HITHER GREEN GOLF COURSE, HITHER GREEN LANE, REDDITCH

DUSK EMERGENCE AND DAWN RE-ENTRY BAT SURVEYS

A Report to: Barratt David Wilson Homes Mercia

Report No: RT-MME-155922

Date: September 2021

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 and Approved by:
Final	30/09/2021	Carol Flaxman BSc (Hons) ACIEEM (Senior Ecological Consultant) and Stephanie Bradbury BSc (Hons) (Senior Ecological Consultant)	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, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

In July 2021, Barratt David Wilson Homes Mercia commissioned Middlemarch Environmental Ltd to undertake dusk emergence and dawn re-entry bat surveys at Hither Green Golf Course in Redditch, Worcestershire. These surveys are required to inform a planning application associated with the proposed construction of residential dwellings with associated hard and soft landscaping.

Middlemarch Environmental Ltd has previously carried out a variety of ecological and arboricultural surveys at this site, including a Preliminary Bat Roost Assessment (Report RT-MME-153160-01). During the Preliminary Bat Roost Assessment, multiple features were identified around the building located in the north-eastern corner of the site which could potentially be used by bats to gain access into the building and potential roosting locations. Due to their height and location, many of these features could not be fully inspected. Therefore, the building was classed as having high potential to support roosting bats and further surveys were recommended.

A total of fourteen trees on site within the development area were also found to possess potential roosting features. Of these, ten trees had high potential to support roosting bats and four trees had low potential to support roosting bats. It is understood that only two of the trees classed as having high potential to support roosting bats will be impacted by the proposed development: T2 and T13. Therefore, further surveys were recommended for these trees. Although some of the trees with low roosting potential will also be impacted by the proposed works, these trees do not require further surveys.

Dusk emergence and dawn re-entry surveys were undertaken between 5th August 2021 and 21st September 2021.

Dusk Emergence Surveys. Five bat species were recorded during the dusk surveys: noctule, Leisler's bat, common pipistrelle, soprano pipistrelle and Daubenton's bat. No bats emerged from any surveyed features associated with the site. Commuting and foraging activity was recorded during the survey period. This was predominantly around the trees and scrub located to the south-west of the building, with intermittent foraging also recorded along the northern boundary hedgerow, along the woodland edge close to tree T2, and over the small area of woodland containing tree T13. In addition, foraging by noctule was recorded over the open grassland between trees T2 and T13.

Dawn Re-entry Survey. Six bat species were recorded during the dawn survey: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, an unidentified Nyctalus species and brown long-eared bat. No bats re-entered any surveyed features associated with the site. Commuting and foraging activity was recorded during the survey period. This was predominantly around the trees and scrub located to the south-west of the building, with intermittent foraging also recorded along the northern boundary hedgerow, along the woodland edge close to tree T2, and over the trees located immediately to the south of tree T13.

Given that no bats emerged from or re-entered any surveyed features associated with the site during the surveys, it is concluded that there are no bat roosts present in the building or trees to be impacted on site. Therefore, the proposed works are not expected to impact roosting bats, and as such the proposed works may proceed as scheduled.

Following the results of the dusk emergence and dawn re-entry surveys, the following recommendations have been made:

R1 Building and Trees (T2 and T13)
The building and trees T2 and T13 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. 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 are provided in Chapter 6.

R3 Habitat Enhancement
In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. This may include the provision of alternative roosting opportunities through the installation of bat boxes, and the enhancement of foraging areas by planting species which attract night flying insects.

CONTENTS

1. INTRODUCTION 4
1.1 PROJECT BACKGROUND 4
1.2 SITE DESCRIPTION AND CONTEXT 4
1.3 DOCUMENTATION PROVIDED 5
2. METHODOLOGY 6
2.1 DESK STUDY 6
2.2 FIELD SURVEYS 6
2.2.1 Overview of Dusk Emergence and Dawn Re-entry Surveys 6
2.2.2 Dusk Emergence Bat Surveys 6
2.2.3 Dawn Re-Entry Bat Survey 6
3. DESK STUDY 7
3.1 STATUTORY NATURE CONSERVATION SITES 7
3.2 SPECIES RECORDS 7
4. SURVEY RESULTS 8
4.1 DAWN RE-ENTRY SURVEY 8
4.2 FIRST DUSK EMERGENCE SURVEY 9
4.3 SECOND DUSK EMERGENCE SURVEY 11
5. DISCUSSION AND CONCLUSIONS 13
5.1 DISCUSSION 13
5.1.1 Summary of Proposals 13
5.1.2 Summary of Dusk Emergence and Dawn Re-entry Surveys 13
5.2 CONCLUSIONS 13
6. RECOMMENDATIONS 14
7. DRAWINGS 15
REFERENCES AND BIBLIOGRAPHY 19
APPENDIX 1 20

1. INTRODUCTION

1.1 PROJECT BACKGROUND

In July 2021, Barratt David Wilson Homes Mercia commissioned Middlemarch Environmental Ltd to undertake dusk emergence and dawn re-entry bat surveys at Hither Green Golf Course in Redditch, Worcestershire. These surveys are required to inform a planning application associated with the proposed construction of residential dwellings with associated hard and soft landscaping.

