MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Environmental Statement

Volume 3, Annex 3.10: Bat activity survey technical report

Document status

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Prepared by:

RPS

Prepared for:

Morgan Offshore Wind Limited, Morecambe Offshore Windfarm Ltd

Contents

Tables

Figures

Appendices

Glossary

Term	Meaning
400 kV grid connection cables	Cables that will connect the proposed onshore substations to the existing National Grid Penwortham substation.
400 kV grid connection cable corridor	The corridor within which the 400 kV grid connection cables will be located.
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Baseline	The status of the environment without the Transmission Assets in place.
EIA Scoping Report	A report setting out the proposed scope of the Environmental Impact Assessment process. The Transmission Assets Scoping Report was submitted to The Planning Inspectorate (on behalf of the Secretary of State) for the Morgan and Morecambe Offshore Windfarms Transmission Assets in October 2022.
Environmental Impact Assessment	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
European Protected Species	Species (such as bats, great crested newts, otters and dormice) which receive full protection under The Conservation of Species and Habitats Regulations 2017 and Conservation of Offshore Marine Habitats and Species Regulations 2017.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to, and information to support, the EIA and Habitats Regulations Assessment processes for certain topics.
Expert Working Group	A forum for targeted engagement with regulators and interested stakeholders through the Evidence Plan process.
Habitats Regulations	The Conservation of Habitats and Species Regulations 2017 and the Conservation of Offshore Marine Habitats and Species Regulations 2017.
Mean High Water Springs	The height of mean high water during spring tides in a year.
Mean Low Water Springs	The height of mean low water during spring tides in a year.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds.
	Also referred to in this report as the Transmission Assets, for ease of reading.

Term	Meaning
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substations.
Onshore Infrastructure Area	The area within the Transmission Assets Order Limits landward of Mean High Water Springs. Comprising the offshore export cables from Mean High Water Springs to the transition joint bays, onshore export cables, onshore substations and 400 kV grid connection cables, and associated temporary and permanent infrastructure including temporary and permanent compound areas and accesses. Those parts of the Transmission Assets Order Limits proposed only for ecological mitigation/biodiversity benefit are excluded from this area.
Onshore Order Limits	Refer to Transmission Assets Order Limits: Onshore (below).
Onshore substations	The onshore substations will include a substation for the Morgan Offshore Wind Project: Transmission Assets and a substation for the Morecambe Offshore Windfarm: Transmission Assets. These will each comprise a compound containing the electrical components for transforming the power supplied from the generation assets to 400 kV and to adjust the power quality and power factor, as required to meet the UK Grid Code for supply to the National Grid.
Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.
Protected species	A species of animal or plant which it is forbidden by law to harm or destroy.
Study area	This is an area which is defined for each environmental topic which includes the Transmission Assets Order Limits as well as potential spatial and temporal considerations of the impacts on relevant receptors. The study area for each topic is intended to cover the area within which an impact can be reasonably expected.
Survey area	The area within which each survey has been undertaken. This may differ from the Study Area as a Survey Area will be based on species or survey-specific guidance on the extent of survey required, which may be limited by, for example, habitat conditions, or be defined in terms of buffer areas around an area of potential impact.
Transmission Assets	See Morgan and Morecambe Offshore Wind Farms: Transmission Assets (above).
Transmission Assets Order Limits	The area within which all components of the Transmission Assets will be located, including areas required on a temporary basis during construction and/or decommissioning.
Transmission Assets Order Limits: Onshore	The area within which all components of the Transmission Assets landward of Mean High Water Springs will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds). Also referred to in this report as the Onshore Order Limits, for ease of reading.

Acronyms

Acronym	Meaning
BTO AP	British Trust for Ornithology's Acoustic Pipeline
EIA	Environmental Impact Assessment
ES	Environmental Statement
JNCC	Joint Nature Conservation Committee
LERN	Lancashire Environmental Record Network
MAGIC	Multi-Agency Geographic Information for the Countryside
UK	United Kingdom

Units

Unit	Description
%	Percentage
m	Metres
km	Kilometres

1 Bat activity survey technical report

1.1 Introduction

1.1.1.1 This document forms Volume 3, Annex 3.10: Bat activity survey technical report of the Environmental Statement (ES) prepared for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (hereafter referred to as the Transmission Assets). The ES presents the findings of the Environmental Impact Assessment (EIA) process for the Transmission Assets.

1.1.1.2 The purpose of this technical report is to present the results of bat activity surveys undertaken between April 2023 and July 2024 to inform Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES.

1.1.1.3 Two separate areas have been defined for the purposes of this technical report. These include the 'study area', which describes the geographical extent subject to the desk-based research, and the 'survey area', which describes the area of land subject to site-specific surveys. The extent of the study area and the survey area were selected to ensure data was collected for the Onshore Order Limits and the surroundings that may support this species group and may reasonably be affected by the Transmission Assets.

1.1.2 Study area

1.1.2.1 The study area is intended to cover the area within which an impact can be reasonably expected and describes the geographical extent subject to desk-based research.

1.1.2.2 The study area is the area subject to desk based research for bat activity and comprises the Onshore Order Limits and a 2 km buffer (hereafter referred to as the 'the study area'); which was considered sufficient to capture contextual information about bat populations in the local area.

1.1.2.3 The location and geographical extent of the study area is presented in **Figure 1.1** of this technical report.

1.1.3 Survey area

1.1.3.1 The survey area is defined as the area within which each survey has been undertaken and is based on species or site-specific guidance on the extent of survey required. The survey area for bat activity surveys (hereafter referred to as the 'survey area') is defined as the Onshore Order Limits plus 30 m, as shown in **Figure 1.1.**

1.1.3.2 The 30m buffer was chosen using professional judgement considering the potential for indirect impacts on commuting and foraging bats, and the nature of construction works and post development operation; it is considered unlikely that an adverse indirect impact on commuting or foraging bats would be likely to occur at a distance greater than 30m.

1.1.3.3 Adopting a survey area that is greater in extent than the Onshore Order Limits is in accordance with the precautionary approach. It ensures that the ES is accurately informed with data from within the Transmission Assets Order Limits (i.e. that may be subject to direct impacts) and data from outside the Transmission Assets Order Limits (i.e. that may be subject to indirect impacts).

1.1.3.4 The location and geographical extent of the bat activity survey area is presented in **Figure 1.1** of this technical report.

1.1.4 Contextual data

1.1.4.1 Owing to the iterative design process of the Transmission Assets, some site-specific surveys were undertaken further than 30 m from the Onshore Order Limits. These surveys may have been located within, or within the buffer of, previous iterations of the Transmission Assets Order Limits. Nevertheless, information from these surveys have been included in this technical report because they provide context regarding the ecological sensitivity of the wider area and to inform Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES (where relevant). Any contextual information (based on survey data collected from outside the survey area) is clearly marked throughout this technical report.
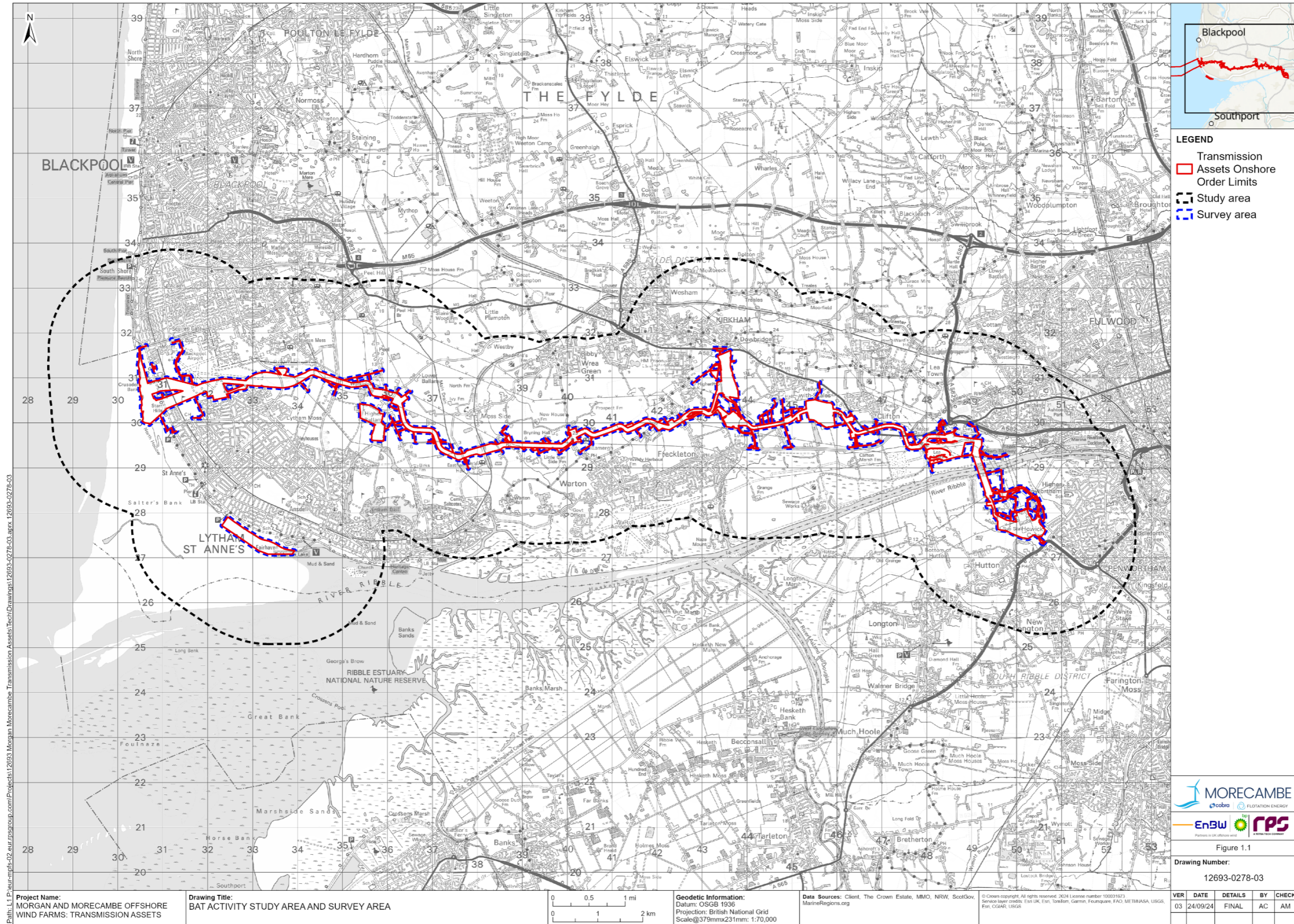
Figure 1.1: The bat activity study and survey area

1.1.5   Relevant legislation

1.1.5.1   There are two key pieces of legislation that protect bats under UK law. These are the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017.

1.1.5.2   Under the Conservation of Habitats and Species Regulations 2017, all bat species are listed under Schedule 2. As such, they are European protected species. Regulation 43 of the Regulations makes it an offence to:

- deliberately capture, injure or kill a bat;

- deliberately disturb a bat; or

- damage or destroy a breeding site or resting place of a bat.

1.1.5.3   All bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981. As such, under Section 9 of this Act it is an offence to:

- intentionally kill, injure or take a bat;

- possess or control any live or dead specimen or anything derived from a bat;

- intentionally or recklessly damage, destroy or obstruct any structure or place used for shelter or protection by a bat; or

- intentionally or recklessly disturb a bat while it is occupying a structure or place, which it uses for that purpose.

1.1.6   Consultation

1.1.6.1   In October 2022, the Applicants submitted an EIA Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operation and maintenance and decommissioning phases of the Transmission Assets.

1.1.6.2   The scope, methodology and findings of the bat activity surveys, including those undertaken beyond the current Onshore Order Limits, were discussed, and agreed with stakeholders via regular onshore ecology Expert Working Group (EWG) meetings. Further detail regarding consultation undertaken with respect to onshore ecology, including terrestrial invertebrate surveys can be found in Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES and Volume 3, Annex 3.2: Onshore ecology survey methodologies of the ES.

1.1.6.3   Following the issue of the fourth edition of the Bat Surveys for Professional Ecologists: Good Practice Guidelines in September 2023, the survey methodologies were updated in line with the new guidance. However, there was no change to how bat activity surveys are deployed and therefore it is not considered to impact the validity of pre-change surveys.

1.2 Methodology

1.2.1.1 A combination of desk studies and site-specific surveys have been undertaken to establish a baseline for the potential receptors within the study area and survey area. The results of the desk studies are described in Volume 3, Annex 3.1: Onshore ecology desk study technical report of the ES and summarised in **section 1.3.1**, and the results of the site-specific surveys are detailed in **section 1.3.2** of this annex.

1.2.2 Desk study

1.2.2.1 Bat activity species data was collected from existing studies and datasets. These are summarised in **Table 1.1** below.

Table 1.1: **Summary of key desktop sources**

Title	Source	Date of reference	Author
Historical biological records	Lancashire Environmental Record Network (LERN)	2024	LERN
Multi-Agency Geographic Information for the Countryside (MAGIC)	Department for Environment, Food and Rural Affairs (Defra)	2024	Defra
UK Protected Area Joint Nature Conservation Committee (JNCC)	JNCC website	2024	JNCC
UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats	Chartered Institute for Ecology and Environmental Management (CIEEM)	2023	Reason and Wray

1.2.3 Site-specific surveys

1.2.3.1 The results of the phase 1 habitat surveys (see Volume 3, Annex 3.3: Phase 1 habitat, National Vegetation Classification and hedgerow survey technical report of the ES) and an understanding of where the greatest impacts would occur (based on the Onshore Order Limits at the time of the survey), were used to inform the location of bat activity surveys within the bat activity survey area. The bat activity surveys comprised automated static bat detector surveys.

1.2.3.2 The surveys were undertaken in accordance with the Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd edition (Collins, 2016) and 4th edition (Collins, 2023). All field surveyors were suitably trained and experienced in undertaking the survey methodologies set out in the following sections of this report.

Automated static bat detector surveys

1.2.3.3　Automatic static bat detector surveys were proposed at strategic locations, specifically in areas of suitable habitat such as woodland and hedgerows, within the bat activity survey area and where the impacts are likely to be greatest, for example, suitable habitats located around the onshore substations and temporary construction compounds.

1.2.3.4　Due to changes to the design of the onshore substations and temporary construction compounds during the iterative design process, and the subsequent changes to expected areas of impacts, some of the original locations were outside of the survey area associated with the final Transmission Assets Order Limits: Onshore plus the 30m buffer (survey area). These locations and any data associated with them, are provided as contextual information.

