Mallard Pass
Solar Farm

Mallard Pass Solar Farm

Scoping Report

February 2022

LDĀDESIGN

Mallard Pass Solar Farm, Essendine

Environmental Impact Assessment Scoping Opinion Request
February 2022

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7863_EIA_0001 Mallard Pass EIA Scoping Report

Contents

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This document has been prepared and checked in accordance with ISO 9001:2015.

Figures	
Figure 2.1	Site Location Plan
Figure 2.2	Field Numbering System
Figure 2.3	Topography
Figure 2.4	Access and Recreation
Figure 2.5	Water Resources and Flood Extents
Figure 2.6	Agricultural Land Classification
Figure 3.1	Illustrative Layout
Figure 3.2	Potential Railway Cable Crossing Options
Figure 7.1	Construction Access Routes and Vehicular Restrictions
Figure 7.2	Route 1 Traffic Data Overview
Figure 7.3	Route 2 Traffic Data Overview
Figure 7.4	Route 3 Traffic Data Overview
Appendices	
Appendix 6.1	EIA Regulations, Schedule 4: Information for Inclusion in Environmental Statements
Appendix 6.2	Transboundary Effects Screening Proforma
Appendix 7.1	Zone of Theoretical Visibility and Viewpoint Location Plan
Appendix 7.2	Ecological Baseline Report
Appendix 7.3	Automatic Traffic Count Data
Appendix 7.4	Noise Monitoring Locations and Locations of Nearest Residential Properties
Appendix 7.5	Argyll Environmental Report AEL-4305-PSF-1022716, 17th May 2021
Appendix 7.6	Water Resources Assessment Criteria
Appendix 7.7	Greenhouse Gas Emission Sources

Acronyms and Abbreviations	
AADT	Annual Average Daily Traffic
AC	Alternating Current

AIL	Abnormal Indivisible Load
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
AQMA	Air Quality Management Area
AQO	Air Quality Objective
ARG	Amphibian and Reptile Group
ATC	Automatic Traffic Count
BEIS	Business, Energy and Industrial Strategy
BESS	Battery Energy Storage System
BRE	Building Research Establishment
BTO	British Trust for Ornithology
CCIA	Climate Change Impact Assessment
CCTV	Closed Circuit Television
CEMP	Construction Environmental Management Plan
CIRIA	Construction Industry Research and Information Association
CO_2	Carbon Dioxide
CTMP	Construction Traffic Management Plan
DC	Direct Current

DCO	Development Consent Order
DECC	Department of Energy and Climate Change
oDEMP	Outline Decommissioning Environmental Management Plan
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DTMP	Decommissioning Traffic Management Plan
DUKES	Digest of UK Energy Statistics
EcIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
EPS	European Protected Species
EPUK	Environmental Protection UK
ES	Environmental Statement
FRA	Flood Risk Assessment
FTE	Full Time Equivalent
GCN	Great Crested Newt
GVA	Gross Value Added
GHG	Greenhouse Gas

GI	Green Infrastructure
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HPI	Habitats of Principal Importance
HSI	Habitat Suitability Index
IAQM	Institute of Air Quality Management
ICNIRP	International Commission on Non-Ironizing Radiation Protection
IEMA	Institute of Environmental Management and Assessment
JNCC	Joint Nature Conservation Committee
LAQM.TG	Local Air Quality Management Technical Guidance
kV	Kilovolt
LGV	Light Good Vehicles
LCC	Lincolnshire County Council
LRC	Lincolnshire Environmental Records Centre
LRERC	Leicestershire and Rutland Environmental Records Centre
LRN	Local Road Network
LVIA	Landscape and Visual Impact Assessment
LWS	Local Wildlife Site

MAGIC	Multi-Agency Geographic Information for the Countryside
MW	Megawatts
NCC	Northamptonshire County Council
NERC	Natural Environment and Rural Communities
NGET	National Grid Electricity Transmission
NIC	National Infrastructure Commission
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NRMM	Non-Road Mobile Machinery
NSIP	Nationally Significant Infrastructure Project
NTS	Non-Technical Summary
oBSMP	Outline Battery Safety Management Plan
oCEMP	Outline Construction Environmental Management Plan
oLEMP	Outline Landscape and Ecological Management Plan
PCC	Peterborough City Council
PINS	Planning Inspectorate
PIR	Passive Infra-Red
POC	Point of Connection

PRF	Potential Roost Feature
PRoW	Public Rights of Way
PV	Photovoltaic
PWS	Public Water Supplies
RBMP	River Basin Management Plan
RCC	Rutland County Council
RPG	Registered Park and Garden
SFRA	Strategic Flood Risk Assessment
SoCC	Statement of Community Consultation
SKDC	South Kesteven District Council
SPA	Special Protection Area
SPG	Supplementary Planning Guidance
SPI	Species of Principal Importance
SPZ	Source Protection Zone
SRN	Strategic Road Network
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Strategy
TAG	Transport Analysis Guidance

WCMP	Water and Construction Management Plan
WFD	Water Framework Directive
ZoI	Zone of Influence

Glossary	
Applicant	Mallard Pass Solar Farm Limited
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended
Site	The land that falls within the redline boundary
Solar Infrastructure	Proposed components including: solar PV modules; PV module mounting structures; inverters; transformers; switchgear; substation and control buildings; onsite cabling; electricity export and connection to the National Electricity Transmission System; fencing, security and ancillary infrastructure; access tracks; and battery energy storage systems (BESS).
Solar PV Site	The area within the Site that is being considered for potential solar development, the substation and areas for mitigation and enhancement

1.0 Introduction

1.1. Overview

1.1.1. This Environmental Impact Assessment (EIA) Scoping Request has been prepared by LDA Design Limited on behalf of Mallard Pass Solar Farm Ltd (the Applicant), to formally request an EIA Scoping Opinion for the installation of solar photovoltaic (PV) generating panels and associated infrastructure which would allow for the generation of an anticipated 350 megawatts (MW) (the 'Proposed Development') at land at Mallard Pass, Essendine (the 'Site').

1.1.2. As the development will generate over 50MW it is recognised as a Nationally Significant Infrastructure Project (NSIP), and therefore requires a Development Consent Order (DCO) under the Planning Act 2008.

1.1.3. This Scoping Request has been prepared in accordance with Regulation 10(1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended, hereafter referred to as the 'EIA Regulations'. In line with the requirements of Regulation 10(3) of the EIA Regulations, this request contains the following information to assist the Planning Inspectorate (PINS), as the relevant authority, in adopting a Scoping Opinion:

- A plan sufficient to identify the land;
- A description of the proposed development, including its location and technical capacity;
- An explanation of the likely significant effects of the development on the environment; and
- Such other information or representations as the person making the request may wish to provide or make.

1.1.4. This Scoping Request has been prepared to provide an overview of the likely significant environmental effects that have been considered in scoping the EIA for the Proposed Development. It sets out the intended scope and

the methodologies for assessments of the likely significant environmental effects to be reported in the Environmental Statement (ES) which will accompany the application for development consent. This Scoping Request also provides the justification and rationale for scoping out environmental topics or receptors where it is considered that significant effects are unlikely to arise as a result of the Proposed Development.

1.1.5. The EIA Scoping Request has been prepared with reference to PINS Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements, which contains guidance on EIA Scoping.

1.2. The Applicant

1.2.1. Mallard Pass Solar Farm Limited is a subsidiary of Windel Solar 3 Ltd and Canadian Solar Inc.

1.2.2. Windel Solar 3 Ltd, founded in 2018, is a privately held company that specialises in the development and asset management of renewable energy projects and low carbon, including solar, battery energy storage systems (BESS), onshore wind and green hydrogen technologies with projects ranging from 10MW to 320MW output across England and Wales. Windel Solar 3 Limited work closely with landowners, giving them the opportunity to diversify their income stream by leasing their land for solar development.

1.2.3. Canadian Solar Inc was founded in 2001 in Canada and is one of the world's largest solar power companies. It is a leading manufacturer of solar PV modules and provider of solar energy solutions and has a geographically diversified pipeline of utility-scale solar power projects in various stages of development. Over the past 19 years, Canadian Solar Inc

has successfully delivered over 49 GW of premium-quality, solar PV modules to customers in over 150 countries.

1.3. Consenting Regime and Need for Environmental Impact Assessment

1.3.1. Under Section 14(1)(a) and 15(2) of the Planning Act 2008, the Proposed Development is defined as a Nationally Significant Infrastructure Project (NSIP) as an onshore generating station in England with an output exceeding 50MW.

1.3.2. The legislative framework for EIA is set by European Directive 2011/92/EU and amended by Directive 2014/52/EU (referred to as the EIA Directive). The EIA Directive requires EIA to be completed in support of an application for development consent for certain types of projects. For projects of this type in England, the European legislative requirements are transposed into UK law by The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended.

1.3.3. EIA is not required for all development. EIA Regulations specify which developments are required to undergo EIA and schemes relevant to the NSIP planning process are listed under either of 'Schedule 1' or 'Schedule 2'. Those developments listed in Schedule 1 must be subject to EIA, while developments listed in 'Schedule 2' must only be subjected to EIA if they are considered "*likely to have significant effects on the environment by virtue of factors such as its nature, size or location*". The criteria on which this judgement must be made are set out in Schedule 3 of the EIA Regulations.

1.3.4. The Proposed Development falls under Schedule 2 Part 3(a) development of the EIA Regulations as it constitutes "*industrial installations for the production of electricity, steam and hot water*…".

1.3.5. It is considered that due to the Proposed Development's nature, size and location that it has the potential to have significant effects on the environment and therefore constitutes EIA Development as defined in the EIA Regulations. In accordance with Regulation 81(b) of the EIA Regulations, the Applicant will provide an Environmental Statement in support of the DCO Application.

1.3.6. The aim of the EIA process is to ensure that the Proposed Development has due regard for the environment, minimises adverse environmental effects and takes advantage of opportunities for environmental enhancement.

1.3.7. This Scoping Report has been commissioned by the Applicant to assist PINS in preparing a Scoping Opinion under the EIA Regulations, setting out the scope of the information that should be contained in the ES. The information contained within this Scoping Request is based on initial design and environmental studies carried out by the EIA team to date, informed by early consultation with statutory consultees, where applicable. This level of detail is sufficient to assist PINS in their consideration of the proposed scope and content of the EIA and ES.

1.4. Purpose of this Scoping Report

1.4.1. The process of identifying the issues to consider within the ES and establishing the scope of the assessment, is known as 'scoping'. Although scoping is not a mandatory requirement under the EIA Regulations, it is recognised as a useful preliminary procedure which helps to identify the main effects that a proposed development is likely to have on the environment.

1.4.2. This Scoping Report provides information on the Site location, the Proposed Development, the likely significant effects on the environment, and any other such information that is considered relevant, including the proposed

approach to assessment, in specific accordance with Regulation 10(3) of the EIA Regulations. The environmental topics which are proposed to be included in the EIA scope, and those which are not, are presented in Chapters 7 and 8 of this report, respectively.

1.4.3. Overall, and in line with best practice, this scoping exercise aims to achieve the following objectives:

1) Establish the availability of existing baseline data;

2) Define a survey and assessment framework from which a comprehensive EIA spanning those environmental topics which are likely to experience significant environmental effects can be undertaken;

3) Invite consultees to comment on the proposed EIA, in terms of:

- The potential significant environmental effects which require assessment;
- The assessment methodology for each environmental topic proposed to be scoped into the EIA process;
- Sources of information;
- Issues of perceived concern; and
- Any other areas which should be addressed in the assessment.

1.5. Structure of Scoping Request

1.5.1. The Scoping Request is structured as follows:

- Chapter 2: Provides a description of the Site description and context;
- Chapter 3: Provides a description of the Proposed Development based upon current planning and design work, along with the anticipated construction process and timescales as is known at this stage;
- Chapter 4: Overview of the consultation process;
- Chapter 5: Consenting process and planning policy context;

- Chapter 6: Overview of the EIA process, EIA methodology and the manner in which the information will be provided and presented within the Environmental Statement;
- Chapter 7: Environmental topics which are to be scoped into the EIA;
- Chapter 8: Environmental topics which are to be scoped out of the EIA;
- Chapter 9: Approach to assessment of cumulative effects; and
- Chapter 10: Summary.

1.6. EIA Consultant Team

1.6.1. The EIA Consultants who have contributed to the preparation of this Scoping Request are set out in Table 1.1.

Table 1.1: EIA Consultant Team

EIA Scoping Topic	Organisation
EIA Coordination	LDA Design
Landscape and Visual	LDA Design
Ecology and Biodiversity	BSG Ecology
Arboriculture	Hayden's Arboricultural Consultants Limited
Cultural Heritage and Archaeology	Cotswold Archaeology
Access and Highways	Velocity Transport Planning
Noise and Vibration	Hoare Lea
Air Quality	Hoare Lea
Water Resources and Ground Conditions	Arcus Consulting

EIA Scoping Topic	Organisation
Land Use	Kernon Countryside Consultants
Glint and Glare	Pager Power
Climate Change Impact Assessment	Arcus Consulting
Socio-economics	LDA Design
Major Accidents and/or Disasters	LDA Design
Human Health	LDA Design
Waste	LDA Design

2.0 Site Description and Context

2.1. Site Location

2.1.1. The Site is located at OS grid reference TF052115 (approximate centre of the solar PV Site). The solar PV Site comprises the area that is being considered for solar arrays, onsite substation and areas for potential mitigation and enhancement, as indicated on Figure 2.1. The solar PV Site comprises 54 agricultural fields and blocks of non-ancient woodland. Hedges, trees and woodland form the boundaries to the fields within the Site. There is potential requirement for highways works to facilitate construction traffic accessing the solar PV Site from the Strategic Highway Network. The Site (consisting of the solar PV Site and area for potential highways works) equates to approximately 900ha. The Site boundary and the extents of the solar PV Site is provided at Figure 2.1.

2.1.2. The solar PV Site is, for the purposes of the EIA process, subdivided into a series of numbered fields. The plan showing the field number system of the solar PV Site is provided at Figure 2.2.

2.1.3. The Site falls across two administrative boundaries: approximately 650ha of the Site falls within Rutland County Council (RCC) and the remaining 250ha of the Site falls within South Kesteven District Council (SKDC). The Grantham – Peterborough (East Coast Main Line) railway line dissects the Site on a general north-west – south-east alignment. The solar PV Site, within which the solar arrays and associated infrastructure are to be located, is located to the immediate south, east and west of Essendine and approximately 800m east of Ryhall. The outskirts of Stamford is located approximately 1km south-west of the solar PV Site. The centre of Peterborough is located approximately 16km south-east of the solar PV Site.

2.1.4. A summary of the baseline environment is provided below with further detail provided within each of the individual environmental topic chapters.

2.2. Landform and Topography

2.2.1. The Site's topography Ranges between 15 – 60m above ordnance datum (AOD) with the lowest elevation running through the centre of the Site, partly along the route of the railway line. The highest elevation of the Site is present in the north-western extent of the Site. A plan showing the Site topography is provided at Figure 2.3.

2.3. Access and Recreation

2.3.1. The Site is currently accessible from a number of existing field accesses capable of accommodating large agricultural machinery.

2.3.2. In terms of the Strategic Road Network (SRN), the A1, which connects Grantham and Stamford, is located approximately 6.0km west of the centre of the solar PV Site. The A15, which connects Bourne and Peterborough, is located approximately 6.5km east of the centre of the solar PV Site. The A1175 is located approximately 4.5km south of the centre of the solar PV Site, which provides a vehicular link between Stamford and Market Deeping and a link between Stamford and Oakham along the A606. The A6121, which connects Ryhall, Essendine and Carlby, separates the north-western extent of the solar PV Site from the remainder, routing on a general north-east to south-west alignment. The B1176 segments the north-westernmost extent of the solar PV Site and is routed on a general north-south direction.

2.3.3. There are six Public Rights of Way (ProW) which cross the solar PV Site. ProW footpath BrAW/7/1 routes through the easternmost extent of the solar PV Site in a general north-east to south-west alignment. ProW footpath BrAW/3/1 crosses into the north-eastern extent on the solar PV Site in the vicinity of Grange Farm and ProW footpath BrAW/9/1, which routes parallel

to the north of ProW footpath BrAW/3/1 crosses the solar PV Site east-west into Braceborough Wood, which is located immediately adjacent to the north-eastern boundary of the solar PV Site. ProW footpath Uffi/5/1 crosses the south-western extent of the solar PV Site in an east-west direction. ProW bridleway BrAW/1/1 crosses the eastern extent of the solar PV Site north-south, between the local road to the north and the railway line to the south. ProW bridleway E169/1 routes through the north-western extent of the solar PV Site between the A6121 and B1176 in a general north-west to south-east alignment.

2.3.4. The Macmillan Way recreational route follows the south-western boundary before crossing the south-central area and continues along the northern boundary of the south-western extent of the solar PV Site.

2.3.5. A plan showing the access and recreation resources is provided at Figure 2.4 of this report.

2.4. Water Resources

2.4.1. The West Glen River runs through the solar PV Site on a general north-west – south-east alignment and separates the north-western extent of the solar PV Site from the remainder of the solar PV Site. A network of drains and streams, which follow field boundaries, are also present across the solar PV Site. A pond is present in the central-eastern area of the solar PV Site.

2.4.2. The Site is predominantly located in Flood Zone 1, which is an area classed as having a low risk from fluvial and tidal flooding (less than 1 in 1,000 annual probability, as indicated by the Environment Agency Flood Map for Planning). The Site is predominantly located within an area of very low risk from surface water flooding. Areas of low to high surface water flood risk are located in the northern and western and central areas of the Site, associated with the West Glen River and its tributaries.

2.4.3. The West Glen River has a River Basin Management Plan (RBMP) ecological classification of ‘Moderate’.

2.4.4. A plan showing water resources in relation to the Site is provided at Figure 2.5 of this report.

2.5. Agricultural Land

2.5.1. The solar PV Site comprises arable fields, which are segmented by hedgerows, drains and ditches and woodland blocks. The Agricultural Land Classification (ALC) mapping published by Natural England indicates that the solar PV Site comprises of predominantly Grade 3 agricultural land, with an area of Grade 2 agricultural land located in the southern extent of the Site. A small area in the westernmost extent of the solar PV Site is located within non-agricultural land use.

2.5.2. A plan showing the ALC grades across the solar PV Site is provided at Figure 2.6 of this report.

2.6. Ecology and Biodiversity

2.6.1. The Site comprises predominantly arable agricultural land, a network of hedgerows, drains and ditches and blocks of woodland. Areas of improved grassland, species poor semi improved grassland, semi-improved neutral grassland, tall ruderal and scrub are also present on Site. Woodland across the Site consists of plantation and semi-natural broadleaved woodland.

Ancient woodland is also present immediately adjacent to the Site boundary to the north-east of the Site.

Statutory Designated Sites

2.6.2. There are two international designated sites within 10km of the Site, and seven national designated sites within 2km, including: Rutland Water SPA & Ramsar Site, Ryhall Pasture, Little Warren Verges & Newell Wood SSSI.

Rutland Water SPA

2.6.3. Rutland Water SPA, located approximately 4.8km south-west of the Site is designated for supporting the following non-breeding waterbird assemblages as qualifying features:

- Gadwall, *Anas strepera;* and
- Northern shoveler, *Anas clypeata*.

Rutland Water Ramsar Site

2.6.4. Rutland Water Ramsar site is designated for comprising a large, artificial freshwater reservoir fringed by a mosaic of wetland habitats that display a succession from open water communities to semi-natural mature woodland. The Ramsar site is a regionally important area for breeding and passage birds. Wintering waterbirds regularly exceed 20,000 individuals and include internationally important numbers of ducks and nationally important numbers of several Anatidae (ducks, geese, swans).

Ryhall Pasture and Little Warren Verges SSSI

2.6.5. The Ryhall Pasture and Little Warren Verges SSSI is located adjacent to the north-western boundary of the Site. The SSSI is designated for supporting semi-natural limestone grassland and species-rich roadside verges comprising rich calcareous flora, and adjacent hedges which are rich

in shrub species, providing habitat for a range of insect species characteristic of grassland and woodland edge.

Newell Wood SSSI

2.6.6. Newell Wood SSSI, which is located approximately 340m north-west of the Site. Newell Wood SSSI is designated for being one of the best remaining examples of acid lowland woodland in Leicestershire and is representative of semi-natural woodland developed on light soil in Central and Eastern England.

Non-statutory Sites

2.6.7. A total of 98 non-statutory Local Wildlife Sites (LWS) are present within 2km of the Site. The majority of these are designated for habitats (predominantly hedgerows, grassland and woodland) with many also featuring locally or nationally scarce.

2.6.8. Two LWS (the Carlby/Essendine Verge LWS and Essendine Dismantled Railway Embankment LWS) are located onsite, with both LWSs featuring priority habitats (calcareous grassland and a stream) and nationally scarce species. An additional 25 sites are directly adjacent to the Site boundary or within 10m (generally separated by a minor road). Most of these LWSs are protected hedgerows of lengths of road verge.

2.7. Cultural Heritage

2.7.1. The Site is not subject to any statutory heritage designations. There are four scheduled monuments within 1km of the solar PV Site boundary, including: Essendine Castle, located approximately 50m from the Site Boundary to the north of the central extent of the Site; Castle Dyke, located approximately 300m north-west of the Site; and Shillingthorpe Park medieval settlement and Causeway Camp, which are located approximately 300m to the east

and south of the Site, respectively. One further scheduled monument, the site of a Roman town, is located immediately south of the proposed construction access route at Casterton.

2.7.2. There are two Registered Parks and Gardens (RPGs) within 1km of the solar PV Site, comprising the Grade II Greatford Hall, located approximately 600m east of the Site, and the Grade II Uffington Park, which is located approximately 650m south of the solar PV Site.

2.7.3. The Grade II* Listed Church of St Mary lies approximately 50m from the solar PV Site. In the wider landscape there are a collection of Listed Buildings within the village of Carlby, approximately 1km north of the solar PV Site, most noteworthy being the Grade I Church of St Stephen. Further collections of listed buildings lie in the villages of Belmesthorpe and Ryhall, over 1km to west of the Site and within Braceborough, lying over 500 north-east of the Site. Banthorpe Lodge (Grade II) lying approximately 250m east of the central extent of the solar PV Site is one of several listed post-medieval farmsteads, agricultural buildings or rural dwellings lying in the wider landscape of the Site.

2.8. Air Quality

2.8.1. The Site is not located within an Air Quality Management Area (AQMA). The nearest AQMA, declared for concentrations of Nitrogen Dioxide (NO_2) by SKDC, is located approximately 23km north-west of the Site in Grantham.

2.9. Ground Conditions

2.9.1. The solar PV Site predominantly comprises freely draining shallow lime-rich soils over chalk or limestone with an area of slowly permeable, seasonally

wet, slightly acid but base-rich loamy and clayey soil type which has an impeded drainage characteristic in the eastern extent of the Site.

2.9.2. The bedrock geology of the solar PV Site is characterised by the following formations:

- Upper Lincolnshire Limestone Member – Limestone;
- Rutland Formation – Argillaceous Rocks With Subordinate Sandstone And Limestone;
- Blisworth Limestone Formation – Limestone;
- Blisworth Clay Formation – Mudstone;
- Kellaways Clay Member – Mudstone;
- Kellaways Sand Member – Sandstone And Siltstone, Interbedded;
- Cornbrash Formation – Limestone; and
- Oxford Clay Formation – Mudstone.

2.9.3. The solar PV Site is characterised by a high groundwater vulnerability. The northern and western extent of the solar PV Site is located within Zone II (Outer Protection) Source Protection one (SPZ).

Z:\7863_NSIP_SOLAR_FARM_CONFIDENTIAL\8GIS\PROJECTS\CONSTRAINTS PLANS FOR SCOPING REPORT\FIGURE 2.1_SITE LOCATION.MXD

LEGEND

Site boundary

Solar PV Site boundary

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Site Location Plan

ISSUED BY	Oxford	T: 01865 887050	
DATE	February 2022	DRAWN	AG
SCALE @A3	1:40,000	CHECKED	DB
STATUS	Final	APPROVED	RP

DWG. NO. Figure 2.1

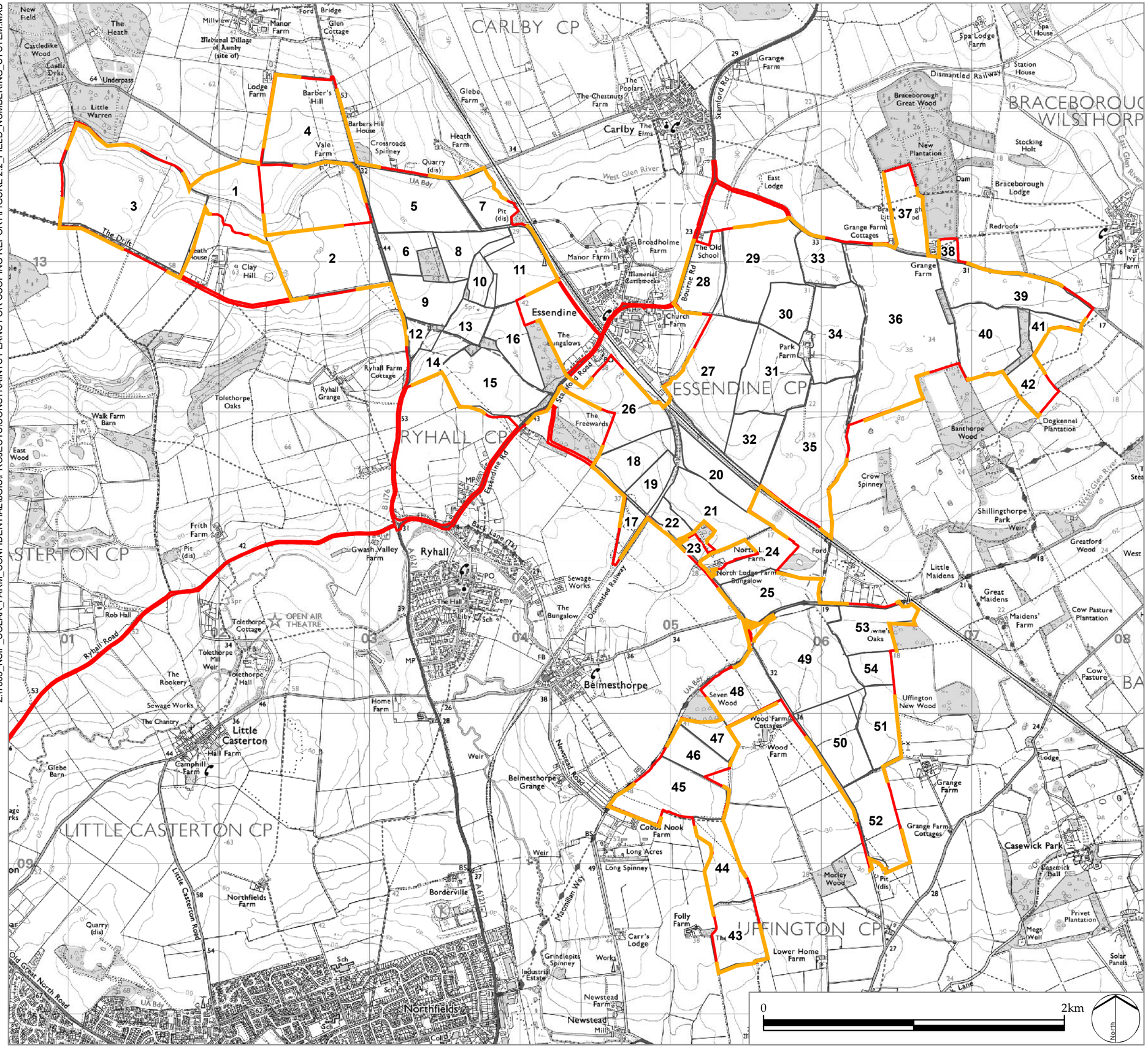
No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, Esri

0 2km

North

Z:\7863_NSIP_SOLAR_FARM_CONFIDENTIAL\8GIS\PROJECTS\CONSTRAINTS PLANS FOR SCOPING REPORT\FIGURE 2.2_FIELD_NUMBERING_SYSTEM.MXD



LEGEND

Site boundary

Solar PV Site boundary

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Field Numbering System

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STATUS	Final	APPROVED	RP

DWG. NO. Figure 2.2

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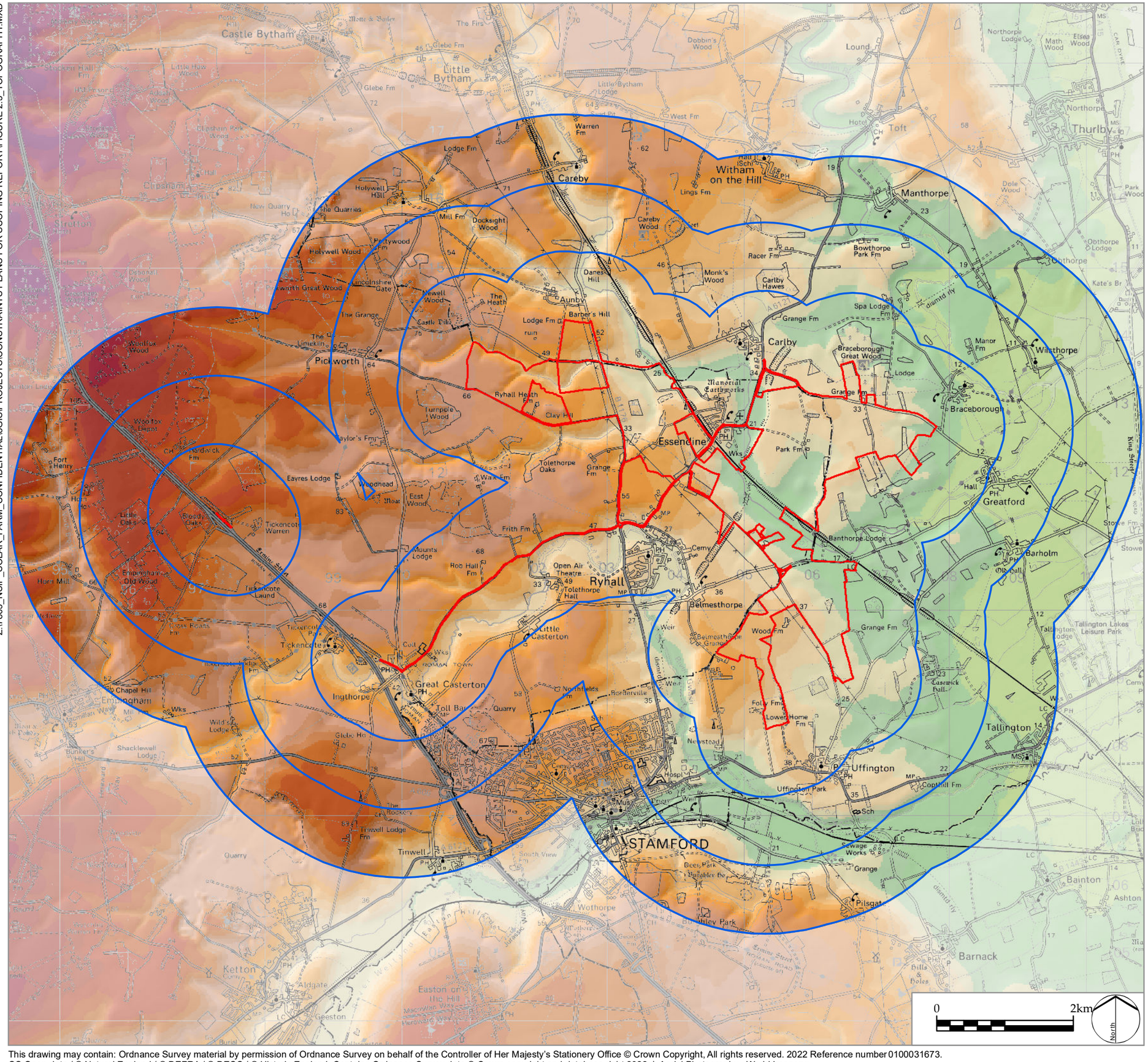
Area measurements for indicative purposes only.

Sources: Ordnance Survey

Z:\7863_NSIP_SOLAR_FARM_CONFIDENTIAL\8GIS\PROJECTS\CONSTRAINTS PLANS FOR SCOPING REPORT\FIGURE 2.3_TOPOGRAPHY.MXD



LEGEND

- Site boundary
- Distance from Site boundary (1, 2 and 3km)

Elevation (m AOD)

120 - 125	55 - 60
115 - 120	50 - 55
110 - 115	45 - 50
105 - 110	40 - 45
100 - 105	35 - 40
95 - 100	30 - 35
90 - 95	25 - 30
85 - 90	20 - 25
80 - 85	15 - 20
75 - 80	10 - 15
70 - 75	5 - 10
65 - 70	0 - 5
60 - 65	

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DRAWING TITLE

Topography

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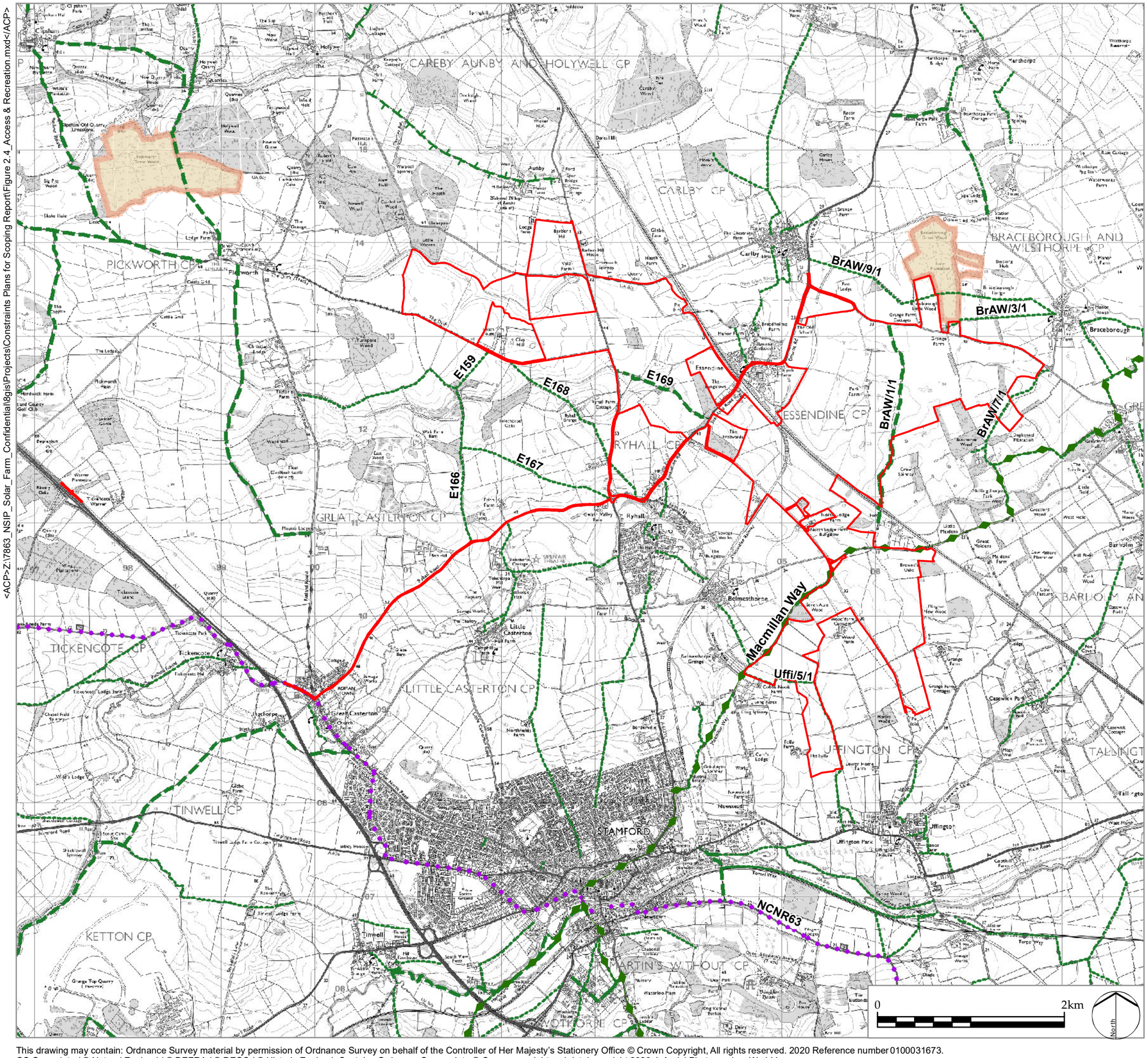
SCALE @A3	1:55,000	CHECKED	DB
STATUS	Final	APPROVED	RP

DWG. NO. Figure 2.3

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, NextMap25

<ACP>Z:\7863_NSIP_Solar_Farm_Confidential\gis\Projects\Constraints Plans for Scoping Report\Figure 2.4_Access & Recreation.mxd</ACP>



LEGEND

- Site boundary
- National Cycle Network Route
- Open Access Land
- Other routes with public access
- Long-distance footpath

Public Rights of Way

- Footpath
- Bridleway
- Byway open to all traffic
- Restricted Byway

LDĀDESIGN

PROJECT TITLE

MALLARD PASS SOLAR FARM:
EIA SCOPING REPORT

DRAWING TITLE

Access and Recreation

ISSUED BY	Oxford	T: 01865 887050	
DATE	January 2022	DRAWN	AG
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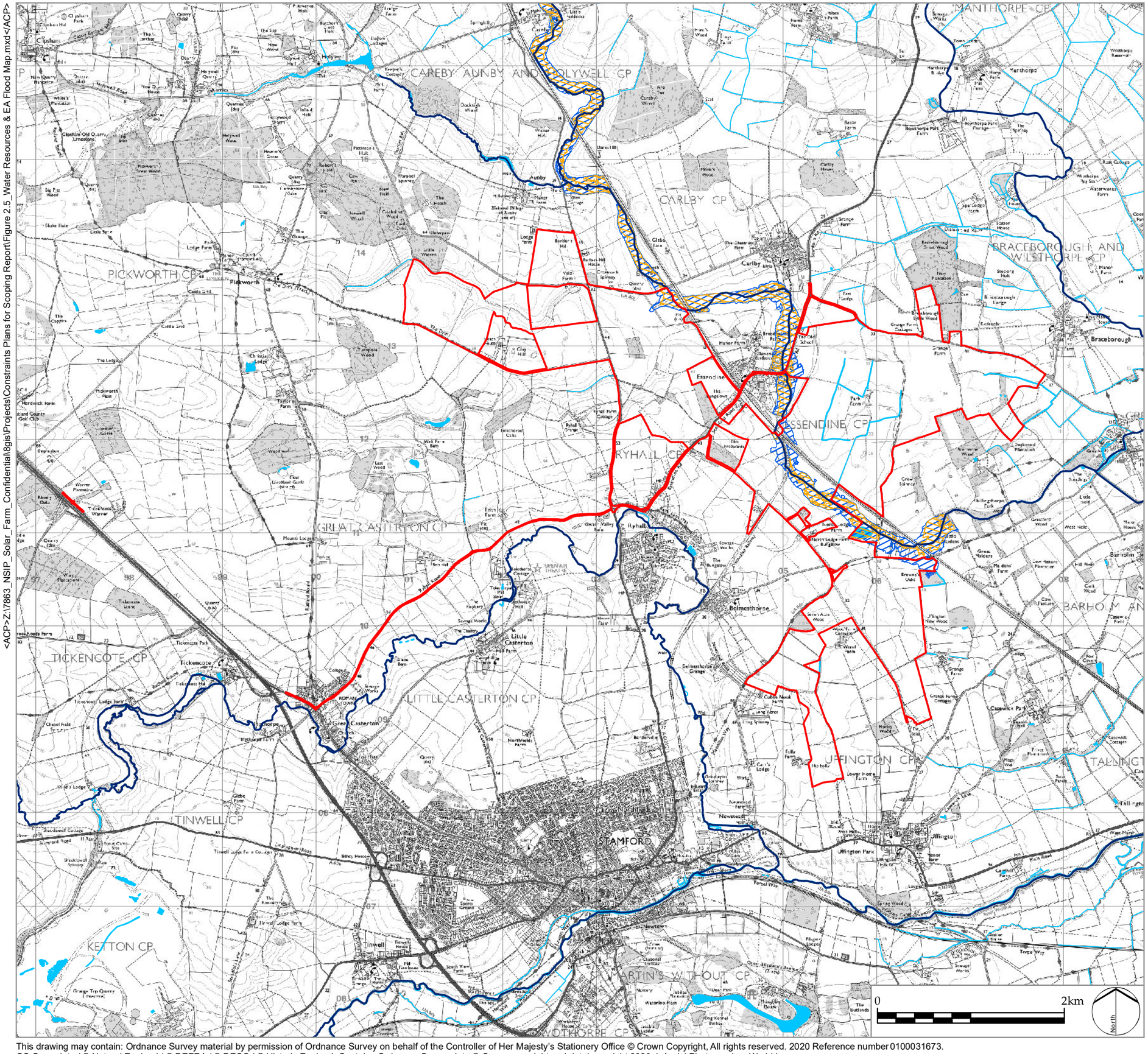
STATUS	Final	APPROVED	RP

