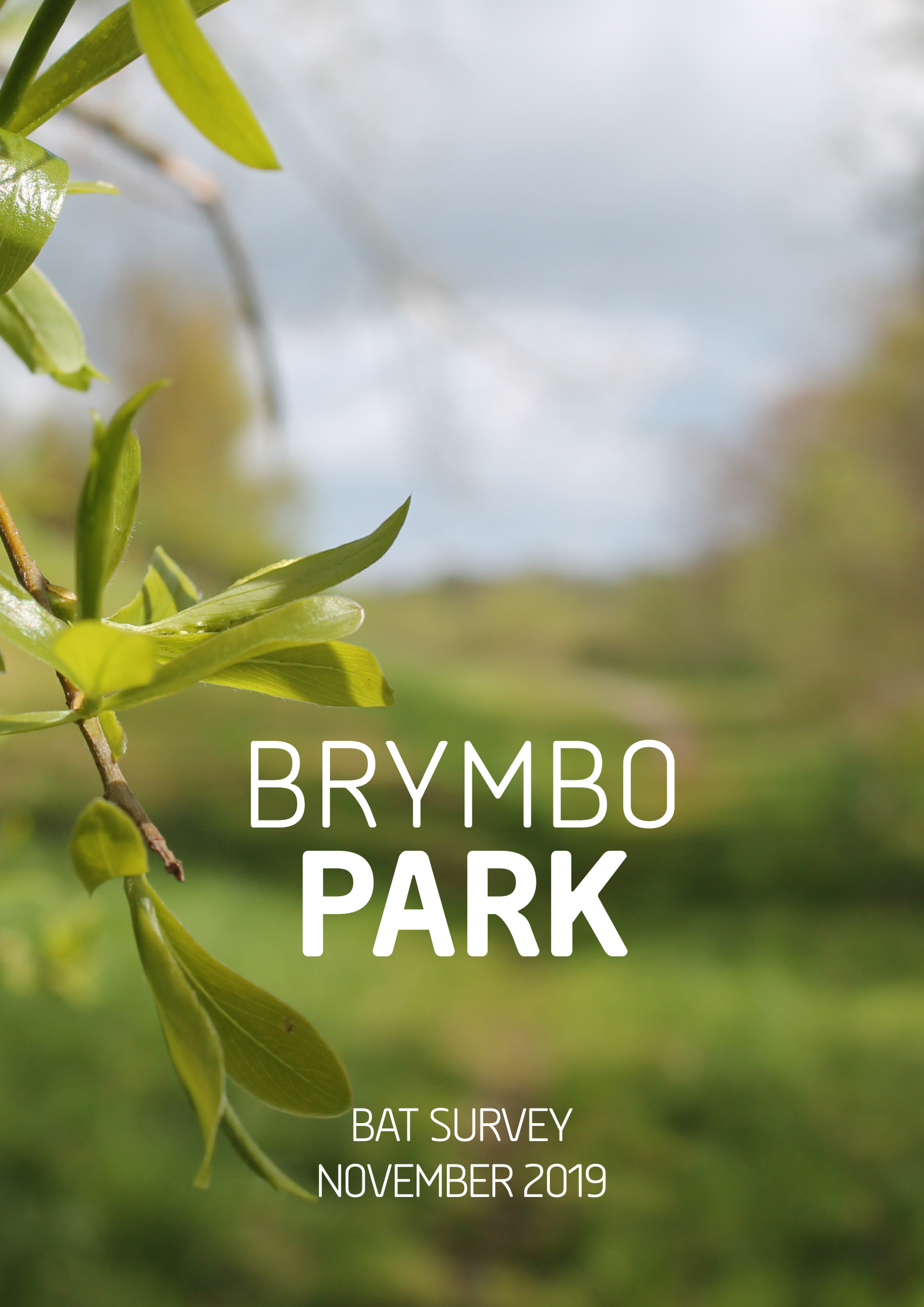




BRYMBO **PARK**

BAT SURVEY
NOVEMBER 2019

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BRYMBO DEVELOPMENTS LTD

LAND AT THE FORMER BRYMBO STEELWORKS, BRYMBO, WREXHAM

OCTOBER 2019

PREPARED BY:

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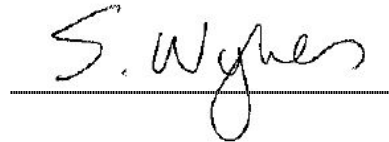
Ecologist



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APPENDICES

Appendix 1 Legislation and Policy Summary

DRAWINGS TITLE

ST16882-038 Bat Activity Survey Results

1 INTRODUCTION

1.1 Terms of Reference

1.1.1 Wardell Armstrong LLP (WA) was commissioned by Brymbo Developments Ltd to undertake bat surveys at the former Brymbo Steelworks, Brymbo, Wrexham, hereafter referred to as 'the Site' (approximate central Ordnance Survey grid reference SJ296534).

