
Belvoir Solar Farm

on behalf of JBM Solar Projects 10 Ltd.

Habitats & Species Baseline Report



Document Control				
Project Name:		Belvoir Solar Farm		
Project Number:		Pegas-075-1270		
Report Title:		Habitats & Species Baseline Report		
Issue	Date	Notes	Prepared	Reviewed
V1	09/11/2020	Draft	Z. Hinchcliffe <i>MRes</i>	F. Tarry <i>BSc MCIEM</i>
V2	11/11/2021	Updated with new site boundary	S. Turner <i>MSc MCIEM</i>	B. Walker <i>MSc MCIEM</i>
V3	09/09/2022	Updated– any amendments from previous version marked in red	B. Walker <i>MSc MCIEM</i>	N. Robinson <i>MSc BSc(Hons) ACIEM</i>

This report has been prepared in accordance with the terms and conditions of appointment [on request]. Avian Ecology Ltd. (6839201) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

CONTENTS

1	INTRODUCTION	1
1.1	Background.....	1
1.2	Site Overview.....	1
1.3	Site Proposals	1
1.4	Legislative Framework, Planning Policy and Guidance	1
1.5	European Protected Species (EPS) Policies.....	3
2	METHODOLOGY	4
2.1	Desktop Study.....	4
2.2	Extended Phase 1 Habitat Survey	4
2.3	Bird Surveys	5
2.4	Great Crested Newt Presence/Absence Surveys	5
2.5	Limitations of Surveys.....	6
3	BASELINE	9
3.1	Designated and Sites for Nature Conservation	9
3.2	Desktop Study - Priority Habitats	10
3.3	Habitats	11
3.4	Protected and Notable Species	12
3.5	Invasive Non-native Species.....	15

FIGURES

- Figure 5.2.1 : Site Location Plan
- Figure 5.2.2: Satutory Designated Sites Plan
- Figure 5.2.3: Non-statutory Designated Sites Plan

Figure 5.2.4: Phase 1 Habitat Plan

Figure 5.2.5: Pond Location Plan

ANNEXES

Annex 1: Photographs

1 INTRODUCTION

1.1 Background

1.1.1 This report provides baseline ecological information on land associated with the proposed solar development on land north of Belvoir, Leicestershire, henceforth referred to as ‘the Site’, as illustrated on the Site Location Plan (**Figure 5.2.1**) and Phase 1 habitat Plan (**Figure 5.2.4**).

1.1.2 The objectives of this report are:

- Provide baseline information on the current habitats and ecological features both within the Site and immediate surrounding area;
- Identify the proximity of any designated sites for nature conservation interest; and,
- Identify the presence or potential presence of any protected species or habitats.

1.1.3 The report is informed by a desktop study, an extended Phase 1 habitat survey, breeding bird surveys, wintering bird surveys and great crested newt *Triturus cristatus* environmental-DNA (eDNA) surveys.

1.2 Site Overview

1.2.1 The Site comprises agricultural land with a combined area of approximately **99.95ha**, located to the west of the village Muston, Leicestershire.

1.2.2 Habitats within the Site **comprise of arable land and small pockets of broad-leaved woodland with field boundary features including hedges, ditches and scattered trees. A number of ponds are present within the Site, the majority of which were dry.**

1.2.3 **These habitats are also reflected in the wider area, with additional habitats including improved grassland, pastoral farmland, small pockets of mixed semi-natural woodland and farm buildings.**

1.2.4 In addition, the Site is located immediately adjacent to Muston Meadows Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR) grassland, located to the south east of the Site.

1.2.5 The Site location is shown in **Figure 5.2.1**.

1.3 Site Proposals

1.3.1 The proposals include the construction of a solar farm together with all associated works, equipment and ancillary infrastructure.

1.4 Legislative Framework, Planning Policy and Guidance

1.4.1 Reference has been made to the following key pieces of legislation, planning policy and guidance listed in **Table 1.1** below.

Table 1.1: Key legislation, planning policy and guidance.

European
<ul style="list-style-type: none">• Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971 (hereafter referred to as the ‘Ramsar Convention);• Convention on the Conservation of European Wildlife and Natural Habitats 1979 (hereafter referred to as the ‘Bern Convention); and,

<ul style="list-style-type: none"> • UNESCO convention on the protection of the World Cultural and Natural Heritage (1972).
<p>National</p>
<ul style="list-style-type: none"> • 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 Wildlife and Countryside Act 1981 (as amended); • Countryside and Rights of Way Act 2000; • Infrastructure Act 2015; • Protection of Badgers Act 1992; • Hedgerow Regulations 1997; • Natural Environment and Rural Communities (NERC) Act (2006); • The National Planning Policy Framework 2 (NPPF2, 2021)¹; • ‘Birds of Conservation Concern 4’ (Studley <i>et al.</i>, 2021)²; • The United Kingdom Biodiversity Action Plan (UK BAP); • The Bat Conservation Trust - <i>Bat Surveys for Professional Ecologists: Good Practice Guidelines</i> (3rd Ed.). (Collins <i>et al.</i>, 2016³); • BS 42020:2013 Biodiversity – Code of Practice for Planning and Development and, • Biodiversity Net Gain. Good practice principles for development⁴.
<p>Local</p>
<ul style="list-style-type: none"> • Leicester, Leicestershire and Rutland Biodiversity Action Plan⁵

1.4.2 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.

1.4.3 This report is provided in accordance with the provisions of *British Standard 42020:2013 Biodiversity: Code of practice for planning and development*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf

² Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114, pp. 723-747.

³ Collins *et al.* (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines*. 3rd edition, BCT: London

⁴ <https://cieem.net/resource/biodiversity-net-gain-good-practice-principles-for-development-a-practical-guide/>