1.2.3.5　There were 27 locations remaining within the survey area.

1.2.3.6　**Figure 1.2** to **Figure 1.6** show locations of all bat static surveys, and average total identifications per night by species. Dates of survey at each location within the survey area are provided in **Appendix A**.

1.2.3.7　The Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016 and Collins, 2023) state that data from automated static bat detectors should be collected for a minimum of five consecutive nights per month between April and October in appropriate (or the best available) weather conditions for bats. One automatic static bat detector (model Elekon Batlogger S2) was placed at each survey location. Detectors were deployed for a minimum of five nights, once a month between April and October 2023 inclusive and April and July 2024. The detectors were set to record overnight and programmed to commence recording approximately 30 minutes before sunset and terminate recording 30 minutes after sunrise. Detectors were set to record a maximum length of five seconds per detection event, i.e. when bats passed.

1.2.3.8　A summary of all the survey nights, including the month and survey period number, at each location is shown in **Appendix B**. The commencement of the bat activity surveys was dependent on when access was granted, as discussed in **paragraph 1.2.4.1** of this technical report below.

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Bat sound analysis

1.2.3.9　After the surveys, the recordings collected by the automated static bat detectors were analysed to confirm the bat species present. Auto-identification analysis was completed by entering the audio recording into the British Trust for Ornithology's Acoustic Pipeline (BTO AP). The BTO AP is software that enables audio recordings (WAV files) to be uploaded to a secure remote server and processed to identify all bat calls. This program automatically analyses any calls within the sound files. This provides a level of confidence, with probability scores ranging from 0-0.99 (i.e. 0.99 represents 99% probability) for the calls recorded and details the results. In accordance with the precautionary approach, files with sound that was identified as being from a bat ('identifications') with a probability of less than 0.5 (50%) were discarded.

1.2.3.10　A verification and quality assurance of the auto-identification was then manually undertaken. Manual checks prioritised unexpected and unlikely species (i.e., species not regularly recorded in the area). A random sample of 10% of the recordings with a probability of more than 0.5 was also checked. If this check recorded an error rate of more than 10% then the checks were increased.

1.2.3.11　Species identification was automatically assigned by BTO AP. However, any *Myotis* or *Plecotus* species were subsequently grouped into genus post-analysis due to the uncertainty associated with identifying these genera to species level due to overlapping call parameters. Where any uncertainty was present during analysis, species were grouped into genus (e.g., pipistrelle *Pipistrellus* sp.).

1.2.4　Limitations

1.2.4.1　Due to the iterative design process of the Transmission Assets, some surveys were undertaken outside the Onshore Order Limits. The location of the automatic static bat detectors was therefore altered to ensure that they prioritised the habitat most suitable for bats and most likely to be affected, for example, suitable habitat for bats was located near the onshore substations and temporary construction compounds. Any data collected outside the survey area has been included within this technical report to provide contextual data, as set out in **section 1.1.4**.

1.2.4.2　At one location (3) within the survey area and within the Morgan substation, automatic static bat detectors could not always be deployed due to lack of access and therefore data at that location has gaps. However, there are five other locations without gaps within the Morgan substation area. It is considered that gaps in data associated with location 3 do not result in any significant limitations with regards to informing an impact assessment. Refer to **Figure 1.5**.

1.2.4.3　Locations 6 and 7, which are located next to each other, both miss the month of May, due to not getting access then in 2024. Between both adjacent locations bat statics were deployed during the following months, June, July and August 2023, and April and June 2024. Due to

having data span 6 months of the year over two years, and that impacts on bat commuting routes from the scheme will only be of short duration and temporary at that location, it is considered that gaps in data associated with locations 6 and 7 will not result in any significant limitations with regards to informing an impact assessment. Refer to **Figure 1.4**.

1.2.4.4 At location 14 on the northern edge of the survey area and to the north of the Morgan substation, automatic static bat detectors were only deployed during September and October 2023. However, this location is on the northern edge of the survey area with 6 other successful static deployments to locations just south, between location 14, just north and within the Morgan substation area. As such it is considered that gaps in data at location 14 will not result in any significant limitations with regards to informing an impact assessment. Refer to **Figure 1.5**.

1.2.4.5 Bat statics at locations 18 and 19 were also only deployed during September and October 2023, due to lack of access in 2024. These locations will only be impacted by short duration temporary works associated with the scheme at that location (refer to **Figure 1.6**). The precautionary principle has been adopted when considering impacts from the Transmission Assets at these locations.

1.2.4.6 Locations 44 to 48 have received successful deployments during June and July 2024 only. The precautionary principle has been adopted when considering impacts from the Scheme at these locations. Refer to **Figure 1.4** (locations 44 and 45) and **Figure 1.6** (locations 46 to 48).

1.2.4.7 A minimum of five nights of recording was not always possible due to weather or technical issues, and in some months more than five nights of data was recorded. Dates of bat detector deployment at each location is shown in **Appendix A**. The results of the surveys show the number of identifications for each species. The number of identifications provides a measure of bat activity, which can be used to identify areas of habitat of higher or lower value for bats. Where appropriate, data was presented as an average of bat identifications per night, for data to be comparable between surveying periods and static locations.

1.3 Results

1.3.1 Desk study results

Bat species

1.3.1.1 The desk study confirmed that bat species are distributed across Lancashire. Common pipistrelle *Pipistrellus pipistrellus,* soprano pipistrelle *Pipistrellus pygmaeus* and brown long-eared bat *Plecotus auritus* are widespread throughout northern England. Whiskered bat *Myotis mystacinus,* Brandt's bat *Myotis brandtii,* Daubenton's bat *Myotis daubentonii,* Natterer's bat *Myotis nattereri* and noctule *Nyctalus noctula* are widespread in many places but not as abundant (Reason and Wray, 2023). Alcathoe *Myotis alcathoe,* Leisler's bat *Nyctalus leisleri,* and Nathusius' pipistrelle *Pipistrellus nathusii* are rarer or have

a more restricted distribution in northern England (Reason and Wray, 2023).

1.3.1.2　　The desk study identified 439 historical records of bats dated between 2012 and 2023 within the bat activity study area. The results included seven different species and 169 records of bats that could not be identified to species level. A summary of the desk study results is provided in **Table 1.2, refer to Table 1.1 above for sources**.

Table 1.2:　　Bat data records within 2 km of the Onshore Order Limits over the last ten years

Taxon name	Common name	Date range of records	Number of records
Chiroptera	Bat (unidentified)	2014 to 2019	7
Myotis	Myotis bat (unidentified species)	2014 to 2019	10
Myotis daubentonii	Daubenton's bat	2018	2
Nyctalus noctula	Noctule bat	2015 to 2019	29 (2 within the Onshore Order Limits)
Nyctalus sp.	Nyctalus bat	2015 to 2019	2
Pipistrellus	Pipistrelle bat (unidentified species)	2014 to 2020	87 (1 within the Onshore Order Limits)
Pipistrellus nathusii	Nathusius' pipistrelle	2019	6
Pipistrellus pipistrellus	Common pipistrelle	2014 to 2020	54
Pipistrellus pygmaeus	Soprano pipistrelle bat	2016 to 2019	9
Plecotus auritus	Brown long-eared bat	2014 to 2019	16

1.3.2　　Automated static bat detector surveys

1.3.2.1　　**Figure 1.2** to **Figure 1.6** show the average number of bat identifications per night by species. These figures group the species into pipistrelle species (comprising common pipistrelle, soprano pipistrelle and Nathusius' pipistrelle), *Myotis*/long-eared bat species (comprising all *Myotis* species and long-eared bat species), and big bats (including Leisler's bat, noctule and serotine). Totals of the bat identifications per recording period, per species are provided in **Appendix B** of this technical report.

1.3.2.2　　**Figure 1.7** to **Figure 1.11** show the average number of identifications per night across all species.

1.3.2.3　　The following summaries per location, are only provided for locations within the survey area.

Location 1

1.3.2.4 Location 1 was located inside the survey area within a hedgerow where the Morgan onshore substation is located (**Figure 1.5** and **Figure 1.10**).

1.3.2.5 At least four species of bat were recorded at location 1 between May-July 2024 including common pipistrelle, noctule, soprano pipistrelle, and *Myotis sp.*

1.3.2.6 Common pipistrelle was the most frequently recorded species at location 1, with an average of 338 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 6 calls per night over the survey period.

1.3.2.7 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.3.**

Table 1.3: Average bat identifications per night at location 1

Survey month	Common pipistrelle	Noctule	Soprano pipistrelle	Myotis sp.	Total
May 2024	376.00	0.00	0.00	0.50	**376.50**
June 2024	286.40	2.60	0.00	15.00	**304.00**
July 2024	350.43	1.00	0.14	2.14	**353.71**
Average number of identifications per night	**337.56**	**1.20**	**0.05**	**17.64**	

Location 2

1.3.2.8 Location 2 was located inside the survey area, on trees surrounding ponds in proximity to the Morgan onshore substation (**Figure 1.5** and **Figure 1.10**).

1.3.2.9 At least six species of bat were recorded at location 2 between June 2023 and July 2024 including common pipistrelle, Leisler's bat, *Myotis* sp., Nathusius' pipistrelle, noctule and soprano pipistrelle.

1.3.2.10 Common pipistrelle species were recorded during eight out of the nine survey periods. *Myotis* sp. were recorded during seven of the survey periods, noctule were recorded during six of the survey periods, Leisler's bat were recorded during of the survey periods, soprano pipistrelle were recorded during four of the survey periods, and Nathusius' pipistrelle were recorded in two of the survey periods.

1.3.2.11 Common pipistrelle was the most frequently recorded species at location 2, with an average of 840 calls per night over the survey period. The next highest activity was from *Myotis* sp., with an average of 40 calls per night over the survey period.

1.3.2.12 Overall, bat activity was highest during the May 2024 period when compared with the rest of the survey periods. No activity was recorded during the June 2023 period.

1.3.2.13   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.4.**

Table 1.4:   Average bat identifications per night at location 2

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
June 2023	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
July 2023	188.00	4.20	0.00	4.20	0.00	71.80	**268.20**
August 2023	636.38	10.63	0.00	10.38	0.63	219.63	**877.63**
September 2023	285.88	2.50	0.00	0.75	0.38	16.88	**306.38**
October 2023	1697.50	0.00	0.17	0.00	0.00	39.33	**1737.00**
April 2024	1612.83	2.83	0.00	27.33	0.67	4.50	**1648.17**
May 2024	1849.80	1.40	0.20	11.60	0.40	7.80	**1871.20**
June 2024	1039.80	0.00	0.00	6.80	0.00	1.60	**1048.00**
July 2024	252.00	0.00	0.00	0.00	0.00	0.00	**252.00**
Average number of identifications per night	**840.24**	**2.40**	**0.04**	**6.78**	**0.23**	**40.17**	

1.3.2.14   Location 3 was located inside the survey area on a hedgerow where the Morgan onshore substation is located (**Figure 1.5** and **Figure 1.10**).

1.3.2.15   One species of bat, common pipistrelle, was recorded at location 3 in May 2024. In June 2024, five species of bat were recorded, including common pipistrelle, Leisler's bat, Nathusius' pipistrelle, noctule, and *Myotis sp.*

1.3.2.16   Common pipistrelle had an average of 374 calls per night over the survey period. The next highest activity was from *Myotis* sp., with an average of 1 call per night over the survey period.

1.3.2.17   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.5.**

Table 1.5:   Average bat identifications per night at location 3

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	*Myotis sp.*	Total
May 2024	9.60	0.00	0.00	0.00	0.00	**9.60**
June 2024	739.20	0.20	1.60	2.20	0.40	**743.60**
Average number of identifications per night	**374.40**	**0.10**	**0.8**	**1.10**	**0.20**	

1.3.2.18   Location 4 was located inside the survey area on a hedgerow where the Morgan onshore substation is located (**Figure 1.5** and **Figure 1.10**).

1.3.2.19   At least five species of bat were recorded at location 4 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* noctule and soprano pipistrelle.

1.3.2.20   Common pipistrelle and, *Myotis sp.* were recorded during each of the four survey periods. Soprano pipistrelle and noctule were recorded during three of the survey periods. Leisler's bat were recorded during two of the four survey periods.

1.3.2.21   Common pipistrelle was the most frequently recorded species at location 4, with an average of 2816 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 18 calls per night over the survey period.

1.3.2.22   Overall, bat activity per night was highest during the May 2024 when compared with the April, June and July 2024 survey periods.

1.3.2.23   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.6.**

Table 1.6:   Average bat identifications per night at location 4

Survey month	Common pipistrelle	Leisler's bat	Noctule	Soprano pipistrelle	*Myotis* sp.	Total
April 2024	1514.14	0.43	10.86	0.57	6.14	**1532.14**
May 2024	7916.00	1.00	33.00	0.00	61.00	**8011.00**
June 2024	432.20	0.00	0.00	3.00	1.00	**436.20**
July 2024	1403.14	0.00	0.14	0.29	2.57	**1406.14**
Average number of identifications per night	**2816.37**	**0.37**	**11.00**	**0.97**	**17.68**	

Location 5

1.3.2.24   Location 5 was located inside the survey area on a hedgerow to the east of the airport (**Figure 1.2**).

1.3.2.25   At least three species of bat were recorded at location 5 between April 2024 and July 2024 including common pipistrelle, Nathusius' pipistrelle and soprano pipistrelle.

1.3.2.26   Common pipistrelle and, *Myotis sp.* were recorded during the June and July 2024 survey periods. Nathusius' pipistrelle were recorded during the July 2024 survey period.

1.3.2.27   Common pipistrelle was the most frequently recorded species at location 5, with an average of 119 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 6 calls per night over the survey period.

1.3.2.28   Overall, bat activity per night was highest during the June 2024 .

1.3.2.29   A summary of the species recorded and the average bat identifications per night by species is provided in **Figure 1.7.**

Table 1.7:   Average bat identifications per night at location 5

Survey month	Common pipistrelle	Nathusius' pipistrelle	*Myotis* sp.	Total
April 2024	0.00	0.00	0.00	**0.00**
May 2024	0.00	0.00	0.00	**0.00**
June 2024	310.60	0.00	19.80	**330.40**
July 2024	162.00	0.86	6.14	**169.00**
Average number of identifications per night	**118.15**	**0.22**	**6.49**	

Location 6

1.3.2.30   Location 6 was located inside the survey area, on a hedgerow on a proposed access track (**Figure 1.4** and **Figure 1.9**).

1.3.2.31   At least seven species of bat were recorded at location 6 between June 2023 and August 2023 including brown long-eared bat*,* common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle*,* noctule, and soprano pipistrelle.

