

# Stonestreet Green Solar

## Environmental Statement

### Volume 2: Main Text

### Chapter 5: Alternatives and Design Evolution

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## 5 Alternatives and Design Evolution

### 5.1 Introduction

5.1.1 In accordance with the EIA Regulations<sup>1</sup>, this Chapter describes the reasonable alternatives to the Project considered by the Applicant and provides a summary of the design evolution. The Chapter also provides a description of the main reasons for the option chosen, including a comparison of the environmental effects.

5.1.2 The DCO Application is accompanied by a **Design Approach Document (Doc Ref. 7.4)** which describes the Project's Design Objectives, how they have been identified and how they will be achieved and secured. The Design Approach Document also identifies how the design of the Project aligns itself with policy and guidance. The DCO Application is also accompanied by a set of **Design Principles (Doc Ref. 7.5)** which establish minimum and maximum parameters for the Project. The detailed design of the Project will be in accordance with the **Design Principles (Doc Ref. 7.5)**.

5.1.3 This Chapter is structured as follows:

- **Section 5.2** - A brief outline of legislation, planning policy and guidance relevant to site selection of solar farms and alternatives;
- **Section 5.3** - A description of where responses to the consultation of relevance to Site selection and alternatives are detailed;
- **Section 5.4** – A description of the Project requirements;
- **Section 5.5** - A description of the 'Do Nothing' alternative or reduced scale development;
- **Section 5.6** - A summary of the Site selection process including influencing factors for identifying the Site;
- **Section 5.7** - A description of alternative sites raised in response to consultation;
- **Section 5.8** - A brief description of the Project's design evolution process and main design stages; and
- **Sections 5.9 - 5.15** - A description of the main alternatives to the Project, the main reasons for selecting the proposals and comparison of environmental effects. These include: alternative site extents, alternative Project layout, alternative technologies, alternative Project Substation location and designs, alternative grid connection and cable routes, alternative drainage strategy and construction stage alternatives.

5.1.4 The Chapter is supported by the following figures:

#### ES Volume 3 – Figures (Doc Ref. 5.3)

- **Figure 5.1:** Potentially Developable Land Locations and Cumulative

Schemes;

- **Figure 5.2:** 2022 Statutory Consultation Illustrative Site Layout Plan (Key Plan and Sheets 1 to 5);
- **Figure 5.3:** 2023 Statutory Consultation Illustrative Site Layout Plan (Key Plan and Sheets 1 to 5); and
- **Figure 5.4:** Changes to Preferred Order Limits (Key Plan and Sheets 1 to 15).

5.1.5 **ES Volume 2, Figure 5.2: 2022 Statutory Consultation Illustrative Site Layout Plan (Doc Ref. 5.3)** shows the field boundary numbers at the time of consultation. Due to changes made after the 2022 Statutory Consultation took place, these do not align with the Field numbers shown in **ES Volume 3, Figure 2.1: Field Boundaries and Site Area Plan (Doc Ref. 5.2)**. Any references to Fields within this Chapter refer to the numbers shown on **ES Volume 3, Figure 2.1: Field Boundaries and Site Area Plan (Doc Ref. 5.2)**.

5.1.6 The Chapter is supported by the following appendices:

#### **ES Volume 4 – Appendices (Doc Ref. 5.4)**

- **Appendix 5.1:** Relevant Responses to Consultation; and
- **Appendix 5.2:** Site Selection Influencing Factors.

## **5.2 Legislation, Policy and Guidance**

5.2.1 The section outlines the legislation, policy and guidance of relevance to the consideration of alternatives for the Project. The full policy context for the Project is set out in the **Planning Statement (Doc Ref. 7.6)** that accompanies the DCO Application.

### **Legislation**

5.2.2 Schedule 4, paragraph 2 of the EIA Regulations requires the following information to be provided in the ES:

*'A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects'.*

5.2.3 Other specific legislative regimes also require the consideration of alternatives in specified circumstances. These include the Conservation of Habitats and Species Regulations 2017<sup>2</sup> and the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017<sup>3</sup>. The Applicant has provided information to inform assessments under these regulations (i.e. 'Habitats Regulations Assessment' and 'Water Framework Directive Assessment'). This information is provided within the **Information to Inform a Habitat Regulations Assessment**

**(Doc Ref. 7.19) and ES Volume 4, Appendix 10.3: Water Framework Directive Assessment (Doc Ref. 5.4).**

- 5.2.4 **The Information to Inform a Habitat Regulations Assessment (Doc Ref. 7.19)** concludes that the Project would not result in any adverse effects on the integrity of any European site (at Stage 2 – appropriate assessment) so it is not necessary to go on to consider alternative solutions (at stage 3 - derogation). **ES Volume 4, Appendix 10.3: Water Framework Directive Assessment (Doc Ref. 5.4)** carries out a Stage 1 screening exercise, a Stage 2 scoping exercise and a Stage 3 impact assessment for the Water Framework Directive Assessment. The assessment concludes that no derogation from the Directive is necessary.

### National Policy Statements

#### National Policy Statement for Renewable Energy Infrastructure EN-3<sup>4</sup> ('NPS EN-3')

- 5.2.5 NPS EN-3 includes consideration of Solar Photovoltaic Generation projects under section 2.10. With reference to site selection, NPS EN-3 states the following at paragraph 2.3.5 *'It is for applicants to decide what applications to bring forward. In general, the government does not seek to direct applicants to particular sites for renewable energy infrastructure...'*
- 5.2.6 NPS EN-3 at paragraph 2.3.9 states *'As most renewable energy resources can only be developed where the resource exists and where economically feasible, and because there are no limits on the need established in Part 3 of EN-1, the Secretary of State should not use a consecutive approach in the consideration of renewable energy projects (for example, by giving priority to the re-use of previously developed land for renewable technology developments).'*
- 5.2.7 NPS EN-3 at paragraph 2.10.31 states *'Applicants should explain their choice of site, noting the preference for development to be on suitable brownfield, industrial and low and medium grade agricultural land'*. The reasons for the Applicant's choice of the site location at Aldington are provided in **Section 5.6** of this Chapter.

#### Overarching National Policy Statement for Energy EN-1<sup>5</sup> ('NPS EN-1')

- 5.2.8 With regard to alternatives, NPS EN-1 paragraph 4.3.9 states that *'As in any planning case, the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to the proposed development is, in the first instance, a matter of law. This NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective.'*
- 5.2.9 NPS EN-1 therefore confirms that from a policy perspective there is no general requirement to consider alternatives or to establish whether a development represents the best option.
- 5.2.10 NPS EN-1 paragraph 4.3.15 confirms that applicants are obliged to include information about the reasonable alternatives they have studied within the ES,

stating that *'This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility.'*

5.2.11 NPS EN-1 paragraph 4.3.17 states that *'Where there is a policy or legal requirement to consider alternatives the applicant should describe the alternatives considered in compliance with these requirements.'* Other legal requirements to consider alternatives are considered at **Paragraph 5.2.3 to 5.2.4** of this Chapter.

5.2.12 NPS EN-1 paragraph 4.3.22 states that:

*'Given the level and urgency of need for new energy infrastructure, the Secretary of State should, subject to any relevant legal requirements (e.g. under the Habitats Regulations) which indicate otherwise, be guided by the following principles when deciding what weight should be given to alternatives:*

- *the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; and*
- *only alternatives that can meet the objectives of the proposed development need to be considered'*

5.2.13 Furthermore, paragraphs 4.3.23 – 4.3.29 provide further policy in respect of the consideration of alternatives. Some of the principles are summarised below as they are helpful provisions in terms of understanding the scope for the alternatives assessment within this ES:

- *Alternative proposals should be considered on the basis of whether there is 'a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security, climate change, and other environmental benefits) in the same timescale as the proposed development.'* (paragraph 4.3.23).
- *Alternatives can be excluded as unlikely to be important and relevant to the Secretary of State's decision if they 'would not be in accordance with the policies set out in the relevant NPS'* (paragraph 4.3.26).
- *'Alternative proposals which mean the necessary development could not proceed, for example because the alternative proposals are not commercially viable or alternative proposals for sites would not be physically suitable, can be excluded on the grounds that they are not important and relevant to the Secretary of State's decision.'* (paragraph 4.3.27).
- *'Alternative proposals which are vague or immature can be excluded on the grounds that they are not important and relevant...'* (paragraph 4.3.28).

5.2.14 NPS EN-1 highlights that in addition to the requirement under the EIA Regulations, there other specific policy circumstances which may require the consideration of alternatives. These include a requirement to consider alternatives in relation to: avoiding significant harm to biodiversity and geological conservation interests; flood

risk; and development within National Parks, the Broads and AONBs (now National Landscapes ('NLs')) (as set out in sections 5.4, 5.8 and 5.10 of NPS EN-1).

- 5.2.15 As explained in the **Planning Statement (Doc Ref. 7.6)**, the Project would give rise to some local significant adverse effects on yellowhammer, skylark and brown hare (see **ES Volume 2, Chapter 9: Biodiversity (Doc Ref. 5.2)** for details), however these effects are not considered to amount to significant harm. The Project is not located within a National Park, the Broads or an NL. As such, these aspects are not considered further in this Chapter.
- 5.2.16 Paragraph 5.8.9 of NPS EN-1 states that *'If, following application of the Sequential Test, it is not possible, (taking into account wider sustainable development objectives), for the project to be located in areas of lower flood risk the Exception Test can be applied'*. Paragraph 5.8.10 states that *'The Exception Test is only appropriate for use where the Sequential Test alone cannot deliver an acceptable site.'*
- 5.2.17 A Site Sequential and Exception Test Report is provided as **Planning Statement, Appendix 2 (Doc Ref. 7.6)** and concludes that the Project passes both the Sequential and Exception Tests.

