

# Wild Service



Wildlife Trust  
Consultancies

**Hulse Ground Farm, Little Faringdon**

**Preliminary Ecological Appraisal Report**

**On behalf of Mr and Mrs Jansen**

**Project Code: JM2023034Av1**

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This report has been produced by Wild Service within the terms of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

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# 1 Introduction

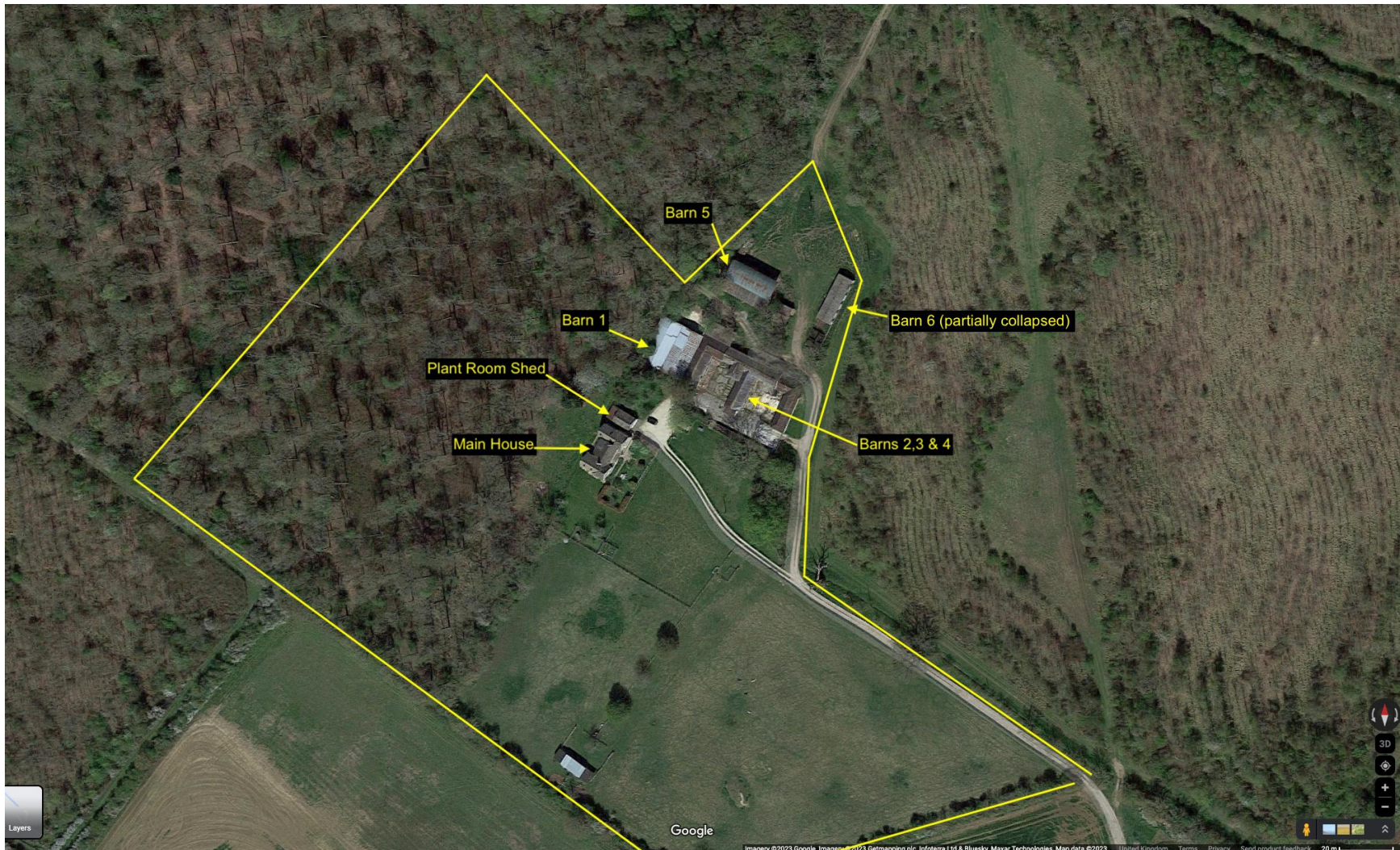
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## 1.1 Scope

- 1.1.1. Wild Service was commissioned by Mr and Mrs Jansen to undertake a Preliminary Ecological Appraisal (PEA) including a Preliminary Roost Assessment (PRA) at Hulse Ground Farm, Little Faringdon, Lechlade, Gloucestershire, GL7 3QR (hereafter referred to as the 'Site'). Proposed plans comprise refurbishment of the main house and include replacement of the Velux windows with conservation roof light windows, and external repointing works.
- 1.1.2. The PEA comprised a Phase 1 Habitat Survey, desk study and protected species survey assessment and the PRA comprised an internal and external inspection of buildings for bats and nesting birds, and ground level inspection of trees.
- 1.1.3. This report includes a description of methods used to identify habitats, results, and recommendations for mitigation.

## 1.2 Site Description

- 1.2.1 The Site is comprised of a main house and several outbuildings, surrounded by amenity grassland, tall herb, semi-improved grassland, with a broadleaved woodland to the west. The Site is accessed by a driveway to the south-east. A small stream passes through the Site, adjacent to the east boundary of the woodland, and passing the rear of the main house. Two dry ditches were present within the Site boundary.
- 1.2.2 The surrounding landscape comprises broadleaved woodland to the north, east and west. Immediately adjacent to the south-east boundary was a wet ditch, and immediately adjacent to the south-west boundary was a stream, both overshadowed by trees. The wet ditch and stream appeared to be connected to a network of ditches/waterbodies within the wider landscape. To the south of the Site the landscape is dominated by agricultural fields bounded by hedgerows.
- 1.2.3 The central Ordnance Survey Grid Reference for the Site is SP 23205 02015. A Site Location Plan is provided in Figure 1.



**Figure 1. Site Location Plan**  
*(Plan provided by client)*

### 1.3 **Legislation**

1.3.1 This report has been prepared in accordance with relevant legislation and policy. Further detail is provided in Appendix 1, however the following primary documents are of relevance:

- The Wildlife and Countryside Act 1981 (as amended) (WCA 1981);
- The Countryside and Rights of Way Act (CROW Act), 2000 (as amended);
- The Natural Environment and Rural Communities Act (NERC Act), 2006;
- The Protection of Badgers Act 1992 (PBA 1992); and
- The Conservation of Habitats and Species Regulations 2017 (as amended) (CHS 2017).
- The Environment Act 2021 contains provisions for the protection and improvement of the environment, including introducing biodiversity net gain (“BNG”).

1.3.2 No part of this report should be considered as legal advice and when dealing with individual cases, the client is advised to consult the full texts of the relevant legislation and obtain further legal advice.

## 2 Methods

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### 2.1 Desk Study

2.1.1 The objectives of the desk study are to review the existing available information to identify the following:

- Statutory and non-statutory nature conservation sites within 1km of the Site (including an extended search of 5km for Special Protection Areas (SPAs), Special Areas of Conservation (SACs) & Ramsar sites);
- Records of protected and rare/notable species within 1km of the Site; and
- European Protected Species (EPS) mitigation licence records for any EPS considered likely to be present on the Site.

2.1.2 Ecological data were provided by the Thames Valley Environmental Records Centre (TVERC) and sourced from the Multi-Agency Geographic Information for the Countryside (MAGIC) website (2023).

2.1.3 A previous ecology survey was undertaken by Wild Service in 2009. The relevant report has been provided by the client and has been reviewed to inform this report (Wild Service, 2009).

### 2.2 Phase 1 Habitat & Protected Species Survey

2.2.1 The methods used for the Phase 1 habitat and protected species surveys are outlined in Table 1.

2.2.2 Julia Morrison of Wild Service undertook the appraisal on 8<sup>th</sup> November 2023.



Table 1. Phase 1 Habitat & Protected Species Survey Methods	
<b>Phase 1 habitat survey</b>	The aim of the Phase 1 survey is to provide a description of the habitats on a particular site and is made in accordance with the JNCC Phase 1 Habitat Survey methodology (JNCC, 2010). The survey includes a detailed assessment of the land within the development boundary, including a description and mapping of all key features and habitat types. The survey has been carried out to identify the range of habitats within the site and the predominant and notable species of flora. Where necessary, the condition of habitat has been described. The appraisal also aims to identify invasive plants listed on Schedule 9 of the Wildlife & Countryside Act that could have implications for works on site. Where appropriate, maps are provided in other formats, such as annotated aerial photographs/site plans.
<b>Badgers</b>	The site is assessed for suitable habitats that may support badgers <i>Meles meles</i> . Where relevant habitat occurs, evidence of badgers including setts, latrines, tracks, snuffle holes, padding or guard hairs is recorded.
<b>Bats</b>	The Site is assessed for suitable habitats, generally buildings and trees, that may support roosting bats. For example, buildings are assessed for holes in soffits, missing tiles and gaps in the masonry whilst trees are assessed for features such as cracks, holes, flaky bark and established ivy cover. Where possible the interior of buildings are also inspected for suitable roosting features and any evidence of bats in the form of bats, droppings, urine staining and feeding remains are noted. Potential roosting features are classed as negligible, low, moderate, or high potential in (Collins, 2016). The suitability of the habitats for foraging bats is also assessed.
<b>Birds</b>	The site is assessed for suitable habitats that may support birds in terms of feeding, nesting and roosting. Where relevant habitat occurs, evidence identifying the presence of birds including nests, droppings, pellets and feathers is recorded.
<b>Dormice</b>	The site is assessed for suitable habitats that may support dormice <i>Muscardinus avellanarius</i> including woodland and hedgerows. Where relevant habitat occurs evidence of dormice including nests and gnawed nuts is recorded.
<b>Great crested newts</b>	During the site visit the potential of the site to support great-crested newts <i>Triturus cristatus</i> is assessed; this includes looking for potential breeding sites such as ponds, disused swimming pools and other water-bodies. The appraisal also focuses on the potential for this species to find refuge in places such as log piles, rubble and compost heaps. Where still water-bodies occur a Habitat Suitability Index (HSI) is calculated. This is a standard appraisal method developed specifically to evaluate the habitat suitability for great crested newts (Oldham <i>et al.</i> 2000). A series of factors must be considered. Each factor is assessed along suitability guidelines and allocated a value of between 0.1 (highly unsuitable) to 1.0 (highly suitable). The geometric mean of these values provides an overall suitability value for the site. Although this is no substitute for a dedicated survey the suitability value informs the decision on whether to undertake a dedicated survey.
<b>Otters</b>	The area under appraisal is searched for suitable habitat along water-bodies, recording where appropriate, evidence pertaining to the presence of otters <i>Lutra lutra</i> in the form of holts, spraints, anal jelly, tracks and feeding remains.
<b>Reptiles</b>	The site is assessed for suitable habitats that may support reptiles including slow-worms <i>Anguis fragilis</i> , common lizards <i>Zootoca vivipara</i> grass snakes <i>Natrix natrix</i> and adder <i>Vipera berus</i> . Where relevant habitat occurs, evidence identifying the presence of reptiles, particularly tracks and sloughed skin is recorded.
<b>Water voles</b>	The area under appraisal is searched for suitable habitat along water-bodies, recording where appropriate, evidence pertaining to the presence of water voles <i>Arvicola amphibius</i> in the form of burrows, latrines, runs, footprints and distinctive “feeding lawns”.
<b>White-clawed crayfish</b>	The area under appraisal is searched for suitable habitats that may support white-clawed crayfish <i>Austropotamobius pallipes</i> . This typically includes freshwater streams and rivers but may also include still water-bodies.

