



Frodsham Solar

Design Parameters Statement

March-April 2026

PINS Ref: EN010153

Document Ref: EN010153/DR/7.1

**Planning Act 2008; and Infrastructure Planning (Applications:
Prescribed Forms and Procedure) Regulations Regulation 5(2)(q)**



Revision **P05P06**

Document Control

Revision	Date	Prepared By	Reviewed / Approved By
P01	May 2025	A Russell	D Adams
P02	December 2025	A Russell	D Adams
P03	January 2026	J Barton	A Russell
P04	March 2026	J Barton	A Russell
P05	March 2026	J Barton	A Russell
P06	April 2026	J Barton	A Russell

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CONTENTS

1.0	INTRODUCTION.....	1
1.1	Introduction	1
1.2	Design Parameters	2
1.3	Control Documents	6
2.0	DESIGN PARAMETER TABLES	8

TABLES

Table 1: Design Parameters for Work No. 1	8
Table 2: Design Parameters for Work No. 2A & 2B.....	11
Table 3: Design Parameters for Work No. 3A & 3B.....	13
Table 4: Design Parameters for Work No. 4A & 4B.....	<u>1514</u>
Table 5: Design Parameters for Work No. 5	<u>1645</u>
Table 6: Design Parameters for Work No. 6	<u>1746</u>
Table 7: Design Parameters for Work No. 7	<u>1847</u>
Table 8: Design Parameters for Work No. 8	<u>1948</u>
Table 9: Design Parameters for Ancillary Works	<u>2049</u>

1.0 INTRODUCTION

1.1 Introduction

- 1.1.1 This Design Parameters Statement (the ‘Statement’) has been prepared to accompany the Development Consent Order (DCO) application for Frodsham Solar (the ‘Proposed Development’).
- 1.1.2 This Statement provides the parameters for the detailed design of the Proposed Development and is secured by Requirement 4 of the **draft DCO [EN010153/APP/3.1]**. When the detailed design is submitted for approval to the relevant planning authority, it must be in accordance with the design parameters set out in this Statement. In this way, the Statement supports the DCO application by defining the envelope of the Proposed Development’s design, which in turn underpins the assessments reported in the Environmental Statement (ES).
- 1.1.3 Flexibility at the detailed design stage of the Proposed Development is necessary to account for ongoing technological advances in solar photovoltaic (PV) and Battery Energy Storage System (BESS) technology. These technologies are rapidly evolving, and the Proposed Development seeks to allow for innovation and improvements that may arise by the time of procurement and construction. By securing only the key design parameters in the DCO (rather than a fixed detailed design), the Proposed Development can incorporate new technology post-consent without undermining the consent or requiring amendments.
- 1.1.4 This necessary flexibility is facilitated by adopting the ‘Rochdale Envelope’ approach in the Environmental Impact Assessment (EIA) for the Proposed Development. Under the Rochdale Envelope, the **ES [EN010153/DR/6.1/6.2/6.3]** has assessed the reasonable maximum parameters and “worst-case” scenarios for the Proposed Development, thereby defining a design envelope within which the project can vary. By

requiring the eventual detailed design to stay within these established parameters, the environmental effects of the built Proposed Development would be the same as, or not materially worse, than those evaluated in the ES.

1.2 Design Parameters

- 1.2.1 The Proposed Development is defined in Schedule 1 of the **draft DCO [EN010153/APP/3.1]**, which sets out the different components of the development as specific “Work Nos.” corresponding to areas shown on the **Works Plan [EN010153/APP/2.2]**.
- 1.2.2 Each Work Number delineates a part of the project with distinct elements or activities, and these work areas align with the description of the Proposed Development in the ES (see **ES Volume I, Chapter 2: The Proposed Development [EN010153/APP/6.1]** for the full project description). For the purposes of EIA, the design parameters in this Statement reflect the maximum extents for each of these works, ensuring that all components of the Proposed Development remain within the assessed envelope of effects.
- 1.2.3 Reference should be made to Schedule 1 of the **draft DCO [EN010153/APP/3.1]** for the elements of development authorised by the DCO. However, these have been summarised in the following paragraphs.
- 1.2.4 **Work No. 1 – Solar PV Generating Station:** Work No. 1 comprises a ground-mounted solar photovoltaic generating station with a gross electrical output capacity of over 50 megawatts. This includes the solar PV arrays (modules mounted on frames with foundations or piles), inverters, transformers, switchgear, and associated electrical and communication cabling. Work No. 1 constitutes the Nationally Significant Infrastructure Project (NSIP) under Sections 14(1)(a) and 15(2) of the Planning Act 2008. All design parameters for the solar array infrastructure (e.g. maximum module height and arrangement) are secured through this Design Parameters Statement (see

