Barnsley West

Factual Bat Survey Report

Strata Sterling Barnsley West Ltd

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Executive Summary

Contents	Summary
Site Location	The site is located 2 km west of Barnsley town centre, on farmland between the communities of Gawber, Higham, Pogmoor, Redbrook and Barugh Green and immediately north-east of Junction 37 of the M1 motorway. The centre of the site has an approximate Ordnance Survey Grid Reference of SE 31778 07075.
Proposals	The proposed development comprises a mixed-use development to provide up to 1,900 new homes and 172,000sqm of employment land.
Existing Site Information	• WYG (2020) Barnsley West: Factual Ecological Appraisal. • WYG (2018) Barnsley West: Bat Survey Report. • AECOM (2017). Barnsley West: Preliminary Ecological Assessment. • Wildscapes (2014) Land at Highham UB2A • Wildscapes (2013a) Land South of Barugh Green Road UB4A • Wildscapes (2013b) Land South of Barugh Green Road UB4B
Scope of this Survey(s)	Summarise previous bat related data collected on site; present the result of the bat roost suitability assessment; update emergence / re-entry surveys, bat activity transects and remote static detectors surveys; and, outline the legislative protection given to bats
Results	• Seven buildings and 44 trees were considered to provide suitable opportunities for roosting bats. • Evidence of roosting bats was identified on Building 16 – up to three common pipistrelles, and a potential soprano pipistrelle emergence, were observed. • Common pipistrelle was the most frequently recorded species, with low numbers of Myotis sp., occasional soprano pipistrelles and very rarely noctules Leisler's bats, and brown long-eared bat. Lastly, a single call was attributed to a Nathusius' pipistrelle. **Areas considered to be of greatest value to foraging and commuting bats are:** • In the south-east: near and within the woodland located between H20 and H1, around the improved and arable fields (H1-4), and along H23. • In the south / south-west: along the small interconnected hedgerows (H25-28 and H31-33, but particularly H28 and H31); • In the centre of site: near and within the woodland and along Hermit Lane; and • In the north of site: along the small interconnected hedgerows (H6-10).
Recommendations	Recommendations will be provided within the Ecology Chapter of the Environmental Statement for the site.

Glossary

ACIEEM	Associate Member of Chartered Institute of Ecology & Environmental Management
BCT	Bat Conservation Trust
BCT Guidelines	The BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016)
BBRC	Barnsley Biological Records Centre
BLE	Brown Long-eared Bat
CIEEM	Chartered Institute of Ecology & Environmental Management
EcIA	Ecological Impact Assessment
EPS	European Protected Species
EPSML	European Protected Species Mitigation Licence
Grad CIEEM	Graduate Member of Chartered Institute of Ecology & Environmental Management
HAP	Habitat Action Plan
HPI	Habitat(s) of Principal Importance
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NPPF	National Planning Policy Framework
PRF	Potential Roost Feature
SAC	Special Area of Conservation
SAP	Species Action Plan
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
SYBG	South Yorkshire Bat Group
W&CA	Wildlife & Countryside Act 1981 (as amended)

1.0 Introduction

1.1 Background

WYG was commissioned by Strata Sterling Barnsley West Ltd in May 2020 to complete a suite of update bat surveys, comprising bat roost assessments, bat emergence / re-entry surveys and activity surveys, to inform a proposed development at the site known as 'Barnsley West'.

A suite of bat surveys were undertaken in 2018 (WYG, 2018); however, the survey data is now considered to be out-of-date. As such, this report acts to provide update baseline information for the site.

This factual report has been prepared by WYG Consultant Ecologist Monica Souza Grad CIEEM and should be read with reference to the report conditions (Appendix A).

1.2 Site Location

The site is located 2 km west of Barnsley town centre, on farmland between the communities of Gawber, Higham, Pogmoor, Redbrook and Barugh Green and immediately north-east of Junction 37 of the M1 motorway. The centre of the site has an approximate Ordnance Survey Grid Reference of SE 31778 07075. The site boundary can be found on Figure 1.

The site has previously been subject to open-cast mining, after which it was re-filled. The site measures approximately 120 hectares and generally comprises of open pastoral and arable fields, with associated boundary hedgerows, trees and ditches, and areas of semi-natural plantation woodland.

1.3 Development Proposals

The proposals include for a mixed-use development to provide up to 1,900 new homes and 172,000sq.m of employment land. In addition, the proposals will provide:

- Part of the Link Road between M1, Junction 37 and the A635, Barugh Green Road;
- A new primary school;
- Small local shops and community facilities; and
- Strategic areas of greenspace and wildlife corridors.

Remodelling of the site (via a 'cut and fill') will also be required at the outset, to enable the formation of development platforms.

1.4 Purpose of the Report

The objectives of this report are to:

- Outline the legislative protection given to bats;
- Detail existing bat records and locally designated sites of relevance to bats within 2 km of the site;
- Identify habitats and features within the site that have the potential to be used by bats; and

- Summarise the findings of the 2018 and 2020 bat surveys and report on the presence or otherwise of bat species at the site.

Note that scientific names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

Please note: This is a factual report only with detailed discussion and any recommendations for further survey, mitigation and compensation being included within the commissioned Ecology Chapter of the Environmental Statement for the site.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

The following reports relating to the site and immediate environs were reviewed:

- WYG (2020) Barnsley West: Factual Ecological Appraisal.
- WYG (2018) Barnsley West: Bat Survey Report.
- AECOM (2017). Barnsley West: Preliminary Ecological Assessment.
- Wildscapes (2014) Land at Highham UB2A
- Wildscapes (2013a) Land South of Barugh Green Road UB4A
- Wildscapes (2013b) Land South of Barugh Green Road UB4B

As part of the Ecological Appraisal, WYG completed a desk study which comprised a search for records of protected / notable species (including bats) with 2 km of the site. Records were collected from Barnsley Biological Records Centre (BBRC) and South Yorkshire Bat Group (SYBG). In addition, MAGIC (DEFRA's interactive, web-based database) was used to search for any information of European Protected Species Mitigation Licence (EPSML) applications that had been granted in the local area. This are summarised in Section 3.1.1 below.

2.1.2 Consultation

The Council's Biodiversity Officer was consulted in 2018. The results of the consultation are summarised in Section 3.1.2.

2.2 Field Survey

2.2.1 Bat Roost Assessment

An updated bat roost suitability assessment was undertaken on 16th and 17th June 2020 by WYG Project Ecologist Jonathan Siberry (Natural England Class 1 survey licence 2020-44500-CLS-CLS). The weather conditions were mild (temperatures up to 18°C) and dry, with low wind speeds and overcast mornings which became clearer in the late morning / afternoon.

Jonathan holds a Natural England Class 1 Survey Licence for bats and has five-years experience of undertaking bat roost suitability assessments.

Any suitable buildings, structures or trees within or directly adjacent to the site were assessed from the ground for their suitability to support breeding, resting and hibernating bats using survey methods based on the BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed, 2016) – hereafter referred to as the 'BCT Guidelines'. The following system has therefore been used to categorise the bat roost suitability of any features found:

Table 1: Categories of Bat Roost Suitability (BCT Guidelines)

Suitability	Typical Roosting Features
Negligible	Negligible habitat feature on site likely to be used by roosting bats.

Suitability	Typical Roosting Features
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 but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree 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 – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions & surrounding habitat.

2.2.2 Bat Emergence / Re-entry Surveys

Following BCT guidelines, emergence / re-entry surveys were undertaken on buildings and trees which were considered suitable to support breeding, resting and / or hibernating bats. Figure 2 shows the locations of the buildings and trees identified to have bat roost suitability.

Dusk emergence and pre-dawn re-entry surveys were completed by the following experienced WYG surveyors:

- Associate Director Marc Jackson (over 15 years' experience of undertaking bats surveys and holds a Natural England Class 2 bat survey licence - 2015-15714-CLS-CLS);
- Principal Ecologist Barry Clarkson (14 years' experience of undertaking bats surveys and holds a Natural England Class 2 bat survey licence number 2015-15897-CLS-CLS);
- Principal Ecologist Kirstin Aldous (over 11 years' experience of undertaking bats surveys and holds a Natural England Class 2 bat survey licence number 2015-12548-CLS-CLS);
- Senior Ecologist Luke Verrall (over nine years' experience of undertaking bats surveys and holds a Natural England Class 1 bat survey licence number 2019-40782-CLS-CLS);
- Project Ecologist Jonathan Siberry (five years' experience of undertaking bats surveys and holds a Natural England Class 1 bat survey licence number 2020-44500-CLS-CLS);
- Assistant Ecologist Alex Blackburn (five years' experience of undertaking bats surveys);
- Field Surveyor Patrick Gibson (over four years' experience of undertaking bat surveys);
- Field Surveyor Sofia Hanson; and
- Field Surveyor Tom Davey (six years' experience of undertaking bat surveys.

All bat activity heard and / or seen was noted down by the surveyors and all bat calls were recorded using Batlogger M detectors. With reference to BCT Guidelines (Collins, 2016) surveys commenced 15 minutes before sunset and continued for at least 1 hour and 30 minutes after sunset. Pre-dawn re-entry surveys started at least 1 hour and 30 minutes before sunrise and continued until 15 minutes after sunrise. Table 2 summarises the dates of the emergence and re-entry surveys, and weather conditions (S and E denote the conditions at the Start and End of the survey, respectively). The date when each building was surveyed is indicated in Section 3.2.2

Table 2: Date and Weather Conditions for Emergence and Re-entry Surveys of Trees

Date	Type	Time			Air Temp. (ºC)		Wind Speed (Bf)		Cloud Cover (%)		Precipitation
		Sun	Start	End	S	E	S	E	S	E	
17.06.20	Dusk	21:38	21:23	23:23	17	14	2	2	30	90	None
25.06.20	Dusk	21:40	21:25	23:25	20	17	0	1	0	0	None
30.06.20	Dusk	21:39	21:24	23:24	16	15	1	0	100	100	None
06.07.20	Dusk	21:35	21:20	23:20	13	11	3	2	10	100	None
13.07.20	Dusk	21:29	21:14	23:14	16	15	2	1	95	100	None
14.07.20	Dusk	21:28	21:13	22:58	13	12	3	1	50	100	None
15.07.20	Dawn	06:40	04:46	06:55	15	15	0	1	60	70	None
15.07.20	Dusk	21:27	21:12	23:12	14	13	2	2	100	100	None
21.07.20	Dusk	21:19	21:04	23:04	15	13	2	1	80	10	None
23.07.20	Dusk	21:16	21:01	22:46	16	14	2	3	90	100	None
27.07.20	Dusk	21:10	20:55	22:55	13	12	3	4	10	10	None
28.07.20	Dawn	05:16	03:31	05:31	15	13	1	3	80	90	None
30.07.20	Dawn	05:19	03:34	05:34	15	14	0	1	90	80	None
04.08.20	Dusk	20:56	20:41	22:41	18	17	3	5	100	20	None
06.08.20	Dawn	05:31	03:46	05:46	18	17	2	1	90	90	None
14.08.20	Dawn	05:45	04:00	06:00	15	14	3	3	100	100	None
27.08.20	Dawn	06:07	04:22	06:22	11	10	1	1	60	90	None
08.09.20	Dawn	06:28	04:43	06:43	17	16	1	1	100	100	None
09.09.20	Dawn	06:30	04:45	06:45	18	17	1	2	50	50	None
10.09.20	Dawn	06:40	04:46	06:55	7	6	0	0	0	5	None
15.09.20	Dusk	19:20	19:05	20:50	14	13	2	2	100	100	None
16.09.20	Dawn	06:42	04:57	06:57	16	15	0	1	0	100	None

*Wind speeds were measured on the Beaufort Scale.

2.2.3 Bat Activity Surveys

The site was considered to offer 'Moderate' suitability to support foraging / commuting bats and therefore, monthly transect surveys (including one dusk and pre-dawn survey within a 24-hour period in August) were undertaken by WYG, with reference to the BCT Guidelines. Surveys were undertaken from June – October 2020 (inclusive) and were led by experienced WYG ecologists Barry Clarkson, Luke Verrall and Jonathan Siberry.

Given the size of the site it was necessary to undertake two transects at the same time. Both transect routes (Northern and Southern) are presented in Figure 3.

The transects routes were designed to sample representative habitats within the site including woodland, woodland edges, improved and semi-improved grassland, tall ruderal vegetation and standing water. The direction the transect was walked was alternated each month to provide varied temporal and spatial coverage of the survey area across the year. For dusk surveys, the surveyors walked at a steady pace starting at sunset and continuing for two hours. The pre-dawn survey started two hours before sunrise and ended at sunrise. During all transect surveys, the surveyors walked continuously for 2 hours, stopping only to make notes of bat observations including the nature of the bat activity along with the direction in which the bat was travelling, if the bat was observed.

All transects were completed during suitable weather conditions. Table 3 shows a summary of transect survey times and weather conditions (S and E denote the conditions at the Start and End of the survey, respectively).

Table 3: Summary of Bat Activity Transect Survey Times and Weather Conditions

Date	Type	Time			Air Temp. (ºC)		Wind Speed (Bf)		Cloud Cover (%)		Precipitation
		Sun	Start	End	S	E	S	E	S	E	
23.06.20	Dusk	21:39	21:39	23:39	18	16	1	1	0	0	None
22.07.20	Dusk	21:16	21:16	23:33	17	16	0	3	30	80	None
18.08.20	Dusk	20:27	20:27	22:34	19	16	1	1	5	0	None
19.08.20	Dawn	03:50	05:53	05:53	14	13	1	1	0	80	None
22.09.20	Dusk	19:03	19:03	21:10	18	17	1	2	70	90	None
29.10.20	Dusk	18:46	18:46	20:46	10	13	1	2	10	95	None

Any bats recorded were identified to species level (where possible) and recorded on a field map. The calls were recorded on the Batlogger M detectors and were later analysed by an experienced bat ecologist using Bat Explorer software to allow identification to species or genus level. Note that for the purpose of this report an 'bat call' denotes a single echolocation pulse.

Heat Mapping

The Spatial Analyst extension was used within ArcGIS to analyse Batlogger point bat data. An activity heat map has been designed to highlight the density of the bat data. The map uses the colour spectrum of green for low and red for high, but also statistically uses quantitative outputs calculated by the kernel density spatial analysis tool.

Bat data was used with the kernel density tool in ArcGIS to quantify the density of bat results data, using the number of calls (individual echolocation pulses) per record as a population statistic. The point data is converted to a square cell-based raster image by the kernel density tool, and for the purposes of the analysis for this site, a 10m cell size and search radius was defined. The kernel density tool then computed the sum of all records and calls within each 10m x 10m cell and returned a numerical value for each 10m square cell. For example, if a 10m cell contains 4 records, each with 5 calls, the analysis would return an expected counts value of 20 (4 x 5 = 20).

The output of the analysis is a square mosaic raster, with different coloured 10m cell squares, symbolised by the numerical outputs calculated by the kernel density analysis. An equal interval definition was given to the symbology scale range, so that the gradation of colour is directly proportionate to the increase in values.

To improve the cartography of the figure, bilinear interpolation was applied to the raster to interpolate / smooth out the edges of each 10m cell into a graded colour edge. This also introduces a small element of contingency, which will allow for small locational inaccuracies recorded by the GPS in the Batlogger.

