



ecosupport



Preliminary Ecological
Appraisal & Biodiversity
Net gain

Barton Peveril College

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Client:

Bidwells on behalf of Barton
Peveril College

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Report	Preliminary Ecological Appraisal & Biodiversity Net Gain Assessment
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Executive Summary

Ecosupport Ltd was commissioned by Bidwells on behalf of Barton Peveril College to conduct a Preliminary Ecological Appraisal (PEA) of the north-eastern car park and adjacent land (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. As part of this assessment, the following surveys were undertaken:

- Desktop survey utilising free online sources (November, 2022)
- Extended phase I habitat survey (also assign UK Habs types) (November, 2022)

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 Hedgehogs

In the absence of any mitigation measures, the proposed development is anticipated to result in, ***certain adverse impacts***. In addition to these, measures are outlined within **Section 6.0** of this document to mitigate where impacts have been identified.

1.0 INTRODUCTION

1.1 Brief

Ecosupport Ltd was commissioned by Bidwells on behalf of Barton Peveril College to conduct a Preliminary Ecological Appraisal (PEA) of the north-eastern car park and adjacent land (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 is located within the boundary of Barton Peveril College, Chestnut Avenue, Eastleigh, SO50 5ZA (centered on OS grid reference SU 44721 18326) (**Fig 1**). The site is bound to the north by residential dwellings and associated gardens of Cherbourg Road, sport pitches lie to the east and south, with hardstanding and buildings associated with the college to the west. The wider landscape is also of a residentially developed nature due to the site's location within Eastleigh, additionally, Lakeside Country Park and Stoneham Lakes and Golf Course lie to the south.

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

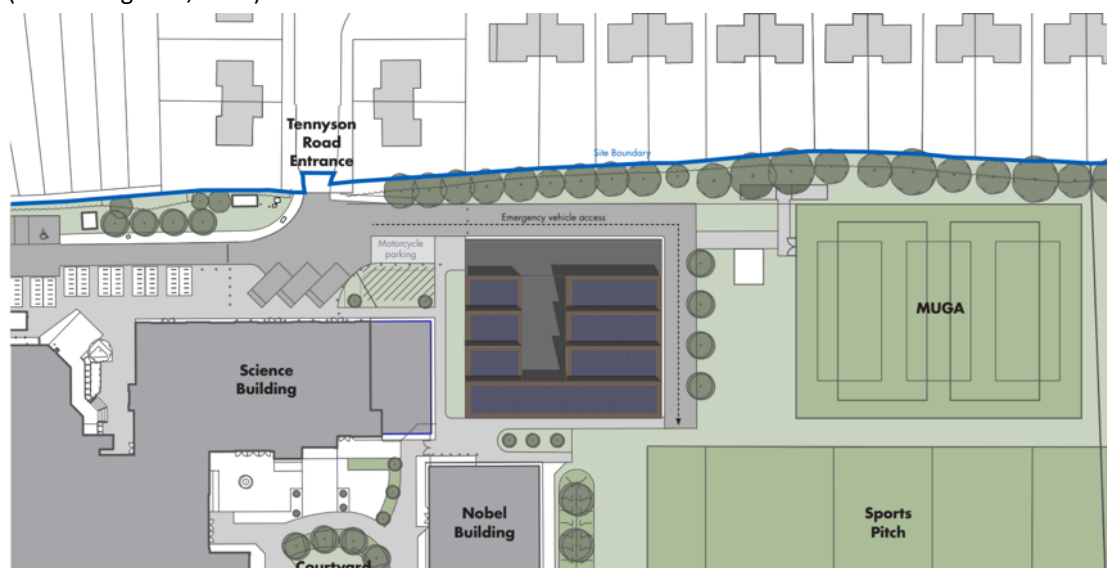
Figure 1. Boundary of the site (blue line) within Barton Peveril College (Stride Treglown, 2022).



1.3 Proposed Development

It is understood that the current development plans involve erecting a new two-storey block to accommodate the School of Art & Design within the existing car park and adjacent land (**Fig 2**).

Figure 2. The proposed block to accommodate the School of Art & Design within Barton Peveril College (Stride Treglown, 2022).



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).

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 NERC Act

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.

2.1.6 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 sett 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

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.'*

3.0 METHODOLOGY

3.1 Desk Study

3.1.1 Data Request

A search utilising freely available online resources was undertaken to establish the presence of statutory designated sites and or priority habitats either on or directly adjacent to the site or within 2km

3.1.2 Protected Species

A search for Natural England EPS licence returns and survey information within 2km was undertaken using freely available online resources.

