SUNNICA ENERGY FARM

Preliminary Environmental Information Report

Non-Technical Summary

Sunnica Ltd

AUGUST 2020

Quality information

Prepared by	Checked by	Verified by	Approved by
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Revision History

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1. Introduction

1.1 Overview

1.1.1 This document has been prepared on behalf of Sunnica Ltd (the 'Applicant') and provides a Non-Technical Summary (NTS) of the Preliminary Environmental Information (PEI) Report for the proposed Sunnica Energy Farm. The Applicant is planning to submit an application for a Development Consent Order (DCO) to the Secretary of State for Business, Energy, and Industrial Strategy for the construction, operation (including maintenance), and decommissioning of Sunnica Energy Farm (hereafter referred to as 'The Scheme').

1.1.2 The Scheme comprises a solar energy development with associated battery storage facility and connection to the UK electricity transmission system, located on the boundary of Cambridgeshire and Suffolk – see Figure 1 at the end of this NTS.

1.2 The Applicant and Author of the PEI Report

1.2.1 Sunnica Ltd is a joint venture between Tribus Energy and PS Renewables, two established solar energy companies.

1.2.2 This document has been compiled by AECOM and presents a non technical summary of the results of the PEI Report. AECOM is a registrant to the EIA Quality Mark scheme run by the Institute of Environmental Management and Assessment (IEMA).

1.3 Purpose of the PEI Report

1.3.1 The purpose of the PEI Report is to *"enable the local community to understand the environmental effects of the proposed development so as to inform their responses regarding the proposed development"* (Planning Inspectorate, Planning Advice Note 7). It has been prepared to meet the requirements of Regulation 12(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations').

1.3.2 EIA is a systematic process used to predict the adverse (negative) and beneficial (positive) effects of a proposed development.

1.3.3 The PEI Report provides the preliminary findings of the environmental assessment undertaken to date. It does not constitute a full Environmental Statement (ES), which will be produced to support the Development Consent Order (DCO) application. It is intended that the PEI Report provides consultees with an opportunity to provide informed comments on the work undertaken to date prior to the DCO Application being submitted. The Applicant will consider these comments when finalising the ES and DCO application.

1.3.4 The various assessments are at differing stages of completion due to ongoing design work and continued gathering of baseline information. Where assessments are not yet fully complete, an explanation is provided in the relevant PEI Report chapter (***PEI Report Volume 1***) on how this will be further developed for the ES.

1.3.5 The purpose of this NTS is to describe the Scheme and provide a summary in non-technical language of the key findings of the PEI Report. The PEI Report presents:

- a description of the Site and the Scheme;
- information on the alternative technologies and layouts that have been considered for the Scheme;
- a summary of the likely significant environmental effects of its construction, operation (including maintenance) and decommissioning, as understood at this stage in the project development; and
- measures that are proposed to avoid or minimise such effects.

1.4 The EIA Regulations - Scoping

1.4.1 The Applicant has notified the Secretary of State in writing under Regulation 8(1)(b) of the EIA Regulations that it intends to provide an ES in respect of the Scheme. The Scheme is therefore 'EIA development' for the purposes of the EIA Regulations.

1.4.2 The purpose of the EIA Scoping process is to determine which topics should be included in the EIA and the level of detail to which they should be assessed. An EIA Scoping Report and a request for an EIA Scoping Opinion under Regulation 10 of the EIA Regulations was submitted to the Planning Inspectorate in March 2019.

1.4.3 The EIA Scoping Report (see ***PEI Report Volume 2: Appendix 1A***) was developed with reference to standard guidance and best practice and was informed by the EIA team's experience working on several other similar projects.

1.4.4 The EIA Scoping Report set out:

- details of the Scheme and the Site;
- a summary of alternatives considered;
- a summary of existing and future baseline conditions;
- an outline of the likely environmental effects of the Scheme;
- a description of the matters proposed to be scoped in and out of the EIA;
- proposed assessment methods; and
- the proposed structure of the ES.

1.4.5 The Scoping Opinion was received from the Planning Inspectorate in April 2019 and is presented within ***PEI Report Volume 2: Appendix 1B***. This PEI Report is based on the Scoping Opinion. The matters raised have been reviewed and taken into consideration in the relevant technical assessments. Further details on the EIA Scoping Opinion are set out in each of the technical ***Chapters 6*** to ***16*** in the ***PEI Report Volume 1***.

2. The Scheme

2.1 The DCO Site

2.1.1 The proposed solar energy development spans four 'Sites': the Sunnica East Site A, Sunnica East Site B, Sunnica West Site A, and Sunnica West Site B. These will be linked by a cable corridor, which will connect the Scheme to the National Grid at Burwell Substation.

2.1.2 The Scheme includes the associated electrical infrastructure for connection to the national transmission system, comprising Grid Connection Route A (between the two Sunnica East sites and between Sunnica East B and, Sunnica West A), Grid Connection Route B (between the two Sunnica West sites and Burwell National Grid Substation) and an extension to the Burwell National Grid Substation. At this stage in the project development, the grid connection routes have been identified as corridors of around 100m in width which are being evaluated; it is intended that the selection of the final grid connection routes will be made prior to submission of the DCO application, taking into account technical and environmental considerations and consultation responses.

2.1.3 The 'DCO Site' encompasses all the above and includes all the proposed development associated with the Scheme.

2.1.4 The maximum footprint of the Scheme and its location are shown in Figure 1 at the end of this NTS. This footprint includes areas of the DCO Site to be used for set aside, landscaping, biodiversity enhancement and access, as well as operational areas associated with the solar and battery development.

Sunnica East Site A

2.1.5 The Sunnica East Site A encompasses an area of approximately 222 hectares (ha) and is located approximately 0.5 kilometres (km) south east of Isleham and 3.5km east of Mildenhall. The Sunnica East Site A straddles the boundary between the counties of Cambridgeshire and Suffolk and falls within the administrative areas of East Cambridgeshire District Council and West Suffolk Council.

2.1.6 Sunnica East Site A consists of agricultural fields interspersed with individual trees, hedgerow, linear tree belts, farm access tracks, and local transport roads (Plate 2-1). The arable fields are of moderate size and generally of regular shape.

Plate 2-1: Landscape within Sunnica East Site A.

2.1.7 The local transport network comprises several local roads. Beck Road, which bisects the Sunnica East Site A to the west, runs south from Isleham and joins Isleham Road and Sheldrick's Road runs parallel to the eastern boundary of the Sunnica East Site A.

2.1.8 Environmental sensitivities in the vicinity of Sunnica East Site A include Chippenham Fen Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR), which forms part of the Fenland Special Area of Conservation (SAC) and Chippenham Fen Ramsar, which is located approximately 2.8km to the south of Sunnica East Site A. Breckland Special Protection Area (SPA) is also located approximately 4.8km to the east of Sunnica East Site A.

2.1.9 Two Scheduled Monuments are located within the village of Isleham. One is known as the 'Lime kilns on east side of High Street' and is located approximately 850m to the north-west of Sunnica East Site A. The other is known as 'Isleham priory: a Benedictine priory 100m west of St Andrew's Church' which is located approximately 950m to the north-west of Sunnica East Site A. There are two Grade I listed buildings and a number of Grade II listed buildings located within Isleham and a number of Grade Listed II buildings within West Row, which is approximately 1km north east of Sunnica East Site A. A number of previously unknown archaeology finds have been identified as part of the geophysical survey within Sunnica East Site A, including a multi-phase complex, comprising linear and rectilinear anomalies. These have been removed from the developable area, as shown on Figure 2.

2.1.10 The majority of the land required for Sunnica East Site A has a low risk of flooding (less than a 1 in 1,000 chance of being flooded each year). There are some small areas at greater risk of flooding (1 in 100 to 1,000 annual probability) present within Sunnica East Site A, associated with the Lee Brook within the western extent, and also north from the River Lark.

Sunnica East Site B

2.1.11 The Sunnica East Site B encompasses an area of approximately 323ha and is located approximately 1.5km south-east of Mildenhall, 1.5km east of Freckenham and to the south of Worlington. The Sunnica East Site B is located with the county of Suffolk and falls within the administrative area of West Suffolk Council.

2.1.12 Sunnica East Site B consists of agricultural fields interspersed with individual trees, hedgerow, tree belts (linear) small woodland blocks, farm access tracks, and local transport roads (including the B1085). The arable

fields are of small to moderate size, some of which are of irregular shape. Plate 2-2 shows the landscape features within Sunnica East Site B.

Plate 2-2: Landscape features at the Sunnica East Site B

2.1.13 The area immediately surrounding the Sunnica East Site B comprises several small rural villages, including Worlington immediately to the north, Barton Mills 1km to the north-east, and Freckenham 1.5km to the west. Industrial land uses adjoin the A11 to the south of Sunnica East Site B and a 7.5-megawatt (peak) capacity solar farm is situated 400m to the south-east of the Sunnica East Site B. The Bay Farm Power Ltd Anaerobic Digestion plant is located immediately to the south.

2.1.14 The local transport network comprises the A11, which runs adjacent to the east and south of Sunnica East Site B, and several local roads. These include: Elms Road (which bisects the Site to the south); Newmarket Road (which runs from Worlington to Red Lodge and bisects the Sunnica East Site B to the east); Golf Links Road to the north-east of the Sunnica East Site B; and B1102 Freckenham Road which runs along the north-west of the Sunnica East Site B.

2.1.15 Environmental sensitivities in the vicinity of Sunnica East Site B include a number of designated ecological sites. Red Lodge Heath SSSI is the nearest designated site to the Sunnica East Site B, approximately 750m to the south east. Chippenham Fen SSSI and NNR, which forms part of the Fenland SAC and Chippenham Fen Ramsar, is located approximately 2.6km to the south-west of the Sunnica East Site B. Breckland SPA is located approximately 1.4km to the north-east of the Sunnica East Site B. Cherry Hill and The Gallops, Barton Mills SSSI is located approximately 1km east of the Sunnica East Site B. Badlingham Lane County Wildlife Site (CWS) and Worlington Heath CWS both fall within the northern section of the Sunnica East Site B.

2.1.16 A Scheduled Monument known as ‘Bowl barrow on Chalk Hill, 380m north-west of Chalkhill Cottages’ is located immediately south of the eastern boundary of the Sunnica East Site B. Other Scheduled Monuments in the vicinity of the Sunnica East Site B include the remains of Freckenham Castle approximately 450m to the west of the boundary. A number of Grade II listed buildings are located in the vicinity of Sunnica East Site B, within Freckenham, Worlington and the hamlet of Badlingham 200m to the south-

west. A number of previously unknown archaeology finds have been identified as part of the geophysical survey within Sunnica East Site B, including two ring ditch anomalies. These have been removed from the developable area, as shown on Figure 2.

2.1.17 The Sunnica East Site B is located on land with a low risk of flooding (less than a 1 in 1,000 chance of being flooded in any given year).

Sunnica West Site A

2.1.18 The Sunnica West Site A encompasses an area of approximately 460ha and is located approximately 1km south of Chippenham and 1.5km west of Kennett. It is bounded by the A14 to the south and straddles the A11 to the east. The Sunnica West Site A lies within the county of Cambridgeshire and in the East Cambridgeshire District Council administrative area.

2.1.19 The Sunnica West Site A consists of agricultural fields bounded by trees, managed hedgerows, tree shelter belts (linear), small woodland and copses, and farm access tracks (Plate 2-3). A straight tree-lined avenue bisects the Sunnica West Site A and forms part of a former carriageway to Chippenham Hall, which is located immediately to the north. This avenue is included on Historic England's 'Register of Historic Parks and Gardens of special historic interest in England' as part of the Chippenham Hall Grade II Registered Park and Garden (RPG).

Plate 2-3: Landscape features within Sunnica West Site A.

2.1.20 The local transport network comprises the A14 and A11 trunk roads, and local roads such as Chippenham Road, and B1085 (to the east). The A14/A11 junction (Junction 38 of the A14) is located immediately to the south-east of the Sunnica West Site A boundary. The main railway line connecting Newmarket to Bury St Edmunds runs parallel to the A14. Snailwell 5 bridleway runs along the south-west boundary of the Sunnica West Site A.

2.1.21 Environmental sensitivities within the vicinity of Sunnica West Site A include Newmarket Heath SSSI and Chippenham Avenue Fields CWS. Newmarket Heath SSSI is located approximately 1.1km to the south of the Sunnica West Site A, beyond the A14. Chippenham Avenue Fields CWS is located adjacent to the northern section of the Sunnica West Site A.