2.2.4 Static Detector Surveys

To supplement the bat activity surveys, two remote static detectors per transect route were deployed on a monthly basis (June – October, inclusive), with reference to the BCT Guidelines. Anabat Express automated static bat detectors were used to sample bat activity, distribution and species across the site. The static detectors were deployed at each location before dusk and were retrieved during the daytime after at least five nights of consecutive recording. The locations varied for spatial coverage. Table 4 and Figure 3 present the static detector locations.

Table 4: Summary of Static Bat Detector Deployment Locations

Static Location	Month	Deployed	Collected	Latitude	Longitude
S1	June	23.06.2020	30.06.2020	53.555003	-1.525031
S2	June	23.06.2020	30.06.2020	53.558723	-1.5165685
S3	June	23.06.2020	30.06.2020	53.56131	-1.52532
S4	June	23.06.2020	30.06.2020	53.563866	-1.5179594
S5	July	16.07.2020	22.07.2020	53.55336	-1.52159
S6	July	16.07.2020	22.07.2020	53.55774	-1.5119
S7	July	16.07.2020	22.07.2020	53.56377	-1.52579
S8	July	16.07.2020	22.07.2020	53.55888	-1.52341
S9	August	18.08.2020	26.08.2020	53.55909	-1.52714
S10	August	18.08.2020	26.08.2020	53.55797	-1.52006
S11	August	18.08.2020	26.08.2020	53.5655	-1.52261
S12	August	18.08.2020	26.08.2020	53.55511	-1.51789
S13	September	15.09.2020	22.09.2020	53.56303	-1.5293
S14	September	15.09.2020	22.09.2020	53.56168	-1.51788
S15	September	15.09.2020	22.09.2020	53.55309	-1.51794
S16	September	15.09.2020	22.09.2020	53.55579	-1.52736
S17	October	15.10.2020	20.10.2020	53.5573	-1.51676
S18	October	15.10.2020	20.10.2020	53.55581	-1.52255
S19	October	15.10.2020	20.10.2020	53.56329	-1.5192
S20	October	15.10.2020	20.10.2020	53.56629	-1.52645

Calls were analysed by an experienced bat ecologist using AnalookW software to allow identification to species or genus level. Note that for the purposes of this report a 'bat pass' denotes a recording containing three or more calls.

2.3 Limitations

During bat activity and emergence / re-entry surveys, bats were identified to species level when possible; however, *Myotis sp.* were identified only to genus level due to overlapping call parameters. On some occasions the recorded calls on the static detectors were too short or too 'noisy' to be identified at all in which case those calls were identified as an unidentified bat so as to still give an indication of the number of bats passes recorded.

The surveys were completed with the assistance of bat detectors. All survey techniques are subject to bias, and bat detector surveys may under-record species with weak calls, such as brown long-eared bats (BLE) *Plecotus auritus.* However, these biases were considered when interpreting the results.

It should be noted that automated static detectors are able to give an indication of levels of bat activity at a particular location. However, information from static detectors should be interpreted with caution as they do not give information regarding the numbers of bats using a site. A high number of bat passes could either be recorded from a single bat conducting multiple passes (e.g. whilst foraging around a tree or hedgerow) or from large numbers of bats conducting single passes (e.g. commuting to / from a roost). Differing levels of bat activity at static locations could also be attributed to seasonal and weather dependent variations in bat activity and may not simply be due to the location of the static detector.

On the dawn survey of the 10.09.2020 the temperature was only 7°C at the start of the survey and it fell to 6°C by the end of the surveys. However, according to the Met Office Weather forecast the temperature at sunset on the 09.09.2020 was predicted to be 14°C and as such temperature at sunset will likely have been above 10°C at sunset (in accordance to BCT guidelines survey cannot be done if the temperature is below 10°C at sunset). Furthermore, bats were recorded foraging and commuting during this survey and such it is considered that the low temperatures did not significantly impact on survey results.

On an occasion, it was necessary to slightly deviate from the transect route shown in Figure 3, due to the presence of livestock (i.e. horses and cattle). However, the surveyors were still able to access a representative sample of habitats and remained as close to the original transect route as possible. Therefore, this is not considered to be a significant limitation.

Surveys were commissioned in June and as such, it was not possible to obtain activity data for May and April 2020. However, the data collected in 2020 was interpreted alongside data collected in 2018 it was considered that sufficient data was available to have a comprehensive understanding of bat activity on site.

Notwithstanding the limitations highlighted above, the survey effort applied is considered sufficient to meet the aims of the survey and this report, in accordance with the aforementioned guidelines.

The details of this report will remain valid for a period of 18 months from the date of the last survey (i.e. April 2022) after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Please note, the recommended guidelines (Collins, 2016) state that *"survey data should ideally be from the last survey season before a planning application of licence application is submitted"*.

3.0 Baseline Conditions

3.1 Desk Study

3.1.1 Previous Survey Results

Wildscapes (2013a) Land South of Barugh Green Road UB4A

A pedunculate oak *Quercus robur* was considered to offer potential roosting opportunities for bats; however, this tree is not located with the site boundary for this assessment. In addition, three bat records (one unknown bat and two Leisler's bats *Nyctalus leisleri*) were returned in the data search (1 km search radius from the site, between the years 2003 and 2013).

Wildscapes (2013b) Land South of Barugh Green Road UB4B

No reference made to bats; however, three bat records (one unknown bat and two Leisler's bats) were returned in the data search (1 km search radius from the site, between the years 2003 and 2013).

Wildscapes (2014) Land at Higham UB2A

No reference made to bats; however, three bat records (one unknown bat and two Leisler's bats) were returned in the data search (1 km search radius from the site, between the years 2003 and 2014).

AECOM (2017). Barnsley West Preliminary Ecological Assessment.

A Preliminary Ecological Appraisal (PEA) was completed by AECOM in June 2017 and protected species records were obtained from BBRC as part of their assessment. BBRC returned records of a number of bat species within 2 km of site.

The PEA considered the extensive areas of pasture, as well as hedgerows, streams, pond and woodland, with low levels of artificial lighting, to provide potential suitable foraging habitat for a range of bat species. The survey also identified one building and a number of trees on site have the potential to support roosting bats.

WYG (2018). Barnsley West: Bat Survey Report.

Bat surveys undertaken in 2018 comprised a bat roost suitability assessment, bat emergence / re-entry surveys of building and trees identified for further survey and transects to record bat activity, supplemented by the deployment of remote static detectors. The findings for these surveys are presented in full in the relevant report (WYG, 2018) but are summarised below:

- During the bat roost assessment survey, seven buildings and 25 trees were identified to offer suitability to support roosting bats.
- No evidence of roosting bats was identified on site during the emergence / re-entry surveys.
- Common pipistrelle *Pipistrellus pipistrellus* was the most frequently recorded species throughout the transect and static surveys, with *Myotis sp*. recorded in low numbers, soprano pipistrelles *Pipistrellus pygmaeus* recorded occasionally and very rarely noctules *Nyctalus noctula* and Leisler's bat recorded. A single call was attributed to Serotine *Eptesicus serotinus*.
- Areas considered to be of greatest value to bats in 2018 (see Figure 4) were:

- The double hedgerows along Hermit Lane connecting to the woodland in the centre east of site, and the long hedgerow going north to south in the north of site;
- The block of woodland with a stream within in the south-east of site connecting with the woodland eastern boundary and hedgerow and tree in the southeast; and,
- The interconnected section of small hedgerows in the south of site.

To support the bat surveys information was requested from SYBG in 2018 for any records of bats within 3 km of grid squares SE3106 and SE3107.

SYBG returned 99 records for bats within 3 km of Grid Squares SE3106 – SE107, between 2008 and 2018, locations of the records in relation to the site are shown in Figure 5. Of these 99 records, there were three records of bat roosts recorded within the last 10 years (see Table 5).

Table 5: Bat Roost Records Within 2 km of Site in the Last 10 Years

Species	OS grid reference	Details	Date
Brown long-eared bat *Plecotus auritus*	SE290058	Located in tower at High Street, Silkstone, Barnsley.	2010
Common pipistrelle *Pipistrellus pipistrellus*	SE302098	Located at Kexbrough, South Yorkshire. 23 Common pipistrelles recorded.	2012
Common pipistrelle *Pipistrellus pipistrellus*	SE328051	Located at Keresforth Hill Road, Dodworth, Barnsley. Several common pipistrelles were recorded landing on eastern gable.	2008

WYG (2020). *Barnsley West: Ecological Appraisal.*

As part of the Ecological Appraisal, WYG completed a desk study which comprised a search for records of protected / notable species (including bats) with 2 km of the site. Records were collected from Barnsley Biological Records Centre (BBRC) and South Yorkshire Bat Group (SYBG). In addition, MAGIC (DEFRA's interactive, web-based database) was used to search for any information of European Protected Species Mitigation Licence (EPSML) applications that had been granted in the local area. The desk study results are summarised below.

BBRC returned 61 recent records bat species within 2 km of the site, as summarised in Table 6 below. In addition, 121 historic records of bat were returned from within 2 km of the site, comprising field records of common pipistrelle, soprano pipistrelle, unknown pipistrelle species *Pipistrellus spp.*, brown long-eared bat *Plecotus auritus*, Leisler's bat, noctule, Daubenton's bat *Myotis daubentonii*, Myotis species *Myotis spp.* and unknown bat species (total of 94 field records) and roost records of common pipistrelle, Leisler's bat, Daubenton's bat and unknown bat species (total of 27 roost records).

Table 6: Recent Bat Records Returned by BBRC within 2 km of the Site

Scientific Name	Common Name	Record Type	Number of Records
Chiroptera	Bats	Field Record	1
Myotis spp.	Unidentified Myotis Species	Field Record	2
Myotis daubentonii	Daubenton's Bat	Field Record	2

Scientific Name	Common Name	Record Type	Number of Records
Nyctalus leisleri	Lesser Noctule	Field Record	2
Nyctalus noctula	Noctule Bat	Field Record	15
Pipistrellus pipistrellus	Common Pipistrelle	Roost	1
		Field Record	23
Pipistrellus pygmaeus	Soprano Pipistrelle	Field Record	4
Pipistrellus spp.	Pipistrelle Bat species	Field Record	12

SYBG returned 93 recent records of bats species within 2 km of site as summarised in Table 7 below. In addition, a further 173 historic records were returned and comprised records of noctule, unknown pipistrelle species, brown long-eared bat, unknown *Myotis* species, Natterer's bats *Myotis nattereri*, unknown bat species, common pipistrelle, Leisler's bat and Daubenton's bat. Of these records, 110 were field records, whilst the remaining 63 records were of known roosts.

Table 7: Recent Bat Records Returned by SYBG within 2 km of Site

Scientific Name	Common Name	Record Type	Number of Records
Chiroptera	Bats	Field Record	1
Myotis daubentonii	Daubenton's Bat	Field Record	3
Myotis mystacinus	Whiskered Bat	Field Record	1
Myotis spp.	Natterer's / Whiskered / Brandt's Bat	Field Record	3
Myotis spp.	Unidentified Myotis Species	Field Record	2
Nyctalus spp.	Unknown Nyctalus Species	Field Record	1
Nyctalus leisleri	Leisler's Bat	Field Record	2
Nyctalus noctula	Noctule Bat	Field Record	7
Plecotus auritus	Brown Long-eared Bats	Field Record	3
		Roost	1
Pipistrellus pipistrellus	Common Pipistrelle	Field Record	50
		Roost	2
Pipistrellus pygmaeus	Soprano Pipistrelle	Field Record	13
Pipistrellus spp.	Pipistrelle Bat species	Field Record	3

The search of the MAGIC website identified no designated sites listing bats as a qualifying feature within 2 km of the site. However, one granted EPSML for bats was identified within 2 km of the site. This granted EPSML was located 1.84 km east of the site, granted for destruction of a common pipistrelle resting place between 18th October 2013 and 30th September 2014.

The Ecological Appraisal (WYG, 2020) considered that the site continued to offer Moderate suitability for foraging and commuting bats. Bat roost suitability of buildings and trees on site were assessed in a separate Bat Roost Assessment survey, the results of which are presented in section 3.2.1 of this report.

3.1.2 Consultation

Mayne, T. Biodiversity Officer (2018). *Land off Hermit Lane, Barnsley*.[1]

The Biodiversity Officer for Barnsley Metropolitan Borough Council has made a number of recommendations for the site including:

- Retain, buffer and manage the watercourse, grassland and woodland north-east of Hermit Lane;
- Retain, buffer and manage the species-rich hedgerows and boundary features. Where this is not possible transplant hedgerows including root balls and associated soils. A method statement for this should be provided and agreed prior to works commencing;
- Create / retain wildlife corridors through/ across the site; and
- Provide accessible public open space.

The areas recommended to be retained are those highlighted by Wildscapes (2013a; 2013b and 2014) as having significant ecological value (shown on Figure 6).

3.2 Field Survey

3.2.1 Bat Roost Assessment

A total of seven buildings and 44 trees were considered to provide suitable opportunities for roosting bats. All other trees on site are considered to be of Negligible suitability for roosting bats.

The locations of building and trees with bat roost suitability are presented within Figure 2, with results of the of the assessment provided in Table 8 and Table 9 below. Further details on the buildings and trees assessed are presented in Appendix B.

[1] Email comms between WYG Project Ecologist Jonathan Siberry and Barnsley Biodiversity Officer Trevor Mayne sent on the 18th August 2018.

Table 8: Buildings Bat Roost Assessment

#	Location	Roost Suitability 2018	Roost Suitability 2020
B1	Hermit House Farm	Negligible	Negligible
B2	Hermit House Farm	Negligible	Negligible
B3	Hermit House Farm	Low	Low
B4	Hermit House Farm	Low	Moderate
B5	Hermit House Farm	Negligible	Negligible
B6	Hermit House Farm	Negligible	Negligible
B7	Hermit House Farm	Negligible	Negligible
B8	Hermit House Farm	Negligible	Negligible
B9	Redbrook Farm	Negligible	Negligible
B10	Redbrook Farm	Negligible	Negligible
B11	Redbrook Farm	Moderate	Moderate
B12	Redbrook Farm	Negligible	Negligible
B13	Redbrook Farm	Negligible	Negligible
B14	Redbrook Farm	Negligible	Negligible
B15	Redbrook Farm	Low	Low
B16	Redbrook Farm	High	High
B17	Redbrook Farm	Low	Low
B18	Offsite	Moderate	Moderate
B19	Redbrook Farm	Negligible	Negligible

Table 9: Trees Bat Roost Assessment

#	Species	Roost Suitability 2018	Roost Suitability 2020
T1	Oak	Low	Low
T2	Sycamore	Low	Low
T3	Oak	Low	Low
T4	Oak	Low	Low
T5	Oak	Low	Low
T6	Oak	Low	Low
T7	Ash	Moderate	Moderate
T8	Willow sp.	Moderate	Moderate
T9	Oak	Moderate	Moderate
T10	Oak trees	Low	Low
T11	Oak	Moderate	Moderate
T12	Oak	Moderate	Moderate
T13	Oak	Low	Low
T14	Deadwood	Moderate	Low
T15	Willow sp.	Moderate	Low
T16	Sycamore	Moderate	Moderate
T17	Oak	Low	Low
T18	Dead	Moderate	Negligible
T19	Oak	Low	Low
T20	Oak	Low	Low
T21	Sycamore	Moderate	Moderate
T22	Sycamore	Moderate	Moderate
T23	Oak	Moderate	Moderate
T24	Oak	Low	Low
T25	Beech	Moderate	Moderate
T26	Oak	Negligible	Low
T27	Oak	Negligible	Low
T28	Sycamore	Negligible	Low
T29	Oak	Negligible	Low
T30	Oak	Negligible	Moderate
T31	Oak	Negligible	Moderate
T32	Oak	Negligible	Moderate
T33	Oak	Negligible	Moderate
T34	Oak	Negligible	Low
T35	Oak	Negligible	Low
T36	Oak	Negligible	Low
T37	Oak	Negligible	Low
T38	Oak	Negligible	Low
T39	Oak	Negligible	Low
T40	Oak	Negligible	Low
T41	Oak	Negligible	Low
T42	Rowan	Negligible	Low
T43	Oak	Negligible	Moderate
T44	Ash	Negligible	Moderate

3.2.2 Bat Emergence / Re-entry Surveys

Table 10 summarises the finding from the emergence and re-entry surveys completed in 2020. No bats were seen to emerge from any trees or buildings during the surveys. Further details of the survey findings are presented inn Appendix C. As per BCT guidelines, surveys were not required for trees with low bat roost suitability.