3.1.3 Waterbodies

Any ponds located within 500m 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 Darla Brown BSc (Hons) (Project Ecologist with Ecosupport), assisted by Louise Davies BSc (Hons) (Assistant Ecologist with Ecosupport) on the 23rd November 2022. Weather conditions during the survey comprised temperatures of 11 °C, light winds with 5% 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 3.1 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

A preliminary roost assessment of the temporary building on site was undertaken by Darla Brown during the initial walkover. 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.

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 Biodiversity Net Gain

3.3.1 Establishing Pre-intervention Biodiversity Units

For the purposes of this report the Defra 3.1 metric has been utilized for the establishment of pre-intervention and post intervention biodiversity units for the site. The most up to date version of the metric was utilized (April 2022).

3.3.2 Establishing Pre-intervention Biodiversity Units

The Defra metric in effect achieves a pre - intervention (i.e. prior to any works having been undertaken) biodiversity unit score for a given site through the multiplication of the following factors:

***Area of habitat x distinctiveness x condition x strategic significance x ecological connectivity
= No of biodiversity units***

The calculations of pre-intervention units are based on the habitat types and associated conditions identified during the onsite phase 1 habitat assessment. In the absence of the provision of exact areas/measurements, the areas of pre-invention habitats were estimated using a combination of the phase 1 survey/ habitat assessment and satellite imagery, and therefore some margin of error is anticipated within the enclosed calculations. Notwithstanding this, every effort has been made to ensure the calculations are as accurate as possible, and it is considered that this document provides a good indication of the potential

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

net change following the proposed development, and therefore it is not considered to have a significant impact on the findings of this report.

NB the information on how the scores / multipliers are applied for distinctiveness, condition, strategic significance and ecological connectivity are outlined within the User Guide (Crosher et al., 2021) associated with the metric and are not re-produced here.

3.3.3 Establishing Post Intervention Biodiversity Units

Once the pre-intervention (before impact) number of Biodiversity Units (BUs) has been calculated following the steps outlined in the previous section, a new set of multipliers / scores are added to those used for the pre-intervention calculation to establish the post intervention unit score based on the nature of the works being conducted. The formula used is as follows:

Area of habitat x distinctiveness x condition x strategic significance x connectivity x difficulty to create x time to target condition x off site risk (this multiplier is only required when enhancements / compensation is being proposed off site) = No of BUs

NB the full workings as calculated within the Defra 3.1 metric tool can be provided if required.

3.4 Assessment Methodology

3.4.1 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.

3.4.2 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.

3.5 Limitations

3.5.1 Habitats

There were not considered to be any significant limitations on the results of the survey with the survey carried out as although it was conducted outside of the optimal season for flowering plants, given the nature of the habitat types present (i.e. modified grassland), it is not considered this would have affected the sites valuation.

4.0 ECOLOGICAL BASELINE

4.1 Desk Study

4.1.1 Designated Sites

No priority habitats were found to exist within, or adjacent to the site. The River Itchen SAC & SSSI lies approximately 1.89km to the east of the site. The site is also located approximately 3.2km to the northeast of Solent & Southampton Water SPA and Ramsar site.

4.1.2 Protected Species

A total of eight bat EPS Licences were identified within 2km of the site, for the species Common Pipistrelle, Soprano Pipistrelle, and Brown Long-eared bat, with the closest licences approximately 741m south. Additionally, four Dormouse EPS licences were identified within 2km of the site, with all of these along or near the M27.

Further research returned a large quantity of Hedgehog records, as well as individual records of Noctule bat.

4.1.3 Waterbodies

No waterbodies were identified within 500m of the site.

4.2 Vegetation Survey Results

The vegetation within the site has been described below using the broad Phase I habitat classification terminology as described with JNCC (2010) (with the corresponding UK Habs habitat type also provided using 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:

- Modified grassland (g4)
- Introduced shrub with urban trees (u1 with secondary habitat code 1160)
- Hedgerow (h2)
- Hardstanding (u1b with secondary habitat code 89)
- Building (u1b5 with secondary habitat code 92)

