
Proposed Development of a Photovoltaic Solar Array, Grid Connection, Access Improvements Works and Ancillary Development on Land at Bicker Fen, Boston and South Holland, Lincolnshire

Planning and Design & Access Statement

AUGUST 2022



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FOREWORD

This document is the Planning and Design & Access Statement (PDAS) in respect of an application for full planning permission for the construction and operation of a photovoltaic solar array and grid connection on land at Bicker Fen to the north of Northorpe and the west of Bicker, (hereafter referred to as the 'Proposed Development').

The Proposed Development is cross boundary with part of the solar farm and grid connection being within Boston Borough Council, and part of the solar farm and construction access being South Holland District Council.

This planning application has been prepared in accordance with the provisions of the Town and Country Planning Act 1990 (as amended) and all other relevant subordinate legislation. The Proposed Development was subject to an EIA Screening request in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations) and was determined to not require EIA.

The application has been produced cognisant of the requirements set out within the Town and Country Planning (Development Management Procedure) (England) Order 2015 (as amended); specifically, Article 7 which sets out the requirements for applications for planning permission. The application is also cognisant of the local validation requirements adopted by Boston Borough Council and South Holland District Council.

The planning application documents comprise the following:

Documents Forming Part of the Application

- Planning Application Forms, Certificates and Notices
- Planning Application Drawings
- Planning and Design & Access Statement
- Agricultural Land Assessment
- Landscape and Visual Impact Assessment
- Heritage Assessment
- Flood Risk Assessment
- Ecological Appraisal
- Glint & Glare Assessment
- Noise and Vibration Assessment
- Transport Statement

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

- 1.1.1 This Planning and Design & Access Statement (PDAS) is submitted in support of a planning application made by AGR Solar 2 Limited (referred to hereafter as ‘the Applicant’) to Boston Borough Council and South Holland District Council (hereafter referred to as ‘BBC’ and ‘SHDC’, or ‘the Council’) for the construction and operation of a photovoltaic solar array and associated development (hereafter referred to as ‘the Proposed Development’) on land at Bicker Fen to the north of Northorpe and the west of Bicker (hereafter referred to as ‘the Site’). The location of the Proposed Development is illustrated on Planning Drawing 2920-01-01 (Site Location Plan).
- 1.1.2 The Proposed Development was subject to an Environmental Impact Assessment (EIA) screening request submitted to BBC on the 2nd September 2021 and to SHDC on 3rd September 2021 in accordance with Regulation 6 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations).
- 1.1.3 The formal Screening Opinion of the Council was provided by BBC on the 11th October 2021, which concluded that the Proposed Development does not constitute EIA development, and consequently an Environmental Statement (ES) is not required to be provided in accordance with the EIA Regulations (see Appendix A). The formal Screening Opinion of the Council was provided by SHDC on the 12th October 2021, which concluded that the Proposed Development does not constitute EIA development, and consequently an Environmental Statement (ES) is not required to be provided in accordance with the EIA Regulations (see Appendix A).
- 1.1.4 This introduction to the PDAS provides the general background to the Proposed Development and details of the Applicant. Section 2 sets out a description of the Site and its local surroundings. Section 3 provides a description of the Proposed Development. This is followed by a demonstration of the need for the Proposed Development. Finally, planning policy and material considerations of relevance to the determination of the application are discussed and conclusions in respect of the acceptability of the Proposed Development are drawn, based on the overall planning balance. The PDAS is supported by a series of technical appendices that enable an understanding of the environmental effects of the Proposed

Development. These technical appendices have been used in part to inform the policy appraisal provided at Section 5.

1.1.5 Considering the above, the Planning Statement is subdivided into several Sections namely:

- Section 1: Introduction, Background and Scope of Application
- Section 2: Site Location and Context
- Section 3: Description of the Proposed Development
- Section 4: The Need for the Development
- Section 5: Planning Policy Context and Appraisal
- Section 6: Summary and Conclusions

1.1.6 The PDAS was compiled and coordinated by AXIS planning and environmental consultancy. A team of specialist consultants have provided expert assessment in respect of the following technical appendices and appraisals:

- AXIS – Planning, LVIA, Transport and Traffic;
- Soil Environment Services Ltd – Agricultural Land Classification;
- Avian Ecology Ltd – Ecology and Nature Conservation;
- Noise and Vibration Consultants (NVC) – Noise;
- AOC Archaeology – Archaeology & Historic Environment;
- Weetwood – Flood Risk and Drainage, and
- Pager Power – Glint and Glare Assessment
- Smith Grant – Land Contamination Assessment.

1.2 Background to the Proposed Development

1.2.1 In June 2019 the UK Government became the first major economy in the world to pass laws to end its contribution to global warming by 2050¹. The Climate Change Act 2008 (2050 Target Amendment) Order 2019 (the Climate Change Act) requires the UK to bring all greenhouse gas emissions to net zero by 2050, compared with the previous target of at least 80% reduction from 1990 levels.

¹ <https://lordslibrary.parliament.uk/climate-change-targets-the-road-to-net-zero/>

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- 1.2.2 Energy Trends: UK electricity² provides the latest details in respect of electricity demand and supply in the UK. In 2021, total electricity generation decreased by 0.7 per cent compared to 2020, to 310 TWh. This was the lowest value on the published data series. The low generation was despite a slight increase in demand for electricity, which was up 1.4 per cent as Covid restrictions were eased and consumption patterns returned to more normal levels. The difference between generation and demand was met by high net imports, which increased by 37 per cent to 25 TWh, the highest value in the published data series and representing 7 per cent of electricity supply. Renewable generation decreased in 2021, down by 9.5 per cent to 121.9 TWh. This was linked to less favourable weather conditions in 2021 compared to 2020, particularly that wind speeds were below average in every month except February in 2021. This led to a 14 per cent decrease in wind generation across 2021. The only renewable technology with an increase in 2021 was bioenergy, which increased by 1.8 per cent to 40.0 TWh. Nuclear generation continued to be restricted by outages and the defueling of Dungeness B which began in June 2021 after a prolonged outage. Nuclear generation was 45.9 TWh in 2021, a decrease of 8.8 per cent compared to 2020 and the lowest nuclear generation since 1982. The decrease in renewable and nuclear generation meant that low carbon sources represented 54.1 per cent of generation in 2021, 5.1 percentage points lower than in 2020.
- 1.2.3 In 2021, electricity generated from renewable sources was 121.9 TWh, 9.5 per cent lower than in 2020 reflecting less favourable weather conditions, particularly for wind generation. Overall, renewables accounted for 39.3 per cent of total generation, down from 43.1 per cent in 2020. Although growth in renewable generating capacity remains modest with 1.6 GW installed in 2021 (a 3.4 per cent increase), it is higher than the 1.0 GW installed during 2020 with some projects being delayed due to Covid-19 restrictions.
- 1.2.4 Significant increases in renewable and low carbon generation, combined with carbon capture and storage will be required to achieve the Government's net zero commitment by 2050, based on current and predicted demand.

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1064800/Energy_Trends_March_2022.pdf

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- 1.2.5 National Grid's Future Energy Scenarios (FES) 2022 predicts that electricity demand will continue to increase due to increasing population, the transition to electric vehicles, hydrogen production and move away from natural gas for heating. This increased energy demand will need to be met by renewable, low-carbon and carbon negative sources to achieve net zero by 2050. The FES 22 report sets a clear target of up to 70GW of new solar generation by 2035.
- 1.2.6 On the 7th April 2022 the Government published the long awaited, and much delayed, British Energy Security Strategy (BESS). The BESS is intended to set out a plan for Britain to deliver a flow of energy that is affordable, clean and above all secure. It recognises that accelerating our transition from fossil fuels depends critically on how quickly we can roll out new renewables, and specifically that there exists a fantastic opportunity to deliver a five-fold increase in the deployment of solar by 2035.
- 1.2.7 The Proposed Development would contribute to achieving net zero by 2050 by increasing the amount of zero carbon renewable electricity generated and supplied to the National Grid. This would help to further decarbonise the UK's energy production sector and achieve National Grid's target of a Net Zero electricity system by 2030.
- 1.2.8 Further details in respect of the need for the Proposed Development are set out in Section 4 of this document in the context of National and Local planning policy and strategy.

1.3 The Proposal

- 1.3.1 The Applicant is proposing to construct and operate a photovoltaic solar array with associated battery storage and ancillary development for a period of 40 years, after which the Site would be decommissioned, and restored to its former condition. The Proposed Development includes for a grid connection cable to National Grid's Bicker Fen Substation located to the north and west of the proposed location for the solar array. Access to the solar array would be taken in part along the public highway, and in part utilising local private tracks that run adjacent to existing field boundaries.
- 1.3.2 The site would comprise an area of circa 97.3 hectares (including grid connection and access) and would provide a solar farm with an export capacity of up to 49.995MW of electricity (MWe) during peak operation. The extent of the application

planning boundary is illustrated on Planning Drawings 2920-01-02. The development would comprise the following main elements illustrated on Planning Drawing 2920-01-03 (General Arrangement):

- Photovoltaic Solar Panels and associated support frames;
- 22 No. Solar Inverter/Transformer Stations;
- 38 No. Battery Storage Containers;
- 9 No. Battery Inverter/Transformer Stations
- 1 No. Storage Containers;
- 1 No. Solar Switchgear Building;
- 1No. Battery Switchgear Building
- 1 No. Solar Control Room Building;
- 1 No. Battery Control Room Building;
- c. 4760km of new/resurfaced access tracks;
- Ditch culverts for track crossings;
- 1.No. 3.0m wide by 1.8m high box culvert crossing of Hammond Beck;
- Perimeter deer/stock fencing;
- c.40 No. 4m High CCTV cameras;
- c. 20,725m² Woodland Planting, and
- c. 8,520 m hedgerow planting (new and gapping up of existing).

1.4 Selection of the Site

- 1.4.1 The Applicant has undertaken an extensive Site search exercise to identify potential locations for solar farms across the UK. The Site search exercise focussed on areas in proximity to National Grid Substations with capacity to connect large scale Solar PV arrays. The Bicker Fen Electricity Generating Substation located off Vicarage Drove and adjacent to the existing Bicker Wind Farm, was identified as a primary search location due to available capacity and necessary land areas. The substation is located less than 400m to the west of the proposed location for the Solar array.
- 1.4.2 Large-scale solar farms are increasingly economically viable, without the need for government subsidy. However, any solar farm development needs to be carefully designed to ensure its financial viability, particularly in the current climate of increasing development costs. As such the Applicant defined a 4km radius around the Bicker Fen Substation to limit the potentially prohibitive costs of longer grid connections and third-party land negotiations.

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- 1.4.3 Firstly, brownfield Sites were considered by reviewing the Brownfield Land Registers. There were no Sites identified which are over 5 hectares and no Site within 4km of the grid connection point.
- 1.4.4 Secondly, the likelihood of best and most versatile agricultural land was reviewed based on Natural England's strategic scale mapping for the East Midlands³. Figure 1 illustrates that all the land within 6km of the substation has a high likelihood of being best and most versatile agricultural land. As such, it is unlikely that significant areas of lower grade agricultural land would be available and that there are no more sequentially preferential sites within the search area.
- 1.4.5 The Applicant has secured a 49.995MW grid offer to connect the Proposed Development. The proposed development is expected to be operational by 2024, if planning consent is secured.

1.5 The Applicant

- 1.5.1 AGR 2 Solar Limited is a subsidiary of AGR Power Limited (AGR). AGR is a UK energy developer, which has specialised in delivering low carbon energy infrastructure in partnership with private landowners since 2011.

2.0 SITE LOCATION AND CONTEXT

2.1 Site Location & Surrounding Context

Site Context

- 2.1.1 The Site lies partly within the jurisdiction of BBC and partly within SHDC, and wholly within the jurisdiction of Lincolnshire County Council (LCC) which operates under a two-tier system of governance. In terms of development control planning functions, the County Council is responsible for determining minerals, waste, and Regulation 3 applications (applications to the authority by the same authority i.e. LCC Education Department can apply to LCC Planning Department for planning permission). The District Councils are responsible for the determination of all other applications for planning permission, including this application.

³ <http://publications.naturalengland.org.uk/publication/6048285720051712?category=5208993007403008>

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- 2.1.2 In total, the area of the Site (including the grid connection corridor) would be circa 97.3 hectares. The Site comprises arable farmland made up of large uniform field structure, crossed by a network of ditches and drains. Field margins are typically formed by open ditches, however in some locations established hedgerows and hedgerow trees make up the field boundaries. These features are characteristic of the wider local landscape. The landscape is interspaced by occasional farm buildings (both residential and functional) of varying size and condition.
- 2.1.3 The Site is not subject to any landscape, heritage or conservation area designations and there are no listed buildings on the site itself. Figure 2 illustrates the designated sites in proximity to the Site. There are listed buildings in Bicker to the east. This includes the Grade I listed Church of St Swithin on Church Road, and other Grade II listed buildings which are all greater than 800m from the Site at its nearest point. There are also several listed buildings in Donnington to the south. This includes the Grade I Church of St Mary and the Holy Rood. The distance from the Site to the nearest listed building is approximately 1.2km. There is one Scheduled Ancient Monument (SAM) within 2.5km of the Site. There is a Conservation Area in the centres of Bicker (within BBC) and Donington (within SHDC).
- 2.1.4 There are no formal ecological designations within 2.5km of the Site. The closest statutory designated site is Horbling Fen SSSI which is approximately 3.75km to the southwest: it is designated for its geological interest. The Wash SPA is over 13km to the east at its nearest point, which is designated for a host of qualifying bird species including over-wintering pink-footed geese, Bewick's swan, Brent goose, oystercatcher and curlew.

Grid Connection

- 2.1.5 The Site is located approximately 400m to the east of National Grid's Bicker Fen substation, where the proposed solar farm would be connected to the transmission network. The grid connection cabling would be located within the road corridor and would follow Cowbridge Road in a northerly direction from the site entrance. The cable route would then follow Bicker Drove and Vicarage Drove to the substation, where it would connect to National Grid infrastructure.

Access

- 2.1.6 Construction access would be from the A52 Bicker Road and would use an existing National Grid construction track that links the A52 to Ing Drove. This will avoid construction traffic passing through the village of Bicker. From Ing Drive construction traffic would travel along Cowbridge Road to the site entrance. Construction traffic would then use internal access tracks to access the remainder of the site.
- 2.1.7 Operational access would be taken from Cowbridge Road and the wider adopted highway network.

Public Footpath

- 2.1.8 Public Right of Way (PROW) Doni/20/2 follows Hammond Beck in a broadly north/south direction. This would be located outside of the solar farm fencing and as such would not be directly impacted by the Proposed Development.
- 2.1.9 The only direct interface with the Proposed Development would be where it crosses the solar farm access track that links the two halves of the development across Hammond Beck.

Flood Zone

- 2.1.10 The Site is predominantly within flood zone 3, with some smaller areas anticipated to be within flood zone 2. However, the Site benefits from significant flood defences and does not form part of the functional flood plain.

Residential Property

- 2.1.11 There are no residential dwellings within the Site. There are some scattered dwellings located nearby. To the east of Cowbridge Road opposite the north-eastern part of the site there are two residential properties Cowbridge Farm and The Bungalow. These are located c.43m and c.106m from the site boundary respectively and are set behind hedges that would largely screen views of the Proposed Development area. Ing Road bisects the Site with a land parcel to the north of it and another to the south. Along Ing Road there are 4 residential properties: Ing Farm; The Haven, The Bungalow and Strawberry Farm. These are located c.16m, 13m, 84m and 289m from the northern site boundary and c.104m, 220m, 321m and 430m from the southern site boundary respectively.

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- 2.1.12 Towards the south of the Site there are residential properties adjacent to Hammond Beck, and scattered dwellings along North Ing Drove, Middle Fen Drove and Northorpe Road. The closest properties being c.10m and c.20m from the boundary of the Site.

Agricultural Land Quality

- 2.1.13 Based on available baseline mapping the Site is considered to have a high likelihood of being Best and Most Versatile (BMV) agricultural land. This is shown on Figure1. An Agricultural Land Classification (ALC) assessment for Bicker Fen Solar Farm has been undertaken by Soil Environment Services Limited, dated November 2021 (See Appendix H). The ALC confirms that the Site comprises Grade 2 and 3a BMV agricultural land (circa 87% Grade 3a).

3.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Proposed Development

- 3.1.1 The Applicant is proposing to the construct and operate a photovoltaic solar array and ancillary development for a period of up to 40 years, after which the Site would be decommissioned unless planning permission is secured for continued operation.
- 3.1.2 The site would comprise an area of circa 97.3 hectares (including grid connection and would provide a solar farm with an export capacity of up to 49.995MW of electricity (MWe) during peak operation. The extent of the application planning boundary is illustrated on Planning Drawings 2920-01-02 (Statutory Plan). The development would comprise the following main elements illustrated on Planning Drawing 3059-01-03 (General Arrangement) with more detailed layout drawings provided in Planning Drawings 3059-01-03a, 3059-01-03b and 3059-01-03c:
- Photovoltaic Solar Panels and associated support frames;
 - 22 No. Solar Inverter/Transformer Stations;
 - 38 No. Battery Storage Containers;
 - 9 No. Battery Inverter/Transformer Stations
 - 1 No. Storage Containers;
 - 1 No. Solar Switchgear Building;
 - 1No. Battery Switchgear Building
 - 1 No. Solar Control Room Building;

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- 1 No. Battery Control Room Building;
 - c. 4760km of new/resurfaced access tracks;
 - Ditch culverts for track crossings;
 - 1.No. 3.0m wide by 1.8m high by 6.5m long box culvert crossing of Hammond Beck;
 - Perimeter deer/stock fencing;
 - c.40 No. 4m High CCTV cameras;
 - c. 20,725m² Woodland Planting, and
 - c. 8,520 m hedgerow planting (new and gapping up of existing).

3.1.3 The Site would be decommissioned at the end of its 40-year operational life and would be restored to full agricultural use following decommissioning.

Solar Panels & Frames

3.1.4 The Solar Farm comprises the installation of static solar PV panels mounted to a steel and aluminium frame at an angle of approximately 20° and facing south. The indicative layout of the solar panels is illustrated on Planning Drawing 2920-01-03 and a typical solar panel frame configuration is illustrated on Planning Drawing 2920-01-04. The lowest edge of the solar panels would be raised approximately 800mm above ground level to enable the area under the panels to be grazed by sheep.

