



Preliminary Ecological Appraisal



Site: Barn at Poplar Farm, Banningham

Client: Colin Read

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Author	Abi Gray BSc (hons) MSc ACIEEM
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Gray Ecology

www.grayecology.co.uk

Tel: [REDACTED]

Email: [REDACTED]

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1 Executive Summary

- 1.1 Gray Ecology was commissioned to undertake a Preliminary Ecological Appraisal of a proposed barn conversion at Poplar Farm, Banningham, Norfolk.
- 1.2 The barn was surveyed in December 2021 and found to support winter roosts of pipistrelle bats (2 x individuals) and brown long-eared bat (1 x individual). There was evidence of a feeding perch in one of the bays of the barn. Three nocturnal surveys will be required between May-September, with at least one of these completed between June/July, to fully determine how bats are using the barn, what roosts will be impacted, and what mitigation will be necessary.
- 1.3 A duck pond within 20m of the barn had Poor Suitability for great crested newts. Two other ponds were present within 250m, the closest being 85m distant. Given the scale of the development and the low suitability of terrestrial habitats around the barn, no impacts on this species was envisaged.
- 1.4 To prevent accidental damage to mature oak trees to the north of the barn, no equipment or materials must be stored within 5m of these features. Branches should be pruned back prior to scaffolding being erected.
- 1.5 The barn may support nesting birds and work should commence outside of the main bird breeding season (which runs 1 March to 31 August). An ecologist should complete a nesting bird check no more than 48 hours prior to work commencing if this is not possible.
- 1.6 To avoid minor adverse impacts on hedgehogs and common toads, any pits or trenches left open overnight should contain suitable wildlife escape ladders and must be checked for trapped wildlife before being filled.
- 1.7 To provide a net gain for biodiversity, swift nest sites and bat roosting features should be installed on the converted barn. A new native hedgerow should be planted to the north of the building, with wildlife friendly bulbs included within the site landscaping.

2 Introduction

2.1 Background

2.1.1 Gray Ecology was commissioned to undertake a Preliminary Ecological Appraisal (PEA) of a proposed barn conversion at Poplar Farm, Banningham, Norfolk, NR11 7DS.

2.1.2 This report aims to describe the ecological baseline of the site, as well as evaluate habitats within its boundaries for their value in the wider environment and their potential to support protected species. It assesses potential impacts on these features as a result of the development and advises on the need for further impact assessments, any European Protected Species Mitigation (EPSM) licences or other mitigation strategies.

2.2 Site Description

2.2.1 The barn proposed for conversion was part of a larger barn within the grounds of Poplar Farm, centred of OS Grid Reference TG22442910. Located on the north-western edge of a small village, the surrounding areas was predominately large arable fields with a network of boundary hedgerows and trees.

Map 1: Site location (Google Earth Pro, 2021)



3 Methodology

3.1 Personnel

3.1.1 The walkover survey and report were completed by Abi Gray BSc. (Hons) MSc. ACIEEM, an ecologist with over ten years' experience, who holds Natural England Licences for bats [reference 2016-26862-CLS-CLS], barn owls [reference CL29/00374] and great crested newts [reference 2015-17248-CLS-CLS]).

3.2 Desk Study

3.2.1 The Government's Multi-Agency Geographic Information for the Countryside website (www.magic.gov.uk) was accessed for information on Designated Sites and granted European Protected Species Mitigation Licences within 2km of the proposed development site in December 2021. This platform was also used to assess local green infrastructure in relation to the development site.

3.2.2 A search for records of Designated Sites and Protected Species within 1km of the site was not commissioned from the Local Biological Records Centre.

3.2.3 Gray Ecology was not made aware of any previous ecological studies of the development area.

3.3 Field Study

3.3.1 Environmental conditions during the field survey are shown in Table 1:

Table 1: Environmental variables

Survey Date	19 December 2021
Temperature	8°C
Cloud Cover	100%
Precipitation	Light Drizzle
Wind	Beaufort Scale 1 – Light Air

3.3.2 A Phase 1 habitat survey of the site was conducted in accordance with the best practice publication Phase 1 Habitat Survey Methodology (JNCC, 2010), with habitats present within the survey area mapped and described with dominant and notable species identified. Any specific features of ecological interest were

also recorded and mapped, as were Habitats of Principal Importance (e.g. wet woodland or lowland meadows).

3.3.3 The habitats within the survey area were assessed for their potential to support protected or priority species and although species-specific surveys for all species were not undertaken, evidence of their presence was noted.

3.3.4 Those species considered as part of this assessment included the following, with key legislation detailed in Appendix 1:

- Badger
- Reptiles
- Water vole
- Otter
- Great crested newt
- Birds
- Bats
- Species of Principal Importance (e.g. brown hare and common toad)

Species-Specific Surveys

Great Crested Newts

3.3.5 The Habitat Suitability Index (HSI) was used to assess accessible ponds and water bodies within 250m of the site for their potential to support great crested newts (Oldham et al 2000). Details of the scoring system are shown in the table below.

