

Preliminary Ecological Appraisal (PEA)

For

Nether Hall,
Pakenham,
Bury St Edmunds,
Suffolk,
IP31 2LG

For

Richard and Penny Ballard

December 2023



DCS **ECOLOGY**



M 07715345462

T 01473 621113

W dcsecology.com

E dcsecology@gmail.com

Revision	Remarks	Author	Date	Checked	Authorised
1	Draft	ET	01/12/23	DCS	
2	Final Draft	ET	06/12/23	DCS	
3	Final	ET	06/12/2023	DCS	DCS

This report has been prepared for the sole use of the commissioning party, and its contents remains the property of DCS Ecology Ltd. until payment has been received in full. This report may not be relied upon by any other party without the prior written permission of DCS Ecology Ltd. This report has been prepared in accordance with British Standards 42020:2013 and the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing and Code of Professional Conduct.

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.

© 2023 Copyright DCS Ecology Ltd. All rights reserved.

DCS Ecology Ltd. is a company registered in England. Company number: 13051825. Registered office: Kikambala, 69 Deben Avenue, Martlesham Heath, Suffolk, IP5 3QR.

Contents

1. Executive Summary	4
1.1 <i>Overview</i>	4
1.2 <i>Results</i>	4
2. Background to Commission	5
2.1 Overview.....	5
2.2 <i>Aims of Study</i>	5
2.3 <i>Site Description</i>	5
3. Methods.....	7
3.1 <i>Desk Study</i>	7
3.2 <i>Field Survey</i>	7
3.3 <i>Survey Limitations</i>	7
4. Results	8
4.1 <i>Data Search</i>	8
4.2 <i>Designated Sites Data</i>	8
4.4 <i>Field Survey Results</i>	12
5. Protected and Priority Species Within the Site	13
6. Potential Impacts and Obligatory Recommendations	16
7. Enhancement recommendations	19
8. Conclusions	21
9. Validation	23
10. References	23
11. Appendices.....	25

1. Executive Summary

1.1 Overview

DCS Ecology Ltd was commissioned by Richard and Penny Ballard, to carry out a Preliminary Ecological Appraisal (PEA), for an application for the development of a pool and associated building at Nether Hall, Pakenham, Bury St Edmunds, Suffolk, IP31 2LG (central grid reference TL 92755 66878, hereby referred to as the Site).

The site is 0.1ha (1,000 square metres) of hedgerows, amenity grassland, short perennials, areas of hard standing and structures included a fenced in fuel tank. The site is situated on the outskirts of Pakenham village and 2km North of Thurston.

The preliminary ecological appraisal was carried out on the 16th of November 2023 by Duncan Sweeting and Elizabeth Thurston of DCS Ecology Ltd, to assess the ecological value of the Site.

1.2 Results

The desk study found two country wildlife sites:

- Bats
- Birds
- Amphibians (including great crested newts)
- Hedgehogs
- Other mammals- brown hares, otter, water vole and harvest mouse
- A few protected plants and invertebrates of note

The habitats recorded onsite included hardstanding (concrete), tall ruderal, amenity grassland, short perennial, hedges mature and young trees. Also noted was a fuel tank on hardstanding bordered by a fence and wall. Habitats within the construction area consisted of mainly amenity grassland, tall ruderal, and the short perennials. Adjacent habitats included dwellings, a large area of mowed lawn (amenity grassland), sections of shingle footpaths bordered by walls, as well as grass fields. Bordering the site was a footpath with mature trees containing potential roost features.

The habitats listed above, and features recorded within the site provide potential habitat for breeding birds, bats, and small mammals. The site was within 250m of suitable habitat for great crested newts and sub-optimal suitable habitat for reptiles such as grass snakes.

2. Background to Commission

2.1 Overview

DCS Ecology Ltd was commissioned by Richard and Penny Ballard to carry out a Preliminary Ecological Appraisal (PEA), for a proposed development at Nether Hall, Pakenham, Bury St Edmunds, Suffolk, IP31 2LG (central grid reference TL 92755 66878, 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 0.1ha (1,000 square metres) of hedgerows, amenity grassland, short perennials, areas of hard standing and structures included a fenced in fuel tank. The site is situated on the outskirts of Pakenham village and 2km north of Thurston (see figure 1). Within the site boundary there are habitats of ecological importance. Namely hedges which could support nesting birds. Adjacent habitats included a field of grassland, a tennis court, nether hall, and amenity grassland. The majority of site was bare or had small amounts of vegetation with low ecological value.

The site mainly consisted of ephemeral/short perennial however, there were areas of potential ecological value such as the hedges and features within mature trees. These mature trees were beyond the site boundary and are not proposed to be removed. Some trees onsite are to be removed but these were all inspected and found to have no features of great ecological importance such as potential bat roost features. Within the wider area approximately 165m to the northwest of site was a pond with the potential to support great crested newts (GCN) however, anecdotal evidence of Juliet Hawkins previously checking the pond for great crested newts with none found was provided during the survey. There were multiple brick walls due to the estates buildings and shingle pathways including a driveway between site and this pond and it was deemed as low potential for there to be GCN on site. There were grass fields to the east with nether hall buildings and estate to the north and west. To the south was a tennis court and parkland beyond. One pond exists within 250m of site, and descriptions of the pond can be found in section 5.

Beyond the site, the wider countryside consisted of parkland, grassland, woodland, and arable fields. Arable fields were bordered by hedgerows with mature trees and provide sub-optimal commuting and foraging habitat for bat species. The woodland and parkland also had hedges which provided commuting and foraging opportunities. Adjacent land to the site contains foraging habitat for bats and birds including linear features bordered by mature trees with PRFs.

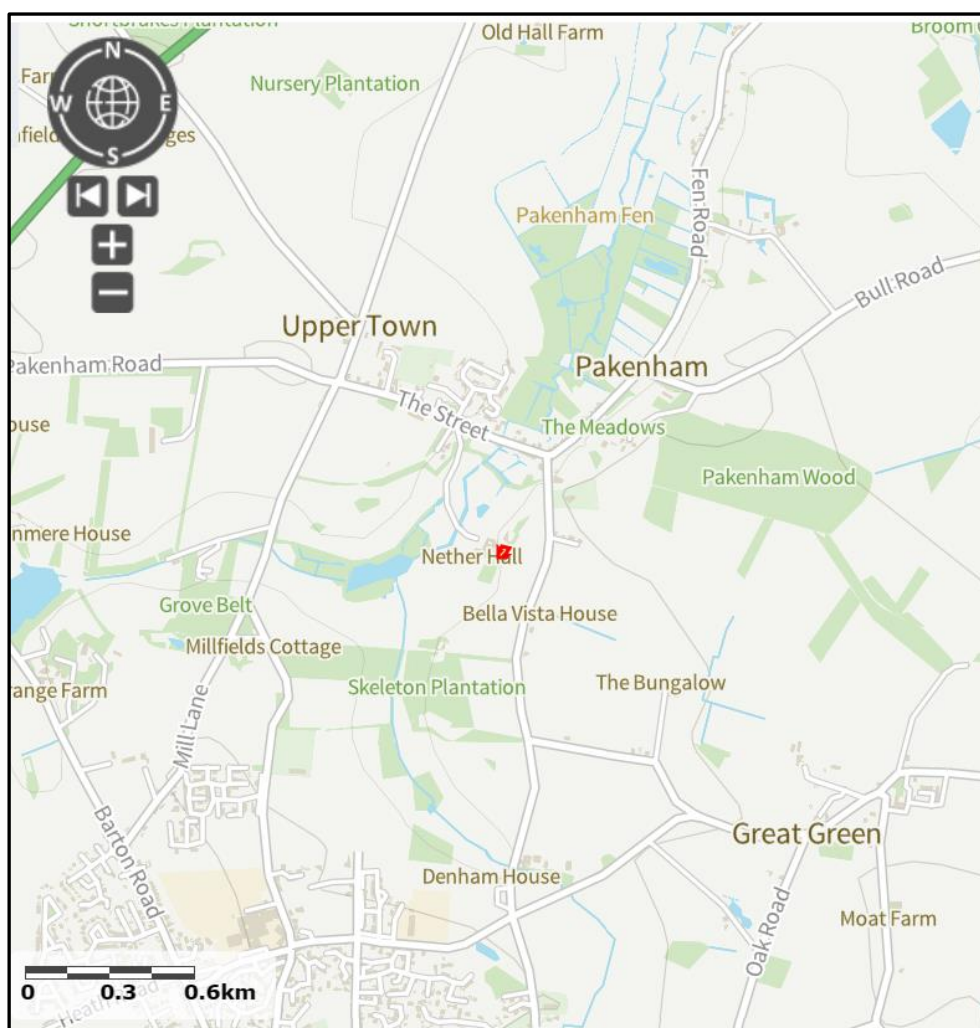


Figure 1. Site location (outlined in red). (1:25000) Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931.

