Meridian Solar

Meridian Solar Farm

EN010169

Volume 6

Environmental Statement

6.1 ES Chapter 2: The Scheme

APFP Regulation 5(2)(a)

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

March 2026

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2.1. Introduction

Overview

2.1.1. This chapter provides a description of the Meridian Solar Farm ('the Scheme'). It begins with a description of the existing conditions of the land within which the Scheme will be delivered ('the Site') and the surrounding areas. Subsequently, the physical characteristics and parameters of the Scheme are described alongside the indicative programme of works. The key activities that would be undertaken during Site preparation, construction, operation (including maintenance) and decommissioning works are described in this chapter. These form the basis of the technical assessments included in **ES Chapters 5 to 17** (Doc Ref. 6.1).

2.1.2. The Scheme is defined as a Nationally Significant Infrastructure Project (NSIP), as it consists of the construction of an onshore generating station in England exceeding 100 megawatts (MW) and the installation of two above ground electric lines greater than two kilometres in length at 132kV or above. The Scheme is designated an NSIP under sections 14(1)(a), 14(1)(b), 15(2) and 16 of the Planning Act 2008[1] ('PA2008'). Associated development and other ancillary works are also proposed as part of the Scheme and are subject to the application for development consent for the Scheme ('the DCO Application'). The NSIP and associated development are described in this chapter, defined in Schedule 1 of the **Draft Development Consent Order (DCO)** (Doc Ref. 3.1) and explained in the **Explanatory Memorandum to the Draft DCO** (Doc Ref. 3.2).

2.1.3. This chapter is supported by the following figures:

- **ES Figure 2-1: Existing Site Constraints** (Doc Ref. 6.2);
- **ES Figure 2-2: Illustrative Solar Development Area and Inter-Array Connections Layout Plan** (Doc Ref. 6.2);
- **ES Figure 2-3: Indicative Watercourse Crossing Locations** (Doc Ref. 6.2);
- **ES Figure 2-4: Illustrative Grid Connection Route Layout Plan** (Doc Ref. 6.2);
- **ES Figure 2-5: Construction, Operational and Decommissioning Accesses** (Doc Ref. 6.2);

[1] The Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/contents [Accessed 15 September 2025]

- **ES Figure 2-6: Solar Development Area Illustrative Construction Layout Plan** (Doc Ref. 6.2); and
- **ES Figure 2-7: Grid Connection Route Illustrative Construction Layout Plan** (Doc Ref. 6.2).

2.1.4. In addition, this chapter is supported by the following appendix:

- **ES Appendix 2-1: Indicative Watercourse Crossing Schedule** (Doc Ref. 6.3).

Scheme Summary

2.1.5. The Scheme would comprise the construction, operation (including maintenance) and decommissioning of a solar PV electricity generating station with associated infrastructure, including co-located Battery Energy Storage System (BESS), Inter-Array Connections to link the land parcels that form the Solar Development Areas, and an up to 13km overhead line Grid Connection (with one short undergrounded section) which would run north towards a point of connection (PoC) at the proposed Weston Marsh B National Grid Electricity Transmission (NGET) substation, to the north of Weston.

2.1.6. The Solar PV generating station, associated BESS, on-site substations and other associated infrastructure would be located within four land parcels (A, B, C and D), referred to collectively as the Solar Development Area, as shown in **ES Figure 1-1** (Doc Ref. 6.2).

2.1.7. The Inter-Arrays would be the areas within which 132kV connection cables (the 'Inter-Array Connections') would link the land parcels of the Solar Development Area. The configuration of the Inter-Array Connections would comprise underground cabling between Land Parcels A and B ('the Underground Inter-Array') and an overhead line between Land Parcels C and D ('the Overground Inter-Array').

2.1.8. The Grid Connection Route would be the area between the Solar Development Area and the National Grid Weston Marsh B Substation in which a 400kV overhead line (the 'Grid Connection') would be located. There is one section where the Grid Connection would route underground to avoid conflicts with an existing 132kV overhead line. Cable Sealing End Compounds (CSECs) would join the proposed underground cable at that section with the proposed overhead line.

2.1.9. The Site constitutes the total land area within the Order Limits of the Scheme, including the Solar Development Area, Inter-Array Connections and Grid Connection Route. A summary of the areas for each part of the Scheme is provided below:

- Solar Development Area - Land Parcel A: 197ha;
- Solar Development Area - Land Parcel B: 335ha;
- Solar Development Area - Land Parcel C: 205ha;
- Solar Development Area - Land Parcel D: 330ha;
- Underground Inter-Array between Land Parcel A & B: 15ha;
- Overhead Inter-Array between Land Parcel C & D: 46ha;
- Grid Connection Route: 510ha; and
- Site (total): 1,616ha[2].

[2] Note the sum of parts for the areas of the Scheme exceeds the total area of the Order Limits due to an overlap of the Grid Connection Route with Solar Development Area Land Parcel B.

2.2. Site Context

2.2.1. The Site is located within south-east Lincolnshire, north of Crowland and east of Spalding. The surrounding area is characterised by arable farmland interspersed with pockets of woodland, towns, villages, and hamlets. The existing Site context can be viewed in **ES Figure 2-1: Existing Site Constraints** (Doc Ref. 6.2).

2.2.2. The nearest towns to the Site are Spalding and Crowland, which are located approximately 1.5km west of the Grid Connection Route and approximately 1.5km south of Land Parcel A respectively. Other settlements consist of small villages and hamlets, as well as individual properties scattered throughout the surrounding area. Villages include Weston, Moulton, Moulton Chapel, Moulton Eaugate, Cowbit, Whaplode Drove, Holbeach Drove, Gedney Hill, Sutton Saint Edmund and Holbeach St Johns, while smaller hamlets consist of Weston Hills, Low Fulney, Peak Hill and Shepeau Stow.

2.2.3. The Scheme is located within the administrative boundaries of Lincolnshire County Council (LCC) and South Holland District Council (SHDC). The Solar Development Area and Inter-Array Connections would be located within the boundaries of the five civil parishes of Crowland, Whaplode, Holbeach, Fleet and Cowbit. The Grid Connection Route would be located within the boundaries of the two civil parishes of Weston and The Moultons. The Solar Development Area and Inter-Array Connections would be located within the boundaries of the following four wards: Crowland and Deeping St. Nicholas; Whaplode and Holbeach St. Johns; Fleet; and Moulton, Weston and Cowbit. The Grid Connection Route would be located within the boundaries of two wards: Moulton, Weston and Cowbit; and Spalding St. Pauls.

Agriculture and Soils

2.2.4. Agriculture is the existing primary land use within the Site. The Site comprises large fields typically surrounded by steep man-made drainage ditches, accessed by gates, openings and tracks for use by agricultural machinery.

2.2.5. Agricultural Land Classification (ALC) surveys conducted within the Solar Development Area indicate a mix of Grades 1, 2, subgrade 3a and subgrade 3b. For the Inter-Array Connections and the Grid Connection Route, Natural England's Provisional ALC mapping[3] identifies that these areas are likely to comprise Grade 1 and Grade 2 ALC land.

[3] Multi Agency Geographic Information for Countryside (MAGIC), Available at: https://magic.defra.gov.uk/ [Accessed 7/12/2025]

2.2.6. A full description of the baseline is outlined within **ES Chapter 5: Agriculture and Soils** (Doc Ref. 6.1).

Air Quality

2.2.7. The Site is not located within an Air Quality Management Area (AQMA) as there are none within the administrative area of SHDC. SHDC has an established monitoring network consisting of two continuous monitoring stations and passive monitoring using 18 diffusion tubes across the district, changed monthly. The most recent Air Quality Annual Status Report (ASR), published in July 2024[4], shows the nearest monitoring location is approximately 2km to the south of the Site. Monitoring data indicate the Site is likely to be below the annual mean Air Quality Objectives (AQOs) for nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$).

2.2.8. A full description of the baseline is outlined within **ES Chapter 6: Air Quality** (Doc Ref. 6.1).

Cultural Heritage

2.2.9. There are no World Heritage Sites, Registered Parks or Gardens, Registered Battlefields or Protected Wreck Sites at or within 5km of the Site.

2.2.10. There are two Scheduled Monuments located within Land Parcel C of the Solar Development Area:

- Settlement NE (north-east) of Whitebread Farm; and
- Settlement W (west) of Cate's Cove Corner.

2.2.11. A further Scheduled Monument, 'the medieval boundary earthworks at Queen's Bank, 100m south-east of Providence House' is also located immediately to the north of Land Parcel C of the Solar Development Area. The 'Wykeham Chapel: a moated monastic grange and retreat house' Scheduled Monument is located immediately adjacent to the Site boundary of the Grid Connection Route.

2.2.12. In addition, there are a further 19 Scheduled Monuments, five Conservation Areas and 97 Listed Buildings within 5km of the Site.

2.2.13. A full description of the baseline is outlined within **ES Chapter 8: Cultural Heritage** (Doc Ref. 6.1) and associated appendices.

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[4] South Holland District Council (2024) Annual Progress Report 2024. Available at: http://shollandair.aeat.com/Reports/South_Holland_District_Council_ASR_2024.pdf [Accessed 28 September 2025]

Ecology and Biodiversity

2.2.14. The Site comprises a variety of habitats, including, but not limited to, arable cropland, grasslands, scrub, hedgerows, woodland, ponds and watercourses. These have the potential to support a range of protected and notable species, including, but not limited to, bats, breeding and wintering birds, great crested newt, otter and water voles.

2.2.15. There are three sites designated for nature conservation of international importance within 15km of the Site. The closest, The Wash Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar, is located approximately 8.4km north-east of the Site. Baston Fen SAC and Nene Washes SAC, SPA and Ramsar are located approximately 10km west and 11.8km south of the Site respectively.

2.2.16. There are no nationally designated ecological sites within 2km of the Site. The closest, Surfleet Lows Site of Special Scientific Interest (SSSI) and Cowbit Wash SSSI are located approximately 3.5km north-west and 3.6km west of the Site respectively.

2.2.17. There are 23 non-statutory ecological sites located within 2km of the Site, all of which are Local Wildlife Sites (LWS). The Slys Connection, South Holland Main Drain, Lambert Drain to Highstock Drain Connection and Wheatmere Drain LWSs cross through the Site.

2.2.18. A full description of the baseline is outlined within **ES Chapter 9: Ecology and Biodiversity** (Doc Ref. 6.1) and associated appendices.

Hydrology and Flood Risk

2.2.19. The Site is located within the Anglian River Basin District, split between the Welland and Nene Management Catchments. The majority of the Site is located within Flood Zone 2 and Flood Zone 3, with medium and high risk of fluvial flooding, respectively. The areas within the Site located within reservoir maximum flood extents (from the Eyebrook Reservoir and Rutland Water) are broadly comparable to the extent of Flood Zone 3 within the Site, other than the Flood Zone 3 within Land Parcel D. Much of the Site is at very low risk of surface water flooding due to a predominantly low-lying landform and lack of undulation, with only isolated, localised areas at high, medium and low risk of surface water flooding.

2.2.20. The River Welland, located approximately 110m to the west of the Site at its closest point, is the largest watercourse in the surrounding area. Flood defences are positioned along either bank, as well as against a series of flood storage areas to the west of the Site. The River Nene is located approximately 9.7km to the east of the Site. The South Holland Main Drain is located north of the Solar Development Area, and bisects Land Parcel D. The Site is characterised by numerous manmade agricultural ditches and drains, with water levels across the area generally managed via pumping.

2.2.21. A full description of the baseline is outlined within **ES Chapter 11: Hydrology and Flood Risk** (Doc Ref. 6.1) and associated appendices.

Landscape and Visual

2.2.22. There are no statutory landscape designations within the Site, including any National Landscapes or National Parks. The nearest National Landscape is Norfolk Coast, approximately 24km to the east of the Site, and the nearest National Park is The Broads, located 86km to the south-east.

2.2.23. The Site is not located within Green Belt, the nearest of which surrounds Cambridge approximately 47km from the Site at its closest point.

2.2.24. The Site is located within National Character Area 46 (NCA) The Fens, recognised by its large, low-lying, flat landscape with drainage ditches, dykes and rivers.

2.2.25. A full description of the baseline is outlined within **ES Chapter 12: Landscape and Visual** (Doc Ref. 6.1) and associated appendices.

Noise and Vibration

2.2.26. The existing noise climate within the Site is typical of a relatively rural area, with sound primarily generated by vehicle movements along the local road network, overhead aircraft movements (including in relation to local airfields), wildlife, and farm machinery. Noise levels are higher closer to the larger built-up areas surrounding the Site, notably Spalding and Crowland, compared to the smaller surrounding villages and hamlets.

2.2.27. Existing sources of vibration largely emanate from traffic in the area, in particular from Heavy Goods Vehicle (HGV) movements.

2.2.28. A full description of the baseline is outlined within **ES Chapter 13: Noise and Vibration** (Doc Ref. 6.1).

Socio-Economics and Land Use

2.2.29. The Site predominantly consists of land within arable agricultural use. Small clusters of residential properties can be found in various villages and hamlets scattered across the area surrounding the Site. A small area of Land Parcel A falls within a Site-Specific Safeguarding Area for sand and gravel identified within the Lincolnshire Minerals and Waste Local Plan[5].

2.2.30. Residential properties have been intentionally excluded from the Order Limits where they are intermingled with the Solar Development Area or Grid Connection Route, except where elements of their accessways or gardens may be required for access to utilities for the construction of the Scheme.

2.2.31. Residential properties are sparsely distributed in areas bordering each land parcel of the Solar Development Area, as well as along key roads such as the B1166 Hull's Drove and B1168 Holbeach Drove Gate. There are residential properties adjacent to the Inter-Array Connections, notably, within the village of Whaplode Drove. The highest concentrations of residential properties in relation to the Grid Connection Route are within Spalding, Weston, Moulton, Weston Hills and Moulton Chapel.

2.2.32. Community facilities and recreational receptors in proximity to the Site include, but are not limited to, churches, village halls, community centres, gliding clubs, golf clubs, caravan parks, fishing lakes and a wildlife centre. There are 10 schools located within 2km of the Site, the closest of which, Shepeau Stow Primary School, is located approximately 340m to the south of Land Parcel C.

2.2.33. A full description of the baseline is outlined within **ES Chapter 14: Socio-Economics and Land Use** (Doc Ref. 6.1).

Traffic and Access

2.2.34. The A16 is the main strategic route in the vicinity of the Scheme and runs in a north/south direction to the east of Land Parcel A and to the west of Land Parcel B of the Solar Development Area. Access to Land Parcel A and the Inter-Array Connection between Land Parcels A and B is provided from the A16 via Spalding Road and Barrier Bank. Access to Land Parcels B, C and D is provided from the A16 via the B1166 Hull's Drove, with Land Parcels B and C accessed off the B1166 Hull's Drove via Martins Road and Land Parcel D accessed off the B1166 Hull's Drove via Langary Gate Road. From the B1166, access to the Inter-Array Connection between Land Parcels C and D is provided via Back Bank, Eaugate Road, Chapel Hill and the B1168 Holbeach Drove Gate.

[5] Lincolnshire County Council (2016). Lincolnshire Minerals and Waste Local Plan. Available at: Lincolnshire Minerals and Waste Local Plan [Accessed 01/12/2025]

2.2.35. From north to south, the Grid Connection Route crosses the A151 High Road between Spalding and Weston, the B1165 Austendike Road to the south-west of Moulton, and the B1357 Roman Road to the east of Cowbit.

2.2.36. The A47 is the closest road in the Strategic Road Network to the Scheme and is located approximately 8km south of the Solar Development Areas. It connects with the A16 via the B1040 and B1443 to the south of the Scheme.

