

# CAMBRIDGE NORTH

## ECOLOGY SURVEY REPORT UPDATE 2022

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A

25 October 2022

## REPORT

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### Approval for issue

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25 October 2022

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## EXECUTIVE SUMMARY

### Executive summary:

- RPS Consulting Services Ltd (RPS) was commissioned by Brookgate to undertake ecology surveys of Cambridge North, Phase 2 area, to help inform the proposed redevelopment of the site.
- The Site is wholly within the Chesterton Station Interchange (CSI) area. The CSI area was subject to a successful application for the Cambridge North Station which was approved in 2016 (permission S/3102/15/FL issued by South Cambridgeshire District Council and permission 15/2317/FUL issued by Cambridge City Council).
- The study area is located on land adjacent to Cowley Road, Cambridge North Station, Cambridge CB4 1UN, and comprises dense mainly birch scrub, semi-improved grassland, shrubs, ephemeral/short perennial plant communities and bare ground.
- The site is bounded by the station car park along the eastern boundary, existing commercial development along the northern boundary, the Cambridgeshire Guided Busway along the western boundary, and by Phase 1a along the southern boundary.
- The National Grid coordinates for the centre of the site are TL 4744 6085.
- This report presents the results of further surveys undertaken in 2022 to update the survey baseline data. For the results of previous surveys refer to Phase2 Ecology Survey Report 2022.
- No reptiles were found on site during the update survey.
- The trees on site all appear to be in good health without potential bat roost features.
- Building B1 was assessed as having moderate bat roost potential and required internal inspections, static monitoring and emergence surveys.
- building B2, low bat roost potential.
- Bat activity surveys comprised three transect surveys, one per month from August to October, combined with a period of static monitoring in each month for up to five nights.
- The transect and static monitoring surveys found that the survey area is used by a minimum of nine bat species:
  - Common Pipistrelle *Pipistrellus pipistrellus*
  - Soprano Pipistrelle *Pipistrellus pygmaeus*
  - Noctule *Nyctalus noctula*
  - Leisler's bat *Nyctalus leisleri*
  - Serotine *Eptesicus serotinus*
  - Brown Long-eared bat *Plecotus auritus*
  - Barbastelle *Barbastella barbastellus*
  - *Myotis* sp.
- Noctule and Common Pipistrelles were the most commonly detected species on the transect and static monitoring surveys. Barbestelle was recorded just once.
- Surveys for breeding birds were undertaken between May and June 2022 with a total of five survey visits taking place. In total 9 species of conservation concern were recorded breeding on or near site.
  - Black Redstart *Phoenicurus ochruros*
  - Greenfinch *Chloris chloris*
  - Linnet *Linaria cannabina*

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- Wren *Troglodytes troglodytes*
- Willow Warbler *Phylloscopus trochilus*
- Dunnock *Prunella modularis*
- Stock Dove *Columba oenas*
- Song Thrush *Turdus philomelos*
- Woodpigeon *Columba palumbus*
- Current bird populations present within the survey area would be considered to be of local importance for breeding birds.
- These survey results are in line with the baseline assessment within the ES chapter. Therefore this additional information has no implications for the predicted effects or proposed mitigation as reported in the ES.

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# 1 INTRODUCTION

## 1.1 Purpose and scope of this report

- 1.1.1 RPS Consulting Services Ltd (RPS) was commissioned by Bidwell's to undertake ecology surveys of Cambridge North, to help inform the proposed redevelopment of the site.
- 1.1.2 The Site is located wholly within the Chesterton Station Interchange (CSI) area. The CSI area was subject to a successful application for the Cambridge North Station which was approved in 2016 (permission S/3102/15/FL issued by South Cambridgeshire District Council and permission 15/2317/FUL issued by Cambridge City Council).
- 1.1.3 This report presents the results of the following surveys undertaken in 2022
- Reptiles
  - Bat roost assessment
  - Bat activity and static monitoring
  - Breeding Birds
- 1.1.4 This report pertains to these results only; recommendations included within this report are the professional opinion of an experienced ecologist and therefore the view of RPS. The surveys undertaken and subsequent report are prepared in accordance with the British Standard for Biodiversity Code of Practice for Planning and Development (BS42020:2013).

## 1.2 Study area

- 1.2.1 The study area is located on land adjacent to Cowley Road, Cambridge North Station, Cambridge CB4 1UN, and comprises dense mainly birch scrub, semi-improved grassland, shrubs, ephemeral/short perennial plant communities and bare ground.
- 1.2.2 The site is bounded by the station car park along the eastern boundary, existing commercial development along the northern boundary, the Cambridgeshire Guided Busway along the western boundary, and by Phase 1a along the southern boundary.
- 1.2.3 The National Grid coordinates for the centre of the site are TL 4744 6085.

## 2 METHODS

### 2.1 Reptile Surveys

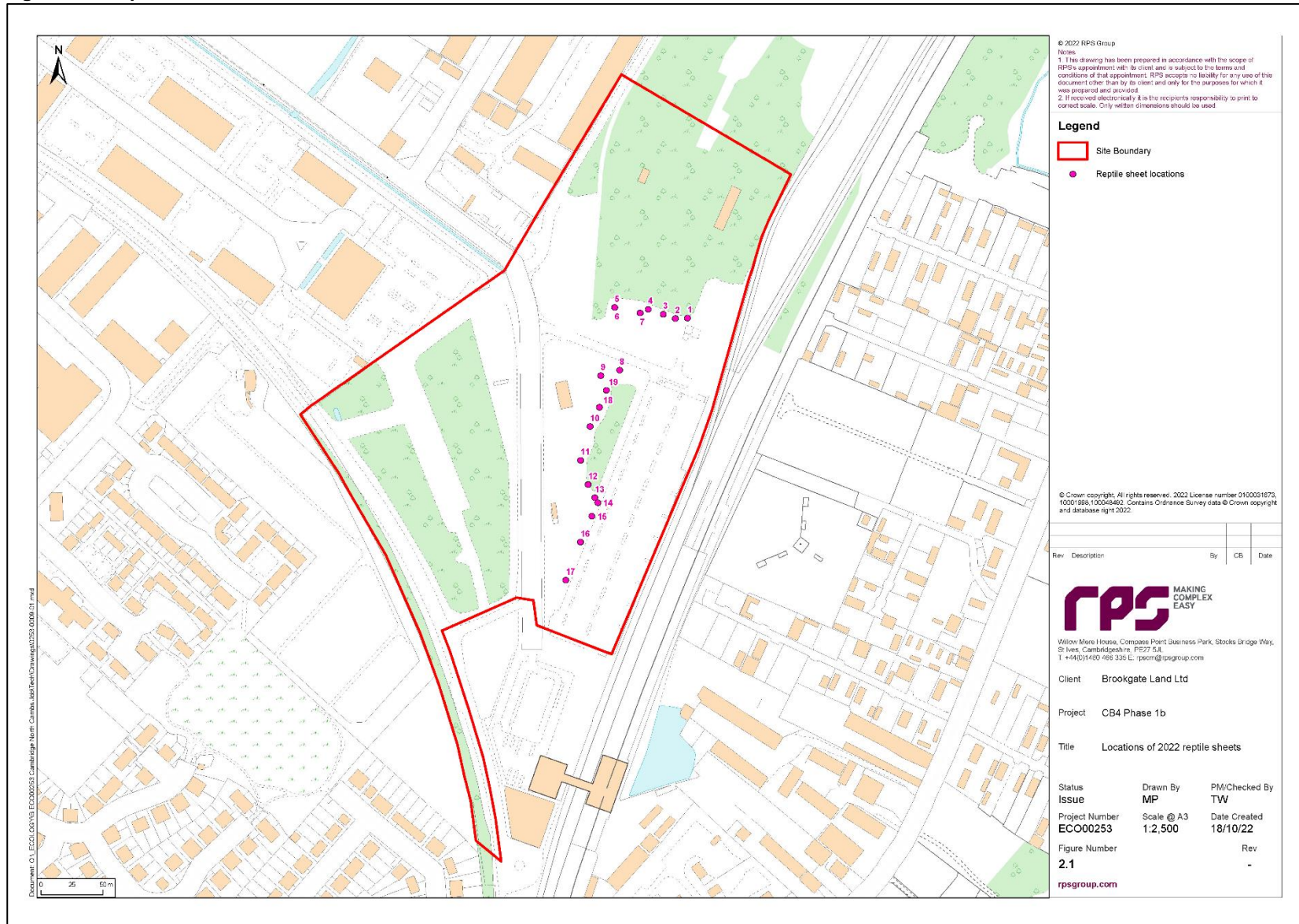
- 2.1.1 An update reptile survey was undertaken, particularly to ensure results cover the northern part of the development site. The reptile survey followed the recommended methodology described in the Herpetofauna Worker's Manual (JNCC, 2003) and Froglife's Surveying for Reptiles (Froglife, 2016). It was undertaken by experienced ecologists and was conducted in areas of the site identified as containing the most favourable habitat for reptiles.
- 2.1.2 The reptile surveys were carried out by RPS Ecologists Toni Winbourne, Crystal Acquaviva and Andrew Seth who are all experienced in undertaking reptile surveys.
- 2.1.3 Artificial refugia in the form of sheets of roofing felt, approximately 0.5 m<sup>2</sup> in size, were placed in likely basking spots (for example, un-shaded patches next to cover, in areas of long grass and next to potential hibernation sites such as piles of rubble, logs or disused rabbit burrows). These provide shelter and basking opportunities for reptiles, which can be recorded on or under the refugia in suitable weather conditions.
- 2.1.4 A total of 20 sheets were set out on 5th August 2022. The refugia were left undisturbed for 10 days prior to the first survey being undertaken in order to allow them to bed down and to give them time for reptiles to find them. Sheet positions are show in Figure 2.1 below.
- 2.1.5 In order to conform to best practice guidelines, the refugia was inspected during seven days in September 2022 during suitable weather conditions. The weather conditions and temperatures for each visit are set out in Table 2.1 below.
- 2.1.6 On each of the visits every refugia was inspected for reptiles basking on top and was then lifted to identify any reptiles beneath. Other suitable reptile refugia and basking areas on site were also inspected. The number, species, age class and where possible, sex of each reptile observed was recorded.
- 2.1.7 Visit times were selected to coincide with suitable weather conditions and times of day when refugia would be acting as heat traps which would attract reptiles to use them whilst basking. Periods of strong wind or heavy rain was avoided and surveys were typically undertaken during periods of sunshine and when air temperatures were between 10°C and 18°C.