Table 10: Bat Emergence / Re-entry Surveys Results

#	Roost Suitability	Date	Type	Summary of Activity
B3& B4	Low & Moderate	15.07.20	Dusk	No emergence
		15.09.20	Dawn	No re-entry
B11	Moderate	13.07.20	Dusk	No emergence
		10.09.20	Dawn	No re-entry
B15	Low	27.07.20	Dusk	No emergence
B16	High	21.07.20	Dusk	A common pipistrelle was recorded entering B16 at 21:30, above a window on the north-eastern aspect. A common pipistrelle was seen to emerge from the same location (above the window) at 21:47. Another common pipistrelle re-entry was then recorded at the same location at 21:59. This could have involved up to three bats but is considered likely to have been a single common pipistrelle. One potential soprano pipistrelle emergence was also noted – this bat was seen flying away from the top of a window on the north-eastern aspect of the building (different window to the one discussed above for the common pipistrelle(s).
		27.08.20	Dawn	No re-entry
		15.09.20	Dusk	Two potential common pipistrelle emergences were noted. These bats were seen flying from the roof area on the north-eastern aspect of the building.
B17	Low	25.06.20	Dusk	No emergence
B18	Moderate	30.06.20	Dusk	No emergence
		08.09.20	Dawn	No re-entry
T7	Moderate	28.07.20	Dawn	No re-entry
		15.09.20	Dusk	No emergence
T8	Moderate	28.07.20	Dawn	No re-entry
		15.0920	Dusk	No emergence
T9	Moderate	28.07.20	Dawn	No re-entry
		15.0920	Dusk	No emergence
T11	Moderate	04.08.20	Dusk	No emergence
		09.09.20	Dawn	No re-entry
T12	Moderate	23.07.20	Dusk	No emergence
		09.09.20	Dawn	No re-entry
T16	Moderate	25.06.20	Dusk	No emergence
		10.09.20	Dawn	No re-entry
T21 & T22	Moderate	17.06.20	Dusk	No emergence
		06.08.20	Dawn	No re-entry
T23	Moderate	17.06.20	Dusk	No Emergence
		06.08.20	Dawn	No re-entry

#	Roost Suitability	Date	Type	Summary of Activity
T25	Moderate	30.06.20	Dusk	No emergence
		30.07.20	Dawn	No re-entry
T30	Moderate	17.06.20	Dusk	No emergence
		06.08.20	Dawn	No re-entry
T31	Moderate	14.07.20	Dusk	No emergence
		16.09.20	Dawn	No re-entry
T32	Moderate	14.07.20	Dusk	No emergence
		16.09.20	Dawn	No re-entry
T33	Moderate	14.07.20	Dusk	No emergence
		16.09.20	Dawn	No re-entry
T43	Moderate	06.07.20	Dusk	No emergence
		14.08.20	Dawn	No re-entry
T44	Moderate	06.07.20	Dusk	No emergence
		14.08.20	Dawn	No re-entry

3.2.3 Bat Activity Surveys

Detailed results from each monthly transect survey are presented in Figures 7 - 12 and Appendix D

Overall (Figure 13), there were four hubs of bat activity on site:

- In the south-east: near and within the woodland located between H20 and H1, around the improved and arable fields (H1-4), and along H23.
- In the south / south-west: along the small interconnected hedgerows (H25-28 and H31-33, but particularly H28 and H31);
- In the centre of site: near and within the woodland and along Hermit Lane; and
- In the north of site: along the small interconnected hedgerows (H6-10).

Notable levels of activity were also recorded in area which linked hubs of activity, namely:

- The double hedgerow located either side of Hermit Lane (H15-17).
- H20 and H34, as well as the field separating them;
- The long hedgerow running through the north of site (H5 and H14) and
- H24 between the south-east and south of site.

Furthermore, soprano pipistrelles and *Myotis sp.* were mainly associated with the woodland.

3.2.4 Static Detector Surveys

Detailed results from each monthly transect survey are presented in Appendix E.

A total of 19,108 bat passes were recorded using automated static detectors between June and October (inclusive). The most frequently recorded species of bat was common pipistrelle (93.53% of the total number of passes could be attributed to this species).

Other species recorded included low numbers of *Myotis sp.* (c.4%), occasional soprano pipistrelles (c.1%) and very rarely noctules, Leisler's bats and brown long-eared bat. (<1%). Lastly, a single call was attributed to a Nathusius' pipistrelle *Pipistrellus nathusii* on static detector 11 (S11) in August.

Chart 1: Total Bat Passes Recorded by Automated Static Detectors

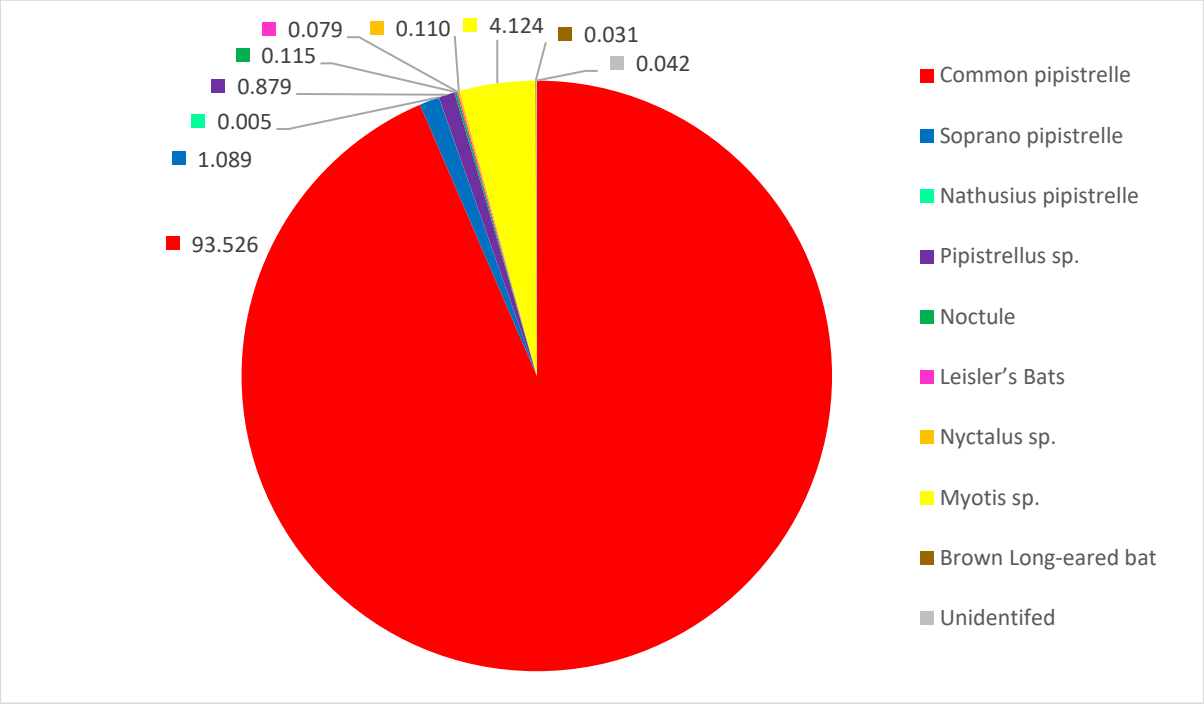
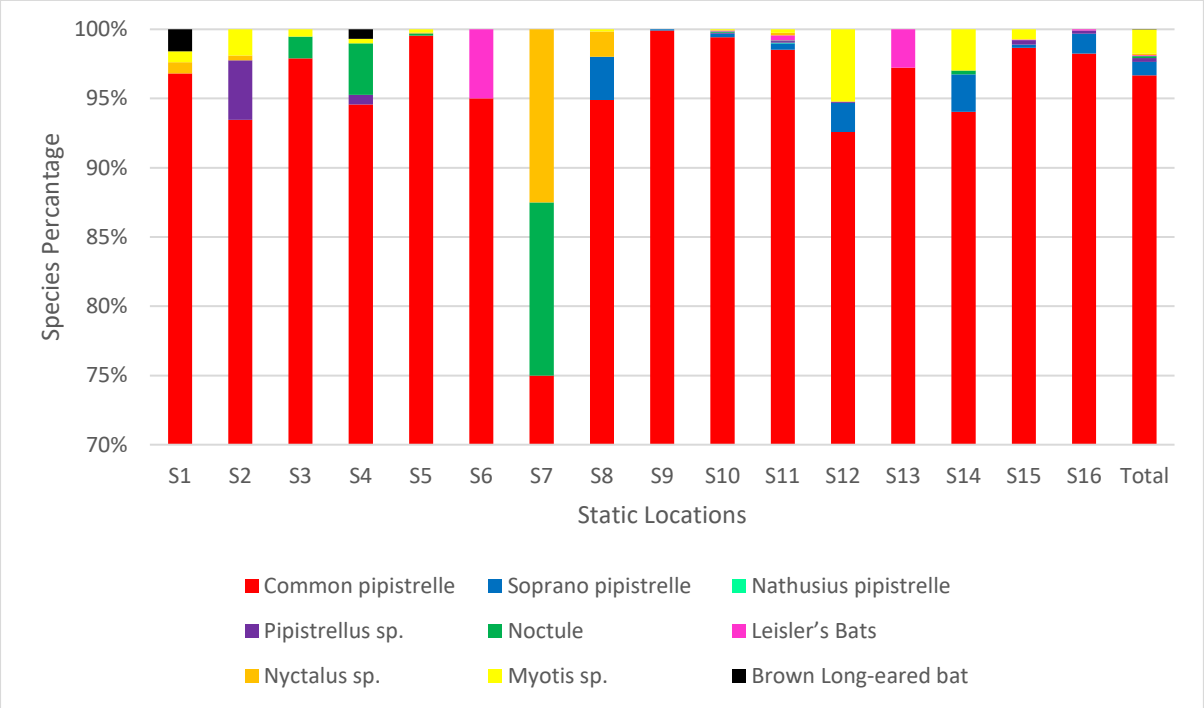


Chart 2: Percentage of Bat Species Recorded by Remote Static Detectors



The static detector locations are shown in Figure 3.

4.0 Relevant Planning Policy & Legislation

4.1 Revised National Planning Policy Framework

A revised NPPF was issued on 19th February 2019 (Ministry of Housing Communities and Local Government, 2019) and currently supplements government Circular *06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System* (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 170 of the NPPF also states that:

`*Planning policies and decisions should contribute to and enhance the natural environment by:*

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan)
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Paragraph 175 then goes on to confirm that:

When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
d) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

Regarding EcIA's and HRA's – any sites identified, or required, as compensatory measures for adverse effects on any Natura 2000/habitats site should also be given the same level as protection as the pSPA's and cSAC's themselves. In addition, when an application is being determined, Paragraph 177 clarifies that:

"*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*"

Paragraph 180 is also relevant as;

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:…

c) *limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.*

4.2 Biodiversity 2020: A strategy for England's Wildlife & Ecosystem Services

Biodiversity 2020 (DEFRA, 2011) replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act (see Appendix F for further details).

4.3 Local Biodiversity Action Plan

Local Biodiversity Action Plans (LBAPs) identify habitat and species conservation priorities at a local level (typically County by County) and are usually drawn up by a consortium of local Government organisations and conservation charities. Although they are no-longer managed at a national level many are still reviewed and updated at a local level.

The BBAP (Barnsley Biodiversity Trust, 2009) is the relevant document for this site and it includes an action plan for 'bats'.

The Bats Action Plan lists the following actions:

- *"Raise awareness of the legal protection for bats and the need to provide suitable habitats and places for roosts and for foraging.*
- *Ensure bats are protected through the planning process existing valuable habitats from threats, including building development, loss of tree cover, etc.*
- *Collect and analyse records of bat species and roosts across Barnsley*
- *Encourage regular monitoring of a number of roosts and feeding sites, including for National Bat Monitoring*
- *Promote surveys to identify new roost sites and feeding areas, and to determine species and populations for future protection and habitat enhancement*
- *Survey of River Dearne to identify important feeding areas for bats, additional roost sites, and areas where habitat improvements could be made*
- *Habitat enhancement in wetlands, woodlands and built environment.*
- *Encourage public involvement in bat conservation and encourage property owners to have bat surveys, put up bat boxes and improve conditions for bats.*
- *Increase voluntary activity by recruiting and training more bat workers*
- *Expand the numbers of guided walks when more volunteers are available.*
- *Secure the Daubenton's bat roost bridge at east end of RSPB Old Moor."*

It should be noted that the existence of an SAP does not always infer an elevated level importance for those features. These plans may be designed to encourage an increase in these habitats/species, rather than to protect a county-scarce feature (for example).

4.4 Local Plan

The Barnsley Local Plan (Barnsley Metropolitan Brough Council, 2019) was formally adopted on 3rd January 2019 and sets out the key elements of Barnsley's planning framework up to the year 2033. The relevant policies from the Local Plan are detailed below:

Policy BIO1 Biodiversity and Geodiversity

Development will be expected to conserve and enhance the biodiversity and geological features of the borough by:

- Protecting and improving habitats, species, sites of ecological value and sites of geological value with particular regard to designated wildlife and geological sites of international, national and local significance, ancient woodland and species and habitats of principal importance identified via Section 41 of the Natural Environment & Rural Communities Act 2006 (for list of the species and habitats of principal importance) and in the Barnsley Biodiversity Action Plan.
- Maximising biodiversity and geodiversity opportunities in and around new developments.
- Conserving and enhancing the form, local character and distinctiveness of the boroughs natural assets such as the river corridors of the Don, the Dearne and Dove as natural floodplains and important strategic wildlife corridors.
- Proposals will be expected to have followed the national mitigation hierarchy (avoid, mitigate, compensate) which is used to evaluate the impacts of a development on biodiversity interest.
- Protecting ancient and veteran trees where identified.
- Encouraging provision of biodiversity enhancements.

Development which may harm a biodiversity or geological feature or habitat, including ancient woodland and aged or veteran trees found outside ancient woodland, will not be permitted unless effective mitigation and/or compensatory measures can be ensured.

Development which adversely effects a European Site will not be permitted unless there is no alternative option and there are imperative reasons of overriding public interest (IROPI).

Local Plan Objective 5 is also relevant and is to "*achieve net gains in biodiversity".* The Indicator / Target for this object is referenced as the "*number of Local Wildlife Sites and Rigs sites in positive conservation management"* and the Aim of this objective is *"to conserve and enhance the Borough's biodiversity and geological features"*.

Site MU1 Land south of Barugh Green Road

The site is proposed for mixed use predominantly for housing and employment. The indicative number of dwellings proposed on this site is 1700. These are included in the housing numbers for Urban Barnsley in the housing chapter.

