



BEACON FEN ENERGY PARK

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Appendix 7.11 Botanical Survey Report (Solar Array Area)

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Quality information

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1. INTRODUCTION

1.1 Background

- 1.1.1 This Botanical Survey Report (Solar Array Area) has been prepared by Wardell Armstrong LLP (part of SLR) ('WA') on behalf of Beacon Fen Energy Park Ltd (the 'Applicant') in support of an application for a Development Consent Order (DCO) for Beacon Fen Energy Park (the 'Proposed Development').
- 1.1.2 The Proposed Development will be located within the DCO Order Limits ('Order Limits') as shown on Figure 1.2 Site Boundary Plan (**Document Ref: 6.4 ES Vol.3, 6.4.2**) and comprises the Solar Array Area, the Bespoke Access Corridor and the Cable Route Corridor. This report refers to the Solar Array Area only which is defined as follows:
- 1.1.3 Solar Array Area - The land within the Order Limits within which the Solar photovoltaic (PV) and battery energy storage system (BESS) (and their ancillary infrastructure) will be located.
- 1.1.4 A Preliminary Ecological Appraisal Report (PEAR) by AECOM¹ was undertaken in June 2022 and made the following recommendations:

"Flora

Some habitats within the Site have the potential to support protected or notable flora species, such as those associated with arable field margins. Further investigation of these habitats is required to determine the presence of notable plant species. As such, further Phase 2 botanical surveys should be undertaken across the Site to identify species and any areas of notable flora communities."

- 1.1.5 Wardell Armstrong successively undertook a phase 2 botanical survey of arable field margins, hedgerows, grasslands and woodland habitats within the redline boundary in August 2023. The survey aims were to:
- Record a detailed species list of all habitats to be surveyed;
 - Establish a comprehensive picture of the species richness and percentage cover of the arable field margins;
 - Establish the current condition of the hedgerows, woodlands and grasslands and;
 - Identify any localities supporting threatened, priority, important or particularly interesting species.

1.2 Site Context

- 1.2.1 The Site is located in Lincolnshire, approximately 6km east of the town of Sleaford and is currently in use for the production of arable crops such as

¹ AECOM. Preliminary Ecological Appraisal Report, Bicker Fen Solar Farm, Low Carbon, 3474 / Version, 1.0, June 2022

wheat, oats, broad beans and rapeseed. The Site is surrounded in all directions by arable and pastoral farmland, with the wider landscape dominated by the same.

1.3 Quality Assurance & Environmental Management

- 1.3.1 The botanical survey and report have been conducted by experienced ecologists who have previous experience undertaking botanical surveys, who are Qualifying members of the Chartered Institute of Ecology and Environmental Management (CIEEM). This report has been reviewed and approved by a Technical Director in Ecology who is a full member of CIEEM and is bound by its professional code of conduct.
- 1.3.2 All surveys and assessments have been undertaken with reference to the recommendations given in British Standard BS 42020 – Code of Practice for Planning and Development (British Standards Institute, 2013), and as stated within specialist guidance, as appropriate, and are referenced separately.

2. METHODOLOGY

2.1 Field Survey

- 2.1.1 Site survey work was undertaken on 25th, 26th and 27th July 2023, during mostly dry sunny or overcast weather. These conditions are optimal for survey.
- 2.1.2 The survey aimed to map the broad habitat types within the Site and establish whether priority habitats, notable/protected species or areas of particular floral diversity were present on Site. The habitat types were mapped using UKHab methodology (UKHab, 2023)². The arable field margins were subject to further investigation through quadrats to establish percentage cover and species richness. The condition of the appropriate habitats was assessed using the condition assessment criteria for the Natural England Biodiversity Metric 4.0³. Each of the broad habitats were classified and dominant vegetation composition expressed according to the DAFOR system⁴. The habitats in Table 2 have been transposed to the UK habitat Classification (UKHab) to work concurrently with the **Biodiversity Net Gain Strategy (Document reference 7.3)**.
- 2.1.3 As the DAFOR⁴ . scale has no agreed quantitative measures, percentages have been assigned that are broadly in-line with the constancy classes used with National Vegetation Classification (NVC) methodologies (Rodwell, 2006), as detailed in Table 1. Where a particular species was dominant within an area

² UKHab Ltd (2023). UK Habitat Classification Version 2.0 at <https://ukhab.org/>

³ [Statutory biodiversity metric tools and guides - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides)

⁴ D – Dominant, A – Abundant, F – Frequent, O- Occasional, R-Rare.

or occurred in greater abundance than elsewhere within the compartment, 'locally' was prefixed to the description.

Table 1 – Species Abundance Parameters

FIDELITY TO PLANT COMMUNITY	DESCRIPTIONS
1-20%	Rare
21-40%	Occasional
41-60%	Frequent
61-80%	Abundant
81-100%	Dominant

2.1.4 The arable field margins, hedgerows and woodlands, within the Solar Array Area were subject to a detailed botanical survey. At the same time, observational notes of the general grassland condition, management, and other notes of importance were also recorded (such as areas of greater species diversity, rank areas, topography, and Site access).

2.2 Evaluation Criteria

2.2.1 The survey results were compared against the UK Biodiversity Action Plan⁵ Priority Habitat descriptions and the Greater Lincolnshire Nature Partnership (GLNP) Local Wildlife Site (LWS) Selection Criteria⁶, where applicable in order to determine the value of Site habitats in comparison with these criteria.

2.2.2 The survey results were compared against The Hedgerow Regulations (1997) which provide the criteria for assessing whether a hedgerow is 'important'. The overall assessment is based on historical, landscape and biodiversity value. This assessment focused primarily on the biodiversity value of the hedgerows, based on species composition and connection to other features of biodiversity value. A hedgerow qualifies as important for biodiversity if it meets one of the following thresholds, where the count refers to the average number of woody species in a 30 m section of hedgerow. Associated features are outlined within the The Hedgerow Regulations (1997) and include ecological or structural characteristics that enhance the hedgerows value for wildlife such as a bank, ditch, percentage of continuous hedgerow growth, number of connections to other habitat of value and parrallel hedgerows:

- It includes at least seven woody species;
- It includes at least six woody species and has at least three associated features;
- It includes at least six woody species and contains a rare species (as outlined in the British Red Data Book);
- It includes at least five woody species and has at least four associated features; and

⁵ [Arable Field Margins \(UK BAP Priority Habitat description\) \(jncc.gov.uk\)](#), [Hedgerows \(UK BAP Priority Habitat description\) \(jncc.gov.uk\)](#), [Lowland mixed deciduous woodland \(UK BAP Priority Habitat description\) \(jncc.gov.uk\)](#)

⁶ [Local Wildlife Site Guidelines for Greater Lincolnshire \(glnp.org.uk\)](#)

- It includes at least four woody species, runs alongside a footpath and has a least two associated features.

2.3 Nomenclature

- 2.3.1 Vascular plant names follow '*New Flora of the British Isles*' (Stace, 2019) with vernacular names as provided in the Botanical Society of the British Isles website (BSBI, 2013). The common and scientific name of species/taxa is provided (if available) when first mentioned in the text, with only the vernacular name referred to thereafter.

3. RESULTS

3.1 Habitats Overview

- 3.1.1 A range of discrete habitat types were recorded across the Site as detailed in Table 2 below, alongside an assessment of their importance. The table also includes the conservation category according to the Vascular Plant Red Data List for England⁷.
- 3.1.2 The habitat types identified during the survey were arable field margins, modified grassland, other neutral grassland, hedgerows and woodland. The Site as a whole is in use for the production of cereal crops and is therefore subject to nutrient enrichment (N), which was evident particularly in the woodlands where the understory was dominated by species such as nettle *Urtica dioica*.

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Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. & Taylor, I. 2014. A Vascular Plant Red List for England. Botanical Society of Britain and Ireland, Bristol. https://bsbi.org/wp-content/uploads/dlm_uploads/England_Red_List_1.pdf

Table 2 – Detailed Habitat Descriptions

HABITATS (SOLAR ARRAY AREA)	UKHAB CODES	SECONDARY CODES	CONDITION	STATUS (IMPORTANCE)
<p><u>Artificial unvegetated, unsealed surface</u> There are two access roads present within the Site, one is located centrally and the other is located towards the northeastern boundary.</p> 	u1c	111 (Road)	N/A	Negligible importance
<p><u>Arable field margins - tussocky</u> Of the 18 arable field margins surveyed, eight of these were classified as being 'Arable field margins – tussocky', the species identified within these parcels include <i>Rumex obtusifolius</i> broad-leaved dock, <i>Schedonorus arundinaceus</i> tall fescue, <i>Dactylis glomerata</i> cock's-foot, <i>Lolium perenne</i> perennial ryegrass, <i>Agrostis capillaris</i> common bent, <i>Helminthotheca echioides</i> bristly ox tongue, <i>Dipsacus fullonum</i> wild teasel, <i>Phleum pratense</i> timothy, <i>Rubus fruticosus</i> agg., bramble, <i>Arrhenatherum elatius</i> false oat-grass, <i>Holcus lanatus</i> Yorkshire fog and <i>Bromus hordeaceus</i> soft brome.</p>	c1a5	N/A	Condition assesment N/A	Local importance. Priority habitat. Located within Site.



