

ecological support, management &
solutions



208 London Road

**Phase I & II Ecological Survey
& Bat Mitigation Strategy**

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1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd were commissioned by Dean Simpson to carry out a Phase I ecological survey of the 208 London Road property and associated land. The aim of the survey was to identify any impacts of the proposed development of the site on features of ecological value. The objectives of the Phase I Survey were as follows:

- Inspect the property internally and externally for evidence of bats or bats themselves
- Identify any external features that may be utilised by bats
- Classify the building's roost potential
- Recommend Phase II survey work to adhere to guidelines.

Based on the presence of features considered suitable to support roosting bats, further Phase II survey work was conducted to ascertain if bats were roosting on site and if so the following:

- The species of bat(s) roosting
- The size of the roost(s)
- The status of roost(s) e.g. maternity, hibernation, transitional summer, mating
- The relative value of the roost(s).

The findings of these surveys will be used to inform the Local Planning Department. The information within this report will remain valid for 24months. If works do not take place within this time scale updating survey work will be required.

1.2 Proposed Development

The proposed development involves the demolition of the existing property to make way for four new homes.

1.3 Site description

The 208 London Road property is a detached two storey dwelling situated along London Road, Waterloooville, PO77AN (**Fig 1**). The site consists of the property itself and associated garden and driveway (Grid Reference SU 67886 08982). London Road runs along the north western boundary of the site with neighbouring properties to the northeast and south. Across London Road lies agricultural fields bounded by hedgerows with allotments even further still to the northwest. In contrast to the east the wider vicinity is highly urbanised due to the sites location within the settlement of Waterloooville. There are vast expanses of residential housing along with industrial and commercial units.

Figure 1. Ariel Photograph of the site and surrounding area (Google Maps, 2015).



2.0 RELEVANT LEGISLATION & POLICY

2.1 Legislation

2.1.1 The Conservation of Habitats and Species Regulations (2010)

The Conservation of Habitats and Species Regulations (2010) 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. It is an offence to deliberately capture, kill or injure 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 on the local distribution or abundance or affect their ability to survive, breed and rear or nurture their young.

2.1.2 The Wildlife and Countryside Act (1991 as amended)

The Wildlife and Countryside Act (1991) (as amended) 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 bats, 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.

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 policy with stronger powers relating to wildlife crimes.

2.1.4 Natural Environment and Rural Communities Act (2006)

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

2.2 Policy

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

2.2.1 National Planning Policy and Framework (2012)

This sets out the Government's vision for biodiversity in England. It states that the planning system should maintain, enhance, restore or add to biodiversity and geological conservation interests. Key principles of the framework include the creation, protection, enhancement and management of networks of biodiversity, the preservation, restoration and recreation of priority habitat and ecological networks and the recovery of priority species populations, including sections on legally protected species.

2.2.2 Havant Borough Core Strategy (2011)

Part of the 'Vision for Havant Borough in 2026' is to protect and enhance biodiversity. Similarly policy CS11: Protecting and Enhancing the Special Environment and Heritage of Havant Borough states that planning permission will only be granted when development protects habitats and features of biological interest and prevents the fragmentation of existing habitats.

3.0 METHODS

3.1 Data Search

A search using online resources was undertaken to identify any nearby designated sites. The key aim of this was to ascertain if the site fell within the designated 5.6 km 'disturbance zone' from the Solent area SPAs.

3.2 Phase I Survey

The initial Phase I survey was carried out by Adam Jessop (Natural England Class Level 2 Bat license holder) of Ecosupport Ltd. on the 4th of December 2014 with an updated survey on the 28th August 2015. This incorporated a visual assessment of the site and the surrounding landscape, loosely following the methodology outlined within the Joint Nature Conservation Committees (JNCC) *Phase I habitat survey handbook* (2003). The habitats present were described, paying particular attention to their potential to support protected species.

3.3 Assessment of Building to Support Roosting Bats

An assessment of the dwelling was made to determine the likelihood of supporting bats. The exterior of the building was examined, using 8 x 42 Avian Trekker binoculars and a high-powered torch, for any suitable features which bats may use to enter the loft space or an external roost. The interior of the building was assessed by entering the loft and using a high powered torch to examine whether it was suitable for roosting bats and to search for signs of (i.e. droppings, feeding remains) and/or bats themselves. The survey was carried out in accordance with *Bat surveys: Good practice guidelines 2nd edition* published by the Bat Conservation Trust (2012).

