

Land off Keresforth Road,  
Dodworth, Barnsley

**Additional Ecological Surveys**

January 2023

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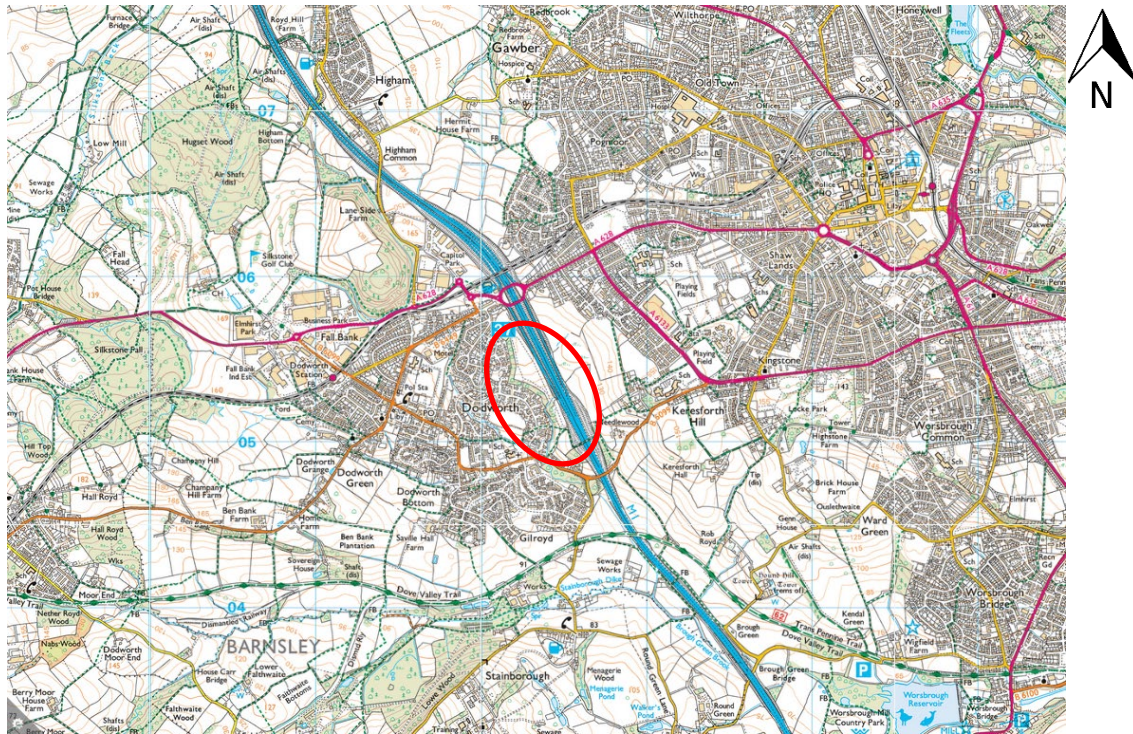
# 1 Introduction and Background

- 1.1.1.1 This report presents the results of surveys for Bats, Otters and Reptiles undertaken on land off Keresforth Road, Dodworth, Barnsley. The study area (see Figure 1) extends to approximately 7.4 hectares and is centred at approximate grid reference SE324052, approximately 2 km west-south-west of Barnsley town centre.
- 1.1.1.2 The aims of the Bat surveys were to determine the nature of bat activity at the site including the bat species which use the site, the relative abundance of each species and which parts of the site are used by bats. The aims of the Otter and Reptile surveys were to determine the presence/absence of Otter and Reptiles at the site.
- 1.1.1.3 This report should be read in conjunction with the following report:
- Quants Environmental Ltd. (2022). Land off Keresforth Road, Dodworth, Barnsley – Preliminary Ecological Appraisal. Ref. 153-01a. April 2022.

**Figure 1. Site Area (aerial imagery dated 2021)**



**Figure 2. Site Location**



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## 2 Methodology

### 2.1 Bat Transect and Dusk Emergence Surveys

- 2.1.1.1 Bat activity surveys involved a combination of transect surveys and static bat recorder surveys in order to provide a full understanding of bat activity at the site. Three bat transect surveys were undertaken at the site during each of August, September and October 2022. The surveyors used Echo Meter Touch 2 Pro bat detectors.
- 2.1.1.2 The bat transect surveys were undertaken in accordance with current good practice guidelines<sup>1</sup> and involved walking a predetermined transect route around the site to determine the number and species of bats which forage/commute at the site. Survey conditions are summarised in Table 1.
- 2.1.1.3 Each transect survey started approximately 20 – 60 minutes after sunset. The transect route is shown in Appendix 1. Each transect survey involved walking the transect route slowly and recording all bat observations on scale maps with notes on species and activity and behaviour. Periodically throughout each transect, the surveyors stopped for a period of approximately 5 minutes to record all bat activity during that period. There were no significant survey limitations.
- 2.1.1.4 Immediately prior to two of the September and August transect surveys, a dusk emergence survey was undertaken from approximately 20 minutes before sunset until 60 minutes after sunset in order to determine the location of any bat roosts in trees identified as having bat roost potential (Target Notes 1 and 2 as shown in the Preliminary Ecological Appraisal<sup>2</sup>). The emergence surveyors were undertaken using Petterson D200 and Echo Meter Touch 2 Pro bat detectors and were undertaken in accordance with current guidelines<sup>1</sup>.