⁵ <https://www.lrwt.org.uk/about-us/caring-wild-places/biodiversity-action-plan>

1.5 European Protected Species (EPS) Policies

- 1.5.1 European Protected Species (EPS), such as bats, great crested newts and otters *Lutra lutra*, receive full protection under the 'Habitat Regulations'. This makes it an offence to:
- deliberately capture, injure or kill any EPS;
 - to deliberately disturb them; and,
 - to damage or destroy a breeding site or resting place.
- 1.5.2 In addition, the Wildlife and Countryside Act 1981 (as amended) makes it an offence to intentionally or recklessly disturb a EPS while it is occupying a structure or place which it uses for shelter or protection, or to obstruct access to any structure or place the species uses for shelter or protection.
- 1.5.3 Natural England is the primary enforcing body of the Habitat Regulations and therefore responsible for implementation and compliance in England. In February 2016 Natural England published '*Wildlife licensing: comment on new policies for European protected species licence*'⁶. Natural England sought (on DEFRA's behalf) wide ranging views on whether four new policies could be permitted under licence to benefit EPS whilst improving flexibility for development. Following from this consultation period, in December 2016 Natural England officially introduced the four licensing policies throughout England⁷.
- 1.5.4 The four policies seek to achieve better outcomes for EPS and reduce unnecessary costs, delays and uncertainty that can be inherent in the current standard EPS licensing system. The policies are summarised as follows:
- **Policy 1;** provides greater flexibility in exclusion and relocation activities, where there is investment in habitat provision;
 - **Policy 2;** provides greater flexibility in the location of compensatory habitat;
 - **Policy 3;** provides greater flexibility on exclusion measures where this will allow EPS to use temporary habitat; and,
 - **Policy 4;** provides a reduced survey effort in circumstances where the impacts of development can be confidently predicted.
- 1.5.5 The four policies have been designed to have a net benefit for EPS by improving populations overall and not just protecting individuals within development sites. Most notably Natural England now recognises that the Habitats Regulations 2017 (as amended) legal framework now applies to 'local populations' of EPS and not individuals/site populations.
- 1.5.6 Where the four policies are considered relevant to the application they are discussed within the corresponding assessment of effects sections for EPS which could potentially occur on or close to the proposed development.

⁶ <https://www.gov.uk/government/consultations/wildlife-licensing-comment-on-NEw-policies-for-european-protected-species-licences>

⁷ <https://www.gov.uk/government/NEws/NEw-licensing-policies-great-for-wildlife-great-for-business>

2 METHODOLOGY

2.1 Desktop Study

- 2.1.1 A desktop study was undertaken to identify any known existing features or species of ecological importance within the study area (as defined below).
- 2.1.2 The desk study included a review of relevant policy and guidance and sought to identify any statutory designated sites for nature conservation through a review of the Natural England Designated Sites View⁸, JNCC⁹ and Multi Agency Geographic Information for the Countryside (MAGIC)¹⁰ websites. A 2km search radius surrounding the Site boundary was adopted for all statutory designated sites, extending to 10km for International protected sites. The locations of statutory designated sites are provided in **Figure 5.2.2**.
- 2.1.3 The MAGIC website also includes details of granted European Protected Species (EPS) licence applications. A 2km search radius around Site boundary was adopted for EPS licences.
- 2.1.4 Biological record data on non-statutory designated sites and records of protected and notable species was requested from Leicestershire and Rutland Environmental Records Centre (LRERC) and Lincolnshire Environmental Records Centre (LERC) with the latter accommodating a section of the search radius of the desk study to the east. A 5km search radius was used from central grid reference SK8217637326. The locations of all non-statutory designated sites located within 2km of the Site are provided in **Figure 5.2.3**.
- 2.1.5 Reference was also made to Ordnance Survey (OS) 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.

2.2 Extended Phase 1 Habitat Survey

- 2.2.1 An Extended Phase 1 habitat walkover survey of the Site was undertaken on 12th and 13th May 2020 by Z. Hinchcliffe *MRes*, a competent and experienced field ecologist. The survey followed UK industry standard Joint Nature Conservation Committee (JNCC) Phase 1 Habitat Methodology (JNCC, 2010), with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM), Technical Guidance Series *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2017).
- 2.2.2 The survey provided an update to an earlier habitat survey undertaken in January 2020 by Grassroots Ecology and overall findings are presented as combined information here for ease of reference.
- 2.2.3 The extent of the Site is detailed in **Figure 5.2.1**, habitats located within the redline boundary of the Site is provided in **Figure 5.2.4**.
- 2.2.4 Habitats were mapped and described using a series of 'target notes' (TNs).
- 2.2.5 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.

⁸ <https://designatedsites.naturalengland.org.uk/>

⁹ <http://jncc.defra.gov.uk/>

¹⁰ <https://magic.defra.gov.uk/MagicMap.aspx>

2.3 Bird Surveys

Wintering Bird Surveys

- 2.3.1 A series of wintering bird surveys were undertaken in winter 2019-2020. See **Appendix 5.3; Winter Bird Survey Report** for further details.
- 2.3.2 The objective of the surveys was to determine the importance of the Site and immediate surrounding environment for waterbird species/assemblages and therefore provide information to determine whether the Site is used as supporting habitat / functionally linked land by species which form a qualifying interest feature of nearby statutory designated sites. Surveys therefore concentrated particularly on waterbird species, however all notable species (or notable congregations of commonly occurring species) were recorded in order to provide a robust understanding of the wintering bird assemblage within and surrounding the Application Site.
- 2.3.3 Four visits were completed, between December 2019 and March 2020. During each visit, the observer used a combination of public rights of way, roads and pre-consented access to private land to ensure as much land was viewed as possible. An extended buffer of 250m from the site boundary was surveyed to gauge the use of birds within the Site this is referred to as the 'wider survey area'. Target species were recorded based on their conservation status and known likelihood for impact by solar farm developments.

Breeding Bird Surveys

- 2.3.4 Detailed breeding bird methodologies and full results are presented as **Appendix 5.4; Breeding Bird Survey Report**.
- 2.3.5 Breeding Bird Survey (BBS) was undertaken between May and July 2020. 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)¹¹. All bird registrations were recorded on suitably scaled field maps using standard BTO species codes and behaviour notations (such as signing, carrying food, active nest etc). The approximate location of bird territories within the Site were determined using standard territory mapping techniques to identify and isolate areas within which birds consistently displayed breeding bird behaviours (following Gilbert *et al.* 1998).
- 2.3.6 For the purposes of the assessment, although the estimated number of territories for all species is provided, only the breeding territories of notable species are mapped, given these are the most relevant species to the assessment. Notable species consist of Birds of Conservation Concern (BoCC) 'amber' and 'red' list species (Stanbury *et al.* 2021), Annex 1/Schedule 1 raptors and owls and Local Biodiversity Action Plan (LBAP) species.

2.4 Great Crested Newt Presence/Absence Surveys (eDNA)

- 2.4.1 Ponds within the Site and within 250m of its boundaries were identified from aerial imagery and OS mapping. Accessible ponds, located within the Site and the wider area, were visited and assessed for their suitability to support great crested newt. The assessment followed the Habitat Suitability Index (HSI) assessment methodology as developed by Oldham *et al.* (2000)¹² and as detailed within ARG UK guidance Note 5 (ARG UK, 2010)¹³. The results of the HSI assessment can be used to provide a useful

¹² 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.

