

Appendix 11.2 Bat Survey Results

Introduction

This report has been prepared by Tyler Grange Group Ltd on behalf of Northern Gateway Development Vehicle LLP (NGDV). It sets out the findings of bat surveys undertaken at 'Northern Gateway JPA 1.1'.

The EIA¹ assesses the Assessment Boundary, which measures approximately 570 ha. Within the Assessment Boundary, sits the Proposed Scheme (within the Application Boundary of approximately 210 ha), for which an outline planning application is sought. Bat surveys were undertaken within the Survey Area (**Figure 11.3: Survey Area**); which was largely defined by permitted access. Access was granted within the entirety of the Application Boundary, with the addition of fields immediately south of the southern Application Boundary also being permitted for access. All remaining areas outside of the Survey Area, but within the Assessment Boundary were not surveyed in detail, and assumptions were made of the habitat type, condition and protected species suitability through aerial imagery and views from Public Rights of Way (PRoW).

¹ NORM3018 Northern Gateway JPA 1.1 Environmental Impact Assessment

Legislation and Conservation Status

As European protected species, all UK bats receive legal protection in England under the Conservation of Habitats and Species Regulations 2018 and the Wildlife and Countryside Act 1981 (as amended). In addition, planning policy set out in the National Planning Policy Framework 2021 requires planning authorities to consider bats when determining planning applications and to ensure that development proposals do not lead to an adverse effect on the conservation status of bats.

Several species of bats (barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, brown long-eared *Plecotus auritus*, greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *R. hipposideros*, noctule *Nyctalus noctula* and soprano pipistrelle *Pipistrellus pygmaeus*) are listed as Species of Principal Importance (SoPI) under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. Decision-makers such as Local Planning Authorities must have regard to SoPI in all their activities, including when making decisions on planning applications.

All British species of bat are listed on Schedule 2 of the Conservation of Habitats and Species Regulations 2018 as European Protected Species (EPS). Regulation 41 (1) makes it an offence to:

- Deliberately capture, injure an EPS;
- Deliberately disturb an EPS; or
- Damage or destroy a breeding site or resting place of an EPS.

All British bats are listed in Schedule 5 of the WCA and in England and Wales are protected under Section 9 subsections 4b, 4c and 5 which makes it an offence to:

- Disturb any bat while it is occupying a structure or place which it uses for shelter or protection; or
- Obstruct access to any structure or place which any such animal uses for shelter or protection.
- Sell, offer or expose for sale, or have in possession or transport for the purpose of sale (any live or dead wild Schedule 5 animal or any part or anything derived from such an animal); or
- Publish or cause to be published any advertisement likely to be understood as conveying that they buy or sell, or intends to buy or sell, any of those things.

All species of bat are all listed on the Greater Manchester region Biodiversity Action Plan (LBAP) and are considered to be of conservation importance.

Survey Methodology

Desk Study

A data search from the local record centre was undertaken to establish the records of bats within 2 km of the Assessment Boundary. A search was also undertaken of all granted EPSL licenses within 2 km of the Assessment Boundary.

Scope of Bat Surveys

Surveys followed standard methodologies set out in the Bat Mitigation Guidelines², the Bat Workers Manual³ and Bat Surveys - Good Practice Guidelines⁴, and comprised:

- Day-time Bat Walkover (DBW) – Walkover of the Survey Area to assess potential bat activity including foraging areas and potential commuting routes;
- Building Preliminary Roost Assessment (Building PRA) - Internal and external building inspection survey to assess potential of buildings within the Survey Area to support roosting bats;
- Emergence/re-entry presence/absence surveys - to determine presence or likely absence or roosting bats;
- Activity transects to assess the species assemblage present at the Survey Area and to identify significant commuting routes and foraging locations; and
- Automated static detector deployment – to supplement the activity transect surveys by leaving static bat detectors to record for five consecutive nights per transect survey.

Identification and Roosts

Bats roost in different locations depending upon species, time of year and environmental factors such as temperature and humidity range and proximity to feeding grounds. Bat roosts can generally be classified as one or more of the following:

- Day Roost: A place where individual bats, or small groups, rest or shelter in the day during the summer.
- Night roost: A place where bats rest or shelter at night but are not found in the day. May be used by an individual bat on occasion or could also be used regularly by a whole colony.
- Transitional roosts: Bats frequently gather early in the season (March to April) before dispersing to summer roosts. Bats may be found in high numbers in these roosts for a very short period. Transitional roosts can also be found shortly before hibernation in August to October when bats (depending upon species) can gather at roosts not used earlier in the season.
- Maternity roosts: These are among the most important roosts and are normally occupied from May to August. Depending on the species involved, some maternity roosts can contain a significant proportion of the local population. Colonies often use several maternity roosts.
- Mating roosts: Around September bats will gather in roosts to mate; these are often in different locations than summer or breeding roosts.
- Hibernation roosts: As bats in hibernation roosts are highly vulnerable to disturbance and bats can be present in large numbers these are considered to be among the most important bat roosts. Many species of bats roost in large and nationally important hibernation roosts associated with underground sites, many of which are well known and protected. Some species such as noctule hibernate in suitable cavities in mature trees. However, the most common bats in the UK (common and soprano pipistrelles) are largely unaccounted for in winter. It is thought they hibernate individually or in small groups in thermally stable cracks and crevices in wall cavities or trees.
- Satellite roosts: An alternative roost found in close proximity to a main maternity colony, typically used by a few individual or small groups of breeding females throughout the breeding season.

² Mitchell-Jones, A.J. (2004) Bat Mitigation Guidelines. English Nature, Peterborough.