2.2.37. A total of 13 Public Rights of Way (PRoWs) are fully or partially within the Site or on its perimeter. There are a further 19 PRoWs within 500m of the Scheme. National Cycling Route 12, which runs along the opposite bank of the River Welland on Welland Bank Road, is located approximately 175m from the Solar Development Area at its closest point.

2.2.38. A strip of registered Common Land runs along the verge of Martins Road and crosses Land Parcel C of the Solar Development Area. The Common Land is registered on the Lincolnshire County Council register as unit No. CL54. It seems likely, due to its location and layout, that the Common Land was originally designated for the purpose of accessing Postland Railway Station (which is now decommissioned) and therefore there would be a common right to access and walk over the Common Land.

2.2.39. A full description of the baseline is outlined within **ES Chapter 15: Traffic and Access** (Doc Ref. 6.1) and associated appendices.

Airfields

2.2.40. Two airfields are located within 5km of the Site. Crowland Airfield located adjacent to Land Parcel A, hosts the Peterborough and Spalding Gliding Club. Fenland Airfield, located approximately 1.5km north-west of Land Parcel D, hosts the Fenland Aero Club and the Fenland Flying School. Potential impacts on airfields are considered within **ES Chapter 16: Other Environmental Topics** (Doc Ref. 6.1).

Utilities

2.2.41. The Health and Safety Executive (HSE) has confirmed the Grid Connection Route is located within the inner, middle and outer consultation zones for the Moulton Bulb Company Ltd major accident hazard site (HSE ref. 4812) and the InterGen (UK) Limited operated major accident hazard pipeline (HSE ref. 11622).

2.2.42. Several other utilities intersect with the Site, including electricity utilities. These most often follow the boundaries of fields in agricultural use or local roads. The Solar Development Area is intersected by multiple low voltage overhead lines, at their highest concentration within Land Parcel C.

2.2.43. There are also existing overhead lines which pass through the Inter-Array Connections and the Grid Connection Route. The most notable being the 400kV overhead line to the north of Weston and the 132kV overhead line to the south-east of Weston Hills.

2.2.44. Potential impacts on existing utilities are considered within **ES Chapter 16: Other Environmental Topics** (Doc Ref. 6.1).

2.3. The Rochdale Envelope

2.3.1. The design of the Scheme is an iterative process informed by environmental assessments and engagement with statutory and non-statutory consultees, including the public. A description of the design process, including options considered and measures embedded within the design to minimise environmental effects are discussed further in **ES Chapter 3: Alternatives and Design Evolution** (Doc Ref. 6.1). The **Design Approach Document** (Doc Ref. 7.3), submitted with the DCO Application, also explains the design process, rationale and solutions. There are, however, design aspects and features of the Scheme that would not be confirmed until the detailed design post-consent.

2.3.2. The EIA has therefore been undertaken while adopting the principles of the Planning Inspectorate's Advice Note 9[6], 'Using the 'Rochdale Envelope', which offers guidance on the level of flexibility to be considered in an application for development consent in accordance with the PA 2008[7]. The note recognises the potential for certain aspects of the Scheme design and technical parameters to remain unfixed, requiring the EIA to evaluate possible realistic worst-case variations, to ensure comprehensive assessment of all foreseeable significant environmental effects of the Scheme. Through use of the Rochdale Envelope approach, a likely worst-case assessment of environmental effects is presented to take into account different parameters of the Scheme that cannot yet be fixed. Wherever an element of flexibility is maintained, alternatives have been assessed and the likely worst-case impacts have been reported in the ES in technical chapters where relevant.

2.3.3. Incorporating flexibility into the Scheme design subject to the DCO Application is essential to allow for alignment with environmental and technical considerations, post-consent adjustments, and technological advancements.

2.3.4. Design aspects and features of the Scheme that require flexibility include, but are not limited to the below:

- Design parameters: Maximum heights, footprints and limits of deviation for all above-ground structures – including solar PV modules, solar stations, on-site substations, BESS compound, overhead line pylons and CSEC compounds –

[6] Planning Inspectorate (2025). Advice Note Nine: Rochdale Envelope. Available at: https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-nine-rochdale-envelope [Accessed 29 September 2025]
[7] Planning Act 2008. Available at: https://www.legislation.gov.uk/ukpga/2008/29/data.pdf [Accessed 29 September 2025]

have been defined to ensure that the final design can evolve while remaining within the assessed parameters.

- Solar Development Area layout: The exact siting and spacing of solar PV arrays, internal access tracks, and associated infrastructure will be determined at detailed design, guided by the embedded mitigation, flood-risk constraints, buffers to sensitive receptors, and the landscape and ecological framework.
- Inter-Array Connections: Flexibility is retained for the exact alignment of the 132kV connections, within defined corridor widths.
- Grid Connection Route: Flexibility is maintained in the alignment and span lengths of the 400kV overhead line, as well as for minor deviations in pylon siting, to ensure the final design appropriately responds to ground conditions, utility interfaces and detailed engineering requirements.
- Grid Connection Route Crossings with Existing Overhead Lines: Flexibility has been maintained for the Grid Connection overhead line to either oversail the existing third-party overhead line assets or for the existing third-party overhead line assets to be undergrounded. This is with the exception of the crossing with the existing 132kV overhead line, where the Grid Connection Route would be undergrounded. If the existing overhead line assets are undergrounded, trenched or trenchless crossing methods may be used, with indicative parameters defined and assessed in the ES.
- Grid Connection Route Area of Flexibility within Work No 14: Flexibility has been maintained within the area of Work No 14 of the Grid Connection Route, where the Grid Connection may be overhead or underground, depending on the final design coordination with NGET's Grimsby to Walpole and Weston Marsh to East Leicestershire's projects. This area also incorporates flexibility for the Grid Connection Route to either be aligned east or west of Wool Hall Farm. If undergrounded, trenched or trenchless crossing methods may be used, with indicative parameters defined and assessed in the ES.
- Order Limits: The Order Limits have been drawn to include all land required for construction, operation, and decommissioning, including temporary working areas, construction access, and land for landscape planting and habitat management. This approach ensures that flexibility is maintained while keeping all activities within the environmental envelope assessed in the ES.
- Access Track Crossings with Watercourses: Flexibility has been maintained within the design for construction and operational access track crossings to be either culvert or bridge crossings, subject to detailed design. For a worst-

case assessment within the ES, the use of culverts has been assumed, with the exception of the crossings with the South Holland Main Drain where the access crossings would require upgrades to existing bridge structures (or a new bridge).

- Underground Cabling: Where underground cabling is required, parameters with regards to minimum and maximum depths have been defined.

2.3.5. It is necessary for some flexibility to be built into the design of the Scheme when submitting the DCO Application so that the detailed design of the Scheme can be informed by further technical considerations and post-consent work, as well as to take advantage of the potential for innovation in technology.

2.3.6. Technical assessments have therefore defined an 'envelope' within which the works will occur as outlined in Table 2-1 below. The DCO Application and EIA are based on maximum and, if applicable, minimum parameters or deviation limits. To comply with the EIA Regulations[8], it is crucial to define these parameters as narrowly as practical to accurately identify 'likely significant effects' rather than exaggerating effects that are improbable.

2.3.7. Where flexibility is sought for any elements of the Scheme, this ES chapter sets out the parameters that have been considered to identify the reasonable worst-case environmental effects. The flexibility will vary depending on the sensitivity of receptors and may be fixed at certain locations to prevent significant effects. These parameters are considered in detail by technical authors in the ES chapters to ensure the realistic worst-case effects of the Scheme are assessed for each potential receptor.

2.3.8. The assessment is based on information available at the time of writing, representing a reasonable worst case and precautionary approach. The **Draft DCO** (Doc Ref. 3.1) will secure these worst-case parameters via **Works Plans** (Doc Ref. 2.3), **Streets, Rights of Way and Access Plans** (Doc Ref. 2.6) and the **Design Parameters** (Doc Ref. 7.4), providing certainty that the impacts of the Scheme will be no worse than those assessed as part of the EIA.

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[8] The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available at: https://www.legislation.gov.uk/uksi/2017/572/data.pdf [Accessed 29 September 2025]

2.4. Assessment Years

2.4.1. Indicative timescales for the construction, operation and decommissioning of the Scheme that have been assumed for the purposes of the assessments within this ES are as follows:

- It is assumed that construction work would commence in 2029 for the purposes of the ES. Albeit it is considered unlikely that new or materially different effects would arise if construction started later than this date. **ES Chapter 4: Overview of the EIA Process** (Doc Ref. 6.1) provides further information on how the ES has assessed a later commencement date for construction.
- The construction phase is anticipated to last approximately three to four years. The peak construction year for the purposes of the EIA is anticipated to be 2031 for the Solar Development Area and Inter-Array Connections, and 2030 for the Grid Connection Route. However, to ensure that a worst-case assessment is undertaken with regards to potential effects from temporary construction traffic, the peak number of construction vehicles from all elements of the Scheme has been considered to occur concurrently in 2031 for the purposes of the assessments which consider construction traffic.
- For the purposes of the ES, it is assumed that the Scheme would commence commercial operation in 2033, in line with when the National Grid Weston Marsh B Substation is understood to be due to become operational. Albeit it is considered unlikely that new or materially different effects would arise if operation started later than this date. **ES Chapter 4: Overview of the EIA Process** (Doc Ref. 6.1) provides further information on how the ES has assessed a later commencement date for operation.
- Information regarding the connection date with the proposed National Grid Weston Marsh B Substation can be found in the **Grid Connection Statement** (Doc Ref. 7.5). Depending on the final construction programme and commencement of construction, operation may overlap with the construction phase. It is a possibility that, once the grid connection has been constructed and parts of the Scheme have been connected to the National Grid, these areas could begin operation while other parts are still being constructed and connected. The Applicant is seeking a time limited consent with respect to the operation of the Scheme; the operational life of the Scheme would be 40 years, which would start from the date of the final commissioning phase of the Scheme. This ES considers the impact of the

operation of the Scheme and of the maintenance and replacement of equipment.

- The operational life of the Scheme is 40 years and decommissioning is therefore estimated to commence in 2073. Decommissioning is likely to take up to 24 months.

2.5. Design Parameters

2.5.1. The design parameters and principles of the Scheme relevant to the ES assessments, as set out within the **Design Parameters** (Doc Ref. 7.4) submitted with the DCO Application, are summarised in Table 2-1 below. Worst-case design assumptions which have been used for the basis of the ES assessments are further described from Section 2.6 onwards.

2.5.2. Table 2-1 is not intended to be an exhaustive description of the works presented in Schedule 1 of the **Draft DCO** (Doc Ref. 3.1). Works that are minor or ancillary in nature are further described from Section 2.6 onwards in this chapter and in other DCO Application documents, where necessary. In addition, the ES technical chapters refer to the relevant design parameters that are likely to result in the worst-case effects.

2.5.3. **ES Figure 2-2: Illustrative Solar Development Area and Inter-Array Connections Layout Plan** (Doc Ref. 6.2) and **ES Figure 2-4: Illustrative Grid Connection Route Layout Plan** (Doc Ref. 6.2) illustrate one way of how the Scheme could be implemented in accordance with the design parameters and principles summarised in Table 2-1 below and requirements from other DCO Application plans and documents.

Table 2-1: Summary of Scheme Design Parameters and Principles

Scheme Component	Parameter / Principle	Parameter / Principle Description
Solar Development Area		
Solar panels[9] fitted to mounting structures (Work No. 1(a))	Maximum height of solar PV arrays above ground level	At the greatest inclination of 25 degrees, 4.3m.
	Orientation and slope from horizontal of solar PV modules	South orientated, tilted at a fixed angle in the range of between 10 to 25 degrees from horizontal.
	Minimum height of the lower edge of the solar PV module above ground level	0.8m (with the exception of the areas requiring flood risk mitigation, as set out below).
	Flood risk mitigation measures	The minimum height above ground of the lower edge of the solar PV modules would be raised 0.3m above the 0.1% Annual Exceedance Probability (AEP) flood level with 28% climate change allowance for the River Welland breach and Postland Catchment and 13% climate change allowance for South Holland Main Drain Catchment modelling, up to 1.3m above ground.
	Glint and glare mitigation	Anti-reflective coating will be applied to reduce the reflective properties of the panels.
	Foundations	Module mounting structures would either be mounted via galvanised steel poles driven into the ground, or on 'feet'

[9] Also referred to as solar PV modules. Solar PV arrays comprise of individual solar PV panels or modules.

Scheme Component	Parameter / Principle	Parameter / Principle Description
		supported on concrete footings, in areas where steel poles cannot be used (such as adjacent to existing utilities). If via poles driven into the ground, this would be to a depth up to 3.5m, depending on ground conditions. If on feet, concrete pads would be installed at a depth below ground level up to 0.3m. No concrete footings will be installed in areas of Flood Zone 3a and 3b.
Solar stations (inverters, transformers and switchgear) (Work No. 1(b))	Maximum height above ground level	4.3m, except for Parcel D-1, where maximum height will be 4.85m.
	Maximum dimensions	3.5m wide, 3.5m in height, and 16m in length, representing a maximum total footprint of $56m^2$.
	Flood risk mitigation measures	No solar stations would be located in areas of Flood Zone 3a or Flood Zone 3b, except for the Gotts catchment in Parcel D-1. In areas affected by the 0.1% AEP flood level with 28% climate change allowance for the River Welland breach and Postland Catchment and 13% climate change allowance for South Holland Main Drain Catchment modelling, the following design principles apply: • Flood protection would be provided in the form of plinths, a bund or a flood protection wall. • The maximum height of any plinths used to raise solar stations above flood depths would be 0.8m, except for

Scheme Component	Parameter / Principle	Parameter / Principle Description
		Parcel D-1, where the maximum height of plinths can be up to 1.35m. Where solar stations are located within the flood extents and the plinths do not raise the solar stations above the worst-case flood depths and provide 0.3 m freeboard, they are to have a flood defence wall or bund for protection. This is with the exception of Parcel D-1, where the maximum height of plinths can be up to 1.35m and 0.6m freeboard would be provided for any solar stations located within the South Holland Main Drain Catchment Flood Zone 3b extent.
	Location	No solar stations would be located within 250m of residential properties.
	Foundations	Concrete foundation slab with a maximum depth of 2m, or piles to a maximum depth of 4m.
On-Site 400kV Substation and BESS Compound (Work No. 2 and 3A)	Maximum height above ground level	20m (without the lightning arresters, maximum height is 16m).
	Maximum On-Site 400kV Substation and BESS Compound footprint	A maximum area of 160m x 255m for the BESS compound; A maximum area of 230m x 170m for the 400kV substation area;
	Flood risk mitigation measures	A bund or a flood protection wall and gate would be provided, to a height of 2.6m Above Ordnance Datum (AOD) (1.7m above ground level).
	BESS Technology	The BESS would comprise a lithium-ion battery system.

Scheme Component	Parameter / Principle	Parameter / Principle Description
	BESS Unit dimensions	BESS Units would be located within enclosures with maximum dimensions of 8m in length, 2m in width and 4m in height.
	BESS Unit foundations	Concrete foundation slab for each unit, with a maximum depth of 2m, or piles to a maximum depth of 4m.
	BESS Unit fire suppression system	Water storage tanks and hydrants would be provided to allow a discharge rate of firewater of approximately 1,500 litres per minute for 4 hours.
	On-Site 400kV Substation foundation	Structural components would each be sited on a concrete foundation slab with a foundation depth up to approximately 2m, or piles to a maximum depth of 12m.
On-Site 132kV Substation Compounds (Work No. 3B)	Maximum height above ground level	20m (without the lightning arresters, maximum height is 16m).
	Maximum On-Site 132kV Substation compound footprint	• Land Parcel A: 120m x 80m; • Land Parcel C: 120m x 115m; and Land Parcel D: 120m x 125m.
	Flood risk mitigation measures	A bund or a flood protection wall and gate would be provided, to a height of: • 132kV Substation on Parcel A: 2.5mAOD (2.2m above ground level); • 132kV substation on Parcel C: 2.4mAOD (1.1m above ground level).