3.4 Phase II Bat Survey

The Phase II surveys were carried out by Adam Jessop, Tristanna Cornwell BSc (Hons), Sophie Hughes BSc (Hons) MSc, Nathan Fox and Aaron Domblides all experienced surveyors of ecosupport Ltd. The position of the surveyors is demonstrated in **Figure 2** below. Heterodyne (Bat Box Duet), frequency division (Anabat SD1/2) and Bat Scanner detectors were used during the survey. Surveys began approximately 20 minutes prior to sunset and continued until approximately an hour and 30 minutes after sunset. Survey sheets were used to record the following information:

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

Figure 2. Position of surveyors during the emergence surveys.



During the emergence surveys, general activity within the site was noted. Due to the site being of a limited size it is considered that the surveyors were able to register the majority of bat activity from their static locations.

4.0 SURVEY RESULTS

4.1 Desk Based Search

The following relevant statutory protected areas were identified within 5.6 km of the site:

- **Chichester & Langstone Harbours (SPA & Ramsar) (3.86km south)**

This site is designated as a wetland of international importance under Article 4.2 of the Habitats Directive by regularly supporting at least 20,000 waterfowl. The site supports populations of European importance for a number of species listed under Annex 1 of the EU Habitats Directive, such as Little Tern *Sterna albifrons* and Sandwich Tern *Sterna Sandvicensis* during the breeding season, Little Egret *Egretta garzetta* and Ringed Plover *Charadrius hiaticula* on passage, and Bar-tailed Godwit *Limosa lapponica* and Little Egret *Egretta garzetta* over winter.

- **Solent Maritime Special Area of Conservation (SAC) (3.88km southeast)**

The Solent Maritime encompasses a number of Annex I habitats, combining to afford it SAC status; estuaries (priority reason for selection), *Spartina* swards (priority), Atlantic salt meadows (priority), sandbanks which are slightly covered by sea water all the time, mudflats and sandflats not covered by sea water at low tide, coastal lagoons, annual vegetation of drift lines, perennial vegetation of stony banks, *Salicornia* and other annuals colonising mud and sand, and white dunes.

The Solent encompasses a major estuarine system on the south coast of England, with four coastal plain estuaries (Yar, Medina, King's Quay Shore, Hamble) and four bar-built estuaries (Newton Harbour, Beaulieu, Langstone Harbour, Chichester Harbour). The Solent and its inlets are unique in Britain and Europe for their hydrographic regime of four daily tides and the complexity of marine and estuarine habitats present. Sediment habitats include extensive estuarine flats, often with intertidal areas supporting Eelgrass *Zostera sp.* and green algae, sand and shingle spits, and natural shoreline transitions. The mudflats range from low and variable salinity in the upper reaches to very sheltered, almost fully marine muds in Chichester and Langstone Harbours. Unusual features include the presence of very rare sponges in the Yar estuary and a sandy 'reef' of the polychaete *Sabellaria spinulosa* on the steep eastern side of the entrance to Chichester Harbour. Solent Maritime is the only site for Smooth Cord-grass *Spartina alterniflora* in the UK and is one of only two sites where significant amounts of Small Cord-grass *S. maritima* are found. Townsend's Cord-grass *S. x townsendii* and Common Cord-grass *S. angelica*, all four taxa thus occurring in the Solent in close proximity. The Solent also contains the second largest aggregation of ungrazed Atlantic salt meadows in south and southwest England. As a whole the site is less truncated by man-made features than other parts of the south coast and shows rare and unusual transitions to freshwater reedswamp and alluvial woodland as well as coastal grassland.

