



Land East of Fathoms Reach, Hayling Island

Bat Activity Surveys

Author(s):

Aaron Domblides & Adam Jessop

Client:

Taylor Wimpey Southern Counties

28/6/2022 (Revised)

Report	Phase II Bat Surveys
Site Name	Land East of Fathoms Reach, Hayling Island
Author(s)	Aaron Domblides BSc (Hons) & Adam Jessop BSc (Hons) MSc ACIEEM
Client	Taylor Wimpey Southern Counties
Date of Issue	28 th June, 2022
Status	Revised for new layout

Table of Contents

1.0 INTRODUCTION	3
1.1 Background	3
1.2 Site Description & Location	3
1.3 Brief Description of the Proposals	4
2.0 RELEVANT LEGISLATION & POLICY	5
2.1 Legislation & Policy Context.....	5
<i>2.1.1 Relevant legislation</i>	<i>5</i>
<i>2.1.2 National Planning policy.....</i>	<i>5</i>
<i>2.1.3 Local Planning policy – Draft Havant Borough Local Plan</i>	<i>6</i>
3.0 METHODS	7
3.1 Walked Transects	7
3.2 Static Monitoring.....	8
3.3 Trapping.....	8
3.4 Emergence Survey	9
3.5 Limitations	10
4.0 RESULTS	11
4.1 Emergence Survey	11
4.2 Transect Surveys	11
4.2 Static Monitoring.....	13
4.3 Trapping Survey	15
4.3 Evaluation	16
<i>4.3.1 Foraging and Commuting Bats.....</i>	<i>16</i>
5.0 RECOMMENDATIONS & MITIGATION.....	18
5.1 Introduction	18
5.2 Mitigation	18
5.3.1 Site Layout	18
5.3.2 Sensitive Lighting	19
5.4 Enhancements.....	21
5.4.1 Planting.....	21
6.0 REFERENCES	22

1.0 INTRODUCTION

1.1 Background

This document outlines the results of the bat activity surveys carried out during September and October 2020 and then April – July 2021 required in support of a planning application for the development of a parcel of land to the east of Fathom Reach, Hayling Island. These surveys were recommended within the Preliminary Ecological Appraisal (PEA) report prepared by Ecosupport Ltd (2021) based on the considered **Moderate** potential for foraging and commuting bats on site.

1.2 Site Description & Location

The site comprises a parcel of land supporting scattered trees, scrub and unmanaged grassland located to the east of Fathom's Reach, Hayling Island, PO11 0RR (centred on OS grid reference SZ 716 996) (**Fig 1**). The north of the site is bounded by a parcel of unmanaged grassland, the east by an arable field (listed as being a 'core area' habitat for Brent Goose and waders), the south by Southleigh Grove and the west by Fathom's Reach.

Figure 1. Redline location plan of the site.



1.3 Brief Description of the Proposals

At this stage it is understood the proposals will entail the construction of 51 dwellings with associated access and infrastructure.

2.0 RELEVANT LEGISLATION & POLICY

2.1 Legislation & Policy Context

2.1.1 Relevant legislation

The Wildlife & Countryside Act 1981 (as amended) is the primary piece of legislation by which biodiversity in the UK is protected. The most relevant areas of the Act to development related activities are:

- The protection of certain species listed in Schedule 5, which prohibits killing, injury, disturbance, damage and / or destruction of breeding sites and / or resting places and sale (it should be noted that all parts of this protection do not apply to all Scheduled species).

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies to have regard to the conservation of biodiversity. This means that Planning Authorities must consider biodiversity when planning or undertaking activities. Section 41 of the Act lists species found in England which were identified as requiring action under the UK Biodiversity Action Plan and which continue to be regarded as conservation priorities under the *UK Post-2010 Biodiversity Framework*.

2.1.2 National Planning policy

Section 15 of the National Planning Policy Framework (NPPF, 2021) 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and enhance the natural environment. They should do this by protecting and enhancing sites of biodiversity and minimising impacts on and providing net gains for biodiversity, including establishing coherent ecological networks.

The plan states to protect and enhance biodiversity plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks. This includes the hierarchy of international, national and locally designated sites of importance for biodiversity, wildlife corridors and stepping stones that connect them. Plans should identify the protection and recovery of priority species and opportunities for securing measurable net gains for biodiversity.