1.1.2 This report has been produced with reference to the current guidelines for bat surveys (Collins, 2016).

1.2 Survey Area Context

1.2.1 The Site forms part of the wider land holding associated with the former Brymbo Steelworks, some of which has already been significantly redeveloped. The Site covers an area of approximately 32.59 hectares of former industrial land which has been remediated and regraded, formed of two distinct areas separated by a steeply sloping bank.

1.2.2 The uppermost area is known as Ty Cerrig, forming the western part of the Site. Ty Cerrig has been returned to open fields separated by hedgerows. The bank which separates the areas has been planted with woodland and has an extensive network of informal footpaths running across. This part of the Site is accessed from Brymbo Road.

1.2.3 The eastern part of the Site is separated from the west by Phoenix Drive. This area has been regraded into a plateau which sits lower than the western parcel and has significantly less vegetative cover.

1.3 Objectives

1.3.1 The objectives of the bat survey were to:

- i) determine the likely presence/absence of bats and their roosts,
- ii) assess the conservation value of the site for bats,
- iii) determine likely impacts of the proposed development upon bats;
- iv) inform whether a European Protected Species Licence is required; and
- v) inform appropriate mitigation measures.

1.4 Legislative Framework

- 1.4.1 In Great Britain, all bat species and their roosts are fully protected under the Wildlife and Countryside Act 1981 (as amended) and also included as European Protected Species in the Conservation of Habitats and Species (Amendment) Regulations 2012 (which implements the EC Habitats and Species Directive).
- 1.4.2 The legislation makes it illegal to damage, obstruct or destroy bat roosts or disturb bats whilst occupying their roost. A roost is protected whether or not bats are present. A licence is required from Natural England to disturb or close a roost site.
- 1.4.3 A summary of legislation and policy surrounding bats is provided in Appendix 1.

1.5 Nomenclature

- 1.5.1 All flora and fauna names following the National Biodiversity Network (NBN) Gateway (NBN, 2013). The common and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter.

1.6 Quality Assurance & Environmental Management

- 1.6.1 The surveys and assessments have been overseen by and the report checked and verified by a member of CIEEM, whom is bound by its code of professional conduct.
- 1.6.2 All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020, and as stated within specialist guidance, as appropriate and referenced separately.

2 METHODOLOGY

2.1 Desk Study & Consultation

2.1.1 The desktop study was informed by review of existing available information provided by Cofnod (North Wales Environmental Information Service) and from available internet-based resources for a 2km search radius and from the Site boundary. OS and satellite mapping was also used to gain contextual habitat information.

2.1.2 Specific information was sought for:

- Statutory designated sites;
- Locally designated sites;
- Ancient woodland¹;
- Protected and priority species;
- s.41 habitats and species;
- Local Biodiversity Action Plan (LBAP) priority habitats and species.

2.2 Field Survey

2.2.1 All survey methodologies followed guidance within the *Bat Workers' Manual* (Joint Nature Conservation Committee, 2004) and *Bat Surveys for Professional Ecologists - Good Practice Guidelines 3rd Edition* (Collins, 2016).

2.3 Bat Transect Surveys

2.3.1 Bat activity transects were undertaken at dusk on the 15th April, 13th May, 19th June, 9th July 2019 and 10th September, by suitably qualified ecologists. The surveys were undertaken in the evening from sunset for a minimum of 2 hours after sunset.

2.3.2 One dusk and pre-dawn activity was undertaken on 5th-6th August 2019. The dusk survey began at sunset for a minimum of 2 hours afterwards, and the pre-dawn survey began 2 hours prior to sunrise and finished at sunrise.

2.3.3 During each survey, a bat activity transect was walked within the Site in order to assess levels of bat activity across a temporal and spatial survey period. The transect route taken, and bat activity recorded during the surveys are shown on Drawing ST16882-038.

¹ As defined by Natural England on their Inventory of Ancient Woodlands

- 2.3.4 The transect was walked at a steady pace, stopping at predetermined intervals (point counts) for five minutes at a time. These locations were evenly distributed in distance and covered all of the habitats within the Site.
- 2.3.5 Species identification was made on the basis of the characteristics of the call including peak frequency, minimum and maximum frequency, call duration and inter pulse intervals. Where possible, flight characteristics and foraging behaviour of individual bats were also used to aid in species identification.
- 2.3.6 The weather conditions recorded during the surveys are shown in Table 1.

