

APPENDIX 11.4 BATS

1.1 Introduction

- 1.1.1 The results presented in this appendix reflect the bat survey information available at the time of writing. As the bat survey programme remains ongoing, the findings should be treated as interim and will be reviewed and updated, if necessary, following completion of the outstanding survey work and full acoustic data analysis.

1.2 Methodology

- 1.2.1 The methodology for the bat survey has been informed by the Bat Surveys for Professional Ecologists Good Practice Guidelines 4th Edition (Collins, 2023).
- 1.2.2 The habitats on site were assessed for their suitability to support foraging and commuting bats. This assessment was also contextualized through examination of suitable habitat and features in the wider landscape and possible flight-lines across the proposed site following natural linear features such as hedgerows.

Night-time Bat Walkover survey

- 1.2.3 The Night-time Bat Walkover (NBW) surveys were undertaken across three seasons in 2025 and 2026, with one transect walked across the key bat habitats within the site to identify any important commuting and foraging features present. The surveys were completed on 25th September 2025, 15th April 2026, and 15th June 2026. Each seasonal NBW survey involved two surveyors undertaking the one pre-planned transects across the site.
- 1.2.4 Information recorded throughout the survey included the species present, their location, behaviour, and the identification of habitat features which were frequently used by the species. Surveyors were equipped with EMT bat detectors.



Figure 1 NBW transect routes, spring, summer and autumn

Automated / static monitoring surveys

- 1.2.5 Bat static surveys were used to assess the composition of bat species present on site and were used to support the findings of the bat DBW survey. Bat surveys were undertaken between August 2025 and July 2026, with seven statics deployed over at least a five-day period each month, the deployment dates are shown in Table 1.
- 1.2.6 The detectors were deployed in the same locations and orientation during the monitoring period to enable comparison of bat DBW during the different seasons. The detector positions are located to assess key habitats and habitats which are predicted to be most heavily impacted by the proposed development. It is noted that the static detector at location 7 was only deployed for the 2026 survey periods, as a result of a DAS consultation with Natural England.
- 1.2.7 Acoustic recordings collected from static bat detectors were processed using an automated analysis workflow to identify bat species and assess activity patterns. All recordings were analysed using BatDetect2, a deep learning-based algorithm designed to detect and classify bat echolocation calls within ultrasonic recordings (Mac Aodha et al., 2022). The software identifies individual bat calls, extracts acoustic characteristics, and assigns each detection to a species or species group with an associated classification probability. The resulting output consists of a dataset

containing one record per detected call, including call timing, peak frequency, predicted species, and recording file information.

- 1.2.8 Potential foraging behaviour was assessed through the identification of feeding buzzes, which represent the terminal phase of prey capture when bats emit calls at rapidly increasing rates (Harazono et al., 2008). Feeding buzz events were detected using BuzzFindR (Jameson, 2024), which identifies clusters of calls with short inter-call intervals consistent with feeding behaviour.
- 1.2.9 BatDetect2 outputs were processed using an automated data workflow implemented in Python. Individual detector output files were combined into a single dataset and standardised to ensure consistent species naming, date and time formatting, and detector location identifiers. Call timestamps were reconstructed from the recording file time and call start times within each file.
- 1.2.10 Bat activity was summarised using Miller’s Activity Index, calculated as the number of minutes within a survey night in which a species was detected. Feeding buzz detections were similarly summarised to produce Miller’s Foraging Index, representing the number of minutes containing feeding buzz activity.
- 1.2.11 Summary tables and graphical outputs were produced to illustrate bat activity by species, detector location, and survey month for inclusion within this report.
- 1.2.12 These surveys are ongoing at the time of submission and therefore full results, details and assessments cannot be made; these will be provided in an addendum upon completion.

Month	Deployment Date	Collection Date
April	9 th April 2026	15 th April 2026
May	11 th May 2026	19 th May 2026
June	4 th June 2026	10 th June 2026
July	TBC	TBC
August	13 th August 2025	21 st August 2025
September	9th September 2025	18 th September 2025
October	7 th October 2025	13 th October 2025

Table 1 Static monitoring survey dates



Figure 2 Bat static locations

1.3 Data Search

- 1.3.1 The data search for bats was extended to include a radius 4km from the site boundary and filtered to only include records from the last ten years. There were 2127 records for bats returned in the data search. Species include 23 records of Barbastelle (*Barbastella barbastellus*), 130 records of Bechstein's Bat (*Myotis bechsteinii*), 1 record of Brandt's Bat (*Myotis brandtii*), 48 records of Brown Long-Eared Bat (*Plecotus auritus*), 705 records of Common Pipistrelle (*Pipistrellus pipistrellus*), 45 records of Daubenton's Bat (*Myotis daubentonii*), 103 records of Greater Horseshoe Bat (*Rhinolophus ferrumequinum*), 20 records of Leisler's Bat (*Nyctalus leisleri*), 79 records of Lesser Horseshoe Bat (*Rhinolophus hipposideros*), 218 records of Myotis Bat species (*Myotis spp.*), 59 records of Natterer's Bat (*Myotis nattereri*), 122 records of Noctule (*Nyctalus noctula*), 93 records of Serotine (*Eptesicus serotinus*), 343 records of Soprano Pipistrelle (*Pipistrellus pygmaeus*), and three records of Whiskered Bat (*Myotis mystacinus*).
- 1.3.2 There were 700 records returned of roost sites. The closest of these is within the site boundary in the northernmost corner, from 2021. Most of the records are scattered both north and south around the site boundary.
- 1.3.3 The background data search returned fourteen records of bat EPS (European Protected Species) licenses within 4km of the site boundary, as follows:

