Preliminary Ecological Appraisal

The Oaks, Liss

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Report	Preliminary Ecological Appraisal
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Executive Summary

Ecosupport Ltd was instructed by Mr Daniel Destecroix to undertake a Preliminary Ecological Appraisal (PEA) at The Oaks, Liss. This PEA was required in order to identify any potentially important ecological features at the site. As part of this assessment, the following surveys were undertaken:

- Walkover survey with UK Habs habitat assessment (March 2024)
- Preliminary Roost Assessment (March 2024)

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:

- Low potential for breeding and nesting birds
- Low potential for foraging and commuting Badgers

In the absence of any mitigation measures, the proposed development is anticipated to result in ***certain adverse impacts*** (significance level to be determined following phase II survey work where considered appropriate).

In addition to this, measures are outlined within **section 6.0** of this document to mitigate where impacts (which includes further survey work where considered appropriate) have been identified as well as provide targeted ecological enhancements.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was commissioned by Mr Daniel Destecroix to undertake a Preliminary Ecological Appraisal (PEA) at The Oaks, Liss (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 future 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.

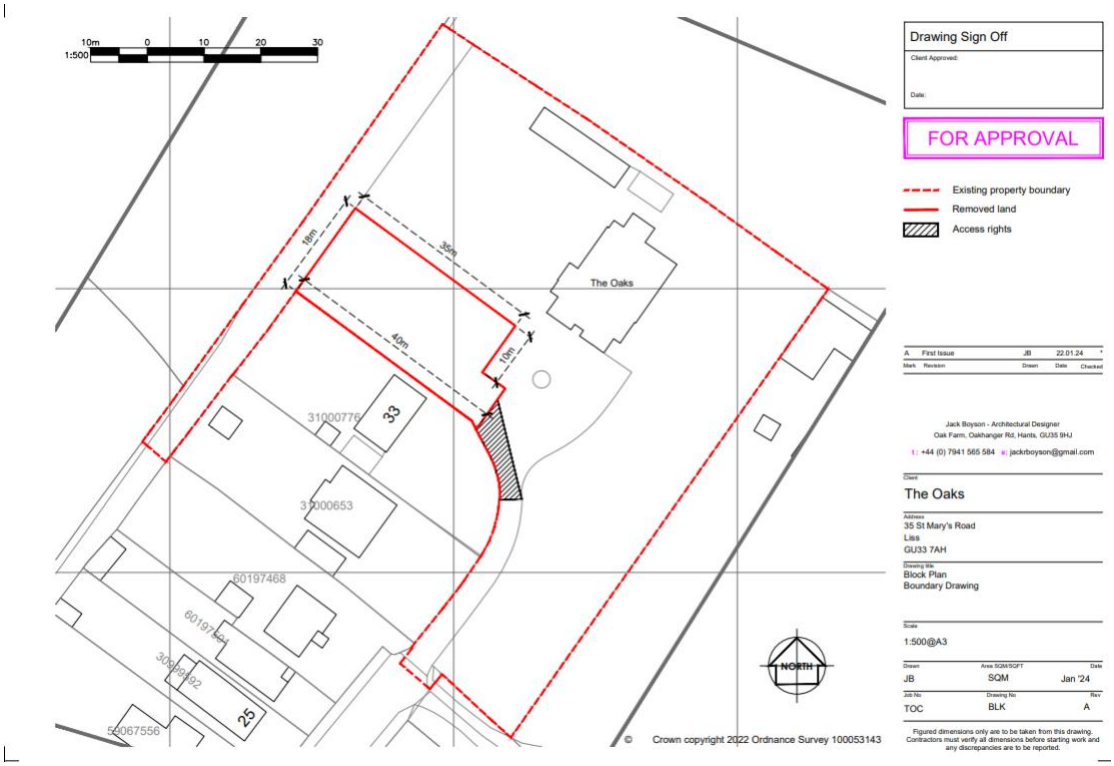
NB: If the works do not take place within 18 months of this report[1] then the findings of this survey will no longer be considered valid and may require updating.