¹³ ARG UK (2010) ARG UK Advice Note 5; Great Crested Newt Habitat Suitability Index. *Amphibian and Reptile Groups of the United Kingdom*.

indication of newt presence and help assess any likely impacts of a development, but do not represent a substitute for full surveys.

- 2.4.2 Following this, a single pond (pond P2) was surveyed for great crested newt presence/absence using the environmental DNA (eDNA) method. Other on-site ponds (P8-P10) were found to be dry in May and June 2020. Full methodologies and results are provided in **Appendix 5.6;Great Crested Newt Survey Report** .

2.5 Limitations of Survey

- 2.5.1 An Extended Phase 1 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).
- 2.5.2 The Extended Phase 1 habitat survey visit was undertaken in May 2020 and therefore within the optimal period for botanical surveys (approximately April to September).
- 2.5.3 All other surveys undertaken within the Site, were carried out in adherence to accepted guidance documents and at the appropriate times of the year.

3 BASELINE

3.1 Designated and Sites for Nature Conservation

Statutory Designated Sites

- 3.1.1 A review of the MAGIC website confirmed that the Site does not form part of any statutory designated site for nature conservation. The search identified three statutory designated sites located within a 2km radius of the Site boundary and a further three Sites of Special Scientific Interest (SSSI) within 5km, as summarised in **Table 3.1** below and shown on **Figure 5.2.2**.
- 3.1.2 No internationally designated sites are present within 10km of the Site boundary.
- 3.1.3 The Site is located immediately adjacent to Muston Meadows SSSI and is located within the SSSI Impact Risk Zone (IRZ) for the designation. It meets the qualifying criteria of ‘all planning applications except householder applications’ and as a result, the Local Planning Authority (LPA) would be required to consult with Natural England regarding potential effects.

Table 3.1: Statutory designated sites for nature conservation.

Site name and Designation	Distance and direction	Details
Muston Meadow SSSI	Immediately Adjacent to the Site	The site contains some of the best remaining examples of neutral clay grasslands in the Midlands and has been accepted for inclusion within the 'Nature Conservation Review'. The site contains a very large population of green-winged orchid <i>Orchis morio</i> . Additional interest is provided by the field ponds which support a population of great-crested newt.
Muston Meadows NNR	Immediately Adjacent to the Site	Muston Meadows is one of the finest lowland meadows in England. The meadows are rich in plant life, with 33 types of grass and over 100 other species of flowering plant. The reserve is most notable for its colony of over 10,000 green-winged orchids.
Debdale Meadow, Muston SSSI	1.7km north east	A traditionally managed unimproved neutral grassland meadow considered to be very rare in this area of lowland England.
Briery Wood Heronry, Belvoir SSSI	2.8km south	The site contains the largest grey heron <i>Ardea cinerea</i> heronry in Leicestershire.
Grantham Canal SSSI	2.8km south west	The site includes some of the best areas of open water and associated marginal habitats in Leicestershire, and is representative of slow river vegetation communities in central and eastern England.
Allington Meadows SSSI	4.7km north east	This site is an outstanding example of traditionally-managed grassland, supporting plant communities typical of alluvial, calcareous clay and loam soils. Such grassland communities are now rare in the East Midlands as they are particularly vulnerable to agricultural improvement.

Non-statutory Designated Sites

- 3.1.4 A review of the data provided by LRERC confirms that the Site is not located within any non-statutory designated site for nature conservation. Two Local Wildlife Site (LWS) lies within a 2km radius of the Site boundaries, as shown in **Figure 5.2.3** and described in **Table 3.2** below.

Table 3.2: Non-statutory Designated Sites

Site name	Distance and direction	Details
Grantham Canal and Banks LWS	600m east	Canal with scrub and neutral grassland. Also noted as having a large population of invasive non-native water fern <i>Azolla filiculoides</i>
Cliff Wood LWS	1.1km east	Mixed woodland, the majority of which is replanted ancient woodland with the exception of the northern most section. Streams and deadwood are also noted as being within the LWS.

3.2 Desktop Study - Priority Habitats

- 3.2.1 Six habitats of Principal Importance (also known as priority habitats) under Section 41 of the NERC Act/UK Biodiversity Action Plan and five Leicestershire and Rutland Biodiversity Action Plan habitat were identified within 2km of the Site.
- 3.2.2 The MAGIC website, OS maps and the Leicestershire and Rutland Biodiversity Action Plan provided no records of priority habitats within the Site boundaries.
- 3.2.3 Information on priority habitats 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, in order to provide context for the Site and surrounding area. The priority habitats recorded within the Site itself are ponds and hedgerows.

Table 3.3: Priority Habitats

Priority habitat name	Designation	Distance from site
Hedgerows	NERC S.41, UKBAP, LBAP	Within the Site
Lowland meadows	NERC S.41, UKBAP, LBAP	Immediately adjacent
Ponds	NERC S.41, UKBAP, LBAP	30m west
Deciduous woodland	NERC S.41, UKBAP, LBAP	30m south east
Traditional orchards	NERC S.41, UKBAP	350m east
Wood-pasture and Parkland	NERC S.41, UKBAP, LBAP	1.4km south

Key

NERC S.41: Natural Environment and Rural Communities (NERC) Act (2006)

UKBAP: UK Biodiversity Action Plan Priority Habitat

LBAP: Leicester, Leicestershire & Rutland Biodiversity Action Plan priority habitat

