



ecosupport

Cottage Farm
Lovedean Lane

Ecological Survey

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Client:
Bargate Homes
6th January 2020

Updated Layout 4th May 2020

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Plan 1. Habitat Map.

Plan 2. Proposed Layout.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was commissioned by Bargate Homes to conduct an Ecological Assessment of the land associated with Cottage Farm in Lovedean, to identify any potential ecological impacts that may arise from the site's proposed residential development. This document presents the findings of this Assessment, and provides a suitable ecological mitigation, compensation and enhancement strategy to ensure the proposed development can proceed in full accordance with all applicable nature conservation legislation and policy.

This assessment takes no account of seasonal variation and fluctuations in the presence of any species that might take up residence following the issuing of this report. Lack of signs of a particular species does not confirm its absence, merely that there was no indication of its presence at the time of survey.

Should the proposed development not be underway within 18 months of the date of issue of this report, an updated walkover survey should be undertaken by a suitably experienced Ecologist to determine if any significant changes have occurred to the ecological value of the site, as per CIEEM (2019) guidance. Changes to the ecological baseline may require additional or updating ecological surveys and/or alterations to the mitigation and compensation strategy to ensure full project compliance with wildlife legislation and policy.

1.2 Aim

An Extended Phase I Habitat Survey is the first step in assessing the potential ecological effects (or lack of) of a proposed development, and determines whether or not (and which) Phase II Protected Species Surveys are required to support the planning application. The objectives of this survey were as follows:

- Identify current land use and distribution of broad habitat types including plant communities of ecological importance;
- Identify and classify any priority habitats;
- Assess the ecological value of the site;
- Identify any initial signs of protected species and potential features that may support them;
- Identify all relevant legislation and policy;
- Make recommendations for further survey work as appropriate; and
- Make recommendations for appropriate ecological enhancements.

The Phase I Survey identified the requirement for Phase II Protected Species Surveys. The aims of these surveys was to establish the presence/likely absence of legally

protected species within the zone of influence of the proposals, ascertain how such species utilise the site and the relative value of the site to the species identified.

This allowed the site to be classified with regards to its overall ecological importance and conservation significance, and informed the production of a suitable ecological mitigation and compensation strategy to ensure project legislative compliance.

1.3 Site Location

The site subject to assessment (**Figure 1**) (central Ordnance Survey Grid Reference SU 68539 12577) is located to the west of Lovedean Lane, Lovedean, Hampshire. It is bound to the east by housing and residential gardens associated with Lovedean Lane and to the south by residential development along Ashley Close and James Copse Road. To the west lies grazed pasture, separating the site from nearby woodland. North of the site a recently approved development is currently under construction. Due to the site's location on the edge of the settlement of Lovedean, the immediate vicinity comprises a mixture of rural landscape (to the west) and dense residential development (to the east).

Figure 1. Approximate redline boundary of the site and surrounding landscape.



1.4 Development Proposals

Proposals will involve the residential development of the site, including new housing units, associated access roads, parking, landscaping and amenity space.

2.0 LEGISLATION & POLICY

One of the aims of this report is to demonstrate that the proposed development complies with all relevant Planning Policy and nature conservation legislation. This section details the policy and legislation with which the development must comply.

2.1 Legislation

2.1.1 The Conservation of Habitats and Species Regulations (2017)

This transposes the EU Habitats Directive (Council Directive 92/43/EEC) into UK domestic law. It provides protection for sites and species deemed to be of conservation importance across Europe. Under the Regulations is an offence to deliberately capture, kill or injure any species listed in Schedule 2 or to damage or destroy their breeding sites or shelter. It is also illegal to deliberately disturb these species in such a way that is likely to significantly impact upon their local distribution or abundance, or to affect their ability to survive, breed and rear their young.

2.1.2 The Wildlife and Countryside Act (1981) (as amended)

This is the primary piece of legislation by which biodiversity is protected within the UK. Protected fauna and flora are listed under Schedules 1, 5 and 8 of the Act. They include all species of bat, making it an offence to intentionally or recklessly disturb any bat whilst it is occupying a roost or to intentionally or recklessly obstruct access to a bat roost. Similarly this Act makes it an offence to kill or injure any species of British reptile or to intentionally kill, injure or take any wild bird or to take, damage or destroy their eggs and nests (whilst in use or being built).

2.1.3 The Countryside and Rights of Way Act (2000)

This Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.4 Natural Environment and Rural Communities Act (2006)

This Act places a duty on local authorities to have due regard for biodiversity and nature conservation during the course of a development.

2.2 Policy

The development seeks to comply with relevant Planning Policy at a local, regional and national level.

2.2.1 National Planning Policy and Framework (2019)

The National Planning Policy Framework (NPPF) 2019 supersedes the previous national policy and sets out the Government's vision for biodiversity in England in line with the country's 25 Year Environment Plan. Chapter 15 of this policy outlines key principles related to the natural environment and states that plans should take a strategic

approach to maintaining and enhancing networks of habitats and green infrastructure and should provide net gains for biodiversity. Plans should promote the conservation, restoration and enhancement of priority habitats and ecological networks and the protection and recovery of priority species.

2.2.2 East Hampshire District Local Plan: Joint Core Strategy

Policy 'CP21 BIODIVERSITY' states that development proposals must maintain, enhance and protect the District's biodiversity and its surrounding environment.

New development is required to maintain, enhance and protect district-wide biodiversity, in particular its nature conservation designations. As well as extending specific protection to, and encouraging the enhancement of, other sites and features which are of local value for wildlife, proposals must contribute towards maintaining a district-wide network of local wildlife sites, wildlife corridors and stepping stones between designated sites and other areas of biodiversity value or natural green space. This will help to prevent the fragmentation of existing habitats and allow species to respond to the impacts of climate change. Development must also ensure wildlife enhancements are incorporated into the design to achieve a net gain in biodiversity by designing in wildlife and by ensuring that any adverse ecological impacts are avoided where possible or, if unavoidable, that they are appropriately mitigated for, with compensatory measures only used as a last resort. Finally, the Core Strategy specifically mentions the importance of protecting and, where appropriate, strengthening populations of protected species.

3.0 METHODOLOGY

3.1 Desk-based Search

An assessment of available online data, together with data provided by the Hampshire Biodiversity Records Centre (HBIC) was undertaken to identify the presence of nearby sites of conservation importance and records of protected and notable species within the vicinity of the site.

Great Crested Newts (*Triturus cristatus*) (GCN), a protected species, are known to utilise suitable terrestrial habitat up to approximately 500m from a breeding pond, with the majority of movement occurring within 250m of a breeding pond (Langton *et al.*, 2001). Therefore where suitable waterbodies lie within 500m of an application site, and no significant isolating features such as fast flowing rivers exist between the two, further assessment of such waterbodies is required to determine the presence/likely absence of GCN (Natural England, 2013). Therefore, online aerial imagery was utilised to identify any ponds or ditches located on or within 500m of the site. Online aerial imagery was therefore assessed to determine the presence of waterbodies within 500m of the application site.

3.2 Phase I Habitat Survey

The initial walk over survey was carried out in March 2018 by Tristanna Boxall, Senior Ecologist of Ecosupport and Natural England Class Level 2 Bat and Class Level 1 Great Crested Newt License Holder. This comprised a visual assessment of the site and the surrounding landscape, broadly based upon the methodology outlined within the Joint Nature Conservation Committee's (JNCC) *Phase I habitat survey handbook* (2003). The habitats present were noted, with particular focus upon their potential to support protected species. This assessment included a thorough search for the potential presence of Badger (*Meles meles*), including sett entrances, badger paths, latrines, hairs, scratching posts and evidence of foraging within 20 meters of the proposed works area.

3.3 Assessment of Building to Support Roosting Bats

An assessment of the residential dwelling at 149 Lovedean Lane was undertaken to determine the likelihood of roosting bats being present. The externals were examined, using 8 x 42 Avian Trekker binoculars and a high-powered torch, for any suitable features which bats may use to enter the internals or an external roost and also to search for signs of bats (such as droppings or feeding remains) and/or bats themselves. The internals were assessed by gaining access into the loft and undertaking a search for evidence and suitability. The survey was carried out in accordance with *Bat Surveys for Professional Ecologists; Good Practice Guidelines* (3rd edition), published by the Bat Conservation Trust (Collins, J. (ed), 2016).

3.4 Phase II Bat Activity Survey

3.4.1 Transect Surveys

Phase II Bat Activity Surveys were undertaken on site to assess the level and type of usage by foraging and commuting bats, in full accordance with best practice guidelines (Collins, J. (ed.), 2016). The site itself was considered to be of low value to commuting and foraging bats, however surrounding nearby features, such as woodland, increased its potential value; as such, activity surveys were undertaken on a monthly basis throughout the active season. A total of eight survey visits were undertaken between April – October 2019 (including a dusk/dawn survey in August).