3.1.5 The solar PV support frames would be arranged into rows set approximately 5m apart and the maximum height of the panels along the back edge of the array would be approximately 3m.

3.1.6 The solar PV support frame structures would consist of steel uprights and aluminium or steel cross bars. The steel uprights would comprise hollow c.3mm sheet steel post with a u-shaped cross section. A typical post cross section is illustrated on Planning Drawing 2920-01-04. The physical footprint of the post would be approximately 9.2cm². As such, the support frame posts would have minimal physical impact on the ground and would be simply pulled out at the decommissioning stage.

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- 3.1.7 The posts would be ram driven into the ground using a number of specialist small scale GPS controlled piling machines to a depth of approximately 1.2m, depending on ground conditions. The rest of the support frame would then be fitted to the posts to create angled support tables ready for the solar panel installation.
- 3.1.8 In areas of archaeological sensitivity surface mounted solar panel frames would be used to enable preservation of archaeology in situ. This is illustrated on Planning Drawing 2920-01-04 and would avoid below ground impact on any buried archaeology.
- 3.1.9 The solar PV modules would be mounted on to the pre-constructed support frame table. The solar PV modules convert solar irradiance (sunlight) into direct current (DC) electricity. The individual solar PV modules within the Proposed Development would consist of dark blue, dark grey or black photovoltaic cells. PV technologies are developing rapidly and it is not possible to specify the precise panel type, as this will depend on the competitive procurement process and the technology available at the time of construction.
- 3.1.10 The solar PV modules would be connected in strings and cabling would be secured to the rear of the solar panel and would be protected from grazing livestock by suitable trunking/elevation. From the end of each run the cables would be taken below ground and would be connected to the Solar Inverter-Transformer Stations. These would be located throughout the Proposed Development adjacent to the internal access tracks. In areas of archaeological sensitivity surface mounted cable trunking would be used to avoid any impacts on buried archaeology.

Solar Inverter –Transformer Stations

- 3.1.11 The Solar Inverter-Transformer Stations would be contained within a modified ISO shipping container or similar (approximately 12.19m long x 2.44m wide x 2.9m high), The footprint of each Inverter-Transformer Station would be c. 30m² and would be supported by strip or slab foundations depending on localised ground conditions. The maximum height, with foundations, would be approximately 3m. The Inverter-Transformer Stations would contain the inverters, transformers and circuit breakers necessary to connect the solar farm to the on-Site Switchgear Building. Planning Drawing 2920-01-05 illustrates a typical configuration for a Solar Inverter-Transformer Stations. The total footprint occupied by the Inverter-Transformer Stations would be c. 660m².

Inverters

- 3.1.12 The development requires the installation of up to twenty-two inverters. The inverters within each station take direct current (DC), as generated by the solar panels, and convert it into alternating current (AC) to enable the on-Site generated electricity to be transferred to the on-Site Switchgear Building and National Grid's Bicker Fen Substation. It is not possible to specify the precise type of inverter station as this will depend on a competitive procurement process. However, it is suggested that the final details could be controlled through suitably worded planning conditions.

Transformer

- 3.1.13 The development requires the installation of up to twenty-two transformers. The transformers would control and increase the voltage of the electricity generated by the solar panels before it reaches the on-Site Switchgear Building and distribution network.
- 3.1.14 As in the case of the Inverters, it is not possible to specify the precise type of transformer as this will depend on the detailed electrical design and competitive procurement process. However, the final details could be controlled through suitably worded planning condition.

Circuit Breaker

- 3.1.15 Within the Inverter-Transformer Station circuit breakers would be provided to enable areas of the solar farm to be disconnected and isolated from the on-Site Switchgear building and wider distribution network.

Solar Switchgear Building

- 3.1.16 The switchgear building would be positioned adjacent to the Control Room Building on the northern edge of the Proposed Development nearest to the grid connection route, as illustrated on Planning Drawing 2920-01-03a.
- 3.1.17 In an electric power system, switchgear is the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energize equipment to allow work to be done and to clear faults downstream.

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- 3.1.18 The illustrative design for the switchgear building is shown on Planning Drawing 2920-01-08 and would house switchgear and metering equipment. The Switchgear Building would be located outside any flood risk area and as such would be protected in the unlikely event of flooding on the Site. The overall footprint of the switchgear building would be c.53m².

Solar Control Room

- 3.1.19 The Control Room would be housed in a half ISO container and would contain equipment necessary for monitoring the performance of the solar farm. This would not be permanently manned and would be for visiting maintenance engineers. As such welfare facilities would not be included. The illustrative design for the Control Room is shown on Planning Drawing 2920-01-07. The overall footprint of the control room would be c.16m².

Solar Storage Building

- 3.1.20 One ISO Storage Containers would be provided within the solar farm array. This would provide secure storage for tools and spare parts for maintenance. The illustrative design for the Storage Containers is shown on Planning Drawing 2920-01-06. The Storage Container would have an overall footprint of c.30m².

Battery Energy Storage System Compound

- 3.1.21 The Proposed Battery Energy Storage System (BESS) Compound would enable electricity generated by the solar farm to be stored at times of low demand and to be fed into the grid as required by National Grid to balance the transmission network. The BESS Compound would be surrounded by a 5m high acoustic barrier (see Planning Drawing 2920-01-15) and would contain the following equipment:

- BESS Containers;
- Battery Inverter and Transformer Stations;
- Battery Switchgear Building, and
- Battery Control Building.

BESS Containers

- 3.1.22 The Proposed Development would comprise up to thirty-eight Battery Energy Storage Systems (BESS) containers as illustrated on Planning Drawings 2920-01-03a and 2920-01-11.

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- 3.1.23 The BESS containers would be contained within a modified ISO shipping container or similar (approximately 12.19m long x 2.44m wide x 2.9m high), The footprint of each BESS container would be c. 30m² and would be supported by strip or slab foundations depending on localised ground conditions. The maximum height, with foundations, would be no greater than 3m. The total footprint occupied by the BESS containers would be c. 1140m².
- 3.1.24 The BESS containers would contain battery modules, air conditioning units, a fire suppression system and a battery monitoring, management and protection system. Each container would be finished in Harrods Green or similar and would be prefabricated off-Site.
- 3.1.25 The BESS containers would be connected to the battery inverter stations and would assist in managing frequency and voltage fluctuations on the transmission network by ensuring that supply and demand are balanced.

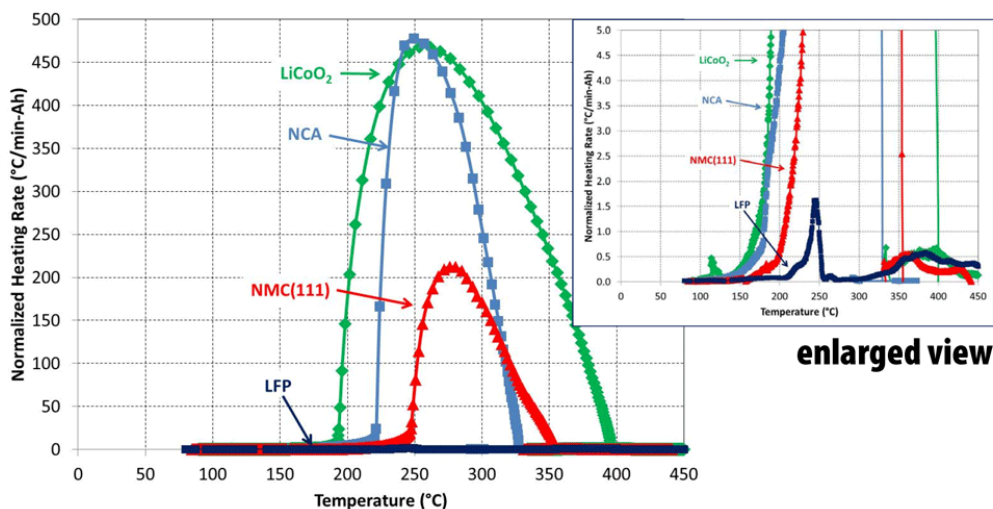
Fire Risk Management

- 3.1.26 In addition to the fire suppression safety measures and international safety standard for battery energy storage systems (BESS) modern battery systems utilise different lithium-ion chemistry to those batteries that have historically suffered from thermal run away. Modern BESS containers utilise lithium iron phosphate (LFP) rather than Lithium Nickel Manganese Cobalt Oxide (NMC). The LFP chemistry is more thermal runaway resistant than the chemical compositions of other batteries, as illustrated below.

Thermal Runaway: Impact of Cell Chemistry



Accelerating rate calorimetry (ARC) of 18650 cells with different cathode materials



- All measurements at 100% SOC and for cells with 1.2 M LiPF₆ in EC:EMC (3:7)
- Differences in runaway profiles are related to oxygen release and combustion at different cathodes

- 3.1.27 LFP technology is not subject to thermal runaway phenomena to the same degree as other chemistries, with a temperature rise of barely 1.5°C per minute. With this very low level of energy released, the thermal runaway of the Lithium Iron Phosphate technology is intrinsically impossible in normal operation, and even almost impossible to artificially trigger.
- 3.1.28 In addition, to the battery chemistry fire risk within the BESS is managed in several ways, including software and hardware fail safes and fire suppression systems. Temperature within each cell of each battery module is monitored by the BESS container monitoring system on a 1/10th second basis and any temperature variation within an individual module outside optimum operating conditions would trigger a response from the air conditioning units. If temperature increase continues or there is a failure of the air-conditioning units, the BESS container would automatically partially or fully shutdown to mitigate against the risk of thermal runaway and fire.
- 3.1.29 In the very unlikely event of a battery fire in one of the modules a fire suppression system would be triggered automatically. The fire suppression system would comprise FM200 gas or similar. This is a waterless fire protection system and as such there is no risk to soils or ground water because of operation. FM200 would be discharged into the fire risk area and would suppress any fire immediately. FM200 is a synthetic/chemical fire suppression gas and extinguishes a fire by removing the

free radicals or heat elements from the fire triangle. (Oxygen, Heat and Fuel). FM200 systems are widely used for confined spaces and reach extinguishing levels in 10 seconds or less, stopping fires before they cause significant damage. FM200 extinguishes the fire quickly, which means less damage to adjacent battery modules and lower repair costs. FM200 fire suppression is found as an active compound as a propellant in medical inhalers as such it is extremely safe with the correct fire suppression design.

Battery Inverter/Transformer Stations

- 3.1.30 The development requires the installation of up to nine Battery Inverter/transformer stations. The inverters within each station take direct current (DC) from the batteries and convert it into alternating current (AC) to enable the stored electricity to be transferred to the Battery Switchgear Building and ultimately National Grid's Bicker Fen Substation. The transformer would step-up or step-down the voltage of the supply as required for transmission / storage.
- 3.1.31 The Battery Inverter and Transformer Stations are illustrated on Planning Drawing 2920-01-12. The Battery Inverter and Transformer Stations would be contained within a modified ISO shipping container or similar (approximately 12.19m long x 2.44m wide x 2.9m high). The footprint of each Battery Inverter and Transformer Stations would be c. 30m² and would be supported by strip or slab foundations depending on localised ground conditions. The maximum height, with foundations, would be no greater than 3m. The total footprint occupied by the Battery Inverter and Transformer Stations would be c. 270m²

Battery Switchgear Building

- 3.1.32 The battery switchgear building would be positioned adjacent to the battery control room building, as illustrated on Planning Drawing 2920-01-03a.
- 3.1.33 In an electric power system, switchgear is the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energize equipment to allow work to be done and to clear faults downstream.
- 3.1.34 The illustrative design for the battery switchgear building is shown on Planning Drawing 2920-01-13 and would house switchgear and metering equipment. The Switchgear Building would be located outside any flood risk area and as such

would be protected in the unlikely event of flooding on the Site. The overall footprint of the switchgear building would be c.53m².

Battery Control Building

- 3.1.35 The battery control building would be housed in a half ISO container and would contain equipment necessary for monitoring the performance of the BESS equipment within the compound. This would not be permanently manned and would be for visiting maintenance engineers. As such welfare facilities would not be included. The illustrative design for the Control Room is shown on Planning Drawing 2920-01-14. The overall footprint of the control room would be c.16m².

Acoustic Screen

- 3.1.36 The BESS compound would be surrounded by a 5m high acoustic screen as shown on Planning Drawing 2920-01-15.

Electrical Cabling

- 3.1.37 On-Site electrical cabling is required to connect the respective Inverter-Transformer Stations to the respective Switchgear Building and Control Room. In addition, a high voltage connection to the Bicker Fen substation is also required and this will be discussed separately below.
- 3.1.38 Planning Drawing 2920-01-10 provides details of an indicative cable trench. Cable trenches would generally run parallel and adjacent the on-Site access tracks and fence lines. In addition to electrical cabling the trenches may also carry earthing, data and communications cables and will be backfilled with fine sand and excavated materials to the original ground level. Where ditch crossings are required, the trenches will typically be located a minimum of 1 m below the bottom of the ditch or use culvert crossings. Marker posts would be placed on either side to clearly demarcate the location of the cable crossing, if required. Cabling will also be required for power and data transfer associated with the CCTV system described below. This will generally follow the perimeter fence lines where the CCTV cameras would be located at c.100m spacing. In areas of archaeological sensitivity surface mounted cable trunking would be used.

Access Tracks

- 3.1.39 Access to the Site would be taken from a single access point off Cowbridge Road to the north-east of the Site.
- 3.1.40 The layout of the access tracks is illustrated on Planning Drawings 2920-01-03 and access tracks would be formed by excavating 200-300mm of topsoil and laying clean stone with reduced fines over a geotextile membrane, depending on ground condition. Excavated topsoil would be stored in a low mound adjacent to the track for use in restoration. In any archaeologically sensitive areas no dig solutions would be used.
- 3.1.41 A crossing of Hammond Beck would be required and this would be provided by a 3.0m wide, 1.8m high and 6.5m long box culvert, as illustrated on Planning Drawings 2920-01-16. Appendix D2 provided technical note in respect of the sizing of the culvert.
- 3.1.42 The initial 20m of the access track from Cowbridge Road would be metalled.

Security

- 3.1.43 Security would be provided by 2m high deer/stock fencing and pole mounted CCTV cameras. The location of the security fencing is illustrated on Planning Drawing 2920-01-03 and the indicative appearance is illustrated on Planning Drawing 2920-01-09. The CCTV poles would have a maximum height of 4m and would generally have one pan-tilt-zoom (PTZ) camera focussed along the boundary of the Site. At certain locations two cameras would be deployed so that they can be targeted on specific locations. All cameras would operate using infra-red technology and as such no additional lighting would be required. The indicative CCTV is illustrated on Planning Drawing 2920-01-09.

Micro-siting

- 3.1.44 Due to the nature of the proposed development the final position of the panels, support frames, cable runs and inverter stations may move slightly in response to the detailed design of the facility and constraints identified during construction. As such a micro-siting allowance of 25m has been requested to assist in mitigating any environmental /physical effects that cannot be identified until the construction stage.

Drainage

- 3.1.45 The solar panels would allow rainwater to fall between gaps to the ground below the panels where it would percolate to ground. Erosion would be prevented by establishing and maintaining a grass sward beneath the panels.
- 3.1.46 All new Site access tracks would be constructed of permeable stone and would infiltrate to ground or be directed to existing surface water features as set out in Appendix D1. Inverter-Transformer Stations, BESS Containers, Switchgear Building, Control Room and Storage Containers would drain to localise filter drain that would allow percolation to ground or controlled discharge to existing surface water features. Further detail of the Flood Risk Assessment and drainage strategy are provided at Appendix D1: Flood Risk Assessment.

Lighting

- 3.1.47 Lighting would be limited to the Switchgear Building, Control Building and Inverter-Transformer Stations. Low level lighting would be positioned above access doors and would only be activated by passive infra-red (PIR) sensors for security/emergency purposes or when switched on by a maintenance engineer. No areas of the Proposed Development would be continuously lit during operation.

Landscaping

- 3.1.48 The landscape proposals for the Site are illustrated indicatively on Planning Drawing 2920-01-3 and would be developed in detail prior to commencement of the development. The existing landscape character of the Site and its immediate surroundings is defined by the large arable fields bounded by field drains, isolated blocks of woodland and limited hedgerows/trees. The landscape proposals would build on these existing landscape features and would seek to enhance biodiversity, increase screening of the Proposed Development and allow continued agricultural use through grazing.
- 3.1.49 The landscape proposals are summarised as follows and described in more detail below:
- Grassland within the perimeter security/stock fencing suitable for sheep grazing;
 - Species rich grassland outside of perimeter security/stock fencing and along hedge margins;

- New hedgerows along Site boundaries;
- New woodland blocks;
- Gapping up existing hedgerows, and
- Management of existing hedgerows to a height of c.3-5m

Grassland

- 3.1.50 Most of the Site would be sown with a low intensity sheep grazing mix specifically designed for solar farms. The seed mix would be the same as that successfully used and grazed for several years at AGR's existing solar farms. The seed mix would comprise long lasting and slow growing cultivars of the species listed in Table 2.1 below.

Table 2.1: Grassland Seed Mix

Species	% Mix
Meadow Fescue	15.0
Perennial Ryegrass	16.0
Smooth Stalked Meadow Grass	20.0
Timothy	19.0
Creeping Red Fescue	15.0
Hard Fescue	10.0
White Clover	3.0
Wild White Clover	2.0

- 3.1.51 The sowing of grass seed mix would be at a rate of 25kg per hectare. Prior to seeding the soil would be cultivated and made level, and once seeded the areas would be rolled to aid germination. Once the seed has germinated the areas would be mechanically cut at 4 weeks and then every two weeks until the grass sward is established and ready for grazing. Every 10 years the areas would be over sown to boost the sward vigour for continued grazing.

Species Rich Grassland

- 3.1.52 All other areas that would not be grazed would be seeded with species rich grassland and wildflowers to enhance the overall biodiversity value of the Site.
- 3.1.53 Species rich grassland would be sown in all areas outside the perimeter fence and along hedge margins as indicated on Planning Drawing 2920-01-03. The seed mix

would comprise a mixture of fine-leaved grasses and wildflowers that are relatively slow to establish, but after the first establishment year provide a show of flowers which will provide interest for insects, birds and mammals. The indicative species composition for the species rich grass mix is listed in Table 2.2 below.

