Cottam Solar Project

Environmental Statement

Appendix 9.12: Biodiversity Net Gain Report

Prepared by: Clarkson & Woods Ltd.
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Cottam
SOLAR PROJECT

BIODIVERSITY NET GAIN – DESIGN STAGE REPORT

COTTAM SOLAR PROJECT, LINCOLNSHIRE

carried out by

CLARKSON & WOODS
ECOLOGICAL CONSULTANTS

commissioned by

COTTAM SOLAR PROJECT LTD.

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BIODIVERSITY NET GAIN – DESIGN STAGE REPORT

COTTAM SOLAR PROJECT, LINCOLNSHIRE

CONTENTS

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EXECUTIVE SUMMARY

- Clarkson and Woods Ltd. was commissioned by Cottam Solar Project Ltd. to carry out a Biodiversity Net Gain Assessment across four parcels of land known as Cottam 1, Cottam 2, Cottam 3a and Cottam 3b situated in the West Lindsey District of Lincolnshire.

- This report details the methodology and rationale applied to conduct the Biodiversity Net Gain assessment, using the Natural England Biodiversity Metric 3.1 calculation tool. A description of baseline and post-development habitat type and condition is provided, including justification for the condition assessments applied within the Metric.

- The Sites predominantly comprise of large, open and generally flat arable fields characterised by winter-sown cereal crops with some fields of permanent pasture, bounded by a network of managed hedgerows and ditches with narrow field margins.

- Post development, the Sites will comprise the following proposed landscaping habitats: enhancement of existing hedgerows and ditches, native hedgerow with trees, native shrub planting, woodland planting, native scattered trees, long term meadow creation (will be partially panelled), flower rich pollinator mix, tall herb mix, tussock mix, set aside, diverse meadow mix, proposed wildlife ponds, enhancement of existing ponds.

- Some habitats of low to medium distinctiveness will be lost as a result of the development either to accommodate new proposed access and hardstanding or as a result of the creation of habitats of higher distinctiveness within the development requiring significant ground preparation and/or seeding to establish the proposed habitat or change of habitat to a different broad habitat type. These areas are however minor in size.

- The proposed development will result in a significant Net Gain for biodiversity, with 96.09% gains provided in habitat, 70.22% gains in hedgerow and 10.69% gains in river units, in line with local and national planning policies.

- The scheme has sought to adopt a realistic and evidence-based approach to the biodiversity net gain calculations, setting reasonable and achievable targets for habitats between and beneath the array strings which is based upon the outcomes of biodiversity monitoring on over 100 solar arrays conducted by Clarkson and Woods Ltd. between 2016 and 2022. As a consequence, the gains set out here are realistic and achievable and are based on a researched and experienced understanding of the grassland habitats which can be created within solar schemes.

1 INTRODUCTION

1.1 Overview

1.1.1 Clarkson and Woods Ltd. was commissioned by Cottam Solar Project Ltd. to carry out a Biodiversity Net Gain (BNG) Assessment across four parcels of land which are the focus of a proposed solar generating and battery energy storage scheme known as Cottam 1, Cottam 2, Cottam 3a and Cottam 3b situated in the West Lindsey District of Lincolnshire. These parcels are referred to hereafter as 'the Sites', or individually as given above. The project is classed as a Nationally Significant Infrastructure Project (NSIP) and will require an application for a Development Consent Order.

1.2 Project Background

1.2.1 The Sites are spread over an approximately 17Km area stretching from south to north between the settlements of Coates and Thorpe in the Fallows (Cottam 1), Corringham (Cottam 2) and Blyton (Cottam 3a and 3b) as shown in Figure 1.

1.2.2 The Sites predominantly comprise of large, open and generally flat arable fields characterised by winter-sown cereal crops with some fields of permanent pasture, bounded by a network of managed hedgerows and ditches with narrow field margins, where present.

1.2.3 The Sites' habitats are very much typical of the surrounding landscapes which are dominated by arable farmland and occasional pasture grassland that is interspersed with small settlements and farmsteads linked by minor and single-track roads. The River Till runs adjacent to the western boundary of Cottam 1 and River Trent is located approximately 5km west of the Sites as it flows north towards the Humber Estuary, itself some 27km north of Cottam 3a.

1.2.4 Whilst no woodland is present within the Sites, several small stands of managed and unmanaged woodland are present adjacent and in the surrounding landscape, often the result of historical game management.

1.2.5 Since the cable installation works are considered to be temporary work over a relatively short duration and will involve the remediation of any disturbed habitat immediate following installation (see Outline Ecological Protection and Mitigation Strategy **[APP/C7.19])**, this BNG assessment applies to the solar array and battery energy storage elements of the Scheme only, since these elements are liable to have a longer term impacts on the land use and condition of habitats present.

1.2.6 The landscape proposals for the Sites (Detailed Landscape Mitigation Plans, Figures 8.16.1 - 8.16.10 of the Landscape Visual Impact Assessment **[APP/C6.4.8.16.1 to APP/C4.8.16.10]**) include the following habitats to be created and / or enhanced:

- Enhancement of Existing Hedgerows and Ditches
- Enhancement of Existing Ponds
- Proposed Native Hedgerow with Trees
- Proposed Native Shrub Planting
- Proposed Woodland Planting
- Proposed Native Scattered Trees
- Proposed Long Term Meadow Creation
- Proposed Flower Rich Pollinator Mix
- Proposed Tall Herb Mix
- Proposed Tussock Mix
- Proposed Bird Mitigation - Set Aside
- Proposed Diverse Meadow Mix (In Reference to Biodiversity Opportunity Mapping)
- Meadow creation (Proposed margin verge habitat LWS used as donor)
- Proposed Wildlife Ponds

1.2.7 An Outline Landscape and Ecological Management Plan (LEMP) **[APP/C7.3]** has been produced for the Scheme and should be read alongside this assessment. The prescriptions for the practical creation, management, enhancement and monitoring of the above habitats are set out in the LEMP. As with other documents, it will be finalised under a Requirement to the DCO.

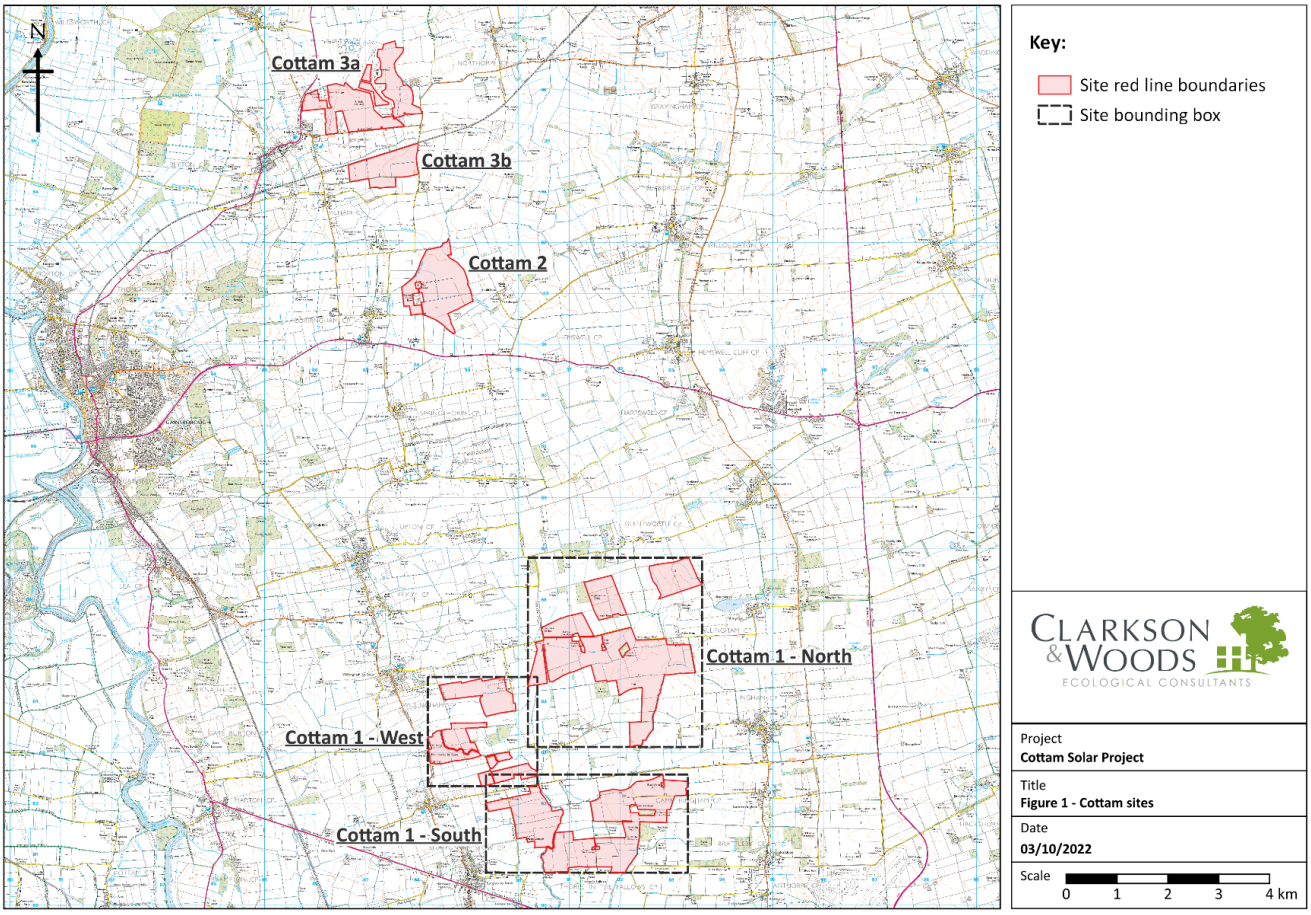


Figure 1: Cottam Sites.

1.3 Assessment Scope

1.3.1 This report, alongside the Preliminary Ecological Appraisal (PEA) and maps shown in Appendix 9.2 and 9.3 **[APP/C6.3.9.2 and APP/C6.3.9.3]** of the Environmental Statement Chapter 9: Ecology and Biodiversity **[APP/C6.2.9]**, provides a quantitative baseline of the biodiversity value of the Sites. Together with the Detailed Landscape Mitigation Plans (referenced above), it also sets out the habitat creation, mitigation and enhancement measures which will be implemented to achieve BNG.

1.3.2 Habitat features are used as a proxy measure for quantifying the value and importance of nature within Sites. This enables assessments to be made on the present and future biodiversity value of a site through the calculation of biodiversity gains and losses. The process itself follows the mitigation hierarchy, which prioritises effort to first be made to avoid impacts, then minimise and only compensate at a last resort. It should be noted that the mitigation hierarchy has been followed throughout the scheme design and assessment process and as such, no off-site habitat compensation is considered necessary as significant impacts have been avoided through design and mitigation.

1.3.3 Whilst the approach quantifies biodiversity loss or gain, it is separate to the legal and planning duties to take account the protection afforded to habitats and species, which decision-makers and developers should discharge. Therefore, relevant assessments and consideration are still given to these to ensure legal compliance and that no environmental offences are committed, as set out in Chapter 9 of the ES and the Outline EPMS.

1.3.4 This document aims to:

- Establish the total number of Habitat Units (HU), Hedgerow Units (HeU) and River Units (RU) present on the Sites at baseline (baseline units);
- Establish the total number of HU, HeU and RU which will be lost, created, retained or enhanced during the delivery of ecological measures during construction or once the Sites becomes operational;
- Determine whether the proposal will result in net loss, no net loss or net gain for biodiversity and to what extent;
- Justify how each of the CIEEM BNG Principles[1] have been applied to the Sites; and
- Establish how BNG will be secured at the Sites in the long term.

1.3.5 This document makes reference to, and should be read in conjunction with the following documents:

- Outline Landscape and Ecological Management Plan (LEMP) **[APP/C7.3]**
- Appendix 9.13 Ecological Protection and Mitigation Strategy **[APP/C6.3.9.13]**
- Environmental Statement Chapter 9 – Ecology **[APP/C6.2.9]**
- Detailed Landscape Mitigation Plans, Figures 8.16.1 - 8.16.10 of the Landscape Visual Impact Assessment **[APP/C6.4.8.16.1 to APP/C4.8.16.10]**)

1.3.6 The selection of target habitats and condition assessments within and surrounding the operational array has been based upon research conducted by Clarkson and Woods, in association with others, including Lancaster University between 2016 and 2022. This has involved monitoring of habitat conditions and biodiversity in over 100 different solar arrays. The data collected provides an evidence base against which to set target habitat types and conditions between and beneath array strings. The consequence of this monitoring is, for example, that we have evidence that proposing the creation of wide-scale species-rich wildflower grasslands beneath arrays is often less effective than anticipated, and only successfully realised on relatively few projects. By contrast such habitats can be readily established and managed around the peripheries of the array, within buffer zones and easements. Instead, therefore, the habitats proposed for land within the operational solar array are targeted towards habitats for which there is evidence that can be achieved and maintained within operational arrays. We would highlight that, as a consequence, the gains set out here may be lower than other solar projects due to the application of realistic and achievable targets for habitat types and condition, derived from extensive in-field research. The Scheme nevertheless delivers a substantial gain in biodiversity and is therefore compliant with national and local planning policy.

1.3.7 The BNG assessment is based upon design Option A of the Battery Energy Storage System for Cottam 1, rather than option B. Option A was chosen as it represents a 'worst case' scenario in that it has the largest coverage of PV modules and lowest coverage of open grassland habitat. It is anticipated that Option B would bring about a slightly larger net gain for Habitat Units.

1.4 Relevant Policy & Legislation

1.4.1 This BNG Assessment has been prepared with reference to the following relevant planning policies:

National Policy

1.4.2 The National Planning Policy Framework (July 2021) Paragraphs 174(d), 179(b) and 180(d) state:

> *174 Planning policies and decisions should contribute to and enhance the natural and local environment by:…*
>
> *(d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;*
>
> *179 To protect and enhance biodiversity and geodiversity, plans should:…*

[1] *Biodiversity Net Gain: Good Practice Principles for Development (CIEEM, CIRA, IEMA 2016)*.

(b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

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

(d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

1.4.3 The Draft revised NPS EN-3 Renewable Energy Infrastructure Paragraph 2.50.10 states that applicants should ensure "proposed enhancements should take account of the above factors and as set out in Section 5.4 of EN1 and aim to achieve environmental and biodiversity net gain in line with the ambition set out in the 25 Year Environment Plan. This might include maintaining or extending existing habitats and potentially creating new important habitats, for example by instating: cultivated strips/plots for rare arable plants, rough grassland margins, bumble bee plant mixes, and wild bird seed mixes. It is advised that an ecological monitoring programme is developed to monitor impacts upon the flora of the site and upon any particular ecological receptors (e.g., bats and wintering birds). Results of the monitoring will then inform any changes needed to the land management of the site, including, if appropriate, any livestock grazing regime."