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 24th of November 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 1st of December 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 Elizabeth Thurston (undergraduate, Natural England Barn Owl Survey Licence WML-CLS29) on the 16th of November 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 cloudy (100% cloud cover), very light breeze (Beaufort scale 1) and a temperature of 8.9°C, with good visibility. The Site was traversed slowly by the surveyor, mapping habitats, and making 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.

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.

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:

In regard to Local/National European site, there are two County Wildlife Sites Citations within 2km of the Site.

Within 10km of site there was one LNR, one NNR, and nine SSSI's. There were no RS, SAC, SPA's, biosphere reserves or AONB identified within the 10km search.

These are:

County Wildlife Sites:

- **PAKENHAM FEN MEADOWS** - Pakenham Fen borders the river, west of the Fen Road and north of the main part of Pakenham village. It is divided into small fields, some of which have not been agriculturally improved and retain a diverse fen meadow flora, which is a Priority habitat. These areas support a good range of wetland plants such as ragged-Robin, marsh valerian, brown sedge and southern marsh orchid. A number of uncommon Suffolk plants also occur including devil's-bit scabious, milkwort and early marsh orchid. The site also provides habitat opportunities for other wildlife, such as invertebrates.
- **PAKENHAM WOOD** - Pakenham Wood was at one time a Site of Special Scientific Interest (SSSI). However, in recent years much of the wood has been clear-felled and replanted with Corsican pine and larch. In some areas Christmas trees are growing under a stand of overgrown ash/oak coppice. Unfortunately, the wildlife value of the wood has been affected by the planting of conifers and Pakenham Wood has been denotified by English Nature and is no longer a SSSI. Remnants of the rich woodland flora which was once widespread in Pakenham Wood are now largely confined to the wide woodland rides, which cross the wood. Herb-Paris, early purple orchid and nettle-leaved bellflower have been recorded together with a variety of sedges and rushes which have colonised the wetter hollows which are scattered along the rides. Bird's-nest orchid has also been recorded, although not recently. In addition to timber production, Pakenham Wood is used extensively for shooting.

Local nature reserves:

- MORETON HALL COMMUNITY WOODS – Habitats including meadow, woodland and a pond.

National nature reserves:

- BRADFIELD WOODS – Almost entirely ancient woodland which has been traditionally managed since 1252.

Sites of special scientific interest:

- FAKENHAM WOOD AND SAPISTON GREAT GROVE – These woods, situated on the margins of Breckland, comprise one of the largest areas of ancient woodland in Suffolk and show important transitions in stand-type and flora with variation in soil type and drainage. They are predominantly of coppice-with standards structure but have not been cut for many years. Some areas are approaching high forest.
- HORRINGER COURT CAVES – These ‘caves’ are important for various species of bat which hibernate in the tunnels from September to April each winter. The bat population has been the object of detailed research into several aspects of bat ecology and has been continuously monitored since 1947.
- NORTON WOOD – is an ancient woodland site of coppice-with-standards structure with small, more recent additions of secondary woodland.
- PAKENHAM MEADOWS – The meadow is unusually species rich, unimproved and poorly drained, and forms one of the best examples of its kind in the county. The small-scale complex mosaic of vegetation types present reflects the variation in soils from loam to peat. The meadow is also herb rich and contains a number of uncommon species, and the dykes provide a valuable additional habitat for invertebrates'.
- THE GLEN CHALK CAVES, BURY ST EDMUNDS – The site consists of a series of tunnels excavated horizontally in chalk, and totalling about 200m in length. Five species of bats regularly use the tunnels and the lime-kiln for hibernation between September and April. The bat population has been continuously monitored since 1947 and is the subject of continuing detailed scientific studies.
- BANGROVE WOOD – Bangrove Wood is a good example of ancient woodland on clay soil. It is mostly former coppice-with-standards, supporting a wealth of characteristic woodland floor herbs.
- STANTON WOODS – This series of ancient coppice-with-standards woods spans the transition from Hornbeam and Oak-Ash-Hazel-Maple woodland on boulder clay to Oak/Hazel woodland on the drier, acid soil of the Breckland margin. The two types of woodland each have characteristic woodland flora plants and additional interest is provided by a series of wide, mown rides, small clearings and by areas of active coppice management. The Grundle provides a rare example in West Suffolk of a wooded gorge.
- BRADFIELD WOODS – These woods are almost entirely of ancient origin and contain the largest area of actively worked coppice-with-standards woodland in Suffolk. Felsham

Hall Wood and Monk's Park, a compartmented former deer park, have a long history of continuous coppicing dating from before 1252 and this, coupled with their great complexity of soil types and drainage has produced a tremendous diversity of species that would otherwise be unable to co-exist.

- THE GARDENS, GREAT ASHFIELD – This site which consists of four floristically rich ancient meadows is one of the remaining examples of unimproved calcareous clay and neutral grassland in Suffolk. It is traditionally managed by a combination of grazing and cutting for hay and supports a wide variety of grasses and herbs including a population of Common Twayblade *Listera ovata*.

4.3 MAGIC Map Data

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

EPS licence number	Species on the licence	Damage/ destruction of breeding site	Damage/ destruction of a resting place	Grid Reference	Nearest Location
2016-25086-EPS-MIT	BLE, C-PIP, SER, S-PIP	Y	Y	TL89876143	Rushbrooke
2016-25086-EPS-MIT-1	BLE, C-PIP, SER, S-PIP	Y	Y	TL89876143	Rushbrooke
2016-25086-EPS-MIT-2	BLE, C-PIP, SER, S-PIP	Y	Y	TL89876143	Rushbrooke
2017-29138-EPS-AD2	Great crested newt	Y	Y	TL96686242	Woolpit
2017-29138-EPS-AD2-1	Great crested newt	Y	Y	TL96686242	Woolpit
2017-29138-EPS-AD2-2	Great crested newt	Y	Y	TL96686242	Woolpit
2017-29138-EPS-AD2-3	Great crested newt	N	Y	TL96686242	Woolpit
2020-49258-EPS-MIT	BLE	Y	N	TL96167210	Stanton
2015-11624-EPS-BDX	BLE, C-PIP	Y	N	TL90886172	Kingshall Street
2020-45491-EPS-MIT	BLE, C-PIP	Y	Y	TL89076131	Rushbrooke

The MAGIC data search returned 10 records of past and current EPS licences, 4 were for great crested newts, and 6 were for bats within a 7km radius. Including common pipistrelle, soprano pipistrelle, serotine, and brown long-eared. The nearest record to site was a pond survey where GCN were absent, located 2.2km to the southeast of site. The closest record of a protected species was a GCN class licence returns 3.4km to the southeast. There were 15 GCN class licence returns at 8 locations. There were 6 GCN pond surveys between 2017 and 2019 found in a 7km radius, 1 survey found GCN present, while there was 1 inconclusive result and 4 found GCN to be absent.

Table 2: SBIS Ancient, notable, and veteran trees within a 2 km radius of the Site.

