

Preliminary Ecological Appraisal
(PEA)



Manor Farm

Hannington

Tadley

Hampshire

RG26 5TZ

GR: SU 53827 55428

November 2020



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Preliminary Ecological Appraisal	
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Declaration of Compliance BS 420202013

This study has been undertaken in accordance with British Standard 420202013 Biodiversity, Code of practice for planning and development, unless specifically stated otherwise.

Code of Professional Conduct

The information which we have prepared is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of Survey Data and Report

The findings of this report are valid for 12 months from the date of survey, unless the site has been maintained in exactly the same condition, in which case the report can be considered valid for 24 months once verified by the acting ecologist. Please be aware that some Local Planning Authorities (LPAs) require an update once 12 months has elapsed. If work has not commenced within this period, an updated survey by a suitably qualified ecologist may be required.



Legal and Moral Constraints and Responsibilities Summary

An overview of relevant legislation and responsibility is given within the Appendices Planning Policy and Legislation. Constraints exist for development where specific habitats or species are, or are potentially, within or adjoining a site proposed for development.

It is the responsibility of the client and those in receipt of this report to ensure ALL personnel or associated peoples likely to be involved in ANY management or works to this site - including but not limited to the seasonal flailing of hedgerows or cutting of grassland/scrub - are fully informed of any restrictions in force regarding the possible presence of protected species on this site as outlined in this report. If there is any doubt as to what works or management of habitats may legally occur, consultation with the acting ecologist is essential.

Avoidance, mitigation, compensation and enhancement are site specific and apply as herein.

In all instances where Mitigation is given, also refer to:

- Any further survey work for protected species (Phase 2 Surveys) recommended, or their results.
- General Good Practice during Construction Stage.
- Law and Legislation pertaining to specific species (plants and animals)
- Prevention of the spread of native and non-native invasive plants and animals.
- Avoidance of Wildlife Crime <http://www.nwcu.police.uk/>

Further advice if species are found onsite during development may be sought from Ecological Surveys Ltd (Tel 01503 240846 or 07736 458609) or Natural England.



1 INTRODUCTION

1.1 Executive Summary

Further Surveys	Bat Emergence Surveys required (where the House, Garage, or Barn are impacted)
Habitat/Species Mitigation	<ul style="list-style-type: none"> ➤ Bird Nesting Mitigation ➤ Seasonal Constraints for the Removal of Woody Species ➤ Artificial Lighting Strategy Further Mitigation will be required, pending further Bat Emergence Surveys.
Habitat/Species Enhancement	<ul style="list-style-type: none"> ➤ Bat Roosting Provision ➤ Solitary Bee Provision ➤ Landscaping for the Benefit of Wildlife Further Enhancement may be required, pending further Bat Emergence Surveys.

1.2 Project Description

Ecological Survey Ltd were commissioned by the clients to undertake a Preliminary Ecological Survey (PEA) of this site in relation to works. The exact proposed works are not known although are understood to potentially include conversion of the stable, internal works to the barn, and re-roofing & extension of the house and garage.

1.3 Illustrated Proposal

No illustrated proposal has been provided by the clients at this time.

1.4 Requirement for Ecological Survey/Assessment

Ecological Surveys Ltd were commissioned to undertake a Preliminary Ecological Appraisal (PEA) to include the potential for legally protected and notable species of the Site, and to assess the potential impact of the development on the biodiversity of the Site and its immediate environs. Ecological Surveys Ltd has not been informed of any previous surveys undertaken on this site that need to inform this report.

All ecological data and information gained through both the desktop survey and the survey work were evaluated. The important ecological features were then identified and evaluated against the potential impacts/effects that the proposed development may have on the ecology of the Site and surrounding area.

The biodiversity importance of each designated site, habitat and species is evaluated on a geographic scale: international, national, county and local.



Evaluation of designated sites considers their designation; their ecological and landscape relationship with the proposed site; and the species and/or habitat types for which the site was designated.

Evaluation of habitats considers their designation; their area, quality and viability; diversity and connectivity to the wider landscape; and structural diversity and species-richness.

Evaluation of species considers their designation, including legal protection and rarity.

When assessing the impact of the development and changes to the baseline conditions on site, predictions will be made which focus solely on the zone of influence whilst taking into consideration the lifespan of the development and the significant impacts as identified from the proposed work operations throughout the lifespan of the development.

