ECOSA
Ecological Survey & Assessment
A Trinity Consultants Company

FAR HORIZONS, MOUNT OWEN ROAD, LEW, BAMPTON, OXFORDSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Final Document

June 2021

Preliminary Ecological Appraisals • Protected Species Surveys and Licensing • NVC • EcIA • HRA • Management Plans
Habitats • Badger • Bats • Hazel Dormouse • Birds • Reptiles • Amphibians • Invertebrates • Riparian and Aquatic Species

ECOSA, Ten Hogs House, Manor Farm Offices, Flexford Road, North Baddesley, Hampshire, SO52 9DF
Tel: 02380 261065 Email: info@ecosa.co.uk Web: www.ecosa.co.uk

Registered Office: 3-4 Eastwood Court, Romsey, Hampshire, SO51 8JJ Registered in England No: 6129868
Ecological Survey & Assessment Limited is a Trinity Consultants Company

ECOSA Quality Assurance Record

This report has been produced in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing 2017 (CIEEM, 2017). The Ecological Impact Assessment and report has been prepared in line with the CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018) and survey work has been undertaken in line with references within CIEEM's Source of Survey Guidance (CIEEM, 2017).

Description:	Ecological Impact Assessment
Produced For:	Francis Gooddy
Issue:	Final
Report Reference:	21.0079.0001.F0
Date of Issue:	10th June 2021
Date of Survey Works:	15th April 2021
Author:	 **Lucy Bartlett MSc ACIEEM** Ecologist
Checked and reviewed by:	 **Simon Colenutt BSc (Hons) MCIEEM CEnv** Managing Principal Ecologist

FAR HORIZONS, MOUNT OWEN ROAD, LEW, BAMPTON, OXFORDSHIRE

ECOLOGICAL IMPACT ASSESSMENT

Table of Contents

EXECUTIVE SUMMARY

Ecological Survey and Assessment Ltd (ECOSA) have been appointed by Francis Gooddy to undertake an Ecological Impact Assessment to support a planning application for the redevelopment of Far Horizons, Bampton. The site is located on the outskirts of Bampton, approximately 5.9 kilometres south-west of Witney, Oxfordshire and comprises a detached residential property, a single outbuilding, associated garden landscaping and part of a grassland field within the north of the site. The proposals entail the demolition of the existing residential property and outbuilding and the construction of a replacement residential dwelling with a new access from the north-western corner of the site. The main findings of the Ecological Impact Assessment are:

- The habitats within the site comprise scattered trees, dense scrub, poor semi-improved grassland, standing water, intact species-poor hedgerows, defunct species-poor hedgerows, introduced shrub, buildings, hardstanding and bare ground.

- The site has been assessed as having suitability to support foraging and commuting bats, badger, hazel dormouse, breeding birds, widespread species of reptiles, invertebrates, European hedgehog and common toad.

- The site has also been assessed as having suitability to support great crested newt. This Ecological Impact Assessment excludes an assessment of ecological effects and mitigation, compensation and enhancement measures in relation to great crested newt, which is provided within a letter report produced by Ecology by Design.

- Mitigation and compensation measures will include native species planting, sensitive working methods and timings during construction and the erection of bird boxes onto retained trees.

- Enhancement measures include the installation of bat roost units and bird boxes into the new house.

- Given the impacts identified, and the mitigation, compensation and enhancement measures proposed it is considered that the proposals accord with all relevant local and national planning policy.

- If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment Limited (ECOSA) have been appointed by Francis Gooddy to undertake an Ecological Impact Assessment to support a planning application for the redevelopment of Far Horizons, Mount Owen Road, Lew, Bampton, Oxfordshire OX18 2BE (hereafter referred to as the site).

1.2 The Site

The site is located on the outskirts of Bampton, approximately 5.9 kilometres south-west of Witney, Oxfordshire, centred on National Grid Reference (NGR) SP 3245 0472 (**Map 1**). The Phase 1 habitat map (**Map 2**) depicts the boundary of the site.

The site measures approximately 0.5 hectares and comprises a detached residential property, a single outbuilding, associated garden landscaping and part of a grassland field within the north of the site. The site is bounded by the wider grassland field to the east, residential development to the south, Mount Owen Road to the west and an arable field to the north.

In the wider landscape there are extensive areas of arable fields with associated mature hedgerow networks, grazed pasture and small blocks of woodland.

1.3 Aims and Scope of Report

The information within this report is based on a field survey and desktop study carried out during April 2021 and June 2021 respectively. The report describes the habitats and species (hereafter referred to as ecological features) within the site's Zone of Influence (Paragraph 3.2), and provides a detailed assessment of potential ecological effects of the proposed development of the site. It identifies the need for any measures to avoid, mitigate or compensate for significant adverse effects[1] on ecological features and outlines enhancements to the site's ecology to be implemented as part of the development. The objectives of the assessment are:

- To provide baseline information on ecological features within the site's Zone of Influence;
- To assess, characterise and quantify the effects on ecological features, including cumulative effects, and identify effects in the absence of any mitigation;

[1] For the purposes of this assessment a 'significant' adverse effect is one which will have an adverse effect on the ecological feature at the site level or higher.

- To set out measures to avoid, mitigate and compensate for significant ecological effects in accordance with the 'mitigation hierarchy'[2]; and
- To outline opportunities for enhancement in order to achieve a net gain for biodiversity.

1.4 Site Proposals

The proposals comprise the demolition of the existing residential property and outbuilding and the construction of a replacement residential dwelling. A new access is to be created from the north-western corner of the site.

The Ecological Impact Assessment is based on the proposals plan produced by Charlie O'Brien, dated 17th February 2021 (Drawing No. FH03) (**Appendix 1**).

Planning permission is being sought during summer 2021. The exact timescales for construction are currently unknown, but for the purposes of this report it is assumed that construction would have commenced by October 2022.

[2] In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

2.0 PLANNING POLICY CONTEXT

2.1 Introduction

This section summarises the planning policy in relation to ecology and biodiversity within the West Oxfordshire District Council administrative area. This information is then used to assess the compliance of the scheme in relation to relevant planning policy and where necessary used to inform the necessary mitigation, compensation and enhancement measures (see Section 5.0).

2.2 Planning Policy

2.2.1 National Policy

The National Planning Policy Framework (NPPF) sets out the government's requirements for the planning system in England. The original document was published in 2012 with a revised NPPF published in February 2019. A number of sections of the NPPF are relevant when taking into account development proposals and the environment. As set out within Paragraph 11 of the NPPF "*Plans and decisions should apply a presumption in favour of sustainable development*". However, Paragraph 177 goes on to state that "*The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.*".