3.3 Habitats

- 3.3.1 This section should be read in conjunction with the Phase 1 Habitat Plan presented as **Figure 5.2.4**, Target Notes (TNs) presented in **Table 3.4** and photographs presented in **Annex 1**.
- 3.3.2 The Site occupies land totalling approximately **99.95ha**, set within a rural landscape. Habitats within the Site predominantly comprised arable fields; linear features are present including hedgerows with trees as well as wet and dry ditches. A dirt track runs along the northern boundary of the Site.
- 3.3.3 The dominant arable farmland mainly comprised oil seed rape *Brassica sp* and wheat *Triticum sp* at the time of survey. Field boundaries generally comprised narrow strips (less than 5m wide) of semi-improved grassland dominated by Yorkshire fog *Holcus lanatus*, black medic *Medicago lupulina*, *Taraxacum* species, cow parsley *Anthriscus sylvestris*, cowslip *Primula veris*, ribwort plantain *Plantago lanceolata*, cleavers *Galium aparine*, barren brome *Bromus sterilis*, false oat grass *Arrhenatherum elatius*, common bent *Agrostis capillaris*, common nettle *Urtica dioica*, meadow foxtail *Alopecurus pratensis*, upright hedge parsley *Torilis japonica* and common hogweed *Heracleum sphondylium*.
- 3.3.4 The majority of field boundaries were lined with species-poor hedgerows dominated by hawthorn *Crataegus monogyna*, with additional dogwood *Cornus sanguinea*, ash *Fraxinus excelsior*, elder *Sambucus nigra*, field maple *Acer campestre*, apple *Malus sylvestris* and blackthorn *Prunus spinosa*.
- 3.3.5 Several wet and dry ditches across the Site had areas of tall ruderals (e.g. **TN8**) including great willowherb *Epilobium hirsutum*, red clover *Trifolium pratense*, forget-me-not *Myosotis sp*, cow parsley, common hogweed, bramble *Rubus fruticosus* Agg., common nettle and blue tansy *Phacelia tanacetifolia*
- 3.3.6 Wet ditches across the Site are generally sediment-bedded with occasional areas of more rocky/spoil beds. Aquatic and marginal vegetation noted included false water-cress *Apium nodiflorum*, great willowherb, meadowsweet *Filipendula ulmaria* and rosebay willowherb *Chamaenerion angustifolium*.
- 3.3.7 The disused Grantham Canal is located a few metres south of the far southern boundary of the site. The water appears mostly static and is overgrown with reed *Phragmites australis* and bulrush *Typha latifolia* on the southern bank. There is a hawthorn dominated hedge along the northern bank.
- 3.3.8 **There are three ponds located within the Site, however at the time of survey all three of them were dry. A further eight potential ponds were identified during the desk study within a 250m buffer of the Site one of which, P2 was accessed during the surveys. Due to site boundary changes in the intervening time, pond P1 is no longer within 250m of the Site.**
- 3.3.9 Habitats recorded within the Site are considered to be typical of dominant habitats within the wider landscape.

Table 3.4: Target Notes

Target Note	Comment
TN1	Hawthorn <i>Crataegus monogyna</i> -dominated intact hedgerow with sections of planted hawthorns (identified by plastic tube coverings). Additionally, hedgerow consisting of field maple <i>Acer campestre</i> , ash <i>Fraxinus excelsior</i> , elder <i>Sambucus nigra</i> , hazel <i>Corylus avellana</i> , dogwood <i>Cornus sanguinea</i> and guelder rose <i>Viburnum opulus</i> . Hedgerow measures 1.5x2m.
TN2	Mature pedunculate oak <i>Quercus robur</i> along intact hedgerow. 10m tall, thick ivy covering and several areas of damaged/lifted bark on trunk suggesting poor health and potential for partial cavity. Moderate Bat Roost Potential (BRP).
TN3	Broadleaved copse dominated by hawthorn, hazel and ash surrounded by dry ditch on all sides.

Target Note	Comment
TN4	Mature ash <i>Fraxinus excelsior</i> at edge of semi-natural woodland copse (ash-dominated). 12m tall, broken limbs and partially hollow trunk in moderate foraging habitat. High BRP.
TN5	Mature ash along Site western with broken trunk with large hollow cavity. Several obvious entrances into trunk and other voids present. High BRP.
TN6	Tall ruderals, likely sown along dry ditch dominated by <i>Phacelia</i> with additional cleavers <i>Galium aparine</i> , cock's-foot <i>Dactylis glomerata</i> . Red clover <i>Trifolium pratense</i> .

3.4 Protected and Notable Species

Birds

3.4.1 Bird records within provided by LRERC comprised of a suite of species typical of the habitats and region. These included thirty-seven species that are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended), priority species listed on the UK Biodiversity Action Plan (UKBAP), species listed as a priority species under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006, red or amber listed 'Birds of Conservation Concern'¹⁴ and Leicestershire and Rutland Biodiversity Action Plan Species.

Wintering Birds

3.4.2 During the wintering bird surveys, no primary 'target' species (defined typically as waterfowl or other species using large open fields in winter that may be displaced due to the proposed development) were recorded within the survey area as defined in **Appendix 5.3**.

3.4.3 Target species; Mute swan *Cygnus olor*, mallard *Anas platyrhynchos* and coot *Fulica atra* were recorded outside of the Site within the wider survey area in small numbers along the Grantham Canal in January and March.

3.4.4 Overall, the wintering bird surveys, desk study and evaluation of the Site suggest that although they are present in the wider area, the Site and surrounding fields are used by very low numbers of target species and do not provide an important foraging or roosting resource for non-breeding waterfowl.

3.4.5 Full details regarding the wintering bird surveys are provided in **Appendix 5.3: Winter Bird Survey Results**.

Breeding Birds

3.4.6 Overall, breeding species comprised species typical of arable farmland habitats with species of conservation concern including Red List species; skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella* and linnet *Linaria cannabina* and grey partridge and Amber List species; dunnock *Prunella modularis*, quail *Coturnix coturnix*, song thrush *Turdus philomelos*, wren *Troglodytes troglodytes* and reed bunting *Emberiza schoeniclus*.

¹⁴ Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. *British Birds* 114, pp. 723-747.

- 3.4.7 Species breeding density is generally very low and with the exception of skylark and yellowhammer, most species are confined to field boundary habitats including hedgerows and pockets of woodland.
- 3.4.8 Full details regarding the breeding bird surveys are provided in **Appendix 5.4: Breeding Bird Survey Report**.

Bats

- 3.4.9 The data search returned 162 bat records of eight bat species, namely brown long-eared *Plecotus auritus* (20 records), Natterer's *Myotis nattereri* (1), Daubenton's *Myotis daubentonii* (2), noctule *Nyctalus noctula* (8), common pipistrelle *Pipistrellus pipistrellus* (51) soprano pipistrelle *Pipistrellus pygmaeus* (28), barbastelle *Barbastella barbastellus* (1) and a further 50 records not assigned to species level.
- 3.4.10 Results from a search of MAGIC show one EPS licences (2015-1548-EPS-BDX) in relation to bats within 2km, granted in 2015 for a roost of soprano pipistrelle, located approximately 1.2km north of the Site.

Roosting Bats

- 3.4.11 During the Extended Phase 1 habitat survey, three mature trees (**TN2, 4 & 5** as shown in **Table 3.4 and Figure 5.2.4**) were noted as having suitable bat roost features. All other trees noted within the Site were categorised as having negligible or low bat roost potential and all were confined to field boundary habitats.

Foraging and Commuting Bats

- 3.4.12 Habitats within the Site were considered to most closely fit the description for land of 'moderate' interest for foraging bats in accordance with BCT guidance, with continuous habitat connected to the wider landscape that could be used for commuting and foraging.
- 3.4.13 Linear features within and around the Site such as hedgerows and ditches are considered to offer the most favourable habitats for foraging / commuting bats as do the ponds (and surrounding habitats) and woodland areas present within and immediately adjacent to the Site as well as in the wider area.