The proposed development aims to firstly avoid and then mitigate against any potential effects/impacts on the local ecology/biodiversity, ensuring compliance with nature conservation legislation. It aims to achieve this by applying the mitigation hierarchy (as mentioned in Paragraph 118 of the National Planning Policy Framework and detailed in Paragraph: 018 Reference ID: 8-018-20140306 of National Planning Practice Guidance) as follows:

Avoidance – Significant harm to wildlife species and habitats should be avoided through design.

Mitigation – where significant harm cannot be wholly or partially avoided, it should be minimised by design, or by the use of effective mitigation measures that can be secured by, for example, conditions or planning obligations.

Compensation – where, despite whatever mitigation would be effective, there would still be significant residual harm, as a last resort, this should be properly compensated for by measures to provide for an equivalent value of biodiversity.

Appropriate measures to avoid and/or minimise the significant negative effects on the important ecological features have been identified. These mitigation measures aim firstly to avoid the overall effect/impact, or for those that cannot be avoided, reduce their overall effect value. It is not always possible to fully mitigate an adverse effect to neutral levels.

Under the National Planning Policy Framework, NPPF, (HM Government, 2019) local planning policies and decisions should 'contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);



- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

[Taken from NPPF 2019, Section 15. Conserving and enhancing the natural environment, paragraph 170, p49]

Thus, the mitigation hierarchy should be applied when considering the impacts of developments and local planning decisions on the natural environment, with the protection of important wildlife sites, habitats, species and ecosystem services; the avoidance of impacts, mitigating these impacts where appropriate, and then achieving biodiversity net gain through enhancements.

Section 15 of the NPPF 2019 goes on to state that 'when determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- b) development on land within or outside a 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 on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and



d) 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.'

[Taken from NPPF 2019, Section 15. Conserving and enhancing the natural environment, paragraph 175, p50]

The aim of development should be to deliver biodiversity net gain on site as well as limiting damage to important ecological features. Using the information gained during the desktop survey and the extended Phase 1 habitat survey, and the ecological requirements of habitats, species and local environmental conditions, biodiversity enhancements for the Site have been considered, providing opportunities to increase the diversity of habitats and species on site.

1.5 Limitations to Report

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 current survey was carried out in November 2020. This is not an optimal time for undertaking ecological field surveys for most species/groups. The ecological survey has not produced a definitive list of plant and animal species present on site and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future. However, the results of field- and desk-based surveys are considered to have been sufficient to evaluate ecological features within the predicted zone of influence to a high degree of confidence and to enable an initial assessment of potential impacts likely to require mitigating actions.

It should be noted that habitats, and the species they may support, change over time due to natural processes and because of human influence. In line with current guidelines, the survey on which this report is based is only valid for two years, after which time it will need updating. It being accepted that some LPA's now expect a survey to be updated after twelve months.