Table 2: Habitat Suitability Index values

HSI	Pond suitability
< 0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
> 0.8	Excellent

3.3.6 Habitats on site were assessed for their suitability for this species to use during their terrestrial phase.

Bats

3.3.7 Structures and trees within the site boundaries were assessed for their potential to support roosting bats. The survey work was completed in accordance with Bat Conservation Trust's "Bat Surveys for Professional Ecologists" (Collins, 2016). The rationale behind the value given to the suitability of a feature to support bats is shown in the Table 3.

Table 3: Assessing the potential suitability for bats (taken from Collins, 2016)

Suitability	Description of roosting habitats	Description of commuting and foraging habitat
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.
Low	A tree/structure of sufficient size and age to contain potential roost features (PRFs) 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 hedgerow or unvegetated stream, but isolated. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or 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 (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of tree and scrub or linked back gardens.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by large 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. Site is close to and connected to known roosts.

3.4 Survey Limitations

3.4.1 There were no significant limitations to the surveys undertaken with all areas accessible at suitable times of the year.

3.5 Suitability Assessment

3.5.1 The following criteria was used when assessing the likelihood of a protected species being present within the survey area:

Table 4: Criteria considered when assessing the likelihood of occurrence of protected species

Assessment Category	Criteria for other Species
Confirmed Present	Species are confirmed as present from the current survey or historical confirmed records.
High	Habitat and features of high quality for species/species assemblage. Species known to be present in wider landscape. Good quality surrounding habitat and good connectivity.
Moderate	Habitat and features of moderate quality. The site in combination with surrounding land provides all habitat/ecological conditions required by the species/assemblage. Within known national distribution of species and local records in desk study area. Limiting factors to suitability, including small area of suitable habitat, some severance/poor connectivity with wider landscape, poor to moderate habitat suitability in local area.
Low	Habitats within the survey area poor quality or small in size. Few or no records from data search. Despite above, presence cannot be discounted as within national range, and required features/conditions present on site and in surrounding landscape. Limiting factors could include isolation, poor quality landscape, or disturbance.
Negligible	Very limited poor-quality habitats and features. No local records from desk study; site on edge of, or outside, national range. Surrounding habitats considered unlikely to support species/species assemblage.

3.6 Impact Assessment

3.6.1 The assessment was undertaken in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Professional Guidance Series 'Guidelines for Ecological Impact Assessment [EcIA] in the UK and

Ireland Terrestrial, Freshwater, Coastal and Marine' (2018), and with reference to the Bat Mitigation Guidelines (Mitchell-Jones & McLeish, 2004).

Zone of Influence

3.6.2 The Zone of Influence (Zoi) has been determined based on the location of the development site and the proposed works. In this instance, the Zoi is largely restricted to the development site itself given the small scale of the development and the habitats being directly impacted.

Value of Ecological Features

3.6.3 The value of ecological features uses conservation status (i.e. extent, relative abundance and distribution) to assign geographical levels at which the feature is considered to hold importance, those being:

International

National

Regional

County

District

Local

Site

Scale of Impact

3.6.4 Impacts on ecological features, whether beneficial or adverse, can occur either directly (e.g. loss of habitats, habitat fragmentation, noise/light disturbance) or indirectly (e.g. changes to local hydrology, nutrient levels, and water/air quality). The overall impact is assessed taking into consideration a range of factors, including conservation status of an ecological feature, magnitude, spatial extent, duration, reversibility, and timing and frequency.

3.6.5 For nature conservation designations, other defined habitats and ecosystems, this assessment considers what effect the potential impacts are likely to have on conservation objectives or interest/qualifying features. For ecosystems, consideration is given to whether a change in ecosystem structure and/or function is likely that would substantively alter its ecological integrity.

3.6.6 For habitats and species, this assessment considers what effect the potential impacts will have on “conservation status”, and whether or not the effect is likely to substantively alter the ecological integrity of the habitat or species under consideration.

3.6.7 For the purposes of this report, conservation status is defined as per CIEEM (2016):

habitats: “conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area”; and

species: “conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.”

3.6.8 Impacts are categorised as Major, Moderate, Minor, Neutral or Unknown, as detailed in Table 5. Impacts are considered in the absence of any mitigation and then again when specific recommendations for avoidance, mitigation, compensation and enhancements have been made.

3.6.9 Consideration is also given to the potential for the development proposal to give rise to significant impacts in combination with other proposed developments in the local area.