**Table 1. Bat Emergence and Transect Survey Conditions**

Date	Survey times	Emergence survey features	Sunset	Weather conditions
23 <sup>rd</sup> August 2022	Transect survey: 20:38 – 21:51	n/a	20:17	21°C – 20°C, dry, cloud 95%, wind Bft 0.
14 <sup>th</sup> September 2022	Emergence survey: 19:00 – 20:22 Transect survey: 20:22 – 21:35	Ash trees and Oak tree (Target Notes 1 and 2, as shown in PEA <sup>2</sup> )	19:25	14.5°C – 14°C, dry, cloud 100%, wind Bft 0.
05 <sup>th</sup> October 2022	Emergence survey: 18:10 – 19:03 Transect survey: 19:03 – 20:16	Oak tree and Ash and Horse Chestnut (Target Notes 2 and 4, as shown in PEA <sup>2</sup> )	18:33	11°C – 9°C, dry, cloud 10%, wind Bft 1-3.

### 2.2 Static Bat Recorder Surveys

- 2.2.1.1 Three static bat recorder surveys were undertaken at the site during each of August, September and October 2022. The static bat recorder surveys involved the use of a single static bat sound recording device (fixed-point Anabat Express detector) to record bat activity at the site. The remote detector was left in situ for a period of five nights during each month at the locations shown in Appendix 1 during suitable weather conditions.

<sup>1</sup> Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.) The Bat Conservation Trust, London. ISBN-13: 978-1-872745-96-1.

<sup>2</sup> Quants Environmental Ltd. (2022). Land off Keresforth Road, Dodworth, Barnsley –Preliminary Ecological Appraisal. Ref. 153-01a. April 2022.

2.2.1.2 The recorded bat sounds (sonograms) were analysed using the computer programmes Kaleidoscope and Anabat Insight. Where considered necessary, the sonograms were analysed through comparison with published bat sound parameters (maximum frequency, minimum frequency, peak frequency, call duration, inter-pulse interval etc.) and a library of sonograms of confirmed species identity, in order to identify each bat sound to species or genera level wherever possible. The recorded sonograms were separated by species to enable quantitative interpretation of the number of bat passes recorded for each species. The static bat recording periods are summarised in Table 2. The survey conditions were good and there were no significant limitations.

**Table 2. Static Bat Recorder Survey Conditions**

<b>Dates</b>	<b>Weather conditions</b>	<b>Detector position (see Appendix 1)</b>
24 <sup>th</sup> – 28 <sup>th</sup> August 2022	Daytime maxima between 17°C and 23°C; night-time minima between 20°C and 12°C, mostly dry with rain on the 25 <sup>th</sup> of August afternoon.	1
15 <sup>th</sup> – 19 <sup>th</sup> September 2022	Daytime maxima between 14°C and 18°C; night-time minima between 9°C and 13°C, dry.	2
06 <sup>th</sup> – 10 <sup>th</sup> October 2022	Daytime maxima between 13°C and 18°C; night-time minima between 8°C and 12°C, mostly dry with rain on the 07 <sup>th</sup> of October afternoon.	3

## 2.3 Reptile Surveys

2.3.1.1 The reptile surveys covered all areas of the site considered to offer potentially suitable habitat for reptiles. Areas in the southern, central and northern parts of the site were considered to offer potentially suitable habitat for reptiles due to the presence of the following features:

- Suitable basking sites.
- Potentially hunting habitat.
- Areas of refuge.

2.3.1.2 Presence/likely absence surveys for reptiles were undertaken during suitable weather conditions in September and October 2022 in accordance with standard guidelines<sup>3 4 5</sup>.

2.3.1.3 On 12<sup>th</sup> September 2022, 50 artificial refugia consisting of roofing felt 'tiles' each approximately 1.0m x 1.0m in size were placed within habitats that were assessed as suitable to support reptiles. Refugia tiles were left to settle for a minimum period of 9 days before being checked for the first time. Each tile was subsequently visited 7 times during suitable weather conditions as per the standard guidelines. On each survey occasion, each tile was inspected for reptiles and signs of reptiles such as sloughed skin. In addition refugia already present on site (e.g. logs and discarded tyres) were also inspected for reptiles and signs of reptiles and any incidental observations of reptiles were recorded.