**Table 2.1: Reptile survey dates and weather conditions**

Visit Number	Date	Temperature	Cloud Cover (Oktas)	Wind (Beaufort)	Weather
1	02/09/22	22	2	2	Dry
2	07/09/22	19	2	1	Dry (rain earlier)
3	13/09/22	18	6	0	Dry
4	16/09/22	18	5	3	Dry
5	20/09/22	17	5	1	Dry
6	23/09/22	14	8	0	Rain overnight
7	29/09/22	10	6	1	Dry and bright



Figure 2.1: Reptile sheet locations



## 2.2 Breeding Bird Surveys

- 2.2.1 It was recommended that the Breeding Bird Surveys were updated as there was anecdotal evidence that Black Redstart may now be breeding onsite.
- 2.2.2 The breeding bird survey undertaken was based on a standard territory mapping methodology as outlined in Gilbert et al. (1998) and Bibby et al. (2000). This method is based on the principle that many species during the breeding season are territorial. This is found particularly amongst passerines, where territories are often marked by conspicuous song, display and periodic disputes with neighbouring individuals.
- 2.2.3 All bird species were recorded and mapped across the whole site.
- 2.2.4 The survey area was walked at a slow pace in order to locate and identify all individual birds. Visits were undertaken early in the morning, finishing before midday. The whole survey area was covered in each visit, using suitable optical equipment to observe bird behaviour and all areas of the site were approached to within 50-100m, where possible. Survey routes were mapped, and the direction walked alternated on each visit, to ensure that all areas were covered at various times of day across the duration of the survey. All species encountered within the survey area were recorded and mapped.
- 2.2.5 Surveys for breeding birds were undertaken between May and June 2022 with a total of five survey visits taking place. The survey visits and ornithologist undertaking the survey were as follows:
- Visit 1: 17<sup>th</sup> May (Andrew Seth)
  - Visit 2: 24<sup>th</sup> May (Andrew Seth)
  - Visit 3: 7<sup>th</sup> June (Andrew Seth)
  - Visit 4: 14<sup>th</sup> June (Andrew Seth)
  - Visit 5: 23<sup>rd</sup> June (Andrew Seth)
- 2.2.6 On each visit, registrations were recorded directly into ESRI Arcpad GIS software loaded onto handheld PDA devices, with a 1:10,000 scale Ordnance Survey base map of the study area (and adjacent land). A fresh map was used for each survey. Registrations of birds were recorded using standard British Trust for Ornithology (BTO) two letter species codes (BTO 2009). Specific codes were also used to denote singing, calling, movement between areas, flight, carrying food, nest building, aggressive encounters and other behaviour.
- 2.2.7 The expected outcome is that mapped registrations fall into clusters, approximately coinciding with territories. A cluster is generally a spatially distinct group of registrations that represent the activity of not more than one pair. Ideally, clusters include registrations of territorial behaviour across all visits and are clearly demarcated from adjacent clusters by simultaneous recording of neighbouring birds. Where a species exhibits high territory density, the mapping of simultaneously singing birds becomes essential. Territory boundaries are assumed to be between such birds.
- 2.2.8 Territory mapping methods produce analysis maps of non-overlapping ellipses encircling clusters of records thought to relate to separate pairs of breeding birds. These ellipses may not show the entire extent of the pairs' actual breeding territory which may be significantly larger; however, they are likely to show those areas in which the pair is most active.
- 2.2.9 On completion of the surveys, analysis maps were produced for each species, consisting of all registrations recorded during the survey. From these species' maps, the number of territories was calculated by identifying the number of territories or clusters present.
- 2.2.10 Standard registration mapping techniques were also used to record non-breeding species.
- 2.2.11 The following definitions have been used to identify the breeding status of the species recorded:

- 2.2.12 Confirmed Breeding: includes species for which territories were positively identified as a result of the number of registrations, the location of an active nest, and the presence of recently fledged young or downy young.
- 2.2.13 Probable Breeding: includes a pair observed in suitable nesting habitat in breeding season, or agitated behaviour / anxiety calls from adults suggesting probable presence of nest or young nearby. Behaviour was observed on insufficient occasions to confirm the presence of a territory.
- 2.2.14 Possible Breeding: includes species observed in breeding season in suitable nesting habitats, or singing male present (or breeding calls heard) in breeding season in suitable breeding habitat.
- 2.2.15 Non-Breeding: fly-over species observed but suspected to be on migration, or species observed but suspected to be summering non-breeder.

## Limitations

- 2.2.16 No surveys were carried out in April which would be the preferred month for commencing breeding bird surveys. It is possible some territories of early breeding species were missed such as song thrush and wren.

## 2.3 Bat Surveys

### Bat Roost Assessment

- 2.3.1 A detailed bat roost assessment was carried out on the buildings and trees on site by Crystal Acquaviva (RPS Principal Ecologist), a Natural England bat class licence holder on the 9<sup>th</sup> August 2022 following best practice as described by the Bat Conservation Trust (Collins, 2016), English Nature's Bat Mitigation Guidelines (Mitchell-Jones, 2004) and the Joint Nature Conservation Committee's Bat Worker's Manual (Mitchell-Jones & McLeish, 2004).
- 2.3.2 The buildings and trees were examined externally, and internally where accessible, for potential roosting places and access points for bats and for any evidence of bat use, using binoculars (Bushnell Legend).
- 2.3.3 Signs that could indicate use by bats include:
- bat droppings;
  - staining of access points used by bats to enter the structure; and
  - feeding remains such as moth and butterfly wings.
- 2.3.4 The buildings' suitability for bat roosting was assessed by examining structural features. Structural features that may influence the suitability of a building to support roosting bats include the presence of a roof void, the presence of access points into the building (including gaps beneath barge boards, soffits and fascias, gaps under lead flashing, gaps within masonry and under loose tiles), the complexity and size of any roof void and daytime light levels in the roof void.
- 2.3.5 Trees were assessed for the potential to support bats roosts by checking for features such as holes, cavities or splits, and evidence like dark staining on a tree below a feature caused by the natural oils in the bats' fur, scratch marks around the feature or droppings below.
- 2.3.6 The buildings and trees suitability for roosting bats was also assessed by examining the surrounding habitat. Important habitat features surrounding the structure which may influence roost potential include whether the structure is in a semi-rural or parkland location, its proximity to a significant linear habitat features such as a watercourse, mature hedgerow, wooded lane or an area of woodland.

## Limitations

- 2.3.7 Access to both buildings was limited due to the presence of asbestos and other larger debris making inspection for the presence of bats in some places, impossible.
- 2.3.8 Bats are difficult to locate in large structures, with so many potential roosting areas, finding the exact roosting site can be difficult, especially male / single bat roosting sites.
- 2.3.9 Bats can have seasonal use of roosts and being so mobile may arrive and start using a site after it has been surveyed, or roost somewhere else during the period it was surveyed.