43 ha of employment land is proposed on the site and is included in the employment land figures in the Urban Barnsley section of the Economy chapter.

The development will be subject to the production and approval of a Masterplan Framework covering the entire site which seeks to ensure that the employment land is developed within the plan period, that community facilities come forward before completion of the housing and that development is brought forward in a comprehensive manner.

The development will be expected to:

- *Provide a primary school on the site;*
- *Ensure that ground stability and contamination investigations are undertaken prior to development commencing and necessary remedial works completed in accordance with the phasing plan;*
- *Provide on and off-site highway infrastructure works, including a link road (Claycliffe Link) and improvements at Junction 37 as necessary;*
- *Provide small scale convenience retail and community facilities in compliance with Local Plan policy TC5 Small Local Shops;*
- *Retain, buffer and manage the watercourse, grassland and woodland north-east of Hermit Lane;*
- *Retain, buffer and manage the species-rich hedgerows and boundary features. Where this is not possible transplant hedgerows including root balls and associated soils. A method statement for this should be provided and agreed prior to works commencing;*
- *Create/retain wildlife corridors through/across the site;*
- *Provide accessible public open space;*
- *Ensure that any sustainable drainage system incorporating above-ground habitats is designed from the outset to serve the whole site;*
- *Give consideration to the drain/culvert that runs through the site; and*
- *Include measures for the protection and retention of the listed milepost on Barugh Green Road 500m west of the junction with Claycliffe Road and its immediate setting; and*

- *Protect the routes of the Public Rights of Way that cross the site, and make provision for these as part of any proposal.*

Archaeological remains may be present on this site therefore proposals must be accompanied by an appropriate archaeological assessment (including a field evaluation if necessary) that must include the following:

- *Information identifying the likely location and extent of the remains, and the nature of the remains;*
- *An assessment of the significance of the remains; and*
- *Consideration of how the remains would be affected by the proposed development.*

4.5 Relevant Legislation

4.5.1 Habitats Regulations and W&CA

All British bat species are given special protection within England by their inclusion on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended) and Schedule 5 of the Wildlife and Countryside Act 1981 (as amended).

As a result, it is an offence to:

- Deliberately capture, injure or kill a bat;
- Intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- Damage or destroy a bat's roosting place (even if bats are not occupying a roost at the time);
- Possess or advertise, sell or exchange a bat (dead or alive) or any part of a bat; and
- Intentionally or recklessly obstruct access to a bat roost.

Where development will result in damage to suitable habitat where the species is known to be present or risk harming or significantly disturbing bats, a European Protected Species Mitigation licence is likely to be required from Natural England (NE) to allow the development to proceed.

4.5.2 NERC Act

Bats are also afforded more general protection in England (and Wales) within the Natural Environment and Rural Communities Act (NERC) 2006. This imposes a duty on all public bodies, including local authorities and statutory bodies, in exercising their functions, "to have due regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity" [Section 40 (1)]. It notes that "conserving biodiversity includes restoring or enhancing a population or habitat" [Section 40 (3)]. Consequently, attention should be given to dealing with the modification or development of an area if aspects of it are deemed important to bats, such as roosts, flight corridors and foraging areas.

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of habitats and species which are of principal importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 habitats of principal importance and 1,150 species of principal importance.

Seven species of bat; soprano pipistrelle, brown long-eared bat, greater horseshoe bat *Rhinolophus ferrumequinum*, lesser horseshoe bat, *Rhinolophus hipposideros* barbastelle *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii* and noctule) are listed under Section 41 of the NERC Act 2006. (See full legislation detailed in Appendix F)

5.0 Summary

- Seven buildings and 44 trees were considered to provide suitable opportunities for roosting bats.
- Evidence of roosting bats was only identified in Building 16 – up to three common pipistrelles, and a potential soprano pipistrelle emergence, were observed;
- Common pipistrelle was the most frequently recorded species during site-wide bat activity surveys, with low numbers of *Myotis sp.*, occasional soprano pipistrelles and very rarely noctules, Leisler's bats and BLE. Lastly, a single call was attributed to a Nathusius' pipistrelle.
- Areas considered to be of greatest value to foraging and commuting bats are:
- In the south-east: near and within the woodland located between H20 and H1, around the improved and arable fields (H1-4), and along H23.
- In the south / south-west: along the small interconnected hedgerows (H25-28 and H31-33, but particularly H28 and H31);
- In the centre of site: near and within the woodland and along Hermit Lane; and
- In the north of site: along the small interconnected hedgerows (H6-10).

Please note: This is a factual report only with detailed discussion and any recommendations for further survey, mitigation and compensation being included within the commissioned Ecology Chapter of the Environmental Statement for the site.

6.0 References

- AECOM. (2017). Barnsley West: Preliminary Ecological Appraisal. Issued June 2017.
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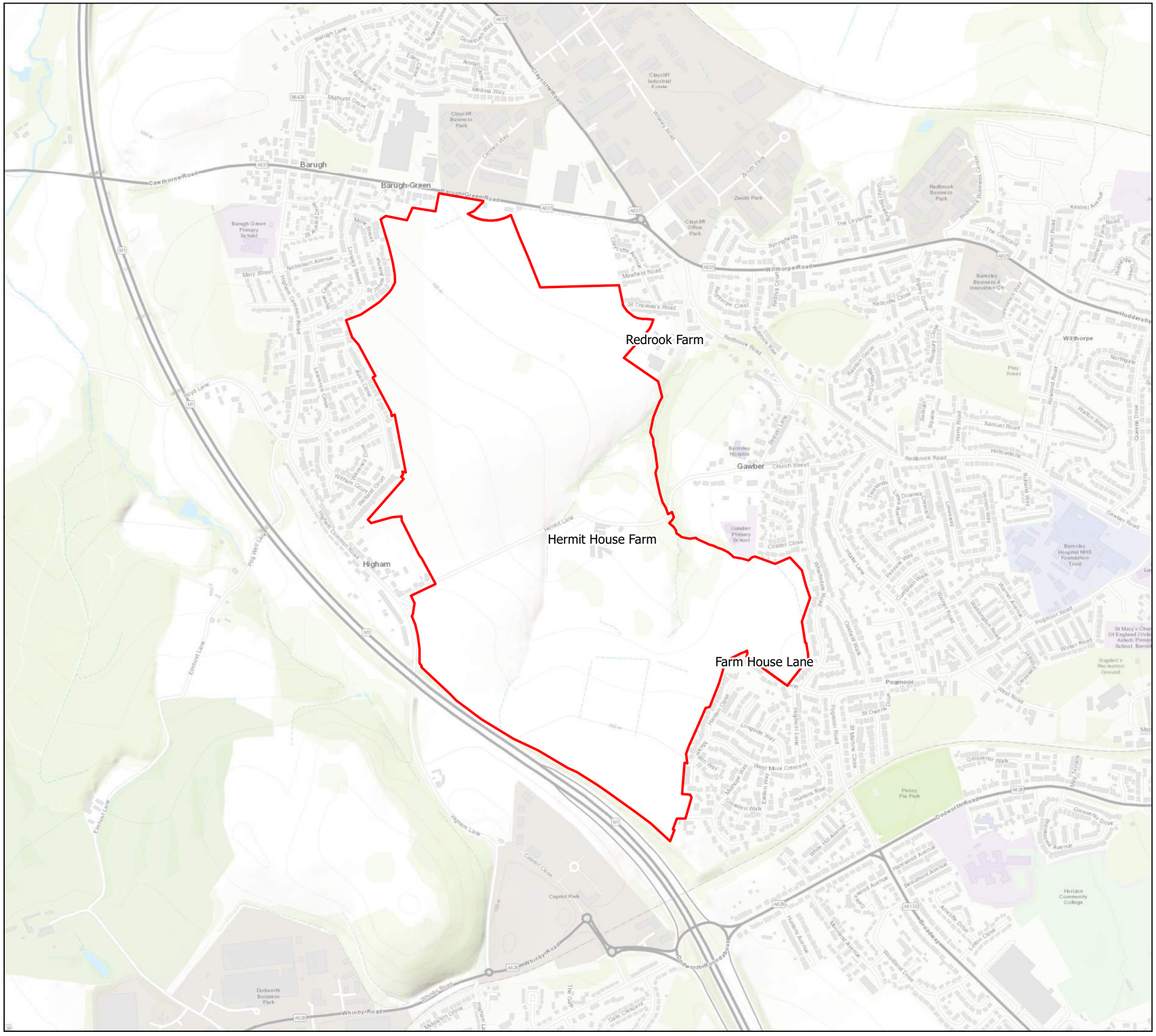
- Wildscapes (2013a) Land South of Barugh Green Road UB4A – Dated 1st May 2013
- Wildscapes (2013b) Land South of Barugh Green Road UB4B – Dated 1st May 2013
- Wildscapes (2014) Land at Highham UB2A – Dated 4th March and 8th May 2014
- WYG (2018) Barnsley West: Bat Survey Report. Issued December 2018.
- WYG (2020) Barnsley West: Factual Ecological Appraisal. Issued December 2020

Please note that the legislation which is relevant to this report is not included in the list above, but details are included in Appendix F below.

Figure 1 – Site Location Plan
Figure 2 – Bat Roost Assessment
Figure 3 – Transect Route and Static Location
Figure 4 – Areas of Ecological Value for Bats 2018
Figure 5 – Map of Roost Records within 2 km of the Site
Figure 6 – Areas of Ecological Value Identified by the Council / Wildscapes in 2013 / 2014
Figure 7 – Transect Results June
Figure 8 – Transect Results July
Figure 9 – Transect Results August Dusk
Figure 10 – Transect Results August Dawn
Figure 11 – Transect Results September
Figure 12 –Transect Results October
Figure 13 – Transect Results Heat Map



Rev	Date	Notes
A	16/12/20	Initial map production

Legend

🟥 Site boundary

Site Location Plan

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:10,000	784-A107940-3	Figure 1	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Jonathan Siberry

C:\Users\maddie.errington\WYG\Ecology GIS - Projects\A107940-3_BarnsleyWest_2020\MXD\Figure1_SiteLoc_20201216.mxd

Rev	Date	Notes
A	04/01/20	Initial map production

Legend

Tree category

- Moderate
- Low
- Negligible

Building category

- High
- Moderate
- Low
- Negligible

N

Bat Roost Assessment

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:3,000	784-A107940-3	Figure 2	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	04/01/2021	Monica Souza

Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Transect route
- Statics

0 100 200 400 Metres

N

wyg

Transect Route and Static Location

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 3	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

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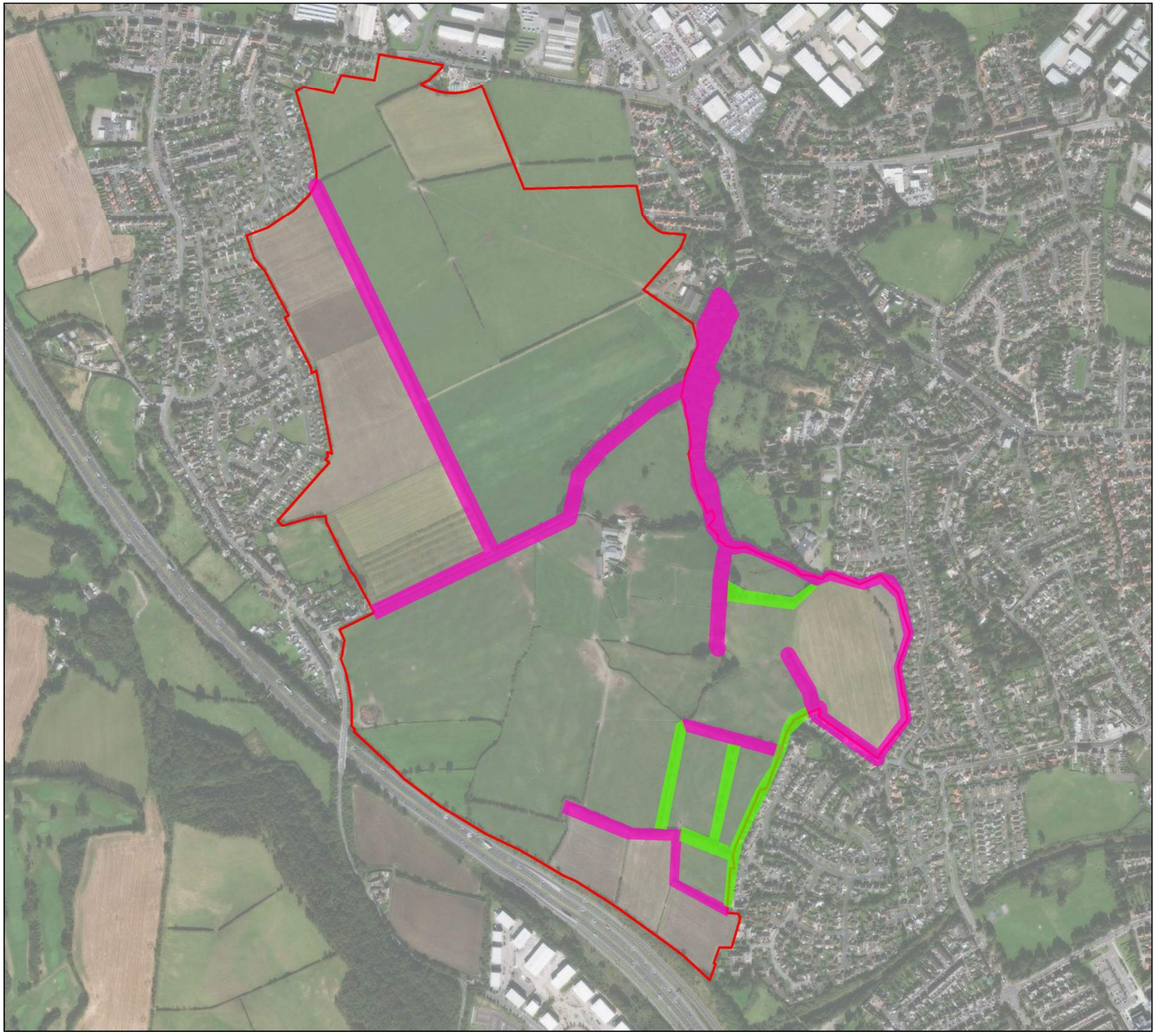

Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Key bat foraging and commuting areas
- Commuting routes between key areas (important for connectivity)

0 100 200 400 Metres

N

Areas of Ecological Value for Bats 2018

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 4	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

