)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	1,431 (286.2)	0 (0.0)	0 (0.0)	3 (0.6)	3,055 (611.0)
AT10a	8 (1.6)	7 (1.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	12 (2.4)	0 (0.0)	1 (0.2)	0 (0.0)	28 (5.6)
AT10b	11 (2.2)	25 (5.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	17 (3.4)	3 (0.6)	0 (0.0)	1 (0.2)	58 (11.6)

[redacted](B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-24 Passive monitoring survey results by month (Mean no. of passes per night): April 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	1 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	9 (4.5)	0 (0.0)	0 (0.0)	0 (0.0)	10 (5.0)
AT10b	10 (2.0)	45 (9.0)	5 (1.0)	0 (0.0)	1 (0.1)	3 (0.6)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	174 (34.8)	0 (0.0)	0 (0.0)	0 (0.0)	238 (47.6)
AT11a	675 (135.0)	19 (3.8)	9 (1.8)	2 (0.4)	2 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	95 19.0)	1 (0.2)	0 (0.0)	4 (0.8)	807 (161.4)
AT11b	141 (28.2)	55 (11.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	6 (1.2)	0 (0.0)	1 (0.2)	1 (0.2)	204 (40.8)

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-25 Passive monitoring survey results by month (Mean no. of passes per night): May 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	167 (33.4)	247 (49.4)	17 (3.4)	0 (0.0)	1 (0.2)	80 (16.0)	0 (0.0.)	0 (0.0.)	44 (8.8)	0 (0.0)	87 (17.4)	4 (0.8)	44 (8.8)	13 (2.6)	704 (140.8)
AT10b	623 (311.5)	327 (163.5)	31 (15.5)	1 (0.5)	0 (0.0)	11 (5.5)	0 (0.0)	0 (0.0)	12 (6.0)	0 (0.0)	615 (307.5)	4 (2.0)	0 (0.0)	2 (1.0)	1,626 (813.0)
AT11a	18,870 (3,774.0)	8,777 (1,755.4)	567 (113.4)	1 (0.2)	7 (1.4)	38 (7.6)	7 (1.4)	0 (0.0)	5 (1.0)	0 (0.0)	4,100 (820.0)	41 (8.2)	3 (0.6)	14 (2.8)	32,430 (6,486.0)
AT11b	896 (179.2)	449 (89.8)	348 (69.6)	0 (0.0)	0 (0.0)	71 (14.2)	23 (4.6)	0 (0.0)	0 (0.0)	0 (0.0)	147 (29.4)	48 (9.6)	16 (3.2)	0 (0.0)	1,998 (399.6)

Table 4-26 Passive monitoring survey results by month (Mean no. of passes per night): June 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	109 (21.8)	187 (37.4)	26 (5.2)	0 (0.0)	0 (0.0)	3 (0.6)	0 (0.0)	0 (0.0)	2 (0.4)	0 (0.0)	77 (15.4)	0 (0.0)	0 (0.0)	6 (1.2)	410 (82.0)
AT10b	1,412 (282.4)	746 (149.2)	147 (29.4)	0 (0.0)	2 (0.4)	42 (8.4)	1 (0.2)	0 (0.0)	6 (1.2)	0 (0.0)	395 (79.0)	1 (0.2)	0 (0.0)	70 (14.0)	2,822 (564.4)
AT11a	No access														
AT11b	No access														

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-27 Passive monitoring survey results by month (Mean no. of passes per night): July 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	51 (10.2)	45 (9.0)	3 (0.6)	0 (0.0)	2 (0.4)	1 (0.2)	2 (0.4)	0 (0.0)	5 (1.0)	0 (0.0)	21 (4.2)	0 (0.0)	0 (0.0)	0 (0.0)	130 (26.0)
AT10b	121 (24.2)	42 (8.4)	198 (39.6)	0 (0.0)	5 (1.0)	4 (0.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	16 (3.2)	0 (0.0)	2 (0.4)	0 (0.0)	388 (77.6)
AT11a	No access														
AT11b	No access														

[redacted] (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-28 Passive monitoring survey results by month (Mean no. of passes per night): August 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	57 (14.3)	75 (18.8)	29 (7.3)	0 (0.0)	0 (0.0)	13 (3.3)	5 (1.3)	0 (0.0)	2 (0.5)	0 (0.0)	31 (7.8)	11 (2.8)	1 (0.3)	0 (0.0)	224 (56.0)
AT10b	Technical fault														
AT11a	5,897 (1,179.4)	2,088 (417.6)	1,728 (245.6)	0 (0.0)	0 (0.0)	51 (10.2)	25 (5.0)	0 (0.0)	0 (0.0)	0 (0.0)	78 (15.6)	18 (3.6)	126 (25.2)	0 (0.0)	10,011 (2,002.2)
AT11b	1,204 (240.8)	119 (23.8)	25 (5.0)	0 (0.0)	0 (0.0)	208 (41.6)	48 (9.6)	32 (6.4)	207 (41.6)	73 (14.6)	105 (21.0)	2 (0.4)	28 (5.6)	59 (11.8)	2,110 (422.0)

[redacted](B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-29 Passive monitoring survey results by month (Mean no. of passes per night): September 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	Technical fault														
AT10b	13 (3.3)	2 (0.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	15 (3.8)
AT11a	238 (47.6)	301 (60.2)	12 (2.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	158 (31.6)	2 (0.4)	5 (1.0)	0 (0.0)	716 (143.2)
AT11b	Technical fault														

Barbastelle (B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

Table 4-30 Passive monitoring survey results by month (Mean no. of passes per night): October 2022

	CP	SP	CP/SP	NP	CP/NP	N	S	L	NSL	NYC	M	B	LE	Bat	Total
AT10a	83 (16.6)	188 (37.6)	10 (2.0)	0 (0.0)	2 (0.4)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1,838 (367.6)	1 (0.2)	18 (3.6)	3 (0.6)	2,143 (428.6)
AT10b	15 (3.0)	26 (5.2)	11 (2.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	95 (19.0)	0 (0.0)	1 (0.2)	1 (0.2)	149 (29.8)
AT11a	1 (0.2)	1 (0.2)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (0.4)
AT11b	42 (8.4)	14 (2.8)	4 (0.8)	0 (0.0)	0 (0.0)	23 (4.6)	0 (0.0)	0 (0.0)	1 (0.2)	0 (0.0)	44 (8.8)	6 (1.2)	42 (8.4)	4 (0.8)	180 (36.0)

[redacted](B), Common pipistrelle (CP), Myotis species (M), Nathusius' pipistrelle (NP), Noctule (N), Leisler's bat (L), Serotine (S), Soprano pipistrelle (SP), Long-eared (LE), Noctule or Leisler's bat (NYC), Bat species (Bat), Daubenton's bat (D).

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4.5 Summary of passive monitoring data

4.5.1 A total of 194,364 bat recordings were made during the passive monitoring survey work including 1,602 in 2020, 127,507 in 2021, and 65,255 in 2022. Between monitoring locations there were large variations in the levels of bat activity recorded. A summary of the passive monitoring records can be seen in **Annex A Figures 22.8.22a to g and 22.8.23a and b**.

4.5.2 Bat activity in 2021 was highest in July 2021 with an average of 6,736.1 recordings per night, and lowest in April 2021 with an average of 41.2 recordings per night. In 2022, bat activity was highest in May 2022 with an average of 7,839.4 recordings per night, and lowest in July 2022 with an average of 103.6 recordings per night.

4.5.3 Results from the Ecobat analysis were largely consistent with the variation in activity recorded across all passive monitoring locations in 2020 and 2021. During 2020, moderate levels (for example bat activity levels consistent when compared with data from Ecobat) of common pipistrelle, soprano pipistrelle, noctule, myotis, barbastelle and long-eared were recorded. However, lower levels (for example bat activity that is lower when compared with data from Ecobat) of Nathusius' pipistrelle, serotine and Leisler's activity were recorded. During 2021, common pipistrelle, soprano pipistrelle, noctule, serotine Leisler', barbastelle and *Myotis* largely moderate to high levels of bat activity were recorded for these species. Whereas for long-eared and Nathusius' pipistrelle largely moderate to low levels of bat activity were recorded for these species. During 2022, bat activity results varied and did not suggest a trend. For example, common pipistrelle, soprano pipistrelle, noctule, Leisler's, Serotine, *Myotis* and long-eared all had low to exceptional levels of bat activity. However, bat activity levels for Nathusius' pipistrelle and barbastelle were largely either high or exceptional during 2022.

4.5.4 A summary of activity recorded by species is provided in **paragraphs 4.5.5 – 4.5.48**.

[redacted]

4.5.5 In 2020, [redacted] was the fifth most frequently recorded bat species, accounting for 6.1 percent of all bat activity recorded. They were recorded at all monitoring locations. The peak in activity for barbastelle was recorded at location AT03, with an average of 7 recording per night. The highest levels of activity were also recorded at AT02, with an average of 4.8 recordings per night. The lowest level of activity was recorded at AT01, with an average of 2.6 recordings per night.

4.5.6 In 2021, [redacted] was the fourth least recorded bat species, accounting for just 1.0 percent of all recordings. This bat species was most frequent during September 2021, with an average of 80.6 recordings per night. There were a lower number of recordings during May 2021, with an average of 0.3 recordings per night. This species was recorded at all monitoring locations except locations AT10a. The highest levels of activity were recorded in location AT05a, where there was an average of 14.8 recordings per night.

4.5.7 In 2022, [redacted] was the third least recorded bat species, accounting for just 0.2 percent of total recordings. This bat species was most frequently recorded in May 2022, with an average of 20.6 recordings per night. The lowest number of

recordings was during June 2022 where they averaged at 0.2 recordings per night. This is excluding their absence in July 2022, which could be a result of land access restrictions. This bat species was recorded at all monitoring locations in 2022.

4.5.8 Potentially of note is that no social calls of [redacted] were recorded at any passive monitoring location throughout the survey period. While the purpose of many bat social calls are largely unknown, social calls are generally considered to be used by bats for attracting a mate and for territorial reasons. Since this species was recorded most frequently in September (for example at the start of the bat mating season) a conclusion from this could be that during monitoring only a single bat was recorded at any one time or that social calls were simply not picked up by the detector.

4.5.9 Across the survey period, [redacted] were rarely recorded within 30 minutes of sunset or sunrise. Locations AT03b, AT07b and AT08b in 2021, and locations AT10a, AT10b, and AT11a in 2022 had passes of this species within 30 minutes of sunset, but never close to sunrise. This suggest there may be roosts nearby, although the bats may not be recorded returning at dawn. However, if the bats had emerged early and had successful foraging, they may be returning to the roosts well before dawn due to changes in insect assemblage which can be affected by weather.

4.5.10 Comparison of Ecobat data in 2021 suggested that across the Study Area activity levels of barbastelle varied according to location. AT01, AT02, AT06, AT07, AT08 and AT09 generally had low to moderate levels of barbastelle activity. Whereas AT03, AT04 and AT05 had moderate to high levels of barbastelle activity. During 2022, AT11 had moderate to exceptional levels of barbastelle activity compared to AT01 with low to high levels of activity.

Common pipistrelle

4.5.11 In 2020, common pipistrelle were the most frequently recorded species, accounting for 34.0 percent of all activity recorded, with a further 0.3 percent classed as soprano / common due to their overlapping call parameters. They were recorded at all three monitoring locations. In contrast to most other species, the peak in activity for common pipistrelle was recorded at location AT02, with an average of 83 recording per night. High levels of activity were also recorded at AT03, with an average of 15.4 recordings per night. The lowest level of activity was recorded at AT01, with an average of 6.2 recordings per night.

4.5.12 In 2021, common pipistrelle remained the most frequently recorded bat species, accounting for 48.3 percent of all activity recorded, with a further 3.5 percent classed as soprano / common due to their overlapping call parameters. Common pipistrelle was recorded at all locations across the Survey Area. Activity was highest, by far, at location AT08b, with an average of 541.9 recordings per night. The lowest levels of activity were recorded at locations AT10a and AT03a, with an average of 0.3 recordings per night at each location. Common pipistrelle activity levels were highest in July 2021, with an average of 3,718.3 recordings per night. The lowest levels of activity were recorded during September 2021, with 1,761.6 recordings per night. This is excluding April and May 2021 due to land access restrictions.

4.5.13 In 2022, common pipistrelle was again the most frequently recorded species, accounting for 50.8 percent of all recorded activity, with a further 5.5 percent classed as soprano / common due to their overlapping call parameters. Common pipistrelle were recorded at all locations across the Survey Area. Activity was highest, by far, at location AT11a, with an average of 1,027.8 files per night. The lowest levels of activity were recorded at location AT10a with an average of 18.0 files per night. Common pipistrelle activity levels were highest in May 2022, with an average of 7,839.4 recordings per night, and the lowers level of activity was recorded during July 2022 with an average of 103.6 recordings per night.

4.5.14 Social calls were recorded for every month except April 2021. These were recorded most frequently in September 2021 (for example mating season) with 504 recordings, and May 2022 (for example when female bats start forming maternity colonies and searching for suitable nurseries) with 5,012 recordings, respectively. The highest social activity was recorded in 2021 at AT08b with 255 recordings, and at AT11a with 5,093 recordings. No social calls were recorded at AT04b, AT10a, and AT10b, suggesting these passive monitoring devices were placed on commuting routes (Runkle *et al*., 2021). Social calls were recorded at AT02 and AT03 in 2020, with the one recording each. No social calls were recorded at AT01.

4.5.15 Across the survey period, common pipistrelle were frequently recorded within 30 minutes of sunset or sunrise. All locations except AT02b, AT04b, and AT10a in 2021 had records of this species within 30 minutes of sunset and sunrise. Where they were observed within 30 minutes of sunrise and sunset this could suggest there may have been roosts nearby, and the bats were returning to them frequently.

4.5.16 Comparison of Ecobat data in 2021 suggested that across the Study Area activity levels of common pipistrelle was moderate to high across all locations (AT01-AT09). Whereas in 2022, common pipistrelle levels were low for AT10 but low to exceptional for AT11.

Soprano pipistrelle

4.5.17 In 2020, soprano pipistrelle were the second most frequently recorded bat species, accounting for 11.0 percent of the total number of recordings; with a further 0.3 percent classed as soprano / common due to their overlapping call parameters. This species was recorded at all three survey locations. The highest level of activity was recorded at AT01, with an average of 11.8 recordings per night; while the lowest levels were recorded at AT03 with an average of 8.4 recordings per night.

4.5.18 In 2021, soprano pipistrelle remained the second most frequently recorded species (after common pipistrelle) and accounted for 25.6 percent of the total number of recordings, with a further 3.5 percent classed as soprano / common due to their overlapping call parameters. They were recorded at all monitoring locations. Soprano pipistrelle activity was highest at locations AT09a, AT08b, and AT06b, with an average of 247.3, 176.1, and 134.1 recordings per night, respectively. Lower levels of soprano pipistrelle activity were recorded at locations AT01b, AT04b, and AT06a with averages of 7.9, 4.9, and 8.2 recordings per night, respectively. Lowest levels of activity were recorded at locations AT10a with an

average of less than one recording per night. Soprano pipistrelle activity levels were highest during July 2021 with an average of 1,485.2 recordings per night, and the lowest activity (excluding April and May 2021) was recorded in June 2021, with 559.8 recordings per night.

4.5.19 In 2022, soprano pipistrelle remained the second most frequently recorded species after common pipistrelle, accounting for 23.6 percent of all recorded activity with a further 5.5 percent classed as soprano / common due to their overlapping call parameters. Soprano pipistrelle activity was highest at monitoring location AT11a, with an average of 448.4 recordings per night. The lowest level of activity was recorded at AT10a, with an average of 28.5 recordings per night. Soprano pipistrelle activity levels were highest during May 2022 with an average of 2,058.1 recordings per night, and the lowest activity (excluding July 2022) was in April 2022, with an average of 23.8 recordings per night.

4.5.20 Social calls were recorded for every month, with the highest number made in September with 3,650 recordings for 2021, and AT11a with 4,018 recordings for 2022. The highest social activity in 2021 was recorded at AT09a, with 2,731 recordings, with the majority of these being recorded in September 2021. The highest in 2022 was in May. This could indicate that the passive monitoring device was placed near a roost or swarming site. No social calls were recorded at AT04a, AT04b, AT10a and AT10b, suggesting these passive monitoring devices were placed on commuting routes. In 2020, social calls were only recorded at AT03, with a single recording in 2020. No social calls were recorded at AT01 or AT02.

4.5.21 Across the survey period, soprano pipistrelle were regularly recorded within 30 minutes of sunset or sunrise. With the exception of locations AT01a, AT01b, AT02a, AT02b and AT10a in 2021; this species was recorded within 30 minutes of sunset and sunrise at every location. Where they were observed within 30 minutes of sunrise and sunset this could suggest there may be roosts nearby.

4.5.22 Comparison of Ecobat data in 2021 suggested that across the Study Area activity levels of soprano pipistrelle was moderate to high across all locations (AT01-AT09). Whereas in 2022, soprano pipistrelle levels were low to moderate for AT10 but low to exceptional for AT11.

Nathusius' pipistrelle

4.5.23 In 2020, Nathusius' pipistrelle accounted for 0.5 percent of all recordings. They were recorded at all three locations, with the highest levels of activity recorded at AT02, with an average of 0.8 recordings per night, and the lowest levels at AT03 with an average of 0.2 recordings per night.

4.5.24 In 2021, Nathusius' pipistrelle bats were recorded with recordings confirmed for this bat species accounting for just 1.4 percent of all recordings. A further 0.2 percent of all recordings were allocated to the species group 'common / Nathusius' pipistrelle, due to overlapping call parameters of these bat species. The observed temporal activity pattern for Nathusius' pipistrelle showed a notable peak in activity levels for this species during September 2021 with an average of 4.9 recordings per night. Levels of activity for this species were much lower during other parts of the year, and at the lowest during June and July 2021 with 1.0 recording per night (excluding April and May 2021). Nathusius' pipistrelle migrate as the weather

changes in autumn, so this could show individuals moving around, from either elsewhere in the UK or abroad. Nathusius' pipistrelle bats were recorded at all locations except AT05a, AT05b, AT06a, AT07b, AT08a, AT10a, and AT10b. The highest level of confirmed Nathusius' pipistrelle activity was recorded at AT02a and AT02b, with an average of less than one recordings per night. Lowest levels of activity were recorded at locations AT01b, AT04b, AT08b, AT09a, and AT09b, each with an average of less than one recording per night.

4.5.25 In 2022, Nathusius' pipistrelle bats accounted for less than 1 percent of all recorded activity. A further 0.1 percent of all recordings were allocated to the species group 'common / Nathusius' pipistrelle, due to overlapping call parameters of these species. Levels of activity were highest in May and April 2022, with an average of 0.7 and 0.4 files per night were recorded, respectively. Nathusius' pipistrelle were not recorded between June and October 2022. This species was only observed at monitoring locations AT10b, with an average of 0.05 recordings per night, and AT11a with 0.1 recordings per night respectively. Nathusius' pipistrelle were absent from AT10a and AT11b throughout the 2022 monitoring period.

4.5.26 No social calls from this species were recorded in 2020 at any of the locations. In 2021, social calls were only recorded in October 2021 at AT03b, with a single recording. No social calls were recorded at any other location. In 2022, social calls were only recorded at AT10a and AT11a, with a single recoding each. No social calls were recorded at any other location.

4.5.27 Across the survey period, Nathusius' pipistrelle were never recorded within 30 minutes of sunset or sunrise. This could suggest there were no roosts nearby.

4.5.28 Comparison of Ecobat data in 2021 suggested that activity levels across the Study Area varied according to location. For example, activity levels of Nathusius' pipistrelle were low to moderate at AT01, AT02, AT03, AT04, AT06 and AT08 but was absent from AT05 and AT07. Whereas in 2022, Nathusius' pipistrelle levels were high to exceptional for AT10 and AT11.

Myotis species

4.5.29 Myotis species were the third most frequently recorded bat species or species group in 2020, accounting for 12.9 percent of all recordings. *Myotis* species were recorded at all monitoring locations, with a clear peak at AT02, where an average of 32 recordings per night were recorded. All other locations recorded an average of less than ten per night.

4.5.30 In 2021, the *Myotis* species group was the fourth most frequently recorded bat species or species group during the passive monitoring survey work, accounting for 3.9 percent of all recordings obtained during the survey period. The highest number of recordings were made in August 2021 with an average of 503.0 recordings per night. Excluding April and May 2021, levels of activity were lowest in June 2021, with an average of 121.1 recordings per night. Myotis species were recorded at all locations across the areas surveyed. The highest levels of activity were recorded at AT09a and AT09b, with an average of 3.7 and 2.6 recordings per night, respectively. The lowest levels of Myotis species activity were recorded at locations AT01a with an average of less than 0.3 recording per night.

4.5.31 In 2022, the *Myotis* species group were the third most frequently recorded bat species or species group, accounting for 17.1 percent of all activity recorded. *Myotis* species were recorded at all monitoring locations, with the most activity recorded at AT11a, where an average of 181.0 recordings per night were recorded. The lowest levels of activity were recorded at AT11b, with an average of 12.9 passes per night. The highest number of recordings were made in May 2022, with an average of 1174.3 passes per night. Excluding July 2022, the lowest levels of activity were recorded during September 2022 with an average of 31.6 passes per night.

4.5.32 Six social calls were recorded in 2020, all at location AT01. In 2021, social calls were only recorded in all months except April and May 2020. The most social calls were recorded in September 2021 with six recordings. The locations with the highest number were AT01b and AT09a with six recordings each. The locations with the lowest social calls were AT05a and AT05b with one recording each. In 2022, social calls were recorded at all locations, with the highest being AT11a with 13 recordings. Social calls were recorded in all months except April (excluding June and July) across years. The most activity was recorded during in May, with 10 recordings containing social calls.

4.5.33 Across the survey period, *Myotis* species were recorded within 90 minutes of sunset or sunrise at all locations. In addition, they were recorded within 30 minutes of sunset and sunrise at all locations except AT01a, AT01b, AT02a, AT04a, AT04b, AT05a and AT10a in 2021. They were more frequently recorded closer to sunrise than sunset. Where they were observed within 90 minutes of sunrise and sunset this could suggest there may have been roosts nearby, and the bats were returning to them frequently.

4.5.34 Comparison of Ecobat data in 2021 suggested that across the Study Area activity levels of *Myotis* species was moderate to high across most locations (AT01-AT09). Whereas in 2022, *Myotis* species levels were low to exceptional for AT10 and AT11.

Noctule / serotine / Leisler's bat

4.5.35 In 2020, noctule, serotine and Leisler's bat were the second most frequently recorded species group, accounting for 32.2 percent of all recordings (3.9 percent confirmed Noctule, 25.9 percent confirmed Serotine, 2.3 percent confirmed Leisler's bats and less than 1 percent classes as *Nyctalus* species). Species from this group were recorded at all monitoring locations except AT03, with a clear peak at AT01 with an average of 78.2 recordings per night (recordings of noctule, serotine and Leisler's bats combined).

4.5.36 In 2021, recordings of noctule, serotine and Leisler's bats combined were the third most recorded species or species group, accounting for 8.8 percent of all recordings obtained during the passive monitoring survey work (1.4 percent confirmed Noctule, 1.4 percent confirmed Serotine, less than 1 percent confirmed Leisler's bats, less than 1 percent *Nyctalus* species, and 4.4 percent NSL species). With recordings of noctule, serotine and Leisler's bats combined, these species were most frequently recorded during August, with an average of 1,086.3 files per night. When April and May 2021 are excluded from the comparison, they were least frequently recorded during June with 74.7 recordings per night.

4.5.37 Confirmed serotine and *Nyctalus* species were recorded at all locations in 2021 except AT10a. The highest levels of confirmed noctule activity were recorded at locations AT06b with an average of 11.8 recordings per night. The lowest levels of confirmed noctule activity were recorded at locations AT01b with an average of less than one recording per night, and AT10a and AT10b where they were not recorded at all.

4.5.38 In 2022, recordings of noctule, serotine and Leisler's bat combined were the fifth most recorded species or species group, accounting for 1.7 percent of all recordings (1.0 percent confirmed Noctule, 0.2 percent confirmed Serotine, 0.05 percent confirmed Leisler's bats, 0.1 percent as *Nyctalus* species, and 0.5 percent as NSL species). They were recorded at all monitoring locations, with the most activity at AT11b, with an average of 29.5 recordings per night (recordings of noctule, serotine and Leisler's bats combined). The lowest levels of activity were recorded at AT10b, with an average of 3.8 recordings per night.

4.5.39 Confirmed serotine and *Nyctalus* species were recorded at all locations in 2022, with the highest levels recorded at AT11b with an average of 17.6 recordings per night. Lowest levels of confirmed noctule activity were recorded at locations AT10b with an average of 0.05 recordings per night. Highest levels of confirmed noctule activity occurred during August 2022, with an average of 55.1 recordings per night. Lowest levels of confirmed noctule activity in September when they were not recorded.

4.5.40 With recordings of noctule, serotine and Leisler's bat combined, social calls were recorded in 2020 only at location AT01, with ten recordings in total. In 2021, social calls were recorded in all months except April and May 2021. The most social calls were recorded in June 2021 with 15 recordings. The locations with the highest number of social calls were AT08b with 22 recordings. The locations with the lowest social calls were AT02b, AT03a, AT04b, and AT07b with one recording each. In 2022, social calls were only recorded in August 2022 at AT11a. No social calls were recorded at other locations.

4.5.41 In 2021, noctule, serotine and Leisler's bat were regularly recorded within 30 minutes of sunset or sunrise. This was noted at all locations except AT01b, AT04b, AT010a, and AT10b. Serotines were recorded during this time at AT02a, AT03a, AT03b, AT04b, AT06a, AT07a, AT07b, and AT08b. Leisler's bat were recorded within this timeframe at AT03b, AT05b, and AT09b. All three species were more frequently recorded closer to sunrise than sunset. This could suggest there may have been roosts nearby, but the bats may not have been returning to them frequently. Alternatively, it could indicate a change in insect density meaning they were returning to roosts well before sunrise. Another explanation could be that the bats were switching their roosting locations. In 2022, noctule, serotine and Leisler's bat were regularly recorded within 30 minutes of sunset or sunrise at all locations, suggesting there may be roosts nearby. Serotine bats were more commonly recorded closer to sunset than sunrise.

4.5.42 Comparison of Ecobat data in 2021 suggested that activity levels across the Study Area varied according to location. For example, activity levels of noctule, serotine and Leisler's bat were moderate to high at AT02, AT03, AT05, AT07 and AT08, low to moderate for AT09 but absent from AT01, AT04 and AT06. Whereas in

2022, noctule, serotine and Leisler's bat activity levels were low to moderate for AT10 and low to exceptional for AT11.

Plecotus species

4.5.43 *Plecotus* species were rarely recorded during the 2020 passive monitoring surveys. They were recorded in low numbers at AT01 and AT03 but were not recorded at AT03. AT01 was the peak of activity, with an average of 8.2 recordings per night. All monitoring locations had averages of less than 10 recordings per night.

4.5.44 In 2021, *Plecotus* species were regularly recorded during the passive monitoring surveys. Recordings of this species group accounted for just 1.2 percent of all recordings. This species group was recorded at all monitoring locations in 2021. The highest levels of activity by far were recorded in location AT08b, where there was an average of 23.7 recordings per night. *Plecotus* species were most frequently recorded during July with an average of 109.9 recordings per night. Excluding April and May *2021*, *Plecotus* species had the lowest number of recordings during October 2021 with an average of 13.7 recordings per night.

4.5.45 In 2022, *Plecotus* species were rarely recorded during the passive monitoring surveys. Recordings of this species group accounted for just 0.5 percent of all recordings. *Plecotus* species were recorded at all monitoring locations, but most frequently recorded at AT11a, with an average of 5.4 recordings per night. The lowest activity levels were recorded at AT10b, with 0.1 recording per night. This species group had the highest activity levels during August 2022, with an average of 31.1 recordings per night. Excluding June and July 2022 from the comparison, the lowest activity levels were seen during April 2022, with an average of 0.2 recordings per night.

4.5.46 Social calls were recorded at AT01 and AT02 in 2020. The highest was at AT01 with 23 calls, while AT02 had a total of two social calls recorded. No social calls of *Plecotus* species were recorded at any passive monitoring location in 2021. In 2022, a single social call was recorded at AT11a in August 2022.

4.5.47 Across the survey period, *Plecotus* species were frequently recorded within one 90 minutes of sunset or sunrise. This occurred in 2021 at all locations except AT01a. Locations that recorded them within 30 minutes of sunset and sunrise were AT02a, AT03a, AT03b, AT06a, AT06b, AT07a, AT08a, AT08b, and AT09a. They were more frequently recorded closer to sunrise than sunset. In 2022, this trend continued with all locations having *Plecotus* species frequently recorded within one 90 minutes of sunset or sunrise. They were more frequently recorded closer to sunrise than sunset. This could suggest there may have been roosts nearby.

4.5.48 Comparison of Ecobat data in 2021 suggested that activity levels across the Study Area varied according to location. For example, activity levels of *Plecotus* species were low to moderate for AT01-AT04 and AT08 but were moderate to high for AT06- AT07. Whereas in 2022, *Plecotus* species activity levels were low to moderate for AT10 and low to exceptional for AT11.

5. Summary

5.1.1 The surveys undertaken to date confirm the presence on-site of habitats suitable to support bat roosting, commuting and foraging bats.

5.1.2 During the manual transects and passive monitoring surveys completed during 2020, 2021 and 2022 at least nine species of bat were confirmed to be using the proposed DCO Order Limits.

5.1.3 During the manual transects completed in 2020, AT01 recorded the highest number of average bat passes per hour, during 2021 AT08 recorded the highest number of average bat passes per hour and during 2022 AT11 recorded the highest number of bat passes per hour. Similar trends were also recorded for the passive monitoring survey, during 2020 AT02 recorded the highest number of mean number of files per night, during 2021 AT08b recorded the highest number of mean number of files per night and during 2022 AT11a recorded the highest number of mean number of files per night.

5.1.4 Common pipistrelle bats were by far the most frequently recorded bat species during passive monitoring (49.8 percent of all bat passes recorded) with soprano pipistrelle the second most frequent accounting for 25.0 percent of all recorded bat activity. During manual transect surveys, common pipistrelle bats were also the most frequently recorded bat species (61 percent of all bat passes recorded), with soprano pipistrelle and *Myotis* species accounting for 23 percent and 7.8 percent respectively.

5.1.5 The greatest levels of bat activity were recorded at locations that incorporated woodland or woodland edge habitat, water bodies, hedgerows and tree lines (for instance AT08b, AT06b, AT09a, and 11a).

5.1.6 For an indication of relative activity levels, heat maps showing bat calls recorded during manual surveys of AT01, AT02, AT05, AT06 and AT09 are shown in **Annex A, Figures 22.8.24 to 22.8.28**.

5.1.7 Overall, much lower levels of bat activity were found in the more open or arable habitats. In 2021, AT10a had the lowest levels of bat activity overall, less than 2 percent of the level of calls recorded. Similarly, AT01a which is located mainly within arable land, had low activity levels of activity in all months; and AT01b, another passive monitoring location within arable land, was around mid-range for bat activity across all the passive monitoring locations. In 2022, AT10a continued to have the lowest levels of activity overall, accounting for 5.5 percent of all calls recorded. Although these transects broadly cover open arable land, higher bat activity levels were recorded along the edge of the mixed shelter belt.

5.1.8 **Table 5-1** provides the percentage of bat passes recorded during all surveys and **Table 5-2** provides a summary of the bat species recorded within, or potentially occurring within, the Study Area and a summary of the data that support this assessment.

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Table 5-1 Percentage (%) of bat passes recorded during all surveys

Survey type	CP	SP	CP/SP	NP	CP/ NP	N	S	L	NSL	NYC	M	B	LE
Bat activity: manual transects	61	23	3	0	0	0.6	1.3	0.04	0.4	0.1	7.8	0.7	1.5
Bat activity: passive monitoring	49.8	25.0	4.1	0.03	0.1	1.3	1.3	0.1	4.0	0.2	9.8	0.8	0.9

Table 5-2 Summary of bat species recorded within/potentially occurring within the Study Area

Species	Contextual and desk study information[6]	Roosting status within the Study Area[7]	Activity recorded on the Site
Common pipistrelle	British population estimate is 3,040,000; widespread across England. 330 records of this species were returned from the desk study (not including roost records).	**Confirmed roosting in the Study Area. 15 common pipistrelles were observed to emerge from weather boarding at the south-east elevation of farmhouse (TQ22875 21328) at AT09 on 29/07/2021. Two common pipistrelles were observed to**	Common pipistrelle were recorded utilising the Study Area for foraging and commuting purposes. This species was the most recorded species overall, accounting for approximately 34.0% of all passes recorded in 2020, 48.3% in 2021, and 50.8% in 2022. This species was recorded at all passive monitoring locations throughout the survey period. Moderate to high levels of common pipistrelle activity was recorded at the following habitat types, tree and hedge lines, water courses and other

[6] National population estimates taken from: Matthews *et al*. (2018).
[7] Roost conservation significance taken from: Mitchell-Jones (2004).

Species	Contextual and desk study information[6]	Roosting status within the Study Area[7]	Activity recorded on the Site
	45 roost records between 2013-2022 adjacent to the proposed DCO Order Limits.	**emerge from shed roof (TQ03637 06619) on 27/10/2021.** Common pipistrelle was regularly recorded within 30 minutes of sunset or sunrise suggesting bats are roosting within close proximity to the proposed DCO Order Limits and are using the Study Area as their first foraging resource.	waterbodies The features were mostly well connected to the surrounding landscape via linked watercourses, hedgerows, woodland blocks and treelines. These locations were surrounded by arable, calcareous, improved, semi-improved and poor semi-improved grassland.
Soprano pipistrelle	British population estimate is 4,670,000; widespread across England. 298 records of this species were returned from the desk study (not including roost records). 45 roost records between 2013-2022 located 0.2km south from the proposed DCO Order Limits.	Soprano pipistrelle was regularly recorded within 30 minutes of sunset or sunrise suggesting bats are roosting within close proximity to the proposed DCO Order Limits and are using the Study Area as their first foraging resource.	Soprano pipistrelle were the second most frequently recorded species within the Study Area in terms of foraging and commuting activity and accounted for approximately 11.0% of all passes recorded in 2020, 25.6% in 2021, and 23.6% in 2022. This species was recorded at all locations throughout the study period. Moderate to high levels of soprano pipistrelle activity was recorded at the following habitat types; watercourses and other waterbodies, semi-natural deciduous treelines, ancient semi-natural, semi-natural and planted deciduous woodland. The locations were mostly well connected to the surrounding landscape via linked watercourses, hedgerows, woodland blocks and treelines. These locations were surrounded by calcareous, semi-improved, poor semi-improved grassland and arable habitat.

Species	Contextual and desk study information[6]	Roosting status within the Study Area[7]	Activity recorded on the Site
Nathusius' pipistrelle	British population estimate not available; widespread across the south-east of England, although known distribution elsewhere in the country is patchy. 298 records of this species were returned from the desk study (no records of roosts).	Nathusius' pipistrelle was not recorded within 30 minutes of sunset or sunrise suggesting these bats are commuting to the habitats along the transects to forage.	Nathusius' pipistrelle were occasionally recorded within the Study Area. They accounted for approximately 0.5% of all bat activity recorded in 2020, 1.4% in 2021, and 1% in 2022. This species was recorded in over half of the transect routes in 2021 and all locations in 2020. This can again be explained by the addition of more transects in subsequent years. The majority of Nathusius' pipistrelle activity was associated with semi-natural deciduous tree lines and species poor hedgerows, surrounded by arable, semi-improved, and calcareous fields that had good connectivity through woodland blocks, treelines, and linked hedgerows. AT02b had connection to the River Arun via ditches and watercourses, as well as a woodland nearby (<440 m south).
Long-eared bat	British population estimate is 934,000; widespread across England. 283 records of this species were returned from the desk study (not including roost records). 42 roost records between 2013-2022 located 0.5km south from the proposed DCO Order Limits.	Long-eared was recorded within one hour of sunset or sunrise a total of two times, suggesting that long eared are roosting within close proximity to the Site.	*Plecotus* species were recorded occasionally within the Study Area, accounting for approximately 2.0% of all bat activity in 2020, 1.2% in 2021, and 0.5% in 2022. This species was recorded at all passive monitoring locations in 2020 except AT03, and all locations in 2021 and 2022. They were recorded mostly in habitats where the passive detector was placed along hedgerows or a woodland edge. Such locations tended to be surrounded by semi-improved grassland and arable fields, with multiple connections to the wider landscape through hedgerows and treelines to nearby woodland blocks. Moderate *Plecotus* activity was associated with watercourses that connected to the wider landscape.

