



ecosupport

Preliminary Ecological Appraisal Report

76 Bursledon Road, Hedge End

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Client:

Knight Architectural Design

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Executive Summary

Ecosupport Ltd was instructed by Knight Architectural Design to undertake a Preliminary Ecological Appraisal (PEA) of 76 Bursledon Road, Hedge End. This was required in order 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:

- Preliminary Ecological Appraisal (May, 2023)
- Preliminary roost assessment (May, 2023)

Following the conclusion of the above survey work the proposed works may be subject to adverse impacts in the absence of suitable mitigation / compensation:

- Low potential for breeding and nesting birds
- Low potential for foraging and commuting Badgers
- Low Potential for reptiles
- Common Spotted Orchid on site

In addition to this, measures are outlined within **section 6.0** of this document to mitigate where impacts have been identified as well as provide targeted ecological enhancements.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was instructed by Knight Architectural Design to undertake a Preliminary Ecological Appraisal (PEA) of 76 Bursledon Road, Hedge End (here after referred to as 'the site'). 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:

- Identify and classify any priority habitats;
- 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 necessary;
- Make recommendations for any necessary ecological avoidance and mitigation where possible at PEA stage.

NB: If the works do not take place within 18 months of this report¹ then the findings of this survey will no longer be considered valid and may require updating.

1.2 Site Description & Location

The site comprises of the main dwelling and associated land at 76 Bursledon Road, Hedge End, Southampton, SO30 0BZ (centred on OS grid reference SU 48618 11766) (**Fig 1**). The site is bound by Bursledon Road to the east and by unmanaged scrub and rough grassland to the west. To the immediate north and south, the site is bound by residential properties. The immediate surrounding environ is largely urban predominantly comprising of residential dwellings and public green spaces within Hedge End and the M27 to the west.

Figure 1. Redline boundary of the site (Google Earth 2023).



¹ <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf>

1.3 Proposed Development

The proposals are understood to involve the erection of a single-story extension onto the west elevation of the dwelling in addition to a extending the front of the dwelling eastwards.

2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 *The Environment Act (2021)*

The Environment Act 2021 is the UK's new legislation for environmental protection in the UK, which includes protection of water quality, clean air, and biodiversity among other key protections. This Act provides the government power to set targets to reach long-term aims relating to the environment, which will be periodically reviewed and updated. This legislation also establishes a new environmental watchdog organisation, the Office for Environmental Protection (OEP), which will hold the government accountable on environmental issues.

Part 6 of The Environment Act relates to nature and biodiversity. This section makes provision for biodiversity net gain to be a condition of planning permission in England and a requirement for nationally significant infrastructure projects. Biodiversity net gain will require maintenance for a period of at least 30 years after the completion of enhancement works to be achieved.

The legislation also includes updates to existing environmental legislation, such as the NERC Act 2006, to strengthen biodiversity enhancement rather than just conservation and includes a requirement for local, or relevant, authorities to publish biodiversity reports. Further, The Environment Act places a requirement on responsible authorities to prepare local nature recovery strategies, which will outline nature conservation sites and priorities and opportunities for recovering or enhancing biodiversity within the local area. Within England, the legislation also provides Natural England with the power to publish 'species conservation strategies' and 'protected site strategies' to identify activities that may affect a species or site's status and outline their opinions on measures that would be appropriate to avoid, mitigate or compensate any adverse impacts.

2.1.2 *The Conservation of Habitats and Species Regulations 2017 (as amended)*

The Conservation of Habitats and Species Regulations 2017 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.

The Conservation of Habitats and Species Regulations 2019 (EU Exit) makes changes to the three existing instruments which transpose the Habitats and Wild Birds Directives so that they continue to work (are operable) upon the UK's exit from the European Union (EU). These include The Conservation of Habitats and Species Regulations 2017 and The Conservation of Offshore Marine Habitats and Species Regulations 2017. This instrument also amends section 27 of the Wildlife and Countryside Act 1981 to ensure existing protections continue. The intention is to ensure habitat and species protection and standards as set out under the Nature Directives are implemented in the same way or an equivalent way when the UK exits the EU.

In order for activities that would be likely to result in a breach of species protection under the regulations to legally take place, a European Protected Species (EPS) licence must first be obtained from Natural England.

2.1.3 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).

The Wildlife & Countryside Act (1981) states that it is an offence to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9 part II of the Act. This list over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrots Feather (*Myriophyllum aquaticum*).