## 2.3 Preliminary Roost Assessment

- 2.3.1 The PRA was undertaken on 8<sup>th</sup> November 2023 by Julia Morrison, an accredited agent under Elizabeth Pimley's Natural England licence number: 2015-13418-CLS-CLS, WML CL18 (Bat Survey Level 2). The buildings on Site were evaluated for bat roosting potential both internally and externally, and all trees on Site (excluding trees within the woodland) were evaluated for bat roosting potential from ground level. The survey was undertaken in accordance with best practice guidelines (based on Collins, 2023).
- 2.3.2 The buildings' exteriors were observed from ground level using binoculars and a high-powered torch, paying attention to potential roosting and access points for bats. Internal areas were also accessed where possible. Particular attention was paid to features of suitability, such as crevices in stonework, gaps beneath roof tiles and any dark loft spaces. Any suitable areas were searched thoroughly for evidence of use by bats, such as live animals, corpses, droppings, urine staining, feeding remains (e.g. moth and butterfly wings) and scratches.
- 2.3.3 The criteria used to categorise the bat roost potential (BRP) of buildings and trees are summarised in Table 2 (based on Collins, 2023).

## 2.4 Limitations and Constraints

- 2.4.1 While every attempt has been made to collect accurate baseline data, all ecological surveys represent a 'snapshot' of activity. Ecological features are dynamic and often transient, and it is not possible to confirm the absence of a species through survey. It may be necessary to update the ecological surveys if sufficient time elapses since the surveys and data collection presented in this report were carried out.
- 2.4.2 The woodland was not fully accessible due to a dense bramble scrub understorey. As such, not all areas could be checked for signs of protected species presence e.g. badger setts and/or trees with potential to support roosting bats. Proposed works are limited to the main house only, and all areas within 30m of the main house were fully accessible. As such, lack of access to the woodland is not considered to be a significant constraint.
- 2.4.3 Part of the interior of outbuilding B8 (Figure 2) was not accessible due to a locked door and the interior of outbuilding B4 (Figure 2) was not accessible due to a large, active



wasp's nest in the entrance door to the building. However, there are no proposed works to these buildings and therefore lack of access is not a significant constraint.

**Table 2. Bat Roost Potential**

Category	Description
Known or confirmed bat roost	Bats or evidence of bats recorded, both of recent and/or historic activity.
High to moderate BRP Buildings/trees with features capable of supporting a bat roost.	<p><b>Works affecting a roost are licensable. Further survey effort (e.g. dusk emergence/dawn re-entry survey(s) in accordance with best practice) is required to determine the bat species present, nature of roost and level of use before mitigation can be determined. Seasonal constraints may apply.</b></p> <p>Features include holes, cracks or crevices that extend or appear to extend back to cavities suitable for bats. In trees, examples include rot holes, woodpecker holes, splits and flaking or raised bark which could provide roosting opportunities. Any ivy cover is sufficiently well-established and matted so as to create potential crevices beneath. In buildings, features such as gaps beneath ridge and roof tiles, gaps beneath fascia and barge boards and access points into internal loft voids or cellars are all features of roosting potential for bats.</p> <p><b>Further survey effort is required to determine whether or not bats are present and if so, the bat species present, nature of roost and level of use. Appropriate mitigation and potentially licensing requirements may then be determined. Seasonal constraints may apply.</b></p>
Low BRP	<p>Buildings: The building may exhibit features that would have some limited bat roosting opportunities. <b>A further survey for emerging or re-entering bats is required to help confirm the building's low suitability, or to identify any roosting bats present.</b></p> <p>Trees: From the ground, the tree appears to have features (e.g. holes, cavities or cracks) that may extend back into a cavity. However, owing to the characteristics of the feature, they are deemed to be sub-optimal for roosting bats. Alternatively, if no features are visible but owing to the size and age and structure, hidden features, sub-optimal for roosting bats, may occur that only an elevated inspection may reveal.</p> <p><b>For trees, no further survey is required. Works may proceed using reasonable precautions (e.g. controlled working methods, usually the soft-felling of a tree under supervision of a bat worker. Seasonal constraints may apply).</b></p>
Negligible	An inspected building or tree that is considered not to have potential for roosting bats. <b>No further survey or mitigation required.</b>

## 3 Results

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### 3.1 Desk Study

#### *Statutory Nature Conservation Sites*

- 3.1.1. There are no statutory nature conservation sites within a 1km radius of the Site.

#### *Non-Statutory Nature Conservation Sites*

- 3.1.2. There are no non-statutory nature conservation sites within a 1km radius of the Site.

#### *Extended 5km Search for SPA, SAC and Ramsar Sites*

- 3.1.3. There are no SPA sites, SAC sites or Ramsar sites within 5km of the Site.

#### *Biological Records*

- 3.1.4. The biological data search yielded records of several protected species within 1km of the Site. A record of a barn owl *Tyto alba* appeared to occur within the Site boundary. No other records occurred within the Site boundary. Desk study results for protected species are summarised in Table 4.

#### *Ecology Survey Data from 2009*

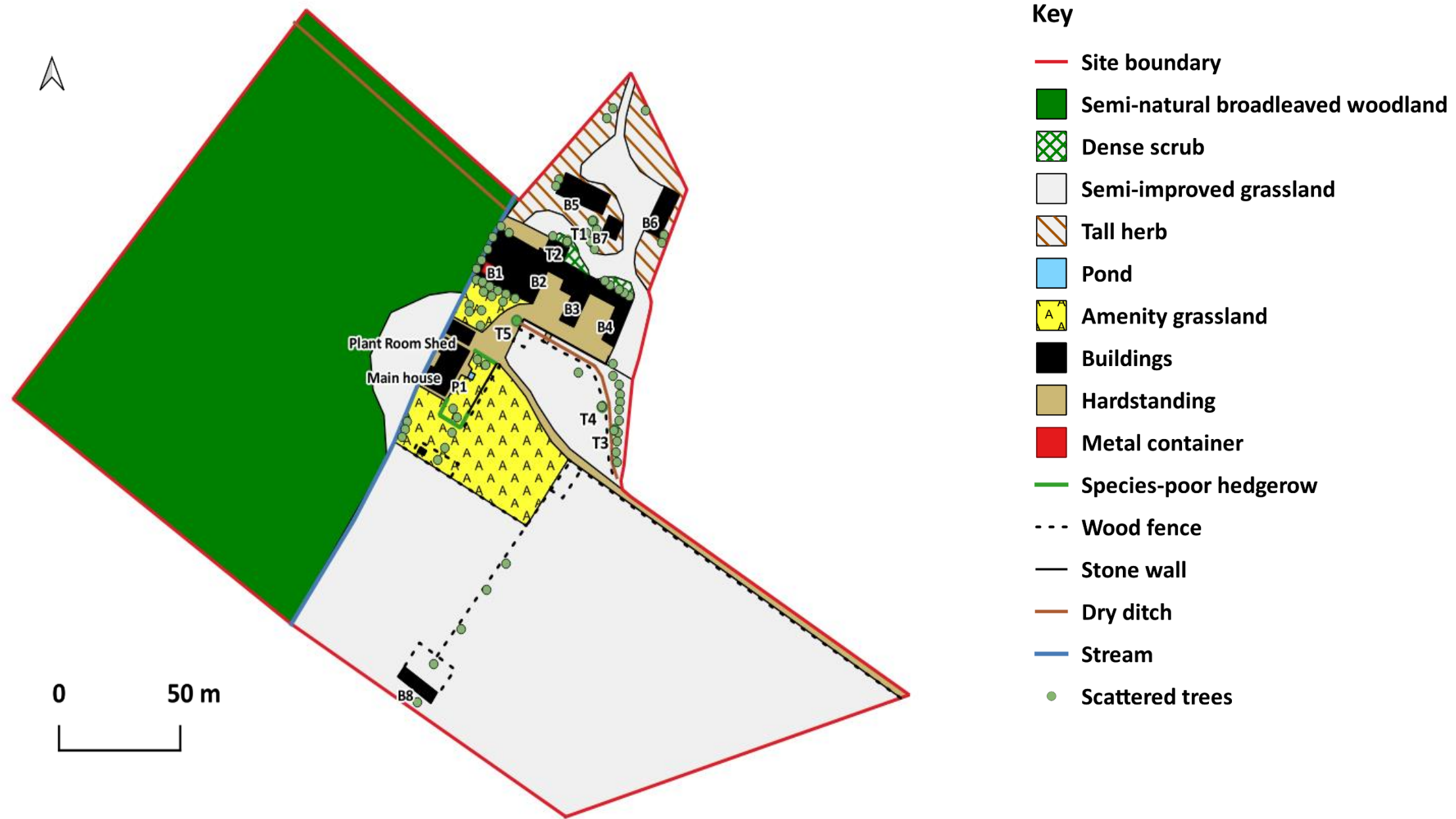
- 3.1.5. The previous Ecology Survey undertaken by Wild Service in September 2009 comprised a detailed internal and external of the some of the outbuildings on Site (those referred to as B1-B4 in this report – see Figure 2). Several of these outbuildings were assessed as having potential to support roosting bats, and dusk emergence surveys were subsequently undertaken in September 2009.
- 3.1.6. The dusk emergence surveys undertaken in September 2009 confirmed presence of common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *P. pygmaeus* bats roosting in outbuildings B2, B3 and B4, and brown long-eared bats *Plecotus auritus* were using the outbuildings as feeding/resting perches. Evidence of barn owl presence was also recorded within the outbuildings, in the form of pellets and droppings. In addition, a barn owl was recorded nesting in a small barn alongside the farm driveway (the exact nest location was not provided within the 2009 Ecology report). A hedgehog *Erinaceus europaeus* was recorded during one of the bat emergence surveys.

### 3.2 **Phase 1 Habitat & Protected Species Survey**

3.2.1 The results of the Phase 1 Habitat & Protected Species Survey assessment are outlined in the Table 3 and Table 4. Reference should be made to the Site map presented in Figure 2 and photographs in Appendix 2.

### 3.3 **Preliminary Roost Assessment**

3.3.1 Results of the PRA are provided in Table 5 and summarised in Table 4. Reference should be made to the Site map presented in Figure 2 and photographs in Appendix 2.



