# PHOENIX SOLAR PARK





# **Design and Access Statement**

December 2023

**Document Reference Number: BL008** 

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Revision	Date Issued	Prepared By	Approved By
ORIGINAL	10/12/23	Wessex Solar Energy	Charlotte E Peacock
			C.E. Pauvet

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# List of Abbreviations

£	Pounds Sterling	
AC	alternating current	
AOD	above ordnance datum	
AONB	Area of Outstanding Natural Beauty	
DAS	Design Access Statement	
DNO	Distribution Network Operator	
DRN	Document Reference Number	
EIA	Environmental Impact Assessment	
ER	Environmental Report	
DC	direct current	
ha	hectares	
km	kilometres	
kV	kilovolts	
PV	photovoltaic	
m	metres	
m <sup>2</sup>	square metres	
mm	millimetres	
MW	megawatts	
OS	Ordnance Survey	
UK	United Kingdom	
Wp	watt peak	



#### **1** Design and Access Statement

#### **1.1** Introduction to the project

- 1 Wessex Solar Energy proposes to construct a solar park capable of exporting up to 9.99 MW (AC) clean renewable electricity in a sustainable manner. The Solar Park will be located approximately 0.7 kilometres (km) south east of Cosheston, and approximately 2.5 km north east of Pembroke.
- 2 Solar energy is an unlimited energy resource. Solar radiation can be harnessed either to produce hot water, known as a 'solar thermal' project, or electricity. Electricity can be generated using either photovoltaic (PV) cells or by arranging reflective surfaces which focus the sunlight onto a single point, which then heats water to produce steam to drive steam turbines.
- 3 To ensure that the project has taken into consideration the potential environmental and social issues associated with the development, Wessex Solar Energy has submitted an Environmental Statement (ES) for the project. The ES details the findings of some key environmental studies which have been undertaken to inform the planning application to the Welsh Planning Inspectorate (PINS Wales).

#### **1.2** The reason for the design access report

4 This Design Access Statement (DAS) has been prepared to accompany the planning application for the proposed development to demonstrate that Wessex Solar Energy has fully considered the design behind the planning application.



### 2 The Project

- 5 The purpose of the Project is to construct and operate a Solar Park that will generate electricity in a sustainable manner.
- 6 The project is described in detail in Environmental Statement Volume 1; Chapter 6 (DRN BL001) that accompanies the planning application for the project.
- 7 The Solar Park will comprise up to 25,500 PV panels depending on the chosen panel model. There will also be up to 5 inverter/transformer cabins and a single control building.
- 8 The PV panels to be used at the site will be of the order of 2210 mm (I) x 1200mm (w). The panels will be positioned at an angle of up to 22° and will have a height of no more than 3.5 m from the ground to the top of the panel. It should be noted however that the final size of PV panels and the number of inverters will be subject to confirmation through a competitive tendering process.
- 9 The competitive tendering process will be undertaken to determine the supplier / manufacturer of the PV panels and associated equipment, following receipt of planning permission. There are a number of suppliers / manufacturers of PV panels of the required power output, all with similar characteristics.
- 10 For the purposes of this planning application we have endeavoured to quote an upper limit in terms of dimensions and land take, so that the impacts of the final design, which would be agreed with Pembrokeshire County Council as part of a planning condition, would be less than that detailed in this application. We believe that this makes the ES a 'worst-case' assessment of the potential impacts of the development.
- 11 Figures showing the front, side and plan profiles of typical PV panel designs proposed at the site are provided in Figure 6.1.
- 12 The PV panels will require electrical interconnection within the Solar Park site to a number of inverters (up to 5) that will convert the DC electricity produced by the panels to AC electricity that can be exported to the regional electricity grid.
- 13 Inverters will convert the low voltage DC electricity generated by the panels to low voltage AC electricity. Transformers will then increase the voltage of this electricity. The inverters and transformers will be housed in dedicated cabins on site, the location of which is shown on Figure 1.2 along with an indicative site layout. Indicative elevations of these proposed cabins are shown on Figure 6.2a.
- 14 A network of cables will connect the transformers to a set of switchgear, housed in a control building on site. Indicative elevations of this proposed control building are shown on Figure 6.2b. From the control building electricity will be exported to the regional electricity grid via an underground cable to the existing Golden Hill 33 / 132 kV Substation located approximately 2.3 km to the south west. This is operated by National Grid Electricity Distribution, the local distribution network operator.