2.1.22 A Scheduled Monument is located at the south-eastern extent of the Sunnica West Site A. This comprises four separate locations adjoining the A14 known as 'Four bowl barrows north of the A11/A14 junction, part of the Chippenham barrow cemetery'. Two other Scheduled Monuments are present within 200m of the Sunnica West Site A to the south of the A11. A Grade II Listed Building is located on the southern side of the A11, separated from the Sunnica West Site A by the A11 to the west and La Hogue / Chippenham Road to the east. As described above, the Sunnica West Site A is bisected by the avenue of the Chippenham Hall Grade II RPG, with Chippenham Hall itself being located 1km to the north. Also, immediately to the north of the Sunnica West Site A is the Grade II* 'Lodges, Gateway and Railings to South of Park' Listed Building. A number of previously unknown archaeology finds have been identified as part of the geophysical survey within Sunnica West Site A, including a multi-phase settlement, adjacent to debris associated with the WW2 Snailwell airfield, a number of linear and rectilinear anomalies, and two circular anomalies which may potentially comprise barrows. All the identified features have been removed from the development footprint, as shown on Figure 3.

2.1.23 The majority of the Sunnica West Site A is located in land at low risk of flooding (less than 1 in 1,000 annual probability), however, an area at higher risk (1 in 100 to 1,000 annual probability) encroaches into Sunnica West Site A from an ordinary watercourse along the northern boundary (a tributary of the Lee Brook). These flood zones then extend further into the Sunnica West Site A in a south-easterly direction perpendicular to the ordinary watercourse.

Sunnica West Site B

2.1.24 The Sunnica West Site B encompasses an area of approximately 69ha and is located to the north-east of Snailwell and approximately 5.5km east of Burwell. The Sunnica West Site B lies within the county of Cambridgeshire, and in the East Cambridgeshire District Council administrative area. The Sunnica West B Site is located approximately 1.5km to the north-west of Sunnica West Site A, separated by agricultural fields and Chippenham Road.

2.1.25 The River Snail adjoins Sunnica West Site B to the west (Plate 2-4). Avenue planting is a characteristic of the immediate area, with mature trees present within the Sunnica West Site B, and newer tree planting evident along the Chippenham Road. To the west of the Sunnica West B Site, there is commercial and industrial land use, along the A142 (Newmarket Road / Fordham Road) and to the south of Snailwell Road.

Plate 2-4: Landscape within Sunnica West Site B

2.1.26 The local transport network comprises the A142 to the west, the A14 to the south, and Snailwell / Fordham Road to the south-west. The railway line connecting Newmarket to Ely runs in a north-west direction from Newmarket, approximately 600m to the south-west of the Sunnica West Site B at its closest point.

2.1.27 The Sunnica West Site B adjoins Chippenham Fen Ramsar and NNR, Chippenham Fen and Snailwell Poor's Fen SSSI, and Fenland SAC. Snailwell Meadows SSSI is located directly to the south of the Sunnica West Site B. A Scheduled Monument is located along the western boundary of Sunnica West Site B, on the western side of the River Snail. Two Grade II listed buildings are located approximately 600m east of the northern extent of the Sunnica West Site B. A number of Grade II and II* Listed Buildings are also found in Snailwell, approximately 400m south of the Sunnica West Site B. A number of previously unknown archaeology finds have been identified as part of the geophysical survey within Sunnica West Site B, including a complex area of multi-phase (likely late prehistoric to roman period) activity. These have been removed from the developable area, as shown on Figure 3.

2.1.28 The majority of the Sunnica West Site B is located within land with a low risk of flooding (less than 1 in 1,000 annual probability). Where the Sunnica West Site B adjoins the River Snail, at the north-western extent, the land comprises areas at higher risk of flooding (1 in 100 to 1,000 annual probability of flooding).

Cable Route Corridors

2.1.29 The Scheme will be connected to the existing Burwell National Grid Substation. Grid Connection Route A will run between Sunnica East Site A, Sunnica East Site B and Sunnica West Site A. Grid Connection Route B will run between Sunnica West Site A, Sunnica West Site B and Burwell National Grid Substation. Both cable routes will be required for the Scheme.

Grid Connection Route A

2.1.30 Heading south-east from the Sunnica East Site A, the cable route corridor for Grid Connection Route A crosses agricultural land and the B1102 immediately north of Sunnica East Site B. The cable route then passes through Sunnica East Site B before running south, crossing underneath the River Kennett and Havacre Meadows and Deal Nook CWS. The cable route corridor then crosses the Chippenham footpath 49/7. The cable route

corridor then passes approximately 20m west of the Chippenham Gravel Pit CWS and crosses the B1085 before joining the Sunnica West Site A.

Grid Connection Route B

2.1.31 The Grid Connection Route B connects Sunnica West Site A with Sunnica West Site B, and Sunnica West Site B with the Burwell National Grid Substation. Heading north-west from Sunnica West Site A, the cable route corridor crosses Chippenham Road and Snailwell 1 public right of way before joining Sunnica West Site B.

2.1.32 Heading west from Sunnica West Site B, the cable route corridor for Grid Connection Route B crosses a public right of way before crossing the railway line and the A142 Newmarket / Fordham Road.

2.1.33 The cable route corridor for Grid Connection Route B crosses agricultural fields and a number of roads including the B1102 and A142. Grid Connection Route B also crosses a number of watercourses, including the Burwell Lode, New River, and the River Snail, as well as a number of drainage ditches associated with Burwell Fen, Little Fen, the Broads, and agricultural drains. As such, the cable route corridor for Grid Connection Route B passes through multiple areas at a higher risk of flooding (1 in 100 to 1,000 annual probability). The cable will be constructed underneath the main watercourses. Open cut trenching will be used to cross dry and shallow drainage ditches.

Burwell National Grid Substation Extension

2.1.34 The three potential areas identified for the Burwell National Grid Substation Extension are currently agricultural fields, as shown on Figure 7. The preferred location is within National Grid land ownership to the east of the existing substation, adjacent to Weirs Drove, approximately 200m west of Burwell. The alternative two locations are to the north and north-west of the existing substation approximately 450 and 650m from Burwell, respectively. These options are being further evaluated with the intention to select the preferred option prior to submission of the DCO application.

2.2 Description of the Scheme

Scheme Components

2.2.1 The Scheme comprises an energy farm with solar photovoltaic (PV) panels and energy storage (battery) infrastructure. The panels will convert the sun's energy into electricity for storage onsite and export to the national grid via cable.

2.2.2 The solar PV infrastructure will be located across the four Sunnica Sites, but the Sites also include land to be retained for setbacks, landscaping, archaeology and biodiversity. Panels will therefore not be installed up to the edge of the Site boundaries shown in Figures 2 and 3. The exact locations of panels have not yet been determined and will only be decided upon at the detailed design stage, which will occur after determination of the DCO

application. For the purposes of the PEI Report and environmental assessments therefore, where flexibility needs to be retained until the detailed design work is complete, some conservative assumptions have been used on which the assessments are based, as outlined below in Paragraph 2.2.3. The final design will be consistent with – and no worse environmentally – the assumptions used and presented in the final ES to accompany the DCO application.

2.2.3 The Scheme will comprise the following components throughout Sunnica East Site A, Sunnica East Site B, Sunnica West Site A and Sunnica West Site B. Images of the equipment are included in Plate 2-5, and photomontages from two viewpoints are shown in Plates 2-6 to 2-9. The proposed layout of the equipment throughout the DCO Site are shown in Figures 2 and 3 at the end of this NTS.

- Solar PV modules: these convert sunlight into electrical current. The maximum height of the highest part of the solar PV modules will be 2.5m above ground level;
- PV module mounting structures: the solar PV modules will be mounted on structures in rows (also called 'strings'). These will most likely be galvanized steel poles driven into the ground to a maximum depth of 3.5m;
- Inverters: these container-like structures convert the direct current (DC) electricity collected by the PV modules into alternating current (AC). The maximum height of these will be 3.5m;
- Transformers: these units control the voltage of the electricity generated across each of the Sunnica Sites before it reaches the substations. The maximum height of these will be 3.5m;
- Switchgear: a combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. The maximum height of these will be 3.5m;
- The transformers, inverters and switchgears will either be standalone (outdoor) or they will be housed together within a container;
- One or more Battery Energy Storage Systems (BESS) (expected to be formed of lithium ion batteries storing electrical energy) on Sunnica East A, Sunnica East B and Sunnica West A. These will be up to 6m in height;
- Onsite buried high and low volatage cabling: to connect the PV modules and BESS to inverters, and the inverters to the transformers onsite. These will be buried to a maximum depth of 1.5m;
- Three electrical compounds comprising a substation and control building (Sunnica East Site A, Sunnica East Site B and Sunnica West Site A only). These will be a maximum of 10m in height;
- Electrical compound at Burwell comprising a substation and control building, up to a maximum of 12m in height.

- Two operational offices/warehouses (on Sunnica East Site A and Sunnica West Site A only). These will be a maximum of 5m in height;
- Fencing and security measures within all operational areas;
- Drainage features, comprised of a series of interconnected swales and infiltration ponds;
- Internal access roads and car parking;
- Landscaping including habitat creation areas;
- Temporary parking; and
- Temporary construction laydown areas.

2.2.4 The electricity generated by the Scheme is to be exported via 132 kilovolt (kV) buried cables from the onsite substations to the Burwell National Grid Substation. The cable corridor will be directed across open countryside and requires crossings of the railway, watercourses, various utilities, and roads. The total length of the cable run for Grid Connection Route A will be approximately 7km, and 13km for Grid Connection Route B.

Typical solar panels

Typical centralised inverter

Typical transformer

Typical switchgear

Typical battery storage compound configuration

Typical deer security fencing

Plate 2-5: Images to show the types of equipment to be used within the Scheme

Plate 2-6: View south-west from La Hougue Road in first year of operation

Plate 2-7: View south-west from La Hougue Road in year 15 with proposed vegetation

Plate 2-8: View south from B1102 in first year of operation

Plate 2-9: View south from B1102 in year 15 with proposed vegetation

Areas Set Aside for Landscaping, Archaeological and Ecological Mitigation and Enhancement

2.2.5 A number of mitigation areas for loss of habitat, to screen the Scheme from view and to protect buried archaeology have been proposed throughout the DCO Site. These will include planting of a selection of trees, hedgerows, grassland, and wetland habitats. The areas proposed for this are shown in Figures 2 and 3 at the end of this NTS.

2.2.6 Two new permissive routes, the first between Freckenham and Isleham and to the south of Worlington, and the second along the route of the Chippenham Park Avenue have been included within the Scheme design to enable increased public access across the landscape. The permissive routes have been discussed between the Applicant and landowner and will form part of the land agreement. A permissive path is not a public footpath, but a path on private land that the landowner has allowed public access to. These are expected to be retained following decommissioning of the Scheme at the end of its operational life, which is expected to be around 40 years.

Site Access

2.2.7 The Scheme will have two main access points: one on Sunnica East B and one on Sunnica West A. During construction, all construction worker vehicles will access the DCO Site at these locations and park in the centralised car parks. Staff will then be distributed to the working area via minibus, or similar, predominantly using internal tracks within the DCO Site where practical. Sunnica East B will be accessed via the A11 and B1085 and the access to Sunnica West A will be via the Chippenham junction of the A11, to the north of junction 38 of the A14.

2.2.8 A number of secondary access points have been provided to access individual land parcels within the full DCO Site. Secondary access points for Sunnica East A and B will be from Elms Road northwest of the main access, Newmarket Road, Golf Links Road, Freckenham Road and Isleham Road (see Figure 4). Secondary access points for Sunnica West A and B will be from farm tracks, Chippenham Road, Dane Hill Road and Snailwell Road (see Figure 5). Access will be controlled through a Construction Traffic Management Plan (CTMP).

2.2.9 A number of the existing roads to be used for access are single carriageways; therefore, hedgerows may need to trimmed back and the access points may need to be widened/upgraded to assist with any wide loads. Where this is needed and how it will be managed to minimise disturbance will be identified as part of the DCO application.

2.2.10 Access arrangements to each Site are expected to remain consistent through construction, operation and any decommissioning activity.

Construction Phase

2.2.11 Subject to being granted consent and following a final investment decision, the earliest construction will start is Autumn / Winter 2022, with planned operation by Spring 2025. A construction programme of approximately 24 months will be achieved if the Scheme is built in one continuous phase and is considered a worst case in terms of environmental impacts. The final programme will be dependent on the final Scheme design and potential environmental constraints on the timing of construction activities.