During each survey a pre-determined transect route was followed, covering the full range of habitat types on site. The direction travelled along the transect route was alternated each survey to allow different areas to be surveyed at different times. Surveys were undertaken by experienced Ecologists from Ecosupport. Bat Box Duet, Bat Scanner and frequency division (Anabat SD1/2) bat detectors were used to determine the species of bats recorded. The dusk surveys began at sunset and continued for approximately two hours after sunset, the dawn surveyors began two hours before sunrise and continued until sunrise. The surveyors walked at a constant speed, recording bat passes and associated details such as species, time and direction of flight wherever possible. Spot counts (**Figure 2**) were also incorporated into the survey design, involving standing at set points along the transect route for an allotted period of time and recording all activity.

During all surveys the following information was recorded wherever possible:

- Time of call registration;
- Species;
- Location / activity;
- Direction of flight.

Figure 2. Transect route with spot count locations (Google Maps, 2019).



3.4.2 Static Surveys

As per best practice guidance, static bat surveys were also undertaken to facilitate quantitative analysis of data to supplement that collected during the transect surveys. As per guidelines, one static detector (Anabat Express) was deployed and left *in situ* to collect data for five consecutive nights per transect month, with care taken to ensure suitable weather conditions for the duration of the survey period wherever possible. The static detector was positioned so that there were no obstructions to the microphone and at a suitable height to maximise the amount of bat activity recorded. Data was subsequently analysed using Analook software, with all bat species and counts recorded. Bat passes of the same species, where they were recorded multiple times within a one-minute period, were assumed to be multiple passes by the same individual bat.

3.5 Phase II Reptile Survey

Habitats on site were considered suitable to support reptiles. Therefore, a full Phase II Reptile Survey was carried out on site during September 2019 in accordance with best practice guidance, to determine the presence/likely absence of reptiles (Froglife, 1999). Refugia (a combination of bitumen roofing felt and tin) were spread across all areas of suitable habitat on site, and allowed to bed in. The refugia were then checked seven times during suitable weather conditions by experienced Ecologists. The species, approximate life stage and sex of any reptiles found was recorded.

3.6 Evaluation and Assessment

The methodology for the assessment of the likely ecological effects of the proposed development is based on CIEEM's Guidelines for Ecological Assessment in the UK and Ireland (CIEEM, 2018). The guidelines provide a useful framework for assessing ecological impacts at any level.

The approach of the guidelines is to assess potential impacts to all features of ecological interest that could be affected by a scheme. As a scheme may have effects beyond its boundaries, it is important to identify the 'zone of influence' of the scheme and to assess the potential for significant ecological impacts throughout this zone as well as those within the application boundaries, for example impacts upon nearby species, habitats and sites designated for their nature conservation value. Where such features are identified, they are first valued and then assessed as to the likely magnitude and significance of potential impacts that may be exerted upon those features by the proposed scheme. 'Significant' impacts are considered to be where they affect the integrity and/or conservation status of a designated site for a habitat or species. All potential significant impacts are considered in the absence of any avoidance, mitigation or compensation to inform the suitable design of such measures (where necessary), which can then be incorporated into the scheme to reduce such impacts. Finally, an assessment is made to identify any residual impacts upon these features (both positive and negative) that would remain once any impact avoidance, mitigation or compensation measures have been implemented.

All ecological features identified within the site boundaries and the identified zone of influence of the proposals are considered within a defined geographical context, as follows:

- International
- National
- County
- District
- Local
- Site

The guidelines state that ecological features that are valued, under the ecological assessment of a scheme, to be of less than local value are not considered sufficiently valuable for an impact to be considered significant. Therefore, only those features assessed as being of at least local value require avoidance, mitigation and/or compensation. That said, where a feature is of less than local value but where impacts upon this feature hold the potential to result in contravention of relevant wildlife

legislation, measures must be implemented to ensure compliance with legislation, regardless of the level of value of the feature.

Potential impacts are considered at all stages of the proposed development. The assessment should consider all types of impact (both direct and indirect) and whether potential impacts are short, medium, long-term, permanent, temporary, reversible, irreversible, positive and/or negative.

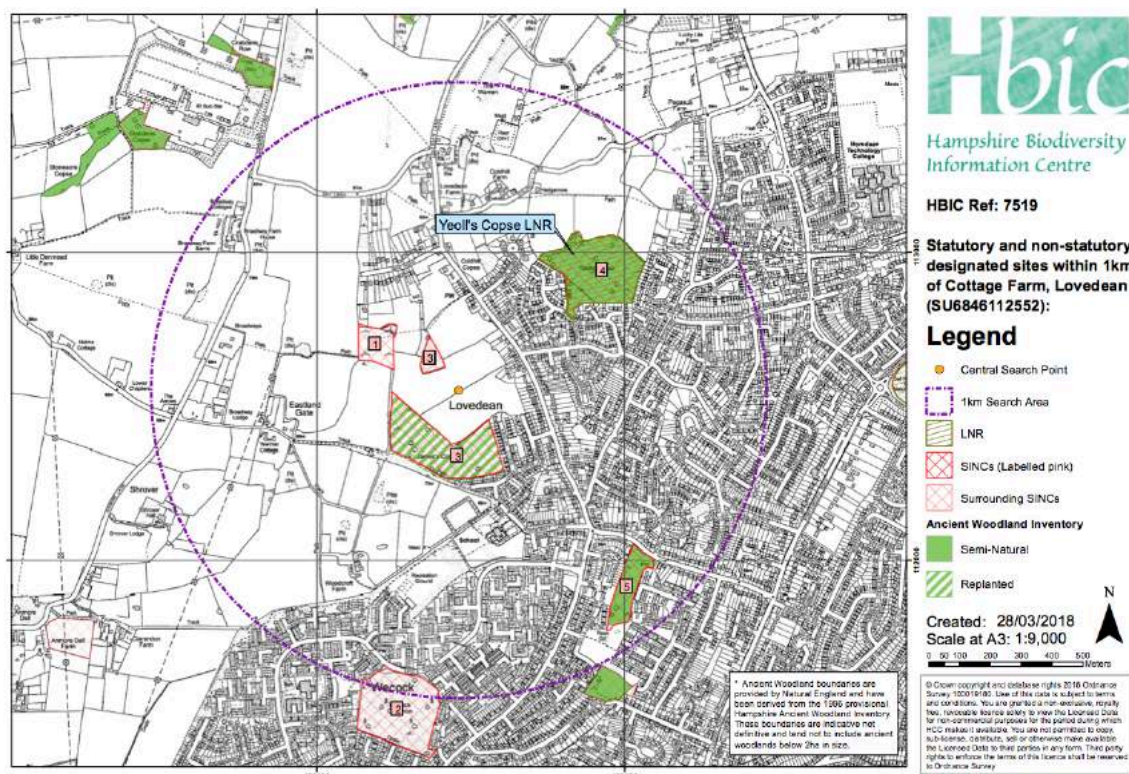
4.0 RESULTS

4.1 Desk-based Search

4.1.1 Designated Sites

A number of Local Nature Reserves were identified within the vicinity of the application site, including Yeoll's Copse, Dell Piece West, Catherington Lith and Hazleton Common (**Figure 3**).

Figure 3. Designated sites within 1km of the site (HBIC, 2019).



Catherington Down Site of Special Scientific Interest (SSSI) is also located 1.39km northeast of the site. Catherington Down SSSI and Local Nature Reserve is comprised of chalk grassland and narrow fringing woodland belts. Short turf areas support several species with limited distribution such as Pyramidal Orchid (*Anacamptis pyramidalis*), Autumn's Lady's Tresses (*Spiranthes spiralis*) and Round-headed Rampion (*Phyteuma tenerum*). Woodland areas dominated by Oak (*Quercus robur*) over old Hazel (*Corylus avellana*).

In addition, five Sites of Importance to Nature Conservation (SINCs) were identified within 1km of the site (**Table 1**).

Table 1. SINCs within 1km of the site.

Name	Feature(s)	Distance from Site
James' Copse Paddock	Agriculturally unimproved grassland	0.31 WNW
Wecock Common	Pasture Woodland and	1.18 S

	Wooded Commons, which are of considerable biological and historical interest.	
James' Copse & Outlier	Ancient semi-natural woodlands, which supports Great Woodrush (<i>Luzula sylvatica</i>).	0.3 SSW
Yoells Copse	Ancient semi-natural woodland.	0.59 NE
Wecock Wood	Ancient semi-natural woodland.	0.85 SSE

4.1.2 Protected Species

Records of Slow Worm (*Anguis fragilis*) and Hedgehog (*Erinaceus europaeus*) were identified within 1km of the applicaiton site (see **Appendix I** for details). At least five species of bat have also been recorded in the local aream including *Myotis spp.*, Noctule (*Nyctalus noctula*), Soprano and Common Pipistrelle (*Pipistrellus pygmaeus* and *P. pipistrellus*) and Brown Long-eared Bat (*Plecotus auritus*). Records of 13 Red Listed bird species were also highlighted within the data search.