Middlemarch Environmental Ltd has previously carried out the following surveys at this site:

- Preliminary Arboricultural Assessment (Report RT-MME-152753-01);
- Arboricultural Impact Assessment (Report RT-MME-152753-02);
- Preliminary Ecological Appraisal (Report RT-MME-152753-03 Rev A);
- Preliminary Bat Roost Assessment (Report RT-MME-153160-01);
- Badger Survey (Report RT-MME-153160-02);
- Great Crested Newt Habitat Suitability Index Assessment and eDNA Survey (Report RT-MME-153160-03);
- Breeding Bird Survey (Report RT-MME-153160-04); and,
- Reptile Survey (Report RT-MME-153160-05).

During the Preliminary Bat Roost Assessment, multiple features were identified around the building located in the north-eastern corner of the site which could potentially be used by bats to gain access into the building and potential roosting locations. Features included a dislodged ridge tile at the western end of the roof, holes in the soffits, lifted roof edging on the eastern gable end, cavities associated with a boarded window, a gap along the top of the door, damaged roofing felt on the lean-to leading into crevices beneath the roof tiles, and damaged timber boards inside the lean-to. Due to their height and location, many of these features could not be fully inspected. Therefore, the building was classed as having high potential to support roosting bats and further surveys were recommended.

A total of fourteen trees within the proposed development area were also found to possess potential roosting features. Of these, ten trees had high potential to support roosting bats and four trees had low potential to support roosting bats. It is understood that only two trees classed as having high potential to support roosting bats will be impacted by the proposed development: T2 and T13. Therefore, further surveys were recommended for these trees. Although some of the trees with low roosting potential will also be impacted by the proposed works, these trees do not require further surveys.

This report details the results of the dusk emergence and dawn re-entry surveys undertaken between 5th August 2021 and 21st September 2021.

All UK bat species are legally 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 an irregularly shaped parcel of land that measures approximately 10 ha in size and is located at Hither Green Golf Course in Redditch, Worcestershire. The site is centred at National Grid Reference SP 0437 6937.

At the time of the survey, the eastern half of the site comprised part of a golf course with areas of plantation woodland. The western section of the site mainly consisted of open unmanaged grassland with hedges, scattered trees and scrub. A large pond was situated towards the northern site boundary and there were four smaller ponds which formed part of the golf course.

The site is bordered to the north by Dagnell End Road and to the east by Hither Green Lane. Residential houses and a continuation of the golf course border the site to the east and fields of grassland, residential dwellings and a public house are present to the north and west. The River Arrow corridor is present to the south of the site with fields of grassland, a cemetery and residential dwellings beyond. The wider landscape

to the north, east and west is dominated by agricultural fields and small residential areas. Redditch town centre dominates the landscape to the south.

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
Land off Hither Green Lane Redditch, Proposed Site Layout Rev Q	Urban Design

Table 1.1: Documentation Provided by Client

2. METHODOLOGY

2.1 DESK STUDY

As part of the Preliminary Ecological Appraisal (Report RT-MME-152753-03 Rev A) an ecological desk study (which included a search for records of bats) was undertaken within a 1 km radius of the site. The consultee for the desk study was Worcestershire Biological Records Centre.

Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by this organisation. 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 FIELD SURVEYS

2.2.1 Overview of Dusk Emergence and Dawn Re-entry Surveys

The building and two trees to be impacted by the proposed works were classed as having high potential to support roosting bats. 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.

2.2.2 Dusk Emergence Bat Surveys

In line with the specifications detailed in 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 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.

2.2.3 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 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 not located within 10 km of any statutory nature conservation sites designated for the presence of bats.

3.2 SPECIES RECORDS

The data search was carried out in July 2020 by Worcestershire Biological Records Centre. Records of bat species within a 1 km radius of the survey area provided by the consultee 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 *Pipistrellus pipistrellus*	8	2014	10 m north	-	ECH 4, WCA 5, WCA 6
Soprano pipistrelle *Pipistrellus pygmaeus*	6	2017	210 m west	✓	ECH 4, WCA 5, WCA 6
Noctule *Nyctalus noctula*	2	2014	490 m south	✓	ECH 4, WCA 5, WCA 6
Unidentified Myotis *Myotis* sp.	2	2014	570 m south-east	#	ECH 2 #, ECH 4, WCA 5, WCA 6
Brown long-eared bat *Plecotus auritus*	1	2014	570 m south-east	✓	ECH 4, WCA 5, WCA 6

Key:
#: Dependent on species.

ECH 2: Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation.
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.

Species of Principal Importance: Species of Principal Importance for Nature Conservation in England.

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

4. SURVEY RESULTS

4.1 DAWN RE-ENTRY SURVEY

The dawn re-entry bat survey was undertaken on 5th August 2021 by the following personnel:

- Hannah Lewis (Senior Ecological Consultant and Licensed Bat Worker under bat class licence 17);
- Carol Flaxman (Senior Ecological Consultant);
- Carl Platt (Ecological Consultant);
- Evangeline Bevans (Ecological Project Officer);
- Abbie Stevenson (Ecological Project Assistant);
- Jane Adjei (Field Assistant); and,
- Jo Harper (Field Assistant).

