Grove Farm Solar

on behalf of Axis PED

Ecological Assessment Report

avianecology

Report Verification and Declaration of Compliance

This report has been prepared with reference to best practice guidelines for Ecological Impact Assessment in the UK and Ireland, as defined by CIEEM (2022) and is provided in accordance with the provisions of British Standard 42020:2013 Biodiversity: Code of practice for planning and development and BS 8683:2021 Process for Designing and Implementing Biodiversity Net Gain - Specification.

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1. INTRODUCTION

1.1 Background and Scope

1.1.1 Avian Ecology Ltd. (AEL) was commissioned by Axis PED to undertake an Ecological Assessment in relation to the proposed Grove Farm Solar ('the Proposed Development'). The study area comprised the planning application site boundary ('the Site') shown in **Figure 1**, unless otherwise stated.

1.1.2 This report provides baseline information and an assessment of potential ecological effects of the Proposed Development.

1.1.3 The objectives of the assessment are to:

- Provide baseline information on the current habitats and ecological features both within the Site and in the immediately surrounding area;
- Identify the proximity of any designated sites for nature conservation interest and provide an assessment of any potential effects the Proposed Development may have on these;
- Identify the presence or potential presence of any protected species or habitats and provide an assessment of any potential effects the Proposed Development may have on these; and,
- Provide recommendations for further pre-construction checks and / or mitigation measures, if required as well as providing an outline of proposed habitat enhancements.

1.1.4 The assessment has been informed by desk-based review of relevant ecological information, extended habitat survey, breeding bird survey and wintering bird survey; and refers to relevant legislation, planning policy and guidance as appropriate.

1.1.5 Consideration has been given to the potential presence of rare, protected, or notable habitats and species, and the location of nearby features including designated sites for nature conservation. Mitigation and enhancement measures to achieve Biodiversity Net Gain (BNG) are also proposed.

1.1.6 Throughout this report, common names for species are favoured over scientific names unless there is potential for confusion and in which case scientific names are also presented.

1.2 Site Overview

1.2.1 The Proposed Development is located on land off Potash lane approximately 1km east of the village of Capel St Mary, Suffolk, IP9 2EF and comprises of approximately 46 ha of predominantly arable fields with associated hedgerows and line of trees.

1.2.2 In the wider context Engry Woods is adjacent to the north west of the Site and Alton water located approximately 1.2km east of the Site. The broad habitats in the wider area consist of arable and pastoral fields and scattered woodland.

1.2.3 The Site location is illustrated in **Figure 1**.

1.3 Proposed Development

1.3.1 The Proposed Development includes the construction of a solar farm and associated infrastructure.

1.4 Legislative and Planning Framework

Legislation

1.4.1 Reference has been made to the following key pieces of legislation listed in **Table 1:1**.

Table 1:1: Key legislation

International
• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the 'the Ramsar Convention); • Convention on the Conservation of European Wildlife and Natural Habitats 1979 (hereafter referred to as the 'the Bern Convention'; and, • UNESCO convention on the protection of the World Cultural and Natural Heritage (1972).
National
• Countryside and Rights of Way Act 2000; • Hedgerow Regulations 1997; • Infrastructure Act 2015; • Natural Environment and Rural Communities (NERC) Act (2006); • Protection of Badgers Act 1992; • The 'Conservation of Habitats and Species Regulations 2017 (as amended);; • The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019;; • The Environment Act 2021; • The Invasive Alien Species (Enforcement and Permitting) Order 2019; • The Town and Country Planning Act 1990; and, • The Wildlife and Countryside Act 1981 (as amended).

1.4.2 The Conservation of Habitats and Species Regulations 2017 (as amended) remains in place following the United Kingdom's (UK's) withdrawal from the European Union (EU) with only relatively minor changes coming into force on 31st December 2020, with the 2017 regulations being transposed into national (England and Wales) legislation via the Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019 which came into force on 31st December 2020. They are hereafter referred to as the 'Habitats Regulations'.

Policy

1.4.3 Reference has been made to the following key pieces of policy listed in **Table 1.2**.

Table 1:2: Key Policy

National
• Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Natural England. 2022);

• Biodiversity Net Gain. Good practice principles for development[1]; • BS 42020:2013 Biodiversity – Code of Practice for Planning and Development; • BS 8683:2021 Process for Designing and Implementing Biodiversity Net Gain – Specification; • European protected species policies for mitigation licences (Natural England. 2022); • National Planning Policy Framework 2 (NPPF, 2021); • The United Kingdom Biodiversity Action Plan (UK BAP); and, • Wildlife licensing: comment on new policies for European protected species licence (Natural England, 2016).
Local
• Biodiversity Net Gain Planning Guidance Note for Suffolk[2] • Ipswich Local Plan 2011-2031[3] • Suffolk Biodiversity Partnership[4]

1.4.4 The 'UK Post-2010 Biodiversity Framework' succeeds the UK Biodiversity Action Plan (UK BAP) and 'Conserving Biodiversity – the UK Approach'. The lists of priority species and habitats agreed under UK BAP still form the basis of much biodiversity work and are therefore considered within this report in the context of the objectives of the Biodiversity Framework. BAPs identify habitats and species of nature conservation priority on a UK (UK BAP) and Local (LBAP) scale. UK BAPs formed the basis for statutory lists of priority species and habitats in England under Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006, and so are also relevant in the context of this legislation.

2 METHODOLOGY

2.1 Desk Study

2.1.1 A desk study was undertaken to identify existing information on the presence of designated sites for nature conservation, protected and notable species and habitats within proximity to the Site as follows:

- Non-statutory designated sites for nature conservation within a 2km search area;
- Statutory designated sites for nature conservation, within 5km of the Site, extending to 10km for internationally protected sites with mobile qualifying species; and,
- Existing records of priority habitats, protected and notable faunal species, within a 2km search area.

2.1.2 The following key sources were consulted:

[1] https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development/
[2] https://democracy.ipswich.gov.uk/documents/s36985/PD-22-14%20Appendix%201%20-%20Suffolk%20Wide%20BNG%20Guidance%20Document.pdf
[3] https://www.ipswich.gov.uk/services/superseded-ipswich-local-plan-2011-2031
[4] http://www.eoebiodiversity.org/pdfs/SBP%20Moving%20Forward%20March%202014.pdf

- Natural England and Joint Nature Conservation Committee (JNCC) websites[5];
- The Multi Agency Geographic Information for the Countryside (MAGIC) website[6];
- District Level Licencing Data[7]; and,
- Suffolk Biodiversity Information Service[8] (SBIS).

2.1.3 Reference was also made to Ordnance Survey maps of the wider area and online aerial images (www.google.co.uk/maps) in order to determine any features of nature conservation interest in the wider area, including potential ponds and watercourses.

Desk Study Limitations

2.1.4 The data search for non-statutory designated sites for nature conservation and notable and protected species provided by the SBIS was undertaken with a previous iteration of the redline boundary. Therefore an area comprising the DNO substation and associated access routes to the north-west of the main solar array and the access route the south-west of the main solar array were excluded from the data search.

2.2 Field Surveys

Extended Habitat Survey

2.2.1 An extended habitat survey was undertaken on 28th February and 1st March 2023 by K. Ward MSc, a suitably experienced and qualified ecologist. The survey followed UK industry standard UKHab Methodology[9] with reference to the CIEEM, guidance (2017)[10]. The DNO substation area and associated access routes was subject to survey at a later date of 23rd May 2023 by R. Kilshaw, a suitably experienced and qualified ecologist.

2.2.2 The survey covered the Site as presented in **Figure 1**.

2.2.3 Habitats were mapped and described, using a series of 'target notes' (TNs). The survey was extended to include the additional recording of specific features indicating the presence, or likely presence, of protected species, invasive species and other species of conservation significance.

2.2.4 Trees were assessed for bat roost potential following Bat Conservation Trust (BCT) Guidance[11]

[5] http://jncc.defra.gov.uk/
[6] https://magic.defra.gov.uk/MagicMap.aspx
[7] https://naturalengland-defra.opendata.arcgis.com/datasets/great-crested-newts-edna-pond-surveys-for-district-level-licensing-england?geometry=-1.451%2C51.749%2C-1.002%2C51.823
[8] https://www.suffolkbis.org.uk/
[9] http://www.ukhab.org
[10] CIEEM. (2017). *Guidelines for Preliminary Ecological Appraisal, 2nd edition*. Chartered Institute of Ecology and Environmental Management, Winchester.
[11] Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn).* The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

Breeding Bird Survey

2.2.5 The three Breeding Bird Surveys were undertaken in April, May, and June 2022 by Mr J. Hanlon *BSc (Hons)*, an experienced ornithologist. The survey area comprised the main solar array area as shown on Figure A1 within the Breeding Bird Survey Report (**Appendix 2**)

2.2.6 The methodology employed was based-upon a scaled-down version of the British Trust for Ornithology (BTO) Common Bird Census (CBC) technique, as detailed in Gilbert *et al.* (1998)[12].

2.2.7 Full methodologies and limitations are provided within the Breeding Bird Survey Report (**Appendix 2**).

Wintering Bird Survey

2.2.8 The wintering bird survey area comprised the main solar array area plus a 250m buffer where access allowed as shown on Figure1 of the wintering bird survey report (**Appendix 3**).

2.2.9 A total of six visits were completed with 'walk-over' surveys adopting the 'look-see' methodology (Gilbert *et al.* 1998) between October 2022 and April 2023 by Mr J. Hanlon *BSc (Hons)* .

2.2.10 Full methodologies and limitations are provided within the Wintering Bird Survey Report (**Appendix 3**).

Limitations to Field Surveys

2.2.11 Limitations to field surveys are discussed below.

Extended Habitat Survey

2.2.12 An extended habitat survey does not constitute a detailed botanical survey or faunal species list or provide a full protected species survey but, enables competent ecologists to ascertain an understanding of the ecology of the site in order to:

- Broadly identify the nature conservation value of a site and assess the significance of any potential impacts on habitat/species recorded; and/or,
- Confirm the need and extent of any additional specific ecological surveys that are required to identify the true nature conservation value of a site (if any).