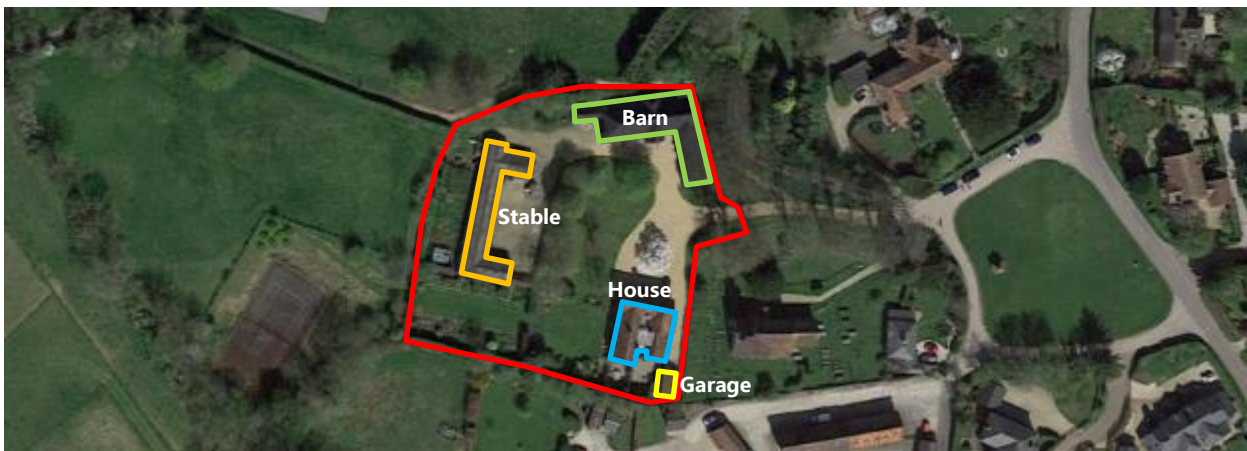
1.6 Site Location Description

Figure 1: Location



Figure 2: Surveyed Area

Habitats are mapped in **Figure 3**.



2 METHODS

2.1 Desk-based Assessment

An initial desk-based assessment was carried out by Ecological Surveys Ltd collating data relating to the site itself and up to a 2km radius and including:

- Statutory and non-statutory wildlife and earth science sites
- BAP Priority Inventory Habitats
- Legally protected and nationally notable species
- Sites primarily utilised included MAGIC, National Biodiversity Network

In light of the habitats present within the Site, a biological records search was not commissioned as it was not considered appropriate for the scale of the proposed development.



2.2 Phase 1 Field-based Assessment

The Extended Phase 1 ecological survey was carried out during November 2020. The survey entailed a single experienced ecological surveyor undertaking a methodical investigation of the site in order to identify the presence of, or habitat considered suitable for supporting, legally protected and/or rare/notable species as well as species/habitats of interest e.g. Priority Habitats/Habitats of Principal Importance or United Kingdom or local Biodiversity Action Plan (BAP) species. A brief description of the survey methods used is provided below. The field survey was restricted to the site itself although, where visible, immediately adjacent off-site areas were also investigated.

Table 1 Protected Species Grading Criteria

Grading Criteria	Justification
Confirmed Presence	Species confirmed on site through direct sighting, presence of unambiguous field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.
High Potential	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
Moderate Potential	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
Low Potential	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
Negligible Potential	Site is entirely unsuitable for species. Presence of species highly unlikely.

2.2.1 Vegetation

All broad habitat types were identified, and a list was compiled of characteristic plant species within each habitat type. Where necessary, habitat types of particular botanical interest are subject to more detailed survey using methods developed for the National Vegetation Classification (NVC) (Rodwell, 1992). The vegetation recorded on site during this Extended Phase 1 Ecological Survey is described here with reference to Joint Nature Conservation Committee Phase 1 habitat terminology.



2.2.2 Buildings

Protected Species – Built Structures

All built structures were assessed for their potential to support protected species. All external and internal areas were inspected for the presence of suitable access, egress nesting or roosting features. Such features include open access for entry or free flight, missing, slipped, broken or bowed roof materials; gaps within soffits; gaps behind fascia; gaps/holes within brickwork; louvers; lifted lead flashing and gaps around window and door casements. Features were inspected using binoculars/close range monocular and the surveyor was equipped with a high-powered torch. All accessible internal void spaces were inspected for actual evidence (field signs) of protected presence (living or dead) nesting material, droppings, fur and urine staining.

2.2.3 Badger

The surveyed area and adjacent habitats were inspected for field signs of badger activity. This includes badger setts, latrine sites, dung piles, well-used trails, prints and hairs.

2.2.4 Hazel dormouse

An assessment was made of the suitability of habitat within the site to support hazel dormice *Muscardinus avellanarius*. Key habitats are woodland, scrub and hedgerows, particularly where dense vegetation within which to nest/hibernate is offered along with key resources such as hazel nuts, fruiting/nectar-rich plants (e.g. hawthorn, bramble) and honeysuckle (for nesting material). Of importance is the presence of landscape-scale habitat linkages such as hedgerows, and where the site is linked to such habitat this will raise the potential for the species to occur.

2.2.5 Birds

An assessment was made of the site's suitability to support breeding and wintering bird species. Birds will utilise a broad range of habitats, including built structures; trees; scrub; isolated shrubs; dense herbaceous vegetation (terrestrial and aquatic) and open grassland among others. All bird species observed on site were recorded.

