SUNNICA ENERGY FARM

EN010106

Environmental Statement

Volume 6

6.7 Biodiversity Net Gain Assessment

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Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Sunnica Energy Farm

Environmental Statement
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Table of contents

Table of Tables

1 Introduction

1.1.1 AECOM was commissioned by Sunnica Limited to undertake a Biodiversity Net Gain ('BNG') assessment for Sunnica Energy Farm (hereafter referred to as the Scheme). This report has been prepared as part of the Development Consent Order (DCO) Application for the Scheme.

1.1.2 This BNG assessment has been undertaken using Defra's Biodiversity Metric 3.0 (Ref 1 and Ref 2) to quantify the overall effect of the Scheme on biodiversity and to inform habitat design as part of the Scheme. The report sets out the results of the BNG assessment including recommendations for potential options which could help the Scheme to achieve a net gain in biodiversity. Relevant legislation and policy, pertinent to BNG is presented in Section 2, the methodology for the assessment is outlined in Section 3, the results in Section 4, and the conclusions are provided in Section 5.

1.2 Supporting Documents

1.2.1 The following documents have been used to inform the BNG assessment, reported in this document:

a. **Chapter 8: Ecology and Nature Conservation** of the Environmental Statement **[EN010106/APP/6.1]**;
b. **Appendix 10I Outline Landscape and Ecology Management Plan (OLEMP)** of the Environmental Statement **[EN010106/APP/6.2]**;
c. **Works Plans [EN010106/APP/2.2]**
d. **Figure 3-1: Sunnica East Site A and B Parameter Plan** and **Figure 3-2: Sunnica West A and B Parameter Plan** of the Environmental Statement **[EN010106/APP/6.3]**;
e. **Appendix 8B: Preliminary Ecological Appraisal report** of the Environmental Statement **[EN010106/APP/6.2]**;
f. **Appendix 8C: Terrestrial habitats and flora report** of the Environmental Statement **[EN010106/APP/6.2]; and**
g. **Appendix 8E: Aquatic Ecology report** of the Environmental Statement **[EN010106/APP/6.2]**.

1.3 The Scheme

1.3.1 Sunnica Energy Farm (the Scheme) is a new solar energy farm proposal that will deliver electricity to the national electricity transmission network. Sunnica Limited is proposing to install ground mounted solar photovoltaic (PV) panel arrays to generate electrical energy from the sun and combine these with a Battery Energy Storage System (BESS) which will connect to Burwell National Grid Substation in Cambridgeshire.

1.3.2 Electricity will be generated at Sunnica East Site A, near Isleham in Cambridgeshire; Sunnica East Site B, near Worlington and Freckenham in Suffolk; Sunnica West Site A near Chippenham and Kennett in Cambridgeshire; and Sunnica West Site B, near Snailwell in Cambridgeshire. All locations will

comprise ground mounted solar PV panel arrays, supporting electrical infrastructure and, with the exception of Sunnica West Site B, a BESS.

1.3.3 Supporting electrical infrastructure will include on-site substations on Sunnica East Site A and Sunnica East Site B and Sunnica West Site A, and on-site cabling between the different electrical elements across the Scheme. The generating equipment of the Scheme will be fenced and protected via security measures such as Closed Circuit Television. Inside the fenced areas, in addition to the generating equipment will be, internal access tracks, and drainage. It is not proposed for any area to be continuously lit.

1.3.4 Visual, ecological and archaeological mitigation is proposed which includes proposed grassland planting and new woodland; retention of existing woodland, wetlands and other vegetation; provision of replacement habitat; and offsetting areas, where there will be no development. The BESSs will consist of a compound and battery array to allow for the importation, storage and exportation of energy to the National Grid. There will also be areas at Sunnica East Site A and Sunnica East Site B for office and storage facilities for use during the Scheme's operation.

1.3.5 The Scheme will be connected to a new substation extension at the existing Burwell National Grid Substation, using 132 kilovolt (kV) cables buried underground. The cables will run between Sunnica East Site A, Sunnica East Site B and Sunnica West Site A (Grid Connection Route A), and then from Sunnica West Site A to Sunnica West B and onwards to the Burwell National Grid Substation (Grid Connection Route B). The Burwell National Grid Substation Extension will convert the 132kV to 400kV. The 400kV cables will be buried and will connect the Scheme to the existing Burwell National Grid Substation to allow distribution to the national transmission network.

1.3.6 The Scheme will have two main access points, one north of Elms Road at Sunnica East Site B and one south of La Hogue Road at Sunnica West Site A. The main access route to Sunnica West Site A will be via the Chippenham junction of the A11, to the north of junction 38 of the A14. Sunnica East Site B will be accessed via the A11 and B1085. A number of secondary access points are proposed to access the individual land parcels through construction, operation, and decommissioning phases.

1.3.7 The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP) and will require a Development Consent Order (DCO) from the Secretary of State for Business, Energy and Industrial Strategy (Secretary of State), due to its generating capacity exceeding 50 megawatts (MW).

1.3.8 The Scheme comprises the following key areas:

a. Solar Farm Sites:
    i. Sunnica East Site A;
    ii. Sunnica East Site B;
    iii. Sunnica West Site A; and
    iv. Sunnica West Site B.

b. associated electrical infrastructure for connection to the national transmission system. For the purposes of this BNG assessment, Grid Connection Routes A and B have each been split in to two sections. These comprise:
    i. Grid Connection Route A ('A1' - connecting Sunnica East Site A with Sunnica East Site B and then 'A2' connecting Sunnica East Site B to Sunnica West Site A);
    ii. Grid Connection Route B ('B1' - connecting Sunnica West Site A and Sunnica West Site B and 'B2' connecting Sunnica West Site B to the Burwell National Grid Substation); and
    iii. Burwell National Grid Substation Extension.

1.3.9 **Figure 1** in Appendix A shows the locations of these key areas.

1.4 Site description

1.4.1 The Order limits area is 1,113ha and the land use dominated by arable fields (873.1ha, 78%). There are mature trees and hedges, small wooded copses and ponds, and several watercourses and ditches intersect the site. The surrounding habitat is mainly arable and mature broadleaved woodland (plantation, semi-natural). There are individual and clusters of residential properties located within and adjacent to the Order limits.

2 Relevant Legislation and Policy for BNG

2.1.1 The draft Environment Bill, published by the UK Government in October 2019 (Ref 3) includes proposals which will lead to a position where biodiversity net gain (BNG) will be a mandatory requirement within the planning system in England, including for NSIPs and will lead to a requirement for all developments to achieve a minimum 10% net gain in biodiversity units relative to the site's baseline biodiversity value.

2.1.2 It is government policy that planning decisions should minimise impacts on and provide net gains for biodiversity (National Planning Policy Framework (NPPF) 2021) (Ref 4).

2.1.3 Paragraph 174, where specific to BNG, of the NPPF states that: "*planning policies and decisions should contribute to and enhance the natural and local environment by: protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan…. minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*".

2.1.4 Section 4.5 of the draft Overarching National Policy Statement for Energy (EN-1) states: *"Although achieving biodiversity net gain is not an obligation for projects under the Planning Act 2008, energy NSIP proposals should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity where possible".*

2.1.5 Relevant policies and summary sections on BNG, taken from local policy documents, are presented in **Table 2-1**.

Table 2-1: Relevant BNG sections within local policies

Relevant Document	Relevant policies on BNG	Policy Summary on BNG
East Cambridgeshire District Council Local Plan Adopted April 2015 (Ref 5)	Policy ENV7: Biodiversity and Geology	*All development proposals will be required to:* • *Protect the biodiversity and geological value of land and buildings and minimise harm to or loss of environmental features, such as trees, hedgerows, woodland, wetland and ponds.* • *Provide appropriate mitigation measures, reinstatement or replacement of features and/ or compensatory work that will enhance or recreate habitats on or off site where harm to environmental features and habitat is unavoidable; and* • *Maximise opportunities for creation, restoration, enhancement and connection of natural habitats as an integral part of development proposals.*