### Guidance and Advice

- 5.2.18 The PINS Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements (June 2020) (version 7)<sup>6</sup> sets out that a good ES is one that *'explains the reasonable alternatives considered and the reasons for the chosen option taking into account the effects of the Proposed Development on the environment'* (paragraph 9.3).

## 5.3 Consultation

- 5.3.1 As outlined within **ES Volume 2, Chapter 4: Consultation (Doc Ref. 5.2)**, the Applicant has undertaken a multi-stage approach to consultation in accordance with sections 42, 47 and 48 of the PA 2008.
- 5.3.2 A brief explanation of the site and design information included at each consultation stage is provided below:
- **2022 Non-Statutory Consultation** (25 March to 29 April 2022) – A round of non-statutory consultation was carried out by the Applicant on the initial proposals in March to April 2022. A community consultation leaflet was produced which provided details on why the Site (as it then was) had been chosen and the vision for the Project. The exhibition boards used at local information events included a written description of the Project, along with a figure which defined the Site boundary as it was at that stage.
  - **EIA Scoping Consultation** (19 April to 30 May 2022) – The Scoping Report (**ES Volume 4, Appendix 1.1: EIA Scoping Report (Doc Ref. 5.4)**) prepared by the Applicant included a written description of the Project, along with the figures (**ES Volume 4, Appendix 1.1: EIA Scoping Report, Figure 2:**

**Boundary for EIA Scoping (Doc Ref. 5.4) and ES Volume 4, Appendix 1.1: EIA Scoping Report, Figure 3: Grid Connection Cable Route Options (Doc Ref. 5.4)** which defined the Site boundary as it was at that stage. Before adopting the Scoping Opinion (**ES Volume 4, Appendix 1.2: EIA Scoping Opinion (Doc Ref. 5.4)**), PINS consulted the consultation bodies in accordance with Regulation 10(6) of the EIA Regulations.

- **2022 Statutory Consultation** (25 October to 29 November 2022) – A round of statutory consultation on the proposals was carried out by the Applicant in October to November 2022. A consultation leaflet, booklet, exhibition boards and the Preliminary Environmental Information Report ('PEIR') were produced to explain the proposals. An Illustrative Site Layout Plan was provided as part of this consultation and is included as **ES Volume 3, Figure 5.2: 2022 Statutory Consultation Illustrative Site Layout Plan (Doc Ref. 5.3)**. The illustrative site layout at this consultation stage is referred to as the '2022 Consultation Scheme'.
- **2023 Statutory Consultation** (12 June to 17 July 2023) – A further round of statutory consultation on the proposals was carried out by the Applicant in June to July 2023. A consultation leaflet, booklet, exhibition boards and the PEIR Addendum were produced to explain the updated proposals. An Illustrative Site Layout Plan (**ES Volume 3, Figure 5.3 (Doc Ref. 5.3)**) and Landscape Strategy drawings were provided as part of the 2023 Statutory Consultation Book of Plans. The illustrative site layout at this consultation stage is referred to as the '2023 Consultation Scheme'.
- **2023 Targeted Consultation** (13 November – 13 December 2023) – A round of targeted consultation on localised, minor proposed amendments to the Site boundary was carried out by the Applicant in November to December 2023. A revised version of the Order limits plan was produced for this targeted consultation.
- **2024 Targeted Consultation** (12 February – 12 March 2024) – A round of targeted consultation on a localised, minor proposed amendment to the Site boundary was carried out by the Applicant in February to March 2024. A revised version of the Order limits plan was produced for this targeted consultation, which is consistent with **ES Volume 3, Figure 1.2: Order Limits (Doc Ref. 5.3)**.

5.3.3 The **Consultation Report (Doc Ref. 6.1) and ES Volume 2: Chapter 4: Consultation (Doc Ref. 5.2)** provide further detail on the consultation process.

5.3.4 **ES Volume 4, Appendix 5.1: Relevant Responses to Consultation (Doc Ref. 5.4)** summarises the comments raised by consultees in response to the 2022 Non Statutory Consultation, 2022 Statutory Consultation and the 2023 Statutory Consultation of relevance to the site selection and alternatives and explains how they have been addressed in this ES. Alternative sites raised in response to the consultation are discussed further in **Section 5.7** of this Chapter.



5.3.5 No additional matters to those considered in **Section 5.6** of this Chapter were raised in the Scoping Opinion (**ES Volume 4, Appendix 1.2: EIA Scoping Opinion (Doc Ref. 5.4)**) or the 2023 and 2024 Targeted Consultations.

## 5.4 Project Requirements

5.4.1 The Applicant's requirements for the Project, which are relevant to the consideration of alternatives, are as follows:

- A single, large-scale solar scheme which makes a meaningful contribution to the UK's urgent requirements for renewable energy capacity and onshore energy security with an export capacity to the national grid of up to 99.9MW of electricity that enables the full utilisation of the available grid capacity at Sellindge;
- The ability to host a battery energy storage system within the Site area to maximise the energy generated and exported and provide further resilience to the electricity network through utilisation of the 99.9MW import and export rights held by the Project;
- Sufficient land for PV panels, battery energy storage system, supporting infrastructure, landscape planting and biodiversity to ensure the Project can be delivered with minimal local and environmental impacts (required to achieve the above objective and make the best use of the available capacity); and
- A viable, proximate and available connection to the electricity grid network.

5.4.2 These Project requirements are relevant as NPS EN-1 states that '*only alternatives that can meet the objectives of the proposed development need to be considered*' (paragraph 4.3.22).

## 5.5 The 'Do Nothing' Alternative or Reduced Scale Development

### Do Nothing

5.5.1 A 'Do Nothing' alternative, or 'no development' as an alternative to the Project, has not been studied in detail by the Applicant. The 'Do Nothing' scenario would not contribute to the UK's urgent need for renewable energy generation to meet the target of net zero, or energy security and storage priorities identified by the UK Government. This would reduce the probability of the UK achieving its goal of net zero by 2050 and would not meet the Project objectives. The 'Do Nothing' alternative can therefore be discounted as a reasonable alternative and is not considered in detail in this Chapter.

5.5.2 Notwithstanding, in the absence of the Project, the Site would likely continue to be managed as it is currently, as arable farmland and grazing use. Significant long-term, beneficial effects associated with renewable energy generation, energy security, energy storage, biodiversity net gain and improvements to the local rights of way and access network would therefore not be realised in the absence of the Project. It is also reasonable to assume that organic/natural nutrients (nitrates and phosphates) and agri-chemicals (e.g. biocides and synthetic fertilisers) would

continue to be applied to the land. The Site is in the River Stour catchment which feeds the downstream Stodmarsh SAC, Ramsar site and SSSI. Water quality in the Stodmarsh Designated Site is currently in an 'unfavourable condition' due to this issue. The current nitrogen/phosphorus load from the Site will likely reduce as the intensive (i.e. arable) agricultural land use will be removed during the lifetime of the Project.

- 5.5.3 The reduction in nitrogen/phosphorus load and associated likely benefit to the water environment and water dependent designated sites would not be realised under a 'Do Nothing' alternative.

### Significantly Reduced Project Scale

- 5.5.4 A significantly reduced scale proposal to the Project is not considered by the Applicant to be a reasonable alternative. This is because a substantially smaller Project would not be capable of delivering the same generation capacity as the current proposals and would therefore not meet the Project requirements (as set in **Section 5.4**).

## 5.6 Site Selection Process

- 5.6.1 The Site is described in **ES Volume 2, Chapter 2: Site and Context (Doc Ref. 5.2)**. There are no land use planning allocations or designations within the Site, aside from mineral safeguarding. **ES Volume 4, Appendix 16.3: Mineral Safeguarding Assessment (Doc Ref. 5.4)** demonstrates that, with the exception of elements of Work No. 4 that are within the Sellindge Substation, any repairs, upgrades or replacements of/to the existing bridge / drain crossings and highway improvements, the Project is of a temporary nature that will be removed during the decommissioning stage and the land returned to a condition that does not prevent future mineral extraction. The Site is not located within the Green Belt. These were factors that the Applicant considered when identifying the Site.
- 5.6.2 The Site was selected by the Applicant based on a series of influencing factors which included:
- Solar irradiance and site topography;
  - Available electricity grid connection;
  - Proximity to residential dwellings;
  - Agricultural Land Classification ('ALC') and land type;
  - Accessibility;
  - PRow network;
  - Landscape;
  - Ecological and geological designations;
  - Visual amenity;
  - Flood risk;

- Cultural heritage; and
  - Availability of land.
- 5.6.3 A description of the Applicant's process for selecting the Site and the main reasons for its choice with regard to these influencing factors is described in **ES Volume 4, Appendix 5.2: Site Selection Influencing Factors (Doc Ref. 5.4)**.
- 5.6.4 The proximity to, and availability of capacity on the electricity network is key to the feasibility of solar and battery storage projects. The Applicant determined that a maximum distance of 5km is likely to be at, or beyond, the limit of viability for a point of connection ('POC') to the national grid for the scale of the Project. Beyond the 5km distance, the environmental and social effects are likely to increase, more land (which may necessitate the use of compulsory acquisition powers) may be required and the Project would become less economically viable. A distance of 5km of the POC to the Sellindge Substation was therefore used as the area of search for potential alternative sites that would meet the project requirements of the Project.
- 5.6.5 In summary, the Site is considered the most suitable within 5km of the POC principally because:
- The Site is not subject to any international, national, nature conservation or geological designations;
  - The Site is not within a nationally designated landscape (see **ES Volume 2, Chapter 8: Landscape and Views (Doc Ref. 5.2)** for further details). Areas to the south or east of Sellindge are either within the Kent Downs NL or closer to this area (on elevated land) which would have a greater potential impact on the setting of the Kent Downs NL;
  - There are no designated built heritage assets within the Site. The closest Scheduled Monument is 1.6km east and the closest Registered Park and Garden is approximately 1.4km north west of the Site. Listed buildings within 1km of the Site include two Grade I Listed buildings, six Grade II\* listed buildings and seventy Grade II listed buildings. Areas to the north west of Sellindge contain a higher amount of designated assets. **ES Volume 2, Chapter 7: Cultural Heritage (Doc Ref. 5.2)** concludes that the effects of the Project on the setting of these assets are not significant;
  - The Site is not subject to any allocations for housing or other planned development which would impede delivery. There is a small overlap between the Order limits for the Application and an application for the installation of a solar farm with a generating capacity of up to 49.9 MW at land south of the M20, Church Lane (Cumulative Scheme ID No. 9, East Stour Solar Farm. Application Ref. 22/00668/AS). However, this application (which was refused in April 2024) will not prejudice the ability for the DCO Application to be consented and for the Project to be delivered;
  - There is a significant amount of existing developed vegetation surrounding large areas of the Site which limit close views;
  - There are a low number of residential dwellings that could potentially be impacted for a project of this scale in the South-East of England;

