

Preliminary Ecological Appraisal (PEA)

Of

Rookery Farm
Haughley Green
Suffolk

IP14 3RR

For

Iain Robinson

September 2023



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The authors and surveyors used to undertake the work are appropriately qualified for the tasks undertaken. The work undertaken while preparing this report has been carried out with due care, skill, and diligence.

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1. Executive Summary

1.1 Overview

DCS Ecology Ltd was commissioned by Iain Robinson, to carry out a Preliminary Ecological Appraisal (PEA), for an application for works at Rookery Farm, Haughley Green, Suffolk, IP14 3RR (central grid reference TM 03260 64554, hereby referred to as the Site).

The site is a 1.5ha (approx. 1560 square metres) agricultural barn yard complex with seven agricultural barns and Grade II listed dwelling (Rookery House).

The site is situated on the northern outskirts of Haughley Green village, approximately 6.3km north of Stowmarket and 18km east of Bury St Edmunds.

The preliminary ecological appraisal was carried out on the 25th of September 2023 by Duncan Sweeting and Gemma Kitchin (BSc Hons) of DCS Ecology Ltd, to assess the ecological value of the Site.

1.2 Results

The desk study found country wildlife sites:

- **Designated sites:** The desk study found 1 country wildlife site within 2km of site (The Cricket CWS 76). The risk of impact on protected habitats and sites within the wider area was negligible, and further habitat surveys or consultation with Natural England regarding impacts on designated site was considered necessary.
- **Bats:** Records of common pipistrelle and brown long-eared bats were retrieved within 2km of site, none of which concerned rare species or high status roosts. One building onsite was assessed as high bat roost potential, one moderate, one low and five negligible. Several trees onsite contained bat roost features. There was potential for foraging and commuting bats to utilise site.
- **Birds-** Multiple buildings onsite contained bird nests, and vegetation such as dense scrub and trees provided good nesting, roosting and foraging habitat for birds. No rare bird species were seen onsite. Grassland areas onsite had been maintained at a short height, and were considered too exposed for skylark (*Alauda arvensis*).
- **Amphibians** (including great crested newts). Two ponds were present onsite, one of which was dry, and the second had the potential to be used by great crested newts, although the pond was shaded and isolated via short grassland, a Rectory Road, and arable fields. Small areas of site, including brash piles, hedgerow and dense scrub offered some foraging and sheltering potential.
- **Badgers-** No records of badgers were found within 2km of site, nor were there any signs of badgers onsite. Suitable habitat for foraging badgers (grassland, trees, etc.) was present.
- **Hedgehogs-** No signs of hedgehogs were found. Although habitat for hedgehogs existed onsite, and 39 records of hedgehogs were found within 2km of site.
- **Other** - records of brown hares and harvest mice were retrieved by SBIS, site does not offer good quality habitat for these species. There is potential for hare to traverse through site, as adjacent arable fields are suitable. No records of otter, water vole, or dormice were found within the desk study. Several protected plants and invertebrate's species were identified within the desk study, none of which were likely to be impacted by works onsite.

The habitats recorded onsite included agricultural and residential buildings, short-cut improved grassland, two ponds (one of which was dry) a dry ditch, dense scrub, ornamental shrub, trees

(predominantly deciduous) and hardstanding. Buildings, hardstanding and improved grassland were the dominant habitats.

The following recommendations are made to minimise the risk of harm to individual animals:

- **Sensitive lighting measures for bats**, and security lighting to be set on short timers to avoid disturbing nocturnal animals.
- **At least 2-3 surveys of building 3, 2 of building 7 and 1 of building 6 will be required** prior to any works to those buildings. If bats are found present, further action will be required, including the application for a bat mitigation licence (A13) or mitigation class licence (CL21) depending on findings and final proposed works.
- **Covering of excavations and/or provision of exit ramps** and safe storage of materials that may harm animals is recommended during works to prevent harm to mammals.
- **An eDNA test of pond 2** (the southern pond) will be required as a precautionary measure.
- To prevent infringing legislation which protects all nesting birds, it is recommended that **any clearance or works impacting nesting birds is carried out outside the breeding bird season** (which runs from March to September) or if not possible, following a nesting bird survey by a suitably experienced ecologist.
- Recommendations for **precautionary working methods in the form of Risk Avoidances Measures** (RAMs) Method Statement should be followed, particularly during the clearance of any sensitive areas such as brash piles, log piles or dense vegetation for birds, bats, hedgehogs and great crested newts.

2. Background to Commission

2.1 Overview

DCS Ecology Ltd was commissioned by Iain Robinson of Olde Bells Demo to carry out a Preliminary Ecological Appraisal (PEA), for a proposed development at Rookery Farm, Haughley Green, Suffolk, IP14 3RR. (central grid reference TM 03260 64554, hereby referred to as the Site).

2.2 Aims of Study

This report provides an ecological appraisal and roost assessment of the Site following the completion of a desk study and site visit. The aim of this study was to:

- Provide a description of existing habitat types;
- To determine the existence and location of any ecologically valuable areas;
- To identify the potential (or actual) presence of protected and/or notable species;
- To provide the legislative and/or policy protection afforded to any habitats present, or any species assessed as likely to be associated with the site; and
- To recommend any further ecological surveys considered necessary to inform mitigation requirements for the application within the Site.

2.3 Site Description

The site is 1.5ha (approx. 1560 square metres) barn yard complex and surrounding grassland situated immediately north of Haughley Green village, approximately 6.3km north and Stowmarket and 18km east of Bury St Edmunds (TM 03260 64554 see figure 1).

Habitats onsite consisted of buildings (including Grade II listed dwelling, cartshed and milk parlour, traditional timber barn and several modern barns), short-cut improved grassland, intact species-poor hedgerow, deciduous trees, a coniferous tree, dry ditch, two ponds (one of which was dry), dense scrub, amenity grassland, hardstanding (driveway and concrete barnyard) and ornamental shrubs.

Eleven bodies of water were identified within 250m of site, including the two ponds onsite. Further details can be found in section 5.

The wider habitat was predominantly arable fields delineated by treelines and hedgerows. Other habitats identified by Multi-Agency Geographic Information for the Countryside (MAGIC) maps included deciduous woodland, semi-improved grassland (Crickets CWS, see section 4.2), a traditional orchard 2km south, and parkland (c. 20m west of site separated by Rectory Road), all of which are BAP Priority habitats.

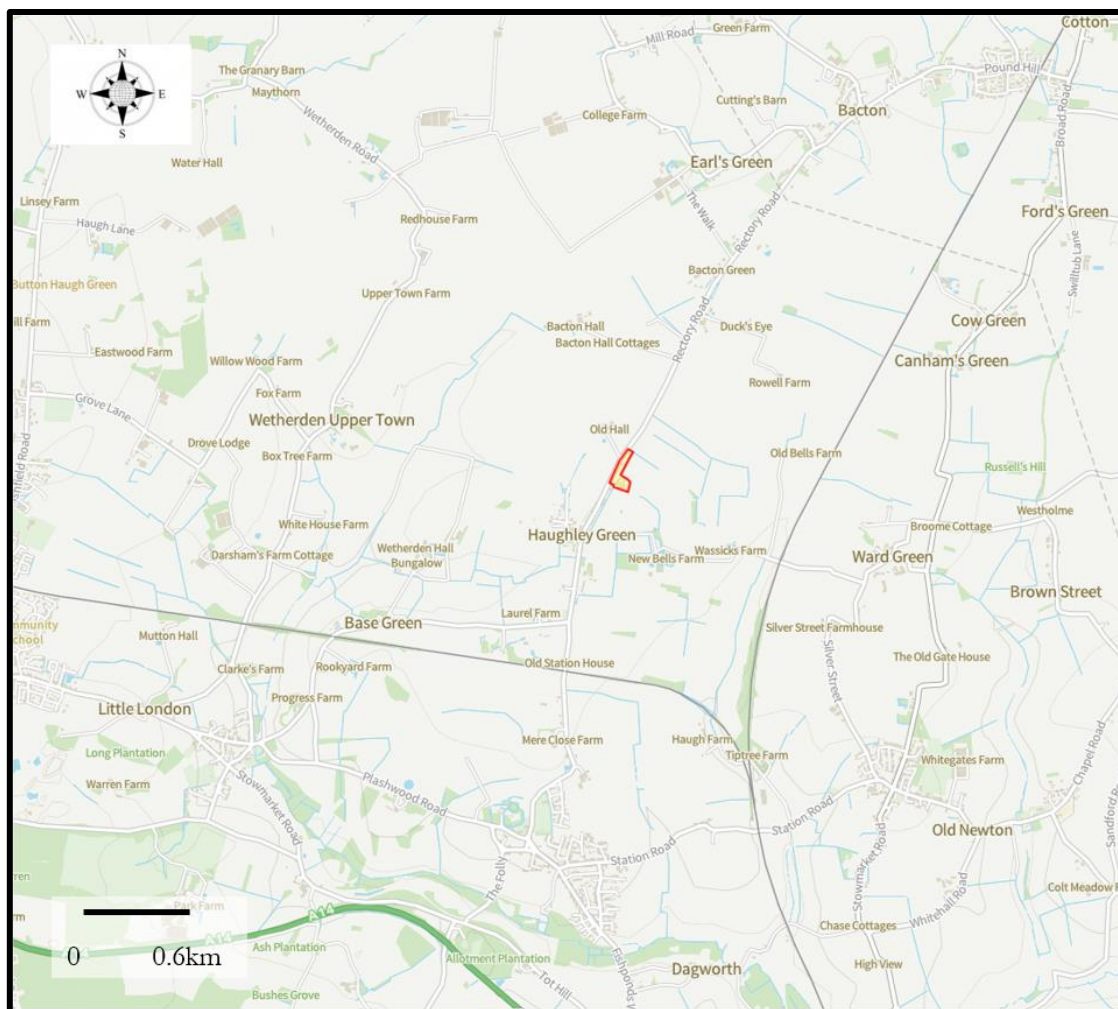


Figure 1. Site location (outlined in red). (1:25000) Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931.

2.3 Relevant Legislation

Protected species, as referred to within this report, are taken to be those protected under European Legislation (Conservation of Habitats and Species Regulations 2010, as amended) and UK legislation (Wildlife and Countryside Act 1981; Protection of Badgers Act 1992); and those of principle importance in England as listed in Section 41 of the NERC Act (2006).

The National Planning Policy Framework (NPPF) September 2023 places responsibility on Local Planning Authorities (LPAs) to aim to conserve and enhance biodiversity in and around developments. Section 40 of the NERC Act requires every public body to “have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity”. Biodiversity, as covered by the Section 40 duty, is not confined to habitats and species of principal importance but refers to all species and habitats. However, the expectation is that public bodies would refer to the Section 41 list (of species and habitats) through compliance with the Section 40 duty.

Appendix VI details legislation which protects species and groups relevant to the site (bats, reptiles, birds, and great crested newts).

3. Methods

3.1 Desk Study

Data obtained from the Suffolk (SBIS) was used to conduct a cross-county standard data search¹, for any information regarding statutory and non-statutory sites, ancient-veteran-notable trees, and records of protected and priority species within a 2km radius of the Site. The data was received on the 16th of October 2023.