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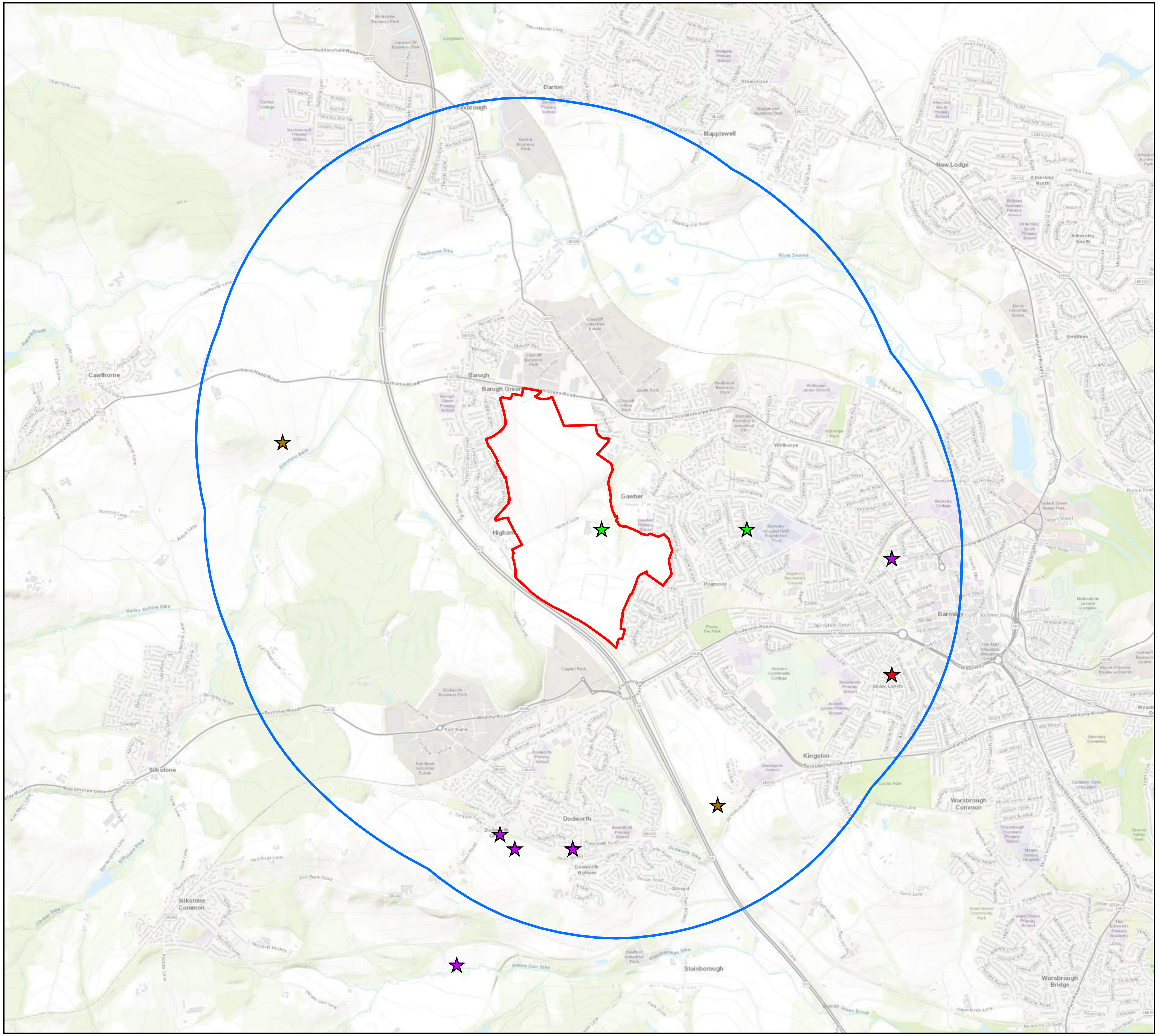
Rev	Date	Notes
A	04/01/21	Initial map production



Legend

- Site boundary
- Site boundary 2km buffer
- Common pipistrelle roost, *Pipistrellus pipistrellus*
- Pipistrelle sp. roost, *Pipistrellus spec.*
- Leisler's bat roost, *Nyctalus leisleri*
- Unidentified bat roost

0 250 500 1,000 Metres

N

Map of Roost Records within 2 km of the Site

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:25,000	784-A107940-3	Figure 5	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	04/01/2021	Monica Souza

Rev	Date	Notes
A	04/01/21	Initial map production

Legend

Site boundary

Areas identified as having significant ecological value by the LPA

Areas of Ecological Value Identified by the Council / Wildscapes in 2013 / 2014

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 6	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	04/01/2021	Monica Souza

Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Myotis sp., *Myotis spec.*
- Noctule, *Nyctalus noctula*
- Noctule sp., *Nyctalus spec.*
- Common pipistrelle, *Pipistrellus pipistrellus*
- Soprano pipistrelle, *Pipistrellus pygmaeus*
- Pipistrelle sp., *Pipistrellus spec.*
- Brown long-eared bat, *Plecotus auritus*
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- SI Neutral grassland - semi-improved
- I Improved grassland
- Marshy grassland
- Tall ruderal
- Standing water
- A Arable
- A Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Species-rich defunct (with trees)
- Species-poor defunct (with trees)
- Species-poor
- Species-rich
- Species-poor defunct
- Species-rich with trees
- Species-poor with trees

0 100 200 400 Metres

N

wyg

Transect Results June

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	**Project No:**	**Drawing No:**	**Revision:**
1:7,000	784-A107940-3	Figure 7	A

Drawn by:	**Drawn date:**	**Approved by:**
Ben Blowers	16/12/2020	Monica Souza

Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Common pipistrelle, *Pipistrellus pipistrellus*
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- SI — Neutral grassland - semi-improved
- I — Improved grassland
- Marshy grassland
- Tall ruderal
- Standing water
- A — Arable
- A — Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Species-rich defunct (with trees)
- Species-poor defunct (with trees)
- Species-poor
- Species-rich
- Species-poor defunct
- Species-rich with trees
- Species-poor with trees

0 100 200 400 Metres

N

Transect Results July

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 8	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

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Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Myotis sp., *Myotis spec.*
- Noctule, *Nyctalus noctula*
- Noctule sp., *Nyctalus spec.*
- Common pipistrelle, *Pipistrellus pipistrellus*
- Soprano pipistrelle, *Pipistrellus pygmaeus*
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- SI Neutral grassland - semi-improved
- I Improved grassland
- Marshy grassland
- Tall ruderal
- Standing water
- A Arable
- A Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Species-rich defunct (with trees)
- Species-poor defunct (with trees)
- Species-poor
- Species-rich
- Species-poor defunct
- Species-rich with trees
- Species-poor with trees

0 100 200 400 Metres

N

Transect Results August Dusk

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 9	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Myotis sp., *Myotis spec.*
- Common pipistrelle, *Pipistrellus pipistrellus*
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- SI Neutral grassland - semi-improved
- I Improved grassland
- Marshy grassland
- Tall ruderal
- Standing water
- A Arable
- A Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Species-rich defunct (with trees)
- Species-poor defunct (with trees)
- Species-poor
- Species-rich
- Species-poor defunct
- Species-rich with trees
- Species-poor with trees

0 100 200 400 Metres

N

Transect Results August Dawn

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 10	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Myotis sp., *Myotis spec.*
- Noctule, *Nyctalus noctula*
- Common pipistrelle, *Pipistrellus pipistrellus*
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- Sl — Neutral grassland - semi-improved
- I — Improved grassland
- Marshy grassland
- Tall ruderal
- Standing water
- A — Arable
- A — Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Species-rich defunct (with trees)
- Species-poor defunct (with trees)
- Species-poor
- Species-rich
- Species-poor defunct
- Species-rich with trees
- Species-poor with trees

0 100 200 400 Metres

Transect Results September

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 11	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

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Rev	Date	Notes
A	16/12/20	Initial map production

Legend

- Site boundary
- Noctule, *Nyctalus noctula*
- Common pipistrelle, *Pipistrellus pipistrellus*
- Broadleaved woodland - semi-natural
- Scrub - dense/continuous
- SI — Neutral grassland - semi-improved
- I — Improved grassland
- Marshy grassland
- Tall ruderal
- Standing water
- A — Arable
- A — Amenity grassland
- Buildings
- Hardstanding
- Bare ground
- Species-rich defunct (with trees)
- Species-poor defunct (with trees)
- Species-poor
- Species-rich
- Species-poor defunct
- Species-rich with trees
- Species-poor with trees

0 100 200 400 Metres

N

Transect Results October

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 12	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	16/12/2020	Monica Souza

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Rev	Date	Notes
A	17/12/20	Initial map production

Legend

Site boundary

Bat echolocations per 20m^2

- 0
- 1 - 105
- 106 - 206
- 207 - 307
- 308 - 409
- 410 - 510
- 511 - 611
- 612 - 712
- 713 - 813
- 814 - 914
- 915 - 1,016

0 100 200 400 Metres

N

Transect Results June to October Heat Map

Barnsley West
Strata Sterling Barnsley West Ltd

Scale at A3:	Project No:	Drawing No:	Revision:
1:7,000	784-A107940-3	Figure 13	A

Drawn by:	Drawn date:	Approved by:
Ben Blowers	17/12/2020	Monica Souza

Appendix A – Report Conditions

This Report has been prepared using reasonable skill and care for the sole benefit of Strata Sterling Barnsley Ltd ("the Client") for the proposed uses stated in the report by WYG Environment Planning Transport Limited ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to WYG or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. WYG does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

Appendix B – Bat Roost Assessment Results

Table B1: Bat Roost Assessment Results for Buildings

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B1	Hermit House Farm	Block construction, corrugated metal roof (slight pitch), single storey, no loft void or obvious potential roost locations. Open access (doors only half height).	Negligible	

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B2	Hermit House Farm	Lower walls - block construction, upper walls – vertical wooden slats. Dual pitched corrugated roof, no loft void, open access into barn.	Negligible	 

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B3	Hermit House Farm	Brick construction, single storey, dual pitch corrugated metal roof, no loft void, open access barn.	Low	 

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph	
B4	Hermit House Farm	Large barn with multiple sections of different material. Lower wall materials included brick and block walls, with upper wall sections comprising either asbestos, corrugated iron or asbestos cladding. Corrugated metal roof (no roof void), open access to a large area of the barn (via open / half-length doors). Limited potential for roosting but given the size and complex floor plan and site of the building, assessed as offer Moderate suitability.	Moderate		
					

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B5	Hermit House Farm	Lower walls - block construction, upper walls – vertical wooden slats, dual pitched corrugated roof, no loft void, open access barn.	Negligible	
B6	Hermit House Farm	Single storey, block construction, single pitched (slightly) corrugated metal roof, no loft void, open access due to half-length doors, no obvious potential roost features.	Negligible	

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B7	Hermit House Farm	Built in 1983, single storey, stone construction, dual pitched concrete tile roof with roof void, UPVC soffits (well-sealed with silicone) and windows. Roof, mortar and building generally in good condition with no Potential Roost Features (PRFs) noted.	Negligible	 

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B8	Hermit House Farm	Built in 2006, single storey, stone construction, dual pitched concrete tile roof with roof void, UPVC soffits and windows. Roof, mortar and building generally in good condition with no PRFs noted.	Negligible	 

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B9	Redbrook Farm	Corrugated metal roof suspended by steel posts, no loft void, considered unsuitable for roosting bats.	Negligible	

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B10	Redbrook Farm	Corrugated metal / wooden construction, two-storey height, corrugated metal dual pitch roof, uninsulated, no loft void, open access via half height doors, no obvious PRFs for bats.	Negligible	 

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B11	Redbrook Farm	Brick construction, flat roof, open access via missing windows, open doors, holes in wall, some missing mortar, single storey.	Moderate	 

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B12	Redbrook Farm	Metal silo, open access via missing hatch. No PRFs identified externally or internally. Considered unsuitable for roosting bats.	Negligible	
B13	Redbrook Farm	Corrugated metal sheet and wooden slat construction, open access barn, slight pitched corrugated metal roof, no loft void, no PRFs for bats seen.	Negligible	

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B14	Redbrook Farm	Single storey, block construction, wooden barge board, corrugated metal roof, no loft void.	Negligible	
B15	Redbrook Farm	Brick interior, stone outer wall, open access via missing doors and holes / cavities observed in wall, single storey.	Low	

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph	
B16	Redbrook Farm	Two-storey farmhouse, slate dual pitched roof, stone / brick construction, some concrete render, loft void present. Farmer indicated that bats have historically roosted in building (prior to 2018). Potential access points available due to missing mortar / damage stone at the upper wall sections and also under slate tiles.	High		
					

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B17	Redbrook Farm	Corrugated metal construction with wooden cladding Gaps between metal and wooded cladding boards, Air vents on north and south walls.	Low	
B18	Offsite	Offsite garage associated with adjacent residential dwelling. Adjoins the site boundary in the south-east of the site. Stone construction with dual pitch slate roof. Open access to roof void / internal area between tiles and upper wall.	Moderate	

#	Location	Description and Potential Roost Features	Roost Suitability	Photograph
B19	Redbrook Farm (off site)	Block construction with a flat, corrugated metal roof. Some missing barge board (timber) but considered unlikely to support any suitable features for roosting bats.	Negligible	

Table B2: Bat Roost Assessment Results for Trees

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T1	Pedunculate oak	50	Snapped limb (south facing, 7m high) but offered limited space for roosting bats.	Woodland, hedgerow and stream	Low	
T2	Sycamore (Dead)	25	Some lifted bark but limited opportunities for bats.	Woodland, hedgerow and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T3	Pedunculate oak	40	Snapped limb (north-east facing, 6m high, upward facing feature).	Woodland, hedgerow and stream	Low	
T4	Pedunculate oak	60	Some cracked / damaged limbs but no clear PRFs.	Hedgerow	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T5	Pedunculate oak	50	Some cracked / damaged limbs but no clear PRFs.	Hedgerow	Low	
T6	Pedunculate oak	50	Some cracked / damaged limbs but no clear PRFs.	Hedgerow	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T7	Ash	30 (two trunks)	Hollow cavity at base (east facing).	Woodland and woodland ride, caused by water runoff	Moderate	
T8	Willow sp.	3 trucks (each approx. 20cm)	Dead limbs with cracks; snapped / contorted truck.	Woodland and stream	Moderate	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T9	Pedunculate oak	50	Multiple snapped limbs, knot hole, lifted bark (south-east facing).	Woodland and stream	Moderate	
T10a-g	Seven Pedunculate oak trees	30 - 50	Most had some missing / snapped limbs but no obvious features with suitability to support roosting bats.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T11	Pedunculate oak	40	Knot hole; cavity at base of tree (north & south face) – little owl *Athene noctua* nest was present in cavity. Squirrels were nesting in the cavity in 2018.	Woodland and stream	Moderate	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T12	Pedunculate oak	60	Trunk split (south-west facing) and snapped / cracked limbs.	Isolated in middle of pastoral field	Moderate	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T13	Pedunculate oak	80	Some snapped / missing limbs but limited suitability for roosting bats.	Woodland and stream	Low	
T14	Deadwood	30	Lifted bark. Surveyed as a Moderate tree in 2018 but downgraded to Low suitability in 2020 - new growth of vegetation around the tree had reduced access to the tree for bats.	Pond, stream and woodland	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T15	Willow sp.	20	Assessed as having Moderate suitability in 2018 due to cavity on southern face. However, in 2020, the tree had snapped at the cavity, which then offered limited suitability for bats. As such, downgraded to Low suitability.	Woodland and stream	Low	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T16	Sycamore	60	Knot hole (west face, 3m high).	Woodland and stream	Moderate	
T17	Pedunculate oak	60	Lifted bark; snapped limb.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T18	Dead	15	Woodpecker hole (west face, 7m high).	Woodland and stream	Negligible	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T19	Pedunculate oak	50	Split limbs, plus new snapped limb damage. Limited suitability to support roosting bats though.	Woodland and stream	Low	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T20	Pedunculate oak	40	Split limbs but these offer limited suitability to support roosting bats.	Woodland and stream	Low	No photograph available.
T21	Sycamore	25 (three trunks)	Two cavities on east facing side provided access into trunk.	Woodland and stream	Moderate	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T22	Sycamore	20 (three trunks)	Cavity on eastern face at 1.5m, provided access into the main trunk.	Woodland and stream	Moderate	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T23	Pedunculate oak	80	Cavity at base on south-east face; split limb at 12m on east face.	Woodland and stream	Moderate	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T24	Pedunculate oak	100	Some damaged limbs and minor decay at base of trunk, but no clear PRFs.	Hedgerow (connected to stream)	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T25	Beech	100	Trunk rot provides multiple roost opportunities for bats in trunk cavity. knot hole and split limb also (on eastern aspect at 10m).	Scrub and scattered trees	Moderate	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T26	Pedunculate oak	70	Potential access point at base of tree (on northern and southern aspect) due to internal tree rot in trunk. However, these access points were cluttered with vegetation and did not appear to lead to any suitable crevices / cavities.	Hedgerow and adjacent residential gardens	Low	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T27	Pedunculate oak	50	Some limb damage had created small cavities in some smaller limbs (less than 10cm diameter) but the cavities were largely exposed to elements.	Hedgerow	Low	
T28	Sycamore	20-40 (multi-stem)	Trunk cavity with small internal space at top but offered limited cavity space for roosting bats and lots of cobwebs were present.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T29	Pedunculate oak	80	Trunk cavity at base of tree (north-western aspect) but no suitable crevices for bats. On south-eastern aspect at 10m – a hole in the trunk but to shallow to act as a PRF.	Woodland and stream	Low	
T30	Pedunculate oak	20 (two trunks)	Trunk cavity on southern aspect of northern stem.	Woodland and stream	Moderate	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T31	Pedunculate oak	30	Trunk cavity on eastern aspect at 1.5m.	Woodland and stream	Moderate	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T32	Pedunculate oak	30	Tree cavity, although was noted to support a significant number of woodlice at the time of survey.	Woodland and stream	Moderate	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T33	Pedunculate oak	30	Two split branches (extending westward and eastward). Westward stretching branch had cavity which formed a PRF. A cavity was also present in the eastward stretching branch, but suitability of this to support bats was unclear from ground level.	Woodland and stream	Moderate	
T34	Pedunculate oak	40	Branch split but cavity space for bats was limited.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T35	Pedunculate oak	40	Branch cavity but limited crevice space for bats.	Woodland and stream	Low	
T36	Pedunculate oak	60	Some branch damage but limited cavity space for bats.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T37	Pedunculate oak	40	Some broken / rotted limbs, but limited space for roosting bats.	Woodland and stream	Low	
T38	Pedunculate oak	60	Some broken / rotted limbs, but limited space for roosting bats.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T39	Pedunculate oak	60	Some broken / rotted limbs, but limited space for roosting bats.	Woodland and stream	Low	
T40	Pedunculate oak	60	Some broken / rotted limbs, but limited space for roosting bats.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T41	Pedunculate oak	50	Some broken limbs and lifted bark.	Woodland and stream	Low	
T42	Rowan	20-30 (multi-stem)	Trunk cavity on southern-most stem (facing north), lifted bark and some cavities in trunk / branches, but either not sufficient size for roosting bats or exposed to elements.	Woodland and stream	Low	