- (2017-31427-EPS-MIT) for Lesser Horseshoe from 2017 to 2027 located 1.24km west of the site boundary
- (2017-32426-EPS-MIT) for Brown Long-eared from 2018 to 2023 located 2.44km south southeast of the site boundary
- (2017-32426-EPS-MIT-1) for Brown Long-eared and Common Pipistrelle from 2018 to 2023 located 2.44km south southeast of the site boundary
- (2018-36272-EPS-MIT) for Brown Long-eared in 2018 located 1.83km southeast of the site boundary
- (2018-38082-EPS-MIT) for Brown Long-eared from 2018 to 2019 located 3.23km south of the site boundary
- (2019-43957-EPS-MIT) for Common Pipistrelle from 2020 to 2025 located 1.53km north of the site boundary
- (2020-48617-EPS-MIT) for Common Pipistrelle from 2020 to 2025 located 2.79km south of the site boundary
- (2016-25450-EPS-MIT) for Common Pipistrelle from 2016 to 2021 located 0.20km northwest of the site boundary
- (EPSM2010-2578) for Common Pipistrelle, Soprano Pipistrelle, Serotine, and Brown Long-eared from 2011 to 2012 located 2.95km northwest of the site boundary
- (EPSM2011-3903) for Common Pipistrelle, Serotine, and Brown Long-eared in 2012 located 2.95km northwest of the site boundary
- (2015-18586-EPS-MIT) for Common Pipistrelle, Soprano Pipistrelle, and Brown Long-eared from 2016 to 2021 located 2.89km south southeast of the site boundary
- (2015-18586-EPS-MIT-1) for Common Pipistrelle, Soprano Pipistrelle, and Brown Long-eared from 2016 to 2021 located 2.89km south southeast of the site boundary
- (2014-5466-EPS-MIT) for Brown Long-eared from 2015 to 2020 located 3.19km north of the site boundary
- (2016-23872-EPS-MIT) for Common Pipistrelle, Lesser Horseshoe, and Brown Long-eared from 2016 to 2026 located 2.01km east of the site boundary

1.4 Habitats

- 1.4.1 The site predominately comprises cropland with boundary hedgerows, small areas of scrub and patches of ruderal and grassland. A tributary of the Bitham Brook is located on the eastern boundary. These habitats provide varying suitability for bats in terms of roosting, commuting and foraging functions.

1.5 NBW Surveys

- 1.5.1 The following section details the results of the bat surveys at the site. Codes used in the description of bat species are as follows:

CP	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
SP	Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>)

NOC Noctule (*Nyctalus noctule*)
SER Serotine (*Eptesicus serotinus*)

Other acronyms used:

HNS Heard Not Seen. Calls were heard, but the bat was not seen.
LP Listening Point

1.5.2 The detailed results from the seven NBW surveys are provided below, with the environmental variables provided in Table 5.

Spring: 15th April 2026

Table 2 Survey notes from spring bat survey, 2026

Time	Location	Flying height	Species	Behaviour	Notes	Summary of survey
20:37	LP7	>2m	CP	Foraging	HNS, not particularly close. During vantage at start, just south of RP 7, along watercourse	Quiet survey, few common and soprano pipistrelle near watercourse at start of survey.
20:41	LP7	>2m	SP	Foraging	HNS probably foraging on hedgerow to north or in field off-site across watercourse	
21:19	LP3	1 - 1.5m	CP	Foraging	Eastern boundary RP3 - 2, HNS off site, brief pass	

Summer: 15th June 2026

Table 3 Notes from summer bat survey, 2025

Time	Location	Flying height	Species	Behaviour	Notes	Summary of survey
21:45	LP6	N/A	CP	Foraging	Two individuals foraging	Fairly busy, foraging pips and noctule, couple of potential serotine. Bit of rain, some foraging around the lamp posts in the light. Generally using hedgerows and road.
21:53	LP6	N/A	NOC	Unknown	HNS	
21:55	LP6	N/A	SP	Unknown	HNS. SPip & Serotine	
21:58	LP6	N/A	CP	Unknown	HNS	
22:08	LP4	1.5 - 3m	SER	Commuting	Noctule commuting E to W. Also common pip commuting SW to NE.	
22:10	LP4	N/A	SER	Unknown	HNS	
22:11	LP4	N/A	CP	Commuting	HNS	

22:15	LP3	N/A	SP	Unknown	HNS
22:15	LP3	N/A	NOC	Unknown	HNS
22:17	LP3	1.5 - 3m	CP	Commuting	Flying east to west
22:19	LP3	N/A	NOC	Unknown	HNS, halfway between LP2 and LP3
22:20	LP2	1.5 - 3m	NOC	Commuting	Halfway between LP2 and 3, flying N to S
22:38	LP5	1.5 - 3m	CP	Foraging	Flying around lamp post at access point and down mill lane
22:46	LP9	N/A	NOC	Unknown	Noctule HNS. S to N along road
22:47	LP9	1.5 - 3m	CP	Commuting	Flying N to S along Road
22:50	LP9	N/A	NOC	Commuting	Noctule along hedgerow
22:53	LP9	N/A	CP	Foraging	Foraging around hedgerow
22:54	LP9	1.5 - 3m	NOC	Foraging	Foraging up and down road
22:57	LP8	N/A	SP	Commuting	HNS
23:03	LP8	N/A	SP	Commuting	HNS, halfway between LP7 & LP8
23:07	LP7	N/A	CP	Foraging	HNS
23:14	LP5	1.5 - 3m	CP	Foraging	Two individuals foraging around lamppost at access point, directly at LP5

Autumn: 25th September 2025

Table 4 Notes from autumn bat survey, 2025

Time	Location	Species	Behaviour	Notes	Summary of survey
19:38	Heading into the field towards 2	NOC	Commuting	Commuting noc HNS	Quiet survey few CP and SP around the streetlights of the business park and a NOC commuting early on
19:45	Heading north along boundary towards rp 3	SP	Other	HNS	
19:49	Heading north towards rp 3	CP	Commuting	Brief HNS multiple	
19:53	Near rp 4	CP	Foraging	Foraging near rp 4 for a few mins	
19:59	Near rp 1 next to road	SP	Foraging	Foraging around lamp post	
20:02	On road	CP	Foraging	Foraging by street lights on road	
20:12	Near rp 6	CP	Commuting	CP brief HNS	
20:35	Streetlights near rp 5	CP	Foraging	Foraging near street light	

