

**Targeted stream aquatic macroinvertebrate survey**

- 6.116 Stream habitat details and water chemistry measurements at each of the five sampling locations were recorded (see Table 28 and Table 29 respectively). A total of 37 unique aquatic macroinvertebrate families were recorded from the sampling locations. The samples were generally dominated by freshwater shrimps (Gammaridae), true fly larvae (Diptera), hoglice (Asellidae) and caddisfly (Limnephilidae). A complete list of all the macroinvertebrate taxa recorded at each of the stream locations can be found in Appendix 2.

*Table 28: Stream habitat details at sampling locations 1 to 5. For locations see Figure 8.*

Sampling Location	1	2	3	4	5
Average width (m)	1	1.5	1	1	1.3
Average depth (m) Autumn 2017	0.035	0.075	0.06	0.125	0.1
Average depth (m) Spring 2018	0.05	0.125	0.3	0.3	0.3
Average height, left bank (m)	0.3	1.2	0.8	1.5	0.6
Average height, right bank (m)	0.3	1.2	0.8	0.8	1.3
Adjacent land use, left bank	Arable	Path	Arable	Arable	Arable/ Suburban
Adjacent land use, right bank	Arable	Arable	Arable	Arable	Arable
Macrophyte cover (%) Autumn 2017	20	0	0	0	0
Macrophyte cover (%) Spring 2018	20	0	0	0	5
Habitat	Slack	Run	Run	Run	Run
Detritus present?	Widespread	Local	Widespread	Widespread	Widespread
Bed stability	Unstable/soft	Stable	Unstable	Unstable	Unstable
Turbidity Autumn 2017	Clear	Clear	Clear	Clear	Clear
Turbidity Spring 2018	Slight	Clear	Slight	Moderate	Moderate
Shade	Heavy	Heavy	Heavy	Heavy	Moderate
Flow	Normal	Normal	Normal	Normal	Normal

*Table 29: Stream water chemistry measurements at sampling locations 1 to 5.*

Sampling Period	Measurement	Sampling Location					Average
		1	2	3	4	5	
Autumn 2017	Conductivity (uS/cm)	638	626	649	664	664	648.20
	pH	7.34	7.66	7.37	8.1	8.21	7.74
	TDS (ppm)	319	313	324	332	332	324.00
	DO (mg/L)	0.98	6.9	2.99	5.72	6.76	4.67
	DO (%)	8.8	63.6	27.5	52.6	62.4	42.98
Spring 2018	Conductivity (uS/cm)	467	539	520	513	508	509.40
	pH	7.8	7.35	7.69	7.8	7.74	7.68
	TDS (ppm)	233	269	261	258	254	255.00
	DO (mg/L)	1.39	0.52	1.51	1.52	1.6	1.31
	DO (%)	12.8	4.7	13.7	13.8	14.6	11.92
TDS: total dissolved solids; DO: dissolved oxygen.							

**Data analysis - WHPT**

- 6.117 Whalley Hawkes, Paisley and Trigg (WHPT) metric scores (Whalley and Hawkes 1996, 1997) for Autumn 2017 and Spring 2018 were calculated from the family-level macroinvertebrate data and are summarised in Table 30.

*Table 30: WHPT scores for autumn 2017 at sampling locations 1 to 5.*

Sampling period	Score type	Sampling Location					Average
		1	2	3	4	5	
Autumn 2017	WHPT No. Taxa	15	21	14	10	8	13.60
	WHPT ASPT	5.41	5.07	4.03	4.02	3.78	4.46
Spring 2018	WHPT No. Taxa	17	16	10	16	16	15.00
	WHPT ASPT	5.05	5.75	4.07	4.59	4.61	4.81
WHPT: Whalley, Hawkes, Paisley and Trigg metric score. ASPT: Average (number of ) species per taxon.							