³ Mitchell-Jones, A.J. and McLeish, A.P. (2004) Bat Workers' Manual, 3rd Edition. JNCC, Peterborough

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

Day-time Bat Walkover (DBW)

A full suite of ecological surveys were undertaken by Tyler Grange throughout 2022. Detailed knowledge of the habitats within the Survey Area accounted for a DBW. Update habitat assessments were then confirmed in 2024 by Olivia McKechnie, Bethany Pythian and Nick Bell on the 1st May 2024, 13th June 2024 and 3rd October 2024. The DBW assessed habitats within the Survey Area for the likelihood to be used by foraging and commuting bats as detailed in **Table A11.2.1** below. This combined with desk study records of local bats and bat roosts, and potential for roosting bats in the Survey Area was used to define the overall suitability of bats. Although large areas of the Survey Area are considered to be of low suitability, there are habitats (such as brook corridors and woodland) which are of 'moderate suitability'. Therefore, overall, the Survey Area was considered to be of 'moderate suitability' for bats.

Table A11.2.1: Flight Path and Foraging Habits Assessment Criteria - adapted from Collins, 2023

Suitability	Description of Roosting Habitats
None	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Preliminary Roost Assessment (PRA)

A PRA was undertaken on all accessible buildings within the Survey Area (**Figure 11.3**), to identify Potential Roost Features (PRFs) and assess their potential to support roosting bats – these buildings are shown on **Figure 11.12 Bat Emergence Results**.

The 2022 PRA assessment was undertaken across multiple days; the first being 22 May 2022 by Nick Bell and Elliot Grundy, with the second PRA undertaken on 11th July 2022 by Dale Mortiboys and Bethany Pythian. Nick Bell holds a level 1 Natural England Bat Survey licence (license ref: 2018-37986-CLS-CLS), and Dale Mortiboys holds a level 2 Natural England Bat Survey licence (license ref: 2015-15414-CLS-CLS). All surveyors are members of Chartered Institute of Ecology and Environmental Management (CIEEM). Update walkovers were undertaken in early 2024 (10th April 2024 and 7th May 2024) by Nick Bell to establish that the buildings had remained of similar condition and therefore potential roost status.

The PRAs followed standard methodologies described in Mitchell-Jones (2004), Mitchell-Jones and McLeish (2004) and Collins (2023).

The internal inspections, where access granted, examined all accessible roof spaces to determine the presence of suitable roosting locations and the presence of evidence of use, including live/dead bats, droppings, feeding remains and staining from fur-oil and urine. No basements were evident in the buildings. The external inspection carefully examined the building for architectural features that would provide access points and roosting opportunities.

The potential of the buildings to support roosting bats was then assessed using the criteria shown in **A11.2.2** below.

A11.2.2: Building Assessment Criteria – adapted from Collins 2023

Suitability	Description of Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain Potential Roost Features (PRFs) but with none seen from the ground or features seen with only very limited potential.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time.

Ground Level Tree Assessment (GLTA)

Detailed GLTA's were not undertaken as part of this assessment. As the Proposed Scheme is subject to an outline planning application, based on parameters plans showing maximum extents of development only, detailed information included tree loss is not available at present. However, a high level review of the woodland and trees was undertaken based on aerial imagery and walkovers.

The high level GLTA was based on best practice published guidance (Assessment of Tree Suitability Criteria - adapted from Collins, 2023), which takes into account Potential Roosting Features (PRFs), these PRFs include:

- Woodpecker holes;
- Rot holes;
- Hazard beams;
- Other vertical or horizontal cracks and splits (such as frost-cracks) in stems or branches;
- Partially detached platy bark;
- Knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar;
- Man-made holes (e.g. cavities that have developed from flush cuts) or cavities created by branches tearing out from the parent stems;
- Cankers (caused by localised bark death) in which cavities have developed;
- Other hollows or cavities, including butt-rots;
- Double-leaders forming compression forks with included bark and potential cavities;
- Gaps between overlapping stems or branches;
- Partially detached ivy with stem diameters in excess of 50 mm; and
- Bird, bat or dormouse boxes.

Signs of a bat roost, as identified by the BCT, besides the actual presence of bats themselves, were also looked for. These signs include:

- Bat droppings in, around or below a PRF;
- Odour emanating from a PRF;
- Audible squeaking at dusk or in warm weather; and
- Staining below the PRF.

Emergence and Re-entry Surveys

Emergence / re-entry surveys were undertaken on all buildings with low, moderate or high potential to support roosting bats, between May and September 2024. See **Table A11.2.3:** for survey dates, weather conditions and number of surveyors at each building.

Surveyors were positioned around the buildings to provide adequate coverage of all suitable features.

Surveyors used a combination of visual observation, echolocation detection and Night Vision Aids (NVAs) were used to identify any bat activity within the Survey Area. For the majority of surveys Elecon Batloggers, AnaBat Scout detectors, Echometer Touch or Batbox Duet detectors in combination with Anabat Express detectors were used, with NVAs including Canon IR and Nightfox Whisker. The anabat detectors record in both heterodyne and frequency division formats, which reduces the chance of bat calls being missed because the detector is not tuned closely enough to the bandwidth of the call. Bat Explorer software was used to analyse sonograms of any calls which could not be identified in the field.

Table A11.2.3: Emergence/ Re-entry Survey Details

Survey	Buildings	Date	Survey Times	Weather Conditions (at start-end of survey)
Dusk	1, 2, 6	16/05/2024	Start: 20:48 Sunset: 21:03 End: 22:33	Wind (Beaufort): 3 - 2 Temp (°C): 14 - 13 Precipitation: None Cloud (Octas): 7 - 8
Dusk	7, 10, 11, 12, 14, 15, 19	30/05/2024	Start: 21:27 Sunset: 21:42 End: 23:12	Wind (Beaufort): 2-3 Temp (°C): 14 Precipitation: None Cloud (Octas): 8/8
Dusk	21, 22, 23, 24, 25	03/06/2024	Start: 21:16 Sunset: 21:31 End: 23:01	Wind (Beaufort): 2 - 2 Temp (°C): 14 - 13 Precipitation: None Cloud (Octas): 7 - 7
Dusk	32, 35, 37	05/06/2024	Start: 21:19 Sunset: 21:34 End: 23:04	Wind (Beaufort): 3-2 Temp (°C): 13-9 Precipitation: None Cloud (Octas): 4-6
Dusk	2	25/06/2024	Start: 21:28 Sunset: 21:43 End: 23:12	Wind (Beaufort): 2 Temp (°C): 19-18 Precipitation: None Cloud (Octas): 7