Scheme Component	Parameter / Principle	Parameter / Principle Description
		No substation infrastructure would be located within the 0.1% AEP with 13% climate change allowance for South Holland Main Drain flood modelling extent in Land Parcel D.
	Foundation	Structural components would each be sited on a concrete foundation slab with a foundation depth up to approximately 2m, or piles to a maximum depth of 12m.
On-Site Cabling (Work No. 5(a))	Configuration	Low and medium voltage on-site cabling. Cabling between solar PV modules would be above ground, fixed to solar PV module mounting frames. Cabling between PV modules, solar stations and On-Site Substation and BESS Compounds would be via buried underground trenches.
	Trench dimensions	Up to 2m wide and 2m deep. The cable duct would have a minimum depth of cover of 0.9m.
	Trenchless crossings	Trenchless crossings would have a maximum depth of 7m and a minimum depth of 3m below watercourses.
	Climate resilience mitigation	Waterproof insulation to be used on all underground cabling.
Solar Development Area Perimeter Fence (Work No. 5(g, h) and 7(e))	Type	Deer wire mesh and wooden post security perimeter fence.
	Installation	Fencing would be directly driven into the ground using a standard post driver with no excavation of foundations. 'Concreting in' of posts would be used in limited circumstances such as tension posts and/or corners.
	Height	Maximum height of 2m.

Scheme Component	Parameter / Principle	Parameter / Principle Description
On-Site Substation and BESS Compounds Fence (Work No. 5(g) and 7(e))	Type	Metal palisade type fencing.
	Height	Up to 2.5m in height. Further fencing up to 3m in height may be required to enclose electrical equipment within each compound.
Security measures (Work No 5(h))	Lighting	Security lighting activated by motion detectors is proposed at the On-Site Substation and BESS Compounds.
	CCTV system	A closed-circuit television (CCTV) camera system would be deployed around key infrastructure and the perimeter of the operational area of the Solar Development Area. CCTV cameras would be mounted on posts with a height up to 5m.
Solar Development Area Access Tracks (Work No. 5(i), (j), Work No 6, Work No 7(d)	Access Track Design	Maximum 6m wide road (8m at passing places). Access points from the public highway and bends in the track would be wider to accommodate turning space. Permeable paving would be provided for operational access tracks.
	Bridges	Where new watercourse crossings in the form of bridges or upgrades to existing bridges are required, these would follow the below design principles: • Soffit height of the bridge must be a minimum of 0.6m above the 0.1% AEP with climate change allowance flood level; • All abutments must be set back a minimum 1m from the top of bank; All parapets and railings need to be permeable and open as possible with a minimum 100mm spacing.

Scheme Component	Parameter / Principle	Parameter / Principle Description
	Culverts	Where new watercourse crossings in the form of culverts or upgrades to existing culverts are required, the least impacting design that is reasonably practicable is proposed (e.g. arch rather than box culverts, and box culverts in preference to pipes etc.). The crossings will be sized at detailed design in order to not impact on flow conveyance and be sized to ensure capacity for the peak flow rate. Also to be considered at detailed design stage is that the crossing is perpendicular to the flow, and ensure connectivity is maintained for aquatic species and riparian mammals, with a mammal ledge if there is sufficient room. Perched inverts that create a drop from the structure to the downstream bed level will be avoided.
Underground Inter-Array Connection		
Underground Inter-Array Connection (Work No. 4)	Configuration	132kV single circuit cable
	Trench dimensions	Up to 2m wide and 2m deep. The cable duct would have a minimum depth of cover of 0.9m.
	Trenchless crossings	Trenchless crossings would have a maximum depth of 7m and a minimum depth of 3m below watercourses.
	Climate resilience mitigation	Waterproof insulation to be used on all underground cabling.
Overhead Inter-Array Connection		
132kV Overhead Line Inter-Array Connection between	Overhead line configuration	132kV single circuit overhead line.
	Overhead line height	Up to 15m above ground level. A statutory minimum clearance of 6.7m above ground from the overhead line would be maintained.

Scheme Component	Parameter / Principle	Parameter / Principle Description
Land Parcel C and D (Work No 8)	Foundation	The poles would be installed to a maximum depth of 2.5m. The diameter of the poles would be up to 500mm.
Grid Connection Route		
Grid Connection Route 400kV Overhead Line (Work No 9, 13, 14 and 15)	Overhead line configuration	400kV single circuit overhead line.
	Overhead line height	In accordance with the preliminary design, the pylon heights vary between 44.5m and 58.6m above ground. A 7.4m vertical limit of deviation has also been set. As such, the maximum pylon height above ground would not exceed 66m. A minimum vertical clearance of 8.1m above open ground from the overhead line will be maintained.
	Foundation	Each leg of the pylon would be supported by foundations. Depending on ground conditions, this may comprise either a pad and column foundation or a piled foundation. Pad and column foundations would have a depth up to 4.8m, piled foundations would be up to 20m in depth.
	Bird Diverters	Bird diverters would be installed in areas identified as having increased risk of collision, as shown on Figure 5 of **ES Appendix 9-14: Habitat Regulations Assessment** (Doc Ref. 6.3).
Cable Sealing End Compounds (CSECs) (Work No 10, 12, 14 and associated development)	Maximum CSEC compound footprint	46m x 46m.
	Flood risk mitigation measures	A bund or a flood protection wall and gate would be provided around the CSEC South, to a height of 1.3m above ground level.

Scheme Component	Parameter / Principle	Parameter / Principle Description
	Foundation	Structural components would each be sited on a concrete foundation slab with a foundation depth up to approximately 2.5m, or piles to a maximum depth of 12m. This is with the exception of the foundations for the terminal pylon and gantries, for which design parameters are set out above under Grid Connection Route 400kV Overhead Line.
	Fencing	Metal palisade type fencing. Up to 2.5m in height. Further fencing up to 3m in height may be required to enclose electrical equipment within each compound.
	Lighting	Security lighting with motion detectors is proposed at the CSECs.
	CCTV system	A CCTV camera system would be deployed around CSECs. CCTV cameras would be mounted on posts with a height up to 5m.
Underground transmission electrical cables (between CSECs and to connect to the National Grid	Underground cable configuration	400kV single circuit cable
	Trench dimensions	Up to 1.5m wide and 5m deep. The cable duct would have a minimum depth of cover of 0.9m.
	Trenchless crossings	Trenchless crossings would have a maximum depth of 7m and a minimum depth of 3m below watercourses.
	Climate resilience mitigation	Waterproof insulation to be used on all underground cabling.

2.6. Solar Development Area

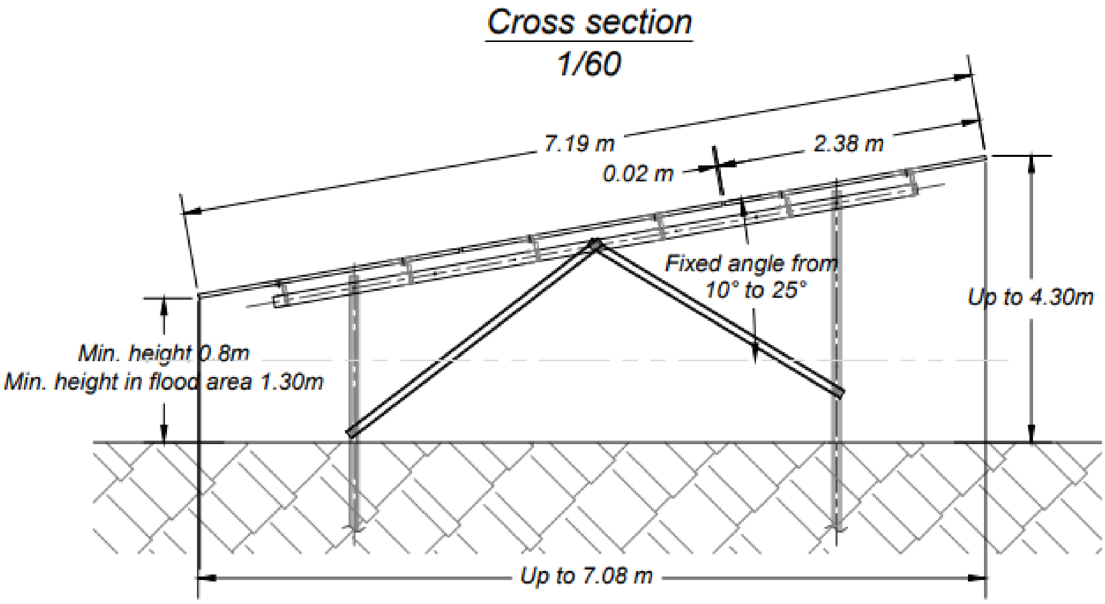
Solar PV Modules (Work No 1(a))

2.6.1. The solar PV arrays would comprise of individual solar PV panels or modules, fixed in a south-facing direction, which are wired together into a 'string', with multiple strings making an 'array'. The illustrative design has been based on three rows of solar PV modules mounted on the mounting structure. The solar PV arrays would vary in length depending on the location and the final technology used. An illustrative image of a solar PV array is shown in Plate 2-1 below.

Plate 2-1: Illustrative Array of Solar PV Modules

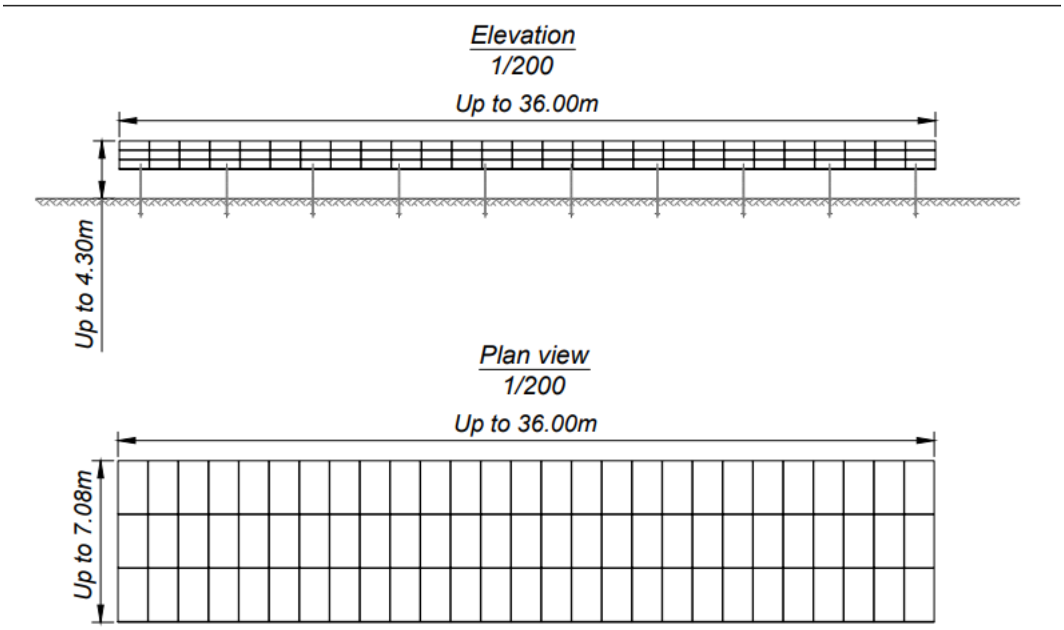
2.6.2. The minimum height of the lower edge of the solar PV panel above ground would be 0.8m. Where required, the minimum height above ground of the lower edge of the solar PV modules would be raised 0.3m above the 0.1% AEP flood level with climate change allowance from the River Welland breach, Postland Catchment and South Holland Main Drain Catchment modelling, up to 1.3m above ground. The maximum height of the top edge of the solar PV panel above ground would be 4.3m. An indicative cross section is shown in Plate 2-2 below.

Plate 2-2: Indicative Cross Section of a Solar PV Module



2.6.3. The indicative maximum width of the solar PV arrays would be 7.1m and indicative maximum length would be 36m. The frame of the solar PV modules is anticipated to be made of an anodised aluminium alloy. An indicative solar PV array cross section is shown in Plate 2-3 below.

Plate 2-3: Indicative Solar PV Array Cross Section



Solar PV Module Mounting Structures (Work No 1(a))

2.6.4. Each row of solar PV modules would be mounted on a rack made of galvanised steel or other suitable design material available at the time of construction.

2.6.5. The module mounting structure would comprise galvanised steel poles installed into the ground. The alternative are 'feet' supported on concrete footings. This would only be used in areas where steel poles cannot be used, for example due to existing utilities.

2.6.6. If constructed with poles driven into the ground, these would be to a depth up to 3.5m, depending on ground conditions. If on feet, concrete pads would be installed at a depth below ground level up to 0.3m. No concrete footings would be installed in areas of Flood Zone 3a and 3b.

2.6.7. Indicative spacing between steel poles would be between 3m and 5m along the rows.

Solar Stations (Inverters, Transformers and Switchgear) (Work No 1(b))

2.6.8. Solar stations would comprise of inverters, transformers and switchgear enclosed within container units. Inverters are required to convert the Direct Current (DC) electricity collected by the solar PV panels into alternating current (AC), which allows the electricity generated to be exported to the National Grid. Transformers are required to step up the voltage of the AC electricity generated by the solar PV panels before it reaches the On-Site Substations. 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-energise equipment to allow work to be done and to clear faults.

2.6.9. The exact number and location of solar stations would be confirmed at detailed design stage, in accordance with the design parameters and principles defined within the **Design Parameters** (Doc Ref. 7.4) and within the area of Work No 1, as shown on the **Works Plans** (Doc Ref. 2.3). For instance, no solar stations would be located within areas of Flood Zone 3a and 3b, with the exception of the Gotts catchment in Land Parcel D-1, where the location of solar stations in Flood Zone 3b is unavoidable. In addition, no solar stations would be located within 250m of residential properties to limit impacts from operational noise.

2.6.10. Solar stations would be protected against flooding in areas affected by the 0.1% AEP flood level with climate change allowance from the River Welland breach, Postland Catchment and South Holland Main Drain Catchment modelling. The maximum height of any plinths used to raise solar stations above flood depths would be 0.8m, except for Parcel D-1, where the maximum height of plinths can be up to 1.35m. If the plinths do not raise the solar stations above the worst-case flood depths and provide 0.3m freeboard, the solar stations would either be bunded or a flood defence wall would be provided. This is with the exception of Parcel D-1, where the maximum height of plinths can be up to 1.35m and 0.6m freeboard would be provided for any solar stations located within the South Holland Main Drain Catchment Flood Zone 3b extent.

2.6.11. The heights of bunds or the flood defence wall would vary, depending on the worst-case flood depths at each location. The maximum height of a bund is anticipated to be 2.3m above ground level. This would require a maximum width for the bund of 21m.

2.6.12. The external finish would take account of the existing landscape, and would be a visually unobtrusive colour. An illustrative image of a solar station is shown in Plate 2-4: below.

Plate 2-4: Illustrative Solar Station

2.6.13. The foundations would be a concrete slab, or a piling solution may be required, depending on the results of geotechnical surveys.

On-Site 400kV Substation and BESS Compound (Work No 3A and 2)

2.6.14. There would be one On-Site 400kV Substation and BESS Compound provided within the northern part of Land Parcel B (see **ES Figure 2-2: Illustrative Solar**

Development Area and Inter-Array Connections Layout Plan (Doc Ref. 6.2)). The components of this compound are described separately below.

2.6.15. The On-Site 400kV Substation and BESS Compound would be protected against flooding by bunding or a flood defence wall, with a maximum height of 1.7m above ground level (2.6m AOD). Security fencing, lighting and CCTV would be provided at the compound, as described within Table 2-1.

