

*ecological support, management &
solutions*



45a Portsdown Hill Road

Bedhampton

Preliminary Ecological Appraisal

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Date: April 2019

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Executive Summary

A development consisting of the demolition of the dwelling and garage and construction of a new dwelling are proposed at 45a Portsdown Hill Road, Bedhampton for which full planning permission is sought.

Ecosupport Ltd was instructed by Mr & Mrs J Deng to undertake a Preliminary Ecological Appraisal (PEA) of the site to identify any potentially important ecological features that may be affected by the proposed development. As part of this assessment, the following surveys were undertaken:

- Extended Phase I Habitat Survey (April 2019)
- Preliminary Roost Assessment of the dwelling and garage (April 2019)

The following important ecological features were identified on site following the conclusion of the above survey work and may be subject to adverse impacts in the absence of suitable mitigation / compensation:

- Potential for bats to be roosting in the dwelling and garage
- Breeding and nesting birds
- Commuting and foraging bats

In the absence of any mitigation measures, the proposed development is anticipated to result in **potential adverse effects**. Suitable avoidance and mitigation measures will be outlined within **Section 5.0** of this document.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was commissioned by Mr & Mrs J Deng to conduct a Preliminary Ecological Appraisal (PEA) of the dwelling, garage and land associated with 45a Portsdown Hill Road. The purpose of this survey was to assess any ecological impacts that may arise as a result of the proposed development. The objectives of the survey were as follows:

- Assess the ecological value of the site
- Identify any signs of protected species and potential features that may support them
- Make recommendations for further survey work as appropriate
- Make recommendations for any necessary ecological avoidance, mitigation and compensation measures where possible at a PEA stage
- Make recommendations for site ecological enhancements as per planning policy

NB If the development does not take place within 24 months of this report then the findings of this survey will no longer be considered valid and should be repeated.

This survey takes no account of seasonal variation or fluctuations in the presence of any species that might take up residence following 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.

This survey does not constitute a full site assessment for invasive species such as Japanese Knotweed.

1.2 Site Description & Location

The site comprises of a bungalow, garage, garden and drive located off Portsdown Hill Road, Bedhampton, PO9 3JU (centered on OS grid reference SU6921606306) (**Fig 1**). The site is bounded by Portsdown Hill Road to the north, residential dwellings with associated gardens to the south, east and west. The surrounding environ is semi-urban with the site residing within the suburbs of Havant.