Table 5 Activity surveys environmental variables

Date		15/04/2025	15/06/2025	25/09/2025
Sunset		20:05	21:27	19:00
Time	Start	20:05	20:52	19:00
	End	22:05	23:11	21:00
Temperature (°C)	Start	11	17	14
	End	10	15	12
Humidity (%)	Start	83	78	62
	End	86	83	65
Cloud Cover (oktas)	Start	1	8	0
	End	1	4	0
Avg. Wind speed	Start	Moderate Breeze	Gentle Breeze	Light Air
	End	Light Breeze	Gentle Breeze	Light Air
Rain	Start	Earlier today	None	None
	End	Earlier today	During survey	None

1.6 Static Surveys

General bat activity

- 1.6.1 It is noted that this baseline data and assessment are preliminary as the final surveys have not been carried out at the time of writing, therefore a full assessment cannot be made, and will be to follow with an addendum.
- 1.6.2 Overall, 11 bat species have been recorded on site, which include Annex II species barbastelle (*Barbastella barbastellus*) and greater horseshoe bat (*Rhinolophus ferrumequinum*), lesser horseshoe bat (*Rhinolophus hipposideros*) and grouped *Myotis* spp bats, due to static detector accuracy, these have been grouped together. The records of Barbastelle are discussed further in this section; however, the number of Greater and Lesser Horseshoe and Bechstein's were insignificant (only 189, 66 and 55 records across all surveys respectively).
- 1.6.3 Due to the difficulties in distinguishing between species, where distinct species calls cannot be identified, grey long-eared bat (*Plecotus austriacus*) is grouped with brown long-eared bat (*Plecotus auritus*) and referred to as *Plecotus* spp. In addition, *Myotis*

species calls are highly similar to each other and may not be accurately identified to species level by acoustic analysis, particularly by automatic software and therefore have been grouped together and referred to as *Myotis* spp.

- 1.6.4 The most abundant species recorded was common pipistrelle (*Pipistrellus pipistrellus*) with over 180,000 calls accounting for over 48% of all calls. Their numbers were highest at Location 3 with peak activity in June with over 7,800 calls. Nathusius' and soprano pipistrelle (*Pipistrellus nathusii* and *pipistrellus pygmaeus*) was the second and third most abundant, with over 8,000 calls accounting for over 22% of all calls for Nathusius's pipistrelle and over 7,400 soprano pipistrelle calls, accounting for over 20% of total calls recorded. Location 3 recorded the highest number of calls for both species, with activity peaking in June for both species also. *Myotis* bats (*Myotis* spp) were the fourth most abundant species with over 1,400 calls accounting for over 3% of all calls and were most at Location 6, peaking in August with over 300 calls.
- 1.6.5 Location 3 recorded the majority of bat calls over the survey period with over 23,000, calls recorded. Location 3 accounts for over 60% of all calls, however, when all pipistrelle calls are removed, this is reduced to just over 600 calls. All other static locations individually account for less than 12% of all calls.
- 1.6.6 Location 3 is located on the western site boundary, along the Hawkrigge Road which is a hedgerow lined road that does not have street lighting present. Location 6 is the next area with the highest number of calls and is located along the tree lined railway line to the east of the site, which has ecologically connectivity to the Wiltshire Bat SAC core bat areas.

Barbastelle bats

- 1.6.7 A total of 189 barbastelle bat calls were recorded across the site during the survey period, representing 0.51% of all calls. The highest number of calls was recorded at Location 1, with 54 calls. Locations 2, 5 and 6 also recorded relatively high numbers in relation to the other locations, with 40, 37 and 49 calls respectively. Locations 3 and 4 only recorded single digits of calls, and Location 7 recorded no barbastelle calls. The locations with the highest barbastelle call counts correspond to more wooded areas and corridors linking significant offsite woodlands.

Lesser horseshoe bats

- 1.6.8 A total of 55 lesser horseshoe bats were recorded during the survey period, with the highest number of bats recorded at Locations 1 and 2, with single digits or no lesser horseshoe bat calls recorded at all other locations.
- 1.6.9 The largest volume of lesser horseshoe bats were recorded in August, with low numbers of bats recorded in all other monitoring periods, relative to August.

Greater horseshoe bats

- 1.6.10 A total of 66 greater horseshoe bats were recorded during the survey period, with the highest number of bats recorded at Locations 2 and 6, with single digits or no lesser horseshoe bat calls recorded at all other locations.
- 1.6.11 The largest volume of lesser horseshoe bats were recorded in June and August, with low numbers of bats recorded in all other monitoring periods, relative to June and August.