**Figure 2. Phase 1 Habitat Map of Site**  
*B1-B8 = Building Location/Number*  
*T1-T5 = Tree with bat roost potential*  
*P1 = Pond*

Table 3. Phase 1 Habitat Survey Results &amp; Recommendations

Habitat/Feature	Description	NERC <sup>1</sup> habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
<b>BUILDINGS AND HARDSTANDING</b>	<p>There were several buildings on Site (labelled Main House, Plant Shed Room and B1-B8, Figure 2). There were also built structures such as an outdoor storage unit. These structures are also mapped in Figure 2, but no building label is provided as these structures are not referenced further in this report.</p> <p>Areas of hardstanding included the gravel driveway, footpaths around the house and small areas immediately adjacent to outbuildings B1-B4.</p>	N	Negligible ecological value. It is our understanding that proposed works will impact the main house only.	<p>The buildings are of negligible ecological value and therefore any proposed works would have limited ecological impact on the Site.</p> <p><i>See Bats and Birds section of Table 4 for protected species information and PRA survey results in Table 5 for detailed building descriptions.</i></p>
<b>AMENITY GRASSLAND</b>	<p>The garden to the south and east of the house comprised of short, mown amenity grassland, with an average height of less than 5cm. Species present included perennial rye grass <i>Lolium perenne</i>, white clover <i>Trifolium repens</i>, and daisy <i>Bellis perrenis</i>.</p>	N	Low ecological value. Limited impact, as proposed works are limited to the main house only.	<p>As proposed external works to the main house do not require any groundworks, it is anticipated that the amenity grassland surrounding the house will not be impacted by proposed works. Any scaffolding erected would be temporarily in place and erected on areas of hardstanding which are of negligible ecological value.</p> <p>No recommendations.</p>

<sup>1</sup> Habitats of 'Principal Importance' under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006

Habitat/Feature	Description	NERC <sup>1</sup> habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
<b>SEMI-IMPROVED GRASSLAND</b>	<p>The large area to the south of the Site which appeared to be grazed by horses, and area along the east boundary of the woodland also comprised of semi-improved grassland. The sward height in both areas was approximately 5-10cm. There was also a tussocky grass path to the east and north of the outbuildings which was dominated by semi-improved grassland and the sward height varied from approximately 10-20cm.</p> <p>Species present included comprising false oat grass <i>Arrhenatherum elatius</i>, cock's-foot <i>Dactylis glomerata</i>, perennial ryegrass, common hogweed <i>Heracleum sphondylium</i>, nettle <i>Urtica dioica</i>, white clover, docks <i>Rumex</i> spp., creeping buttercup <i>Ranunculus repens</i>, cinquefoil <i>Potentilla</i> sp., ground ivy <i>Glechoma hederacea</i>, cleavers <i>Galium aparine</i> and garlic mustard <i>Alliaria petiolata</i>.</p>	N	Low ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.
<b>TALL HERB</b>	There were large patches of tall herb directly to the north of the outbuildings, bisected by a grassland path. The tall herb areas were dominated by nettles of 1-1.5m in height.	N	Low ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.
<b>SCATTERED TREES</b>	There were several scattered trees across the Site including ash <i>Fraxinus excelsior</i> , birch <i>Betula</i> sp., hawthorn <i>Crataegus monogyna</i> , and English oak <i>Quercus robur</i> trees to the rear of the outbuildings, with some trees overhanging B1 and B5. Along the dry ditch to the south of the outbuildings, were sycamore <i>Acer pseudoplatanus</i> , willow <i>Salix</i> sp., ash, horse chestnut <i>Aesculus hippocastanum</i> and hawthorn trees, including several mature specimens. Other scattered trees across the Site included a few semi-mature beech <i>Fagus sylvatica</i> trees in the horse-grazed fields to the south. In the garden to the north of the main house were several orchard trees (apple <i>Malus</i> sp. and pear <i>Pyrus</i> sp.) and a row of trees adjacent to B1 included Lawson's cypress <i>Chamaecyparis lawsoniana</i> , birch, holly <i>Ilex aquifolium</i> and maple <i>Acer</i> sp.	N	Moderate/high ecological value. It is our understanding all existing trees are to be retained.	No recommendations.



Habitat/Feature	Description	NERC <sup>1</sup> habitat (Y/N)	Evaluation and potential impact	Recommendations Avoidance / mitigation / enhancement measures
<b>DENSE SCRUB</b>	There were small patches of dense bramble <i>Rubus fruticosus</i> agg. scrub immediately adjacent to the north of outbuildings B2, B3 and B4, with young, scattered trees (ash and birch).	N	Low ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.
<b>STREAM</b>	A slow flowing stream ran to the rear of the main house, from north to south. The stream had steep banks of both sides. Where the stream passed by the woodland, it was completely shaded by overhanging trees. Where the stream passed to the rear of the main house and adjacent to a cleared area of woodland/grassland, there was no overhanging vegetation.	Y	High ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.
<b>DRY DITCH</b>	A dry ditch ran to the south of the outbuildings, and there was a dry ditch along the north Site boundary by a woodland path. It is likely both ditches are periodically wet.	N	Low ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.
<b>SPECIES-POOR GARDEN HEDGEROWS</b>	There were two beech hedgerows in front garden to the east of the main house.	N	Low/moderate ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.
<b>SEMI-NATURAL BROADLEAVED WOODLAND</b>	There was a large broadleaved woodland to the west of the Site. Oak and ash trees appeared to be abundant, with occasional horse chestnut, beech, and sweet chestnut <i>Castanea sativa</i> recorded. Most of the woodland had a dense bramble understorey, and there was a small area with a dense blackthorn <i>Prunus spinosa</i> understorey. In places the ground was waterlogged and inaccessible. Meadowsweet <i>Filipendula ulmaria</i> was recorded where the woodland edge met woodland paths.	Y	High ecological value. No impact, as proposed works are limited to the main house only.	No recommendations.

Table 4. Protected Species Survey Results &amp; Recommendations

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
<b>BADGERS</b>	The broadleaved woodland and dense bramble scrub understorey provided suitable habitat for sett excavation. All other areas within the Site boundary, excluding the buildings, offered suitable commuting/foraging habitat for badgers. The stream offered a potential water source.	A possible badger latrine was found inside the collapsed barn (B6). No badger setts were recorded within the Site boundary.	There was one record of a badger within 1km of the Site, approximately 900m west of the Site.	Present, commuting/ foraging through Site.	None.	Badgers are offered full protection under the PBA 1992. <b>No further surveys required.</b> As proposed works are limited to external repairs to the main house, it is considered unlikely that any groundworks will be undertaken. However, as badgers (and other mammals) are likely to commute/forage across the Site, should any trenches or pits need to be excavated, these should be fitted with a ramp to enable any animals to escape.
<b>BATS</b>	The buildings (Main house, Plant Shed Room, and outbuildings B1-B8, Figure 2) and trees within the Site boundary (excluding woodland trees) were assessed for bat roost potential. Full PRA survey results are provided in Table 5 and summarised below.	Bat droppings were found inside outbuildings B2 and B3, and feeding remains (butterfly wings) were recorded in B3.	Previous surveys of the outbuildings on Site confirmed historic bat roosts in outbuildings B2, B3 and B4 (common pipistrelle, soprano pipistrelle and brown long-eared	Roosting bats possibly present in the main house, and highly likely to be present in outbuildings B2, B3 and B4, with night	High impact for any roosting bats in the main house if external repairs are undertaken without further surveys/mitigation.  No impact to roosting bats in any	Bats and their resting places are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. <b>Further surveys required.</b> The main house was assessed as having moderate potential to support roosting bats. As

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	<p><i>Buildings</i> Main house – <b>moderate potential</b> Plant Room Shed - Negligible potential B1 – Negligible potential, but <b>storage container inside B1 possibly used as a night roost</b> (see comments in Table 5). <b>B2 – Previously confirmed roost</b> <b>B3 – Previously confirmed roost</b> <b>B4 – High potential</b> B5 - Negligible potential B6 – Negligible potential B7 - Negligible potential B8 – Full PRA not possible. May offer low potential for day roosting bats and possible night roost opportunities.</p> <p><i>Trees</i> Trees with low potential to support roosting bats are labelled T1, T2 and T3, Figure 2.</p>		<p>– see section 3.1.5 &amp; 3.1.6). 86 bat records were returned from the TVERC data search within 1km of the Site, comprising common pipistrelle, soprano pipistrelle, Daubenton’s bat <i>Myotis daubentonii</i>, noctule <i>Nyctalus noctula</i>, lesser horseshoe <i>Rhinolophus hipposideros</i>, brown long-eared Whiskered bat <i>M. mystacinus</i>, Natterer’s bat <i>M. nattereri</i>, serotine <i>Eptesicus serotinus</i> and a grey long-eared <i>Plecotus austriacus</i>. Two</p>	<p>roosting bats possibly using the storage container inside B1. Roosting bats likely to be absent from buildings assessed as having negligible potential to support roosting bats.  Roosting bats possibly present in trees T1-T5, Figure 2.  Commuting/ foraging bats are highly likely to be present on Site.</p>	<p>other buildings, as proposed works are limited to the main house only.  As proposed works will not impact any commuting/foraging habitat for bats (e.g. woodland, trees, hedgerows) and no external lighting is proposed, external repair works to the main house will not impact commuting/ foraging bats.</p>	<p>such, and in accordance with best practice guidelines (BCT, 2023) a minimum of two dusk emergence surveys are required to establish presence/absence of roosting bats. The surveys should be undertaken between May to August. Should bats be found to emerge then one further emergence/re-entry survey will be required to inform an EPS mitigation licence application to Natural England. Should any future proposed works impact B1, B2, B3 and/or B4, dusk emergence/dawn re-entry surveys will be required in accordance with best practice guidelines (a total minimum of three emergence/re-entry surveys for B2, B3 and B4, and one emergence/re-entry survey for B1). Should future works impact B8, a full PRA would be required to establish</p>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	<p>Trees with moderate potential to support roosting bats are labelled T4 and T5, Figure 2. The woodland offered high quality commuting/foraging habitat for bats, and the surrounding grassland fields offered moderate suitability for commuting and foraging bats.</p>		<p>records appeared to relate to roosting bats (Natterer's bat and <i>Plecotus</i> sp.) but precise locations were not provided. The closest records to the Site appeared to be common pipistrelle and brown long-eared field observations. There were two bat EPS licence records within 2km of the Site, both located to the south-west of the Site and more than 800m distant (MAGIC, 2023).</p>			<p>likely presence/absence of roosting bats. Should future tree works be proposed to T1, T2 and/or T3, an inspection by a bat licensed ecologist would be required, prior to works commencing, and the tree would be section felled. Should future tree works be required to T4 and/or T5, two dusk emergence/re-entry surveys would be required to establish presence/absence in the first instance. It is our understanding that no additional lighting is proposed for the Site, and all hedgerows and trees on Site are to be retained. As such, there will be no impact on any suitable commuting/foraging habitat for bats under proposed plans. Should any external lighting be required, lighting recommendations are provided in the Discussion of this report to reduce the</p>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
						negative impact/potential harm to commuting/foraging bats. Bat boxes can be installed on retained trees/buildings on Site to provide additional bat roosting opportunities – bat mitigation to be informed by bat surveys of the main house.
<b>BIRDS</b>	The house did not provide any obvious suitable nesting habitat for birds. The outbuildings, woodland (including the dense bramble scrub understorey) and scattered trees offered nesting opportunities for birds. Several of the outbuildings offered nesting habitat for barn owls in the form of the flat, wide ledges on the internal stone walls in outbuildings B2 and B3, and a small flat roof area of B7. Outbuilding B4 may offer nesting opportunities for barn owls but was inaccessible for an internal survey.	A barn owl was seen on top of the collapsed outbuilding (B6) and flew in the direction of the woodland on Site once disturbed. Barn owl pellets were also found inside B2 (a few pellets found), B6 and B7 (several pellets found in large piles). Various disused birds' nests were recorded inside all the surveyed outbuildings except	TVERC records yielded results of 18 species within 1km of the Site. These included a record of a barn owl nest <i>Tyto alba</i> , which appeared to be within the Site boundary, and four additional nearby records of barn owls. Other nearby records included kestrel <i>Falco tinnunculus</i> , starling <i>Sturnus vulgaris</i> and yellowhammer	Present. Barn owls possibly nesting in outbuilding B7, and potentially nesting inside outbuildings B2, B3 and B4. Small birds nesting in various outbuildings, except B5 and B5.	No impact, as proposed works are limited to the main house which did not offer any obvious suitable nesting opportunities for birds.  Should proposed works be undertaken for the outbuildings (excluding B5), impacts could be high to any nesting birds (including nesting barn owls), if present.	All birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). It is therefore generally unlawful to intentionally kill or injure a bird, damage or destroy an occupied nest or take or destroy eggs other than in exceptional prescribed circumstances. Additional protection is given to species listed on Schedule 1 of the Act (such as barn owl) insofar as it is unlawful to disturb them during nest building, at the nest or when caring for dependent young.