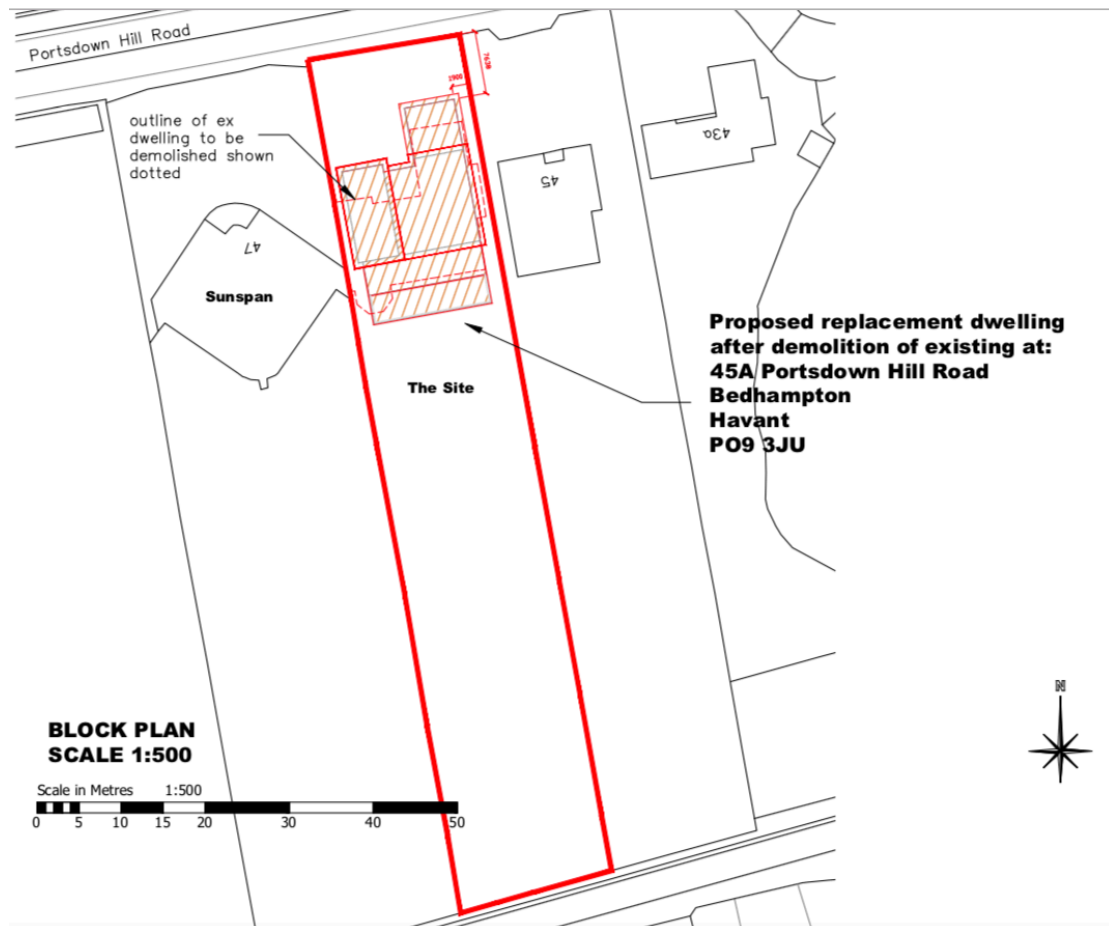
Figure 1. Google aerial image with approximate redline boundary (Google Maps, 2019).



1.3 Proposed Development

It is understood the proposals entail the demolition of the current dwelling and replacement with a new dwelling (**Fig 2**).

Figure 2. Current proposals for the new dwelling at 45a Portsdown Hill Road.



2.0 RELEVANT LEGISLATION AND POLICY

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. 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 (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 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. Similarly, this Act makes it an offence to kill or injure any species of British reptiles and also makes it an offence 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 *NERC Act*

The Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies have due 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*.

2.1.5 *Protection of Badgers Act*

The Protection of Badgers Act (1992) relates to the welfare of Badgers (*Meles meles*) as opposed to nature conservation considerations. The Act prevents:

- The willful killing, injury, ill treatment or taking of Badgers and / or
- Interference with a Badger sett
- Damaging or destroying all or part of a sett
- Causing a dog to enter a set and
- Disturbing a Badger while it is occupying a sett

Provisions are included within the Act to allow for the lawful licensing of certain activities that would otherwise constitute an offence under the Act.

2.2 Policy

2.2.1 National

The revised National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2019) outlines a number of more robust measures to ensure the impacts of development upon the country's biodiversity interests are appropriately mitigated against whilst also seeking to achieve a 'net gain'. The key policy test relating to developments and biodiversity is outlined below.

Chapter 15. Conserving and Enhancing the Natural Environment

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.*

171. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

172. Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development⁵⁵ other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

- a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;*
- b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and*
- c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.*

173. Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.

Habitats and Biodiversity

- 174. To protect and enhance biodiversity and geodiversity, plans should:*
- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
 - b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*

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

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) 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 on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) 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*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.*

176. The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;*
- b) listed or proposed Ramsar sites; and*
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

177. The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.

2.2.2 Local- Havant Borough Core Strategy

The Havant Borough Core Strategy (2011) outlines a number of policies that seek to preserve and enhance the Boroughs biodiversity. These include:

Policy CS11 Protecting and Enhancing the Special Environment and Heritage of Havant Borough

Planning permission will be granted for development that:

1. Ensures the key landscape and built form principles set out in the Havant Borough Townscape, Landscape and Seascape Character Assessment are protected and where possible enhanced by partnership working with developers, groups and the wider community.
2. Protects and where possible enhances the borough's statutory and non-statutory designated landscape, habitats and features of biological, hydrological or geological interest. Protection and enhancement will be achieved by appropriate adaptation and mitigation measures including wardening, education and information and the creation of new habitats, water bodies/courses planting of new trees and woodland.
3. Has particular regard to the following hierarchy of nature conservation designations within the borough (as identified on the Proposals Map): (i) Special Protection Areas (SPA), Special Areas of Conservation (SAC) and Ramsar [International]. (ii) Sites of Special Scientific Interest (SSSI) and National Nature Reserves [National]. (iii) Sites of Importance for Nature Conservation (SINC), Local Nature Reserves (LNR), other Ancient Woodland not identified in (ii) above [Local].
4. Protects and where appropriate enhances the borough's statutory and nonstatutory heritage designations by appropriately managing development in or adjacent to conservation areas, listed buildings, scheduled ancient monuments, historic parks and gardens, archaeological sites, buildings of local historic or architectural interest.
5. Supports an ongoing programme of survey of habitats and species and designation of Sites of Importance for Nature Conservation.

6. Incorporates partnership working with conservation organisations to improve public understanding of biodiversity and to manage public access to designated sites, particularly on the coast, to reduce harm to nature conservation interests.
7. Incorporates partnership working with landowners and developers to ensure land management practices restore, enhance and where appropriate create new valued landscapes, habitats and their soil structure, particularly the ancient woodland remnants of the Forest of Bere and coastal salt marsh.
8. Protects wildlife habitats and wildlife corridors to prevent the fragmentation of existing habitats and to allow species, for example Brent Geese, to respond to the impacts of climate change by making provision for habitat adaptation e.g. coastal managed realignment and species migration.
9. Maintains undeveloped gaps between the settlements of Emsworth/Havant; Havant/Waterlooville; Havant/Portsmouth; Emsworth/Westbourne and Leigh Park/Rowlands Castle as shown on the Proposals Map.
10. Protects the best and most versatile agricultural land that has the greatest potential for local food security.
11. Responds to the emerging evidence from the Solent Disturbance and Mitigation Project, the published recommendations, and future related research.'

Policy CS12 Chichester Harbour Area of Outstanding Natural Beauty (AONB)

'Development will be permitted where it:

1. Carefully assesses the impact of individual proposals, and their cumulative effect, on the Chichester Harbour AONB, and its setting.
2. Is appropriate to the economic, social and environmental wellbeing of the area or is desirable for the understanding and enjoyment of the area.
3. Conserves and enhances the special qualities of the Chichester Harbour AONB (as defined in the Chichester Harbour AONB Management Plan).
4. Meets the policy aims of the Chichester Harbour AONB Management Plan and Havant Borough Core Strategy March 2011 70 5. Provides mitigation of any detrimental effects including where appropriate the improvement of existing damaged landscapes relating to the proposal.'

Policy CS13 Green Infrastructure

'Development will be permitted that:

1. Maintains and manages the network of green infrastructure identified at the sub regional and local levels.

2. Incorporates, where appropriate, improvements to existing green infrastructure through the restoration, enhancement or creation of additional resources.
3. Does not undermine the functional integrity of the green infrastructure.
4. Creates, where appropriate, new green infrastructure (including access management measures) either through on site provision or financial contributions.

Development proposals that adversely affect green infrastructure will not be permitted unless superior alternative provision can be provided or where it is part of a service provider's plans to provide improved local services in equally accessible locations.

Green infrastructure sites will be allocated in the Development Delivery (Allocations) Plan.'

2.3 Biodiversity Action Plans & UK Post-2010 Biodiversity Framework

The UK Post-2010 Biodiversity Framework (JNCC & DEFRA, 2010) supersedes the UK Biodiversity Action Plan 1992-2012 (UKBAP), setting out goals relating to nature conservation at a UK scale, for example the reduction and reversal in the decline of threatened species and improving the status of biodiversity. The specific habitats and species contained within the UKBAP continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework, and are required to be a material consideration in the planning process under the 2019 NPPF.