**NB: The term 'Activity' has been used during the analysis of the static bat detectors. Whilst static bat detectors cannot give an accurate indication of the number of bats foraging/commuting on site, they provide valuable information relating to species composition and comparisons from the number of records across the site. In this instance, the term 'activity' is based off the mean average records per night in order to prevent a period of intensive foraging over a short period of time skewing the results. It also allows for true comparison when detectors are deployed for different periods of time.*

Table 6 Total number of bat calls on site, preliminary results

Species	Sum of Call	Percentage of records
Barbastelle	189	0.51%
Common pipistrelle	18062	48.94%
Greater horseshoe bat	66	0.18%
Leisler's bat	522	1.41%
Lesser horseshoe bat	55	0.15%
Myotis spp	1437	3.89%
Nathusius' pipistrelle	8127	22.02%
Noctule	603	1.63%
Plecotus spp	226	0.61%
Serotine	216	0.59%
Soprano pipistrelle	7401	20.05%
Grand Total	36904	100.00%

Table 7 Total number of bat calls on site per location, preliminary results

Species	P1	P2	P3	P4	P5	P6	P7
Barbastelle	54	40	4	5	37	49	
Common pipistrelle	1302	1704	10757	1202	857	2188	52
Greater horseshoe bat	6	21	3	4	5	27	
Leisler's bat	21	37	251	88	40	69	16
Lesser horseshoe bat	19	21	2	1	4	8	
Myotis spp	300	159	39	50	204	612	73
Nathusius' pipistrelle	444	238	7068	164	146	54	13
Noctule	55	36	230	82	60	90	50
Plecotus spp	42	39	43	26	28	37	11
Serotine	26	41	29	11	38	71	
Soprano pipistrelle	251	621	4860	125	568	958	18
Grand Total	2520	2957	23286	1758	1987	4163	233
Percentage of total calls	6.83%	8.01%	63.10%	4.76%	5.38%	11.28%	0.63%

Table 8 Total number of bat calls on site per month, preliminary results

Year	2026				2025			
Month/Species	Apr	May	Jun	Jul	Aug	Sep	Oct	
Barbastelle	7	1	29		47	59	24	22
Common pipistrelle	192	1098	7874		306	4885	1222	2485
Greater horseshoe bat	4	4	21			22	11	4
Leisler's bat	15	36	278		9	122	17	45
Lesser horseshoe bat	2	4	5			28	3	13
Myotis spp	28	277	109		86	335	274	328
Nathusius' pipistrelle	27	329	7509		1	47	11	203
Noctule	16	83	400		2	40	9	53
Plecotus spp	3	22	65		14	57	23	42
Serotine		6	38		15	133	22	2
Soprano pipistrelle	111	176	4620		173	960	640	721
Grand Total	405	2036	20948		653	6688	2256	3918