4.2.1 Modified Grassland (g4)

The south-eastern parcel of the site consists of modified grassland (g4) (**Fig 3**) that extends into the adjacent sport pitches and playing fields. Species noted included Perennial Rye-grass (*Lolium perenne*), Bristly Oxtongue (*Helminthotheca echinoides*), Dandelion (*Taraxacum agg.*), Grey Field-speedwell (*Veronica polita*), Ribwort Plantain (*Plantago lanceolata*), Dove's-foot Cranesbill (*Geranium molle*), White Clover (*Trifolium repens*), Yarrow (*Rumex sanguineus*), Birdeye Speedwell (*Veronica persica*), Creeping Cinquefoil (*Potentilla reptans*), Creeping Buttercup (*Ranunculus repens*), Daisy (*Bellis perennis*), Common Groundsel (*Senecio vulgaris*), Smooth Hawk's-beard (*Crepis capillaris*), and Hedge Mustard (*Sisymbrium officinale*).

Figure 3. View of the modified grassland (taken November, 2022).



4.2.2 Introduced Shrub With Urban Trees (u1 with secondary habitat code 1160)

Multiple parcels of ornamental introduced shrub (secondary habitat code 1160) with scattered young urban trees are located around the site (**Fig 4**) (u1). The majority of introduced shrub consisted of non-native species, species noted included laurel (*Prunus sp.*), Rugosa Rose (*Rosa rugosa*), Hibiscus (*Hibiscus syriacus*), Dogwood (*Cornus sanguinea*), Mexican Orange (*Choisya ternata*), and Photinia (*Photinia spp.*). The trees identified within the shrub were those of Pin Oak (*Quercus palustris*).

Figure 4. View of the introduced shrub at the south of the site (taken November, 2022).



4.2.3 Hedgerow (h2)

There is small beech (*Fagus sylvatica*) hedgerow (h2) present forming a boundary between the introduced shrub adjacent to the hardstanding car park and modified grassland (**Fig 5**).

Figure 5. View of the Beech Hedgerow present on site showing one of the Pin Oak trees within the introduced shrub behind the hedgerow (taken November, 2022).



4.2.4 Hardstanding (u1b with secondary habitat code 89)

Hardstanding (u1b) is the dominant habitat type on site in the form of a car park (secondary habitat code 89) (**Fig 6**). There are also hardstanding paths at the west of the site leading in-between parcels of introduced shrub.

Figure 6. View of the hardstanding taken at the eastern site boundary (taken November, 2022).



4.2.5 Building (u1b5 with secondary habitat code 92)

The temporary building on site has been described in further detail in section 4.3 below.

4.3 Bat Survey Results

4.3.1 Trees

A number of trees were present, however these were very immature and did not support any PRFs.

4.3.2 Building

There is one building on site, this is a temporary single-storey building located in the middle of the car park (**Fig 7**). The building is of metal construction with a flat metal roof. Internally there is no roof void and externally no PRFs were present. The site is therefore considered to have **negligible potential** for roosting bats.

Figure 7. View of the southern and eastern elevation of the temporary building on site (taken November, 2022).



4.4 Badgers

No evidence of badger was identified on site. Additionally, the surrounding habitat does not offer suitable habitat for commuting or foraging badgers with the site surrounded by residential dwellings and busy roads. Considering this, the site is considered to be of ***negligible potential*** for foraging and commuting badgers.

4.5 Reptiles

The current habitats on-site can be considered to offer no potential for reptiles in its current state, as the site primarily consists of well managed modified grassland which doesn't offer the structural heterogeneity suitable for reptiles. Subsequently, the surrounding habitat is of similar state and therefore, the site is considered to be of ***negligible potential*** for reptiles.

4.6 Great Crested Newts

No waterbodies were identified within 500m of the site and when the habitats on site are accounted for, the site is considered to be of ***negligible potential*** for this species.

4.7 Hazel Dormouse

The habitats on-site consist of modified grassland, hardstanding, introduced shrub and beech hedgerow. Due to the small size of the hedgerow and lack of connectivity to the wider environment, the site is considered to be of ***negligible potential*** for dormice.

4.8 Nesting Birds

The introduced shrub and hedgerow on site provide suitable habitat for breeding and nesting birds on site. Therefore, the site is considered to have ***low potential*** for breeding and nesting birds.

4.9 Hedgehogs

The north of the site connects into the gardens of nearby residential dwellings which offers connectivity to the introduced shrubs, hedgerow, and modified grassland on site. The site therefore has ***low potential*** for foraging and sheltering hedgehogs.

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 development will result in the removal of the modified grassland, Beech Hedgerow, and introduced shrub on-site, as well as taking place on the hardstanding car park, is considered to be of value at the **Site** level of significance. Therefore, the loss of habitat and potential indirect effects would have a **minor adverse impact** to habitats of **Site value**.

