# EAST YORKSHIRE SOLAR FARM

East Yorkshire Solar Farm EN010143

**Biodiversity Net Gain Assessment Report** 

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# **East Yorkshire Solar Farm**

# **Biodiversity Net Gain Assessment**

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#### 1. Introduction

- 1.1.1 AECOM was commissioned by East Yorkshire Solar Farm Limited (hereafter referred to as 'the Applicant') to undertake a Biodiversity Net Gain (BNG) assessment to inform the development consent order (DCO) application for the East Yorkshire Solar Farm, which is located within the administrative areas of East Riding of Yorkshire Council and North Yorkshire Council (hereafter referred to as 'the Scheme'). The land within which the Scheme will be delivered is referred to as the 'Site' and is bound by the 'Order limits'.
- 1.1.2 The BNG assessment is based on the Framework Landscape Masterplan, Appendix A of the Framework Landscape and Ecological Management Plan [EN010143/APP/7.14], which illustrates the land uses, demonstrates a commitment to minimum planting, and is based on an indicative layout of the Scheme taking into account maximum parameters. It is therefore a conservative, worst case assessment which allows opportunities for improvement at detailed design stage.
- 1.1.3 In particular, the calculations assume that the installation of buried cables requires a 30 m wide working corridor throughout the Order limits within which all vegetation would be removed. This is likely to be narrowed during detailed design (subject to constraints) and if the working width is narrowed, this can minimise vegetation removal. Contractors may also reduce the working width used by vehicles and for storing equipment and spoil for short distances to around 5–8 m width where there are pinch points such as hedges. This level of detail is planned by construction contractors at detailed design stage, post consent; and hence, at this stage the assessment is based on maximum, worst case principles.
- 1.1.4 This BNG assessment has been undertaken to quantify the overall effect of the Scheme upon the Site's biodiversity value. This is achieved by comparing the Site's baseline habitat value with that following implementation of the Scheme. Calculations consider the level of proposed habitat loss, retention, enhancement and/or creation delivered by the Scheme and are measured using Natural England's Biodiversity Metric 4.0¹ in accordance with associated guidance documents² and best practice principles³.
- 1.1.5 This report sets out the results of the BNG assessment including the methodology in Section 2, the results in Section 3, the conclusions in Section 4.

<sup>&</sup>lt;sup>1</sup> Natural England (2023). <u>The Biodiversity Metric 4.0.</u>

<sup>&</sup>lt;sup>2</sup> Natural England (2023). The Biodiversity Metric 4.0 – <u>User Guide</u>, <u>Technical Annex 1</u> & Technical Annex 2.

<sup>&</sup>lt;sup>3</sup> CIEEM, IEMA & ciria (2019). <u>Biodiversity Net Gain: Good Practice Principles for</u> Development, A Practical Guide

## 1.2 Site Description

- 1.2.1 The Site, indicated by the redline boundary on the 'Baseline Habitat Plan' (Appendix A), is approximately 1,197 ha<sup>4</sup> in size and comprises predominately of agricultural fields with areas of woodland, grassland and boundary features including hedgerows, tree lines and watercourses/ ditches. There are several woodlands located adjacent to the Site and surrounding area, including deciduous woodland priority habitat.
- 1.2.2 The Order limits represent the maximum extent of land to be acquired or used for the construction, operation (including maintenance), and decommissioning of the Scheme. The Site comprises all land within the Order limits and is made up of the Solar PV Site, Ecology Mitigation Area, Interconnecting Cable Corridor, Grid Connection Corridor, and Site Accesses. The rationale for selecting the Site is described in Chapter 3: Alternatives and Design Evolution, ES Volume 1 [EN010143/APP/6.1]. The Order limits are shown on Figure 1-2, ES Volume 3 [EN010143/APP/6.3] and the elements of the Scheme are shown in Figure 1-3, ES Volume 3 [EN010143/APP/6.3].

#### 1.3 Scheme

- 1.3.1 The Scheme is a proposed solar farm in East Yorkshire, which will generate renewable energy for export to the national grid, with the connection point at National Grid's Drax Substation.
- 1.3.2 The Scheme will comprise the construction, operation and maintenance, and decommissioning of a solar PV electricity generating facility with a total capacity exceeding 50 MW along with export connection to the National Grid. The Scheme, which has a development lifetime of 40 years, is the subject of the DCO Application. Further information on the Scheme is included within Chapter 2: The Scheme, ES Volume 1 [EN010143/APP/6.1].

# 1.4 Policy Context

## **National Legislation**

1.4.1 The Environment Act 2021<sup>5</sup> includes provisions to make BNG a mandatory requirement within the planning system in England. For new Nationally Significant Infrastructure Projects (NSIP), the development will need to provide a BNG of at least 10%. The BNG requirement for new NSIPs will come into effect no later than November 2025.

## **National Policy**

1.4.2 The National Planning Policy Framework sets out that "planning decisions should minimise impacts on and provide net gain for biodiversity" 6. The draft

<sup>&</sup>lt;sup>4</sup> This differs from the area reported in the chapters due to the BNG Assessment assessing the impacts based on a maximum 30 m wide working corridor throughout the Order limits rather than the full extent of the Grid Connection Corridor. The BNG assessment boundary is shown in Appendix A.

<sup>&</sup>lt;sup>5</sup> UK Government (2021). The Environment Act

<sup>&</sup>lt;sup>6</sup> UK Government (2023). National Planning Policy Framework

Overarching National Policy Statement EN-1<sup>7</sup> states that "Energy NSIP proposals, whether onshore or offshore, should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, or the wider environment where possible".

#### **Local Planning Policy**

- 1.4.3 The East Riding Local Plan Update 2020 2039 Draft Strategy Document<sup>8</sup> includes Policy ENV4: Conserving and enhancing biodiversity and geodiversity, which states:
  - "Mitigation measures should deliver no net loss of biodiversity when developments are implemented, and a net gain in biodiversity should be achieved wherever possible".
- 1.4.4 The Selby Draft Publication Local Plan<sup>9</sup> includes Policy NE3 Biodiversity Net Gain, which states:
  - "The District's natural environment will be enhanced by ensuring that development delivers at least a 10% net gain in biodiversity for ecological networks including a positive contribution to the protection, creation and enhancement of habitats and species".

This Local Plan is a draft, not yet formally adopted, and therefore may be subject to change.

#### Minimum BNG Requirement

1.4.5 Although not mandated for this NSIP, at a minimum, the Applicant is committed to providing a 10% net gain on a voluntary basis for the Scheme.

# 1.5 June 2024 Update to Hedgerow Assessment

- 1.5.1 The BNG Assessment submitted in November 2023 with the DCO Application for the Scheme indicated a total net gain for hedgerow units at +3.99%. In response to feedback from stakeholders such as Natural England, the Applicant has revisited the outline design to achieve a minimum 10% BNG for hedgerows (see Appendix A and Appendix B).
- 1.5.2 The following actions have been completed for the re-assessment:
  - Refinement of the assessment boundary to 20m wide corridor, with the pinch points being 8m wide (4m either side), to reduce hedge loss as much as practicable;
  - b. HDD areas have been limited to the launch pits and compounds;
  - c. Additional hedgerows proposed;

<sup>&</sup>lt;sup>7</sup> UK Government (2023) <u>EN-1 Overarching National Policy Statement for Energy (publishing.service.gov.uk)</u>

<sup>&</sup>lt;sup>8</sup> East Riding of Yorkshire Council (2016) <u>East Riding Local Plan Update 2020 – 2039 Draft</u> Strategy Document Update

<sup>&</sup>lt;sup>9</sup> Selby District Council (2022) <u>Local Plan Publication Version Consultation 2022</u>

- d. Additional hedgerows put forward for enhancement include the following hedgerows:
  - i. H90 'Native hedge with ditch' enhanced to a 'Native hedgerow with trees associated with ditch' and from 'Moderate' to 'Good' condition;
  - ii. H10 'Native hedge with ditch' enhanced to 'Species rich hedgerow with trees associated with ditch' in 'Good' condition;
  - iii. H8 Eastern half 'Native hedge with ditch' enhanced to 'Species rich hedgerow with trees associated with ditch' in 'Good' condition'; and
  - iv. H8 Western half 'Native hedge with ditch' enhanced to 'Species rich hedgerow with trees' in 'Good' condition.
- 1.5.3 The purpose of this update was to demonstrate that +10% BNG in hedgerow habitats can be achieved on site.

# 2. Methodology

## 2.1 Biodiversity Metric 4.0

- 2.1.1 BNG assessment involves making a comparison between the biodiversity value of habitats present within a site prior to development (i.e., the 'baseline') and the predicted biodiversity value of habitats following the completion of construction of the development (i.e., 'post-development'). The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.
- 2.1.2 Biodiversity Metric 4.0¹ calculates the overall loss or gain of biodiversity of development projects by assessing the distinctiveness (i.e., type of habitat and its value), condition, extent, and strategic significance of habitats onsite pre- and post-development, including both permanent and temporary land-take areas. To achieve BNG, the biodiversity unit score must have a post-development score higher than the baseline score.
- 2.1.3 When calculating the post-development biodiversity units, the Biodiversity Metric 4.0¹ includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost onsite. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to mitigate for losses and achieve net gain.
- 2.1.4 The Biodiversity Metric 4.0¹ assesses and generates separate outputs for area-based habitats (measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and watercourses (measured in watercourse units). To claim a net gain in biodiversity, there should be an increase across all habitats, hedgerow, and river units; the units cannot be summed to give an overall biodiversity unit value, i.e., an increase in habitat and hedgerow units cannot be used to offset a loss in watercourse units.

2.1.5 The information required to undertake the calculation is described below.

#### 2.2 Baseline Data

- 2.2.1 Phase 1 habitat data collected by AECOM between April and September 2022 and April and September 2023<sup>10</sup> (hereafter referred to as the 'baseline') have been utilised to determine the Site's baseline area-based, hedgerow, and watercourse habitats. The baseline habitats were converted from standard Phase 1 Habitat types<sup>11</sup> to UKHab Classification categories<sup>12</sup> (Appendix C.1) before being digitised in Geographic Information System (GIS) to provide area and length measurements of each habitat type.
- 2.2.2 All baseline habitats defined within the Site were assigned a condition using the condition assessment criteria outlined in the Biodiversity Metric 4.0 guidance documents<sup>2</sup>, by a qualified ecologist. Further justifications of habitat condition scores are provided in Appendix D. The data was aggregated and entered into the Biodiversity Metric 4.0<sup>1</sup> to calculate the baseline biodiversity units.

#### 2.3 Post-Development Data

2.3.1 The Framework Landscape Masterplan, Appendix A of the Framework Landscape and Ecological Management Plan [EN010143/APP/7.14,] has been used to determine the extent and type of habitats to be retained and created post-development. Habitats in the Outline Landscape Masterplan¹ were converted to UKHab Classification categories¹² (Appendix C.2) before being digitised into GIS to produce the 'Post-Development Plan' (Appendix B). Target condition scores for the proposed habitats were selected in accordance with Biodiversity Metric 4.0 guidance documents² using professional judgement to ensure the condition scores selected were realistic. The data was utilised to predict the post development biodiversity units.

# 2.4 Strategic Significance

2.4.1 Biodiversity Metric 4.0¹ requires that the strategic significance (hereafter referred to as 'SS') of all baseline and post-development habitats be defined. SS refers to strategic locations for local biodiversity and nature improvements, identified within local planning policies. The process of how the SS of a habitat is assessed is shown in **Figure 1**.

<sup>&</sup>lt;sup>10</sup> AECOM (2023). EYSF ES Chapter 8 - Ecology.

<sup>&</sup>lt;sup>11</sup> JNCC (2016). Handbook for Phase 1 habitat survey - a technique for environmental audit.

<sup>&</sup>lt;sup>12</sup> UKHab Ltd (2018 – 2023). <u>UK Habitat Classification</u>.

Does the habitat fall within a mapped biodiversity NO opportunity area/conservation target area/area identified in the biodiversity action plan? Is the habitat identified within a local plan, strategy, or Is the habitat identified within a local plan, strategy, or policy an ecologically important or a priority habitat? policy an ecologically important or a priority habitat? Based on information gathered during ecology surveys, has Based on information gathered during ecology surveys, has the habitat been identified as locally ecologically important? the habitat been identified as locally ecologically important? YES YES Does the habitat provide an important linkage between Does the habitat provide an important linkage between Medium SS other strategically valuable habitats? other strategically valuable habitats? Where no relevant plan, strategy, or policy is in place, using Where no relevant plan, strategy, or policy is in place, using YES YES professional judgement, is there any reason to assign higher professional judgement, is there any reason to assign higher than 'Low' strategic significance? than 'Low' strategic significance? If so, specify the reasoning for this in the report. If so, specify the reasoning for this in the report. Low SS Low SS

Figure 1. Strategic Significance Guidance

- 2.4.2 As part of this assessment, the following relevant documents were reviewed to determine the SS of the habitats on the Site:
  - a. The East Riding Local Plan Update 2020–2039 Draft Strategy Document<sup>8</sup>
  - b. Lower Derwent Valley Supplementary Planning Document<sup>13</sup>
  - c. Site Improvement Plan: Lower Derwent Valley<sup>14</sup>
  - d. Selby Biodiversity Action Plan (BAP)<sup>15</sup>
  - e. East Yorkshire Solar Farm Environmental Statement Chapter 8 Ecology<sup>10</sup>
  - f. MAGIC<sup>16</sup>
- 2.4.3 SS values have also been applied based on whether they fall within the Selby or East Riding District. The SS value of all habitats have been adjusted based on all Priority Habitats outlined other than the Biodiversity Priority Areas (Local and Strategic) and Important Landscape Area Policy areas. These will likely need to be reviewed at detailed design.
- 2.4.4 Appendix E presents more detail on how SS has been assigned.

<sup>&</sup>lt;sup>13</sup> East Riding of Yorkshire Council (2018) <u>East Riding Local Plan Lower Derwent Valley Supplementary Planning Document</u>

<sup>&</sup>lt;sup>14</sup> Natural England (2014) <u>Site Improvement Plan: Lower Derwent Valley (SIP058)</u>

<sup>&</sup>lt;sup>15</sup> North Yorkshire County Council, Selby District Council and the Selby BAP Partnership (2004) The Selby Biodiversity Action Plan

<sup>&</sup>lt;sup>16</sup> Natural England and Landmark (2023). <a href="https://magic.defra.gov.uk/MagicMap.aspx">https://magic.defra.gov.uk/MagicMap.aspx</a>

## 2.5 BNG Good Practice Principles for Development

2.5.1 Justification for how the BNG Principles have been applied during this net gain assessment is provided in Appendix F.

## 2.6 Assumptions

- 2.6.1 The following assumptions have been made as part of the calculations:
  - a. Guidance published by BRE<sup>17</sup> recognises that on average 95% of a site used for solar farm development is "still accessible for plant growth and potentially for wildlife enhancements and complementary agricultural activities such as conservation grazing". As such, 95% of the solar array footprint have been categorised as the UKHab habitat 'Grassland Modified grassland' in 'moderate' condition, with the remaining 5% allocated within the metric as 'Urban Developed land; sealed surface' to take into account array infrastructure. This approach is understood to be supported by the RSPB<sup>18</sup>.
  - b. Individual trees have been mapped using tree data from Arboriculture Tree Protection Plan and National Tree Map data.
  - c. Access roads that are existing hardstanding and will remain unchanged have not been assessed i.e. it assumed that the hardstanding or verge habitat will not be impacted.
  - d. Habitats that are temporarily impacted by the Grid Connection Corridor that can achieve their original condition within two years of the impact occurring have been classed as retained within the metric, according to guidance<sup>2</sup>. Habitats which cannot achieve their original condition within two years have been classed as lost and re-created to their original condition within the metric, with the exception of lowland mixed deciduous woodland, which has been recreated to poor condition due to its original condition (moderate) taking >30 years to achieve.
  - e. Where baseline hedgerows will be lost due to construction access or visibility splays, the hedgerow has been classed as lost and re-created, as they are unable to achieve their original condition within two years. These re-created hedgerows have been put in as the same UK habitat type and condition as that lost.
  - f. Hedgerows that fall within the assessment boundary in the Grid Connection Corridor (excluding those impacted by construction access or visibility splays) are currently classed as lost and re-created as they are unable to achieve their original condition within two years. In reality, hedgerow loss will be much less than has been assessed.
  - g. Individual trees that fall within the Grid Connection Corridor have been classed as 'lost and re-created', as they are unable to achieve their original condition within two years. In reality, tree loss will be much less than has been assessed.
  - h. Hedgerows labelled as 'enhanced' in the Outline Landscape Masterplan, have been assumed to have an uplift of one-step in

<sup>&</sup>lt;sup>17</sup> BRE (2014) Biodiversity Guidance for Solar Developments

<sup>&</sup>lt;sup>18</sup> RSPB (2017) RSPB Policy Briefing, May 2017

- condition, for example, 'poor' to 'moderate' and 'moderate' to 'good', following recommended standard practice, unless the baseline condition was assumed based on distinctiveness, in which case the hedgerow has been classed as retained due to the true baseline condition not being known.
- i. Grassland – Modified grassland and Grassland – Other neutral grassland habitats within the Grid Connection Corridor are proposed to be lost and re-created to their original condition. Grassland – Modified grassland and Grassland - Other neutral grassland habitats which are proposed to be created within the solar array site have been assigned 'moderate' and 'good' condition respectively. Areas of Grassland modified grassland proposed to be created in the solar array site have been assigned a target condition of 'moderate' to acknowledge the prolonged levels of shading these areas will receive over the lifetime of the Scheme, therefore likely achieving the condition criteria<sup>3</sup> required to meet 'moderate' condition. Areas of Grassland - Other neutral grassland proposed to be created in the solar array site have been assigned a target condition of 'good' on the assumption that this habitat will be created and managed in a way that all condition assessment criteria<sup>3</sup> will be met.
- j. Hedgerows labelled as 'enhanced' in the Outline Landscape
  Masterplan that were in 'good' condition in the baseline, have been
  classed as 'retained'.
- k. All trees within the Site and Scheme have been assigned a size of 'medium'.
- I. Only watercourses and ditches to be impacted or potentially impacted have been included in the calculations for the watercourses metric. Due to the relatively low scale of impacts to watercourses and ditches, and riparian habitats, this is considered proportionate to avoid overestimating the mitigation required to counter the impacts to watercourse and ditch habitats.