4.2 Habitat Survey

The following broad habitat types were identified on site:

Amenity Grassland: At the front of the property a small area of amenity grassland, for aesthetic purposes, was noted. Similarly at the rear an area of garden space, dominated by amenity grassland was recorded. The species within this area included Buttercup (*Ranunculus Sp.*), White Clover (*Trifolium repens*), Field Bindweed (*Convolvulus arvensis*), Common Daisy (*Bellis perennis*), Dandelion (*Taraxacum officinale*), Ribwort and Greater Plantain (*Plantago lanceolata* and *major*), Rough Hawkbit (*Leontodon hispidus*), Cat's ear (*Hypochaeris radicata*), Ragwort (*Jacobaea vulgaris*), Ivy (*Hedra helix*), Wood Avens (*Geum urbanum*), Bristly Ox-tounge (*Picris echioides*) and Broad-leaved Willowherb (*Epilobium montanum*). Grasses noted included Annual Meadow Grass (*Poa annua*), Perennial Rye grass (*Lolium perenne*) and Yorkshire Fog (*Holcus lanatus*) (**Figure 3**).

Figure 3. Amenity Grassland to the rear of site.



Scattered Trees: Elm (*Ulmus minor*), Pear (*Pyrus Sp.*) and a number of ornamental trees were recorded on site.

Scrub: Bramble (*Rubus fruticosus*) has begun to encroach on the site. It is now located around the majority of the periphery. Within this area Rose (*Rosa Sp.*) and ornamental species were also noted.

Building: The 208 London Road dwelling is of brick construction (**Figure 4**). The front section of the property is covered in render with the rear painted brick. In line with this, the roof has two distinctive sections with the main pitched roof covered in clay tiles and the sloping extension to the rear utilising slate. The single storey section of the house to the rear also utilises clay tiles. This joins onto a PVC conservatory. The house has not been occupied for some time and appears to have fallen into a relatively poor state of repair.

Figure 4. 208 London Road house (front and rear).



4.3 Assessment of Building to Support Roosting Bats

The initial survey of the exterior of the property identified a number of features suitable to support roosting bats. Features included gaps between roof tiles and between lead flashing and where parts of the wooden fascia had rotted.

Internally no evidence of bats and/or bats themselves was identified. Similarly no obvious access points into the loft void were found with expanding foam or a similar material used in-between the tiles rather than bitumen felt.

Based on the high number of potential roosting features identified and the age of the building, it was considered to be of **HIGH** roosting potential according to the BCT guidelines.

4.4 Phase II Bat Survey results

A total of three surveys were carried out. All elevations of the building were covered for any emergence. The dates and information on survey conditions are provided in **Table 1**.

Table 1. Phase II Survey Information.

Date	Temp (°C)	Cloud Cover (%)	Wind	Time of Sunset	Start time	Finish time
28/08/15	16	100	Calm	20:03	19:43	21:15
03/09/15	15	100	Breezy	19:46	19:26	21:16
09/09/15	14	0	Calm	19:33	19:13	20:53

28th August 2015

The first registration occurred at 20:17 as a Common Pipistrelle (*Pipistrellus pipistrellus*) was seen commuting in a northerly direction from the rear of the property to the front. This was closely followed by three consecutive registrations (20:18, 20:19 and 20:20). The first was from a Common Pipistrelle as it emerged from a neighbouring property along London Road with the following two recorded within the rear garden. In these instances the bats were flying behind the surveyor and so the direction of flight was unable to be recorded. There was then a break in activity until 20:27 at which point a Common Pipistrelle began foraging within the rear extent of the site. Three further recordings were noted to the rear of the house (20:33, 20:38 and 20:40). All of which were examples of bats commuting towards London Road. The first two calls were that of Common Pipistrelles however the final registration belonged to Soprano Pipistrelle (*Pipistrellus pygmaeus*). At the front of the house Common Pipistrelles were recorded foraging at 20:34, 20:42 and finally at 20:47. This was the last registration recorded.

During the survey no bats were seen emerging from the 208 London Road property.

3rd September 2015

The first bat was noted at 20:00. This registration was an example of a commuting Common Pipistrelle as it utilised the driveway. At 20:01 one of the surveys at the rear recorded a Soprano Pipistrelle commuting first of all towards the south and then back towards the road. At 20:02 the surveyor within the rear garden noted a Common Pipistrelle commuting east and then began foraging within the garden. There was then a significant pause in activity until 20:21. At this point relatively consistent bat activity commenced at the front of the property with a Common Pipistrelle recorded at regular intervals until 20:43. It was noted foraging within the driveway and heard flying near by. Similarly to the rear of the property a Common Pipistrelle was recorded commuting in a westerly direction and then foraging in the southwestern extent of the site. There were four further passes repeating this same activity until 20:47. The surveyor located within the garden area at the rear of the property recorded an emerging Common Pipistrelle at 20:24. It was seen exiting from beneath clay tiles on the main roof (**Figure 5**). At 20:28 two Common Pipistrelles were noted commuting and foraging within the garden. This continued for five minutes. At 20:31 and 20:32 a Soprano Pipistrelle was recorded within the rear garden. Finally at 20:34 and 20:50 a Common Pipistrelle was noted utilising the garden space for both foraging and commuting.