DWG. NO. Figure 2.4

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, ADAS, DCLG, Defra, Environment Agency, Historic England, Natural England, SUSTRANS

<ACP>Z:\7863_NSIP_Solar_Farm_Confidential\8gis\Projects\Constraints Plans for Scoping Report\Figure 2.5_Water Resources & EA Flood Map.mxd</ACP>



LEGEND

- Site boundary
- Main River
- Surface waterbodies
- 1 in 20 Year Flood Extents
- 1 in 100 Year (+20%) Flood Extents

LDĀDESIGN

PROJECT TITLE

MALLARD PASS SOLAR FARM:
EIA SCOPING REPORT

DRAWING TITLE

Water Resources & Flood Extents

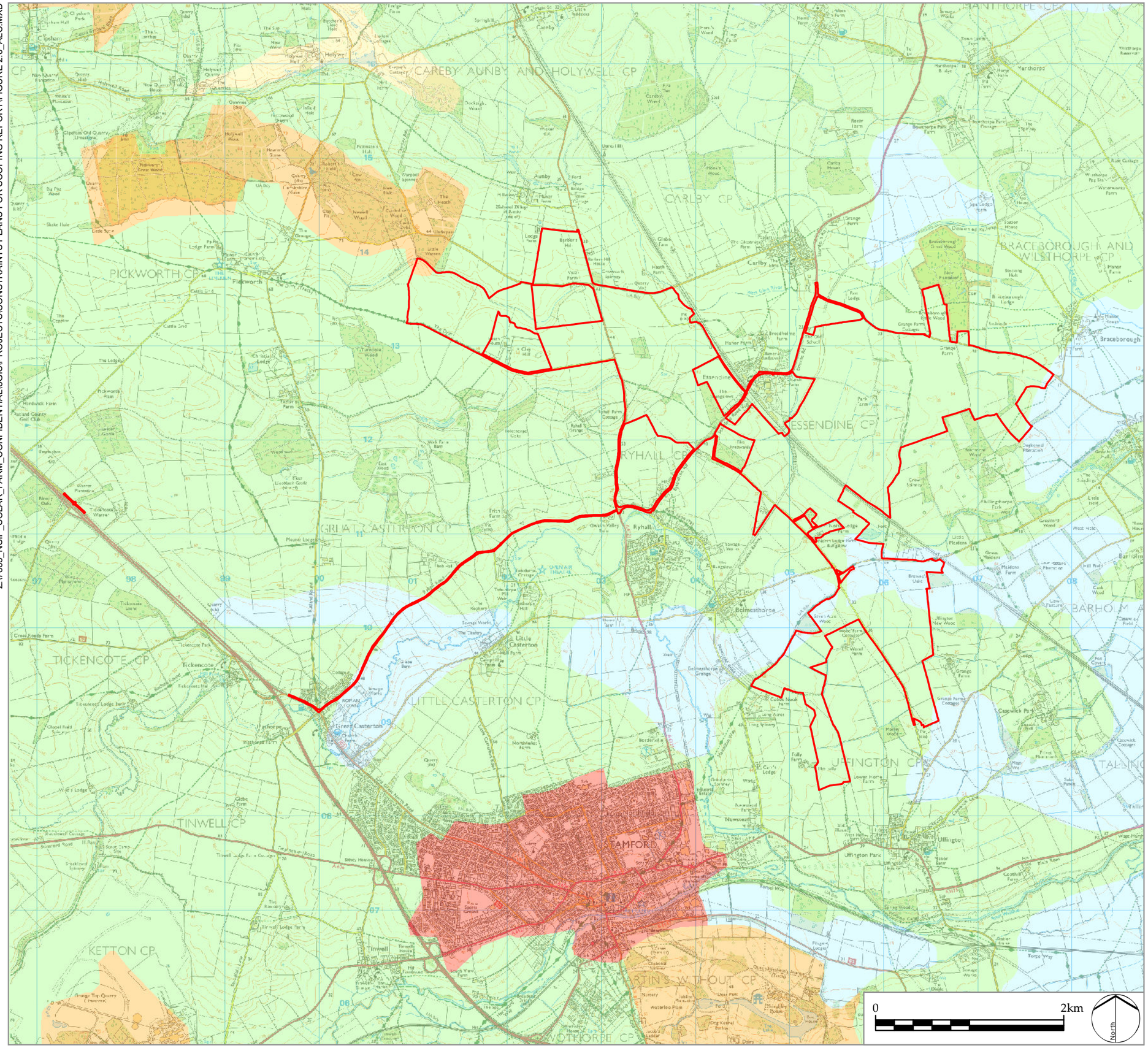
ISSUED BY	Oxford	T: 01865 887050	
DATE	January 2022	DRAWN	AG
SCALE @A3	1:40,000	CHECKED	DB
STATUS	Final	APPROVED	RP

DWG. NO. Figure 2.5

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, ADAS, DCLG, Defra, Environment Agency, Historic England, Natural England, SUSTRANS

Z:\17863_NSIP_SOLAR_FARM_CONFIDENTIAL\18GISPROJECTS\CONSTRAINTS PLANS FOR SCOPING REPORT\FIGURE 2.6_ALC.MXD



LEGEND

Site boundary

Agricultural Land Classification

- Grade 2
- Grade 3
- Grade 4
- Non Agricultural
- Urban

LDĀDESIGN

PROJECT TITLE

MALLARD PASS SOLAR FARM:
EIA SCOPING REPORT

DRAWING TITLE

Agricultural Land Classification

ISSUED BY	Oxford	T: 01865 887050	
DATE	January 2022	DRAWN	AG
SCALE @A3	1:40,000	CHECKED	DB
STATUS	Final	APPROVED	RP

DWG. NO. Figure 2.6

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, Natural England

3.0 Description of the Proposed Development

3.1. Proposed Development

3.1.1. The key components of the Proposed Development comprise the following:

- Solar PV modules;
- PV module mounting structures;
- Inverters;
- Transformers;
- Switchgear;
- Substation and control buildings;
- Onsite cabling;
- Electricity export and connection to the National Electricity Transmission System;
- Fencing, security and ancillary infrastructure;
- Access tracks;
- Battery energy storage systems (BESS); and
- Green infrastructure (GI).

3.1.2. Further details for each of the key components are set out below.

3.1.3. An illustrative layout, that identifies the areas that are being considered for potential solar development, the onsite primary substation and areas for mitigation and enhancement, is shown on Figure 3.1. With the exception of onsite cabling, access tracks and green infrastructure, it is not anticipated that the key components, listed above, will be located within the areas identified as potential mitigation and enhancement areas. The illustrative layout was published as part of the informal Stage 1 community consultation and forms the basis of the proposed scope of this EIA Scoping Request.

Solar PV Arrays

3.1.4. The Proposed Development would consist of solar PV panels placed on mounting structures arranged in rows, allowing for boundary landscaping, perimeter fencing and access.

3.1.5. The direct current (DC) generating capacity of each PV module will depend on advances in technological capabilities at the time of construction. The PV modules will be fixed to a mounting structure in groups known as 'strings'.

3.1.6. Solar PV modules convert sunlight into electrical current (as DC).

3.1.7. There are currently two options for the mounting structures which are being considered and assessed and are described below:

- Fixed South Facing Arrays; and
- Single Axis Tracker Arrays.

Fixed South Facing Arrays

3.1.8. Indicative dimensions of modules will measure 2384mm x 1303mm x 35mm. Individual panels consist of a series of bifacial, mono-crystalline cells which make up an individual panel. The mounting structures will be orientated east west and would be installed between 18 and 25 degrees to the horizontal facing south to optimise daylight absorption.

Plate 1: Fixed South Facing Arrays

Single Axis Tracker Arrays

3.1.9. Indicative dimensions of single axis tracking modules will measure 2384mm x 1303mm x 35mm. Individual panels consist of a series of bifacial, mono - crystalline cells which make up and individual panel. The mounting structures will be orientated north/south and would operate between 60 degrees from the horizontal (facing east in the morning) moving toward 0 degrees (horizontal) at midday, and up to 60 degrees from the horizontal (facing west in the evening). The modules would track from east to west throughout the day and would return to their resting position 60 degrees (facing east) over night.

Plate 2: Single Axis Tracker Arrays

Module Height and Separation

3.1.10. At the lower edge, modules would be approximately 0.8m from the ground and approximately up to 3.5m at the higher edge. The final elevations of the modules will be influenced by various design factors such as local topography, flood risk, selection of solar PV module type and configuration. The rows of solar panels would typically be spaced between 2m to 8m apart for fixed south facing and single axis tracker modules to minimise effects of overshadowing and to ensure optimal efficiency.

3.1.11. The total number and arrangement of PV modules will depend on the iterative layout design process and available technology at the time of construction.

PV Module Mounting Structures

3.1.12. The frames upon which the solar PV panels will be mounted will be pile driven or screw mounted into the ground to a typical depth of approximately

1.5m, subject to ground conditions. The option to install concrete blocks known as “shoes” may also be considered, avoiding the need for driven and screw anchored installation, therefore minimising ground disturbance. The mounting frames would likely be made of either anodised aluminium alloy or galvanised steel and would have a rough matt finish.

Inverters

3.1.13. Inverters are required to convert the DC electricity collected by the PV modules into alternating current (AC) which allows the electricity generated to be exported to the National Grid. Inverters are sized to deal with the level of voltage and intensity, which is output from the strings of PV modules.

3.1.14. There are two options for inverters:

String Inverters

3.1.15. String inverters are small enough to be mounted underneath the modules. String Inverters are typically 1.5m in length by 0.5m in depth by 1m in height.

Central Container Inverters

3.1.16. Central container inverters will typically be housed within a container measuring approximately 6m x 2.5m and 3m in height. The containers are typically externally finished in keeping with the prevailing surrounding environment, often utilising a green painted finish. The containers would typically be mounted on adjustable legs on an area of hardstanding.

Transformers

3.1.17. Transformers are required to step up the voltage of the electricity generated PV arrays before it reaches the substation. The transformers are typically

housed indoors within a container and will be distributed throughout the solar PV Site.

3.1.18. The footprint of the transformers will typically be 12.5m x 2.5m and 3m in height. Transformer cabins are typically externally finished in keeping with the prevailing surrounding environment, often utilising a green painted finish. The configuration of equipment will depend on the iterative design process and influenced by technical as environmental factors.

Switchgears

3.1.19. Switchgears are the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energise equipment to allow work to be done and to clear faults downstream.

3.1.20. Switchgears are typically housed indoors within a container with a typical footprint of 6.5m x 2.5m and 3m in height. Switchgear containers will be located either adjacent to the transformer containers or contained within the central inverter container.

3.1.21. The configuration of equipment will depend on the iterative design process as influenced by technical and environmental factors.

Plate 3: Example of Electrical Infrastructure Containers located within a solar array

Substations and Control Buildings

3.1.22. There will be a single primary substation (400/33KV) located near the point of connection. The substation will comprise electrical infrastructure such as the transformers, switchgear and metering equipment required to facilitate the export of electricity from the Proposed Development to the National Grid. The primary substation is also expected to include a control building which will include office space and welfare facilities as well as operational monitoring and maintenance equipment. The indicative size of the substation compound is 100m x 100m, with an approximate height of 13m

that allows for the substation and associated electrical control buildings & office/warehouse buildings.

Onsite Cabling

3.1.23. Low voltage cabling between PV modules and the inverters will typically be located above ground level (along a row of racks), fixed to the mounting structure, and then underground (between racks and in the central inverter's and or transformer input). Higher rated voltage cables (around 33kV) are required between the transformers, switch gear and the onsite primary substation. The dimensions of trenching will vary subject to the number of for underground cabling will vary on the number of ducts they contain but will typically be up to 1m wide with a maximum depth of 1.3m and will be dependent on the method of installation and ground conditions. Subject to engagement with utility providers there may be a requirement for horizontal directional drilling within the solar PV Site to cross beneath existing buried utilities.

3.1.24. Data cables will be required throughout the solar PV Site to allow for the monitoring during operation, such as the collection of data on solar irradiance from pyranometers. The data cables would typically be installed within the same trench and alongside the electrical cables.

3.1.25. The existing above ground powerlines across the solar PV Site are not proposed to be altered by the Proposed Development.

3.1.26. Onsite cabling will be required to connect the electrical infrastructure located to the east of the East Coast Main Line to the onsite primary substation which is located to the west of the East Coast Main Line. Three cable routes / methods are being considered, the location of which are shown on Figure 3.2:

- Option 1 – cables would be run through the existing brick culverts underneath the East-Coast mainline;
- Option 2 – Horizontal directional drilling underneath the East Coast mainline; or
- Option 3 – cables to be routed within the adopted highway along the A6121 and Uffington Lane.

Electricity Export and Point of Connection to the National Electricity Transmission System

3.1.27. The electricity generated by the Proposed Development is expected to be exported via a 400kV connection between the onsite 400/33kV primary substation and the Ryhall 400kV substation at Uffington Lane which is a National Grid Electricity Transmission (NGET) substation. The grid connection cables to the Ryhall 400kV substation will comprise 400kV cables within a trench, up to 1.3m in depth. The cable connection route is expected to cross Uffington Lane and run alongside the existing access track to the Ryhall 400kV substation.

3.1.28. The Grid Connection Route expected to be less than 350m from the onsite primary substation to the National Grid Ryhall Substation.

Fencing, Security & Ancillary Infrastructure

3.1.29. A fence will enclose the operational area of the Proposed Development. The fence is likely to be a ‘deer fence’ (wooden or metal) and approximately 2m in height. Pole mounted internal facing closed circuit television (CCTV) systems installed at a height of up to 3.5m are also likely to be deployed around the perimeter of the operational areas. Access gates will be of similar construction and height as the perimeter fencing. Clearances above ground, or the inclusion of mammal gates will be included permit the passage of wildlife.

3.1.30. CCTV cameras would use night-vision technology with a 50m range, which would be monitored remotely and avoid the need for night-time lighting. No areas of the Proposed Development are proposed to be continuously lit. For security requirements, operational lighting would include Passive Infra-red Detector (PID) systems which would be installed around the perimeter of the Proposed Development.

3.1.31. The lighting of the primary substation would be in accordance with Health and Safety requirements, particularly around any emergency exits where there would be lighting, similar to Street Lighting that operates from dusk. Otherwise there would be low level lighting on specific operational units that would again operate from dusk. All lighting would seek to limit any impact on sensitive receptors.

3.1.32. Lighting sensors for security purposes will be implemented around the onsite primary substation and other critical electrical infrastructure. No areas are proposed to be permanently lit.

3.1.33. Lightening protection masts will be located throughout the solar PV Site which will be up to 6m.

Plate 4: Example of security fencing and monitoring cameras

Site Access

3.1.34. The primary point of access to the Proposed Development during the operational period is expected to be from Uffington Road, opposite the existing access to the Ryhall 400kV substation, with vehicles approaching from the A6121 Stamford Road to the north. This point of access would provide access to the primary substation and control buildings.

3.1.35. Secondary points of access to the solar arrays will be required across the solar PV Site, the details of which will be confirmed once the general arrangement and layout of the Proposed Development is further developed, although it is anticipated that access points would be located along Carlby Road, B1176 and/or minor roads between the B1176 and Pickworth. These secondary access points, along with a network of internal tracks, will

provide operational access to the solar arrays and associated infrastructure for the purposes of management and maintenance.

Access Tracks

3.1.36. It is anticipated that onsite access tracks will follow the alignment of the existing agricultural tracks, where possible. New internal access tracks will be up to 3.5m wide, passing bays will be provided along the internal access tracks. The main access will be up to 6m wide to facilitate two-way HGV traffic. The internal access tracks will likely be constructed of compacted stone with excavation kept to a minimum. Where drainage is required a ditch or a swale may be located downhill of the internal access track to control any potential for surface water run-off.

Battery and Energy Storage System (BESS)

3.1.37. The Proposed Development will include an associated battery energy storage system (BESS). The battery-based electricity storage will allow the storage of energy generated by the solar panels at times of low demand and release to grid at times when demand is high or when solar irradiance is lower, known as load shifting. Individual batteries will located throughout the solar PV Site, located either adjacent to the central inverters or the transformers. The batteries would be housed in containers and located adjacent (side by side) to the central invertor containers and would not be double stacked.

3.1.38. The precise number of individual battery storage containers will depend upon the level of power capacity and duration of energy storage.

3.1.39. The typical dimensions of the battery containers would measure 13.3m x 2.4m and 2.9m in height. The containers would be located on areas of hard standing, with a minimum clearance of 0.1m beneath the container and the hardstanding. The containers are typically externally finished in keeping with

the prevailing surrounding environment, often utilising a green painted finish.

3.2. Green Infrastructure

3.2.1. The existing hedgerows, woodland, ditches, ponds and field margins will be retained within the layout of the solar arrays, with the exception of small breaks and/or crossings required for new access tracks, security fencing and cable routes. Any breaks or crossing will be designed to use existing agricultural gateways/tracks between the fields and the width of any new breaks will be kept to a minimum.

3.2.2. The minimum offsets/buffers from the solar arrays or security, as set out in Table 3.1, will be incorporated within the design of the Proposed Development, with the exception of where access tracks, security fencing and/or cable routes are required to cross an existing feature. These offsets/buffers will be used to deliver a combination of embedded mitigation in the form of hedgerow planting and/or grass / wildflower planting. The buffers/offsets are a minimum and for example may be increased to deliver further mitigation or enhancements and/or respond to root protection areas where required.

Table 3.1: Minimum Offsets to Landscape and Ecological Features and Designations

Landscape / Ecological Feature & Designations	Minimum offset to solar infrastructure*
Ancient Woodland & Woodland	15m
Veteran Trees	15 times the width of the stem diameter
Site boundary hedgerows	10m
Internal hedgerows	10m
Main river	10m
Ditches	6m

Landscape / Ecological Feature & Designations	Minimum offset to solar infrastructure*
Local Wildlife Site	15m
Site of Special Scientific Interest	15m
Public Rights of Way	15m
Ponds not with great crested newt (GCN)	10m
Main badger setts	30m

* with the exception of where access tracks, security fencing and/or cable routes are required to cross an existing feature; however, these will be kept to a minimum.

3.2.3. The existing Public Rights of Way (ProW) that cross the Site will be retained and incorporated within multifunctional green corridors. Subject to the construction phasing and methodology there may be a requirement to temporarily divert a public right of way during the construction phase, the details of which will be sought to be agreed with the relevant key stakeholders, with an appropriate temporary alternative provided.

3.2.4. Potential areas for mitigation and enhancement as identified on Figure 3.1 will also provide areas for green infrastructure and potentially be used to deliver a 10% net gain in biodiversity.

3.3. Project Parameters

3.3.1. The Environmental Statement will clearly set out the parameters that have been assessed as part of the EIA, including details on the size (footprint, width and height relative to AOD), technology and locations of the different elements of the Proposed Development. The project description within in

the ES will be supported (where necessary) by drawings and elevations so the different elements of the Proposed Development.

3.4. Construction

Construction Programme

3.4.1. The construction phase is anticipated to take 24 months and subject to being granted consent the earliest construction is anticipated to start is Summer 2026. The final programme will be dependent on the final layout design and potential environmental constraints on the timing of construction activities. The ES will provide further details of the construction activities, their anticipated duration and indicative programme of each phase of construction works.

Construction Activities

3.4.2. The indicative construction activities likely to be required as provided below (not necessarily in order):

- Site preparation:
  - Delivery of construction materials, plant and equipment;
  - The establishment of the temporary construction compound(s);
  - The upgrade of existing tracks and access roads and construction of new tacks required;
  - The upgrade or construction of crossing points (bridges/culverts) over drainage ditches;
  - Marking out location of the infrastructure.
- Solar farm construction:
  - Delivery of Proposed Development components;
  - Energy farm construction and erection of module mounting structures;
  - Mounting of modules;
  - Installation of electric cabling;

  - Installation of transformer containers;
  - Installation of battery storage units;
  - Construction of substation compound; and
  - Construction of onsite electrical infrastructure to facilitate the export of generated electricity.
- Testing and commissioning; and
- Reinstatement and habitat creation.

Construction Access

3.4.3. Three initial options have been considered for construction traffic (HGVs) to access the solar PV Site from the Strategic Road Network:

- Route 1 proposes to access the solar PV Site from the A1, which forms part of the SRN via the B1081 Old Great North Road, Ryhall Road, and the A6121 Essendine Road.
- Route 2 proposes to access the solar PV Site from the junction of the A47 with the A15 at Peterborough, which forms part of the SRN via the A15, the A1175 Main Road, Uffington Road, the A6121 Ryhall Road, and the A6121 Essendine Road.
- Route 3 proposes to access the solar PV Site from a similar route to that identified for Route 2 from the junction of the A47 with the A15 via the A15, Raymond Mays Way (south of Bourne), West Road, and the A6121 Stamford Road.

3.4.4. Whilst the above proposed routes have been considered and discussed with National Highways and the local highway authorities, RCC and LCC, the details of the construction traffic management plan will be developed further once additional information is available on the bespoke development requirements.

3.4.5. It is expected that a large transformer (in excess of 100 tonnes) will be required, therefore an Abnormal Indivisible Load (AIL) assessment will be undertaken. At this stage in the process, Route 1 is the preferred route for AIL and segments of this route have been included within the redline boundary extents as initial swept path analysis along this route has

identified the potential need for temporary localised road widening, temporary adjustments to the highway arrangement and/or street furniture, or other highway improvements between the A1 and the solar PV Site. Further consultation with the Local Highways Authority will be undertaken to discuss and agree the approach to any temporary measures required. Any works and associated mitigation measures along this route will be clearly described and assessed within the ES.

3.4.6. The construction traffic management plan will be developed in consultation with National Highways and Highway Officers from the local highway authorities.

3.4.7. The ES will provide estimations on the type of construction vehicles, the number of construction vehicles, and the numbers of staff required during the construction phase, broken down by each respective phase of construction to identify any peaks or periods where the cumulative impact of construction may be greater.

3.4.8. Whilst the final details are yet to be agreed, it is anticipated that the construction phase will require an average of between 100 – 150 workers onsite with a maximum of up to 400 construction staff at the peak construction period. At this stage, it is anticipated that during the peak construction period, there could be 30 Heavy Goods Vehicles (HGV) deliveries per day, which equates to 60 two-way movements. In addition, there will be Light Goods Vehicle (LGV) deliveries vehicle movements associated with deliveries and construction worker arrivals and departures. Typical construction vehicles will include excavators, ramming machines, cable layers, low loaders, crane and waste vehicles, trenchers, telehandlers, forklift trucks and tractors/trailers. The number of HGV and LGV movements will be confirmed in the Environmental Statement.

Temporary Construction Compound

3.4.9. During the construction phase, a primary construction compound is expected to be located onsite with one or more temporary secondary construction compound(s) provided at different locations throughout the solar PV Site, as well as temporary roadways, to facilitate access to all parts of the solar PV Site. The details of which (including location, scale and duration) will be set out and described within the ES.

Construction Reinstatement and Habitat Creation

3.4.10. A programme of construction reinstatement and habitat creation will commence during the construction phase. It is anticipated that areas under the solar arrays, areas outside of the areas and within the landscape buffers will be planted with a combination of native grassland mix, wildflower mixes, hedgerows and woodland will be planted in strategic locations to provide visual screening, ecological habitats in order to achieve a minimum 10% biodiversity net gain.

Construction Environmental Management

3.4.11. An Outline Construction Environmental Management Plan (oCEMP) will be prepared to support the application for development consent. The oCEMP will set out legislation, guidance, best practice guidance and the mitigation measures identified through the EIA to be employed during the construction phase, such as construction lighting avoiding ecological sensitive habitats. The oCEMP will form the framework for a detailed CEMP that will be agreed with the Local Planning Authorities prior to construction.

Construction Traffic Management

3.4.12. An outline Construction Traffic Management Plan (oCTMP) including details on construction logistics and construction worker travel will be developed

and will guide the delivery of materials, plant, equipment and staff during the construction phase..

3.5. Operation

3.5.1. The operational life of the Proposed Development is not proposed to be specified in the application and the Applicant is not seeking a time limited consent. At the stage of preparing this Scoping Report there is nothing to suggest that there is any environmental reason why such a limit would be appropriate in planning terms. During the operational phase of the Proposed Development, onsite activities would include routine servicing, maintenance and replacement of plant and equipment as well as management of vegetation. The EIA will be carried out on the basis that the development is permanent, to ensure a worst case assessment of likely significant effects.

3.5.2. At this stage of the project, it is anticipated that there would typically be approximately two visits per week and up to four permanent staff onsite during the operational phase of the Proposed Development, with additional staff attending when required for maintenance, replacement of solar infrastructure and cleaning, up to a total of 20 staff per day. The ES will confirm the likely operational traffic flows.

3.5.3. The land underneath and around the panels could be managed through a combination of sheep grazing and/or hay/silage production in order to maintain the field vegetation during the operational phase of the Proposed Development.

3.6. Decommissioning

3.6.1. For the purposes of the environmental impact assessment the decommissioning assessment will be based on a 40-year operational life span for the solar infrastructure. The assessment does not assume that the

operational phase will be limited to 40 years as the solar infrastructure may continue to be operating successfully and safely beyond this period.

3.6.2. It is proposed that the Applicant will commit to decommissioning the Proposed Development when it ceases being operational, however no time limit will be set for this. it is anticipated that all the solar infrastructure including PV modules, mounting structures, cabling, inverters, transformers, switchgear, batteries, fencing and ancillary infrastructure would be removed and recycled or disposed of in accordance with good practice and market conditions at that time of decommissioning. The future of the substation and control building would be agreed with the local planning authority and the National Grid prior to commencement of decommissioning. Any requirement to leave the internal access tracks would be discussed and agreed with the landowners at the time of decommissioning. If the Proposed Development were to be decommissioned the solar PV Site would be reinstated in agreement with the local planning authority. In advance of decommissioning commencing, a detailed Decommissioning Environmental Management Plan (DEMP), to include timescales and transportation methods, would be agreed in advance with the local planning authority. The detailed DEMP would be secured via a DCO requirement The solar PV Site would be reinstated so far as possible to its original use after decommissioning and habitats of biodiversity mitigation and enhancement that have potential to contain protected species would be left in-situ given they could contain protected species. If these were to be removed,

appropriate surveys and licenses would be applied for at the time of decommissioning.

3.6.3. Decommissioning is anticipated to take approximately six months to twelve months.

3.6.4. The effects of the decommissioning phase are often similar to, or of a lesser magnitude than the effects generated during the construction phase and will be considered in the relevant sections of the ES. However, there can be a high degree of uncertainty regarding decommissioning as engineering approaches and technologies evolve over the operational life of the Proposed Development, and assumptions will therefore be made, where appropriate.

3.7. Rochdale Envelope and Design Principles

3.7.1. EIA is the iterative process in which the assessment of environmental impacts is undertaken in parallel with the design process of the Proposed Development. The design and layout of the Proposed Development will evolve in response to the identification of specific constraints and opportunities. The comments made in response to this Scoping Report and the informal and statutory consultation process will also influence the final design and layout of the Proposed Development.

3.7.2. Advice Note Nine ‘Rochdale Envelope’ was published by PINS in July 2018 to address the degree of flexibility that would be considered appropriate to deal with uncertainties associated with applications for development consent.

3.7.3. In order to maintain flexibility in the design and layout, the Proposed Development will adopt the Rochdale Envelope approach by specifying parameter ranges which will be defined in the Project Description chapter of the ES. These parameters will be considered in detail by technical authors

in the ES to ensure the realistic worst-case effects of the Development are assessed for each potential receptor.

A series of Design Principles will be developed for the Proposed Development. The Design Principles for the Proposed Development will align with the core purposes and ambitions of the 'Design Principles for National Infrastructure' which are Climate, People, Places and Value. The purpose of the Design Principles is to set a framework that can be used by the Local Planning Authority to control the detailed design of the Proposed Development beyond the written and spatial parameters. The NIC defined the role of principles as:

"Principles should act as reminders to the delivery organisation, a steer in the right direction, and a means of restoring focus to the big picture…Design Principles should be a point of departure, setting out a common understanding [of] the issues to be addressed." (Developing Design Principles for National Infrastructure (NIC, 2018)).

The principles for the Proposed Development, which were set out within the Stage One informal Consultation are set out below:

1. Climate:

- Positively contribute to delivering the UK to net zero by 2050;
- Design for resilience to future climate change;
- Prioritise sustainable techniques and technologies in construction and operation; and
- Minimise carbon throughout the project lifecycle.

2. People:

- Engage openly and transparently with local communities, stakeholders and neighbours, making use of local knowledge to improve our project;
- Consider feedback carefully and engage and respond meaningfully;

- Behave as a considerate neighbour through both construction and operation; and
- Respect public amenity.

3. Value:

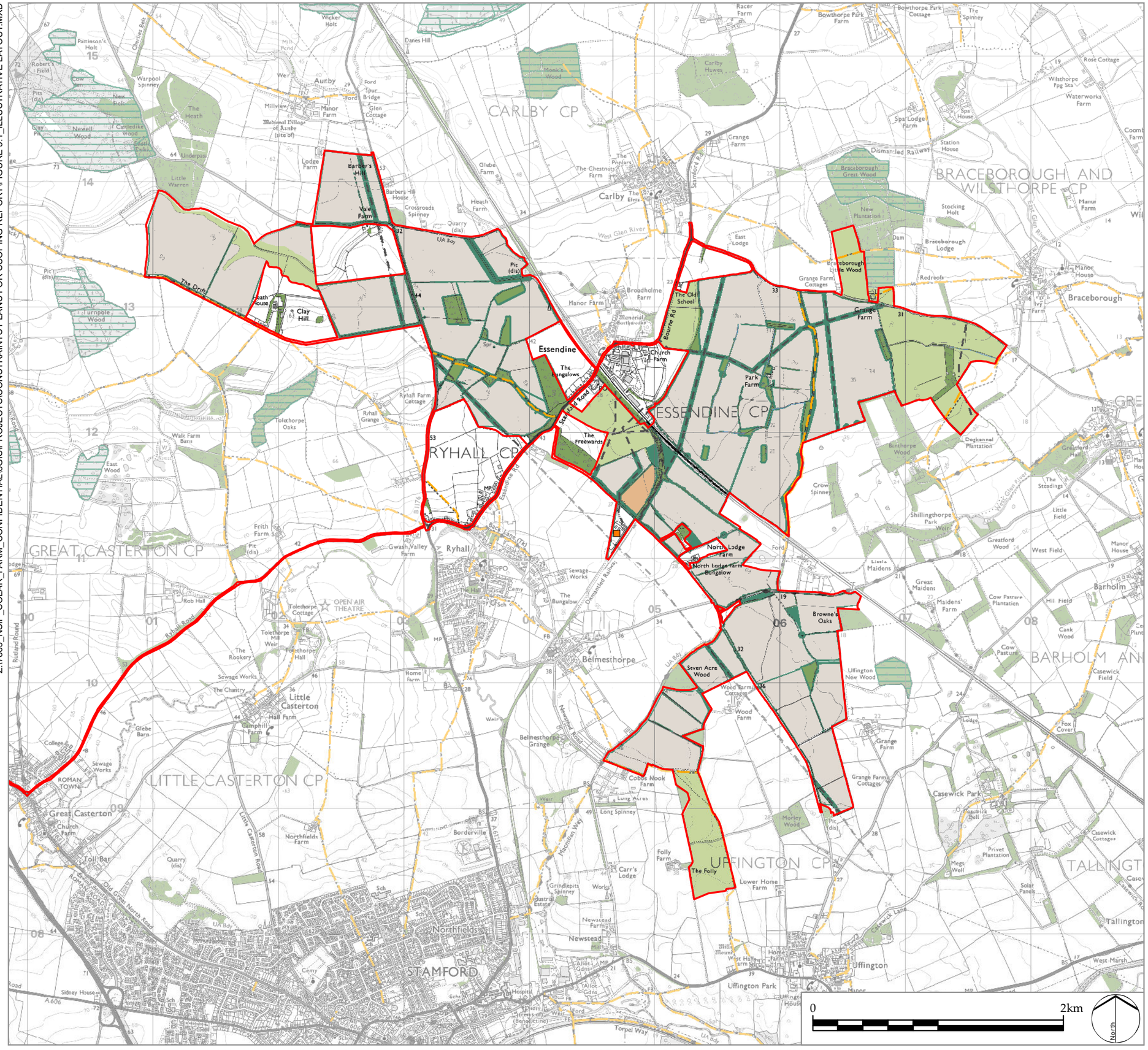
- Recognising the evolving and advancing nature of technology and seek to ensure we retain the ability to use the best and latest available to maximise efficiency;
- Learn from comparable projects using best practice to design and deliver our project;
- Provide wider economic and supply chain benefits, and a positive legacy for the communities in and around Mallard Pass Solar Farm;
- Deliver a successful project, free from Government subsidy, helping contribute affordable energy to the national supply;
- Respect the wider landscape and the intrinsic value of the countryside and natural environment; and
- Respect and respond to features of heritage value.

4. Place:

- Deliver project-wide biodiversity net gain;
- Maximise opportunities to create appropriate multifunctional spaces to achieve energy generation, continued agricultural use, biodiversity enhancements, water and flood management and green spaces;
- Reduce any environmental impact, sensitively designing Mallard Pass Solar Farm to fit into the landscape and explore reasonable opportunities to mitigate potential visual impacts;
- Respect the distinctive and unique character of the countryside; and
- Recognise and respect heritage value, understanding the direct and indirect impact on cultural heritage assets.

3.7.4. These principles will be refined in response to the ongoing EIA and stakeholder engagement and will be secured through the DCO.

Z:\7863_NSIP_SOLAR_FARM_CONFIDENTIAL\8GIS\PROJECTS\CONSTRAINTS PLANS FOR SCOPING REPORT\FIGURE 3.1_ILLUSTRATIVE LAYOUT.MXD



LEGEND

Site Features

- Site boundary
- Railway line
- Existing Utilities (gas, water,sewer and electricity)
- Existing substation
- Public Right of Way
- Ancient Woodland
- Woodland, hedgerows, trees, field boundaries and ditches

Concept Masterplan Proposals

- Potential solar development
- Potential Mitigation and Enhancement Areas
- Potential Substation Area
- Buffers to woodland, trees, hedgerows, ditches, utilities and Public Rights of Way

LDĀDESIGN

PROJECT TITLE

MALLARD PASS SOLAR FARM:
EIA SCOPING REPORT

DRAWING TITLE

Illustrative Layout

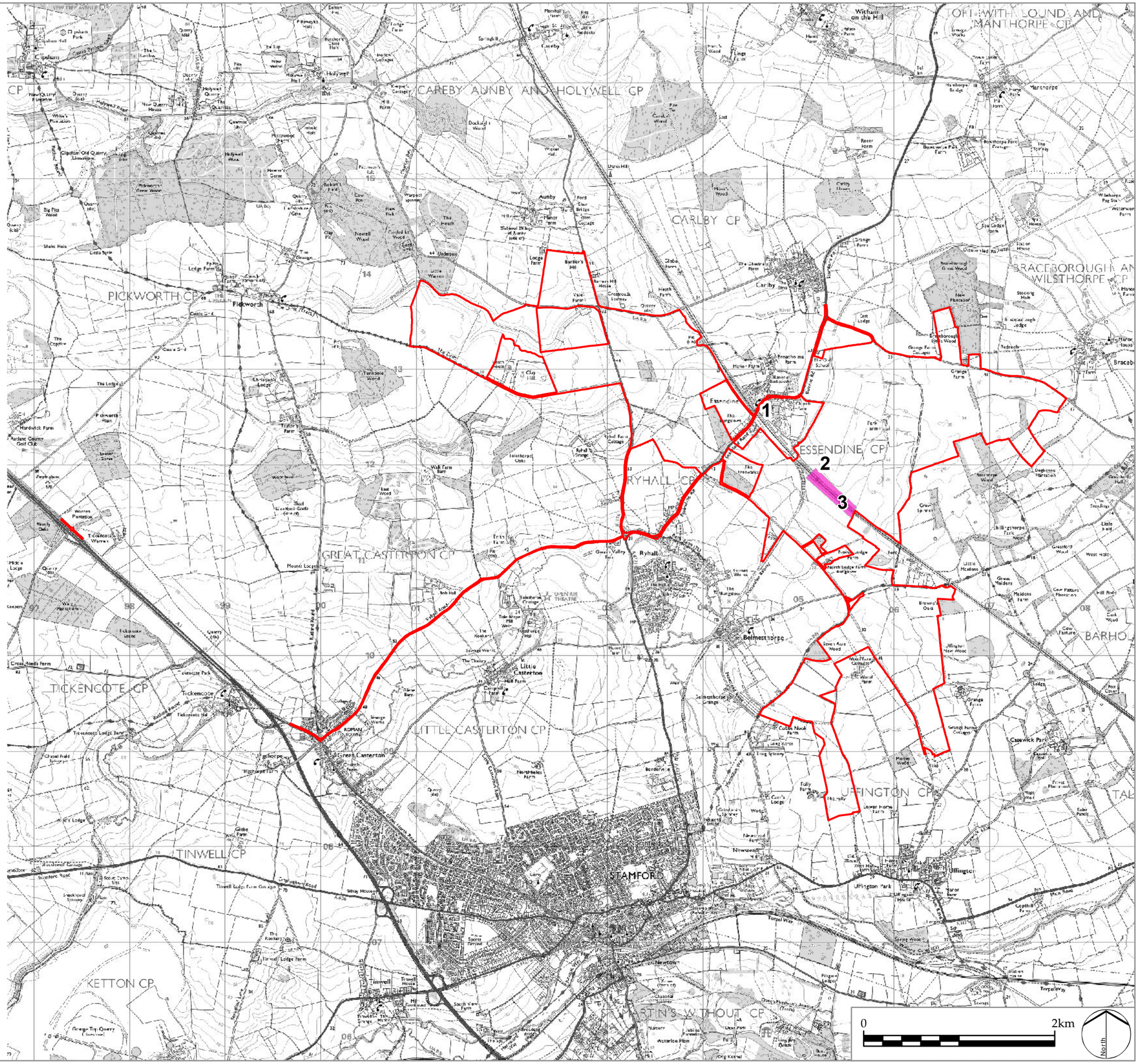
ISSUED BY	Oxford	T: 01865 887050	
DATE	January 2022	DRAWN	VW
SCALE @A3	1:30,000	CHECKED	RP
STATUS	Final	APPROVED	RP

DWG. NO. Figure 3.1

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, Historic England, Natural England, Environment Agency, National Tree Mapping - © Bluesky International Limited

Z:\7863_NSIP_SOLAR_FARM_CONFIDENTIAL\8GIS\PROJECTS\CONSTRAINTS PLANS FOR SCOPING REPORT\FIGURE 3.2_CABLE CROSSINGS.MXD



LEGEND

Site boundary

Potential Zone for Horizontal Directional Drilling (width TBC)

Locations of Potential Railway Cable Crossings:

1 Road Bridge through Essendine

2 Existing culverts/arches

3 Horizontal Directional Drilling

LDĀDESIGN

PROJECT TITLE
MALLARD PASS SOLAR FARM:
EIA SCOPING REPORT

DRAWING TITLE
Potential Railway Cable Crossing Options

ISSUED BY	Oxford	T: 01865 887050	
DATE	January 2022	DRAWN	AG
SCALE @A3	1:40,000	CHECKED	DB
STATUS	Final	APPROVED	RP

DWG. NO. Figure 3.2

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources: Ordnance Survey, Esri

4.0 Consultation

4.1.1. Sections 42, 47 and 48 of the Planning Act 2008 and Regulation 13 of the EIA Regulations require that certain stakeholder groups and the local community must be consulted as part of the pre-application process. As part of this process a Preliminary Environmental Information Report (PEIR) will be produced and consulted upon.

