



UNIVERSAL DESTINATIONS & EXPERIENCES UK PROJECT

Former Kempston Hardwick Brickworks
and adjoining land, Bedford

Environmental Statement Volume 3

Appendix 6.16 - Bat Activity Survey Report

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1 INTRODUCTION

1.1. PROJECT BACKGROUND

- 1.1.1. This Bat Activity Report has been prepared in support of the planning proposal for the Proposed Development as described in **Chapter 2: Description of the Proposed Development (Volume 1)** of the Environmental Statement (ES).
- 1.1.2. The extent of the area for the Proposed Development is illustrated as all land within the Site boundary as shown on **Figure 1: Site Location Plan of Annex 1: Figures** and is hereafter referred to as “the Site”. The Site is located south of Bedford and extends to 268 hectares and is centred on Ordnance Survey Grid Reference co-ordinates TL029445. The Site is split into four zones: Lake Zone, Core Zone, East Gateway Zone and West Gateway Zone (also shown on **Figure 1: Site Location Plan of Annex 1: Figures**).
- 1.1.3. The Site is located in an area broadly defined on all four sides by existing road and rail infrastructure. The A421 passes from northeast to southwest along the western side of the Site, with local access provided by Woburn Road running in parallel on the A421's eastern edge. Ampthill Road runs from north to south to the eastern edge of the Site. The Marston Vale Railway Line bounds the western edge of the Lake Zone and Core Zone and bisects the Site (north to south) between the Core Zone and West Gateway Zone. The Midland Main Railway Line runs from north to south to the east of the Site, parallel to and west of Ampthill Road.
- 1.1.4. The Core and West Gateway Zones comprise predominantly agricultural land, with occasional hedgerows and an area of wet broadleaved woodland located to the east of the Core Zone which forms part of the Coronation Pits County Wildlife Site (CWS). The Lake Zone comprises of arable land bordering the Elstow Brook to the west, and to the east uncultivated scrub and grassland habitats surrounding a number of open waterbody lakes associated with the former brickworks and now partially part of Kempston Hardwick Pit County Wildlife Site (CWS). An area of former built land now comprising of hard standing is also present in the south of the Lake Zone with several lakes and hedgerows and areas of woodland present.

1.2. SCOPE OF REPORT

- 1.2.1. WSP UK Ltd. (WSP) was commissioned to undertake surveys to determine the potential importance of the habitats within the Site for foraging and commuting bats¹. To gain an understanding of how bats are utilising the Site, bat activity surveys were undertaken by WSP, based upon guidance from Bat Conservation Trust (BCT)². This report presents baseline survey information but does not include an assessment of effects upon foraging and commuting bats.
- 1.2.2. The survey approach and methods undertaken were based upon current guidance², and is summarised in Section 3. The scope of work included the following elements:

¹ Foraging and commuting bats include bats which are ‘on flight-paths, foraging or exhibiting social behaviour (such as calling for mates during the mating season or swarming in autumn as defined by the Bat Conservation Trust².

² Collins, J. (2023) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 4th edn. London: Bat Conservation Trust.

- Desk study – a review of bat records (as provided through online and desk study sources) to provide an insight on local distribution of bats;
 - Initial habitat appraisal – to consider the potential suitability of the Site for bats taking into account the findings of the desk study and initial habitat survey (as detailed in in **Appendix 6.1: Preliminary Ecological Appraisal Report (Volume 3)**) and consideration of habitat features within the local landscape from aerial photography review;
 - Automated/static bat activity surveys involving the installation of remote detectors installed across the Site to record bat activity to establish species richness, provide a measure of relative abundance and establish the importance of different habitats and landscape features within the Site to bats;
 - Manual bat activity transect survey – walked transects at post dusk periods to record bat activity using bat detectors and recorders to determine bat behaviour, flight direction and other factors such as level of artificial lighting within and adjacent to the Site, which may influence bat activity; and
 - Data analysis and interpretation of the combined bat activity dataset to determine species identified and provide an assessment of relative bat activity within the Site.
- 1.2.3. The report presents baseline survey information but does not include an assessment of effects of the Proposed Development upon foraging and commuting bats. The impact assessment for foraging and commuting bats is outlined in **Chapter 6: Ecology and Nature Conservation (Volume 1)**.
- 1.2.4. This report does not include data pertaining to the status of roosting bats within the Site. This is presented within **Appendix 6.10: Bat Roost Appraisal Report (Volume 3)**.

2 RELEVANT LEGISLATION AND POLICY

2.1 LEGISLATION

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations

2.1.1. Bats and their roosts are afforded a high level of protection under Section 43 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations³ (the 'Habitat Regulations'), the legislation means that it is an offence to:

- Deliberately capture, injure or kill a wild bat;
- Deliberately disturb wild bats; 'disturbance of animals includes in particular any disturbance which is likely:
 - (a) to impair their ability to survive, to breed or reproduce, or to rear or nurture their young; or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
 - (b) to significantly affect the local distribution or abundance of the species to which they belong.' ;and
- Damage or destroy a breeding site or resting place used by bat species.

Wildlife and Countryside Act 1981 (as amended)

2.1.2. Protection is also afforded under Section 9 of the Wildlife and Countryside Act 1981 (as amended)⁴, this legislation means that it is an offence to:

- Intentionally or recklessly damages or destroys any structure or place that a bat uses for shelter or protection;
- Intentionally or recklessly disturbs any bat while it is occupying a structure or place that it uses for shelter or protection; and
- Intentionally or recklessly obstructs access to any structure or place a bat uses for shelter or protection.

2.1.3. Protection is also afforded under the *Wildlife and Countryside Act 1981 (as amended)* (WCA)⁴ with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter. The WCA does not offer any 'steer' on disturbance thresholds but does suggest a lower threshold for disturbance being an offence under the legislation.

The Environment Act 2021

2.1.4. The *Environment Act 2021*⁵ enables licences to be granted under section 16 of the WCA⁴ for reasons of over-riding public interest (OPI) where there is no other satisfactory solution, and the granting of the licence is not detrimental to the survival of any population of the plant or animal species to which the licence relates. In addition, the *Environment Act 2021* has amended section 10

³ HM Government (2019) *The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019*. Available at: <https://www.legislation.gov.uk/ukdsi/2019/9780111176573> [Accessed: 29 April 2025].

⁴ HM Government (1981) *Wildlife and Countryside Act 1981*. Available at: <https://www.legislation.gov.uk/ukpga/1981/69> [Accessed: 29 April 2025].

⁵ HM Government (2021) *Environment Act 2021*. Available at: <https://www.legislation.gov.uk/ukpga/2021/30/contents> [Accessed: 29 April 2025].

of the WCA such that where an EPS licence is obtained under the *Habitats Regulations*³ and fully complied with, the above offences under the WCA no longer apply for that species.

- 2.1.5. Given the introduction of OPI purpose into the WCA⁴ via the *Environment Act 2021*⁵, a mitigation licence may be applied for to derogate the disturbance offence in Section 9(4)(b) of the WCA. While all ‘highly significant’ disturbance impacts on bats will be expected to require licensing under the *Habitats Regulations*³, lesser levels of disturbance may be an offence under the WCA.
- 2.1.6. There are two routes for any WCA⁴ disturbance offence, including application for a WCA licence or undertaking works under the ‘incidental result of a lawful operation that could not reasonably have been avoided’ this WCA defence is detailed in Section 10(3)(c). Under the legislation, persons wishing to rely on the latter must notify Natural England of their intention to rely on the defence, before the impact occurs in accordance with Section 10(5).
- 2.1.7. Due to the high level of protection afforded to bats and their habitat, mitigation for this species group is governed by a strict licensing procedure administered by Natural England (normally, planning permission must be obtained before a licence can be sought).

The Natural Environment and Rural Communities (NERC) Act 2006

- 2.1.8. Certain species of bats including barbastelle *Barbastella barbastellus*, noctule *Nyctalus noctula*, brown long-eared bat *Plecotus auritus* and soprano pipistrelle *Pipistrellus pygmaeus* are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in accordance with Section 41 of the *Natural Environment and Rural Communities (NERC) Act 2006 (England)*⁶. Section 40 (1) of the *NERC Act 2006* (which was amended within the *Environment Act 2021*⁵) asks public bodies (including local planning authorities) to ‘consider what action the authority can properly take, consistently with the proper exercise of its functions, to further the general biodiversity objective’.

2.2 POLICY

- 2.2.1. The following planning policies also provide the framework within which bats are further considered to be a legal and material considerations within planning applications.

National Planning Policy Framework (NPPF) (2024)

- 2.2.2. At the national level the *National Planning Policy Framework (NPPF) (2024)*⁷ forms the basis for planning system decisions with respect to conserving and enhancing the natural environment; the Office of the Deputy Prime Minister (ODPM) circular 06/2005⁸ also provides supplementary guidance, including confirmation that ‘the presence of a protected species is a material consideration when a planning authority is considering a development proposal’.

⁶ HM Government (2006) *Natural Environment and Rural Communities Act 2006*. Available at: <https://www.legislation.gov.uk/ukpga/2006/16/contents> [Accessed: 29 April 2025].

⁷ Ministry of Housing, Communities and Local Government (2024) *National Planning Policy Framework*. Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf [Accessed: 06 May 2025].

⁸ Ministry of Housing, Communities and Local Government (2005) *Biodiversity and geological conservation: circular 06/2005*. Available at: <https://www.gov.uk/government/publications/biodiversity-and-geological-conservation-circular-06-2005> [Accessed: 05 May 2025].

2.2.3. The updated *NPPF (2024)*⁷ made clear the expectations for development to achieve biodiversity net gain, including references to net gains in biodiversity in the following sections:

- *‘Planning policies and decisions should contribute to and enhance the natural and local environment by...(d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs’ (paragraph 187);*
- *‘To protect and enhance biodiversity and geodiversity, plans should:...(b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity (paragraph 192); and*
- *‘when determining planning applications, local planning authorities should apply the following principles: (a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.’ (paragraph 193).*

Local Planning Policy - Bedford Borough Local Plan 2030⁹

Policy 42S – Protecting biodiversity and geodiversity

“Planning applications for development are required to assess the impact of the proposal on the biodiversity and geodiversity value of the site and its surroundings. This should be carried out by a suitably qualified professional in accordance with industry standards.

Development should be designed to prevent any adverse impact on locally important ... species contained within the Natural Environment and Rural Communities (NERC) Act 2006. However, in these circumstances where an adverse impact is unavoidable, the application shall demonstrate how the harm will be reduced through appropriate mitigation.

Where protected species ... are adversely affected, the application will need to demonstrate how the proposed mitigation will reduce the adverse effects. If adequate mitigation is not possible, the application will need to demonstrate that the overriding reasons outweigh the impacts on the biodiversity and geodiversity of the borough otherwise the development will be refused.

2.2.4. For relevant legislation, policy and guidance associated with all ES Technical Topics, please refer to **Appendix 3.1: Legislation, Policy and Guidance for All ES Technical Topics (Volume 3)**.

⁹ Bedford Borough Council (2020) *Bedford Borough Local Plan 2030*. Available at: <https://www.bedford.gov.uk/media/4011/download?inline> [Accessed: 07 November 2024].

3 METHODS

3.1 DESK STUDY

- 3.1.1. A desk study was undertaken as part of the Preliminary Ecological Appraisal in February 2024 (as detailed in **Appendix 6.1: Preliminary Ecological Appraisal Report (Volume 3)**). The desk study included a request to Bedfordshire and Luton Biodiversity Recording and Monitoring Centre for protected species records including for bats within a defined desk study area. This included a 10km radius from the Site for bat records and a 30km radius search for designated sites where bats are the primary designation feature; namely Special Areas of Conservation (SACs).

3.2 HABITAT APPRAISAL

- 3.2.1. The suitability (in accordance with BCT guidance²) of the Site to support foraging and commuting bats was assessed; informed by the initial habitat surveys conducted to support the Preliminary Ecological Appraisal and an aerial imagery assessment. An appraisal of habitats and habitat features present within and adjacent to the Site, which offer foraging resource e.g. woodland and standing water, was completed. This was combined with available data on species distributions for Bedfordshire, and consideration of other factors such as local land use and landscape level habitat connectivity to provide bat flightpaths to and from the Site e.g. linear corridor features. The appraisal of habitat suitability for foraging and commuting bats within the Site was also informed by professional expertise and judgement. This appraisal has informed the scope and survey effort adopted for the activity surveys.

3.3 BAT SURVEYS

DATES OF SURVEY AND PERSONNEL

- 3.3.1. The scope of the survey programme was managed by a Natural England Class II bat licenced surveyor with over 12 years' experience of bat survey work. The surveys were led by experienced ecologists who have at least three years' experience of conducting bat activity surveys.
- 3.3.2. The number of nights of each static deployment per month are provided within **Table 3-1**. The dates of the transect survey visits are summarised in **Table 3-2**.

3.4 BAT ACTIVITY SURVEY

- 3.4.1. As stated in Section 4.2, the overall Site appraisal of Moderate suitability, bat activity surveys, seek to meet the minimum recommended number of activity surveys defined by the BCT guidance (Table 8.3)². This requires the completion of automated/static bat detector data collection for a minimum of five consecutive nights per month throughout the entirety of the season (April to October), supplemented by completion of one night-time manual walked transect survey per season (spring, summer and autumn).

AUTOMATED DETECTOR SURVEY

- 3.4.2. Bat activity data was gathered using automated bat detectors. Automated (static) bat detectors (Song Meter 4, © Wildlife Acoustics, Inc.) were installed across the Site in pre-determined locations each month between April to October 2024, inclusive. The locations for the automated bat detectors were selected based on the presence of suitable commuting or foraging habitat for bats (to

maximise the detection of bat activity) across the Site and, where appropriate, were targeted towards habitat features likely to be directly or indirectly affected by the current proposals.

- 3.4.3. The locations of the static detectors are shown on **Figure 2: Automated static detector locations, Annex 1: Figures**, denoted by prefixes 'C' denoting those deployed in the Core Zone, 'L' for those located in the Lake Zone and 'WG' and 'EG' for West and East Gateway, respectively. The locations of the statics were determined in order to provide a spatial coverage of each Zone of the Site and align to the key habitats and features previously identified.
- 3.4.4. Weather conditions during each static deployment are provided in **Table B-1** within **Annex 2: Meteorological Data**.
- 3.4.5. A total of 10 detectors were deployed monthly between April and October 2024 at the detector locations shown in **Figure 2: Automated static detector locations, Annex 1: Figures**, for a minimum of five nights in each month, unless stated otherwise. The static detectors were set to commence recording at least 30 minutes before sunset time and cease recording 30 minutes after sunrise time.