- Approximately 80% of the Site has an ALC of Grade 3b or is non-agricultural, and is therefore not Best and Most Versatile ('BMV') land. Large areas of land within 5km of the POC is provisionally classified by Natural England as Grade 2 and therefore classified as BMV land;
- Areas to the north west of Sellindge contain large areas of woodland which limit the potential for a viable solar project;
- A large portion of the Site sits within a 'bowl' in the landscape which will aid in screening long range views; and
- The elevation changes within the Site are gentle enough that there will be limited landscape shading of PV Arrays within the Site.

## 5.7 Alternative Sites Raised in Statutory Consultation Responses

5.7.1 In responses to the statutory consultation, two specific areas of land were raised by consultees as possible alternative sites. **Table 5.1** sets out these alternative areas of land and provides commentary on why the Applicant does not consider them to be suitable alternatives which would meet the Project requirements.

**Table 5.1: Alternative Sites raised during the Statutory Consultation**

Alternative Site Raised	Commentary
Land north and south of the M20 (to the north of the Site)	Two parcels of land were identified to the north and south of the M20, to the north of the Site (identified in <b>ES Volume 3, Figure 5.1: Potential Developable Land Locations and Cumulative Schemes (Doc Ref. 5.3)</b> as Potentially Developable Land 1 and Potentially Developable Land 2). These sites are not of a sufficient scale to deliver the Project requirements and are subject to third party arrangements and therefore they were not commercially viable. Potentially Developable Land 1 is north of the M20 motorway and as such would also involve technical challenges associated with cables having to cross the M20 carriageway. A significant part of Potentially Developable Land 2 is subject to three planning applications: Pivot Power Battery Storage Facility (Cumulative Scheme ID No. 3, Ref: PA/2022/2544, Permission Granted); EDF's East Stour Solar Farm (Cumulative Scheme ID No. 9, Ref: 2200668AS, Permission Refused but still included as cumulative scheme); and Walsh Power's Synchronous Condenser Project (Cumulative scheme ID No. 4, Ref: PA/2022/2950, Permission Granted), as set out in <b>ES Volume 4, Appendix 6.1: List of Cumulative Schemes (Doc Ref. 5.4)</b> . These areas have therefore been discounted by the Applicant as not being suitable alternatives for the Project.
Industrial areas near the M20 and Ashford	Industrial areas on the outskirts of Ashford are beyond the 5km radius around the Sellindge Substation which is the POC for the Project (as set out within the Project requirements). These areas have therefore

Alternative Raised	Site	Commentary
		been discounted by the Applicant as not being a suitable alternative for the Project.

5.7.2 Following analysis, the Applicant concluded that the Site represented a suitable area for solar generation and energy storage development, and that there are no alternative sites that meet the Project requirements within 5km of the POC.

## 5.8 Project Design Process

5.8.1 The extent and layout of the Project evolved iteratively and was informed by ongoing assessments of environmental effects and mitigation measures, environmental policy, engineering and design considerations as well as consultation responses and engagement with stakeholders.

5.8.2 The following sections of this Chapter explain the following alternatives considered by the Applicant during the design process:

- Site extents (**Section 5.9**);
- Project layouts (**Section 5.10**);
- Technologies (**Section 5.11**);
- Project Substation (**Section 5.12**);
- Grid connections and cable routes (**Section 5.13**);
- Drainage strategy (**Section 5.14**); and
- Construction stage (**Section 5.16**).

## 5.9 Alternative Site Extents and Preferred Order Limits

5.9.1 The extent of the Site has evolved during the design process and has been informed by consultation feedback, engineering, technical design and environmental considerations, and land ownership constraints. **Table 5.2** sets out how the Site extent has evolved and the reasons for the main changes. **ES Volume 3, Figure 5.4: Changes to Preferred Order Limits (Doc Ref. 5.3)** illustrates the main changes to the Order limits extent during design evolution.

Table 5.2: Alternatives Project Site Extent and Order Limits

Consultation Stage	Site Area and Order Limit Considered
<p>Initial Design Concept/Feasibility Stage</p>	<p>Before the 2022 Non-Statutory Consultation, a number of parcels of land were considered and discounted for PV panels by the Applicant primarily due to land availability and the potential for environmental effects. <b>ES Volume 3, Figure 2.1: Field Boundaries and Site Area Plan (Doc Ref. 5.3)</b> provides the field numbers. These included:</p> <ul style="list-style-type: none"> <li>▪ An area south of Fields 1 and 2 - discounted to avoid potential visual impacts on properties to the south.</li> <li>▪ Fields to the south of Bank Farm (south of Field 12 and east and west of Field 8) - discounted due to concerns about visual impacts on adjacent residential properties on Frith Road and on the western edge of Aldington village.</li> <li>▪ A small area south of Field 17 - discounted due to third party land agreements which meant the land was not available.</li> <li>▪ A field to the south of Field 20 - discounted due to landscape and visual impacts on residential properties in Aldington to the southwest, potential inter-visibility with the Grade I listed Church of St Martin and proximity to the Kent Downs NL.</li> <li>▪ An area to the south of Field 26 - discounted as it forms part of the AFSA.</li> </ul> <p>Additional available land parcels were added to the Site area during this stage to add further generating capacity to the Project including an area south of Field 8 and Fields 9, 18 and 23.</p> <p>The area of the site at the Initial Design Concept / Feasibility Stage was approximately 189 ha.</p>
<p>2022 Non-Statutory Consultation and EIA Scoping</p>	<p>There were no material differences between the site boundary included in the 2022 Non-Statutory Consultation and that included in the EIA Scoping Report.</p> <p>At this stage, land was included within the site for a 'Preferred Cable Route' and 'Alternative Cable Route' for the grid connection cable route to Sellindge Substation as shown on Figure 3: Grid Connection Cable Route Options of <b>ES Volume 4, Appendix 1.1: EIA Scoping Report (Doc Ref. 5.4)</b>.</p> <p>The site area at the 2022 Non-Statutory Consultation and EIA Scoping stage was approximately 189 ha.</p>

Consultation Stage	Site Area and Order Limit Considered
2022 Statutory Consultation (PEIR)	<p>There were no material changes to the site boundary between that included in the Scoping Report (<b>ES Volume 4, Appendix 1.1: EIA Scoping Report (Doc Ref. 5.4)</b>) and that included in the 2022 Statutory Consultation.</p> <p>The site area at the 2022 Statutory Consultation (PEIR) stage was approximately 189 ha.</p>
2023 Statutory Consultation (PEIR Addendum)	<p>Minor changes were made to the preferred Order limits between the 2022 Consultation Scheme and the 2023 Consultation Scheme. Some areas of land were removed from the preferred Order limits as they were not required for the Project, as shown on <b>ES Volume 3, Figure 5.4: Changes to Order Limits (Doc Ref. 5.3)</b> as described below. At this stage, both the 'Preferred Cable Route' and 'Alternative Cable Route' for the grid connection cable route to Sellindge Substation were presented.</p> <p><b>ES Volume 3, Figure 5.4: Changes to Preferred Order Limits (Doc Ref. 5.3)</b> show the adjustments (labelled A – P) made to the preferred Order limits. The below list summarises the changes made during this period:</p> <ul style="list-style-type: none"> <li>▪ Zone B (Figure 5.4, Sheet 2): A small area of Church Commissioners' land was removed as it was not required for Project.</li> <li>▪ Zone C (Figure 5.4, Sheet 3): The residential property, Becketts Green, was removed as it was not required for Project.</li> <li>▪ Zone E (Figure 5.4, Sheet 5): A small area north of Handen Farm was removed as it was not required for Project.</li> <li>▪ Zone I (Figure 5.4, Sheet 9): A UK Power Networks ('UKPN') substation was removed as it was not required for Project.</li> <li>▪ Zone K (Figure 5.4, Sheet 11): The boundary was adjusted to include an existing access track along the southern and western sides of Field 26 and existing bridge to allow access during construction and decommissioning, if required.</li> <li>▪ Zone L (Figure 5.4, Sheet 12): A small section of Field 27 owned by the SoS for Transport was removed as it was not required for Project.</li> <li>▪ Zone M (Figure 5.4, Sheet 13): Additional land was added adjacent to the Cable Route Crossing to allow for installation of ducting under the East Stour River and HS1 / Network Rail railway line if required.</li> <li>▪ Zone N (Figure 5.4, Sheet 14): Sellindge Substation was</li> </ul>