1.4.4 The upcoming Environment Act will make a 10% Biodiversity Net Gain (for all Biodiversity Units type – HU, HeU and RU) a legal requirement, using the Metric and approval of a BNG Plan. It is expected the mandatory requirement will come to place in November 2025 for NSIP projects. Although a BNG assessment using the Metric is not yet mandatory, it is already required by most Local Authorities.

Local Policy

1.4.5 The following BNG-related policies taken from the Central Lincolnshire Local Plan are considered pertinent to the Sites and the proposals. The text of each policy is given in turn in Appendix A at the end of this report.

Central Lincolnshire Local Plan (Adopted April 2017)

- Policy LP21: Biodiversity and Geodiversity

Central Lincolnshire Local Plan (Under Consultation - Anticipated adoption of revised plan in April 2022)

- Policy S59: Protecting Biodiversity and Geodiversity
- Policy S60: Biodiversity Opportunity and Delivering Measurable Net Gains

Biodiversity Opportunities Mapping

1.4.6 Central Lincolnshire Local Plan Policy S60 relates to the delivery of measurable net gains for biodiversity within the county. Biodiversity Opportunity Mapping (BOM) has been created by the Greater Lincolnshire Nature Partnership (GLNP) to show which areas and habitats are of greatest potential strategic value for enhancement in order to achieve this goal. This study built on a previous Central Lincolnshire Green Infrastructure Study and factors in potential beneficial outcomes for the local economy and society as well as nature. Key drivers for the inclusion of land within the mapping included agri-environment scheme targeting, restoring, buffering and connecting Local Wildlife Sites, and targets under Lincolnshire's Biodiversity Action Plan.

1.4.7 The BOM is shown in Figure 2 with the Scheme overlaid.

1.4.8 Large areas of Cottam 1; approximately all of Cottam 1 West, half of Cottam 1 South and a third of Cottam 1 North (land north of the Willingham to Fillingham road) fall within land parcels designated as 'Opportunity for Creation'. Notably, no areas within the Sites fall within land classed as 'Ecological Network – High Quality'. Only one small field of permanent pasture within the north-west edge of Cottam 1 South is classed as 'Ecological Network – Opportunity for Management'. Consequently, the BOM presents extensive, LPA-recognised opportunities for ecologically favourable habitat management and very few constraints.

1.4.9 No part of Cottam 2 falls within or lies within 1km of any land classed under the BOM. Approximately 2km west of the Sites lies an extensive area of land classed as 'Opportunity for Creation'.

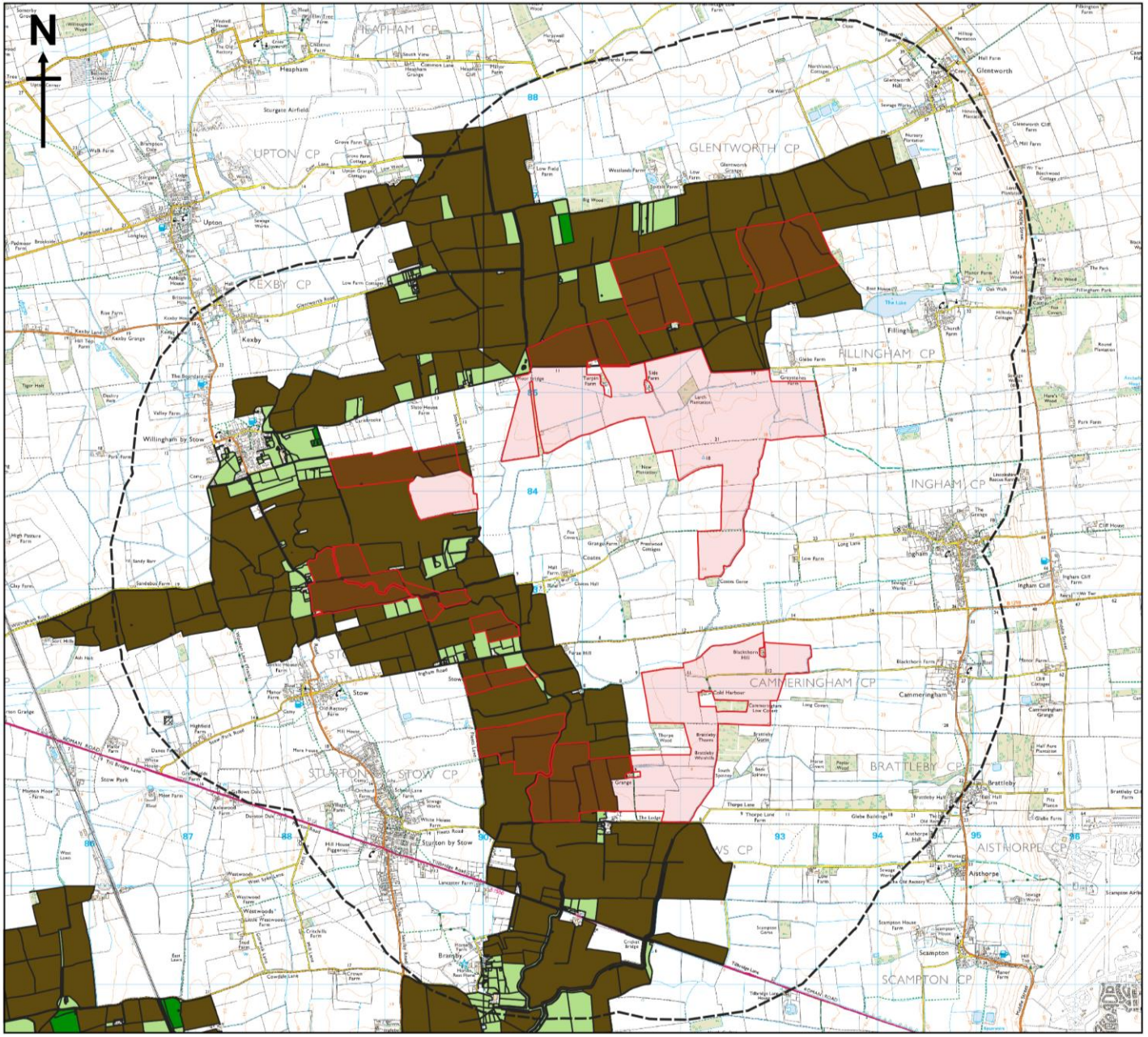
1.4.10 No part of Cottam 3a or 3b falls within any land classed under the BOM, however the north eastern boundary is adjacent to a large extent of land classed as 'Opportunity for Creation', contiguous with high quality ecological Sites associated with Laughton and Cotton commons.

1.4.11 Consequently, the habitat creation prescriptions for much of Cottam 1, have been prepared with the contribution to the objectives of the BOM in mind, and through consideration of GLNP's Practical Application Principles for development within land assigned as 'Opportunity for Creation'.

1.5 Consultations

1.5.1 During pre-application consultation (14/02/2022) with Sturton by Stow Parish Council (SSPC), the presence of the River Till ecological restoration corridor was pointed out as an opportunity for BNG.

1.5.2 Luke Bamforth (Policy Officer, GLNP) was consulted in July 2022 to discuss different options for Strategic Significance scores within the Metric, particularly with regards to the existing BOM (Section 1.4 refers). The outcomes of the discussion with Luke was that all on-site habitat that fall within the BOM areas should be given a Strategic Significance multiplier of '1.15' (*High strategic significance – formally identified in local strategy*) for both baseline and post-development. This is because, although the land pre-development might be of low distinctiveness (i.e. cropland – cereal crops), it has been identified by GLNP as being of strategic potential value and this should be reflected with the baseline Strategic Significance score. The reasoning being to avoid opportunities open to inappropriate development should the baseline score of the habitat within BOM areas was of low Strategic Significance.



Key:

Biodiversity opportunity

- Ecological network - high quality
- Ecological network - opportunity for management
- Opportunity for creation
- Scheme boundary
- Scheme bounding box

The Biodiversity Opportunity layers were provided by Greater Lincolnshire Nature Partnership and relate only to the areas nearest the proposed red line.

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Project
Cottam Solar Project

Title
Biodiversity Opportunities map for Cottam 1

Date
29/11/2022

Scale
0 1.1 2.2 km

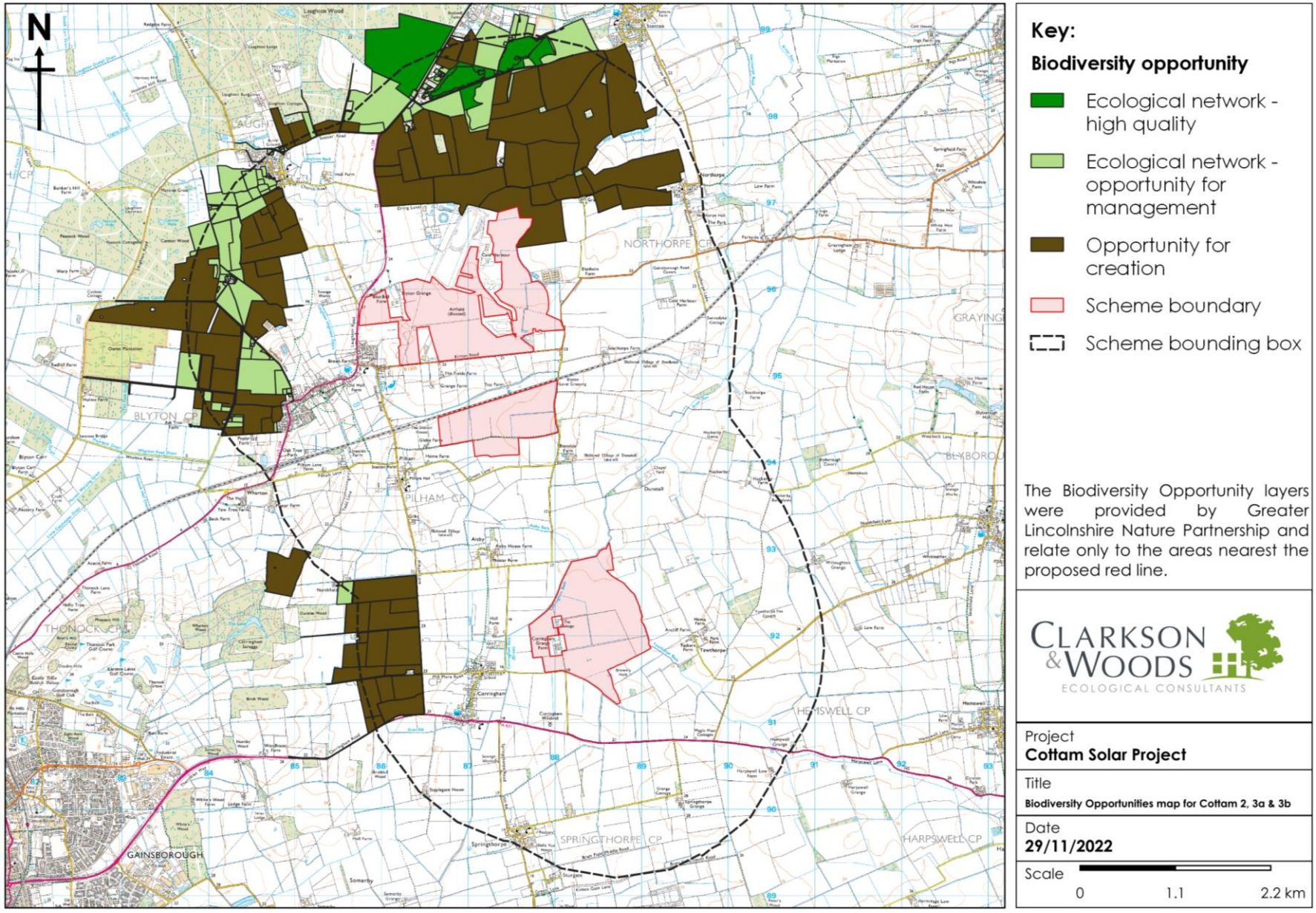

Figure 2: BOM Map

2 METHODS

2.1 Desk Study & Field Survey

2.1.1 The methodology used for the desk study and field surveys are set out within the following appendices:

- PEA, Appendix 9.2 **[APP/C6.3.9.2]**
- Environmental Statement Chapter 9 Ecology **[APP/C6.2.9]**

2.2 Approach to BNG

2.2.1 This report follows the guidance as set out within *Biodiversity Net Gain Report & Audit Templates (Version 1). CIEEM. July 2021*. It is also in line with the British Standard 8683:2021 (Process for Designing and Implementing Biodiversity Net Gain).

2.2.2 The stages of design of the Sites and application of the mitigation hierarchy have followed *Biodiversity Net Gain: Good Practice Principles for Development (CIEEM, CIRA, IEMA 2016)*.

2.2.3 The Natural England Biodiversity Metric 3.1 (JP039), referred to hereafter as 'the Metric', has been used to complete the calculation and assessment which accompanies this document, with mapping carried out on ArcGIS 10.8 and ArcPro 3.0.

2.2.4 Condition sheets included within *Biodiversity Metric 3.1: Auditing and accounting for biodiversity- User Guide. Natural England. 2022.* have been used to assess habitats within this report and are provided in Appendix D.

2.2.5 For greater clarity, detailed justifications for the choice of habitat types, distinctiveness and condition have been provided within this BNG report rather than added to the comments column of the Metric.

2.3 Evidence of Technical Competence and Experience.

2.3.1 A suitably competent person is defined within the BNG British Standard BS8683:2020 as a 'person who can demonstrate they have acquired through training, qualifications or experience, or a combination of these, the knowledge and skills enabling that person to perform a specified task.'

2.3.2 The BNG assessment has been prepared by Adèle Remazeilles who is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

2.3.3 Since joining Clarkson & Woods in 2018, Adèle has taken the lead on Clarkson and Woods' Biodiversity Net Gain work and is highly conversant in the use of the Metric. Adèle has acquired experience through attending many training and conference relating to BNG. Adèle provides BNG training and support to the rest of the team in the use of various Metrics and is proficient in the use of QGIS to produce professional mapping as well as in underpinning Metric calculations.

2.3.4 The report has been subject to a two-stage quality assurance review by appropriately experienced senior consultants who are full members of CIEEM.