4.1.3 Ponds

A pond was identified 203m northwest of the site. This appeared to be within private ownership, and as such on-site assessment was not possible. Therefore, in order to ensure no impacts to GCN would occur, Natural England's Rapid Risk Assessment tool was utilised, under the worst-case assumption that a breeding population of GCN exists within this pond. This allowed an assessment to be undertaken as to whether the proposals would be likely to impact upon GCN in the event of their presence within dispersal distance of a breeding pond. This achieved a result of 'Offence Highly Unlikely' (**Table 2**) and as a result, no further assessment was considered required to support the overall ecological assessment.

Table 2. Result of GCN Rapid Risk Assessment (Natural England, 2019).

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	National offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.1
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

4.2 Phase I Habitat Survey

The following habitat types and dominant species were identified on site:

Species-poor Semi-Improved Grassland: The site comprises species-poor semi-improved grassland which is continually grazed and therefore lacks any significant sward structure. It is dominated by common grasses with herbaceous species limited to Creeping Buttercup (*Ranunculus repens*), Clover (*Trifolium Sp.*), Nettle (*Urtica dioica*), Dandelion (*Taraxacum agg.*), Dock (*Rumex Sp.*) and Daisy (*Bellis perennis*) (Figure 4).

Figure 4. Grassland on site.



Hedgerow: One hedgerow was present on site, running along the northern boundary (Figure 5). This feature is dominated by Hazel (*Corylus avellana*), with Elm (*Ulmus minor*), Bramble (*Rubus fruticosus*), occasional mature Hawthorn (*Crataegus monogyna*), Ash (*Fraxinus excelsior*), Field Maple (*Acer campestre*) and Oak (*Quercus robur*). The understorey is relatively sparse, although Ivy (*Hedera helix*), Lord's-and-Ladies (*Arum maculatum*) and Nettle were recorded.

Figure 5. Hedgerow along northern site boundary.



Mammal Holes: Two Rabbit (*Oryctolagus cuniculus*) burrows were recorded along the hedgerow, with a number of further excavations recorded in the northeastern-most corner. These were considered likely to belong to Fox (*Vulpes vulpes*) due to their size, shape and distinctive aroma. No evidence of Badger was recorded on site or within the immediate environ.

4.3 Assessment of Building

The 149 Lovedean Lane dwelling was considered to be in a good state of repair. It comprised a brick-built bungalow with pyramidal roof, covered in Ludlow concrete tiles. A single storey detached garage, of similar construction, was also recorded. All construction materials were in good condition and well-sealed (i.e. no gaps were recorded at the soffit or between roof tiles).

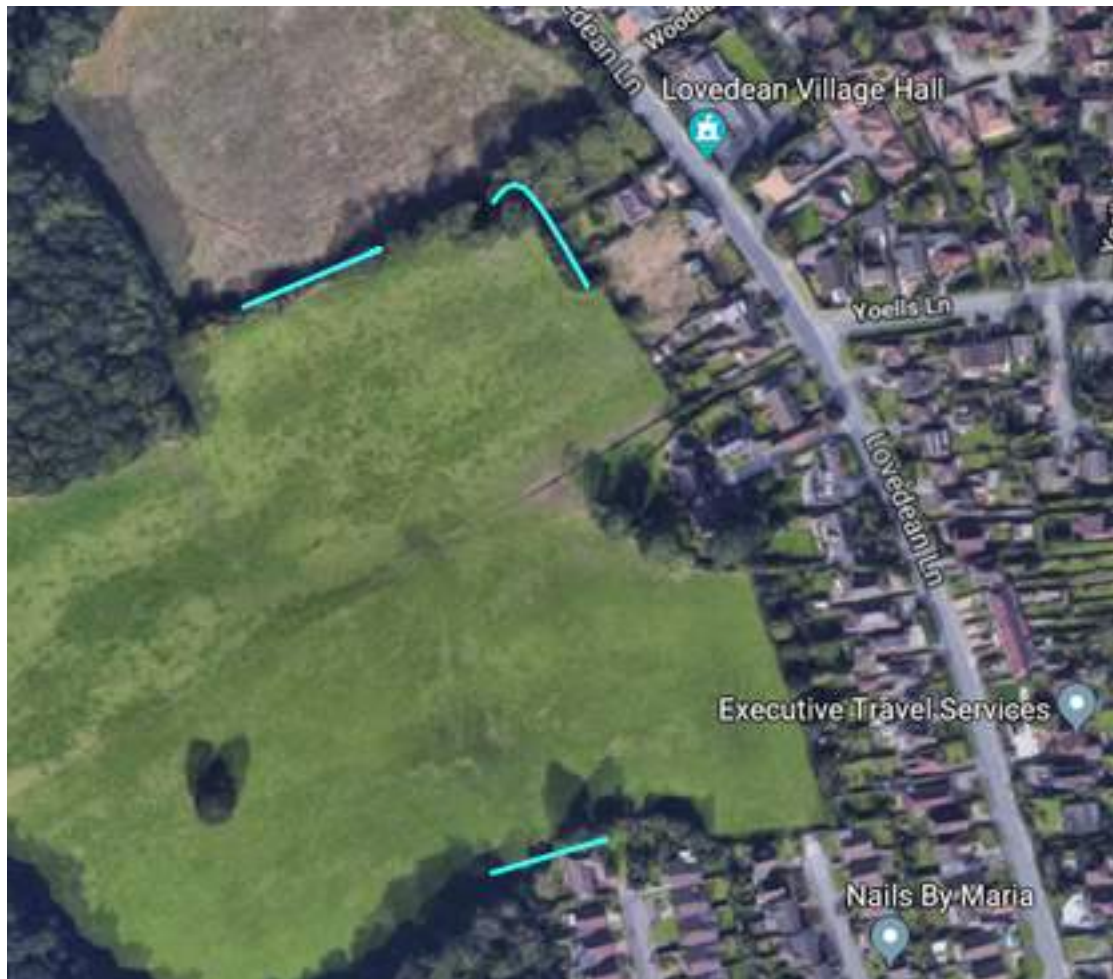
A full and systematic assessment of the loft of the dwelling was undertaken. No bats or evidence of bats were recorded and no daylight was seen entering the loft.

4.4 Phase II Bat Activity Survey

4.4.1 Transect Survey

Relatively low levels of bat activity was recorded during the activity transects. Activity was dominated by Common Pipistrelle, with occasional Soprano Pipistrelles recorded, as well as single registrations of Serotine (*Eptesicus serotinus*). Highest levels of activity were recorded along existing boundary vegetation (**Figure 6**). (See **Appendix II** for diagrammatic representation of results).

Figure 6. Areas of highest levels of bat activity (Google Maps, 2019).



4.4.2 Static Survey

Appendix III provides full details of the data recorded by the static detectors. Again, Common Pipistrelles were the dominant species recorded, with Soprano Pipistrelle, *Myotis spp.*, Serotine, Long-eared Bat, Noctule (*Nyctalus noctula*), Leisler's Bat (*Nyctalus leisleri*) and Nathusius Pipistrelle (*P. nathusii*) also present on site in low numbers.

4.5 Phase II Reptile Survey

During the survey a maximum count of one Slow Worm was recorded (**Table 3**), located along the site's northeastern boundary.

Table 3. Phase II Reptile Survey results.

Date	Time	Temp./ °C	Weather Conditions (cloud cover, wind, precipitation)	Reptiles
12/09/19	16:30	18	20% CC, Beaufort 0	-
17/09/19	10:15	13	0% CC, Beaufort 0	-
23/09/19	15:30	16	100% CC, Beaufort 0, light rain	-
25/09/19	08:30	15	100% CC, Beaufort 0, light rain	-
27/09/19	10:50	16	90% cc, Beaufort 1 -2, intermittent rain	1 Female Slow Worm
30/09/19	12:00	17	90% cc, Beaufort 0	1 Female Slow Worm

4.6 Limitations

The August static data collection failed despite two attempts. This is not considered a significant limitation to the overall assessment of bat activity on site, however, as data was collected successfully during all other months and an activity transect was also successful undertaken during this month.

The botanical species list provided within this report is not considered to be exhaustive; instead it represents a record of those species identified during the Phase I Survey and subsequent site visits during the season. Similarly, this survey does not constitute a full site assessment for invasive plant species such as Japanese Knotweed (*Fallopia japonica*) (although no such species were identified during the assessment).

5.0 EVALUATION

5.1 Desk-based Search

5.1.1 Protected Sites

Catherington Down is of National Importance to nature conservation. Non-statutory sites such as Yeoll's Copse, Dell Piece West, Catherington Lith and Hazleton Common and the SINC's are of Local Importance.