When determining planning applications, local planning authorities should apply the following principles:

- if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the

benefits of the development in the location proposed clearly outweigh both its likely impact;

- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

2.1.3 Local Planning policy – Draft Havant Borough Local Plan

Policy E15- Ecological Conservation

“Development on any site in the Borough should conserve and enhance the natural environment wherever possible. Planning permission on any site in the Borough will be permitted where:

- a. The applicant has identified and assessed the level of ecological value of the site through appropriate assessment(s) and any matters arising have been addressed through the development proposal at the earliest stage possible;*
- b. The development results in a net gain in biodiversity wherever possible;*
- c. Development avoids the fragmentation and isolation of habitats and wildlife corridors within or close to the development site;*
- d. The development is informed and influenced by the presence of woodlands, trees and hedgerows on site, particularly those protected by a Tree Preservation Order (TPO) or within a conservation area. If the removal of any tree is unavoidable because it would be in best arboricultural practice a replacement tree of at least equal value to that lost should be planted on site unless it is shown to be impractical to do so; and*
- e. Any necessary mitigation plan includes provision for ongoing management and maintenance.*

In addition to the above, priority habitats in the Borough have been identified and afforded protection by a network of designated sites. Development proposals which could affect a designated site will need to consider the impact and respond appropriately:

3.0 METHODS

3.1 Walked Transects

Based on the **Moderate** foraging and commuting habitat suitability assessment, walked transects were carried out on site covering September – October 2020 and then April – July 2021. Based on the sites area and available habitat, a single transect was considered sufficient to cover the whole site, with a total of 9 listening stations used (**Fig 2**). Approximately 13 minutes was spent at each listening point, during which passes of species were noted. Any passes recorded whilst walking between points were also noted. Both a Bat Box duet / Elekon Batscanner heterodyne and Elekon Batlogger full spectrum (for analysis of calls via sonogram) detectors were employed during all surveys. The surveys were carried out by Adam Jessop (2015-13366-CLS-CLS). Lyndsey McBean and Aaron Domblides with assistance from Adam Tollefson, Joe Carter and Gemma Nixon.

Figure 2. Walked transect route (red dashed line) with numbered listening points (yellow squares) used.



3.2 Static Monitoring

An additional aspect of the recommended bat monitoring within the BCT guidelines is for two static detectors to be placed at different locations within the site for 5 consecutive nights each month (September – October 2020 and then April – July 2021). The locations of the static bat detectors are shown in **Fig 3** below.

Figure 3. Approximate locations of Anabat Express static detectors across site. A = September (2020), B = October (2020), C = April (2021), D = May (2021), E = June (2021) and F = July (2021).



3.3 Trapping

In addition to the activity survey work, due to the high number / volume of *Myotis* spp calls recorded during the 2020 static deployments and accounting for the records of *M. bechsteinii*, trapping surveys were undertaken on-site. This consisted of the deployment of 2 harp traps with acoustic lures (Sussex Auto bat and AT100) placed in the same 2 locations on site (see **Fig 4** below) on the 13th June, 22nd July and the 16th August, 2021. The surveys were conducted by Daniel Whitby (under his own class 3 – 4 licence). The surveys were largely target towards trying to capture Bechstein's bats with calls to attract this species played the majority of the trapping surveys.

Figure 4. The location of the 2 harp traps placed out on site. The same location were uses for all 3 trapping surveys.



3.4 Emergence Survey

As per the recommendations within the PEA (Ecosupport 2021), due to the low roost potential of No's 61 – 69 Fathoms Reach, a single emergence survey was required. The survey was led by Adam Jessop (licence number 2015-13366-CLS-CLS) with assistance from Lewis Lakudzala, Leah Murphy, Ashleigh Domblides, Hannah McCabe, Sam Cook, Nick Saville and Oliver Skipwith (all experienced surveyors with Ecosupport). Both heterodyne (Bat Box Duet and Elkon Batscanner) and time expansion (Anabat Express) detectors were used for identifying species calls. The dusk emergence survey began approximately 15 minutes prior to sunset and continued until approximately an hour and 30 minutes after sunset with survey sheets used to record the following information (the approximate locations of surveyors shown in **Fig 2** below):

- Time of call registration
- Species (if possible to identify using heterodyne detector)
- Location / activity
- Direction of flight (if seen)

NB Not all of the properties surveyed are prosed for demolition now although the results from all surveyors are provided.

