



ecosupport

Amokura House

Preliminary Ecological Appraisal

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Client:

Jenkins Architecture

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Report	Preliminary Ecological Appraisal
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Executive Summary

Ecosupport Ltd was instructed by Jenkins Architecture to undertake a Preliminary Ecological Appraisal (PEA) of Amokura House. 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:

- Walkover survey with UK Habs habitat assessment (May 2023)
- Preliminary Roost Assessment (May 2023)

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:

- Moderate potential for roosting bats in the main dwelling
- Moderate potential for breeding and nesting birds

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 Jenkins Architecture to conduct a Preliminary Ecological Appraisal (PEA) of Amokura House (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 a proposed residential 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 is comprised of a residential dwelling, garage, outbuildings and associated land located at Amokura House, Bridge Road, Bursledon, SO31 8AL (centred on OS grid reference SU 48987 10098) (**Fig 1**). The site is bound by residential properties on all elevations and is in close proximity to the river Hamble which is located 0.4km east. The wider environ is largely urban located within the village of Bursledon. The site is located within the North Wessex Downs AONB.

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

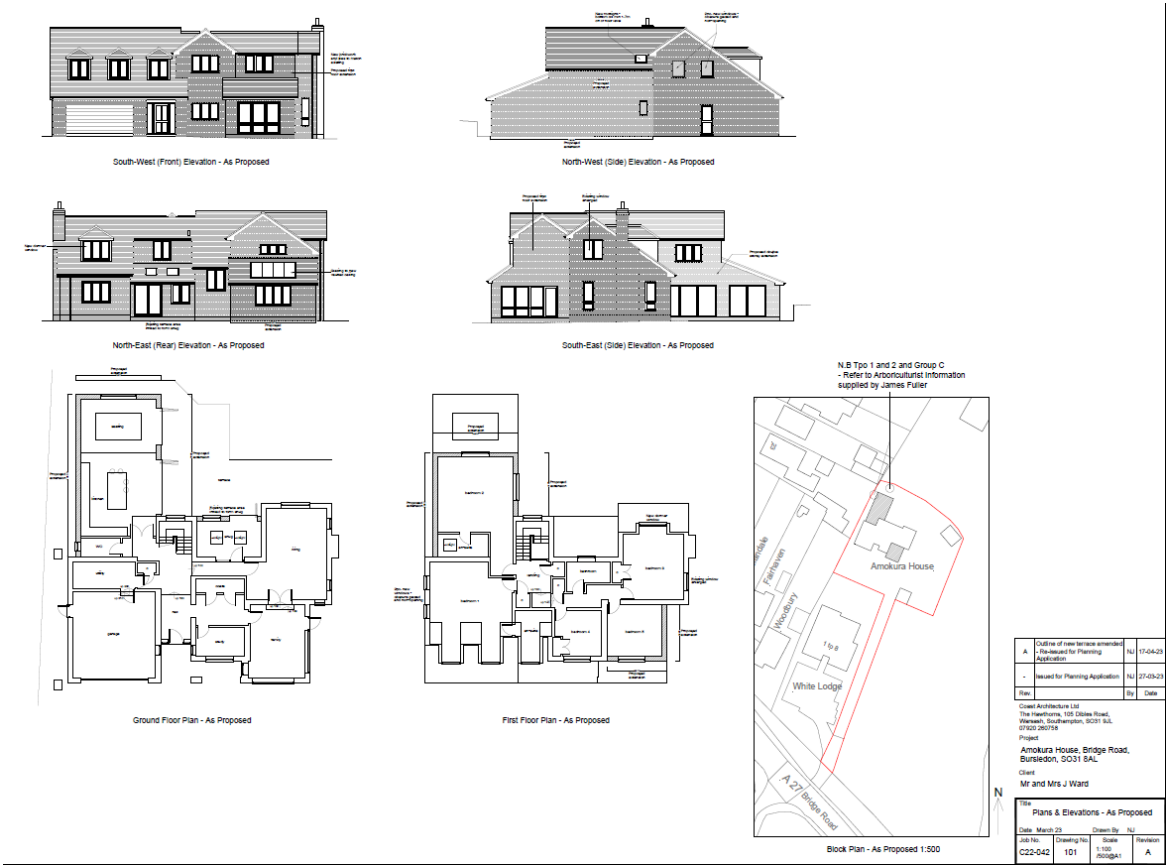
Figure 1. Redline boundary of the site (Google Earth 2023)



1.3 Proposed Development

It is understood that the proposals involve the construction of extensions onto the northern and southern elevations of the main dwelling (**Fig 2**).