2.1.4 The Countryside and Rights of Way Act (2000)

This Act strengthens the Wildlife & Countryside Act by the addition of "reckless" offences in certain circumstances, such as where there is the likelihood of protected species being present. The Act places a duty on Government Ministers and Departments to conserve biological diversity and provides police with stronger powers relating to wildlife crimes.

2.1.5 Natural Environment and Rural Communities Act (2006)

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*.

2.1.6 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 wilful 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 Planning Policy Framework (NPPF) 2021

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

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

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

- if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact;
- development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

2.2.2 Local - Eastleigh Borough Council

The Eastleigh Borough Local Plan 2016 – 2036 has a number of policies relating to ecology with the relevant ones listed below;

'General Approach

1. *The Council will work with statutory and voluntary agencies and developers, and will determine planning applications, to:*

a. protect, conserve and enhance all:

i. international, national and local nature conservation designations;

and

ii. networks of natural habitats and features, including the Local Ecological Network, Priority Biodiversity Areas and Priority Biodiversity Links, watercourses, wetland complexes, woodland trees, and trees and hedgerows important to biodiversity and local character; and facilitate their adaptation to climate change wherever possible;

b. assist in achieving national, county and local biodiversity targets as set out in Biodiversity Action Plans (BAPs);

c. seek a net gain of biodiversity on all development sites (including sites for redevelopment) through the protection, enhancement and connection of existing and provision of new habitats and features of nature conservation interest compatible with the native biodiversity characteristics of the Borough, having regard to local geodiversity and soils; and

d. contribute to major elements of the PfSH Green Infrastructure Strategy and other strategies for the provision and enhancement of multifunctional green infrastructure including green routes, ecological networks and biodiversity enhancements (see strategic policy S9).

International Designations

2. Development which is likely (either individually or in combination with other developments) to adversely affect the integrity of an international or European nature conservation site will not be permitted subject only to imperative reasons of overriding public interest and securing any necessary compensatory measures in the absence of alternative solutions. A 'project level' Habitat Regulations Assessment will be required where there are likely significant effects or uncertainty. Any mitigation measures required to ensure no adverse impact must be implemented at the appropriate time.

3. The Council will work with PfSH, Natural England, the Environment Agency and other wildlife organisations to develop and implement with developers a strategic approach to the protection and enhancement of international and European sites from the direct and indirect effects of development. Within Eastleigh Borough this will include:

a. implementing:

i. the Solent Recreation Mitigation Strategy (requiring contributions from residential developments within 5.6 kilometres of the Solent Special Protection Area to the Strategy); and

ii. the interim and any future New Forest Recreation Mitigation Strategy if required; or alternative agreed site specific measures to address recreational disturbance;

b. preserving the water quality and flows within the Itchen and Hamble, Southampton Water and Solent;

c. protecting the River Itchen SAC, in particular the maintenance and where appropriate restoration of habitats and qualifying species to favourable conservation status (as defined by article 1 of the Habitats Directive); and

d. seek contributions towards measures set out in the Southern Damselfly Conservation Strategy (or other strategy) specifically to deliver biodiversity net gain.

National and Local Designations

4. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on a Site of Special Scientific Interest (SSSI), Site of Importance for Nature Conservation (SINC) or Local Nature Reserve (LNR) as shown on the policies map (or on a more recent plan provided by the Hampshire Biodiversity Information Centre) unless it can be demonstrated that:

a. there are no alternative solutions;

b. the adverse effects are unavoidable;

c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;

d. there is an overall biodiversity net gain; and

e. if there are any residual adverse effects which cannot be avoided, mitigated or compensated, the benefits of the development must clearly outweigh the adverse effects on the nature conservation value of the site and any broader impacts on national and local designations.

Priority habitats, protected and priority species and the local ecological network

5. Development will not be permitted if it is likely (either individually or in combination with other developments) to have a direct or indirect adverse effect on priority

habitats, protected or priority species, or on the local ecological network unless it can be demonstrated that:

a. there are no alternative solutions;

b. the adverse effects are unavoidable;

c. measures are taken to mitigate or, as a last resort, compensate for the adverse effects;

d. there is an overall biodiversity net gain; and

e. if there are any residual adverse effects, the benefits of the development clearly outweigh the adverse effects on priority habitats, priority and protected species, and the local ecological network.

