

PROPOSED ANAEROBIC DIGESTION FACILITY AT ASHTON KEYNES

Preliminary Ecological Appraisal

Prepared for: Acorn Bioenergy Limited



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CONTENTS

1.0	INTRODUCTION	5
1.1	Site Description	5
1.2	Details of the Proposed Development	5
1.3	Purpose of this Report	6
1.4	Evidence of Technical Competence and Experience	6
1.5	Relevant Legislation and Policy	6
1.5.1	Local Planning Policy	7
2.0	METHODOLOGY	9
2.1	Baseline Data Collection	9
2.1.1	Desk Study.....	9
2.1.2	Field Survey(s).....	9
2.1.3	Limitations.....	10
3.0	RESULTS	11
3.1	Designated Sites.....	11
3.1.1	Statutory Designated Sites.....	11
3.1.2	Non-statutory designated Sites	11
3.1.3	Ancient Woodland and Priority Habitat	12
3.2	Site Habitats	13
3.2.1	c1c Cereal crops.....	13
3.2.2	h2a Hedgerows; priority habitat.....	14
3.2.3	g4 Modified grassland	15
3.2.4	r1 191 Standing open water and canals; ditch	15
3.3	Species	16
3.3.1	Plants.....	16
3.3.2	Invasive Plant Species.....	16
3.3.3	Invertebrates	17
3.3.4	Amphibians (including Great Crested Newt)	17
3.3.5	Reptiles.....	17
3.3.6	Birds.....	17
3.3.7	Wintering Birds	18
3.3.8	Mammals	18
4.0	ECOLOGICAL CONSTRAINTS AND OPPORTUNITIES	20
4.1	Statutory Ecological Sites	20
4.2	Non-Statutory Ecological Sites	20

4.3	Priority Habitats	20
4.3.1	Native Hedgerows and Trees	20
4.3.2	Ditch Habitats	20
4.4	Protected Species	21
4.4.1	Reptiles.....	21
4.4.2	Great Crested Newt (GCN).....	21
4.4.3	Birds.....	21
4.4.4	Bats.....	21
4.4.5	Badger	22
4.4.6	Hedgehog.....	22
4.5	Potential Opportunities for Biodiversity Enhancements	23
5.0	CONCLUSIONS AND RECOMMENDATIONS.....	24
5.1	Further Assessment and Reporting.....	24
5.2	Statutory Designated Sites	24
5.3	Non-Statutory Designated Sites	24
5.4	Un-Designated Sites.....	24
5.5	Notable Habitats	24
5.6	Protected and Notable Species.....	24
5.7	Follow-on Surveys (Required)	24

DOCUMENT REFERENCES

TABLES

Table 3-1 Non- Statutory Designated Sites within search radius.....	11
Table 3-2- Priority Habitat within search radius	13
Table 3-3 Details of hedgerows on site	14

FIGURES

Figure 1 – Arable field, recently ploughed

Figure 2 – Area of modified grassland located in south-western corner of the site

Figure 3 – Dry ditch running along the centre of the site

DRAWINGS

Drawing 1	UKHab Survey Map
Drawing 2	Proposed Site Layout
Drawing 3	Designated Sites Map

APPENDICES

Appendix 1 Relevant Legislation and Planning Policy

1.0 Introduction

SLR Consulting Limited (SLR) was commissioned by Acorn Bioenergy Limited in July 2022 to carry out a Preliminary Ecological Appraisal (PEA) of the proposed development located north of Ashton Keynes in Wiltshire (hereafter termed the 'Site').

A PEA has been requested to inform the planning process in respect of the proposed development of the application site. The proposed development would involve the construction and operation of an anaerobic digestion (AD) facility. Further details of the proposed development are provided below in Section 1.2.

1.1 Site Description

The Site extends to approximately 6.98 hectares (ha) and is centred on National Grid coordinates (403993, 196195). The Site and survey boundaries can be seen on **Drawing 1**.

The application site, (the Site) consists of a broadly rectangular area of arable land and comprises one full field and the adjoining northern part of a second field situated immediately to the south. Both the fields are in arable use, there is an intermittent hedgerow and low trees that dissects the two fields, a shallow drainage ditch also lies on the northern side of this divide.

The site falls entirely within the administrative boundary of Wiltshire County Council and is situated on Ashton Down and is located in the eastern section of this area. It is bordered by mature trees and hedgerows on all sides bar the southern section where it bisects the southern boundary. The site itself is also surrounded on all sides by similar flat, open arable fields, further shallow drainage ditches are present outside the north and eastern boundaries. An unsurfaced access track runs along the western boundary, likewise Ashton Road runs along the site to the east.

Beyond Ashton Road, to the east, is a previous historic landfill site, which has since been restored to sheep pasture. To the south-east is an Aggregate Industries concrete works.

The nearest statutory site designated for its ecological interest is the Cotswold Water Park, a Site of Special Scientific Interest (SSSI), which surrounds the site approximately 300m to the east, south and west and comprises a large network of former gravel workings and associated land designated for its diverse assemblage of breeding and non-breeding birds.

1.2 Details of the Proposed Development

The Site extends to a total of 6.98 hectares, of which 5.5 hectares would comprise the developed area. The existing site access is to be widened to facilitate the development.

The proposed development would import and treat in the region of 91,000 tonnes of feedstock per annum from the applicant's landholding and local farms, which would undergo a process of controlled decomposition (anaerobic digestion) within the Anaerobic Digestion (AD) facility. This anaerobic digestion generates biogas, which is upgraded on site into biomethane, before being removed by tanker to a central facility for injection into the national grid.

The feedstock would typically comprise the following:

- energy crops such as silage, rye, maize and grass;
- straw;
- slurry; and

- poultry litter and farmyard manure.

In addition to the biogas, the AD process also produces a nutrient rich solid fertiliser and soil conditioner and a liquid fertiliser (digestate), which would be used on local farms in place of raw manures and artificial fertilisers.

The AD process would also result in the production of carbon dioxide (CO₂) as a natural by-product. This by-product is usually vented by AD plant operators, for whom the main goal is the production of biomethane. However, as CO₂ is a precious resource, the proposed AD plant would be fitted with equipment to upgrade the CO₂ to 99.9% purity, suitable for almost all industrial and commercial applications in the UK. Upgraded CO₂ would be liquefied and transported by road to end users within the market area.

1.3 Purpose of this Report

This report presents the findings of the PEA which seeks to:

- establish the ecological baseline conditions and determine the importance of ecological features present (or those that could be present), as far as is possible;
- identify potential ecological constraints to the proposed development and make initial recommendations to avoid potential significant effects on important ecological features, where possible;
- identify potential requirements for mitigation, where possible, including mitigation measures that will be required and those that may be required (depending on results of further surveys or final scheme design);
- establish any requirements for more detailed surveys; and
- identify opportunities for biodiversity enhancements as part of the project.

The assessment of impacts resulting from the proposed development and the detailed development of mitigation measures, if required, are beyond the scope of this report and should be covered in a separate Ecological Impact Assessment report, once development proposals have been finalised.