Figure 2. Proposed site plan (Coast Architecture 2023)



2.0 RELEVANT LEGISLATION AND POLICY

2.1 Legislation

2.1.1 *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.

2.1.2 *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).

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 Parrot's 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)

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 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

Section 15 of the National Planning Policy Framework (NPPF, 2021) '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 Desktop Study

3.1.1 Designated Sites

Any designated sites within 1km of the proposed development 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) and Kristian Markusen MSci on the 9th May 2023.

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 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 buildings and trees on site to support roosting bats based on the presence of any Potential Roost Features (PRFs). 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. This followed BCT (Collins (ed) 2016) best practice survey guidelines searching for any PRFs / evidence of bat occupation and assigning a roost potential assessment as outlined in **Table 1** below and was conducted by Amy Johnston.

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
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.

² For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

4.0 ECOLOGICAL BASELINE

4.1 Vegetation 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)
- Bramble scrub (h3d)
- Woodland and forest (w) - line of trees (33)
- Artificially unvegetated, unsealed surface (u1c)
- Developed land; sealed surface (u1b)
- Buildings (u1b5)

4.1.1 Built-up areas and gardens (u1) – with vegetated garden (828) and scattered trees (32)

This represented the majority of the habitat present on site within the garden of the main dwelling (**Fig 3**). Species noted included Perennial Rye-grass (*Lolium perenne*), Daisy (*Bellis perennis*), Dove's-foot Cranesbill (*Geranium molle*), Dandelion (*Taraxacum* agg.), Ragwort (*Senecio jacobaea*), Creeping Buttercup (*Ranunculus repens*), White Clover (*Trifolium repens*) and Herb-robert (*Geranium robertianum*) as well as a number of ornamental species. There was also a number of Cypress spp. trees (*Cupressaceae* spp.) present.

Figure 3. View of the garden to the rear of the dwelling (taken May 2023)



4.1.2 Bramble scrub (h3d)

There was a small area of bramble scrub present in the north western corner of the garden (**Fig 4**). Species noted included Bramble (*Rubus fruticosus*), Male-fern (*Dryopteris filix-mas*) and Ivy (*Hedera helix*).

Figure 4. View of the Bramble scrub present along the southern boundary of the site (taken May 2023).



4.1.3 Woodland and forest (w) - line of trees (33)

Along all boundaries of the site, lines of trees were present (**Fig 5**). They were all of similar species composition with tree species in the Cypress family noted (*Cupressaceae spp.*). Along the eastern boundary, understory species noted included Broad-leaved Dock (*Rumex obtusifolius*), Ivy (*Hedera helix*) and Ground-ivy (*Glechoma hederacea*).

Figure 5. View of the line of trees present along the southern boundary (taken May 2023).



4.1.4 Artificially unvegetated, unsealed surface (u1c)

This habitat was present in the form of a gravel access track leading from Bridge Road to the property (**Fig 6**).

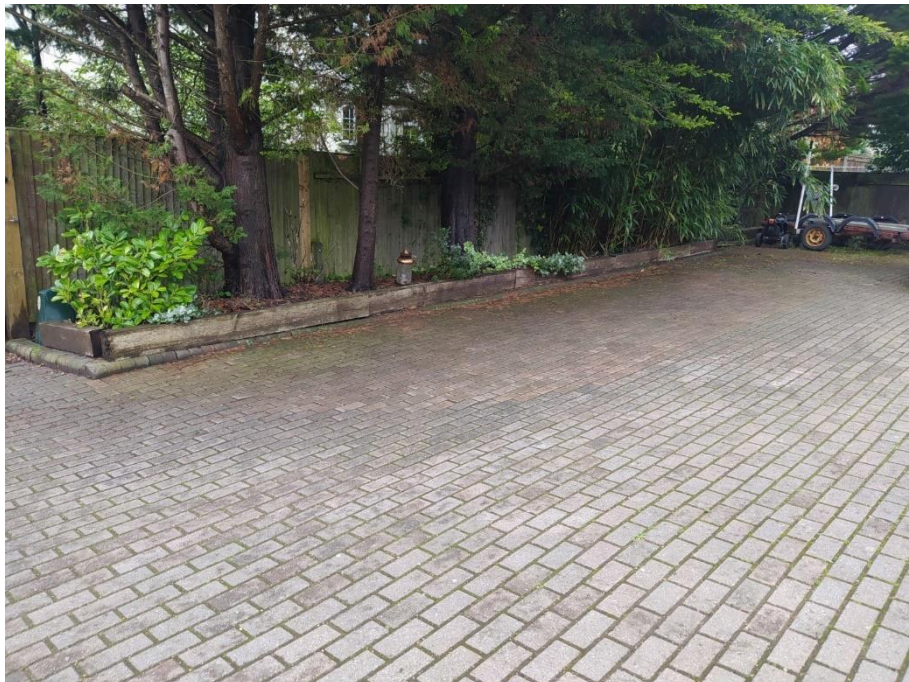
Figure 6. View of the gravel access track present on site (taken May 2023).