The NPPF sets out that development proposals should not only minimise the impacts on biodiversity but also to provide enhancement. Paragraph 170 states that the planning system should contribute to and enhance the natural environment by *"…minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...".*

A number of principles are set out in Paragraph 175, including that where harm cannot be adequately avoided then it should be mitigated for, or as a last resort, compensated for. Where impacts occur on nationally designated sites, the benefits must clearly outweigh any adverse impact and incorporating biodiversity in and around developments should be encouraged. Specific reference is also made to the protection of irreplaceable habitats[3], including ancient woodland[4]. Where loss to irreplaceable

[3] The NPPF defines irreplaceable habitats as "*Habitats which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. They include ancient woodland, ancient and veteran trees, blanket bog, limestone pavement, sand dunes, salt marsh and lowland fen.*"

[4] Natural England defines ancient woodland as "An area that has been wooded continuously since at least 1600 AD. It includes ancient semi-natural woodland and plantations on ancient woodland sites (PAWS)."

habitats occurs planning permission would normally be refused unless there are wholly exceptional reasons and an adequate compensation strategy is in place. Paragraph 175 also states "*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity*". Protection of sites proposed as SPAs, SACs and Ramsar sites or acting as compensation for SPAs, SACs and Ramsar sites, should receive the same protection as habitat sites.

In addition to the NPPF, Circular 06/05 provides guidance on the application of the law relating to planning and nature conservation as it applies in England. Paragraph 98 states "*the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat*". Paragraph 99 states "*it is essential that the presence or otherwise of a protected species, and the extent that they may be affected by the Proposed Project Development, is established before planning permission is granted*".

2.2.2 Local Policy

Local planning policy within West Oxfordshire District Council is provided by the West Oxfordshire Local Plan 2031, adopted September 2018. This document includes a single all-encompassing policy in relation to biodiversity **Policy EH3**. This policy states that biodiversity in West Oxfordshire will be protected and enhanced during development by protecting designated sites and local wildlife site, requiring Habitat Regulation Assessments on developments that may impact on the Oxford Meadows SAC, protecting priority habitats and protected species, ensuring developments provide a net gain in biodiversity and developments incorporating biodiversity enhancement features..

3.0 METHODS

3.1 Introduction

This section details the methods used during the field survey and desktop study carried out as part of the Ecological Impact Assessment. Any significant limitations to the assessment are also considered.

3.2 Zone of Influence

To define the total extent of the study area for this assessment (Zone of Influence[5]), the proposed scheme was reviewed to establish the spatial scale at which ecological features could be affected. The appropriate survey radii for the various elements of the assessment (i.e. desktop study and field survey) have been defined in the relevant sections below. These distances are determined based on the professional judgement of the ecologist leading the appraisal, taking into account the characteristics of the site subject to appraisal, its surroundings and the nature and scope of the proposals.

3.3 Scoping

Protected species considered within this Ecological Impact Assessment are those species/species groups considered likely to be encountered given the geographical location and context of the site. These are discussed within the results section (Section 4.0) of the current report. Where such a species is unlikely to be present on site a justification for likely absence is provided. Species considered likely absent from the site are not then considered in the assessment of ecological effects and mitigation measures section (Section 5.0) of this report.

This Ecological Impact Assessment excludes an assessment of ecological effects and mitigation, compensation and enhancement measures in relation to great crested newt. Further survey was recommended by ECOSA in an email and telephone call after the Preliminary Ecological Appraisal field survey. A great crested newt eDNA survey was undertaken by Ecology by Design on 20th May 2021 (Ecology by Design, 2021). The results of the survey work and recommendations in relation to this species are therefore not discussed in this report.

3.4 Desk Study

A full biological record centre desktop study was not undertaken as part of this assessment.

3.4.1 Multi-Agency Geographic Information for the Countryside

The Multi-Agency Geographic Information for the Countryside (MAGIC) (DEFRA, 2021) database was reviewed on 7th June 2021 to establish the location of statutory

[5] The Zone of Influence (ZoI), as defined by CIEEM, is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities.

designated sites located within the vicinity of the site. This included a search for all internationally and nationally designated sites such as Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Wetlands of International Importance (Ramsar sites), Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Local Nature Reserves (LNRs) within one kilometre of the site. Where appropriate, the desk study search area has been extended to take account of any appropriate statutory designated sites which need consideration in terms of potential in-direct effects and which support particularly mobile species[6]. The Impact Risk Zones (IRZ) were also obtained from MAGIC, which are used to help guide and assess planning applications for likely effects on SSSIs.

Sites within two kilometres of the site boundary where European Protected Species Mitigation (EPSM) licences have been granted were reviewed. This information allows a greater understanding of the potential for European protected species to be present in the local area.

3.4.2 Other Sources of Information

Online mapping resources, at an appropriate scale, were used to identify the presence of habitats such as woodland blocks, ponds, watercourses and hedgerows, in the vicinity of the site. These habitats may offer resources and connectivity between the site and suitable habitat in the local area, which may be exploited by local species populations.

The presence of ponds or other waterbodies within a 500 metre radius of the site in particular are noted in relation to great crested newt. The 500 metre radius is a standardised search radius to assist in the assessment of the suitability of a site and its surrounding habitat to support this species, based on current Natural England guidance (English Nature, 2001).

3.5 Field Survey

The field survey broadly followed standard Phase 1 habitat survey methodology (JNCC, 2010) and included a search for evidence of, and an assessment of the site's suitability to support, protected and notable species as recommended by CIEEM (CIEEM, 2017). The field survey covered all accessible areas of the site, including boundary features. Habitats described in Section 4.0, have been mapped (**Map 2**) and photographs provided, where relevant.

[6] Search areas for bat records are based upon information contained within Collins, J. (Ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Third Edition). The Bat Conservation Trust, London. Relevant distances for consideration of impacts on SPAs, SACs, Ramsar sites have been based on current published guidance available through web-based sources.

3.5.1 Phase 1 Habitat Survey

An assessment was made of all areas of vegetation within the site based on the standardised Phase 1 habitat survey methodology (JNCC, 2010). This involved identification of broad vegetation types, which were then classified against Phase 1 habitat types, where appropriate. A list of characteristic plant species for each vegetation type was compiled and any invasive species[7] encountered as an incidental result of the survey recorded.