Table 1: Bat Activity Transect Weather Conditions								
Date	15 th April 2019		13 th May 2019		19 th June 2019		9 th July 2019	
Sunset/Sunrise	20:11		21:01		21:42		21:37	
	Start	End	Start	End	Start	End	Start	End
Time	20:11	22:40	21:01	23:18	21:42	00:30	21:37	23:51
Temperature	11°C	8°C	13°C	9°C	14°C	11°C	16°C	15°C
Cloud Cover	4/8	6/8	0/8	0/8	6/8	5/8	7/8	8/8
Wind	F1	F1	F2	F1	F2	F2	F1	F2
Precipitation	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Date	5 th August 2019		6 th August 2019		10 th September 2019			
Sunset/Sunrise	21:00		05:37		19:41			
	Start	End	Start	End	Start	End		
Time	21:00	23:35	03:37	05:37	19:41	21:53		
Temperature	15°C	14°C	13°C	14°C	13°C	13°C		
Cloud Cover	1/8	1/8	1/8	2/8	8/8	8/8		
Wind	F4	F2	F3	F2	F3	F3		
Precipitation	Dry	Light Rain	Dry	Dry	Dry	Showers		

2.4 Automated Detector Survey

- 2.4.1 During each survey, three SongMeter2 (SM2) detectors were deployed within the Site; one on the eastern plateau (Location 1), and two along hedgerows to the western part of the site (Location 2 and Location 3) (Drawing Number ST16882-038).
- 2.4.2 The detectors remained in situ for a minimum of five nights after each deployment. The detectors recorded for up to 11 hours per night, programmed to start 30 minutes prior to sunset and finishing 30 minutes after sunrise. Static detector deployment nights are given in Table 2. For data analysis purposes, the first five full nights of recording were analysed.

Table 2. SM2 Recording Nights							
Location	Total number of nights recording	Dates					
		Deployment 1	Deployment 2	Deployment 3	Deployment 4	Deployment 5	Deployment 6
1	27	15/4/19-23/4/19	13/5/19-20/5/19	Did not Deploy	9/7/19-15/7/19	Did not Deploy	11/9/19-16/9/19
2	40	15/4/19-23/4/19	13/5/19-20/5/19	19/6/19-25/6/19	9/7/19-15/7/19	5/8/19-12/8/19	11/9/19-16/9/19
3	40	15/4/19-23/4/19	13/5/19-20/5/19	19/6/19-25/6/19	9/7/19-15/7/19	5/8/19-12/8/19	11/9/19-16/9/19

2.4.3 Weather conditions across the automated static detector deployment nights were as follows:

Deployment 1 (15th April – 23rd April)

Warm and dry for the whole period of deployment with night time temperatures averaging 9.75°C, dropping to a low of 6°C on the night of the 15th-16th April. The strongest winds were recorded on the night of the 15th-16th April with a SE wind of 15mph.

Deployment 2 (13th May – 20th May)

Dry and settled at start of period with some cloud and showers towards the end. Nightly temperatures averaged 8°C with lows of 6°C on the nights of the 13th-14th May. The strongest winds of 12mph were recorded towards the end of the period.

Deployment 3 (19th June – 25th June)

Warm and sunny for the most part with rain towards the end of the deployment period. Nightly temperatures averaged 13.5°C with lows of 11°C reached on the first night. The strongest winds of 12mph were recorded towards the end of the period

Deployment 4 (9th July – 15th July)

Warm and dry for the duration of the deployment period, with an average nightly temperature of 16.6°C and a low of 12°C reached on the morning of the 15th July. The strongest winds of 12mph were recorded on the night of the 12th July.

Deployment 5 (5th August – 12th August)

Weather was dry towards the beginning of the deployment with some rain and storms between the 9th-11th August. The average nightly temperature was 15.4°C reaching a low of 13°C on the morning of the 8th August. Windspeeds of 19mph were reached on the night of the 10th.

Deployment 6 (11th – 16th September)

Weather was dry during three nights, with some rain seen on the night of the 12th and 15th September. The average nightly temperature was 12°C reaching a low of 8.5°C on the night of 13th September. Windspeeds of 7.7mph were reached on the night of 12th September.

2.5 Data Analysis

- 2.5.1 Data was recorded in the field using the iPad Wildlife Acoustics' EchoMeter and EchoMeter Touch Ultrasonic Modules, which were analysed on-site using the on-screen spectrogram and ID program. Subsequent analysis was completed using Wildlife Acoustics' Kaleidoscope (Version: 5.0, 2018) and AnalookW analysis software (Version: 4.2n, 2017) to confirm identification of bat species recorded in the field.
- 2.5.2 Recordings from the static detectors were analysed using AnalookW and then Wildlife Acoustics' Kaleidoscope Pro 4[®] software exported to Microsoft Excel[®] for detailed analysis.
- 2.5.3 The data collected was used to assess:
- Species present within the site;
 - Location of species recorded; and
 - Bat activity levels for individual species at each SM2 location.

2.6 Caveats and Limitations

- 2.6.1 Ecological surveys are limited by factors that affect species presence such as time of year, weather, migration patterns and behaviour. The surveys were undertaken between April and October which are within the 'optimal' survey period for bats and consequently there were no constraints to the survey.
- 2.6.2 The absence of desk study records has not been relied upon to infer absence of a species/habitat. Often, the absence of records is a result of under-recording within the given search area.
- 2.6.3 Echolocation calls of the brown long-eared bats are significantly quieter than many other bat species within this country, therefore this species can be difficult to record and may at times go unrecorded.