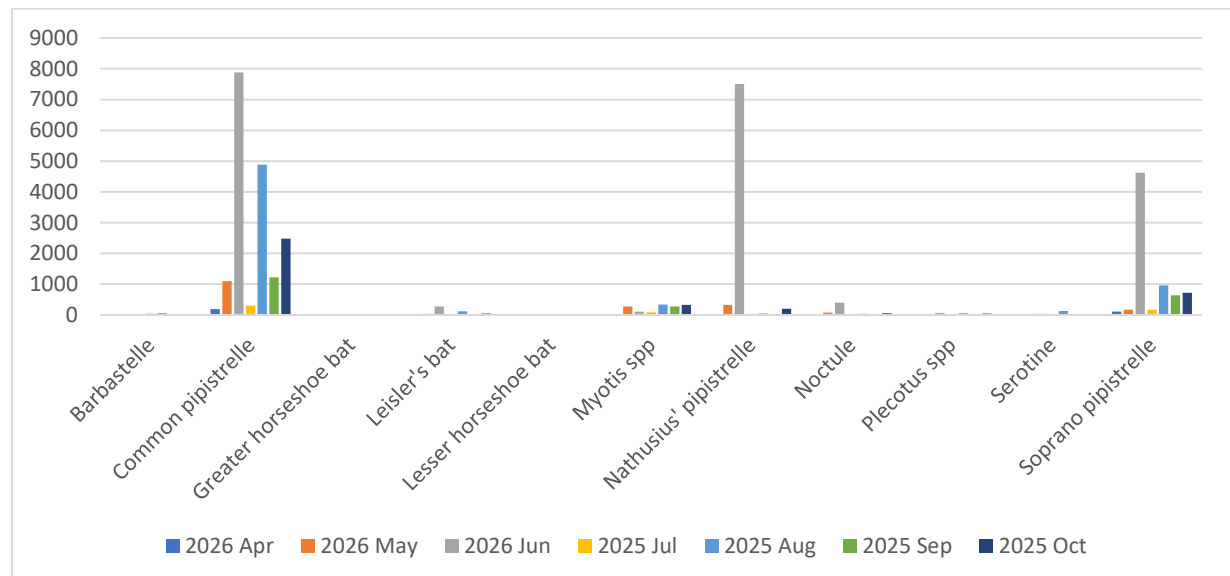


Figure 3 Number of bat calls by month

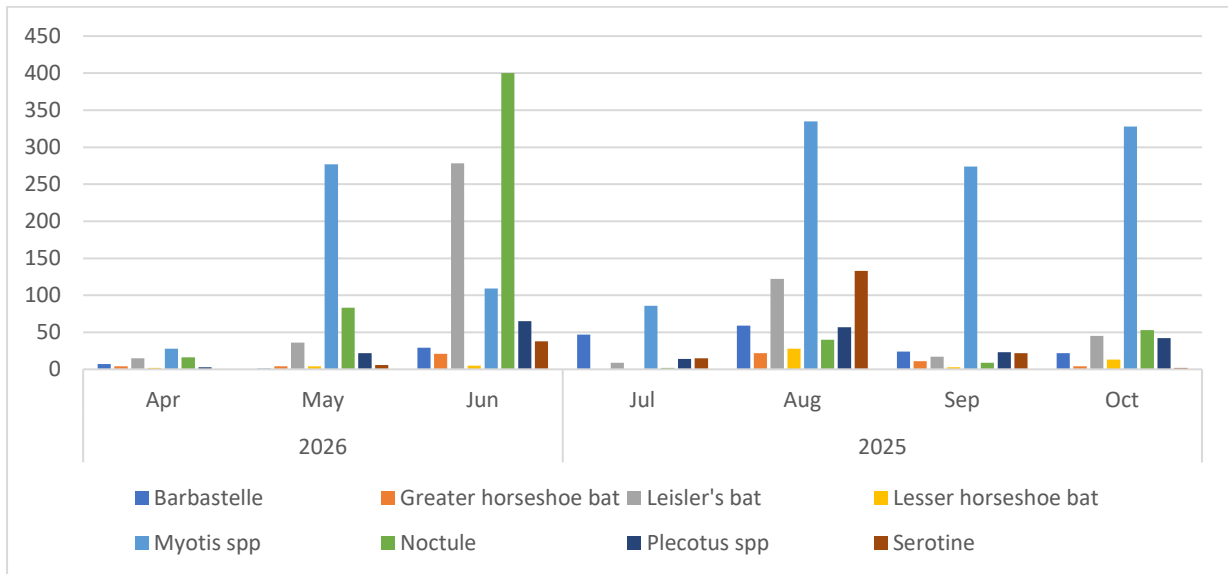


Figure 4 Number of bat calls by month excluding common, soprano and Nathusius' pipistrelle

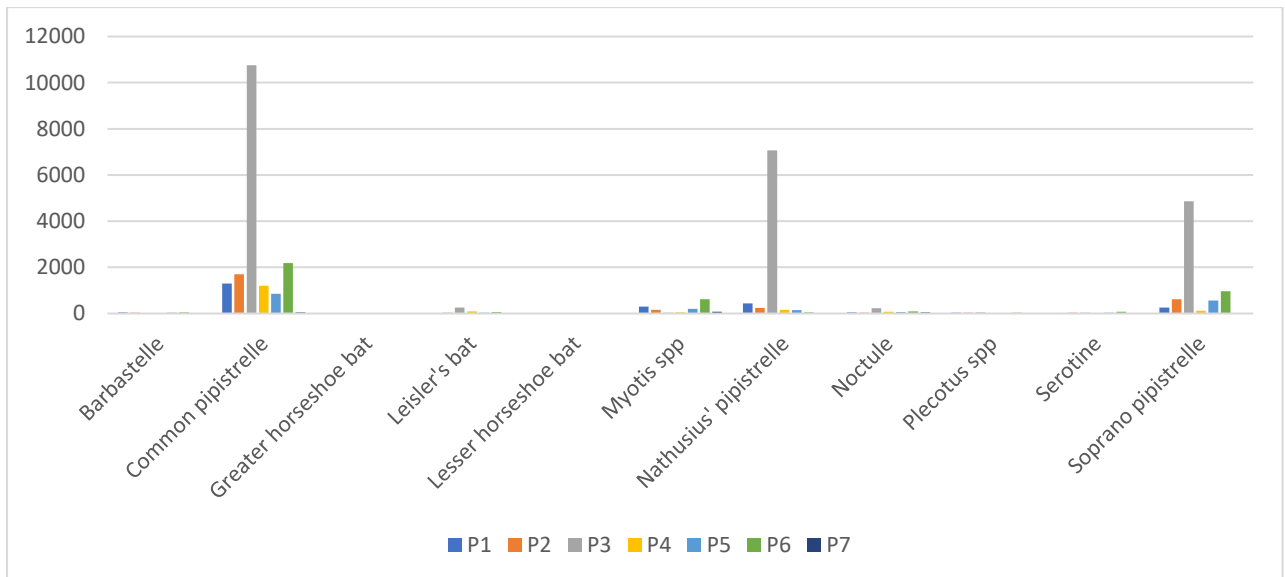


Figure 5 Number of bat calls by location

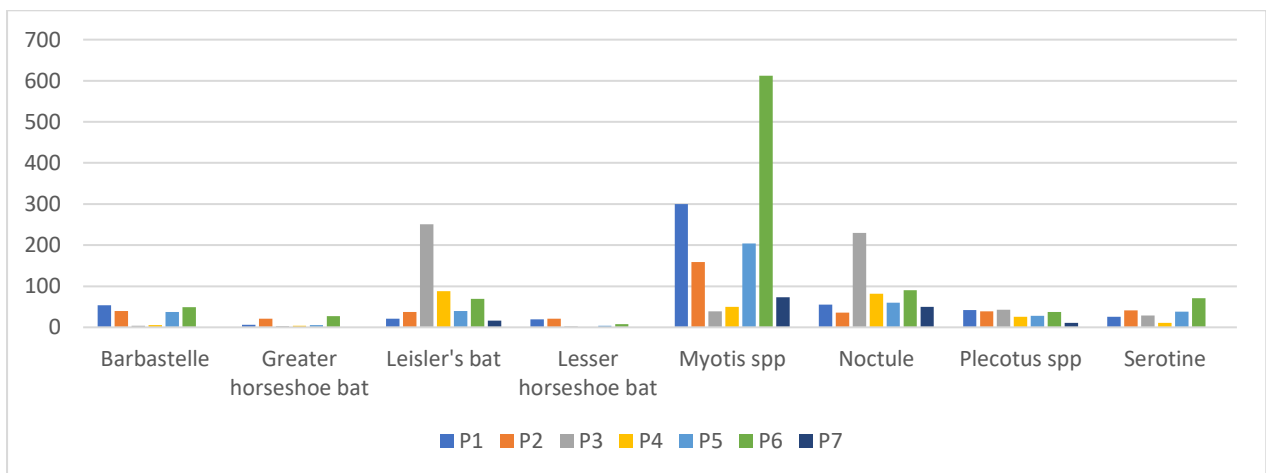


Figure 6 Number of bat calls by location with common, soprano and Nathusius' pipistrelle bat calls removed