2.2.13 The habitat survey was undertaken in late February and early March 2023 which is outside the optimal period for botanical surveys. Given the agricultural habitats present, the timing of the survey is not considered to be a constraint to the Ecological Assessment.

2.2.14 Breeding and wintering bird surveys were undertaken using a previous iteration of the redline boundary, and therefore excluded the DNO substation and associated access routes to the north-west of the main solar array and the access route the south-west of the main solar array. This is not considered to be a constraint to the Ecological Assessment.

[12] Gilbert, G., Gibbons, D.W. and Evans, J. (1998) *Bird Monitoring Methods*. RSPB, Sandy

2.3 Biodiversity Net Gain

2.3.1 In order to assess the measurable biodiversity impacts associated with the Proposed Development, the Natural England Biodiversity Metric 4.0 Calculator[13] (the 'Metric') was utilised in order to provide evidence of Biodiversity Net Gain (BNG).

2.3.2 The Metric calculates the scale of a habitat impact or enhancement by multiplying the area (hectares), distinctiveness (habitat type) and condition (quality) of each habitat parcel. When biodiversity net-losses are predicted; the calculation provides a negative score. This provides an evidence base for discussions regarding on-site avoidance and mitigation and off-site compensation requirements. When biodiversity net-gains are predicted, proposals generally include habitat enhancement/creation which can be delivered on-site, or as off-site compensation.

3 BASELINE

3.1 Designated Sites for Nature Conservation

Statutory Designated Sites

3.1.1 A summary of statutory designated sites within 5km and international sites within 10km including five Local Nature Reserves (LNR), four Sites of Special Scientific interest (SSSI), one Special Protection Area (SPA) and Ramsar more detail is presented in **Table 3:1** and locations are presented in **Figure 2**.

3.1.2 The review of MAGIC identified that the Site is located within the SSSI Impact Risk Zone (IRZ) of the Cattawade Marshes SSSI and Freston and Cutler's Woods with Holbrooke Park SSSI. The IRZ system sets the criteria for development whereby a Local Authority (Council) would be required to consult with Natural England regarding potential risks to the SSSIs posed by the Proposed Development on Site.

3.1.3 It is considered that the Proposed Development meets the criteria (solar schemes with footprint > 0.5ha) whereby the Local Authority would be required to consult with Natural England regarding potential risks to the SSSIs posed by proposed developments.

Table 3:1. Statutory Designated Sites
(SSSI: Site of Special Scientific Interest; LNR: Local Nature Reserve; SPA: Special Protection Area)

Site Name	Distance and Direction from Site	Reason for designation
Freston and Cutler's Wood with Holbrook Park SSSI	2.08km east	These woods together comprise one of the largest areas of ancient woodland in Suffolk. The coppice stools in Holbrook Park are amongst the largest recorded in Britain with many stools exceeding 3m in diameter. The woods support a distinctive ground vegetation and are among the best Bluebell woods in Suffolk.
Spring Wood, Belstead LNR	4km north east	Ancient oak woodland with hazel understorey with some coppiced sections.
Millennium Wood LNR	4.01km north east	This is an ancient, semi-natural woodland. ground flora includes bluebells and wood anemones. Other species include small leaved lime and white admiral butterfly. The wood has hornbeam and unusual old coppiced lime.

[13] https://publications.naturalengland.org.uk/publication/6049804846366720

Site Name	Distance and Direction from Site	Reason for designation
Stour Estuary SSSI	4.13km south	The Stour Estuary is nationally important for 13 species of wintering waterfowl and three species on autumn passage. The estuary is also of national importance for coastal saltmarsh, sheltered muddy shores, two scarce marine invertebrates and a vascular scarce plant assemblage. The 13 notable birds are: grey plover, knot, dunlin, redshank, black-tailed godwit, great crested grebe, cormorant, mute swan, dark-bellied brent goose, shelduck, pintail, ringed plover and curlew Ringed plover, dunlin and redshank are regularly found using the Stour Estuary on autumn passage in nationally important numbers
Stour and Orwell Estuaries Ramsar	4.13km south	Reasons for Designation: • Black-tailed godwit, - Wintering • Dark-bellied brent goose, - Wintering • Dunlin- Wintering • Grey plover- Wintering • Knot- Wintering • Pintail - Wintering • Redshank - Passage • Redshank- Wintering • Waterbird assemblage - Wintering • Wetland invertebrate assemblage • Wetland plant assemblage
Stour and Orwell Estuaries SPA	4.13km south	Conservation Objectives: • Dark-bellied brent goose (Non-breeding) • Northern pintail (Non-breeding) • Pied avocet (Breeding) • Grey plover (Non-breeding) • Red knot (Non-breeding) • Dunlin (Non-breeding) • Black-tailed godwit (Non-breeding) • Common redshank (Non-breeding) Waterbird assemblage
Bobbits Lane LNR	4.31km north east	A local nature reserve comprising wet meadows which provide habitats for species such as otter, water vole, kingfishers, egrets and toads.
Bobbitshole, Belstead SSSI	4.37km north east	Designated for geological reasons.
Bourne Park Reed Beds LNR	4.62km north east	Reedbed and tall herb fen with patches of scrub woodland, along the northern bank of Belstead Brook.
Stoke park LNR	4.87km north east	Habitats of notes include mixed woodland with glade with ancient woodland indicator species.
Cattawade Marshes SSSI	5.04km south east	Cattawade Marshes lie at the head of the Stour Estuary, between freshwater and tidal channels of the River Stour. These grazing marshes with associated open water and fen habitats are of major importance for the diversity of their breeding bird community. The marshes are also of value as a complement to the adjacent Stour Estuary SSSI where breeding habitats for birds are relatively scarce. The undisturbed nesting habitats are particularly favourable to waders and wildfowl. Redshank, lapwing and oystercatcher breed within the cattle-grazed pasture, while ringed plover and shelduck nest on the relict seawalls. Marshy pools and a system of dykes within the

Site Name	Distance and Direction from Site	Reason for designation
		grassland, together with dense riverside vegetation, provide further nesting habitats, most notably for shoveler, teal, tufted duck and water rail.

Non-Statutory Designated Sites

3.1.4 Information provided by SBIS confirms that the Site is not located within any non-statutory designated site for nature conservation. The search identified nineteen County Nature Reserve (CNR) within a 2km radius of the Site boundary, as described in **Table 3:2** and locations are presented in **Figure 3.**

Table 3:2 Non-statutory Designated Sites
(CNR: County Nature Reserve)

Site Name	Distance and Direction from Site	Description
Engry Wood CNR	Adjacent north	Engry Wood is one of a number of ancient woods in the Parish of Bentley listed in Natural England's Ancient Woodland Inventory and is used for timber production and pheasant shooting. It is fairly uniform throughout consisting mainly of ash and hazel coppice with a few oak standards also present. There is a smaller area of oak and silver birch on the eastern side beneath which is a shrub layer of hazel coppice. A total of 74 woodland plant species have been noted Further surveys have shown that a number of the hedges connecting the woods in this area are important corridors for dormice.
Engry Wood Dormouse hedge CNR	Adjacent west	Ancient hedgerows bordering this green lane support dormice.
Buxton Wood Meadow CNR	160m south east	This extensive grassland lies adjacent to Buxton Wood. Many of the plants noted are associated with unimproved wet pasture for example, ragged-robin, angelica and water mint. A more recent survey carried out in 1992 indicated that due to the lack of management the site has become overgrown with encroaching willow and horsetail. However a good range of wetland plants can still be found here including a large population (several hundred plants) of southern marsh-orchids.
Buxton Wood CNR	200m south east	Buxton Wood is one of a number of ancient woods (Priority habitat) situated in the parish of Bentley. The wood is dominated by mature sweet chestnut coppice with hazel forming the shrub layer. In addition, there are a few scattered oak, cherry, hornbeam, rowan and apple standards. Bluebell and bramble are dominant on the woodland floor, but where there is sufficient light, species including ancient woodland indicators moschatel, dog's mercury, yellow archangel and wood sorrel can be. A good range of bird species have been recorded at this site in the past, including nightingale and cuckoo.
Pedlar's Grove CNR	260m west	Pedlar's Groves are included in a group of ancient woodlands, a Priority habitat, known as the Bentley woods Pedlar's Grove retains its semi-natural coppice-with-standards structure. It consists of ash and field maple coppice with an understorey of hazel coppice and oak standards of uniform age scattered throughout. A notable feature of this woodland is the presence of some old large cherries. The standing and fallen deadwood provide excellent habitat for many invertebrates, including Priority species stag beetle. Dormouse, a Priority species for which Suffolk records are restricted to the south of the county, are recorded in both woods and the adjacent hedgerows are important corridors for the movement of this species.
Fingery Grove CNR	465m	Fingery Grove forms part of a network of small ancient woodlands and hedgerows (Priority habitat) in the area. The woodland comprises a mix of native trees including spindle, Midland hawthorn, wild cherry, oak, ash, holly and elm. The ground flora is of typical woodland species such as pignut and false wood brome, but ancient woodland indicators including bluebell, wood sedge, wood melick, barren strawberry, primrose and wood speedwell are also present. Stag beetles have been recorded in the area and are highly likely to be