Table 5: Impact Categories

Assessment Category	Criteria
Unknown	There is insufficient data available to make an assessment as to any potential impacts on a habitat or species.
Major	Likely to have an effect on the habitat or species at a regional, national or international level.
Moderate	Likely to have an effect on the habitat or species at a county level.
Minor	Likely to have a small effect on the habitat or species at a local level.
Neutral	No predictable effect on habitat or species.

4 Results

4.1 Designated Sites

4.1.1 No Statutory Designated Sites were found within 2km of the proposed development.

4.2 Priority Habitats

4.2.1 There were no priority habitats in the development site or within 250m of its boundaries.

4.3 Field Study

4.3.1 Map 2 gives an overview of the habitats around the barn proposed for development, with further details listed below.

Map 2: Phase 1 Map (Google Earth, 2021)



Habitat Description

Overview

- 4.3.2 The barn proposed for development was part of a small complex of barns located to the north of Poplar Farmhouse. Access was via a driveway from the south which ran along the western edge of the barn. Immediately to the north was a small patch of amenity grassland containing occasional mature oak trees, beyond which were large poultry sheds.
- 4.3.3 A brick barn adjoined the barn to the east and a lean-to was present to the south.
- 4.3.4 Further to the south-east and beyond the access track to the west was garden habitat, including flower beds, mature trees, a duck pond and a polytunnel.

Barn

- 4.3.5 The barn proposed for conversion was a small, brick threshing barn with a pitched pantile roof, lined with bitumen membrane. With a concrete floor, the barn was used for storage and had formerly been used for storing grain.



Figure 1. Northern and western aspects



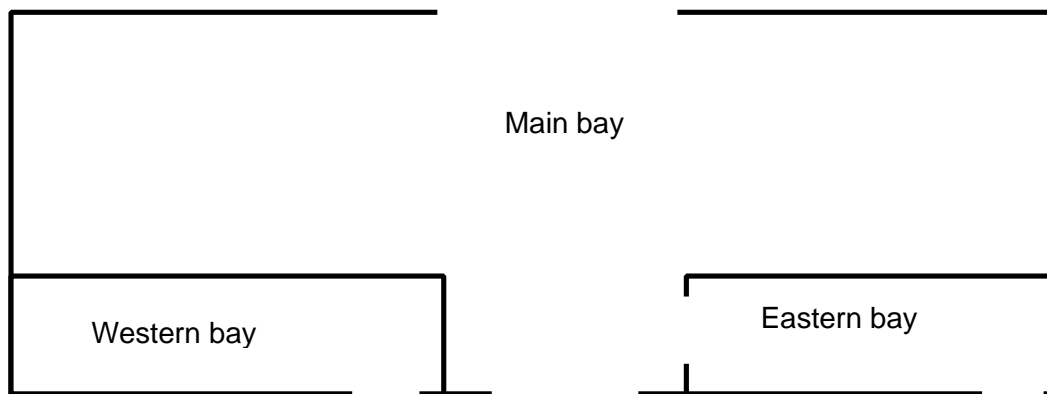
Figure 2. Southern and western aspects

- 4.3.6 The barn contained large wooden cart doors on the northern aspect with single wooden slats extending above the doors to the eaves – the corresponding wooden doors on the opposite southern aspect were blocked and not in use. Two ventilation panels were present either side of the doors on the northern aspect.

4.3.7 Extending out from the southern aspect were two small bays with sloping pantile roofs. The eastern room was accessed via a single wooden door on the southern aspect but also opened into the main barn itself. A small window was present on the eastern aspect which contained broken glass.

4.3.8 The western room was larger and again accessed via a wooden door on the southern aspect, which also contained a large window. A portion of the southern wall was built of block as opposed to brick.

Diagram 1: Schematic of barn (not to scale)



Protected Species

Badger

- 4.3.9 No evidence of badger or badger setts was found during the walkover survey. The habitat within the site could be used by foraging badger but there were no obvious woodland blocks within 1km of the site which may support badger setts, reducing the likelihood of a large badger population being present in the immediate area.
- 4.3.10 The likelihood of badger being occasionally present within the site is considered to be low.

Bats

- 4.3.11 No records of granted bat EPSM Licences were found during the desktop search.

Foraging and Commuting

- 4.3.12 The site is considered to have moderate potential to support foraging and commuting bats due to suitable green habitat and infrastructure around the boundaries of the site and the immediate area, including several high value features including lines of trees, ponds and several old brick barns.

Potential Roost Sites – Trees

- 4.3.13 A mature oak tree was present just to the north of the barn proposed for development. Despite its age, no obvious Potential Roost Features (PRFs) were identified during a ground level inspection. The tree is assessed as having low potential for supporting bat roosts.
- 4.3.14 No other trees were present within the Zol.

