



Sinah Lane, Hayling Island

Bat Survey Report



Barratt Homes

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1st Floor, The Pavilion, Botleigh Office Campus, Hedge End, Southampton, SO30 2AF

Tel: 02382 022800

Email: ecology@wyg.com



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Prepared by:		Dominika Muriénova GradCIEEM Assistant Ecologist
Checked By:		Max Ward GradCIEEM Consultant Ecologist
Verified By:		David West MCIEEM Associate Ecologist

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Executive Summary

Contents	Summary
Site Location	The site is located within the south west of Hayling Island, centred on OS Grid Reference SZ 70816 99897. Two residential streets separate the site from the coastline to the west. To the south further residential dwellings, whilst arable fields sit to the north and east.
Proposals	The erection of 195 dwellings, associated open space, pumping station, sub-station with vehicular access via Sinah Lane and change of use of land from agricultural to a Wader and Brent Geese Refuge.
Existing Site Information	The extended Phase 1 habitat survey completed by WYG in June 2016 identified site as having low suitability for foraging and commuting bats, and five of the trees as having moderate suitability to support roosting bats.
Scope of this Survey(s)	The aims of the survey work and the subsequent report presented herein were to: • Identify the bat species present on site; • Estimate the value of the site for commuting and foraging bats; • Summarise the findings of bat activity and dusk emergence/ pre-return surveys across the site; • Suggest mitigation, enhancement and avoidance measures where appropriate.
Results	Two of the activity surveys recorded low bat activity on the site and the survey in April recorded a moderate level of bat activity. Four different bat species were recorded during that survey and included common pipistrelle, soprano pipistrelle, a <i>Myotis</i> species, and serotine. No bats were confirmed to be roosting within any of the trees at proposed development site.
Recommendations	The results of the bat surveys will remain valid for two years. If works have not commenced within this time, it is recommended that a review of the findings and site conditions is completed to determine whether updated surveys are required. To enhance the site for roosting, foraging and commuting bats on site the following measures are proposed to be incorporated within the master plan and proposals: • Lighting across the development designed to reduce impacts on bat foraging and commuting habitat; • Avoidance of breathable roof membranes; • Enhancement of connectivity between open space areas through hedgerow planting; and • Incorporation of grassland areas and planting of native species of value to foraging and commuting bats into landscape plan.



Glossary

CIEEM	Chartered Institute of Ecology & Environmental Management
CRoW Act	Countryside and Rights of Way Act 2000
EcIA	Ecological Impact Assessment
ECOW	Ecological Clerk of Works
EPSL	European Protected Species Licence
GradCIEEM	Graduate Member of Chartered Institute of Ecology & Environmental Management
Habitat Regulations	Conservation of Habitats and Species Regulations 2017 (as amended)
HAP	Habitat Action Plan
Hedgerow Regulations	Hedgerow Regulations 1997
HPI	Habitat(s) of Principal Importance
JNCC	Join Nature Conservancy Council
LERC	Local Ecological Record Centre
LBAP	Local Biodiversity Action Plan
LPA	Local Planning Authority
LNR	Local Nature Reserve
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SINC	Sites of Importance for Nature Conservation
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981



1.0 Introduction

1.1 Background

WYG was commissioned by Barratt Homes in October 2016 to undertake a seasonal bat activity surveys alongside dusk emergence and pre-dawn return surveys of a tree on the site known as Sinah Lane, Hayling Island.

This report was prepared by WYG assistant ecologist Dominika Muriénova GradCIEEM.

1.2 Site Location

The site is located within the south west of Hayling Island, centred on OS Grid Reference SZ 70816 99897. The site is located close to the coast with two residential streets separating the site from the shore to the west. South of the site are further residential dwellings, whilst arable fields sit to the north and east. A plan showing the site location can be found in Figure 1.

1.3 Development Proposals

The erection of 195 dwellings, associated open space, pumping station, sub-station with vehicular access via Sinah Lane and change of use of land from agricultural to a Wader and Brent Geese Refuge.

1.4 Purpose of the Report

The objective of this report is to complete:

- Seasonal activity surveys to record the bat species present and their activity at the site;
- Dusk emergence surveys to investigate whether a tree identified as holding moderate bat roosting potential supports bats; and
- An assessment of the potential ecological constraints to the proposed works at the site and recommendations for avoidance, mitigation and enhancement where appropriate.