Relevant Document	Relevant policies on BNG	Policy Summary on BNG
East Cambridgeshire District Council Supplementary Planning Document Natural Environment September 2020 (Ref 6)	Policy SPD.NE6 Biodiversity Net Gain	*In addition to the provisions set out in the Local Plan, all development proposals should contribute to and enhance the natural and local environment by firstly avoiding impacts where possible, where avoidance isn't possible minimising impacts on biodiversity and providing measurable net gains for biodiversity If and when a nationally mandated mechanism to secure 'net gains' is introduced, then the following policy will not be implemented. In the absence of any nationally mandated mechanism to secure such 'net gains', the following policy applies: All development proposals (except householder applications – see below) must provide clear and robust evidence setting out: (a) information about the steps taken, or to be taken, to avoid and minimise the adverse effect of the development on the biodiversity of the onsite habitat and any other habitat, (b) the pre-development biodiversity value of the onsite habitat based on an up to date survey and ideally using the Defra metric, (c) the post-development biodiversity value of the onsite habitat ideally using the Defra metric; and (d) the ongoing management strategy for any proposals. Proposals which do not demonstrate that the post-development biodiversity value of the onsite habitat will not significantly exceed the pre-development biodiversity value of the onsite habitat will be refused.*
East Cambridgeshire District Council Supplementary Planning Documents Renewable Energy Development (Commercial Scale) October 2014 (Ref 7)	Section 5: Biodiversity and geology	*Biodiversity enhancement: Applicants for renewable energy development will be expected to provide robust evidence as part of their planning application to demonstrate that the proposal will result in a net biodiversity gain as outlined in the National Planning Policy Framework. Opportunities to create or improve existing biodiversity should form part of renewable energy proposals. Biodiversity enhancement can include habitat restoration, improved links between sites and the inclusion of new environmental features within the development. For example there is the potential to create new grasslands and hedgerows on the area around solar panels. Where environmental features are removed appropriate compensation measures will be required by the District Council. Applicants should have regard to the best practice guidance for renewable energy developments and biodiversity enhancement measures which has been produced by Natural England, the RSPB and the Solar Trade Association.*
Forest Heath District Council Core Strategy Adopted 2010 (Ref 8)	Policy CS2: Natural Environment	*Areas of landscape, biodiversity and geodiversity interest and local distinctiveness within the District will be protected from harm and their restoration, enhancement and expansion will be encouraged and sought through a variety of measures.*

Relevant Document	Relevant policies on BNG	Policy Summary on BNG
Forest Heath and St Edmundsbury Local Plan: Joint Development Management Policies Document (last updated February 2015) (Ref 9)	Policy DM12: Mitigation, Enhancement, Management and Monitoring of Biodiversity	*In addition to, or as part of the requirements of other policies in this Development Policy Document measures should be included, as necessary and where appropriate, in the design for all developments for the protection of biodiversity and the mitigation of any adverse impacts. Additionally, enhancement for biodiversity should be included in all proposals, commensurate with the scale of the development. For example, such enhancement could include watercourse improvements to benefit biodiversity and improve water quality, habitat creation, wildlife links (including as part of green or blue infrastructure) and building design which creates wildlife habitat (e.g. green roofs, bird and/or bat boxes).*
Fordham Neighbourhood Plan (made December 2018) (Ref 10)	Policy 8: Wildlife and Habitats	*Development proposals should, wherever possible, seek to enhance connectivity of green networks through the inclusion of strong landscaping schemes that include trees, shrubs, hedgerows, green roofs and green walls, for example.* *Wherever possible, development proposals should avoid the loss of wildlife habitats or natural features such as trees, hedgerows, watercourses or ponds. Where the loss of a feature is unavoidable, mitigation may be acceptable through the introduction of new features that will result in at least a neutral impact on the wildlife.* *Overall a net gain in biodiversity should be achieved, demonstrated by appropriate evidence prepared by a suitably qualified person on behalf of the applicant.*

3 Methods

3.1.1 This report has been produced in accordance with the methods set out in the following guidance documents:

a. Biodiversity Metric 3.0 User Guide (Ref 2); and
b. Biodiversity Metric 3.0 – Technical Supplement (Ref 1).

3.1.2 Calculations for BNG within the following sections were made using the 'Biodiversity Metric 3.0 -Calculation Tool'.

3.1 Biodiversity Metric 3.0

3.1.1 A BNG assessment involves making a comparison between the biodiversity value of habitats present within the Order limits prior to development (*i.e*. the 'baseline') and the predicted biodiversity value of habitats following the completion of the development (*i.e*. 'post-development'). The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.

3.1.2 Biodiversity Metric 3.0 calculates the overall loss or gain of biodiversity of development projects by assessing the distinctiveness (*i.e.* type of habitat and its value), condition, extent, ecological connectivity and strategic significance of habitats on site pre- and post-development. To achieve biodiversity net gain, the biodiversity unit score must have a post-development score higher than the baseline score. When calculating the post-development biodiversity units, the metric includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or condition are required to achieve net gain.

3.1.3 The metric assesses and generates separate outputs for area-based habitats (measured in habitat units) and linear based habitats, including hedgerows (measured in hedgerow units) and rivers (measured in river units). For the purpose of the BNG assessment, the output with the lowest value is used to determine whether following development there has been a net gain in biodiversity. A development cannot claim to achieve an overall net gain unless this is predicted across all area-based and linear based habitats.

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

3.2 Baseline Data

3.2.1 All baseline and post-development habitats within the Order limits have been included within the calculation to provide the baseline and post-development biodiversity values.

3.2.2 Phase 1 habitat data collected in November 2018 and updated throughout 2019 and 2020 (up to August 2020) (hereafter referred to as 'the baseline') have been utilised to determine the baseline area-based and linear habitats. All baseline

habitats defined within the Order limits were assigned a condition, using criteria outlined in the Biodiversity Metric 3.0 – Technical Supplement (Ref 2).

3.2.3 For those habitats where condition was unable to be applied using this process (such as woodland) condition was assigned retrospectively based on assumptions outlined in section 3.6. In these instances, decisions were made using a combination of baseline information available for the Order limits, professional judgement and the precautionary application of the condition assessment criteria outlined in the Biodiversity Metric 3.0 Technical Supplement.

3.2.4 The Baseline Phase 1 Habitat Map (Appendix A) was digitised in Geographic Information System (GIS) to provide area and length measurements of each habitat type. The habitats recorded during the Phase 1 habitat survey (see **Appendix 8B: Preliminary Ecological Appraisal report** of the Environmental Statement **[EN010106/APP/6.2]** and **Chapter 8: Ecology and Nature Conservation** of the Environmental Statement **[EN010106/APP/6.1]**) were converted into UK Habitat Classification (UKHab) categories, for the purposes of BNG. These data were then combined and entered into the metric to calculate the baseline biodiversity units.

3.3 River Habitats

3.3.1 Habitat categories, associated distinctiveness, and condition scores are approached differently for watercourses. In line with current guidance (Ref 7-2), a desk study was undertaken to identify all watercourse habitats present within the Scheme boundary using the 'Discovering Priority Habitat in England' river data map (Ref 4). Following this, watercourse habitats were assigned a habitat category (according to the criteria: Priority Habitat, Other Rivers and Streams, Ditches, Canals, Culvert) and distinctiveness using Section 41 of the NERC Act's Priority Habitat descriptions (Ref 12).

3.3.2 All watercourse habitats to be impacted by the Scheme, *i.e.* through intrusive crossing along the cable corridor or culverting, in this instance were considered to be 'ditches'. Ditches are assessed separately to rivers and streams and are defined for Biodiversity Metric 3.0 *as "artificially created, linear water-conveyancing features that are less than 5 m wide and are likely to hold water for more than four months of the year. Their hydraulic function is primarily for land drainage and although partially or fully connected to a river system, they would not have been present without human intervention"* (Ref 2).

3.3.3 Any watercourses that have been scoped into the assessment as ditches under this definition are therefore subjected to a Ditch Condition Assessment, which involves conducting a survey in the field that uses eight criteria to assess condition, which was undertaken. These criteria include water quality and levels, macrophyte abundance and morphotype diversity, presence of marginal vegetation, physical damage, shading and presence of invasive non-native species. The greater the number of criteria the ditch achieves, the better the condition score attributed to it.

3.3.4 All of this information was inputted to the metric in order to generate the baseline river habitat units.

3.4 Post-development Data

3.4.1 The proposed landscape and habitat planting for the Scheme (shown in **Figure 3-1: Sunnica East Site A and B Parameter Plan** and **Figure 3-2: Sunnica West A and B Parameter Plan** of the Environmental Statement **[EN010106/APP/6.3]** and in the OLEMP) were digitised in GIS to create the post development habitat data, which was used to provide the measurements of the habitats to be retained and created within the Scheme.

3.4.2 The post development habitat data was utilised to determine the post development biodiversity units. Target conditions have been selected in accordance with the Natural England Biodiversity Metric 3.0 User Guide and Technical Supplement.

3.4.3 On receipt of the DCO, long-term ecological management and maintenance for the Order limits will be implemented through detailed Landscape and Ecological Management Plans in accordance with the OLEMP. . Therefore, target condition scores for the proposed habitats have been predicted in accordance with Biodiversity Metric 3.0 User Guide and Technical Supplement and using professional judgement to ensure the condition scores selected were realistic and achievable.

3.5 Strategic Significance

3.5.1 Metric 3.0 requires that the strategic significance of all baseline and post development habitats be defined. Strategic significance refers to areas of local priority for biodiversity and nature improvement, identified within local planning policies. As part of this assessment, the relevant local planning policy documents (see **Table 2-1**) were reviewed to determine the strategic significance of the habitats on Site.

3.6 Assumptions and limitations

3.6.1 All habitat areas and lengths have been measured manually using ArcGIS based on the Phase 1 Habitat Plan (shown in Figure 8-3 of Chapter 8 of the Environmental Statement **[EN010106/APP/6.1]**) and the proposed landscape and habitat planting for the Scheme shown in **Figures 3-1** and **3-2** of the Environmental Statement **[EN010106/APP/6.3]** and the OLEMP. Habitat areas are therefore considered to be approximations only.