1.4 Evidence of Technical Competence and Experience

Giselle Hynes, a Senior Field Ecologist at SLR, who wrote this report and completed the field survey, holds an MSc in Wildlife Management and Conservation from the University of Reading. She is a qualified member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Giselle has been a consultant ecologist for more than 3 years and has prepared reports for a range of different projects and plans.

Olivia Guindon, a Senior Ecologist at SLR, who reviewed this report, has a Bachelor's degree in Ecology and Wildlife Conservation (BSc Hons) and a Master's degree in Species Identification and Survey Skills and is a Qualifying member of CIEEM. Olivia is a Senior Ecologist at SLR and has over four years' professional experience within ecological consultancy and has undertaken numerous ecological assessments of this type.

This report has been subject to Quality Assurance review as per SLRs policies by Andy Law BSc CEng MCIEEM. Andy has 32 years of experience as a professional ecologist, during which time he has worked on many renewable energy development projects.

1.5 Relevant Legislation and Policy

The key wildlife legislation underpinning the conservation of habitats and species are included in Appendix A.

There are a number of policy documents at the local level with relevance to biodiversity, which are summarised below.

1.5.1 Local Planning Policy

Wiltshire Core Strategy¹

Core Policy 50: Biodiversity and Geodiversity

Protection:

Development proposals must demonstrate how they protect features of nature conservation and geological value as part of the design rationale. There is an expectation that such features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity and functionality in the long-term. Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource, and secure the integrity of local ecological networks and provision of ecosystem services.

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development.

Any development potentially affecting a Natura 2000 site must provide avoidance measures in accordance with the strategic plans or guidance set out in paragraphs 6.75-6.77 above where possible, otherwise bespoke measures must be provided to demonstrate that the proposals would have no adverse effect upon the Natura 2000 network. Any development that would have an adverse effect on the integrity of a European nature conservation site will not be in accordance with the Core Strategy.

Biodiversity enhancement:

All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance and create valuable habitats, ecological networks and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/ Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character. Local sites Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts: i. cannot reasonably be avoided ii. are reduced as far as possible iii. are outweighed by other planning considerations in the public interest iv. where appropriate compensation measures can be secured through planning obligations or agreements. Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term

Saved Policies of the North Wiltshire Local Plan

The majority of the North Wiltshire Local Plan policies relating to ecology were superseded by the adoption of the Wiltshire Core Strategy and/or national policy and legislation. Policy NE12 Woodland has been saved.

NE12 Woodland

The creation, conservation, enhancement and positive management of woodlands across the district will be supported. In particular, areas of ancient and semi-natural woodland should be protected. The retention of the visual amenity and nature conservation value will be sought in particular at the following:

- i) Bird's Marsh Wood, Chippenham*
- ii) Vincient's Wood, Chippenham*
- iii) Pockeredge Drive Wood, Corsham*
- iv) Woodland within Braydon Forest.*

¹ [untitled \(wiltshire.gov.uk\)](#)

6.32 Woodlands are a very important element within the landscape of the district. They enhance urban areas and edges and the wider countryside. They have landscape, visual and nature conservation value, are often historic features and can be used for recreation. Ancient and semi-natural woodlands are particularly important and are protected. Circular 9/95 (General Development Order Consolidation) should be referred to in this regard. The multi-purpose use of forestry and woodland is supported and should be carried out in accordance with the English Forestry Strategy and UK Forestry Standard.

6.33 Bird's Marsh Wood, Vincient's Wood and Pockeredge Drive Wood have been specifically identified in the Local Plan in view of their importance to the landscape setting of their respective towns, where they are not covered by other landscape designations. Bird's Marsh Wood is a large wood of approximately 24 hectares, which is valuable for its flora and its refuge for wildlife. Vincient's Wood, under the control of the Wiltshire Wildlife Trust, forms a significant landscape feature, the protection of which is further needed due to its being surrounded by housing and the Western Bypass. The woodland at Pockeredge Drive forms part of a wider wooded landscape in the historic Box Tunnel Valley area. Braydon Forest is a larger area covering a number of SSSI's. The Braydon Forest Project is run by the Wiltshire Wildlife Trust with the aim of conserving and enhancing the distinctive landscape of the old Braydon Forest comprising pasture and coppice woodland.

2.0 Methodology

2.1 Baseline Data Collection

2.1.1 Desk Study

An ecological data search was requested from Gloucestershire Centre for Environmental Records (GCER) and Wiltshire and Swindon Biological Records Centre to provide records of protected and otherwise notable species, and non-statutory protected sites for the Site and land within a 2km radius of it. The terms of use of data prevent the publication of the raw data therefore a copy of the data search has not been included within this PEA.

An internet-based desk study was also undertaken, whereby the Multi-Agency Geographic Information for the Countryside (MAGIC) website (<http://magic.gov.uk>) was searched for statutory designated sites (such as Sites of Special Scientific Interest (SSSI)) and European Protected Species (EPS) Licences granted within 2km of the Site.

2.1.2 Field Survey(s)

A UK Habitat Classification (UKHab) Survey was undertaken by Giselle Hynes, a Senior Field Ecologist with SLR, on 14th September 2022. This method was extended to include preliminary checks for notable, protected or rare species of both flora and fauna. Particular features of interest were recorded on a field map using Target Notes, as shown in Drawing 1.

The UK Habitat Classification (UKHab) is a comprehensive classification system for the UK that has been developed to benefit from changes in habitat categorisation, recording analysis in recent decades. The system comprises a principal hierarchy (the Primary Habitats) which include broad habitats and priority habitats and non-hierarchical secondary codes. Habitat nomenclature and definitions have been designed to remain as close to existing systems as possible in order that data can be collected, analysed and translated without ambiguity.

This level of survey includes the documentation of habitats to a recognised standard, but also includes the recording of field evidence indicating the presence or potential presence of species that could constitute a material consideration in planning terms, such as protected or notable plant or faunal species. Notes of principle habitat types, supported by photographs, were recorded.

Whilst not a full botanical or protected species survey, the method of survey enables experienced ecologists to obtain an understanding of the ecology of a site such that it is possible either to:

- Confirm the conservation significance of the site and assess the potential for impacts on habitats/species likely to represent a material consideration in planning terms, or
- Establish the scope and extent of any additional specialist ecological surveys that will be required before such confirmation can be made.

In addition, the presence of plant species included within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) was searched for during the survey. Plants included within the schedule are considered derogated pest species that are pernicious or injurious, such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*). It is an offence under the Act to plant or cause the spread of these species in the wild.

The survey area was assessed for habitats and features with potential to support protected or notable species, together with any field signs of such species including, but not limited to, badger (*Meles meles*), bats (*Chiroptera*), great crested newt (*Triturus cristatus*) and breeding birds (*Aves*).

2.1.3 Limitations

Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the Site.

Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

Field Survey(s)

The survey did not seek to identify all plant species within the study area and as such, this report does not provide an exhaustive list of flora found within the study area. However, it is considered that the survey results are representative of the habitats and flora of the Site and include the dominant and characteristic species.

Whilst it is felt unlikely that significant factors have been overlooked, due to the nature of the subjects of ecological surveys it is feasible that species that use the Site may not have been recorded by virtue of their seasonality, cryptic behaviour, habit or random chance. It should be noted that lack of evidence of any one protected species during survey visits does not necessarily preclude its presence at the Site either at this current time or in the future. It is considered that the survey was suitable for conducting protected species risk assessments based on habitat type, collected data and local knowledge.