1.3.2.32   Common pipistrelle, *Myotis sp.,* and noctule were recorded during each of the three survey periods. Brown long-eared bats and soprano pipistrelle were only recorded during August 2023. Leisler's bats were only recorded during June 2023 and August 2023. Nathusius' pipistrelle were only recorded during June 2023.

1.3.2.33   Common pipistrelle was the most frequently recorded species at location 6, with an average of 432 calls per night over the survey period. The next highest activity was from Leisler's bat, with an average of 87 calls per night over the survey period.

1.3.2.34   Overall, bat activity was highest during the August 2023 period compared with the rest of the survey periods.

1.3.2.35   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.8**.

Table 1.8:   Average bat identifications per night at location 6

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Myotis sp.	Brown long-eared bat	Total
June 2023	544.80	1.40	0.60	1.20	0.00	3.40	0.00	**551.40**
July 2023	483.20	0.00	0.00	5.60	0.00	5.40	0.00	**494.20**
August 2023	268.75	259.00	0.00	62.88	0.38	20.25	0.38	**611.64**
Average number of identifications per night	**432.25**	**86.8**	**0.20**	**23.23**	**0.13**	**9.68**	**0.13**	

Location 7

1.3.2.36   Location 7 was located inside the survey area on a hedgerow between Wrea Green and Warton (**Figure 1.4** and **Figure 1.9**).

1.3.2.37   Six species of bat were recorded at location 7 between April and June 2024, including common pipistrelle, Leisler's bat, Nathusius' pipistrelle, noctule, soprano pipistrelle, and *Myotis sp.*

1.3.2.38   Common pipistrelle was the most frequently recorded species at location 7, with an average of 143 calls per night over the survey period. The next highest activity was from noctule, with an average of 33 calls per night over the survey period.

1.3.2.39   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.9.**

Table 1.9:   **Average bat identifications per night at location 7**

Survey month	Common pipistrelle	Leislers bat	Nathusius pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
April 2024	86.29	11.00	0.00	2.00	0.14	0.00	**88.43**
June 2024	199.67	3.67	1.33	63.33	0.00	2.00	**270.00**
Average number of identifications per night	**142.98**	**7.34**	**0.67**	**32.67**	**0.07**	**1.00**	

Location 8

1.3.2.40   Location 8 was located inside the survey area on a hedgerow between Wrea Green and Warton (**Figure 1.4** and **Figure 1.9**).

1.3.2.41   At least four species of bat were recorded at location 8 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, noctule, soprano pipistrelle and *Myotis sp.* No bats were recorded during the July 2024 survey period.

1.3.2.42   Common pipistrelle and *Myotis sp.* were recorded during three of the four survey periods. Noctule pipistrelle were recorded during the April and June 2024 survey period. Leisler's bat and soprano pipistrelle were only recorded during one of the four survey periods.

1.3.2.43   Common pipistrelle was the most frequently recorded species at location 8, with an average of 684 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 2 calls per night over the survey period.

1.3.2.44   Overall, bat activity per night was highest during the June 2024.

1.3.2.45   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.10.**

Table 1.10: Average bat identifications per night at location 8

Survey month	Common pipistrelle	Leisler's bat	Noctule	Soprano pipistrelle	Myotis sp.	Total
April 2024	1363.00	0.00	1.00	2.00	4.00	**1370.00**
May 2024	4.75	0.00	0.00	0.00	0.25	**5.00**
June 2024	1305.00	1.60	3.00	0.00	221.80	**1531.40**
July 2024	0.00	0.00	0.00	0.00	0.00	**0.00**
Average number of identifications per night	**668.19**	**0.40**	**1.00**	**0.50**	**56.51**	

Location 11

1.3.2.46 Location 11 was located inside the survey area on a tree line between the Morgan and Morecambe onshore substations (**Figure 1.5** and **Figure 1.10**).

1.3.2.47 At least six species of bat were recorded at location 11 in April 2024, May 2024, and July 2024 including brown long-eared bat, common pipistrelle, Leisler's bat, Nathusius' pipistrelle, *Myotis sp.,* noctule and soprano pipistrelle.

1.3.2.48 Common pipistrelle and *Myotis sp.* were recorded during each of the three survey periods. Leisler's bat and noctule were recorded during the April and May 2024 survey periods, but not in the July 2024 survey period. Nathusius' pipistrelle and soprano pipistrelle were only recorded during one of the three survey periods, in July 2024 and April 2024, respectively. Two calls of brown long-eared bat were recorded during the July 2024 survey period.

1.3.2.49 Common pipistrelle was the most frequently recorded species at location 11, with an average of 1952 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 24 calls per night over the survey period.

1.3.2.50 Overall, bat activity per night was highest during the May 2024 when compared with the April and July 2024 survey periods.

1.3.2.51 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.11**.

Table 1.11: Average bat identifications per night at location 11

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Brown Long-eared	Total
April 2024	244.17	0.17	0.00	9.00	0.17	0.33	0	**253.83**
May 2024	4564.50	2.00	0.00	51.00	0.00	62.00	0	**4679.50**
July 2024	1046.17	4.50	0.17	64.17	0.17	5.83	0.33	**1121.17**
Average number of identifications per night	**1951.67**	**1.17**	**0.06**	**24.39**	**0.11**	**23.67**	**0.11**	

Location 12

1.3.2.52 Location 12 was located inside the survey area on a hedgerow where the Morecambe onshore substation is located (**Figure 1.5** and **Figure 1.10**).

1.3.2.53 Five species of bat were recorded at location 12 between April 2024 and July 2024 including common pipistrelle, Leisler's bat,noctule, soprano pipistrelle and *Myotis sp.*

1.3.2.54 Common pipistrelle were recorded during each of the four survey periods, noctule were recorded during three of the survey periods, and *Myotis sp.* and Leisler's bat during two survey periods. Soprano pipistrelle were only recorded during the July 2024 survey period.

1.3.2.55 Common pipistrelle was the most frequently recorded species at location 12, with an average of 630 calls per night over the survey period. The next highest activity was from noctule, with an average of 19 calls per night over the survey period.

1.3.2.56 Overall, bat activity per night was highest during the July 2024 when compared with the April, May and June 2024 survey periods.

1.3.2.57 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.12.**

Table 1.12: Average bat identifications per night at location 12

Survey month	Common pipistrelle	Leisler's bat	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
April 2024	62.33	0.17	8.17	0.00	0.00	**70.67**
May 2024	181.75	0.00	0.00	0.00	0.00	**181.75**
June 2024	948.71	0.00	1.57	0.00	7.00	**957.29**
July 2024	1329.17	68.50	67.17	0.17	5.00	**1465.83**
Average number of identifications per night	**630.49**	**17.17**	**18.84**	**0.04**	**3.00**	

Location 13

1.3.2.58 Location 13 was located inside the survey area on a hedgerow to the north of the proposed Morgan substation (**Figure 1.5** and **Figure 1.10**).

1.3.2.59 At least five species of bat were recorded at location 13 in April 2024 including common pipistrelle, *Myotis sp.,* and noctule. Common pipistrelle and noctule were recorded during all three survey periods from April-July 2024. Leisler's bat and *Myotis sp.* Were recorded in two of the three survey periods, while Nathusius' pipistrelle was only recorded in the June 2024 survey period.

1.3.2.60 Common pipistrelle was the most frequently recorded species at location 13, with an average of 56 calls per night over the survey period. The next highest activity was from noctule, with an average of 9 calls per night over the survey period.

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1.3.2.61 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.13.**

Table 1.13: Average bat identifications per night at location 13

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	*Myotis sp.*	Total
April 2024	38.20	0.00	0.00	17.20	0.80	**56.20**
June 2024	44.89	0.44	0.11	6.44	0.56	**52.44**
July 2024	84.33	0.67	0.00	4.67	0.00	**89.67**
Average number of identifications per night	**55.81**	**0.4**	**0.04**	**9.44**	**0.45**	

Location 14

1.3.2.62 Location 14 was located inside the survey area, on the edge of a small area of woodland 5 m from the Onshore Order Limits (**Figure 1.5** and **Figure 1.10**).

1.3.2.63 At least six species of bat were recorded at location 14 between September 2023 and October 2023 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, noctule, and soprano pipistrelle.

1.3.2.64 All species were recorded during each of the two survey periods other than Nathusius' pipistrelle and soprano pipistrelle that were only recorded in September 2023.

1.3.2.65 Common pipistrelle was the most frequently recorded species at location 14, with an average of 312 calls per night over the survey period. The next highest activity was from Leisler's bat, with an average of 32 calls per night over the survey period.

1.3.2.66 Overall, bat activity was highest during the October 2023 period when compared with the rest of the survey periods.

1.3.2.67 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.14.**

Table 1.14: Average bat identifications per night at location 14

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
September 2023	193.00	9.22	0.11	2.11	1.78	11.33	**217.56**
October 2023	431.67	55.00	0.00	0.33	0.00	10.33	**497.33**
Average number of identifications per night	**312.34**	**32.11**	**0.06**	**1.22**	**0.89**	**10.83**	

Location 15

1.3.2.68   Location 15 was located inside the survey area along Dow Brook to the east of the Morgan onshore substation (**Figure 1.5** and **Figure 1.10**).

1.3.2.69   At least five species of bat were recorded at location 15 between May and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle and noctule.

1.3.2.70   No bats were recorded during the May 2024 survey period. All species were recorded during the June 2024 survey period. All species were also recorded during the July 2024 survey period, with the exception of Nathusius' pipistrelle, which was not recorded during the July 2024 survey period.

1.3.2.71   Common pipistrelle was the most frequently recorded species at location 15, with an average of 30 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 7 calls per night over the survey period.

1.3.2.72   Overall, bat activity was highest during the June 2024 period when compared with the rest of the survey periods.

1.3.2.73   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.16.**

Table 1.15: Average bat identifications per night at location 15

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	*Myotis sp.*	Total
May 2024	0.00	0.00	0.00	0.00	0.00	**0.00**
June 2024	58.80	0.40	0.20	9.60	20.60	**89.60**
July 2024	31.71	0.57	0.00	10.86	1.14	**44.28**
Average number of identifications per night	**30.17**	**0.32**	**0.07**	**6.82**	**6.87**	

Location 16

1.3.2.74 Location 16 was located inside the survey area on a treeline adjacent to the A564 road (**Figure 1.5** and **Figure 1.10**).

1.3.2.75 At least six species of bat were recorded at location 16 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, noctule and soprano pipistrelle.

1.3.2.76 Common pipistrelle, Nathusius' pipistrelle, *Myotis sp.,* and soprano pipistrelle were recorded during each of the three survey periods. Leisler's bat and noctule were recorded during the May and July 2024 survey period.

1.3.2.77 Common pipistrelle was the most frequently recorded species at location 16, with an average of 1550 calls per night over the survey period. The next highest activity was from noctule, with an average of 68 calls per night over the survey period.

1.3.2.78 Overall, bat activity per night was highest during April 2024.

1.3.2.79 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.16.**

Table 1.16: Average bat identifications per night at location 16

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
April 2024	2976.50	0.00	136.00	0.00	0.50	1.50	**3114.50**
May 2024	1177.60	36.00	32.60	197.60	0.20	0.40	**1444.40**
July 2024	496.00	3.00	1.29	6.71	0.14	0.57	**507.71**
Average number of identifications per night	**1550.03**	**13.00**	**56.53**	**68.10**	**0.28**	**0.82**	

1.3.2.80 Location 17 was located inside the survey area on a hedgerow to the west of the Millennium Ribble Link and Lea Marsh (**Figure 1.6** and **Figure 1.11**).

1.3.2.81 At least six species of bat were recorded at location 17 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, noctule and soprano pipistrelle.

1.3.2.82 Common pipistrelle, *Myotis sp.,* Nathusius' pipistrelle and noctule were recorded during each of the four survey periods. Leisler's bat wer recorded during three of the four survey periods, and soprano pipistrelle were only recorded during the April 2024 survey period.

1.3.2.83 Common pipistrelle was the most frequently recorded species at location 17, with an average of 1275 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 10 calls per night over the survey period.

1.3.2.84 Overall, bat activity per night was highest during the May 2024 when compared with the April, June and July 2024 survey periods.

1.3.2.85 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.17.**

Table 1.17: Average bat identifications per night at location 17

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
April 2024	1333.83	0.17	1.50	3.17	0.33	1.67	**1340.67**
May 2024	2052.14	0.00	2.29	3.00	0.00	2.43	**2059.86**
June 2024	776.29	1.71	0.57	4.71	0.00	14.00	**797.29**
July 2024	936.00	1.67	1.67	11.83	0.00	24.5	**975.17**
Average number of identifications per night	**1274.57**	**0.89**	**1.51**	**5.68**	**0.08**	**10.65**	

Location 18

1.3.2.86 Location 18 was located inside the survey area within scrub adjacent to the Millennium Ribble Link, north of Lea Marsh (**Figure 1.6** and **Figure 1.11**).

1.3.2.87 At least seven species of bat were recorded at location 18 between September 2023 and October 2023 including brown long-eared bat, common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, noctule and soprano pipistrelle.

1.3.2.88 Common pipistrelle, Leisler's bat, *Myotis sp.,* noctule and soprano pipistrelle were recorded during each of the two survey periods. Brown

1.3.2.89 Common pipistrelle was the most frequently recorded species at location 18, with an average of 150 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 10 calls per night over the survey period.

1.3.2.90 Overall, bat activity per night was highest during the October 2023 when compared with the September 2023 survey periods.

1.3.2.91 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.18.**

Table 1.18: Average bat identifications per night at location 18

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Brown long-eared bat	Total
September 2023	134.75	3.00	0.13	1.75	0.88	9.38	0.25	**150.14**
October 2023	209.50	7.50	0.00	1.50	3.00	13.50	0.00	**235.00**
Average number of identifications per night	**172.13**	**5.25**	**0.07**	**1.63**	**1.94**	**11.44**	**0.125**	

Location 19

1.3.2.92 Location 19 was located inside the survey area along a woodland strip north of Lea Marsh (**Figure 1.6** and **Figure 1.11**).

1.3.2.93 At least four species of bat were recorded at location 19 between September 2023 and October 2023 including common pipistrelle, Leisler's bat, *Myotis sp.,* and soprano pipistrelle.

1.3.2.94 All species were recorded during each of the two survey periods other that Leisler's bat that was only recorded in September 2023.

1.3.2.95 Common pipistrelle was the most frequently recorded species at location 19, with an average of 530 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 14 calls per night over the survey period.

1.3.2.96 Overall, bat activity was higher during the September 2023 period than the October 2023 period.

1.3.2.97 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.19**.