## Bat Activity Surveys

- 2.3.10 The bat activity surveys were carried out by Toni Winbourne (Ecologist) and Crystal Acquaviva (Principal Ecologist), who are both experienced in undertaking bats surveys.
- 2.3.11 Bat activity surveys consist of a walked route or transect around the site to record bat activity. During the transect, the ecologist walks a planned route at constant speed (so the sampling area is the same per unit time) with the aid of a bat detector and appropriate recording equipment for ultrasonic sound. The ecologist will record observations such as numbers of bats, flight directions, behaviour (e.g. commuting or foraging) and relative speed and flight height.
- 2.3.12 Following the latest best practice guidelines and recommendations published by the Bat Conservation Trust in Bat Survey: Good Practice Guidelines (BCT, 2019). Three dusk activity surveys were undertaken on site in August, September and October 2022.
- 2.3.13 The transect route included all of the habitat types encountered within the site boundary to ensure an accurate representation of the bat species present on site. The route walked on each survey visit are provided in **Error! Reference source not found.** and Figure 3.2.
- 2.3.14 Routes were slowly walked by an experienced surveyor equipped with a time expansion bat detector, the Echo Meter Touch 2, recording onto a Galaxy Tab A for later analysis (Kaleidoscope).
- 2.3.15 The number of bat contacts along the transect routes were recorded, together with the species and time of detection. Direction and start and end points of the transect routes were also marked on the maps and are shown on the figures.
- 2.3.16 All bat passes were recorded, and all bats were identified to species level on site, where possible. Bat calls were subsequently analysed using computer software (Kaleidoscope) for confirmation of species. Where possible, additional notes on size, flight height, type of flight (such as commuting or foraging) and direction of flight were also recorded.
- 2.3.17 The dusk surveys commenced at sunset and lasted for 2 hours after sunset.
- 2.3.18 The surveys were carried out following current guidelines (Collins, 2016). The dates and weather conditions during the surveys are shown in Table 2.2.

**Table 2.2: Weather conditions for bat activity surveys**

Transect	Date	Temperature	Weather	Sunset Time
1	09/08/2022	25 °C	Dry, wind F1, cloud 1/8	20:37
2	07/09/2022	19 °C	Dry, wind F1, cloud 2/8	19:35
3	16/10/2022	17-14 °C	Dry, wind F3, cloud 2/8	18:27

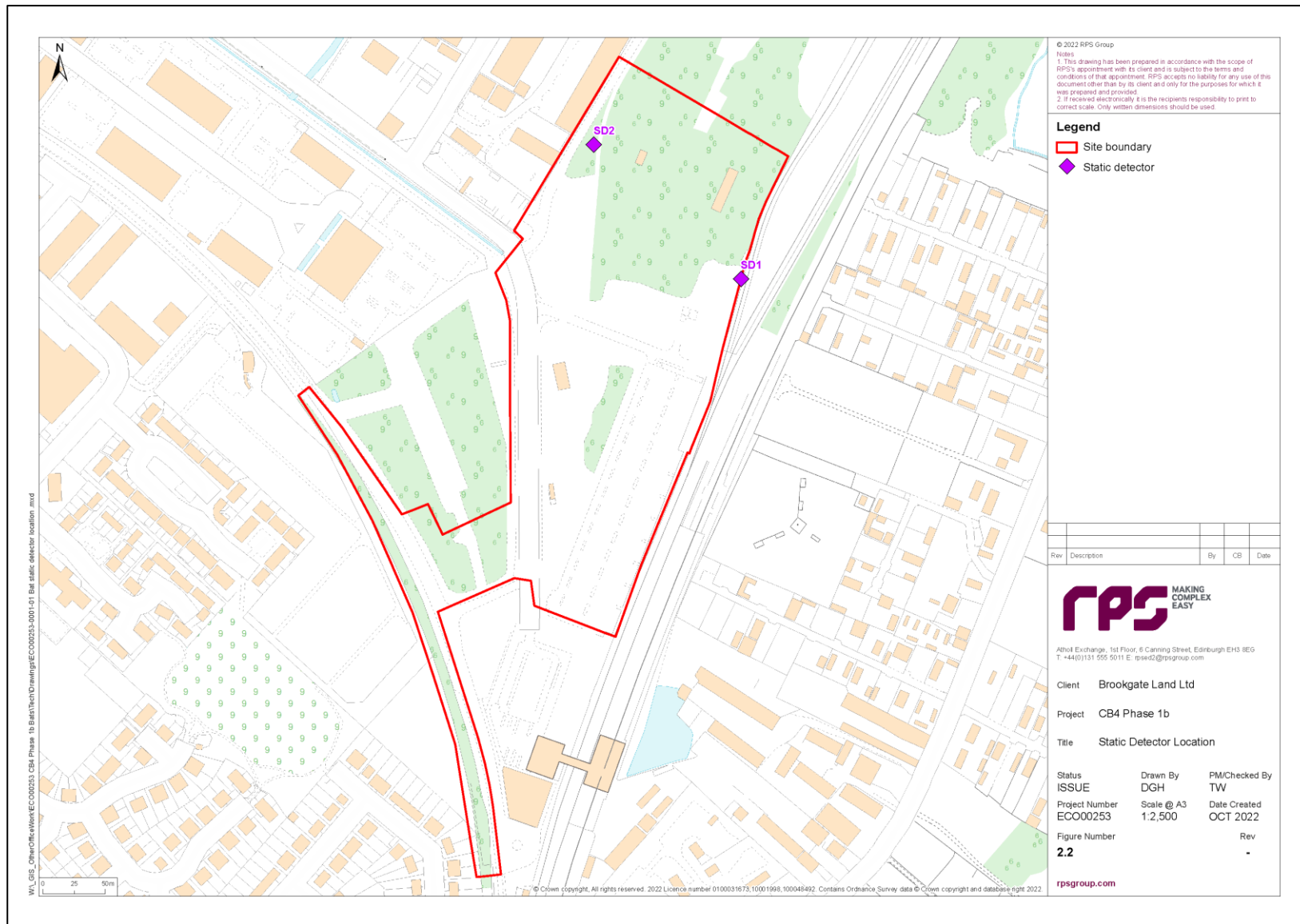
## Static Monitoring

- 2.3.19 Two statics were deployed on site on three occasions between August and October 2022. Positions are shown Figure 2.2 below. They were left for a period of at least five consecutive nights to gain additional information about bat activity on site. These surveys support the assessment of the bat assemblage in the area and help in determining how bats utilise the site
- 2.3.20 Combined, the Anabat detectors deployed across the site sampled a total of 28 Anabat-nights between August and October.
- 2.3.1 The Anabats were programmed to switch on 30 minutes before sunset time and switch off 30 minutes after sunrise time. These devices are triggered to automatically record sounds within an appropriate frequency range to record bat calls.
- 2.3.2 Data was analysed using Kaleidoscope software, to identify bat species recorded in each survey location.

## Limitations

- 2.3.3 There were no weather or access limitations during the activity surveys. All activity surveys were undertaken at a suitable time of year and under suitable weather conditions.
- 2.3.4 It should be noted that bats are a group of species with a range of dynamic behaviours and as such, bats can roost in different locations, forage in different areas and preferentially commute along different routes in response to a number of changing physical and environmental factors.
- 2.3.5 The bat data presented in the tables detailing results of the bat surveys show number of contacts for different bat species. It is important to understand that the number of contacts does not equate to number of individual bats, as several contacts can be generated by one bat flying past the surveyors several times. Instead, number of contacts provides an index of bat activity, which can be used to identify areas of habitat of greater or lesser importance for bats.

Figure 2.2: Static bat detector locations



### 3 RESULTS

#### 3.1 Reptile Survey

3.1.1 No reptiles were found on site during the update survey.

#### 3.2 Breeding Bird Surveys

3.2.1 A total of 25 species were recorded during the breeding bird survey within or adjacent to the site area in May/June. Of these species 20 were confirmed to be breeding.

3.2.2 A summary of the breeding and conservation status of the 25 species recorded during the course of the survey, with the numbers of territories identified (or estimated in the case of probable and possible records) is provided in Table 3.1. The location of the breeding birds when they were within the proposed development area has also been recorded.

**Table 3.1: Breeding bird surveys results**

Species	Breeding status	Minimum number of territories	Schedule 1	UK BAP priority species	NERC SPI	Birds of conservation concern
Blackbird	Confirmed	5				
Blackcap	Confirmed	3				
Black Redstart	Confirmed	1	✓			Amber
Blue Tit	Confirmed	3				
Carrion Crow	NB					
Chaffinch	NB					
Chiffchaff	Confirmed	3				
Coal Tit	Confirmed	1				
Collared Dove	Confirmed	2				
Dunnock	Confirmed	5		✓	✓	Amber
Feral Pigeon	NB					
Garden Warbler	Confirmed	1				

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Goldfinch	Confirmed	1				
Greenfinch	Confirmed	2				Red
Great Spotted Woodpecker	Confirmed	1				
Great Tit	Confirmed	5				
Lesser Whitethroat	NB					
Linnet	Confirmed	2			✓	Red
Long-tailed Tit	NB					
Magpie	Confirmed	1				
Robin	Confirmed	8				
Stock Dove	Confirmed	2				Amber
Starling	NB			✓		Red
Song Thrush	Confirmed	1		✓	✓	Amber
Woodpigeon	Confirmed	9				Amber
Wren	Confirmed	8				Amber
Willow Warbler	NB					Amber

### 3.3 Bat Surveys

#### Bat Roost Assessment

- 3.3.1 The trees and two buildings on site were assessed for their bat roost potential. The assessments were carried out from the ground with some internal inspection where there were voids or access points.
- 3.3.2 The larger building (B1) has dark rooms at the north end and also small features in the roof and wall at the south end of the building. There was a single butterfly wing on the floor at the north end of the building indicating the building may be used as a bat feeding perch.