#### 2.7 Constraints and Limitations

- 2.7.1 The following constraints and limitations apply:
  - a. The BNG assessment has assessed the Outline Landscape Masterplan<sup>1</sup>, which represents the minimum planting and a likely concept layout based on maximum parameters. The calculation will therefore be updated as part of the detailed design stage of the Scheme once actual components are procured and based on the final design to demonstrate a minimum 10% BNG is achieved and with aspirations to improve the BNG outcome presented in this report, any updates to habitat surveys required as part of this update will also be actioned at this point.
  - b. The assessment has been carried out based on a 30 m wide construction corridor for cables. This is a worst-case scenario, and the chosen contractor may require a narrower corridor and can take account of localised vegetation, therefore reducing the quantity of hedgerow and tree loss substantially during detailed design. Any

- reduction in this area would enable more baseline habitats to be retained, therefore likely increasing the BNG score for the Scheme.
- c. Any habitats that have not been assigned a condition from field survey have been assigned condition based on their distinctiveness score. For example, 'high' distinctiveness habitats have been assigned 'good' condition, 'medium' distinctiveness habitats have been assigned 'moderate' condition, and 'low' distinctiveness habitats have been assigned 'poor' condition.
- d. The East Riding Local Plan Update 2020 2039 Draft Strategy Document<sup>8</sup> states that the East Riding of Yorkshire Biodiversity Action Plan (ERYBAP) contains designated Nature Improvement Areas (NIAs). These areas would impact the SS score of habitats (habitats within NIAs would be assigned 'High' SS). However, despite mention of a ERYBAP within the East Riding Local Plan Update 2020 2039 Draft Strategy Document<sup>8</sup>, there has not been an ERYBAP published, therefore an ERYBAP was not used when assigning SS scores.

#### 3. Results

#### 3.1 Baseline Habitats

- 3.1.1 The Site covers a total area of 1,197 ha<sup>19</sup>. The habitats identified on Site vary in ecological value, ranging from 'Very Low' to 'Very High' distinctiveness. The most dominant area habitats on site include Cropland Cereal crops and Grassland Modified grassland. There are 74.07 km of hedgerows and the most dominant hedgerow habitats include Native hedgerow and Native hedgerow with trees. There are two rivers/ streams, ten ditches and six culverts, which give a total watercourse length of 6.25 km. The River Ouse and River Derwent, and other watercourses (rivers and streams, and ditches) that are to remain unaffected, were scoped out of the assessment.
- 3.1.2 The 'Baseline Habitat Plan' is provided in Appendix A. Detailed descriptions of each baseline habitat are detailed within **Chapter 8: Ecology10, ES Volume 1 [EN010143/APP/6.1]**.

#### **Baseline Habitat Units**

3.1.3 The baseline biodiversity value was calculated as 3,034.72 units for areabased habitats (**Table 1**), 917.82 units for hedgerow habitats (**Table 2**), and 26.66 units for watercourse habitats (**Table 3**).

<sup>&</sup>lt;sup>19</sup> This differs from the area reported in the chapters due to the BNG Assessment assessing the impacts based on a maximum 30 m wide working corridor throughout the Order limits rather than the full extent of the Grid Connection Corridor. The BNG assessment boundary is shown in Appendix A.

**Table 1. Baseline Area-Based Habitats** 

Broad Habitat	Habitat type	Area (ha)	Distinctiveness	Condition	SS	<b>Habitat Units</b>
Cropland	Cereal crops	1,034.78	Low	Condition Assessment N/A	High	2,379.99
Grassland	Modified grassland	4.02	Low	Good	High	27.74
Grassland	Modified grassland	24.83	Low	Moderate	High	114.22
Grassland	Modified grassland	92.7	Low	Poor	High	213.21
Grassland	Other neutral grassland	1.02	Medium	Moderate	High	9.38
Heathland and shrub	Mixed scrub	2.1	Medium	Moderate	Medium	18.48
Heathland and shrub	Mixed scrub	1.72	Medium	Poor	Medium	7.57
Lakes	Ponds (non-priority habitat)	0.03	Medium	Good	High	0.41
Lakes	Ponds (non-priority habitat)	0.18	Medium	Moderate	High	1.66
Lakes	Ponds (non-priority habitat)	0.17	Medium	Poor	High	0.78
Lakes	Ponds (priority habitat)	0.00	High	Poor	High	0.00
Sparsely vegetated land	Ruderal/Ephemeral	0.02	Low	Moderate	Low	0.08
Sparsely vegetated land	Ruderal/Ephemeral	0.11	Low	Poor	Low	0.22
Urban	Bare ground	1.04	Low	Poor	Low	2.08
Urban	Developed land; sealed surface	10.03	V.Low	N/A - Other	Low	0.00
Watercourse footprint	Watercourse footprint	2.12	V.low	N/A - Other	High	0.00
Wetland	Fens (upland and lowland)	0.06	V.High	Poor	High	0.55
Wetland	Reedbeds	0.12	High	Good	High	2.48

<b>Broad Habitat</b>	Habitat type	Area (ha)	Distinctiveness	Condition	SS	<b>Habitat Units</b>
Wetland	Reedbeds	0.02	High	Moderate	High	0.28
Woodland and forest	Lowland mixed deciduous woodland	0.87	High	Good	High	18.01
Woodland and forest	Lowland mixed deciduous woodland	0.55	High	Moderate	High	7.59
Woodland and forest	Lowland mixed deciduous woodland	0.02	High	Poor	High	0.14
Woodland and forest	Other woodland; broadleaved	0.19	Medium	Good	High	2.62
Woodland and forest	Other woodland; broadleaved	2.72	Medium	Moderate	High	25.02
Woodland and forest	Other woodland; broadleaved	17.43	Medium	Poor	High	80.18
Woodland and forest	Other woodland; mixed	0.03	Medium	Poor	High	0.14
Individual trees	Rural tree	13.851*	Medium	Moderate	Medium	121.89
Lakes	Ponds (priority habitat)	0.00	High	Poor	High	0.00
Total	-	1,196.88	-	-	-	3,034.72

<sup>\*</sup>Urban - Rural Tree areas are excluded from total area to prevent double counting of area; however, the unit contributions are included within the habitat unit total.

**Table 2. Baseline Hedgerow Habitats** 

Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Line of trees	0.208	Low	Good	High	1.44
Line of trees	0.004	Low	Good	High	0.03
Line of trees	1.405	Low	Moderate	High	6.46
Line of trees	0.703	Low	Poor	High	1.62
Line of trees - associated with bank or ditch	0.835	Low	Moderate	High	3.84
Line of trees - associated with bank or ditch	0.009	Low	Moderate	High	0.04
Line of trees - associated with bank or ditch	0.036	Low	Poor	High	0.08
Line of trees - associated with bank or ditch	0.414	Low	Poor	High	0.95
Native hedgerow	0.403	Low	Poor	High	0.93
Native hedgerow	9.639	Low	Good	High	66.51
Native hedgerow	1.541	Low	Good	High	10.63
Native hedgerow	1.038	Low	Good	High	7.16
Native hedgerow	0.006	Low	Good	High	0.04
Native hedgerow	2.707	Low	Moderate	High	12.45
Native hedgerow	0.837	Low	Moderate	High	3.85

Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Native hedgerow	0.053	Low	Poor	High	0.12
Native hedgerow	0.058	Low	Poor	High	0.13
Native hedgerow - associated with bank or ditch	3.047	Medium	Good	High	42.05
Native hedgerow - associated with bank or ditch	0.923	Medium	Moderate	High	8.49
Native hedgerow - associated with bank or ditch	0.097	Medium	Moderate	High	0.89
Native hedgerow - associated with bank or ditch	0.203	Medium	Poor	High	0.93
Native hedgerow with trees	0.287	Medium	Moderate	High	2.64
Native hedgerow with trees	23.139	Medium	Good	High	319.32
Native hedgerow with trees	0.551	Medium	Good	High	7.60
Native hedgerow with trees	0.784	Medium	Good	High	10.82
Native hedgerow with trees	0.004	Medium	Good	High	0.06
Native hedgerow with trees	5.it s	ays download speed is 522	Moderate	High	49.32

Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Native hedgerow with trees	0.006	Medium	Moderate	High	0.06
Native hedgerow with trees	0.015	Medium	Moderate	High	0.14
Native hedgerow with trees	0.241	Medium	Poor	High	1.11
Native hedgerow with trees	0.286	Medium	Poor	High	1.32
Native hedgerow with trees - associated with bank or ditch	6.691	High	Good	High	138.50
Native hedgerow with trees - associated with bank or ditch	0.012	High	Good	High	0.25
Native hedgerow with trees - associated with bank or ditch	2.664	High	Moderate	High	36.76
Native hedgerow with trees - associated with bank or ditch	0.359	High	Moderate	High	4.95
Native hedgerow with trees - associated with bank or ditch	0.009	High	Moderate	High	0.12
Species-rich native hedgerow	0.25	Medium	Moderate	High	2.30
Species-rich native hedgerow	0.198	Medium	Good	High	2.73

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Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Species-rich native hedgerow - associated with bank or ditch	1.323	High	Good	High	27.39
Species-rich native hedgerow - associated with bank or ditch	0.206	High	Poor	High	1.42
Species-rich native hedgerow with trees	5.932	High	Good	High	122.79
Species-rich native hedgerow with trees	0.006	High	Good	High	0.12
Species-rich native hedgerow with trees	0.498	High	Moderate	High	6.87
Species-rich native hedgerow with trees	0.739	High	Moderate	High	10.20
Species-rich native hedgerow with trees	0.343	High	Poor	High	2.37
Total	74.07				917.82

**Table 3. Baseline Watercourse Habitats** 

Watercourse type	Length (km)	Distinctiveness	Condition	SS	Watercourse Units
Other rivers and streams	0.019	High	Fairly Poor	High	0.13
Other rivers and streams	0.514	High	Fairly Poor	High	3.47
Ditches	0.584	Medium	Poor	High	1.75

Watercourse type	Length (km)	Distinctiveness	Condition	SS	Watercourse Units
Ditches	0.051	Medium	Moderate	High	0.31
Ditches	0.727	Medium	Poor	High	2.18
Ditches	0.076	Medium	Poor	High	0.23
Ditches	0.275	Medium	Poor	High	0.82
Ditches	0.396	Medium	Poor	High	1.19
Ditches	1.609	Medium	Poor	High	4.83
Ditches	1.008	Medium	Moderate	High	6.05
Ditches	0.003	Medium	Poor	High	0.01
Ditches	0.931	Medium	Moderate	High	5.59
Culvert	0.016	Low	Poor	Low	0.03
Culvert	0.009	Low	Poor	Low	0.02
Culvert	0.005	Low	Poor	Low	0.01
Culvert	0.006	Low	Poor	Low	0.01
Culvert	0.016	Low	Poor	Low	0.03
Culvert	0.004	Low	Poor	Low	0.01
Total	6.25	-	-	-	26.66

## 3.2 Post-Development Habitats

- 3.2.1 The Scheme includes the retention of Cropland Cereal crops, Grassland Modified grassland, Grassland Other neutral grassland, Heathland and shrub Mixed scrub, Lakes Ponds (non-priority habitat), Sparsely vegetated land Ruderal/ephemeral, Urban Bare ground, Urban Developed land, Watercourse footprint Watercourse footprint, Wetland Fens (upland and lowland), Wetland Reedbeds, Woodland and forest Lowland mixed deciduous woodland, Woodland and forest Other woodland; broadleaved, Woodland and forest Other woodland; mixed, Individual trees Rural tree, Line of trees, Line of trees associated with bank or ditch, Native hedgerow, Native hedgerow associated with bank or ditch, Species-rich native hedgerow with trees, Native hedgerow with trees and Native hedgerow with trees associated with bank or ditch.
- 3.2.2 Watercourses (rivers and streams, ditches, and culverts) will predominantly be retained, with the exception of seven short culverts or extensions (2 m) of existing culverts. These culverts will facilitate access road crossings, or the upgrade of existing crossings.
- 3.2.3 The Scheme includes the creation of Grassland Modified grassland, Grassland Other neutral grassland, Grassland Traditional orchards, Heathland and shrub Mixed scrub, Sparsely vegetated land Ruderal/ephemeral, Urban Developed land; sealed surface, Woodland and forest Lowland mixed deciduous woodland, Woodland and forest Other woodland; broadleaved, Woodland and forest Other woodland; mixed, and Individual trees Rural tree.
- 3.2.4 The Scheme includes the enhancement of Line of trees, Line of trees associated with bank or ditch, Native hedgerow, Native hedgerow associated with bank or ditch, Species-rich native hedgerow associated with bank or ditch, Species-rich native hedgerow with trees, Native hedgerow with trees, Native hedgerow with trees associated with bank or ditch, Species-rich native hedgerow. Planting of aquatic species, fencing off the riparian zone and reducing shading could enhance some ditches.
- 3.2.5 The management measures required for the created and enhanced habitats to reach their target condition in the specified timeframe is presented in Appendix G.

#### **Retained Habitats**

3.2.6 Habitats that are due to be retained within the Scheme are detailed in **Table 4**, **Table 5** and **Table 6**. In total, 223.31 ha of area-based habitats,74.07 km of hedgerow habitats and 4.45 km of watercourse habitats are due to be retained with a biodiversity unit value of 656.17 habitat units, 854.30 hedgerow units and 22.12 watercourse units respectively.

**Table 4. Retained Area-Based Habitats** 

Broad Habitat	Habitat type	Area (ha)	Distinctiveness	Condition	SS	Habitat Units
Cropland	Cereal crops	144.61	Low	Condition Assessment N/A	High	332.60
Grassland	Modified grassland	2.13	Low	Good	High	14.70
Grassland	Modified grassland	7.95	Low	Moderate	High	36.57
Grassland	Modified grassland	35.16	Low	Poor	High	80.87
Grassland	Other neutral grassland	0.25	Medium	Moderate	High	2.30
Heathland and shrub	Mixed scrub	1.89	Medium	Moderate	Medium	16.63
Heathland and shrub	Mixed scrub	1.66	Medium	Poor	Medium	7.30
Lakes	Ponds (non-priority habitat)	0.03	Medium	Good	High	0.41
Lakes	Ponds (non-priority habitat)	0.16	Medium	Moderate	High	1.47
Lakes	Ponds (non-priority habitat)	0.12	Medium	Poor	High	0.55
Sparsely vegetated land	Ruderal/Ephemeral	0.04	Low	Poor	Low	0.08
Urban	Bare ground	0.17	Low	Poor	Low	0.34
Urban	Developed land; sealed surface	9.36	V.Low	N/A - Other	Low	0.00
Watercourse footprint	Watercourse footprint	2.11	V.low	N/A - Other	High	0.00
Wetland	Fens (upland and lowland)	0.06	V. High	Poor	High	0.55
Wetland	Reedbeds	0.12	High	Good	High	2.48
Wetland	Reedbeds	0.02	High	Moderate	High	0.28
Woodland and forest	Lowland mixed deciduous woodland	0.86	High	Good	High	17.80

Broad Habitat	Habitat type	Area (ha)	Distinctiveness	Condition	SS	Habitat Units
Woodland and forest	Lowland mixed deciduous woodland	0.38	High	Moderate	High	5.24
Woodland and forest	Lowland mixed deciduous woodland	0.02	High	Poor	High	0.14
Woodland and forest	Other woodland; broadleaved	0.19	Medium	Good	High	2.62
Woodland and forest	Other woodland; broadleaved	1.4	Medium	Moderate	High	12.88
Woodland and forest	Other woodland; broadleaved	1.95	Medium	Poor	High	8.97
Woodland and forest	Other woodland; mixed	0.03	Medium	Poor	High	0.14
Individual trees	Rural tree	12.64	Medium	Moderate	Medium	111.23
Lakes	Ponds (priority habitat)	0	High	Poor	High	0.00
Total	-	223.31	-	-	-	656.17

**Table 5. Retained Hedgerow Habitats** 

Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Line of trees	0.208	Low	Good	High	1.44
Line of trees	0.004	Low	Good	High	0.03
Line of trees	1.174	Low	Moderate	High	5.40
Line of trees	0.349	Low	Poor	High	0.80
Line of trees – associated with bank or ditch	0.502	Low	Moderate	High	2.31
Line of trees – associated with bank or ditch	0.009	Low	Moderate	High	0.04

Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Line of trees – associated with bank or ditch	0.036	Low	Poor	High	0.08
Native hedgerow	0.403	Low	Poor	High	0.93
Native hedgerow	9.639	Low	Good	High	66.51
Native hedgerow	0.782	Low	Good	High	5.40
Native hedgerow	1.038	Low	Good	High	7.16
Native hedgerow	2.669	Low	Moderate	High	12.28
Native hedgerow	0.571	Low	Moderate	High	2.63
Native hedgerow	0.053	Low	Poor	High	0.12
Native hedgerow	0.058	Low	Poor	High	0.13
Native hedgerow - associated with bank or ditch	2.415	Medium	Good	High	33.33
Native hedgerow - associated with bank or ditch	0.626	Medium	Moderate	High	5.76
Native hedgerow - associated with bank or ditch	0.203	Medium	Moderate	High	0.93
Native hedgerow with trees	0.274	Medium	Good	High	2.52
Native hedgerow with trees	22.888	Medium	Good	High	315.85
Native hedgerow with trees	0.142	Medium	Good	High	1.96
Native hedgerow with trees	0.754	Medium	Moderate	High	10.41
Native hedgerow with trees	4.263	Medium	Moderate	High	39.22
Native hedgerow with trees	0.015	Medium	Moderate	High	0.14
Native hedgerow with trees	0.241	Medium	Poor	High	1.11

Habitat type	Length (km)	Distinctiveness	Condition	SS	<b>Hedgerow Units</b>
Native hedgerow with trees	0.286	Medium	Poor	High	1.32
Native hedgerow with trees - associated with bank or ditch	6.323	High	Good	High	130.89
Native hedgerow with trees - associated with bank or ditch	0.012	High	Good	High	0.25
Native hedgerow with trees - associated with bank or ditch	2.388	High	Moderate	High	32.95
Native hedgerow with trees - associated with bank or ditch	0.009	High	Moderate	High	0.12
Species-rich native hedgerow	0.25	Medium	Moderate	High	2.30
Species-rich native hedgerow	0.169	Medium	Good	High	2.33
Species-rich native hedgerow - associated with bank or ditch	1.293	High	Good	High	26.77
Species-rich native hedgerow - associated with bank or ditch	0.204	High	Poor	High	1.41
Species-rich native hedgerow with trees	5.891	High	Good	High	121.94
Species-rich native hedgerow with trees	0.006	High	Good	High	0.12
Species-rich native hedgerow with trees	0.498	High	Moderate	High	6.87
Species-rich native hedgerow with trees	0.726	High	Moderate	High	10.02
Species-rich native hedgerow with trees	0.076	High	Poor	High	0.52

Habitat type	Length (km)	Distinctiveness	Condition	SS	Hedgerow Units
Total	67.45	-	-	-	854.30

**Table 6. Retained Watercourse Habitats** 

Watercourse type	Length (km)	Distinctiveness	Condition	SS	Watercourse Units
Ditches	0.531	Medium	Moderate	High	2.02
Ditches	0.051	Medium	Moderate	High	0.31
Ditches	0.275	Medium	Poor	High	0.82
Ditches	1.609	Medium	Poor	High	4.83
Ditches	1.004	Medium	Moderate	High	6.03
Ditches	0.927	Medium	Moderate	High	5.56
Culvert	0.016	Low	Poor	Low	0.03
Culvert	0.009	Low	Poor	Low	0.02
Culvert	0.005	Low	Poor	Low	0.01
Culvert	0.006	Low	Poor	Low	0.01
Culvert	0.016	Low	Poor	Low	0.03
Culvert	0.004	Low	Poor	Low	0.01
Total	4.45	-	-	-	22.12

#### **Enhanced Habitats**

3.2.7 Habitats that are due to be enhanced within the Scheme are detailed in **Table 7** and **Table 8**. In total,4.03 km of hedgerow habitats are proposed to be enhanced, resulting in biodiversity unit value of 53.11 hedgerow units (uplift of 19.83 hedgerow units). In total, 1.72 km of watercourse habitats are proposed to be enhanced, with an uplift of 3.25 watercourse units. Appendix H presents example enhancements for watercourses (two rivers and streams, and four ditches).

**Table 7. Enhanced Hedgerow Habitats** 

Habitat Type	Distinctiveness change	Condition Change	SS	Time to target condition (yrs)	Length (km)	Enhanced Units	Enhancem ent Uplift
Line of trees	Low - Low	Poor - Moderate	High	20	0.321	0.74→1.10	0.36
Line of trees - associated with bank or ditch	Low - Low	Moderate - Good	High	10	0.321	1.48→1.99	0.51
Line of trees - associated with bank or ditch	Low - Low	Poor - Moderate	High	20	0.414	0.95→1.42	0.47
Species-rich native hedgerow with trees	Low - High	Lower Distinctiveness Habitat - Good	High	10	0.203	1.40→3.36	1.96
Native hedgerow	Low - Low	Moderate - Good	High	2	0.26	1.20→1.75	0.55
Species-rich native hedgerow with trees - associated with bank or ditch	Medium - V.High	Lower Distinctiveness Habitat - Good	High	10	0.589	8.13→13.82	5.69
Native hedgerow - associated with bank or ditch	Medium - Medium	Moderate - Good	High	2	0.166	1.53→2.24	0.71
Native hedgerow - associated with bank or ditch	Medium - Medium	Moderate - Good	High	2	0.097	0.89→1.31	0.42
Native hedgerow with trees	Medium - Medium	Moderate - Good	High	4	0.869	7.99→11.46	3.47
Native hedgerow with trees	Medium - Medium	Moderate - Good	High	4	0.006	0.06→0.08	0.02
Native hedgerow with trees - associated with bank or ditch	High - High	Moderate - Good	High	4	0.154	2.13→3.05	0.92
Native hedgerow with trees - associated with bank or ditch	High - High	Moderate - Good	High	4	0.359	4.95→7.10	2.15
Species-rich native hedgerow with trees	High - High	Poor - Good	High	10	0.267	1.84→4.42	2.58

Habitat Type	Distinctiveness change	Condition Change	SS	Time to target condition (yrs)	Length (km)	Enhanced Units	Enhancem ent Uplift	
Total	-	-	-	-	4.03	33.28→53.11	+19.83	_

**Table 8. Enhanced Watercourse Habitats** 

Watercourse Type	Distinctiveness change	Condition Change	SS	Time to target condition (yrs)	Length (km)	Enhanced Units	Enhancement Uplift
Other rivers and streams	High - High	Fairly Poor - Moderate	High	2	0.019	0.15 à 0.18	0.03
Other rivers and streams	High - High	Fairly Poor - Moderate	High	2	0.511	3.97 à 4.79	0.82
Ditches	Medium - Medium	Poor - Moderate	High	4	0.719	2.48 à 3.92	1.44
Ditches	Medium - Medium	Poor - Moderate	High	4	0.076	0.26 à 0.42	0.16
Ditches	Medium - Medium	Poor - Moderate	High	4	0.395	1.36 à 2.15	0.79
Ditches	Medium - Medium	Poor - Moderate	High	4	0.003	0.01 à 0.02	0.01
Total	-	-	-	-	1.72	8.23 <del>→</del> 11.48	+3.25

#### **Created Habitats**

- 3.2.8 Habitats that are due to be created within the Scheme are detailed in **Table 9, Table 10** and **Table 11**. In total, 986.17 ha of area-based habitats, 16.48 km of hedgerow habitats, and 0.07 km of watercourse habitats are proposed to be created, resulting in biodiversity unit value of 4,818.97 habitat units, 104.99 hedgerow units, and 0.14 watercourse units.
- 3.2.9 Grassland habitats within the Grid Connection Corridor are proposed to be lost and re-created to their original condition. Grassland Modified grassland and Grassland Other neutral grassland habitats which are proposed to be created within the solar array site have been assigned 'moderate' and 'good' condition respectively. Areas of Grassland modified grassland proposed to be created in the solar array site have been assigned a target condition of 'moderate' to acknowledge the prolonged levels of shading these areas will receive over the lifetime of the Scheme, therefore likely achieving the condition criteria² required to meet 'moderate' condition. Areas of Grassland Other neutral grassland proposed to be created in the solar array site have been assigned a target condition of 'good' on the assumption that this habitat will be created and managed in a way that all condition assessment criteria² will be met.

**Table 9. Created Area-Based Habitats** 

Broad Habitat	Habitat type	Area (ha)	Distinctiveness	Target Condition	ss	Time to target condition (yrs)	Habitat Units
Grassland	Modified grassland (Grid Connection Corridor)	0.76	Low	Moderate	High	4	3.03
Grassland	Modified grassland (Solar array site)	797.894	Low	Moderate	High	4	3,182.82
Grassland	Other neutral grassland (Solar array site)	163.42	Medium	Good	High	10	1,579.27
Grassland	Traditional orchards	1.95	High	Moderate	Medium	20	12.62
Heathland and shrub	Mixed scrub	1.57	Medium	Moderate	Medium	5	11.56
Sparsely vegetated land	Ruderal/Ephemeral	0.02	Low	Moderate	Low	3	0.07
Urban	Developed land; sealed surface	13.51	V.Low	N/A - Other	Low	0	0.00
Woodland and forest	Lowland mixed deciduous woodland	0.11	High	Poor	High	10	0.18
Woodland and forest	Other woodland; broadleaved	0.18	Medium	Moderate	High	15	0.97
Woodland and forest	Other woodland; broadleaved	5.82	Medium	Poor	High	5	22.40
Woodland and forest	Other woodland; mixed	0.94	Medium	Moderate	Medium	30	2.84
Individual trees	Rural tree	0.95*	Medium	Moderate	Medium	27	3.19
Total		986.17	-	-	-	-	4,818.97

**Table 10. Created Hedgerow Habitats** 

Habitat type	Length (km)	Distinctiveness	Target Condition	SS	Time to target condition (yrs)	Hedgerow Units
Line of trees	0.051	Low	Moderate	High	20	0.12
Line of trees	0.177	Low	Moderate	High	20	0.40
Line of trees	0.009	Low	Poor	High	5	0.02
Native hedgerow	0.14	Low	Good	High	12	0.63
Native hedgerow	0.272	Low	Good	High	12	1.22
Native hedgerow	0.017	Low	Moderate	High	5	0.07
Native hedgerow - associated with bank or ditch	0.021	Medium	Good	High	12	0.19
Native hedgerow - associated with bank or ditch	0.054	Medium	Moderate	High	5	0.42
Native hedgerow with trees	0.008	Medium	Moderate	High	10	0.05
Native hedgerow with trees	0.278	Medium	Good	High	20	1.88
Native hedgerow with trees	0.111	Medium	Good	High	20	0.75
Native hedgerow with trees	14.789	Medium	Moderate	High	10	95.28

<sup>\*</sup>Urban - Rural Tree areas are excluded from total area to prevent double counting of area; however, the unit contributions are included within the habitat unit total.

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Habitat type	Length (km)	Distinctiveness	Target Condition	SS	Time to target condition (yrs)	Hedgerow Units
Native hedgerow with trees	0.076	Medium	Moderate	High	10	0.49
Native hedgerow with trees	0.331	Medium	Moderate	High	10	2.13
Native hedgerow with trees - associated with bank or ditch	0.113	High	Moderate	High	10	1.09
Species-rich native hedgerow	0.028	Medium	Good	High	12	0.25
Total	16.48	-	-	-	-	104.99

**Table 11. Created Watercourse Habitats** 

Watercourse type	Length (km)	Distinctiveness	Target Condition	SS	Time to target condition (yrs)	Watercourse Units
Culvert	0.0008	Low	Poor	Low	0	0.00
Culvert	0.008	Low	Poor	Low	0	0.02
Culvert	0.004	Low	Poor	Low	0	0.01
Culvert	0.003	Low	Poor	Low	0	0.01
Culvert	0.004	Low	Poor	Low	0	0.01
Culvert	0.004	Low	Poor	Low	0	0.01
Culvert	0.049	Low	Poor	Low	0	0.10
Total	0.07	-	-	_	-	0.14

## 3.3 Summary of Results

- 3.3.1 All baseline habitats and habitats created and retained are present within the accompanying Biodiversity Metric 4.0<sup>1</sup> assessment for the Scheme (Appendix I).
- 3.3.2 A summary of the results is shown in **Table 12**. Based on the current Post-Development Plan, the Scheme is predicted to result in a net gain of 2,440.42 habitat units (+80.42%), a net gain of 94.57 hedgerow units (10.30%), and a net gain of 3.09 watercourse units (10.09%).

**Table 12. Summary of Results** 

Habitat Type	Baseline	Post- Development	Total Net Unit Change	Total Net % Change
Area-Based Units	3,034.72	5,475.14	+2,440.42	+80.42
Hedgerow Units	917.82	1,012.39	+94.57	+10.30
Watercourse Units	30.65	33.74	+3.09	+10.09

#### **Trading Rules**

3.3.3 The trading rules within the Biodiversity Metric 4.0<sup>1</sup> are a set of rules that try to prevent the 'trading down' of habitat distinctiveness. Under the trading rules losses of habitat are to be compensated for on a "like for like" or "like for better" basis. Trading rules are voluntary for NSIPs at the current time, but nevertheless the Applicant will aim to adhere with the trading rules for the final design at detailed design stage.

#### Trading Rules Summary - Area-Based Habitats

3.3.4 Based on the Scheme and associated assumptions, for area-based habitats, the trading rules within the Biodiversity Metric 4.0¹ are currently not satisfied for 'High' and 'Medium' distinctiveness habitats (see **Table 13**). This deviation from the trading rules is due to a loss of Woodland and forest – Lowland mixed deciduous woodland, Lakes – Ponds (non-priority habitat), Individual trees – Rural tree and Woodland and forest – Other woodland; broadleaved habitats. Through the detailed design stage and reducing construction impacts, the trading down of habitats will be subsequently reduced and the trading rules will be sought to be met.

Table 13. Trading Rules Summary - Area-Based Habitats

Broad Habitat	Habitat Type	Distinctive- ness Group	Trading Rule	Unit Change per habitat	Unit change per habitat group	Trading Satisfied?
Woodland and forest	Lowland mixed deciduous woodland	High	Same habitat	-2.38	-2.38	No
Grassland	Traditional Orchards		required	+12.62	+12.62	_
Grassland	Other neutral grassland			+1,572.19	+1,572.19	
Heathland and shrub	Mixed scrub		Same broad habitat or a higher distinctiveness habitat required	+9.45	+9.45	
Lakes	Ponds (non-priority habitat)	Medium		-0.41	-0.41	_
Woodland and forest	Other woodland; broadleaved	Medium		-59.98	<b></b> -57.14	No
Woodland and forest	Other woodland; mixed			+2.84		
Individual trees	Rural tree			-7.45	-7.45	
Cropland	Cereal crops		Same distinctiveness or better habitat required	-2,047.39	-2047.39	- -Yes
Grassland	Modified grassland	Low		+2,962.82	+2,962.82	
Sparsely vegetated land	Ruderal/ephemeral	Low		-0.15	-0.15	
Urban	Bare ground			-1.74	-1.74	
Total	-	-	-	+2,440.42	+2,440.42	-

#### **Trading Rules Summary - Hedgerow Habitats**

3.3.5 Based on the Scheme and associated assumptions, for hedgerow habitats, the trading rules within the Biodiversity Metric 4.0<sup>1</sup> are currently satisfied for all hedgerow habitat distinctiveness types (see **Table 14**).

Table 14. Trading Rules Summary – Hedgerow Habitats

Habitat Type	Distinctiveness Group	Trading Rule	Unit Change per habitat	Trading Satisfied?
Species-rich native hedgerow with trees – associated with bank or ditch	Very High	Same habitat required	+13.82	Yes
Species-rich native hedgerow with trees	High	Like for like or better	+4.91	Yes

Habitat Type	Distinctiveness Group	Trading Rule	Unit Change per habitat	Trading Satisfied?
Species-rich native hedgerow – associated with bank or ditch			-0.63	
Native hedgerow with trees – associated with bank or ditch			-5.14	
Species-rich native hedgerow			-0.15	
Native hedgerow – associated with bank or ditch	Medium	Same distinctiveness or better habitat required	-8.20	Yes
Native hedgerow with trees			+92.27	
Native Hedgerow	Low/Very Low	Same distinctiveness or better habitat required	-3.00	Yes
Line of Trees			-0.24	
Line of trees – associated with bank or ditch			+0.93	
Total	-	-	+94.57	_

## **Trading Rules Summary – Watercourse Habitats**

3.3.6 Based on the Scheme and associated assumptions, for watercourse habitats (rivers and streams, and ditches), the trading rules within the Biodiversity Metric 4.0<sup>1</sup> are currently satisfied for all habitat distinctiveness categories (see **Table 15**).