Table 2.2: Species Rich Seed Mix

Species	% Mix
Wildflowers	
Achillea millefolium	1
Betony	0.5
Common Knapweed	2.5
Wild Carrot	2.5
Hedge Bedstraw	2
Ladies Bedstraw	1
Ox-Eye Daisy	3
Musk Mallow	6.8
Ribwort Plantain	0.1
Salad Burnet	0.1
Meadow Buttercup	0.1
Yellow Rattle	0.1
White Campion	0.3
Grasses	
Common Bent	8
Crested Dogstail	28
Smaller Catstail	4
Red Fescue	24
Smooth Stalked Meadow Grass	16

- 3.1.54 The sowing species rich grass would be at a rate of 25kg per hectare. Prior to seeding the soil would be cultivated to a fine seed bed and would be rolled before and after sowing to aid germination. Once the seed has germinated the areas would be mechanically cut regularly to control weeds. Once established the areas would be cut once or twice a year after flowering.

Hedgerows

- 3.1.55 The proposed hedgerow planting is illustrated on Planning Drawing 2920-01-03. These hedgerows would provide visual screening and habitat connectivity. The indicative species composition for the proposed hedgerows is listed in Table 2.3 below

Table 2.3: Native Hedgerow Mix

Species	Common Name	% Mix
Acer campestre	Field Maple	10
Corylus avellana	Hazel	15
Crataegus monogyna	Hawthorn	30
Prunus spinosa	Blackthorn	30
Rosa canina	Dog Rose	5
Sambucus nigra	Elder	10

Woodland

- 3.1.56 Native woodland would be planted along the western and northern boundaries of the Site as indicated on Planning Drawing 3059-013. This woodland would provide screening for properties and would provide enhanced habitats. The indicative species composition for the proposed hedgerows is listed in Table 2.4 below

Table 2.4: Native Woodland Mix

Species	Common Name	% Mix
Acer campestre	Field Maple	15
Betula pendula	Silver Birch	20
Carpinus betulus	Hornbeam	15
Corylus avellana	Hazel	10
Malus sylvestris	Crab apple	10
Prunus spinosa	Blackthorn	10
Quercus robur	Common Oak	10
Cornus sanguinea	Dogwood	10

Grid Connection

- 3.1.57 A high voltage underground cable connection from the Switchgear Building to the National Grid substation would be required. The route is described in Section 2.0 above, but would head north-west along Cowbridge Road, and then south-west along Vicarage Drove, before heading south into the Bicker Fen Substation. The proposed route is illustrated on Planning Drawing 2920-01-01 and 2920-01-02.
- 3.1.58 The grid connection would be located underground and there would be no above ground infrastructure required other than within the operational substation compound.

Operations

- 3.1.59 Once the proposed solar farm is constructed access to the Site would be limited to routine maintenance operations and grazing. The Proposed Development would not be permanently staffed. Maintenance access to the Site would be by a small transit van or similar and the storage containers would contain spare equipment and tools for routine repairs and maintenance.
- 3.1.60 Should more major repairs be required, such as the replacement of inverters, more staff and specialist equipment (cranes and low loaders) would be required. However, this is not anticipated to be a regular occurrence.
- 3.1.61 The main operational noise would be associated with the Solar Inverter-Transformers Stations, BESS containers and Battery Inverter-Transformers Stations. The noise impacts associated with these elements are assessed in Appendix F: Noise and Vibration Assessment.
- 3.1.62 As set out above the main activity during the operational phase of the development would be grazing of a flock of sheep below the solar panels and/or periodic mowing. This would retain most of the Site in productive agricultural use. Based on AGR's experience of working closely with farmers on other Sites it is anticipated that stocking levels would be in the order of c.150 ewes and c.225 lambs per years.

Employment

- 3.1.63 Typical staffing levels for arable cropping on the existing arable land would be c.0.25 full-time equivalent (FTE) jobs. In contrast the sheep grazing proposed under the solar panels would support c. 1.5 FTE jobs for the duration of the solar farm operations.
- 3.1.64 In addition, maintenance and monitoring requirements during the lifetime of the Proposed Development are likely to generate a further 3.0 FTE jobs.

3.2 Construction

- 3.2.1 The following section provides a summary of the key elements of the construction of the Proposed Development. This description is not intended to be prescriptive and the exact construction methods, phasing and programme would be determined by the appointed designers and contractors. However, the following description enables the principal construction phases and methods to be understood.

Programme

- 3.2.2 The timing of the construction works would be dependent on the grant of planning permission for the Proposed Development, subsequent contract negotiations and prevailing weather and ground conditions.
- 3.2.3 The construction period is anticipated to take approximately 36 weeks, including testing and commissioning.
- 3.2.4 This construction programme would allow for the following key construction-related works to be undertaken:
- Establishment of Site compounds and entrance widening;
 - Construction of Site access tracks (including the Hammond Beck box culvert) and temporary crane hard standings at inverter locations;
 - Erection of deer fencing and gates to Site perimeter;
 - Installation of solar panels and frames;
 - Installation of CCTV poles and cameras;
 - Installation of inverters and transformer stations;
 - Installation of BESS containers;
 - Installation of control building and switchgear buildings,
 - Installation of storage containers;
 - Cultivation and seeding;
 - Grid connection and transformer station, and
 - Hedgerow and woodland planting.

Construction Hours

- 3.2.5 Construction activities would take place 7 days per week, during the following hours:
- Monday to Friday 07:30 – 18:00; and
 - Saturday - Sunday 08:30 – 18:00.
- 3.2.6 Deliveries and noise generating activities would only take place from Monday – Saturday (inclusive) within the following hours:
- Monday to Friday 07:30 – 18:00;
 - Saturday 07:30 – 13:00; and

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- No deliveries on Sundays except for one-off abnormal loads or large vehicles such as cranes.
 - Piling would only be undertaken between 09:00 – 17:00 each day Monday – Friday

Construction Site Access and Car Parking

- 3.2.7 Construction access would be from the A52 Bicker Road and would use an existing National Grid construction track that links the A52 to Ing Drove. This will avoid construction traffic passing through the village of Bicker. From Ing Drive construction traffic would travel along Cowbridge Road to the site entrance. Construction traffic would then use internal access tracks to access the remainder of the site.
- 3.2.8 During periods of maximum construction activity, when manpower requirements would be greatest staff would be encouraged to car share and/or use minibuses provided by the contractor from a central pickup location away from the Site. The traffic statement provided at Appendix I assumes that the average vehicle occupancy rate would be a minimum of 2 members of staff per vehicle.

Site Compound and Operative Facilities

- 3.2.9 The Site would be managed to provide dedicated areas within the development footprint for materials laydown, prefabrication activities, staff car parking, operative welfare facilities and offices.
- 3.2.10 Depending on ground conditions the compound areas would either be stripped of topsoil and surfaced with geotextile and stone or be formed using heavy duty construction matting to limit the need for excavation. Any excavated soils would be stored in mounds no more than 1m high around the perimeter of the compounds for use in post construction restoration.
- 3.2.11 The precise layout of the main construction compounds / laydown area and workers' vehicle parking would be a matter for the main construction contractor, who would not be appointed until after planning permission has been secured. However, it is likely to include a number of temporary cabins for offices / welfare and several storage containers, as well as parking and laydown areas.
- 3.2.12 It should be noted that the construction compounds can be constructed and operated in accordance with permitted development rights under Part 4 Class A:

Temporary Buildings and Uses of the General Permitted Development Order (GPDO) 2015, subject to the conditions and restrictions contained within.

- 3.2.13 At the end of the construction period the construction compounds would be decommissioned. Stone/matting would be removed, and the areas would be restored to grassland for grazing.

Construction Plant

- 3.2.14 Plant on Site is likely to comprise of:

- several small-scale mechanical pile driving rigs for frame supports
- 360° excavators;
- Dumper trucks and rollers for access tracks;
- Trenching machines;
- Telehandlers;
- Cranes for box culvert inverter and transformers; and

- 3.2.15 The numbers and size of this equipment will depend on the works that are being undertaken on Site at a given time.

Core Construction Works

- 3.2.16 The main construction phases of the project are described below.

Site Preparation and Development of Construction Compounds

- 3.2.17 The perimeter of the construction Site would be fenced with the proposed deer/stock fencing. Temporary heras fencing or similar would be used around compounds and other work areas until the perimeter fencing is erected and the Site secured.
- 3.2.18 The construction compound(s) would be created for the initial Site earthworks phase. The compound would provide temporary Site offices, welfare facilities and material and plant storage areas. Dedicated refuelling areas and chemical and oil storage areas would also be provided within the compound as required and these would be fully bunded to comply with Environment Agency requirements.

Earthworks, Foundations and Piling

Excavations

- 3.2.19 The excavations for the access tracks and foundations for the Inverter-Transformer Stations, BESS Containers, Switchgear Building, Control Room and Storage Containers would be stored adjacent to the excavations for use in restoration following decommissioning.

Temporary Excavations

- 3.2.20 Temporary excavations required for construction would be minimal and would primarily be associated with trench excavations for cable runs. Topsoil and subsoil would be stored separately immediately adjacent to the excavation in stockpiles not exceeding 1m in height. Temporary excavations would be reinstated immediately following construction to restore the previous soil profile. Topsoil would be graded out to marry the excavations with the existing Site levels and the areas would be seeded with a meadow grassland seed mix suitable for sheep grazing as detailed above.

Foundations

- 3.2.21 The foundations for the Inverter-Transformer Stations, Switchgear Building, Control Room and Storage Containers would be slab foundations or concrete sleepers, depending on ground conditions.
- 3.2.22 Foundation slabs and sleepers would be cast in-situ and concrete would either be delivered directly to the Site via concrete mixer lorry or concrete would be made from an on-Site concrete batching plant with aggregates being supplied to Site by HGV.

Piling

- 3.2.23 As set out above the support posts for the solar panel frame would be ram driven into the ground using several specialist small scale GPS controlled piling machines to a depth of approximately 1.2m depending on ground conditions.
- 3.2.24 In areas of archaeological or ecological sensitivity piled supports would be replaced by ground mounted concrete sleepers, as illustrated on Planning Drawing 2920-01-04.

Construction Lighting

- 3.2.25 Lighting during construction would need to be sufficient to satisfy health and safety requirements, whilst ensuring impacts on the surrounding environment, including from sky glow, glare and light spillage, are minimised.
- 3.2.26 Artificial lighting would only be used during the hours of darkness, low levels of natural light or during specific construction tasks to ensure the health, safety and welfare of those on Site, including construction staff and visitors.
- 3.2.27 Appropriate lighting would be installed and operated to ensure that:
- access/egress points are clearly visible during operational hours;
 - staff and visitors can move safely around Site;
 - Site security can be monitored and maintained; and
 - sufficient area lighting is provided for the Site office and laydown areas.
- 3.2.28 This would involve the use of mobile task lighting to provide the lighting necessary to satisfy Health and Safety requirements. Mobile lighting would be mounted on telescopic poles.

Construction Environmental Management Plan (CEMP)

- 3.2.29 A CEMP would be developed for the construction phase of the development. This is likely to comprise an overarching CEMP framework to be applied to all phases of the development and a series of phase specific CEMP documents which define specific measures to be adopted during the construction of the various components of the scheme.
- 3.2.30 The purpose of the overall CEMP would be to manage and report environmental effects of the project during construction. The CEMP would set out how environmental issues would be managed in accordance with relevant legislation, regulations and best practice guidance. It would be the responsibility of the main contractor to develop and enforce the CEMP. It is suggested that the requirement for a CEMP to be prepared is subject to a planning condition one the detailed design is completed to allow main contractor input.
- 3.2.31 The objectives of the CEMP would be to:

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- highlight environmental impacts resulting from the development and identify sensitive receptors within the development Site to the construction team;
 - reduce and manage environmental impacts through appropriate construction methods;
 - reduce and manage environmental impacts through implementing environmental best practice during the construction period;
 - undertake ongoing monitoring and assessment during construction to ensure environmental objectives are achieved;
 - provide emergency procedures to protect against environmental damage;
 - provide an environmental management structure for the construction stage;
 - recommend mechanisms to reduce risks of environmental damage occurring; and
 - ensure procedures are in place for consultation with EA, Natural England, Local Authority Officers and other stakeholders throughout the works if necessary.

3.2.32 A CEMP for a project of this nature would typically cover the following key elements:

- drainage, water quality and hydrology;
- dust, emissions and odours;
- health and safety/Site management;
- waste management;
- traffic management;
- wildlife and natural features; and
- contaminated material.

3.2.33 Prior to the commencement of construction works an environmental walkover would be undertaken to establish any changes in the environmental baseline since the surveys undertaken as part of the EIA and planning submission. This walkover would be used to update any of the defined construction procedures as necessary.

3.2.34 The main contractor would also develop a local community liaison strategy. This strategy would detail how the contractor would engage with the local community to inform them of the construction progress and inform them of any works that may give rise to queries or concerns. The strategy would also set out the means to allow the public to raise any concerns with the contractor and mechanisms to resolve any complaints.

3.2.35 The main contractor would take regard of the following guidelines in preparation of the CEMP and during the operation of the Site:

- Environment Agency. Pollution Prevention Guidelines 1: General Guide to the Prevention of Pollution (PPG1);
- Environment Agency. Pollution Prevention Guidelines 2: Above Ground Oil Storage Tanks (PPG2);
- Environment Agency. Pollution Prevention Guidelines 6: Working at Construction and Demolition Sites (PPG6);
- Environment Agency. Pollution Prevention Guidelines 7: Refuelling Facilities (PPG7);
- Environment Agency. Pollution Prevention Guidelines 8: Storage and Disposal of Used Oils (PPG8);
- Environment Agency. Pollution Prevention Guidelines 21: Pollution Incident Response Planning (PPG21);
- CIRIA. Control of water pollution from construction Sites C532 (2001); and
- CIRIA. Environmental Good Practice on Site C650 (2005).

Decommissioning

3.2.36 At the end of the Solar Farm's 40-year life the Proposed Development would be decommissioned, and the Site would be returned to arable use. Decommissioning would require similar plant to the construction phase and would result in very similar traffic impacts.

3.2.37 All above and below ground infrastructure would be removed from Site and would be recycled, if possible. Following decommissioning at the end of the schemes operational life or when panels need to be replaced due to failures/damage solid waste will be created. PV panel disposal is covered by the Waste Electrical and Electronic Equipment (WEEE) Directive. As such, any disposal of panels will need to comply with this directive. PV panels comprise a high proportion of glass along with smaller amounts of plastic, aluminium and other metals. All these components are readily recyclable, with c.80% of the panel materials able to be recycled at specialist processors. In addition, support frames, fencing, CCTV poles and cabling all contain recyclable materials and stone/concrete can be processed for use as secondary aggregate.

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- 3.2.38 As such, solid waste generated by decommissioning works can be effectively managed by moving waste up the waste hierarchy through recycling for beneficial use. As such significant effects associated with disposal of waste because of the proposed development would not occur.

4.0 THE NEED FOR THE DEVELOPMENT

4.1 Introduction

- 4.1.1 This section of the Planning Statement considers the strategic need for the Proposed Development based on a review of key Government policy and strategy.

4.2 National Energy Policy and Strategy

Climate Change Act 2008 (2050 Target Amendment) Order 2019

- 4.2.1 The Climate Change Act 2008 set a legally binding target for the UK to achieve an 80% reduction in greenhouse gas emissions by 2050, from the 1990 baseline. However, the UK Government decided that this legally binding target was not ambitious enough to mitigate the nation's activities on climate change. In 2019 the UK Government became the first major economy in the world to pass laws to end its contribution to global warming by 2050, compared to the 1990 baseline.
- 4.2.2 On 12 June 2019, the Government laid the draft Climate Change Act 2008 (2050 Target Amendment) Order 2019 to amend the Climate Change Act 2008 by introducing a target for at least a 100% reduction of greenhouse gas emissions (compared to 1990 levels) in the UK by 2050. This is otherwise known as the net zero target. The draft order amended the 2050 greenhouse gas emissions reduction target in the Climate Change Act from at least 80% to at least 100% thereby constituting a legally binding commitment to end the UK's contribution to climate change.
- 4.2.3 At the time the legislation was enacted the UK had already reduced emissions by 42% while growing the economy by 72%. However, the new target requires a significant increase in renewable energy, development of carbon capture and storage technology, construction of new nuclear generation, and a transition to hydrogen and electric for heating and transport.

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- 4.2.4 On 20 April 2021 the UK government announced that it would set in law a more ambitious target of cutting carbon emissions by 78% by 2035 compared to 1990 levels. This was in response to the UK's Sixth Carbon Budget from the Climate Change Committee (see below) and signals the Government's acceptance of the recommendations and commitment to carbon emission reductions.
- 4.2.5 It is clear from the Government's legally binding commitment to net zero by 2050 and recent announcement that significant new investment will be required in renewable energy projects across the UK to deliver these ambitious objectives.
- 4.2.6 The Proposed Development would help deliver on the Government's legally binding target and would support the green economy. This should be given considerable weight in the planning balance when considering possible policy tensions. Recent volatility in the UK energy markets has highlighted the importance of the UK generating its own domestic supply of clean low carbon electricity and reducing reliance on imported fossil fuels.

Net Zero Strategy: Build Back Greener

- 4.2.7 The Government published the 'Net-Zero Strategy: Build Back Greener' in October 2021. The Strategy sets out policies and proposals for decarbonising all sectors of the UK economy to meet the net-zero target and keep us on track for future carbon budgets.
- 4.2.8 In terms of policies and proposals for power, Chapter 3i 'Reducing Emissions across the Economy - Power' sets out on pages 94 and 95 that, subject to security of supply, government's commitment to a fully decarbonised power system will be brought forward to 2035. It also seeks to accelerate deployment of low-cost renewable generation, such as wind and solar, and to ensure that the planning system supports the deployment of low carbon energy infrastructure.
- 4.2.9 Decarbonising the power sector forms the foundation of a productive net zero economy and needs to meet a 40-60% increase in demand by 2035. The strategy also identifies that this will regenerate communities and create new employment opportunities right around the UK (paragraph 20, page 99)
- 4.2.10 The strategy recognises that decarbonising gas heating is likely to take longer than decarbonising the electricity system and as such heat pumps and a high electrification scenario, as per National Grid's future energy, is the most likely scenario to 2035. Paragraph 18 on page 141 states that:

‘The increased deployment of heat pumps will be accompanied by investment in the infrastructure we need to meet increased electricity demand, including the generation of low carbon electricity and additional grid capacity’.

- 4.2.11 This acknowledgement increases the weight that should be given to the wider environmental benefits of renewable energy and the delivery of security of supply.