Dusk	21, 22, 23, 24, 25, 32, 35, 37	08/07/2024	Start: 21:22 Sunset: 21:37 End: 23:07	Wind (Beaufort): 3 - 3 Temp (°C): 16 - 15 Precipitation: None Cloud (Octas): 7 - 7
Dusk	7, 10, 11, 12, 14, 15, 19	16/07/2024	Start: 21:14 Sunset: 21:29 End: 22:59	Wind (Beaufort): 2-1 Temp (°C): 15-14 Precipitation: None Cloud (Octas): 1
Dusk	21, 22, 23, 24, 25, 32, 35, 37	27/08/2024	Start: 19:55 Sunset: 20:10 End: 21:40	Wind (Beaufort): 1 - 2 Temp (°C): 15.8 – 14.3 Precipitation: None Cloud (Octas): 7 - 7
Dusk	7, 10, 11, 12, 14, 15, 19	29/08/2024	Start: 19:50 Sunset: 20:05 End: 21:35	Wind (Beaufort): 2 - 2 Temp (°C): 14.7 – 13.2 Precipitation: None Cloud (Octas): 1 -1
Dusk	2	04/09/2024	Start: 19:36 Sunset: 19:51 End: 21:21	Wind (Beaufort): 1 Temp (°C): 12-10 Precipitation: None Cloud (Octas): 7-8

Bat Activity Surveys – Transect

Bat transect surveys were completed at the Survey Area based on habitats of moderate suitability habitat for bats between April and September 2024 to record the bat species present and to determine the importance of any habitat features to foraging and / or commuting bats in line with survey guidance (Collins, 2023).

The survey visits commenced at sunset, with seven transect routes walked slowly, at a steady pace. The surveys continued for between two and three hours after sunset covering the period of peak activity for bats. The dusk activity transect surveys used a combination of visual observation and echolocation detection techniques to identify any bat activity on the site. Activity survey metadata is included in **Table A11.2.4** below.

Batlogger M2, Scout, EM2 Touch Pro, Anabat Chorus and Anabat Walkabout detectors were used to record calls for later analysis. Analysis of files was completed using BatExplorer software, and analysts of the sound files had all completed the Certificate of Bat Acoustic Analysis (COBAA) assessment course.

Weather conditions for surveys are recorded as per the BCT guidance including the air temperature, wind speed and precipitation at sunset. **Table A11.2.4** below includes sunset and sunrise times for each survey.

Table A11.2.4: Activity Survey – Weather Condition

Survey	Date	Survey Times	Weather Conditions (at start-end of survey)	Surveyors
1 (T4)	06/05/2024	Start: 20:49 Sunset: 20:49 End: 22:49	Wind (Beaufort): 0-0 Temp (°C): 15-14 Precipitation: None Cloud (Octas): 7-7	Zoe Barrett Elizabeth B
1 (T1, T2, T3)	09/05/2024	Start: 20:54 Sunset: 20:54 End: 23:54	Wind (Beaufort): 2-1 Temp (°C): 17 - 13 Precipitation: None Cloud (Octas): 0-0	Georgia Stant Peter Giles John Harrison Bryant Jack M Mike Bryant
1 (T5, T6)	16/05/2024	Start: 20:48 Sunset: 21:03 End: 22:33	Wind (Beaufort): 3 - 2 Temp (°C): 14 - 13 Precipitation: None Cloud (Octas): 7 - 8	Mike Bryant Peter Giles Richard
1 (T7)	02/06/2024	Start: 21:30 Sunset: 21:30 End: 23:30	Wind (Beaufort): 2-3 Temp (°C): 12-15 Precipitation: None Cloud (Octas): 8-8	Zoe Barrett Peter Giles
2 (T1, T2, T3, T5, T6, T7)	04/07/2024	Start: 21:40 Sunset: 21:40 End: 23:40	Wind (Beaufort): 2-4 Temp (°C): 15-14 Precipitation: None Cloud (Octas): 2-4	Elliott G Zoe Barrett Rich Laws +1 Jack M Katie C Georgia Stant Bek Stobhart John Harrison Bryant Laura D Jeff
2 (T4)	19/07/2024	Start: 21:25 Sunset: 21:25 End: 23:43	Wind (Beaufort): 0-0 Temp (°C): 22-17 Precipitation: None Cloud (Octas): 5-4	Elizabeth B Peter Giles
3 (T1, T2, T3, T4, T5, T6, T7)	11/09/2024	Start: 19:33 Sunset: 19:33 End: 22:33	Wind (Beaufort): 2-1 Temp (°C): 9.5-7 Precipitation: None Cloud (Octas): 4-1	Georgia S Nathan R J Kenny Rich Laws +1 Bek Stobhart Nathan R Peter Giles Elizabeth Barratt Zoe Barrett Nick Carter Jack M Mike Bryant Carl Capewell Aliyah ahmed Damian Young Jacqui

Bat Static Monitoring Surveys

Static monitoring surveys of the Survey Area were completed between April and October 2024. These surveys were designed to record bat species over an extended period and to determine whether any habitat features are of importance to bats.

During each static survey, twelve static detectors were deployed onsite (see **Figure 11.12**). The detectors were left in situ for a minimum of five nights in total as per guidance (Collins, 2023). All 12 detectors were deployed every month, however, some detectors did not record for the full five night period. This has been given a 'fail' marker, as incomplete data could negatively skew the overall results. See limitation section for justification of an overall valid data set. **Table A11.2.5** below shows the months which static detectors were deployed and were successful/ failed across each location.

Table A11.2.5- Static Detector Months Deployed

Location	Month					
	April	May	June	July	August	October
L1					Fail	Fail
L2						
L3						Fail
L4	Fail			Fail	Fail	Fail
L5						Fail
L6						
L7		Fail		Fail		Fail
L8		Fail	Fail			
L9	Fail		Fail			
L10	Fail		Fail			
L11	Fail		Fail	Fail	Fail	Fail
L12						Fail

The detectors were programmed to record from 30 minutes before sunset to 30 minutes after sunrise. Echolocation calls were later analysed utilising British Trust for Ornithology (BTO) Acoustic Pipeline before being assessed using BatExplorer software. Analysts of the sound files have all completed BatAbility's (COBAA) assessment course.