Table 15. Trading Rules Summary – Watercourse Habitats

Watercourse Type	Distinctiveness Group	Trading Rule	Unit Change per habitat	Trading Satisfied?	
Priority habitat	Very High	Bespoke compensation likely to be required	0	Yes	_
Other rivers and streams	High	Like for like or better	+0.83	Yes	
Ditches	Medium	Like for like or better	+2.12	Yes	

Watercourse Type	Distinctiveness Group	Trading Rule	Unit Change per habitat	Trading Satisfied?
Canals			0	
Culvert	Low/Very Low	Same distinctiveness or better habitat required	+0.14	Yes
Total		-		-
	-		+3.09	

## 4. Conclusion

- 4.1.1 Based on the current plans for the Site, the Scheme is predicted to result in a net gain of 80.42% for area-based habitat units, a net gain of 10.30% for hedgerow units, and a net gain of 10.09% for watercourse units.
- 4.1.2 This is likely to underestimate the actual BNG uplift that will be achieved by the Scheme, as the assessment has been carried out based on maximum design principles, including maximum footprint of infrastructure and maximum clearance of vegetation for construction. More detailed vegetation clearance plan is prepared by construction contractors at detailed design stage, post consent. There are also opportunities for adding additional hedge and tree planting.
- 4.1.3 It is also worth mentioning that there are a lot of hedgerows throughout the Site that will be enhanced by the Applicant but, as these already have the highest possible baseline condition score of 'good', these enhancements do not provide an uplift in hedgerow units in the calculator. The actual enhancement to hedges is therefore greater than the BNG scores indicates.
- 4.1.4 The outputs of the Biodiversity Metric 4.0<sup>1</sup> are dependent on all retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within Biodiversity Metric 4.0 guidance documents<sup>2</sup>. Habitats will therefore be monitored to ensure correct establishment and growth in alignment with the Landscape Ecological Management Plan (LEMP), and remedial action would need to be taken if this does not proceed as expected.

## **Appendix A Baseline Habitat Plan**

Prepared for: East Yorkshire Solar Farm Limited June 2024

East Yorkshire Solar Farm

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East Yorkshire Solar Farm Limited

#### CONSULTANT

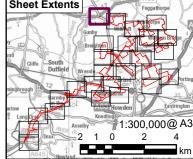
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#### LEGEND

Order limits

Post DCO BNG Assessment Boundary

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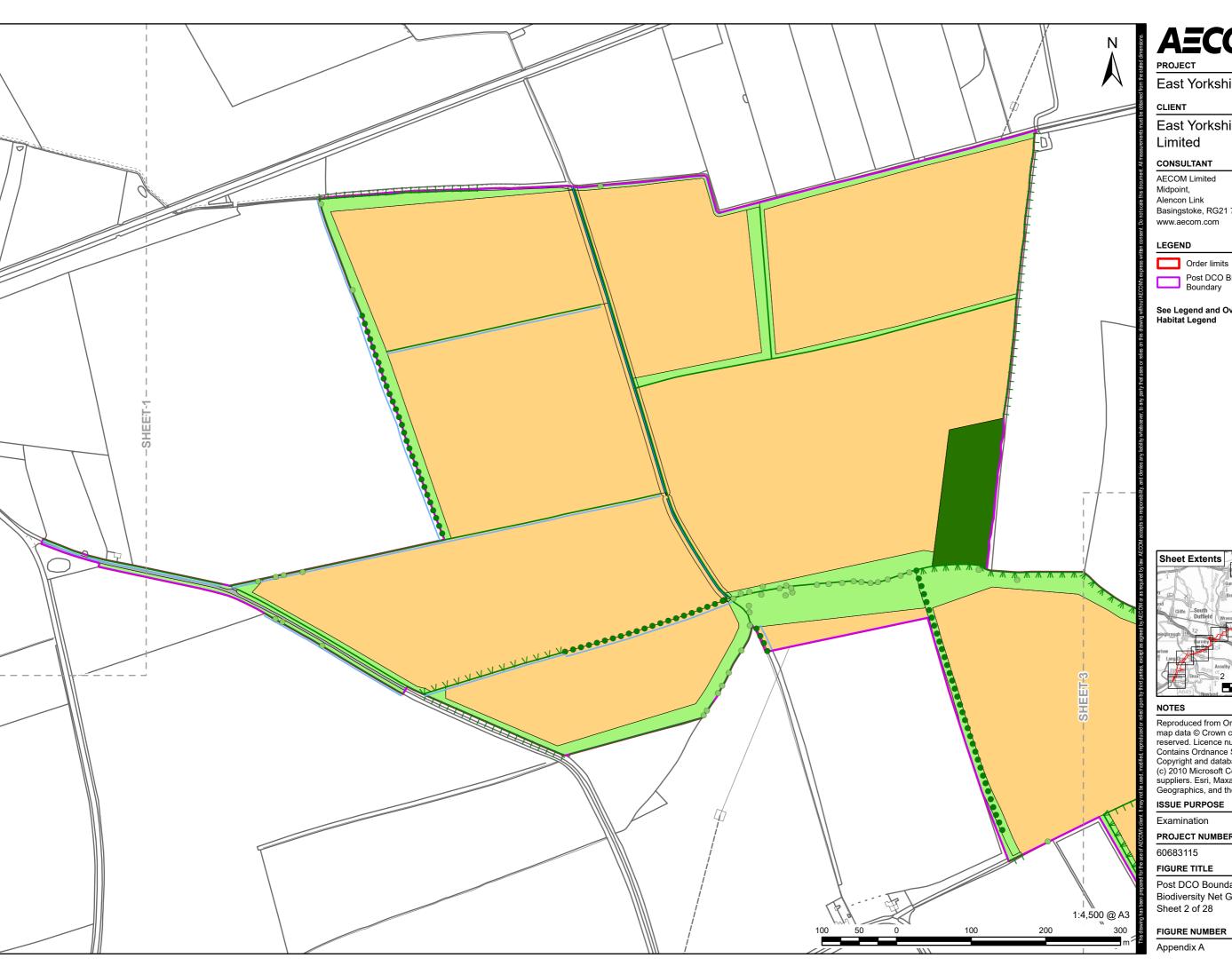
Examination

PROJECT NUMBER

60683115

#### FIGURE TITLE

Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 1 of 28



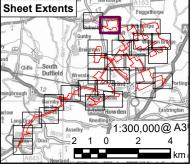
East Yorkshire Solar Farm

East Yorkshire Solar Farm

Alencon Link Basingstoke, RG21 7PP

Post DCO BNG Assessment Boundary

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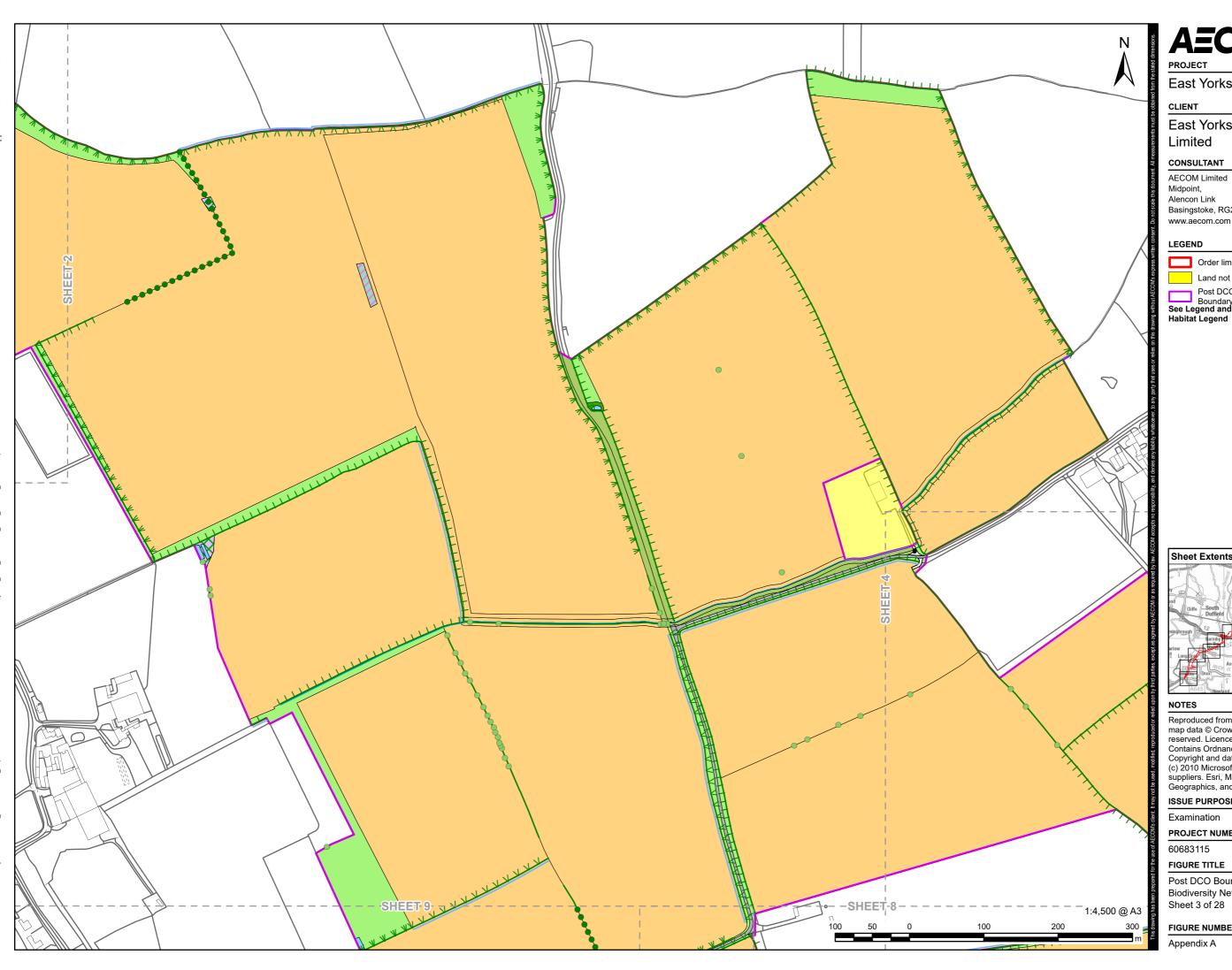
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Examination

PROJECT NUMBER

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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 2 of 28



East Yorkshire Solar Farm

East Yorkshire Solar Farm

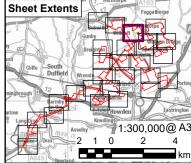
Alencon Link Basingstoke, RG21 7PP

Order limits

Land not included in the Order limits

Post DCO BNG Assessment

Boundary
See Legend and Overview Sheet for UK
Habitat Legend



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PROJECT NUMBER

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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 3 of 28

East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

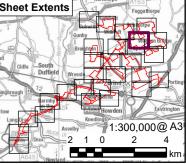
#### CONSULTANT

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Order limits

Land not included in the Order limits Post DCO BNG Assessment

Boundary
See Legend and Overview Sheet for UK
Habitat Legend



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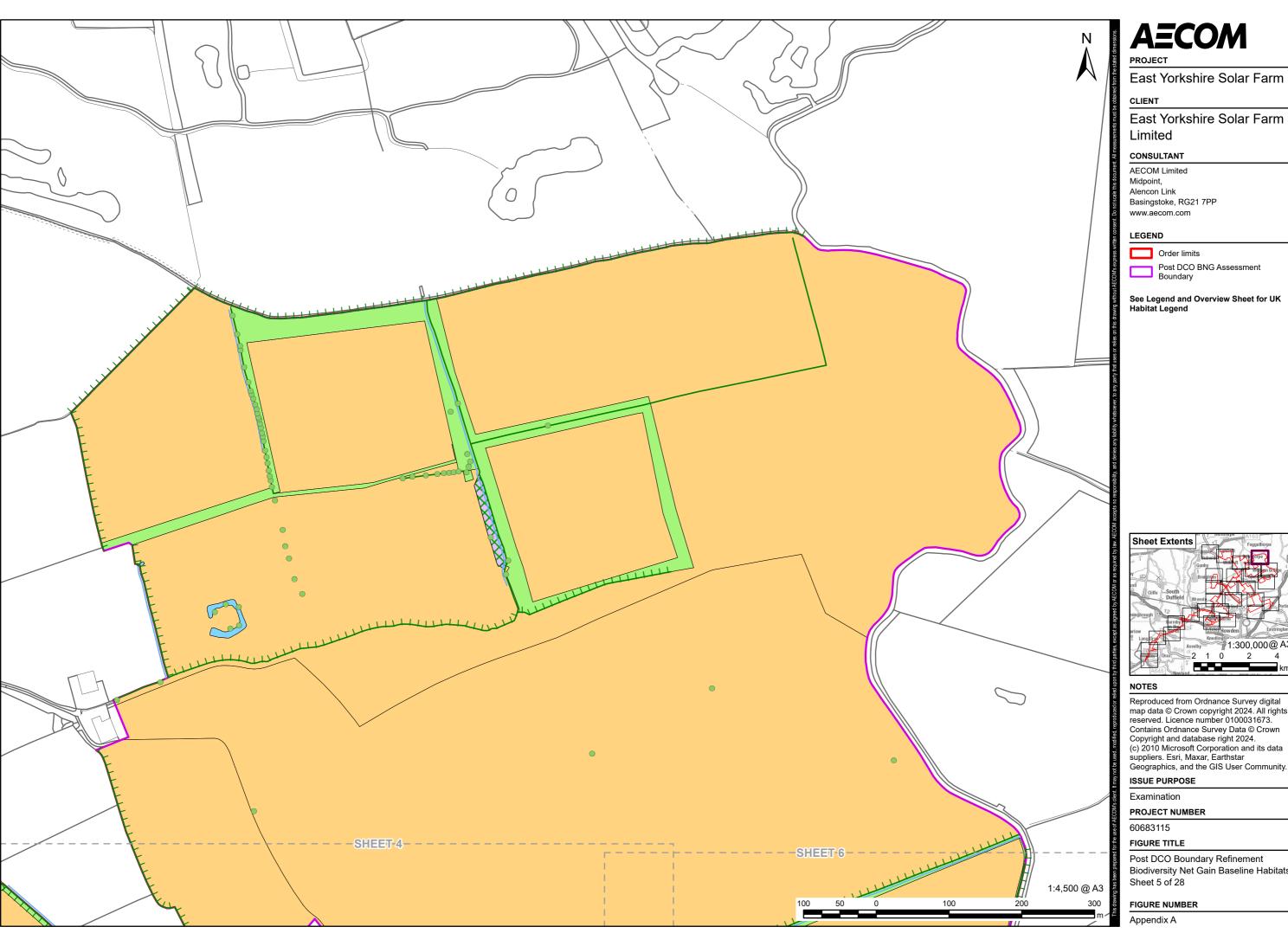
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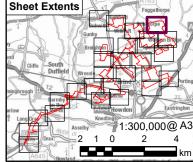
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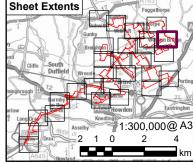
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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 4 of 28





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East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

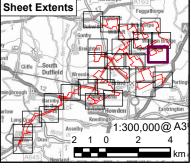
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Order limits

Post DCO BNG Assessment Boundary

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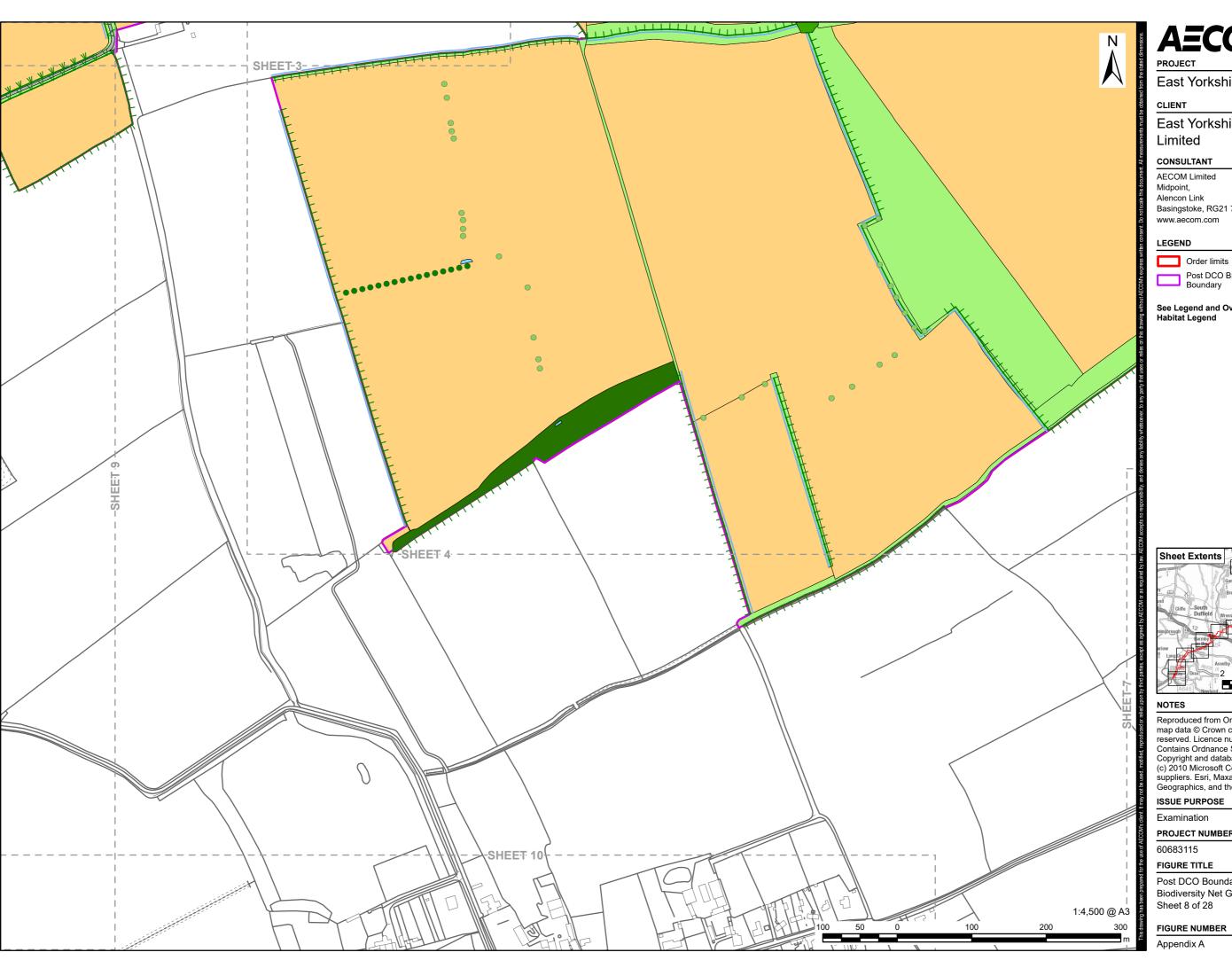
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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 7 of 28