3.0 METHODOLOGY

3.1 Field Study

3.1.1 Habitats

The Phase I Habitat Survey was undertaken by Lyndsey McBean BSc (Hons) PGCert Grad CIEEM, Assistant Ecologist with Ecosupport Ltd (2 years post-graduation experience) during April 2019. Identification of suitable habitats and features to support protected species was undertaken during the initial Phase I survey. This was carried out through a visual assessment of the site following the methodology outlined within the Joint Nature Conservation Committees (JNCC) *Phase I Habitat Survey Handbook* (2010).

3.1.2 Badger

The site was thoroughly searched for evidence of use by Badgers (*Meles meles*), with the specific aim of identifying the presence and location of any setts and determining any potential foraging and commuting usage. In accordance with the *Badgers and Development: A Guide to Best Practice and Licensing* (Natural England, 2011) guidance, the survey accounted for the site itself and all land within a 30m radius from the site's boundary (observed where possible i.e. does not conflict with private dwellings). Evidence of Badgers could include latrines, dung pits, feeding remains and foraging evidence, trails and setts.

3.1.3 Bats

The dwelling and garage were assessed for any potential to support roosting and resting bats by searching for Potential Roost Features (PRFs) (which may include loose or slipped roof tiles, tile hanging, gaps into soffits) as well as evidence of occupation (such as droppings, feeding remains, urine staining or bats themselves). The methods outlined within *Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition* (Collins (ed) 2016) were followed and the assessment was conducted by Lyndsey McBean of Ecosupport (NE class level 1 bat license number 2018-38386-CLS-CLS).

3.1.4 Great Crested Newts

A Habitat Suitability Index (HSI) was carried out on the garden pond on site. This considers the following factors when calculating the ponds suitability to support Great Crested Newts (GCN) (*Triturus cristatus*):

- Location of Pond,
- Surface Area,
- Desiccation Rate
- Water Quality,
- Shade,
- Presence of Waterfowl and Fish,
- Number of Ponds within 1km,
- Quality of Terrestrial Habitat,
- Macrophyte Cover

These criteria are used to calculate a score according to ARG guidelines (ARG, 2010) using the Oldham (2000) calculation formulae. This gives a score between 0 and 1 of the suitability of the pond for GCN with:

- 0.30 – 0.50: Poor suitability for GCN
- 0.51 – 0.59: Below average suitability for GCN
- 0.60 – 0.69: Average suitability for GCN
- 0.70 – 0.79: Good suitability for GCN
- 0.80 – 1.00: Excellent suitability for GCN

For ponds of average or above, further surveys are often recommended.

3.2 Assessment Methodology

3.2.1 Introduction

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* (CIEEM, 2018). Although this assessment does not constitute a formal Ecological/ Environmental Impact Assessment, the CIEEM guidelines provide a useful framework for assessing ecological impacts at any level.

3.2.2 Valuation

Features of ecological interest are valued on a geographic scale. Value is assigned on the basis of legal protection, national and local biodiversity policy and cultural and/or social significance.

3.3 Limitations

There were not considered to be any significant limitations to the survey, with all areas of the development footprint covered.

4.0 ECOLOGICAL BASELINE

4.1 Designated Sites

The site is located approximately 0.86km from Chichester and Langstone Harbours SPA/Ramsar.

4.2 Vegetation Survey Results

The vegetation within the site has been described below using the broad Phase I habitat classification terminology as described with JNCC (2010). The below species noted should not be considered an exhaustive list and instead refer to dominant, characteristic and other noteworthy species associated with each community within the survey area. The main habitat types on site comprise:

- Amenity grassland
- Poor semi-Improved grassland
- Ruderal
- Scattered trees
- Ornamentals
- Ponds
- Hard standing
- Buildings

4.2.1 Amenity Grassland

The rear garden was dominated by heavily managed amenity grassland (**Fig 3**). The number of forb species identified was low, made more difficult by the short sward height. Species noted include Ribwort Plantain, (*Plantago lanceolate*), Daisy (*Bellis perennis*), Ragwort (*Jacobaea vulgaris*), Yarrow (*Achillea millefolium*), Greater Plantain (*Plantago major*) and Dandelion (*Taraxacum officianale*).