Badger

- 3.4.14 Badgers are discussed separately in confidential **Appendix 5.5**.

Otter

- 3.4.15 The data search returned no records of otter *Lutra lutra* within the 2km search area.
- 3.4.16 Several drainage ditches are present along field boundaries, however all ditches were found to be shallow or dry during the survey, providing very limited foraging opportunities. However, when wet, the ditches may provide connectivity to canal and river networks in the wider environment, including the adjacent Grantham Canal. Otters could potentially use ditches within the Site to travel along the interconnected drainage network and utilise habitats along these riparian corridors. The Site is dominated by arable fields which provide negligible habitat suitability for otters and any suitable habitat found within the Site is confined to the drainage ditches.
- 3.4.17 No signs of otter were found during surveys, and no potential holts were encountered.

Water Vole

- 3.4.1 LRERC returned no records of water vole *Arvicola amphibius* within 2km of the Site from within the last 30 years.

3.4.2 Several drainage ditches are present along field boundaries, however all ditches were found to be shallow or dry during the survey, providing low/moderate habitat suitability for the species. However, the ditches may provide connectivity to canal and river networks in the wider environment, including the adjacent Grantham Canal which is well vegetated with banks comprising of a combination of earth and metal pilings. The Site is dominated by arable fields which provide negligible habitat suitability for water voles and any suitable habitat found within the Site is confined to the drainage ditches.

Amphibians

3.4.3 The data search returned no records of great crested newt or other amphibian species within 2km of the Site and a review of MAGIC showed no EPS licences granted for great crested newt within 2km.

3.4.4 An Ecological Constraints Opportunities Plan (ref: 1276) supplied by Grassroots Ecology references ponds **P1 and P3** (shown on **Figure 5.2.5**) as having a known population of great crested newt. Additionally, the citation for Muston Meadows SSSI, located adjacent to the Site, references the field ponds within the SSSI as a feature of interest due to the presence of great crested newt.

3.4.5 A negative eDNA result was returned for P2, indicating great crested newt absence. The survey methodology and results are provided in full in **Appendix 5.6**.

3.4.6 **There are three ponds on Site, all of which were found to be dry during surveys and had clearly been dry for some time. Additionally, there are a further seven ponds located within 250m of the Site, one of which P2 was accessed and holding water during the survey. The remaining six ponds were not accessed.**

3.4.7 The Grantham Canal adjacent to the Site was considered unsuitable for supporting great crested newt. Despite the canal being disused, it is a relatively large waterbody with potentially some flow in the water, also it was noted to have a high waterbird population and is likely to be stocked with fish.

3.4.8 The dominant arable habitat on Site provides sub-optimal amphibian terrestrial habitat, with more suitable habitat restricted to field boundary features such as hedgerows and ditches. Due to the dry/very shallow and ephemeral nature of the ditches within and adjacent to the Site, these are considered unsuitable for breeding great crested newts.

Reptiles

3.4.9 The data search returned no records of reptiles within 2km of the Site.

3.4.10 The Site is dominated by arable land, which is considered to be of a negligible value for reptile species, however, the field boundary habitats such as hedgerows and ditches do provide limited habitats for foraging/hibernation purposes. These boundary habitats also provide connectivity around the Site and into the wider area, including the discussed Grantham Canal SSSI.

Other Notable Species

3.4.11 Two records were returned for brown hare *Lepus europaeus* within 2km of the Site. In addition, several brown hare were observed during the Extended Phase 1 survey.

3.4.12 Brown hare and western hedgehog *Erinaceus europaeus* could potentially utilise the woodland and field boundary features such as hedgerows.

3.4.13 No other protected or notable species were observed or are considered likely to occur within or immediately surrounding the Site.

3.5 Invasive Non-native Species

- 3.5.1 One record of an invasive non-native species, American mink *Neovision vision* was returned by LRERC within 2km of the Site.
- 3.5.2 No invasive non-native species were encountered during any of the surveys on Site.