3.0 Results

The results of the desk and field survey are reported below and describe the baseline conditions at the Site and within the surrounding area.

3.1 Designated Sites

3.1.1 Statutory Designated Sites

Reference to the MAGIC dataset shows that there are two UK statutory sites within 2km of the Site boundary. These sites have been designated as a Local Nature Reserve (LNR) and Site of Special Scientific Interest (SSSI).

Site Name	Distance (m) from Site	Site Description	Size (ha)
Cotswold Water Park SSSI	58 m south	A former gravel workings comprising the UK's largest marl lake system. The site is of special interest due to the nationally important species it supports, comprising a diverse assemblage of breeding birds of lowland open waters, their margins and scrub. Bird species include great crested grebe (<i>Podiceps cristatus</i>), little egret (<i>Egretta garzetta</i>), lapwing (<i>Vanellus vanellus</i>), yellowhammer (<i>Emberiza citrinella</i>), reed bunting (<i>Emberiza schoeniclus</i>), linnet (<i>Linaria cannabina</i>), and yellow wagtail (<i>Motacilla flava</i>). The site also supports notable aquatic plants such as stoneworts.	1,919.05
Coke's Pit Lake LNR	1,250 m west	An area of open water with shingle islands, reedswamp, grassland and hedgerows. Wetland plant species include stoneworts, whilst faunal species include water vole (<i>Arvicola amphibious</i>), tufted duck (<i>Aythya fuligula</i>), common tern (<i>Sterna hirundo</i>), reed bunting (<i>Emberiza schoeniclus</i>), Daubenton's bat (<i>Myotis daubentonii</i>) and various dragonflies and damselflies.	10.45

3.1.2 Non-statutory designated Sites

The GCER and WSBRC search reports show that there are fourteen non-statutory designated sites within 2km. These sites have been designated as Local Wildlife Sites (LWS).

Table 3-1 below gives the locations and descriptions of a selection of the nearest/most relevant local designations.

Table 3-1 Non- Statutory Designated Sites within search radius

Site Name	Distance (m) from Site	Site Description
Cotswold Water Park Pit 62 LWS	290m south	A small private lake in the Cotswold Water Park.

Cotswold Water Park Pit 26 LWS	535 m south-east	A large lake in a former gravel pit with associated aquatic marginal, grassland, wetland, woodland and scrub habitats, used mainly for recreational sailing.
Cotswold Water Park Lakes 84 and 85 Shorncliffe Reedbed LWS	662 m north-west	A series of lakes, gravel pits and reservoirs with reedbed and bird assemblages. The site also contains connecting habitats of rough grassland with deep ditches. The reedbeds support a diverse bird assemblage including reed bunting (<i>Emberiza schoeniclus</i>), reed warbler (<i>Acrocephalus scirpaceus</i>), little grebe (<i>Tachybaptus ruficollis</i>), snipe (<i>Gallinago gallinago</i>), otter (<i>Lutra lutra</i>), water vole (<i>Arvicola amphibius</i>) and bittern (<i>Botaurus stellaris</i>). The site is also important for various species of dragonfly.
Cotswold Water Park Pit 27 LWS	705 m south-east	A lake in the Cotswold Water Park, mainly used for angling.
Cotswold Water Park Pits 28, 28a, 29, 30, 35, 38 LWS	775 m south	A complex of restored lakes resulting from gravel extraction with willow fringes and surrounded by areas of ruderal and more established grassland.
Cotswold Water Park Pit 32 LWS	1,020 m south-west	The southern half of a lake which forms the Keynes Country Park, used for recreation.
River Churn LWS	1,230 m north-east	The River Churn Local Wildlife Site is designated for its mammal interest.
Clayhill Field LWS	1,230 m south-east	A small wet meadow in the centre of Cotswold Water Park, with areas of rush-pasture vegetation.
Cotswold Water Park Pit 37 LWS	1,270 m south-west	A lake in the Cotswold Water Park, mainly used for recreation.
Cotswold Water Park Pit 96 LWS	1,520 m south-east	A small, secluded willow (<i>Salix</i> sp.) fringed lake within Cotswold Water Park.
Cotswold Water Park Pits 39, 40, 64, 70, 92, 93, 94 LWS	1,770 m south	A large group of lakes, quarries and grassland with some bird interest.
Cotswold Water Park Pits 25, 66, 69, 76 & 200 LWS	1,780 m south-east	A large, restored site with a number of large and small lakes resulting from gravel extraction and two large species-poor neutral meadows.

3.1.3 Ancient Woodland and Priority Habitat

Reference to the MAGIC dataset confirmed that no ancient woodlands² are present within 2km of the site.

² Ancient Woodland is not a formal designation as such, but is a term applied to sites in England and Wales whose documented history shows them to have been continuously wooded since approximately 1600, and which are by extension considered likely to have been continuously wooded since the last Ice Age. Ancient Woodland sites and their mature soils are considerably more complex and biodiverse ecosystems than secondarily wooded sites, and therefore represent environmental capital that should be considered to be a finite resource, as it is not renewable in a human timescale.

In respect of UK Priority Habitat Types numerous areas of coastal and floodplain grazing marsh, lowland meadow, traditional orchards and deciduous woodland are shown on MAGIC within 2km of the Site. The closest priority habitat was an area of deciduous woodland, located 250m east of the Site boundary. Information on the above priority habitats can be found in Table 3-2 below. Due to the volume of habitats, only those within 500m of the Site boundary are shown.

Table 3-2- Priority Habitat within search radius

Site Name	Distance (m) from Site	Size (ha)
Deciduous woodland	250m east	1.03
Deciduous woodland	295m south	0.88
Traditional orchard	360m south-west	0.04
Deciduous woodland	398m east	1.13
Coastal and floodplain grazing marsh	415m north-west	26.37
Traditional orchard	454m south-west	0.16

3.2 Site Habitats

The results of the UKHab Survey are illustrated in map form in Drawing 1 at the end of this report and are described below. It has been mapped using the fine scale minimum mapping unit MMU (25m², 5m length), in accordance with the UK Habitat Classification User Manual³.

In summary, the following habitats were recorded within the Site, listed approximately in order of dominance:

- c1c Cereal crops;
- h2a Hedgerows; Priority Habitat;
- g4 Modified grassland;
- r1 191 Standing open water and canals; ditch; and
- w1g6 Line of trees.

3.2.1 c1c Cereal crops

The majority of the Site comprised two fields usually growing wheat, but were ploughed at time of survey and comprising bare ground (see Figure 1). These were bounded by hedgerows and had narrow grassy margins. The species in these margins included predominantly perennial rye (*Lolium perenne*) and false oat-grass (*Arrhenatherum elatius*) with occasional nettle (*Urtica dioica*) and red fescue (*Festuca rubra*).

³ The UK Habitat Classification Working Group (September 2020) The UK Habitat Classification User Manual Version 1.1.

Figure 1 – Arable field, recently ploughed



3.2.2 h2a Hedgerows; priority habitat

The fields on Site were bounded by native hedgerows. Further detail is provided below in Table 3-3 regarding species and features associated with each section of hedgerow within the Site. The locations of each section of hedgerow are detailed in Drawing 1.