The weather conditions recorded at the time of the survey are detailed in Table 4.1.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	14	14
Cloud Cover (%)	30	50
Precipitation	Nil	Nil
Wind Speed (Beaufort)	F0	F0

Table 4.1: 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 05:35 hrs (BBC Weather Centre Data for Redditch). Six species of bat were recorded during the survey: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule *Nyctalus noctula*, an unidentified Nyctalus species *Nyctalus* sp. and brown long-eared bat *Plecotus auritus*. Survey results are plotted on Drawing C155922-01 in Chapter 7.

Brown long-eared bat
At 04:12 (83 minutes before sunrise), a brown long-eared bat was detected to the east of the building as it commuted across the site. This bat was not observed re-entering any features associated with the site.

At 04:19 (76 minutes before sunrise), a second brown long-eared bat pass was detected to the east of the building as it commuted across the site. This bat was not observed re-entering any features associated with the site.

At 04:29 (66 minutes before sunrise), a brown long-eared bat pass was detected to the north of T13 as it commuted across the site. This bat was not observed re-entering any features associated with the site.

Common pipistrelle
The first common pipistrelle was recorded at 04:13 (82 minutes before sunrise) as it commuted onto site from the north and flew west over the building before continuing to commute across the site. This bat was not observed re-entering any features associated with the site.

At 04:19 (76 minutes before sunrise), a common pipistrelle was detected as it foraged briefly along the northern boundary hedgerow and along the woodland edge close to tree T2 before it commuted south across the site, passing tree T13. This bat was not observed re-entering any features associated with the site.

At 04:28 (67 minutes before sunrise), a common pipistrelle commuted onto site from the east and flew past the southern elevation of the building before it began foraging around the trees and scrub located to the south-west of the building. Foraging activity was recorded intermittently in this area until 04:46 (49 minutes before sunrise) when the bat commuted south along the tree line and exited the site. This bat was not observed re-entering any features associated with the site.

At 04:30 (65 minutes before sunrise), a common pipistrelle was detected to the south of tree T13 as it commuted across the site. This bat was not observed re-entering any features associated with the site.

At 04:42 (53 minutes before sunrise), a common pipistrelle was detected to the north of tree T13 as it commuted across the site. This bat was not observed re-entering any features associated with the site.

At 04:46 (49 minutes before sunrise), a common pipistrelle was detected as foraged over the trees located immediately to the south of tree T13. Foraging activity was recorded intermittently in this area until 05:11 (24 minutes before sunrise) when the bat commuted across the site to the south. This bat was not observed re-entering any features associated with the site.

At 04:53 (42 minutes before sunrise), a common pipistrelle commuted onto site from the north and flew south over the building before exiting the site. This bat was not observed re-entering any features associated with the site.

Soprano pipistrelle
At 04:41 (54 minutes before sunrise), a soprano pipistrelle was detected to the north-east of the building as it commuted past the site. This bat was not observed re-entering any features associated with the site.

Nathusius' pipistrelle
At 04:53 (42 minutes before sunrise), a Nathusius' pipistrelle was detected to the west of the building as it commuted across the site. This bat was not observed re-entering any features associated with the site.

At 04:55 (40 minutes before sunrise), a Nathusius' pipistrelle was detected to the north-east of the building as it commuted past the site. This bat was not observed re-entering any features associated with the site.

Noctule
At 04:58 (37 minutes before sunrise), a noctule was detected commuting high over the northern part of the site. This bat was not observed re-entering any features associated with the site.

At 05:15 (20 minutes before sunrise), a noctule was detected near tree T13. This bat was not observed re-entering any features associated with the site.

Nyctalus species
At 05:13 (22 minutes before sunrise), an unidentified Nyctalus species was detected near tree T13. This bat was not observed re-entering any features associated with the 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.

4.2 First Dusk Emergence Survey

The first dusk emergence survey was undertaken on 19th August 2021 by the following personnel:

- Tom Docker (Managing Director and Licensed Bat Worker under bat class licence 17);
- Dr Marie Athorn (Licensed Bat Worker under bat class licence 18);
- Carol Flaxman (Senior Ecological Consultant);
- Carl Platt (Ecological Consultant);
- Lindsay Hubert (Ecological Project Assistant);
- Jane Adjei (Field Assistant); and,
- Victoria Oxley (Field Assistant).

The weather conditions recorded at the time of the survey are detailed in Table 4.2.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	18	17
Cloud Cover (%)	100	100
Precipitation	Nil	Nil
Wind Speed (Beaufort)	F1	F1

Table 4.2: 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 20:23 hrs (BBC Weather Centre Data for Redditch). Four species of bat were recorded during the survey: common pipistrelle, soprano pipistrelle, noctule and Daubenton's bat *Myotis daubentonii*. Survey results are plotted on Drawing C155922-02 in Chapter 7.

