JAMES BLAKE ASSOCIATES

Bat Activity Survey Report

Of

Land at Water Lane, Angmering, West Sussex

on behalf of

Barratt Homes Southern Counties

October 2020

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Disclaimer

James Blake Associates Ltd. have made every effort to meet the client's brief. However, no survey ensures complete and absolute assessment of the changeable natural environment. The findings in this report were based on evidence from thorough survey: It is important to remember that evidence can be limited, hard to detect or concealed by site use and disturbance. When it is stated that no evidence was found or was evident at that point in time, it does not mean that species are not present or could not be present at a later date: The survey was required because habitats are suitable for a given protected species, and such species could colonise areas following completion of the survey.

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0 NON TECHNICAL SUMMARY

Site:	Land at Water Lane, Angmering, West Sussex
Ordnance Survey National Grid Reference (from the centre of the site)	TQ 074 045
Report Commissioned by:	Barratt Homes Southern Counties
Date of Bat Activity Survey:	22nd May 2020 to 19th October 2020

Considerations	Description	Potential impacts and timings
Roosts identified	No roosts identified on site.	N/A
Foraging and commuting bats	Common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), serotine (*Eptesicus serotinus*) and noctule (*Nyctalus noctule*).	Lighting minimization scheme to be implemented to avoid impact to foraging and commuting bats. See Section 5 for proposed avoidance, mitigation and compensation measures.

1 INTRODUCTION

Background to the study

1.1 James Blake Associates Ltd. was commissioned by Barratt Homes Southern Counties to undertake a bat activity survey of land at Water Lane, Angmering, West Sussex. Ordnance Survey National Grid reference: TQ 074 045 (taken from the centre of the site).

1.2 All UK bat species are protected under European and UK law (Conservation of Habitats and Species Regulations 2010; Wildlife and Countryside Act 1981), and some are Species of Principal Importance (SPI) in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Protected and principally important species are a consideration under the National Planning Policy Framework (NPPF) 2019. The NPPF places responsibility on Local Planning Authorities to aim to conserve and enhance biodiversity and to encourage biodiversity in and around developments.

Previous surveys

1.3 A previous Preliminary Ecological Appraisal (PEA) was undertaken by The Ecology Partnership in 2017. No trees or buildings were considered to be large enough or suitable enough to hold a bat roost. The site is likely to be used by foraging bats.

1.4 The activity across the site was considered typical of a green field site with the majority of the activity being from common pipistrelles (*Pipistrellus pipistrellus*) commuting across the site to more suitable foraging areas. A few Nathusius' pipistrelle (*Pipistrellus nathusii*), serotine (*Eptesicus serotinus*), noctule (*Nyctalus noctula*) and Leisler's (*Nyctalus leisleri*), brown long-eared (*Plecotus auratus*) and *Myotis* passes were also recorded.