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
		B5 and B6, and in several of the scattered trees across the Site. Ravens <i>Corvus corax</i> and red kites <i>Milvus milvus</i> were seen during the PEA survey.	<i>Emberiza citronella</i> . The 2009 report by Wild Service noted evidence of barn owl presence in outbuildings B2 and B3 (pellets and droppings).			<p><b>No further surveys required, as there were no obvious nesting opportunities for birds in the main house.</b></p> <p>Should any future proposed works be planned for outbuildings B2, B3, B4 and B7, further surveys would be required to establish use of the building by barn owls and to inform appropriate mitigation and licence requirements (if necessary). Should any future proposed works impact outbuildings B1-B8 (Figure 2), works should be undertaken outside the main nesting season (generally considered to be March to August inclusive) and where this is not possible a suitably qualified ecologist should be engaged to check for nesting birds and to provide advice on the most appropriate way to proceed.</p> <p>Bird boxes can be installed on retained trees/buildings on</p>



Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
						Site to provide additional nesting habitat to enhance the Site for wildlife. Further details are provided in the Discussion.
<b>DORMICE</b>	The woodland offered suitable habitat for dormice, although no hazel <i>Corylus avellana</i> (a preferred food source for dormice) was noted during the PEA survey.	None.	There were no records of dormice within 1km of the Site. There were no EPS licence records for dormice within 2km of the Site (MAGIC, 2023).	Possibly present in the woodland. Highly unlikely to be present in any other habitat within the Site boundary.	No impact as works are limited to the main house.	Dormice and their resting places are protected under the WCA 1981 and the CHS Regs 2017. <b>No further surveys required.</b> Should any future works be proposed to the woodland, further dormouse presence/absence surveys may be required depending on the nature of the works.
<b>GREAT CRESTED NEWTS (GCN)/ OTHER AMPHIBIANS</b>	The woodland offered potential shelter for GCN and other amphibians, and the tussocky grassland around outbuildings B5 and B6 offered optimal terrestrial habitat for these species. There was one ornamental pond adjacent to the main house. A Habitat Suitability Index (HSI) assessment was undertaken and a score of	None.	There were no GCN or amphibian records within 1km of the Site. There were no EPS licence records for GCN within 2km of the Site (MAGIC, 2023).	GCN unlikely to be present due to a lack of suitable breeding ponds on Site (or connected to the Site) and lack of GCN records. Amphibians possibly	No impact as works are limited to the main house.	GCN and their resting/breeding places are protected under the WCA 1981 and CHS Regs 2017. <b>No further surveys required.</b> The pond adjacent to the house was assessed of being of 'below average' suitability to support breeding GCN, and there was no suitable terrestrial habitat surrounding the main house for GCN/other

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
	<p>0.57 was returned, indicating the pond was of 'Below Average' suitability to support breeding GCN. Full HSI results are provided in Appendix 3. There are three ponds within 500m of the Site (MAGIC, 2023). Two were located to the north-west within woodland habitat and these were approximately 250m and 385m from the west Site boundary. The stream to the rear of the main house had slow flowing water and would likely act as a dispersal barrier to GCN, if present in the identified ponds to the north-west.</p> <p>A third pond was identified approximately 160m south-west of the Site and this was also separated from the Site by a stream with slow-flowing water that could act as a dispersal barrier to GCN (adjacent to the south-west Site boundary).</p>			<p>present in the areas of suitable terrestrial habitat on Site (i.e. the tussocky grassland). GCN and other amphibians highly unlikely to be present in the garden area surrounding the main house.</p>		<p>amphibians. As such, it is considered highly unlikely that GCN/amphibians would be impacted by external repair works to the main house. The sward height of the grass immediately surrounding the house should be maintained at a short height to further reduce the risk of amphibians being present in the footprint of proposed works. In the unlikely event that any trenches or pits need to be excavated, these should be fitted with a ramp to enable any animals to escape.</p>

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
OTTERS, WATER VOLES & WHITE-CLAWED CRAYFISH	There was a stream passing through the Site to the rear of the main house, separating the house from the woodland. The stream had steep banks which offered suitable habitat for water voles to burrow. The stream was narrow but offered some suitable habitat for otters, and the nearby woodland and cleared area of vegetation offered a place to lay up. The stream did not appear to be suitable for white-clawed crayfish, as there was a lack of rocky substrate.	None.	There was one record of an otter within 1km of the Site, approximately 300m south of the Site. There were no records of water vole or white-clawed crayfish within 1km of the Site.	Water vole and otter possibly present in the stream.	No impact, as proposed works are limited to the main house only.	Otters, white-clawed crayfish and water voles plus water vole resting places are protected under the WCA 1981, and otters and their resting places are protected under the CHS Regs 2017. <b>No surveys required.</b> In the event that water voles or otters are present in the stream adjacent to the main house, should any trenches or pits need to be excavated, these should be fitted with a ramp to enable any animals to escape.
REPTILES	The areas of tussocky grassland around the outbuildings to the north of the Site offered limited but optimal habitat for reptiles. The large grass fields to the south of the Site offered sub-optimal habitat for reptiles. The stream and pond offered suitable habitat for grass snake.	None.	There were no records of reptiles within 1km of the Site.	Possibly present in the areas of suitable habitat, particularly the tussocky grassland near the outbuildings. Grass snake	No impact, as proposed works are limited to the main house only.	Reptiles are protected under the Wildlife & Countryside Act 1981 (as amended). <b>No further surveys required.</b> Due to a lack of suitable terrestrial habitat immediately surrounding the area of proposed works (i.e. the main house) it is considered highly unlikely reptiles will be present in the area of

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
				possibly present in the stream and pond.		proposed works. The sward height of the grass immediately surrounding the house should be maintained at a short height to further reduce the risk of reptiles (e.g. grass snakes which may use the nearby stream and pond) being present in the footprint of proposed works. In the unlikely event that any trenches or pits need to be excavated, these should be fitted with a ramp to enable any animals to escape.
<b>HEDGEHOGS/OTHER MAMMALS</b>	The broadleaved woodland including the dense bramble scrub understorey offered suitable nesting habitat for hedgehogs. With the exception of the buildings, all other habitats on Site offered suitable foraging habitat for hedgehogs and brown hare <i>Lepus europaeus</i> .	No evidence of hedgehog presence. Deer droppings were found inside outbuilding B6. A rabbit was seen at the base of tree T4 and rabbit burrows were noted across the Site, particularly in the grassland adjacent to the woodland, under	The TVERC data search returned no records of hedgehogs within 1km of the Site, and one record of a brown hare (the exact location was not provided). One hedgehog was recorded on Site during previous bat emergence surveys	High likelihood of hedgehogs being present in the woodland, and commuting/ foraging across the Site.	No impact, as proposed works are limited to the main house only.	Hedgehogs and brown hare are listed as a Species of Principle Importance under the NERC Act 2006. <b>No further surveys required.</b> As hedgehogs and brown hare may commute/forage across the garden area, in the unlikely event that any trenches or pits need to be excavated, these should be fitted with a ramp to enable any animals to escape.

Species	Habitats/features	Evidence	Data search	Likelihood of presence	Potential impact	Recommendations Further survey required? (Yes/No) / Avoidance / mitigation / enhancement measures
		mature trees, and under outbuilding B8. A roe deer <i>Capreolus capreolus</i> was seen in the woodland.	(Wild Service, 2009).			

Table 5. Preliminary Roost Assessment Results

Feature	Description
<b>Main house</b>	<p>The main house was a large two-storey building of stone construction, with a complex roof structure. In general, the building was in good condition. Externally there were gaps under the stone roof tiles on all elevations of the building which could offer a potential roost feature for crevice-dwelling species of bats. Internally, there were no loft spaces or roof voids, with all the available space having been converted into residential rooms (bedrooms and bathrooms).</p> <p>Owing to several gaps under roof tiles on all elevations, and with consideration of nearby historic bat roosts and evidence of roosting bat presence in the nearby outbuildings, the main house was assessed as having <b>moderate potential to support roosting bats</b>.</p>
<b>Plant Room Shed</b>	<p>The Plant Room Shed was a single storey, rectangular building located to the north of the main house (within 2m). The building was in good condition and there were no obvious potential roost features for bats externally or internally, and no potential access points to the building interior. The building had no loft space or roof void and was naturally well-lit internally due to windows allowing ample natural light inside.</p> <p>Due to a lack of any potential roost features, the building was assessed as having <b>negligible potential to support roosting bats</b>.</p>
<b>Outbuilding B1</b>	<p>A large open barn, adjacent to broadleaved woodland and adjoining outbuilding B2. The building had no external walls and comprised two pitched, corrugated metal roofs supported by metal beams. Externally and internally, there were no obvious roosting features for bats, and the building was unsuitable for day roosting bats due to the exposed nature and high levels of natural light. It is possible that the building could be used as a night roost/feeding perch for bats. No direct evidence of bat presence was recorded within the barn e.g. bat droppings or feeding remains, though such features could be obscured by objects on the ground.</p> <p>Due to a lack of potential roost features, the building was assessed as <b>having negligible potential to support day roosting bats, and low potential to be used as a night roost/feeding perch</b>.</p>
<b>Metal container (inside B1)</b>	<p>One small metal storage container was located inside barn B1. The building had no obvious potential roost features for bats (e.g. external cracks or crevices) and there were no obvious potential roost features for bats internally. Being of metal construction, this structure would be considered unsuitable for roosting bats, due to likely temperature variations. However, the door to the storage unit was open at the time of the PRA and bat droppings (c.10-15) were found internally. As there was no obvious potential roost feature, and no obvious place for bats to roost/perch, it is unclear how bats had used the building.</p> <p>Due to the presence of bat droppings internally but owing to a lack of any suitability for day roosting bats, the building was considered to be of <b>negligible potential to support day roosting bats</b>. It is considered possible that bats could enter the storage unit at night when the door is left</p>



