

**SEVENOAKS GASHOLDER SITE,
CRAMPTON'S ROAD, SEVENOAKS**

BAT SURVEYS

A Report to: CBRE

Report No: RT-MME-152714-02 Rev A

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Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ

Tel: 01676 525880 Fax: 01676 521400

E-mail: admin@middlemarch-environmental.com Web: www.middlemarch-environmental.com

REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 "Biodiversity, Code of practice for planning and development".

Report Version	Date	Completed by:	Checked by:	Approved by:
Final	29/09/2020	Richard Sainsbury BSc (Ecological Consultant)	Paul Roebuck MSc MCIEEM (South East Manager)	Tom Docker CEcol MCIEEM (Managing Director)
Rev A	12/03/2021	Richard Sainsbury BSc (Ecological Consultant)	Paul Roebuck MSc MCIEEM (South East Manager)	Tom Docker CEcol MCIEEM (Managing Director)

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

DISCLAIMER

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

VALIDITY OF DATA

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, it may be necessary to undertake an updated survey to allow any changes in the status of bats on site to be assessed, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In July 2020, CBRE commissioned Middlemarch Environmental Ltd to undertake bat surveys at Sevenoaks Gasholder Site on Crampton's Road in Sevenoaks, Kent. This assessment is required to inform a planning application associated with clearance of the site to allow for a new residential development.

To fulfil the above brief to assess the potential for the existing buildings and trees on site to support roosting bats, a Preliminary Bat Roost Assessment was undertaken on 22nd July 2020. This survey identified a number of potential features which could be utilised by roosting bats; however, these could not be fully inspected due to their location. As a result, Building B1 and Tree T1 were classified as having high potential to support roosting bats and a recommendation that further survey work, in the form of dusk emergence and dawn re-entry bat surveys, be undertaken.

The Preliminary Bat Roost Assessment has identified that Building B2 is unsuitable to support roosting bats. No features were recorded during the assessment of the building which could be utilised by bats as potential roosting locations. Therefore, the building is considered to provide negligible potential to support roosting bats.

The dusk emergence surveys were completed on 20th August and 10th September 2020. A total of four species of bat were recorded during the survey period: common pipistrelle, soprano pipistrelle, noctule and Daubenton's bat. Frequent common pipistrelle and soprano pipistrelle commuting and foraging activity was recorded on site during the survey period. Noctule and Daubenton's bat were also recorded utilising the site but less frequently. No bats were observed emerging from any features associated with the site.

The dawn re-entry survey was completed on 28th August 2020. A total of three species of bat were recorded during the survey period: common pipistrelle, soprano pipistrelle and noctule. Faint calls were recorded infrequently by all three species but no visual contact was made with any bats during this survey. No bats were observed re-entering any features associated with the site.

Following the results of the Preliminary Bat Roost Assessment, and subsequent dusk emergence and dawn re-entry surveys, the following recommendations have been made:

R1 Building B1 / Tree T1

Building B1 and Tree T1 have been subject to a full suite of activity surveys in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), and no bat roosts were identified. The survey data obtained for the site is valid for 12 months from the survey date. If development works to the surveyed building have not commenced within this timeframe it will be essential to update the survey effort to establish if bats have colonised the building or tree in the interim. Updated Preliminary Bat Roost Assessments can be undertaken at any time of year. Updated surveys requiring dusk or dawn assessment will need to adhere to the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) with the surveys undertaken between April and September inclusive. In the unlikely event that a bat is found during site works all works in that area must immediately cease and a suitably qualified ecologist should be contacted.

R2 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species.

R3 Habitat Enhancement

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive full/partial sun, although installing boxes in a variety of orientations will provide a range of climatic conditions. Position boxes at least 4 m above ground to prevent disturbance from people and/or predators. The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: wild carrot, evening primrose, goldenrod, honeysuckle and fleabane.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In July 2020, CBRE commissioned Middlemarch Environmental Ltd to undertake bat surveys at Sevenoaks Gasholder Site on Crampton's Road in Sevenoaks, Kent. This assessment is required to inform a planning application associated with clearance of the site to allow for a new residential development.

To fulfil the above brief to assess the potential for the existing buildings and trees on site to support roosting bats, a Preliminary Bat Roost Assessment was undertaken on 22nd July 2020. Further survey work, in the form of dusk emergence and dawn re-entry surveys, was undertaken between 20th August 2020 and 10th September 2020.

In addition, Middlemarch Environmental Ltd have previously carried out the following assessments for the site:

- Preliminary Ecological Appraisal – Report RT-MME-152714-01 Rev B;
- Preliminary Arboricultural Assessment – Report RT-MME-152714-03; and,
- Arboricultural Impact Assessment – Report RT-MME-152714-04.

This report details the results of the Preliminary Bat Roost Assessment, as well as the dusk emergence and dawn re-entry surveys.

All UK bat species are European protected species and they are capable of being material considerations in the planning process. A summary of the legislation protecting bats is included within Appendix 1. This section also provides some brief information on the ecology of British bat species.

1.2 SITE DESCRIPTION AND CONTEXT

The site under consideration is located at the former Sevenoaks gasholder site off Crampton Road, Sevenoaks, and centred at Ordnance Survey Grid Reference TQ 5286 5716. The site is located within a predominantly residential area on the northern fringes of Sevenoaks and Greatness. At the time of the survey the site was dominated by areas of hardstanding which have started to become colonised by ephemeral vegetation, with scrub, scattered trees and small areas of grassland located around the site boundaries.

The site is bordered by Crampton Road to the east, residential properties to the north, further residential and commercial properties to the south and Oford road to the west. The wider landscape is dominated by residential properties and agricultural land. Sevenoaks Wildfowl Reserve is located approximately 80 m west from the site.

1.3 DOCUMENTATION PROVIDED

The conclusions and recommendations made in this report are based on information provided by the client regarding the scope of the project. Documentation made available by the client is listed in Table 1.1.

Document Name / Drawing Number	Author
Sevenoaks Gasholder Location Plan / 0330_0050	Max Architects

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

As part of the Preliminary Ecological Appraisal (Report RT-MME-152714-01 Rev B) an ecological desk study (which included a search for records of bats) was undertaken within a 1 km radius of the site. The consultees for the desk study were:

- Natural England - *MAGIC* website for statutory conservation sites;
- Kent and Medway Biological Records Centre; and,
- Kent Bat Group.

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by these organisations. Relevant bat data are discussed in Chapter 3. In compliance with the terms and conditions relating to its commercial use, the full desk study data are not provided within this report.

The desk study included a search for statutory nature conservation sites designated for bats within a 10 km radius of the site.

2.2 PRELIMINARY BAT ROOST ASSESSMENT

In line with the specifications detailed in Bat Mitigation Guidelines (English Nature, 2004) and Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), a Preliminary Bat Roost Assessment of the buildings was conducted during daylight hours. A visual assessment was undertaken to determine the presence of any Potential Roost Features (PRFs), together with a general appraisal of the suitability of the site for foraging and commuting. Table 2.1 provides examples of PRFs. Any accessible PRFs were inspected using binoculars, a torch and endoscope for evidence of possible bat presence. Buildings were surveyed externally.

For reasons of health and safety, the survey was only undertaken in areas accessible from 3.5 m ladders.

Based on the PRF's present, the survey area was assessed using the suitability classes detailed within Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), as detailed in Table 2.2. Trees with features present that are suitable to support roosting bats (high and moderate suitability) are discussed more fully in the report.