- 6.118 WHPT scores are highest in the samples taken from sample Sampling Locations 1 and 2, scoring over 5 in both autumn and spring. This indicates at these points in the Rowel Brook the water quality is good. The samples taken from sample points 3–5 have broadly similar scores for WHPT, generally between 4 and 5, indicating water quality is moderate in these locations. In addition, the water chemistry measurements for all five samples indicate the Rowel Brook and its tributary have moderate water quality.

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## 8 Figures

**Figure 1: Site Location and Statutory Designated Sites**

**Figure 2: Phase 1 Habitat Plan**

**Figure 3: Hedgerow Survey**

**Figure 4: Botanical Survey**

**Figure 5: Badger Survey (Confidential)**

**Figure 6a: Bat Survey Methods**

**Figure 6b: Tree Assessment for Bats**

**Figure 6c: Building Assessment for Bats**

**Figure 6d: Building Assessment for Bats (Begbroke Science Park)**

**Figure 6e: Bat Activity Transect Survey Results (Spring)**

**Figure 6f: Bat Activity Transect Survey Results (Summer)**

**Figure 6g: Bat Activity Transect Survey Results (Autumn)**

**Figure 7: Dormouse Survey**

**Figure 8: Watercourse Survey Results**

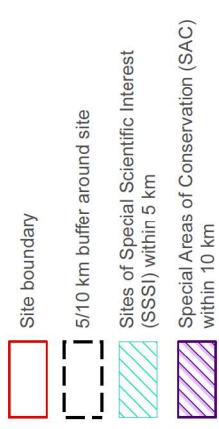
**Figure 9a: Breeding Bird Characterisation Survey (north of Site)**

**Figure 9a: Breeding Bird Characterisation Survey (south of Site)**

**Figure 10: Pond Surveys**

**Figure 11: Reptile Survey**





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## PROJECT TITLE

## BEGBROKE ECOLOGY SURVEYS

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**Figure 1: Site Location and Statutory Designated Sites**