Note that scientific names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

WYG completed an Ecological Appraisal on 17th June 2016 by WYG assistant ecologist Sarah Cruickshank Grad CIEEM. This survey identified habitat suitable for bats to forage and commute along the tussocky semi-improved grassland field margins along the edges of the site. In addition a number of trees were assessed as having potential to support roosting bats.

2.1.2 Local Ecological Records Centre

Information was requested from the Hampshire LERC for information on any nature conservation designations and protected or notable species records within 2 km of the site.

The data search covers:

- Statutory designated sites for nature conservation, namely SACs, SPAs, Ramsar sites, SSSIs, NNRs and LNRs;
- Non-statutory designated sites for nature conservation, namely SINC;
- Legally protected species, such as great crested newts, bats and badger;
- Notable habitats and species, such as those listed as Habitats or Species of Principal Importance; and,
- Priority habitats or species within the Hampshire LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

2.1.3 Online Resources

A search for relevant information was also made on the following websites:

- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations and information on any EPSL applications that have been granted in the local area since 2015.

Note that the use of some NBN Atlas data is limited (e.g. commercial use of data provided under a CC BY-NC licence is not possible) therefore we may not be able to report full details of those records in such cases.

2.2 Field Surveys

The site was assessed as having *low potential* for both foraging and commuting bats and based on the grassland habitats present. A total of 13 trees were assessed as having potential to support roosting bats (5 moderate potential and 8 low potential).



2.3 Limitations

The details of this report will remain valid for a period of **two years** from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

3.0 Baseline Conditions

3.1 Local Records Centre

3.1.1 Local Records Centre

The data provided by HBIC included 4 records of reptiles within 2km of the site comprising adder *Vipera berus* and slow worm *Anguis fragilis*. The nearest record relates to an adder located approximately 0.81km to the south of the site within Beachlands Golf Course. The record is separated from the site by the urban area of West Town and South Hayling.

The nearest record of slow worm was recorded 1.7km to the east of the site at the eastern extent of South Hayling. As with the adder record is separated from the site by the urban area situated along the southern coastline of Hayling Island.

None of the statutory or non-statutory sites within 2km of the site have been designated as they support a population of reptiles.

3.1.2 Online Resources

The search of the MAGIC website identified no EPSL granted for reptiles within 2km of the site.

3.2 Field Survey

3.2.1 Weather Conditions

Tables 1 and 2 show the survey dates, times and weather conditions during each of the surveys. Weather conditions during activity transect and emergence surveys were recorded by Elekon Batlogger and noted down at the beginning and at the end of the surveys. Weather conditions during automated bat surveys were taken from www.wunderground.com and represent temperatures from Southampton, the closest location for which historical data are available.

Table 1 Weather conditions during nocturnal activity bat surveys

Survey	Date	Dusk / Dawn Times	Survey Time(s)	Weather at the start/end of survey	
Transect Activity Surveys	24/10/2016	17:53	17:53 – 20:23	St: 14°C; 100% cloud cover; very light breeze; very light precipitation E: 12.5°C; 100% cloud cover; very light breeze; very light precipitation	
	18/04/2017	20:03	19:48 – 22:18	St: 12°C; 40% cloud cover; nil wind; nil precipitation E: 9°C; <10% cloud cover; very light breeze; nil precipitation	
	13/06/2017	21:18	21:03 – 23:33	St: 16.5°C; 20% cloud cover; nil wind; nil precipitation E: 14°C; <10% cloud cover; nil wind; nil precipitation	
Emergence / Re-entry of Trees	13/06/2017	21:18	20:48 – 22:48	Trees 10 - 13	St: 19°C; 0% cloud cover; nil wind; nil precipitation E: 15°C; 0% cloud cover; nil breeze; nil precipitation



Survey	Date	Dusk / Dawn Times	Survey Time(s)	Weather at the start/end of survey	
				Tree 1	St: 19°C; 10% cloud cover; very light breeze; nil precipitation E: 13°C; 0% cloud cover; nil wind; nil precipitation
	18/07/2017	05:11	03:45 – 05:25	Trees 10 - 13	St: 19°C; 50% cloud cover; very light breeze; nil precipitation E: 18°C; 50% cloud cover; nil breeze; nil precipitation
				Tree 1	St: 17°C; 90% cloud cover; very light breeze; nil precipitation E: 17°C; 35% cloud cover; light wind; nil precipitation