Weather conditions for surveys are recorded, including the air temperature, wind speed and precipitation at sunset, taken from the nearest weather station (Manchester). **Table A11.2.6** includes sunset and sunrise times for each survey.

Table A11.2.6- Activity Surveys - Weather Conditions

Dusk Date	Sunset Time	Sunrise Time	Weather conditions		
			Air temperature at sunset (°C)	Precipitation	Wind (Beaufort Scale)
18/04/2024	20:16	06:01	9	Light rain	Moderate breeze
19/04/2024	20:17	05:59	10	Dry	Gentle breeze
20/04/2024	20:19	05:57	11	Dry	Light breeze
21/04/2024	20:21	05:54	10	Dry	Light breeze
22/04/2024	20:23	05:52	9	Dry	Light air
16/05/2024	21:05	05:06	14	Dry	Light air

17/05/2024	21:06	05:04	17	Dry	Light air
18/05/2024	21:08	05:01	18	Dry	Light breeze
19/05/2024	21:10	05:00	18	Dry	Light breeze
20/05/2024	21:11	04:59	14	Dry	Light air
20/06/2024	21:41	04:39	18	Dry	Light air
21/06/2024	21:41	04:39	14	Dry	Light breeze
22/06/2024	21:41	04:40	15	Dry	Light air
23/06/2024	21:42	04:40	18	Dry	Light air
24/06/2024	21:42	04:40	20	Dry	Light air
24/07/2024	21:17	05:12	16	Dry	Light breeze
25/07/2024	21:15	05:14	17	Dry	Light breeze
26/07/2024	21:14	05:15	17	Dry	Light breeze
27/07/2024	21:12	05:17	17	Dry	Light air
28/07/2024	21:11	05:18	19	Dry	Light air
14/08/2024	20:38	05:47	16	Dry	Light air
15/08/2024	20:36	05:49	15	Dry	Light breeze
16/08/2024	20:34	05:51	16	Dry	Light breeze
17/08/2024	20:31	05:52	16	Dry	Light breeze
18/08/2024	20:29	05:54	14	Dry	Light air
17/10/2024	18:07	07:40	14	Dry	Light breeze
18/10/2024	18:04	07:42	14	Dry	Light breeze
19/10/2024	18:02	07:44	12	Dry	Light air
20/10/2024	18:00	07:46	15	Dry	Fresh breeze
21/10/2024	17:58	07:47	11	Light rain	Light breeze
22/10/2024	17:56	07:49	12	Dry	Light air

Survey Limitations

Bat surveys are subject to numerous variables. The echolocation calls of species such as brown long-eared bat *Plecotus auritus* are of low amplitude and may not always be picked up on bat detectors. Survey results represent a sample of bat activity during the surveys. It is possible that bats may use the site at other times.

Bat calls cannot always be identified to species level, either due to distant contacts or the similarity between some types of bats. Where this occurs, it is recorded as 'unidentified bat species' (Unid) or will show which bat species it is likely to be (e.g. Pipistrelle sp. / Myotis sp.). Bat calls have been analysed using British Trust for Ornithology (BTO) Acoustic Pipeline before being assessed by a CoBAA ecologist. The auto-analysis has analysed calls to a species level however, this cannot be fully relied upon, particularly for Myotis species.

Direct evidence of use by bats such as deposition of droppings in attic spaces is typically only conspicuous when void dwelling species are present. Cavity dwelling species are often found under roof tiles and in gaps and cavities in walls and potential for these species to be present is assessed by the presence of these features.

Bats use a variety of roosts, ranging from maternity, mating or swarming and hibernation roosts, containing many individuals, to mating or night-time feeding roosts containing few individuals or single animals. Bats also tend to be nomadic (although are faithful to certain favoured roosting sites), spending variable lengths of time in a variety of roosts. Thus, even with considerable survey effort it is possible that small transient roosts of bats may have been missed, although these tend to be less important to bats and so this should not affect the evaluation and recommendations made.

A number of the static detectors did not record for the full 5 nights of survey. Although this is a limitation, it is considered that the number of static detectors across the entire site was in line with

guidance. Furthermore, most of the detectors recorded a full-five night data set in the core activity season and/ or had full data sets from at least three deployments. Therefore, an adequate and large data set was gathered throughout the seasons, and the conclusions of the surveys can be validated.

The weather was optimal during all activity surveys and a high level of confidence is placed on the results.

Assessment of Importance

The bat assemblage was assessed using the assessment methodology in best practice guidance, see **Table A11.2.7** for scoring system. The score is determined based on the species recorded during surveys compared to those known to be present in the region and their relative abundance. This is then compared to the maximum score possible in a region to determine the importance of the bat assemblage.

Manchester is considered as part of Northern England. The use of the northern category also concurs with species distribution patterns as species such as grey long eared *Plecotus austriacus*, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe *Rhinolophus hipposideros* are all absent from the region.

Table A11.2.7- Assessment of Importance for a Bat Assemblage for Northern England - adapted from Reason and Wray, 2023.

Rarity category [points/species]	Northern England	
Widespread all geographies [score 1]	Common pipistrelle <i>Pipistrellus pipistrellus</i> Soprano pipistrelle <i>Pipistrellus pygmaeus</i> Brown long-eared <i>Plecotus auritus</i>	Score 3
Widespread in many geographies, but not as abundant in all [score 2]	Daubenton's bat <i>Myotis daubentonii</i> Natterer's bat <i>Myotis nattereri</i> Whiskered bat <i>Myotis mystacinus</i> Brandt's bat <i>Myotis brandtii</i> Noctule bat <i>Nyctalus noctula</i>	Score 10

Rarer or restricted distribution [score 3]	Alcathoe bat <i>Myotis alcathoe</i> Leisler's bat <i>Nyctalus leisleri</i> Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	Score 9
Rarest Annex II species and very rare [score 4]	N/A	
Thresholds	Maximum	22
County importance threshold: 45%	County	10
Regional importance threshold: 55%	Regional	12
National importance threshold: 70%	National	15

Results

Data Search

The data trawl undertaken as part of the desk study in March 2024 identified three granted European Protected Species (EPS) licences within 2 km of the Assessment Boundary, the closest was 0.22 km northeast, which allows for destruction of resting places for common pipistrelle *Pipistrellus pipistrellus*.