A 7km radius search for European Designated Sites, including Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar's was undertaken using MAGIC (<http://www.natureonthemap.naturalengland.org.uk/>). Past and current EPS licences and GCN pond survey results within a 7km radius were searched for using MAGIC on 29th September 2023.

3.2 Field Survey

A Preliminary Ecological Appraisal was carried out by Duncan Sweeting LCG (Natural England Great Crested Newt Class Survey Licence WML-CL08; Natural England Bat Class Survey Licence WML-CL18, Natural England Barn Owl Survey Licence WML-CLS29) and Gemma Kitchin (BSc Hons) on the 25th of September 2023 in accordance with standard best practice methodology for Phase 1 Habitat Surveys set out by the JNCC (2010). Weather conditions during the survey were relatively clear (50% cloud cover), gentle breeze (Beaufort scale 3) and a temperature of 17.8°C, with good visibility. The Site was traversed slowly by the surveyor, mapping habitats, and making

¹ The standard data search identifies designated sites including:- Ramsar; Special Areas of Conservation; Special Protection Areas; Sites of Special Scientific Interest; National Nature Reserves; Local Nature Reserves; County Wildlife Sites; Regionally Important Geological Sites; Ancient Woodland; and protected and priority species identified by the:- Wildlife & Countryside Act 1981 Schedules 1, 5 & 8; Conservation of Habitats & Species Regulations 2010 Schedules 2 & 5; Protection of Badgers Act 1992; Bonn Convention Appendix 1 & 2; Bern Convention Annex 1 & 2; Birds Directive Annex 1; Habitats Directive Annex 2, 4 & 5; NERC Act 2006 Section 41; UKBAP (both local and national); IUCN Red List species; Red & Amber Bird List; Nationally Scarce / Rare; Locally Scarce / Rare; and Veteran trees.

notes on dominant flora and fauna within the site. The survey was extended to identify the presence of invasive species and included an assessment of the potential for the habitats in and around the site to support protected species.

3.3 *Survey Limitations*

No survey limitations were noted.

4. Results

The following section details the results of the desk study and field survey. Consideration has been given to species likely to be found in the habitats recorded on site and potential impacts to designated sites within the local area. Several protected species have been ‘scoped out’ of the report, as the Site was not considered suitable to support them. Species scoped out were water voles, otters, and dormice.

Maps illustrating the following data are included in Appendix IV.

4.1 *Data Search*

The data search showed records of protected species in the area, which could potentially occur on the Site. These are detailed within the relevant sections below (section 5).

4.2 *Designated Sites Data*

The data search produced the following results:

No European designated sites (SACs, SPAs or RAMSARs) or AONBs were identified within 10km of site.

A single Country Wildlife Site (CWS) was located within 2km of site:

- **THE CRICKET.** CWS 75. Located 247m south-west of site. 1.81 ha.
Key habitats / species / features: Good quality semi-improved grassland and rare plants.
Citation: The Cricket is an area of semi-natural habitat owned by Haughley Parish Council which is used for informal recreation and adopted as a parish nature reserve. The site consists of two plant communities; About one third of the site (to the west) consists of a mosaic of wet grassland, bramble and scrub. This area includes shallow hollows which are seasonally wet and two ponds. The pond in the south west corner supports great crested newt (biodiversity priority and protected species). The areas of wet grassland include typical plant species such as greater bird's-foot trefoil, gypsywort and fen bedstraw. The remainder of the site is composed of dried unimproved lowland hay grassland/meadow (biodiversity priority habitat). Species here include ox-eye daisy, pepper saxifrage, adder's tongue fern and spiny restharrow. Green-winged orchid and adder's-tongue fern have also been recorded. A small part of the site is used as a children's play area and is regularly mown. The majority of the boundaries of the site are comprised of mature native hedgerows.

No other national / local conservation sites (such as NNRs, SSSIs or LNRs) were identified within 2km of site.

4.3 MAGIC Map Data

Table 1: MAGIC map system EPS licence applications within a 7km radius (see map in Appendix IV)

Case reference of granted application	Species on the licence	Damage/ destruction of breeding site	Damage/ destruction of a resting place	Grid Ref	Nearest Location
2017-29138-EPS-AD2	GCN	N	Y	TL96736241	Woolpit
2017-29138-EPS-AD2-1	GCN	N	Y	TL96736241	Woolpit
2017-29138-EPS-AD2-2	GCN	N	Y	TL96736241	Woolpit
2017-29138-EPS-AD2-3	GCN	N	Y	TL96736241	Woolpit
2017-31568-EPS-MIT	Great crested newt	N	Y	TL99906310	Little London
2018-38137-EPS-MIT	Brown long-eared bat Common pipistrelle Soprano pipistrelle	N	Y	TL99125712	Mill Green
2020-48909-EPS-MIT	GCN	N	Y	TM03306741	Wywerstone
2019-41083-EPS MIT	GCN	N	Y	TM05846896	Finningham
2019- 43795-EPS-MIT	GCN	N	Y	TM04806699	Bacton
2018-38218-EPS-MIT	GCN	N	Y	TM03035946	One House
2019-410340-EPS-MIT	Bat, Barb, BLE, C Pip, S Pip,	N	Y	TM11825541	Coddenham Green
2015-12116-EPS-MIT	Bat, BLE, S Pip	N	Y	TM06786791	Cotton
2018-33915-EPS-MIT	Bat, C pip, Nat	N	Y	TM00486711	Wyverstone
2019- 39654-EPS-MIT	Bat, C Pip, S Pip, Daub	N	Y	TM09996174	Middlewood Green.

The MAGIC data search returned 14 records of past and current EPS licences, 44 great crested newt (*Triturus cristatus* or GCN) licence returns and 8 GCN survey licence records. Including common pipistrelle, soprano pipistrelle, barbastrelle, Daubenton's, Natterer's and brown long-eared. The nearest record to site was an EPS license granted in 2018 that granted the destruction for a resting place for GCN in Bacton, 3.0km north-east of site (2019- 43795-EPS-MIT).

No ancient / veteran / notable trees or TPOs were present onsite. The nearest tree with veteran or other status was an ancient Pedunculate Oak *Quercus robur* known as 'Haughly Oak' 497m south-east of site, notable for having a girth of 11m. In total, 33 trees within 2km of site contained veteran/ ancient/notable status, the majority of which were veteran oaks that lined an arable field c1.5km west of site. Field maple *Acer campestre*, an ash *Fraxinus excelsior* and a willow *Salix*.

Ancient trees, due to decay and biological damage from age, typically have more natural features (such as welds, trunk cavities, hollows, rot holes, bark crevices, cracks, fissures, and woodpecker holes) that could provide highly preferable roosting opportunities for bats. Both trees are over 1km away from site.

4.4 **Field Survey Results**

Habitats onsite consisted of buildings (including Grade II listed dwelling, cartshed and milk parlour, traditional timber barn and several modern barns), short-cut improved grassland, intact species-poor hedgerow, deciduous trees, a coniferous tree, dry ditch, two ponds (one of which was dry), dense scrub, amenity grassland, hardstanding (driveway and concrete barnyard) and ornamental shrubs.

The surroundings were predominantly arable fields. The only difference within the wider area to what was previously observed during the desk study was the development of two new residential homes (an extension of Haughley Green village) immediately south of site, which was originally c.0.12ha of grassland 1-3 years prior.

Surrounding the buildings to the east and west was improved grassland which had been mowed and maintained at a short sward height. Two ponds were present, onsite, one of which was dry and shaded out by dense scrub (pond 1) and a second that was dominated by reeds (*Phragmites australis*) and partially shaded by dense scrub and immature trees. A species poor intact hedgerow comprised of species such as a sycamore (*Acer pseudoplatanus*) and blackthorn (*Prunus spinosa*).

Plant species recorded included Stinging Nettle (*Urtica dioica*), Common Ash (*Fraxinus excelsior*), Bramble (*Rubus fruticosus*), Rose-bay willow herb (*Chamaenerion angustifolium*), Timothy grass (*Phleum pratense*), Oak (*Quercus* spp.), Snowberry (*Symphoricarpos albus*), Field maple (*Acer campestre*) Ground Ivy (*Glechoma hederacea*) and Common Fleabane (*Pulicaria dysenterica*) among others.

More details and target notes can be found in appendix I and II.

5. Protected and Priority Species Within the Site

Flora

The SBIS desk study highlighted three species of plants within a 2km radius:

- Fine-leaved Water-dropwort *Oenanthe aquatica*, found in 2019. 630m south of site. Fine-leaved dropwort had no listed protections
- Bee Orchid *Ophrys apifera*, a single record from 2021 833m north-west of site.
- Shepherd's-needle *Scandix pecten-veneris*, recorded in 2005 676m south-east of site, which is listed as 'Endangered' on the England Red List, Section 41 of the NERC agreement, and UK Biodiversity Action Plan Priority Species.

No uncommon, rare, or protected plant species were recorded during the survey.

A full list of plants can be found in the Appendices.

Badgers

The site was visually searched for evidence of the presence of badgers (*Meles meles*), including setts, footprints, latrines, and snuffle marks, of which none was found. Improved grassland, hedgerows, and scrub along pond margins created potential foraging opportunities for local badger

populations, particularly along the northern section of site. Sheep-grazed parkland with rough grassland and scattered trees 133m north-east of site provided ideal badger foraging habitat within close proximity to Rookery Farm, and deciduous woodland c. 444m south-east of site with connecting vegetated field margins provided sheltering opportunities for badgers. The majority of the surrounding area was intensively farmed arable fields with little other woodland in the surrounding area, which limits the overall suitability of the wider area to moderate.

No records of badgers were retrieved from within 2km of site.

Bats

The site was checked for signs of bats which included, urine stains, droppings, cracks and crevices with smooth rubbing or stain marks, feeding signs or living or dead animals. Any potential roost features were noted and are discussed below.

Overall buildings onsite were assessed as having the following potential for bats:

- Building 1- Negligible potential
- Building 2- Negligible potential
- Building 3 (Traditional barn in centre)- **High potential**
- Building 4 -Negligible potential
- Building 5 (Milking parlour)– Negligible potential
- Building 6- Low potential
- Building 7 (House)- **Moderate potential.**
- Building 8- Negligible potential

A building reference map can be found in appendix IV, and more details on building descriptions and findings can be found in target notes.

A dead tree with no bark or leaves (but likely oak due to girth) and popular *Populus* sp. tree on the south-western section of site contained potential bat roost features (PRFs), and would require further inspection (such as tree climbing survey or bat activity survey). Further detail can be found in target notes (Appendix I)

Foraging potential for bats was low within the central barn yard area, which was built-up and lacked areas of vegetation to support invertebrates, and moderate in the other habitats to the east and west (including improved grassland with areas of scrub, trees and two ponds. Borderline hedgerow and treelines connected to intact treelines along field margins provided good commuting opportunities, particularly to grassland and scattered trees 133m north-east of site and deciduous woodland c. 444m south-east of site.

A bat roost inspection and three bat emergence surveys were undertaken of Walnut Tree Manor located c.600m south of site (Skilled Ecology Ltd.,2015), for planning application 2278/15. The findings found approximately 100-200 bat droppings within the Manor loftspace. The bat droppings were predicted to be brown long-eared. No bats were recorded emerging during surveys.