2.2.6 Reptiles

An assessment was made of the site's suitability to support reptile populations. Key habitat features include tussocky/patchy grassland; scrub edge; linear watercourses; ponds; compost heaps; brush piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated/fragmented habitats even within otherwise-unsuitable areas.



2.2.7 Bats – Trees

Trees within and immediately adjacent to the surveyed area were subject to detailed visual inspection from ground level using binoculars in order to identify potential roost features (PRF) which may offer suitable opportunities for bats. These features include dense ivy cladding; woodpecker holes; rot holes; limb stubs; cavities; flaking bark; cracks and splits. Each tree has been graded for its suitability for supporting bats based on criteria within 'Bat Surveys for Professional Ecologists Good Practice Guidelines 3rd Edition' (Collins, 2016). These criteria are detailed in Table 2.

Table 2 Bat Roost Tree Grading Criteria

Grading Criteria	Reason
Confirmed Bat Roost	Unambiguous evidence of roost bats seen emerging/entering, bats audible, droppings/urine-/fur- staining visible or known roost based on desk-based assessment.
1* - High Suitability	Trees with obviously suitable PRFs which are considered capable of supporting larger, established roosts of high conservation significance.
1 - Moderate Suitability	Trees with potentially suitable PRFs but which are not likely to support roosts of high conservation status.
2 - Low Suitability	Trees of sufficient size/age to exhibit PRFs but nonvisible from ground-level or features seen appear to offer limited potential.
3 - Negligible Suitability	Trees with no /negligible potential to support bats.



2.2.8 Bats – Foraging and Commuting Habitat

An assessment was made of the suitability of the surveyed area and the surrounding landscape to support foraging and/or commuting bats. The assessment was based on the presence of key habitat features such as woodland, scrub, hedgerows, grassland and open water, which are highly attractive to bat species. Of importance, is the presence of unlit semi-natural vegetation and habitat linkage between the site and the surrounding landscape such that the site may form an integral part of landscape-scale habitat for bats. The quality of bat foraging and commuting habitat has been assessed using the criteria detailed in Table 3.

Table 3 Bat Foraging and Commuting Habitat Grading Criteria

Grading Criteria	Reason
Optimal Quality	Presence of optimal habitat features such as unlit woodland, scrub, hedgerows, grassland and open water with excellent linkage to similar habitats within the wider landscape. Presence of high potential buildings/trees and/or known roosts within immediate landscape. Sites are generally rural in character.
Moderate Quality	Presence of optimal habitat features such as woodland, scrub, hedgerows, grassland and open water with reasonable linkage to similar habitats within the wider landscape. Limiting factors may include size of site.
Low Quality	Presence of some limited habitat features such as scrub or hedgerows, with minimal linkage to suitable habitats within the wider landscape.
Poor Quality	No suitable habitat present or, if present, highly degraded/fragmented. Minimal unlit areas with no linkage to suitable habitat beyond site. Generally urban in character.

2.2.9 Amphibians

An assessment was made of all waterbodies and terrestrial habitat within the site for their suitability to support populations of amphibians. Suitable waterbodies will generally be characterised by the presence of good quality freshwater, diverse macrophyte cover and an absence of fish.

For the European-protected great crested newt *Triturus cristatus*, each waterbody was, where considered necessary, assessed using the Habitat Suitability Index (HSI) system (Oldham et al., 2000) and assigned a grading score between zero (poor suitability) and 1 (excellent suitability).



2.2.10 Invertebrates

The presence of important invertebrate species or assemblages is generally dependent upon distinct micro-habitats such as dead wood (standing, fallen, of all decay stages), sap runs, damp/wet soils, mixed sun/shade, bare/friable soils (e.g. exposed sand/soil banks) and a diversity of plant species.

For aquatic invertebrates, important species/assemblages will generally be associated with high-quality aquatic habitats such as ponds, rivers, streams and ditches where water quality is good, and vegetation is diverse. Other key factors will include substrate and waterbody morphology. An assessment of the site's potential to support a diverse invertebrate assemblage and/or specialist species is based loosely on the presence of habitat features described in Kirby (2001). Where possible, a list of all invertebrate species encountered has been made.



3 RESULTS

3.1 Introduction

This section provides details of the results of the Extended Phase 1 Ecological Survey of the named site.