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- 3.3.3 The northern rooms have moderate potential to be used as a hibernation roost and will require internal inspections and static monitoring between December and February.
- 3.3.4 Building B1 has moderate bat roost potential due to these features and its location within good bat habitat.
- 3.3.5 The smaller building (B2) has very low bat roost potential, being light throughout except for where the ceilings have been damaged. This damage is quite extensive but there are areas remaining between the damaged plaster boards and concrete roof.
- 3.3.6 The trees on site all appear to be in good health without potential bat roost features. However, due to dense scrub not all the trees could be inspected from all sides and will be examined again in during the winter inspection visit.

### Activity Survey

- 3.3.7 Bat activity surveys were undertaken on site during August, September and October. The bat activity transects surveyed the northern section of the site (which had not been previously surveyed) and focused on those features likely to be of greatest value for bats including areas of trees and scrub.
- 3.3.8 The results are summarised in Table 3.2. with time of first contact shown in Table 3.4.
- 3.3.9 Each transect was walked 3 times. Table 3.3 gives the number of bat calls recorded per transect divided by the number of circuits walked. This allows for a better estimate of abundance.

**Table 3.2: Summary of walked transect results**

Survey Date	Bat Species									Total
	CPIP	SPIP	NPIP	PIP sp	NOC	LEI	EPT	BLE	MYO	
09.08.22	3	1		1	5					10
07.09.22	15	3			10					28
06.10.22										0

CPIP = Common Pipistrelle, SPIP = Soprano Pipistrelle, NPIP = Nathusius' Pipistrelle, PIP sp = Pipistrelle sp., NOC = Noctule, EPT = Serotine, BLE = Brown Long-eared, MYO = Myotis sp.

**Table 3.3: Walked transect results divided by the number of circuits**

Survey Date	Bat Species									
	CPIP	SPIP	NPIP	PIP sp	NOC	LEI	EPT	BLE	MYO	Total
09.08.22	1	0.3		0.3	1.6					3.2
07.09.22	1.6	1			3.3					5.2
06.10.22										0

CPIP = Common Pipistrelle, SPIP = Soprano Pipistrelle, NPIP = Nathusius' Pipistrelle, PIP sp = Pipistrelle sp., NOC = Noctule, EPT = Serotine, BLE = Brown Long-eared, MYO = Myotis sp.

**Table 3.4: Times of first contact**

Species	Transect	Time of first contact	Time since sunset of first contact
Common Pipistrelle	1	21:58	81 minutes
	2	20:17	42 minutes
Soprano Pipistrelle	1	21:29	52 minutes
	2	20:22	47 minutes
Noctule	1	20:56	19 minutes
	2	19:49	14 minutes

- 3.3.10 The first and second transects in August and September recorded low levels of activity with three species recorded, Common pipistrelle, Soprano Pipistrelle and Noctule.
- 3.3.11 The third transect in October recorded no bat activity during the 2 hours of the survey.
- 3.3.12 Transect routes are shown in Figure 3.1 and Figure 3.2.
- 3.3.13 Common Pipistrelle was the species recorded most often, with 15 contacts during the September survey and three contacts were recorded during the August survey visit. Soprano Pipistrelle was sparsely recorded, with one contact recorded in August and three contacts recorded in September. Noctule were the second most recorded with 5 contacts during the August survey visit and 10 on the during the September survey visit.
- 3.3.14 Noctule was the earliest encountered species, with the earliest recording at 14 minutes after sunset.

### Static Monitoring

- 3.3.15 A total of 713 confirmed bat contacts were recorded over the 28 detector-nights. The overall mean activity for the pair of detectors was 25 bat contacts per Anabat-night.

- 3.3.16 A total of nine species were recorded during the surveys: Common Pipistrelle, Soprano Pipistrelle, Nathusius' Pipistrelle, Noctule, Leisler's, Serotine, Brown Long-eared, unknown Myotis and a single record of barbastelle.
- 3.3.17 The data from the static detectors support the activity surveys in the analysis that the most commonly encountered bats on site are Common Pipistrelles, Soprano Pipistrelles and Noctules. However, whilst a large number of bat calls were recording during the duration of the monitoring period, it cannot be determined whether the calls are multiple bats or the same bat passing by the monitor multiple times.
- 3.3.18 As shown in Table 3.5 and Table 3.6, Common Pipistrelle, Soprano Pipistrelle and Noctule contacts comprised nearly all the total contacts recorded. Therefore, it is considered that the other species are only sporadically using the site.

## REPORT

**Table 3.5: Number of bat contacts recorded during static monitoring surveys**

Survey date	Recorder	Number of nights recording	Location	Bat Species											
				CPIP	SPIP	NPIP	PIP	NOC	LEI	NYS	EPT	BLE	MYO	BAR	TOTAL
23.08.2022	SD1	3	Adjacent to railway line	22	11			237	1	1	1	4			277
23.08.2022	SD2	5	Adjacent to access road	65	19		1	42				3	1		131
07.09.2022	SD1	5	Adjacent to railway line	11	5	1		38	2	1		2	1		61
07.09.2022	SD2	5	Adjacent to access road	31	22	3	1	111		1	1	1	1	1	173
10.10.2022	SD1	5	Adjacent to railway line	14	5			34				1			54
10.10.2022	SD2	5	Adjacent to access road	10	1			6							17

CPIP = Common Pipistrelle, SPIP = Soprano Pipistrelle, NPIP = Nathusius' Pipistrelle, PIP = Pipistrelle sp., NOC = Noctule, LEI = Leisler's, NYS = Nyctalus sp, SER = Serotine, BLE = Brown Long-eared, MYO = Myotis sp., BAR = Barbastelle

**Table 3.6: Average bat contacts recorded per night of recording during static monitoring surveys**

Survey date	Recorder	Number of nights recording	Location	Bat Species											
				CPIP	SPIP	NPIP	PIP	NOC	LEI	NYS	EPT	BLE	MYO	BAR	TOTAL
23.08.2022	SD1	3	Adjacent to railway line	7.33	3.67			79	0.33	0.33	0.33	1.33			92.33
23.08.2022	SD2	5	Adjacent to access road	13	3.8		0.2	8.4				0.6	0.2		26.20
07.09.2022	SD1	5	Adjacent to railway line	2.2	1	0.2		7.6	0.4	0.2		0.4	0.2		12.20
07.09.2022	SD2	5	Adjacent to access road	6.2	4.4	0.6	0.2	22.2		0.2	0.2	0.2	0.2	0.2	34.60
10.10.2022	SD1	5	Adjacent to railway line	2.8	1			6.8				0.2			10.80
10.10.2022	SD2	5	Adjacent to access road	2	0.2			1.2							3.40

CPIP = Common Pipistrelle, SPIP = Soprano Pipistrelle, NPIP = Nathusius' Pipistrelle, PIP = Pipistrelle sp., NOC = Noctule, LEI = Leisler's, NYS = Nyctalus sp, SER = Serotine, BLE = Brown Long-eared, MYO = Myotis sp., BAR = Barbastelle.