Government response to the Committee on Climate Change 2021 Progress Report

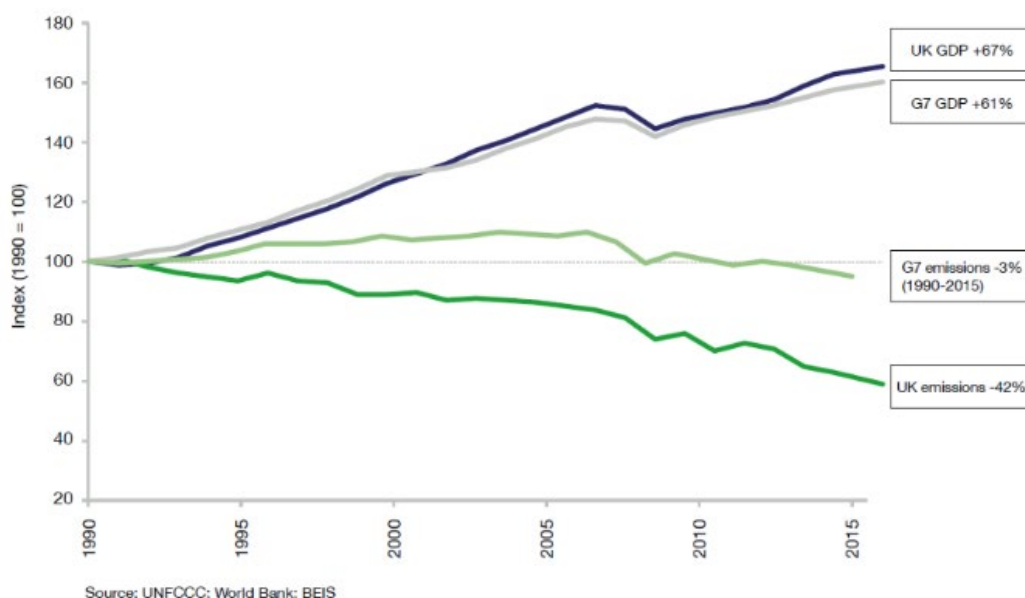
- 4.2.12 The Government published their response to the Committee on Climate Change (CCC) Progress Report (June 2021) in October 2021. The Government acknowledges that the CCC correctly emphasises that the journey to net zero is not yet half completed, and that this is the decisive decade for tackling climate change (Paragraph 1).

- 4.2.13 In response to the CCC’s recommendations, Table A4 which relates to recommendations for BEIS confirms, the Government has published the Net-Zero Strategy which sets out how the UK will meet its ambitious climate targets (page 29). Furthermore, the Government also confirms, on page 44, that: “Renewable power will form the backbone of our decarbonised energy system. We will need to continue the growth of offshore wind beyond our 2030 target, combined with similarly ambitious deployment of locally supported onshore wind and solar...”

Clean Growth Strategy (Updated April 2018)

- 4.2.14 The Clean Growth Strategy was originally published by the Department for Business, Energy and Industrial Strategy (BEIS) in October 2017 and was updated in April 2018. The updated executive summary highlights that the UK has reduced emissions by 42% whilst growing the economy by two-thirds. This means the UK has reduced emissions faster than any other G7 nation. This is illustrated in Chart 4.1 below.

Chart 4.1: UK & G7 Economic Growth & Emission Reductions⁴



4.2.15 In 2016, 47% of UK electricity came from low carbon sources, around double the level in 2010. This progress has been aided by the falling costs of many low carbon technologies, such as solar and wind which can now be delivered without subsidy, if appropriately scaled to ensure commercial viability.

4.2.16 The updated executive summary goes on to state that:

'In order to meet the fourth and fifth carbon budgets (covering the periods 2023 to 2027 and 2028 to 2032) we will need to drive a significant acceleration in the pace of decarbonisation and in this strategy we have set out stretching domestic policies that keep us on track to meet our carbon budgets' (emphasis added)

4.2.17 To further drive down emissions throughout the next decade the Strategy sets out several policies and proposals. In respect of the power sector, the Strategy anticipates that by 2050 emissions from the power sector need to be close to zero. This position is reinforced by the Climate Change Act 2008 (2050 Target Amendment) Order 2019, referenced above.

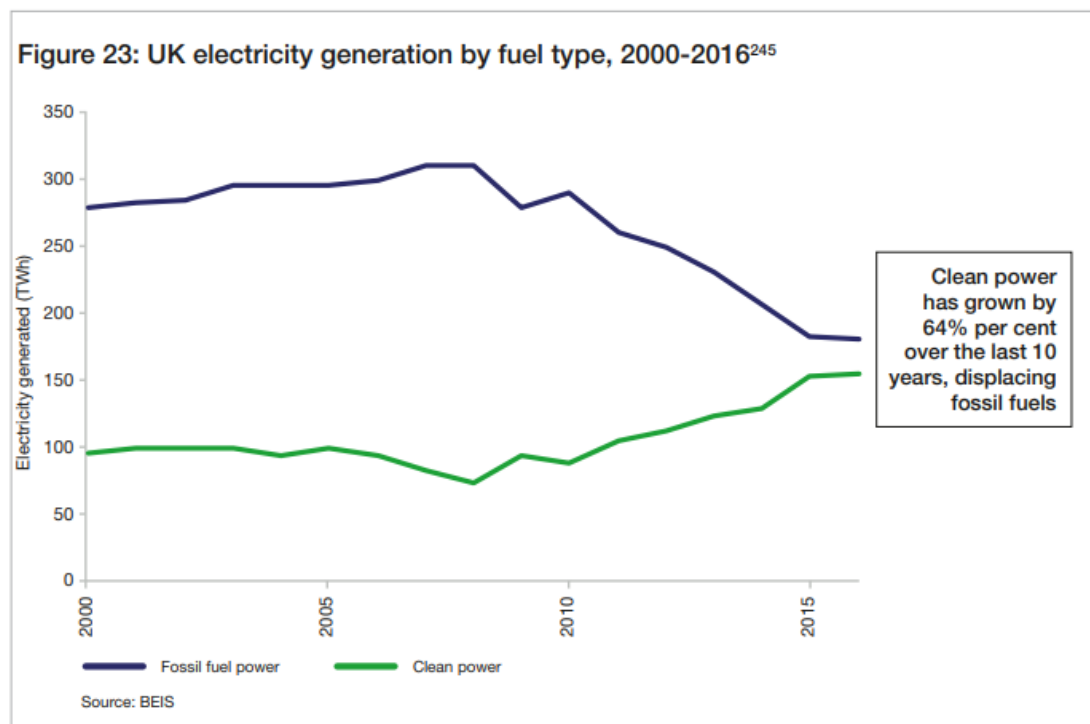
4.2.18 The Strategy sets out in 'Delivering Clean, Smart, Flexible Power' that (as of 2016):

⁴ <https://www.gov.uk/government/publications/clean-growth-strategy/clean-growth-strategy-executive-summary>

‘Power sector emissions have fallen 49 per cent since 1990 as we have switched from coal to gas and renewable power such as wind and solar, with biomass conversions also playing an important transitional role, alongside improvements in the efficiency of our economy. Last year, 47 per cent of our electricity came from low carbon sources, with the rest mainly coming from coal and gas’

- 4.2.19 Figure 23 of the Strategy illustrates that in 2016 clean power was approaching parity with fossil fuels. This is replicated in Chart 4.2 below. To achieve the revised 2050 Climate Change Act target of net zero this trend needs to be maintained by further investment in clean power sources, such as the Proposed Development.

Chart 4.2: UK Electricity Generation by Fuel Type (2000-2016)⁵



- 4.2.20 The Strategy sets out that the Government wants ‘...a diverse electricity system that supplies our homes and businesses with secure, affordable and clean power. That means developing low carbon sources of electricity that are both cheap and clean, taking into account wider system impacts for all sources of generation’ (emphasis added). The Strategy goes on to state that ‘this could be achieved by

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https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700496/clean-growth-strategy-correction-april-2018.pdf

growing low carbon sources such as renewables and nuclear to over 80 per cent of electricity generation, and phasing out unabated coal power.’ (emphasis added).

- 4.2.21 Since 2016 this drive for clean power has been maintained and in 2019 clean power exceeded fossil fuels for the first time. Unabated coal power dropped from about 75% in the 1990s to just 2.1 % in 2019. The Government proposal is to end unabated coal by 2024 and this will need to be replaced by renewable and low carbon power sources, such as the Proposed Development as a matter of urgency.
- 4.2.22 Despite this initial success the UK still needs considerable and urgent investment in the clean power sector to deliver net zero by 2050. Solar PV can provide a significant contribution to delivering this legally binding target, whilst maintaining economic growth.

Sixth Carbon Budget (2021)

- 4.2.23 Since the Clean Growth Strategy was updated in April 2018 the Sixth Carbon Budget, required under the Climate Change Act, has been published⁶. On 20 April 2021 the UK government announced that it would adopt the recommendations and enshrine them in law, and the legislation was set out to parliament on 21 April 2021. The Sixth Carbon Budget provides advice on the volume of greenhouse gases that the UK can emit during the period 2033-2037. This would involve setting the most ambitious climate change target in the world of a reduction of 78% by 2035. One of the four key steps to achieving this target is the expansion of low-carbon energy supplies (such as the Proposed Development), with UK electricity production achieving zero carbon emissions by 2035. This is a dramatic step-change and will logically require more emphasis on renewable energy as part of a suite of measures to achieve this target.
- 4.2.24 The Electricity Generation Sector Summary for the Sixth Carbon Budget⁷ sets out on page 14 that:

‘Large-scale solar currently has 13 GW installed capacity in the UK, which requires 290 km².⁸ Maximising the potential of solar generation might entail using an additional 1,500 km²’

⁶ <https://www.theccc.org.uk/publication/sixth-carbon-budget/>

⁷ <https://www.theccc.org.uk/wp-content/uploads/2020/12/Sector-summary-Electricity-generation.pdf>

⁸ Assuming 45 MW/km²

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- 4.2.25 To maximise the potential of solar generation in the context of the Sixth Carbon Budget and to achieve the Government's Net Zero Target by 2050 could require an additional 150,000 hectares of land, which would be the equivalent of approximately 1,785 solar farms the scale of the Proposed Development. This highlights the scale of the challenge to deliver Net Zero by 2050.
- 4.2.26 Page 37 of the Sector Summary states that on average 3GW (3000MW) per year will need to be installed to reach the required level of solar generation. This is the equivalent of 60 solar farms per year of the same scale as the Proposed Development.

The Ten Point Plan for a Green Industrial Revolution (2020)

- 4.2.27 In November 2020 the Government published their Ten Point Plan for a Green Industrial Revolution (Building back better, supporting green jobs, and accelerating our path to net zero). The purpose of the document was to set out a framework and help mobilise £12 billion of government investment, and potentially three times as much from the private sector, to create support for 250,000 new green jobs.
- 4.2.28 The Plan confirmed a target milestone in 2021 to introduce more stringent supply chain plan requirements and support up to twice the capacity of renewable generation in the next Contract for Difference (CfD) round, with onshore wind and solar projects eligible to bid for CfD contracts. The Proposed Development is self-funded, but the commitment within the Ten Point Plan demonstrates the direction of travel of the Government towards helping to support the delivery of commercial scale renewable projects.

Lighting the Way – Making Net Zero a Reality with Solar Energy (Solar Energy UK)

- 4.2.29 In 2021 Solar Energy UK, a not-for-profit association of members, installers, manufacturers, distributors, developers and investors published Lighting the Way, as a mission to empower the UK solar transformation, and pave the way for 40GW of solar energy capacity by 2030 (from a current capacity of around 14GW). 40GW represents the minimum level of solar deployment consistent with achieving the Climate Change Committee scenario to meet the Sixth Carbon Budget and ultimately net-zero by 2050.
- 4.2.30 Lighting the Way sets out a series of fiscal, policy, legal, capital and regulatory recommendations all of which are intended to help incentivise and ultimately deliver

the commercial scale solar deployment that the UK needs in order to meet its net-zero commitments.

National Planning Policy Framework (2021)

- 4.2.31 Support for renewable energy is clearly set out within the NPPF through its presumption in favour of sustainable development. Paragraph 152 of the NPPF states that:

'The planning system should support the transition to a low carbon future in a changing climate... 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...; and support renewable and low carbon energy and associated infrastructure.'

- 4.2.32 Paragraph 155 of the NPPF states that:

'To help increase the use and supply of renewable and low carbon energy and heat, plans should:

- a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);*
- b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and*
- c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.'*

- 4.2.33 Paragraph 158 of the NPPF identifies that when determining planning applications for renewable and low carbon development, local planning authorities should:

'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 approve the application if its impacts are (or can be made) acceptable.'

-
- 4.2.34 The NPPF supports the increased deployment of renewable and low carbon energy schemes, and that the planning system should support such development, unless their impacts would be unacceptable in environmental terms.

National Planning Practice Guidance

- 4.2.35 On 6th March 2014, the National Planning Practice Guidance (NPPG) web-based resource was launched. The ‘renewable and low carbon energy’ section of the NPPG at paragraph 001 states that:

‘Increasing the amount of energy from renewable and low carbon technologies will help to make sure the UK has a secure energy supply, reduce greenhouse gas emissions to slow down climate change and stimulate investment in new jobs and businesses. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure in locations where the local environmental impact is acceptable.’ (emphasis added)

- 4.2.36 The NPPG supports the increased deployment of renewable and low carbon energy schemes and that the planning system should support such development, unless their impacts would be unacceptable in environmental terms.

National Policy Statements

- 4.2.37 National Policy Statements (NPS) are produced by Government and comprise the objectives for the development of nationally significant infrastructure (NSIPs) in a particular sector and state for application for Development Consent Order (DCO) under the Planning Act 2008. Nonetheless, they all state that, in England and Wales the relevant NPS is likely to be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended). Whether, and to what extent, the NPS is a material consideration is to be judged on a case-by-case basis.
- 4.2.38 Overarching National Policy Statement for Energy (EN-1) published in July 2011 calls for a reduction in the UK dependency on fossil fuels. This need will only be heightened to meet the government’s 2035 ambition. The Proposed Development would assist in the delivery of the essential clean energy generating infrastructure required to mitigate the UK’s contribution to climate change in advance of 2035, due to the availability of a suitable grid capacity.
- 4.2.39 EN-1 makes the following statements (emphasis added):

'As part of the UK's need to diversify and de-carbonise electricity generation, the Government is committed to increasing dramatically the amount of renewable generation capacity.' (Paragraph 3.3.10)

'An increase in renewable electricity is essential to enable the UK to meet its commitments under the EU Renewable Energy Directive. It will also help improve our energy security by reducing our dependence on imported fossil fuels, decrease greenhouse gas emissions and provide economic opportunities.' (Paragraph 3.3.11)

'The UK has committed to sourcing 15% of its total energy (across the sectors of transport, electricity and heat) from renewable sources by 2020 and new projects need to continue to come forward urgently to ensure that we meet this target. Projections suggest that by 2020 about 30% or more of our electricity generation – both centralised and small-scale – could come from renewable sources, compared to 6.7% in 2009.' (Paragraph 3.4.1)

'Paragraph 3.4.1 above sets out the UK commitments to sourcing 15% of energy from renewable sources by 2020. To hit this target, and to largely de-carbonise the power sector by 2030, it is necessary to bring forward new renewable electricity generating projects as soon as possible. The need for new renewable electricity generation projects is therefore urgent.' (Paragraph 3.4.5)

4.2.40 The figures in paragraphs 3.4.1 and 3.4.5 of EN-1 are now considered out of date in the context of the Climate Change Act 2008 (2050 Target Amendment) Order 2019. The revised target of net zero by 2050 introduces an even greater imperative to deliver increased renewable energy schemes, as matter of utmost urgency.

4.2.41 National Policy Statement for Renewable Energy Infrastructure (EN-3), also published in July 2011, sets out the national policy for renewable energy projects. EN-3 sets out the importance of renewable energy in achieving the Government's ambitious targets for renewable energy generation, highlighting that a 'significant increase in generation from large-scale renewable energy infrastructure is necessary to meet the 15% renewable energy target.' (emphasis added).

4.2.42 As set out above this target is now out of date and the Climate Change Act 2008 (2050 Target Amendment) Order 2019 introduces an even greater urgency to deliver renewable energy projects, such as the Proposed Development.

Draft National Policy Statements

4.2.43 Updates of the National Policy Statements referenced above were published for consultation on 6th September 2021. The consultation period ended on 29th November 2021. In the beginning of March 2022, a Select Committee Review of the consultation was provided to the Secretary of State, and it is understood that they will be adopted later this year.

4.2.44 Draft EN-1⁹ updates the policy statement to reflect the Net Zero target by 2050. Draft EN-1 states at paragraph 3.3.21 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’¹⁰

4.2.45 Draft EN-3¹¹ covers renewable energy infrastructure. The Government has updated the document to reflect the important role that renewables will play in developing a low carbon economy and meeting government’s net zero targets. Draft EN-3 sets out that:

‘Solar farms are one of the most established renewable electricity technologies in the UK and the cheapest form of electricity generation worldwide. Solar farms can be built quickly and, coupled with consistent reductions in the cost of materials and improvements in the efficiency of panels, large-scale solar is now viable in some cases to deploy subsidy-free and at little to no extra cost to the consumer. The government has committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions. As such solar is a key part of the government’s strategy for low-cost decarbonisation of the energy sector’. (emphasis added).

⁹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015233/en-1-draft-for-consultation.pdf

¹⁰ <https://www.gov.uk/government/publications/modelling-2050-electricity-system-analysis>

¹¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015236/en-3-draft-for-consultation.pdf

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- 4.2.46 EN-3 demonstrates that suitable and affordable grid connection capacity is a critical part of the Site selection process in an era of subsidy free renewable energy generation. It states, at paragraphs 2.48.11, that:

‘Most solar farms are connected into the local distribution network. The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical feasibility of a development and as such some larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure. The connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal’. (emphasis added).

‘The applicant may choose a Site based on nearby available grid export capacity. Locating solar farms at places with grid connection capacity enables the applicant to maximise existing grid infrastructure, minimise disruption to local community infrastructure or biodiversity and reduce overall costs. Where this is the case, consideration should be given to the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure’.

