

## CHAPTER 3 - SITE SELECTION AND DESIGN

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## INTRODUCTION AND POLICY BACKGROUND

3.1 This chapter discusses the site selection process undertaken to identify the East Stour Solar Farm location, and the evolution of the site layout throughout the EIA process. Following an outline of the background policy relevant to site selection and design, this chapter considers the specific site design

criteria that are presented across the various applicable national and local policies (including the NPPF (MHCLG, 2021a), its associated NPPG (MHCLG, 2021b), National Policy Statements (DECC, 2011a and 2011b) for the development of infrastructure projects and policies and guidance provided by Ashford Borough Council).

3.2 The site design criteria considered within this chapter are derived from the combined current applicable policies, alongside standard industry practice.

### National Policy and Guidance

3.3 The National Planning Policy Framework (NPPF) (MHCLG, 2021a) requires local planning authorities to:

*'help increase the use and supply of renewable and low carbon energy and heat, plans should:*

*a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts);*

*b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and ...'* (Paragraph 155).

3.4 The NPPF continues in Paragraph 158 to state:

*'When determining planning applications for renewable and low carbon development, local planning authorities should:*

*a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and*

*b) approve the application if its impacts are (or can be made) acceptable [reference to wind power footnote removed]. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas.'*

3.5 National Planning Practice Guidance (NPPG) was published as an online resource by the Department of Communities and Local Government in March 2014. Each part of the guidance is updated as necessary. At the time of writing, the last update made was 24<sup>th</sup> June 2021 (MHCLG, 2021b), but the section for renewable and low carbon energy has not been updated since it was first published in 2015. In addition to the NPPF and NPPG, the National Policy Statements (DECC, 2011a & 2011b) are also relevant in determining renewable energy projects.

3.6 Through an iterative considered approach to site design that inherently mitigates potential impacts wherever possible, the proposed development complies with this guidance and adheres to the spirit of EN-3.

### Policy Derived Site Selection and Design Criteria

3.7 As stated in **Paragraph 3.2 on page 37** the site design criteria considered within this chapter is formed via a combination of applicable guidance from each of the relevant policies to solar energy.

Guidance was taken from the NPPF, NPPG, NPS EN-1 and NPS EN-3. The main planning and environmental issues identified in planning policy for the selection of solar energy sites are discussed in the following sections.

### NPPG

3.8 The National Guidance suggests that the key determining factors for identifying suitable locations for renewable energy schemes are:

- Neighbourhood Plans - *'The National Planning Policy Framework explains that all communities have a responsibility to help increase the use and supply of green energy, but this does not mean that the need for renewable energy automatically overrides environmental protections and the planning concerns of local communities'* [Paragraph Reference ID: 5-003-20140306];
- Landscape Character - *'In considering impacts, assessments can use tools to identify where impacts are likely to be acceptable. For example, landscape character areas could form the basis for considering which technologies*

*at which scale may be appropriate in different types of location'* [Paragraph Reference ID: 5-005-20150618]; and

- Cumulative impacts, local topography, heritage assets and local amenity [all mentioned at Paragraph Reference ID: 5-007-20140306].

3.9 However, *'Local planning authorities should not rule out otherwise acceptable renewable energy developments through inflexible rules on buffer zones or separation distances'* [Paragraph Reference ID: 5-008-20140306].

3.10 The NPPG then goes on to consider the particular requirements for specific renewable energy technologies. For large scale ground mounted solar it states:

*'The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.'*

*Particular factors a local planning authority will need to consider include:*

- *encouraging the effective use of land by focussing large scale solar farms on previously developed and non agricultural land, provided that it is not of high environmental value;*
- *where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays. See also a speech by the Minister for Energy and Climate Change, the Rt Hon Gregory Barker MP, to the solar PV industry on 25 April 2013 and written ministerial statement on solar energy: protecting the local and global environment made on 25 March 2015;*
- *that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed*

