



Botley West Solar Farm

Outline Layout & Design Principles

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1. Introduction and Summary

1.1 Introduction

1.1.1 This Outline Layout and Design Principles document ('OLDP') has been prepared to accompany the Development Consent Order ('DCO') Application for the Botley West Solar Farm ('the Project'). It provides the guiding principles for the detailed layout and design of the Project and is secured by a requirement in the draft DCO [EN010147/APP/3.1]. When the detailed design for the Project is submitted for approval to the relevant planning authorities, those details must accord with the layout and design principles set out in this OLDP.

1.1.2 Securing detailed layout and design matters post the grant of the DCO is necessary in order to achieve a development that responds effectively to its environment and to optimise the engineering and technological aspects of the infrastructure. That flexibility has been facilitated by the use of the 'Rochdale Envelope' approach in the Environmental Statement (ES). The Rochdale Envelope approach ensures the maximum parameters and likely worst case have been assessed, and that envelope is defined by the layout and design principles set out in this document.

1.2 Layout and Design Principles

1.2.1 The Project is described in Schedule 1 of the draft DCO [EN010147/APP/3.1]. The different components of the Project are divided into works packages which correspond with the work number areas shown on the **Works Plans** [EN010147/APP/2.3]. These Works will be subject to differing levels of development and/or management. The Works include one generating station with a generating capacity of over 50 MW which is the "*Nationally Significant Infrastructure Project*" (NSIP). For the purposes of the EIA, the Project is described in **ES Volume 1, Chapter 6: Project Description** [EN010147/APP/6.3].

1.2.2 Work No. 4 addresses works in connection with high voltage electrical cabling whilst Work No. 6 address works in connection with other cabling and general works powers that are applicable across the majority of the Site. The parameters for these works are addressed in the **Works Plans** [EN010147/APP/2.3], the **Cable Laying Methodology and Indicative HDD Crossing Locations Report** (Volume 3, Appendix 6.2 [EN010147/APP/6.5]), the **outline Written Scheme of Investigation (oWSI)** [EN010147/APP/7.6.5], the **outline Code of Construction Practise (oCOCp)** [EN010147/APP/7.6.1], and the **outline Landscape and Ecology Management Plan (oLEMP)** [EN010147/APP/7.6.3], and therefore these elements are not included in Table 1.1 of this document.

1.2.3 Work No. 5 addresses works in connection with sensitive archaeological site protection and management and are addressed in the **Works Plans** [EN010147/APP/2.3] and in the **outline Written Scheme of Investigation (oWSI)** [EN010147/APP/7.6.5] and in the **outline Landscape and Ecology**

Management Plan (oLEMP) [EN010147/APP/7.6.3] and therefore these elements are not included in Table 1.1 of this document.

1.2.4 Part of Work No. 4 and Work No. 7 addresses temporary construction and decommissioning compounds. The parameters for these temporary construction compounds are addressed in the **Works Plans [EN010147/APP/2.3]** and in the **outline Code of Construction Practise (oCOCp) [EN010147/APP/7.6.1]** and in the **Outline Decommissioning Plan [EN010147/APP/7.6.4]**, and therefore these temporary construction elements are not included in Table 1.1 of this document.

1.2.5 Similarly, Work No. 9 relates to the creation of accesses, visibility splays and other alterations to facilitate Work No.1 to Work No.8. These are also not included within Table 1.1 below. These matters are addressed in the **oCOCp [EN010147/APP/7.6.1]** and the **Construction Traffic Management Plan**, that forms an annex to the oCOCp. The parameters for their ongoing use during operation are addressed in the **Outline Operational Management Plan (oOMP) [EN010147/APP/7.6.2]**.

1.2.6 Further ancillary or related development in connection with the above works (as listed in the final paragraph of Schedule 1 to the draft DCO) may be necessary across the Order limits and will be subject to the design principles where they apply.

1.2.7 Construction activities are subject to the controls included in the:

- Code of construction practice, which will be substantially in accordance with the **oCOCp [EN010147/APP/7.6.1]**;
- Construction Traffic Management Plan which will be substantially in accordance with the **oCTMP** (appended to oCOCp **[EN010147/APP/7.6.1]**);
- Public Rights of Way (PRoW) Management Plan which will be substantially in accordance with the **Outline PRoW Management Strategy** (appended to oCOCp **[EN010147/APP/7.6.1]**);
- Site Resources and Waste Management Plan which will be substantially in accordance with the **Outline Site Resources and Waste Management Plan** (appended to oCOCp **[EN010147/APP/7.6.1]**);
- Soil Management Plan which will be substantially in accordance with the Outline Soil Management Plan (appended to oCOCp **[EN010147/APP/7.6.1]**);
- Written Scheme of Investigation (WSI) which will be substantially in accordance with the **Outline WSI [EN010147/APP/7.6.5]**; and
- Skills, Supply Chain & Employment Plan which will be substantially in accordance with the **Outline Skills, Supply Chain & Employment Plan** (Volume 3, Appendix 15.2 **[EN010147/APP/6.5]**).