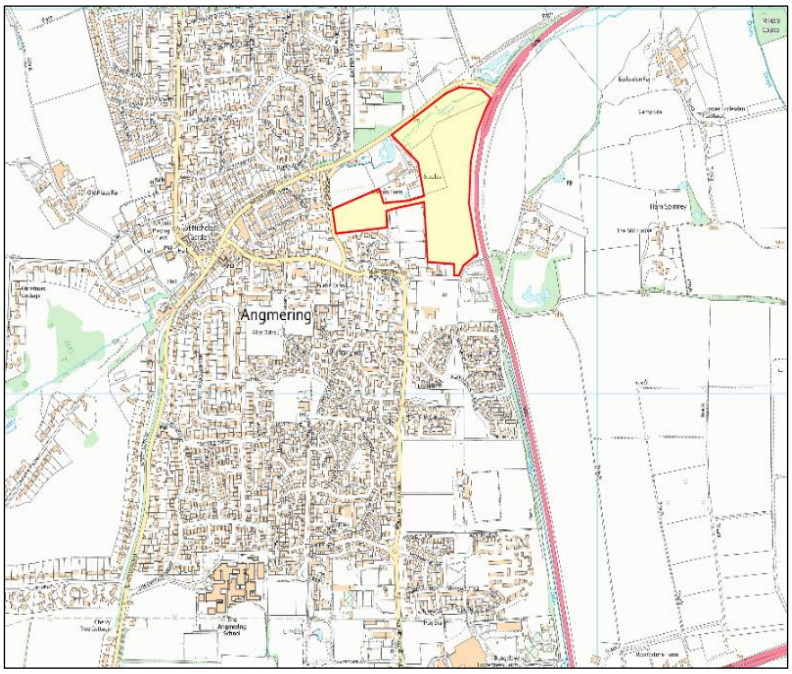
Site Description

1.5 The site is approximately 9.3 hectares in size and is located to the south of Water Lane in the town of Angmering, West Sussex. The wider landscape includes the town of Angmering, residential and arable land. The A280 runs east of the site (see Figure 1 below).

1.6 The site itself comprises grazed/mown improved grassland with areas of scattered scrub and species-poor hedgerows. The north section of the site

includes a small, slow-flowing watercourse and marshy grassland with further scatterd scrub. Other habitats on site include; semi-improved grassland, tall ruderal, hardstanding, scattered trees, amenity grassland and buildings.

Figure 1: Site location



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Details of the proposals

1.7 The proposed development would involve the creation of new residential housing with associated infrastructure.

Aims and objectives

1.8 The aims of the surveys were;

- To determine bat use of the site, including the species, amount and type of activity; and
- Assess the risk of impact on bats, bat roosts and local bat conservation status from the proposed development and, if necessary, design appropriate precautionary measures, compensation or mitigation measures.

2 SITE SURVEY AND ASSESSMENT

Desk Study

2.1 A desk study was undertaken by The Ecology Partnership (2017). Records gathered during the desk study show common pipistrelle and soprano pipistrelle (*Pipistrellus pygmaeus*) using the surrounding habitat, 380m west. A feeding roost of brown long-eared bats was recorded 50m west.

2.1 Lack of species records does not necessarily indicate that they are absent from the surrounding area and can be due to a lack of survey efforts in the area.

Survey Methods

2.2 Six activity surveys were undertaken between May and October 2020, comprising of one dusk/dawn survey activity survey and five dusk activity surveys. The surveys were undertaken within the optimal survey window for bat activity. For clarity, the optimal survey window for bat activity is April to October inclusive.

2.3 The surveys were carried out by ecologists; Laura Cobden BSc (Hons) MCIEEM, Sam Rigg BSc (Hons) ACIEEM (Natural England Bat Survey Class Licence Level 1, WML-CL17), Christopher Bridge BSc (Hons) and Daniel Blake BSc (Hons) Qualifying CIEEM.

2.4 The survey methodology followed standard techniques and designs recommended by Natural England and the Bat Conservation Trust. The transect routes are shown in Appendix A. The dates of the surveys carried out are shown in Table 1 below:

Table 1: Survey dates of bat activity and weather conditions

Date	Dusk /Dawn	No. Of surveyors	Weather
27/05/20	Dusk	1	Cloud cover 70%, Beaufort scale 0, temperature 17ºC
29/06/20	Dusk	1	Cloud cover 0%, Beaufort scale 0 to 1, temperature 23ºC
28/07/20	Dusk	1	Cloud cover 10%, Beaufort scale 0 to 1, temperature 18ºC
20/08/20	Dusk	2	Cloud cover 15%, Beaufort scale 4, temperature 18ºC
21/08/20	Dawn	2	Cloud cover 30%, Beaufort scale 3, temperature 12ºC
21/09/20	Dusk	1	Cloud cover 10%, Beaufort scale 0 to 1, temperature 16ºC
19/10/20	Dusk	1	Cloud cover 60%, Beaufort scale 3, temperature 13ºC

2.5 All surveys were conducted in optimal weather conditions (mild, dry, little wind). Dusk activity surveys started at sunset and continued for approximately two hours after sunset. Dawn activity surveys started approximately two hours prior to sunrise and finished at sunrise.