Irreplaceable habitats

6. Development will not be permitted if it results in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists.

Buffers

7. Buffers free from development will be provided to designated sites to avoid/mitigate impacts, including recreational impact and impacts on edge habitats, and to maintain dark skies.

Surveys

8. Development will not be permitted unless it can be demonstrated that:

- a. there have been thorough habitat and species surveys;*
- b. the great crested newt strategic survey and strategy have been considered in all developments within 500m of a great crested newt pond; and*
- c. the strategic bat trapping survey has been considered in all developments within the locality of a woodland or connected habitat networks.'*

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 2021 NPPF.

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 Waterbodies

Any ponds located within 500m of the proposed development were searched for using Ordnance Survey maps and available aerial images.

3.1.2 Designated sites

A search for designated sites within 1km of the site was undertaken using freely available online resources.

3.2 Field Survey

3.2.1 Habitats

The field survey work which forms the basis of the findings of this report was carried out by Darla Brown BSc (Hons) and Leah Murphy, on the 9th May 2023. Weather conditions consisted of 14°C, with light wind and low cloud cover.

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey, using Habitat Definitions Version 1.1 (UKHab Ltd., 2020). This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric 4.0 calculation. Where appropriate primary habitat codes were used although for some habitat types, the use of secondary habitat codes was necessary as well.

3.2.2 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. In accordance with the *Badgers and Development: A Guide to Best Practice and Licensing* (Natural England, 2011) guidance, the survey accounted for a 30m 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.

3.2.3 Bats

An assessment was made of the suitability of the main dwelling on site to support roosting bats based on the presence of any Potential Roost Features (PRFs) during May 2023. This involved the use of 8 x 42 close focus binoculars and a high-powered torch (where required) for a more detailed inspection of any features. The survey conformed to current best practice guidance as described in *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016) and was conducted by Darla Brown BSc (Hons) (acting under the license of Dean Swensson NE class level 2 bat licence number 2015-13211-CLS-CLS) and Leah Murphy.

Table 1. Guidelines for assessing the potential suitability of a built structure for roosting bats (reproduced from BCT (Collins (ed) 2016).

Suitability	Description of Roosting Habitats
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Negligible	Negligible habitat features on site are likely to be used by roosting bats
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ² and/or suitable surrounding habitat to be used on a regular basis or by a large number of bats (i.e. unlikely to be suitable for maternity or hibernation).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

3.3 Assessment Methodology

3.3.1 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.

3.3.2 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.

3.4 Limitations

There were not considered to be any significant limitations on the results of the habitat survey with all areas of the site accessible and the survey conducted at a suitable time of year for vascular flowering plants.

4.0 ECOLOGICAL BASELINE

4.1. Desk Study

4.1.1 Waterbodies

There are no waterbodies located within 500m of the site.

4.1.2 Designated Sites

There are 3 statutory designated sites within 1km of the site including two Local Nature Reserves (LNR) and one Site of Special Scientific Interest (SSSI). Upper Hamble Estuary and Woods (SSSI) located approximately 800m to the south-east of the site is designated for its deciduous woodland. Also situated to the south-east of the site is Manor Farm (LNR) which is approximately 600m from the site and approximately 700m to the west of the site is Netley Common (LNR).

4.1.3 Protected Species

A search using freely available online resources returned two bat licences within 1km of the site. The closest of the two was for a Common Pipistrelle (*Pipistrellus pipistrellus*) day roost granted in 2015 and the other was granted for a Common Pipistrelle, Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Brown Long Eared (*Plecotus auritus*) roost and allows for the disturbance of a breeding site in 2019.

4.2 Vegetation Survey Results

The vegetation within the site has been described below using the UK Habs Habitat Definitions Version 1.1 (UKHab Ltd., 2020). 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 habitat types on site comprise:

- Built-up areas and gardens (u1) – with Vegetated Garden (231), Frequently mown (66) and Introduced shrubs (1160)
- Hedgerow (h2b) - With Trees (190)
- Developed Land; Sealed Surface (u1b)
- Buildings (u1b5)