A summary of the trees within the survey area without suitable features to support roosting bats (low and negligible suitability) is provided within the report. Due to their negligible potential to support roosting bats, the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) recommend no further survey work is required for these tree classes.

Example of Potential Roost Features
<p><u>Externally</u></p> <ul style="list-style-type: none">• Access through window panes, doors and walls;• behind peeling paintwork or lifted rendering;• behind hanging tiles;• weatherboarding;• eaves;• soffit boxes;• fascias;• lead flashing;• gaps under felt (even including those of flat roofs);• under tiles/slates;• existing bat and bird boxes; and,• any gaps in brickwork or stonework permitting access into access to cavity- or rubble-filled walls. <p><u>Internally</u></p> <ul style="list-style-type: none">• behind wooden panelling;• in lintels above doors and windows;• behind window shutters and curtains;• behind pictures, posters, furniture, peeling paintwork;• peeling wallpaper, lifted plaster and boarded-up windows;• inside cupboards and in chimneys accessible from fireplaces.• within attic voids:• the top of gable end or dividing walls;• the top of chimney breasts;• ridge and hip beams and other roof beams;• mortise and tenon joints;• all beams (free-hanging bats);• the junction of roof timbers, especially where ridge and hip beams meet; and,• between tiles and the roof lining. <p>Trees</p> <ul style="list-style-type: none">• Bat, bird and dormouse boxes on trees;• Cankers (caused by localized bark death) in which cavities have developed;• Compression forks with included bark, forming potential cavities;• Cracks/splits in stems or branches (both vertical and horizontal);• Crossing stems or branches with suitable space between for roosting;• Ivy stems with diameters in excess of 50 mm with suitable roosting space behind (or where a roosting space can be seen where a mat of thinner stems has left a gap between the mat and the trunk);• Man-made holes (e.g. cavities that have developed from flush cuts);• Natural holes (e.g. knot holes) arising from naturally shed branches, or cavities created by branches tearing out from parent stems;• Other hollows or cavities, including rot holes and butt rots;• Partially detached or loose, platy bark;• Woodpecker holes; or, <p>Other features that offer a place of shelter.</p>

Table 2.1: Potential Roost Features (Adapted from Collins, 2016)

Suitability	Description
High	<p>A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.</p> <p>A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.</p>
Moderate	<p>A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).</p> <p>A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).</p>
Low	<p>A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.</p>
Negligible	Negligible habitat features on site likely to be used by roosting bats.

Table 2.2: Classification of Structures with Bat Potential (Adapted from Collins, 2016)

2.3 DUSK EMERGENCE AND DAWN RE-ENTRY SURVEYS

2.3.1 Overview of Dusk Emergence and Dawn Re-entry Surveys

Building B1 and Tree T1 were classified as having high potential to support roosting bats during the daytime survey. In line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), three bat surveys were carried out consisting of two dusk emergence bat surveys and one dawn re-entry bat survey. The aim of these surveys was to detect whether bats are roosting within the buildings, and to enable a profile of site utilisation by bats to be compiled.

2.3.2 Dusk Emergence Bat Surveys

In line with the specifications detailed Bat Surveys: Good Practice Guidelines (Collins, 2016), the dusk surveys commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. The dusk emergence surveys were conducted using electronic bat detectors (Echo Meter Touch 2 and Bat Box Duet with associated recording devices) to facilitate the detection of bats and to aid in the determination of species of bat using the site. Subsequent computer analysis of recordings allowed all species of bat using the site to be identified.

2.3.3 Dawn Re-entry Bat Survey

Bats swarm at their roost site 10-90 minutes prior to entering the roost at dawn (Mitchell-Jones & McLeish, 2004). Surveying for dawn swarming by bats is an efficient way of detecting bat roosts. In line with the specifications detailed by Bat Surveys: Good Practice Guidelines (Collins, 2016) the dawn survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. To facilitate the detection of bats and to aid in the determination of species of bat using the site, the dawn survey was conducted using electronic bat detectors (Echo Meter Touch 2 and Bat Box Duet with associated recording devices). Computer analysis of bat detector information collected was utilised to identify all species recorded on the site.

3. DESK STUDY

3.1 STATUTORY NATURE CONSERVATION SITES

The site is located within 10 km of a statutory site designated for bats. Westerham Mines Site of Special Scientific Interest (SSSI) is located 8.2 km south-west of the survey area. The principal interest of this site is the use of its abandoned ragstone mines by a variety of hibernating bats. The surrounding area is chiefly mixed secondary woodland on former heathland, with pockets of remnant heath. Five species have been recorded hibernating here: whiskered bat *Myotis mystacinus*, Brandt's bat *M. brandti*, Daubenton' bat *M. daubentoni*, Natterer's bat *M. nattereri* and long-eared bat *Plecotus auritus*.

3.2 SPECIES RECORDS

The data search was carried out in July 2020 by Kent and Medway Biological Records Centre and the Kent Bat Group. Records of bat species within a 1 km radius of the survey area provided by the consultees are summarised in Table 3.1. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Species of Principal Importance?	Legislation
Common pipistrelle <i>Pipistrellus pipistrellus</i>	7	2013	190 m north-east	-	ECH 4, WCA 5, WCA 6
Daubenton's bat <i>Myotis daubentoni</i>	8	2014	510 m west	-	ECH 4, WCA 5, WCA 6
Pipistrelle <i>Pipistrellus</i> sp.	5	2015	510 m west	#	ECH 4, WCA 5, WCA 6
Long-eared bat <i>Plecotus</i> sp.	2	2012	520 m south-east	#	ECH 4, WCA 5, WCA 6
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	6	2014	740 m south	✓	ECH 4, WCA 5, WCA 6
Nathusius's Pipistrelle <i>Pipistrellus nathusii</i>	1	2014	900 m south-west	-	ECH 4, WCA 5, WCA 6
Noctule <i>Nyctalus noctula</i>	3	2014	900 m south-west	✓	ECH 4, WCA 5, WCA 6
Brown long-eared bat <i>Plecotus auritus</i>	1	1992	Potentially within 1 km**	✓	ECH 4, WCA 5, WCA 6
Natterer's bat <i>Myotis nattereri</i>	1	1998	Potentially within 1 km**	-	ECH 4, WCA 5, WCA 6
<p>Key: #: Dependent on species. **: Grid reference provided was two figures only.</p> <p>ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection. WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods.</p> <p>Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.</p>					

Table 3.1: Bat Species Records Within 1 km of Survey Area

4. SURVEY RESULTS

4.1 PRELIMINARY BAT ROOST ASSESSMENT

4.1.1 Introduction

The Preliminary Bat Roost Assessment was conducted on 22nd July 2020 by Indre Barsketyte (Principal Ecological Consultant, Bat Licence Holder 2018-34786-CLS-CLS). Drawing C152714-02-01 Rev A, illustrating the layout of the buildings on site and the results of the survey is provided in Chapter 7.

Weather conditions were recorded and are presented in Table 4.1.

Parameter	Conditions
Temperature (°C)	20
Cloud Cover (%)	50
Precipitation	Nil
Wind Speed (Beaufort)	F0

Table 4.1: Weather Conditions During the Preliminary Bat Roost Assessment

4.1.2 Constraints

Building B1 was boarded shut with no internal access possible.