5.1.2 Protected Species

In-line with the findings of the data search the site supports habitats favorable for reptiles and foraging and commuting bat species as well as Hedgehogs. Due to the open nature of the main body of the site, it is considered to be of limited value for nesting birds, although the boundary hedgerow was considered to hold suitability.

5.2 Phase I Survey

Improved Grassland: Reptiles require open habitats with a deep and diverse vegetation structure. Scrub and grass tussocks are also preferable (Edgar *et al.*, 2010). Although the majority of the grass on site is maintained at a low level via sustained grazing, there are limited areas of suitable habitat to support reptiles around the periphery of the site, where management was less regular (confirmed during the Phase II Reptile Surveys).

The grassland also has potential to support commuting and foraging mammals such as Badgers and Foxes and also bats (confirmed during the Phase II Bat Activity Surveys). The floral species are considered to be common and widespread and therefore limited in terms of their botanical value. As a result, the grassland habitat is considered to be limited to site value.

Hedgerow: The hedgerow qualifies as BAP Hedgerow and also provides optimum habitat for nesting birds and foraging and commuting bats and small mammals. As a result it is considered to be of local value. This habitat is also considered to be favorable for Dormice (*Muscardinus avellanarius*), however no records of the species exist within the surrounding landscape.

Mammal Holes: Within the northern-most corner an active Fox den was recorded. In addition, the site is considered to hold site-level value for foraging and transient Badgers and Hedgehogs, should they be present in the wider landscape.

5.3 Assessment of Building

The 149 Lovedean Lane dwelling was considered to hold negligible potential to support roosting bats due to lacking any suitable such features, as per best practice guidelines. As a result, no further survey effort was recommended.

5.4 Phase II Bat Activity Survey

Common and Soprano Pipistrelles and Brown Long-eared Bats fall under the 'Common category' of bats in the UK, whilst the majority of the other species recorded on site fall under the 'Rarer' category (Wray *et al.*, 2010). Guidance using a points-based system, developed by Wray *et al.* (2010), produces a score of 23 points for commuting and foraging bats for the application site (see **Table 4**). This classifies the features on site as being of 'county value' for commuting and foraging bats.

Table 4. Valuation of habitat for (a) commuting and (b) foraging bats (Wray *et al.* 2010).

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)

5.5 Phase II Reptile Survey

As only one Slow Worm was recorded at the end of the survey, this constitutes a 'low' population as per best practice (Froglife, 1999). It is considered likely the individual utilises the rear gardens along Lovedean Lane and was only encouraged on to the

application site due to the presence of artificial refugia. As a result, the site is considered to hold only site-level value for reptiles.

6.0 POTENTIAL IMPACTS IN THE ABSENCE OF MITIGATION

This chapter considers the likely ecological impacts of the proposals in the absence of and avoidance, mitigation or compensation measures being implemented, to allow the suitable design of such measures where necessary. Potential impacts are identified with reference to the likely biophysical changes associated with the proposed scheme. In many cases, whilst a potential negative impact is identified at this stage, suitable measures can be implemented to ensure no immediate or residual negative impacts occur, thereby ensuring compliance with relevant legislation. Such measures, together with ecological enhancements, can also ensure the development results in biodiversity net gain, as per planning policy (**Section 7**).

6.1 Designated Sites

It is not considered that this development will have any direct impacts upon nearby designated sites during the construction phase itself (i.e. through noise, air or water pollution) due to a lack of pollution pathways. The site does, however, lie within close proximity to James Copse SINC. It is considered that there is potential for increased recreational disturbance once the development is completed., due to the residential nature of the proposals. As the site supports ancient semi-natural woodland with Great Woodrush (*Luzula sylvatica*) known to be present, increased disturbance of ground flora would likely have a negative impact at site level.

As the development falls within 5.6km of Special Protection Areas within and around the Solent Special Protection Areas (SPAs), it falls in the zone within which Natural England believes a net increase in recreational disturbance resulting from new development 'would be likely to have a significant effect' upon the status of the SPA, should suitable measures not be implemented.

6.2 Bats

Any increase in artificial lighting would likely reduce the suitability of the site to support foraging and commuting bats. This would likely have a negative impact at site level. Similarly, a reduction in the availability of grassland would lead to a decrease in the availability of foraging habitat. Again, this would have a negative impact at site level.

6.3 Hedgerow

Although the hedgerow will be retained under the proposals, development works taking place adjacent to the boundary vegetation could result in the death of the trees

through damage by machinery, particularly via root zone compaction. This would result in a negative impact at local level.

An increase in disturbance associated with proposals is also likely to occur (i.e. increase noise and human presence adjacent to the hedgerow). This has the potential to impact nesting birds and would have a negative impact at site level.

6.4 Reptiles

6.4.1 Habitat Loss

Development of the site will require the clearance of vegetation and topsoil stripping, which would result in damage to, and physical loss of, on-site reptile habitat. Construction and associated landscaping and infrastructure would then ensure that such a loss would be permanent. This would result in a negative impact at local level.

6.4.2 Death and/or Injury

Should site clearance take place whilst individual reptiles are present, death or injury to these individuals could occur. This would represent an offence under the Wildlife and Countryside Act, 1981, and would result in a negative impact upon reptiles at site level.

6.5 Mammals

Although not a legally protected species, an offence under the Wild Mammals (Protection) Act (1996) could arise if a Fox were present underground during ground works as they may become entombed or suffocated. As development is set back >20m it is considered highly unlikely the den and/or associated Foxes will be negatively impacted by proposals.

Potential indirect impacts to Badgers and Hedgehogs associated with the scheme are considered to comprise disruption to habitat connectivity. The loss of commuting corridors and foraging habitat would result in a negative impact at site level.

7.0 MITIGATION, COMPENSATION AND ENHANCEMENTS

7.1 Reptiles

7.1.1 Exclusion Fencing

As detailed above it is considered unlikely the site supports a permanent, self-sufficient population of reptiles. Instead, neighbouring habitat provides favourable conditions. If the current level of grassland management were to cease at any time between the issuing of this report and the commencement of site clearance, however, the sward will become more structured, facilitating the colonisation of the site by reptiles.

To ensure this does not occur, the grassland on site will remain closely managed at all times prior to the commencement of site clearance activities. Immediately prior to the commencement of clearance (or immediately following the cessation of grassland management, if pre-commencement management cannot be continued), suitably robust reptile exclusion fencing will be installed around the northwestern boundary of the site. This will provide a division between the 'working' areas (i.e. those areas where humans and machinery will disturb the ground) and the retained areas (i.e. site boundary habitat). The fencing will remain in place until all construction works are completed, after which it will be sensitively removed to allow reptiles to move onto the site.

7.1.2 Precautionary Catch

To add confidence that reptiles are not present on site at the time of site clearance commencing, a precautionary translocation exercise will be undertaken once the exclusion fencing has been installed. Artificial refugia will be distributed along site boundaries, allowed to bed in for at least seven days, and then checked a minimum of seven times by a suitably experienced Ecologist. If no reptiles are recorded it will be considered highly unlikely they are present and therefore works can proceed. If reptiles are identified, they will be caught and relocated the other side of the exclusion fencing, out of harms way. Checks will then continue past the minimum seven checks, until five consecutive negative visits have been achieved in suitable conditions, in-line with best practice guidelines.

The precautionary translocation will be undertaken during the active reptile season, during suitable weather conditions (i.e. between 10°C and 20°C with little or no wind or rain). The optimum period for capture of reptiles is April to June and September, however it is possible to capture reptiles outside of this period providing weather conditions are suitable.

7.2 Nesting Birds

To ensure birds have safe opportunities for nesting on site a total of 10 bird boxes will be erected. Those constructed of woodcrete are favorable, as they will last longer than wooden boxes. In addition, boxes with a variety of entrance hole sizes and open fronted designs will be selected, to suit a variety of species, as follows:

- **32mm entrance hole** will attract Great Tit, Redstart, Nuthatch and House Sparrow.
- **26mm entrance hole** suits Blue, Marsh, Coal Tit and possibly Wren.

No. 10 Schwegler Swallow Nest features will be installed along the eaves of 10% of the new dwellings. The boxes will ensure a minimum of 6cm clearance between the top of the nest feature and the eaves. These boxes mimic natural nesting sites whilst providing a stable environment for both chick rearing in the summer and roosting in the winter.

7.3 Bats

7.3.1 Lighting

Lighting will be highly directional on site so as to avoid spillage on to the boundary vegetation.

Type of Lamp

Sodium lamps or LED lights will be used on site instead of mercury or metal halide varieties. Glass glazing is also preferable due to its UV filtration characteristics. Light sources that emit minimal UV light and avoid the white and blue wavelengths avoid attracting lots of insects; this is favorable so that the new lighting scheme does not lead to the depletion of insects from surrounding habitats, which can dramatically alter the assemblage of local bat populations.