2.4 Limitations

2.4.1 Survey of the habitats present within the Sites were completed in April and May 2021. The methodology followed at the time was of the Phase 1 Habitat Classification, prior to UK Habitat Classification System (system used to inform the Metric) becoming commonplace. As such, habitat classification (translation from Phase 1 to UK Hab) and condition assessments were undertaken retrospectively rather than in the field. This is not considered to be a significant limitation considering the comprehensive survey notes / data and photographs collected for each habitat features at the Sites. When a precautionary approach has been taken, this was specified in the report.

2.4.2 The report presents condition assessments for each distinct habitat type and condition. However, a condition assessment for each individual habitat parcel/feature at the Sites has not been presented given the number of distinct units numbers, approximately 800. Instead, all habitat parcels with the same habitat type and condition have been grouped together and a single condition assessment presented. The

summary condition assessments are provided for each habitat types (and relevant conditions) in Appendices D1 to D11.

2.4.3 The number of rows generated by the overlay of baseline and proposed habitat once mapped on ArcGIS approached 2,993 in the case of Habitat Units, 330 for Hedgerow Units and 44 for River Units. As per the Biodiversity Metric 3.1 QGIS template and import tool USER GUIDE (Natural England, April 2022), data have been consolidated into groups of identical values (i.e., multiple polygons with identical baseline values proposed to have identical outcomes) for simpler representation within the Metric. However, when keeping information on sublocation (Cottam 1 North, South, West, Cottam 2, Cottam 3a or Cottam 3b), the number of rows for Habitat Units was still 418 where the Biodiversity Metric 3.1 can only accommodate 248 rows of data. This high number of rows generated is also due to the fact that the BOM areas have been taken into account into the BNG assessment, influencing on the strategic significance score. It was therefore decided to consolidate the data further without information on sublocation. This process resulted in 228 rows for Habitat Units allowing correct use of the Metric. If requested, the raw data can be provided in full.

2.4.4 It is anticipated that a non-significant margin of error in the mapping may occur throughout the process from collecting data in the field to mapping on GIS software.

3 BASELINE CONDITIONS

3.1.1 The baseline habitat types recorded within the Sites and their associated condition assessments are described below and included within Appendix D1 to D11. A Habitat Baseline Plan, prepared on GIS and using the UK Habitat Classification, is provided in Appendix B.

3.1.2 To the best of the applicant's knowledge, any habitat degradation of pre-development habitats since 30 January 2020 has been accounted for in the baseline.

3.1.3 There are no designated Sites for nature conservation present within the Sites.

3.1.4 Some habitat fall within the following BOMs categories (Figure 2 refers): 'Ecological network - opportunity for management' and 'Opportunity for creation'. These areas were attributed the highest Strategic Significance score.

3.2 Habitat Units

Woodland and Forest

Other Woodland; Broadleaved

3.2.1 Woodland cover on the proposed Sites is sparse, usually dominated by ash *Fraxinus excelsior* and limited to broadleaved copses (often the result of plantation) considered to be of Moderate condition. No stands of woodland are actually present within the footprint of development and will all be retained. The majority of this woodland cover is associated with Cottam 1, as its current management includes a partridge shoot and is considered a managed habitat.

3.2.2 All parcel of woodland were attributed a Moderate condition except for one area in Cottam 1 that resulted in a Good condition. These Moderate/Good are due in part to the lack of herbivore damage / disease impacts and range of native species / lack of invasive species.

3.2.3 Baseline woodland condition assessment is provided in Appendix D1.

Cropland

3.2.4 Condition assessments are Not Applicable for all habitats listed within the broad habitat type 'Cropland'.

Cereal Crops

3.2.5 The cereal crops fields occupied the vast majority of the Sites' areas, and were intensively farmed monocultures focussing on wheat, barley and linseed, which are likely to receive periodic fertiliser and pesticide treatments.

Non-cereal Crops

3.2.6 Several fields within the Sites were planted with non-cereal crops, sown with winter beans and crops of oilseed rape.

Arable Field Margins Tussocky

3.2.7 As per UK Habitat Classification System, arable field margins were considered to be sited on the outer 2 – 12m margin of arable fields and were understood to be managed specifically to provide benefits for wildlife. Margins wider than 12m were classified as relevant grassland category, see Grassland subsection. Margins narrower than 2m were considered to be contiguous with hedgerow ground flora and were included within the Metric as such.

3.2.8 The uncultivated arable field margins across the Sites are predominantly absent or very narrow (<2m wide and therefore covered within relevant hedgerow types), apart from some areas in Cottam 1, 2 and 3a which have been purposefully left wide, in places approximately 5-7m. Generally, they are species-poor and poor in terms of structure, being mown most years in order to halt any scrub encroachment from hedgerows. The margins typically comprised species-poor grassland with occasional ruderal species.

Temporary Grass And Clover Leys

3.2.9 One field within Cottam 1 was planted with temporary grass and clover ley.

Arable Field Margins Game Bird Mix

3.2.10 Several fields within Cottam 1 and 3 were planted with strips of wild bird cover crops, left unharvested for seed to benefit farmland birds.

Heathland and Shrub

3.2.11 All scrub habitat at the Sites were attributed a Poor condition, partly due the dominance of one species and the lack of diversity in the structure and age range.

3.2.12 Baseline scrub condition assessment is provided in Appendix D2.

Blackthorn Scrub

3.2.13 Several areas of dense scrub dominated by blackthorn *Prunus spinosa* were recorded within Cottam 1.

Hawthorn Scrub

3.2.14 An area of dense scrub dominated by hawthorn *Crataegus monogyna* was recorded at Cottam 3.

Mixed Scrub

3.2.15 Several areas of mixed scrub were recorded within Cottam 1.

Grassland

Other Neutral Grassland

3.2.16 One entire field within Cottam 2 and several small areas within Cottam 1 and 3, especially along River Till, were classified as Other Neutral Grassland.

3.2.17 The field of Other Neutral Grassland within Cottam 2 was cattle grazed, species-poor and dominant species were cock's foot *Dactylis glomerata*, meadow foxtail *Alopecurus pratensis*, false oat-grass *Arrhenatherum elatius* with hogweed *Heracleum sphondylium*, teasel *Dipsacus fullonum*, cowslip *Primula veris* and willowherbs species.

3.2.18 All Other Neutral Grassland at the Sites were considered to be of Poor condition, except for one area at Cottam 1 (North) which achieved Moderate. This was largely due to the lack of species and structure diversity of the grassland.

3.2.19 Baseline grassland habitat type (medium, high & very high distinctiveness) condition assessment is provided in Appendix D4.

Modified Grassland

3.2.20 Modified Grassland, usually sheep grazed, was recorded across all three Sites.

3.2.21 All Modified Grassland at the Sites were considered to be of Poor condition, except for one area at Cottam 3 which achieved Moderate. This was largely due to the lack of species and structure diversity of the grassland.

3.2.22 Baseline grassland habitat type (low distinctiveness) condition assessment is provided in Appendix D3.

Lakes

Ponds (Non-Priority Habitat)

3.2.23 Permanent standing water is generally absent from the Sites and the surroundings following the in-filling of traditional livestock drinking ponds, save for a very small number of agricultural pools/pits or managed recreational fishing ponds.

3.2.24 11 ponds were identified within the Sites red line boundary, which did not meet UK Habitat definitions for 'Ponds (Priority Habitat)'.

3.2.25 Most agricultural ponds will have been filled following the decline of pasture and mixed farming in favour of arable intensification. Those which remain on the Sites tend to be formed by wider, pooled sections of drainage ditches, are agricultural sumps/slurry pits, or are associated with woodland or woodland edge as shooting decoys.

3.2.26 The majority of the ponds were attributed a Moderate condition, partly due to the water and pond surroundings quality, but all conditions were represented.

3.2.27 Baseline pond habitat type condition assessment is provided in Appendix D5.

Sparsely Vegetated Land

Ruderal / Ephemeral

3.2.28 Small areas of ruderal / ephemeral were recorded across all three Sites, all of which were attributed a Poor condition. This is partly due to the lack of plant and structure diversity.

3.2.29 Baseline ruderal / ephemeral habitat type condition assessment is provided in Appendix D6.

Urban

3.2.30 Baseline urban habitat type condition assessment is provided in Appendix D6.

Vacant / Derelict Land / Bare Ground

3.2.31 Bare ground areas were recorded across the three Sites, with larger areas particularly at Cottam 2.

3.2.32 The larger areas recorded in Cottam 2 were of Moderate condition, whilst all others were considered as Poor, as vegetation structure was less varied.

Developed Land; Sealed Surface

3.2.33 Hardstanding farm tracks recorded within the Sites were classified as developed land; sealed surface.

3.2.34 Condition assessments are Not Applicable for developed land, sealed surface.

Artificial Unvegetated; Unsealed Surface

3.2.35 Crushed aggregate farm tracks recorded within the Sites were classified as artificial unvegetated; unsealed surface.

3.2.36 Condition assessments are Not Applicable for artificial unvegetated; unsealed surface.

Urban Trees

3.2.37 A total of six trees, not associated with hedgerows, were recorded within the Sites. Although the Sites were not considered to be located within an urban environment and the trees were not planted as part of amenity landscaping, the trees within the Sites were categorised as urban trees within the Metric as the most appropriate habitat classification, as per the User Guide suggests to do: '*The methodology described above* [i.e. Accounting for Urban trees in biodiversity Metric 3.1] *for calculating area equivalent and condition may also be used for individual trees outside of the urban environment.*'.

3.2.38 The total area occupied by urban trees within the Sites was 0.2197ha according to the Urban Tree Helper Tool. Within the Metric, this area was not counted towards total Sites area, and the areas beneath the trees were recorded as the relevant habitat types.

3.2.39 All of the urban trees were assessed as being in Good condition, meeting all six criteria except criterion 6 in some cases. In order to meet Criterion 6 of the condition assessment, at least 20% of the canopy must be oversailing vegetation. Given that these trees were recorded at the boundaries of arable fields, vegetation may not be present beneath the canopies at all times of the year (i.e. bare ground may be present during ploughing or fallow periods). However, these trees were still achieving Good condition.

3.2.40 Baseline urban trees habitat type condition assessment is provided in Appendix D7.

3.3 Hedgerow Units

3.3.1 The Sites contain an extensive network of approximately 65km of managed hedgerows, roughly half of which contain occasional mature and semi-mature trees. Several hedgerows are considered species-rich and 'Important' under the Hedgerows Regulations 1997, although the majority are not, are well-managed and dominated by blackthorn and hawthorn.

3.3.2 A large proportion of the hedgerows also contain one or two drainage ditches which dry out for a portion of the year. The hedgerows were generally dominated by hawthorn and blackthorn, with sporadic field rose. Most hedgerows are frequently managed, although the hedgerows at Cottam 1 showed signs of being less frequently, and more rotationally, managed. Trees present variously comprised ash (often showing extensive signs of dieback), elder, holly, field maple, grey willow and oak.

3.3.3 A number of hedgerow features at the Sites were categorised as line of trees, however, none of them qualified as being 'Ecologically Valuable' as defined within the Metric Technical Supplement document, as there was not at least one tree per 30m length of ancient and/or veteran quality.

3.3.4 The majority of hedgerows were of Moderate or Good condition, however, all conditions were represented across the hedgerow habitat. Hedgerows of Poor condition were usually defunct and gappy, with no or less than 1m wide vegetated field margins and were presenting some signs of current damage. Some hedgerows of Moderate condition were also gappy but usually had at least >1m vegetated field margins though these were dominated by plant species indicative of nutrient enrichment (nettles, cleavers and docks). Hedgerows of Good condition were intact and bordered with undisturbed fringe of vegetation.

3.3.5 Line of trees were of Poor or Moderate conditions. Line of trees of Poor condition were usually lacking of mature trees and vegetated strip either sides.

3.3.6 One non-native ornamental hedgerow was located in Cottam 1 (West) and this has default condition of Poor within the Metric.

3.3.7 Baseline hedgerow habitat type condition assessment is provided in Appendix D8 and baseline line of trees habitat type condition assessment is provided in Appendix D9.

3.4 River Units

Other Rivers and Streams

3.4.1 The River Till runs adjacent to the western boundary of Cottam 1 is a relatively significant watercourse associated with the Sites and was fed by various drainage ditches present at field boundaries.

3.4.2 The River Till featured wide grassy margins which formed large field headlands and were seen to be relatively diverse and provide key habitat for birds, small mammals and invertebrates.

3.4.3 A specialist Modular River Physical (MoRPh) survey of the River Till which runs adjacent to the Sites was not conducted as no development is proposed within the riparian zone (10m of the banks tops). In addition, no incursion into the river channel is proposed as part of the Scheme.

3.4.4 For this reason, the River Till has not been included within the BNG Metric. It should be noted that a MoRPh survey would be required and the River would need to be added within the calculations, should any potential river improvement be incorporated within the proposed development scheme.

Ditches

3.4.5 Flowing water occurs occasionally in the form of various feeder streams for more significant local watercourses and are managed as agricultural drainage ditches within or adjacent to the Sites, many of which regularly dry out.

3.4.6 In this category of the Metric are only recorded ditches which are likely to retain water for more than 4 months of the year as per the User Guide definition.

3.4.7 Most wetted ditches featured grassy banks and were approximately 2-4m deep and 2-4m wide with emergent vegetation. Water quality appeared to vary, and in many cases was relatively Poor owing to the presence of agricultural run-off.

3.4.8 The large majority of the ditches were achieving a Poor condition partly due to the Poor water quality and lack emergent, submerged and marginal vegetation. No ditches at the Sites were achieving a Good condition.

3.4.9 Baseline ditch habitat type condition assessment is provided in Appendix D10.

4 PROPOSED DESIGN

4.1.1 The proposed habitat types within the Sites and their associated targeted condition assessments are described below and included within Appendix D1 to D11. A Proposed Habitats Plan, prepared on GIS and translating proposed habitat to the UK Habitat Classification (to allow comparison with the baseline situation), has been provided in Appendix C. The proposed habitats plan is based on the proposed design and Landscape and Ecology Mitigation and Enhancement Plans.

4.1.2 Some habitats fall within the following BOMs categories (Figure 2 refers): 'Ecological network - opportunity for management' and 'Opportunity for creation'. These areas were attributed the highest Strategic Significance score.

4.1.3 Other proposed biodiversity enhancements (such as habitat boxes and hibernacula) are proposed and have been described in the LEMP report.

4.2 Habitat Loss

Habitat Units

Cropland

4.2.1 All of the habitat under the broad habitat classification 'Cropland' within the Sites will be lost as a result of the development, as the land use of the Sites changes; the arable fields will no longer be farmed, in order to accommodate the installation of the proposed solar arrays.