Species	Distance from centre of site (km)
Pedunculate Oak (<i>Quercus robur</i>)	1.58
Pedunculate Oak (<i>Quercus robur</i>)	1.48
Pedunculate Oak (<i>Quercus robur</i>)	1.66
Pedunculate Oak (<i>Quercus robur</i>)	1.80
Pedunculate Oak (<i>Quercus robur</i>)	0.02
Lime (<i>Tilia platyphyllos</i> × <i>cordata</i> = <i>T. × europaea</i>)	0.04
Pedunculate Oak (<i>Quercus robur</i>)	0.02
Pedunculate Oak (<i>Quercus robur</i>)	0.03
Pedunculate Oak (<i>Quercus robur</i>)	0.02
Pedunculate Oak (<i>Quercus robur</i>)	0.04
Pedunculate Oak (<i>Quercus robur</i>)	0.07
Pedunculate Oak (<i>Quercus robur</i>)	0.09
Pedunculate Oak (<i>Quercus robur</i>)	0.12
Pedunculate Oak (<i>Quercus robur</i>)	0.11
Pedunculate Oak (<i>Quercus robur</i>)	0.18
Sycamore (<i>Acer pseudoplatanus</i>)	0.20
Pedunculate Oak (<i>Quercus robur</i>)	0.96
Ash (<i>Fraxinus excelsior</i>)	0.56
Ash (<i>Fraxinus excelsior</i>)	0.47
Ash (<i>Fraxinus excelsior</i>)	1.84

Smooth-leaved Elm (<i>Ulmus minor</i>)	0.79
--	------

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. There were multiple ancient or notable trees that were within meters of the site boundary. These were noted during the survey to have potential roost features suitable for roosting bats.

4.4 **Field Survey Results**

The site consisted of hedgerows, amenity grassland, concrete hardstanding, ephemeral/short perennial, tall ruderal, and mature trees. Directly adjacent habitats included amenity grassland/buildings, grassland, and mature trees which had potential bat roost features and provided foraging habitat. The site contained areas of vegetation with ephemeral/short perennials, tall ruderals, and hedges with species such as yew (*Taxus baccata*) (For a full species list see appendix III). The surrounding area had grass fields to the east with nether hall buildings and estate to the north and west. To the south was a tennis court and beyond that was parkland. More details and target notes can be found in appendix I and II.

A map showing the habitat types on Site can be seen in Appendix IV.

The site had minimal areas of ecological importance. However directly adjacent habitats were found to have high potential for roosting and foraging bats within mature trees. This included common lime (*Tilia ×europaea*) and English oak (*Quercus robur*). Hedges, trees, and tall ruderals onsite had the potential to support foraging and nesting birds. All trees onsite were inspected for potential roost features (PRFs) and active nests. There are trees proposed for felling and these had no PRFs or active nests and therefore removal would have a minimal impact to local populations.

5. Protected and Priority Species Within the Site

Flora

The desk study highlighted several species of rare plants have been previously recorded within 2km of the site, such as Dwarf Spurge (*Euphorbia exigua*), which is listed as 'Vulnerable' on the England Red List. Five orchid species were highlighted within the search including Pyramidal Orchid (*Anacamptis pyramidalis*), Common Spotted-orchid (*Dactylorhiza fuchsii*), Early Marsh-orchid (*Dactylorhiza incarnata*), Southern Marsh-orchid (*Dactylorhiza praetermissa*) and Bee Orchid (*Ophrys apifera*).

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

Badgers

The site was visually searched for evidence of the presence of badgers (*Meles meles*), including setts, footprints, latrines, and snuffle marks.

There were no records of badgers were recorded within the 2km data search from SBIS. Habitats within the site were sub-optimal for foraging badgers and no signs were found to suggest badgers use the site. Adjacent habitats were suitable for foraging badgers, but the habitat onsite impacted would not affect local badger populations. The wider countryside consisting of fields, hedgerows and woodland could be used by foraging badgers. Field edges with banks and woodland could be used by badgers.

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.

Habitats onsite offered foraging opportunities for nearby bats and adjacent there were mature trees with PRFs therefore lighting considerations will need to be taken during and after works. Onsite trees were checked for PRFs, and none were found.

The SBIS data search returned 31 records of bats within 2km of the Site including common pipistrelle, soprano pipistrelle, brown long-eared bat, serotine, noctule, lesser noctule, nathusius pipistrelle and western barbastelle.

Fungi

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

Great Crested Newts

Habitats on site which were unlikely to support amphibians, including great crested newts (GCN) (*Triturus cristatus*), during their terrestrial phase due to the habitat mainly consisting of ephemeral/short perennials and bare ground lacking refugia for GCN. A pond within 250m of site had the potential to support breeding GCN however habitat between the pond and site was short amenity grassland, shingle paths and driveway including walls and buildings. A rapid risk assessment deemed the construction as highly unlikely for an offence to be committed (see table 3 for result).

There was one pond present within a 250m radius of site:

- Pond 1 – Located approx. 165m northwest of site and 1100m². The pond was not accessed for HSI during the survey however the distance and size of the development is highly unlikely to result in an offence being committed.

Table 3: Rapid risk assessment for GCN under the conservation of habitats and species regulations 2017, results are as follows:

Component	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
	Maximum:	0.1
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

There were two records of GCN returned in the SBIS data search, the nearest being 1.7km southwest of site. The site provided small areas of suitable habitat for GCN during terrestrial phases due to hedges onsite however majority of site was unsuitable with bare ground and ephemeral/short perennials. There was poor connectivity between site and the location of the closest SBIS record due to being dominated by arable fields and this record was over 1km away.

Hedgehogs

The Site was considered sub optimal for hedgehogs, as it did not have good foraging habitats, and it had low hibernation opportunities, such as shrubs and hedgerows. Adjacent habitats including hedgerows and woodland provided potential to support foraging and nesting opportunities therefore passing hedgehogs could access site. The data search returned 133 records of hedgehogs within 2km of the Site, these included roadkill, rescues and alive young and adults. Adjacent habitats were suitable for hedgehogs therefore considerations to prevent harming individuals will need to be taken.

Reptiles

The habitat onsite was largely unsuitable for foraging reptiles however the areas of tall ruderal and hedges had low potential to support species such as grass snakes. There was no evidence of reptiles on the site, no droppings, sloughs, or reptiles were found.

There was only one record of a reptile within the 2km SBIS data search. This record was for a Grass snake (*Natrix Helvetica*) in 2022 1.47km southeast of site.

Birds

Tall ruderal, hedgerows, and mature trees onsite could allow for nesting and foraging birds (no active nests were noted). The hedgerows had multiple areas with opportunities for nesting and adjacent habitats had further opportunities for nesting and foraging birds. (For a list of species seen during the survey see appendix III).

For the desk study 986 records of 133 species of bird were highlighted within 2km of site. Those regarding birds of particular conservation concern (Birds of Conservation Concern red list, UK

Biodiversity Action Plan listed or Wildlife Countryside Act (1981) schedule 1i listed) have been listed in Appendix V.

Invertebrates

Vegetation to support invertebrates was restricted to the areas of hedgerow and trees. Majority of site had minimal vegetation and habitat with the potential to support small assemblages of common invertebrates. Rare/protected terrestrial invertebrates on site was negligible.

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

The SBIS desk study highlighted a couple species of invertebrates have been previously recorded within 2km of the site, White Admiral (*Limenitis Camilla* which is listed as 'Vulnerable' on the England Red List. Ten records of White-letter Hairstreak (*Satyrrium w-album*) were identified, which are listed as 'Endangered' on the England Red List.

Other Protected Species

In regard to other protected species, there was three records of water vole, two records of otter (*lutra lutra*), six records of brown hare (*Lepus europaeus*), and one harvest mouse (*Micromys minutus*) record, returned within the data search. Habitats onsite are unsuitable or sub-optimal for most of these species, although the habitats onsite would be suitable for brown hares the size of habitat being lost would not impact local populations.

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 one SSSI Pakenham meadow, however as the proposal is a small-scale development and it will not include the creation of over 100 building units, the risk of impact to designated sites is negligible and therefore is unlikely to require a HRA or other pre-development consultation with Natural England regarding likely impacts on designated areas.