2.3.1.4 Each refugia check was conducted during the following conditions:

- time: conducted between 07:00 and 18:00;
- air temperature: 10°C - 20°C;
- wind: still to moderate (equivalent to Beaufort 4; 13 - 17mph), and

<sup>3</sup> Froglife (1999). Reptile survey; an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

<sup>4</sup> Gent T and Gibson S eds (2003). Herpetofauna Workers Manual. JNCC, Peterborough.

<sup>5</sup> Natural England (2011). Natural England Technical Information Note TIN102: Reptile Mitigation Guidelines. Natural England, Peterborough. (Note this guidance was published and subsequently withdrawn in September 2011).

- rain: no or light rain only at time of survey; surveys between periods of heavy rain (when all other conditions are suitable) are also acceptable.

**Table 3. Reptile Survey Conditions and Results**

Visit	Date, start time and surveyor	Weather conditions	Findings / comments
1	21/09/22. 10:30. TF/MC	High cloud 50%, 15°C, wind Bft 1, dry	No reptiles
2	22/09/22. 10:00. MC	Wind Bft 1, 15°C, 60% cloud cover, dry and sunny	No reptiles
3	27/09/22. 10:45. MA/MC	Wind Bft 1, 12°C, 65% cloud cover, dry	No reptiles
4	28/09/22. 17:15. MA/MC	Wind Bft 1, 13°C, 85% cloud cover, dry	No reptiles
5	29/09/22. 12:30. MC	Wind Bft 0, 15°C, 90% cloud cover, intermittent drizzle at the start	No reptiles
6	03/10/22. 11:15. MA/MC	Wind Bft 0-1, 15°C, 100% cloud cover, dry	No reptiles
7	11/10/22. 11:15. MA/MC	Wind Bft 0-1, 12°C, 100% cloud cover, dry	No reptiles

**Figure 3. Reptile and Otter Survey Areas**



Key:

- Areas of potentially suitable reptile habitat subject to artificial refugia survey
- Watercourse subject to Otter survey

## **2.4 Otter Surveys**

- 2.4.1.1 In accordance with the standard methodologies<sup>6</sup> <sup>7</sup> all suitable accessible areas of the on-site minor watercourse within 100 metres of the proposed development footprint were surveyed for evidence of Otter on 12<sup>th</sup> September 2022 and 6<sup>th</sup> October 2022. Beyond the site area, the surveys extended approximately 100 metres downstream but was limited to spot checks in the downstream section due to limited land access. Upstream of the site, the watercourse and appears to be culverted beneath the M1 motorway for over 100 metres.
- 2.4.1.2 The surveys involved detailed searches of all sections of the watercourse for signs of Otter such as spraints, jelly, holts, lying-up places, footprints and slides. At the time of each of the surveys, the water level on the watercourse was relatively low such that any evidence of Otters such as spraints would not have been washed away by recent flood waters.
- 2.4.1.3 In association with the physical searches for evidence of Otter, static motion-sensitive cameras were employed on the watercourse for a total of 10 nights between 12<sup>th</sup> September 2022 and 6<sup>th</sup> October 2022 in order to detect any Otter activity.
- 2.4.1.4 There were no significant survey limitations. Areas of the river which were not accessed due to health and safety reasons were viewed from the bank using close-focussing binoculars.

## **2.5 Personnel**

- 2.5.1.1 All bat surveys were led by experienced bat surveyor Morgane Accault ACIEEM with assistance from Maxwell Caulton. The surveys for Otter and reptiles were undertaken by experienced surveyor Toby Fisher CEnv MCIEEM with assistance from Maxwell Caulton.

## **2.6 Survey Comments / Limitations**

- 2.6.1.1 The surveys were undertaken in accordance with current good practice guidelines. The surveys were undertaken during the appropriate season for such surveys. There were no access restrictions. Overall, there were no significant limitations.

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<sup>6</sup> National Rivers Authority (1993). Otters and River Habitat Management. Conservation Technical Handbook Number 3.

<sup>7</sup> Macdonald DW, Mace G and Rushton S (1998). Proposals for future monitoring of British mammals. DETR, London.

## 3 Results

### 3.1 *Bat Emergence and Transect Surveys*

- 3.1.1.1 The results of the bat transect surveys are shown in Appendix 1. Overall, the bat transect surveys revealed low levels of bat activity throughout the site. Two bat species were recorded during the surveys: Common Pipistrelle and Soprano Pipistrelle.
- 3.1.1.2 No particular concentrations of bat activity were recorded; foraging/commuting bats were recorded in association with all areas of woodland and hedgerow at the site. Little bat activity was recorded over the open fields at the site.
- 3.1.1.3 During the dusk emergence bat surveys, no evidence of bat roosts was identified in the surveyed trees.