		present here. The woodland also offers good habitat potential for hazel dormouse, which is found in the surrounding woodlands and hedges.
Tare Grove CNR	510m north west	Tare and Pedlar's Groves are included in a group of ancient woodlands, a Priority habitat, known as the Bentley woods. Whilst the structure of Tare Grove has been considerably altered by felling and replanting with non-native species sweet chestnut and pine, the structural diversity of this site as a whole provides habitat opportunities for a wide range of species including invertebrates, birds and small mammals.
Ponder's Grove CNR	575m north west	This small woodland is one of a number of ancient woods in the parish of Bentley, known collectively as the Bentley Woods, but it is too small to be listed in English Nature's Inventory of Ancient Woodland.
Hall Heath and Mungon's Grove CNR	630m north east	This area of mixed woodland forms part of a series of small woods along the Ipswich/London railway line and contains a range of maturing woodland. Following a survey in 2002, this site has been shown to support a significant population of hazel dormice, a Priority species. Dormouse populations in Suffolk are largely located within the Stour valley and a number of ancient woodlands and hedgerows in Bentley parish are known to support them.
Great Martin's Hill Wood CNR	790m south west	This site includes three areas of woodland which are listed in Natural England's Inventory of Ancient Woodland: Great Martin's Hill Wood, Little Martin's Hill Wood in the east and Holly Wood in the north. The woodland contains several ponds which have been created along the southern edge of the wood and the sheltered glades attract numerous butterfly and dragonfly species. Priority species slow-worm and dormouse have been recorded here. The boundary of this County Wildlife Site was extended in 2002 to include a hedge that was found to support dormice.
Bently Long Wood CNR	950m north west	Bentley Long Wood appears on a 1639 map as 'Bentlie Woode' and is listed in Natural England's Ancient Woodland Inventory. The site is dominated by oak with abundant ash, field maple, spindle, wild cherry and hazel coppice, with birch moving into some areas. The structural diversity of the woodland provides habitat opportunities for a range of invertebrates (including Priority species stag beetle, for which the standing and fallen deadwood is essential) and birds. Priority species hazel dormouse is also recorded here.
Alton Water CNR	1.04km north	Alton Water comprises 158 hectare open water resource, fringed by approximately 10 miles of woodland, large areas of rough and short mown grassland and valuable scrub habitats. There are also a number of veteran trees indicative of former parkland, which grow within the scrub and woodland. The site is important both for the range of species it supports and for its very large size. The mosaic of Priority habitats (ponds, lake, hedgerow and mixed deciduous woodland) found at Alton Water supports many Priority species. The open water provides an important year round refuge for birds, including dark-bellied Brent goose, teal, widgeon, mallard and gadwall. Common tern regularly breeds on the rafts and pochard is also present. Otter and water shrew are recorded here. The woodland and scrub habitats north of Lemons Hill Bridge are particularly important for hazel dormice, first recorded here in 2011, with the population now surveyed annually as part of the National Dormouse Monitoring Programme. The varied scrub on site supports around 30 territories of nightingale. Other Priority species of birds, reptiles, amphibians, invertebrates and mammals supported by the varied habitat at this site include harvest mouse, soprano pipistrelle, brown hare, common toad, hedgehog, turtle dove, skylark, yellowhammer, bullfinch, reed bunting and common lizard.

Newcombe Wood CNR	1.16km north east	Newcombe Wood is a medieval wood belonging to the group of ancient woods known as the Bentley Woods which are listed in Natural England's Inventory of Ancient Woodland. With mature trees and shrubs, mainly oak, hazel, ash, elm and hawthorn. The dead wood present adds to the structural diversity and provides valuable habitat for a range of invertebrates including Priority species stag beetle, as well as refuge for reptiles, with slow-worm and common lizard (both Priority species) having been recorded here.
Brockley Wood CNR	1.28km north	Brockley Wood is one of a number of ancient woodlands in the parish of Bentley listed in Natural England's Inventory of Ancient Woodland. A number of old oak and elm pollards, a characteristic feature of ancient woodlands, are located on the woodland boundaries. A pond situated on the site of an old building on the southern boundary of the wood provides an important additional habitat for dragonfly and amphibian larvae.
Dodnash Wood CNR	1.32km south	Dodnash Wood contains a number of tree communities. The plateau is dominated by sweet chestnut which has been coppiced at some time in the past. The southern slope is composed mainly of elm, some of which has been coppiced. Other tree communities include ash and hazel with frequent sessile oak, rowan and holly. Dodnash Wood supports many uncommon species including a number which are restricted to ancient woods. Furthermore, dormouse has been recorded in the coppiced woodland
Heathland Field CNR	1.45km	This field overlooking Alton Water was taken out of agricultural production after the 1996 harvest. Since then the land has been allowed recolonise naturally. The only planting that has taken place is the planting of a local species perimeter hedge. Prior to agricultural production this field was heathland and it is hoped that heathland species will gradually re-establish. The developing semi-natural habitat is attracting an interesting fauna, including good numbers of lizards, slow worms and grass snakes and a pair of hobbies.
Old Hall Wood CNR	1.48km north	Old Hall Wood is one of a number of ancient woodlands (Priority habitat) situated around the village of Bentley and close to Holbrook Park (Site of Special Scientific Interest). The original woodland was replanted with mainly oak, beech and conifer, with spindle, small -leaved lime and rowan also present.
Wherstead Wood CNR	1.71km north east	This large ancient woodland site, which is listed in Natural England's Ancient Woodland Inventory. Oak standards with mature field maple and birch trees fringe the northern edges of this wood, with scattered holly, elm and rowan present in smaller quantities throughout. The site also supports a good diversity of birds including nightingale. Dormice are recorded throughout the ancient woodland and the connecting linear woodlands to the south. As well as providing important habitat these linear woodlands contribute to the ecological network for dormice, linking populations in Wherstead with neighbouring ones in Bentley and Tattingstone.
Wherstead Heath CNR	2.0km north east	Wherstead Heath consists of three main plant communities. In the north-western corner is an area colonised by oak and birch woodland, with an understorey of bracken and young birch. In the southern and north-eastern sections of the site, regenerating birch, gorse, elder and bramble scrub forms a valuable habitat for nesting birds such as nightingale. Dormice have also been recorded in the connecting woods and scrub.

3.2 Priority habitats

3.2.1 Information on priority habitats within the Site and within 2km of the Site is presented in **Table 3:3** below. Where numerous records of a particular habitat were recorded, only the closest record to the Site has been provided.

Table 3:3: Priority Habitats

Priority habitat name	Designation	Distance from site
Hedgerows	NERC S.41, UKBAP, LBAP	Within the Site
Deciduous woodland	NERC S.41, UKBAP,	Adjacent
Wood-pasture and Parkland	NERC S.41, UKBAP, LBAP	Adjacent
Traditional orchard	NERC S.41, UKBAP, LBAP	364m south west
Lowland Dry Acid Grassland	NERC S.41, UKBAP, LBAP	1.6km east
Coastal and floodplain grazing marsh	NERC S.41, UKBAP, LBAP	2km south

3.3 Ancient and Irreplaceable Habitats

3.3.1 Two notable oak trees listed on the Ancient Tree Inventory[14] were located within the eastern boundary of the Site. A number of ancient semi-natural woodland and replanted woodland are within 2km of the Site the closest is Engry wood an ancient and semi-natural woodland adjacent to the north west of the Site.

3.3.2 The Arboricultural survey identified two veteran trees, two ancient trees and four notable trees as shown on the Tree Constraints Plan (Drawing number: ADAS_1052211_Axis PED_Grove Farm_TCP) and Tree Survey schedule[15].

3.3.3 There are no other ancient or irreplaceable habitats (e.g., peat) identified within the immediate vicinity of the Site.

3.4 Habitats and Vegetation

3.4.1 This section should be read in conjunction with the UKHab Habitat Plan presented as **Figure 4**, descriptions are provided in **Table 3:4**, target notes presented in **Table 3:5** and photographs presented in **Appendix 1**.

Table 3:4: UKhab habitats summary

Habitat Code	Descriptions	Photo No
c1c7	Rapeseed crop.	1
c1c5	Winter stubble adjacent existing farm access track.	2
g4.60	Recently sown modified grassland, at the time of the survey it was grazed by sheep with the species dominated by meadow grass.	3

[14] https://ati.woodlandtrust.org.uk/tree-search/?v=2263813&ml=map&z=18&nwLat=51.99974169598201&nwLng=1.0815910629075853&seLat=51.997228282462785&seLng=1.0867784551423876

[15] ADAS (2023) *Grove Farm Tree Survey Schedule*

Habitat Code	Descriptions	Photo No
g4	Modified grassland with a short sward with species at the time of survey consisting of fescue grass species, ribwort plantain and meadow grass species.	4
u1b	Farmyard	5
u1b.115	Hardstanding access track	6
h2a	Species poor intact priority hedge rows ranging from 0.75m to 2.5m hight and 1.25m to 2m wide. Species throughout the Site consisted of hawthorn, blackthorn, beech, holly, oak and field maple.	7
h2a	Conifer cypress hedge approximately 6m in hight and 3m wide.	8
h2a.190	A species poor intact priority hedgerow with trees ranging from 1.5m to 4m in hight and 1.5m to 3m wide. The hedgerow species throughout the Site consisted of holly, field maple blackthorn, hawthorn, ash and oak and the trees consisted of oak and ash.	9
h2a.10.190	A species poor intact priority hedgerow with trees and scattered scrub approximately 4.75m in hight and 3m wide. The hedge species consisted of hawthorn, oak and blackthorn and oak trees.	10
h2a.10.81.190	A species poor flailed hedgerow with trees and scattered scrub approximately 3m in hight and 2.5m wide. The hedge species consisted of blackthorn, field maple, holly, hawthorn and tree species consisting of oak, ash and willow.	11
h2a.190.191	A species poor gappy priority hedgerow with trees and associated ditch. The hedge species consisted of field maple, hawthorn and blackthorn and trees consisting of field maple, hawthorn, oak and ash. See notes for ditch- r1.117.191.	12
r1.117.191	A dry ditch at the base of hedgerow (19). The ditch was approximately 0.75m deep and 1.5m wide with sparse vegetation limited to meadow grass and other scattered grass species and ivy.	13
w1g6	Mixture of semi mature and mature trees consisting of blackthorn, cypress, oak and ash.	14
c1c	Arable field	15
g1c	Bracken located on a steeply sloping open habitat with other ground flora species consisting of foxglove, honeysuckle, greater stitchwort and bluebell. A number of tree species were also present in the area including semi-mature oak, elder, blackthorn and willow.	16

Table 3:5: Target Notes

Target Note	Comment	Photo No.
TN1	Remnants of an old dry pond	17
TN2	A mature oak tree with high bat roost potential, notably a dead limb with thick peeling bark, snapped limbs and a number of knot holes.	18
TN3	Mammal foraging signs.	19
TN4	A mature oak tree with high bat roost potential. Bark stripped and peeling at the top of the tree, a number of split limbs and knot holes along the tree trunk.	20
TN5	Mammal foraging signs.	21

Target Note	Comment	Photo No.
TN6	An old pond holing small amounts of apparently very polluted water, with canary reed grass, nettles scattered grass and willow saplings along the edges.	22
TN7	Mammal foraging signs.	23
TN8	A row of old straw bales along the field boundary which could be used as amphibian or reptile hibernacula.	24

3.5 Protected and Notable Species

Breeding Birds

3.5.1 A total of 23 species were recorded breeding within the Site and associated boundary habitats, including total of ten Notable Species (as defined in the Breeding Bird Survey Report, **Appendix 1**) . Notable Species recorded within the Site included five Red List species and five Amber List species as defined in Stanbury et al[16] (2021).