Luminaire and Light Spill Accessories

If lighting is a necessity, this will be directed to only where it is needed, with light spillage avoided. This will be achieved by the design of the luminaire and by using hoods to direct the light only to the intended areas. In particular, every effort will be made to ensure no lighting or light spill reaches the site boundaries, due to their importance to support nocturnal wildlife.

The height of lighting columns should be as short as is possible. As such, lighting on site will be as low as guidelines permit. If lighting is not needed, however, it will not be installed.

7.3.2 Bat Boxes

Bat boxes will be incorporated into at least 10% of the new dwellings. The 1FR Bat Tube is designed to be installed on the external walls of buildings, either flush or beneath a rendered surface. It has been specifically designed to meet the requirements of the species of bats that inhabit buildings, including those which have been recorded on site. It has an integrated wooden panel onto which bats can cling, and a ridged entrance slope that makes it easy for bats to enter and leave the box safely. The design maintains stable climatic conditions, providing bats with a safe and stable roosting environment. This style of bat box requires no maintenance as droppings fall out of the entrance ramp.

The Enclosed Bat Box 'C' from Ibstock is designed for Pipistrelle species, and can be integrated directly into the brickwork of new buildings. The inside of the box is designed to create several roosting zones that are ideal for crevice-dwelling bats. The bottom entrance means that no maintenance is required as droppings simply fall out of the bottom.

In general, bats seek warm spaces when rearing young. For this reason, bat boxes should be located where they will receive at least partial sunlight (facing south, south-west or south-east). However, installing bat boxes in more than one orientation will allow for a choice of roosting conditions. To increase the chances of bats roosting in a bat box, the boxes will be placed adjacent to vegetation features so as to be located near to existing flight paths.

The bat boxes will be installed a minimum of 2m above ground level, although 5-7m is preferable to prevent disturbance from people and predators. The features should also be positioned near the eaves or gable apex of buildings to minimise disturbance.

7.4 Mammals

During the construction phase of the development, all excavations on site will be covered nightly and/or include a suitable escape ramp for the protection of wildlife such as Badgers (a suitable escape can be provided by wooden planks placed at 45 degree angle or provision of a sloping end wall). Any temporarily exposed open pipe systems will also be checked and then suitably capped when not in use to prevent access by wildlife.

7.5 Tree Protective Fencing

Tree protective fencing will protect the retained hedgerow from direct impact and from severance or asphyxiation of the roots. Fences must be installed at the distance of the branch spread away from the tree trunk (British Standard 5837:2012 Trees in relation to construction) and/or at a distance half the height of the tree (whichever is

greater) and be of suitably robust construction (chestnut paling, Heras or similar). No vehicles will be permitted access to the land within the protection zone and no materials will be stored within the protection zone. All protective fencing must be in place prior to the commencement of construction activities (including site clearance), and remain in place until all work is completed.

Such measures will also serve to protect any birds utilising the hedgerow to nest.

7.6 Native Planting

7.6.1 Shrubs and Scrub

As a general ecological enhancement any proposed new planting will aim for a 70:30 ratio in favour of native species over non-natives and ornamentals. Ideally fruit bearing trees, providing food sources for birds and small mammals during the autumn and winter, and nest sites during the spring and summer, will be selected, as well as those with high nectar yields for invertebrates. Species that should be considered include:

- Hawthorn (*Crataegus monogyna*),
- Alder Buckthorn (*Frangula alnus*),
- Blackthorn (*Prunus spinosa*),
- Wild Cherry (*Prunus avium*),
- Crab Apple (*Malus sylvestris*),
- Elder (*Sambucus nigra*),
- Rowan (*Sorbus aucuparia*).

Shrubs to be considered within the landscape planting include:

- Holly (*Ilex aquifolium*),
- Dogwood (*Cornus sanguinea*),
- Privet (*Ligustrum vulgare*),
- Dog Rose (*Rosa canina*),
- Guelder Rose (*Viburnum opulus*).

7.6.2 Trees

Key species are Willow, Oak and Birch as they can support particularly high numbers of invertebrates. In addition, once matured they can eventually provide roosting opportunities for bats (see **Table 5** below).

Table 5. Tree species for foraging and roosting potential (Gunnel et al. 2012).

Native Tree species	Roosting potential	Supporting foraging
Oak	Very good	Very good
Willow	Minimal	Very good
Beech	Very good	Good
Ash	Good	Good
Elm	Good	Good
Birch	Minimal	Very good

7.7 Hedgehogs

Provision will be made to promote site connectivity and extended foraging ranges and opportunities for the European Hedgehog, as per best practice. Holes measuring 10cm x 10cm will be made at the base of boundary fences/gravel boards into and between each garden and the surrounding habitats. Small signage will be installed on the fence above both sides of these access points to ensure they remain open upon completion of the development. The People's Trust for Endangered Species provide such signage, the purchase of which also supports conservation efforts: <https://ptes.org/shop/hedgehog-highways-signs/hedgehog-highway-labels/>

7.8 Designated Sites

Assessment of online resources suggests there is no public access into the nearby SINCs; therefore it is considered highly unlikely the new residents will gain access, however as a precaution the design of the site should serve to further prevent opportunities for access into this land (i.e. through planting screens or fencing).

8.0 CONCLUSION

The site at Cottage Farm, Lovedean is proposed for residential development. The main body of the site is considered to hold limited ecological value, being dominated by regularly-grazed, species-poor semi-improved grassland. That said, low numbers of relatively common species of bats were recorded utilising the site, as well as a single Slow Worm and a low number of Fox dens. In addition, one boundary hedgerow on site is considered to hold BAP status, and the potential to support nesting birds. An ecological avoidance and mitigation strategy has been detailed within this document to ensure the proposals can proceed in full compliance with relevant wildlife legislation and policy. A number of site ecological enhancements have also been specified, to ensure the proposed development will result in biodiversity net gain, as per planning policy.

It is considered that should all measures detailed within this report be implemented in full, the proposals will proceed in full compliance with all relevant wildlife legislation and planning policy.

Please note, although considered highly unlikely, should signs of protected species other than those detailed within this report be identified, all works must cease immediately and the advice of the Project Ecologist sought to ensure compliance with legislation.

9.0 REFERENCES

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APPENDIX I – Protected Species within 2km (excluding bird records).