3.5.2 Protected and Notable Species Appraisal

A preliminary appraisal of the site's suitability to support legally protected and notable species was carried out. The following species/species groups were considered during the appraisal.

Bats

The survey conformed to current Bat Conservation Trust guidelines (Collins, 2016). An assessment was made of the suitability of buildings and trees on the site and immediately on the site boundary to support roosting bats based on the presence of Potential Roosting Features such as loose or missing roof tiles or lifted lead flashing for buildings and holes, cracks, splits, loose bark and ivy cladding for trees. A detailed external inspection of accessible structures was undertaken to compile information on potential and actual bat entry/exit points; potential and actual bat roosting locations; any evidence of bats found.

An assessment was made of the suitability of the site and the surrounding landscape to support foraging and/or commuting bat species. The assessment of the suitability of the site to support roosting, foraging and commuting bats is based on a four-point scale as detailed in **Appendix 3**.

Otter

The otter appraisal was based on an assessment of the suitability of the habitat present within the site to support otter by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), proximity of the site to freshwater and potential important feeding resources (such as fisheries), presence of habitat features which could provide opportunities for resting places and/or holts (such as tunnels, hollows at the base of trees and presence of dense, undisturbed habitat). During the survey attention was paid to the presence of evidence such as spraints, feeding remains, footprints and slides.

[7] Plant species included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

Badger

The survey involved an assessment of the suitability of the site to support badger. Evidence of the species was recorded as an incidental result of the Phase 1 habitat survey and included locating badger setts, paths, and signs of territorial activity such as latrine sites.

Hazel Dormouse

The appraisal for the suitability of the site to support hazel dormouse was based on an assessment of habitat features that may indicate that the species is present. This includes the presence of key food sources such as hazel and bramble, or plants used as nesting material such as honeysuckle and clematis. Additionally, the species requires a continuum of food supply so that habitat structure, diversity and connectivity to adjacent areas of woodland/scrub are important features in determining the suitability of the site for hazel dormouse.

Water Vole

The water vole appraisal was based on an assessment of the suitability of the habitat present within the site to support water vole by reference to habitat type (such as rivers, streams, ditches, wetlands, reed beds, lakes, ponds and reservoirs), bank structure and the bank side vegetation. Water voles generally require sloping banks in which to burrow and well-developed bank side vegetation to provide shelter and food. During the survey attention was paid to the presence of burrows, latrines, feeding remains, trails and footprints.

Birds

The appraisal of breeding birds on the site was based on the suitability of habitat present to support nesting bird communities, the presence of bird species that may potentially nest within the available habitat and evidence of nesting such as old or currently active nests.

The assessment of wintering birds was based on an assessment of the suitability of the habitat on site to support important wintering bird species and populations. Particular attention was paid to the suitability for the site to support wintering farmland bird species, waders and wildfowl.

Reptiles

The reptile appraisal was based on an assessment of the suitability of the habitat present within the site to support a population of reptiles. Reptiles particularly favour scrub and rough grassland interfaces and the presence of these is a good indication that reptiles may be present on-site. In addition, reptiles may utilise features such as bare ground for basking, tussocky grassland for shelter and compost heaps and rubble piles for breeding and/or hibernating.

Great Crested Newt

The appraisal of the site to support great crested newt included establishing the presence of suitable aquatic habitats such as ponds, lakes or other waterbodies within or adjacent to the site and the presence of suitable terrestrial habitat. Waterbodies that are densely shaded, highly eutrophic or that contain fish are likely to be less suitable for this species. The suitability of on-site ponds and terrestrial habitat is considered in relation to the presence of ponds within the wider area, as identified within the desktop study (Paragraph 3.4.2), and their suitability to be used as a network.

The on-site waterbody was subject to a Habitat Suitability Index (HSI) assessment (Oldham, et al., 2000). HSI is a numerical index between 0 and 1, derived from an assessment of ten habitat variables known to influence the presence of great crested newt such as geographical location, water body size and permanence, presence of predatory fish and wildfowl, availability of suitable terrestrial habitat and proximity to other ponds. Each factor is scored based on its level of suitability for great crested newt. An HSI of 1 is optimal habitat (high probability of occurrence), while an HSI of 0 is very poor habitat (minimal probability of occurrence). The HSI is calculated on a single pond basis, but takes into account surrounding terrestrial habitat and local pond density. If a pond has a very low HSI score (<0.5) there would typically be a minimal chance of great crested newt presence, however, professional judgement is also used to determine whether a pond is suitable or unsuitable for great crested newt.

Invertebrates

An assessment was made of the suitability of the site to support diverse communities of invertebrates. The assessment was based on the presence of habitat features which may support important invertebrate communities. These features include, for example, an abundance of dead wood, the presence of diverse plant communities, varied woodland structure, sunny woodland edges with a diverse flora, waterbodies and water courses and areas of free draining soil exposures. During the field survey there was no attempt made to identify species present as this is a more specialist area of ecological assessment reserved for targeted surveys.

Other Relevant Species

An assessment was made of site suitability for other notable species such as more rarely encountered protected species, Species of Principal Importance for the Conservation of diversity in England notified under Section 41 of the NERC Act 2006 and as listed in the England Biodiversity List, and Local Biodiversity Action Plan (LBAP) species[8], specific to the study region.

[8] LBAPs identify local priorities for biodiversity conservation by translating national targets for species into effective action at the local level and identifying targets for species important to the local area.

Invasive Species

During the field survey any incidental records of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded. However, it should be considered that the survey was not specifically aimed at assessing the presence of these species and further specialist advice may need to be sought.

3.6 Field Survey Details

The field survey was carried out by Lucy Bartlett, Ecologist of ECOSA on 15th April 2021. The weather conditions were sunny, dry with approximately 70% cloud cover, an ambient temperature of 9°C and a gentle breeze.

During the survey, the surveyor was equipped with 10x40 binoculars, a high powered torch and a digital camera.

3.7 Field Survey Limitations

Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The field survey has therefore not produced a complete list of plants and animals and in the absence of evidence of any particular species should not be taken as conclusive proof that the species is absent or that it will not occur in the future.

Online mapping resources provide an indication of habitat features present in the wider area, but do not provide a detailed assessment of habitat types.

The internal, unoccupied areas of the buildings were not surveyed due to the COVID 19 pandemic. Areas such as roof voids provide suitable locations for roosting bats and as a result of these areas are yet to be surveyed for the presence/absence of bats.