Details of the off-site connection works are provided in Environmental Statement Volume 1; Chapter 16 (DRN BL001).

- 15 To construct and service the Solar Park a new on site track linking the site access points to the fields and electrical buildings will be required as shown in Figure 1.2. The total length of new access track will be approximately 865m and constructed from compacted stone or aggregate. Construction roads will be about 3 m nominal width and will be placed to avoid known ground hazards and environmental constraints at the site, in addition to steep gradients.
- 16 A permanent 2.5 m tall security fence will be installed (behind any existing onsite hedgerows), with an access gate at the point of access, to ensure there is no unauthorised access to the proposed Solar Park site. Indicative security fence details are shown in Figure 6.4. In addition, the proposed Solar Park site may be continuously monitored by CCTV cameras (Figure 6.5).
- 17 Construction of the proposed Solar Park is expected to take approximately 4 months. The majority of the construction work will comprise installation of the PV panels and the Cabins / Electrical Control Building. The PV panels will be manufactured off-site, as will the elements of the frames on which they will be placed along with the Inverters and Transformers. The frames will be installed on site and the PV panels will then be secured to the frames. The Cabins and Electrical Control Building will be constructed on shallow concrete foundations, and the Inverters and Transformers will be placed onto the foundations using a small crane.
- 18 The Solar Park would be equipped with a computer control system that would continuously monitor variables such as electrical voltage and current from a central off-site host computer or from a remote personal computer. In the event of any fault at the park the system would be able to alert operations staff. The control system would always run to ensure that the Solar Park operates efficiently and safely.
- 19 Once operational there will be only limited requirements for staff to visit the site. Typically the installation would be inspected by a member of staff twice a month to ensure that equipment was working correctly and to allow for any general maintenance activities (i.e. grass cutting / strimming).

#### 2.1 The Project Site

- 20 The proposed Solar Park site falls within the jurisdiction of the Pembrokeshire County Council, and the relevant community council is Cosheston.
- 21 The Solar Park will be located approximately 0.7 kilometres (km) south east of Cosheston, and approximately 2.5 km north east of Pembroke.
- 22 There are a small number of scattered houses in the vicinity of the proposed Solar Park site. The closest of these is Nash Villa (located approximately 130 m south west of the proposed site boundary at the nearest point).
- 23 There are no public footpaths or bridleways that cross the proposed site. The nearest footpaths form the western site boundary. Further details of nearby public rights of



way are provided in Environmental Statement Volume 1; Chapter 8: Landscape and Visual (DRN BL001).

- 24 The nearest landscape designation (or at least designation with landscape implications) is the Pembrokeshire Coast National Park, located approximately 120 m to the north of the proposed site.
- 25 The proposed Solar Park site is not located within any internationally, European or nationally designated ecological sites. The closest are the Pembrokeshire Marine / Sir Benfro Forol Special Area of Conservation (SAC) (approximately 1 km to the west at its nearest point) and the Milford Haven Waterway Site of Special Scientific Interest (SSSI) (approximately 850 m to the west and 1km to the east. Further information on ecology and ornithology is provided in Environmental Statement Volume 1; Chapter 9 (DRN BL001).
- 26 There are no World Heritage Sites within 5 km of the proposed site. There is a Registered Park / Garden located approximately 510 m to the north east of the proposed site. There are no Scheduled Ancient Monuments within the proposed Solar Park site boundary. The closest Scheduled Ancient Monument is located approximately 1.5 km to the south. Further information on cultural heritage / archaeology is provided in Environmental Statement Volume 1; Chapter 10 (DRN BL001).
- 27 Site access would be along the A447, turning onto the access road to Lower Nash Farm and entering the site via an existing access point in the south west corner of the south western most field. Environmental Statement Volume 1; Chapter 13 (DRN BL001).