The SBIS data search returned seven records of bats within 2km of the site, including 2 of common pipistrelle *Pipistrellus pipistrellus*, two of brown long-eared bats *Plecotus auratus* and three unidentified. Neither common pipistrelle or brown long-eared bats are considered 'rare' on a local or national scale. One record was located 500 south-west of site in Haughley Green, and the remainder were all over 1.5km from site.

Fungi

No records of fungi were listed in the data search, and no rare fungi were found on site.

Great Crested Newts

The majority of site was either hardstanding, buildings, or short improved grassland, and did not offer substantial great crested newt (GCN) (*Triturus cristatus*), foraging habitat. Connectivity to surrounding habitats was poor, as the site was surrounded by intensive arable fields and Rectory Road (the main road between the villages Haughley and Bacton) on all sides.

There were, however, several areas of suitable habitat for supporting hibernating and sheltering amphibians onsite, namely brash piles adjacent to pond 2 and building 4, and areas of dense scrub, particularly bramble (*Rubus fruticosus*) that provided cover for amphibians. Most significantly, there were two ponds present onsite, discussed below.

There were eleven ponds / bodies of still water identified using MAGIC maps and OS maps within a 250m radius of site:

- **Pond 1 – Onsite.** This pond was severely desiccated and only moist mud surrounded by marginal vegetation remained. The pond was shaded which will lower the water temperature and limit the potential rate of invertebrate, plant and amphibian growth in the pond. Given that it was dry, a Habitat Suitability Index (HSI) was not deemed necessary.
- **Pond 2 – Onsite.** Pond 2 is located immediately west of building 2 on the south-west region of site. The pond was a suitable size for great crested newts (c.150m²) and contained submerged vegetation that provided potential egg-laying locations. The pond was shaded, however, and in its current condition, provided only sub-optimal breeding habitat for GCN.
- **Pond 3 –** Located approx. 180m to the south of site. Along a tree-line bordering an arable field. When following the distance along treelines and hedgerows (which is a far more likely route than directly to site), the distance to site increases to 750m, or 300m with an 8m exposed gap. No access was available for the survey.
- **Pond 4 –** Located approx. 220m south-west of site on The Crickets CWS. No access was available for this pond, but it was noted to be adjacent to good quality semi-improved grassland, scrub and a small area of woodland. These were good foraging locations for GCN, and any GCN using Pond 4 would likely utilise these habitats rather than travel over a field and road to access site.
- **Pond 5 –** Located approx. 80m to the west of site. Along field margin. No access was available for this pond while surveying.
- **Pond 6 –** Located approx. 250m to the south-west of site. No access was available for this pond while surveying.
- **Pond 7 –** A wet drainage ditch located approx.220m west of site. No access was available for this pond while surveying.
- **Pond 8 –** Located approx. 190m to the west of site. Within tree plantation. No access was available for this pond while surveying.
- **Pond 9 –** Located approx. 200m to the east of site. Within tree plantation. No access was available for this pond while surveying.
- **Pond 10-** Located approx. 200m north-east of site. Within sheep-grazed field.
- **Pond 11-** Ditch running along the eastern edge of the northern section of site. Found to be dry at the time of surveying, and filled with leaf litter. Given its current state, it likely became dry or too low to support GCN before the GCN breeding season had ended.

There was a single record of GCN retrieved in the SBIS data, located in an “ancient and restored pond” 515m south-west of site beyond Haughley Green village. Connectivity between this the pond associated with this record was poor and more promising habitats for terrestrial foraging than site could be found closer to the record.

A GCN pond survey conducted c. 600m south of site by Skilled Ecology Ltd (2015) found a pond no GCN discovered during surveys, and stated the pond had a HSI reading of ‘below average’.

The likelihood of great crested newts being active on site during terrestrial phases is considered to be low due to habitat isolation, but as potential breeding, foraging, and sheltering habitat exists onsite an eDNA survey of Pond 2 is recommended as a precautionary measure. If results return positive, further survey work will likely be required.

Hedgehogs

The Site contained sections of habitats suitable for hedgehogs, particularly along marginal areas (with deciduous trees and hedgerow), grassland, and areas of dense scrub around the ponds onsite. Brush piles and log piles onsite offered good sheltering and hibernation opportunities for hedgehogs.

The data search returned 39 records of hedgehog within 2km of the Site, the nearest of which being 429m south of site near New Bells Road.

Reptiles

Small areas of site were suitable for common reptile species, such as common lizards (*Zootoca vivipara*), grass snakes (*Natrix helvetica*) and slowworms (*Anguis fragilis*). Suitable habitats included brush piles, dense scrub surrounding ponds, ponds (preferred by grass snake, which predate amphibians), hedgerow and log piles and dense scrub, which provided sheltering, basking and foraging opportunities. Suitable habitats were limited to site boundaries and small pockets which were surrounded by short grass, however, and in its current state, would only provide sub-optimal habitat for reptiles. Additionally, the site was surrounded by arable field and Rectory Road, which isolated site from surrounding habitats.

The majority of potential habitat was situated on the western half of site; the eastern half was predominantly a barn yard complex with little vegetation.

There was no evidence of reptiles on the site, no droppings, sloughs or reptiles.

No records of reptiles were retrieved during the desk study.

Birds

Species seen onsite at the time of the survey include, pied wagtail (*Motacilla alba*), Blackbird (*Turdus merula*), green woodpecker (*Picus viridis*) and Eurasian blue tit (*Cyanistes caeruleus*) among others (for a list of species seen during the survey see appendix III).

A dead tree located west of Building 6 contained a hole with potential to be used by owls, such as barn owls (*Tyto alba*). No owl pellets were observed on the ground surrounding the tree. No evidence of owls using the agricultural barns onsite was found, although multiple barns had open access that created opportunities for roosting or nesting owls, and a record of barn owl retrieved from SBIS was found 336m south-west of site (on Crickets CWS).

Several inactive nests were noted in buildings 3,4,6 and 7, although all buildings onsite contained niches that could be occupied by birds. Trees, dense scrub, ornamental planting, and hedgerow surrounding site had the potential for nesting birds, and provided good foraging habitat as well.

For a full list of bird species of conservation concern returned in the SBIS data search, please see Appendix V

Invertebrates

Habitats within the Site, such as dense scrub, trees, hedgerow and grassland, were suitable for supporting assemblages of common terrestrial invertebrates.

The log piles and some mature trees onsite contained standing deadwood that provided potential habitat for saproxylic invertebrates – those dependent on dead or decaying wood. Log piles were present within building 1 onsite, although deadwood within the canopy, providing

The wet pond onsite is likely to provide good habitat for aquatic larvae, although it was partially shaded by scrub and trees and heavily dominated by reeds (*Phragmites australis*), rather than having a more varied range of microhabitats that may support a greater variety of invertebrates.

No rare invertebrates or habitats likely to support rare invertebrates were found onsite, and further invertebrate surveys are not considered necessary.

The desk study highlighted two invertebrates that have been previously recorded within 2km of the Site, which was a small heath butterfly *Coenonympha pamphilus pamphilus*, and cinnabar moth *Tyria jacobaeae*, both of which are protected under Section 41 of the NERC Act and UK Biodiversity Action Plan (UKBAP).

Other Protected Species

In regards to other protected species, there were four records of harvest mouse and three records of brown hare (*Lepus europaeus*) returned within the data search. Habitats onsite are sub-optimal for harvest mice, which prefer open grassland with greater height than that onsite, to provide cover and allow the building of nests. Habitats onsite were similarly sub-optimal for hare, although the adjacent habitats to site had open access to fields, ponds, and trees that may offer habitat for brown hares.

6. Potential Impacts and Obligatory Recommendations

6.1 *Statutory Designated Areas*

The impact of proposed activities on Sites of Special Scientific Interest (SSSIs) are assessed using Impact Risk Zones (IRZs), which establish buffer zones around each site which reflect the particular sensitivities of designated sites and indicate the types of development proposal which could potentially have adverse impacts. If the developed is assessed as having a “likely significant effect” any European statutory designated area, then the project will require a HRA (Habitat Risk Assessment) to be undertaken as stated in The Conservation of Habitats and Species Regulations 2010 (as amended).

The Site falls within the Impact Risk Zone (IRZ) of Gipping Woods SSSI (4.5km east) which, at this distance, require further consultation with Natural England regarding aviation proposals and planning proposals which contain over 500m² livestock & poultry unit floorspace, over 750m² of slurry lagoons & digestate stores and/or manure stores that produce over 3500t, none of which apply to site. **Therefore, the risk of impact to designated sites is low will not require a HRA or other pre-development consultation with Natural England** regarding potential impacts on these designated areas.

6.2 *Flora and Habitats*

Proposed works will include converting / restoring / refurbishing buildings onsite, which were predominantly buildings and hardstanding with no observed rare habitats that might provide niches for rare plants. Improved grassland onsite was mowed and contained poor plant species diversity.

Only three plant species were identified during the desk study, none of which were located in close proximity (within 500m) of site.

Present plans to not include the felling of mature trees along the boundaries of site. However, if the finalised development application is to include the felling of any trees, then under The Forestry Act 1967, all trees over 8cm in diameter will require a felling licence prior to removal, unless it is in the interest of health and safety. This is required if over 5 cubic metres (m³) of growing trees are to be felled.

Further botanical survey is not considered necessary; however, any mature trees within close proximity of the Site should be suitably protected from harm following guidance set out in BS5837 (2012). This is likely to include a Root Protection Area (RPA) buffer zone around retained trees to prevent damage to roots from heavy machinery.

6.3 Protected Species

Badgers

Habitats onsite, particularly improved grassland, trees, and scrub, contained potential badger foraging habitat, albeit sub-optimal. No badger setts, latrines, or other signs were noted on or adjacent to site, and no records of badgers were retrieved within 2km of site. **Consequently, a further survey work regarding badgers was not deemed necessary.**

However, as habitats onsite and habitats in the wider area provide suitable foraging habitat for badgers and smaller mammals, and hedgehogs have been recorded in the local area, construction works should have implemented several precautionary measures, including the following:

- Safe storage of materials that may harm animals; and
- If external lighting is to be used, lights should be set on short timers to avoid disturbing nocturnal animals using the Site and immediate surrounding area.

Bats

Structures onsite assessed for roost suitability included mature trees and seven barns and a disused dwelling. Three buildings onsite received a bat roost potential rating of low-high, all other buildings were negligible potential. Several dead standing trees and a sycamore tree adjacent to pond 2 contained bat roost features. Physical signs of bats in the form of droppings and rub marks / stains were found within building 3.

Foraging potential onsite was moderate due to small areas of good foraging habitats (ponds, trees etc.), and wider areas of poor-to-moderate foraging habitat (hardstanding-improved grassland). An area of parkland (specifically rough grassland grazed by sheep with scattered trees) beyond the road north-west of site offered a larger area of good foraging habitat for bats.

Commuting potential onsite and within the wider area was good, as surrounding fields were delineated by tree lines and hedgerow.

Prior to works, further survey work will be required of the following structures:

- Building 1- Negligible potential – no surveys
- Building 2- Negligible potential- no surveys
- Building 3 (Traditional barn in centre)- **High potential. 2-3 surveys required.**
- Building 4 -Negligible potential
- Building 5 (Milking parlour)– Negligible potential
- Building 6 (Cartshed)- **Low potential – A single survey required.**
- Building 7 (House)- **Moderate potential 1-2 surveys required.**
- Building 8- Negligible potential
- Trees: Sycamore tree west of pond 2, large dead tree stump adjacent to access road, and two dead trees, likely poplar north of building 8 should undergo either a tree inspection and / or bat activity surveys if they are to be felled to determine whether bats are present. If not, a suitable buffer zone should be put in place to protect the tree from damage and bats within from disturbance. Please refer to section 6.2 on recommendations for retained trees.