Table 2 Weather conditions during automated bat surveys

Season (Month)	Date	Weather
Autumn (October 2016)	24/10/2016	10°C; wind speed 5km/h; Mostly Cloudy
	25/10/2016	12°C; wind speed 2km/h; Scattered Clouds
	26/10/2016	12°C; wind speed 5km/h; Scattered Clouds
	27/10/2016	10°C; wind speed 6km/h; Mostly Cloudy
	28/10/2016	12°C; wind speed 9km/h; Mostly Cloudy
Spring (April 2017)	18/04/2017	6°C; wind speed 10km/h; Partly Cloudy
	19/04/2017	7°C; wind speed 6km/h; Partly Cloudy
	20/04/2017	8°C; wind speed 4km/h; Scattered Clouds
	21/04/2017	12°C; wind speed 3km/h; Scattered Clouds
	22/04/2017	10°C; wind speed 8km/h; Partly Cloudy
	23/04/2017	8°C; wind speed 4km/h; Partly Cloudy
	24/04/2017	8°C; wind speed 8km/h; Scattered Clouds
Summer (August 2017)	01/08/2017	14°C; wind speed 11km/h; Scattered Clouds
	02/08/2017	16°C; wind speed 17km/h; Light Rain
	03/08/2017	17°C; wind speed 24km/h; Scattered Clouds
	04/08/2017	16°C; wind speed 12km/h; Scattered Clouds
	05/08/2017	16°C; wind speed 8km/h; Scattered Clouds
	06/08/2017	14°C; wind speed 9km/h; Scattered Clouds
	07/08/2017	16°C; wind speed 9km/h; Mostly Cloudy
	08/08/2017	13°C; wind speed 6km/h; Scattered Clouds
	09/08/2017	14°C; wind speed 14km/h; Partly Cloudy
	10/08/2017	14°C; wind speed 14km/h; Partly Cloudy

The bat surveys were carried out in October 2016, April and June 2017. These timings are within the optimal period for these surveys. All the surveys were carried out during periods of suitable weather conditions (i.e. not during heavy rain, low temperatures or strong winds) as recommended within BCT Guidelines (2012).



3.2.2 Survey Results – Activity Surveys

24th October 2016

A low level of bat activity was recorded during this activity transect. All the activity recorded was between 18:20 – 18:46 and included commuting along the hedgerow and treeline on west and northern boundary (Figure 3). All this activity (24 bat passes) was produced by common pipistrelle *Pipistrellus pipistrellus*, and only other species observed was soprano pipistrelle *Pipistrellus pygmaeus* (2 bat passes at 18:40 and 18:46). After this peak activity period, only two bat passes by common pipistrelle were recorded at 19:30 and 19:49 along the southern boundary.

18th April 2017

A medium level of bat activity was recorded during this survey, albeit with three species recorded: common pipistrelle, soprano pipistrelle and serotine bat *Eptesicus serotinus*. The first registration of bat activity was recorded at 20:34 when soprano pipistrelle was observed commuting along residential gardens on south-western boundary (Figure 4). More common pipistrelle passes and soprano pipistrelle passes were observed commuting and foraging along residential gardens at north-western boundary between 20:41 – 20:55 and 20:59-21:02. Another soprano pipistrelle pass was recorded at 21:09 next to telegraph post at eastern boundary, but this pass was not seen. One soprano pipistrelle was also observed commuting across the field at 21:12. Multiple passes by foraging serotine bats were recorded along hedgerow at eastern boundary at 21:27, 21:31 and 21:36, these bats were not seen. Small number of passes by common and soprano pipistrelles were also recorded along this boundary between 21:30 – 21:44, and again, were not seen. One soprano pipistrelle pass was recorded commuting along the road at southern boundary at 21:57 but it was not seen. The last passes recorded along southern boundary included commuting soprano and common pipistrelle at 22:04-06 and 22:10 respectively, and were only heard. All together 51 bat calls were recorded during this survey, most of these (25 recorded passes) were of soprano pipistrelle, while 16 were of common pipistrelle and 10 of serotine bat.