4.1.3 Survey Results

4.1.3.1 Building B1

External Assessment

Building B1 was a single-storey, brick-built structure with a flat bitumen felt roof (Plate 4.1). The building was relatively modern in age and design. The building was boarded up and disused at the time of the survey.



Plate 4.1: Building B1 (Southern Elevation)

The roof was comprised of flat bitumen felt which was fitted flush to a dilapidated uPVC fascia along the brick cap joining points. No gaps or tears were recorded within the areas of fitted bitumen felt roof. Brick walls were found to be in good repair, yet gaps were recorded at the eaves of the building where sections of the uPVC fascia were missing. Windows and doors were boarded-up, restricting internal access to the building, yet a single gap was recorded above the doorframe which provides access into the internals of the building. Dense ivy *Hedera helix* concealed the eaves of the building along the northern elevation.

Gaps were recorded around the eaves where sections of the dilapidated uPVC fascia were missing and above the boarded-up door which provided direct access to the interiors of the building (Plate 4.2). Furthermore, the gaps around the dilapidated uPVC fascia (Plate 4.3) provided access to a crevice feature present between the external brickwork and uPVC fascia. This feature was found to be clear of cobwebbing and detritus, indicating potential recent access by bats or other fauna.



Plate 4.2: Gaps Above Doorframe and Between Fascia Board and External Brickwork



Plate 4.3: Gap in Fascia Board

No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be inspected during the survey.

Internal Assessment

It was not possible to conduct an internal assessment of Building B1 due to access restrictions.

4.1.3.2 Building B2

External Assessment

Building B2 was a small, single-storey, brick-built substation with a flat bitumen felt roof (Plate 4.4 and 4.5). The building was relatively modern in design and of a general good state of repair, with no cracks or gaps noted between the brickwork. The roof comprised of flat bitumen felt which was fitted flush to an intact wooden soffit box along the brick cap joining points. No gaps or tears were recorded within the areas of fitted bitumen felt roof. The eaves of the building were tightly fitted with no gaps or holes recorded. A wooden soffit was present across all elevations of the building which was tightly fitted to the external wall and of a general good state of repair. Doors were presented in wooden frames and were fitted flush to the external brickwork of the building with no gaps recorded.

No features were recorded during the external assessment of Building B2 which could be utilised by bats to gain entry into the internal areas of the building. In addition, no external features suitable for roosting bats were noted on the building. The building was in good condition and tightly sealed with no potential ingress points or features for bats.

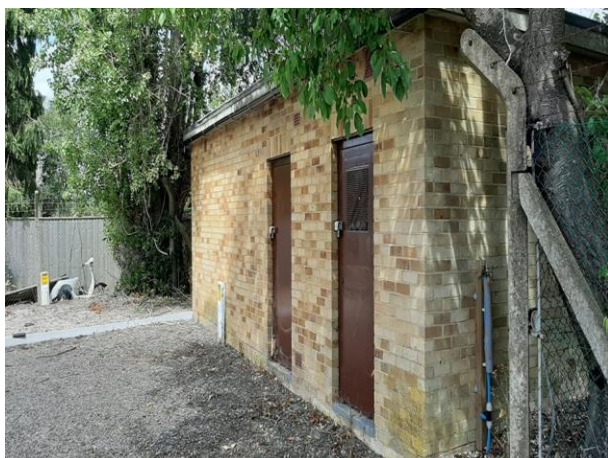


Plate 4.4: Building B2

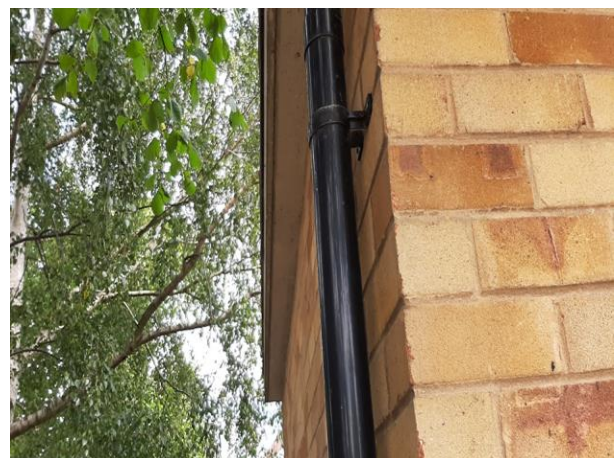


Plate 4.5: Wooden Soffit Box

Internal Assessment

It was not possible to conduct an internal assessment of Building B2 due to access restrictions. Despite no internal assessment being undertaken, this was not considered as a significant constraint because no features or entry points were recorded during the external assessment which could be utilised by bats to gain access into the internal areas of the building.

4.1.3.3 Trees with High Potential to Support Roosting Bats

An early mature, multi-stemmed Lombardy poplar *Populus nigra* was present within the north-eastern corner of the site.

This tree is considered to have high potential for use by roosting bats and is further described in Table 4.2.

Tree Ref.	Species	Plate No.	Age	Approx. Height and Diameter at Chest Height (m)		Potential Roost Feature	Additional Notes	BCT Suitability
				H	DCH			
T1	Lombardy poplar	4.7, 4.8.	EM	22.0	0.95	Large rot hole on one of the stems extending up the stem.	No bat evidence recorded. Holes were clear of cobwebbing and detritus indicating recent disturbances or movements by bats or other fauna. Not fully inspected due to nature and extent of the feature.	High

Table 4.2: Summary of Trees With High Suitability for Bats Within the Survey Area

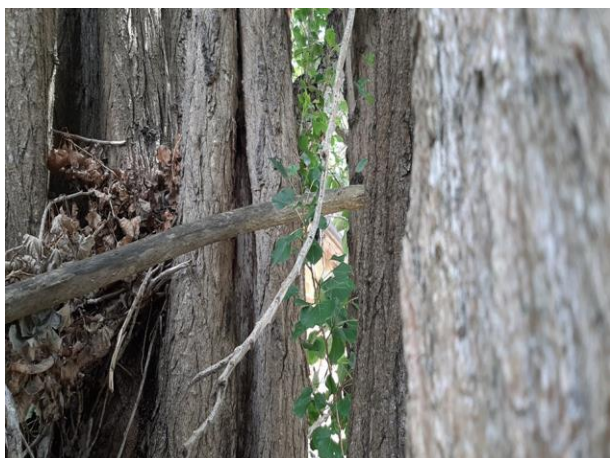


Plate 4.7: Tree T1 – Lombardy Poplar

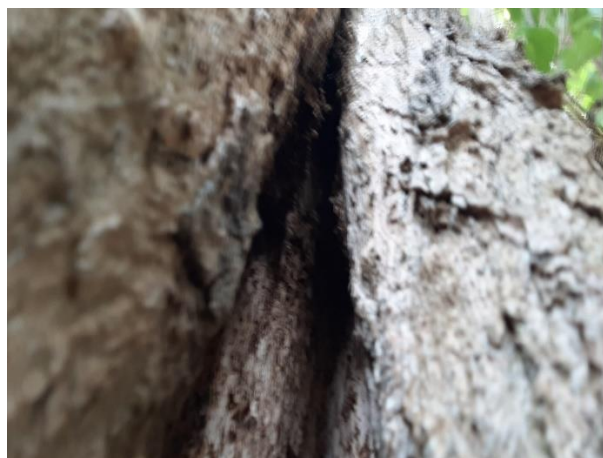


Plate 4.8: Potential Roost Feature – Rot Hole

4.1.3.4 Trees with Negligible Potential to Support Roosting Bats

Several deciduous trees were present within the survey area, located predominantly along the northern, eastern and southern site boundaries. Most of the trees on site were classified as early-mature and lacked any potential roost features.