Table 3-1 – Automated static survey effort

Date/Nights Deployed at each location	April ¹⁰	May	June	July	August	September	October	Total Number of nights per static location
Core Zone C1	9	2	10	29	19	16	21	106
Core Zone C2	8	0	10	9	8	No data recorded ¹¹	17	52
Core Zone C3	No data recorded	No data recorded	10	27	20	16	21	94
East Gateway Zone EG1	8	0	12	9	9	6	21	65
East Gateway Zone EG2	1	6	12	30	26	18	8	101

¹⁰ Statics were deployed in late April (22 April 2024) due to cold and wet weather conditions in early April. Due to this, the statics were left out as one continuous deployment from late April and into May. However, the nights for this deployment have been split into April and May dates within the table and data analysis.

¹¹ Wording of no data recorded is included for circumstances where deployment of statics did occur. However, either equipment failure or SD card corruption occurred and no data was recorded. The zeros within the table represent sessions where no statics were deployed (see Section 3.6).

Date/Nights Deployed at each location	April ¹⁰	May	June	July	August	September	October	Total Number of nights per static location
Lake Zone L1	8	0	8	13	No data recorded	13	13	55
Lake Zone L2	9	2	12	31	No data recorded	8	No data recorded	62
Lake Zone L3	9	2	12	29	31	No data recorded	13	96
Lake Zone L4	1	6	12	30	10	10	No data recorded	69
West Gateway Zone WG1	1	7	12	13	12	14	22	81

TRANSECT SURVEY

- 3.4.7. A dusk transect survey was completed for each of the five transects on three occasions; Spring (April/May), Summer (June/July/August) and Autumn (September/October), during the 2024 bat active period.
- 3.4.8. A pre-defined transect was walked by two surveyors to record levels of bat activity, the direction and starting point was varied between survey visits to avoid temporal bias in the results. Each dusk walked transect began at sunset and continued for approximately 120 minutes afterwards.
- 3.4.9. During each transect the surveyors noted the bat species heard and seen, including the time, location, and, where possible behaviour type and direction of flight. Surveyors were equipped with Elekon Batlogger M2 (© Elekon AG) bat detectors to listen to and record echolocation calls of bats observed.
- 3.4.10. A plan showing the pre-defined walked transect routes is shown on **Figure 3: Transect routes** in **Annex 1: Figures**. The dates of each transect survey are provided within **Table 3-2**. Weather conditions during each of the transect survey visits are provided in **Table B-2** within **Annex 2: Meteorological Data**.

Table 3-2 – Transect locations and deployment dates

Transect	Spring	Summer	Autumn
Transect 1 West Gateway	Aborted due to Health and Safety reasons (see Section 3.6)	6 August 2024	28 October 2024
Transect 2 Core Zone	22 April 2024	6 August 2024	17 October 2024
Transect 3 Core Zone	22 April 2024	5 August 2024	17 October 2024
Transect 4 Lake Zone	22 April 2024	5 August 2024	24 September 2024
Transect 5 Lake Zone	Aborted due to Health and Safety reasons (see Section 3.6)	5 August 2024	24 September 2024

3.5 DATA ANALYSIS

STATIC SETUP

- 3.5.1. Once triggered by ultrasound, the detectors record sound files, which may contain a number of individual bat calls (or passes), or discrete groups of ultrasound ‘pulses’. The assessment of relative bat activity between species is based on the relative abundance of recorded calls of each species within each survey period (i.e. period of static monitoring per month) and across the combined study period.
- 3.5.2. It should be recognised that a series of separate sound files may represent a series of different bats commuting within the range of a static detector, or a smaller number of bats repeatedly triggering the detector (e.g. bats making repeated foraging passes within the range of a detector).

CALL IDENTIFICATION

- 3.5.3. The recordings of bat echolocation calls collected during the static detector and transect survey were analysed using the auto-identification specialist computer software Kaleidoscope Pro version 5.6.8. The analysis enables confirmation of species or species group based on call parameters and the relative activity of different species of bats by counting the minimum number of bats recorded within discrete sound files.
- 3.5.4. Where possible, bat calls are identified to species level. Cryptic species, such as of the genus *Myotis* were identified to genus level, as their passes are difficult to differentiate based on echolocation call structure alone¹².

¹² Russ, J. (2021) *Bat Calls of Britain and Europe: A Guide to Species Identification*. Exeter: Pelagic Publishing.

- 3.5.5. The Site is within the known range of brown long-eared bat but not grey long-eared bat *Plecotus austriacus*^{13,14}. However, their passes are difficult to differentiate based solely on their echolocation calls as there is significant overlap in their echolocation frequencies and the variability of calls in different environments and during different activities. Therefore, each long-eared bat pass identified as *Plecotus* sp., are likely brown long-eared rather than grey long-eared¹².
- 3.5.6. For *Pipistrellus* sp. the following generic criteria based on measurements of peak frequency are used to classify calls, where a species cannot be determined due to call frequency overlap between species:
- Common Pipistrelle *Pipistrellus Pipistrellus*: Greater than or equal to 42 and less than 49khz;
 - Soprano Pipistrelle: Greater than or equal to 51khz;
 - Nathusius' Pipistrelle *Pipistrellus Nathusii*: Equal to or less than 39khz;
 - Common/soprano Pipistrelle: Greater than or equal to 49 and less than 51khz; and
 - Common/Nathusius' pipistrelle: Greater than or equal to 40 and less than 42khz.
- 3.5.7. In addition, the following categories are used for calls which cannot be identified with confidence due to the overlap in call characteristics between species or species groups:
- *Nyctalus* sp. (either Leisler's bat *Nyctalus leisleri* or noctule);
 - serotine *Eptesicus serotinus*/Leisler's; and
 - serotine/*Nyctalus* sp.
- 3.5.8. The process for bat pass analysis is summarised below:
- Sound files were run through Kaleidoscope-Pro™ (© Wildlife Acoustics, Inc.) using the 'Auto-ID' function, which enabled identification of species or species groups based on their call parameters;
 - All sound files identified (through the Auto-ID process) as bat passes and labelled as a set species (other than passes identified as common and soprano pipistrelle, as detailed below) or No-ID were manually checked by ecologists who were competent in analysing bat passes and experienced in the use of Kaleidoscope software. Where the Auto-ID was deemed incorrect, the correct species label was attributed to the pass;
 - Bat passes identified (through the Auto-ID process) as common or soprano pipistrelle with a confidence interval of less than 0.6 were manually checked by an ecologist. Where 10% or more of the checked files were 'incorrect' (where the pass identified through Auto-ID has incorrectly used the pipistrelle label) then this was noted and all remaining pipistrelle passes (those with a confidence interval of more than 0.6) were manually checked by an ecologist; and
 - As the Auto-ID function is only capable of labelling one species in a file, where a file contained passes of multiple bat species, a manual check was made by duplicating files and labelling them separately.

¹³ Joint Nature Conservation Committee (2019) *Fourth Article 17 UK Habitats Directive Report (2019)*. Available at: <https://hub.jncc.gov.uk/assets/081db8a3-afa7-442b-bd0d-701aaf830bdc> [Accessed: 06 May 2025].

¹⁴ Bat Conservation Trust (2024) *The National Bat Monitoring Programme Annual Report 2023*. London: Bat Conservation Trust. Available at: <https://www.bats.org.uk/our-work/national-bat-monitoring-programme/reports/nbmp-annual-report> [Accessed: 06 May 2025].

- 3.5.9. The manually checked sound files were then subject to a quality assurance process where calls were verified by a suitably competent senior analyst, experienced in using Kaleidoscope software. Ten percent of sound files manually identified as common or soprano pipistrelle during the manual identification were reviewed and a separate ten percent of sound files manually identified as all other bat species (excluding common or soprano pipistrelle) were reviewed. One hundred percent of all calls of any bat species uncommon to the region were also reviewed.

DATA ANALYSIS

- 3.5.10. The assessment of relative bat activity (hereafter referred to as 'Bat Activity Index Value' (BAIV)) within the Site is based on the number of total recorded passes of each bat species within the survey period and the number of passes of each bat species each month. To allow standardisation and comparison of automated detector survey results, the number of bat passes recorded per night (ppn) was used²:

$$\text{Bat ppn} = \frac{\text{Total bat passes recorded at an automated bat detector location}}{\text{Total number of nights deployed}}$$

Additional Data Analysis – Barbastelle

- 3.5.11. Analysis of all barbastelle calls has been undertaken specifically to review their correlation to sunset time and roost emergence period. The purpose being to investigate the potential use of the habitats located within the Site by this species e.g. risk of roosting habitats and/or use for commuting and foraging. The timings of activity recorded within each of the Zones of the Site has also been reviewed.

3.6 NOTES AND LIMITATIONS

- 3.6.1. Best practice indicates that survey data is generally considered valid for up to 18 months¹⁵. The data presented in this report enables an evaluation of bat activity within the Site within the context of this validity period.
- 3.6.2. During the April surveys of Transects 1 (West Gateway Zones) and 5 (Core Zone), surveys were aborted earlier than planned because of security safety issues. This is not considered a significant limitation as surveys were completed for these transects in the Summer and Autumn periods. Furthermore, static detectors were installed within proximity to these transect locations during the April to May period, providing data on bat assemblage and activity at these locations earlier in the season. Therefore, data can be extrapolated and assessed as a whole, when assessing impacts and suitable avoidance, mitigation and compensation measures.
- 3.6.3. A minimum of five nights of data per month is the recommended survey effort for automated surveys². The number of nights of data per month varied between static location and month (between a single night and 31 nights). There was also some overlap between months in

¹⁵ Chartered Institute of Ecology and Environmental Management (2019) *On the lifespan of ecological reports and surveys*. Available at: <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf> [Accessed: 05 May 2025].

deployment due to logistics. In addition, there are a number of limitations relating to technical issues with the static detectors in the field whereby they did not record at some locations as follows:

- Core Zone: C2 - No data was collected in September and C3 - No data was collected for April – May; and
- Lake Zone: L1– No data was collected in August, L2 – No data was collected in August and October, L3 – No data was collected in September and L4 – No data was collected in October.

3.6.4. The static detector limitations noted above are not considered a significant limitation as a minimum of five nights of data was collected across 76% of the locations and all months surveyed. Additionally, as the statics were left out for a prolonged period of time, overall, 223% more nights of data was collected relative to expected baseline requirements¹⁶. As this data was then further assessed as passes per night calculations, providing a comparative BAIV, it is considered that the data collected is more than sufficient and valid.

3.6.5. Whilst the above has resulted in reduced data recorded at six specific static locations across the Site, overall, the level of static survey effort (and number of nights for which data was collected in each Zone across the survey season) was considered to provide a sufficient and reasonably robust dataset by which to draw conclusions about the level of bat activity at the Site, with survey effort in many locations exceeding minimum recommended requirements.

¹⁶ When adhering to recommended survey approach (five nights per month, across 10 locations, between April and October) a minimum of 350 nights of data is recommended. However, across this Site and season surveyed, a total of 781 nights of data was collected.

4 RESULTS

4.1 DESK STUDY

Designated Sites

- 4.1.1. One designated site primarily designated for bats is located within a 30km radius of the Site as detailed in **Table 4-1**.

Table 4-1 – Relevant National Network sites

Site name	Designation	Size (ha)	Distance and orientation from the Site	Reasons for Designation
Eversden and Wimpole Woods SAC	SAC	66.48	29.4km northeast	Eversden Wood consists of a mixture of ancient coppice woodland and high forest woods likely to be of more recent origin. The habitats present also support a nationally important summer maternity roost for barbastelle.

- 4.1.2. The assessment of potential effects upon this designated site is outlined in the **Report to Inform Habitat Regulations Assessment Screening Assessment (Document Reference 6.13.0)**.

Roosting Bat Records

- 4.1.3. Whilst this report does not include information pertaining to bat roosts, the desk study results for bat roost records is included for thoroughness to provide context (refer to **Appendix 6.10: Bat Roost Appraisal Report**). The data search identified twenty-eight bat roosts records within 10km of the Site as detailed in Table 4-2 below. The closest was a soprano and common pipistrelle roost, which was recorded within a building approximately 1.10km west of the Site in 2015.

Table 4-2 – Bat Roosts Records located within 10km of the Site

Species	Number of Roosts	Total Number of Bats Present in All Roosts	Date of Most Recent Roost	Distance from Site of Nearest Roost	Roost Type
barbastelle	1	1	2014	5.2km northwest	Hibernation – underground chamber
brown long-eared bat	3	4	2017	4.5km northeast	Hibernation – underground chamber/bat box
common pipistrelle	2	2	2015	1.1km west	Bat box/house
Nathusius' pipistrelle	1	1	2017	4.1km northeast	Bat box

Species	Number of Roosts	Total Number of Bats Present in All Roosts	Date of Most Recent Roost	Distance from Site of Nearest Roost	Roost Type
Pipistrelle species	13	36	2015	3.6km northeast	Hibernation – bat box/bat box/house
soprano pipistrelle	8	9	2017	1.1km west	Bat box/house

Foraging and Commuting Bat Records

- 4.1.4. Several foraging and commuting bat records were returned from within 10km of the Site these are summarised in Table 4-3.

Table 4-3 - Foraging and commuting records from within 10km of the Site

Species	No. of Records	Date of Most Recent Record	Distance of Nearest Record
barbastelle	15	2019	3.3km southeast
brown long-eared bat	15	2019	2.6km north
common pipistrelle	424	2019	Within the Site
Daubenton's bat	50	2019	0.5km southwest
Leisler's bat	1	2015	6.2km southwest
<i>Myotis</i> species	29	2019	1.0km southwest
Nathusius' pipistrelle	28	2019	3.7km northeast
Natterer's bat	12	2016	2.4km southwest
noctule	79	2019	0.9km southwest
<i>Nyctalus</i> species	6	2019	0.9km west
<i>Nyctalus/eptesicus</i> species	8	2019	2.6km north

Species	No. of Records	Date of Most Recent Record	Distance of Nearest Record
Pipistrelle species	58	2019	Within the Site
serotine	31	2019	4.7km south
soprano pipistrelle	251	2019	Within the Site
Whiskered bat <i>Myotis mystacinus</i>	1	2016	4.9km southeast
Unknown bat species <i>Vespertilionidae</i>	2	2015	2.0km west

4.2 HABITAT APPRAISAL

4.2.1. As part of the Preliminary Ecological Appraisal undertaken to inform the appropriate species surveys (detailed in **Appendix 6.1: Preliminary Ecological Appraisal Report (Volume 3)**, the following broad habitat types were recorded on Site:

- Arable;
- Reedbeds;
- Grassland, both neutral and modified;
- Scrub;
- Open water;
- Developed, artificial unvegetated and sparsely vegetated land, mosaic habitats;
- Woodlands;
- Ditches, streams and rivers;
- Line of trees; and
- Hedgerows.