13th June 2017

A low level of bat activity was recorded during this activity transect. First activity was recorded by 21:44 when soprano pipistrelle was recorded foraging at north eastern boundary (Figure 5). Another soprano pipistrelles were recorded foraging at 22:05 and 22:09 on western boundary along residential gardens. One pipistrelle species was observed foraging in a residential garden in the same location at 22:06. More common pipistrelles were recorded foraging at this point at 22:12 and 22:16. Common pipistrelle was also recorded foraging at south-eastern border at 22:23. In south-western corner of the field, serotine bat was recorded at 22:26 and foraging common pipistrelle at 22:30. Another serotine bat pass was recorded along southern boundary at 22:41. Activity observed along the road at southern edge included a serotine bat pass at 22:57, foraging common pipistrelle at 23:06 and 23:12, and foraging soprano pipistrelle around a street lamp at 23:08-23:11. Last bat activity observed along the hedgerow at eastern boundary included foraging serotine at 23:19 and foraging common pipistrelle at 23:26. All together 29 bat passes were recorded, of which 16 were of common pipistrelle, 9 of serotine bat and 4 passes of soprano pipistrelle.

3.2.3 Survey Results – Automated Activity Surveys

The automated bat detector at Sinah Lane site recorded up to four bat species between October 2016 and August 2017. Passes recorded were strongly dominated by soprano pipistrelle, and other species included common pipistrelle, serotine bat and *Myotis* species.

Table 3 provides details of bat calls recorded during automated surveys.

Table 3 Automated Bat Detector Survey Results

Month	Date	Species	No. of passes
October	24/10/2016	No bats recorded	
	25/10/2016	No bats recorded	
	26/10/2016	No bats recorded	
	27/10/2016	No bats recorded	
	28/10/2016	No bats recorded	
April	18/04/2017	Soprano pipistrelle	4
	19/04/2017	Serotine	1
		Common pipistrelle	1
		Soprano pipistrelle	3
	20/04/2017	Serotine	1
		Common pipistrelle	2
		Soprano pipistrelle	14
	21/04/2017	Serotine	2
		Common pipistrelle	12
		Soprano pipistrelle	43
	22/04/2017	Serotine	2
		Common pipistrelle	8
		Soprano pipistrelle	54
	23/04/2017	Serotine	3
		Common pipistrelle	6
		Soprano pipistrelle	23
	24/04/2017	No bats recorded	
August	01/08/2017	<i>Myotis</i> species	2
		Soprano pipistrelle	68
		Common pipistrelle	108
	02/08/2017	Serotine	1
		Common pipistrelle	1
		Soprano pipistrelle	11
	03/08/2017	Common pipistrelle	15
		Soprano pipistrelle	24
	04/08/2017	Common pipistrelle	116
		Soprano pipistrelle	104
	05/08/2017	<i>Myotis</i> species	2
		Common pipistrelle	25
		Soprano pipistrelle	41
	06/08/2017	Serotine	1
		Common pipistrelle	76
		Soprano pipistrelle	35
	07/08/2017	Serotine	1
		Common pipistrelle	178
		Soprano pipistrelle	113
	08/08/2017	Common pipistrelle	28
		Soprano pipistrelle	38



Month	Date	Species	No. of passes
	09/08/2017	Soprano pipistrelle	2
	10/08/2017	Common pipistrelle	65
		Soprano pipistrelle	150

3.2.4 Survey Results – Dusk Emergence/ Pre-dawn Return Surveys

Trees 10,11,12 & 13

These trees were grouped closely together and therefore collectively surveyed by one surveyor on 13th June and 18th July 2017. Single surveyor was positioned in the field and focused on the trees in the hedgerow on eastern boundary (Figure 6 and 7).

Dusk Emergence - 13th June 2017

During the dusk survey on 13th June 75 common pipistrelle passes, fifteen soprano pipistrelle passes and two serotine passes were recorded. Most of the recorded activity included foraging and was only heard but not seen. Only three bat passes were observed and these represented commuting by common pipistrelle at 21:39, foraging by common pipistrelle at 22:25 and foraging by serotine at 22:41, all along the hedgerow to the north of observed trees. **No bats were recorded emerging from Trees 10-13 during the dusk survey.**

Pre-dawn Return – 18th July 2017

During the dawn survey on 18th July 116 common pipistrelle passes, twenty-two soprano pipistrelle passes and one serotine pass were recorded. Detected activity represents continuous foraging by two pipistrelle species in the first hour of the survey. Bats were observed flying along the hedgerow northwards, and above the field too. **No bats were recorded emerging from Trees 10-13 during the dawn survey.**

Tree 1

This solitary tree positioned on the edge of residential gardens on western boundary was surveyed on 13th June and 18th July by single surveyor from the field (Figure 6 and 7).