- 2.6.4 Individual species from the genera *Myotis* and *Nyctalus* are difficult to distinguish from sonogram calls alone. Where an individual species cannot be determined, a genus is recorded.
- 2.6.5 During visit 3 and 5, the SM2 detector at Location 1 failed to record, however, Location 1 showed the least bat activity throughout the transect and automated surveys, so is not thought to be a major foraging or commuting route within the Site. Additionally, automated detectors recorded bat activity at this location during April, May, July and September, so it is therefore considered that the failure of these detectors did not adversely impact the conclusions of this report.

3 RESULTS

3.1 Desk Study

3.1.1 The ecological desk study revealed records of bats within a 2km radius, comprising of the following species/genera:

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Daubenton's *Myotis daubentonii*;
- Lesser horseshoe *Rhinolophus hipposideros*;
- Noctule *Nyctalus noctule*;
- Unidentified pipistrelle *Pipistrellus spp.*;
- Unidentified bat *Chiroptera spp.*;
- Whiskered bat *Myotis mystacinus*.

3.1.2 These records include both flight records and roosting records.

3.1.3 Most notably, due to their status as an Annex II species in the Habitats Directive, there are two confirmed lesser horseshoe roosts located 1650m south and 1775m south of the site.

3.2 Bat Transect Survey

Visit one (15th April 2019)

3.2.1 A total of 10 bat passes were recorded during this survey, which consisted of nine common pipistrelle and one lesser horseshoe.

3.2.2 The first bat recorded was a common pipistrelle, recorded at 20:39hrs, 28 minutes after sunset commuting west along a hedgerow. The final bats recorded were two common pipistrelle recorded at 21:15hrs foraging along a hedgerow with repeated passes.

3.2.3 A lesser horseshoe pass was recorded at 20:59hrs close to a small patch of woodland to the south of the Site.

3.2.4 A maximum of two bats were recorded at any one time. Bat activity was recorded only towards the beginning of the survey, within Ty Cerrig. No activity was recorded on the

eastern plateau. Both commuting and foraging activity was recorded, along hedgerow and woodland edges.

Visit Two (13th May 2019)

- 3.2.5 A total of 17 bat passes were recorded during this survey, consisting of 15 common pipistrelle, one soprano pipistrelle and one noctule.
- 3.2.6 The first bat recorded was a common pipistrelle, recorded at 21:34hrs, 33 minutes after sunset near scrub on the eastern plateau. The final bats recorded were a common pipistrelle and a noctule recorded at 23:18hrs commuting towards the north of the Site close to the Brymbo Heritage Project site.
- 3.2.7 A maximum of two bats were recorded at any one time. Bat activity was recorded throughout the survey, both within Ty Cerrig and on the eastern plateau, although most activity was concentrated around hedgerow and woodland edges within Ty Cerrig. Both commuting and foraging activity was recorded.

Visit Three (19th June 2019)

- 3.2.8 A total of 10 bat passes were recorded during this survey, which consisted of six common pipistrelle, two noctule and one *Myotis* spp.
- 3.2.9 The first bat recorded was a common pipistrelle, recorded at 22:24hrs, 42 minutes after sunset. This bat was displaying constant foraging activity along a hedgerow on the eastern grassland habitat. The final bat recorded was a common pipistrelle recorded at 23:18hrs foraging near a small area of mixed plantation woodland close to Phoenix Drive, through the middle of the Site.
- 3.2.10 A maximum of three bats were recorded at any one time. Bat activity was mostly concentrated around the midpoint of the survey, and all activity was recorded within Ty Cerrig with no activity recorded on the eastern plateau. Most activity was foraging recorded along hedgerow and woodland edges.

Visit Four (9th July 2019)

- 3.2.11 A total of 15 bat passes were recorded during this survey, which consisted of 11 common pipistrelle, two noctule and two soprano pipistrelle.
- 3.2.12 The first bat recorded was a noctule, recorded at 22:09hrs, 32 minutes after sunset on the eastern plateau commuting south-east. The final bat recorded was a common pipistrelle recorded at 23:36hrs passing close to a hedgerow within Ty Cerrig.

3.2.13 Two soprano pipistrelle were recorded displaying foraging behaviour at 22:53hrs and 23:11hrs close to hedgerow and mixed plantation woodland in the middle of the Ty Cerrig.

3.2.14 A maximum of three bats were recorded at any one time. Bat activity was recorded throughout the duration of the survey, on both Ty Cerrig and on the eastern plateau. Activity on the plateau was restricted to the south-eastern corner of the site close to the residential area. Both commuting and foraging activity was recorded, primarily along hedgerow and woodland edges.