Species present on site included: cherry *Prunus avium*, silver birch *Betula pendula*, goat willow *Salix caprea*, rowan *Sorbus aucuparia*, hawthorn *Crataegus monogyna* and sycamore *Acer pseudoplatanus*.

4.1.4 Site and Surrounding Habitats

The buildings form part of the decommissioned Sevenoaks Gasholder Site. Habitats on site of value to foraging and commuting bats include improved grassland, dense and scattered scrub, and tree habitats. The facility falls within an urban setting, bordered by residential and commercial buildings. Sevenoaks Wildfowl Reserve is located approximately 80 m west from the site. The habitats surrounding the building are therefore considered to be of moderate value for bats but are well connected to highly favourable habitat in the immediate and wider landscape. Habitats within 1 km of the site suitable for roosting, commuting and foraging include:

- Residential houses and associated gardens;
- Running water and standing waterbodies;
- Pockets of woodland;
- Agricultural fields with tree and hedge lined boundaries;
- Churches, schools, hospitals and associated grounds; and,
- Railway lines with vegetated banks.

4.2 FIRST DUSK EMERGENCE SURVEY

The first dusk emergence survey was undertaken on 20th August 2020 by Indre Barsketyte (Principal Ecological Consultant, Bat Licence Holder 2018-34786-CLS-CLS), Sophie Moy (Senior Ecological Consultant, Class Licence number: 2018-33168-CLS-CLS) and Will Rees (Ecological Consultant). The weather conditions recorded at the time of the survey are detailed in Table 4.3.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	20	18
Cloud Cover (%)	0	0
Precipitation	Nil	Nil
Wind Speed (Beaufort)	F1	F1

Table 4.3: Weather Conditions During First Dusk Emergence Survey

The dusk emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 20:13 hrs (BBC Weather Centre Data for Sevenoaks). Four species of bat, noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and Daubenton’s bat *Myotis daubentonii* were recorded during the survey. Survey results are plotted on Drawing C152714-02-02 Rev A in Chapter 7.

Noctule

The first noctule was detected at 20:20 (7 minutes after sunset). This bat was recorded commuting high over the residential houses offsite to the north heading from east to west. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over the site.

At 20:26 (13 minutes after sunset) a noctule bat, potentially the same individual as previously described, was recorded flying high across site heading from west to east. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over the site.

A noctule bat was detected at 20:50 (37 minutes after sunset). These were faint calls and no visual contact was made with this bat. This bat was not observed emerging from any of the features associated with the site and was not observed foraging or commuting within the application site.

Common pipistrelle

The first common pipistrelle bat was detected at 20:34 (31 minutes after sunset). This bat foraged within the residential gardens located offsite to the north of the survey area for approximately two minutes before exiting offsite to the west. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over the site.

At 20:50 (37 minutes after sunset) a common pipistrelle was recorded foraging within the residential gardens located offsite to the north of the survey area. This bat later commuted on site before intermittently foraging

around Tree T1 and the adjacent hardstanding for approximately five minutes. At 20:55 (42 minutes after sunset) a second common pipistrelle bat commuted from offsite and began constantly foraging and social calling within the same vicinity. Both bats continued to forage until 21:16 before exiting the site to the northeast.

At 21:05 (52 minutes after sunset) a common pipistrelle was recorded intermittently foraging along the fence line located to the west of Building B1. This bat foraged within this area for approximately two minutes before commuting high over Building B1 and offsite to the east.

Soprano pipistrelle

The first soprano pipistrelle bat was detected at 20:38 (35 minutes after sunset). These were faint calls and no visual contact was made with this bat. This bat was not observed emerging from any of the features associated with the site and was not observed foraging or commuting within the application site. It is likely that these were detections picked up by the surveyors from bats passing offsite.

At 20:41 (38 minutes after sunset) a soprano pipistrelle commuted across site heading from south to north. This bat began foraging over the ephemeral / short perennial vegetation and hardstanding to the northwest of Building B1 for approximately three minutes before exiting the site to the west.

At 20:49 (46 minutes after sunset), a soprano pipistrelle was detected commuting across site. No visual contact was made with this bat on this occasion. This bat was not observed emerging from the features associated with the site.

At 20:58 (55 minutes after sunset) a soprano pipistrelle, potentially the same individual as previously described, was recorded foraging along the fence line located to the west of Building B1. This bat foraged intermittently for approximately six minutes before exiting the site to the west.

Daubenton's bat

A Daubenton's bat was detected to the north of the site at 21:05 (52 minutes after sunset). These were faint calls and no visual contact was made with this bat. This bat was not observed emerging from any of the features associated with the site and was not observed foraging or commuting within the application site. It is likely that these were detections picked up by the surveyors from bats passing offsite.

At 21:11 (58 minutes after sunset) a Daubenton's bat, potentially the same individual as previously described, was observed commuting across the site heading from north to south, along the eastern boundary tree line, before exiting offsite to the southeast. This bat did not stop to forage over site.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not identify any further species of bat.

4.3 DAWN RE-ENTRY SURVEY

The dawn re-entry bat survey was undertaken on 28th August 2020 by Richard Sainsbury (Ecological Consultant), Margarita Smoldareva (Ecological Consultant) and Matthew Fletcher (Ecological Project Officer). The weather conditions recorded at the time of the survey are detailed in Table 4.4.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	14	13
Cloud Cover (%)	90	75
Precipitation	Nil	Light Rain
Wind Speed (Beaufort)	F0	F0

Table 4.4: Weather Conditions During Dawn Re-entry Survey

The dawn re-entry survey commenced 120 minutes prior to sunrise and continued until 15 minutes after sunrise. Sunrise was at 06:06 hrs (BBC Weather Centre Data for Sevenoaks). Three species of bat, common

pipistrelle, soprano pipistrelle and noctule, were recorded during the survey. Survey results are plotted on Drawing C152714-02-03 Rev A in Chapter 7.

Noctule

The first noctule bat was recorded at 04:38 (88 minutes before sunrise) and then at 04:45. These were faint calls and no visual contact was made with this bat on either occasion. This bat was not observed re-entering any of the features associated with the site and was not observed foraging or commuting within the application site. It is likely that these were detections picked up by the surveyors from bats passing offsite.

Common pipistrelle

A common pipistrelle bat was recorded at 05:02 (64 minutes before sunrise) and then at 05:16. These were faint calls and no visual contact was made with this bat on either occasion. This bat was not observed re-entering any of the features associated with the site and was not observed foraging or commuting within the application site. It is likely that these were detections picked up by the surveyors from bats passing offsite.

Soprano pipistrelle

A soprano pipistrelle bat was recorded at 05:07 (59 minutes before sunrise). These were faint calls and no visual contact was made with this bat. This bat was not observed re-entering any of the features associated with the site and was not observed foraging or commuting within the application site. It is likely that these were detections picked up by the surveyors from bats passing offsite.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

4.4 SECOND DUSK EMERGENCE SURVEY

The second dusk emergence survey was undertaken on 10th September 2020 by Indre Barsketyte (Principal Ecological Consultant, Bat Licence Holder 2018-34786-CLS-CLS), Margarita Smoldareva (Ecological Consultant) and Sachi McFarland (Ecological Project Officer). The weather conditions recorded at the time of the survey are detailed in Table 4.5.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	18	18
Cloud Cover (%)	10	10
Precipitation	Nil	Nil
Wind Speed (Beaufort)	F0	F0

Table 4.5: Weather Conditions During Second Dusk Emergence Survey

The dusk emergence survey commenced 20 minutes prior to sunset and continued until 120 minutes after sunset. Sunset was at 19:24 hrs (BBC Weather Centre Data for Sevenoaks). Three species of bat, noctule, common pipistrelle and soprano pipistrelle were recorded during the survey. Survey results are plotted on Drawing C152714-02-04 Rev A in Chapter 7.