Species	Contextual and desk study information[6]	Roosting status within the Study Area[7]	Activity recorded on the Site
Myotis bat	103 records of these species were returned from the desk study (not including roost records). Four roost records between 2013-2022 located 2km north-east from the proposed DCO Order Limits.	Myotis was recorded within one hour of sunset or sunrise suggesting this species may be roosting extremely close to Site.	Myotis species were recorded frequently within the Study Area, accounting for approximately 7.9% of all bat activity in 2021, 2.9% in 2020, and 17.1% in 2022. This species was recorded at all locations throughout the survey period. Myotis species were recorded along well-connected hedgerows and in woodlands far more than in open habitats. These habitats were connected to the wider landscape via treelines and hedgerows, surrounded by improved or semi-improved and arable fields. Two of the monitoring locations within the moderate to high percentile, AT02a and AT09b in 2021; were closely associated with streams that lead to further connections to the wider landscape.
[redacted]	British population estimate is not available; English population estimate is 5,000; in patchy areas across southern England. 74 records of this species were returned from the desk study (not including roost records). Four roost records between 2013-2022 located 2.4km north-west from the proposed DCO Order Limits.	[redacted] was recorded within 30 minutes of sunset or sunrise.	[redacted] were recorded rarely but with regular occurrence within the Study Area, accounting for approximately 6.1% of all bat activity in 2020, 1% in 2021, and 0.2% in 2022. They were recorded at all passive monitoring locations except AT10a in 2021, and all locations in 2020. The higher percentage in 2020 is a result of [redacted] bats appearing on all three transects surveyed that year, and when further transects were included the following years the percentages were comparably lower compared to the new total of all bat calls recorded. Moderate to high levels of Barbastelle activity was recorded at the following habitat types; semi-natural deciduous treelines, species poor intact and species poor defunct hedgerows, ancient semi-natural, semi-natural and plantation deciduous woodland. These

Species	Contextual and desk study information[6]	Roosting status within the Study Area[7]	Activity recorded on the Site
			locations were well connected to nearby (<350m) woodland blocks (of ancient semi-natural and semi-natural deciduous woodland) via treelines, intact hedgerows, linear woodland blocks. These locations were surrounded by calcareous, semi-improved, poor semi-improved grassland and arable habitat
Noctule	British population estimate is not available; English population estimate is 565,000; widespread across most of England. 105 records of this species were returned from the desk study (not including roost records). three roost records between 2013-2022 located 0.2km north from the proposed DCO Order Limits.	Noctule was recorded within 30 minutes of sunset or sunrise.	Noctule was recorded occasionally within the Study Area over the survey period. This species accounted for approximately 4.3% of all bat activity in 2020, 1.4% in 2021, and 1.0% in 2022. They were recorded at all locations except AT03 in 2020, and AT10a and AT10b in 2021. Moderate to high levels of Noctule activity were associated with hedgerows, treelines, and woodland edges that connected to the wider landscape, as well as oak-dominated woodlands. All locations were surrounded by semi-improved and arable fields and had woodland blocks nearby. Some locations contained waterbodies with streams that link to similar habitat. The location with the highest overall Noctule activity was AT06b in 2021, which was placed within a semi-natural deciduous treeline that linked to a woodland.
Serotine	British population estimate is 136,000; widespread across southern England. 108 records of this species were returned from the	Serotine was not recorded within 30 minutes of sunset or sunrise.	Serotine were recorded occasionally within the Study Area, accounting for approximately 25.9% of all bat activity in 2020, 1.4% in 2021, and 0.2% in 2022. They were recorded at all locations in 2022 but were not recorded at AT10a and AT10b in 2021. In 2020 they were recorded at AT01 and AT02, but not at AT03. Serotine

Species	Contextual and desk study information[6]	Roosting status within the Study Area[7]	Activity recorded on the Site
	desk study (not including roost records). 15 roost records between 2013-2019 located 0.2km north from the proposed DCO Order Limits.		activity was mostly associated with treelines, woodland edges, and oak-dominated woodland; connected to the wider landscape through hedgerows and treelines, with woodland blocks close by. In 2021 monitoring location AT02a had moderate to high levels of activity. This location was along a stream which had little connectivity via vegetation but has a watercourse connecting to the Arun River approximately 500m west. There was also moderate Serotine activity at AT01a, a draining ditch linked to the river Arun that was also set within arable fields.
Leisler's bat	British population estimate not available; widespread across parts of southern England and the Midlands, although known distribution is patchy. 13 records of this species were returned from the desk study (no records of roosts)	Leisler's was not recorded within 30 minutes of sunset or sunrise.	Leisler's bat were recorded rarely within the Study Area, accounting for approximately 2.3% of all bat activity recorded in 2020, 0.1% in 2021, and 1.0% in 2022. This species was recorded at all locations in 2020 except AT03. They were recorded at locations AT01a, AT02a, AT03a, AT03b, AT04a, AT04b, AT05a, AT05b, AT06a, AT06b, and AT09b in 2021. They were recorded only at AT11b in 2022. The monitoring locations with the most Leisler's bat activity were associated with treelines and a plantation woodland, surrounded by arable and semi-improved grassland with good connectivity to the surrounding landscape linked by treelines and hedgerows.

6. Glossary of terms and abbreviations

Term	Definition
B	Barbastelle
CP	Common pipistrelle
CP/NP	Common/Nathusius' pipistrelle
CSZ	Core Sustenance Zone
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
L	Leisler's bat
LE	Plecotus sp
MAGIC	Multi Agency Geographic Information for the Countryside
MAVES	Mid Arun Valley Ecological Survey
MLWS	Mean Low Water Springs
M	Myotis sp
NBN	National Biodiversity Network
N	Noctule
OS	Ordinance Survey
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PRoW	Public Right of Way
RED	Rampion Extension Development Limited
SAC	Species Area of Conservation
S	Serotine
SDNPA	South Downs National Park Authority
SP	Soprano pipistrelle

Term	Definition
SI	Suitability Index
SxBRC	Sussex Biological Records Centre

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Annex A
Figures

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Key

Proposed DCO Order Limits

Kilometres
0 0.475 0.95 1.9 2.85 3.8

1:85,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

22.8.1 Site plan

Passive and active bat activity report

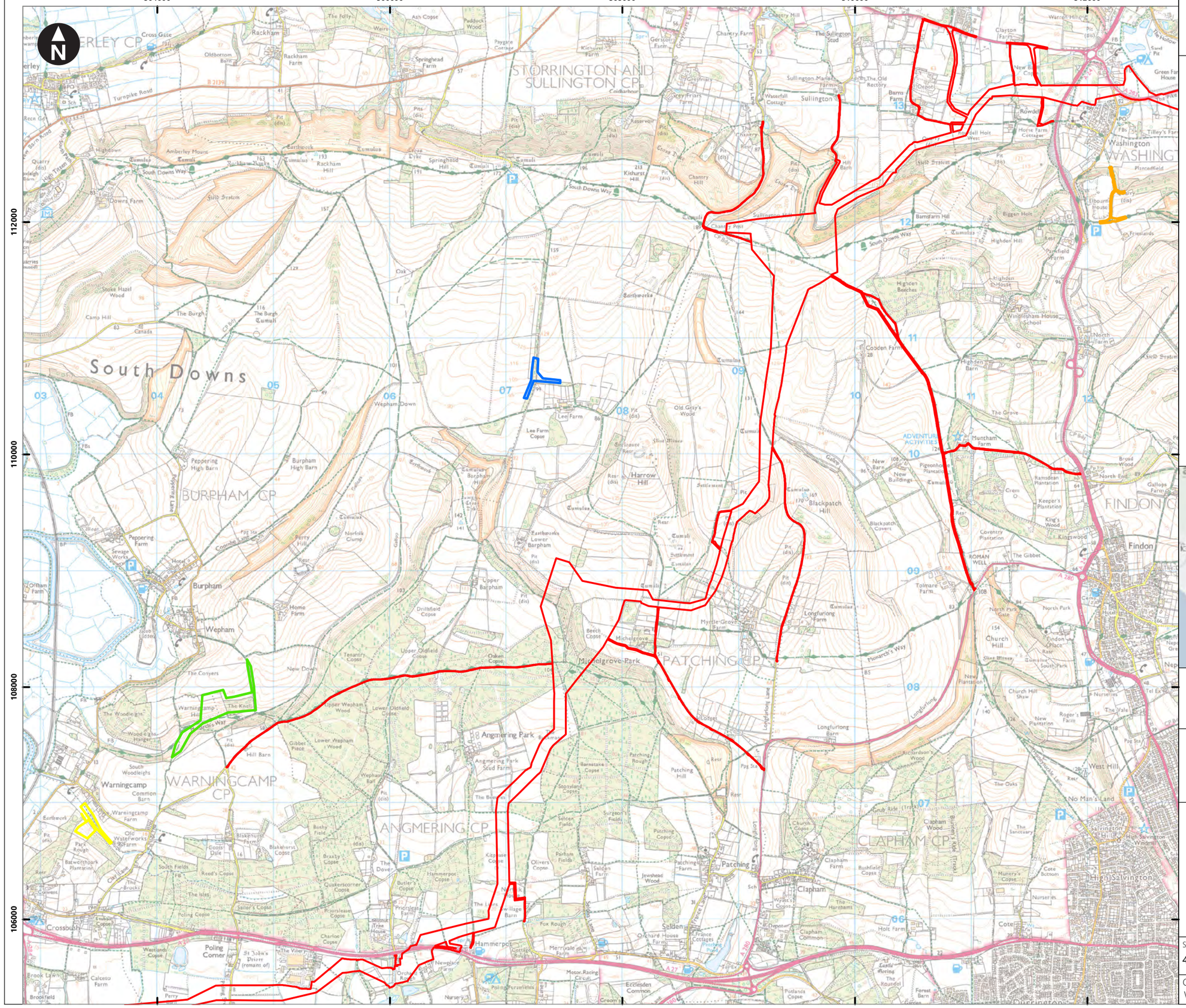
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9534	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL

504000 506000 508000 510000 512000

112000 110000 108000 106000



Service Layer Credits: Contains OS data © Crown Copyright and database right 2020

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Key

- Proposed DCO Order Limits
- AT01 transect
- AT02 transect
- AT03 transect
- AT04 transect

Kilometres
0 5 10 20 30 40

1:910,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.2 Manual transect routes 2020

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8308				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

504000 510000 516000 522000

120000 115000 110000 105000 100000

N

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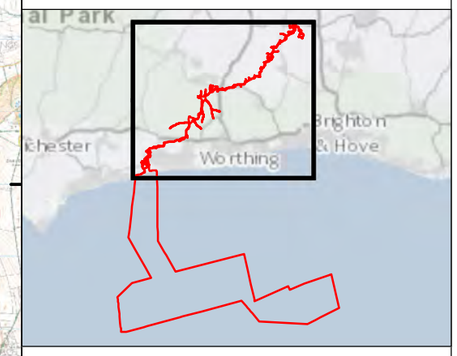
Key

- Proposed DCO Order Limits
- AT01
- AT02
- AT03
- AT04
- AT05
- AT06
- AT07
- AT08
- AT09



Kilometres

0 0.475 0.95 1.9 2.85 3.8

1:85,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.3 Manual transect routes 2021

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-3600	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

104000

502000

Brook Barn Farm

Court Wick Park

ehampton

unction

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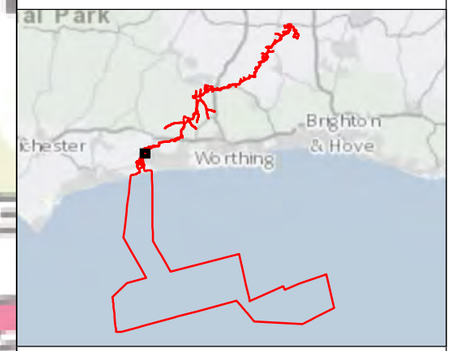
Key

- Proposed DCO Order Limits
- AT02 version 1
- AT02 version 2



Kilometres

0 0.015 0.03 0.06 0.09 0.12

1:3,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.4 AT02 amendments

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1579				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

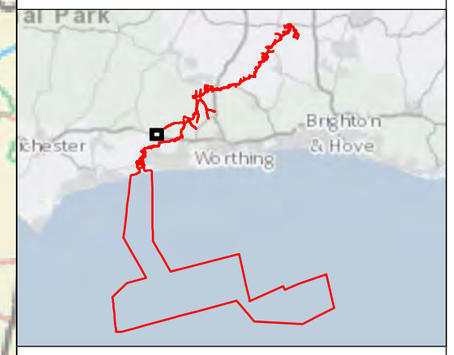
504000

106000

Earthwork
Pit (dis)
Park Rough
Batworthpark Plantation
Warningcamp Farm
Old Waterworks Farm
Clay Lane
The Brocks
Convent
Stubbs Copse
Motel
Crossbush
Resr

Key

- Proposed DCO Order Limits
- AT03 version 1
- AT03 version 2
- Common pipistrelle roost



Kilometres
0 5 10 20 30 40

1:910,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.5 AT03 amendments

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-2255				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

516000

114000

N

W

38

30

39

Spithandle Lane

Spithandle Rough

35

Fair Oak Farm

Guessgate Farm

45

33

Upper Buncton House

Loves Rough

Sellier's Barn

45

50

Cherrytree Rough

Buncton

Buncton Manor Farm

51

The Falconers

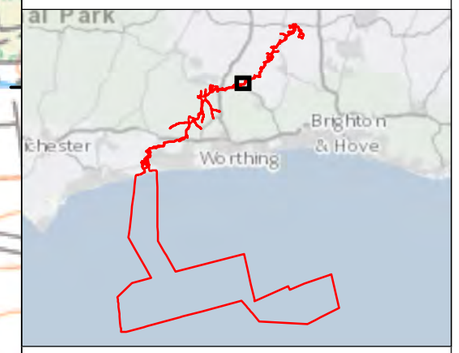
55

Model Cottages

Horsebrook Cottage

Key

- Proposed DCO Order Limits
- AT05 version 1
- AT05 version 2
- AT05 version 3
- Pipistrelle species roost



Kilometres

0 0.03250.065 0.13 0.195 0.26

1:6,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.6 AT05 amendments

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-3000				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

524000

122000

N

Red House

Nyeshill Farm

Eastridge Farm

Dawe's Farm

Purvey's Pit

Brooklan Farm

FB

Westridge Place

Coombe House

Old Doctors

Sub Sta

Wineham Lane

Twineham Court Farm

Coombe Farm

Bob Lane

The Gill

CP Bdy

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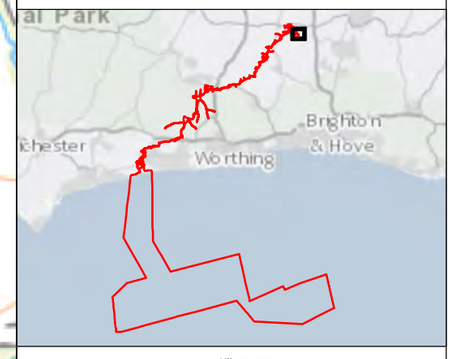
Key

- Proposed DCO Order Limits
- AT07 version 1
- AT07 version 2



Kilometres

0 5 10 20 30 40

1:910,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.7 AT07 amendments

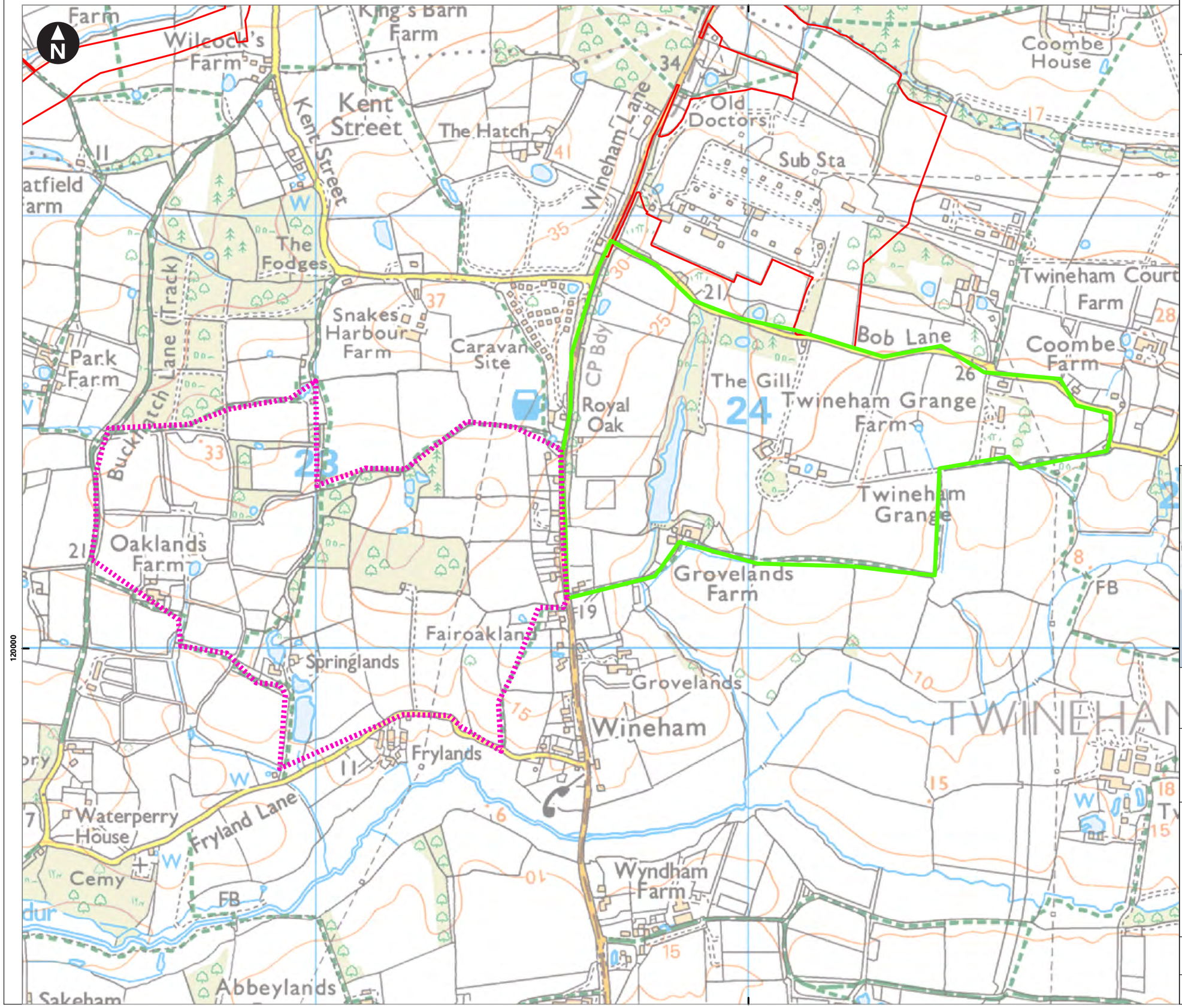
Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-2979				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

524000

120000



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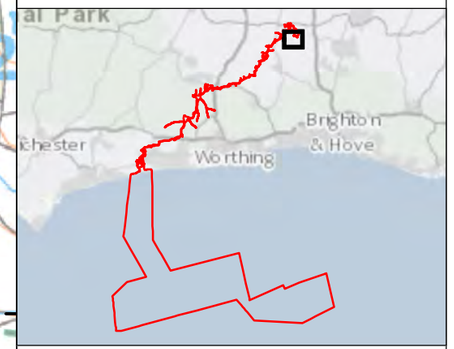
Key

- Proposed DCO Order Limits
- AT08 version 1
- AT08 version 2



Kilometres
0 5 10 20 30 40

1:910,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

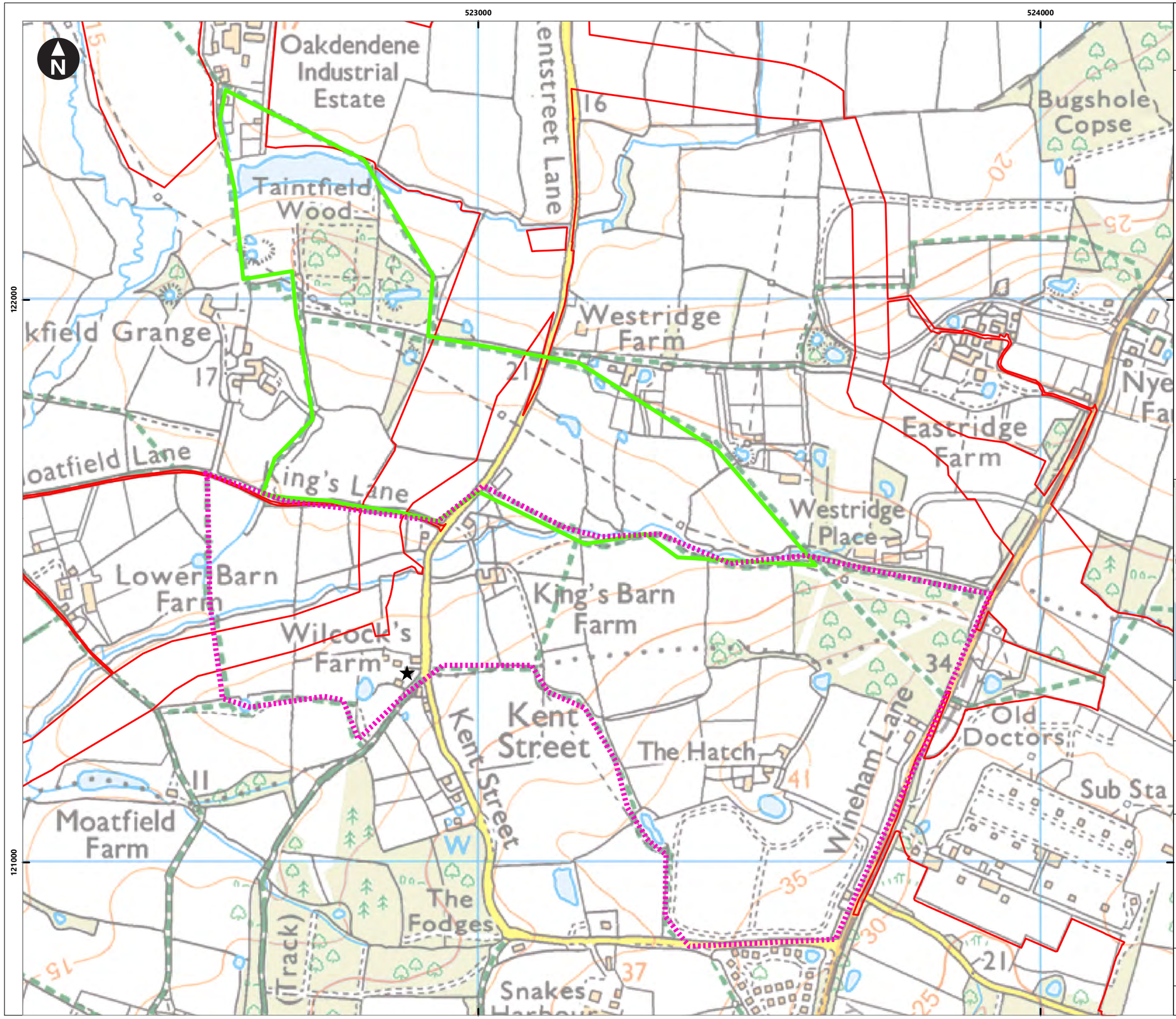
Rampion 2 Offshore Wind Farm

Figure 22.8.8 AT08 amendments

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8966				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL



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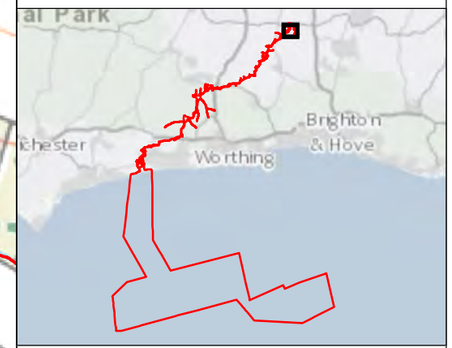
Key

- Proposed DCO Order Limits
- AT09 version 1
- AT09 version 2
- ★ Common pipistrelle roost



Kilometres

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1:6,500

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

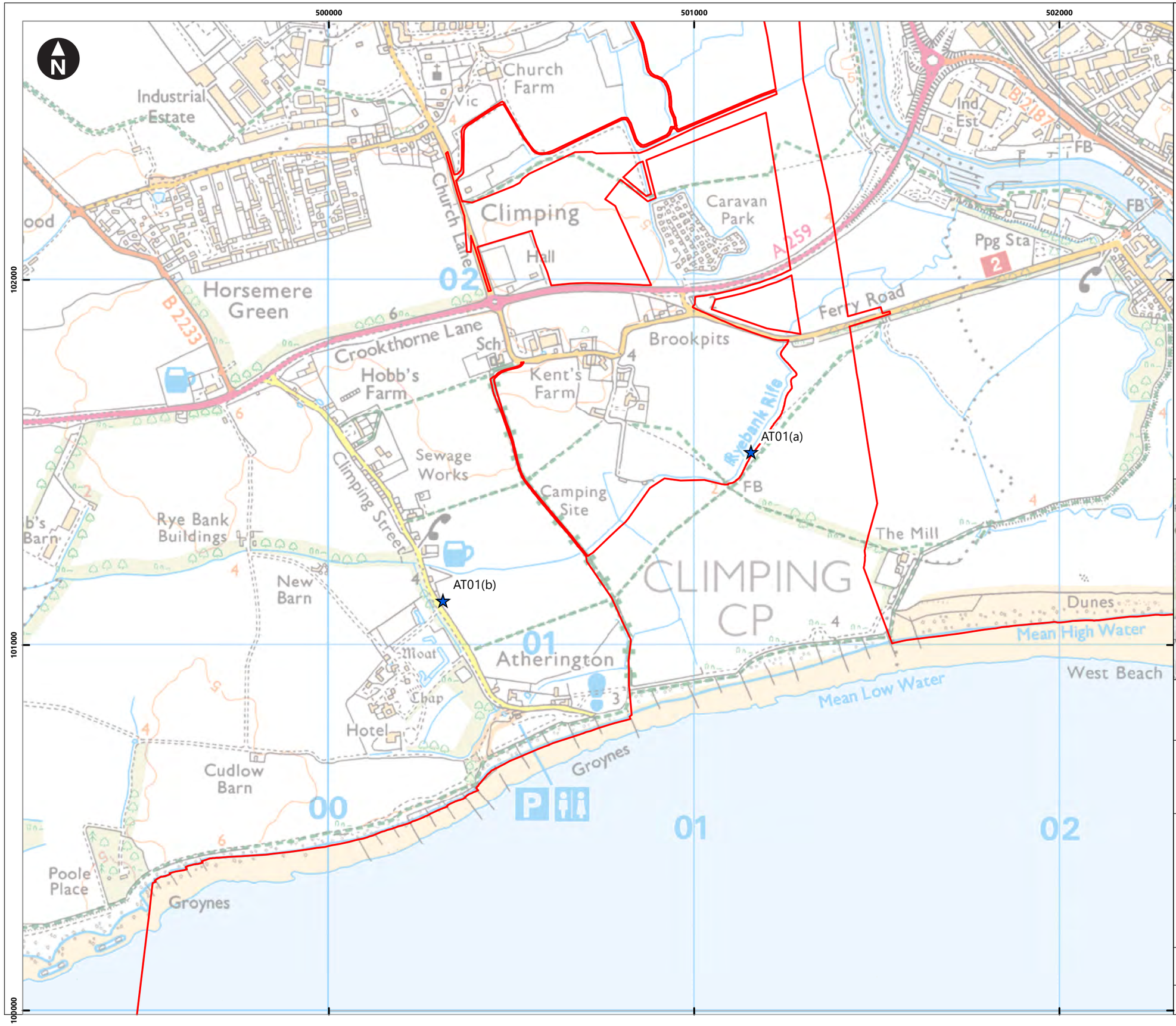
Rampion 2 Offshore Wind Farm

Figure 22.8.9 AT09 amendments

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-5996				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL



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Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)

Kilometres
0 0.05 0.1 0.2 0.3 0.4

1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.10a Bat activity; passive monitoring locations

Passive and active bat activity report

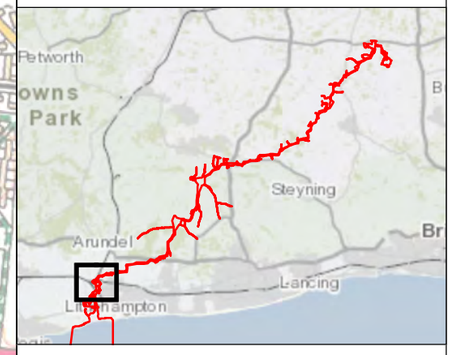
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9294	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)



Kilometres
0 0.05 0.1 0.2 0.3 0.4

1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.10b Bat activity; passive monitoring locations

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-9294				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

503000
504000
505000
108000
107000
106000
N
AT01
AT02
AT03 (a)
AT03 (b)
Wepham
Jacob's Ladder
The Conyers
New Down
Warningcamp Hill
The Knell
Monarch's Way
The Woodleighs
Woodleighs Hanger
Pit (dis)
Hill Barn
Gibbet Piece
Lower
South Woodleighs
Warningcamp
WARNINGCAMP CP
Common Barn
Warningcamp Farm
Earthwork
Old Waterworks Farm
Pit (dis)
Park Rough
Batworthpark Plantation
Resr
Arundel Station
Hotel
Priory Farm
Rems of Priory (Augustinian)
Convent
Motel
Crossbush
Clay Lane
The Brocks
South Fields
Reed's Copse
The Isles
Poling Copse
Stubbs Copse
Goots Dale
Blakehurst Farm
Blakehurst Copse
Bushy Field
Sailor's Copse
RUNDEL
FB
MHW
MHW

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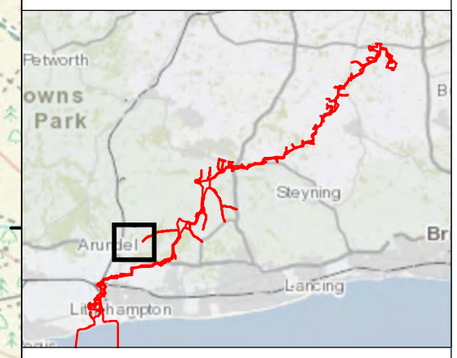
Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)



Kilometres
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

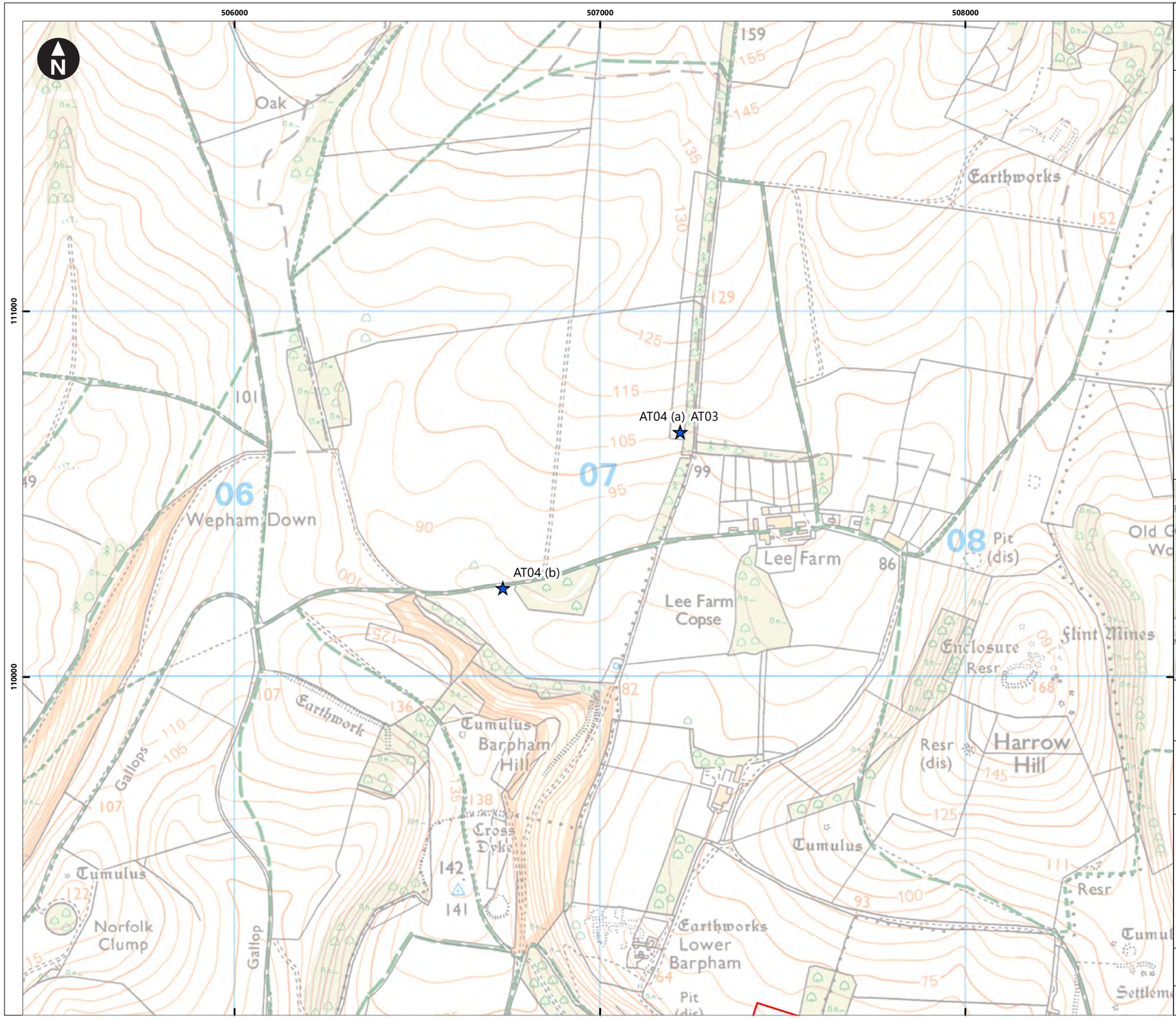
Figure 22.8.10c Bat activity; passive monitoring locations

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9294	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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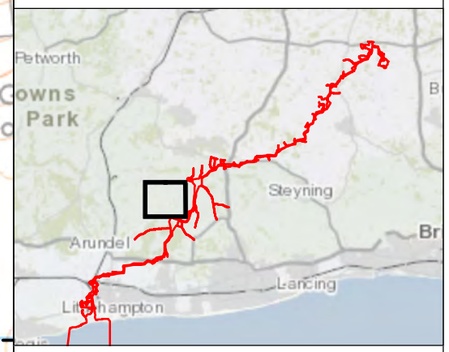
Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)



Kilometres
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1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.10d Bat activity; passive monitoring locations

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9294	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

514000 515000 516000

115000 114000 113000

N

AT05 (b)

AT05 (a)

Little Wood

Sopers

Guesses Farm

Spithand's Nursery

Doves

Hole Street Farm

Spithandle Rough

Spithandle Lane

WISTON CP

Hole Street

Lower Holestreet Barn

Abbot's Farm

Fair Oak Farm

College Wood Farm

Guessgate Farm

Wiston

Upper Buncton House

Loves Rough

Sevier's Barn

Water Lane

New Barn

Cherrytree Rough

Buncton

Moat

Buncton Manor Farm

The Falconers

Wappingthorn

Horsebrook Cottage

Lower Chalcton Farm

Model Cottages

Bushovel Farm

Washington Road

Copyhold Wood

Chanctonbury Ring

Ham Farm

Weppons

Wiston Park

Wiston Pond

Petworth

Downs Park

Steyning

Arundel

Lancing

Littlehampton

Kilometres

0 0.05 0.1 0.2 0.3 0.4

1:10,000

British National Grid Transverse Mercator

Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

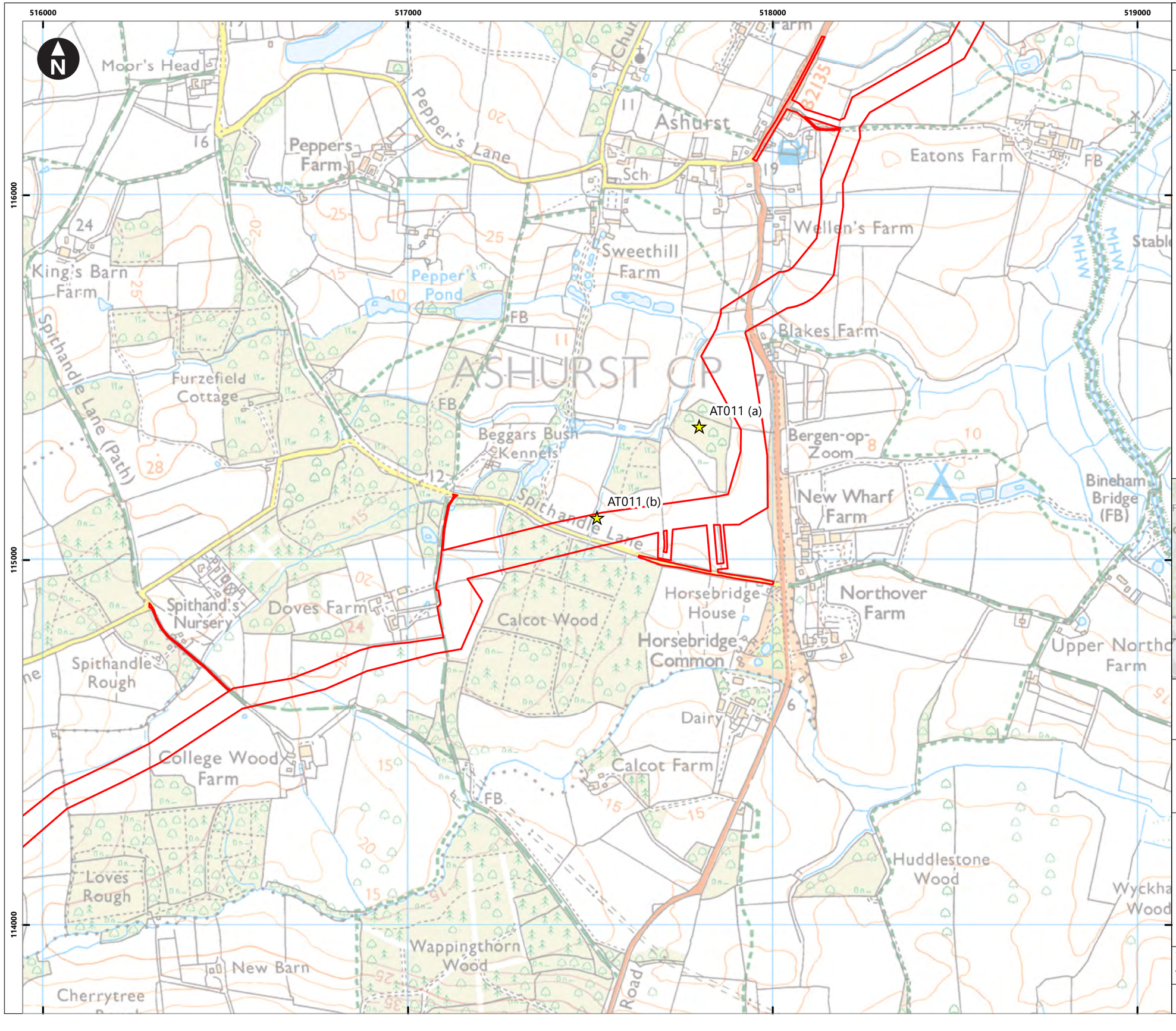
Figure 22.8.10e Bat activity; passive monitoring locations