Figure 3.1: Transect route and bat contacts 09.08.2022

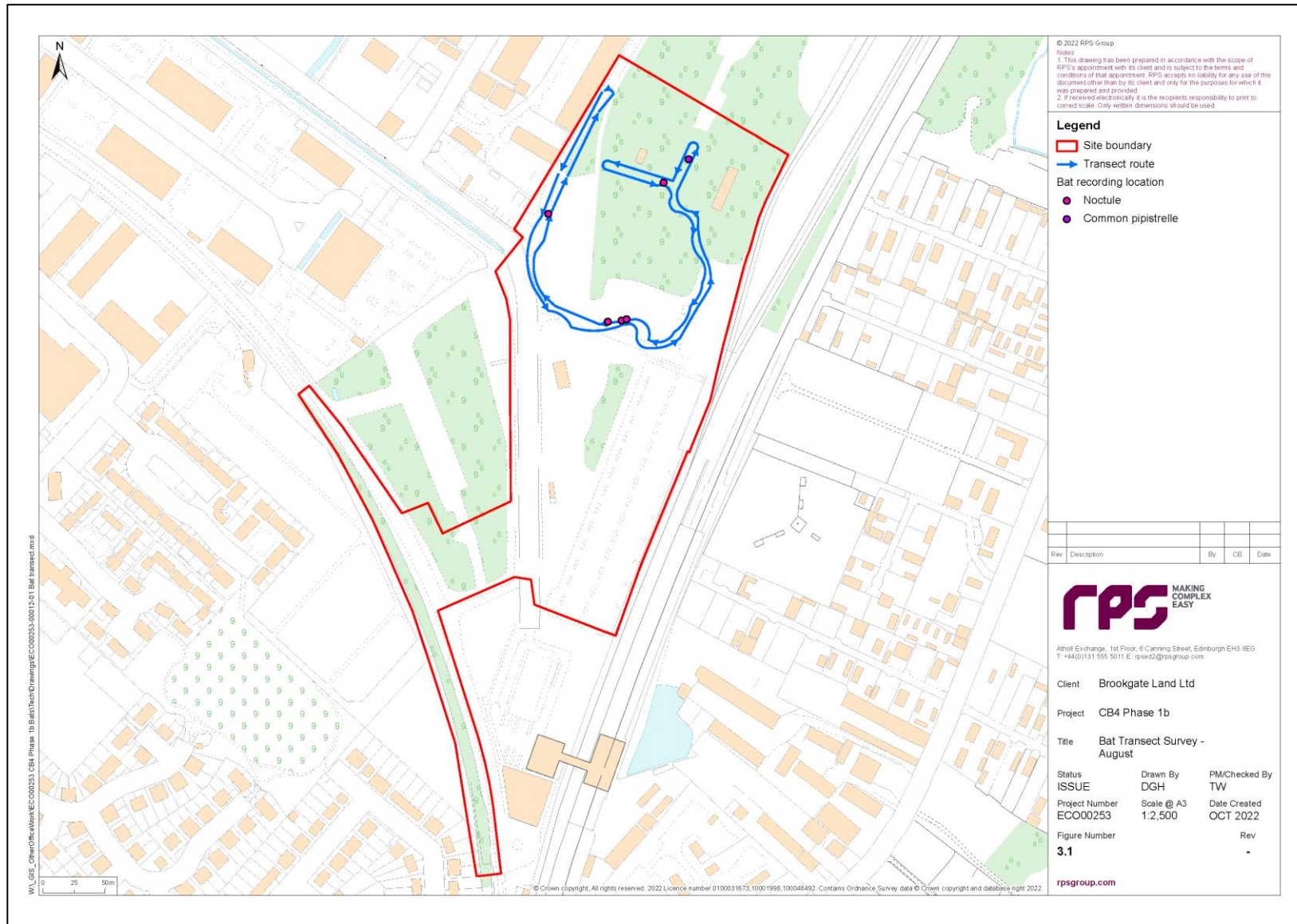
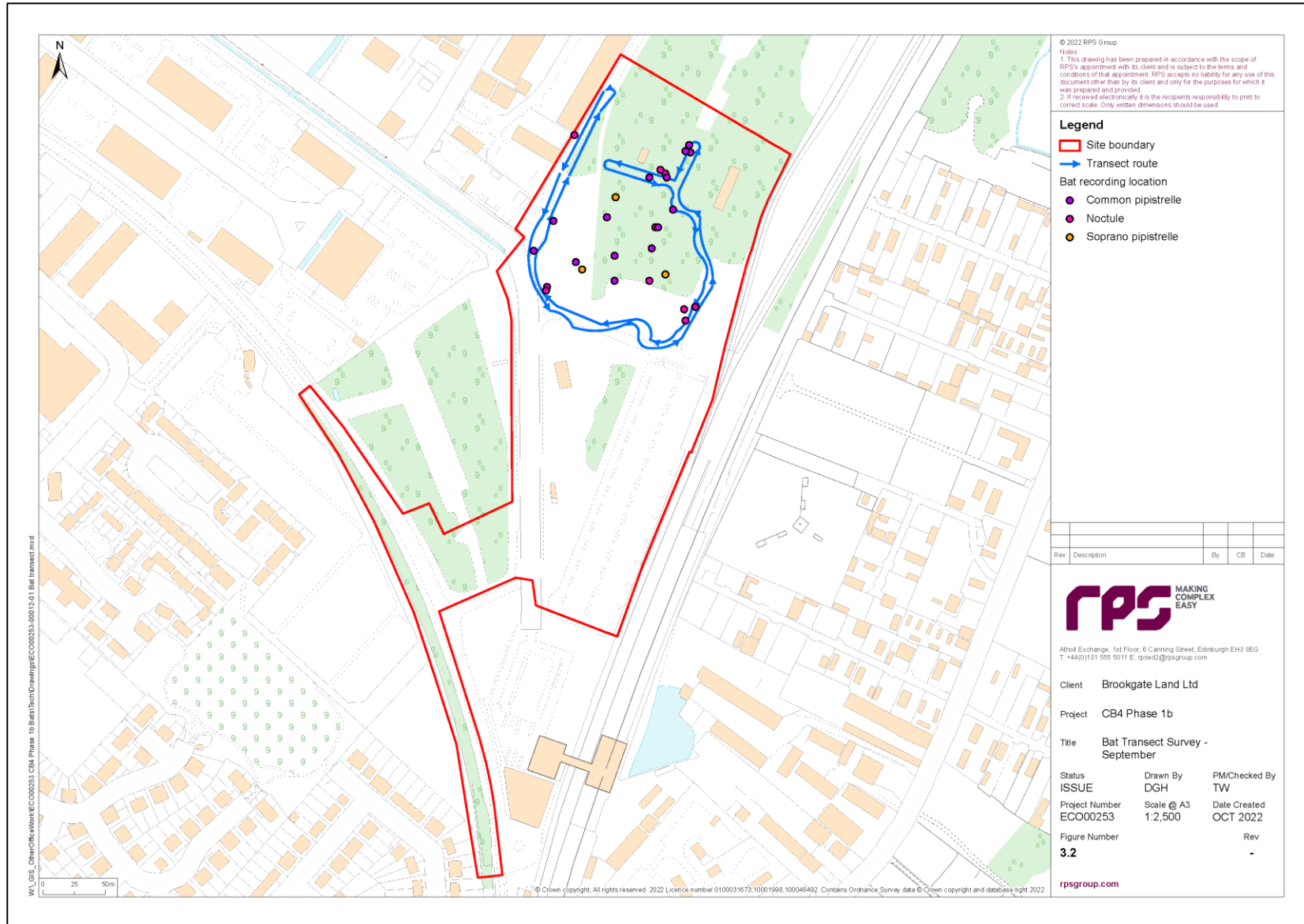


Figure 3.2: Transect route and bat contacts 07.09.2022



## 4 EVALUATION

### 4.1 Reptile Survey

- 4.1.1 No reptiles were found during the survey, and reptiles are still considered to be largely absent from site.

### 4.2 Breeding Bird Surveys

- 4.2.1 The following species accounts relate to those species confirmed as breeding within the survey area in 2022 that are listed on Schedule 1 of the Wildlife & Countryside Act 1981, as a NERC Species of Principal Importance, the Birds of Conservation Concern Red List or as a UK BAP Priority Species. Therefore, these species are regarded as being of high conservation importance. Where the data is available, the number of territories recorded during survey is compared to the species regional and national status. National and regional status is derived from the reports of the Rare Breeding Birds Panel (RBBP), where appropriate (Holling *et al.*, 2012).
- 4.2.2 Any breeding population identified within the survey area is considered to be of national importance if it exceeded 1% of the national population. No breeding population of any species within the survey area approaches the 1% level of the national population.

#### Species of Conservation Concern

- 4.2.3 In total 9 species of conservation concern with attributed to at least one of the criteria listed in paragraph (4.2.1) were recorded breeding on site.
- 4.2.4 One territory of a Schedule 1 species namely black redstart was recorded around the northern end of the railway platform. Schedule 1 species are those which, along with their nests, eggs and dependant young, are afforded additional protection during the breeding season. Figure 4.1 shows the location of this territory.
- 4.2.5 Three of the species recorded as breeding within the survey area in 2022 (dunnock, song thrush and linnet) are listed in Section 41 of the NERC Act 2006 as being of principal importance for the conservation of biodiversity in England.
- 4.2.6 Two species namely greenfinch and linnet are included on the BoCC red list and Figure 4.2 shows the location of the territories of these species.
- 4.2.7 Six of the species recorded as breeding namely black redstart, dunnock, stock dove, song thrush, woodpigeon and wren are included on the BoCC Amber List. Figure 4.3 the location of the territories of these species apart from black redstart already shown in Figure 4.1.
- 4.2.8 Two of the species recorded as breeding within the survey area in 2022 (dunnock and song thrush) are listed as priority species on the UKBAP.

#### Species Accounts

- 4.2.9 **Black Redstart** – A territory of this Schedule 1 species was identified on site with a singing male recorded on three of the visits around the hotel and office under construction, the northern end of platform 1 and at the north end of the small plantation that runs along western boundary of main car park. A bird was also seen collecting food and flying over fence into Cave industrial estate off Fen Road. This species is a very rare breeding species within the UK perhaps fewer than (100) pairs and within the country of Cambridgeshire this is an extremely rare breeding species. However, it is likely they are under recorded due to the nature of the preferred nature of nesting locations often being within brownfield sites outside areas of public access.