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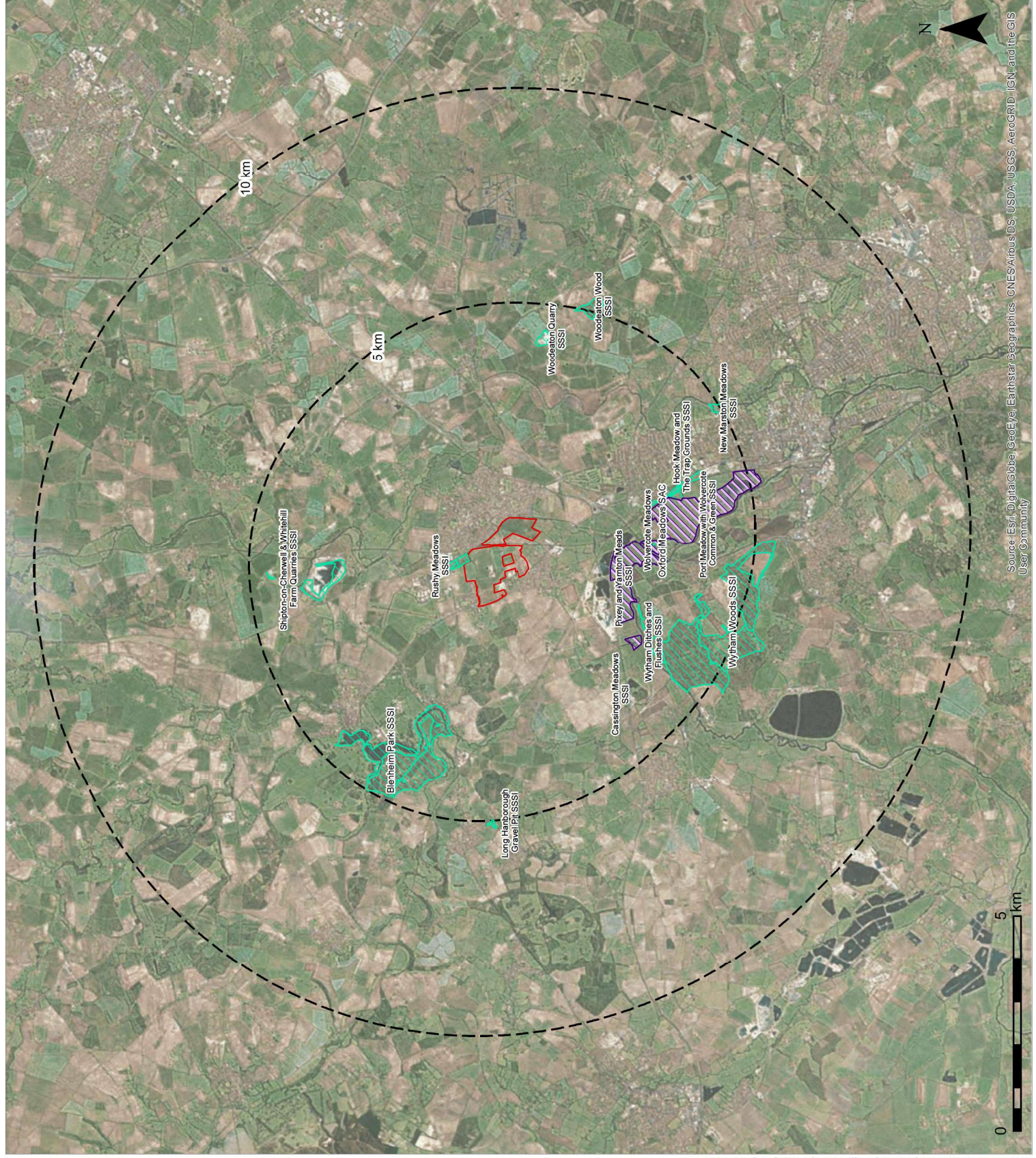
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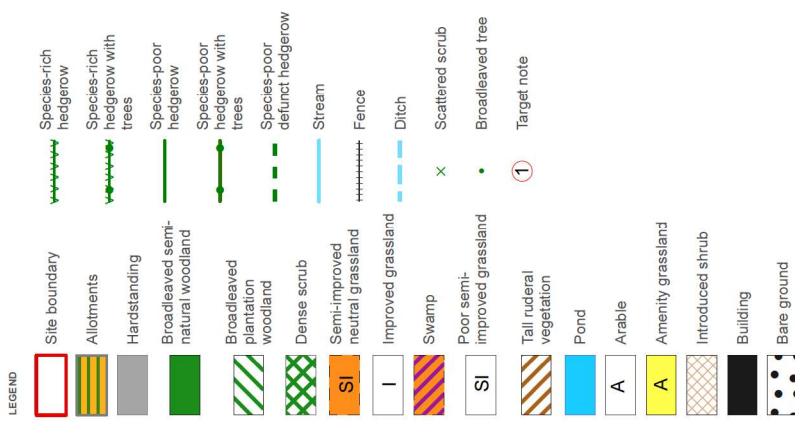
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Figure 2: Phase 1 Habitat Survey