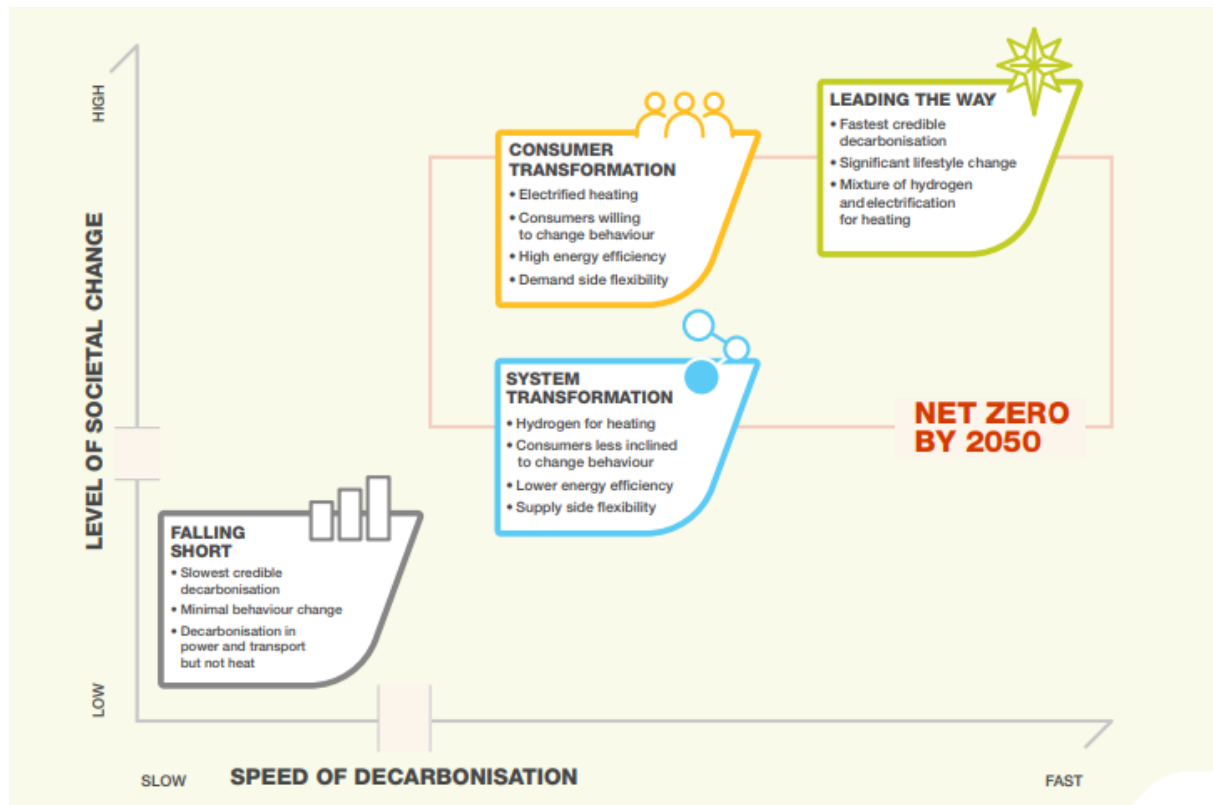
Future Energy Scenarios (2021)

- 4.2.47 National Grid ESO is the electricity system operator for Great Britain. It owns and operates the electricity transmission infrastructure and must ensure that the power demand is balanced with the supply of electricity across the whole of the UK, on a second by second, real time basis. By way of example, if there is a sudden dip in energy production that coincides with a period of high demand, there is a risk that faults could occur on the transmission or distribution networks causing extensive power outages and /or damage to the network.
- 4.2.48 To ensure that National Grid ESO can plan for long term changes to the energy market and to respond to Government policy and strategy, annual reports are produced to consider future energy scenarios.
- 4.2.49 The latest version of the ‘Future Energy Scenarios’ (FES) document was published in July 2022. The FES considers four possible scenarios based around two drivers: the speed of decarbonisation and the level of societal change.
- 4.2.50 The four scenarios are:

- Falling Short
- Consumer Transformation
- System Transformation
- Leading the Way

4.2.51 They are illustrated in Chart 4.3 below.

Chart 4.3: Future Energy Scenarios: Scenario Matrix¹²



4.2.52 All four scenarios have net zero at their core and explore different pathways to achieving this. The four headline messages are:

1. Significantly accelerating the transition to a decarbonised energy system can help to address security and affordability concerns at the same time as delivering Net Zero milestones. (emphasis added)
2. Consumer behaviour is pivotal to decarbonisation – how we all react to market and policy changes, and embrace smart technology, will be vital to meeting Net Zero.

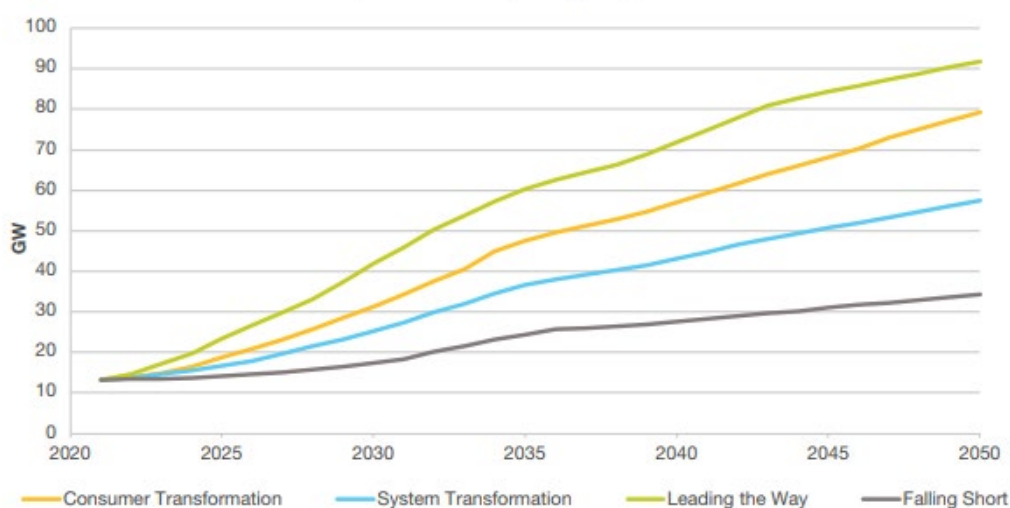
¹² <https://www.nationalgrideso.com/document/263951/download> Page 7.

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3. Reforming energy markets to improve price signals will help unlock the flexible solutions needed to integrate renewables efficiently.
 4. Strategic investment in the whole energy system is urgently required to keep pace with Net Zero ambitions and strengthen energy security. (emphasis added)
- 4.2.53 Page 163 of the FES Report sets a clear target of up to 70GW of solar by 2035 to be on the path to deliver net zero by 2050. There was only 13.2GW of installed solar in 2021. Similarly, the FES Report sets a clear target of up to 37.3GW of electricity storage capacity by 2035. There was only 4GW of installed electricity storage in 2021. Clearly, delivering these ambitious targets will require significant investment in solar electricity generation and electricity storage across the UK over the next decade.
- 4.2.54 All scenarios:
- are UK wide. The scenarios include regional variations in how the energy landscape could develop, where evidence is available;
 - take a whole system view. They explore a future where the different parts of the energy market work together in new ways to maximise efficiency and value for consumers;
 - include a mix of technologies, but show different levels of adoption; and
 - model progress from today to 2050.
- 4.2.55 *Consumer Transformation* and *System Transformation* both hit the target of zero emissions in 2050, and *Leading the Way* achieves the target slightly earlier in 2047. *Falling Short* would not achieve net zero, with a reduction of 80% compared to the level in 1990.
- 4.2.56 In respect of electricity supply, net zero will require significantly higher levels of electricity generation. In 2050, it is envisaged that four technologies will produce over 90% of electricity generation: wind, solar, nuclear, and Bioenergy and carbon capture and storage (BECCS). Over the past decade, growth in renewable generation has led to a significant fall in the carbon intensity of electricity supplies in Great Britain. As renewable technologies continue to become cheaper, and more investment is made this trend is expected to continue.

- 4.2.57 In addition to requiring more capacity for electricity generation, it is envisaged that there will be greater decentralisation compared to today, representing up to 41% of generation capacity by 2050. Decentralisation refers to how close production and management of energy is to the end consumer, with closer links between energy supply and demand. The Proposed Development would be a decentralised energy source supplying the local transmission network.
- 4.2.58 In respect of renewable energy, the FES sets out that there is strong policy support for continued growth of wind and solar to drive decarbonisation. Solar capacity projections have increased significantly in the last year which is supported by growth in flexible electricity demand for electrolysis.
- 4.2.59 Cost reductions and the eligibility of solar PV for Contracts for Difference support, and co-location with storage are expected to boost solar growth in the 2020s, which would coincide with the Proposed Development. Post-2035 significantly higher levels of solar generation are forecast as increased electricity demand leads to greater demand for renewable generation.
- 4.2.60 Chart 4.4 clearly illustrates that significant increases in installed solar capacity will be required under all scenarios between now and 2050. The largest requirement will be for the *Consumer Transformation* and *Leading the Way* Scenarios.

Chart 4.4: Solar capacity by scenario¹³

Figure ES.E.16: Installed solar generation capacity (GW)



¹³ <https://www.nationalgrideso.com/future-energy/future-energy-scenarios#fullsuite>. Taken from Figure ES.E.16 of the FES Data Workbook.

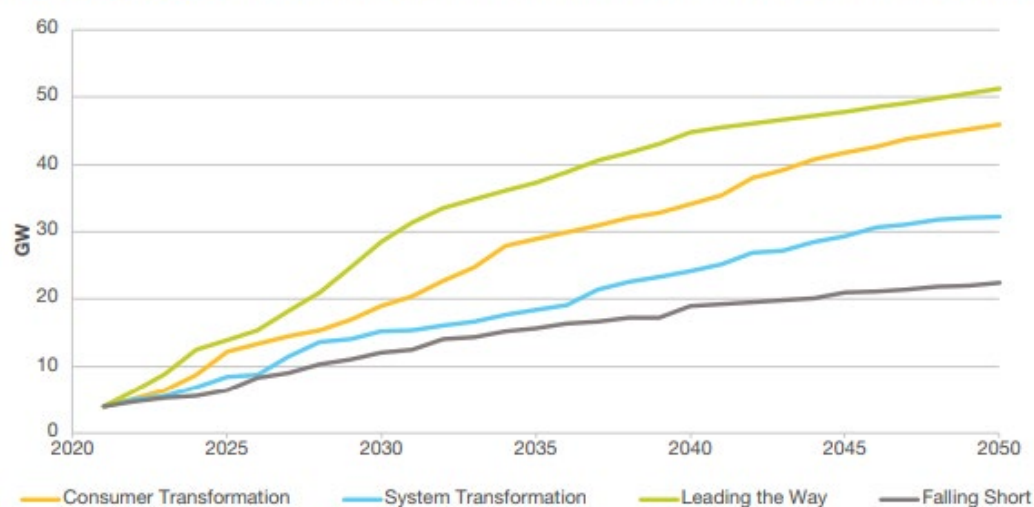
- 4.2.61 The FES Data Workbook which accompanies the FES report provides the detailed annual breakdown of solar capacity in Giga Watts (GW) for each year up to 2050. The information is summarised below for this year and projects forward to 2030, 2035 and 2050.

	2022 (GW)	2030 (GW)	2035 (GW)	2050 (GW)	2022 - 2030 Increase (GW)
Consumer Transformation	14	31.3	47.4	79.3	17.3
System Transformation	13.8	25.2	36.6	57.4	11.4
Leading the Way	14.6	42.0	60.2	91.8	27.4
Falling Short	13.4	17.3	24.4	34.3	3.9

Table 4.1: NG ESO: Solar Capacity by Scenario (GW)

- 4.2.62 Under all scenarios an increase in solar capacity is required between now and 2030, with further increases after that. Even under the *Falling Short* scenario an increase of 3.9 GW of capacity is required between now and 2030, but this increases to 11.4 GW for *System Transformation*, 17.3 GW for *Consumer Transformation* and 27.4 GW for *Leading the Way*. Given the legally binding commitment to zero carbon the higher figures are considered more appropriate to use as a reference, especially as *Falling Short* does not achieve zero carbon.
- 4.2.63 Chart 4.5 below clearly illustrates that significant increases in installed electricity storage capacity will also be required under all scenarios between now and 2050. The largest requirement will be for the *Consumer Transformation* and *Leading the Way* Scenarios.

Figure ES.E:26: Electricity storage capacity, excluding V2G and hydrogen storage (GW)¹³



'Storage' here excludes vehicle to grid and hydrogen as stores of energy.

Chart 4.5: Electricity Storage capacity by scenario¹⁴

4.2.64 The FES Data Workbook which accompanies the FES report provides the detailed annual breakdown of electricity storage capacity in Giga Watts (GW) for each year up to 2050. The information is summarised below for this year and projects forward to 2030, 2035 and 2050.

	2022 (GW)	2030 (GW)	2035 (GW)	2050 (GW)	2022 - 2030 Increase (GW)
Consumer Transformation	5.1	19.0	28.9	45.9	13.9
System Transformation	4.9	15.2	18.4	32.3	10.3
Leading the Way	6.2	28.5	37.3	51.3	22.3
Falling Short	4.7	12.0	15.6	22.4	7.3

Table 4.1: NG ESO: Electricity Storage Capacity by Scenario (GW)

4.2.65 Under all scenarios an increase in storage capacity is required between now and 2030, with further increases after that. Even under the *Falling Short* scenario an increase of 7.3 GW of capacity is required between now and 2030, but this increases to 10.3 GW for *System Transformation*, 13.9 GW for *Consumer Transformation* and 22.3 GW for *Leading the Way*. Given the legally binding

¹⁴<https://www.nationalgrideso.com/future-energy/future-energy-scenarios#fullsuite> . Taken from Figure ES.E.26 of the FES Data Workbook.

commitment to zero carbon the higher figures are considered more appropriate to use as a reference, especially as *Falling Short* does not achieve zero carbon.

- 4.2.66 The Proposed Development, in combination with other large scale solar and electricity storage projects that are starting to come forward through the planning and NSIP processes, are essential to enable the UK to achieve its 2030 interim target and to decarbonise the electricity system by 2035, on the way to achieving net zero by 2050. In addition, increased generation and storage is essential for energy security and to ensure stable wholesale energy costs on the long term.

British Energy Security Strategy (2022)

- 4.2.67 On the 7th April 2022 the Government published their long awaited and overdue Energy Security Strategy to the backdrop of soaring global energy prices and increased energy security fears in the wake of Russia's invasion of the Ukraine. The objective of the Energy Security Strategy is to set out a clear way forward to providing the energy we need in a safe, secure and affordable way, and at the same time ensuring that we do all we can to meet our net-zero commitments. The Prime Ministers foreword states that; *"We're going to take advantage of Britain's inexhaustible resource of wind and – yes- sunshine."*
- 4.2.68 The Strategy states that: *"Accelerating the transition from fossil fuels depends critically on how quickly we can roll out renewables. Our 'Ten point plan for a green industrial revolution' has already put the UK at the forefront of many renewable technologies, delivering £40 billion of private investment in under 2 years. By the end of 2023 we are set to increase our capacity by a further 15%."* Turning specifically to solar, the Strategy recognises the opportunities open to us to harness the sun's power. It states: *"The cost of solar has fallen by around 85% over the past decade...We expect a five-fold increase in deployment by 2035. For ground-mounted solar, we will consult on amending planning rules to strengthen policy in favour of development on non-protected land, whilst ensuring communities continue to have a say and environmental protections remain in place."* (emphasis added)
- 4.2.69 The five-fold increase in solar deployment referenced in the British Energy Security Strategy means that solar will need to increase from the existing 14GW to 70GW by 2035, if the strategy targets are to be delivered. These targets match the rate of increase forecast in National Grid's Future Energy Scenarios Report 2022. The Government solar policy is to support the broad roll out of opportunities where they

are not identified in high value protected landscapes and designations. The Proposed Development will help the UK address the identified energy crisis by bringing forward a sustainable solution within an appropriate area of the District and in advance of 2030.

4.3 Conclusion

- 4.3.1 There is no Government policy that requires, as a matter of general principle, applicants to demonstrate that there is a need for their renewable energy development. However, it is widely recognised that the need for a particular scheme may be a material planning consideration to be weighed in the planning balance against possible policy tension.
- 4.3.2 It is explicit from the above considerations that at a strategic level there is significant policy support for renewable energy development. There is a clear expectation that solar power will provide a significant contribution to the achievement of the legally binding net zero target by 2050 and the UK electricity system achieving zero carbon emissions by 2035, as set out in the Sixth Carbon Budget and Net Zero Strategy. The much-awaited new British Energy Security Strategy focuses on the need to deliver a broad brush of dependable, reliable, domestic energy supplies to the market to help drive costs, reduce reliance of foreign fuel, and meet out net-zero obligations. Accelerating the transition from fossil fuel to renewable technologies is critical, and commercial-scale solar development in non-protected areas is central to that objective.
- 4.3.3 It is also clear that to achieve the net zero target by 2050, and a decarbonised electricity system by 2035 action is required now to deliver the projects necessary for these mid and long-term goals. Whilst 2050 is 29 years away National Grid ESO forecast that significant solar PV and electricity storage development will be required by 2030 to remain on the correct trajectory for achieving net zero by 2050 and to decarbonise the electricity system by 2035. Even these measures may not be ambitious enough. The Proposed Development would make a significant contribution to achieving the anticipated requirement for solar PV in advance of 2030 and this should be given considerable weight in the decision-making process.
- 4.3.4 In conclusion, there is a demonstrable need for the Proposed Development and the significant environmental, economic and social benefits it would deliver. The Proposed Development represents sustainable development in the context of the

NPPF and as such there should be a presumption in favour of granting consent, unless other material considerations dictate otherwise.

- 4.3.5 A full consideration of other relevant planning policy and other material considerations is provided within Section 5.0 below.

5.0 PLANNING POLICY CONTEXT AND APPRAISAL

5.1 Planning Policy

- 5.1.1 This section undertakes an appraisal of the Proposed Development in the context of the current and emerging planning policy framework.

Local Development Plan

- 5.1.2 Section 38(6) of the Planning and Compulsory Purchase Act 2004 (PCPA) requires applications to be determined in accordance with the Development Plan, unless material considerations indicate otherwise. At the time of drafting, the adopted Development Plan, relevant to the Proposed Development, comprises the following:

- South East Lincolnshire Local Plan 2011 – 2036 adopted 8 March 2019

- 5.1.3 The South East Lincolnshire Local Plan was adopted by the South East Lincolnshire Joint Strategic Planning Committee (SELJSPC) In March 2019, and replaced the Local Plans of Boston Borough Council and South Holland District Council.