3.6.2 Where habitat condition has been assigned retrospectively, a reasonable precautionary approach has been adopted to prevent underestimating the value of the baseline habitat.

3.6.3 It is understood that habitats created and enhanced as part of the Scheme will be subject to appropriate ongoing management and monitored to enable correct establishment and growth, and that remedial action will be taken if this does not proceed as expected, otherwise the target conditions used in the calculations may not be met. The OLEMP will be the mechanism for delivering this monitoring and management.

3.6.4 Guidance published by BRE recognises that on average 95% of a site used for solar farm development is "*still accessible for plant growth and potentially for*

wildlife enhancements and complementary agricultural activities such as conservation grazing" (Ref 14). As such 95% of the solar array footprint has been categorised as grassland with the remaining 5% allocated within the metric as 'sealed surface' to take into account array infrastructure. Seed mixes specified for these areas within any long-term management and monitoring plan should favour nectar and pollen rich species that are both stress and shade tolerant. This approach is supported by RSPB (2014) (Ref 14) which states "biodiversity gains are possible where intensively cultivated arable or grassland is converted to extensive grassland and/or wildflower meadows between and/or beneath solar panels and in field margins".

3.6.5 This assessment considered all habitat losses, including those during construction from the temporary location of compounds, access routes and other activities associated with the Scheme.

3.6.6 The Scheme will only result in those impacts to the watercourses as described in this report within the post development section below.

3.6.7 There are some watercourses within the Order limits that are not included within this BNG assessment as there will be no impacts to these watercourses or their riparian zones (10m) from the bank-top either side. However, these are included in the Water Framework Directive (WFD) assessment presented in **Appendix 9B** of this Environmental Statement **[EN010106/APP/6.2]**.

3.6.8 The ditch condition assessment survey assesses watercourse condition based on morphological features, not biological elements of watercourse condition; these are assessed in **Appendix 8E** of this Environmental Statement **[EN010106/APP/6.2]**.

3.6.9 Some ditches were scoped out of this BNG based on the assessment that they likely do not hold water for four months of the year (Ref 2).

3.6.10 It is anticipated that enhancements to watercourses will consist of soft engineering techniques and improvements to the riparian corridor to improve channel diversity and biodiversity. These measures will be defined at detailed design stage, following grant of the DCO and prior to construction.

3.6.11 If proposed lengths of enhancements are not adhered to, there is potential for a loss of watercourse habitat units.

3.6.12 Reinstatement of watercourses after intrusive works are undertaken will aim to provide an improved channel form with enhancement works to be carried out (where relevant and appropriate to do so) up to 10m upstream and downstream of the open trench. The River Metric assessment therefore assumes ("a worse-case scenario") that only 5m upstream and 5m downstream of the works will be enhanced (Ref 13).

4 Results

4.1 On-site baseline habitats

4.1.1 The Order limits covers an area of 1,113ha and the land use is dominated by arable fields (approximately 78%). There are mature trees, small wooded copses and ponds. In addition, there are approximately 24.6km of hedgerows and 1.1km of river habitat within the Order limits.

Area-based habitats

4.1.2 A description of the area-based habitats present within the Order limits, their baseline condition and strategic significance score is summarised below. The habitats listed in the following sections are presented in their UKHab classification.

Woodland and forest – other woodland; broadleaved

4.1.3 Small areas of newly planted broad-leaved woodland are present in the Sunnica East sites A and B and mostly consisted of Field Maple *Acer campestre*, Cherry *Prunus avium* and Ash *Fraxinus excelsior*. Many of the plantation woodlands found scattered along the Grid Connection Routes consisted of mixed broad-leaved and coniferous species.

4.1.4 These areas of plantation broadleaved woodland have been categorised in UK Habitats as 'Woodland and forest – Other woodland; broadleaved'. The habitat has been assigned a 'moderate' condition and of medium strategic significance, as this habitat (woodland) is included in local plans and is deemed to be ecologically desirable.

Woodland and forest - other coniferous woodlands

4.1.5 This habitat was predominantly found within the Sunnica East Site B, with larger blocks present in the eastern section. These areas of woodland either solely consisted of or were dominated by Scot's Pine *Pinus sylvestris*. In the western section of the Sunnica East Site strips of mature Scot's Pine formed field boundaries; planted as wind breaks and typical of the Breckland landscape. Dominant species of the ground flora in these areas where Chickweed *Stellaria media*, Common Nettle *Urtica dioica* and Dog's Mercury *Mercurialis perennis*. A few small areas of young conifer plantation woodland were present within the Sunnica West Sites and along the Grid Connection Routes, which either solely consisted of, or were dominated, by Scot's Pine.

4.1.6 Areas of coniferous plantation woodland have been categorised in UK Habitats as 'Woodland and forest – Other coniferous woodlands'. The habitat has been assigned a 'moderate' condition and of low strategic significance, as although this habitat is included in local plans, it is not deemed to be as ecologically desirable as broadleaved woodland.

Woodland and forest – Lowland mixed deciduous woodland

4.1.7 A number of mature semi-natural broad-leaved woodland blocks are present across the Sunnica West sites A and B and along the Grid Connection Routes. These woodland blocks typically included species such as Oak *Quercus robur*, Silver Birch *Betula pendula*, Field Maple, Beech *Fagus sylvatica*, Walnut *Juglans regia* and Ash with an understory of Privet *Ligustrum vulgare* and Hawthorn *Crataegus monogyna*.

4.1.8 A few areas of semi-natural broad-leaved woodland are present across the Sunnica East Sites A and B. These typically included species such as Beech and Ash with an understory of Snowberry *Symphoricarpos alba*, Privet and Hawthorn.

4.1.9 These areas of broadleaved semi-natural woodland have been categorised in UK Habitats as 'Woodland and forest – Lowland mixed deciduous woodland'. The habitat has been assigned a 'moderate' condition and has been assigned of medium strategic significance, as this habitat (woodland) is included in local plans and is deemed to be ecologically desirable.

Heathland and shrub – mixed scrub

4.1.10 Pockets of dense and scattered scrub are throughout the Order limits, consisting predominantly of Hawthorn and Blackthorn *Prunus spinosa*.

4.1.11 These areas of scrub have been categorised in UK Habitats as 'Heathland and shrub – Mixed scrub' and has been assigned a 'moderate' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Woodland and forest – other woodland; mixed

4.1.12 Many of the woodlands found scattered across the Sunnica East Sites A and B consisted of mixed mature broad-leaved and coniferous specimens. Coniferous species were predominantly planted Scot's Pine, but a wide variety of broad-leaved species were present, including Field Maple, Cherry, Buckthorn *Rhamnus cathartica*, Oak, Sycamore *Acer pseudoplatanus*, Beech and Ash. Many of the woodlands found scattered across the Sunnica West Site A consisted of mixed mature broad-leaved and coniferous specimens. Coniferous species were predominantly planted Scot's Pine, but a wide variety of broad-leaved species were present, Field Maple, Cherry, Buckthorn, Oak, Sycamore, Beech and Ash.

4.1.13 These areas of mixed plantation woodland have been categorised in UK Habitats as 'Woodland and forest – Other woodland; mixed'. The habitat has been assigned a 'moderate' condition and of medium strategic significance, as this habitat (woodland) is included in local plans and is deemed to be ecologically desirable.

Acid Grassland – Lowland Dry Acid Grassland

4.1.14 Five fields in Sunnica East Site B are categorised as U1 *Festuca ovina-Agrostis capillaris-Rumex acetosa* grassland or categorised as SD10 Carex arenaria dune community. All are examples of lowland dry acid grassland priority habitat.

4.1.15 The habitat has been assigned a 'good' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Acid Grassland – Other Lowland Acid Grassland

4.1.16 Two small areas within Sunnica East Site B, including a semi-improved grassland strip 10-20m wide between a conifer woodland and arable fields of light acidic sandy soil with some calcareous influence; and a small area of unmanaged grassland and ephemeral/short perennial vegetation outside a corner of a livestock field.

4.1.17 The habitat has been assigned a 'moderate' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Sparsely Vegetated Land – coastal sand dunes

4.1.18 Two grassland strips of this habitat, approximately 20m and 30m wide, within Sunnica East Site B. One strip is adjacent to Worlington Heath CWS and the other includes part of Badlingham Lane CWS, designated for species rich flora. Both strips are abundant with Sand Sedge *Carex arenaria*. There is no obvious management, apart from some low intensity Deer browsing and there is potential for future shading from planted trees. Both strips have affinity to the NVC community type SD10 *Carex arenaria* dune community.