4.0 BASELINE ECOLOGICAL CONDITIONS

4.1 Introduction

This section details the results of the field survey and desktop study undertaken as part of the Ecological Impact Assessment for the site. It assesses the baseline ecological conditions of the site at the time the desktop study was completed and based on the ecological features recorded during the field survey carried out on 15th April 2021.

4.2 Scoping

This Ecological Impact Assessment excludes an assessment of ecological effects and mitigation, compensation and enhancement measures in relation to great crested newt. Further survey was recommended by ECOSA in an email and telephone call after the Preliminary Ecological Appraisal field survey. A great crested newt eDNA survey was undertaken by Ecology by Design on 20th May 2021 (Ecology by Design, 2021). The results of the survey work and recommendations in relation to this species are therefore not discussed in this report.

4.3 Statutory Designated Sites

There are no statutory designated sites of nature conservation interest situated within one kilometre of the site boundary. The nearest statutory designated site is Alvescot Meadows SSSI located approximately 4.6 kilometres west of the site.

4.4 Habitats

4.4.1 Desktop Study Results

Consultation with MAGIC produced no records of notable habitats within or immediately adjacent to the site, however, this does not confirm the absence of notable plants or habitats in the local area.

4.4.2 Field Survey Results

Habitats within the site are shown on the Phase 1 Habitat Map (**Map 2**), photographs have been provided as appropriate. Habitats are described in general terms using standard Phase 1 habitat survey terminology. The main habitats recorded on site during the Phase 1 habitat survey were as follows:

Scattered Trees

Scattered trees are present throughout the site (**Figure 1** and **Figure 2**). Species recorded include hawthorn *Crataegus monogyna*, fir species, cherry *Prunus* species, elm, apple *Malus* species, silver birch *Betula pendula*, pine *Pinus* species, blackthorn *Prunus spinosa*, goat willow *Salix caprea* and sweet chestnut *Castanea sativa*.

Figure 1: Scattered trees along the north-western site boundary

Figure 2: Scattered trees within the centre of the site

Dense Scrub

An area of dense scrub is located in the south-eastern corner of the pond adjacent to the pond (**Figure 3**). Species recorded include hawthorn, bramble *Rubus fruticosus* aggregate and dogwood *Cornus sanguinea*.

Figure 3: Dense scrub (behind pond)

Poor Semi-improved Grassland

Tussocky poor semi-improved grassland comprises the northern grassland field (**Figure 4**). Poor semi-improved grassland is also present within the garden landscape where it has a slight tussocky structure (**Figure 5**). Grassland species recorded include perennial rye grass *Lolium perenne* and Yorkshire fog *Holcus lanatus*. Herbaceous species recorded include daisy *Bellis perennis*, cowslip *Primula veris*, primrose *Primula vulgaris*, yarrow *Achillea millefolium*, red clover *Trifolium pratense*, dandelion *Taraxacum officinale* aggregate, daffodil *Narcissus* species, red dead nettle *Lamium purpureum*, creeping buttercup *Ranunculus repens*, creeping cinquefoil *Potentilla reptans*, grape hyacinth *Muscari* species, white dead nettle *Lamium album*, stinging nettle *Urtica dioica*, cleavers *Galium aparine*, germander speedwell *Veronica chamaedrys*, cow parsley *Anthriscus sylvestris*, bristly oxtongue *Helminthotheca echioides*, broad-leaved dock *Rumex obtusifolius* and violet *Viola* species.

Figure 4: Poor semi-improved grassland field within the north of the site

Figure 5: Poor semi-improved grassland within garden landscape

Standing Water

A single pond is located within the south-eastern part of the site (**Figure 6**). The waterbody measures approximately 68 square metres and had a macrophyte cover of 70% during the survey. Vegetation recorded include greater pond sedge *Carex riparia*.

Figure 6: Standing water

Intact Species-poor Hedgerow

The following intact species-poor hedgerows were present on and bounding the site and are shown on **Map 2**.

- Hedgerow H1 is a mature, managed Leyland cypress *Cupressus* × *leylandii* hedgerow up to three metres high (**Figure 7**).

- Hedgerow H2 is a mature, managed hedgerow up to 1.5 metres high and is located adjacent to Mount Owen Road (**Figure 8** and **Figure 9**). Species recorded include blackthorn, hawthorn and bramble.

- Hedgerow H3 is a scrubby hedgerow up to 1.5 metres high (**Figure 10**). Species recorded include bramble and dogwood.

- Hedgerow H4 is a scrubby hedgerow up to 1.5 metres high (**Figure 11**). Species recorded include hawthorn, bramble and dogwood.

- Hedgerow H5 is a mature hedgerow up to 1.5 metres high (**Figure 12**). Species recorded include bramble, dogwood, blackthorn and goat willow.

Figure 7: Species-poor intact hedgerow H1

Figure 8: Species-poor intact hedgerow H2 from roadside

Figure 9: Species-poor intact hedgerow H2 from site side

Figure 10: Species-poor intact hedgerow H3

Figure 11: Species-poor intact hedgerow H4

Figure 12: Species-poor intact hedgerow H5

Defunct Species-poor Hedgerow

The following defunct species-poor hedgerows were present on and bounding the site and are shown on **Map 2**.

- Hedgerow H6 is a scrubby hedgerow up to 1.5 metres high (**Figure 13**). Species recorded include hawthorn and bramble.

- Hedgerow H7 is a mature, managed hedgerow up to three metres high (**Figure 14**). Species recorded include bramble, dogwood, blackthorn and goat willow.

Figure 13: Species-poor defunct hedgerow H6

Figure 14: Species-poor defunct hedgerow H7

Introduced Shrub

Introduced shrub is located around the house. Species recorded include daffodil, rose *Rosa* species, grape hyacinth, snowdrop *Galanthus nivalis*, bluebell *Hyacinthoides* species and primrose.

Buildings

Two buildings are present within the site, the main house and an outbuilding. These are discussed in more detail in Paragraph 4.5.1.

Other Habitats

Bare ground is present within the east of the site (**Figure 15** and **Figure 16**).

Figure 15: Bare ground viewed to the west

Figure 16: Bare ground viewed to the west

Areas of hardstanding are also located within the site.

Summary

The habitats within the site comprise common and widespread species. In the context of the site, the features of greatest intrinsic ecological value are the mature scattered trees and hedgerows.

4.5 Notable and Legally Protected Species

4.5.1 Bats

Desktop Study Results

Consultation with MAGIC produced no records of granted European Protected Species Mitigation (EPSM) licences in relation to bats within a two kilometre radius of the site, however, this does not confirm the absence of the species group in the local area.