Table 3-3 Details of hedgerows on site

Hedgerow reference	Description
H1	A predominantly hawthorn (<i>Crataegus monogyna</i>) hedgerow located along the western boundary of the Site. The hedgerow had large gaps in both the base and the hedge canopy and other species included ivy (<i>Hedera helix</i>), bramble (<i>Rubus fruticosus</i>) and ash trees (<i>Fraxinus excelsior</i>).
H2	A predominantly hawthorn and blackthorn (<i>Prunus spinosa</i>) hedgerow, located along the northern Site boundary. The hedgerow had large gaps in both the base and the hedge canopy and other species included ash trees, bramble and dog rose (<i>Rosa canina</i>).
H3	A predominantly blackthorn ditch, associated with a dry ditch. Additional species included hawthorn, bramble, dogwood (<i>Cornus sanguinea</i>), dog rose and field maple (<i>Acer campestre</i>). The understorey comprised predominantly ivy.
H4	The centre of the site was bisected by a hedgerow with trees, associated with a ditch, which was dry at time of survey. The hedgerow had large gaps in both the base and in the hedge canopy and comprised predominantly hawthorn. Other species present included crab apple (<i>Malus sylvestris</i>), bramble, field maple, blackthorn, dog rose and ivy. The hedgerow also contained a semi-mature ash (<i>Fraxinus excelsior</i>) at the westernmost end.

3.2.3 g4 Modified grassland

A small area of modified grassland was located in the south-western corner of the site, adjacent to a gateway (see Figure 2). Species in this area comprised common nettle, cow parsley (*Anthriscus sylvestris*), hedge mustard (*Sisymbrium officinale*), false oat-grass (*Arrhenatherum elatius*), red dead nettle (*Lamium purpureum*), cleavers (*Galium aparine*), shepherd's purse (*Capsella bursa-pastoris*) and creeping thistle (*Cirsium arvense*).

Figure 2 – Area of modified grassland located in south-western corner of the Site



3.2.4 r1 191 Standing open water and canals; ditch

Two ditches were located on Site, associated with hedgerows as detailed in Table 3-3. Both ditches were dry at time of survey and dominant species present included nettle and cow parsley, with hedge mustard, false oat-grass, red dead nettle and cleavers also present.

Figure 3 – Dry ditch running along the centre of the Site



3.3 Species

3.3.1 Plants

GCER and WSBRC returned several records of notable plants and within the 2km search including marsh helleborine (*Epipactis palustris*), corn spurrey (*Spergula arvensis*), greater chickweed (*Stellaria neglecta*), narrow-leaved bird's-foot-trefoil (*Lotus tenuis*), rat's tail fescue (*Vulpia myuros*) and great burnet (*Sanguisorba officinalis*).

Overall, the Site is unlikely to be of value for notable plants as it is subject to active agricultural management and lacks semi-natural habitats.

There was no indication that the Site was of likely high value for notable plants or particular groups such as arable weeds.

For the above reasons the Site is therefore considered to have **negligible potential** to support notable plant species.

3.3.2 Invasive Plant Species

The data search did not return any records of invasive plants within 2km of the Site.

No invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded during the UKHab survey and whilst no survey can be considered to be exhaustive it is considered unlikely that such species are present.

The Site is therefore considered to have **negligible potential** to contain invasive plant species

3.3.3 Invertebrates

The GCER and WSBRC data search returned 38 notable invertebrate records within the 2km search radius. Of these 38 records, 16 are from the past decade and include rugged oil-beetle (*Meloe rugosus*), ghost moth (*Hepialus humuli*), grizzled skipper (*Pyrgus malvae*), small heath (*Coenonympha pamphilus*), grey dagger (*Acronicta psi*), mouse moth (*Amphipyra tragopoginis*), white-letter hairstreak (*Satyrrium w-album*) and cinnabar (*Tyria jacobaeae*), which are all Section 41 species.

No notable invertebrates were observed during the survey.

Generally, it is considered to be unlikely that the Site is of high importance for notable invertebrates as it comprises of a limited range of ubiquitous habitats, managed intensively for agriculture. The Site therefore has **low potential** to support notable invertebrates (either individual species or assemblages).

3.3.4 Amphibians (including Great Crested Newt)

The data search provided records of common toad (*Bufo bufo*) within the 2km search radius.

The closest record of a great crested newt licence return on the MAGIC dataset was located in excess of 500m from the Site boundary.

Reference to aerial imagery revealed the presence of ten ponds within 500m of the survey area, but no ponds are present within 250m. It is generally accepted that terrestrial amphibians, including great crested newt, rarely travel over 250m from breeding ponds (Jehle, 2000⁴). In addition, the intervening habitats within the ponds and the site comprise arable with no direct connectivity to the site. The Site is therefore considered to have **low potential** to support amphibians such as great crested newt.

3.3.5 Reptiles

The data search returned several records of common lizard (*Zootoca vivipara*) and grass snake (*Natrix natrix*) within 2km of the Site, the closest of which comprised a record for grass snake, located 310m south of the site.

Small areas of suitable habitats for reptiles are present such as hedgerow, seasonally wet ditch and deadwood habitats, however, the Site is unlikely to support a significant population of any reptile species.

Therefore, whilst it is possible that small numbers of common reptile, such as common lizard and grass snake, may use the Site occasionally, it is considered unlikely that significant permanent populations are present.

The Site is considered to have **low potential** to be of high importance for reptiles.

3.3.6 Birds

The data search returned records of notable bird species within 2km of the Site including those associated with arable habitats such as barn owl (*Tyto alba*), corn bunting (*Emberiza calandra*), lapwing (*Vanellus vanellus*) and yellowhammer (*Emberiza citrinella*).

The Site comprises of agricultural habitats that are typical of the area and which are common in Wiltshire and Gloucestershire and the wider UK. No specific measures were noted to encourage or support farmland birds such as game cover crops or wildbird seed margins. As such, whilst the potential exists for farmland birds including species of conservation concern to be present, the Site is unlikely to provide a unique or enhanced habitats for this group.

The structured vegetation such as hedgerows and scrub provide opportunities for nesting birds.

⁴ Jehle, R. (2000). The terrestrial summer habitat of radio-tracked great crested newts (*Triturus cristatus*) and marbled newts (*T. marmoratus*). Herpetological Journal, 10, pp. 137-142.

To summarise, the Site is likely to provide opportunities for birds to nest and this may include Bird Species of Conservation Concern (BoCC) associated with farmland, but in likely low numbers, due to the absence of any enhanced habitats for this group.

3.3.7 Wintering Birds

The citation for the Cotswold Water Park SSSI, which is located 58m south of the site supports an assemblage of 20,000 waterbirds during the non-breeding season. The data search returned records of such species within 2km of the Site, including gadwall (*Anas strepera*), shoveler (*Anas clypeata*), green sandpiper (*Tringa ochropus*) and pochard (*Aythya farina*).

The Site comprises of agricultural habitats that are typical of the area, and which are common in Gloucestershire and the wider UK. No specific measures were noted to encourage or support wintering birds. Whilst the potential exists for wintering birds including species of conservation concern to be present, the Site is unlikely to provide enhanced habitats for this group.