4.2.2 It should be noted that the arable field margins will not directly be lost by development but rather, in the absence of an adjacent arable crop they cease to fit the habitat description of 'arable field margin, tussocky'. Furthermore, it is not possible to enhance the condition of arable field margins whereas it is proposed to overseed these areas with a biodiverse seed mix to increase botanical diversity. Therefore, the arable field margins within the Sites are described as being lost and subsequently recreated as an Other Neutral Grassland in Moderate to Good condition (see Section 4.4).

Other Habitats

4.2.3 The following other habitats will be partly lost to accommodate new proposed access and hardstanding (inverters) within the Sites:

- Modified Grassland
- Other Neutral Grassland
- Ruderal / ephemeral
- Bare ground
- Mixed scrub

4.2.4 These areas are however minor in size (1.46ha in total, all habitat types). Other losses of these habitats will be the result of the creation of habitats of higher distinctiveness within the development, requiring significant ground preparation and/or seeding to establish the proposed habitat, or change of habitat to a different broad habitat type.

4.2.5 Two areas of Modified Grassland baseline condition Moderate in Cottam 3 and Cottam 1 North will be retained but located within the panel array. It is considered possible that the condition of the grassland will decrease to Poor as a result of panel shading. One limitation of the Metric at the time of writing is that it does not allow for decrease in existing habitat condition. As a precautionary approach, the areas of existing Modified Grassland – Moderate will be shown in the Metric as lost and created to Modified Grassland – Poor. Details on proposed management requirements to reach Modified Grassland of Poor condition is provided in Table 3 later in this report.

Hedgerow Units

Hedgerows

4.2.6 Access for construction and operational maintenance has been specifically designed to utilise existing field entrances and gaps in internal/external hedgerows and other linear habitats wherever possible. This has been done through scrutinising OS, topographical and aerial mapping and field survey notes. Therefore, the need for new gaps in hedgerows and associated ditch crossings has been minimised as far as possible. Internal access/maintenance tracks have been routed so as to avoid designated ecological buffer zones wherever possible. Gaps/crossings required for construction access will also be used to afford operational maintenance and so will be permanent. The opening up of these gaps (and the use of existing gaps) for construction means that no temporary accesses will be required for the array construction. New permanent gaps through hedgerows into fields are understood to measure approximately 3.5-6m in width (construction accesses where passing bays are required may require a maximum of 6.5 in width), in keeping with typical agricultural accesses. The total quantity of new accesses is as follows:

- Cottam 1 North: Four permanent ditch crossings, three with associated hedgerow gaps.
- Cottam 1 South: Four permanent hedgerow gaps, three with associated small ditches to be crossed.
- Cottam 1 West: Two permanent ditch crossings, one with associated hedgerow gap.
- Cottam 2: No new accesses required.
- Cottam 3a: Two permanent hedgerow crossings with associated ditches to be crossed.
- Cottam 3b: Two permanent hedgerow crossings, no associated ditches to be crossed.

River Units

Ditch

4.2.7 All ditches within the Sites (recorded within the River Tab, ditches loss within the Hedgerow tab are described in Subsection 4.2.6) will be retained within the development proposals, with the exception of two 3m wide sections in Cottam 1 where ditches will be culverted in order to facilitate new field accesses for construction and/or operational maintenance.

4.2.8 Watercourse encroachment is Not Applicable to culvert features, however, riparian encroachment was categorised as 'Major'. This multiplier was applied given that developed land; sealed surface (very low distinctiveness) will comprise the full length of riparian habitat occupied by the culvert within 4m of the bank top.

4.3 Habitat Retention

Habitat Units

Woodland

4.3.1 All woodland within the Sites will be retained with no change. A minimum of 20m ecological buffer will be incorporated between the footprint of the solar array and the woodland edge.

Scrub

4.3.2 The large majority of scrub habitat within the Sites will be retained, and condition maintained, except for a small area in Cottam 1 South where a track is proposed.

Ponds

4.3.3 The following number of ponds (non-priority habitat) will be retained within the proposals, and their baseline condition maintained:

- X2 at Cottam 1 North
- X2 at Cottam 1 West
- X3 at Cottam 2
- X1 at Cottam 3b

Sealed & Unsealed surfaces

4.3.4 All existing hardstanding or farm tracks will be retained, forming the proposed network of internal access tracks within the Sites. The habitat type of very low distinctiveness will not require any management post-development as a default condition is applied within the Metric.

Urban Trees

4.3.5 The in-field trees (classified as Urban Trees within the Metric, see Subsection 3.2.37-40) will be retained within the Scheme and retained in a Good condition. Potential fragmentation and isolation impacts have been counteracted by embedded mitigation involving the planting of corridors of new hedgerow and trees to 'reconnect' the trees to field boundaries. This would improve their contribution to Green Infrastructure as corridors of dispersal. Such trees act as island or stepping-stones for wildlife and these are also to be buffered from development according to their ecological value (between 8m and 12m from extent of Root Protection Zone).

Grassland

4.3.6 The existing wet/rank grassland (ONG) adjacent to the River Till within the uncultivated space between meanders will be retained with the aim to ensure it is managed as damp grassland.

4.3.7 Some areas of existing Modified Grassland with Poor baseline condition will be located within the panel array areas within the development, and therefore retained in a Poor condition.

Hedgerow Units

Hedgerows

4.3.8 Hedgerow within the Sites that already do achieve a Good condition (and therefore cannot be enhanced any further in BNG score terms), and are not in the scope of loss as already described in Subjection 4.2.6, will be retained with their Good condition maintained within the proposals.

River Units

River Till

4.3.9 The River Till will be retained with no change. No development is proposed within the riparian zone (10m of the banks tops).

Ditch

4.3.10 The ditches on Sites which are located in a BOM area and with a baseline condition of Poor are proposed to be enhanced to a Moderate condition (see Section 4.6). All other ditches on Sites will be retained and maintained in their baseline conditions, except for the loss to culvert as described in Section 4.2.7-8.

4.4 Habitat Creation

4.4.1 More details of the habitats to be created and their management are provided within the LEMP.

4.4.2 It has been necessary to make assumptions about the condition and distinctiveness of created habitats to complete the Metric. Habitat creation in the Metric is based on a realistic and achievable scenario.

Targeted conditions and associated condition assessment are provided in Appendices D1 to D11 where a column specific to target condition has been added.

Habitat Units

Mixed Scrub

4.4.3 Some field margins, particularly on the edges of woodland and outside the security fencing only, will be allowed to develop into scrub. Bands of scattered trees with lower canopy shrub planting have also been proposed throughout Cottam 1,2, 3a and 3b. This planting typology has been specified along watercourse and to provide additional vegetative layering within the landscape. The mix of shrub and scattered tree planting is to provide effective screening up to 3-4m without compromising the open aspects of particular views.

4.4.4 A target created condition of Good is considered to be achievable for this mixed scrub habitat. All six criteria would need to pass (Appendix D10 refers). These criteria relate to the species-richness, age diversity, species assemblage, scrub and edge structure.

4.4.5 These areas are referenced on the Landscape and Ecology Mitigation and Enhancement Plan as 'Proposed native shrub planting', 'Proposed native scattered trees' and 'Proposed successional scrub'.

Other Woodland; Broadleaved

4.4.6 Planting of copses comprising native species have been incorporated to provide 'stepping stones' between larger areas of woodland. Copses have been included at Cottam 1 North and South, Cottam 2 and Cottam 3b, with extensive shelterbelts at connecting existing woodland blocks around Cottam 1 north. These areas are referenced on the Landscape and Ecology Mitigation and Enhancement Plan as 'Proposed native shelter belt / woodland planting'.

4.4.7 As shown in Appendix D1, a score of 28 out of 39 is targeted which relate to a target created condition of Moderate for the woodland habitat. The highest scores is targeted for each criterion expect for the following: Age Distribution, Regeneration, Vegetation & Ground Flora, Vertical Structure, Veteran Trees and Deadwood as the higher scores for these specific criteria are considered unlikely to be achieved within 30 years' time.

Ponds

4.4.8 One new pond is proposed at Cottam 1 North and two at Cottam 3a. The ponds at Cottam 3a will be included in the bird mitigation areas and provide an important drinking and bathing resource for turtle doves. The pond at Cottam 1 will be created within field margin buffer zones and will have a role to play in flood risk alleviation and water attenuation.

4.4.9 A linear cluster of wader scrapes will also be excavated close to the River Till, with a feeder ditch connecting these scrapes and supplying a source of water.

4.4.10 A target created condition of Good is considered to be achievable for this created pond habitat. All nine criteria would need to pass (Appendix D5 refers). A target created condition of Moderate is considered to be achievable for the scrapes as criteria 4 and 8 would fail. A description of proposed management requirements is detailed in Table 1 below.

Table 1: Creation of Pond & Scrapes of Moderate to Good Condition

Condition Assessment Criteria	Proposed Management Required	
	MODERATE TARGET CONDITION **Scrapes**	**GOOD TARGET CONDITION** **Ponds**
1 – water quality	Y - The use of fertilisers and herbicides associated with the current agricultural use of the Sites will cease within the proposed development, and therefore reduce the run-off of chemical pollutants into waterbodies within the Sites.	
2 – surrounding habitat	Y - The scrapes will be located within cattle grazed grassland managed for ground nesting birds.	Y - A minimum 10m buffer of ONG (medium distinctiveness) habitat will be maintained around all ponds during construction and operational phases.

3 – cover of algae / duckweed	Y - Improvement in water quality and reduction of herbicide/fertiliser use will reduce the nutrients present in the water. This may result in a reduction in algal cover. Annual monitoring of the Sites will monitor ponds for duckweed or algae coverage, and remedial action prescribed if required.	
4 – connection to other waterbodies	N - A feeder ditch will be connecting the scrapes and supplying a source of water.	Y - The ponds will not be artificially connected to other waterbodies, either via streams, ditches or artificial pipework.
5 – water levels	Y - Wader scrapes are shallow depressions and the aim would be to ensure they hold water until at least June. The scrapes would be up to 0.5m deep, with shallow margins and irregular outlines as well as a variety of depths to create as many niches as possible.	Y - The ponds will be designed to provide shallower pools of water, as well as a larger, deeper area (so creating a complex of ponds), as recommended by the Million Ponds Project[2].
6 – non-native species	Y - Annual monitoring of the Sites will monitor ponds and scrapes for presence of non-native species, and remedial action prescribed if required.	
7 - fish	Y - Ponds and scrapes will not be stocked with fish.	
8 - plants cover	N - Due to cattle grazing, it is considered unlikely that the plants will cover at least 50% of the scrapes area.	Y - No planting will be introduced so as to allow species which use early successional stages of ponds to establish Annual monitoring of the Sites will monitor vegetation cover, and remedial action prescribed if required.
9 - shade	Y - Some management will be required, depending on the establishment of scrub, trees and prolific species such as bulrush (although the variety of pond depths will ensure that some open water will be available).	

Other Neutral Grassland

4.4.11 The majority of habitat creation within the Sites will replace cropland habitats with Other Neutral Grassland (ONG), around 550ha. Four different types of ONG are proposed within the Sites, as follow:

- Diverse meadow within array (but outside panels) and within BOM areas (referred to as Proposed Diverse Meadow Mix (In Reference to Biodiversity Opportunity Mapping) on Landscape and Ecology Mitigation and Enhancement Plan)
- Diverse meadow within array (but outside panels) and outside BOM areas (referred to as Proposed Long Term Meadow Creation on Landscape and Ecology Mitigation and Enhancement Plan)
- Herb-rich/pollinator margins (referred to as Proposed Flower Rich pollinator mix on Landscape and Ecology Mitigation and Enhancement Plan)
- Tussocky grassland margins (referred to as Proposed Tussock Mix on Landscape and Ecology Mitigation and Enhancement Plan)
- Extension of Road Verges Willingham to Fillingham Local Wildlife Sites through seeding (referred to as Meadow creation (Proposed margin verge habitat LWS used as donor) on Landscape and Ecology Mitigation and Enhancement Plan)

4.4.12 It should be noted that a 5 year delay in starting habitat creation has been applied in the Metric for all diverse meadow within array (but outside panels) and outside BOM areas. This is to reflect the approach to habitat creation taken in these locations, involving leaving time to create the meadow over several years and allowing more careful sourcing of seed from local sources where possible. More details are

[2] [redacted]

provided within the LEMP report. The meadow within area and within BOM areas, however, will be targeted for creation as soon as construction starts and therefore no delay has been applied in the Metric for habitat in this location.

4.4.13 This grassland habitat type will be created within and outside of the security fencing, however seeding mixes and management will vary between areas to create ONG habitat of varying conditions. Full condition assessment for the created ONG is provided in Appendix D4 and a description of proposed management requirements is detailed in Table 2 below.

Table 2: Creation of Other Neutral Grassland of Moderate to Good Condition

Condition Assessment Criteria (see Appendix D4 for details)	Proposed Management Required	
	MODERATE TARGET CONDITION • **Diverse meadow within array (but outside panels)** • **Tussocky grassland margins**	**GOOD TARGET CONDITION** • **Herb-rich/pollinator margins**
1 – appearance and composition	Y - The arable field will be seeded with a mix such as Habitat Aids Wildflower Meadow for Solar Farms, which has a diversity of low growing species. This area will be managed by low intensity conservation grazing by sheep. Y - Tussocky field margins where created on arable land will be seeded with an appropriate tussock forming seed mix such as Habitat Aid's Tussock Mix4 or similar. Where grassland margins already exist, management can be altered in order to encourage a tussocky sward to form. This including species typical of Other Neutral Grassland habitat such as birdsfoot trefoil *Lotus corniculatus*. The grassland outside of the security fencing will be cut periodically at the end of the flowering season (after the end of July) to ensure that the diversity of species is maintained within the sward.	Y - The existing grassland in the margins will be scarified and seeded with a more flower rich seed mix, such as Habitat Aid's Standard Pollen and Nectar Mix[3] including species typical of Other Neutral Grassland habitat such as red clover *Trifolium pratense* and yarrow *Achillea millefolium*.
2 – sward height	Y - Low intensity sheep grazing will prevent over-grazing of the sward within the array and promote greater species and structural diversity than intensive management. Y - The range of species within the tussock seed mix, including tall grasses and shorter herbaceous species will provide structural diversity. The variation in sward height will be maintained by periodic cutting, to ensure some longer areas at the fringes.	N - The range of species within the pollinator seed mix is limited to herbaceous species and lack of taller grass which would provide structural diversity.
3 – cover of bare ground	Y - Seeding of the grassland throughout the habitat area will ensure minimal cover of bare ground. Annual monitoring of the Sites by an ecologist will identify any areas of bare ground developing, which will be re-seeded, if required.	
4 – cover of bracken / scrub	Y - Low intensity sheep grazing will prevent the establishment of bracken and scrub within the grassland. Additional bracken and scrub control measures will be implemented, if required.	Y - Periodic cutting will prevent the establishment of bracken and scrub within the pollinator margins. Additional bracken and scrub control measures will be implemented, if required.