Records received from the Greater Manchester Local Records Centre (GMLRC) returned four records of roosting bats, with the closest being 2.1 km southwest of the Assessment Boundary from 26/04/2017. GMLRC also returned thirty-seven records of bat signs, with the closest being 1.4 km southwest of Assessment Boundary from 30/07/2019, recording evidence of noctule bats *Nyctalus noctula*.

Daytime Bat Walkover

Based on the habitats present, namely; other broadleaved woodland, other neutral grassland, mixed scrub and native hedgerows, and its proximity to wildlife corridors. The Survey Area was assessed as moderate potential to support commuting and foraging bats. Further bat activity survey work included seasonal activity transects (Spring, Summer and Autumn) and monthly static monitoring surveys.

High Level GLTA

Based on aerial imagery and Survey Area walkovers (including bat activity surveys), the woodland blocks (W1-5) do offer roosting potential. Woodland W1 is the largest block of woodland and provides a north-south green corridor through the Application Boundary. W1 also abuts Whittle Brook. Woodland W1 was observed to contain mature trees such as oak, with potential for bat roosting features. Woodland W3 was similar to W1, in respect of size and condition. W3 lies adjacent to Whittle Brook which is considered to be a valuable resource for bats. W3 also contained mature oak, ash, sycamore and aspen which can provide bat roosting features. Aside from the woodlands, there are limited scattered mature trees throughout the Application Boundary. Overall, there is considered to be moderate bat roosting suitability within trees across the Application Boundary, which are largely restricted to the mature woodland blocks.

Building PRA

The site comprised a number of farms with associated residential dwellings and outbuildings. A description of the building complexes together with detail of access points/roosting features, bat roosting category and a photo of each building is shown in **Table A11.2.8** below. Buildings not included in the table below were considered to have negligible potential to support roosting bats.

Table A11.2.8: Description of buildings with bat roosting potential and Emergence Results

Number	Description	Category	Emergence Results	Photograph
B1	The main farmhouse at Thurston Fold Farm. White-washed rendered, stone farmhouse. Relatively new uPVC windows and new roof (not original stone tile roofing). Some minor cracks on rendering on southern gable end and gaps between brickwork on western façade. Internal access into the loft void was gained in 2022. No bat evidence was present.	Low	No emergences	
B2	Large brick barn used for storing farming machinery. Multiple access and egress points with permanently open doors and vents.	High / Confirmed Roost	2x common pipistrelle (16/05/2024) – From roof line.	

B3	A series of corrugated metal sheds, considered negligible due to poor heat profile and high light levels due to exposure.	Negligible	N/A	
B4	Stand-alone corrugated metal shed adjacent to B3. Considered negligible due to poor heat profile and high light levels due to exposure.	Negligible	N/A	

B6	Large brick barn with corrugate metal roof. Multiple access and egress points with permanently open doors and vents. Used for storing farming machinery and haylage/ silage. Only the far western portion of this barn fell within the Proposed Scheme boundary/ accessible areas. Consent was given by Neil Robinson (owner) to survey the barn, for completeness.	Low	No emergences	
B7	A small brick-built bungalow associated with the adjacent farm. Relatively new roof and uPVC windows. Some cracks in brickwork were present on both eastern and western gable-ends.	Low	No emergences	

B9/ B10	A series of corrugated, open-fronted cow sheds. There were cracks and gaps within the internal walls of the open-fronted sheds, with one closed-off section which would potentially provide suitable dark roosting space.	Moderate	No emergences	
B11	A large brick-built barn with slate tiled roof. Multiple access and egress points with permanently open doors and vents. Used for storing farming machinery and haylage/ silage. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	High	No emergences	

B12	A large brick-built farmhouse with slate tiled roof. There were gap between the roof tiles, crack in brickwork and a gap under the barge board on the western façade. Internal access to the loft void was not gained, however, the gaps in tiles and barge board would provide opportunity for a roost of higher conservation status (i.e. maternity roost).	High	No emergences	
B14	A small brick-built barn with slate tiled roof. There were multiple access and egress points with permanently open doors and vents. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	High / Confirmed Roost	1x common pipistrelle (29/08/2024) – From hole in pitch roof	

B15	An old brick-built cow shed with loose and cracking rendering; multiple loose roofing tiles with a large permanently open entrance. Light levels within were considered too high, with poor heat profile to provide a roost of higher conservation status.	Low	No emergences	
B16, B17, B18	A series of open-fronted cow and storage sheds. Poor heat profile due to exposure and high light levels have concluded negligible roosting potential.	Negligible	N/A	

B19	Small enclosed service shed. Linear gap underneath the roofing panel, which would allow access/ egress into the shed/ void.	Low	No emergences	
B21	Brick-built storage barn, used to store haylage/ silage and farming machinery. Multiple access and egress points with permanently open doors and vents. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	Moderate (2022) Upgraded to confirmed/ High in 2024	5x common pipistrelle (03/06/2024) – From 2 locations along ridge	

B22	Brick-built storage barn, used to store haylage/ silage and farming machinery. Multiple access and egress points with permanently open doors and vents. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	Moderate (2022) Upgraded to confirmed/ High in 2024	1x common pipistrelle (08/07/2024) – Hole in the brickwork on the western elevation 1x common pipistrelle (27/08/2024) - Hole in the brickwork on the western elevation	
B23	Brick-built storage barn, used to store haylage/ silage and farming machinery. Open-fronted with no membrane between corrugated roof and underside of roof. Light levels within were considered too high, with poor heat profile to provide a roost of higher conservation status.	Low	No emergences	