Potential Roost Sites – Buildings

- 4.3.15 The barn proposed for conversion contained a number of PRFs which could support anywhere from individual to large bat roosts, including:

- Underneath ridge tiles
- Between field tiles and the roof membrane
- Within cracks in internal walls
- Within wooden door and window lintels

4.3.16 No obvious cracks were noted in the external walls, although any high up on the walls may have been obscured from view. Roof timbers and trusses were modern and contained no features of interest to bats other than as potential feeding perches.

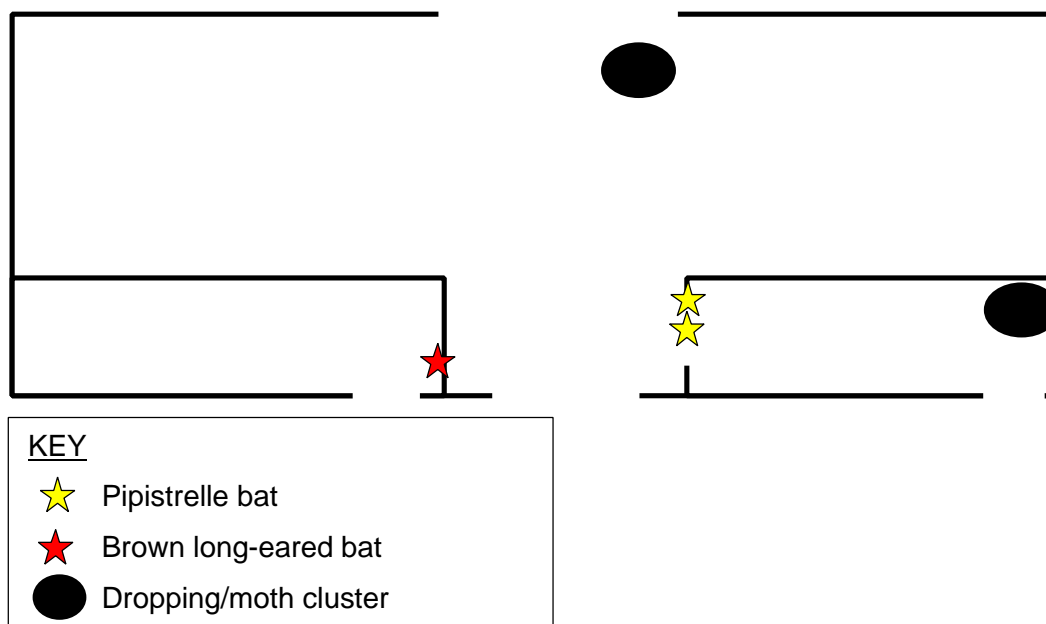
4.3.17 Bat droppings were identified within the barn, scattered on the floor of the main section. A cluster of around 20 droppings was found on top of a cabinet in the main barn, near to the northern doors, although this had recently been brought into the barn and the droppings may have been brought in with it as there were no obvious PRFs directly above it (Pers. Comm. Owner).

4.3.18 A cluster of 10 bat droppings and over 20 underwing moth wings were found in the north-western corner of the Eastern Bay, on the floor and caught in cobwebs along the wall. This indicates the presence of a feeding perch of bats in this location.

4.3.19 Three hibernating bats were found during the survey: two pipistrelles within the wooden door lintel leading from the main barn into the Eastern Bay, and a brown long-eared bat within the western wall of the Western Bay.

4.3.20 The barn is a confirmed bat winter roost and use throughout the rest of the year is considered likely.

Diagram 2: Location of bats/bat evidence (not to scale)



Birds

4.3.21 The likelihood of birds using the development site for nesting purposes was considered to be high with suitable areas within all three sections of the building and old nests evident during the survey.