Table 1.19: Average bat identifications per night at location 19

Survey month	Common pipistrelle	Leisler's bat	Soprano pipistrelle	*Myotis sp.*	Total
September 2023	911.00	15.33	0.67	15.00	**942.00**
October 2023	148.33	0.00	0.17	12.33	**160.83**
Average number of identifications per night	**529.67**	**7.67**	**0.42**	**13.67**	

Location 20

1.3.2.98 Location 20 was located inside the survey area on a treeline north of the River Ribble (**Figure 1.6** and **Figure 1.11**).

1.3.2.99 At least five species of bat were recorded at location 20 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle and noctule.

1.3.2.100 Common pipistrelle were recorded during each of the four survey periods. Nathusius' pipistrelle and *Myotis sp.* Were recorded during three of the four survey periods. Noctule were recorded during two survey periods, while Leisler's bat were only recorded during the May 2024 survey period.

1.3.2.101 Common pipistrelle was the most frequently recorded species at location 20, with an average of 189 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 3 calls per night over the survey period.

1.3.2.102 Overall, bat activity per night was highest during the June 2024 when compared with the othersurvey periods for this location.

1.3.2.103 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.20.**

Table 1.20: Average bat identifications per night at location 20

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Myotis sp.	Total
April 2024	28.14	0.00	0.00	0.86	0.00	**29.00**
May 2024	159.33	0.22	0.11	2.11	8.56	**170.33**
June 2024	350.57	0.00	0.29	0.00	4.14	**355.00**
July 2024	219.33	0.00	0.33	0.00	0.67	**220.33**
Average number of identifications per night	**189.34**	**0.00**	**0.18**	**0.00**	**3.34**	**0.00**

Location 23

1.3.2.104   Location 23 was located inside the survey area, on the edge of a woodland strip at the edge of the Onshore Order Limits (**Figure 1.6** and **Figure 1.11**).

1.3.2.105   At least six species of bat were recorded at location 23 between June 2023 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle noctule, and soprano pipistrelle.

1.3.2.106   Common pipistrelle was the only species recorded during every survey. *Myotis sp.* were recorded during five of the six recording surveys, noctule in four, Leisler's bat in three, soprano pipistrelle in two, and Nathusius' pipistrelle was only recorded in May 2024.

1.3.2.107   Common pipistrelle was the most frequently recorded species at location 23, with an average of 643 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 12 calls per night over the survey period.

1.3.2.108   Overall, bat activity was highest during the August 2023 period when compared with the rest of the survey periods.

1.3.2.109   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.21** below.

Table 1.21: Average bat identifications per night at location 23

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Myotis sp.	Total
June 2023	21.40	0.00	0.00	0.20	0.00	6.40	**28.00**
July 2023	0.80	0.40	0.00	0.20	0.00	27.00	**28.40**
August 2023	2605.00	5.75	0.00	9.75	3.75	34.25	**2658.50**
April 2024	16.25	0.00	0.00	0.00	0.00	0.00	**16.25**
May 2024	997.60	2.20	3.20	3.60	1.20	2.60	**1010.40**

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Myotis sp.	Total
June 2024	215.60	0.00	0.00	0.00	0.00	1.20	**216.80**
Average number of identifications per night	**642.78**	**1.390**	**0.53**	**2.29**	**0.83**	**11.91**	

Location 24

1.3.2.110   Location 24 was located inside the survey area on a hedgerow to the north of National Grid Substation Penwortham (**Figure 1.6** and **Figure 1.11**).

1.3.2.111   At least six species of bat were recorded at location 24 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, noctule and soprano pipistrelle.

1.3.2.112   Common pipistrelle were recorded during each of the four survey periods. Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, noctule and soprano pipistrelle were recorded during all survey periods except for the May 2024 survey period.

1.3.2.113   Common pipistrelle was the most frequently recorded species at location 24, with an average of 150 calls per night over the survey period. The next highest activity was from soprano pipistrelle, with an average of 1 call per night over the survey period.

1.3.2.114   Overall, bat activity per night was highest during July 2024 when compared with the other survey periods.

1.3.2.115   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.22.**

Table 1.22:   Average bat identifications per night at location 24

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
April 2024	296.71	1.00	0.14	1.29	1.71	0.14	**301.00**
May 2024	3.00	0.00	0.00	0.00	0.00	0.00	**3.00**
June 2024	353.14	0.43	2.86	0.43	2.00	1.71	**360.57**
July 2024	457.00	0.17	0.50	0.33	1.67	1.33	**461.00**

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
Average number of identifications per night	277.46	0.40	0.88	0.51	1.35	0.80	

Location 26

1.3.2.116 Location 26 was located inside the survey area on the edge of a woodland strip east of National Grid Substation Penwortham (**Figure 1.6** and **Figure 1.11**).

1.3.2.117 At least five species of bat were recorded at location 26 between May and July 2024 including common pipistrelle, Leisler's bat, Nathusius' pipistrelle, *Myotis sp.* and soprano pipistrelle. All five species were recorded during the May 2024 survey period, and all five species with the exception of Nathusius' pipistrelle were recorded during the June and July 2024 survey periods. No bat calls were identified in April 2024.

1.3.2.118 Common pipistrelle was the most frequently recorded species at location 26, with an average of 42 calls per night over the survey period. The next highest activity was from soprano pipistrelle, with an average of 3 calls per night over the survey period.

1.3.2.119 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.24.**

Table 1.23: Average bat identifications per night at location 26

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Soprano pipistrelle	Myotis sp.	Total
April 2024	0.00	0.00	0.00	0.00	0.00	**0.00**
May 2024	5.50	0.50	1.00	7.00	0.00	**14.00**
June 2024	130.86	4.29	0.00	4.29	5.43	**147.57**
July 2024	332.50	0.67	0.00	2.50	2.33	**332.50**
Average number of identifications per night	**42.22**	**1.37**	**0.25**	**3.45**	**1.94**	

Location 27

1.3.2.120 Location 27 was located inside the survey area on a treeline adjacent to the A59 south of National Grid Substation Penwortham (**Figure 1.6** and **Figure 1.11**).

1.3.2.121 At least six species of bat were recorded at location 27 between April 2024 and July 2024 including common pipistrelle, Leisler's bat, Nathusius' pipistrelle, noctule, soprano pipistrelle and *Myotis sp.*

1.3.2.122 Common pipistrelle, *Myotis sp.,* and soprano pipistrelle were recorded during the April, May and July 2024 survey periods. Leisler's bat, Nathusius' pipistrelle and noctule were recorded during the May and July 2024 survey periods. No bats were recorded during the June 2024 survey period.

1.3.2.123 Common pipistrelle was the most frequently recorded species at location 27, with an average of 833 calls per night over the survey period. The next highest activity was from soprano pipistrelle, with an average of 43 calls per night over the survey period.

1.3.2.124 Overall, bat activity per night was highest during July.

1.3.2.125 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.24.**

Table 1.24: Average bat identifications per night at location 27

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Total
April 2024	973.17	0.00	0.00	0.00	169.50	5.50	**1148.17**
May 2024	747.20	0.00	0.20	0.00	0.80	0.60	**748.80**
June 2024	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
July 2024	1611.43	0.14	12.29	0.29	0.86	2.29	**1627.30**
Average number of identifications per night	**832.95**	**0.04**	**3.12**	**0.07**	**42.79**	**2.10**	

Location 44

1.3.2.126 Location 44 is on a hedgerow within the survey area just north of Freckleton (**Figure 1.4**).

1.3.2.127 At least four species of bat were recorded at location 44 between June 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.* and noctule.

1.3.2.128 All species were recorded during each of the two survey periods except for Leisler's bat, which was not recorded during the July 2024 survey period.

1.3.2.129 Common pipistrelle was the most frequently recorded species at location 44, with an average of 77 calls per night over the survey period. The next highest activity was from noctule, with an average of 24 calls per night over the survey period.

1.3.2.130 Overall, bat activity was higher during the June 2024 period than the July 2024 period.

1.3.2.131   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.25**.

Table 1.25: Average bat identifications per night at location 44

Survey month	Common pipistrelle	Leisler's bat	Noctule	Myotis sp.	Total
June 2024	120.00	0.50	44.00	2.50	**167.00**
July 2024	34.29	0	4.71	0.14	**39.14**
Average number of identifications per night	**77.16**	**0.25**	**24.36**	**1.32**	

Location 45

1.3.2.132   Location 45 was located inside the survey area, on a hedgerow (**Figure 1.4**).

1.3.2.133   At least five species of bat were recorded at location 45 between June 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* Nathusius' pipistrelle, and noctule.

1.3.2.134   All species were recorded during each of the two survey periods, except for Nathusius' pipistrelle, which was not recorded during the July 2024 survey period, and Leisler's bat, which was not recorded turing June 2024.

1.3.2.135   Common pipistrelle was the most frequently recorded species at location 45, with an average of 873 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 4 calls per night over the survey period.

1.3.2.136   Overall, bat activity was higher during the June 2024 period than the July 2024 survey period.

1.3.2.137   A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.26**.

Table 1.26: Average bat identifications per night at location 45

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Myotis sp.	Total
June 2024	1284.60	0.00	1.80	0.60	7.40	**1294.40**
July 2024	461.57	0.43	0	1.14	0.29	**463.43**
Average number of identifications per night	**873.01**	**0.22**	**0.90**	**0.87**	**3.85**	

Location 46

1.3.2.138 Location 46 was located on a hedgerow within the survey area (**Figure 1.6**).

1.3.2.139 At least six species of bat were recorded at location 46 between June 2024 and July 2024 including common pipistrelle, Leisler's bat, Nathusius' pipistrelle, *Myotis sp.,* noctule, and soprano pipistrelle.

1.3.2.140 No species were recorded during the June 2024 survey period.

1.3.2.141 Common pipistrelle was the most frequently recorded species at location 46, with an average of 157 calls per night over the survey period. The next highest activity was from soprano pipistrelle, with an average of 1 calls per night over the survey period.

1.3.2.142 Overall, bat activity was higher during the July 2024 period than the June 2024 survey period.

1.3.2.143 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.27**.

Table 1.27: Average bat identifications per night at location 46

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Myotis sp.	Total
June 2024	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
July 2024	314.67	0.17	0.5	1.83	2.67	1.67	**321.51**
Average number of identifications per night	**157.34**	**0.09**	**0.25**	**0.915**	**1.34**	**0.84**	

Location 47

1.3.2.144 Location 47 is located on a hedgerow within the survey area (**Figure 1.6**).

1.3.2.145 At least five species of bat were recorded at location 47 between June 2024 and July 2024 including common pipistrelle, Leisler's bat, *Myotis sp.,* noctule, and soprano pipistrelle.

1.3.2.146 Common pipistrelle, soprano pipistrelle, and *Myotis sp.* were recorded during each of the two survey periods. Leisler's bat and noctule were only recorded during the June 2024 survey period.

1.3.2.147 Common pipistrelle was the most frequently recorded species at location 47, with an average of 691 calls per night over the survey period. The next highest activity was from *Myotis sp.*, with an average of 3 calls per night over the survey period.

1.3.2.148 Overall, bat activity was higher during the July 2024 period than during the June 2024 period.

1.3.2.149 A summary of the species recorded and the average bat identifications per night by species is provided in **Table 1.28**.

Table 1.28: Average bat identifications per night at location 47

Survey month	Common pipistrelle	Leisler's bat	Noctule	Soprano pipistrelle	Myotis sp.	Total
June 2024	424.29	0.14	0.71	3.86	3.29	**432.29**
July 2024	957.43	0.00	0.00	0.43	2.29	**960.15**
Average number of identifications per night	**690.86**	**0.07**	**0.36**	**2.15**	**2.79**	

Location 48

1.3.2.150 Location 48 was located on a hedgerow within the survey area (**Figure 1.6**).

1.3.2.151 At least seven species of bat were recorded at location 48 between June 2024 and July 2024 including brown long-eared bat, common pipistrelle, Leisler's bat, Nathusius' pipistrelle, *Myotis sp.,* noctule, and soprano pipistrelle.

1.3.2.152 All species were recorded during each of the two survey periods, except for Nathusius' pipistrelle and brown long-eared bat, which were both not recorded during the July 2024 survey period.

1.3.2.153 Common pipistrelle was the most frequently recorded species at location 48, with an average of 475 calls per night over the survey period. The next highest activity was from Nathusius' pipistrelle, with an average of 3 calls per night over the survey period.