BESS Compound (Work No 2)

2.6.16. The BESS is provided primarily to support the Scheme through the provision of energy storage. The BESS would also provide flexibility by allowing to balance peak generation and fluctuations in the grid. Both the storage of electricity generated from the Scheme, as well as the storage of excess energy imported from the grid would be able to be accommodated by the BESS. For the purposes of the ES, a 350MW BESS system with a discharge time of 2 hours, which leads to an energy capacity of up to 700MW, has been assumed.

2.6.17. The batteries would be housed within enclosures (referred to as 'BESS units' within this ES). The BESS units would be mounted on concrete foundations, although other types of foundations such as compacted gravel or piles may be used depending on ground conditions.

2.6.18. The precise number of BESS units would depend upon the level of power capacity of energy storage that the Scheme would require at the time of procurement. Regardless, the BESS Compound would not exceed the maximum area defined in Table 2-1.

2.6.19. Similar to the solar PV modules, the BESS units would be connected to inverters, transformers and switchgear which may be integrated into a single unit or as standalone components. The maximum parameters for the inverters, transformers and switchgear would be the same as those set out for the solar stations.

2.6.20. In summary, the BESS Compound would include, but not be limited to, the following equipment:

- BESS units;
- Transformers, inverters, switchgear, power conversion systems and ancillary equipment;
- Monitoring and control systems;
- Heating, Ventilation and Air Conditioning (HVAC) systems;
- Bunding and surface water drainage;

- Fire safety infrastructure;
- Containers or similar structures to house spare parts and materials; and
- Parking areas.

2.6.21. An indicative layout for the BESS Compound is shown below in Plate 2-5. An illustrative BESS unit is shown in below in Plate 2-6. The external finish of the BESS units would take account of the existing landscape and would be a visually unobtrusive colour.

2.6.22. Fire safety principles for the BESS Compound are described within the **Outline Battery Safety Management Plan** (Doc Ref. 7.18), with a summary presented within Section 2.11 of this chapter. Drainage design principles for the BESS Compound are summarised within Section 2.9 of this chapter.

Plate 2-5: Indicative BESS Compound

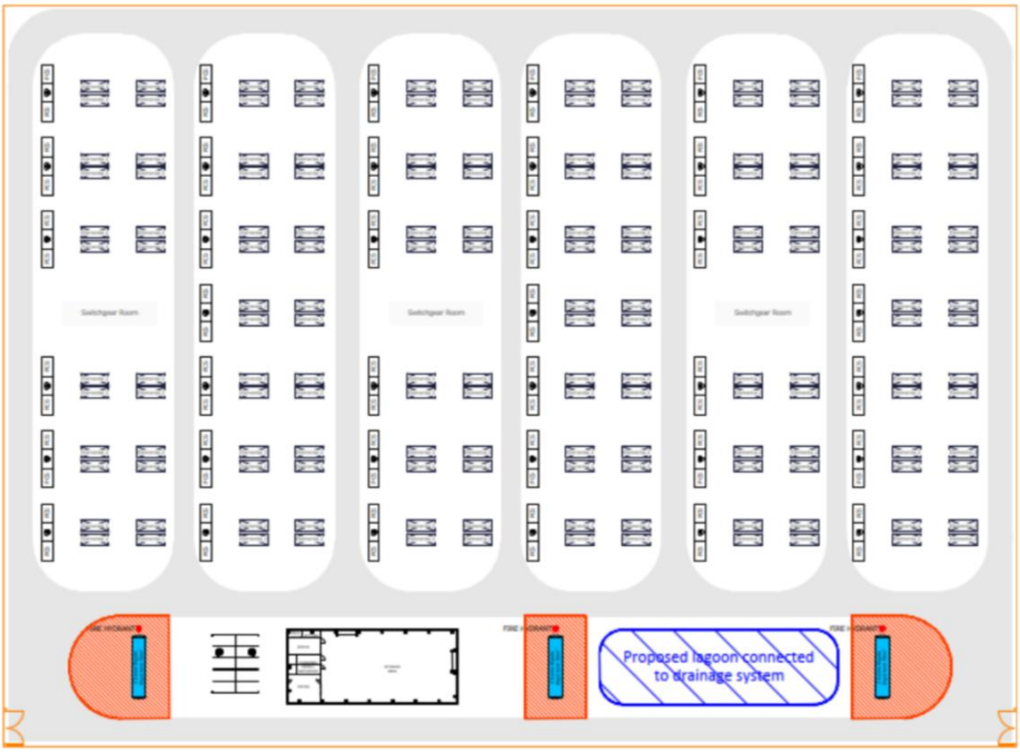


Plate 2-6: Illustrative BESS Unit

On-Site 400kV Substation Compound Area (Work No 3A)

2.6.23. The 400kV Substation Compound would consist of electrical infrastructure including the transformers, switchgear and metering equipment. The 400kV Substation would be connected to the 132kV Substations via underground cabling and step up the voltage to 400kV ready to be exported to the National Grid Weston Marsh B Substation via the Grid Connection. The 400kV Substation would also step down the voltage to allow for excess electricity provided from the grid and the Solar Development Areas to be stored within the BESS Compound.

2.6.24. The On-Site 400kV Substation Compound would include, but not be limited to, the following equipment:

- Substation, switch room buildings and ancillary equipment;
- Gantry to connect to the 400kV overhead line and 400kV busbars;
- Transformers and switchgear;
- Control, welfare, security and office facilities;
- Backup generator;
- Surge arrestor;
- Circuit breaker;
- Disconnector and earth switch;
- Earth resistance;
- Poste insulator;

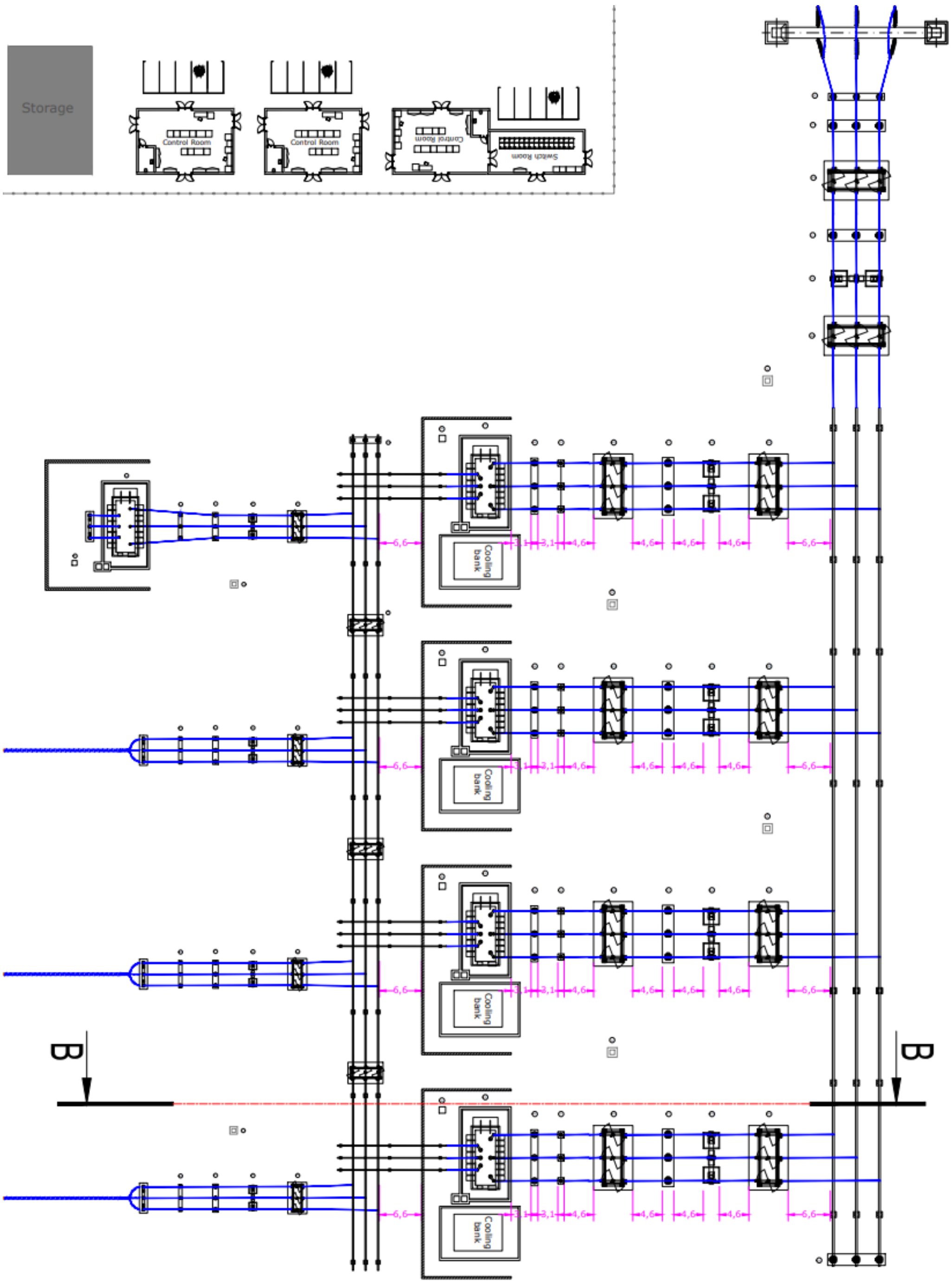
- Foundations and steelwork to construct the components of the substation; and
- Parking areas.

2.6.25. An indicative layout for the On-Site 400kV Substation Compound is shown in Plate 2-7: Indicative 400kV Substation Layout.

2.6.26. The electrical infrastructure within the substation would be outside (i.e. not contained within a building). As the configuration of the On-Site 400kV Substation is subject to detailed design, the maximum height above ground level, set out within Table 2-1, has been applied to the full footprint of the compound so that the ES accounts for all potential layouts and configurations of stated equipment.

2.6.27. The equipment in the On-Site 400kV Substation would be sited on a concrete foundation slab with a foundation, or a piling solution may be required, depending on the results of geotechnical surveys.

Plate 2-7: Indicative 400kV Substation Layout



On-Site 132kV Substations (Work No 3B)

2.6.28. A total of three 132kV Substation Compounds would be located across the Solar Development Areas in the following locations (refer to **ES Figure 2-2: Illustrative**

Solar Development Area and Inter-Array Connections Layout Plan (Doc Ref. 6.2)):

- Western part of Land Parcel A;
- Western part of Land Parcel C; and
- Western part of Land Parcel D.

2.6.29. Power would be fed from the solar stations to the 132kV Substations, which in turn would feed power directly to the 400kV Substation via underground cabling. Each of the of three 132kV Substation Compounds would include, but not be limited to, the following equipment:

- Substation, switch room buildings and ancillary equipment;
- Transformers and switchgear;
- Control, welfare, security and office facilities;
- Backup generator;
- Surge arrestor;
- Circuit breaker;
- Disconnector and earth switch;
- Earth resistance;
- Poste insulator;
- Foundations and steelwork to construct the components of the substation; and
- Parking areas.

2.6.30. The electrical infrastructure within the substations would be outside (i.e. not contained within a building). As the configuration of the On-Site 132kV Substation Compounds is subject to detailed design, the maximum height above ground level, as set out within Table 2-1, has been applied to the full footprint of each compound so that the ES accounts for all potential layouts and configurations of stated equipment. An illustrative image of a substation is provided within Plate 2-8.

2.6.31. The equipment in the On-Site 132kV Substation would be sited on a concrete slab, or a piling solution may be required, depending on the results of geotechnical surveys.

2.6.32. The 132kV Substations in Land Parcels A and C would require flood protection in the form of a bund or a flood defence wall, with a maximum height of 2.2m and 1.1m above ground respectively (2.5mAOD and 2.4mAOD respectively). No substation infrastructure would be located within the 0.1% AEP with climate change South Holland Main Drain flood modelling extent in Land Parcel D.

2.6.33. Security fencing, lighting and CCTV would be provided at the compound, as described within Table 2-1.

Plate 2-8: Illustrative Image of a Substation

On-Site Cabling Works (Work No. 5(a))

2.6.34. Low and medium voltage on-site cabling would be required to connect solar PV modules, solar stations and equipment within BESS and On-Site Substation Compounds. Cabling between solar PV modules would be above ground, fixed to solar PV module mounting frames. Cabling between the PV modules and solar stations would be via buried underground trenches. Additional low voltage auxiliary cabling would supply the CCTV and monitoring equipment.

2.6.35. Trench widths would be dependent on the number of ducts that they contain. However, worst-case parameters for the trenches of on-site cabling are set out within Table 2-1.

2.6.36. Trenchless crossings may be required at locations where existing watercourses, roads and utilities are crossed. Where trenchless crossings are required (refer to **ES Figure 2-3: Indicative Watercourse Crossing Locations** (Doc Ref. 6.2) and **ES Appendix 2-1: Indicative Watercourse Crossing Schedule** (Doc Ref. 6.3) for assumed locations), these may include Horizontal Directional Drilling (HDD), thrust bore crossings or other forms of trenchless techniques.

2.6.37. The following parameters would apply for the construction of trenchless crossings:

- HDD Platform - These will require a granular platform 60m in length, 40m in width and 1m in depth for both drilling and receiving.
- Thrust Bore Crossings - These will utilise entry and exit pits with approximate dimensions of 3.0m x 4.0m.

2.6.38. For trenchless crossings, a maximum depth of 7m has been assumed. A minimum depth of 3m would also apply to any trenchless crossings below watercourses.

2.7. Inter-Array Connections

Underground Inter-Array Connection (Work No. 4)

2.7.1. The Underground Inter-Array Connection between Land Parcels A and B would utilise an underground cable configuration, to be installed within trenches of up to 2m wide and 2m deep. The cable duct would have a minimum of 0.9m ground cover to allow continued agricultural use of the land post-construction. The total length of the Underground Inter-Array Connection between Land Parcels A and B is approximately 1.1km.

2.7.2. For the construction of the Underground Inter-Array Connection, a 15m working width has been assumed on either side of the alignment for access and material laydown. The Order Limits provide a 50m limit of deviation on either side of the working width, so that micro-siting of the alignment can be undertaken following detailed design.

2.7.3. Trenchless crossings may be required at locations where existing watercourses, roads and utilities are crossed. The same parameters, as described within paragraphs 2.6.36 to 2.6.38 of this chapter, have been assumed to apply.

Overhead Inter-Array Connection (Work No. 8)

2.7.4. The Overhead Inter-Array Connection between Land Parcels C and D, would comprise a single circuit 132kV overhead line connecting the On-Site 132kV

Substation Compounds at Land Parcels C and D. The total length of the Overhead Inter-Array Connection between Land Parcels C and D is approximately 3.1km.

2.7.5. Given the length of the Inter-Array Connection exceeds 2km and its voltage being 132kV, it classifies as a NSIP project in its own right according to the Planning Act 2008 (Section 16(3))[10] and therefore, the requirements of the National Policy Statement EN-5 apply[11].

2.7.6. Plate 2-9 shows the illustrative wood pole design, which has been assumed to be used for the Inter-Array Connection, with wood poles located approximately every 120m along the connection route. Whilst this is a typical span length for the proposed wood pole type, span distances would vary dependent on the proposed alignment to take account of topography and routeing to avoid constraints in the area. The proposed height of poles would vary between 6.7m and 15m, dependent on the topography and span length of the proposed alignment.

2.7.7. Similarly to the Underground Inter-Array Connection, a 15m working width has been assumed on either side of the alignment for access and material laydown. The Order Limits provide a 50m limit of deviation on either side of the working width, so that micro-siting of the alignment can be undertaken following detailed design.

[10] UK Parliament (2008) *Planning Act 2008*. London: The Stationery Office. Available at Planning Act 2008. [Accessed: 27 December 2025].