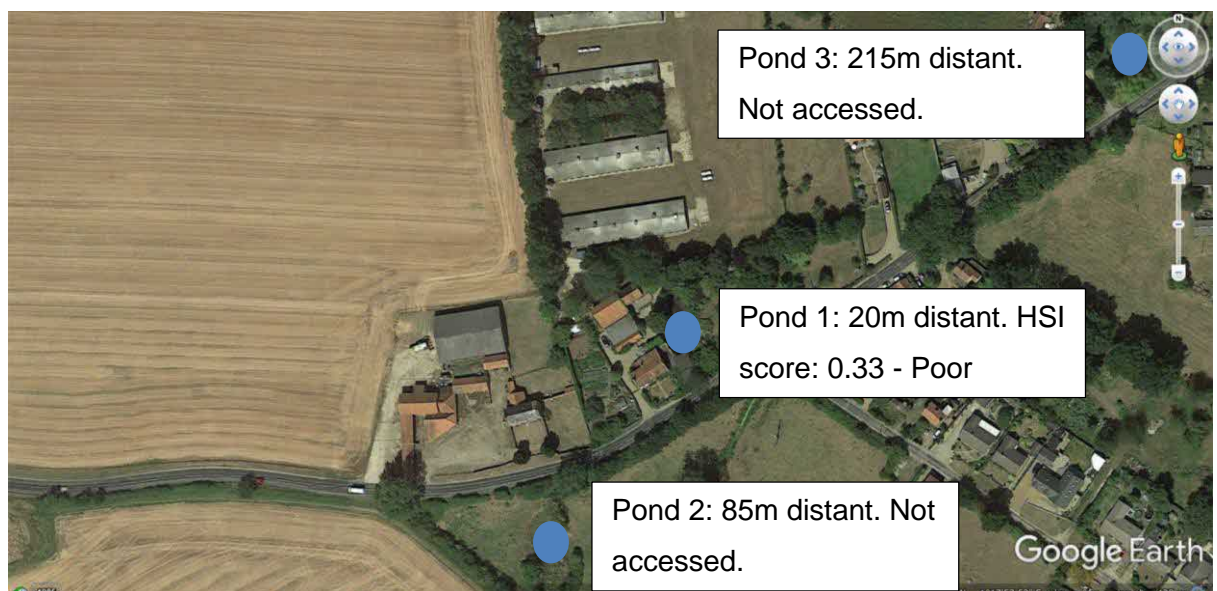
4.3.22 There was no evidence that the site supported breeding Schedule 1 birds.

Great Crested Newts

4.3.23 There were no records of great crested newts within 2km of the development site.

4.3.24 OS Maps indicated the presence of three ponds within 250m of the site, only one of which was accessed as part of this study.

Map 3: Ponds within 250m (Google Earth, 2021)



4.3.25 Pond 1 was a small duck pond within the gardens of Poplar Farm. A HSI completed on the feature gave it a score of 0.33 indicating it had Poor suitability for supporting great crested newts (see Appendix 2).

4.3.26 There was no suitable habitat for great crested newts within the barn itself due to the solid concrete floors, and habitat immediately on the boundaries had low potential being hardstanding or short, maintained amenity grassland. Given the poor suitability of Pond 1 for this species and the distance to other potentially

suitable ponds in the wider area, the likelihood of great crested newts being present was considered to be low.

Reptiles

4.3.27 There was limited suitable habitat for reptiles around the barn proposed for development, although garden features such as compost heaps and the duck pond may attract individual grass snake or slow worm. Overall, it is considered that the likelihood of reptiles being present within the site was low.

Otter

4.3.28 Otters may visit the garden pond close to the site and as such may occasionally pass along the site boundaries. There were no features within the red line boundary capable of supporting otter holts or resting places however, and overall, it is considered that the likelihood of this species being regularly present within the site was low.

Water Vole

4.3.29 There were no water features on or immediately adjacent to the development site suitable for water vole. As such, the likelihood of water vole being present in the site was considered to be negligible.

Priority Species

4.3.30 Based on the habitats present within the site and the immediate surrounding area, it was considered possible that hedgehog and common toad may occasionally be present within habitats immediately surrounding the barn.

5 Impact Assessment

5.1 Project Description

5.1.1 The development proposal is shown in Appendix 3 and included the conversion of the barn to a residential dwelling. The barn adjoining to the east and the covered lean-to to the south will not be affected by the proposals. No trees will be felled although some branches of the mature oak to the north of the barn may be trimmed.

5.2 Potential Impacts

Designated Sites

5.2.1 No Statutory Designated Sites were present within 2km of the development proposal. Given the scale of the development and the distance to Designated Sites further afield, impacts were assessed as being neutral.

Ecological Features

5.2.2 Table 6 discusses the value of ecological features at the site and provides an assessment of expected impacts upon those features in the absence of mitigation. All assessments are based upon the site layouts provided in Appendix 3.

Table 6: Risk assessment for Ecological Features

Ecological Features	Scale of Value	Scale of Impact	Rationale
Habitats	Site	Minor adverse	A mature oak may be accidentally damaged during construction work.
Badger	Site	Neutral	Unlikely present within the Zol.
Bats	Unknown	Unknown	At least two species of bat are confirmed as using the barn during the winter, with these roosts destroyed by the proposed conversion works. Use during the summer is unknown.
Birds	Site	Minor adverse	Nesting habitat within the building will be lost during clearance works, with any active nests destroyed or disturbed by the works.

Ecological Features	Scale of Value	Scale of Impact	Rationale
Great Crested Newts	Site	Neutral	<p>Pond 1 has Poor Suitability for great crested newts and is not considered further in relation to this species.</p> <p>A Natural England Rapid Risk Assessment (2010) indicates that the development is of such a size that should great crested newts be present in Ponds 2 and 3, these would not be impacted by the proposals by giving a result of “Green – Offence Highly Unlikely” (see Appendix 2).</p> <p>A site-specific assessment concurs with this given the nature of the development and that there is very little suitable terrestrial habitat surrounding the barn. No fragmentation of habitat will occur.</p>
Reptiles	Site	Neutral	Only very low potential for individuals to pass through the development site.
Otter	Site	Neutral	Unlikely present within the Zol.
Water Vole	Site	Neutral	Unlikely present within the Zol.
Priority Species	Local	Minor adverse	Hedgehog and common toad may occasionally be present in the site and may be injured or killed during clearance and construction works.