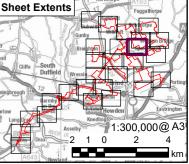
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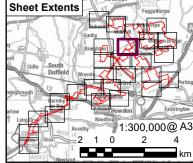
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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 9 of 28

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East Yorkshire Solar Farm Limited

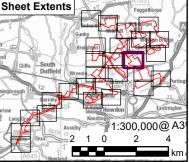
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Order limits

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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 10 of 28

East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

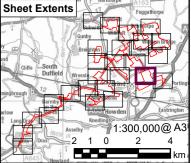
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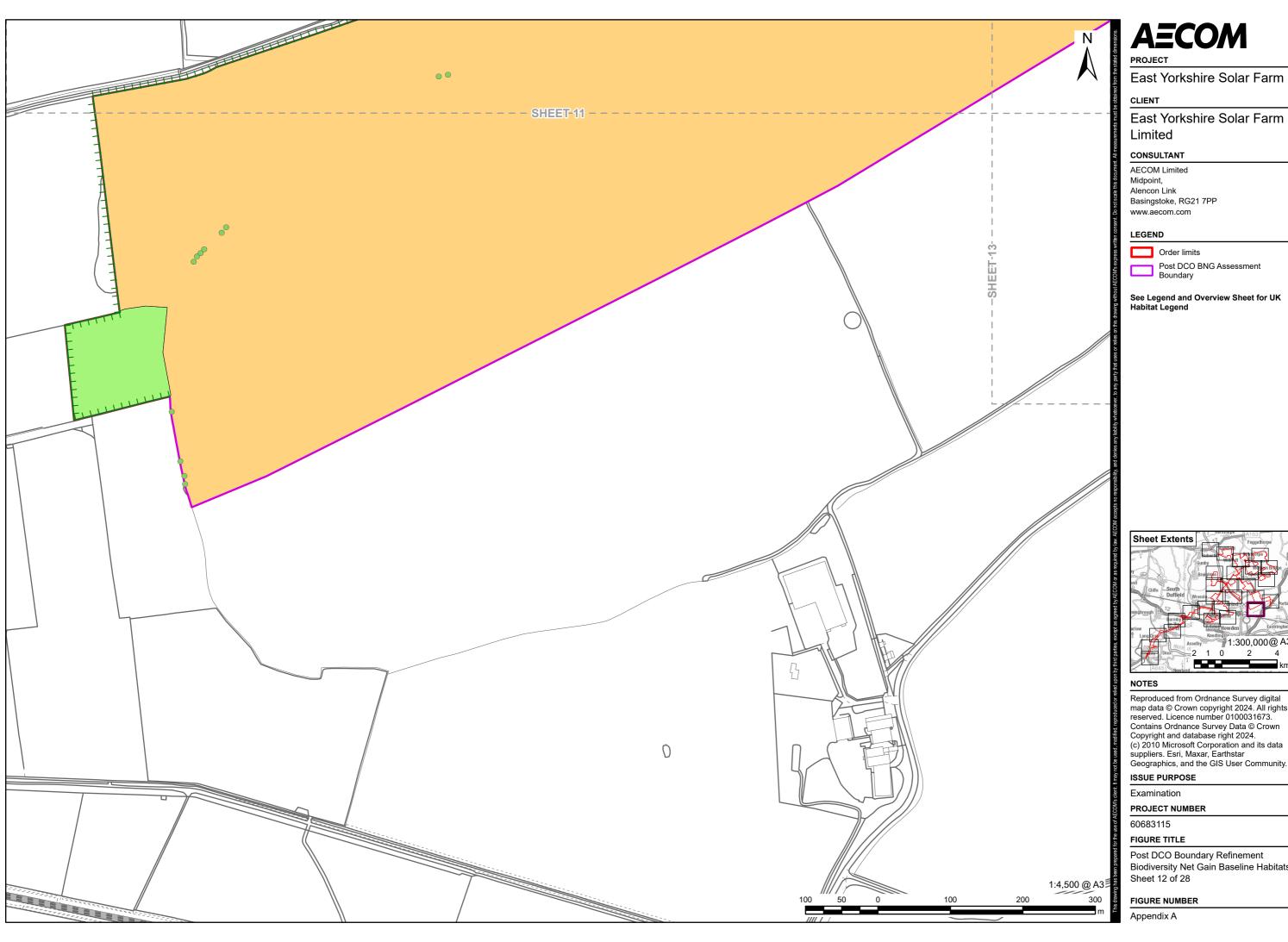
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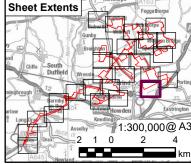
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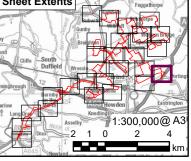
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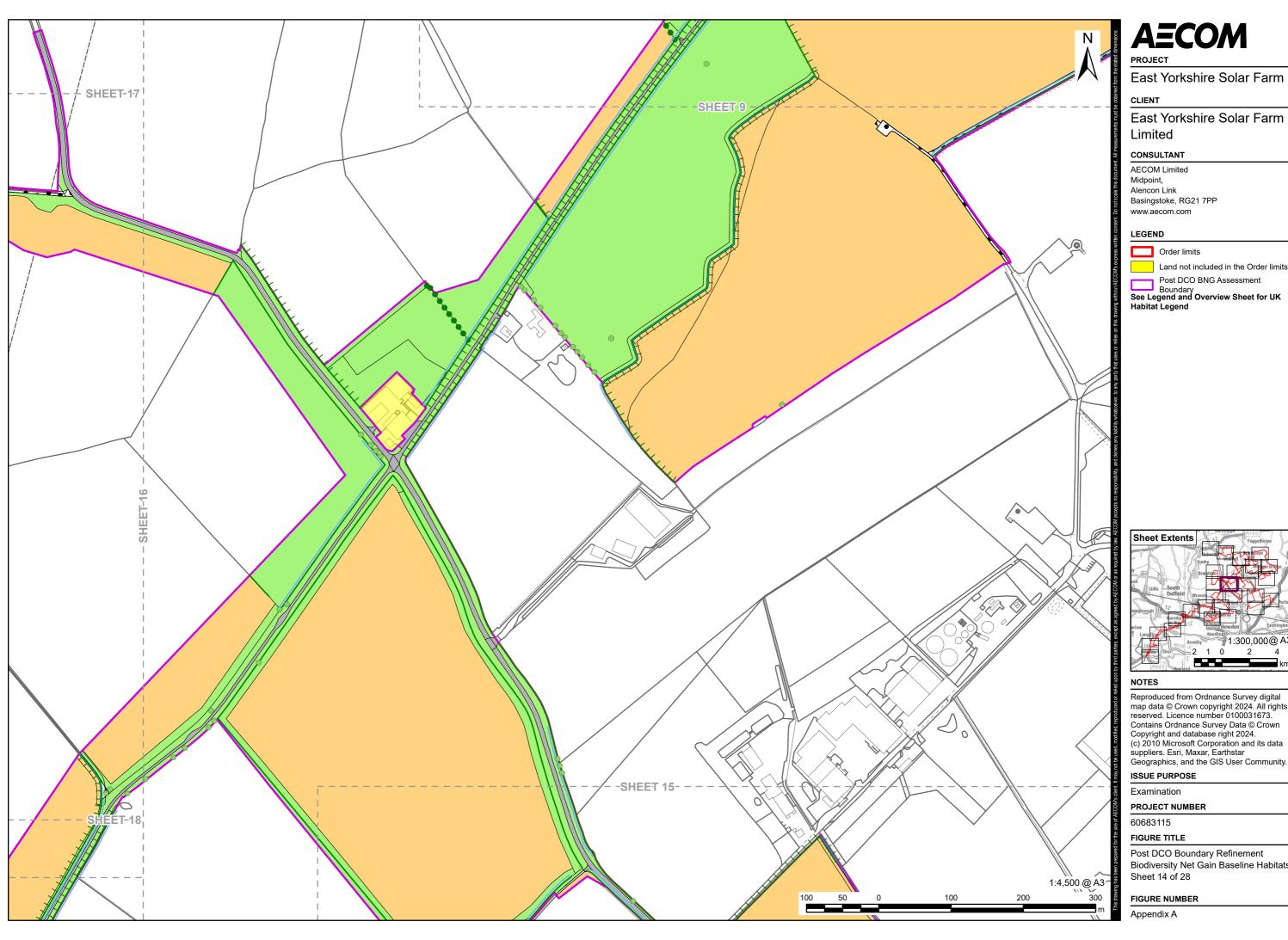
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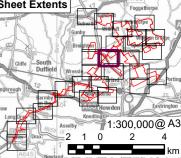
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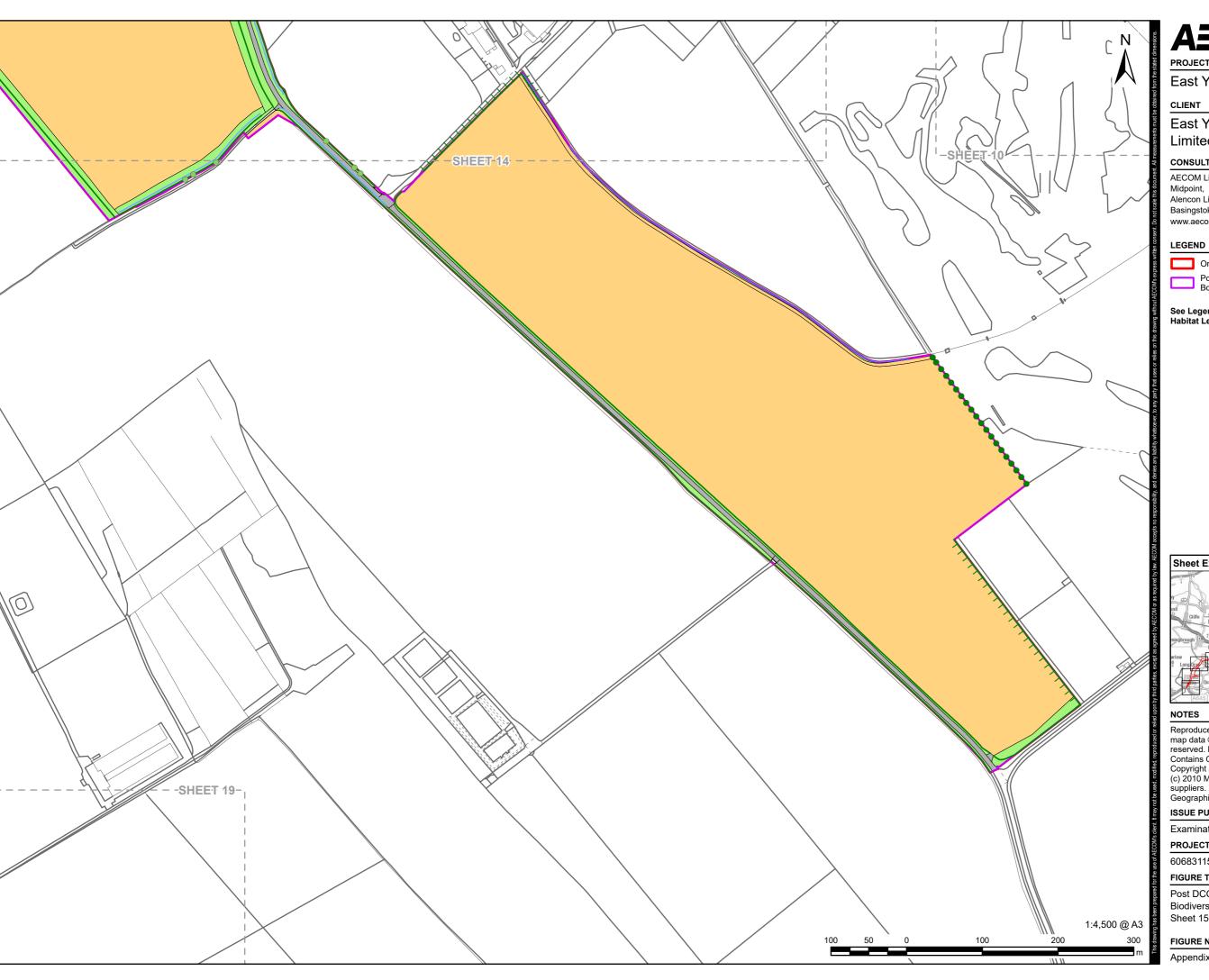
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East Yorkshire Solar Farm Limited

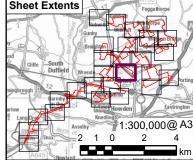
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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 15 of 28

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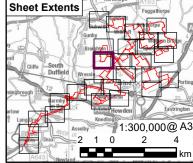
East Yorkshire Solar Farm Limited

Alencon Link Basingstoke, RG21 7PP

Order limits

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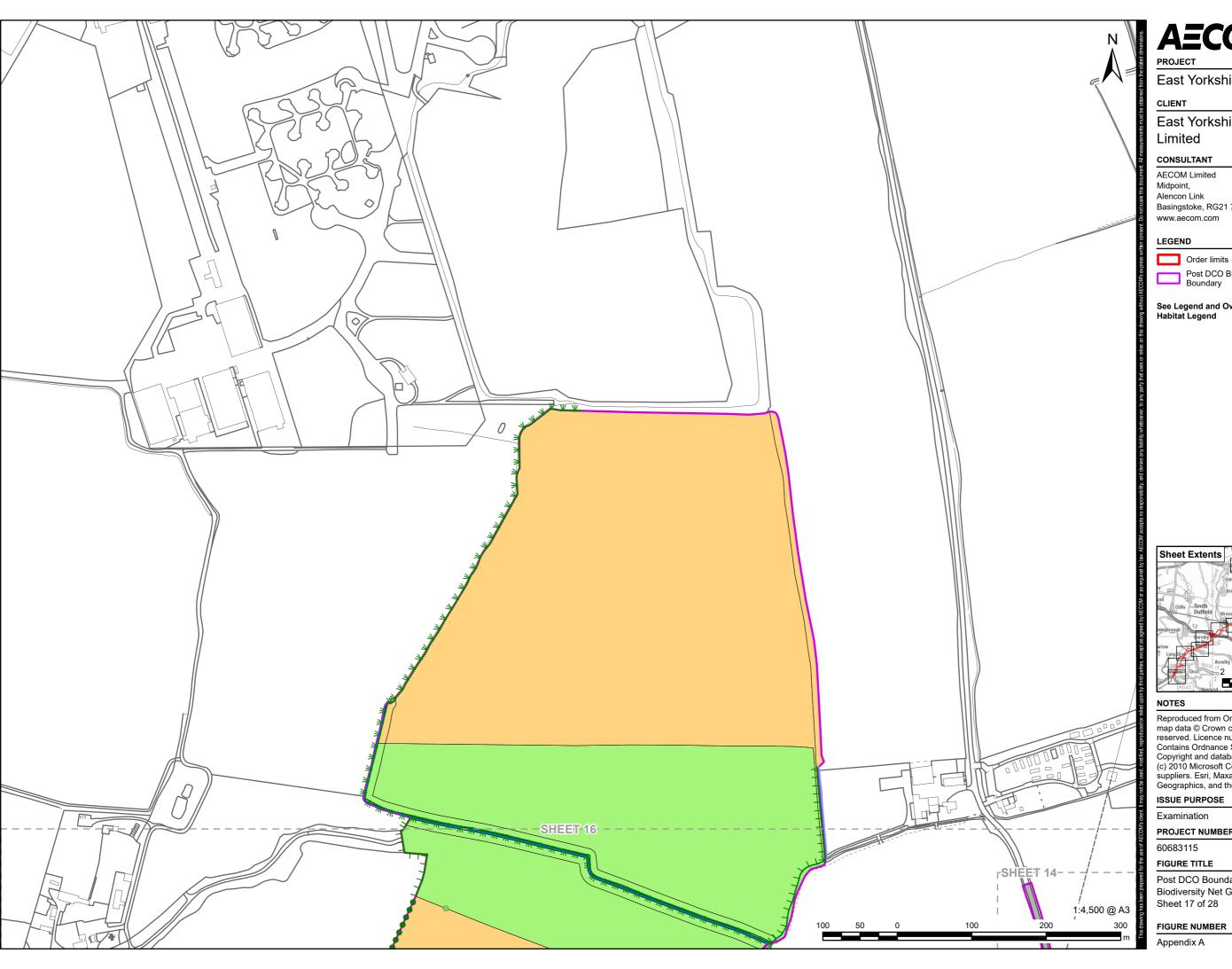
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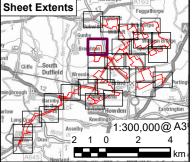
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East Yorkshire Solar Farm