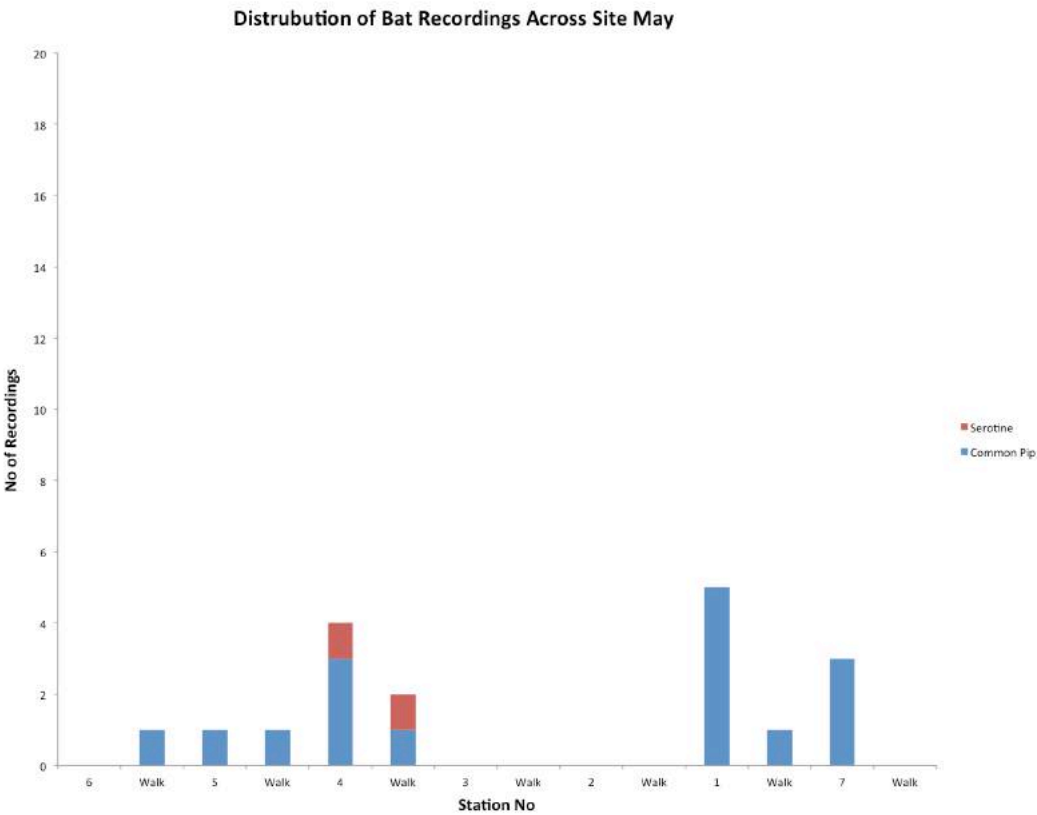
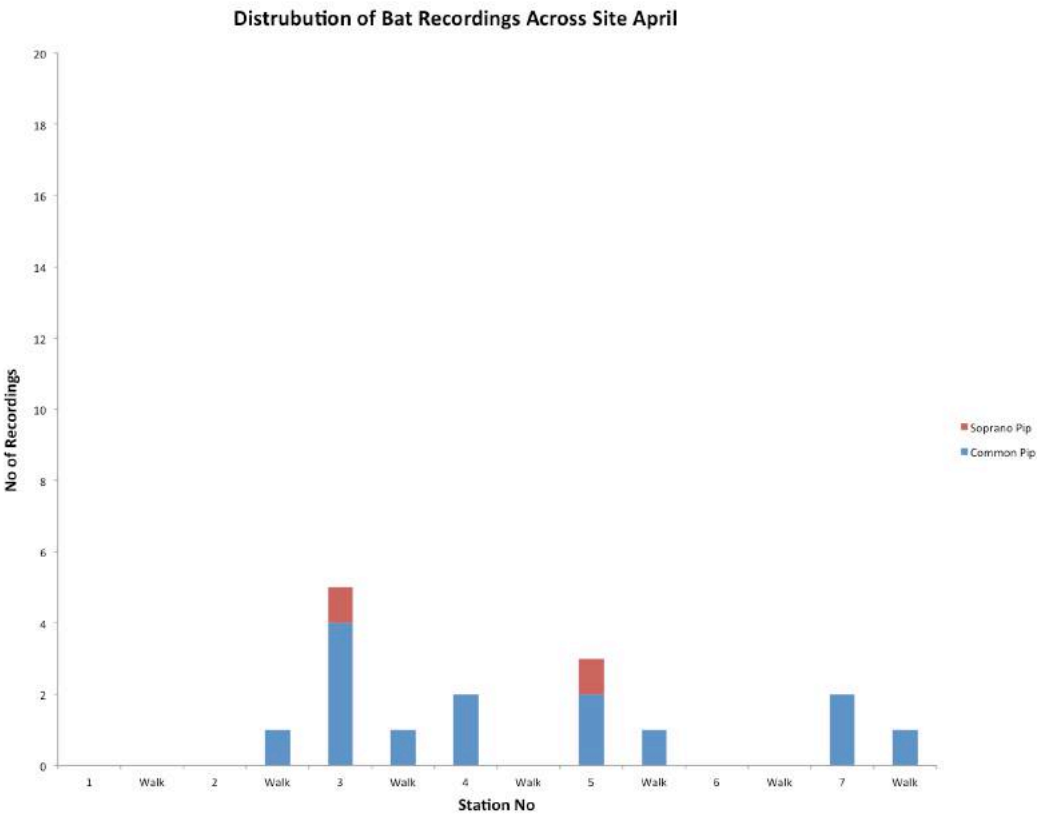
Name (common, <i>latin</i>)	Date of Record	Proximity to Site (distance & direction/km)	Abundance	Legal status
Reptiles				
Slow Worm, <i>Anguis fragilis</i>	2015	0.55	1	NERC_s41 WCA_s5s91(t)
Slow Worm, <i>Anguis fragilis</i>	2015	0.56	2	NERC_s41 WCA_s5s91(t)
Slow Worm, <i>Anguis fragilis</i>	2015	0.57	1	NERC_s41 WCA_s5s91(t)
Slow Worm, <i>Anguis fragilis</i>	2015	0.28	1	NERC_s41 WCA_s5s91(t)
Birds				
Lesser Redpoll, <i>Acanthis cabaret</i>	2009	0.76 SW	2	BOCC_Red NERC_s41
Lesser Spotted Woodpecker, <i>Dendrocopos minor</i>	2007/2009	0.76 SW	11	BOCC_Red HBAP
Lesser Spotted Woodpecker, <i>Dendrocopos minor</i>	2006/2007	0.29 SSE	8	BOCC_Red HBAP
Yellowhammer, <i>Emberiza citrinella</i>	2009	0.76 SW	1	BOCC_Red NERC_s41
Yellowhammer, <i>Emberiza citrinella</i>	2015	1.7 SSE	1	BOCC_Red NERC_s41
Herring Gull, <i>Larus argentatus</i>	2012	2.2 SW	2	BOCC_Red CR
Lesser Black-backed Gull, <i>Larus fuscus</i>	2012	2.2 SW	16	BOCC_Red CR
Linnet, <i>Linaria cannabina</i>	2012	1.55 WNW	1	BOCC_Red HBAP
Nightingale, <i>Luscinia megarhynchos</i>	2015	1.65 SSE	2	BOCC_Red HBAP CS
Grey Wagtail, <i>Motacilla cinerea</i>	2008	0.76 SW	1	BOCC_Red
Grey Wagtail, <i>Motacilla cinerea</i>	2006	0.29 SSE	1	BOCC_Red
Grey Wagtail, <i>Motacilla cinerea</i>	2004	0.66 NE	1	BOCC_Red
House Sparrow, <i>Passer domesticus</i>	2012	2.17 SW	4	BOCC_Red NERC_s41
House Sparrow, <i>Passer domesticus</i>	2011	1.65 SSE	2	BOCC_Red NERC_s41
Marsh Tit, <i>Poecile palustris</i>	2010	0.76 SW	1	BOCC_Red
Marsh Tit, <i>Poecile palustris</i>	2006	0.29 SSE	2	BOCC_Red
Marsh Tit, <i>Poecile palustris</i>	2010	0.52 NE	1	BOCC_Red
Turtle Dove, <i>Streptopelia turtur</i>	2008	0.76 SW	1	BOCC_Red NERC_s41 HBAP
Starling, <i>Sturnus vulgaris</i>	2012	2.17 SW	1	BOCC_Red
Starling, <i>Sturnus vulgaris</i>	2010	0.52 NE	1	BOCC_Red
Song Thrush, <i>Turdus</i>	2010	0.52 NE	1	BOCC_Red