2.2.12 Construction works on the four Sites are envisaged to include the following activities. Site preparation works will involve:

- Preparation of land for construction, including localised land levelling (where required). The land level changes will be localised, and will not be noticeable;
- Import of construction materials, plant and equipment to site;
- Establishment of the perimeter fence;
- Establishment of the construction compounds;
- Construction of the internal access roads; and
- Marking out the location of the Scheme infrastructure.

2.2.13 Installation of the solar PV modules will involve:

- Import of components to site;
- Piling and erection of module mounting structures;
- Mounting of modules by hand;
- Trenching and installation of electric cabling;
- Transformer, inverter and switchgear foundation excavation and construction;
- Installation of transformers, inverters and switchgears using cranes; and
- Installation of control systems, monitoring and communication.

2.2.14 The construction of online electrical infrastructure will include the following activities:

- Site preparation and civils for the three onsite substations;
- Trenching and installation of electric cabling;
- Pouring of the concrete foundation base;
- Import of components to site. Cranes will be used to lift the components into position; and
- Installation of the substations.

2.2.15 The following activities would be required to construct the cable routes and the Burwell Substation Extension:

- Site preparation and civils for the Burwell substation;
- Trenching and installation of electric cabling; and
- Installation of the substation.

2.2.16 The following activities would be required to construct the BESS:

- Installation of electric cabling;
- Construction of foundations;
- Import of components to site;
- Installation of transformers; and
- Installation of battery, transformers, inverters and switchgear.

2.2.17 Commissioning of the Scheme will include testing and commissioning of the process equipment. Commissioning of the PV infrastructure will involve mechanical and visual inspection, electrical and equipment testing, and commencement of electricity supply into the grid.

2.2.18 The construction of the cable route corridor will be undertaken in phases of approximately 4 months for each section. In many locations an open cut method will be used for construction whereby material is excavated along the grid connection channel, the cable is laid and the ground backfilled and restored. For certain crossings of for example, rail, road or river infrastructure, trenchless techniques to construction the cable underground may be utilised. These each take between 8 and 12 weeks to construct.

2.2.19 It is envisaged that a Construction Environmental Management Plan (CEMP), CTMP and Construction Resource Management Plan (CRMP) will be secured by Requirement in the DCO which will include measures to be used to minimise environmental effects during construction works; to be line with the Framework CEMP and Framework CTMP submitted with the application. A draft of the Framework CEMP and Framework CTMP, reflecting the EIA process to date, forms part of the consultation (see ***PEI Report Volume 2: Appendix 16C*** and ***PEI Report Volume 2: Appendix 13B***). These documents would be agreed with appropriate stakeholders prior to construction.

2.2.20 At the peak of construction, up to 1,260 staff per day will be required to work across the Scheme. This number will be less at other times of the construction phase. Working days will be one 12-hour shift, with working hours onsite from 7am until 7pm Monday to Saturday. All deliveries (HGV trips) within core working hours and worker trips to and from the Sites assumed to be the hour before and after core working hours. All construction traffic including, HGV and worker trips will be controlled by the CTMP. ***PEI Report Volume 2: Appendix 13B*** presents the draft Framework CTMP.

2.2.21 Construction compounds will be located within Sunnica East A, Sunnica East B, Sunnica West A and Sunnica West B Sites. The compounds will each be approximately 6,000m^2 and will contain offices, mobile welfare

units, canteens, storage and waste skips, parking areas and space for storage, download and turning area. These construction compounds will also be used as compounds during the construction of the cable route corridor.

2.2.22 Appropriate measures to mitigate temporary impacts on users of public rights of way during the construction and decommissioning phases have been proposed. The temporary closures and diversions will be supported by appropriate and clearly signed alternative routes and where possible will be planned and programmed to minimise disruption to users. The temporary closures and diversions will be confirmed within the ES as part of the DCO application.

2.2.23 Following construction, a programme of site reinstatement and habitat creation will commence. It is anticipated that the areas under the solar panels and areas outside of the developable areas will be planted with native grassland mix, and hedgerows and woodland will be planted in strategic locations to provide visual screening, as shown on Figures 1 and 2 at the end of this NTS.

Operation Phase

2.2.24 During the operational phase, activities within the Scheme will be minimal and will be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components that fail, and monitoring to ensure the continued effective operation and environmental performance of the mitigation measures of the Scheme. It is anticipated that there will be up to 5 permanent staff onsite during the operational phase, with additional staff attending when required for maintenance and cleaning activities, up to 20 staff per day. It is expected that there will be approximately 13 vehicles travelling to Site on a daily basis.

Decommissioning Phase

2.2.25 The design and operational life of the Scheme is expected to be around 40 years, with decommissioning of the Scheme therefore expected in 2065 or later.

2.2.26 Decommissioning is expected to take between 12 and 24 months and will be undertaken in phases. It is envisaged that a decommissioning environmental management plan will be secured by Requirement in the DCO which will include measures to be used to minimise environmental effects during any decommissioning works. All PV modules, mounting structures, structures, foundations, cabling, inverters and transformers will be removed and recycled or disposed of in accordance with good practice and market conditions at that time.

3. Assessing Environmental Effects

3.1 Topics Assessed

3.1.1 ***PEI Report Volume 1: Chapters 1*** to ***5*** provide an introduction to the policy and legislative context, a description of the DCO Site and surrounds, an overview of the Scheme and alternatives that were considered during the design process, and the approach and methodology to the EIA.

3.1.2 The following topic specific chapters have been produced and assessed in the ***PEI Report Volume 1***:

Chapter 6: Climate Change

Chapter 7: Cultural Heritage

Chapter 8: Ecology

Chapter 9: Water Resources and Flood Risk

Chapter 10: Landscape and Visual

Chapter 11: Noise and Vibration

Chapter 12: Socio-Economics and Land Use

Chapter 13: Transport and Access

Chapter 14: Air Quality

Chapter 15: Human Health

Chapter 16: Other Environmental Topics

3.1.3 ***PEI Report Volume 1: Chapter 16*** provides an overview of the topics that can be addressed more concisely than the other topic specific chapters and therefore do not merit an individual chapter. These topics include glint and glare; major accidents and disasters; telecommunications, television reception, utilities; and waste.

3.2 Terminology Used in the PEI Report

3.2.1 To enable comparison between technical topics and to aid understanding of the PEI Report findings, standard terms are used wherever possible to describe the relative significance of effects throughout the PEI Report (i.e. ‘major’, ‘moderate’, ‘minor’ and ‘negligible’). The effects are also described as being adverse or beneficial. Where the quality standards for each technical discipline result in deviations in the standard assessment methodology, these are described in the relevant chapters as applicable within ***PEI Report Volume 1***.

3.2.2 Each of the technical chapters within ***PEI Report Volume 1*** provides further description and definition of the significance criteria relevant to each topic. Where possible, this has been based upon quantitative and accepted criteria (for example, noise assessment guidelines), together with the use of value judgement and expect interpretation to establish to what extent an effect is significant.

3.2.3 Typically, effects that are considered to be negligible or minor are judged to be 'not significant', whereas those that are moderate or major are 'significant'. Where the EIA predicts a significant adverse effect on one or more receptors, proposed mitigation measures are identified to avoid or reduce the effect, or to reduce the likelihood of it happening. The use of such mitigation will be secured through the DCO, should it be granted. As the design of the Scheme has evolved to date, the Applicant has worked with environmental specialists to ensure the design avoids or reduces environmental effects on receptors where possible through the use of embedded mitigation measures (meaning measures that form part of the design or methods for construction or operation), such as the use of a CEMP. These measures are taken into account in the EIA and assessment of effects of the Scheme.

4. Findings of the PEI Report

4.1.1 An assessment of the environmental effects of the Scheme during its construction, operation (including maintenance) and eventual decommissioning has been completed for each of the topics identified in Section 3.1.2 above.

4.1.2 The likely significant environmental effects of the Scheme are fully described within the PEI Report Volume I. This section provides a brief summary of the overall findings of the report.

4.2 Climate Change

4.2.1 ***PEI Report Volume 1: Chapter 6 Climate Change*** presents the findings of an assessment of the potential significant effects of the Scheme on climate change (i.e. greenhouse gas emissions from the construction, operation, and decommissioning of the Scheme). The resilience of the Scheme to projected future climate change impacts is also assessed through a Climate Change Resilience Review.

Baseline and Context

4.2.2 It is the duty of the UK Government to achieve 'net zero' carbon emissions by 2050. 'Net zero' refers to achieving net zero carbon dioxide emissions from electricity generation, industry, transport and domestic sources by balancing carbon emissions with carbon removal, or simply eliminating carbon emissions altogether. The physical impacts of climate change are accelerating and pose a threat to housing, business operations and financial earnings through extreme weather events such as storms, floods and droughts. Understanding the nature of these risks will allow new facilities to be designed in a manner which increases resilience and takes advantage of opportunities from the outset, thereby reducing costs in the future.

4.2.3 The baseline for greenhouse gas (GHG) emissions is a 'business as usual' scenario whereby the Scheme is not implemented. The land use within the DCO Site currently has minor levels of GHG emissions associated with the farming activity. However, carbon emissions from electricity production would remain at current levels.

4.2.4 Based on a review of the baseline conditions, the global climate is the receptor for the lifecycle GHG impact assessment. The sensitivity of this receptor is high, in line with IEMA guidance on assessing GHG emissions in EIA, which highlights the importance of mitigating GHG emissions to reduce the impacts of climate change.

4.2.5 The receptor for the review of climate change resilience is the Scheme itself, including all infrastructure, assets, and workers on site during construction, operation, and decommissioning.

Assessment of Effects

4.2.6 Overall, a net GHG emissions saving will be achieved as a result of the Scheme as electricity generation from solar energy is a less GHG intensive form of energy generation than the national grid average, which includes energy generation from a range of sources including fossil fuels. The carbon intensity of electricity generation from the solar development results in a predicted total net saving of 582,293 tonnes of carbon dioxide emissions over the lifetime of the Scheme. The Scheme overall is therefore considered to have a **major beneficial**, **significant effect** on the climate.

4.2.7 The climate change impacts during the construction period would likely arise from embodied carbon in construction materials. Other sources of emissions during construction include water, energy and fuel use for construction activities including fuel consumed by construction plant and machinery, fuel use for the transportation of construction materials to the DCO Site, transportation of construction workers to and from the Scheme and the transportation and disposal of waste. The magnitude of effect during construction of the Scheme on the climate is considered to be **minor adverse**, and therefore **not significant**.

4.2.8 The greatest GHG impacts during the decommissioning phase are as a result of transportation of any waste materials and fuel use in vehicles on site. Other sources of emissions during decommissioning include water use for decommissioning activities, transportation of construction workers to and from the Scheme and waste disposal. GHG emissions from the decommissioning phase are considered to have a **minor adverse**, **not significant** effect on the climate.

Mitigation measures

4.2.9 A number of embedded construction mitigation measures are included within the Scheme, as set out within the Framework CEMP. Specific embedded mitigation measures include increasing recyclability of materials, minimising the creation of waste and maximising the use of alternative materials with lower embodied carbon, and encouraging the use of lower carbon modes of transport. The nature of the Scheme itself will have a beneficial effect in terms of GHG emissions on climate change. No additional mitigation or monitoring beyond the measures described above are required during construction, operation or decommissioning of the Scheme.

4.3 Cultural Heritage

Baseline and Context

4.3.1 ***PEI Report Volume 1: Chapter 7 Cultural Heritage*** considers potential impacts on designated and non-designated heritage assets. This cultural heritage assessment forms a preliminary assessment which has been based on available information at the time of preparing the PEI Report, and represents a realistic worst case and precautionary approach based on the Scheme parameters as outlined in the Parameter Plans presented in Figure

2 and 3 and the maximum likely extents of land take required for its construction and operation shown on those plans. Cultural heritage comprises all aspects of the environment resulting from the interaction and relationships between people and places through time. Heritage assets include buildings, monuments, sites, places, areas or landscapes identified as having a degree of significance due to their heritage interest.

4.3.2 The Scheme occupies a large area which has largely not been subject to previous archaeological study. A number of scheduled monuments, conservation areas and listed buildings are present within the vicinity of the Scheme as outlined in Section 2 of this NTS. In particular, Chippenham Hall Registered Park and Garden is present in close proximity to the Scheme (within 1km of Sunnica West Site A).

Assessment of Effects

4.3.3 The assessment of effects has been undertaken while taking embedded mitigation for the Scheme into account. These measures include mitigation planting to reduce the impacts on the setting of built heritage and historic landscape assets. Buffer areas have been designed around settlements.