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East Yorkshire Solar Farm

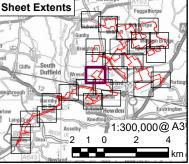
East Yorkshire Solar Farm Limited

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Order limits

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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 18 of 28

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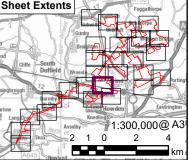
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East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

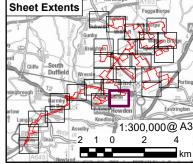
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Order limits

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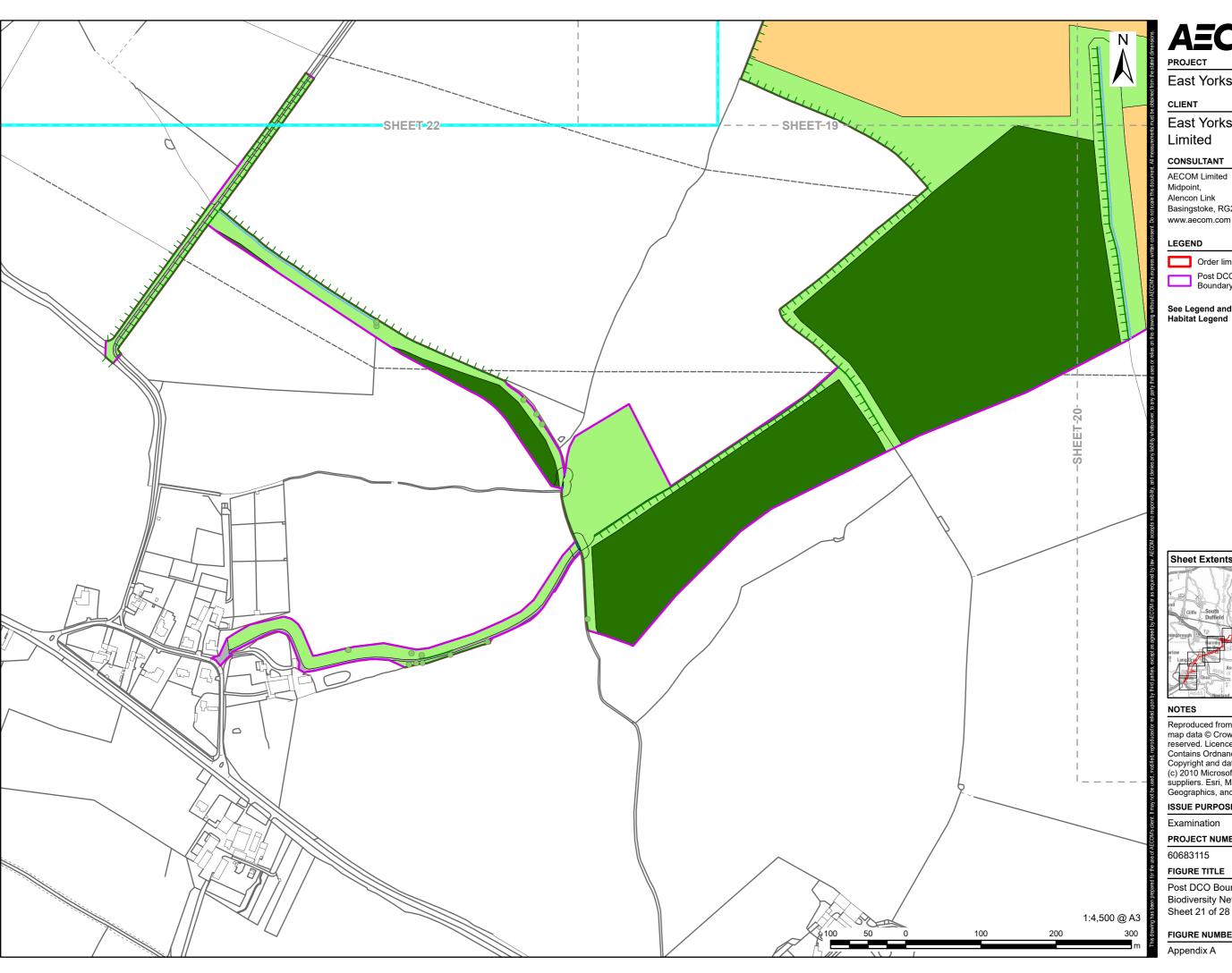
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Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 20 of 28



East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

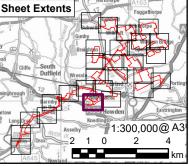
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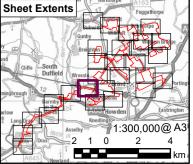
East Yorkshire Solar Farm

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Post DCO BNG Assessment Boundary

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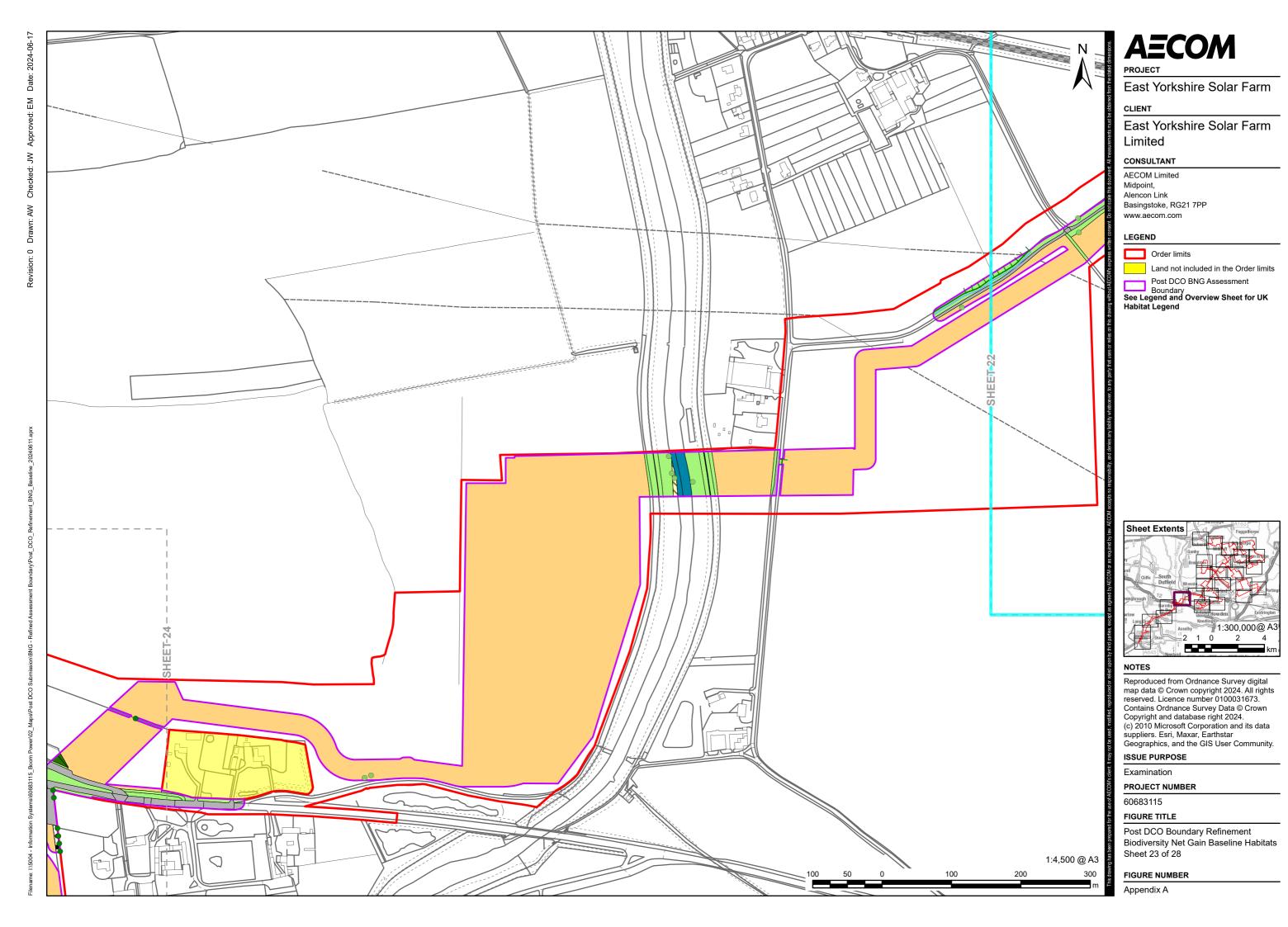
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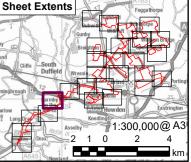
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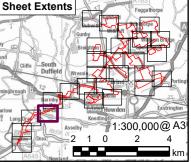
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Order limits

Post DCO BNG Assessment Boundary

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Examination

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#### FIGURE TITLE

Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 25 of 28

East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

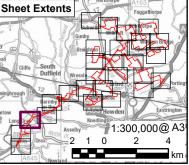
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#### FIGURE TITLE

Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 26 of 28

East Yorkshire Solar Farm

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East Yorkshire Solar Farm Limited

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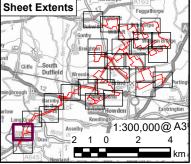
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Order limits

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#### FIGURE TITLE

Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 27 of 28

East Yorkshire Solar Farm

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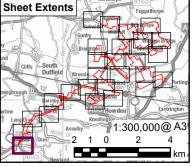
#### LEGEND

Order limits

Land not included in the Order limits

Post DCO BNG Assessment

Boundary
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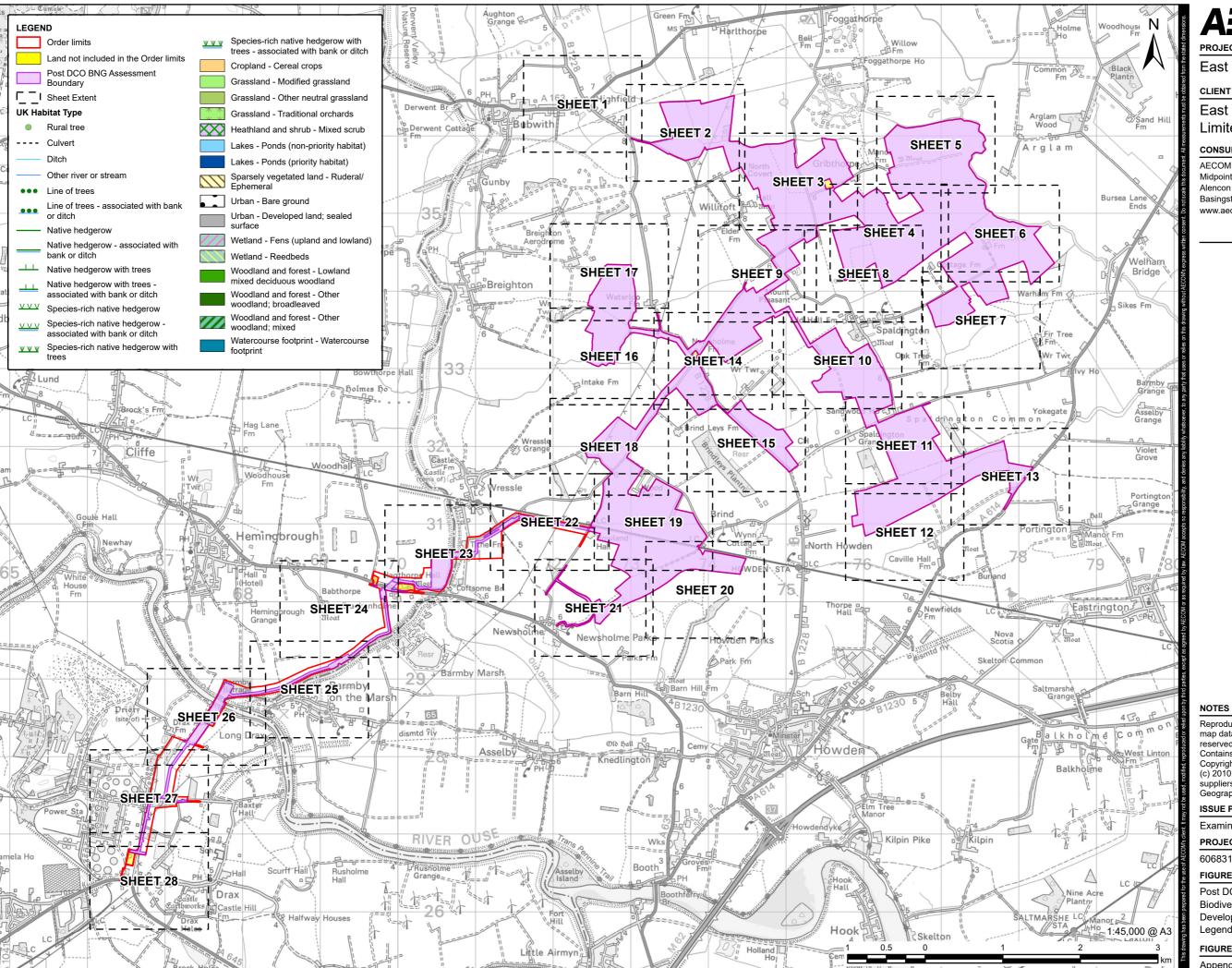
PROJECT NUMBER

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#### FIGURE TITLE

Post DCO Boundary Refinement Biodiversity Net Gain Baseline Habitats Sheet 28 of 28

## **Appendix B Post-Development Habitat Plan**



ΕM

## **AECOM**

East Yorkshire Solar Farm

East Yorkshire Solar Farm Limited

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PROJECT NUMBER

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East Yorkshire Solar Farm Limited

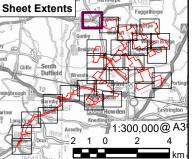
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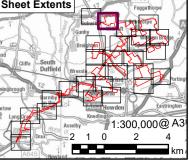
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## FIGURE TITLE

Post DCO Boundary Refinement Biodiversity Net Gain Post-**Development Habitats** Sheet 1 of 28





East Yorkshire Solar Farm

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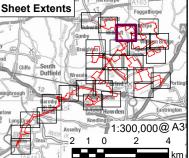
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Order limits

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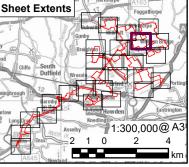
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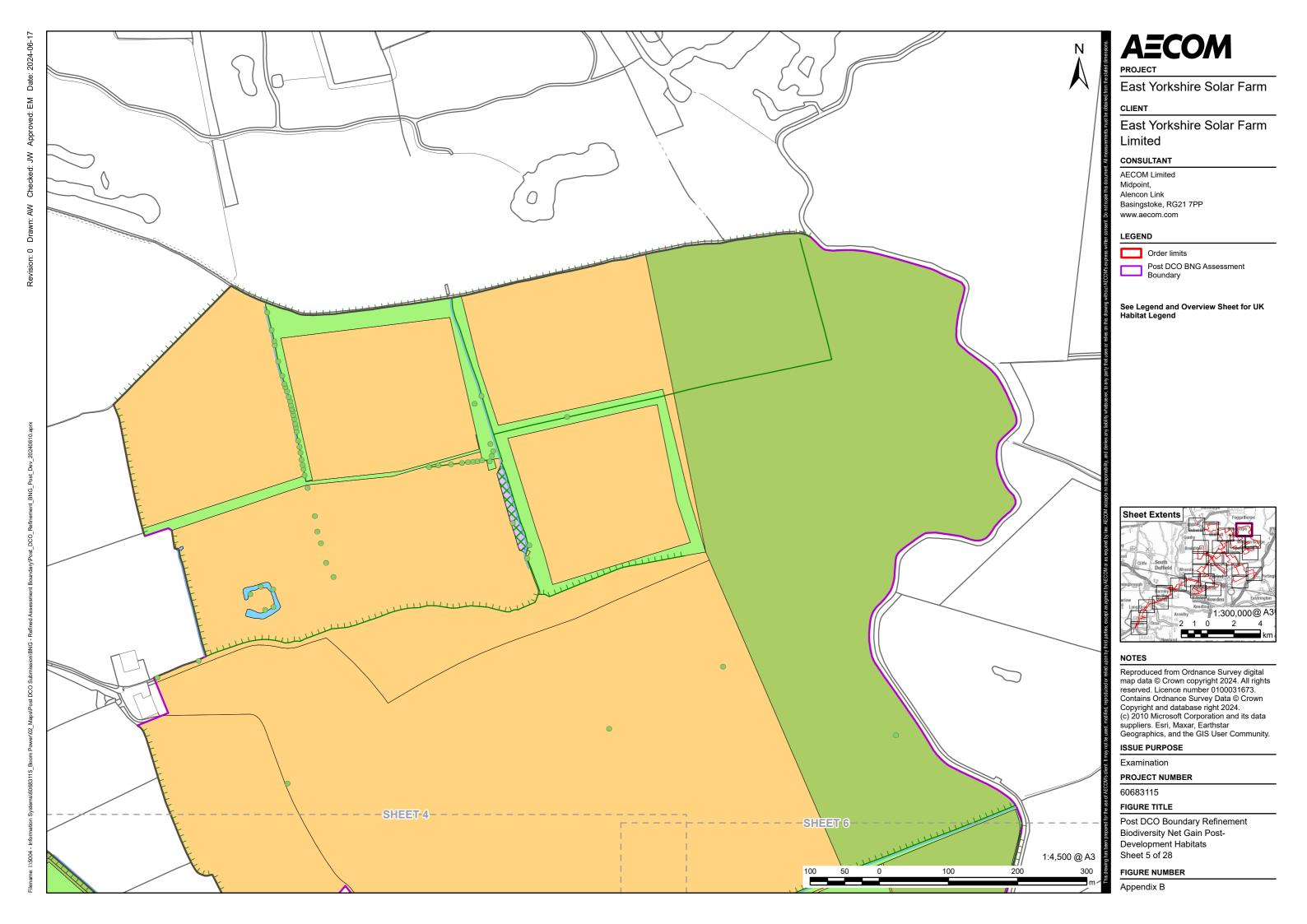
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### FIGURE TITLE