Building Assessment

An external inspection only was undertaken of the on-site buildings. An internal inspection was not carried out due to the COVID 19 pandemic. There are two buildings within the site, the house and outbuilding. No direct evidence of bats such as urine staining or droppings were recorded during the external inspections of the on-site buildings.

The results of the building assessment are provided in **Table 1**.

Tree Assessment

The trees within the site and along the site boundary were not found to support any potential bat roosting features such as ivy cladding, holes or splits in bark, and, therefore were assessed as having negligible suitability to support roosting bats.

Foraging and Commuting Habitat

The scattered trees, tussocky grassland and hedgerows within the site offer suitable foraging and commuting habitat for bats. The site has good connectivity with dense woodland areas, tree lines, hedgerows and further residential gardens within the vicinity of the site, which also provide suitable foraging and commuting habitats. Given its small size, the site likely forms a small component of a larger foraging and commuting route for bats. It is considered highly unlikely that any local populations would be reliant on the foraging habitat within the site. Overall, the site itself is assessed as having moderate suitability to support foraging and commuting bats.

Table 1: Building Assessment – Summary of Features with Bat Roost Potential and Evidence of Bat Roost Activity

Surveyed Feature	Figure	Building Description	Description of Potential Bat Roost Features	Evidence of Bat Roost Activity and Location	Assessment of Suitability for Roosting Bats
House	 **Figure 17**: Southern and eastern elevations of the house  **Figure 18**: Northern elevation of the house	The house is a two storey building of brick construction with a pitched clay tile roof (**Figure 17** and **Figure 18**). Rendering is present on the eastern and northern elevations and part of the first floor on the southern elevation. A UVPC conservatory is present on the northern part of the building (**Figure 18**). Internally, a roof void is present, according to the owner. No access was possible due to the Covid-19 pandemic.	The roof tiles and lead flashing were recorded as being very well sealed. The building supports no crevices or gaps and is considered unsuitable for roosting bats.	No evidence of roosting bats was recorded during the survey.	Negligible
Outbuilding	 **Figure 19**: Western and northern elevations of outbuilding	The outbuilding is a single storey building of timber clad construction with a pitched corrugated iron roof (**Figure 19** and **Figure 20**). Section of plastic are present on the roof as light panels.	The outbuilding lacks any potential crevices or gaps for roosting bats and is therefore considered unsuitable for roosting bats.	No evidence of roosting bats was recorded during the survey.	Negligible

Surveyed Feature	Figure	Building Description	Description of Potential Bat Roost Features	Evidence of Bat Roost Activity and Location	Assessment of Suitability for Roosting Bats
	 **Figure 20**: Eastern elevation of outbuilding				

4.5.2 Otter

Desktop Study Results

A review of online aerial photography and 1:25,000 OS mapping identified no watercourses within or adjacent to the site.

Field Survey Results

There are no watercourses or associated riparian habitats present on or adjacent to the site. As such, the habitat on site is unsuitable for otter *Lutra lutra* and therefore the species is not considered further in this report.

4.5.3 Badger

Field Survey Results

No evidence of badger was recorded within the site during the survey undertaken. The site offers suitable habitat for both foraging and resident badger in the form of the hedgerows and grassland. There is further suitable habitat in the wider area in the form of woodland blocks, grassland fields and agricultural pastures. Badger are likely to be present in the local area and may forage within or commute across the site.

4.5.4 Hazel Dormouse

Desktop Study Results

Consultation with MAGIC produced no records of EPSM licences in relation to hazel dormouse *Muscardinus avellanarius* within a two kilometre radius of the site, however, this does not confirm the absence of the species in the local area.

Field Survey Results

Hedgerows H1 is an ornamental Leyland cypress hedgerow with no understorey and hedgerows H6 and H7 are defunct, and, therefore these features have been assessed as being sub-optimal for supporting hazel dormouse. Hedgerows H2 and H5 are of a suitable species diversity and structure containing a continuum of food resources which the species requires at different times of the year. These are connected to further suitable habitat including mature hedgerow networks and blocks of woodland in the vicinity of the site.

4.5.5 Water Vole

Desktop Study Results

A review of online aerial photography and 1:25,000 OS mapping identified no watercourses within or adjacent to the site.

Field Survey Results

There are no watercourses or associated riparian habitats present on or adjacent to the site. As such, the habitat on site is unsuitable for water vole *Arvicola amphibious* and therefore the species is not considered further in this report.

4.5.6 Birds

Field Survey Results

During the field survey common bird species were recorded on site including wren *Troglodytes troglodytes,* robin *Erithacus rubecula* and blue tit *Cyanistes caeruleus*. Pheasant *Phasianus colchicus* was also recorded within the site.

The site offers suitable nesting habitat for common breeding birds in the form of the scattered trees, dense scrub and hedgerows. Further suitable nesting habitat is present in the surrounds in the form of woodland blocks, treelines and hedgerows.

Because of the scale and types of habitats present on the site, it is unlikely that the area supports notable populations or assemblages of wintering birds. Therefore, wintering birds are not considered further in this report.

4.5.7 Reptiles

Desktop Study Results

Consultation with MAGIC produced no records of granted EPSM licences in relation to sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* within a two kilometre radius of the site, however, this does not confirm the absence of the species in the local area.

Field Survey Results

The poor semi-improved grassland has a tussocky structure which is suitable to support common species of foraging, sheltering and basking reptiles. Additionally, hibernating and sheltering opportunities are associated with the roots of the scattered trees and the bases of hedgerows. The dense scrub also provides refuge opportunities for reptiles. The site has good connectivity to other suitable habitat including further grassland to the east, grassland field margins to the north, road verges to the west and residential gardens to the south.

4.5.8 Great Crested Newt

Desktop Study Results

Consultation with MAGIC produced no records of granted EPSM licences in relation to great crested newt within a two kilometre radius of the site. No records of great crested newt were submitted as part of a great crested newt class survey licence return within

a 500 metre radius of the site as part of the MAGIC search undertaken. However, this does not confirm the absence of the species in the local area.

A review of online 1:25,000 OS mapping and aerial imagery concluded that there are two waterbodies within a 500 metre radius of the site. These are located approximately 140 metres north-west and 195 metres north-west of the site. No assessment of these waterbodies' suitability to support great crested newt were undertaken as part of the appraisal.

Field Survey Results

A single pond is present within the site, measuring approximately 68 square metres and contained egg laying vegetation at the time of survey. The pond is therefore assessed as having suitability to support breeding great crested newt.