6 Recommendations

6.1 Further Surveys to Inform Planning

6.1.1 In accordance with Bat Conservation Trust’s Good Practice Guidelines, three nocturnal surveys are required between May- September, with at least one being completed in June/July. Surveys should be spread out as much as possible over this timeframe, with a minimum of two weeks between each survey. Two surveyors will be required to ensure adequate coverage of the building.

6.2 Avoidance, Mitigation and Compensation Recommendations

6.2.1 For those ecological features where a negative impact was identified during the Impact Risk Assessment, detailed recommendations have been made within this section and the Residual Risk Assessment calculated in Table 7.

Table 7: Recommendations

Ecological Features	Scale of Unmitigated Impact	Recommendations	Scale of Residual Impact
Habitats	Minor adverse	Do not store material or equipment within 5m of trees to the north of the barn. Prune branches with care prior to scaffolding being erected to prevent accidental damage.	Neutral
Birds	Minor adverse	Commence works outside of the bird breeding season, which runs between March and 31 August. If this is not possible, the barn should be checked by an ecologist no more than 48 hours prior to work commencing.	Neutral
Bats	Unknown	Further surveys are required to determine any impacts and devise suitable mitigation. Lighting Guidance given in Appendix 4 should be followed.	Unknown
Priority Species	Minor adverse	Any trenches or pits left open overnight will contain a suitable wildlife escape ladder at an angle of approximately 60° and will be checked for wildlife prior to being filled.	Neutral

6.3 Cumulative Impacts

6.3.1 Cumulative impacts cannot be determined until further surveys for bats have been completed.

7 Enhancements

7.1.1 The Local Planning Authority has a legal duty to consider enhancements on proposed development sites. Furthermore, the National Planning Policy Framework (NPPF) requires planning decisions to aim to promote net gains in biodiversity on development sites.

7.1.2 To provide a net gain for biodiversity, the following items should be incorporated into the site design and indicative locations are shown in Appendix 5:

Two swift nests and a bat box should be installed high up on the western gable. The Double Corner Box by Peak Boxes would be suitable, with one box providing the necessary two nest sites for swifts and a bat roost incorporated on the back

A mixed-species native hedgerow should be planted along the northern boundary to improve green corridors

Bulbs including crocus, snowdrop and daffodil should be planted underneath any newly turfed areas

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Appendix 1 – Relevant Legislation

Badgers

Badgers and their setts are protected. Under the Protection of Badgers Act 1992, in England it is an offence to wilfully kill, injure or take a badger (or attempt to do so), cruelly ill-treat a badger, dig for a badger, intentionally or recklessly damage or destroy a badger sett or obstruct access to it, cause a dog to enter a badger sett, or disturb a badger when it is occupying a sett.

Reptiles

All reptiles are protected under the Wildlife and Countryside Act 1981 (as amended), making it illegal to intentionally kill or injure a common reptile.

Water Voles

The water vole is fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 and is a priority conservation species. It is illegal to intentionally capture, kill or injure water voles.

Otters

Otters are fully protected as a European protected species (EPS) and are also protected under sections 9 and 11 of the Wildlife and Countryside Act 1981. It is illegal to capture, kill, disturb or injure otters (on purpose or by not taking enough care), damage or destroy a breeding or resting place (deliberately or by not taking enough care), obstruct access to their resting or sheltering places (deliberately or by not taking enough care), or possess, sell, control or transport live or dead otters, or parts of otters.

Great Crested Newts

Great crested newts are protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended). This legislation fully protects great crested newts in all life stage from intentional or reckless activities, as well as protecting their breeding and resting places from damage or destruction.

Birds

Wild birds, their young, eggs, and their nests whilst in use or being built, are protected under the Wildlife and Countryside Act 1981 (as amended).

Bats

All UK bat species are protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended). This legislation fully protects bats and their breeding sites or resting places, making it an offence to deliberately capture, injure or kill bats, deliberately disturb bats, damage or destroy a bat breeding or resting place.

Hazel Dormouse

Dormouse are fully protected under The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 through their inclusion on Schedule 2. Under Section 41 of these regulations dormice are protected from:

Deliberate killing, injury or capture

Deliberate disturbance of dormice as:

a) to impair their ability:

(i) to survive, breed or reproduce, or to rear or nurture young;

(ii) to hibernate or migrate

b) to affect significantly the local distribution or abundance of the species

Damage or destruction of a breeding site or resting place

Keeping, transporting, selling, exchanging or offering for sale whether live or dead or of any part thereof.