Visit Five (5th August 2019)

3.2.15 A total of 18 bat passes were recorded during this survey, which consisted of 14 common pipistrelle, one noctule and three *Myotis* spp.

3.2.16 The first recorded bat was a common pipistrelle, recorded at 21:30hrs, 30 minutes after sunset on the grassland within Ty Cerrig, close to the woodland edge. The final bat recorded was another common pipistrelle recorded at 23:22hrs passing along a hedgerow, again on Ty Cerrig.

3.2.17 Some *Myotis* spp. activity was picked up at 22:00hrs, 22:14hrs and 23:03hrs. Two of these were recorded close to woodland edges of Ty Cerrig and one was recorded passing to the north of the eastern plateau.

3.2.18 A maximum of two bats were recorded at any one time. Bat activity was recorded throughout the survey on both the eastern and western areas of the Site, although activity on the eastern plateau was restricted to the northernmost point close to a patch of broadleaved woodland.

Visit Six (6th August 2019) Dawn

3.2.19 Visit six was a pre-dawn survey following a dusk survey the previous night.

3.2.20 A total of nine bat passes were recorded during this survey, consisting of five common pipistrelle, two noctule and two *Myotis* spp.

3.2.21 The first recorded bat was a *Myotis* spp., recorded at 03:43, 1 hour and 54 minutes before sunrise, which was heard but not seen. This bat was recorded at the edge of the broadleaved woodland at the centre of the Site, at the eastern boundary of Ty Cerrig. The final bat recorded was a common pipistrelle, recorded at 04:58, which was also heard but not seen. This bat was recorded at the north western boundary of Ty Cerrig, at the edge of the broadleaved woodland bordering the Site.

3.2.22 A maximum of two bats were recorded at any one time. Bat activity was recorded throughout the survey, although levels of activity were generally low. Activity was recorded both in Ty Cerrig and the eastern plateau, although activity here was restricted to the northernmost point close to the edge of broadleaved woodland.

Visit Seven (10th September 2019)

3.2.23 A total of 12 bat passes were recorded during this survey, which consisted of nine common pipistrelle and three soprano pipistrelle.

3.2.24 The first recorded bat was a common pipistrelle at 20:10hrs, 29 minutes after sunset, foraging at the south eastern boundary of the Site, at the edge of the grassland bordering the Site. The final bat recorded was a common pipistrelle at 21:40, 1 hour and 59 minutes after sunset, foraging and social calling within the improved grassland on the north western boundary of the Site.

3.2.25 A maximum of two bats were recorded at any one time. Bat activity was recorded throughout the survey, although levels of activity were generally low. Activity was mostly concentrated on Ty Cerrig associated with the hedgerows and edges of broadleaved woodland. Activity on the eastern plateau was restricted to the single foraging bat recorded at 20:10hrs.

3.3 Summary of Transect Surveys

3.3.1 Dusk activity surveys were undertaken in April, May, June, July and September, as well as a consecutive dusk/dawn survey in August.

3.3.2 During the transect surveys, common pipistrelle was the most frequently encountered bat which was recorded in the western side of the Site, foraging along the eastern hedgerows and plantation woodland. Some commuting was also recorded along these habitat edges. Common pipistrelle was recorded in low numbers, typically only one or two bats being recorded at once.

3.3.3 The transect surveys also recorded low numbers of soprano pipistrelle, noctule and *Myotis* spp. Soprano pipistrelle encounters mostly comprised of a single pass, with the bats heard not seen, indicating commuting over the hedgerow at the southern boundary of the Site. A single soprano pipistrelle was recorded foraging at a hedgerow in the south eastern boundary during the July transect. Noctule encounters were mostly comprised of a single pass, indicating a high overhead commuting pass, over hedgerows at the south eastern boundary of the Site, and at northern boundary of the Site over mature trees. Noctule were also recorded foraging twice during the June

transect within hedgerows within the southern section of the Site. Individuals of *Myotis* spp. were recorded commuting along hedgerows at the centre of the Site and at the south eastern boundary. These encounters comprised single passes, with the bats heard not seen. One individual of unidentified *Myotis* spp. was recorded foraging along hedgerows in the south east of the Site during the June transect.

- 3.3.4 During the April transect, lesser horseshoe, an Annex II species, was recorded. The encounter was a single bat pass, with the bat heard not seen, indicating a commuting pass near the woodland edge on the south eastern boundary of the site.
- 3.3.5 Common pipistrelle was the first recorded bat during the April, May, June and August dusk transect surveys, with closest to sunset being 28 minutes after sunset during the April transect. A noctule was the first recorded bat during the July transect, 32 minutes after sunset. No bats were recorded within 30 minutes of sunrise during the August dawn survey.