Noctule

The first noctule was recorded at 19:40 (16 minutes after sunset). This bat commuted high over Building B1 from Crampton's Road before exiting the site to the north. This bat was not observed emerging from any of the features of the site. This bat did not stay to forage over the site.

Common pipistrelle

The first common pipistrelle was detected at 19:41 (17 minutes after sunset) and then at 19:42. These were faint calls and no visual contact was made with the bat on either occasion. This bat was not observed emerging from any of the features associated with the site and was not observed foraging or commuting within the application site. It is likely that these were detections picked up by the surveyors from bats passing offsite.

At 19:43 (19 minutes after sunset) a single common pipistrelle was detected commuting high across the site heading from south to north. This bat flew towards the north of the site where it foraged intermittently over the ephemeral / short perennial vegetation and hardstanding for approximately four minutes before exiting the site to the northeast. This bat was not observed emerging from any of the features associated with the site.

At 19:52 (28 minutes after sunset) a second common pipistrelle was recorded flying high over Building B1 heading from west to east. This bat commuted southwards along the eastern boundary tree line before looping back towards to north-eastern corner of the site. This bat then commuted over Building B2 and exited the site to the north, towards the adjacent residential gardens, where it began foraging here for approximately two minutes.

At 20:00 (36 minutes after sunset) a single common pipistrelle was recorded flying high across the site from Crampton's Road, heading from east to west. This bat exited the site to the northeast.

Two minutes later, at 20:02 (38 minutes after sunset) two common pipistrelle bats were recorded flying high across Building B2 heading from northeast to west. These bats were recorded intermittently foraging and social calling over the ephemeral / short perennial vegetation to the west of the site for approximately 15 minutes before exiting the site to the west.

Soprano pipistrelle

The first soprano pipistrelle was detected at 19:44 (20 minutes after sunset). This bat flew high across the site from Crampton's Road heading from east to northwest. This bat foraged over the hardstanding and around the electrical substations within the site's north-western corner for approximately two minutes before exiting the site to the north.

At 19:55 (31 minutes after sunset) a soprano pipistrelle was detected flying high over Building B2 heading from east to west. This bat continued to loop over Building B2 and within the adjacent residential gardens for approximately two minutes before exiting the site to the north. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over site.

A second soprano pipistrelle bat was recorded commuting southbound along the eastern boundary tree line from the north-eastern corner of the site. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over site.

No other species of bat were detected or observed during this survey. Analysis of the sound recordings did not detect any further species of bat.

5. DISCUSSION AND CONCLUSIONS

5.1 SUMMARY OF PROPOSALS

These surveys are associated with the clearance of the site, including the demolition of Buildings B1 and B2, to facilitate the construction of a new residential development.

5.2 SUMMARY OF PRELIMINARY BAT ROOST ASSESSMENT

5.2.1 Building B1

During the external assessment of Building B1, a low number of features were recorded around the building which could be utilised by bats to enter the building and use as potential roost locations. These features include:

- Gaps at the eaves where sections of the dilapidated uPVC fascia were missing;
- Gaps above boarded-up doorframe;
- Gap between external brickwork and uPVC fascia; and,
- Dense ivy coverage across northern elevation.

It was not possible to fully inspect the gaps at the eaves where the sections of dilapidated uPVC fascia were missing and the gaps above the boarded-up doorframe due to the extent of the feature, it was not possible to establish if bats had used these features to enter a roost location at the time of surveying. No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

The gaps around the dilapidated uPVC fascia provided access to a crevice feature present between the external brickwork and uPVC fascia. This feature was found to be clear of cobwebbing and detritus, indicating recent use by bats or other fauna.

No evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the features that could be fully inspected during the survey.

Since it was not possible to fully inspect all the external features identified around Building B1, it is not possible at this time to conclude whether this building is utilised by roosting bats. Due to presence of roosting features with potential to support a high conservation value bat roost, such as a maternity roost, good quality surrounding foraging and commuting habitat and no access to the interiors of the building for inspection, Building B1 has been assessed as having high suitability to support roosting bats.

5.2.2 Building B2

The Preliminary Bat Roost Assessment has identified that Building B2 is unsuitable to support roosting bats. No features were recorded during the external assessment of the building which could be utilised by bats as potential roosting locations. Therefore, the building is considered to provide negligible potential to support roosting bats. Thus, no further works are required in respect of roosting bats.

5.2.3 Tree T1

The Preliminary Bat Roost Assessment has identified that Tree T1 has suitability to support roosting bats. A large rot hole was identified on one of the multiple stems which extended vertically up the tree and into a cavity, which could be utilised by bats to access a potential roosting location. The feature was largely clear of cobwebbing and detritus at the access point, indicating recent disturbances or movements by bats or other fauna. Whilst no evidence of roosting bats, e.g. droppings, urine staining, feeding remains or scratch marks, was recorded within the section of the feature that could be inspected, it was not possible to complete a full inspection due to the height and extent of the rot hole. Therefore, Tree T1 is considered to provide high potential to support roosting bats.

5.3 SUMMARY OF BAT SURVEYS

Dusk Emergence Surveys

The dusk emergence surveys were completed on 20th August and 10th September 2020. A total of four species of bat were recorded during the survey period: common pipistrelle, soprano pipistrelle, noctule and Daubenton's bat. No bats were observed emerging from any features associated with the site.

Frequent common pipistrelle and soprano pipistrelle commuting and foraging activity was recorded on site during the survey period. Common pipistrelle and soprano pipistrelle bats were detected commuting along the tree line situated to the east of Building B1 and along the northern boundary of the site. Furthermore, the areas of ephemeral / short perennial vegetation to the west of the site and adjacent residential gardens located offsite to the north were the favoured areas of recorded foraging activity by all three species. Noctule and Daubenton's bat were also recorded utilising the site but less frequently. No bats were observed emerging from any of the features associated with the site.

Dawn Re-entry Survey

The dawn re-entry emergence surveys was completed on 28th August 2020. A total of three species of bat were recorded during the survey period: common pipistrelle, soprano pipistrelle and noctule. No bats were observed re-entering any features associated with the site.

Infrequent common pipistrelle, soprano pipistrelle and noctule commuting was recorded on site during the survey period. Faint calls were made by all three species and no visual contact was made with any bats during this survey. It is likely that these were detections picked up by the surveyors from bats passing offsite. No bats were observed emerging from any of the features associated with the site.

5.4 SITE EVALUATION AND ASSESSMENT OF POTENTIAL IMPACTS

Given that no bats emerged from or re-entered any of the buildings or trees, it is concluded that there are no bat roosts present in the buildings or trees on site. Therefore, the proposed works are not expected to impact roosting bats, and as such the proposed works may proceed as scheduled.