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T43	Pedunculate oak	60	Lost / rotten limbs; knot hole and lifted bark.	Hedgerow	Moderate	 

#	Species	Estimated DBH (cm)*	Potential Roost Features	Connectivity	Roost Suitability	Photograph
T44	Ash	30	Trunk cavity	Hedgerow	Moderate	 
All other trees on site were considered to be of negligible suitability for roosting bats. * DBH (Diameter at Breast Height)						

Appendix C – Bat Emergence / Re-entry Survey Results

Table C1 - Bat Emergence / Re-entry Survey Results

#	Roost Suitability	Date	Type	Specie Recorded	First Bat (Emergence) / Last Bat (Re-entry)	Maximum Number of Bats Seen at One Time	Summary of Activity
B3 & B4	Low & Moderate	15.07.20	Dusk	Common pipistrelle, noctule, BLE	Noctule at 21:43 (16 minutes after sunset).	5	**No emergence** Bats were seen foraging around the buildings and occasionally flying though the barns (Buildings 3 & 4) to forage.
		15.09.20	Dawn	Common pipistrelle and *Myotis* sp.	Common pipistrelle at 5:58 (over 57 minutes before sunrise).	3	**No re-entry** Bats were seen foraging around the buildings and occasionally flying through the barn (Building 4) to forage.
B11	Moderate	13.07.20	Dusk	Common pipistrelle and *Pipistrelle* sp. (calling at 50khz)	Common pipistrelle at 21:33 (4 minutes after sunset).	4	**No emergence** Bats were seen foraging around the buildings.
		10.09.20	Dawn	Common pipistrelle	Common pipistrelle at 05:17 (over 1 hour before sunrise).	1	**No re-entry** Only a single common pipistrelle was heard but not seen.
B15	Low	27.07.20	Dusk	Common pipistrelle and soprano pipistrelle.	Noctule at 21:33 (23 minutes after sunset).	1	**No emergence** Bats were recorded foraging near the building.

B16	High	21.07.20	Dusk	Common pipistrelle, soprano pipistrelle and *Myotis* sp.	Common pipistrelle at 21:30 (11 minutes after sunset).	1	**A common pipistrelle was recorded entering B16 at 21:30, above a window on the north-eastern aspect. A common pipistrelle was seen to emerge from the same location (above the window) at 21:47. Another common pipistrelle re-entry was then recorded at the same location at 21:59. This could have involved up to three bats but is considered likely to have been a single common pipistrelle.** **One potential soprano pipistrelle emergence was also noted – this bat was seen flying away from the top of a window on the north-eastern aspect of the building (different window to the one discussed above for the common pipistrelle(s).** Bats were seen foraging and commuting along the treeline, foraging around the building, and commuting over the building.

#	Roost Suitability	Date	Type	Specie Recorded	First Bat (Emergence) / Last Bat (Re-entry)	Maximum Number of Bats Seen at One Time	Summary of Activity
		27.08.20	Dawn	Common pipistrelle and noctule	Common pipistrelle at 05:47 (20 minutes before sunrise).	1	**No re-entry** Bats were recorded foraging and commuting around the house.
		15.09.20	Dusk	Common pipistrelle and noctule	Noctule at 19:30 (10 minutes after sunset).	2	**Two potential common pipistrelle emergences were noted. These bats were seen flying from the roof area on the north-eastern aspect of the building**. Bats were seen foraging and commuting along the treeline, foraging around the building, and commuting over the building.
B17	Low	25.06.20	Dusk	Common pipistrelle and noctule	Common pipistrelle at 22:04 (24 minutes after sunset).	2	**No emergence** Bats were seen foraging near the building and commuting over the building.
B18	Moderate	30.06.20	Dusk	Common pipistrelle, Leisler's bat, *Myotis* sp. Noctule	Noctule at 21:48 (9 minutes after sunset).	2	**No emergence** Bats were recorded commuting north to south on either side of the building.
		08.09.20	Dawn	Common pipistrelle and soprano pipistrelle	Common pipistrelle at 06:01 (27 minutes before sunrise).	2	**No re-entry** Bats were recorded commuting north to south.

#	Roost Suitability	Date	Type	Specie Recorded	First Bat (Emergence) / Last Bat (Re-entry)	Maximum Number of Bats Seen at One Time	Summary of Activity
T7	Moderate	28.07.20	Dawn	*Myotis* sp.	Common pipistrelle at 03:57 (over an hour before sunrise).	N/A	**No re-entry** A single *Myotis sp.* was heard but not seen.
		15.09.20	Dusk	Common pipistrelle, *Myotis* sp. and noctule	Common pipistrelle at 19:31 (11 minutes after sunset).	N/A	**No emergence** Bats were heard but not seen.
T8	Moderate	28.07.20	Dawn	Common pipistrelle, *Myotis* sp. and noctule	Common pipistrelle at 04:41 (35 minutes before sunrise).	N/A	**No re-entry** Bats were heard but not seen.
		15.09.20	Dusk	Common pipistrelle, BLE, *Myotis* sp. and noctule	Noctule at 19:31 (11 minutes after sunset).	N/A	**No emergence** Bats were heard but not seen.
T9	Moderate	28.07.20	Dawn	Common pipistrelle and BLE	Common pipistrelle at 04:32 (over 44 minutes before sunrise).	1	**No re-entry** One common pipistrelle was seen foraging behind the treeline. Other bats were heard but not seen.
		15.09.20	Dusk	Common pipistrelle, noctule and Leisler's bat.	Noctule at 19:31 (11 minutes after sunset).	N/A	**No emergence** Bats were heard but not seen.
T11	Moderate	04.08.20	Dusk	Common and soprano pipistrelle	Soprano pipistrelle at 21:16 (20 minutes after sunset).	1	**No emergence** Bats were recorded commuting and foraging along the woodland.
		09.09.20	Dawn	Common pipistrelle, *Myotis* sp. and BLE	*Myotis* sp. at 05:41 (49 minutes before sunrise).	1	**No re-entry** Bats were heard commuting and foraging along the woodland.
T12	Moderate	23.07.20	Dusk	Common and soprano pipistrelle	Common pipistrelle at 21:56 (40 minutes after sunset).	2	**No emergence** Bat were recorded commuting and foraging over the field.

#	Roost Suitability	Date	Type	Specie Recorded	First Bat (Emergence) / Last Bat (Re-entry)	Maximum Number of Bats Seen at One Time	Summary of Activity
		09.09.20	Dawn	Common pipistrelle, noctule and BLE	Common pipistrelle at 05:35 (55 minutes before sunrise).	2	**No re-entry** Two bats were seen foraging around the tree other bats were heard but not seen.
T16	Moderate	25.06.20	Dusk	Common pipistrelle and noctule	Noctule at 21:58 (18 minutes after sunset).	2	**No emergence** Bats were recorded commuting and foraging along the woodland.
		10.09.20	Dawn	Common pipistrelle, noctule and *Myotis* sp.	Common pipistrelle at 05:53 (40 minutes before sunrise).	3	**No re-entry** Bats were recorded commuting and foraging along the woodland.
T21 & T22	Moderate	17.06.20	Dusk	Common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle and noctule, BLE	Common pipistrelle at 22:07 (29 minutes after sunset).	2	**No emergence** Bats were recorded commuting and foraging along the woodland.
		06.08.20	Dawn	Common pipistrelle and soprano pipistrelle	Common pipistrelle at 05:12 (19 minutes before sunrise).	2	**No re-entry** Bats were recorded commuting and foraging along the woodland.
T23	Moderate	17.06.20	Dusk	Common pipistrelle, BLE and noctule	Noctule at 22:07 (29 minutes after sunset).	1	**No emergence** Bats were recorded commuting and foraging along the woodland through the night.
		06.08.20	Dawn	Common pipistrelle and noctule	Common pipistrelle at 05:12 (19 minutes before sunrise).	3	**No re-entry** Bats were recorded commuting and foraging along the woodland.
T25	Moderate	30.06.20	Dusk	Common pipistrelle	Common pipistrelle at 21:59 (20 minutes after sunset).	3	**No emergence**

#	Roost Suitability	Date	Type	Specie Recorded	First Bat (Emergence) / Last Bat (Re-entry)	Maximum Number of Bats Seen at One Time	Summary of Activity
							Bats were recorded commuting and foraging mostly near or toward the adjacent tree line.
		30.07.20	Dawn	Common pipistrelle	Common pipistrelle at 05:00 (19 minutes before sunrise).	1	**No re-entry** Bats were recorded commuting and foraging mostly near or toward the adjacent tree line.
T30	Moderate	17.06.20	Dusk	Common pipistrelle	Common pipistrelle at 22:12 (26 minutes after sunset).	1	**No emergence** Bats were commuting and foraging along the tree line.
		06.08.20	Dawn	Common pipistrelle and soprano pipistrelle	Common pipistrelle at 05:21 (10 minutes before sunrise).	1	**No re-entry** Bats were commuting and foraging along the tree line.
T31	Moderate	14.07.20	Dusk	Common pipistrelle and soprano pipistrelle	Common pipistrelle at 21:45 (17 minutes after sunset).	1	**No emergence** Bats were commuting and foraging along the tree line.
		16.09.20	Dawn	Common pipistrelle and soprano pipistrelle	Common pipistrelle at 05:59 (56 minutes before sunrise).	1	**No re-entry** Bats were commuting and foraging along the tree line.
T32	Moderate	14.07.20	Dusk	Common pipistrelle, soprano pipistrelle, Noctule, BLE	Common pipistrelle at 21:46 (18 minutes after sunset).	N/A	**No emergence** Bats were heard but not seen.
		16.09.20	Dawn	Common pipistrelle, noctule, BLE, *Myotis* sp.	Noctule at 06:26 (16 minutes before sunrise).	1	**No re-entry** Bats were commuting and foraging along the tree line.
T33	Moderate	14.07.20	Dusk	Common pipistrelle	Common pipistrelle at 21:46 (18 minutes after sunset).	N/A	**No emergence** Bats were heard but not seen.

#	Roost Suitability	Date	Type	Specie Recorded	First Bat (Emergence) / Last Bat (Re-entry)	Maximum Number of Bats Seen at One Time	Summary of Activity
		16.09.20	Dawn	Common pipistrelle, noctule, BLE, and *Myotis* sp.	Noctule at 06:26 (16 minutes before sunrise).	1	**No re-entry** Bats were commuting and foraging along the woodland edge.
T43	Moderate	06.07.20	Dusk	Common pipistrelle, BLE, and *Myotis* sp.	Common pipistrelle at 22:25 (50 minutes before sunset).	1	**No emergence** One common pipistrelle was seen foraging along the tree line other bats were heard but not seen.
		14.08.20	Dawn	Common pipistrelle	Common pipistrelle at 04:31 (14 minutes before sunrise).	N/A	**No re-entry** Bat were heard but not seen.
T44	Moderate	06.07.20	Dusk	Common pipistrelle, and *Myotis* sp.	Common pipistrelle at 22:12 (37 minutes before sunset).	1	**No emergence** One bat seen commuting along the tree line. Other bats were heard but not seen.
		14.08.20	Dawn	Common pipistrelle.	Common pipistrelle at 05:14 (31 minutes before sunrise).	1	**No re-entry** One common pipistrelle was seen foraging along the tree line other bats were heard but not seen.