	<p>open, and potentially fly in and out (as evidenced by bat droppings inside), but it is considered unlikely that bats would regularly use this structure as a night roost or feeding perch. Nonetheless, due to presence of bat droppings, the building has been assessed as having <b>low potential to support night roosting bats</b>.</p>
<p><b>Outbuilding B2</b></p>	<p>A single-storey stone barn with a pitched tiled roof. The building was in a state of disrepair. Externally there were two raised ridge tiles which offered potential roost features for crevice-dwelling species of bats, and potential access to the building interior. Internally, scattered bat droppings (c.20) were found on a high shelf in the north-west corner of the building. The internal thick stone walls had large holes which could offer hibernating habitat for roosting bats. Gaps were visible between the internal wood ceiling and external corrugated metal roof which could offer a potential roost feature for most species of bats, excluding horseshoe bats. It is considered possible that horseshoe bats could access the building interior via a small gap above the entrance door on the south elevation.</p> <p>Due to the presence of fresh bat droppings, in addition to the presence of several external and internal potential roost features, the building was assessed as a <b>confirmed bat roost</b>.</p>
<p><b>Outbuilding B3</b></p>	<p>This building adjoined B2 and was also a single storey building with a pitched tiled roof. The building was in state of disrepair and externally there were several slipped roof tiles which offered a potential roost feature for crevice-dwelling species of bats, and access to the building interior. Internally, fresh scattered bat droppings (c. 20-30) and feeding remains (butterfly wings) were found under a central roof beam in the southern section of the building. Further fresh bat droppings (c. 100) were located in the northern section of the building.</p> <p>Due to the presence of fresh bat droppings and feeding remains, in addition to the presence of several external and internal potential roost features, the building was assessed as a <b>confirmed bat roost</b>.</p>
<p><b>Outbuilding B4</b></p>	<p>This building adjoined B3 and was also a single storey building with a pitched tiled roof. Gaps under external roof tiles offered a potential roost feature for crevice-dwelling species of bats. Access to the building interior was not possible due to an active wasp's nest in the entrance door to the building. At the northern end of the building was a small lean-to which was accessible, and no obvious signs of bat presence was recorded. Although the building could not be accessed internally, there were external potential roost features for bats, and it is considered likely that the interior offered day roosting opportunities, as the building was of similar structure, build and condition to outbuildings B2 and B3.</p> <p>Due to external potential roost features, the building was assessed as having <b>high potential to support roosting bats</b>.</p>
<p><b>Outbuilding B5</b></p>	<p>A large, open barn with a curved corrugated metal roof which was supported by metal beams, and a small flat-roofed section (also of metal construction). The building had no external walls and was completely exposed to the elements.</p> <p>There was a hardstanding floor in the footprint of the building and no obvious signs of bat presence was recorded (e.g. feeding remains). It is considered unlikely bats could perch on the roof or use the building as a night roost but is it possible that commuting/foraging bats could fly through the building.</p> <p>Due to a lack of any potential roost features, the building was assessed as having <b>negligible potential to support roosting bats</b>.</p>

<b>Outbuilding B6</b>	<p>A partially collapsed barn in a state of disrepair. The building was a single storey structure and the roof had collapsed. The building was completely exposed to the elements, with no obvious potential roost features for bats. As the roof had collapsed, the building did not offer any obvious feeding perches or night roosting opportunities.</p> <p>Due to a lack of any potential roost features, the building was assessed as having <b>negligible potential to support roosting bats</b>.</p>
<b>Outbuilding B7</b>	<p>A small, single-storey disused barn, adjacent to outbuilding B5. There were no obvious external and/or internal potential roost features for bats, and no obvious places for bats to use as a feeding perch/night roost. <i>NB: the building appeared to be in use by nesting barn owls (see Birds section of Table 4 and photographs in Appendix 2).</i></p> <p>Due to a lack of any potential roost features, the building was assessed as having <b>negligible potential to support roosting bats</b>.</p>
<b>Outbuilding B8</b>	<p>A single-storey barn of wooden construction. A few very small gaps between some of the horizontal external wooden boards on all elevation walls offered potential roost features for bats. Part of the internal area of the barn could not be accessed at the time of the survey, but small gaps above external doors offered potential access to the building interior. As such, the building could offer potential night roosting opportunities.</p> <p>This building could not be fully assessed, but <b>it may offer low potential for day roosting bats</b> in the form of a few external potential roost features, and it may offer night roosting opportunities. A full PRA would be required to assess potential to support roosting bats.</p>
<b>Trees</b>	<p>There were several trees on Site which offered potential to support roosting bats:</p> <p><b>Trees with low roost potential</b></p> <p>T1 – A large, mature ash tree near barns B5 and B7, with low ivy cover and one large split in the trunk of the tree  T2 – A semi-mature ash tree adjacent to the north of B2, with some split/flaky bark  T3 – A large, mature horse chestnut tree with low ivy cover</p> <p><b>Trees with moderate potential</b></p> <p>T4 – A large, mature, dead tree with ivy cover and several broken limbs  T5 – A large, mature willow sp. with flaky bark, and several holes in the main trunk</p>

## 4 Discussion

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### 4.1 Nature Conservation Sites

4.1.1 There are no nature conservation sites on or near the proposed development Site. As such, and with consideration of the small scale of proposed works, the proposed external repairs to the main house would have no impact on any nature conservation sites.

### 4.2 Habitats

4.2.1 As the proposals for the main house repairs will not impact the natural habitats on Site, especially the woodland and stream, no mitigation is required.

#### *Enhancements*

4.2.2 As proposed works are limited to repairs to the main house, a Biodiversity Net Gain (BNG) assessment is not required. However, general recommendations to enhance the Site for wildlife are provided below, in addition to ecological enhancement features outlined for bats and nesting birds (see relevant sections below).

4.2.3 The ecological value of the site can be enhanced through planting native species and/or those of value to wildlife, i.e. producing fruits, seeds, nuts or single-flowering varieties. Leaving patches of unmown grass and tall herb as well as creating compost heaps/log piles creates valuable wildlife habitat, particularly for invertebrates, reptiles, amphibians and small mammals including hedgehogs<sup>2</sup>. In more residential areas, gardens can be made more permeable to wildlife, such as hedgehogs, through leaving small gaps of 13x13cm under fences. Ideally only pesticides branded as 'wildlife friendly' should be used. Wildlife planting tips and advice can be found here: <https://www.gloucestershirewildlifetrust.co.uk/wildlife/wildlife-gardening>. Further information is provided in the Ecological Enhancements Appendix below.

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<sup>2</sup> The State of Britain's Hedgehogs 2015, publicised at a special UK summit on hedgehogs: since 2000, records of the species have declined by half in rural areas and by a third in urban ones. Hedgehogs are also a species of 'Principal Importance' under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conservation

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### 4.3 Protected Species

4.3.1 The protected species and their mitigation that need consideration in relation to this development are mentioned below.

### 4.4 Badgers & Hedgehogs

#### *Mitigation*

4.4.1 Badgers and active setts are offered full protection under the PBA 1992 and hedgehogs and brown hare are listed as a Species of Principle Importance under the NERC Act 2006. Due to the possibility of badgers and hedgehogs commuting across the Site, should any trenches or pits need to be excavated under proposed works, these should be fitted with a ramp to enable any animals to escape.

### 4.5 Bats

#### *Mitigation/Further Surveys*

4.5.1 Bats and their resting places are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017. The main house was assessed as having **moderate potential to support roosting bats**. As such, and in accordance with best practice guidelines (BCT, 2023) a minimum of two dusk emergence surveys are required to establish presence/absence of roosting bats. The surveys should be undertaken between May to August. Should bats be found to emerge then one further emergence/re-entry survey will be required to inform an EPS mitigation licence application to Natural England.

4.5.2 Should any future proposed works impact B1, B2, B3 and/or B4, bat dusk emergence/dawn re-entry surveys will be required in accordance with best practice guidelines (a total minimum of three emergence/re-entry surveys for B2, B3 and B4, and one emergence/re-entry survey for B1 including deployment of a static bat detector for five consecutive nights due to the possibility of it being used as a night roost). Should future works impact B8, a full PRA would be required to establish likely presence/absence of roosting bats.

4.5.3 Should future tree works be proposed to T1, T2 and/or T3, a precautionary approach would be required, which would require a bat licensed ecologist to inspect the tree

prior to works. Providing no roosting bats were present, the tree could be section felled, with limbs being left on the ground for 24 hours to provide time for any roosting bats to emerge (if present).

4.5.4 Should future tree works be required to T4 and/or T5, two dusk emergence/re-entry surveys would be required to establish presence/absence in the first instance. Should bats be found to emerge then one further emergence/re-entry survey would be required to inform an EPS mitigation licence application to Natural England.

4.5.5 It is our understanding that no additional lighting is proposed for the Site, and all hedgerows and trees on Site are to be retained. As such, there will be no impact on any suitable commuting/foraging habitat for bats under proposed plans.

4.5.6 Should any external lighting be proposed, the following should be considered when choosing luminaires and their potential impact on Key Habitats and features (Institution of Lighting Professionals, 2023):

- All luminaires should lack UV elements when manufactured. Metal halide, compact 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 light source (2700Kelvin or lower) should be adopted to reduce blue light component.
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Internal luminaires can be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill.
- Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges.
- Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.

- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered.
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.
- The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

#### *Enhancements*

4.5.7 Roosting opportunities for local bats can be incorporated into renovated buildings through the installation of bat boxes under the eaves either on the exterior walls (e.g. Schwegler 1WQ/1FF bat box) or fitted into the walls (e.g. Habibat 001 bat box) and the creation of raised ridge tiles. Bat boxes (e.g. Schwegler 2FN) can also be installed on medium - large trees. Bat boxes should ideally be installed at a minimum height of 3.5m – 4m, facing away from external illumination and should ideally face in a south-east or south-west orientation. Examples are provided in the Ecological Enhancements Appendix below.



## 4.6 Birds

### *Mitigation*

- 4.6.1 All birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). It is therefore generally unlawful to intentionally kill or injure a bird, damage or destroy an occupied nest or take or destroy eggs other than in exceptional prescribed circumstances. Additional protection is given to species listed on Schedule 1 of the Act (such as barn owl) insofar as it is unlawful to disturb them during nest building, at the nest or when caring for dependent young.
- 4.6.2 No further surveys are required for the main house as there were no obvious nesting opportunities for birds in this building.
- 4.6.3 Should any proposed works be planned in the future for outbuildings B2, B3, B4 and B7, further surveys would be required to establish use of the building by barn owls and to inform appropriate mitigation and licence requirements (if necessary). Should any proposed works impact outbuildings B1-B8 (Figure 2), these works should be undertaken outside the main nesting season (generally considered to be March to August inclusive) and where this is not possible a suitably qualified ecologist should be engaged to check for nesting birds and to provide advice on the most appropriate way to proceed.

### *Enhancements*

- 4.6.4 Nesting opportunities for house sparrows *Passer domesticus* and swifts *Apus apus* can be provided in the form of swift bricks (that are fitted into the walls and are readily used by these and other species of small bird) or where it is not possible to fit into the wall, swift boxes can be fitted externally. Swift boxes should ideally be installed at a height of 4-5m to ensure usage. House martins *Delichon urbicum* can be provided with nesting provision in the form of house martin cups, which can be fitted on the exterior walls of a building. Barns, carports and open fronted porches or large overhanging eaves are suitable locations for swallow cups to provide nesting features for swallows *Hirundo rustica*. All these species have undergone a decline in recent years. These nesting features should be installed under the eaves of a building at minimum heights of 2-2.5m and face in a north to south-east direction. In addition, hole-fronted and

open-fronted bird boxes can be installed on medium-large trees at similar heights and directions to attract other species of birds. Examples are provided in the Ecological Enhancements Appendix below.