4.3.4 The assessment undertaken to date has been informed through a desk study and non-intrusive geophysical surveys. However, additional intrusive surveys are proposed to further characterise the DCO Site. Construction direct impacts can occur from activities such as breaking up the ground, heavy machinery compacting the ground, levelling the fields, installation of solar panel foundations and associated infrastructure, and connecting the panels to the National Grid through new cable routes. At this stage, the precautionary approach to the assessment has considered that the full extent of the developable area as shown on Figure 2 and 3 may be subject to direct impacts. This will be reviewed as design is progressed and re-assessed as required for the ES.

4.3.5 Additional construction activities associated with the Scheme that could have an impact on heritage assets include construction traffic and parking, moving of construction equipment, and establishment of temporary compound areas.

4.3.6 Without adequate mitigation, the construction of the Scheme has the potential to affect heritage assets through partial or total removal of heritage assets, compaction of archaeological deposits by construction traffic and structures, and adverse effects on the setting of heritage assets as a result of visual intrusion, noise, severance, access and amenity.

4.3.7 Direct effects on buried archaeology are being prevented or minimised through the design of the Scheme, whereby the Scheme layout has been developed to avoid development in areas of potential archaeological risk; such areas will be planted to provide screening, left as buffer zones or archaeological mitigation areas.

4.3.8 During construction and operation, there is the potential for impacts to the setting of local heritage assets from the presence of the Scheme

infrastructure and construction machinery. Impacts on the setting potentially includes impacts from the visual aspect of larger structures, security lighting, noise and associated traffic as well as a result from glint and glare.

4.3.9 The effects on the setting of the majority of heritage assets have been assessed to be **minor adverse**, and therefore **not significant**. In addition, nine areas of significant archaeological activity (totalling approximately 90 hectares) have been removed from the developable area of the Scheme and designated as native grassland planting within archaeological mitigation areas, so as to prevent adverse effects on these areas.

4.3.10 However, the setting of some heritage assets have the potential to be significantly adversely affected without appropriate mitigation. A formal assessment of 'harm' will be undertaken as part of the Environmental Statement in terms of the National Planning Policy Framework. The National Planning Policy Framework sets out a clear framework for both plan-making and decision-taking to ensure that heritage assets are conserved, and where appropriate enhanced, in a manner which is consistent with their significance and thereby achieving sustainable development.

4.3.11 **Temporary major adverse** residual **setting** effects are predicted on the four bowl barrows north of the A11/A14 junction (part of the Chippenham barrow cemetery) due to a change in the character of the landscape immediately to the north-west of the barrow cemetery. Other heritage assets in the form of buried archaeology are expected to experience **temporary moderate adverse**, and therefore **significant** residual effects on their setting because they are located within or adjacent to the DCO Site.

4.3.12 Potential residual effects on the setting of Chippenham Registered Park and Gardens are considered to be **temporary moderate adverse**, and therefore **significant**, although such effects are reduced by the use of buffer areas around the Park and Garden where no development can take place. The grade II* lodges and triumphal arches will also experience **temporary moderate adverse**, **significant** residual effects on their setting because they are located close to the DCO Site.

4.3.13 Eleven heritage assets are anticipated to experience **minor adverse**, **not significant** effects on their setting during operation. These include Snailwell, Freckenham and Isleham Conservation Areas, Beacon Hill, Chalk Hill Round Barrow scheduled monument and a number of listed buildings in the vicinity of the Scheme.

4.3.14 During decommissioning, the adverse effects from the construction and operation phases will cease to exist and the setting of the scheduled monuments, RPG, listed buildings and conservation areas within 1km of the Scheme will be restored to the existing state. Potential direct effects of the decommissioning phase will be managed through a Decommissioning Environmental Management Plan.

Mitigation Measures

4.3.15 Embedded mitigation measures already incorporated into the design will be secured by requirement of the draft DCO and have been taken into account in the assessment of residual effects in the section above. These measures include mitigation planting to reduce the impacts on the setting of built heritage and historic landscape assets. Buffer areas have been designed around settlements (including Chippenham RPG, with no development taking place adjacent to the formal park boundary).

4.3.16 Additional archaeological investigations will be undertaken prior to submission of the DCO application to further characterise the Site, focussing on areas of known impact through proposed foundations. Discussions are on-going with relevant stakeholders regarding the intrusive investigations. In addition, a programme of archaeological fieldwork and recording will be implemented for archaeological remains within the footprint of the Scheme, to be undertaken at the detailed design stage and prior to construction, when the locations of solar panel foundations will be understood; at this stage the foundation locations are not fixed. This programme of works will be secured through requirement of the draft DCO.

4.3.17 Further mitigation for those heritage receptors that have been assessed to have residual impacts will be included within the ES.

4.4 Ecology

Baseline and Context

4.4.1 ***PEI Report Volume 1: Chapter 8 Ecology*** presents the findings of an assessment of the potential significant effects of the Scheme on ecology and biodiversity of the DCO Site and surrounding area. The assessment considers effects on designated sites, habitats, and protected species.

4.4.2 Ecological receptors considered in the PEI Report include species and habitat that are important at an international, national and local level (i.e. how rare and important the species and habitat are). The majority of the Site consists of arable land, with areas of grassland, woodland and hedgerows throughout.

4.4.3 Seven internationally, nine nationally, and 31 locally designated sites for nature conservation are located near to the Site and therefore considered potentially relevant to the Scheme. In addition, surveys of the DCO Site identified species of the following groups: terrestrial invertebrates, fish, breeding birds, wintering birds, bats, water vole, otter, and some rare species of plants.

4.4.4 The ecological assessment was undertaken and reported with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for EIA in the UK and Ireland. All designated sites and protected and/or notable habitat and species present within an ecological Zone of Influence (Zol) of the Scheme were identified through a desk-based study. A range of further surveys were also undertaken to characterise the

baseline environment within the relevant ZoI and their potential impacts were then assessed.

Assessment of Effects

4.4.5 Whilst there is the potential for effects upon ecological receptors during construction, mitigation measures designed to prevent adverse impacts upon ecological receptors will be embedded in the Scheme, including measures within the CEMP. These include the enhancement and creation of habitat to mitigate and compensate for habitat loss during construction and operation. A total of 212ha of biodiverse habitat creation has been embedded in the Scheme design, which will lead to biodiversity net gain.

4.4.6 During construction, effects are likely to include direct loss of habitats, temporary loss of habitat for breeding bird assemblages across the DCO Site, and disturbance to breeding bird assemblages. During operation, in the absence of any mitigation, there is a potential for disturbance to breeding Stone-curlew in Sunnica East Sites A and B; therefore, embedded design mitigation measures are proposed. Disturbance effects and temporary habitat loss during decommissioning are expected to be similar to those assessed for the construction phase.

4.4.7 Following implementation of mitigation measures, the effect of the loss of most habitats will be **negligible**, **not significant**. **Temporary minor adverse** (**not significant**) effects are predicted for the loss of acid grassland and habitat for breeding Stone-curlew and terrestrial invertebrates. The potential for disturbance to breeding bird populations (including Stone-curlew, quail and little-ringed plover) during construction is also considered to have a temporary **minor adverse** effect, that is **not significant**.

4.4.8 Disturbance to breeding Stone-curlew during operation is predicted to be **negligible**, and **not significant**, due to the proposed provision of mitigation areas for stone curlew as part of the Scheme design to reduce the disturbance.

4.4.9 Disturbance effects and temporary habitat loss during decommissioning are expected to be similar to those assessed for the construction phase. Therefore, temporary **minor adverse** (**not significant**) effects are expected during any decommissioning works.

Mitigation Measures

4.4.10 A CEMP will be in place during construction and an equivalent plan during decommissioning to reduce the effects on habitats, designations, and species. Stone curlew breeding plots have been provided within Sunnica East Site A and Sunnica East Site B as part of the preliminary embedded mitigation.

4.4.11 An Outline Landscape and Ecology Management Plan (LEMP) will also be provided as part of the DCO Application. This will present measures for the protection and enhancement of ecological receptors; against which a

detailed LEMP will be brought forward. A draft of the Outline LEMP forms part of this consultation (see ***PEI Report Volume 2: Appendix 10I***).

4.4.12 In addition, the Applicant is committed to achieving net biodiversity gain. The embedded mitigation in the Scheme includes areas of habitat creation and enhancement throughout the DCO Site to provide benefit to the local wildlife. The DCO Application will include a net biodiversity gain calculation and report.

4.5 Water Environment

Baseline and Context

4.5.1 ***PEI Report Volume 1: Chapter 9 Water Environment*** assesses the potential impacts on the water environment from the construction, operation, and decommissioning of the Scheme. The water environment includes consideration of surface waterbodies in the vicinity of the Site (e.g. rivers, streams, ditches, canals, lakes and ponds, etc.), groundwater bodies, as well as flood risk (which also includes consideration of the risk of flooding to the Scheme) and drainage.

4.5.2 The assessment of impacts on waterbodies considers changes in water quality, physical form and natural processes (i.e. hydromorphology), and water resources. An important consideration is also the impact on the water environment where it is critical for the biodiversity and conservation value of water dependent ecological sites that may be designated at a local, national or international level.

4.5.3 The DCO Site lies within the catchments of a number of surface waterbodies, including the River Kennett, River Lark, River Snail, Lee Brook (tributary of the River Lark), and the Burwell Lode.

4.5.4 The DCO Site is underlain by the Cam and Ely Ouse Chalk Groundwater body. The Site is underlain by Chalk classified as a Principal aquifer. The aquifer is important for water supplies and baseflow to rivers. The Chalk aquifer is overlain by River Terrace Deposits, classified as a Secondary A aquifer.

4.5.5 The majority of the DCO Site lies within land at low risk of flooding (less than 1 in 1,000 annual probability). Some areas of higher risk are present in areas associated with the rivers (1 in 100 and 1,000 annual probability).

Assessment of Effects

4.5.6 A number of activities during construction, operation, and decommissioning phases are likely to generate impacts, which, if unmitigated, have the potential to affect the water environment. Environmental considerations were taken into account during the design of the Scheme in order to avoid and/or reduce potential impacts on water environment receptors. This iterative approach has led to a range of mitigation measures, such as crossing of watercourses with trenchless techniques, removing infrastructure from Flood Zone 3b areas, and implementation of swales /

drainage ditches, being embedded within the design of the Scheme or captured within standard construction practices reflected in the CEMP so as to prevent or minimise effects on the water environment.

4.5.7 Wastewater generation on construction sites has the potential to affect the water quality of the surface and groundwater bodies in the vicinity without mitigation. With standard good industry practice measures implemented through the CEMP and embedded mitigation in place, this effect is anticipated to be **minor adverse**, **not significant** for the River Kennett, Lee Brook and River Snail during construction. All other water resources receptors during construction are expected to experience either **negligible** effects or **no change**.

4.5.8 During the operational phase, there is the potential for negative impacts on water quality in watercourses from run-off and spillages from new permanent hardstanding and maintenance activities if not properly mitigated. There is the potential for impacts on hydrology to occur from alterations to natural flow pathways from runoff from areas of hardstanding. This may also have a subsequent effect on aquatic habitats and water-dependant nature conservation sites. There is also a potential for reduced chemical loading of watercourses associated with arable farmland (e.g. nitrates, pesticides, herbicides and insecticides).

4.5.9 A Flood Risk Assessment has been prepared for the DCO Site (see ***PEI Report Volume 2: Appendix 9A***). The FRA takes into account predicted climate change and has demonstrated that the Scheme does not increase flood risk within or surrounding the DCO Site; therefore, it has been assessed as **neutral** across the whole the DCO Site.

4.5.10 The potential for direct impacts to groundwater resources and/or quality, surface water or abstraction receptors has been assessed as **neutral** across the whole of the DCO Site and therefore no mitigation has been proposed.

4.5.11 During the operational phase, the Scheme would apply good industry practice measures and adhere with environmental legislation. The battery sites and solar panels will be located away from watercourses, with surface water drainage controlled by swales and small ponds. As such it is considered that the potential for impacts to occur as a result of runoff and spillages from maintenance activities would be low. This would result in a **minor adverse** effect, which is **not significant**.

4.5.12 The residual effects for the decommissioning phase are expected to be similar in nature and scale to, and no worse than, the construction phase, and therefore **minor adverse** or **negligible**.

Mitigation Measures

4.5.13 The Scheme has been designed, as far as possible, to avoid and minimise impacts and effects on the water environment through the process of design development, and by embedding measures into the design of the Scheme.