3.2 Desk-based Assessment

3.2.1 Internationally and Nationally Designated Sites

There are internationally or nationally designated nature conservation sites within 2km of the site.

Site Name Distance & Direction	
Special Area of Conservation (SAC):	None Found
Special Protection Area (SPA):	None Found
RAMSAR:	None Found
World Heritage Site:	None Found
Site of Special Scientific Interest (SSSI):	None Found
Areas of Outstanding Natural Beauty:	North Wessex Downs
National Nature Reserve (NNR):	None Found
Local Nature Reserve (LNR):	None Found

3.2.2 Locally Designated Sites

Table 4: Non-statutory designated sites located within 2km of the site

Hedgerows on North Oakley Farm SINC; Buckland's Pightle Copse SINC; English Wood SINC; Warren Bottom Copse SINC; Sheeplane Copse & Plantation SINC; Week Copse SINC; Ibworth Lane Hedge SINC; Halves Wood & Gaston Copse SINC; Folly Lane Ancient Hedge SINC; Lower Dean's Wood SINC; Dorrel Wood SINC; Vicarage Copse, Hannington SINC; Hannington Scrubs SINC; Meadham Copse SINC

3.2.3 Priority Habitats

Table 5: UK BAP Priority Habitat Inventory habitats found both on site and within a 2km radius of the proposed development site.

Priority Habitats Distance & Direction
Lowland calcareous grassland; Deciduous woodland; Ancient & Semi-Natural Woodland



3.2.4 Protected Species

Records of protected and notable mammals, reptiles or amphibian records within 2km (raising to 5km, species dependent) of the site have been collated from referenced websites. The potential for the site to support these various groups is discussed further in the following sections. Records are for post 1999 or last record pre 2000 if no later record exists. Not all records can be legally reported and therefore the data sourced provides an overview of what might be expected in the area.

Species group	Species
Bats:	Barbastelle; Brown long eared; Common pipistrelle; Natterers; Soprano pipistrelle; Whiskered
Birds	Red Kite; Stone-curlew; Barn Owl; Black Redstart

3.3 Field Survey

The field survey included carrying out an Extended Phase 1 Habitat Survey, consisting of a walkover assessment of the Site using Phase 1 Habitat Survey methodology (JNCC, 2010, as amended by the Institute of Environmental Assessment (IEA, 1995)). This is a standard technique for classifying and mapping British habitats. All areas within the Site were surveyed, the main plant species recorded, and habitat type mapped. Indicators of ecological value were also noted, including the presence or signs of any legally protected or rare species.

A search was also made to identify the presence of any invasive non-native species (particularly those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)), including Japanese knotweed (*Reynoutria japonica*) and Himalyan balsam (*Impatiens glandulifera*).

The broad distribution of each habitat and its general composition is described below. The location of each surveyed area is shown in Figure 3 Habitat Map.



3.3.1 Figure 3: Phase 1 Habitat Map





3.3.2 Vegetation

The following broad habitats were recorded on-site during the survey:

- An area of hardstanding surrounds the buildings on site. This habitat has no ecological value and no potential to support protected species.
- Amenity grassland, typical of a maintained residential garden, comprises much of the remaining area of the site. This habitat is shortly mown, with little botanical diversity. This habitat has limited value for wildlife and has no potential to support protected species.
- A small patch of non-native shrub planting exists in the north of the site. This habitat is relatively dense and has some potential to support nesting birds.
- Numerous highly managed hedges exist on site, compartmentalising areas of the garden. This is a typical garden single species beech hedge which is regularly cut into shape. Hedges on site are of limited ecological value and for the most part too thin and low lying to offer significant potential for bird nesting. Nonetheless, birds could, on occasion, nest within this habitat.

3.3.3 Buildings

Four structures exist within the surveyed area, a House, Garage, Barn, and Stable. These are labelled in [Figure 2](#). The house is constructed of brick with a bitumen felt lined, clay tile roof. Numerous potential bat roosting features are present externally, including under slipped/warped tiles, under soffits, and in gaps in brickwork. Bat droppings were also found scattered throughout the loft void. No bird nests or evidence of other protected species was noted in/on the house.