3.4 Automated Surveys

- 3.4.1 A total of eight species/genera were recorded by the automated static detectors. In order of the most to least frequent, the bat passes recorded by the automated static detectors were of the following species/genera:
- Common pipistrelle;
 - Soprano pipistrelle;
 - *Myotis* spp;
 - Noctule;
 - Lesser horseshoe;
 - Leisler's;
 - Serotine; and
 - Brown long-eared
- 3.4.2 The number of bat passes recorded each and the percentage of individual species are provided in Table 3 and illustrated in Chart 1.

Table 3: Total number of passes per species per location

Location	Passes	Common pipistrelle	Soprano pipistrelle	<i>Myotis</i> spp	Noctule	Lesser horseshoe	Leisler's	Serotine	Brown long-eared	Total
1	Total no. of passes	192	9	7	39	1	0	0	1	249
2	Total no. of passes	8423	217	446	31	62	0	0	5	9184
3	Total no. of passes	2531	193	261	212	6	2	2	4	3211

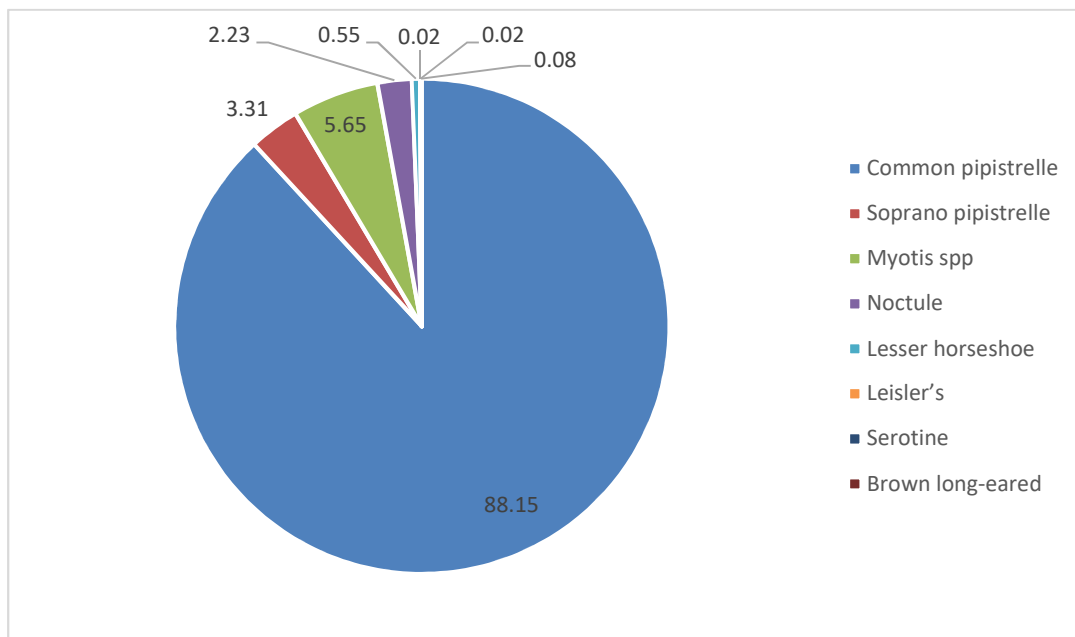


Chart 1 Percentage of passes recorded per species

3.4.3 Common pipistrelle was the most frequently recorded species by the static automatic detectors, accounting for 88% of bat calls recorded across the survey period. *Myotis spp.* were the second most recorded genera, accounting for 6% of the calls recorded. Soprano pipistrelle was the third most recorded species, accounting for 3% of calls recorded. The least frequently recorded species were serotine and Leisler's, both of which were only recorded twice across the survey period.

3.4.4 A total of 69 lesser horseshoe passes were recorded by automated detectors; the majority (62 passes) recorded at Location 2. Six passes were recorded at Location 3, and one pass was recorded at Location 1.

3.4.5 Location 2 saw the highest level of bat activity across the Site, with 73% of the bat calls recorded during the survey period recorded in this location. Location 3 had the second

highest recorded number of bat calls, with 25% of calls recorded in this location. Where the deployment of the automated detectors was successful in Location 1, this location had much less activity recorded than the other two locations.