4.1.2. Consultation alongside the EIA process is critical to the development of a comprehensive and proportionate ES. The views of statutory and non-statutory consultees are important to ensure that the EIA from the outset focuses on the environmental studies and to identify specific issues where significant environmental effects are likely, and where further investigation is required. The consultation, as an ongoing process, enables mitigation measures to be incorporated into the Proposed Development to limit adverse environmental effects and optimise environmental benefits.

4.1.3. Early and ongoing engagement with consultees will be important to influence the design process of the Proposed Development by seeking an appropriate level of feedback from consultees, to ensure that comments are considered in project design.

4.2. Stage One Non-Statutory Consultation

4.2.1. Stage One community consultation commenced on 4th November 2021 and ran for six weeks, closing on 16th December 2021. The consultation took place in the form of three physical public exhibitions, held at Ryhall, Stamford and Essendine, and two online community webinars. The aim of the non-statutory consultation was to introduce the Proposed Development

to the local communities and invite members of the public to ask questions and provide feedback on the early concept design.

4.2.2. All responses received during consultation are being carefully considered and taken into account in the development of the Proposed Development and a consultation summary report has been released at the same time as this EIA Scoping Request.

4.3. Consultation to Date

4.3.1. A number of meetings with stakeholders have already taken place to provide an introduction of the Proposed Development, obtain baseline environmental data and discuss preliminary baseline survey methodologies including:

- Rutland County Council (RCC);
- South Kesteven District Council (SKDC);
- Lincolnshire County Council (LCC);
- Natural England;
- Heritage Lincolnshire;
- Environment Agency; and
- National Highways.

4.3.2. The consultation undertaken for each of the environmental disciplines is provided in further detail in the respective topic sections in Chapters 7 and 8 of this Scoping Report.

4.4. Scoping Consultation

4.4.1. PINS acting on behalf of the Secretary of State for Business, Energy and Industrial Strategy (BEIS) will consult on this Scoping Report in accordance with Regulation 10(6) of the EIA Regulations. Consultees include statutory consultation bodies, including environmental bodies (such as Natural England, the Environment Agency and Historic England) as well as relevant

planning authorities. Comments received from consultees will be considered and included within the Scoping Opinion issued by PINS.

4.5. Statutory Consultation

4.5.1. A SoCC will be prepared in accordance with Section 47 of the Planning Act 2008. The SoCC will outline how the Applicant intends to consult with the local community on the Proposed Development. The Applicant is required to consult the local authorities identified pursuant to section 43 of the Planning Act 2008 on the draft SoCC and they will have a period of at least 28 days, following receipt of the request, to comment on a draft SoCC prior to its publication for inspection by the public.

4.5.2. During the statutory consultation, consultation will also be undertaken with prescribed consultation bodies as well as affected landowners, in accordance with Sections 42 of the Planning Act 2008 and Regulation 13 of the EIA Regulations.

4.5.3. The responses received during consultation will be carefully considered and taken into account in the design evolution of the Proposed Development in accordance with Section 49 of the Planning Act 2008. The consultation responses will be recorded in a Consultation Report which will be submitted to support the application for development consent.

5.0 Legislative Context and Planning Policy

5.1. Net Zero: Opportunities for the Power Sector

5.1.1. In June 2019 the Government raised the UK's ambition on tackling climate change by legislating for a net-zero greenhouse gas emissions target for the whole economy by 2050. Decarbonising the power sector is integral to achieving this goal and requires major investment in proven technologies, such as solar, which are supported by planning policy at local and national level.

5.1.2. The National Infrastructure Commission (NIC), official advisor to the Government on infrastructure, has subsequently produced a report, 'Net Zero: Opportunities for the Power Sector, in March 2020, which sets out the infrastructure required in order to meet the 2050 target, including the amount of new renewable energy development that would need to be deployed. Importantly, the NIC recommends the generation mix is up to around 90% renewables. The report recommends that across all scenarios significant solar, onshore wind, and offshore wind, with between 129-237 gigawatts ('GW') of renewable capacity is in operation by 2050, including:

- 56-121 GW of solar;
- 18 -27 GW of onshore wind; and
- 54 – 86 GW of offshore wind.

5.1.3. The National Grid Electricity System Operator (NGESO) report, Future Energy Scenarios, published in July 2021, provides comparable statistics citing a need for 57- 89 GW of solar.

5.1.4. The above requires an increase in installed capacity, including up to nine times more solar than is currently installed in the UK, which is presently around 13.2GW according to the Department for Business, Energy & Industrial Strategy (BEIS).

5.1.5. Although the above figures are high-level, they demonstrate the amount of new infrastructure that is required to meet the urgent need to decarbonise the energy sector in the UK. The scale of this need is such that it must be shared throughout the UK and in recognition that climate change is a national and global issue.

5.2. Net Zero Strategy: Build Back Greener

5.2.1. The Net Zero Strategy, published by Government on 19th October 2021, builds on Government's commitments made in the Energy White Paper (2020) and sets out the long-term strategy, policy and proposals to keep the UK on track for future carbon budgets and sets the vision for a decarbonised economy by 2050. Key policies in the Strategy related to UK power generation include:

- "*By 2035 the UK will be powered entirely by clean electricity, subject to security of supply; […]*
- *40 GW of offshore wind by 2030, with more onshore, solar and other renewables – with a new approach to onshore and offshore electricity networks to incorporate new low carbon generation and demand in the most efficient manner that takes account of the needs of local communities […]*
- *Deployment of new flexibility measures including storage to help smooth out suture price spikes."*

5.3. Planning Act 2008

5.3.1. The Proposed Development constitutes NSIP development, in accordance with the Planning Act 2008, as it comprises:

- The construction or extension of a generating station (Part 3, Section 14(1)(a)); and
- Its capacity is more than 50MW (Part 3, Section 15(2)I).

5.3.2. Therefore, a DCO application under the Planning Act 2008 is required will be made to PINS as the Examining Authority.

5.4. National Policy Statements

5.4.1. The following NPSs are relevant to the Proposed Development:

- Overarching NPS for Energy (EN-1);
- NPS on Renewable Energy Infrastructure (EN-3); and
- NPS for Electricity Networks Infrastructure (EN-5).

Overarching National Policy Statement for Energy (EN-1)

5.4.2. The Overarching NPS for Energy (EN-1), adopted by the Department of Energy and Climate Change (DECC) in July 2011, sets out the national policy for delivering major energy infrastructure in England and Wales. The NPS has effect in combination with the relevant technology specific NPS, National Policy for Renewable Energy Infrastructure (EN-3), and together they provide the primary basis for decisions made by the Examining Authority.

5.4.3. Part 3 of EN-1 identifies the need that exists for nationally significant energy infrastructure. With regards to decision making, paragraph 3.1.1. of EN-1 states how "*the UK needs all the types of energy infrastructure covered in this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions*".

Paragraph 3.1.2 states: *"It is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies".*

5.4.4. Paragraph 3.3.11 notes that renewable energy sources, such as solar, are intermittent and, as a result, back-up sources are required at times when the availability of intermittent renewable sources is low. Paragraph 3.3.12 goes on to identify how electrical storage technologies can be used to compensate for intermittence.

5.4.5. Paragraph 4.1.3 of the NPS EN-1 states that in considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the Examining Authority should take into account:

- Its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and
- Its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.

5.4.6. Section 4.2 of the NPS EN-1 is related to the requirement for assessment of likely significant environmental effects and reporting within an Environmental Statement for projects that are subject to the European Environmental Impact Assessment Directive (85/337/EEC).

5.4.7. Paragraph 4.2.2 of the NPS states that:

"*To consider the potential effects, including benefits, of a proposal for a project, the IPC* [now PINS] *will find it helpful if the applicant sets out information on the likely significant social and economic effects of the development, and shows how any likely significant negative effects would be avoided or mitigated. This information could include matters such as employment, equality, community cohesion and well-being*."

5.4.8. Paragraph 4.3.2 continues:

"For the purposes of this NPS and the technology-specific NPSs the ES should cover the environmental, social and economic effects arising from pre-construction, construction, operation and decommissioning of the project."

5.4.9. Paragraph 4.2.4 states that when considering a proposal, the Examining Authority should:

"*Satisfy itself that likely significant effects including any significant residual effects taking account of any proposed mitigation measures or any adverse*

effects of those measures, have been adequately assessed. In doing so the IPC should also examine whether the assessment distinguishes between the project stages and identifies any mitigation measures at those stages. The IPC [now PINS] should request further information where necessary to ensure compliance with the EIA Directive."

5.4.10. Where relevant, the EIA process will take into account the requirements of the NPS.

National Policy Statement on Renewable Energy Infrastructure (EN-3)

5.4.11. The NPS on Renewable Energy Infrastructure (EN-3), published by the DECC in July 2011, taken together with the Overarching NPS for Energy (EN-1), provides the primary basis for decisions by the Examining Authority on applications it receives for nationally significant renewable energy infrastructure.

5.4.12. The importance of generation of electricity from renewable sources is stated at Paragraph 1.1.1 of NPS EN-3:

"*Electricity generation from renewable sources of energy is an important element in the Government's transition to a low-carbon economy. There are ambitious renewable energy targets in place and a significant increase in generation from large-scale renewable energy infrastructure is necessary*".

5.4.13. At the time of publication of NPS EN-3, utility scale solar development was not feasible. Therefore, whilst providing an assessment and technology-specific information on certain renewable energy technologies, NPS EN-3 does not include solar PV development, and only covers projects for biomass/waste and offshore and onshore wind.

National Policy Statement for Electricity Networks Infrastructure (EN-5)

5.4.14. The NPS for Electricity Networks Infrastructure (EN-5) was published by the DECC in July 2011 and forms part of the suite of energy NPSs and is to be read in conjunction with the Overarching NPS for Energy (EN-1).

5.4.15. NPS EN-5 is relevant to the Proposed Development as the policy recognises electricity networks as "transmission systems (the long distance transfer of electricity through 400kV and 275kV lines), and distribution systems (lower voltage lines from 132kV to 230V from transmission substations to the end-user) which can either be carried on towers/poles or undergrounded" and "*associated infrastructure, e.g. substations (the essential link between generation, transmission, and the distribution systems that also allows circuits to be switched or voltage transformed to a useable level for the consumer) and converter stations to convert DC power to AC power and vice versa*."

5.4.16. NPS EN-5 sets out further technology-specific considerations, in addition to those impacts covered in NPS EN-1, for: Biodiversity and Geological Conservation; Landscape and Visual; and Noise and Vibration. Furthermore, NPS EN-5 sets out technology-specific considerations for the impact of electromagnetic frequencies (EMFs).

5.5. Draft National Policy Statements

Draft Overarching National Policy Statement for Energy (EN-1), 2021

5.5.1. In contrast to the adopted NPS EN-1 (2011), the Draft NPS EN-1, published in September 2021, makes specific reference to the generation of solar

energy and recognises that there is an urgent need for new electricity generating capacity to meet UK objectives.

5.5.2. Paragraph 3.2.1 of the Draft NPS EN-1 sates that: "*wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). Our analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar*." The NPS highlights that Government requires a sustained growth in the capacity of solar in the next decade and recognises that solar development needs to be coupled with technologies which optimise energy generation even when conditions for solar generation are not optimal.

5.5.3. Paragraph 3.3.24 of the Draft NPS EN-1 recognises that that energy storage is key in achieving net zero and providing flexibility to the energy system, so that high volumes of low carbon power can be integrated and to reduce the costs of the electricity system and increase reliability by storing surplus electricity in times of low demand to provide electricity when demand is higher.

Draft National Policy Statement for Renewable Energy Infrastructure (EN-3), 2021

5.5.4. The Draft NPS EN-3, published in September 2021, introduces a new section (Section 2.47) on solar photovoltaic generation, recognising that solar farms are ones of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation worldwide. Paragraph 2.47.1 states that the government has committed to sustained growth in solar capacity to ensure that the UK is on the pathway

to meet net zero emissions by 2050, and as such, solar is a key part of Government's strategy for low-cost decarbonisation of the energy sector.

5.5.5. Section 2.48 of the Draft NPS EN-3 sets out key influences that developers should consider when selecting sites for solar development, including the following factors:

- Irradiance and site topography;
- Proximity of a site to dwellings;
- Capacity of a site;
- Grid connection;
- Agricultural Land Classification and land type; and
- Accessibility.

5.5.6. Sections 2.50 – 2.54 of the Draft NPS EN-3 provides topic-specific requirements of how applicants should consider impacts within technical assessments, development of proposed mitigation measures and decision-making for solar development, for the following topics:

- Biodiversity and nature conservation;
- Landscape, visual and residential amenity;
- Glint and glare;
- Cultural heritage; and
- Construction including traffic and transport noise and vibration.

Draft National Policy Statement for Electricity Networks Infrastructure (EN-5), 2021

5.5.7. The Draft NPS EN-5 was published in 2021 and recognises that new electricity networks required for electricity generation, storage and interconnection infrastructure are vital to achieving the nation's transition to net zero.

5.5.8. Draft NPS EN-5 includes a new section on 'Environmental and Biodiversity Net Gain' at Section 2.8, which states that when planning and evaluating a

projects contribution to environmental and biodiversity net gain, it will be important, for both the Applicant and examining Authority, to recognise that "*the linear nature of electricity networks infrastructure allows excellent opportunities to: i) reconnect important habitats via green corridors, biodiversity stepping zones, and re-establishment of appropriate hedgerows; and/or ii) connect people to the environment, for instance via footpaths and cycleways constructed in tandem with biodiversity enhancements*."

5.6. National Planning Policy Framework

5.6.1. While not determinative under the Planning Act 2008, it is a document that may be important and relevant for the purposes of the Secretary of State's decision making. The NPPF also provides relevant context for individual assessment topics.

5.6.2. The NPPF was published by Ministry of housing, Communities and Local Government (formerly the Department for Communities and Local Government) in March 2012 and was updated in July 2021. The NPPF sets out Government's planning policies and how these should be applied for England.

5.6.3. The NPPF does not contain specific policies for NSIPs; however, Chapter 2 of the NPPF 'Achieving sustainable development' sets out that the planning system should contribute to the achievement of sustainable development, considering economic, social and environmental roles.

5.6.4. Paragraph 152 of the NPPF states:

"*The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience;*

encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure."

5.6.5. Paragraph 158 continues to state that, whilst the local planning authority is not the determining authority for the application for development consent,, when determining planning applications for renewable and low carbon development, local planning authorities should:

"*a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and*

b) approve the application if its impacts are (or can be made) acceptable …".

5.7. Local Planning Policy

5.7.1. The Local Development Plans do not carry the same weight under the Planning Act 2008 in respect of decision making on NSIP, as they do with determining planning applications under the Town Country Planning Act 1990. The NPSs are the primary consideration for NSIP applications. Nevertheless, the Development Plan is still a matter which can be considered important for the consideration of an NSIP although in the event of any conflict, the NPS prevails.

5.7.2. The relevant Local Planning Policies of the adopted development plans for each of the 'host' planning authorities will be considered as part of the assessment.

Rutland County Council Adopted Core Strategy Development Plan Document (DPD), 2011

5.7.3. The Rutland County Council (RCC) Core Strategy DPD was adopted on 11th July 2011 and sets out the vision, objectives, spatial strategy and policies for development in Rutland up to 2026.

5.7.4. Policy CS20 'Energy efficiency and low carbon energy generation' of the RCC Core Strategy DPD states that "*renewable, low carbon and de-centralised energy will be encouraged in all development*". The policy continues to state that low carbon energy generating development will be supported where environmental, economic and social impacts can be addressed satisfactorily and where they address issues related to: landscape and visual impact; cumulative impact; impacts to the natural and cultural environment; and contribute to national and international environmental objectives on climate change and national renewable energy targets.

Regulation 19 Rutland County Council Local Plan 2018 – 2036

5.7.5. The Regulation 19 consultation period on the RCC Local Plan (2018 – 2036) ran from 27th August to 6th November 2020. Following a Special Full Council meeting, the Local Plan (2018 -2036) was withdrawn on 1st September 2021. RCC will progress the new Local Plan through the various stages (evidence gathering, preferred options, Regulation 19 preparation of proposed Submission plan, Regulation 22 preparation for submission to Secretary of State, Regulation 24 Independent Examination and Adoption, and it is anticipated that the new Local plan will be adopted in 2025.

South Kesteven District Council Local Plan 2011- 2036

5.7.6. The South Kesteven District Council (SKDC) Local Plan was adopted on 30th January 2020 and sets the ambitions for the district for the period up to 2036.

5.7.7. Policy RE1 'Renewable Energy Generation' of the SKDC Local Plan states that proposals for renewable energy generation will be supported subject to meeting the criteria outlined in Appendix 3 'Renewable Energy' of the Local Plan and provided that:

- The proposal does not negatively impact the district's agricultural asset;
- The proposal can demonstrate the support of affected local communities;
- The proposal includes details of the transmission of power produces;
- The proposal details that all apparatus related to renewable energy production will be removed from the site when power production ceases;
- That the proposal complies with any other relevant Local Plan policies and national planning policy.

5.7.8. Part 3 of Appendix 3 of the Local Plan relates to solar technologies, including solar photovoltaic PV, and specifies criteria, for which developers are required to provide evidence-based assessments, to be used for development management purposes in the determination of planning applications. The possible harmful impacts of a ground-mounted solar farm will be assessed according to the following criteria:

- Visual impact on landscape or heritage settings;
- Visual impact upon dwellings or communities;
- Cumulative impact;
- Noise;
- Highways and safety;
- Glint and Glare;
- Nature conservation; and
- Impact on agricultural land.

6.0 Environmental Impact Assessment Methodology

6.1. The EIA Process

6.1.1. EIA is the process of compiling, evaluating and presenting all the significant environmental effects of a proposed development, prior to major decisions being made. It is born out of Directive 85/337/EC (as amended) on the assessment of the effects of certain public and private projects on the environment. Following a series of amendments, a new Directive, EIA Directive 2014/52/EU came into force on 15th May 2014. This Directive was transposed into English law, for the purposes of the Proposed Development, on 16th May 2017 through the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended).

6.1.2. To ensure that the EIA Regulations continue to operate following the UK's withdrawal from the European Union, the EIA Regulations were amended under the Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018 (SI 2018/1232) to replace references to EU Directives and legislation and to uphold international obligations through domestic legislation.

6.1.3. In general terms the main stages in the EIA are as follows:

- Baseline Conditions – collation and review of available data and undertake baseline surveys;
- Scoping – identification of likely significant issues to determine the scope of the EIA;
- Consultation - seek feedback from consultees and the public in relation to key environmental issues, methodology adopted and design approaches;
- Assessment Methodology– define methodologies using topic specific guidance and best practice techniques and assess the likely significant effects of the Proposed Development, identify and evaluate alternatives,

provide feedback to the project design team, incorporate any necessary mitigation measures and assess residual effects; and

- Preparation of the Environmental Statement and non-technical summary.

6.1.4. The assessment process is designed to produce an environmentally sensitive development by considering and assessing the effects of the Proposed Development against existing environmental baseline conditions. To date, the EIA team has undertaken a review of both the environmental sensitivities within and surrounding the Site and the preliminary concept design to identify any potential environmental effects. Where the baseline environment has been informed by Site visits and environmental surveys, these have been detailed in Chapters 7 and 8 of this report.

6.1.5. The EIA process will be undertaken in accordance with the EIA Regulations, guidance produced by PINS and the Institute of Environmental Management and Assessment (IEMA) and other environmental topic-specific guidance. The ES will set out details on the methodology and approach, along with the overall conclusions of the EIA process. It will also outline the main parameters and detailed design aspects of the Proposed Development against which the assessment will be undertaken.

6.1.6. Development parameters will be determined and fixed for the purposes of the EIA through an iterative approach taking into account baseline environmental information, the evolving design and any associated technical requirements.

6.1.7. The EIA will assess the construction, operational and decommissioning phases of the Proposed Development.

6.2. Baseline Conditions

6.2.1. An important step in the EIA process is to establish a baseline against which to assess the effects of the Proposed Development. Information

relating to the existing environmental baseline will be collected through field and desktop study, including:

- Online/digital resources;
- Data searches, e.g. Local Biological Record Centres, Historic Environment Record, etc.;
- Baseline Site surveys; and
- Available environmental information submitted in support of other planning applications for development in the vicinity.

6.2.2. For each environmental topic chapters, the methods of baseline data collection will be discussed with the relevant consultees.

6.3. EIA Scoping

6.3.1. Whilst every ES should provide a full factual description of the development, the emphasis of Schedule 4 (of the EIA Regulations) is on the "**significant**" environmental effects to which a development is likely to give rise. Regulation 10(3) of the EIA Regulations require an EIA Scoping Request to include an explanation of the likely significant effects of the development on the environment. It isn't the role of the EIA and ES to assess all potential effects of proposed development, which is further evidenced by Regulation 14(2)(b), which requires the ES to include a description of the likely significant effects of proposed development on the environment.

6.3.2. Schedule 4 of the EIA Regulations is provided at Appendix 6.1 of this report.

6.3.3. Where relevant, the environmental topics set out within this Scoping Report provide an outline of the proposed approach to assessment and the potential environmental effects. The ES will provide an objective analysis of the significant environmental effects and highlight the key issues relevant to the decision-making process.

6.3.4. In accordance with the EIA Regulations, a cumulative assessment will also be undertaken. The approach to this assessment is outlined in more detail in Chapter 9 of this report.

6.3.5. Upon receipt of the EIA Scoping Opinion, the points raised within the Scoping Opinion will be presented within a tabulated format. This table will be included within the ES and be used to sign-post stakeholders to the relevant section of the ES so to demonstrate how the points raised have been considered and addressed.

6.4. Consultation

6.4.1. Consultation with stakeholders will be undertaken throughout the EIA process to gather feedback on the emerging project proposals, baseline survey methodologies and results and assessment methodology. Consultation with statutory consultees and stakeholders has already commenced to help inform the content of this EIA Scoping Report. Further detail on stakeholders who have already been consulted can be found within the individual environmental chapters of this document.

6.5. EIA Methodology

EIA Assessment Scenarios

6.5.1. The EIA will assess the effects of the following scenarios:

- Construction Phase (2026 – 2028);
- Operational Phase (permanent); and
- Decommissioning Phase (2068 - 2070).

6.5.2. The ES will include within each of the environmental topics a description of the current baseline and the future baseline.

6.5.3. The ‘future baseline’ scenario will describe the changes from the baseline scenario as far as natural changes can be established, although it is noted

without the Proposed Development that the solar PV Site would continue to be intensively managed for agricultural purposes.

6.5.4. The potential effects arising as a result of the Proposed Development will be assessed against these three baselines as follows:

- Construction Phase – Current and Future Baseline; and
- Operational Phase – Future Baseline.
- Decommissioning Phase – Future Baseline.

Prediction of Likely Effects

6.5.5. When undertaking an EIA, environmental effects are classified as either permanent or temporary, as appropriate to the effect in question. Permanent effects are those which are irreversible (e.g. permanent land take) or will last for the foreseeable future (e.g. noise from generated road traffic). The duration of temporary effects are listed as follows:

- Short Term (a period of months up to one year);
- Medium term (a period of more than one year, up to five years); and
- Long term (a period of greater than five years).

6.5.6. Further details can be found within the methodology section of each of the environmental topic chapters.

6.5.7. In assessing the significance of potential effects identified through the EIA process, account will be taken as to whether effects are direct or indirect, secondary, cumulative, transboundary, short, medium or long term, permanent or temporary and positive or negative.

Determining Significance

6.5.8. The EIA will identify the 'significance' of environmental effects (beneficial or adverse) arising from three phases (construction, operation and

decommissioning) of the Proposed Development. The significance of residual effects will be determined by reference to the criteria set out for each environmental topic. The approach to assessing and assigning significance to an environmental effect is derived from a variety of sources including, in particular, the National Planning Policy Framework (NPPF) and relevant planning practice guidance , legislative requirements, topic specific guidelines, standards and codes of practice, the EIA Regulations, advice from statutory consultees and other stakeholders and the expert judgement of the team undertaking the EIA.

6.5.9. The likely effect that the Proposed Development may have on identified environmental receptors will be influenced by a combination of the sensitivity (or importance) of the receptor and the predicted magnitude of impact from the baseline conditions.

6.5.10. Assignment of environmental sensitivity of a receptor will generally depend on the vulnerability, recoverability and value/importance of the receptor. The environmental sensitivity (or importance) will be determined using the following categories:

- **High** – high importance and rarity, international level and very limited potential for substitution.
- **Medium** – high or medium importance and rarity, regional level and limited potential for substitution;
- **Low** – low or medium importance and rarity; and local level.
- **Negligible** – very low importance or rarity and local level.

6.5.11. Where other categories of sensitivity have been used, this will be set out in the individual environmental topic assessment.

6.5.12. The categorisation of the magnitude of impact will take into account the following factors:

- Extent;

- Duration;
- Frequency; and
- Reversibility.

6.5.13. Impacts will be defined as either beneficial or adverse. As a guide magnitude of impact will generally be assigned using the categories below. Further details of the topic-specific methodologies adopted for the EIA, will be defined within the methodology section of each of the topic chapter:

- High:
  - Adverse: Loss of a resource and/or quality and integrity of a receptor; severe damage to key characteristics, features or elements.
  - Beneficial: Large scale or major improvement of receptor quality; extensive restoration or enhancement, major improvement of attribute quality.
- Medium:
  - Adverse: Loss of resource, but not adversely affecting integrity; partial loss of and/or damage to key characteristics, features or elements.
  - Beneficial: Benefit to or addition of key characteristics, features or elements. An improvement to attribute quality.
- Low:
  - Adverse: Some measurable change in attributes, quality or vulnerability, minor los of or alteration to one (possibly more) key characteristics, features or elements.
  - Beneficial: Minor benefit to or addition of one (possibly more) key characteristics, features or elements, some beneficial impact on attribute or reduced risk of a negative impact occurring.
- Negligible:
  - Adverse: Very minor loss or detrimental alteration to one or more characteristics, features or elements.
  - Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements.
- No change: No loss or alteration to characteristics, features or elements, no observable impact in either direction.

6.5.14. The overall significance of the effect will be assigned by the interaction of both sensitivity of the receptor and magnitude of impact. The level of significance will be determined in each of the environmental topic assessments and will consider relevant topic-specific legislation, planning policy and guidance. Levels of significance of effects will generally follow the following scale and will be either beneficial or adverse:

- Major – effects are considered to be very important and are likely to be material in the decision-making process;
- Moderate – effects may be important, but are not likely to be important in the decision-making process;
- Minor – effects to local factors and are unlikely to be important in the decision-making process; and

6.5.15. Negligible or No effect - No effect or those that are beneath the level of perception.

6.5.16. The typical matrix used to determine the significance of effect is shown in Table 6.1.

Table 6.1: Typical Significance of Effect Matrix

Receptor Sensitivity	**Magnitude of Impact**			
	High	**Medium**	**Low**	**Negligible**
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Minor	Minor	Negligible
Low	Minor	Minor	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

6.5.17. Professional judgement will be used to assign the most appropriate option where the matrix offers more than one level of significance. The topic

assessments will adopt this general approach to assigning significance, unless stated in the individual topic chapters.

Cumulative and Inter-related Effects

6.5.18. The cumulative effects assessment will consider two types of relationships:

- Intra-relationship: combined effect of an individual development effects– for example, noise, dust and visual on one particular receptor.
- Inter-relationship: several developments with insignificant impacts individually but which together represent a significant cumulative effect.

6.5.19. Cumulative effects with other schemes will be assessed as part of the EIA process. This will include consideration of whether the Proposed Development, when considered with other schemes, may result in any greater effects on a receptor than the effects of the Proposed Development alone.

6.5.20. Inter-relationships, between topic areas will also be considered as part of the EIA process so as to ensure that effects in a receptor arising from more than one environmental topic area are considered.

6.5.21. Further details of the assessment of cumulative and inter-related effects are provided at Chapter 9 of this report.

Transboundary Effects

6.5.22. Regulation 32 of the Infrastructure Planning (EIA) Regulations, 2017 require the consideration of any likely significant effects in the environment of another European Economic Area (EEA) member state. Guidance of the consideration of transboundary effects is provided in the PINS' Advice Note 12 'Transboundary Impacts and Process', published in December 2020.

6.5.23. Annex 1 of Advice Note Twelve sets out the transboundary screening proforma for potential effects on the environment on another EEA member state and includes the following criteria and relevant considerations:

- Characteristics of the development;
- Location of development (including existing use) and geographical area;
- Environmental Importance;
- Potential impacts and carrier;
- Extent;
- Magnitude;
- Probability;
- Duration;
- Frequency;
- Reversibility; and
- Cumulative impacts.

6.5.24. The approach to assessment of transboundary effects is set out in Appendix 6.2.

Mitigation

6.5.25. Regulation 14(2) of the EIA Regulations requires that where significant effects are identified '*a description of any features of the proposed development, or measure envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects in the environment*' should be included in the ES.

6.5.26. Environmental effects remaining after mitigation measures have been incorporated are termed residual effects and these will be fully described in the ES.

6.5.27. Mitigation measures are developed as part of an iterative process and therefore will be developed throughout the EIA process in response to the findings of the initial assessments.

6.5.28. In 2017, IEMA published a paper titled 'Delivering Proportionate EIA'. The purpose of this paper was to introduce a strategy for enhancing EIA practice that delivers valuable and accessible information that positively influences development design and consenting to the benefit of developers, communities and the environment. One of the four strategic themes for action is improving the scoping process that generates a more consistently focussed approach. The EIA scoping process should enable the Applicant and determining authority, to focus on the significant environmental topics associated with the Proposed Development.

6.5.29. To help achieve a proportionate EIA process and ES, IEMA's Shaping Quality Development Guidance (2015) has set out a clear mitigation strategy, which helps to focus on those effects that are likely to be significant. Set out below is the approach to classifying mitigation, which can take many forms:

- **Primary Mitigation** – this type of mitigation can best be described as modifications to the location or design of the development made during the pre-application/design phase that are an inherent part of the project and do not require additional action to be taken. Examples include identifying a key habitat that should remain unaffected by the development's layout and operation e.g. retaining a hedgerow in situ. This type of mitigation will be identified through an iterative EIA and design process prior to fixing the design for assessment purposes and preparation of the ES;
- **Secondary Mitigation** – this type of mitigation can best be described as actions that will require further activities in order to achieve the anticipated outcome. An example includes describing certain lighting limits which will be subject to the submission of a detailed lighting layout as a condition of approval or a flood evacuation warning plan;

- **Tertiary Mitigation** – this type of mitigation can best be described as actions that would occur with or without input from the EIA feeding into the design, construction or operational process. These include actions that will be undertaken to meet other existing legislative requirements or actions that are considered to be standard practices used to manage commonly occurring environmental effects. An example might include Considerate Contractor's practices that manage activities that have potential nuisance effects or the requirement for a Construction Environmental Management Plan (CEMP) to be submitted to the local planning authority prior to works starting onsite.

6.5.30. Our approach to EIA is not to undertake an assessment of environmental effects where primary or tertiary mitigation measures are sufficient to avoid a likely significant effect occurring. This approach allows the ES to be focussed solely on the likely significant environmental effects and not theoretical significant effects that will not materialise as a result of the design or standard construction practices.

6.5.31. Within this Scoping Request, each of the environmental topics have clearly set out where primary and tertiary mitigation would be sufficient to avoid significant effects occurring.

6.5.32. A summary of all mitigation measures and how they will be secured, either inherently through the project design, or through control documents, or requirements within the DCO, will be set out in the ES.

Monitoring

6.5.33. The EIA Regulations require "*the monitoring of any significant adverse effects on the environment of the proposed development*". The ES will specify which effects, if any, will require monitoring (secondary mitigation).

Consideration of Alternatives

6.5.34. It is necessary to consider reasonable alternatives for the Proposed Development, and to set these out clearly in the ES, in accordance with Schedule 4 of the EIA Regulations:

"*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*."

6.5.35. Regulation 14(2)(d) of the EIA Regulations also requires that the ES should include:

"A description of the reasonable alternatives studies by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment…"

6.5.36. The consideration of alternatives will likely involve the analysis of different layouts, scales, technologies adopted, design parameters and Site selection. The ES will include a description of the alternatives relevant to the Proposed Development that have been considered, as well as the justification for selecting the chosen option. The consideration of alternatives will be presented within a standalone chapter within the ES.

6.6. Environmental Statement

6.6.1. In accordance with Schedule 4 (Regulation 18(3)) of the EIA Regulations, the EIA process will be documented in an ES which will describe the Proposed Development, give full details of the EIA methodology and any technical methodologies and data used in support of the assessment; detail

any mitigation and enhancement measures that have been employed; present the assessment of likely significant environmental effects and provide a schedule of proposed mitigation and monitoring arrangements. The ES will present the residual effects, and an assessment of the cumulative effects and impact interactions as described in each of the topic sections in Chapter 7 below.

6.6.2. Subject to responses from statutory consultees on this Scoping Request, the ES will consist of the following Volumes:

Volume I: Main ES Text and Supporting Drawings

6.6.3. This Volume will comprise the main ES text and supporting drawings and will include the following:

- A description of the methodology and approach to EIA;
- A detailed description of the Proposed Development, including details on of the construction and operational phases;
- A description of the evolution of the design process, including a review of the main layout options and reasonable alternatives along with an indication of the main reasons for selecting the chosen option.
- A detailed assessment methodology for each environmental topic scoped into the EIA;
- A description of the current baseline environment and an outline of the likely evolution thereof without implementation of the development for each environmental topic;
- An assessment of predicted environmental effects during the construction, operational and decommissioning phases;
- A description of the mitigation measures proposed;
- A description of any residual environmental effects;

- A description of the expected significant effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters;
- The impact of the project on climate and the vulnerability of the project to climate change; and
- An assessment of cumulative effects.

Volume II: Technical Appendices

6.6.4. Volume II will include all technical data required to support the assessment conclusions set out in Volume I.

Volume III: Non-Technical Summary

6.6.5. A Non-Technical Summary (NTS) will be prepared which will provide a brief description of the Proposed Development, a broad summary using non-technical language of the significant effects likely to arise and mitigation measures identified to reduce those effects.

Content of the ES

6.6.6. The proposed content of Volume I of the ES is outlined as follows:

- Chapter 1: Introduction;
- Chapter 2: Description of Site and Context;
- Chapter 3: Site Selection and Alternatives;
- Chapter 4: Description of Proposed Development;
- Chapter 5: Consultation;
- Chapter 6: Legislative and Planning Policy;
- Chapter 7: EIA Methodology including details of assumptions and/or limitations;
- Chapter 8 – 15: Environmental Topic Assessment;
- Chapter 16: Cumulative Assessment; and

- Chapter 17: Summary of Residual Effects and Mitigation Measures including details of how mitigation will be secured.

6.6.7. Each of the technical assessments will be set out in the following format:

- Introduction:
- List of relevant legislation and planning policies;
- Assessment methodology, including a summary of consultation undertaken, explanation of how responds to EIA Scoping Opinion, list of sources of information & guidance documents, details of the study area, assessment process/criteria and any assumption limitations;
- Baseline Description of the Site (current state of the environment (baseline) and an outline of the likely evolution thereof without the implementation of the Proposed Development (future baseline);
- Assessment of potential effects (including the impact of climate change and major accidents/disasters where relevant);
- Proposed enhancement, mitigation and monitoring measures;
- Residual effects;
- Summary; and
- List of references.

7.0 Proposed Environmental Impact Assessment Scope

7.1. Introduction

7.1.1. Regulation 5 of the EIA Regulations sets out the requirements and scope of the EIA Process. This chapter of the EIA Scoping Request sets out how the EIA process and ES will consider those factors listed within Regulation 5.

7.2. Environmental Topics

7.2.1. Following a review of environmental surveys and preliminary appraisal work to date, it is proposed that the EIA need only to focus on the following environmental topics where significant effects are likely to occur:

1) Landscape and Visual;
2) Ecology and Biodiversity;
3) Access and Highways;
4) Noise and Vibration;
5) Water Resources and Ground Conditions
6) Land Use;
7) Glint and Glare; and
8) Climate Change Impact Assessment.

7.2.2. Environmental topics which are proposed to be scoped out of the EIA process and ES are described at Section 8.0 of this report.

7.2.3. These topics are referred to in greater detail in this chapter, under the following headings:

1) Baseline Conditions;
2) Approach to Assessment;
3) Potential Effects;
4) Issues Proposed to be Scoped Out; and
5) Consultation.

7.3. Landscape and Visual

Introduction

7.3.1. This section of the Scoping Report sets out the approach to the Landscape and Visual Impact Assessment (LVIA) and sets out the proposed location of viewpoints, extent of the study area and key reference documents that would inform the assessment of potential landscape and visual effects. Potential significant effects on landscape and visual receptors may occur during the construction, operational and decommissioning phases of the Proposed Development. Any likely significant effects will sought to be avoided or reduced through design including layout optioneering, setting back the development footprint from sensitive receptors, and/or implementation of screening planting to limit effects on sensitive receptors.

Baseline Conditions

7.3.2. A desktop assessment of potential landscape and visual receptors has been undertaken, supported by a Site visit (undertaken in October 2021) to understand the baseline conditions of the Site, its landscape character and visual context. A number of viewpoints have been identified from within and around the Site from publicly accessible locations to understand the nature of existing views towards and within the Site to inform the assessment. Further survey work, including formal winter photography from identified, agreed, viewpoint locations (including representative and illustrative views) will be undertaken as part of the assessment of visual impacts of the Proposed Development. A selection of representative viewpoints will also be taken forward for use as photomontages, to demonstrate anticipated views resulting from the Proposed Development. These would be undertaken for year 1 when the Proposed Development would be built but before proposed mitigation planting has matured, and at year 15, following establishment of proposed mitigation planting.

7.3.3. The solar PV Site occupies an agricultural landscape, of gently undulating terrain (see Figure 2.3) interspersed with scattered woodland and connecting tree belts / hedgerows. The land use is generally arable farmland, of a large-scale contained by a network of clipped hedgerows. The existing East Coast Main Line railway line, with its overhead gantries, is a distinctive feature visible in many of the wider views, and industrial elements including large buildings south of Essendine, and electricity pylons also contribute to more urbanising elements centrally and along a north-south axis through the Site. The railway line (and river corridor) forms a distinctive linear feature north to south through the centre of the Site. Field parcels to the west of the railway line tend to be more enclosed (opening up towards the north) whilst east of the railway line, longer views are available from more elevated areas within the Site, with fewer woodland stands and boundary vegetation. However, the gently undulating terrain combined with woodland stands, vegetated field boundaries and roadsides act to provide a wooded backdrop to many views and, therefore, screening the Site from further afield, limiting distant views from outside of the Site.

7.3.4. The Site does not lie within any national landscape designations, the nearest of which, the Norfolk Coast Area of Outstanding Natural Beauty (AONB) is located over 50km east of the Site. Two local designations identified in the old 2001 Rutland Local Plan policy are located approximately 1km west of the Site, including an ‘Area of Particularly Attractive Countryside’ (approximately 1.3km northwest towards The Grange), and an ‘Area of Local Landscape Value’ (approximately 850m west of the solar PV Site, close to Ryhall) but these designations are not included or referred to in adopted planning policy. Four Registered Park and Gardens (RPGs) are located within 3km of the Site including:

- Grade II Greatford Hall, located approximately 600m east of the Site,

- the Grade II Uffington Park, which is located approximately 650m south of the solar PV Site;
- Grade II* listed Burley House RPG, located approximately 1.5km south of the solar PV Site; and
- Grade II listed Holywell Hall Park RPG, located approximately 2.5km north-west of the solar PV Site.

7.3.5. At a national scale, the Site lies within The Kesteven Uplands National Character Area (NCA 75) (Natural England, 2014); This provides context to the wider character of the landscape.