2.6 Equipment used included Wildlife Acoustics EM3 and EM3+ detectors. Recordings were analysed using Kaleidoscope software.

2.7 One static automated detector (SM2) was used on all surveys and left in-situ for at least five consecutive nights. The SM2 was placed within the scrub at the north of the site along the stream (see Figure 2 below).

Figure 2: Location of SM2 static automated detector

3 RESULTS AND EVALUATION

Dusk activity surveys

3.1 The first activity of each bat species on each survey, and the approximate time after sunset is provided in Table 2. Common pipistrelle and soprano pipistrelle were recorded during every dusk survey visit; activity was dominated by common pipistrelle. Other species identified during the activity surveys were noctule and serotine; although, recordings for these species were infrequent and were not recorded on every survey visit.

3.2 The static monitoring detector recorded similar information to that recorded by surveyors during the surveys and also recorded brown long-eared bat, considered to be commuting.

Table 2: First bat activity recorded per bat species on dusk activity surveys

27th May 2020. Sunset: 21:00		
Time recorded (time past sunset)	**Bat species**	**Activity**
21:26 (26 minutes)	Common pipistrelle	Foraging along the stream to the north
21:38 (38 minutes)	Soprano pipistrelle	Surveyor heard but not seen (HNS); considered to be commuting
22:04 (64 minutes)	Serotine	HNS; considered to be commuting

29th June 2020. Sunset: 21:19		
Time recorded (time past sunset)	**Bat species**	**Activity**
21:43 (24 minutes)	Soprano pipistrelle	HNS; considered to be commuting
21:47 (28 minutes)	Common pipistrelle	HNS; considered to be commuting

28th July 2020. Sunset: 20:52		
Time recorded (time past sunset)	**Bat species**	**Activity**
21:26 (34 minutes)	Soprano pipistrelle	Commuting north along a hedgerow through the centre of the site
21:46 (54 minutes)	Common pipistrelle	Foraging along a hedgerow to the western boundary
22:41 (109 minutes)	Noctule	HNS; considered to be commuting

20th August 2020. Sunset: 20:10		
Time recorded (time past sunset)	**Bat species**	**Activity**
20:40 (30 minutes)	Soprano pipistrelle	Foraging to the north in the far eastern corner by the stream
20:56 (46 minutes)	Common pipistrelle	Foraging to the north by the stream
21:10 (60 minutes)	Noctule	Commuting from south to north, high over the centre of the site

21st September 2020. Sunset: 18:59		
Time recorded (time past sunset)	**Bat species**	**Activity**
19:23 (24 minutes)	Soprano pipistrelle	Foraging along the stream to the north flying west
20:17 (78 minutes)	Common pipistrelle	Foraging along a hedgerow near to houses on the northern boundary
20:32 (93 minutes)	Noctule	HNS; on the southern boundary

19th October 2020. Sunset: 18:01		
Time recorded (time past sunset)	**Bat species**	**Activity**
18:42 (41 minutes)	Soprano pipistrelle	Flying along the stream from east to west

3.3 Pipistrelle bats (common and soprano) usually emerge within 15-20 minutes after sunset. They will forage in habitats around the roost before commuting to other feeding areas or other roosts such as a night roost. Pipistrelle bats typically roost under roof tiles of where there are suitable gaps, around windowsills, behind barge boards, under soffits or above doorways. They can roost in trees, usually behind loose bark. Common pipistrelles were recorded on every dusk survey, except October. Soprano pipistrelles were recorded on every dusk survey, at times that would suggest there is a nearby roost. Most records show a preference of foraging along the stream to the northern boundary and associated houses and hedgerows situated to the western edge of the marshy grassland. Records also show usage along central hedgerows and on the western hedgerow on the southern boundary.

