
**THREE OAKS RENEWABLE
ENERGY PARK
EXTENSION**

**Environmental
Statement Appendix 7.5: Bat
Surveys 2020**

MAY 2026



Appendix 7.5: Three Oaks Renewable Energy Park Extension Baseline Bat Surveys 2020



Report to Ridge Clean Energy

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TABLE OF CONTENTS

INTRODUCTION	3
STUDY AREA.....	3
BAT SURVEY METHODS	3
BAT SURVEY RESULTS.....	4
BAT ROOST ASSESSMENT	4
BAT WALKING TRANSECTS	4
BAT STATIC RECORDERS	5
CONCLUSIONS	14
REFERENCES	14

APPENDIX 7.5: THREE OAKS RENEWABLE ENERGY PARK EXTENSION BASELINE BAT SURVEYS 2020

Introduction

1. This report presents the bat survey work carried out for the proposed Three Oaks Renewable Energy Park Extension (the Proposed Development). The surveys were undertaken by Tom Lowe, Stuart Piner and Dr Steve Percival, all highly experienced ecological surveyors, each with over 20 years of renewable energy ecological surveying (including bats, exceeding CIEEM competency requirements).

Study Area

2. The site is located approximately 1 km north of Thornholme village and 5 km south-west of Bridlington in East Yorkshire. The ecology survey area includes all areas within the potential zone of ecological influence of the Proposed Development and a buffer to provide context on the area's bat populations. The survey area covered a total area of 7.5 km² (see Figure 1). It is predominantly open arable farmland and lies within the 'Yorkshire Wolds' NE National Character Area.

Bat Survey Methods

3. The bat survey programme was designed with reference to the recent Natural England *et al.* (2019) guidance on 'Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation' and Collins (2016). The surveys comprised:
 - Roost potential survey – to assess all potential roost sites within the proposed development site and its surrounds;
 - Ground-level activity surveys – one transect-based survey each month from April-September. Surveys were carried out on 23 April, 21 May, 18 June, 22 July, 17 August and 17 September 2020. Access was restricted to where it was safe at night – the walked transect routes are shown in Figure 1; and
 - Automated surveys at ground level – static detectors were deployed at six locations across the survey area, representative of the habitats available. Each location was sampled for a target minimum 30 nights covering spring (April/May), summer (June/July) and autumn (August/September). A total of 317 bat nights were obtained. The locations of the recorders are shown in Figure 1.
4. Surveys at height were considered unnecessary at this site, given the generally low-quality bat habitats present (predominantly arable farmland).

Bat Survey Results

Bat roost assessment

5. The extended Phase 1 survey carried out on 29 September 2020 included an assessment of bat roost suitability. The results are summarised in Table 1, and the locations are shown in Figure 1. All potential bat roost sites were located along the fringes of the survey area, with none within the proposed development site itself (which was predominantly open arable farmland).

Table 1. Bat roost potential survey results (locations shown in Figure 1).

Location number	Potential	Notes
1	Low	Small ash tree
2	Medium	Scattered ash trees
3	High	Larger trees within hedgerow
4	High	Many suitable trees (ash/oak) within hedgerow
5	Low	Small ash tree on southern side of road
6	High	Line of ash/oak trees along field boundary
7	High	Narrow belt of trees around building
8	High	Narrow belt of trees around building
9	High	Farm and residential buildings
10	Low	Smaller trees (ash) along southern side of road
11	High	Sycamore, ash and beech mature woodland
12	High	Residential buildings
13	High	Larger trees (mainly ash) within hedgerow
14	High	Wooded copse
15	Medium	Scattered trees around scrub
16	Medium	Trees (mainly ash) within hedgerow

6. Regarding commuting/foraging habitat for bats, the main areas likely to be used include the hedgerows, field margins and edges of the small number of woodland plantations on the fringes of the survey area.

Bat walking transects

7. The results of the bat walking transect surveys are summarised in Table 2, which gives the number of passes recorded of each species during each monthly survey between April and September 2020. Nine species were recorded in total, with common pipistrelle the most frequently encountered.

Table 2. Number of bat-passes recorded during the walkover transect surveys, April-September 2020.

Species	Scientific name	April	May	June	July	August	Sept
Brandt's bat	<i>Myotis brandtii</i>	1	-	-	-	2	2
Daubenton's bat	<i>Myotis daubentonii</i>	-	2	1	-	3	1
Whiskered bat	<i>Myotis mystacinus</i>	1	-	-	4	4	3
Natterer's bat	<i>Myotis nattereri</i>	2	-	-	1	-	-
Unidentified <i>Myotis</i> bat	<i>Myotis sp</i>	2	-	-	2	-	0

Species	Scientific name	April	May	June	July	August	Sept
Noctule	<i>Nyctalus noctula</i>	-	-	2	1	-	1
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	-	1	-	-	-	-
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	-	15	19	34	5	1
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	-	18	-	-	-	-
Brown long-eared bat	<i>Plecotus auritus</i>	-	-	-	2	-	-

8. The distributions of bat records during these walkover surveys are plotted in Figure 2 (Common Pipistrelle) and other bat species (Figure 3). The number of locations is lower than the number of passes in Table 2, as a result of multiple passes being recorded at a single location. The highest concentration of bat records was along the land on the northern edge of the survey area, where the hedgerows were most well-developed and diverse. Most other records were associated with hedgerow habitats.