As habitats onsite had potential for roosting, foraging, and commuting bats, sensitive lighting is recommended throughout the development and should follow guidance provided by the Bat Conservation Trust (Bats and Artificial Lighting at Night, 2023), to ensure foraging and commuting bats using adjacent habitats are not negatively impacted. Lighting measures should also be applied to temporary security lighting used during the construction phase. This could include low pressure sodium lamps, with hoods, cowls or shields, to prevent light spillage. More detailed advice can be provided from a suitable experienced bat ecologist.

Birds

A number of species with the potential to nest within, or near to, the site boundary were recorded during the survey and highlighted within the desk study (see Appendices III and IV). These included BoCC red listed, UKBAP priority species, and those listed under Section 41 of the NERC Act. Several of the buildings onsite also contained evidence of nesting birds from previous seasons.

Any building demolition or clearance should be carried out outside the breeding bird season, which runs from 1st March to 15th September (species dependant) or following a nesting bird survey by a suitably experienced ecologist – to prevent infringing legislation which protects all nesting birds. In addition, the works of stripping / removing any buildings should be done under a Risk Avoidance Measures (RAMs) Method Statement and under the supervision of a suitability experienced ecologist clerk of works.

Great Crested Newts

Due to the presence of suitable terrestrial habitat and potential breeding ponds on the site, it is **recommended that an eDNA survey is carried out of Pond 2**, which involves taking water samples and sending these samples off for analysis. If the results show absence, then no further survey would be necessary. However, should the results show presence, then full surveys would be required to determine a population. Full surveys would involve four to six survey visits carried out from mid-March to mid-June, with half of the visits taking place between mid-April and mid-May. Should presence be confirmed within the initial four surveys, an additional two surveys are necessary to provide an accurate population estimate.

Hedgehogs

Further surveys are not considered necessary, however, as there are nearby records of this species, and small areas of habitats on site that were suitable, any potential nesting habitat (brash piles, wood piles etc.) should be removed outside the hibernation period (which is November to March) or under supervision of an ecologist. In addition, any construction work should follow recommendations set out for badgers, to minimise the risk of harm to foraging hedgehogs.

Any fencing that may be added should allow the movement of hedgehogs throughout the Site post development.

Reptiles

The project will not include the loss of small areas of suitable reptile habitat – sheltering and hibernation opportunities. It was considered highly unlikely that reptiles would use these habitats onsite for sheltering or hibernation, **and so no further survey is required.**

Invertebrates

The Site contained little to no habitat for small assemblages of common invertebrates and was not considered suitable for supporting the rare/protected species highlighted within the desk study. **Therefore, further invertebrate surveys are not considered necessary.**

Other Protected Species

No further survey is required, as the habitat types and overall size of each habitat would be unlikely to significantly impacted any protected species.

7. Enhancement recommendations

The Natural Environment and Rural Communities Act 2006 (NERC), Section 40, established that all public bodies have a duty to conserve, restore, or otherwise enhance a population of a particular species or habitat:

Section 40 (A1)²

- “For the purposes of this section “the general biodiversity objective” is the conservation and enhancement of biodiversity in England through the exercise of functions in relation to England.”

Section 40 (1)

- “A public authority which has any functions exercisable in relation to England must from time to time consider what action the authority can properly take, consistently with the proper exercise of its functions, to further the general biodiversity objective.”

Section 40 (3)

- “The action which may be taken by the authority to further the general biodiversity objective includes, in particular, action taken for the purpose of—

(a)conserving, restoring or otherwise enhancing a population of a particular species, and

(b)conserving, restoring or otherwise enhancing a particular type of habitat.”

Therefore, enhancement opportunities are encouraged in order to change the overall net biodiversity impact of the development from minor-adverse neutral to neutral / minor positive.

² This includes recent amendments to the Act under the Environment Act 2021, which extended the definition of general biodiversity objective to include biodiversity enhancement as opposed to solely biodiversity conservation.

Bats

A bat box, such as Eco Kent bat boxes and woodstone general purpose bat boxes (or similar) would increase roosting opportunities for bats within the Site. Exact models and locations should be determined by a suitably experienced ecologist.

Birds

Bird boxes are highly advised, such as Robin FSC Nest Box or WoodStone Seville Box erected on boundary trees in appropriate locations would provide additional nesting opportunities for local bird populations and replace those lost after development.

Precise locations of bird boxes should be decided by a suitably experienced ecologist at the time of erection to ensure an optimal situation and reduce the effect of changing environmental conditions at the Site in the meantime.

Ponds

Pond 1 (the northern pond) should be dredged to restore depth and potential to contain water. The vegetation along the southern bank south be cleared to allow greater light exposure to the pond. If final plans are to remove pond 1 or pond 2, this must be replaced with a similarly sized pond and planted with a mixture of marginal plants (such as Marsh marigold *Caltha palustris*), shallow plants (such as water forget-me-not *Myosotis scorpioides*), and oxygenating plants (such as hornwort *Ceratophyllum demersum*). Water depth should vary to allow a variety of environmental conditions and microhabitats to form.

Hedgerow planting

Any hedgerow lost must be replaced plus 10% additional hedgerow for enhancement (at least 1.1m for every 1m lost). New hedgerow must comprise of native mixed species such as Hawthorn (*Craetagus monogyna*), Blackthorn (*Prunus spinosa*) or dog rose (*Rosa cania*).

Hedgehogs and other small mammals

No evidence of small mammals including hedgehogs was found on site. However, as suitable habitat, such as shrub, brash piles, and log piles exist onsite, hedgehog nesting box has been recommended.

Other protected species

Rare and/or protected invertebrates, reptiles and mammals were considered unlikely to be present onsite, and no further enhancement is necessary.

8. Conclusions

The preliminary ecological appraisal found the Site to contain minimal habitats suitable for supporting protected species – namely bats, great crested newts, small mammals and birds. Buildings onsite varied from negligible bat roost potential to high bat roost potential, and several trees west of the buildings contained features with bat roost potential. Two ponds were identified onsite, one dry and one which contained good potential for GCN.

The following recommendations are made to minimise the risk of harm to individual animals:

- **Sensitive lighting measures for bats**, and security lighting to be set on short timers to avoid disturbing nocturnal animals.
- **At least 2-3 Bat emergence surveys of building 3, 2 of building 7 and 1 of building 6 will be required** prior to any works to those buildings. If bats are found present, further action will be required, including the application for a bat mitigation licence (A13) depending on findings and final proposed works.
- Covering of excavations and/or provision of exit ramps and safe storage of materials that may harm animals is recommended during works to prevent harm to mammals.
- **An eDNA test or a presence or absence survey for GCN** of pond 2 (the southern pond) will be required as a precautionary measure.
- To prevent infringing legislation which protects all nesting birds, it is recommended that **any clearance or works impacting nesting birds is carried out outside the breeding bird season** (which runs from March to September) or if not possible, following a nesting bird survey by a suitably experienced ecologist.
- Recommendations for **precautionary working methods in the form of Risk Avoidances Measures (RAMs)** Method Statement should be followed, particularly during the clearance of any sensitive areas such as brash piles, log piles or dense vegetation for birds (including barn owls), bats, hedgehogs and great crested newts.

It is unlikely that the proposed development would cause a significant long or short-term impact to the conservation status of protected species in the area or to the conservation sites in the surrounding area, but sensitive planning may increase species because of the habitat enhancements.

Any short-term impacts to species populations or individuals would have been minimised through the incorporation of the above recommendation prior to, and during renovations.

Biodiversity Enhancements (post construction)

Enhancement features, such as bat boxes (such as Eco Kent bat boxes and bat tubes), bird boxes, hedgehog boxes, and pond maintenance and /or creation could be incorporated into the final designs and therefore provide additional breeding, and sheltering opportunities for a range of wildlife depending on data from phase two surveys .

9. Validation

Table 3. Validity duration of the data.

Information Source	Date Undertaken	Valid Until	Comments
PEA	September 2023	September 2025 (2 years)	No further surveys will be required however, pond 2 will require an eDNA test for great crested newts, and bat surveys must be undertaken prior to works commencing.

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<http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>

11. Appendices

Appendix I: Table 4 target notes

Photos	Target Notes
	<p>Bat roost features within trees</p> <p>Dead tree stem close to the driveway along to the west of site (possibly oak). Features including lifted bark, woodpecker holes and other crevices that had bat roost potential were noted.</p>



Dead trees (likely Poplar *Populus* sp.) along a treeline containing poplar tree north of the buildings. Multiple cavities and tearouts were noted, which may be used by roosting bats. Standing deadwood is also beneficial to saproxylic (deadwood-eating) invertebrates, such as the greater stag beetle (*Lucanus cervus*), which are in decline due to the loss of dead wood habitat.




Dead trees north-west of pond 2 that contained knot holes with potential for bats. Another cavity, pictured bottom left, was large enough to have potential for owls, such as Tawny owl (*Strix aluco*) or barn owl (*Tyto alba*). A knot hole protruding from a cedar tree (bottom right) was also noted close to the Rookery house garden area.



Pond 1

Pond 1 was the northernmost of the two ponds located onsite, and was dry at the time of surveying. There was slight moisture within the mud, although it was noted that there had been recent rainfall.

The pond was heavily shaded and surrounded by mowed improved grass (which would expose amphibians to predators and may act as a passive deterrent). In its current state, was unlikely to

	<p>provide potential breeding habitat for great crested newts.</p> <p>A muntjac deer was spotted emerging from the dense scrub surrounding the pond.</p> <p>Good nesting and foraging opportunities were available for birds within dense scrub surrounding pond 1.</p>
	<p>Pond 2</p> <p>Pond 2 is located immediately west of building 2 on the south-west region of site.</p> <p>The pond was a suitable size for great crested newts (c.150m²) and contained submerged vegetation that provided potential egg-laying locations. The pond was shaded, however, and in its current condition, provided only sub-optimal breeding habitat for GCN.</p>



Mole hills found within the northern grassland section of site.



The improved grassland was mowed and lacked structural or species diversity that would have allow a greater assemblage of invertebrates and other wildlife to colonise.

Evidence of wildlife such as moles (*Talpa talpa*) was noted however, and short grass provides good foraging habitat for some bird species such as blackbird (*Turdus merula*)



Building 1

Building 1 was an open Dutch barn consisting of concrete corrugated roofing and steel frames with a concrete base, located to the south of site. The barn lacked crevices or voids suitable for bats, and the absence of walls exposed the barn to light, wind and rain.

Negligible potential for bats.

A log pile within building 1 offered potential shelter for small mammals, such as hedgehogs.



Building 2

Building 2 was an agricultural barn on the south-west of site consisting of breezeblock walls, corrugated concrete sheets and metal framing. The building was constructed of a single layer of materials that lacked cavities.

The building lacked any roof void, gaps, holes, or cracks within the breezeblock that may provide roosting opportunities for bats.