To summarise, due to the close proximity of the Cotswold Water Park the Site could potentially be used by birds during the winter, however, is it unlikely to be of high importance.

3.3.8 Mammals

Bats

GCER and WSBRC returned records of brown long-eared bat (*Plecotus auratus*), common pipistrelle (*Pipistrellus pipistrellus*), Daubenton's bat (*Myotis daubentonii*), lesser horseshoe bat (*Rhinolophus hipposideros*), Nathusius's pipistrelle (*Pipistrellus nathusii*), Natterer's bat (*Myotis nattereri*), noctule bat (*Nyctalus lasiopterus*), serotine (*Eptesicus serotinus*) and soprano pipistrelle (*Pipistrellus pygmaeus*) within a 2km radius of the site.

Several of the trees on site contained potential roosting features. These comprised ash and oak trees with roosting features such as split limbs, rot holes, dense ivy cover, central cavities and woodpecker holes. The relevant part so the Site (i.e. hedgerow trees) are considered to have **high potential to provide opportunities for roosting bats**.

Overall, the Site is in active agricultural use and as such the fields themselves are unlikely to be of significant value to foraging bats. Lakes and woodland associated with Cotswolds Water Park are located to the south of the Site, and hedgerows are also present which will provide locally important foraging resources for bats.

The Site is considered to have **moderate potential** to be of value to bats for foraging and commuting.

Badger

The desk study search identified several records of badger (*Meles meles*) within 2 km of the survey area. The Site offers limited foraging habitat (hedgerow and grassland margins), which may be used by badgers on occasion. However, no setts or field evidence of badger was observed on the Site therefore it is considered to be of likely **low value to badgers for foraging/commuting**.

Hazel Dormouse

The data search returned no records of hazel dormouse (*Muscardinus avellanarius*) within 2km of the Site.

The Site is bounded by native hedgerow albeit not species rich. It is poorly connected to deciduous woodland in the wider countryside and Ashton Road which runs along the eastern boundary of the Site provides a major barrier for any commuting or foraging dormice. The Site is therefore considered to have **low potential** to support dormice.

Riparian mammals: Beaver, otter and water vole.

The data search returned records of beaver (*Castor fiber*), otter (*Lutra lutra*) and water vole (*Arvicola amphibus*) within 2km of the Site. The record for beaver is associated with an enclosed lake at Cotswold Water Park and as such beavers are unable to disperse from this site. The Site has two ditches, associated with hedgerows, but these were dry and heavily shaded at the time of survey. The Site is therefore considered to have **negligible** potential to support or be of importance for riparian mammals.

4.0 Ecological Constraints and Opportunities

The Site mainly comprises of agricultural land used to grow arable crops. The Site is therefore generally ecologically unconstrained, as such habitats are of low ecological value. The boundary hedgerows and trees are of higher ecological value and may support protected and notable species. In addition, there may be an interaction between the Site and the nearby Cotswold Water Park Site of Special Scientific Interest (SSSI) which will require investigation.

4.1 Statutory Ecological Sites

The Cotswold Water Park, a Site of Special Scientific Interest (SSSI), is located in close proximity (58m) south of the Site.

Detailed investigations of a range of potential direct and in-direct impacts on the SSSI will be required which include (but are not limited to):

- (1) Changes to surface water regimes;
- (2) Noise and visual disturbance;
- (3) Pollution prevention;
- (4) Light spill;
- (5) Loss of wintering bird habitat; and
- (6) Dust and aerial emissions.

The assessment of impacts resulting from the proposed development on the Cotswold Water Park Site of Special Scientific Interest (SSSI) and the detailed development of mitigation measures, as required, are beyond the scope of this PEA and should be covered in a separate Ecological Impact Assessment report, once development proposals have been finalised.

4.2 Non-Statutory Ecological Sites

Various non-statutory sites are located within 2km of the site, the closest of which are located within the Cotswold Water Park. As such, these sites should be considered in conjunction with Cotswold Water Park Site of Special Scientific Interest, as outlined above. The development of mitigation measures, if required, should be covered in a separate Ecological Impact Assessment Report, once proposals have been finalised.

4.3 Priority Habitats

4.3.1 Native Hedgerows and Trees

The fields on Site are surrounded by native hedgerows with trees which meet the criteria of Schedule 41 Priority habitat. The hedgerows should be protected and retained. A minimum 5m buffer should be created around the hedgerows using protective fencing. The hedgerows should also be protected from indirect effects such as light spill. If the hedgerows cannot be retained then any lost hedgerow should be replaced at least on a like by like basis, incorporating a more diverse native species mix.

4.3.2 Ditch Habitats

Potential impacts to retained ditches such as accidental pollutant spillage and increased dust deposition should be avoided / managed during the construction phase, as described within a Construction and Environmental Management Plan (CEMP). Given that they were found to be mostly dry the ecological risks are considered to be low.

4.4 Protected Species

4.4.1 Reptiles

The edge of hedgerows and dense scrub may provide a habitat for common and widespread reptile species such as grass snake, common lizard and slow worm. However, these habitats are limited in size and are shaded, which will greatly reduce their suitability for reptiles.

Further surveys to establish the presence/likely absence of reptiles are therefore not considered to be necessary. It is however recommended that precautionary measures (i.e. habitat manipulation) are implemented if unmanaged grassland/dense scrub habitats need to be cleared or managed. This would comprise of a staged sward reduction (in the active season for reptiles), involving an initial high cut 30cm (with cuttings removed), followed by the removal of vegetation to ground level the following day. In the unlikely event that reptiles are encountered, works must stop immediately, and an ecologist should be contacted.

4.4.2 Great Crested Newt (GCN)

Due to the absence of ponds within the Site or within 500m not separated by barriers to movement, no potential impacts on GCN are predicted.

4.4.3 Birds

Winter bird surveys have been undertaken and a number of farmland bird species have been recorded on site. Most notably, the presence of lapwing *Vanellus vanellus* was recorded on two out of the four winter surveys with a peak count of two birds. Flocks of meadow pipit *Anthus pratensis* were also recorded during three of the surveys with a peak count of 30. Breeding bird surveys are ongoing and a first visit was completed in March 2023 and has recorded the presence of several species, most notably skylark *Alauda arvensis* of which one singing individual was recorded in the northern portion of the Site. The results of the bird surveys as well as any required avoidance, mitigation or compensation measures will be detailed in the Ecological Impact Assessment report.

The presence of nesting birds should be considered when planning the timing of vegetation removal as a direct impact on nesting birds could occur if vegetation clearance took place during nesting season (March to August inclusive). Any clearance of vegetation on Site should therefore take place outside of the nesting bird season. If this is not possible then the absence of nesting birds should be confirmed by an ecologist prior to commencement (within 48 hours). Should any active nests be found, the appropriate mitigation must be put in place to allow the successful fledging of the chicks before the area is cleared.

Barn Owls

Though there is suitable foraging habitat for barn owls in the long grassy areas, however, these areas are not extensive, and their temporary loss is unlikely to have impact upon the local barn owl population.