Common pipistrelle
The first common pipistrelle was detected at 20:32 (9 minutes after sunset) as it foraged along the northern boundary hedgerow and along the woodland edge close to tree T2. This bat was not observed emerging from any features associated with the site. Foraging activity was recorded intermittently in this area until 21:00 (37 minutes after sunset) when the bat commuted away along the hedgerow.

At 20:38 (15 minutes after sunset), a common pipistrelle was detected as it commuted across the site and began foraging over the small area of woodland containing tree T13. This bat was not observed emerging from any features associated with the site. Foraging activity was recorded intermittently in this area until 21:08 (45 minutes after sunset) when the bat commuted away from the woodland. Social calls were also detected during this period.

At 20:42 (19 minutes after sunset), a common pipistrelle commuted north across the site and foraged briefly over the trees and scrub located to the south-west of the building before flying back to the south. This bat was not observed emerging from any features associated with the site.

At 20:45 (22 minutes after sunset), two common pipistrelles commuted across the site from the west and flew east over the building before they flew back to the west, passing the southern elevation of the building, to forage around the trees and scrub located to the south-west of the building. These bats were not observed emerging from any features associated with the site. Foraging activity was recorded intermittently in this area until 21:04 (41 minutes after sunset) when the bats commuted south along the tree line and exited the site.

At 21:17 (54 minutes after sunset), a common pipistrelle commuted across the site from north-east to south-west, passing the northern aspect of tree T13 before continuing across the site.

Noctule
At 20:35 (12 minutes after sunset), a noctule was detected flying high over the centre of the site. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over the site.

Soprano pipistrelle
The first soprano pipistrelle was detected at 20:43 (20 minutes after sunset). This bat was detected to the south-west of the building as it commuted across the site. This bat was not observed emerging from any features associated with the site.

At 20:50 (27 minutes after sunset), a soprano pipistrelle was detected to the south of tree T13 as it commuted across the site. This bat was not observed emerging from any features associated with the site.

At 20:59 (36 minutes after sunset), a soprano pipistrelle was detected to the north of tree T13 as it commuted across the site. This bat was not observed emerging from any features associated with the site.

At 21:09 (46 minutes after sunset), a soprano pipistrelle was detected to the north of tree T13 as it commuted across the site. This bat was not observed emerging from any features associated with the site.

At 21:10 (47 minutes after sunset), a soprano pipistrelle was detected to the east of the building as it commuted across the site. This bat was not observed emerging from any features associated with the site.

Daubenton's bat
At 21:25 (62 minutes after sunset), a common pipistrelle was detected as it commuted from east to west along the northern boundary hedgerow, passing the northern elevation of the building. This bat was not observed emerging from any features associated with the 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 SECOND DUSK EMERGENCE SURVEY

The second dusk emergence bat survey was undertaken on 21st September 2021 by the following personnel:

- Tom Docker (Managing Director and Licensed Bat Worker under bat class licence 17);
- Joe Graham (Ecological Project Officer);
- Liam Kelly (Ecological Project Officer);
- Chris Stanley (Field Assistant);
- Jane Adjei (Field Assistant);
- Jordan Rathbone (Field Assistant); and,
- Stuart Greenway (Field Assistant).

The weather conditions recorded at the time of the survey are detailed in Table 4.3.

Parameter	Conditions	
	Start	Finish
Temperature (°C)	17	16
Cloud Cover (%)	25	10
Precipitation	Nil	Nil
Wind Speed (Beaufort)	F1	F0

Table 4.3: 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 19:10 hrs (BBC Weather Centre Data for Redditch). Four species of bat were recorded during the survey: noctule, Leisler's bat *Nyctalus leisleri*, common pipistrelle and soprano pipistrelle. Survey results are plotted on Drawing C155922-03 in Chapter 7.

Noctule
At 19:21 (11 minutes after sunset), a noctule was detected flying high over the western part of the site. This bat was not observed emerging from any features associated with the site. This bat stayed to forage over the open grassland with frequent passes detected in the area between trees T2 and T13 until 20:05 (55 minutes after sunset).

At 19:36 (26 minutes after sunset), a noctule was detected flying high over the eastern part of the site. This bat was not observed emerging from any features associated with the site. This bat did not stay to forage over the site.

Common pipistrelle
The first common pipistrelle was detected at 19:29 (19 minutes after sunset) as it commuted onto site from the east and began foraging over the trees and scrub located to the south-west of the building. This bat was not observed emerging from any features associated with the site. Foraging activity was recorded frequently in this area until 19:52 (42 minutes after sunset) when activity levels dropped. Sporadic foraging was then recorded until the end of the survey.

At 19:36 (26 minutes after sunset), a common pipistrelle was detected as it foraged along the northern boundary hedgerow and along the woodland edge close to tree T2. This bat was not observed emerging from any features associated with the site. Foraging activity was recorded intermittently in this area until 20:06 (56 minutes after sunset) when the bat commuted away along the hedgerow.