Areas favoured by this species are often of sparse ‘wasteland’ vegetation and stony ground that are necessary for feeding. Many of the brownfield sites they are associated with in London and Birmingham adequately provide this habitat requirement but as shown with the record at Cambridge North they are not limited to these parts of the country. Extensive areas of open brownfield land are not favoured by black redstarts. They appear to require many vertical features whether they are buildings gantries, flood defence structures, or gasometers. Such structures correlate to the gorges and cliff faces, which are their natural habitat in continental Europe, and also provide high singing posts. Some of these features are found at Cambridge North with high song posts, good feeding opportunities and there are fairly recent records of singing birds in the past before redevelopment.

- 4.2.10 **Greenfinch** – Two territories of this BoCC red list species were located on the eastern boundary of development site along bushes and gardens that border railway line to north of southbound platform. This species could have been nesting just within the site boundary but also using the bordering trees/scrub for foraging and refuge. Greenfinches tend to nest in rather loose colonies, with evergreen shrubs providing perfect sites for the placement of their nest, built with twigs, moss and grass, and lined with roots and hair.
- 4.2.11 Although a common widespread resident in Cambridgeshire nationally they have suffered a long-term decline during the 1970&80’s partly due to a decrease in seed availability in the wider countryside which has seen a decline in Greenfinch populations on farmland. This has meant residential gardens providing food has become increasingly important, particularly during late winter and early spring when natural seed supplies are at their lowest level. However, during the 90’s this slump became more dramatic and is believed largely caused by an outbreak of outbreak of trichomonosis, a parasite-induced disease that prevents the birds from feeding properly. This spread has readily been linked to garden bird feeders so regular cleaning is essential.
- 4.2.12 **Linnet** - Two territories of this red list species were found within the site but the majority 1 associated with railway track boundary fence vegetation and bushes at south end of car park the other associated with vegetation west of private road to Cambridge Tarmac quarry. Linnets suffered a dramatic decline in the UK between 1965-1985 less so in recent decades but the population is still fragile and the largest declines have been seen on farmland. They remain a common and widespread species throughout Cambridgeshire. Linnets can be found wherever there is a plentiful supply of seeds. Linnets and their chicks rely almost entirely on seeds throughout the year but during the winter, adults will favour stubbles and field margins where weed seed and split grains are abundant. Dandelion seeds in pasture are particularly important.

**Breeding Assemblage**

- 4.2.13 The number of species recorded in an area is a simple measure of diversity that can indicate its importance at each season of the year. Fuller (1980) gives the following breeding diversity criteria which are presented in Table 4.1.

**Table 4.1: Breeding Diversity Criteria**

National	Regional	County	Local
85+	0-84	50-69	25-49

- 4.2.14 Based on Fuller’s criteria, the breeding bird assemblage of the survey area in 2022 (20) does not qualify as of local importance. However, it should be noted that Fuller’s analysis was developed in the 1970’s. Since then species diversity has declined significantly (Eaton et al., 2015). As a result, Fuller’s thresholds are too high for today’s breeding bird populations. However, despite these changes in bird populations, and whilst also giving consideration to the number of species of



conservation interest, it is still considered most likely that the breeding bird assemblage at the site is of no more than of local importance.