The pond within the site was subject to an HSI assessment. The pond was assessed as having poor suitability (HSI score = 0.71) to support great crested newt. An HSI score of 1 indicates optimal habitat, and therefore, the HSI score of the pond indicates that the pond has good suitability for great crested newt and there is a moderate probability of occurrence on the site.

The network of ponds within the surrounding area provides opportunities for great crested newt. The species is found within terrestrial habitats of up to 500 metres from their breeding ponds (English Nature, 2001). The site offers suitable habitat for the species in its terrestrial stage in the form of intact and defunct species-poor hedgerows and tussocky grassland. These habitats offer suitable foraging, refuge and hibernating opportunities.

4.5.9 Invertebrates

Field Survey Results

The site offers suitable habitat for supporting invertebrates in the form of scattered trees, poor semi-improved grassland, standing water, hedgerows and introduced shrub. The site largely supports common and widespread plant species which are unlikely to support any rare or notable assemblages of invertebrates, and, therefore this species group is not considered further in this report.

4.5.10 Other Relevant Species

Field Survey Results

No evidence of any other relevant species was recorded within the site during the survey undertaken. The site offers suitable habitat for common toad *Bufo bufo* and

European hedgehog *Erinaceus europaeus* in the form of dense scrub, hedgerows and tussocky grassland. The onsite pond also provides suitable habitat for common toad.

4.6 Summary of Key Ecological Features

The following features are those with greatest ecological value that lie within the site's Zone of Influence:

- Suitability for foraging and commuting bats;
- Suitability for badger;
- Suitability for hazel dormouse;
- Suitability for breeding birds;
- Suitability for reptiles;
- Suitability for great crested newt; and
- Suitability for common toad and European hedgehog.

5.0 ASSESSMENT OF ECOLOGICAL EFFECTS AND MITIGATION/COMPENSATION/ ENHANCEMENT MEASURES

5.1 Introduction

This section assesses the ecological effects of the proposed development scheme on the identified ecological features as identified in Section 4.0. Methods for addressing potential impacts and effects on ecological features have been approached in accordance with the mitigation hierarchy[9] with avoidance of impacts prioritised where possible. Where significant adverse effects cannot be avoided other forms of mitigation are prioritised over compensation. Enhancement measures have been detailed, where relevant, in order to not only minimise the impacts on biodiversity but also to provide enhancement in accordance with Paragraph 170 of the NPPF (Paragraph 2.2.1). It is anticipated that mitigation, compensation and enhancement measures will be secured through the planning process.

5.2 Scheme Design

The proposed development entails the demolition of the existing residential property and outbuilding and the construction of a replacement residential dwelling. A new access is to be created from the north-western corner of the site. No external lighting will be introduced to the site. The landscaping plans are currently not known at this stage.

The potential ecological impacts and effects of these proposals, in the absence of mitigation, are described for each ecological feature below. For each ecological feature, measures to mitigate and/or compensate for significant effects are described.

5.3 Designated Sites

5.3.1 Potential Impacts and Effects

Given the distance between the designated sites and the development site, no direct or indirect impacts on designated sites are anticipated.

5.3.2 Mitigation and Compensation Measures

No mitigation and compensation measures are considered necessary for designated sites.

5.3.3 Enhancement

No enhancement measures in relation to designated sites are considered.

[9] In accordance with CIEEM Ecological Impact Assessment guidance (CIEEM, 2018) a sequential process is adopted to address impacts on features of ecological interest, with 'Avoidance' prioritised at the top of the hierarchy and Compensation/Enhancement' at the bottom. This is often referred to as the 'mitigation hierarchy'.

5.4 Habitats

5.4.1 Potential Impacts and Effects

The proposals will result in the loss of 480 square metres of poor semi-improved grassland, a small number of scattered trees and 6.5 metres of hedgerow H2 at the most northern end in association with providing site access.

The construction phase also has the potential to cause impacts to the retained habitats through construction activities such as root compaction and pollution.

5.4.2 Mitigation and Compensation Measures

Trees to be retained within the site will be protected during the construction period with Root Protection Zones (British Standards, 2012).

A buffer margin extending at least two metres from the centre of the hedgerows should be erected during the construction phase.

The loss of habitats will need to be offset through new planting to address that lost as part of the site clearance. The landscaping plans are currently not known at this stage. Any new landscaping will be designed to offset that lost as part of the proposals, to incorporate appropriate native species and give consideration to maintaining and increasing connectivity across the site. An ecologist will be consulted in any forthcoming landscape plans.

5.4.3 Enhancement

No additional enhancement is recommended in respect of habitats.

5.5 Bats

5.5.1 Potential Impacts and Effects

Since the majority of the boundary vegetation is being retained as part of the proposals and only small-scale vegetation clearance will be required in association with providing site access. The proposals will result in the removal of 6.5 metres of hedgerow H2 at the most northern end and therefore there will be no significant long-term loss of suitable foraging and commuting habitat for bats.

No external lighting will be introduced to the site and therefore there will be no disturbance impact on foraging and commuting bats.

In England, bats and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, all bat species are protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 2** for details.

5.5.2 Mitigation and Compensation Measures

No mitigation and compensation measures are considered necessary for bats.

5.5.3 Enhancement

The site will be enhanced for roosting bats through the provision of two Habibat bat boxes, or similar alternatives, within the structure of the new dwelling at a minimum height of four metres(**Figure 21**).

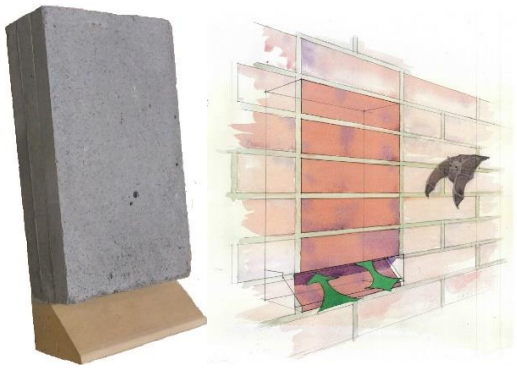

Figure 21: Habibat bat box

5.6 Badger

5.6.1 Potential Impacts and Effects

The majority of habitat is being retained as part of the development with the exception of small-scale vegetation clearance that will be required in providing site access.

The proposals will result in the overall loss in suitable habitat for badger through the loss of a small area of poor semi-improved grassland within the site, measuring approximately 480 square metres and 6.5 metres of hedgerow H2 at the most northern end. However, given that the site forms a small area of potential foraging habitat for badger in the context of the wider area this is not considered significant.