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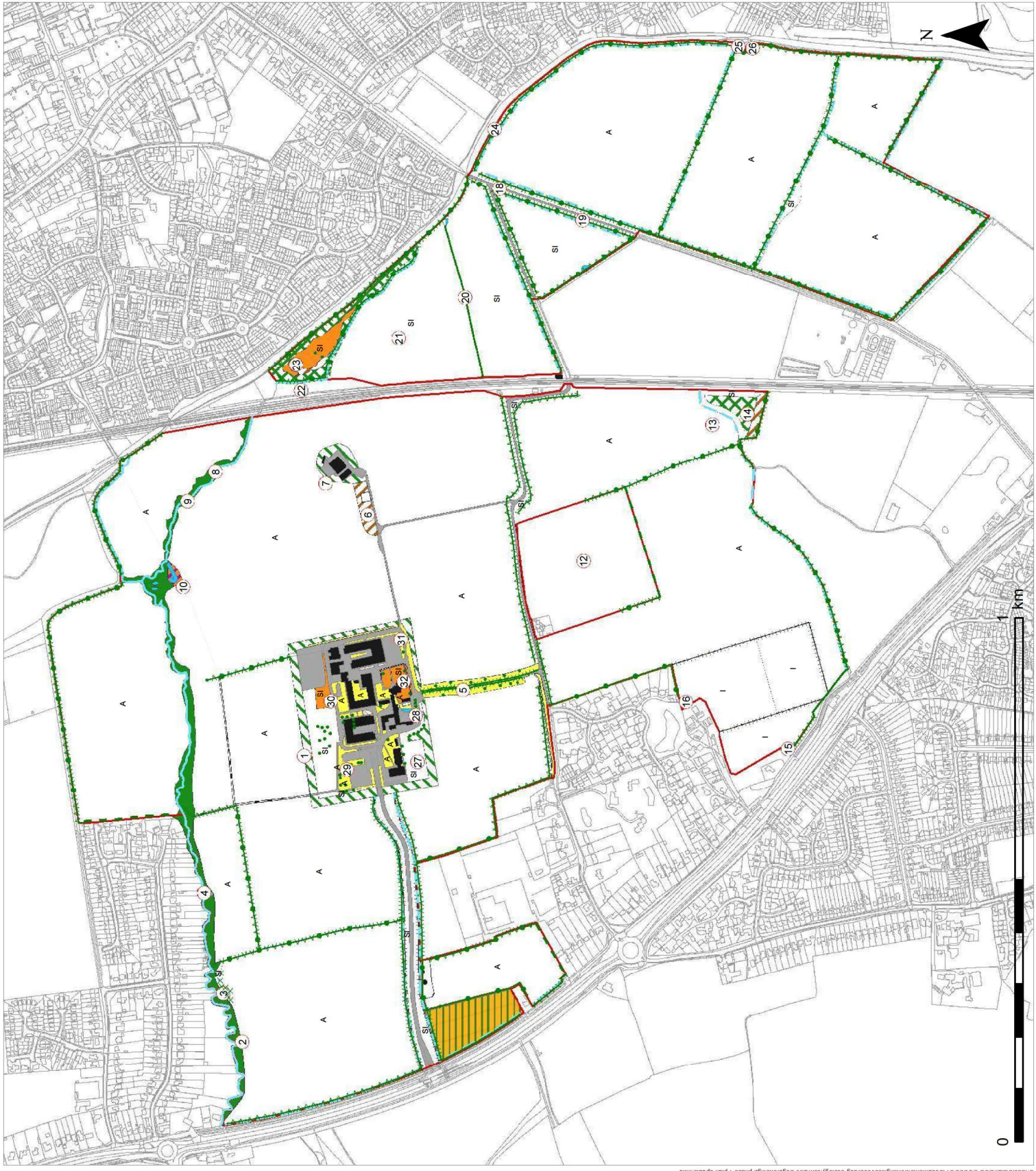
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LEGEND

Site boundary

Hedgerow status

- Not important, species-poor
- Not important, species-rich
- Important, species-poor
- Important, species-rich