4.1.19 The habitat has been assigned a 'moderate' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Grassland – lowland calcareous grassland

4.1.20 This habitat is found around an irrigation reservoir on the Sunnica East Site B and is surrounded by arable fields. It comprises tall unmanaged grassland and ruderal herbs with calcareous influences (from chalk exposed through creation of the reservoir). The flora has frequent to abundant Wild Marjoram *Origanum vulgare*, Lady's Bedstraw *Galium verum*, False-oat Grass *Arrhenatherum elatius*, Mugwort *Artemisia vulgaris*, Common Nettle and Bramble *Rubus fruticosus*, with rare to occasional Clustered Bellflower *Campanula glomerata*, Greater Knapweed *Centaurea scabiosa*, Dropwort *Filipendula vulgaris* and Small Scabious *Scabiosa columbaria*.

4.1.21 The habitat has been assigned a 'moderate' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Grassland – other neutral grassland

4.1.22 Small areas of semi-improved neutral grassland, marshy grassland and semi-improved grassland are found across the Order limits.

4.1.23 These areas of neutral grassland have been categorised in UK Habitats as 'Grassland – Other neutral grassland'. The habitat has been assigned a 'good', 'moderate' and 'poor' condition and of medium strategic significance as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Grassland – modified grassland

4.1.24 A number of agricultural fields across the Order limits consisted of Perennial Ryegrass *Lolium perenne* dominated improved grasslands. Isolated areas of semi-improved grassland are also present across the Sunnica West sites A and B including clearings within mixed woodland in Sunnica West Site A, with dominant Cock's-foot *Dactylis glomerata*, False Oat-grass and Yorkshire-fog *Holcus lanatus*, along with Knapweed *Centaurea* sp. and frequent Tormentil *Potentilla erecta* and Agrimony *Agrimonia eupatoria*.

4.1.25 The habitat has been assigned a 'moderate' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Neutral Grassland - other neutral grassland / Fen marsh and swamp - other swamps

4.1.26 Small areas of marshy grassland and swamp in Sunnica West Site B, transitioning to semi-improved grassland in drier areas the south and east (including T4 grassland). Hard Rush *Juncus inflexus*, Common Couch *Elymus repens*, Yorkshire Fog, Hairy Sedge *Carex hirta* and Creeping Bent *Agrostis stolonifera* are frequent. This area has affinity to NVC community type MG10b *Holcus lanatus* - *Juncus effusus* rush pasture, *Juncus inflexus* subcommunity. Reed Canary Grass *Phalaris arundinacea* is locally more abundant or dominant in places. These areas have affinity to NVC community type S28 *Phalaris arundinacea* tall herb-fen.

4.1.27 The habitat has been assigned a 'good' condition and of medium strategic significance, as although this habitat is not specifically included in local plans, it is deemed to be ecologically desirable.

Sparsely Vegetated Land – ruderal / ephemeral

4.1.28 Small areas of tall ruderal and ephemeral habitat are present throughout the Order limits and a number of the areas of hardstanding present across the Sunnica West Site A have ephemeral vegetation and bryophyte communities, including Silver Moss *Bryum argenteum*, present

4.1.29 These areas of tall ruderal and ephemeral habitat have been categorised in UK Habitats as 'Sparsely vegetated land – Ruderal/Ephemeral'. The habitat has been assigned a condition of 'moderate' and of low strategic significance due to it not being included in local plans and strategies.

Cropland – cereal crops

4.1.30 The majority of the Order limits (78%) consists of arable land with bordering grassland and hedgerows.

4.1.31 These areas of arable land have been categorised in UK Habitats as 'Cropland – Cereal crops'. The habitat has a pre-set condition of 'N/A - Agricultural' within the Metric 3.0 Calculation Tool. The habitat has been assigned low strategic significance due to it not being included in local plans or strategies.

Fen Marsh and Swamp - Reedbeds

4.1.32 Small areas of this habitat, predominantly along drains and dominated by Common Reed *Phragmites australis*, with Soft Rush *Juncus effusus*, Meadowsweet *Filipendula ulmaria*, Hemp Agrimony *Eupatorium cannabinum* and Common Water Plantain *Alisma plantago-aquatica*. It has affinity to the NVC community type S4 *Phragmites australis* swamp and reed-beds. Margins with additional species including Bifid Hemp-nettle *Galeopsis bifida*, Weld *Reseda lutea*, Marsh Woundwort *Stachys palustris* and False Oat-grass.

4.1.33 These areas of reedbed habitat have been categorised in UK Habitats as 'Fen Marsh and Swamp – Reedbeds'. The habitat has been assigned a condition of 'moderate' and of low strategic significance due to it not being included in local plans and strategies.

Ponds – Non-priority habitat

4.1.34 Several ponds located throughout the Order limits, associated with woodland and scrub along arable boundaries.

4.1.35 These ponds have been categorised in UK Habitats as 'Lakes – Ponds (Non-Priority Habitat)'. The habitat has been assigned a 'moderate' condition and of medium strategic significance.

Urban – vacant / derelict land / bare ground

4.1.36 Areas of bare ground can be found throughout the Order limits, with larger areas of bare ground on the Sunnica East Sites A and B, with disturbed ground, which forms a pig farm on both sites.

4.1.37 These areas of bare ground have been categorised in UK Habitats as 'Urban – Vacant/ derelict land/ bare ground'. The habitat has been assigned a condition of 'moderate' and of low strategic significance due to it not being included in local plans or strategies.

Urban – developed land; sealed surface

4.1.38 Small areas of hardstanding are scattered throughout the Order limits, consisting mainly of roads and access tracks. A small building is also present on Sunnica East Site B.

4.1.39 These areas of building and hardstanding have been categorised in UK Habitats as 'Urban – Developed land; sealed surface'. The habitat has a pre-set condition of 'N/A – Other' within the Metric 3.0 Calculation Tool and has been assigned low strategic significance due to it not being included in local plans or strategies.

Linear-based habitats (hedgerows and trees)

4.1.40 A description of hedgerows and trees present within the Order limits, their baseline condition and strategic significance score is summarised below. The habitats listed in the following sections are presented in their UKHab classification.

Line of trees

4.1.41 Individual trees are present across the Order limits. Individual trees have been categorised in UK Habitats as 'Line of Trees'. The habitat has been assigned a 'moderate' condition. The habitat has been assigned medium strategic significance, as although this habitat is not included in local plans, it is deemed to be ecologically desirable.

Native hedgerow

4.1.42 Native species-poor hedgerows can be found at field boundaries across the Order limits. These species-poor hedgerows have been categorised in UK Habitats as 'Native Hedgerow'. The habitat has been assigned a 'good', 'moderate' or 'poor' condition. The habitat has been assigned medium strategic significance, as this habitat is included in local plans and is deemed to be ecologically desirable.

Native species-rich hedgerow with trees

4.1.43 One native species-rich hedgerow with trees includes Elm *sp.*, Field Rose *Rosa arvensis*, Beech, Common Hawthorn, Wild Privet *Ligustrum vulgare* and Blackthorn.

4.1.44 This species-rich native hedgerow with trees has been categorised in UK Habitats as 'Native Species Rich Hedgerow with Trees'. The habitat has been assigned a 'good' condition and of medium strategic significance, due to species-rich hedgerows being included in local plans.

Native hedgerow with trees

4.1.45 Native species-poor hedgerows with trees can be found at field boundaries across the Order limits. These species-poor hedgerows have been categorised in UK Habitats as 'Native Hedgerow with Trees'. The habitat has been assigned a 'good' or 'moderate' condition. The habitat has been assigned medium strategic significance, as although this habitat is not included in local plans, it is deemed to be ecologically desirable.

Linear-based habitats (rivers)

4.1.46 The 1.11km of river/ditch habitats present within the baseline habitats is comprised of 535m of a tributary of the River Snail at TL 63800 68540 (referred to

as cable route crossing W1 in **Appendix 8B** of the Environmental Statement **[EN010106/APP/6.2]** and shown in **Figure 3-23** of the Environmental Statement **[EN010106/APP/6.3]**), 393m of a tributary of the River Lark at TL 66870 74570 (between E01 and E02, as shown in **Figure 3-1** of the Environmental Statement **[EN010106/APP/6.3]**), 96m of a tributary of the River Snail at TL 63328 69099 (W7), and 66m of a tributary of the New River catchment at TL 60273 68642 (W13).

4.1.47 The tributary of the River Snail (W1) is a linear drainage ditch bordered by pasture fields in Snailwell Fen. At the time of survey, it was mostly dry, unshaded and dominated by terrestrial vegetation, however ponded stretches of turbid water were present that were generally covered with duckweed and heavily shaded by trees. No non-native plant species were recorded along the stretch surveyed.

4.1.48 Tributary of the River Snail (W1) is culverted for 4 m under a track between fields. This culverted section is automatically assigned 'Poor' condition within the metric. The tributary fits the definition of a ditch and is therefore not a Priority River habitat and is not mentioned in the Local Plan, River Basin Management Plan or Catchment Plans. It is therefore classed as 'Low potential/action not identified in any plan' within the metric, which equates to a low strategic significance. The ditch condition assessment on the remaining 531m of open watercourse showed that it is in poor condition and this is therefore entered as such into the baseline habitats metric calculation. A summary of this information can be found in **Table 4-3**.