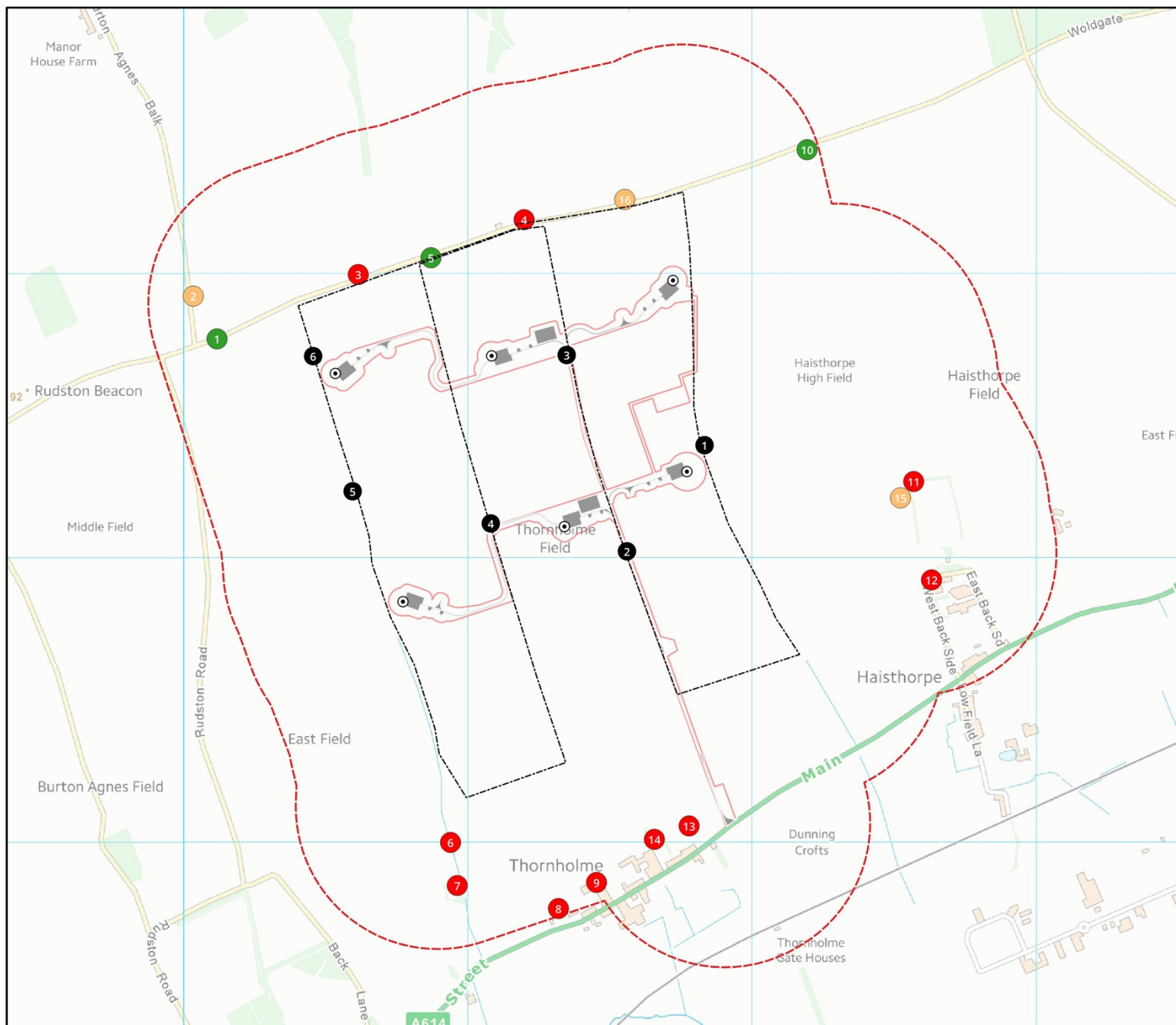
Bat static recorders

9. The results of the bat static surveys are summarised in Table 3. Bat pass rates are presented as medians, following Lintott *et al.* (2018). Common pipistrelle *Pipistrellus pipistrellus* was the most frequently recorded species, with peak numbers in summer at locations 2, 3 and 4. Soprano pipistrelle *Pipistrellus pygmaeus*, Daubenton's bat *Myotis daubentonii*, and brown long-eared *Plecotus auratus* were recorded regularly, particularly during the autumn surveys. Unidentified *Myotis* bats were also recorded frequently, predominantly in autumn. Five additional species were also recorded but in lower numbers: Nathusius' pipistrelle *Pipistrellus nathusii*, whiskered bat *Myotis mystacinus*, Brandt's bat *Myotis brandtii*, Natterer's bat *Myotis nattereri* and noctule *Nyctalus noctula*. Their median hourly pass rates were zero across all locations and seasons (hourly pass rates were highly skewed, with many zeros and fewer occurrences when bats were recorded).