*when no longer in use and the land is restored to its previous use;*

- *the proposal's visual impact, the effect on landscape of glint and glare (see guidance on landscape assessment) and on neighbouring uses and aircraft safety;*
- *the extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;*
- *the need for, and impact of, security measures such as lights and fencing;*
- *great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting. As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset;*

- *the potential to mitigate landscape and visual impacts through, for example, screening with native hedges;*
- *the energy generating potential, which can vary for a number of reasons including, latitude and aspect.*

*The approach to assessing cumulative landscape and visual impact of large scale solar farms is likely to be the same as assessing the impact of wind turbines. However, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography the area of a zone of visual influence could be zero' [Paragraph Reference ID: 5-013-20150327].*

### *National Policy Statement for Renewable Energy Infrastructure (EN-3)*

- 3.11 Although there is no specific section within EN-3 for solar farms, guidance aimed at other technologies is considered applicable. The relevant topics and policy extracts to the proposed development are provided in the following paragraphs.

- Landscape and visual amenity:

*‘Proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology’* [Paragraph 2.4.2];

- Grid connection:

*‘The connection of the proposed onshore wind farm into the relevant electricity network will be an important consideration for applicants...’* [Paragraph 2.7.8];

- Access:

*‘Applicants will need to consider the suitability of the access routes to the proposed site for both the construction and operation...’* [Paragraph 2.7.10];

- Flexibility in the project details should be allowed for in consent [from Paragraph 2.7.18]; and

- Micrositing:

*‘Applicants are likely to need flexibility in a project consent to allow for any necessary micrositing of elements of the proposed wind farm after its consent and during its construction. This allows*

*for unforeseen events which may arise.’* [Paragraph 2.17.23].

## *Draft National Policy Statement for Renewable Energy Infrastructure (EN-3)*

3.12 A draft update to the National Policy Statement for Renewable Energy Infrastructure was published in September 2021. The consultation on the draft document closed on 30 November 2021.

3.13 This has not yet been adopted as formal policy, however the comprehensive section on solar photovoltaic generation provides the latest governmental thinking with respect to solar guidance.

3.14 Draft EN-3 lists the following factors that it considers will influence site selection by applicants:

- Irradiance and Site Topography: *‘Irradiance will be a key consideration for the applicant in identifying a potential site as the amount of electricity generated on site is directly affected by irradiance levels. Irradiance of a site will in turn be affected by surrounding topography, with an uncovered or*

*exposed site of good elevation and favourable south-facing aspect more likely to increase year-round irradiance levels. This in turn affects the carbon emission savings and the commercial viability of the site’;*

- Proximity of a site to dwellings: with consideration to visual amenity and glint and glare;
- Capacity of a site: *‘site layout must be designed so as to maximise irradiance levels, and the panel array spacing should also seek to maximise the potential power output of the site.’ ‘The combined capacity of the installed inverters (measured in AC) should be used for the purposes of determining solar site capacity.’;*
- Grid Connection: *‘The connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal. The applicant may choose a site based on nearby available grid export capacity. Locating solar farms at places with grid connection capacity enables the*

*applicant to maximise existing grid infrastructure, minimise disruption to local community infrastructure or biodiversity and reduce overall costs. Where this is the case, consideration should be given to the cumulative impacts of situating a solar farm in proximity to other energy generating stations and infrastructure.'*

- Agricultural land classification and land type: *'Where possible, ground mounted Solar PV projects should utilise previously developed land, brownfield land, contaminated land, industrial land, or agricultural land preferably of classification 3b, 4, and 5 (avoiding the use of "Best and Most Versatile" cropland where possible). However, land type should not be a predominating factor in determining the suitability of the site location.'*
- Accessibility: *'Applicants will need to consider the suitability of the access routes to the proposed site for both the construction and operation of the solar farm with the former likely to raise more issues. Given that potential solar farm sites are largely in rural areas, access*

*for the delivery of solar arrays and associated infrastructure during construction can be a significant consideration for solar farm siting.'*