Figure 5. Location of emerging Common Pipistrelle.



During the final survey the lowest level of activity was recorded along London Road but conversely the highest amount of activity was recorded at the rear. Only two registrations were heard through out the survey by the front surveyor (19:40 and 20:19). The first was an example of a commuting Soprano Pipistrelle whilst the second was a commuting Common Pipistrelle. At the rear of 208 London Road, the first bats were recorded at 19:52 as one was seen commuting east and another proceeded to forage within the garden. At 19:53 another bat was seen flying towards the east but on this occasion it was a Soprano Pipistrelle. At 19:56 three bats were recorded at the same time (two Common Pipistrelles and one Soprano Pipistrelle). They all proceeded to forage above the amenity grassland area. At 20:01 the Soprano briefly flew off site, only to return at 20:03. At 20:04 activity dropped to a single Common Pipistrelle foraging within the garden. There was then a pause in activity until 20:12 at which point constant foraging resumed until 20:17. During this time, at 20:13 two Common Pipistrelles were recorded flying in pursuit. After this point activity decreased to intermittent registrations at approximate five minute intervals. This final registration was that of a commuting Common Pipistrelle at 20:48. No bats were seen emerging.

4.5 Limitations

It was not considered that there were any significant limitations during any stage of the surveying process. The bat surveys took place within the optimal survey window and weather conditions were consistently favourable for bats.

5.0 EVALUATION OF RESULTS

5.1 Desk Based Search

As the development falls within 5.6km of Special Protection Areas within and around the Solent it falls in the zone within which Natural England's advise states that development 'would be likely to have a significant effect'.

5.2 Phase I Survey

Amenity Grassland: At present the grassy areas associated with the rear garden are not suitable for reptiles however there are transitional areas with Bramble scrub which can be considered more suitable. Given the isolated and urban nature of the surrounding habitat it is not considered necessary to undertake a full presence / absence survey however some precautionary measures have been outlined in the later sections.

Scattered Trees: The trees on site were considered to hold negligible potential for roosting bats they do however provide optimum habitat for nesting birds.

Scrub: The areas of dense Bramble area also considered likely to provide nesting birds with opportunities for nesting.

5.3 Phase II Surveys

During the Phase II surveys relatively high levels of activity were recorded on site during the surveys, particularly within the rear extent of the site. Both Common and Soprano Pipistrelles were recorded utilising the site for commuting and/or foraging. In addition one Common Pipistrelle roost was recorded.

The usage of this roost suggests it is an example of a day roost. BCT Guidelines describe such as a roost *"used during the day to rest in. Males of most British species spend the summer roosting alone or in small groups with other males in such roosts. Bats may regularly use a number of day roosts, switching between them on a daily basis, though conversely they may occupy the same roosting site for several weeks"*.

5.5 Site Status Assessment

Common Pipistrelle bats are relatively common throughout the UK (Richardson, 2001) though have been subject to declines over the last decade. In accordance with the *Bat Mitigation Guidelines* (Mitchell – Jones, 2004), the roost at 208 London Road would be considered to be of **LOW CONSERVATION VALUE** and therefore of **LOCAL SIGNIFICANCE** using the CIEEM valuation criteria for bat roosts (Wray et al., 2010).

5.6 Implications

Due to the presence of bat roosts any works to the building that will result in damage or disturbance to the roost could constitute an offence under the Conservation of Habitats & Species Regulations (2010). In order for works that may result in such an offence (including the demolition of the building) to legally take place, a European Protected Species License (EPS) would be required.

6.0 POTENTIAL IMPACTS IN ABSENCE OF MITIGATION

6.1 Introduction

This chapter details the potential impacts of the proposal, in the absence of mitigation. The potential impacts are identified in reference to the activities associated with the scheme. In many cases, whilst a potential negative impact is identified at this stage, mitigation measures can be undertaken to ensure that no actual negative impacts on bats occur. Mitigation to ensure that no significant impacts occur and to deliver positive impacts is detailed in **Section 7.0**.