Figure 5. Google aerial image of No's 61 – 69 Fathom's Reach and the approximate locations of the surveyors (yellow dots) during the single emergence survey.



3.5 Limitations

It was not possible to carry out any walked transects or static deployments during August due to issues with equipment with issues also experienced during other static deployments meaning data form 2 was not obtained for every month. Notwithstanding this, with a trapping survey carried out and all other months within the active season covered it is not considered that this would have posed any constraints on the survey's findings / valuation.

4.0 RESULTS

4.1 Emergence Survey

The single emergence survey of No's 61 – 69 Fathom's Reach was carried out on the 20th May 2021 with temperatures at 18C, 50% cloud cover and a light breeze (wind speed 1 – 2) starting at 20:41 and finishing at 22:38. During this survey, no emergences were noted by any of the surveyors although a reasonable level of Common Pipistrelle activity was recorded. This was largely confined to the rear gardens with only 2 bats recorded by the surveyors located on Fathom's Reach road. Foraging and commuting activity by C.Pip continued through the majority of the survey with the only other bat recorded a brief commuting pass (flying in an easterly direction) of a Serotine at 22:04.

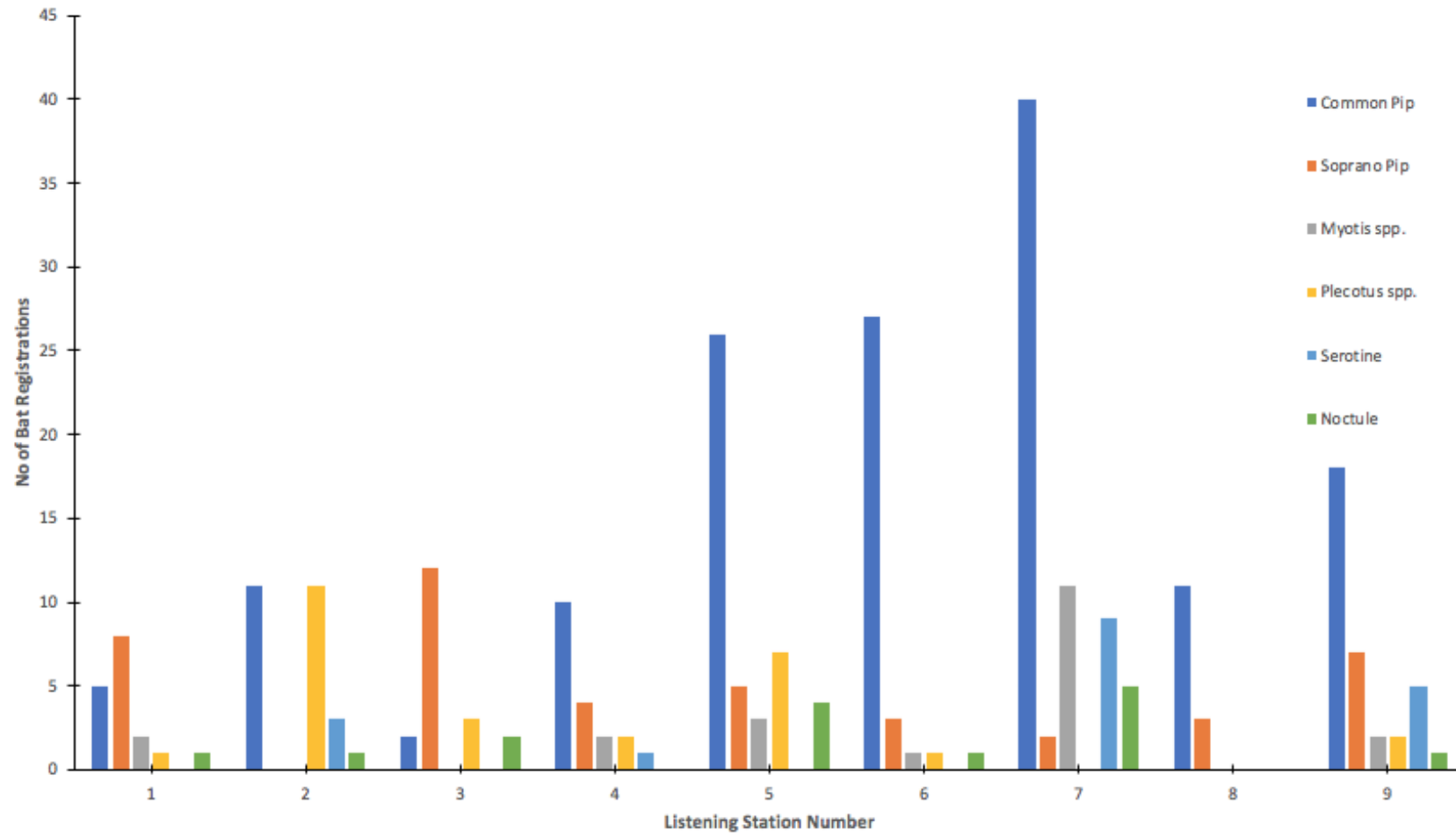
4.2 Transect Surveys

Table 1 below indicates the dates and other relevant information recorded during the walked transect surveys with the results presented below in **Fig 6**.

Table 1. Relevant information recorded during the transect surveys.

Date	Temp (°C)	Cloud Cover (%)	Wind (Beaufort scale)	Start Time	Finish Time	Starting Point / Direction of Travel
23/09/2020	16	85	1 / 2	19:00	21:00	Point 1 / Anticlockwise
14/10/2020	12	100	2	18:14	20:14	Point 9 / Clockwise
15/4/2021	11	0	0	19:55	20:47	Point 3 / Clockwise
28/5/2021	14	100	1	21:00	22:52	Point 6 / Anticlockwise
14/6/2021	21	20	1/2	21:17	23:11	Point 1 / Clockwise
15/6/2021	15	50	1	03:11	05:01	Point 7 / Clockwise
6/7/2021	18	100	0	21:15	23:08	Point 2 / Anticlockwise