3.5.2 Four Notable Species recorded are listed as rare and most threatened species under Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act (2006).

3.5.3 No species listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were recorded breeding within the study are and three species listed under the Suffolk Local Biodiversity Action Plan (LBAP) were recorded within the Site.

3.5.4 Within the Site, the number of breeding territories for all Notable Species were considered low, with a maximum of five breeding territories. Two ground-nesting Notable Species (skylark and yellow wagtail) were recorded breeding within the Site , both with one territory each.

3.5.5 Species recorded within or flying over the Site but not considered breeding included lesser black-backed gull, kestrel, jackdaw, marsh tit, swallow, house martin and pied wagtail.

3.5.6 Full survey results are provided within the *Breeding Bird Survey Report* (**Appendix 2**).

Non-breeding Birds

3.5.7 The habitats within and adjacent to the Site are not considered suitable for most non-breeding wetland birds associated with statutory designated sites (Table 3.1). Occasional use by more wider-ranging species, such as golden plover, is possible and therefore surveys were undertaken. Overall the Site is considered suitable for farmland passerine species during the non-breeding season.

3.5.8 No Target Species (defined as those which are alone qualifying species of the Stour and Orwell SPA) were observed within the Site. Low numbers of other waterbird species (0 to 72 individuals) were recorded within the site on one visit.

[16] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. 2021. The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available online at ttps://britishbirds.co.uk/content/status-our-bird-populations.

3.5.9 No Target Species were recorded within the wider survey area, with relatively low numbers (0 to 206 individuals) of secondary waterbird species recorded.

3.5.10 The total waterbird assemblage both within the Site and within the Wider survey area did not meet the 1% threshold for the combined Stour and Orwell Estuaries total on any occasion to be classed as functionally linked land for the Stour and Orwell Estuaries SPA and Ramsar.

3.5.11 Full survey results are provided within the *Wintering Bird Survey Report* (**Appendix 3**).

Bats

3.5.12 SBIS returned 114 records for ten species and four species groups including; serotine, Western barbastelle, Daubenton's bat, Natterer's bat, Leisler's bat, noctule, Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle, brown long-eared bat, Myotis bat species, pipistrelle bat species, long-eared bat species and unidentified bat species. The closest record was located 70m north of the Site.

3.5.13 A search of MAGIC showed that there were two records of European Protected Species licences have been granted within 2km of the Site; licence related to barbastelle, brown long-eared bat, common pipistrelle issued between 2013 and 2017 (2017-29900-EPS-MIT BARB,BLE,C-PIP and EPSM2012-5184)

Roosting Bats

3.5.14 Trees with features offering moderate to high bat roosting potential are located along field boundary features.

3.5.15 There are no buildings located within the Site. Woodlands bordering the Site, such as Engry Wood, support numerous trees with bat roost potential.

Foraging and Commuting Bats

3.5.16 The Site is dominated by arable fields, which provide limited opportunities for foraging and commuting bats. However longer pastoral grassland and field boundaries, such as woodland, treelines, hedgerows, and ditches are considered to offer more favourable habitats. Habitats bordering the Site such as the railway and associated scrub habitat and adjacent woodland offer favourable habitats for foraging and commuting bats.

3.5.17 Overall, the habitats within and adjacent to the Site were considered to most closely fit the description for land of 'moderate' interest for foraging and commuting bats in accordance with BCT guidance, with 'continuous habitat connected to the wider landscape that could be used for commuting such as lines of tree and scrub. Habitat that is connected to the wider landscape that could be used by foraging such as trees, scrub, grassland and water'.

Badger

3.5.18 SBIS returned 22 records for badger, with the closest record located 320m north of the Site.

3.5.19 During the extended habitat survey evidence of badger activity within the Site was limited to signs of foraging (TN3, TN5 and TN7) located along the north of the Site near to Engry wood and a smaller woodland coppice. No setts were identified within the Site.

3.5.20 The hedgerows and adjacent woodland offer suitable habitat for badger foraging and sett creation, while the arable and pastoral fields offer suitable foraging habitat.

Otter and Water Vole

3.5.21 SBIS returned one record for otter, 1.5km east from the Site. No records for water vole were returned.

3.5.22 No aquatic habitat was present within the Site or immediate surrounds, and it is considered that otter and water vole are absent from the Site.

Hazel Dormouse

3.5.23 SBIS returned 33 recent records for hazel dormouse located within 2km of the Site, with three records located in Engry Woods adjacent to the Site.

3.5.24 While hedgerows noted during the Extended Habitat Survey were typically species-poor with relatively few food sources for the species, due to the proximity of known populations it is considered likely that hazel dormouse utilise hedgerows within the Site.

Amphibians

3.5.25 SBIS returned one record for common toad from Engry Woods adjacent to the Site. No other recent records for amphibians were returned.

3.5.26 There are no ponds located within the Site, but twelve ponds located within 250m of the Site as shown on **Figure 5**.

3.5.27 The terrestrial habitat dominated by arable and pastoral fields provide very low/negligible suitability as amphibian terrestrial habitat. However, the field margins, hedgerows, ditch and adjacent woodland and railway embankment could provide more suitable terrestrial habitat for amphibians.

3.5.28 Additionally, a row of old bales (TN8) was present along the eastern Ste boundary that could be used as refugia by amphibians.

Reptiles

3.5.29 SBIS returned five records for slow-worm, six record of grass snake and two records of common lizard located within the Site, 1.2km east and 1.36km respectively.

3.5.30 The arable and pastoral fields are considered to offer low value habitat for reptiles with limited opportunities for commuting, foraging, basking and hibernating. The field margins, hedgerows, ditch and adjacent woodland and railway embankment provide more suitable terrestrial habitat for reptiles and a line of straw bales along the south eastern boundary (TN8) could also offer suitable hibernacula areas within the Site.

Other Protected and Notable Species

3.5.31 SBIS returned and number of recorda for notable species within 2km of the Site including brown hare, European hedgehog, polecat and number of invertebrate species such as white-letter hairstreak.

3.5.32 No evidence was gathered during the extended habitat survey to suggest the likely presence of other notable mammal species; however, it is considered that habitats located within the Site may potentially support European hedgehog and brown hare.

3.6 Invasive Non-native Species

3.6.1 SBIS returned a number of records for invasive species within 2km of the Site including Japanese knotweed, Chinese muntjac, Canada goose and Eastern grey squirrel.

3.6.2 No invasive non-native species were recorded during the extended habitat survey.

4 ASSESSMENT

4.1 Overview

4.1.1 This section seeks to identify the potential for effects to occur on habitats and protected and notable species which could be considered as reasonably likely to occur as a result of the Proposed Development. The Site's proximity to statutory and non-statutory designated sites and potential effects on their qualifying interests is discussed. Measures are proposed for the protection of sensitive habitats and species, and recommendations are made for further pre-construction surveys and mitigation, if required.

4.1.2 The development has been designed to minimise the potential for effects on sensitive ecological features, such as through the retention of field boundary features; thereby ensuring existing wildlife corridors and habitat connectivity are maintained and enhanced. A series of biodiversity enhancements have also been adopted.

4.2 Statutory Designated Sites

4.2.1 Nine statutory designated sites are located within 5km of the Site and two internationally designated sites located within 10km. The closest statutory designated site Freston and Cutler's Wood with Holbrook Park SSSI which is located 2.08km east, with the remaining sites located over 4km from the Site.

4.2.2 All the statutory sites are designated for notable habitats of interest other than the Stour Estuary SSSI which is designated for 13 notable wintering bird species, and Bobbitshole Blestead SSSI which is designated for geological reasons (and is therefore discounted). The Stour and Orwell Estuaries SPA and Ramsar is designated for notable wintering and breeding bird assemblages which could potentially utilise the arable habitats present within the Survey Area.

4.2.3 Wintering bird surveys undertaken in support of the Proposed Development indicate that the Site showed very low usage by target wintering bird species, with no use by species for which the Stour and Orwell Estuaries SPA and Ramsar is designated for. It is therefore considered that the loss of arable habitats within the Site will not adversely impact wintering bird species associated with the Stour and Orwell Estuaries SPA and Ramsar site.

4.2.4 All works will be confined to the Site boundaries, with suitable protection measures implemented to prevent any encroachment to adjacent habitats. In addition, standard best practice measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development; these measures will safeguard off-site habitats and the species they support.

4.2.5 Therefore, due to the absence of any functional linkage to the Stour and Orwell Estuaries SPA and Ramsar, and considering the physical separation of the site from any statutory designated sites and best practice measures to be employed, no direct or indirect effects are anticipated to statutory designated sites as a result of the Proposed Development. Subsequently there is no pathway for likely significant effect (LSE) on the Stour Estuary SPA.

4.3 Non-Statutory Designated Sites

4.3.1 Nineteen non-statutory designated are present within 2km of the Site, with Engry Woods CNR located adjacent to the Sites northern boundary.

4.3.2 Prior to the onset of construction suitable protection measures will be implemented to ensure no encroachment to adjacent habitats. Measures would be detailed within a CEMP subject to suitably worded condition however should include fencing to enforce a buffer of at least 15m from the woodland boundary in line with i British Standard BS5837:2012 Trees in relation to design, demolition and construction and Natural England and Forestry Commission standing advice for ancient woodlands[17].