At 19:45 (35 minutes after sunset), a common pipistrelle was detected as it commuted across the site and began foraging over the small area of woodland containing tree T13. This bat was not observed emerging from any features associated with the site. Foraging activity was recorded intermittently in this area until 19:51 (41 minutes after sunset) when the bat commuted away from the woodland.

Soprano pipistrelle
The first soprano pipistrelles were detected at 19:42 (32 minutes after sunset) as two bats commuted onto site from the east, flew west over the building and then began foraging over the trees and scrub located to the south-west of the building. This bat was not observed emerging from any features associated with the

site. Foraging activity was recorded frequently in this area until 19:52 (42 minutes after sunset) when activity levels dropped. Sporadic foraging was then recorded until the end of the survey.

At 19:43 (33 minutes after sunset), a soprano pipistrelle was detected to the north of tree T2 as it commuted across the site. This bat was not observed emerging from any features associated with the site.

At 19:46 (36 minutes after sunset), three soprano pipistrelles commuted onto site from the east and flew north past the eastern elevation of the building before exiting the site. Foraging activity was recorded intermittently off site until 19:48 (38 minutes after sunset).

At 19:48 (38 minutes after sunset), a soprano pipistrelle was detected to the north of tree T13 as it commuted across the site. This bat was not observed emerging from any features associated with the site.

Leisler's bat
At 19:57 (47 minutes after sunset), two passes by Leisler's bat were detected to the south of the building. No bats were observed emerging from any features associated with the 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 DISCUSSION

5.1.1 Summary of Proposals

The proposals for the site involve the construction of residential dwellings with associated hard and soft landscaping.

5.1.2 Summary of Dusk Emergence and Dawn Re-entry Surveys

Dusk Emergence Surveys

Five bat species were recorded during the dusk surveys: noctule, Leisler's bat, common pipistrelle, soprano pipistrelle and Daubenton's bat. No bats emerged from any surveyed features associated with the site. Commuting and foraging activity was recorded during the survey period. This was predominantly around the trees and scrub located to the south-west of the building, with intermittent foraging also recorded along the northern boundary hedgerow, along the woodland edge close to tree T2, and over the small area of woodland containing tree T13. In addition, a noctule was recorded foraging over the open grassland between trees T2 and T13.

Dawn Re-entry Survey

Six bat species were recorded during the dawn survey: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, an unidentified Nyctalus species and brown long-eared bat. No bats re-entered any features associated with the site. Commuting and foraging activity was recorded during the survey period. This was predominantly around the trees and scrub located to the south-west of the building, with intermittent foraging also recorded along the northern boundary hedgerow, along the woodland edge close to tree T2, and over the trees located immediately to the south of tree T13.

5.2 CONCLUSIONS

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

Any new lighting, either temporary or permanent, at the site has the potential to impact foraging and commuting bats. Therefore, a recommendation regarding sensitive lighting is made in Chapter 6.

The Proposed Site Layout show the majority of existing trees are to be retained as part of the development, and new tree and shrub planting is to be incorporated into the soft landscaping. Therefore, the impact on foraging and commuting habitat is likely to be temporary with an eventual beneficial effect. To increase the value of the site for bats, a recommendation is made in Chapter 6 regarding suitable plant species to incorporate into the soft landscaping to attract night flying insects.

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 and Trees (T2 and T13)

The building and trees T2 and T13 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 works to the surveyed building and trees have not commenced within this timeframe it will be essential to update the survey effort to establish if bats have colonised the building and trees in the interim. Updated Preliminary Bat Roost Assessments can be undertaken at any time of year. Updated surveys requiring nocturnal 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 hedgerows, woodland edges and waterbodies.
- 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.
- For internal lights, recessed light fittings cause significantly less glare than pendant type fittings. The use of low-glare glass may also be appropriate where internal lighting has the potential to influence sensitive ecological receptors.