Dusk Emergence - 13th June 2017

During the dusk survey on 13th June eleven soprano pipistrelle passes, seven common pipistrelle passes and two serotine passes were recorded. About half of the activity was only heard but not seen. Observed activity included two soprano pipistrelles commuting from and to gardens at 21:37 and 21:41, and two pipistrelle species (one of which soprano) foraging in the residential garden next to the tree at 21:52 and 21:58. Last observed activity was by soprano pipistrelle foraging above the field at 22:09. **No bats were recorded emerging from Tree 1 during the dusk survey.**

Pre-dawn Return – 18th July 2017

During the dawn survey on 18th July low level of activity was observed around the Tree 1; seven soprano pipistrelle passes and four common pipistrelle passes were recorded. None the activity was observed, it was only heard. Activity included commuting exclusively and took place in the first hour of the survey. **No bats were recorded emerging from Tree 1 during the dawn survey.**



4.0 Relevant Planning Policy & Legislation

4.1 National Planning Policy Framework

The NPPF was adopted in March 2012. Section 11 of the NPPF, *Conserving and Enhancing the Natural Environment* replaces *Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation*. However, government Circular 06/2005, *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*, which relates to PPS9 remains valid and is referenced within Paragraph 113 of the NPPF.

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 117 of the NPPF also states that '*planning policies should...promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets*'.

Furthermore, central and local government policy now points towards ecological enhancement on development sites. The NPPF considers enhancement further in the paragraph 109, stating:

'The planning system should contribute to and enhance the natural and local environment by...:

- *recognising the wider benefits of ecosystem services*
- *minimising impacts on biodiversity and **providing net gains in biodiversity where possible**, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures'*

4.2 Biodiversity 2020: A strategy for England's wildlife & ecosystem services

Biodiversity 2020 replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act (see Appendix B for further details).

4.3 Local Plan

The Havant Borough Local Plan (Core Strategy) includes Policy CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough.

- Planning permission will be granted for development that:
- Has particular regard to the following hierarchy of nature conservation designations within the borough (i) Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar (ii) Sites of Special Scientific Interest (SSSI) and National Nature Reserves. (iii) Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR) and other Ancient Woodland.



- Protects and where appropriate enhances the borough's statutory and non-statutory heritage designations by appropriately managing development in or adjacent to conservation areas, listed buildings, scheduled ancient monuments, historic parks and gardens, archaeological sites, buildings of local historic or architectural interest.
- Protects wildlife habitats and wildlife corridors to prevent the fragmentation of existing habitats and to allow species, for example Brent Geese, to respond to the impacts of climate change by making provision for habitat adaptation e.g. coastal managed realignment and species migration.

4.4 Legislation

All 18 British bat species are listed in Schedule 5 of the *Wildlife and Countryside Act 1981* (as amended) and under Schedule 2 of the *Conservation of Habitats and Species Regulations 2010* (as amended) as European Protected Species. Furthermore, the *Countryside and Rights of Way Act 2000* (Schedule 12, Paragraph 5) has amended Section 9 of the 1981 Act. They are, therefore, fully protected under Section 9 of the 1981 Act and under Regulation 41 of the *Conservation of Habitats and Species Regulations 2010* (as amended) which transposes the Habitats Directive into UK law.

This makes it an offence to:

- Deliberately capture, injure or kill any bat;
- Deliberately disturb bats, in particular where it is likely to:
 - Impair their ability to breed or reproduce, or to rear or nurture their young;
 - Impair their ability to hibernate or migrate; or
 - Affect significantly the local distribution or abundance of bats.
- Intentionally or recklessly damage, destroy or obstruct the access to the place of shelter or protection; and
- Damage or destroy a bat's breeding site or resting place.

Unmitigated removal of linear corridors such as sections of hedgerows and increases in habitat disturbance (through lighting, noise and vibration impacts) during construction and operational phases of a proposed development could indirectly impact bats that use the site to forage and commute. For example, lighting impacts could potentially sever a commuting route between a nursery roost and foraging ground such that it impairs bat's ability to rear young.

Furthermore, direct impacts to bats may occur through road traffic mortalities in the operational phase of a proposed development.