3.4 Noctule bats usually emerge at sunset and have been known to emerge a few minutes before sunset. They will usually forage in large open habitats. Noctule bats rarely roost in buildings and typically roost in trees, often in rot holes and woodpecker holes. Noctule bats were recorded on 28th July and 21st September, 109 minutes and 93 minutes respectively, after sunset, foraging along the southern boundary. The two recordings were audible by the surveyor, only; however, it was considered to be commuting activity. A single record (20th August), visually showed a commuting noctule flying north from the south, through the centre of the site at a time that does not imply there is a roost nearby. Noctule bats have been recorded to fly far distances from roosts to feeding areas.

3.5 Serotine bats typically emerge 20 minutes after sunset. They will forage in woodlands, open habitats, rivers and lakes and commute on average 6.5km from feeding areas per night. Serotine bats will often be found roosting in older

buildings and churches and usually access the roost near the gable apex or the lower eaves. Within buildings, serotines will roost hidden in crevices, around chimneys, in cavity walls, between felt and tiles or slates, and sometimes within the open roof space. A serotine (27th May) was heard but not seen by the surveyor; considered to be commuting along the northern boundary, the stream and marshy grassland at 64 minutes past sunset, at a time that does not imply that there is a roost nearby. Serotine have been recorded to fly long distances from roosts to feeding areas.

Dawn activity surveys

3.6 No bats were recorded on the dawn activity survey (21st August 2020).

Foraging / commuting bats

3.7 The number of bat passes per species was recorded during transects on the bat activity surveys. A bat pass is a series of bat calls emitted as a bat flies by a detector, the number of bat passes can give an indication of the amount of bat activity on the site, but not an indication of the number of bats present. Overall, there was a low number of bats using the site.

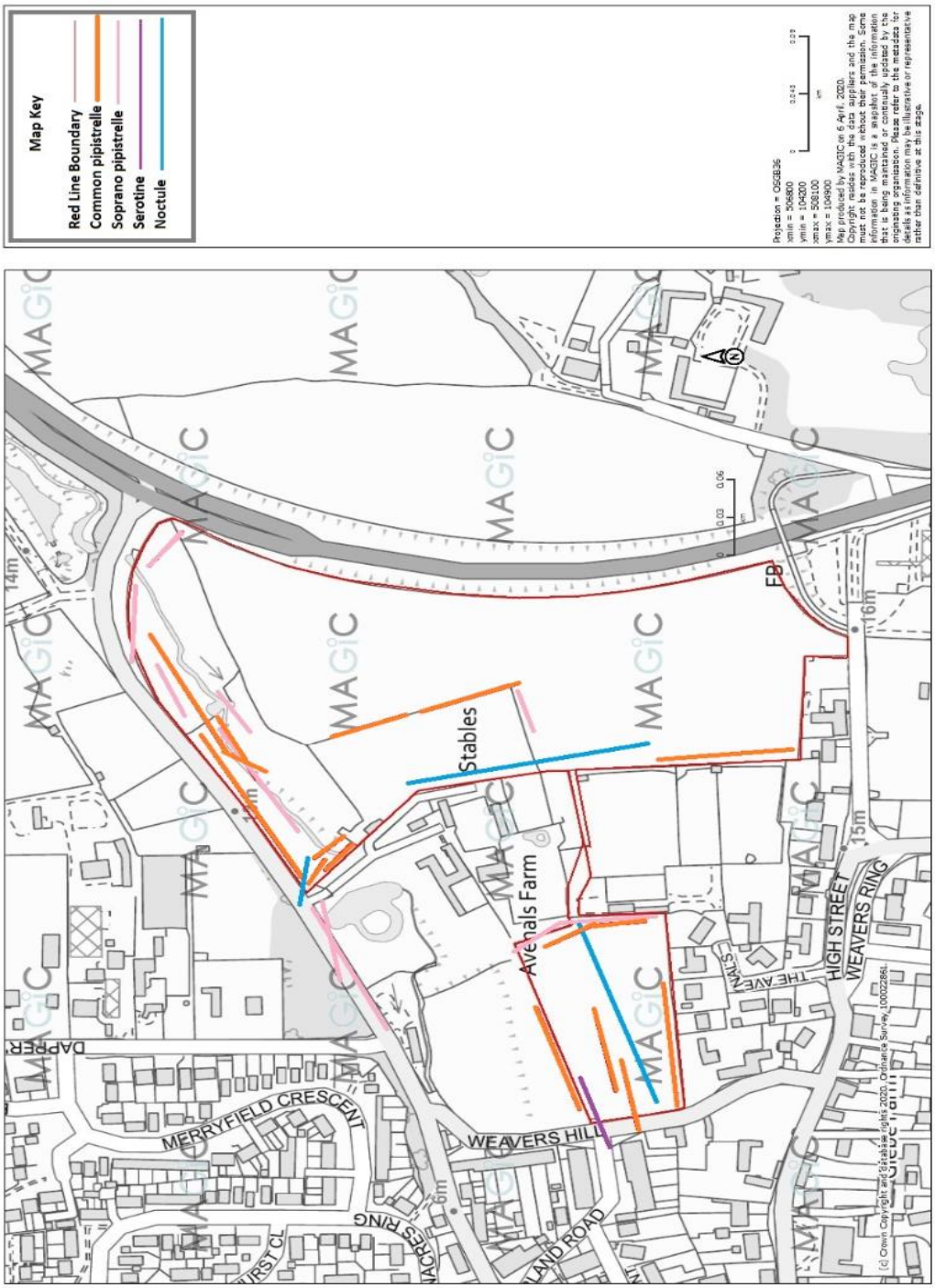
3.8 The most active species recorded using the site was common pipistrelle, followed by soprano pipistrelle. Pipistrelle species were recorded foraging and commuting in all months (May to October); however, no records of common pipistrelle during October (only soprano). Behaviour was most noticeable on the northern boundary along the stream and marshy grassland and along hedgerows through the central belt and western side of the site.