- 5.1.4 In Lincolnshire, the current minerals and waste local plan consists of two parts: Core Strategy and Development Management Policies; and the Site Locations. The Proposed Development does not relate to waste or mineral development and there are no waste allocations at this location. The adopted Minerals Local Plan includes policies for safeguarding minerals and the emerging Minerals Local Plan identifies some Sand & Gravel Minerals Safeguarding Areas within the Site boundary. However, due to the temporary and reversible nature of the Proposed Development there would be no permanent sterilisation of mineral reserves. As such the adopted Minerals and Waste Local Plan is not considered relevant to the determination of the planning application and is not considered further.

Material Considerations

- 5.1.5 A material planning consideration is one which is relevant to making the planning decision in question (e.g. whether to grant or refuse an application for planning permission). The law makes a clear distinction between the question of whether something is a material consideration and the weight which it is to be given. Whether a particular consideration is material will depend on the circumstances of the case and is ultimately a decision for the courts. Provided regard is had to all material considerations, it is for the decision maker to decide rationally what weight is to be given to the material consideration in each case.
- 5.1.6 Such material considerations can include the NPPF, emerging planning policies, government policy & strategy and Supplementary Planning Documents (SPDs).
- 5.1.7 Irrespective of the above, the following documents are material considerations in respect of the Proposed Development:
- Climate Change Act 2008 (2050 Target Amendment) Order 2019
 - Net Zero Strategy: Building Back Better (2021)
 - British Energy Security Strategy (2022)
 - Sixth Carbon Budget (2021)
 - Clean Growth Strategy (Updated April 2018)
 - IPCC Special Report on Global Warming of 1.5°C (2018)
 - National Planning Policy Framework (2021);
 - Solar PV Strategy (2013);
 - National Policy Statements;
 - Draft National Policy Statements;
 - National Grid's Future Energy Scenarios (2021);
 - UK Solar PV Strategy (2014);
 - South and East Lincolnshire Councils Partnership – Climate Change Strategy (Spring 2022)
 - Boston Climate Emergency.
- 5.1.8 Support provided by the above policy documents in terms of the need for renewable energy / solar development is covered in Section 4.0 of this Planning Statement and is not repeated here. The material considerations section of this planning policy chapter provides coverage only of matters not specifically concerning need and which have not been addressed previously.

5.2 South East Lincolnshire Local Plan 2011 – 2036

- 5.2.1 The Application was subject to formal Screening under Regulation 6 of the EIA Regulations; however, the applicant did not elect to undertake formal pre-application advice. The Local Plan was only referenced once in the response from BBC when it noted that the Proposed Development would not result in any significant trans frontier impacts.
- 5.2.2 The Local Plan is made up of the Local Plan Written Statement and the Policies Map and Inset Maps. The Local Plan contains policies and allocations for the next 20 years is subdivided into policies under several different themes as follows:
- Chapter 3 (Promoting Sustainable Communities in South East Lincolnshire);
 - Chapter 4 (Promoting Economic Prosperity and Employment Opportunities);
 - Chapter 5 (Quality Housing for All);
 - Chapter 6 (Vibrant Town Centres and Accessible Shops and Services);
 - Chapter 7 (A Distinctive, Greener, Cleaner, Healthier Environment);
 - Chapter 8 (Efficient and Effective Transport).
- 5.2.3 Given that the Local Plan was adopted after the publication of the NPPF in 2018 it appears to remain broadly consistent with the policies of the NPPF.
- 5.2.4 In considering development proposals, the LPAs should take a positive approach that reflects the presumption in favour of sustainable development in the Framework. This means that planning applications that accord with the policies of the Plan should be approved without delay unless material considerations indicate otherwise.
- 5.2.5 Paragraph 11 of the NPPF provides a presumption in favour of sustainable development. For decision-taking this means, approving development proposals that accord with an up-to-date development plan without delay. Where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, grant permission unless; the application of policies in the NPPF that protect areas or assets of particular importance provides a clear reason for refusing the development; or any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in the NPPF taken as a whole.

- 5.2.6 Consequently, it is important to determine; (a) if the development plan is up to date; (b) what the policies are that are most important for determining the application; and (c) where the policies are up to date whether the Proposed Development accords with them.
- 5.2.7 The development plan taken as a whole, is considered up to date. Nonetheless, the assessment below both considers whether the proposals accord with the individual policy, and whether each policy is consistent with the policies of the Framework, and consequently are up to date.
- 5.2.8 The basket of policies within the Development Plan that are of most relevance to the determination of the Proposed Development are listed below.

Table 5.1: Policies of Most Relevance to the Determination of the Application

South East Lincolnshire Local Plan 2019
Policy 1: Spatial Strategy
Policy 2: Development Management
Policy 3: Design of New Development
Policy 4: Approach to Flood Risk
Policy 5: Meeting Physical Infrastructure and Service Needs
Policy 6: Developer Contributions
Policy 7: Improving South East Lincolnshire's Employment Land Portfolio
Policy 28: The Natural Environment
Policy 29: The Historic Environment
Policy 30: Pollution
Policy 31: Climate Change and Renewable and Low Carbon Energy
Policy 33: Delivering a more Sustainable Transport Network

Policy 1: Spatial Strategy

- 5.2.9 Policy LP1 is the strategic policy for the Local Plan which indicates where growth will be directed to. It identifies a spatial hierarchy of settlements with areas where development is to be directed to, areas of limited development opportunity and areas of development restraints. Donnington is categorised as a *Main Service Centre*, which is an area where development is to be directed to. Bicker is a *Minor Service Centre* which is an area of limited development opportunity. Outside of settlements the remainder of the plan area is classified as *Countryside* where "development will be permitted that is necessary to such a location and/or where it can be demonstrated that it meets the sustainable development needs of the area in terms of economic, community or environmental benefits."

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- 5.2.10 The Proposed Development requires land that is within the countryside, as areas of land of a sufficient scale for solar farms are not available within the identified settlements or are identified for other types of development.
- 5.2.11 The Proposed Development would provide economic benefits by generating additional employment during both the construction/decommissioning stages and operational phase of the development.
- 5.2.12 The Proposed Development would support the community through supplying low carbon energy that over time would reduce emissions from fossil fuel generation, improve long term air quality and reduce climate change. In addition, the Proposed Development would not restrict use of public rights of way and will provide opportunities for interpretation in respect of renewable energy and biodiversity on the Site.

Policy 2: Development Management

- 5.2.13 The Local Plan is structured around a requirement to ensure that all development should meet the aspiration for quality and sustainability in their design and layout. In short, good design is inseparable from good planning. Policy 2 requires that sustainable development considerations are met before planning permission is granted. All development proposals are required to take into consideration (*inter alia*) the character and appearance of the area and the relationship to existing development and land uses, the quality of design and orientation, impact on neighbouring land uses, sustainable drainage and flood risk, and the impact on natural habitats and heritage assets.
- 5.2.14 Quality design consideration is central to delivering sustainable development. Fostering well-designed and beautiful places sits centrally within the social overarching objective within the NPPF and is a theme running through sections dealing with supporting a prosperous rural and urban economy, promoting health and safe communities, as well as being covered within its own objective 12 'Achieving well-designed places' within the Framework.
- 5.2.15 As set out in Section 1 above, this document is a combined Planning and Design and Access Statement, the requirements of it therefore are to explain the design principles that have been followed, demonstrate the steps taken to appraise the context of the development, and how the design takes that context into account. This is demonstrated within Section 1. The landscape surrounding National Grid's

Bicker Fen Substation has become an energy hub with the substation, wind turbines, Triton Knoll offshore substation and Viking Link converter station exerting a strong influence on the landscape local to the Site. The Proposed Development would be consistent with this evolving landscape character.

Policy 3: Design of New Development

- 5.2.16 Following on from Policy 2, Policy 3 states that all development will create distinctive places using high quality and inclusive design and layout. Development which is inappropriate to the local area, or which fails to maximise opportunities for improving the character and quality of an area, will not be acceptable.
- 5.2.17 The Proposed Development has different design considerations to most developments that this policy will be used to assess. However, the impact on the landscape character of the location is an important consideration, and this is considered in detail in the Landscape and Visual Impact Assessment (LVIA). This shows that with the proposed landscaping the Proposed Development would have an acceptable visual impact in this location. The policy is specific on the provision of new landscaping to enhance biodiversity and green infrastructure which is an important benefit of the Proposed Development in this landscape which is dominated by large scale arable field of low biodiversity value.
- 5.2.18 Chapter 15 of the NPPF deals with conserving and enhancing the natural environment. It requires policies and decisions to ensure that ‘valued’ landscapes are protected and enhanced, recognising the intrinsic character and beauty of the countryside. Great weight should be given to conserving and enhancing landscapes and scenic beauty in areas with the highest status of protection. Policy 3 is broadly consistent with the protection and enhancement sought by the NPPF, and the need to recognise the unique character of the countryside.
- 5.2.19 The *Landscape Character Assessment of Boston Borough*¹⁵ (the Boston Study) subdivides the Borough into a series of landscape character areas. That part of the Site within Boston Borough is in Landscape Character Area B1: Bicker to Wyberton Settled Fen, adjacent to the boundary with Landscape Character Area A1: Holland Reclaimed Fen. Relevant extracts from the Borough Study are included as Appendix B.

¹⁵ ECUS, 2009. *Landscape Character Assessment of Boston Borough*. Boston Borough Council

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- 5.2.20 Energy infrastructure sites including the Bicker Fen National Grid Substation, overhead power lines, the Triton Knoll Offshore Substation, Viking Link Connector, Vicarage Drove Solar Farm and the Bicker Fen Windfarm are/will be dominant features within the landscape at close proximity, making the area something of an energy hub within the wider agricultural landscape.
- 5.2.21 The LVIA submitted as part of this planning application states that the Proposed Development would comprise a commercial-scale solar farm, introduced into arable farmland where other energy development is already a defining characteristic.
- 5.2.22 The Proposed Development would introduce new solar panels and associated structures into the landscape. These would not be tall structures and hence would not be clearly visible over a wider area. The Proposed Development would however increase the footprint of built development locally and would be clearly visible at close range. New native hedgerows and tree belts would be planted around the boundary of the Site to provide screening of the new structures in the medium and longer term.
- 5.2.23 The Site would be grazed by livestock and/or mown for the life of the Proposed Development. The new planting at the Site boundary and new species-rich grassland margins created within the Site would enhance biodiversity and would have a beneficial effect upon the landscape fabric of the Site.
- 5.2.24 Effects on landscape character would not be significant. Electricity generation and supply infrastructure is a well-established and visually prominent influence upon the landscape locally. There would be a limited increase in this influence because of the introduction of the Proposed Development, but the new solar panels and associated structures would be far less prominent than existing features. New planting would enclose the Site, and once this vegetation becomes established the openness of the fenland landscape would reduce. All change would be localised and limited in scale.
- 5.2.25 Short-term significant visual effects would occur locally, experienced by residents in twelve properties located close to the Site boundary, by users of an approximately 500m stretch of the Cross-Britain Way, and by users of the footpath that runs along the Site boundary. As the proposed new planting at the Site boundary establishes, views of the new structures would be largely screened from view. In the medium and longer-term, visual effects would not be significant

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- 5.2.26 In the wider Study Area, the Proposed Development would be a limited addition to the view, appearing less prominent than existing development. As the landscape proposals establish, this limited visibility would reduce further. The presence of the solar panels and associated structures would have little influence upon the wider views available, and effects would not be significant.

Policy 4: Approach to Flood Risk

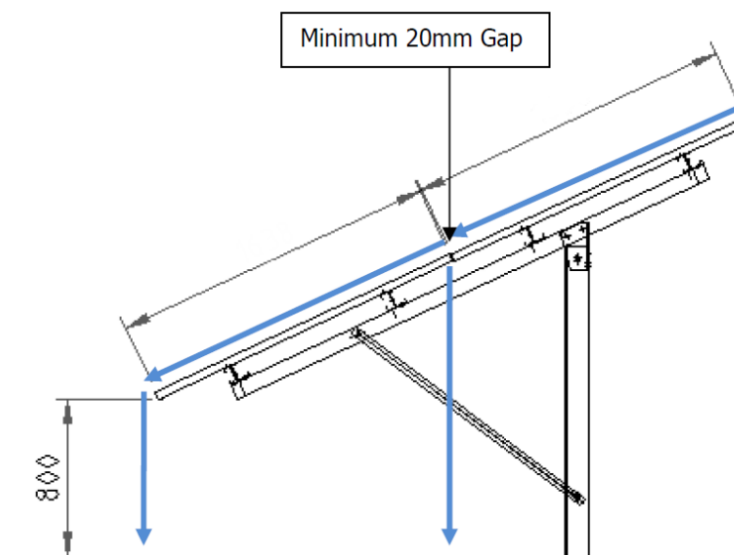
- 5.2.27 Policy 4 states that development proposals within an area at risk of flooding (Flood Zones 2 and 3) or at risk during a breach or overtopping scenario will be permitted where it can be demonstrated that there are no other suitable sites available at a lower risk of flooding, that essential infrastructure in Flood Zones 3a and 3b provide wider sustainability benefits to the community to outweigh the flood risk, and that the application is supported by a site-specific flood risk assessment to demonstrate the acceptability of the Proposed Development.
- 5.2.28 Chapter 14 of the NPPF (Meeting the challenge of climate change, flooding, and coastal change) sets out the national flood risk policy within the NPPF, and Policy 4 remains consistent with it. The policy references climate change and the need to ensure that the impacts of climate change are considered.
- 5.2.29 The Site is at risk of flooding and most of the site is within Flood Zone 3. NPPF, NPS EN-1 and the Planning Practice Guidance in respect of flood risk and coastal change require applications in Flood Zones 2 and 3 to be accompanied by a Site-specific flood risk assessment (FRA). The development has been designed to remain operational in times of flooding, and the application is accompanied by a FRA (Appendix D1) undertaken in accordance with the requirements of NPPF.

Sequential & Exception Test

- 5.2.30 Firstly, Figure 3 illustrates that there are no significant areas of undeveloped land outside the EA mapped flood zones within 4km of the grid connection point at National Grid's Bicker Fen Substation. The only areas outside the mapped flood zones are located to the east of the substation on higher ground that tends to be more settled and as such considered less suitable for a solar farm. Secondly, the Environment Agency confirmed in respect of the recently consented solar farm off Vicarage Drove (B/21/0443) that they would not object to the development on the grounds of flood risk if Essential Infrastructure remains operational during the 1000-year plus climate change uplift event. The layout for the Proposed Development has

been designed to ensure that inverters, batteries, switchgear and control rooms etc are outside or raised above the 1000-year plus climate change uplift floodplain.

- 5.2.31 There is no mention of solar PV within the Planning Practice Guidance in terms of the vulnerability classification. However, it is considered that Solar PV developments falls within Essential Infrastructure as an electricity generating station. In addition due to the type of infrastructure proposed it may also reasonably fall within the 'less vulnerable' category. Consequently, it is not subject to the inherent associated risks of or vulnerability to flooding. Further, the installation of solar panels does not result in significant loss of flood plain storage, and the structures are not immovable. The Planning Practice Guidance determines that 'Essential Infrastructure' and 'less vulnerable' uses are acceptable within Flood Zone 3a.
- 5.2.32 In terms of surface water run-off from the Proposed Development, whilst the solar panel themselves may be constructed from impermeable material, this is not the case for solar panel support tables. As illustrated below rainwater falling on the solar panels will fall between the gaps with adjacent panels, landing on the ground beneath the array and percolating to ground water. As such, there will not be large volumes of water cascading off the bottom edges of the solar panel tables that would require a French drain at the base.



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- 5.2.33 Research undertaken into the hydrological response of solar farms (Hydrologic Response of Solar Farms. (Cook L.M. and McCuen R.H (2013) Journal of Hydrologic Engineering 18: pp 536-541)¹⁶ states that: *‘Various sensitivity analyses were conducted including changing the storm duration and volume, soil type, ground slope, panel angle, and ground cover to determine the effect that each of these factors would have on the volumes and peak discharge rates of the runoff. The addition of solar panels over a grassy field does not have much of an effect on the volume of runoff, the peak discharge, nor the time to peak. With each analysis, the runoff volume increased slightly but not enough to require storm-water management facilities’.*
- 5.2.34 Based on the above research the most important factors in respect of infiltration and avoiding overland flows is ensuring that there is no compaction of the soils during construction and that a grass sward is established and maintained across the site. These factors could be controlled by condition and a Construction Environmental Management Plan (CEMP) and Landscape and Environmental Management Plan (LEMP).
- 5.2.35 The existing Site is used for intensive agriculture with periods where soils are exposed, and run-off is likely to increase. Following construction the fields would be permanently managed as grassland and this will result in reduced surface water run-off compared to the existing situation, particularly during winter months.
- 5.2.36 In terms of the need for wider surface water drainage the impermeable areas associated with the Proposed Development (such as the inverter stations, control building, etc) would be negligible. Infiltration trenches would be provided adjacent to each of these elements to manage any increased run-off.
- 5.2.37 Site access tracks would be constructed using a geotextile overlain by low fines crushed stone which would result in a permeable surface. This would allow surface water to infiltrate through the road surface to ground.

Policy 5: Meeting Physical Infrastructure and Service Needs

- 5.2.38 The Local Plan recognises that economic growth can only happen sustainably where it is supported by necessary infrastructure to service the development. As new development gives rise to the need for new improved services, facilities, and

¹⁶ <https://usesny.org/wp-content/uploads/2020/02/Hydrologic-Response-of-Solar-Farms.pdf>

other infrastructure, it is right and reasonable for applicants to demonstrate that this infrastructure is either already in place, or for them to contribute towards its delivery.

- 5.2.39 Policy 5 requires all development to be supported by, and have good access to, sufficient physical infrastructure and service needs. However, the policy is only specific on the requirement for education provision.
- 5.2.40 Critical to the delivery of a commercial-scale solar array is the ability to feed into the national grid in an efficient and effective way. That requires a local sub-station with sufficient available capacity to allow the power generated by the solar array to be fed into the system at the appropriate time. The Site has been selected because of the proximity to the Bicker Fen Electricity Sub-Station. All necessary connecting services and infrastructure would be provided either under Permitted Development Rights by National Grid or is included as central to the planning application. Consequently, the Proposed Development is consistent with the objectives of the Local Plan Policy.
- 5.2.41 Chapter 6 of the NPPF provides the policies required to help build a strong and competitive economy. Paragraph 82 requires planning policies to address potential barriers to investment, such as inadequate infrastructure or services, and be flexible enough to accommodate needs not anticipated in the plan and enable rapid response to changes in economic circumstances. Paragraph 34 provides that plans should set out the contributions expected from development, including the infrastructure needed to deliver economic growth. Policy 5 is the Local Plan Policy that provides the structure to ensure that the infrastructure needs are met by development proposals, and consequently is consistent with the objectives of the NPPF, although as noted above it is only specific on education provision.