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9294	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)

Kilometres

0 0.05 0.1 0.2 0.3 0.4

1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.10f Bat activity; passive monitoring locations

Passive and active bat activity report

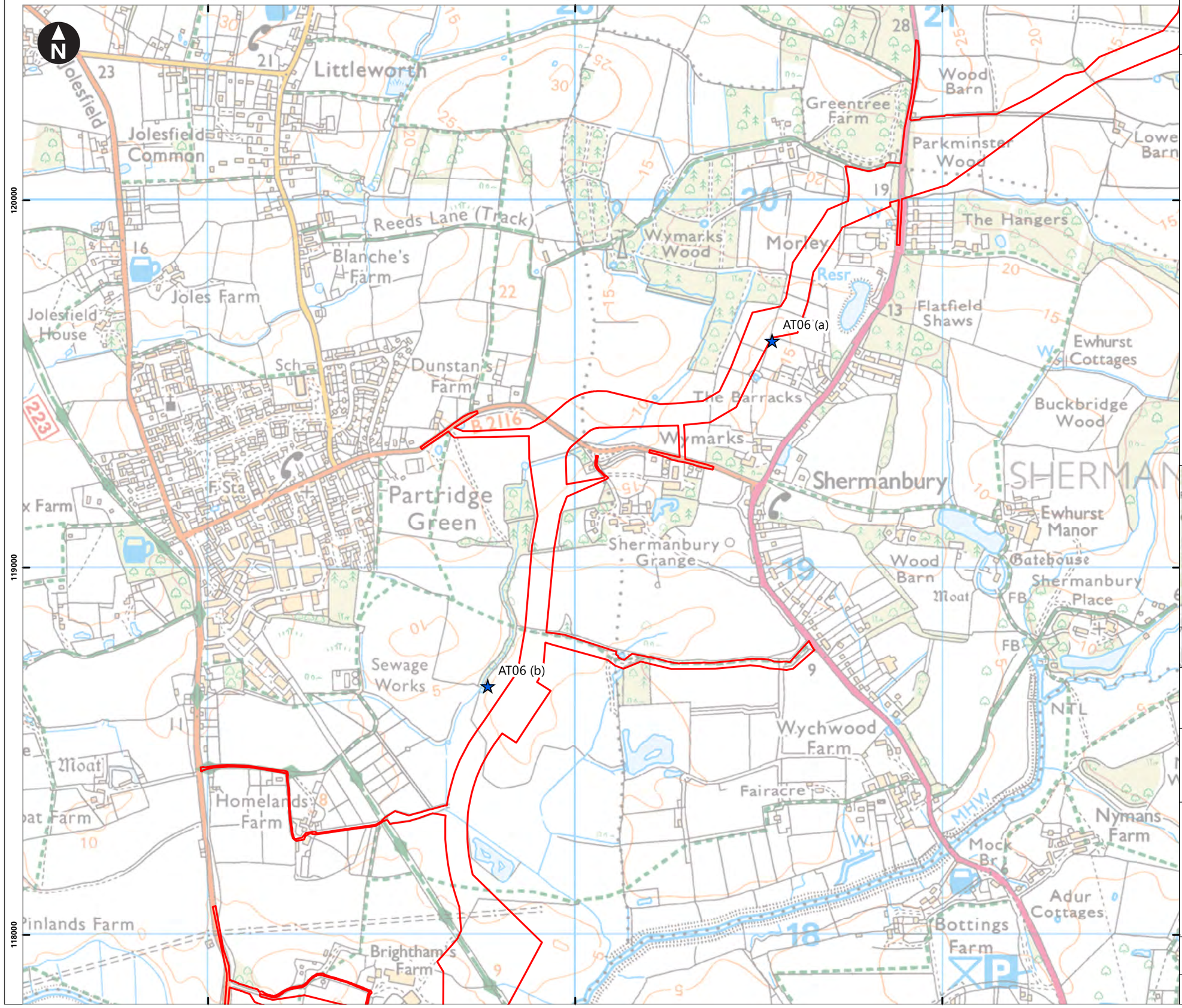
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9294	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

519000 520000 521000

120000 119000 118000



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Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)

Kilometres
0 0.05 0.1 0.2 0.3 0.4

1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.10g Bat activity; passive monitoring locations

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9294	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

Key

- Proposed DCO Order Limits
- Passive monitoring locations 2020
- Passive monitoring locations 2021
- Passive monitoring locations 2022
- Passive monitoring locations 2022 (duplicates to 2021)

Kilometres
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.10h Bat activity; passive monitoring locations

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-9294				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

Key

- Proposed DCO Order Limits
- AT10

Meters
0 20 40 80 120 160
1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.11 AT10 manual transect

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7611				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

518000

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Key

- Proposed DCO Order Limits
- AT11

Meters
0 20 40 80 120 160
1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.12 AT11 manual transect

Passive and active bat activity report

Environmental Statement

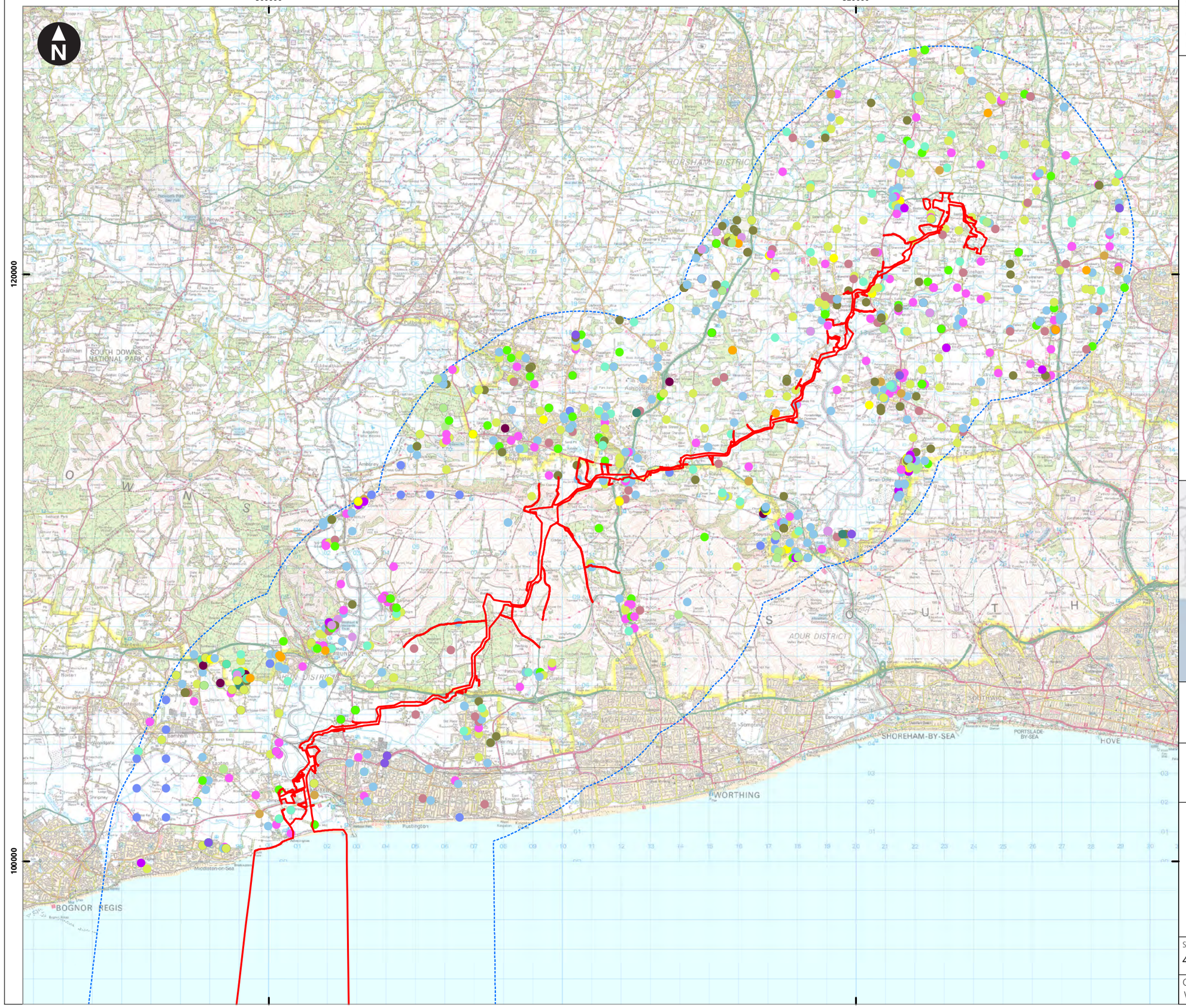
System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8856				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

500000

520000

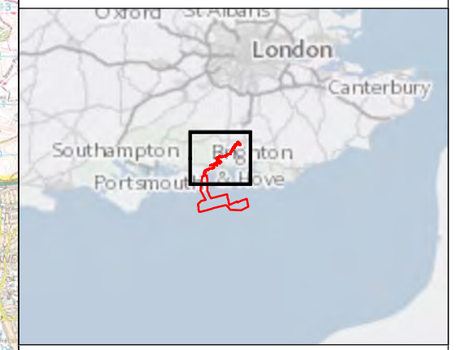
120000

100000



Key

- Proposed DCO Order Limits
- 5km Area of Search for bats
- Alcathoe
- Bat sp.
- [redacted]
- Brandt's Bat
- Brown Long-eared
- Common Pipistrelle
- Daubenton's Bat
- Eptesicus Bat species
- Greater Horseshoe Bat
- Lesser Noctule
- Long-eared sp.
- Myotis Bat
- Nathusius's Pipistrelle
- Natterer's Bat
- Noctule Bat
- Nyctalus Bat species
- Pipistrelle sp.
- Serotine
- Soprano Pipistrelle
- [redacted]
- Whiskered Bat
- Whiskered/Brandt's



Kilometres

0 0.5 1 2 3 4

1:125,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.13 Desk study results

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4950	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

498000 499000 500000

107000 106000

N

West Stubbs Copse
Rough Copse
Earthworks
Goblestubb's Copse
Long Lane
Screens Wood
ARUNDEL CP
Park Farm
Hotel
A27
Garavan Park
Paine's Wood
Scotland Barn
Brickkiln Copse
Winchers Copse
Barn's Copse
Singer's Piece
Earthwork
Old Scotland Lane (Path)
Scotland
Stewards Copse
Sch
Pinewoods
FB
BSs
Pedler's Croft
Binsted Wood
Ash Piece
Church Farm
CHo
Binsted
Binsted Lane
Tortington Common
Avisford Park Golf Club
Priory Farm
Binsted Park
Lake Copse
Manor House
Blacksmith's Corner
Meadow Lodge
New Barn
Walberton Farm
Fairmeads Farm
Oakley Cottages
Slate Barn Farm
Tortington

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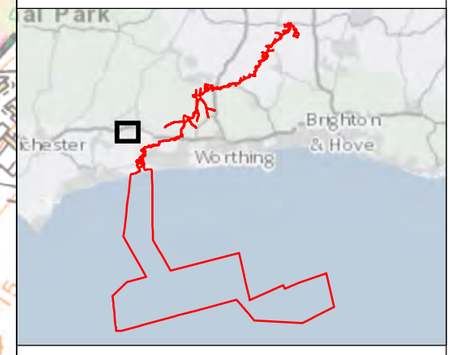
Key

Proposed DCO Order Limits

Species

Alcathoe



Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.14 Binstead Woods MAVES Group 2016, Bat roosts

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-5304				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

500000

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Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland

Kilometres

0 0.05 0.1 0.2 0.3 0.4

1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.15a Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

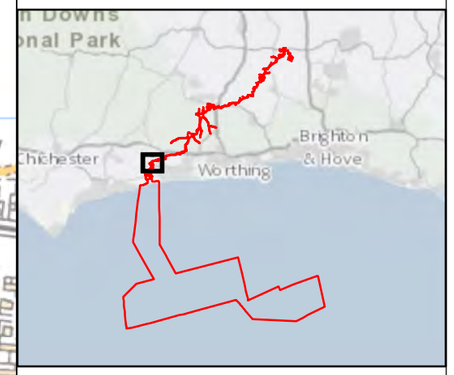
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7630	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL

Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres
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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

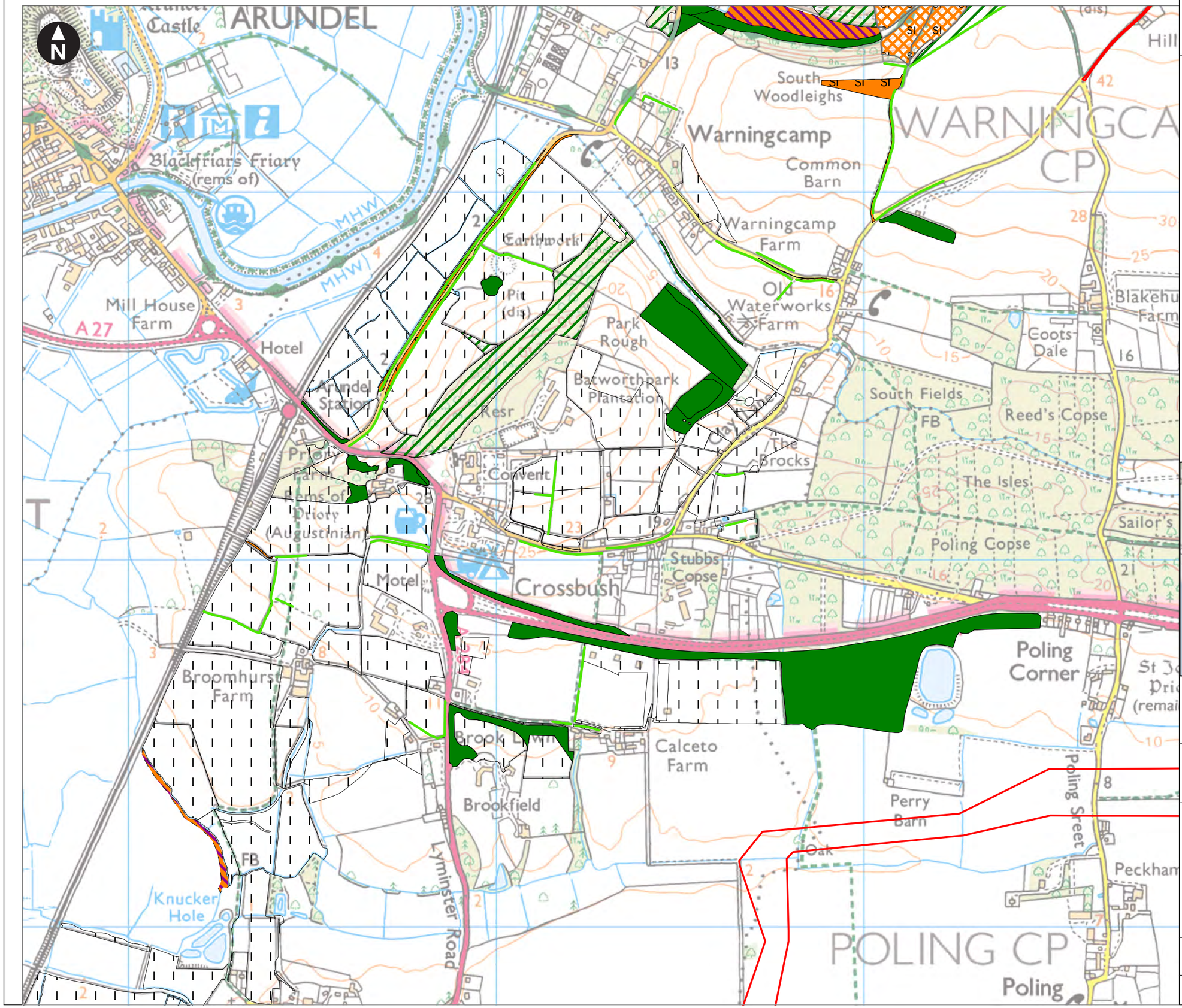
Rampion 2 Offshore Wind Farm

Figure 22.8.15b Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7630				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 31/07/2023	Status: FINAL



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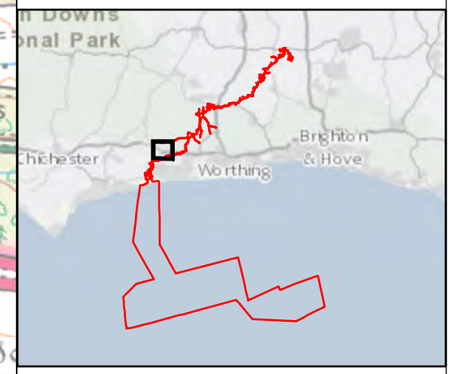
Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres
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British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

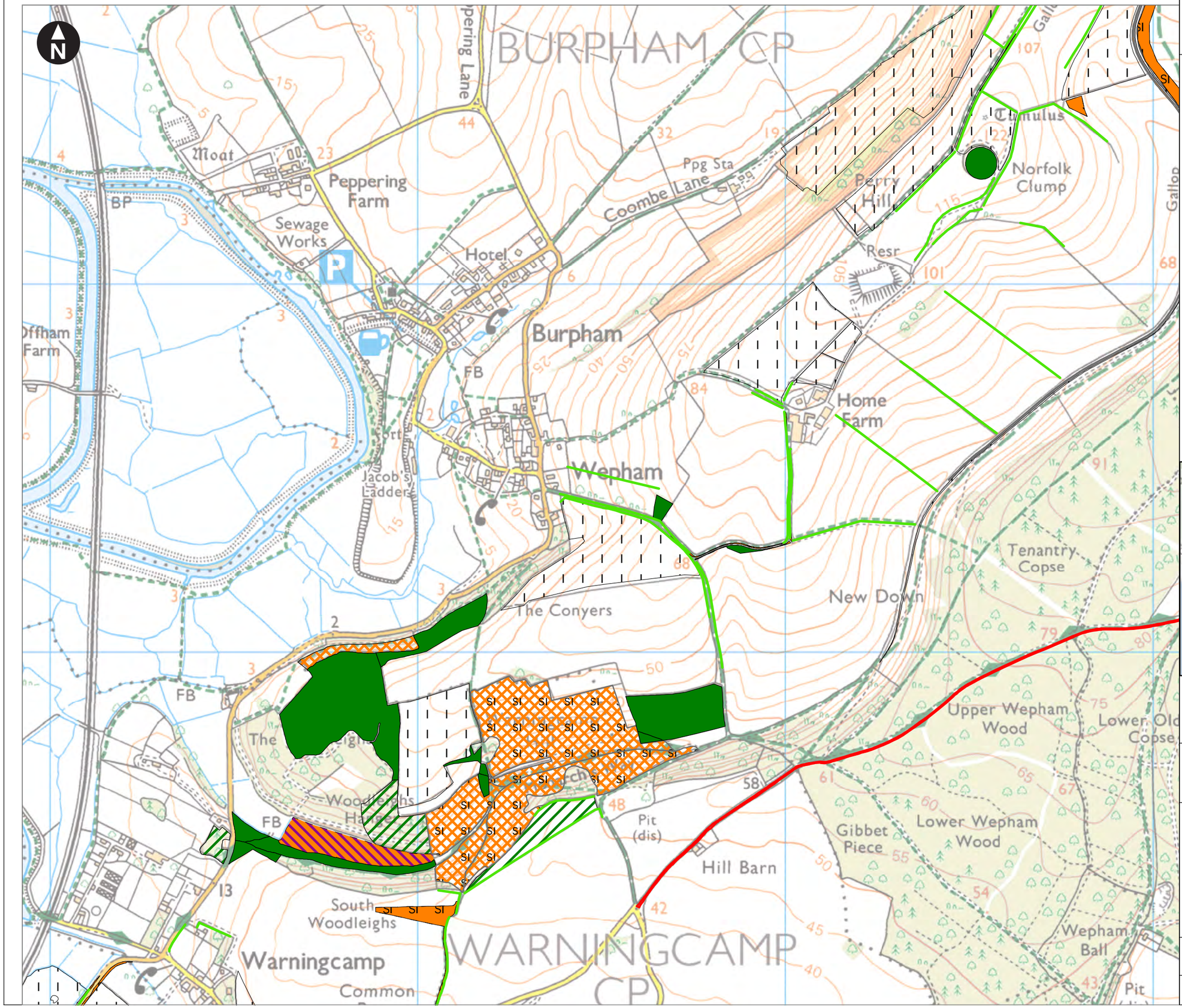
Figure 22.8.15c Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7630	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL



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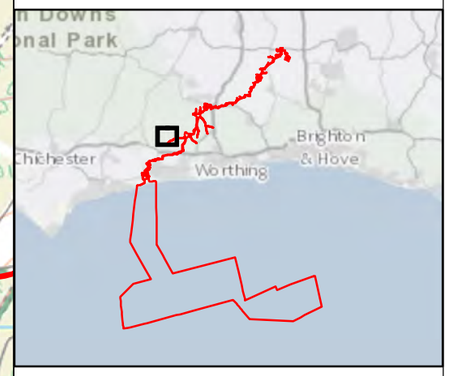
Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres

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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

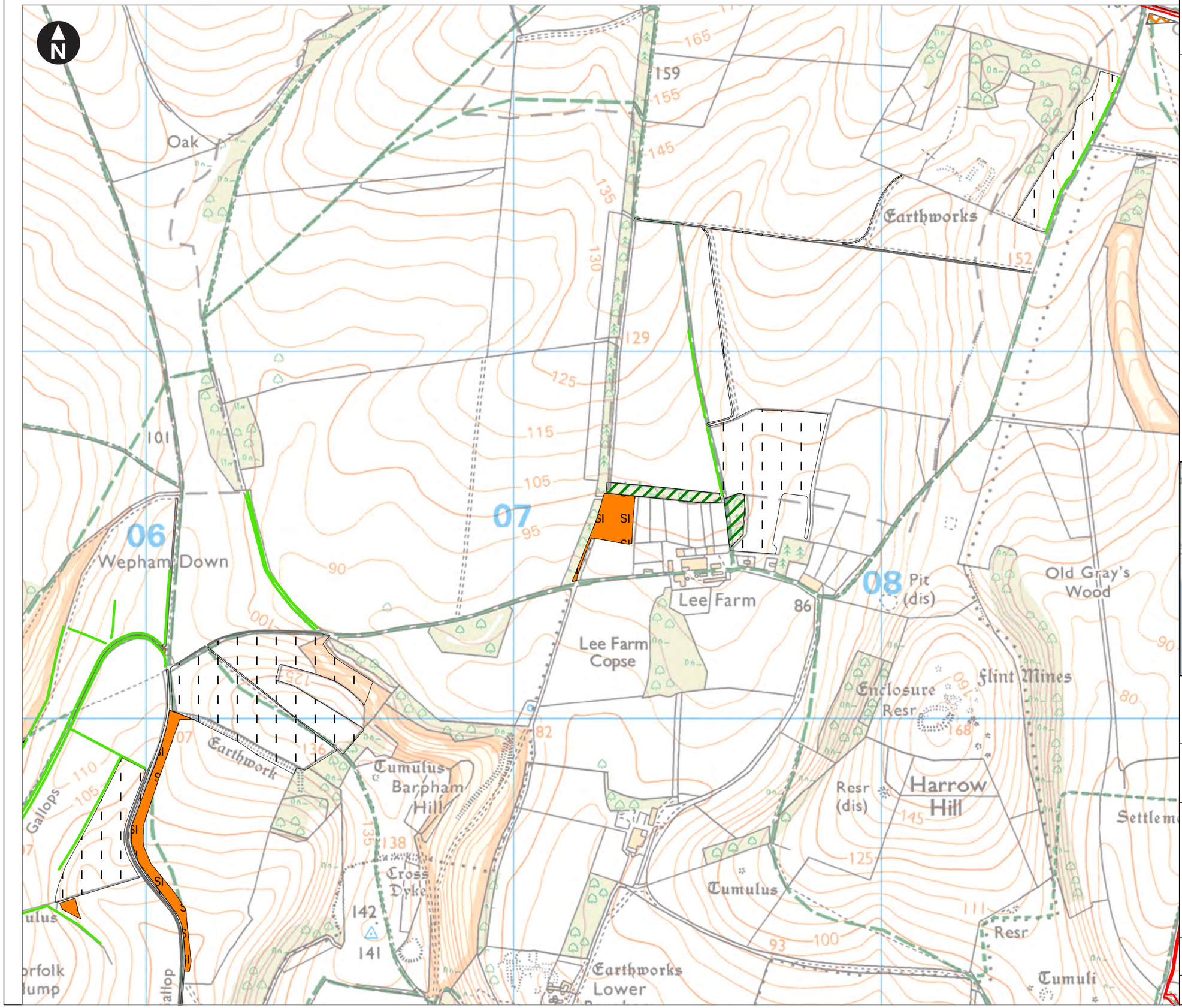
Figure 22.8.15d Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7630	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL



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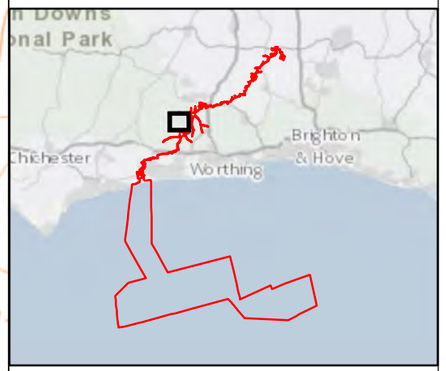
Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres

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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.15e Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

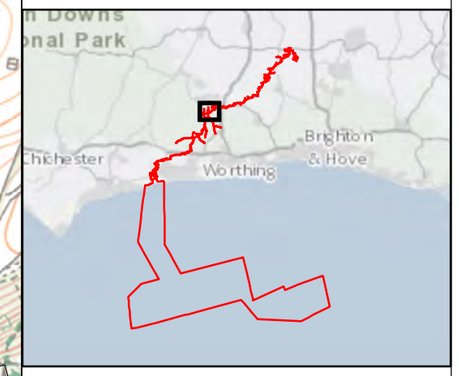
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7630	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL

Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres
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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.15f Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7630				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 31/07/2023	Status: FINAL

Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland

Kilometres

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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.15g Grey long-eared bat - Foraging habitat selection

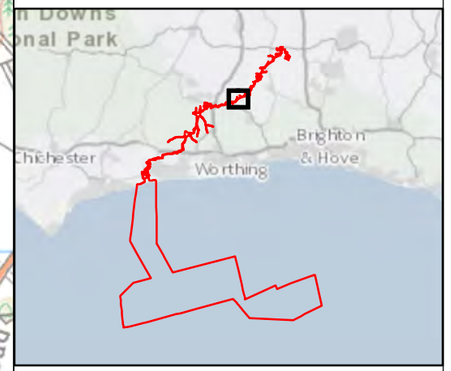
Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7630				1.0
Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL

Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres
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1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.15h Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7630				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 31/07/2023	Status: FINAL

520000

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Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland

Kilometres
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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

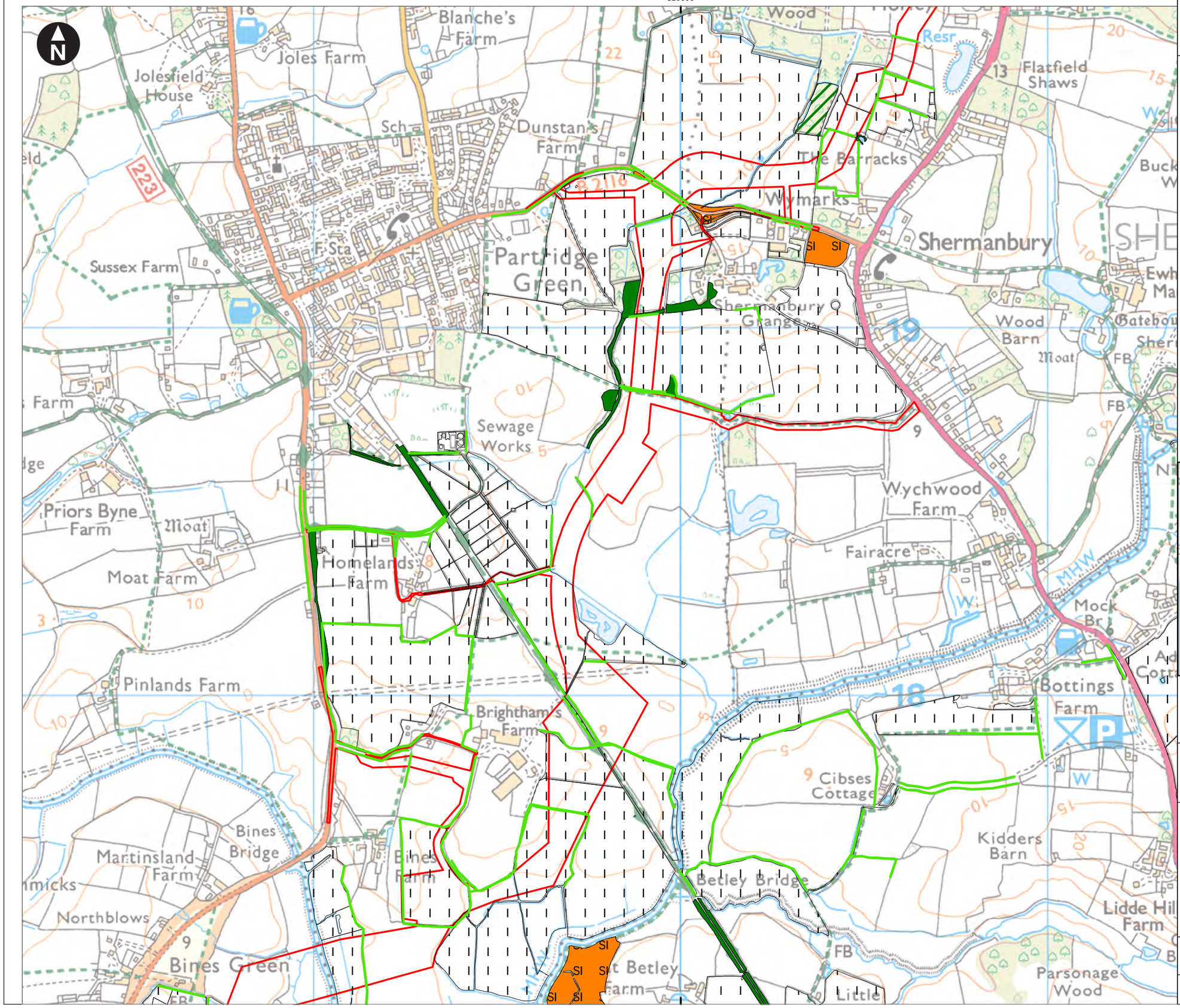
Figure 22.8.15i Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7630				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 31/07/2023	Status: FINAL

520000



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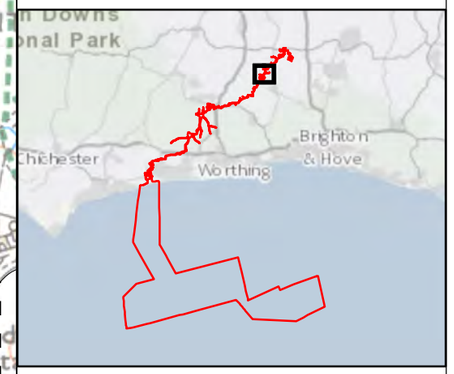
Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres
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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

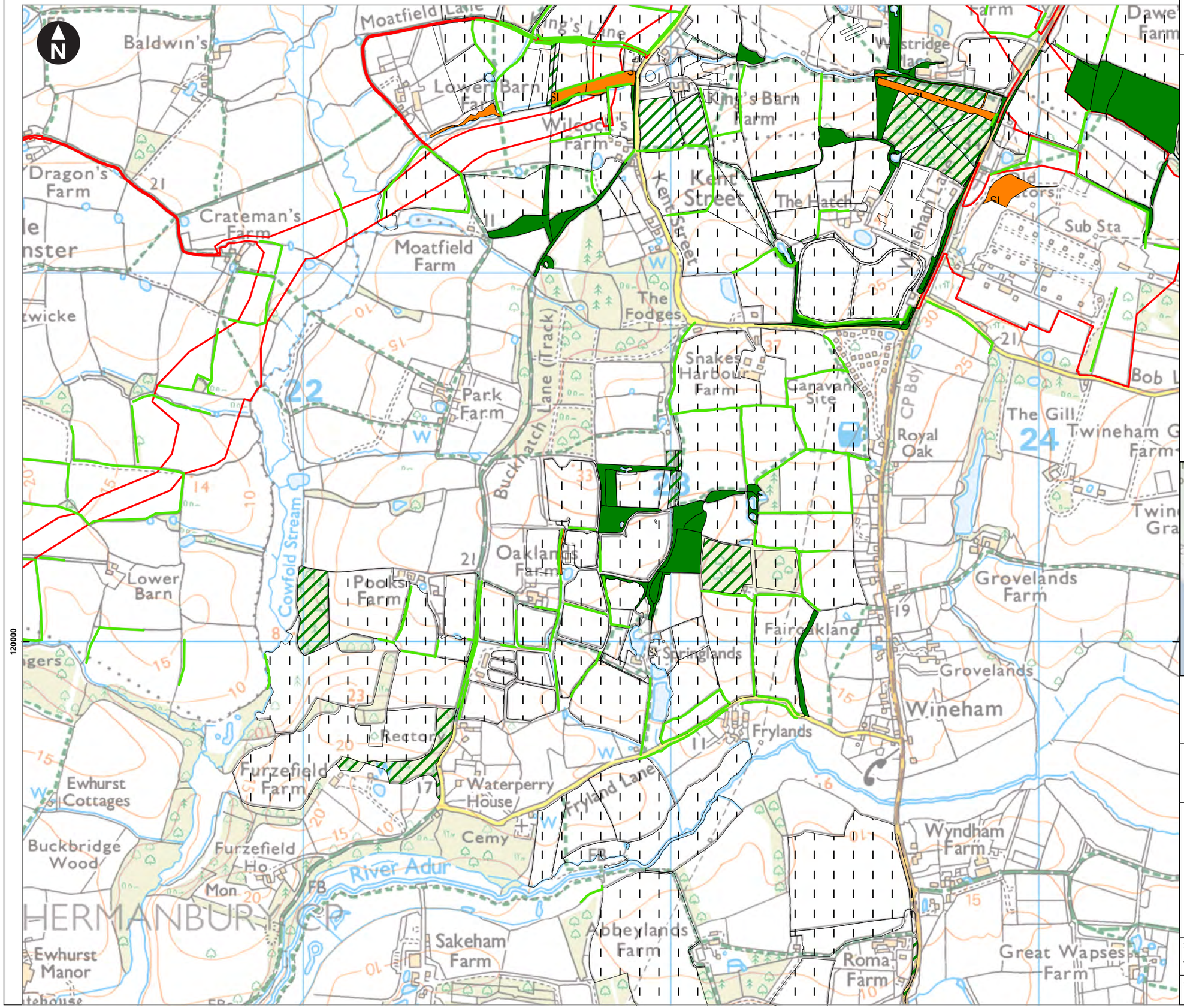
Rampion 2 Offshore Wind Farm

Figure 22.8.15j Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-7630				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 31/07/2023	Status: FINAL



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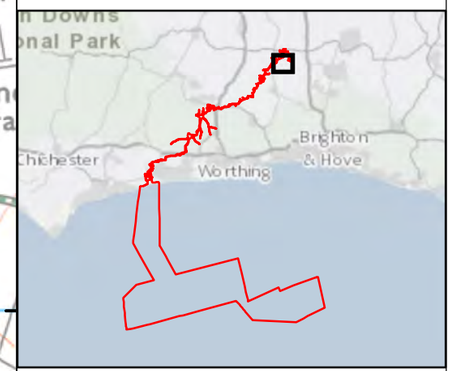
Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland



Kilometres

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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

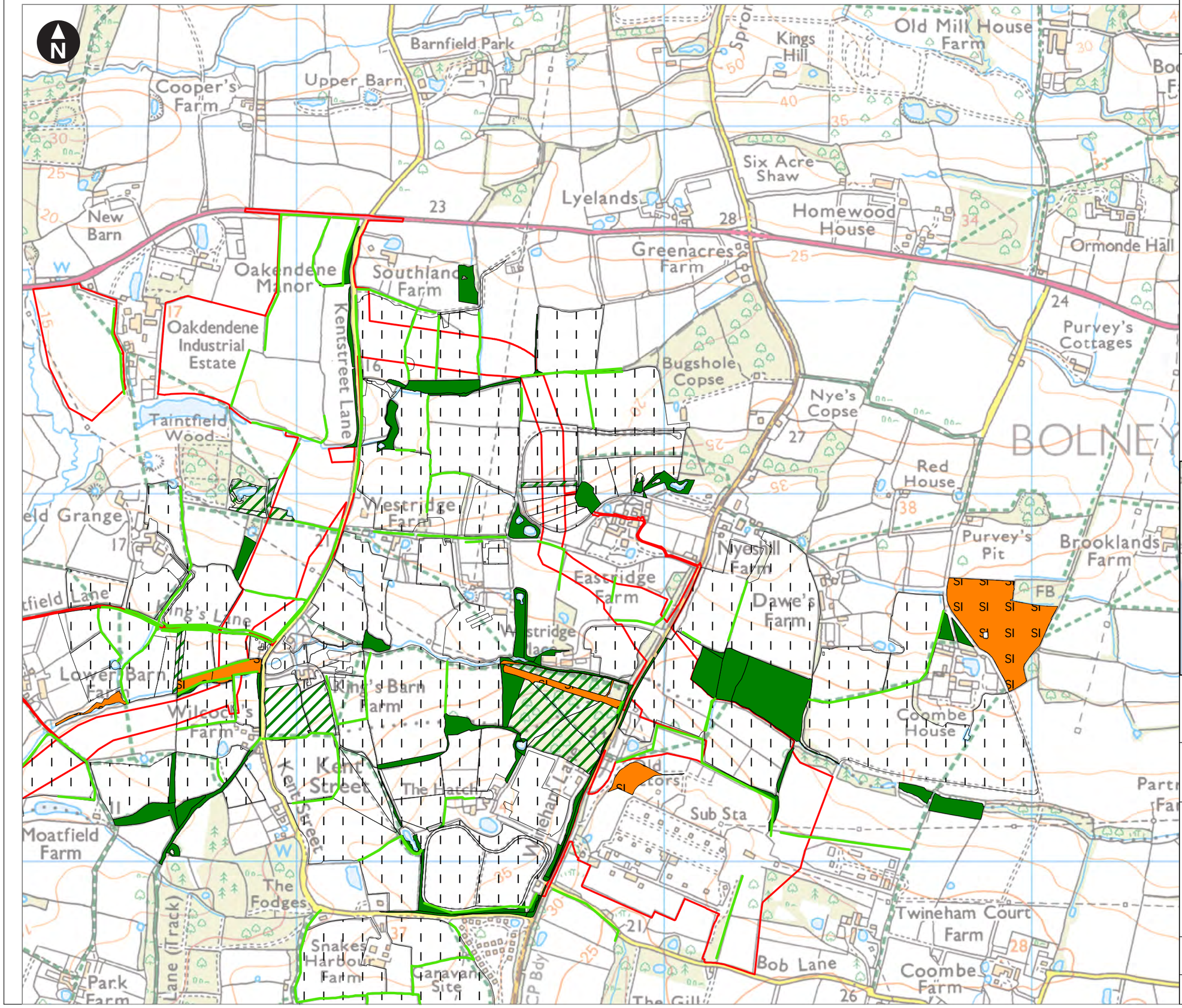
Figure 22.8.15k Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7630	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL



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Key

- Proposed DCO Order Limits
- Hedges
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- B2.2: Neutral grassland - semi-improved
- B3.1: Calcareous grassland - unimproved
- B3.2: Calcareous grassland - semi-improved
- B4: Improved grassland
- B5: Marsh/marshy grassland

Kilometres

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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.15I Grey long-eared bat - Foraging habitat selection

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7630	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	31/07/2023	FINAL

Key

Proposed DCO Order Limits

Species code

CP	L
SP	LE
B	M
Bat unidentified	N
CP	NSL
CP/NP	NYC
CP/SP	S
	SP
	cp

Kilometres

0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

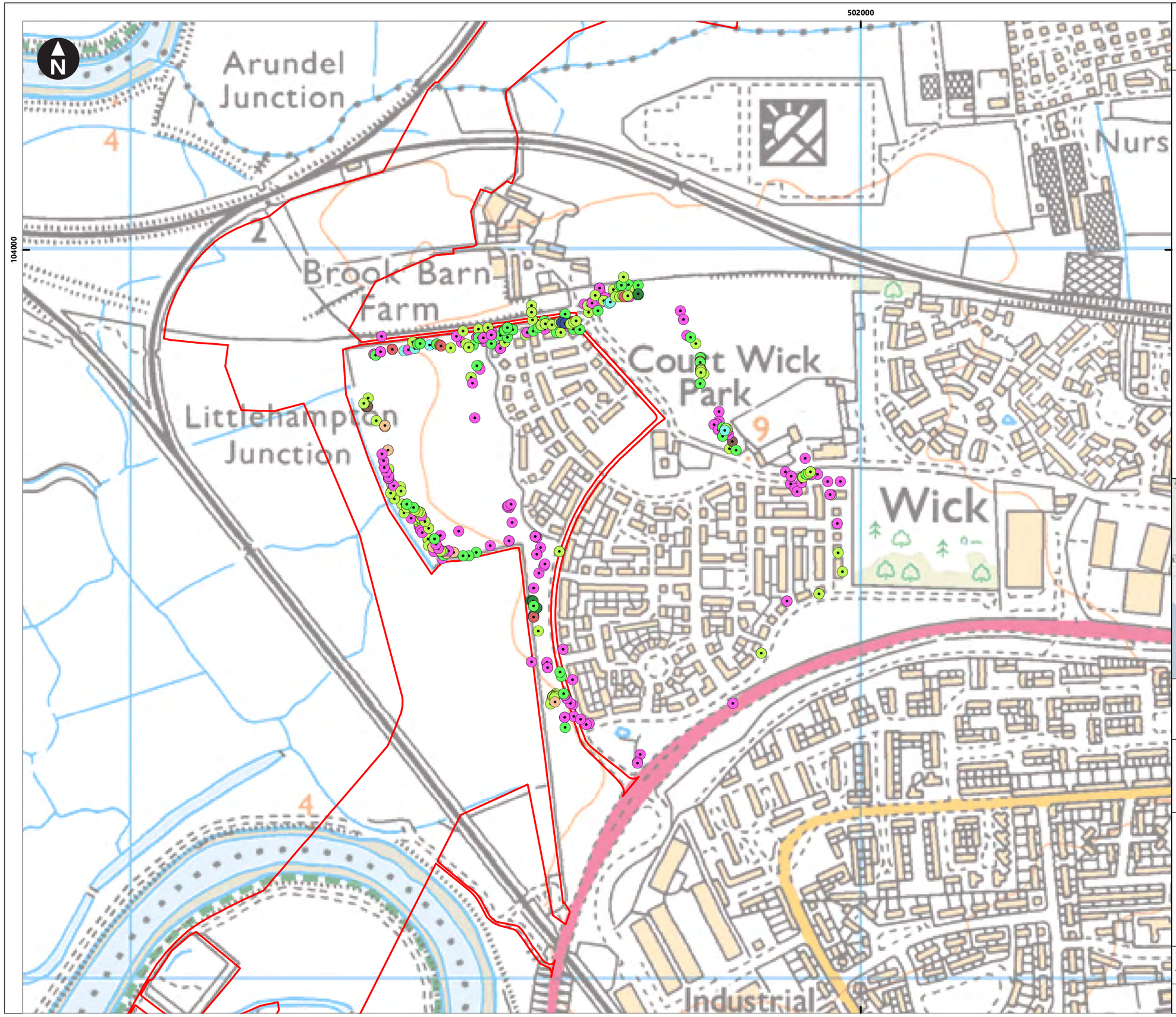
Figure 22.8.16a Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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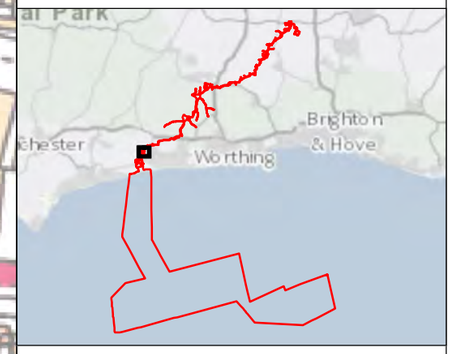
Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres

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1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.16b Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

504000

106000

Common Barn

Warningcamp Farm

Earthwork

Pit (dis)

Park Rough

Old Waterworks Farm

Batworthpark Plantation

Arundel Station

Resr

Clay Lane

The Brocks

Convent

Stubbs Copse

Motel

Crossbush

MHW

MHW

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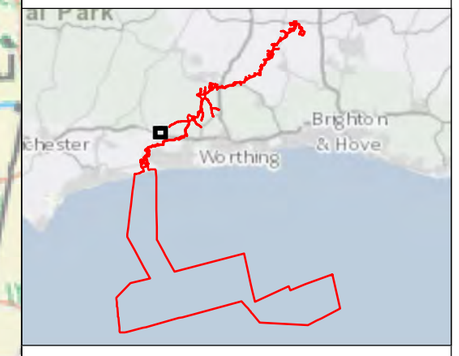
Key

Proposed DCO Order Limits

Species code

CP	L
SP	LE
B	M
Bat unidentified	N
CP	NSL
CP/NP	NYC
CP/SP	S
	SP
	cp



Kilometres

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1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

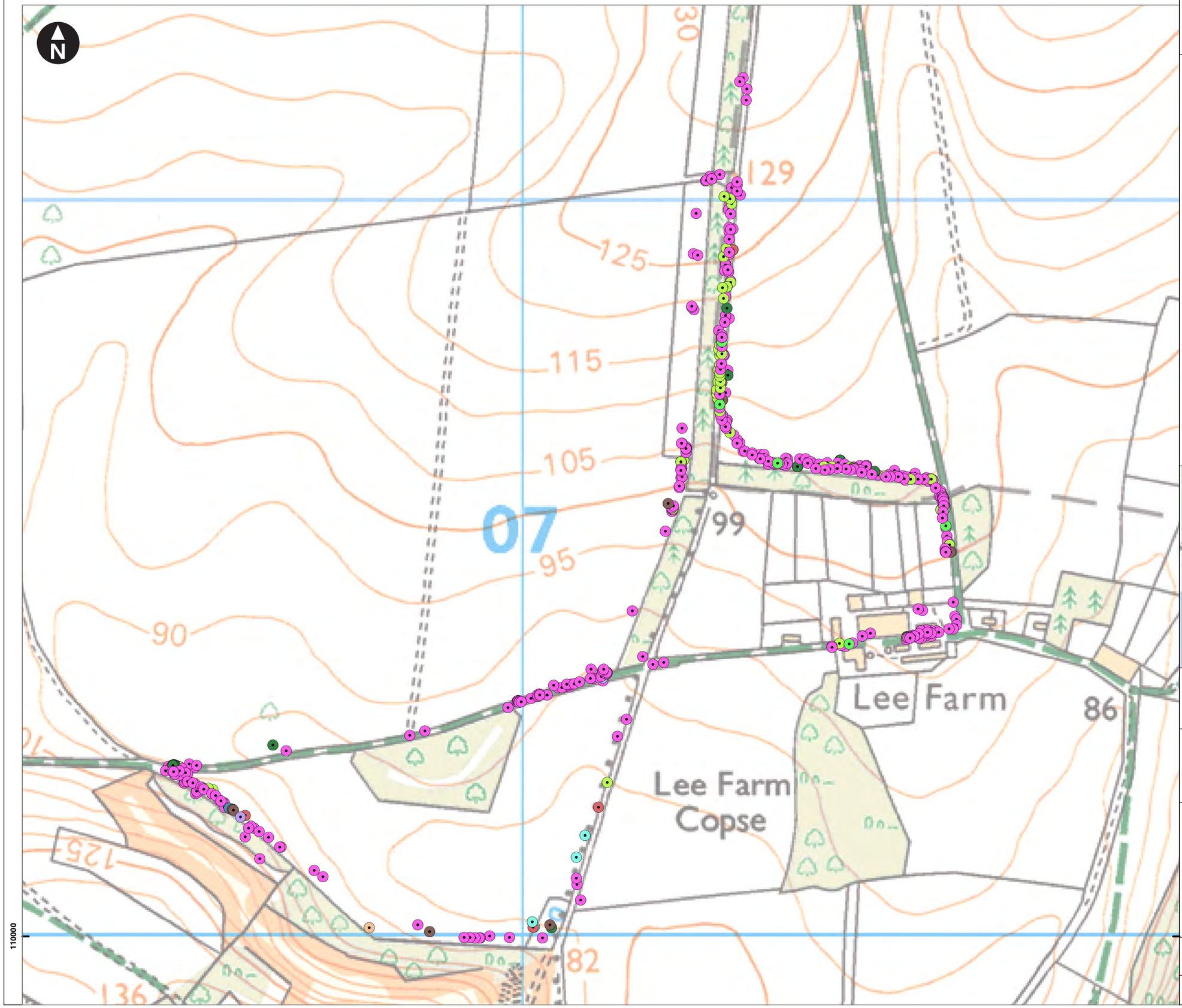
Figure 22.8.16c Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

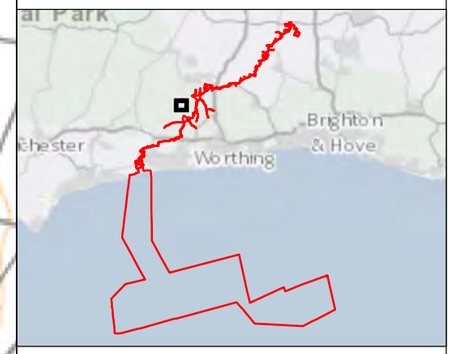


Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres

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1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.16d Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

516000

114000

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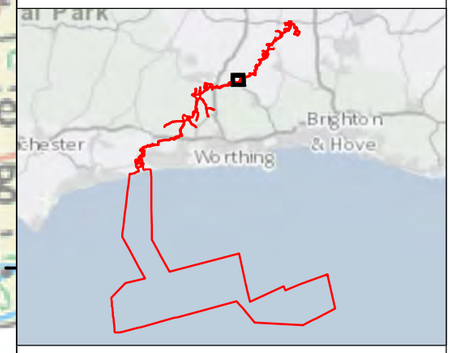
Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres

0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.16e Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

516000

114000

N

Farm

Loves Rough

Cherrytree Rough

New Bar

The Falconers

Horsebrook Cottage

Wappingthorn

Washington R

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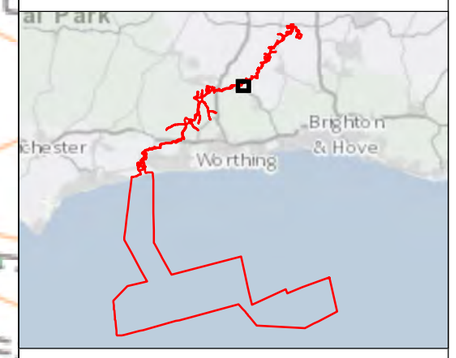
Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres

0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.16f Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1809				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

520000

Dunstan's Farm

The Barracks

B2116

Wymarks

Partridge Green

Shermanbury Grange

Sewage Works

Wychwood Farm

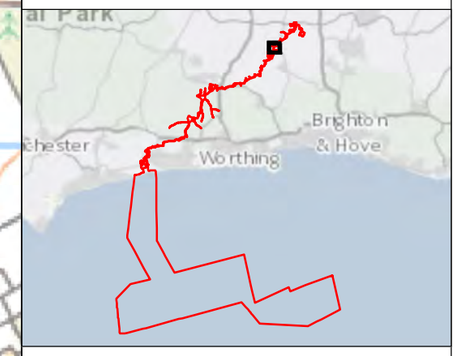
Fairacre

Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres

0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.16g Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

524000

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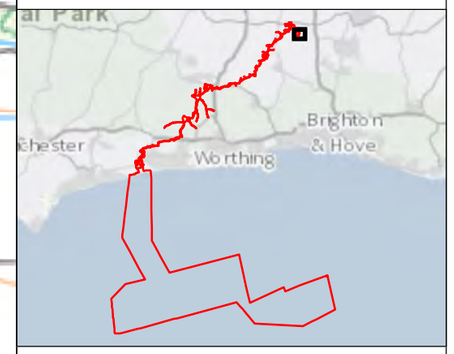
Key

Proposed DCO Order Limits

Species code

CP	L
SP	LE
B	M
Bat unidentified	N
CP	NSL
CP/NP	NYC
CP/SP	S
	SP
	cp



Kilometres

0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

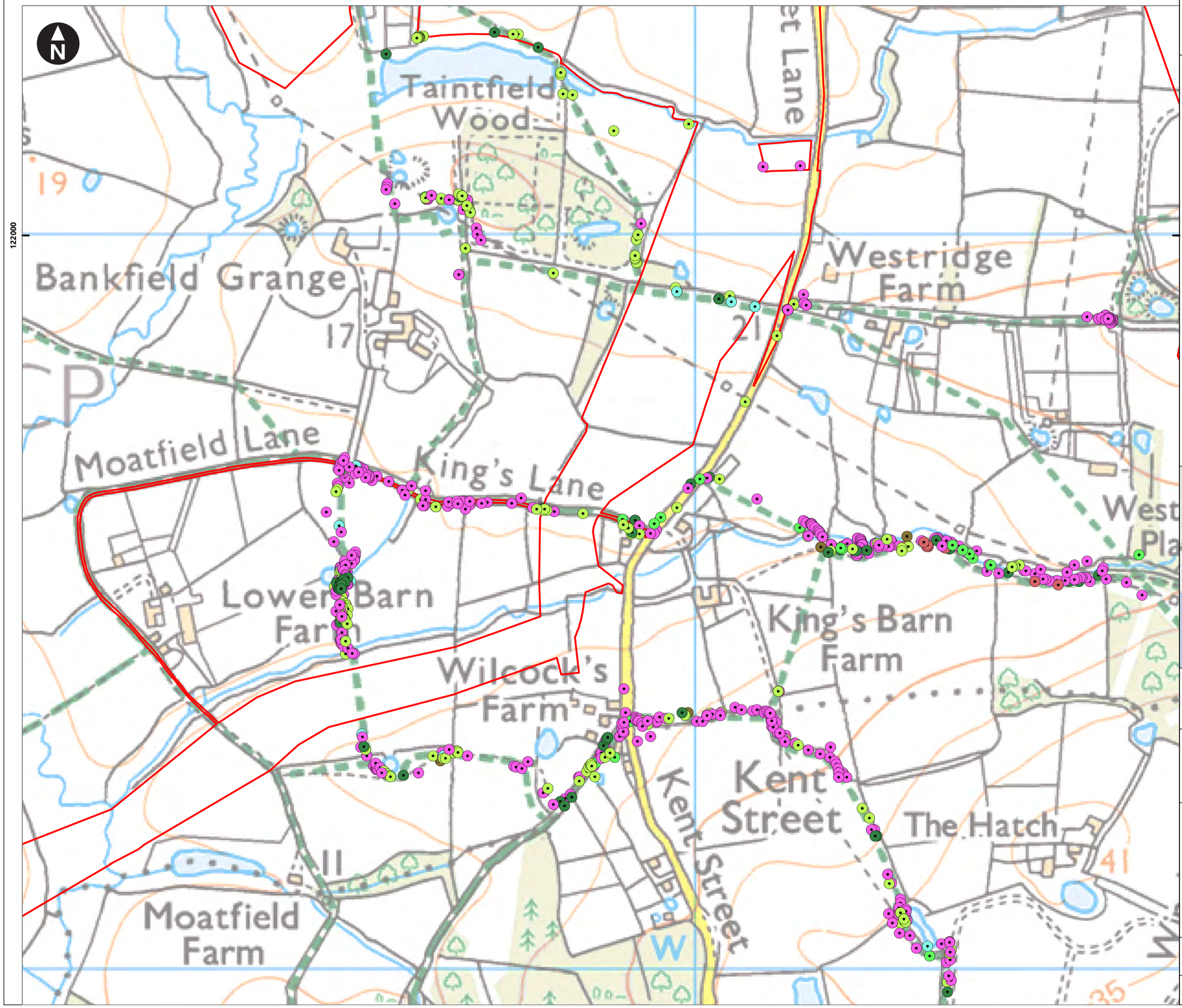
Figure 22.8.16h Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

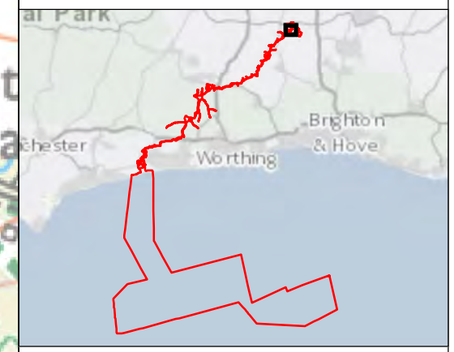


Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres
0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

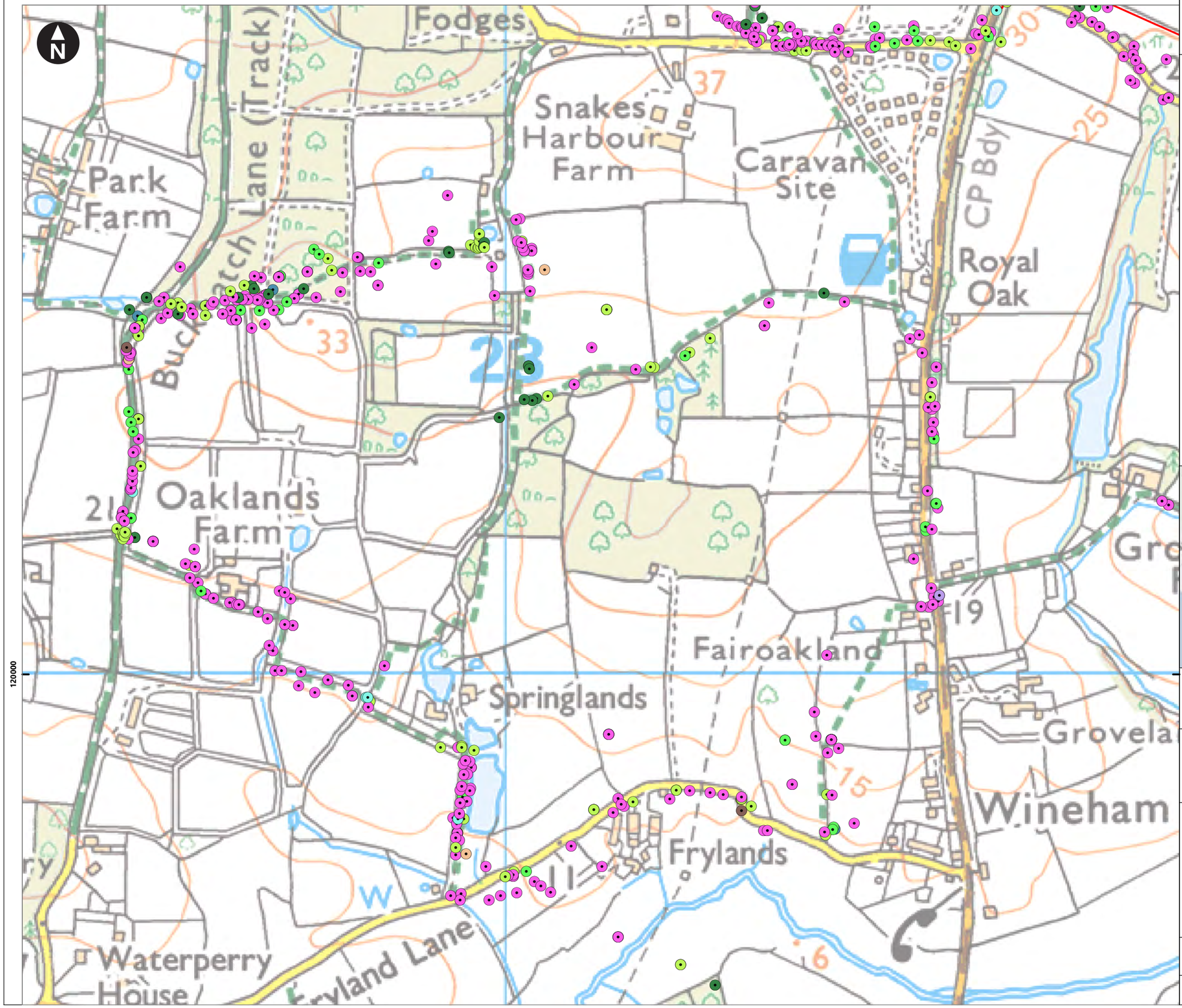
Figure 22.8.16i Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

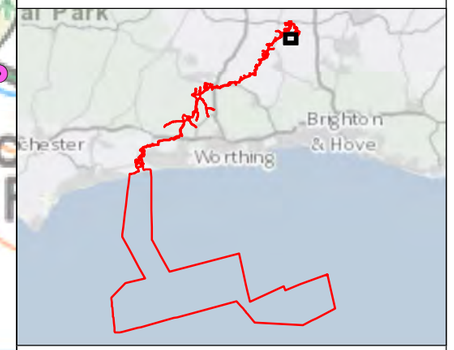


Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres
0 5 10 20 30 40
1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.16j Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

524000

122000

N

Bugshole Copse

Nye's Copse

Red House

Purvey's Cottages

Purvey's Pit

Brookla Farm

Nyeshill Farm

Eastridge Farm

Dawe's Farm

Coombe House

Old Doctors

BOLN

24

27

25

20

35

38

23

17

34

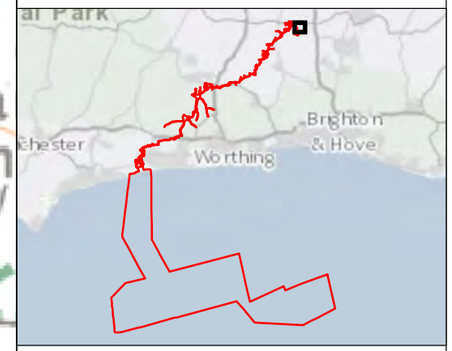
FB

Key

Proposed DCO Order Limits

Species code

- CP
- SP
- B
- Bat unidentified
- CP
- CP/NP
- CP/SP
- L
- LE
- M
- N
- NSL
- NYC
- S
- SP
- cp



Kilometres

0 5 10 20 30 40

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.16k Kernel density mapping for all species

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1809	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

Total- 1462

Total- 461

Total- 631

Total- 682

Total- 477

Total- 710

Total- 431

Total- 253

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Key

- Proposed DCO Order Limits
- B
- CP
- CP/SP
- M
- N
- S
- SP
- LE
- NSL
- NYC
- CP/NP
- L

Kilometres

0 5 10 20 30 40

1:85,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

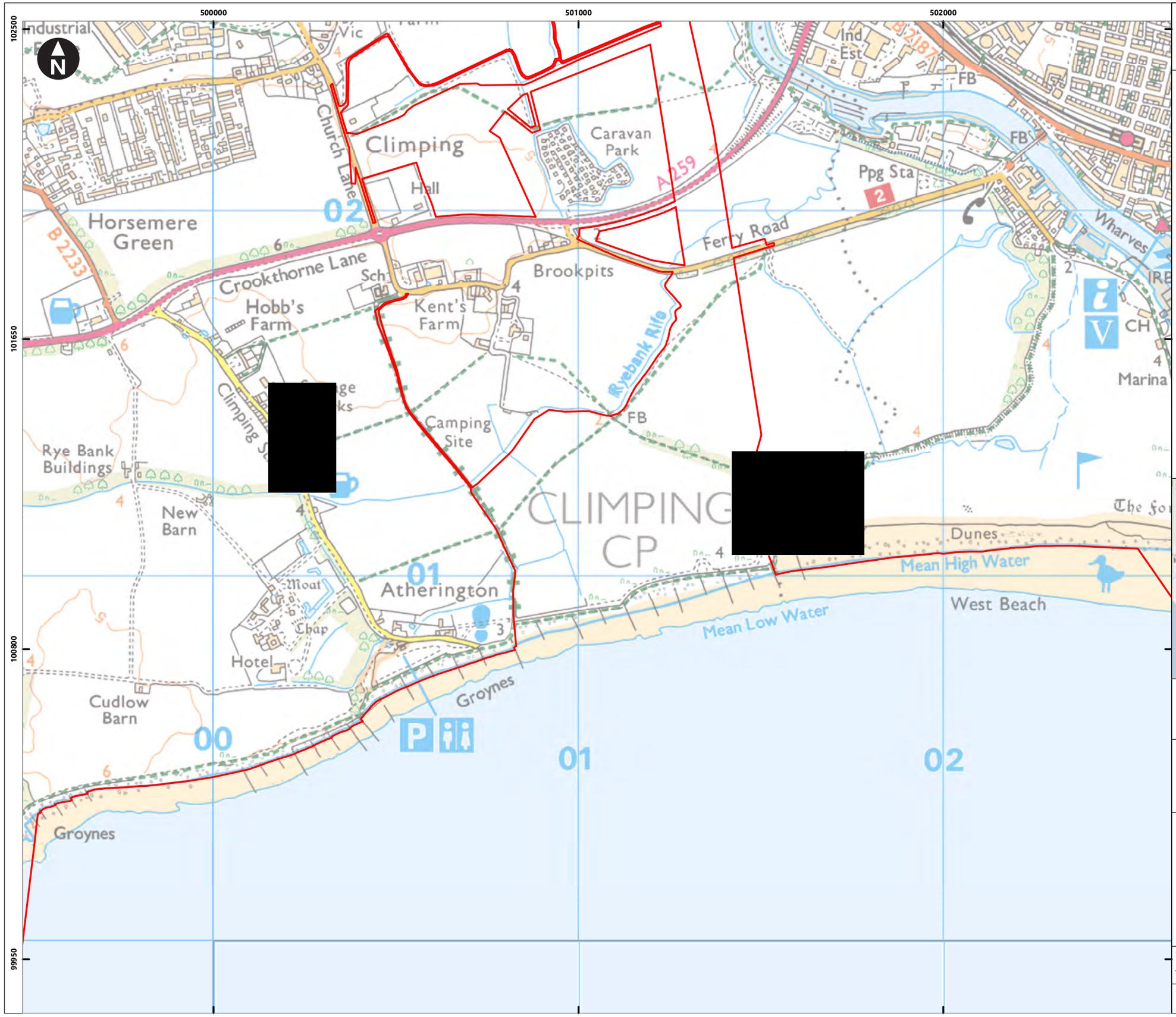
Figure 22.8.17 Bat activity; total number of commuting passes for each species for the entire survey period for each transect route

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-7770	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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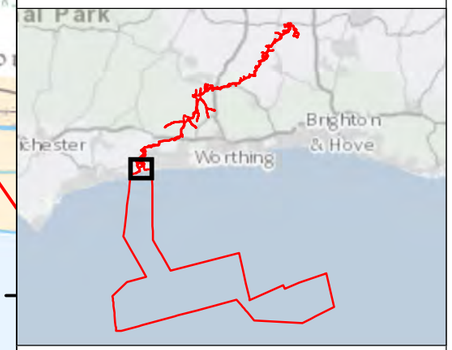
[redacted]

Proposed DCO Order Limits

[redacted]



0 5 10 20 30 40

1:910,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

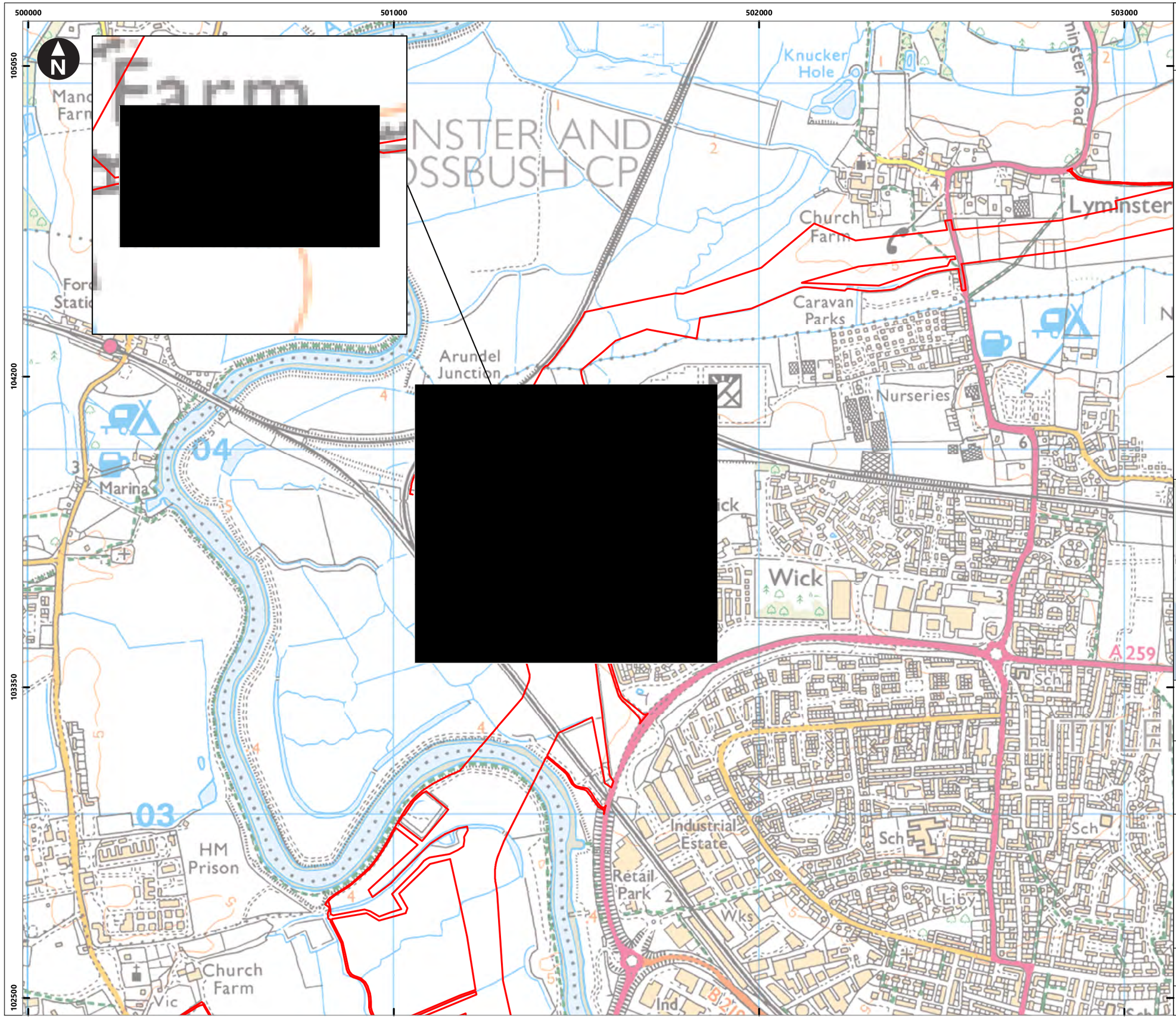
[redacted]

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4022	1.0

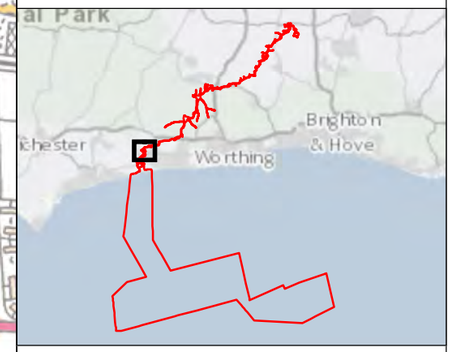
Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



Service Layer Credits: Contains OS data © Crown Copyright and database right 2020