Arable field margins – pollen and nectar

Of the 18 arable field margins surveyed, 10 of these were classified as being 'Arable field margins - pollen and nectar', the species identified within these parcels include *Leucanthemum vulgare* oxeye daisy, timothy, *Prunella vulgaris* selfheal, *Centaurea nigra* common knapweed, bristly ox tongue, *Taraxacum officinale* agg., dandelion, *Galium verum* Lady's bedstraw, tall fescue, cock's-foot, *Trifolium pratense* red clover, *Anthriscus sylvestris* cow parsley, *Senecio inaequidens* narrow-leaved ragwort, *Convolvulus arvensis* field bindweed, perennial ryegrass, *Cirsium arvense* creeping thistle, false oat-grass, *Potentilla reptans* creeping cinquefoil and *Odontites vernus* red bartsia.

c1a6

N/A

Condition
 assesment N/A

Local importance.
 Priority habitat.
 Located within
 Site.



Other neutral grassland

Two parcels of other neutral grassland were identified during the field survey, the larger of the two is located to the east of Woodland 1 of the Site, with the smaller being located on the northern boundary at the eastern side. The species identified within this habitat include timothy, *Hordeum murinum* wall barley, tall fescue, cock's-foot, false oat-grass, *Trifolium pratense* red clover, *Trifolium repens* white clover, *Bromus hordeaceus* soft brome, common bent, *Lolium perenne* perennial ryegrass, *Cynosurus cristatus* crested Dog's-tail and Yorkshire fog.

g3c

N/A

Moderate

Located within Site.



Modified grassland

Two parcels of modified grassland were identified during the field survey, these are located on the strips of land to either side of Hodge Dike and the adjacent drainage ditches. They were dominated by perennial ryegrass, with smaller amounts of other palatable grasses such as Yorkshire fog and cocksfoot also present.

g4

N/A

Moderate

Located within Site.



H1, H5, H6

Three hedgerows were classified as Other native hedgerow, H1, a single species *Crataegus monogyna* hawthorn hedgerow, H5 had four woody species including *Prunus domestica* wild plum, *Acer campestre* field maple, hawthorn and *Fraxinus excelsior* ash, and H6, which had two woody species field maple and hawthorn. The essential secondary code for ditch is included within these habitat codes as all three hedgerows were located within 2m of ditches.

Other native hedgerow (h2a6)

50 (ditch)

H1 – Good 8/10
H5 – Good 7/8
H6 – Good 7/8

Local importance.
 Priority habitat.
 Located within Site.



<p>H2, H3, H9 Three hedgerows were assigned this classification, as they included mature trees and were located within 2m of a ditch, for which the essential codes 11 and 50 are applied respectively. Hedgerow 9 is located centrally on the northern boundary and was identified as having six woody species. Hedgerows 2 and 3, were recorded as containing 10 woody species, <i>Arum maculatum</i> lords and ladies were also observed in the base of hedgerow 2, which is located towards the southeastern corner of the Site running north towards Hodge Dike. The species identified within these hedgerows include ash, hawthorn, <i>Acer pseudoplatanus</i> sycamore, field maple, <i>Malus</i> sp., apple sp., <i>Carpinus betulus</i> hornbeam, <i>Prunus spinosa</i> blackthorn, <i>Corylus avellana</i> hazel and <i>Quercus robur</i> pedunculate oak.</p>	<p>Species rich native hedgerow (h2a5)</p>	<p>11 (hedgerow with trees) 50 (ditch)</p>	<p>H2 - Moderate 7/10 (H2) H3 - Good 9/10 H9 - Good 8/10</p>	<p>County importance. Priority habitat. Located within Site. Fit criteria of Important hedgerows</p>
<p>H4 It is highly likely that hedgerow four has been present since at least 1885 as it is shown on historical maps. It is located</p>	<p>h2a5 - Species rich native hedgerow</p>	<p>11 (hedgerow with trees) 16 (tall forb)</p>	<p>H4 - Moderate 7/10</p>	<p>County importance.</p>

<p>towards the western boundary of the Site and runs along and adjacent to woodland 1, 8 native woody species were identified in the hedgerow <i>Sambucus nigra</i> elder, hawthorn, wild plum, <i>Aesculus hippocastanum</i> horse chestnut, <i>Cornus sanguinea</i> dogwood, field maple, <i>Quercus</i> sp., oak sp., and ash. There were mature trees present within the hedgerow for which the secondary code 11 is applied, the species identified were ash oak sp., and horse chestnut. The ground flora and non-woody species identified within the hedgerow include <i>Hedera helix</i> Common & Atlantic Ivy, bramble, field bindweed, Broad-leaved Dock, <i>Epilobium hirsutum</i> Great willowherb and <i>Phalaris arundinacea</i> Reed canary-grass.</p>		60 (long continuity habitat)		<p>Priority habitat.</p> <p>Located within Site.</p> <p>Fits criteria of Important hedgerow</p>
<p><u>H7</u> H7 is located towards the western boundary of the Site, it was identified as being composed of five woody species which are as follows hawthorn, Field maple, Ash, <i>Sambucus nigra</i> elder, <i>Quercus petraea</i> sessile oak. The non-woody species identified were <i>Bryonia dioica</i> white bryony, <i>Conium maculatum</i> hemlock and bramble.</p>	h2a5 - Species rich native hedgerow	11 (hedgerow with trees)	Moderate 6/10	<p>County importance.</p> <p>Priority habitat.</p> <p>Located within Site.</p>
<p><u>H8, H14</u> H8 is located towards the northern boundary of the site, adjacent to woodland , with H14 being located on the southern boundary of the Site. Both had significant amounts of tall forb identified within, and both are located adjacent to ditches, and five woody species were identified within both hedgerows. The woody species include ash, hawthorn, field maple, blackthorn, dogwood, wild plum, <i>Rosa canina</i> dog rose and <i>Pinus sylvestris</i> Scots pine. The non-woody species identified include bramble, <i>Galium aparine</i> cleavers, <i>Heracleum sphondylium</i> hogweed, nettle, white Bryony, Common & Atlantic Ivy, hemlock and broad-leaved dock.</p>	h2a5 - Species rich native hedgerow	11 (hedgerow with trees) 16 (tall forb) 50 (ditch)	H8 - Good 8/10 H14 – Good 9/10	<p>County importance.</p> <p>Priority habitat.</p> <p>Located within Site.</p> <p>Fit criteria of Important hedgerows</p>



H12, H19

H12 is located centrally within the Site, to the west of woodland 3 and was identified as having five woody species. H19 is located on the eastern side of the northern boundary and was identified as having five woody species.

The woody species identified include hawthorn, *Castanea sativa* sweet chestnut, field maple, pedunculate oak, elder, dog rose, wild plum, dogwood, blackthorn, *Crataegus laevigata* Midland hawthorn and ash.

The non-woody species identified were bramble, hogweed, *Deschampsia cespitosa* tufted hairgrass, *Alisma plantago-aquatica* water plantain, *Juncus effusus* soft rush, *Ranunculus repens* creeping buttercup, *Pulicaria dysenterica* common fleabane, *Ervum tetraspermum* smooth tare, *Carex spicata* spiked sedge, great willowherb, broad-leaved dock and nettle.

The secondary code for tall forb is applied due to the stands of hogweed present, and the secondary code for ditch as both are located within 2m of the ditch.

h2a5 - Species rich native hedgerow

16 (tall forb)
50 (ditch)

H19 - Good 7/8
H12 - Good 7/8

County importance.

Priority habitat.

Located within Site.