#### 4.7 **Great Crested Newts & Reptiles**

##### *Mitigation*

4.7.1 Great crested newts (GCN) and their resting/breeding places are protected under the WCA 1981 and CHS Regs 2017 and reptiles are protected under the WCA 1981. Owing to the limited nature of works, the lack of suitable terrestrial habitat on Site for GCN and reptiles within the proposed development area (i.e. the main house and immediately surrounding garden) and lack of GCN/reptile records within 1km of the Site, it is considered unlikely GCN, or reptiles would be present within the development footprint. Furthermore, all suitable terrestrial habitat for GCN/reptiles is to be retained/not affected under proposed plans.

4.7.2 As such, it is considered highly unlikely that the proposed house repairs would harm GCN/reptiles, if present locally. Should works be proposed to other areas of the Site in the future then an Ecologist should be consulted prior to any works commencing. It is recommended that grassland in the garden surrounding the main house, continue to be kept short (approximately 5cm) to keep this habitat unsuitable for amphibians and reptiles. As an additional precautionary measure, all material must be stored on pallets or otherwise separated from the ground to eliminate any potential refugia for amphibians/reptiles. Aggregates must also be delivered in bags and stored in this way. Should any trenches or pits need to be excavated under proposed plans, these should be fitted with a ramp to enable any animals to escape.

#### 4.8 **General Protected Species**

4.8.1 There appear to be no other obvious and immediate issues for this development with regard to any other species protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 and no further dedicated surveys for any other species are recommended. However, in the unlikely event that any protected species listed in Section 2 are found on the site during

the works then all works must cease immediately and the advice of a suitably qualified ecologist must be sought.

#### **4.9 Timeframe that survey remains valid**

- 4.9.1 Please note that unless otherwise stated, the contents of this report will remain valid for a maximum period of 12 months from date of issue (CIEEM, 2019). Beyond this updated survey work may be required to establish any changes in baseline conditions.

## 5 References

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Bat Conservation Trust. 2018. Bats and Artificial Lighting in the UK. Bats and the Built Environment Series. London.

Bat Conservation Trust. 2012. Bats and Buildings. Bats and the Built Environment Series. London.

Bright, P., Morris, P. & Mitchell-Jones, T. 2006. The Dormouse Conservation Handbook (2nd Ed.) English Nature.

British Trust for Ornithology website. <http://www.bto.org/about-birds/birdfacts>

Chanin, P. 2003. Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

Chanin, P. & Woods, M. 2003. Surveying Dormice using Nest Tubes: Results and Experiences from the South West Dormouse Project. English Nature Research Report 524 . Peterborough: English Nature 34pp

CIEEM, 2019 Advice Note on the lifespan of ecological reports and surveys. CIEEM, Winchester.

Collins, J. (ed). 2023. Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

Dean, M., Strachan, R., Gow, D. and Andrews, R. 2016. The Water Vole Mitigation Handbook (Mammal Society Mitigation Series). Eds. Fiona Matthews and Paul Chanin. Mammal Society, London.

DEFRA (2007). Hedgerow Survey Handbook. A Standard Procedure for Local Surveys in the UK. Defra, London.

Froglife. 1999. Reptile Survey: An Introduction to Planning, Conducting and Interpreting Surveys for Snake and Lizard Conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Gent, A. & Gibson, S. 1998. Herpetofauna Workers' Manual. JNCC, Peterborough.

Hayes, C & Whitehurst, J. 2001. Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Institution of Lighting Professionals. 2023. (Bat Conservation Trust) Guidance Note GN08/23 Bats and Artificial Lighting At Night.

- Joint Nature Conservation Committee (JNCC). 2010. Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. Peterborough: JNCC.
- Matthews, F. & Chanin, P. (ed). 2016. The Water Vole Mitigation Handbook: Mammal Society Mitigation Guidance Series. Mammal Society, London.
- Multi-Agency Geographical Information for the Countryside website <http://magic.defra.gov.uk>. Accessed November 2023.
- Mitchell-Jones, A.J. 2004. Bat Mitigation Guidelines. English Nature, Peterborough.
- Mitchell-Jones, A.J. and McLeish, A.P. 1999 (revised 2004). The Bat Workers Manual. Joint Nature Conservation Committee, Peterborough.
- Naura, M. and Robinson, M. 1998. Principles of using River Habitat Survey to Predict Aquatic Species: An Example Applied to the White-clawed Crayfish *Austropotamobius pallipes*. Aquatic Conservation 8, 515–527.
- Neal, E. and Cheeseman, C. 1996. Badgers. Poyser Natural History, London.
- Oldham, R.S. *et al* 2000. Evaluating the Suitability of Habitat for the Great Crested Newt (*Triturus cristatus*): The Herpetological Journal Vol. 10, No. 4. British Herpetological Society, London.
- Roper, T. 2010. *Badger*. Collins, London.
- Russ, J. 2012. *British Bat Calls: A Guide to Species Identification*. Pelagic Publishing, Exeter.
- Scottish Natural Heritage. 2003. *Best Practice Guidance - Badger Surveys. Inverness Badger Survey 2003*. Commissioned Report No. 09.
- Smith, G.R.T., Learner, M.A., Slater, F.M. and Foster, J. 1996. Habitat Features Important for the Conservation of the Native Crayfish *Austropotamobius pallipes* in Britain. Biological Conservation 75, 239–246.
- Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D. and Win, I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds: 114; pp. 723-747.
- Stone, E.L. 2013. *Bats and Lighting: Overview of Current Evidence and Mitigation Guidance*. University of Bristol.

Strachan, R, Moorhouse, T. & Gelling, M. 2011. Water Vole Conservation Handbook (Third Edition). Wildlife Conservation Research Unit, Oxford.

UK Biodiversity Framework <http://jncc.defra.gov.uk/page-6189>

Wild Service. 2009. Hulse Ground Farm, Little Faringdon, Lechlade, GL7 3QR: Ecology Survey Report & Assessment.

## Appendix 1: Policy and Legal Considerations

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Statutory nature conservation sites and protected species are a ‘material consideration’ in the UK planning process (DCLG, March 2012). Where planning permission is not required, for example on proposals for external repair to structures, consideration of protected species remains necessary given their protection under UK law.

The **Conservation of Habitats and Species Regulations 2017** transpose the requirements of European Directives such as the Habitats Directive and Birds Directive<sup>3</sup> into UK law, enabling the designation of protected sites and species at a European level.

The **Wildlife and Countryside Act 1981** (as amended) forms the key piece of UK legislation relating to the protection of habitats and species. The **Countryside and Rights of Way Act 2000** provides additional support to the 1981 Act, for example, increasing the protection of certain reptile species. Specific protection for badger is provided by the **Protection of Badger Act 1992**. The **Wild Mammals (Protection) Act 1996** sets out the welfare framework with respect to wild mammals prohibiting a range of activities which may cause unnecessary suffering.

The Government has a duty to ensure that parties take reasonable practicable steps to further the conservation of habitats and species of Principal Importance for Conservation in England listed under Section 41 of the **Natural Environment and Rural Communities Bill 2006**<sup>4</sup>. In addition, the 2006 Act places a Biodiversity Duty on public authorities who ‘must, in exercising [their] functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’ (Section 40 (1)). Criteria for selection of priority habitats and species include, for example, international threat (such that species may be protected in their strong holds) and marked national decline.

The **National Planning Policy Framework 2021**<sup>5</sup> states that the planning system should minimise impacts on biodiversity, providing net gains in biodiversity, wherever possible. Section 15 states 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<sup>6</sup> and a suitable compensation strategy exists; and
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

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<sup>3</sup>Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, and Council Directive 79/409/EEC on the Conservation of Wild Birds, respectively.



<sup>4</sup>The **NERC Act** refers to “*species of principle importance for the conservation of biodiversity*”, which translates to BAP habitats and species occurring in England.

<sup>5</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1005759/NPPF\\_July\\_2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf)



<sup>6</sup> For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.

## Appendix 2: Photographs

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No	Photo	Description
1	 A photograph showing the main house from a south-west and north-west perspective. The house is a two-story stone building with a gabled roof and several windows. It is situated on a grassy field under an overcast sky.	South-west and north-west elevations of main house.
2	 A close-up photograph of the roof tiles on the north-east gable end of the main house. A red arrow points to a gap between the tiles. The roof is made of dark grey tiles and has a stone chimney on the ridge.	Gaps under roof tiles on north-east gable end of main house.



No	Photo	Description
3	 A close-up photograph of a roof covered in dark, weathered tiles. A skylight is visible in the center. A red arrow points to the space between the tiles near the gable end. The roof is attached to a stone wall with a white downspout and a light fixture.	Gaps under roof tiles on south-west gable end of main house.
4	 A photograph showing the south-east elevation of a main house. The house has a stone facade, a tiled roof, and two chimneys. There are several windows, some with white frames. The house is surrounded by dense green foliage and trees in the background.	South-east elevation of main house.

No	Photo	Description
5	 A photograph showing the interior of the top floor of a main house. The room has white walls, a grey tiled floor, and exposed wooden beams on the ceiling. A doorway in the center leads to another room, possibly a bathroom, where a toilet and sink are visible. The room is empty and appears to be under renovation or recently vacated.	Interior of top floor of main house, with no roof voids/loft spaces.
6	 A photograph of a garden pond (P1) situated in a garden. The pond is surrounded by green grass and various plants, including ferns and reeds. In the background, there is a well-manicured hedge and a stone wall. The pond is adjacent to the east elevation of the main house.	Garden pond (P1) adjacent to the east elevation of the main house, with surrounding amenity grassland and hedgerow.



No	Photo	Description
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7



North-west and south-west elevations of Plant Shed Room.

8



Interior of Plant Shed Room.

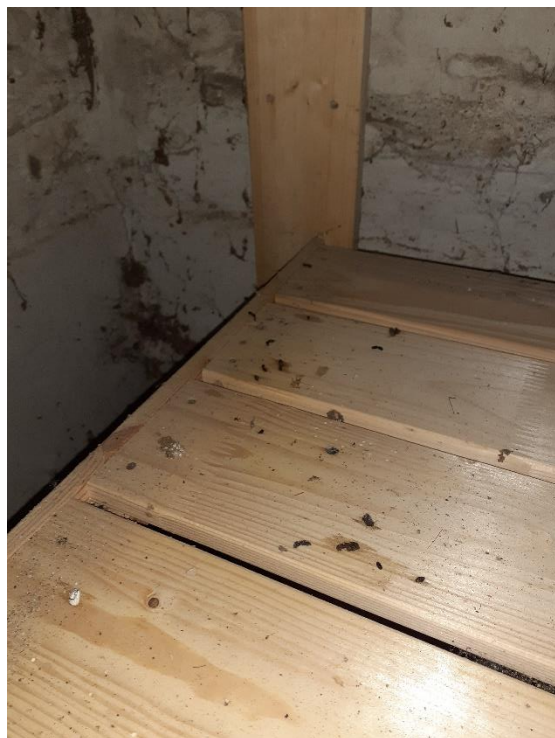
No	Photo	Description
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9





Outbuilding B2.