4.2.2. There is a significant provision of open water and marginal reedbed habitats associated with the lakes (within the Lake Zone and adjacent to Site) providing optimal insect foraging habitat. The lakes form part of the Kempston Hardwick Pits CWS, which partially extends into the Site. There are small pockets and strips of woodland, that not only provide commuting features for the extant bat population, but also valuable foraging habitat. There are also areas of successional scattered and dense scrub surrounding the lakes and woodland to the northeast of the Lake Zone and to the east of the Core Zone, which provide opportunities for foraging resource for bat species. Within context, there is also a moderate provision of similar standing water and scrub habitats surrounding the Site, to the immediate north of the Lake Zone and east of the Core Zone associated with Coronation Pit County Wildlife Site. Although typically mosaic habitats are open and exposed, and so not valued for

their 'typical' characteristics, these habitats often support invertebrate populations that are valuable to foraging bats.

- 4.2.3. The Lake Zone, whilst historically would have been very well-lit when operational, is now almost entirely unlit (all former operational lighting has been removed/not operational). This is likely to have enhanced the foraging suitability for bats combined with the succession of naturalised habitats. A large well-lit industrial unit is located to the west of the Lake Zone, which does result in some light spill onto Elstow Brook and linear habitat corridor. Similarly light sources in the Core and West Gateway Zone are restricted to the local road lighting and a number of car storage yard areas around the perimeter of these Zones.
- 4.2.4. Of the above listed habitats, suitable linear bat habitat features include the ditches, hedgerows within the Core and West Gateway Zones, and tree corridor associated with Elstow Brook. Additionally, there are scrub and tree lines associated with the two railway lines, which border the Site to the east and west providing distinct linear corridors in the local landscape.
- 4.2.5. As a contrast to these higher suitability habitat features there are large open areas of arable habitat within the Site. The Core Zone almost entirely comprises of one large arable field with limited habitat connectivity in an east-westerly direction. Though connectivity is provided by tree and hedge lines along Manor Road and Broadmead Road to north and south of the Core Zone, respectively. Similarly, within the northern part of the Lake Zone a large open arable field offer limited connectivity east and west across the Zone.
- 4.2.6. Overall, there is moderate connectivity of the habitats within the Site to the wider landscape provided by the linear features but would be measured by the presence of historic and recent changes in local land use; including new areas of residential and industrial development to the east (Wixams), west (Wootton) and south (Stewartby) of the Site. Furthermore, the Site is located within a network of several main roads including the A421 dual carriageway to the north and west of the Site and Ampthill Road to the east, which is likely to influence the connectivity for some species of bats, as well as the local availability of foraging habitat resource.
- 4.2.7. Based upon this initial higher-level appraisal of the potential suitability of the Site for foraging and commuting bats, and considering the habitats/habitat features within the Site and the local context, it is considered appropriate to assign at least a Moderate suitability category to the overall Site (as per Table 4.1 of the BCT guidelines²). As summarised the non-arable habitats; i.e. lakes, scrub and areas of uncultivated grassland within the Lake Zone are likely to offer a High suitability.

4.3 AUTOMATED DETECTOR SURVEY

- 4.3.1. At least nine confirmed bat species (including passes identified as *Myotis* sp. and *Plecotus* sp.) were recorded within the Site during the automated detector surveys. The confirmed species include:
 - barbastelle;
 - noctule;
 - Leisler's Bat;
 - serotine;
 - *Plecotus* sp;
 - *Myotis* sp;
 - common pipistrelle;
 - soprano pipistrelle; and

- Nathusius' pipistrelle.

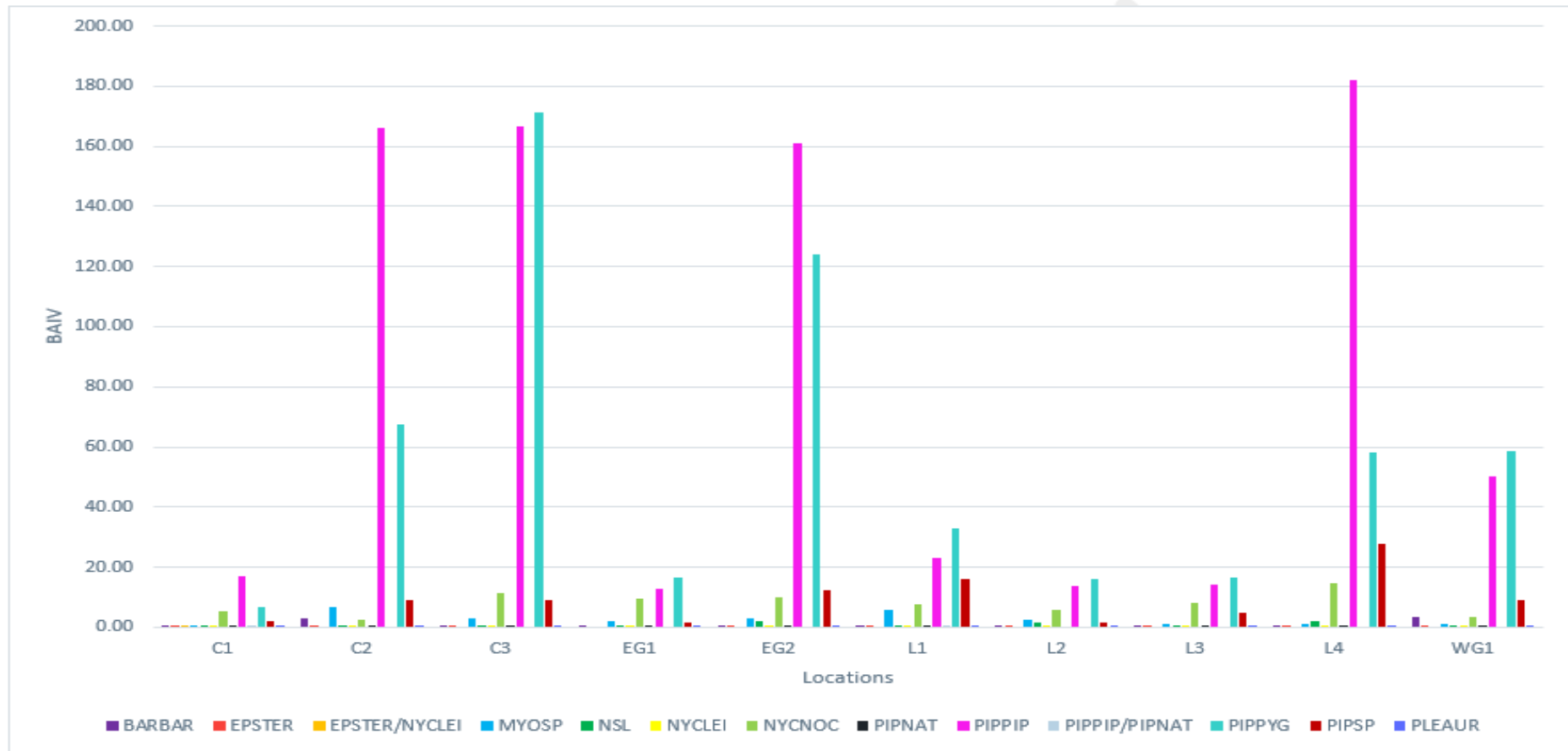
- 4.3.2. The total number of bat passes and BAIV belonging to each species per location recorded during each monitoring period, at each zone is presented in **Table C-1** and **C-2** in **Annex 3: Automated Static Detector Data**.
- 4.3.3. Overall, common pipistrelle was the most frequently recorded species (49.74% of calls), with soprano pipistrelle second most frequent (36.99%). Three species/species groups were occasionally heard (1-10% of total calls) and recordings of bat passes by eight species/species groups were rare (<1% of total calls).
- 4.3.4. The highest bat activity rate across the whole survey period was at C3 (363.9ppn, **Plate 4-1** and **Plate 4-2**) with most activity recorded in September 2024. Location C3 was deployed at the edge of a moderately sized woodland parcel, with a ditch system present and in proximity to a large waterbody.
- 4.3.5. Locations EG2, L4 and C2 had similar levels of activity (313.4ppn, 286.1ppn and 255.8ppn, respectively). Excluding *Pipistrelle* species, L4 had the highest amount of activity (**Plate 4-3**). EG2 and L4 were also deployed on a woodland edge, adjacent to waterbodies. C2 was deployed along a hedgerow within riparian habitat (most likely a small beck). These locations are likely to account for the higher BAIV in comparison to other locations due to the bats using the woodland edge and waterbodies for foraging or commuting along (**Plate 4-4**). This finding is consistent with woodland, woodland edge and riparian habitats being one of the known preferences for the species identified on Site².

Table 4-4 – Total number of calls per species recorded across all statics

	Barbastelle	Serotine	Serotine/Leisler' s	Myotis sp.	Serotine/Nyctalus sp	Leisler' s bat	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.	Totals
Total calls (781 nights of data)	561	51	2	1,897	674	179	6,268	83	63,331	2	47,091	6,968	208	127,315
% of total calls	0.44	0.04	0.002	1.49	0.53	0.14	4.92	0.07	49.74	0.002	36.99	5.47	0.16	

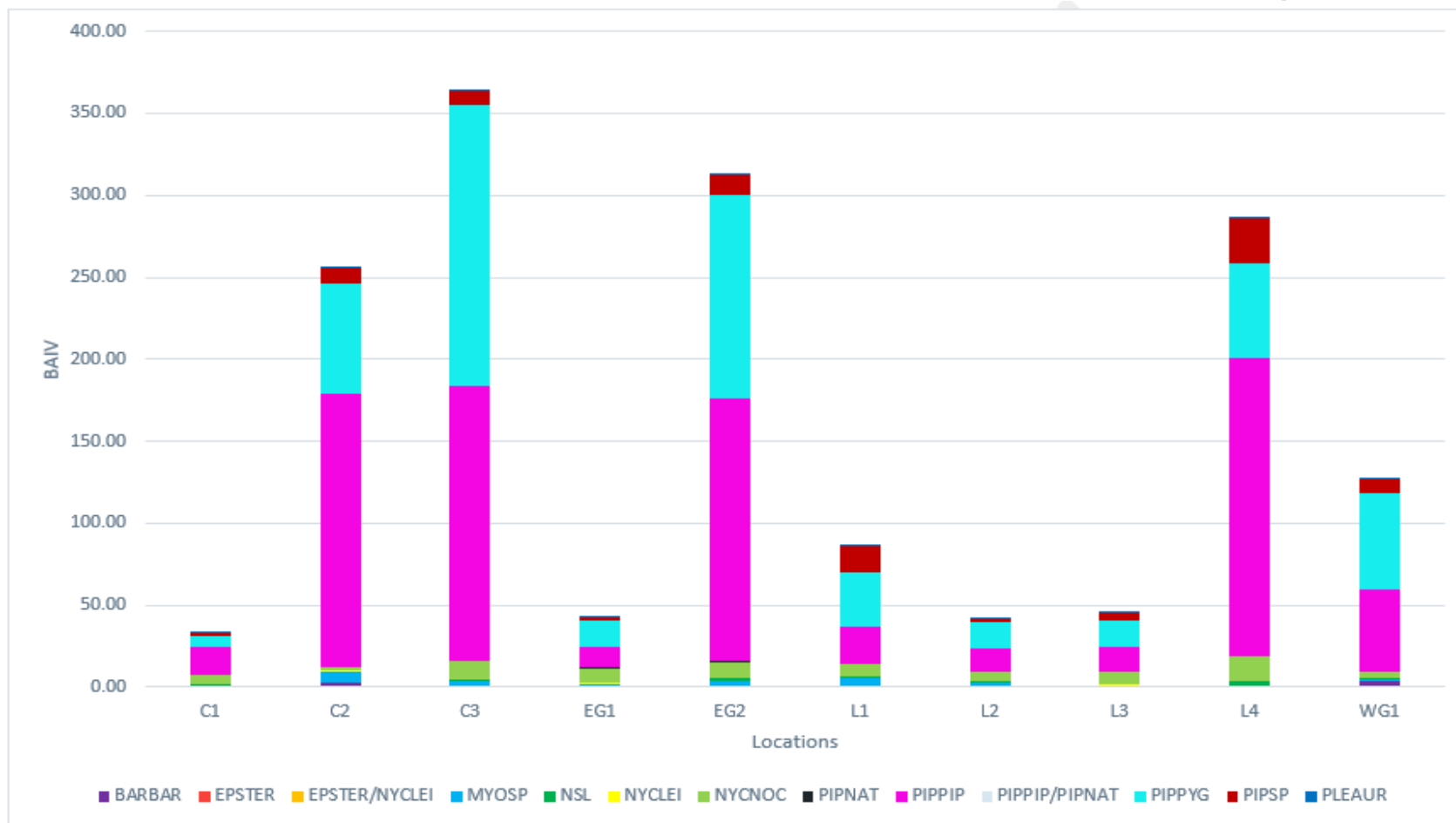
- 4.3.6. The locations with the lower levels of bat activity (C1, EG1, L2 and L3) were mainly associated with arable fields and open habitats (neutral grassland). EG1 was deployed on a hedgerow surrounded by arable fields. These more open habitats may account for the lower BAIV here as there was limited linear vegetation present that could be utilised for commuting or foraging.
- 4.3.7. There were higher levels of barbastelle activity recorded at WG1 (3.57ppn and 0.23% of all passes recorded) and C2 (2.75ppn and 0.11% of all passes recorded) compared to the whole Site (Plate 4-3). Both WG1 and C2 were deployed on hedgerows within riparian habitat, which is one of the preferred habitats for foraging barbastelles². Hedgerows in pastoral landscapes also provide important linear features for this species. In addition, these features provide connective corridors between small woodland blocks, and larger riparian habitats, both on and off Site.
- 4.3.8. There were also higher levels of *Myotis* activity at C2 (6.63ppn and 0.27% of all passes recorded) and L1 (5.55ppn and 0.24% of all passes recorded). This is likely due to these detectors being located adjacent to waterbodies, a habitat preference for foraging *Myotis*.