4.1.49 The tributary of the River Lark (E01-E02) is a linear drainage ditch bordered by pasture fields in The Fen. It held approximately 20 to 30cm of clear water at the time of survey. A mixture of emergent, submerged and floating macrophytes were present in the tributary and it was generally unshaded and dominated by silt substrate. No non-native plant species were recorded along the stretch surveyed. It is culverted for 11m under a track between fields. This culverted section is automatically assigned 'Poor' condition within the metric. The tributary fits the definition of a ditch and is therefore not a Priority River habitat and is not mentioned in the Local Plan, River Basin Management Plan or Catchment Plans. It is therefore classed as 'Low potential/action not identified in any plan' within the metric, which equates to a low strategic significance. The ditch condition assessment showed that the remaining 382m of open tributary was in moderate condition within the Scheme boundary and is therefore included within the baseline habitats metric calculation as such. A summary of this information can be found in **Table 4-3**.

4.1.50 The tributary of the River Snail (W7) is a ditch that drains from the Fordham Woods Nature Reserve, although in the stretch surveyed it was bordered by pasture fields. Access was limited to a small stretch of this tributary, however the water that was observed was clear, heavily shaded by trees and the bed was dominated by leaf litter and silt. No non-native plant species were recorded along the stretch surveyed. It was culverted for 6 m under a track between fields. This culverted section is automatically assigned 'Poor' condition within the metric. The tributary fits the definition of a ditch and is therefore not a Priority River habitat and is not mentioned in the Local Plan, River Basin Management Plan or Catchment Plans. It is therefore classed as 'Low potential/action not identified in any plan' within the metric, which equates to a low strategic significance. The

ditch condition assessment on the remaining open section of the tributary showed that it was in poor condition. A total of 90m of this open watercourse was present within the Scheme boundary. This is therefore included within the baseline habitats metric calculation. A summary of this information can be found in **Table 4-3**.

4.1.51 The tributary of the New River (W13) runs parallel to the B1102 Ness Road and is bordered by pasture fields to the right. At the time of survey, it was mostly dry and unshaded, although some wetted areas were dominated by bulrush. It has steep banks, likely due to historic dredging and its bank tops had been recently cut back at the time of survey. No non-native plant species were recorded along the stretch surveyed. It is culverted for 8m under a track. This culverted section is automatically assigned 'Poor' condition within the metric. The tributary fits the definition of a ditch and is therefore not a Priority River habitat and is not mentioned in the Local Plan, River Basin Management Plan or Catchment Plans. It is therefore classed as 'Low potential/action not identified in any plan' within the metric, which equates to a low strategic significance. The ditch condition assessment showed that the remaining open section of the tributary is in poor condition and a total of 58m of this is present within the Scheme boundary and was therefore included within the baseline habitats metric calculation. A summary of this information can be found in **Table 4-3**.

4.2 On-site biodiversity value

4.2.1 Using DEFRA's Biodiversity Metric 3.0, the respective baseline biodiversity value for area-based and linear habitats are outlined in **Tables 4-1, 4-2** and **4-3**. In total, the estimated baseline biodiversity value of the habitats present is calculated as 3,242.04 habitat units, 120.69 hedgerow units and 5.77 river units.

Table 4-1: Baseline area-based habitats

Habitat (UKHab)	Distinctiveness	Condition	Strategic Significance	Area (ha)	Habitat Units
Woodland and forest – other woodland; broadleaved	Medium	Moderate	Medium	6.33ha	55.70
Woodland and forest – other coniferous woodlands	Low	Moderate	Low	5.74ha	22.96
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	Medium	12.42ha	163.94
Heathland and shrub – mixed scrub	Medium	Moderate	Medium	4.91	43.21
Woodland and forest -other woodland; mixed	Medium	Moderate	Medium	16.85ha	148.28

Habitat (UKHab)	Distinctiveness	Condition	Strategic Significance	Area (ha)	Habitat Units
Acid Grassland - Lowland Dry Acid Grassland	V. High	Good	Medium	12.4ha	306.24
Acid Grassland - Other Lowland Acid Grassland	Medium	Moderate	Medium	0.78ha	6.86
Sparsely vegetated land - Coastal sand dunes.	High	Moderate	Medium	0.48ha	6.34
Grassland – lowland calcareous grassland	High	Moderate	Medium	1.03ha	13.60
Grassland – modified grassland	Low	Moderate	Medium	87.53ha	385.13
Neutral Grassland - other neutral grassland / Fen marsh and swamp - other swamps	Medium	Good	Medium	0.65ha	8.58
Grassland – other neutral grassland	Medium	Good	Medium	0.06ha	0.79
Grassland – other neutral grassland	Medium	Moderate	Medium	2.49ha	21.91
Grassland – other neutral grassland	Medium	Poor	Medium	0.81ha	3.56
Grassland – other neutral grassland	Medium	Moderate	Medium	3.2ha	28.16
Sparsely vegetated land – ruderal / ephemeral	Low	Moderate	Low	8.07ha	32.28
Cropland – cereal crops	Low	N/A Agricultural	Low	872.11ha	1744.22
Fen Marsh and Swamp – Reedbeds	High	Moderate	Low	0.07ha	0.84
Ponds- Non Priority habitat	Medium	Moderate	Medium	1.63ha	14.34
Cropland – cereal crops other	Low	N/A - Agricultural	Low	3.06ha	6.12
Urban - vacant / derelict land / bare ground	Low	Moderate	Low	57.24ha	228.96
Urban – developed land; sealed surface	V. Low	N/A - Other	Low	12.77ha	0.00
TOTAL				**1110.63***	**3242.04**

Habitat (UKHab)	Distinctiveness	Condition	Strategic Significance	Area (ha)	Habitat Units
*running water, which was calculated as an area, dependent on the width of the feature, has not been included within Table 4-1, hence the total does not equate to the 1,112.64ha of the Order limits					

Table 4-2: Hedgerow baseline habitats

Habitat (UKHab)	Distinctiveness	Condition	Strategic Significance	Length (metres)	Habitat Units
Line of trees	Low	Moderate	Medium	1,634m	*7.17*
Native hedgerow	Low	Moderate	Medium	1,928m	*8.49*
Native hedgerow	Low	Moderate	Medium	18,803m	*82.72*
Native hedgerow with trees	Medium	Moderate	Medium	1,685m	*14.78*
Native species-rich hedgerow with trees	High	Good	Medium	570m	*7.52*
Urban – built linear features	V. Low	Poor		5,149m	
TOTAL				**29,769m**	**120.68**

Table 4-3: River baseline habitats

River habitat	Length within Order limits (m)	Distinctiveness	Condition	Strategic Significance	Watercourse encroachment	Riparian encroachment	River Habitat Units
Tributary of the River Snail (W1)	531	Medium	Poor	Low potential/ action not identified in any plan	None	None	2.12
Culverted section of the tributary of the River Snail (W1)	4	Low	Poor	Low potential/ action not identified in any plan	None	None	0.01
Tributary of the River Lark (E01-E-02)	382	Medium	Moderate	Low potential/ action not identified in any plan	None	None	3.06
Culverted section of the tributary of the River Lark (E01-E-02)	11	Low	Poor	Low potential/ action not identified in any plan	None	None	0.02
Tributary of the River Snail (W7)	90	Medium	Poor	Low potential/ action not identified in any plan	None	None	0.36

River habitat	Length within Order limits (m)	Distinctiveness	Condition	Strategic Significance	Watercourse encroachment	Riparian encroachment	River Habitat Units
Culverted section of the tributary of the River Snail (W7)	6	Low	Poor	Low potential/ action not identified in any plan	None	None	0.01
Tributary of the New River (W13)	58	Medium	Poor	Low potential/ action not identified in any plan	None	None	0.17
Culverted section of the tributary of the New River (W13)	8	Low	Poor	Low potential/ action not identified in any plan	None	None	0.01
Total length (km)	1.11	-	-	-	-	Total river habitat units	5.77

4.3 On-site Post-development Retained Habitats

4.3.1 The Post Development Plan (**Figure 3-1: Sunnica East Site A and B Parameter Plan** and **Figure 3-14: Sunnica West A and B Parameter Plan** of the Environmental Statement **[EN010106/APP/6.3] and the OLEMP**) indicates those habitats to be retained and/ or created post-development.

4.3.2 Based on the current proposals several habitats are to be retained (refer to **Tables 4-4**, **4-5** and **4-6**). In total, the predicted biodiversity value of the habitats retained within the Scheme is calculated as 1054.01 habitat units, 119.55 hedgerow units and 5.38 river units.