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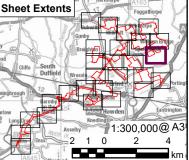
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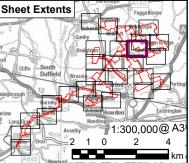
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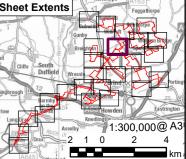
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Post DCO Boundary Refinement

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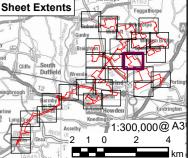
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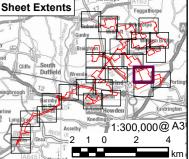
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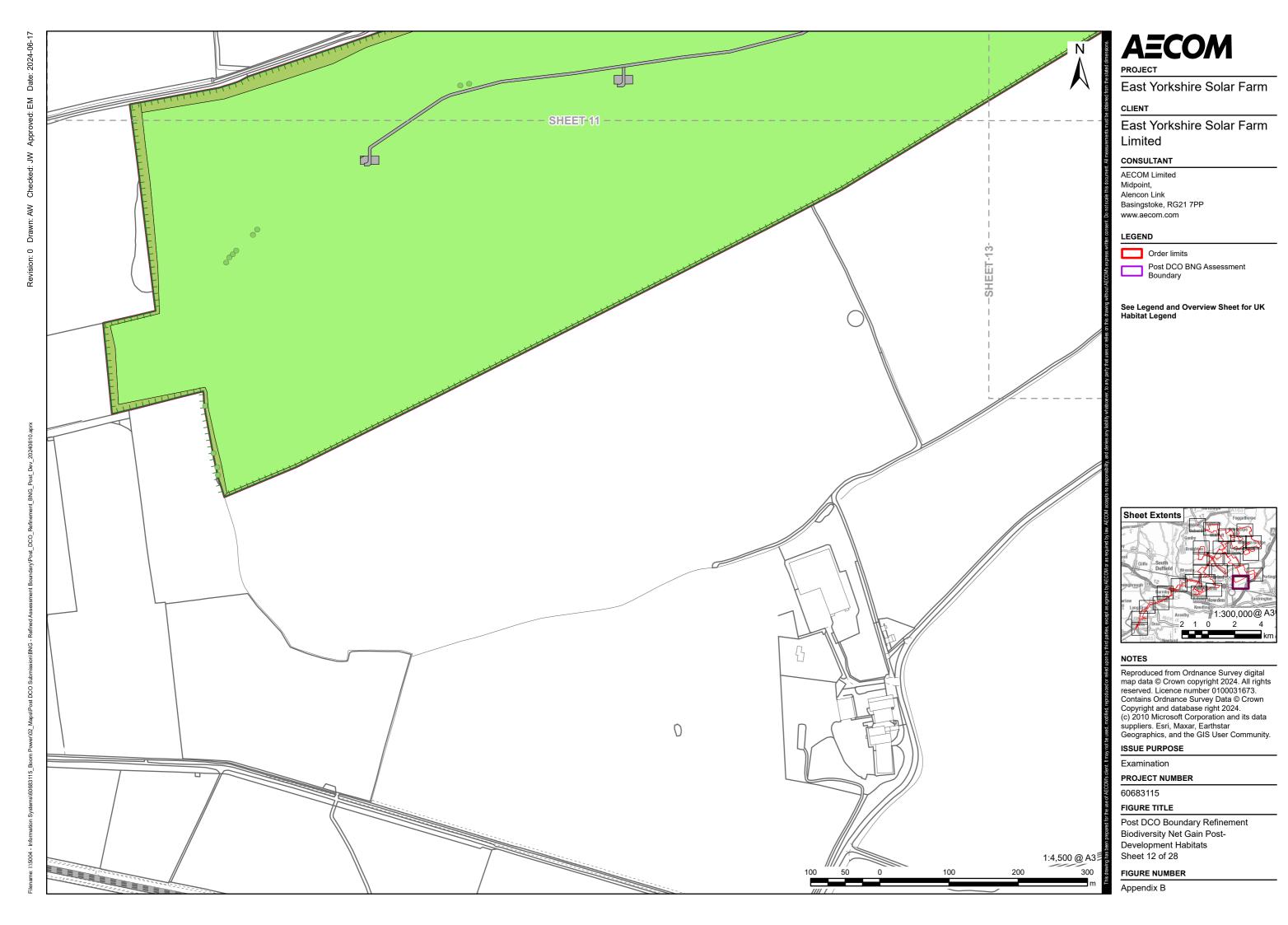
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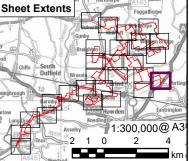
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Post DCO Boundary Refinement







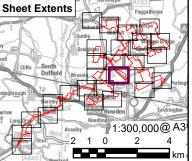
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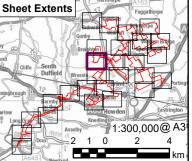


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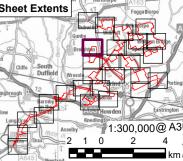
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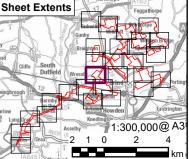
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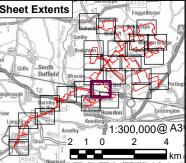
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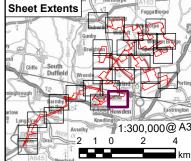
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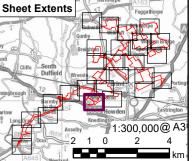
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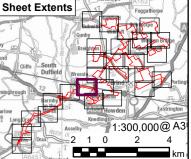


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Post DCO BNG Assessment Boundary

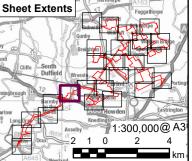
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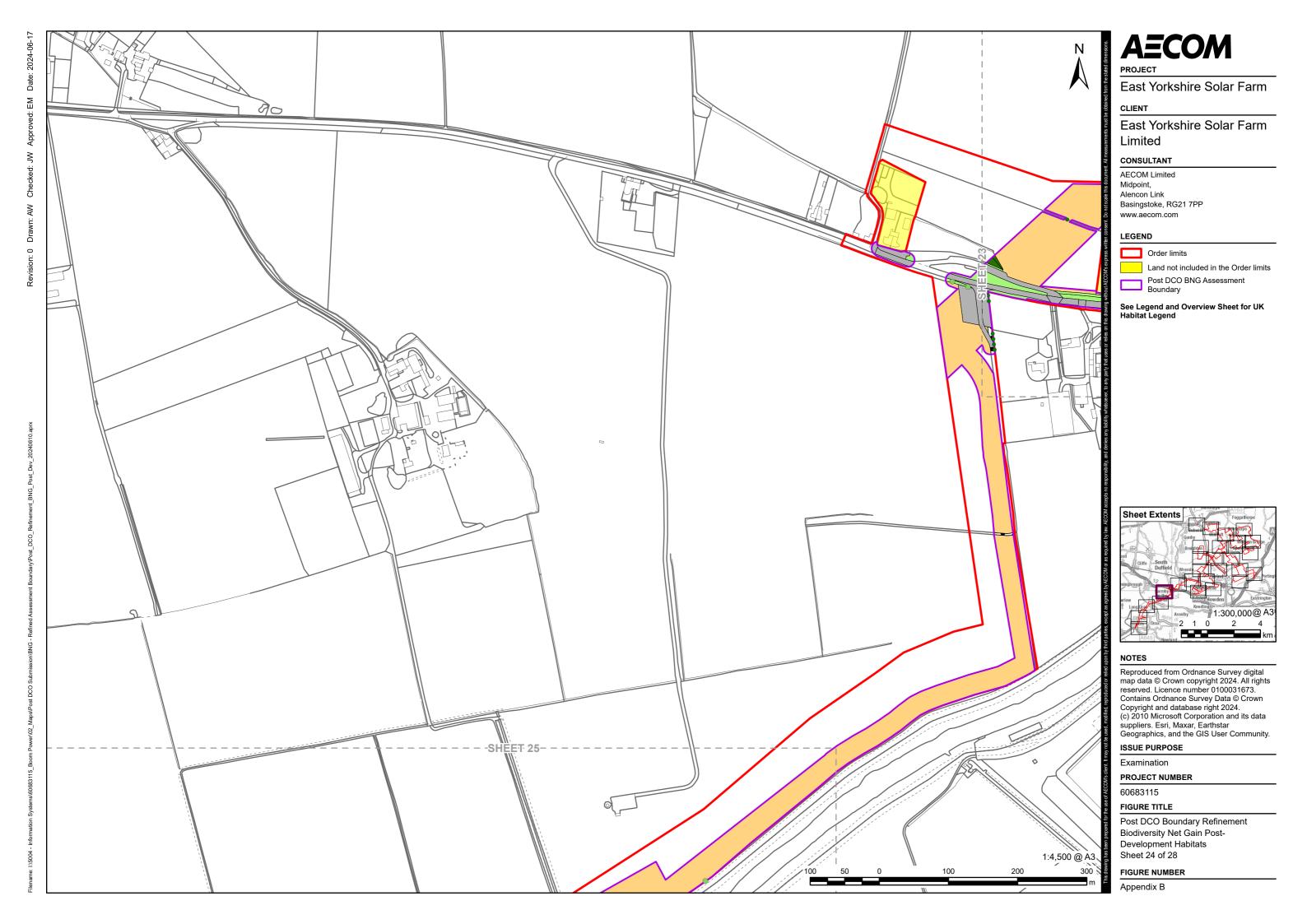
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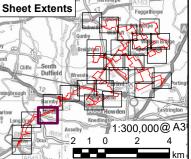
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Post DCO Boundary Refinement Biodiversity Net Gain Post-**Development Habitats** Sheet 25 of 28

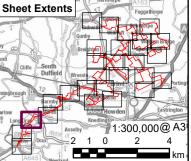
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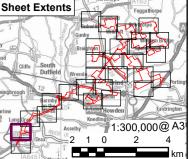
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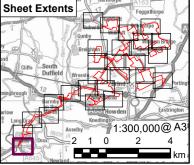
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## **Appendix C Habitat Classification Conversions**

## **C.1** Phase 1 Habitat to UKHab Conversion

Phase 1 Habitat Classification UKHab Classification	
Cultivated/disturbed land – arable	Cropland – Cereal crops
Neutral grassland – Semi-improved	Grassland – Other neutral grassland
Improved grassland	Grassland – Modified grassland
Poor semi- improved grassland	Grassland – Modified grassland
Other tall herb and fern	Sparsely vegetated land – Ruderal/ephemeral
Woodland (semi- natural)	Woodland and forest – Lowland mixed deciduous woodland
Woodland (plantation)	Woodland and forest – Other woodland; broadleaved
Scrub – dense/continuous and scattered	Heathland and shrub – Mixed scrub
Standing water	Lakes – Ponds (non-priority habitat)
Hardstanding	Urban – Developed land; sealed surface
Bare ground	Urban – Bare ground
Individual mature trees	Individual trees – Rural tree
Reedbeds	Wetland - Reedbeds
Fens	Wetland – Fens (upland and lowland)
Running water	Other rivers and streams
Running water- eutrophic	Other rivers and streams
Intact hedge- native species-rich	Species-rich native hedgerow
Intact hedge- species-poor	Native hedgerow

Phase 1 Habitat Classification	UKHab Classification
Defunct hedge- species-poor	Native hedgerow
Hedge with trees- native species-rich	Species-rich native hedgerow with trees
Hedge with trees- species-poor	Native hedgerow with trees
Dry ditch	Ditches

## **C.2** Outline Landscape Masterplan<sup>1</sup> to UKHab Conversion

Outline Landscape Masterplan <sup>1</sup> Classification	UKHab Classification
Native flower rich meadow	Grassland - Other neutral grassland
Open rough grassland	Grassland - Modified grassland
Solar panel planting	Grassland – Modified grassland
Native woodland	Woodland and forest - Other woodland; broadleaved
Native woodland edge planting	Heathland and shrub - Mixed scrub
Native traditional orchard	Grassland - Traditional orchards
Native hedge with trees	Native hedgerow with trees
Native flower rich meadow	Grassland - Other neutral grassland

## **Appendix D Condition Assessment Rationale**

All condition assessment data were collected during the condition assessment survey undertaken by AECOM using Biodiversity Metric 4.0 condition criteria<sup>2</sup> and assessor professional judgement.

Habitat type	Habitat condition sheet	Condition criteria passed	Condition
Woodland – Lowland mixed deciduous woodland	24. Woodland	A=2, B=3, C=3, D=2, E=3, F=2, G=2, H=3, I=1, J=2, K=1, L=2, M=3	Moderate
		Total score=29	
Grassland – Modified grassland	5. Grassland Low	1, 2, 3, 4, 5, 6, 7	Good
Grassland – Modified grassland	5. Grassland Low	1, 2, 3, 5, 6, 7	Moderate
Grassland- Modified grassland	5. Grassland Low	3, 5, 6, 7 (Fails Essential Criteria 1)	Poor
Introduced shrub	N/A - Pre-set condition	N/A - Pre-set condition	N/A - Pre-set condition
Cropland – Cereal crops	N/A – Pre-set condition	N/A - Pre-set condition	N/A - Pre-set condition
Urban – Developed land; sealed surface	N/A - Pre-set condition	N/A - Pre-set condition	N/A - Pre-set condition
Watercourse footprint	N/A - Pre-set condition	N/A - Pre-set condition	N/A - Pre-set condition

## **Appendix E Strategic Significance Rationale**

Source	Strategic Significance Information
The East Riding Local Plan Update 2020 – 2039 Draft Strategy Document8	and could not be accessed when assigning SS to habitats for this assessment.
	Biodiversity Priority Areas which are broad habitat networks, have been identified within The East Riding Local Plan Update 2020 – 2039 Draft Strategy Document8. Important Landscape Areas and Ramsar sites are also present within the district.
	Application to assessment
	'High' SS assigned to habitats which fall within a Biodiversity Priority Area, Important Landscape area or Ramsar site.
The Selby Publication Local Plan9	The Selby Publication Local Plan9 includes Policy NE5 - Protecting and Enhancing Rivers and Waterbodies (Strategic Policy), which states:
	- "The Council will work with designated bodies, developers, partners and communities to ensure opportunities for the restoration and enhancement of water bodies are realised".
	It also contains Policy NE6 - Protecting and Enhancing Trees, Woodland and Hedgerows, which focuses on the protection and enhancement of trees, hedgerows and woodland.
	Application to assessment
	'High' SS assigned to watercourses, trees, hedgerows and woodland.
Lower Derwent Valley Supplementary Planning	The Lower Derwent Valley is a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protection Areas (SPA) and Ramsar site.
Document13	Application to assessment
	'High' SS assigned to habitats which fall within the SSSI, SAC, SPA or Ramsar.
Site Improvement Plan: Lower Derwent Valley14	The Lower Derwent Valley has been assigned a Site Improvement Plan which outlines the priority measures required to improve the condition of the area.
	Application to assessment

Prepared for: East Yorkshire Solar Farm Limited June 2024

### Source

### **Strategic Significance Information**

'High' SS assigned to habitats which fall within the Lower Derwent Valley

# Selby Biodiversity Action Plan (BAP)15

Selby Biodiversity Action Plan (BAP)15 lists the following habitats as being priority within the district:

- a) Woodland
- b) Lowland wood pasture and parkland
- c) Ancient and/or species rich hedgerows
- d) Arable farmland
- e) Grazing marsh
- f) Unimproved grassland
- g) Lowland heathland
- h) Fens
- i) Reedbeds
- i) Lakes and Ponds
- k) Canals
- I) Rivers, streams and ditches

### **Application to assessment**

'High' SS assigned to priority habitats.

## EYSF ES Chapter 8 - Ecology10

The following habitats have been identified as able to provide habitat for one or more protected species:

- a) Cultivated/disturbed land arable
- b) Neutral grassland semi-improved
- c) Improved grassland and poor semi-improved grassland
- d) Woodland (semi-natural/plantation)
- e) Standing water
- f) Running water
- g) Hedgerows

Furthermore, based on the habitat descriptions for scrub and individual trees, these habitats may also have potential to support protected species (nesting birds).