3.15 The draft NPS also provides technical design considerations for the secretary of state including:

- Access tracks: on-site access routes for operation and maintenance activities. Applications should include the full extent of the access routes for operation and maintenance;
- Layout design and appearance: consideration of the site layout including levels of irradiance, proximity to available grid, predominance of open land, topography, previous land use and ability to mitigate environmental impacts and any flood risk.
- Public Rights of Way: developers are encouraged to design the layout and appearance of the site to ensure continued recreational use of public rights of way, and to minimise as much as possible the visual outlook from existing footpaths;
- Security and lighting: Perimeter security measures such as fencing,

electronic security, CCTV and lighting may be needed. Issues relating to intrusion from CCTV and light pollution in the vicinity of the site should be assessed;

- Project lifetimes: Solar panel efficiency deteriorates over time and applicants may elect to replace panels during the lifetime of the site. Applicants may apply for consent for a specified period, based on the design life of the panels. Such consent, where granted, is described as temporary because there is a finite period for which it exists, after which the project would cease to have consent and therefore must seek to extend the period of consent or be decommissioned and removed.
- Flexibility: flexibility will be needed in relation to the dimensions of the panels and their layout and spacing.

### Ashford Borough Policy and Guidance

3.16 The current Ashford Local Plan 2030 was adopted in February 2019. **Policy ENV10 - Renewable and Low**

**Carbon Energy** provides the most relevant guidance relating to solar energy development and states that:

*'Planning applications for proposals to generate energy from renewable and low carbon sources will be permitted provided that:*

*a) The development, either individually or cumulatively does not result in significant adverse impacts on the landscape, natural assets or historic assets, having special regard to nationally recognised designations and their setting, such as AONBs, Conservation Areas and Listed Buildings;*

*b) The development does not generate an unacceptable level of traffic or loss of amenity to nearby residents (visual impact, noise, disturbance, odour);*

*c) Provision is made for the decommissioning of the infrastructure once operation has ceased, including the restoration of the site to its previous use; and*

*d) Evidence is provided to demonstrate effective engagement with the local community and local authority.*

*A statement should be submitted alongside any planning application illustrating how the proposal complies with the criteria above and any mitigation measures necessary and be informed by a Landscape and Visual Impact Assessment'.*

3.17 Additionally, Ashford Borough Council has published guidance relating specifically to solar power. The 'Renewable Energy Planning Guidance Note 2 - The Development of Large Scale (>50kW) Solar PV Arrays' (2012) outlines the planning application process and presents the range of assessments, constraints and enhancements/mitigation that need to be considered by solar energy developers.

3.18 A landscape assessment was produced by Jacobs for Ashford Borough Council in 2009. This document does not consider sensitivity to renewable energy development, but is considered further in **Chapter 11 - Landscape and Visual Impact Assessment**.

3.19 Ashford Borough Council is currently developing a Carbon Neutral Strategy. The 'Ashford to Zero Plan: Our route to net zero carbon emissions' (2021)

report, which is currently under consultation, sets out the Council's intention to 'reduce reliance on fossil fuels for energy generation by increasing renewable energy generation and consumption'. In order to achieve this, Ashford Borough Council has set the following objectives:

- *increase number of sites suitable for renewable energy generation;*
- and
- *increase local renewable energy generation.*

3.20 A complete discussion of the relevant planning policies to the proposed development, at National and Local level, is contained in the **Planning Statement** submitted alongside this Environmental Statement.

## ENVIRONMENTAL CONSIDERATIONS

### Brownfield Availability

3.21 The Ashford Borough Council Brownfield Register records no sites of more than 7.7ha, considerably less than the required land area.



## Designations

3.22 In selecting the potential solar farm site, the developer considered the proximity to designated sites within the locality, including;

- Areas of Outstanding Natural Beauty (AONB);
- National Nature Reserves (NNR);
- Local Nature Reserves (LNR);
- National Parks;
- Ramsar sites and Special Protection Areas (SPA);
- Registered Parks and Gardens (RPG);
- Scheduled Ancient Monuments (SAM);
- Sites of Special Scientific Interest (SSSI);
- Special Areas of Conservation (SAC);
- World Heritage Sites, and;
- Registered Battlefields.