Consultation Stage	Site Area and Order Limit Considered
	<p>added to include land for extension and connection works as required to achieve the grid connection.</p> <ul style="list-style-type: none"> <li>▪ Zone O (Figure 5.4, Sheet 15): Additional land was added to allow for installation of a switching compound (referred to as a 'Tower Switching Compound') adjacent to an existing 132kV tower for the Alternative Cable Route.</li> </ul> <p>The site area at the 2023 Statutory Consultation stage was approximately 200 ha.</p>
2023 Targeted Consultation	<p>The preferred Order limits changed from that of the 2023 Consultation Scheme. A summary of the changes made during this period is provided below and on <b>ES Volume 3, Figure 5.4: Changes to Preferred Order Limits (Doc Ref. 5.3)</b>:</p> <ul style="list-style-type: none"> <li>▪ Zone A (Figure 5.4, Sheet 1): An agricultural building and associated ancillary buildings, adjacent to Field 1 and Field 2, were removed as they are not required for the Project.</li> <li>▪ Zone D (Figure 5.4, Sheet 4): The existing hardstanding access tracks to Bank Farm were included to ensure access via Bank Farm into Fields 1 to 9 for the duration of the Project.</li> <li>▪ Zone F (Figure 5.4, Sheet 6): Addition of a small area of road verge on Goldwell Lane to provide a wider turning circle for construction vehicles.</li> <li>▪ Zone G (Figure 5.4, Sheet 7): A small section of Field 19 owned by Environment Agency was removed as it was not required for Project.</li> <li>▪ Zone H (Figure 5.4, Sheet 8): A small section of Field 19 owned by Environment Agency was removed as it was not required for Project.</li> <li>▪ Zone J (Figure 5.4, Sheet 10): Addition of an area of carriageway of Station Road and associated road verges to ensure that the Project has all necessary powers over that land to manage visibility splays throughout the Project's life cycle.</li> <li>▪ Zone M (Figure 5.4, Sheet 13): Addition of approximately 1.5 ha of land along the Cable Route Corridor to reflect the land UKPN have indicated they may require for construction.</li> <li>▪ Zone N (Figure 5.4, Sheet 14): UKPN confirmed the area within the Sellindge Substation where works are required to connect the Project to the electricity grid, which has reduced the land area at Sellindge Substation required for the Project.</li> </ul>



Consultation Stage	Site Area and Order Limit Considered
	<p>A small area of land to the east of the Sellindge Substation has been added to facilitate the gird connection works. This change represents a net reduction of 8.34 ha.</p> <ul style="list-style-type: none"> <li>Zone O (Figure 5.4, Sheet 15): The Alternative Cable Route and associated land required for a switching station are no longer required as part of the Project and were therefore removed. This change represents a reduction of 2.6ha. The Alternative Cable Route was situated within FHDC's boundary. <b>Section 5.13</b> of this Chapter provides further information on the reasons why the Applicant is no longer taking forward the Alternative Cable Route.</li> </ul>
2024 Targeted Consultation	<p>The preferred Order limits changed from that during the 2023 Targeted Consultation. A summary of the change made during this period is provided below and on <b>ES Volume 3, Figure 5.4: Changes to Preferred Order Limits (Doc Ref. 5.3)</b>:</p> <ul style="list-style-type: none"> <li>Zone P (Figure 5.4, Sheet 16): Addition of approximately 6sqm of land was added to incorporate the footbridge that connects PRoW AE454 (to be diverted as part of the Project) to the existing access network.</li> </ul> <p>The Site has an area of approximately 192 ha.</p>

## 5.10 Alternative Project Layout

5.10.1 **Table 5.3** summarises the alternative layouts of the solar generating element of the Project considered by the Applicant and the main factors that have influenced the final proposals set out within the **Works Plans (Doc Ref. 2.3)**, the **Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)** and **Design Principles (Doc Ref. 7.5)** included within the DCO Application. A comparison of the environmental effects is provided.

5.10.2 The extent and layout of the PV Arrays within the Site boundary has evolved throughout the design development stage, including changes that seek to avoid/minimise environmental effects and in response to stakeholder engagement. The layout of PV panels in proximity to residential dwellings has also been informed by discussions with property owners/occupiers and assessment studies. **Table 5.3** provides a summary of the key design iterations to the layout of the PV Arrays at each consultation stage, based on the **Illustrative Project Drawings - Not for Approval (Doc Ref. 2.6)** including the **Illustrative Project Layout**, which has in turn informed the **Works Plans (Doc Ref. 2.3)**.

5.10.3 Overall, the approximate extent of the PV Arrays (i.e., Works No. 1) has reduced as the design has evolved as follows (based on the Illustrative Project Layout drawings

for each consultation stage and the **Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)** for the DCO Application):

- 2022 Consultation Scheme: approximately 122ha;
- 2023 Consultation Scheme: approximately 120ha; and
- Project: approximately 110ha.