Table 1 in Section 2) to ensure the detailed design remains within the assessed Rochdale Envelope.

1.2.5 **Work No. 2 – Battery Energy Storage System (BESS):** Work No. 2 covers the BESS compound. Two options for the BESS compound are provided (**Work No. 2A and Work No. 2B**) to retain optionality for the final detailed design, although only one would ever be built. Each BESS area includes multiple battery storage units (containers), power conversion system (PCS) transformers, switchgear and control rooms, concrete foundations and piling, internal access and parking areas, security infrastructure (fencing, CCTV cameras, lighting, etc.), and drainage infrastructure (including bunding, firewater storage tanks and suppression systems). The principal dimensions and layout of the BESS components are controlled by the design parameters in Table 2. However, certain safety elements of the BESS are governed by specific management plans rather than this Statement. In particular, the fire safety infrastructure and measures for the BESS (including the design of firewater storage and suppression systems) are secured through the **outline Battery Safety Management Plan [EN010153/DR/7.8]**.

1.2.6 **Work No. 3 – Onsite Substation Compound:** Work No. 3 consists of the on-site substation (referred to as the “Frodsham Solar Substation”) and its associated facilities. Two options for the Onsite substation compound are provided (**Work No. 3A and Work No. 3B**) to retain optionality for the final detailed design, although only one would ever be built. Work No. 2A and Work No. 3A could be constructed adjacent to each other or Work No. 2B and Work No. 3B could be constructed adjacent to each other. However, it would not be permitted for Work No. 2A to be constructed with Work No. 3B or Work No. 2B with Work No. 3A. Each substation compound will contain electrical equipment required to enable export of power to the grid, including substation infrastructure (busbars and electrical apparatus), switchroom buildings, control buildings with electrical control equipment, staff welfare facilities and small workshops/stores, as well as supporting infrastructure such as internal

access, parking, security fencing and lighting, and drainage facilities (e.g. interceptor drains or bunds for transformer areas). The substation compounds are part of the project's associated development and their key dimensions (e.g. the footprint of buildings or maximum heights of equipment) are governed by the design parameters set out in Table 3.

1.2.7 Work No. 4 – Grid Connection to SPEN Substation: Work No. 4 comprises the electrical connection works linking the Frodsham Solar on-site substation (Work No. 3) to the existing SP Energy Networks (SPEN) Frodsham Substation, as well as provision for a private wire connection to local industrial consumers. Work No. 4 is divided into two parts. **Work No. 4A** covers the main grid connection to the SPEN substation, including the installation of new 132 kV electrical circuits. This is expected to involve both below-ground and above-ground elements, and works within the SPEN Frodsham Substation to facilitate the connection. **Work No. 4B** covers the laying of underground 132 kV cables from the on-site substation to facilitate potential future connections to nearby businesses. The design of any electrical infrastructure in Work No. 4 (such as the overhead pylons) is restricted by the parameters in Table 4.

1.2.8 Work No. 5 – On-site Electrical Connections: Work No. 5 comprises the installation of electrical and communication cables connecting the various on-site components of the Proposed Development. This includes the cabling between the solar PV arrays (Work No. 1) and the on-site substation (Work No. 3), between the BESS (Work No. 2) and the on-site substation, and between the solar PV arrays and the BESS. These connections will be via buried cables (and associated cable trenches, ducts or conduits) primarily along internal routes within the solar farm site. Work No. 5 is also part of the associated development and is mostly linear infrastructure with minimal above-ground presence (aside from marker posts or small link boxes). The design of the on-site electrical connections (such as the dimensions of the trenches) is restricted by the parameters in Table 5.