Figure 6. Graphical representation of the number and species composition of bat recordings noted during the walked transects (n = 7) at the different listening stations from all the surveys (September – October 2020 and April – July 2021) totalled.



4.2 Static Monitoring

The results of the static detector monitoring carried out during September and October 2020 are provided in **Table 2** below. The static data for the 2021 active season will be added on completion.

Table 2. Analysis from Anabat Express static deployment from September and October 2020 – April – July 2021 (see **Fig 3**) for approximate location).

Location	Date	Species	Total Passes	Average Passes per Night	Average Passes per Hour
A1	18 th – 26 th September	C.pip	8754	795.82	67.73
		S.pip	6488	589.82	50.20
		<i>Myotis spp</i>	1870	170.00	14.47
		Noctule	3	0.27	0.02
		<i>Plecotus spp.</i>	4	0.36	0.03
A2	18 th – 21 st September	C.pip	257	85.67	7.29
		S.pip	390	130.00	11.06
		<i>Myotis spp.</i>	1003	334.33	28.45
B1	20 th – 24 th October	C.pip	19	3.80	0.28
		S.Pip	10	2.00	0.15
		<i>Myotis spp.</i>	2	0.40	0.03
		<i>Plecotus spp.</i>	3	0.60	0.04
		Barbastelle	2	0.40	0.03
B2	20 th – 24 th October	C.pip	9	1.80	0.13
		S.Pip	10	2.00	0.15
		Serotine	3	0.60	0.04

Location	Date	Species	Total Passes	Average Passes per Night	Average Passes per Hour
C1 (issues with C2)	22 nd - 27 th April 2021 9.625 hrs p/n	C.pip	13	2.6	0.27
		S.pip	23	4.6	0.48
				0.0	0.00
		Static 2 did not record	-	-	-
D1	26 th - 31 st May 2021 9.625 hrs p/n	S.pip	11	2.2	1.19
		Noctule	1	0.2	> 0.1
		C.pip	3	0.6	0.08
D2	5 nights 7.92 hrs p/n 26 th - 31 st May 2021	Serotine		0.0	0.00
		S.Pip		0.0	0.00
		C.pip	5	1.0	0.13

E1	15 th - 21 st June 2021 7.92 hrs p/n	<i>Plecotus</i> spp	1	0.2	> 0.1
		Noctule	5	1	0.63
		C.pip	1391	278.2	37.09
E2	15 th - 21 st June 2021 7.5 hrs p/n	S.pip	406	81.2	10.83
		Noctule	29	5.8	0.77
		Serotine	397	79.4	10.59
		<i>Plecotus</i> spp.	37	7.4	0.99
		<i>Myotis</i> spp.	4	0.8	0.11
F1	20 th - 25 th July 2021 8.2 hrs p/n	S.pip	635	127.0	15.49
		Noctule	26	5.2	0.63
		Serotine	236	47.2	5.76
		<i>Plecotus</i> spp.	64	12.8	1.56
		<i>Myotis</i> spp.	97	19.4	2.37
		C.pip	962	192.4	23.46
F2	20 th - 25 th July 2021 8.2 hrs p/n	S.pip	745	149.0	18.17
		Noctule	14	2.8	0.34
		Serotine	353	70.6	8.61
		<i>Plecotus</i> spp.	45	9.0	1.10
		<i>Myotis</i> spp.	56	11.2	1.37