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Figure 3: Hedgerow survey

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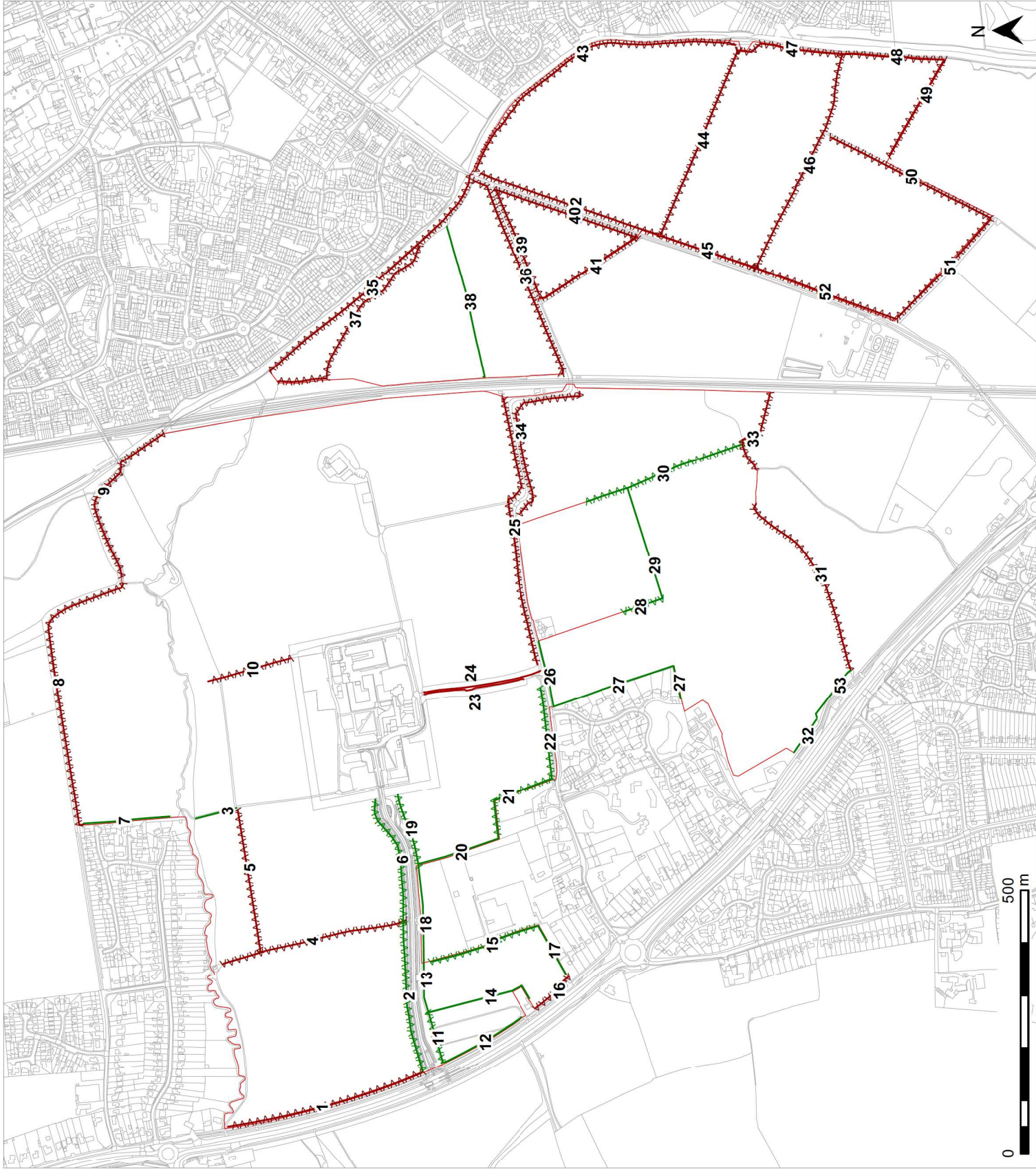
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LEGEND

Site boundary

Field subject to botanical survey

Location of botanical quadrats (2m x 2m)

Location of red list arable weeds

Common cudweed (*Filago vulgaris*)

Corn marigold (*Glebionis segetum*)