- 1.2.9 **Work No. 6 – Green Infrastructure and Habitat Areas:** Work No. 6 encompasses the works to create, enhance, and maintain green infrastructure within the Order Limits. This includes measures such as planting of native hedgerows, trees and grassland, creation of new habitats, installation of ecological enhancements (such as bird nesting and bat roost features), and specific habitat mitigation areas for wildlife. In particular, Work No. 6 includes the establishment of a Non-Breeding Bird Mitigation Area (NBBMA) and dedicated Skylark breeding plots, as well as visitor amenities like permissive paths, viewing areas, bird hides, signage, and a potential small car parking area to facilitate public access to the Site. The parameters and management prescriptions for these landscaping and ecological works are not governed by this Statement, but instead by the commitments in the **outline Landscape and Ecological Management Plan (oLEMP) [EN010153/DR/7.13]**. The oLEMP sets out how habitats will be created and managed (e.g. planting densities, species mixes, maintenance regimes, etc.) in line with the EIA assumptions. Because Work No. 6 is controlled through the oLEMP and related requirements (ensuring these enhancements are delivered as specified), the detailed elements of the green infrastructure and habitat creation are not included in Table 6 of this Design Parameters Statement.
- 1.2.10 **Work No. 7 – Construction and Decommissioning Compounds:** Work No. 7 consists of the temporary construction and decommissioning compounds required for the project. These are areas within the Site that will be used during the construction phase (and again during decommissioning) for site offices, worker welfare facilities, equipment storage, laydown of materials, construction vehicle parking and turning, and other construction support activities. The design and scale of the compounds is restricted by the parameters in Table 7.
- 1.2.11 **Work No. 8 – Access and Highway Works:** Work No. 8 comprises the works to create and improve access to the Site, including upgrades to existing roads

or tracks and construction of new access points or short access roads where needed. The access and highway improvement works shall be constructed in accordance with the parameters in Table 8 and the controls established via the following management plans; the **outline Construction Traffic Management Plan [EN010153/DR/7.4]**, **outline Public Right of Way Management Plan [EN010153/DR/7.9]**, and the outline environmental management plans for each phase of the Proposed Development **[EN010153/DR/7.5 / 7.6 / 7.7]**.

1.2.12 **Further Associated Development:** In addition to the specific Works described above, Schedule 1 of the Draft DCO lists further ancillary development that may be undertaken in connection with Work Nos. 1 to 8. This ancillary development (described in the final part of Schedule 1 of the **draft DCO [EN010153/DR/3.1]**) includes items such as minor access tracks, temporary footpath diversions, trenching works for cables, drainage infrastructure, security fencing, and other construction-related activities necessary to deliver the project. These items are broadly defined and may occur across the Order Limits as required, but only insofar as they do not give rise to any materially new or worse environmental effects than those assessed.

1.3 Control Documents

1.3.1 While the design parameters table secures the physical envelope of the main components, the construction, operation, and decommissioning of the Proposed Development will be governed by a suite of detailed management plans. These control documents form part of the Application and are secured by requirements in Schedule 2 of the **draft DCO [EN010153/DR/3.1]**, to be approved by the local planning authority in consultation with named organisations. They ensure that, for aspects not fixed by design parameters, the project will nonetheless be carried out in accordance with agreed best-practice measures and limits. The key plans and strategies include:

- **Outline Construction Traffic Management Plan [EN010153/DR/7.4];**
- **Outline Construction Environmental Management Plan [EN010153/DR/7.5];**
- **Outline Operational Environmental Management Plan [EN010153/DR/7.6];**
- **Outline Decommissioning Environmental Management Plan [EN010153/DR/7.7];**
- **Outline Battery Safety Management Plan [EN010153/DR/7.8];**
- **Outline Public Rights of Way Management Plan [EN010153/DR/7.9];**
- **Outline Soil Management Plan [EN010153/DR/7.10];**
- **Outline Skills, Supply Chain and Employment Plan [EN010153/DR/7.11];** and
- **Outline Landscape and Ecological Management Plan [EN010153/DR/7.13], including the Non Breeding Bird Mitigation Strategy provided as Appendix B.**

1.3.2 All of these control documents – for construction, operation, and decommissioning – work in tandem with the design parameters in Table 1 to ensure that every aspect of the Proposed Development’s design and implementation is properly regulated and consistent with the environmental envelope assessed in the ES.

2.0 DESIGN PARAMETER TABLES

Table 1: Design Parameters for Work No. 1

Work No. 1 - a ground mounted solar photovoltaic generating station with a gross electrical output capacity of over 50 megawatts including: <ol style="list-style-type: none"> a. solar PV modules fitted to mounting structures and associated foundations; b. inverters; c. transformers; d. switchgear; and e. electrical and communication cables. 		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 1	Location	The ground mounted solar photovoltaic generating station will be located as shown as Work No. 1 on the Works Plans [EN010153/DR/2.3] .
Solar PV Modules and mounting structure	Scale	The maximum height of the highest part of the solar PV modules would be 4m Above Existing Ground Level (AEGL) within Solar PV Array Areas B01 – B018, and C01 – C06 and 3.5m AEGL within Solar PV Array Areas A01 – A06 (see ES Vol 3 Figure 2-2: Indicative Operational Site Layout [EN010153/DR/6.3] for Solar PV Array Areas)
	Scale	The minimum height of the lowest part of the PV modules would be 0.8m AEGL. Within Solar PV Array Areas B01 – B018, and C01 – C06 the minimum height of the lowest part of the PV modules would be set at 6.52m Above Ordnance Datum (AOD) (see ES Vol 3 Figure 2-2: Indicative Operational Site Layout [EN010153/DR/6.3] for Solar PV Array Areas).
	Design	<p>The solar PV modules will slope towards the south, at a fixed angle of 10 to 35 degrees from horizontal.</p> <p>The solar PV modules within Solar PV Array Areas A02, A04, and the blue shaded extent of Area A05 shown in Figure 1 of this statement, will slope towards the south at a fixed angle that differs by +/- five degrees from the angle of the panels in Areas A01, A03, A06, and the white shaded extent of A05 shown in Figure 1 of this statement, but still within the overall 10 to 35 degrees limitation set out above.</p> <p>(see ES Vol 3 Figure 2-2: Indicative Operational Site Layout [EN010153/DR/6.3] for Solar PV Array Areas).</p>

	Design	The solar PV modules would be orientated with an azimuth angle of between 180° and 210°. The angle would be up to 200° within Solar PV Array Areas B15.2, B15.3 and C05; 205° within Solar PV Array Areas C02, C04, C06; and 210° within Solar PV Array Area B18 (see ES Vol 3 Figure 2-1). In the remaining Solar PV Array Areas the solar PV modules would be orientated with an azimuth angle of between 180° (see ES Vol 3 Figure 2-2: Indicative Operational Site Layout [EN010153/DR/6.3] for Solar PV Array Areas).
	Design	The solar PV modules would be monofacial or bifacial.
	Design	The solar PV modules will have an anti-reflective coating.
	Design	The mounting structure for the solar PV modules would be a metal frame.
	Scale	The minimum spacing gap between consecutive rows of solar PV modules would be 2m.
	Design	The mounting structures will either be piled into the ground or fixed to concrete footings. The maximum depth of concrete footings or piles would be 5m Below Existing Ground Level (BEGL).
	Design	The solar panels must be no more than 3.1m in height where they are located under 132kv overhead lines owned by SP Energy Networks and 2.2m in height where they are located under 33kv overhead lines owned by SP Energy Network.
String Inverters	Design	String inverters mounted to the rear of solar PV modules on the solar PV module support frames.
	Scale	For string inverters, the maximum parameters would be 1.5m length x 1m high x 0.5m deep.
	Design	Mounted to sit a minimum height of 0.8m A EGL. Within Solar PV Array Areas (see ES Vol 3 Figure 2-1) B01 – B018, and C01 – C06 the minimum height of the lowest part of the string inverters would be 6.52m AOD.
Transformers/d Switchgear and	Design	Containerised standalone transformer/ switchgear and standalone inverter containers