4.3.3 Standard best practice measures to ensure runoff control and pollution prevention will be implemented during construction of the Proposed Development to safeguard offsite habitats.

4.3.4 Taking into account the physical protection measures implemented to protect Engry Woods CNR, physical separation from other sites and best practice measures to be implemented to adverse impacts are anticipated to non-statutory designated sites as a result of the Proposed Development.

4.3.5 A managed rewilding area has been proposed into which Engry Woods would be allowed to natural expand, expanding availability of woodland edge habitats.

4.4 Ancient and Irreplaceable Habitats

4.4.1 The arboricultural survey identified two veteran trees, two ancient trees and four notable trees within or immediately adjacent to the Site. Additionally, Engry Woods ancient woodland is located adjacent the northern boundary of the Site.

4.4.2 The Proposed development layout avoids impacts to field boundaries and adjacent habitats, and includes suitable offsets to avoid impacts to ancient woodland, and ancient, veteran and notable trees.

4.4.3 Protection measures would be detailed within a CEMP, subject to suitably worded condition; however will include fencing to enforce buffer zones in line with British Standard BS5837:2012 Trees in relation to design, demolition and construction and adhering to Natural England and Forestry Commission standing advice for ancient woodlands[18].

4.5 Habitats

4.5.1 The Survey Area is dominated by arable fields with a small area of modified grassland and a number of hedgerows and line of trees, as shown on **Figure 4**. The dominant arable fields and small area of modified grassland are considered to be of low ecological value. The hedgerows, line of trees provide higher biodiversity value at a local scale.

4.5.2 The Proposed Development has been designed to minimise hedgerow removal as far as practicable, however the removal of approximately 5m of hedgerow on Church Road will be required to facilitate the creation of a new Site access. For the retained hedgerows and woodlands, stand-off buffers will be set in place in line with British Standard BS5837:2012 Trees in relation to design, demolition and construction.

[17] https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

[18] https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions

4.5.3 To further protect off-site habitat, standard measures to ensure runoff control and pollution prevention (such as dust mitigation measures) will be implemented; these measures will safeguard habitats within the Proposed Development and wider area. These will be detailed within the proposed CEMP.

4.5.4 The Proposed Development includes extensive landscaping proposals with large areas of species rich grassland, low-intensity grazing pasture, a rewilding area to expand the Engry Woods edge habitat and woodland and hedgerow creation. It is anticipated that these created habitats will be of a greater value to biodiversity and support a greater abundance and diversity of species than the low value agricultural habitats currently present.

4.5.5 Habitats will be managed sensitively for biodiversity for the lifetime of the Proposed Development.

4.6 Biodiversity Net Gain Assessment

4.6.1 Based on the information provided within the Detailed Landscape Plan (Drawing ref: 3223-01-12), the calculation results show that the proposed development will result in a biodiversity net gain of 101.25% in Habitat Units, and 102.65% in Hedgerow Units, as shown in the headline results extracted from the full Metric spreadsheet, reproduced below. The full Metric spreadsheet is provided as **Appendix 5.**

Biodiversity Net Gain Calculation Headline Results (Defra metric 4.0)

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	97.90
	Hedgerow units	16.67
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	101.25%
	Hedgerow units	102.65%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

4.7 Protected and Notable Species

Birds

4.7.1 All wild birds, their nests and eggs are, with few exceptions, protected under the Wildlife and Countryside Act 1981 (as amended). Over eighty species or groups of species are listed under Schedule 1 of the Act, which confers special protection with increased penalties for offences committed.

4.7.2 Additionally, a further forty-nine bird species are listed under Section 41 of the NERC Act 2006 and 36 species are listed within the Suffolk BAP, and are therefore a material consideration within the planning process.

Breeding Birds

4.7.3 Breeding bird species were typically associated with field boundary features will which be largely retained and protected throughout construction and operation of the Proposed Development. A small

section of hedgerow approximately 5m in width is required to be removed to permit access from Church Lane.

4.7.4 The Proposed Development includes extensive hedgerow planting which, along with the proposed managed natural expansion of Engry Woods, will provide additional nesting habitat for a range of breeding bird species. Hedgerow species will be selected to include a range of fruit bearing species, which alongside other habitat creation proposals considered likely to increase invertebrate diversity will provide enhanced foraging for a range of common bird species.

4.7.5 A single territory each of skylark and yellow wagtail was noted within the Site. Both species are ground nesting species requiring open ground and have the potential to be adversely affected by the more enclosed conditions created through the placement of solar arrays.

4.7.6 Overall, given extensive landscape proposals, low numbers of ground nesting species and minimal vegetation clearance required, it is considered that the proposed development is likely to be beneficial to most breeding bird species.

4.7.7 To provide further enhancements for breeding birds it is proposed to install a minimum of ten bird nest boxes on suitable trees within the Site.

Non-breeding Birds

4.7.8 Low numbers of non-breeding waterbirds were observed within the Site and therefore the loss of arable land which is abundant in the wider area is considered unlikely to have an adverse effect on local non-breeding bird populations of any species. See also discussion under 'Statutory Designated Sites'.

Bats

4.7.9 All species of British bat are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are further protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Seven bat species in the UK are also listed as species of Principal Importance for the purpose of conserving biodiversity under Section 41 of the NERC Act 2006 and thirteen bat species are listed as priority species within the Suffolk BAP.

Roosting bats

4.7.10 No buildings were located within the Site; however trees located within the field boundaries were assessed to have high bat roost potential (TN2 and TN4) and trees in the adjacent Engry woodland were also assessed to offer bat roost potential. The trees within the hedgerow boundary and the adjacent woodlands are unaffected by the Proposed Development and will be retained and protected during construction. With the exception of minor hedgerow removal of approximately 5m required along Church Road to facilitate Site access, all existing hedgerows will be retained and protected during construction following British Standards BS5837:2012 *Trees in relation to design, demolition and construction.*

4.7.11 Any lighting used during construction or operation of the Proposed development will be directed away from trees offering bat roost potential to ensure no disturbance to bats potentially utilising these

trees. Any proposed lighting would be in line with Guidance Note GN08/23 produced by the Institution of Lighting Professionals (ILP)[19].

4.7.12 Although no trees are currently proposed to be affected, should this change, suitable checks for roosting bats will be undertaken in advance of any pruning works/tree removal. If bats are confirmed to be roosting within any tree to be impacted, the data gathered would be used to inform potential design amendments avoiding or reducing impacts, or, failing that to support a licence application to Natural England to destroy/disturb the bat roost.

4.7.13 Overall, no impacts to roosting bats are anticipated as a result of the Proposed Development.

4.7.14 Additionally, a total of ten bat roost boxes would be placed on trees within and adjacent to the Site to provide additional roosting habitat for bats.

Foraging and commuting bats

4.7.15 Arable and pastoral grassland habitat present within the site offer low suitable foraging and commuting habitat, however field boundary features and adjacent woodland habitats offer greater potential.

4.7.16 With the exception of minor hedgerow removal measuring approximately 5m in width required to facilitate Site access from Church Road, hedgerows and the line of trees within the Survey Area will be retained. It is therefore considered that there would be no loss of foraging opportunities or disruption to bat commuting routes.

4.7.17 Any lighting used during construction and operation of the Proposed Development will be directed away from field boundary habitats and adjacent woodland with reference to ILP guidance. As a result, no discernible effects are anticipated on foraging bats in the locality.

4.7.18 The Proposed Development includes extensive habitat creation of benefit to foraging and commuting bats, including the creation of permanent grassland and meadow areas, hedgerow creation and the managed extension of woodland edge habitats at Engry Woods. It is considered that the scheme would result in enhanced foraging and commuting habitat for bats.

4.7.19 Overall, no impacts to foraging or commuting bats are anticipated as a result of the Proposed Development.

Badger

4.7.20 Badgers are afforded legislative protection under the Protection of Badgers Act 1992. Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. It is not illegal, and therefore a licence is not required, to carry out disturbing activities in the vicinity of a sett if no badger is disturbed and the sett is not damaged or destroyed. Where an activity is likely to result in an offence under the Protection of Badgers Act 1992 a licence from Natural England is required.

4.7.21 No setts were identified within or immediately adjacent to the Site. Evidence of badger activity in the form of snuffle holes were recorded on Site, indicating that badgers are present and are likely to regularly visit and moving through the Site.

4.7.22 Based on the evidence gathered during the extended habitat survey, construction of the proposed development will not result in disturbance or destruction of any badger sett or obstruct access to setts.

[19] Institution of Lighting Professionals . (2023). *Guidance Note 08/23: Bats and artificial lighting at Night*)

Once constructed, the Proposed Development will not sever potential commuting routes used by badgers, with linear features such as hedgerows and ditches to be retained and protected as part of the proposed development. Gaps or mammal gates will be installed at suitable intervals and locations along the perimeter fence line to allow badgers and other small mammals free movement into and out of the Site, providing enhanced opportunities for foraging and refuge within what will be a relatively protected and undisturbed area. This will ensure continued habitat connectivity to the wider environment.

4.7.23 Due to the highly mobile nature of badgers, a pre-construction badger check is recommended to confirm the continued absence of badger setts within and adjacent to the Proposed Development area before commencement of works. If a sett is found, suitable advice will be sought from the project ecologist to ensure necessary protection, avoidance or mitigation measures are in place before works proceed.

4.7.24 Taking into account the above measures, no impacts to badger are anticipated as a result of the Proposed Development

4.7.25 As a precautionary measures, Reasonable Avoidance Measures (RAMs) would be implemented during the construction to safeguard badgers and other wildlife.

Hazel Dormouse

4.7.26 Hazel dormice are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations. Additionally, the hazel dormouse is listed as priority species under Section 41 of the NERC Act 2006 and Suffolk LBAP.

4.7.27 While hedgerows are relatively species poor, hazel dormouse are known to be present in the adjacent Engry Woods CNR and so it is considered likely that hazel dormouse are present within hedgerows bounding the Site. With the exception of minor removal of approximately 5m of hedgerow required to facilitate Site access from Church Lane, all hedgerows will be retained and protected throughout construction and operation of the Proposed Development.