Similarly, to the walked activity transects, the registrations on the Anabat Express statics were dominated by Common Pipistrelles and Soprano Pipistrelles with very high levels of *Pipistrellus* spp. during the September deployment (from the A1 location along the northern boundary). There were also high levels of *Myotis* spp. activity, particularly at the beginning of the deployment (18th – 20th September 2020) with 903 *Myotis* calls recorded on the first night alone from static A1 and slightly lower *Myotis* activity levels from static A2 during the same time frame. Species diversity also appeared higher on the northern boundary although activity levels of all species other than *Pipistrellus* spp. and *Myotis* spp was relatively low. During the 2021 survey work, a similar storey was established with the site being used more frequently by Serotine for foraging along with *Plecotus* spp relative top hat was recorded in 2020. **Fig 7** below outlines the areas that were of greatest importance to bats (activity ‘hotspots’) based on the work completed to date.

Figure 7. The areas of greatest importance to bats based on the survey work carried out to date (yellow shaded areas). Both of these areas had more than 1000 *Myotis* spp calls registered on the static detectors during the September deployments (with the northern boundary also having more than 15,000 *Pipistrelles* calls during the same period).



4.3 Trapping Survey

The results of trapping surveys are indicated in **Fig 8** below with no Bechstein's bats caught and number of bats in general low (although calls played through the acoustic lures were targeted at Bechstein's reducing the number of other species caught).

Figure 8. Results provided. By Daniel Whitby of AEWK from the 3 trapping surveys undertaken on site.

Total Bats	P.pip				P.pyg				BLEB				M.nat				Serotine			
	AM	AF	JM	JF	AM	AF	JM	JF	AM	AF	JM	JF	AM	AF	JM	JF	AM	AF	JM	JF
	1	2			1				2											
	1	2			1									1						
	1					1			1								1			
	2																			
		1					1	2					1							

4.3 Evaluation

4.3.1 Foraging and Commuting Bats

In general, the bat activity levels were considered to be very high during the September deployments and relatively low during the October(although this may be a product of the poorer weather conditions) deployment with levels picking up again into the summer months of 2021. Large numbers of Common, Soprano Pipistrelles and *Myotis* Spp. (considered a common – rarer / rarest bats in England (Wray *et al*)) were recorded throughout the site, with the northern boundary recording the most passes however the number of individual bats is unclear at this stage given the limited number of surveys undertaken and the lower activity levels on the night the transect was undertaken during September. Additionally, occasional Serotines, Noctules, *Plecotus* spp, and Barbastelles were also recorded (with these species considered common - rarest in England (Wray *et al* (2010))). When viewed in the wider landscape context (with the majority of the nearby habitats of poor / limited suitability for foraging bats), with the site supporting a mosaic mature grassland, scrub and scattered trees, it appears to be an important area for local foraging and given the high numbers noted in September, may also be being used for swarming.

Based on the trapping surveys it also does not appear that the site is being used by Bechstein's with the only *Myotis* spp caught a *M.nattereri*

Guidance on valuing bat foraging and commuting habitat is provided by Wray *et al* (2010), which uses a points-based system. Using this system, using the data so far collected, the site scores an estimated **33 points** for commuting bats and **22 points** for foraging bats (see **Table 3**) and is correspondingly considered to be of **County value** for commuting bats and **Regional value** for foraging bats.

Table 3. Valuation of habitat for (a) commuting and (b) foraging bats after Wray et al. (2010). The points scored by the site are indicated in bold type.