Habitat detail

Dense scrub

Semi-improved neutral grassland

Poor semi-improved grassland

Tall ruderal vegetation

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Figure 4: Botanical survey

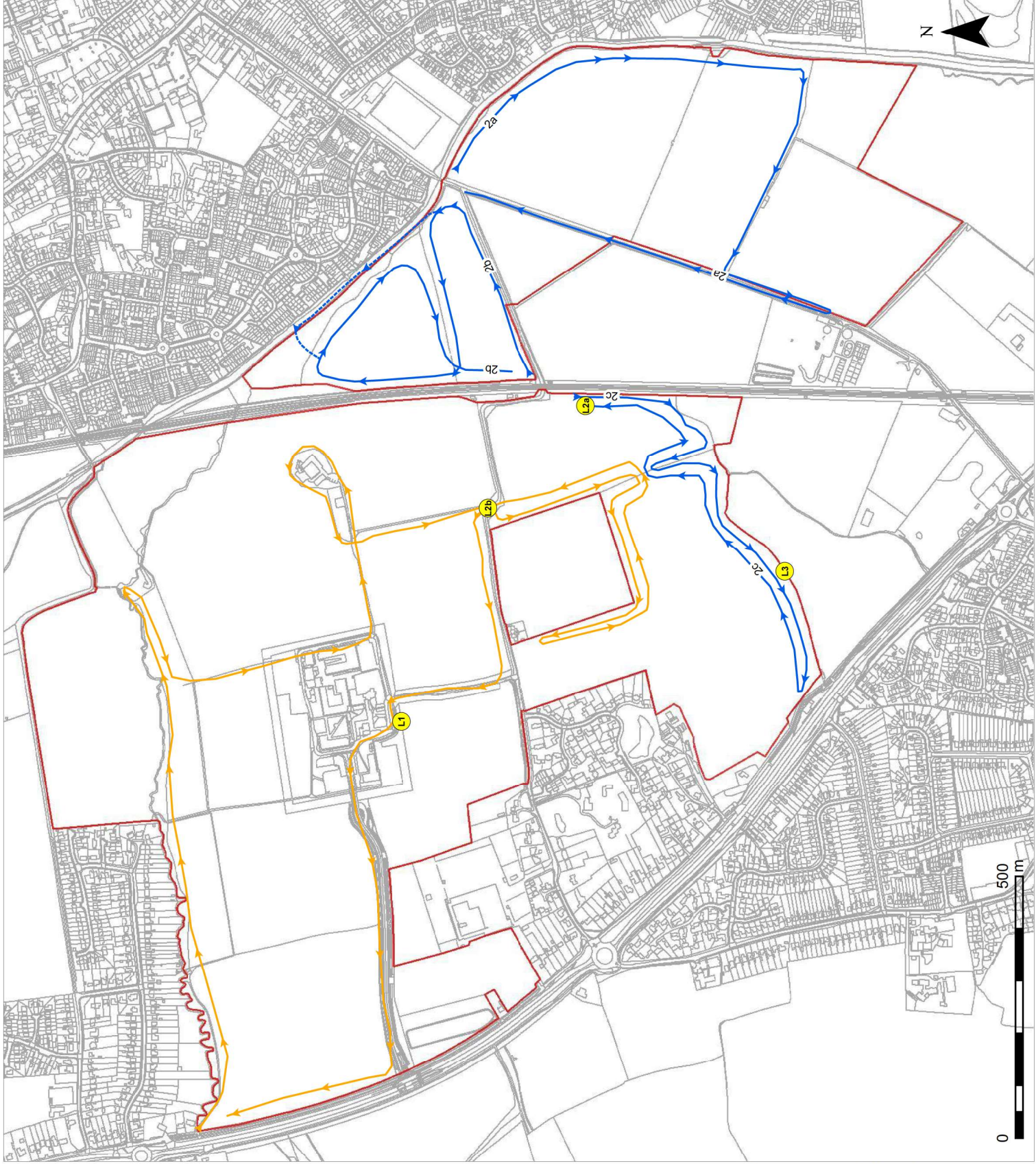
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LEGEND

- Site boundary
- Static detector
- Transect route walked
- Transect 1
- Transect 2
- Transect 2b diversion in June and July 2018



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Figure 6a: Bat survey methods

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LEGEND



Site boundary

Suitability of tree to support roosting bats



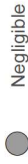
High



Medium



Low



Negligible



Tree number

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Figure 6b: Tree Assessment for Bats