6.1.1 Initial Impacts

Unsupervised contractors carrying out removal of roofing materials could result in direct harm to bats with the risk of them being crushed or injured. This would result in a significant negative impact at a site level, however due to the relative common occurrence of Common Pipistrelle bats it would not have a highly significant impact on the population at the regional or national level.

An increase in traffic, people, noise and light will occur on site during the works, however, these will mainly occur during the daytime, so the impact on foraging and commuting bats is expected to be negligible.

6.1.2 Roost Loss

The roost identified on site will be lost. Without mitigation, it is considered the loss of one Common Pipistrelle roost would have a significant impact on the favourable conservation status of this species at a local level (based on the CIEEM assessment of roost significance, Wray et al., 2010). Therefore, prior to development measures would have to be put in place to ensure that no bats are present within the building and suitable roosting alternatives are in place.

6.1.3 Fragmentation and isolation

The development will not result in any habitat fragmentation and so it is not considered that there will be a risk of isolation.

6.1.4 Post Development Impacts

There will be an increase in disturbances associated with human presence, such as noise and light levels, as the site will become occupied by more inhabitants.

6.1.5 Residual Impacts

Increased levels of artificial light can cause disturbance and disruption to bats. Though several bat species can take advantage of artificial lighting systems for foraging, feeding off the insects they attract, other species avoid them as foraging within an illuminated area increases the risk of predation by nocturnal birds of prey or even domestic cats. If lighting is intensive and widespread, it can deter some bats from utilising such an area and in some instances can act as a barrier across traditional commuting lines.

7.0 MITIGATION AND COMPENSATION

7.1 Introduction

In order to fully comply with applicable legislation and planning policy, it is necessary to mitigate or compensate for any significant ecological impacts. The NPPF and Section 41 of the NERC (2006) places an onus on development to provide ecological enhancements. This chapter recommends appropriate measures that can be undertaken to ensure compliance with legislation and policy and provide ecological enhancements.

The chapter is divided into three sections, dealing with mitigation, compensation and enhancement. Mitigation refers to measures that can be undertaken to avoid or reduce ecological impacts, for example by timing works to avoid periods when bats are roosting. Compensation refers to measures taken in order to offset potential significant impacts, for example by providing alternative roost sites to replace roost sites lost as a result of the works.

7.2 Mitigation

7.2.1 European Protected Species License

All works that will be carried out at 208 London Road would take place under a European Protected Species License (EPSL) obtained from Natural England and under the supervision of a Suitably Qualified Ecologist (SQE). Destruction of the roost and capture of bats (if required) will need to be carried out under the supervision of a licenced SQE. All works would be detailed within the EPSL Method Statement required as part of the licence application.

7.2.2 Timing

The optimum period for carrying out works (as per Bat Mitigation Guidelines) for a summer roost, such as the roost identified, is September until the mid-May. Therefore it is recommended the removal of the roof takes place within this time frame. Works will take place in suitable weather conditions as defined by best practice guidance (Mitchell-Jones et al. 2004).

7.2.3 Supervision

Prior to any works getting underway the licensed bat worker will carry out an updating search of the loft space and with the aid of scaffolding and a high power torch will search beneath the roofing tiles. This will help them to focus their initial efforts to ensure if a bat is in residence it can be moved as soon as possible to minimise the level of disturbance.

They will also give a Tool Box talk which will detail best practice methods of sensitive stripping/removal of roofing tiles/materials and identifying signs of bats. Personnel will be educated on signs of bats and that in the unlikely event a bat is found whilst the licensed ecologist is not on site, that all works should stop immediately until the licensee returns to site.

The licensed bat worker will then assist contractors with the removal of roofing tiles.

7.2.4 Capture (if required)

If during the initial search or during the sensitive removal of roofing tiles bats are discovered the licensee will place the individuals into a holding bag (a soft cloth bag with closure-strings and with seams on the outside (Mitchell-Jones and McLeish, 2004) to ensure the bat keeps calm and will not take flight during daylight hours. They will then immediately transport the bat to one of the mitigating bat boxes where the bat will be released and left undisturbed. During this time, the licenced bat worker will be wearing appropriate bat handling gloves to ensure the bat does not come to any harm. The licenced bat worker will have ample experience in handling a variety of bats and is confident in doing so.