Figure 3. Heavily managed amenity grassland in the rear garden.



4.2.2 Poor semi-improved grassland

Small areas of the rear garden have been left unmanaged including an old vegetable plot (**Fig 4**) and around the boundaries. Species noted include Wild Garlic (*Allium ursinum*), Yellow Archangel (*Lamium galeobdolon*), Germander Speedwell (*Veronica chamaedrys*), Cleaver (*Galium aparine*), Wild Strawberry (*Fragaria vesca*), Primrose (*Primula vulgaris*), Great Mullein (*Verbascum Thapsus*), Dock (*Rumex* spp), Spear Thistle (*Cirsium vulgare*), Forget Me Not (*Myosotis* spp), Yellow Fumitory (*Corydalis lutea*), Grape Hyacinth (*Muscari* spp) and Red Dead Nettle (*Lamium purpureum*).

Figure 4. Unmanaged poor semi-improved grassland around the old vegetable plot.



4.2.3 Ruderal

Ruderal vegetation dominates the far south of the rear garden, with this habitat left unmanaged (**Fig 5**). Species noted within this habitat type include Bramble (*Rubus fruticosus*), Nettle (*Urtica dioica*), Red Dead Nettle, Forget Me Not, Primrose, Germander Speedwell, Dandelion, Garlic Mustard (*Allaria petiolata*), Lords and Ladies (*Arum maculatum*) and Ivy (*Hedera helix*). Brick and stone piles were also found within this habitat (**Fig 6**).

Figure 5. Ruderal vegetation dominating the south of the garden.



Figure 6. Stone piles found within the ruderal habitat.



4.2.4 Scattered Trees

Scattered trees found on site included Holly (*Ilex aquifolium*), *Leylandii*, *Buddleja*, Hazel (*Corylus avellane*), Cherry Laurel (*Prunus laurocerasus*) and ornamentals. The trees are described in more detail regarding their bat potential in **section 4.3**.

4.2.5 Ornamentals

Various ornamental species bordered the rear garden, and the drive to the north of the dwelling,

4.2.6 Ponds

A 3m x 3m artificial garden pond is situated to the north west of the rear garden (**Fig 7**). The pond is constructed from brick with a pump providing a continuous source of water. The pond is not inhabited by fish or waterfowl and has no submerged vegetation. The northern perimeter of the pond is surrounded by hard standing habitat and the southern by bordering poor semi-improved grassland.

Figure 7. Artificial pond to the north west of the rear garden.



4.2.7 Hard Standing

Hard standing on site consisted of a tarmac drive to the north of the dwelling (**Fig 8**), a concrete slab patio to the south of the dwelling (**Fig 7**), a concrete path to the east of the dwelling and a concrete area to the south of the rear garden (**Fig 9**). The patio had some emerging vegetation including Red Dead Nettle, Ragwort, Buddleja, Wall Lettuce (*Lactuca muralis*), Forget Me Not, Creeping Thistle (*Cirsium arvense*) and Germander Speedwell. Other hard standing habitats on site were devoid of vegetation.

Figure 8. Tarmac drive to the north of the dwelling.



Figure 9. Hard standing concrete to the south of the rear garden.



4.2.8 Buildings

Buildings on site included the dwelling and an attached garage. These have been described in greater detail in **section 4.3** below as part of the preliminary roost assessments undertaken.

4.3 Bat Survey Results

4.3.1 Building Assessment

The findings of the roost assessments conducted on the dwelling and garage are outlined within **Table 1** below.

Table 1. Bat roost assessment of the dwelling and garage on site.