1.3.2.154 Overall, bat activity was higher during the June 2024 period than during the July 2024 survey period.

1.3.2.155 A summary of the species recorded and the average bat identifications per night by species is provided in .

Table 1.29: Average bat identifications per night at location 47

Survey month	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Myotis sp.	Brown long-eared bat	Total
June 2024	553.29	0.14	5.14	0.57	0.14	0.14	0.14	**559.57**
July 2024	396.5	0.17	0.00	0.33	0.33	0.67	0.00	**398.00**
Average number of identifications per night	**474.90**	**0.16**	**2.57**	**0.45**	**0.24**	**0.41**	**0.07**	
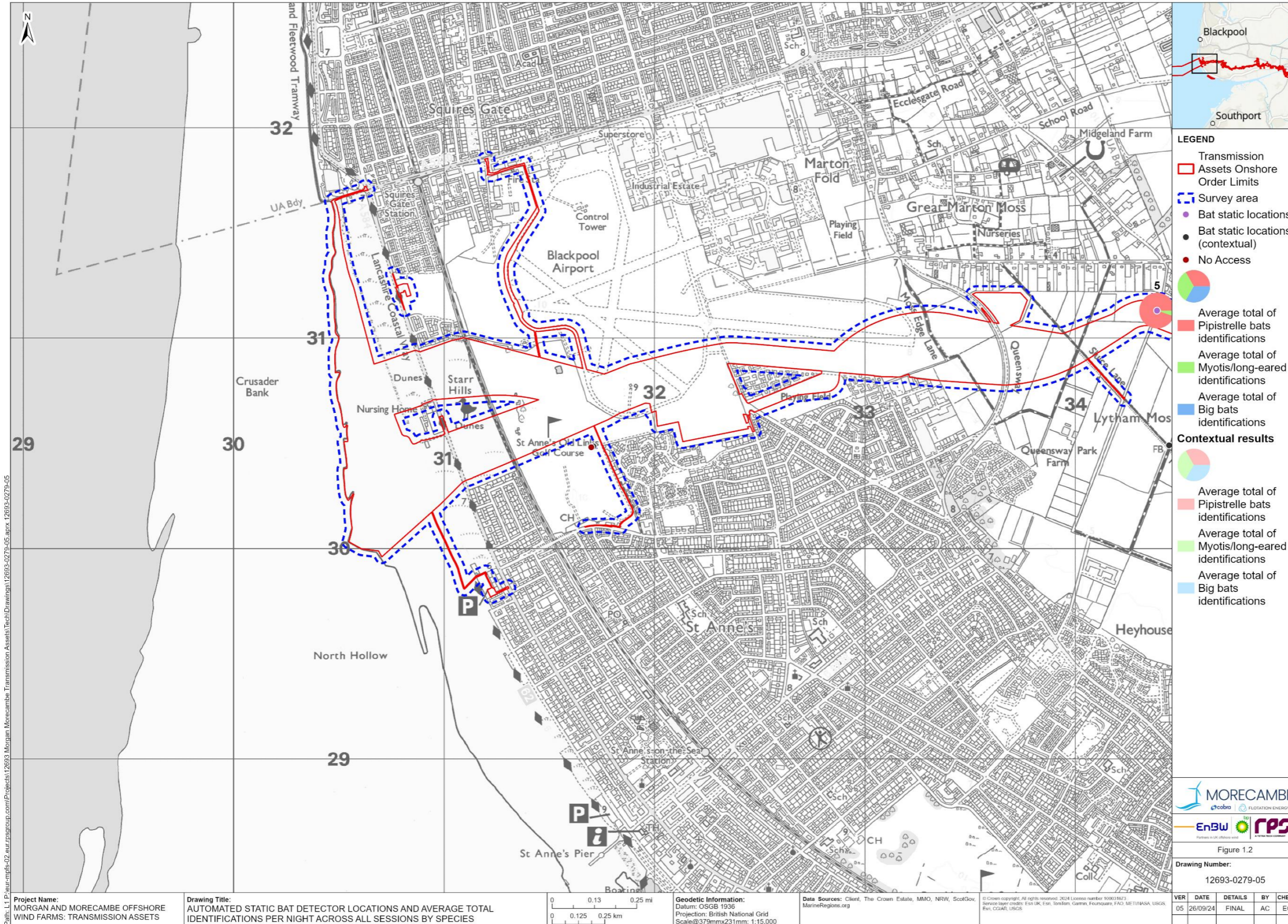
Figure 1.2: **Automated static bat detector locations and average total identifications per night across all survey periods by species (1 of 5)**
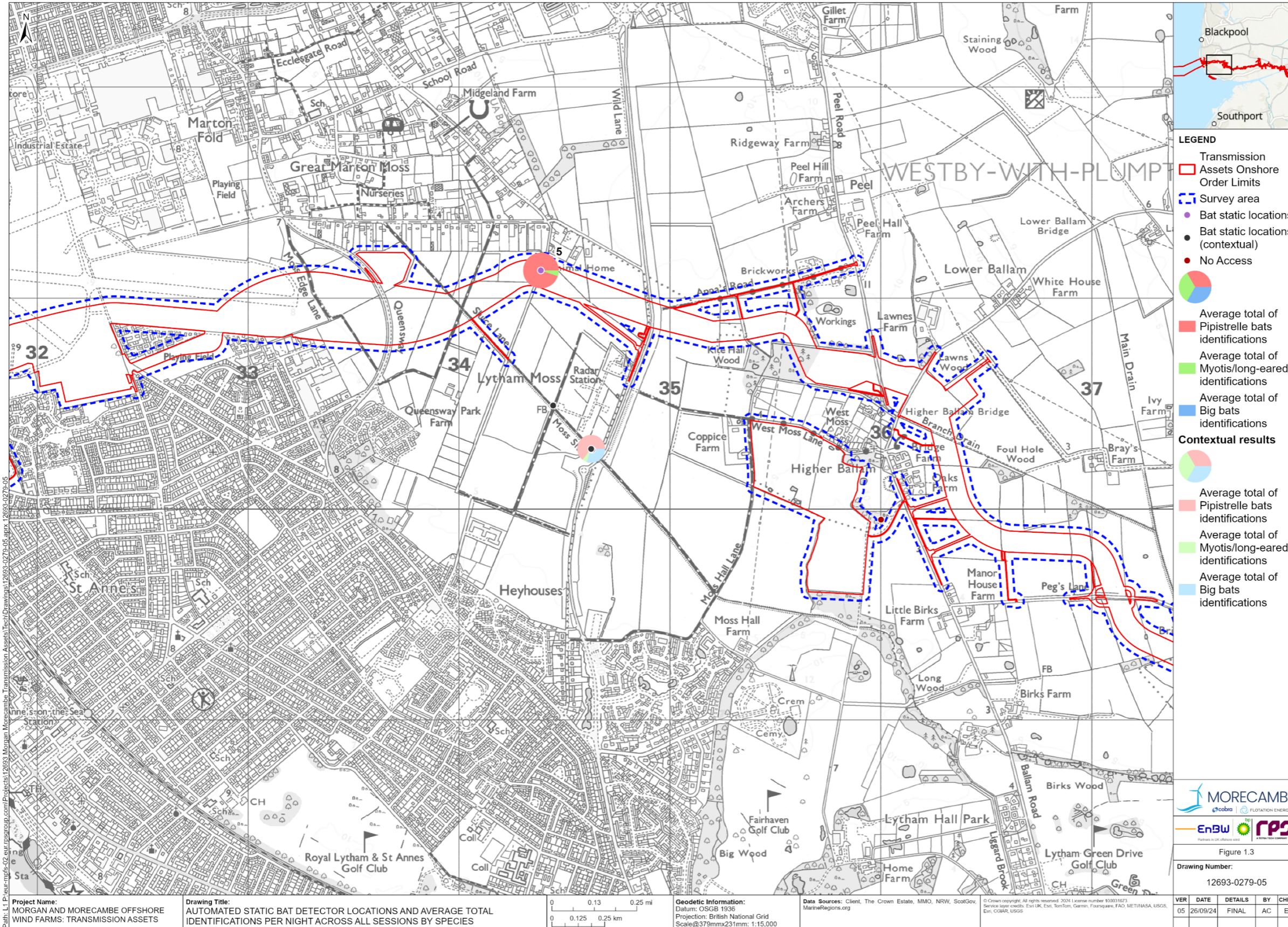
Figure 1.3:   Automated static bat detector locations and average total identifications per night across all survey periods by species (2 of 5)
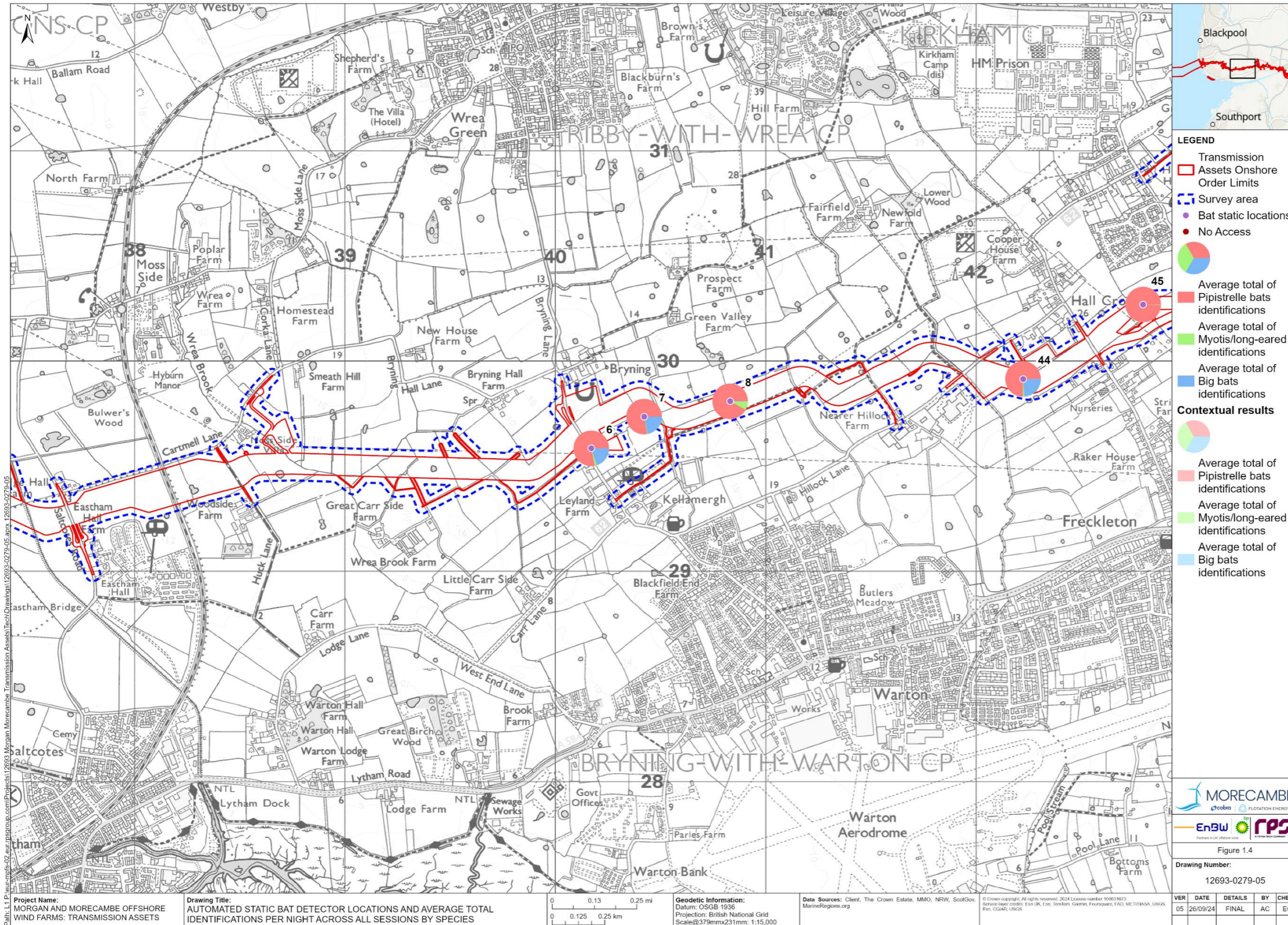
Figure 1.4: Automated static bat detector locations and average total identifications per night across all survey periods by species (3 of 5)