Such indirect and direct impacts could result in an offence being committed.



5.0 Ecological Constraints, Impacts and Recommendations

5.1 Summary of Findings

5.1.1 Bat Activity Surveys

During bat activity transects and automated static surveys, up to four bat species were recorded within or adjacent to the site. These included common pipistrelle, soprano pipistrelle, *Myotis* species (likely Brant's or whiskered bat) and serotine. Soprano pipistrelle was the most frequently recorded species by the automatic bat detector and common pipistrelle was the most frequently species encountered during transects.

Areas of the site where the most activity was recorded included the eastern boundary adjacent to the off-site woodland (Figure 3-5). A few bat passes were recorded on the western edge of the site by residential gardens. These findings were reinforced by the activity recorded during the dusk emergence surveys of Trees. Activity included mixture of commuting and foraging. Importantly, it was observed that hedgerow along the path at eastern boundary was used by bats as commuting feature and also foraging habitat (Figure 3-5).

There was a mixture of foraging and commuting activity on this site throughout the manual surveys. The majority of bats recorded were common and soprano pipistrelles, with few passes of serotine bat. According to Table 1 these bats are considered 'rarer'. Based on the assessment in Table 3, the commuting bat score on site is 20 (rarer species, small number, no roosts, well connected hedgerow). Therefore the commuting bat value on site is considered to be of up to **District, local or parish level**. Based on the assessment in Table 4, the foraging bat score on site is 19 (rarer species, small number, no roosts, isolated woodland). Therefore the foraging bat value at this site is considered to be of up to **District, local or parish level**.

5.1.2 Dusk Emergence/ Pre-dawn Return Surveys

Four bat species were recorded within the vicinity of the surveyed trees, these included common pipistrelle, soprano pipistrelle, serotine and *Myotis* species. Pipistrelle species were the most commonly recorded, while only few passes by serotine and *Myotis* species were recorded at Trees 10-13. No bats were recorded emerging from the trees.

Surveys were carried out during optimal conditions for carrying out bat surveys, with temperatures falling to 9°C overnight in autumn. No roosts were identified during the course of the emergence surveys of Trees, or during bat activity surveys.

5.1.3 Effects on Roosts

The bat activity surveys nor the emergence surveys did not confirm the presence of any bat roosts. It is therefore considered that no bat roosts will be impacted by the proposed development.

The site has been assessed as having value at the district, local or parish level for foraging and commuting bats. The development proposal includes the construction of residential properties with associated access, landscaping, car parking, communal green area and allotments. The proposed development will retain valuable boundary features for commuting bats, in particular the mature eastern and western boundary. The development proposes to include trees in the residential gardens and communal green area which may improve the foraging opportunities for bats.



There is also the potential for bats that continue to forage and commute within areas of retained habitat to be impacted by lighting during the construction and operational phases of the development. Some common bats, such as those of the *Pipistrellus* genus, are attracted to certain types of lighting as it attracts their invertebrate prey (Rydell and Racey, 1995). However lighting can also illuminate the bats themselves and make them more vulnerable to being predation. Where inappropriate lighting occurs close to roost sites, bats may abandon their roost or delay their emergence, which limits their foraging opportunities. Lighting a commuting or foraging route may also impact upon the integrity of a roost, even if the roost itself is not directly affected. Bats from the *Myotis* genus are more sensitive to ambient lighting and may be deterred from using areas of the site, if the lighting is not sensitively designed.

Mitigation recommendations to offset the potential development and operational impacts are provided in the following section.

5.2 Recommendations

Given that bats have been recorded on the development site, mitigation is recommended to be implemented at the site to prevent breaching the W&CA. The proposals for the site have been informed by ecology and ecological input.

5.2.1 Construction Works

If the proposed development does not proceed within the next two years (i.e. August 2019) it is recommended that a review of the site conditions is undertaken to determine whether updated surveys are necessary. This will help to establish if bat activity has changed in the interim period and to inform future mitigation measures, if necessary.

No bats were recorded roosting within the Sinah Lane site therefore it is considered unlikely that these trees support roosting bats. Should works not commence by August 2018 it is recommended that a review of the findings is undertaken. This development proposes to retain the boundary features including surveyed trees; in the case of a change to proposed development, following needs to be considered: In the unlikely event that a bat is encountered during the demolition of the trees, it is recommended that all works cease and a suitably qualified and licensed bat ecologist is contacted for advice.