**Table 5.3: Summary of Alternative Layouts**

Issue	Commentary and Comparison of Environmental Effects (as relevant)
Layout of Solar PV Arrays	<p><b>2022 Consultation Scheme</b></p> <p>The 2022 Consultation Scheme set out a proposed layout of PV Arrays within the Site, totalling approximately 122ha. This layout was revised a number of times from the initial design until the 2022 Consultation Scheme issue. Alternatives and changes that were made from the initial issue to the 2022 Consultation Scheme include:</p> <ul style="list-style-type: none"> <li>▪ The layouts of PV panels were redesigned to accommodate for PRowS, badger sett standoffs and findings of initial landscape and visual impact assessment; and</li> <li>▪ PV panels were removed from Fields 20 and 27 to allow Biodiversity Improvement Areas ('BIA') and landscape planting to be delivered instead.</li> </ul> <p><b>2023 Consultation Scheme</b></p> <p>The extent of the PV Arrays was reduced to approximately 120ha in the 2023 Consultation Scheme from that included within the 2022 Consultation Scheme, primarily due to additional landscape planting. The layout of the PV panels was adjusted in several locations to optimise the PV panel layout. Notable changes included:</p> <ul style="list-style-type: none"> <li>▪ Adjustments to PV panel layouts to accommodate changes to the PRow strategy.</li> <li>▪ Removal of PV panels from the north west of Field 16 and eastern boundary of Field 20 to avoid tree buffer zones around two veteran trees.</li> <li>▪ Removal of PV panels from the north edge of Field 25 to allow for the planting of a significant tree belt to assist in screening the Project from the railway line.</li> </ul> <p><b>Project</b></p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>The extent of the PV Arrays was reduced to 110ha in the final Project from that included within the 2023 Consultation Scheme. Key changes included:</p> <ul style="list-style-type: none"> <li>▪ Removal of PV panels from Fields 26 to 29 in the Northern Area. The 2023 Consultation Scheme included PV panels in these fields, however they were subsequently removed following further detailed analysis of flood risk.</li> <li>▪ Removal of PV panels from the northern edge of Field 3 to allow for utilities infrastructure offset.</li> <li>▪ Removal of PV panels from the southwestern corner of Field 20 to reduce visual impacts from the south section of Kent Downs NL.</li> </ul> <p>Whilst the extent of the Site has been subject to minor changes during the design evolution, the extent of PV panels proposed has been reduced by approximately 12ha from that of the 2022 Consultation Scheme. This reduction in the extent of PV panels leads to reduced potential for impacts on visual receptors, landscape character impacts, and effects associated with construction (e.g. habitat loss, noise). Removal of the PV panels from the areas stated above has slightly reduced the generating capacity of the Project but has enabled it to provide further green infrastructure and biodiversity enhancements.</p>
Proximity to Dwellings	<p><b>2023 Consultation Scheme</b></p> <p>Changes were made to the illustrative layout included within the 2022 Consultation Scheme to ensure infrastructure was located away from residential properties and that impacts are minimised where possible. These included:</p> <ul style="list-style-type: none"> <li>▪ Further set back of PV panels and addition of landscape planting to the north of Handen Farm to provide further visual screening from the property and biodiversity enhancements.</li> <li>▪ Removal of PV panels in Field 13 to reduce visual impact from Handen Farm Cottage. PV panels to the south have been completely removed such that there is no change to views in that direction (as PV panels further south in Field 12 are not visible over the ridgeline/hedge) and PV panels to the west were moved circa 20m further away from the position in the 2022 Consultation Scheme to ensure that the tops of the panels are below ground level/the horizontal plane when viewed from Handen Farm Cottage.</li> </ul>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<ul style="list-style-type: none"> <li>▪ Relocation of an Intermediate Substation (Field 4) further away from Bow Cottage and set back of PV panels on the northern edge of Field 5 to improve visual screening at this property.</li> <li>▪ Set back of PV panels and fence line of Field 17 adjacent to Elmsvale residential property on Calleywell Lane to allow for an increased native woodland planting to provide visual screening (Zone E on <b>ES Volume 3, Figure 5.4: Changes to Preferred Order Limits (Doc Ref. 5.3)</b>).</li> <li>▪ Further enhancement of landscape planting along the western edge of Field 24 and the northern edge of Field 19 added to improve visual screening from Evegate Mill (Grade II listed).</li> <li>▪ Addition of acoustic barriers to minimise effects from noise associated with Inverter Stations and the Project Substation.</li> </ul> <p><b>Project</b></p> <ul style="list-style-type: none"> <li>▪ Further set back of PV panels from the western edge of Field 3 to reduce visual impacts at a non-designated barn located near to Stonelees (Grade II* listed) which has permission for conversion into a residential dwelling. This change provides the barn’s windows with a 15m unobstructed view. A new hedge has been included and the security fence adjusted to accommodate a 15m buffer. A section of previously proposed hedge along the western boundary of Field 3 has been removed where it ran alongside the barn.</li> <li>▪ Inverter Stations set back further from properties including Grade II* listed Stonelees (Field 3), the Kennels (Field 1) and Becketts Green (Field 9).</li> <li>▪ PV panels on the eastern edge of Field 17 removed adjacent to Elmsvale residential property on Calleywell Lane to allow for an increase in the native woodland planting to provide visual screening from this property.</li> </ul> <p>The Project layout has been designed to further reduce effects at residential dwellings compared to earlier layouts and provides additional set backs of PV panels and Inverter Stations, enhanced visual screening and noise mitigation measures.</p>
Landscape and visual mitigation / enhancements	The overall illustrative layout of the Project and its integrated landscape design strategy has undergone extensive review and iteration. The <b>Design Approach Document (Doc Ref. 7.4)</b>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>describes the Design Objectives relevant to landscape and visual considerations.</p> <p>The layout of the PV panels and proposed landscape strategy was informed by landscape and visual impact analysis and was designed to be sympathetic to the area, contribute positively to the landscape character and quality of the area, and to mitigate adverse landscape and visual effects. The landscape proposals also evolved following engagement with ABC and KCC. The <b>Consultation Report (Doc Ref. 6.1)</b> provides a description of how the final Project responded to consultation feedback.</p> <p><b>Initial Design</b></p> <p>An initial landscape and visual appraisal of the Site was carried out in December 2021, following which a set of key landscape and visual opportunities and constraints were identified to inform the emerging design of the Project. These opportunities and constraints are considered below.</p> <ul style="list-style-type: none"> <li>▪ Minimising vegetation removal, with retention and wholesale reinforcement of existing hedgerows across the Site;</li> <li>▪ Retain existing canopy trees where present within fields;</li> <li>▪ Re-establishment of historic field boundaries with hedgerow planting, particularly on the north facing slopes of the Aldington Ridge line;</li> <li>▪ Provision of a minimum 15m buffer to Backhouse Wood Local Wildlife Site ('LWS');</li> <li>▪ Reinforcement of existing patterns of woodland with new native tree planting;</li> <li>▪ Additional screening in the form of tree planting along key boundaries;</li> <li>▪ Buffers to residential receptors/listed buildings with intervisibility with the Site;</li> <li>▪ Retention of the existing PRoW network, with 15m buffers provided to minimise visual effects on receptors and retain the sense of openness across the Site;</li> <li>▪ Provision of 10m buffers to existing watercourses with new planting to create riverine habitat corridors; and</li> <li>▪ Establishment of a series of habitat improvement areas where appropriate on the Site.</li> </ul> <p>These opportunities and constraints were considered by the Project team as a whole alongside other aspects, including flood risk,</p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>heritage, ecology and transport. Several iterations of the layout were prepared between the inception of the Project and the publication of the PEIR, and the design of Project evolved considerably during this period.</p> <p><b>2022 Consultation Scheme</b></p> <p>The network of existing PRowS was a key constraint that had a considerable impact on the efficient use of the Site, with existing routes often not related to field boundaries (existing and historic). This is particularly evident immediately to the north of Bank Road, on the north facing slope of the Aldington ridgeline, where there has been significant historic loss of hedgerows.</p> <p>The Project offered the opportunity to re-establish some of these historic field boundaries and, at the same time, reconfigure the PRow network at the local scale to better relate to the prevailing landscape pattern. This enables the most efficient use of the Site in terms of generating capacity whilst also maximising the potential for existing and proposed hedgerows to screen views of proposed PV panels; by co-locating PRow within hedgerow and watercourse corridors, users of PRow will typically only experience the Project to one side. This approach also allows landscape mitigation to be focused along field boundaries, with significant planting as part of a site-wide green infrastructure strategy.</p> <p>Following a lengthy process of iterative design the 2022 Consultation Scheme included the following embedded landscape mitigation principles developed in close consultation with the ecologist, heritage consultant and wider Project team:</p> <ul style="list-style-type: none"> <li>▪ The retention of the existing field boundary structure of hedgerows and trees;</li> <li>▪ Retention of existing grassland pastures where present;</li> <li>▪ Seeding of arable fields with appropriate native grassland mixes to enhance biodiversity and support grazing;</li> <li>▪ Provision of sheep grazing (where possible) within proposed perimeter fences, providing the opportunity to retain the Site in agricultural use;</li> <li>▪ The provision of new native hedgerows within Fields 4 - 6 and Fields 8 - 13 to visually break up the Project, particularly in views from the north, and to provide new habitat connectivity;</li> <li>▪ Reinforcement of other field boundary vegetation, including within Fields 1, 2, 3, 7, 20 and 22, as well as along Goldwell</li> </ul>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>Lane;</p> <ul style="list-style-type: none"> <li>▪ Reinstatement of native hedgerows informed by historic maps of the area, with characteristic features included in accordance with published landscape character guidance;</li> <li>▪ 3.2m minimum buffers from existing hedgerows to proposed fencing to protect existing landscape features;</li> <li>▪ Minimum 10m width to corridors within which existing retained or diverted PRow are located;</li> <li>▪ Minimum 10m buffer to the East Stour River and watercourses managed by the River Stour (Kent) Internal Drainage Board ('IDB') with appropriate seeding mixes within these corridors to enhance biodiversity;</li> <li>▪ Buffer to residential properties at Becketts Green (approximately 166m from north-western frontage of building to proposed PV Arrays) and the Grade II listed building on Frith Road (Quested Cottage – approximately 88m from building to proposed PV Arrays);</li> <li>▪ Proposed hedgerows to reinforce existing boundary planting around Stonelees (Grade II* listed);</li> <li>▪ Proposed woodland buffers on Calleywell Lane;</li> <li>▪ Native scrub planting around existing areas of woodland, including Backhouse Wood;</li> <li>▪ Planting of over 100 native wetland feathered trees along the East Stour River;</li> <li>▪ Provision of new mosaic planting to establish new habitats including wildlife ponds and scrapes, native aquatic/wetland planting; native shrub and tree planting, wildflower seeding and orchard planting in seven discrete locations throughout the Site; and</li> <li>▪ A wide range of species have been specified in planting mixes to promote a varied structure and wider tolerance of conditions, thus making the landscape proposals more resilient as a whole to the changes likely to be brought about by climate change.</li> </ul> <p>The above principles were set out in the PEIR and illustrated on a series of Landscape Strategy Plans which took the form of technical soft landscape planting plans accompanied by schedules denoting the quantity and form of trees, shrubs, aquatic planting and grassland seeding across the Site. Taken as a whole, the 2022 Consultation Scheme proposed nearly 40,000 trees and shrubs, over 150ha of new or improved grassland, and nearly 10ha of new</p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>wetland features. This was considered to be a substantial landscape scheme that was proportional to the scale of the Project with the potential to result in long term beneficial effects on the landscape character of the Site.</p> <p><b>2023 Consultation Scheme</b></p> <p>As a direct response to feedback on the 2022 Consultation Scheme, including detailed feedback from ABC's landscape advisor, both in writing and directly in a follow-up meeting, a number of changes were made to the Project, which are summarised below:</p> <ul style="list-style-type: none"> <li>▪ More extensive buffers and more robust proposed planting provided to assist in mitigating visual impact from adjacent residential properties, including Evegate Mill House, Elmsvale, Becketts Green, Handen Farm, Handen Farm Cottage, Spring Cottage and Bow Cottage;</li> <li>▪ All PRoWs were proposed to be at least 10m wide, in excess of the 5m width requirement requested by KCC in its response to the EIA scoping process, with approximately 30% of the PRoW benefiting from a corridor width in excess of 15m;</li> <li>▪ More robust landscape mitigation proposals to the southern boundary of Field 20, to increase screening from Viewpoint 27 within the section of the Kent Downs NL that extends to the south-east of the Site;</li> <li>▪ More robust planting proposal to the northern and western boundaries of Field 25 to assist in containing close range views of the Project for people travelling along Station Road/Goldwell Lane;</li> <li>▪ Substantial increase in proposed tree planting across the Site, including wetland and hedgerow trees, and native broad-leafed woodland to assist in assimilating the Project within the landscape and maximise beneficial impacts on landscape receptors;</li> <li>▪ Provision of additional new hedgerows along existing/diverted PRoW to assist in screening parts of the Project;</li> <li>▪ Revised diversion proposals for PRoW AE370 to allow open views of the North Downs to be enjoyed from the Aldington Ridge; and</li> <li>▪ The identification of areas that are suitable for advanced planting to be carried out as (shown on Figure 7.22 of the PEIR Addendum).</li> </ul>



Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>An Illustrative Landscape Masterplan and Illustrative Landscape Sections were provided as part of the 2023 Statutory Consultation to assist in communicating the extent and vision of the landscape strategy, particularly focusing on the scale and extent of landscape proposals, and the nature of PRow corridors.</p> <p>The landscape strategy submitted alongside the PEIR Addendum was enhanced with significant increases in planting numbers compared to the 2022 Consultation Scheme. Proposed woodland planting was increased five-fold, with the number of individual canopy trees more than doubled compared to the 2022 Consultation Scheme. The 2023 Consultation Scheme Illustrative Landscape Masterplan included approximately 48,844 trees/shrubs, approximately 157ha of new and improved grassland, and approximately 10ha of wetland features.</p> <p><b>Project</b></p> <p>Following publication of the 2023 PEIR Addendum, PV panels were removed from Fields 26-29. Rather than remove these fields from the Site, the Applicant decided to retain this area for landscape, biodiversity and water environment enhancements, with enhanced public access. The following landscape principles were the applied within this part of the Site:</p> <ul style="list-style-type: none"> <li>▪ A series of sustainable drainage features to attenuate water from the Project Substation, discharging to the East Stour River via a wetland feature with the aim of improving water quality;</li> <li>▪ A wetland area with the aim of providing 'in channel improvements' to the ordinary watercourse between Fields 26 and 27 in line with objectives of the River Basin Management Plans for the Upper Stour catchment (The Stour Catchment Plan, July 2021<sup>7</sup>);</li> <li>▪ A wetland meadow area in Field 28 within the flood zone with features to improve capacity and habitat opportunities, e.g. scrapes, ponds and water meadow as part of a wetland habitat mosaic;</li> <li>▪ Areas set aside for nesting birds habitats;</li> <li>▪ Enhanced public access including existing PRow and new PRow along the East Stour River providing a link to the west side of Field 28;</li> <li>▪ Enhanced woodland and understorey/scrub planting to reinforce the northern edge of Backhouse Wood LWS;</li> </ul>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<ul style="list-style-type: none"> <li>▪ Additional woodland planting along the northern edge of Fields 26 and 29 to provide containment and screening of the railway embankment and Project Substation, and additional woodland habitat; and</li> <li>▪ Increased provision of characteristic native wetland trees/riparian corridor along the East Stour River.</li> </ul> <p>The proposed landscape strategy for the Project has been enhanced during the design process in response to landscape and visual analysis and consultation feedback and is detailed in the <b>Illustrative Landscape Drawings - Not for Approval (Doc Ref. 2.7)</b> and <b>Outline Landscape and Ecological Management Plan ('LEMP') (Doc Ref. 7.10)</b>.</p> <p>The Project will deliver significantly more trees, woodland and other habitat types compared to earlier layouts and will also now deliver enhancements to existing agricultural land at Fields 26 – 29 instead of PV panels. This will improve visual screening of the Project and biodiversity net gain compared to earlier layouts.</p>
<p>Ecological mitigation/ biodiversity enhancements</p>	<p>The layout of the Project and ecological mitigation and biodiversity strategy has been informed by ecological surveys. The layout of the PV panels and other infrastructure has been designed to minimise adverse impacts on biodiversity and maximise enhancements where possible.</p> <p><b>2022 Consultation Scheme</b></p> <p>The 2022 Consultation Scheme included a range of measures to protect habitats and species and enhance biodiversity, including:</p> <ul style="list-style-type: none"> <li>▪ Set backs and landscape buffers between habitats and PV Arrays (notably for watercourses, ancient woodland at Backhouse Wood and hedgerows);</li> <li>▪ Retention and enhancement of existing ponds within the Site;</li> <li>▪ Establishing native flower rich grassland.;</li> <li>▪ New species rich grassland; and</li> <li>▪ Set backs to badger setts.</li> </ul> <p><b>2023 Consultation Scheme</b></p> <p>The landscape proposals evolved in response to responses to the 2022 Statutory Consultation and further engagement with ABC and KCC in 2023, as described in the row above. The main changes from</p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>the 2022 Consultation Scheme to the 2023 Consultation Scheme were as follows:</p> <ul style="list-style-type: none"> <li>▪ Additional hedgerow planting with proposed hedgerow trees and increased widths of some hedgerows;</li> <li>▪ Increased hedgerow re-enforcement on the northern edge of the Site;</li> <li>▪ Addition of a woodland belt on the northern boundary of Field 25;</li> <li>▪ Additional tree planting along the north-western edge of Field 24 and the north-eastern edge of Field 19 comprising ‘woodland carr’ dense woodland tree planting and individual feathered wetland trees;</li> <li>▪ Expansion of the meadow area in Field 20 to its southern boundary and removal of proposed scrub patches from this area to create more suitable habitat for skylark and brown hare;</li> <li>▪ Increase in the area of native woodland planting along Callywell Lane on the eastern edge Field 17 to provide additional biodiversity habitat and visual screening for the residential dwelling Elmsvale;</li> <li>▪ Addition of skylark nesting plots across fields throughout the Project. These are to be located centrally within the Fields;</li> <li>▪ Adjustment to field boundaries in numerous locations to include seed rich habitats, such as wheat, barley and oats, to benefit yellowhammer and other seed eating farmland birds during winter; and</li> <li>▪ Addition of a BIA in the northern corner of Field 15 through the relocation of an internal substation, PV panels and security fence.</li> </ul> <p><b>Project</b></p> <p>PV panels within Fields 26 to 29 have been removed but these areas remain in the Site and are now proposed for biodiversity and landscape enhancements.</p> <p>The removal of PV panels from Fields 26 to 29 and the landscape proposals allow the Project to deliver additional biodiversity net gain compared to the 2022 Consultation Scheme. The Project also delivers additional enhancement and a package of mitigation measures which have been developed in response to consultation feedback compared to earlier design layouts.</p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
<p>Arboriculture</p>	<p><b>2022 Consultation Scheme</b></p> <p>The layout of the PV Arrays and associated infrastructure was informed by arboricultural surveys of the Site which identified veteran trees and other trees, and appropriate buffer zones (or root protection zones).</p> <p><b>2023 Consultation Scheme</b></p> <p>The extent of PV panels and security fences was set back in several locations to avoid tree root protection areas and buffer zones for veteran trees in line with Natural England and Forestry Commission standing advice<sup>8</sup>. These were minor adjustments which resulted in some loss of PV panels. No veteran trees will be lost due to the Project.</p> <p><b>Project</b></p> <p>No relevant changes. The proposed Project layout has been designed to retain and protect existing trees as far as practicable.</p>
<p>Site access</p>	<p>The location of the Project Substation, Primary Site Access and Primary Construction Compounds have been selected in the north-east of the Site in favour of alternative locations. These Project components are all located close to the A20 Hythe Road to the north and the C609/Station Road. This ensures HGVs during construction and decommissioning would avoid local settlements, thereby minimising disruption and safety risks. The main site access (Primary Site Access) is also located away from any statutory or non-statutory designated nature conservation sites, notable habitats and residential receptors. No other alternative to the main site access (Primary Site Access) location off Station Road was considered by the Applicant.</p> <p><b>2022 Consultation Scheme</b></p> <p>Initially, the Applicant considered use of the local road network for construction access. However, this was discounted in favour of an internal haulage road which connects the Primary Construction Compounds with the majority of the Fields (the exceptions being the South Eastern Area fields which are accessed using Goldwell Lane). Use of the internal haulage road for HGVs will avoid associated traffic, noise and other disruption to local road users and residents compared to the use of the local road network.</p> <p><b>2023 Consultation Scheme</b></p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>The internal haulage route was moved further west from Handen Farm and the unnamed access road to the Handen Farm area.</p> <p><b>Project</b></p> <p>Unnamed accesses through Bank Farm were added to the Site to allow access through the property for the duration of the Project. Internal access tracks, to be constructed of permeable hardstanding, were added throughout the Site, typically along hedgerows and/or between rows of panels to provide access from the local road network in the event of an emergency to the Inverter Stations and BESS. Internal access tracks will also be used by maintenance teams throughout the life of the Project.</p> <p>Internal access tracks will require some additional construction activity which will result in additional environmental effects compared to previous illustrative layouts, however, these will be minimised through careful siting at detailed design stage and <b>Outline Construction Environmental Management Plan ('CEMP') (Doc Ref. 7.8)</b> measures.</p>
Public Rights of Way	<p>The layout of the PV panels within the Project has been designed to minimise the impacts on the PRow network, where possible. The Applicant has sought to minimise the number and length of PRow diversions and deliver improvements to the existing PRow network with new and diverted PRow providing increased connectivity. The proposals have been developed with input from ABC and KCC PRow officers and having regard to consultation responses.</p> <p><b>2022 Consultation Scheme</b></p> <p>The PV panel layouts in the 2022 Consultation Scheme were designed to accommodate PRow routes, diversions (re-routes) and setbacks.</p> <p><b>2023 Consultation Scheme</b></p> <p>A number of changes were included in the 2023 Consultation Scheme to the PRow strategy following discussion with ABC and KCC and in response to 2022 Statutory Consultation responses. All PRow's were proposed to be at least 10m wide, in excess of the 5m width requirement requested by KCC in its response to the EIA scoping process, with approximately 30% of the PRow benefiting from a corridor width in excess of 15m.</p> <p><b>Project</b></p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>The Applicant refined the layout of the PV Arrays to ensure that all PRoWs are maintained at a minimum of 2m wide within a corridor of 10m minimum width, with the exception of the section of PRoW ‘New 3’ adjacent to Work No. 3 (Project Substation) which will sit within a 5m corridor.</p> <p>Further details of how the 2023 Consultation Scheme evolved in relation to PRoWs are provided in <b>ES Volume 2, Chapter 12: Socio-economics (Doc Ref. 5.2)</b> of this ES and supporting appendices.</p>
<p>Flood Risk and Drainage</p>	<p><b>2022 Consultation Scheme</b></p> <p>Within the Site, the Applicant sited the Project Substation outwith Flood Zones 2 and 3 in the 2022 Consultation Scheme. Other electrical infrastructure, including the Intermediate Substations and Inverter Stations, were also sited outwith Flood Zones 2 and 3, with the exception of locations in Fields 19, 24 and 29.</p> <p><b>2023 Consultation Scheme</b></p> <p>The Inverter Station (including BESS Units) located in the northern central section of Field 29 was moved to the eastern boundary of the field to increase the set back from the river crossing and PRoW junction (AE657) and also reduce the risk of flooding.</p> <p>PV panel framing in Fields 26 and 29 was revised from a four panel layout to a two panel layout to ensure that the base of PV panels was above the flood level. This resulted in a reduction in the number of PV panels in these fields by approximately 1,000.</p> <p><b>Project</b></p> <p>All PV panels were removed from Fields 26 to 29 following further evaluation of flood risk associated with the AFSA and East Stour River, with other wetland features included to enhance the water environment and provide some additional flood storage capacity.</p> <p>High voltage electrical infrastructure, including the Intermediate Substations and Inverter Stations, were also relocated from Fields 19 and 24 to Fields 15, 16 and 18 to ensure they were sited outwith areas at risk of flooding in Flood Zone 1.</p> <p>An additional Secondary Construction Compound was included in Field 19. This provides an alternative in the event that the Secondary Construction Compound in Field 23 were subject to surface water flooding.</p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>The water environment effects of the Project remain comparable to those of the 2022 Consultation Scheme. However, the proposed layout minimises the flood risks to on-site infrastructure and water environment enhancements compared to earlier layouts which also improve the operating resilience of the Project.</p>
Cultural Heritage	<p><b>2022 Consultation Scheme</b></p> <p>New hedgerows were added to the Project along the lines of historic hedgerows which would restore these features to the landscape.</p> <p><b>2023 Consultation Scheme</b></p> <p>The siting of Inverter Stations was adjusted to ensure they are located outside areas of archaeological potential in Fields 8, 14 and 17 (as shown on the <b>Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)</b>) as identified by the geophysical survey report. Flexibility is being sought in the DCO to allow these units to be relocated if evidence of archaeology is identified as part of trial trenching to be undertaken pre-construction.</p> <p>Further enhancement of landscape features along the western edge of Field 24 and the northern edge of Field 19 were added to improve visual screening from the Evegate Mill (Grade II listed).</p> <p><b>Project</b></p> <p>PV panels have been removed from the western edge of Field 3 adjacent to the barn located close to Stoneless (Grade II* listed). A new hedge is proposed and the security fence adjusted to accommodate a 15m buffer from the property line. A section of the previously proposed hedge along the western boundary of Field 3 has been removed.</p> <p>The cultural heritage effects of the Project remain comparable to those of the 2022 Consultation Scheme.</p>
Glint and Glare	<p><b>2023 Consultation Scheme</b></p> <p>In order to mitigate potential glint/glare issues to the north of the Site (specifically the rail line), PV panels in Fields 26, 27, 28 and 29 were changed from a due south alignment (180 degrees) to an alignment 15 degrees west of south (195 degrees). The proposed maintained height of existing hedgerows on the eastern side of Field 23 and the western side of Field 25, and the proposed hedgerow to the west of Becketts Green were also revised increased from 2.5-3m to 4.5-5m</p>