4.5.14 A number of standard and embedded measures have been identified, which would be implemented by the contractor to manage the impacts and reduce the effects that the construction of the Scheme would have on the water environment. These include the use of the CEMP and installing solar panels on higher frames in areas of higher risk of flooding. The Surface Water Drainage Strategy (available with the consultation material in ***PEI Report Volume 2: Appendix 9A***) also includes the use of Sustainable Urban Drainage Systems (SuDS), which would mimic the natural drainage system as far as possible; this would be secured through a DCO Requirement. Any areas of the site containing oils, such as transformers, would be bunded or have self-contained drainage systems. This would ensure that any leaks are contained and do not enter the surface water drainage system.

4.5.15 There are no significant residual effects following implementation of the in-built design measures and good industry practice measures. Additional mitigation measures are therefore not deemed necessary.

4.6 Landscape and Visual

Baseline and Context

4.6.1 ***PEI Report Volume 1: Chapter 10 Landscape and Visual*** presents the findings of an assessment of the potential significant effects on the existing landscape, townscape, designations and views, which have been identified as part of the baseline. Landscape effects relate to changes to the landscape as a resource, including physical changes to the fabric or individual elements of the landscape, its aesthetic or perceptual qualities and landscape character. Visual effects relate to changes to existing views of identified visual receptors ('people'), from the loss or addition of features within their view due to the Scheme.

4.6.2 The Landscape and Visual Impact Assessment identifies the sensitivity and overall significance of landscape and visual effects within the identified study area. The landscape and visual baseline assessments have been based on desk study and field work, during both winter and summer between March 2019 and July 2020.

4.6.3 Landscape receptors of the Scheme include three National Character Areas (NCAs): The Fens, The Brecks and the East Anglian Chalk. A number of regional, county and local landscape receptors were also identified as part of the baseline. Visual receptors in the area include recreational users, residents, visitors to the area, and motorists using the highway network.

Assessment of Effects

4.6.4 Embedded mitigation has been included within the Scheme design to reduce the landscape and visual effects of the Scheme. Without these measures, the effects of the Scheme on the landscape and visual receptors assessed within ***PEI Report Volume 1: Chapter 10 Landscape and Visual*** would be greater than the effects presented in this Section of the NTS. Areas of planting and positioning of the Scheme have been designed around the following principles:

- Careful siting of the Scheme within the landscape;
- Conserving landscape, ecology and archaeological features across the DCO Site; and
- Creating new planting and vegetation for screening within the DCO Site.

4.6.5 A landscape masterplan has been produced to show the areas of mitigation planting embedded within the Scheme. This is included in Figure 6 at the end of this Non-Technical Summary.

4.6.6 Effects from the construction phase are expected to include changes in surface landform, landcover, presence of construction machinery and the associated activity which is required to implement the Scheme. During construction, the character of the landscapes throughout Sunnica East Site A, Sunnica East Site B, Sunnica West Site A, and Sunnica West Site B, Cable Route A and Cable Route B are likely to experience **major adverse**, **significant** effects due to substantial alteration to the character of the area within those sites. No significant landscape effects are associated with Burwell substation.

4.6.7 In terms of the Landscape Character Areas across and within sight of the DCO Site (including NCA 46 The Fens, NCA 87 East Anglian Chalk, Landscape Character Type (LCT) Lowland Village Chalklands, LCT Planned Peat Fen, Landscape Type (LT) Rolling East Chalklands and LT Settled Fenlands), effects are expected to range from **negligible** to **minor adverse**, **not significant**. This is because the effects are expected to be small and localised in relation to the wider extent of these areas.

4.6.8 The construction phase is expected to have **no effect** on the majority of the Local Landscape Character Areas (LLCAs) that have been established in the PEI Report across the DCO Site due to a lack of physical changes to the landscape and landform. LLCA 11 and LLCA 26 will experience **minor adverse** effects (**not significant**) from the construction of Sunnica East Site A and Sunnica West Site B. This is due to the small scale and short duration of effects. Changes to landform, landcover and the presence of the construction machinery in LLCA 13 (from Sunnica East Site B) and LLCA 24 (Sunnica West Site A), balanced with the scale of the activity, has been assessed to potentially result in temporary **major adverse** effects (**significant**).

4.6.9 Recreational users and residents with close range views of the construction sites across the DCO Site will experience **major** to **moderate adverse**, **significant** visual effects during construction, due to the change in the composition of existing views. The full list of receptors that will experience these effects are listed in ***PEI Report Volume 1: Chapter 10 Landscape and Visual***.

4.6.10 The operation phase has been assessed for two different years for the LVIA: the year 1 opening phase of the Scheme; and year 15 of operation of the Scheme, which will take in to account the establishment of the proposed

vegetation, screening and planting. This is in line with national landscape and visual assessment guidance.

4.6.11 The year 1 opening phase residual effects will be due to the change in land use from agriculture to infrastructure, via the solar panels and associated structures, resulting in impacts to the aesthetic and perceptual aspects of the landscape and the introduction of new features within views. The effects on the landscape character **within** each of the four Sunnica sites (i.e. the DCO Site) would not be reduced from the significance expected at the construction phase due to the introduction of new massing and structures across the sites, resulting in an infrastructure character and changes to the tonal colour of the landscape via the solar panel frames and arrays. This would result in **major adverse** effects, which are **significant**.

4.6.12 Similar to the construction phase, the Landscape Character Areas within the DCO Site are expected to experience effects ranging from **negligible** to **minor adverse**, **not significant**. This is because the Scheme would introduce new infrastructure to the landscape, however the effects are expected to be small and localised in relation to the wider extent of these areas.

4.6.13 The effects on the LLCAs described for construction above will remain during operation year 1 because of the presence of the solar infrastructure across the DCO Site.

4.6.14 The visual effects on recreational users and residents within close views of the DCO Site during construction will largely remain during operation year 1 due to the presence of the infrastructure and lack of established vegetation (**major** to **moderate adverse**, **significant)**. However, some receptors will no longer experience significant effects following the end of the construction phase (due to the removal of machinery and vehicles). These include: recreational users of the River Lark; users of public right of way 257/002/0; and users of public right of way 204/1. All effects from the cable route corridor construction will no longer be relevant, as the cables would be installed below ground, so the receptors that were to be affected by the construction of the cable corridors only will no longer experience effects.

4.6.15 The year 15 post opening phase effects reflects that of the year 1 assessment, due to the continued, long term but reversible presence of the solar panels and associated structures, but there is a reduction in the number of significant adverse effects, particularly to visual receptors, due to the establishment of the proposed planting; as explained below.

4.6.16 The effects on the character of the landscape within each of the Sunnica sites (i.e. the DCO Site) for operation year 15 will be reduced from major to **moderate adverse** (**significant**) due to the establishment of vegetation planting around the DCO Site. The effect is still considered to be significant due to the presence of the solar infrastructure within the landscape.

4.6.17 A number of Landscape Character Areas across the Sunnica East Site B and Sunnica West Site A (including NCA 85: The Brecks, LCT Forested

Estate Sandlands, LT Estate Sandlands, LT Rolling Estate Chalklands, the Brecks Arable Heathlands Mosaic and Low Chalk Farmland) will be affected by the Scheme during year 15 of operation. In combination with the establishment of the native grassland beneath all of the panels, the vegetation structure and biodiversity would be improved within these published landscape character areas. These beneficial changes are balanced with continued long-term presence of the solar panels, the small scale of the Green Infrastructure in relation to the wider extent of the published character areas, along with the reversibility of the Scheme. Therefore, the effects are predicted to range between **negligible adverse** and **minor adverse** (**not significant**) as a result of Sunnica East Site B and Sunnica West Site A during the year 15 phase. These effects are considered not significant.

4.6.18 Landscape Character Areas within Sunnica East Site A and Sunnica West Site B will experience either **no change** or **negligible** effects (**not significant**) during operation year 15.

4.6.19 The effects on LLCAs during year 15 of operation will be reduced due to the establishment of the vegetation around the DCO Site. The infrastructure character of the land use would remain, although the magnitude of impact would reduce, due to the balance between the establishment of the proposed planting and the improved opportunities for vegetation cover and biodiversity within the LLCA, along with the Scheme remaining reversible. The effects would be reduced to: **minor adverse** (**not significant**) at year 15 for LLCA 11; **moderate adverse** (**significant**) for LLCA 13; **moderate adverse** (**significant**) for LLCA 24; and **minor adverse** (**significant**) for LLCA 26.

4.6.20 Effects on recreational and residential visual receptors with close range views of the Scheme will be reduced to **negligible** or **minor adverse** (**not significant**) at operational year 15 due to the establishment of embedded mitigation (vegetation) surrounding the Scheme. This is excluding the recreational users and users of the training grounds at the Limekilns, who are expected to experience **moderate adverse** (**significant**) visual effects from the presence of the Scheme infrastructure.

4.6.21 The decommissioning phase residual effects are due to the long-term establishment of the vegetation, which would remain following the removal of the solar panels and associated structures. The landscape effects of decommissioning of the Scheme would mimic the construction phase and would be temporary in nature, albeit returning the DCO Site back to its current state plus retaining any vegetation planting that has been incorporated into the Scheme.

Mitigation Measures

4.6.22 The embedded mitigation measures (including planting, offsetting and design layout) reduces the number and extent of significant effects on landscape and visual receptors. The remaining residual effects are few in number and small in extent. These residual effects cannot be mitigated

further as no further measures are available, however this is considered acceptable in the context of the importance and benefits that the Scheme as a whole will bring.

4.7 Noise and Vibration

Baseline and Context

4.7.1 ***PEI Report Volume 1: Chapter 11 Noise and Vibration*** presents the findings of an assessment of the potential significant effects of the Scheme on noise and vibration of the Site and surrounding area. Baseline noise monitoring based on a methodology agreed with relevant stakeholders, was carried out to establish the existing noise climate in the area. Sensitive receptors which have the potential to be affected by the Scheme were identified.

4.7.2 During the surveys, the dominant noise source at the majority of the locations was observed to be road traffic from the surrounding road network. Some receptors were also influenced by aircraft noise. Noise from the existing Burwell Substation was not audible during daytime site visits at the closest receptors.

Assessment of Effects

4.7.3 Construction noise levels are predicted to be at their highest during site preparation and civil phases of works, which include ground works and piling activities. The duration of any construction noise effects is considered to be temporary, short-term, with no permanent residual effect once works are completed. Working hours during construction will be from 7am to 7pm Monday to Saturday, with worker trips the hour before and after the core working hours. It is considered that noise impacts are likely to be greatest during the early stages of the works programme, where ground works are required. In practice, works noise levels and resulting impacts are likely to vary during the different construction phases. The nature of construction work means that the highest levels of noise may exist for only a matter of days or even hours and there would be regular periods, even during the course of a single day, when the assumed noisy plant will not be in operation during breaks or changes of working routine. Construction noise levels will be controlled through the use of embedded mitigation and the use of a CEMP. Therefore, noise impacts from construction works are predicted to be **negligible**, and **not significant**.

4.7.4 A worst-case construction programme of 24 months duration has been assessed. Changes in noise due to construction traffic are predicted to result in a **minor adverse** effect at worst at any identified receptor, which is **not significant**.

4.7.5 During operation, plant such as the substation and batteries will be designed to have no tonal, impulsive or intermittent features. Predicted rating levels of operational solar plant at the nearest receptors are below the existing background levels, and effects are predicted to be **negligible**, and therefore **not significant**.

4.7.6 Noise from the Burwell Substation Expansion at the nearest residential receptor (property) is predicted to be below background levels during the day but to exceed the night-time background noise level by 5 decibels (dB). Whilst noise may be audible inside the property, it is not predicted to give rise to any significant adverse effect based on the criteria specified in the British Standard. Consequently, night-time noise at even the closest residential property is considered to be **minor adverse** and **not significant.**

Mitigation Measures

4.7.7 Embedded mitigation includes the use of measures identified in the CEMP, such as avoiding unnecessary revving of engines, shutting off equipment when not in use, appropriate routing of construction traffic on public roads, and minimising drop heights. A construction noise monitoring scheme shall be developed, as part of the Section 61 consent, and agreed with appropriate stakeholders prior to commencement of construction works. At this stage no additional mitigation or enhancement measures for the construction/decommissioning and operational phases are considered to be required given that no significant adverse residual impacts that have been predicted. However, this will be further investigated in the ES.

4.8 Socio-Economics and Land Use

Baseline and Context

4.8.1 ***PEI Report Volume 1: Chapter 12 Socio-Economics and Land Use*** presents the findings of an assessment of the likely significant effects on socio-economics and land use as a result of the Scheme.