[11] Department for Energy Security and Net Zero (2025) *National Policy Statement for electricity networks infrastructure (EN-5)* (E03028327). London: HMSO Available at: https://assets.publishing.service.gov.uk/media/695d12e1b5c46330350ed9a1/national-policy-statement-for-electricity-networks-infrastructure-en-5-web-accessible.pdf [Accessed 20 January 2025]

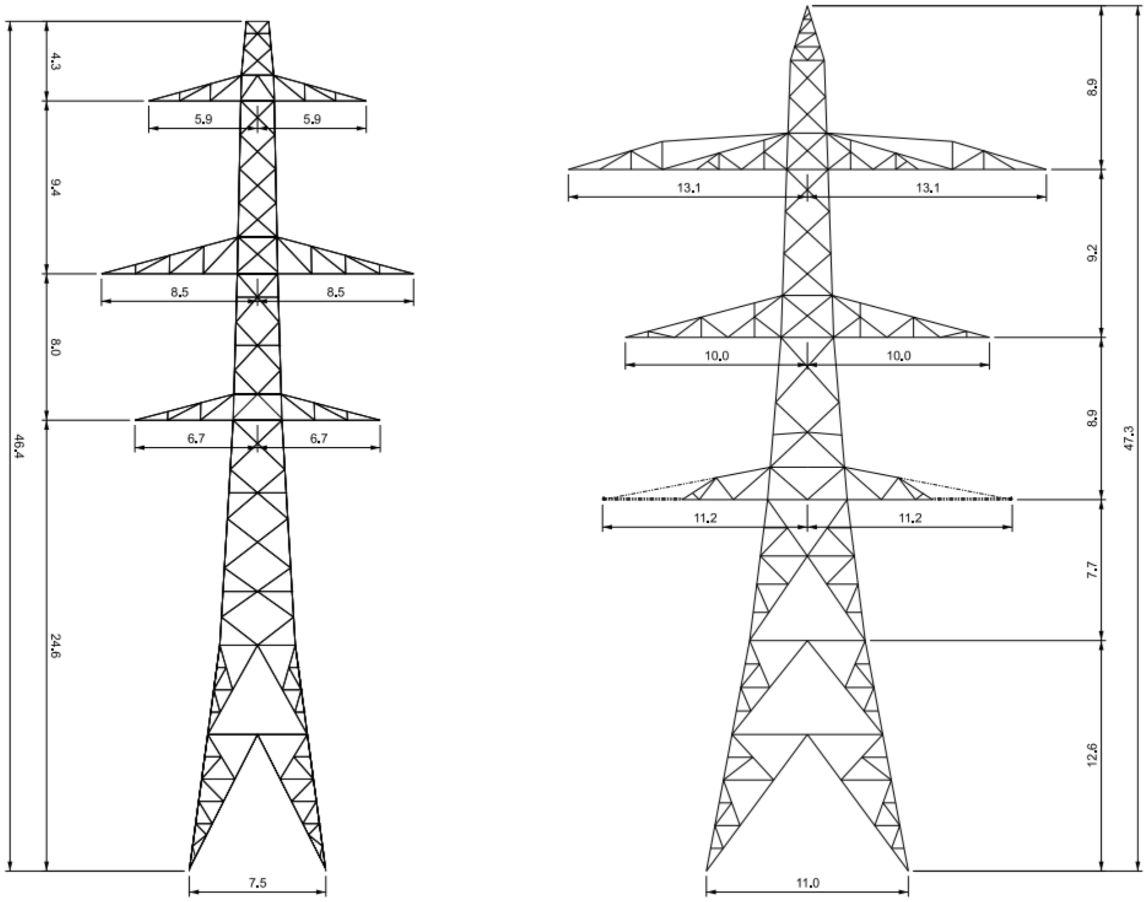
Plate 2-9: Illustrative 132kV Overhead Line Designs

2.8. Grid Connection Route

400kV Overhead Line (Work No. 9, 13, 14 and 15)

2.8.1. The Grid Connection would be up to 13km in length, dependent on the final location of the proposed National Grid Weston Marsh B Substation. The Grid Connection would comprise a 400kV overhead line and utilise a steel lattice pylon design with a pylon located approximately every 350m. Span distances would vary dependent on the proposed alignment to take account of topography, crossings and routeing to avoid constraints in the area. Given the length of the Grid Connection exceeding 2km and it being over 132kV, it classifies as a NSIP project in its own right according to the Planning Act 2008 (Part 3, Section 16, 3a and 3aa)[10] and, therefore, the requirements of National Policy Statement EN-5 apply[11]. Illustrative steel lattice pylon designs for the Grid Connection are shown in Plate 2-10 below.

Plate 2-10: Grid Connection Illustrative Pylons



2.8.2. Pylon heights would vary dependent on the proposed alignment to take account of topography and routeing to avoid constraints in the area, including the consideration of crossing existing third-party overhead utilities. As such for the purpose of the assessment in **ES Chapter 12: Landscape and Visual** (Doc Ref. 6.1), the maximum worst-case pylon height, including the vertical limit of deviation, has been assumed to be 66m above ground. A 50m horizontal limit of deviation on either side of the centre line of the overhead line alignment has been applied.

2.8.3. Each leg of the pylon would be supported by a foundation. Depending on ground conditions, this may comprise either a pad and column foundation or a piled foundation. Worst-case design assumptions used in the ES for both types of foundations are as follows (to be confirmed following further ground investigation and detailed design):

- Pad and column foundation (for each leg)– 4.3m x 4.3m footprint, 4.8m deep;

- Piled foundation (for each leg) – 4.6m x 4.6m concrete pad up to 2.1m deep and 8 piles with 60mm diameter up to 20m deep.

2.8.4. A temporary stoned working area would be provided at each pylon base to accommodate construction activities, such as steel delivery, assembly and installation. For the purposes of the ES assessment, this has been assumed to measure 60m x 60m for suspension pylons and 70m x 70m for angle pylons.

2.8.5. Bird diverters would be installed in areas identified as having increased risk of collision, as shown on Figure 5 of **ES Appendix 9-14: Habitat Regulations Assessment** (Doc Ref. 6.3). Further information on the requirement for bird diverters is provided within **ES Appendix 9-14: Habitat Regulations Assessment** (Doc Ref. 6.3).

Cable Sealing End Compounds (Work No. 10 and 12)

2.8.6. Two Cable Sealing End Compounds (CSECs) are proposed between a section of the Grid Connection that goes underground to facilitate a crossing of an existing NGED 132kV lattice overhead line. Subject to the detailed design, the CSECs would include the terminal pylon, steel gantries, cable sealing ends, surge arresters, earthing / grounding system and auxiliary equipment. An illustrative image of a CSEC is provided within Plate 2-11.

2.8.7. For the purposes of the ES assessment, the fenced compound has been assumed to measure 46m in width and 46m in length. A bund or a flood defence wall with a maximum crest height of 1.3m above ground is required for the southern CSEC to provide flood protection for the CSECs. A 20m limit of deviation has been included within the Order Limits to allow for movement of the CSECs that ties into the overhead line limit of deviation. Security fencing, lighting and CCTV would be provided at the compounds, as described within Table 2-1.

2.8.8. The structural components would be sited on a concrete foundation slab, or a piling solution may be required, depending on the results of geotechnical surveys.

Plate 2-11: Illustrative CSEC

Underground Transmission Electrical Cables between CSEC's (Work No. 11)

2.8.9. One approximately 325m long section of underground cabling has been identified within the Grid Connection Route, where it crosses an existing 132kV overhead line, between the CSECs.

2.8.10. If open cut trenching is used, the underground cable would be installed within a trench of up to 1.5m wide and 5m deep. A minimum depth of cover of 0.9m would be maintained above the cable duct.

2.8.11. If trenchless crossing method is used, this may include either HDD, thrust bore crossings or other types of trenchless crossing techniques, the ES assessment assumptions for which are described within paragraphs 2.6.36 to 2.6.38 of this chapter.

National Grid Weston Marsh Substation Tie-In works (Work No. 14 and 15)

2.8.12. The Grid Connection would connect to the proposed 400kV National Grid Weston Marsh B Substation which is being delivered by NGET as part of the Grimsby to Walpole project.

2.8.13. The exact location and design of the Weston Marsh B substation is yet to be confirmed. The Order Limits incorporate flexibility with regards to the final location of the Weston Marsh B Substation and the connection of the overhead line to it. It is assumed that the connection would be overhead. However, if undergrounding is required, the same parameters as set out for the CSECs and undergrounding of the 400kV cable at the 132kV overhead line crossing would be applied.

2.9. Other Works

2.9.1. Further description of the following components of the Scheme, which may take place across the Solar Development Area, Inter-Array Connections and the Grid Connection Route, is presented within sections below:

- Surface Water Drainage;
- Works to Third Party Assets;
- Highway works;
- Access from the highway network;
- Access tracks;
- Public Rights of Way (PRoW) works;
- Areas of habitat management and permissive path.

Surface Water Drainage (Work No. 5(f), 7(c) and associated development (m))

2.9.2. The Outline Drainage Strategy (refer to **ES Appendix 11-4** (Doc Ref. 6.3)) sets out the design principles for surface water drainage. The design would ensure compliance with planning policy with runoff from the Scheme to be attenuated to ensure no increase in surface water discharge rates and to provide water quality treatment of runoff water. Attenuation in the form of Sustainable Drainage Systems (SuDS) has been incorporated to control any increase in the rate of flow towards the receiving watercourses.

2.9.3. The drainage strategy for the BESS Compound provides for an impermeable, lined basin beneath the compound. This is to capture any runoff firewater in the unlikely circumstance of a BESS fire and prevent any contaminants entering the ground. The firewater would be held and tested before either being released into the surrounding watercourses (if of sufficient quality) or taken off site by a tanker for treatment. The basin would then be cleaned of all contaminants. Refer to **ES Appendix 11-4: Outline Drainage Strategy** (Doc Ref. 6.3) for further details.

2.9.4. Where possible, surface water would drain from the Scheme's drainage system to local receiving watercourses via a new ditch, or the piped section would be shortened and the last 10m section of the outfall route would be open ditch unless this affects maintenance of the channel by the Internal Drainage Board.

Works to Third Party Assets (Work No. 5(l) and associated development (j))

2.9.5. Work No. 5(l) and associated development (j) of Schedule 1 of the **Draft DCO** (Doc Ref. 3.1) provide powers to divert and underground existing electrical overhead lines, and to divert gas, water, foul water drainage and telecommunications infrastructure connections within the Order Limits, if required. Protective provisions are included within the **Draft DCO** (Doc Ref. 3.1) for statutory undertakers whose assets may be affected, and further bespoke protective provisions are being negotiated with statutory undertakers, where necessary. These include the requirement for detailed design and safe working practices to be agreed with the statutory undertaker prior to construction.

2.9.6. Within the Grid Connection Route, the illustrative design and heights of the pylons aim to oversail existing electrical overhead lines. This is with the exception of the crossing with the existing 132kV overhead line, where the Grid Connection Route would be undergrounded as part of Work No. 11.

2.9.7. Should it not be possible for the Scheme's 400kV overhead line to oversail the remaining existing electrical overhead lines at detailed design, the Scheme has also sought powers to enable the diversions of third-party assets. It is proposed that where diversions of third-party assets are required, these would be undergrounded as close as possible to their existing alignments either by the statutory undertakers or by the Applicant. The exact alignment of any diversions would be subject to detailed design.

2.9.8. Undergrounding of existing overhead third party assets within the Grid Connection Route, if required, may necessitate trenchless crossings where they intersect with existing drains. Where trenchless crossings are required, the same parameters, as described within paragraphs 2.6.36 to 2.6.38 of this chapter, have been assumed to apply.

2.9.9. Where open cut trenching is possible, the trench has been assumed to be up to 2m wide and 2m deep for the purposes of the ES. A minimum depth of cover of 0.9m above utilities has been assumed to be maintained.

2.9.10. Within the Solar Development Area, as demonstrated by illustrative design shown on **ES Figure 2-2** (Doc Ref. 6.2), it is expected that solar infrastructure can be sited without the need to divert or underground existing electrical overhead lines crossing the Site.

Highway Works (Work No. 6)

2.9.11. The following highway works are proposed as part of the Scheme:

- Street works to facilitate any underground cable or overhead line installation;
- Provision of new access points;
- Improvements to existing accesses, resulting in alterations to road layout to accommodate their connections to local highways;
- Construction of a new deceleration lane off the A16 for the provision of an access to the Grid Connection Route;
- Provision of temporary passing bays along Martins Road and Langary Gate Road (if required);
- Alteration of road layouts, including modifications to road markings, temporary removal of signage and temporary protection or removal of overhead lines, if required, to facilitate abnormal load and HGV manoeuvres on Langary Gate Road, Back Bank and B1168 Holbeach Drove Gate; and
- Temporary traffic management on the B1166 / Martins Road and B1166 / Langary Gate Road junctions.

2.9.12. Further details of the road works within the Order Limits are included on the **Streets, Rights of Way and Access Plans** (Doc Ref. 2.6), **Traffic Regulation Measures Plans** (Doc Ref. 2.7) and **Draft DCO** (Doc Ref. 3.1).

2.9.13. The **Outline Construction Traffic Management Plan (OCTMP)** (Doc Ref. 7.13) summarises roads within the Site which would be undergo temporary single lane or full closure to all traffic for construction of the Scheme, construction of the accesses and delivery of abnormal indivisible loads (also refer to Schedule 6 of the **Draft DCO** (Doc Ref. 3.1) and the **Streets, Rights of Way and Access Plans** (Doc Ref. 2.6)). Full road closures are likely to be required along minor roads with low traffic volumes that are too narrow to leave a lane open. The maximum estimated duration of such closures would be 12 weeks.

Access from the Highway Network

2.9.14. Existing accesses to the Site from the highway network would be utilised, wherever reasonably practical. Where suitable existing access to areas of the Site is not available, new access points are to be constructed. Any new access points would be designed to avoid impacts to existing vegetation and drains, where reasonably practical. However, temporary removal of street furniture and localised removal of sections of existing vegetation may be required in some locations; for example, to ensure suitable visibility splays and to facilitate safe access and egress for construction vehicles.

2.9.15. For the Solar Development Area, construction vehicles would utilise points of access from the B1166 via Barrier Bank/ Spalding Road, Martins Road and Langary Gate Road for Land Parcels A, B & C and D respectively. Access to the Underground Inter-Array Connection would be from Barrier Bank/Spalding Road. Access for the Overhead Inter-Array Connection would be from Back Bank/Eaugate Road / Chapel Hill and B1168 Holbeach Drove Gate. For the Grid Connection Route, construction vehicles would use points of access principally from the A16 and the A151 High Road. Vehicles would also use the B1165 Austendike Road in lesser numbers. The **OCTMP** (Doc Ref. 7.13) sets out the Applicant's proposals to manage construction traffic and staff vehicles within the vicinity of the Scheme along the local highway network during the construction period of the works, in order to limit any potential disruptions and implications on the wider transport network.

2.9.16. All proposed construction, operational and decommissioning accesses are shown in **ES Figure 2-5: Construction, Operational and Decommissioning Accesses** (Doc Ref. 6.2) and listed in Table 2-2. These accesses

2.9.17. The accesses listed in Table 2-2 include both, existing accesses, to be upgraded for use by the Scheme, and new accesses to be constructed.