Due to the protection afforded to barn owls in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) against disturbance. Any works which could take place during the nesting season near to trees with nesting potential (i.e. presence of cavities) should be subject to further survey.

4.4.4 Bats

Foraging/commuting bats

The mature trees, line of trees and hedgerows provide suitable foraging habitat for bats. Increased lighting levels could affect how bats use the Site for foraging, for example, by interrupting flight lines.

A sensitive lighting strategy has been implemented by the lighting consultant following best practice industry guidance produced by the Bat Conservation Trust and Institute of Lighting Professionals⁵ to ensure that hedgerows and mature trees are kept in the dark to retain dark commuting corridors for bats with no light spill to canopies of more than 1 lux.

Measures include:

- the siting of areas requiring a high level of illumination away from potential light sensitive receptors;
- the use of luminaires with zero direct contribution to upward light;
- careful selection, aiming and positioning of luminaires;
- the use of light spill shields;
- the use of lower output luminaires bounding potentially light-sensitive ecological receptors; and
- the use of presence detection controls and zoned switching.

Roosting bats

The survey established that several mature trees have high potential to support roosting bats. It is understood that four ash trees are to be removed to facilitate the proposed development, one of which contains features suitable for roosting bats. Further surveys to establish the presence/likely absence of roosting bats are therefore required. If bats are present, then appropriate avoidance and mitigation measures would be required.

Appropriate arboricultural advice should be obtained to ensure that the proposed trenching works do not affect the root systems of adjacent trees and that appropriate stand-offs (Root Protection Areas) are adopted.

Roosting bats may also be impacted by any light spill, all trees are within hedgerows and will therefore be incorporated within the aforementioned sensitive lighting strategy for foraging and commuting bats.

4.4.5 Badger

The grassland which is present has some potential to support foraging badgers however no setts were recorded on Site.

No further surveys are required however it is recommended that a pre-commencement survey is undertaken to ascertain whether the situation had changed in the intervening period. If setts are present, then appropriate avoidance and mitigation measures would be required.

4.4.6 Hedgehog

Hedgehogs are not afforded protection under UK and European law however are protected under the Wild Mammals (Protection) Act (1996). This Act requires hedgehog and other small mammals to be protected during Site works. Furthermore, given their status as a S41 species, their conservation is a material consideration in the planning process. Measures to protect hedgehog and retain suitable habitat on Site for the species, allowing continued connectivity, should therefore be followed.

In order to minimise the potential for killing or injuring of hedgehogs (and other small to medium sized mammals) during any vegetation clearance, removal of dense vegetation and tall grass should be undertaken in two phases, by cutting to 30cm in the first instance, then to ground level. The vegetation should be checked for mammals between these two cuts. Should any hedgehogs be found, they should be moved to a suitable area of habitat that is not subject to clearance.

⁵ Bat Conservation Trust (BCT) and Institute of Lighting Professionals (ILP) Guidance Note (2018) Bats and artificial lighting in the UK. Bats and the built environment series

4.5 Potential Opportunities for Biodiversity Enhancements

Recommendations are listed below for ecological and biodiversity enhancements that would assist the development to meet local and national planning policy requirements, and to adhere to best practice. The list below is not exhaustive and may change depending on the detailed design of the development and any protected or notable species confirmed to be present.

Opportunities for biodiversity enhancement include:

- Wildlife friendly planting – new landscaping should provide a diverse mix of species of demonstratable value for wildlife known to be at Site/have the potential to be encouraged to the Site.
- Invertebrate habitat features – Invertebrate habitat features should be incorporated within landscaped areas to provide features of interest as well as ecological function. Stag beetle loggeries, solitary beehives and habitat panels should be placed in suitable locations. Stag beetle loggeries should be placed in shady areas amongst trees to provide forage and shelter for saproxylic invertebrates in larval stage, whereas beehives and habitat panels should be located in sunny areas.

5.0 Conclusions and Recommendations

SLR Consulting (Ltd) was commissioned by Acorn Bioenergy Limited to undertake a Preliminary Ecological Appraisal of a site located north of Ashton Keynes in Wiltshire.

5.1 Further Assessment and Reporting

An Ecological Impact Assessment should be undertaken for the Site, detailing key mitigation, compensation and enhancement actions to enable legislative and policy compliance, aiming to achieve net gains in biodiversity for the Site.

5.2 Statutory Designated Sites

Is located 58m from Cotswold Water Park SSSI, and as such, any potential direct or indirect impacts will require a full investigation and the development of appropriate avoidance or mitigation measures.

5.3 Non-Statutory Designated Sites

The Site is located within 2km of various non-statutory designated sites, the closest of which are associated with Cotswold Water Park SSSI. As such, any potential direct or indirect impacts should be considered in conjunction with the SSSI.

5.4 Un-Designated Sites

The Site does not contain ancient woodland or Priority habitats (as shown on MAGIC).

5.5 Notable Habitats

The Site contains predominantly arable and modified grassland habitats. Linear habitats comprised hedgerows, lines of trees and ditches.

5.6 Protected and Notable Species

Data received from the desk stop study and the PEA Site walkover have confirmed that the Site has:

- low potential to support notable invertebrates;
- low potential to support amphibians such as great crested newt during their terrestrial phase;
- high potential to support nesting birds;
- high potential to support roosting bats;
- moderate potential to support commuting and foraging bats;
- low potential to support foraging/commuting badgers; and,
- low potential to support dormice.