4.7.28 As a precautionary measure, Reasonable Avoidance Measures (RAMs) will be implemented during the construction phase to safeguard individual animals during works if minor removal of suitable habitat (e.g., hedgerows or scrub) is required.

4.7.29 Extensive hedgerow creation is proposed within the Site which would serve to enhance the Site for hazel dormouse. Hedgerows would be planted with species of value to hazel dormouse including hazel, honeysuckle, hawthorn and dog rose. Tree species will include oak and sweet chestnut.

4.7.30 Additionally, Engry Woods will be allowed to naturally expand through managed rewilding to expand woodland edge habitat available to dormouse populations within the woods.

4.7.31 Taking into account the above measures, no adverse impacts to dormouse are anticipated as a result of the Proposed Development.

Amphibians

4.7.32 Great crested newts are protected by Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Habitats Regulations 2017 and the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Great crested newt, natterjack toad and common toad are also listed as priority species in England under Section 41 of the NERC Act 2006. Great crested newt natterjack toads and common toad is also listed as a priority species within the Suffolk LBAP.

4.7.33 No ponds are present within the Site; however, a review of OS maps and aerial images identified twelve ponds located within 250m of the Site.

4.7.34 The arable farmland within the Site offers negligible opportunities for amphibians (foraging/ hibernation), however, field boundary features, such as hedgerows, line of trees, field margins and adjacent woodland provide suitable foraging habitat and cover for amphibians**.**

4.7.35 Construction of the solar farm requires very low levels of direct land take (typically less than 5% footprint on the ground) for the infrastructure which will be located entirely in sub-optimal arable and pastoral grassland habitats. More suitable habitats, including hedgerows will be retained and protected throughout works with only minor removal required.

4.7.36 As a precautionary measure, Reasonable Avoidance Measures (RAMs) will be implemented prior to and during the construction phase to safeguard amphibians during works if minor removal of suitable habitat (e.g., hedgerows, scrub, rank/ tussocky grassland) is required.

4.7.37 Following construction, it is considered that the proposed landscape design would provide enhanced habitat for amphibians through the creation of extensive hedgerows, woodland edge, meadow grassland and permanent low-intensity grazing pasture. The Proposed Development would not obstruct the movement of amphibians through the land scape with the land between and beneath the panels remaining available for amphibians to use for shelter.

4.7.38 Taking into account the above measures no adverse effects to GCN or other amphibians are anticipated as a result of the Proposed development.

Reptiles

4.7.39 Widespread reptile species namely the common lizard, slow worm, grass snake and adder are protected against killing, injuring and sale under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended). These species are also listed as priority species under Section 41 of the NERC Act 2006 and within the Suffolk LBAP.

4.7.40 The arable and pastoral farmland located within the Site offer negligible opportunities for reptile species. However, the field boundary features such as hedgerows provide more suitable habitats. With the exception of minor removal of approximately 5m required to permit Site access, all hedgeroew would be retained and protected throughout the Proposed Development.

4.7.41 As a precautionary measure, Reasonable Avoidance Measures (RAMs) would be implemented during the construction phase to safeguard individual animals during works where minor removal of suitable habitat is required.

4.7.42 Following construction, it is considered that the proposed landscape design would provide enhanced habitat for reptiles through the creation of extensive hedgerows, woodland edge, meadow grassland and permanent low-intensity grazing pasture. The Proposed Development would not obstruct the movement of reptiles through the land scape with the land between and beneath the panels remaining available for use by reptiles.

Other Species

4.7.43 The Site may potentially support brown hare and European hedgehog.

4.7.44 The habitats in the Site are typical of habitats in the wider environment, and therefore the loss of suitable arable foraging habitat as a result of the Proposed Development is not considered to negatively impact local populations of these species.

4.7.45 In addition, meadow grassland will be created that is considered to provide higher value habitat for brown hare. Hedgehog would benefit form the creation of hedgerow withinin the site and the managed natural expansion of Engry Woods.

4.8 Invasive Non-native species

4.8.1 Section 23 of the Infrastructure Act 2015 amended the Wildlife and Countryside Act 1981 (as amended) by inserting a new Schedule 9A to introduce a statutory regime of species control agreements and orders. This schedule ensures that, landowners act on Schedule 9 invasive species, or permit others to enter the land and carry out those operations, to prevent their establishment and spread.

4.8.2 No Schedule 9 invasive species were recorded during the extended habitat survey. Description of impacts. Should any invasive species be identified prior to or during construction, the advice of a suitably qualified ecologist will be sought and appropriate measures taken to achieve legislative compliance.

5 MITIGATION AND ENHANCEMENT SUMMARY

5.1.1 **Table 5:1** summarises the mitigation and enhancement measures recommended in for the Proposed Development.

Table 5:1: Mitigation and Enhancement Summary

Feature	Summary of Mitigation and Enhancement
Designated Sites	• Standard measures to ensure runoff control and pollution prevention will be implemented, as set out in a CEMP; these measures will safeguard all designated sites in the wider area. As a result, no indirect effects are therefore anticipated on non-statutory designated sites, including the River Great Ouse CWS.
Habitats	• The Proposed Development will result in a biodiversity net gain of +101.25% in area units and +102.65% in linear units. • Existing features of biodiversity value will largely be retained and protected throughout the construction and operation phases. • All retained trees within the vicinity of construction areas will be protected during construction works in-line with BS 5837:2012 Trees in relation to design, demolition and construction. • Pollution prevention measures will be implemented to prevent pollution and run-off occurring during the construction and specific control measures will be implemented to protect the watercourses/ditches within and off Site.
Birds	• Permanent grassland areas will provide alternative nesting habitat for ground nesting bird species • The proposed landscape design will provide nesting a foraging habitat for a range of bird species • Removal of nesting bird habitats should be undertaken outside of the bird breeding season (01 March to 31 August inclusive). If vegetation works are necessary during the breeding season, suitable nesting habitat should be hand-searched by a suitably experienced ecologist prior to works commencing. Only when the ecologist is satisfied that no offence will occur under the legislation will works be permitted to proceed
Bats	• No works likely to affect conservation status or risk disturbance to bats. Should plans change, preliminary bat roost assessments will be undertaken on any trees identified for removal, which may identify further survey requirements, including dusk emergence/dawn re-entry surveys or inspections at height. • If bats are confirmed to be roosting within any tree to be impacted by proposed works, the data gathered would be used to support a licence application to Natural England to destroy/disturb the bat roost and to inform potential mitigation measure to reduce and/or avoid impacts if appropriate.
Badgers	• No setts or other conclusive field signs were identified within or immediately adjacent to the Site. • A pre-construction badger survey will be completed prior to any clearance works. If a sett is found, mitigation will be required to avoid damaging a sett or disturbing badgers, such as design amendments or a licence from Natural England.
Hazel Dormouse	• Precautionary - Works affecting suitable habitat, such as small scale scrub or hedgerow removal, will be undertaken under Reasonable Avoidance Measures (RAMs).

Feature	Summary of Mitigation and Enhancement
Reptiles	• The arable and pastoral fields are considered to offer very low value for reptiles with limited opportunities for commuting, foraging, basking and hibernating. • Precautionary - Works affecting suitable habitat, such as small sections hedgerows (if required) to be undertaken under Reasonable Avoidance Measures (RAMs).
Amphibians	• No ponds are located within the Site boundary and twelve ponds located within the 250m of the Site. The terrestrial habitat offers low to negligible suitability for amphibians. • Precautionary - Works affecting suitable habitat (if required) to be undertaken under Reasonable Avoidance Measures (RAMs).
Other Species	• Precautionary - Adoption of standard good practice measures during construction.
Invasive Species	• Pre-construction checks for new colonisation by invasive species should be undertaken. If required, measures will be employed to eradicate/control species such as Himalayan balsam to prevent the accidental introduction or spread.