5.6.2 Mitigation and Compensation Measures

No mitigation and compensation measures are considered necessary for badger.

5.6.3 Enhancement

No additional enhancement is recommended in respect of badger.

5.7 Hazel Dormouse

5.7.1 Potential Impacts and Effects

The majority of the boundary vegetation is being retained as part of the proposals, and, therefore there will be no long-term loss and fragmentation of hazel dormouse habitat. Small-scale vegetation clearance will be required in association with providing site access in the form of the removal of 6.5 metres of hedgerow H2 at the most northern

end. This has potential to result in killing and injury of hazel dormouse. Given the quality of the habitat and the small extent of loss, no significant effect in relation to habitat loss is anticipated.

No external lighting will be introduced to the site and therefore there will be no disturbance impact on hazel dormouse.

In England, hazel dormouse and their habitat are fully protected under the Wildlife and Countryside Act 1981 through inclusion in Schedule 5. In addition, this species is protected under the Conservation of Habitats and Species Regulations 2017. Refer to **Appendix 2** for details.

5.7.2 Mitigation and Compensation Measures

Root Protection Zones will be established around trees to be retained and a buffer margin from the hedgerows will also be established as discussed in Paragraph 5.4.2. As a very limited extent of habitat is likely to be removed in association with the new site access from the north-western corner of the site, a precautionary approach is recommended. This will include undertaking the works between November and February, inclusive, at a time when hazel dormouse are not active. The small section of hedgerow to be removed will be cut to ground level (15-30 centimetres) with the ground level vegetation then removed in May under ecological supervision. In the unlikely event that hazel dormouse or evidence of the species is identified then all felling works will cease and an EPSM licence may be required prior to the continuation of site clearance.

5.7.3 Enhancement

No additional enhancement is recommended in respect of hazel dormouse.

5.8 Birds

5.8.1 Potential Impacts and Effects

The majority of boundary vegetation is being retained as part of the proposals. Small-scale vegetation clearance will be required in association with providing site access. Removal of any woody vegetation has the potential to result in direct harm to nesting birds if undertaken during the nesting bird season (March to August, inclusive) and results in the long-term loss to nesting habitat overall.

All birds, their nests, eggs and young are legally protected, with certain exceptions, under the Wildlife and Countryside Act 1981 (as amended). Refer to **Appendix 2** for details.

5.8.2 Mitigation and Compensation Measures

Any necessary woody vegetation clearance required will be undertaken outside the main breeding bird season between November and February.

A single Vivara Pro Seville 32mm WoodStone Nest Box and a single Vivara Pro Barcelona WoodStone Open Nest Box, or similar alternatives, will be erected on mature trees along the western site boundary to provide replacement nesting opportunities at the site.

5.8.3 Enhancement

Two integral terraced sparrow nest boxes will be installed within the structure of the new house on the to provide new nesting opportunities at the site (**Figure 22**).

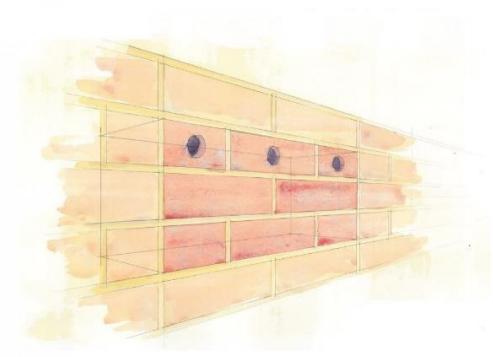

Figure 22: Example terraced sparrow box

5.9 Reptiles

5.9.1 Potential Impacts and Effects

The majority of habitat is being retained as part of the development with the exception of small-scale vegetation clearance that will be required in providing site access.

The proposals have the potential to result in direct effects on widespread species of reptiles, should they be present, as a result of site clearance through killing/injury of individuals.

The proposals will result in the overall loss in suitable habitat for reptiles through the loss of a small area of poor semi-improved grassland within the site, measuring approximately 480 square metres and 6.5 metres of hedgerow H2 at the most northern end.

Widespread reptile species (slow-worm *Anguis fragilis*, common lizard *Zootoca vivipara*, grass snake *Natrix helvetica* and adder *Vipera berus*) are protected under the Wildlife and Countryside Act 1981 against harm. Refer to **Appendix 2** for details.

5.9.2 Mitigation and Compensation Measures

Due to the small extent of suitable reptile habitat being removed, further reptile surveys are not considered necessary. A precautionary approach will be followed to ensure that reptiles are not harmed during the necessary ground clearance works prior to development. Such work should involve a precautionary destructive search which comprises methodical strimming of suitable habitat within the construction zone to ground level under the supervision of a suitably qualified ecologist. The clearance will be undertaken in order to render the reptile habitat within the construction zone unsuitable for reptiles, so that development works may commence fully without risking harm to reptiles at the site.

The destructive search work will be undertaken during the summer at a time of year when reptiles are active and ideally avoiding when slow-worm have their young (between April and the end of August). The ecologist will be present during the strimming works and will advise whether any further input is needed in terms of soil stripping. Any reptiles found during the destructive search will be relocated to the retained grassland within the site.

Once the destructive search has been completed, and all suitable reptile habitat has been removed from the construction area, the development work will be able to proceed. During the construction period, the construction zone will be maintained clear of vegetation in order to remove the likelihood of any reptiles re-colonising the construction area.

Log piles will be created at the boundaries of the site to provide compensatory opportunities for shelter and hibernation for reptiles, should they be present (**Figure 23**). These features do not require regular maintenance but will be repaired/replaced if subject to damage/vandalism.

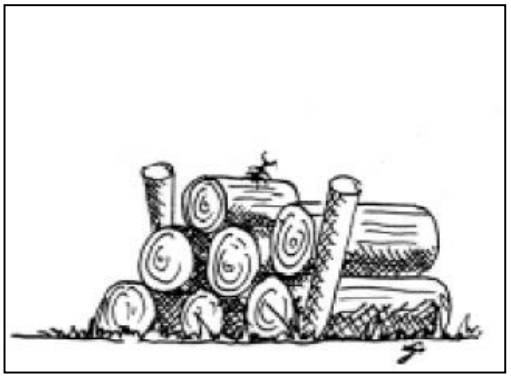

Figure 23: Log ‘pile’, logs held in place by posts

5.9.3 Enhancement

No additional enhancement is recommended in respect of reptiles.