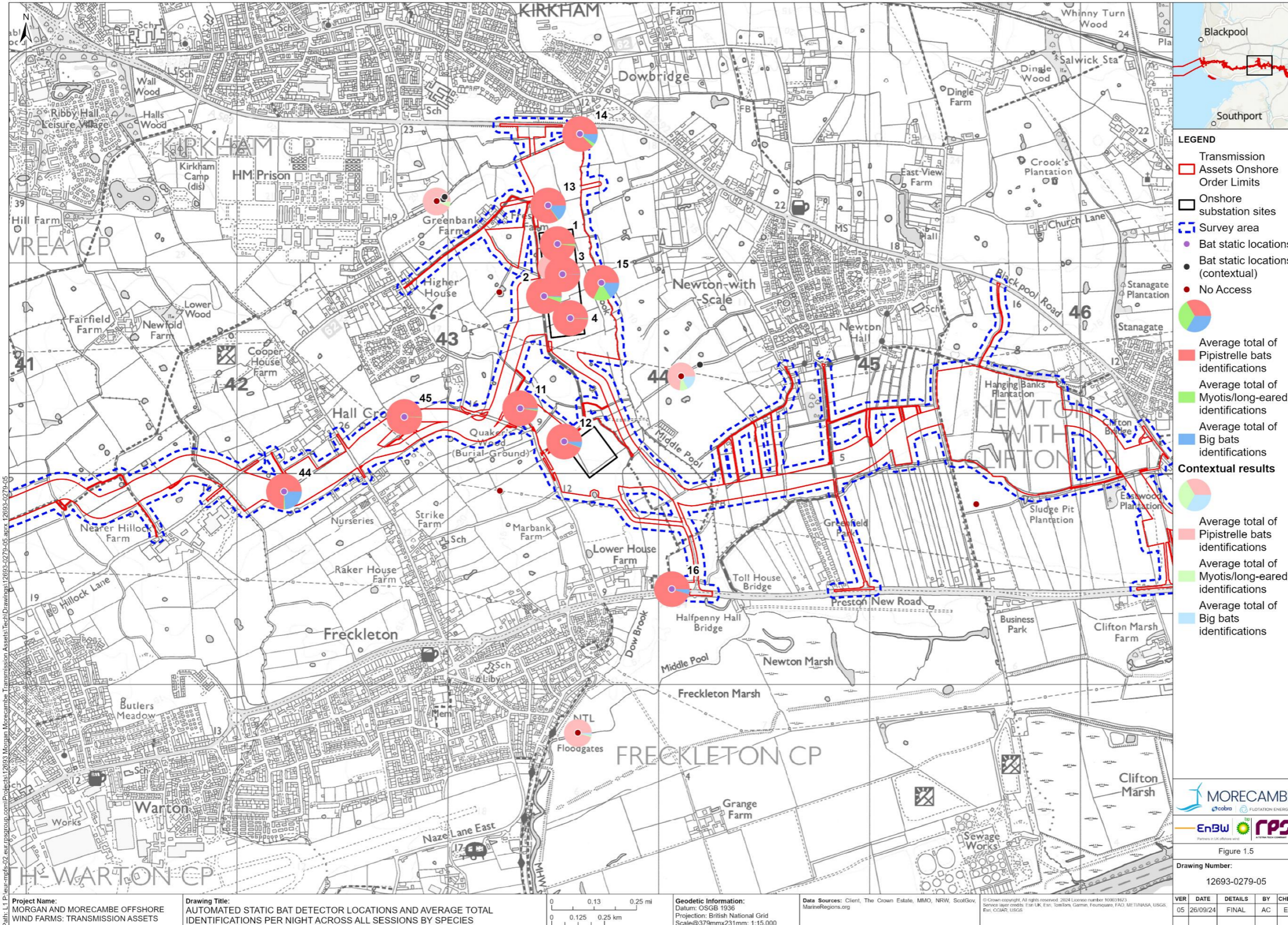
Figure 1.5: Automated static bat detector locations and average total identifications per night across all survey periods by species (4 of 5)
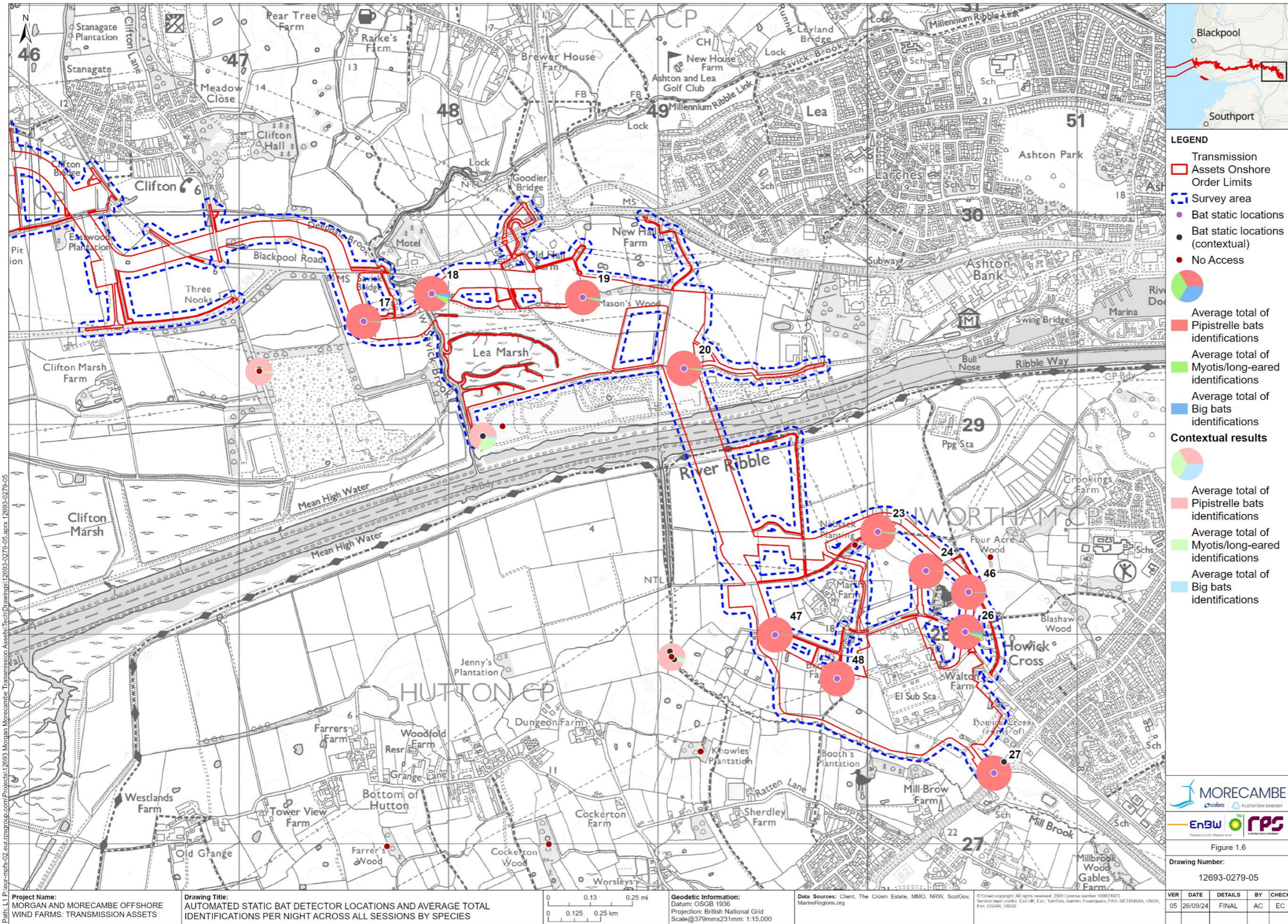
Figure 1.6:   Automated static bat detector locations and average total identifications per night across all survey periods by species (5 of 5)
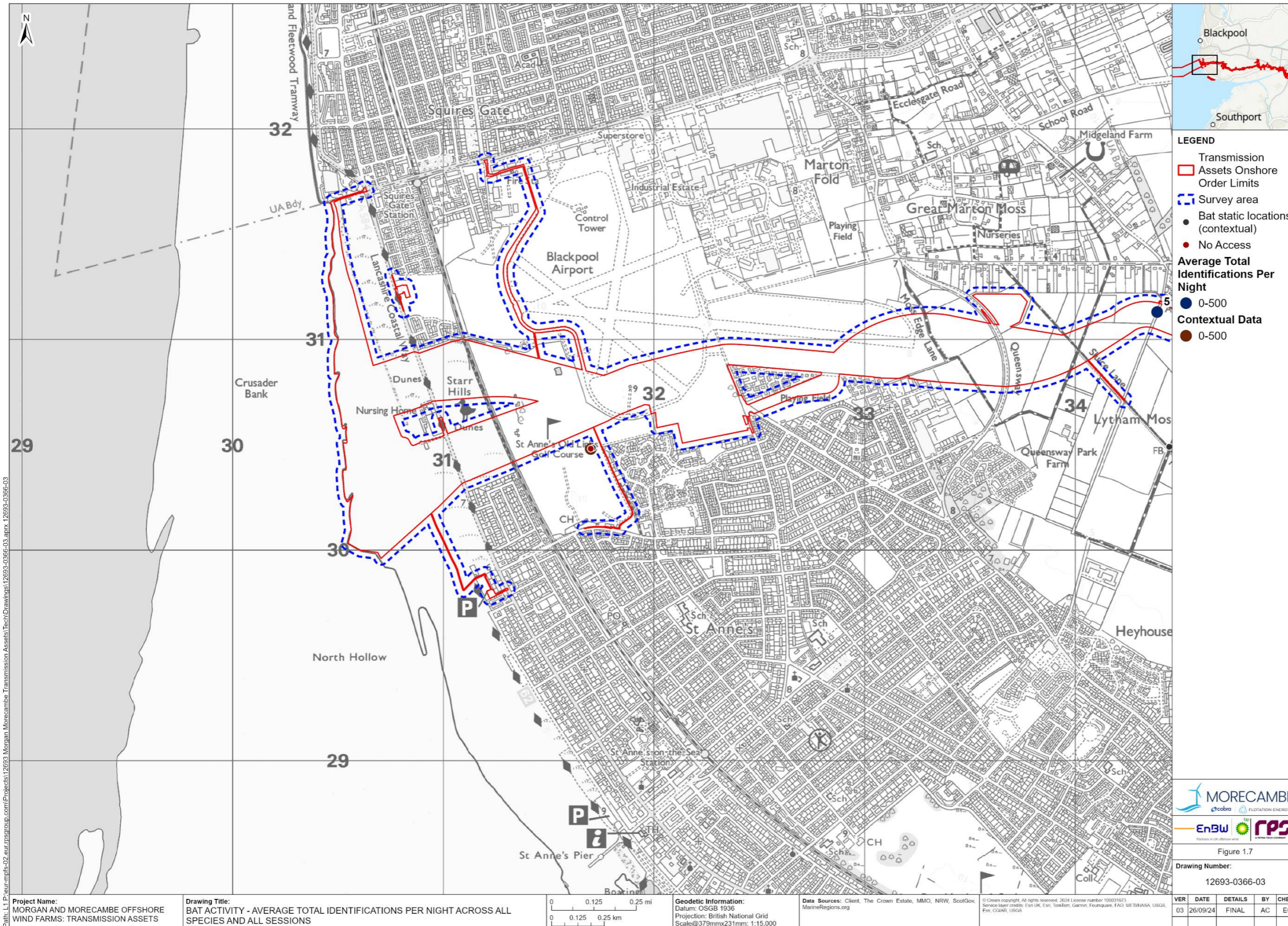
Figure 1.7: Average total identifications per night across all species and all survey periods (1 of 5)
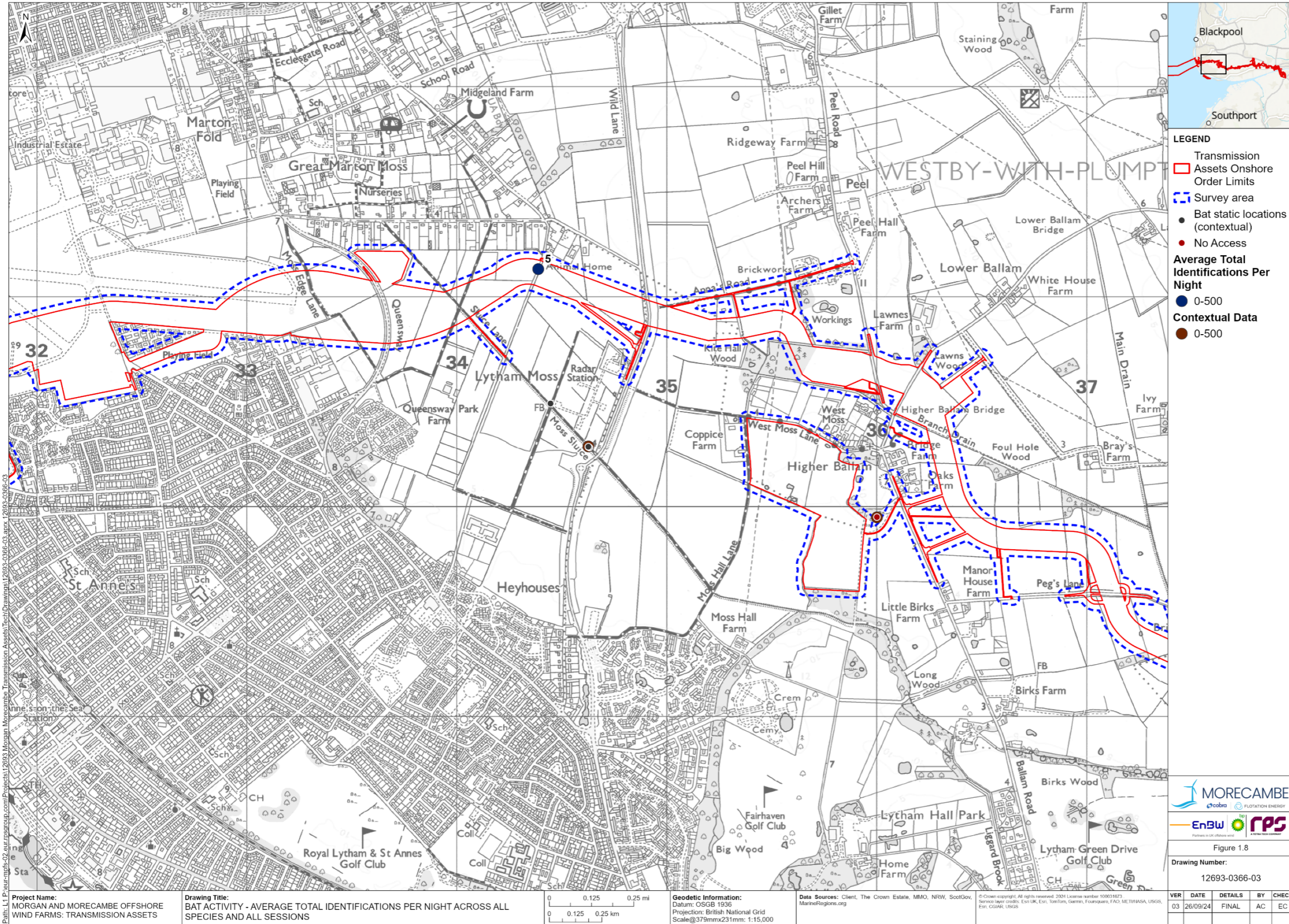
Figure 1.8: Average total identifications per night across all species and all survey periods (2 of 5)
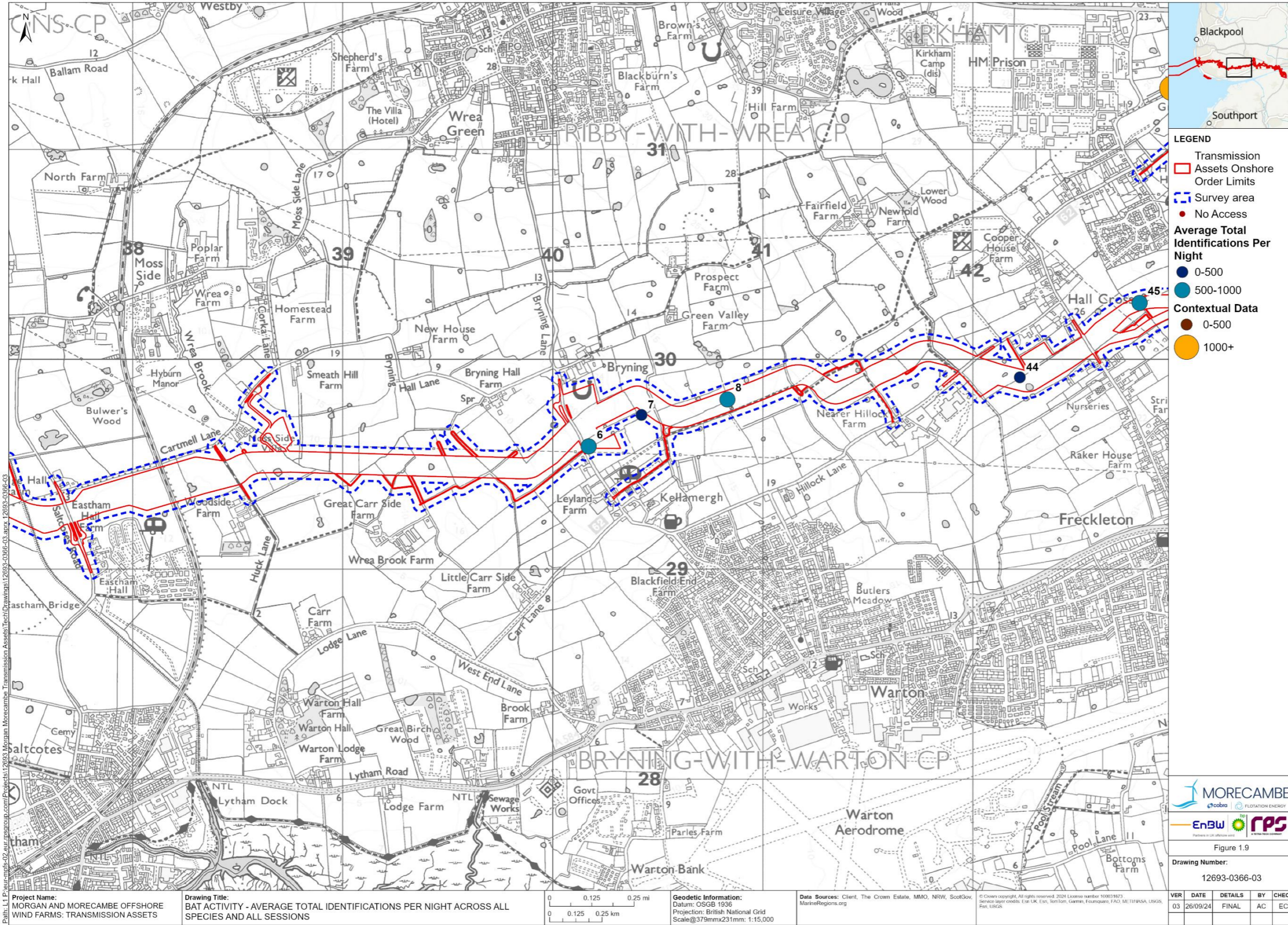
Figure 1.9: Average total identifications per night across all species and all survey periods (3 of 5)
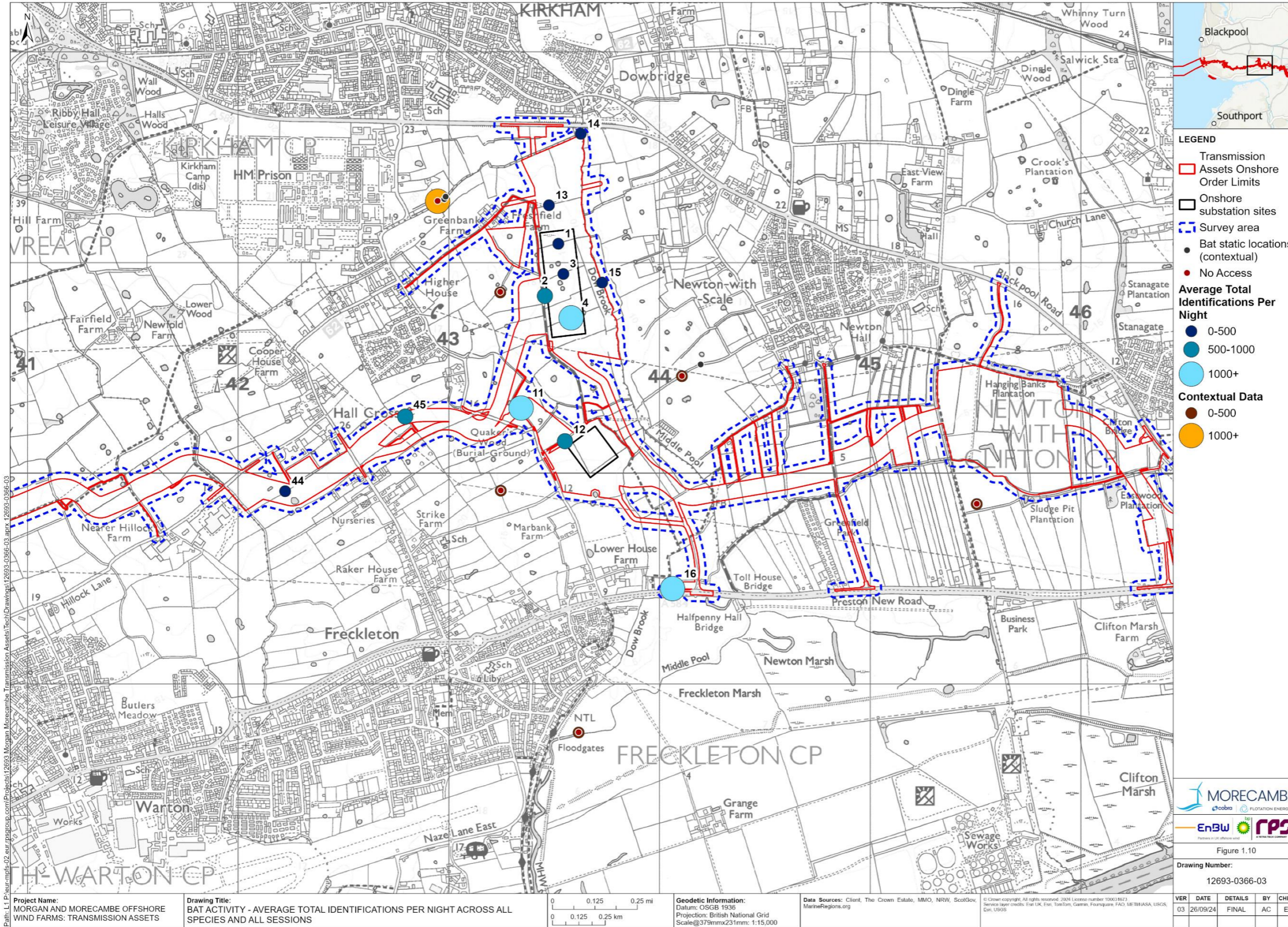
Figure 1.10: Average total identifications per night across all species and all survey period (4 of 5)
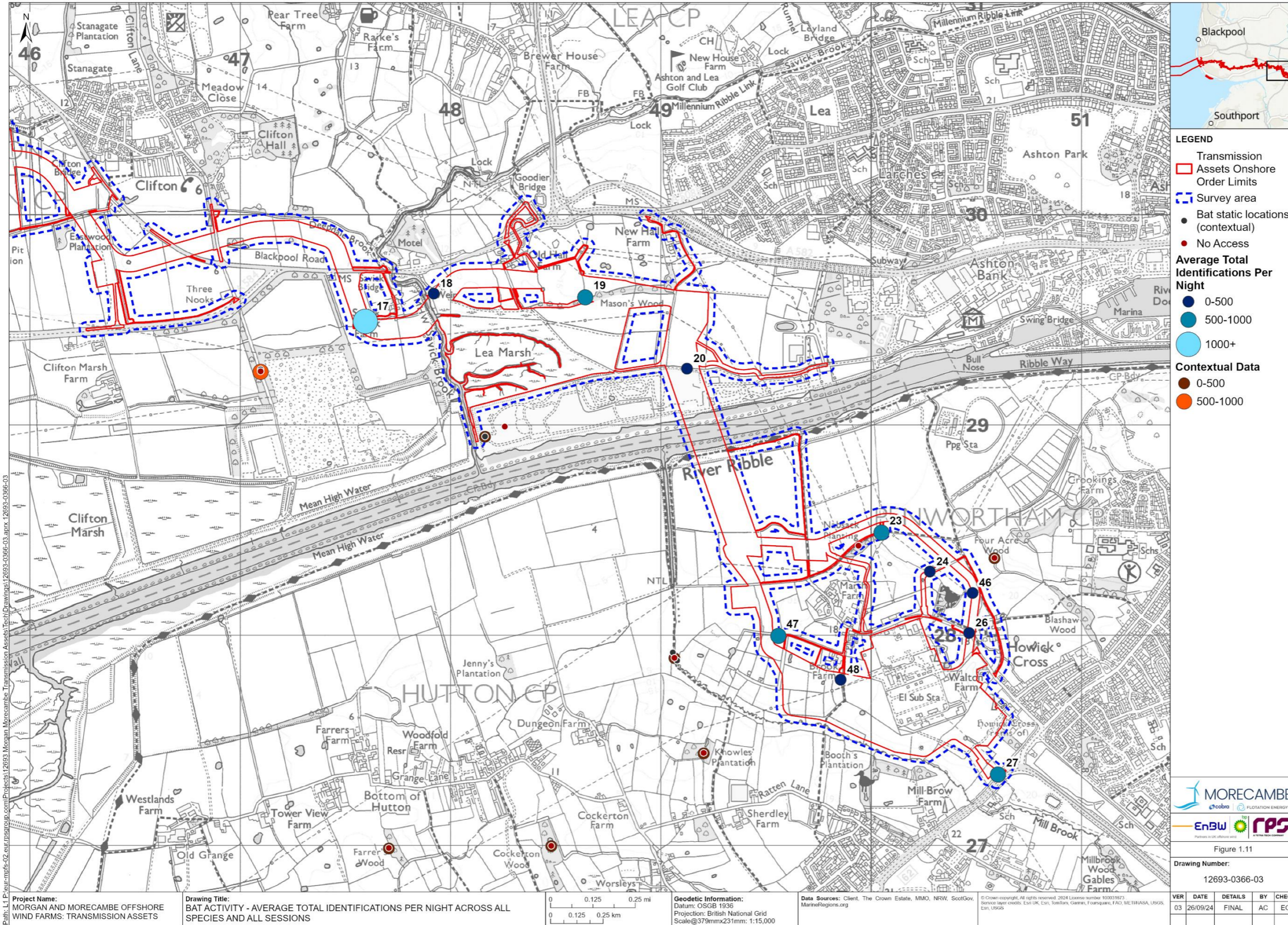
Figure 1.11: Average total identifications per night across all species and all survey periods (5 of 5)