Appendix D – Bat Activity Survey Results

Table D1 - Bat Activity Survey Results

Month	Type	Relevant Figures	Species Recorded	Summary of Activity Recorded
June	Dusk	Figure 7	Common pipistrelle, soprano pipistrelle, noctule, *Nyctalus* sp. and *Myotis* sp., and BLE	The first bat was a common pipistrelle heard but not seen near the woodland to the west of the farm buildings at 21:46 (7 minutes after sunset). Most of the bat activity was concentrated along hedgerow 23 (H23), the double hedgerow along hermit Lane (H15 -17) along the long hedgerow in the north of site (H5 and H14); and, in the woodland and near the Hermit House Farm. Notable levels of activity were also recorded: along the small interconnected hedgerow in the south (H25-28) and in the north (H7-10) of site; as well as near H34. The BLE was recorded near Hermit House Farm, the noctules were recorded along H14 and H35, *Myotis sp.* were recorded along H15 and soprano pipistrelles were recorded within the woodland in the centre of site.
July	Dusk	Figure 8	Common pipistrelle	The first bat was a common pipistrelle recorded at 21:54 (38 minutes after sunset) foraging along H31. Bat activity was mostly concentrated in the south site. In the south-east, activity was particularly associated to the woodland, the hedgerows (H2 and H4) surrounding the arable field in the south-east of site and the scrub near both the woodland and the arable field. Activity was also recorded on hedgerows near these areas (H1, H20 H22 and H23). In the south-west, activity was recorded along the small interconnected hedgerows H25 - 28 and H31. Notable levels of activity were also recorded on the double hedgerow along hermit Lane (H15 -17) and the small interconnected hedgerows in the north of the site (H9-10). An incidental record of a hedgehog *Erinaceus europaeus* was made adjacent to hedgerow H3.
August	Dusk	Figure 9	Common pipistrelle, soprano pipistrelle, noctule, *Nyctalus* sp. and *Myotis* sp.	The first bat was common pipistrelle at 20:53 (26 minutes after sunset), seen commuting along the woodland edge in the south-east of the site. On the southern transect, activity was recorded: along the double hedgerow along hermit Lane (H15 -17); the small interconnected hedgerows in the south (H25-28 and H31-33 and H35), the woodland in the south-east of the site and H23; as well as H34 and H29 which

Month	Type	Relevant Figures	Species Recorded	Summary of Activity Recorded
				connect the three areas described above (the double hedgerow, the small interconnected hedgerow, and the woodland). On the northern transect, activity was largely recorded along the small interconnected hedgerows (H6-8) and the long hedgerow (H5 and H14) connecting them to Hermit Lane. Noctules were recorded near H8, H14, the double hedge along Hermit Lane and the western boundary. *Myotis sp.* were recorded near the woodland near H33 and H35. A soprano pipistrelle was recorded along Hermit Lane.
August	Dawn	Figure 10	Common pipistrelle and *Myotis sp.*	The last bat was common pipistrelle recorded at 05:13 (40 minutes before sunrise). On the northern transect, activity was largely recorded along the small interconnected hedgerows (H6-8) and the long hedgerow (H5 and H14) connecting them to Hermit Lane. On the southern transect, activity was largely: along the small hedgerows in the south of site (H25-28 and H31); along H23; and along H24 which connects the former two. Notable levels of activity were also recorded near the woodland and Hermit House Farm as well as hedgerow leading to those such as H19, H20 and H22. *Myotis sp.* were recorded within the woodland.
September	Dusk	Figure 11	Common pipistrelle, noctule, and *Myotis* sp.	The first bat was a noctule seen commuting towards Hermit Lane in the south-east of the site at 19:11 (8 minutes after sunset, indicating it may roost near that area). *Myotis sp.* were recorded near the woodland. On the northern transect, activity was largely recorded along the small interconnected hedgerows (H6-8) and the long hedgerow (H5 and 14) connecting them to Hermit Lane. On the southern transect, activity was largely recorded: along the small hedgerows in the south of site (H25-28 and H31-H33); on H23 and the tall ruderal vegetation to the north of H23; as well as near the woodland (including H1) and Hermit House Farm. Notable levels of activity were also recorded along Hermit Lane (H15) and H24. *Myotis sp.* were recorded within the woodland. A noctule was recorded near the south-eastern boundary.
October	Dusk	Figure 12	Common pipistrelle, and noctule	The first bat was common pipistrelle 18:44 seen foraging along H23. Bat activity was largely recorded near the woodland, Hermit Farm buildings and H28. A noctule was recorded on H13. Activity recorded in October was lower than activity recorded on the previous surveys. A single barn owl *Tyto alba* was recorded adjacent to hedgerow H15.

Appendix E – Remote Static Detector Survey Results

Table E1: Total bat passes recorded by remote static detectors

Static Location	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	*Pipistrellus* sp.	Noctule	Leisler's Bats	*Nyctalus* sp.	*Myotis* sp.	BLE	Unidentified	Total
S1	122	-	-	-	-	-	1	1	2	-	126
S2	544	-	-	25	-	-	2	11	-	-	582
S3	187	-	-	-	3	-	-	1	-	-	191
S4	279	-	-	2	11	-	-	1	2	-	295
S5	1305	-	-	-	2	-	1	3	-	-	1311
S6	19	-	-	-	-	1	-	-	-	-	20
S7	6	-	-	-	1	-	1	-	-	-	8
S8	575	19	-	-	-	-	11	1	-	-	606
S9	1151	1	-	-	-	-	-	-	-	-	1152
S10	1234	3	-	1	1	1	-	1	-	-	1241
S11	2063	10	1	2	1	8	4	5	-	-	2094
S12	4050	92	-	4	-	-	-	228	-	1	4375
S13	35	-	-	-	-	1	-	-	-	-	36
S14	347	10	-	-	1		-	11	-	4	373
S15	2793	7	-	9	-	1	-	21	-	1	2832
S16	1233	18	-	3	-	1	-	-		-	1255
Total	15943	160	1	46	20	13	20	284	4	6	16497
%	96.642	0.970	0.006	0.279	0.121	0.079	0.121	1.722	0.024	0.036	100

Appendix F – Wildlife Legislation

Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the Convention, and regulate the exploitation of species listed in Appendix 3. The regulation imposes legal obligations on participating countries to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Conservation of Habitats and Species Regulations 2017 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by Ministers, are then designated as Special Protection Areas (SPAs) within six years. Public bodies must also help preserve, maintain and re-establish habitats for wild birds.

The 2018 amendments mainly related to the impact of the *People Over Wind* decision and some implications arising for neighbourhood plan development and a range of other planning tools including Local Development Orders and Permission in Principle – see here for full details:

https://www.legislation.gov.uk/uksi/2018/1307/note/made

The Regulations make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	**Schedule 5 – European Protected Species of Plants**
Horseshoe bats *Rhinolophidae* - all species	Shore dock *Rumex rupestris*
Common bats *Vespertilionidae* - all species	Killarney fern *Trichomanes speciosum*
Large Blue Butterfly *Maculinea arion*	Early gentian *Gentianella anglica*
Wild cat *Felis sylvestris*	Lady's-slipper *Cypripedium calceolus*
Dolphins, porpoises and whales *Cetacea* – all sp.	Creeping marsh-wort *Apium repens*
Dormouse *Muscardinus avellanarius*	Slender naiad *Najas flexilis*
Pool frog *Rana lessonae*	Fen orchid *Liparis loeselii*
Sand lizard *Lacerta agilis*	Floating-leaved water plantain *Luronium natans*
Fisher's estuarine moth *Gortyna borelii lunata*	Yellow marsh saxifrage *Saxifraga hirculus*

Great crested newt *Triturus cristatus*	
Otter *Lutra lutra*	
Lesser whirlpool ram's-horn snail *Anisus vorticulus*	
Smooth snake *Coronella austriaca*	
Sturgeon *Acipenser sturio*	
Natterjack toad *Epidalea calamita*	
Marine turtles *Caretta caretta, Chelonia mydas, Lepidochelys kempii, Eretmochelys imbricata, Dermochelys coriacea*	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the 'Bern Convention' and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;
- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9.

It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties			
Avocet	*Recurvirostra avosetta*	Osprey	*Pandion haliaetus*

Bee-eater	*Merops apiaster*	Owl, Barn	*Tyto alba*
Bittern	*Botaurus stellaris*	Owl, Snowy	*Nyctea scandiaca*
Bittern, Little	*Ixobrychus minutus*	Peregrine	*Falco peregrinus*
Bluethroat	*Luscinia svecica*	Petrel, Leach's	*Oceanodroma leucorhoa*
Brambling	*Fringilla montifringilla*	Phalarope, Red-necked	*Phalaropus lobatus*
Bunting, Cirl	*Emberiza cirlus*	Plover, Kentish	*Charadrius alexandrinus*
Bunting, Lapland	*Calcarius lapponicus*	Plover, Little Ringed	*Charadrius dubius*
Bunting, Snow	*Plectrophenax nivalis*	Quail, Common	*Coturnix*
Buzzard, Honey	*Pernis apivorus*	Redstart, Black	*Phoenicurus ochruros*
Capercaillie	*Tetrao urogallus*	Redwing	*Turdus iliacus*
Chough	*Pyrrhocorax pyrrhocorax*	Rosefinch, Scarlet	*Carpodacus erythrinus*
Corncrake	*Crex crex*	Ruff	*Philomachus pugnax*
Crake, Spotted	*Porzana porzana*	Sandpiper, Green	*Tringa ochropus*
Crossbills (all species)	*Loxia*	Sandpiper, Purple	*Calidris maritima*
Curlew, Stone	*Burhinus oedicnemus*	Sandpiper, Wood	*Tringa glareola*
Divers (all species)	*Gavia*	Scaup	*Aythya marila*
Dotterel	*Charadrius morinellus*	Scoter, Common	*Melanitta nigra*
Duck, Long-tailed	*Clangula hyemalis*	Scoter, Velvet	*Melanitta fusca*
Eagle, Golden	*Aquila chrysaetos*	Serin	*Serinus serinus*
Eagle, White-tailed	*Haliaetus albicilla*	Shorelark	*Eremophila alpestris*
Falcon, Gyr	*Falco rusticolus*	Shrike, Red-backed	*Lanius collurio*
Fieldfare	*Turdus pilaris*	Spoonbill	*Platalea leucorodia*
Firecrest	*Regulus ignicapillus*	Stilt, Black-winged	*Himantopus himantopus*
Garganey	*Anas querquedula*	Stint, Temminck's	*Calidris temminckii*
Godwit, Black-tailed	*Limosa limosa*	Swan, Bewick's	*Cygnus bewickii*
Goshawk	*Accipiter gentilis*	Swan, Whooper	*Cygnus cygnus*
Grebe, Black-necked	*Podiceps nigricollis*	Tern, Black	*Chlidonias niger*
Grebe, Slavonian	*Podiceps auritus*	Tern, Little	*Sterna albifrons*
Greenshank	*Tringa nebularia*	Tern, Roseate	*Sterna dougallii*
Gull, Little	*Larus minutus*	Tit, Bearded	*Panurus biarmicus*
Gull, Mediterranean	*Larus melanocephalus*	Tit, Crested	*Parus cristatus*
Harriers (all species)	*Circus*	Tree-creeper, Short-toed	*Certhia brachydactyla*
Heron, Purple	*Ardea purpurea*	Warbler, Cetti's	*Cettia cetti*
Hobby	*Falco subbuteo*	Warbler, Dartford	*Sylvia undata*
Hoopoe	*Upupa epops*	Warbler, Marsh	*Acrocephalus palustris*
Kingfisher	*Alcedo atthis*	Warbler, Savi's	*Locustella luscinioides*
Kite, Red	*Milvus*	Whimbrel	*Numenius phaeopus*
Merlin	*Falco columbarius*	Woodlark	*Lullula arborea*
Oriole, Golden	*Oriolus oriolus*	Wryneck	*Jynx torquilla*
Animal (Vertebrate) Species Listed in Schedule 5 (full legal protection at all times)			
Horseshoe Bats (all species)	*Rhinolophidae*	Newt – Great Crested	*Triturus cristatus*
Typical Bats (all species)	*Vespertilionidae*	Snake – Smooth	*Coronella austriaca*
Dolphin – Bottle-nosed	*Tursiops truncatus (tursio)*	Toad, Natterjack	*Epidalea calamita*
Dolphin – Common	*Delphinus delphis*	Turtles – All Species	*Cheloniidae & Dermochelyidae*
Dormouse – Hazel	*Muscardinus avellanarius*	Basking Shark	*Cetorhinus maximus*
Pine Marten	*Martes*	Burbot	*Lota lota*
Porpoise – Harbour	*Phocaena phocaena*	Goby – Giant	*Gobius cobitis*
Otter – Eurasian	*Lutra*	Goby – Couch's	*Gobius couchii*

Squirrel – Red	*Sciurus vulgaris*	Seahorse – Short-snouted[2]	*Hippocampus*
Walrus	*Odobenus rosmarus*	Seahorse – Spiny	*Hippocampus guttulatus*
Water Vole	*Arvicola amphibius*	Sturgeon	*Acipenser sturio*
Whales – All Species	*Cetacea*	Vendace	*Coregonus albula*
Wildcat	*Felis sylvestris*	Whitefish	*Coregonus lavaretus*
Lizard – Sand	*Lacerta agilis*		
Animal (Vertebrate) Species Protected under Section 9 (1) part: Killing and Injuring & Section 9 (5) Sale			
Adder	*Vipera berus*	Slow-worm	*Anguis fragilis*
Lizard – Viviparous	*Zootoca vivipara*	Snake – Grass	*Natrix helvetica (natrix)*
Animals (Vertebrate) Species Protected under Section 9 (5) Sale only			
Frog – common	*Rana temporaria*	Newt – Smooth	*Lissotriton vulgaris*
Newt – Palmate	*Lissotriton helvetica*	Toad – Common	*Bufo bufo*
Animals (Vertebrate) Species Protected under Section 9 (1) (4)(a): Killing, Injuring &Taking and Damage / Destruction of place of shelter / protection only			
Allis Shad	*Alosa alosa*	Shark – Angel	*Squatina squatina*
Twaite Shad	*Alosa fallax*		
Butterflies & Moths – Full Protection under Schedule 5[3] at all times			
High brown fritillary	*Argynnis adippe*	Fisher's Estuarine Moth	*Gortyna borelii*
Large Blue	*Maculinea arion*	Barberry Carpet	*Pareulype berberata*
Heath Fritillary	*Mellicta athalea*	Black-veined Moth	*Siona lineata*
Marsh Fritillary	*Eurodryas aurinia*	Sussex Emerald	*Thalera fimbrialis*
Swallowtail	*Papilio machaon britannicus*	Essex Emerald	*Thetidia smaragdaris*
Large Copper	*Lycaena dispar*	Fiery Clearwing	*Bembecia chrysidiformis*
Reddish-buff Moth	*Acosmetia caliginosa*	New-Forest Burnet	*Zygaena viciae*
Butterflies – Protected under Section 9 (5) Sale Only			
Purple Emperor	*Apatura iris*	Adonis Blue	*Lysandra bellargus*
Northern Brown Argus	*Aricia artaxerxes*	Chalkhill Blue	*Lysandra coridon*
Pearl-bordered Fritillary	*Boloria euphrosyne*	Glanville Fritillary	*Melitaea cinxia*
Chequered Skipper	*Carterocephalus palaemon*	Large Tortoiseshell	*Nymphalis polychloros*
Large Heath	*Coenonympha tullia*	Silver-studded Blue	*Plebejus argus*
Small Blue	*Cupido minimus*	Black Hairstreak	*Strymonidia pruni*
Mountain Ringlet	*Erebia epiphron*	White-letter Hairstreak	*Strymonidia w-album*
Duke of Burgundy	*Hamearis lucina*	Brown Hairstreak	*Thecla betulae*
Silver-spotted Skipper	*Hesperia comma*	Lulworth Skipper	*Thymelicus acteon*
Wood White	*Leptidea sinapis*		
Other Invertebrates – Full Protection under Schedule 5 at all times			
Rainbow Leaf-beetle	*Chrysolina cerealis*	Tadpole Shrimp	*Triops cancriformis*
Spangled Diving-beetle	*Graphopterus zonatus*	Trembling Sea-mat	*Victorella pavida*
Lesser Silver Water-beetle	*Hydrochara caraboides*	De Folin's Lagoon Snail	*Caecum armoricum*
Moccas Beetle	*Hypebaeus flavipes*	Sandbowl Snail	*Catinella arenaria*
Violet Click-beetle	*Limoniscus violaceus*	Freshwater Pearl Mussel	*Margaritifera margaritifera*
Bembridge Beetle	*Parcymus aeneus*	Glutinous Snail	*Myxas glutinosa*
New Forest Cicada	*Cicadetta montana*	Lagoon Snail	*Paludinella littorina*

[2] Both sea horse species are protected in England only.