5.2.2 Impacts to Wildlife

In the absence of mitigation, the works could lead to potential for disturbing foraging and commuting Hedgehogs on site. Additionally, any excavations left open on site could cause Hedgehogs to become trapped. Therefore, an **adverse impact is possible** at the **local level** if foraging and commuting Hedgehogs are present.

The removal of the Beech hedgerow and introduced shrub could lead to disturbing breeding birds and damaging any nests present on site. 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 will result in an increase in lighting within the general area from any external lights on the new block to accommodate the School of Art & Design. This can affect the behaviour, particularly foraging, of nocturnal wildlife. Therefore, an **adverse impact is likely** on nocturnal wildlife.

5.3.2 Designated Sites

Although the site lies approximately 1.89km away from the River Itchen SAC & SSSI and 3.2km away from the Solent & Southampton Water SPA and Ramsar site, it is not considered that the proposal will have any direct impacts upon the nearby designated sites during the construction phase itself (i.e. through noise, air, or water pollution) as it is not connected to the site via any pollution pathways. Similarly works will not result in any indirect impacts, such as recreational disturbance. Therefore, the impacts are considered to be **negligible**.

6.0 RECOMMENDATIONS

6.1 Introduction

The below sections outline a number of recommendations 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.

6.2 Bats

6.2.1 Lighting during the construction phase

In order to avoid any disturbance to bats (and other potential nocturnal wildlife) construction works should be limited to daylight hours and should not be undertaken 30 minutes prior to dusk through to dawn. All lighting should be sensitive to the use of the site by nocturnal wildlife, for example by including low-level downward-facing / hooded lights that are sensor-operated where possible.

6.2.2 Lighting post construction phase

A document (*Guidance Note 08/18 Bats and Artificial Lighting in the UK*) has recently been produced via a collaboration between the Institute of Lighting Professionals (ILP) and the Bat Conservation Trust (BCT), which outlines the latest recommendations to minimise the impacts of increased artificial lighting on bats. The key recommendations within this document have been outlined below and will be implemented with a view to ensuring light spill onto the new roosts and flight lines to the woodland are kept at or below 1 Lux.

‘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 8).*

Figure 8. (a) Shield ‘barn doors’ (b) cowl hood; (c) shield and; (d) external louvre (Images from ILP, 2011).



6.3 Breeding and Nesting Birds

In order to avoid disturbance / harm to nesting birds or damage to their nests, all works affecting vegetation (i.e. hedge and shrub removal) will be undertaken outside of the bird nesting season (bird nesting season is typically between March – August, dependent on weather). If this is not possible, any potential nesting sites must be checked by a suitably qualified Ecologist. If an active nest is identified a 3m buffer will be established, within which no works will be able to take place until the Ecologist has confirmed the fledglings have left the area of impact.

6.4 Hedgehogs

During construction, any excavations on site will be covered nightly and/or include a suitable escape ramp for the protection of wildlife e.g. Hedgehogs (a suitable escape ramp can be created using wooden planks placed at a 45-degree angle or provision of a sloping end wall). Any temporarily exposed open pipe systems will be covered.

6.5 Biodiversity Net Gain Calculations

A number of steps are being taken to ensure that there is a net gain in biodiversity on site. This includes the creation of species rich modified grassland parcels to the east, south, and west of the proposed building, as well as the retention of the existing modified grassland at the south-eastern corner of the site. Planting of nine trees and two stretches of native species rich hedgerow will also be implemented on site.

Modified grassland areas do not require any additional watering or fertilizer. A grassland which is consistently cut late in the season, in August and September, year on year reduces species diversity as late cutting gives more time for coarse grasses and other dominant plants to grow unchecked. To maintain maximum diversity and flowering interest the buffer should be managed in sections at different times from late June to the end of August. Varying the mowing times from year to year is the best way to maintain a diverse balanced sward.

Modified grassland is frequently characterised by an abundance of Rye-grass (*Lolium spp.*) and White Clover (*Trifolium repens*). Other species recommended are Creeping Buttercup (*Ranunculus repens*), Greater Plantain (*Plantago major*), Dandelion (*Taraxacum officinale*), Broad-leaved Dock (*Rumex obtusifolius*) and Chickweed (*Stellaria media*).