3.9 Noctule were only recorded commuting on two survey visits, three records in total. These were through the central belt of the site, heading north from the south and over to the stream and marshy grassland, and again, through the centre of the grassland field to the west.

3.10 A single record of serotine considered commuting over the northern boundary of the western field was recorded during the May survey.

3.11 A map showing the locations where bats were recorded foraging or commuting are shown in Figure 3.

Figure 3: Location of foraging and commuting bats



4 IMPACT ASSESSMENT

4.1 Based on the plans for the creation of new dwellings with associated infrastructure and access roads on the proposed development site and the results of the bat surveys the following assessment has been made of the likely impacts of the proposed development on bats in the absence of appropriate mitigation.

Foraging and Commuting Bats

4.2 The proposed works could **without** appropriate mitigation cause the following impacts:

- Long term fragmentation of commuting routes such as hedgerows known to be used by bats
- Long term increase in external lighting and noise levels around the site following the change to residential use
- Disturbance to foraging and commuting bats if the development was undertaken at a time of year when bats were active (April to September inclusive).
- Increase in risk of mortality from cat predation.

4.3 Overall, bat activity recorded on site was low, those that were recorded were observed using northern, western and central boundaries. It was considered that in the absence of appropriate mitigation, the impacts of lighting from new access roads could have a negative impact on commuting and foraging bats.

4.4 Within current proposals (Appendix B), most boundary vegetation is to be retained. The proposed new access road to the northern boundary will impact the hedgerow; however, the northern hedgerow is currently gappy and immediately adjacent to the main road and therefore it is not considered to have a significant impact.

4.5 The current proposals show that the central hedgerow is going to be removed. However, the areas of new tree planting and areas of open space created, will retain connectivity through the centre and at the boundaries. The new attenuation basins will also provide additional foraging opportunities. The

existing trees and hedgerows at the boundaries will be retained and several areas enhanced by native planting and management.

5 RECOMMENDATIONS

5.1 The following recommendations are made to comply with current legislation, planning policy and best practice as recognised by the various statutory authorities.