Containerised Inverters (if not combined into PCU)	Scale	<p>Max footprint of 6.5m by 2.5m and a max height of 3m</p> <p>Within Solar PV Array Areas (see ES Vol 3 Figure 2-1) B01 – B018, and C01 – C06 the floor of the electrical units supporting the transformers / switchgear and inverters would be no lower than 6.52m AOD.</p>
	Design	<p>The maximum depth of foundations and any below ground components would be 4m Below Existing Ground Level (BEGL).</p>
Combined Power Conversion Unit (PCU) comprising inverter, transformer and switchgear	Design	<p>Combined PCU within a single housing comprising a combination of an inverter, transformer and switchgear.</p>
	Scale	<p>Max footprint of 12.2m by 2.5m and a max height of 3.0m.</p> <p>Within Solar PV Array Areas (see ES Vol 3 Figure 2-1) B01 – B018, and C01 – C06 the floor of the PCU would be no lower than 6.52m AOD.</p>
	Design	<p>The maximum depth of foundations and any below ground components would be 4m BEGL.</p>
Onsite cabling (between PV modules and inverters)	Design	<p>Low voltage onsite electrical cabling is required to connect the PV modules to inverters (typically 1.5/1.8 kV cables) and the inverters to the transformers onsite (typically 0.6/1 kV cables). Cabling would be above ground level between the PV modules. These would be fixed to the mounting structure along the row of racks. Cabling between the PV modules and inverters would be buried within underground trenches with cables placed within conduits.</p>
	Scale	<p>Maximum dimensions of underground trenches would be 1.2m deep and 1.2m wide.</p>
Combiner boxes	Scale	<p>The maximum parameters would be 0.55m x 0.65m x 0.26m and would be installed onto the solar PV module mounting structure</p>

Table 2: Design Parameters for Work No. 2A & 2B

Work No. 2A & 2B - works in connection with a Battery Energy Storage System (BESS) including		
<ul style="list-style-type: none"> a. battery storage units (BSU); b. transformer / power conversion system (PCS) units and ancillary equipment; c. switchgear and control room; d. reinforced concrete foundation slab; e. concrete piling; f. car parking and access roads; g. works for the provision of security and monitoring measures such as CCTV columns, cameras, lighting columns and lighting, weather stations, communication infrastructure, perimeter fencing; h. drainage infrastructure including bunds; and i. firewater storage and suppression systems. 		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 2A & 2B	Location	The Battery Energy Storage System (BESS) will be located as shown as Work No. 2A & Work No. 2B on the Works Plans [EN010153/DR/2.3] .
Battery Energy Storage System (BESS) compound	Scale	The BESS compound will include up to a maximum 200 battery storage containers, 25 transformer / power conversion system (PCS) units, switchgear room, firewater storage tank or tanks and ancillary infrastructure including access tracks and parking.
	Scale	No component of the BESS compound will exceed 4.5m in height A EGL.
Battery Storage Units	Scale	Dimensions of each BSU will have a maximum footprint of 12.5 m by 3.5 m and a maximum height of 3 m.
Transformer / power conversion system (PCS)	Scale	Dimensions of transformer / power conversion systems (PCS) unit will have a maximum footprint of 12.5 m by 3.5 m and a maximum height of 3 m.
Switchgear and Control Room	Scale	Dimensions of the switchgear room will have a maximum footprint of 20 m x 4.5 m and a maximum height of 3 m.
Fire suppression system	Scale	The BESS will incorporate fire detection and suppression measures including adequate provision for water storage to provide a minimum supply of 1,900 litres per minute for 2 hours. This may comprise tanks up to 4.5m in height.