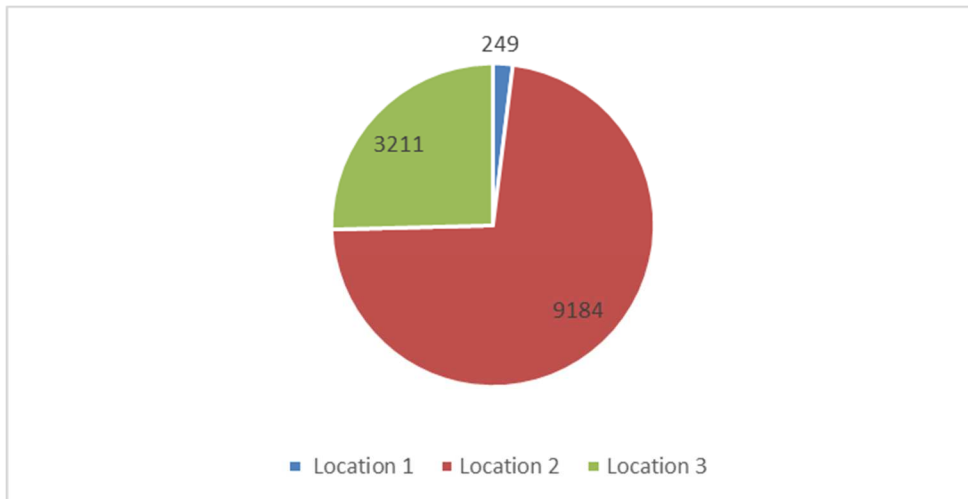


Chart 2: Number of passes per location during survey period

3.4.6 Bat Activity Index figures have been calculated as the average number of bat calls per night and per hour throughout each survey period and these are provided in Table 4, with the average number of bat calls per species per night and per hour provided in Table 5.

Table 4: Average Bat Passes per Hour and Per Night		
SM2 Location	Bat passes per night	Bat passes per hour
1	9	0.99
2	230	27.2
3	81	9.6

Table 5: Average Bat Passes Per Deployment Period		
Month	Bat passes per night	Bat passes per hour
April	276	29.2
May	182	22.5
June	523	74.1
July	424	58.2
August	699	81.9
September	336	30.2

3.4.7 A number of bat passes were recorded within 30 minutes of sunset and sunrise across the survey period, indicating nearby roosting sites. Common pipistrelle was recorded within 30 minutes of sunset and sunrise in all locations in May and within 30 minutes of sunset in Locations 1 and 2 in April, Locations 2 and 3 in June and Location 3 in July, August and September. Noctule were recorded within 30 minutes of sunset in all locations in June, Location 1 in July and September and Location 2 in April. Soprano pipistrelle were recorded within 30 minutes of sunset and sunrise in Location 3 in May and within 30 minutes of sunset in August and September.

3.4.8 Lesser horseshoe was recorded in June in Location 2 at 22:11, 30 minutes after sunset and again at Location 2 at 21:24, 24 minutes after sunset in August.

3.5 Summary of Automated Surveys

3.5.1 A total of eight species/genera were recorded by the automated static detectors, with Bat Activity Index figures indicating that common pipistrelle are at the highest risk of adverse impacts due to development, with 88% of all calls being common pipistrelle.

3.5.2 However, lesser horseshoe, an Annex II species, was recorded on a number of occasions across all locations, with 0.5% of calls recorded being lesser horseshoe.

3.5.3 Overall, activity levels of bats across the Site were low, though eight different species/genera were recorded across the Site, serotine, Leisler's and brown long-eared were recorded in only very small numbers across the survey periods.

3.5.4 Location 2 saw the highest levels of bat activity across the survey period, with Location 1 seeing the least activity.

3.5.5 Activity levels varied throughout the survey period, with less bat passes recorded in September than the other deployment periods.

4 DISCUSSION AND RECOMMENDATIONS

- 4.1.1 Ty Cerrig had the highest recorded levels of bat activity within the Site, with comparatively much reduced bat activity being recorded on the eastern side of the Site.
- 4.1.2 Bats were making use of the hedgerows and plantation woodland edges to both forage and commute.
- 4.1.3 Common pipistrelle are considered to regularly use the Site, both for foraging and commuting, with comparatively much reduced activity levels recorded for other bat species.
- 4.1.4 Transect surveys confirmed that activity was largely by one or two bats at any one time and that the Site did not appear to support large numbers of foraging or commuting bats.
- 4.1.5 Across the survey period, lesser horseshoe was recorded by the static automatic detectors in all locations as single, solitary passes, indicating commuting passes along the hedgerows and woodland edges bordering and within the Site. Based on the activity recorded, the Site is not considered an important area to support nearby maternity roosts of this species and is only used by a few individuals infrequently for commuting.
- 4.1.6 During both the transect surveys and automated detector surveys, recordings were made within the expected emergence and re-entry times (within half an hour of sunrise/sunset) of common pipistrelle, soprano pipistrelle and noctule. This suggests that roosts for these species are in the near vicinity. The adjacent habitats and wider environs to the survey area contain suitable habitat for roosting bats including areas of woodland with trees that are of a sufficient age and stature to support roosts, as well as buildings to support *Pipistrellus* spp.
- 4.1.7 The features recorded being most frequently used by bats, namely hedgerows and plantation woodland edges, are in the most part, being retained as part of development proposals. These features were largely used by common pipistrelle which is the commonest bat species in the UK and which will readily use open space, soft landscaped areas and gardens for foraging and commuting.
- 4.1.8 On Ty Cerrig, hedgerows and woodland edges are shown as incorporated into POS, and these, together with the substantial areas of POS to be incorporated into the scheme, will ensure that bats will continue to utilise the Site, post development.