7.3.6. At a finer, local, landscape scale the Site extends over two landscape character areas including the Rutland Plateaux D(ii) Clay Woodlands (as identified within the Landscape Character Assessment of Rutland (2003)); and the Kesteven Uplands (identified within the South Kesteven Landscape Character Assessment (2007)). The majority of the central and north-western parcels of land within the Site is located within the eastern perturbance of the Rutland Plateaux D(ii) Clay Woodlands, whilst the southern extent of the Site (beyond the Belmesthorpe to Greatford local road), the eastern extent of the Site (south-east of Grange Farm) and a field parcel at the north-western extent of the Site (Barbers Hill) lie within the Kesteven Uplands. Further landscape character areas present within 2km of the Site identified from the local landscape character assessments and addressed within the LVIA include:

- Rutland Plate–u - Gwash Valley (Diii) LCA (Landscape Character Assessment of Rutland 2003; approximately 600m south-west of the solar PV Site)
- Welland Valley LCA (Peterborough City Council Landscape Character Assessment 2007; approximately 1km south of the solar PV Site)
- Nassaburgh Undulating Limestone LCA (Peterborough City Council Landscape Character Assessment 2007; approximately 1.6km south of the solar PV Site)

7.3.7. The settlement pattern includes nucleated built form within towns and villages nestled within the landscape, and isolated farmsteads associated with large scale agricultural land. The village of Essendine, which is situated adjacent to the Site on both sides of the East Coast Main Line, Ryhall, which is located approximately 800m in the west, and the larger conurbation of Stamford, which is located approximately 1km to the south-west of the solar PV Site, are the nearest larger settlements. Further smaller settlements in close proximity to the solar PV Site include Belmesthorpe (located approximately 700m west), Uffington (located approximately 700m south), Greatford (located approximately 850m east), Braceborough (located approximately 300m north-east) and Carlby (located approximately 550m north).

7.3.8. A network of Public Rights of Way (PRoW) traverse the landscape in and around the Site and often terminate at roads limiting connectivity. The Macmillan Way long distance footpath traverses the Site connecting Stamford (south-west of the Site) with Pinchbeck in the north-east and beyond to Boston on the east coast. Along this route, the Macmillan Way skirts the northern edge of Fields 45, 46, 47 and 48 (see Figure 2.2) within the southern area of the Site and continues north-east along a local road (C447) that connects Belmesthorpe with Greatford and bisects the southern and central parcels of the solar PV Site. Views into the Site from along the Macmillan Way, as it passes the Site, are greatly limited by existing vegetation lining the roadsides and field boundaries along the length of this route. Other PRoW, including bridleways (BrAW/1/1 and E169/1) and footpaths (Uffi/5/1, BrAW/9/1, BrAW/7/1 and BrAW/3/1) that route through the Site, afford a mixture of short distance views over individual field compartments that are contained by field boundary vegetation and woodland blocks, and more extensive, longer distance views from more elevated areas over the wider landscape.

Assessment Methodology

7.3.9. The approach to the assessment of landscape and visual effects will consider both impacts to landscape character and visual receptors and will draw upon the established and best practice standards. These include:

- The Guidelines for Landscape and Visual Impact Assessment (3rd Edition) (GLVIA3), Landscape Institute and Institute of Environmental Management and Assessment, 2013;
- An Approach to Landscape Character Assessment, Natural England, 2014: and
- Visual Representation of Development Proposals Technical Guidance Note 06/19, Landscape Institute, 2019.

7.3.10. The LVIA will include an assessment of the effects of the Proposed Development on landscape character. Consideration will also be given to the effects of the Proposed Development on the physical fabric of the Site itself. Reference will be made to the following relevant landscape character and sensitivity assessments:

- National Character Area Profile 75: The Kesteven Uplands, Natural England (2014);
- The Landscape Character Assessment of Rutland, David Tyldesley and Associates (2003);
- South Kesteven Landscape Character Assessment (2007);
- Landscape Sensitivity and Capacity Study Land Around Local Service Centres, RCC (2012), and its Addendum (2017);
- South Kesteven Landscape Sensitivity and Capacity Study (2011); and
- Peterborough Landscape Strategy: Landscape Character Assessment for Peterborough City Council, The Landscape Partnership Ltd (2007).

7.3.11. The framework for the assessment of effects on landscape character will be relevant local landscape character areas as identified within local landscape

character assessments, informed by other sources listed above; relevant policy and guidance documents; and field observations.

Viewpoints and Visual Receptors

7.3.12. A wide variety of visual receptors can reasonably be anticipated to be affected by the Proposed Development. Initial Zone of Theoretical Visibility (ZTV) modelling (Appendix 7.1) and fieldwork have been used to determine which visual receptors are likely to be affected and merit detailed consideration in the assessment effects. In accordance with guidance (GLVIA3), representative, illustrative, and specific viewpoints may be identified to inform the assessment.

7.3.13. It is important to note that the ZTV represents a theoretical model of potential visibility of the Proposed Development, and is based on a computer-generated surface model that does not account for localised features such as small woodland copses, hedgerows or individual trees; and / or small elements of built form. As a result, the extent of actual visibility on the ground will be less than suggested by the ZTV study.

Study Area

7.3.14. It is proposed that a study area defined by a 2km radius from the solar PV Site boundary is used for the purposes of the LVIA. This extent is based on the findings of field survey; preliminary ZTV modelling based on a wider 3km study area, desk-based analysis; and previous experience of similar recent projects of this nature. It is judged that a 2km study area would cover all potential significant landscape and visual effects arising from the Proposed Development and any associated construction and decommissioning works.

7.3.15. The study area includes the settlements of Essendine, Ryhall, Belmesthorpe, and fringes of Stamford, scattered properties as well as recreational routes and PRoW (footpaths, bridleways etc.) and local roads.

Overview of Assessment of Significance

7.3.16. The sensitivity of receptors, magnitude of impact and significance of effect will be determined using both desktop review of published reports and guidance documentation in combination with Site visit assessment and professional judgements, supported by photography and photomontages following the established guidance detailed in GLVIA3.

7.3.17. Due to the location of landscape and visual receptors within or in close proximity to the Proposed Development, landscape and visual receptors to be included within this LVIA include:

- Landscape Receptors:
  - Rutland Landscape Character Areas:
    - Rutland Plateau Clay Woodlands (Dii);
    - Rutland Plateau Gwash Valley (Diii);
  - South Kesteven Landscape Character Areas: Kesteven Uplands;
  - Grade II* Burley House RPG (approximately 1.5km south), (considered as part of landscape value); and
  - Rutland Local Plan designations: Area of Local Landscape Value (Ryhall), and Area of Particularly Attractive Countryside (Pickworth) (No longer official designations but used to inform assessment).
- Visual receptors:
  - Local residents and visitors;
  - Users of Macmillan Way Long Distance Footpath;
  - Users of PRoW;
  - Users of roads and rail; and
  - Workers.

7.3.18. As a consequence of location, distance and/or nature of views, a number of different receptors will be effectively grouped into distinct 'Visual Receptor Groups' and assessed as a group, encompassing all different receptors within, accordingly.

7.3.19. The ZTV, provided at Appendix 7.1, has been modelled on solar panel heights and other built form infrastructure such as inverters/battery containers of 3.5m (maximum), and the substation area adjacent to the existing National Grid Substation modelled at a height of 13m (Figure 3.1, Illustrative layout). The baseline study, Site visit and development of the design (including appreciation of landscape and visual sensitivities) have identified areas within the Site to remain undeveloped in order to minimise potential landscape and visual harm. The ZTV illustrates that the visibility of the Proposed Development would be relatively limited across the study area, with substantially reduced visibility to the east as the landform descends towards Braceborough, Greatford, and Tallington, and south / south-west towards Stamford, primarily as a result of landform combined with intervening vegetation. Potential visibility of the Proposed Development extends north-westwards towards Pickworth; however, this visibility is likely fragmented due to the effects of undulating landform and intervening vegetation, including woodland stands. Potential visibility of the Proposed Development is also likely fragmented from areas to the north of the Site either side of the railway corridor, becoming slightly more visible north-east towards Witham on the Hill. In this area, scattered large woodland stands are characteristic of the landscape and serve to break up views of the Site and screen views from areas beyond.

7.3.20. A preliminary assessment from desk-study and fieldwork indicates that potential landscape character and visual effects would likely be limited to the solar PV Site and its local context up to approximately 500m east and south, and 1km west and 2km north. Areas at greater distances from the

Site in these respective directions are unlikely to experience any notable or perceptible change to their prevailing characteristics, owing to the limited intervisibility of the Proposed Development as a result of intervening vegetation, existing built development and landform.

7.3.21. The representative viewpoints have been selected from publicly accessible locations and generally where the greatest potential effects are anticipated to be experienced. The viewpoint locations represent a wide range of receptors, providing a 'sample' of the potential effects from the locality, with locations purposefully selected to illustrate the range of visual effects; or to specifically ensure the representation of a particularly sensitive receptor.

7.3.22. The Site and location of the proposed viewpoints are shown on the ZTV and Viewpoint Location Plan (Appendix 7.1). In addition to the 14 representative viewpoints, illustrative views will be identified during the assessment process to illustrate and describe particular points made within the assessment. These may include locations outside the study area to illustrate the nature of visibility, if necessary. Additionally, we propose to undertake rendered photomontages for years 1 and 15 of the Proposed Development from Viewpoints 1, 2, 3, 10 and 11 to demonstrate the views from a range of receptor points where the Proposed Development may be seen to understand the potential effects. This is considered proportionate and appropriate to understanding where potential significant landscape and visual effects may occur.

7.3.23. Details of the proposed representative viewpoints are presented in Table 7.1 below and indicated on the ZTV at Appendix 7.1. Please note all views would be subject to micro-siting and confirmation on the ground.

Table 7.1: Proposed Representative Viewpoint Locations

Viewpoint Reference	Representative Receptors	Direction & Distance	Approx. Grid Reference (X,Y)
Viewpoint 1 Stamford/Carlby road junction	Local residents (Carlby) and visitors. Users of local roads and local PRoW	Central North, 200m	505259, 313504
Viewpoint 2 Essendine	Local residents and visitors to Essendine. Users of local roads and local PRoW	Central North, adjacent to Site	505069, 312909
Viewpoint 3 PRoW footpath Carl/1/1	Local residents and visitors to Carlby. Users of local PRoW	Central North, 250m	504944, 313554
Viewpoint 4 Carlby Road	Local residents, visitors and users of local roads and local PRoW and accessible land at Braceborough Great Wood	North, adjacent to Site	506146, 313119
Viewpoint 5 Carlby Road, east	Visitors and users of local roads and local PRoW and	North, adjacent to Site	507082, 312933

Viewpoint Reference	Representative Receptors	Direction & Distance	Approx. Grid Reference (X,Y)
	accessible land at Braceborough Great Wood		
Viewpoint 6 Railway overbridge Bridleway BrAW/1/1	Users of PRoW and railway	Central, adjacent to Site	506021, 311154
Viewpoint 7 Belmesthorpe Grange, Footpath Uffi/5/1	Local residents, visitors and users of local roads and local PRoW	Southwest, adjacent to Site	504709, 309341
Viewpoint 8 Essendine Road,	Local residents and users of local roads	South, adjacent to Site	506316, 309033
Viewpoint 9 Essendine Road,	Local residents and users of local roads	West, adjacent to Site	504554, 311594
Viewpoint 10 PRoW Footpath E/174 Belmesthorpe,	Local residents and users of local PRoW	West, 600m	504434, 309999

Viewpoint Reference	Representative Receptors	Direction & Distance	Approx. Grid Reference (X,Y)
Viewpoint 11 Stamford Road, Essendine	Local residents, visitors to Essendine and users of local roads	Central, 100m	504377, 3122284
Viewpoint 12 Local Road B1176 Bridleway E169	Users of local roads and PRoW	West, adjacent to Site	503235, 312632
Viewpoint 13 Byway E123	Isolated residences, visitors and users of local roads and PRoW	West, Adjacent to Site	501036, 313237
Viewpoint 14 Barberry Hill	Isolated residences, visitors, and users of local roads	North, adjacent to Site	502722, 314169

Supporting Visual Material

7.3.24. The LVIA will include panoramic baseline photographs from representative and illustrative viewpoints that will be illustrated on annotated panels.

7.3.25. It is proposed that five fully rendered photomontage visualisations will be produced to support the LVIA from viewpoints 1, 2, 3, 10, 11.

Potential Effects

7.3.26. The impacts on landscape and visual factors from the Proposed Development are likely to include:

- Change in landscape character from open agricultural land to built form;
- Intrusion of new built structures including fencing;
- Breaks in vegetation where new access routes may be required;
- Loss / interruption of views;
- Screening of existing views;
- Creation of new hedgerows and enhancement of Green Infrastructure (GI) as part of the Proposed Development; and
- Enhancement of existing vegetation and habitats through new planting and management.

7.3.27. Potential impacts on landscape character could include change to the character of the landscape as a consequence of the Proposed Development. The impact would depend on the extent and degree of change to the particular character area in question. Primary mitigation (such as those set out in Table 3.1) to reduce these impacts include retaining and enhancing the existing landscape field structure, incorporating appropriate landscape buffers to minimise harm to existing features, bolstering existing features by improved management, creating new areas of habitat and planting, and breaking up the Proposed Development in the landscape such that it sits more readily within the landscape context. An outline Landscape and Ecological Management Plan (oLEMP) will be submitted as part of the application. The reversible nature of the Proposed Development means that the landscape can be returned to its former agricultural use, should it be decommissioned. The Site lies between and extends over two landscape character areas: Rutland Plateau and the Kesteven Uplands. Both are large landscape character areas where the Proposed Development could affect the character and as such will be assessed in the LVIA chapter of the ES.

7.3.28. Potential impacts on visual receptors include a change from views over countryside to views over new solar farm development. Other receptor groups/features may experience little to no visual impact from the Proposed Development despite their close proximity due to containment by existing established boundary vegetation and relatively low-lying nature of the elements of the Proposed Development. Outside of the Site, views of the Proposed Development may be mitigated by layout design, and locating/offsetting built form away from sensitive boundary receptors. Adverse effects on views may also be reduced by enhanced planting on the Site boundaries and within the Site (along existing internal hedgerows) aiding to screen close views and / or contain views to small areas of Proposed Development. Considered design of internal green infrastructure (including tree belts and woodland blocks) may also mitigate by way of deflecting longer views above and over new built solar farm elements acting to conceal it within the landscape. As shown by the ZTV and confirmed by field study, any views of the Proposed Development beyond 2km of the solar PV Site are greatly limited due to the rolling topography and intervening vegetation. As such, effects on visual receptors considered within this LVIA are limited to those within a 2km radius of the solar PV Site.

7.3.29. Mitigation measures relating to the establishment and management of new and existing planting within and around the Site will be detailed within an accompanying oLEMP, to ensure that the mitigation objectives prescribed are realised throughout the operation of the Proposed Development.

Issues Proposed to be Scoped Out

Designated Landscapes

7.3.30. There are no national landscape designations located within or in close proximity to the Site that would be affected by the Proposed Development

and therefore impacts to national landscape designations as a result of the Proposed Development are scoped out of the EIA.

7.3.31. There are two former local landscape designations outside of the Site but within the 2km study area as identified in the evidence base of 2001 Rutland Local Plan:

1) Area of Particular Attractive Countryside, and;

2) Area of Local Landscape Value.

7.3.32. These designations have not been retained in the adopted Local Development Framework planning policy. However, reference to these local designations is made within current evidence base documents including the 2012 Landscape Sensitivity and Capacity Studies (for Service Centres and Wind Turbines). These documents would be used to aid judgements on sensitivity and value of the local landscape context and inform design development but are not directly assessed. It is also important to note that the nature of solar development is very different in character to wind energy developments which is the basis of assessment for one of these studies.

7.3.33. Due to the gently undulating terrain and intervening vegetation, the Proposed Development has very limited visibility from landscape character areas located over 1km from the Site and as such their character would not be affected and can be scoped out of the assessment.

7.3.34. Given the lack of intervisibility between the Grade II Greatford Hall, located approximately 600m east of the Site, and the Grade II Uffington Park, which is located approximately 650m south of the solar PV Site, these have been excluded from assessment within the LVIA. In this area the Proposed Development has been excluded from easternmost fields.

7.3.35. The Grade II* Burley House RPG is located approximately 1.5km south of the Site at its closest point, but over 2.3km from the proposed built elements (solar arrays) of the Proposed Development. In this area, the Proposed Development has been set back from the Site's protuberance southwards, to allow for a suitable landscape buffer to the Proposed Development in this direction. The Grade II listed Holywell Hall Park RPG (approximately 2.5km north-west of the Solar PV Site) also has very limited visibility and both are therefore scoped out of the EIA.

7.3.36. Visual receptors groups assessed will be limited to those receptors within the 2km study area and maybe reduced further pending further assessment of Zones of Visual Influence (ZVI) based of detailed field study.

7.3.37. Early and continued development of the design has identified potentially affected settlement fringes and residential properties and resultantly, the proposed built solar development footprint has been set back considerably from these boundaries (e.g. around Essendine), providing a sufficient buffer between these receptors and Proposed Development, to avoid the potential risk of 'overwhelming' or 'over-bearing' visual effects to residential properties. As such, residential amenity will not be assessed within this LVIA and is scoped out of the EIA. A Residential Visual Amenity Assessment will be undertaken and submitted as part as a standalone report as part of the DCO application.

Consultation

7.3.38. Engagement with LCC, RCC and SKDC has commenced to agree the assessment methodology, including the location of viewpoints, and photomontages.

7.4. Ecology and Biodiversity

Introduction

7.4.1. This section of the Scoping Report sets out the approach to the Ecology and Biodiversity Assessment and sets out a summary of the baseline surveys undertaken to date, extent of the study area and key reference documents that would inform the assessment of potential effects on designated sites, existing habitats and species onsite.

7.4.2. A suite of detailed surveys has been undertaken for the Site including an extended Phase 1 habitat survey, water vole and otter surveys, badger survey, breeding bird survey, wintering bird surveys and great crested newt (GCN) surveys. Input into the design of the Proposed Development was provided at an early stage and included the retention of the most valuable habitats onsite such as hedgerows and woodland (as set out in Table 3.1), and habitat creation and enhancement measures in areas outside the solar arrays themselves, as illustrated on Figure 3.1.

Baseline Conditions

Desk Study

7.4.3. A desk study was carried out to gather existing records and information on designated sites and protected or otherwise notable[1] species within the local area.

7.4.4. Information on non-statutory designated sites, protected, notable and invasive species within a 2km radius of the Site boundary was obtained

[1] Notable species here include those of national or local conservation interest. Species of national conservation interest are Species of Principal Importance (Section 41 of the NERC Act), those listed in Red Data Lists for England or the UK, red-listed species in *Birds of Conservation Concern* list (Eaton *et al*., 2015), and species designated Nationally Scarce or Nationally Notable. Species of local conservation interest are those for which Leicestershire and Rutland has a Biodiversity Action Plan.

from the Lincolnshire Environmental Records Centre (LRC) and from the Leicestershire and Rutland Environmental Records Centre (LRERC).

7.4.5. The Multi-Agency Geographic Information for the Countryside (MAGIC) database (Defra, 2021; accessed most recently 17th November 2021) and Natural England's designated site information (2021) were also consulted to establish the ecological context of the Site and to search for information on internationally important designated sites up to 10km from the Site, other statutory designated sites within 2km and ponds within 500m of the Site.

7.4.6. Detail of the legal and policy protection afforded to relevant protected and notable species and designated sites is provided in Annex 2 of Appendix 7.2.

Field Survey

7.4.7. The details of the surveys carried out and the baseline conditions identified are set out in the Ecological Baseline report provided at Appendix 7.2.

7.4.8. The baseline for habitats and protected and notable species has been established by carrying out a suite of surveys including: extended Phase 1 habitat survey undertaken on 30th March, 31st March and 29th April 2021, followed by protected species surveys for water vole and otter, breeding birds, wintering birds (ongoing) and great crested newt.

7.4.9. The section below sets out a summary of the baseline conditions.

<u>Designated Sites</u>

7.4.10. Two international designated sites are present within 10km of the Site, the Rutland Water Special Protection Area (SPA) and Ramsar Site, which are located approximately 8.65km to the south-west.

7.4.11. Seven national statutory designated sites are present within 2km of the Site. All of these are Sites of Special Scientific Interest (SSSIs). Tolethorpe Road Verges SSSI comprises the verges along Ryhall Road within the Site. Ryhall Pasture and Little Warren Verges SSSI is directly adjacent to the north west extents of the Site. Newell Wood SSSI is located 340m to the north-west of the Site (see Figure 1 of Appendix 7.2). Great Casterton Road Banks, Tickencote Marsh, Bloody Oaks and East Wood SSSI are all located over 400m from the Site boundary.

7.4.12. A total of 98 non-statutory Local Wildlife Sites (LWS) are present within 2km of the Site. The majority of these are designated for habitats (predominantly hedgerows, grassland and woodland) with many also featuring locally or nationally scarce. These LWS are listed in Annex A of Appendix 7.2 and shown on Figure 1 of Appendix 7.2.

7.4.13. Nine LWSs are located wholly or in part within the Site. . An additional 26 LWSs are directly adjacent to the Site boundary or within 10m (generally separated by a minor road). Most of these LWSs are protected hedgerows of lengths of road verge.

7.4.14. The remaining sites are between 15m and 2km from the Site.

Habitats

7.4.15. The Site consists of a number of fields in an agricultural context with associated hedgerows, ditches, ponds, woodland parcels and tracks and buildings. The results of the Phase 1 habitat surveys are shown on Figure 3 of Appendix 7.2.

7.4.16. The majority of the Site consists of arable farmland, which is largely in intensive agricultural management for cereals, with the majority of field margins measuring less than 1m in width. Many fields are very large (the

largest being over 58ha. The fields support a very low diversity of arable weeds.

7.4.17. The arable fields are of low intrinsic ecological value and are not Habitats of Principal Importance (HPI) as defined by the Natural Environment and Rural Communities (NERC) Act 206 (as amended). The intense nature of the agricultural practice and very limited margins mean they are not considered to be ecologically valuable and are not HPIs.

7.4.18. Areas of improved grassland are present across the Site, predominantly forming margins to arable fields. Improved grassland areas are dominated by perennial rye grass *Lolium perenne* with very few herbs present (predominantly white clover *Trifolium repens* and creeping buttercup *Ranunculus repens*). At the time of the survey, these areas were unmanaged and had relatively long sward (averaging approximately 25cm). This grassland does not meet the description of any HPIs.

7.4.19. Areas of species-poor, semi-improved grassland are also present across the Site, predominantly forming margins to arable fields. These support a slightly higher plant species diversity, and in addition to the species described above, contain grasses such as cock's-foot *Dactylis glomerata*, false oat grass *Arrhenatherum elatius* and red fescue *Festuca rubra*. Herbaceous species include greater plantain Plantago major, broadleaved dock *Rumex obtusifolius*, chickweed *Stellaria media*, dandelion *Taraxacum agg*., groundsel *Senecio vulgaris*, spear thistle *Cirsium vulgare*, yarrow *Achillea millefolium*, ragwort *Jacobaea vulgaris*, and common mouse-ear *Cerastium fontanum* and creeping thistle *Cirsium arvense*. This grassland does not meet the description of any HPIs.

7.4.20. There are multiple parcels of woodland distributed across the Site, some of which are semi-natural broadleaved woodland. These woodlands are dominated by pedunculate oak *Quercus robur* and ash *Fraxinus excelsior*,

but silver birch *Betula pendula*, willow *Salix sp*., hybrid black poplar *Populus x euramericana* and alder *Alnus glutinosa* are present. Most woodland parcels feature a relatively dense understorey, consisting predominantly of hazel *Corylus avellana*, holly *Ilex aquifolium*, elder *Sambucus nigra* and hawthorn *Crataegus monogyna*. The ground flora is relatively diverse, with species including bluebell *Hyacinthoides non-scripta*, ground ivy *Glechoma hederacea*, dog's mercury *Mercurialis perennis*, lords-and-ladies *Arum maculatum*, wood sorrel *Oxalis acetosella*, ragged robin *Silene flos-cuculi*, spurge laurel *Daphne laureola*, wood anemone *Anemone nemorosa* and foxglove *Digitalis purpurea*. Some of these species are ancient woodland indicator species; however, MAGIC does not identify any of the woodlands within the Site as ancient semi-natural woodland. This woodland meets the definition of the Lowland mixed deciduous woodland HPI (Maddock, 2011). Additional woodland, including ancient woodland and replanted ancient woodland, is present outside of the Site, adjacent to the northern, southern and north-western Site boundaries.

7.4.21. There are also parcels of onsite plantation woodland which show clear evidence of recent planting (e.g. presence of tree guards, regular lines of young or semi-mature trees) or have been visibly recently planted based on reviewing older aerial imagery. The majority of plantation woodland is broadleaved, with a mixture of similar native species to the semi-natural woodland. Due to the recent age of the plantations, the understorey layer is poorly developed or absent, and the ground layer is species poor. This woodland does not qualify as an HPI. Approximately 0.2ha of plantation woodland towards the east of the Site is dominated by planted non-native coniferous trees including spruce *Picea sp*. and fir *Abies sp*. This woodland does not qualify as an HPI.

7.4.22. A former railway embankment in the western extent of the Site (designated as the Essendine Dismantled Railway Embankment LWS adjacent to Field

19 as shown on Figure 2.2) features dense mixed scrub of comparative high species richness. Woody species include hawthorn, blackthorn, field maple *Acer campestre*, holly, elder, hazel, cherry *Prunus sp.*, bramble *Rubus fruticosus*, wych elm *Ulmus glabra*, and occasional dog rose *Rosa canina*. The ground flora is diverse with bluebell, dog's mercury, lords and ladies, wood sorrel, and foxglove all present. Other patches of dense scrub are also present across the western half of the Site, these are all species-poor and often dominated by a single species, generally either bramble, hawthorn or blackthorn *Prunus spinosa*. The ground flora within these patches are either non-existent or very sparse and lacking in diversity. This habitat is not a HPI.

7.4.23. Most external boundaries and some internal boundaries of the Site feature native hedgerows. Some species-rich sections are present with over five woody species per 30m section. These include hawthorn, blackthorn, field maple, holly, elder, hazel, cherry, bramble, wych elm, field elm *Ulmus minor* with occasional dog rose. The majority of hedgerows on Site are species-poor, and formed by one to three woody species, usually blackthorn and/or hawthorn. Many hedgerows across the Site feature one or several standard trees, including mature pedunculate oak, beech *Fagus sylvatica*, ash, hybrid black poplar, and various willow species *Salix spp*. The hedgerow bases largely support common species such as lords-and-ladies, dog's mercury, common nettle *Urtica dioica*, cleavers *Galium aparine*, ground-ivy and common hogweed *Heracleum sphondylium*; however, the first two species are indicative of older hedgerows and predominantly only present in the species rich hedgerows. Most hedgerows, particularly in the east of the Site, are intensively managed by cutting and show structural indicators of poor condition (abundant horizontal and vertical gaps), with some hedgerows defunct and/or left to grow out into scrubby treelines. All the hedgerows on Site are considered to meet the description of the Hedgerows HPI.

7.4.24. An analysis of aerial imagery and mapping revealed the presence of 24 ponds onsite or within 500m of the Site boundary. There are nine ponds onsite or on its boundary, with an additional 13 ponds within 500m of the Site boundary (see Figure 2 of Appendix 7.2). Of the nine ponds present within the Site or on its boundary, six held water. The majority of these ponds are situated at the edge of pockets of woodland and are heavily shaded, although most ponds have aquatic and marginal vegetation present. These ponds are described in detail under the 'Amphibians' subheading below. All the ponds onsite holding water have potential to meet the description of the Ponds HPI (Maddock, 2011) based on the presence of aquatic species and water quality parameters.

7.4.25. The West Glen River flows through Fields 20, 21, 24 and 26, as indicated on Figure 2.2. This watercourse features a natural river channel dominated by marginal vegetation, predominantly common reed *Phragmites australis* and bulrush *Typha latifolia*. Emergent/submerged plants are also present in patches, but a detailed survey was not undertaken to identify these down to species level. The banks of the river comprise of a mosaic of species poor semi-improved grassland, semi-improved neutral grassland, scattered scrub and tall ruderal vegetation. The river has the potential to meet the description of the Rivers HPI (Maddock, 2011) based on the presence of aquatic species and water quality and hydrological parameters, although this was not assessed in detail.

7.4.26. A mixture of dry and wet field ditches are present across the Site. These generally did not feature aquatic vegetation, with any vegetation present reflecting the surrounding habitat (generally species-poor grassland field margins as described above). This habitat does not meet the description of any HPIs.

7.4.27. Small pockets of tall ruderal vegetation are present, particularly in the western extent of the Site. These are too small to map and often form transitional areas between other habitat types. Species noted included common nettle, broad-leaved dock and common hogweed. This habitat does not meet the description of any HPIs.

7.4.28. The Site also includes small areas of bare ground (e.g. access tracks), scattered trees and hard standing. There are also several farm buildings present as shown on Figure 3 of Appendix 7.2.

Protected and Notable Species

Bats

7.4.29. All species of bats are European Protected Species (EPS) and seven species are also SPIs and a local BAP species in Lincolnshire, Leicestershire and Rutland.

7.4.30. Numerous records of bats were returned from the LRC and LRERC with at least eight species. Most are relatively common species, though very low numbers of records of barbastelle *Barbastella barbastellus* and whiskered bat *Myotis mystacinus* were also returned.

7.4.31. The three buildings in the eastern part of the Site (B1-B3) (see Figure 3 of Appendix 7.2) are steel-framed structures and do not support potential roost features (PRF) and have negligible suitability for roosting bats.

7.4.32. A total of 163 field and hedgerow trees across the Site were assessed as having at least Low suitability for roosting bats. Additionally, mature patches of woodland onsite are likely to contain further trees with roosting opportunities for bats. The intensively-managed arable fields which make up the majority of the Site are likely to be of Very Low suitability for foraging bats. The woodlands (particularly areas of mature woodland with large trees) have suitability for foraging, as do hedgerows, scrub and lines of

trees, especially where mature trees and other features, such as ponds, are present and the boundary features are reasonably continuous. Small pockets of semi-improved neutral grassland also have moderate suitability for foraging, especially where these are associated with hedgerows or other woody features.

7.4.33. Hedgerows and lines of trees (as well as linear scrub features such as the Essendine Dismantled Railway Embankment LWS) and the West Glen River may also provide important commuting routes for bats, especially where they form continuous corridors across the site or between woodland patches, and/or have wide grassland margins.

Badgers

7.4.34. Numerous records of badgers were returned from the LRC and LRERC.

7.4.35. The intensively-managed arable fields, which make up the majority of the Site are of Low suitability for foraging badgers. However, the woodland, hedgerows, scrub and other woody features have suitability for foraging and sett-building this species, and patches of non-woody, semi-natural habitats such as grassland field margins and tall ruderal vegetation provide additional suitable habitat.

7.4.36. A total of 16 badger setts were located across the Site (see Confidential Appendix 4 and Figure 7 of Appendix 7.2). These are concentrated in the centre, southern and eastern extents of the Site, predominantly in field boundaries, at the edges of woodland and in scrub. Of these badger setts, ten constituted main setts with at least three entrances, and the remainder comprised likely outlier setts with a single, isolated entrance. Badgers are fully protected under the Protection of Badgers Act 1992.

Hazel Dormouse

7.4.37. Hazel dormouse is an EPS and an SPI and local BAP species in Leicestershire and Rutland.

7.4.38. No records of hazel dormouse were returned from LRC and LRERC and the species is rare in Rutland and Lincolnshire. The hedgerows, woodland and scrub onsite are suitable for the species, but due to the extent of gaps and connectivity, only low numbers are likely to be present if they occur onsite.

Water vole

7.4.39. Water voles and their burrows are fully protected under the Wildlife and Countryside Act 1981 (as amended) and are an SPI and a local BAP species in Lincolnshire and Leicestershire and Rutland.

7.4.40. Several records of the species were returned from LRC and LRERC including for the West Glen River, 40m from the Site.

7.4.41. The ditches onsite are unsuitable for water vole with most being dry at the time of the surveys and intensively managed with only narrow margins of short grassland present and an absence of aquatic vegetation. The West Glen River does however provide suitable habitats for the species and evidence of their presence was recorded where it crosses the Site.

Otter

7.4.42. Otter is an EPS and an SPI and a local BAP species in Lincolnshire and Leicestershire and Rutland.

7.4.43. The LRC and LRERC returned 20 records of otter *Lutra lutra*. The closest record of an otter to the Site was an observation approximately 15m north of the Site on the West Glen River, west of Carlby in 2009.

7.4.44. The West Glen River has suitability for this species, with areas of dense cover for holt-building. No evidence of otter was returned from the West Glen River during the water vole survey visits; however, this species may be present along this watercourse.

Other SPI mammals

7.4.45. Records were returned from LRC and LRERC for other notable mammals including brown hare *Lepus europaeus* (41 records), hedgehog *Erinaceus europaeus* (38) and harvest mouse *Micromys minutus* (three).

7.4.46. Brown hare is present onsite with the species being recorded during the breeding bird surveys, with a peak of 17 individuals. The arable land comprising the majority of the Site, as well as smaller parcels of grassland, are suitable habitat for this species. Brown hare is an SPI.

7.4.47. The closest record of a hedgehog returned from the LRC and LRERC to the Site was 30m north, to the east of Braceborough Grange, in 2015. The Site has some suitable habitat for hedgehog in the hedgerows, woodland, and grassland therefore this species may be present on Site. Hedgehog is an SPI.

7.4.48. The records returned from the LRC and LRERC for harvest mouse are over 40 years old. The intensive arable farmland which dominates the Site represents sub-optimal habitat for this species, with the poor semi-improved grassland patches and field margins providing habitat of a higher suitability. No evidence of harvest mouse was detected during the extended Phase 1 habitat survey, although this species is hard to detect and may be present onsite. Harvest mouse is an SPI.

7.4.49. No records of polecat *Mustela putorius* were returned by the LRC or LRERC but this species is reportedly present on the western edge of the Site along

the Drift (information supplied by Tom Tew of Naturespace). This species is an SPI.

7.4.50. A number of other mammals are present within the Site, including several deer species. However, as most species such as muntjac *Muntiacus reevesi*, are non-native and included in Schedule 9 of the Wildlife and Countryside Act 1981 (as amended), they are not an ecological feature which requires further consideration. The native roe deer *Capreolus capreolus* may also be present; however, this is also not included in any lists which would mean the species merits specific further consideration.

Birds

7.4.51. All wild birds, their nests, eggs and young are protected under the Wildlife and Countryside Act 1981 (as amended). There are many species listed as SPIs (discussed as relevant below). Lincolnshire has a group BAP for farmland birds.

7.4.52. A total 1,775 records of birds were returned from the LRC and LRERC. This included records of three Schedule 1 species which have the potential to breed on Site: red kite *Milvus milvus*, kingfisher *Alcedo atthis* and barn owl *Tyto alba*. A further 16 species included in the records, which are SPIs, may also occur within the Site: starling *Sturnus vulgaris*, lapwing *Vanellus vanellus*, skylark *Alauda arvensis*, house sparrow *Passer domesticus*, linnet *Linaria cannabina*, yellowhammer *Emberiza citrinella*,, song thrush *Turdus philomenos*, yellow wagtail *Motacilla flava*, reed bunting *Emberiza schoeniclus*, turtle dove *Streptopelia turtur*, tree sparrow *Passer montanus*, bullfinch *Pyrrhula pyrrhula*, cuckoo *Cuculus canorus*, corn bunting *Emberiza calandra*, lapwing *Vanellus vanellus* and grey partridge *Perdix perdix*.

7.4.53. A total of 48 bird species were recorded during the bird survey as either confirmed or likely breeding onsite. This included a range of ubiquitous SPIs

and those typical of farmland, hedgerows, woodland and scrub habitats. Additionally, species which are typically ground-nesting were also recorded including skylark (58 pairs), lapwing (one pair) and yellow wagtail (two pairs). All three are SPIs.

7.4.54. The Site supports a small number of larger fields, but these are largely in intensive arable use. Therefore, there is potential for wintering species to include species such as lapwing and golden plover *Apicaria pluvialis* as well as very small numbers of ducks. However, given that the larger fields are limited in number and that there are no SPAs for these species in the vicinity (at least 10km), the winter usage of the Site by waders and wildfowl is likely to be very limited.

7.4.55. The surveys being carried out to date have not recorded any golden plover and only one lapwing on one occasion, which flew over the Site only. Only small numbers of passerines such as flocks of skylark and yellowhammer have been observed. One large flock (of approximately 3,000) of starling was observed on one occasion, but this was a mobile flock and not observed on other visits.

Reptiles

7.4.56. All reptiles are fully protected under the Wildlife and Countryside Act 1981 (as amended) and SPIs.

7.4.57. A total of 43 records of three reptile species from within 2km of the Site: common lizard *Zootoca vivipara* (22 records), grass snake *Natrix helveticus* (19) and slow worm *Anguis fragilis* (two). Two records from the LRC and LRERC for common lizard originate from within the Site, one adjacent to an isolated patch of woodland in the eastern extent of the Site in 2020, and one adjacent to a road in the north-western extent of the Site in 1996.

7.4.58. The arable land which dominates the Site is of Very Poor suitability for reptiles but some suitable habitat for reptiles is present onsite, predominantly longer and less-managed grassland forming field margins to arable fields. The riparian vegetation along the banks of the West Glen River are also suitable for grass snake.

Amphibians

7.4.59. A total of 34 records of amphibians were returned from the LRC and LRERC, including ten of GCN and five of common toad *Bufo bufo*. The closest record of a GCN to the Site was located approximately 470m north-east of the Site in Braceborough during 2013. The closest record of a common toad was located approximately 350m from the Site in Essendine during 2000.

7.4.60. Of the nine ponds on or adjacent to the Site, three were found to be dry or absent altogether during the extended Phase 1 habitat survey. The remaining six ponds held water and these, plus two offsite ponds which were immediately adjacent to the Site boundary and accessible from the Site, were surveyed using eDNA. The eDNA surveys of these eight ponds did not return evidence of GCN suggesting they are absent. These ponds were also subject to HSI assessments and were assessed being Poor (five ponds), Below average (one pond), Average (one pond) or Good (one pond).

7.4.61. Ponds 12 and 24 are 430m and 360m respectively from the Site boundary and surrounded by good terrestrial habitat. GCN from these ponds (if present) are unlikely to be using the Site. Ponds 21, 22 and 23 form a small cluster on the far side of a water course with the closest pond (Pond 21) being 230m from the Site and are also surrounded by suitable terrestrial habitat, meaning any newts present are unlikely to then be present on the Site. The remaining nine offsite ponds (Ponds 9, 10, 11, 13, 14, 15, 16, 17,

21, 22 and 23) vary between 50m and 250m from the Site boundary and were not accessed for survey. The pond locations are indicated on Figure 2 of Appendix 7.2.

7.4.62. GCN is an EPS and an SPI, while common toad is an SPI.

Invertebrates

7.4.63. The LRC and LRERC returned 681 records of 47 invertebrate species within 2km of the Site. The Site generally offers habitat of poor or very poor value for invertebrates due to the intensive management of the arable land, and the majority of habitats are unlikely to support any notable populations or assemblages of invertebrates. The more mature woodland areas and veteran trees within field boundary features may support some saproxylic (dead wood-reliant) species, while the aquatic habitats (particularly the West Glen River) may support notable aquatic species.

Plants

7.4.64. The LRC and LRERC returned 1,200 records of 251 plant species within 2km of the Site. This includes a range of notable species which are typical of more diverse grassland such as bee orchid *Ophrys apifera*, man orchid *Orchis anthropophora*, and arable weeds including corn chamomile *Anthemis arvensis*, hound's -tongue *Cynoglossum officinale*, night-flowering catchfly *Silene noctiflora*, sharp-leaved fluellen *Kickxia elatine*, sulphur clover *Trifolium ochroleucon* and venus' looking-glass *Triodanis perfoliata*.

7.4.65. The majority of the Site comprises intensively-managed, species-poor habitats of low or very low value for plant diversity, and is unlikely to support any notable populations or assemblages of plants. The more mature woodland areas, hedgerows and aquatic habitats may support some notable species. The grassland areas onsite are of very low diversity and

unlikely to support notable plant communities. The arable land was not noted to support notable arable weeds during the Phase 1 habitat survey.

Assessment Methodology

7.4.66. The main guidance document used when assessing impacts to ecological features is the Ecological Impact Assessment (EcIA) guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM) in 2016.

7.4.67. The Ecology Baseline Report (Appendix 7.2) sets out the main legislation pertaining to habitats and species which has been considered in identifying potential ecological features for further considerations. These include:

- Environment Act 2021.
- Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance (England).
- The Conservation of Habitats and Species Regulations 2017 (as amended).
- Wildlife and Countryside Act 1981 (as amended)
- Protection of Badgers Act 1992 (as amended).