4.2.1 Built-up Areas and Gardens (u1) - with Vegetated Garden (231), Frequently Mown (66) and Introduced Shrubs (1160)

This habitat represented the majority of the habitat present on site within the garden of the dwelling in addition to a vegetated bank to the side of the driveway. The garden (231, 1160) to the rear of the property was frequently mown (66) to a very short sward length and was largely covered by moss (**Fig 2**). Species noted included; Daisy (*Bellis perennis*), Creeping Buttercup (*Ranunculus repens*), Dandelion (*Taraxacum agg.*), Ribwort Plantain (*Plantago lanceolata*), Doves Foot Cranesbill (*Geranium molle*), Red Clover (*Trifolium pratense*), Hairy Bittercress (*Cardamine hirsuta*), Germander Speedwell (*Veronica chamaedrys*), Corn Speedwell (*Veronica arvensis*), Rough Hawkbit (*Leontodon hispidus*), Common Nettle (*Urtica dioica*), Ground Elder (*Aegopodium podagraria*), Heath Wood Rush (*Luzula multiflora*), Black Medick (*Medicago lupulina*). There were also a number of ornamental introduced shrubs (1160). Along the vegetated bank, additional species included Dog Violet (*Viola riviniana*),

Herb Robert (*Geranium robertianum*), Woodland Germander (*Teucrium scorodonia*), Oak (*Quercus robur*), Holly (*Ilex aquifolium*), Feather Moss (*Eurhynchium striatum*) and a single Common Spotted Orchid (*Dactylorhiza fuchsii*)(Fig 3).

Figure 2. View of the vegetated bank at the front of the dwelling (taken May 2023).



Figure 3. View of the modified grassland at the rear of the property (taken May 2023).



4.2.2 Hedgerow (h2b) With trees (190)

There was also a hedgerow at the front of the site which consisted mainly of Rhododendron (*Rhododendron sp.*) with trees (190). Additional species consisted of Sycamore (*Acer pseudoplatanus*), and Horse Chestnut (*Aesculus hippocastanum*).

4.2.3 Developed land; Sealed surface (u1b)

This habitat was present in several areas of the site in the form of a tarmac driveway (**Fig 4**) and paved patio (**Fig 5**).

Figure 4. Developed land; sealed surface present in the form of a tarmac driveway (taken May 2023)



Figure 5. Developed land; sealed surface present in the form of a paved patio (taken May 2023)



4.2.4 Buildings (u1b5)

The final habitat type on site was buildings with further descriptions of all buildings on site provided in **Figure 6** below.

4.3 Bat Survey Results

4.3.1 Preliminary Roost Assessment

Three buildings were present on site. The main dwelling, outbuilding within the garden, and garage. The main dwelling, subject to the PRA, is a two-storey dwelling of brick construction with a pitched tiled roof (**Fig 6 & 7**). Externally, no PRFs were noted with the roof, ridge, and hip tiles tightly sealed, and there were no gaps within the soffits or brick work. Internally, the loft space was relatively large and supported by several wooden beams and ridge beams. After a detailed inspection of the loft spaces, no bats or evidence of bats were found. Furthermore, the internal loft space was tightly sealed with bitumen felt with no gaps / tears allowing internal access (**Fig 8**).

Additionally, the works only take place within the single-storey aspect of the rear of the property, and to the pitched areas at the front of the property. Taking the above into consideration, the building is considered to be of **negligible potential** for roosting bats.

Figure 6. View of the western elevation of the main dwelling showing no PRF's and well-sealed roof and brickwork (taken May 2023).



Figure 7. View of the eastern elevation of the dwelling showing no PRF's and well-sealed roof and brickwork (taken May 2023).



Figure 8. Internal view of the building (taken May 2023).



4.4 Badgers

During the walkover no evidence of Badgers was noted on site (i.e setts, latrine or snuffle holes). However, the surrounding environment provides good commuting and foraging habitat for Badgers. Therefore, the site is considered to offer **low potential** for commuting and foraging Badgers.

4.5 Reptiles

The grassland on site was well managed, which has resulted in a very short sward height and it therefore lacks the structure and variety of thermal niches typically required by reptiles. The development behind the site offers ideal habitat for reptiles but is segregated from the site by a large bank with the site itself offering much lower quality of habitat for reptiles. The vegetated areas around the borders of the garden offered more coverage in the form of shrubs and taller grass but these areas were small and broken up. Therefore the edges of the garden offered **low potential** for reptiles but the area of impact itself is considered to be of **negligible potential** for reptiles.

4.6 Great Crested Newts

There are no waterbodies within 500m of the site and the habitat on site does not provide suitable terrestrial habitat for GCN. Therefore, the site is considered to be of **negligible potential** for GCN.