H19: Fits criteria of Important hedgerow

<p><u>H10, H11, H13, H17, H18, H20</u> H10, H13, H18 and H20 were identified as containing two woody species, with hedgerow 17 identified as having three woody species and hedgerow 11 identified as containing four woody species. The secondary code for tall forb is applied, and the secondary code for ditch as all are located within 2m of a ditch. The woody species identified include hawthorn, dog rose, wild plum, blackthorn, dogwood and elder. The non-woody species identified were great willowherb, false oat-grass, soft brome, bramble, bristly ox tongue, nettle, hogweed, <i>Plantago major</i> greater plantain, white bryony, broad-leaved dock, <i>Cirsium vulgare</i> spear thistle, hemlock, tall fescue, knapweed and <i>Cirsium arvense</i> creeping thistle.</p> 	<p>h2a6 - Other native hedgerow</p>	<p>16 (tall forb) 50 (ditch)</p>	<p>H10 - Good 7/8 H11 - Good 6/8 H13 - Good 7/8 H17 - Good 7/8 H18 - Good 7/8 H20 - Good 7/8</p>	<p>Local importance. Priority habitat. Located within Site.</p>
<p><u>H15, H16</u> H15 is located towards the southwest corner of the site and was identified as containing four woody species, H16 is located centrally around the southern boundary and runs north towards woodland 1 it was identified as containing two woody species. hawthorn, bramble, nettle, cleavers, <i>Calystegia sepium</i> hedge bindweed, wild plum, dog rose, elder and broad-leaved dock.</p>	<p>h2a6 - Other native hedgerow</p>	<p>N/A</p>	<p>H16 - Moderate 5/8 H15 - Moderate 4/8</p>	<p>Local importance. Priority habitat. Located within Site.</p>



<p><u>H21</u> H21 is located on the northern boundary at the eastern end, it was identified as containing four native woody species, which were ash, hawthorn, dogwood and oak sp. The secondary code for hedgerow with trees is applied, due to the presence of several mature trees within the hedgerow and the secondary code for ditch as it is located within 2m of the ditch.</p>	<p>h2a6 - Other native hedgerow</p>	<p>11 (hedgerow with trees) 50 (ditch)</p>	<p>Good 8/10</p>	<p>Local importance. Priority habitat. Located within Site.</p>
<p><u>Woodland 1</u> Woodland 1 is approximately 1.06ha, located centrally within the Site towards the southern boundary, it is u-shaped and surrounds the reservoir. The species identified within this habitat include field maple, <i>Populus</i> sp., poplar sp., ash, <i>Ligustrum vulgare</i> wild privet, wild plum and blackthorn. The understory was primarily composed of brambles and species indicative of nutrient enrichment hogweed, cleavers, <i>Anthriscus sylvestris</i> cow parsley and nettle, with very little floral diversity present.</p>	<p>w1g – Other broadleaved woodland</p>	<p>N/A</p>	<p>Moderate (28)</p>	<p>Local importance. Located within Site.</p>



Woodland 2

Woodland 2 was the smallest parcel of woodland identified during the field survey; it measures approximately 0.1ha. It is located to the west of woodland 1 and is adjacent to a small pond. The woodland had a very dense shrub layer composed of dogwood, hawthorn and blackthorn. The species identified within the canopy were sycamore, *Tilia platyphyllos* large-leaved lime, hornbeam, *Prunus avium* wild cherry and ash. The ground layer was sparsely vegetated with few plant species present and parcels of bare ground.

w1g – Other broadleaved woodland

N/A

Moderate (29)

Local importance.

 Located within Site.



Woodland 3

Woodland 3 (Fox Covert) is approximately 3.5ha and is located towards the north western corner of the Site, it was the most species rich of the woodlands surveyed. The species present within the canopy and shrub layer include ash, blackthorn, *Salix* sp., willow sp., field maple, elder, pedunculate oak, *Ulmus glabra* wych elm, dog rose and hawthorn. The ground layer was dominated by species indicative of nutrient enrichment hogweed and nettle, with *Juncus effusus* soft rush, Lords and Ladies, *Luzula campestris* field wood-rush, *Lamium purpureum* red deadnettle, *Glechoma hederacea* ground ivy and Common & Atlantic Ivy.

Most of the surveyed trees within this woodland had significant bryophyte and lichen communities present, *Ascocoryne sarcoides* jelly disc fungus was also identified within this habitat. Several trees within this woodland also had significant veteran features including rot holes, crevices and fallen branches, there was also several parcels of standing or fallen deadwood.

w1g – Other broadleaved woodland

60 (Long continuity habitat)

Good (33)

County importance.
 Priority habitat
 Located within Site.

At the northern edge of this woodland, where the ditch is located there was a parcel composed almost exclusively of self-set willow species.



<p><u>Woodland 4</u> Woodland 4 is located centrally within the site, it is approximately 1.04ha in size, the trees within this woodland are very densely spaced, which made areas difficult to access. Due to the density of the trees, the ground layer was lacking in diversity, it was predominantly composed of some strands of nettle and hogweed. The trees identified within the canopy layer were ash, hawthorn, field maple, sycamore and wild cherry.</p> <p>(No photograph available)</p>	<p>w1g – Other broadleaved woodland</p>	<p>60 (Long continuity habitat)</p>	<p>Poor (25)</p>	<p>Local importance. Priority habitat Located within Site.</p>
<p><u>Woodland 5</u> Woodland 5 is located centrally towards the northern boundary of the Site, it measures approximately 0.55ha, there is currently an access track running through it at the western side. The species identified within the canopy and the shrub</p>	<p>w1g – Other broadleaved woodland</p>	<p>60 (Long continuity habitat)</p>	<p>Moderate (27)</p>	<p>Local importance. Priority habitat Located within Site.</p>

later were field maple, blackthorn, pedunculate oak, *Betula pendula* silver birch, wild cherry, elder, bramble, and *Fraxinus excelsior* ash.

The species identified within the ground layer were hogweed, *Arctium lappa* greater burdock, creeping thistle, *Chamaenerion angustifolium* rosebay willowherb, *Glechoma hederacea* ground ivy, cock's-foot, *Brassica napus* rapeseed, *Carex spicata* spiked sedge, broad-leaved Dock, *Conium maculatum* hemlock, nettle and Common & Atlantic Ivy. With *Coprinus* sp., ink cap sp., also identified within the woodland parcel.



4. EVALUATION & RECOMMENDATIONS

- 4.1.1 A range of habitats were identified within the Solar Array Area.
- 4.1.2 Certain habitats identified within the Site such as the modified grassland and hardstanding do not require any particular avoidance or mitigation where they are proposed to be lost to the development, in terms of their conservation status as habitats.
- 4.1.3 The arable field margins and hedgerows are both classified as being subsets of priority habitats and as such further survey may be required to establish whether they meet all criteria for priority classification.

Arable field margins

- 4.1.4 Of the 18 arable field margins surveyed 8 are classified as ‘arable field margins – tussocky’ and 10 are classified as ‘arable field margins – pollen and nectar’. The most diverse margin identified was arable margin number 18, with 15 species per square metre recorded. No notable or protected plants were identified within any of the parcels surveyed.
- 4.1.5 Regarding the priority habitat status of the arable field margins, it is apparent that the parcels identified on Site meet either one of the two following criteria from the UKBAP Priority Habitat descriptions:
- 4.1.6 ‘Margins sown with wildflowers or agricultural legumes and managed to allow flowering to provide pollen and nectar resources for invertebrates.
- 4.1.7 Margins providing permanent, grass strips with mixtures of tussocky and fine-leaved grasses. Areas of grass established as cross compliance requirements (see below) are excluded from this definition, but all other strips of grassland created by sowing or natural regeneration, such as field margins or beetle banks, are included.’
- 4.1.8 All of the arable field margins are considered to be Priority Habitat.
- 4.1.9 With regards to the GLNP LWS selection criteria, arable field margins are not included within this selection criteria, based on the following:
- 4.1.10 ‘Agricultural habitats: The nature conservation value of scarce arable weeds cannot be denied, however the LWS system does not provide an effective means of protection. The habitat is ephemeral; it is dependent upon continued cultivation and could lose its interest even when favourably managed. It is important to conserve these plants, but perhaps the best approach is through agri-environment schemes and the achievement of Lincolnshire BAP targets. Wherever possible, observations should be made while on site to record conservation-managed arable field margins and important areas for arable plants.’

- 4.1.11 It is recommended that the arable field margins are retained and enhanced, through re-seeding where possible to further increase their species richness and benefit to wildlife.

Hedgerows

- 4.1.12 Of the 21 hedgerows surveyed, 9 are classified as being native species rich hedgerows as they contained five or more native woody species within a 30m section, with 12 being classified as other native hedgerows as they contained four or less native woody species, as per the UKHab Classification definitions. The most diverse hedgerow identified was H3, which is classified as a native species rich hedgerow with trees and has 10 woody species within a 30m section. Furthermore, all 21 hedgerows were subject to a condition assessment against the criteria from the **Biodiversity Net Gain Strategy** habitat condition assessment (**Document Reference 7.3**). The results of this revealed that all the hedgerows on Site are in either 'moderate' or 'good' condition.
- 4.1.13 Regarding the Priority Habitat status of the hedgerow habitats, it has been found that all of the hedgerows on Site meet the criteria to be designated as priority habitats, based on the description from the UKBAP Priority Habitat description.
- 4.1.14 Regarding the GLNP LWS selection criteria for hedgerows, those identified with five or more woody species per 30m stretch all meet the criteria laid out within paragraph 2.5.5. within the GLNP LWS selection criteria⁸.
- 4.1.15 Regarding the hedgerow regulations H2, H3, H4, H8, H9, H14 and H19 meet the criteria of Important Hedgerow (using biodiversity criteria).