Two sections of species rich native hedgerow will be planted along the eastern site boundary and western elevation of the building. Species recommended to achieve maximum biodiversity are Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Spindle (*Euonymus europaeus*), Hazel (*Corylus avellana*), Dog Rose (*Rosa Canina*), Guelder Rose (*Viburnum opulus*), Field Maple (*Acer campestre*), Dogwood (*Cornus sanguinea*) and Elder (*Sambucus nigra*).

In addition to the aforementioned, nine native trees will be planted along the site boundaries. *Prunus* and *Acer* species are recommended.

As a result of these measures, **a net gain of 0.02 units (11.91% increase)** will be achieved to the habitats units on site, with a **net gain of 0.25 units (437.09% increase)** will be achieved to hedgerow units on site (**Fig 9**).

Figure 9. Biodiversity net gain results from the 3.1 metric calculator.

On-site baseline	<i>Habitat units</i>	0.19
	<i>Hedgerow units</i>	0.06
	<i>River units</i>	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.21
	<i>Hedgerow units</i>	0.30
	<i>River units</i>	0.00
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	11.91%
	<i>Hedgerow units</i>	437.09%
	<i>River units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.02
	<i>Hedgerow units</i>	0.25
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	11.91%
	<i>Hedgerow units</i>	437.09%
	<i>River units</i>	0.00%
Trading rules Satisfied?	Yes ✓	

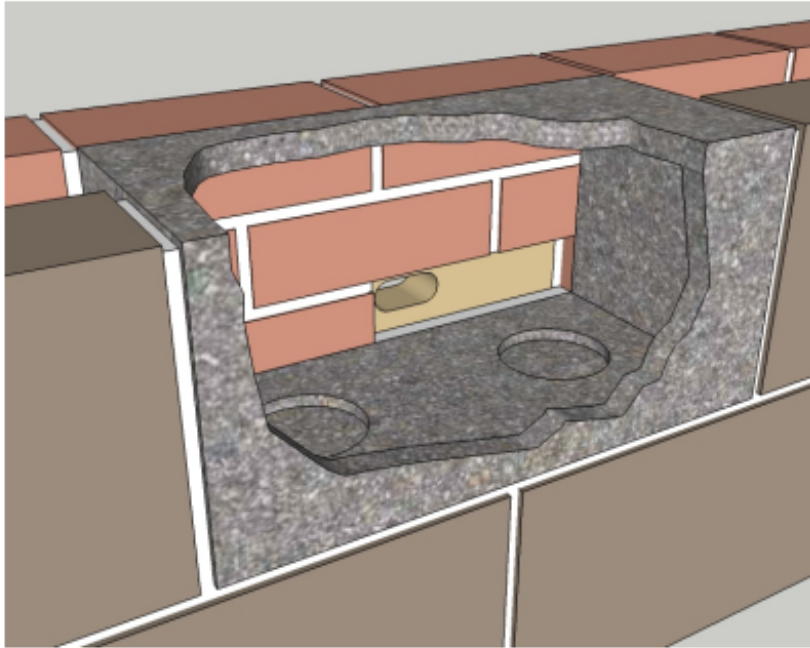
Based on the above, no additional measures are required in regards to net gain.

6.6 Enhancements

6.6.1 Birds

To act as biodiversity enhancement, two Swift bricks will be incorporated into the grey brick aspect of the new block to accommodate the School of Art & Design. 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. 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 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.



6.6.2 Bats

To act as biodiversity enhancement, the new block to accommodate the School of Art & Design will also have Ibstock bat bricks (**Fig 11**) 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 11. Ibstock bat brick 'B' which will be integrated into the new block to accommodate the School of Art & Design.



6.6.3 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. Any planting should be implemented between the new development and the ancient woodland to act as a barrier. 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 CONCLUSION

The site is generally considered to be of low ecological value with limited opportunities for protected species. As a result, no further survey effort is recommended. The area of impact is dominated by hard standing although a small section of modified grassland, Beech hedgerow, and introduced shrubs will be removed. The hedgerow and introduced shrubs provide suitable habitat for breeding and nesting birds, as well as potential for commuting and foraging Hedgehog across the hardstanding and modified grassland. This report provides timings and sensitive working practices to avoid negative impacts towards wildlife. Additionally, efforts have been made to ensure a net gain of 0.02 habitat units (11.91% increase) and a net gain of 0.25 hedgerow units (437.09%) on site. Finally, enhancements have been detailed to ensure proposals result in a gain for biodiversity.

8.0 REFERENCES

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