[redacted]

	Y - Periodic cutting will prevent the establishment of bracken and scrub within the tussocky grassland. Additional bracken and scrub control measures will be implemented, if required.	
5 – invasive non-native / cover of species indicative of sub-optimal condition and physical damage	N - It is likely that cover of species of suboptimal conditions will persist given their spread within the sward currently and the previous inputs of fertilisers on the Sites.	Y - Annual monitoring will identify establishment of species of suboptimal conditions, and remedial measures will be implemented, if required, such as spot spraying of herbicide or hand pulling of specimens.
6 – species per m2	N - Given the likely high fertility within the Sites, a precautionary approach has been taken and it is assumed this level of diversity will not be achieved. However, over time this and the criteria above may be met – this will be monitored through botanical survey.	Y - The pollinator margins will be seeded with a mix containing 15 species. Period cutting outside of the flowering season with arisings collected will maintain diversity within the sward.

Modified Grassland

4.4.14 Clarkson & Woods Ltd. has undertaken monitoring of over 100 solar Sites, assessing grassland condition and providing management recommendations to enhance habitat condition within the Sites. During this work, the difference in habitat condition between grassland within the margins of solar sites and beneath the arrays has been evident. Achieving higher habitat condition beneath the panels can be challenging due to the sub-optimal microclimate created by panel shading resulting in a lower species diversity and a higher proportion of undesirable species and injurious weeds. Therefore, the grassland directly beneath the panels has been retained at a 'Poor' condition Modified Grassland.

4.4.15 The habitat around the scrapes as described in the Ponds subsection 4.4 has also been classified as Modified Grassland of Poor condition. This would be managed to be suitable for nesting and foraging lapwing, which require a sward height of around 5-15cm, with 5-10% bare ground. Short tussocks would be present, occupying less than 30% of the area and the sward would be cattle grazed from mid-late summer onwards to ensure it remains short over the winter period.

4.4.16 Full condition assessment for the created MG is provided in Appendix D3 and a description of proposed management requirements is detailed in Table 3 below.

Table 3: Creation of Modified Grassland of Poor Condition

Condition Assessment Criteria (see Appendix D3 for details)	Proposed Management Required - POOR TARGET CONDITION
1 – species per m^2	N - Given the likely high fertility within the Sites, a precautionary approach has been taken and it is assumed this level of diversity will not be achieved. However, over time this criterion may be met – this will be monitored through botanical survey.
2 – sward height	N - Shading of the panels and cattle grazing is likely to result in a Poor sward structural diversity.
3 – cover of scrub	Y - Low intensity sheep and cattle grazing will prevent the establishment of scrub within the grassland. Additional scrub control measures will be implemented, if required.
4 – physical damage	Y - Prevent damage to habitats during construction and operational phases via installation of security fencing. Vehicles will move within the Sites using only the hardstanding access tracks. On-

	going management of the grassland via low-intensity grazing will prevent damage by over-grazing or poaching by sheep or cattle.
5 – cover of bare ground	N - Shading of the panels and cattle grazing is likely to result in bare ground cover >10%, despite remedial measures.
6 – cover of bracken	Y - Low intensity sheep and cattle grazing will prevent the establishment of bracken within the grassland. Additional bracken control measures will be implemented, if required.
7 – invasive non-native	Y - Annual monitoring will identify establishment of invasive non-native species, and remedial measures will be implemented, if required, such as spot spraying of herbicide or hand pulling of specimens.

Tall Herb Communities

4.4.17 Adjacent to rivers and ditches, a tall herb community will be established through seeding. A suitable seed mix for this habitat would be Habitat Aid's Low Maintenance Wildflower and Grasses Seed Mix[5] or a bespoke mix suitable for wetter situations. These areas are referenced on the Landscape and Ecology Mitigation and Enhancement Plan as 'Proposed Tall Herb mix'.

4.4.18 The condition assessment for tall herb communities is the same as for ONG, as being a grassland type of high distinctiveness. The targeted condition for this created habitat is Good and the management prescriptions are the same as those detailed within Table 2 for created Good ONG, with the exception of criterion 2 – sward height which is considered likely to be achieved for tall herbs, as the range of species within the Wildflower and Grasses seed mix, including tall grasses and shorter herbaceous species, will provide structural diversity.

Arable Field Margins Game Bird Mix

4.4.19 An area the size of approximately 4ha at Cottam 3a will be managed for turtle doves. The aim will be to create a short, weedy, seed rich habitat which is essential for turtle dove foraging. The optimal habitat would be either a set-aside type system, or a wild bird seed crop maintained as a low growing habitat.

4.4.20 These areas are referenced on the Landscape and Ecology Mitigation and Enhancement Plan as 'Proposed Turtle Dove Bird Mitigation' has been classified as created Cropland - Arable Field Margins Game Bird Mix. Condition assessment is Not Applicable for this habitat.

Set Aside

4.4.21 Numerous areas of previously arable land which are outside of the footprint of the array but retained within the Order Limits will be managed as set-aside, which is a habitat which benefits ground nesting birds such as skylarks (this habitat has been shown to support high numbers of nesting skylark). The aim would be to create a short weedy sward which is suitable both for foraging and nesting. This may be done through rotational fallow or non-rotational set aside.

4.4.22 For non-rotational set aside, the fields will be lightly disced in March to a depth of no more than 7cm. A cut will then be taken between September and February inclusive to avoid the bird nesting season.

4.4.23 For rotational fallow, spring sown cereal crops will be established which provide nesting opportunities for both lapwing and other ground nesting birds such as skylarks and yellow wagtail. The cereal will contain undrilled 'skylark plots' measuring at least 16m² which will remain unsown and uncultivated to provide low growing weedy areas for nesting and foraging. A total of two plots per ha will be established within the fields. The spring sown cereal crop will be rotated between the two arable fields, so that one field remains as fallow for two years.

4.4.24 These areas are referenced on the Landscape and Ecology Mitigation and Enhancement Plan as 'Proposed Bird Mitigation - Set Aside' and have been classified as created Cropland – Non-cereal crops or cereal crops. Condition assessment is Not Applicable for this habitat.

Floodplain Wetland Mosaic

4.4.25 Several fields have been identified, predominantly at Cottam 1, as lower lying and subject to flooding and where key indicator species have been recorded in the past. These will be selected for floodplain meadow restoration.

4.4.26 In terms of management, the habitat will be subject to a hay cut as per the other wildflower areas, with the cut being taken in September to avoid ground nesting birds. Arisings will be collected and may be used as a source for seed once the meadow is established.

4.4.27 This habitat has been proposed within Cottam 1 West, which also lies within a BOM area. There are large unpanelled areas within this part of the Sites and so creation of floodplain meadow will also provide opportunities for ground nesting birds. The total area of this proposed habitat is 35ha.

4.4.28 This habitat has been classified as Floodplain Wetland Mosaic (FWM). A full condition assessment is provided in Appendix D Condition Sheet D11 and a target condition of Moderate is considered achievable for this created habitat within unpanelled areas. A target condition of Poor is considered achievable for this created habitat within panelled areas. A description of proposed management requirements is detailed in Table 4 below.

Table 4: Creation of Floodplain Wetland Mosaic of Poor and Moderate Condition

Condition Assessment Criteria	Proposed Management Required	
	POOR TARGET CONDITION **Paneled Areas**	**MODERATE TARGET CONDITION** **Unpanelled Areas**
1 – water table	Y - Aerial photos, on the ground surveys and some of the plants identified at the Sites in this location indicate that the water table is near to the surface. Historical Google imagery shows regularly flooded areas within the Sites at this location.	
2 - vegetation	N - Shading of the panels is likely to result in the appearance and composition of the vegetation under panels not to match characteristics of the specific wetland habitat type.	Y - Great burnet *Sanguisorba officinalis* has already been recorded flowering along the verges of Fleets Lane, which is a plant typically found in FWM. The existing grassland in the FWM will be seeded with green hay from local existing floodplain meadow donor Sites, or with a suitable seed mix from a reputable supplier will be used (such as Habitat Aids Wet Wildflower Mix).
3 – water supplies	Y - The cessation of intensive agriculture (application of herbicides and fertilisers) will increase the water quality in the local area. During Sites surveys, there were no other signs of pollution within ditches or rivers.	
4 – cover of scrub and trees	Y - Periodic cutting will prevent the establishment of scrub and scattered trees within the FWM. Additional bracken and scrub control measures will be implemented, if required.	
5 – cover of bare ground	N - Shading of the panels is likely to result in bare ground cover >5%, despite remedial measures.	Y - Seeding of the grassland throughout the habitat area will ensure minimal cover of bare ground. Annual monitoring of the Sites by an ecologist will identify any areas of bare ground developing, which will be re-seeded, if required.
6 – species assemblage	N - It is likely that cover of species of suboptimal conditions will persist given their spread within the sward currently and the previous inputs of fertilisers on the Sites.	
7 – ditch condition	N - None all ditches recorded within the habitat will achieve or already achieve a Good condition	

Developed Land; Sealed Surface

4.4.29 The buildings and inverters on the Sites will occupy 15ha. As this habitat type is of very low distinctiveness and has a default condition within the Metric, no additional habitat units will result from the creation of developed land; unsealed surface. No management prescriptions relating to this habitat type are required post-construction.

Artificial Unvegetated; Unsealed Surface

4.4.30 In order to facilitate the movement of vehicles within the Sites during construction and for maintenance purpose during the operational phase of the development, additional access tracks will be created within the Sites.

4.4.31 The tracks will occupy 15.5ha of the Sites. As this habitat type is of very low distinctiveness and has a default condition within the Metric, no additional habitat units will result from the creation of Artificial Unvegetated; Unsealed Surface.

4.4.32 No management prescriptions relating to this habitat type are required post-construction.

Hedgerow Units

Native Species Rich Hedgerow With Trees

4.4.33 Substantial new hedgerow planting will be created within the development, providing a total of 20.5km of additional habitat. The hedgerows will contain a diversity of species and standard trees will be planted, resulting in 'Native Species Rich Hedgerows With Trees'.

4.4.34 All newly planted hedgerows will be managed to achieve Good condition. Only two criteria failures would be allowed with no more than one failure in any functional group (Appendix D8 refers). A description of proposed management requirements is detailed in Table 5 below.

Table 5: Creation of Hedgerows of Good Condition

Condition Assessment Criteria	Proposed Management Required
A1. Height	Y - All hedgerows will be managed to maintain a minimum height of 2m, through rotational cutting.
A2. Width	Y - All hedgerows will be managed to maintain a minimum width of 2m, through rotational cutting.
B1. Gap- hedge base	Y - Hedgerows will be managed to promote dense/bushy growth. Hedgerows will be protected from grazing sheep by stock proof fencing to prevent damage to the base of the hedgerow. Annual monitoring by an ecologist will identify any developing gaps and remedial actions prescribed if required.
B2. Gap- hedge canopy continuity	Y - Hedgerows will be managed to promote dense/bushy growth. Annual monitoring by an ecologist will identify any gaps, and infill planting will be undertaken to maintain hedgerow integrity.
C1. Undisturbed ground and perennial vegetation	Y - A distance of at least 8m will be allowed between security fencing and hedgerows.
C2. Nutrient enriched perennial vegetation	Y - The ground at the base of hedgerows will be seeded with species-rich seed mix and managed through periodic cutting to prevent establishment of undesirable vegetation. Annual monitoring of the Sites will monitor cover of undesirable species, and remedial action prescribed if required.
D1. Invasive and neophyte species	Y - New hedgerows will be planted using native species of local provenance.

	Annual monitoring will monitor presence of invasive and neophyte species, and remedial action will be prescribed if required.
D2. Current damage	Y - An 8m buffer will be maintained during the operational phase from solar panels, access tracks and other infrastructure.
E1. Tree age	N - Standard trees will be planted at sufficient density within the hedgerow but will not reach maturity within the lifetime of the development.
E2. Tree health	Y - Annual monitoring by an ecologist will identify damaged/diseased trees. An arboricultural consultant will be contacted and appropriate action taken. Diseased trees will be replaced with species of local provenance.

4.5 Habitat Enhancement

4.5.1 It has been necessary to make assumptions about the condition and distinctiveness of enhanced habitats to complete the Metric. Habitat enhancement in the Metric is based on a reasonable worst-case scenario. Targeted enhanced conditions and associated condition assessment are provided in Appendices D1 to D11 where a column specific to target enhanced condition has been added.

Habitat Units

Other Neutral Grassland

4.5.2 All Other Neutral Grassland on Sites which are not going to be lost (Section 4.2) or retained with no change (Section 4.3) will be enhanced to either an improved condition or to another higher distinctiveness habitat in the same broad habitat type.

4.5.3 Target condition assessment and proposed management for proposed ONG have already been described earlier in the report and have been referenced appropriately below.

4.5.4 The following ONG enhancement types are proposed:

- ONG Moderate baseline condition enhanced to ONG Good target condition – see Appendix D4 for target enhanced condition assessment and Table 2 for proposed management.
- ONG Poor baseline condition enhanced to ONG Moderate target condition – see Appendix D4 for target enhanced condition assessment and Table 2 for proposed management.
- ONG Poor baseline condition enhanced to ONG Good target condition – see Appendix D4 for target enhanced condition assessment and Table 2 for proposed management.
- ONG Poor baseline condition enhanced to Grassland - Floodplain Wetland Mosaic Moderate target condition – see Appendix D11 for target enhanced condition assessment and Table 4 for proposed management.
- ONG Moderate baseline condition enhanced to Grassland - Tall herb communities Good target condition – see Appendix D4 for target enhanced condition assessment and Table 2 for proposed management.
- ONG Poor baseline condition enhanced to Grassland - Tall herb communities Good target condition – see Appendix D4 for target enhanced condition assessment and Table 2 for proposed management.

Modified Grassland

4.5.5 Some areas of existing Modified Grassland on Sites, which are not going to be lost (Section 4.2) or retained with no change (Section 4.3), are proposed for enhancement. The following proposed habitats are included within these areas: herb-rich/pollinator margins, tussocky grassland margins, diverse meadow within array (but outside panels). All of these proposed habitats have been classified within the Habitat Creation Section 4.4 as Other Neutral Grassland. However, it is highly difficult to achieve ONG from existing MG without significant interventions (pers. Comm., UK Hab). Therefore, the existing MG is proposed to be enhanced to a higher condition (Good) rather than to a different habitat type of higher distinctiveness. The condition assessment for enhanced MG target Good condition is provided in Appendix D3 and the

proposed management for herb-rich/pollinator margins, tussocky grassland margins, diverse meadow within array (but outside panels) as described in Table 2 are still relevant.