Woodlands

- 4.1.16 Of the five woodlands surveyed, W1 and W2 were classified as 'w1g – Other broadleaved woodland', W3, W4 and W5 were identified as 'w1f – Lowland mixed deciduous woodland'. No protected or notable plants were identified within these parcels, however the survey was conducted outside of the optimal window for woodland botanical surveys, which runs from mid-April to early June⁹.
- 4.1.17 Regarding the Priority Habitat status of the woodland parcels identified during the survey, W3, W4 and W5 were all deemed to meet the criteria outlined in the UKBAP Priority Habitat description.
- 4.1.18 Regarding the GLNP LWS selection criteria for woodlands, W1, W2, W4 and W5 do not meet the minimum criteria for LWS selection based on the points scoring system in the GLNP documentation. W3 did meet the minimum criteria for LWS selection receiving the minimum score of 6, and as such is classified as WD3b. The points scored are shown in Table 3 below, which is taken from page 33 of the GLNP LWS selection criteria handbook.

⁸ [Local Wildlife Site Guidelines for Greater Lincolnshire](#)

⁹ [Ecological survey and assessment for woodland creation \(England\) - GOV.UK](#)

Table 3 – Woodland features- each feature scores one point

FEATURE	NOTES	W1	W2	W4	W3	W5
Undisturbed, mature, shady, broadleaved habitat	Includes areas away from glades and rides, but not dense coniferous woodland habitat	Y	Y	Y	Y	Y
Veteran trees	See Paragraph 2.5.3	N	N	N	Y	N
Pollarded trees	Trees cut well above the ground to allow for animal grazing; this can be recent or historic	N	N	N	N	N
Coppiced trees	Trees cut down to near ground level, usually on a regular rotation; this can be recent or historic	N	N	Y	Y	N
Diverse and/or abundant lichen community	Usually on trees	N	N	N	N	N
Diverse and/or abundant bryophyte community	On the ground, e.g. liverworts on stream banks, and/or on trees	N	N	N	Y	N
Diverse and/or abundant fungi community	On the ground and/or on trees	N	N	N	N	N
Large populations of any of the species in Tables 3 and 48 marked with an ‘*’	Includes carpets of species such as lily-of-the-valley or bluebell	N	N	N	N	N
No more than small amounts of non-native plant species, whether planted or naturally colonised	In canopy, shrub layer and ground flora, including seedlings. Examples include conifers, sycamore, rhododendron, laurel, snowberry, game cover species, exotic species and garden varieties	Y	Y	Y	Y	Y
No more than moderate amounts of native invasive/undesirable plant species	Includes bramble, bracken, common nettle, ivy as ground cover, rosebay willowherb	N	N	N	N	N
Full age range within native tree species	Includes seedlings and saplings, as well as mature and	N	N	N	N	N

FEATURE	NOTES	W1	W2	W4	W3	W5
	ancient trees. These provide valuable structural diversity					
Frequent standing/fallen dead wood	Standing or fallen tree stems/trunks/large boughs that are dead or significantly decaying	N	N	N	Y	N
Good habitat diversity:						
• Glades/grassy areas						
• Wide/sunny rides						
• Narrow/shady rides						
• Running water/watercourses						
• Standing water/wetland/wet flushes	If three or more of these complementary habitats are present, the site scores one point. Provides edge habitat and valuable structural diversity	N	N	N	N	N
Significant size	One point is awarded for every five hectares, to a maximum of two points	N	N	N	N	N
Points		2	2	3	6	2
Met criteria for LWS (N/Q = Not qualifying)		N/Q	N/Q	N/Q	WD3b	N/Q

4.1.19 In summary, the field survey identified a variety of Priority Habitats within the Site boundary. The arable field margins, are classified as priority habitats under UKBAP descriptions. Similarly, the hedgerows are highlighted as important features. The woodland parcels were assessed, with one parcel (W3) meeting the criteria for LWS selection, though additional botanical surveys may be required due to seasonal limitations.

4.1.20 Details of retention and enhancement of habitats are included in the **Biodiversity Net Gain Strategy (Document Ref: 7.3)** and **Outline Landscape and Ecological Management Plan (Document Ref: 6.3 ES Vol 2, 6.3.7)**.

5. REFERENCES

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Appendix 1-Results table of quadrat data collected for arable field margin habitats

Appendix 1: Results table of quadrat data collected for arable field margin habitats.

Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A1	1	<i>Centaurea nigra</i>	Common knapweed	40	F	6.01	c1a6
A1	1	<i>Heracleum sphondylium</i>	Hogweed	8	R	6.01	c1a6
A1	1	<i>Equisetum arvense</i>	Field horsetail	1	R	6.01	c1a6
A1	1	<i>Dactylis glomerata</i>	Cock's-foot	5	R	6.01	c1a6
A1	1	<i>Convolvulus arvensis</i>	Field bindweed	6	R	6.01	c1a6
A1	1	<i>Rumex obtusifolius</i>	Broad-leaved Dock	2	R	6.01	c1a6
A1	1	<i>Lotus corniculatus</i>	Birds foot trefoil	5	R	6.01	c1a6
A1	1	<i>Schedonorus arundinaceus</i>	Tall fescue	20	O	6.01	c1a6
A1	2	<i>Ervum tetraspermum</i>	Smooth tare	2	R	6.1	c1a5
A1	2	<i>Dactylis glomerata</i>	Cock's-foot	1	R	6.1	c1a5
A1	2	<i>Schedonorus arundinaceus</i>	Tall fescue	90	D	6.1	c1a5
A1	2	<i>Phleum pratense</i>	Timothy	1	R	6.1	c1a5
A1	2	<i>Holcus lanatus</i>	Yorkshire fog	1	R	6.1	c1a5
A2	1	<i>Bromus hordeaceus</i>	Soft brome	10	R	7.67	c1a6
A2	1	<i>Lotus corniculatus</i>	Birds foot trefoil	15	R	7.67	c1a6
A2	1	<i>Phleum pratense</i>	Timothy	50	F	7.67	c1a6
A2	1	<i>Heracleum sphondylium</i>	Hogweed	5	R	7.67	c1a6
A2	1	<i>Centaurea nigra</i>	Common knapweed	2	R	7.67	c1a6
A2	1	<i>Lolium perenne</i>	Perennial ryegrass	3	R	7.67	c1a6
A2	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	2	R	7.67	c1a6
A2	1	<i>Dactylis glomerata</i>	Cock's-foot	5	R	7.67	c1a6
A2	1	<i>Leontodon hispidus</i>	Rough hawkbit	1	R	7.67	c1a6
A2	2	<i>Centaurea nigra</i>	Common knapweed	60	F	6.72	c1a6
A2	2	<i>Dactylis glomerata</i>	Cock's-foot	20	O	6.72	c1a6
A2	2	<i>Convolvulus arvensis</i>	Field bindweed	40	O	6.72	c1a6
A2	2	<i>Lotus corniculatus</i>	Birds foot trefoil	35	O	6.72	c1a6
A2	2	<i>Phleum pratense</i>	Timothy	15	R	6.72	c1a6
A2	2	<i>Rubus spp.</i> ,	Bramble	2	R	6.72	c1a6
A2	2	<i>Holcus lanatus</i>	Yorkshire fog	20	O	6.72	c1a6
A2	2	<i>Jacobaea vulgaris</i>	Common ragwort	1	R	6.72	c1a6
A2	2	<i>Ranunculus repens</i>	Creeping buttercup	2	R	6.72	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.

Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A2	2	<i>Bromus hordeaceus</i>	Soft brome	3	R	6.72	c1a6
A2	3	<i>Centaurea nigra</i>	Common knapweed	30	O	7.48	c1a6
A2	3	<i>Convolvulus arvensis</i>	Field bindweed	60	A	7.48	c1a6
A2	3	<i>Lotus corniculatus</i>	Birds foot trefoil	25	O	7.48	c1a6
A2	3	<i>Holcus lanatus</i>	Yorkshire fog	10	R	7.48	c1a6
A2	3	<i>Phleum pratense</i>	Timothy	2	R	7.48	c1a6
A2	3	<i>Bromus hordeaceus</i>	Soft brome	15	R	7.48	c1a6
A2	3	<i>Schedonorus arundinaceus</i>	Tall fescue	60	A	7.48	c1a6
A2	4	<i>Centaurea nigra</i>	Common knapweed	65	A	8.1	c1a6
A2	4	<i>Lotus corniculatus</i>	Birds foot trefoil	40	O	8.1	c1a6
A2	4	<i>Bromus hordeaceus</i>	Soft brome	15	R	8.1	c1a6
A2	4	<i>Schedonorus arundinaceus</i>	Tall fescue	50	F	8.1	c1a6
A2	4	<i>Convolvulus arvensis</i>	Field bindweed	15	R	8.1	c1a6
A3	1	<i>Centaurea nigra</i>	Common knapweed	17	R	12	c1a6
A3	1	<i>Lotus corniculatus</i>	Birds foot trefoil	25	O	12	c1a6
A3	1	<i>Trifolium pratense</i>	Red clover	70	A	12	c1a6
A3	1	<i>Trifolium repens</i>	White clover	70	A	12	c1a6
A3	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	10	R	12	c1a6
A3	1	<i>Leucanthemum vulgare</i>	Oxeye daisy	20	O	12	c1a6
A3	1	<i>Plantago lanceolata</i>	Ribwort plantain	15	R	12	c1a6
A3	1	<i>Phleum pratense</i>	Timothy	5	R	12	c1a6
A3	1	<i>Prunella vulgaris</i>	Selfheal	3	R	12	c1a6
A3	1	<i>Schedonorus arundinaceus</i>	Tall fescue	30	O	12	c1a6
A3	1	<i>Cynosurus cristatus</i>	Crested Dog's-tail	6	R	12	c1a6
A3	1	<i>Taraxacum spp.</i>	Dandelion	2	R	12	c1a6
A3	2	<i>Leucanthemum vulgare</i>	Oxeye daisy	60	F	13.5	c1a6
A3	2	<i>Phleum pratense</i>	Timothy	25	O	13.5	c1a6
A3	2	<i>Prunella vulgaris</i>	Selfheal	15	R	13.5	c1a6
A3	2	<i>Centaurea nigra</i>	Knapweed	30	O	13.5	c1a6
A3	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	15	R	13.5	c1a6
A3	2	<i>Taraxacum spp.</i>	Dandelion	2	R	13.5	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.							
Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A3	2	<i>Galium verum</i>	Lady's bedstraw	10	R	13.5	c1a6
A3	2	<i>Schedonorus arundinaceus</i>	Tall fescue	20	O	13.5	c1a6
A3	2	<i>Dactylis glomerata</i>	Cock's-foot	5	R	13.5	c1a6
A3	2	<i>Trifolium pratense</i>	Red clover	15	R	13.5	c1a6
A4	1	<i>Rumex obtusifolius</i>	Broad-leaved Dock	10	R	16	c1a5
A4	1	<i>Schedonorus arundinaceus</i>	Tall fescue	70	A	16	c1a5
A4	1	<i>Dactylis glomerata</i>	Cock's-foot	15	R	16	c1a5
A4	1	<i>Lolium perenne</i>	Perennial ryegrass	12	R	16	c1a5
A4	1	<i>Agrostis capillaris</i>	Common bent	1	R	16	c1a5
A4	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	20	R	17	c1a5
A4	2	<i>Schedonorus arundinaceus</i>	Tall fescue	70	A	17	c1a5
A4	2	<i>Dactylis glomerata</i>	Cock's-foot	25	O	17	c1a5
A4	2	<i>Lolium perenne</i>	Perennial ryegrass	1	R	17	c1a5
A5	1	<i>Cirsium arvense</i>	Creeping thistle	40	O	6.09	c1a6
A5	1	<i>Lolium perenne</i>	Perennial ryegrass	60	F	6.09	c1a6
A5	1	<i>Heracleum sphondylium</i>	Hogweed	10	R	6.09	c1a6
A5	1	<i>Dactylis glomerata</i>	Cock's-foot	20	O	6.09	c1a6
A5	1	<i>Arrhenatherum elatius</i>	False oat-grass	15	R	6.09	c1a6
A5	2	<i>Anthriscus sylvestris</i>	Cow parsley	10	R	7.6	c1a6
A5	2	<i>Senecio inaequidens</i>	Narrow-leaved ragwort	40	F	7.6	c1a6
A5	2	<i>Convolvulus arvensis</i>	Field bindweed	25	O	7.6	c1a6
A5	2	<i>Dactylis glomerata</i>	Cock's-foot	40	F	7.6	c1a6
A5	2	<i>Lolium perenne</i>	Perennial ryegrass	20	R	7.6	c1a6
A5	2	<i>Cirsium arvense</i>	Creeping thistle	5	R	7.6	c1a6
A5	2	<i>Arrhenatherum elatius</i>	False oat-grass	15	R	7.6	c1a6
A5	2	<i>Potentilla reptans</i>	Creeping cinquefoil	5	R	7.6	c1a6
A6	1	<i>Ranunculus acris</i>	Meadow buttercup	45	F	6	c1a6
A6	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	15	R	6	c1a6
A6	1	<i>Rubus spp.,</i>	Bramble	10	R	6	c1a6
A6	1	<i>Phleum pratense</i>	Timothy	5	R	6	c1a6
A6	1	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	3	R	6	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.							
Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A6	1	<i>Bromus hordeaceus</i>	Soft brome	5	R	6	c1a6
A6	1	<i>Arrhenatherum elatius</i>	False oat-grass	5	R	6	c1a6
A6	1	<i>Dactylis glomerata</i>	Cock's-foot	10	R	6	c1a6
A6	1	<i>Schedonorus arundinaceus</i>	Tall fescue	10	R	6	c1a6
A6	2	<i>Dipsacus fullonum</i>	Wild teasel	5	R	7	c1a5
A6	2	<i>Phleum pratense</i>	Timothy	30	O	7	c1a5
A6	2	<i>Rubus spp.,</i>	Bramble	5	R	7	c1a5
A6	2	<i>Dactylis glomerata</i>	Cock's-foot	25	O	7	c1a5
A6	2	<i>Lolium perenne</i>	Perennial ryegrass	35	O	7	c1a5
A6	2	<i>Arrhenatherum elatius</i>	False oat-grass	25	O	7	c1a5
A6	2	<i>Holcus lanatus</i>	Yorkshire fog	10	R	7	c1a5
A6	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	5	R	7	c1a5
A6	2	<i>Bromus hordeaceus</i>	Soft brome	1	R	7	c1a5
A7	1	<i>Rubus spp.,</i>	Bramble	7	R	6	c1a6
A7	1	<i>Dactylis glomerata</i>	Cock's-foot	15	R	6	c1a6
A7	1	<i>Heracleum sphondylium</i>	Hogweed	12	R	6	c1a6
A7	1	<i>Lolium perenne</i>	Perennial ryegrass	5	R	6	c1a6
A7	1	<i>Potentilla reptans</i>	Creeping cinquefoil	15	R	6	c1a6
A7	1	<i>Ranunculus acris</i>	Meadow buttercup	5	R	6	c1a6
A7	1	<i>Schedonorus arundinaceus</i>	Tall fescue	20	O	6	c1a6
A7	1	<i>Rosa canina</i>	Dog rose	4	R	6	c1a6
A7	1	<i>Convolvulus arvensis</i>	Field bindweed	2	R	6	c1a6
A7	1	<i>Phalaris arundinacea</i>	Reed-canary grass	10	R	6	c1a6
A7	1	<i>Jacobaea vulgaris</i>	Common ragwort	5	R	6	c1a6
A7	1	<i>Bromus hordeaceus</i>	Soft brome	10	R	6	c1a6
A7	2	<i>Prunus domestica</i>	Wild plum	5	R	6.01	c1a6
A7	2	<i>Dactylis glomerata</i>	Cock's-foot	20	O	6.01	c1a6
A7	2	<i>Heracleum sphondylium</i>	Hogweed	30	O	6.01	c1a6
A7	2	<i>Schedonorus arundinaceus</i>	Tall fescue	25	O	6.01	c1a6
A7	2	<i>Lolium perenne</i>	Perennial ryegrass	5	R	6.01	c1a6
A7	2	<i>Bromus hordeaceus</i>	Soft brome	5	R	6.01	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.							
Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A7	2	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	1	R	6.01	c1a6
A7	3	<i>Heracleum sphondylium</i>	Hogweed	40	O	6	c1a5
A7	3	<i>Rubus spp.,</i>	Bramble	80	A	6	c1a5
A7	3	<i>Schedonorus arundinaceus</i>	Tall fescue	45	F	6	c1a5
A7	3	<i>Phalaris arundinacea</i>	Reed-canary grass	5	R	6	c1a5
A7	3	<i>Convolvulus arvensis</i>	Field bindweed	10	R	6	c1a5
A7	3	<i>Bromus hordeaceus</i>	Soft brome	5	R	6	c1a5
A7	3	<i>Dactylis glomerata</i>	Cock's-foot	5	R	6	c1a5
A7	3	<i>Cirsium arvense</i>	Creeping thistle	1	R	6	c1a5
A8	1	<i>Senecio inaequidens</i>	Narrow-leaved ragwort	10	R	6.01	c1a5
A8	1	<i>Odontites vernus</i>	Red bartsia	15	R	6.01	c1a5
A8	1	<i>Lolium perenne</i>	Perennial ryegrass	45	F	6.01	c1a5
A8	1	<i>Agrostis stolonifera</i>	Creeping bent	45	F	6.01	c1a5
A8	1	<i>Rubus spp.,</i>	Bramble	5	R	6.01	c1a5
A8	2	<i>Convolvulus arvensis</i>	Field bindweed	20	O	6.01	c1a5
A8	2	<i>Lolium perenne</i>	Perennial ryegrass	90	D	6.01	c1a5
A8	2	<i>Schedonorus arundinaceus</i>	Tall fescue	40	O	6.01	c1a5
A8	3	<i>Schedonorus arundinaceus</i>	Tall fescue	95	D	6.02	
A8	3	<i>Dactylis glomerata</i>	Cock's-foot	60	F	6.02	
A8	3	<i>Heracleum sphondylium</i>	Hogweed	2	R	6.02	
A8	3	<i>Convolvulus arvensis</i>	Field bindweed	20	O	6.02	
A8	3	<i>Carex spicata</i>	Spiked sedge	1	R	6.02	
A8	4	<i>Rubus spp.,</i>	Bramble	25	O	6.01	
A8	4	<i>Schedonorus arundinaceus</i>	Tall fescue	95	D	6.01	
A8	4	<i>Ervum tetraspermum</i>	Smooth tare	2	R	6.01	
A8	4	<i>Dactylis glomerata</i>	Cock's-foot	1	R	6.01	
A9	1	<i>Odontites vernus</i>	Red bartsia	5	R	13	c1a6
A9	1	<i>Potentilla reptans</i>	Creeping cinquefoil	2	R	13	c1a6
A9	1	<i>Prunella vulgaris</i>	Selfheal	3	R	13	c1a6
A9	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	50	F	13	c1a6
A9	1	<i>Holcus lanatus</i>	Yorkshire fog	5	R	13	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.

Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A9	1	<i>Plantago lanceolata</i>	Ribwort plantain	15	R	13	c1a6
A9	1	<i>Deschampsia cespitosa</i>	Tufted hair-grass	35	O	13	c1a6
A9	1	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	5	R	13	c1a6
A9	1	<i>Dactylis glomerata</i>	Cock's-foot	1	R	13	c1a6
A9	1	<i>Senecio inaequidens</i>	Narrow-leaved ragwort	1	R	13	c1a6
A9	1	<i>Convolvulus arvensis</i>	Field bindweed	5	R	13	c1a6
A9	1	<i>Agrostis capillaris</i>	Common bent	40	O	13	c1a6
A9	2	<i>Daucus carota</i>	Wild carrot	65	A	13.5	c1a6
A9	2	<i>Rubus spp.,</i>	Bramble	20	R	13.5	c1a6
A9	2	<i>Holcus lanatus</i>	Yorkshire fog	10	R	13.5	c1a6
A9	2	<i>Plantago lanceolata</i>	Ribwort plantain	5	R	13.5	c1a6
A9	2	<i>Deschampsia cespitosa</i>	Tufted hair-grass	25	O	13.5	c1a6
A9	2	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	2	R	13.5	c1a6
A9	2	<i>Trifolium spp.,</i>	Clover	2	R	13.5	c1a6
A9	2	<i>Rosa canina</i>	Dog rose	1	R	13.5	c1a6
A9	2	<i>Dactylis glomerata</i>	Cock's-foot	5	R	13.5	c1a6
A9	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	10	R	13.5	c1a6
A9	2	<i>Ervum tetraspermum</i>	Smooth tare	5	R	13.5	c1a6
A9	2	<i>Agrostis capillaris</i>	Common bent	40	O	13.5	c1a6
A10	1	<i>Anisantha sterilis</i>	Barren brome			6.7	c1a5
A10	1	<i>Holcus lanatus</i>	Yorkshire fog			6.7	c1a5
A10	1	<i>Schedonorus arundinaceus</i>	Tall fescue			6.7	c1a5
A10	1	<i>Elymus repens</i>	Common couch			6.7	c1a5
A10	1	<i>Dactylis glomerata</i>	Cock's-foot			6.7	c1a5
A10	2	<i>Cirsium arvense</i>	Creeping thistle	5	R	6.9	
A10	2	<i>Dactylis glomerata</i>	Cock's-foot	15	R	6.9	
A10	2	<i>Anisantha sterilis/Hordeum murinum</i>	Barren brome/wall barley	2	R	6.9	
A10	2	<i>Elymus repens</i>	Common couch	10	R	6.9	
A10	2	<i>Bromus hordeaceus</i>	Soft brome	20	O	6.9	
A10	2	<i>Arrhenatherum elatius</i>	False oat-grass	2	R	6.9	

Appendix 1: Results table of quadrat data collected for arable field margin habitats.

Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A10	2	<i>Holcus lanatus</i>	Yorkshire fog	1	R	6.9	
A10	2	<i>Schedonorus arundinaceus</i>	Tall fescue	30	O	6.9	
A11	1	<i>Phalaris arundinacea</i>	Reed-canary grass	70	A	7	c1a6
A11	1	<i>Cirsium arvense</i>	Creeping thistle	3	R	7	c1a6
A11	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	10	R	7	c1a6
A11	1	<i>Rubus spp.,</i>	Bramble	5	R	7	c1a6
A11	1	<i>Phleum pratense</i>	Timothy	2	R	7	c1a6
A11	1	<i>Ranunculus repens</i>	Creeping buttercup	2	R	7	c1a6
A11	1	<i>Bromus hordeaceus</i>	Soft brome	10	R	7	c1a6
A11	1	<i>Convolvulus arvensis</i>	Field bindweed	2	R	7	c1a6
A11	1	<i>Dactylis glomerata</i>	Cock's-foot	15	R	7	c1a6
A11	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	60	F	13	c1a6
A11	2	<i>Rumex obtusifolius</i>	Broad-leaved Dock	25	O	13	c1a6
A11	2	<i>Pulicaria dysenterica</i>	Common fleabane	40	O	13	c1a6
A11	2	<i>Phleum pratense</i>	Timothy	20	R	13	c1a6
A11	2	<i>Dactylis glomerata</i>	Cock's-foot	20	R	13	c1a6
A11	2	<i>Arrhenatherum elatius</i>	False oat-grass	5	R	13	c1a6
A11	2	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	2	R	13	c1a6
A11	2	<i>Schedonorus arundinaceus</i>	Tall fescue	15	R	13	c1a6
A12	1	<i>Lotus corniculatus</i>	Birds foot trefoil	35	O	8	c1a6
A12	1	<i>Dactylis glomerata</i>	Cock's-foot	10	R	8	c1a6
A12	1	<i>Schedonorus arundinaceus</i>	Tall fescue	65	A	8	c1a6
A12	1	<i>Trifolium spp.,</i>	Clover	30	O	8	c1a6
A12	1	<i>Centaurea nigra</i>	Knapweed	15	R	8	c1a6
A12	1	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	1	R	8	c1a6
A12	1	<i>Taraxacum spp.,</i>	Dandelion	1	R	8	c1a6
A12	2	<i>Centaurea nigra</i>	Knapweed	15	R	8	c1a6
A12	2	<i>Trifolium spp.,</i>	Clover	20	O	8	c1a6
A12	2	<i>Lotus corniculatus</i>	Birds foot trefoil	10	R	8	c1a6
A12	2	<i>Bromus hordeaceus</i>	Soft brome	5	R	8	c1a6
A12	2	<i>Rosa canina</i>	Dog rose	30	O	8	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.							
Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A12	2	<i>Schedonorus arundinaceus</i>	Tall fescue	20	O	8	c1a6
A12	2	<i>Dactylis glomerata</i>	Cock's-foot	10	R	8	c1a6
A13	1	<i>Phleum pratense</i>	Timothy	5	R	6.1	c1a6
A13	1	<i>Heracleum sphondylium</i>	Hogweed	2	R	6.1	c1a6
A13	1	<i>Plantago lanceolata</i>	Ribwort plantain	30	O	6.1	c1a6
A13	1	<i>Taraxacum spp.,</i>	Dandelion	2	R	6.1	c1a6
A13	1	<i>Linum catharticum</i>	Fairy flax	1	R	6.1	c1a6
A13	1	<i>Schedonorus arundinaceus</i>	Tall fescue	35	O	6.1	c1a6
A13	1	<i>Cynosurus cristatus</i>	Crested Dog's-tail	17	R	6.1	c1a6
A13	1	<i>Dactylis glomerata</i>	Cock's-foot	10	R	6.1	c1a6
A13	1	<i>Lathyrus pratensis</i>	Meadow Vetchling	7	R	6.1	c1a6
A13	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	2	R	6.1	c1a6
A13	2	<i>Convolvulus arvensis</i>	Field bindweed	7	R	6.01	c1a6
A13	2	<i>Plantago lanceolata</i>	Ribwort plantain	20	O	6.01	c1a6
A13	2	<i>Fraxinus excelsior</i>	Ash	5	R	6.01	c1a6
A13	2	<i>Rumex obtusifolius</i>	Broad leaved dock	3	R	6.01	c1a6
A13	2	<i>Heracleum sphondylium</i>	Hogweed	5	R	6.01	c1a6
A13	2	<i>Dactylis glomerata</i>	Cock's-foot	10	R	6.01	c1a6
A13	2	<i>Cynosurus cristatus</i>	Crested Dog's-tail	5	R	6.01	c1a6
A13	2	<i>Schedonorus arundinaceus</i>	Tall fescue	40	O	6.01	c1a6
A13	2	<i>Cirsium arvense</i>	Creeping thistle	2	R	6.01	c1a6
A13	2	<i>Taraxacum spp.,</i>	Dandelion	1	R	6.01	c1a6
A13	2	<i>Agrostis spp.,</i>	Bent spp.,	15	R	6.01	c1a6
A13	2	<i>Trifolium dubium</i>	Lesser trefoil	6	R	6.01	c1a6
A13	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	1	R	6.01	c1a6
A13	2	<i>Prunus domestica</i>	Wild plum	2	R	6.01	c1a6
A14	1	<i>Dactylis glomerata</i>	Cock's-foot	5	R	?	c1a6
A14	1	<i>Odontites vernus</i>	Red bartsia	2	R	?	c1a6
A14	1	<i>Sonchus asper</i>	Prickly sow-thistle	5	R	?	c1a6
A14	1	<i>Lolium perenne</i>	Perennial ryegrass	15	R	?	c1a6
A14	1	<i>Cirsium vulgare</i>	Spear thistle	10	R	?	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.							
Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A14	1	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	1	R	?	c1a6
A14	1	<i>Trifolium dubium</i>	Lesser trefoil	5	R	?	c1a6
A14	1	<i>Elymus repens</i>	Common couch	45	F	?	c1a6
A14	1	<i>Schedonorus arundinaceus</i>	Tall fescue	30	O	?	c1a6
A14	2	<i>Helminthotheca echioides</i>	Bristly ox tongue	15	R	6.6	c1a6
A14	2	<i>Lolium perenne</i>	Perennial ryegrass	10	R	6.6	c1a6
A14	2	<i>Elymus repens</i>	Common couch	30	O	6.6	c1a6
A14	2	<i>Odontites vernus</i>	Red bartsia	5	R	6.6	c1a6
A14	2	<i>Bromus hordeaceus</i>	Soft brome	25	O	6.6	c1a6
A14	2	<i>Ranunculus repens</i>	Creeping buttercup	7	R	6.6	c1a6
A14	2	<i>Trifolium dubium</i>	Lesser trefoil	5	R	6.6	c1a6
A14	2	<i>Rumex crispus</i>	Curled dock	1	R	6.6	c1a6
A14	2	<i>Dactylis glomerata</i>	Cock's-foot	5	R	6.6	c1a6
A14	2	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	1	R	6.6	c1a6
A14	2	<i>Sonchus asper</i>	Prickly sow-thistle	1	R	6.6	c1a6
A15	1	<i>Equisetum arvense</i>	Field horsetail	15	R	6.66	c1a6
A15	1	<i>Centaurea nigra</i>	Knapweed	50	F	6.66	c1a6
A15	1	<i>Rumex crispus</i>	Curled dock	20	O	6.66	c1a6
A15	1	<i>Dactylis glomerata</i>	Cock's-foot	2	R	6.66	c1a6
A15	1	<i>Convolvulus arvensis</i>	Field bindweed	5	R	6.66	c1a6
A15	1	<i>Ervum tetraspermum</i>	Smooth tare	2	R	6.66	c1a6
A15	1	<i>Jacobaea vulgaris</i>	Common ragwort	1	R	6.66	c1a6
A15	1	<i>Bromus hordeaceus</i>	Soft brome	4	R	6.66	c1a6
A15	2	<i>Schedonorus arundinaceus</i>	Tall fescue	95	D	6.4	c1a5
A15	2	<i>Centaurea nigra</i>	Knapweed	2	R	6.4	c1a5
A16	1	<i>Dactylis glomerata</i>	Cock's-foot	15	R	16	c1a6
A16	1	<i>Ranunculus repens</i>	Creeping buttercup	15	R	16	c1a6
A16	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	10	R	16	c1a6
A16	1	<i>Schedonorus arundinaceus</i>	Tall fescue	5	R	16	c1a6
A16	1	<i>Cirsium arvense</i>	Creeping thistle	1	R	16	c1a6
A16	1	<i>Bromus hordeaceus</i>	Soft brome	30	O	16	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.							
Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A16	1	<i>Holcus lanatus</i>	Yorkshire fog	1	R	16	c1a6
A16	1	<i>Carex otrubae</i>	False fox-sedge	5	R	16	c1a6
A16	1	<i>Trifolium dubium</i>	Lesser trefoil	1	R	16	c1a6
A16	1	<i>Ervum tetraspermum</i>	Smooth tare	5	R	16	c1a6
A16	1	<i>Lolium perenne</i>	Perennial ryegrass	2	R	16	c1a6
A16	2	<i>Cirsium arvense</i>	Creeping thistle	3	R	13	c1a5
A16	2	<i>Deschampsia cespitosa</i>	Tufted hair grass	60	F	13	c1a5
A16	2	<i>Holcus lanatus</i>	Yorkshire fog	5	R	13	c1a5
A16	2	<i>Rumex obtusifolius</i>	Broad leaved dock	2	R	13	c1a5
A16	2	<i>Agrostis capillaris</i>	Common bent	2	R	13	c1a5
A16	2	<i>Ranunculus repens</i>	Creeping buttercup	5	R	13	c1a5
A16	2	<i>Juncus inflexus</i>	Hard rush	40	O	13	c1a5
A17	1	<i>Trifolium repens</i>	White clover	30	O	6.4	c1a5
A17	1	<i>Trifolium pratense</i>	Red clover	30	O	6.4	c1a5
A17	1	<i>Centaurea nigra</i>	Knapweed	60	F	6.4	c1a5
A17	1	<i>Lotus corniculatus</i>	Birds foot trefoil	45	F	6.4	c1a5
A17	1	<i>Dactylis glomerata</i>	Cock's-foot	5	R	6.4	c1a5
A17	1	<i>Cynosurus cristatus</i>	Crested Dog's-tail	10	R	6.4	c1a5
A17	1	<i>Holcus lanatus</i>	Yorkshire fog	30	O	6.4	c1a5
A17	1	<i>Agrostis spp.,</i>	Bent spp.,	30	O	6.4	c1a5
A17	2	<i>Lolium perenne</i>	Perennial ryegrass	15	R	7.2	c1a6
A17	2	<i>Prunus domestica</i>	Wild plum	10	R	7.2	c1a6
A17	2	<i>Phleum pratense</i>	Timothy	5	R	7.2	c1a6
A17	2	<i>Dactylis glomerata</i>	Cock's-foot	50	F	7.2	c1a6
A17	2	<i>Agrostis capillaris</i>	Common bent	30	O	7.2	c1a6
A17	2	<i>Plantago major</i>	Greater plantain	2	R	7.2	c1a6
A17	2	<i>Ajuga reptans</i>	Bugle	3	R	7.2	c1a6
A17	2	<i>Geranium dissectum</i>	Cut-leaved Crane's-bill	1	R	7.2	c1a6
A17	2	<i>Trifolium spp.,</i>	Clover	7	R	7.2	c1a6
A18	1	<i>Plantago lanceolata</i>	Ribwort plantain	15	R	6.4	c1a6
A18	1	<i>Senecio inaequidens</i>	Narrow-leaved ragwort	10	R	6.4	c1a6

Appendix 1: Results table of quadrat data collected for arable field margin habitats.

Margin	Quadrat	Botanical name	Vernacular Name	Percentage cover (%)	DAFOR	Width (m)	UKHab Classification
A18	1	<i>Prunus domestica</i>	Wild plum	12	R	6.4	c1a6
A18	1	<i>Cynosurus cristatus</i>	Crested Dog's-tail	15	R	6.4	c1a6
A18	1	<i>Cichorium intybus</i>	Chichory	30	O	6.4	c1a6
A18	1	<i>Agrostis spp.,</i>	Bent spp.,	10	R	6.4	c1a6
A18	1	<i>Dactylis glomerata</i>	Cock's-foot	7	R	6.4	c1a6
A18	1	<i>Centaurea nigra</i>	Knapweed	5	R	6.4	c1a6
A18	1	<i>Prunella vulgaris</i>	Selfheal	15	R	6.4	c1a6
A18	1	<i>Ranunculus repens</i>	Creeping buttercup	2	R	6.4	c1a6
A18	1	<i>Helminthotheca echioides</i>	Bristly ox tongue	2	R	6.4	c1a6
A18	1	<i>Linum catharticum</i>	Fairy flax	5	R	6.4	c1a6
A18	1	<i>Sonchus asper</i>	Prickly sow-thistle	2	R	6.4	c1a6
A18	1	<i>Trifolium repens</i>	White clover	5	R	6.4	c1a6
A18	1	<i>Trifolium pratense</i>	Red clover	5	R	6.4	c1a6
A18	2	<i>Plantago lanceolata</i>	Ribwort plantain	35	O	6.8	c1a6
A18	2	<i>Prunus domestica</i>	Wild plum	5	R	6.8	c1a6
A18	2	<i>Sonchus asper</i>	Prickly sow-thistle	5	R	6.8	c1a6
A18	2	<i>Cynosurus cristatus</i>	Crested Dog's-tail	20	O	6.8	c1a6
A18	2	<i>Agrostis spp.,</i>	Bent spp.,	10	R	6.8	c1a6
A18	2	<i>Leucanthemum vulgare</i>	Oxeye daisy	5	R	6.8	c1a6
A18	2	<i>Trifolium spp.,</i>	Clover	10	R	6.8	c1a6
A18	2	<i>Schedonorus arundinaceus</i>	Tall fescue	35	O	6.8	c1a6