1.3.2.156 The automated static detector surveys recorded at least seven different species of bat within the bat activity survey area, including brown long-eared bat, common pipistrelle, Leisler's bat, *Myotis* sp., Nathusius' pipistrelle, noctule, and soprano pipistrelle.

1.3.2.157 At least two species of bat were recorded at every survey location, including common pipistrelle and *Myotis* sp. as shown in **Figure 1.2** to **Figure 1.6**.

1.3.2.158 Nathusius' pipistrelle was recorded at survey locations 1, 2, 5, 6, 7, 11, 12, 14, 15, 16, 17, 18, 20, 23, 24, 27, 44, 45, 46 and 48 within the survey area.

1.3.2.159 Common pipistrelle had the highest number of bat identifications per night across the surveys in all of the locations.

1.3.2.160 Location 4 recorded the highest average number of bats per night across all periods and species, with an average of 2,846 identifications per night, as shown in **Figure 1.10** and **Table 1.30**. During May 2024 an average of 8,011 bat identifications per night was recorded. Location 4 is located inside the Onshore Order Limits at Morgan onshore substation.

1.3.2.161 Location 15 recorded the lowest average number of bat identifications per night across all periods and species, with an average of 45 identifications per night, as shown in **Figure 1.11**. Location 15 was located inside the Onshore Order Limits on the 400 kV grid connection cable corridor.

1.3.2.162 Locations 2, 5, 8, 15, 26, and 46 recorded no bat identifications across at least one of the survey periods. All of these locations were located inside the Onshore Order Limits (**Figure 1.11**).

1.3.2.163 Location 24 recorded the lowest average number of bat identifications per night within any one period across all species. An average of 3 identifications per night was recorded at location 24 during May 2024. The automated static bat detector at location 24 was located inside the Onshore Order Limits on the 400 kV grid connection cable corridor (**Figure 1.11**).

1.3.2.164 The month with the highest bat activity was August 2023 with an average of 1,383 identifications per night across all surveyed locations as shown in **Plate 1.1**. The month with the lowest bat activity was in June 2023 with an average of 193 identifications per night across all surveyed locations as shown in **Plate 1.1**.

1.3.2.165 A summary of the average bat identifications per night by species recorded at each static location over the survey period is provided in **Table 1.30** Data are presented as the total numbers of bat identifications during the entire survey period divided by the total number of nights over which the identifications were recorded to show an average number of bat identifications per night.
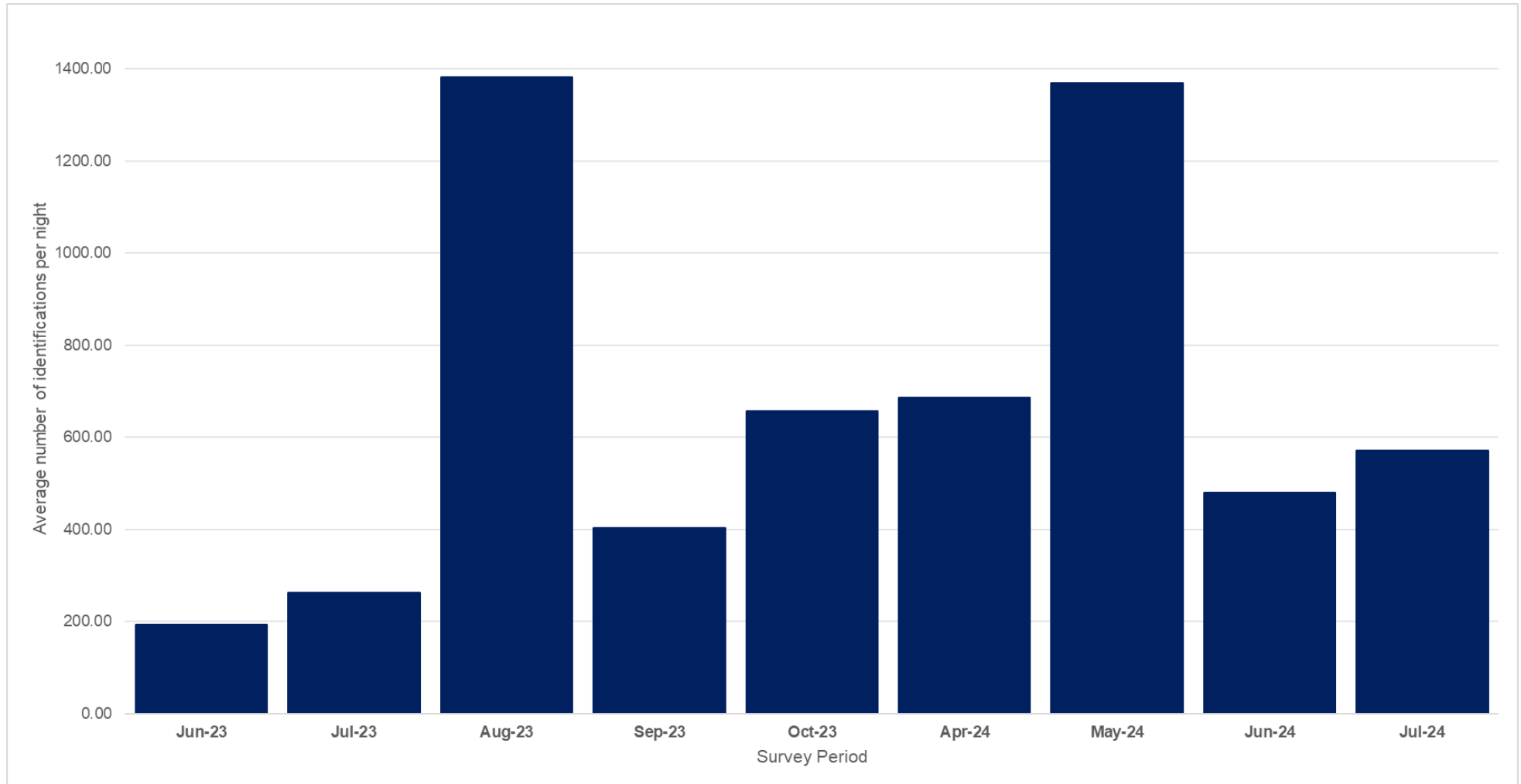
Table 1.30: Average number of bat identifications per night per static survey location, across all surveys

| Location number	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Brown long-eared bat	Total
1	337.56	0.00	0.00	0.00	0.05	5.83	0.00	343.44
2	840.24	2.40	0.04	6.78	0.23	40.17	0.00	889.87
3	374.40	0.10	0.80	1.10	0.00	0.20	0.00	376.60
4	2816.37	0.36	0.00	11.00	0.97	17.68	0.00	2846.37
5	118.15	0.00	0.22	0.00	0.00	6.49	0.00	124.85
6	432.25	86.80	0.20	23.23	0.13	9.68	0.13	552.41
7	142.98	7.34	0.67	32.67	0.07	1.00	0.00	184.72
8	668.19	0.40	0.00	1.00	0.50	56.51	0.00	726.60
11	1951.61	0.72	0.06	3.00	0.06	22.72	0.00	1978.17
12	630.49	17.17	0.39	18.84	0.04	3.00	0.00	669.93
13	55.81	0.37	0.04	9.44	0.00	0.45	0.00	66.10
14	312.34	32.11	0.06	1.22	0.89	10.83	0.00	357.44
15	30.17	0.32	0.07	6.82	0.00	7.25	0.00	44.63
16	1550.03	13.00	56.63	68.10	0.28	0.82	0.00	1688.87
18	172.13	5.25	0.07	1.63	1.94	11.44	0.13	192.57
19	529.67	7.67	0.00	0.00	0.42	13.67	0.00	551.42
20	189.34	0.06	0.18	0.74	0.00	3.34	0.00	193.67
23	642.78	1.39	0.53	2.29	0.83	11.91	0.00	659.73
24	277.46	0.40	0.88	0.51	1.35	0.80	0.00	281.39