Restrictions in external lighting

5.2 External lighting would have a negative impact upon foraging and roosting bats. The use of lights near a known bat roost, or an area known to be used by bats that results in disturbance to bats and their normal patterns of behaviour, is likely to be unlawful. Therefore, the implementation of a lighting minimization scheme is recommended, particularly at the site boundaries and the central open space area. This will enable the bats to use the hedgerows for commuting and foraging routes and roost in the trees undisturbed.

5.3 To minimise the risk of disturbance to foraging and commuting, and potentially roosting bats on the site post-development, the following lighting minimisation precautions are recommended for the development:

- No works on site should be conducted after sunset and if security lighting is required then this should be kept to the minimal level (as necessary for safety and security).
- Post-development lighting should be directed away from boundary trees and hedgerows that are to be retained, particularly those to the north and west of the site.
- Any external lighting which is required for access (particularly where these occur along hedgerows) should be positioned low down (no higher than 1m from the ground) and the lights should be covered with a hood.
- Installation of lighting columns at the lowest practical height level with box shield fittings will minimise glare and light spillage.

- Lux level of lamps should be as low as possible with covers made from glass rather than plastic as this minimises the amount of UV light, reducing the attraction effects of lights on insects.
- Security lights should be set on short timers and be sensitive to large moving objects only.

5.4 Please refer to the publication, *Bats and Lighting in the UK* for more information.

Avoidance and compensation measures for the loss of and fragmentation of commuting routes

5.5 Current development proposals show that new gaps would be created in hedgerows that are to be used for the proposed access road(s), particularly on the northern boundary. Where hedgerows are being removed for access routes, vegetation either side should be encouraged to grow so that it connects and forms a 'bridge' over the access route. This would be at a height to allow large vehicles to pass underneath. This would help avoid fragmentation to commuting bats.

5.6 It is recommended that all boundary hedgerows that are to be retained, should be enhanced and sections plug-planted up with native species. These should be planted in the autumn or in the spring. Alternatively, new planting of hedgerows using native species should be incorporated into the proposed development.

5.7 It is recommended that more hedgerows and trees, where possible are incorporated into the proposed development to compensate for the loss of the current hedgerow to the northern boundary of the site.

5.8 The installation of sixteen 2F Schwegler bat boxes (or similar) will provide additional roosting opportunities throughout the site. These should be installed on suitable retained trees and/or proposed new builds. Boxes should be south east to south west facing and be installed at least 4-5m high. The final location of bat boxes should be agreed with an ecological at the time of construction.

6 CONCLUSIONS

6.1 Overall bat activity recorded on site was low; a number of bat species were recorded using boundary vegetation and hedgerows as commuting routes and for foraging. Bat species recorded on site included; common and soprano pipistrelle, noctule and serotine.

6.2 Although activity was low, adequate mitigation and compensation will be required to reduce the impacts of bat commuting routes becoming fragmented, including implementation of a lighting minimisation scheme. A sensitive lighting scheme would ensure that bats are not affected by an increase in external lighting from new houses and roads.

6.3 Appropriate compensation measures include creating new hedgerows where possible and the planting up of existing gaps with native species, such as oak, hornbeam, blackthorn and hawthorn.

6.4 The installation of sixteen 2F Schwegler bat boxes will provide additional roosting opportunities throughout the site.

6.5 If works do not commence within 12 months of the date of these surveys, updated surveys will be required to identify any changes which may have occurred in the interim.

7 REFERENCES

Bat Surveys for Professional Ecologists: Good Practice Guidelines, 3rd edition (2016). Bat Conservation Trust, London.

Bat Mitigation Guidelines, English Nature, 2004.

Bats and Lighting in the UK: Bats and the Built Environment Series, BCT.

The Ecology Partnership, (2017) Ecological Appraisal of Land at Water Lane, Angmering.

National Planning Policy Framework (2019) ISBN: 9781409834137.