4.5.6 The following MG enhancement types are proposed:

- MG Moderate baseline condition enhanced to MG Good target condition
- MG Poor baseline condition enhanced to MG Good target condition

Ponds

4.5.7 The following number of ponds (non-priority habitat) will be enhanced within the proposals, and their condition enhanced to Good:

- X1 at Cottam 2
- X1 at Cottam 3b
- X1 at Cottam 3a

4.5.8 The targeted condition for this enhanced habitat is assessed to Good (see Appendix D5) and the management prescriptions are the same as those detailed within Table 1 for created Good ponds.

Hedgerow Units

Line of Trees

4.5.9 All line of trees present within the Sites will be enhanced to one condition score up (i.e. Poor to Moderate and Moderate to Good). A minimum of 8m buffer will be maintained during the operational phase between the solar panels, access tracks and other infrastructure and any line of trees. As a result of this, there will be an undisturbed naturally vegetated strip (as described in proposed grassland habitat subsections in 4.4) of at least 6m on both sides on each line of trees to protect it from farming and other anthropogenic operations. This means Criterion 4 will be naturally achieved as a result of the development, allowing conditions to be enhanced without additional management prescriptions.

Hedgerows

4.5.10 All hedgerows present within the Sites of either Poor or Moderate baseline condition will be enhanced within the proposals, and their condition enhanced to Good.

4.5.11 The targeted condition for this enhanced habitat is assessed to Good (see Appendix D8) and the management prescriptions are the same as those detailed within Table 5 for created Good hedgerows.

River Units

Ditch

4.5.12 The ditches on Sites which are located in a BOM area and with a baseline condition of Poor are proposed to be enhanced to a Moderate condition which is considered the most appropriate targeted option. Condition assessment for enhanced ponds is provided in Appendix D10.

4.5.13 The enhancements and associated management prescriptions are detailed in Table 6 below.

Table 6: Enhancement of Ditches Post Development to Moderate Condition

Condition Assessment Criteria	Proposed Management Requirements
1 - water quality	Y - The use of fertilisers and herbicides associated with the current agricultural use of the Sites will cease within the proposed development, and therefore reduce the run-off of chemical pollutants into water bodies within the Sites.
2 - emergent, submerged and floating leaved plants	N - N/A
3 - cover of filamentous algae and/or duckweed	Y - Improvement in water quality and reduction of herbicide/fertiliser use will reduce the nutrients present in the water. This may result in a reduction in algal cover.

	Annual monitoring of the Site will monitor ponds for duckweed or algae coverage, and remedial action prescribed if required.
4 - marginal vegetation	Y - A minimum 8m buffer of Other Neutral Grassland will be maintained along the lengths of retained ditches to be cut periodically. Low intensity management of this habitat will establish a fringe of marginal vegetation.
5 - physical damage	Y - The ditches will be protected during construction, with prescriptions to be set out within the Ecological Protection and Mitigation Strategy (EPMS) for the Sites. A minimum 8m buffer will be maintained along the lengths of all retained ditches.
6 - water levels	N - N/A
7 – shade	Y - Some management will be required, depending on the establishment of scrub, trees and prolific species
8 - non-native plant and animal species	Y - Annual monitoring of the Sites will monitor ditches for presence of non-native species, and remedial action prescribed if required.

5 BNG GOOD PRACTICE PRINCIPLES FOR DEVELOPMENT

5.1.1 Table 7 below provides full justification of how each of the 10 BNG Principle has been applied as part of the BNG assessment.

Table 7: BNG Good Practice Principles and Justification

BNG Principle	Justifications
Principle 1. Apply the Mitigation Hierarchy	Measures to avoid and minimise biodiversity loss and to rehabilitate/restore biodiversity affected by the project are defined and documented within the ES Chapter 9 Ecology. Their implementation, management and monitoring requirements are detailed within the LEMP and section 8 of this report.
Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere	No irreplaceable habitats are impacted by the Proposed Development.
Principle 3. Be inclusive and equitable	There has been two-year history of stakeholder engagement which has included (but is not limited to): • RSPB • Nottinghamshire Wildlife Trust • NWT • Lincolnshire Wildlife Trust • Natural England • Sturton by Stow Parish Council • Planning Inspectorate • Bassetlaw District Council • West Lindsey District Council • Canal and Rivers Trust • Environment Agency • Defence Infrastructure Organisation Consultation responses can be found compiled in Appendix 9.1.
Principle 4. Address risks	The LEMP sets out a programme of regular monitoring for the life of the scheme to ensure habitat creation and management objectives are met. It will ensure that personnel are appointed to be responsible for this delivery throughout the duration of the scheme and is secured by a Requirement of the DCO. The LEMP also allows for the amendment and variation of management objectives and practices to best suit the conditions on Sites, specific practicalities and challenges, and the outcome of monitoring which may arise over the life of the scheme. The LEMP has identified risks which may occur during the 30-year management period such as logistical uncertainties of accurately predicting supply at the time of future construction and habitat creation. Therefore, flexibility has been built into the LEMP after consultation with a seed supplier that has been involved in habitat creation on other NSIP-scale solar projects. The approach ensures that there is time to select a locally appropriate seed mix, particularly given the uncertainty around seed supply which can vary year on year depending on climate and the requirements of other large scale projects.
Principle 5. Make a measurable Net Gain	See Section 6. The BNG assessment determined a quantitative: • 96.09% net gain in Habitat Units • 72.22% net gain in Hedgerow Units

BNG Principle	Justifications
	• 10.69% net gain in River Units
Principle 6. Achieve the best outcomes for biodiversity	The BNG design has considered local conservation priorities (species and habitats). This includes the Lincolnshire Biodiversity Action Plan (BAP) as well as policies within the Central Lincolnshire Local Plan, in particular, Biodiversity Opportunities Mapping (BOM) produced by Greater Lincolnshire Nature Partnership (GLNP). The presence of locally and nationally designated Sites for nature conservation have also been considered along with opportunities to enhance or extend these features. In particular the BNG design has considered to contribute to supporting the following priority species populations and priority habitats: • Hedgerows and Hedgerow Trees • Lowland meadows • Ponds • Farmland birds • Great crested newts • Bats Details are provided within the LEMP.
Principle 7. Be additional	The proposed conservation gains will be caused by the project activities and would not have occurred in other circumstances. The reversion from intensive agriculture to low (or no) inputs (fertiliser and soil improvers) grassland alone would be expected to provide a modest net gain in plant and invertebrate species diversity over time. The establishment of meadows within a predominately arable landscape will drive a diversification of local habitats toward that of historical land use patterns where agriculture in the region was characterised by a mix of arable and pasture farming, which supported a greater abundance of wildlife.
Principle 8. Create a Net Gain legacy	See Section 8. The DCO will contain a Requirement which will make the habitat creation, management and enhancement objective contained within the LEMP (which form the basis of the BNG assessment) legally binding. Minimum professional and technical requirements for those responsible for the delivery of the LEMP and BNG-related habitat management are specified in the LEMP. The outline LEMP also contains a draft Financial Table which sets out the estimated costs of the prescriptions. KPIs will be set out within the finalised LEMP at the point of discharging the relevant DCO Requirement. These will ensure that monitoring of habitat creation and management outcomes have interim time-bound targets, as well as end objectives. The Environmental Statement for the Scheme contains a Cumulative Assessment which takes into account four other large scale solar or solar infrastructure projects local to the Scheme. Legal agreements will be able to be provided upon scheme approval and fulfilment of LEMP Requirement in DCO. The lifespan will be 40 years. Contracts with providers of habitat creation and management will form part of this process.
Principle 9. Optimise sustainability	As detailed in the LEMP and ES Chapter 9 Ecology, habitat within Biodiversity Opportunity Areas have been targeted for creation as identified and encouraged by Greater Lincolnshire Nature Partnership. In addition, new public rights of way will be provided and the wetland bird mitigation zone in Cottam 1 will contribute to floodwater attenuation within the catchment of the River Till.

BNG Principle	Justifications
Principle 10. Be transparent	The commitment to BNG is stated by the project developer in a publicly available document: Chapter 9 of the Environmental Statement. The LEMP and Section 8 of this report contain a reporting commitment at key project milestones. Part of the LEMP's monitoring and reporting commitment will include the submission of findings to the Local Environmental Records Centres. The design of the BNG has followed local advice from the GLNP, Lincolnshire Bird Club, Nottinghamshire and Lincolnshire Wildlife Trusts in terms of siting different habitat creation efforts, while the habitat creation methods have been chosen by drawing from extensive experience in this field and collaboration with key seed providers and aftercare management contractors. The finalised LEMP will further detail the choices taken in deciding seed mixes, ground preparation and aftercare. The LEMP monitoring methodology follows published guidance[6] which has been designed to be part of a wider scientific study looking at environmental and ecological interactions on solar farms. The data collected during monitoring will be submitted as part of this study. The best practice guidance was prepared by ecologists, academics and those in the industry.

[redacted]

6 BNG METRIC

6.1.1 The information provided in the Metric are directly related to the Habitat Baseline Plan (Appendix B) and the Proposed Habitats Plan (Appendix C). The completed Metric spreadsheet will be submitted separately.

6.1.2 The proposed development will result in a significant net gain of biodiversity units, including HU, HeU and RU, as shown in the headline results below.

On-site baseline	*Habitat units*	2603.17
	Hedgerow units	602.94
	River units	89.92
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	5104.65
	Hedgerow units	1026.33
	River units	99.53
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	96.09%
	Hedgerow units	70.22%
	River units	10.69%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	2501.47
	Hedgerow units	423.39
	River units	9.62
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	96.09%
	Hedgerow units	70.22%
	River units	10.69%
Trading rules Satisfied?		Yes ✓

Figure 3: Headline Results (taken from Biodiversity Metric 3.1)

6.1.3 The proposals will result in a total net change of **2,501.47 HU**, representing an increase of **96.09%**. The majority of HU will be delivered by the creation of Other Neutral Grassland within the Sites, which will be managed to maximise biodiversity value.

6.1.4 The proposals will result in a total net change of **423.39 HeU**, representing an increase of **70.22%.** The net gain in HeU will be provided as a result of hedgerow creation and enhancement of existing hedgerows.

6.1.5 The proposals will result in a total net change of **9.62 RU**, representing an increase of **10.69%**. A net gain in RU will be provided, as a result of enhancement of existing ditches.

7 PROJECT IMPLEMENTATION AND CONSTRUCTION PLAN

7.1.1 The information required for the Project Implementation and Construction Plan are provided within the following documents and should be referred to:

- Landscape Ecological Management Plan Outline **[EN010133/APP/C7.3]**
- Ecological Protection and Mitigation Strategy **[EN010133/APP/C7.19]**

7.1.2 The information provided in these documents have not been included in the BNG report so as to avoid duplication.

8 BIODIVERSITY NET GAIN MANAGEMENT AND MONITORING PLAN

8.1.1 The LEMP report provides detailed management and maintenance information for Years 1 – 5 and with broader management aims for the lifetime of the BNG commitment and the lifetime of the project, 40 years. The information provided in the LEMP have not been included in the BNG report so as to avoid duplication.

8.1.2 A UK Habitat survey and associated BNG Condition Assessment of the establishing habitats will be undertaken at appropriate time of the year (April to September inclusive) throughout the BNG commitments of the project (30 years). The BNG monitoring surveys will be spread out across the Years to Target Creation or Enhancement for the various habitats proposed at the Sites. The specific years are: Years 1, 2, 3, 4, 5, 6, 8, 10, 15, 20 and 30 as shown in Table 8 below. Each survey will focus on the relevant targeted habitat but will also assess on the progression of other habitats not yet established to monitor progress and likely success.

8.1.3 Outcomes of the BNG monitoring surveys will help to inform adaptive habitat management and ongoing maintenance activities to ensure that biodiversity gains can still be delivered.

8.1.4 A BNG monitoring report will be prepared after each BNG monitoring survey and will include a summary of habitat type, extent, and condition (with a comparison where applicable against the expected condition proposed in the BNG report). The BNG monitoring reports will be submitted to the planning authority and the results will be shared publicly.

Table 8: BNG Monitoring Survey Requirements – Specific Targeted Years

Habitat & Condition	Targeted Condition	Target to Creation & Monitoring Year	Target to Enhancement & Monitoring Year
Habitat Units			
Cropland - Arable field margins game bird mix	Condition Assessment N/A	1	N/A
Cropland - Cereal crops			
Cropland - Non-cereal crops			
Grassland - Modified Grassland	Poor		
Lakes - Ponds (Non- Priority Habitat)	Moderate	3	N/A
Grassland - Floodplain Wetland Mosaic (CFGM)	Poor	5	N/A
Grassland - Other Neutral Grassland	Moderate		
Lakes - Ponds (Non- Priority Habitat)	Good		

Lakes - Ponds (Non- Priority Habitat)	Poor to Good	N/A	8
Heathland and shrub - Mixed scrub	Good	10	N/A
Grassland - Other Neutral Grassland	Moderate		
Grassland - Modified Grassland	Moderate to Good	N/A	10
Grassland - Other Neutral Grassland	Moderate to Good		
Grassland - Other Neutral Grassland	Poor to Moderate		
Woodland and forest - Other woodland; broadleaved	Moderate	15	N/A
Grassland - Modified Grassland	Poor to Good	N/A	15
Grassland - Other Neutral Grassland to Grassland - Floodplain Wetland Mosaic (CFGM)	Good		
Grassland - Other Neutral Grassland	Poor to Good		
Grassland - Floodplain Wetland Mosaic (CFGM)	Good	20	N/A
Grassland - Tall herb communities (H6430)	Good	30	N/A
Grassland - Other Neutral Grassland to Grassland - Tall herb communities (H6430)	Good	N/A	30
Hedgerow Units			
Native Species Rich Hedgerow with trees	Good	20	N/A
Native Hedgerow	Moderate to Good	N/A	2
Native Hedgerow - Associated with bank or ditch			
Native Hedgerow with trees	Moderate to Good	N/A	4
Native Hedgerow with trees - Associated with bank or ditch			
Native Species Rich Hedgerow with trees - Associated with bank or ditch			
Native Hedgerow	Poor to Good	N/A	5
Native Hedgerow - Associated with bank or ditch			
Native Species Rich Hedgerow			
Line of Trees	Moderate to Good	N/A	10
Line of Trees - Associated with bank or ditch			
Native Hedgerow with trees	Poor to Good	N/A	10
Native Hedgerow with trees - Associated with bank or ditch			
Native Species Rich Hedgerow with trees			