1.2 Site Description & Location

The site comprises of a parcel of garden located within the property of The Oaks, 35 St Mary's Road, Liss, GU33 7AH (centred on OS grid reference SU 77698 28153) (**Fig 1**). The site is bound by residential properties to the east and south, and agricultural fields to the north and west. The wider environ is semi-rural, situated on the outskirts of the village of Liss.

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

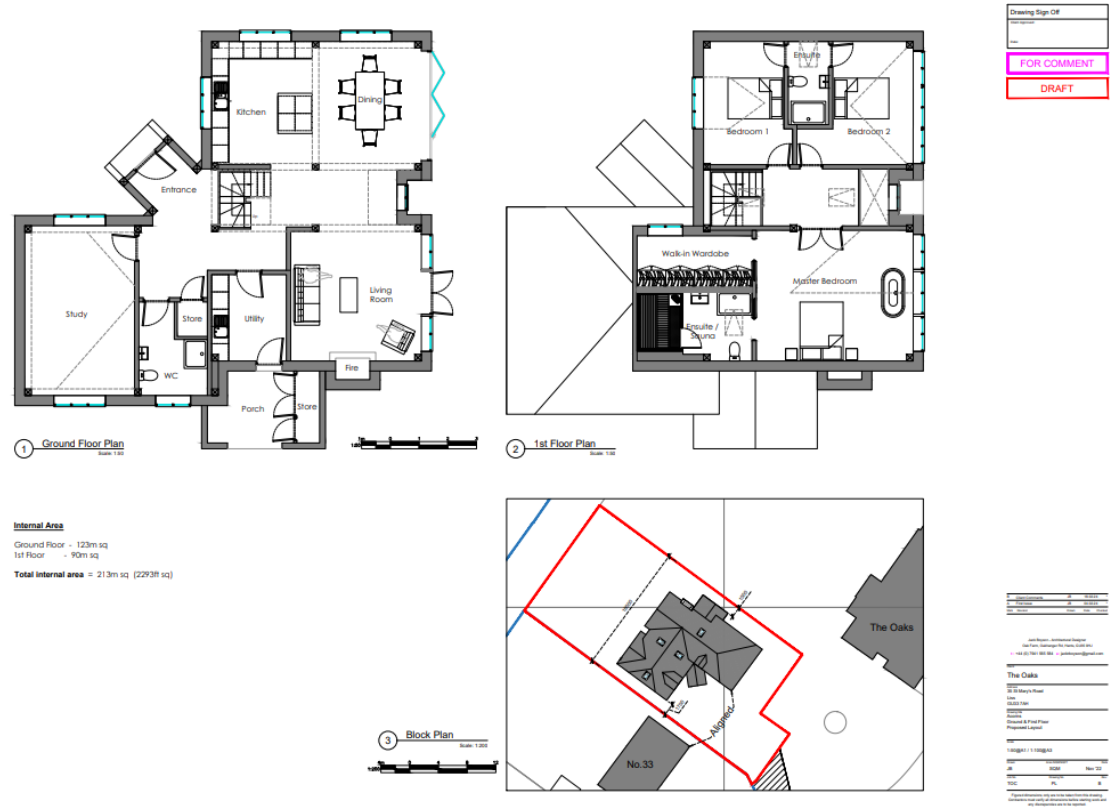
Figure 1. Redline boundary of the site with existing property boundary also shown (Jack Boyson 2024).



1.3 Proposed Development

The proposals are for the construction of one dwelling utilising the existing access off St Mary's Road.

Figure 2. Proposed site plan (Jack Boyson 2024).



2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 The Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019

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.

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

This is the primary piece of legislation by which biodiversity if 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 art II of the Act. This list over 30 plants including Japanese Knotweed (*Fallopia japonica*), Giant Hogweed (*Heracleum mantegazzianum*) and Parrots Feather (*Myriophyllum aquaticum*).

2.1.3 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.

2.1.4 Natural Environment and Rural Communities Act (2006)

Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 requires that public bodies must have due regard to the conservation of biodiversity with a particular regard to species and habitats considered to be of greatest conservation importance. This means that Planning authorities must consider biodiversity and the list of species and habitats of importance when planning or undertaking activities.