The barn in the north of the site is a single skin wooden structure with an asbestos roof. The internal timber frame, however, is considerably older. Large piles of bat droppings were found under most of the mortis joints of the internal timber frame. No evidence of past bird nesting was noted, although free flight access exists into the structure and birds could nest in future nesting seasons.

The garage is a brick-built structure with a bitumen felt lining clay tile roof, as with the house. No evidence of bats was noted internally, although a bird nest (thought to be swallow) was noted. Externally, the roof of the garage has become considerably warped. This has created potential roosting features for bats, and given the presence of a bitumen lining, it is possible that evidence is present but hidden from view. As such, this structure is considered to be of low potential to support bats.

The stable is a single storey block-built unlined asbestos roof structure. No evidence of or potential to support roosting bats was noted in this structure. A bird nest was noted in this structure.



Figure 4: House on site with numerous potential roosting features and bat droppings present in the loft.



Figure 5: Old asbestos roofed barn in the north of the site.



Figure 6: Large numbers of bat droppings were present under most mortice joints in the barn.





Figure 7: Bird nest within the Garage.



Figure 8: Stable structure.



Species

Where habitats were not considered to offer suitability for protected species and unmitigated works would be unlikely to cause disturbance/harm or death to this species, and data records for this species were absent in the vicinity, this species was not considered further.

3.3.4 Bats

As noted in the building section above, three of the structures on site either have potential to support bat roosting (Garage) or confirmed roosts (House, Barn). Habitats present on site offer only limited value for foraging/navigating bats, although given the rural location of the site, bats are likely to pass through.

3.3.5 Birds

Bird nests were noted in the Garage and Stable, with further potential for nesting in the Barn, as well as the hedges and ornamental shrubs.



4 IMPACTS

4.1 Introduction

This section is supported by the results of the Extended Phase 1 ecological survey and presents the likely impacts, *in the absence of any mitigating actions*, on protected and notable habitats and species associated with the proposed works. Only those features confirmed as present on site or considered to have from low to high potential occurrence on site have been taken forward for further assessment. In addition, any designated sites located within 0.5km of the site have been taken forward for further assessment.

In the absence of any firm proposals, the assessment of impacts is restricted to potential impacts from works outlined in [Section 1.2](#). This includes –

- Conversion of the Stable
- Internal works to the Barn
- Re-roofing & extension of the House and Garage.

It is understood that no natural habitats are to be impacted by proposed works, although precautionary mitigation is included.

4.2 Protected Species

4.2.1 Bats

Bats are likely to be impacted by any works, internal or external, to the Barn, as well as any works to the roof/loft of the House or Garage. Where any such works are to be carried out, bat emergence surveys will be required to put in place appropriate mitigation and apply for a European Protected Species Licence (EPSL) to allow works to take place lawfully.

Proposed works are unlikely to impact foraging/navigating bats, although an Artificial Lighting Strategy is required to minimise any impacts.

4.2.2 Birds

The conversion of the Stable and the re-roofing of the Garage will involve the destruction of nesting sites. All nesting birds are legally protected under the Wildlife and Countryside Act 1981 (as amended). If birds' nest in/on any of the structures on site prior to or during development works, and this nest will be impacted by the proposal, work must cease until all chicks have fledged and flown and/or nesting has ceased.

Whilst it is understood hedges and non-native shrubs will not be impacted, where small areas of habitat require removal, seasonal constraints (outside the bird nesting season) apply to removal of these habitats.



5 FURTHER SURVEYS, MITIGATION & ENHANCEMENT

5.1 Introduction

This section provides details of recommendations considered necessary in order to ensure that ecological issues are considered fully. This includes recommendations for further ecological surveys to inform the assessment of impacts as well as mitigation, compensation or enhancement measures to avoid, lessen or offset the identified impacts to ecological features arising from the proposed works.

Ecological Constraints and Opportunities (Avoidance/Mitigation/Enhancement) are mapped (where mappable) in Section 6.

5.2 Further Survey Requirements

This section provides recommendations for further ecological survey effort. The surveys/monitoring are considered justified in order to provide an up-to-date and robust baseline for a fully detailed assessment of potential impacts.