Issue	Commentary and Comparison of Environmental Effects (as relevant)
	<p>to minimise the potential for glint and glare to be experienced at Woodleas Farm/Goldwell Lane, Station Road and Becketts Green.</p> <p><b>Project</b></p> <p>PV panels have been removed from Fields 26 to 29 which further reduces the potential for glint and glare effects compared to earlier layouts. All PV panels now face due south (180 degrees). A glint and glare assessment of the Project is included as <b>ES Volume 4, Appendix 16.2: Solar Photovoltaic Glint and Glare Study (Doc Ref. 5.4)</b> and does not identify any significant residual glint and glare effects.</p>
Noise	<p><b>2022 Consultation Scheme</b></p> <p>Since the 2022 Statutory Consultation, an updated noise assessment has been undertaken of the final Project layout (<b>ES Volume 2, Chapter: 14: Noise (Doc Ref. 5.4)</b>). Key components of the Project were also moved further away from residential dwellings to minimise noise impacts on residential receptors.</p> <p><b>Project</b></p> <p>Acoustic barriers will be provided along the northern and eastern boundaries of the Project Substation and will be provided at all Inverter Stations. Additionally, Inverter Stations have been removed from Field 19 and Field 24 to avoid areas at higher risk of flooding. This change will help to reduce noise impacts at nearby residential receptors compared to earlier design iterations.</p>

## 5.11 Alternative Technologies

### Renewable Energy Technology

- 5.11.1 In light of the nature of the area surrounding the Sellindge Substation grid connection and the current national policy provisions for renewable energy technologies, it is considered that ground-mounted solar PV panels, together with energy storage, represents the most appropriate renewable energy technology for deployment at the Site.
- 5.11.2 Alternative renewable energy technologies such as wind, pumped hydro-storage or small scale nuclear would not meet the Project requirements and have therefore not been considered by the Applicant. Onshore wind technology was not considered to be suitable due to the significant landscape and visual impacts that this type of development would have, in particular on the Kent Downs NL. The topography and nature of the Site means that pumped hydro-storage schemes would not be viable.



The available grid capacity at Sellindge Substation is not sufficient to support small scale nuclear generation and this technology is not commercially proven today. As such, solar PV is considered the best renewable generating solution for the Site.

### Solar Generating Station Technology

5.11.3 The main solar technology alternatives that have been considered for the Project are set out in **Table 5.4**. Alternative technology for solar farms is rapidly evolving and, as such, the DCO Application includes some flexibility to allow the Project to respond to advances in technology in the future, where appropriate. This is important to ensure the Project is able to maximise its generating potential.

**Table 5.4: Solar Generating Station Technology Alternatives**

Design Component	Alternatives Considered
Solar PV Panels and PV Arrays	The majority of the PV panels across the Site will adopt a four PV grid framing layout as shown on the <b>Illustrative Framing Detail</b> included within the <b>Illustrative Project Drawings – Not for Approval (Doc Ref. 2.6)</b> . In the 2022 Consultation Scheme and 2023 Consultation Scheme, a two PV panel grid framing layout was proposed within Fields 26 to 29 which were at risk of flooding. However, following further flood analysis no PV panels will be located in these fields and therefore a two PV grid framing layout is no longer required.
	The PV panels will be mounted on mounting structures and fixed in position. Trackers, which allow orientation of the PV panels to be adjusted, were considered but were discounted by the Applicant due to commercial and environmental considerations.
Conversion Units	Inverter Stations (inverters, transformers and DC-DC converters) and BESS Units will be located throughout the PV Arrays. String inverters were not considered as these would not be compatible with the use of a DC-coupled BESS (see below).
Battery Energy Storage System (BESS)	Inclusion of the BESS provides a means of further enhancing the utility of the power generated by the Project, whilst also providing energy balancing capability and other services to support the operation of the electricity grid. The BESS can store surplus renewable energy and release it to the grid at times of lower generation and can also utilise the Project's import connection to charge BESS at times of higher national generation, in both cases helping to balance the electricity grid.  <b>Centralised BESS</b>

Design Component	Alternatives Considered
	<p>PV panels generate DC which is then converted to AC using an inverter. BESS are charged and discharged using DC.</p> <p>A BESS can either be connected to the PV panels after conversion to AC (AC-coupled) by an inverter or can be connected prior to conversion to AC (DC-coupled). If AC-coupled all BESS infrastructure is typically located in a single centralised compound area whereas if DC-coupled the BESS units need to be located near to the inverters such that DC power from the PV panels can be used to charge the BESS prior to conversion to AC at the inverters.</p> <p>The installation of a centralised AC-coupled BESS was considered by the Applicant but discounted in favour of a distributed DC-coupled approach for the following reasons:</p> <ul style="list-style-type: none"> <li>▪ Efficiency: DC-coupled BESS provide a higher level of efficiency and therefore lower energy losses than AC-coupled BESS. This is because for an AC-coupled system the solar energy has to invert on two occasions (DC to AC at solar inverters and then AC to DC at BESS inverter) before the BESS is charged from the PV panels whereas for a DC-coupled system the BESS is charged using DC direct from the PV panels.</li> <li>▪ Failure/Isolation: an AC-coupled BESS presents a single point of failure for the BESS system. A DC-coupled BESS does not have this risk and therefore potential for complete BESS system shutdown is minimised.</li> <li>▪ Fire Risk: by distributing the BESS across the whole Site, typically in groups of four units with a maximum of eight units, the risk of a major fire incident is mitigated.</li> <li>▪ Landscape and land impacts: a DC-coupled BESS offers greater flexibility for integration within the landscape given the smaller footprint which also reduces the potential for substantial earthworks and vegetation removal. Locating the BESS as part of Inverter Stations, which are located away from field boundaries, limits the impact to offsite receptors relative to a single compound AC-coupled system. Given the landform and topography of the Site it is considered that a distributed DC-coupled system results in lower landscape visual effects.</li> <li>▪ Noise: a DC-coupled BESS, comprised of fewer BESS units spread across the Site, will have lower concentrated noise levels compared to an AC-coupled centralised system.</li> </ul>

## 5.12 Project Substation Alternatives

### Location

- 5.12.1 An alternative location for the Project Substation was initially identified in the eastern part of the Site adjacent to the East Stour River (i.e. adjacent to the north eastern corner of Field 27). This location was identified as it would deliver the shortest possible high voltage grid connection cable between the Project Substation and the Sellindge Substation. Shorter distances have commercial and energy efficiency advantages and would also minimise environmental effects and temporary disruption associated with construction. However, the location in Field 27 was discounted as it is not sequentially preferable to the Project Substation in Field 26 due to flood risk. **ES Volume 3, Figure 10.4: Flood Map for Planning (Doc Ref. 5.3)** shows that Field 27 is located within Flood Zone 3 and could be subject to up to 2.0m of flood water.
- 5.12.2 The location for the Project Substation in Field 26 has been informed by landscape and visual constraints. It is positioned on low lying ground away from the more visually exposed Aldington Ridge, as well as being remote from residential properties and listed buildings. It is in a position where it will not be visible from the Kent Downs NL or any other designated landscape, nor is it likely to be prominent in views from any residential properties.
- 5.12.3 At a local scale, the Project Substation location is well contained to the west and south by existing belts of trees and scrub. To the north, it is enclosed by a belt of trees that lines the southern side of the HS1 / Network Rail railway line, which sits in a substantial cutting. As a result of this containment, the Project Substation will only be visually exposed to the south-east, where it will be visible within Fields 26-29. The nearest existing publicly accessible vantage point, on PRow AE657, is over 300m from the proposed location. Furthermore, beyond the enclosure of Fields 26-29, there is likely to be minimal visibility of the Project Substation due to the combination of landform and existing vegetation, with only a very partial distant glimpsed view likely from PRow AE449, and no other viewpoints assessed in the **ES Volume 2, Chapter 8: Landscape and Views (Doc Ref. 5.2)** affected.
- 5.12.4 The position of the Project Substation has also naturally been informed by flood constraints, and as a result is required to sit in the gently elevated north-western corner of Field 26. As a result of the underlying landform and the need for a level platform, earthworks and retaining walls are required as part of the Project. However, this location benefits from greater containment as a result of the existing vegetation pattern. The location of the Project Substation also allows landscape mitigation to be implemented readily, where native trees and shrubs can be planted to the south and west for screening. This mitigation planting has the dual benefit of improving biodiversity within Field 26, as part of the Site-wide landscape strategy.