Foundations	Design	The foundations for structures within the BESS compound will comprise a concrete base or monolith plinth with a maximum depth of 4m BEGL.
Onsite cabling (between battery containers and inverters)	Design	Cabling between batteries and inverters would be above ground in cable trays or laid in an underground trench.
	Scale	Maximum dimensions of underground trenches would be 1.2m deep and 1.2m wide.
<u>Access roads and carparking</u>	<u>Design</u>	<u>Internal access roads would be tarmac, concrete or similar.</u>
<u>Fencing</u>	<u>Design and Scale</u>	<u>Fenced with galvanised palisade security fencing. The fencing would be at a maximum height of 2.4 m.</u>
<u>CCTV and lighting</u>	<u>Design</u>	<u>CCTV lighting will be infrared (not visible) during hours of darkness.</u>
	<u>Design</u>	<u>No lighting will be permanently operated. If required, any visible lighting will be operated by a manual switch or by a motion detection system and only used in fault or emergency situations.</u>
	<u>Scale</u>	<u>CCTV towers will not exceed 4m in height.</u>
	<u>Scale</u>	<u>Lighting towers will not exceed 4m in height.</u>

Table 3: Design Parameters for Work No. 3A & 3B

Work No.3A & 3B – works in connection with an onsite substation including— a. substation; b. switch room buildings; c. electrical control equipment; d. control building; e. storage areas; f. welfare facilities; g. offices; h. workshop; i. store; j. car parking and access roads; k. works for the provision of security and monitoring measures such as CCTV columns, cameras, lighting columns and lighting, weather stations, communication infrastructure, perimeter fencing; and l. drainage infrastructure including bunds.		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 3A & 3B	Location	The onsite substation will be located as shown as Work No. 3A & Work No. 3B on the Works Plans [EN010153/DR/2.3] .
Frodsham Solar Substation (overarching parameters)	Scale	The maximum footprint of the Frodsham Solar Substation would be a maximum of 1.5ha.
Buildings	Scale	The maximum footprint of the ancillary buildings (i.e. a structure with a roof and wall) which form part of the Frodsham Solar Substation would be 950m ² with a maximum height of 8m A EGL.
Electrical equipment	Scale	The maximum height of the electrical infrastructure which form part of the Frodsham Solar Onsite Substation would be 13m A EGL.
Foundations	Design	The foundations for structures which form part of the Frodsham Solar Substation will comprise a concrete base or monolith plinth with a maximum depth of 3.5m BEGL.
<u>Access roads and carparking</u>	<u>Design</u>	<u>Internal access roads would be tarmac, concrete or similar.</u>
<u>Fencing</u>	<u>Design and Scale</u>	<u>Fenced with galvanised palisade security fencing. The fencing would be at a maximum height of 2.4 m.</u>

<u>CCTV and lighting</u>	<u>Design</u>	<u>CCTV lighting will be infrared (not visible) during hours of darkness.</u>
	<u>Design</u>	<u>No lighting will be permanently operated. If required, any visible lighting will be operated by a manual switch or by a motion detection system and only used in fault or emergency situations.</u>
	<u>Scale</u>	<u>CCTV towers will not exceed 4m in height.</u>
	<u>Scale</u>	<u>Lighting towers will not exceed 4m in height.</u>