3.23 Data for these designations were obtained from the Multi-Agency Geographic Information for the Countryside (MAGIC) database.

3.24 There are no designations within the proposed site boundary. The following designations can be found within 2km of the site boundary (**Plate 3.1 on page 45**), with the approximate distances given from the site boundary at the closest point:

- Area of Outstanding Natural Beauty (AONB):
  - Kent Downs AONB, approximately 1.3km south and 3.3km northeast of the closest part of the proposed development;
- Local Nature Reserve (LNR):
  - Poulton Wood LNR in Aldington, c. 1.8km south-west;
- Site of Special Scientific Interest (SSSI):
  - Hatch Park SSSI, c. 1.3km north-west;
- Ancient Woodland:
  - there are 23 Ancient and Semi-Natural Woodland and four Ancient Replanted Woodland areas within the study area, of which three are adjacent to the proposed site.

- Registered Parks and Gardens (RPG):
  - Hatch Park RPG, c. 1.2km north-west;
- Scheduled Ancient Monuments:
  - Romano-British building south of Burch's Rough, c. 1.0km south; and
  - Barrow cemetery to the south-west of Barrowhill, c. 1.7km east.
- Listed Buildings, including:
  - Church of St Mary (Grade I), which is situated in Smeeth, c. 650m north-west;
  - Church of St Mary (Grade I), which is situated in Sellindge, c. 1.1km north-east;
  - Church of St Martin (Grade I), c. 1.1km south;
  - Mersham Le Hatch (Grade I), c. 1.9km north-west;
  - Evegat Manor (Grade II\*), c. 550m west;
  - Court Lodge Farmhouse (Grade II\*), c. 1.1km south;

- Lodge House (Grade II\*), c. 1.1km north;
- Ruffyn’s Hill Farmhouse and walls projecting (Grade II\*), c. 1.4km south;
- Cobb’s Hall (Grade II\*), c. 1.4km south-west; and
- Bower Farmhouse (Grade II\*), c. 1.7km north-west.

- 3.25 There are no NNR, National Parks, Ramsar sites, SPA, SAC, Registered Battlefields or World Heritage Sites within 2km of the site.
- 3.26 There are no local landscape designations covering the proposed site area. Further consideration is given to landscape related designations in the wider area around the proposed site in **Chapter 11 - Landscape and Visual Impact Assessment**.
- 3.27 Designations within the search area are discussed further within **Chapter 4 - Existing Conditions** and full search results are at **Appendix 4.1**.