5.2.2 Lighting

This has found that artificial lighting tends to have an adverse effect on bats and recommends a series of measures to avoid or reduce this impact. It is recommended that lighting on the development site comprise LED lamps, with a low colour correlated temperature – preferably below 3500K (warm white). Lighting should be directed groundward to avoid light spillage, with hoods/shields as necessary. Light spill on boundary features to be used by commuting bats should be a maximum of 1lux. It is recommended that the allotments and informal open space are unlit as these areas are likely to be highly used by foraging bats. Stone (2013) summarises the findings of the Bats and Lighting Research Project to date.

During the construction phase (between April and October), it is recommended that construction activity ceases 30 minutes before sunset, to avoid delaying the emergence of locally roosting bats because of artificial lighting. It is also recommended that construction activity commences again after sunrise to ensure that impacts to bats returning to local roosts does not occur.



5.2.3 Breathable Membranes

In new buildings, best practice should be considered and the use of Breathable Roof Membranes (BRM) avoided. Instead, Type 1F bitumen and hessian under-felt should be considered as an alternative. Ongoing research has confirmed that no BRM are bat-friendly and all pose a risk to bats. As the membranes wear over time the fibres in the membrane become loose. Bats become entangled in the fibres and, unable to escape, dehydrate, and starve to death. As well as posing a risk to bats, BRMs are also degraded by bats and the efficiency of the membrane is impaired (i.e. the use of BRMs in situations where bats are present is detrimental to the efficient functioning of the BRM as well as to bats. The research is summarized at <http://www.batsandbrms.co.uk/images.php>), further detail is provided in Waring *et al.* (2013).

5.3 Habitat Management

The mature eastern and western boundary will be retained as part of the proposed development. More suitable foraging habitat will be created as part of the development in the form of gardens, allotments and informal open space.

It is recommended that a diverse collection of native planting is incorporated into the landscaping design within the proposed development site (refer to Appendix A for recommended 'bat' plants). Structurally diverse vegetation and inclusion of native evening-blooming plants will attract insects which in turn will help to enhance the site for foraging bats.

5.4 Enhancements

Whilst enhancement is not a legal requirement, it is encouraged on site as it helps to meet the government objectives for planning to protect and enhance biodiversity, in accordance with the *National Planning Policy Framework (NPPF)*.

A number of the measures outlined in the mitigation section, such as the planting of 'bat-friendly' plants have the potential to enhance the site for bats.

Additional measures to enhance the site for bats include the provision of ten Schwegler 2FN or similar tree-mounted bat boxes to be attached to retained trees. This model of bat box will be suitable for both crevice-dwelling and larger bat species. Lighting should be directed away from these new roost sites.

Bat boxes will be located away from footpaths and areas subject to disturbance, which will reduce recreational pressure on these new roosting locations.

The bat boxes will be sited as high as possible (no lower than 3m) and clear of any overhanging branches so that the bats have direct and easy access to them. Ideally two boxes should be erected facing in differing directions around the trunk of the tree, so that if one box gets too hot or cold the bats can move to another. Boxes should be attached to the tree using an aluminium nail or tied in position using wire/leather. A suitable model is the Schwegler 2FN or similar.

Ten building-mounted boxes will be installed on south-facing walls at a minimum height of 4m. These should be Schwegler 2FE or similar.



6.0 References

- CIEEM (2017). Guidelines for Preliminary Ecological Appraisal, 2nd Edition, Winchester.
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd ed). The Bat Conservation Trust, London.
- Communities and Local Government (2012) National Planning Policy Framework.
- Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. JNCC, Peterborough.
- WYG (2018). Sinah Lane, Hayling Island Extended Phase 1 Habitat Survey.