Section 41 of the Act lists species and habitats found in England which are considered to be priority species and were identified as requiring action under the UK Biodiversity Action Plan. The latest update to the list of Section 41 habitats of principal importance under the *UK Post – 2010 Biodiversity Framework* includes 56 listed habitats including arable field margins, traditional orchards, hedgerows and several specific habitats within the categories of coastal, grassland, freshwater, inland rock, marine, wetland and woodland. The latest update to the list of Section 41 species of principal importance was in May 2014 and now includes a list of 943 species covering a range of species including vertebrates, terrestrial and marine invertebrates, plants and fungi.

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 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.

2.1.6 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.

2.2 Policy

2.2.1 National

The National Planning Policy Framework (NPPF) (2023) sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.

Chapter 15 'Conserving and enhancing the natural environment' states that planning policies and decisions should contribute to and enhance the natural and local environment by protecting and enhancing sites of biodiversity, the wider benefits from natural capital and ecosystem services, minimising impacts on and providing net gains for biodiversity.

The NPPF states that plans should distinguish between the hierarchy of international, national and locally designated sites and that the scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.

To protect and enhance biodiversity plans should:

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 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.

The NPPF states 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 SSSI, 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 SSSI;

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;

d) 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 – East Hampshire District Council
Local Plan: Joint Core Strategy

Adopted June 2014

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

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

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 Data Search

Any designated sites and protected species records within 1km of the site were searched for using freely available online resources.

3.1.2 Waterbodies

Any ponds located within 250m of the proposed development were searched for using Ordnance Survey maps and available aerial images.

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 Amy Johnston BSc (Hons) (Project Ecologist with Ecosupport Ltd) on the 21st March 2024.

Habitats on site pre-development were identified in accordance with the categories specified for a UK Habitats survey, using Habitat Definitions Version 2.0 (UKHab Ltd., 2023). This was chosen as an appropriate habitat categorisation system as it fits within the Biodiversity Metric 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 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

A non-exhaustive Ground Level Tree Assessment (GLTA) assessment of any notable trees on site was undertaken by Amy Johnston during the initial walkover survey under class level 1 survey licence number (2018-38386-CLS-CLS). This followed BCT (Collins (ed) 2023) best practice survey which includes aiming to identify the following Potential Roost Features (PRFs):

- PRFs formed by disease and decay: woodpecker holes, squirrel holes, knot holes, pruning cuts, tear outs, wounds, cankers, compression, forks, butt rots
- PRFs formed by damage: lighting strikes, hazard beams, subsidence cracks, shearing cracks, transverse snaps, welds, lifting bark, desiccation features, frost cracks; and
- PRFs formed by association: fluting Ivy.

The presence or absence of any of the features listed above are then feed into the classification of the tree which is as follows (**Table 2**).

Table 2. Guidelines for assessing the suitability of trees on proposed development sites for bats, to be applied using professional judgement (Collins (ed) 2023).

Suitability	**Description**
None	Either no PRFs in the tree or highly unlikely to be any
FAR	Further Assessment Required (FAR) to establish if any PRFs are present in the tree
PRF	A tree with at least one PRF present.

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

The walkover conducted was carried out outside of the optimum time of year for vascular flowering plants. Given the nature of the habitat types present and the species recorded this is not considered to have affected the accuracy of the site's valuation. Similarly, this survey does not constitute a full site assessment for invasive plant species such as Japanese Knotweed (*Fallopia japonica*).