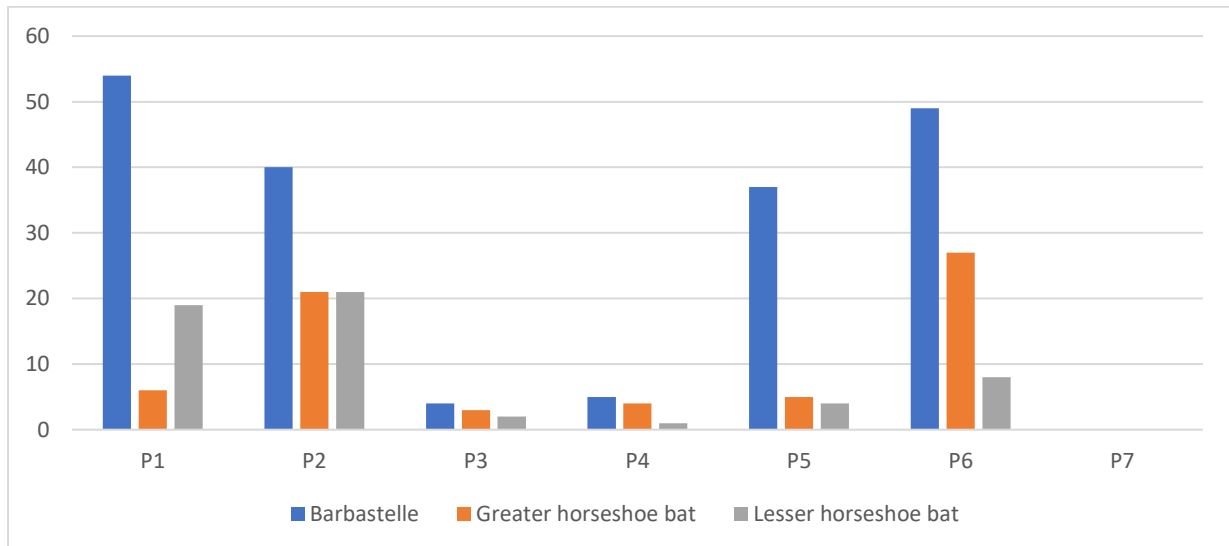


Figure 7 Number of Annex II (without *Bechstein's*, as this is grouped with *Myotis* spp for accuracy) calls by location

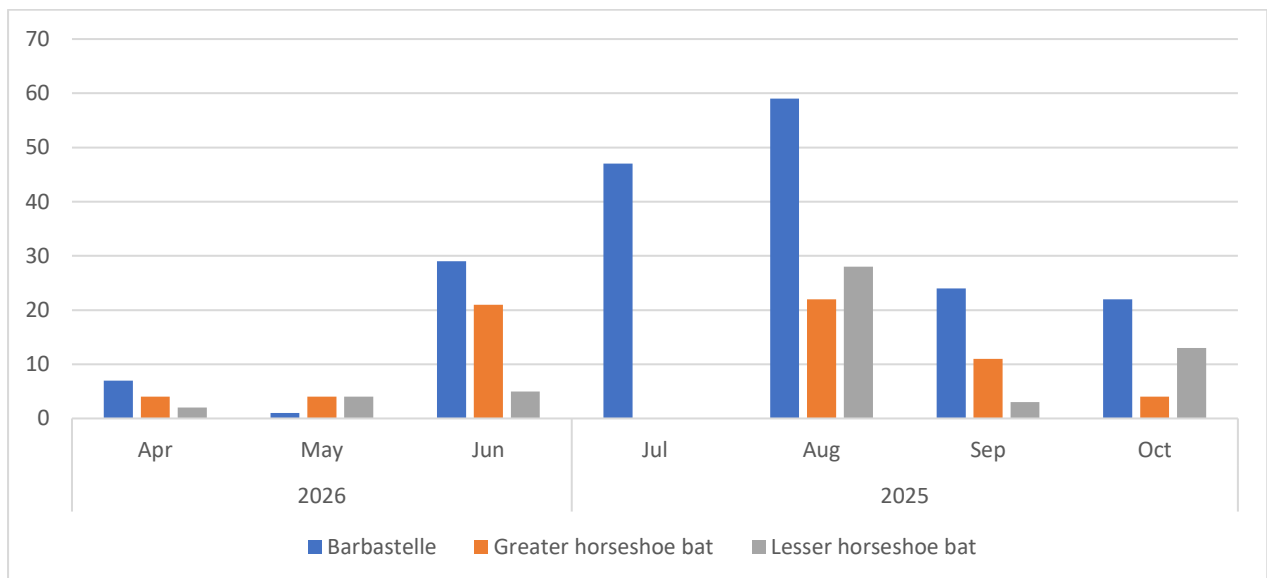


Figure 8 Number of Annex II (without *Bechstein's*, as this is grouped with *Myotis* spp for accuracy) calls by month

2 ASSESSMENT OF IMPACTS AND MITIGATION MEASURES

2.1 Bath and Bradford-on-Avon Bats SAC and Wiltshire (Kennet Valley)

Barbastelle Designation

- 2.1.1 Barbastelle (*Barbastella barbastellus*) is a wide-ranging Annex II species capable of undertaking relatively long-distance movements; however, radio-tracking studies indicate that typical foraging activity is generally concentrated within approximately 2–5 km of maternity roosts, with regular movements extending up to 10–15 km.
- 2.1.2 The application site falls within the barbastelle 6,000 m buffer zone associated with the Kennet Valley Barbastelle Bats SAC interest, and barbastelle were recorded in low numbers across the site during the static monitoring (189 calls, 0.51% of all calls). The presence of ancient and semi-natural woodland Local Wildlife Sites (including Round Wood, Heywood, Flowers Wood and Kettle Lane Wood) and riparian corridors (Bitham Brook and Biss Brook) within the wider study area means there is potential functional linkage between the site and the wider barbastelle population, and the species is therefore carried through for detailed assessment at the site level.
- 2.1.3 Given the low recorded activity, the predominantly commuting nature of that activity, and the embedded mitigation set out below, no likely significant effect on the favourable conservation status of barbastelle populations associated with the wider SAC network is anticipated; this will be confirmed through Habitats Regulations Assessment (HRA) screening with the competent authority.
- 2.1.4 As barbastelle is an Annex II species and is therefore scoped into the assessment as a species feature of **regional importance**, reflecting its conservation status and known presence within the wider landscape. Accordingly, potential impacts on barbastelle at the site level, including effects on commuting routes, foraging habitat and roosting features, are assessed in detail within this Ecological Impact Assessment.