Table 4: Design Parameters for Work No. 4A & 4B

Work No.4A – an electrical connection from Frodsham Solar Substation (Work No. 3) to Frodsham SPEN Substation including: <ol style="list-style-type: none"> above ground and below ground 132kV electrical and communication cables connecting Work No. 3 to the Frodsham SPEN Substation; pylons; and works to the Frodsham SPEN Substation to facilitate connection of the authorised development to the Frodsham SPEN Substation. 		
Work No.4B – works to lay underground 132/33kV electrical and communication cables from Frodsham Solar Substation (Work No.3) to nearby businesses.		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 4A & 4B	Location	Works to lay above and below ground electrical and communication cables will be located as shown as Work No. 4A & Work No. 4B on the Works Plans [EN010153/DR/2.3] .
Work No 4A - 132kV electrical cables to facilitate a connection from Work No. 3 to nearby businesses	Design	The cables would be laid below ground.
	<u>Design</u>	<u>The cables shall be designed to facilitate removal on decommissioning.</u>
	Scale	Maximum dimensions of underground trenches would be 1.2m deep and 1.2m wide.
	Scale	The 132/33kV Jointing Chambers would be up to 5m in length, by up to 3m in width x 3.5m in depth.
Work No.4B - 132kV electrical cables connecting Work No. 3 to Frodsham Substation	Design	The cables would be above ground supported on wooden poles up to 200m apart and below ground at the terminal connections to the substations.
	<u>Design</u>	<u>The cables shall be designed to facilitate removal on decommissioning.</u>
	Design	New electrical infrastructure associated with the Frodsham SPEN Substation would be located within the boundary of the existing compound and would not exceed the height of existing equipment located within the Frodsham SPEN Substation.
	Scale	Pylons will have a maximum height of 15m.
	Scale	Maximum dimensions of underground trenches would be 1.2m deep and 1.2m wide.

Table 5: Design Parameters for Work No. 5

Work No. 5 - Works including electrical cables and communication cables including: a. electrical and communication cables connecting Work No. 1 to Work No.3; b. electrical and communication cables connecting Work No. 2 to Work No.3; and c. electrical and communication cables connecting Work No. 1 to Work No.2.		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 5	Location	Works including electrical cables and communication cables will be located as shown as Work No. 5 on the Works Plans [EN010153/DR/2.3] .
Electrical cables and communication cables	Design	The cables will be laid below ground.
	<u>Design</u>	<u>The cables shall be designed to facilitate removal on decommissioning.</u>
	Design	The below-ground cables would not pass beneath hedgerows, trees or reedbeds and would be routed within tracks or areas of grassland.
	Design	No cables shall be laid within 8m of a main river fluvial flood defence or 16m of a main river tidal flood defence without prior approval of the Environment Agency.
	Scale	Maximum dimensions of underground trenches will be 1.2m deep and 1.2m wide.

Table 6: Design Parameters for Work No. 6

<p>Work No. 6 - Works to create, enhance and maintain green infrastructure, comprising:</p> <p>Work No. 6A— green infrastructure works including:</p> <ul style="list-style-type: none"> a. planting of native species hedgerows, individual trees and grassland; b. creation of open water habitats and reedbeds; c. improvements to existing public rights of way; d. creation of permissive paths; e. fencing, gates, boundary treatment and other means of enclosure; f. laying down of internal access tracks; g. improvement, maintenance repair and use of existing streets and private tracks; h. car park i. signage and information boards; j. bird hides and screens; k. benches; and l. viewing areas and bike stands. <p>Work No. 6B— works to create skylark habitat</p> <p>Work No. 6C— Works to create a Non-Breeding Bird Mitigation Area including:</p> <ul style="list-style-type: none"> a. earthworks including bunds, embankments, ground reprofiling, infilling of voids; b. creation of scrapes and waterbodies; c. water level management systems including sluices, pipework, pumps and associated control equipment; d. use of geotextiles or clay liners to retain water; and e. installation of predator control fencing. 		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 6A, 6B and 6C	Location	Works to create, enhance and maintain green infrastructure will be located as shown as Work No. 6A, Work No. 6B and Work No. 6C on the Works Plans [EN010153/DR/2.3] .
	Design	No engineering or earthworks operations that would involve disturbance of soils can be undertaken within 8m of a main river fluvial flood defence or 16m of a main river tidal flood defence.
<u>Car parking</u>	<u>Design</u>	<u>The car parking area constructed from compacted stone over an appropriate geotextile.</u>