				
B24	Abandoned brick-built farmhouse. No glass at upper floor windows and multiple access and egress points with permanently open doors, gaps, cracks and voids. The southern façade comprised slate tiling. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	High / Confirmed Roost	1x common pipistrelle (27/08/2024) – southern, slate tiled facade	

B25	Large brick-built barn, formerly used for storing hay and machinery. There are multiple access and egress points with permanently open doors and vents, with a large section of the northern roof missing/ collapsed. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	Moderate	No emergences	
B32	A large, open-fronted corrugated metal storage shed. Considered to be negligible in 2022, however bat activity was recorded during surveys of adjacent buildings and therefore was ascribed low potential in order to establish potential roost presence or bat foraging activity.	Low	No emergences	

B33	Large, corrugated metal barn/ storage shed. Considered negligible due to poor heat profile and high light levels due to exposure	Negligible	N/A	
B38	Small corrugate lean-to shed, opposite the main farmhouse. Considered negligible due to poor heat profile and high light levels due to exposure.	Negligible	N/A	

B35	Large brick-built barn, formerly used for storing hay and machinery. There are multiple access and egress points with permanently open doors and vents, with open-fronted section. Suitably low light levels and space within the barn to provide opportunity for a roost of higher conservation status (i.e. maternity roost).	Low	No emergences	
B36	Large corrugated metal barn/ storage shed. Considered negligible due to poor heat profile and high light levels due to exposure.	Negligible	N/A	

B37	Farmhouse of Butterfield Farm; newly rendered southern façade with composite slate tiles. Gaps between roofing tiles and gaps on either gable ends. Possibly access and egress points into the roof void, which would provide opportunity for a roost of higher conservation status (i.e. maternity roost).	High / Confirmed Roost	1x common pipistrelle (05/06/2024) – Left side of eastern aspect 4x common pipistrelle (08/07/2024) – Left side of eastern aspect 1x common pipistrelle (29/08/2024) – Left side of eastern aspect	
B39	A small services box associated with the mobile telephone tower. No potential roosting features.	Negligible	N/A	

B48	Gaps between lifted tiles, throughout roof. Cavities formed by the lifted tiles, only large enough to support individual or low numbers of bats. Large gap along wooden bargeboards around all aspects, leading into the stable. Interior of the stables largely unsuitable for roosting bats due to the openness, creating a poor heat profile for roosting. Although wooden frames could form suitable feeding perches	Low	Bat emergence suveys undertaken as part of an individual planning application for the renovation of the barns⁵. No emergence	
B49	Gaps in lifted tiles, the structure did not appear to be vaulted, and therefore gaps could lead to a loft void. Gaps in mortar between brickwork, with some large gaps on the eastern gable-end, potentially leading to an enclosed loft void. Gaps along wooden bargeboards and rotten wooden lintels, which could lead to an enclosed loft void. Overall, the features present could lead to an enclosed loft void which would provide a suitable habitat for larger numbers/ more species of bats.	Moderate	Bat emergence suveys undertaken as part of an individual planning application for the renovation of the barns⁵. 2x common pipistrelle emerged from western gable-end	

⁵ Whitcher Wildlife Ltd; Ecological Consultants: Stock Nook House Barns, Heywood (230746/BAT) 6th September 2023.

B50	Gaps between lifted tiles throughout roof. Cavities formed by the lifted tiles, only large enough to support individual or low numbers of bats. Vaulted within, with no enclosed loft void. Brickwork and mortar in good condition.	Low	Bat emergence suveys undertakne as part of an individual planning application for the renovation of the barns⁵. No emergence	
B51	Gaps between lifted tiles throughout roof. Cavities formed by the lifted tiles, only large enough to support individual or low numbers of bats. Vaulted within, with no enclosed loft void. Gaps and cracks in mortar between brickwork on most aspects of the building. Interior of the stables largely unsuitable for roosting bats due to the openness, with many open doors and windows, creating a poor heat profile for roosting. Although wooden frames could form suitable feeding perches.	Low	Bat emergence suveys undertakne as part of an individual planning application for the renovation of the barns⁵. No emergence	

B53	A large, newly built storage shed, comprising corrugated metal and concrete. Considered negligible due to poor heat profile and high light levels due to exposure.	Negligible	N/A	
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Bat Activity Transects

The results of the manned activity surveys are shown in **Tables A11.2.9 – A11.2.15** below and on Bat Activity Results **Figures 11.5-11.12**. An assessment of the results is presented below.

Low numbers of bat calls were recorded during all surveys. Majority of observed bat activity was recorded along the hedgerows.

Table A11.2.9 – Transect 1 – Activity Survey Results - Pink

Species	Visit 1 May (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	8	11	16	35
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	0	4	4
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long-eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	0	0	0	0
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0
Myotis species <i>Myotis spec.</i>	0	0	0	0
Grand Total	8	11	20	39

Table A11.2.10– Transect 2 – Activity Survey Results - Purple

Species	Visit 1 May (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	24	18	20	62
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	0	0	0
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long-eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	0	1	0	1
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0

Myotis species <i>Myotis spec.</i>	0	0	0	0
Grand Total	24	19	20	62

Table A11.2.11– Transect 3 – Activity Survey Results - Blue

Species	Visit 1 May (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	5	2	0	7
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	3	4	0	7
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	1	2	0	3
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0
Myotis species <i>Myotis spec.</i>	1	0	0	0
Grand Total	10	4	0	17

Table A11.2.12– Transect 4 – Activity Survey Results - Brown

Species	Visit 1 May (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	7	15	1	23
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	1	0	1
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	0	0	0	0
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0
Myotis species <i>Myotis spec.</i>	0	0	0	0

Grand Total	7	16	1	24
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Table A11.2.13– Transect 5 – Activity Survey Results - Yellow

Species	Visit 1 May (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	5	2	16	22
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	1	0	2	3
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	1	0	0	1
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0
Myotis species <i>Myotis spec.</i>	0	0	0	0
Grand Total	7	2	18	26

Table A11.2.14– Transect 6 – Activity Survey Results - Orange

Species	Visit 1 May (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	12	14	3	29
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	0	0	0
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	0	0	0	0
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0
Myotis species <i>Myotis spec.</i>	0	0	0	0
Grand Total	12	14	3	29

Table A11.2.15– Transect 7 – Activity Survey Results - Green

Species	Visit 1 April (Spring)	Visit 2 July (Summer)	Visit 3 September (Autumn)	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	15	25	10	50
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	0	0	0
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	0	0	0	0
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0
Noctule <i>Nyctalus noctula</i>	0	0	0	0
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0
Myotis species <i>Myotis spec.</i>	1	0	0	0
Grand Total	16	25	10	50

Bat Static Results

A summary table for each static per month is shown in **Table A11.2.16 - Table A11.2.27** below and should be read in conjunction with **Figure 11.12**.