R3 Habitat Enhancement

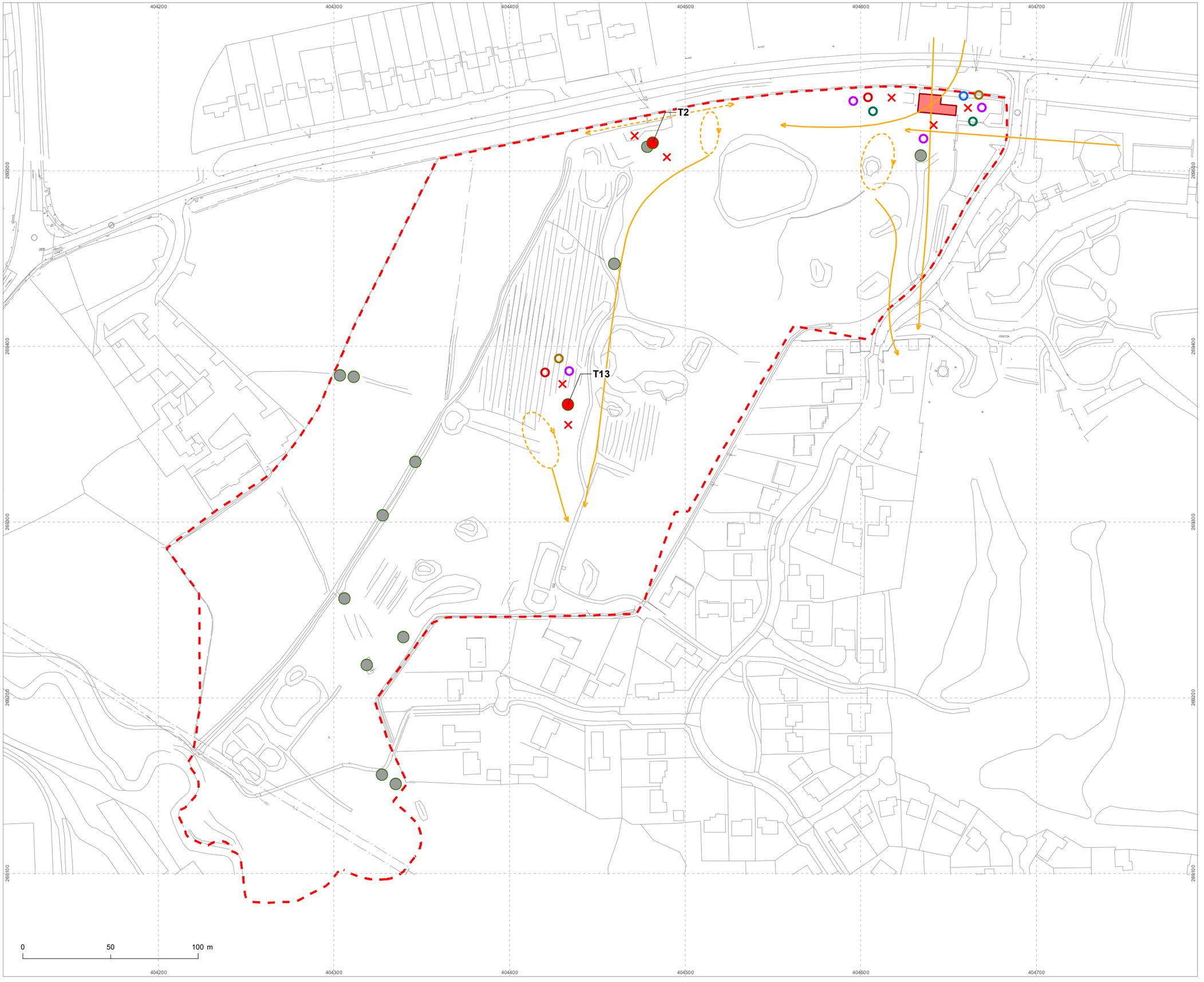
In line with the National Planning Policy Framework, the development should aim to enhance the site for bats. Bat boxes should be installed to provide roosting habitat for species such as pipistrelle. In general, bats seek warm places and for this reason boxes should be located where they will receive 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: evening primrose *Oenothera biennis*, goldenrod *Solidago virgaurea*, honeysuckle *Lonicera periclymenum* and fleabane *Pulicaria dysenterica*.