6.2 *Flora and Habitats*

The proposed development includes the development of the amenity grassland and ephemeral/short perennials onsite. The damage to existing habitats will be low and there are minimal existing niches to be lost with the construction area. Areas of vegetation that will be removed is limited as majority of site was bare or sparsely vegetated. This removal would not have a significant impact to local populations. And no rare or protected plants were seen onsite during the survey.

The Site is a biodiversity priority habitat according to magic however previous felling meant the habitats onsite no longer resembled deciduous woodland and was unsuitable for supporting rare species highlighted within the data search.

Mature trees directly adjacent were recorded previous as ancient or notable trees and during the survey were identified as having PRFs therefore theses will need protection. There must be suitable protection from works, including a buffer zone/ root protection area surrounding the trees to prevent potential bat roost disturbance or root damage.

If site plans were to include mature trees subject to felling, 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).

6.3 Protected Species

Badgers

Habitats located on site were sub-optimal for badgers and habitats adjacent to the Site were considered suitable for badger foraging; and no badger signs were observed during this survey. The data search had no records of badgers recorded within the 2km data search from SBIS.

No further survey is necessary; however, as adjacent habitats provide suitable foraging habitat for 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 all mature trees on or directly adjacent to site.

Adjacent to site there was good foraging habitats for bats in the form of hedgerows and mature trees. Within 250m deciduous woodland was also present which is a good foraging habitat for multiple bat species.

No habitats onsite had the potential for roosting bats, however adjacent trees had PRFs therefore 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 suitably experienced bat ecologist.

No further bat surveys are necessary however tree protection zones should be considered to avoid harm or disturbance to trees with PRFs.

Birds

A number of species with the potential to nest within, or near to, the Site boundary was highlighted within the desk study (see Appendices III and V). These included BoCC red listed and section 41 species.

The site had foraging and nesting opportunities for birds due to the hedges and trees on site.

Any building or shrub 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.

Great Crested Newts

There was a total of two SBIS records within 2km, and 4 EPS licences for great crested newts within 7km MAGIC search as well as 15 GCN class licence returns at 8 locations, and there were

6 GCN pond surveys between 2017 and 2019 found in a 7km radius, 1 survey found GCN present, while there was 1 inconclusive result and 4 found GCN to be absent.

Habitats onsite were unlikely to have GCN during their terrestrial phase due to poor connectivity to ponds and there were no ponds onsite to support breeding GCN therefore it is highly unlikely an offence would be committed however works will be conducted under RAMS to prevent harm to individuals.

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 (discarded building materials, wood piles etc.) should be removed outside the hibernation period (which is November to March) or under supervision of an ecologist. In addition, the construction 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 suitable reptile habitat – sheltering and hibernation opportunities. It was considered unlikely that reptiles would use the habitats onsite for sheltering or hibernation, **and so no further survey is required.**

Invertebrates

The Site contained little 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 other 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.

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 however, it is recommended to place them on mature trees within linear features near or adjacent to site.

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 from hedge and tree removals.

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.

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.

Hedgehogs and other small mammals

No evidence of small mammals including hedgehogs was found on site. Although some habitats adjacent had the potential to support these species. The development will have a negligible impact on these habitats therefore no further enhancements are recommended for these species.

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 – birds. The survey revealed high potential for bats in multiple mature trees adjacent and high potential for birds to be using hedgerows for nesting and foraging. Habitats had low potential to support small mammals such as hedgehogs however adjacent habitats had moderate potential.

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. Consideration must be taken to avoid illumination the footpath to the east.
- 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.
- 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.
- **If mature trees that have been noted to have PRF's are impacted by works** further bat surveys by an experienced ecologist would be required. Consideration for root protection zones must be adhered to in order to prevent such impacts.
- **Recommendation for precautionary working methods in the form of Risk Avoidance Measures (RAMS)** should be followed during works for **bats and great crested newts**.
- **A toolbox talk** should be given by a suitably trained and licenced ecologist to all workers on site prior to any works commencing.

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 if these measures are followed, 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 works.

Biodiversity Enhancement Strategy (B.E.S). (Post construction)

Enhancement features, such as bat boxes (such as Eco Kent bat boxes and bat tubes) and bird boxes, could be incorporated into the final designs and therefore provide additional breeding, and sheltering opportunities for a range of wildlife.

Enhancements to include:

Site supervision.

An Ecological Clerk of Works (ECoW) should be appointed prior to commencement, to oversee the works when necessary.

Bird and Bat boxes. At least two bat boxes and two bird nesting boxes to be mounted on the building or in adjacent trees in suitable locations.

See Appendix VIII: Enhancement and mitigation example designs for examples.

Boundary fences to be hedges, open post and rail fences or with a gap following specifications set out in small mammal enhancements. Unless these fences are to prevent access to the pool by animals including hedgehogs.

Amphibians. The development proposals do not include the impact of GCN habitat therefore no onsite enhancements are recommended however clearance guidance should be followed as a precautionary measure.

Site clearance.

• **Amphibians.** The specifics of the clearance of the site with regard to Amphibians are as follows:

- o Any debris piles should be dismantled by hand and the materials kept in skips until moved off site or disposed of.

- o Any debris and materials arising from the proposed construction should be stored in skips and/or on pallets to prevent creating refuge sites for reptiles or amphibians.

- o The clearance of ruderals and vegetation > 300mm in height should be done during spring / summer (Feb to October) when amphibians and reptiles are active, all vegetation should be cut down to 150mm above ground level and left for at least an hour before final clearance to allow any reptiles or amphibians that may be present to disperse or to be carefully relocated to hedgerows in the local vicinity. Once cleared the land should be maintained as bare ground or short mown grassland throughout the development process.

- o The RAMS (appendix 1 above) should be followed throughout the development process.

- o If a great crested newt is discovered at any stage of the development, work should cease immediately, and an ecologist should be contacted for further advice.

• **Small mammals** including hedgehogs.

- o Any debris and materials arising from the proposed construction should be stored in skips and/or on pallets to prevent creating refuge sites.

- o Clearance of any debris or waste should be done sensitively with consideration to disturbance of hedgehogs.

- o Vegetation above 300mm above ground level should not be cleared until temperatures are above 6°C for at least 6 consecutive days to avoid disturbance of hibernating hedgehogs.

- o Any fences that might be erected should include a gap of 150mm long by 100mm high at some point in the base of each run of fencing to enable terrestrial vertebrates, including hedgehogs, to move through the plot and prevent entrapment. Unless these fences are to prevent access to the pool by animals including hedgehogs.

Precautionary mitigation.

- To promote best practice and avoid the risk of causing injury or harm to small mammals, amphibians and reptiles during the construction process a toolbox talk should be given and made available to all contractors.

- Should the Local Planning Authority be minded to grant planning permission then it is advised that the site be maintained as bare ground or close mown grassland until the development works

start. Reason, to prevent the establishment of any features of ecological interest becoming established on the site prior to the commencement of works.

9. Validation

Table 4: Validity duration of the data.

Information Source	Date Undertaken	Valid Until	Comments
PEA	November 2023	November 2025 (2 years)	No further surveys will be required however, there are recommendations to follow.

10. References

Amphibian and Reptile Groups of the United Kingdom (2010) Advice note 5 - Great Crested Newt Habitat Suitability Index

Barn Owl Trust (2012). Barn Owl Conservation Handbook. Pelagic Publishing: Exeter.

(BCT) Bat Conservation Trust (2023). Bats and Artificial Lighting at Night Guidance note 8.

British Standard BS 42020:2013 Biodiversity - Code of Practice for planning and development.

British Standards Institution (2012). BS 5837:2012, Trees in relation to design, demolition and construction –Recommendations.

(CIEEM) Chartered Institute of Ecology and Environmental Management (2016). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. 2nd ed. Winchester: CIEEM.

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

Cresswell, W.J. Birks, J.D.S, Dean, M., Pacheco, M., Trehwella, W.J., Wells, D. & Wray, S. (2012) UK BAP Mammals Interim Guidance for Survey Methodologies, Impacts and Mitigation. Eds. The Mammal Society, Southampton.