Table A11.2.16– Location 1 (53.56878, -2.24859) – Static Survey Results

Species	Visit 1 April	Visit 2 May	Visit 3 June	Visit 4 July	Visit 5 August FAIL	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	26	231	1230	2010			3497
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	0	0	0			0
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	4	11	27	70			112
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0			0
Noctule <i>Nyctalus noctula</i>	0	0	0	1			1
Leisler's Bat <i>Nyctalus leisleri</i>	22	15	23	56			117
Myotis species <i>Myotis spec.</i>	0	0	0	5			5

Grand Total	52	257	1280	2142			3732
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Table A11.2.17– Location 2 (53.56588, -2.24559) – Static Survey Results

Species	Visit 1 April	Visit 2 May	Visit 3 June	Visit 4 July	Visit 5 August	Visit 6 October	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	833	2964	1126	3460	1497	2826	12706
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	6	0	3	0	1	10
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	5	19	24	27	1	6	82
Brown long-eared <i>Plecotus auritus</i>	0	1	0	8	1	0	10
Noctule <i>Nyctalus noctula</i>	0	0	0	1	1	0	2
Leisler's Bat <i>Nyctalus leisleri</i>	0	6	0	0	0	0	6
Myotis species <i>Myotis spec.</i>	1	32	3	56	10	13	115
Grand Total	839	3028	1153	3555	1510	2846	12931

Table A11.2.18– Location 3 (53.56249, -2.24507) – Static Survey Results

Species	Visit 1 April	Visit 2 May	Visit 3 June	Visit 4 July	Visit 5 August	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	2095	1811	1669	1623	1652		8850
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	3	0	1	0	0		4
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	31	14	179	120	37		381
Brown long-eared <i>Plecotus auritus</i>	0	0	0	0	0		0
Noctule <i>Nyctalus noctula</i>	0	0	0	0	10		10
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	1	0	0		1
Myotis species	0	10	8	0	18		36

<i>Myotis spec.</i>							
Grand Total	2129	1835	1858	1743	1717		7539

Table A11.2.19– Location 4 (53.57749, -2.24165) – Static Survey Results

Species	Visit 1 April FAIL	Visit 2 May	Visit 3 June	Visit 4 July FAIL	Visit 5 August FAIL	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>		3201	2856				6057
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		6	2				8
Nathusius pipistrelle <i>Pipistrellus nathusii</i>		59	40				99
Brown long- eared <i>Plecotus auritus</i>		0	0				0
Noctule <i>Nyctalus noctula</i>		2	1				3
Leisler's Bat <i>Nyctalus leisleri</i>		1	0				1
Myotis species <i>Myotis spec.</i>		203	182				385
Grand Total		3472	3081				6553

Table A11.2.20– Location 5 (53.5674, -2.25047) – Static Survey Results

Species	Visit 1 April	Visit 2 May	Visit 3 June	Visit 4 July	Visit 5 August	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	882	8926	8744	10631	1708		30891
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	22	3	9	1		35
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	27	169	317	321	83		917
Brown long- eared <i>Plecotus auritus</i>	0	0	0	0	0		0
Noctule <i>Nyctalus noctula</i>	0	0	1	1	5		7

Leisler's Bat <i>Nyctalus leisleri</i>	3	0	3	1	0		7
Myotis species <i>Myotis spec.</i>	21	389	35	492	71		1008
Grand Total	933	9506	9103	11455	1868		32868

Table A11.2.21– Location 6 (53.56935, -2.25043) – Static Survey Results

Species	Visit 1 April	Visit 2 May	Visit 3 June	Visit 4 July	Visit 5 August	Visit 6 October	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	1423	4506	2761	1855	5322	1064	16931
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0	3	1	3	6	0	13
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	182	84	63	39	79	0	447
Brown long-eared <i>Plecotus auritus</i>	0	1	0	0	1	0	2
Noctule <i>Nyctalus noctula</i>	0	0	2	2	0	0	4
Leisler's Bat <i>Nyctalus leisleri</i>	7	3	0	1	0	0	11
Myotis species <i>Myotis spec.</i>	12	69	104	2	17	0	204
Grand Total	1624	4666	2931	1902	5425	1064	17612

Table A11.2.22– Location 7 (53.57268, -2.25465) – Static Survey Results

Species	Visit 1 April	Visit 2 May FAIL	Visit 3 June	Visit 4 July FAIL	Visit 5 August	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	1254		2148		1655		5057
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0		3		0		3
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	45		12		56		113
Brown long-eared <i>Plecotus auritus</i>	0		0		0		0
Noctule	0		0		0		0

<i>Nyctalus noctula</i>							
Leisler's Bat <i>Nyctalus leisleri</i>	0		0		0		0
Myotis species <i>Myotis spec.</i>	10		8		0		10
Grand Total	1309		2171		1711		5183

Table A11.2.23– Location 8 (53.57116, -2.24802) – Static Survey Results

Species	Visit 1 April	Visit 2 May FAIL	Visit 3 June FAIL	Visit 4 July	Visit 5 August	Visit 6 October	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	381			1165	202	2196	3944
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	0			0	0	3	3
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	19			0	0	8	27
Brown long-eared <i>Plecotus auritus</i>	0			0	0	0	0
Noctule <i>Nyctalus noctula</i>	7			1	0	0	8
Leisler's Bat <i>Nyctalus leisleri</i>	1			0	0	0	1
Myotis species <i>Myotis spec.</i>	3			6	0	32	41
Grand Total	411			1172	202	2239	4024