FIGURES

Figure 5.2.1: Site Location Plan

Figure 5.2.2: Statutory Designated Sites Plan

Figure 5.2.3: Non-statutory Designated Sites Plan

Figure 5.2.4: Phase 1 Habitat Plan

Figure 5.2.5: Pond Location Plan

Figure 5.2.1: Site Location Plan

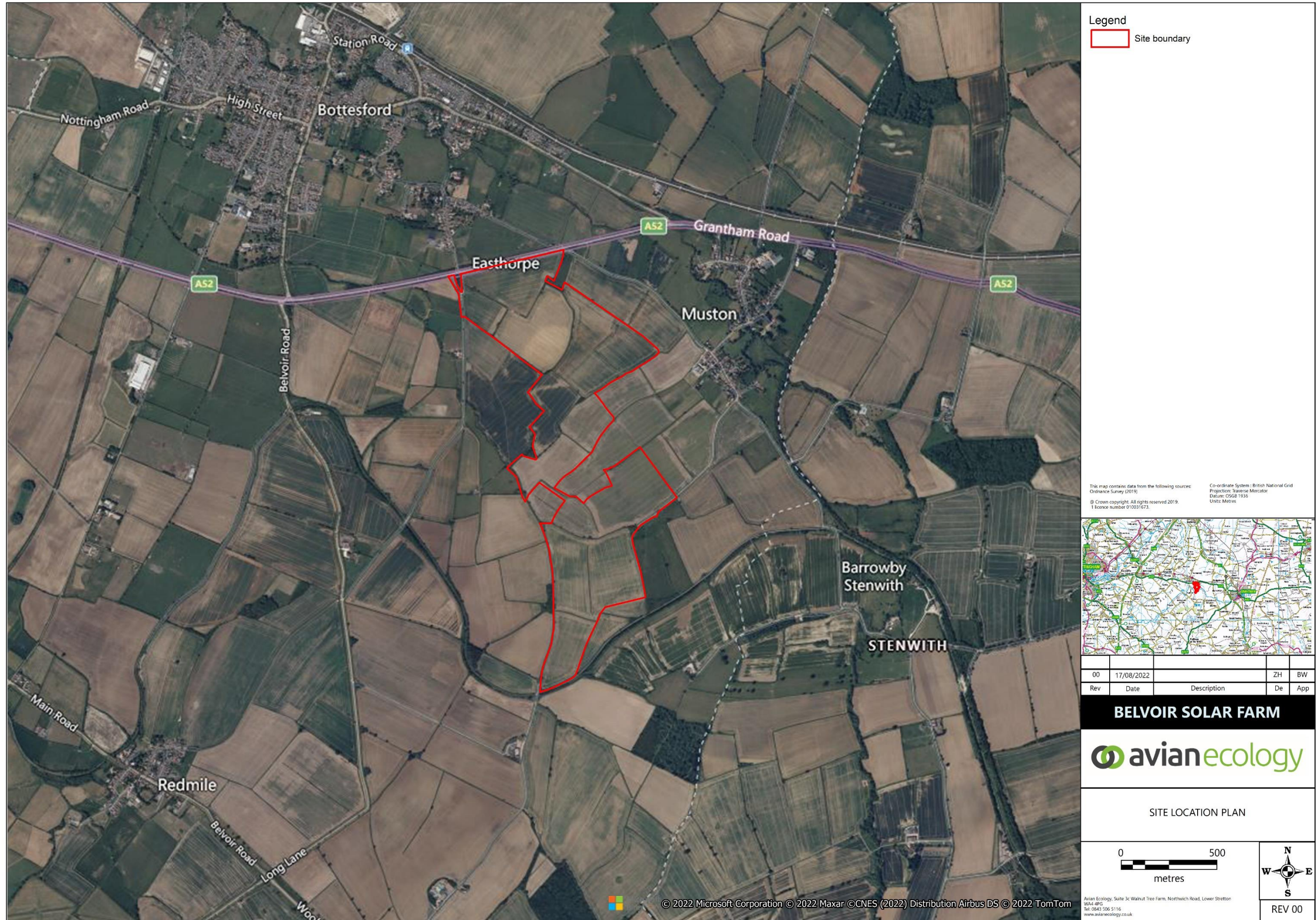


Figure 5.2.2: Statutory Designated Site Plan

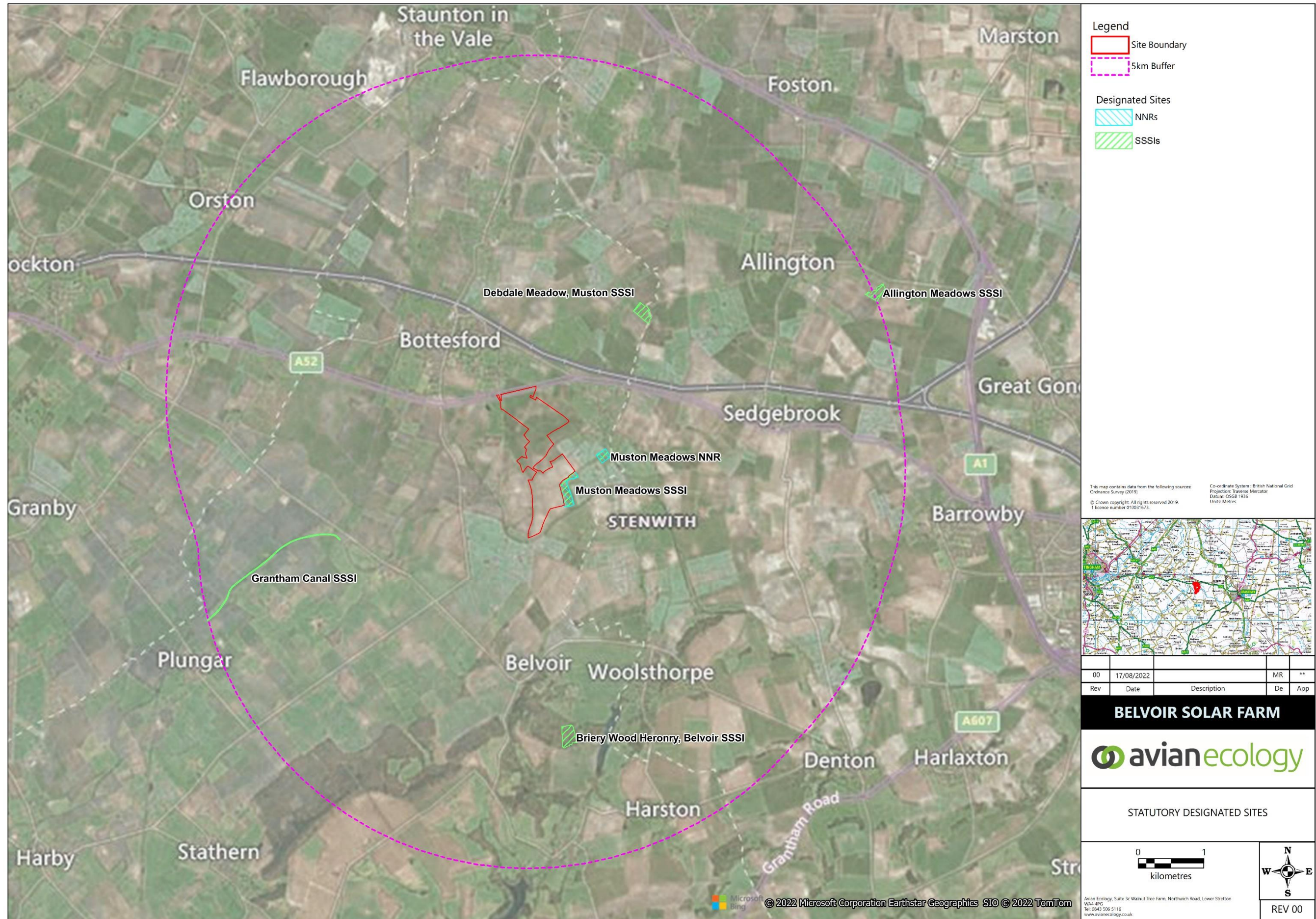


Figure 5.2.3: Non-statutory Designated Site Plan

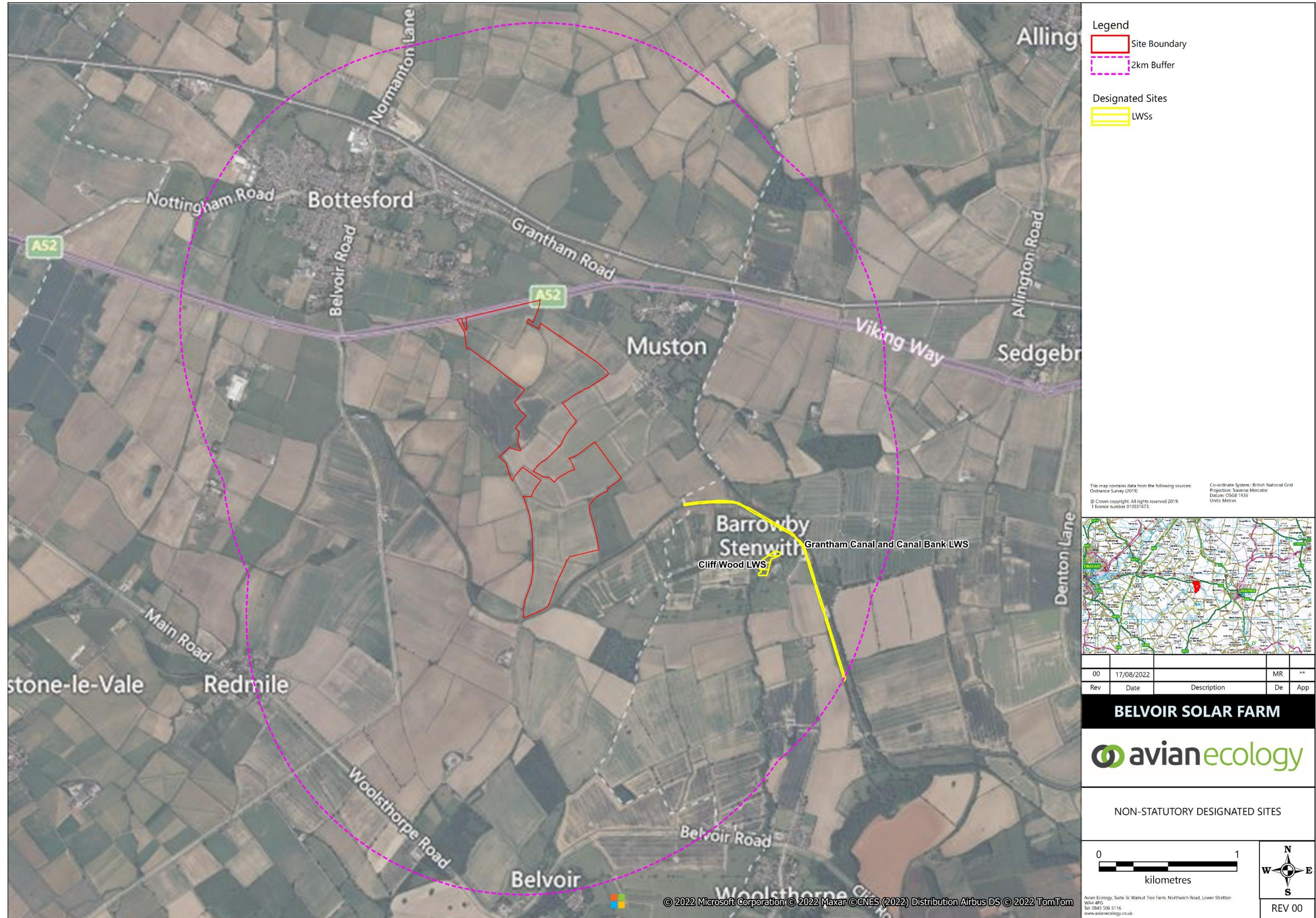