Table 3. Bat static recorder surveys, April-September 2020, showing the median number of bat passes per hour per night at each location.

Species	Location	Spring (Apr/May)	Summer (Jun/July)	Autumn (Aug/Sep)	Total number of passes recorded
Common pipistrelle	1	0.38	0.55	0.54	805
	2	0.25	4.35	0.55	1947
	3	0.38	3.73	1.03	2119
	4	0.96	3.68	0.30	2063
	5	0.27	0.07	0.43	207
	6	0.26	0	0	194
Soprano pipistrelle	1	0	0	0	370
	2	0	0	0	46
	3	0	0	0	113
	4	0	0	0	44
	5	0	0	0.09	16
	6	0	0	0	9
Brown long-eared bat	1	0	0	0	47
	2	0	0	0	223
	3	0	0	0	207
	4	0	0	0.04	3

Species	Location	Spring (Apr/May)	Summer (Jun/July)	Autumn (Aug/Sep)	Total number of passes recorded
	5	0	0	0	4
	6	0	0	0	3
Daubenton's bat	1	0	0	0.18	57
	2	0	0	0.09	30
	3	0	0	0	18
	4	0	0	0.04	15
	5	0	0	0.17	31
	6	0	0	0.13	51
<i>Myotis</i> sp.	1	0	0	0.38	90
	2	0	0	0.64	160
	3	0	0	0.19	116
	4	0.13	0	0.30	88
	5	0.14	0	0.72	77
	6	0.13	0	0.29	92





Legend

- Red Line Boundary
- Proposed Turbine Locations
- Three Oaks 2 Infrastructure Footprint
- Ecology Survey Area
- Walked Transect Route 2020
- Static Detector Locations 2020

Bat Roost Potential:

- High
- Medium
- Low

N



0 0.25 0.5 km

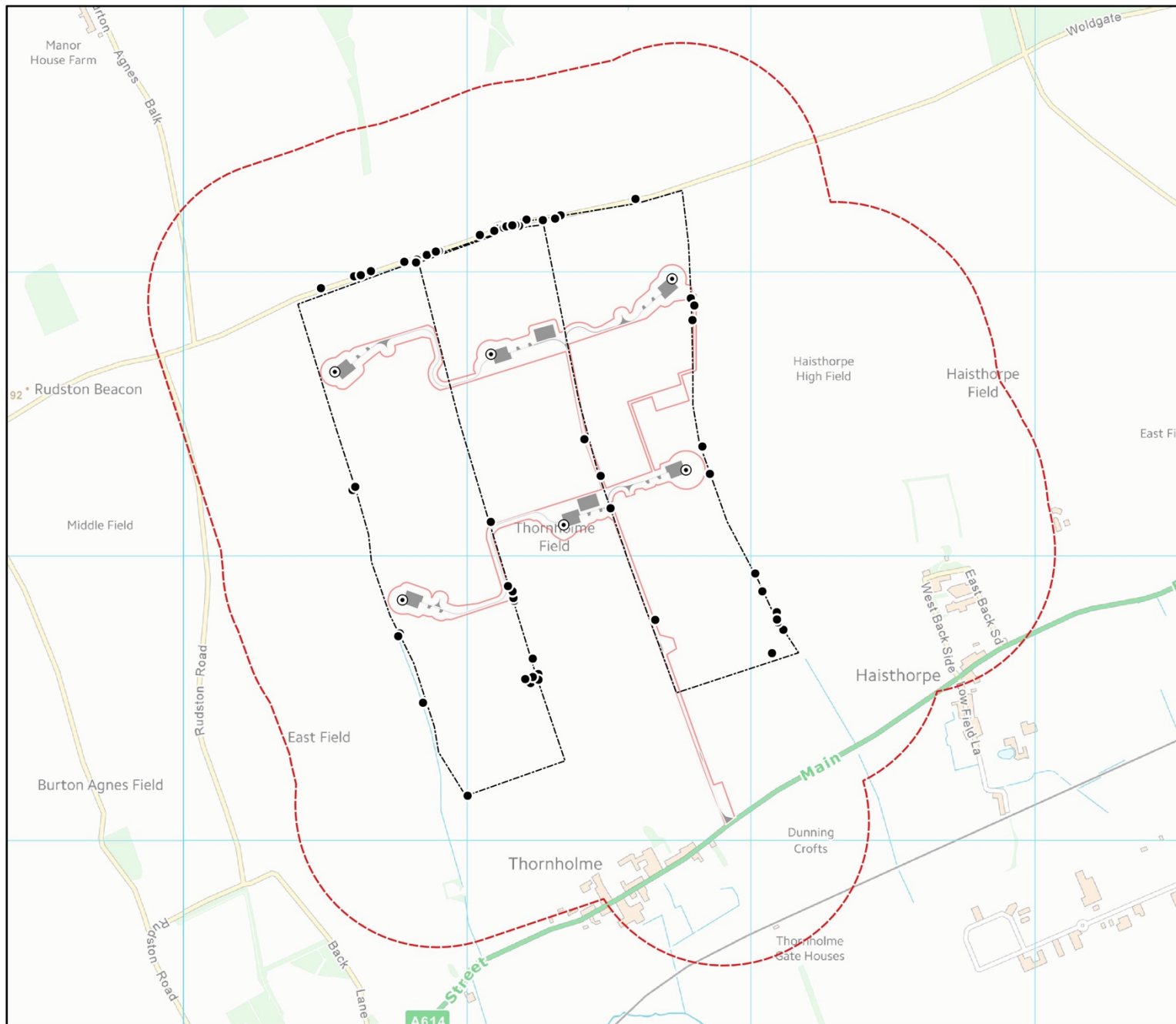


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Figure 1. Survey Area, Transect Route and Static Detector Locations

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Appendix 7-5. Bat Surveys 2020





Legend

- Red Line Boundary
- Proposed Turbine Locations
- Three Oaks 2 Infrastructure Footprint
- Ecology Survey Area
- Walked Transect Route 2020
- Walked Transect Records 2020:



0 0.25 0.5 km

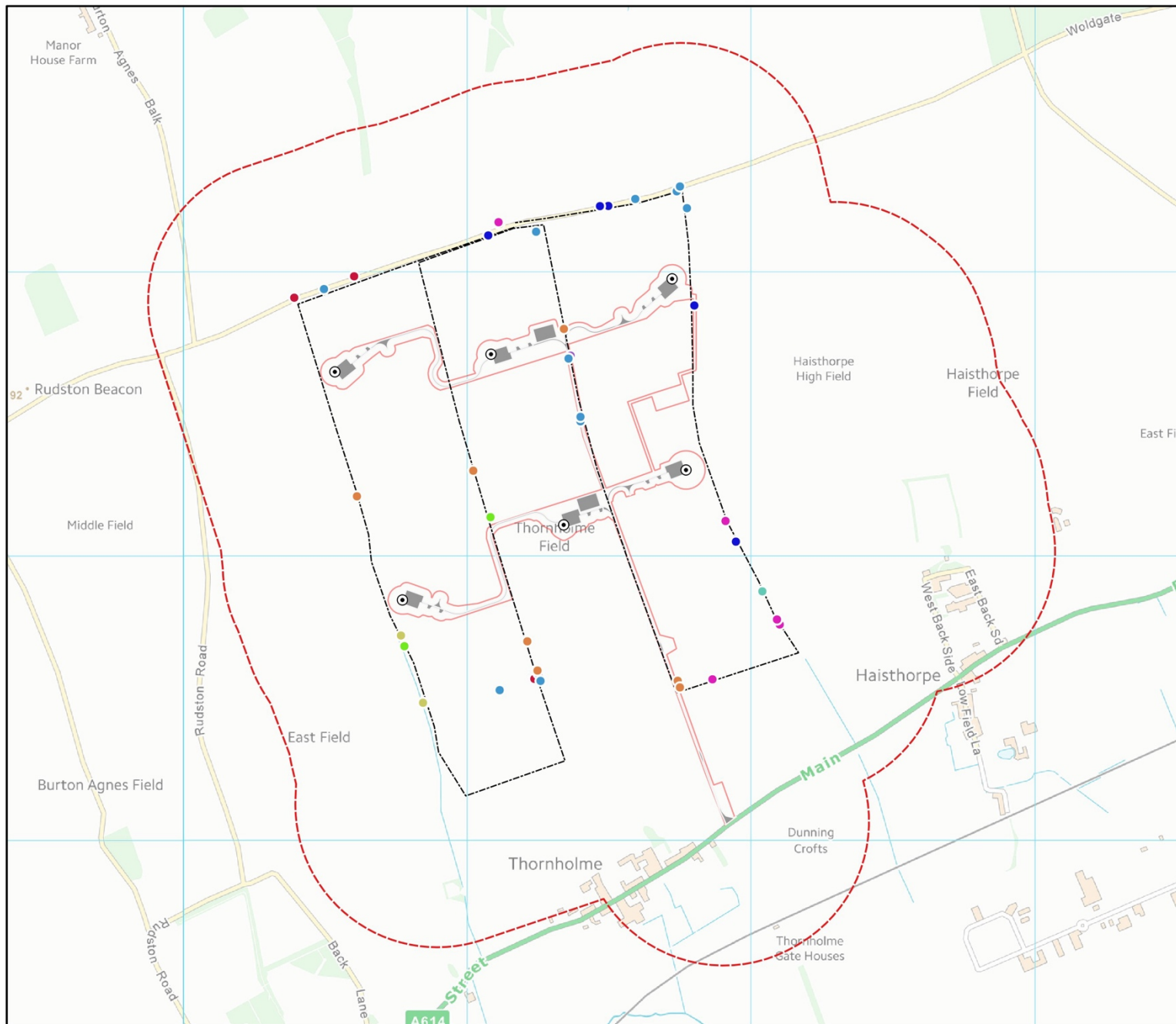


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Figure 2. Common Pipistrelle Walked Transect Records