Table 7: Design Parameters for Work No. 7

Work No. 7 - Works for the creation of construction and decommissioning compounds including: <ul style="list-style-type: none"> a. areas of hardstanding; b. car park; c. site and welfare offices, canteens and workshops; d. area to store materials and equipment; e. storage and waste skips; f. area for download and turning; g. security infrastructure, including cameras, perimeter fencing and lighting; h. site drainage and waste management infrastructure (including sewerage); and i. electricity, water, waste water and telecommunications connections. 		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 7	Location	Works for the creation of construction and decommissioning compounds will be located as shown as Work No. 7 on the Works Plans [EN010153/DR/2.3] .
Construction Compound	Design	Compounds constructed from compacted stone over an appropriate geotextile.
	Scale	Compounds up to 7500m ² in area
<u>Fencing</u>	<u>Design and Scale</u>	<u>Fenced with weldmesh or Heras style fencing galvanised palisade security fencing. The fencing would be at a maximum height of 2.4 m.</u>
<u>CCTV and lighting</u>	<u>Design</u>	<u>CCTV lighting will be infrared (not visible) during hours of darkness.</u>
	<u>Design</u>	<u>No lighting will be permanently operated. If required, any visible lighting will be operated by a manual switch or by a motion detection system and only used in fault or emergency situations.</u>
	<u>Scale</u>	<u>CCTV towers will not exceed 4m in height.</u>
	<u>Scale</u>	<u>Lighting towers will not exceed 4m in height.</u>

Table 8: Design Parameters for Work No. 8

Work No. 8 - Access and highway improvements and use, comprising works to create, improve, repair or maintain streets, roads, haul roads and access points.		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Work No. 8	Location	Access and highway improvements and use will be located as shown as Work No. 8 on the Works Plans [EN010153/DR/2.3] .
Access Tracks	Design	Access tracks will be constructed from permeable compacted stone over an appropriate geotextile unless an alternative specification is agreed pursuant to Requirement 6 of the DCO.
	Scale	Internal access tracks would have a maximum width of 6.3m.

Table 9: Design Parameters for Ancillary Works

In connection with and in addition to Work Nos. 1 to 8, further ancillary development comprising such other works or operations for the purposes of or in connection with the construction, operation, maintenance and decommissioning of the authorised development but only insofar as they are unlikely to give rise to any materially new or materially different environmental effects which are worse than those assessed in the environmental statement		
Component of Proposed Development	Parameter Type	Applicable Design Parameter
Access tracks	Design	Internal access tracks would be compacted stone over an appropriate geotextile.
	Scale	Internal access tracks would have a maximum width of 6.3m.
Construction Compound	Design	Compounds constructed from compacted stone over an appropriate geotextile.
	Scale	Compounds up to 7500m ² in area
Electrical cables and communication cables not included in Work No.1, No.4a, No.4b or No.5	Design	The cables will be laid below ground.
	Scale	Maximum dimensions of underground trenches will be 1.2m deep and 1.2m wide.
Fencing	Design and Scale	The Frodsham Solar Substation and BESS would be securely fenced with galvanised palisade security fencing. The fencing would be at a maximum height of 2.4 m.
	Design and Scale	Fencing around the Solar Array would be a stock proof mesh-type security fence with wooden posts up to 2.0 m in height, topped with barbed wire.
	Design and Scale	Standalone transformers and inverters would be surrounded by a secure wire mesh fence. This fence would be up to 2.4 m in height.
CCTV and lighting	Design	CCTV lighting will be infrared (not visible) during hours of darkness.
	Design	No lighting will be permanently operated. If required, any visible lighting will be operated by a manual switch or by a motion detection system and only used in fault or emergency situations.
	Scale	CCTV towers will not exceed 4m in height.
	Scale	Lighting towers will not exceed 4m in height.

Figure 1 – Solar Array Areas subject to variable slope angle parameters



Pink denotes the Solar PV Array Areas as shown on ES Vol 3 Figure 2-2: Indicative Operational Site Layout [EN010153/DR/6.3] - Area A04 and A02 will not be developed with solar arrays and will comprise part of the NBBMA (Work No. 6C).