Plate 4-1 - Bat passes per night by location and species¹⁷



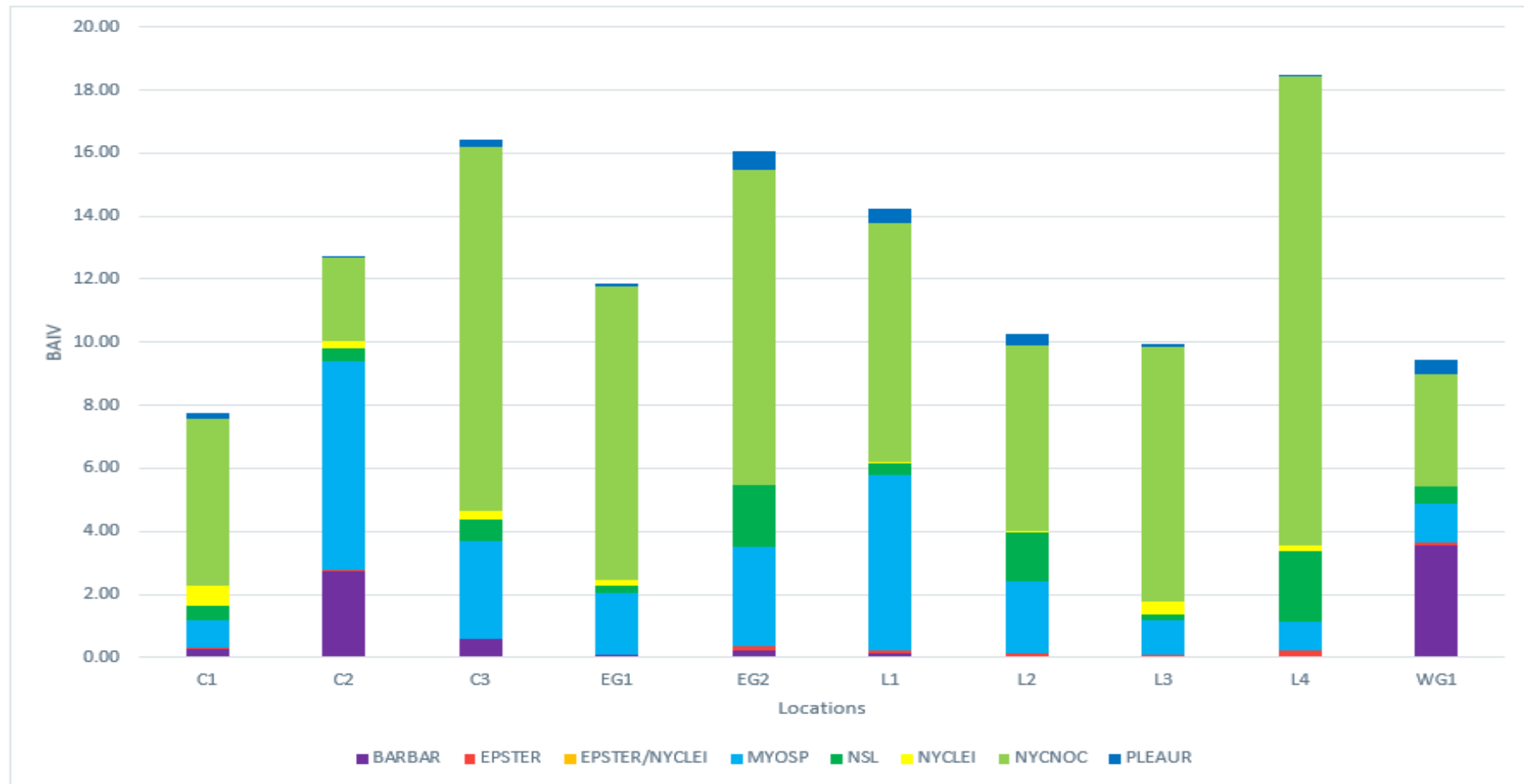
¹⁷ BARBAR – barbastelle; EPSTER -serotine; EPSTER/NYCLEI - Serotine/ Leisler's bat; MYOSP- Myotis species; NSL – Nyctalus species; NYCLEI -Leisler's bat; NYCNOC- noctule; PIPNAT- Nathusius' pipistrelle; PIPPIP- common pipistrelle; PIP/PIP NAT- common/Nathusius' pipistrelle; PIPPYG- soprano pipistrelle; PIPS – Pipistrellus species; PLEAUR – brown long-eared bat

Plate 4-2 - Bat passes per night by location and species (stacked)¹⁸



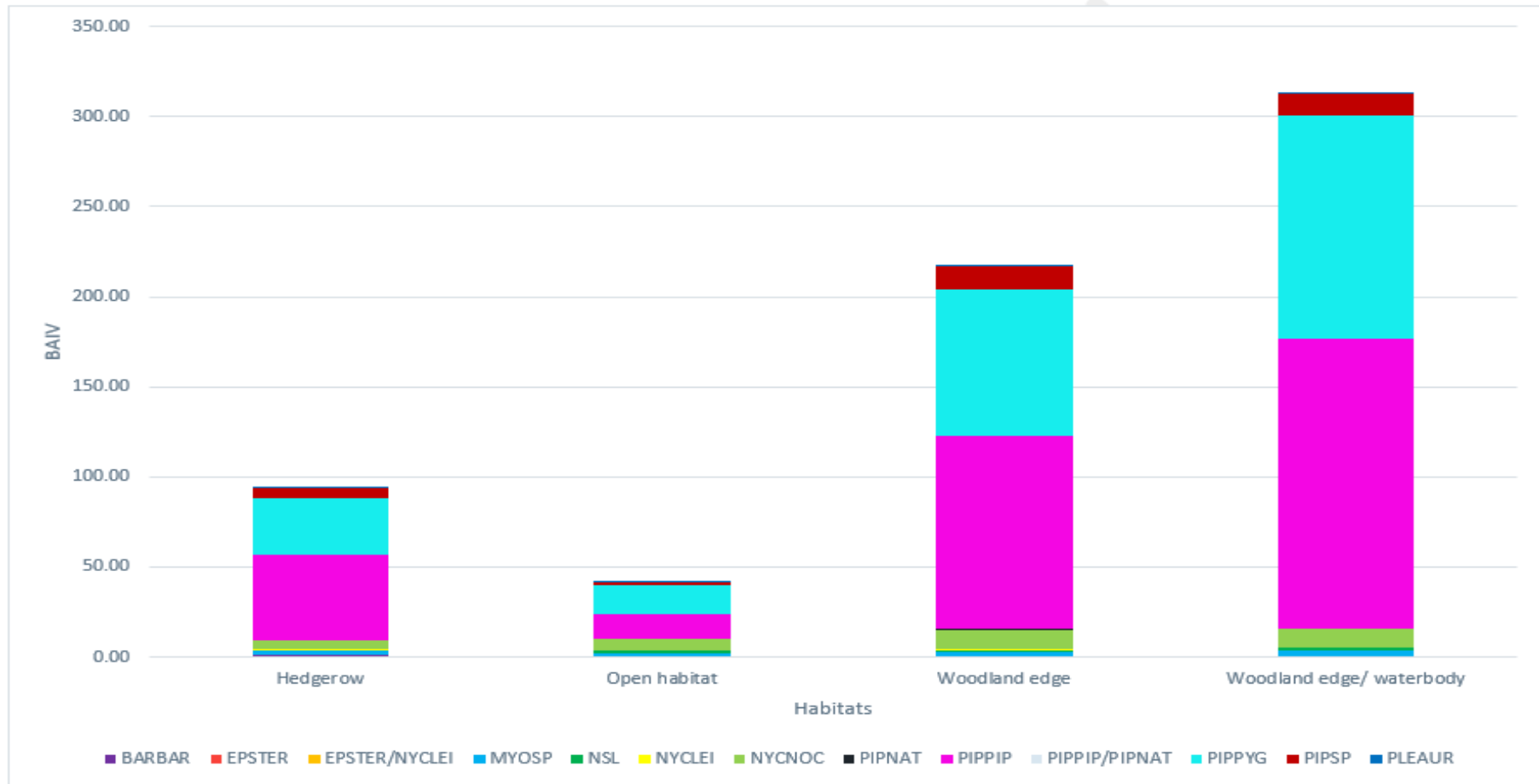
¹⁸ See footnote to Plate 4-1 for full species names

Plate 4-3 - Bat passes per night by location and species (excluding *Pipistrelle sp.*)¹⁹



¹⁹ See footnote to Plate 4-1 for full species names

Plate 4-4 - Bat passes per night by habitat and species²⁰



²⁰ See footnote to Plate 4-1 for full species names

SPRING 2024 RESULTS

- 4.3.9. A total of 14,368 bat passes from at least nine bat species were recorded on Site in April and May 2024 (**Plate 4-5**). Averaged across all static detector locations combined, the highest bat activity recorded across the entire monitoring period was in May 2024 (409.8ppn) while the lowest was April (76.4ppn).
- 4.3.10. WG1 had the highest bat activity levels in Spring (927ppn in April and 877ppn in May). C1 had the lowest activity levels in Spring with a BAIV of 9ppn and 0ppn for April and May, respectively.
- 4.3.11. Most of the bat activity recorded in Spring was from common pipistrelle (46%) and soprano pipistrelle (40%). The lowest bat activity was from serotine and *Plecotus* sp., which were only recorded on one occasion in April at L2 and EG2, respectively (0.004% of recordings).
- 4.3.12. There were higher levels of barbastelle activity in May 2024, with another peak in activity in April (though smaller in comparison to May) (Plate 4-6). This is largely due to higher levels of activity recorded at WG1 in these months (80ppn in April and 19ppn in May), which then dropped lower for the rest of the monitoring period. This is likely due to females forming maternity roosts nearby at this time and roost switching while pregnant to take advantage of the best temperature conditions.
- 4.3.13. There was also a notable level of *Myotis* activity in April compared to the other months, which may indicate the bats foraging as the temperature increases and moving between transitional roosts.

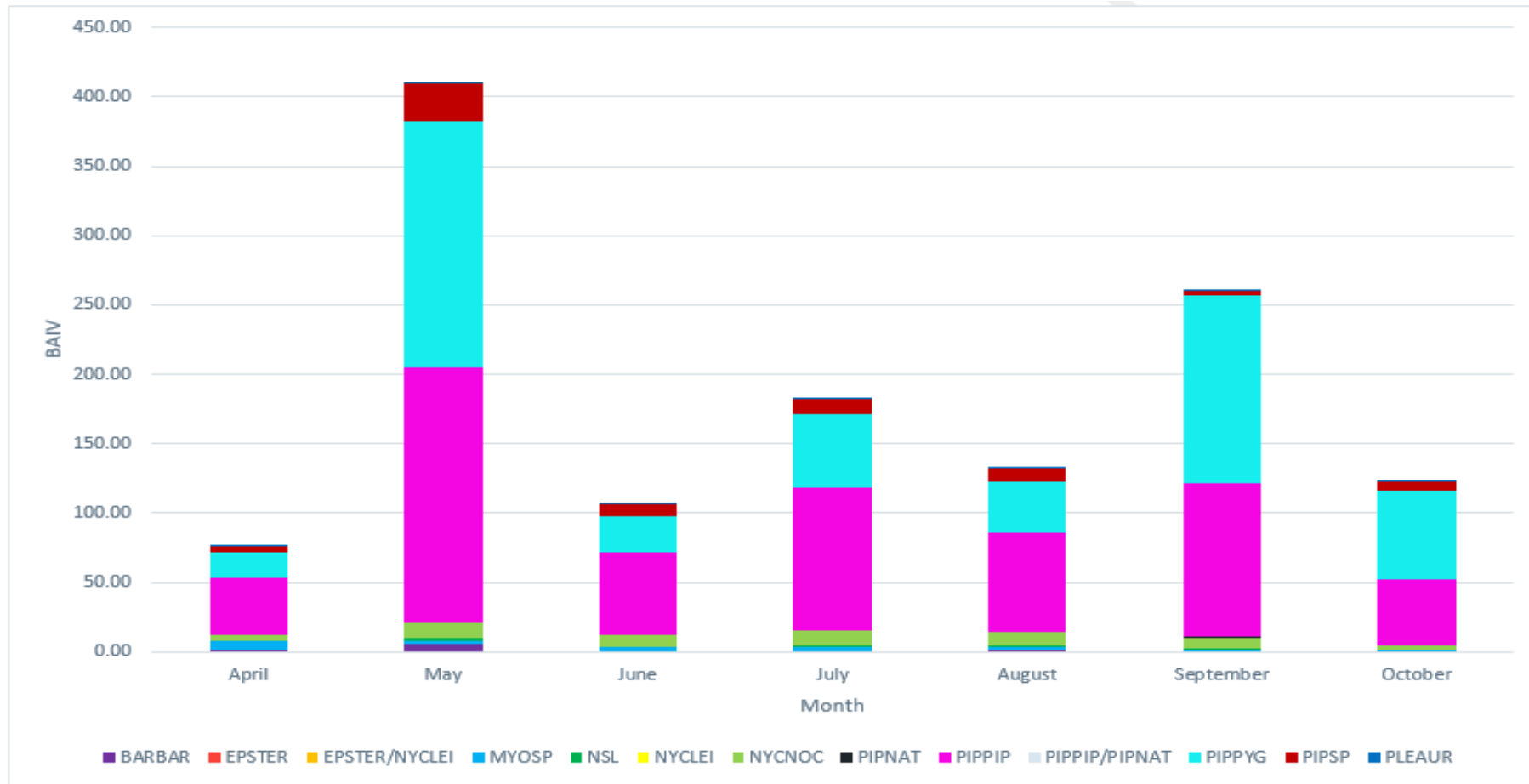
SUMMER 2024

- 4.3.14. A total of 69,898 bat passes from at least nine bat species were recorded on Site in June, July and August 2024 (Plate 4-5). Averaged across all static detector locations combined, of these months, July had the highest BAIV (183ppn), August coming second (133ppn) and June with the lowest BAIV (106.1ppn).
- 4.3.15. A number of peaks in activity were noted across the locations during the Summer, notably:
- C2: June -186ppn, July- 332ppn, August -318ppn;
 - C3: June -99ppn, July -296ppn, August -405ppn;
 - EG2: June -180ppn, July -329ppn, August -115ppn; and
 - L4: June -270ppn, July -413ppn, August -215ppn.
- 4.3.16. WG1 had the lowest activity levels in Summer with a BAIV of 48ppn for June, 25ppn for July and 20ppn in August. Closely followed by EG1 with a BAIV of 43ppn for June, 19ppn for July and 54ppn in August.
- 4.3.17. Most of the bat activity recorded in Summer was from common pipistrelle (55%) and soprano pipistrelle (27%). The lowest bat activity for a confirmed species was serotine, which was accounted for 0.06% of the recordings in the Summer.
- 4.3.18. There was a peak in barbastelle activity in August 2024 (1.28ppn), with notable activity recorded at C2 (13.6ppn) (Plate 4-6). Breeding females move regularly in the summer between tree roosts and pups are weaned by late August/early September with the maternity roost breaking up. This may account for the higher levels of activity in August as juveniles and females begin to disperse from each other at this time.