Location number	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	*Myotis sp.*	Brown long-eared bat	Total
26	42.22	1.37	0.25	0.00	3.45	1.94	0.00	49.22
27	832.95	0.04	3.12	0.07	42.79	2.10	0.00	881.07
44	77.15	0.25	0.00	24.36	0.00	1.32	0.00	103.07
45	873.09	0.22	0.90	0.87	0.00	3.85	0.00	878.92
46	157.34	0.09	0.25	0.92	1.34	0.84	0.00	160.76
47	690.86	0.07	0.00	0.36	2.15	2.79	0.00	696.22
48	474.90	0.16	2.57	0.45	0.24	0.41	0.07	478.78

1.4 Summary

1.4.1.1 This technical report presents the results of the bat activity surveys undertaken between April 2023 and July 2024 to inform Volume 3, Chapter 3: Onshore ecology and nature conservation of the ES.

1.4.1.2 Records from seven different species and 96 records of bats that could not be identified to species level were recorded within the study area in the last ten years. Three of the records were within the Onshore Order Limits.

1.4.1.3 Automated static detector surveys were undertaken to determine the species present within the study area. The surveys were completed at 27 locations within the bat activity survey area between April 2023 and July 2024.

1.4.1.4 The automated static detector surveys recorded a minimum of seven different species of bat within the bat activity survey area, with at least three different species of bat recorded at every location.

1.4.1.5 Common pipistrelle had the highest number of bat identifications per night. The rare or restricted distribution species, Nathusius' pipistrelle, was recorded at locations 2, 6, 11, 14, 16, 17, 20, 23, 24, 27, 44, 45, 46 and 48.

1.4.1.6 Species recorded during bat activity surveys included those that are widespread throughout northern England (common pipistrelle, soprano pipistrelle and brown long-eared bats), widespread in many areas but not as abundant in all (*Myotis* species and noctule), and rare or restricted distribution species (Leisler's bat and Nathusius' pipistrelle).

1.5 References

Collins, J. (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust, London.

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

Department for Environment, Food and Rural Affairs (2024) MAGIC. Available at: https://magic.defra.gov.uk (Accessed Spetember 2024)

Reason, P. and Wray, S. (2023) UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.

Appendix A: Summary of automated static bat detector locations and dates

Static location	Grid reference	April 2023	May 2023	June 2023	July 2023	August 2023	September 2023	October 2023	April 2024	May 2024	June 2024	July 2024
1	SD 43519 31090	-	-	-	-	-	-	-		01-07	31-06	01-08
2	SD 43492 30980	-	-	21-25	13-17	9-16	21-28	18-23	17-24	09-14	-	01-08
3	SD 43543 30947	-	-	-	-	-	-	-		01-07	31-13	01-08
4	SD 43580 30739	-	-	-	-	-	-	-	17-24	09-14	31-06	01-08
5	SD 34388 31132								17-24	09-14	31-06	01-08
6	SD 40170 29586	-	-	21-25	13-17	9-16	-	-	-	-	-	-
7	SD 40421 29737	-	-	-	-	-	-	-	09-16	09-14	-	-
8	SD 40830 29810	-	-	-	-	-	-	-	17-24	09-14	31-06	01-08
11	SD 43342 30311	-	-	-	-	-	-	-	09-16	24-29	31-06	16-22
12	SD 43551 30153	-	-	-	-	-	-	-	09-16	24-29	31-06 13-20	15-22

Static location	Grid reference	April 2023	May 2023	June 2023	July 2023	August 2023	September 2023	October 2023	April 2024	May 2024	June 2024	July 2024
13	SD 43475 31273	-	-	-	-	-	-	-	23-27	-	13-20	15022
14	SD 43626 31612	-	-	-	-	-	21-29	18-24	-	-	-	-
15	SD 43727 30906	-	-	-	-	-	-	-		01-07	31-06	01-08
16	SD 44062 29453	-	-	-	-	-	-	-	09-16	09-14	06-13	01-08
17	SD 47907 29488	-	-	-	-	-	-	-	09-16	14-23	13-20	10-15
18	SD 47919 29626	-	-	-	-	-	21-26	18-23	-	-	-	-
19	SD 48640 29608	-	-	-	-	-	21-26	18-23	-	-	-	-
20	SD 49123 29269	-	-	-	-	-	-	-	09-16	14-23	14-20	10-15
23	SD 50048 28489	-	-	21-25	13-17	9-17	-	-	17-24	09-14	31-06	-
24	SD 50278 28303	-	-	-	-	-	-	-	09-16	09-14	14-20	10-15
26	SD 50464 28012	-	-	-	-	-	-	-	09-16	-	14-06	10-15
27	SD 50602 27338	-	-	-	-	-	-	-	17-24	09-14	07-12	01-08

Static location	Grid reference	April 2023	May 2023	June 2023	July 2023	August 2023	September 2023	October 2023	April 2024	May 2024	June 2024	July 2024
44	SD 42222 29916	-	-	-	-	-	-	-	-		31-06	01-08
45	SD 42793 30270	-	-	-	-	-	-	-	-		31-06	01-08
46	SD 50481 28202	-	-	-	-	-	-	-	-		31-06	01-08
47	SD 49558 27998	-	-	-	-	-	-	-	-		31-06	01-08
48	SD 49854 27789										07-13	01-08

Appendix B: Total number of bat identifications per species

Location 1

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
May 2024	3	2256	0	0	0	0	**2259**
June 2024	75	1432	0	0	13	51	**1571**
July 2024	35	6278	27	1	385	27	**6753**
Total	**113**	**9966**	**27**	**1**	**398**	**78**	**10583**

Location 2

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
June 2023	0	0	0	0	0	0	**0**
July 2023	359	940	21	0	21	0	**1341**
August 2023	1757	5091	85	0	83	5	**7021**
September 2023	135	2287	20	0	6	3	**2451**
October 2023	236	10185	0	1	0	0	**10422**
April 2024	27	9677	17	0	164	4	**9889**
May 2024	39	9249	7	1	58	2	**9356**
June 2024	8	5199	0	0	34	0	**5241**

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
July 2024	0	252	0	0	0	0	**252**
Total	**2561**	**42880**	**150**	**2**	**366**	**14**	**45973**

Location 3

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
May 2024	0	48	0	0	0	0	**48**
June 2024	1	0	0	0	0	0	**1**
Total	**1**	**48**	**0**	**0**	**0**	**0**	**49**

Location 4

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	43	10599	3	0	76	4	**10725**
May 2024	61	7916	1	0	33	0	**8011**
June 2024	5	2161	0	0	15	0	**2181**
July 2024	18	9822	0	0	1	2	**9843**
Total	**127**	**30498**	**4**	**0**	**125**	**6**	**30760**

Location 5

Date	Myotis sp.	Brown long-eared bat	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
June 2024	99	1553	0	0	0	0	0	**1652**
July 2024	43	1134	0	6	0	0	0	**1183**
Total	**142**	**2687**	**0**	**6**	**0**	**0**	0	**2835**

Location 6

Date	Myotis sp.	Brown long-eared bat	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
June 2023	17	0	2724	7	3	6	0	**2757**
July 2023	27	0	2416	0	0	28	0	**2471**
August 2023	162	3	2150	2072	0	503	3	**4893**
Total	**206**	**3**	**7290**	**2079**	**3**	**537**	**3**	**10121**

Location 7

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	0	604	0	0	14	1	**619**
June 2024	6	599	11	4	190	0	**810**
Total	**6**	**1203**	**11**	**4**	**204**	**1**	**1429**

Location 8

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	4	1363	0	0	1	2	**1370**
May 2024	1	19	0	0	0	0	**20**
June 2024	1109	6525	8	0	15	0	**7657**
July 2024	0	0	0	0	0	0	**0**
Total	**1114**	**7907**	**8**	**0**	**16**	**2**	**9047**

Location 11

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	2	1465	1	0	54	1	**1523**
May 2024	124	9129	4	0	102	0	**9359**
July 2024	35	6278	27	1	385	1	**2**
Total	**161**	**16872**	**32**	**1**	**541**	**2**	**2**

Location 12

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	0	374	1	0	49	0	**424**
May 2024	0	727	0	0	0	0	**727**
June 2024	49	6641	0	0	11	0	**6701**
July 2024	5	7975	411	6	403	1	**8801**
Total	**54**	**15717**	**412**	**6**	**463**	**1**	**16653**

Location 13

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	4	191	0	0	86	0	**281**
June 2024	5	404	4	1	58	0	**472**
July 2024	0	506	4	0	28	0	**538**
Total	**9**	**1101**	**8**	**1**	**172**	**0**	**1291**

Location 14

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
September 2023	102	1737	83	1	19	16	**1958**
October 2023	31	1295	165	0	1	0	**1492**
Total	**133**	**3032**	**248**	**1**	**20**	**16**	**3450**

Location 15

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Brown long-eared	Total
May 2024	103	294	2	1	48	0	0	**448**
July 2024	8	222	4	0	76	0	0	**310**
Total	**111**	**516**	**6**	**1**	**124**	**0**	**0**	758

Location 16

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	3	5953	0	272	0	1	**6229**
May 2024	2	5888	180	163	988	1	**7222**
July 2024	4	3472	21	9	47	1	**3554**
Total	**9**	**15313**	**201**	**444**	**1035**	**3**	**17005**

Location 17

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	10	8003	1	9	19	2	**8044**
May 2024	17	14365	0	16	21	0	**14419**
June 2024	98	5434	12	4	33	0	**5581**
July 2024	147	5616	10	7	71	0	**5851**
Total	**272**	**33418**	**23**	**36**	**144**	**2**	**33895**

Location 18

Date	Myotis sp.	Brown long-eared bat	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
September 2023	75	2	1078	24	1	14	7	**1201**
October 2023	27	0	419	15	0	3	6	**470**
Total	**102**	**2**	**1497**	**39**	**1**	**17**	**13**	**1671**

Location 19

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Soprano pipistrelle	Total
September 2023	90	5466	92	4	**5652**
October 2023	74	890	0	1	**965**
Total	**164**	**6356**	**92**	**5**	**6617**

Location 20

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	0	197	0	0	6	0	**203**
May 2024	77	1434	2	1	19	0	**1533**
June 2024	29	2454	0	2	0	0	**2485**
July 2024	4	1316	0	2	0	0	**1322**
Total	**110**	**5401**	**2**	**5**	**25**	**0**	**5543**

Location 23

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
June 2023	38	1185	0	0	1	0	**1224**
July 2023	135	4	2	0	1	0	**142**
August 2023	137	10420	23	0	39	15	**10634**
April 2024	0	65	0	0	0	0	**65**
May 2024	13	4988	11	16	18	6	**5052**
June 2024	6	1078	0	0	0	0	**1084**
Total	**323**	**16662**	**25**	**16**	**59**	**21**	**17106**

Location 24

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	1	2077	7	1	9	12	**2107**
May 2024	0	3	0	0	0	0	**3**
June 2024	12	2472	3	20	3	14	**2524**
July 2024	8	2742	1	3	2	10	**2766**
Total	**21**	**7294**	**11**	**24**	**14**	**36**	**7400**

Location 26

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
May 2024	2	11	0	0	0	1	**14**
June 2024	38	916	30	0	19	30	**1033**
July 2024	14	1995	4	0	8	15	**2036**
Total	**54**	**2922**	**34**	**0**	**27**	**46**	**3083**

Location 27

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Total
April 2024	33	5839	0	0	0	1017	**6889**
May 2024	3	3736	0	1	0	4	**3744**
June 2024	0	0	0	0	0	0	**0**
July 2024	16	11280	1	86	2	6	**11391**
Total	**52**	**20855**	**1**	**87**	**2**	**1027**	**22024**

Location 44

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Brown long-eared bat	Total
June 2024	5	240	10	0	0	88	0	**343**
July 2024	1	240	0	7	7	33	0	**281**
Total	**6**	**480**	**10**	**7**	**7**	**121**	**0**	**624**

Location 45

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Brown long-eared bat	Total
June 2024	37	6423	0	9	3	0	0	**6472**
July 2024	2	3231	3	0	8	0	0	**3244**
Total	**39**	**9654**	**3**	**9**	**11**	**0**	**0**	**9716**

Location 46

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Brown long-eared bat	Total
June 2024	0	0	0	0	0	0	0	**0**
July 2024	10	1888	1	3	11	16	0	**1929**
Total	**10**	**1888**	**1**	**3**	**11**	**16**	**0**	**1929**

Location 47

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Brown long-eared bat	Total
June 2024	23	2970	1	0	5	27	0	**3026**
July 2024	16	6702	0	0	0	3	0	**6721**
Total	**39**	**9672**	**1**	**0**	**5**	**30**	**0**	**9747**

Location 48

Date	Myotis sp.	Common pipistrelle	Leisler's bat	Nathusius' pipistrelle	Noctule	Soprano pipistrelle	Brown long-eared bat	Total
June 2024	1	3873	1	36	4	1	1	**3917**
July 2024	4	2379	1	0	2	2	0	**2388**
Total	**5**	**6252**	**2**	**36**	**6**	**3**	**1**	**6305**