4.0 ECOLOGICAL BASELINE

4.1 Desk study

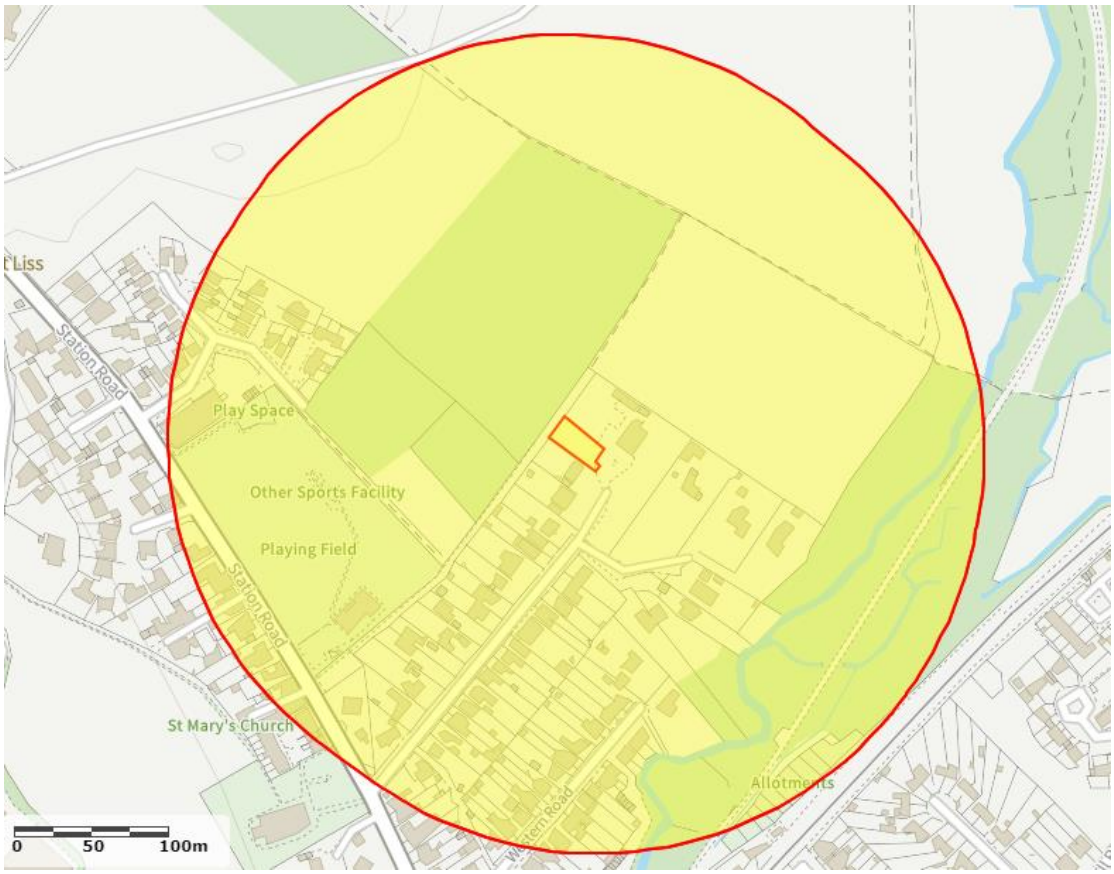
4.1.1 Designated Sites

No designated sites were found within 1km of the site. However, in the wider environ the site is located 2.5Km from East Hampshire Hangers SAC and 1.7 km form Wealden Heaths Phase II SPA.

4.1.2 Waterbodies

One waterbody was found within 1km of the site (**Fig 3**) which was the River Rother located 0.2km east of the site.

Figure 3. View of the waterbody found within 250m of the site (Magic maps 2024).



4.2 Habitat Survey Results

The vegetation within the site has been described below using the UK Habs Habitat Definitions Version 2.0 (UKHab Ltd., 2023). 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 (828) and scattered trees (32)
- Developed land; sealed surface (u1b)

4.2.1 Built-up areas and gardens (u1) – with vegetated garden (828) and scattered trees (32)
The majority of the site consists of a lawn that is part of the garden for The Oaks property (**Fig 4**). This area is regularly managed to a short sward height. Species noted included; Perennial Rye grass *(Lolium perenne)*, Dandelion *(Taraxacum agg.)*, Common Nettle *(Urtica dioica)*, Creeping Buttercup *(Ranunculus repens)*, Ribwort Plantain *(Plantago lanceolata),* Wild Garlic (*Allium ursinum*) and Ragwort *(Senecio jacobaea)*. Towards the southeastern corner of the site, there is a small group of trees and shrubs present (**Fig 5**). It was noted that a number of trees have been removed recently. Species noted in this area included; Rhododendron, Laurel *(Prunus sp.)*, Oak (*Quercus spp.*), Holly *(Ilex aquifolium)*, Bramble *(Rubus fruticosus)*, Lords and Ladies *(Arum maculatum)*, Lesser Celandine *(Ficaria verna)*, Ivy *(Hedera helix)*, Cleaver *(Galium aparine)*, Common Columbine *(Aquilegia vulgaris)*, Daffodil *(Narcissus Sp.)*, Common Nettle *(Urtica dioica)*, Green Alkanet *(Pentaglottis sempervirens)*. There was also variegated yellow archangel (*Lamium galeobdolon*) present underneath the trees, which is an invasive species (**Fig 6**).