7.4.68. The Ecology Baseline Report (Appendix 7.2) provides full details of the relevant legislation and planning policy which has been considered in this assessment.

Study Area

7.4.69. With the exception of the wintering birds, where the field surveys were extended to neighbouring large fields to gather contextual information on mobile species, the field surveys carried out to inform the baseline conditions covered the Site. This is due to the contained nature of the Proposed Development and the type of development, which will have a very limited Zone of Influence (ZoI), in so far as ecological impacts are

concerned. Due to the nature of the Proposed Development, wider ranging impacts, such as additional recreational activities which might have a adverse effect on habitats in the wider area, would not occur as a result of the Proposed Development. The desk study; however, included searches for records of protected or notable species and nationally designated and statutory and non-statutory sites within 2km and for internationally important designated site within 10km. This wider search area was used to gather contextual information and is proportionate for the nature and type of development proposed.

Determining the Ecological Significance of Effects

7.4.70. The EcIA Guidelines states that impacts should be determined as having a significant ecological effect when they have an adverse or beneficial impact on the integrity of a defined site or ecosystem and/or the conservation status of habitats or species within a given geographical area. This constitutes the guiding principle in determining whether an effect is ecologically significant, and if so at what level.

7.4.71. An effect is determined to be significant or not, in ecological terms, in relation to the integrity of the defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, which relates to the level at which it has been valued. If an effect is found not to be significant at the highest geographical level at which the resource or feature has been valued, it may be significant at a lower geographical level. By way of example, limited impacts on woodland of county importance might be assessed as being significant at a district level of importance.

7.4.72. The integrity of a protected/designated site is defined in relation to guidance given in connection with EC Habitats Directive 92/43/EEC as the coherence of its ecological structure and function across its whole area that enables it

to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.

7.4.73. The conservation status for habitats is determined by the sum of the influences acting on the habitat and its typical species that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area. The conservation status for species is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

7.4.74. The value of any feature that will be significantly affected at a given geographical level is used to determine the implications, in terms of legislation, policy and/or development control. The 2016 CIEEM guidance states: "*if an ecological resource or feature is likely to experience a significant impact, the consequences in terms of development control, policy guidance and legislation will depend on the level at which it is valued. Significant impacts on features of ecological importance should be mitigated (or compensated for) in accordance with guidance derived from policies applied at the scale relevant to the value of the feature or resource. Any significant impacts remaining after mitigation (the residual impacts), together with an assessment of the likelihood of success in the mitigation, are the factors to be considered against legislation, policy and development control in determining the application*.' The CIEEM guidance also confirms the approach that should be adopted in identifying an appropriate level of mitigation.

7.4.75. Priority should be given to the avoidance of impacts at source, whether through design of a project or by regulating the timing or location of activities. If it is not possible to avoid significant negative impacts, opportunities should be sought to reduce the impacts, ideally to the point

that they are no longer significant. If this is not possible, but the project is permitted, compensation measures may be appropriate. The residual impacts are those impacts that remain after implementation of mitigation and compensation measures. These impacts and an assessment of the likely success of any mitigation measures (using the scale set out above) are also assessed having regard to the geographic frame of reference.

Potential Effects

Statutory Designated Sites

7.4.76. Due to the nature of the Proposed Development, no adverse effects to international or national statutory sites further afield than the Site or its boundary are considered likely; however, accidental damage and other direct or indirect effects may occur to the the Ryhall Pasture and Little Warren Verges SSSI and Tolethorpe Road Verges SSSI, adjacent to the Site. Accidental damage will be avoided by implementing appropriate control measures during the construction stage (tertiary mitigation). These will be secured through an outline Construction Environmental Management Plan (oCEMP) which will set out the locations of these features and the measures proposed for their protection (including appropriate fencing). These measures will include appropriate fencing to prevent accidental direct damage and water pollution control measures. Due to the nature of the Proposed Development, no impacts to the SSSIs are likely to occur as a result of noise or air pollution.

7.4.77. At this stage it is not known whether highway improvements (temporary or permanent) along Ryhall Road will be required and therefore habitat loss and accidental damage to national designated sites during the construction and decommissioning phase is scoped into the EIA, with operational effects scoped out of the EIA. Potential adverse impacts to the integrity of statutory

designated sites through loss of supporting habitat is scoped out of the EIA for all phases.

Non-statutory Designated Sites

7.4.78. A number of non-statutory designated sites (LWSs) are located within or adjacent to the Site. These will be retained and buffered as part of the proposals for the Proposed Development (as part of primary mitigation) and protected during the construction phase to prevent accidental damage through encroachment by vehicles or construction plant (tertiary mitigation). This will be secured through the oCEMP, which will set out the locations of these features and the measures proposed for their protection (including appropriate fencing).

7.4.79. The effects on non-statutory designated sites for the construction and decommissioning phase is therefore scoped into the EIA, with operational effects scoped out of the EIA.

Habitats

7.4.80. All HPIs will be retained within the Site (as set out in Table 3.1), with the exception of breaks for internal access routes and cable corridors where these can't be aligned with existing field gateways. Where appropriate the HPIs will be bolstered with additional planting of diverse habitats to either increase the extent of the HPIs or increase connectivity and structural diversity, such as adding scrub areas with an informal edge adjacent to woodland plots. Therefore, habitat losses will be largely limited to arable land, a habitat of very low intrinsic ecological value.

7.4.81. Measures to not only retain but enhance the overall biodiversity of the Site will be implemented with a habitat creation led approach, aimed at delivering at least overall 10% gain in biodiversity value, a beneficial effect. This will include the creation of diverse wildflower grassland in areas

outside the proposed solar array and seeding of permanent grassland within the array.

Protected Species

7.4.82. The majority of high value habitats will be retained within the Site, including woodlands, scrub, hedgerows and associated grassland margins, ditches and ponds. The assessment of potential impacts set out below has accounted for this primary mitigation. .

7.4.83. The impacts associated with habitat creation are assessed as part of the construction phase, as they result from actions (such as seeding or planting) taken at this time, though in reality these will develop with time, after the planting of the new habitats and enhancement of existing habitats is carried out.

7.4.84. Impacts to protected species during the decommissioning phase would need to be informed by updated surveys. These surveys will be carried out approximately one year prior to decommissioning and the legislation and policy background at that point in time will be used to inform the necessary mitigation to be set out in an appropriate document. These measures will be set out in an outline DEMP.

<u>Bats</u>

7.4.85. As set out in Table 3.1, primary mitigation has been incorporated into the Proposed Development and with the potential exception of small breaks in hedgerows for access tracks and cables, all trees, buildings suitable for roosting bats, hedgerows or other linear features used for commuting or foraging bats will be retained. The lighting scheme will be designed to include lighting which is not continuously lit (primary mitigation). Given the uncertainty with regards to the location of the access tracks and cable routes at this stage, effects on roosting or foraging bats during the

construction and operational phase of the Proposed Development are scoped into the EIA.

7.4.86. The Proposed Development will include a number of habitat creation measures which will deliver a range of benefits for bats, including the provision of much more extensive foraging habitats replacing arable land. Although this will result in a beneficial effect, operational impacts to bats are scoped out of the EIA.

Badgers

7.4.87. The Proposed Development will retain the habitats of highest value as a foraging resource for badgers, such as woodland and hedgerows. The locations of any setts will be considered and either retained with an 30m buffer with construction mitigation measures secured within the oCEMP for any works within the vicinity – (tertiary mitigation) or individual setts will be closed under an appropriate licence (tertiary mitigation). The number of setts to be closed will be limited and priority for retention will be given to the more significant setts, such as main setts. Any small losses in terms of setts are not likely to represent a significant adverse effect at anything but at Site level, but have been scoped into the EIA as a precautionary measure. Updated badger surveys will be carried prior to the start of the construction phase to identify any additional setts present within or adjacent to the construction areas, which will be secured within the oCEMP.

7.4.88. Suitable gaps (indicatively 30 x 30cm) will be incorporated into all stretches of security fencing (primary mitigation). This will also benefit other mammals. The habitat creation and enhancements will likely increase the amount of foraging habitat for badgers, including the extent of permanent grassland (a more favourable habitat for foraging than arable land), resulting in a beneficial effect.

7.4.89. During the operational phase it is unlikely that any impact would arise on badgers and therefore is scoped out of the EIA.

7.4.90. At the decommissioning phase, update surveys would be needed to assess the potential effects of the works on the Site on setts. This is therefore scoped into the EIA.

Water vole and otter

7.4.91. The retention and protection (primary mitigation) of the West Glen River with an appropriate buffer (10m) will ensure that water vole and otter are not subject to adverse effects as a result of the Proposed Development either as a result of habitat loss of degradation during the construction phase. Small scale habitat losses may result from upgrades to existing crossings of the West Glen River. This loss will be minimal, and will be designed to allow continue movement by otter and water vole however construction effects on water vole and otter have been scoped into the EIA as a precautionary measure. Protection measures will be set out in the oCEMP.

7.4.92. No effects on this feature are likely to arise during the operational phase and is therefore scoped out of the EIA.

7.4.93. At the decommissioning phase, update surveys would be needed to assess the potential effects of the works on the Site these species. This is therefore scoped into the EIA.

Hazel Dormice

7.4.94. No records of hazel dormouse were returned and the species is rare in Rutland and Lincolnshire. As the hedgerows, woodland and scrub will be retained and protected from artificial light shed or additional fragmentation, no additional surveys for hazel dormouse are proposed and no adverse effects to this species are likely to occur at a population level. There is an

albeit very low risk that in the absence of mitigation, any small amounts of habitat clearance may result in the injury or death of individual dormice. Therefore, under a non-licensed method statement, a two stage vegetation removal will be implemented as a precautionary measure for any hedgerow, scrub or woodland (tertiary mitigation). This would be set out in the CEMP and will involve a first cut in winter (October to February) and the final removal under the supervision of an experienced ecologist during the active season for dormice (mid-April onwards). Vegetation removal may also be needed at the decommissioning stage. Impacts to hazel dormouse during construction and decommissioning phases of the Proposed development are therefore scoped into the EIA. Impacts to hazel dormouse during construction and decommissioning phases of the Proposed Development are therefore scoped into the EIA

7.4.95. No impacts to hazel dormouse during the operational phase are likely to occur. These are therefore scoped out of the EIA.

Other Mammals

7.4.96. The primary mitigation measures will result in the retention and increase in availability of suitable habitat for hedgehog, brown hare and harvest mouse. The small (indicative 30cm x 30cm) gaps created in the security fencing will continue to provide access to the Site for brown hare and hedgehog, both of which will benefit from the provision of permanent grassland in the place of arable land. The Proposed Development will therefore likely result in a beneficial effect for these species.

7.4.97. Any habitat creation outside the security fencing areas will likely benefit a range of other larger mammals including roe deer.

7.4.98. Impacts to other mammals during the construction and decommissioning phases of the Proposed Development are scoped into the EIA. Due to the

nature of the Proposed Development, no impacts are likely to arise during the operational phase. These are therefore scoped out of the EIA.

Birds

7.4.99. The majority of the breeding bird interest of the Site is currently supported by the habitats of higher value, such as hedgerow, scrub and woodland. As these are to be retained and buffered (primary mitigation) and enhanced by providing higher value supporting habitat such as diverse grassland and additional scrub, the majority of breeding bird species will benefit from the Proposed Development, resulting in a beneficial effect.

7.4.100. It is, however, likely that in the absence of mitigation, there will be a loss of a number of skylark territories, an adverse effect on a SPI. This species is known to continue foraging in operational solar farms but has been shown to not nest in the array areas as these provide visual barriers avoided by the species. The magnitude of the effect will depend on the extent of the proposed solar array within the Site; however, mitigation will be put in place to enhance the value of retained habitats or newly created habitats for the species. Typically, this may include large scale creation of tussocky grassland with a range of sward height and bare patches. Similarly, a very small number of territories of lapwing and yellow wagtail may be lost as a result of the Proposed Development. Mitigation for these species within retained and created habitats will be explored. Impacts to birds during the construction and decommissioning phases of the Proposed Development is therefore proposed to be scoped into the EIA.

7.4.101. In order to avoid the risk of damaging active nests or injuring/killing dependent young, any vegetation removal of hedgerow, scrub or woodland will be done in two stages (tertiary mitigation). This will be set out in the oCEMP and the first cut will be in winter (October to February) and the final removal under the supervision of an experienced ecologist from mid-April.

7.4.102. The oCEMP will also include measures to avoid damaging or destroying nests or injuring or killing dependent young of ground nesting birds (e.g. lapwing, skylark and yellow wagtail). As a precaution, prior to starting construction in area new areas during the nesting season (mid-March to August), an experienced ecologist will carry out a watch of the affected field(s) to determine whether lapwing (or other ground nesting birds) are nesting in the area.

7.4.103. During the operational phase, all habitat management works will be carried out outside the nesting season (tertiary mitigation) and no operational activities have the potential to cause injury or death to breeding birds. The provision of additional fruiting species in scrub areas and seed-baring grasses and wildflowers will provide additional habitat for passerines such as yellowhammer and linnet. Therefore, impacts to birds during the operational phase of the Proposed Development is scoped out of the EIA.

7.4.104. The Site is highly unlikely to support wintering wildfowl or waders in significant numbers, and species listed as the qualifying interest of with the Rutland SPA would not occur within the Site given the habitats present. However, any mitigation or compensation will be informed by an assessment of the results of ongoing surveys and therefore wintering birds are scoped into the EIA as a precautionary measure.

Reptiles

7.4.105. The Site supports very limited amounts or habitats suitable for reptiles. The majority of the suitable habitat will be retained and enhanced (hedgerow bases and woodland margins). In the absence of mitigation, vegetation or ground clearance work on suitable habitat where gaps need to be created or widened has the potential to injure or kill individual reptiles and therefore construction and decommissioning effects are scoped into the EIA. An appropriate method will therefore be used for clearance of any suitable

habitat and set out in a CEMP (tertiary mitigation). This will likely involve a two-stage vegetation removal with a first cut in winter (October to February) and the final removal during the active season for reptiles (mid-April onwards). This would be implemented for any small scale hedgerow, scrub or rough grassland removal/clearance.

7.4.106. Overall, the habitat creation and enhancement measures will likely increase the availability of habitat for reptiles, resulting in a beneficial effect and operational impacts to reptiles are scoped out of the EIA.

Amphibians

7.4.107. The Site supports few terrestrial habitats with the potential to support amphibians and these are proposed to be retained. All ponds are also proposed to be retained and none within the Site, or adjacent to it, were found to support GCN, though common toad may be present.

7.4.108. Further information on the presence or likely absence of GCN from nearby ponds will be needed to ensure that appropriate mitigation is implemented to avoid injury or death to individual GCN. The level of information needed will depend on the nature of the work to be carried out in these areas and therefore potential impacts during the construction and decommissioning phases are scoped into the EIA.

7.4.109. Overall, the Proposed Development will result in the retention of all potential breeding habitat and provide an increase in suitable terrestrial habitat. There is likely to be a beneficial effect as a result of the Proposed Development

7.4.110. with no impacts to amphibians occuring during the operational phase, therefore this is scoped out of the EIA.

Invertebrates

7.4.111. The losses of habitat are limited to habitats of very low value for invertebrates. The Proposed Development includes the creation of areas which are likely to be of higher value for invertebrates than the arable land being lost. Therefore, overall, the Proposed Development will likely result in a small scale beneficial effect on this species group and operational impacts to invertebrates are scoped out of the EIA.

Issues Proposed to be Scoped Out

7.4.112. This section summarises the features being scoped out of the assessment based on the rationale set out above.

7.4.113. The nearest internationally important statutory designated sites identified as part of the desk study work are located approximately 8.65km from the Site. Therefore, no adverse effects to these will occur as a result of the Proposed Development during any phase.

7.4.114. It is highly unlikely that any significant adverse effects will occur indirectly to statutory sites at any phase of the Proposed Development, such as through the loss of supporting habitats for species listed in the ornithological interest of the Rutland Water SPA at the construction phase. This designated site is designated largely for its wintering wildfowl which depend on large expenses of water, which are not found within the Site, therefore the loss of arable land located approximately 8.65 km from the SPA would not result in adverse impacts on its integrity.

7.4.115. During the operational phase of the Proposed Development, no impacts to protected species are likely to occur as:

- The lighting scheme will be designed to avoid artificial lighting on linear features (including hedgerows and water courses), woodland and other

retained or created habitats. This will avoid adverse effects on bats, dormice, otter, water vole, amphibians, birds and other SPIs.

- Onsite operational traffic will be minimal and limited to maintenance vehicle movements at very low intensity, with a negligible risk of accidentally injuring or killing any protected or notable species such as wild mammals, amphibians, reptiles or birds.
- No regular presence or work is envisaged onsite leading to disturbance of retained or created habitats.

Consultation

7.4.116. The consultation process to be undertaken will involve consultation with the Ecology Officers for Leicestershire, Rutland and Lincolnshire County Councils. Non-statutory consultees such as the Wildlife Trusts will also be approached. These stakeholders will be provided with the summary of the baseline of ecological conditions, the general proposals and the principals which will be used for the detailed design of the Proposed Development.

7.5. Access and Highways

Introduction

7.5.1. This section of the Scoping Report sets out the approach to the Access and Highways Assessment and sets out a summary of the baseline surveys undertaken to date, extent of the study area and key reference documents that would inform the assessment of potential impacts of the Proposed Development upon the transport network. This section sets out the proposed approach that will be taken in the assessment to determine the significant effects of the construction, operational and decommissioning phases of the Proposed Development.

7.5.2. This section will also detail how the significant effects will be mitigated through the implementation of suitable mitigation measures to ultimately

determine whether the proposals are acceptable in environmental terms, with respect to access and highways.

Baseline Conditions

Highway Network

7.5.3. At present, details are not yet confirmed on where precisely the solar arrays will arrive from, with it likely being one of the many ports within the United Kingdom. On that basis, an initial feasibility exercise has been undertaken to determine potential access routes along the Local Road Network (LRN) to the Site from the Strategic Road Network (SRN), as described in Paragraph 2.3.2 of this Scoping Report.

7.5.4. The SRN relevant to the Site includes the A1 to the west of the Site and the A47 to the south of the Site that passes through Peterborough. The LRN includes the roads referenced along Routes 1 to 3 as referenced within Paragraph 3.4.3 of this Scoping Report.

7.5.5. It is acknowledged that due to the rural nature of the surrounding area, a number of the local roads are subject to weight restrictions (primarily <7.5t) allowing for access only by vehicles below this weight limit.

7.5.6. A plan summarising the extent of Routes 1 to 3, as well as presenting the surrounding vehicular weight limit restrictions, is provided within Figure 7.1.

7.5.7. A review of the existing Department for Transport (DfT) static counts has been undertaken along Routes 1 to 3, to identify where there are already baseline Annual Average Daily Total (AADT) traffic flows within the area,

which also provide an indication of the existing proportions of any Heavy Goods Vehicles (HGVs) along the routes where DfT count data is available.

7.5.8. Where “gaps” have been identified in the existing DfT static counts along the potential routes from the SRN to the Site, a number of Automatic Traffic Counter (ATC) surveys were undertaken, which recorded seven day 24-hour traffic flows, speeds and vehicle classifications across the LRN. The surveys were undertaken the week commencing on the 11th of October 2021, which was identified as a suitable period for the surveys to take place as it was within a 'traffic neutral' month and was outside of any half term periods, as per the DfT Transport Analysis Guidance (TAG) UNIT M1.2.

7.5.9. The identified DfT counts are from 2020 and where AADT flows only were provided, the hourly flows have been factored based on nearby ATC counts. Where DfT counts are located in close proximity to ATC static counts (locations 15, 18, and 20), only the ATC counts are identified as they are considered to be more accurate and up-to-date.

7.5.10. The locations of the DfT counts and ATC counts on the respective links are identified within Figure 7.2 to Figure 7.4, with the full ATC data included at Appendix 7.3.

7.5.11. Table 7.3 summarises the baseline traffic flows.

Table 7.3: Baseline Traffic Flows

Route	Link	Name	Source	AM		PM		Daily	
				Total	HGVs	Total	HGVs	Total	HGVs
1	1	A6121 Bourne Road	ATC	885	64	821	49	8,054	660
	2	A6121 Stamford Road	ATC	963	86	899	57	8,886	892
	3	A6121 Turnpike Road	ATC	952	77	884	50	8,800	790

Route	Link	Name	Source	AM		PM		Daily	
				Total	HGVs	Total	HGVs	Total	HGVs
	4	Ryhall Road East	ATC	442	50	449	37	3,937	528
	5	Ryhall Road West	ATC	568	49	515	33	4,525	498
	6	B1081 Old Great North Road	ATC	590	59	549	37	5,621	608
2	1	A6121 Bourne Road	ATC	885	64	821	49	8,054	660
	2	A6121 Stamford Road	ATC	963	86	899	57	8,886	892
	3	A6121 Turnpike Road	ATC	952	77	884	50	8,800	790
	7	A6121 Ryhall Road (bridge)	ATC	823	58	626	26	7,071	470
	8	A6121 Ryhall Road	DfT	871	10	663	4	7,482	81
	9	Uffington Road	DfT	616	17	525	9	6,197	173
	10	A1175 Main Road	ATC	1,095	101	934	56	11,026	1,028
	11	A1175 Stamford Road	DfT	554	15	473	9	5,583	156
	12	A15 (south of A1175)	DfT	1,089	90	1,056	47	12,217	1,060
	13	A15 (west of Peterborough)	DfT	1,018	83	1,015	43	11,569	971
3	1	A6121 Bourne Road	ATC	885	64	821	49	8,054	660
	14	A6121 Stamford Road (Carlby)	ATC	793	73	758	45	7,244	691
	16	A6121 Stamford Road (Toft)	ATC	782	80	752	52	7,400	745
	17	Raymond Mays Way	ATC	898	83	805	36	8,729	836
	19	A15 (Northorpe Main Road)	ATC	1,508	165	1,449	84	16,839	1,928

Route	Link	Name	Source	AM		PM		Daily	
				Total	HGVs	Total	HGVs	Total	HGVs
	12	A15 (south of A1175)	DfT	1,089	90	1,056	47	12,217	1,060
	13	A15 (west of Peterborough)	DfT	1,018	83	1,015	43	11,569	971

7.5.12. Personal injury collision data will be obtained from the local highway authorities for the extent of the construction access routes to determine whether there are any existing collision trends or highway safety issues on the local network that could be exacerbated by the Proposed Development.

7.5.13. To further inform the suitability of the identified routes, Ordnance Survey (OS) 'Mastermap' data has been obtained and topographical survey data is being obtained to refine the swept path analysis of the proposed access routes for the anticipated vehicles. Further details on this analysis, including an overview of the different types of vehicles expected, will be provided within the ES.

7.5.14. The scope of the baseline data will be discussed further with the relevant key stakeholders, including National Highways, RCC and LCC, to determine whether additional baseline data is required.

<u>Walking, Cycling and Equestrian Network</u>

7.5.15. Due to the rural nature of the Proposed Development, there is a limited provision of footways alongside the carriageways of the roads in the vicinity of the Site. However, there are footways that runs along the northern and southern kerbline of the A6121 through Essendine, the southern kerbline

through Ryhall and the northern and southern kerbline of Ryhall Road through Great Casterton.

7.5.16. There are also a number of PRoWs that pass either through the Site or alongside the boundaries between the parcels, as outlined within Paragraphs 2.3.3 of the Scoping Report.

7.5.17. There are no on- or off-road cycling facilities within the vicinity of the Site boundary; however, the surrounding roads are generally lightly trafficked and therefore would not deter cyclists.

7.5.18. With respect to equestrians, there are two bridleways within close proximity to the Site. PRoW bridleway BrAW/1/1 crosses the eastern extent of the solar PV Site north-south, whilst PRoW bridleway E169/1 routes through the north-western extent of the solar PV Site between the A6121 and B1176 in a general north-west to south-east alignment.

7.5.19. The details and usage of the existing pedestrian, cycling and equestrian facilities, including PRoW, will be reviewed within the supporting Transport Assessment to determine whether full or temporary mitigation of these routes is required, as well as also being presented within the ES.

Assessment Methodology

Planning Policy and Guidance

7.5.20. With specific reference to Access and Highways, the following policies are to be considered.

- Overarching NPS for Energy (EN-1), adopted by the DECC in July 2011, with reference made to paragraphs 5.13.3 to 5.13.5, which state that if a project is likely to have significant transport implications, a Transport Assessment, Travel Plan and additional transport infrastructure should be provided to mitigate the impacts of the project.

- Emerging Draft Overarching NPS EN-1 (2021), specifically paragraph 4.28.2, states that "*If a project is likely to have significant transport implications, the applicant's ES should include a transport assessment, using the NATA/WebTAG methodology stipulated in DfT guidance, or any successor to such methodology*". Applicants should consult the National Highways and Highways Authorities as appropriate on the assessment and mitigation.
- National Planning Policy Framework (NPPF), adopted 20th July 2021, which states in paragraph 113 that "*All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed*."

7.5.21. The local planning policy relevant to the Proposed Development is identified within Section 5.7 of this Scoping Report.

7.5.22. In addition to the relevant Access and Highways policy, the following guidance documents will be referred to within the assessment:

- Guidelines for the Environmental Assessment of Road Traffic, produced by the Institute of Environmental Assessment (now the Institute of Environmental Management and Assessment (IEMA) 1993).

Assessment Process

7.5.23. The ES will describe and assess the potential impacts associated with any improvements or changes to the network which are either required to facilitate construction of the Proposed Development or are required for restoration purpose on completion of the works.

7.5.24. The nature of the Proposed Development is such that the greatest impact is likely to occur during the construction phase, with this being the focus of the assessment of transport effects presented in the ES. Specifically, the assessment will focus upon the peak construction phase where the impact will be the greatest in terms of both construction vehicles and construction staff being required. The details of the peak construction phase will be clearly presented within the ES once further details are available.

7.5.25. With respect to the decommissioning phase, the effects are often similar to, or of a lesser magnitude than the effects generated during the construction phase. However, there can be a high degree of uncertainty regarding decommissioning as engineering approaches and technologies evolve over the operational life of the Proposed Development meaning that future traffic flows cannot be accurately fixed to a future point in time.

7.5.26. As the construction period is considered to have the greatest change on the surrounding transport network, only the construction phase will be assessed. The effect of the decommissioning phase is anticipated to be the same or less than the construction phase and therefore not be assessed, as the construction assessment already presents a more robust, worst-case assessment. Nonetheless, mitigation for the decommissioning phase will be provided in the form of a Decommissioning Transport Management Plan (DTMP), which will be prepared and agreed with relevant stakeholders prior to commencement of decommissioning.

7.5.27. The assessment will be undertaken primarily through a desktop based assessment, which will be supported by a series of Site visits that will be utilised to validate the findings of any construction routing or abnormal load assessments that may be required.

7.5.28. The methodology utilised within the assessment and stages followed can be summarised as follows:

- Initial consultation with the relevant highway authorities and emergency services (National Highways, RCC, LCC, Lincolnshire Police, Rutland Police, etc.);
- Procure and process baseline traffic data, including DfT static counts and 2021 ATC data, arranging additional surveys where necessary in collaboration with key stakeholders and consultees;
- Vehicle route feasibility assessments will be undertaken for both construction vehicles and construction staff, including detailed observations of each of the proposed route options and identifying any

sensitive receptors or constraints along the length of the route. It is considered that the main route assessments will primarily comprise the LRN from the SRN to the Site. However, a high level assessment of the potential impact on the SRN will be provided once further details are known on the size of the Proposed Development and associated construction requirements.

- DfT TEMPRO Growth Factors will be used in order to develop and assess future construction years, with an emphasis placed on assessing the peak year, the details of which will be set out within the ES.
- In consultation with the relevant stakeholders, route options would be explored and developed further to determine the feasibility of each route and whether they are acceptable or require further refinement.
- An initial assessment of traffic generation from the Proposed Development on the LRN, including construction routes between the different areas of the Site, will be undertaken as well as an initial assessment of effects.
- Once this traffic assessment is complete, the assessment will be refined to reflect any changes in the design of the Proposed Development or consultation feedback, followed by an additional assessment of the effects. At this stage, the requirement for additional surveys or localised assessments, including junction capacity modelling, will be determined.
- Following the outcomes of the additional assessments to identify the residual impacts, there will be further consultation with the key stakeholders, consultees and residents to discuss the findings.
- A series of mitigation measures will be developed, as appropriate, to mitigate any residual impacts or concerns raised during consultation.
- The assessment will be further refined to reflect this consultation feedback, with appropriate changes made to the assessment, as well as consideration of the cumulative effects of other developments within the area.
- Prior to the application, only the suitable access routes that have been agreed will be put forward for use during the construction and decommissioning phases.

Study Area

7.5.29. The study area within the Access and Highways assessment has been identified as the extent of the LRN from the SRN to the Site that is required to facilitate traffic movements associated with the construction phase of the

Proposed Development, as well as any improvements or changes required to facilitate construction traffic and works required for restoration purposes.

7.5.30. Three potential access routes have been identified for assessment as part of the initial assessment process, as discussed in Paragraph 3.4.3 of this Scoping Report, with the final details of these route options to be confirmed through further consideration once details are available which will be clearly set out within the ES.

7.5.31. As a minimum, it is anticipated that the following key junctions will require consideration:

Route 1

- A1 Great Northern Road / Grantham Lane priority junctions (including A1 slip road onto B1081);
- B1081 / Ryhall Road crossroads junctions; and
- Ryhall Road / B1176 / A6121 priority junctions.

Route 2

- A1175 Uffington Road / A6121 mini-roundabout junction.

Route 3

- A151 West Road / A6121 priority junction.

7.5.32. The scope of the assessment, as well as the requirement for any detailed junction capacity modelling, will be agreed with the relevant authorities prior to the submission of the application.

Assessment Scenarios

7.5.33. The following assessment scenarios will be considered:

- Baseline (2021) - AM, PM and Daily;
- Peak Construction Year (without Proposed Development traffic) - AM, PM and Daily; and

- Peak Construction Year (with Proposed Development traffic) - AM, PM and Daily.

7.5.34. The peak construction year is to be confirmed and presented within the ES once the final layout and size of the Proposed Development is fixed.

Overview of Assessment of Significance

7.5.35. In terms of the surrounding transport network, the sensitivity to change in traffic levels of any given link or junction is generally assessed by considering the residual capacity of the network under existing conditions, whilst also considering the future years and any cumulative assessments applicable to the proposals. Where there is a high degree of residual capacity, the network may readily accept and absorb an increase in traffic, and therefore the sensitivity may be low and any subsequent changes may be insignificant.

7.5.36. Conversely, where the traffic levels are high compared to the road capacity or there are sensitive receptors within the area, the sensitivity to any change in traffic levels would likely be high.

7.5.37. The determination of the magnitude of the effects will be undertaken by reviewing the outline proposals for the Proposed Development, establishing the parameters of the associated traffic that may cause an effect and then quantifying these effects.

7.5.38. The significance of the predicted increase in traffic levels caused by the Proposed Development will be assessed against the thresholds defined in the IEMA guidelines.

7.5.39. The IEMA Guidelines for the Environmental Assessment of Road Traffic identifies two broad rules-of-thumb which could be used as a screening process to determine the scale and extent of assessment. These rules are summarised as follows:

- Rule 1 – include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%).
- Rule 2 – include any other specifically sensitive areas where traffic flows have increased by 10% or more.

7.5.40. Any links within the study area that fall below these thresholds will be scoped out of the assessment, unless specifically requested to be incorporated by key stakeholders or the local Highway Authorities.

7.5.41. The majority of traffic associated with the Proposed Development will occur only during construction/decommissioning and will therefore be temporary, which will also be taken into consideration, as there will likely be a negligible amount associated with the operational phase.

7.5.42. The key sensitive receptors to be considered along each route are as follows:

Route 1

- Great Casterton Primary School and Great Casterton College users;
- Children, elderly and disabled people of Great Casterton, as well as users of the nearby PRoWs;
- Other non-motorised users along the A6121 and surrounding PRoWs, including pedestrians, cyclists, equestrians; and
- Residential properties fronting the A6121.

Route 2

- A1175 (Main Road) Level Crossing;
- Children, elderly and disabled people along the Route, as well as users of the nearby PRoWs;
- Non-motorised users along the Route and nearby PRoW, including pedestrians, cyclists, equestrians; and
- Residential properties fronting the A6121.

Route 3

- Children, elderly and disabled people along the Route, as well as users of the nearby PRoWs;

- Non-motorised users along the Route and nearby PRoW, including pedestrians, cyclists, equestrians; and
- Users of the villages of Toft, Carlby and Essendine; and
- Residential properties fronting the A6121.

7.5.43. The nearby SSSIs and LWSs, are also identified as sensitive receptors applicable to all routes.

Potential Effects

7.5.44. The potential effects to be assessed during the construction phase of the Proposed Development on those links that exceed the thresholds set out at paragraph 7.5.39 are as follows:

- Severance;
- Driver Delay;
- Pedestrian Delay;
- Pedestrian and Cyclist Amenity;
- Fear and Intimidation;
- Accidents and Road Safety; and
- Hazardous Loads.

7.5.45. **Severance** is defined in the IEMA (formerly the IEA) 1993 guidelines as the "*perceived division that can occur with a community when it becomes separated by a major traffic artery*". The IEMA guidelines suggest changes in traffic flow or HGV flow by 30%, 60% or 90% can be considered as having a low, medium or high impact respectively on severance.

7.5.46. **Driver Delay** will be determined through the analysis of any junction capacity assessments and or link assessments, contained within the Transport Assessment, which will be measured in terms of change in delay per vehicle (in seconds) from the baseline situation. This criterion is considered to be applicable to all modes of transport using the public highway, namely cars, motorcycles, pedal cycles and buses. The IEMA

guidelines suggest that a change of less than 30 seconds, between 30-60, 60-90 seconds and more than 90 seconds represents a respective negligible, low, medium and high change.

7.5.47. In relation to **Pedestrian Delay**, the 1993 IEMA guidance does refer to a lower threshold of 10 seconds delay and upper threshold of 40 seconds delay, which for a link with no crossing facilities equates to a lower threshold of approximately 1,400 vehicles per hour. However, as the links within the study area vary considerably and do include crossings, it is proposed to undertake and utilise professional judgement to assess the impact of the Proposed Development on pedestrian delay, which will be based on the respective changes in traffic flows on each link.

7.5.48. The 1993 IEMA guidance states that **Pedestrian and Cycle Amenity** is broadly defined as "*the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic*". The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow is halved or doubled which would lead to a high impact. A change of less than a quarter would represent a low impact and a change by more than a quarter would represent a medium impact.

7.5.49. **Fear and Intimidation** is acknowledged within the 1993 IEMA guidance, stating: "*A further impact that traffic may have on pedestrians is fear and intimidation. The impact of this is dependent on the volume of traffic, its HGV composition, its proximity to people or lack of protection caused by such factors as narrow pavement widths*." The guidelines state that there are no commonly agreed thresholds for estimating the levels of Fear and Intimidation; however, that a table presenting tentative percentage change thresholds can be utilised. It is proposed to utilise the same thresholds as

within the assessment of Severance, with changes in traffic flow or HGV flow by 30%, 60% or 90% considered as having a low, medium or high impact.

7.5.50. A detailed assessment of **Accidents and Safety** will be carried out by examination of road traffic accident data for the most recent five year period available. The 1993 IEMA guidance states that professional judgement should be applied to assess the implications of local circumstances and any existing accident clusters, that could be exacerbated by the Proposed Development.

7.5.51. With respect to **Hazardous and Dangerous Loads**, the 1993 IEMA guidance states that the assessment should "*include a risk or catastrophe analysis to illustrate the potential for an accident to happen and the likely effect of such an event*." The guidance references any highway features that would pose a risk to any loads being transported, above the typical levels of risk that would generally be expected by utilising the highway network.

Mitigation

7.5.52. In relation to mitigation, at this stage it is considered that this will primarily be through the development and implementation of an oCTMP, that will detail suitable mitigation measures to help reduce the impacts of construction.

7.5.53. The ability to predict traffic data / flows for a decommissioning phase is very unpredictable, therefore a DTMP will be prepared and agreed with stakeholders prior to the commencement of decommissioning to assess, and where necessary mitigate, the impacts of the decommissioning phase.

7.5.54. The local highway authority and other key local stakeholders will be involved in the development of the mitigation documents, with consultation

taking place on any measures that are proposed to be implemented to mitigate any potential effects.

Issues Proposed to be Scoped Out

Alternative Modes of Construction Access

7.5.55. Due to the financial viability implications of implementing alternative modes of transport to the Site for construction materials, such as a new means of rail access, at this stage this is considered to be unfeasible. As such, only access by road for construction vehicles will be considered within the EIA.

Hazardous or Dangerous Loads

7.5.56. With respect to hazardous and dangerous loads, analysis of the road network within the study area indicates that there are no particular features, such as significant vertical drops immediately beyond the carriageway, which would suggest that the transfer of materials poses a particular risk beyond that which would be expected on the general highway network. It is therefore proposed to scope an assessment of hazardous and dangerous loads out of the assessment. The oCEMP and/or oCTMP will explain the measures employed to ensure safe vehicular transport of components such as panels and batteries to and from the solar PV Site.

Operational Phase

7.5.57. During the operational phase of the Proposed Development, it is envisaged that the volume of traffic associated with the operational scheme would be so low as to be considered negligible, with only occasional visits needing to be made to the Site for routine maintenance and servicing purposes.

7.5.58. The vehicles used for these visits are likely to be a four wheel drive off-road car, a van for monitoring and maintenance checks or there may on occasion

the need for a HGV to access the Site to deliver replacement parts. However, this would be on an ad-hoc basis and would not be required every day.

7.5.59. As a result, it is considered that the significance of the environmental effects of the operational phase of the Proposed Development would be negligible with respect to access and highways and therefore a detailed assessment of the operational phase of the Proposed Development is proposed to be scoped out of the EIA.

Decommissioning

7.5.60. With respect to a decommissioning phase, it is anticipated to be either the same or less intensive than the construction phase, with the peak in construction phase activity likely to result in the greatest impact on the surrounding transport network. Due to the uncertainty of timescales for decommissioning, as well as uncertainties in engineering techniques at that time, it is not considered possible to generate future baseline traffic flows that would be representative of future conditions.

7.5.61. Therefore, it is assumed the effect of the decommissioning phase is less significant than the construction phase and will therefore not be required to be assessed, as the construction assessment already presents a more robust, worst-case assessment. Nonetheless, mitigation for a decommissioning phase will be provided in the form of a DTMP.

Consultation

7.5.62. As part of the Stage 1 Consultation relating to access and Highways, the following consultation has initially been undertaken:

- Lincolnshire County Council (LCC): The Traffic Survey Specification Technical Note was issued to LCC on the 12th of October 2021, which was followed by an initial scoping meeting that took place on the 15th of

October 2021. LCC requested further details of the predicted levels of traffic to be generated, once these details are available.

- Rutland County Council (RCC): The Traffic Survey Specification Technical Note was issued to RCC on the 12th of October 2021, with an initial response received via email on 19th October 2021. RCC requested further details of the predicted levels of traffic to be generated, once these details are available.
- National Highways (NH): The Traffic Survey Specification Technical Note was issued to NH on the 12th of October 2021, with a response received via email on 28th October 2021. It is noted that NH acknowledged that the baseline 2021 ATC surveys undertaken complied with the DfT TAG UNIT M1.2 requirements

7.5.63. Additional consultation will be undertaken with the key stakeholders noted above once further details are available on the construction, operational and decommissioning requirements of the Proposed Development, which will be agreed prior to the submission of the application. This will likely also include, but not be limited to, other neighbouring authorities including Peterborough City Council (PCC) and Northamptonshire County Council (NCC).

7.6. Noise and Vibration

Introduction

7.6.1. This section of the Scoping Report sets out the approach to the Noise and Vibration Assessment and sets out a summary of the baseline surveys undertaken to date, extent of the study area and key reference documents that would inform the assessment of potential noise and vibration impacts. During construction and decommissioning, noise and vibration could arise from both onsite activities, such as the construction of onsite access tracks, solar panels and the substation and associated infrastructure. The

movement of construction traffic, both onsite and travelling on public roads, to and from the Site also represents a potential source for consideration.