The scattered tree line present along the site's northern, eastern and southern boundary and areas of dense and scattered scrub and ephemeral / short perennial vegetation to the west of the site were utilised by foraging and commuting bats with varying levels of frequency during the dusk emergence and dawn re-entry bat surveys. As such, any proposals involving the removal / displacement of foraging habitat and / or increases in lighting within these areas will need to be designed to ensure that foraging and commuting bats are not adversely impacted. A recommendation relating to enhancements and lighting have been made in Chapter 6.

6. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

R1 Building B1 / Tree T1

Building B1 and Tree T1 have been subject to a full suite of activity surveys in line with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), and no bat roosts were identified. The survey data obtained for the site is valid for 12 months from the survey date. If development works to the surveyed building have not commenced within this timeframe it will be essential to update the survey effort to establish if bats have colonised the building or tree in the interim. Updated Preliminary Bat Roost Assessments can be undertaken at any time of year. Updated surveys requiring dusk or dawn assessment will need to adhere to the Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016) with the surveys undertaken between April and September inclusive. In the unlikely event that a bat is found during site works all works in that area must immediately cease and a suitably qualified ecologist should be contacted.

R2 Lighting

In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice include:

- Avoiding the installation of new lighting in proximity to key ecological features, such as scattered trees.
- Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.
- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.
- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.

R3 Habitat Enhancement

In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive full/partial sun, although installing boxes in a variety of orientations will provide a range of climatic conditions. Position boxes at least 4 m above ground to prevent disturbance from people and/or predators. The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: wild carrot *Daucus carota*, evening primrose *Oenothera biennis*, goldenrod *Solidago virgaurea*, honeysuckle *Lonicera periclymenum* and fleabane *Pulicaria dysenterica*.

7. DRAWINGS

Drawing C152714-02-01 Rev A – Preliminary Bat Roost Assessment

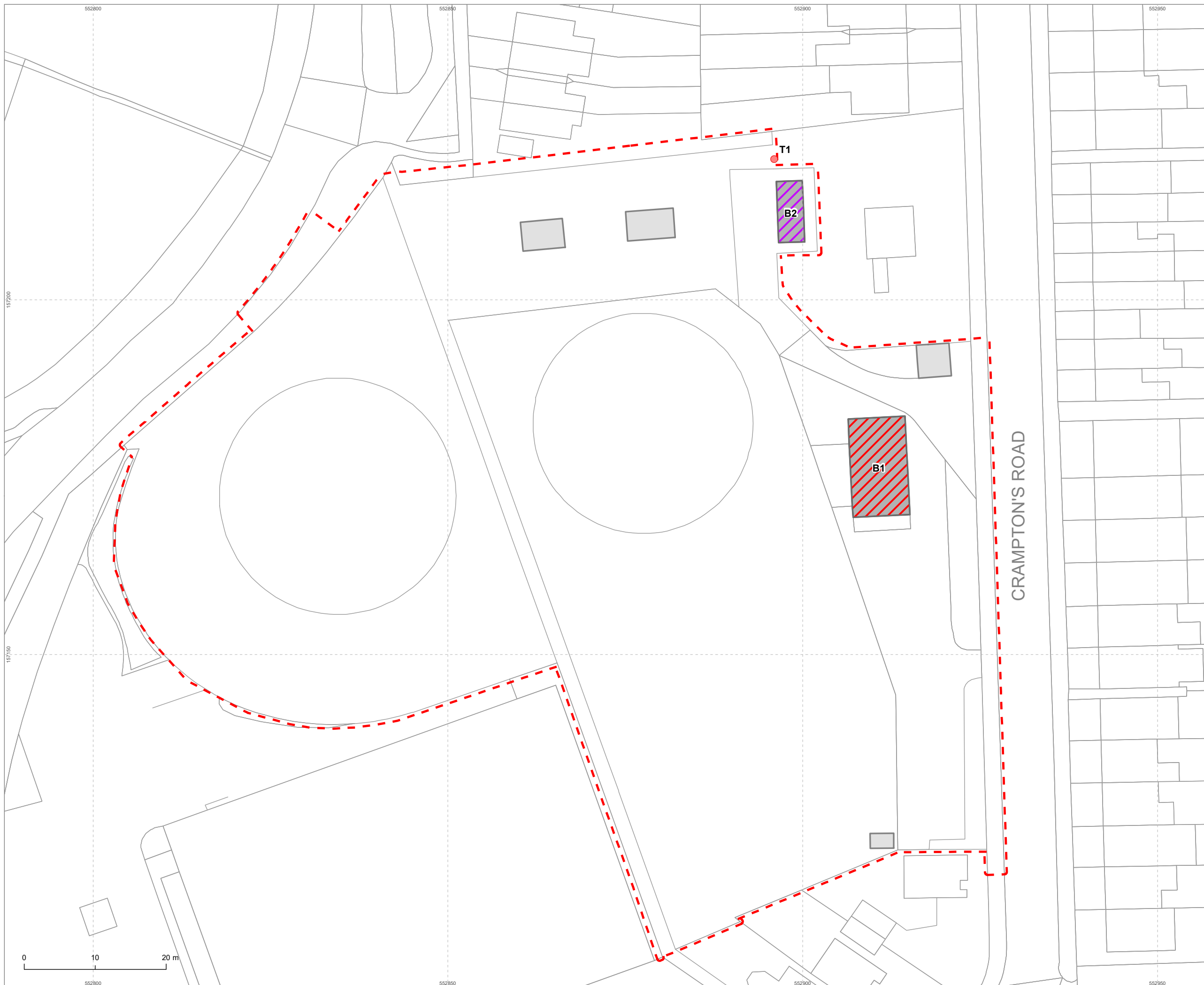
Drawing C152714-02-02 Rev A – First Dusk Emergence Survey

Drawing C152714-02-03 Rev A – Dawn Re-entry Survey

Drawing C152714-02-04 Rev A – Second Dusk Emergence Survey

Legend

- Tree with high bat roost potential
- Building not included in survey
- Building with high bat roost potential
- Building with negligible bat roost potential
- - - Site boundary