AUTUMN 2024

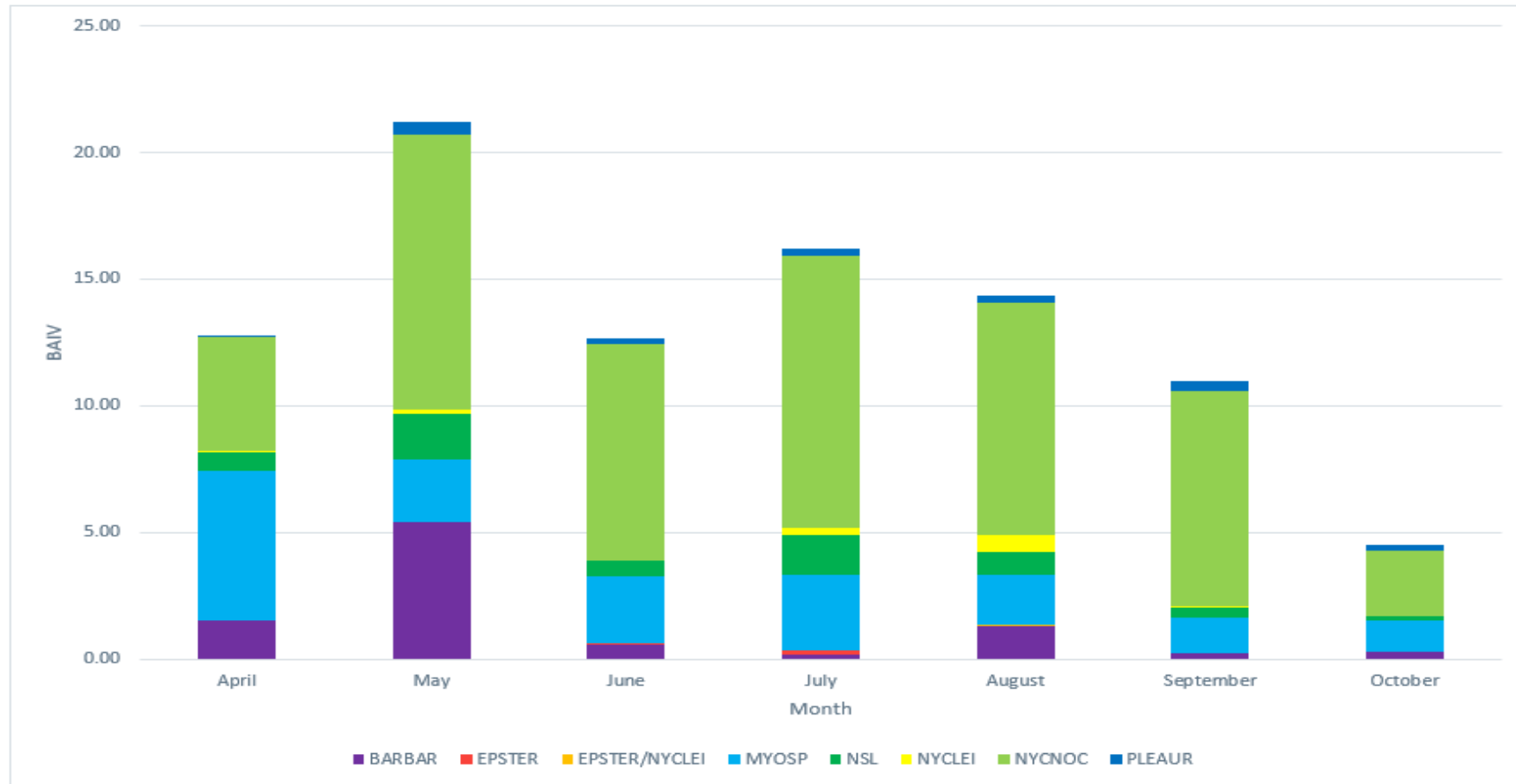
- 4.3.19. A total of 43,049 bat passes from at least nine bat species were recorded on Site in September and October 2024 (Plate 4-5). Averaged across all static detector locations combined, of these months, September had the higher BAIV (260.8ppn) while October was lower (122.8ppn).
- 4.3.20. A number of peaks in activity were noted across the locations during the Summer, notably:
- C2: 268ppn in October;
 - C3: 762ppn in September and 234ppn in October; and
 - EG2: 583ppn in September and 320ppn in October.
- 4.3.21. Location C1 had the lowest activity levels in Autumn with a BAIV of 30ppn for September and 16ppn in October.
- 4.3.22. Most of the bat activity recorded in Autumn was from soprano pipistrelle (52%) and common pipistrelle (41%). The lowest bat activity for a confirmed species was serotine which was accounted for 0.01% of the recordings in the Autumn.

Plate 4-5 - Bat passes per night by month and species²¹



²¹ See footnote to Plate 4-1 for full species names

Plate 4-6 - Bat passes per night by month and species (excluding *Pipistrelle sp.*)²²



²² See footnote to Plate 4-1 for full species names

SPECIES FOCUSED SUMMARY - BARBASTELLE

- 4.3.23. Whilst all species of bat in UK are protected by the same level of legislation it is acknowledged that some species of bat require additional consideration due their rarity and localised distribution. The barbastelle bat is a species of conservation relevance given its restricted distribution, extending to southern and central England and parts of Wales. The species is mainly a tree roosting species with a preference for old-growth, mature and ancient broadleaved woodland. Roost locations have also been noted in parkland, golf courses and wood pasture. However, maternity colonies are closely associated with woodland with a closed canopy²³. Barbastelle are known to roost beneath loose bark and in narrow crevices, particularly oak, veteran and standing dead wood trees²³. Therefore, a species focussed appraisal of the results relating to this species is provided.
- 4.3.24. Suitable foraging habitats to barbastelle that are present on Site are:
- Young and semi mature broadleaved woodland and other lowland mixed deciduous woodland to the east of the Core Zone and east of the Lake Zone;
 - Edge habitats to woodlands and hedgerows;
 - Riparian habitats: standing water provided by the Lakes and watercourse corridors provided by the Elstow Brook and Core Zone watercourse; and
 - Prey resource – invertebrate assemblage surveys, namely moth light trapping has confirmed that the Lake Zone provides habitat to support an important assemblage of moth species with over 61 species of *Lepidoptera* recorded (**Appendix 6.13: Terrestrial Invertebrate Survey Report (Volume 3)**).
- 4.3.25. Ancient or old-growth woodland with a high proportion of standing dead wood, which is known as the barbastelle's preference for roosting, is entirely absent from within the Site or in proximity to it.
- 4.3.26. The timing of the barbastelle calls recorded across the Site, based upon the number of minutes after sunset is summarised in **Table 4-5** and shown in **Plate 4-7**. It should be noted that differing levels of survey were completed at each location, and therefore, the information provided within **Table 4-5** below, has been used to review the distribution pattern of the call recorded and not as a comparison of activity between locations. A total barbastelle bat activity index value (BAIV) has been provided in **Table 4-5** for each location to demonstrate the differences in activity across each location.
- 4.3.27. The automated detector surveys recorded a total of 561 barbastelle calls over 781 recording nights (0.72ppn²⁴), across the entire Site and total survey season April to October. Approximately 50% (289 of 561 passes equating to 3.57 ppn²⁵) of all the barbastelle calls recorded within the Site; were recorded at the West Gateway Zone static location (WG1). Thereafter 25% were recorded at static location C2 within the Core Zone with 143 passes recorded (equating to 2.75ppn²⁵).

²³ Zeale, M. and Natural England (2024) *Definition of Favourable Conservation Status for Barbastelle bat, RP2974*. Available at: <https://publications.naturalengland.org.uk/publication/5113629515710464> [Accessed: 06 May 2025].

²⁴ At a site scale e.g. number of passes recorded and number of nights of data recorded for the entire survey season and all locations

²⁵ Assessed as passes recorded and number of nights of data recorded at that location.

Table 4-5 - Summary of Timings of barbastelle calls

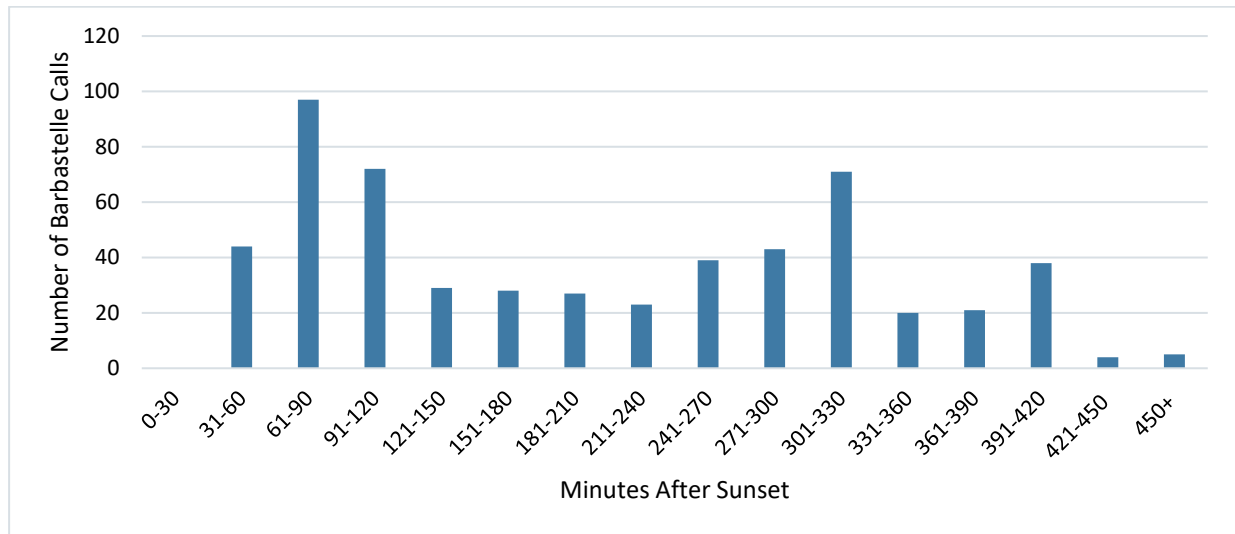
Static Detector Location	Number of Minutes after Sunset Call was recorded and number of call in each time period							Total calls (BAIV for nights surveyed per location)
	0-30	31-60	61-90	91-120	121-150	151-180	180+	
C1 - Hedgerow	0	0	1	0	1	5	23	30 (0.28)
C2 - Hedgerow	0	0	2	3	1	5	132	143 (2.75)
C3 - Woodland Edge	0	0	2	0	2	1	49	54 (0.57)
EG1 - Woodland Edge	0	0	0	0	2	0	3	5 (0.08)
EG2 – Woodland Edge/Waterbody	0	0	3	2	1	0	17	23 (0.23)
L1 - Woodland Edge	0	0	0	0	0	1	4	5 (0.09)
L2 - Open Habitat	0	0	1	0	0	0	1	2 (0.03)
L3 - Hedgerow	0	0	0	1	1	2	3	7 (0.07)
L4 - Woodland Edge	0	0	0	0	0	1	2	3 (0.04)
WG1 - Hedgerow	0	44	88	66	21	13	57	289 (3.57)

- 4.3.28. The average roost emergence time for barbastelle bats is approximately from 17 minutes up to 50 minutes after sunset time (17.1 to 30.9 minutes²⁶ (Zeale et al. 2012); >20 minutes and <60 minutes²⁷). Forty- four calls recorded were timed within the core roost emergence period (within 60 minutes post sunset), with a peak in calls recorded 61 to 90 minutes after sunset. Of the initial 44 calls, these were all recorded at a single static detector location, namely WG1, within the West Gateway Zone.

²⁶ Zeale M R K, Davidson-Watts I, Jones G. (2012) Home range use and habitat selection by barbastelle bats (*Barbastella barbastellus*): implications for conservation. Journal of Mammalogy, Volume 93, Issue 4.