Froglife (1999) Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

JNCC (2010) Handbook for Phase 1 habitat survey: a technique for environmental audit (revised reprint) JNCC: Peterborough.

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.

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

Stace, C. (2021). *Concise Flora of the British Isles* (4th Edition). Cambridge University Press, Cambridge.

SBIS (Suffolk Biodiversity Information Service) (24/11/2023) 2km Data search.

Sewell, D., Griffiths, R.A., Beebee, T.J.C., Foster, J., and Wilkinson, J.W. (2013). Survey protocols for the British herpetofauna. ARC, DICE University of Kent and University of Sussex.

Web references

<https://treecouncil.org.uk/wp-content/uploads/2020/06/Tree-Council-Ash-dieback-tree-owners-guide-FINAL.pdf>




https://magic.defra.gov.uk/Metadata_for_magic/SSSI/IRZuserguidance

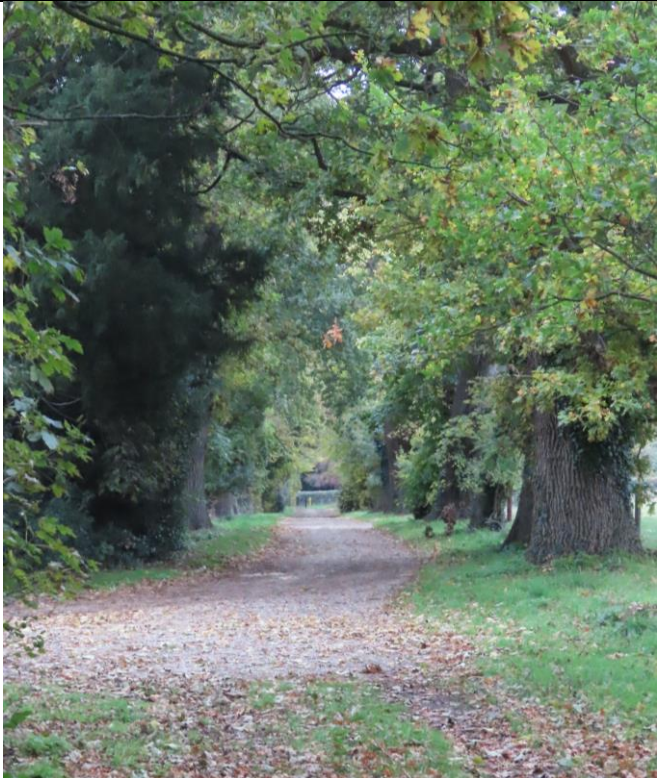
<http://www.natureonthemap.naturalengland.org.uk/MagicMap.aspx>

<https://www.gov.uk/government/publications/great-crested-newts-apply-for-a-mitigation-licence>

11. Appendices

Appendix I: Table 5 target notes

Photos	Target Notes
 <p>1</p>	<p>Features of the site</p> <p>Target note 1 is an inactive nest noted during the survey. This was within a hazel on the site boundary.</p>
 <p>2</p>	<p>Target note 2 is one of many mole hills scattered onsite.</p>
 <p>3</p>	<p>Target note 3 is a robin that was noted foraging onsite using multiple areas including hedges and the tall ruderal.</p>



4

Target note 4 is a photo facing northeast down the footpath which is bordered by mature trees and creates a good flight path for foraging and commuting bats. There were also mature, ancient and notable trees including English oaks and common lime with potential roost features.



5

Target note 5 is one of multiple trees with potential bat roost features. All trees noted to have potential features are marked with a 5 on the targets note map.

Appendix II: Site Photos

Table 6: Site photos

	
<p>A view across the site facing northeast. Showing the trees bordering site and the patch of tall ruderal.</p>	<p>A view across site facing southeast.</p>
	
<p>A view across the site facing south.</p>	<p>Northwest area of site showing the concrete hardstanding and the fenced/walled in fuel tank.</p>

Appendix III: Species Lists

Table 7: Plants and fungi

Species on and directly adjacent to site	
Latin name	Common name/s
<i>Quercus robur</i>	English oak
<i>Anthriscus sylvestris</i>	Cow parsley
<i>Corylus avellana</i>	Hazel
<i>Urtica dioica</i>	Common nettle
<i>Lolium perenne</i>	Rye grass
<i>Senecio vulgaris</i>	Groundsel
<i>Hedera helix</i>	Common ivy
<i>Taraxacum officinale</i>	Common dandelion
<i>Taxus baccata</i>	Common yew
<i>Crataegus monogyna</i>	Hawthorn
<i>Acer pseudoplatanus</i>	Sycamore
<i>Alliaria petiolata</i>	Garlic mustard
<i>Tilia ×europaea</i>	Common lime
<i>Ilex aquifolium</i>	Common holly

<i>Symphoricarpos</i>	Snowberry
<i>Euphorbia</i>	Euphorbia
<i>Hypholoma fasciculare</i>	Sulphur tuft

Table 8: Mammals

Species on the site	
Latin name	Common name/s
<i>Talpa europaea</i>	Mole (Hill)
<i>Muntiacus reevesi</i>	Muntjac (Footprints/Droppings)
<i>Oryctolagus cuniculus</i>	European Rabbit (Carcass)
<i>Rodentia spp.</i>	Rodent spp. (Hole)

Table 9: Birds

Species on and directly adjacent to site	
Latin name	Common name/s
<i>Erithacus rubecula</i>	Robin
<i>Corvus corone</i>	Crow
<i>Columba palumbus</i>	Wood Pigeon