4.7 Hazel Dormouse

There was no suitable habitat on site for dormice due to the lack of species that are preferential to dormice as well as the site lacking the structural integrity required by the species. In addition, the site is situated within an urbanised area, with a lack of connectivity from the ornamental hedgerow on site to the wider environment. Therefore, the site is considered to be of **negligible potential** for this species.

4.8 Breeding and Nesting Birds

The hedgerows, trees and vegetation surrounding the building can be considered to provide a suitable habitat for a range of bird species. Therefore, the site is considered to have **low potential** to support breeding and nesting birds, although these areas will not be impacted upon by the proposals.

5.0 LIKELY ECOLOGICAL IMPACTS IN ABSENCE OF MITIGATION

5.1 Introduction

The CIEEM guidelines (CIEEM 2018) require that the potential impacts of the proposals should be considered in absence of mitigation. In order for a significant adverse effect to occur, the feature being affected must be at least of local value. However, in some cases, features of less than local value may be protected by legislation and/or policy and these are also considered within the assessment. Although significant effects may be identified at this stage of the assessment, it is often possible to provide appropriate mitigation.

5.2 Site Preparation and Construction

5.2.1 Impacts to Habitats

There are no habitats of significant ecological value that will be lost as a result of development, with works solely taking place to the developed land; sealed surface and buildings (habitats only considered to be of value at the site level of significance). Therefore, works would have the potential to have a **minor - moderate** adverse impact to habitats of **site value only**. It is understood that all trees, hedgerow, and vegetation located along the site boundaries will be retained as part of the development.

5.2.2 Impacts to Wildlife

The proposed works may require the creation of some excavations. This may lead to Badgers and other mammals becoming trapped or injured during the works. Therefore, in the absence of mitigation an **adverse impact is possible** at the **local level**.

The site was found to have a Common Spotted Orchid (*Dactylorhiza fuchsii*) on the bank at the front of the property. This area of the site is expected to be retained but due to the location of the orchid being near the entrance to the site, it is at risk of damage by vehicles using the site. Therefore, in the absence of mitigation an **adverse impact is possible** at the **local level**.

5.3 Site operation

If the proposals entail the introduction of new external artificial light sources, disturbance and disruption to bats and other nocturnal wildlife e.g. Hedgehogs is likely. Any increase in artificial external light is considered likely to result in a **certain adverse impact** to foraging and commuting nocturnal wildlife, notably bats.

6.0 RECOMMENDATIONS

6.1 Introduction

The below sections outline a number of recommendations and proposed mitigation and compensation appropriate and proportionate. In addition to this, measures are outlined to protect the existing features of value and provide enhancements post development.

6.2 Bats

6.2.1 Sensitive Lighting

Although it is not anticipated, if any additional external lighting is added to the building, sensitive lighting for bats must be considered. A document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented 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, i.e. no upward tilt.*
- *Any external security lighting should be set on motion-sensors and short (1min) timers.*
- *As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed (Fig 9).’*

Figure 9. (a) Shield 'barn doors' (b) cowl hood; (c) shield and; (d) external louvre Images from ILP (2011).



6.3 Badgers

During the construction phase, any open excavations left overnight will either be covered to prevent commuting Badgers falling in or escape ladders should be used to prevent them from becoming trapped. Any open pipework will be checked and then capped nightly.

6.4 Retention of Bank and Site Boundaries

In order to ensure there is no risk to reptiles and Orchid habitat, the bank and boundaries of the garden will be retained, and therefore no further survey work or translocation of the Orchid will be necessary. These areas must be protected from damage during works. The bank and garden boundaries should be fenced using Heras fencing or similar to prevent access by machinery.

6.5 Enhancements

6.5.1 Bats

To act as biodiversity enhancement, one bat brick will be included into the expansion of the front of the dwelling. The bat brick used should be the ibstock bat brick B as they are available in a variety of different brick colours and requires no maintenance (**Fig 10**). These will also be positioned as close to the eaves as possible, away from windows and in a position that will receive direct sunlight.

Figure 10. The Ibstock bat brick 'B' that will be incorporated into the new development.



6.5.2 Planting

As a general enhancement, in line with the Chartered Institute of Ecology and Environmental Management CIEEM guidance (2012), any 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:

- Apple
- Hawthorn (*Crataegus monogyna*),
- Blackthorn (*Prunus spinosa*),
- Alder Buckthorn (*Frangula alnus*),
- Wild Cherry (*Prunus avium*),
- 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*)

7.0 REFERENCES

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