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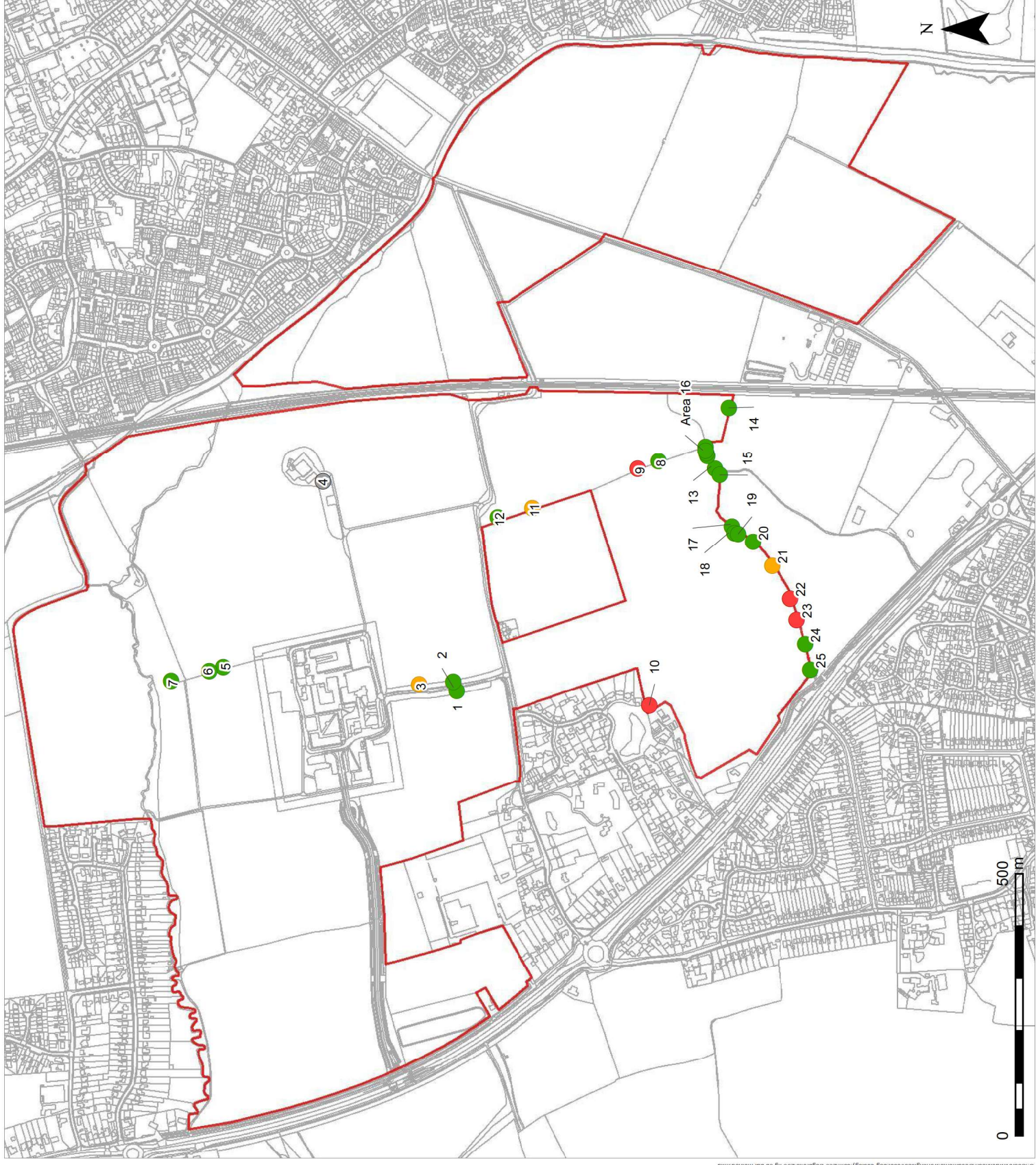
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LEGEND

- Site boundary
- Building
- Surveyor Position
- Suitability of building to support roosting bats
- High
- Low
- Moderate
- Negligible