4.1.5 Developed land; sealed surface.

This habitat was present in the form of a paved parking area to the south of the main dwelling as well as a number of pathways around the perimeter of the dwelling (**Fig 7**).

Figure 7. View of the developed land; sealed surface present on site (taken May 2023).



4.1.6 Buildings (u1b5)

The final habitat type on site was buildings with further descriptions provided in **Section 4.2** below.

4.2 Bat Survey Results

4.2.1 Trees

It is understood that one tree (*Cupressaceae* spp.) is to be removed during the development (**Fig 8**). The tree was assessed to be of **Negligible potential** for roosting bats during the site visit due to there being no PRF's present and the tree was considered to be in good condition.

Figure 8. View of the tree to be removed as part of the development (taken May 2023).



4.2.2 Buildings

There were a number of buildings present on site, however since the majority will not be impacted by the proposals, a full preliminary roost assessment was only conducted on the main dwelling itself. The dwelling is on brick construction with PVC windows and soffits and a clay tiled roof with dormer windows and a chimney stack. The main dwelling was assessed to be of **Moderate potential** for roosting bats. The results are outlined in **Figure 9** below.

Figure 9. View of the southern elevation of the dwelling with annotations of internal area and any PRFs added (taken May 2023).

Moderate Potential

Gaps present in the roof tiles and soffit.

View of the internals of the main dwelling roof void and gaps present.



4.3 Badgers

During the walkover survey on site, no evidence of badgers was observed. Using freely available online resources, 1 record was found within 1km of the site however, it was isolated from the site by the M27. The habitats present on site are isolated within an urban area and therefore, the site is considered to be **Negligible** for Badgers.

4.4 Reptiles

The habitats present on site consist largely of hard standing and the garden of the dwelling. The grassland present within the garden is well managed to a very short sward height and therefore does not offer the structure and heterogeneity needed to support reptile species. Whilst the scrub can be considered to offer limited potential for reptiles, the site is largely isolated and dense scrub itself is considered to be sub-optimal for common reptile species. Additionally, the scrub on site is understood to be retained under the current proposals. Using freely available resources, 3 records of Slow Worm (*Anguis fragilis*) were found within 1km of the site however, they were isolated from the site by roads and residential properties. Therefore, the site is considered to be **Negligible** for reptile species.

4.5 GCN

The habitats present on site consist largely of hard standing and the garden of the dwelling. The grassland present within the garden is well managed to a very short sward height and therefore does not offer the structure and heterogeneity needed to support GCN. Similar to reptiles, the scrub on site can be considered to offer limited potential but due to the site's isolated nature this is very limited. Additionally, the scrub on site is understood to be retained under the current proposals. There are no suitable waterbodies within 250m of the site. Using freely available online resources, 1 record of GCN was found within 1km of the site however, considering the lack of suitable waterbodies and habitats on site, the site is considered to be **Negligible** for GCN.

4.6 Breeding and Nesting Birds

The scattered trees and scrub present on site does provide suitable nesting opportunities for breeding nesting birds. Although it is understood that the scrub is to be retained under the current proposals. Therefore, the site can be considered of **Moderate 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 proposals will mainly involve the loss of vegetated garden and hard standing which are of limited ecological value at site level. Additionally, the works will take place in close proximity to a number of trees and therefore these could be damaged by machinery and particularly by root zone compaction. Therefore, in the absence of mitigation, **a minor adverse impact is possible** to habitats of **local value**.

5.2.2 Impacts to Wildlife

The proposed works will result in significant works to the existing dwelling which are considered to be of potential for roosting bats. If bats are present, this could result in the disturbance, harm or even death of bats if undertaken unmitigated. Therefore, in the absence of mitigation an **adverse impact is possible** (to be determined following the results of the bat surveys).