### 3.2 *Static Bat Recorder Surveys*

- 3.2.1.1 The results of the static bat recorder surveys (see Appendix 1) revealed low to moderate levels of bat activity at the site. A total of four bat species were recorded during the surveys at the site: Noctule, Common Pipistrelle, Soprano Pipistrelle and *Myotis* sp.. Bat activity levels were the greatest during the September survey (Static Detector Location 2, Appendix 1) whilst activity levels were lower during the October survey.
- 3.2.1.2 By far the most frequently recorded species at the site was Common Pipistrelle; with approximately 82.35% of all recorded bat registrations being of Common Pipistrelle. Noctule registrations accounted for 9.05%, *Myotis* sp. for 7.24% and Soprano Pipistrelle for the remaining 1.36%.
- 3.2.1.3 Of the three static bat recorder locations (1, 2, 3 as shown in Appendix 1), the greatest levels of bat activity were recorded at Location 2 on the edge of a woodland area with an average of 43.4 bat passes recorded per night at Location 2. Bat activity levels at Location 1 were lower with average registrations per night of 0.8. There was no bat activity recorded at Location 3.
- 3.2.1.4 Overall, the survey results indicate low to moderate levels of bat activity across all bat habitat features (woodland and hedgerows).

### 3.3 *Reptiles*

- 3.3.1.1 No reptiles or evidence of reptiles was observed during the surveys. It is considered that sufficient survey effort has been undertaken to conclude that reptiles are likely to be absent from the site.

### 3.4 *Otter*

- 3.4.1.1 No Otters or evidence of Otters was observed during the surveys. It is considered that sufficient survey effort has been undertaken to conclude that reptiles are likely to be absent from the site. During the Otter surveys, no incidental observations of protected/notable species were made.

## 4 Recommendations and Conclusions

### 4.1 *Bats*

- 4.1.1.1 Where possible, hedgerows, mature trees and woodland have been retained in the proposed development layout. However, where these are to be removed to allow the scheme to be delivered, mitigation should be provided so as to maintain foraging routes through the site, e.g. by way of enhanced landscaping habitat provision.
- 4.1.1.2 It is recommended that bat boxes should be provided as part of the proposed development. It will also be necessary to devise a sensitive lighting strategy including the provision of 'dark corridors' as bat habitat areas, e.g. associated with retained areas of hedgerow and woodland.
- 4.1.1.3 In order to ensure legal compliance and due to the potential for bats to establish new roosts at the site in the future, it is recommended that update checking surveys for bats should be undertaken prior to any felling or surgery works affecting mature trees.

### 4.2 *Reptiles*

- 4.2.1.1 It is considered that reptiles are likely to be absent from the site. No further surveys or mitigation measures are considered necessary.

### 4.3 *Otter*

- 4.3.1.1 It is considered that Otters are likely to be absent from the site. No further surveys or mitigation measures are considered necessary.

## Appendix 1. Bat Survey Results

**Table A1.1. Static Bat Detector Surveys (Location 1: 24<sup>th</sup> – 28<sup>th</sup> August 2022)**

Species	Total no. registrations	Mean registrations per night
Noctule	4	0.8
TOTAL	4	0.8

**Table A1.2. Static Bat Detector Surveys (Location 2: 15<sup>th</sup> – 19<sup>th</sup> September 2022)**

Species	Total no. registrations	Mean registrations per night
Noctule	16	3.2
Common Pipistrelle	182	36.4
Soprano Pipistrelle	3	0.6
Myotis sp.	16	3.2
TOTAL	217	43.4

**Table A1.3. Static Bat Detector Surveys (Location 3: 06<sup>th</sup> – 10<sup>th</sup> October 2022)**

Species	Total no. registrations	Mean registrations per night
TOTAL	0	0

**Table A1.4. Bat Transect Survey Results (23<sup>rd</sup> August 2022)**

Time	Location	Notes
20:38	1	Transect start – 1x Common Pipistrelle unseen
20:42	1	1x Common Pipistrelle foraging near the river
21:03	4	1x Common Pipistrelle unseen
21:15	5	1x Common Pipistrelle faint pass
21:22	5	1x Common Pipistrelle foraging
21:43	8	1x Soprano Pipistrelle unseen
21:51	1	Transect end – no activity

**Table A1.5. Bat Transect Survey Results (14<sup>th</sup> September 2022)**

Time	Location	Notes
20:22	1	Transect start
20:52	4	1x Common Pipistrelle unseen
21:35	1	Transect end – no activity

**Table A1.6. Bat Transect Survey Results (05th October 2022)**

Time	Location	Notes
19:03	1	Transect start
19:24	3	1x Common Pipistrelle foraging by the southern entrance of the woodland
20:16	1	Transect end – no activity