Table 2-2: Details of Proposed Accesses within Order Limits

Access Reference	Abnormal Indivisible Load Access (Y/N)	Location and Description	Phase Required		
			Construction*	Operation	Decommissioning
HR-01	Y	Access 1 - North Off A151 to Cross Gate	✓	✓	✓
HR-02	Y	Access 2 - North Off A151	✓	✓	✓
HR-03	Y	Access 3 - West off A151	✓	✓	✓
BG-01	Y	Access 4 - Crossing of Broad Gate	Crossing Only		
DB-01	Y	Access 5 - East off Delgate Bank	Crossing Only		
DB-02	Y	Access 6 - Crossing of Delgate Bank	Crossing Only		
AR-01	Y	Access 7 - South off B1165	✓	✓	✓
AR-02	Y	Access 8 - North off B1165	✓	✓	✓
WG-01	Y	Access 9 - West off West Gate	Crossing Only		
WG-02	Y	Access 10 - Crossing of Farm Track	Crossing Only		
MCR-01	Y	Access 11 - North off B1357	Crossing Only		
A16-01	Y	Access 12 - East off A16	✓	✓	✓
QB-01	Y	Access 13 - North off Queen's Bank	✓	✓	✓
QB-02	N	Access 14 - South off Queen's Bank		✓	
BB-01	Y	Access 15 - West of Spalding Road	✓	✓	✓
CD-01	N	Access 16 - Crossing of Cloot Drove	Crossing Only		

Access Reference	Abnormal Indivisible Load Access (Y/N)	Location and Description	Phase Required		
			Construction*	Operation	Decommissioning
CD-02	N	Access 17 - West off Cloot Drove		✓	
MR-01	Y	Access 18 - East off Martins Road	✓	✓	✓
MR-02	Y	Access 19 – West off Martins Road	✓	✓	✓
MR-03	N	Access 20 - East off Martins Road to Track		✓	
GB-01	Y	Access 21 - South off Eaugate Road	✓	✓	✓
CH-01	Y	Access 22 - West off Chapel Hill	✓	✓	✓
CH-02	Y	Access 23 - East off Chapel Hill	✓	✓	✓
CG-01	N	Access 24 - Crossing of Chapel Gate	Crossing Only		
DD-01	N	Access 25 - Crossing of Dog Drove	Crossing Only		
HDG-01	N	Access 26 - West off B1168	✓	✓	✓
HDG-02	N	Access 27 - East off B1168	✓	✓	✓
LGR-01	N	Access 28 - East off Langary Gate Road	✓	✓	✓
LGR-02	N	Access 29 - East off Langary Gate Road	✓	✓	✓
LGR-03	N	Access 30 - West off Langary Gate Road	✓	✓	✓
LGR-04	N	Access 31 - West off Langary Gate Road	✓	✓	✓
LGR-05	Y	Access 32 - West off Langary Gate Road	✓	✓	✓

Access Reference	Abnormal Indivisible Load Access (Y/N)	Location and Description	Phase Required		
			Construction*	Operation	Decommissioning
LGR-06	N	Access 33 - East off Langary Gate Road	✓	✓	✓
LGR-07	N	Access 34 - East off Langary Gate Road	✓	✓	✓
LGR-08	N	Access 35 - West off Langary Gate Road	✓	✓	✓
LGR-09	N	Access 36 - East off Langary Gate Road	✓	✓	✓
LGR-10	N	Access 37 - West off Langary Gate Road	✓	✓	✓
LGR-11	N	Access 38 - East off Langary Gate Road	✓	✓	✓
LGR-12	N	Access 39 - West off Langary Gate Road		✓	
LGR-13	N	Access 40 - East off Langary Gate Road		✓	
DB-03	N	Access 41 - East off Delgate Bank		✓	
DB-04	N	Access 42 - East off Delgate Bank		✓	
LGR-14	N	Access 43 – East of Langary Gate Road	✓	✓	✓
SG-01	Y	Access 44 – Crossing of Stone Gate Road	Crossing Only		
RW-01	Y	Access 45 – Crossing of Runway	Crossing Only		

* The road surface of construction access bellmouths would be removed or reduced once construction is complete to prevent fly tipping, However, the right of access would be maintained for operation and decommissioning, where noted in this table. It is assumed that any upgraded or new culverts or bridges would remain in-situ, where operational and decommissioning access rights are retained.

Access Tracks

Operational Access Tracks

2.9.18. Within the Solar Development Area, where existing access tracks cannot be used, new access tracks approximately 4m wide, consisting of hardcore, stone or gravel over a levelling layer of substrate would be constructed. This is with the exception of the main operational access roads through the Solar Development Area, which would be up to 6m wide. Areas where passing places are required would be up to 8m. 1:2 gradient slopes would be provided on one or both sides. Soil stripping up to a depth of 600mm has been assumed to be required. These access tracks would be used during construction, operation and decommissioning.

2.9.19. Two new operational access tracks off Delgate Bank, up to 6m wide, would also be required for the CSECs in the Grid Connection Route.

2.9.20. Permeable paving would be used for any new operational access tracks.

Temporary Access Tracks

2.9.21. Within the Grid Connection Route, a temporary construction haul route would follow the alignment to enable construction works. A 21m wide corridor has been assumed for the haul route, allowing flexibility during the detailed design stage for the inclusion of a stone access road, passing places, soil stockpile along the track, temporary drainage and fencing. Soil stripping up to a depth of 600mm has been assumed to be required within this corridor.

2.9.22. In highly sensitive areas, temporary interlocking panels rather than a stone access road may be installed. However, this is better suited for more minor works such as installation of scaffolding. The temporary interlocking panels do not require any below ground excavation.

Temporary and Permanent Access Track Crossings

2.9.23. Where new or upgraded watercourse crossings for operational or construction accesses and access tracks in the form of bridges or culverts are required (refer to **ES Figure 2-3: Indicative Watercourse Crossing Locations** (Doc Ref. 6.2) and **ES Appendix 2-1: Indicative Watercourse Crossing Schedule** (Doc Ref. 6.3) for assumed locations), these would follow the design principles set out for access track design in Table 2-1.

2.9.24. The temporary haul road within the Grid Connection Route and its temporary watercourse crossings between fields would be removed prior to operation and the watercourses reinstated. However, where the watercourse crossings have created a new access into the Site from the local highway network, these crossings would be left in-situ to allow for operational and decommissioning access. See Table 2-2 below for further details.

Public Rights of Way Works

2.9.25. There are 13 Public Rights of Way (PRoW) that are fully or partially within the Site, as shown on **ES Figure 2-1: Existing Site Constraints** (Doc Ref. 6.2) and **ES Figure 15-2: Existing Walking and Cycling Network** (Doc Ref. 6.2). In addition, a strip of registered Common Land runs along the verge of Martins Road and crosses Land Parcel C of the Solar Development Area.

2.9.26. Table 2-3 provides a summary of the PRoW and the Common Land within the Order Limits and the proposed management approach, as detailed in Schedule 6 of the **Draft DCO** (Doc Ref. 3.1), **Streets, Rights of Way and Access Plans** (Doc Ref. 2.6), and the **Outline PRoW Management Plan** (Doc Ref. 7.15). During the construction period, PRoWs and Common Land would either be diverted locally or managed using appropriate construction traffic PRoW crossing control measures. Two PRoWs (Crow/12/1 and Wstn/3/1) are proposed to be closed temporarily for 4-6 weeks. No closures or diversions are proposed for the operation of the Scheme. For further details of the impacts on PRoWs and Common Land refer to **ES Chapter 15: Traffic and Access** (Doc Ref. 6.1).

Table 2-3: PRoW and Common Land within and along the perimeter of the Order Limits and proposed management

Public Right of Way	Management Approach
PROW Crow/7/1	Will not require the implementation of any measures beyond minimal management works.
PROW Crow/17/1	No management required.
PROW Crow/17/2	Will not require the implementation of any measures beyond minimal management works.
Martins Road Common Land	To remain open and to be managed. Drivers to stop and give-way to any PRoW user that they encounter. A Common Land Diversion Corridor will be provided in the event of any overhead line or cabling works.
PROW Crow/11/1	No management required.
PROW Flee/6/1	To remain open and to be managed. Drivers to stop and give-way to any PRoW user that they encounter.

Public Right of Way	Management Approach
PROW Flee/7/1	Will not require the implementation of any measures beyond minimal management works.
PROW Flee/8/1	To remain open and to be managed. Drivers to stop and give-way to any PRoW user that they encounter.
PROW Flee/8/2	To remain open and to be managed. Drivers to stop and give-way to any PRoW user that they encounter.
PROW Holb/14/1	Isolated from construction works and therefore no management required.
PROW Holb/15/1	Isolated from construction works and therefore no management required.
PROW Crow/12/1	Temporary closure of 4-6 weeks.
PROW Whap/1/1	Isolated from construction works and therefore no management required.
PROW Wstn/3/1	Temporary closure of 4-6 weeks.

Areas of Habitat Management (Work No. 7)

2.9.27. **ES Figure 2-2: Illustrative Solar Development Area and Inter-Array Connections Layout Plan** (Doc Ref. 6.2) indicates the broad location of key components of the Scheme alongside the provision of green infrastructure across the Solar Development Area. This includes proposed areas for planting mitigation and potential areas for ecological enhancement (including habitat connectivity). **ES Figure 2-2** (Doc Ref. 6.2) also shows those areas within the Site where existing vegetation will be retained. Landscape corridors across the Site have been introduced, following existing drains and connecting to existing vegetation, in order to provide connectivity across the Site for wildlife.

2.9.28. Habitat management areas, marked as Work No. 7 on **Works Plans** (Doc Ref. 2.3), have been identified for species rich grassland or for retention as arable land with specific land management practices, as set out within the **Outline Landscape and Ecology Management Plan (OLEMP)** (Doc Ref. 7.16). Some of these areas are intended to provide mitigation for ground-nesting birds, such as skylark. These include the two Scheduled Monument areas within the Order Limits (Settlement

NE (north-east) of Whitebread Farm (NHLE 1004978) and Settlement W (west) of Cate's Cove Corner (NHLE 1004979)), where arable use is proposed to continue, however, skylark plots and restrictions on fertiliser and pesticide use may be introduced.

2.9.29. The areas under the solar panels and areas outside the habitat management areas will be planted with semi improved or species rich grassland where suitable, and shrubs and scattered trees will be planted in strategic locations to provide visual screening and to enhance the biodiversity value and connectivity of the Site.

2.9.30. Across the Order Limits, the following approximate areas will be planted for habitat creation, landscaping and visual screening:

- 13.8 km of proposed band of shrubs;
- 34.6 km of proposed band of shrubs and scattered trees;
- 1.6 km of strengthened band of scattered trees;
- 129.0 ha of proposed species rich grassland; and
- 650.0 ha of proposed semi-improved grassland.

2.9.31. Where new or upgraded watercourse crossings are proposed, 15m habitat enhancement buffer up and downstream would be provided (subject to agreement with Internal Drainage Boards).

2.9.32. The Applicant is committed to deliver biodiversity net gain of at least 10% for area-based habitats and watercourses, and at least 400% for hedgerows, in accordance with the requirements of the **Draft DCO** (Doc Ref. 3.1). A **Biodiversity Net Gain (BNG) Report** (Doc Ref. 7.9) has been submitted as part of the DCO Application, which demonstrates that on the basis of the illustrative design, the Scheme could achieve a net gain of 14.60% for area-based habitat units, 477.94% for hedgerow units, and 11.42% for watercourse units.

2.9.33. An **OLEMP** (Doc Ref. 7.16) has been prepared to support the DCO Application. This document sets out the principles for how the land would be managed throughout the operational phase following the completion of construction. A detailed LEMP would be produced following the granting of the DCO and prior to the start of construction in accordance with Requirement 7 of the **Draft DCO** (Doc Ref. 3.1).

Permissive Path (Work No. 7)

2.9.34. A permissive path would be provided connecting PRoWs between Queens Bank and Shepeau Stow, following the boundary of the Settlement W of Cate's Cove

Corner Scheduled Monument. The permissive path would be located within a corridor that measures approximately 20m in width. The width of the permissive path is subject to detailed design, but is anticipated to be up to 5m wide to provide space for pedestrians, cyclists and horse riders. The corridor also includes space for landscaping and for the provision of information boards on the historic and natural environment. The indicative alignment of the permissive path is shown on **ES Figure 2-2: Illustrative Solar Development Area and Inter-Array Connections Layout Plan** (Doc Ref. 6.2). This figure shows the indicative location of the permissive path only, with the final location being subject to landowner agreement. The permissive path would provide increased public access across the landscape and, thus, responds positively to local planning policies relating to rural access and recreational amenity.

2.9.35. The design and implementation of the permissive paths proposed would be secured through Requirement 16 of the **Draft DCO** (Doc Ref. 3.1) and in accordance with the **OLEMP** (Doc Ref. 7.16).

2.10. Construction Phase

Solar Development Area Construction

2.10.1. The following activities would be required as part of the enabling phase of the construction works:

- Establishment of the perimeter fence;
- Establishment of temporary construction compounds within the Site;
- Preparation of land for construction, including localised site levelling;
- Import of construction materials, plant and equipment to Site to a centralised location within the Site to then be distributed to construction locations;
- Construction of the internal access roads; and
- Marking out the location of the Scheme infrastructure.

2.10.2. The installation of infrastructure would involve the following activities:

- Import of components;
- Foundation installation and erection of solar PV module mounting structures;
- Mounting of solar PV modules;
- Open cut trenching and installation of electric cabling;
- Solar station foundation construction;
- Installation of solar stations;
- BESS and On-Site Substation Compound foundation construction;
- Erection of control, spare parts and storage buildings;
- Installation of BESS components;
- Installation of On-Site Substation components;
- Installation of control, communication and monitoring equipment; and
- Testing of equipment.

2.10.3. The below section provides further detail on the construction of individual components.

Solar PV Modules and Solar Station Construction

2.10.4. The following activities would be required to install the solar PV panels:

- Import of components to the construction compound areas;

- Foundation installation and erection of mounting structures, with the panel struts/frames rammed/piled to a maximum depth of 3.5m, or mounting with concrete footings;
- Mounting of panels (this would be undertaken by hand);
- Trenching and installation of electric cabling (more detail in section below);
- Transformer, inverter and switchgear foundation excavation and construction;
- Installation of transformers, inverters and switchgears (cranes would be used to lift equipment into position); and
- Installation of control systems, monitoring and communication equipment; and
- Testing of equipment.

BESS Compound

2.10.5. The following activities would be required to construct the BESS:

- Excavation of the BESS adjacent crane pad;
- Installation of copper earthing ring;
- Delivery and installation of concrete foundations, or piling solution;
- Delivery and offloading by crane of a BESS unit (normally a single piece) with racks and no batteries;
- Offloading of batteries with telehandler and connection into the racks;
- Connecting of the low voltage AC and DC cables, medium voltage AC, earthing and communication cables.

On-Site Substation Compounds

2.10.6. The following activities would be required to construct the 400kV and 132kV On-Site Substations:

- Site preparation and earthworks for the On-Site Substations;
- Trenching and installation of electric cabling;
- Pouring of the concrete foundation base, or piling;
- Import of components to Site – cranes would be used to lift the components into position; and
- Installation of the On-Site Substation electrical equipment; and

- Testing of equipment.

On-Site PV Cabling

2.10.7. Trenches would be required throughout the Site to contain the Direct Current (DC) and Alternating Current (AC) (low voltage (LV) and medium voltage (MV)) cables, as well as earthing, CCTV and communication cables. The majority of cabling would be installed within open cut trenches, with a minimum depth of cover of 0.9m and a maximum depth of up to 2m. Trench width would be dependent on the number of ducts that they contain and would be a maximum of 2m wide. Cabling would be installed along access roads, where practicable.

2.10.8. The process for the construction of on-site cabling involves:

- Excavation of the trench (where topsoil should be segregated to one side);
- Installation of an earthing cable;
- Sand placed in the base of the trench using a machine;
- Installation of the cables (a manual process typically by hand);
- Sand placed to cover the cables using a machine;
- Backfilling with the top layer being topsoil.

2.10.9. The majority of trenches have been designed running adjacent to roads and not underneath the PV arrays. This is to aid operation and maintenance and to avoid potential damage during the foundation installation works.