Table 4-4: Retained on-site area-based habitats

Habitat (UKHab)	Distinctiveness	Condition	Strategic Significance	Area (ha)	Habitat Units
Woodland and forest – other woodland; broadleaved	Medium	Moderate	Medium	6.33ha	55.70
Woodland and forest – other coniferous woodlands	Low	Moderate	Low	5.74ha	22.96
Woodland and forest – Lowland mixed deciduous woodland	High	Moderate	Medium	12.42ha	163.94
Heathland and shrub – mixed scrub	Medium	Moderate	Medium	4.91ha	43.21
Woodland and forest -other woodland; mixed	Medium	Moderate	Medium	16.85ha	148.28
Grassland - Lowland Dry Acid Grassland	V. High	Good	Medium	11.6ha	306.24
Grassland -Other Lowland Acid Grassland	Medium	Moderate	Medium	0.78ha	6.86
Sparsely vegetated land - Coastal sand dunes.	High	Moderate	Medium	0.48ha	6.34
Grassland – lowland calcareous grassland	High	Moderate	Medium	1.03ha	13.60
Grassland – modified grassland	Low	Moderate	Medium	13.89ha	61.12

Habitat (UKHab)	Distinctiveness	Condition	Strategic Significance	Area (ha)	Habitat Units
Neutral Grassland - other neutral grassland / Fen marsh and swamp - other swamps	Medium	Good	Medium	0.45ha	5.94
Grassland – other neutral grassland	Medium	Good	Medium	0.06ha	0.79
Grassland – other neutral grassland	Medium	Moderate	Medium	1.68ha	14.78
Grassland – other neutral grassland	Medium	Poor	Medium	0.81ha	3.56
Grassland – other neutral grassland	Medium	Moderate	Medium	3.2ha	28.16
Sparsely vegetated land – ruderal / ephemeral	Low	Moderate	Low	0.00ha	0.00
Cropland – cereal crops	Low	N/A Agricultural	Low	74.35ha	148.70
Fen Marsh and Swamp - Reedbeds	High	Moderate	Low	0.07ha	0.84
Ponds- Non Priority habitat	Medium	Moderate	Medium	1.63ha	14.34
Cropland – cereal crops other	Low	N/A - Agricultural	Low	0.00ha	0.00
Urban - vacant / derelict land / bare ground	Low	Moderate	Low	2.16ha	8.64
Urban – developed land; sealed surface	V. Low	N/A - Other	Low	12.77ha	0.00
TOTAL				**171.21**	**1054.01**

Table 4-5: Retained on-site linear habitats (hedgerows and trees)

Habitat (UKHab)	Length (metres)	Distinctiveness	Condition	Strategic Significance	Habitat Units
Line of trees	1,634m	Low	Moderate	Medium	7.17
Native hedgerow	1,928m	Low	Moderate	Medium	8.49
Native hedgerow	18,539m	Low	Moderate	Medium	81.58
Native hedgerow with trees	1,685m	Medium	Moderate	Medium	14.78

Native species-rich hedgerow with trees	570m	High	Good	Medium	7.52
Urban – built linear features	5,149m	V. Low	Poor		
TOTAL					**119.54**

Table 4-6: Retained on-site linear habitats (rivers)

Habitat Retained	Length (m)	Distinctiveness	Condition	Strategic significance	Watercourse encroachment	Riparian encroachment	Habitat Units
Tributary of the River Snail (W1)	510	Medium	Poor	Low potential/action not identified in local plan	None	None	2.04
Culverted section of the tributary of the River Snail (W1)	4	Low	Poor	Low potential/action not identified in local plan	N/A Culvert	None	0.01
Tributary of the River Lark (E01-E-02)	361	Medium	Moderate	Low potential/action not identified in local plan	None	None	2.89
Culverted section of the tributary of the River Lark (E01-E-02)	11	Low	Poor	Low potential/action not identified in local plan	N/A Culvert	None	0.02
Tributary of the River Snail (W7)	70	Medium	Poor	Low potential/action not identified in local plan	None	None	0.28

Habitat Retained	Length (m)	Distinctiveness	Condition	Strategic significance	Watercourse encroachment	Riparian encroachment	Habitat Units
Culverted section of the tributary of the River Snail (W7)	6	Low	Poor	Low potential/action not identified in local plan	N/A Culvert	None	0.01
Tributary of the New River (W13)	38	Medium	Poor	Low potential/action not identified in local plan	None	None	0.11
Culverted section of the tributary of the New River (W13)	8	Low	Poor	Low potential/action not identified in local plan	N/A Culvert	None	0.01
Total Length (km)	**1.01**	-	-	-	-	**Total River Habitat Units**	**5.38**

4.4 On-site Post-development and Created Habitats

4.4.1 The habitats proposed to be created as part of the Scheme are detailed in **Table 4-7**. Native species-rich hedgerows are being both created and enhanced.

4.4.2 The created and enhanced habitats vary in ecological value, ranging from very low to high distinctiveness. The management regime required for the created and enhanced habitats to reach their target condition in the specified timeframe is provided in Outline Landscape and Ecology Management Plan (OLEMP) (**Appendix 10I** of the Environmental Statement **[EN010106/APP/6.2]).**

Tributary of the River Snail (W1)

4.4.3 A total of 514m of this tributary is to be retained at its current condition. An enhancement length of 14m is proposed to offset the loss of habitat from the creation of a new culvert. This culvert will be approximately 7m long and its impact would be mitigated through inclusion of a buried culvert base and natural bed, maintaining a continuous gradient with the current watercourse, and sizing the culvert so that it will not impact flow velocities or back up flood flows. This new culvert is classed as creation of poor habitat within the metric with major encroachment in the riparian zone (0-4m from the bank top).

Tributary of the River Lark (E01-E02)

4.4.4 A total of 372m of this tributary will be retained at its current condition. An enhancement length of 14m is proposed to offset the loss of habitat from the creation of a new culvert. This culvert will be approximately 7m long and its impact would be mitigated through inclusion of a buried culvert base and natural bed, maintaining a continuous gradient with the current watercourse, and sizing the culvert so that it will not impact flow velocities or back up flood flows. This new culvert is classed as creation of poor habitat within the metric with major encroachment in the riparian zone. It is likely that this watercourse crossing will be amended to a clear span bridge rather than a culvert. If this is confirmed at detailed design, the River Metric calculations will be updated to reflect this.

Tributary of the River Snail (W7)

4.4.5 A total of 76m of this tributary will be retained at its current condition. An enhancement length of 10m is proposed for this tributary to offset any minor impacts from the intrusive crossing proposed by the cable corridor. Intrusive crossing techniques are only considered suitable on the smaller, less significant watercourses, none of which are designated under the WFD (although they may form tributaries to WFD water bodies). Impacts from intrusive crossings largely arise from direct disturbance of the riparian zone and channel, and indirect impacts during the construction period from the potential risk of fine sediment and chemical pollutants draining into watercourses if not adequately controlled. Mitigation will be delivered through good industry practice as outlined in the Construction Environmental Management Plan (CEMP) and Water Management Plan (WMP). The watercourse will be reinstated to at least its previous condition, if not better, within two years and therefore any impacts from these works will be temporary and do not require including within the metric – this assumes that sections of the

tributary lined with semi-mature or mature trees will remain unaffected, as it would not be feasible to reinstate these habitats within two years.

Tributary of the New River (W13)

4.4.6 A total of 46m of this tributary is to be retained at its current condition. An enhancement length of of 10m is proposed for this tributary to offset any minor impacts from the intrusive crossing proposed by the cable corridor. Intrusive crossing techniques are only considered suitable on the smaller, less significant watercourses, none of which are designated under the WFD (as described above). Impacts from intrusive crossings largely arise from direct disturbance of the riparian zone and channel, and indirect impacts during the construction period from the potential risk of fine sediment and chemical pollutants draining into watercourses if not adequately controlled. Mitigation will be delivered through good industry practice as outlined in the CEMP and WMP. The watercourse will be reinstated to at least its previous condition, if not better, within two years (refer to assumption for W7 above) and therefore any impacts from these works will be temporary and do not require including within the metric.

Table 4-7: Created on-site area-based habitats

Habitat (UKHab)	Distinctiveness	Target Condition	Time to Target Condition (Years)	Area (ha)	Habitat Units
Grassland – other neutral grassland	Medium	Fairly Poor	3	441.94	2382.85
Grassland – other neutral grassland	Medium	Moderate	5	236.62	1584.08
Woodland and forest – other woodland; broadleaved	Medium	Moderate	15	50.3	259.39
Urban – developed land; sealed surface	V. Low	N/A - Other	0	37.6	0.00
Grassland – Floodplain Wetland Mosaic (CFGM)	High	Good	20	26.5	77.19
Grassland -Other Lowland Acid Grassland	Medium	Moderate	10	30.9	173.11
Grassland -Other Lowland Acid Grassland	Medium	Fairly Poor	5	81.6	409.71
Urban – developed land; sealed surface	V. Low	N/A - Other	0	8.22	0.00
Urban – developed land; sealed surface	V. Low	N/A - Other	0	23.26	0.00
Other neutral grassland	Medium	Fairly Poor	3	1.68	9.06
TOTAL				**938.62**	**4895.40**

Table 4-8: Created hedgerow habitats

Habitat (UKHab)	Distinctiveness	Target Condition	Time to Target Condition (Years)	Area (ha)	Habitat Units
Native hedgerow	Low	Moderate	5	5.84	21.50

Table 4-9: Created on-site river habitats

Habitat Created	Length (m)	Condition	Time to target condition (years)	Difficulty of creation	Watercourse encroachment	Riparian encroachment	River Units delivered
Tributary of the River Snail (W1) – New Culvert	7	Poor	1	Low	N/A Culvert	Major	0.01
Tributary of the River Lark (E01-E-02) – New Culvert	7	Poor	1	Low	N/A Culvert	Major	0.01
Total Length (m)	**14**	**-**	**-**	**-**	**-**	**Total River Habitat Units**	**0.02**

Table 4-10: Enhanced on-site linear-based habitats (rivers)

Habitat Enhanced	Length (m)	Condition	Time to target condition (years)	Difficulty of enhancement	Watercourse encroachment	Riparian encroachment	River Units delivered
Tributary of the River Snail (W1)	14	Moderate	4	Medium	None	None	0.09
Tributary of the River Lark (E01-E-02)	14	Good	4	Medium	None	None	0.14
Tributary of the River Snail (W7)	10	Moderate	4	Medium	None	None	0.06
Tributary of the New River (W13)	10	Moderate	4	Medium	None	None	0.06
Total Length (m)	**48**	**-**	**-**	**-**	**-**	**Total River Habitat Units**	**0.36**

4.5 Summary of Results

4.5.1 All baseline habitats and habitats created, retained or enhanced are presented within the accompanying metric assessment for the Scheme (Appendix A).