5.2.1 Bat Emergence Surveys

Should works be proposed to the Barn, House, or Garage, Bat Emergence Surveys will be required. It is the client's responsibility to ensure that these Bat Emergence/Re-entry Surveys are commissioned and are undertaken. Emergence/Re-entry Surveys can only be undertaken between May and August each year. It may be possible for surveys to extend into September too. It is never too soon to arrange emergence/re-entry surveys, even if they cannot be undertaken for several months. This is because the emergence survey season, in particular May and June, are usually exceptionally busy for bat surveyors.

5.3 Mitigation & Enhancement

This section provides general recommendations for mitigation and enhancement measures.

5.3.1 Bat Roosting Mitigation

Further mitigation for bat roosting in structures will be required. This will be included within the Bat Emergence Survey reports for this site.

5.3.2 Bird Nesting Mitigation

Whilst no active nests were recorded, it is possible for a nest to be established in future nesting seasons. Active bird nests, irrespective of species, are protected by law. Works cannot take place until nestlings have fledged, and the nest is no longer in use. If birds nest prior to or during development works, and this nest will be impacted by the proposal, work must cease until all chicks have fledged and flown and/or nesting has ceased.



5.3.3 Seasonal Constraints for the Removal of Woody Species

Whilst no removal of bird nesting habitat is predicted as a result of proposed works, any woody species (trees/hedges/shrubs) should be done outside of the bird nesting season of March – September (inclusive). If breeding birds are found or suspected, clearance work will not be permitted until an ecologist is satisfied that breeding is complete, which may be as late as August or September.

5.3.4 Artificial Lighting Strategy

No external artificial lighting will be introduced to the site during the groundworks and construction phases of the development. External artificial lighting during the operational phase will comprise lights above external doors and street lighting.

- LED and/or low-pressure sodium lamps with glass glazing should be utilised instead of mercury or metal halide lamps. This type of lighting can be utilised more directionally and will reduce the range of light wavelengths emitted thus significantly reducing the levels of UV light which may attract increased levels of invertebrate bat prey items.
- Avoid artificial lights shining on known or potential bat roosts, their access points and their flight paths.
- Light ONLY when and where it is needed for health and safety.
- Prevent light-spill and spread. Eliminate bare bulbs, upward pointing lights, keep light near to or below the horizontal. E.g. flat cut-off lanterns. Such light should be positioned to only illuminate the required areas, limiting light spill, both horizontally and vertically. Additionally, hoods, cowls, louvers and/or shields may be utilised to further direct any lighting.
- When external lighting is needed for safety reasons, dynamic lighting schemes that are switched on only when needed should be considered. Dynamic lighting schemes are usually triggered via motion sensors by a pedestrian, bicyclist or cars.
- Timer switch on any proposed outdoor lighting to facilitate dark periods.



5.3.5 Impact Avoidance During the Construction Phase - Overview

All activities on site should bear in mind the potential for wildlife or the environment being harmed through the process of development from inception to end, with a proactive approach occurring for lawful protection of wildlife and the environment regarding use of materials, machines, chemicals, and human activity on site.

- Contractors must ensure that no harm can come to wildlife by maintaining the site efficiently, clearing away any material such as wire in which animals can become entangled and preventing access to toxic substances.
- Trenches or large excavations should be covered overnight to prevent wildlife such as badgers or hedgehogs falling in and failing to escape. If this is not possible then a strategically placed plank may provide a means of escape.
- Any large bore pipes should be capped at the end of the day to reduce the potential for badgers and other wildlife entering and becoming trapped.
- If there is a substantial delay before development commences, the site should be maintained in a way that would prevent wildlife colonising it and causing constraints in the future. Such management should include mowing grassland at least twice a year and preventing scrub encroachment.
- Piles of brush wood and or log piles should be carefully inspected for signs of wildlife prior to their removal. This is especially crucial during the period March – September (inclusive) as some species of bird choose such sites to construct their nests. Ideally removal of such features should be done outside of the nesting season. If this is not possible, it is recommended that these features are covered in such a way as to exclude / prevent birds and / or reptiles taking up residence. If nesting birds or reptiles are discovered, work must cease immediately with ecological advice sought.



5.3.6 Bat Roosting Provision

1x Bat tube/box installed in/erected on a structure on site is required. This will augment natural roosting opportunities.