Appendix IV: Figures

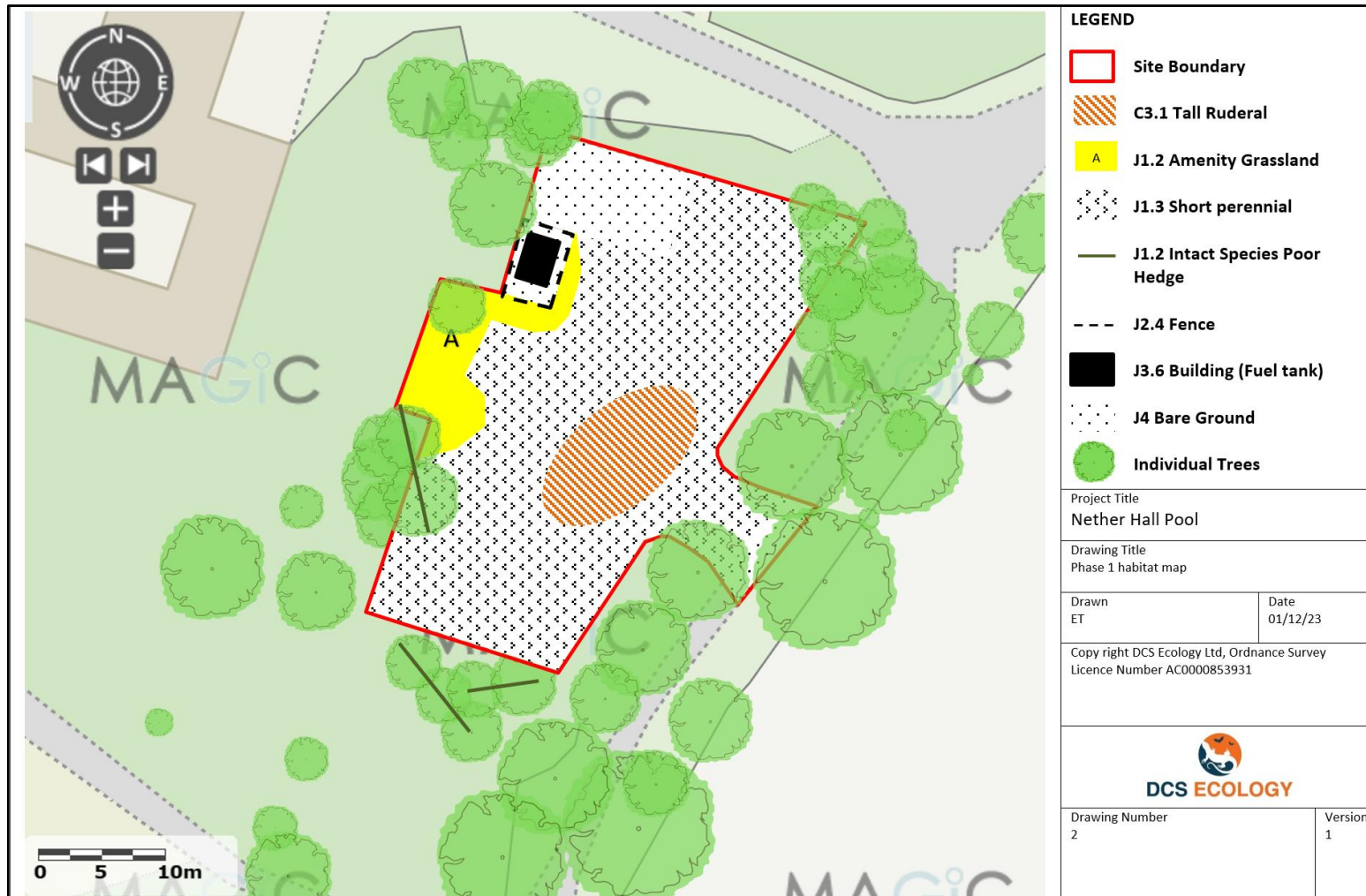


Figure 2: Phase 1 Habitat Map of Site (c) Crown Copyright under licence AC0000853931

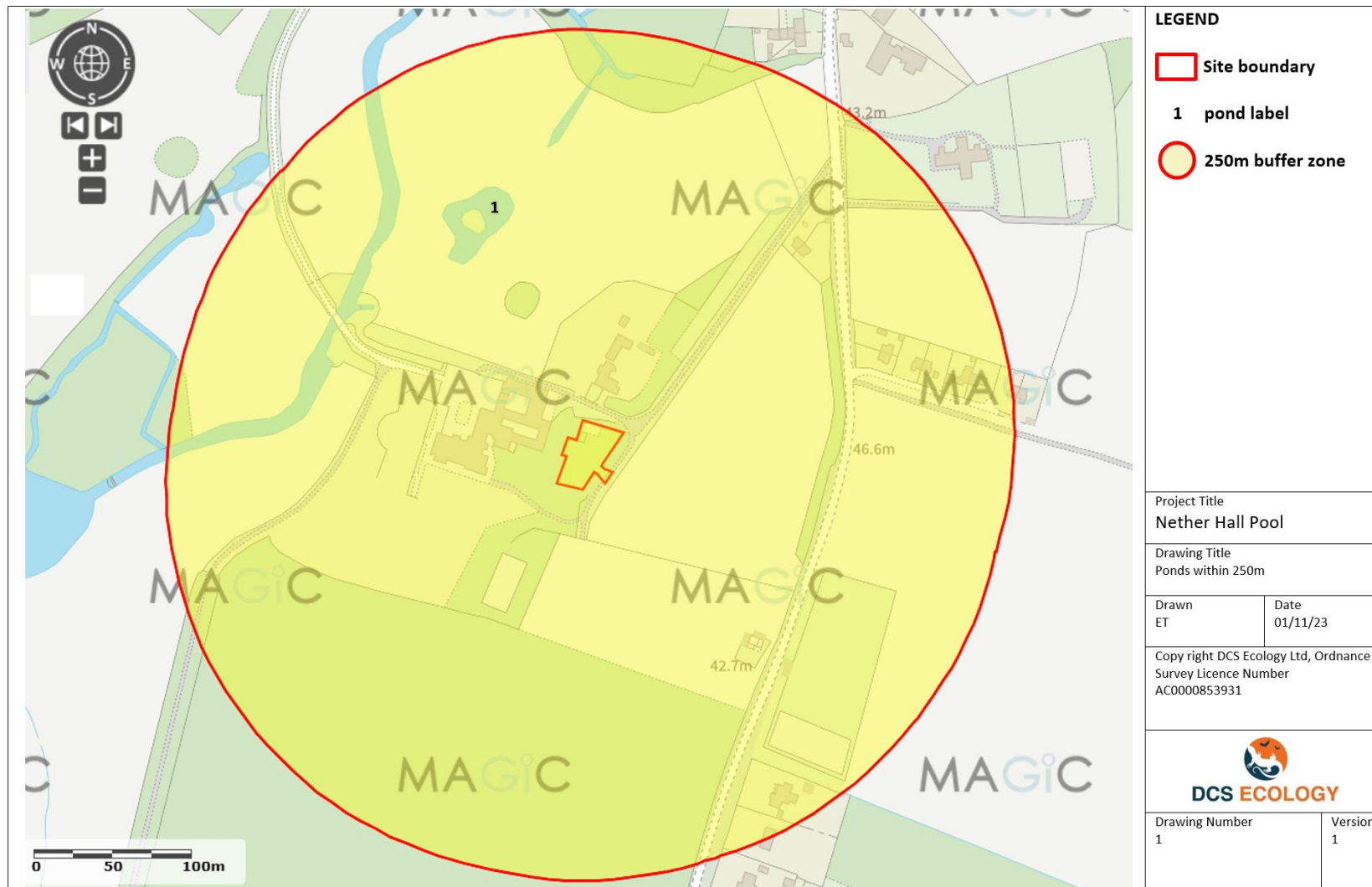


Figure 3: Pond Great Crested Newt ponds within 250m. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