7. DRAWINGS

Drawing C155922-01 – Dawn Re-entry Survey

Drawing C155922-02 – First Dusk Emergence Survey

Drawing C155922-03 – Second Dusk Emergence Survey



C155922-01

Legend

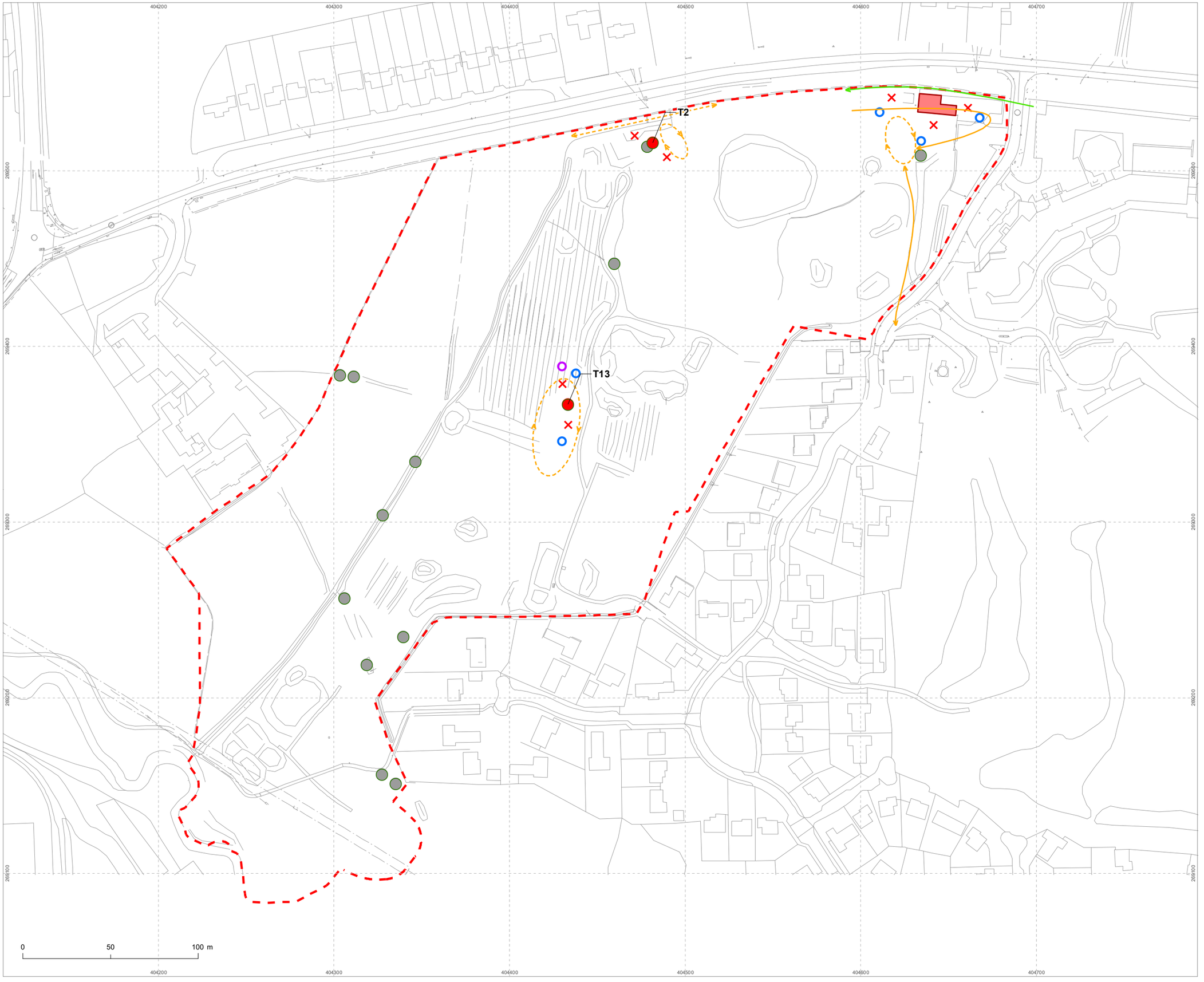
- Application boundary
- Building surveyed: high bat roosting potential
- Surveyor location
- Tree surveyed
- Tree not surveyed
- Brown long-eared bat
- Nathusius pipistrelle
- Noctule detected
- Nyctalus species detected
- Soprano pipistrelle
- Common pipistrelle
- Common pipistrelle

N

Project	Hither Green Golf Course, Hither Green Lane, Redditch
Drawing	Dawn Re-entry Bat Survey - 05/08/2021
Client	Barratt Homes
Drawing Number: C155922-01	Revision: 00
Scale @ A3: 1:2,000	Date: September 2021
Approved By: SB	Drawn By: JR

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

This map is reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
Licence Number: 100040519



C155922-02

Legend

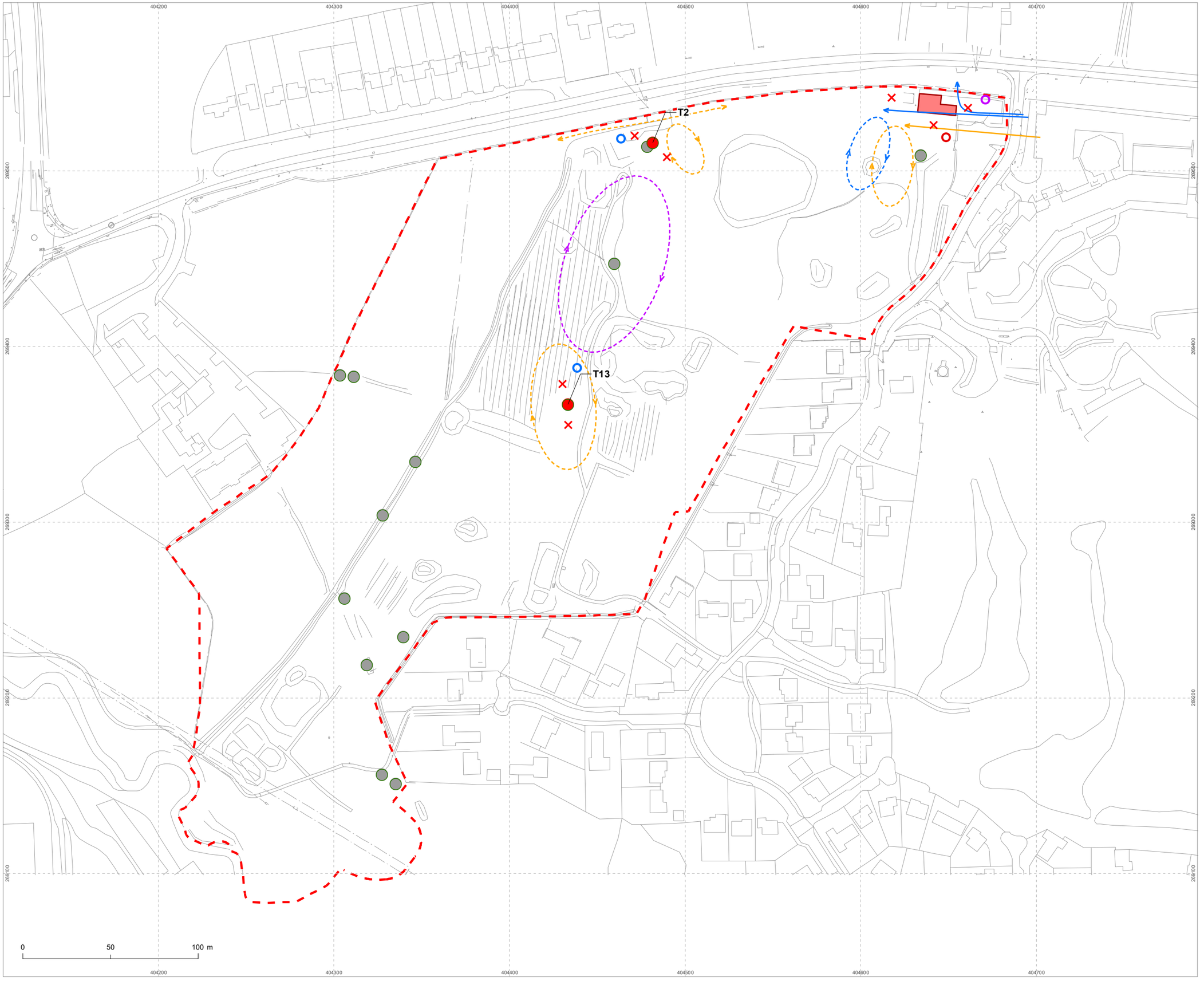
- Application boundary
- Building surveyed: high bat roosting potential
- Surveyor location
- Tree surveyed
- Tree not surveyed
- Noctule detected
- Soprano pipistrelle detected
- Common pipistrelle commuting
- Common pipistrelle foraging
- Daubenton's bat commuting