1.2.8 These Plans are secured by Requirements in the draft DCO.

1.2.9 The operation of the Project is subject to the controls included in the:

- Operational Management Plan, which will be substantially in accordance with the **oOMP [EN010147/APP/7.6.2]**;
 - Landscape and Ecological Management Plan (LEMP) which will be substantially in accordance with the **Outline LEMP [EN010147/APP/7.6.3]**;
 - Drainage Strategy which comprises the SuDS Strategy which will be substantially in accordance with the Conceptual Drainage Strategy (Volume 3, Appendix 10.2 **[EN010147/APP/6.5]**);
 - **Works Plans [EN010147/APP/2.3]**; and
 - **Streets, Access and Rights of Way Plans [EN010147/APP/2.2]**.
- 1.2.10 The decommissioning of the Project is subject to the controls included in the:
- Decommissioning Plan (DP) which will be substantially in accordance with the **Outline Decommissioning Plan [EN010147/APP/7.6.4]**;
- 1.2.11 The controls in these documents are not duplicated here.

Table 1.1: Design Principles

Element of Scheme	Parameter Type	Design Principle
Work No. 1		
Ground mounted solar photovoltaic generating station with a gross electrical output capacity of over 50 megawatts including—	Location	All PV Panels will be located within the Solar PV Array Works Areas marked as Work No. 1 on the Works Plans [EN010147/APP/2.3].
Solar PV modules	Scale	Height - 0.8 m at lower edge
		2.20 m at higher edge when land is flat
		2.30m at higher edge when land is not flat
		Total Installation area for solar arrays – Northern Site Area (exc. 275kV corridor route) - approx 247.3 ha
		Total Installation area for solar array – Central Site Area (exc. 275kV corridor route) - approx 545.2 ha
		Total Installation areas for solar array – Southern Site Area - Approx. 46 ha (with NGET substation) Approx. 50 ha (without NGET substation)
		Indicative Number of Solar PV Modules - range from 1,800,000 to 2,200,000 PV modules
Design	Anodized Aluminium Alloy Frame	
	Dark blue or dark grey or black Modules	
Layout	Fixed	
	12 to 18 degrees slope of modules from horizontal	
	Indicative North/South separation distance (m) between tables - 3-1.5 m to 22-3.0 m	

Element of Scheme	Parameter Type	Design Principle
		Indicative East/West separation distance (m) between tables - 0.25 m to 0.50 m
		<u>Indicative Table Width (inc. Ridge Break), East to West – 3 m to 22 m</u>
		Minimum distance between solar array field fence boundary and table areas (m) - Minimum 7.0 m and in some locations up to 100 m.
		Minimum distance between residential property boundary and table areas is approximately 25 m
Power Converter Stations (PCS);		<u>Indicative Foundation Type – driven or screw piles</u> - 1.0m to 3.0m deep below ground level
		<u>Indicative Number of Piles - 780,000 – 1,600,000</u>
	Scale	156 no PCS units Height (m) 2.7 – 3.5 m Length (m) 12.0 – 14.0 m Width (m) 2.2 – 2.9 m
	Design	Sound power levels - approximately 92 dB Total installed capacity approximately 936,000 kVA (total apparent power in AC)
Work No. 2		
National Grid Substation	Location	The National Grid Substation will be located as shown as Work No. 1 on the Works Plans [EN010147/APP/2.3] .
	Scale	87m x 30m footprint of main building 12m height of main building 12.5m height of landing gantry
	Design	Gas Insulated Substation Sound Power Level – 95 dB(A)
	Layout	Up to 3.8ha site area
Work No. 3		
Onsite substations and associated works		
Work No. 3A		
Main Substation	Location	The Main Substation will be as described and be located as shown as Work No. 3A on the Works Plans [EN010147/APP/2.3] .
	Scale	156m length 11m height 63m width
	Design	Sound Power Level – 93 dB(A)
Work No. 3B		

Element of Scheme	Parameter Type	Design Principle
Secondary Substations	Location	The Secondary Substations will be as described and be located as shown as Work No. 3A on the Works Plans [EN010147/APP/2.3] .
	Scale	6 no. secondary substations Length (m) 12 – 18 m Width (m) – Approx 63m Height (m) 4.0 m – 6.0 m (inc. isolator)
	Design	Sound power output – variable 73-86 dB(A)
Work No. 8		
Landscape protection, management and enhancement	Location	The landscape protection, management and enhancement works will be as described and be located as shown as Work No. 8 on the Works Plans [EN010147/APP/2.3] .