4.8.2 The study area is mostly rural and relatively sparsely populated. The closest residential properties to the Sunnica East Site A are a small group of properties located 500m to the north in Isleham and in Sunnica East Site B there are also a small group of properties located immediately north in Worlington. The Sunnica West Site A lies approximately 100m from a lone property on Dane Hill Road. There are no residential properties in proximity to Sunnica West Site B.

4.8.3 The Burwell National Grid Substation Expansion will be located to the east of the existing substation and the closest residential properties are located 200m to the east in the village of Burwell.

4.8.4 The construction sector contributes 7% of employment within East Cambridgeshire and 7.3% in West Suffolk, which are both higher than the proportions recorded regionally and nationally. There are around 2,000 construction jobs found within East Cambridgeshire and West Suffolk and 1,500 construction jobs found within the Travel To Work Area (TTWA) in Cambridge.

4.8.5 Both the East Cambridgeshire and West Suffolk Local Plan documents emphasise the importance of ensuring existing public rights of way are

maintained and that minimal disruptions to public rights of way occur during the construction phase.

4.8.6 An Agricultural Land Classification (ALC) Survey has been undertaken for the DCO Site. This identified small areas of 'Best and Most Versatile' land (grade 3a), which is the highest category for agricultural land. The survey identified Sunnica East Site B as being formed of largely Grade 4 land, which is low value agricultural land. There is a small pocket of Grade 3a land towards the northern most section of the Site near Golf Links Rd. In Sunnica East Site A the land is comprised mostly of Grade 3b land and a few small pockets of Grade 4.

4.8.7 In Sunnica West Site A, the ALC shows that the Site is formed largely of Grade 3b land. There are some medium sized pockets of Grade 4 land found in the middle and northern portion of the Site. There is also a larger patch of land in the north east of the Site with Grade 3a and Grade 3b land near Dane Hill Road and Red Lodge Bypass. Sunnica West Site B comprises Grade 3b land.

Assessment of Effects

4.8.8 Embedded mitigation has been included within the Scheme design to reduce impacts on receptors from the outset. These are detailed in the next Section below. The impact of construction employment generation on Cambridge TTWA's economy through the direct, indirect and induced employment, expenditure and upskilling, has been assessed as temporary **moderate beneficial** effect. This is considered **significant**.

4.8.9 Gross value added (GVA) is an economic productivity metric that measures the contribution of a scheme to an economy, producer, sector or region. The impact of GVA generation from the construction phase on Cambridge TTWA's economy has been assessed as a temporary **minor beneficial** effect. This is considered **not significant.**

4.8.10 Effects on users of public rights of way during construction through temporary disruption were assessed as **negligible** (**not significant**) to **moderate adverse** (**significant**), depending on the public right of way in question. This is taking into account the effects of the embedded mitigation discussed below.

4.8.11 The areas of 'Best and Most Versatile' land (grade 3a) fall within the developable area of the Scheme and will be lost as arable farmland to the Scheme.

Mitigation Measures

4.8.12 Primary mitigation measures are embedded within the Scheme, as set out in the respective chapters within ***PEI Report Volume 1***, to reduce other operational effects (such as noise, air quality and landscape) which in turn will mitigate the effects on the local community and existing facilities from a socio-economic and land use perspective.

4.8.13 Appropriate measures to mitigate temporary impacts on users of public rights of way during the construction and decommissioning phases have been proposed. The temporary closures and diversions will be supported by appropriate and clearly signed alternative routes and where possible will be planned and programmed to minimise disruption to users. A new permissive route between Freckenham and Isleham and to the south of Worlington is included in the Scheme design to enable increased public access across the landscape. The temporary closures and diversions will be confirmed within the ES as part of the DCO application.

4.8.14 No other additional mitigation measures, over and above that stated in the other technical chapters within ***PEI Report Volume 1***, are required to avoid or minimise the socio-economic effects identified in ***PEI Report Volume 1: Chapter 12 Socio-Economics***.

4.9 Transport and Access

Baseline and Context

4.9.1 ***PEI Report Volume 1: Chapter 13 Transport and Access*** reports the findings of an assessment of the likely significant effects on traffic and transport as a result of the Scheme during construction and reports on the likely effects during decommissioning. It was agreed that the operational effects of the Scheme would be scoped out due to the low number of trips (13 trips per day) associated with operational activities.

4.9.2 The Scheme is located in a rural area with limited dedicated footways and pedestrian and cycle facilities in the area along the road network. This is due to the rural nature of the surrounding local roads; however, these are lightly trafficked. There are several public rights of way crossing and connecting the DCO Site.

4.9.3 The closest bus stops to the Sunnica West Sites are located in Snailwell on Newmarket Road, where a pair of bus stops are provided. The nearest stops to Sunnica Site A are located over a 1km to the north east in Isleham. The bus stop nearest to Sunnica East Site B is located on B1085 Turnpike Road in Red Lodge approximately 500m to the south-east.

4.9.4 The two closest train stations are located in Kennett and Newmarket, and both stations are on the line between Ipswich and Cambridge.

4.9.5 A number of roads on the strategic and local highways border the DCO Site. The largest roads in the vicinity are the A14 and A11, which run adjacent to Sunnica West Site A on the southern and eastern edge.

Assessment of Effects

4.9.6 The magnitude of change in traffic associated with operation of the Scheme has been scoped out of this assessment. During construction, there is a potential for the incoming and outgoing construction traffic to cause: increased congestion on the highway network; delays to motorists through slow moving Heavy Goods Vehicles (HGVs) and increased congestion;

increased risk of accidents from the increased number of HGVs on the road; and severance, pedestrian delay, pedestrian / cycle amenity and fear and intimidation; and closures of public rights of way. The effects from decommissioning traffic are anticipated to be similar to construction.

4.9.7 To reduce the potential impact of the HGV deliveries, the arrival and departure times will be managed to minimise the number of HGVs travelling to the DCO Site during the highway peak hours. In addition, the HGVs can be delayed in the afternoon to avoid being released from the DCO Site during the highway peak hour. The HGV deliveries will be controlled through a CTMP, an outline of which is provided in ***PEI Report Volume 2: Appendix 13B***.

4.9.8 Through the embedded mitigation measures included in the Framework CTMP, the effect of the construction on non-motorised users with regard to severance, pedestrian / cycle amenity and delay within the vicinity of the DCO Site is anticipated to be **minor adverse** in the Scheme peak hours. This is because the forecast flows would be similar to those experienced in the highway peak hours, and the effect would be short-term. Therefore, the effect is considered to be **not significant**.

4.9.9 The level of traffic forecast in the Scheme morning peak hour and existing highway morning peak hour are similar, therefore the delay that the vehicle travellers are forecast to experience due to the Scheme would be no worse than in the highway morning peak hour. The significance of the effect during the construction period is therefore **negligible**, **not significant**. This effect would be temporary.

4.9.10 As the vehicles associated with the construction are anticipated to travel outside of the highway peak hours, it is considered that the magnitude of change on vehicle travellers in terms of driver delay is **negligible**, **not significant**. This effect would be temporary.

4.9.11 The assessment of previous accidents on the highway network does not indicate any significant safety design issues at these locations. As the construction staff and HGV traffic will travel outside of the highway peak hours, it is considered that development traffic will be added to the network when it is generally operating at a lower level of stress than under peak hour conditions. As such, the overall significance of effect on vehicles travellers in terms of accidents and safety is **minor adverse** during the construction period, which is **not significant**.

Mitigation Measures

4.9.12 Embedded mitigation measures have been included in the Scheme through the provision of a CTMP, to be secured through the DCO, a draft of which is available at this consultation. This includes measures such as, to reduce the potential impact of the HGV deliveries, the arrival and departure times will be manged to minimise the number of HGVs travelling to the Site during the highway peak hours. In addition, the HGVs can be delayed in the PM to avoid being released from the Site during the highway peak hour.

4.9.13 To reduce the potential impact of vehicles associated with the staff, they will be encouraged to lift share with colleagues to reduce the number of vehicles travelling to/from the Site each day. Staff will also be encouraged to use the strategic road network in the vicinity of the Site such as the A11, A14 and A142 to travel to/from the DCO Site where appropriate to minimise the amount of construction traffic using local roads through the nearby villages, in line with the routes identified in the access strategy for the HGVs. Such measures will be undertaken through the provision of a Construction Worker Travel Plan (CWTP), to be secured through the DCO.

4.9.14 A car parking permit system is proposed to be implemented across the two car parking areas. Before commencing work on site, staff will be allocated to one of the two car parking areas which will be based on their starting location for their travel to the DCO Site. A mini-bus service will be used to transport staff around and between Sunnica East Site (A and B) and Sunnica West Site (A and B) making use of internal routes where possible.

4.9.15 No significant adverse effects are anticipated during construction and therefore no additional mitigation, other than the embedded mitigation, is required.

4.10 Air Quality

Baseline and Context

4.10.1 ***PEI Report Volume 1: Chapter 14 Air Quality*** presents the findings of an assessment of the likely significant effects on local air quality as a result of the Scheme. The assessment relates to dust generation, and additional road traffic and plant emissions during the construction phase. The potential for operational impacts is also addressed. The decommissioning phase will be similar in nature, duration, and extent to the construction phase, albeit likely to be shorter and of lower magnitude; it has therefore not been necessary to assess this phase and the effects are assumed to be the same as the construction phase.

4.10.2 The air quality in the study area is generally good. There are no Air Quality Management Areas[1] in this region, and the Council does not monitor the air quality around the DCO Site as there are no concerns about air quality.

4.10.3 An air quality monitoring survey will be undertaken following statutory consultation to determine baseline pollutant concentrations within the study area. The results of this survey will be used to inform road traffic air model verification. This survey is due to commence in September 2020.

Assessment of Effects

4.10.4 The dust assessment has identified the potential for a high risk of adverse effects on ecology at a nationally designated ecological site located within

[1] National air quality objectives have been put in place to protect people's health and the environment. If a local authority finds any places where the objectives are not likely to be achieved, it must declare an Air Quality Management Area there. This area could be just one or two streets, or it could be much bigger

20m of the site boundary, medium risk associated with dust deposition generally, and low risk to human health, prior to the use of any embedded mitigation. The high risk to the ecological site is a worst-case assuming that the site is sensitive to dust deposition, which may not be the case. Following implementation of the CEMP, which will incorporate dust control and mitigation measures, the effect on ecology, dust deposition, and human health is anticipated to be **not significant**.

4.10.5 An assessment of the effect of road traffic emissions on local air quality during the construction phase will be included in the ES. At this stage, given the relatively good air quality conditions in the Site and surrounding area, and the expected traffic volumes associated with construction of the Scheme, it is not expected that the additional road traffic will lead to any exceedances of the national air quality strategy objectives. The significance of this change will be reported in the Environmental Statement; however, at this stage it is anticipated likely to be **not significant**.

4.10.6 Due to the number of trips, predicted to be 13, it was agreed with statutory consultees at scoping stage that an operational air quality assessment would be scoped out of the EIA.

Mitigation Measures

4.10.7 Embedded mitigation measures appropriate for the risk of dust nuisance will be implemented though the CEMP in accordance with Institute of Air Quality Management's (IAQM's) Guidance. These include avoiding stockpiling of soils and materials near to site boundaries, use of water suppression on earth moving activities if undertaken in dry weather, and sheeting or enclosing any dusty materials being transported on or off site. Mitigation may be required for road traffic emissions during construction, but this will be assessed at the ES stage but is currently not expected to be required.

4.11 Human Health

Baseline and Context

4.11.1 ***PEI Report Volume 1: Chapter 15 Human Health and Wellbeing*** assesses the potential effects of the construction, operation and decommissioning stages of the Scheme on human health, taking into account the results from the other technical chapters within ***PEI Report Volume 1***.

4.11.2 Based on the 2011 Census data, the study area has a slightly better health status than the wider region and other nearby counties. The proportion of physically active people is similar to surrounding areas.

Assessment of Effects

4.11.3 The assessment has considered access to healthcare services and other social infrastructure; air quality, noise and neighbourhood amenity; accessibility and active travel; access to work and training; and social cohesion and lifetime neighbourhoods.

4.11.4 There is not likely to be any severance between local residents and the healthcare facilities and other social infrastructure which they use during the construction, operation, or decommissioning phase. This is because neither the additional construction/decommissioning traffic or the traffic generated during the operational phase result in the transport network becoming over capacity. Therefore, effects are considered to be **not significant**.

4.11.5 Some residents on Wells Grove and Hythe Lane in Burwell, Cambridgeshire during both the construction/decommissioning and the operational phases may experience impacts on air quality, noise, and neighbourhood amenity. During the construction and decommissioning phase, this is due to the presence of HGV movements. There are expected to be no other negative health impacts on residents of properties or users of community resources in the study area. These effects are considered to be **not significant**.