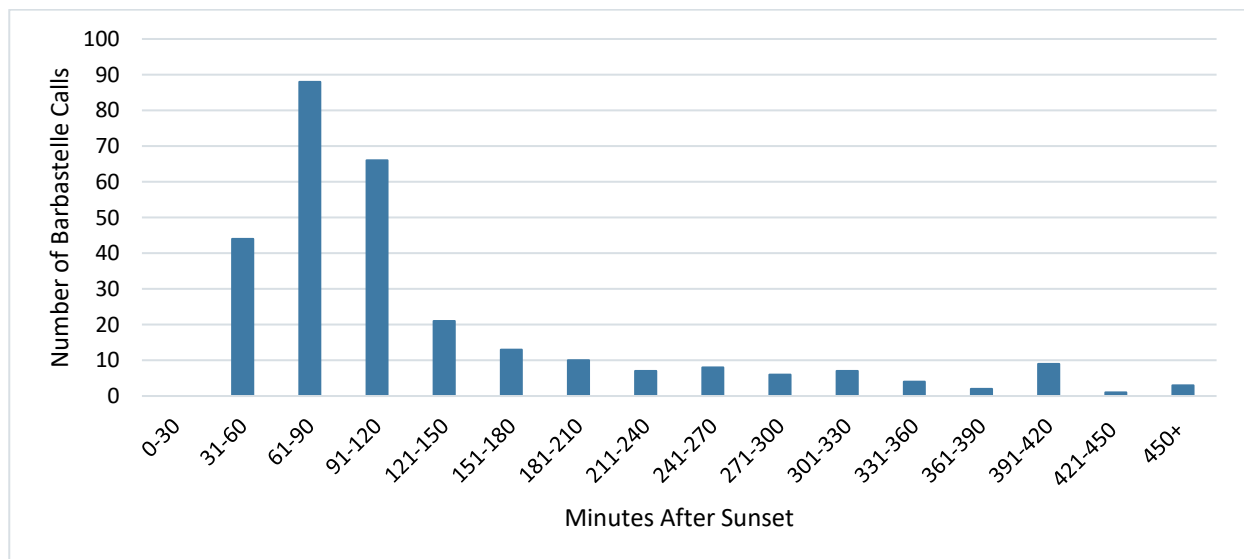
²⁷ Russ, J. (2012) *British Bat Calls: A Guide to Species Identification*. Exeter: Pelagic Publishing.

Plate 4-7 - Timing of Barbastelle Calls - All Static Locations



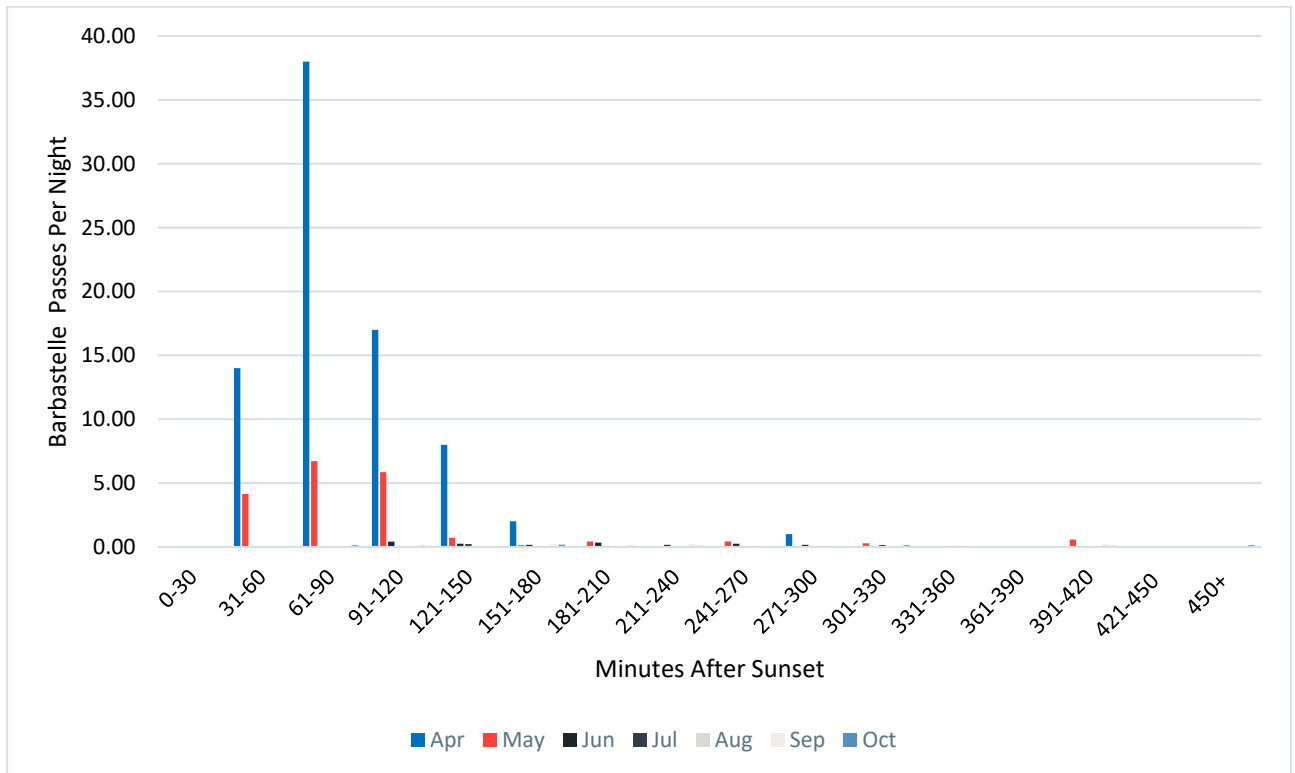
4.3.29. Of the early calls recorded between 31 and 60 minutes at WG1 (See 8), within the known emergence window for barbastelle, these were recorded over seven nights in April, May and October. Peak nights were recorded on two specific nights in April (14 passes) and May (10 passes). At WG1 132 passes were recorded within 120 minutes post sunset time (split between the 61-90 and 91-120 groups above) indicating bats were roosting at a closer location to this area of the Site.

Plate 4-8 - Timing of Barbastelle Calls – West Gateway (WG1) Static



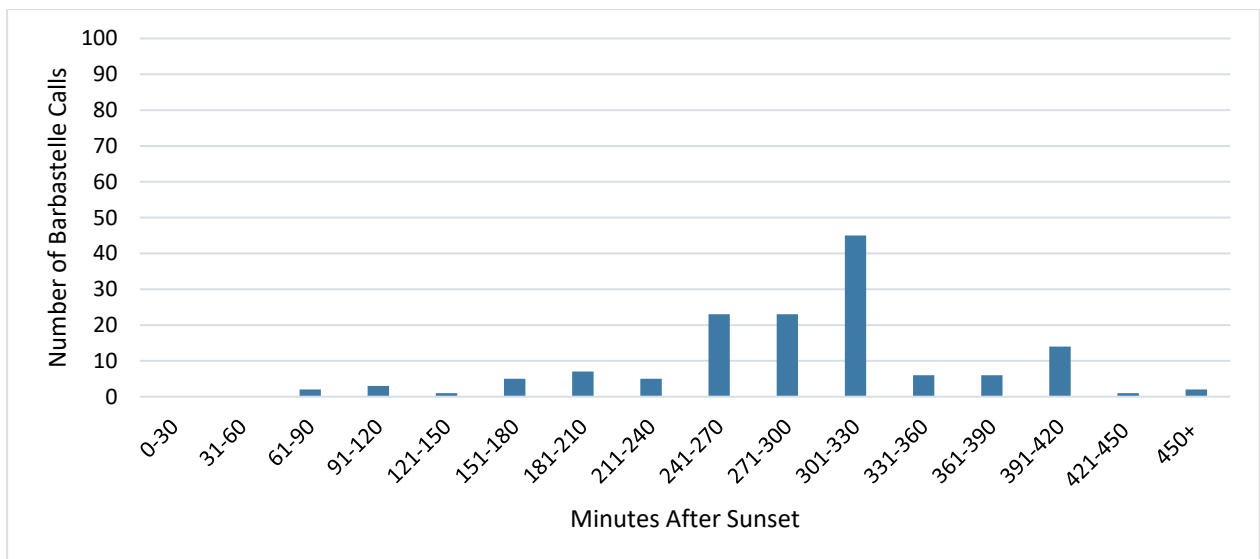
4.3.30. Though when the data is split into months recorded (See **Table C-3 Annex 3**), April and May recorded the majority of those early calls (43 of the 44 calls). When reviewed in comparison to the number of nights surveyed per month (See Plate 4-9), the peak switches to 61-90 minutes after sunset.

Plate 4-9 – Barbastelle passes per night according to minutes after sunset



4.3.31. In the Core Zone (specifically C2), as graphically shown in Plate 4-9 the majority of all the calls recorded were between 301 and 330 minutes (over 5 hours), with much more of a spread of activity later into the evening, indicating that these areas were not likely to be close to roost locations but were more likely being used for commuting and foraging.

Plate 4-10- Timing of Barbastelle Calls – Core Zone (C2) Static



- 4.3.32. Core Zones C1 and C3, and East Gateway Zone EG2, were the next group of static detectors to record barbastelle activity with 30, 54 and 23 passes recorded. The only distinct pattern of activity noted within these locations was a slight peak in activity later in the evening 301 to 420 minutes after sunset at C3.
- 4.3.33. Very limited barbastelle calls were recorded on the four static devices installed in the Lake Zone (L1, L2, L3 and L4) and the two devices in the East Gateway Zone (EG1) with a total of 22 calls across the entire survey period April to October, none of which were recorded less than 60 minutes after sunset at any time, and of which only a single call was recorded in category 61-90 minutes. This indicated low level use of this part of the Site generally and use for limited foraging and commuting.

4.4 TRANSECT SURVEY

- 4.4.1. At least five confirmed bat species were recorded within the Site during the manual transect survey component of the bat activity surveys. The confirmed species include:
- noctule;
 - Leisler's bat;
 - common pipistrelle;
 - soprano pipistrelle; and
 - *Myotis sp.*
- 4.4.2. Additionally, calls that could not be identified with confidence to species level due to the overlap in call parameters include calls identified as *Pipistrellus sp.* and *serotine/Nyctalus sp.* A summary of the activity recorded during the transect surveys each month is summarised in Table 4-6. The meteorological data of these surveys is provided in **Annex 2: Meteorological Data, Table B-2.**

Table 4-6 - Number of Bat Passes Recorded during each Transect per month

Season	Date	Transect Number	Location	Common pipistrelle	Soprano pipistrelle	Pipistrelle species	Noctule	Leisler's bat	Nyctalus species	NSL	Myotis species	Total Passes
Spring	22 April 2024	Transect 2	Core Zone	1	2	2	0	0	0	0	0	5
	22 April 2024	Transect 3	Core Zone	0	1	0	0	0	0	0	0	1
	22 April 2024	Transect 4	Lake Zone	5	24	2	1	0	0	0	5	37
	29 May 2024	Transect 1 (partial data collected)	West Gateway Zone	8	6	0	3	0	0	0	1	18
Summer	05 August 2024	Transect 3	Core Zone	58	31	6	54	1	2	1	2	155
	05 August 2024	Transect 4	Lake Zone	52	27	3	44	3	0	0	4	133
	05 August 2024	Transect 5	Lake Zone	40	78	12	2	1	0	3	2	138
	06 August 2024	Transect 1	West Gateway Zone	0	0	0	0	2	0	0	0	2
	06 August 2024	Transect 2	Core Zone	10	8	0	46	3	4	0	1	72

Season	Date	Transect Number	Location	Common pipistrelle	Soprano pipistrelle	Pipistrelle species	Noctule	Leisler's bat	Nyctalus species	NSL	Myotis species	Total Passes
Autumn	19 September 2024	Transect 2	Core Zone	0	2	0	0	0	0	0	0	2
	24 September 2024	Transect 4	Lake Zone	4	10	1	14	0	0	0	2	31
	24 September 2024	Transect 5	Lake Zone	5	2	1	1	0	0	0	0	9
	17 October 2024	Transect 3	Core Zone	7	13	0	0	0	0	0	0	20
	28 October 2024	Transect 1	West Gateway Zone	4	3	0	0	0	0	0	0	7

- 4.4.3. At least five confirmed bat species were recorded within the Site during the manual transect surveys. Bats were observed commuting and foraging along hedgerows and linear features within the Site. Common and soprano pipistrelle were the most abundant species recorded during transects, with the August surveys of Transects 3 (Core Zone), 4 and 5 (Lake Zone) recording the most bat passes of all survey times and locations.

5 CONCLUSION

- 5.1.1. Bat activity surveys to determine the status of foraging and commuting bats within Site were undertaken between April and October 2024. The surveys consisted of a programme of walked manual transect surveys across five transect routes across the Site, and the deployment of automated bat detectors at 10 locations throughout the same period.
- 5.1.2. At least nine bat species were recorded across the survey period during the automated detector survey, as well as unidentifiable species within *Myotis* and serotine/*Nyctalus*. The Site was found to provide commuting and foraging opportunities for these species. Common and soprano pipistrelle were the most abundant species recorded with the most bat passes per night across all locations.
- 5.1.3. Of the barbastelle activity recorded, relatively higher levels of barbastelle activity were recorded within the West Gateway Zone in April/May and August, than other areas of the Site or time period. However, it is noted these activity levels were still notably lower than other species across the Site, even when taking their 'quiet' calls in to consideration.
- 5.1.4. At least five confirmed bat species were recorded within the Site during the manual transect surveys. Bats were observed commuting and foraging along hedgerows and linear features within the Site. Common and soprano pipistrelle were the most abundant species recorded during transects, with the August surveys of transects 3 (Core Zone), 4 and 5 (Lake Zone) recording the most bat passes of all survey times and locations.