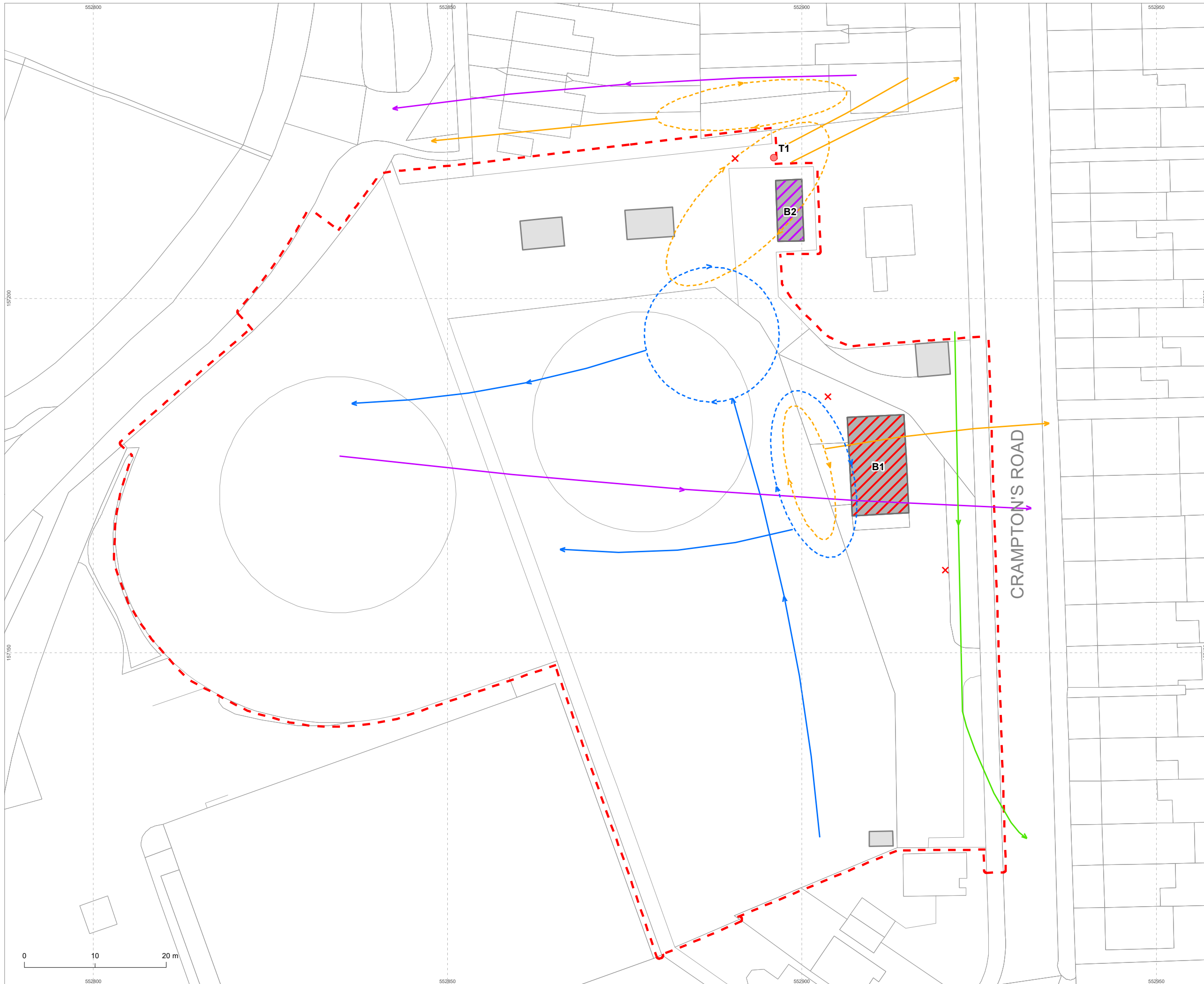


Project	Sevenoaks Gasholder Site	
Drawing	Preliminary Roost Assessment of Buildings & Trees	
Client	CBRE	
Drawing Number	C152714-02-01_RevA	Revision
Scale @ A3	1:500	Date
Approved By	RS	Drawn By
		CD
		Rev A
		March 2021

MIDDLEMARCH ENVIRONMENTAL

Triumph House, Birmingham Road, Allesley, Coventry CV5 9AZ
 T:01676 525880 F:01676 521400
 E:admin@middlemarch-environmental.com

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Legend

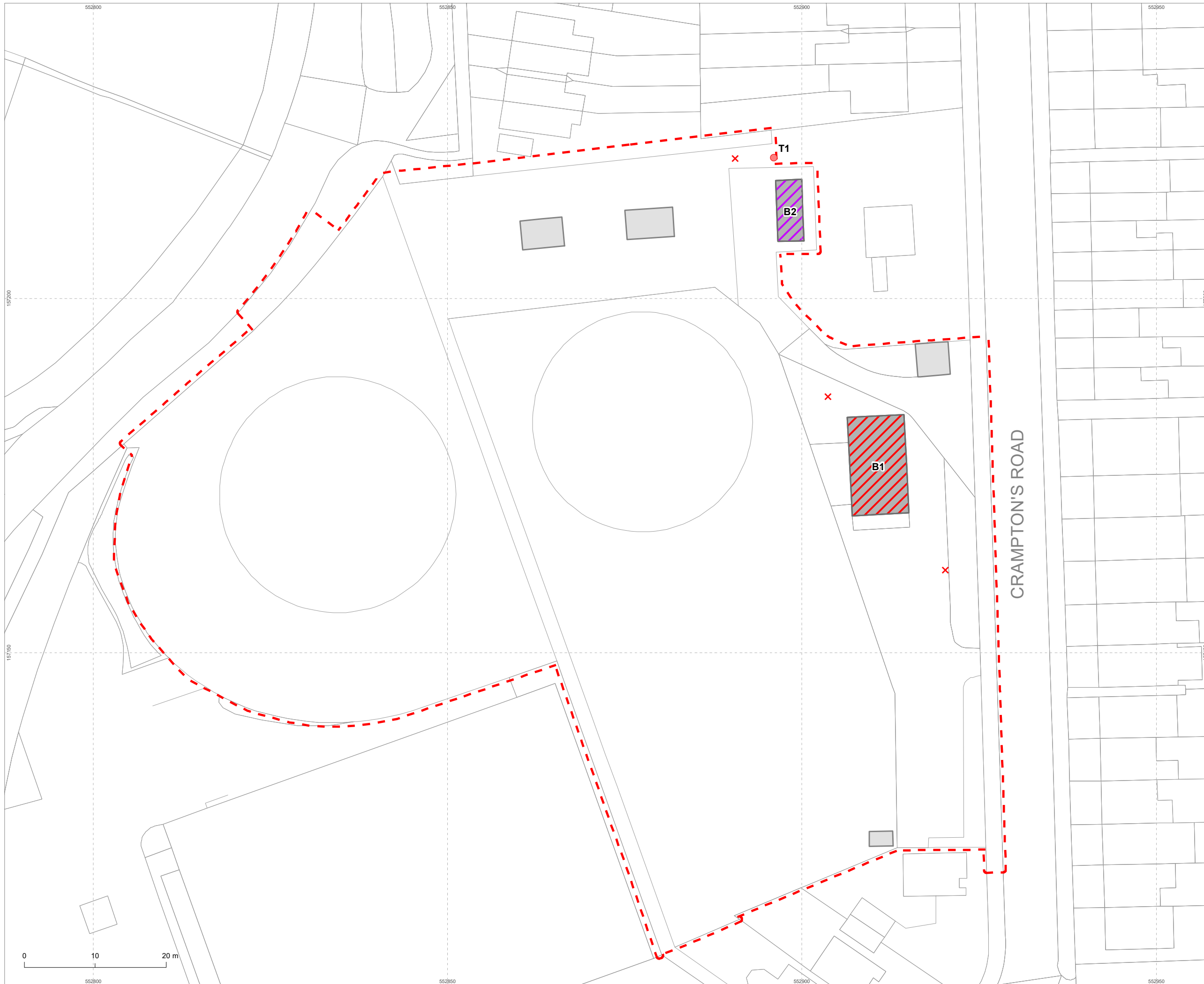
- ✕ Surveyor location
- Tree with high bat roost potential
- Common pipistrelle commuting
- - - Common pipistrelle foraging
- Daubenton's commuting
- Noctule commuting
- Soprano pipistrelle commuting
- - - Soprano pipistrelle foraging
- Building not included in survey
- Building with high bat roost potential
- Building with negligible bat roost potential
- - - Site boundary

Project		Sevenoaks Gasholder Site	
Drawing		1 st Nocturnal Emergence Bat Survey (20/08/2020)	
Client		CBRE	
Drawing Number	C152714-02-02_RevA	Revision	Rev A
Scale @ A3	1:500	Date	March 2021
Approved By	RS	Drawn By	CD