The doorway was open access, which created sub-optimal opportunities for birds to nest along ledges on the steel frames, although no nests were found.

Overall, **building 2 possessed negligible bat roost potential** due to lack of roosting feature and inadequate protection from light exposure and heat fluctuations.

PIR 500W floodlights were noted on the building exterior (bright lighting risks discouraging bats from an area).



Building 3 (traditional barn)

Building 3 was a traditional timber framed barn in the centre of the barn yard complex. It consisted of corrugated sheet roofing, a Red Suffolk brick base, timber framing and walls consisting of a mixture of weatherboarding and cob blocks covered in bituminous paint. Modern UVPC cladding had been added to the fascias.

A number of potential roosting features (PRFs) were present internally, particularly timber joints such as mortice and tenon joints.

Bat droppings indicative of pipistrelle bats (*Pipistrellus* sp.) were noted scattered evenly along the floor. There were no observed accumulations to suggest a large roost such as a maternity roost. Several droppings were fresh (some had physical dark and moist appearance, and the floor had been swept previously suggesting that all bat droppings found were from recent months).

The barn was divided into a southern section that lacked a roof void and a smaller northern section containing a roof void, as well as two single-storey lean-tos to the west. Evidence of bats was found in both the north and south sections.

Ingress points were noted via warped weatherboarding panels, gaps under the eaves, and broken off / damaged weather boards and cob blocks.

Overall, the barn possessed high bat roost potential due to a high number of roosting opportunities, signs present and suitable environmental conditions for supporting bat roosts.

Light rub marks were noticed within a gap in one of the joints on the western elevation (the dark patch in the hole in the photo to left). Rub marks are oily stains left by bats at roost ingress and egress points, and indicate this to be a potential bat roost.



Several wood pigeon nests were identified along the internal southern elevation, western dormer entrance, and northern section. Deceased pigeons were found within a pile of swept debris.

A cluster of hoverflies (Syrphidae family, possibly *Cheilosia illustrata*) was sheltering within a mortice hole.

Holes and broken off chunks of cob blocks along the western elevation created potential habitat for invertebrates, particularly hymenopterans (wasps and bees)



Some gaps between the corrugated sheets created additional roosting opportunities for bats.



Building 4

Building 4 was a modern agricultural barn on the north-eastern corner of site composed of a metallic base, steel frame, and concrete corrugated roofing sheets.

Internally, a birds nest could be partially seen upon a steel ledge on the southern elevation, and cat (*Felis catus*) paw prints and scat were seen along the eastern elevation. No other observations were noted.

The western elevation was open-fronted and the building lacked a roof void creating a light and airy internal environment.

No signs of bats or potential bat roost features were noted, and the building was assessed as being negligible potential for bats.

At the external south-east corner, a rubble pile of bricks, chunks of concrete, stones and breeze block were deposited. Given the adequate light exposure, this had potential for sheltering amphibians and sheltering/ basking reptiles.



Building 5

Building 5 (also known as the milking parlour) was to the west of site immediately north of building 2.

Composed of coated metal and steel frames. Building 5 contained a translucent ceiling window that allowed light ingress into the building. No gaps, holes, crevices, or other potential features for bats were noted, nor were any signs of bats, birds, or other wildlife. It was considered to have **negligible bat roost potential** due to the building's physical properties, lack of potential roosting locations, light and airy internal environment and lack to signs of bats.



Building 6

Building 6 (the cartshed) was a single storey barn with Flemish bond brick, concrete corrugated sheets supported by timber beams and loose wooden soffit boards. Internally the building was plastered and painted.

Building 6 contained a northern and southern section. The northern section contained an open sided wall (potentially for vehicular access in past). Timber beams were tight-fitting with no potential roosting opportunities

The southern section had access opportunities for bats in the form of a gaps above the doorway, holes in the brickwork and paneless windows allowed potential access points for bats. A translucent corrugated plastic sheet and paneless window created light ingress.



The southern section contained an enclosed roof void which could not be accessed.

Roof sheets were plastered in the southern section but exposed bare in the northern section.

Five bird nests along ledges in the southern section (see left) and within wide cracks in the brickwork and upon timber beams in the northern section (see below left), one of which shared characteristics with robin (*Erithacus rubecula*).

Rodent droppings were found in low numbers.

The cracks were too wide to provide suitable bat roosts, and several passed through to the external side creating further light ingress.

No signs of bats were found. However, the loft space which could not be accessed was likely of greater potential for bats due to being dark and secluded. **The building was assessed as having low bat roost potential.**

The bottom-left section of the door had broken off, allowing small and medium-small mammals an access point.



Building 7

Building 7 (Rookery House) is a c17th century Grade II listed Farmhouse. Plaster walls with roman and ridge roof tiles were noted at the time of surveying. UVPC cladding covered the green painted weatherboarding on the gables and gable end fascias, and green painted corrugated metal covered the east-wing doorway porch.

A heritage statement from the historic England official list entry describes the house as being once thatched, and having the shaft rebuilt c. 20th century and a clasped purlin roof.

The building was three storeys (ground floor, first floor, and second floor which was divided into two loft rooms and a tank room).

No signs of bats, bat roost features or other signs of wildlife were found within the first two floors, although there were asbestos tiles noted on the ground floor.

Rooms on the second floor had had the eaves area and apex sealed off, creating a squarer room with isolated void spaces above the eaves and under the apex. Rooms varied between being completely lath and plastered / boarded in some areas, and having pieces of plaster / boards missing in others.

Missing plaster in the lath and plaster ceilings created access points between the loft rooms and apex, and some loose-fitting roman tiles above allowed potential access for bats (see left).

The loft rooms received light ingress from curtainless windows (as can be seen in the photos above to the left), while negative-space areas near the eaves and apex were comparatively dimmer, although the lack of a roof membrane reduced areas that bats could cling to, risked greater exposure to the elements, and removed a potential roosting opportunity for bats.

No signs of bat droppings or other signs of bats were noted, and timber joints were comparative modern given the age of the building (roof was rebuilt in 20th century), which contained tight-fitting joints with no gaps.

No lead flashing was noted around the chimneys which have been known through previous



experience to be potential bat roost locations. However, there were small areas of lead flashing along the hipped corners or dormers on the southern elevation, and in places had become lifted (see below left). Several loose / lifted tiles were also noted.

Overall, the house was considered to have moderate potential for bats.



Building 8

Building 8 is a modern agricultural barn made of similar structural materials to building 4 (metal base with corrugated concrete sheets covering the upper walls and roof area and steel framing), although it lacked an open sided elevation.

Translucent corrugated roof panel allowed some light ingress into internal areas.

No bat roost features or signs of bats were noted internally or externally, and **building 8 was considered to have negligible bat roost potential.**

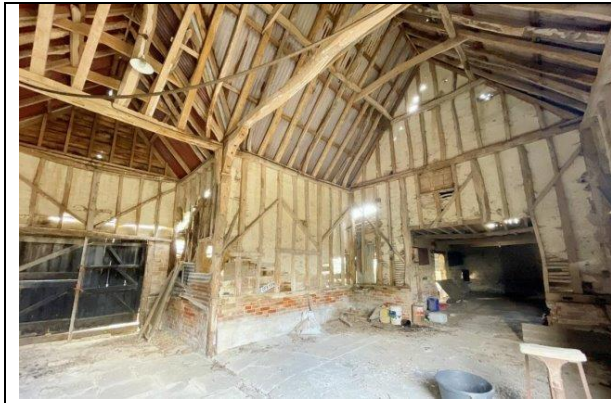
Small mammal burrows / digs were observed along the eastern edge of the building.

Adjacent features were a line of poplar trees (*Populus* sp.) and a brush pile (that offered potential habitat for hedgehogs, birds, and reptiles).

Appendix II: Site Photos

Table 5: Site photos

	
<p>Aerial view of site.</p>	<p>Photo of pied wagtail <i>Motacilla alba</i>, seen onsite.</p>
	
<p>Building 2- southern and eastern elevations</p>	<p>Building 2- southern elevation.</p>
	
<p>Building 3 (traditional barn), southern and eastern elevations. Rookery House (building 7) in distance to right.</p>	<p>Building 3, western elevation. Building 1 in background.</p>



Building 3 from south-east corner.



Building 6, southern and eastern elevations



Area north of traditional barn (building 3). Building 6 is visible centre and building 7 is to right of image.



Western elevation of building 7 west wing.







Pond 2 from north, facing south, crowded by trees.



Pond 2 (left) from south and building 2 (right).



<p>Northern end of site, looking south onto improved grass.</p>	<p>Central area of barn yard, with buildings 2, 5 and 6 to left, building 3 (traditional barn) to right and dwelling directly ahead.</p>
	
<p>Rookery House (Building 7) and west wing garden area from north-west. A 3rd brash pile was present within the west wing garden area.</p>	<p>Barn 1 to right, arable fields in background adjacent to site.</p>
	
<p>Southern and eastern elevations of building 7 west wing.</p>	<p>Barn 3 internal, showing southern elevation (left) and entrance to northern section facing north.</p>

Appendix III: Species Lists

Species List		
Group	Common name/s	Latin name
Plants	Apple tree	<i>Malus sp.</i>
	Bindweed	<i>Convolvulus</i>
	Blackthorn	<i>Prunus spinosa</i>
	Bracken	<i>Pteridium</i>
	Bramble	<i>Rubus fruticosus</i>
	Bristly ox-tongue	<i>Picris echioides</i>

	Broadleaf plantain/ greater plantain	<i>Plantago major</i>
	Butter-dock/ broad-leaved dock	<i>Rumex obtusifolius</i>
	Crane's bill	<i>Geranium spp.</i>
	Common ash	<i>Fraxinus excelsior</i>
	Common daisy	<i>Bellis perennis</i>
	Common dandelion	<i>Taraxacum officinale</i>
	Common Fleabane	<i>Pulicaria dysenterica</i>
	Common ivy	<i>Hedera helix</i>
	Cow parsley	<i>Anthriscus sylvestris</i>
	Dog Rose	<i>Rosa canina</i>
	English Elm	<i>Ulmus minor</i>
	English Oak / Common Oak / Pedunculate Oak	<i>Quercus robur</i>
	Field Maple	<i>Acer campestre</i>
	Fruit tree	<i>Prunus sp.</i>
	Ground ivy	<i>Glechoma hederacea</i>
	Hawthorn	<i>Crataegus monogyna</i>
	Milk thistle	<i>Silybum marianum</i>
	Perennial rye grass	<i>Lolium perenne</i>
	Poplar	<i>Populus sp.</i>
	Red dead nettle	<i>Lamium purpureum</i>
	Rose bay Willow herb	<i>Chamaenerion angustifolium</i>
	Sedge	<i>Carex sp.</i>
	Snow berry	<i>Symphoricarpos albus</i>
	Speedwell	<i>Veronica spp.</i>
	Stinging nettle / Common nettle	<i>Urtica dioica</i>
	Sycamore maple	<i>Acer pseudoplatanus</i>
	Timothy grass	<i>Phleum pratense</i>
	White clover	<i>Trifolium repens</i>
	White dead nettle	<i>Lamium album</i>
Birds	Blackbird	<i>Turdus merula</i>
	Eurasian blue tit	<i>Cyanistes caeruleus</i>
	Green woodpecker	<i>Picus viridis</i>
	Wood pigeon	<i>Columba palumbus</i>
	Pied wagtail	<i>Motacilla alba</i>
Mammals	European rabbit (droppings and digs)	<i>Oryctolagus cuniculus</i>
	Bats (signs (droppings)only)	<i>Chiroptera spp.</i>
	Brown rat	<i>Rattus norvegicus</i>
	Mole (mounds)	<i>Talpa europaea</i>
	Reeve's muntjac	<i>Muntiacus reevesi</i>
Invertebrates	Common green bottle fly	<i>Lucilia sericata</i>
	Marsh crane fly / European crane fly	<i>Tipula paludosa</i>
	Seven-spot ladybird	<i>Coccinella septempunctata</i>