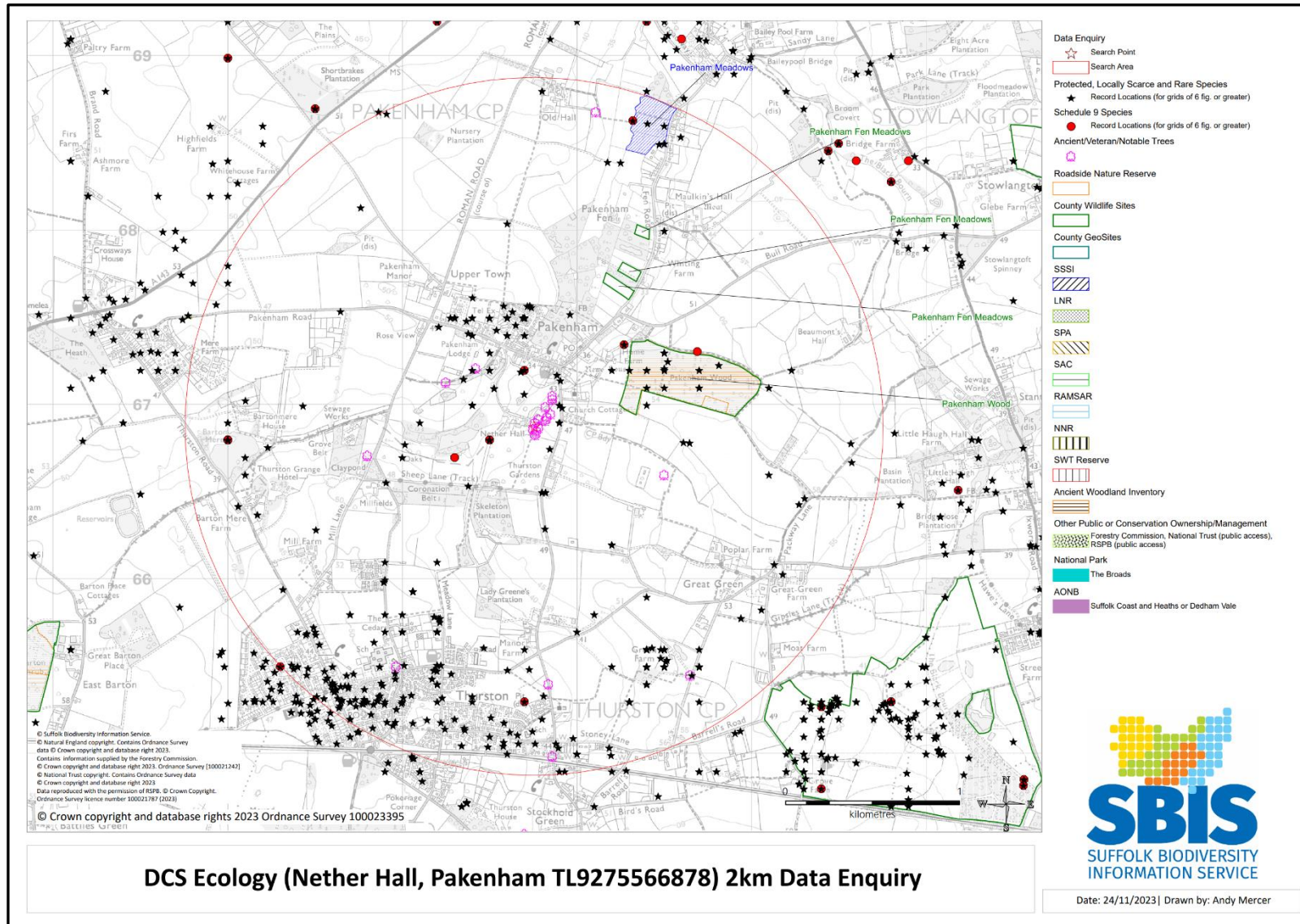


Figure 4: Protected species records, Statutory and Non-Statutory Designated Sites within 2km of the Site.

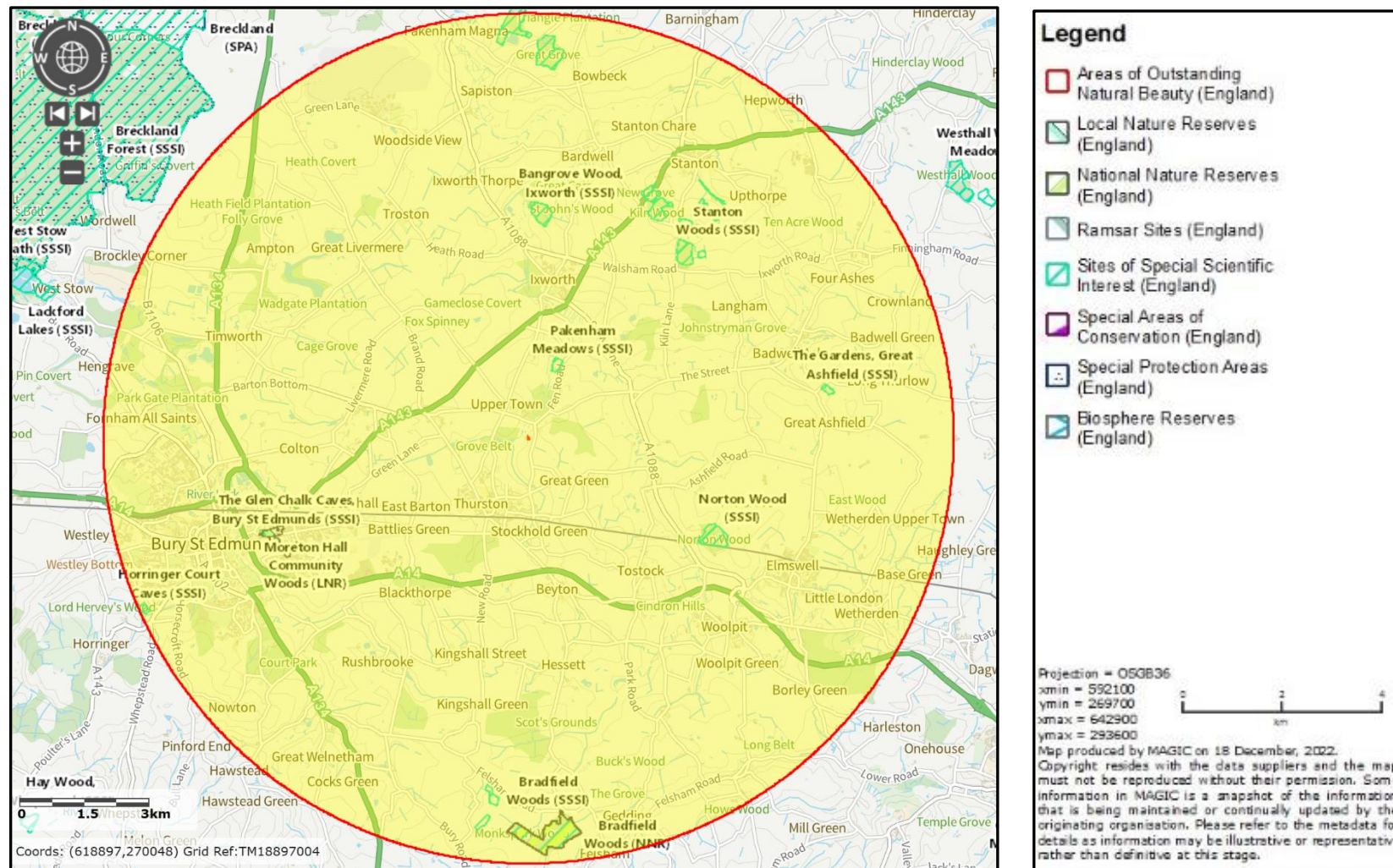


Figure 5: Statutory Conservation Sites within 10km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931