Annex 1

FIGURES

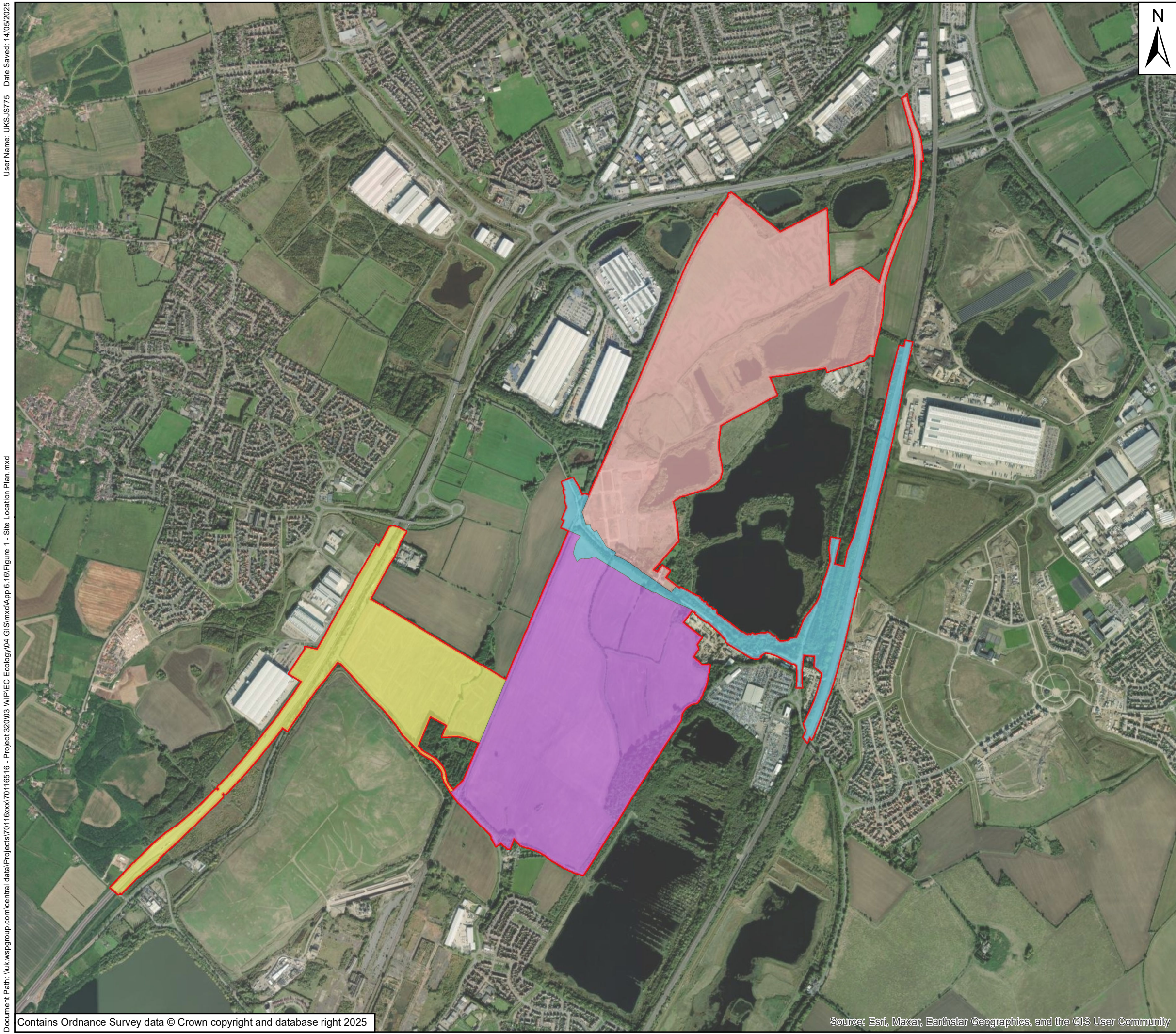




Figure 1: Site Location Plan

Figure 2: Automated static detector locations

Figure 3: Transect routes



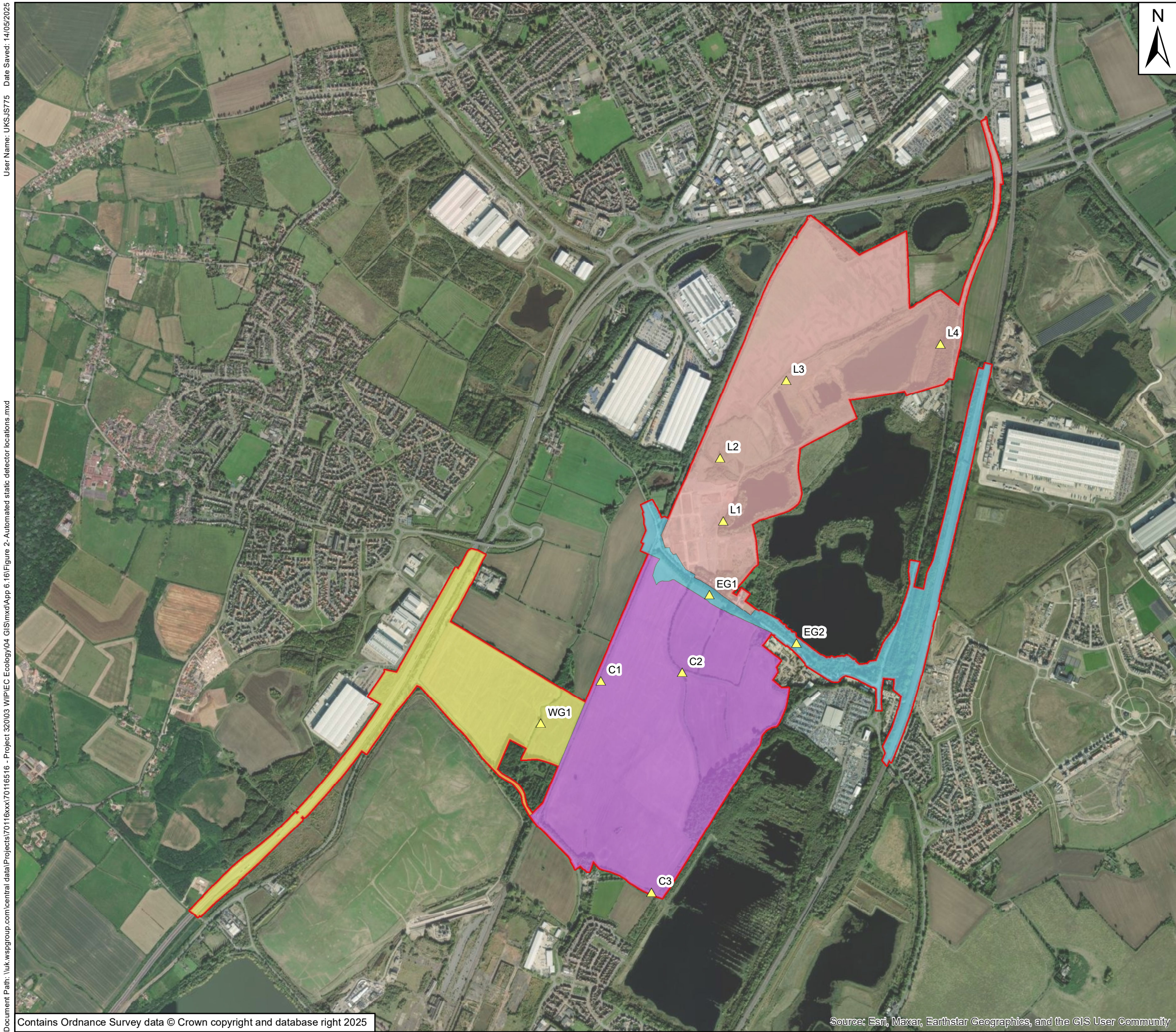
Key

- Site boundary
- Core Zone
- East Gateway Zone
- Lake Zone
- West Gateway Zone







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Metres

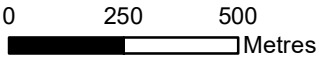


Client:	Universal Destinations & Experiences		
Project:	Universal Destinations & Experiences UK Project		
Title	Figure 1 - Site Location Plan		
Drawing No:	Figure 1	Drawn:	SS
Date:	14/05/2025	Checked:	CH
Scale:	16,500 @ A3	Approved:	SB

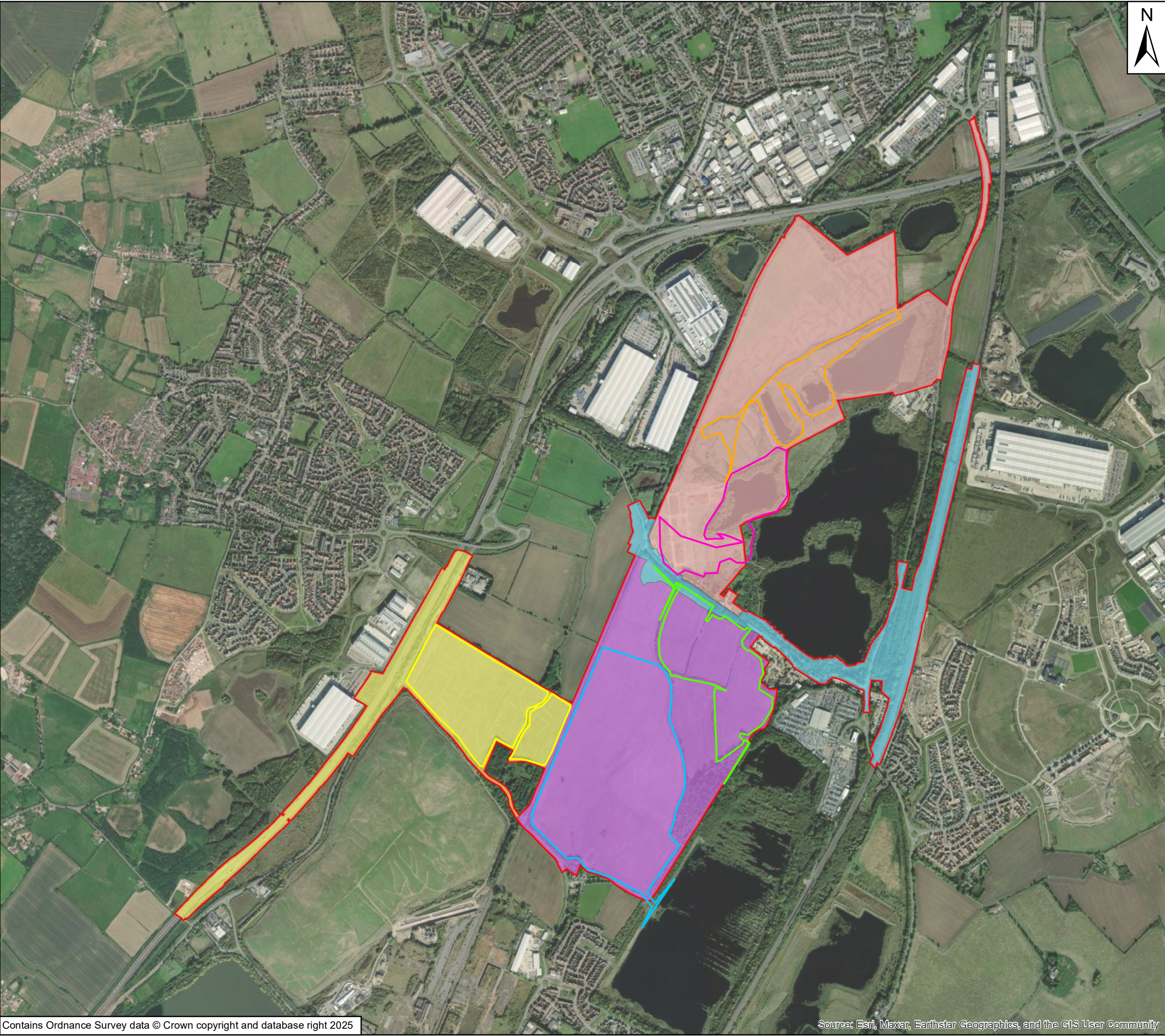


Key

-  Site boundary
-  Core Zone
-  East Gateway Zone
-  Lake Zone
-  West Gateway Zone
-  Automated static detectors



Client:	Universal Destinations & Experiences		
Project:	Universal Destinations & Experiences UK Project		
Title	Figure 2 - Automated static detector locations		
Drawing No:	Figure 2	Drawn:	SS
Date:	14/05/2025	Checked:	CH
Scale:	16,500 @ A3	Approved:	SB



N

Key

Site boundary

Core Zone

East Gateway Zone

Lake Zone

West Gateway Zone

Transect routes

Transect 1

Transect 2

Transect 3

Transect 4

Transect 5

0250500

Metres

Client:

Universal Destinations & Experiences

Project:

Universal Destinations & Experiences
UK Project

Title

Figure 3 - Transect routes

Drawing No:

Figure 3

Date:

14/05/2025

Scale:

16,500 @ A3

Drawn:

SS

Checked:

SP

Approved:

MP

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Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Annex 2

METEOROLOGICAL DATA



Table B-1 – Automated Detector Survey Meteorological Data

Month	Weather conditions during survey ²⁸
April 2024	Between 3 (26 April) and 19 degrees (12 April), with an average of 11 degrees. Humidity between 44 and 100%, average 69%. Mainly cloudy with some light rain.
May 2024	Between 9 (4 May) and 25 degrees (12 May), with an average of 16 degrees. Humidity between 41 and 100%, average 74%. Mainly dry and clear with some light rain.
June 2024	Between 9 (5 June) and 27 degrees (25 June), with an average of 17 degrees. Humidity between 34 and 94%, average 63%. Dry with some clouds.
July 2024	Between 10 (6 July) and 29 degrees (19 July), with an average of 19 degrees. Humidity between 33 and 100%, average 67%. Mainly cloudy with some light rain.
August 2024	Between 9 (30 August) and 30 degrees (12 August), with an average of 20 degrees. Humidity between 38 and 100%, average 68%. Mainly cloudy with some light rain.
September 2024	Between 8 (16 September) and 28 degrees (1 September), with an average of 16 degrees. Humidity between 42 and 100%, average 76%. Mainly cloudy with some light rain.
October 2024	Between 0 (11 October) and 19 degrees (16 October), with an average of 13 degrees. Humidity between 55 and 100%, average 85%. Mainly cloudy with some light rain.

²⁸ Weather data was not recorded directly at the time of survey.