#### 2.2 Physical context

- 28 The location of the proposed Solar Park site is shown in Figure 1.1 and is centred at Ordnance Survey (OS) Grid Reference 201580, 203280.
- 29 The proposed site comprises 3 fields (arable), covering a total area of approximately 13.84 hectares (ha).
- 30 The site is flat for the most part, with a north-south slope which is more exaggerated in the northern part of the site. The site altitude varies from approximately 35 m Above Ordnance Datum (AOD) to approximately 20 m AOD.

#### 2.3 Social context

31 As discussed in ES Volume 1: Chapter 1.1 (DRN BL001), an EIA Screening Direction was issued by PINS Wales on 7th February 2020 for a larger site at the same location which was subsequently the subject of an application under The Development of National Significance (Wales) Regulation 2016. The direction was that due to the size of the proposals, the proposed Development was considered to be EIA development under the Town and Country Planning (Environmental Impact



Assessment) (Wales) Regulations 2017. A Scoping Direction was subsequently issued by PINS Wales, dated 11th March 2020 (Appendix A1.1).

- 32 The Solar Park development now proposed is considerably smaller than that originally proposed, being 13.84 hectares as opposed to 34.25 hectares.
- 33 Although the proposed development may no longer considered to formally represent EIA development under the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017, a thorough approach has been taken to identifying any potential environmental impacts. As such the Scoping Direction issued for the larger development in 2020 has been used to define the scope of the application and assessments prepared for the now smaller development which is proposed. An Environmental Statement (ES) is therefore included as part of the planning application.
- 34 Wessex Solar Energy and their project team have maintained a dialogue throughout the preparation of the planning application with the Council and other consultees to ensure a robust planning application has been prepared. Details of any ongoing consultation are provided within the relevant ES Chapters and reports.
- 35 Communication with the local community and other stakeholders is seen by Wessex Solar Energy as an important part of the development process.
- 36 With regards to the proposed Solar Park project, the nature of the development is such that it will have relatively localised environmental impacts when compared to other developments, such as wind farms, which can be highly visible over many miles.
- 37 The nature of the development is such that it will have relatively localised impacts when compared to a project such as a wind farm which can be seen over many miles.
- 38 Based on a zone of theoretical visibility (ZTV) (ES Vol 3: Figure 8.5) and site visits 446 properties were identified which either had potential views of and/or who lived not far from the site.
- 39 An information booklet was prepared. A copy of this booklet is provided within the Pre-Application Consultation Report (PAC: DRN BL007).
- 40 The booklet was sent to the 446 properties along with a feedback form and a prepaid return envelope. The booklet and feedback form included options to request a call back by telephone or a reply to any questions by email / in writing to try and ensure that where ever possible we could provide the information that residents might wish to have.
- 41 Further to the above consultation with residents WSE contacted Cosheston Community Council to introduce the proposed Development.
- 42 Wessex Solar Energy's consultations will be ongoing throughout the determination phase of the development and community consultee will be informed once the application has been formally submitted.



#### 2.4 Economic context

#### 2.4.1 Company information

- 43 Wessex Solar Energy is a development company involved with the development of Solar Park projects in the United Kingdom (UK). The company is looking at a portfolio of sites across England and South Wales for development and has identified the proposed site as being an ideal site for such a project, satisfying, as it does, a number of key criteria for Solar Park projects. Further details are provided in ES Volume 1; Chapter 5 (DRN BL001).
- 44 The company draws on the experience of a group of dedicated engineers, environmental scientists and financiers with many years of experience in the renewable energy and conventional power generation sector. Wessex Solar Energy is committed to developing projects in an environmentally responsible and sustainable manner.