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Appendix 7-5. Bat Surveys 2020





Legend

- Red Line Boundary
- Proposed Turbine Locations
- Three Oaks 2 Infrastructure Footprint
- Ecology Survey Area
- Walked Transect Route 2020

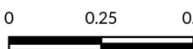
Walked Transect Records 2020:

- Brandt's Bat
- Daubenton's Bat
- Whiskered Bat
- Natterer's Bat
- Myotis sp
- Noctule
- Nathusius' Pipistrelle
- Soprano Pipistrelle
- Brown Long-eared Bat

N



0 0.25 0.5 km



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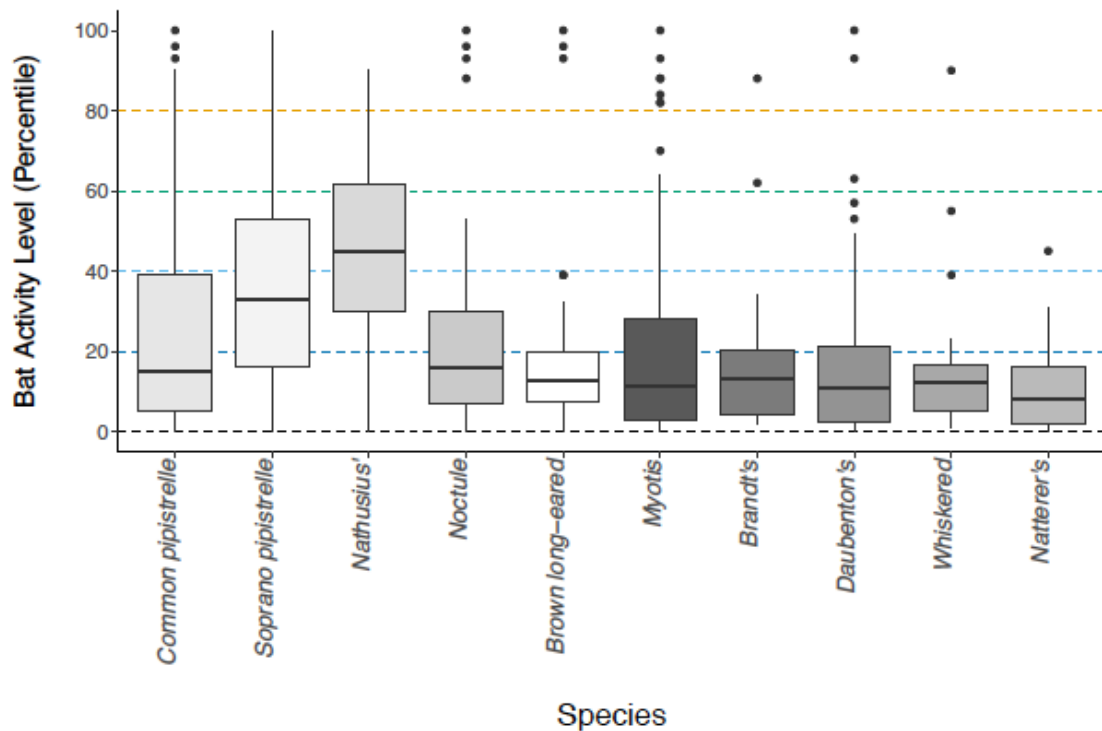
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Figure 3. Other Species Walked Transect Records