7.2.5 Sensitive Stripping Method

All roofing materials will be removed via sensitive methods demonstrated during the Tool Box talk.

7.2.6 Bat Boxes

Prior to any works getting underway one Schwegler 2F bat box will be erected on site (Height 33cm x diameter 16cm). The front panel has a second inner wooden panel fitted to it to create a cavity wall. This provides ideal quarters for bats that inhabit crevices, such as Common Pipistrelles. It has been designed as a summer roosting space for bats, such as those identified on site. The bat box maintains a stable temperature inside the box and is painted black to absorb warmth.

The bat boxes are manufactured from long-lasting Woodcrete which will not rot, leak, crack or warp, and will last for at least 20 - 25 years, making it suitable for long-term mitigation projects. It also provides a rough surface for bats to cling on to and climb. English Nature (2004) state that 'where roosts of low conservation significance are to be lost to development, bat boxes provide an appropriate form of mitigation, either alone or, preferably, in combination with the provision of roosts in buildings'.

7.2.7 Use of Roofing Felt

Inline with Natural England guidance (2015) roofing felt should be utilised as apposed to Breathable Roof Membrane (BRM) as there is considerable evidence to suggest that BRM poses a threat to bats occupying loft voids due to entanglement of bats in the fibres (Natural England, 2015).

7.2.8 Lighting on Site

Phase II surveys identified that the site is being used for both commuting and foraging. As a result the use of low level, directional lighting is recommended for artificial external lighting. When lighting is utilised should also be limited to maintain dark periods for as long as possible. Therefore the new dwellings will be fitted with sensor-controlled lighting.

7.3 Compensation

As the proposals will entail the loss of one roost used by a single bat it is necessary to compensate for this proportionately by providing a suitable alternative roost site. One Ibstock 'Design C' bat tube will be incorporated within one of the new dwellings (**Figure 6**). These bat tubes are 'designed specifically for the Pipistrelle bat' (Ibstock, 2014). This design of Bat Box is self-maintaining and does not require any maintenance.

Figure 6. IBSTOCK Bat Box C.

7.4 Monitoring & Maintenance

The *Bat Mitigation Guidelines* do not recommend further conditions in relation to the post development monitoring of bat roost of low conservation significance. However, a compliance check will be carried out to ensure all agreed mitigation and compensation techniques have been implemented.

8.0 ADDITIONAL RECOMMENDATIONS AND ENCHANCEMENTS

8.1 Proximity of Designated Sites

It is encouraged that a one off contribution is donated to the Portsdown Hill Countryside Service to further help them with their continual management of Portsdown Hill. This will aid the path improvements that will help alleviate any additional visitor pressure to the SSSI as a result of this development.

The site lies within the vicinity of the Portsmouth Harbour (SPA). In order to mitigate for the likely increases in residential pressure upon this SPA, and the associated impacts upon high densities of wildfowl and waders for which the area is predominantly protected, the Solent Disturbance Mitigation Project (SDMP) has been introduced. This is a collaboration with Natural England and local councils. Mitigation towards the SPA must be provided for all new residential developments within the 5.6km of the SPA.

The report associated with Phase III of the Solent Disturbance Mitigation Project (SDMP) considers avoidance and mitigation measures relating to the impacts associated with new development and it focuses on increased recreational disturbance to wintering and passage waterfowl. Such measures are necessary to protect the SPA and Ramsar site interests on the

Solent. It outlines a number of techniques that may form the mitigation framework (see **Box 1**) (Liley and Tyldesley, 2013).

Box 1. Proposed Mitigation for the SDMP.