4.11.6 During the construction and decommissioning phases, the Scheme will result in temporary impacts on a number of pedestrian and cyclist facilities in the area. The Scheme will provide diversions for each of these routes; however, these diversions will result in additional journey times for many and will not replicate the amenity value experienced in existing routes. It is likely therefore that these impacts may discourage walkers from using pedestrian or cyclist facilities during the construction and decommissioning phases.

4.11.7 The temporary disruption would result in adverse effects to the following footpaths:

- **Moderate adverse** effects on users of bridleways between Freckenham and Isleham (nearest to Sunnica East Site A), although this is considered **not significant** because users would be able to use an alternative route via Beck Road;
- **Minor adverse** effects on users making local journeys on the permissive bridleway which cuts diagonally from Worlington to Elms Road due to the entire route being temporarily severed, preventing access. Noting that this is not a right of way through which access is assured, the impacts arising from this on user journeys are considered **not significant**;
- **Moderate adverse** effects on users of the footpath between Freckenham and Red Lodge would be experienced due to this route being temporarily severed, preventing access. Users would be able to use an alternative route via Mildenhall Road (approximately 1.2km in additional journey length), to complete their journeys. Effects arising from this on user journeys are assessed to be temporary **moderate adverse** effect, but this is considered **not significant**.

4.11.8 Minimal temporary disruption to user experience of public rights of way in the vicinity of Sunnica West Site A, Sunnica West Site B, and the grid connection routes is expected. Therefore, effects on these users have been assessed as **negligible**, **not significant**.

4.11.9 During the operational phase, the Scheme will provide permissive routes and diversions which will improve safety and reduce journey times. The Scheme is therefore expected to lead to a positive health impact during the operational phase. These effects are considered to be **not significant**.

4.11.10 During the construction and decommissioning phases, the Scheme will create over 1,000 jobs. The majority of these are likely to be taken up by the local workforce within the Cambridge Travel to Work Area. During these periods the Scheme is therefore expected to lead to a positive health impact on access to work and training. During the operational period, the scheme is assessed to have minimal impact on access to work as only five jobs will be required onsite per annum. These effects are considered to be **not significant** on local health.

Mitigation Measures

4.11.11 Primary mitigation measures are embedded within the Scheme, as set out in the respective chapters in ***PEI Report Volume 1***, to reduce other operational effects (such as noise, air quality and landscape) which in turn will mitigate the effects on the local community and existing facilities from a human health perspective.

4.11.12 At this stage it is predicted that the Scheme design has embedded sufficient mitigation to avoid significant adverse effects on human health and wellbeing, without additional mitigation measures being required. The EIA is an iterative process, and should further mitigation be identified after statutory consultation prior to the DCO Application then the Scheme design will be amended to capture these and they will be included in the ES.

4.12 Other Environmental Topics

4.12.1 ***PEI Report Volume 1: Chapter 16 Other Environmental Topics*** assesses the following topics: glint and glare; ground conditions; major accidents and disasters; telecommunications, television reception and utilities; and waste. None of these warrant individual chapters in the ***PEI Report Volume 1,*** either due to the brevity of the assessment or the small impact associated with the Scheme.

Glint and Glare

4.12.2 ‘Glint’ refers to a momentary flash of bright light typically received by moving receptors or from moving reflectors. ‘Glare’ refers to a continuous source of bright light typically received by static receptors or from large reflective surfaces.

4.12.3 A number of potential receptors to glint and glare are present in the vicinity of the DCO Site. These include aircraft, trains, road vehicles, recreational users of public rights of way, bridleways and residents.

4.12.4 The majority of receptors assessed will experience **no effects or low impact** (**not significant**) due to visibility of any panels being screened from view from existing vegetation and landform. **No effects** (**not significant**)

are anticipated for aviation receptors at RAF Mildenhall, RAF Lakenheath and Cambridge Airport due to their distance from the Scheme and orientation of the runways.

4.12.5 A major significant effect is anticipated on a short section (approximately 200m) of the A14, adjacent to Sunnica West A prior to the establishment of mitigation. A sort section (approximately 300m) of 2m high solid hording will be erected along the DCO boundary at this location which will reduce this to a **low** impact that is **not significant**. The visual appearance of the hoarding will be explored as part of the ongoing design work and discussed with the council and options for planting of vegetation in front of the hoarding are currently being explored.

Ground Conditions

4.12.6 The land condition within the DCO Site has been assessed to identify potential environmental land quality liabilities and constraints prior to the Scheme.

4.12.7 The land within the DCO Site is located within Source Protection Zones (SPZs) designated by the Environment Agency for the protection of potable water supply. A number of rivers, drains and isolated ponds are also located within the study area. There are identified areas of nationally designated ecological significance within 250m of the DCO Site.

4.12.8 A number of current and historical uses that are potentially contaminative are present on-site or in the surrounding areas, although most of the DCO Site has remained undeveloped throughout the historical period studied. Areas of note include active and former landfills, historical and current mining sites, former sewage works and current waste water treatment works, various industrial and commercial activities, farmlands, active and historical (dismantled) railway lines, and a number of infilled pits and ponds, scattered across the land within the DCO Site, which may have been filled with a variety of (unlicensed) waste materials.

4.12.9 A risk assessment of the potential contaminated linkages has been undertaken for the Site. Potential contaminant linkages include hazards to human health, controlled waters, ecological receptors, properties, or impacts to mining / mineral sites. The depth of construction is relatively shallow and potential contaminant linkages associated with the current use or the Scheme are generally classified as **not significant** after taking into account mitigation/control measures, such as appropriate use of personal protective equipment (PPE), containment measures and installation of equipment (i.e. inverters, transformers and switchgear) on concrete bases as outlined in the Framework CEMP and site specific geo-environmental ground investigation data.

4.12.10 Mitigation measures and standard best practice will be followed during construction, operation and decommissioning of the Scheme. Prior to work commencing, a health and safety risk assessment will be carried out in accordance with current health and safety regulations and based on ground

investigation findings. The CEMP will be followed throughout construction and decommissioning.

Major Accidents and Disasters

4.12.11 This section summarises the potential effects of the Scheme on the risks of major accidents or disasters occurring and affecting the Scheme. 'Accidents' are an occurrence resulting from uncontrolled developments in the course of construction, operation and decommissioning (e.g. major emission, fire or explosion). 'Disasters' are naturally occurring extreme weather events or ground related hazard events (e.g. subsidence, landslide, earthquake).

4.12.12 A number of receptors are present in the vicinity of the Scheme which could be vulnerable to major accidents or disasters, either because of their proximity to the Scheme or their importance to the surrounding area. These include towns, villages, farms and residential homes; commercial sites and buildings; roads; railways; designated ecological sites, woodland, farmland, and waterbodies; and underground infrastructure services including electricity, water, communications, and gas.

4.12.13 The risk of criminal damage, birdstrike, fire, and rail accidents have been assessed for the construction, operation, and decommissioning phases of the Scheme. Minimising the risk of major accidents during construction and decommissioning will be addressed through appropriate risk assessments as required in the CEMP. Security fencing and cameras will be installed to prevent criminal activity. Operationally, the Scheme is considered low risk although a fire prevention plan will be developed for the battery storage units which will be discussed and agreed with relevant stakeholders. The Scheme is not expected to increase the risk of major accidents or disasters during construction, operation and decommissioning. Therefore, the effects on major accidents and disasters are considered **not significant**.

Telecommunications, Television Reception and Utilities

4.12.14 This section evaluates the effects of the Scheme on telecommunication infrastructure, television reception and existing utilities.

4.12.15 Two mobile phone masts are present within the DCO Site; one within Sunnica East Site B, and other in Sunnica West Site A. The Scheme is unlikely to interfere with telecommunication infrastructure due to its low height and therefore **no effects** are anticipated in the construction, operation, and decommissioning phases.

4.12.16 The area within and surrounding the DCO Site is predominantly served by the Tacolneston transmitter (Norfolk) and the Sandy Heath transmitter (Central Bedfordshire). The Linnet Valley and Bury St Edmunds repeat transmitters are located approximately 15km south-east of Sunnica West Site A, both of which are part of the Tacolneston transmitter group. The Scheme consists of fixed low-lying infrastructure and is therefore unlikely to interfere with digital television signals and therefore **no effects** are anticipated in the construction, operation, and decommissioning phases.

4.12.17 On-site utilities could include water, sewers, gas or oil pipelines and electrical cables. Knowledge of the utilities during design and construction allows any effects to be negated by avoiding them or by use of suitable structures, such as pipe bridges. Consultation is being undertaken with a number of organisations to identify the existing utilities infrastructure within the DCO Site. The potential exists for utilities to be affected during the construction of the Scheme through damage caused as a result of excavation and engineering operations. In the absence of precautionary measures to avoid damage to utilities, this could lead to a short-term adverse effect.

4.12.18 Precautionary measures will be included as part of the embedded mitigation, such as mapping infrastructure that crosses the Scheme and avoiding it through the design. for the Scheme, which would reduce the likelihood of effects on utilities during construction. Therefore, **no significant** adverse effects are expected during construction.

4.12.19 The decommissioning phase would require below ground works to remove the grid connection cables; however, works would be undertaken within the footprint excavated during construction. Additionally, the embedded mitigation measures used during construction would also apply during decommissioning. Therefore, **no significant** adverse effects are predicted during decommissioning.

4.12.20 **No effects** on utilities are predicted as a result of the operational phase of the Scheme because no below-ground works will be required during operation.

Waste

4.12.21 This section discusses the expected waste streams during each phase of the Scheme. Wastes include surplus spoil, scrap, recovered spills, unwanted surplus materials, packaging, office waste, wastewater, broken, worn-out, contaminated or otherwise spoiled plant, equipment and materials.

4.12.22 The waste carriers and landfill sites used will be determined by the contractor pre-construction. Two Authorised Landfill Sites are located adjacent to the site, to the east of the A11. These are Kennett Hall Farm and Kennett Phase 2A.

4.12.23 Given the nature of the Scheme, significant quantities of waste are not anticipated. Expected waste streams during the construction, operation and decommissioning phases are discussed below. A Construction Resource Management Plan (CRMP) and a CEMP will be prepared for the construction and decommissioning phases. These will include measures to control and manage waste on-site.

4.12.24 All waste transported off site will be delivered to the appropriately licenced receivers of such materials. Prior to construction, opportunities to minimise waste produced through the construction phase as far as possible will be explored. Possibilities to re-use or recycle materials will be explored before

resorting to landfill options. Toxic and / or hazardous waste must be treated by an authorised operator. Transportation of hazardous waste will also require an authorised carrier. Materials are to be dealt with in accordance with the CEMP, and a CRMP will be produced. With these in place and the appropriate control measures followed, **no effects** are anticipated during construction.

4.12.25 During operation, waste arisings are expected to be substantially less than during the construction phase and would include: welfare facility waste; equipment needing replacing; waste metals; and general waste (paper, cardboard, wood, etc.). During the operational phase of the Scheme, waste arisings are expected to be substantially less than during the construction phase and are not anticipated to result in a significant impact if disposed of appropriately. **No significant** effects are anticipated during operation.

4.12.26 During decommissioning, waste streams are expected to include, but not be limited to, solar infrastructure, batteries, cables, welfare facility waste, waste metals, and waste water. Prior to decommissioning, opportunities to minimise waste as far as possible will be explored. Possibilities to re-use or recycle materials will be explored before resorting to landfill options. There is a new industry emerging for recycling solar panels and it is expected that this industry will be mature by 2065. This would be explored, in addition to any resale of any operational panels. Therefore, **no significant** effects are anticipated during decommissioning.

4.13 Summary and Conclusions

4.13.1 The PEI Report explains the interim findings of the EIA process that has been undertaken for the Scheme.

4.13.2 A number of environmental impact avoidance, design and mitigation measures have been identified to mitigate and control environmental effects during construction, operation (including maintenance) and decommissioning of the Scheme. It is proposed that these will be secured through appropriate requirements and other controls within the DCO for the Scheme, should this be granted.

4.13.3 Feedback from the formal consultation process will be taken into account when preparing the DCO application and in undertaking the EIA process. The PEI Report will be revised and further developed to prepare an ES that will accompany the DCO application. The ES will present the final findings and conclusions associated with the EIA process, based on the proposed layout and design.