Native Species Rich Hedgerow with trees - Associated with bank or ditch			
Line of Trees	Poor to Moderate	N/A	20
River Units			
Culvert	Poor	1	N/A
Ditches	Poor to Moderate	N/A	4

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APPENDIX A: LOCAL PLANNING POLICY RELATING TO BNG

Policy Reference	Key Policy Text
Central Lincolnshire Local Plan (Adopted April 2017)	
Policy LP21: Biodiversity and Geodiversity	All development should: • protect, manage and enhance the network of habitats, species and Sites of international, national and local importance (statutory and non-statutory), including Sites that meet the criteria for selection as a Local Sites; • minimise impacts on biodiversity and geodiversity; and • seek to deliver a net gain in biodiversity and geodiversity. Development proposals that will have an adverse impact on a European Sites or cause significant harm to a Sites of Special Scientific Interest, located within or outside Central Lincolnshire, will not be permitted, in accordance with the NPPF. Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless the need for, and benefits of, the development in that location clearly outweigh the loss or harm. Proposals for major development should adopt an ecosystem services approach, and for large scale major development schemes (such as Sustainable Urban Extensions) also a landscape scale approach, to biodiversity and geodiversity protection and enhancement identified in the Central Lincolnshire Biodiversity Opportunity Mapping Study. Development proposals should create new habitats, and links between habitats, in line with Biodiversity Opportunity Mapping evidence to maintain a network of wildlife Sites and corridors to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change. Development should seek to preserve, restore and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Lincolnshire Biodiversity Action Plan and Geodiversity Action Plan. Where development is within a Nature Improvement Area (NIA), it should contribute to the aims and aspirations of the NIA. Development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through Sites layout, design of new buildings and proposals for existing buildings. Mitigation Any development which could have an adverse effect on Sites with designated features and / or protected species, either individually or cumulatively, will require an assessment as required by the relevant legislation or national planning guidance. Where any potential adverse effects to the biodiversity or geodiversity value of designated Sites are identified, the proposal will not normally be permitted. Development proposals will only be supported if the benefits of the development clearly outweigh the harm to the habitat and/or species. In exceptional circumstances, where adverse impacts are demonstrated to be unavoidable, developers will be required to ensure that impacts are appropriately mitigated, with compensation measures towards loss of habitat used only as a last resort where there is no alternative. Where any mitigation and compensation measures are required, they should be in place before development activities start that may disturb protected or important habitats and species.
Central Lincolnshire Local Plan Review – Consultation Draft (June 2021)	
Policy S59: Protecting Biodiversity and Geodiversity	All development should: a) protect, manage and enhance the ecological network of habitats, species and Sites of international, national and local importance (statutory and non-statutory), including Sites that meet the criteria for selection as a Local Sites; b) minimise impacts on biodiversity and features of geodiversity value; c) deliver measurable and proportionate net gains in biodiversity; and

Policy Reference	Key Policy Text
	d) protect and enhance the aquatic environment within or adjoining the Sites, including water quality and habitat. Part One: Designated Sites The following hierarchy of Sites will apply in the consideration of development proposals: 1. International Sites The highest level of protection will be afforded to internationally protected Sites. Development proposals that will have an adverse impact on the integrity of such areas, will not be supported other than in exceptional circumstances, in accordance with the NPPF. Development proposals that are likely to result in a significant adverse effect, either alone or in combination, on any internationally designated Sites, must satisfy the requirements of the Habitats Regulations (or any superseding similar UK legislation). Development requiring Appropriate Assessment will only be allowed where it can be determined, taking into account mitigation, that the proposal would not result in significant adverse effects on the Sites's integrity. 2. National Sites (NNRs and SSSIs as shown on the Policies Map) Development proposals should avoid impact on these nationally protected Sites. Development proposals within or outside a national Sites, likely to have an adverse effect, either individually or in combination with other developments, will not normally be supported unless the benefits of the development, at this Sites clearly outweigh both the adverse impacts on the features of the Sites and any adverse impacts on the wider network of nationally protected Sites. 3. Irreplaceable Habitats Planning permission will be refused for development resulting in the loss, deterioration or fragmentation of irreplaceable habitats, including ancient woodland and aged or veteran trees, unless there are wholly exceptional reasons and a suitable compensation strategy will be delivered. 4. Local Sites (LNR, LWS and LGS as shown on the Policies Map) Development likely to have an adverse effect on locally designated Sites, their features or their function as part of the ecological network, will only be supported where the need and benefits of the development clearly outweigh the loss, and the coherence of the local ecological network is maintained. Where significant harm cannot be avoided, the mitigation hierarchy should be followed. Part Two: Species and Habitats of Principal Importance All development proposals will be considered in the context of the relevant Local Authority's duty to promote the protection and recovery of priority species and habitats. Development should seek to preserve, restore and re-create priority habitats, ecological networks and the protection and recovery of priority species set out in the Natural Environment and Rural Communities Act 2006, Lincolnshire Biodiversity Action Plan, Lincolnshire Geodiversity Strategy and Local Nature Recovery Strategy. Where adverse impacts are likely, development will only be supported where the need for and benefits of the development clearly outweigh these impacts. In such cases, appropriate mitigation or compensatory measures will be required. Part Three: Mitigation of Potential Adverse Impacts Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle, in line with the mitigation hierarchy. Where adverse impacts are unavoidable they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative. Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable to the Local Planning Authority in terms of design and location, and are secured for the lifetime of the development with appropriate funding mechanisms that are capable of being secured by condition and/or legal agreement. If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.

Policy Reference	Key Policy Text
Policy S60: Biodiversity Opportunity and Delivering Measurable Net Gains	Following application of the mitigation hierarchy, development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through Sites layout, design of new buildings and proposals for existing buildings. Development proposals should create new habitats, and links between habitats, in line with Central Lincolnshire Biodiversity Opportunity and Green Infrastructure Mapping evidence, the biodiversity opportunity area principles set out in Appendix 4 to this Plan and the Local Nature Recovery Strategy, to maintain a network of wildlife Sites and corridors, to minimise habitat fragmentation and provide opportunities for species to respond and adapt to climate change. Proposals for major and large scale development should seek to deliver wider environmental net gains where feasible. All development proposals must deliver, as a minimum, a 10% measurable biodiversity net gain attributable to the development. The net gain for biodiversity should be calculated using DEFRA's biodiversity Metric. Appendix 4: Principles for Development within Biodiversity Opportunity Areas The following guidance provides a set of development principles which should be used when considering Sites allocations and determining planning applications in the context of the Central Lincolnshire Biodiversity Opportunity Mapping (BOM) and the ecological network it alludes to. These principles are to be used in conjunction with policy S60 within this Local Plan. Ecological networks are key to creating a more robust natural environment which will be resilient to future pressures25. They will play an integral role in the creation of Nature Recovery Networks and likely act as the basis of any local work towards a national strategy, for example Local Nature Recovery Strategies. Central Lincolnshire Biodiversity Opportunity Mapping Categories Dark Green: Ecological network - high quality Consists of Priority habitat, these are the core areas of an ecological network and are of high value in terms of distinctiveness. These may require management to either maintain or improve their current condition. Light Green: Ecological network - opportunity for management These areas are not currently Priority habitat, but are important for biodiversity and the functionality of the ecological network of which they are part. They provide an opportunity for their quality to be improved through management, with positive results for biodiversity. Dark Brown: Opportunity for creation - more joined up These are not currently part of an ecological network, but provide opportunities to connect together two or more ecological networks through habitat creation. Light Brown: Opportunity for creation These areas are not currently part of an ecological network, but provide opportunities for increasing the size of an ecological network through habitat creation. Guidance regarding Sites allocations and planning permission applications in a Biodiversity Opportunity Mapping context. Biodiversity opportunity mapping developed by the Greater Lincolnshire Nature Partnership highlights both the existing ecological network and where the best opportunities lie for improvement in regards to the extent of habitat in the network, the condition or distinctiveness of said habitat and overall connectivity of the network. All policy and decisions should take into account the impact of development to these networks and where possible avoid permitting proposals which may negatively affect the existing network. Where this is not possible, or where development is planned on areas identified as an opportunity for creation, principles should call for quality design which will protect and enhance the existing network. Biodiversity net gain should prioritise onSites habitat creation and management over offSites. Where land earmarked for development contains, either partially or entirely, any areas highlighted by the BOM, these should be seen as opportunities to contribute to onSites biodiversity net gain requirements in a way that will also conserve, restore and enhance ecological connectivity. However, it should be recognised that Ecological network - opportunity for management areas and Opportunity for creation areas identified by the BOM, which are not part of a development area, are well placed as locations for habitat creation or management. Doing so contributes towards any required offSites biodiversity net gain commitments for development. Additionally, habitat created

Policy Reference	Key Policy Text
	in an ecologically desirable location or in an area identified for biodiversity by a local strategy are valued more highly by Defra's biodiversity net gain Metric. Any Sites recognised by the BOM which apply to be included on the register of biodiversity gain Sites should be given due regard in planning for their importance to enhancing ecological networks. Notes on Development Principles For the purpose of ecological networks 'habitat creation' refers to semi natural or natural habitats. Any habitat created should fit with the existing ecological network and be either the same habitat type or related habitat. A related habitat refers to habitats often found in association as part of a dynamic complex. Ecological advice should be sought in the preservation and enhancement of ecological networks and achievement of biodiversity net gain. Development Principles Where allocated Sites or Sites submitted for planning permission contain or overlap with any **Ecological network – high quality area,** the following principles should apply: 1. **High quality ecological network areas** consist of Priority habitat and contain the most valuable habitats. It should not be built on and should be buffered against impacts of development. Where development is permitted on land containing areas of **high quality ecological network**, the development layout should use the principles of the Mitigation Hierarchy and be designed in such a way as to avoid damage to these areas. 2. **High quality ecological network areas** should be recognised as a potential opportunity to achieve biodiversity net gain requirements by improving condition through sensitive management. Where allocated Sites or Sites submitted for planning permission contain or overlap with any Ecological network – opportunity for management area, the following development principles should apply: 1. Proposals should avoid development on **Ecological network – opportunity for management areas** where possible. 2. Where this is not possible, the development layout should ensure that connectivity of the network is maintained. This can be achieved through quality design, for example by leaving strategically important habitat in place to create wildlife corridors or the use of green/brown roofing to act as stepping stones between larger areas of habitat; or through the effective creation of new habitat as part of a landscaping scheme which allows for the migration and dispersal of species. 3. Proposals should fulfil onSites net gain requirements through creation and sensitive management of habitats, in a way that will enhance the ecological network either by ensuring connectivity or improving condition. Where allocated Sites or Sites submitted for planning permission contain or overlap with any mapped **Opportunity for creation areas,** the following development principles should apply: 1. Where development takes place on **Opportunity for creation areas,** applications should include information clearly demonstrating how opportunities to maintain or enhance the ecological network (in regards to the extent of habitat in the network, the condition or distinctiveness of said habitat) and overall connectivity in the network, have or will be taken. It should include aspects of quality design; for example, by leaving strategically important habitat in place where possible to create wildlife corridors or the use of green/brown roofing to act as stepping stones between larger areas of habitat. It should also take any opportunities for effective habitat creation as part of a landscaping scheme which ensures connectivity between habitats for the species which utilise them. 2. Proposals should prioritise any **Opportunity for creation areas** within the development Sites for habitat creation. This will ensure that requirements for both biodiversity net gain and the enhancement of ecological networks are achieved in an effective way. Habitat creation onSites should maximise the potential for the ecological network in regards to: the extent of habitat in the network, the condition or distinctiveness of said habitat and the overall connectivity of the network. Additionally, habitat created onSites in an ecologically desirable location or in an area identified by a local strategy, are valued more highly by Defra's biodiversity net gain Metric.

APPENDIX B: HABITAT BASELINE PLAN

APPENDIX C: PROPOSED HABITATS PLAN

APPENDIX D: BASELINE & PROPOSED HABITAT CONDITION ASSESSMENTS

Biodiversity metric 3.1 uses habitat condition as one of the measures of habitat quality. The process of assessing habitat condition considers key physical characteristics and a habitat's ability to support typical flora and fauna. Appendices D1 to D11 cover all habitat types found in within the Site and their relevant condition sheet. On completion of condition assessments using the condition sheets in Appendix D, all habitat parcels have been assigned one of three condition categories: good, moderate or poor. The Metric tool does allow for intermediate categories (fairly good and fairly poor) if it is not possible to distinguish between two main condition categories.

This method of assessing habitat condition has been used to:

a) Assess the condition of pre-intervention or baseline habitats to inform baseline biodiversity unit calculations.

b) Assess the condition of post-intervention habitats as part of ongoing monitoring requirements.

c) Inform habitat creation and enhancement interventions by defining what each condition state would look like for the habitat in question.