Table A11.2.24– Location 9 (53.57267, -2.25463) – Static Survey Results

Species	Visit 1 April FAIL	Visit 2 May	Visit 3 June FAIL	Visit 4 July	Visit 5 August	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>		1359		3364	3256		7979
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		0		3	0		3
Nathusius pipistrelle <i>Pipistrellus nathusii</i>		61		22	46		129
Brown long-eared		0		0	0		0

<i>Plecotus auritus</i>							
Noctule <i>Nyctalus noctula</i>		0		2	1		3
Leisler's Bat <i>Nyctalus leisleri</i>		1		0	0		1
Myotis species <i>Myotis spec.</i>		5		15	8		28
Grand Total		1426		3406	3311		4832

Table A11.2.25– Location 10 (53 53.5697, -2.26181) – Static Survey Results

Species	Visit 1 April FAIL	Visit 2 May	Visit 3 June FAIL	Visit 4 July	Visit 5 August	Visit 6 October	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>		854		1181	1240	957	4232
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		0		2	0	0	2
Nathusius pipistrelle <i>Pipistrellus nathusii</i>		0		210	56	21	287
Brown long-eared <i>Plecotus auritus</i>		0		0	0	0	0
Noctule <i>Nyctalus noctula</i>		0		0	0	0	0
Leisler's Bat <i>Nyctalus leisleri</i>		0		0	0	0	0
Myotis species <i>Myotis spec.</i>		0		2	0	0	2
Grand Total		854		1395	1296	978	4523

Table A11.2.26– Location 11 (53.5679, -2.25807) – Static Survey Results

Species	Visit 1 April FAIL	Visit 2 May	Visit 3 June FAIL	Visit 4 July FAIL	Visit 5 August FAIL	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>		442					442
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>		0					0
Nathusius pipistrelle		40					40

<i>Pipistrellus nathusii</i>							
Brown long-eared <i>Plecotus auritus</i>		5					5
Noctule <i>Nyctalus noctula</i>		0					0
Leisler's Bat <i>Nyctalus leisleri</i>		0					0
Myotis species <i>Myotis spec.</i>		11					11
Grand Total		498					498

Table A11.2.27– Location 12 (53.57163, -2.23338) – Static Survey Results

Species	Visit 1 April	Visit 2 May	Visit 3 June	Visit 4 July	Visit 5 August	Visit 6 October FAIL	Total
Common pipistrelle <i>Pipistrellus pipistrellus</i>	6965	1214	2855	5130	11116		27280
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	3	1	10	9	0		23
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	469	55	42	152	0		718
Brown long-eared <i>Plecotus auritus</i>	0	0	0	0	0		0
Noctule <i>Nyctalus noctula</i>	0	0	0	0	0		0
Leisler's Bat <i>Nyctalus leisleri</i>	0	0	0	0	0		0
Myotis species <i>Myotis spec.</i>	165	21	148	55	120		509
Grand Total	7602	1291	3055	5346	11236		28530

Assessment of Importance

The score for the Survey Area based on the bat species recorded during the activity transects and static monitoring is presented in **Table A11.2.28** below.

The score achieved based on the species recorded during the survey and their relative abundance in the region, in this case the 'Northern England'. The species recorded did not meet the importance threshold for National importance (score of 15). Based on the species present, activity recorded during transects and overall score achieved, the assemblage of bats is considered to be of Regional ecological importance (threshold score of 12 – 14).

Table A11.2.28- Summary of bat species recorded and scoring system for assessing importance of bat assemblage.

Species Recorded	Relative abundance	Score
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Widespread	1
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	Widespread	1
Nathusius pipistrelle <i>Pipistrellus nathusii</i>	Rare or restricted distribution	3
Brown long-eared <i>Plecotus auritus</i>	Widespread	1
Noctule <i>Nyctalus noctula</i>	Widespread but not as abundant	2
Leisler's Bat <i>Nyctalus leisleri</i>	Rare or restricted distribution	3
Myotis species <i>Myotis spec.</i>	Widespread but not as abundant	2
Total Score		13

The static location in which the most passes were recorded was Location 5, which had a total of 32,868 recordings of bat passes. This location is situated centrally in the Survey Area adjacent to a well-established line of trees/hedgerow, as well as being in close proximity to three ponds and an area of rough grassland. The central location of the Survey Area means this location is far from noise and light pollution, and the hedgerows and trees provide a well-established corridor for commuting bats. In addition to this, the presence of ponds and rough grassland provide some suitable habitat for insects, thus providing good foraging opportunities for commuting bats.

Locations 6 and 12 also yielded a high number of bat passes. This is likely because they share some of the suitable qualities for bats displayed by location 5. Location 6 is situated along a hedgerow in the central area of the Survey Area far from any light/noise pollution, and location 12 is situated on a well-established field boundary, and therefore offers good habitat for commuting/foraging bats.

The static detector results have shown that common and widespread bat species (common and soprano pipistrelle) comprised the vast majority of bat passes, accounting for 99.33% of the overall species recorded within the Survey Area.

The walked transect results provided largely similar results to the static deployments; Transect 2 (**Figure 11.12**) recorded the highest number of bat passes, however this was a relatively low number of 62 combined bat passes for all three surveys. Transect 2 is located towards the north of the Survey Area and comprises areas of neutral/ rough grassland, hedgerows and trees which are considered to provide suitable foraging and commuting habitat.

Transect 7 recorded the next highest amount of bat passes with 50 combined for all three surveys. This Transect follows the southern edge of both Castle and Whittle Brook, which are both considered to be suitable foraging and commuting habitats.

As with the static detectors, the overwhelming majority of recordings during the walked transects were from common pipistrelle, accounting for all of the recordings at Transect 6 and Transect 7 and accounting for over 97% for the remaining five Transects.

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