[3] Viper's Bugloss Moth *Hadena irregularis* was removed from Schedule 5 in 1996 as it is believed to be extinct.

Wart-Biter	*Decticus verrucivorus*	Lagoon Sea Slug	*Tenellia adspersa*
Mole-Cricket	*Gryllotalpa gryllotalpa*	Northern Hatchet-shell	*Thyasira gouldi*
Field-Cricket	*Gryllus campestris*	Tentacled Lagoon-worm	*Alkmaria romijni*
Norfolk Hawker Dragonfly	*Aeshna isosceles*	Lagoon Sand-worm	*Armandia cirrhosa*
Southern Damselfly	*Coenagrion mercuriale*	Medicinal Leech	*Hirudo medicinalis*
Fen Raft Spider	*Dolomedes fimbriatus*	Marine Hydroid	*Clavopsella navis*
Ladybird Spider	*Eresus niger (cinaberinus)*	Ivell's Sea Anemone	*Edwardsia ivelli*
Fairy Shrimp	*Chirocephalus diaphanus*	Starlet Sea Anemone	*Nematosella vectensis*
Lagoon Sand Shrimp	*Gammarus insensibilis*	Atlantic Stream (White-clawed) Crayfish	*Austropotamobius pallipes*
Other Invertebrates Protected under Section 9 (1) Possession & 9 (2) (5) Sale only			
Stag Beetle	*Lucanus cervus*	Roman Snail[4]	*Helix pomatia*
Fan Mussel	*Atrina fragilis*	Pink Sea-fan	*Eunicella verrucosa*
Other Invertebrates Protected under Section 9 (4) (a) Damage / Destruction of Place of Shelter / Protection only			
Mire Pill Beetle	*Curimopsis nigrita*		
Vascular Plant Species - Full Protection under Schedule 8 at all times (previous Scientific name in brackets)			
Adder's-tongue Least	*Ophioglossum lusitanicum*	Lily – Snowdon	*Gagea serotina (Lloydia serotina)*
Alison- Small	*Alyssum alyssoides*	Marsh-mallow – Rough	*Malva setigera (Althaea hirsuta)*
Broomrape – Bedstraw	*Orobanche caryophyllacea*	Milk-parsley – Cambridge	*Selinum carvifolia*
Broomrape – Oxtongue	*Orobanche picridis*	Mudwort – Welsh	*Limosella aquatica*
Broomrape – Thistle	*Orobanche reticulata*[5]	Naiad – Holly-leaved	*Najas marina*
Cabbage – Lundy	*Coincya wrightii (Rhynchosinapis wrightii)*	Orache – Stalked	*Atriplex pedunculata (Halimione pedunculata)*
Calamint – Wood	*Clinopodium menthifolium (Calamintha sylvatica)*	Orchid – Early Spider	*Ophrys sphegodes*
Catchfly – Alpine	*Silene suecica (Lychnis alpina)*	Orchid – Ghost	*Epipogium aphyllum*
Centaury – Slender	*Centaurium tenuiflorum*	Orchid – Lapland Marsh	*Dactylorhiza lapponica*
Cinquefoil – Rock	*Potentilla rupestris*	Orchid – Late Spider	*Ophrys fuciflora*
Clary – Meadow	*Salvia pratensis*	Orchid – Lizard	*Himantoglossum hircinum*
Club-rush – Triangular	*Schoenoplectus triqueter (Scirpus triqueter)*	Orchid – Military	*Orchis militaris*
Colt's-foot – Purple	*Homogyne alpina*	Orchid – Monkey	*Orchis simia*
Cotoneaster – Wild	*Cotoneaster cambricus (C. integerrimus)*	Pear – Plymouth	*Pyrus cordata*
Cotton-grass – Slender	*Eriophorum gracile*	Pennycress – Perfoliate	*Microthlaspi perfoliatum (Thlaspi perfoliatum)*
Cow-wheat – Field	*Melampyrum arvense*	Pennyroyal	*Mentha pulegium*
Crocus – Sand	*Romulus columnae*	Pigmyweed	*Crassula aquatica*
Cudweed – Broad-leaved	*Filago pyramidata*	Pine - Ground	*Ajuga chamaepitys*
Cudweed – Jersey	*Gnaphalium luteoalbum*	Pink – Cheddar	*Dianthus gratianopolitanus*
Cudweed – Red-tipped	*Filago lutescens*	Pink – Childing	*Petrorhagia nanteuilii*

[4] England only

[5] The Weeds Act 1959 does not apply to thistles *Cirsium* & *Carduus* species supporting this broomrape.

Cut-grass	*Leersia oryzoides*	Ragwort – Fen	*Jacobaea paludosa (Senecio paludosa)*
Deptford Pink	*Dianthus armeria*	Ramping-fumitory – Martin's	*Fumaria reuteri (F. martinii)*
Diapensia	*Diapensia lapponica*	Rampion – Spiked	*Phyteuma spicata*
Eryngo – Field	*Eryngium campestre*	Restharrow – Small	*Ononis reclinata*
Fern – Dickie's-bladder	*Cystopteris dickieana*	Rock-cress – Alpine	*Arabis alpina*
Fleabane – Alpine	*Erigeron borealis*	Rock-cress – Bristol	*Arabis scabra*
Fleabane – Small	*Pulicaria vulgaris*	Sandwort – Norwegian	*Arenaria norvegica*[6]
Galingale – Brown	*Cyperus fuscus*	Sandwort – Teesdale	*Minuartia stricta*
Gentian – Alpine	*Gentiana nivalis*	Saxifrage – Drooping	*Saxifraga cernua*
Gentian - Dune	*Gentianella amarella subsp. occidentalis (Gentianella uliginosa)*	Saxifrage – Tufted	*Saxifraga cespitosa*
Gentian – Fringed	*Gentianopsis ciliata (Gentianella ciliata)*	Solomon's-seal – Whorled	*Polygonatum verticillatum*
Gentian - Spring	*Gentiana verna*	Sow-thistle – Alpine	*Cicerbita alpina*
Germander – Cut-leaved	*Teucrium botrys*	Spearwort – Adder's-tongue	*Ranunculus ophioglossifolius*
Germander – Water	*Teucrium scordium*	Speedwell – Fingered	*Veronica triphyllos*
Gladiolus – Wild	*Gladiolus illyricus*	Speedwell – Spiked	*Veronica spicata*[7]
Goosefoot – Stinking	*Chenopodium vulvaria*	Spike-rush – Dwarf	*Eleocharis parvula*
Grass-poly	*Lythrum hyssopifolia*	South-stack Fleawort	*Tephroseris integrifolia ssp. maritima*
Hare's-ear – Sickle-leaved	*Bupleurum falcatum*	Star-of-Bethlehem – Early	*Gagea bohemica*
Hare's-ear – Small	*Bupleurum baldense*	Starfruit	*Damasonium alisma*
Hawk's-beard – Stinking	*Crepis foetida*	Strapwort	*Corrigiola littoralis*
Hawkweed – Northroe	*Hieracium northroense*	Violet – Fen	*Viola persicifolia*
Hawkweed – Shetland	*Hieracium zetlandicum*	Viper's-grass	*Scorzonera humilis*
Hawkweed – Weak-leaved	*Hieracium attenuatifolium*	Water-plantain – Ribbon-leaved	*Alisma gramineum*
Heath – Blue	*Phyllodoce caerulea*	Wood-sedge – Starved	*Carex depauperata*
Helleborine – Red	*Cephalanthera rubra*	Woodsia – Alpine	*Woodsia alpina*
Horsetail – Branched	*Equisetum ramosissimum*	Woodsia – Oblong	*Woodsia ilvensis*
Hound's-tongue – Green	*Cynoglossum germanicum*	Wormwood – Field	*Artemisia campestris*
Knawel – Perennial	*Scleranthus perennis*[8]	Woundwort - Downy	*Stachys germanica*
Knot-grass – Sea	*Polygonum maritimum*	Woundwort – Limestone	*Stachys alpina*
Leek – Round-headed	*Allium sphaerocephalon*	Yellow-rattle – Greater	*Rhinanthus angustifolius*
Lettuce – Least	*Lactuca saligna*		
Vascular Plant Species – Partial Protection under Section 13 (2) Protection from commercial exploitation and sale			
Bluebell	*Hyacinthoides non-scripta*		
Bryophytes – Full Protection under Schedule 8 at all times			
Anamodon – Long-leaved	*Anomodon langifolius*	Flamingo Moss	*Desmatodon cernuus*
Blackwort	*Southbya nigrella*	Frostwort	*Gymnomitrion apiculatum*

[6] All subspecies occurring in the UK

[7] Both subspecies: *spicata* & *hybrida*

[8] Includes both subspecies: *perennis* & *prostratus*

Crystalwort – Lizard	*Riccia bifurca*	Glaucous Beard Moss	*Barbula glauca*
Earwort – Marsh	*Jamesoniella undulifolia*	Green Shield Moss	*Buxbaumia viridis*
Feathermoss – Polar	*Hygrohypnum polare*	Hair Silk Moss	*Plagiothecium piliferum*
Flapwort – Norfolk	*Leiocolea rutheana*	Knothole Moss	*Zygodon forsteri*
Grimmia – Blunt-leaved	*Grimmia unicolor*	Large Yellow Feather Moss	*Scorpidium turgescens*
Petalwort	*Petalophyllum ralfsii*	Millimetre Moss	*Micromitrium tenerum*
Lindenberg's Leafy-Liverwort	*Adelanthus lindenbergianus*	Multi-fruited River Moss	*Cryphaea lamyana*
Feather-moss Slender Green	*Drepanocladus vernicosus*	Nowell's Limestone Moss	*Zygodon gracilis*
Alpine Copper-Moss	*Mielichoferia meilicoferia*	Rigid Apple Moss	*Bartramia stricta*
Baltic Bog-Moss	*Sphagnum balticum*	Round-leaved feather Moss	*Rhynchostegium rotundifolium*
Blue Dew-Moss	*Saelania glaucescens*	Schleicher's Thread Moss	*Bryum schleicheri*
Blunt-leaved bristle-Moss	*Orthotrichum obtusifolium*	Triangular Pygmy Moss	*Acaulon triquetrum*
Bright-Green Cave-Moss	*Cyclodictyon laetevirens*	Turpswort	*Geocalyx graveolens*
Cordate Beard Moss	*Barbula cordata*	Vaucher's Feather Moss	*Hypnum vaucheri*
Cornish Path Moss	*Ditrichum cornubicum*	Western Rustwort	*Marsupella profunda*
Derbyshire Feather Moss	*Thamnobryum angustifolium*		
Stoneworts – Full Protection under Schedule 8 at all times			
Bearded Stonewort	*Chara canescens*	Foxtail Stonewort	*Lamprothamnium papullosum*
Lichens – Full Protection under Schedule 8 at all times			
New Forest Beech Lichen	*Enterographa elaborata*	Forked Hair Lichen	*Bryoria furcellata*
Snow Caloplaca	*Caloplaca nivalis*	Golden Hair Lichen	*Teloschistes flavicans*
Tree Catapyrenium	*Catapyrenium psoromoides*	Orange-fruited Elm Lichen	*Caloplaca luteoalba*
Laurer's Catillaria	*Catillaria laurei*	River Jelly Lichen	*Collema dichotomum*
Convoluted Cladonia	*Cladonia convoluta*	Starry Breck Lichen	*Buellia asterella*
Upright Mountain Cladonia	*Cladonia stricta*	Caledonia Pannaria	*Pannaria ignobilis*
Goblin Lights	*Catolechia wahlenbergii*	New Forest Parmelia	*Parmelia minarum*
Elm Gyalecta	*Gyalecta ulmi*	Oil Stain Parmentaria	*Parmentaria chilensis*
Tarn Lecanora	*Lecanora archariana*	Southern Grey Physcia	*Physcia tribacioides*
Copper Lecidea	*Lecidea inops*	Ragged Pseudo-cyphellaria	*Pseudocyphellaria lacerata*
Arctic Kidney Lichen	*Nephroma arcticum*	Rusty Alpine Psora	*Psora rubiformis*
Ciliate Strap Lichen	*Heterodermia leucomelos*	Rock Nail	*Calicium corynellum*
Coralloid Rosette Lichen	*Heterodermia propagulifera*	Serpentine Selanopsora	*Selanopsora liparina*
Ear-lobed Dog Lichen	*Peltigera lepidophora*	Sulphur Tresses	*Alectoria ochroleuca*
Lichens – Partial Protection under Section 13 (2) Commercial Exploitation and Sale Only			
Tree Lungwort	*Lobaria pulmonaria*		
Fungi – Full Protection under Schedule 8 at all times			
Royal Bolete	*Boletus regius*	Oak Polypore	*Buglossosporus pulvinus*
Hedgehog Fungus	*Hericium erinaceum*	Sandy Stilt Ball	*Battaria phalloides*
Invasive plant species listed in Schedule 9			
Australian swamp stonecrop or New Zealand pygmyweed	*Crassula helmsii*	Japanese rose	*Rosa rugosa*

Californian red seaweed	*Pikea californica*	Japanese seaweed	*Sargassum muticum*
Curly waterweed	*Lagarosiphon major*	Laver seaweeds (except native species)	*Porphyra* spp
Duck potato	*Sagittaria latifolia*	Parrot's-feather	*Myriophyllum aquaticum*
Entire-leaved cotoneaster	*Cotoneaster integrifolius*	Perfoliate alexanders	*Smyrnium perfoliatum*
False Virginia creeper	*Parthenocissus inserta*	Pontic rhododendron	*Rhododendron ponticum*
Fanwort or Carolina water-shield	*Cabomba caroliniana*	Purple dewplant	*Disphyma crassifolium*
Few-flowered garlic	*Allium paradoxum*	Red algae	*Grateloupia luxurians*
Floating pennywort	*Hydrocotyle ranunculoides*	Rhododendron	*Rhododendron ponticum* × *Rhododendron maximum*
Floating water primrose	*Ludwigia peploides*	Small-leaved cotoneaster	*Cotoneaster microphyllus*
Giant hogweed	*Heracleum mantegazzianum*	Three-cornered garlic	*Allium triquetrum*
Giant kelp	*Macrocystis* spp.	Variegated yellow archangel	*Lamiastrum galeobdolon* subsp. *argentatum*
Giant knotweed	*Fallopia sachalinensis*	Virginia creeper	*Parthenocissus quinquefolia*
Giant rhubarb	*Gunnera tinctoria*	Wakame	*Undaria pinnatifida*
Giant salvinia	*Salvinia molesta*	Wall cotoneaster	*Cotoneaster horizontalis*
Green seafingers	*Codium fragile*	Water fern	*Azolla filiculoides*
Himalayan cotoneaster	*Cotoneaster simonsii*	Water hyacinth	*Eichhornia crassipes*
Hollyberry cotoneaster	*Cotoneaster bullatus*	Water lettuce	*Pistia stratiotes*
Hooked asparagus seaweed	*Asparagopsis armata*	Water primrose	*Ludwigia grandiflora*
Hottentot fig	*Carpobrotus edulis*	Water primrose	*Ludwigia uruguayensis*
Hybrid knotweed	*Fallopia japonica* × *Fallopia sachalinensis*	Waterweeds	*Elodea* spp.
Indian (Himalayan) balsam	*Impatiens glandulifera*	Yellow azalea	*Rhododendron luteum*
Japanese knotweed	*Reynoutria japonica*		

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 list is used to guide decision-makers such as public bodies including local and regional authorities, in implementing their duty under Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)
Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities. Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.
Wild Mammals (Protection) Act 1996
This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation. Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering. It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.

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