FIGURES

Figure 1 – Site Location Plan

Figure 2 – Phase 1 Habitat Plan

**Figure 3 – Bat Activity Survey 24th
October 2016**

**Figure 4 – Bat Activity Survey 18th
April 2017**

**Figure 5 – Bat Activity Survey 13th
June 2017**

**Figure 6 – Dusk Emergence Tree
Survey 13th June 2017**

**Figure 7 –Pre-dawn Return Tree
Survey 18th July 2017**



Rev	Date	Notes
A	28/06/18	Initial map production

Legend

 Site Boundary

0 50 100 200 300 400 Metres



Site Location Plan

Project Name
Client Name

Scale at A3: 1:8,996	Project No: A092944-3	Drawing No: Figure 1	Revision: A
Drawn by: Ben Cooke	Drawn date: 28/06/2018	Approved by:	

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Legend

- Trees within hedge
- Intact species-poor hedgerow
- ~~~~~ Defunct species-poor hedgerow
- SI SI Semi-improved grassland bank
- A A Arable
- Site Boundary



The Pavillion, 1st Floor
Botleigh Grange Office Campus
Hedge End
Southampton
Hants
SO30 2AF

Tel: 02382 022800
email: ecology@wyg.com



WYG Planning & Environment

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Sinah Lane, Hayling Island

Extended Phase 1 Habitat Survey

Scale at A3:	Drawn by: BC	Date: 28/06/18	Checked By: DW	Date: 28/06/18	Approved By: CM	Date: 28/06/18
Project No: A092944-3	Office: 45	Type: 94	Drawing No: Figure 2	Revision		

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Rev	Date	Notes
A	04/09/17	Initial map production

Legend

- Site boundary
- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle heard not seen
- Soprano Pipistrelle heard not seen
- Noctule heard not seen

0 5 10 20 30 Meters



Bat Survey Results 24/10/16

**Sinah Lane, Hayling Island
Barratt Homes**

Scale at A3: 1:1,100	Project No: A092944-1	Drawing No: Figure 3	Revision: A
Drawn by: ben.blowers	Drawn date: 04/09/2017	Approved by: max.ward	

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Rev	Date	Notes
A	04/09/17	Initial map production

Legend

- Site boundary
- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle heard not seen
- Soprano Pipistrelle heard not seen
- Serotine heard not seen

0 5 10 20 30 Meters



Bat Survey Results
18/04/17

Sinah Lane, Hayling Island
Barratt Homes

Scale at A3: 1:1,100	Project No: A092944-1	Drawing No: Figure 4	Revision: A
Drawn by: ben.blowers	Drawn date: 04/09/2017	Approved by: max.ward	

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Rev	Date	Notes
A	04/09/17	Initial map production

Legend

- Site boundary
- Soprano Pipistrelle
- Pipistrelle species
- Common Pipistrelle heard not seen
- Soprano Pipistrelle heard not seen
- Serotine heard not seen

0 5 10 20 30 Meters



Bat Survey Results 13/06/17

Sinah Lane, Hayling Island Barratt Homes

Scale at A3: 1:1,100	Project No: A092944-1	Drawing No: Figure 5	Revision: A
Drawn by: ben.blowers	Drawn date: 04/09/2017	Approved by: max.ward	

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Rev	Date	Notes
A	04/09/17	Initial map production

Legend

- Site boundary
- Common Pipistrelle
- Soprano Pipistrelle
- Pipistrelle species
- Serotine
- Common Pipistrelle heard not seen
- Soprano Pipistrelle heard not seen
- Serotine heard not seen

0 5 10 20 30 Meters



**Bat Tree Emergence Survey Results
13/06/17**

**Sinah Lane, Hayling Island
Barratt Homes**

Scale at A3: 1:1,100	Project No: A092944-1	Drawing No: Figure 6	Revision: A
Drawn by: ben.blowers	Drawn date: 04/09/2017	Approved by: max.ward	

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Rev	Date	Notes
A	04/09/17	Initial map production

Legend

- Site boundary
- Common Pipistrelle
- Soprano Pipistrelle
- Common Pipistrelle heard not seen
- Soprano Pipistrelle heard not seen

0 5 10 20 30 Meters



Bat Tree Emergence Survey Results
18/07/17

Sinah Lane, Hayling Island
Barratt Homes

Scale at A3: 1:1,100	Project No: A092944-1	Drawing No: Figure 7	Revision: A
Drawn by: ben.blowers	Drawn date: 04/09/2017	Approved by: max.ward	

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Appendix A – Report Conditions



REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Barratt Homes ("the Client") for the proposed uses stated in the report by [WYG Environment Planning Transport Limited] ("WYG"). WYG exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to WYG or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. WYG does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.



ecology@wyg.com

**WYG Environment Planning Transport
Limited.**

Registered in England & Wales Number:
3050297

Registered Office: Arndale Court, Headingley,
Leeds, LS6 2UJ



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