### **Application to assessment**

Source	Strategic Significance Information
	'High' SS assigned to 'Cropland – Cereal crops', 'Grassland – Other neutral grassland', 'Grassland – Modified grassland', and all woodland, watercourse and hedgerow habitats, due them being identified as able to provide habitat for one or more protected species within the EYSF ES Chapter 8 - Ecology10
	'Medium' SS assigned to all 'Individual trees – Rural tree' and 'Heathland and shrub – Mixed scrub' due to their potential to support nesting birds, based on professional judgement.
MAGIC16	Priority habitats including wood pasture and parkland and coastal and floodplain grazing marsh may fall within the Site, as well as designated sites (SSSI, SAC, SPA or Ramsar).
	Application to assessment 'High' SS assigned to priority habitats.

## **Appendix F BNG Good Practice Principles for Development**

Principle	How has this been applied in the assessment
Principle 1: Apply the Mitigation Hierarchy	As much habitat was retained as possible, within the remits of the assumptions made. Where possible, hedgerow habitats were enhanced, and habitats were created on site.
Principle 2: Avoid losing biodiversity that cannot be offset by gains elsewhere	There is no loss of irreplaceable biodiversity due to take place on Scheme.
Principle 3: Be inclusive and equitable	No Stakeholder engagement was required during this BNG process.
Principle 4: Address risks	All risks regarding difficulties of achieving net gains for the project have been mitigated for appropriately by means of sufficient provision of compensatory habitats which have enabled the project to achieve net gains.
Principle 5: Make a measurable Net Gain contribution	The Scheme will surpass the 10% BNG target for area-based habitats, whilst increasing the variety of habitats present within the Site.
Principle 6: Achieve the best outcomes for biodiversity	The creation of Grassland – Traditional orchard will contribute to providing UK priority habitat and contribute to the Scheme having a more biodiverse set of habitats across the Site, when compared to the baseline habitats currently present.
Principle 7: Be additional	The area habitat BNG exceeds the minimum net gain requirement of 10% committed to by the client.
Principle 8: Create a net gain legacy	A net gain legacy is to be achieved on this Site through the 80.42% area habitat BNG
Principle 9: Optimise sustainability	This project will create a Solar Farm that will provide communities with renewable energy which will reduce the reliance on fossil fuels.
Principle 10: Be transparent	All BNG activities have been communicated transparently in this BNG report and associated Biodiversity Metric 4.0 calculator.

Prepared for: East Yorkshire Solar Farm Limited June 2024

## **Appendix G Habitat Management Required to Achieve Target Condition**

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Grassland – Modified grassland	Target condition is 'Moderate' in 4 years. The condition criteria are as follows. Passes 4 of 7 criteria including passing criteria 1.	Moderate condition prescriptions will require soil testing for fertility and to match grassland seed mix type (acid/neutral/calcareous).	Moderate
	<ul> <li>There are 6-8 plant species per metre squared, including two forbs. Pass</li> <li>Sward height is varied, 20% over 7cm in height and 20% less than 7cm in height. Fail.</li> <li>Some scattered scrub is evident but accounts for less than 20% of the area. Pass.</li> <li>Physical damage is evident in less than 5% of the total area. Fail.</li> <li>Cover of bare ground is between 1 and 10 percent. Fail.</li> <li>Cover of bracken (<i>Pteridium</i> aqilinum) is less than 20%. Pass.</li> <li>There is an absence of invasive nonnative species. Pass.</li> </ul>	Moderate condition examples should be managed on a lighter mowing regime and over sown or seeded with Emorsgate EG27 'old fashioned meadow mixture' or similar. This mixture combined, with natural colonisation of forbs should achieve moderate condition in 8 years. Grassland condition should be monitored as a minimum in years 2, 5, 8, 10, 20 and 30. Management intervention options following monitoring should include alteration of mowing regimes and additional over seeding (including the use of additional yellow rattle where considered necessary).	
Grassland – Other neutral grassland	<ul> <li>Target condition is 'Good' in 10 years.</li> <li>The condition criteria are as follows.</li> <li>Passes 6 of 6 criteria including passing criteria 1.</li> <li>Grassland is a good representation of habitat type, based on its UKHab description.</li> </ul>	Year 1: June – Spray off or remove competitive/ruderal growth July – power/disc harrow August – Spray off or remove competitive/ruderal growth September to October – Seed with seed mix (Emorsgate EM5 or similar dep. Upon	Good

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
	<ul> <li>Sward height is varied, 20% over 7cm in height and 20% less than 7cm in height. Pass.</li> <li>Cover of bare ground is between 1 and 5 percent. Pass.</li> <li>Cover of bracken is less than 20%. Pass.</li> <li>Combined cover of species indicative of sub-optimal condition and physical damage is less than 5%. Pass.</li> <li>There are 10 or more vascular plant species per m² present Pass.</li> </ul>	soil chemistry with additional yellow rattle @ 0.1g/m2)  Year 2: April to June/July – control annual weeds by pulling or pot treatment July to September – Mow to 5-10cm  Year 3 onwards Cut and collect arisings late July early August Grassland condition should be monitored as a minimum in years 2, 5, 8, 10, 20 and 30. Management intervention options following monitoring should include alteration of mowing regimes and additional over seeding (including the use of additional yellow rattle where considered necessary).	
Grassland – Traditional orchards	<ul> <li>Target condition is 'Moderate' in 5 years. The condition criteria are as follows. Passes 3 of 6 criteria including passing criteria 1.</li> <li>Grassland is a good representation of habitat type, based on its UKHab description. Pass</li> <li>Sward height is varied, 20% over 7cm in height and 20% less than 7cm in height. Pass.</li> <li>Cover of bare ground is between 1 and 5 percent. Pass.</li> </ul>	As above.	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
	<ul> <li>Cover of bracken is less than 20%. Fail.</li> <li>Combined cover of species indicative of sub-optimal condition and physical damage is less than 5%. Fail.</li> <li>There are 10 or more vascular plant species per m² present Fail.</li> </ul>		
Heathland and shrub  – Mixed scrub	<ul> <li>Target condition is 'Moderate' in 5 years. The condition criteria are as follows. Passes 3 or 4 of 5.</li> <li>Scrub is a good representation of habitat type, based on its UKHab description. Pass</li> <li>Seeding, sapling, young shrub and mature shrub all present. Pass.</li> <li>Absence of invasive non-native plant species and species indicative of suboptimal condition make up less than 5%. Pass.</li> <li>Scrub has a well-developed edge with scattered scrub and tall grassland. Fail.</li> <li>Clearing, glades or rides present within scrub. Fail.</li> </ul>	Year 1 Use low fertility topsoil for any landscaping. September to October sow with tussock seed mix (Emorsgate EG26, EM10, EM10F or similar). Plant ¼ area with hawthorn. Blackthorn, gorse and bramble. Protect with biodegradable guards where appropriate.  Year 3 Plant ¼ area with hawthorn. Blackthorn, gorse and bramble. Protect with biodegradable guards where appropriate.  Year 5 Plant ¼ area with hawthorn. Blackthorn, gorse and bramble. Protect with biodegradable guards where appropriate.  Protect with biodegradable guards where appropriate. Manage invasive non-native species.	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
		Years 6-10 Restructure scrub planting to create a mosaic of mixed age scrub stands and open tussock grassland aiming to achieve a mosaic/matrix of 75% scrub.  Mange on a rotational cut removing 30% of closed canopy scrub every 2 years – with the aim to develop a spectrum of successional scrub communities by maintaining patches of mixed scrub at different stages of growth from freshly cut to closed canopy.	
Sparsely vegetated land - Ruderal/Ephemeral	<ul> <li>Target condition is 'Moderate' in 3 years. The condition criteria are as follows. Passes 2 of 3 or passes 3 of 3 but does not meet requirements for Good condition within criteria 3.</li> <li>Vegetation structure is varied and a single structural habitat component does not account for 80% Pass.</li> <li>Contains different plant species that are beneficial for wildlife. Pass.</li> <li>Invasive non-native plant species make up less than 5% (to achieve Good condition, a complete absence of invasive non-native species) Fail.</li> </ul>	Year 1 Use low fertility topsoil and ballast for any landscaping September to October sow with following seed mix to create species and nectar rich ephemeral habitat: Kidney vetch Anthyllis vulneraria (10%) Dark mullein Verbascum nigrum (10%) Great mullein Verbascum Thapsus (10%) Greater plantain Plantago major (10%) Creeping buttercup Ranunculus repens (10%) White clover Trifolium repens (5%) Black medic Medicago lupulina (5%) Colt's-foot Tussilago farfara (5%) Oxeye Daisy Leucanthemum vulgare (5%) Cowslip Primula veris (5%) Selfheal Prunella diocica (5%) Musk Mallow Malva moschata (5%)	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
		Horseshoe vetch Hippocrepis comosa (5%) Common toadflax Linaris vulgaris (5%) Common vetch Vicia sativa ssp. Segetalis (5%)	
		Year 2 – 5 Allow for natural colonisation and self-seeding, strimming and removing arisings if necessary, in autumn of year 3. Spot treat/remove invasive non-native and negative indicators species yearly.	
Urban - Developed land; sealed surface	The condition for this habitat is pre-set in Biodiversity Metric 4.0 <sup>1</sup> .	N/A	Poor
Woodland and forest - Lowland mixed deciduous woodland	Target condition is 'Good' in 5 years. Scores up to 26 points on the woodland habitat type condition sheet.	Plant in groups of 3s, 5s and 7s of same species, at 2m spacings.	Good
deciduous woodiand	nabhat type continent onco.	All plants to be fitted with rabbit protection guards.	
		Planting pits to have minimum topsoil depths of 300mm and minimum subsoil depths of 700mm, with base of broken-up to 150mm.	
		Woodland Mix - Weed control measures to continue until the canopy of shrubs is closed. Weeds to be cleared by hand or by application of translocated herbicide, with inspections made regularly through the growing season. Prune back any badly damaged shrubs to sound growth. Cut	

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
		back plants adjacent to paths and access ways where necessary, retaining a balanced shape. Clear litter and debris from planted areas and cut leggy growth hard back to promote bushy growth.	
		Watering - In periods of dry weather apply sufficient water to maintain healthy growth.	
		Refirming - Ensure that all trees and shrubs are firmly bedded in the ground after strong winds, frost heave or other disturbances.	
		Ensure that the proposed marginal planting establishes and mitigate for any issues should they arise.	
Woodland and forest - Lowland mixed deciduous woodland		As above	Moderate
Woodland and forest - Other woodland; broadleaved		As above	Moderate
Woodland and forest - Other woodland; broadleaved		As above	Poor
Woodland and forest - Other woodland; mixed		As above	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Line of trees	Target condition is 'Moderate' in 20 years. The condition criteria are as follows. Passes 3 or 4 of 5 criteria.  • At least 70% of trees are native species. Pass.  • Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide. Pass.  • One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark. Fail.  • There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice. Fail.  • At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of	Plant species as per landscape plan ensuring suitable spacing. Ensure ground is treated and cleared appropriately prior to planting in line with LEMP.  All plants to be fitted with rabbit protection guards.  Watering - In periods of dry weather apply sufficient water to maintain healthy growth.  Refirming - Ensure that all trees and shrubs are firmly bedded in the ground after strong winds, frost heave or other disturbances.  Ensure rabbit guards are checked periodically and removed when trees have reached a stable growth.  Take remedial action if plants become damaged and replace if there is any failure.	Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
	an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity. Pass.		
Native hedgerow	Target condition is 'Good' in 12 years. The condition criteria are as follows: no more than 2 failures in total and no more than 1 failure in any functional group.  • A1. Height >1.5 m average along length Pass.  • A2. Width >1.5 m average along length Pass.  • B1. Gap - hedge base Pass.  • B2. Gap - hedge canopy continuity Fail.  • C1. Undisturbed ground and perennial vegetation Pass.  • C2. Undesirable perennial vegetation Fail.  • D1. Invasive and neophyte species Pass.  • D2. Current damage Pass.	Prepare the ground along a 1.5m wide strip to provide good soil conditions and as little competition from other vegetation as possible. Consider fencing hedgerow section. Hedging whips must be:  At least 2-year-old transplants Between 450mm to 600mm high native species, (with hawthorn, blackthorn and hazel comprising at least 70% of the mix) planted in a staggered 'double row' 400mm apart with a minimum of 6 plants per metre kept clear of weeds until they are established Under sown with Emorsgate EH1 Hedgerow mix or similar.  Hedge Species (common midlands/central species – amend north/south) 30% Hawthorn Crataegus monogyna 30% Blackthorn Prunus spinosa 10% Hazel Corylus avellana 10% Bird Cherry Prunus padus	
		10% Field Maple <i>Acer campestre</i> 10% Dog Rose <i>Rosa canina</i>	

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
Native hedgerow	<ul> <li>Target condition is 'Moderate' in 5 years. The condition criteria are as follows: no more than 4 failures in total and does not fail both attributes in any functional group.</li> <li>A1. Height &gt;1.5 m average along length Pass.</li> <li>A2. Width &gt;1.5 m average along length Fail.</li> <li>B1. Gap - hedge base Pass.</li> <li>B2. Gap - hedge canopy continuity Fail.</li> <li>C1. Undisturbed ground and perennial vegetation Pass.</li> <li>C2. Undesirable perennial vegetation Fail.</li> <li>D1. Invasive and neophyte species Pass.</li> <li>D2. Current damage Fail.</li> </ul>	As above.	Moderate
Species-rich native hedgerow	<ul> <li>Target condition is 'Good' in 12 years.</li> <li>The condition criteria are as follows: no more than 2 failures in total and no more than 1 failure in any functional group.</li> <li>A1. Height &gt;1.5 m average along length Pass.</li> <li>A2. Width &gt;1.5 m average along length Pass.</li> <li>B1. Gap - hedge base Pass.</li> </ul>	Prepare the ground along a 1.5m wide strip to provide good soil conditions and as little competition from other vegetation as possible. onsider fencing hedgerow section. Hedging whips must be:  At least 2-year-old transplants Between 450mm to 600mm high native species, (with hawthorn, blackthorn and hazel comprising at least 70% of the mix) planted in a staggered 'double row' 400mm	Good

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
	<ul> <li>B2. Gap - hedge canopy continuity Fail.</li> <li>C1. Undisturbed ground and perennial vegetation Pass.</li> <li>C2. Undesirable perennial vegetation Fail.</li> <li>D1. Invasive and neophyte species Pass.</li> <li>D2. Current damage Pass.</li> </ul>	apart with a minimum of 6 plants per metre kept clear of weeds until they are established Under sown with Emorsgate EH1 Hedgerow mix or similar.  Hedge Species (common midlands/central species – amend north/south) 30% Hawthorn Crataegus monogyna 30% Blackthorn Prunus spinosa 10% Hazel Corylus avellana 10% Bird Cherry Prunus padus 10% Field Maple Acer campestre 10% Dog Rose Rosa canina	
Species-rich native hedgerow - associated with bank or ditch	As above.	As above.	Good
Species-rich native hedgerow with trees	<ul> <li>Target condition is 'Moderate' in 10 years. The condition criteria are as follows: no more than 5 failures in total and does not fail both attributes in any functional group.</li> <li>A1. Height &gt;1.5 m average along length Pass.</li> <li>A2. Width &gt;1.5 m average along length Fail.</li> <li>B1. Gap - hedge base Pass.</li> </ul>		Moderate

Habitat type	Target condition and condition criteria	Associated habitat management requirements	Condition score
	<ul> <li>B2. Gap - hedge canopy continuity Fail.</li> </ul>		
	<ul> <li>C1. Undisturbed ground and perennial vegetation Pass.</li> </ul>		
	<ul> <li>C2. Undesirable perennial vegetation Fail.</li> </ul>	า	
	<ul> <li>D1. Invasive and neophyte species Pass.</li> </ul>		
	<ul> <li>D2. Current damage Fail.</li> </ul>		
	<ul> <li>E1. Tree class Fail.</li> </ul>		
	<ul> <li>E2. Tree health Pass.</li> </ul>		

## **Appendix H Example Watercourse Enhancement Options**

Enhancements are proposed to two rivers/streams and four ditches. The enhancements provided in the table below are generic examples which will be confirmed at the detailed design stage.

The example enhancements would increase the condition of watercourses/ streams from 'Fairly Poor' to 'Moderate', and increase the condition of ditches from 'Poor' to 'Moderate'.

Watercourse type	Condition indicator to be enhanced	Enhancement description
	B5: Bank Top Managed Ground Cover	Fencing off the riparian zone would reduce bank top managed ground cover and allow the riparian zone to renaturalise.
Other rivers and streams	C8: Bank Face Reinforcement Extent	Removing bank face reinforcement would allow natural bank habitats to establish and allow natural bank erosion processes.
	C9: Bank Face Reinforcement Material Severity	Removing bank face reinforcement would allow natural bank habitats to establish and allow natural bank erosion processes.
Ditches	N/A	Enhancement of ditches to 'Moderate' condition could be achieved by removing vegetation that is shading the ditches, removing filamentous algae and/or duckweed, and removing non-native plants/animals.

## **Appendix I Biodiversity Metric 4.0 Calculation**

Available separately to stakeholders