D1 CONDITION SHEET: WOODLAND HABITAT TYPE

Woodland and forest - Other woodland; broadleaved

BNG Condition Assessment					Baseline Moderate Woodland	Baseline Good Woodland	Woodland to be created to targeted condition Moderate
Indicator		**Good (3 points)**	**Moderate (2 points)**	**Poor (1 point)**			
1	**Age Distribution**	3 age classes present	2 age classes present	1 age class present	2	2	1
2	**Herbivore Damage**	No significant browsing damage evident	Evidence of significant browsing pressure in 40% or less of whole woodland	Evidence of significant browsing pressure in 40% or more of whole woodland	3	3	3
3	**Invasive Species**	No invasive plant species	Rhododendron & laurel not present, other invasive species cover <10%	Rhododendron or laurel present, or other invasive species cover >10%	3	3	3
4	**No. of Native Tree Species**	5 or more native tree/shrub species present	3-4 native tree/shrub species present	0-2 native tree or shrub species present	1-2	2	3
5	**Cover of Native Species**	>80% of canopy & understory shrubs are native	50-80% of canopy & understory shrubs are native	<50% canopy & understory shrubs are native	3	3	3
6	**Open Space**	0-20% woodland has temporary areas of open space	21-40% woodland has temporary areas of open space	>40% woodland has temporary areas of open space	2	2	3
7	**Regeneration**	All 3 classes present	1 or 2 classes present	No classes or coppice regrowth present	1-2	2	1
8	**Tree Health**	Tree mortality <10%	11-25% tree mortality	>25% tree mortality and any high risk pest/disease	3	3	3
9	**Vegetation & Ground Flora**	Ancient woodland indicators present	Recognisable NVC community present	No recognisable NVC community	2-3	3	1
10	**Vertical Structure**	3 or more storeys across all survey plots	2 storeys across all survey plots	1 or less storeys across all survey plots	2-3	3	1
11	**Veteran Trees**	2 or more veteran trees/ha	1 veteran tree/ha	No veteran trees present	1	1	1
12	**Deadwood**	50% survey plots have deadwood	25-50% survey plots have deadwood	<25% survey plots have deadwood	2-3	3	2
13	**Disturbance**	No nutrient enrichment or damaged ground	<20% damaged ground and/or <1ha nutrient enrichment	>20% damaged ground and/or >1ha nutrient enrichment	1-2	3	3
Woodland Condition					**Moderate (26 to 32/39)**	**Good (33/39)**	**Moderate (28/39)**

Condition Assessment Result	**Condition Assessment Score**
Total score >32 (33 to 39)	Good (3)
Total score 26 to 32	Moderate (2)
Total score <26 (13 to 25)	Poor (1)

D2 CONDITION SHEET: SCRUB HABITAT TYPE

Heathland and shrub - Blackthorn scrub

Heathland and shrub - Hawthorn scrub

Heathland and shrub - Mixed scrub

Criteria	**Baseline Scrub**	**Scrub to be created to targeted condition Good**
Habitat is representative of UKHab description (where in its natural range). There are at least three woody species, with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn or box, which can be up to 100% cover).	N - Y	Y
There is a Good age range – all of the following are present: seedlings, young shrubs and mature shrubs.	N	Y
There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	Y	Y
The scrub has a well-developed edge with scattered scrub and tall grassland and/or herbs present between the scrub and adjacent habitat(s).	N	Y
There are clearings, glades or rides present within the scrub, providing sheltered edges.	N	Y
Condition	**Poor (1 to 2 /5)**	**Good (5/5)**
Condition Assessment Result	**Condition Assessment Score**	
Passes 5 of 5 criteria	Good (3)	
Passes 3 or 4 of 5 criteria	Moderate (2)	
Passes 0, 1 or 2 of 5 criteria	Poor (1)	

D3 CONDITION SHEET: GRASSLAND HABITAT TYPE (LOW DISTINCTIVENESS)

Grassland - Modified Grassland (MG)

BNG Condition Assessment		Baseline Poor MG	Baseline Moderate MG	MG to be created to targeted condition Poor	MG to be enhanced to targeted condition Good
		Criterion Achieved (Y/N)			
1	There must be 6-8 species per m^2. If a grassland has 9 or more species per m2 it should be classified as a medium distinctiveness grassland habitat type. **NB- this criterion is essential for achieving Moderate condition.**	N	Y	N	Y
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	N	N	Y
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note- patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	Y	Y	Y
4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion cause by high levels of access, or any other damaging management activities.	N	N	Y	Y
5	Cover of bare ground between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Y	Y	N	Y
6	Cover of bracken less than 20%	Y	Y	Y	Y
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Y	Y	Y	Y
Condition		**Poor (4/7 excluding essential criterion 1)**	**Moderate (5/7 including essential criterion 1)**	**Poor (4/7 excluding essential criterion 1)**	**Good (7/7 including essential criterion 1)**

Condition Assessment Result	Condition Assessment Score
Passes 6 or 7 criteria including passing essential criterion 1	Good (3)
Passes 4 or 5 of 7 criteria; OR Passes 4 or 5 of 7 criteria including passing essential criterion 1	Moderate (3)
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 criteria but failing criterion 1	Poor (1)

D4 CONDITION SHEET: GRASSLAND HABITAT TYPE (MEDIUM, HIGH & VERY HIGH DISTINCTIVENESS)

Grassland - Other Neutral Grassland

Grassland - Tall herb communities

BNG Condition Assessment		Baseline Poor ONG	Baseline Moderate ONG and ONG to be created or enhanced to targeted condition Moderate	ONG to be created or enhanced to targeted condition Good
		Criterion Achieved (Y/N)		
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB - **This criterion is essential for achieving Moderate condition for non-acid grassland types only.**	N	Y	Y
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	Y	Y	N - Y
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.	Y	Y	Y
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.	Y	Y	Y
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.	N	N	Y
6	There are greater than 9 species per metre squared. **NB - This criterion is essential for achieving Good condition (non-acid grassland types only).**	N	N	Y
Condition		**Poor (3/6)**	**Moderate (4/6, including essential criterion 1)**	**Good (5 to 6/6, including essential criteria 1 and 6)**

Condition Assessment Result	Condition Assessment Score
Passes 5 or 6 criteria, including essential criteria 1 and 6	Good (3)
Passes 3 or 4 criteria, including essential criterion 1	Moderate (2)
Passes 0, 1 or 2 of 6 criteria; OR Passes 3 or 4 criteria excluding criteria 1 and 6	Poor (1)

D5 CONDITION SHEET: POND HABITAT TYPE

Lakes - Ponds (non-priority habitat)

BNG Condition Assessment		Non-woodland ponds:			Woodland ponds:
		Baseline Poor Ponds	**Baseline Moderate Ponds and ponds to be created to targeted condition Moderate**	**Baseline Good Ponds and ponds to be created or enhanced to targeted condition Good**	**Baseline Good Ponds**
		Criterion Achieved (Y/N)			
1	The pond is of Good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	N	Y	Y	Y
2	There is semi-natural habitat (i.e. Moderate distinctiveness or above) for at least 10 m from the pond edge.	N	Y	Y	Y
3	Less than 10% of the pond is covered with duckweed or filamentous algae.	N-Y	Y	Y	Y
4	The pond is not artificially connected to other waterbodies, either via streams, ditches or artificial pipework.	Y	N-Y	Y	Y
5	Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.	N-Y	Y	Y	Y
6	There is an absence of non-native plant and animal species[2].	Y	Y	Y	Y
7	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Y	Y	Y	Y
ADDITIONAL CRITERIA - only applicable to non-woodland ponds:					
8	In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds)[3], should cover at least 50% of the pond area that is less than 3 m deep.	N	N	Y	N/A
9	The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.	N	Y	Y	
Condition		**Poor (3 to 5/6)**	**Moderate (7 to 8/9)**	**Good (9/9)**	**Good (7/7)**

Condition Assessment Result	**Condition Assessment Score**
Passes 9 of 9 criteria	Good (3)
Passes 6, 7 or 8 of 9 criteria	Moderate (2)
Passes 0, 1, 2, 3, 4 or 5 of 9 criteria	Poor (1)

D6 CONDITION SHEET: URBAN HABITAT TYPE

Sparsely vegetated land - Ruderal/ephemeral (R/E)

Urban - Vacant / derelict land / bare ground (BG)

BNG Condition Assessment		**Baseline Poor BG & R/E**	**Baseline Moderate BG**
		Criterion Achieved (Y/N)	
1	Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single ecotone (i.e. scrub, grassland, herbs) should not account for more than 80% of the total habitat area.	N	Y
2	There is a diverse range of flowering plant species, providing nectar sources for insects. These species may be either native, or non-native but beneficial to wildlife. NB - To achieve GOOD condition, criterion 2 must be satisfied by native species only (rather than non-natives beneficial to wildlife). Note that Biodiverse green roofs are exempt from this requirement, and can include non-native sedums, as set out in footnote 1.	N	N
3	Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).	Y	Y
Condition		**Poor (1/3)**	**Moderate (2/3)**
Condition Assessment Result		**Condition Assessment Score**	
Passes 3 of 3 core criteria; AND Meets the requirements for good condition within criteria 2 and 3		Good (3)	
Passes 2 of 3 core criteria: OR Passes 3 of 3 core criteria but does not meet the requirements for good condition within criteria 2 and 3		Moderate (2)	
Passes 0 or 1 of 3 criteria		Poor (1)	

D7 CONDITION SHEET: URBAN TREES HABITAT TYPE

Urban - Urban tree

BNG Condition Assessment		Baseline Criterion Achieved (Y/N)
1	The tree is a native species (or more than 70% within the block are native species).	Y
2	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Y
3	The tree is mature2 or veteran3 (or more than 50% within the block are mature2 or veteran3).	Y
4	There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Y
5	Micro-habitats for birds, mammals and insects are present e.g. presence of deadwood, cavities, ivy or loose bark	Y
6	More than 20% of the tree canopy area is oversailing vegetation beneath.	N-Y
Condition		**Good (5 to 6/6)**
Condition Assessment Result		**Condition Assessment Score**
Passes 5 or 6 of 6 criteria		Good (3)
Passes 3 or 4 of 6 criteria		Moderate (2)
Passes 0, 1 or 2 of 6 criteria		Poor (1)

D8 CONDITION SHEET: HEGDEROW HABITAT TYPE

Native hedgerow

Native hedgerow - associated with bank or ditch

Native hedgerow with trees

Native hedgerow with trees - associated with bank or ditch

Native species rich hedgerow

Native species rich hedgerow - associated with bank or ditch

Native species rich hedgerow with trees

Native species rich hedgerow with trees - associated with bank or ditch

Attributes and functional groupings (A, B, C, D & E)		**Criteria (the minimum requirements for 'favourable condition'**	**Poor Baseline Hedgerows**	**Moderate Baseline Hedgerows**	**Good Baseline Hedgerows and Hedgerows to be created or enhanced to targeted condition Good**
Core groups - applicable to all hedgerow types					
A1.	Height	>1.5 m average along length	Y	Y	Y
A2.	Width	>1.5 m average along length	Y	Y	Y
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length (unless 'line of trees')	N	N	Y
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length and No canopy gaps >5 m	N	N-Y	Y
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: - measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)	N	Y	Y
C2.	Undesirable perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground	N	N	N
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species	Y	Y	Y
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities	N	N	Y
Hedgerow Condition			**Poor (5 failures)**	**Moderate (3 to 4 failures)**	**Good (1 failure)**
Additional group - applicable to hedgerows with trees only					
E1.	Tree age	At least one mature tree per 30m stretch of hedgerow. A mature tree	N	N-Y	N-Y

		is one that is at least 2/3 expected fully mature height for the species.			
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Y	Y	Y
Hedgerow With Trees Condition			**Poor (6 failures)**	**Moderate (3 to 5)**	**Good (1 to 2 failures)**

Condition Categories for Hedgerows without Trees	
Maximum number of attributes that can fail to meet 'favourable condition' criteria	**Metric Score**
No more than 2 failures in total; AND No more than 1 in any functional group	3
No more than 4 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C1 = Moderate condition)	2
Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition)	1

Condition Categories for Hedgerows with Trees	
Maximum number of attributes that can fail to meet 'favourable condition' criteria	**Metric Score**
No more than 2 failures in total; AND No more than 1 in any functional group	3
No more than 5 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C1 & E1 = Moderate condition)	2
Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition)	1

D9 CONDITION SHEET: LINE OF TREES HABITAT TYPE

Line of trees (LoT)

Line of trees – associated with bank or ditch

BNG Condition Assessment		Baseline Poor LoT	LoT to be enhanced to targeted condition Moderate	Baseline Moderate LoT	LoT to be enhanced to targeted condition Good
		Criterion Achieved (Y/N)			
1	More than 70% of trees are native species.	Y	Y	Y	Y
2	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	N	N	Y	Y
3	Includes one or more mature1 or veteran2 tree.	N	N	Y	Y
4	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 anthropogenic operations.	N	Y	N	Y
5	At least 95% of the trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Y	Y	Y	Y
Condition		**Poor (2/5)**	**Moderate (3/5)**	**Moderate (4/5)**	**Good (5/5)**

Condition Assessment Result	Condition Assessment Score
Passes 5 of 5 criteria	Good (3)
Passes 3 or 4 of 5 criteria	Moderate (2)
Passes 0, 1 or 2 of 5 criteria	Poor (1)

D10 CONDITION SHEET: DITCH HABITAT TYPE

Rivers and streams - Ditches

BNG Condition Assessment		Poor Baseline Ditch	Moderate Baseline Ditch	Ditch to be enhanced to targeted condition Moderate
		Criterion Achieved (Y/N)		
1	The ditch is of Good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	N	Y	Y
2	A range of emergent, submerged or floating leaved plants are present. As a guide >10 species of emergent, floating or submerged plants in a 20m ditch length.	N	N	N
3	There is less than 10% cover of filamentous algae and/or duckweed (these are signs of eutrophication).	N-Y	Y	Y
4	A fringe of marginal vegetation is present along more than 75% of the ditch.	N	N	Y
5	Physical damage evident along less than 5% of the ditch, such as excessive poaching, damage from machinery use or storage, or any other damaging management activities.	N-Y	Y	Y
6	Sufficient water levels are maintain; as a guide a minimum summer depth of approximately 50cm in minor ditches and 1m in main drains.	N-Y	Y	N
7	Less than 10% of the ditch is heavily shaded.	N-Y	Y	Y
8	There is an absence of invasive non-native plant and animal species.	Y	Y	Y
Ditch Condition		**Poor (1 to 5/8)**	**Moderate (6/8)**	**Moderate (6/8)**

Condition Assessment Result	Condition Assessment Score
Passes 8 of 8 criteria	Good (3)
Passes 6 or 7 of 8 criteria	Moderate (2)
Passes 0, 1, 2, 3, 4 or 5 of 8 criteria	Poor (1)

D11 CONDITION SHEET: WETLAND HABITAT TYPE

Grassland - Floodplain wetland mosaic (CFGM)

BNG Condition Assessment		Floodplain wetland mosaic to be created – Poor target condition	Floodplain wetland mosaic to be created – Moderate target condition
1	The water table is at or near the surface throughout the year, this could be open water or saturation of soil at the surface. There is no artificial drainage, unless specifically to maintain water levels as specified above. **NB - this criterion is essential for achieving Good condition.**	Y	Y
2	The appearance and composition of the vegetation closely matches characteristics of the specific wetland habitat type (see UKHab definition linked above). Indicator species for the specific wetland habitat type1 are very clearly and easily visible.	N	Y
3	The water supplies (groundwater, surface water and/or rainwater) to the wetland are of Good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Y	Y
4	Cover of scrub and scattered trees less than 10%.	Y	Y
5	Cover of bare ground less that 5%.	N	Y
6	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.	N	N
7	All ditches recorded within the habitat achieve Good condition as assessed using the Ditch condition sheet.	N	N
Condition		**Poor (3/7)**	**Moderate (5/7 including essential criterion 1 but excluding criterion 7)**

Condition Assessment Result	Condition Assessment Score
Passes 5 or 6 of 6 core criteria, including essential core criterion 1; AND Passes criterion 7	Good (3)
Passes 4 or 5 of 7 criteria; OR Passes 6 of 7 criteria excluding either essential core criterion 1 or criterion 7	Moderate (2)
Passes 0, 1, 2 or 3 of 7 criteria	Poor (1)

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