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Legend

- x Surveyor location
- Tree with high bat roost potential
- Building not included in survey
- Building with high bat roost potential
- Building with negligible bat roost potential
- - - Site boundary

Notes:

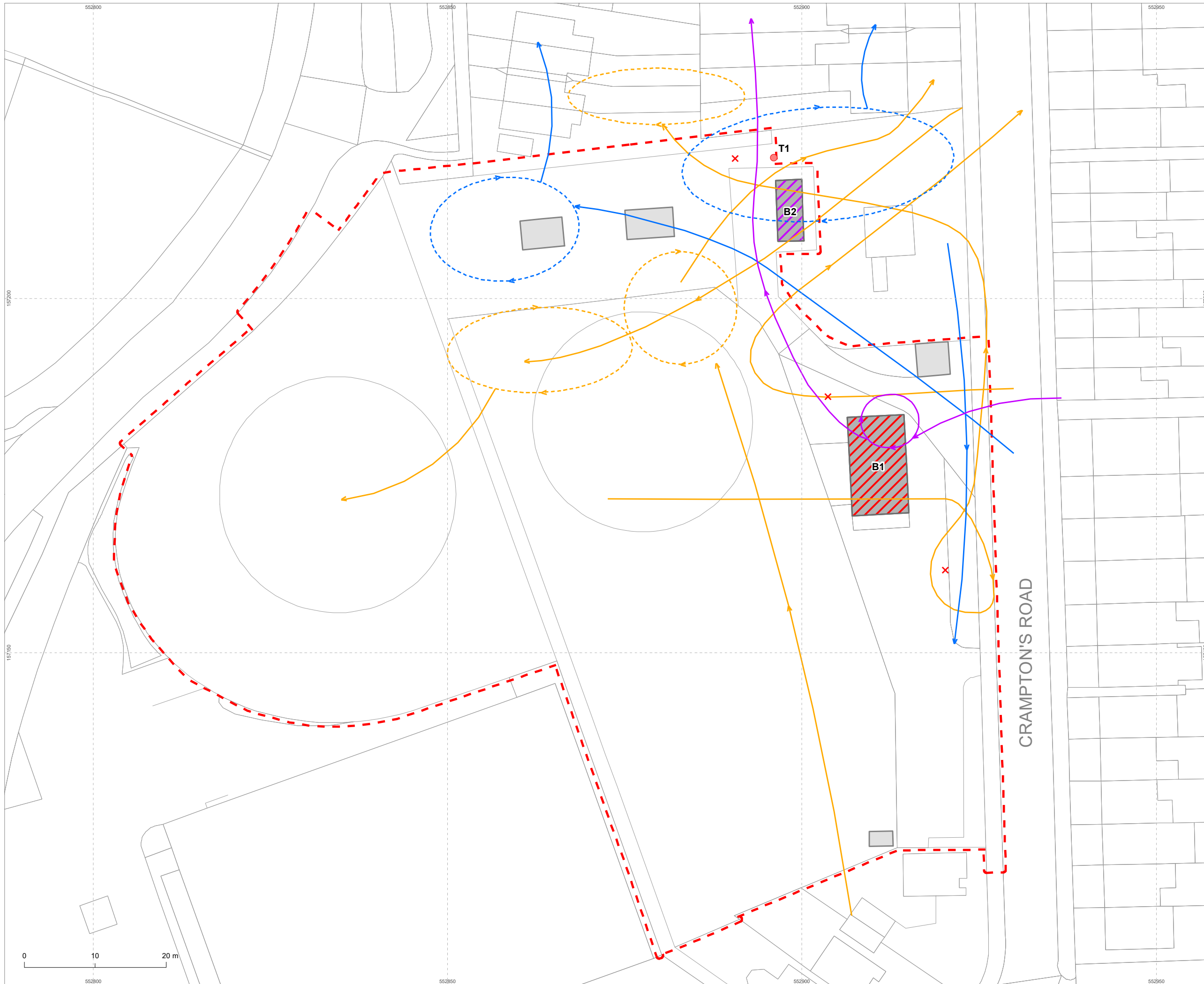
No bats recorded during dawn survey.
Pipistrelle 45, 55 and Noctule bat species were heard but not seen.

Project		Sevenoaks Gasholder Site	
Drawing		1 st Dawn Re-entry Bat Survey (28/08/2020)	
Client		CBRE	
Drawing Number	Revision	C152714-02-03_RevA	Rev A
Scale @ A3	Date	1:500	March 2021
Approved By	Drawn By	RS	CD



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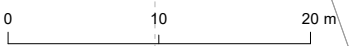


C152714-02-04_RevA

Legend

- x Surveyor location
- Tree with high bat roost potential
- Common pipistrelle commuting
- Common pipistrelle foraging
- Noctule commuting
- Soprano pipistrelle commuting
- Soprano pipistrelle foraging
- Building not included in survey
- Building with high bat roost potential
- Building with negligible bat roost potential
- - - Site boundary

CRAMPTON'S ROAD



Project		Sevenoaks Gasholder Site	
Drawing		2 nd Nocturnal Emergence Bat Survey (10/09/2020)	
Client		CBRE	
Drawing Number	C152714-02-04_RevA	Revision	Rev A
Scale @ A3	1:500	Date	March 2021
Approved By	RS	Drawn By	CD

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APPENDIX 1

LEGISLATION

Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, or *obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The following bat species are Species of Principal Importance for Nature Conservation in England: barbastelle bat *Barbastella barbastellus*, Bechstein's bat *Myotis bechsteinii*, noctule *Nyctalus noctula*, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared bat *Plecotus auritus*, greater horseshoe bat *Rhinolophus ferrumequinum* and lesser horseshoe bat *Rhinolophus hipposideros*.

The reader should refer to the original legislation for the definitive interpretation.

ECOLOGY

At present, 18 species of bats are known to live within the United Kingdom, of which 17 species are confirmed as breeding. All UK bat species are classed as insectivorous, feeding on a variety of invertebrates including midges, mosquitoes, lacewings, moths, beetles and small spiders.

Bats will roost within a variety of different roosting locations, included houses, farm buildings, churches, bridges, walls, trees, culverts, caves and tunnels. At different times of the year the bats roosting requirements alter and they can have different roosting locations for maternity roosts, mating roosts and hibernation roosts. Certain bat species will also change roosts throughout the bat activity season with the bat colony using the site to roost for a few days, abandoning the roost and then returning a few days or weeks later. This change can be for a variety of reasons including climatic conditions and prey availability. Bats are known live for several years and if the climatic conditions are unfavourable at a particular roost, they may abandon it for a number of years, before returning when conditions change. Due to the matriarchal nature of bat colonies, the locations of these roosts can be passed down through the generations.

Bats usually start to come out of hibernation in March and early April (weather dependent), when they start to forage and replenish the body weight lost during the hibernation period. The female bats then start to congregate together in maternity roosts prior to giving birth and a single baby is born in June or July. The female then works hard to feed her young so that they can become independent and of a sufficient weight to survive the winter before the weather gets too cold and invertebrate activity reduces. Males generally live solitary lives, or in small groups with other males, although in some species the males can be found living with the females all year. The mating season begins in the autumn. During the winter bats hibernate in safe locations which provide relatively constant conditions, although they may venture outside to forage on warmer winter nights.