- A 'Delivery Office' post is required to initiate the elements of the strategy, manage the initial delivery of the mitigation and ensure the necessary procedures, reporting and monitoring is in place.
- A team of 'Wardens' to provide an on-site presence, talking to visitors, engaging with the public about birds and wildlife, help with the delivery of other elements of the strategy and undertaking monitoring.
- 'Solent Dog Project' to engage with dog walkers, promote sites for dog walking and provide information on dog-walking around the Solent.
- A 'Review of Parking and Access' will lead to recommendations relating to creating additional parking in some locations, reducing parking in others, revised parking charges and may provide evidence for the exclusion zones.
- A 'Review of Watersport Zones and Watersport Access' will interact with user groups and set out a series of clearly defined zones with necessary infrastructure.
- The development of the 'Codes of Conduct Pack' will be undertaken with users groups, helping to establish clear communication and discussion, covering watersports and shorebased activities. The codes should include maps and fit together as a single pack of separate codes.
- 'Site Specific Projects', relating to both shore-based and water-based access, would include path re-routing, creation of new paths, dedicated areas for dogs, enhanced facilities for watersports, marking of dedicated watersport zones, changes to car-parks.
- Once 'Watersport permits and Enforcement' is established, monitoring results will indicate whether further measures are necessary. Various more restrictive options are then available for example dog control orders, permit systems for particular watersports at particular locations and enforcement of byelaws could be introduced as required and targeted as necessary.
- SANGS/ADDITIONAL GI/ALTERNATIVE ROOST SITES: these measures are large, costly and are unlikely to be 'quick wins'. As such they should be considered as
- Elements to be adopted at a later part of the strategy include the creation of 'Alternative Roost Sites' and Suitable Alternative Natural Green Spaces (SANGS).

The measures will need to be provided either directly by individual developments or indirectly via funding contributions. As it states within the report 'In most cases it will not be possible for an individual development to implement any direct measures in order to wholly or partly offset its effects on the Solent SPAs' therefore 'the effects of the development can be mitigated by it making a proportionate contribution to the cost of implementing the Strategy'.

The SDMP necessitates that financial contributions are made to help mitigate against likely significant impacts from new developments with the defined 5.6km disturbance zone. A

financial contribution of £174 per dwelling will be made either before planning permission is granted or by entering into a Section 106 Planning Obligation.

The Liley and Tyldesley (2013) report states that 'contributions of individual proposals to the strategic funding ensures that they will not be likely to have a significant effect on the SPAs, either

- a) alone (usually because they are too small); or
- b) in combination with other plans or projects (because the combined effects are eliminated by the implementation of the strategy to which the development has made a fair and proportional contribution in order to avoid any significant effects on the site).

8.2 Nesting Birds

Any trees or shrubs that require removal should be removed prior to or after the bird-nesting season (March – August inclusive). If this is not possible then a check by a suitably qualified ecologist should precede removal. If any nests are found then a 3 metre buffer will be left and the nest deemed inactive by the ecologist.

As an enhancement, two bird boxes should be erected on site within retained trees.

8.3 Native Planting

This development provides the ideal opportunity to introduce some native species on site therefore as a general enhancement, in line with the CIEEM guidance (2012), any proposed planting should 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, should be utilised. 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*)

9.0 CONCLUSION

The survey work has confirmed the presence of one bat roost on site. Therefore in order for works to take place legally an EPSL will be required. This license, along with the information detailed within this report, will ensure that there are no lasting negative impacts towards bats and that works keep in line with the law.

10.0 REFERENCES

Bat Conservation Trust BCT (2012). Bat surveys: *Good practice guidelines*, 2nd edition, Bat Conservation Trust.

HMSO (1981) *The Wildlife & Countryside Act*. HMSO, London.

HMSO (2000) *The Countryside and Rights of Way Act*. HMSO, London.

HMSO (2006) *Natural Environment and Rural Communities Act*. HMSO, London.

HMSO (2010) *The Conservation of Habitats and Species Regulations*. Statutory Instrument 2010 No. 490. HMSO, London.

(IEEM) Wray, S., Wells, D., Long, E., & Mitchell-Jones, T., (2010) Valuing Bats in Ecological Impact Assessment, IEEM in Practice.

Mitchell-Jones, T (2004) 'Bat Mitigation Guidelines', English Nature.

Natural England (1989) 'Hook Heath Meadow' Available online at:
http://www.sssi.naturalengland.org.uk/citation/citation_photo/1000367.pdf

Natural England (1990) 'Lye Heath Marsh SSSI' Available online at:
http://www.sssi.naturalengland.org.uk/citation/citation_photo/1004244.pdf

Richardson, P., (2001) Distribution atlas of bats in Britain and Ireland 1980 – 1999 Bat Conservation Trust.