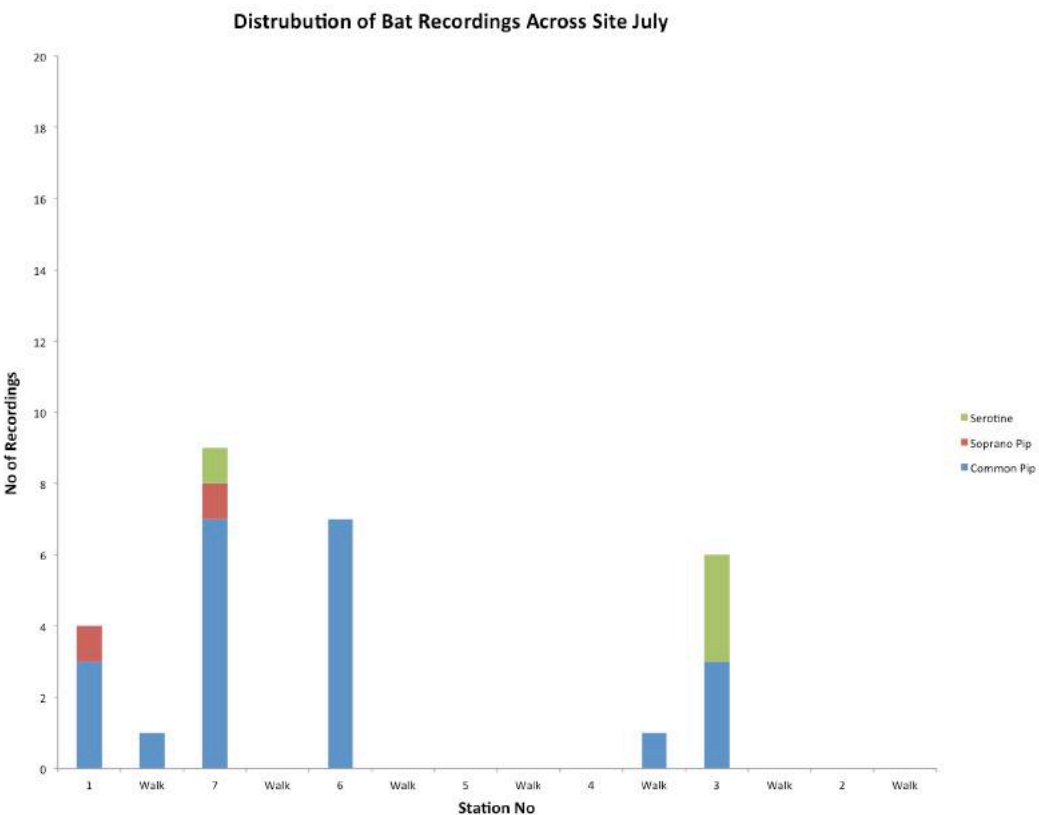
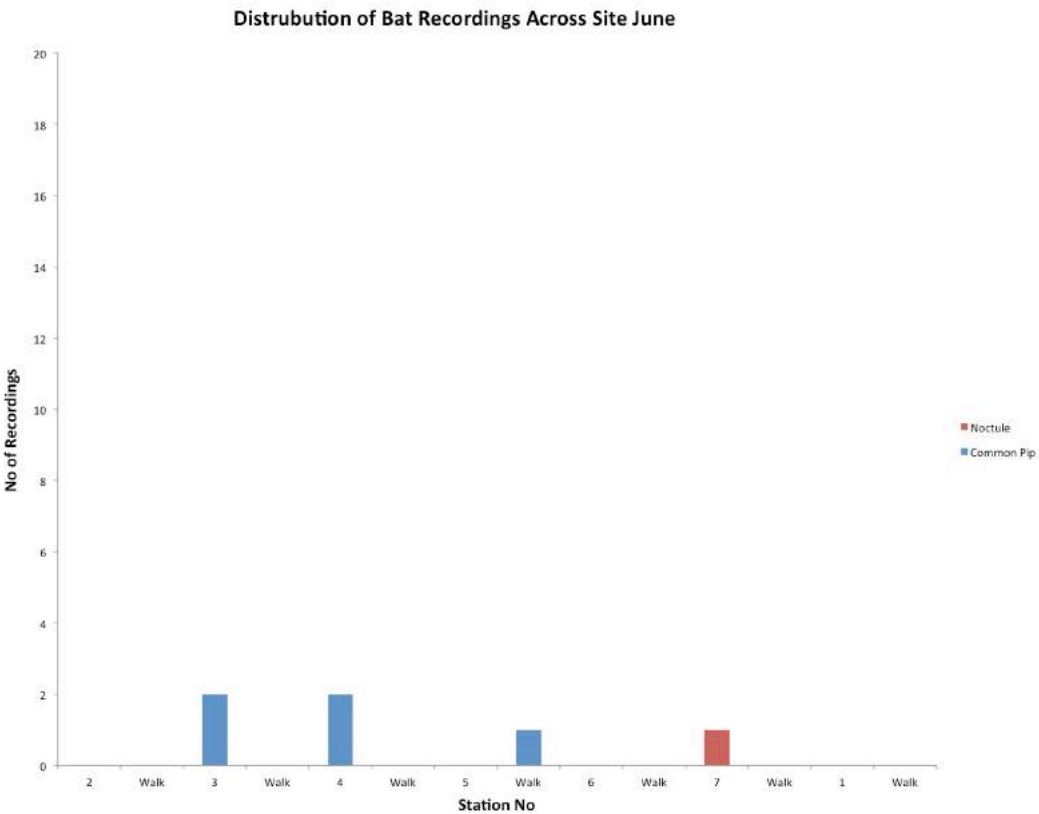
<i>philomelos</i>				HBAP
Mammals				
Unidentified Myotis Bat	2013	0.25 NNW	1	EU_Hab_2np EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP CI
Noctule, <i>Nyctalus noctula</i>	2004	1.09 S	2	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c
Unidentified Pipistrellus species	2005	1.09 SSW	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	2008	1.08 S	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	2012	0.58 S	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	2011	0.61 SSE	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	2004	0.35 ESE	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	1998	0.31 E	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	2006	0.33 ENE	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Unidentified Pipistrellus species	2000	0.8 E	1	EU_Hab_4 HabReg_s2

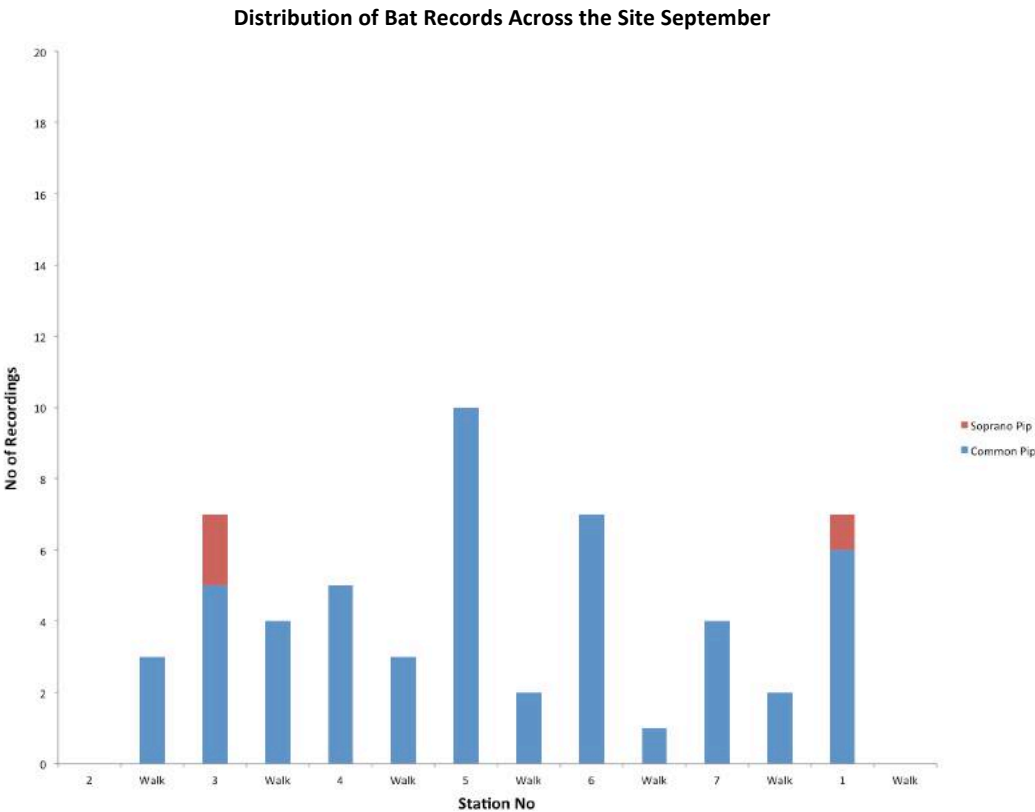
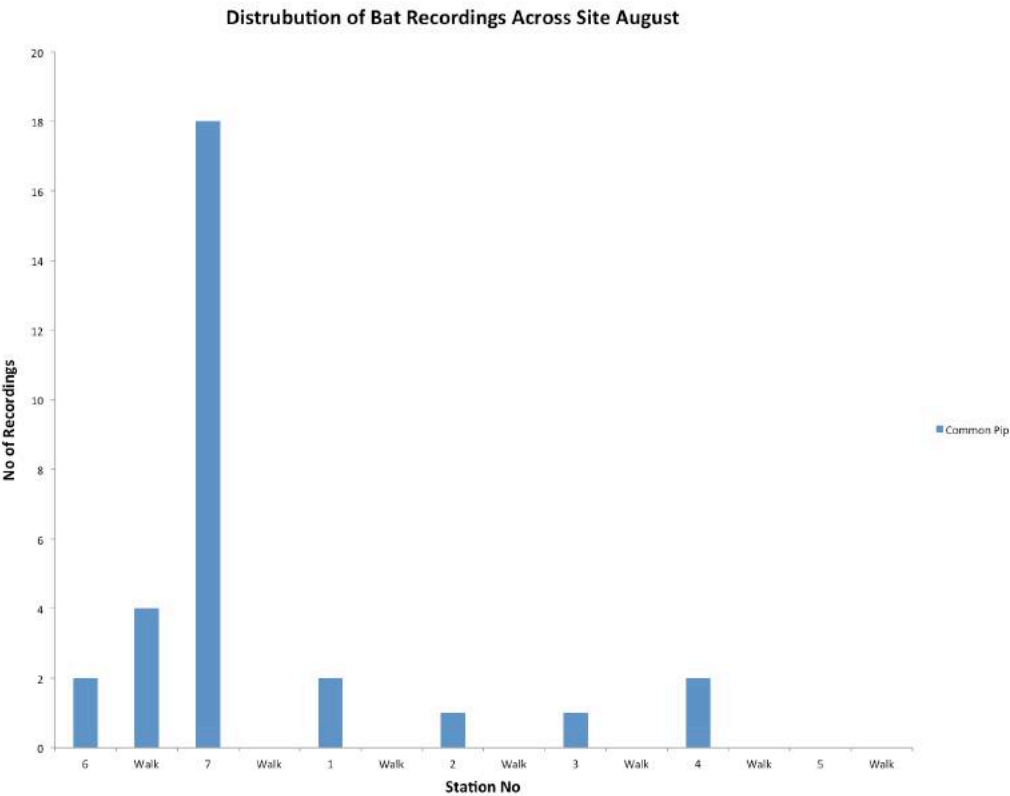
				NERC_s41 WCA_s5s94b WCA_s5s94c HBAP
Common Pipistrelle, <i>Pipistrellus pipistrellus</i>	2003	0.91 SSW	1	EU_Hab_4 HabReg_s2 WCA_s5s94b WCA_s5s94c HBAP
Common Pipistrelle, <i>Pipistrellus pipistrellus</i>	2016	0.8 S	1	EU_Hab_4 HabReg_s2 WCA_s5s94b WCA_s5s94c HBAP
Common Pipistrelle, <i>Pipistrellus pipistrellus</i>	2013	0.25 NNW	1	EU_Hab_4 HabReg_s2 WCA_s5s94b WCA_s5s94c HBAP
Common Pipistrelle, <i>Pipistrellus pipistrellus</i>	2015	0.48 S	1	EU_Hab_4 HabReg_s2 WCA_s5s94b WCA_s5s94c HBAP
Common Pipistrelle, <i>Pipistrellus pipistrellus</i>	2006	0.33 ENE	1	EU_Hab_4 HabReg_s2 WCA_s5s94b WCA_s5s94c HBAP
Soprano Pipistrelle, <i>Pipistrellus pygmaeus</i>	2012	0.53 ESE	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c
Brown Long-eared Bat, <i>Plecotus auritus</i>	2006	0.39 NNE	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c
Brown Long-eared Bat, <i>Plecotus auritus</i>	2010	0.42 ENE	2	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c
Brown Long-eared Bat, <i>Plecotus auritus</i>	1995	0.76 SSE	1	EU_Hab_4 HabReg_s2 NERC_s41 WCA_s5s94b WCA_s5s94c
West European Hedgehog, <i>Erinaceus europaeus</i>	2015	0.54 ESE	1	NERC_s41