Web references

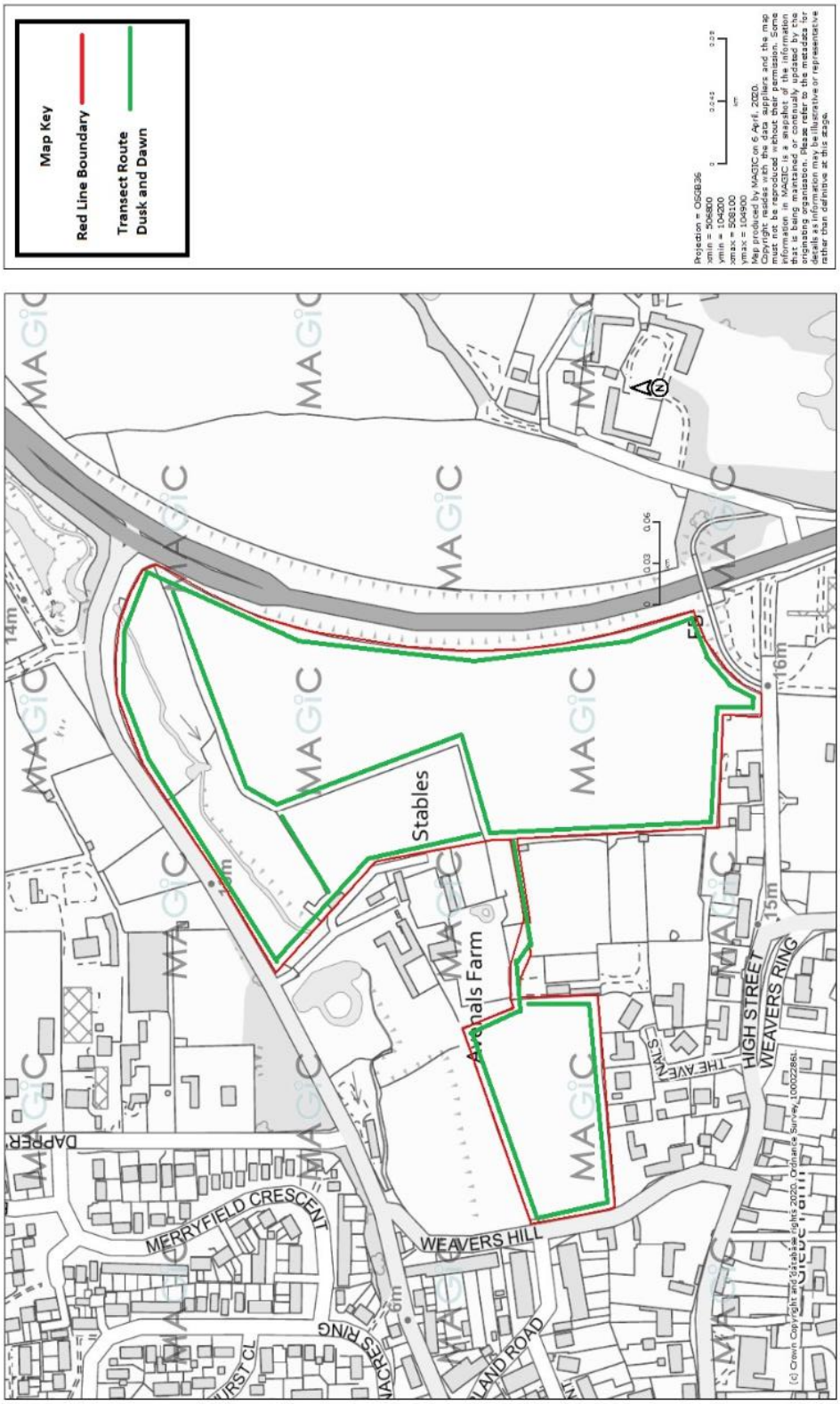
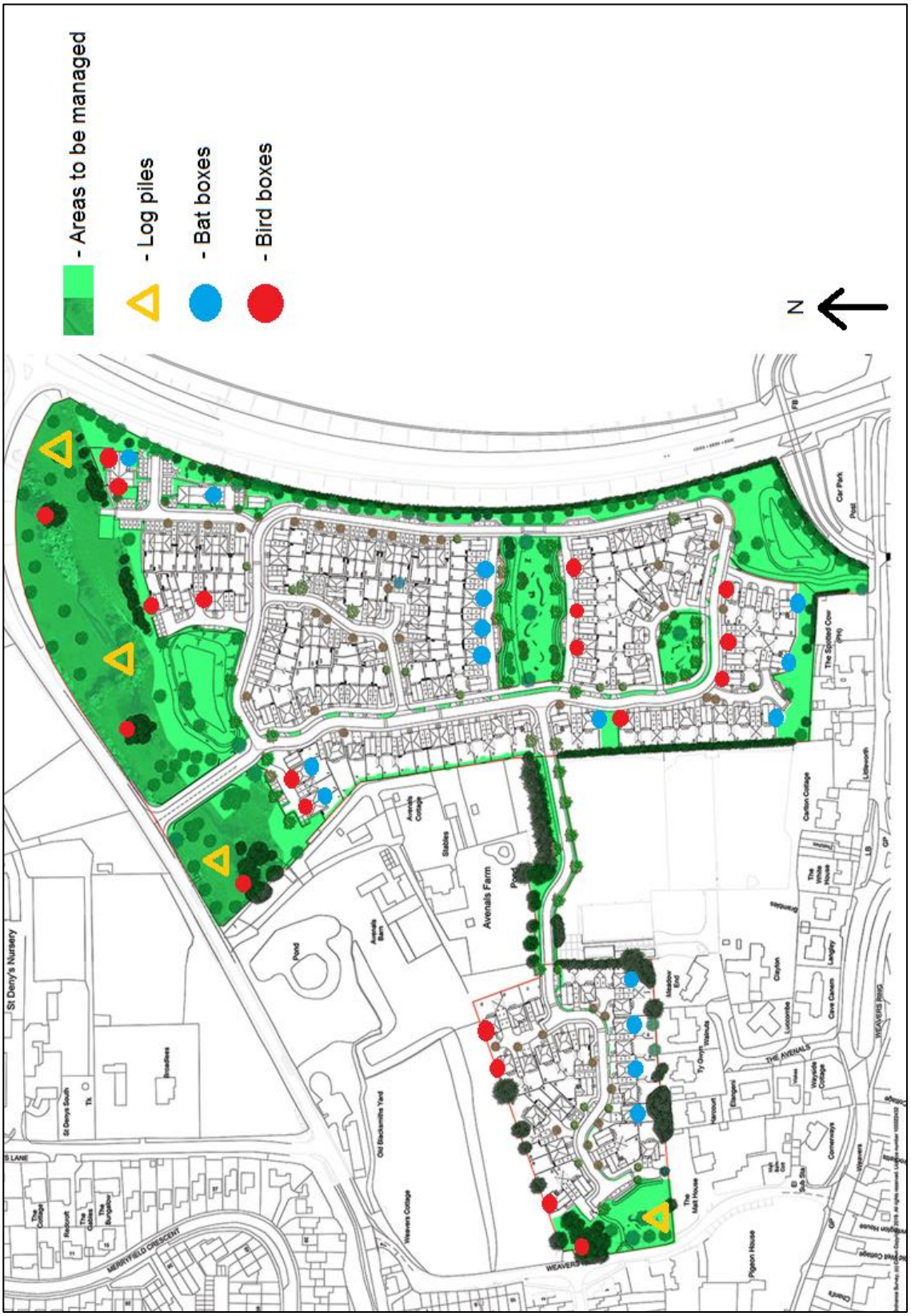
Natural England online guidance: “Bats: surveys and mitigation for development projects.

UK BAP www.ukbap.org.uk

NHBS www.nhbs.com

8 APPENDICES

Appendix A: Transect routes followed on dusk and dawn activity surveys



Appendix B: Proposed site plan (including bat box mitigation, JBA 2020)