Key

Proposed DCO Order Limits



Kilometres

0 5 10 20 30 40

1:910,000

British National Grid Transverse Mercator

Rampion Extension Development

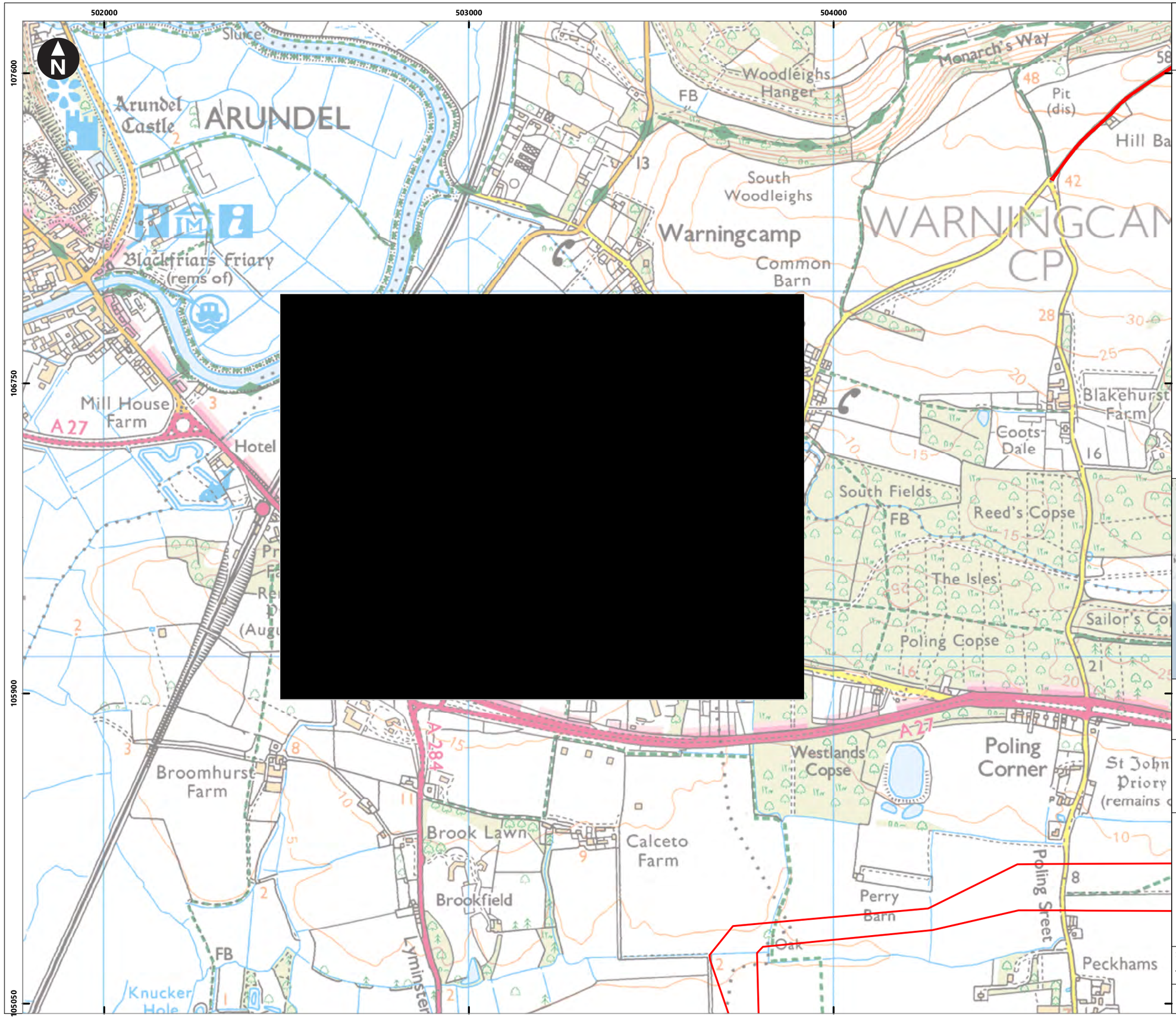
Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4022	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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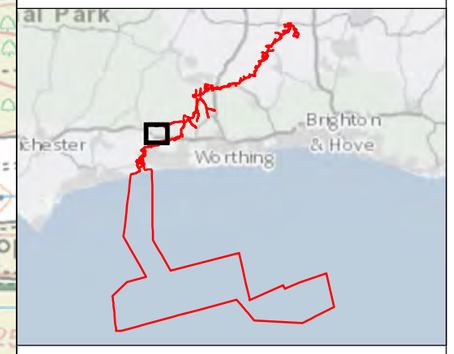
Key

Proposed DCO Order Limits



Kilometres

0 5 10 20 30 40

1:910,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4022	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

506000
507000
508000
111000
110150
109300
N
Oak
159
155
145
135
130
Earthworks
152
101
06
Wepham Down
90
100
125
107
Earthwork
136
Gallops
110
105
107
Tumulus
122
Norfolk
Clump
Gallop
138
Cross
Dyke
142
141
64
Earthworks
Lower
Barpham
Pit
(dis)
Farm
86
08
Pit
(dis)
Old Gr
Woo
Enclosure
Resr
160
168
Flint Mines
Resr
(dis)
Harrow
Hill
145
125
Tumulus
111
Resr
93
100
75
Tumuli
Settlemen

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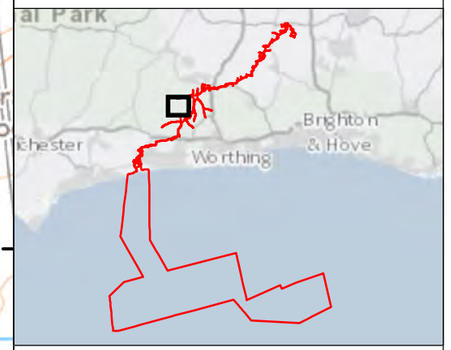
Key

Proposed DCO Order Limits

[redacted]



Kilometres
0 5 10 20 30 40
1:910,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

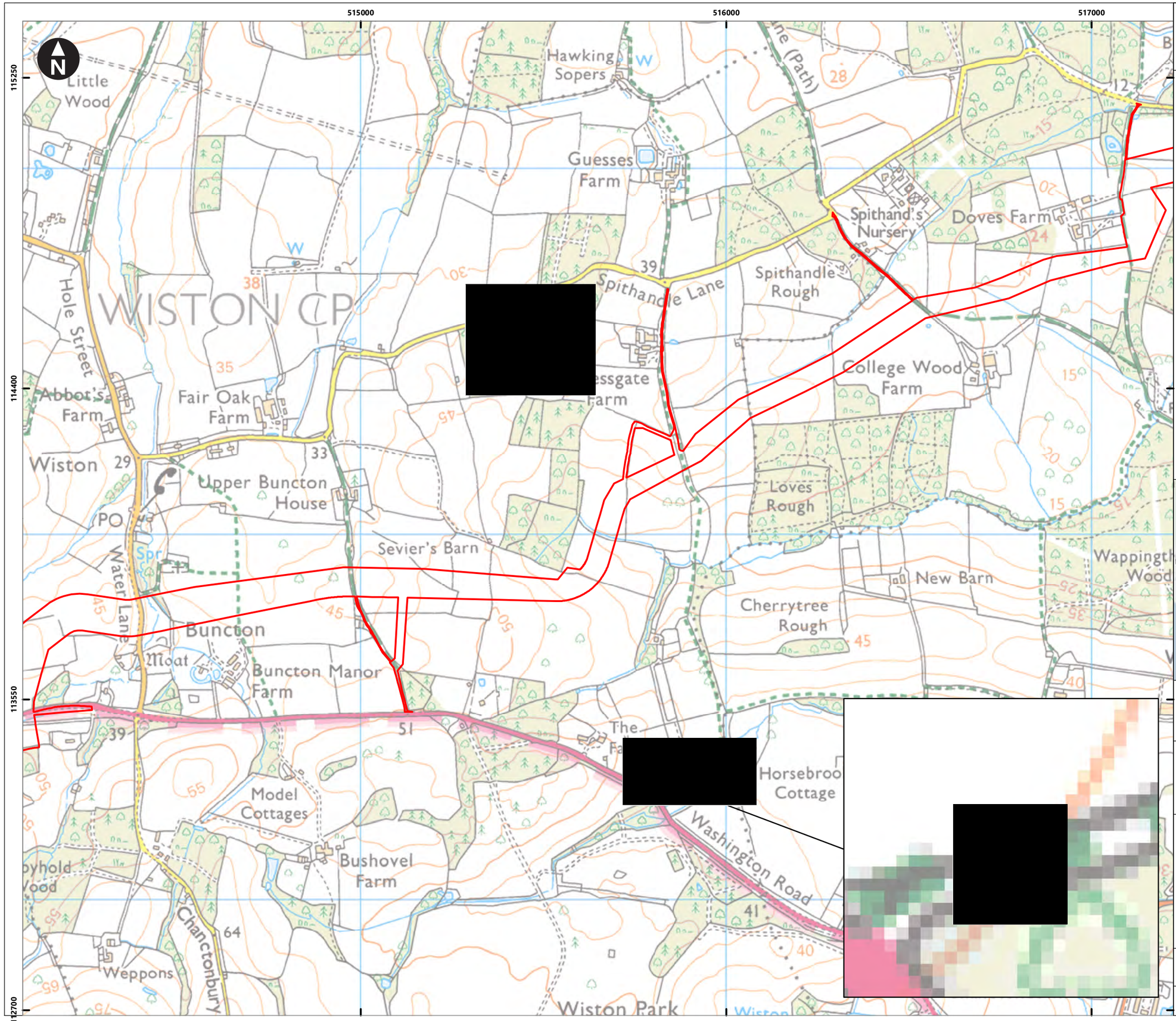
[redacted]

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4022	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



Service Layer Credits: Contains OS data © Crown Copyright and database right 2020

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Key

Proposed DCO Order Limits

Kilometres
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1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

[redacted]

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4022	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

522000
523000
524000
122050
121200
120350
N
Long Barn House
FB
New Barn
Oakendene Manor
Southlands Farm
Lyelands
Homewood House
Greenacres Farm
Allfreys
Oakdendene Industrial Estate
Kentstreet Lane
Bugshole Copse
Nye's Copse
Taintfield Wood
Eastlands Farm
Red House
Bankfield Grange
Westridge Farm
Nyeshill Farm
Eastridge Farm
Dawe's Farm
OLD CP
Moatfield Lane
King's Lane
Lower Barn Farm
Wilcock's Farm
Coombe House
Kent Street
The Hatch
Old Doctors
Sub Sta
Wineham Lane
Moatfield Farm
The Fodges
Park Farm
Buckhatch Lane (Track)
Snakes Harbour Farm
Caravan Site
CP Bdy
Royal Oak
Oaklands Farm
Pooks
Grovelands
Service Layer Credits: Contains OS data © Crown Copyright and database right 2020
© Crown copyright and database rights 2023 Ordnance Survey 0100031673
Brighton & Hove
Worthing
0 5 10 20 30 40
1:910,000
British National Grid Transverse Mercator
Rampion Extension Development
Rampion 2 WIND FARM
Rampion 2 Offshore Wind Farm
Figure 22.8.18f Bat activity; Barbastelle activity distribution
Passive and active bat activity report
Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-4022				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle

Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

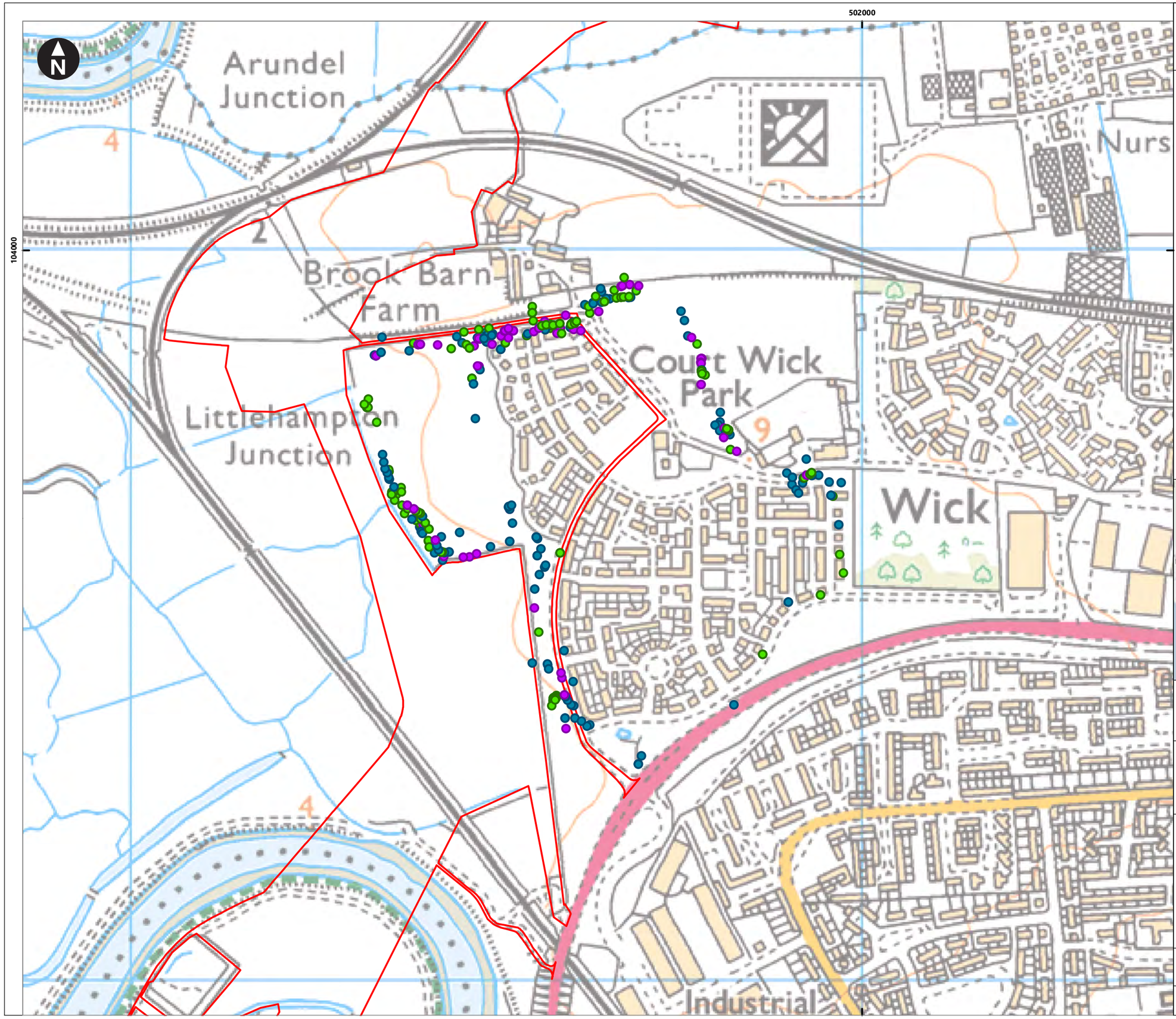
Figure 22.8.19a Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

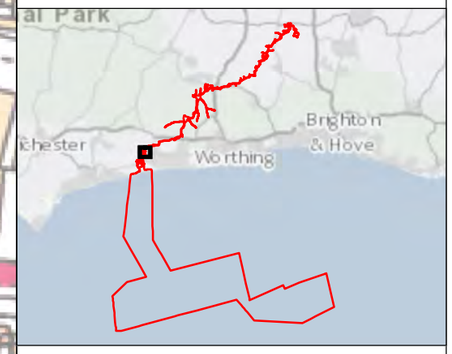


Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres
0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.19b Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

504000

106000

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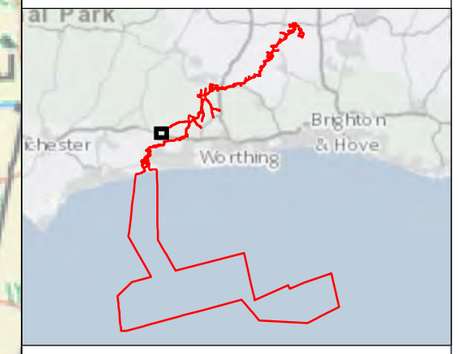
Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres
0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

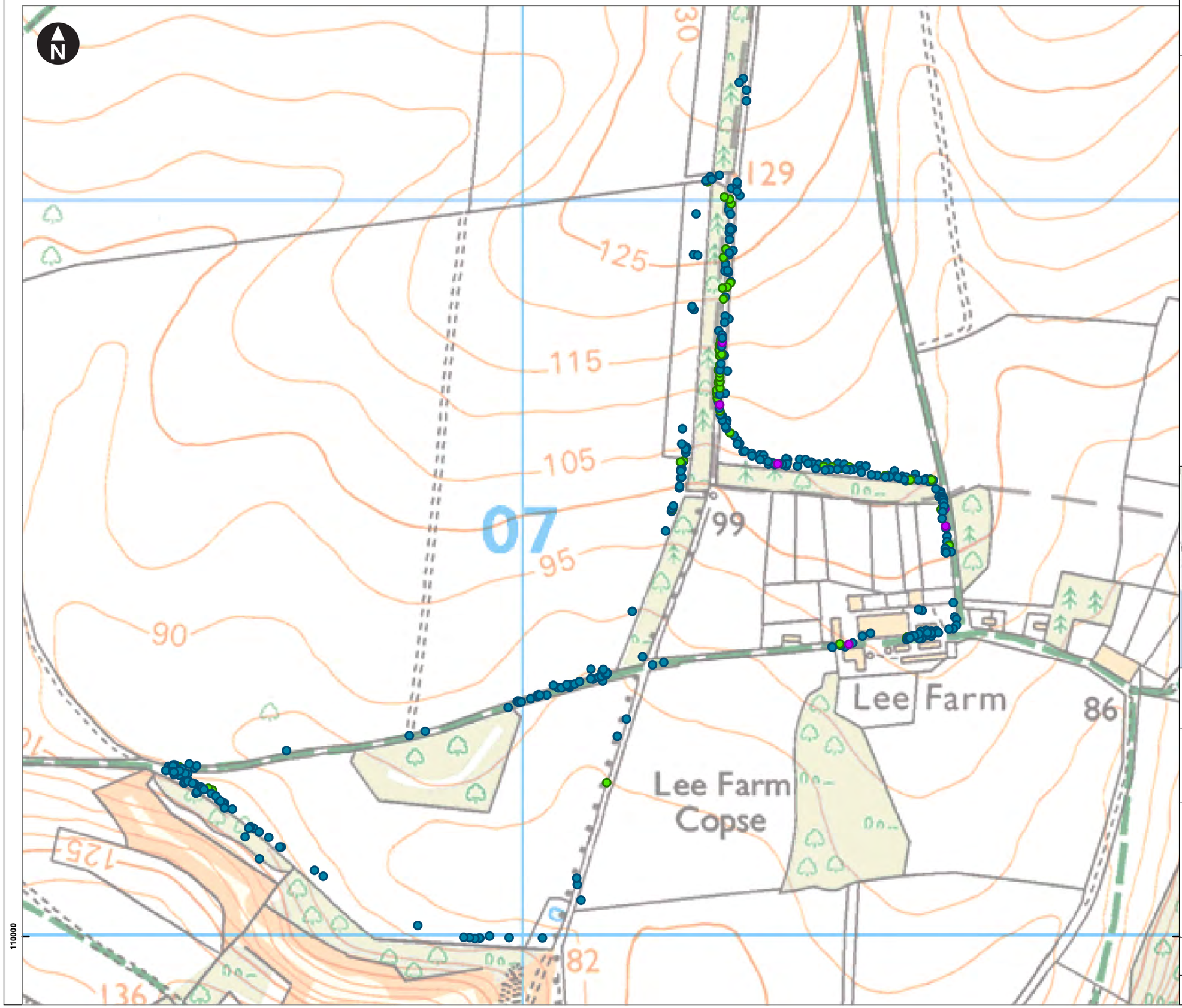
Rampion 2 Offshore Wind Farm

Figure 22.8.19c Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-5465				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

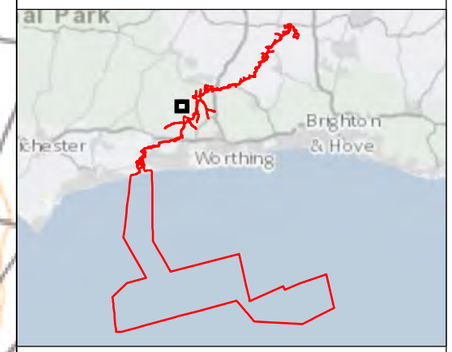


Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres
0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

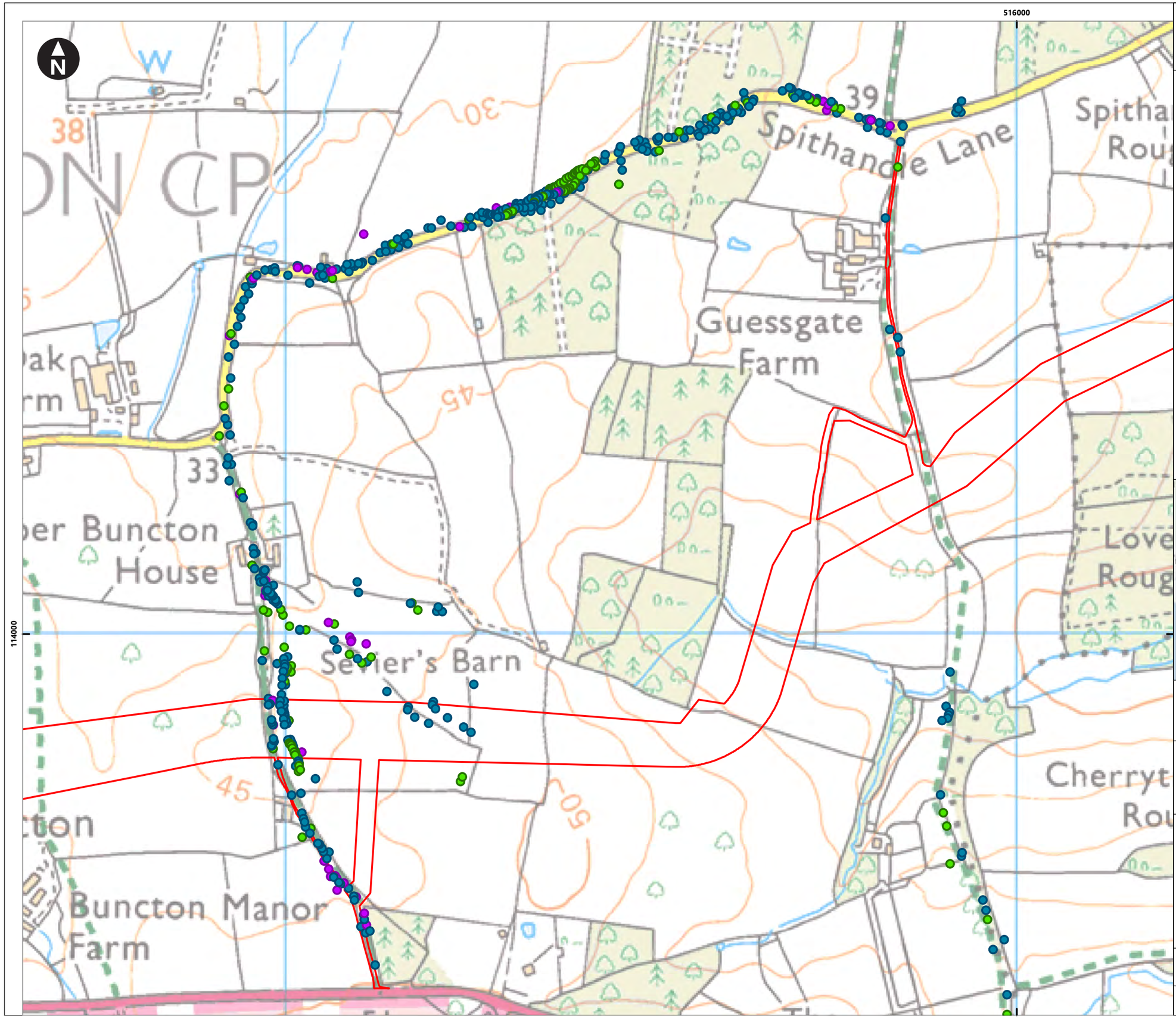
Figure 22.8.19d Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

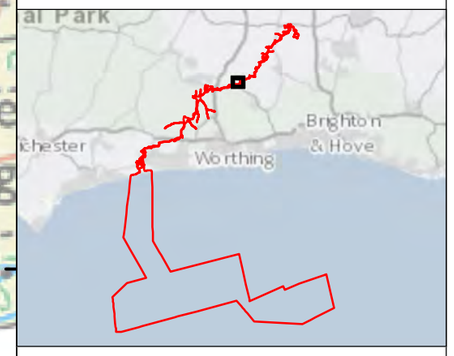


Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres
0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.19e Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

516000

114000

Farm

Loves Rough

Cherrytree Rough

New Bar

The Falconers

Horsebrook Cottage

Wappingthorn

Washington R

45

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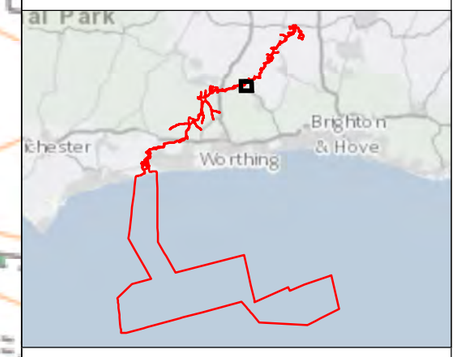
Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

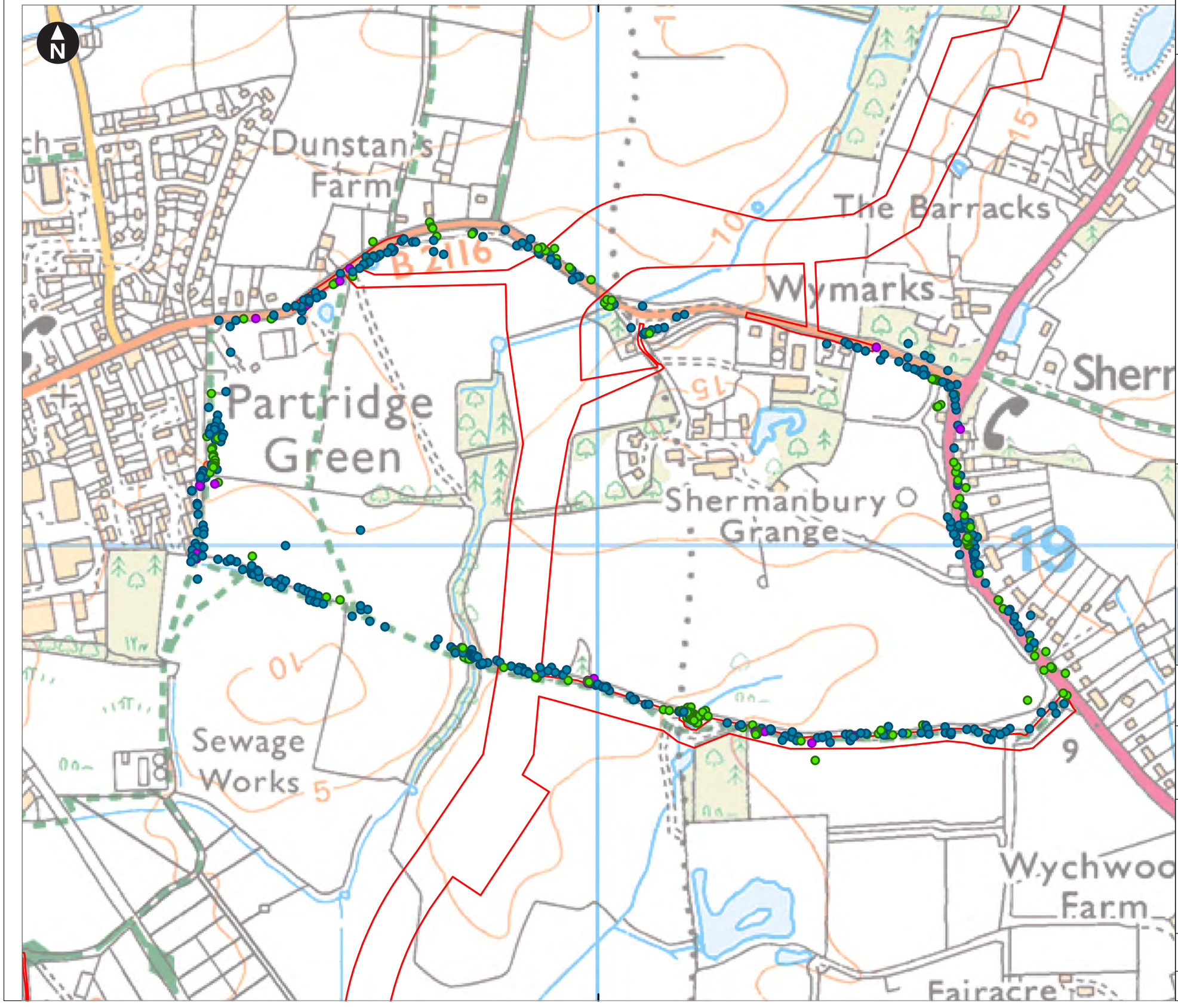
Figure 22.8.19f Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-5465				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

520000

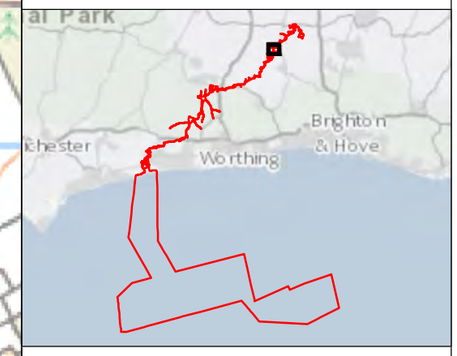


Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.19g Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

524000

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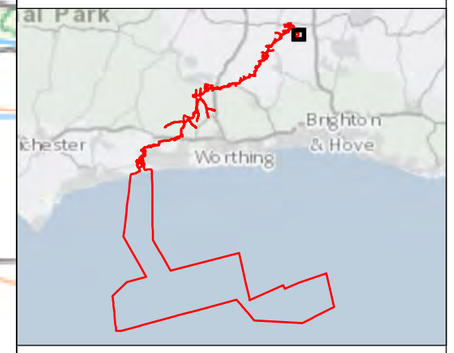
Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres

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1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

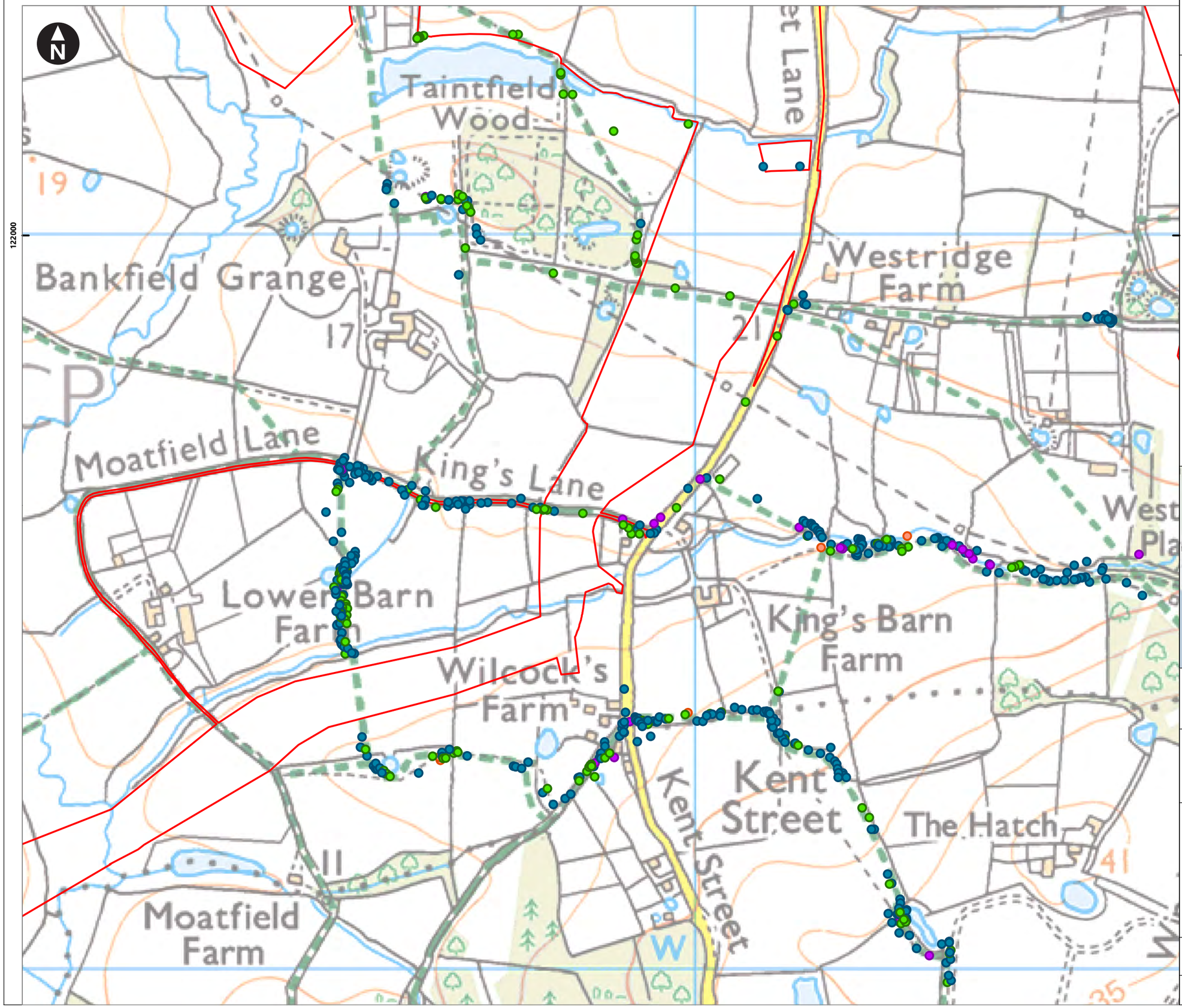
Figure 22.8.19h Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

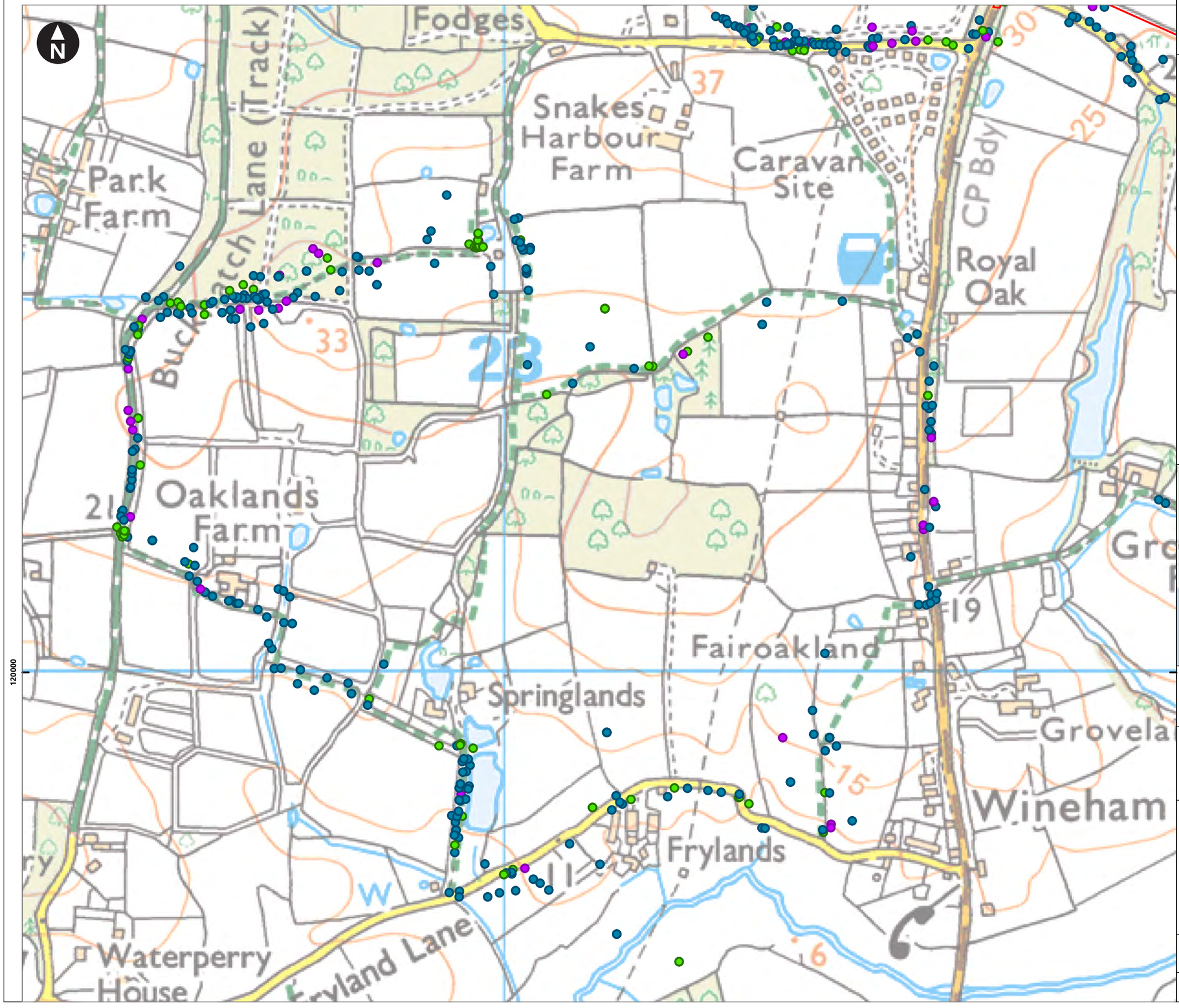
Figure 22.8.19i Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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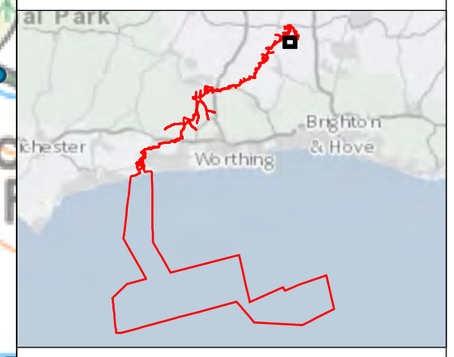
Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.19j Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