N

Project	Hither Green Golf Course, Hither Green Lane, Redditch
Drawing	First Dusk Emergence Bat Survey - 19/08/2021
Client	Barratt Homes
Drawing Number: C155922-02	Revision: 00
Scale @ A3: 1:2,000	Date: September 2021
Approved By: SB	Drawn By: JR

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

This map is reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
Licence Number: 100040519



C155922-03

Legend

- Application boundary
- Building surveyed: high bat roosting potential
- Surveyor location
- Tree surveyed
- Tree not surveyed
- Leisler's bat detected
- Noctule detected
- Soprano pipistrelle detected
- Common pipistrelle commuting
- Common pipistrelle foraging
- Noctule foraging
- Soprano pipistrelle commuting
- Soprano pipistrelle foraging

N

Project	Hither Green Golf Course, Hither Green Lane, Redditch
Drawing	Second Dusk Emergence Bat Survey - 21/09/2021
Client	Barratt Homes
Drawing Number: C155922-03	Revision: 00
Scale @ A3: 1:2,000	Date: September 2021
Approved By: SB	Drawn By: JR

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

This map is reproduced from the Ordnance Survey material with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationary Office. © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings.
Licence Number: 100040519

REFERENCES AND BIBLIOGRAPHY

Altringham, J (2003). *British Bats.* New Naturalist. HarperCollins.

BSI. (2015). BS8596:2015 *Surveying for bats in trees and woodland*. British Standard Institution, London.

Collins, J. (ed). (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

English Nature (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough.

Gunnell, K., Grant, G. and Williams, C. (2012) *Landscape and urban design for bats and biodiversity*. Bat Conservation Trust.

Joint Nature Conservation Committee (2012). *UK Post-2010 Biodiversity Framework*. Available: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf

Jones, K and Walsh, A (2006). *A Guide to British Bats.* The Mammal Society, London.

Miles, J., Ferguson, J., Smith, N. and Fox, H. (2018) *Bats and artificial lighting in the UK. Bats and the Built Environment Series*. Bat Conservation Trust and Institution of Lighting Professionals.

Ministry of Housing, Communities and Local Government (2019) *National Planning Policy Framework*. Available: https://www.gov.uk/government/collections/revised-national-planning-policy-framework

Mitchell-Jones, A.J. & McLeish, A.P. (2004). *The Bat Workers' Manual (3nd Ed.).* JNCC, Peterborough.

The Conservation of Habitats and Species Regulations 2017.

APPENDIX 1

LEGISLATION

Bats and the places they use for shelter or protection (i.e. roosts) receive legal protection under the Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017) and the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) Regulations 2019 (Habitats Regulations 2019). 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.

Changes have been made to parts of the Habitats Regulations 2017 so that they operate effectively from 1st January 2021. The changes are made by the Habitats Regulations 2019, which transfer functions from the European Commission to the appropriate authorities in England and Wales.

All other processes or terms in the 2017 Regulations remain unchanged and existing guidance is still relevant.

The obligations of a competent authority in the 2017 Regulations for the protection of species do not change. A competent authority is a public body, statutory undertaker, minister or department of government, or anyone holding public office.

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

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*. Species of Principal Importance for Nature Conservation in England are material considerations in the planning process. The list of species is derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.

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.