Appendix IV: Figures

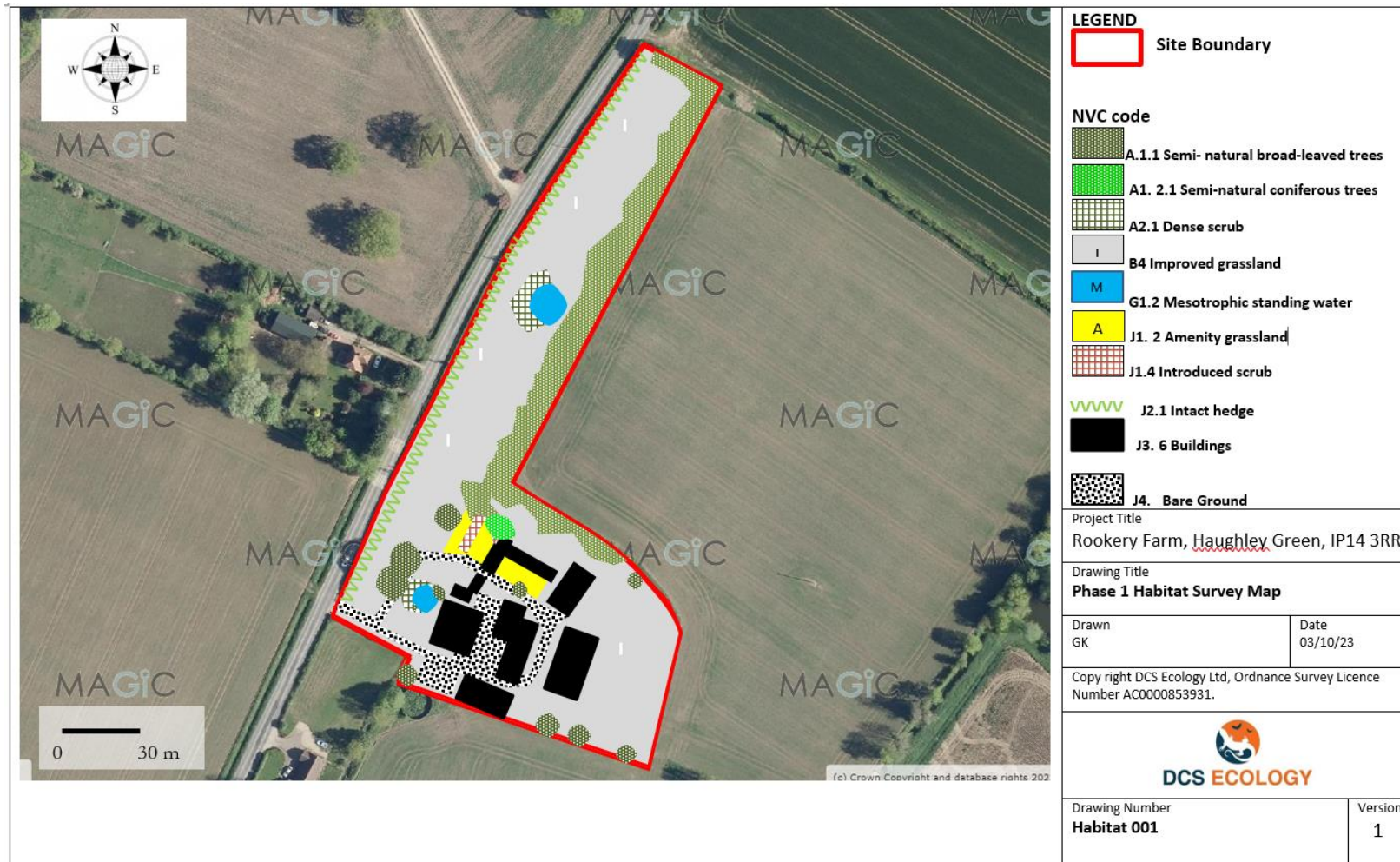


Figure 2: Phase 1 Habitat Map of Site (c) Crown Copyright under licence AC0000853931

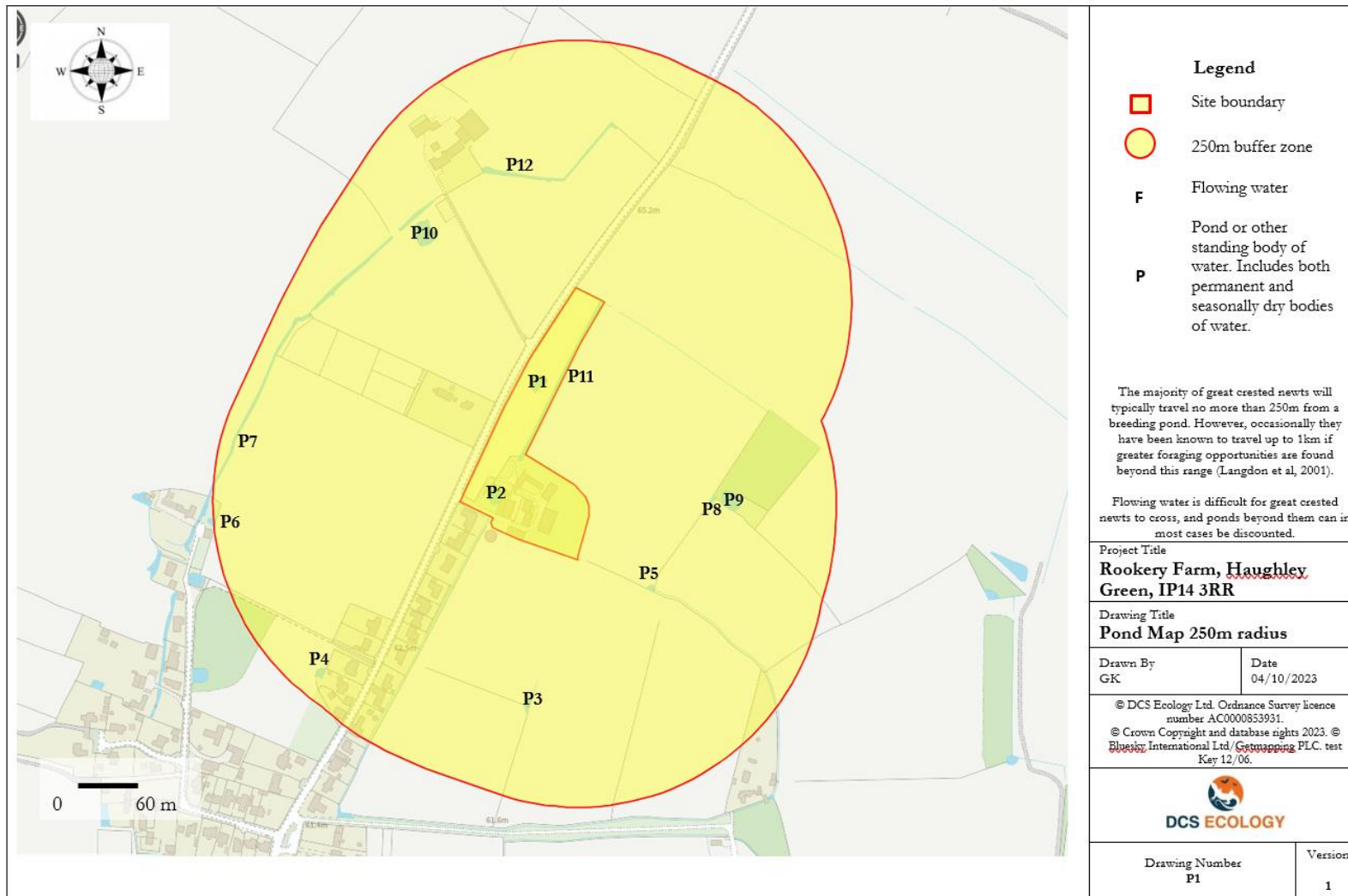


Figure 3: Pond Great Crested Newt Habitat Suitability Index Map 250m. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

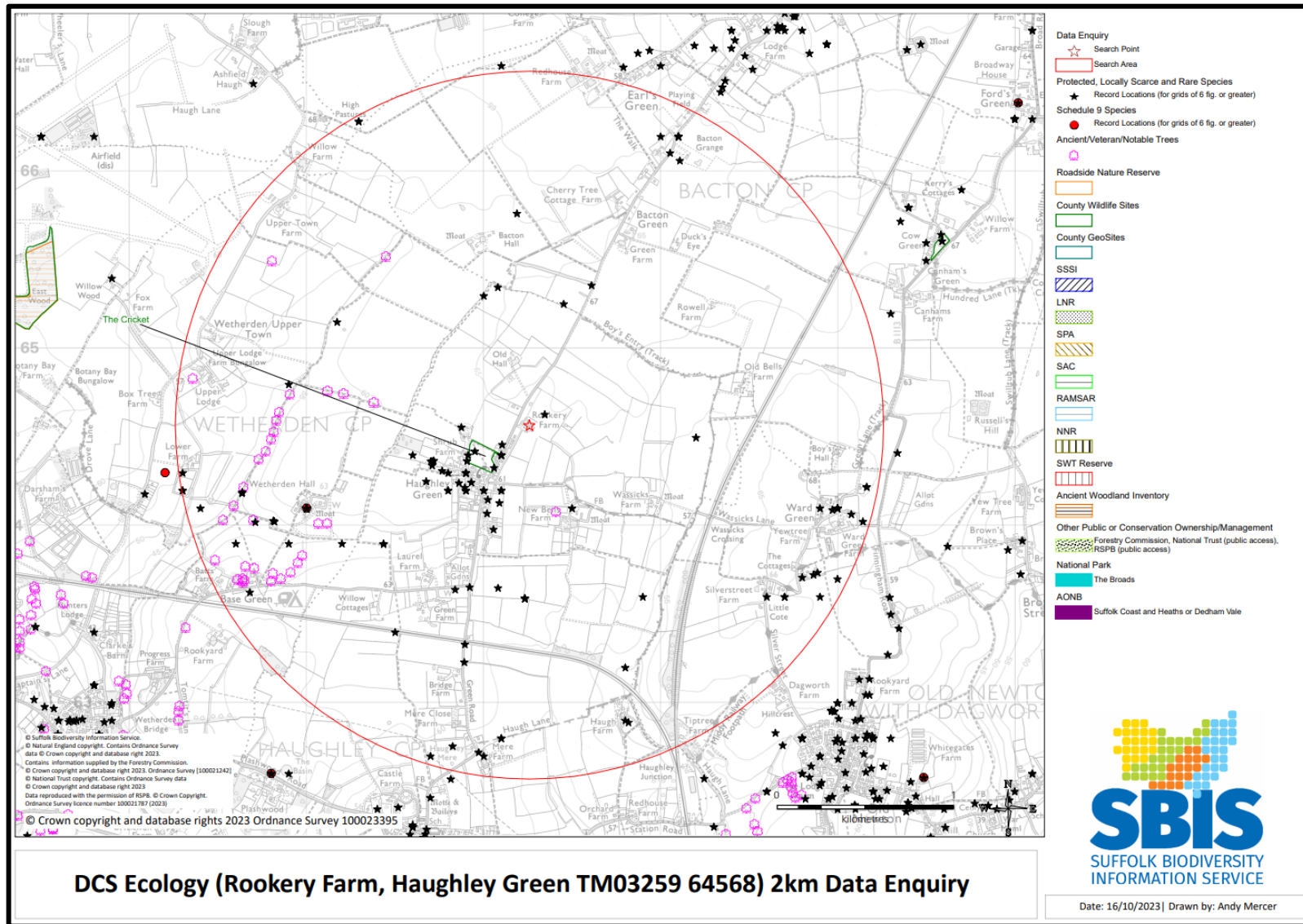


Figure 4: Protected species records, Statutory and Non-Statutory Designated Sites within 2km of the Site.