In England and Wales, dormouse is also protected under the Wildlife and Countryside Act 1981 (as amended) through their inclusion on Schedule 5 in respect to sub-sections 9 (4) (b) and (c) and 9 (5). Under this Act, they are additionally protected from:

Intentional or reckless disturbance while in their place of shelter (at any level)

Intentional or reckless damage, destruction or obstruction of access to any place of shelter or protection

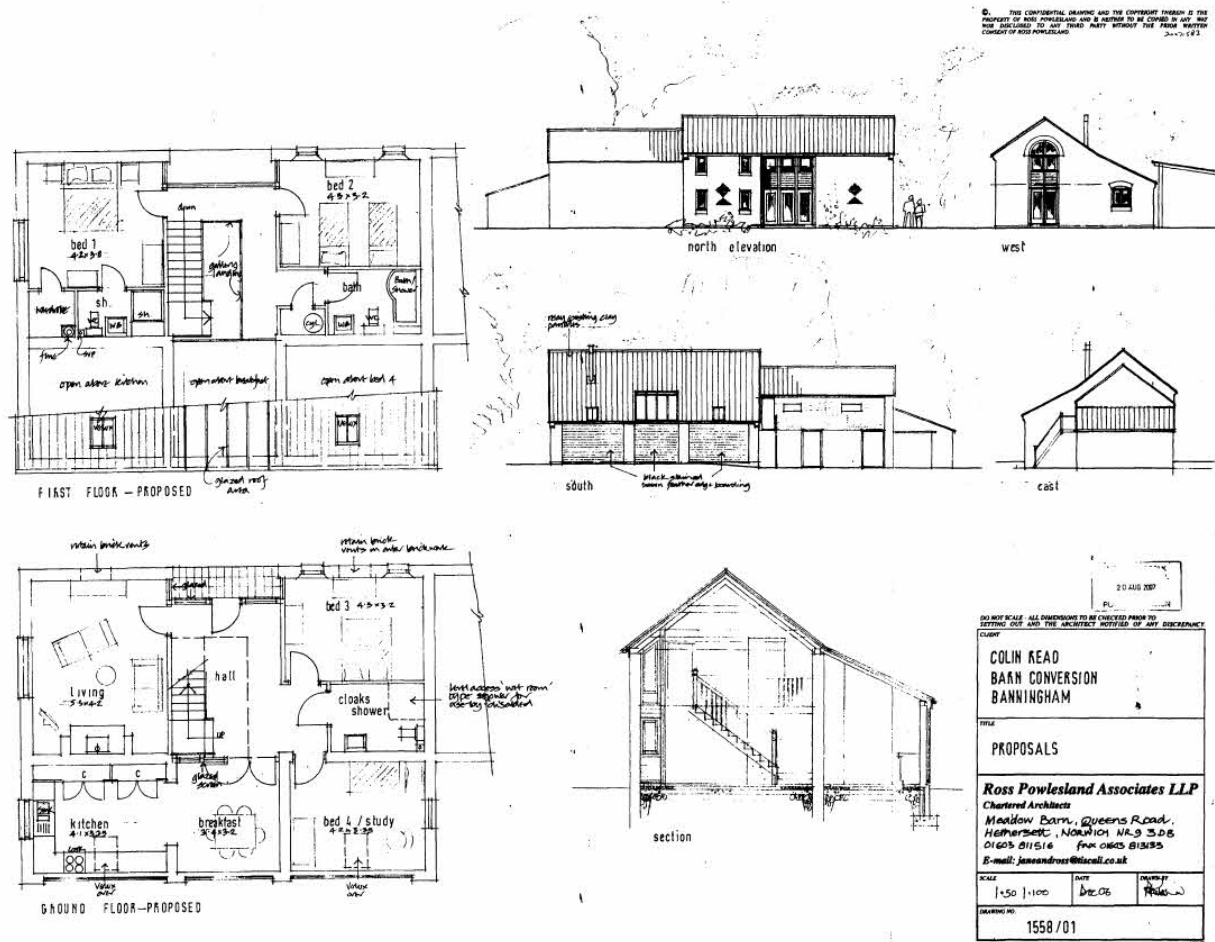
Selling, offering or exposing for sale, possession or transporting for purpose of sale, any live or dead wild animal, or any part of, or anything derived from, such animal.