Horseshoe bats

- 2.1.5 The application site also lies within the greater horseshoe bat 4,000 m buffer and the lesser horseshoe bat 2,000 m buffer associated with the Bath and Bradford-on-Avon Bats SAC, and within both the Red Zone (High Risk) and Yellow Zone (Medium Risk) of the Trowbridge Bat Mitigation Supplementary Planning Document (SPD). Both qualifying species were recorded on site during the static monitoring, albeit in low numbers (66 greater horseshoe and 55 lesser horseshoe calls, each representing less than 0.2% of all calls), with activity concentrated at Locations 1, 2 and 6 adjacent to the more wooded and well-vegetated boundaries.
- 2.1.6 Greater and lesser horseshoe bats are highly light-averse and dependent on connected, unlit linear features for commuting between roosts and foraging areas. As

the site falls within the SAC consultation zones, the development is required to demonstrate, in accordance with Wiltshire Council's Planning Guidance for the Bath and BoA Bat SAC and the Trowbridge and Westbury Bat Mitigation SPD, that it will not adversely affect the integrity of the SAC.

- 2.1.7 The horseshoe SAC qualifying features are therefore scoped into the assessment as features of **international importance** and are addressed both within the subsequent paragraphs of this appendix and through HRA screening with the competent authority.

2.2 Commuting habitat

- 2.2.1 The site supports a well-developed network of linear features, including hedgerows, tree lines and woodland edges, which provide suitable commuting habitat for bats. The strong linear features link key habitat for bat on site and in the wider landscape, including woodland, waterbodies and watercourses.
- 2.2.2 These linear features facilitate movement between roosting and foraging areas, linking up bat habitat on site and in the wider landscape. Connectivity is particularly evident along the hedgerow-lined Hawkridge Road on the western boundary, which is unlit and recorded the highest activity of any detector location (Location 3), and along the tree-lined railway line on the eastern side of the site (Location 6), which provides ecological connectivity towards the core bat areas of the wider Bath and Bradford-on-Avon Bats SAC.
- 2.2.3 The network of boundary hedgerows also provides connections to the watercourse corridors associated with the tributary of the Bitham Brook on the eastern boundary and Biss Brook to the west, and onward to the ancient and semi-natural woodland Local Wildlife Sites (Round Wood, Heywood; Flowers Wood; Kettle Lane Wood) and Westbury Lakes LWS in the surrounding landscape.
- 2.2.4 The network of commuting habitat onsite and to surrounding bat habitat is assessed as being of high importance for bats.

2.3 Foraging habitat

- 2.3.1 Foraging habitat across the site varies in quality depending on habitat type. The boundary hedgerows with mature trees, the tree-lined railway corridor, and the watercourse and riparian corridors associated with the Bitham Brook tributary and Biss Brook provide the highest value foraging habitat on site. These linear and edge habitats support a greater abundance of invertebrates and therefore offer valuable foraging opportunities for bats.
- 2.3.2 The majority of the site comprises arable cropland with smaller areas of ruderal vegetation, scrub and grassland. Whilst these habitats support some invertebrate prey resources, the intensively managed cropland lacks the structural diversity required to support a high abundance and diversity of invertebrates, and is therefore of low value as foraging habitat for bats.

- 2.3.3 Overall, the site provides a moderate foraging resource, with higher value concentrated along linear features, the woodland edges and aquatic habitats.

2.4 Barbastelle and horseshoe bats

Construction impacts

- 2.4.1 The proposed development will result primarily in loss of areas of arable cropland and associated ruderal and grassland margins, which are of low value for barbastelle and horseshoe bats, as well as the other recorded species. A small amount of hedgerow will be lost through the development proposals, however large volumes of hedgerow will be planted, and the key boundary hedgerows will be retained, therefore this has been considered to not be a significant impact on bat usage of the site.
- 2.4.2 Trees and woodland that could support roosting resource for barbastelle will be avoided and protected, ensuring roosting features are retained and buffered across the site. No structures were present on site that would support roosting horseshoe bats; therefore roost provision is not considered further.
- 2.4.3 Potential impacts on commuting and foraging bats could occur as a result of construction lighting illuminating the retained habitats on site. A sensitive construction lighting plan will therefore be set out within the Construction Ecological Management Plan (CEMP) and no night-time working will be undertaken.

Operational impacts

- 2.4.4 The key potential impacts during operation relate to potential fragmentation of commuting corridors connecting key bat habitat and disturbances from recreational pressures and lighting.
- 2.4.5 The majority of habitat lost to development is arable cropland, which has not been assessed to be of functional foraging habitat for barbastelle or horseshoe bats. The activity recorded on site is assessed to be related to commuting and dispersal through the site along its retained boundary features.
- 2.4.6 Overall, considering the retention of dark commuting corridors and the creation of a large amount of high value foraging habitat in the east of the site, it is assessed that the proposed development will likely result in a **minor positive effect** on commuting and foraging barbastelle and horseshoe bats.
- 2.4.7 Mitigation and enhancement measures incorporated within the scheme include the retention and enhancement of key linear features such as hedgerows and woodland edges, alongside the creation of new habitat — including woodland planting, hedgerows and grassland — to provide additional foraging opportunities. These

measures will be secured through long-term habitat management set out in a Landscape and Ecological Management Plan (LEMP).