### Design

- 5.12.5 A development platform and associated retaining structures will be required to ensure the Project Substation is to be developed on a level platform. The height of the platform has increased during the design process which has in turn increased

the maximum height of buildings or infrastructure within the Project Substation by a metre from that stated in the 2023 Statutory Consultation (from 62.5m AOD to 63.5m AOD). The Project Substation area has also marginally increased. The assessment Chapters within **ES Volume 2 (Chapters 7 to 16) (Doc Ref. 5.2)** have not identified new or different environmental effects associated with these changes compared to that of the 2023 Consultation Scheme.

- 5.12.6 To construct the Project Substation and its infrastructure, it is necessary to create a level platform (no greater than 56m AOD and no lower than 55mAOD) between Field 26 and the Site boundary to avoid flood risks associated with the AFSA
- 5.12.7 The initial design was to form battered 1:3 slopes around the perimeter of the Project Substation development platform but this would have resulted in the footprint of the proposed development platform extending to an unacceptable extent into the AFSA.
- 5.12.8 The proposed concept design is based on vertical or sub-vertical earth retaining structures which require less material than the initial design and ensures the footprint does not result in any loss of flood storage capacity.
- 5.12.9 Several alternatives were considered for the retaining structures, informed by a range of factors including the height of the wall, ground conditions, drainage and aesthetics. These alternatives included:
- Gravity walls (gabion wall, crib retaining wall, reinforced earth wall, L-shaped retaining walls); and
  - Embedded retaining walls (contiguous bored pile wall and steel sheet piled wall).
- 5.12.10 The engineering design is anticipated to comprise a 5m contiguous bored pile wall (to the north and west of the platform), a 5m earth reinforced retaining wall (to the south and east of the platform) and a reinforced concrete retaining wall (to the northeast). Visual impacts of the structures to the north will be limited due to existing vegetation which will be retained. The earth retaining wall to the south and east will be visible, for example from PRow AE657, and will be planted with vegetation or seeded with grass seed to soften its appearance in the landscape and minimise visual impacts.

## 5.13 Grid Connections and Cable Route Alternatives

- 5.13.1 In order to connect the Project to the national grid, high voltage cable routing is required from the Project Substation to Sellindge Substation.

### Alternative Grid Connection Routes

- 5.13.2 The Applicant initially considered routing the grid connection between the Sellindge Substation and the Project Substation between the PRow (AE 656/2) and HS1 / Network Rail railway line to the north to minimise any impact on the site area of the proposed EDF East Stour Solar Farm project (Cumulative Scheme ID No. 9). This option was discounted due to lack of sufficient space between the PRow (AE 656/2)

and railway. This was also discounted due to the proximity of the East Stour River and the potential for greater ecological disturbance along this route. Instead, the Applicant chose to locate the Cable Route Corridor to the south of PRoW AE656/2 and has undertaken regular dialogue with EDF regarding the East Stour Solar Farm project (for which consent was refused in April 2024) to ensure delivery of the Project does not prejudice delivery of the EDF proposals.

- 5.13.3 Unlike the majority of DCO solar proposals, the Project will connect to the distribution network as opposed to the transmission network and therefore the grid offer is provided by UKPN, the distribution network operator, as opposed to National Grid. The original offer was to connect via an existing tower on the south side of HS1 / Network Rail railway line but both the Applicant and UKPN sought to achieve a direct connection into Sellindge Substation to minimise cost and environmental impacts. To ensure the Project could be delivered, both the Preferred Cable Route (direct to Sellindge Substation) and an Alternative Cable Route (to the 132kV tower) were included in the 2022 Consultation Scheme and 2023 Consultation Scheme.
- 5.13.4 The Applicant secured agreement with UKPN to connect the Project to the Sellindge Substation in Autumn 2023 and therefore the Alternative Cable Route is no longer required. Connection to Sellindge Substation can be achieved through either:
- Using existing cable ducts beneath the HS1 / Network Rail railway line, the expected connection approach; or
  - Only in the event that existing cable ducts are not available, new cable ducts can be installed adjacent to the existing ducts, beneath HS1 / Network Rail railway line, using Horizontal Directional Drilling ('HDD') methods.

#### Alternative Cable Connection to Southern Eastern Area

- 5.13.5 An electrical cable is required to connect PV panels at the South Eastern Area (Fields 20, 21 and 22) to the Project Substation. The Project proposes a cable route along Goldwell Lane within the existing highway. The Applicant considered an alternative to the Goldwell Lane cable route connecting the South Eastern Area with the Project Substation across farmland. This was discounted as the land was not available due to third party land agreements and is constrained by the AFSA and AFSA embankment. This land was also discounted due to potential environmental effects on ancient woodland at Backhouse Wood LWS, biodiversity, trees and archaeology.

#### Watercourse Crossings

- 5.13.6 A number of watercourse crossings for cables using HDD methods are proposed, as described in **ES Volume 4, Appendix 10.5: Schedule of Watercourse Crossings (Doc Ref. 5.4)**. The use of cable bridges was considered as an alternative to HDD for lower voltage cables. However, this option was discounted due to the significant increase in infrastructure required and the environmental effects compared to burying cables.

### 5.14 Alternative Drainage Strategy

5.14.1 The proposed surface water drainage strategy set out in the **Outline Operational Surface Water Drainage Strategy ('OSWDS') (Doc Ref. 7.14)** has been developed following a review of potential options.

5.14.2 Options which were considered and discounted include:

- **Sustainable Urban Drainage features ('SuDS') features in Field 25 (downstream of the Project Substation)** – This was discounted in favour of using storage within the Project Substation platform and around its base in Field 26 (i.e. outwith the floodplain) principally as Field 25 would not provide any hydraulic control of surface water runoff during periods of fluvial flooding. Instead, flows from the Project Substation will be held within the gravel subbase prior to discharge and within an attenuation swale around the base of the platform and out of the floodplain. Flows will then outfall at greenfield rates via a wetland area and into a tributary of the East Stour River.
- **SuDS features to control and limit runoff from the Inverter Stations** - These were discounted due to the risks of contaminated firewater leaching into the water environment. Instead, Inverter Stations will provide attenuation storage within the subbase with perimeter bunding and a penstock to allow stormwater discharge (and firewater) to be held back in the low probability of a fire occurring and avoid pollution risks. Attenuation storage will then discharge into local ordinary watercourses via filter drains at a low and controlled rate. This storage will also be used to attenuate peak storm flows within the lined Inverter Station foundation platform with infiltration (of clean runoff) only encouraged downstream of these areas.
- **Lined swales to attenuate flows from the Inverter Stations** – This option was discounted as it gave rise to spatial and access issues for maintenance and would have resulted in reduced generated capacity as it would require removal of PV panels.
- **Swales installed beneath PV panels** – Swales beneath PV panels were discounted as they could interfere with piling, cabling and impede access for maintenance. Additionally, where PV Arrays are located on sloped sites, this may result in high velocity flows through the swale and would offer only limited attenuation at the base of the feature. Instead, species rich grassland is proposed between PV panel rows to increase interception and evapotranspiration, reducing rapid channelisation of flows along the drip line of the PV panels. Additional depression storage provided downgradient.

5.14.3 The location of some depression storage features and the wetland are within the existing fluvial floodplain and will consequently maximise the available flood storage on the Site.

## 5.15 Construction Stage Alternatives

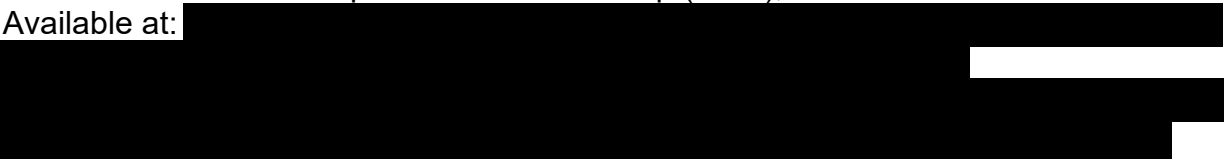
5.15.1 The location of the primary and secondary compounds were selected due to their proximity to the Project Substation location and internal haulage road. Both of these are sited away from residential receptors, statutory and non-statutory designated

nature conservation sites. No other alternatives to the main site access (Primary Site Access) location off Station Road were considered.

- 5.15.2 In the 2022 Consultation Scheme and the 2023 Consultation Scheme, the Applicant proposed that a single main construction compound, three secondary compounds and other laydown areas would be required. In response to further engineering design input, a further Primary Construction Compound was added in Field 25 to facilitate construction of the development platform for the Project Substation. A further Secondary Construction Compound was also added in Field 19 to provide greater flexibility in how the Project is delivered.
- 5.15.3 All construction compounds will be temporary and significant environmental effects from their installation and operation in the proposed locations have not been identified in the ES (**ES Volume 2, Chapters 7 – 16 (Doc Ref. 5.2)**).

## References

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