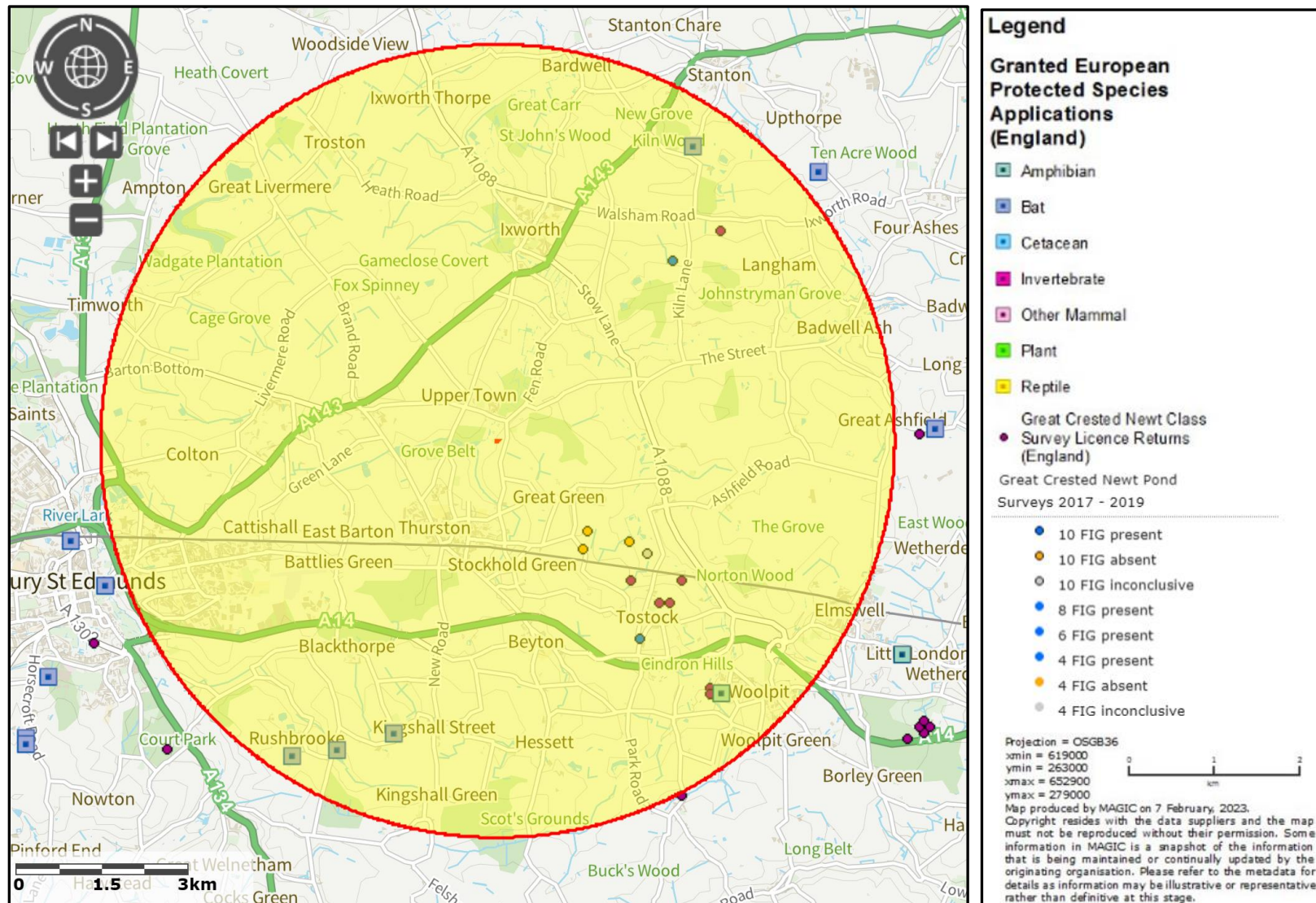


Figure 6: Protected species recorded on MAGIC within 7km of the Site. Based upon Ordnance Survey (c) Crown Copyright under licence AC0000853931



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

Appendix V: Desk Study

Table 10: WCA Sch. 1, BoCC Red Listed and Priority (BAP) bird species records within 2km of the Site.

Species common name	Latin name	Status	Most Recent Record
Lesser Redpoll	<i>Acanthis cabaret</i>	S41, UKBAP	2021
Skylark	<i>Alauda arvensis</i>	BoCC Red, Sect.41, UKBAP	2023
Kingfisher	<i>Alcedo atthis</i>	WCA1i	2021
Pintail	<i>Anas acuta</i>	WCA1ii	2012
White-fronted Goose	<i>Anser albifrons</i>	BoCC Red, UKBAP	2020
Greylag Goose	<i>Anser anser</i>	WCA1ii	2021
Tree Pipit	<i>Anthus trivialis</i>	BoCC Red, S41, UKBAP	2010
Swift	<i>Apus apus</i>	BoCC Red	2022
Pochard	<i>Aythya ferina</i>	BoCC Red	2021
Scaup	<i>Aythya marila</i>	BoCC Red, S41, UKBAP, WCA1i	2011
Dunlin	<i>Calidris alpina</i>	BoCC Red	2016
Greenfinch	<i>Chloris chloris</i>	BoCC Red	2022
Ruff	<i>Calidris pugnax</i>	BoCC Red, WCA1i	2011
Temminck's Stint	<i>Calidris temminckii</i>	WCA1i	2010
Cetti's Warbler	<i>Cettia cetti</i>	WCA1i	2021
Little Ringed Plover	<i>Charadrius dubius</i>	WCA1i	2020
Ringed Plover	<i>Charadrius hiaticula</i>	BoCC Red	2015
Marsh Harrier	<i>Circus aeruginosus</i>	WCA1i	2021
Hen Harrier	<i>Circus cyaneus</i>	BoCC Red, S41, WCA1i	2019
Quail	<i>Coturnix coturnix</i>	WCA1i	2014

Cuckoo	<i>Cuculus canorus</i>	BoCC Red, S41, UKBAP	2021
Tundra Swan	<i>Cygnus columbianus</i>	BoCC Red, UKBAP, WCA1i	2020
House Martin	<i>Delichon urbicum</i>	BoCC Red	2020
Lesser Spotted Woodpecker	<i>Dryobates minor</i>	BoCC Red, UKBAP	2009
Yellow Hammer	<i>Emberiza citrinella</i>	BoCC Red, UKBAP; S41	2021
Reed Bunting	<i>Emberiza schoeniclus</i>	UKBAP; S41	2017
Merlin	<i>Falco columbarius</i>	BoCC Red, WCA1i	2021
Peregrine	<i>Falco peregrinus</i>	WCA1i	2021
Hobby	<i>Falco subbuteo</i>	WCA1i	2021
Brambling	<i>Fringilla montifringilla</i>	WCA1i	2017
Black-winged Stilt	<i>Himantopus himantopus</i>	WCA1i	2015
Little Gull	<i>Hydrocoloeus minutus</i>	WCA1i	2017
Mediterranean Gull	<i>Ichthyaeus melanocephalus</i>	WCA1i	2009
Herring Gull	<i>Larus argentatus</i>	BoCC Red, UKBAP	2020
Black-tailed Godwit	<i>Limosa limosa</i>	BoCC Red, UKBAP, WCA1i	2015
Linnet	<i>Linaria cannabina</i>	BoCC Red; UKBAP	2020
Grasshopper Warbler	<i>Locustella naevia</i>	BoCC Red, S41, UKBAP	2011
Crossbill	<i>Loxia curvirostra</i>	WCA1i	2012
Nightingale	<i>Luscinia megarhynchos</i>	BoCC Red	2021
Red Kite	<i>Milvus milvus</i>	WCA1i	2021
Yellow wagtail	<i>Motacilla flava</i>	BoCC Red, UKBAP	2013
Spotted flycatcher	<i>Muscicapa striata</i>	BoCC Red, UKBAP, S41	2021
Curlew	<i>Numenius arquata</i>	BoCC Red, S41, UKBAP	2014

House Sparrow	<i>Passer domesticus</i>	BoCC Red, UKBAP, S41	2022
Tree sparrow	<i>Passer montanus</i>	BoCC Red, S41, UKBAP	2018
Grey Partridge	<i>Perdix perdix</i>	BoCC Red; S41, UKBAP	2021
Red-necked Phalarope	<i>Phalaropus lobatus</i>	BoCC Red, UKBAP, WCA1i	2015
Black Redstart	<i>Phoenicurus ochrurus</i>	WCA1i	2021
Marsh tit	<i>Poecile palustris</i>	BoCC Red; UKBAP	2021
Duncock	<i>Prunella modularis</i>	UKBAP	2022
Bullfinch	<i>Pyrrhula pyrrhula</i>	UKBAP	2021
Avocet	<i>Recurvirostra avosetta</i>	WCA1i	2009
Whinchat	<i>Saxicola rubetra</i>	BoCC Red	2018
Woodcock	<i>Scolopax rusticola</i>	BoCC Red	2021
Garganey	<i>Spatula querquedula</i>	WCA1i	2018
Turtle dove	<i>Streptopelia turtur</i>	BoCC Red, UKBAP, S41	2021
Starling	<i>Sternus vulgaris</i>	BoCC Red, UKBAP	2022
Wood Sandpiper	<i>Tringa glareola</i>	WCA1i	2017
Greenshank	<i>Tringa nebularia</i>	WCA1i	2021
Green Sandpiper	<i>Tringa ochropus</i>	WCA1i	2021
Redwing	<i>Turdus iliacus</i>	WCA1i	2021
Song thrush	<i>Turdus philomelos</i>	UKBAP	2021
Fieldfare	<i>Turdus pilaris</i>	BoCC Red, WCA1i	2022
Mistle Thrush	<i>Turdus viscivorus</i>	BoCC Red	2021
Barn Owl	<i>Tyto alba</i>	WCA1i	2021
Lapwing	<i>Vanellus vanellus</i>	BoCC Red, UKBAP, S41	2021

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 11: 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 GCN, ▪ Intentionally or recklessly damage, destroy or obstruct access to any place used by a GCN 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>

Appendix VII: Abbreviations

Table 12: 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 13: 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 leisieri</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 14: Compensation and enhancement Examples.	
	
<p>Photo 1: Woodstone Seville Box 28-32mm Hole.</p>	<p>Photo 2: Woodstone multichambered bat box</p>
	
<p>Photo 3: Eco-Kent bat box</p>	