Figure 1:Site Location

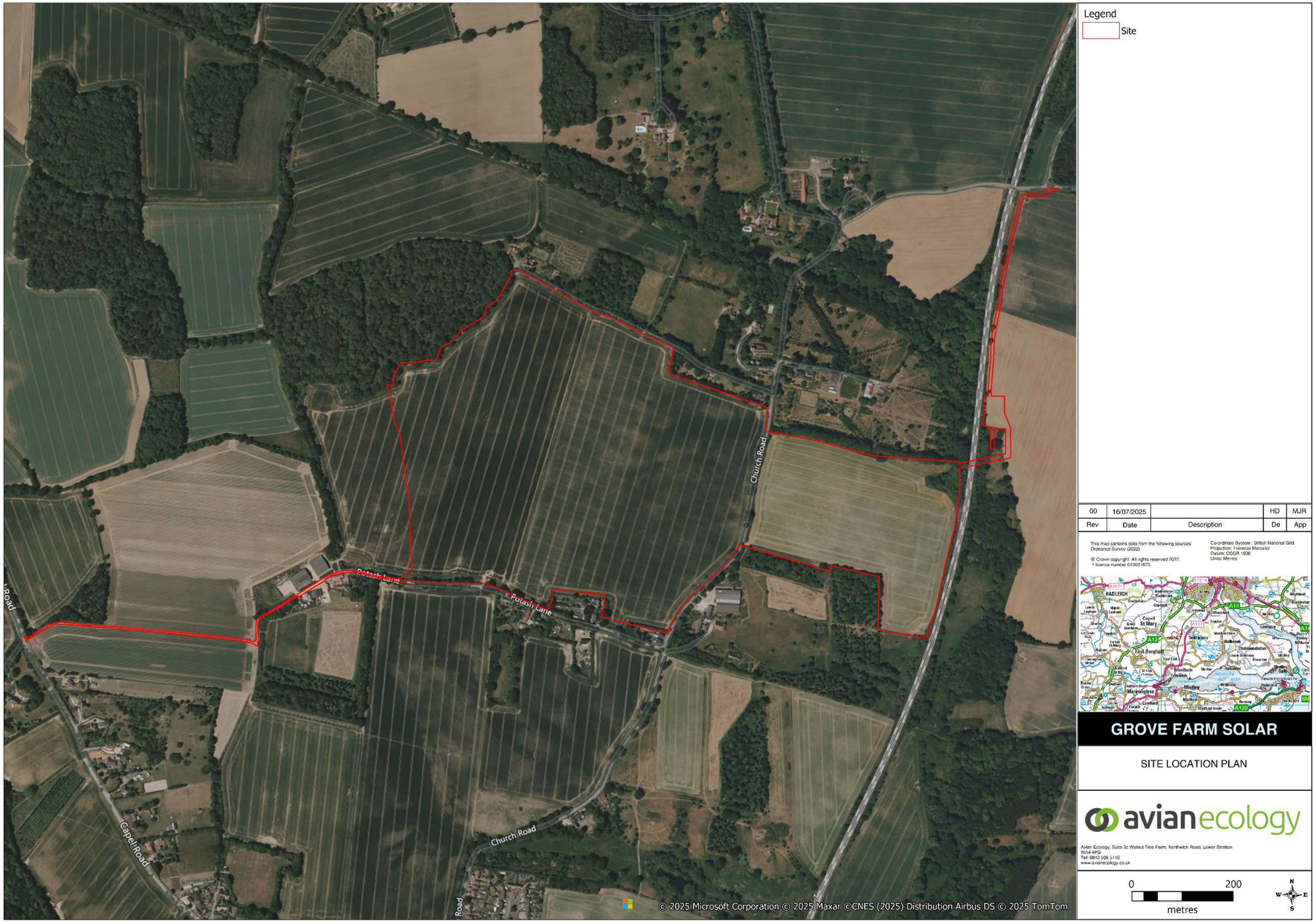


Figure 2: Statutory Designated Site

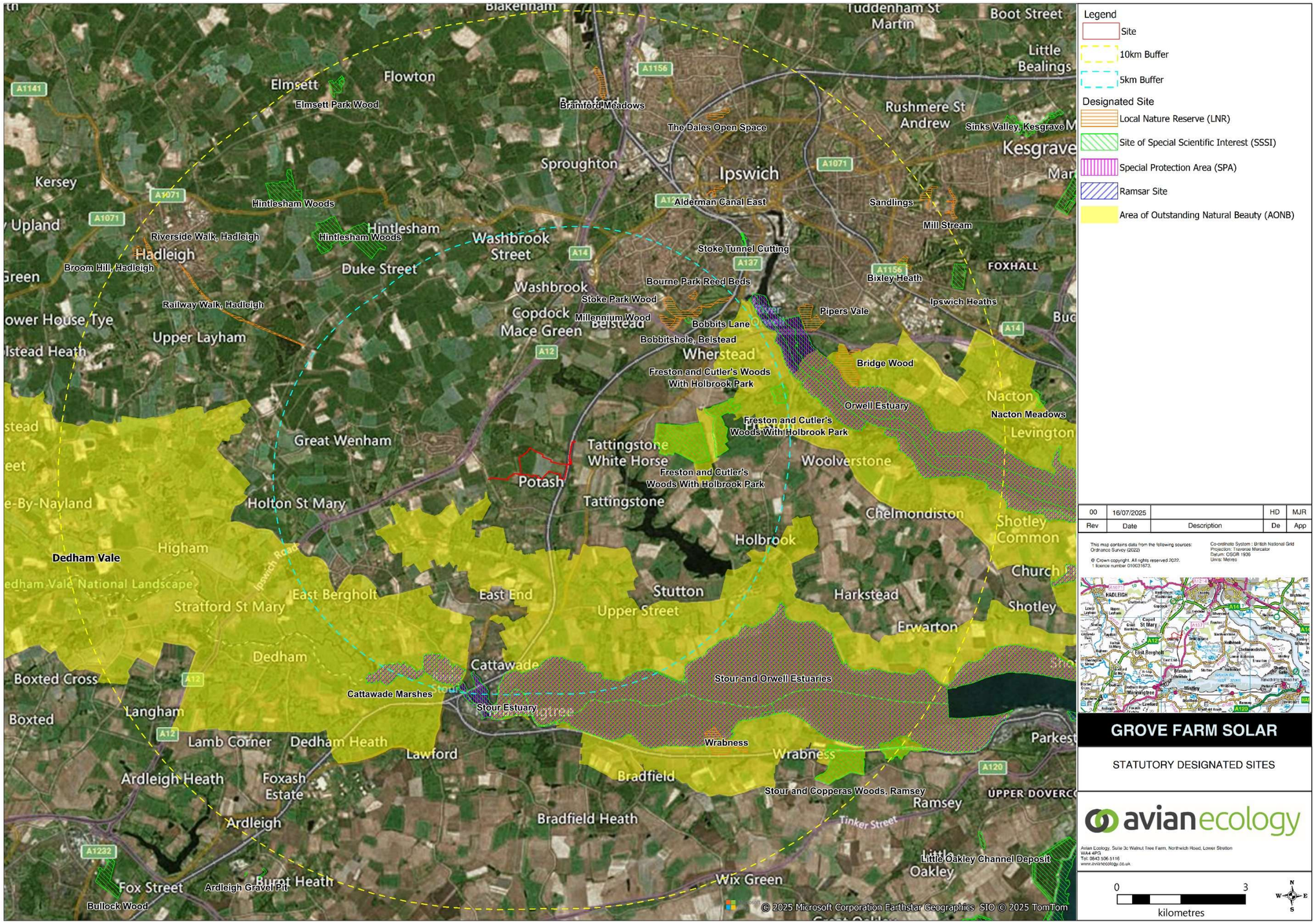


Figure 3: Non-Statutory Designated Site

Figure 4: Habitat Survey Plan

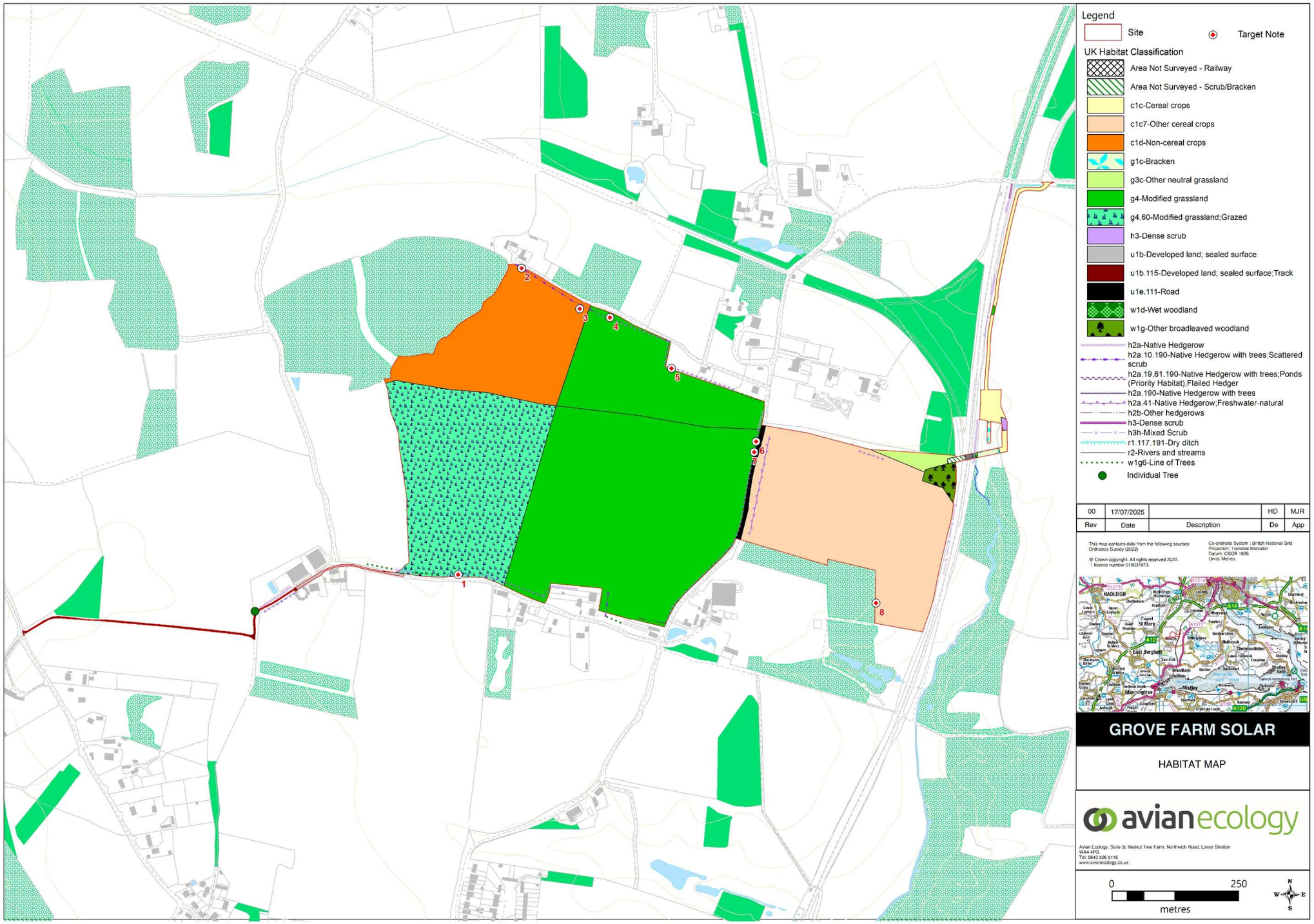
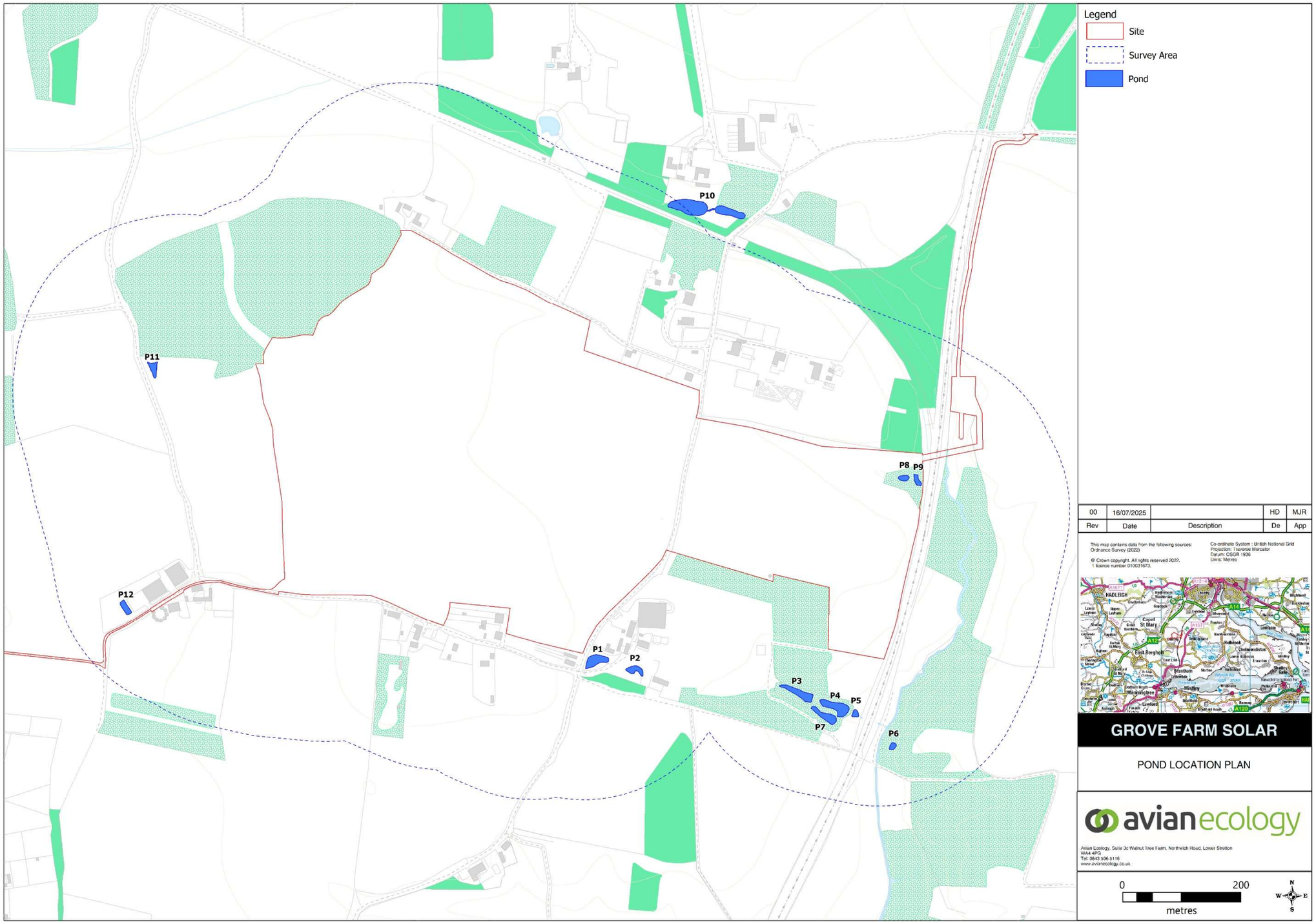
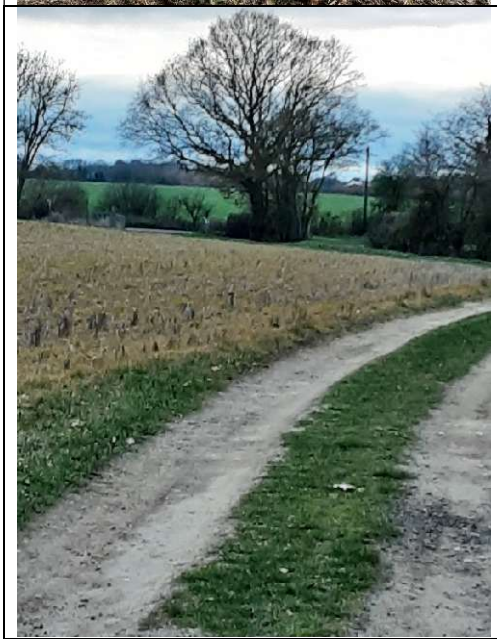