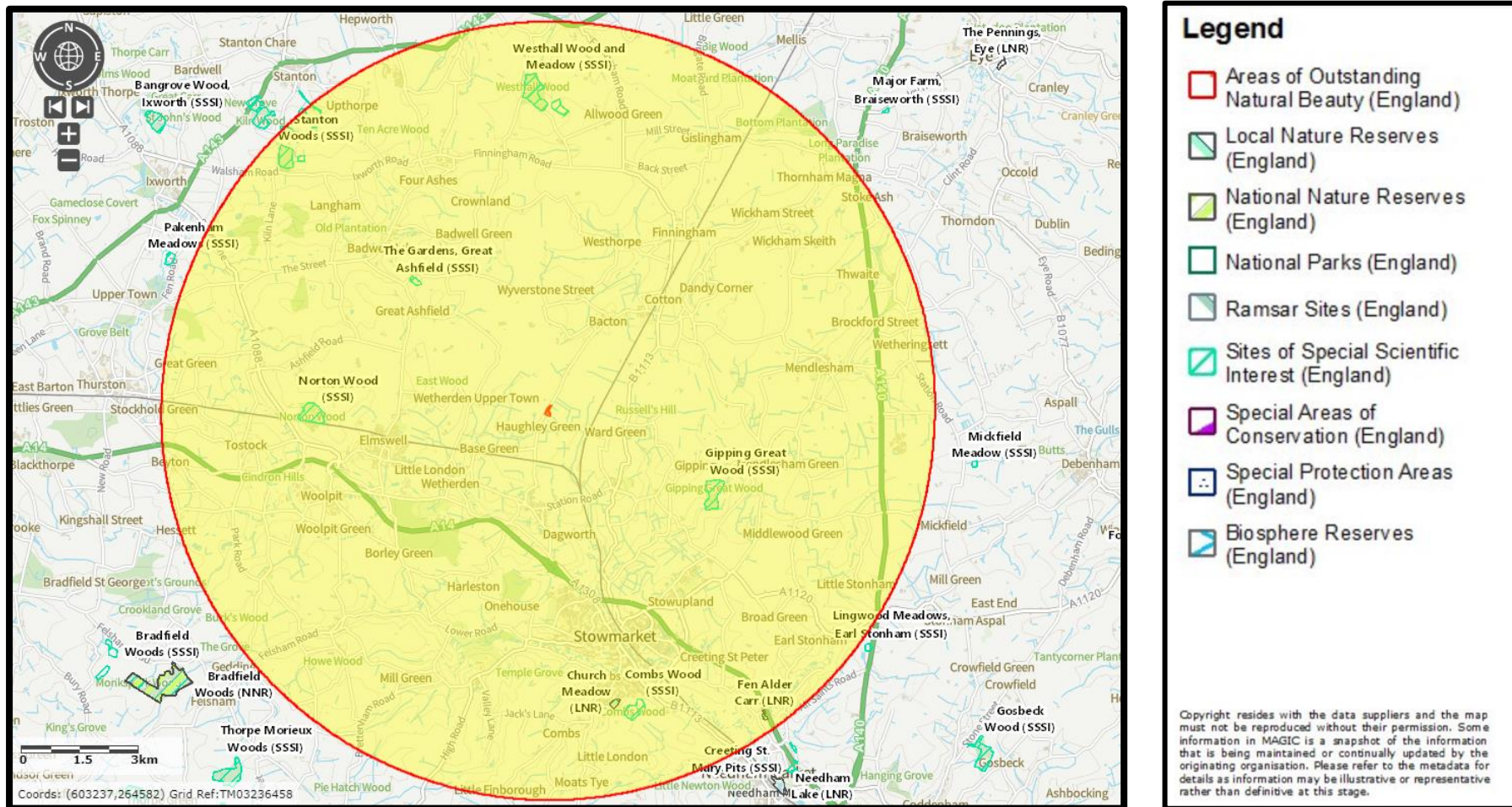


Figure 5: Statutory Conservation Sites within 10km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

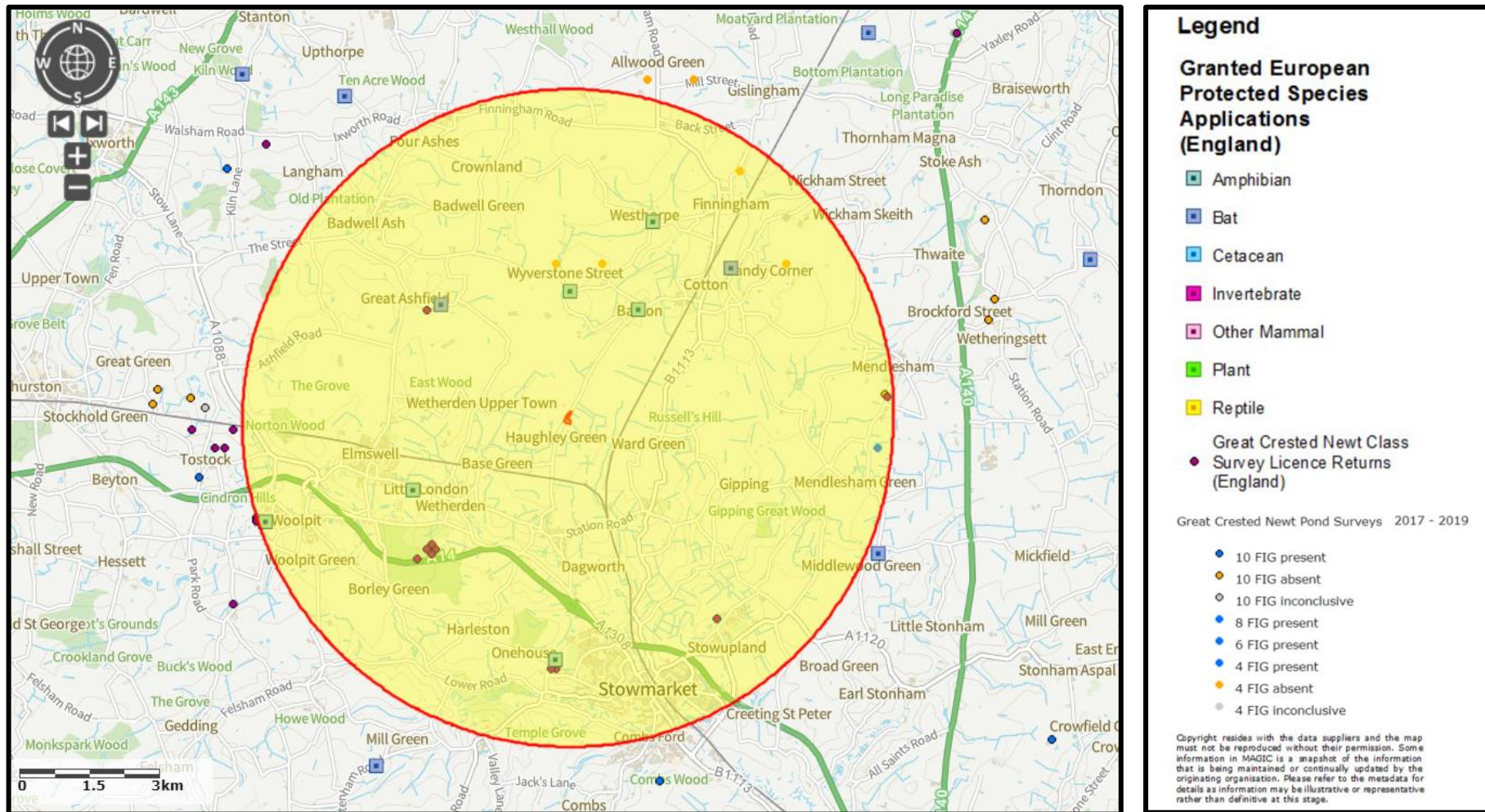


Figure 6: Protected species recorded on MAGIC within 7km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

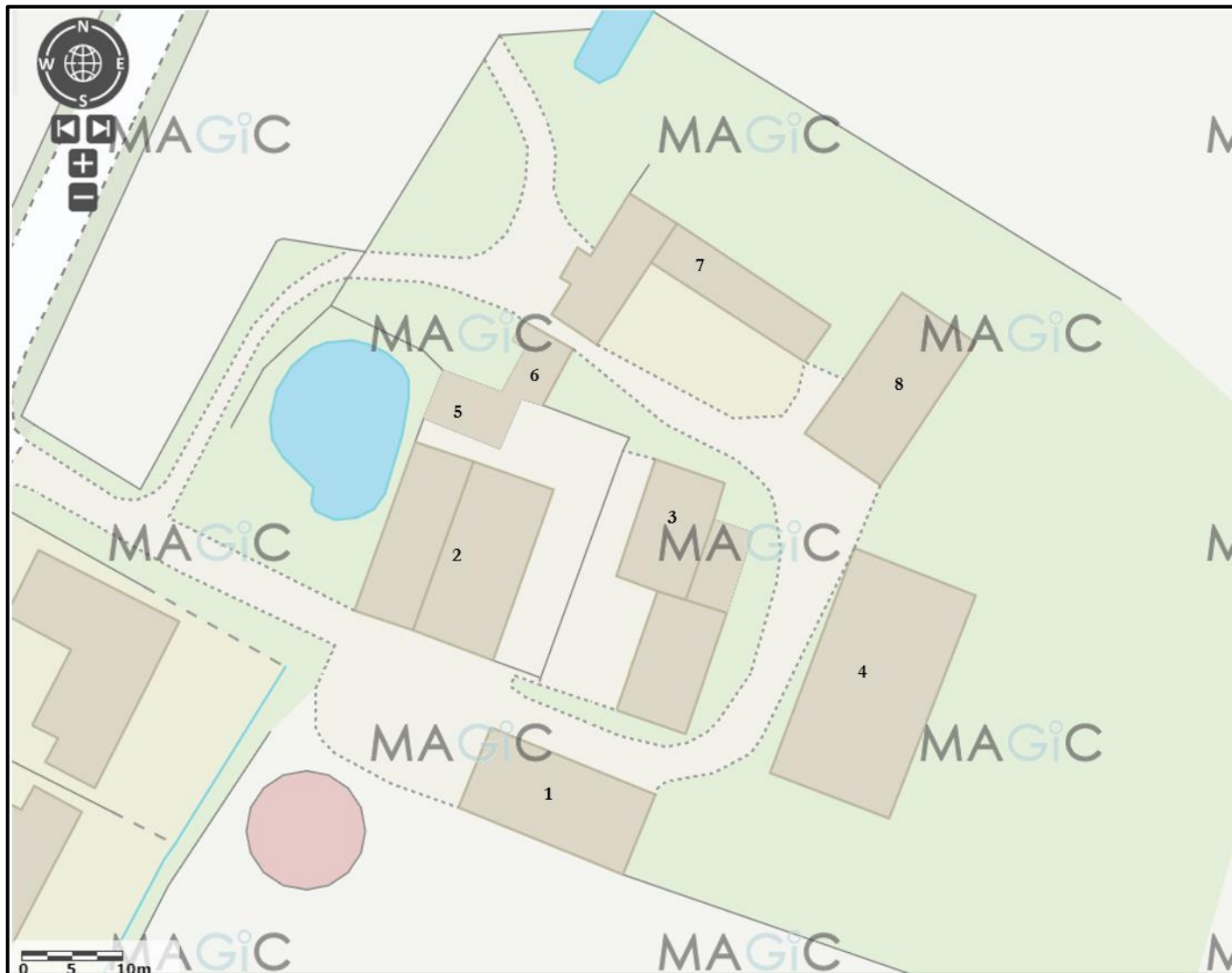


Figure 7: Building location map. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