5. Figures

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275000 270000 265000

Broad Hill
Soham
Wicken
Swaffham Prior
Burwell
Reach
Exning
Fordham
Isleham
Isleham Marina
Thistley Green
West Row
Mildenhall
Worlington
Barton Mills
Freckenham
Chippenham
Red Lodge
Herringswell
Kennett
Kentford
Landwade
Snailwell
Moulton
Gazeley
NEWMARKET

East Cambridgeshire District
West Suffolk District

Sunnica East Site A
Sunnica East Site B
Sunnica West Site A
Sunnica West Site B

A11
A14
A142

0 500 1,000 1,500 2,000m

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File Name:C:\Users\Anna.Diliello\AECOM Directory\Sunnica Energy Farm - GIS - General\Layout\PEIR\NTS\200907_SunnicaEnergyFarm_NTS_Figure1_SchemeLocation.mxd

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Scheme Boundary
- Maximum corridor for Grid Connection Route A
- Maximum corridor for Grid Connection Route B
- High Voltage Connection Corridors
- Public Highway within Scheme
- Local Authority Boundary
- Strategic Highway
- Town
- Village

NOTE:
Public highways run through the Sunnica East Site, which are not part of the site boundary. These have been digitised based on the 1:1250 scale OS Mastermap.

Purpose of Issue
PEIR NTS

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 1
SCHEME LOCATION

Drawn	Checked	Approved	Date
AD	DW	NC	07/09/2020

AECOM Internal Project No.	Scale @ A3
60589004	1:50,000

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60589004_PEIR_NTS_001	0

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275000 274000 273000 272000 271000

E01 E02 E03 E04 E05 E07 E08 E09 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20 E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33

Office/Warehouse

0 500 1,000m

N

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- Scheme Boundary
- Public Highway within Scheme

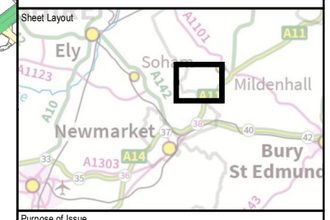
Proposed Scheme Plan

- Developable Area
- Boundary Fence
- BESS and Substation
- Compound Area (Permanent)
- Solar PV Array
- Illustrative Locations of Solar Station
- Proposed Road

Green Infrastructure

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

Sheet Layout



Purpose of Issue
PEIR NTS

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FIGURE 2
SUNNICA EAST SITE A AND B PARAMETER PLAN

Drawn	Checked	Approved	Date
AD	DW	NC	07/09/2020

AECOM Internal Project No.	Scale @ A3
60589004	1:18,000

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60589004_PEIR_NTS_002

Rev
0

File Name:C:\Users\Anna.Dilleto\AECOM Directory\Sunnica Energy Farm - GIS - General\Layout\PEIR NTS\200907_SunnicaEnergyFarm_NTS_Figure2_SunnicaEastA_B_Parameter_Plan.mxd

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270000 269000 268000 267000 266000

W01 W02 W03 W04 W05 W06 W07 W08 W09 W10 W11 W12 W13 W14 W15 W16 W17

Office/Warehouse

0 500 1,000m

N

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LEGEND

- Scheme Boundary
- Woodstore - 20m Buffer

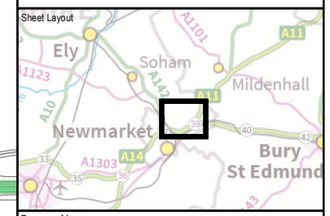
Proposed Scheme Plan

- Developable Area
- Boundary Fence
- BESS and Substation
- Compound Area (Permanent)
- Solar PV Array
- Illustrative Locations of Solar Station
- Proposed Road

Green Infrastructure

- Native Grassland Planting within Archaeological Mitigation Areas
- Native Grassland/Wetland
- Native Grassland Planting
- 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)
- Potential Provision of Permissive Route

Sheet Layout



Purpose of Issue: PEIR NTS

Client: SUNNICA LTD

Project Title: sunnica energy farm

Drawing Title: FIGURE 3 SUNNICA WEST A AND B PARAMETER PLAN

Drawn	Checked	Approved	Date
AD	DW	NC	07/09/2020

AECOM Internal Project No.	Scale @ A3
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Drawing Number: 60589004_PEIR_NTS_003 Rev: 0

File Name:C:\Users\Anna.Dilieto\AECOM Directory\Sunnica Energy Farm - GIS - General\Layout\PEIR\NTS\200907_SunnicaEnergyFarm_NTS_Figure3_SunnicaWestA_B_Parameter_Plan.mxd

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275000 274000 273000 272000 271000

E01 E02 E03 E04 E05 E07 E08 E09 E10 E11 E12 E13 E14 E15 E16 E17 E18 E19 E20 E21 E22 E23 E24 E25 E26 E27 E28 E29 E30 E31 E32 E33

Office/Warehouse

A B C D E F G H I

0 500 1,000m

N

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LEGEND

- Scheme Boundary
- Public Highway within Scheme

Proposed Scheme Plan

- Developable Area
- BESS and Substation
- Compound Area (Permanent)
- Proposed Road
- Potential Provision of Permissive Route

Access Point

- Primary Access
- Secondary Access

Purpose of Issue: PEIR NTS

Client: SUNNICA LTD

Project Title: sunnica energy farm

Drawing Title: FIGURE 4 SUNNICA EAST A AND B ACCESS PLAN

Drawn	Checked	Approved	Date
AD	DW	NC	07/09/2020

AECOM Internal Project No.: 60589004

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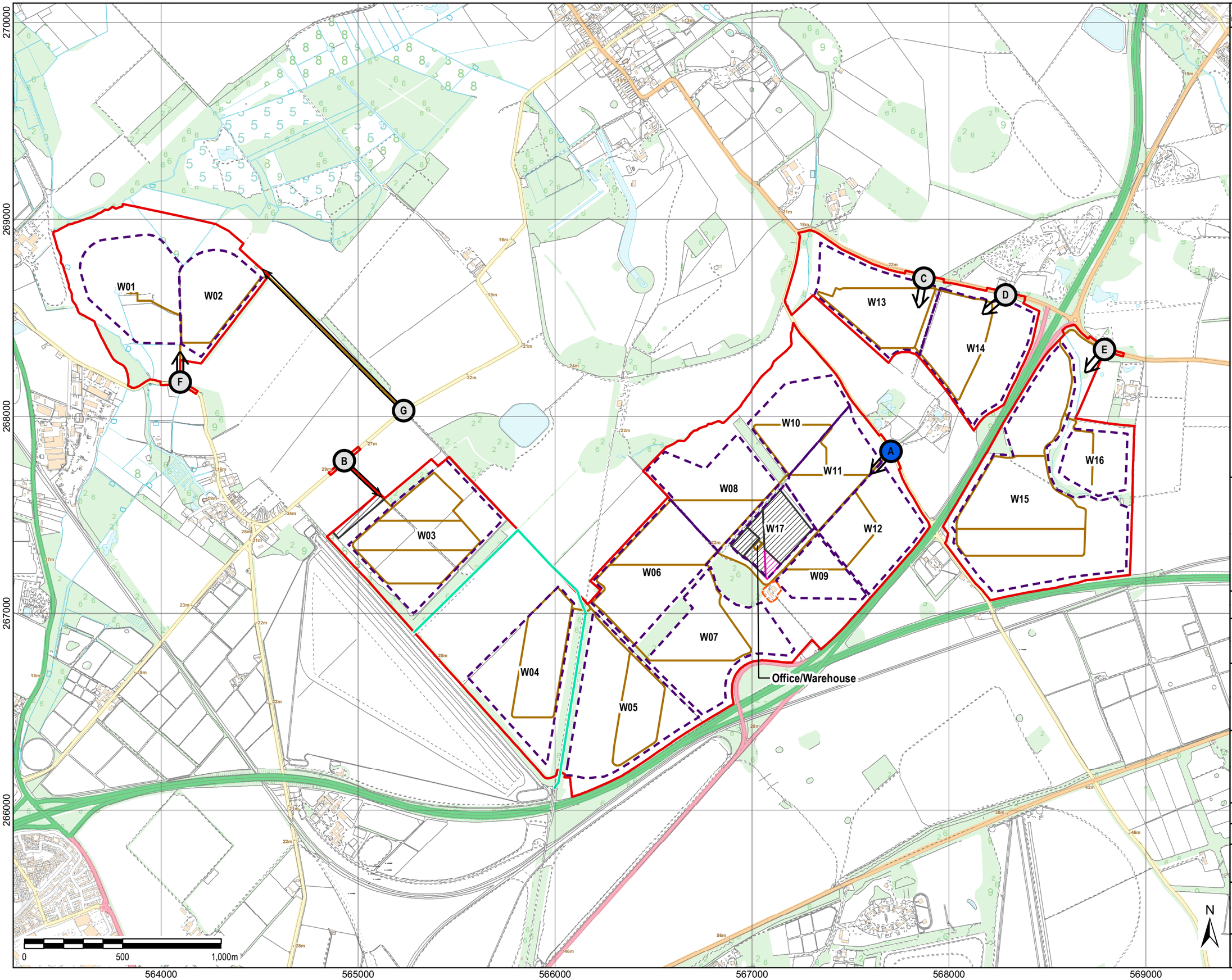
File Name:C:\Users\Anna.Dilieto\AECOM Directory\Sunnica Energy Farm - GIS - General\Layout\PEIR\NTS\200907_SunnicaEnergyFarm_NTS_Figure4_SunnicaEastA_B_Access.mxd



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LEGEND

- Scheme Boundary
- Woodstore - 20m Buffer

Proposed Scheme Plan

- Developable Area
- BESS and Substation
- Compound Area (Permanent)
- Proposed Road
- Potential Provision of Permissive Route

Access Point

- Primary Access
- Secondary Access

Purpose of Issue: PEIR NTS

Client: SUNNICA LTD

Project Title: sunnica energy farm

Drawing Title: FIGURE 5
SUNNICA WEST A AND B
ACCESS PLAN

Drawn	Checked	Approved	Date
AD	DW	NC	07/09/2020

AECOM Internal Project No.	Scale @ A3
60589004	1:17,500

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570000

270000

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LEGEND

- Scheme Boundary
- County Boundary
- District Boundary
- Public Highway within Scheme

Proposed Scheme Plan

- Developable Area
- Native Grassland Planting within Archaeological Mitigation Areas
- Native Grassland/Wetland
- Native Grassland Planting
- Heritage Offset with additional planting along The Avenue
- Landscape Offset
- Proposed Woodland (new planting or infilling of existing vegetation)
- Retained Woodland
- Chalk Grassland
- Potential Provision of Permissive Route
- Proposed Hedgerow (new planting or infilling of existing vegetation)

Purpose of Issue: PEIR NTS

Client: SUNNICA LTD

Project Title: sunnica energy farm

Drawing Title: FIGURE 6 LANDSCAPE MASTERPLAN SUNNICA EAST AND WEST

Drawn	Checked	Approved	Date
AD	RH	NC	07/09/2020

AECOM Internal Project No.: 60589004

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Rev: 0

0 1,000 2,000m

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558000

267000

Option 2

Option 3

Option 1

Burwell Substation

Newnham Drove

Weirs Drove

0 500m

N

File Name:C:\Users\Anna.Dillello\AECOM Directory\Sunnica Energy Farm - GIS - General\Layout\PEIR\NTS\200907_SunnicaEnergyFarm_NTS_Figure7_PreferredAlternativeLocation_BurwellSubstation.mxd

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LEGEND

- Scheme Boundary
- Maximum Area for Burwell National Grid Substation Extension
- Potential Area for Alternative Substation

Purpose of Issue: PEIR NTS

Client: SUNNICA LTD

Project Title: sunnica energy farm

Drawing Title: FIGURE 7 PREFERRED AND ALTERNATIVE LOCATIONS FOR BURWELL NATIONAL GRID SUBSTATION EXTENSION

Drawn	Checked	Approved	Date
AD	DW	NC	07/09/2020

AECOM Internal Project No.	Scale @ A3
60589004	1:2,500

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Drawing Number: 60589004_PEIR_NTS_007

Rev: 0

6. Acronyms

AC	Alternating Current
ALC	Agricultural Land Classification
AQMA	Air Quality Management Area
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CRMP	Construction Resource Management Plan
CWS	County Wildlife Site
dB	Decibels
DC	Direct Current
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
GHG	Greenhouse Gases
GVA	Gross Value Added
HGV	Heavy Good Vehicle
IAQM	Institute of Air Quality Management
IEMA	Institute of Environmental Management
kV	Kilovolts
NNR	National Nature Reserve
PEI	Preliminary Environmental Information
PV	Photovoltaic
RPG	Registered Park and Garden
SAC	Special Area of Conservation
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Urban Drainage System
TTWA	Travel To Work Area
ZoI	Zone of Influence