#### 2.4.2 Reason for the Development

45 The aim of the project is to generate clean renewable electricity in a sustainable manner and in so doing help the UK meet its targets for the uptake of renewable energy. A detailed discussion of the need and policy drivers for the project as well as the associated benefits is included in ES Volume 1: Chapter 3 (DRN BL001).

#### 2.4.3 **Project information**

- 46 Construction of the Solar Park is expected to commence in autumn 2024 and last for up to 4 months. The construction workforce will peak at about 50. The target date for operation is 2024.
- 47 The Solar Park would have an operational lifetime of at least 40 years after which it would be decommissioned and all above ground aspects of the development removed from site.
- 48 It is considered that the project will have a beneficial impact with regard to socioeconomics in the wider area. The proposed development represents a total investment of the order of £6 million in isolation, a proportion of which will be spent in the local area, primarily on civil and electrical contractors. Wessex Solar Energy will encourage the contractor who will construct the project to use locally sourced materials and locally based contractors as part of their proposals so as to maximise the benefit to the local economy.
- 49 In addition, the Non-Domestic Rating (RENEWABLE ENERGY PROJECTS) (Amendment) Regulations 2017 fulfilled a commitment to allow communities that host renewable energy projects to keep the additional business rates they generate. This could lead to a substantial income for Pembrokeshire County Council as a result of the proposed Solar Park.



#### 2.5 Planning policy

- 50 The site is located within the administrative boundaries of Pembrokeshire County Council.
- 51 As detailed within the Planning Statement (DRN BL006) the proposed Solar Park is considered to be compliant with the higher-level requirements of the relevant national planning policy (including The National Plan 2040, Welsh Renewable Energy Policy, Welsh Spatial Plan, and PPW10). Taken together, the objectives and policies within this national planning policy is considered to support and indeed encourage the development of renewable energy projects, such as the proposed Solar Park, where such projects do not have an unacceptable impact on their surrounding environment.
- 52 Furthermore, the proposed Solar Park is compliant with the requirements of the relevant Policies of the Pembrokeshire Local Plan. These policies relate to (generally) to spatial development and (specifically) to the impact of development on the surrounding environment. The assessment provided in the Environmental Statement Vol 1 (DRN BL001) concludes that the proposed Solar Park will have no significant environmental impacts.

#### 2.6 Appropriateness of use

- 53 The application follows site selection and feasibility studies for the landholding which has established that the site would be potentially suitable to house a Solar Park development, as detailed in ES Vol 1; Chapter 5 (DRN BL001).
- 54 In addition, the environmental studies undertaken for the project have shown the project to be consistent with all relevant planning policy whilst demonstrating that the project will not give rise to any significant environmental impacts.
- 55 There are a number of advantages of the proposed site that make it a suitable location for a Solar Park. These include amongst others:
- It's location in an area of the UK that has a high level of solar radiation and good levels of direct sunlight when compared to other regions;
- The availability of land of a sufficient area to accommodate a 9.99 MW project which requires of the order of 14 ha of land; and
- Proximity to the regional electricity grid such that significant off site works are not required, with the associated environmental and commercial costs.
- 56 It is for the above reasons that the site is considered suitable for the intended use for the proposed Solar Park.



#### 3 Design

- 57 This Section details some of the process completed to ensure that the design of the project has been planned in a rigorous and considered manner.
- 58 The planning application prepared for the project has included the undertaking of a number of detailed technical and environmental studies which has informed the design of the Solar Park.
- 59 These studies have included:
- Collection of baseline data against which the impact of the project should be considered;
- Assessment of the impact of the project;
- Suggestion of necessary monitoring and mitigation measures to minimise any impact and ensure that the project is environmentally and socially acceptable.
- 60 These are discussed in detail in the ES Vol 1 (DRN BL001) for the project which also includes discussion on how the environmental studies have shaped the design of the project.
- 61 The project layout and composition has been refined during the pre-planning application process wherever possible incorporating the views of the consultees and the findings of our environmental investigations.
- 62 Wessex Solar Energy has, throughout the development of the proposed Solar Park, sought to minimise the impact of the project, the impacts associated with landscape and visual amenity and ecology. This has been achieved through listening to the concerns of interested parties. Careful consideration has been given to all relevant planning policy in the refinement of the project design.