2.10.10. Trenchless crossings may be required at locations where existing watercourses, roads and utilities are crossed. Where trenchless crossings are required, these may include either HDD, thrust bore crossings or other trenchless crossing techniques as described within paragraphs 2.6.36 to 2.6.38 of this chapter.

Inter-Array Connections Construction

Underground Inter-Array Connection

2.10.11. The Underground Inter-Array Connection would be installed within open-cut trenches up to 2m wide and 2m deep. A minimum depth of cover of 0.9m would be maintained. Trenchless crossings may be required at locations where existing watercourses, roads and utilities are crossed. Where trenchless crossings are required, these may include either HDD, thrust bore crossings or other trenchless techniques, as described within paragraphs 2.6.36 to 2.6.38 of this chapter.

2.10.12. A 15m working width has been allowed on either side of the centre line of the alignment for access and material laydown, providing a 30m working corridor in total. The Order Limits provide a 50m limit of deviation on either side of the working width, so that micro-siting of the alignment can be undertaken following detailed design.

Overhead Inter-Array Connection

2.10.13. The process for the construction of the Overhead Inter-Array Connection involves:

- Site preparation, including works to establish construction compounds and access;
- Pole position setting out and excavation of pole holes;
- Erection poles, backfilling and compaction;
- Installation of crossarms, insulators, guys;
- Overhead line stringing; and
- Testing and commissioning.

2.10.14. The works for the construction of the Overhead Inter-Array Connection are sequential and the plant, including lorries and 4x4s to deliver the material and the tractor, tensioner and mobile elevated working platform to construct the 132kV overhead line would move together from one location to the next until the stringing is completed.

2.10.15. Similarly to the Underground Inter-Array Connection, a 15m working width has been assumed either side of the centre line of the alignment for access and material laydown, providing a 30m working corridor. The Order Limits provide a 50m limit of deviation on either side of the working width, so that micro-siting of the alignment can be undertaken following detailed design.

Grid Connection Route Construction

Overhead Line

2.10.16. The construction of the Grid Connection overhead line would take place in a number of stages, as illustrated by Plate 2-12: Overhead line Construction stages.

- Stage 1: Site set-up and temporary construction compounds installation. This includes construction of the temporary access roads to the pylon sites, fencing off a safe working area, clearing vegetation, and carrying out any drainage works required. A temporary working area would be established at each pylon location, as described in Section 2.8.

- Stage 2: Construction of pylon foundations – piling (if required) and excavation of foundations would be undertaken for each pylon leg. The pylon leg is fixed in place, the foundation is concreted and then backfilled with soil to be re-seeded.
- Stage 3: Construction of pylons – pylons are delivered to Site by HGV. The pylon sections are assembled on the ground and then lifted into place using a mobile crane.
- Stage 4: Stringing – once the pylons are assembled, the wires are hung. This process is known as 'stringing'. A section of pylons is strung at a time. Firstly, scaffolding and netting would be erected where the route crosses areas such as roads during the stringing. Some roads may be closed or require temporary traffic management for short periods during this work. Running blocks are then fitted to the insulator assemblies that are attached to the pylon crossarm ends and the wires are pulled through by a winch machine. There would be temporary 'pulling areas' along the route. The wires are connected to substation gantries at each end of the overhead line.

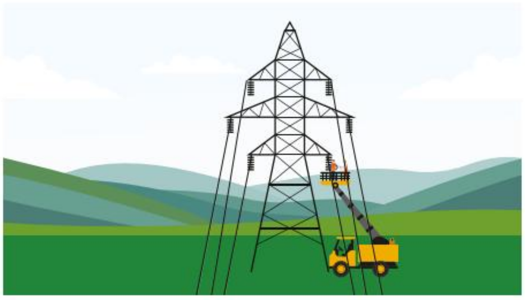
2.10.17. Once the construction works are complete and the overhead line has been tested and commissioned, all temporary working areas, construction accesses and access tracks would be reinstated.

Plate 2-12: Overhead line construction stages

Stage 1: Site set-up and temporary construction compounds

Stage 2: Pylon foundations

Stage 3: Building pylons



Stage 4: Attaching the wires

Cable Sealing End Compounds and Underground Cable Configuration

2.10.18. Once construction compounds and access roads are installed, the topsoil at the CSEC sites would be stripped. Earthworks, including any required cut and fill, would then be undertaken to establish a level platform upon which the CSEC would be constructed. Any required surface water drainage features would be installed at this point. Working areas would be established within the compound footprint for equipment foundations.

2.10.19. The main CSEC construction works would comprise the installation of Site perimeter security fencing up to 2.5m in height, stone surfacing and reinforced concrete pads, which would form the foundations of the equipment, including gantries and anchor blocks. Further fencing, up to approximately 3m in height, may be required to further enclose electrical equipment within each compound. If required, foundations would be piled instead, but this would be confirmed through ground investigation.

2.10.20. The steel or aluminium equipment supporting structures within the compound would be installed and constructed on the prepared concrete foundations, including gantries, earth switches, disconnectors and post insulators.

2.10.21. The high voltage (HV) cables would be pulled into place and terminated into the new cable sealing end equipment. The overhead line conductors would be connected onto the new gantries and commissioned with all other HV plant. The final elements of the works would be to undertake works to test the new HV plant, cables and overhead lines.

2.10.22. Underground cabling between the CSECs would typically be installed in open cut trenches. If open cut trenching is used, it is assumed that the underground cable would be installed within a trench of up to 1.5m wide and 5m deep for the purposes of ES assessment. A minimum depth of 0.9m from the top of the cable duct would be maintained. A total working width of 60m has been assumed for the undergrounded section, along with a 75m limit of deviation applied either side to tie in with the CSEC and overhead line limits of deviation. The final depths would be subject to detailed design.

2.10.23. If trenchless crossing method is used, this may include either HDD, thrust bore crossings or other trenchless techniques, as described within paragraphs 2.6.36 to 2.6.38 of this chapter.

Indicative Construction Programme

2.10.24. The construction phase is anticipated to take three to four years to complete, and for the purposes of the ES, it is assumed that construction would commence in 2029. The operational phase would begin in 2033. Peak construction is anticipated to be 2031 for the Solar Development Area and Inter-Array Connections and 2030 for the Grid Connection Route. The overall peak construction year for the purposes of the EIA is anticipated to be 2031. Albeit it is considered unlikely that new or materially different effects would arise if construction and operation started later than the years assumed for the purposes of the ES. **ES Chapter 4: Overview of the EIA Process** (Doc Ref. 6.1) provides further information on how the ES has assessed a later commencement date for construction.

2.10.25. The timings which represent a worst-case scenario per topic have been defined as part of each technical assessment for the basis of the ES. To ensure that a worst-case assessment is undertaken with regards to potential effects from temporary construction traffic, the peak number of construction vehicles from all elements of the Scheme is considered to occur concurrently for the purposes of the assessments which consider construction traffic.

2.10.26. An indicative programme is provided within Plate 2-13. The Solar Development Area and Inter-Array Connections construction programme is anticipated to be up to three years, whilst the Grid Connection Route is anticipated to be up to four years. The length of the Grid Connection Route indicative construction period is influenced by the proposed Grimsby to Walpole scheme, which has indicated that it would underground part of an existing 400kV overhead line which the Scheme would need to cross, in 2033. Hence, the construction of the Grid Connection Route in this location has been assumed to occur once the existing 400kV overhead line has been undergrounded. The construction programme would be further refined as part of detailed design.

Plate 2-13: Indicative Construction Programme

Task	2027				2028				2029				2030				2031				2032				2033			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
DCO Consent Award		■																										
Procurement		■	■	■	■	■	■	■	■	■	■	■	■	■														
Solar Development Area and Inter-Array Connections Programme																												
Solar Development Area Land Parcel A															■	■	■	■	■	■								
Solar Development Area Land Parcel B																■	■	■	■	■	■							
Solar Development Area Land Parcel C																■	■	■	■	■	■							
Solar Development Area Land Parcel D																■	■	■	■	■	■	■						
Underground Inter-Array Connection																	■	■										
Overhead Inter-Array Connection																■												
Commissioning																							■	■				
Grid Connection Route Programme																												
Access and enabling works									■	■	■	■	■	■														
Foundation works												■	■	■	■													
Pylon construction													■	■	■	■												
Stringing														■	■	■	■	■	■	■	■	■	■	■	■			
CSEC Construction													■	■	■	■												
NGET Substation complete and bay available for the 400kV connection																										■		
Reinstatement																	■	■	■	■						■		

Construction Staff and Hours of Work

2.10.27. At the peak of construction for the Solar Development Area and Inter-Array Connections (assumed to be in 2031), a maximum of 650 construction staff per day would be on-site. At the peak of construction for the Grid Connection Route (assumed to be in 2030), a maximum of 205 staff per day across the route would be on-site.

2.10.28. For the purposes of the ES, 855 construction staff per day have been assumed as the maximum peak construction workforce, accounting for concurrent works across the Solar Development Area, Inter-Array Connections, and the Grid Connection Route. This equates to an average of 184 Full Time Equivalents (FTEs) over the construction period.

2.10.29. Core working hours during the construction phase are anticipated to be as follows:

- Monday to Friday from 07:00 to 19:00; and
- Saturday from 08:00 to 13:30.

2.10.30. It is anticipated there would be no Sunday or Bank Holiday working, except for. the following operations which may take place outside the core working hours:

- The installation and removal of conductors, pilot wires and associated protective netting (included but not limited to) across public roads or watercourses;
- The jointing of underground cables;
- The continuation of any work activity commenced during the core working hours to a point where they can securely and or safely be paused;
- Any highway works requested by the Local Highway Authority to be undertaken on a Saturday or Sunday or outside the core working hours;
- The testing or commissioning of any electrical plant installed as part of the authorised development including undertaking of any identified corrective activities;
- The completion of works disrupted or interrupted by severe weather conditions;
- Activity necessary in the instance of an emergency where there is a risk to persons or property;
- Security monitoring;

- Non-intrusive surveys;
- Intrusive surveys;
- Oil processing of transformers or reactors in substation sites;
- Delivery to the transmission works of abnormal indivisible loads and any highway works requested by the Local Highway Authority to be undertaken outside the core working hours;
- Mechanical and electrical installation works within buildings once erected and enclosed;
- Concrete pours for foundations;
- Continuous activities associated with trenchless cable installation; and
- Night working for cable or overhead line installation within public highways.

2.10.31. Where on-site works are to be conducted outside the core working hours, they would comply with the restrictions stated in the **Outline Construction Environmental Management Plan (OCEMP)** (Doc Ref. 7.10), and any other restrictions agreed with the relevant planning authorities pursuant to the consent process under section 61 of the Control of Pollution Act 1974[12].

Construction Traffic

2.10.32. Construction traffic would use the A16 Crowland Bypass insofar as possible for approaching the Site. For the Solar Development Area, construction vehicles would utilise points of access from Barrier Bank/ Spalding Road, Martins Road and Langary Gate Road. Points of access to the Inter-Array Connections would be from Barrier Bank /Spalding Road, Back Bank/Eaugate Road/ Chapel Hill and B1168 Holbeach Drove Gate. For the Grid Connection Route, construction vehicles would use points of access from the A16, the B1165 Austendike Road and the A151 High Road. The access strategy has been designed to utilise existing accesses, where reasonably practical.

2.10.33. All four substations would require the delivery of Abnormal Indivisible Loads (AILs) for the transport of transformers. AILs would also be required to deliver the Inter-Array overhead line poles and cable drums across the Scheme.

[12] HMSO (1974). Control of Pollution Act 1974 (COPA) 1974. Available at: https://www.legislation.gov.uk/ukpga/1974/40 [Accessed 03/10/2025]

2.10.34. Proposed HGV and AIL routes and accesses are shown on **ES Figure 2-5: Construction, Operational and Decommissioning Accesses** (Doc Ref. 6.2), and summarised within Table 2-2.

2.10.35. The peak daily number of construction traffic movements required for the Scheme are identified below. To provide a robust assessment, the peak forecast numbers account for daily variation and peak daily movements:

- Peak for Solar Development Area and Inter-Array Connections – 64 HGV deliveries (128 movements per day);
- Peak for Grid Connection Route - 75 HGV deliveries (150 movements per day) and 75 LGV deliveries (150 movements per day).

2.10.36. Further detail on daily HGV and LGV movements is provided within **ES Chapter 15: Traffic and Access** (Doc Ref. 6.1).

2.10.37. Measures to control the routing and timing of construction vehicles are set out in the **OCTMP** (Doc Ref. 7.13). HGV movements would be restricted to certain routes and times of day (outside of the network morning and afternoon peak periods) to reduce the impact on the local high network. In addition, a Delivery Management System would be implemented to control the bookings of HGV deliveries from the start of the construction period. This would be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance with HGV routing. The Scheme would also implement a monitoring system to record HGVs travelling to and from the Scheme, to record any non-compliance with the agreed routing plan/delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes are followed.

2.10.38. For the management of construction workforce travel, the **OCTMP** (Doc Ref. 7.13) ensures the proper management of construction related vehicles across the Scheme. This includes:

- Lift sharing;
- Staff routeing;
- Staff arrival and departure times;
- Car parking strategy and parking permit scheme; and
- The provision of shuttle buses for the peak construction period.

2.10.39. It is assumed that during peak construction, 55% of the construction staff would be transported to Site by shuttle bus. The remaining 45% have been assumed to travel to the Site via car. With lift sharing, a vehicle occupancy rate of 1.3 has been assumed (i.e. every third car would have a second person in the vehicle).

2.10.40. The proposed car parks for the construction of the Scheme would be situated within the construction compounds of the Solar Development Areas and Grid Connection Route. Based on the estimated peak staff vehicle numbers, the Scheme would provide approximately 225 car parking spaces across the construction compounds within the Solar Development area, and 71 car parking spaces within the Grid Connection Route to accommodate the expected number of staff visiting the Site. Additional on-site parking would be provided for shuttle buses to accommodate staff travelling to Site via shuttle bus.

2.10.41. A self-contained wheel wash for the Site would be installed at each access to be used by vehicles prior to exiting the Site onto the public highway, if there is mud or debris on the construction site. For loads unable to use the fixed wheel wash, a localised wheel washing facility would be set up to cater for these individually and, as required, to ensure no detrimental effect to the highway.

Construction Compounds

2.10.42. The indicative locations of construction compounds used to inform the assessment within this ES are shown on **ES Figure 2-6: Solar Development Area Illustrative Construction Layout Plan** and **ES Figure 2-7: Grid Connection Route Illustrative Construction Layout Plan** (Doc Ref. 6.2). For the purposes of ES assessment, the following number of indicative construction compounds have been identified to be required for the construction of the Solar Development Area and the Inter-Array Connections:

- Land Parcel A and Underground Inter-Array Connection– two compounds;
- Land Parcel B – two compounds;
- Land Parcel C – two compounds;
- Overhead Inter-Array Connection – two compounds;
- Land Parcel D – one main site compound for the 132kV On-Site Substation and 11 secondary compounds within individual fields[13].

2.10.43. A maximum footprint of 200m x 100m has been assumed for the Solar Development Area and Inter-Array Connection Compounds.

2.10.44. For the purposes of the ES assessment, three indicative construction compounds have been identified for the Grid Connection Route. There are two options for

[13] Secondary compounds have been identified in Land Parcel D to minimise construction movements on Langary Gate Road.

the southernmost compound, one location identified next to the access from the A16 and second location identified to the south of the 400kV On-Site Substation and BESS Compound. A maximum footprint of 130m x 110m has been assumed for the Grid Connection Route site compounds.

2.10.45. For construction compounds, a perimeter fence and security measures, such as CCTV, would be provided as described within the **OCEMP** (Doc Ref. 7.10).

Storage of Construction Plant and Materials

2.10.46. Materials would be delivered via HGVs at regular intervals to the construction compounds and transported directly to where it is required within the Site using smaller LGVs. Short term storage of materials and plant can be accommodated within the construction compound until it is required.