Figure 4.1: Territories of schedule 1 listed breeding birds

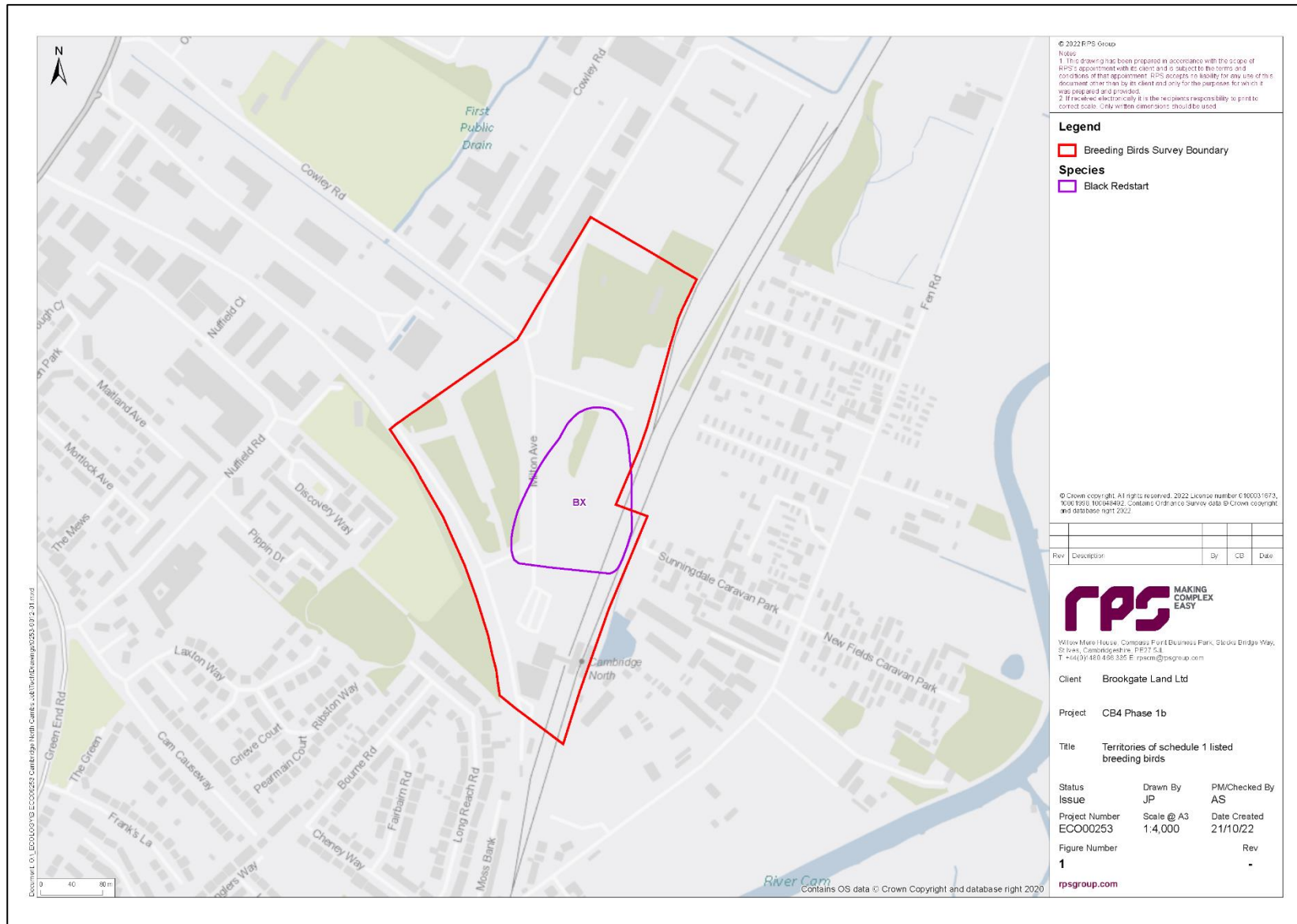


Figure 4.2: Territories of red listed breeding birds

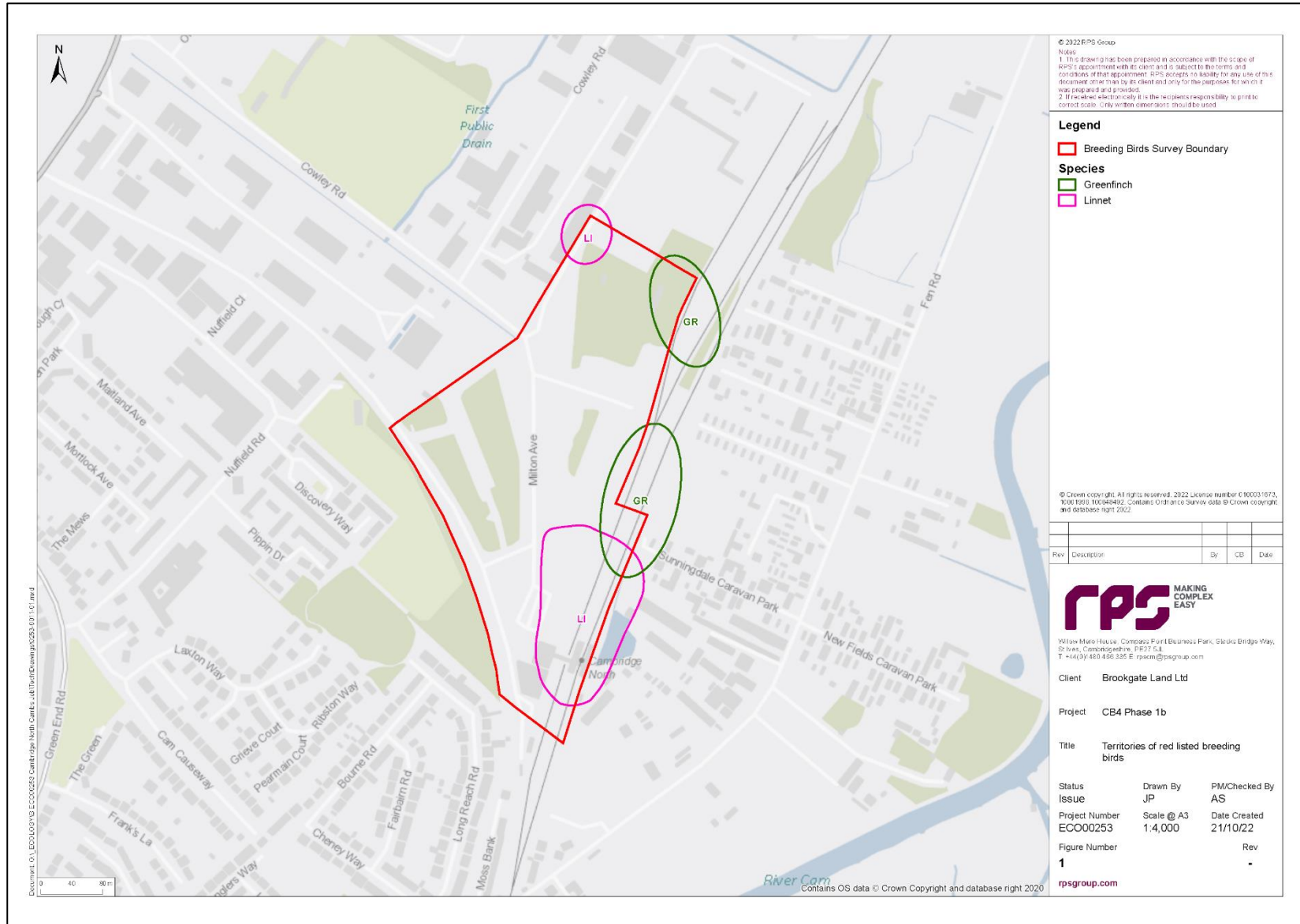
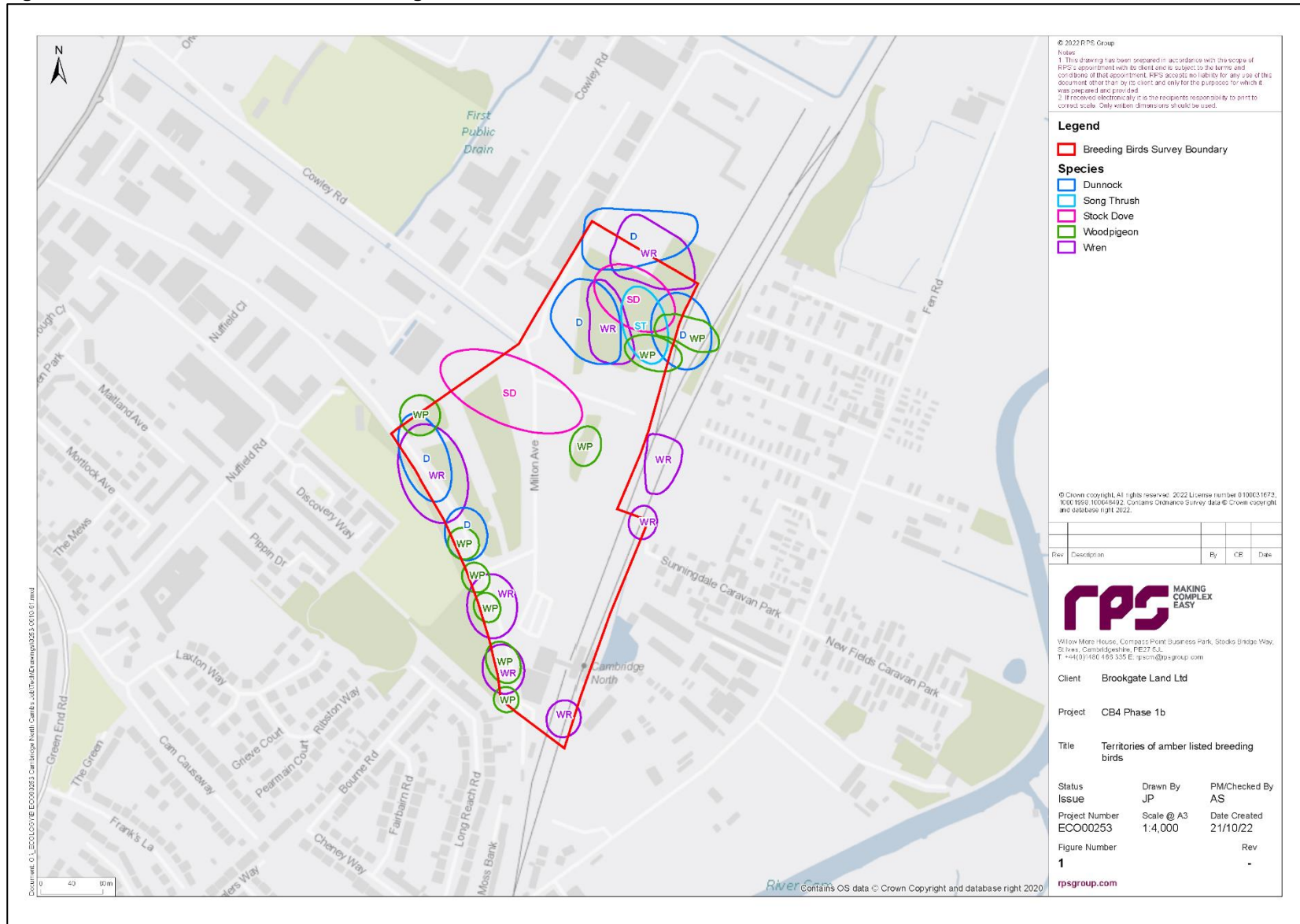


Figure 4.3: Territories of amber listed breeding birds



## 4.3 Bat Surveys

### Bat Roost Assessment

- 4.3.1 Building (B1) has moderate bat roost potential due to its features and its location within good bat habitat. This building will require 2 emergence surveys to determine presence/absence of bat day roosts which need undertaken between May and August.
- 4.3.2 The northern rooms of B1 have moderate bat roost potential to be used as a hibernation roost and will require internal inspections, one in mid-January and one in mid-February, and static monitoring for 2 weeks in December, January and February.
- 4.3.3 The smaller building (B2) has very low bat roost potential. The damage to the roof is quite extensive and the remaining plaster boards and concrete roof would need to be removed under a method statement supervised by a licence bat ecologist during the bat active season (March to October).
- 4.3.4 The trees on site all appear to be in good health without potential bat roost features. However, due to dense scrub not all the trees could be inspected from all sides. To allow further inspection a path through the scrub would have to be cleared. The optimal path would need to be agreed prior to clearing and should be undertaken outside of the bird breeding season (which runs from March to August inclusive) if possible. If clearance is undertaken during the breeding season, a survey for nesting birds should be undertaken prior to commencement. Any active nests must be left undisturbed until the chicks have fledged.

### Activity

- 4.3.5 A total of three bat species were recorded during the three transect surveys, as well as an unknown Pipistrelle Bat which could not be identified to species level. The species most commonly encountered were Common Pipistrelle, followed by Noctule, and then Soprano Pipistrelle.
- 4.3.6 The areas of highest activity were along the eastern part of the site, above the scrub and trees, although bats were also recorded on the western side of the site. The western part of the site is adjacent to scrub and trees but the majority of habitat is in industrial usage.
- 4.3.7 Not all bat activity was observed (i.e. bats heard but not seen) and whilst the location of the bat recording has been mapped, this reflects the position of the recording device and only an approximate location of individual bats. During the surveys, few bats were visible making it difficult to determine the direction of travel.
- 4.3.8 The hardstanding and roads are considered to have little potential to support foraging bats. However, the vegetated areas are considered to have low – moderate bat foraging potential.
- 4.3.9 Overall, the low number of bats recorded suggests that the northern section of the site is not used by significant numbers of bats for commuting or foraging and the site is considered to be of local value for commuting and foraging bats.
- 4.3.10 Common and Soprano Pipistrelles both normally emerge from their roost at around 20 minutes after sunset (BCT, 2010a/b) before flying off to feeding areas. Based on the timing of the Common Pipistrelle contacts (between 42 and 81 minutes after sunset) and Soprano Pipistrelle contacts (between 52 and 47 minutes after sunset), the results do not suggest that any roosts of these species recorded are located close to the site.
- 4.3.11 Noctules typically emerge at or at times just before sunset (BCT, 2010c). Based on the timing of the Noctule contact 14 minutes after sunset, this suggests this bat was roosting in close proximity to the site.