Figure 5.2.4: Phase 1 Habitat Plan

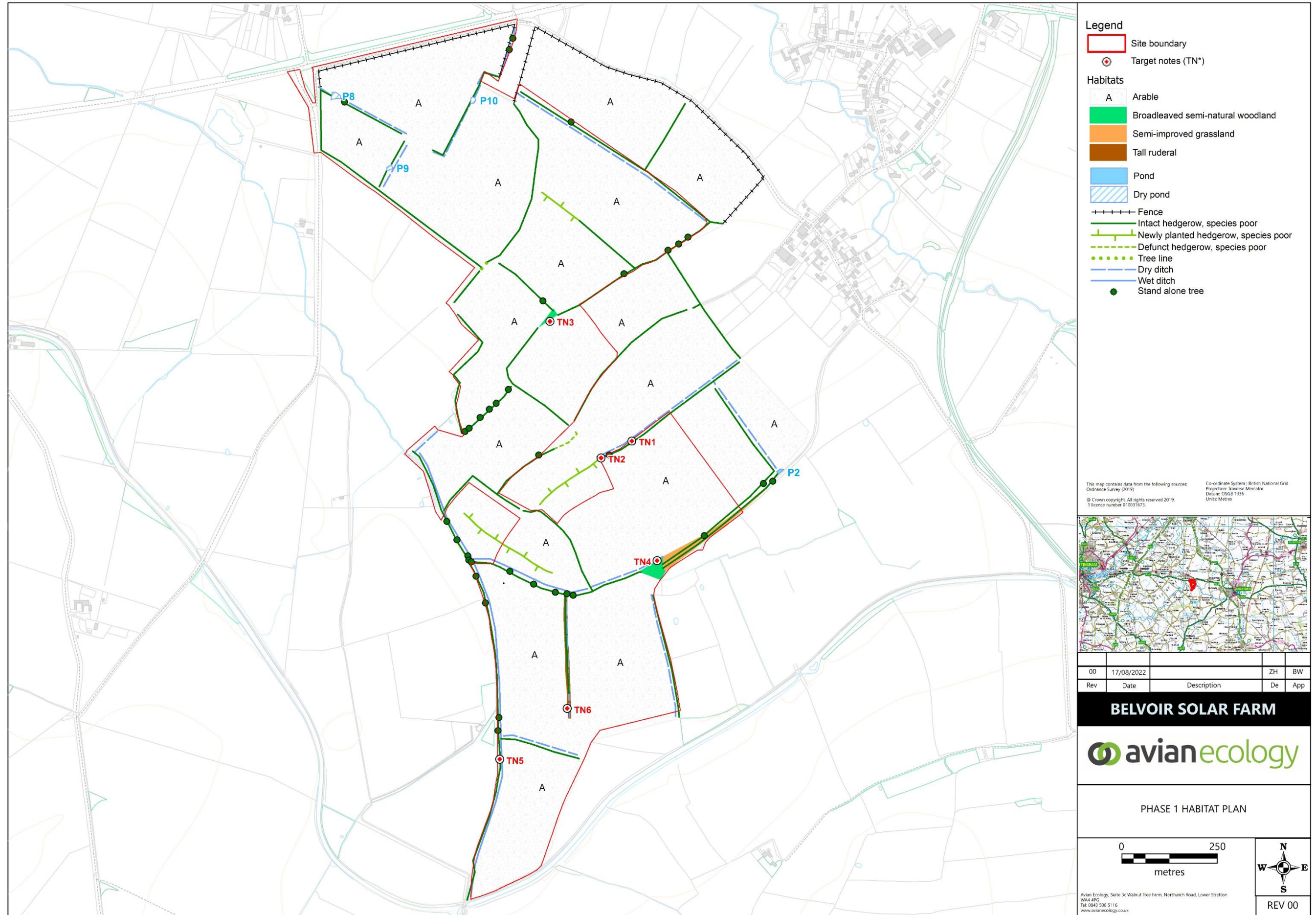
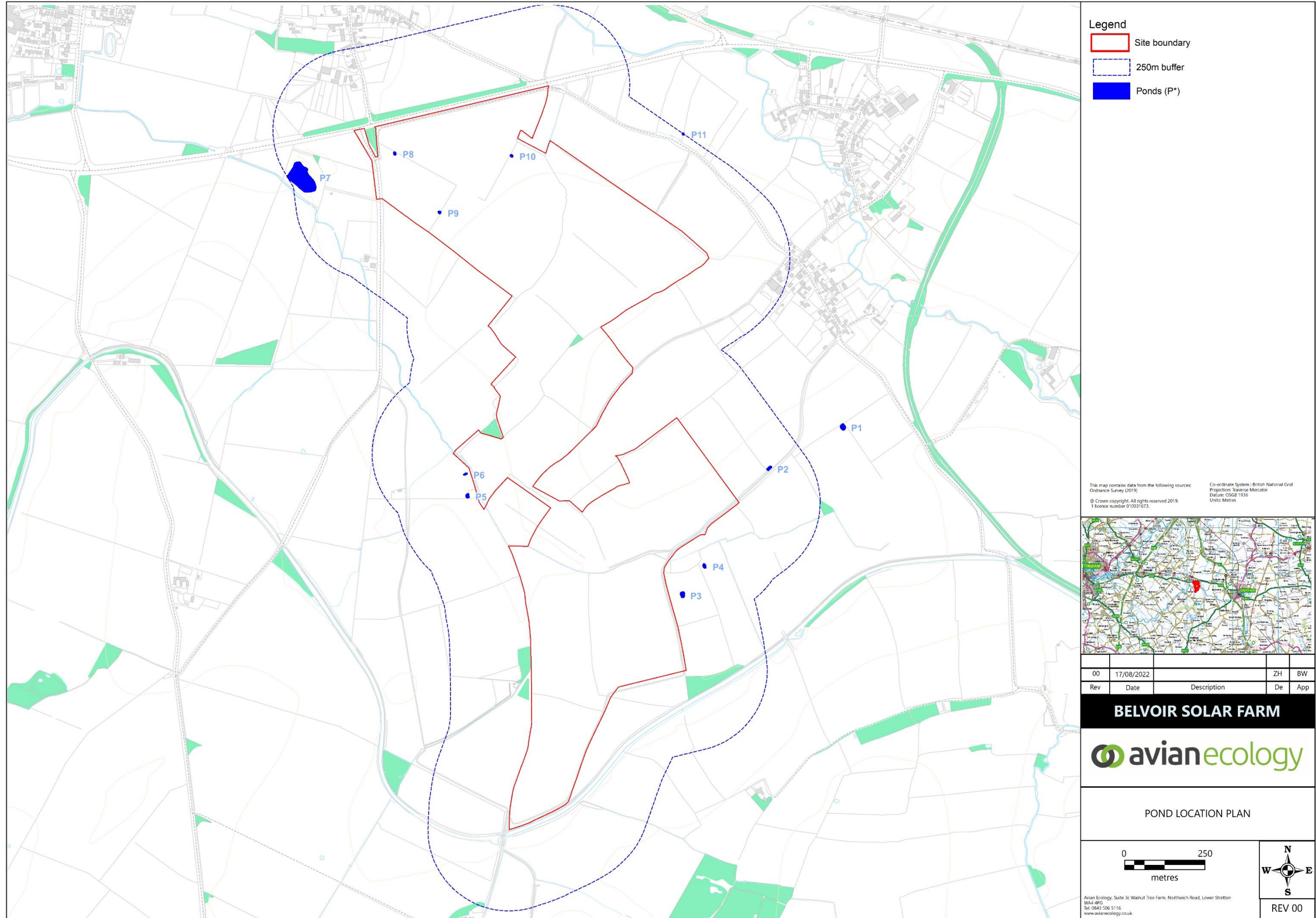


Figure 5.2.5: Pond Location Plan



ANNEX 1
Photographs

Plate	Description
	<p>Photo 1: Example of arable field dominating the Site</p>
	<p>Photo 2: Another example of arable field dominating the Site.</p>
	<p>Photo 3: Boundary hedgerow and dry ditch</p>



Photo 4: Example of pre-existing field access.



Photo 5: Wet ditch running along the western boundary.