The works may result in the removal of a tree. In the absence of mitigation this could lead to the disturbance of nesting birds and damage to their nests. Therefore, an **adverse impact is possible** at the **local level** if breeding and nesting birds are present.

5.3 Site Operation

5.3.1 Impacts to Wildlife

The development may result in an increase in lighting within the general area from the externals of the new extension. This can affect the behaviour, particularly foraging, of nocturnal wildlife. Therefore, an **adverse impact is likely** on Bats.

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 Bats

As the dwelling was assessed as moderate potential for bats, two separate survey visits are required with at least one dusk emergence and a separate dawn re-entry survey (as per the survey effort requirements from BCT 2016 **Table 2**). These surveys will need to be completed between May – September (with at least one survey by August).

Table 2. Recommended minimum number of survey visits (from Table 7.3, BCT 2016).

Low Roost Suitability	Moderate Roost Suitability	High Roost Suitability / Known Roost
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.

Should bats be found to be roosting in the building, mitigation measures will be required to reduce potential impacts, and mitigation/compensation features may be required. It may be necessary to apply for a European Protected Species licence for works to proceed if bats are using the building. Any necessary mitigation/compensation will be determined following the completion of the phase II bat activity surveys.

6.2.1 Sensitive lighting

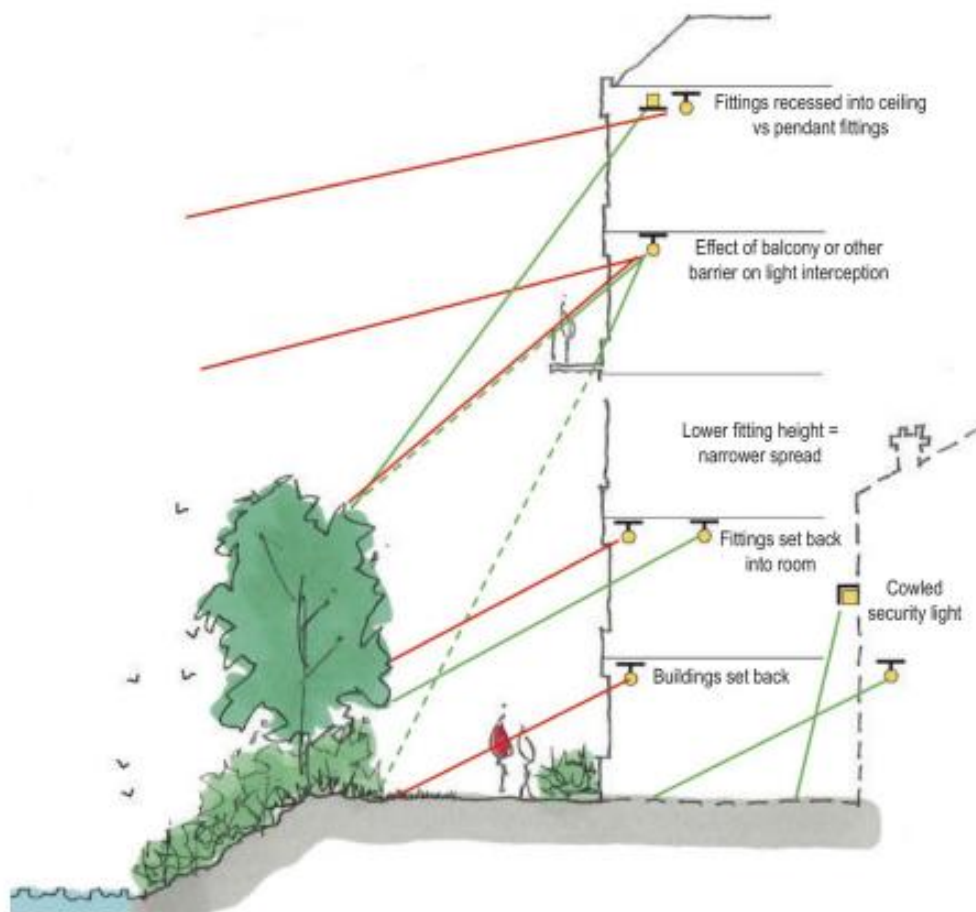
It is recommended that any lighting complies with the following the newly published *Guidance Note 08/23 Bats and Artificial Lighting at night* (ILP / BCT, 2023) produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the 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 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 **Fig 10**) 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 10. Internal lighting mitigation options (ILP 2023).