Appendix V: Desk Study

Table 8: WCA Sch. 1, BoCC Red Listed and Priority (BAP) bird species records within 2km of the Site.

<i>Species common name</i>	<i>Latin name</i>	<i>Status</i>	<i>Most Recent Record</i>
Sparrowhawk	<i>Accipiter nisus</i>	UKBAP	2016
Skylark	<i>Alauda arvensis</i>	BoCC Red, Sect.41, UKBAP	2021
Swift	<i>Apus apus</i>	BoCC Red	2015
Greenfinch	<i>Chloris chloris</i>	BoCC Red	2011
Marsh harrier	<i>Circus aeruginosus</i>	WCA 1i	2015
Hen Harrier	<i>Circus cyaneus</i>	WCA 1i, BoCC Red, Sect. 41	2008
Cuckoo	<i>Cuculus canorus</i>	BoCC Red, S41	2017
House martin	<i>Delichon urbicum</i>	BoCC Red	2021
Lesser spotted woodpecker	<i>Dryobates minor</i>	BoCC Red, UKBAP	2011
Corn bunting	<i>Emberiza calandra</i>	BoCC Red, UKBAP	2010
Yellow hammer	<i>Emberiza citrinella</i>	BoCC Red, UKBAP; S41	2021
Reed bunting	<i>Emberiza schoeniclus</i>	UKBAP; S41	2021
Merlin	<i>Falco columbarius</i>	BoCC Red, WCA1i	2010
Hobby	<i>Falco subuteo</i>	WCA1i	2016
Herring Gull	<i>Larus argentatus</i>	BoCC Red, UKBAP	2017
Linnet	<i>Linaria cannabina</i>	BoCC Red; S41	2016
Spotted flycatcher	<i>Muscicapa striata</i>	BoCC Red, UKBAP, S41	2018
House sparrow	<i>Passer domesticus</i>	BoCC Red, UKBAP, S41	2019
Tree Sparrow	<i>Passer montanus</i>	BoCC Red, UKBAP; S41	2019
Grey partridge	<i>Perdix perdix</i>	BoCC Red; S41	2021
Willow tit	<i>Poecile montanus</i>	BoCC Red, UKBAP; S41	2015
Marsh tit	<i>Poecile palustris</i>	BoCC Red; S41	2015

Duncock	<i>Prunella modularis</i>	UKBAP	2017
Bullfinch	<i>Pyrrhula pyrrhula</i>	UKBAP	2017
Woodcock	<i>Scolopax rusticola</i>	BoCC Red	2013
Turtle dove	<i>Streptopelia turtur</i>	BoCC Red, UKBAP, S41	2021
Starling	<i>Sternus vulgaris</i>	BoCC Red, UKBAP	2021
Redwing	<i>Turdus iliacus</i>	WCA1i	2017
Songthrush	<i>Turdus philomelos</i>	BoCC Red, UKBAP, S41	2017
Fieldfare	<i>Turdus pilaris</i>	BoCC Red, WCA1i	2017
Mistle thrush	<i>Turdus viscivorus</i>	BoCC Red	2013
Barn owl	<i>Tyto alba</i>	WCA1i	2021
Lapwing	<i>Vanellus vanellus</i>	BoCC Red, UKBAP, S41	2010

Appendix VI: Relevant Protected Species Legislation

International and national legislation, and policy context.

EC Habitats Directive

In 1992 the then European Community adopted Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive. The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring member states to introduce protection for these habitats and species of European importance. The mechanism for protection is through the designation of Special Areas of Conservation (SACs), both for habitats and for certain species listed within Annex II. There are several species listed within Annex II of the Habitats Directive that are present within the UK; these include four lower plant species, nine higher plant species, six species of molluscs, six species of arthropods, eight species of fish, two species of amphibian, and nine species of mammal.

The Bern Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) came into force in 1982. The principal aims of the Convention are to ensure the conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix 3. To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2 of the Convention), and by undertaking cooperative research activities.

Convention on Biological Diversity

The Convention on Biological Diversity (Biodiversity Convention or CBD) was adopted at the Earth Summit in Rio de Janeiro and entered into force in December 1993. It was the first treaty to provide a legal framework for biodiversity conservation. Contracting Parties are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity.

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended) is the principal mechanism for the legislative protection of wildlife in Great Britain. However, it does not extend to Northern Ireland, the Channel Islands, or the Isle of Man. This legislation is how the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain.

Conservation of Habitats and Species Regulations 2010 (as amended)

In the UK the Council Directive 92/43/EEC has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended), and the Regulations (Northern Ireland) 1995 (as amended). The Regulations came into force on 30 October 1994 and have been amended several times. Subsequently the Conservation of Habitats and Species Regulations 2010 was created which consolidates all the various amendments made to the 1994 Regulations in respect of England and Wales and is commonly known as the 'the Habitats Regulations'. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland. The Regulations contain five Parts and four Schedules and provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

Table 9: Relevant Protected Species Legislation

Species	Legislation	Protection
Bats	<ul style="list-style-type: none"> ▪ Conservation of Habitats and Species Regulations (2010) (as amended) ▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended) ▪ Wild Mammals Act (1996) 	<p>It is an offence to:</p> <ul style="list-style-type: none"> ▪ Intentionally kill, injure or take any bat ▪ Intentionally or recklessly disturb a bat ▪ Intentionally or recklessly damage, destroy or obstruct access to a bat roost
Great Crested Newts	<ul style="list-style-type: none"> ▪ Conservation of Habitats and Species Regulations (2010) (as amended) ▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended) 	<p>It is an offence to:</p> <ul style="list-style-type: none"> ▪ Intentionally kill, injure or take a great crested newt ▪ Intentionally or recklessly disturb a great crested newt ▪ Intentionally or recklessly damage, destroy or obstruct access to any place used by a great crested newt for shelter or protection
Widespread Reptiles	<ul style="list-style-type: none"> ▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended) 	<p>It is an offence to:</p> <ul style="list-style-type: none"> ▪ Intentionally kill or injure a reptile. ▪ Sell, offer or expose for sale, have in possession or transport for the purpose of sale any live or dead reptile or any part of, or anything derived from, a reptile.
Birds	<ul style="list-style-type: none"> ▪ Wildlife and Countryside Act (WCA) (1981) (as amended) 	<p>It is an offence to:</p> <ul style="list-style-type: none"> ▪ Intentionally kill, injure or take any wild bird, ▪ Intentionally take, damage or destroy nests in use or being built, ▪ Intentionally take, damage or destroy eggs. <p>Species listed on Schedule 1 of the WCA (1981) are afforded additional protection, making it an offence to intentionally or recklessly disturb such species at, on or near an active nest.</p>
Badgers	<ul style="list-style-type: none"> ▪ Wildlife and Countryside Act (WCA) (1981), Schedule 5 (as amended) ▪ Protection of Badgers Act (1992) 	<p>It is an offence to:</p> <ul style="list-style-type: none"> ▪ Taking, injuring or killing badgers. ▪ Cruelty. ▪ Interfering with badger setts. ▪ Selling and possession of live badgers. <p>Marking and ringing.</p>

Appendix VII: Abbreviations

Table 10: List of abbreviations	
BAP	Biodiversity Action Plan
BCT	Bat Conservation Trust
BoCC	Birds of Conservation Concern
CHSR	Conservation of Habitats and Species Regulations 2017
CIEEM	Chartered Institute of Ecology and Environmental Management
CROW	The Countryside Rights of Way Act 2000
CWS	County Wildlife Site
ECoW	Ecological clerk of works
eDNA	Environmental DNA
EIA	Ecological Impact Assessment
EPS	European Protected Species
GCN	Great crested newt
HPI	Habitat of Principal Importance
HSI	Habitat Suitability Index
HRA	Habitat Regulations Assessment
JNCC	Joint Nature Conservation Committee
LNR	Local Nature Reserve
LPAs	Local Planning Authorities
MAGIC	Multi-Agency Geographic Information for the Countryside
NERC	Natural Environment and Rural Communities Act
NBIS	Norfolk Biodiversity Information Service
NE	Natural England
NERC	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	The National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
PRA	Preliminary Roost Assessment
PRF	Potential (bat) Roosting Feature
RAMs	Reasonable Avoidance Measures
SAC	Special Area of Conservation
SBAP	Suffolk Biodiversity Action Plan
SBIS	Suffolk Biodiversity Information Service
SPA	Special Protection Area
SSSI	Special Site of Scientific Interest
TAF	Temporary amphibian fencing
WCA	Wildlife and Countryside Act 1981 (as amended)
UKBAP	United Kingdom's Biodiversity Action Plan

Table 11: Abbreviations of bat species		
Abbreviations	Common name	Latin name
BARB	Barbastelle (bat)	<i>Barbastella barbastellus</i>
BLE	Brown long-eared (bat)	<i>Plecotus auritus</i>
CPIP	Common Pipistrelle bat	<i>Pipistrellus pipistrellus</i>
DAUB	Daubenton's bat	<i>Myotis daubentoniid</i>
LEI	Lesser noctule / Leisier's bat	<i>Nyctalus leisleri</i>
NATT	Natterer's bat	<i>Myotis nattereri</i>
NOC	Common noctule	<i>Nyctalus noctule</i>
NPIP	Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>
SERO	Serotine (bat)	<i>Eptesicus serotinus</i>
SPIP	Soprano pipistrelle (bat)	<i>Pipistrellus pygmaeus</i>

Appendix VIII: Enhancement and mitigation example designs.

Table 12: Compensation and enhancement Examples.	
	
Photo 1: Woodstone Seville Box 28-32mm Hole.	Photo 2: Woodstone multichambered bat box
	
Photo 3: Eco-Kent bat box	Photo 4: Hedgehog nesting box