2.10.47. Table 2-4 summarises the anticipated plant and machinery required during the construction phase.

Table 2-4: Summary of anticipated plant and machinery

Construction Activity	Plant/Equipment
BESS	Low Loader Tele-Handler Mobile Telescopic Crane Excavator Wheeled Loader Dump Truck Cement Mixer Truck
PV Panel Construction	Articulated dump truck Wheeled mobile telescopic crane Diesel generator Continuous flight auger piling Cement mixer truck (discharging) Dumper Piling Rig (if piles are used)
Substation Construction	Tracked excavator Low Loader

Construction Activity	Plant/Equipment
	Telescopic handler Continuous flight auger piling Wheeled mobile crane Hand-held welder (welding piles) Generator for welding Gas cutter (cutting top of pile) Mobile telescopic crane Lifting platform Site lift for workers Diesel generator Piling Rig (if piles are used)
Overhead Inter-Array Connection Construction	Excavator Tractor Tensioner Mobile Elevated Working Platform Crane
Underground Inter-Array Connection Construction	Excavator JCB Dumper Truck Cable Winch Cable Handling Equipment Cable Engine Horizontal Directional Drill
Construction of pylons and Construction of Cable Sealing End Compounds	Low Loader Telehandler Skip Wagon Grab Wagon

Construction Activity	Plant/Equipment
	Tractor and Trailer Hiab (crane) Truck Flat Bed Truck Tipper Truck Cement Mixer Truck Medium Crane (100T) Large Crane (250T) Excavator JCB Dumper Truck Erecting / Pilot Winch and Winch Tractor Conductor and Earthwire Winch / Tensioner Piling Rig (if piles are used) Mobile Elevated Working Platform
Horizontal Directional Drill and associated plant and equipment	Excavator JCB Dumper Truck Cable Winch Cable Handling Equipment Cable Engine Horizontal Directional Drill HGV based Cable Test Equipment
Construction of Compounds and Construction Access Tracks	Grab Wagon Tipper Truck Dumper Truck Skip Wagon Small Crane (50T)

Construction Activity	Plant/Equipment
	Road Sweeper Fuel Tanker Excavator JCB Dumper Truck Grader Compactor / Roller Tele-Handler Post / Pile Ram Tractor and Auger Bulldozer

Soil Management

2.10.48. All works requiring the disturbance of soils would be undertaken in accordance with the measures set out within the **Outline Soil Management Plan** (Doc Ref. 7.14), submitted with the DCO Application.

2.10.49. There would be no Site wide reprofiling required; however, there may be a need to level some areas within the Site. This is unlikely to create excess spoil that would need to be taken off-site. Limited soil material would be excavated from cable trenches, temporary compounds, internal roads, BESS and substation compounds, solar stations and CSECs. During construction, the soil would be stored temporarily within designated areas. The soil would be utilised to backfill the cable trenches, reinstate the temporary construction compounds and any temporary access roads. Any excess soil would be utilised across the Scheme.

2.10.50. All bunding is to be constructed from suitable impermeable material, which may include soil from the Site, however, this is to be confirmed through geo-technical testing at detailed design.

Construction Lighting

2.10.51. During winter months, mobile lighting towers would be used during construction. Lighting of the compound area is also anticipated to be included during the construction period. Measures to minimise light spill off-site are described within the **OCEMP** (Doc Ref. 7.10).

Water Consumption

2.10.52. The anticipated need for water during construction would be for use in piling, compounds, effective dust and particulate matter suppression, washing and cleaning, concrete production, concrete curing, internal road construction works and for construction workers use. It is anticipated that any concrete required for the construction would be obtained from a local batching plant.

2.10.53. During construction, the provision for water supply would be from commercial sources with dedicated clean water tanks provided to supply the various temporary welfare facilities. It is not proposed that water supply is drawn from mains water for the construction of the Scheme, unless otherwise agreed by Anglian Water (mains water supplier).

Waste

2.10.54. All management of waste would be in accordance with the relevant regulations and waste would be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them. The **Outline Site Waste Management Plan (OSWMP)** (Doc Ref. 7.19) sets out principles for the management of construction waste.

2.10.55. The impact of waste from the Scheme on local waste management infrastructure has been assessed within **ES Chapter 16: Other Environmental Topics** (Doc Ref. 6.1).

Outline Construction Environmental Management Plan

2.10.56. An **OCEMP** (Doc Ref. 7.10) has been prepared to support the DCO Application. This describes the framework of mitigation measures to be followed during construction to manage the environmental effects of construction activities. The CEMP covers but is not limited to the following topics:

- Agriculture and soils;
- Air quality;
- Climate change;
- Cultural heritage;
- Ecology and biodiversity;
- Human health;

- Hydrology and flood risk;
- Landscape and visual;
- Noise and vibration;
- Traffic and access; and
- Waste.

2.10.57. The detailed CEMP would be produced by the Contractor following granting of the DCO and prior to the start of construction (in accordance with Requirement 12 attached to the **Draft DCO** (Doc Ref. 3.1)). The CEMP would identify the procedures to be adhered to and managed by the Contractor throughout construction.

2.10.58. Contracts with companies involved in the construction works would incorporate environmental control, health and safety regulations, and current guidance and will ensure that construction activities are sustainable and that all contractors involved with the construction stages are committed to agreed best practice and meet all relevant environmental legislation including (but not limited to): Control of Pollution Act 1974 (COPA), Environment Act 1995[14], Hazardous Waste Regulations 2005 (as amended)[15] and the Waste (England and Wales) Regulations 2011[16].

[14] HMSO (1995). Environment Act 1995. Available at: https://www.legislation.gov.uk/ukpga/1995/25/contents [Accessed 03/10/2025]
[15] HMSO (2005). Hazardous Waste Regulations 2005 (as amended). Available at: https://www.legislation.gov.uk/uksi/2005/894/contents/made [Accessed 03/10/2025]
[16] HMSO (2011). Waste (England and Wales) Regulations 2011. Available at: https://www.legislation.gov.uk/uksi/2011/988/contents/made [Accessed 03/10/2025]

2.11. Operational Phase

Operational Maintenance

2.11.1. The operational phase of the Scheme would last for 40 years. Activity during the operational phase would be minimal and would be restricted principally to vegetation management, maintenance and servicing of infrastructure, replacement and renewal of any components (where required), inspection, and monitoring to ensure the continued effective operation of the Scheme. Maintenance and safety inspections of all Scheme infrastructure would be carried out by the Undertaker or an appointed contractor.

2.11.2. In addition, it is anticipated that annual inspections of the Inter-Array Connections and Grid Connection Route would be completed from the ground or by air (e.g. by drone or helicopter) to identify any visible faults or signs of wear. Inspections would include the identification of vegetation growth or development that has occurred that may either risk infringing clearances or could compromise the integrity of the assets.

2.11.3. Indicative design lives of Scheme components are provided within Table 2-5, to indicate the likely frequency for the replacement of Scheme's components. Any replacement of equipment would be undertaken in accordance with the **Outline Operational Environmental Management Plan** (OOEMP) (Doc Ref. 7.11).

Table 2-5: Scheme Component Replacement Assumptions

Scheme Component	Indicative Design Life
Solar Development Area	
Solar Panels	25 to 40 years
Inverters	15 to 20 years
Racking and Mounting Systems	25 to 40 years
Transformers	25 to 40 years
Monitoring and Control Systems	15 years to 20 years
Batteries	10 to 15 years
DC/DC Converters	10 years to 15 years
Meteorological Systems	10 to 15 years
Substation Equipment	30 to 40 years
Communication Equipment	10 to 15 years
Grid Connection Route	
CSEC	25 to 40 years

Scheme Component	Indicative Design Life
Underground cable	25 to 40 years
Pylon Foundations	Replacement not required
Pylon Structures	Replacement not required
Overhead Line Insulators & Fittings	25 to 40 years
Overhead Line Conductors	25 to 40 years
Vibration Dampers & Spacers	20 to 30 years

Operational Water Use

2.11.4. The water supply for the office facilities at the On-Site Substation Compounds would either be tankered in or come from the mains supply, where agreed with Anglian Water. Whether it comes from the mains supply or tankered in, it would be disposed to a cess pit emptied by specialist licenced contractor. It is assumed that the Scheme would require 90 litres of water per person per day for up to 10 employees.

2.11.5. There would also be a requirement once a year for the washing of the solar panels. This would use clean water with no added chemicals, sourced from local potable water suppliers. It is assumed that 3m^3 of water will be required for the washing of every 1,000 panels. This would equate to approximately 3,386m^3 of water being required per year to wash the panels. Water supply for panel cleaning would be delivered to the Site from third party suppliers, using clean water with no added chemicals, and will not lead to any significant pollution risk. This will not put stress on local water supply.

2.11.6. Furthermore, during operation self-contained portable welfare units which store foul/wastewater for collection/emptying by specialist licenced contractors would be deployed on an ad hoc basis (e.g. if required by maintenance crews) at the further reaching sites where the use of the facilities at the On-Site Substation Compounds is not feasible.

Operational Traffic and Access

2.11.7. Operational access would be taken from the access locations listed in Table 2-2 and shown on **ES Figure 2-5: Construction, Operational and Decommissioning Accesses** (Doc Ref. 6.2). Furthermore, existing farm accesses along the Grid Connection Route may be used infrequently for the purposes of completing annual inspections and minor maintenance works.

2.11.8. During the operational phase, it is anticipated that the Scheme would be manned by a nominal number of staff across the Solar Development Area (10 full time equivalent (FTE) staff), predominantly undertaking maintenance tasks. In addition, there is expected to be approximately 5 visitors per week (equating to 1 per day) for deliveries. As a worst-case scenario, this would generate up to 11 vehicles (22 two-way movements) per day. These may be four-wheel drive vehicles, HGVs or transit vans for maintenance.

2.11.9. Replacement of infrastructure is expected to generate up to a maximum of 40 HGVs (or 80 two-way HGV movements) per day, and up to 75 staff car trips (150 two-way movements) per day. AILs would only be needed in the unlikely scenario of a complete transformer failure, where whole replacement would be required. This is considerably lower than the level of vehicle trips generated during the peak construction phase, equating to approximately 20% of both the HGV and LGV/car movements generated during peak construction of the Solar Development Area and Grid Connection Route.

Outline Operational Environmental Management Plan

2.11.10. An **Outline Operational Environmental Management Plan (OOEMP)** has been produced as part of the DCO Application (Doc Ref. 7.11) to demonstrate how any mitigation and management measures during the operational phase will be implemented. It also sets out the monitoring and auditing activities designed to ensure that such mitigation measures are carried out, and that they are effective. Compliance with the **OOEMP** (Doc Ref. 7.11) would be secured by Requirement 13 of the **Draft DCO** (Doc Ref. 3.1).

Outline Battery Safety Management Plan

2.11.11. An **Outline Battery Safety Management Plan (OBSMP)** (Doc Ref. 7.18) has been prepared to support the DCO Application. This sets out the parameters for the management of fire risk associated with the BESS. This management plan will form the basis for the preparation of a fully detailed fire safety management plan at a detailed design stage to ensure the delivery of a robust fire safety strategy in relation to the BESS and is secured by Requirement 6 of the **Draft DCO** (Doc Ref. 3.1). The key principles with respect to the approach to risk mitigation contained within the **OBSMP** (Doc Ref. 7.18) are as follows:

- Fire safety design measures incorporated into the Scheme;
- Guards and protective devices such as BESS disconnection and shutdown controls;
- Information and training for end users; and

- Risk mitigation and control measures including cell manufacturing, transport, installation and decommissioning, fire compartmentation and fire service accessibility, fire detection, fire suppression, ventilation, cooling and heating and drainage.

2.11.12. BESS units would have automatic fire detection systems in place along with fire suppression systems. Water storage tanks and hydrants would be provided to have a storage volume to allow a discharge rate of approximately 1,500 litres per minute over a 4-hour period.

2.11.13. In the case of an incident, fire water would be contained within the attenuated subbase of the gravel compound by a penstock valve to be pumped out and disposed of off-site by a specialist contractor to ensure the surrounding area is not polluted. The specific measures to suppress fire would depend on the type of BESS that is selected for the Scheme at detailed design stage.

2.11.14. The detailed Outline Battery Safety Management Plan would be developed in liaison with the Lincolnshire Fire and Rescue Service (LFR) in line with National Fire Chiefs Council's (NFCC) guidance. The LFR would be engaged throughout the preparation of the plan. This would comprise an initial site visit by the LFR, the development of technical rescue plans, a fire and explosion design as well as an annual inspection by the LFR.

Outline Landscape and Ecology Management Plan

2.11.15. An **OLEMP** (Doc Ref. 7.16) has been prepared to support the DCO Application. This document sets out the principles for how the land would be managed throughout the operational phase following the completion of construction. A detailed LEMP would be produced following the granting of the DCO and prior to the start of construction (this is secured by Requirement 7 of the **Draft DCO** (Doc Ref. 3.1)).

2.12. Decommissioning Phase

2.12.1. The decommissioning of the Scheme is anticipated take up to approximately 24 months. Upon the start of the decommissioning phase, it is assumed for the purposes of the ES assessment that all above-ground physical infrastructure would be dismantled and removed from the Solar Development Area, Inter-Array Connections and Grid Connection Route. This would include the removal of all PV panels, mounting poles, solar stations, substations, BESS, 400kV overhead line and pylons, CSECs, 132kV overhead line and poles. In addition, below ground infrastructure, such as concrete foundations to these elements, would be removed to a depth agreed with the relevant landowner from the area within the Order Limits and recycled or disposed of in accordance with good practice and market conditions at that time.

2.12.2. The mode of any underground cable decommissioning would be dependent upon Government policy, best practice and landowner agreement at that time. If required, the cables can be removed by opening the ground at regular intervals and pulling the cable through to the extraction point, avoiding the need to open up the entire length of the cable route.

2.12.3. Any new permanent crossings would be reinstated following decommissioning, subject to landowner agreement. Existing crossings, which have been upgraded, would be left in-situ.

2.12.4. Land within the Order Limits would be returned to the relevant landowners once the decommissioning phase has been completed. This would include the areas of land where the agricultural resource has been maintained during operation, alongside any established habitats. Post-decommissioning, the landowner will decide upon the use of the land. This would be considered out of the Applicant's control and therefore a worst-case scenario has been applied and defined per topic chapter.

2.12.5. All infrastructure removed from the Site would be recycled or disposed of in accordance with good practice and taking lessons learnt from schemes of a similar size and nature. The Scheme would apply the waste hierarchy and, where practicable, look to prevent, re-use or recycle waste. Any waste created through the decommissioning phase would be required to be removed from the Site and disposed of in line with the lawful requirements at the time.

2.12.6. Areas of habitat and biodiversity mitigation and enhancement, as well as the permissive path delivered as part of the Scheme, would be returned to the landowners. Following this, the landowners would choose how the land is to be used and managed. The drainage of the land within the Scheme would be checked and grassed after decommissioning. Should any agricultural drains be altered or removed, they would be restored such that agricultural activities could continue after decommissioning of the Scheme.

2.12.7. For the purposes of the ES, it is assumed that decommissioning vehicles would utilise the same points of access as identified for construction. The effects of decommissioning are often similar to, or of a lesser magnitude than construction effects, considered in the **ES Chapters 5 to 17** (Doc Ref. 6.1).

2.12.8. An **Outline Decommissioning Environmental Management Plan (ODEMP)** (Doc Ref. 7.12) has been produced as part of the DCO Application to demonstrate how environmental mitigation and management measures would be implemented during decommissioning. It also sets out the monitoring and auditing activities designed to ensure that such mitigation measures are carried out, and that they are effective. Compliance with the **ODEMP** (Doc Ref. 7.12) is secured by Requirement 21 of the **Draft DCO** (Doc Ref. 3.1).