5.10 Other Relevant Species

5.10.1 Potential Impacts and Effects

The majority of habitat is being retained as part of the development with the exception of small-scale vegetation clearance that will be required in providing site access. The proposals will result in the overall loss in suitable habitat for European hedgehog and common toad through the loss of a small area of poor semi-improved grassland within the site, measuring approximately 480 square metres and 6.5 metres of hedgerow H2 at the most northern end.

5.10.2 Mitigation and Compensation Measures

A watching brief will be maintained by on-site contractors during the clearance works for European hedgehog and common toad. Should any be encountered as part of the clearance works then these should be relocated or allowed to disperse to retained habitats within the vicinity.

Gaps in any new fencing should be created to allow European hedgehog and common toad to access the landscaping. This should be achieved either through cutting a square hole of approximately 13 centimetres x 13 centimetres into the bottom of the fence or leaving out a small section of board with at least 13 centimetres clearance.

5.10.3 Enhancement

No additional enhancement is recommended in respect of other relevant species.

5.11 Residual and Cumulative Effects

Given the mitigation and compensation measures outlined above, no significant residual effects are anticipated on any of the species considered. Therefore, there will be no cumulative effects on local populations as a result of the development.

6.0 CONCLUSIONS

6.1 Conclusion

The site has been assessed as having suitability to support foraging and commuting bats, badger, hazel dormouse, breeding birds, widespread species of reptiles, invertebrates, European hedgehog and common toad. Adverse impacts on these ecological features have been identified and appropriate mitigation measures proposed. Post-development, no residual or cumulative impacts are anticipated.

The site has also been assessed as having suitability to support great crested newt. This Ecological Impact Assessment excludes an assessment of ecological effects and mitigation, compensation and enhancement measures in relation to great crested newt, which is provided by a letter report produced by Ecology by Design (Ecology by Design, 2021).

The site will be enhanced for bats and breeding birds through the installation of bat roosting features and bird nest boxes within the new building, resulting in an overall net gain for biodiversity. As such it is considered that subject to the letter report produced by Ecology by Design, the proposals will accord with all relevant national and local planning policy in relation to ecology including Policy EH3 of the West Oxfordshire Local Plan 2031and the NPPF (see Section 2.0).

6.2 Updating Site Survey

If the planning application boundary changes or the proposals for the site alter, a re-assessment of the scheme in relation to ecology may be required. Given the mobility of animals and the potential for colonisation of the site over time, updating survey work may be required, particularly if development does not commence within 18 months of the date of the most recent relevant survey.

7.0 REFERENCES

British Standards, 2012. *BS 5837:2012 trees in relation to design, demolition and construction – Recommendations.* s.l.:s.n.

CIEEM, 2017. *Chartered Institute of Ecology and Environmental Management Website.* [Online]
Available at: www.cieem.net

CIEEM, 2017. *Guidelines for Ecological Report Writing.* 2nd ed. Winchester: Chartered Institute of Ecology and Environmental Management.

CIEEM, 2017. *Guidelines for Preliminary Ecological Appraisal.* 2nd ed. Winchester: Chartered Instute of Ecology and Environmental Management.

CIEEM, 2018. *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Winchester: Chartered Institute of Ecology and Environmental Management.

Collins, J., 2016. *Bat Surveys for Professional Ecologists: Good Practice Guidelines.* 3rd ed. London: Bat Conservation Trust.

DEFRA, 2021. *Multi-Agency Geographic Information for the Countryside (MAGIC) Map Application.* [Online]
Available at: www.defra.magic.gov.uk

Ecology by Design, 2021. *Far Horizons, Bampton - Great Crested Newt eDNA Survey,* Chalgrove: Ecology by Design.

English Nature, 2001. *Great Crested Newt Mitigation Guidelines.* Peterborough: English Nature.

JNCC, 2010. *Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit.* Peterborough: Joint Nature Conservation Committee.

Oldham, R. S., Keeble, J., Swan, M. J. S. & Jeffcote, M., 2000. Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). *Herpetological Journal,* 10(4), pp. 143-155.

Map 1 Site Location Plan

Map 2 Phase 1 Habitat Map

Appendix 1 Site Proposals Plan

Appendix 2 Relevant Legislation

Bats

All UK bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely:
- To impair its ability to survive, breed, or rear or nurture their young;
- To impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

- Greater horseshoe bat *Rhinolophus ferrumequinum*;
- Lesser horseshoe bat *Rhinolophus hipposideros*;
- Bechstein's bat *Myotis bechsteinii*;
- Barbastelle *Barbastella barbastellus*; and
- Greater mouse-eared bat *Myotis myotis*.

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

Hazel Dormouse and Great Crested Newt

These species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations. These make it an offence to:

- Deliberately capture, injure or kill any such animal;
- Deliberately disturb any such animal, including in particular any disturbance which is likely, to impair its ability to survive, breed, or rear or nurture their young, to impair its ability to hibernate or migrate;
- To affect significantly the local distribution or abundance of that species;
- Damage or destroy a breeding site or resting place of any such animal;
- Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- Intentionally or recklessly obstruct access to any place that any one of these species uses for shelter or protection.

Breeding Birds

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, to:

- Intentionally kill, injure or take any wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 subject to various controls. Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

Reptiles

The four widespread species of reptile that are native to Britain, namely common or viviparous lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix*

helvetica, are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence to:

- Intentionally kill or injure any of these species.

The remaining native species of British reptile (sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca*) receive a higher level of protection via inclusion under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. They are afforded full protection under Section 9(4) of the Act and Regulation 43 of the Regulations (in England and Wales only) and the Wildlife and Countryside Act 1981 (as amended). The distribution of these species are restricted to only a few sites in England.

Species and Habitats of Principal Importance in England

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The England Biodiversity List is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions. There are currently 943 species of principal importance and 41 habitats of principal importance included on the England Biodiversity List.

Appendix 3 Appraisal Criteria for Bats

The criteria used to assess the suitability of roosting and foraging/commuting habitat for bats is based on industry guidelines and outlined in **Table 2**[10].

Table 2: Criteria used to Assess Suitability of Roosting and Foraging/Commuting Habitat for Bats

Suitability	Description of roosting habitats	Commuting and foraging habitats
High	A structure or tree 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.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.
Moderate	A structure of tree 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.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically/structure that does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerows or un-vegetated stream, but isolated (i.e. not very well connected to the surrounding landscape by other habitat). Suitable, but isolated, habitat that could be used by small numbers of foraging bats such as a lone tree or a patch or scrub.
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

[10] Table adapted from (Collins, 2016)