7.6.2. During the operation of the Proposed Development, the main potential source of noise would be associated with electrical and mechanical plant, both the equipment located within the individual solar arrays and that proposed at the substation area. Operation of the Proposed Development will also require light vehicle traffic for maintenance purposes and ad-hoc deliveries by a HGV.

Baseline Conditions

7.6.3. Following desktop review, the Site is in a rural area of generally low population density, except for individual settlement such as Essendine and Carlby to the north and Ryhall to the south. Potential noise-sensitive dwellings are located within these settlements or as more isolated properties or farms. The nearest identified noise-sensitive receptors to the Proposed Development (and approximate distances from the Site Boundary) are summarised below:

- Properties in towns and settlements closest to the Site: Essendine, Aunby, Carlby, Ryhall (including Ryhall Farm/Grange & Cottage), Belmesthorpe (including Wood Farm/Cottages and Folly Farm), Braceborough (including Braceborough Grange/Lodge and Grange Farm Cottage) and Uffington (including Grange Farm);
- Farms between Aunby and Clay Hill (Lodge Farm, Barbers Mill House, Heath Farm/House/Cottage & Vale Farm);
- Properties along the A6121 (Essendine, Stamford and Bourne Road);
- Farms near railway tracks (Banthorpe & Glen Lodges and North Lodge Farm); and
- Park Farm.

7.6.4. The location of the properties identified in relation to the solar PV Site boundary are illustrated in Appendix 7.4.

7.6.5. For properties located along the A6121 or in more populated settlements, traffic noise will influence the noise environment. Noise from trains using the East Coast Mainline will also be audible when passing, although this will generally be for short, intermittent periods. Locally, noise from commercial sources will be an influence in areas such as the business area located south of Essendine. In other cases, the background noise environment will be influenced by natural sources such as wind-disturbed vegetation and birds as well as localised activities such as farming operations.

7.6.6. A baseline noise survey, in line with British Standard (BS) 4142 (see below) has been undertaken in January 2022 to characterise the noise environment in further detail in consultation with the local planning authorities as detailed below.

Assessment Methodology

Legislation, Policy and Guidance

7.6.7. The Environmental Protection Act 1990 (Her Majesty's Stationery Office, HMSO, 1990) defines the powers for local authorities to investigate and control statutory nuisance from noise. Local authorities also have powers under the Control of Pollution Act 1974 (HMSO, 1974) to control noise and vibration from construction activities. Notwithstanding these powers, the aim of the planning system is to minimise and control where required construction and operational noise levels from

7.6.8. The Overarching National Policy Statement for Energy (EN-1) (2011) and 2021 Draft EN-1 both recognises that noise and vibration from energy development can have impacts on the quality of human life as well as on wildlife in some cases. These documents outline general principles for the control and management of these impacts and relevant factors and standards to consider but do not provide specific guidance.

7.6.9. The 2021 Draft National Policy Statement for Renewable Energy Infrastructure (EN-3) specifically considers solar photovoltaic generation and includes construction (including traffic and transport noise and vibration) as a specific factor to consider. The accompanying text does not however identify specific impacts related to noise (aside from the volume of traffic potentially associated with construction activities).

7.6.10. The Noise Policy Statement for England (NPSE), published by the Department for Environment, Food and Rural Affairs (Defra) (2010) and National Planning Policy Framework (NPPF) (2021) include general planning guidance on noise and introduces the principles of adverse noise effects (which should be mitigated and reduced to a minimum) and significant adverse noise effects (which should be avoided). The NPPF also notes that tranquil areas which have remained relatively undisturbed by noise and which are prized for their recreational and amenity value should be identified and protected.

7.6.11. The online National Planning Practice Guidance (NPPG) (Department for Communities and Local Government, 2014, updated 2019) (now the Department for Levelling Up, Housing and Communities) provides more detailed information on the relevance of noise to the planning process and on defining effect thresholds, although these are not precisely defined and need to be considered on a case-by-case basis.

7.6.12. Professional Practice Guidance on Planning and Noise (ProPG) published by the Association of Noise Consultants, Institute of Acoustics, Chartered Institute of Environmental Health (2017) provides practitioners guidance on a recommended approach to the management of noise in the context of the planning system. Although the guidance is focussed on new residential

development, it encourages good acoustic design processes and highlights the importance of considering noise as an early part of development design.

7.6.13. Several local policies highlight the need for considering sources of pollution (including noise) from local developments, and minimise or avoid significant impacts in this regard: Policy SD1 (The Principles of Sustainable Development) and DE1 (Promoting Good Quality Design) and ENV4 (Pollution Control) of the SKDC Local Plan 2011-2036; and Policy CS19 (Promoting Good design) of the RCC Adopted Local Plan (2011).

7.6.14. Other policies specifically consider low-carbon/renewable energy generation sources and the need for these developments to consider effects on residential amenity including noise: Solar Energy Criterion 5 in Appendix 3 of the SKDC Local Plan 2011-2036 (Renewable Energy Appendix); and Policy CS20 (Energy efficiency and low carbon energy generation) in the RCC Adopted Local Plan (2011).

7.6.15. British Standard (BS) 5228 Parts 1 and 2 ‘Code of practice for noise and vibration control on construction and open sites’ (British Standards Institution (BSI), 2009, amended 2014) provide guidance on a range of considerations relating to construction noise and vibration including general control measures, estimating likely levels and example criteria.

7.6.16. The Design Manual for Roads and Bridges (DMRB, Highways England, 2019) provides a methodology for assessing the impacts of noise and vibration associated with road traffic, both on a long- and short-term basis.

7.6.17. BS 4142 ‘Methods for Rating and Assessing Industrial and Commercial Sound’ (BSI, 2014, amended 2019) provides an objective method for rating the likelihood of complaint from industrial and commercial operations. It also describes the means of determining noise levels from fixed plant installations and determining the background noise levels that prevail on a

site. Current Government advice to local planning authorities in England refers to BS 4142 as being the appropriate guidance for assessing commercial operations and fixed building services plant noise. The standard also provides guidance on undertaking baseline noise surveys including consideration of suitable equipment, weather condition and other factors such that this survey can be representative of the noise climate generally experienced by the residential receptors considered.

7.6.18. Operational noise and its propagation will be modelled using the standard methodology set out in International Organisation for Standardisation (ISO) 9613-2 ‘Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation' (1996).

7.6.19. In summary, potentially significant effects during construction, operation and decomissioning of the Proposed Development can be assessed using relevant guidance in British Standards and other guidance documents, minimised and controlled using different mitigation measures, where relevant.

Study Area

7.6.20. The assessment will consider noise sensitive residential locations in the vicinity of the Site, which are considered highly sensitive to noise. Commercial and industrial receptors are considered to have a low or negligible sensitivity to noise and will therefore require less detailed assessment. Dwellings located along the construction traffic route are also considered.

7.6.21. The assessment will focus on the nearest residential receptors to the Site, within a region of approximately 250m from the boundary of the potential solar development areas. This is because operational noise emissions from solar developments are generally limited and, based on experience of

similar recent developments, significant impacts are unlikely beyond this distance. Similarly, construction noise impacts will be localised given the temporary nature of these activities as discussed below. Operational noise emissions from the proposed substation area could be relatively higher and the nearest properties to this area, within a radius of around 800m, will also be considered.

Desk and Field Survey Methods

7.6.22. A desktop review has been undertaken using available mapping and address data of the potential noise-sensitive receptors in the study area.

7.6.23. A noise survey of the baseline noise conditions has been undertaken at locations representative of the noise-sensitive receptors identified, to characterise both ambient and background noise levels. This was achieved using unmanned noise loggers at fixed locations for a period of at least 48 hours, supplemented by additional attended 15 minute short-sample measurements to cover a wider area. The survey analysis will be undertaken in accordance with the guidance of BS 4142. Appendix 7.4 presents a plan of the survey locations which has been the basis for consultation with the relevant location authorities (see below). The results of the noise surveys will be included within the ES.

7.6.24. The Covid-19 pandemic is still ongoing and this could affect the baseline measurements in particular through reduced road traffic levels (and therefore noise levels) associated with restrictions in place. This will be reviewed as one of the variability factors to consider in line with guidance in BS 4142. Based on the current situation and the nature of the area, the effect on the baseline noise environment is likely to be minimal, and only likely to reduce baseline noise levels: this will provide a more stringent assessment in any case.

Overview of Assessment of Significance

7.6.25. As noted above, residential receptors are considered highly sensitive, whilst commercial and industrial receptors are considered to have a low or negligible sensitivity to noise respectively.

7.6.26. The magnitude of impact will be defined on the basis of the principles set out in the NPSE and NPPG guidance: this will be determined using thresholds of Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL). These thresholds will be based on the above-referenced guidance documents.

7.6.27. The sensitivity of the receptor and the magnitude of impact will both be used to determine the overall significance of effect, following the general approach described in Section 0 above. Moderate or major levels of effect are considered to be significant within the meaning of the EIA Regulations and mitigation will be considered. Minor or negligible effects are not considered significant, but enhancement measures will be considered to minimise the effects, where possible.

Potential Effects

Construction Noise and Vibration

7.6.28. In assessing the impacts of construction phase noise and vibration, it is accepted that the associated works are of a temporary nature. Assessment of the temporary impacts of construction is primarily aimed at understanding the need for dedicated management measures, such as those to be set out within a CEMP, and, if so, the types of measures that are required.

7.6.29. In this instance, the nature of most works to construct and if required decommission the Proposed Development is such that activities will generally be limited both in intensity and/or duration, such that significant

effects from the associated noise and vibration are considered unlikely based on relevant guidance and experience of similar activities. However, some activities such as piling or horizontal drilling, which may be used if deemed necessary, have the potential to cause significant effects either because of an increased intensity for the former or due to potential extended hours of operation for the latter.

7.6.30. The potential noise impacts associated with potentially significant construction activities will be predicted by referencing typical activity emission levels and likely variations in noise levels at surrounding receiver locations, using the methodology set out in BS 5228 Part 1. This standard also provides guidance on assessing the resulting noise levels based on a range of considerations including the absolute level of the noise.

7.6.31. Some construction activities, such as piling operations, drilling or vibratory rolling techniques, can generate vibration levels in close proximity to their use (less than 50m typically); however, if used as part of the construction of the Proposed Development this would likely be for limited periods such that significant levels are unlikely. This will, however, be reviewed as part of the assessment. BS 5228 Part 2 provides guidance on estimating vibration levels associated with these activities and threshold values associated with potential disturbance as well as building damage (which only occurs at higher exposure levels).

7.6.32. If considered necessary, suitable mitigation and management measures can be secured in the oCEMP.

7.6.33. The potential effects of noise levels associated with some construction activities on sensitive ecological receptors will also be considered where relevant in consultation with the relevant specialist (see Section 7.4: Ecology and Biodiversity).

Operational Noise

7.6.34. The potential for operational noise effects would be associated with electrical and mechanical plant associated with the Proposed Development. Whilst noise produced by the solar arrays themselves is expected to be minimal, large electrical plant such as transformers, batteries and inverters can generate noise which is typically tonal in nature, making it potentially more noticeable. The proposed primary substation area will include larger electrical plant (also tonal in nature and with higher noise emissions) as well as ancillary cooling units which will also require particular consideration.

7.6.35. There is a potential for adverse impacts to be created if some of these plant items are not suitably located or designed. Potential noise levels will be predicted on the basis of representative noise data for the plant units potentially installed, on a worst-case basis. The model will be developed using the ISO 9613-2 methodology based on the noise specification data, indicative layout information and experience of similar recent installations. These predicted levels will be assessed relative to the existing baseline background noise levels at the relevant receptors, accounting for the potential character of the noise, in accordance with BS 4142. The greater the difference between predicted operational noise levels and baseline levels, the greater the impact (after also accounting for a number of contextual factors). If noise specifications for a particular type of plant is not available, suitable noise criteria for operational noise limits will be set based on baseline noise measurements, with noise from installed equipment controlled by planning condition.

7.6.36. Primary mitigation will first involve adjusting the design of the Proposed Development to maximise (where possible) the distance from areas including noise-generating plant from noise-sensitive receptors. The detailed design of the Proposed Development, including final plant locations

and selections, can be controlled through a requirement of the DCO that would establish suitable noise limits at the boundary of the Site.

Issues Proposed to be Scoped Out

Construction Traffic Noise and Vibration

7.6.37. The intensity of traffic associated with the construction, particularly heavy goods vehicles (HGVs) which are most likely to generate adverse noise impacts, would be relatively limited. For roads that already include moderate to high traffic levels, the potential for noticeable or significant noise effects due to changes in traffic flow associated with the construction or decommission would require large increases of 30% or more in the baseline traffic levels (overall or HGV only), which is considered unlikely for most A or B roads. This is based on guidance from the Institute of Environmental Assessment (1993). For unclassified roads that currently include more limited levels of traffic, although a traffic increase due to construction may be noticeable it would be associated with low absolute noise levels such that their temporary impact is also unlikely to be significant. Noise impacts from construction traffic is therefore scoped out of the EIA.

7.6.38. Occasional momentary vibration can arise when HGVs pass dwellings at very short separation distances, but this is already the case from existing HGV traffic and is not sufficient to constitute a risk of significant effects in this instance and therefore vibration effects from construction traffic is scoped out of the EIA.

Decommissioning Noise and Vibration

7.6.39. The works involved for a decommissioning phase would be similar or of a lower magnitude/duration than for the construction phase, and therefore have similar/lower effects and subject to similar management or control procedures, and therefore do not require explicit consideration. On this

basis decommissioning noise and vibration impacts are scoped out of the EIA.

Operational Traffic Noise and Vibration

7.6.40. Vehicular movements during the operational phase of the Proposed Development, related to routine servicing and maintenance, would be very limited and unlikely to be associated with any significant noise effects. Operational traffic noise and vibration impacts are therefore scoped out of the EIA.

Operational Noise & Vibration

7.6.41. Based on experience of similar recent installations, the plant likely to be used at the Site, when operational, would generate insignificant levels of vibration at the boundary of the Site. Therefore, operational vibration impacts are scoped out of the EIA.

7.6.42. Operational noise and vibration levels are of such magnitude that they are unlikely to affect ecological receptors, and this is also scoped out of the EIA.

Consultation

7.6.43. The baseline noise method and proposed survey measurement locations have been discussed with the Environmental Health Departments of LCC, SKDC and RCC. Letters setting out the methodology and proposed survey locations have been issued to the relevant representatives for discussion. The assessment methodology, in particular with regards to operational noise impacts, will also be discussed with the aforementioned councils.

7.7. Water Resources and Ground Conditions

Introduction

7.7.1. This section of the Scoping Report outlines the baseline conditions at the Site and the proposed methodologies for assessing the potential effects of the Proposed Development on the water resources and ground conditions during the construction, operational and decommissioning phases to be set out in the ES.

Baseline Conditions

7.7.2. A desk-based survey was undertaken in December 2021 to understand the baseline conditions for water resources and ground conditions at the Site.

7.7.3. The Site consists predominantly of agricultural fields (greenfield) with isolated areas of woodland across the Site. Several manmade field drains exist onsite.

7.7.4. The majority of the Site is located within an area classed as having a low risk of flooding (Flood Zone 1) as defined by the Environment Agency, with a minor corridor in the central area of the Site, being classes as medium (Flood Zone 2) and high risk (Flood Zone 3).

7.7.5. An initial baseline study shows that elements of the Proposed Development north of Essendine village and south of Wood Farm lie within groundwater Source Protection Zones (SPZ) 1 and 2 and outwith of the River Welland catchment Surface Water Safeguard Zone.

7.7.6. The Site comprises an area within a designated 'high' Impact Risk Zone associated with the SSSI at Ryhall Pasture and Little Warren Verges adjacent to the north-western extent of the Site, which indicates any developments within this area, excluding householder applications, have the potential to impact upon the SSSI. There are no designated Special

Protection Areas (SPA) and Local Nature Reserves (LNR) within 5km of the Site.

7.7.7. No historic or active landfill sites exist within the Site boundary as identified in Defra's Historic Landfill Site mapping (2021).

7.7.8. A contaminated land assessment undertaken by Argyll Environmental (2021) has been conducted for land at Manor Farm as provided at Appendix 7.5, located within the Site boundary at NGR N 503520, E 312970 (Field 8, indicated on Figure 2.2). Historic mapping within 100m of the land at Manor Farm was reviewed as part of the assessment, with the following potentially contaminated land uses identified within the proximity of Manor Farm;

- Farm yard and associated agricultural buildings adjacent north-west and north-east;
- Quarries 10m north;
- Old gravel / sand pits 15m north-east;
- Railway adjacent to the east;
- Works with an associated tank 70m south-east; and
- Filling station 80m south-east.

7.7.9. The historic mapping reviewed as part of the Manor Farm contaminated land assessment indicates the following recorded landfills within the proximity of Manor Farm:

- A landfill site 15m north operated by SKDC which accepted commercial and household waste from 1946 to 1972;
- A landfill site 14m north which accepted household waste from 1965 to 1975;
- An active Control of Major Accident Hazards (COMAH) site 122m east;
- An inactive Notification of Installations Handling Hazardous Substances (NIAHH) designated site 200m east; and
- A Planning Hazards Substance Consents site 171m east.

7.7.10. The contaminated land assessment undertaken by Argyll Environmental (2021) has been conducted for land at Wood Farm as provided at Appendix 7.5, located approximately 250m west of the Site at its closest point at NGR N 309610, E 505755 (land south of Field 48 and west of Field 50, as indicated on Figure 2.2). Historic mapping within 100m of the land at Wood Farm was reviewed as part of the assessment, with the following potentially contaminated land uses identified within the proximity of Wood Farm;

- A series of 3 gravel pits at Wood Farm operational from c. 1887 to 2021;
- Railways adjacent north-east;
- Worked grounds 70m north from c. 1888 to 1892; and
- A gravel pit adjacent south operational from 1930 to 1958.

7.7.11. The historic mapping reviewed as part of the Wood Farm contaminated land assessment indicates the following recorded landfills within the proximity of Wood Farm:

- A historical landfill accepting household waste located at Wood Farm; and
- A Local Authority recorded landfill site accepting dry domestic and construction waste operational until 1979.

7.7.12. A Site walkover will be undertaken to verify the location and nature of watercourses and waterbodies within the study area likely to be affected by the Proposed Development. The Site walkover will augment the desk study where necessary by recording the presence of additional hydrological features or the absence of features. The source of public and private water supplies will be visited and will inform the overall risk assessment which will be reported in the ES.

7.7.13. Infiltration testing will be conducted at the Site in early 2022. The infiltration testing will comprise of test pits which will be utilised for testing to Building

Research Establishment (BRE) 365 (2016) standard in order to confirm the permeability of the underlying soils and suitability for infiltration drainage.

Assessment Methodology

7.7.14. The proposed hydrological and hydrogeological impact assessment methodology for of the Proposed Development has been developed in consultation with the Environment Agency and other statutory consultees over a number of years.. The assessment will be based on a source-pathway-receptor methodology, where the sensitivity of the receptors and the magnitude of potential change (impact) upon those receptors is identified within the study area.

7.7.15. Acknowledging the potentially contaminated land and historic and active landfill uses surrounding the Site, a Conceptual Site Model will be developed to assess the potential contaminated ground effects as part of the assessment of contaminated land at and surrounding the Site.

7.7.16. An outline Excavated Materials Management Plan will be prepared and incorporated into the oCEMP. It is anticipated that regulatory guidance as well as industry best practice measures, which will be set out in the outline Excavated Materials Management Plan and the oCEMP, along with the environmental design measures described in Table 3.1.

7.7.17. A Flood Risk Assessment (FRA) compliant with the requirements of the NPS and NPPF will be undertaken to assess any flood risk.

7.7.18. The assessment will be undertaken in line with the Overarching NPS EN-1 (DECC, 2011) and Draft NPS EN-1 (BEIS, 2021). Section 4.8 ‘Climate change adaption' of the NPS EN-1 (DECC, 2011), sets out how applicants and the IPC should take effects of climate change into account when developing and consenting infrastructure, recognising that the UK will likely experience, *inter alia,* increased flooding and intense rainfall events, as well

as rising sea levels. Paragraph 5.7.3 of the NPS EN-1 sets out the minimum requirements for Flood Risk Assessments (FRAs) which should be scoped in consultation with the Environment Agency, and where relevant, other bodies such as Internal Drainage Boards, to identify information that will be required by the IPC to reach a decision on the application. Section 4.10 of the NPS EN-1 and Draft NPS EN-1 set out the requirements for pollution control and other environmental regulatory regimes.

7.7.19. Draft NPS EN-3 (BEIS, 2021) outlines the requirements for an FRA and the promotion of the use of sustainable drainage systems (SuDS). Section 2.49 of the Draft NPS EN-3 sets out that developers will consider several factors when considering the layout and design of solar development, including the ability to mitigate impacts from flood risk. Paragraph 4.25.15 of the Draft NPS EN-3 also states that the IPC should take into account whether the proposals give rise to any risk of soil contamination. The assessment will be also undertaken in line with the following policy and guidance:

- Water Framework Directive (2000/60/EC). The Water Framework Directive (WFD) establishes a framework for the protection, improvement and sustainable use of all water environments;
- NPPF (2021), paragraphs 159 to 169. This states that for development comprising one hectare or above, the vulnerability to flooding, or the potential to add to flooding elsewhere should be assessed in a Flood Risk Assessment (FRA);
- Safeguarding our Soils: A Strategy for England, published by Defra in 2011. This states that:
  - Agricultural soils will be better managed and threats to them will be addressed;
  - Soils will play a greater role in the fight against climate change and in helping Defra to manage its impacts;
  - Soils in urban areas will be valued during development, and construction practices will ensure vital soil functions can be maintained; and

  - Pollution of soils will be prevented, and an historic legacy of contaminated land is being dealt with.

- Natural England Technical Information Note 101 (TIN101) 'Solar Parks: maximising environmental benefits' (2011) provides guidance relating to solar parks, their siting, their potential impacts and mitigation requirements for the safeguarding of the natural environment;
- The Land Drainage Act 1991. Provides a set of administrative structures to ensure that drainage of low-lying land could be managed effectively;
- The Environmental Protection Act 1990. Makes provisions for the improved control of pollution arising from certain industrial and other processes, relating to waste and the collection and disposal of waste;
- Joint Lincolnshire Flood Risk and Water Management Strategy 2019-2050;
- Rutland County Council Core Strategy Development Plan Document (2011) Policy CS1 – Sustainable development principles and Policy CS19 – Promoting good design;
- The Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C741) (2015). C741 provides guidance on how to avoid causing environmental damage when on a construction site; and
- CIRIA Control of Water Pollution from Construction Sites (C532) (2001). C532 provides guidance on how to plan and manage construction projects in order to control water pollution.

Study Area

7.7.20. Hydrology and geology data will be obtained, including data relating to the following processes and parameters:

- Downstream hydrological processes;
- Aquifer classification and vulnerability;
- Surface water quality;
- Public and private water supplies;
- Flooding; and

- Contaminated land.

7.7.21. The baseline data will be used to assess the potential effects of the Proposed Development on hydrological and hydrogeological resources within a 5km study area. This study area is based on the hydrological and hydrogeological connectivity of water bodies located downstream of the Proposed Development. At distances greater than 5km it is considered that solar developments in low lying catchments are unlikely to have any chemical or sedimentation effects because of the attenuation and dilution of potentially polluting chemicals and sediments. This hydrological and hydrogeological study area will also be used for the cumulative assessment.

7.7.22. A smaller 1km study area based upon the solar PV Site will be applied to assess Private Water Supply abstractions.

Overview of Assessment of Significance

7.7.23. The sensitivity of a receptor or its surroundings to the effects of the Proposed Development is a description of the degree to which the key attributes of a receptor can be affected by a given level of change. A high sensitivity receptor will be affected more than those of a low sensitivity receptor.

7.7.24. Sensitivity can be classified as High, Moderate or Low. These classifications are dependent upon factors such as the quality and quantity of water within the receptor, their purpose (e.g. whether used for drinking, fisheries, etc.) and existing influences, such as land-use. These criteria are outlined in Table 1 of Appendix 7.6 and are based on professional judgement and experience.

7.7.25. The magnitude of change is determined by the timing, scale, size and duration of the potential impact resulting from the Proposed Development.

7.7.26. The magnitude of potential impacts can be classified as Major, Moderate, Minor or Negligible, as set out in Table 2 of Appendix 7.6.

7.7.27. The significance of the potential effects of the Proposed Development will be classified by taking into account the sensitivity of receptors and the magnitude of the potential effect on them. The significance of the unmitigated effect is as defined in Table 3 of Appendix 7.6.

7.7.28. As sections of the Site are located within Flood Zone 3a, the FRA will need to demonstrate that the Proposed Development passes the Exception and Sequential tests outlined in the NPS and NPPF. There will be a requirement to raise all electronically sensitive equipment at least 600mm above the highest modelled flood level for the 1 in 100-year (+climate change) event, or have a commitment to install flood resilient measures onsite infrastructure. The climate change allowance data will be obtained from the Environment Agency Climate Change Allowances for Peak River Flow in England (2021) for the appropriate catchment and basin. The Environment Agency's climate change data is based upon UKCP18 with different epochs or periods of time reflecting the emissions scenarios within UKCP18.

7.7.29. The FRA will be produced and will focus on the following elements:

- The risk of flooding at the Site from fluvial and groundwater sources;
- Assessment of the introduction of new hardstanding areas on the greenfield run-off rates, using Micro Drainage software;
- Storage requirement calculations to accommodate the 30-year and 100-year storm events, based on modelling provided by the Environment Agency and will include an allowance for climate change; and
- Calculating the sizing of storage tanks and Sustainable Drainage Systems (SuDS) required to accommodate an increase in surface water run-off.

7.7.30. The FRA will also conclude whether the Proposed Development complies with Section 5.7 of the NPS EN-1, local planning policy and the relevant local Strategic Flood Risk Assessment (SFRA) .

Potential Effects

7.7.31. It is anticipated that the key issues to be addressed in the Water Resources and Ground Conditions chapter of the ES, are likely to include the following elements:

Construction Effects

- Potential impediments to drainage ditch flow as a result of crossings;
- Potential transfer of sediment to surface water resources during construction; and
- Potential transfer of chemicals to surface water resources during construction.

Operational Effects

- Increase in surface water run-off from areas of hardstanding;
- Effects from flooding i.e. ensuring the Proposed Development is safe from water ingress for its lifetime in the event of flooding, without increasing flood risk elsewhere;
- Potential impediments to drainage ditch flow as a result of crossings;
- Potential transfer of sediment to surface water resources during operation;
- Potential transfer of pollutants from fire suppression; and
- Potential effects on public water supply (PWS).

7.7.32. A WFD screening assessment will be carried out to identify the potential need for a standalone WFD assessment and will form part of the ES.

7.7.33. An assessment of the potential effects of the Proposed Development on receptors relating to the River Basin Management Plan WFD will be detailed

within the Water Resources and Ground Conditions Chapter of the ES. This assessment will take full cognisance of PINS' Advice Note Eighteen: The WFD and assess the impact of the Proposed Development on chemical pollution, surface hydrology, groundwater, soils and bedrock.

7.7.34. Embedded mitigation measures will be outlined within the Water Resources and Ground Conditions chapter of the ES and within a Draft Water and Construction Management Plan (WCMP), as part of the wider oCEMP. The Draft WCMP will comprise good practice construction methods and works that are established and effective measures to which the Applicant will be committed throughout the development process and which can be secured by Requirements of the DCO.

7.7.35. There is sufficient confidence in the effectiveness of the measures that will be set out in the Draft WCMP for them to be treated as part of the Proposed Development for the purposes of the assessment. Accordingly, the assessment of significance of effects of the Proposed Development will be considered following implementation of the measures in the Draft WCMP.

7.7.36. The measures to be included in the Draft WCMP are inherently part of the Proposed Development design and should be treated as embedded (primary) mitigation.

7.7.37. The Water Resources and Ground Conditions chapter of the ES will consider the likelihood of an event occurring and concludes whether the residual or overall significance will be Major, Moderate, Minor or Negligible, before appropriate mitigation (beyond that specified in the Draft WCMP) has been implemented. This assessment will rely on professional judgment to ensure that the effects are appropriately assessed.

7.7.38. A residual effect is considered to be a likely significant effect in accordance with EIA Regulations if assessed as Moderate or Major following the implementation of necessary mitigation measures.

Issues Proposed to be Scoped Out

7.7.39. The following impacts are proposed to be scoped out of the EIA due to the establishment of onsite vegetation cover, which will reduce sediment mobilisation and occasional maintenance visits limiting the presence of chemicals / oil onsite:

- Potential transfer of sediment to surface water resources during operation; and
- Potential transfer of chemicals to surface water resources during operation.

Consultation

7.7.40. Consultation has been undertaken with the following stakeholders to agree the approach to assessment for Water Resources and Ground Conditions:

- Environment Agency;
- Anglian Water;
- LCC;
- RCC; and
- Natural England.

7.8. Agricultural Land Use

Introduction

7.8.1. This section of the Scoping Report sets out the approach to the Agricultural Land Use and Farm Business Assessment and provides a summary of the desk top information available, extent of the study area and key reference

documents that would inform the assessment of potential impacts on land quality, soil resource and farm businesses.

Baseline Conditions

7.8.2. Agricultural land is graded according to its inherent limitations for agricultural use. Grade 1 is classed as excellent quality and Grade 5 is classed as very poor quality. Grade 3 is divided into subgrades 3a 'good' and 3b 'moderate' quality agricultural land. Grades 1, 2 and 3a are defined as the 'best and most versatile' (BMV) in the NPPF (2021).

7.8.3. The solar PV Site is shown on the published "provisional" Agricultural Land Classification (ALC) maps, published in the 1970's and updated in 2011 by Natural England, as a mixture of mostly undifferentiated Grade 3, with some Grade 2 to the east of Belmesthorpe. The ALC maps do not differentiate Grade 3 into Subgrades 3a and 3b.

7.8.4. Natural England published predictive likelihood of BMV in 2017. The area is shown on the predictive maps as mostly in the 'low likelihood of BMV (<20% area BMV)', with land south of the Belmesthorpe to Greatford Road falling into a mixture of 'moderate likelihood (20-60% area BMV)' and 'high likelihood (>60% area BMV)'.

7.8.5. In order to inform the assessment an Agricultural Land Classification survey will be undertaken at the Site. Given the size of the Site the survey will be carried out at a semi-detailed scale. This will involve in the order of 210 auger locations on a regular 200 metre grid across the solar PV Site. If there are areas where the soils are particularly variable, additional auger locations may be studied in that localised area.

7.8.6. The Site comprises land within the ownership of five farm businesses; therefore, the farming circumstances of the individual farm businesses

involved and sensitive neighbouring farming enterprises will be investigated via interview and survey, as appropriate.

Assessment Methodology

7.8.7. Paragraph 5.10.8 of NPS EN-1 states that "*Applicants should seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations. Applicants should also identify any effects and seek to minimise impacts on soil quality taking into account any mitigation measures proposed*" (DECC, 2011).

7.8.8. NPS EN-3 (DECC, 2011), although does not contain specific policy related to solar development, sets out criteria for good design for energy infrastructure, recognising that construction methods should minimise soil disturbance.

7.8.9. Section 2.48 of the Draft NPS EN-3 (BEIS, 2021) outlines that the key considerations involved in siting of a solar farm are likely to be influenced by, *inter alia,* ALC and land type. Paragraph 2.48.13 states that solar is a "*highly flexible technology and as such can be deployed on a wide variety of land types*." *Where possible, ground mounted Solar PV projects should utilise previously developed land, brownfield land, contaminated land, industrial land, or agricultural land preferably of classification 3b, 4, and 5 (avoiding the use of "Best and Most Versatile" cropland where possible). However, land type should not be a predominating factor in determining the suitability of the site location*."

7.8.10. Draft NPS EN-3 goes on to state that soil surveys may also inform the suitable beneficial use of the land during the operation of solar development

(Paragraph 2.48.14). Additionally, its explains that whilst development of ground mounted solar arrays is not prohibited on sites of agricultural land classified 1, 2 and 3a, it is recognised that applicant's development may use some agricultural land and applicants should explain their choice of site, noting preference for development to be on brownfield and non-agricultural land (Paragraph 2.48.15).

7.8.11. Paragraph 2.50.3 of the Draft NPS EN-3 states that where solar developments require soil stripping, soil handling may be informed by ALC soil survey, with detailed guidance available such as Defra's 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (2009) or any subsequent updates.

7.8.12. The assessment will consider the agricultural land quality of the solar PV Site, and the extent to which the Proposed Development will affect the inherent land quality. It will consider the method of construction and decommissioning and the impact this would have on soil qualities. It will consider the potential for removal of the panels and therefore the reversibility of the impact, and it will consider the extent to which agricultural use can continue during the life of the Proposed Development.

7.8.13. The potential loss of agricultural land will be considered by reference to the policy in the National Policy Statements, NPPF (2021), The Town and Country Planning (Development Management Procedure) (England) Order 2015, National Planning Practice Guidance (NPPG) and relevant local planning policy. Soil handling and mitigation will have regard to the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009) which has been retained for reference on www.gov.uk.

Study Area

7.8.14. The study area is the solar PV Site boundary plus, if relevant, adjoining agricultural land if that might be affected (e.g. it forms part of an affected farm business).

Overview of Assessment of Significance

7.8.15. Land of BMV quality is considered to be a receptor of high sensitivity. Whilst Natural England estimate that such land accounts for 42% of farmland in England, such that this is not a rare resource, it is nevertheless identified as a resource worthy of protection. Land of Subgrade 3b and Grades 4 and 5 are considered to be a resource of moderate/medium sensitivity.

7.8.16. Full-time farm businesses are considered to be a resource of moderate/medium sensitivity. Farms can normally adapt to change brought about by a raft of different factors, and accordingly are not highly sensitive to change. Part-time farm businesses are considered to be of low sensitivity.

7.8.17. In terms of magnitude of impacts, the loss of more than 50ha of BMV land is considered to be a large/major magnitude, losses of 20-50ha are of moderate/medium magnitude and losses of less than 20ha to be of low magnitude. These thresholds are based on established practice. The 20ha threshold is the trigger point for consultation with Natural England on losses of BMV agricultural land.

Potential Effects

7.8.18. The Proposed Development has the potential to affect the agricultural land quality and use of the solar PV Site. The construction process is generally considered unlikely to significantly affect the agricultural land quality or the

soil resource; however, there is the potential for localised impacts if construction incorrectly. Such impacts would be mitigated by careful construction methodologies, including the decommissioning stage, and by ongoing management during the operational stage. There may be benefits from reduced intensity of agricultural use of the soils, and these will be considered and assessed within the ES.

7.8.19. The Proposed Development has the potential for adverse economic impacts, a result of reduced agricultural income for the businesses affected during the operational stage. This could be mitigated by alternative incomes received and this will be considered and assessed within the ES.

Issues Proposed to be Scoped Out

7.8.20. No issues are proposed to be scoped out of the EIA.

Consultation

7.8.21. It is intended to consult with the landowners and Natural England as part of the EIA process.

7.9. Glint and Glare

Introduction

7.9.1. This section of the Scoping Report sets out the approach to the Glint and Glare Assessment, settings out the extent of the study area and key reference documents that would inform the assessment of potential impacts n nearby receptors.

7.9.2. Solar panels are designed to absorb as much of the sunlight that illuminates them as possible. Notwithstanding this, a proportion of the incoming sunlight is reflected by the solar panels. These reflections are often referred to in

more technical terms as “glint”, which is a momentary flash of bright light, and “glare”, which is a continuous source of bright light.

7.9.3. Reflected sunlight from solar panels can, under certain circumstances, be directed towards a location that will make it noticeable to an observer. This effect can be a nuisance, e.g. if it is experienced within a residential dwelling, or a safety hazard, e.g. if it presents a distraction to the driver of motor vehicle on a busy road.

7.9.4. Glint and glare effects associated with the Proposed Development will therefore be the subject of an impact assessment to quantify the potential impacts and mitigate them, where necessary.

Baseline Conditions

7.9.5. The proposed solar panels will be located in areas that are currently open fields / arable land. There are currently no significant reflectors in situ within most or all of the Site. However, the reflective characteristics of modern solar panels are similar to commonly encountered sources within an outdoor environment including still water, greenhouses and windows on buildings.

7.9.6. Receptors include main roads in the vicinity of the solar panel areas (such as the A621 and the B1176), dwellings within 1km of the solar panel areas, including the areas of Essendine and Ryhall, the East Coast Mainline which dissects the Site between Careby and Tallington, and aviation receptors at RAF Wittering, which is located approximately 4.5km south of the Site.

Assessment Methodology

7.9.7. Glint and glare impact assessments are common requirements for large-scale solar developments. The importance of this topic is referenced within:

- The Draft National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3) – published by the Department for Business, Energy & Industrial Strategy (BEIS) in September 2021.

7.9.8. Extracts from this publication are presented below:

- *"Utility-scale solar farms are large sites that may have a significant zone of visual influence. The two main impact issues that determine distances to sensitive receptors are therefore likely to be visual amenity and glint and glare* [Section 2.48.4].
- *In some instances, it may be necessary to seek a glint and glare assessment as part of the application. This may need to account for 'tracking' panels if they are proposed as these may cause differential diurnal and/or seasonal impacts* [Section 2.52.2].
- *Applicants should consider using, and in some cases the Secretary of State may require, solar panels to be of a non-glare/ non-reflective type and the front face of the panels to comprise of (or be covered) with a non-reflective coating for the lifetime of the permission* [Section 2.52.3].
- *Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and glare on nearby homes and motorists* [Section 2.52.4].
- *There is no evidence that glint and glare from solar farms interferes in any way with aviation navigation or pilot and aircraft visibility or safety. Therefore, the Secretary of State is unlikely to have to give any weight to claims of aviation interference as a result of glint and glare from solar farms* [Section 2.52.5]."

7.9.9. There is little else in the way of formal guidance around glint and glare assessments. The impact of any glint and glare effects will be evaluated within a technical assessment. The phases of the assessment and the underlying methodology are set out below. Notwithstanding the reference to glint and glare effects within the draft NPS for Renewable Energy EN-3 referenced above, there remains no formal legislation setting out a required methodology or criteria/standards for classifying impact. This process has

been designed in accordance with industry best-practice and Pager Powers' Glint and Glare guidance (2021).

Study Area

7.9.10. The study area is established with reference to the receptor type, specifically:

- Railway receptors within 500m of any panel area will be assessed;
- Dwellings and road users within 1km of any panel area will be assessed; and
- Aviation receptors up to 10km from any panel area will typically be assessed – this is sensitive to some further parameters including the airport size, type and licencing status.

Overview of Assessment of Significance

7.9.11. The assessment methodology essentially consists of the following phases.

Step 1 – Identification of Receptors

7.9.12. The receptor types to be assessed include the relevant:

- Residential receptor locations;
- Main roads;
- Railway lines and signals; and
- Aviation receptors including pilots on final approach and air traffic controllers.

7.9.13. Receptors will be identified based on their associated study area around the solar panel locations and taken forward for technical modelling if:

- Views of the solar panel area are judged to be a reasonable possibility; and
- Glint and glare effects towards the receptors are geometrically possible - in some cases areas within the study area can be excluded based on panel alignment and the development latitude.

Step 2 – Technical Modelling

7.9.14. The modelling will take into account:

- The path of the sun throughout the year;
- The configuration and technology type for the solar panels;
- The observer locations; and
- Terrain elevation.

7.9.15. The output of the modelling will quantify the dates and times that reflections could be experienced at the modelled receptor locations, along with the solar panel areas that would cause these reflections.

Step 3 – Impact Classification

7.9.16. The level of impact at each potentially affected receptor location will be determined based on the modelling output and relevant mitigating factors.

Step 4 – Identification of Mitigation Requirements

7.9.17. Where applicable, the solar panel areas that could lead to significant impacts under baseline conditions will be identified to inform the mitigation strategy.

Potential Effects

7.9.18. Potential effects are classified based on duration, location, relative to an observer's field of view and intensity as appropriate. Effect significance is evaluated differently for different observer types, specifically:

- For road users and train drivers, the most important factors are:
  - Whether reflecting panels would be visible;
  - Whether reflections would occur within a road user's / train driver's primary field of view relative to the direction of travel;
  - The separation distance between the reflecting area and the observer; and

  - The position of the sun when reflections occur.
- For observers within dwellings, the most important factors are:
  - Whether reflecting panels would be visible;
  - The effect duration;
  - The separation distance between the reflecting area and the observer; and
  - The position of the sun when reflections occur.
- For pilots of aircraft on final approach, the most important factors are:
  - Whether reflections would occur within a pilot's primary field of view relative to the aircraft heading;
  - The reflection intensity; and
  - The time that reflections are predicted in the context of the aerodrome's operational hours.
- For air traffic controllers, the most important factors are:
  - Whether reflecting panels would be visible;
  - The effect duration;
  - The location of the reflectors relative to the runway end;
  - The separation distance between the reflecting area and the observer; and
  - The time that reflections are predicted in the context of the aerodrome's operational hours.