#### 3.1 Use

- 63 The main development site comprises seven fields, totalling 13.84 hectares.
- 64 The proposed Solar Park will occupy much of the site, as shown in Figure 1.2, and will generate electricity using PV panels powered by energy from the sun. The space around the panels and the height of the panels would be such that the grazing of sheep may take place on site and would assist in the management of the landholding.

#### 3.2 Amount of development

65 The Solar Park will occupy approximately 13.84 ha of land, as shown in Figure 1.2. Much of this area will be used to house the panels themselves with a limited amount of land used for the associated infrastructure such as the electrical / inverter cabins and on site roads and perimeter fence.



#### 3.3 Layout

- 66 The proposed Solar Park layout is shown in Figure 1.2. Throughout the development of the proposed Solar Park, Wessex Solar Energy has sought to minimise the impact of the project, especially with regard to the impacts associated with landscape and visual amenity and ecology. Further details are provided in ES Vol 1; Chapter 5 (DRN BL001).
- 67 The PV panels to be used at the site will be of the order of 2210 mm (I) x 1200mm (w). The panels will be positioned at an angle of up to 22° and will have a height of no more than 3.5 m from the ground to the top of the panel. It should be noted however that the final size of PV panels and the number of inverters will be subject to confirmation through a competitive tendering process.
- 68 The PV panels will require electrical interconnection within the Solar Park site to a number of inverters (up to 5) that will convert the DC electricity produced by the panels to AC electricity that can be exported to the regional electricity grid.
- 69 Inverters will convert the low voltage DC electricity generated by the panels to low voltage AC electricity. Transformers will then increase the voltage of this electricity. The inverters and transformers will be housed in dedicated cabins on site, the location of which is shown on Figure 1.2 along with an indicative site layout. Indicative elevations of these proposed cabins are shown on Figure 6.2a.
- 70 A network of cables will connect the transformers to a set of switchgear, housed in a control building on site. Indicative elevations of this proposed control building are shown on Figure 6.2b. From the control building electricity will be exported to the regional electricity grid via an underground cable to the existing Golden Hill 33 / 132 kV Substation located approximately 2.3 km to the south west. This is operated by National Grid Electricity Distribution, the local distribution network operator. Details of the off-site connection works are provided in Environmental Statement Volume 1; Chapter 6 (DRN BL001).

#### 3.4 Scale

71 The key elements of the development and their scale can be summarised as follows.

Element of Proposed Scheme	Details
Approximate Number of PV Panels (PV Cells)	25,500
Panel Size	2210mm x 1200mm
Panel Angle	Up to 22 degrees
Number of Inverters	Up to 5
Number of Transformers	Up to 5

#### Table 3-1: Key Elements of Proposed Development



Element of Proposed Scheme	Details
Inverter / Transformer Cabin Dimensions (m)	10.4 m (length) by 2.6 m (width), and 3.18 m (height).
Control Building Dimensions (m)	7 m (length) by 3 m (width), and 4 m (height).
Perimeter Fence (m)	2.5 m (height)
Electrical Connection	The PV Cells will require interconnection within the proposed Solar Park site to Inverters that will convert the low voltage DC to low voltage AC. In turn, the Inverters will connect to Transformers that will convert the low voltage AC to higher voltage AC (33 kV) for export to the regional electricity grid. Electricity will be exported to the regional electricity grid via an underground cable to the existing Golden Hill 33 / 132 kV Substation located approximately 2.3 km to the south west. This is operated by National Grid Electricity Distribution (NGED), the local distribution network operator. Details of the off-site connection works are provided in Chapter 16.
Onsite Access Track	The onsite access track would be constructed from compacted stone or aggregate. The total length of the onsite access track will be approximately 865m.
Temporary Site Compound / Laydown Area	The Temporary Site Compound / Laydown Area would be approximately 1600 m <sup>2</sup> , and would include an area of hard standing / gravel which will house a temporary office and welfare facility (including a port-a-loo). This Compound / Area will also be used for the parking of staff vehicles and the storage of construction equipment / vehicles / materials. An additional HGV turning area will also be incorporated into the designated compound area as shown in Figure 6.6.