## Screening

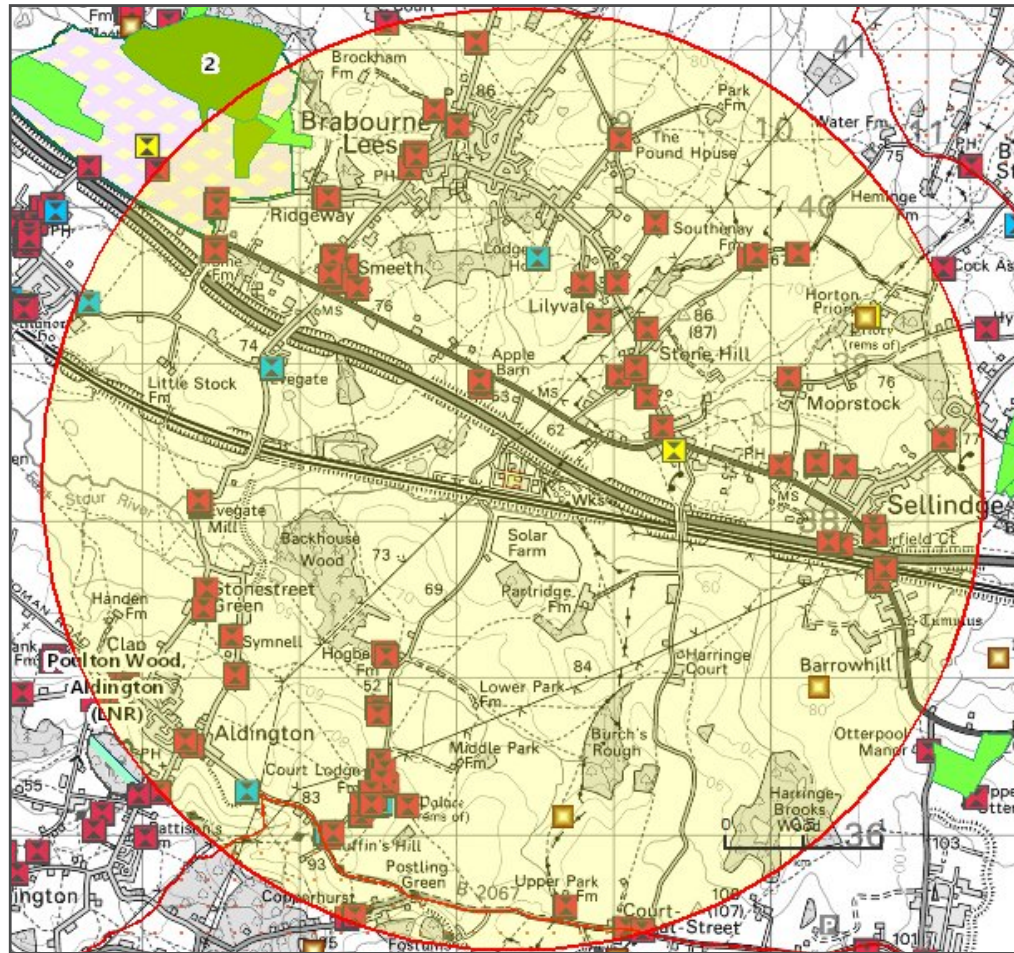
- 3.28 The existing field boundary vegetation and woodland blocks are important considerations for the site design, as they have the potential to mitigate landscape and visual impacts. It is proposed that as part of the development existing hedgerows will be allowed to grow taller (although still undergoing trimming to encourage thick rather than straggly growth). The section near to the East Stour River crossing will be managed at the existing height to retain existing visibility for road users. New hedgerows will be planted and tree planting will take place to create a new wooded area.
- 3.29 Mitigation and enhancement elements are discussed further in **Chapter 10 - Ecology** and **Chapter 11 - Landscape and Visual Impact Assessment** and will be required to be agreed with Ashford Borough Council.

## Ecology

- 3.30 As discussed from **Paragraph 3.22 on page 43** there are no ecological designations on, or within close proximity of, the site.
- 3.31 There are a number of broadleaved woodlands surrounding the proposed site, some of which are classified as ancient woodlands. Appropriate separation distances have been applied from ecological features contained in and around the site.

## Flood risk

- 3.32 According to the NPPG, a sequential approach should be taken when designing individual projects, such that areas of lower flood risk are utilised in preference to land at higher risk of flooding where possible.
- 3.33 Overarching National Policy Statement for Energy, EN-1 (DECC, 2011a), advises that all applications for energy projects of 1ha or greater located in Flood Zone 1, and all proposals in Flood Zone 2 and 3, should be accompanied by a flood risk assessment.