524000

122000

Bugshole Copse

Nye's Copse

Red House

Purvey's Cottages

Purvey's Pit

Brookla Farm

Nyeshill Farm

Eastridge Farm

Dawe's Farm

Coombe House

Old Doctors

BOLN

20

25

27

35

38

24

23

17

34

FB

Lane

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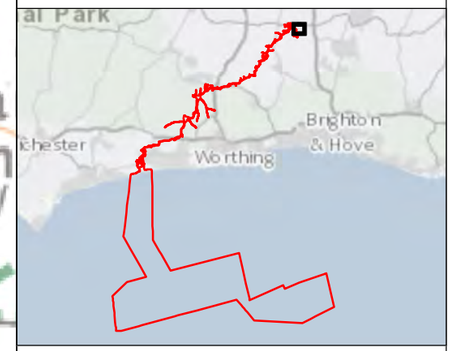
Key

Proposed DCO Order Limits

Species

- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle/Nathusius Pipistrelle
- Common Pipistrelle/Soprano Pipistrelle



Kilometres

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1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.19k Bat activity: Pipistrellus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5465	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

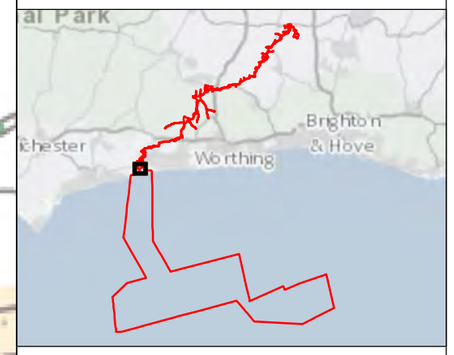
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
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1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

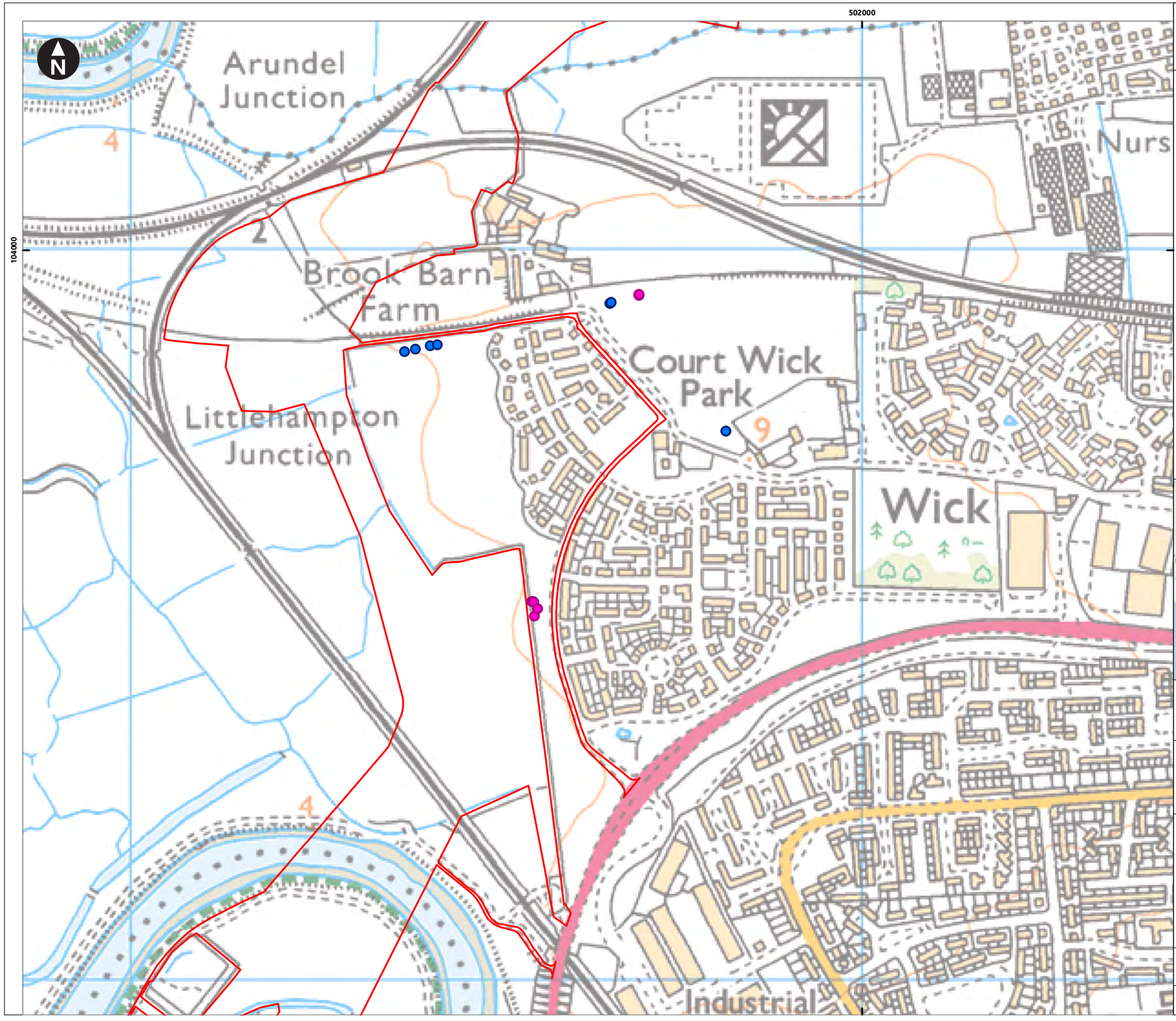
Rampion 2 Offshore Wind Farm

Figure 22.8.20a Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL



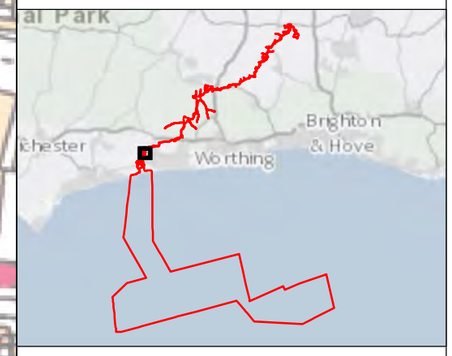
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
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1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.20b Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

504000

106000

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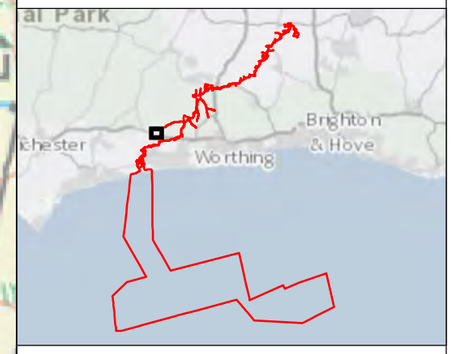
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers

0 0.02 0.04 0.08 0.12 0.16

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

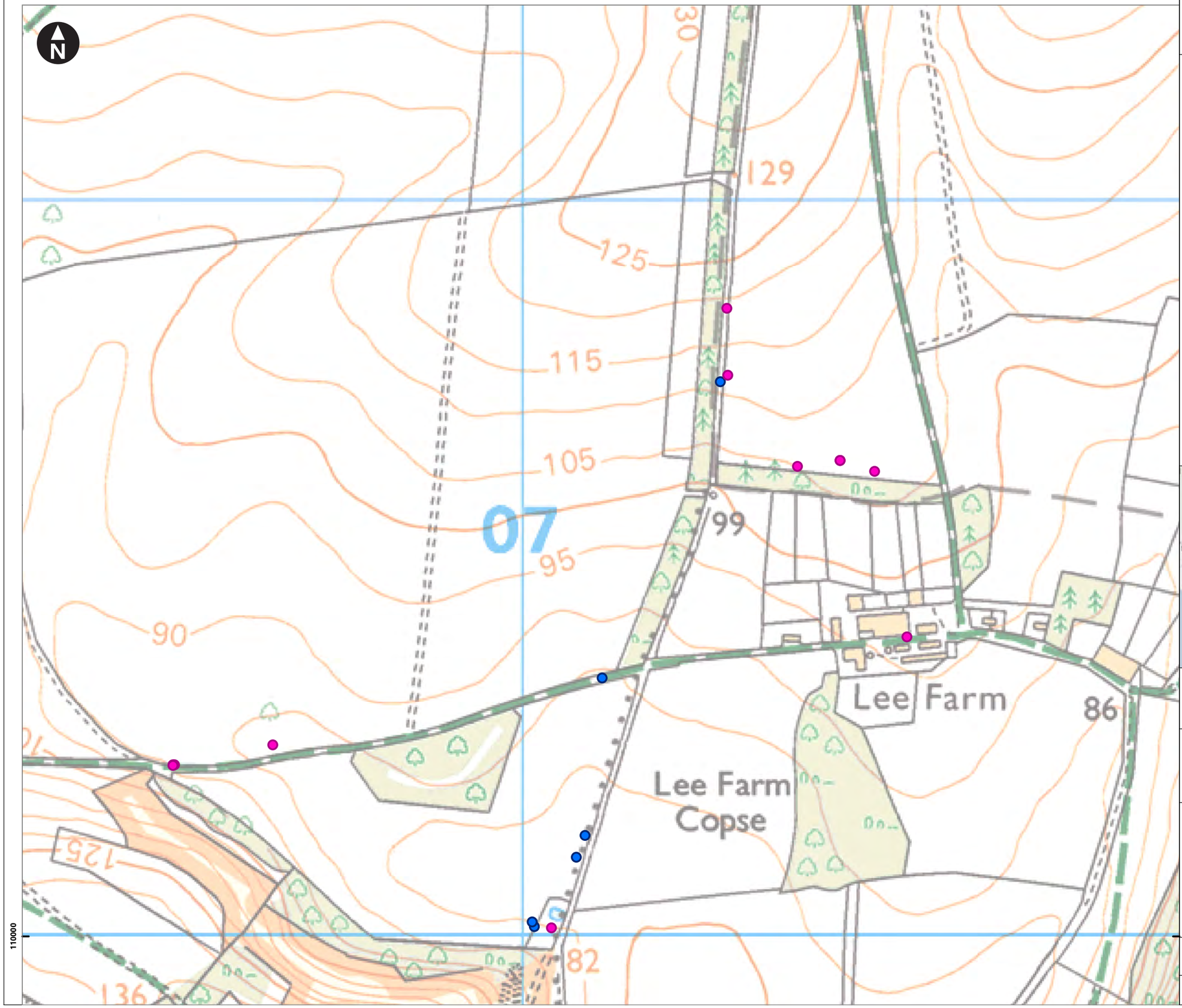
Rampion 2 Offshore Wind Farm

Figure 22.8.20c Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL



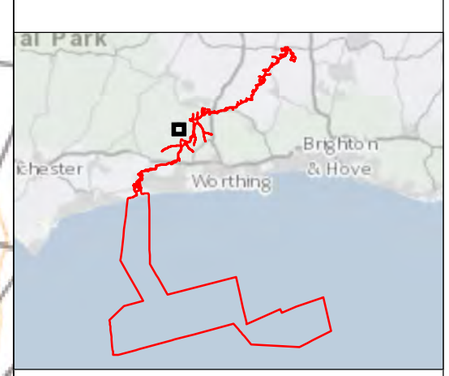
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
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1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.20d Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

516000

114000

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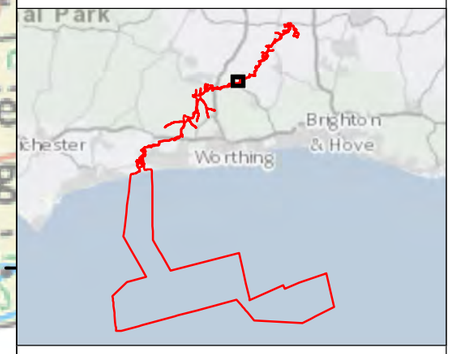
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers

0 0.02 0.04 0.08 0.12 0.16

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.20e Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-8196	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

516000

114000

N

Farm

Farm

Loves Rough

ier's Barn

New Bar

Cherrytree Rough

45

The Falconers

Horsebrook Cottage

Wappingthorn

Washington R

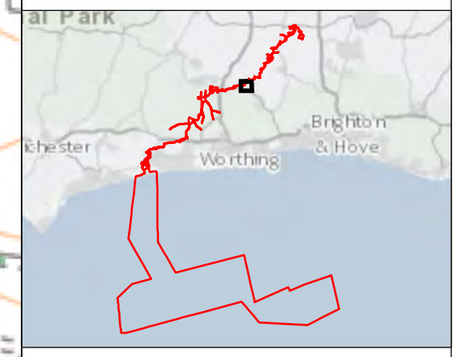
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
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1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

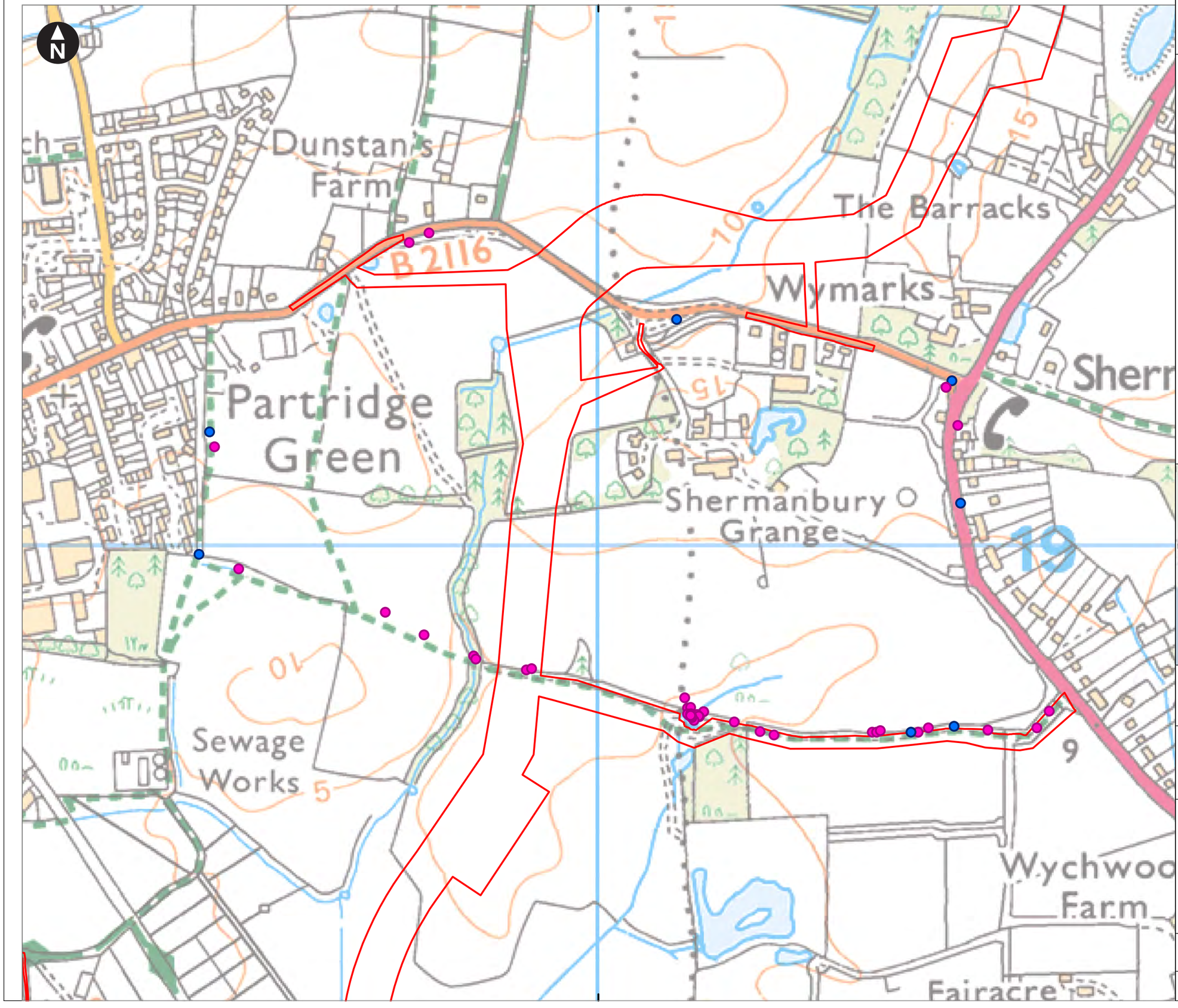
Figure 22.8.20f Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

520000



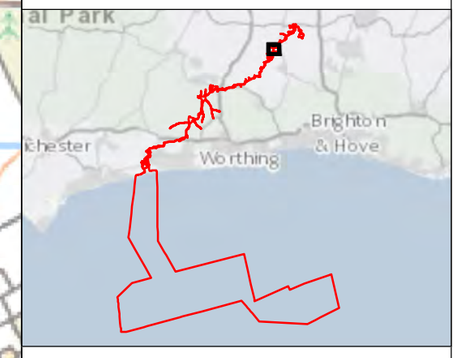
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
0 0.02 0.04 0.08 0.12 0.16
1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

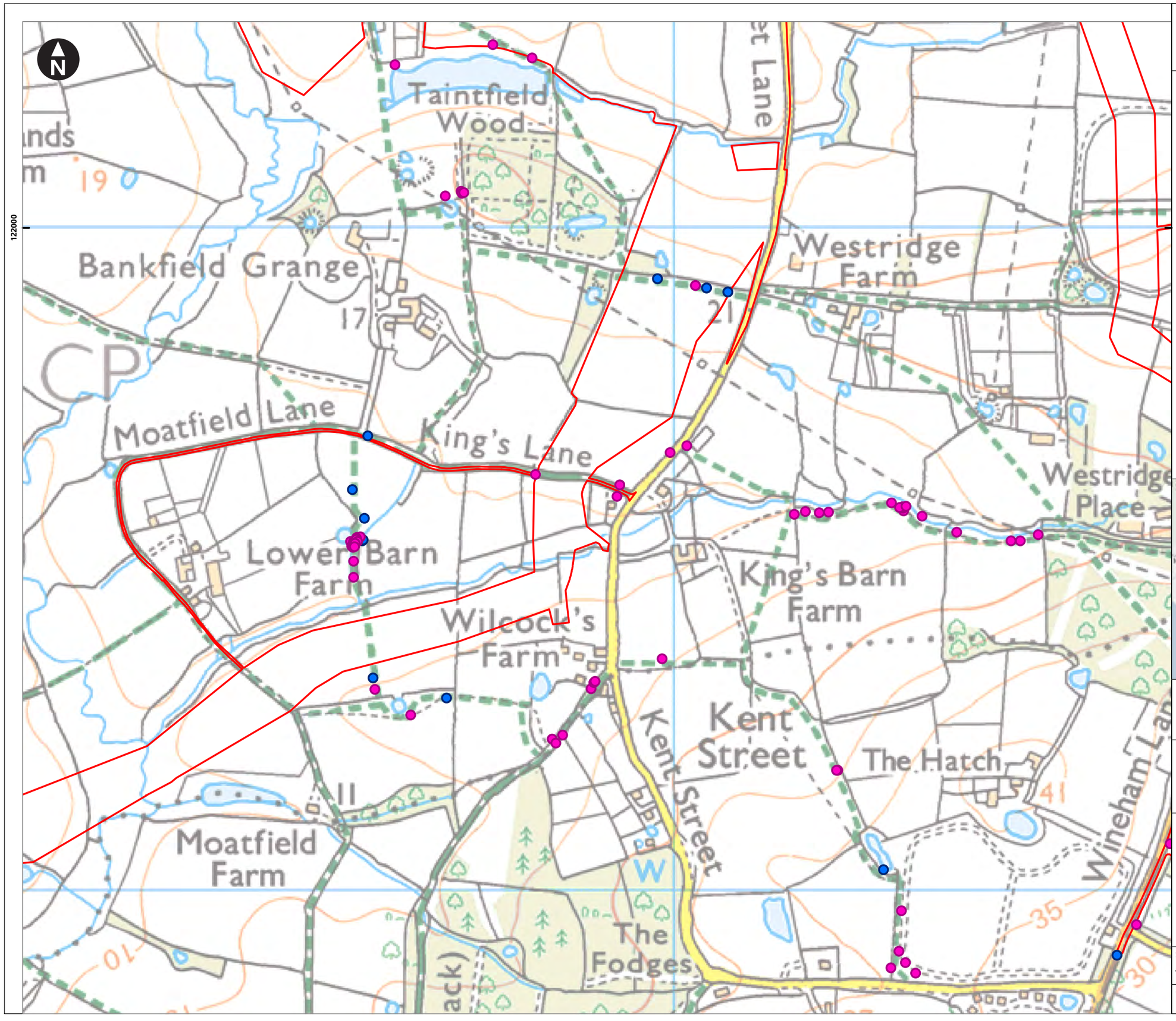
Figure 22.8.20g Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-8196	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



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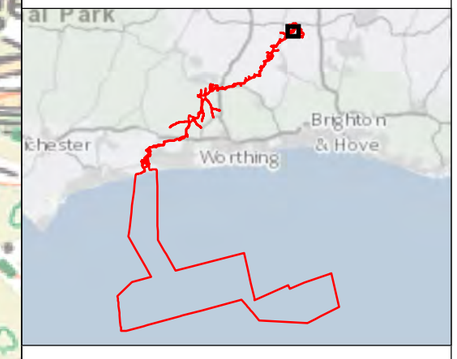
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
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1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.20h Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

524000

122000

Bugshole Copse

Nye's Copse

Purvey's Cottages

Red House

Nyeshill Farm

Eastridge Farm

Dawe's Farm

Purvey's Pit

Brookla Farm

Coombe House

Old Doctors

FB

20 25 27 35 38 24 23 34 17

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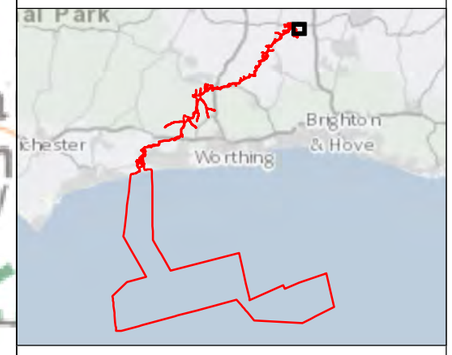
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
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1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.20i Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-8196				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

524000

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Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species

Kilometers
0 0.02 0.04 0.08 0.12 0.16
1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

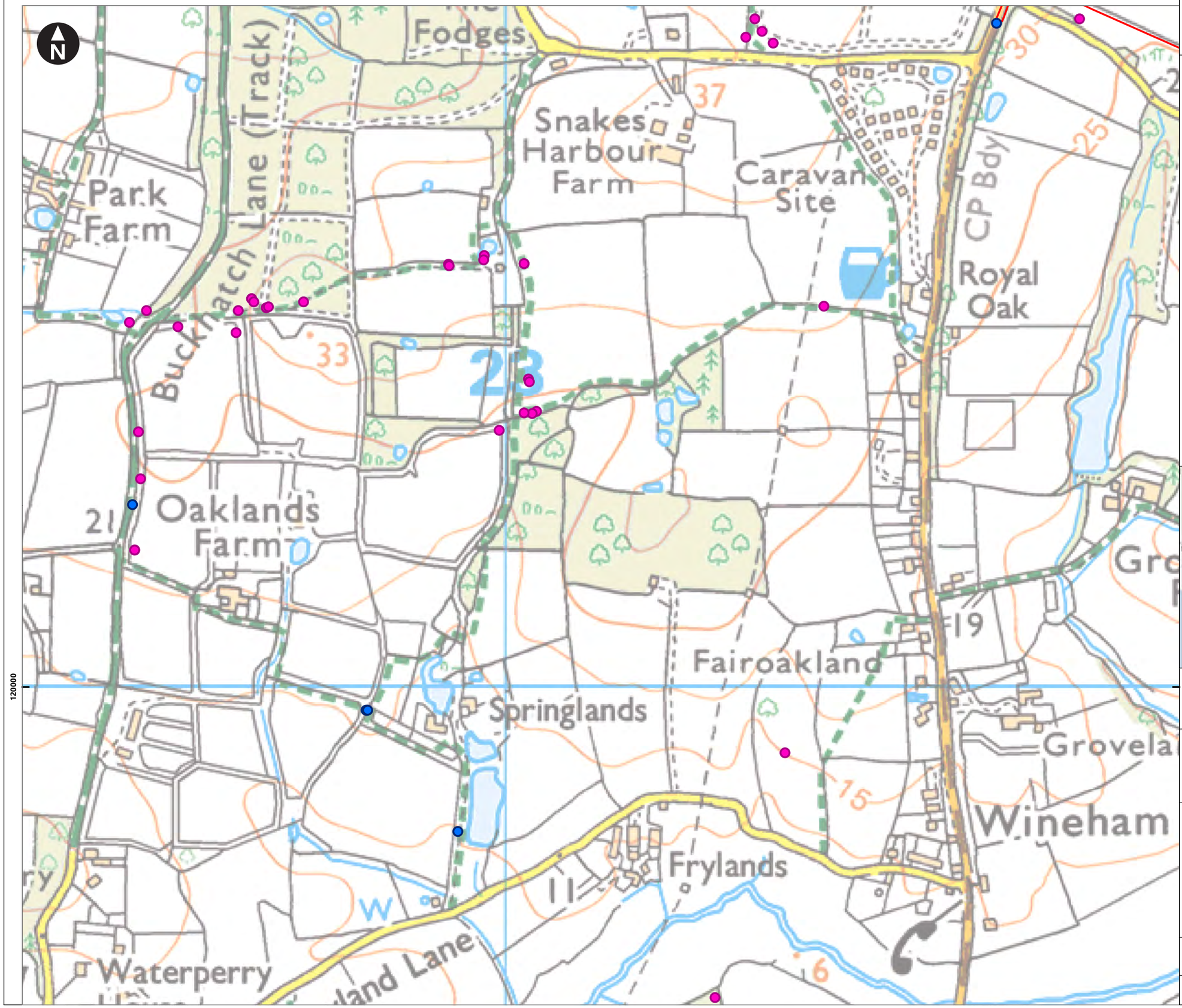
Figure 22.8.20j Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-8196	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



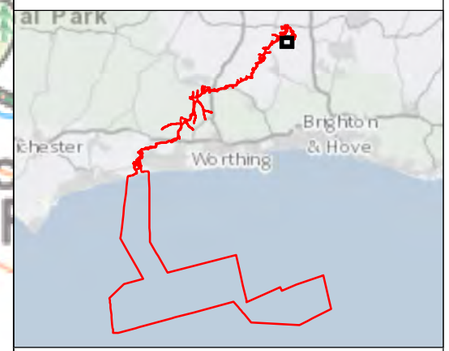
Key

Proposed DCO Order Limits

Species

Long Eared Bat

Myotis species



Kilometers
0 0.02 0.04 0.08 0.12 0.16
1:5,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.20k Bat activity: Myotis and Plecotus species activity distribution

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-8196	1.0

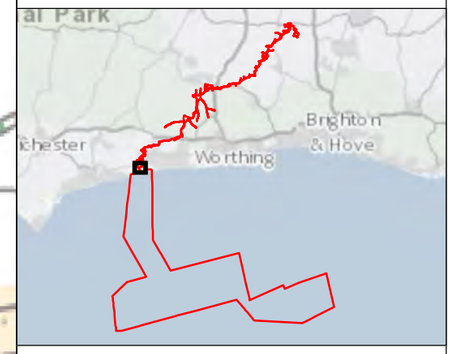
Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine



Kilometres

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1:5,000

Rampion Extension Development

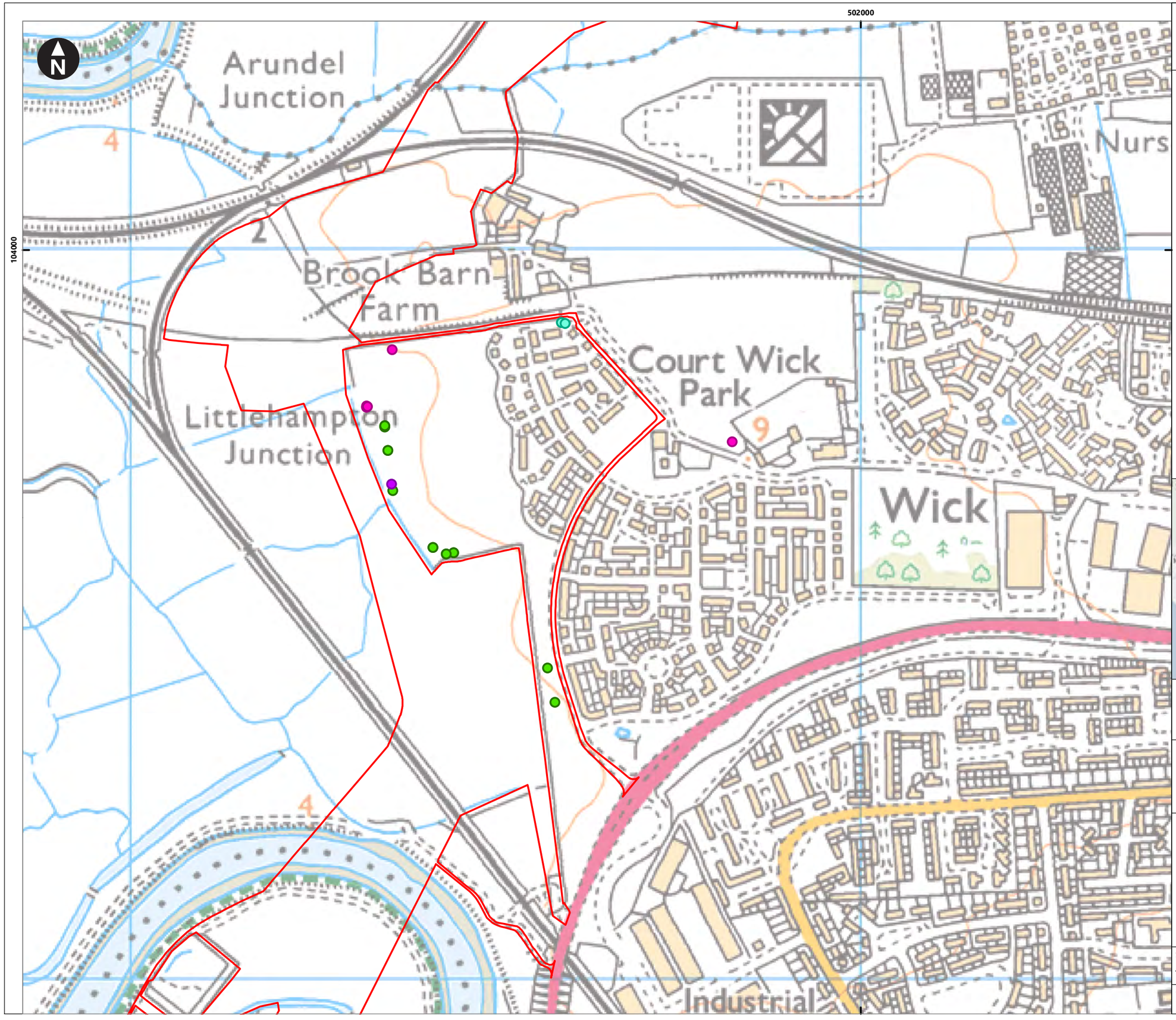
Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21a Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1102	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

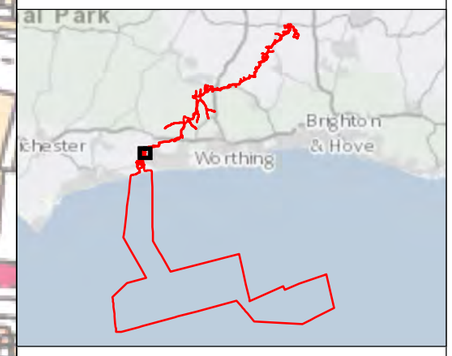


Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine



Kilometres

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1:5,000

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21b Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

504000

106000

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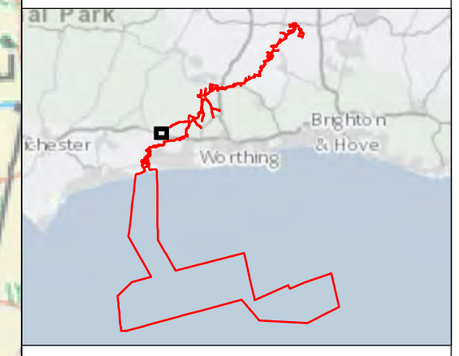
Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

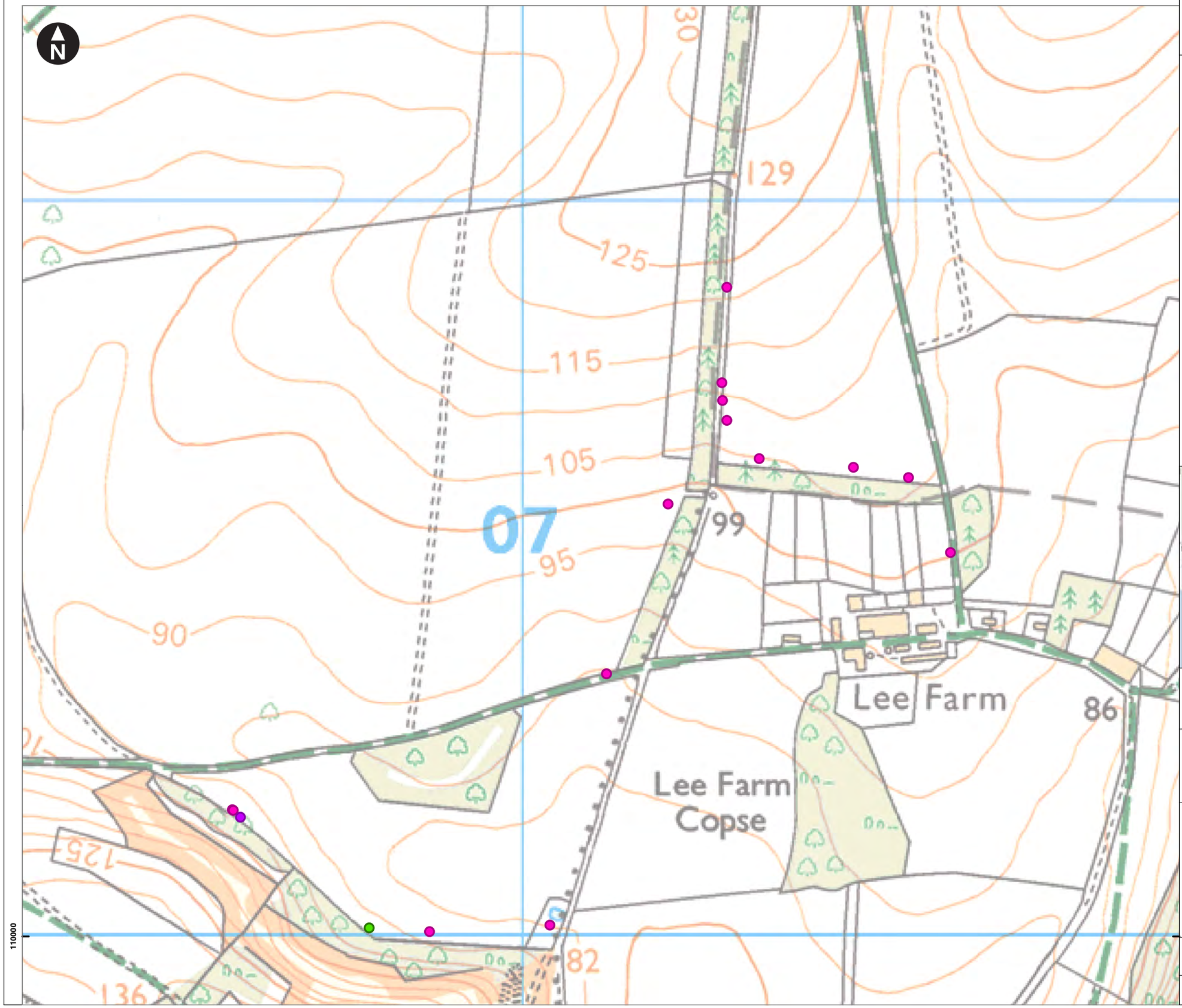
Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21c Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

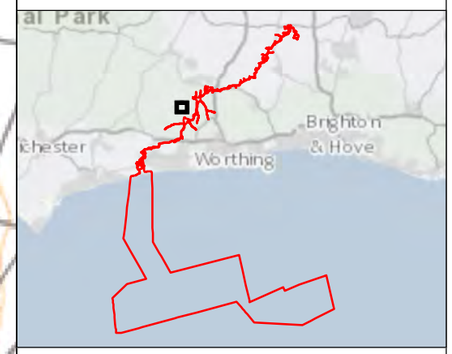


Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21d Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