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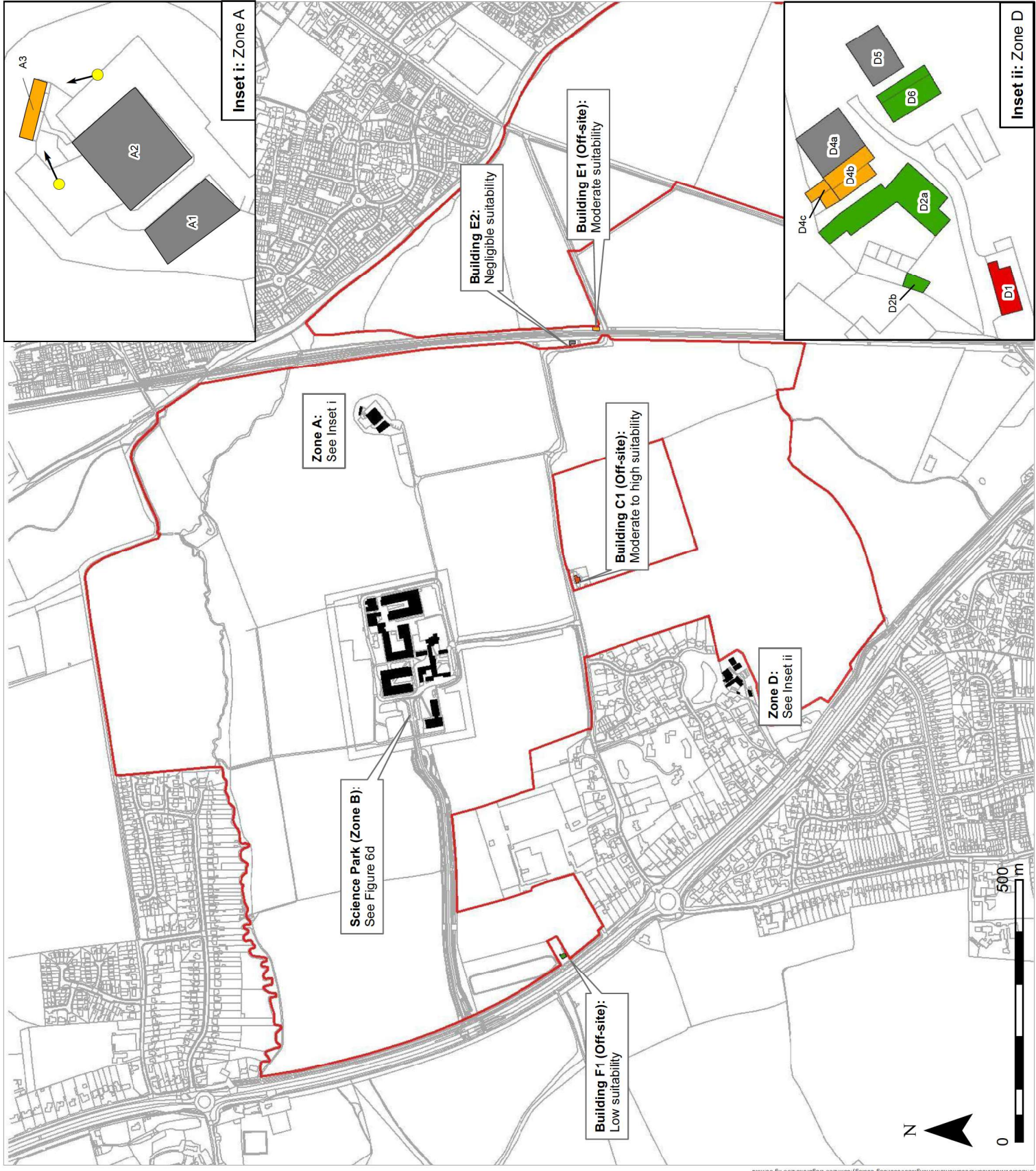
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BEBROKE ECOLOGY SURVEYS

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Figure 6c: Building Assessment for Bats

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LEGEND

Surveyor Position

Suitability of building to support roosting bats

High

Low

Moderate

Negligible

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Figure 6d: Building Assessment for Bats  
(Begbroke Science Park)

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