Building	Figs	Description	PRFs	Assessed Roost Potential
Dwelling	Figure 10. External view of the north face of the dwelling.  Figure 11. Internal loft space of the dwelling. 	1940s brick bungalow with pegged clay tile and timber supported roof (Fig 10). The external walls are rendered and the gable end on the north face and the upper south facing wall covered with hanging tiles. The dwelling has a bay window on the south face with a clay tile roof. A glass conservatory is situated to the rear of the dwelling. The first floor has an internal loft space, however the central section of this is converted into a bedroom. The loft space is internally lined with	Gaps under pegged clay tiles; gaps under hanging tiles; gaps under lead flashing on the south face; soffit with gaps on the east and north faces; gaps within eaves leading into loft space; tears in roofing felt exposing wooden sarking and roof tiles; gap over external door of cellar.	High

Garage	Figure 12. Internal view of the cellar.  Figure 13. External view of the garage. 	wooden sarking and a mixture of bitumen felt and non-bitumen synthetic roof underlining (Fig 11). A breeze block and timber- supported cellar is situated underneath the south face of the dwelling (Fig 12). A 1970s steel-framed garage with a pegged clay tile roof is attached to the north east of the dwelling (Fig 13). The external walls are rendered.	Gaps under clay tiles; multiple gaps in soffit	Moderate
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Figure 14. Internal view of the garage.



The garage has no accessible internal loft space with a plaster board ceiling separating the main space from the roof above (**Fig 14**). Three windows are present, resulting in the internals being very light.

4.3.2 Trees

All trees on site were either immature or did not support PRFs and were therefore considered to hold **Negligible** potential for roosting bats.

4.3.3 Foraging and Commuting Bats

The grassland, pond and ornamental plants in the rear garden are likely to support invertebrate species, offering opportunities for local foraging bats. Despite this, the habitat is limited in size and it is considered more likely bats will forage to the north and west where invertebrate species are more likely to be abundant. The site is considered to hold **Low** potential for foraging and commuting bats.

4.4 Nesting and Breeding Birds

A bird nest box is present to the north of the dwelling (**Fig 15**), though no bird activity was noted in this at the time of survey. Multiple bird feeders are present both to the north and south of the dwelling. Scattered trees on site offer some nesting opportunities, however it is likely they will use more suitable nesting habitat within the surrounding environ. The site is considered to hold **Low** potential for breeding and nesting birds.

Figure 15. Bird nest box to the north of the dwelling.



4.5 Great Crested Newts

A record of the criteria from the HSI assessment was taken and later used to calculate the score according to ARG guidelines (ARG, 2010) using the Oldham (2000) calculation formulae. The pond scored as having 'poor' (0.32) suitability to support GCNs. Considering the "poor" suitability of the on site habitat and absence of ponds within 0.5km, the site is considered to hold **Negligible** potential for GCN.

4.6 Reptiles

The rear garden offers a mosaic of habitats for reptiles, including unmanaged grassland and brick / stone piles for shelter and basking. Despite this, entry points into the site from surrounding areas are limited and the majority of grassland on site is managed to a short sward height and is considered unsuitable for reptiles. The site is considered to hold **Low** potential for common reptile species.

4.7 Badgers

No evidence of foraging or commuting mammals were found during the walkover survey and no mammal burrows located. Additionally, the site has very limited access points from surrounding habitat. The site is considered to hold **Negligible** potential for foraging and commuting badgers.

5.0 EVALUATION, IMPACTS & RECOMMENDATIONS

5.1 Site Evaluation

Overall, the site is considered to be of **Low** ecological value with the habitats present of low/local ecological value. However, the dwelling is considered to have **High** potential to support roosting bats and the garage **Moderate** potential to support roosting bats.

5.2 Potential Impacts in the Absence of Mitigation

The proposals will result in the demolition of the dwelling and garage and the construction of a new dwelling. At present, it is anticipated the works will remain within the current footprint of the dwelling and hard standing habitat. The anticipated works required may result in the following ecological impacts:

5.2.1 Designated Sites

As there will not be a net gain in dwellings on site, it is not considered there will be any significant impacts on the Chichester and Langstone Harbours SPA / Ramsar.