516000

114000

Sopers

Guesses Farm

Guessgate Farm

Spithandle Lane

r Oak Farm

Upper Buncton House

Sevier's Barn

38

39

35

33

45

30

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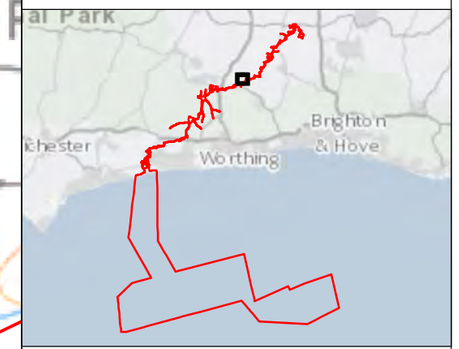
Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21e Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

516000

114000

N

ier's Barn

Loves Rough

New Ba

Cherrytree Rough

45

The Falconers

Horsebrook Cottage

Wappingthorn

Washington Road

41

Ham Farm

Service Layer Credits: Contains OS data © Crown Copyright and database right 2020

Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine

Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.21f Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

520000

N

Dunstan's Farm

B 2116

The Barracks

Wymarks

Partridge Green

Shermanbury

Shermanbury Grange

Wood Barn

Sewage Works

Wychwood Farm

Fairacre

Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine

Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21g Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1102	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL

524000

N

Nyeshill Farm

Eastridge Farm

Dawe's Farm

Purve Pit

Westridge Place

23

Coombe House

34

Old Doctors

Wineham La

Hatch

41

Sub Sta

17

35

30

25

21

CP Bdy

ravan Site

The Gill

Bob Lane

26

Twineham Grange

Twineham Co

Farm

Coombe Farm

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Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine

al Park

Brighton & Hove

Worthing

ichester

Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21h Bat activity: Serotine and Nyctalus species activity distribution

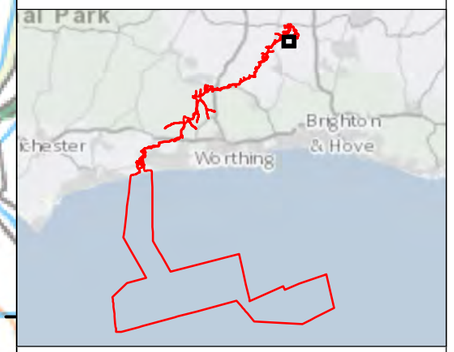
System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 25/07/2023	Status: FINAL

Key

Proposed DCO Order Limits

Species

- Leisler's
- Noctule
- Noctule/Serotine/Leisler's
- Nyctalus species
- Serotine



Kilometres

0 0.0275 0.055 0.11 0.165 0.22

1:5,000

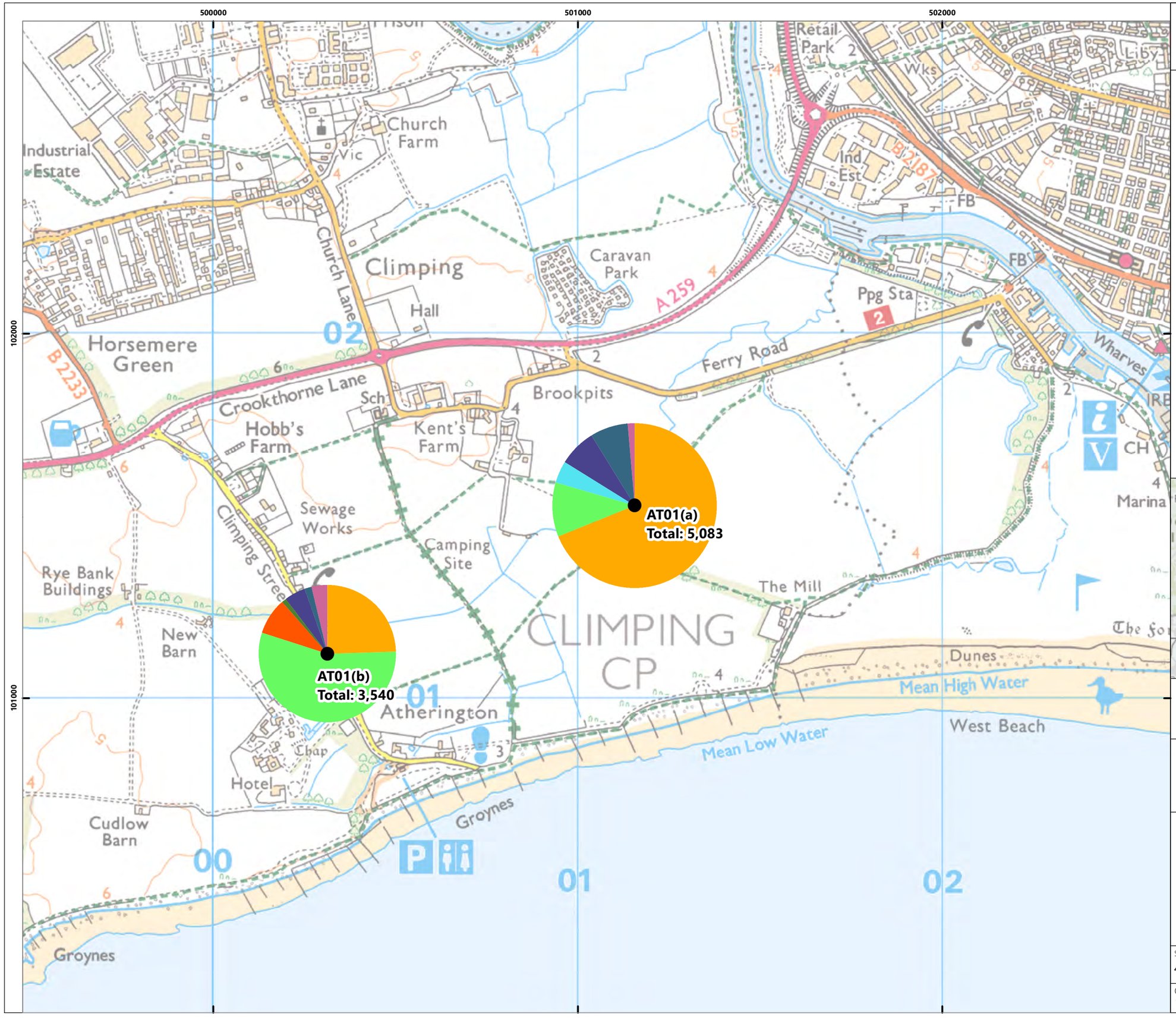
Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.21i Bat activity: Serotine and Nyctalus species activity distribution

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1102				1.0
Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	25/07/2023	FINAL



Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown

Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

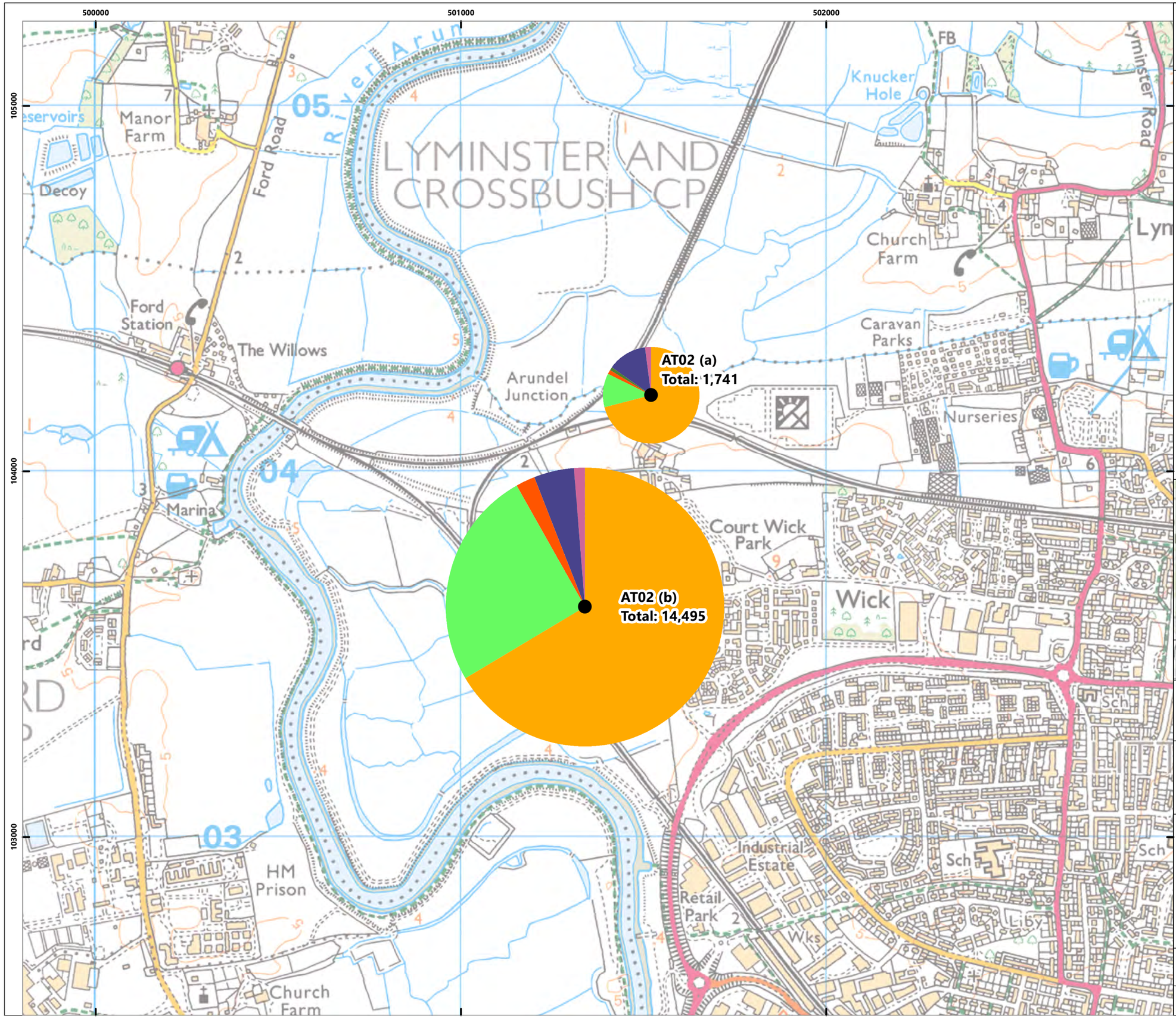
Figure 22.8.22a Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-2185	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL



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Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown

Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.22b Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-2185	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL

503000 504000 505000

108000 107000 106000

AT02
Total: 845

AT01
Total: 593

AT03 (b)
Total: 6,522

AT03 (a)
Total: 2,098

Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown

Kilometers
0 0.05 0.1 0.2 0.3 0.4

1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.22c Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-2185	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL

506000
507000
508000
111000
110000

AT03
Total: 164

AT04 (a)
Total: 4,040

AT04 (b)
Total: 29,360

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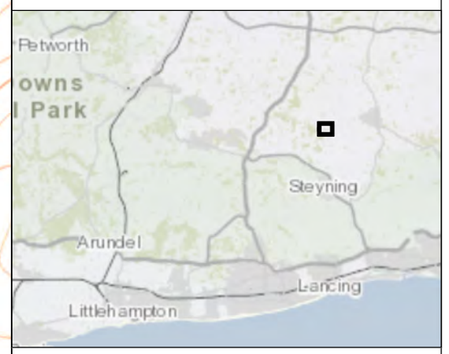
Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown



Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.22d Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-2185	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL

514000 515000 516000

115000 114000 113000

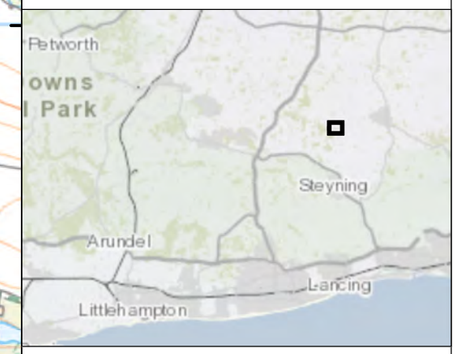
AT05 (a)
Total: 13,644

AT05 (b)
Total: 6,429

Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown



Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.22e Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-2185	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL

519000
520000
521000
120000
119000
118000

AT06 (a)
Total: 28

AT06 (b)
Total: 1,555

Littleworth
Jolesfield Common
Reeds Lane (Track)
Blanche's Farm
Joles Farm
Dunstan's Farm
Partridge Green
Sewage Works
Homelands Farm
Brightham's Farm
Greentree Farm
Wood Barn
Parkminster Wood
Lower Barn
Wymarks Wood
Morley
The Hangers
Flatfield Shaws
Ewhurst Cottages
The Barracks
Wymarks
Shermanbury
Buckbridge Wood
Shermanbury Grange
Ewhurst Manor
Gatehouse
Shermanbury Place
Wood Barn
Moat
Wychwood Farm
Fairacre
Marl Wood
Nymans Farm
Mock Br
Adur Cottages
Bottings Farm
B2116

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Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown

Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

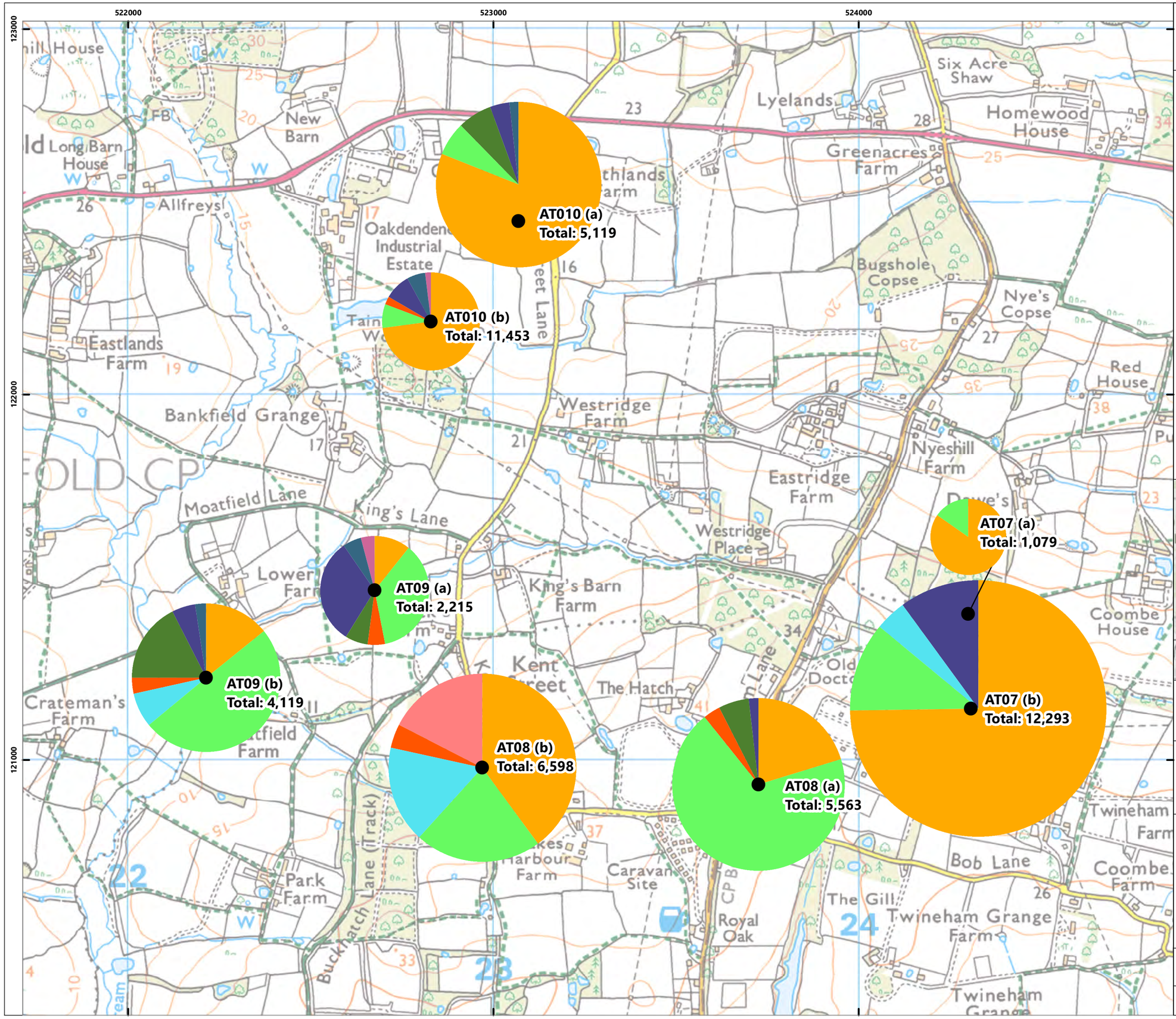
Rampion 2 Offshore Wind Farm

Figure 22.8.22f Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-2185				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 28/07/2023	Status: FINAL



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Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown

Kilometers
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.22g Total number of records per species per passive monitoring location

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-2185				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 28/07/2023	Status: FINAL

518000

AT11a
Total: 44,113

AT11b
Total: 4,314

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Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown

Kilometers
0 0.015 0.03 0.06 0.09 0.12

1:3,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

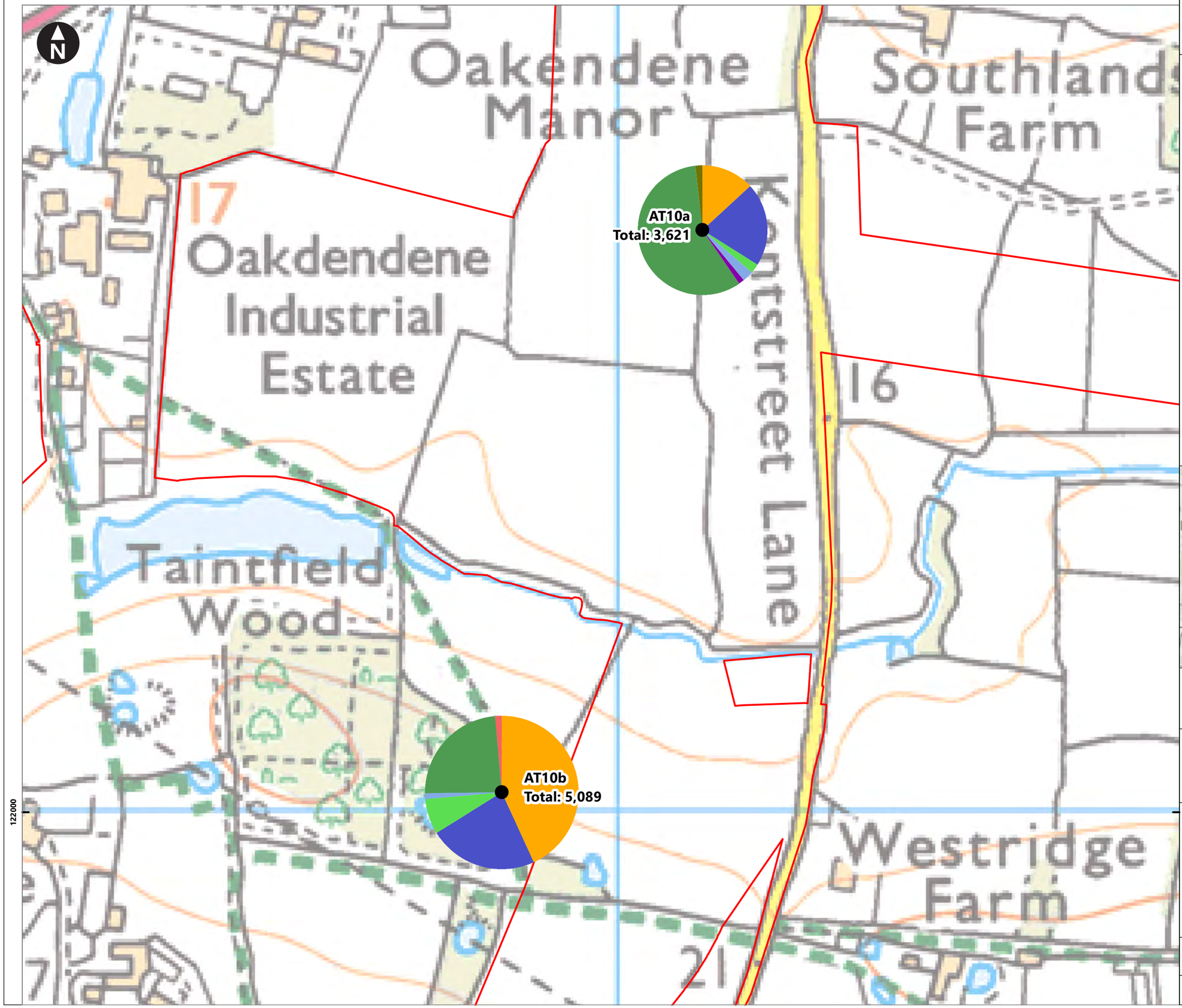
Figure 22.8.23a Total number of records per species per passive monitoring location (2022)

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1452	1.0

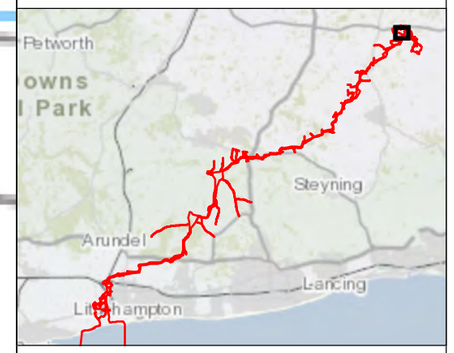
Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	20/07/2023	FINAL



Key

- Proposed DCO Order Limits
- CP
- SP
- SP/CP
- NP
- CP/NP
- N
- S
- L
- NSL
- NYC
- *Myotis*
- [redacted]
- *Plecotus*
- *Chrioptera*
- Original location of records

Total number of passes for all bats shown



Kilometers
0 0.015 0.03 0.06 0.09 0.12

1:3,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.23b Total number of records per species per passive monitoring location (2022)

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1452	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	20/07/2023	FINAL

500100 500400 500700 501000 501300 501600

102100 101800 101500 101200 100900 100600

N

Key

Proposed DCO Order Limits

ATO1 Manual Transect

Bat Activity

High

Low

Meters

0 25 50 100 150 200

1:6,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.24 AT01 Heat Map

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-3347	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	26/07/2023	FINAL

501250 501500 501750 502000

104000 103750 103500 103250

N

Key

- Proposed DCO Order Limits
- AT02 manual transect version 1
- AT02 manual transect version 2

Bat Activity

High

Low

Meters

0 12.5 25 50 75 100

1:3,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.25 AT02 Heat Map

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-4081	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	26/07/2023	FINAL

514500 515000 515500 516000

114500 114000 113500

N

Key

- Proposed DCO Order Limits
- Manual transect AT02 version 1
- Manual transect AT02 version 2

Bat Activity

High

Low

Meters

0 25 50 100 150 200

1:6,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.26 AT05 Heat Map

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-9576	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	27/07/2023	FINAL

519500

520000

520500

N

119500

119000

118500

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Key

Proposed DCO Order Limits

AT06 manual transect

Bat Activity

High

Low

Meters

0 20 40 80 120 160

1:5,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.27 AT06 Heat Map

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OI-2316				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 28/07/2023	Status: FINAL

522500
523000
523500
524000
122400
122000
121600
121200
120800
N

Service Layer Credits: Contains OS data © Crown Copyright and database right 2020

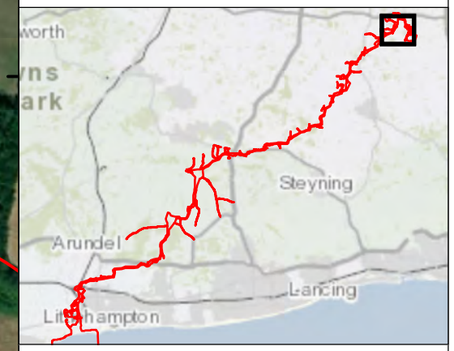
Key

- Proposed DCO Order Limits
- AT09 Manual Transect Version 1
- AT09 Manual Transect Version 2

Bat Activity

High

Low



Meters
0 30 60 120 180 240
1:7,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

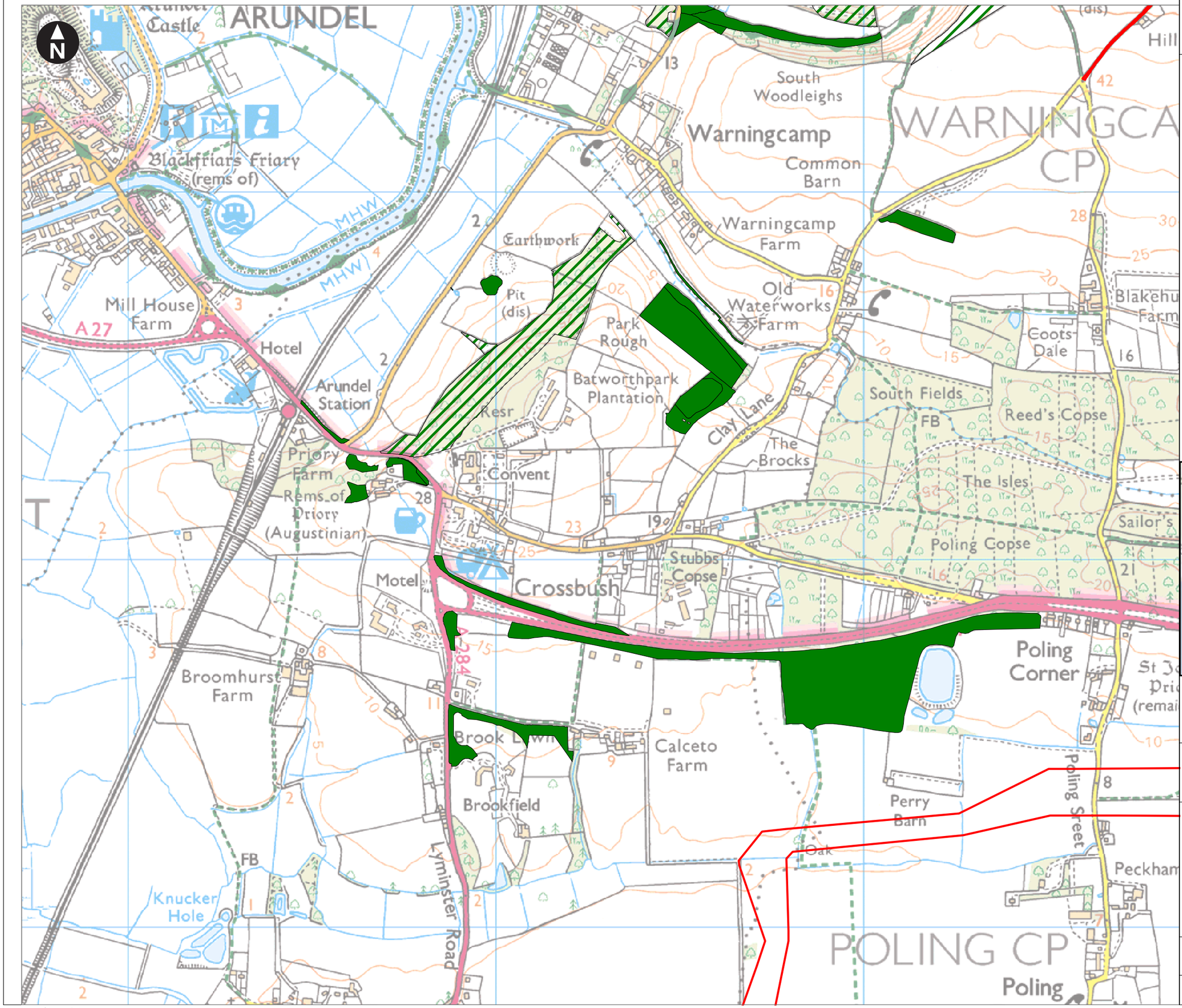
Figure 22.8.28 AT09 Heat Map

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-5442	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	28/07/2023	FINAL



Key

- Proposed DCO Order Limits
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.3.1: Mixed woodland - semi-natural
- A1.3.2: Mixed woodland - plantation

Kilometres
0 0.05 0.1 0.2 0.3 0.4

1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.29a Bechstein's project Wood habitat suitability criteria

Passive and active bat activity report

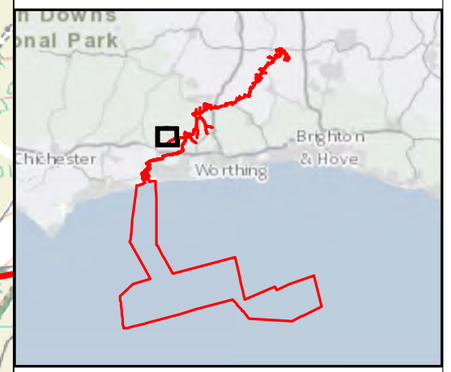
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1737	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	27/07/2023	FINAL

Key

- Proposed DCO Order Limits
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.3.1: Mixed woodland - semi-natural
- A1.3.2: Mixed woodland - plantation



Kilometres

0 0.05 0.1 0.2 0.3 0.4

1:10,000

British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 Offshore Wind Farm

Figure 22.8.29b Bechstein's project Wood habitat suitability criteria

Passive and active bat activity report

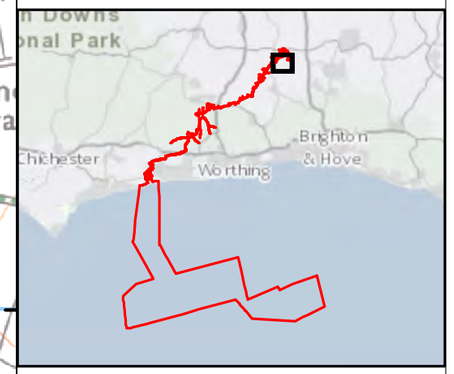
Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1737	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	27/07/2023	FINAL

Key

- Proposed DCO Order Limits
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.3.1: Mixed woodland - semi-natural
- A1.3.2: Mixed woodland - plantation



Kilometres
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

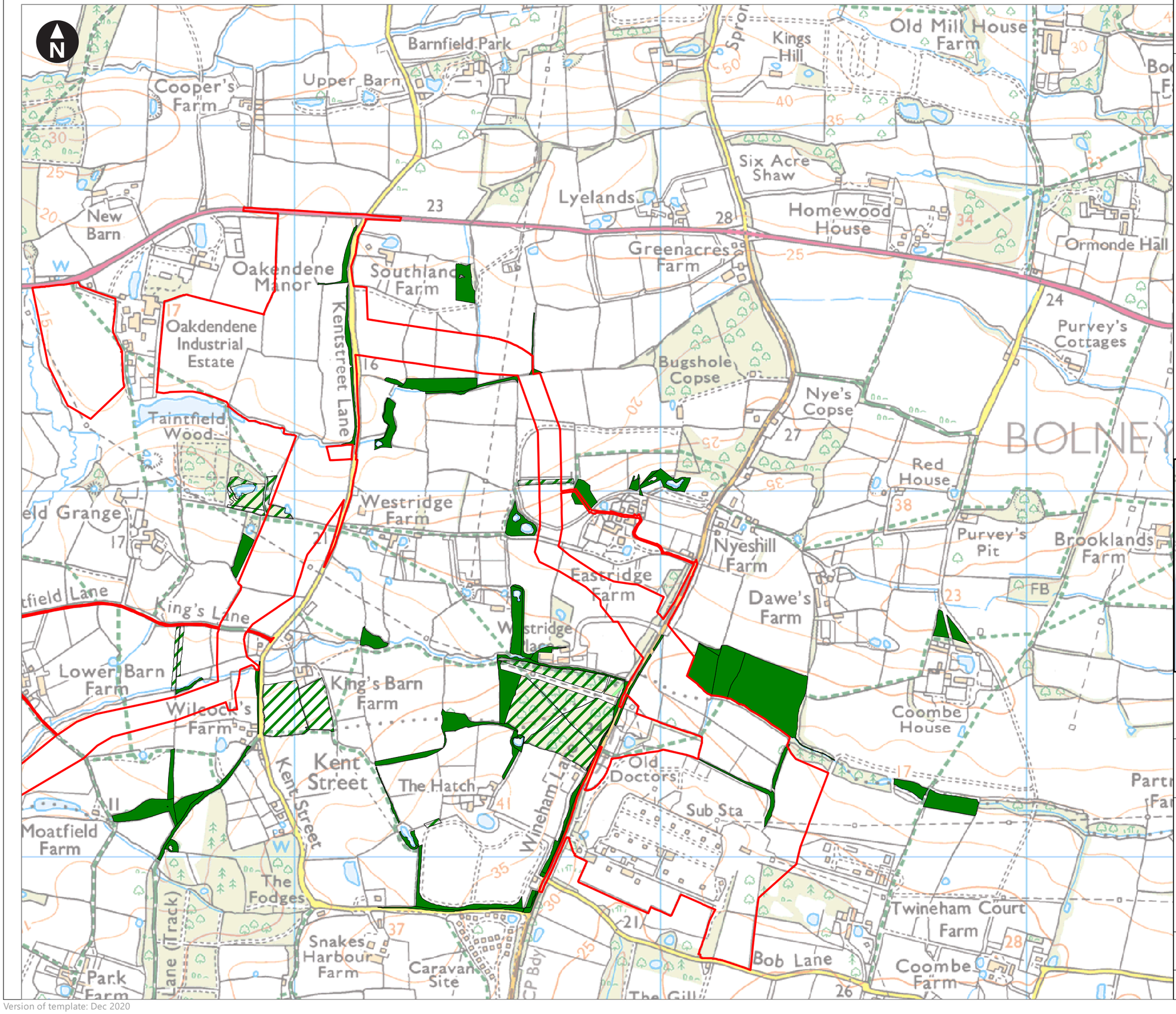
Figure 22.8.29c Bechstein's project Wood habitat suitability criteria

Passive and active bat activity report

Environmental Statement

System Identifier:	Version:
42285-WSPE-ES-ON-FG-OO-1737	1.0

Company:	Drawn By:	Chk/Aprvd:	Drawn Date:	Status:
WSP	HADJE	SUTET	27/07/2023	FINAL



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Key

- Proposed DCO Order Limits
- A1.1.1: Broadleaved woodland - semi-natural
- A1.1.2: Broadleaved woodland - plantation
- A1.3.1: Mixed woodland - semi-natural
- A1.3.2: Mixed woodland - plantation

Kilometres
0 0.05 0.1 0.2 0.3 0.4
1:10,000
British National Grid Transverse Mercator

Rampion Extension Development

Rampion 2 WIND FARM

Rampion 2 Offshore Wind Farm

Figure 22.8.29d Bechstein's project Wood habitat suitability criteria

Passive and active bat activity report

Environmental Statement

System Identifier:				Version:
42285-WSPE-ES-ON-FG-OO-1737				1.0
Company: WSP	Drawn By: HADJE	Chk/Aprvd: SUTET	Drawn Date: 27/07/2023	Status: FINAL

Annex B
Tables

Table B2-1 Manual transect route descriptions and locations of passive monitoring detectors in 2020, 2021 and 2022

Passive monitoring location	Description
2020	
AT01	A species-poor hedgerow with broadleaved trees. The hedgerow has connectivity to two ancient semi-natural woodland blocks: Batworth Park Plantation (12.9ha) 100m north-west, that supported good tree and shrub species diversity and a densely vegetated understorey; and Park Rough (5.0ha) approximately 20 m south-east that has good diversity of tree and shrub species and a sparse understorey. The hedgerow has connectivity to the wider landscape through adjoining hedgerows and tree lines. The fields surrounding the hedgerow are comprised of poor semi-improved grassland and improved grassland.
AT02	Linear strip of dense scrub (>10m wide) with trees marking a field boundary. The scrub habitat is well connected to two areas of ancient semi-natural woodlands. The Knell (3.0ha) 70m south, and Woodleighs (17.3 ha) 600m west. The linear scrub habitat had good connectivity to the wider landscape through adjoining hedgerows and tree lines. The fields surrounding the location are comprised of arable and calcareous grassland habitat.
AT03	A mixed deciduous plantation woodland (6.0ha), planted in a linear strip (1.5km) with a dense understorey. The woodland has good connectivity to wider landscape through connected tree lines and woodland trips and blocks to the north and south. The fields surrounding the location are comprised predominantly of arable and semi-improved grassland.
2021	
AT01a	Small tree group next to drainage ditch (Ryebank Rife) at an arable field margin. The ditch links to the River Arun to the North and to linear blocks of semi-natural broadleaved woodland via intact species poor hedgerows to the 950m to the southwest. The drainage ditch is vegetated with marginal plant species and had occasion semi-mature trees along its course. The fields surrounding the location are comprised of arable habitat.