Figure 4. View of garden present on site (taken March 2024).

Figure 5. View of the group of trees on site (taken March 2024).

Figure 6. View of the invasive variegated yellow archangel (taken March 2024).

4.2.2 Developed land; sealed surface (u1b)

This habitat was present on site in the form of a tarmacked driveway and parking area (**Fig 7**).

Figure 7. View of the access drive present on site (taken March 2024).

4.3 Bat Survey Results

4.3.1 Trees

There are three trees present on site in the south eastern corner that were subject to a ground level tree assessment (GLTA). One tree was noted to have Ivy however, the stem diameter was too small to be considered a feature for roosting bats. No other PRF's were identified and therefore, the trees are considered to be ***negligible*** for roosting bats.

4.4 Badgers

During the walkover, no evidence of Badgers was noted on site. The habitat present on site offered limited suitability for foraging Badgers as the grassland present was managed to a short sward height with minimal diversity. The site does also some connectivity into surrounding agricultural fields. Using freely available resources, 6 records of Badgers was found within 1km of the site. Considering the habitats present on site and how isolated the site is within an urban area, the site is considered to be of ***low potential*** for foraging and commuting Badgers.

4.5 Reptiles

The grassland present on site within the garden is managed to a short sward height and therefore, does not offer the structure and heterogeneity favoured by reptile species. Using freely available resources, 2 record of Slow worm (*Anguis fragilis*) and 1 record of Grass Snake (*Natrix helvetica*) was found within 1km of the site. Considering this, this site is considered to be of ***negligible potential*** for reptile species.

4.6 GCN

Similar to reptiles above, the grassland present on site can be largely considered to offer no suitability for GCN. There was one waterbody found within 250m of the site (**Fig 3**). This

waterbody is the River Rother which is not considered suitable for GCN. The river is isolated from the site by roads, residential properties and gardens which were considered to be barriers to dispersal for GCN. Using freely available resources, no records of GCN were found within 1km of the site. Therefore, the site is considered to be of ***negligible potential*** for GCN.

4.7 Hazel Dormice

There are no hedgerows/tree lines present on site to offer suitability for Hazel Dormice. Using freely available resources, there was 7 records of Hazel Dormice found within 1km of the site. However, considering the lack of suitable habitat, the site is considered to be ***negligible*** for hazel Dormice.

4.8 Breeding and Nesting Birds

The shrubs and trees present along the south eastern boundary of the site can be considered to offer some nesting opportunities for breeding and nesting birds. Therefore, the site is considered to be of ***low potential*** for breeding and nesting birds.

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

The proposed development will result in the loss of garden and trees present on site. In the absence of enhancement measures, the loss or damage to these habitats would have an ***adverse impact*** to habitats of ***site*** value.

5.2.2 Impacts to Wildlife

The shrubs and trees present on site was found to be suitable for breeding and nesting birds. The hedgerow is expected to be removed as a result of the proposals. Therefore, in the absence of mitigation, an ***adverse impact*** is possible at the ***site level***.

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 a ***minor impact is possible*** at the ***local level.***

5.3 Site Operation

5.3.1 Impacts to Wildlife

It is anticipated that new lighting (during construction or post-development) will occur resulting in ***an minor impact*** to nocturnal species.

5.3.2 Designated sites

Although the site is not within 1km of any designated sites, the site is within 2.5km of the East Hampshire Hangers SAC and 1.7km from the Wealden Heaths Phase II SPA. Considering the scale of the proposals, and the distance from the site to these designated sites, any impacts upon these in the absence of mitigation will be ***negligible***.