Photo 6: TN2 – Mature pedunculate oak *Quercus robur* along field boundary.



Photo 7: TN5 – Mature ash *Fraxinus excelsior* along western boundary hedge. Large evidence of damaged trunk and potentially hollow.



Photo 8: Tree lined-mature hedgerow.



Photo 9: Hedgerow



Photo 10: P2 – The wet pond in the wider area.



Photo 11: P8- a dry pond on Site.

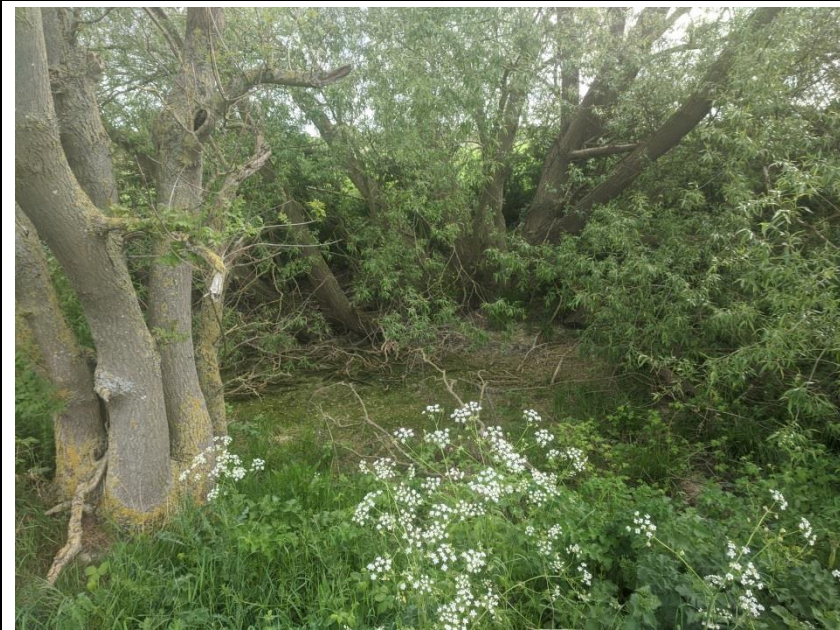


Photo 12: P9 - a dry pond on Site.