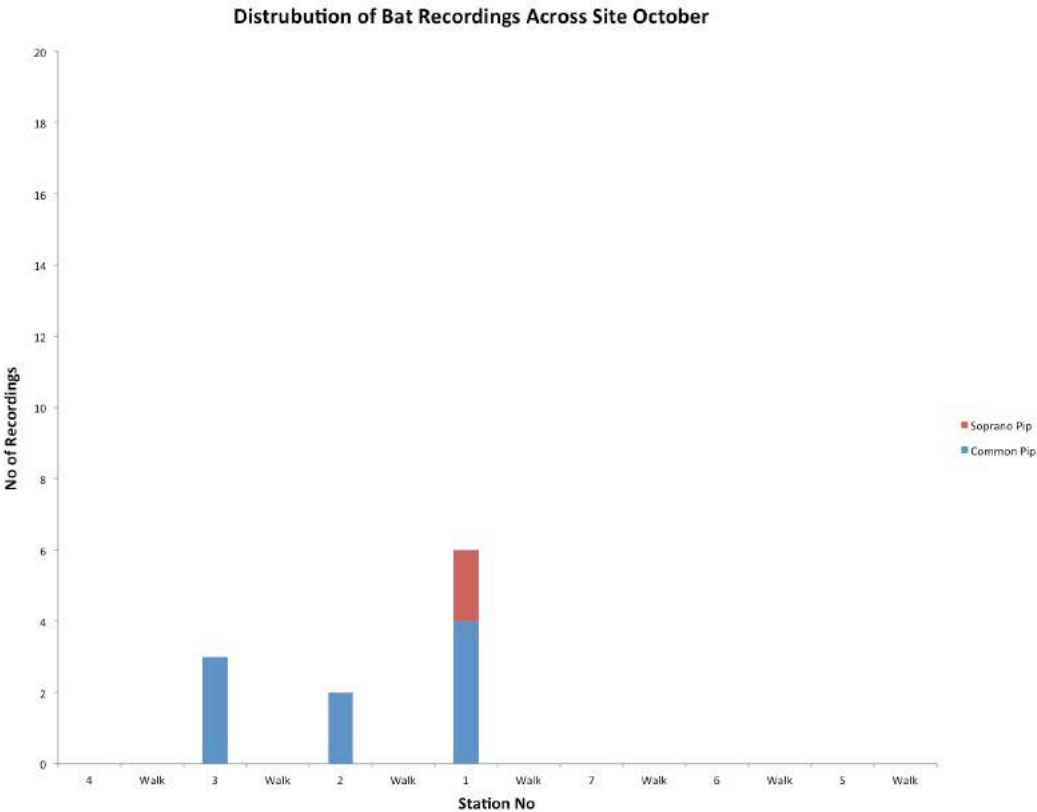
Appendix II – Bat Transect Survey Results.

Date	Time of Sunset/Sunrise	Start/End Time	Weather Conditions
24/04/19	20:13	20:13/22:13	9 - 8°C, 60% cloud cover, calm and cool
25/05/19	21:03	21:03/23:07	14°C, 80% cloud cover, calm and dry
27/06/19	21:21	21:21/23:21	15°C, 5% cloud cover, moderate wind and dry
29/07/19	20:54	20:54/22:54	20°C, 35% cloud cover, very calm and dry
27/08/19	20:01	20:01/22:01	19°C, 20% cloud cover, calm and dry
30/09/19	18:39	18:39/20:39	14°C, 100% cloud cover, breezy, rain during last 3 points only
17/10/19	18:08	18:08/20:08	13°C, 90% cloud cover, relatively calm, intermittent rain









APPENDIX III – Static Data Collection Results.

April 2019	Common Pipistrelle	Myotis spp.	Serotine
24 th	47	1	0
25 th	18	0	2
26 th	6	0	0
27 th	4	0	0
28 th	42	0	1
Total	147	1	3

May 2019	Common Pipistrelle	Soprano Pipistrelle	Myotis spp.	Serotine
24 th	110	1	0	2
25 th	317	0	1	0
26 th	82	1	0	0
27 th	75	0	3	0
Total	584	2	4	2

June 2019	Common Pipistrelle	Soprano Pipistrelle	Myotis spp.	Serotine	Long-eared	Leisler's	Nathusius' Pipistrelle
21 st	43	0	1	0	1	1	0
22 nd	100	0	4	1	1	1	0
23 rd	101	0	2	3	0	1	0
24 th	178	1	1	2	0	6	0
25 th	72	0	0	1	0	1	1
Total	494	1	8	7	2	10	1

July 2019	Common Pipistrelle	Soprano Pipistrelle	Myotis spp.	Serotine	Long-eared	Leisler's
24 th	213	5	2	8	4	0
25 th	133	2	1	8	7	2
26 th	151	2	0	4	6	0
27 th	113	4	0	3	0	0
28 th	95	1	0	1	1	0
Total	705	14	3	24	18	2

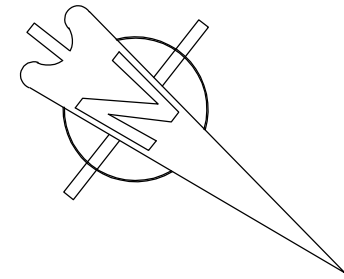
September 2019	Common Pipistrelle	Soprano Pipistrelle	Myotis spp.	Serotine	Long-eared
26 th	697	7	0	1	2
27 th	470	5	1	0	47
28 th	182	8	11	1	13
29 th	1168	28	30	0	35
30 th	51	0	0	0	7
Total	2568	48	42	2	104

October 2019	Common Pipistrelle	Soprano Pipistrelle	Myotis spp.	Serotine	Long-eared
11 th	30	0	3	2	0
12 th	81	0	2	1	0
13 th	75	0	11	0	5
14 th	317	1	13	1	14
15 th	241	1	14	2	11
Total	744	2	43	6	30

Plan 1. Habitat Map.

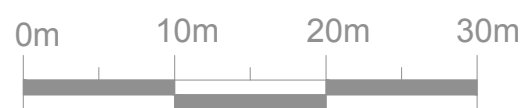


- I Improved Grassland
- Hedgerow
- Hard standing and Buildings
- TN1 Fox den



KEY

- SITE BOUNDARY
- LOCAL AUTHORITY BOUNDARY
- ILLUSTRATIVE DWELLINGS
- ILLUSTRATIVE PLANTING
- ILLUSTRATIVE ROAD
- EXISTING PLANTING



C	29-04-20	Amended to revised proposals.	DGP	DGP
B	14-02-20	Key added.	DGP	DGP
A	24-01-20	Red line amended at site entrance.	DGP	DGP
Rev.	Date	Description	Drawn	Checked

Client



Project
Cottage Farm, Lovedeane Lane,
Waterloo PO8 9RW

Drawing Title
Illustrative Masterplan

Scale 1:500 @ A1 Drawn DGP Checked DGP

Date December 2019 File P1638 Masterplan Drawing Status

Dirg.No. P1638.01 Rev. C PLANNING

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