Policy 6: Developer Contributions

- 5.2.42 Following on from Policy 5, Policy 6 concerns developer contributions arising from proposed developments. The policy is specific to developments of 11 or more dwellings or non-residential development of greater than 1000sqm gross floorspace, and seeks for their impacts on infrastructure, services and the environment to be mitigated. As the Proposed Development is for a solar farm, and as the buildings proposed as part of this are less than 1000sqm policy 6 is not considered applicable to it. Notwithstanding the above the local planning authority would benefit from business rates from the solar farm.

Policy 7: Improving South East Lincolnshire's Employment Land Portfolio

- 5.2.43 The local authorities covered by the Local Plan will support proposals which assist in the delivery of economic prosperity, including 3,800 jobs in BBC and 13,800 jobs in SHDC.
- 5.2.44 The Proposed Development would generate typical staffing levels for arable cropping on the existing 97.3ha would be c.0.25 full-time equivalent (FTE) jobs. In contrast the sheep grazing proposed under the solar panels would support c. 1.5 FTE jobs for the duration of the solar farm operations. In addition, maintenance and monitoring requirements during the lifetime of the Proposed Development are likely to generate a further 3.0 FTE jobs.
- 5.2.45 Whilst these employment levels are small compared to what the plan envisages providing over its lifetime across the entire plan area, they are nevertheless proportionate to the type and scale of the Proposed Development and an improvement on the current situation.

Policy 28: The Natural Environment

- 5.2.46 South-east Lincolnshire has many areas that are noted for their natural beauty and biodiversity value, and these areas support a wide variety of species and habitats. Policy 28 seeks a high quality, comprehensive ecological network of interconnected designated sites, sites of nature conservation and wildlife-friendly greenspace. This will be achieved by protecting, enhancing and managing natural assets.
- 5.2.47 Development proposals will not be supported if they would directly or indirectly adversely affect priority habitats and species. Proposals should also provide an overall net gain in biodiversity, which is proposed as part of the development.
- 5.2.48 NPPF Paragraph 174 advises that planning policies and decisions should seek to minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures. This is echoed in the NPPG and is now enshrined in the Environment Act 2021 which requires the planning system to deliver biodiversity net gain.
- 5.2.49 The Site does not form part of any statutory designated Site for nature conservation. The main habitat within the development footprint comprises intensively management arable land which is of low ecological value. Field

boundary features are made up primarily of ditches, with some limited hedgerows. These features potentially support a more diverse range of species and the solar array has been designed to avoid them with a minimum 6m buffer proposed. Direct loss of habitat would be small and would comprise entirely low ecological value arable land, which is widely present in the local landscape.

- 5.2.50 Independent studies looking at changes in biodiversity between solar farms and undeveloped Sites have found that overall diversity and abundance of bird species is higher in solar farms compared to adjacent 'control' Sites. The studies document that solar farms provide an important resource for declining species, such as skylark, as this species utilises habitats within the solar development footprint. The studies found the difference in skylark numbers within solar farms and control plots was not significant. Studies conducted by the Royal Society for the Protection of Birds (RSPB) further support high bird usage of solar farms by farmland bird species, including ground-nesting species (such as skylark).
- 5.2.51 Likewise, ground-nesting bird species have been found to nest between and around rows of solar panels. As such any displacement that could occur during construction is unlikely to be permanent. The gaps between rows of panels will be c.4m wide, which is the recommended width for skylark plots.
- 5.2.52 There are no formal ecological designations within 2.5km of the Site. The closest statutory designated site is Horbling Fen SSSI which is approximately 3.75km to the south west: it is designated for its geological interest. The Wash SPA is over 13km to the east at its nearest point, which is designated for a host of qualifying bird species including over-wintering pink-footed geese, Bewick's swan, Brent goose, oystercatcher and curlew
- 5.2.53 The habitat creation and associated biodiversity net gain that will accompany the Proposed Development has been assessed using the Defra Biodiversity Net Gain Calculator Metric (version 3.0). This shows a clear net gain of c.119% in habitat units, plus over 1,005% gain in hedgerow units.
- 5.2.54 The Proposed Development would deliver significantly greater net biodiversity gains than required by the Environment Act (2021) and would comply with the objectives of CLLP Policy LP21, and that of the NPPF.

Policy 29: The Historic Environment

- 5.2.55 The effect of a proposed development on the character or appearance of a Conservation Area is always a material consideration in the determination of planning applications, and that heritage assets represent an irreplaceable resource which should be conserved and enhanced. Policy 29 states that development proposals should conserve and seek opportunities to enhance the historic environment. In terms of archaeology, the policy states that development affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step to protect and, where possible, enhance their significance. Planning applications are required to be accompanied by an appropriate and proportionate assessment to understand the potential for and significance of remains, and the potential impact on them. Policy 29 also considers landscape, highlighting the dominance of church towers, spires and historic windmills.
- 5.2.56 Section 16, (Paragraphs 194 to 208) of the NPPF consider cultural heritage and archaeological assets. Paragraph 200/202 seeks to ensure that substantial harm to designated heritage assets is avoided, and that where there is less than substantial harm to designated assets this harm should be weighed against the public benefits of the proposal.
- 5.2.57 Paragraph 194 indicates that the level of assessment '*should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance*'. (emphasis added)
- 5.2.58 There are no designated heritage assets within the Site, or Conservation Areas within proximity to the Site. The nearest Conservation Areas are Donington, which is to the south, and Bicker to the east. The Proposed Development would not give rise to any direct or indirect impacts on these Conservation Areas given the distance to them. There are listed buildings in Bicker to the east. This includes the Grade I listed Church of St Swithin on Church Road, and other Grade II listed buildings which are all greater than 800m from the Site at its nearest point. There are also several listed buildings in Donnington to the south. This includes the Grade I Church of St Mary and the Holy Rood. The distance from the Site to the nearest listed building is approximately 1.2km. There is one Scheduled Ancient Monument (SAM) within 2.5km of the Site. A Heritage Assessment is provided at Appendix C1.

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- 5.2.59 A preliminary desk-based assessment was undertaken of to determine the potential likelihood of any valued buried archaeology. This was supported by a Geophysical Survey across the Site, the results of which are provided at Appendix C2.
- 5.2.60 The Screening Opinions from both BBC and SHDC, and associated consultation responses from the relevant archaeological advisors confirmed that the Site is within an area of archaeological interest where evidence of prehistoric and Roman period remains have historically been recorded. Considering the above, the Cultural Heritage Assessment provided at Appendix C1 concludes that there no archaeological constraints that could preclude development within most of the Site.
- 5.2.61 A military crash site (dated to 1943) that is subject to the Protection of Military Remains Act, 1986, possibly extends into the Site. However, the geophysical survey within the Site did not identify any anomalies suggestive of a crash site. The geophysical survey within the Site identified anomalies indicative of later prehistoric and Roman remains. These remains, interpreted as a possible saltworks and villa or bath-house, are located on a raised former watercourse ('roddon') and would comprise heritage assets of archaeological significance.
- 5.2.62 Later activity, dated to the medieval and post-medieval periods comprise the remains of former drainage ditches. The Site underwent a series of reclamation attempts during the postmedieval period and it is likely that the remains of drainage ditches and features occur within the Site.
- 5.2.63 Given that the Site has potential for unknown archaeological potential, non-penetrative construction methods would be employed where archaeological remains are identified for preservation in situ. This could be controlled with an appropriately worded planning condition.
- 5.2.64 No designated heritage assets are recorded within the Site. Nearby designated heritage assets include the Conservation Areas at Donington and Bicker settlements that include several Listed Buildings located c.1.2km and c.1.4km from the Site respectively. Views of Donington's church are evident from the Site, but do not contribute in a meaningful way to the appreciation of its heritage significance. It is considered that the development within the Site would not harm the significance of any nearby designated heritage assets.
- 5.2.65 The focus of the NPPF and local plan policies is to avoid direct harm to heritage assets and their setting. It is acknowledged that the Site has a high potential for

archaeological remains to be present. However, there are several mitigation strategies available that can be used to avoid direct impacts on any currently unknown heritage assets. It should be noted that with solar arrays there is minimal actual ground disturbance, typically less than 3% of the overall Site.

- 5.2.66 Mitigation strategies to avoid impacts currently unknown heritage assets include the omission of areas of solar panels and cabling completely and /or the use of no dig installation techniques to preserve any assets in situ.
- 5.2.67 There has been considerable development in 'no dig' solutions in the construction of solar developments and the objective of in-situ preservation can be achieved through non-intrusive investigation, post-determination excavation and the use of no dig mitigation.
- 5.2.68 Use of this type of mitigation in combination with geophysical surveys and targeted post determination trenching would ensure compliance with the requirements of the NPPF and CLLP LP25.

Policy 30: Pollution

- 5.2.69 The Local Plan is structured around a requirement to ensure that all development should meet the aspiration for quality and sustainability in their design and layout. In short, good design is inseparable from good planning. Policy 30 requires all development proposals to take into consideration the impact upon the health and safety of the public, and the amenities of the area. This includes consideration of contamination, air quality and noise.
- 5.2.70 Appendix J provides a Stage 1 Contamination Assessment. This report confirms that there are no sources of on-site contamination that have been identified which could pose a risk to human health, the environment or pose a significant constraint to the proposed development of the Site.
- 5.2.71 The Proposed Development would not give rise to emissions to air during operation and any air quality impacts during construction would be temporary and could be controlled through a Construction Environmental Management Plan (CEMP)
- 5.2.72 Appendix F provides a Noise Impact Assessment for the Proposed Development and demonstrates that the Proposed Development has been designed to operate within acceptable noise limits that would protect the amenity of noise sensitive receptors.

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- 5.2.73 Based on the above assessment it is concluded that the Proposed Development would comply with Policy 30.

Policy 31: Climate Change and Renewable and Low Carbon Energy

- 5.2.74 The Local Plan was adopted post the UK having introduced a long-term legally binding framework to reduce its impact on climate change, and consequently the policies of the Plan recognise the need to support measures to cut carbon emissions. Policy 31 requires proposals to demonstrate that the consequences of current climate change have been addressed, minimised and mitigated. As part of this design, flood risk, biodiversity and reducing the need to travel are all to be considered.
- 5.2.75 Policy 31 contains a specific section on renewable energy, requiring that projects will be supported provided that individually, or cumulatively, there would be no significant harm. Such harm could be in several forms, including visual amenity, landscape character, residential amenity (including noise, odour, sunlight reflection and traffic), highway safety, agricultural land take, aviation and radar safety, heritage assets and the natural environment.
- 5.2.76 The Proposed Development represents a commercial-scale renewable energy scheme that will help the UK meet its increasingly tightening net-zero obligations, in accordance with the third tier of the policy. Policy 31 draws upon Section 14 of the NPPF, which aims to increase the use and supply of renewable and low carbon energy and looks to Local Plans to take a proactive approach to mitigating and adapting to climate change.
- 5.2.77 The specific impacts are assessed in the documents submitted as part of the planning application, and in each case the impacts are found to be acceptable in the planning balance.
- 5.2.78 Since the adoption of the plan the need for increased rapid roll out of dependable, dispatchable, reliable renewable energy solutions have only been heightened placing greater weight on the benefits of any proposal when balanced against the impacts of the scheme listed within the criteria above. The policy provides a presumption against solar farm development on best and most versatile agricultural land (BMVL) which is not completely consistent with the NPPF, which simply recognises that planning policies and decisions should contribute to and enhance

the natural and local environment by (amongst other things) recognising the economic and other benefits.

- 5.2.79 However, unlike many types of development that would result in the long-term irreversible loss of BMV agricultural land solar farms are unlikely to lead to significant long-term loss, as a resource for future generations. This is because the solar panels would be secured to the ground by support table posts with limited soil impacts. These can be removed in the future with no permanent loss of agricultural land quality likely to occur, provided the development is undertaken to high standards and decommissioning follows best practice. However, during the life of the proposed development it is likely that there will be a reduction in agricultural productivity over the whole development area with only sheep grazing being practical.
- 5.2.80 This approach to BMV agricultural land is consistent with recent Natural England consultation responses in respect of the applicant's consented solar farms on BMV agricultural land adjacent to Burwell Substation in East Cambridgeshire.
- 5.2.81 Of relevance, the Business and Energy Secretary, Kwasi Kwarteng approved plans for a solar farm on agricultural land at Little Crow in Lincolnshire on the 5th April 2022. In considering the potential impacts on BMVL he stated that:
- 5.2.82 "36.6ha would be Grade 3a (which is BMVL). This would be affected for the 35 year lifetime of the Proposed Development and then be returned to agricultural use, and the ExA considers this did not amount to a permanent loss of farmland. The ExA agreed the Proposed Development's impact on agricultural land would be short term, reversible, local in extent, and of negligible significance during the construction and decommissioning phases, and medium term, reversible, local in extent and of negligible significance during the operational phase with a moderate beneficial effect for the quality of the soils because intensive cropping would be replaced by the growing of grass. The 36.6ha of BMVL taken out of arable farming in relative terms would not have a significant effect on agricultural productivity in North Lincolnshire and there would be no unacceptable conflict with extant national and local policy and guidance, and the emerging policy in paragraph 2.48.13 of draft EN-3. The ExA considered the location of the proposed Development was mainly determined by the grid connection it had secured, that the Applicant's descriptions of alternatives it had considered met the requirements of the EIA Regulations, and that a suitable alternative site did not exist."

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- 5.2.83 As set out earlier in respect of the site selection there is no lower grade agricultural land within 4km of the connection point with the National Grid.

Policy 33: Delivering a More Sustainable Transport Network

- 5.2.84 The transport impacts of the Proposed Development are assessed within the Transport Statement provided at Appendix I. Policy 33 seeks to militate against congestion at pinch points and actively manage roads under the Councils' control. In addition, developments should provide for walking and cycling.
- 5.2.85 The transport impacts of the Proposed Development are relatively limited, with the most vehicle movements generated during early part of the construction period. This could be managed by a Construction Traffic Management Plan. During operation of the solar farm the number of vehicle movements would be very low, and barely noticeable on the surrounding road network. Realistically, it is unlikely that those needing to access the site would do so on public transport and only those employees who live nearby could walk or cycle.

Other Material Considerations

- 5.2.86 As stated above, planning applications are required to be determined against the policies of the development plan unless material considerations indicate otherwise. The requirement to have regard to '*any other material considerations*' is in effect a statutory requirement to ensure that all other relevant matters have been considered. The following section considers other material consideration that are not addressed in the context of the environmental issues considered above or the urgent need for renewable energy development set out in Section 4.0.

National Planning Policy Framework (NPPF)

- 5.2.87 The NPPF is a material consideration in determination of the planning application for the Proposed Development.
- 5.2.88 Specific aspects of the NPPF relevant to the Proposed Development are referenced under relevant Local Plan Policies considered above. It is considered that due to the temporary and easily reversible nature of the Proposed Development, the careful design and the embedded mitigation that the scheme represents sustainable development in the context of the NPPF. As such there should be a presumption in favour of development unless other considerations dictate otherwise.

National Planning Practice Guidance (NPPG)

- 5.2.89 The Planning Practice Guidance website includes a section for Renewable and Low Carbon Energy, the key theme of which builds upon the wording of the paragraphs under section 14 of the NPPF, highlighting the importance of renewable energy generation to the UK's security of electricity supply and greenhouse gas reduction targets, but making it clear that planning permission will only be granted where the impacts at the specific Site are, or can be made, acceptable.
- 5.2.90 As set out in the PDAS and technical appendices it is considered that the Site-specific impacts of the Proposed Development have been made acceptable through good design and appropriate mitigation.

UK Solar PV Strategy Part 1: Roadmap to a Brighter Future (DECC, October 2013)

- 5.2.91 This document sets out the UK's vision for the solar PV sector, which is based around four guiding principles. These principles are summarised as:
- Supporting cost-effective projects to ensure that solar PV has a role alongside other energy generation technologies
 - Supporting solar PV which deliver genuine carbon reductions to meet the UK's renewable energy targets
 - Supporting solar PV proposals that are appropriately Sited and give proper weight to environmental considerations, such as landscape and visual impact
 - Supporting solar PV proposals which respond to challenges of deploying high volumes of solar PV (such as grid balancing and grid connectivity).
- 5.2.92 The Proposed Development would deliver all the above guiding principles through the generation of subsidy free clean energy and associated carbon reductions to meet the UK's renewable energy target of net zero by 2050.

UK Solar PV Strategy: Part 2 (DECC, April 2014).

- 5.2.93 The UK Solar PV Strategy Part 2, builds on the four principles set out in Part 1 of the Strategy, setting out the ambitions for the different main markets for solar PV in the UK. Whilst the Strategy notes a desire to focus solar PV growth on roof space and previously developed land, it is also noted that *'There is still a place for large-scale field-based solar in the UK's energy mix.'*

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- 5.2.94 Since the strategy was developed the subsidies for solar PV have stopped and as set out in Section 4.0 the delivery of the 2050 net zero target is likely to be delivered through an increased amount of large-scale field-based solar.

IPCC Special Report on Global Warming of 1.5°C

- 5.2.95 The Special Report on Global Warming of 1.5°C was published by the Intergovernmental Panel on Climate Change (IPCC) in October 2018. The report explores the benefits of aiming for the Paris Agreement's aspirational target of no more than 1.5°C of global warming, rather than bottom level target of 2°C. The report finds that a global warming of 1.5°C will be damaging but is far less damaging than a 2°C increase in global temperature. The report states that to achieve the aspirational target of 1.5°C, there will need to be rapid and far-reaching transition in energy, land, urban and infrastructure (including transport and buildings), and industrial systems. To achieve this aim the report projects an annual average investment need, in the energy system, of around 2.4 trillion USD²⁰¹⁰ between 2016 and 2035 representing approximately 2.5% of the world GDP.
- 5.2.96 In summary, the IPCC report highlights the importance of investing in sustainable renewable and low carbon energy production as part of the global drive for climate change mitigation. If consented, the Proposed Development would make a valid contribution to climate change mitigation.