4.5.2 A summary of the results is shown in **Table 4-11**. Based on the current Post-Development Plan, the Scheme would result in an estimated net gain of 83.51% habitat units, a net gain of 16.87% linear hedgerow units, and a net gain of 1% river units.

Table 4-11: Biodiversity Metric 3.0 Calculation Tool Output

Area / Linear Units	On-Site Baseline	On-Site Post-Intervention	Total Unit Net Change	Total Net % Change
Habitat Units	3242.04	5,949.41	2,707.37	**83.51**
Hedgerow Units	120.69	141.05	20.36	**16.87**
River Units	5.77	5.88	0.11	**1**

5 Conclusions

5.1.1 Based on the current proposals and outlined assumptions, the Scheme is predicted to result in an overall net gain of approximately 83.51% habitat units, approximately 16.87% hedgerow units and approximately 1 % of river units. For the purposes of reporting these figures in other documents supporting the DCO submission, the net gain has been rounded down to approximately 83% habitat units, approximately 16% hedgerow units and approximately 1 % of river units, These values exceed the 10% net gain target for habitat and hedgerow units offset out in the upcoming Environment Bill. As the Scheme is expected to achieve the 10% BNG target, no further recommendations for habitat creation or enhancement are provided for these habitats.

5.1.2 It is important to note that the outputs of the metric are dependent on all created and retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within Natural England's Biodiversity Metric 3.0 Technical Note. Management methodologies to meet this condition target will therefore need to be outlined within the detailed Landscape and Ecological Management Plans brought forward to include the measures set out in the OLEMP. The OLEMP is presented as **Appendix 10I** of the Environmental Statement **[EN010106/APP/6.2].**

5.1.3 Should any habitat enhancement/creation options be taken forward, they will need to be monitored to ensure correct establishment and growth, and that remedial action is taken if this does not proceed as expected, otherwise the target conditions used in the calculations may not be met and the predicted biodiversity units might not be achieved. The long-term monitoring and management is therefore be secured through an OLEMP.

6 References

Ref 1. Natural England's Biodiversity Metric 3.0.

Ref 2. Natural England (2021). The Biodiversity Metric 3.0 – User Guide & Technical Supplement.

Ref 3. UK Parliament draft Environmental Bill (2019)

Ref 4. Her Majesty's Stationery Office (2021) National Planning Policy Framework

Ref 5. East Cambridgeshire District Council Local Plan. Adopted April 2015

Ref 6. East Cambridgeshire District Council Supplementary Planning Document Natural Environment September 2020

Ref 7. East Cambridgeshire District Council Supplementary Planning Documents Renewable Energy Development (Commercial Scale) October 2014

Ref 8. Forest Heath District Council Core Strategy Adopted 2010

Ref 9. Forest Heath and St Edmundsbury Local Plan: Joint Development Management Policies Document (last updated February 2015)

Ref 10. Fordham Neighbourhood Plan (made December 2018)

Ref 11. Discovering Priority Habitats in England. River data

Ref 12. Natural Environment and Rural Communities Act (2006) Section 41.

Ref 13. AECOM (2021). Sunnica Energy Farm Volume 6 Environmental Statement. 6.2 Appendix 9B: Water Framework Directive Assessment.

Ref 14. BRE (2014) Biodiversity Guidance for Solar Developments. Eds G E Parker and L Greene.

Ref 15. RSPB Policy Briefing on Solar Energy. December 2014

Appendix A Order Limits

560000

570000

270000

Sunnica East Site A

Grid Connection Route A

Sunnica East Site B

Grid Connection Route B

Sunnica West Site B

Grid Connection Route B

Grid Connection Route A

Sunnica West Site A

Burwell National Grid Substation

0 2 4km

N

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LEGEND

The Order Limits

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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FIGURE 1:
SITE LOCATION

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Appendix B Phase 1 Habitat Plan

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LEGEND

The Order Limits

100m scheme buffer

A

B

C

D

E

F

G

H

I

0 0.5 1 1.5 2 2.5km

N

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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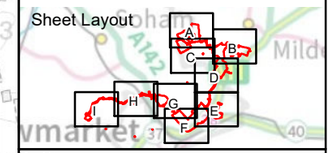

Purpose of Issue
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FIGURE 8-3.
PHASE 1 HABITAT
PAGE 1 OF 10

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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Tall ruderal
- Running water
- Arable
- Ephemeral/short perennial
- Bare ground
- Private/Garden
- Building
- Hard surface
- Intact hedge
- Defunct hedge
- Hedge and trees
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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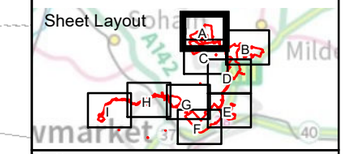

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Drawing Title
FIGURE 8-3.A
PHASE 1 HABITAT
PAGE 2 OF 10

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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Coniferous parkland
- Mixed semi-natural woodland
- Broad-leaved felled woodland
- Dense scrub
- Unimproved acid grassland
- Semi-improved acid grassland
- Semi-improved neutral grassland
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Tall ruderal
- Running water
- Standing water
- Quarry
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Tree line
- Intact hedge
- Defunct hedge
- Hedge and trees
- Fence
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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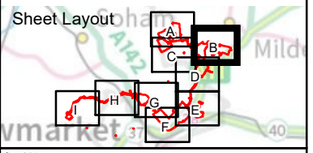

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Project Title
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Drawing Title
FIGURE 8-3.B
PHASE 1 HABITAT
PAGE 3 OF 10

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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Tall ruderal
- Running water
- Standing water
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Tree line
- Intact hedge
- Defunct hedge
- Hedge and trees
- Fence
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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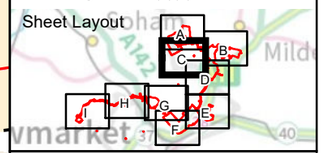

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FIGURE 8-3.C
PHASE 1 HABITAT
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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Mixed plantation woodland
- Dense scrub
- Semi-improved acid grassland
- Semi-improved neutral grassland
- Semi-improved calcareous grassland
- Improved grassland
- Poor semi improved grassland
- Tall ruderal
- Running water
- Standing water
- Quarry
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Tree line
- Intact hedge
- Hedge and trees
- Fence
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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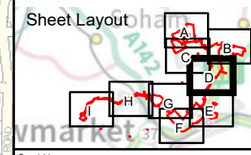

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Project Title
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Drawing Title
FIGURE 8-3.D
PHASE 1 HABITAT
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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Mixed plantation woodland
- Scattered scrub
- SI Semi-improved neutral grassland
- Improved grassland
- SI Poor semi improved grassland
- Tall ruderal
- Running water
- Standing water
- A Arable
- Ephemeral/short perennial
- Bare ground
- Building
- Hard surface
- Intact hedge
- Defunct hedge
- Hedge and trees
- Dry ditch
- Tree
- Target note

Document Reference: EN010106/APP/6.3
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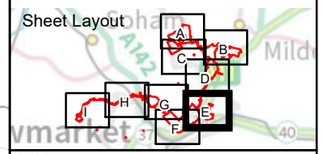

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FIGURE 8-3.E
PHASE 1 HABITAT
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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Tall ruderal
- Running water
- Arable
- Bare ground
- Building
- Hard surface
- Tree line
- Intact hedge
- Defunct hedge
- Fence
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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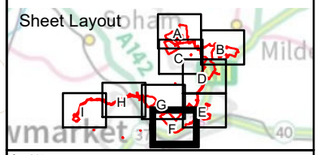