10

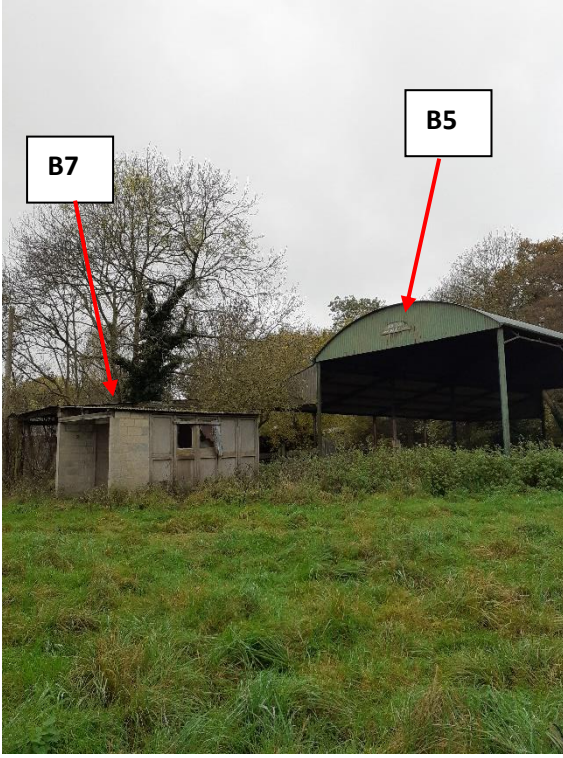



Fresh bat droppings on high shelf in north-west corner of B2.

No	Photo	Description
11		Outbuilding B3.
12		Fresh bat droppings in northern section of B3.



No	Photo	Description
13		Outbuilding B4.
14		Rear of outbuildings B2, B3 and B4, with adjacent scrub and trees.

No	Photo	Description
15	 A photograph showing two outbuildings in a grassy field. On the left is a small, rectangular concrete building labeled 'B7'. To its right is a larger, green metal building with a curved roof labeled 'B5'. Red arrows point from the labels to the respective buildings. The background shows trees and a cloudy sky.	Outbuilding B5 and B7 and adjacent tussocky grassland and tall herb.
16	 A photograph of a building with a severely collapsed roof. The roof structure is exposed, showing wooden beams and debris. The building is surrounded by tall grass and weeds. The sky is overcast and grey.	Outbuilding B6 with collapsed roof.



No	Photo	Description
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17





Outbuilding B7 and flat roof section which may be used by nesting barn owls (circled in red).



18





Large pile of barn owl pellets inside B7.



No	Photo	Description
19	 A photograph showing the interior of a shed or barn. The floor is covered with moss and fallen leaves. In the background, there is a metal storage container in the corner, which is circled in red. The structure has a corrugated metal roof and walls.	View of interior of B1, with metal storage container in corner (circled in red).
20	 A close-up photograph of a concrete floor. The floor is covered with numerous small, dark, irregular droppings, which are identified as bat droppings in the description. The droppings are scattered across the surface.	Scattered bat droppings inside metal container in B1.

No	Photo	Description
21		Outbuilding B8.
22		View facing east elevation of main house, including large area of amenity grassland.



No	Photo	Description
23	 A photograph showing a stream flowing through a grassy area next to a stone house. The stream is narrow and appears to be a natural feature. The house is constructed of light-colored stone and has a white window frame. The surrounding area is lush with green grass and some taller plants.	Stream to the rear of main house.
24	 A photograph of a wooded area with many trees and dense undergrowth. The trees are mostly bare, suggesting late autumn or winter. The ground is covered with fallen leaves and some green plants. The overall scene is a dense woodland.	Broadleaved woodland to the west of the Site.

## Appendix 3: Habitat Suitability Assessment GCN

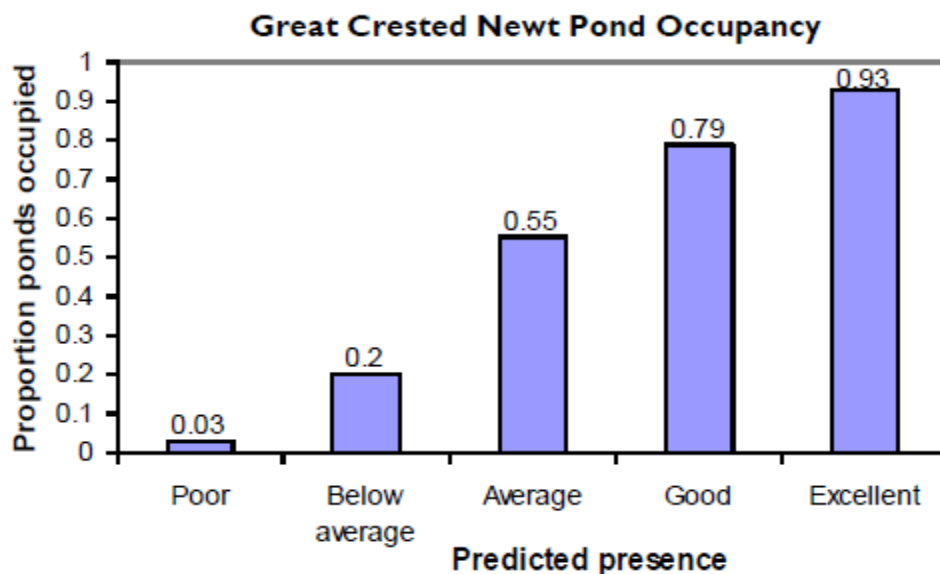
In order to evaluate the habitat suitability (HSI) for great crested newts a series of factors must be considered as described below. A description of each factor considered in the HSI is provided below and the value ascribed to each factor is provided in the table below the description. The overall **Habitat Suitability Index** for the site is calculated as the mean of the suitability indices.

<b>HABITAT SUITABILITY ASSESSMENT GCN – DESCRIPTION OF FACTORS FOR ASSESSMENT</b>	
<b>HS1 - Geographic Location</b>	Based on known distribution of great crested newts, Gloucestershire is located within Zone A and has a high probability of the presence of great crested newts within each 10km square.
<b>HS2 - Pond Area</b>	Pond area is a determinant of the magnitude of biological productivity of the pond ecosystem upon which the newt population depends. Ponds between 500 and 750m <sup>2</sup> provide the optimal size but small ponds under 50m <sup>2</sup> are given a nominal value.
<b>HS3 - Pond Permanence</b>	Pond permanence is essential to permit the completion of metamorphosis in any given year. However, intermittent (every few years) drying out may be beneficial in excluding fish populations. The optimum drying out frequency is assumed to be one in every three to four years.
<b>HS4 - Water Quality</b>	Although the adult great crested newt is relatively tolerant of eutrophic conditions, the larvae are more vulnerable and require reasonably well aerated water with a number of aquatic invertebrates.
<b>HS5 - Pond Shading</b>	Shade counteracts the growth of macrophytes and the benefits they provide. Additionally, heavy tree cover increases the organic content through leaf fall potentially causing eutrophication. Great crested newts tend to favour ponds with a shade cover of between 0% and 60%.
<b>HS6 - Waterfowl</b>	Common waterfowl in naturally occurring numbers have little effect on great crested newt populations, however if at high artificial numbers due to supplementary feeding they can seriously damage the habitat.
<b>HS7 - Fish</b>	The effect of fish on newt populations varies across species and ponds. However, in general the presence of fish species is detrimental to newt populations. In particular the stickleback has a very serious impact, through predation and competition.
<b>HS8 - Pond density</b>	A network of suitable ponds within a landscape increase the chances of great crested newts in an area, through the metapopulation processes of recolonisations from surrounding ponds if any one population becomes extinct.
<b>HS9 - Proportion of 'Newt Friendly' Habitat</b>	The habitat occupied by crested newts is highly variable and we do not understand the species' detailed requirements at different phases of their life on land. However, scrub, unimproved grassland, woodland and gardens are regarded as newt friendly habitat, unlike improved pasture, arable and urban habitats. Additionally, features such as ditches and hedges enhance the habitat suitability of any site. Features such as roads and rivers form serious barriers dependent on width and flow of traffic and water. Such barriers cause issues with direct mortality but also through their impact on metapopulation dynamics.
<b>HS10 - Macrophyte Content</b>	Macrophytes are important for newts as they provide habitat for their prey organisms, provide cover from predators and a substrate for egg attachment.

### Habitat Suitability Index Results for the ornamental pond on Site

Habitat Suitability Index	Factor	Value	Rating for Index
HS1	Geographic Location	1.00	<i>Excellent</i>
HS2	Pond Area	0.10	<i>Poor</i>
HS3	Drying out frequency	0.90	<i>Excellent</i>
HS4	Water Quality	0.33	<i>Poor</i>
HS5	Shade	1.00	<i>Excellent</i>
HS6	Fowl	1.00	<i>Excellent</i>
HS7	Fish	1.00	<i>Excellent</i>
HS8	Pond Count	0.70	<i>Good</i>
HS9	Terrestrial habitat	0.33	<i>Poor</i>
HS10	Macrophytes	0.50	<i>Below Average</i>
<b>Overall HSI Value</b>		<b>0.57</b>	<b>Below Average</b>

The graph below is reproduced from the ARG-UK Advice Note 5 and shows the predicted presence of great crested newts in relation to the Habitat Suitability Index value.





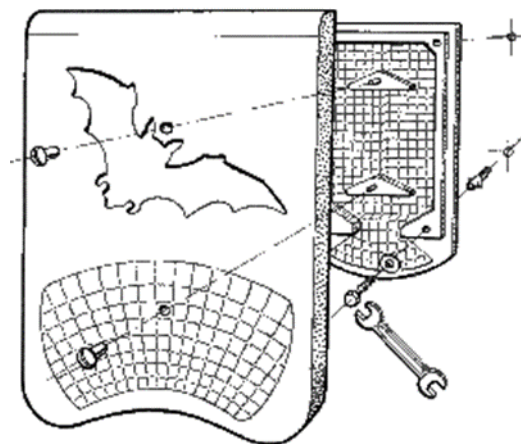
## Appendix 4: Ecological Enhancements

### BAT ROOSTING FEATURES

#### Schwegler 1FF Bat Box



#### Schwegler 1WQ Summer & Winter Bat Box



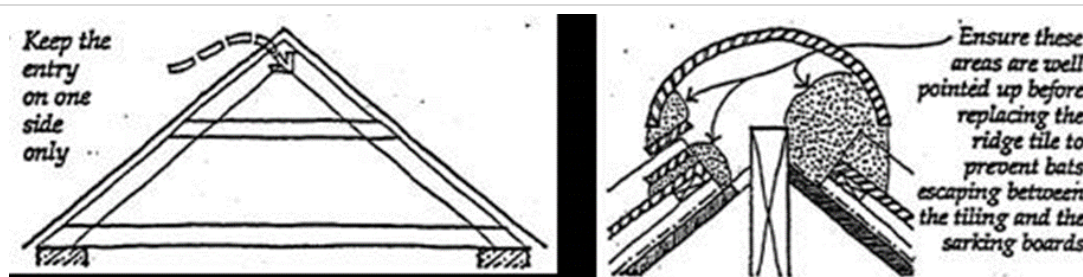
### Habibat 001 Bat Box – integral bat box, fitted into wall



### Schwegler 2FN Bat Box - for installation in trees



**Diagrammatic view of ridge tile and cross section through ridge tile** showing access point (taken from Scottish Natural Heritage 1996). Bitumastic lining must be used near/on the ridge beam to ensure bats can only have contact with this type of membrane to avoid any possible entanglement with a breathable membrane.