#### 3.5 Landscaping

72 The project has been the subject of a landscape and visual impact assessment the results of which are detailed in ES Volume 1; Chapter 8 (DRN BL001). These investigations found that the project will be visible over a relatively small area and will



not have unacceptable impacts on views from or within nationally protected landscape designations or upon sensitive receptors.

#### 3.6 Appearance

73 The scale of the project is discussed above and the layout of the development shown in Figure 1.2. The project will have a relatively low profile, unlike other forms of renewable energy generation such as wind turbines that generally prominent over many miles. A photograph showing the appearance of rows of solar panels within a typical Solar Park is provided below.



#### Insert 1: Solar panels in situ



#### 4 Access

- 74 To construct the Solar Park site access routes would be determined by the source of the materials brought to site. Deliveries are anticipated to approach the site along the M4, A48, A40, A447, turning onto the access track to Lower Nash Farm, all of which are frequently used by large vehicles.
- 75 Access onto the proposed Solar Park site would be through an existing site access point located in the south west corner of the proposed site.
- 76 Within the main development site an access track will be placed to enable the installation and maintenance of the proposed inverter buildings.
- 77 In total the new access tracks will be approximately 865m in length and constructed from compacted stone or aggregate. Construction roads will be about 3 m nominal width and will be placed to avoid known ground hazards and environmental constraints at the site, in addition to steep gradients.
- 78 An indicative cross-section of the access track is shown in Figure 6.3.
- 79 There are no public footpaths or bridleways which cross the site. There is an unofficial path which crosses the north western field, as shown on the OS mapping, but this is not included on the definitive footpath map<sup>1</sup> and is therefore not treated as a formal public right of way. Furthermore there is an official route located approximately 80m to the west (at the furthest point) formed by footpath SP8/11 and SP30/2. There are a small number of public rights of way in the vicinity of the site. The nearest, is a footpath which follows the western boundary of the north west field, located off-site on the other side of the field boundary (SP8/11). This footpath will not be affected by the proposed construction works.
- 80 There is also a byway which follows the unnamed lane linking the A477 to Lower Nash Church, passing the site entrance (SP30/3).

#### 4.1 Inclusive access

- 81 The development will not be open to the general public and will be maintained by a team of dedicated engineers who will visit the site as required. For this reason it is not considered that the requirements of inclusive access for the public are especially relevant to the project, other than the provisions for disabled access for any disabled workers.
- 82 Provisions for disabled access will reflect the requirements / needs of workers on site. It is anticipated that this would include but not be limited to:
- a needs survey being carried out before operatives start work on site so that any specific requirements can be met;

<sup>&</sup>lt;sup>1</sup> <u>https://www.pembrokeshire.gov.uk/definitive-map/view-the-consolidated-definitive-map;</u> accessed 20/08/2020



- If required, the site facilities include a designated disabled toilet with a separate access and accessible welfare facilities as appropriate;
- provision of sufficient space for disabled parking in appropriate locations within the site compound; and
- site offices that are accessible / always free from obstacles with appropriate equipment to ensure no employee was disadvantaged



# Appendix A Figures







FRONT ELEVATION















PLAN VIEW





FRONT ELEVATION

Notes

1. All sizes are in metres unless otherwise stated.

1m

### PHOENIX SOLAR PARK

#### FIGURE 6.5

#### INDICATIVE SECURITY CAMERA DETAILS

SCALE 1:50

PLOT SCALE A3

Drawn: Checked: Date:

CPA WE Approved: APPROVED 19/12/23