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FIGURE 8-3.F
PHASE 1 HABITAT
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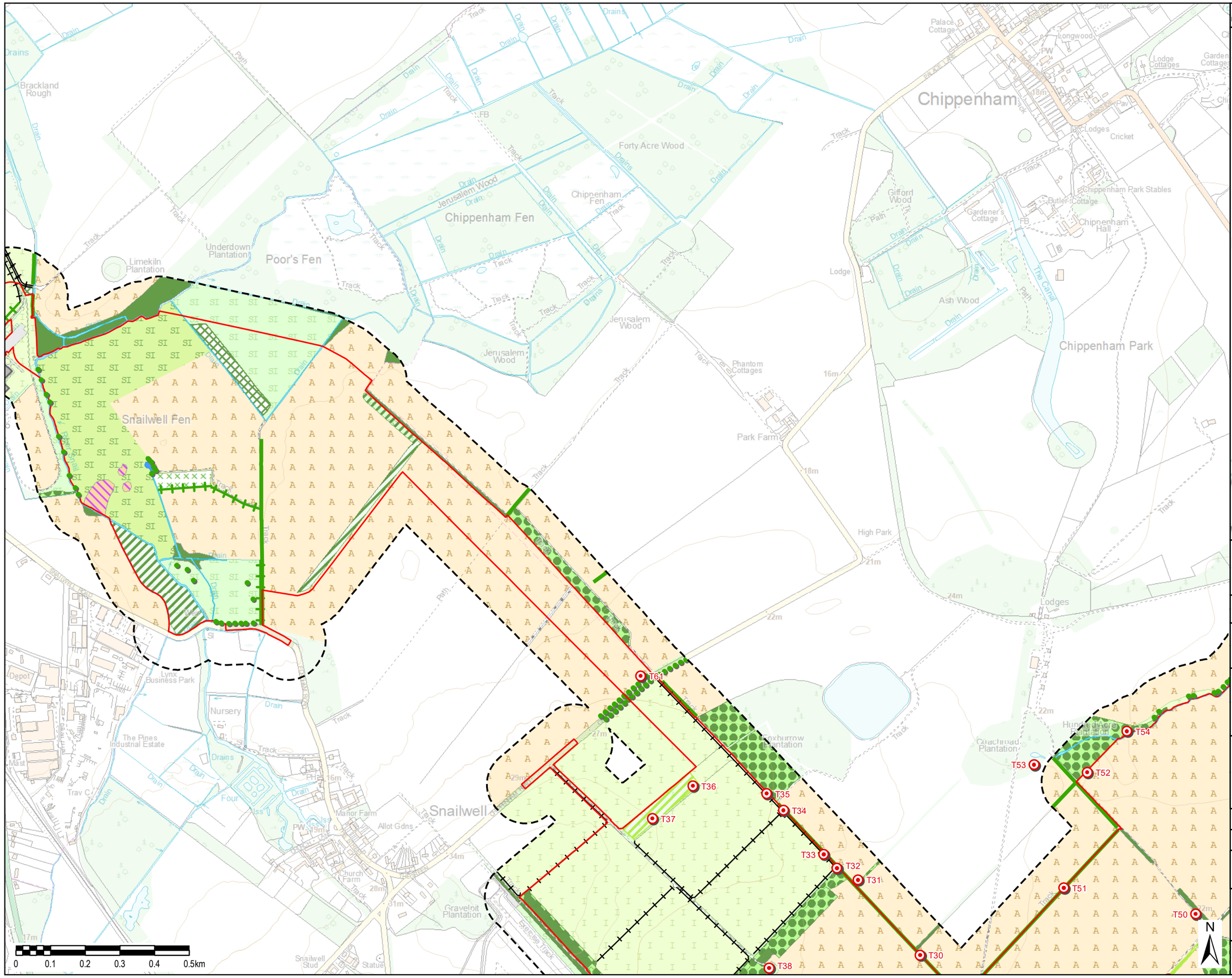

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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous plantation woodland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Semi Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Running water
- Standing water
- Arable
- Bare ground
- Building
- Hard surface
- Tree line
- Intact hedge
- Hedge and trees
- Fence
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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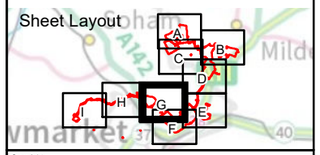

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FIGURE 8-3.G
PHASE 1 HABITAT
PAGE 8 OF 10

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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Coniferous parkland
- Mixed semi-natural woodland
- Dense scrub
- Scattered scrub
- Semi-improved acid grassland
- Improved grassland
- Semi Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Running water
- Standing water
- Artificial spoil
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Species rich hedge and trees
- Intact hedge
- Hedge and trees
- Ditch
- Fence
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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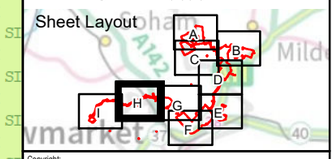

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FIGURE 8-3.H
PHASE 1 HABITAT
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LEGEND

- The Order Limits
- 100m scheme buffer
- Broad leaved semi-natural woodland
- Broad leaved plantation woodland
- Dense scrub
- Scattered scrub
- Improved grassland
- Poor semi improved grassland
- Marsh/marshy grassland
- Tall ruderal
- Running water
- Arable
- Bare ground
- Private/Garden
- Building
- Hard surface
- Scrub scattered
- Tree line
- Species rich hedge and trees
- Intact hedge
- Defunct hedge
- Hedge and trees
- Ditch
- Dry ditch
- Tree
- Target note

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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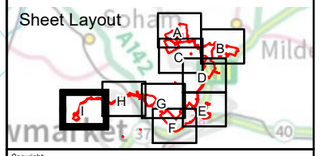

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Project Title
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Drawing Title
FIGURE 8-3.I
PHASE 1 HABITAT
PAGE 10 OF 10

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Appendix B Parameter Plans

566000 567000 568000 569000 570000 571000

275000 274000 273000 272000 271000

E01 E02 E03 E04 E05 E08 E09 E10 E33 Office/Warehouse

ECO1 ECO2 ECO3

E12 E13 E14 E15 E16 E17 E18 E18 E19 E20 E21 E22 Office/Warehouse

E24 E25 E26 E27 E28 E29 E30 E31 E32

0 500 1,000m

N

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LEGEND

- The Order limits
- Public Highway within Scheme

Proposed Scheme Plan

- Developable Area
- Boundary Fence
- BESS and Substation
- Compound Area (Permanent)
- Solar PV Array
- Illustrative Locations of Solar Stations
- Proposed Road
- Potential Provision of Permissive Route

Green Infrastructure

- Native Grassland Planting
- Native Grassland Planting within Archaeological Mitigation Areas
- Proposed Woodland (new planting or infilling of existing vegetation)
- Proposed Hedgerow (new planting or infilling of existing vegetation)

Note: Developable fields previously referred to as E06, E07, E11 and E23 are no longer being developed with solar infrastructure and now form part of the mitigation strategy; however, the field numbering for the remaining developable fields has been retained for consistency.

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Sheet Layout

Ely Newmarket Mildenhall Bury St Edmunds Chedburgh

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 3-1
SUNNICA EAST
PARAMETER PLAN

Drawn	Checked	Approved	Date
LL	DW	NC	11/10/2021

AECOM Internal Project No.	Scale @ A3
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564000 565000 566000 567000 568000 569000

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ECO4 W01 W02 W03 ECO5 W04 W05 W06 W07 W08 W09 W10 W11 W12 W15 W17

0 500 1,000m

N

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LEGEND

- The Order limits
- Woodstore - 20m Buffer
- Public Highway within Scheme
- Proposed Fencing

Proposed Scheme Plan

- Developable Area
- Solar PV Array
- BESS and Substation
- Boundary Fence
- Illustrative Location of Solar Stations
- Proposed Road

Green Infrastructure

- Native Grassland Planting
- Native Grassland Planting within Archaeological Mitigation Areas
- Native Grassland/Wetland
- Heritage Offset with additional planting along The Avenue
- Proposed Woodland (new planting or infilling of existing vegetation)
- Retained Woodland
- Proposed Hedgerow (new planting or infilling of existing vegetation)

Note: Developable fields previously referred to as W13, W14 and W15 are no longer within the Order limits; however, the field numbering for the remaining developable fields has been retained for consistency.

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

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Purpose of Issue
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Client
SUNNICA LTD

Project Title
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Drawing Title
FIGURE 3-2
SUNNICA WEST A AND B PARAMETER PLAN

Drawn	Checked	Approved	Date
LL	DW	NC	12/10/2021

AECOM Internal Project No.	Scale @ A3
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Drawing Number	Rev
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Appendix C Natural England's Biodiversity Metric 3.0 Calculation

Headline Results

Return to results menu

On-site baseline	*Habitat units*	3242.04
	Hedgerow units	120.69
	River units	5.77
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	5949.41
	Hedgerow units	141.05
	River units	5.83
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	83.51%
	Hedgerow units	16.87%
	River units	1.00%
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*	2707.37
	Hedgerow units	20.36
	River units	0.06
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	83.51%
	Hedgerow units	16.87%
	River units	1.00%
Trading rules Satisfied?		**Yes**