7.9.19. The list above is not exhaustive but covers the main considerations. Mitigation measures for significant effects will depend on the technical report findings but may include:

- Provision of screening, often in the form of planting;
- Changes to the panel configuration;
- Changes to the panel area; and/or
- Use of anti-reflective coating.

Issues Proposed to be Scoped Out

7.9.20. Effects during decommissioning have been scoped out. Effects during construction and decommissioning will be similar in nature to those during operation but generally of lesser significance because a subset of the reflecting panels will be in place. Since significant effects will be mitigated ahead of operation, this mitigation will be in place during the decommissioning phase.

7.9.21. The technical analysis may identify some or all observer types as being unaffected or not significantly affected.

Consultation

7.9.22. Consultation is likely to be required with Network Rail, dependent on the proximity of panel areas to the railway line, in order to confirm the details of any infrastructure that they wish to identify ahead of the technical analysis.

7.9.23. Consultation with other stakeholders such as aerodrome operators may be recommended if effects are predicted for associated observer types.

7.10. Climate Change Impact Assessment

Introduction

7.10.1. This section of the Scoping Report sets out the approach to the Climate Change Impact Assessment (CCIA) and sets out the methodology to evaluate how the Proposed Development is likely to interact with a changing climate and any associated significant effects. The CCIA will follow IEMA guidance 'IEMA Environmental Impact Assessment Guide to Climate Change Resilience and Adaption' (2015 and 2020 update) and 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' (2017).

7.10.2. The following assessment areas are considered in terms of the Proposed Development:

- The vulnerability of the Proposed Development to climate change;
- The influence of the Proposed Development on climate change; and
- Changes to the future baseline of other environmental aspects as a result of climate change.

7.10.3. The first two points above will be assessed in the CCIA chapter of the ES. The third point will be addressed in the other individual technical topic chapters of the ES, as appropriate.

7.10.4. The CCIA chapter of the ES will consider the current electricity generation mix and present the level of CO_2 savings that could potentially be made, depending on the source of electricity generation the Proposed Development is displacing at any given time.

Baseline Conditions

7.10.5. The vulnerability of the Proposed Development to climate change depends on the current and future climatic conditions. The UK Climate Projection Report: The Climate of the UK and Recent Trends, published in 2008, provides observed climate data for UK Regions, with climate data for the geographically appropriate region to be applied relative to the location of the Site.

7.10.6. The climate parameters considered relevant to the assessment referenced within the CCIA will be temperature, wind speed, precipitation, storm surges, and cloud amount based on UKCP18 projections. In addition to these, changes in temperature could potentially affect environmental receptors considered elsewhere, although not directly considered to inform assessment within the CCIA. It should be noted that climate change does not necessarily mean warming of the climate at a specific location.

Changes in local climate depend in a complex way on global temperature rise, and in the UK are expected to include a rise in the frequency of more extreme weather events, and average or long-term statistics would not capture this.

7.10.7. The effect of the Proposed Development on climate change will be driven principally through the net change in emissions of greenhouse gases (GHG). The current and future baseline emissions of CO_2 from the generation of electricity by the Proposed Development will be evaluated with reference to the latest version of the Digest of UK Energy Statistics (DUKES) published annually by the Department for Business, Energy and Industrial Strategy (BEIS).

Assessment Methodology

7.10.8. The assessment will be undertaken in line with the following policy and guidance:

- The Climate Change Act 2008. The Climate Change Act 2008 outlines the role and need for UK government action related to climate change. A National Adaption Programme (2013) addressed the main risks and opportunities detailed within the UK Climate Change Risk Assessment for England (2017);
- Carbon Budget Order (2009). The Carbon Budget Order set the first three carbon budgets spanning from 2008 to 2022;
- Carbon Budget Order (2016). The Carbon Budget Order set the carbon budgets for the fifth budgetary period covering 2028 to 2032;
- NPS EN-1 (2011). This NPS outlines details of adaptation to climate impacts, potential effects and benefits, ES requirements, climate projections and the importance of mitigation;
- NPS EN-5 (2021). This NPS details the importance of resilience to climate change and ES requirements associated with climate change resilience.

- NPPF (2021). The NPPF does not make specific reference to the role of the EIA in mitigating and adapting to climate change; however, it does identify the transition to a low carbon future as a core planning principle to help reduce England's carbon emissions;
- IEMA Environmental Impact Assessment Guide to Climate Change Resilience and Adaption (2020). This guidance is an update to the 2017 edition which provides framework for the assessment of climate change within EIA;
- IEMA Assessing Greenhouse Gas Emissions and Evaluating their Significance (2017). This guidance sets out the areas for consideration of GHG within EIA and identifies the key challenges within assessment;
- Planning Practice Guidance, Climate Change (2019). This guidance outlines and advises on the suitable mitigation and adaptation measures to address the impacts of climate change within the planning process.
- Rutland County Council, The Future Rutland Conversation Narrative Summary Report: Climate Chane and the Environment (2021);
- Rutland County Council Core Strategy Development Plan (2011). The Development Plan outlines then need for the design of new development incorporates the potential impacts on and of climate change; and
- Rutland County Council Site Allocations and Policies (2014). This document outlines the need for developments to be implemented and located in spaces which contribute to minimising potential impacts of and on climate change.

7.10.9. The vulnerability of the Proposed Development to climate change will be evaluated by analysis of the impact that each type of predicted change in weather conditions could have on the Proposed Development.

7.10.10. The effect of the Proposed Development on climate change will be assessed by evaluation of two quantities. Firstly, the potential emissions associated with the construction and operation of the Proposed Development. This will include the construction process and the manufacture and transportation of the components of the Proposed Development, and the carbon dioxide emissions embodied within them.

This will be evaluated with reference to external, peer-reviewed literature. Secondly, the potential savings in emissions associated with the operation of the Proposed Development, as a result of the consequent reduction in use of more carbon-emitting electricity generation methods. This will be evaluated by estimation of the electricity generation from the Proposed Development, compared to the carbon emissions from the baseline scenario grid-mix of electricity generation.

7.10.11. The assessment of effects of the carbon emissions associated with the Proposed Development on climate change will be estimated through the application of peer reviewed emissions data related to the life cycle of the infrastructure associated with the Proposed Development which incorporates the construction, operational and decommissioning phases as a collective timeframe, rather than as individual phases.

Study Area

7.10.12. No study area is defined for the CCIA. For assessment of the vulnerability of the Proposed Development to climate change, the Proposed Development itself is the receptor encompassing the land within the Site boundary and will cover the construction, operation and decommissioning phases of the Proposed Development. For the assessment of the effect of the Proposed Development on climate change, the climate itself is the receptor, with effects evaluated by the direct and indirect GHG emissions of climate-altering gases during the construction, operation and decommissioning phases of the Proposed Development. Neither of these have relevant study areas.

Overview of Assessment of Significance

7.10.13. The assessment of significance will follow the general principles set out in Section 6.8 of this Scoping Report. Significant effects will be those that

have a material effect on the functioning of the receptor. These will be described, and any conclusions will be justified, on a case-by-case basis in the assessment reporting. Professional judgement will be applied to ensure consistency with the principles of EIA and other aspects of this EIA.

Potential Effects

7.10.14. The potential effects will differ for each section of the CCIA as defined in the three assessment areas set out below:

- The vulnerability of the Proposed Development to climate change;
- The influence of the Proposed Development on climate change; and
- Changes to the future baseline of other environmental aspects as a result of climate change.

7.10.15. The carbon emissions associated with the construction phase of the Proposed Development are proposed to be scoped into the EIA.

7.10.16. Effects on the operational phase from temperature change, sea level rise, changes in precipitation, storm surges and wind speed are proposed to be scoped into the EIA.

7.10.17. The GHG emissions emitted by the Proposed Development will be offset by the production of cleaner energy generate and will be accounted for within GHG emission calculations.

7.10.18. The activity and emission sources for each phase of the Proposed Development are detailed in Appendix 7.7.

Issues Proposed to be Scoped Out

7.10.19. The assessment of effects of climate change on the Proposed Development will be limited to changes in weather conditions and the potential effect that might have on solar panels and other proposed infrastructure. Effects on

the construction and decommissioning phases from temperature change, sea level rise, changes in precipitation, storm surges and wind speed are proposed to be scoped out of the EIA. Any indirect effects of climate change, such as political conflicts caused or triggered by climate change leading to changes in the supply chain or changes in the energy market, are also proposed to be scoped out of the EIA for all phases of the Proposed Development.

7.10.20. The assessment of the carbon emissions, from electricity generation, saved as a result of the operation of the Proposed Development will be limited to use of data about the grid-mix of electricity generation available at the time of the assessment. Predictions of future grid-mix carbon emissions in the absence of the Proposed Development will not be made.

Consultation

7.10.21. There are no organisations with a specific remit to respond to consultation in relation to climate change: however, consultees relevant to the other environmental aspects (e.g. Natural England in relation to ecology and the Environment Agency in relation to flood risk) may respond in relation to the future baseline with climate change for those aspects.

7.11. Socio Economics

Introduction

7.11.1. The socio-economic assessment will assess the likely effects of the Proposed Development on the baseline conditions within the local and wider areas. The Proposed Development will support direct and indirect employment through the construction and decommissioning phases, as well as ongoing employment associated with the routine monitoring and maintenance of equipment and landscape management once the Proposed Development is operational.

Baseline Conditions

7.11.2. The Site extends across the Rutland and South Kesteven local authority boundaries. In 2020 Rutland was recorded as having a population of 40,500 people, whilst South Kesteven had 143,200 residents (Office for National Statistics (ONS), 2020). In 2019 South Kesteven (150 people per square km) was ranked at 275th out of 317 England local authority areas for population density, whilst Rutland was ranked at 297th with a density of just 104 persons per km2.

7.11.3. In 2019, the total Gross Value Added (GVA) output for South Kesteven and Rutland was £2.8 billion and £0.8 billion respectively. The GVA per head estimates for South Kesteven (£19.8k) and Rutland (18.9k) were considerably lower than the UK average of £29.6k (Midlands Engine Observatory, 2021).

7.11.4. In 2020, a total of 57,000 jobs were recorded in South Kesteven, whilst Rutland had an estimated 16,000 jobs. Key employment sectors were education, accommodation and food services, retail, health, and manufacturing (see Table 7.4). Note that the areas are also more reliant on agricultural, forestry and fishing employment than England as a whole.

Table 7.4: Employment Sectors extracted from ONS (2020) Business Register and Employment Survey

Employment Sectors	Rutland	South Kesteven	England
Agriculture, forestry & fishing	4.4	3.1	1.4
Mining, quarrying & utilities	2.5	1.6	1.1
Manufacturing	9.4	10.5	7.6
Construction	3.1	5.3	4.9
Motor trades	1.6	2.2	1.8
Wholesale	5.0	6.1	3.9
Retail	10.9	10.5	9.3

Employment Sectors	Rutland	South Kesteven	England
Transport & storage	3.8	3.5	5.2
Accommodation & food services	12.5	7.0	7.1
Information & communication	3.1	3.1	4.5
Financial & insurance	0.6	1.1	3.5
Property	1.9	2.6	2.0
Professional, scientific & technical	6.3	7.0	9.1
Business administration & support services	3.1	4.4	8.8
Public administration & defence	5.0	1.8	4.1
Education	14.1	10.5	8.7
Health	9.4	15.8	12.9
Arts, entertainment, recreation & other services	5.6	4.4	4.3

7.11.5. In terms of tourism, South Kesteven attracted an estimated 3.38 million visitors in 2018 (Invest SK and SKDC, 2018). These visitors contributed £1.88m of spend to the local economy, which is estimated to have supported 2,700 full time equivalent (FTE) jobs. Major attractions include Burghley House and Stamford.

7.11.6. In the same year, Rutland is estimated to have attracted 1.89m visitors (Discover Rutland, 2018). These visitors contributed £135.6m of spend in the local economy, supporting 1,754 FTEs. By far the biggest attraction is Rutland Water, which occupies 1,700ha of land and water in the centre of the county and receives over 1.2m visitors per year.

7.11.7. There are no visitor attractions within the Site. In terms of recreation, there are six Public Rights of Way (PRoW) that cross the Site. PRoW footpath BrAW/7/1 routes through the easternmost extent of the Site in a general north-east to south-west alignment. PRoW footpath BrAW/3/1 crosses into the north-eastern extent on the Site in the vicinity of Grange Farm and PRoW footpath BrAW/9/1, which routes parallel to the north of PRoW

footpath BrAW/3/1 crosses the Site east-west into the Open Access Land of Braceborough Wood, which is located immediately adjacent to the north-eastern boundary of the Site. PRoW footpath Uffi/5/1 crosses the south-western extent of the Site in an east-west direction. PRoW bridleway BrAW/1/1 crosses the eastern extent of the Site north-south, between the local road to the north and the railway line to the south. PRoW bridleway E169/1 routes through the north-western extent of the Site between the A6121 and B1176 in a general north-west to south-east alignment.

7.11.8. The Macmillan Way recreational route follows the south-western boundary before crossing the south-central area and continues along the northern boundary of the south-western extent of the Site.

7.11.9. The assessment will consider whether the Proposed Development will affect any PRoW for walkers, horse riders and cyclists within or surrounding the Site. A significant effect would be where the Proposed Development would lead to fundamental or material impacts on the receptors or where it would substantially affect recreational resources that have a more than local use or importance.

Assessment Methodology

7.11.10. The assessment will be undertaken in line with the relevant policy and guidance described below.

7.11.11. Section 4.2 of the Overarching NPS EN-1 (DECC, 2011) and Draft NPS EN-1 (BEIS, 2021) states that the IPC will find it helpful for the applicant to set out the information on the likely social and economic effects of the development and show how any likely significant negative effects would be avoided or mitigated. No reference to socio-economics or employment, relevant to solar development, is made in NPS EN-3 (DECC, 2011) or Draft NPS EN-3 (BEIS, 2021).

7.11.12. The Government's Plan to Build Back Better seeks to tackle long-term problems to deliver growth that creates high quality jobs across the UK. It is based around the priorities of levelling up the whole of the UK, supporting our transition to net zero, and supporting the vision for a Global Britain.

7.11.13. To achieve Net Zero, the UK will deliver the Ten Point Plan for a Green Industrial Revolution leveraging significant private sector investment and supporting up to 250,000 highly skilled jobs.

7.11.14. At a local level, the Greater Lincolnshire Local Enterprise Partnership's Economic Plan for Growth 'Protecting, Progressing, Prospering' sets out an ambition for the area to pioneer industrial decarbonisation, creating a template for other areas. It goes on to highlight a vision for becoming "*a test bed for technologies in clean energy generation, storage and distribution and a leading area in delivering Government objectives against the 10 Point Plan for the Green Industrial Revolution*".

Establising the Baseline

7.11.15. The baseline will be developed from a review of relevant planning and economic development strategies and policies and analysis of key socio-economic datasets.

7.11.16. Strategies and policies to be reviewed will include Local Plans and relevant Supplementary Planning Guidance (SPGs) as well as the Greater Lincolnshire Local Enterprise Partnership, Local Industrial Strategy and Strategic Economic Plan.

7.11.17. The socio-economic profile will be developed from datasets covering the local and local authority level, with benchmarking against the national level where appropriate. The datasets will include:

- 2011 Census Data;

- ONS Population Estimates;
- ONS Annual Population Survey;
- ONS Claimant Count Data; and
- ONS Business Register and Employment Survey.

Study Area

7.11.18. The study area for the assessment will be at the local authority level for Rutland and South Kesteven. Wherever relevant, data will also be extracted at a local Lower Super Output Area level applicable to the Site area itself.

Assessment of Effects

7.11.19. An assessment will be undertaken to assess the impact of the Proposed Development on the baseline socio-economic conditions, at the construction, operational and decommissioning phases. It will consider the extent to which the impacts in terms of direct and indirect employment and GVA will materialise in:

- The local authority areas of Rutland and South Kesteven in which the Proposed Development is located; and
- At a national level (England).

7.11.20. During the construction phase, the effects will cover:

- Numbers of construction workers involved in the delivery of the Proposed Development;
- Spending associated by the construction workers;
- Generation of employment from construction supply chain effects; and
- Any agricultural worker job losse.

7.11.21. During the operation phase, the effects will cover:

- Number of jobs supported to operate the Proposed Development and maintain the landscape within and around it; and

- Renewable energy and educational resource for the wider community.

7.11.22. When the operation stage ends, the decommissioning of the Proposed Development will generate further direct and indirect socio-economic effects similar to during the construction phase.

Issue Proposed to be Scoped Out

7.11.23. Apart from farmsteads, there are no other businesses operating in within the Site. There are, however, a number of small businesses operating in the settlements close to the Site.

7.11.24. The main publicly accessible tourism assets of the wider area are Stamford, and Burghley House and associated Park and Garden, both of which are situated approximately 2.3km to the south of the Site.

7.11.25. The ZTV submitted with this Scoping Report highlights that the Proposed Development will not be visible from Stamford and other surrounding settlements, whilst only glimpsed, distant views could be possible from the Burghley estate.. As such, it is considered that the effect on the local tourism economy will not be significant and it is therefore proposed that this is scoped out of the EIA.

7.11.26. There are two public rights of way located within the areas identified for potential solar infrastructure on Figure 3.1. These bridleways will be retained within a 30m landscape buffer. There may be a requirement to temporarily divert these bridleways during the construction phase, however this will be kept to a minimum while works within the that part of the Site are being undertaken. The PROWs that cross areas of potential mitigation and enhancement will be retained during the construction, operation and decommissioning phases. Significant impacts on PROW users are therefore not anticipated and are scoped out of the EIA. A Recreation and Amenity

assessment will be undertaken and submitted in support of the DCO Application.

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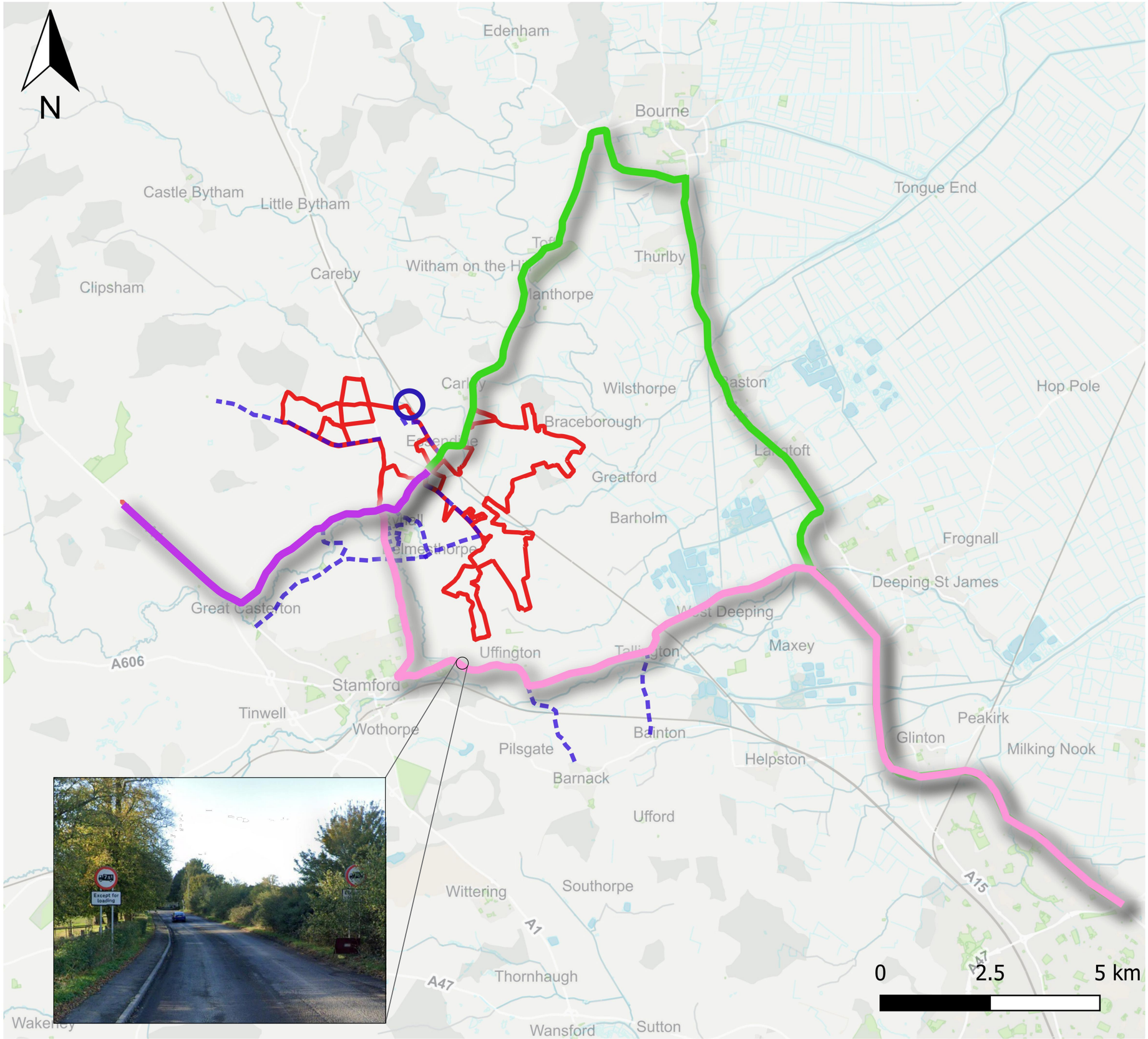

LEGEND

- Site Boundary
- Route 1 - via A1
- Route 2 - via A15 (Stamford)
- Route 3 - via A15 (Bourne)
- 7.5t Vehicular Restriction
- Low Bridge (3.9m Restriction)

LDĀDESIGN

PROJECT TITLE
MALLARD PASS SOLAR FARM
EIA SCOPING REPORT

DRAWING TITLE
Construction Access Routes and Vehicular Restrictions

ISSUED BY	Oxford	T: 01865 887 050	
DATE	Jan 22	DRAWN	CR
SCALE@A3	As shown	CHECKED	MK
STATUS	Final	APPROVED	AG

DWG. NO Figure 7.1

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources Ordnance Survey

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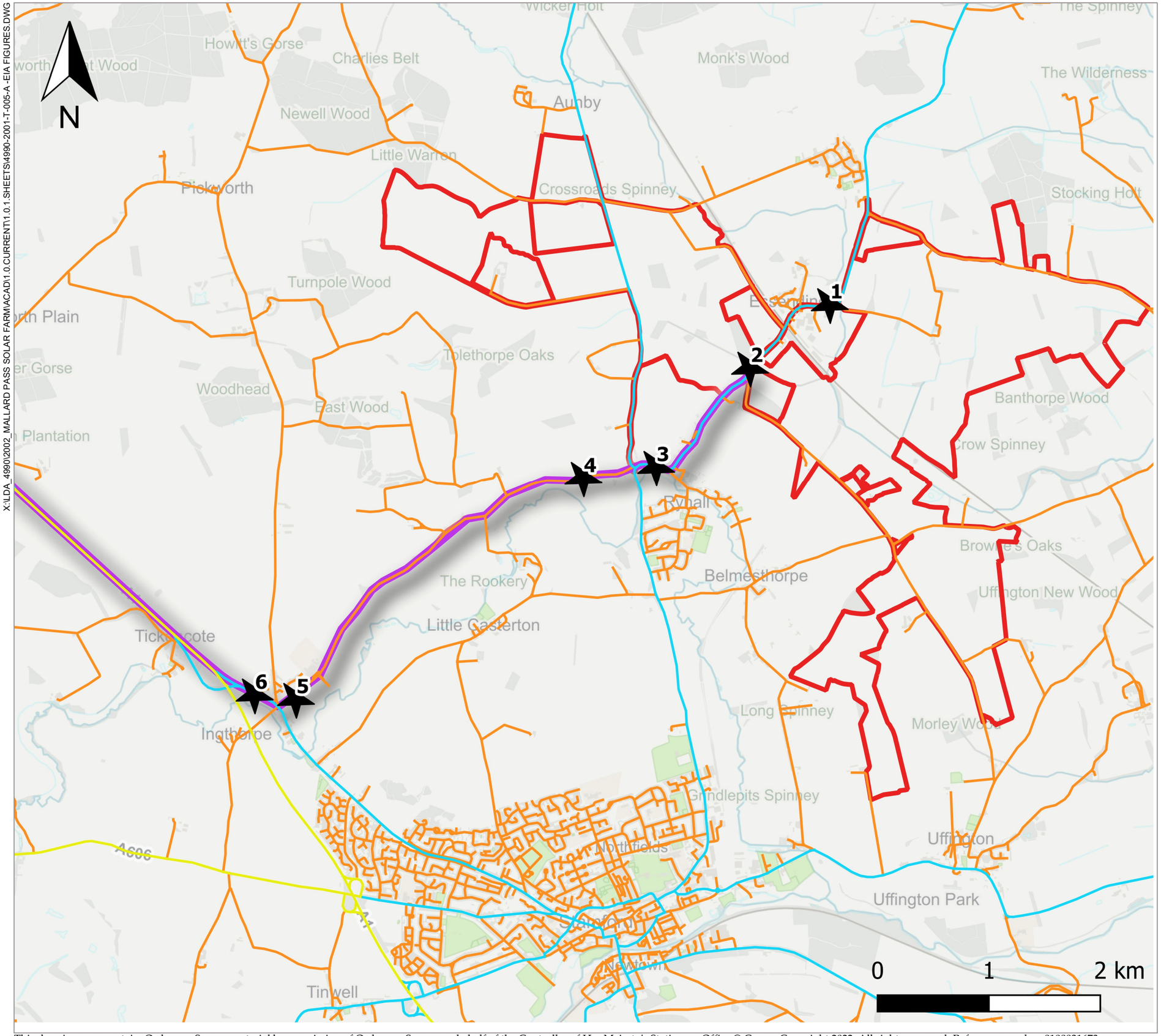

LEGEND

- Site Boundary
- Route 1 - via A1
- Local Network
- Regional Road Network
- National Road Network
- ATC Location

LDĀDESIGN

PROJECT TITLE
MALLARD PASS SOLAR FARM
EIA SCOPING REPORT

DRAWING TITLE
Route 1 Traffic Data Overview

ISSUED BY	Oxford	T: 01865 887 050	
DATE	Jan 22	DRAWN	CR
SCALE@A3	As shown	CHECKED	MK
STATUS	Final	APPROVED	AG

DWG. NO Figure 7.2

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Sources Ordnance Survey

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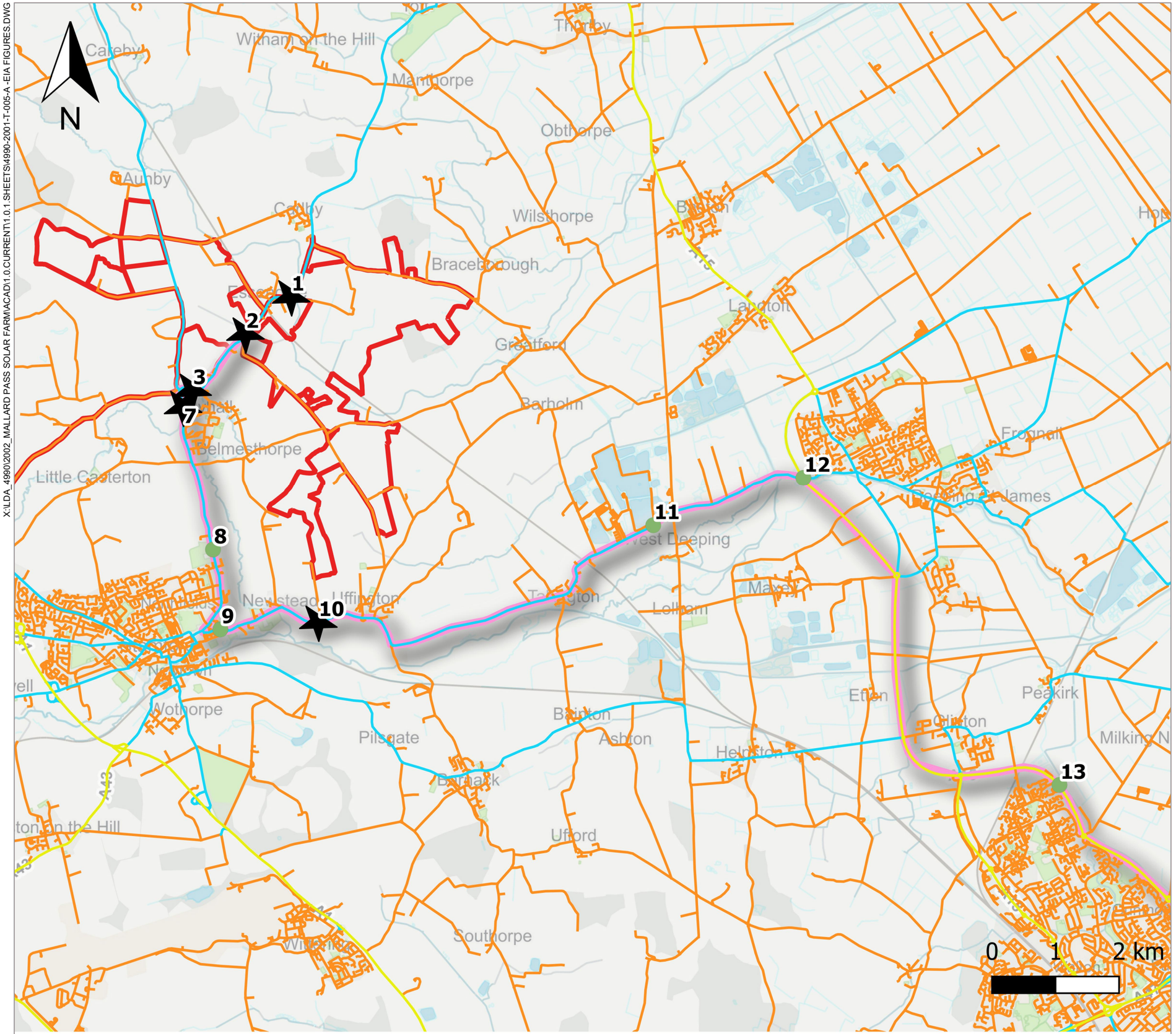

LEGEND

- Site Boundary
- Route 2 - via A15 (Stamford)
- Local Network
- Regional Road Network
- National Road Network
- ATC Location
- DfT Count Location

LDĀDESIGN

PROJECT TITLE
MALLARD PASS SOLAR FARM
EIA SCOPING REPORT

DRAWING TITLE
Route 2 Traffic Data Overview

ISSUED BY	Oxford	T: 01865 887 050	
DATE	Jan 22	DRAWN	CR
SCALE@A3	As shown	CHECKED	MK
STATUS	Final	APPROVED	AG

DWG. NO Figure 7.3

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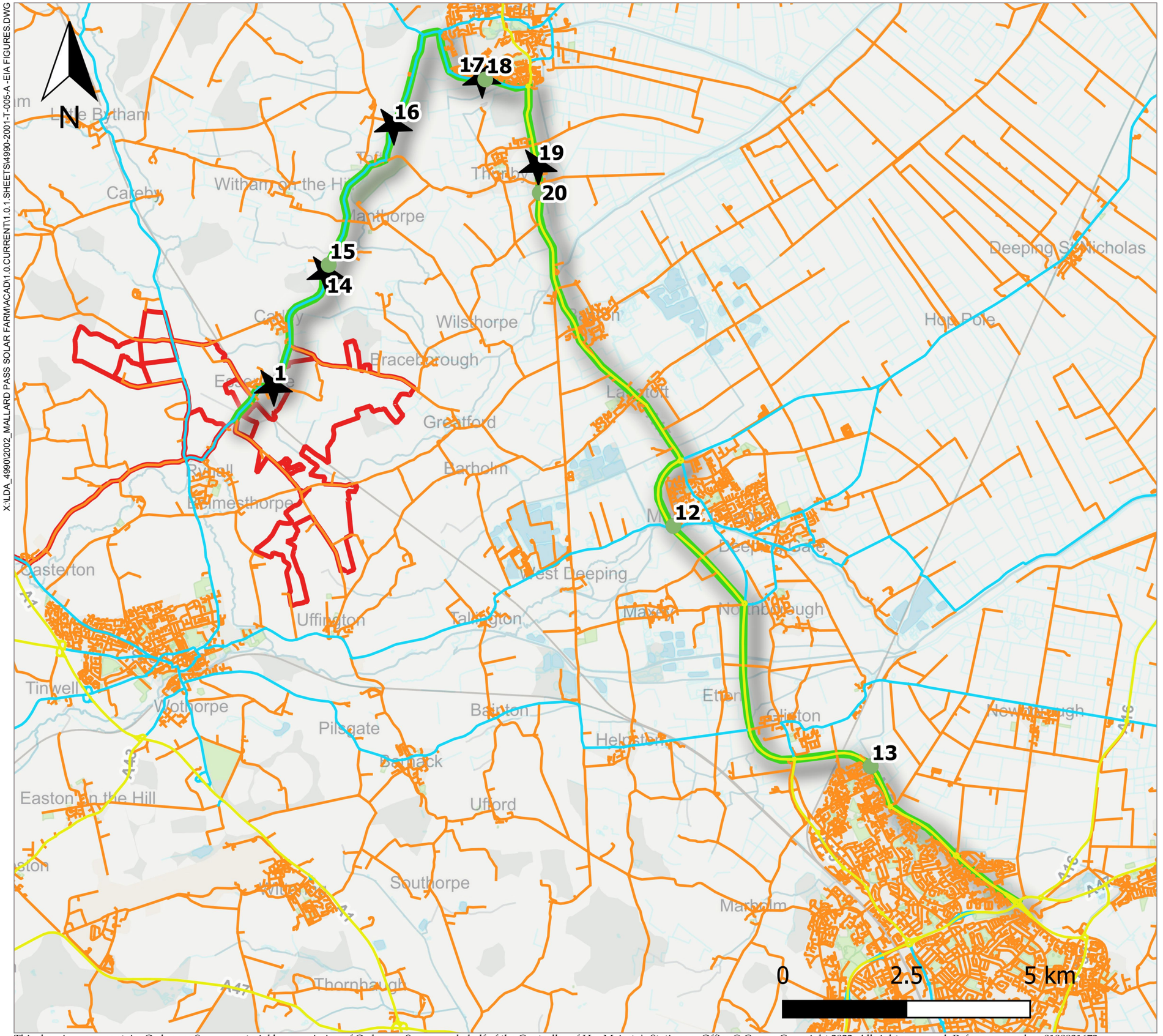
Area measurements for indicative purposes only.

Sources Ordnance Survey



LEGEND

- Site Boundary
- Route 3 - via A15 (Bourne)
- Local Network
- Regional Road Network
- National Road Network
- ATC Location
- DfT Count Location

LDĀDESIGN

PROJECT TITLE
MALLARD PASS SOLAR FARM
EIA SCOPING REPORT

DRAWING TITLE
Route 3 Traffic Data Overview

ISSUED BY	Oxford	T: 01865 887 050	
DATE	Jan 22	DRAWN	CR
SCALE@A3	As shown	CHECKED	MK
STATUS	Final	APPROVED	AG

DWG. NO Figure 7.4

No dimensions are to be scaled from this drawing.
All dimensions are to be checked on site.
Area measurements for indicative purposes only.

Sources Ordnance Survey

8.0 Environmental Topics Scoped Out of the EIA

8.1. Cultural Heritage

Introduction

8.1.1. Cultural Heritage encompasses buried archaeological remains; historic buildings, structures and monuments; and historic landscapes.

8.1.2. The minimal nature of ground disturbing activities associated with the construction and decommissioning of the Proposed Development means that significant effects on the archaeological interest (significance) of any potentially surviving remains onsite is very unlikely.

8.1.3. The change of character and land-use of agricultural land parcels, within the setting of historic buildings, structures and monuments, during the operation of the Proposed Development, is not sufficient to cause significant effects to their heritage significance.

8.1.4. No important historic character landscape types lie within the Site and thus no significant effects are anticipated on this component of the cultural heritage resource.

Baseline Conditions

8.1.5. Initial desk-based research has taken place to inform the material presented within this section of the Scoping Report. This exercise reviewed information held on Historic Environment Record (HER), other on-line sources of information regarding designated heritage assets (such as Historic England's Heritage List) which was also supplemented by a site visit undertaken in May 2021.

8.1.6. A large study area, 5km wider than the Site, was used to collect HER information. This is more than sufficient, at this stage of the assessment, to characterise the potential for buried archaeological remains. For the

selection of designated heritage assets and their settings that may be subject to change from the Proposed Development, an appropriate study area of 2km was adopted. Due to the nature of the Proposed Development, it can be stated with confidence that assets beyond this distance would not be adversely affected by the Proposed Development. The detailed assessment of this matter will be explored with further Site visits and the use of a ZTV.

8.1.7. There are two RPGs within 1km of the Site, comprising the Grade II Greatford Hall (also encompassing a Conservation Area), located approximately 600m east of the solar PV Site, and the Grade II Uffington Park, which is located approximately 650m south of the solar PV Site (numbers 1 and 2, respectively depicted on Plate 3). Several other RPGs lie slightly further afield, including Holywell Hall Park (Grade II) to the north-west; Burghley House (Grade II*) to the south; and Grimsthorpe Castle (Grade I) to the north.

8.1.8. The Grade II* Listed Church of St Mary lies approximately 50m from the solar PV Site, but closer to 200m away from any Proposed Development. The Church lies within the larger scheduled area of Essendine Castle (numbers 3 and 4, respectively on Plate 3). In the wider landscape there are a collection of listed buildings within the village of Carlby, approximately 1km north of the Site, most noteworthy being the Grade I Church of St Stephen (number 5 on Plate 3). Further collections of listed buildings lie in the villages of Belmesthorpe (number 6 on Plate 3) and Ryhall Conservation Area (number 7 on Plate 3), over 1km to west of the solar PV Site and within Braceborough Conservation Area (number 8 on Plate 3), lying over 500 north-east of the solar PV Site. Banthorpe Lodge (Grade II) lying approximately 250m east of the central extent of the solar PV Site (number

9 on Plate 3) is one of several listed post-medieval farmsteads, agricultural buildings or rural dwellings lying in the wider landscape of the Site.

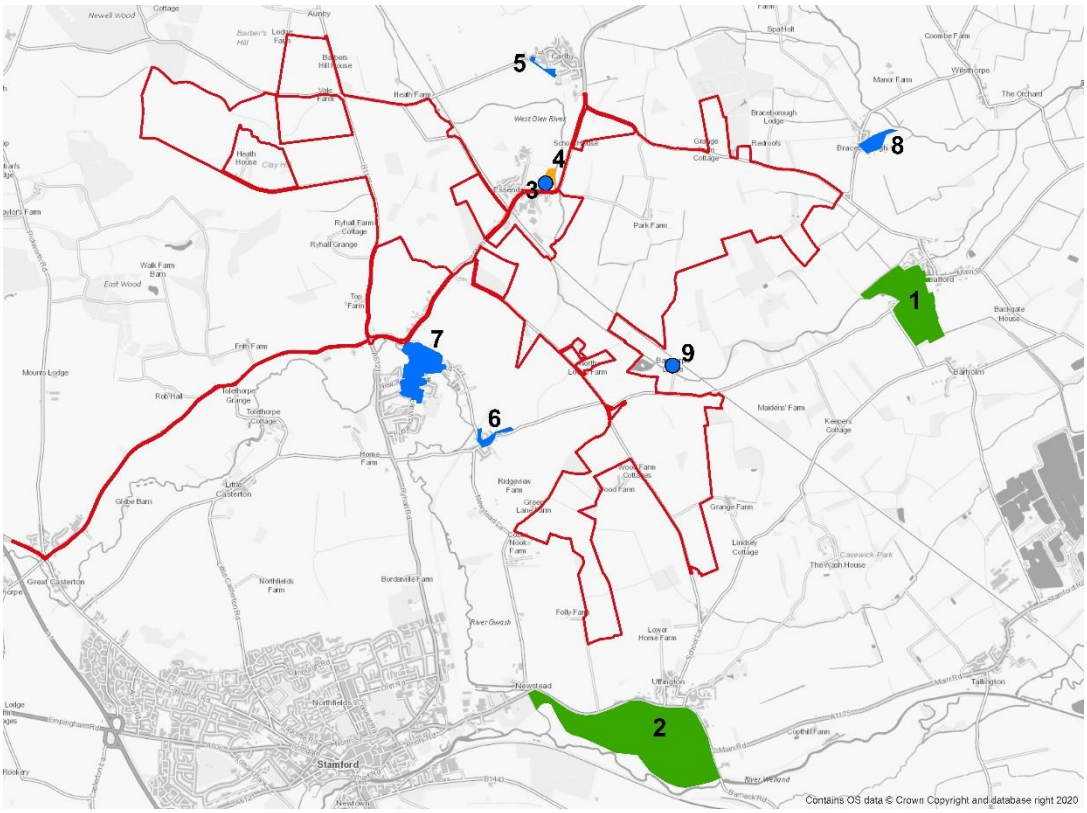


Plate 5: Key Designated Heritage Assets

8.1.9. The HER for both Leicestershire and Lincolnshire include details of potential surviving buried archaeological remains within the Site and the wider environs. In the most part, the potential for buried archaeological remains has been identified from cropmarks and soil marks recognised on aerial photographs from the second half of the 20th century. These records suggest that remains from most periods of later prehistory to the modern day could survive buried within the Site.