5.7 Follow-on Surveys (Required)

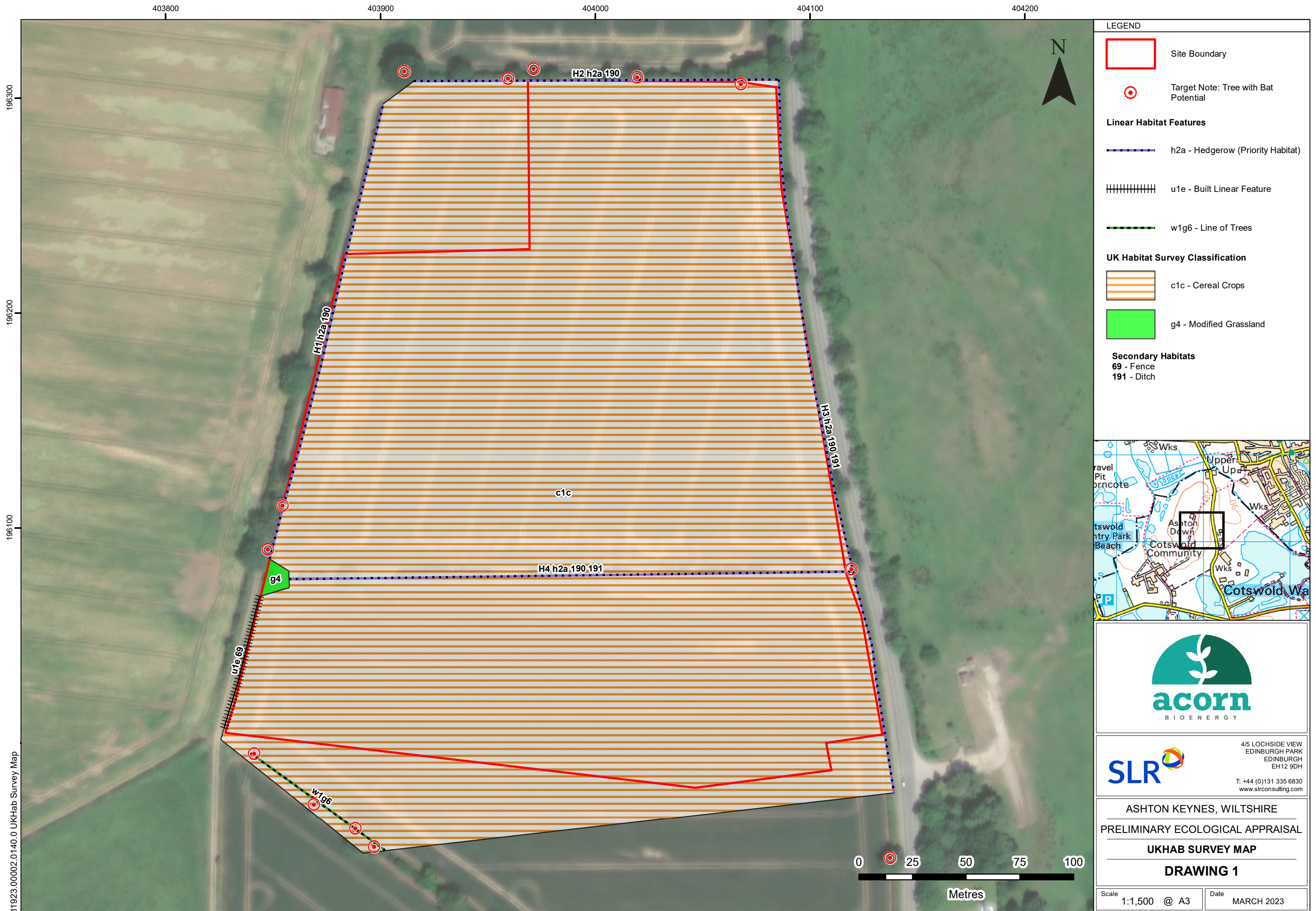
The following Phase 2 protected species surveys are therefore recommended to be undertaken:

- Pre-commencement badger survey;
- Bat survey(s) to establish the presence/absence of bats within tree to be removed; and

- Breeding bird surveys (scheduled for Spring/Summer 2023).

DRAWING 1

UKHab Survey Map



DRAWING 2

Proposed Plans – Refer to Landscape Strategy



NOTES

- SITE LAYOUT DETAILS TAKEN FROM DRAWING: 'GGP-29419-P-101-E-Ashton Keynes-Site Layout'
- PAVING DETAILS TAKEN FROM DRAWING: 'GGP-29419-P-120-A-Ashton Keynes-Paving.'

LEGEND

	SITE BOUNDARY
	EXISTING TREES AND HEDGEROW RETAINED
	EXISTING TREES AND HEDGEROW REMOVED
	PROPOSED NATIVE TREES AND SHRUBS
	PROPOSED NATIVE HEDGEROW
	PROPOSED NATIVE HEDGEROW INFILLING
	PROPOSED INDIVIDUAL TREES
	SHADE TOLERANT SPECIES RICH GRASSLAND
	SPECIES RICH WET GRASSLAND
	BUILDINGS
	GRAVEL AREA
	BREEDON AGRICULTURAL HOT ROLLED ASPHALT (HRA)
	CONCRETE
	TANK BUND BUILD UP
	TANK
	EQUIPMENT/FEEDER HOPPER SLAB
	COVERED LAAGOON
	RAINWATER LAAGOON
	DEER PROOF FENCING
	VISIBILITY SPY

STUDIO 305
MALING EXCHANGE
HOULTS YARD, WALKER ROAD
NEWCASTLE UPON TYNE
NE5 2HL
T: 0191 261 1966
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ASHTON KEYNES

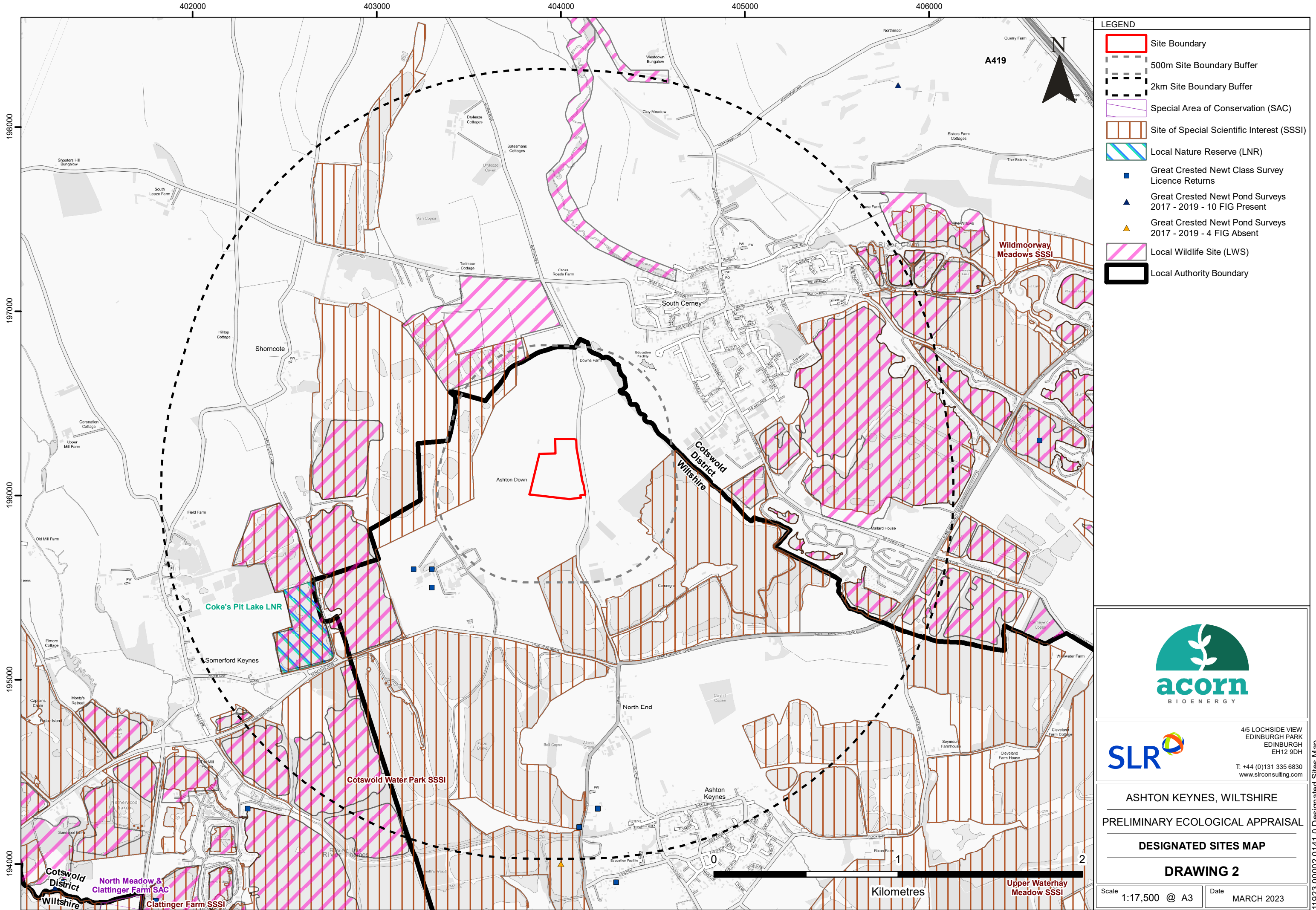
LANDSCAPE STRATEGY

FIGURE 6

Scale 1:1000 @ A2	Date MARCH 2023
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DRAWING 3

Designated Sites within 2km



APPENDIX 1

Relevant Legislation and Planning Policy

Relevant Legislation and Planning Policy

Legislation

A summary of legislation relevant to (onshore) biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original legislation should be consulted for definitive information.

Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. Under the Habitats Regulations it is an offence to deliberately capture, kill or disturb¹ wild animals listed under Schedule 2 of the Regulations. It is also an offence to damage or destroy a breeding site or resting place of such an animal (even if the animal is not present at the time).

Wildlife & Countryside Act 1981

The Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way (CROW) Act 2000 and the Natural Environment and Rural Communities (NERC) Act 2006, consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive), making it an offence to:

- Intentionally kill, injure or take any wild bird or their eggs or nests (with certain exceptions) and disturb any bird species listed under Schedule 1 to the Act, or its dependent young while it is nesting;
- Intentionally kill, injure or take any wild animal listed under Schedule 5 to the Act;
- Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any wild animal listed under Schedule 5 to the Act;
- Intentionally or recklessly disturb certain Schedule 5 animal species while they occupy a place used for shelter or protection;
- Pick or uproot any wild plant listed under Schedule 8 of the Act; or
- Plant or cause to grow in the wild any plant species listed under Schedule 9 of the Act.

Protection of Badgers Act 1992

The Protection of Badgers Act 1992 makes it illegal to kill, injure or take a badger or to intentionally or recklessly interfere with a badger sett. Sett interference includes disturbing badgers whilst they are occupying a sett or obstructing access to it.

¹ Disturbance, as defined by the Conservation of Habitats and Species Regulations 2010, includes in particular any action which impairs the ability of animals to survive, breed, rear their young, hibernate or migrate (where relevant); or which affects significantly the local distribution or abundance of the species.

Natural Environment & Rural Communities (NERC) Act 2006

Section 40 of the NERC Act 2006 places a duty on public authorities to have regard to the purpose of conserving biodiversity to have due regard for biodiversity and nature conservation during the course of their operations. Public authorities include government departments, local authorities and statutory undertakers.

Section 41 of the Act (Section 42 in Wales) requires the publication of a list of habitats and species publish which are of principal importance for the purpose of conserving biodiversity. The Section 41 list is used to guide authorities in implementing their duty to have regard to the conservation of biodiversity.

Note that Sections 40 and 42 were superseded in Wales by the Environment (Wales) Act 2016 (see below).

Environment (Wales) Act 2016

The Environment (Wales) Act puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and joined-up way. Part 1 Section 6 of the Act introduces a new biodiversity duty, which replaces and enhances the biodiversity duties set out in the NERC Act 2006 and requires public authorities to seek to maintain and enhance biodiversity in the exercise of their functions and in so doing promote the resilience of ecosystems.

Section 7 of the Act lists living organisms and types of habitat in Wales, considered to be of key significance to sustain and improve biodiversity in relation to Wales.

Planning Policy

A summary of national planning policy relevant to (onshore) biodiversity in England and Wales is provided below. Note that the summary provided here is intended for general guidance only and the original policy documents should be consulted for definitive information. For local planning policy relevant to biodiversity the relevant local plans should be consulted.

National Planning Policy (England)

The National Planning Policy Framework (NPPF)² sets out guidance for local planning authorities and decision-makers in how to apply planning policies when drawing up plans and making decisions about planning applications. Along with Government Circular 06/05³, the broad policy objectives in relation to the protection of biodiversity and geological conservation in England through the planning system are set out. Specific policies relating to habitats and biodiversity are set out in paragraphs 131, 174 and 179-182 of the NPPF.

Paragraph 131 states that:

“Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users”

² Ministry of Housing, Communities and Local Government. 2021. National Planning Policy Framework. July 2021.

³ Office of the Deputy Prime Minister. 2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System. ODPM Circular 06/2005.

Paragraph 174 states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;*
- c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;*
- d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
- e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development f) should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and*
- f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate”.*

Paragraph 179 states that:

“To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.”*

Paragraph 180 of the NPPF states that:

“When determining planning applications, local planning authorities should apply the following principles:

- a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
- b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
- c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”*

Paragraphs 181-182 relate to European sites (referred to as habitats sites) and state:

“The following should be given the same protection as habitats sites:

a) potential Special Protection Areas and possible Special Areas of Conservation;

b) listed or proposed Ramsar sites; and

c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.”

National Planning Policy (Wales)

Planning Policy Wales (PPW)⁴ sets out the land use planning policies of the Welsh Government. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales. Section 6.4 of PPW relates to biodiversity and ecological networks.

Paragraph 6.4.3 of PPW states that:

“The planning system has a key role to play in helping to reverse the decline in biodiversity and increasing the resilience of ecosystems, at various scales, by ensuring appropriate mechanisms are in place to both protect against loss and to secure enhancement.”

It goes on to state that:

“Development plan strategies, policies and development proposals must consider the need to:

- *support the conservation of biodiversity, in particular the conservation of wildlife and habitats;*
- *ensure action in Wales contributes to meeting international responsibilities and obligations for biodiversity and habitats;*
- *ensure statutorily and non-statutorily designated sites are properly protected and managed;*
- *safeguard protected and priority species and existing biodiversity assets from impacts which directly affect their nature conservation interests and compromise the resilience of ecological networks and the components which underpin them, such as water and soil, including peat; and*
- *secure enhancement of and improvements to ecosystem resilience by improving diversity, condition, extent and connectivity of ecological networks.”*

Section 6.4 goes on to set out policy in respect of:

- The Biodiversity and Resilience of Ecosystems Duty, as set out in Section 6 of the Environment (Wales) Act 2016;
- Designated Sites, including:
 - Sites of Special Scientific Interest;
 - Special Protection Areas, Special Areas of Conservation and Ramsar Sites;
 - Proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; and

⁴ Welsh Government. 2018. Planning Policy Wales. Edition 10, December 2018.

-
- Non-statutory Designations.
 - Protected Species; and
 - Trees, Woodlands and Hedgerows.

PPW is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales. TAN 5⁵ deals with Nature Conservation and Planning and states in paragraph 2.4:

“When considering policies and proposals in local development plans and when deciding planning applications that may affect nature conservation, local planning authorities should:

- *Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective;*
- *Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;*
- *Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;*
- *Ensure that appropriate weight is attached to designated sites of international, national and local importance;*
- *Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;*
- *Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation;*
- *Ensure that the range and population of protected species is sustained;*
- *Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered.”*

⁵ Welsh Assembly Government. 2009. Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning. September 2009.

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