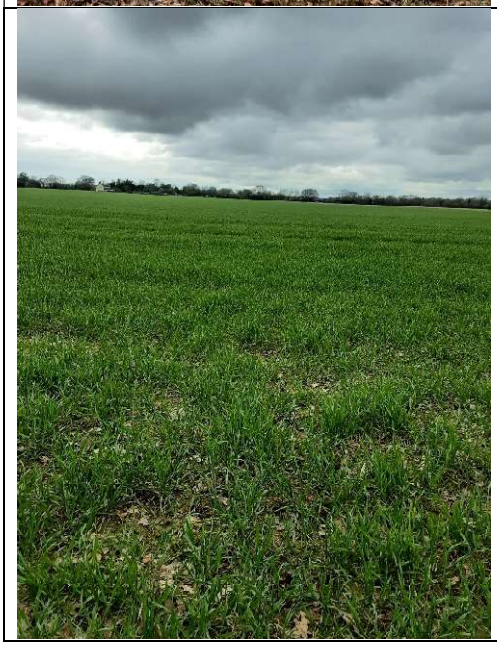
Figure 5: Pond Location Plan



Appendix 1

Photographs

Photographs	Description
	Photo 1:Rapeseed crop
	Photo 2: Access track and adjacent winter stubble

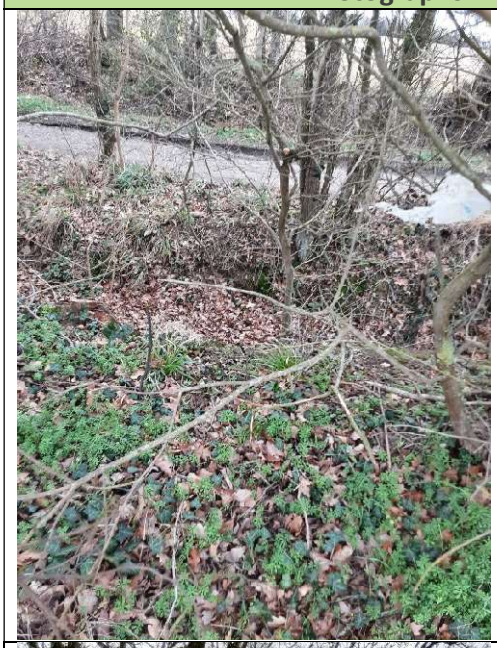
Photographs	Description
	Photo 3:Recently sown modified grassland that's sheep grazed.
	Photo 4: Recently sown modified grassland

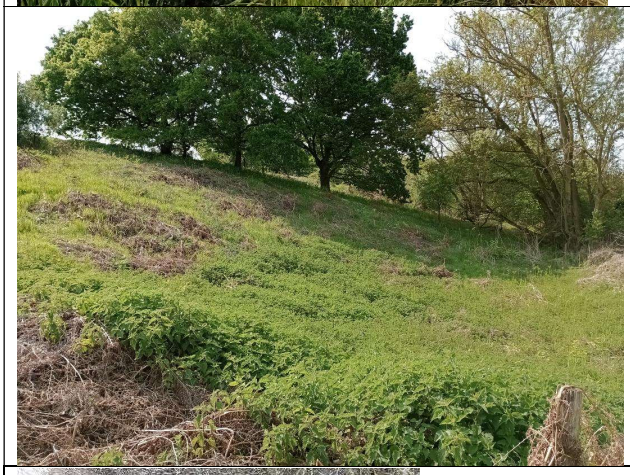
Photographs	Description
	Photo 5: Farmyard
	Photo 6: Access track

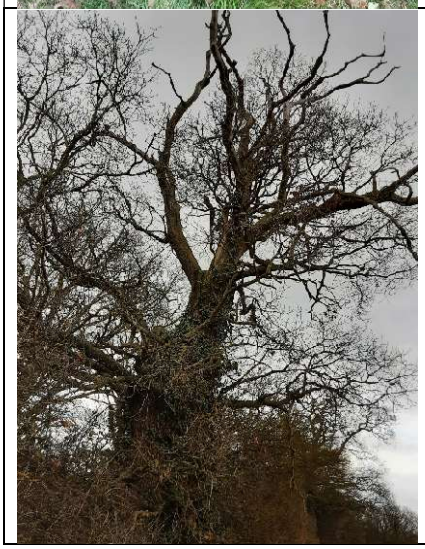
Photographs	Description
	Photo 7: Species poor intact hedgerow
	Photo 8: Cypress hedge

Photographs	Description
	Photo 9: Species poor intact priority hedgerow with
	Photo 10: A species poor intact priority hedgerow with trees and scattered scrub.

Photographs	Description
	Photo 11: A species poor flailed hedgerow with trees and scattered scrub
	Photo 12: example of a species poor gappy priority hedgerow.

Photographs	Description
	Photo 13: A dry ditch at the base of hedgerow
	Photo 14: Line of trees

Photographs	Description
	Photo 15: Arable field east of railway proposed as access and DNO substation
	Photo 16: area of bracken on sloping ground
	Photo 17: TN1 Remnants of an old dry pond at the base.

Photographs	Description
	Photo 18: TN2 A mature oak tree with high bat roost potential. A dead limb with thick peeling bark, snapped limbs and a number of knot holes.
	Photo 19: TN3 Mammal foraging.
	Photo 20: TN4 A mature oak tree with high bat roost potential. Bark stripped and peeling at the top of the tree, a number of split limbs and knot holes along the tree trunk.

Photographs	Description
	Photo 21: TN5 Mammal foraging.
	Photo 22: TN6 Am old pond holing small amounts of very polluted water, with canary reed grass, nettles scattered grass and willow saplings along the edge of the pond.
	Photo 23: TN7 Mammal foraging.

Photographs	Description
	Photo 24: TN8 A row of straw bales along the field boundary which could be used as amphibian and reptile hibernacula.

Appendix 2

Breeding bird Survey Report

Appendix 3

Wintering bird Survey Report

Appendix 4

Biodiversity Metric 4.0 Calculator Tool