COP 26

- 5.2.97 The Glasgow Climate Pact is the culmination of the recent United Nations COP26 conference in Glasgow. One of the aims of the COP 26 conference was to keep the Paris target of no more than 1.5-degree global temperature increase. However, despite commitments to reduce CO₂ emission the current pledges will only limit warming to 2.4 degrees and further negotiations will be required over the coming years to achieve 1.5 degrees.
- 5.2.98 COP President Alok Sharma stated:
- 'We can now say with credibility that we have kept 1.5 degrees alive. But, its pulse is weak and it will only survive if we keep our promises and translate commitments into rapid action. I am grateful to the UNFCCC for working with us to deliver a successful COP26.*

From here, we must now move forward together and deliver on the expectations set out in the Glasgow Climate Pact, and close the vast gap which remains.

Because as Prime Minister Mia Mottley told us at the start of this conference, for Barbados and other small island states, 'two degrees is a death sentence'.

It is up to all of us to sustain our lodestar of keeping 1.5 degrees within reach and to continue our efforts to get finance flowing and boost adaptation. After the collective dedication which has delivered the Glasgow Climate Pact, our work here cannot be wasted'. (emphasis added)

- 5.2.99 The UK needs to lead by example and rapidly deliver a low carbon economy to assist in the global target of limiting global warming to less than 1.5 degrees. Developments such as the Proposed Development will play an important role in decarbonising the electricity sector by 2035 and should be supported in the context of COP 26 and the Glasgow Climate Pact, and the Paris Agreement.

South and East Lincolnshire Councils Partnership – Climate Change Strategy (Spring 2022)

- 5.2.100 The Strategy covers BBC, SHDC and East Lindsey District, and includes a vision to achieve net zero emissions in advance of the UK Government. The document identifies a framework for action, which is underpinned by several key things, one of which is *Energy / Renewables*. The challenge identified is to increase this and the Strategy states that “If this growth on the path to net zero is to continue however, small scale renewables solutions together with larger scale developments are going to be essential to achieving the net zero aspirations” (page 15). Therefore, this suggests support for solar farm development

Boston Climate Emergency

- 5.2.101 BBC has declared an ongoing climate and environment emergency which “recognises the need for urgent action and commits to ensuring environmental consideration and carbon reduction is embedded across all activities.” In February 2021 the Council has adopted an Environment Policy which contained 4 themes:

- Protecting and recovering our natural environment
- Mitigating and adapting to climate change
- Enhancing our built environment
- Ensuring a sustainable approach to waste and resource management

5.3 Policy Conclusion

- 5.3.1 The provision of the Planning and Compulsory Purchase Act 2004 and the Town and Country Planning Act 1990 as such that applications for planning permission should be determined in accordance with the policies of the relevant Development Plan unless material considerations indicate otherwise. The Government's national planning policy framework (the NPPF) reaffirms this through the presumption in favour of sustainable development. What that means to decision taking is that, where a development complies with the policies of an up-to-date Development Plan, when taken as a whole, planning permission should be granted without delay.
- 5.3.2 The Development Plan in this instance comprises the South East Lincolnshire Local Plan 2011 – 2036. The Plan was adopted in 2019 and, is broadly consistent with the policies of the NPPF, and thus can be considered as being 'up-to-date'. This direction of travel by the Government to support commercial scale renewable projects, only goes to heighten the support for the proposed development from a policy perspective.
- 5.3.3 The policies of the Local Plan that are of most relevance to the determination of the application have been appraised above. The Proposed Development complies with the plan as a whole, and the policies individually. Policy 31 (Climate Change and Renewable and Low Carbon Energy) seeks for BMVL to be considered as part of the assessment into renewable energy projects, but at its core is supportive of the principle of renewable energy. The development would take place on BMVL. However, it would not result in a long-term irreversible loss of BMVL, and could easily be decommissioned at the end of its operational life. The Secretary of State has very recently determined a solar DCO proposal partly on BMVL and concluded that the development would have a moderate beneficial effect on the quality of soils during the operational phase of the development because intensive cropping would be replaced by the growing of grass. Whilst there may be a degree of policy tension with Local Plan Policy 31, the development is considered to comply with the policy when taken as a whole.
- 5.3.4 There are no material considerations that would warrant determination contrary to the policy presumption in favour of the development, and consequentially planning permission should be granted without delay.

6.0 SUMMARY AND CONCLUSIONS

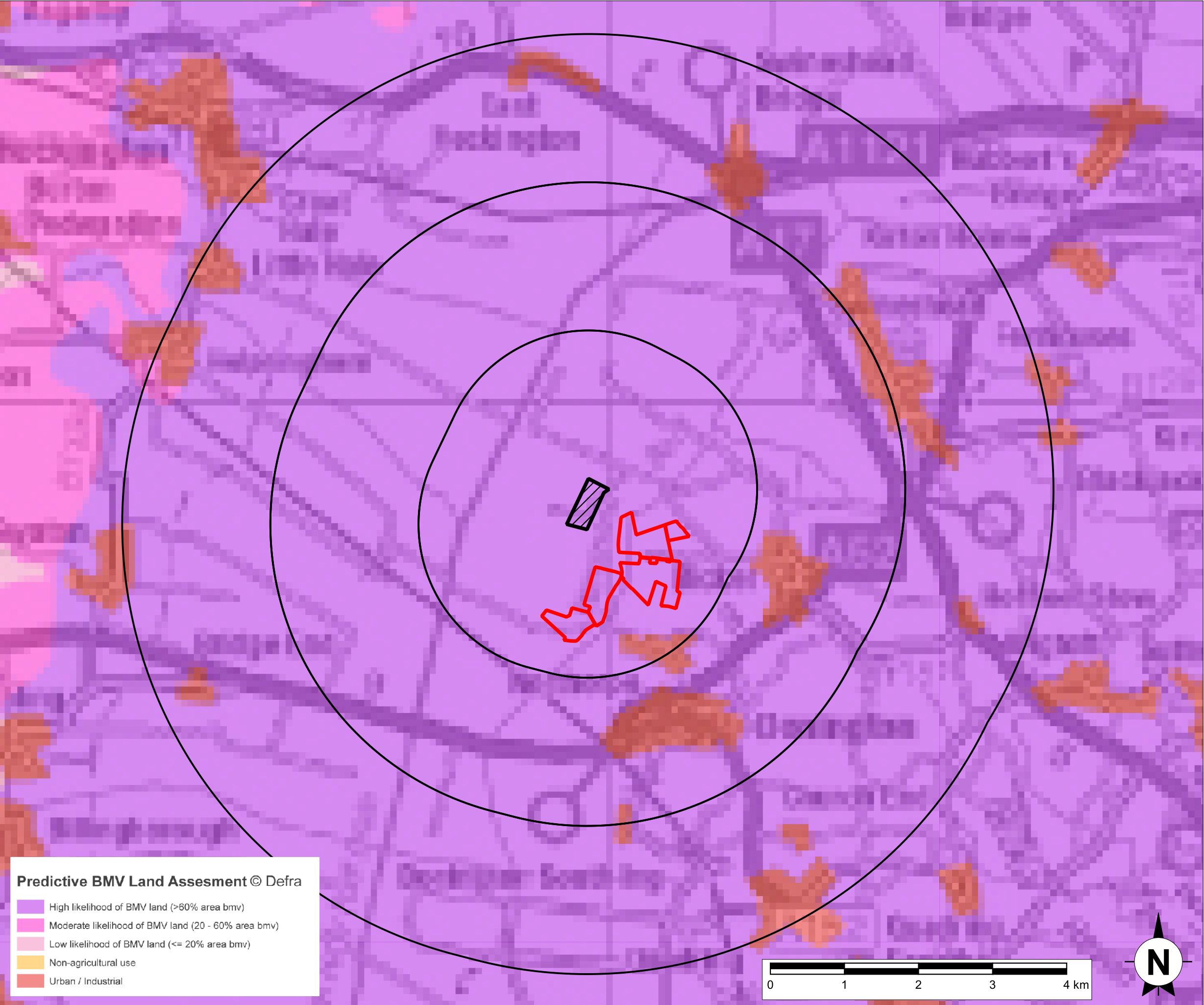
6.1 Summary

- 6.1.1 This Planning and Design & Access Statement is submitted in support of planning applications to BBC and SHDC for the construction and operation of a photovoltaic solar array and associated development on land at Bicker Fen to the west of Bicker and to the north of Donington.
- 6.1.2 The site would comprise an area of circa 97.1 hectares and would provide a solar farm with an export capacity of up to 49.995MW of electricity (Mwe) during peak operation. The Proposed Development would assist in delivering the need for renewable energy development in the context of the legally binding net zero target established by the Climate Change Act 2008 (2050 Target Amendment) Order 2019, and ambitious targets for decarbonising the electricity system set out within the Government's Net Zero Strategy; Clean Growth Strategy; and new Energy Security Strategy.
- 6.1.3 BBC has declared a 'Climate Emergency' and the Climate Change Strategy covering BBC, SHDC, and East Lindsay includes *Energy / Renewables* as a key theme. If BBC and SHDC are commitment to tackling the climate change emergency action is required now to dramatically alter the current path of future greenhouse gas emissions within the district and nationally.

6.2 Conclusion

- 6.2.1 The Proposed Development is financially viable and can be brought forward immediately with energisation expected in 2024. As such the Proposed development would start delivering the reductions in CO₂ envisaged by legislation and national and local policy & strategy.
- 6.2.2 The Proposed Development represent sustainable development and as such there should be a presumption in favour of development, unless other material considerations dictate otherwise. Whilst there is an element of tension with part of the Development Plan Policy in respect of the use of BMVL, the level of harm is limited, and would be moderately beneficial in the longer term allowing intensive farmed arable land to recover during the operational phase of the development.
- 6.2.3 Any limited policy tension is significantly and demonstrably outweighed by the immediate and pressing need from renewable energy generation in response to the

Climate Change Emergency and the Government's target to achieve Net Zero. As such the Proposed Development should be supported, and planning permission granted without delay.



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axis

- Key
- Bicker Fen Solar Farm
 - Bicker National Grid Substation
 - Distance from Substation at 2km intervals

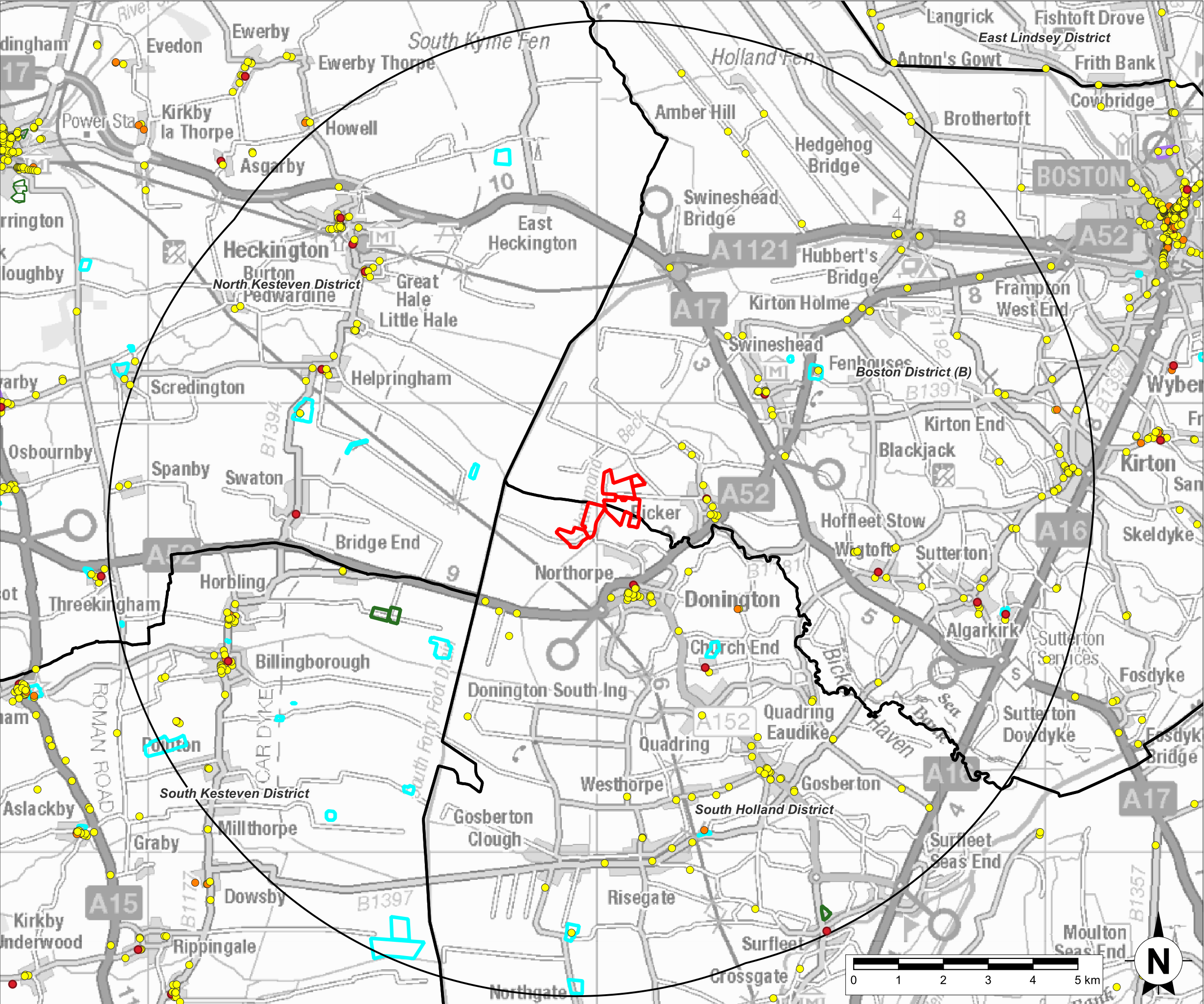
BICKER FEN FEN SOLAR

Figure 1

Likelihood of
Best and Most Versatile
Agricultural Land

Scale
1:50,000@A3

Date
August 2022



axis

Key

- Bicker Fen Solar Farm
- 10km radius around Bicker Fen Solar Farm
- Local Authority Boundary
- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Scheduled Monument
- Registered Park and Garden
- Site of Special Scientific Interest
- Local Nature Reserve

BICKER FEN SOLAR

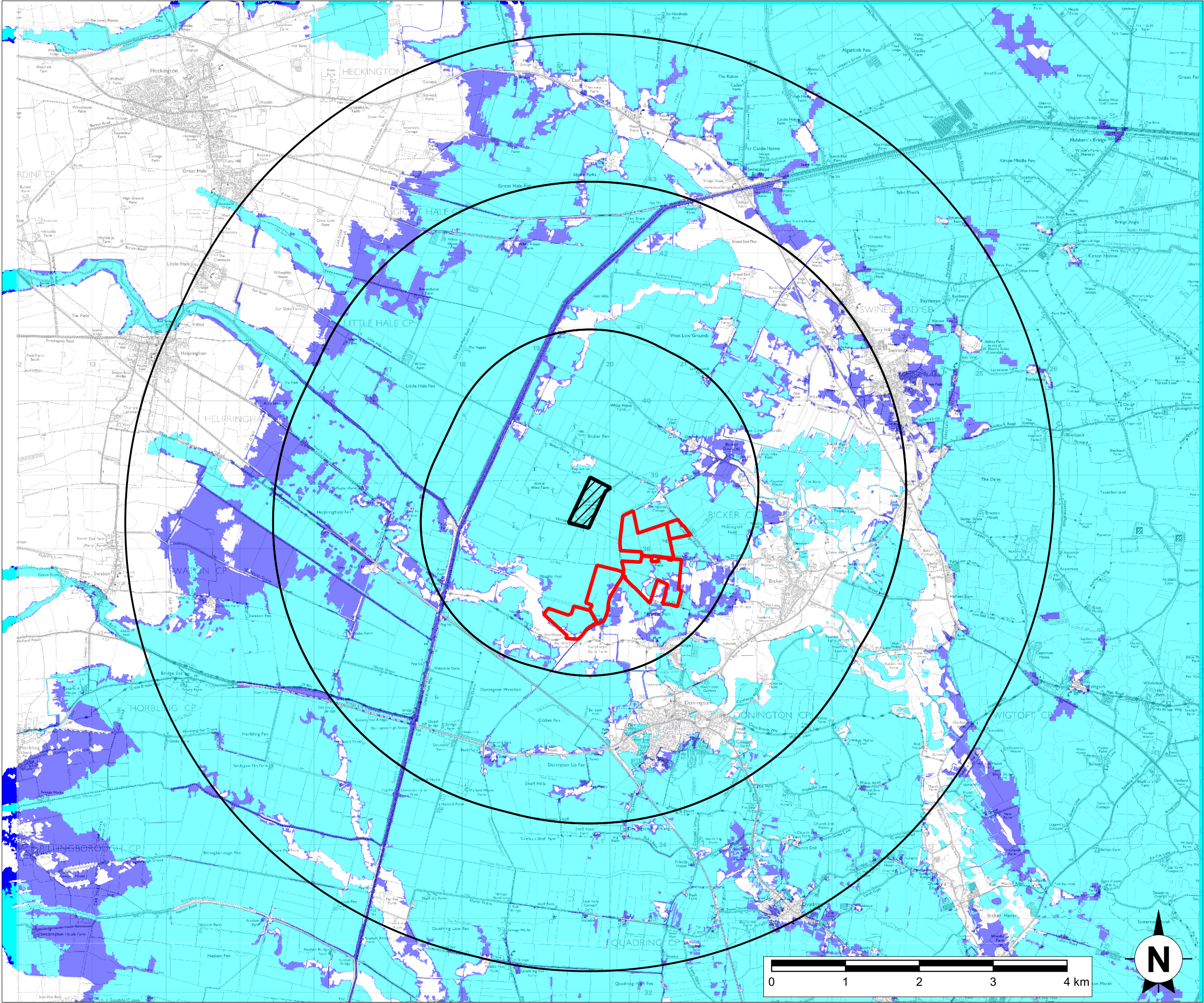
Figure 2

Designations

Scale
1:80,000@A3

Date
August 2022

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- Key
- Bicker Fen Solar Farm
 - Bicker National Grid Substation
 - Distance from Substation at 2km intervals
 - Flood Zone 3
 - Flood Zone 2

BICKER FEN SOLAR	
Figure 3	
Flood Zones	
Scale 1:50,000@A3	Date August 2022

Appendices (Provided as Separate files)