5.2.2 Roosting Bats

It is anticipated the development will result in the demolition of the dwelling and garage, therefore there is the potential for direct impacts to bat roosts present within the building, including risk of injury / death and loss of roost.

5.2.3 Nesting and Breeding Birds

The removal of the bird box and removal of ornamental plants will result in the loss of habitat suitable for breeding and nesting birds and the potential for killing / injuring of birds and / or nest abandonment if recommended mitigation measures are not followed.

5.2.4 Nocturnal Animals

In the current proposals there is potential disturbance to nocturnal animals if the recommended lighting strategy is not followed (as detailed below).

5.2.5 Reptiles

It is currently understood the development proposals do not include landscaping of the garden, with it currently planned to retain the garden in its current state of management. However, if these plans change, this could potentially result in the killing/injuring of reptiles if recommended mitigation measures are not followed.

5.3 Ecological Avoidance and Mitigation Strategy

5.3.1 Bats

Based on the **High** roost assessment of the dwelling and **Moderate** roost assessment of the garage, further surveys will be required to ascertain the presence / likely absence of roosting bats as per best practice survey guidelines (in line with the survey effort as per **Table 2**) (Collins (ed) 2016).

Table 2. Best practice guidance of bat surveys for different roost suitability's (Collins (ed) 2016).

Low Roost Suitability	Moderate Roost Suitability	High Roost Suitability
One survey visit. One dusk emergence or dawn re-entry survey.	Two separate survey visits. One dusk emergence and a separate dawn re-entry survey*.	Three separate survey visits. At least one dusk emergence and a separate dawn re-entry survey. The third could be either dusk or dawn.
May – August	May – September with at least one of the surveys between May - August	May – September with at least two surveys between May and August

If bats are recording roosting, an appropriate mitigation strategy will be produced. A license will then be required from Natural England to allow the buildings to be legally demolished. This would be submitted once planning permission is granted.

5.3.2 Breeding and Nesting Birds

In order to avoid disturbance of nesting birds or damage to their nests, any vegetation clearance and removal of the bird box on site should be undertaken outside of the bird-nesting season (typically March – August, dependent on weather). If this is not possible, the area to be cleared should be thoroughly checked by an ecologist immediately prior to clearance. If any active nests are found they should be left undisturbed with a suitable buffer of undisturbed vegetation (ca. 5m) until nestlings have fledged.

5.3.3 Sensitive Lighting

A new document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has recently 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 provided there are no conflicts with any legal limits of illumination (in which case a suitable compromise should be reached).

'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, ie 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 16).

Figure 16. (a) Shield ‘barn doors’ (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2018).



5.3.4 Roof Underlining

In-line with Natural England (2015) guidance roofing felt should be utilised as opposed to Breathable Roof Membrane (BRM) or other fibrous materials for all roofing works as there is considerable evidence to suggest that such material poses a threat to bats occupying a structure due to entanglement in the fibres (Natural England, 2015).

5.4 Enhancements

5.4.1 Planting

As a general enhancement, any landscape planting will aim for a 70:30 ratio in favour of native species over non-natives and ornamentals (in line with the CIEEM guidance outlined within Smith & Day (2012)). Species that can be considered within any planting include: Rowan (*Sorbus aucuparia*), Alder (*Alnus glutinosa*), Hazel (*Corylus avellana*), Holly (*Illex aquifolium*),

Silver Birch (*Betula pendula*), Small-leaved Lime (*Tillia cordata*) and Willow (*Salix* spp.). Non-natives and ornamentals should only be given a bias in formal locations where aesthetics is a priority.

5.4.2 Bird Bricks

To act as biodiversity enhancement, the newly built dwelling will include one Swift brick. The Ibstock 'Eco Home for Swifts' brick will be installed (**Fig 17**) as this is a discreet and attractive box ideal for new builds. The box should be installed under the eaves or in high walls in shaded areas out of direct sunlight and away from windows. The installation of such boxes has also been shown to be beneficial for House Sparrows (*Passer domesticus*) which are a nationally declining species.

Figure 17. Ibstock eco home for swifts that will be incorporated into the new building.



6.0 REFERENCES

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