**BIRD BOXES**

**Various designs of swift boxes**



**Swift Brick**



**Swallow Cup**



**Hole-fronted bird box (for trees)**



**Open-fronted bird box (for trees)**



**House Martin Terrace Box**







Many wildlife species benefit greatly from considerate planting choices that still meet our practical and aesthetic needs. Plants and trees provide food for wildlife as well as places to nest and rest. Vegetation providing a variety of these functions creates an environment more beneficial for wildlife.

## Non native species

Native species provide the best habitat for UK wildlife but there are also many non-native species, which are single flowering and/or provide fruits/nuts/seeds that can be used as food sources for insects, birds and small mammals. When using these non-native species in planting schemes, care should be taken to avoid invasive species such as Cotoneaster and Rhododendron. This is especially important when sites are adjacent to open countryside particularly nature reserves.



Butterfly bush

## Uses of Wildlife Planting

Wildlife value can be easily incorporated into visually pleasing and useful green areas and amenity spaces, such as borders, grass verges and tree screens.

**Attractive Borders:** Well selected decorative borders can be valuable for many insects and birds. Native plants can be mixed with single flowering ornamental species to add aesthetic interest and increase the flowering period of a planting scheme.

**Shrubs and hedges:** Native spiky species like blackthorn and hawthorn are effective barriers when used in hedges. They also provide an attractive feature at all times of year especially when in blossom and fruit. Bushy areas of foliage provide useful nesting and feeding areas for birds and small mammals, as well as foraging/commuting corridors for bats.

**Grasses mixes and verges:** Leaving uncut areas of suitable grasses provides great wildlife value and is economical to manage. Diverse grassy areas and verges also create an attractive human environment with different flowers and colours. There are a range of native grass and flower mixes for various soil types available on the market.



Wild flower grass mix





## Selecting Suitable Species

There are wildlife friendly species suitable for all situations, from fields, verges, shady corners or small gardens. Listed below are native wildlife friendly plant species organised by type and suitability for different locations.

### Large Trees

Ash *Fraxinus excelsior*  
Beech *Fagus sylvatica*  
English Elm *Ulmus procera*  
Oak *Quercus robur* or *Q. petraea*  
Small-leaved lime *Tilia cordata*  
White willow *Salix alba*  
Wild cherry *Prunus avium*



White willow

### Medium/small trees

Alder *Alnus glutinosa*  
Aspen *Populus tremula*  
Crab apple *Malus sylvestris*  
Field maple *Acer campestre*  
Holly *Ilex aquifolium*  
Rowan *Sorbus aucuparia*  
Silver birch *Betula pendula*  
Yew *Taxus baccata*



Tussocky grassland

### Native shrubs

Blackthorn *Prunus spinosa*  
Dogwood *Cornus sanguinea*  
Elder *Sambucus nigra*  
Guelder rose *Viburnum opulus*  
Hawthorn *Crataegus monogyna*  
Hazel *Corylus avellana*



Blackthorn

### Plants for shady areas

Archangel *Lamium galeobdolon*  
Betony *Stachys officinalis*  
Bluebell *Hyacinthoides non-scriptus*  
Bugle *Ajuga reptans*  
Foxglove *Digitalis purpurea*  
Ground ivy *Glechoma hederacea*  
Lily of the valley *Convallaria majalis*  
Lords-and ladies/cuckoopint *Arum maculatum*  
Nettle-leaved bellflower *Campanula trachelium*  
Primrose *Primula vulgaris*  
Sweet violet *Viola odorata*  
Wild daffodil *Narcissus pseudo-narcissus*

### Plants for marshy areas & pond edges

Bugle *Ajuga reptans*  
Hemp agrimony *Eupatorium cannabinum*  
Marsh marigold *Caltha palustris*  
Marsh woundwort *Stachys palustris*  
Meadowsweet *Filipendula ulmaria*  
Purple loosestrife *Lythrum salicaria*  
Ragged robin *Lychnis flos-cuculi*  
Water avens *Geum rivale*  
Water forget-me-not *Myosotis scorpioides*  
Water mint *Mentha aquatica*  
Water violet *Hottonia palustris*  
Yellow flag *Iris pseudacorus*



**Beneficial cultivated plants  
(generally non-natives)**

Grecian windflower *Anemone blanda*  
Angelica *Angelica archangelica*  
Aubretia *Aubretia deltoidea*  
California poppy *Eschscholtzia californica*  
Candytuft *Iberis sempervirens*  
Christmas rose *Helleborus niger*  
Cosmos *Cosmos bipinnatus*  
Evening primrose *Oenothera biennis*  
Fleabane *Erigeron spp.*  
Forget-me-not *Myosotis spp.*  
French marigold *Tagetes patula*  
Globe thistle *Echinops ritro*  
Grape hyacinth *Muscari botryodes*  
Hollyhock *Althaea rosea*  
Honesty *Lunaria rediviva*  
Ice plant *Sedum spectabile*  
Lenten rose *Helleborus orientalis*  
Tree mallow *Lavatera spp.*  
Michaelmas daisy *Aster novae-belgii*  
Mint *Mentha x rotundifolia*  
Perennial cornflower *Centaurea montana*  
Perennial sunflower *Helianthus decapetalus*  
Phlox *Phlox paniculata*  
Poached-egg plant *Limnanthes douglasii*  
Red valerian *Centranthus ruber*  
Snapdragon *Antirrhinum majus*  
Spring crocus *Crocus chrysanthus* and hybrids  
Sweet alyssum *Lobularia maritima*  
Sweet bergamot *Monarda didyma*  
Sweet William *Dianthus barbatus*  
Tobacco plant *Nicotiana affinis*  
Wallflower *Cheiranthus cheiri*  
Alpine rock-cress *Arabis alpina*  
Winter aconite *Eranthis hyemalis*  
Yellow alyssum *Alyssum saxatile*

**Native wildflowers for borders**

Agrimony *Agrimonia eupatoria*  
Betony *Stachys officinalis*  
Bluebell *Hyacinthoides non-scriptus*  
Chicory *Cichorium intybus*  
Chives *Allium schoenoprasum*  
Common poppy *Papaver rhoeas*  
Corncockle *Agrostemma githago*  
Cornflower *Centaurea cyanus*  
Corn marigold *Chrysanthemum segetum*  
Cowslip *Primula veris*  
Cuckooflower *Cardamine pratensis*  
Dame's-violet *Hesperis matronalis*  
Devil's-bit scabious *Succisa pratensis*  
Field scabious *Knautia arvensis*  
Foxglove *Digitalis purpurea*  
Goldenrod *Solidago virgaurea*  
Great mullein *Verbascum thapsus*  
Greater knapweed *Centaurea scabiosa*  
Harebell *Campanula rotundifolia*  
Herb-robert *Geranium robertianum*  
Lady's bedstraw *Galium verum*  
Marjoram *Origanum vulgare*  
Meadow cranesbill *Geranium pratense*  
Common mallow *Malva sylvestris*  
Oxeye daisy *Leucanthemum vulgare*  
Primrose *Primula vulgaris*  
Red campion *Silene dioica*  
Snowdrop *Galanthus nivalis*  
Spiked speedwell *Veronica spicata*  
Tansy *Tanacetum vulgare*  
Teasel *Dipsacus fullonum*  
Toadflax *Linaria vulgaris*  
White campion *Silene alba*  
Wild thyme *Thymus drucei*  
Yellow loosestrife *Lysimachia vulgaris*



Marjoram



Cornflower



Perennial sunflower

## Appendix 5: Ecological Experience

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### **Julia Morrison:** Ecologist, BSc (Hons) MSc

Julia has worked with Wild Service for several years and has recently gained her MSc in Applied Ecology from the University of Gloucestershire. Julia's dissertation project involved large-scale data analysis of biometric bird ringing data to assess biometric changes in UK wintering waterbirds. Julia has a keen interest in bat ecology and in addition to undertaking professional bat surveys and assessments, she has also studied bats in Ghana, West Africa. She is experienced in a range of ecological surveys including Phase 1 habitat assessments, protected species surveys, reptile surveys and translocations, great crested newt and dormouse surveys. Julia's additional skills include advanced data analysis and GIS mapping using various software packages including QGIS and ArcGIS. In addition to project delivery, she also assists with the management of Wild Service projects. Julia has also spent time volunteering on conservation projects with the Gloucestershire Bat Group and the Gloucestershire Wildlife Trust. Julia is a Qualifying member of CIEEM and holds a CSCS card. She is currently working towards her Natural England bat and great crested newt licences.

### **Elizabeth Pimley:** Head of Ecology & Principal Ecologist, BSc (Hons) PhD, CEnv MCIEEM

Elizabeth has worked in both the academic and consultancy ecology sectors since 2000 with a focus on mammalian ecology, particularly badgers, dormice, bats, water voles and otters. Elizabeth manages the Consultancy as well as being involved in project delivery. She has managed ecological projects, ranging in size and type, both in the UK and abroad. She regularly advises clients on the planning process in relation to Ecology. Elizabeth has expertise in a wide variety of ecological survey techniques including Preliminary Ecological Appraisals/Phase 1 habitat assessments and a variety of protected species surveys (e.g. the aforementioned mammal species as well as reptiles and great crested newts).

Elizabeth also devises ecological mitigation schemes, both as part of protected species mitigation licences (e.g. bats, great crested newts, badgers, dormice, water voles, otters) and

for projects not requiring licensing (e.g. reptiles). She has produced a wide variety of preliminary ecological appraisals, BREEAM/CSH Ecology Assessments, mitigation licences for protected species (including Bat Mitigation Class Licences), Ecological Impact Assessments (EclA), Construction Ecological Management plans, Habitat Regulations Assessments, Biodiversity Net Gain assessments, Biodiversity Enhancement Schemes, Ecological Design Strategies as well as writing for scientific journals, books and magazines. As a Building with Nature Assessor, Elizabeth also has expertise in providing green infrastructure advice to projects.

Elizabeth offers a scientific approach to projects with additional skills in radiotracking, bat call analysis, statistical analysis, home range and compositional habitat analysis and Geographical Information Systems (GIS) mapping. Elizabeth holds Natural England and Natural Resources Wales licences for bats and dormice as well as Natural England licences for great crested newts and water voles. She is also a Registered Consultant of the Bat Low Impact Class (BLIC) Licence and holds a CSCS card.



# Wild Service



Wildlife Trust  
Consultancies

ECOLOGICAL SERVICES  
MITIGATION  
CONSERVATION

- We provide ecological surveys and assessments, mitigation, advice and guidance regarding wildlife, plants and habitats for both development and conservation projects throughout the UK.
- Wild Service is the Ecological Consultancy for Gloucestershire Wildlife Trust. As such, the company reinvests its profits into local conservation work.
- We are also part of a wider network of Wildlife Trust Consultancies enabling us to offer national delivery with local expertise.

We offer the following types of service to clients:

Ecological Surveys  
Protected Species Licences  
Ecological Management Plans  
Biodiversity Net Gain  
Ecological Impact Assessments (EcIA)  
BREEAM Assessments  
Mitigation, Enhancement & Rewilding  
Green Infrastructure Planning (Building with Nature)  
Arboricultural Surveys  
Landscape Consultancy Services

Contact us at  
Wild Service,  
Conservation Centre  
Robinswood Hill Country Park  
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TEL: 01452 383 333; Email: [info@wildservice.net](mailto:info@wildservice.net)  
Website: <https://wildservice.net/>

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