Passive monitoring location	Description
AT01b	Linear section of broadleaved semi-natural woodland, demarcating an arable field boundary. The woodland has good connectivity to wider landscape via hedgerows, tree lines and linear woodland strips. The fields surrounding the location are comprised of arable habitat.
AT02a	Small tree group along a flowing stream (7m wide). The stream connects to the River Arun, 500m west of the detectors location and continues northeast into the Arun Valley. Two active railway tracks are situated to the north (87m) and south (61m) of this location. There are no connecting hedgerows or woodland blocks in the surrounding area. The nearest connected woodland block is comprised of semi-natural deciduous (4.6ha) is 450m southwest and is linked to location via a stream and a railway track. The fields surrounding the location are improved pasture and were cattle grazed.
AT02b	A mature tree line (15m wide) that demarcated three fields. The treeline was approximately 1.6km in length and broadly separated a new residential development and associated wildlife area to the east from agricultural fields to the west. The nearest connected woodland block is comprised of semi-natural deciduous woodland (4.6ha) is 230m northwest of the location. The tree line is connected to the River Arun to the south and to the wider landscape to the north via connected woodland blocks, ditches and watercourses and treelines. The fields surrounding the location are semi-improved grassland to the east and arable fields to the west.
AT03a	A species poor intact hedgerow with trees that connected to two broadleaved semi-natural woodlands to the east and west. The nearest woodland, Park Rough (5.0ha) is an ancient semi-natural woodland located 100m west of the location. Wepham Wood (approximately 545ha) an ancient replanted mixed woodland is located 200m east of the location. The hedgerow also connected to the wider landscape to the north and south through treelines and linked hedgerows. An arable field was located north of the location and a grazed semi-improved grassland is located to the south.
AT03b	A woodland edge of an ancient semi-natural woodland (Park Rough 5.0ha) has good diversity of tree and shrub species and a sparse understorey and shrub layer. The woodland edge has no marginal vegetation and abuts onto grassland. The woodland is connected to ancient semi natural woodlands to the north (200m) and south (530m) via treelines and intact species-poor hedgerows. A corridor of poor semi-improved grassland (15m wide) and then a mature tree line is located immediately north of the unit. Arable and

Passive monitoring location	Description
	semi-improved fields and connected tree lines and hedgerows were located in the area surrounding the woodland block.
AT04a	Same location description as AT03 2020.
AT04b	A defunct species-poor hedgerow with trees. A planted shelterbelt woodland block (1.9 ha) is located approximately 30m east along the hedge line and an ancient semi-natural woodland (2.6ha) is located approximately 210m west along the connecting hedgerow. There is connectivity to large woodland blocks in the wider landscape to the north and south via tree lines, hedgerows and linear woodlands. Arable fields surround the location to the north and south.
AT05a	A narrow (10m wide) mature deciduous woodland (Bush Hovel 0.4ha) with a north / south orientation. The woodland has a developed hazel understorey layer and bridleway running through the centre. The linear woodland is linked to an intact species rich hedgerow (30m east) and to a conifer woodland block (0.8ha) 320m southeast. The woodland is connected to other woodland blocks in the wider landscape at all cardinal points via intact species rich and species-poor hedgerows. The field east of the location is a poor semi-improved grassland used for sheep grazing and an arable field was located to the west of the woodland.
AT05b	Southwestern boundary of a semi-natural broadleaved woodland (7.2ha) block. The shrub and ground layer are underdeveloped. The woodland linked to woodland blocks to the north (10m), east (450m) and south (350m) via intact species poor hedgerows. The woodland is well connected to the wider landscape via hedgerows and treelines. Poor semi-improved grassland is present immediately west of the location, and arable and improved grassland surrounded the woodland block on all other aspects.
AT06a	An intact species-poor hedgerow with a north to south orientation. The hedgerow links to a large semi-natural deciduous woodland (Wymarks Wood 16.9ha) to the north and to a connected tree line to the south. The hedgerow is well connected to the wider landscape via linked hedgerows, woodland blocks and treelines. The fields immediately east and west of the unit are improved grassland used as horse pastures.
AT06b	A linear strip of semi-deciduous woodland, 722m in length with a north / south orientation and demarcated the boundary of six fields. The woodland strip comprised of oak, hazel and blackthorn. The woodland linked to woodland and dense hedgerow networks to the north via treelines and hedgerows. The nearest connected woodland (1ha) was

Passive monitoring location	Description
	comprised of semi-natural deciduous species and was 372m east of the location. The field immediately east of the location was poor semi-improved grassland and arable, improved and semi-improved fields were located to the west of the location.
AT07a	Located in the middle of an ancient semi-natural woodland block (Priorsbush 4.6ha). The woodland comprised of mature oak and ash, with a hazel, hawthorn and elder sub canopy layer. The woodland connects to a mosaic of tree lines and woodland blocks in the wider landscape via treelines and intact species rich and poor hedgerow connections to the north, east south, and west. Improved grassland fields surround the woodland block on all aspects.
AT07b	The tree line (500m) has a north / south orientation and connects to a deciduous woodland strip (1.9ha) 90m to the north and to a deciduous woodland block (2.8ha) to the 280m to the south. There is connectivity to wider landscape via tree lines, linear woodland blocks and field boundary hedgerows that are present in a high density at this part of the cable route. The fields east and west of the location comprised of improved grassland.
AT08a	Planted shelterbelt of deciduous woodland that surrounds Bolney substation near the junction of two roads (Wineham Lane 50m west and Bob Lane 10m south). The tree line connects to five deciduous woodland blocks located to east (250m, 790m), north (320m, 825m) and west (760m). There is connectivity to wider landscape via tree lines, linear woodland blocks and field boundary hedgerows that are present in a high density at this part of the proposed DCO Order Limits. The fields north and south of the unit are comprised of poor semi-improved grassland.
AT09a	Treeline (20m wide) comprises of semi-mature trees. The treeline had a north to south orientation and was 450m in length. There is connectivity to a woodland block (Woodcock Shaw 0.9 ha) 210m to the south and connectivity to the wider landscape via tree lines, linear woodland blocks and field boundary hedgerows that are present in a high density. The field east of the location is comprised of improved grassland and the field west of the location is comprised of poor semi-improved grassland.
AT09b	Treeline next to Cowfold stream, in a corner of a narrow north-east to south-west corridor of land 400m in length. The trees were semi-mature and were native broadleaved species, and a had a dense hedge like sub-canopy layer comprised of hawthorn and blackthorn. There was

Passive monitoring location	Description
	connectivity to the wider landscape to the south and north via the stream and hedgerows and treelines. The nearest connected woodland is 370m southeast. The field within the corridor of land and the surrounding fields are comprised of improved grassland.
AT10a	Intact species-poor hedgerow containing mature oak trees. The hedgerow has a north-south orientation and is 630m in length. The hedgerow connected to woodlands to the west (350m) east 500m and south (555m) and connects to the wider landscape via tree lines and hedgerows. The fields east and west of the location are comprised of improved grassland.
AT10b	Edge of a linear waterbody (1.6ha), 600m in length and stocked with fish. Semi-mature trees mark the boundary of the pond. The trees connect to an ancient semi-natural woodland (Taintfield Wood 4.9ha) 60m to the south and connects to the wider landscape on all aspects via treelines and hedgerows. The fields south of the pond are comprised of poor semi-improved grassland and the fields north of the pond are comprised of improved grassland.
2022	
AT10a	Same monitoring location as 2021.
AT10b	Within a woodland block (4.2ha). There is a waterbody in the centre of the woodland (0.2ha). There is connectivity to wider landscape on all sides via tree lines and field boundary hedgerows. The nearest connected woodland is 663m southeast. The fields to the north, east and west are comprised of improved grassland.
AT11a	Within a woodland block (Lowerbarn Wood, 2.2ha). The woodland is connected to the wider landscape via tree lines and hedgerows, with Square Copse 114m southwest and Calcot wood 276m southwest.
AT11b	Intact species-poor hedgerow. The hedgerow has a north-south orientation and was 197m in length. The hedgerow connects directly to woodlands north (Square Copse) and south (Calcot Wood) and connects to the wider landscape via tree lines and hedgerows. The fields east and west of the location are comprised of semi-improved grassland.

Table B2-2 Dates of manual transect surveys

Transect	Date
AT01	22/04/2021, 18/05/2021, 14/06/2021, 26/07/2021, 23/08/2021, 14/09/2021, and 25/10/2021
AT02	19/04/2021, 18/05/2021, 21/06/2021, 26/07/2021, 23/08/2021, 24/08/2021, 20/09/2021, and 26/10/2021
AT03	19/04/2021, 18/05/2021, 14/06/2021, 26/07/2021, 23/08/2021, 24/08/2021, 14/09/2021, and 27/10/2021
AT04	20/04/2021, 19/05/2021, 15/06/2021, 27/07/2021, 28/07/2021, 24/08/2021, 15/09/2021, and 19/10/2021
AT05	20/04/2021, 19/05/2021, 15/06/2021, 27/07/2021, 28/07/2021, 24/08/2021, 20/09/2021, and 19/10/2021
AT06	20/04/2021, 19/05/2021, 30/06/2021, 27/07/2021, 28/07/2021, 24/08/2021, 15/09/2021, and 25/10/2021
AT07	21/04/2021, 20/05/2021, 30/06/2021, 29/07/2021, 25/08/2021, 26/08/2021, and 16/09/2021
AT08	21/04/2021, 20/05/2021, 08/07/2021, 07/07/2021, 29/07/2021, 25/08/2021, 26/08/2021, and 16/09/2021
AT09	21/04/2021, 20/05/2021, 25/08/2021, 26/08/2021, and 16/09/2021
AT10	27/04/2022, 10/05/2022, 13/06/2022, 21/07/2022, 22/07/2022, 02/08/2022, 14/09/2022, and 05/10/2022
AT11	27/04/2022, 10/05/2022, 02/08/2022, 28/09/2022, and 31/10/2022

Table B2-3 Manual transect routes affected by land access restrictions in 2020, 2021 and 2022

Ref.	April	May	June	July	August	September	October
AT01a	No access	No access	-	-	-	No access	-
AT01b	No access	No access	-	-	-	No access	-
AT02a	No access	No access	No access	-	No access	-	No access
AT02b	No access	No access	No access	-	No access	-	No access
AT03a	-	-	-	-	-	-	-
AT03b	-	-	-	-	-	-	-
AT04a	-	-	-	-	-	-	-
AT04b	-	-	-	-	-	-	-
AT05a	No access	No access	-	-	-	-	-
AT05b	No access	No access	No access	-	-	-	No access
AT06a	-	No access	-	-	-	No access	-
AT06b	No access	-	-	-	-	-	-
AT07a	No access	No access	-	-	-	-	-
AT07b	No access	No access	No access	-	-	-	-
AT08a	-	No access	No access	-	-	-	-

Ref.	April	May	June	July	August	September	October
AT08b	No access	No access	-	-	-	-	-
AT09a	No access	-	-	-	-	-	-
AT09b	No access	-	-	-	-	-	-
AT10a	-	-	-	-	-	-	-
AT10b	-	-	-	-	-	-	-
AT11a	-	-	-	-	-		
At11b	-	-	No access	No access	-	-	-

Table B2-4 Environmental conditions for manual transects 2020-2022

Date	Sunset	Sunrise	Moon Phase	Start temp (ºC)	End temp (ºC)	Precipitation	Start humidity (%)	End humidity (%)	Cloud cover	Wind speed	Transect No:
14/10/2020*	18:08	N/A	-	12.2 – 7.2	12.2 – 10	None	-	-		12.1	AT01
15/10/2020	18:06	N/A	-	6.1 – 3.9	12.2 – 10	None	-	-		9.6	AT02
16/10/2020	18:04	N/A	-	10 – 8.9	10 – 8.9	None	-	-		4.1	AT03
17/10/2020	18:02	N/A	-		11.1 – 10	None	-	-		5.1	AT04
18/10/2020		N/A	-		11.1 – 10	None	-	-		2.9	AT01
22/04/2021	20:09	N/A	First quarter			None			1	Moderate	AT01
19/04/2021	20:04	N/A	First quarter			None			0	Calm	AT02
19/04/2021	20:04	N/A	First quarter	6.0	2.9	None	72.00	84.00	0	Calm	AT03
20/04/2021	20:05	N/A	First quarter			None			0		AT04
20/04/2021	20:05	N/A	First quarter	11.5	8.0	None	69.00	76.00	30	Calm	AT05
20/04/2021	20:05	N/A	First quarter	9.9	6.0	None	65.00	71.00	0	Calm	AT06
21/04/2021	20:09	N/A	First quarter	11.2	8.9	None	51.50	63.00	0	Moderate	AT07
21/04/2021	20:05	N/A	First quarter	2.5	1.5	None	66.00	68.00	0	Calm	AT08
21/04/2021	20:07	N/A	First quarter	9.9	6.0	None	65.00	71.00	10	Calm	AT09
18/05/2021	20:48	N/A	Waxing crescent	13.0	10.2	Light	85.00	92.00	75	Light	AT01
18/05/2021	20:48	N/A	Waxing crescent	8.5	8.8	Light	78.00	67	100	Light	AT02
18/05/2021	20:48	N/A	Waxing crescent	16.7	14.6	None	64.40	70	65	Calm	AT03
19/05/2021	20:50	N/A	Waxing crescent	11.3	9.5	None			10	Calm	AT04
19/05/2021	20:50	N/A	Waxing crescent	10.6	7.1	None	68.00	89	20	Calm	AT05
19/05/2021	20:50	N/A	Waxing crescent	12.5	7.5	None	51.00	60	10	Calm	AT06
20/05/2021	20:51	N/A	Waxing crescent	10.9		None	67.00		95	strong	AT07
20/05/2021	20:51	N/A	Waxing crescent	12.9	11.1	None	72.00	79	95	strong	AT08
20/05/2021	20:51	N/A	Waxing crescent	13.0	12.8	None	73.50	74	30	strong	AT09
14/06/2021	21:17	N/A	Waxing crescent	18.3	19.6	None	53.00	68	75	Calm	AT01
21/06/2021	21:19	N/A	Waxing crescent	15.8		None	64.70		100	Light	AT02

Date	Sunset	Sunrise	Moon Phase	Start temp (ºC)	End temp (ºC)	Precipitation	Start humidity (%)	End humidity (%)	Cloud cover	Wind speed	Transect No:
14/06/2021	21:17	N/A	Waxing crescent	19.0	18.0	None	68	75	100	Light	AT03
15/06/2021	21:17	N/A	Waxing crescent	17.0		None	63.00	79	5	Calm	AT04
15/06/2021	21:17	N/A	Waxing crescent	19.2	13.8	None	39.00	60	0	Calm	AT05
30/06/2021	21:19	N/A	Waxing crescent	19.7	19.6	None	83.50	79	100	Calm	AT06
30/06/2021	21:19	N/A	Waxing crescent	15.3	14.0	None	82.00	84	100	Calm	AT07
08/07/2021	21:15	N/A	Waxing crescent	15.8	14.4	None	71.30	83.1	50	Calm	AT08
07/07/2021	21:15	N/A	Waxing crescent	15.0	15.0	None	87.00	86	100	Calm	AT09
26/07/2021	20:55	N/A	Waning Gibbous	20.0	18.0	None	82.00	93	95	Light	AT01
26/07/2021	20:55	N/A	Waning Gibbous	19.0	18.0	Light	87.00	84	50	Light	AT02
26/07/2021	20:55	N/A	Waning Gibbous	20.1	18.0	Light	57.00	78	90	Light	AT03
27/07/2021	20:54	N/A	Waning Gibbous	16.4	16.5	None	81.00	83	100	Moderate	AT04
27/07/2021	20:54	N/A	Waning Gibbous	17.0	15.0	None	88.00	84	80	Calm	AT05
27/07/2021	20:54	N/A	Waning Gibbous	20.0	12.0	None	55.00	63	100	Light	AT06
29/07/2021	20:53	N/A	Waning Gibbous	16.0	14.6	None	50.00	79	60	Calm	AT07
29/07/2021	20:53	N/A	Waning Gibbous	17.0	11.5	None	72.00	83	70	Calm	AT08
28/07/2021	NR	05:21	Waning Gibbous	16.0	16.0	None	92.00	79	100	Light	AT04
28/07/2021	NR	05:21	Waning Gibbous	17.0	17.0	None	87.00	77	100	Calm	AT05
28/07/2021	NR	05:21	Waning Gibbous	17.0	16.0	None	88.00	94	10	Light	AT06
23/08/2021	20:05	N/A	Waning Gibbous	17.6	13.0	None	67.00	81	30	Light	AT01
23/08/2021	20:05	N/A	Waning Gibbous	17.0	15.0	None	67.00	81	30	Light	AT02
23/08/2021	20:05	N/A	Waning Gibbous	12.8	12.8	None	59.00	70	15	Calm	AT03
24/08/2021	20:03	N/A	Waning Gibbous	16.4	13.2	None	50.00	72	5	Moderate	AT04
24/08/2021	20:03	N/A	Waning Gibbous	19.0	17.0	None	62.00	76			AT05
24/08/2021	20:03	N/A	Waning Gibbous	16.7	15.0	None	97.00	63	5	Calm	AT06
25/08/2021	20:01	N/A	Waning Gibbous	18.0	15.0	None	49.00	67	10	Light	AT07
25/08/2021	20:01	N/A	Waning Gibbous	18.3	14.6	None	47.00	65	10	Calm	AT08

Date	Sunset	Sunrise	Moon Phase	Start temp (ºC)	End temp (ºC)	Precipitation	Start humidity (%)	End humidity (%)	Cloud cover	Wind speed	Transect No:
25/08/2021	20:01	N/A	Waning Gibbous	19.6	14.8	None	47.00	61	0	Calm	AT09
24/08/2021	NR	06:05	Waning Gibbous	12.0	13.0	None		70	25	Calm	AT01
24/08/2021	NR	06:05	Waning Gibbous	12.0	13.0			70	25	Calm	AT02
24/08/2021	NR	06:05	Waning Gibbous	12.8	12.9	None	59.00	70	25	Calm	AT03
26/08/2021	NR	06:05	Waning Gibbous								AT07
26/08/2021	NR	06:05	Waning Gibbous	16.0	14.3	None	79.00	84	100	Calm	AT08
26/08/2021	NR	06:05	Waning Gibbous	17.6	15.7	None	47.00	67	100	Calm	AT09
14/09/2021	19:17	N/A		18.2	16.3	None	99.00	95	90	Calm	AT01
20/09/2021	19:03	N/A									AT02
14/09/2021	19:17	N/A	Waxing Gibbous	19.2	18.0	None	67.00	74	100	Calm	AT03
15/09/2021	19:14	N/A	Waxing Gibbous	15.2	10.8	None	64.00	95	0	Calm	AT04
20/09/2021	19:04	N/A	Waxing Gibbous	18.0	17.0	None	67.00	84	10	Calm	AT05
15/09/2021	19:14	N/A	Half	14.5	13.7	None	93.00	84	5	Light	AT06
16/09/2021	19:12	N/A	Waxing Gibbous	13.7	13.3	None	61.00	69	5	Calm	AT07
16/09/2021	19:12	N/A	Waxing Gibbous	16.4	12.4	None	69.00	95	20	Calm	AT08
16/09/2021	19:12	N/A	Waxing Gibbous	17.1	14.2	None	63.00	84	20	Calm	AT09
25/10/2021	17:50	N/A	Waxing Gibbous	13.1	11.0	None	75.70	81.3	20	Moderate	AT01
26/10/2021	17:47	N/A	Waxing Gibbous	16.0	15.0	Light	85.00	72	100	Light	AT02
27/10/2021	17:46	N/A	Waxing Gibbous	15.0	10.0	None	76.00		100	Calm	AT03
19/10/2021	18:59	N/A		18.0	10.0	None	92.00	90	80	Light	AT04
19/10/2021	18:59	N/A	Waxing Gibbous	17.9	16.2	None	87.70	80.7	100	Strong	AT05
25/10/2021	17:48	N/A	Waning Gibbous	12.0	10.0	None	86.00	72	25	Calm	AT06
27/04/2022	20:16	N/A	Waning Crescent	10.0	7.0	None	56.00	72	0	Calm	AT10
27/04/2022	20:16	N/A	Waning Crescent	9.5	6.5	None	56.00	72	20	Calm	AT11
10/05/2022	20:39	N/A	Waxing gibbous	15.0	13.0	None	65.90	78.5	0	Calm	AT10
10/05/2022	20:39	N/A	Waxing gibbous	18.0	12.0	None	55.00	83	90	Calm	AT11

Date	Sunset	Sunrise	Moon Phase	Start temp (ºC)	End temp (ºC)	Precipitation	Start humidity (%)	End humidity (%)	Cloud cover	Wind speed	Transect No:
13/06/2022	21:16	N/A	Full moon	13.0	11.0	None	78.00	87	100	Calm	AT10
21/07/2022	21:03	N/A	Last quarter	19.0	16.0	None	81.00		100	Calm	AT10
22/07/2022	NR	05:13	Last quarter	14.9	14.7	None	76.20	74.7	100	Calm	AT10
02/08/2022	20:45	N/A	Waxing gibbous	19.0	17.0	None	82.00	91	50	Calm	AT10
08/08/2022	20:45	N/A	Waxing gibbous	19.0	17.0	None	82.00	91	90	Calm	AT11
14/09/2022	19:19	N/A	Waning Gibbous	18.0	16.0	None	68.00	72	0	Calm	AT10
28/09/2022	18:48	N/A	Waxing crescent	14	9	None	60	89	10	Calm	AT11
05/10/2022	18:30	N/A	Waxing crescent	14.0	12.0	None	72.00	71	75	Calm	AT10

*Data parameters not collected during 2020 as further parameters were added during 2021.

Table B2-5 Passive monitoring locations 2020

Ref.	Grid Reference
AT01	TQ 0346 0677
AT02	TQ 0455 0795
AT03	TQ 0722 1067

Table B2-6 Passive monitoring dates selected for analysis 2020

Ref.	Visit 1	Visit 2
AT01	-	14/10/2020 to 18/10/2020
AT02	-	14/10/2020 to 18/10/2020
AT03	-	14/10/2020 to 18/10/2020

Table B2-7 Passive monitoring locations 2021-2022

Ref.	Grid Reference
AT01a	TQ0115601528
AT01b	TQ0031301122
AT02a	TQ 0152104208
AT02b	TQ 0134003629
AT03a	TQ0374906560
AT03b	TQ0357906665
AT04a	TQ0721710676
AT04b	TQ 0673510243
AT05a	TQ1500913799
AT05b	TQ 1538514026
AT06a	TQ 2053719618
AT06b	TQ 19762 18677
AT07a	TQ 24372 21424

Ref.	Grid Reference
AT07b	TQ 24307 21141
AT08a	TQ23726 20933
AT08b	TQ 22970 20979
AT09a	TQ22675 21464
AT09b	TQ22214 21225
AT10a	TQ 23069 22475
AT10b	TQ 22905 22016
AT11a	TQ 17799 15366
AT11b	TQ 17519 15117

Table B2-8 Passive monitoring dates selected for analysis 2021

Ref.	April	May	June	July	August	September	October
AT01a	-	-	17/06/2021 to 21/06/2021	22/07/2021 to 26/07/2021	26/08/2021 to 30/08/2021	-	19/10/2021 to 23/10/2021
AT01b	-	-	17/06/2021 to 21/06/2021	22/07/2021 to 26/07/2021	26/08/2021 to 30/08/2021	-	19/10/2021 to 23/10/2021
AT02a	-	-	-	22/07/2021 to 26/07/2021	-	15/09/2021 to 19/09/2021	-
AT02b	-	-	-	22/07/2021 to 26/07/2021	-	14/09/2021 to 17/09/2021	-
AT03a	22/04/2021 to 26/04/2021	21/05/2021 to 26/05/2021	17/06/2021 to 21/06/2021	22/07/2021 to 26/07/2021	26/08/2021 to 30/08/2021	15/09/2021 to 19/09/2021	19/10/2021 to 23/10/2021
AT03b	22/04/2021 to 26/04/2021	22/05/2021 to 27/05/2021	17/06/2021 to 21/06/2021	22/07/2021; 09/08/2021	25/08/2021 to 28/08/2021	14/09/2021	18/10/2021 to 20/10/2021
AT04a	22/04/2021 to 26/04/2021	22/05/2021 to 27/05/2021	17/06/2021 to 21/06/2021	23/07/2021 to 27/07/2021	26/08/2021 to 30/08/2021	15/09/2021 to 19/09/2021	19/10/2021 to 23/10/2021
AT04b	22/04/2021 to 26/04/2021	-	17/06/2021 to 21/06/2021	23/07/2021 to 27/07/2021	26/08/2021 to 29/08/2021	15/09/2021 to 19/09/2021	19/10/2021 to 23/10/2021
AT05a	-	-	17/06/2021 to 21/06/2021	23/07/2021 to 27/07/2021	26/08/2021 to 30/08/2021	15/09/2021 to 19/09/2021	20/10/2021 to 24/10/2021
AT05b	-	-	-	23/07/2021 to 27/07/2021	26/08/2021 to 30/08/2021	15/09/2021 to 17/09/2021	-

Ref.	April	May	June	July	August	September	October
AT06a	22/04/2021 to 26/04/2021	-	17/06/2021 to 21/06/2021	23/07/2021 to 27/07/2021	26/08/2021 to 30/08/2021	-	19/10/2021 to 22/10/2021
AT06b	-	19/05/2021 to 24/05/2021	17/06/2021 to 21/06/2021	23/07/2021 to 27/07/2021	26/08/2021 to 29/08/2021	15/09/2021 to 19/09/2021	20/10/2021 to 24/10/2021
AT07a	-	-	17/06/2021 to 21/06/2021	22/07/2021 to 26/07/2021	26/08/2021 to 29/08/2021	15/09/2021 to 19/09/2021	21/10/2021 to 24/10/2021
AT07b	-	-	-	22/07/2021 to 26/07/2021	25/08/2021 to 28/08/2021	15/09/2021 to 19/09/2021	21/10/2021 to 25/10/2021
AT08a	22/04/2021 to 26/04/2021	19/05/2021 to 22/05/2021; 24/05/2021 to 25/05/2021	-	22/07/2021 to 26/07/2021	25/08/2021 to 29/08/2021	15/09/2021 to 19/09/2021	21/10/2021 to 25/10/2021
AT08b	-	-	17/06/2021 to 21/06/2021	22/07/2021 to 26/07/2021	25/08/2021 to 29/08/2021	15/09/2021 to 19/09/2021	21/10/2021 to 25/10/2021
AT09a	-	25/05/2021 to 29/05/2021	17/06/2021 to 21/06/2021	29/07/2021 to 02/08/2021	25/08/2021 to 27/08/2021	15/09/2021 to 19/09/2021	21/10/2021 to 25/10/2021
AT09b	-	25/05/2021 to 29/05/2021	17/06/2021 to 21/06/2021	29/07/2021 to 02/08/2021	25/08/2021 to 29/08/2021	15/09/2021 to 19/09/2021	21/10/2021 to 25/10/2021
AT10a	-	-	-	-	-	16/09/2021 to 18/09/2021	21/10/2021 to 25/10/2021
AT10b	-	-	-	-	-	16/09/2021 to 20/09/2021	21/10/2021 to 25/10/2021

Table B2-9 Passive monitoring locations 2022

Ref.	Grid Reference
AT10a	TQ 23069 22475
AT10b	TQ 22905 22016
AT11a	TQ 17799 15366
AT11b	TQ 17519 15117

Table B2-10 Passive monitoring dates selected for analysis 2022

Ref.	April	May	June	July	August	September	October
AT10a	05/04/2022 to 06/04/2022	06/05/2022 to 10/05/2022	09/06/2022 to 13/06/2022	06/07/2022 to 10/07/2022	02/08/2022 to 05/08/2022	-	10/10/2022 to 14/10/2022
AT10b	05/04/2022 to 10/04/2022	06/05/2022 to 07/05/2022	09/06/2022 to 13/06/2022	06/07/2022 to 10/07/2022	-	07/09/2022, 09/09/2022, 10/09/2022, 12/09/2022	10/10/2022 to 14/10/2022
AT11a	06/04/2022 to 10/04/2022	06/05/2022 to 10/05/2022	-	-	02/08/2022 to 06/08/2022	23/09/2022 to 27/09/2022	10/10/2022, 17/10/2022 to 17/10/2022
AT11b	06/04/2022 to 10/04/2022	06/05/2022 to 10/05/2022	-	-	02/08/2022 to 06/08/2022	-	10/10/2022 to 14/10/2022

Table B3-1 Passive detector faults 2020

Ref.	Visit 1 (September)	Visit 2 (October)
AT01	Device failure	-
AT02	Device failure	-
AT03	Device failure	-

Table B3-2 Passive detector faults 2021

Ref.	April	May	June	July	August	September	October
AT01a	-	-	7 nights of data	8 nights of data	7 nights of data	-	5 nights of data
AT01b	-	-	9 nights of data	7 nights of data	6 nights of data	-	6 nights of data; microphone fault
AT02a	-	-	-	8 nights of data	-	6 nights of data	-
AT02b	-	-	-	7 nights of data	-	4 nights of data	-
AT03a	1 night of data; microphone fault	7 nights of data	9 nights of data	8 nights of data	8 nights of data	7 nights of data	5 nights of data; incorrect trigger times*
AT03b	6 nights of data	9 nights of data	8 nights of data	2 nights of data	4 nights of data; incorrect trigger times	1 nights of data; incorrect trigger times	3 nights of data; incorrect

Ref.	April	May	June	July	August	September	October
							trigger times; battery fault
AT04a	6 nights of data; incorrect trigger times	7 nights of data; incorrect trigger times	9 nights of data; incorrect trigger times	7 nights of data; incorrect trigger times	6 nights of data	5 nights of data	5 nights of data
AT04b	6 nights of data	Full technical fault	9 nights of data	5 nights of data; microphone fault	8 nights of data	6 nights of data; microphone fault	5 nights of data
AT05a	-	-	-	9 nights of data	7 nights of data	5 nights of data	5 nights of data
AT05b	-	-	-	8 nights of data	7 nights of data; incorrect trigger times	3 nights of data; SD card fault	-
AT06a	6 nights of data; incorrect trigger times	No access; incorrect trigger times	7 nights of data	7 nights of data	6 nights of data	No access	4 nights of data
AT06b	-	6 nights of data	7 nights of data	7 nights of data	4 nights of data; incorrect trigger times	6 nights of data	6 nights of data
AT07a	-	Incorrect trigger times	7 nights of data	6 nights of data	5 nights of data	5 nights of data	4 nights of data
AT07b	-	-	-	-	4 nights of data	8 nights of data	5 nights of data

Ref.	April	May	June	July	August	September	October
AT08a	5 nights of data	-	-	-	5 nights of data	7 nights of data	5 nights of data
AT08b	-	-	8 nights of data	-	7 nights of data	6 nights of data	7 nights of data
AT09a	-	-	9 nights of data	7 nights of data	3 nights of data	5 nights of data	6 nights of data
AT09b	-	-	9 nights of data	8 nights of data	6 nights of data; incorrect trigger times	7 nights of data	5 nights of data
AT10a	-	-	-	-	-	3 nights of data; corrupted; incorrect trigger times; microphone fault	6 nights of data
AT10b	-	-	-	-	-	5 nights of data; incorrect trigger times	5 nights of data

* Incorrect trigger times = the device was not correctly recording between 30 minutes before sunset and 30 minutes after. This will have reduced the detection of bats around sunset and sunrise.

Table B3-3 Passive detector faults 2022

Ref.	April	May	June	July	August	September	October
AT10a	2 nights of data	7 nights of data; incorrect trigger times	7 nights of data	7 nights of data	4 nights of data	Device failure	5 nights of data
AT10b	6 nights of data	2 nights of data; incorrect trigger times	8 nights of data	8 nights of data	Device failure	4 nights of data	5 nights of data
AT11a	8 nights of data	7 nights of data	-	-	6 nights of data	6 nights of data; microphone fault	Incorrect trigger times
AT11b	5 nights of data		-	-	8 nights of data	Device failure	5 nights of data

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Table B5-1 Summary of habitat type on each transect

Transect	Section	Habitat Type
AT01	1	Arable
	2	Arable
	3	Urban
	4	Arable
	5	Coastal
	6	Hedgerow / treeline
	7	Woodland
AT02	1	Parkland / amenity
	2	Hedgerow / treeline
	3	Urban
	4	Urban
	5	Urban
	6	Urban
	7	Parkland / amenity
AT03 (version 1)	1	Hedgerow / treeline
	2	Hedgerow (arable or pasture)
	3	Hedgerow (arable or pasture)
	4	Hedgerow (arable or pasture)
	5	Urban
	6	Open pasture
AT03 (version 2)	1	Hedgerow (arable or pasture)
	2	Woodland
	3	Woodland
	4	Hedgerow / treeline
	5	Urban

Transect	Section	Habitat Type
	6	Open pasture
	7	Open pasture
AT04	1	Woodland (edge)
	2	Woodland
	3	Woodland (edge)
	4	Urban
	5	Open pasture (grazed)
	6	Open pasture (grazed)
	7	Hedgerow / treeline
AT05 (version 1)	1	Woodland edge
	2	Hedgerow (arable or pasture)
	3	Woodland edge
	4	Woodland edge
	5	Woodland edge
	6	Woodland edge
	7	Hedgerow (arable or pasture)
AT05 (version 2)	1	Hedgerow (arable or pasture)
	2	Hedgerow (arable or pasture)
	3	Hedgerow (arable or pasture)
	4	Hedgerow (arable or pasture)
	5	Hedgerow (arable or pasture)
	6	Hedgerow (arable or pasture)
	7	Hedgerow (arable or pasture)
AT05 (version 3)	1	Woodland edge
	2	Hedgerow (arable or pasture)
	3	Woodland edge

Transect	Section	Habitat Type
	4	Woodland edge
	5	Woodland edge
	6	Woodland edge
	7	Hedgerow (arable or pasture)
AT06	1	Parkland / amenity
	2	Hedgerow (arable or pasture)
	3	Ditch / stream
	4	Hedgerow (arable or pasture)
	5	Urban
	6	Urban
	7	Hedgerow / treeline
AT07	1	Open pasture
	2	Woodland
	3	Open pasture
	4	Woodland edge
	5	Open pasture
	6	Agricultural buildings
	7	Hedgerow / treeline
AT07 (version 2)	1	Open pasture
	2	Woodland
	3	Open pasture
	4	Open pasture
	5	Hedgerow / treeline
	6	Woodland
	7	Hedgerow / treeline
AT08	1	Woodland

Transect	Section	Habitat Type
(version 1)	2	Hedgerow / treeline
	3	Hedgerow (arable or pasture)
	4	Hedgerow (arable or pasture)
	5	Hedgerow (arable or pasture)
	6	Agricultural buildings
	7	Urban
AT08 (version 2)	1	Urban
	2	Hedgerow / treeline
	3	Woodland edge
	4	Woodland edge
	5	Arable
	6	Arable
	7	Hedgerow (arable or pasture)
AT09 (version 1)	1	Arable
	2	Hedgerow (arable or pasture)
	3	Hedgerow (arable or pasture)
	4	Hedgerow (arable or pasture)
	5	Agricultural buildings
	6	Agricultural buildings
	7	Woodland edge
AT09 (version 2)	1	Pond / Lake
	2	Hedgerow / treeline
	3	Ditch / stream
	4	Hedgerow (arable or pasture)
	5	Agricultural buildings
	6	Hedgerow / treeline

Transect	Section	Habitat Type
	7	Woodland edge
AT09 (version 3)	1	Woodland edge
	2	Ditch / stream
	3	Hedgerow (arable or pasture)
	4	Agricultural buildings
	5	Hedgerow (arable or pasture)
	6	Urban
	7	Urban
AT10	1	Hedgerow (pasture)
	2	Open water
	3	Woodland
	4	Hedgerow (pasture)
	5	Hedgerow (pasture)
	6	Hedgerow (pasture)
	7	Hedgerow (pasture)
AT11	1	Hedgerow (arable or pasture)
	2	Hedgerow (arable or pasture)
	3	Woodland
	4	Ditch / stream & woodland edge
	5	Hedgerow & road
	6	Woodland
	7	Hedgerow (arable or pasture)

Table B5-3 Bat roost locations

Date recorded	Transect	Location	Grid reference	Emergence observed	Number of bats	Species
May 2021	AT05	Upper Buncton House	TQ 14951 14106	No. Communication with landowner	N/A	*Pipistrellus* species
29/07/2021	AT09	Wilcock's Farm	TQ22875 21328	Yes. Weather boarding at south east Elevation of farm house	15	Common pipistrelle
27/10/2021	AT03	Old Waterworks Farm	TQ03637 06619	Yes. Shed roof	2	Common pipistrelle

Annex C
Scientific species names

Table C-1 below lists all species mentioned within this Appendix, note some species mentioned below were not recorded during surveys.

Table C-1 Scientific name of species mentioned in this report

Common name	Scientific name
Alcathoe bat	*Myotis alcathoe*
Barbastelle	*Barbastella barbastellus*
Bechstein's bat	*Myotis bechsteinii*
Brandt's bat	*Myotis brandtii*
Brown long-eared bat	*Plecotus auritus*
Common pipistrelle	*Pipistrellus pipistrellus*
Daubenton's bat	*Myotis daubentonii*
Greater horseshoe bat	*Rhinolophus ferrumequinum*
Greater mouse-eared bat	*Myotis myotis*
Grey long-eared bat	*Plecotus austriacus*
Kuhl's pipistrelle	*Pipistrellus kuhlii*
Leisler's bat	*Nyctalus leisleri*
Lesser horseshoe bat	*Rhinolophus hipposideros*
Natterer's bat	*Myotis nattereri*
Noctule	*Nyctalus noctula*
Serotine	*Eptesicus serotinus*
Soprano pipistrelle	*Pipistrellus pygmaeus*
Whiskered bat	*Myotis mystacinus*

Rampion 2
WIND FARM