6.3 Breeding and Nesting Birds

In order to avoid disturbance of nesting birds or damage to their nests, any works impacting the hedgerows or trees on site will be undertaken outside of the bird-nesting season (typically March – September, dependant on weather). If this is not possible, the buildings should be thoroughly checked by an ecologist immediately prior to demolition. 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.

6.4 Protection of Retained Trees / Hedgerows

Prior to construction works commencing the retained trees will be protected from damage during the works. All the site boundaries including the buffers outside the area of impact will be fenced using Heras fencing or similar to prevent access by machinery. Where the large mature tree is present, this will be protected using standard arboricultural tree protection measures which include protection of the canopy and prevents root compaction. Access will not be permitted behind this fencing by construction personnel.

6.5 Enhancements

6.5.1 Bat Bricks

The proposals will include one bat bricks within the new extension. The bat bricks used should be the ibstock bat brick B, or similar, as they are available in a variety of different brick colours

and requires no maintenance (**Fig 11**). These will also be positioned as close to the eaves as possible, away from windows and in a position that will receive some direct sunlight.

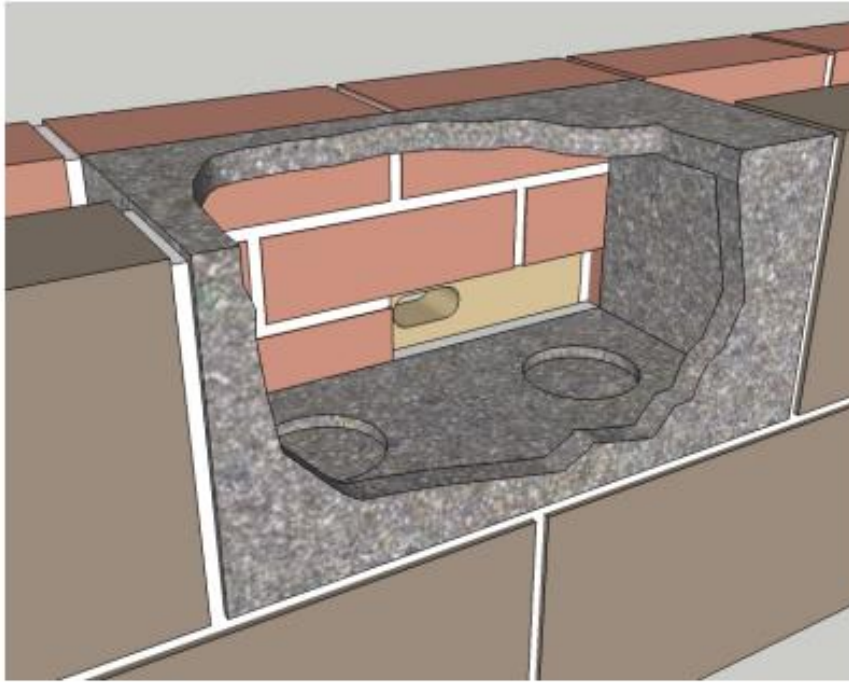
Figure 11. The Ibstock bat brick 'B' that will be incorporated into the new extension.



6.5.2 Swift Bricks

To compensate for the loss of nesting habitat, the proposals will include one Swift brick within the new extension. The 'CJ Wildlife Swift maxi nesting box' (**Fig 12**) with entrance via a CJ Wildlife 'Cambridge Swift full-face brick' will be used (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. A list of swift boxes can be found on the RSPB website via the following link (<https://www.rspb.org.uk/globalassets/downloads/about-swifts/swift-bricks.pdf>) however it is worth noting that some of these do not have an internal floor space exceeding 400cm squared and are therefore not considered appropriate.

Figure 12. 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.



7.0 REFERENCES

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK & Ireland

Collins (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition

Eastleigh Borough Council (2022) 'Eastleigh Borough Local Plan (2016-2036)'. Available online: <https://www.eastleigh.gov.uk/media/11806/to-be-published-final-local-plan-april-2022-v4.pdf>

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

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

HMSO (2017) *The Conservation of Habitats and Species Regulations*. Statutory Instrument 2010 No. 490. HMSO, London.

HMSO (2019) *The Conservation of Habitats and Species Regulations*. Statutory Instrument 2019 No. 579. HMSO, London.

HMSO (2021). *The Environment Act 2021*. HMSO, London.

ILP / BCT (2023) Guidance Note 08/2: Bats and Artificial Lighting at Night.

NPPF (2021) Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf

UKHab Ltd. (2020). *UK Habitat Classification – Habitat Definitions Version 2.0* (July 2023).