Species	Number of bats	Roosts nearby	Habitat features
(a) Commuting habitat			
Common (2)	Individual bats (5)	None (1)	Absence of (other) linear features (1)
		Small number (3)	Un-vegetated fences and large field sizes (2)
Rarer (5)	Small numbers (10)	Moderate number/not known (4)	Walls, gappy or flailed hedges, isolated well grown hedges, moderate field sizes (3)
		Large number of roosts or close to a SSSI for the species (5)	Well grown and well-connected hedges, small field sizes (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Complex network of well-established hedges, small fields and rivers/streams (5)
(b) Foraging habitat			
Common (2)	Individual bats (5)	None (1)	Industrial or other site without established legislation (1)
		Small number (3)	Suburban areas or intensive arable land (2)
Rarer (5)	Small numbers (10)	Moderate number/not known (4)	Isolated woodland patches, less intensive arable and/or small towns/villages (3)
		Large number of roosts or close to a SSSI for the species (5)	Larger or connected woodland blocks, mixed agriculture and small villages/hamlets (4)
Rarest (20)	Large numbers (20)	Close or within a SAC for the species (20)	Mosaic of pasture, woodlands and wetland areas (5)

5.0 RECOMMENDATIONS & MITIGATION

5.1 Introduction

In order to fully comply with applicable legislation and planning policy, it is necessary to mitigate or compensate for any significant ecological impacts.

5.2 Mitigation

5.3.1 Site Layout

Following the results of the survey work completed to date and after having discussions with the architect, the existing trees lines along the northern and eastern boundaries have been buffered to preserve their usage by foraging and commuting bats. The extent of this buffer is shown below in **Fig 9** and it is hoped that this will provide a suitable area even if rarer bat species are found foraging on-site.

NB how the buffer is displayed on Fig 9 below has been changed to show its full extent now with the majority of this at least up the edges of the retained tree canopies and in some places beyond this. Furthermore, the design of the flats in the NE cover has been changed so as to provide a greater width of buffer in this part of the site.

Figure 9. Revised site layout with the ecology buffers to the northern and eastern boundary tree lines.



5.3.2 Sensitive Lighting

A document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented with an aim of keeping light spill onto the northern and eastern boundary trees lines (the most important areas for bats based on data gathered to date) at or below 1 LUX.

'Luminaires come in a myriad of different styles, applications and specifications which a lighting professional can help to select. The following should be considered when choosing luminaires:

- *All luminaires should lack UV elements when manufactured. Metal halide, fluorescent*

sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

- *A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.*
- *Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).*
- *Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.*
- *The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.*
- *Column heights should be carefully considered to minimise light spill.*
- *Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.*
- *Luminaires should always be mounted on the horizontal, i.e. no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*
- *As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed (Fig 10).*

Figure 10. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2011).



This information will be used to inform a detailed lighting strategy for the site (which should be secured via an appropriately worded condition).

5.4 Enhancements

5.4.1 Planting

Section to be updated when a landscape plan is available and to be informed from results of additional survey work.

5.4.2 Bat Boxes

To act as biodiversity enhancement and in the interests of promoting net gain principles (in line with National and Local planning policy), at least 20 of the newly built dwellings will have Ibstock bat bricks (**Fig 11**) integrated within the external brick work. These features are entirely self-contained and available in a variety of different colours to match different construction materials. They should ideally be placed on an elevation which will benefit from some degree of sunlight exposure and be located away from windows.

Figure 11. Ibstock bat brick 'B' which will be integrated into the gable walls of 20 (minimum) of the new dwellings on site.



In addition to the integrated bat boxes, the following woodcrete models will also be erected on suitable retained trees around the site's boundary (focussing on the northern boundary tree line):

- 4 No Vivara pro harlech woodstone bat box
- 4 No Vivara pro miramare large woodstone bat box
- 2 No Vivara pro large multi chamber woodstone bat box

These boxes will be erected by or under the supervision of an ecologist to ensure they are erected in an appropriate location.

6.0 REFERENCES

Collins (ed) (2016) Bat Surveys for Professional Ecologists: Best Practice Guidelines. Bat Conservation Trust

Ecosupport (October 2021) *Land East of Fathoms Reach, Hayling Island Preliminary Ecological Appraisal*

ILP / BCT (2018) *Guidance Note 08/18 Bats and Artificial Lighting in the UK*

Havant Borough Council (2020) *Draft Havant Borough Local Plan*

Gunnell, K., Grant, G., & Williams, C., (2012) Landscape and Urban Design for Bats and Biodiversity

Wray, S., Wells, D., Long, E. & Mitchell-Jones, T. (2010). Valuing Bats in Ecological Impact Assessment. *In Practice*. **70**. 23-25.