- Bat tubes must be built into the fabric of the building, ideally on the southern and western aspects, and not bolted on to the outside and are therefore only suited to structures, not trees.
- Where bat-tubes are unsuited owing to the type of construction of the proposed structures, other bat boxes or specifically designed bat habitation of an equally durable condition may be substituted for bat-tubes (subject to LPA approval.)
- This tube/box must be erected not less than 3m high and ideally 4m plus.
- Where enhancement recommends bat tubes or bat boxes on structures, aspects of the Artificial Lighting Strategy must be followed to ensure artificial lighting does not shine on the access points /boxes or flight paths.



Bat Tube

5.3.7 Solitary Bee Provision

1x Solitary bee brick is required to enhance the site. Each bee brick provides multiple cavities for solitary bees to lay their eggs. Bricks should ideally be built into south-facing, sunny walls, at between one and two metres above ground level and with nectar sources nearby.



Solitary bee bricks



5.3.8 Landscaping for the Benefit of Wildlife

Landscaping in sympathy with the needs of native wildlife is relevant to all important wildlife species. It helps to support birds by providing plant species which carry seeds, fruits, nuts, and/or support insects (nectar and pollen) upon which birds feed and supports bats by attracting insects to the garden. The list below is not exhaustive, neither is it prescriptive, and recommendations can be applied with discretion. The implementation of a combination of recommendations here fulfils the obligation of the client/agent to leave the site in an enhanced state.

- Where grass is planted, use a grass mix other than low amenity lawn grass. Plant mixes with diverse grass species support a wealth of insects when allowed to seed and flower before being cut back.
- Provide green corridors (hedges/trees/water features/lawns or mixed diversity species and beds) with attention to other neighbouring green spaces. The garden itself, when taken as one of many within the neighbourhood, will become part of a wider green corridor.
- Select a variety of plants that will produce foods in different seasons. For winter residents as well as migrants that return early in spring, plants that hold their fruits throughout the winter ("winter-persistent" plants) are a vital food source.
- Leave rough areas of vegetation and native trees and shrubs around the vicinity of any replacement building will also maintain nesting opportunities.
- Avoid pesticide and insecticide use.
- Include features such as bird tables and feeders raised up or protected at the base from squirrel or cat ascent.
- Provide shelter using low shrubs, thickets or hedges where birds can nest, perch, and escape from predators.
- Leave tree stumps, dead wood (where safe to do so) tree limbs, leaf piles and compost to encourage insects and worms for birds to feed on.
- Keep a lid on any water butts.
- Appropriate aftercare and management should ensure that these areas are maintained to give optimum benefit to wildlife.



6 Conclusions

The Extended Phase 1 Habitat Survey that was undertaken, along with the desktop survey, are not considered to have collected enough information about the ecological condition of the site to have been able to adequately assess the impact of the proposed development.

Specifically, should any works be proposed to the Barn, House, or Garage, **further Phase 2 Bat Emergence Surveys** are required to ensure adequate mitigation is put in place.

Nonetheless, Mitigation measures have been set out to avoid and reduce the effects/impacts of the development on other important ecological features and the local environment as a whole. These include Bird Nesting Mitigation, Seasonal Constraints for the Removal of Woody Species, an Artificial Lighting Strategy, and general Impact Avoidance During the Construction Phase. All measures should be included as a planning condition for the proposed development.

Enhancement measures for biodiversity have also been set out, including the Bat Roosting Provision, Solitary Bee Provision, and general Landscaping for the Benefit of Wildlife. It should be noted, further enhancement may be required, pending the Phase 2 Bat Emergence Surveys. These enhancements should result in a net ecological gain for the site and should be included as a planning condition for the proposed development.

It is the responsibility of all those involved with the proposed development works to ensure that wildlife protection and nature conservation legislation is complied with throughout the lifespan of the development, at every stage. Evidence of protected bat species was recorded on site. As such, Bat Emergence Surveys will be required to ascertain the type, size, and species composition of the roosts in order to inform the mitigation required. A Natural England European Protected Species Licence (EPSL) will be required to carry out any works on the Barn, House, or Garage.

7 MAP OF ECOLOGICAL CONSTRAINTS & OPPORTUNITIES

No Mitigation/Enhancement plan has been created at this stage as specific proposed works are still unknown and further mitigation/enhancement will likely be required, pending the results of the Phase 2 Bat Emergence Surveys.



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