**Three Oaks Renewable Energy Park Extension
Appendix 7-5. Bat Surveys 2020**

10. The static bat recorder data also provided information on the likelihood of any important bat roosts within or in proximity to the site. If bats were roosting on or near the site, there would likely be records of bat contacts at, or soon after, the typical emergence times. Noctules can emerge before sunset, whereas common pipistrelles and soprano pipistrelles tend to emerge within the first 10-30 minutes after sunset. *Myotis* bats will typically emerge later than pipistrelles, with Daubenton's bats emerging up to an hour after sunset. ECOBAT (Lintott *et al.* 2018) was used to analyse the times of bat records, comparing them to published emergence times for each species (Russ 2012). The occurrence of bat passes recorded during roost emergence time was as follows:
 - Location 1 – frequent common pipistrelle, occasional *Myotis* sp., Daubenton's and brown long-eared bat
 - Location 2 – occasional *Myotis* sp., low numbers of Daubenton's, brown-long-eared bat and common pipistrelle.
 - Location 3 – occasional common pipistrelle, low numbers of *Myotis* sp and soprano pipistrelle.
 - Location 4 – low numbers of *Myotis* sp.
 - Location 5 – occasional *Myotis* sp., low numbers of Daubenton's.
 - Location 6 – low numbers of Daubenton's and *Myotis* sp.
11. Overall, the number of bat passes recorded during roost emergence time was low, indicating that there were not likely any important roosts located within/in proximity to the survey area. There were, however, more records of common pipistrelle around roost emergence time at Location 1. This location is the most easterly of the six, and the bats recorded here at emergence time are most likely from roosts in the woodland and buildings to the east of the Proposed Development (Haisthorpe – points 11 and 12 on Figure 1).
12. Recent Natural England *et al.* (2019) guidance recommends the use of ECOBAT (Lintott *et al.* 2018) to standardise the determination of the relative importance of the site for its bat populations. This software tool uses percentiles to assign a bat activity comparing data from other sites collected within the same season (within 30 days of the surveys) and within 100 km of the site:
 - **High:** above 80% percentile
 - **Moderate/high:** 60-80%
 - **Moderate:** 40-60%
 - **Low/moderate:** 20-40%
 - **Low:** 0-20%
 - **Nil:** no records.
13. The results of the overall whole site ECOBAT analysis are summarised in Figure 4. This presents the median activity level percentile (solid horizontal line), the interquartile range (box plot) and the spread of any outliers. Overall activity was classed as follows:
 - **High:** no species
 - **Moderate/high:** no species
 - **Moderate:** Nathusius' pipistrelle
 - **Low/moderate:** Soprano pipistrelle
 - **Low:** Common pipistrelle, Noctule, Brown long-eared bat, *Myotis* sp., Brandt's, Daubenton's, Whiskered and Natterer's bats.

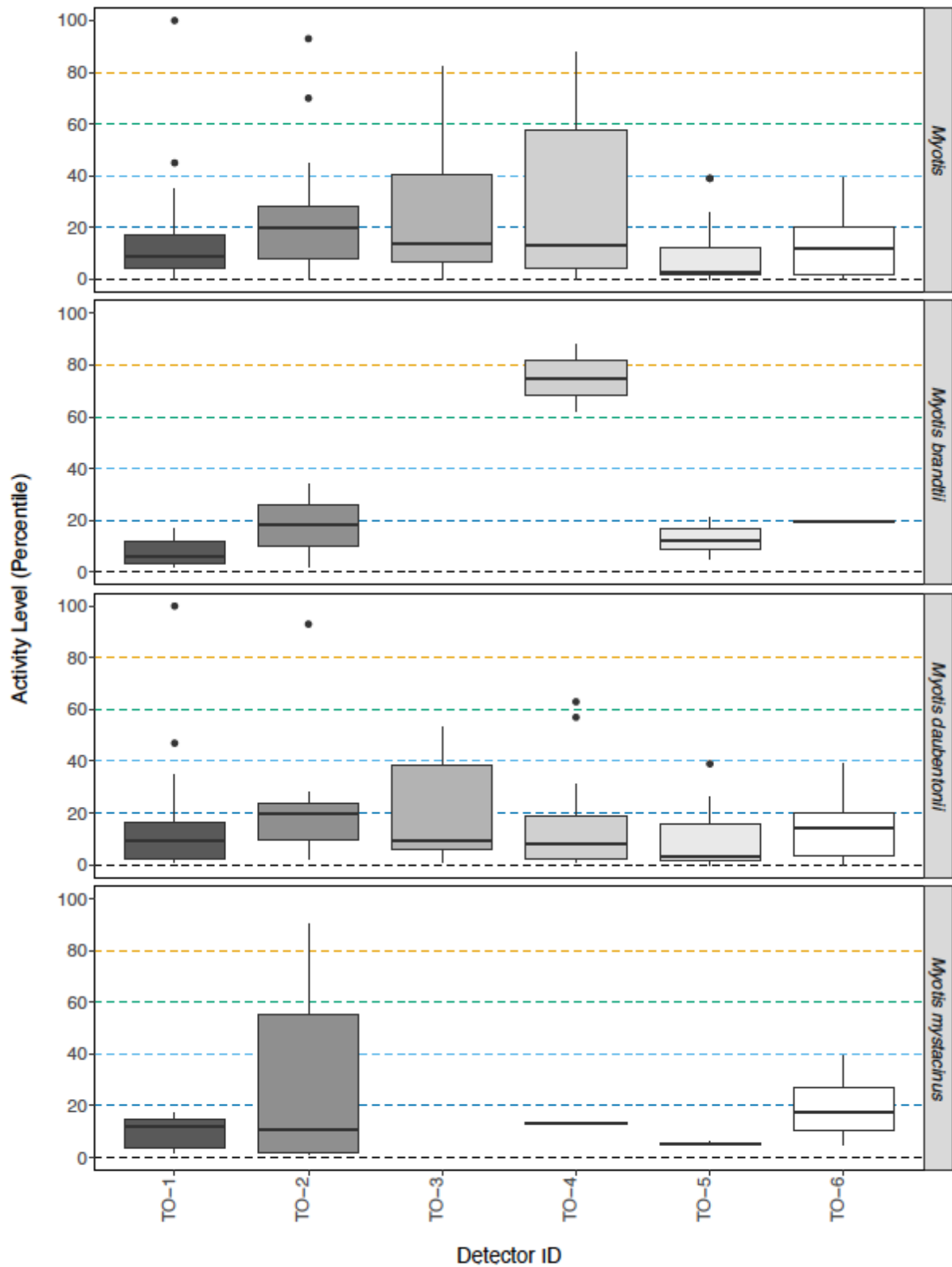
Figure 4. ECOBAT site activity analysis: bat activity level (percentile) recorded across each night of the bat survey for the whole site.