Table B-2 – Bat transect weather conditions

Date	Surveyed Areas	Sunset	Start/End Times	Weather Conditions
22 April 2024	Core Zone, Lake Zone (Transect 2, Transect 3)	20:12	20:12/22:12	Start- 7 degrees, cool with scattered clouds, wind 10km/h S, 76% humidity, cloud cover 4, no rain End- 7 degrees, cool with scattered clouds, wind 10km/h S, 76% humidity, cloud cover 4, no rain
05 August 2024	Lake Zone, Core Zone (Transect 3, Transect 4, Transect 5)	20:44	20:44/22:44	Start - 21 degrees, cloud 7, wind 13km/h SSW, humidity 73%, rain 0. End - 19 degrees, cloud 3, wind 13km/h SSW, humidity 80, rain 0.
06 August 2024	Core Zone, West Gateway Zone (Transect 1, Transect 2)	20:42	20:42/22:42	Start - 18 degrees, cloud 4, wind 11 km/h SSW, no rain End - 16 degrees, clear, wind 11 km/h SSW, no rain
24 September 2024	Lake Zone (Transect 4, Transect 5)	18:54	18:55/21:12	Start - 13 degrees, cloud 0, wind 13km/h W, humidity 69%, rain 0. End – 11 degrees, cloud 0, wind 10km/h WSW, humidity 79%, rain 0.
17 October 2024	Core Zone (Transect 2, Transect 3)	18:03	18:03/20:03	Start - 16 degrees, clear, wind 11km/h NE, 69% humidity, cloud cover 0, no rain End- 9 to 16 degrees, passing clouds, wind 4km/h, 88% humidity, no rain
28 October 2024	West Gateway Zone (Transect 1)	16:40	16:40/18:40	Start- 14 degrees, overcast, wind 14km/h SSW, 95% humidity, cloud cover 8, no rain at start of survey with light rain during the survey End- 14 degrees, overcast, wind 10km/h SSW, 95% humidity

Annex 3

AUTOMATED STATIC DETECTOR DATA

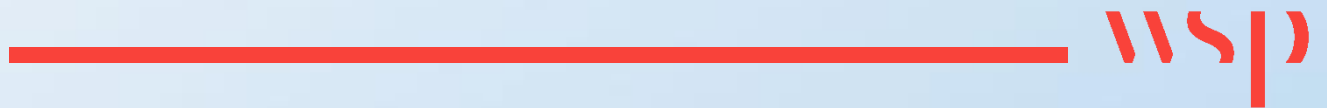


Table C-1: Summary of total bat passes of species recorded during automated detector survey on the Site

Location	Month	Species													Totals
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.	
C1	April				18	1		32		16		12	2		81
	May														
	June	4	1		10	2	1	19	2	334		68	25		466
	July	10	1		17	18	15	120	1	940	1	199	94	6	1422
	August	12		2	27	15	44	246	1	248		182	16	7	800
	September	2	2		5	16	5	107	3	172		131	27	5	475
	October	2			11			39		113		102	58	1	326
C2	April				117	2		23		1104		78	19		1343
	June	25			97		1	12		1128		437	163		1863
	July	5			89	1	1	18		2009		764	105		2992
	August	109	1		32	14	12	65		1406		746	158	3	2546
	October	4			10	3		18	2	3005		1487	26	1	4556
C3	June	1			49	1		30	2	662		190	57	2	994

Location	Month	Species													
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.	Totals
	July	5	1		99	17	16	477	4	3677		3317	374	3	7990
	August	43			88	26	10	197	3	5596		1880	245	12	8100
	September	3	1		29	11		239	8	4757		7020	130	1	12199
	October	2			28	8		143	2	992		3708	38	1	4922
EG1	April				63			32		249		85	28		457
	June	1			13	2		178		135		157	29	1	516
	July				4			20		43		96	8		171
	August	2			18	11	11	168		93		162	15	2	482
	September				9	2		157	4	132		171	15	3	493
	October	2			21			50	2	173		398	9	2	657
EG2	April				7	2		22		176		81	11	1	300
	May				46	40	3	49	2	1274		1746	77	3	3240
	June	10	2		21	36		142		1482		348	113	8	2162
	July	10	12		161	102		407		6222		2455	490	23	9882

Location	Month	Species													
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.	Totals
	August	1			52	14		343	2	1027		1252	304	4	2999
	September				16	2		35	20	5013		5296	115	10	10507
	October	2			16			11		1046		1355	118	10	2558
L1	April	2			45	2	1	41		141		182	122		536
	June				57	1		30		191		171	105	6	561
	July	2	5		135	13		178		338		436	137	10	1254
	September	1			50	1	1	146	3	161	1	302	40	5	711
	October	3			18	4		21	4	426		727	481	6	1690
L2	April		1		49			32		35		50	10		177
	May														
	June				18	23		115		197		353	14	4	724
	July	1	4		65	73		157		471		531	70	19	1391
	September	1			11		2	61		147		70	4		296
L3	April				7	5		39		22		18	5		96

Location	Month	Species													Totals
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.	
	May														
	June	1			9	1		183		122		189	68		573
	July		2		38	9	20	429	3	580		990	337	4	2412
	August	3	1		29	2	19	70		201		274	54	6	659
	October				25		1	53		443		123	18		663
L4	April				6	30	1	11		103		45	11		207
	May				9	5		105	1	562		145	36	2	865
	June	1			8			194		2168		524	346		3241
	July	1	12		28	114	12	533		8170		2678	860		12408
	August				10	3	2	107		1017		373	641		2153
	September	1			4			75	1	531		236	19	1	868
WG1	April	80			5			11		377		409	45		927
	May	135			7		1	118	5	2774		2549	543	7	6139
	June	21			9	1		41		127		361	9	3	572

Location	Month	Species													
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.	Totals
	July	8	2		12	1		21		177		98	7	3	329
	August	3	3		13	33		42		61		77	4		236
	September	15			17	6		37	5	208		479	13	14	794
	October	27			40	1		19	3	357		778	100	9	1334
Totals		561	51	2	1897	674	179	6268	83	63331	2	47091	6968	208	127315

Table C-2: Summary of bat passes per night recorded during automated detector survey on the Site

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
C1	April	0.00	0.00	0.00	2.00	0.11	0.00	3.56	0.00	1.78	0.00	1.33	0.22	0.00

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
	May	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	June	0.40	0.10	0.00	1.00	0.20	0.10	1.90	0.20	33.40	0.00	6.80	2.50	0.00
	July	0.34	0.03	0.00	0.59	0.62	0.52	4.14	0.03	32.41	0.03	6.86	3.24	0.21
	August	0.63	0.00	0.11	1.42	0.79	2.32	12.95	0.05	13.05	0.00	9.58	0.84	0.37
	September	0.13	0.13	0.00	0.31	1.00	0.31	6.69	0.19	10.75	0.00	8.19	1.69	0.31
	October	0.10	0.00	0.00	0.52	0.00	0.00	1.86	0.00	5.38	0.00	4.86	2.76	0.05
C2	April	0.00	0.00	0.00	14.63	0.25	0.00	2.88	0.00	138.00	0.00	9.75	2.38	0.00
	June	2.50	0.00	0.00	9.70	0.00	0.10	1.20	0.00	112.80	0.00	43.70	16.30	0.00
	July	0.56	0.00	0.00	9.89	0.11	0.11	2.00	0.00	223.22	0.00	84.89	11.67	0.00
	August	13.63	0.13	0.00	4.00	1.75	1.50	8.13	0.00	175.75	0.00	93.25	19.75	0.38

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
	October	0.24	0.00	0.00	0.59	0.18	0.00	1.06	0.12	176.76	0.00	87.47	1.53	0.06
C3	June	0.10	0.00	0.00	4.90	0.10	0.00	3.00	0.20	66.20	0.00	19.00	5.70	0.20
	July	0.19	0.04	0.00	3.67	0.63	0.59	17.67	0.15	136.19	0.00	122.85	13.85	0.11
	August	2.15	0.00	0.00	4.40	1.30	0.50	9.85	0.15	279.80	0.00	94.00	12.25	0.60
	September	0.19	0.06	0.00	1.81	0.69	0.00	14.94	0.50	297.31	0.00	438.75	8.13	0.06
	October	0.10	0.00	0.00	1.33	0.38	0.00	6.81	0.10	47.24	0.00	176.57	1.81	0.05
EG1	April	0.00	0.00	0.00	7.88	0.00	0.00	4.00	0.00	31.13	0.00	10.63	3.50	0.00
	June	0.08	0.00	0.00	1.08	0.17	0.00	14.83	0.00	11.25	0.00	13.08	2.42	0.08
	July	0.00	0.00	0.00	0.44	0.00	0.00	2.22	0.00	4.78	0.00	10.67	0.89	0.00
	August	0.22	0.00	0.00	2.00	1.22	1.22	18.67	0.00	10.33	0.00	18.00	1.67	0.22

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
	September	0.00	0.00	0.00	1.50	0.33	0.00	26.17	0.67	22.00	0.00	28.50	2.50	0.50
	October	0.10	0.00	0.00	1.00	0.00	0.00	2.38	0.10	8.24	0.00	18.95	0.43	0.10
EG2	April	0.00	0.00	0.00	7.00	2.00	0.00	22.00	0.00	176.00	0.00	81.00	11.00	1.00
	May	0.00	0.00	0.00	7.67	6.67	0.50	8.17	0.33	212.33	0.00	291.00	12.83	0.50
	June	0.83	0.17	0.00	1.75	3.00	0.00	11.83	0.00	123.50	0.00	29.00	9.42	0.67
	July	0.33	0.40	0.00	5.37	3.40	0.00	13.57	0.00	207.40	0.00	81.83	16.33	0.77
	August	0.04	0.00	0.00	2.00	0.54	0.00	13.19	0.08	39.50	0.00	48.15	11.69	0.15
	September	0.00	0.00	0.00	0.89	0.11	0.00	1.94	1.11	278.50	0.00	294.22	6.39	0.56
	October	0.25	0.00	0.00	2.00	0.00	0.00	1.38	0.00	130.75	0.00	169.38	14.75	1.25
L1	April	0.25	0.00	0.00	5.63	0.25	0.13	5.13	0.00	17.63	0.00	22.75	15.25	0.00

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
	June	0.00	0.00	0.00	7.13	0.13	0.00	3.75	0.00	23.88	0.00	21.38	13.13	0.75
	July	0.15	0.38	0.00	10.38	1.00	0.00	13.69	0.00	26.00	0.00	33.54	10.54	0.77
	September	0.08	0.00	0.00	3.85	0.08	0.08	11.23	0.23	12.38	0.08	23.23	3.08	0.38
	October	0.23	0.00	0.00	1.38	0.31	0.00	1.62	0.31	32.77	0.00	55.92	37.00	0.46
L2	April	0.00	0.11	0.00	5.44	0.00	0.00	3.56	0.00	3.89	0.00	5.56	1.11	0.00
	May	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	June	0.00	0.00	0.00	1.50	1.92	0.00	9.58	0.00	16.42	0.00	29.42	1.17	0.33
	July	0.03	0.13	0.00	2.10	2.35	0.00	5.06	0.00	15.19	0.00	17.13	2.26	0.61
	September	0.13	0.00	0.00	1.38	0.00	0.25	7.63	0.00	18.38	0.00	8.75	0.50	0.00
L3	April	0.00	0.00	0.00	0.78	0.56	0.00	4.33	0.00	2.44	0.00	2.00	0.56	0.00

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
	May	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	June	0.08	0.00	0.00	0.75	0.08	0.00	15.25	0.00	10.17	0.00	15.75	5.67	0.00
	July	0.00	0.07	0.00	1.31	0.31	0.69	14.79	0.10	20.00	0.00	34.14	11.62	0.14
	August	0.10	0.03	0.00	0.94	0.06	0.61	2.26	0.00	6.48	0.00	8.84	1.74	0.19
	October	0.00	0.00	0.00	1.92	0.00	0.08	4.08	0.00	34.08	0.00	9.46	1.38	0.00
L4	April	0.00	0.00	0.00	6.00	30.00	1.00	11.00	0.00	103.00	0.00	45.00	11.00	0.00
	May	0.00	0.00	0.00	1.50	0.83	0.00	17.50	0.17	93.67	0.00	24.17	6.00	0.33
	June	0.08	0.00	0.00	0.67	0.00	0.00	16.17	0.00	180.67	0.00	43.67	28.83	0.00
	July	0.03	0.40	0.00	0.93	3.80	0.40	17.77	0.00	272.33	0.00	89.27	28.67	0.00
	August	0.00	0.00	0.00	1.00	0.30	0.20	10.70	0.00	101.70	0.00	37.30	64.10	0.00

Location	Month	Species												
		Barbastelle	Serotine	Serotine/ Leisler' s	Myotis sp.	Serotine/ Nyctalus sp	Leisler' s	Noctule	Nathusius' pipistrelle	Common pipistrelle	Common/ Nathusius' pipistrelle	Soprano pipistrelle	Pipistrelle sp.	Plecotus sp.
	September	0.10	0.00	0.00	0.40	0.00	0.00	7.50	0.10	53.10	0.00	23.60	1.90	0.10
WG1	April	80.00	0.00	0.00	5.00	0.00	0.00	11.00	0.00	377.00	0.00	409.00	45.00	0.00
	May	19.29	0.00	0.00	1.00	0.00	0.14	16.86	0.71	396.29	0.00	364.14	77.57	1.00
	June	1.75	0.00	0.00	0.75	0.08	0.00	3.42	0.00	10.58	0.00	30.08	0.75	0.25
	July	0.62	0.15	0.00	0.92	0.08	0.00	1.62	0.00	13.62	0.00	7.54	0.54	0.23
	August	0.25	0.25	0.00	1.08	2.75	0.00	3.50	0.00	5.08	0.00	6.42	0.33	0.00
	September	1.07	0.00	0.00	1.21	0.43	0.00	2.64	0.36	14.86	0.00	34.21	0.93	1.00
	October	1.23	0.00	0.00	1.82	0.05	0.00	0.86	0.14	16.23	0.00	35.36	4.55	0.41

Table C-3: Summary of barbastelle passes recorded at WG1, minutes after sunset, split by month

Month	Total barbastelle passes recorded split by minutes after sunset															
	0-30	31-60	61-90	91-120	121-150	151-180	181-210	211-240	241-270	271-300	301-330	331-360	361-390	391-420	421-450	450+
Apr	0	14 (14)	38 (38)	17 (17)	8 (8)	2 (2)	0	0	0	1 (1)	0	0	0	0	0	0
May	0	29(4.1 4)	47 (6.71)	41 (5.86)	5 (0.17)	1 (0.14)	3 (0.43)	0	3 (0.43)	0	2 (0.29)	0	0	4 (0.57)	0	0
Jun	0	0	0	5 (0.42)	3 (0.25)	2 (0.17)	4 (0.33)	2 (0.17)	3 (0.25)	2 (0.17)	0	0	0	0	0	0
Jul	0	0	0	0	3 (0.23)	1 (0.08)	1 (0.08)	0	0	0	2 (0.15)	1 (0.08)	0	0	0	0
Aug	0	0	0	0	0	0	0	0	1 (0.08)	1 (0.08)	0	1 (0.08)	0	0	0	0
Sep	0	0	0	1 (0.07)	1 (0.07)	3 (0.21)	0	3 (0.21)	0	1 (0.07)	0	1 (0.07)	1 (0.07)	3 (0.21)	1 (0.07)	0
Oct	0	1 (0.05)	3 (0.14)	2 (0.09)	1 (0.05)	4 (0.18)	2 (0.09)	2 (0.09)	1 (0.05)	1 (0.14)	3 (0.05)	1 (0.05)	1 (0.05)	2 (0.09)	0	3 (0.14)



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