## Static Monitoring

- 4.3.12 A total of seven species were recorded on the static detectors. Noctule bats were most commonly encountered, followed by Common pipistrelle and Soprano Pipistrelle.
- 4.3.13 The data from the static detectors support the activity surveys in the analysis that the most commonly encountered bats on site are Noctules, Common Pipistrelles and Soprano Pipistrelles. However, whilst a large number of bat calls were recording during the duration of the monitoring period, it cannot be determined whether the calls are multiple bats or the same bat passing by the monitor multiple times.
- 4.3.14 Nathusius' Pipistrelle and Serotine bats were recorded in August and September. Brown Long-eared and *Myotis* sp were recorded on all three surveys. One Barbastelle bat contact was recorded in. These four species were not recorded during the transect surveys.
- 4.3.15 As shown in Table 3.5 and, Table 3.6 Common and Soprano Pipistrelle and Noctule contacts comprised nearly all the total contacts recorded. Therefore, it is considered that the other species are only sporadically using the site.

## Summary

- 4.3.16 The hardstanding and roads are considered to have little potential to support foraging bats. However, the vegetated areas are considered to have low – moderate bat foraging potential. The site does not contain linear features such as tree lines or hedgerows which would provide good value commuting habitat for bats although the pockets of scrub are likely to benefit bats commuting between areas of more favourable habitat in the wider area such as Milton Country Park to the north, the River Cam to the east and south, and Ditton Meadows and Stourbridge Common to the south.
- 4.3.17 Key areas of bat activity on the site were the scrub and trees, especially on the eastern side of the site which connects to suitable foraging habitat within allotments and the Bramblefields Local Nature Reserve, as well as potential roost sites in nearby buildings and mature trees.
- 4.3.18 The results suggest that the site is not used by large numbers of foraging or commuting bats. However, overall the site is considered to be of local value for foraging bats.
- 4.3.19 All of the site will be developed, although bats will still be able to commute along the Cambridgeshire Guided Busway and the railway track to the west and east respectively. The majority of the existing grassland, open mosaic habitat, trees and scrub will be removed, although new tree, shrub, grassland and open mosaic habitat is included in landscape plans for the site.
- 4.3.20 The northern section will include an attenuation pond and grassland which will provide suitable habitat for invertebrates, providing a food source for foraging bats. The proposed trees will be allowed to grow to a mature height and include native flowering species, providing suitable habitat for foraging and commuting bats.
- 4.3.21 Given the location of the site within Cambridge City, and the low number of bats recorded, it is considered that the loss of the scrub and trees on site will not have a significant adverse impact on the local bat population. Suitable habitat is being recreated on site for foraging and commuting bats to mitigate for any possible habitat loss impact.

## 5 CONCLUSIONS

### 5.1 Reptiles

- 5.1.1 No reptiles were found during the survey, and it is assumed that reptiles continue to be largely absent from the site.

### 5.2 Breeding Birds

- 5.2.1 The survey of breeding birds recorded a breeding assemblage of 20 species in 2022. The survey undertaken from May - June 2022 was undertaken during the breeding period but missed the month of April. This is unlikely to have led to a significant difference in variety of species recorded.
- 5.2.2 Of the 20 species recorded as breeding within the survey area, nine species meet at least one of a range of criteria relating to special statutory protection or conservation importance.
- 5.2.3 No breeding population of any species within the survey area approaches the 1% level of the national population. Therefore, no species considered to be breeding or possibly breeding are present in nationally important numbers.
- 5.2.4 One Schedule 1 species black redstart, is a rare breeding species within the UK likely nested within 50m of the eastern site boundary and was regularly using the site for singing, foraging and was observed carrying food. The species is also rare within the East Anglia region and county of Cambridgeshire. It is unlikely future developments within the site would affect this species as they are often associated with ongoing industrial, urban or transport hubs such as railway stations and airports.
- 5.2.5 Taking into account current bird populations the diversity of species overall present within the survey area would be considered at the of local importance for breeding birds with many species populations having suffered long term declines; other notable species recorded breeding included greenfinch and linnets included on the BoCC red list and at total of six included on the amber list.

### 5.3 Bats

- 5.3.1 Roost assessment Building (B1) has moderate bat roost potential and will require 2 emergence surveys to determine presence/absence of bat day roosts which need undertaken between May and August.
- 5.3.2 The northern rooms of B1 have moderate bat roost potential as a hibernation roost and will require internal inspections, one in mid-January and one in mid-February, and static monitoring for 2 weeks in December, January and February. These further inspections could be pre-commencement conditions, if the application is approved.
- 5.3.3 The smaller building (B2) has very low bat roost potential. The damage to the roof is quite extensive and the remaining plaster boards and concrete roof would need to be removed under a method statement supervised by a licence bat ecologist during the bat active season (March to October). The asbestos and other debris present will need to be removed prior to the surveys.
- 5.3.4 The trees on site all appear to be in good health without potential bat roost features. However, due to dense scrub not all the trees could be inspected from all sides. To allow further inspection a path through the scrub would have to be cleared during the winter inspection visits.
- 5.3.5 The site has multiple species of bat using it for foraging/commuting. Activity on site was again recorded as only low levels of bat activity. Given the location of the site within Cambridge City, and the low number of bats recorded, it is considered that the loss of the scrub and trees on site will not have a significant adverse impact on the local bat population. Suitable habitat is being recreated on site for foraging and commuting bats to mitigate for any possible habitat loss impact.

## 6 MITIGATION AND ENHANCEMENT

- 6.1.1 Mitigation measures for a number of protected species will be required during construction. These will be detailed within the Construction Environmental Management Plan (CEMP) and are set out in the Environmental Statement (ES).
- 6.1.2 Site enhancement will be required as part of the project to ensure net gain, this is detailed in the Ecology Design Strategy.
- 6.1.3 A suitably qualified ecologist should be on site to check vegetation and the buildings prior to any site clearance / demolition works if these take place within the breeding bird season (March – August inclusive). Any nests found must be left undisturbed until the chicks have fledged.
- 6.1.4 Mitigation measures within the landscape proposals to enhance the site for birds include:
- Production of a landscape and ecology management plan (LEMP) to include management of vegetated areas in an ecologically sensitive manner and maintenance of bird boxes.
  - Use of native plant species in landscaping and habitat creation;
  - Provision of bird boxes in suitable locations (precise locations and numbers to be determined in the LEMP);
  - Green or Open Mosaic roofs on site; and
- 6.1.5 These measures will also support a range of woodland and urban bird species.
- 6.1.6 The only Schedule 1 species recorded on site black redstart can also benefit from the provision of open fronted nest boxes, particularly in some of the quieter roof spaces.
- 6.1.7 These survey results are in line with the baseline assessment within the ES chapter. Therefore this additional information has no implications for the predicted effects or changes to proposed mitigation as reported in the ES.



## REFERENCES

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**APPENDICES**

**Appendix A**  
**Relevant Legislation**

## A.1 REPTILES

All common UK reptile species (Adder *Vipera berus*, Grass Snake *Natrix Helvetica*, Common Lizard *Zootoca vivipara* and Slow Worm *Anguis fragilis*) are protected through part of Section 9(1 and 5) of the Wildlife & Countryside Act 1981 (as amended). This prohibits:

- Intentional or reckless injuring or killing;
- Selling, offering or exposing for sale, or having in possession or transporting for the purpose of sale, any live or dead wild animal or any part of, or anything derived from, such an animal; or
- Publishing or causing to be published any advertisement likely to be understood as conveying buying or selling, or intending to buy or sell, any of those things.

## A.2 BIRDS

All birds, their nests and eggs are afforded protection under the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. It is an offence to:

- intentionally kill, injure or take any wild bird;
- intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; and
- intentionally take or destroy the egg of any wild bird.

Schedule 1 birds cannot be intentionally or recklessly disturbed when nesting and there are increased penalties for doing so. Licences can be issued to visit the nests of such birds for conservation, scientific or photographic purposes but not to allow disturbance during a development even in circumstances where that development is fully authorised by consents such as a valid planning permission.

## A.3 BATS

All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act 1981, as updated by the Countryside and Rights of Way Act 2000. All British bats are also included on Schedule 2 of The Conservation of Habitats and Species Regulations 2017 as European Protected Species. It is an offence to:

- intentionally or recklessly kill, injure or capture bats;
- deliberately or recklessly disturb bats (whether in a roost or not); and
- damage, destroy or obstruct access to bat roosts

A roost is defined as 'any structure or place which [a bat] uses for shelter or protection'. As bats tend to reuse the same roosts, legal opinion is that a roost is protected whether or not bats are present at the time of survey.

A licence will therefore be required by those who carry out any operation that would otherwise result in offences being committed.

The following bat species are listed as being of principal importance for the conservation of biodiversity in England, (commonly referred to as UKBAP Priority species): Barbastelle, Bechstein's, Noctule, Soprano Pipistrelle, Brown Long-eared, Greater Horseshoe, and Lesser Horseshoe.