4.1.9 The following recommendation should be taken into account to ensure bat species continue to utilise the Site post development, and to promote high quality habitat suitable to support foraging and commuting bats:

- 1) Areas of open space within the proposed development should incorporate semi-natural habitats planted with native species that are known to occur naturally in the local area and managed so as to promote both structural and species diversity.
- 2) A sensitive lighting scheme for the site should be implemented so as to avoid high levels of lighting or unnecessary lighting that illuminates the site boundaries. This is particularly important for the Ty Cerrig area of the Site, where most bat activity was recorded. A bat lighting scheme could include use of warm-white LEDs and directional, full cut off lights, or cowls/hoods.
- 3) New lengths of species-rich native hedgerow and/or plantation woodland should be planted to provide increased foraging and commuting habitat for bats.

4.1.10 The erection of bat boxes and bird nest boxes within the areas of retained woodland would provide increased roosting and nesting opportunities for local bat and bird populations

5 CONCLUSION

- 5.1.1 With the retention of the majority of linear habitat features currently present on the Site, and the provision of mitigation measures in the form of native planting, sensitive lighting and new areas of public open space, it is considered that the development will not deleteriously affect the conservation status of local bat populations. Indeed, with the replacement of intensively managed grassland with residential development incorporating gardens, large areas of semi-natural open space and landscaping, it is considered that the proposed development would provide enhanced habitat for local bat populations.

6 REFERENCES

Bat Conservation Trust website for bat population figures:

<http://www.bats.org.uk/pages/nbmp.html>

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Joint Nature Conservation Committee, *Handbook for Phase 1 habitat survey: A technique for environmental audit* (2007), English Field Unit, Nature Conservancy Council.

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

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Appendix 1

Legislation and Policy Summary

Appendix 1 Legislation and Policy Summary

All bat species are listed within Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and receive protection under section 9 of this act. They are also protected under section 39 of the Conservation (Natural Habitats, &c.) Regulations 1997 (and amendments) (known as the Habitats Regulations). Taken together the following offences apply under the combined acts:

Regulation 41 of the Habitats Regulations 2012, states that a person commits an offence if they:

- Deliberately or intentionally capture, injure or kill a bat;
- Intentionally or recklessly damage, destroy or obstruct access to; any structure or place used for shelter or protection by a bat;
- deliberately, intentionally or recklessly disturb a bat;
- damage or destroy a breeding site or resting place of a bat; or
- keep, transport, sell, exchange or offer for sale any bat(s) or anything derived from this species.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on public bodies to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. These lists supersede Section 74 of the CRow Act 2000.

The United Kingdom Biodiversity Action Plan (UK BAP) first published in 1994 and updated in 2007, is a Government initiative designed to implement the requirements of the Convention of Biological Diversity to conserve and enhance species and habitats. The UK BAP contains a list of priority habitats and species of conservation concern in the UK, and outlines biodiversity initiatives designed to enhance their conservation status. The priority habitats and species in England accord with those listed on Section 41 of the NERC Act.

The NPPF underpins the Government's planning policies for England and how these are to be applied. The central theme of the NPPF is a presumption in favour of sustainable

development. This presumption does not apply where development requiring Appropriate Assessment under the Birds or Habitats Directives is being considered, planned or determined.

The NPPF states:

‘When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:

- *if significant harm 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;*
- *proposed development on land within or outside a Site of Special Scientific Interest (SSSI) likely to have an adverse effect on a SSSI (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site’s notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of SSSIs;*
- *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and*
- *the following wildlife sites should be given the same protection as European sites:*
 - *potential Special Protection Areas (SPA) and possible Special Areas of Conservation (SAC);*
 - *listed or proposed Ramsar sites; and*

- *sites identified, or required, as compensatory measures for adverse effects on European sites, potential SPAs, possible SACs, and listed or proposed Ramsar sites.'*

The NPPF requires the Planning Authority to have a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In addition, the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.

DRAWINGS



DO NOT SCALE FROM THIS DRAWING

KEY

Transect Route

Flight path

Point count

Automated detector locations

Notes:

Eastern portion of the site:

Observations of Pipistrellus spp., noctule and Myotis spp. recorded foraging in low numbers (max. count 2 ind.) along all hedgerows and tree lines, in all survey months.

Western Portion of the site:

Observations of common pipistrelle foraging along the edge of scrub/immature trees in May only.

REVISION	DETAILS	DATE	DRAWN	CHKD	APPD
CLIENT					
Parkhill Estates and Brymbo Developments Ltd.					
PROJECT					
Former Brymbo Steelworks, Wrexham: Link Road Development Nodule					
DRAWING TITLE					
Bat Activity Plan					
DRG No.		ST16882-038		REV	
DRG SIZE		SCALE		DATE	
A2		1:2000		October 2019	
DRAWN BY		CHECKED BY		APPROVED BY	
YK		SW		SW	

wardell armstrong

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