8.1.10. Most notably, these comprise features potentially related to late prehistoric land divisions, settlements and funerary remains. Although as yet unrecorded remains of a similar nature could survive within much of the

Site, the focus of these potential remains can be found in the southernmost extent of the Site (field numbers 50, 51 and 52; Figure 2.2); in the northern extent of the Site (west of Essendine, field numbers 7 and 11); and in land parcels in the central part of the Site (north-east of the railway line, field numbers 31, 32 and 35).

8.1.11. The potential extent and heritage significance of buried archaeological remains is being investigated by additional desk-based research (including further examination of aerial photographic records) and geophysical survey, which have commenced onsite. Further investigations may also be deployed and are described in further detail below.

Potential Effects

8.1.12. As summarised above, the minimal nature of ground disturbing activities, associated with the construction and decommissioning of the Proposed Development, means that significant effects on buried archaeological remains are not anticipated. This is not to suggest that important buried archaeological remains are not expected to survive within the Site, but that the size and frequency of the driven piles and cable runs for the solar arrays are so slight that even if their location were to coincide exactly with buried remains there would be no material loss of archaeological interest.

8.1.13. Furthermore, mitigation through design (avoidance) can allow any especially sensitive buried archaeological remains (such as human remains) to be safeguarded completely from any disturbance. The desk-based assessment and geophysical surveys will aid in the identification of any such locations. Thus, an assessment of buried archaeological remains can be scoped out of the EIA.

8.1.14. The Proposed Development would change the character of land parcels lying within the wider and peripheral setting of several listed buildings,

RPGs and scheduled monuments. The historic landscape character of the Site itself has not been recognised as of particular importance. Furthermore, the fundamental agrarian nature of the setting of these designated heritage assets would be unchanged. For all designated heritage assets, it is views towards them that are the critical components of their experience, the vast majority of these being views from up close. The form of the Proposed Development and its distance from these heritage assets means that no views of them would be lost or obscured. As such, key experiences of the buildings will be unaltered.

8.1.15. Therefore, any changes to the setting of designated heritage assets is unlikely to result in a significant adverse effect in EIA terms. Thus, an assessment of the effects on the heritage significance of these assets (historic buildings, structures, monuments and the historic landscapes) is scoped out of the EIA.

Approach to Assessment

8.1.16. Despite being scoped out of the EIA process, a detailed and proportionate assessment of the cultural heritage resource will form part of the application for development consent.

8.1.17. An assessment of the potential for buried archaeological remains, based on desk-based research and undertaken in accordance with the standard and guidance of the Chartered Institute for Archaeologists (CIfA), will be supported a geophysical survey of the Site. Further investigations, such as a trial trenching, may also be deployed to explore the extent and significance of potential buried archaeological remains.

8.1.18. A detailed historic building and historic landscape assessment will also be undertaken. This will comprise a 'settings assessment' of the key designated (and potential undesignated) heritage assets in proximity of the

Site. This will also comprise an assessment of the historic landscape character of the Site.

8.1.19. The baseline assessment work described above will culminate in an understanding of the heritage significance of any assets within the Site and environs. An understanding of the Proposed Development (the impact of change to the baseline environment) alongside the understanding of significance and importance will allow for an impact assessment to be undertaken. This will be presented within a Cultural Heritage Impact Assessment report which will be submitted to support the application for development consent. This will include a discussion on any potential cumulative impacts.

Consultation

8.1.20. Initial consultations have been undertaken with stakeholders including Heritage Lincolnshire and Leicestershire County Council alongside interrogation of the HER for Lincolnshire and Leicestershire. To date, this consultation has focused on the scope of the desk-based and field surveys to inform the assessment. Further consultations have been programmed to provide updates from the on-going survey work (geophysical surveys during the early part of 2022). The consultations will also seek to agree the scope of any mitigation (see above).

8.2. Air Quality

Introduction

8.2.1. The proposed method of assessment for identifying likely significant environmental effects from air quality associated with construction, operation and decommissioning phases of the Proposed Development is described in this section of the Scoping Report. Due to the proposed implementation of construction dust mitigation measures through an

oCEMP and with development traffic flows anticipated to be below relevant screening criteria, no significant effects to air quality are expected.

Baseline Conditions

Local Air Quality Monitoring

8.2.2. The Site is located approximately 23.1km to the south-east of its nearest AQMA declared for concentrations of nitrogen dioxide (NO_2). This AQMA is SKDC no.6 AQMA, located in Grantham, and has been declared for exceedances of the annual and 1-hour mean NO_2 air quality objective (AQO). Within an AQMA the screening criterion for possibility of significant impacts to air quality is an increase in 100 light duty vehicles (LDV) or 25 heavy duty vehicles (HDV) in line with Environment Protection UK (EPUK) and Institute of Air Quality Management (IAQM) guidance (2017). Due to the distance and the assumption that traffic associated with the Proposed Development will have dispersed throughout the network over this distance, it is not expected this AQMA will be affected by the Proposed Development.

8.2.3. Neither RCC nor SKDC currently undertake any automatic air quality monitoring and therefore no monitoring data is available for particulate matter (PM_{10} and $PM_{2.5}$). RCC utilised 11 diffusion tubes to monitor annual mean NO_2 concentrations across its administrative area in its latest year with available data, 2018, whilst SKDC utilised 58 diffusion tubes during 2020, the most recent year with available data. There are no diffusion tubes located in the immediate vicinity of the Site; however, one RCC and 11 SKDC diffusion tubes are located between approximately 2km and 3.5km from the Site. Table 8.1 provides the latest annual mean NO_2 concentrations at the nearest diffusion tube locations to the Site for the

years 2015 to 2020. The locations of the diffusion tubes are illustrated in Plate 4.

8.2.4. The pollutant concentrations recorded at the diffusion tubes in 2020 are not considered to be representative of "normal" air quality conditions. Whilst it is expected that as a result of the COVID-19 pandemic behaviours will change in the future, the impact of this on long-term air quality is currently unknown and therefore 2020 data has been included for information only and not used to determine baseline air quality in the vicinity of the Proposed Development.

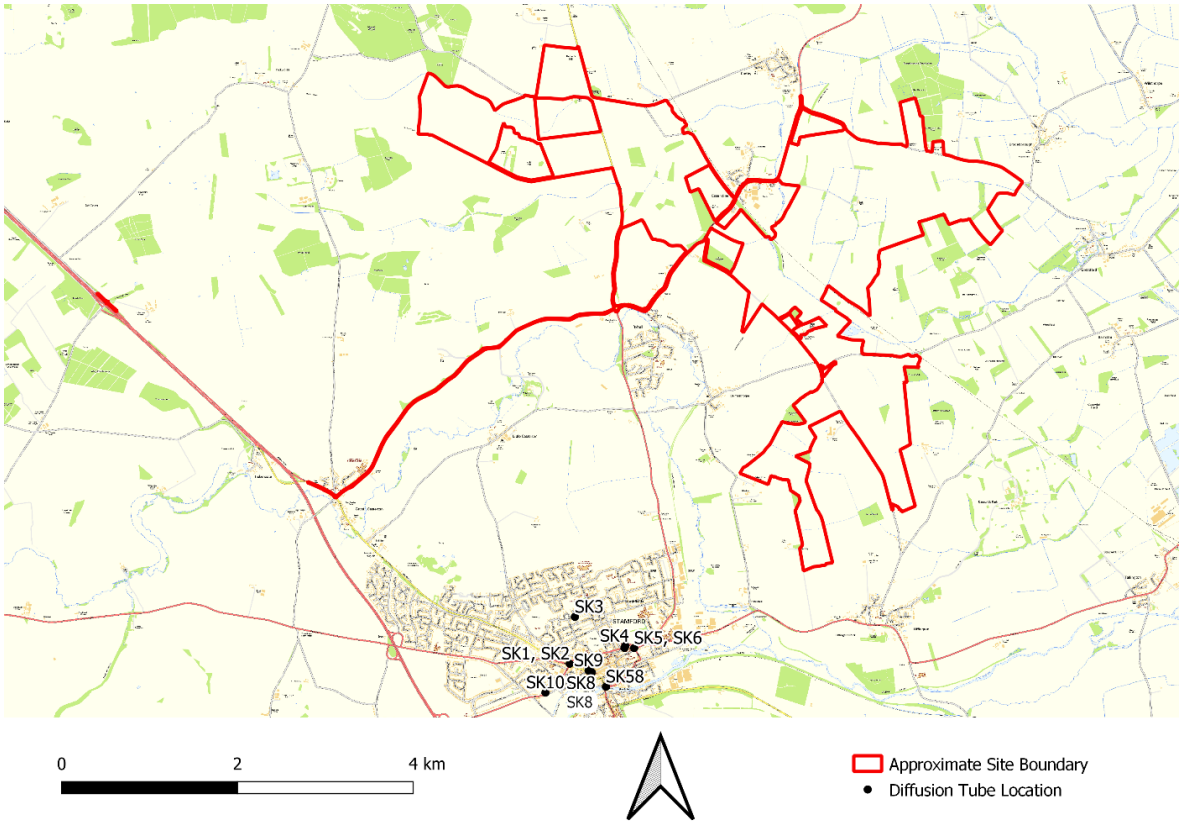


Plate 6: RCC and SKDC diffusion tube locations in the vicinity of the Site. Contains OS Data © Crown Copyright and Database rights 2022

Table 8.1: Annual Mean NO_2 Diffusion Tube Data

Diffusion Tube ID	Diffusion Tube Name	Site Type	Distance from Site	2015	2016	2017	2018	2019	2020
4 (RCC)	Tickencote	Rural	4.9	14.1	17.7	12.8	18.5	-	-
SK1/ SK2 (SKDC)	Scotgate	Roadside	2.9	35.7	36.7	32.7	30.7	28.4	21.4
SK3 (SKDC)	Essex Road	Roadside	2.7	15.1	16.3	16.0	13.8	13.1	9.5
SK4 (SKDC)	Opp Stam' Sch	Roadside	2.2	35.9	36.6	33.4	29.9	30.3	21.3
SK5/ SK6 (SKDC)	East St	Roadside	2.1	34.1	37.8	32.8	31.1	30.1	23.5
SK7 (SKDC)	Stam' School	Roadside	2.2	34.1	38.8	38.8	32.7	32.8	25.5
SK8 (SKDC)	London Inn	Roadside	2.7	25.9	27.8	25.0	25.7	22.5	15.8
SK9 (SKDC)	All Saints Rd	Roadside	2.7	27.7	26.4	26.7	25.0	23.9	17.9
SK10 (SKDC)	Avondale	Roadside	3.2	15.3	19.9	22.0	20.2	18.3	14.7
SK58 (SKDC)	Wharf Rd Stamford	Roadside	2.6	-	-	33.1	31.1	24.6	19.3

8.2.5. There have been no exceedances of the annual mean NO_2 objective of 40 µg/m^3 at any of the diffusion tubes located nearest to the Site in the years between 2015 and 2019 with available monitoring data recorded. The location with the highest concentration in 2019 was SK7 (Stam' School), located on the A6121 East Street in Stamford, monitoring 32.8 µg/m^3 or 82% of the annual mean objective. As such it is considered likely that no

exceedances of the annual mean objective will be experienced in the vicinity the Site.

8.2.6. The 1-hour mean AQO for NO_2 is 200 µg/m^3 and should not be exceeded more than 18 times within a year. In line with Local Air Quality Management Technical Guidance (LAQM.TG(16)), exceedance of the 1-hour mean NO_2 objective are unlikely to occur where the annual mean concentration is below 60 µg/m^3. Concentrations at nearby diffusion tubes shown in Table 8.1 therefore shows that the 1-hour mean NO_2 objective is unlikely to be exceeded at these locations.

Defra Predicted Concentrations

8.2.7. Defra background concentrations have been obtained from the national maps published by Defra. These estimated concentrations are produced on a 1 km by 1km grid basis for the whole of the UK. The Site falls into multiple grid squares, grid square X 505500 Y 312500 has been used to provide an indication of background concentrations in the vicinity of the Site. Predicted concentrations for this grid square for NO_2, PM_{10} and $PM_{2.5}$ are provided in Table 8.2**Error! Reference source not found.** for the current year, 2022.

Table 8.2: Estimated Annual Mean Background Concentrations in 2022 in µg/m^3

Year	**Background (µg/m^3)**		
	NO_2	**PM_{10}**	**$PM_{2.5}$**
2022	7.1	15.3	8.6

It can be seen that the modelled background concentrations are well below the relevant annual mean objective levels for NO_2, PM_{10} (40 µg/m^3) and $PM_{2.5}$ (25 µg/m^3) in 2022.

Potential Effects

8.2.8. The following aspects are proposed to be scoped out of the EIA:

- Impacts to air quality at sensitive human and ecological receptors due to fugitive dust emission during the construction phase are expected to be adequately managed through mitigation measures. A construction dust risk assessment will be undertaken to inform appropriate mitigation and appended to the oCEMP which will be submitted with the DCO application;
- It is not expected that construction traffic flows will exceed the screening criterion for either sensitive human (>500 light duty vehicles (LDV) and/ or >100 heavy duty vehicles (HDV) (two-way)) or ecological receptors (>1000 LDV and/ or >200 HDV), therefore the effects of traffic emissions will be non-significant and are scoped out of the EIA;
- Impacts to air quality at sensitive human and ecological receptors from non-road mobile machinery (NRMM) as emissions of NO_X and PM_{10} will be required to adhere to emissions standards, therefore the effects of construction plant on local air quality would be non-significant and are scoped out of the EIA; and
- Impacts to air quality at sensitive human and ecological receptors from the operational phase of the Proposed Development are not anticipated to be significant as traffic flows are expected to be minimal and no combustion plant will be present onsite and therefore are scoped out of the EIA.

8.2.9. On this basis, it is not expected that a specific air quality chapter will be required in the ES.

Approach to Assessment

8.2.10. The works being undertaken during the construction phase include earthworks, construction and trackout. It is anticipated that dust and particulate matter emissions produced during construction phase activities would be controlled through the implementation of a CEMP. An oCEMP will be submitted with the application which will include measures required to address impacts from dust during construction.

Consultation

8.2.11. Contact has been made with the Environmental Health Officer at RCC and SKDC to agree the approach to considering air quality.

8.3. Arboriculture

Introduction

8.3.1. The purpose of the arboricultural assessment is to identify the individual and massing of trees located within the influencing distance of the Site. The Aboricultural Impact Assessment (AIA) considers the scale, condition and safe useful life expectancy of trees in their current setting, and then determines the likely impacts of the Proposed Development including such matters as necessary tree removals, surgery and predictable future maintenance programmes. The AIA will be prepared alongside the design team to ensure arboricultural impacts are minimised, and tree protection measures maximised to secure their unharmed retention during the construction, operation and decommissioning periods of the Proposed Development. As such a separate chapter on Arboriculture within the ES is not considered to be required.

Baseline Conditions

8.3.2. No baseline surveys have yet been undertaken. A detailed onsite inspection whereby the trees will be quantified in terms of age, size, condition and longevity will be undertaken following the completion of the topographical survey.

8.3.3. A visual assessment of the Site, completed prior to a fully detailed AIA, indicates that as the Site is primarily agricultural land, the majority of trees are clustered around the Site boundaries or are hedgerow specimens.

There are a limited number of field trees and some larger blocks of woodland plantations across the Site.

Potential Effects

8.3.4. The primary impacts on trees are liable to occur from the following requirements for the Proposed Development:

- Permanent access routes;
- Temporary construction phase access routes;
- Permanent parking facilities;
- Temporary construction phase parking facilities;
- Temporary Site buildings and compounds;
- Area directly affected by construction works (above and below ground);
- Installation of Services;
- Storage of materials;
- Car parking; and
- Future maintenance requirements.

8.3.5. These matters will be addressed primarily at the design stage which will filter out clear conflicts between trees of aesthetic quality, good condition and longevity by identifying potential issues at the earliest opportunity. As mentioned at Paragraphs 3.2.1 – 3.2.2 of this Scoping Report, the existing hedgerows, woodland, ditches, ponds and field margins will be retained within the layout of the solar arrays, with the exception of small breaks and/or crossings required for new access tracks, security fencing and cable routes. Table 3.1 sets out the minimum offsets/buffers from the solar arrays which will be incorporated within the design of the Proposed Development. The buffers/offsets are a minimum and may be increased to deliver further

mitigation or enhancements and/or respond to root protection areas where required.

8.3.6. This will prevent long term structural design clashes being created between the needs of the Proposed Development and the reasonably foreseeable needs of the trees. With regards to construction, a Arboricultural Method Statement will be drawn up and incorporated within the oCEMP. It will identify relevant measures to prevent tree damage from construction activities. The implementation of this Arboricultural Method Statement will be monitored by a qualified arboricultural consultant to ensure contractual compliance. Therefore, impacts to trees as a result of the Proposed Development are not anticipated to be significant.

Approach to Assessment

8.3.7. The baseline survey will be completed in accordance with British Standard (BS) 5837:2012 *Trees in relation to design, demolition and construction. Recommendations*.

8.3.8. The impact of the Proposed Development to trees will be determined by calculating the sphere of influence to and from the trees in accordance with the afore referenced BS 5837:2012. This provides guidance for characterising the present and future growth potential of trees (both above and below ground) by combining calculations from known measurements with interpretative skills from experienced Arboriculturalists. From this, practical arboricultural constraints can be identified at the design stage and tree related conflicts between construction and growth space avoided.

8.3.9. Trees to be assessed within the AIA will include trees within the Site boundary, and also those outside that are considered to be within influencing distance – a maximum of 30m beyond the Site boundary.

8.3.10. The AIA will also consider areas of offsite highways works should any existing vegetation required to be.

Consultation

8.3.11. Consultation will be undertaken with RCC and SKDC to identify if any of the trees or landscape features are subject to Tree Preservation Orders.

8.4. Risk of Major Accidents and/or Disasters

Introduction

8.4.1. In accordance with Schedule 4 of the EIA Regulations, the EIA methodology chapter of the ES will describe the risks of major accidents and/or disasters that are relevant to the Proposed Development.

8.4.2. The EIA Regulations do not include the definition of major accidents and/or disasters. For the purposes of the assessment, the following three definitions and accidents and disasters have been used within the context of the Proposed Development:

- The Control of Major Accidents Hazard (COMAH) Regulations, 2015, defines a major accident as "*an occurrence such as a major emission, fire, or explosion resulting from uncontrolled development, leading to serious danger to human health or the environment (whether immediate or delayed) inside or outside the establishment, an involving one or more dangerous substances*".
- The International Federation of Red Cross & Red Crescent Societies Disaster and Crises Management Guidance provides a useful definition for disaster, which is "*a sudden calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins.*"; and

- The Oxford English Dictionary defines an accident as "*an unfortunate incident that happens unexpectedly and unintentionally, typically resulting in damage or injury.*"

Identifying Risks for Major Accidents and/or Disasters

8.4.3. To help identify major accidents and/or disasters which are relevant to the Proposed Development, the following guidance documents have been referred to:

- Cabinet Office National Risk register of Civil Emergencies; and
- MH Government: Emergency Response and Recovery.

8.4.4. The Proposed Development does not introduce any construction or operational uses or procedures that are considered to have a risk of major accident or disasters that could affect existing or future sensitive receptors, which are not considered through existing regulatory regimes. Such regimes include Building Regulations, NHS England Emergency Preparedness, Resilience and Response Framework, Health and Safety at Work Act 1974, Safety at Work Regulations 1999, CDM Regulations 2015, Railway Operator Regulatory Requirements, 999 emergency service response procedure and call/response procedure to report utility system failures.

8.4.5. The paragraph below, provides a brief description of potential major accidents and/or disasters, which are considered relevant to the Proposed Development in the absence of embedded mitigation within the Proposed Development.

<u>Transport Accidents</u>

8.4.6. The Proposed Development will increase the amount of traffic on the public highway during both the construction, operational and decommissioning phases. The Transport Assessment and Access and Highways chapter of

the ES will consider the highway safety and potential effect on accidents arising as a result of the Proposed Development.

8.4.7. Impacts from glint and glare to road, rail and aircraft users will be considered in the Glint and Glare chapter of the ES and mitigation measures will be identifies and incorporated into the design of the Proposed Development, where necessary.

8.4.8. Therefore a separate chapter of the ES, covering risk of transport accidents is not considered necessary.

Flooding

8.4.9. Both the vulnerability of the Proposed Development to flooding, and its potential to exacerbating flooding will be assessed in the Flood Risk Assessment (FRA) and the Water Resources and Ground Conditions chapter of the ES to ensure that the Proposed Development is safe from water ingress for its lifetime in the event of flooding, without increasing flood risk elsewhere. As such, a separate ES chapter covering risk from flooding accidents is not considered necessary.

Fire

8.4.10. Component and equipment of the Proposed Development will be installed in accordance with the relevant Fire regulations and guidance from the Health and Safety Executive. The operational phase of the Proposed Development would involve routine maintenance and servicing of equipment to ensure the safe operation of equipment. Fire equipment and notices will also be provided onsite for the availability of personnel and would be regularly inspected and serviced in accordance with relevant Fire Regulations. The ES will include details on the measures incorporated into the design to minimise any potential impact of Proposed Development resulting from a

fire. As such, a separate ES chapter covering risk from fire accidents is not considered necessary.

8.4.11. An outline Battery Safety Management Plan (oBSMP) will be prepared and submitted with the DCO Application. The oBSMP will detail the regulatory guidance reviewed to ensure that all safety concerns around the BESS element of the Proposed Development are addressed in so far as is reasonably practicable.

8.5. Human Health

8.5.1. The Proposed Development would be designed and equipment would be maintained to operate safely so as not to present a risk to human health. The Proposed Development would be constructed in accordance with safe construction industry practice and would be subject to routine monitoring, maintenance and servicing by staff during its operation.

8.5.2. There are interactions with human health during the construction, operation and decommissioning of the Proposed Development, which will be considered within the individual environmental topic assessments of the ES and supporting application technical documents, as listed below:

- Access and Highways (see Section 7.5 of this Scoping Report);
- Noise and Vibration (see Section 7.6 of this Scoping Report); and
- Water Resources and Ground Conditions, including a Draft Water and Construction Management Plan (see Section 7.7 of this Scoping Report).
- Recreation and Amenity Assessment (see Section 7.11 of this Scoping Report);
- Construction dust risk assessment (see Section 8.2 of this Scoping Report);;
- Outline Battery Safety Management Plan (see Section 8.4 of this Scoping Report);
- Outline Construction Environmental Management Plan

- Outline Decommission Environmental Management Plan; and

Electromagnetic Fields (EMF)

8.5.3. Power frequency electric, magnetic and electromagnetic fields (EMF) arise from generation, transmission, distribution and use of electricity and occur around power lines and electric cables and around domestic, office or industrial equipment that uses electricity. Electric fields are the result of voltages applied to electrical conductors and equipment. Magnetic fields are produced by the flow of electric current; however, although fences, shrubs and buildings and block electric fields, most materials do not readily block magnetic fields. The intensity of electric fields and magnetic fields diminishes with increasing distance from the source.

8.5.4. Electric fields depend on the operating voltage of the equipment. Magnetic fields depend on the electrical currents flowing and are significantly limited by most common materials. Typically, ground-level magnetic fields from underground cables fall much more rapidly with distances than those magnetic fields corresponding to an overhead line, but can be higher at small distances from the cable.

8.5.5. There is no direct statutory provision in the planning system relating to protection from EMFs. The Power Lines: Demonstrating compliance with EMF public exposure guidelines' published by DECC in 2012, that guidelines for both public and occupational exposure published by the International Commission on Non – Ionizing Radiation Protection (ICNIRP) in 1998 should be taken into account. The guidance states that "*overhead power lines at voltages up to and including 132 kV, underground cables at voltages up to and including 132 kV and substations at and beyond the publicly accessible perimeter*" are not capable of exceeding the ICNIRP exposure guidelines and therefore no assessment is required for these and other types of infrastructure listed on the Energy Networks Association

website. As such, the scope of the assessment of EMF in the EIA will be limited to cables associated with the Proposed Development that exceed 132kV. The only element of the Proposed Development which is likely to exceed this voltage is the export cable between the 400/33kV proposed primary substation and the existing 400kV Ryhall Substation. The export cable corridor is located approximately 500m away from the nearest residential receptor and passes under Uffington Road, therefore the effects of EMF on sensitive receptors is limited. The ES will, however, detail any design measures taken to avoid any potential for EMF on receptors.

8.5.6. As such, due to interactions with human health covered elsewhere within individual topics of the ES, it is not considered necessary to provide a separate Human Health ES chapter.

8.6. Waste

8.6.1. The Proposed Development is likely to generate waste during the construction, operation and decommissioning phases; comprising of the following:

- General construction waste, including packing waste from materials, and construction materials from fencing, access roads and supporting infrastructure etc

8.6.2. All the electrical infrastructure such as PV modules, racks, inverters, transformers, batteries and other supporting infrastructure will be manufactured offsite and delivered to the Site ready for installation and therefore construction and assembly waste is expected to be minimal.

8.6.3. Large scale earth works are not anticipated as result of the construction, operation or decommissioning of the Proposed Development. An outline Excavated Materials Management Plan , included within the oCEMP, will be submitted with the application setting out details of how excavated materials

will be managed, how waste will be managed in accordance with the waste hierarchy, good practice measures for managing waste in construction and the roles and responsibilities of the construction contractor.

8.6.4. Waste generation during the operation phase will be minimal because of the nature of the Proposed Development.

8.6.5. If the Proposed Development were to be decommissioned it is not possible at this time, to identify or assess how waste products would be managed as waste recycling and disposal techniques are likely to be very different. The Proposed Development consists of a number of parts that could be readily reused or recycled, such as the metal tables, onsite cabling, stone access tracks etc. To ensure that the principles of recycling and/or reusing these materials are secured, an outline DEMP will be prepared and submitted as part of the application. In light of the above, it is therefore considered that significant waste impacts are not expected during either construction, operation or decommissioning of the Proposed Development and that a separate ES chapter covering waste is not considered necessary.

9.0 Cumulative Assessment

9.1. Introduction

9.1.1. Schedule 4 of the EIA Regulations require the consideration of the potential impact of inter-relationships and cumulative effects of "*existing and/or approved development*" with the development.

9.1.2. The overarching National Policy Statement (NPS) for Energy EN-1 states that "*when considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence*."

9.1.3. The EIA will consider the following, as appropriate:

- The likely significant cumulative effects of the Proposed Development and other major local and existing and/or approved development; and
- The potential for impact interactions leading to an aggregated environmental effect on a receptor being greater than each of the individual effects that have been identified (e.g. local people being affected by noise, dust and increased traffic levels during the construction of the development, where those impacts are greater combined than individually).

Intra-project effects: Impact Interactions

9.1.4. These effects occur between different environmental topics within the same project, as a result of that development's direct effects (IEMA, 2011). For example, if a development proposal is likely to increase traffic flows, the

impact that the increase in traffic will have on sensitive noise receptors will be assessed.

9.1.5. Each topic chapter within the ES will provide a summary of impact interactions, setting out how the particular topic area has considered and assessed secondary effects arising as a result of direct impacts from other environmental chapters. Rather than assessing this separately, secondary effects are often considered within the main assessment owing to the integrated nature of the EIA process, where this is the case, this will be explained within each of the environmental topic chapters of the ES.

Inter-project Effects: Cumulative Impacts

9.1.6. This form of cumulative effect occurs as a result of the likely impacts of the proposed development interacting with the impacts of other developments in the vicinity (IEMA, 2011).

9.1.7. The EIA Regulations require the EIA to consider cumulative effects, i.e. the cumulative effect of the Proposed Development being carried out alongside other existing and/or approved developments. The EIA will include an assessment of the potential effects of the Proposed Development in the context of other local developments and, therefore, the cumulative effects that may result from the Proposed Development and these other developments on the same receptor.

9.1.8. The EIA will consider the cumulative effects of the Proposed Development in combination with the environmental effects of other existing and/or approved developments on sensitive receptors identified through the EIA process. The scope of cumulative assessment includes identification of a long list of development within the appropriate Zone of Influence (ZoI) for each topic discipline, which will form the basis of the search area for the cumulative effects assessment. The cumulative effects assessment will

draw upon the method as set out within Advice Note Seventeen (Cumulative Effects Assessment), as published by the Planning Inspectorate (PINS) in August 2019 (see Table 9.1 below).

Table 9.1: Identifying and assigning certainty to cumulative developments (PINS Advice Note Seventeen, 2019)

Tier 1	• Under construction; • Permitted application(s), whether under the PA2008 or other regimes, but not yet implemented; and • Submitted application(s) whether under the PA2008 or other regimes but not yet determined
Tier 2	• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted.
Tier 3	• Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted. • Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that there will be limited information available on the relevant proposals. • Identified in other plans and programmes (as appropriate) which set the framework for future development consents/approvals, where such development is reasonably likely to come forward.

9.2. Approach to Cumulative Site Search

9.2.1. The cumulative effects assessment will adopt a four-staged approach, as set out in the following subheadings:

Stage 1

9.2.2. The cumulative effects assessment will include the identification of a long list of other existing and/or approved development using the tiered approach adopted from PINS Advice Note Seventeen (above). The ZoI for each topic discipline will be identified which will form the basis of the search area. This

long list will be kept under continual review up until the point of determination of the application to ensure that the information within the ES is up to date at the point of decision.

9.2.3. The ZoI for each environmental topic area has been identified based on the extent of likely effects. The ZoI has been identified in line with industry specific guidance along with professional judgement and knowledge of the local area for each environmental topic area. The identified ZoIs are presented in Table 9.2.

Table 9.2: Zone of Influence Identified for the Cumulative Effects Assessment

Topic	Zone of Influence (ZoI)
Landscape and Visual Impact	Landscape and visual receptors: 2km
Ecology and Biodiversity	Internationally designated sites: 10km Nationally designated Sites: 2km Locally designated sites: 2km Protected species records: 2km Surveys – most surveys limited to Site boundary and immediate vicinity but will extend to 500m for GCN ponds and winter bird survey will include adjacent fields.
Access and Highways	Extent of the LRN affected by the construction and decommissioning phase, as well as any identified sensitive receptors. The three potential access routes from the SRN to the Site will be considered.
Noise and Vibration	500m from the proposed solar development footprint areas, and 800m from the primary substation area.
Water Resources and Ground Conditions	Hydrological and hydrogeological receptors within a 5km radius from the Site, based on the hydrological and hydrogeological connectivity of water bodies located downstream of the Proposed Development.
Land Use	The Site and adjoining agricultural land, where relevant.

Topic	Zone of Influence (ZoI)
Glint & Glare	Other solar PV projects within 1km of an assessed ground-based receptor may be relevant from a cumulative impact perspective.
Climate Change Impact Assessment	In-Combination Climate Change Impact (ICCI): dependant on related individual topics (e.g. flood risk) Climate Change Resilience: Site Boundary Greenhouse Gas emissions: GHG emissions from the Proposed Development and contribution to national GHG targets.
Socio-economics	Rutland County Council and South Kesteven District Council

Stage 2

9.2.4. Stage 2 of the cumulative effects assessment approach will be to review and apply a threshold criteria to the long list, in order to establish a short list of other existing and/or approved development to ensure that the cumulative assessment is proportionate. The criteria will ensure that only other existing and/or approved development which is likely to result in significant cumulative effects is taken forward to the assessment stage. The shortlist of existing and/or approved development will be consulted upon with statutory and non-statutory consultees during the EIA process. The threshold criteria to be used will consider the following factors:

- Temporal Scope;
- Scale and Nature of the Development;
- Other factors such as, nature and capacity of the receiving environment, source-pathway-receptor approach; and
- Professional judgement.

Stage 3

9.2.5. Environmental information will be gathered for short listed existing and/or approved development, where available, including details of:

- Proposed design;
- Location;
- Programme (construction, operation and decommissioning);
- Baseline data; and
- Effects arising from such other developments.

Stage 4

9.2.6. Assessment of likely cumulative effects. The assessment will be undertaken to an appropriate level of detail commensurate with the information available on other existing and/or approved developments and will set out measures envisaged to reduce or avoid any identified significant adverse cumulative effects and, where appropriate, any proposed monitoring arrangements.

9.2.7. The EIA cumulative assessment will be coordinated with the Transport Assessment to ensure that the cumulative sites considered as consistent with one another.

10.0 Summary

10.1.1. In accordance with the EIA Regulations the Scoping process is a formal regulatory stage that helps define the scope and level of detail to be included within the ES. The purpose of the scoping process is to identify the main issues that will be the focus of the assessment and avoid the need for the assessment to cover every possible environmental impact to unwarranted detail.

10.1.2. Table 10.1 summarises the scope of the environmental topics assessments included in Chapter 7 of this report, which highlights the particular issues that are proposed to be scoped in and out of the EIA.

10.1.3. For the reasons set out within this Scoping Opinion Request, it is therefore proposed that the following topics are scoped out of the EIA:

- Cultural Heritage;
- Air Quality;
- Arboriculture;
- Socio-economics;
- Major Accidents and/or Disasters;
- Human Health, including Electro Magnetic Fields; and
- Waste.

10.1.4. While these topics have been scoped out technical work is being undertaken and the application for DCO and ES will be accompanied by the following documents:

- Outline Landscape and Ecological Management Plan;
- Cultural Heritage Impact Assessment Report:
- Outline Construction Traffic Management Plan;
- Outline Construction Environmental Management Plan; including:
  - Outline Excavated Material Management Plan;

  - Draft Water and Construction Management Plan;
  - Construction dust risk assessment measures;
  - Arboricultural Method Statement;
- Outline Decommissioning Environmental Management Plan;
- Arboricultural Impact Assessment;
- Recreation and Amenity Assessment; and
- Residential Visual Amenity Assessment.

Table 10.1: Summary of EIA Scope

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Visual Effects: Residents, Visitors, Users of PRoW, Macmillan Way Long Distance Footpath, Local Roads and East Coast Main Line Railway.	In	In	In
Landscape and Visual (effects within a 2km Study Area)	Rutland Local Landscape Character Areas: Rutland Plateau- Clay Woodlands (Dii) LCA Rutland Plateau - Gwash Valley (Diii) LCA	In	In	In
	South Kesteven Landscape Character Areas: Kesteven Uplands LCA	In	In	In
	Peterborough City Council Landscape Character Areas:	Out	Out	Out

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Nassaburgh Undulating Limestone Welland Valley			
	Burley House Grade II* RPG	In	In	In
	Settlements / Villages	In	In	In
	Residential Amenity	Out	Out	Out
	Recreation and Amenity	Out	Out	Out
Ecology and Biodiversity	Statutory designated sites - adverse impacts to sites through habitat loss	In	Out	In
	Statutory designated sites - adverse impacts to site integrity through loss of supporting habitat	Out	Out	Out

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Statutory and non-statutory sites - adverse impacts to sites through accidental damage / pollution	In	Out	In
	Habitats -Loss of valuable habitats including damage to HPIs	In	Out	In
	Bats (foraging) – Habitat loss	In	Out	In
	Bats (roosting) – Damage to roosts	In	Out	In
	Badgers - Damage to setts and foraging habitat	In	Out	In
	Water vole and otter - Habitat loss and damage to resting places	In	Out	In

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Hazel dormouse - Habitat loss /degradation; damage to resting places; injuring individual dormice	In	Out	In
	Other SPI mammals - Loss of habitat / habitat degradation	In	Out	In
	Breeding birds – Damage to nests during vegetation management/removal	In	Out	In
	Breeding birds (skylark, lapwing and yellow wagtail) – Habitat loss	In	Out	In
	Breeding birds (other species) – Habitat loss	In	Out	In
	Wintering birds – Habitat loss	In	In	Out
	Reptiles – Habitat loss	In	Out	In

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Reptiles – Injury or death to individual reptiles	In	Out	In
	Amphibians – Habitat loss	In	Out	In
	Amphibians – Injury or death to individual GCN	In	Out	in
	Invertebrates – Habitat loss	In	Out	In
Access and Highways	Severance	In	Out	Out
	Driver Delay	In	Out	Out
	Pedestrian Delay	In	Out	Out
	Pedestrian and Cyclist Amenity	In	Out	Out
	Fear and Intimidation	In	Out	Out

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Accidents and Road Safety	In	Out	Out
	Hazardous Loads	Out	Out	Out
Noise and Vibration	Noise and vibration from construction activities and associated traffic on neighbouring residential receptors	In	Out	Out
	Noise from plant during operation on neighbouring residential receptors	Out	In	Out
	Noise from traffic and vibration effects during operation	Out	Out	Out
Water Resources and Ground Conditions	Increase in surface water run-off from areas of hardstanding	In	In	In
	Ensuring the Proposed Development is safe from water ingress for its lifetime in the event	In	In	In

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	of flooding, without increasing flood risk elsewhere			
	Potential impediment to drainage ditch flow as a result of crossings	In	In	In
	Potential transfer of sediment to surface water resources	In	Out	In
	Potential transfer of chemicals to surface water resources	In	Out	In
	Potential effects on public water supply	Out	In	Out
Land Use	Temporary (long-term) loss of land of BMV quality	In	In	In
	Temporary (long-term) loss of land of poorer quality	In	In	In

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Impact on farm businesses	In	In	In
Glint and Glare	Reflected sunlight from the solar panels causing a nuisance of a safety hazard to surrounding observers	In	In	Out
Climate Change Impact Assessment	The vulnerability of the Proposed Development to climate change	Out	In	Out
	The influence of the Proposed Development on climate change	In	In	In
	Changes to the future baseline of other environmental aspects as a result of climate change	In	In	In
	Indirect effects of climate change, such as political conflicts caused or triggered by	Out	Out	Out

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	climate change leading to changes in the supply chain or changes in the energy market			
	Carbon emissions generated by the Proposed Development	In	In	In
Cultural Heritage	Buried archaeological remains	Out	N/A	N/A
	Historic buildings, monuments and structures (designated)	N/A	Out	N/A
	Historic landscape (designed and non-designed landscape)	N/A	Out	N/A
Air Quality	Exposure of existing sensitive human receptors to elevated pollutant concentrations (emissions from vehicle exhausts and combustion sources)	Out	Out	Out

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
	Exposure of existing sensitive ecological receptors to elevated nitrogen deposition (emissions from vehicle exhausts and combustion sources)	Out	Out	Out
	Exposure of existing sensitive human and ecological receptors to fugitive dust emissions	Out	Out	Out
Arboriculture	Impact to trees	Out	Out	Out
Socio-economics	Impact on employment	In	In	In
	Impact on Amenity and Recreation	Out	Out	Out
	Impact on Tourism	Out	Out	Out
Risk of Major Accidents and/or Disasters	Impacts from major flooding or fire events or from transport accidents	Out	Out	Out

Environmental Topic	Effect	EIA Scope (In or Out)		
		Construction Phase	Operation Phase	Decommissioning Phase
Human Health	Impacts to human health	Out	Out	Out
Waste	Impacts from waste generation	Out	Out	Out

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