6.0 RECOMMENDATIONS

6.1 Introduction

The below sections outline a number of recommendations for further survey work required to fully assess the potential ecological impacts of the development and ensure 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 Invasive species

As invasive Variegated Yellow Archangel was identified on site, it is recommended that an invasive species specialist is contacted so that appropriate methods for removal of the species can occur. The Species is typically treated via herbicide or digging up all plant material. Measures will need to be undertaken during the works to ensure the species doesn't spread to other areas of the site or to other sites.

6.3 Sensitive lighting

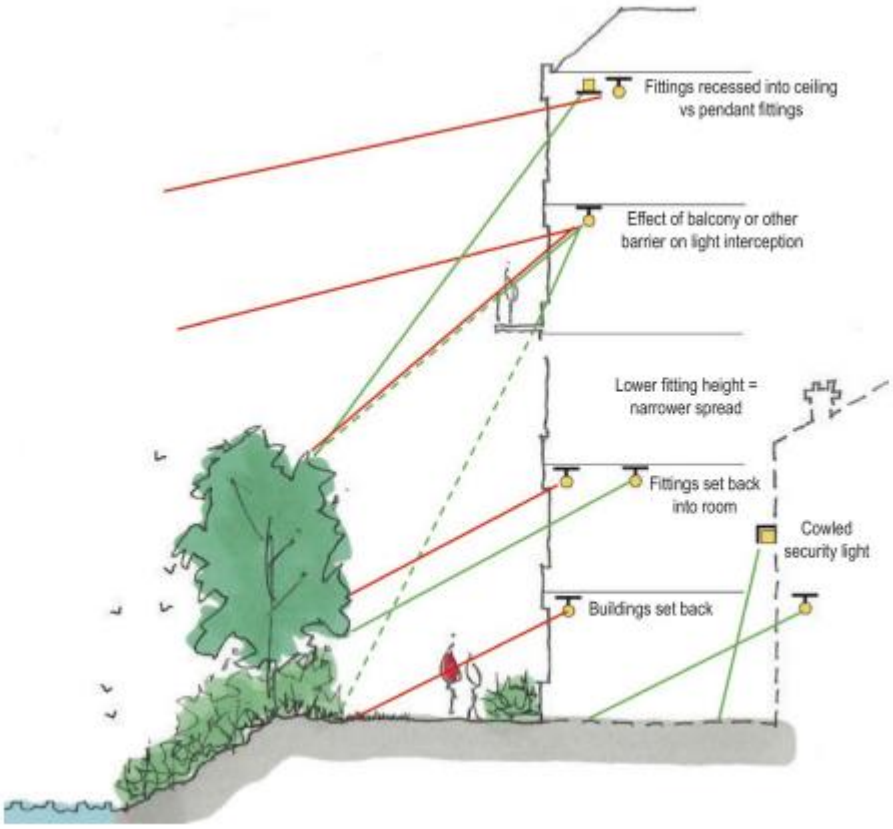
To ensure any additional lighting used on the externals of the new dwelling has no impact on nocturnal species, its recommended that the following outlined in a document produced (*Guidance Note 08/23 Bats and Artificial Lighting in the UK*) via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), is followed. This 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 as far as is practicable.

'Light sources, lamps, LEDs and their fittings come in a myriad of different specifications which a lighting professional can help to select. However, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features:

- *All luminaires will lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used*
- *LED luminaires will be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability*
- *A warm white light source (2700Kelvin or lower) will be adopted to reduce blue light component*
- *Light sources will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012)*
- *Internal luminaires can be recessed (as opposed to using a pendant fitting - See **Figure 8**) where installed in proximity to windows to reduce glare and light spill*
- *Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges (see Case Study 1)*
- *Column heights will be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards*
- *Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01*

- *Luminaires will always be mounted horizontally, with no light output above 90° and/or no upward tilt*
- *Where appropriate, external security lighting will be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate*
- *Use of a Central Management System (CMS) with additional web-enabled devices to light on demand Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS*
- *The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues. See Case Study 6*
- *Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely'*

Figure 8. Internal lighting mitigation options (ILP 2023)



6.4 Breeding and Nesting Birds

To avoid disturbance of nesting birds or damage to their nests, clearance of the trees and shrubs will be undertaken outside of the bird-nesting season (typically March – August, dependant on weather). If this is not possible, areas proposed for clearance should be thoroughly checked by an ecologist immediately prior to clearance. If any active nests are found, they should be left undisturbed with a 5m buffer erected (barrier tape or similar) and monitored until the chicks have fledged.