Appendix 2 – HSI Assessment

Date HSI assessment undertaken	19/12/2021
Pond ref	Pond 1
SI1 - Location	1
SI2 - Pond area	0.2
SI3 - Pond drying	0.9
SI4 - Water quality	0.33
SI4 - Shade	1
SI6 - Fowl	0.01
SI7 - Fish	0.33
SI8 - Ponds	0.8
SI9 - Terr'l habitat	0.33
SI10 - Macrophytes	0.3
HSI	0.33

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.001 - 0.01 ha lost or damaged	0.05
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
	Maximum:	0.05
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

Appendix 3 – Development Proposals

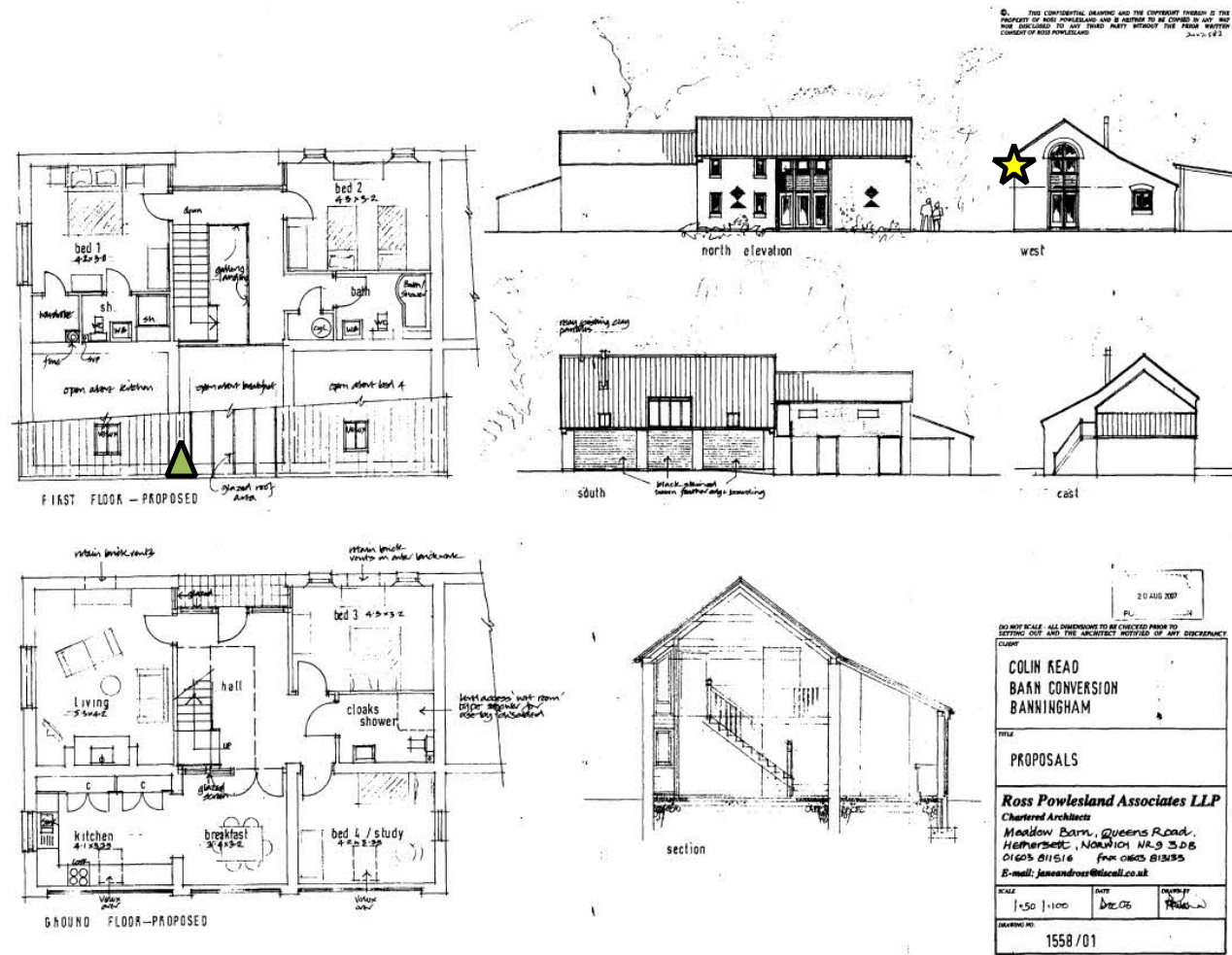



Appendix 4 – Lighting Guidance

External lighting on the site must be minimal, directional to the ground and low intensity. The following recommendations by the Institute of Lighting Professionals (2018) must be incorporated into the detailed site design:

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1min) timers.
- Accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

Appendix 5 – Enhancement Recommendations



KEY
 **Swift Box**

Swift Corner Box Double
 ⭐⭐⭐⭐⭐ Write a review
 From £62.50
 39 x 21 x 37
 HANGING SIDE: SELECT HANGING SIDE ADD BAT BACK!
 SELECT ADD BAT BACK!
 QUANTITY: 1

<https://peakboxes.co.uk/shop-1/swift-corner-box-double-lh>