- 2.4.8 The proposals will result in an increase in artificial lighting at the site through the inclusion of street lighting on the primary roads, private lighting to car parks, the care home, and commercial unit and office perimeters, low-level property front and rear lighting, and light spill from the proposed structures.
- 2.4.9 Given that the site lies within the Bath and Bradford-on-Avon Bats SAC greater horseshoe bat 4,000 m buffer, lesser horseshoe bat 2,000 m buffer and barbastelle 6,000 m buffer, and within both the Red Zone (High Risk) and Yellow Zone (Medium Risk) of the Trowbridge and Westbury Bat Mitigation SPD, lighting effects on commuting and foraging routes are a key consideration for the highly light-averse horseshoe species as well as for barbastelle. A Lighting Impact Assessment (DFL, ref. 4143-DFL-ELG-XX-RP-EO-13001) has been prepared to accompany the application, with the baseline survey confirming that the majority of the site is currently dark (most readings within 0.00–0.40 lux), capable of sustaining Zone A and Zone B dark corridors, while the western boundary is already well lit by the existing Hawkeridge Road roundabout and West Wiltshire Trading Estate lighting (recorded up to 19.58 lux horizontally).
- 2.4.10 In order to avoid impacts on the suitable bat habitat, dark corridors will be retained along the unlit hedgerow-lined Hawkeridge Road on the western boundary and along the tree-lined railway corridor and Bitham Brook tributary on the eastern boundary, with the Zone A bat habitat buffers along the southern boundaries of the development parcels treated as the most sensitive ecological receptors.
- 2.4.11 The lighting strategy has been designed in accordance with the ILP Guidance Note GN01:2021, the Bat Conservation Trust and ILP Guidance Note GN08:2023, and the Trowbridge and Westbury Bat Mitigation SPD, with the site classified as an E2 (rural) environmental zone. Mitigation embedded within the design includes luminaires with a 0% upward light ratio, warm correlated colour temperatures of $\leq 2700\text{K}$, flat 0° tilt, minimised mounting heights, back-light shielding, directional optics, and motion-sensor controls on non-adoptable lighting. The resulting light spill modelled at the Zone A bat receptors is ≤ 0.08 lux against the GN08:2023 / SPD threshold of < 0.5 lux (and the dark-corridor targets of 0.2 lux horizontal / 0.4 lux vertical), and the residual lighting effect on ecological receptors is assessed as Neutral to Slight (not significant).
- 2.4.12 This will allow bats to continue foraging and commuting over the site post-construction, maintaining both the east–west and north–south connections across the site and to the wider landscape.

2.5 Common pipistrelle bats

- 2.5.1 Common pipistrelle is the dominant species recorded, accounting for 18,062 calls, which equates to 48.94% of all bat activity recorded on site across the monitoring

period. Activity was highest at Location 3 on the western boundary, peaking in June, and the species was recorded at all seven detector locations.

- 2.5.2 Activity is strongly associated with the unlit, hedgerow-lined Hawkridge Road on the western boundary, the tree-lined railway corridor to the east, and the boundary hedgerows and watercourse corridors of the Bitham Brook tributary. The night-time walkover surveys also recorded common pipistrelle foraging around the streetlights of the adjacent business park. It is assessed that the local population of common pipistrelle utilises the boundary and linear habitats on site extensively for both foraging and commuting.

Construction impacts

- 2.5.3 Construction of the Proposed Development will result in the loss of areas of arable cropland, ruderal and grassland margins, which provide a low to moderate foraging resource and temporary disturbance associated with construction activities; and localised, temporary disruption of commuting routes.
- 2.5.4 The loss of cropland and grassland margin habitats during construction is not considered to represent a significant reduction in foraging resource at the site level, as these habitats are of low to moderate value and the higher value boundary and linear habitats, which support the majority of recorded activity, will be retained.
- 2.5.5 Potential impacts on foraging and commuting common pipistrelle bats could occur as a result of insensitive construction lighting. Sensitive construction lighting will be required during construction, which can be set out within the CEMP.
- 2.5.6 Protection of hedgerows and the watercourse will be required to ensure these important foraging and commuting habitats are retained and protected during the construction period, again this will be set out within the CEMP.
- 2.5.7 Given the widespread and adaptable nature of common pipistrelle, and the retention of key habitat features, the magnitude of construction impacts is considered to be low.

Operational Impacts

- 2.5.8 Sections of hedgerow on site will be lost as a result of the proposals. Such habitats are suitable for foraging and commuting for a range of bats species. However, given the small size of these sections lost, the additional compensation of extra hedgerows to be planted and the extent of habitats of similar or higher quality in the surrounding areas, it is considered that the loss of these habitats will not significantly impact these bats species ability to forage in the local area.
- 2.5.9 As discussed in the sections above, the proposed layout has been designed to retain key commuting routes, therefore, impacts on all other bat species can also be avoided. Common pipistrelle bats are not a particularly light sensitive species, however, the lighting plan required for horseshoe bats will also protect pipistrelles.

- 2.5.10 Mitigation and enhancement measures incorporated within the scheme include the retention and enhancement of key linear features such as hedgerows and woodland edges, alongside the creation of new habitat — including woodland planting, hedgerows and grassland — to provide additional foraging opportunities. A sensitive lighting strategy will be implemented to minimise light spill onto retained habitats and maintain connectivity along key commuting routes, supported by the provision of dark or low-light corridors, particularly along woodland edges and watercourses. These measures will be secured through long-term habitat management set out in a Landscape and Ecological Management Plan (LEMP).
- 2.5.11 Overall, considering the retention of dark commuting corridors and the creation of a large amount of high value foraging habitat in the east of the site, it is assessed that the proposed development will likely result in a **significant positive effect** on commuting and foraging common pipistrelle bats.

Bats – Other bat species

- 2.5.12 The mitigation measures outlined above will also provide effective mitigation for the other bat species recorded on the site. These measures will ensure the preservation and creation of suitable habitat, supporting the continued use of the site by bats for foraging and commuting purposes.