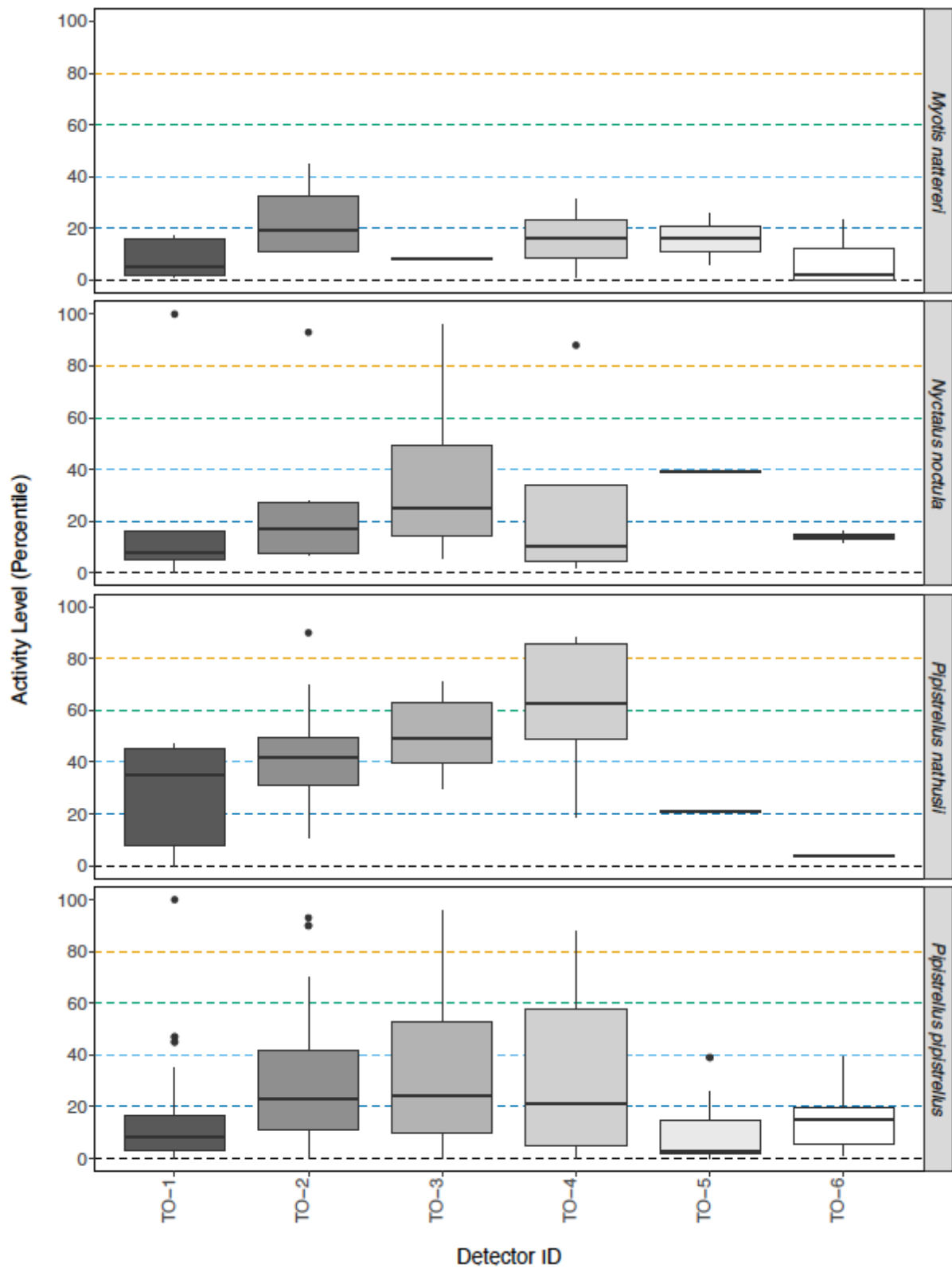


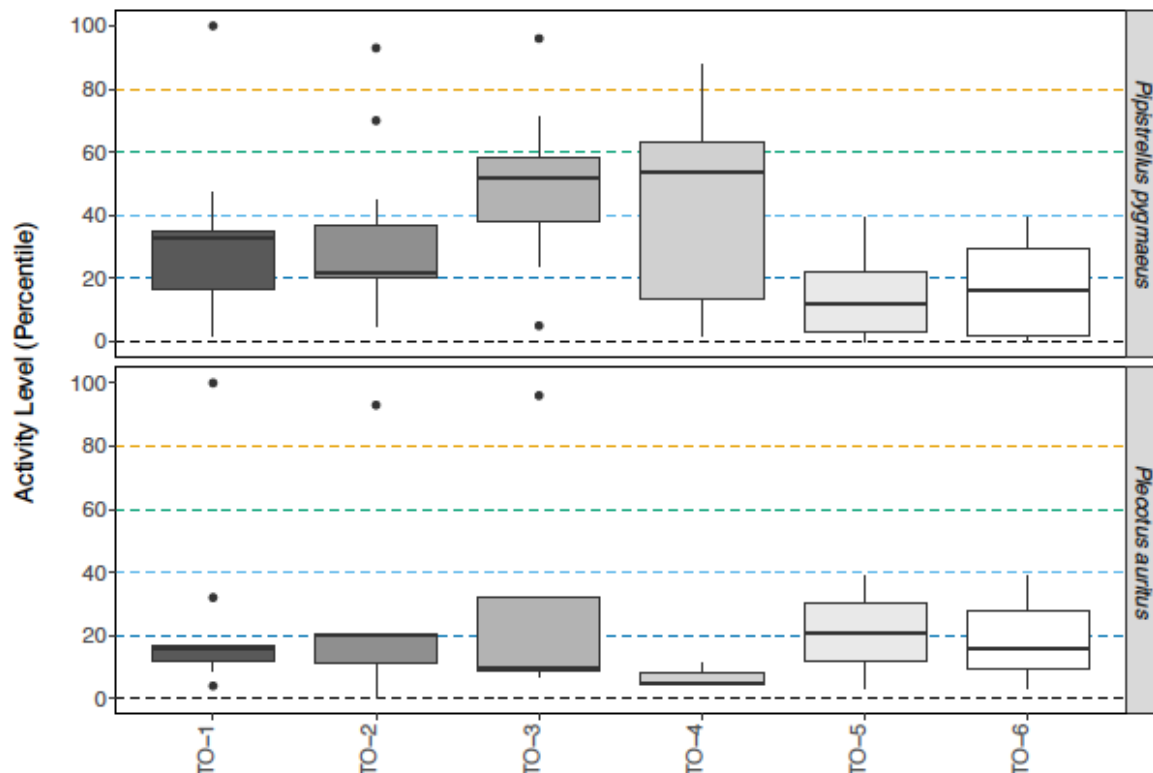
14. Figure 5 shows the activity levels of these species over the whole survey period at each of the six survey locations. As for the whole site analysis presented above, these are plotted as percentiles of activity levels recorded each night, and show the relative abundance of each species at each location in comparison with the ECOBAT reference data set. Overall, it shows further the generally low levels of bat activity across the site, though higher levels of some species were recorded at some locations:

- Brandt's bat – moderate/high activity at location 4.
- Nathusius' pipistrelle – moderate activity at locations 2 and 3, moderate/high levels at location 4.
- Soprano pipistrelle – moderate activity at locations 3 and 4.

Figure 5. ECOBAT activity analysis by recorder location: bat activity level (percentile) recorded across each night of the bat survey for each of the six survey locations (see Figure 1).







Conclusions

15. The baseline bat surveys show the survey area holds generally low levels of bat activity. Nine species of bat were recorded in total during the surveys. Common pipistrelle was the most frequently recorded species, with soprano pipistrelle, Daubenton's bat and brown long-eared also frequently encountered, particularly during the autumn surveys. Other less abundant species comprised: Nathusius' pipistrelle, whiskered bat, Brandt's bat, Natterer's bat and noctule.
16. Comparison of bat activity levels recorded at the site with the ECOBAT (Lintott *et al.* 2018) reference database confirmed the generally low activity levels at the site. Only two species, Nathusius' pipistrelle and soprano pipistrelle, exceeded a low level of activity across the site overall (moderate/high and moderate levels of those species were recorded respectively).
17. Bat numbers recorded within the proposed development were generally low, reflecting the low quality bat habitat across the survey area. The Proposed Development would not affect any bat roosting habitat, and hedgerow loss would be small (with any losses compensated by new planting).

References

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- Lintott, P. R., Davison, S., van Breda, J., Kubasiewicz, L., Dowse, D., Daisley, J., Haddy, E. and Mathews, F. 2018. Ecobat: An online resource to facilitate transparent, evidence-based interpretation of bat activity data. Ecology and evolution, 8: 935-941.

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