Appendix 2 - Answers to condition assessment question

Parcel Ref number	Habitat	What 3 words	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Score
H1	h2a6, 11	///hawks.repelled.contain	Y	Y	Y	Y	Y	N	Y	Y	N	Y	-	-	-	Good 8/10
H2	h2a5, 11	///shall.unzips.buying	Y	Y	N	N	Y	N	Y	Y	Y	Y	-	-	-	Mod 7/10
H3	h2a5, 11	///zebra.sprint.swims	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	-	-	-	Good 9/10
H4	h2a5, 11, 16	///editor.erase.tiredness	Y	Y	Y	N	Y	N	Y	Y	N	Y	-	-	-	Mod 7/10
H5	h2a6	///verve.masters.pitch	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H6	h2a5	///diet.pausing.diverting	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H7	h2a5	///wrist.courts.raft	Y	Y	N	N	Y	N	Y	N	Y	Y	-	-	-	Mod 6/10
H8	h2a5, 11	///sleeper.rainwater.quickly	Y	Y	Y	Y	Y	N	Y	Y	N	Y	-	-	-	Good 8/10
H9	h2a5	///obviously.snowmen.cleans	Y	Y	Y	Y	Y	N	Y	Y	N	Y	-	-	-	Good 8/10
H10	h2a6	///irritate.bring.rats	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H11	h2a6	///deprives.copper.piano	Y	Y	Y	N	Y	N	Y	Y	-	-	-	-	-	Good 6/8
H12	h2a5	///scrambles.flexed.hindering	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H13	h2a6	///kitchens.reapply.instructs	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H14	h2a5, 11	///tricycle.fabricate.tarred	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	-	-	-	9/10 Good
H15	h2a6	///moved.clothed.ramps	Y	Y	Y	N	N	N	Y	N	-	-	-	-	-	4/8 Mod
H16	h2a6	///doghouse.gratuity.airliners	Y	Y	Y	Y	N	N	Y	N	-	-	-	-	-	5/8 Mod
H17	h2a6	///germinate.eradicate.anyone	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8

Parcel Ref number	Habitat	What 3 words	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Score
H18	h2a6	///fairy.howler.excavate	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H19	h2a5	///tiling.tricky.attention	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H20	h2a6	///stream.remarking.sounding	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	Good 7/8
H21	h2a6, 11	///horizons.boast.bootleg	Y	Y	Y	N	Y	N	Y	Y	Y	Y				Good 8/10
G1	g4	///fluctuate.bucket.steep	Y	N	Y	N	N	Y	Y	-	-	-	-	-	-	4 - Mod
G2	g4	///hiding.contrived.pulsing	Y	N	Y	N	N	Y	Y	-	-	-	-	-	-	4 - Mod
G3	g3c	///sundial.finishes.instincts	Y	N	N	Y	Y	N	-	-	-	-	-	-	-	3 - Mod
G4	g3c	///fools.shielding.flagged	Y	N	N	Y	Y	Y	-	-	-	-	-	-	-	4 - Mod
W1	w1g	///causes.active.breached	3	3	3	2	2	3	2	3	1*	2	1	1	2	28 Mod
W2	w1g	///funnels.hubcaps.paid	2	3	3	3	3	3	2	3	1	2	1	1	2	29 Mod
W3	w1f	///tentacles.passage.sleeps	3	3	3	3	3	3	3	3	1*	2	3**	2	1	33 Good
W4	w1f	///camp.golden.developer	1	3	3	2	3	3	2	3	1	1	1	1	1	25 Poor
W5	w1f	///folk.chitchat.wriggle	2	3	3	3	3	3	2	3	1	1	1	1	1	27 Mod

*Possible re-survey for bluebells in appropriate season

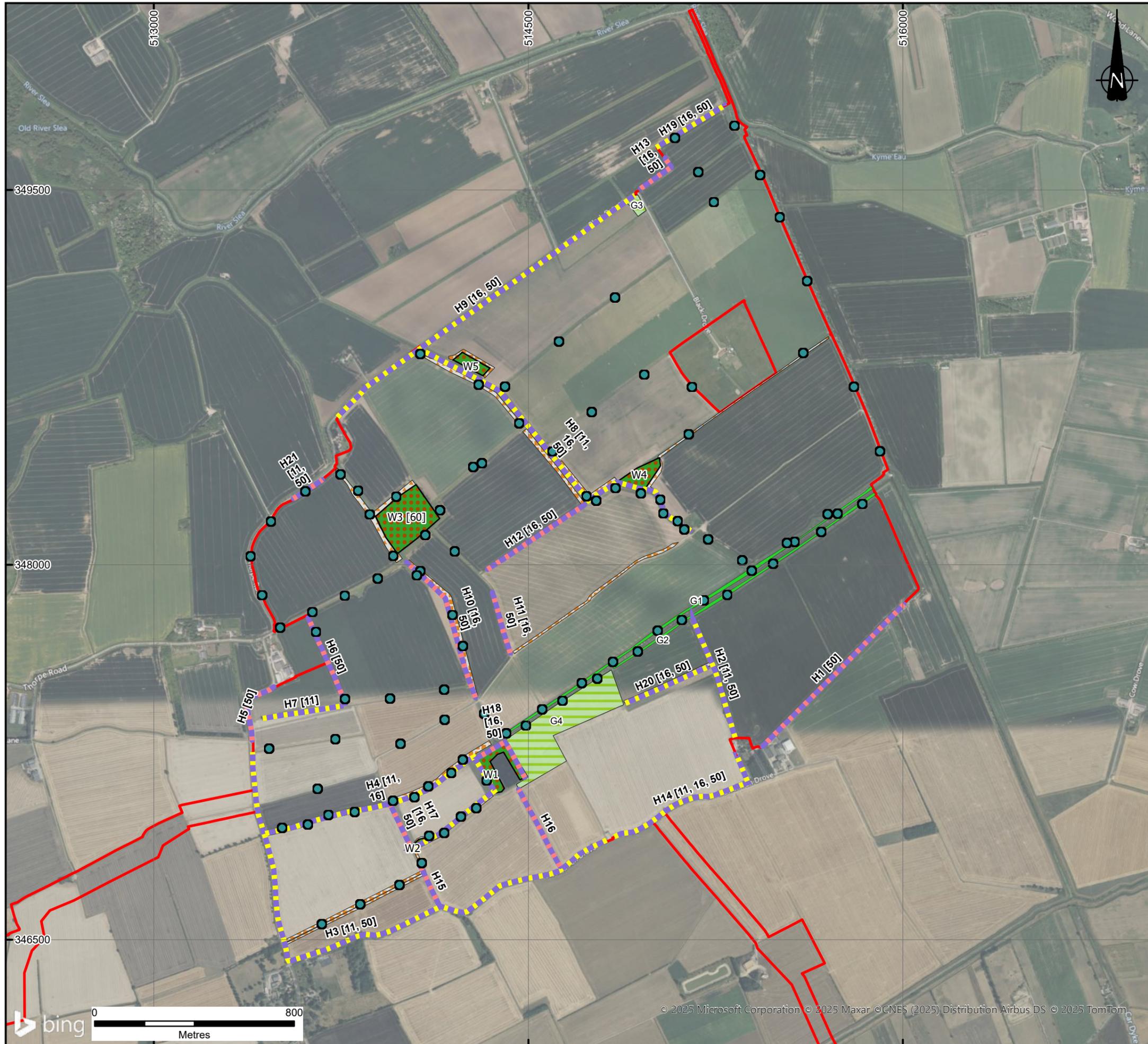
**Veteran trees, unconfirmed but have a few trees with numerous veteran features (holes, dead branches, deadwood etc)

DRAWINGS

ST19595-459

Botanical Survey

1:5,000@A3



KEY

- DCO Order Limits
- c1a5 - Arable field margins - tussocky
- c1a6 - Arable field margins – pollen and nectar
- g3c - Other neutral grassland
- g4 - Modified grassland
- w1g – Other broadleaved woodland
- h2a5 - Species-rich native hedgerow
- h2a6 - Other native hedgerow
- Quadrats

Secondary Code	Description
11	Hedgerow with trees
16	Tall forb
50	Ditch
60	Long continuity habitat

Notes:

Excluding the DCO Order Limits, boundaries shown are indicative. Aerial imagery shown for context purposes only.

DCO Order Limits provided by Ardent Management on 04/02/2025.

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1	FIRST ISSUE	07/03/25	BL	KS	TB
REVISION	DETAILS	DATE	DRAWN	CHKD	APPD

CLIENT
BEACON FEN ENERGY PARK LTD

PROJECT
BEACON FEN ENERGY PARK

DRAWING TITLE
BOTANY SURVEY 2023

DRG No.	ST19595-459	REV	1	SUIT. CODE	---
DRG SIZE	A3	SCALE	1:15,000	DATE	06/03/2025
DRAWN BY	BL	CHECKED BY	KS	APPROVED BY	TB