6.5 Badgers

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

6.6 Enhancements

6.6.1 Bat Bricks / Boxes

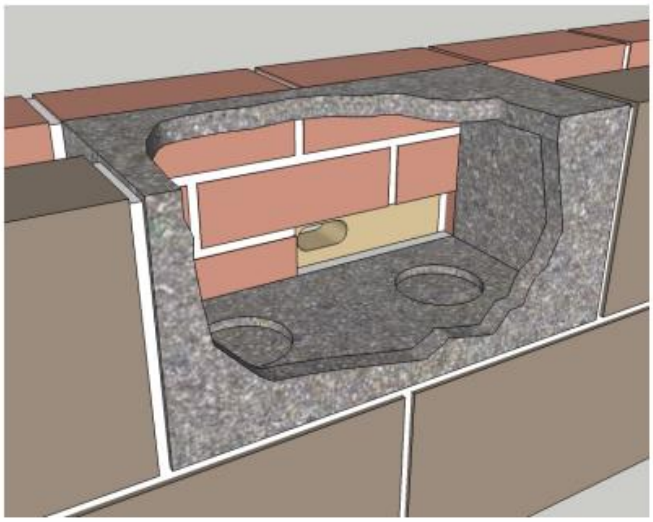
The newly built dwelling will incorporate 1 bat brick. They will have a Ibstock bat brick (**Fig 9**) integrated within the external brick work. These features are entirely self-contained and available in a variety of different colours to match different construction materials. They should ideally be placed on an elevation which will benefit from some degree of sunlight exposure and be located away from windows.

Figure 9. Ibstock bat brick 'B' which will be integrated into the gable walls of the new dwelling on site.

6.6.2 Swift Bricks

To act as biodiversity enhancement, the new dwelling will incorporate one Swift brick. The 'CJ Wildlife Swift maxi nesting box' (**Fig 10**) with entrance via a CJ Wildlife 'Cambridge Swift full-face brick' (The Cambridge System is a concept comprising an entrance piece and a nest box embedded in the cavity and inner leaf. It is particularly suited to gable ends at roof-space level). If this model is not suitable for the building specifications, an alternative swift box with internal floor space exceeding 400cm squared must be used. The Swift bricks will ideally be placed on the south facing elevations.

Figure 10. A schematic of how the Cambridge full face Swift brick leads into a cavity created by the prior installation of the Swift maxi nesting box.



6.6.3 Bee Brick

To increase opportunities for invertebrates within the site, one bee bricks will be included within the new dwelling on site (**Fig 11**). The brick can be used in place of a standard brick and provides cavities for solitary bee species such as Red Mason bees (*Osmia bicornis*) or Leafcutter bees (*Megachile* sp.), both non-aggressive native species. The bricks should be placed in a sunny location at a minimum height of 1m. It is highly recommended the brick is placed in a location where landscaping will include nearby pollinator-friendly plants.

Figure 11. Bee Bricks (NHBS)

6.6.4 Hedgehog Highway

To ensure permeability for small mammals across the site, any garden fences of the property will ensure at least 2 gaps are present within the gravel boards / bases of each fence line to allow for movement of Hedgehogs between gardens and into the wider area. The gaps should be at least 15 cm high by 15 cm wide with permeability for small mammals.

Small signage could be installed at these points to ensure they remain open upon completion of the development. The People's Trust for Endangered Species provide such signage, the purchase of which also supports conservation efforts (**Fig 12**).

Figure 12. Example of Hedgehog Highway signage to be placed above fence gaps provided to allow movements between gardens.

7.0 CONCLUSION

A Preliminary Ecological Appraisal was undertaken of the site known as 'The Oaks' in order to identify any potential important ecological features. This identified potential for nesting birds and foraging and commuting badgers. Therefore, precautionary measures have been recommended to ensure no impacts to protected species occurs. As well as this, a number of ecological features such as bat bricks and bird bricks have been recommended in order to enhance the site.

8.0 REFERENCES

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