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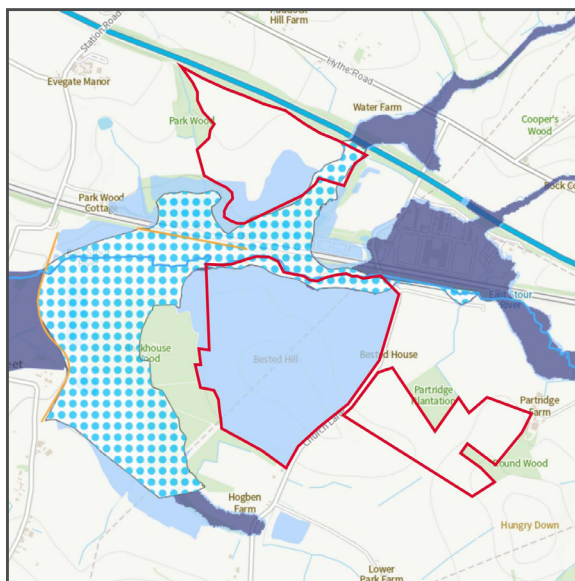
- |   |   |  |
|---|---|--|
|  North                     |  Grade II Listed Building            |  Scheduled Monument   |
|  Grade I Listed Building   |  Site of Special Scientific Interest |  Local Nature Reserve |
|  Grade II* Listed Building |  Registered Parks and Gardens        |  |

Plate 3.1 - Site Selection Stage 1 - Initial Search Area from Sellindge Converter Station

3.34 As shown at **Plate 3.2**, the eastern section of the site, around Partridge Plantation, is located within Flood Zone 1 (low probability of flooding). The central land parcel on Bested Hill is marked as within Flood Zone 2 (medium probability of flooding), with some flood storage areas along its northern boundary. The development area to the north of the railway lines is primarily in Flood Zone 1, with some Flood Zone 2 and flood storage areas to the south and east.

3.35 A flood risk and surface water drainage assessment has been undertaken for the proposed development as set out in **Chapter 9 - Hydrology and Hydrogeology**.



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Plate 3.2 - Flood Risk from Rivers or the Sea (Site outlined in red; Flood Zone 1 - unshaded; Flood Zone 2 - shaded light blue; Flood Zone 3 - shaded dark blue; Flood storage area - dotted)

## Cultural Heritage

3.36 The NPPG states:

*'great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact*

*of proposals on views important to their setting. As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset'* [Paragraph Reference ID: 5-013-20150327].

3.37 There are no Scheduled Monuments, World Heritage Sites, Registered Battlefields, or Registered Parks and Gardens within the site or within its immediate vicinity. Similarly, there are no listed buildings within the site area. A detailed heritage assessment considering potential archaeological features and built assets is provided at **Chapter 12 - Archaeology and Cultural Heritage**.

## TECHNICAL CONSIDERATIONS

3.38 The initial suitability of the landholding for a solar farm and the initial site design, within the

boundaries of the landholding, was based on consideration of the following technical and environmental constraints and as guided by industry best practice, the NPPF, NPPG and National Policy Statements (EN-1 and EN-3).

## Land Availability and Existing Use

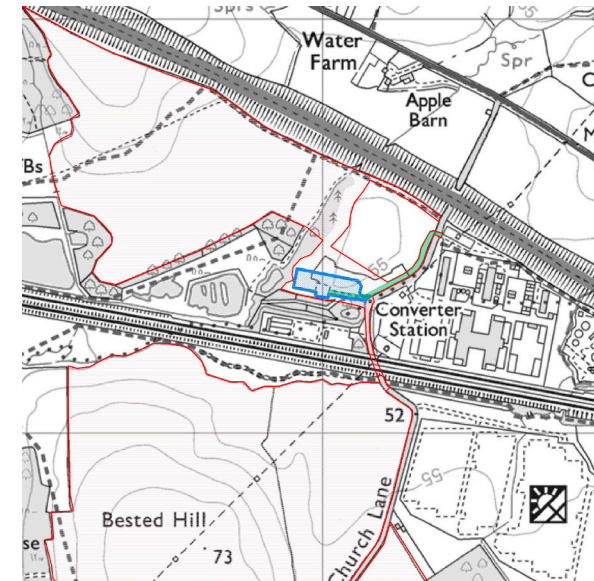
- 3.39 Initially, the developer identified areas for further investigation in proximity to the Sellindge Converter Station where grid connection capacity for 49.9MW had been secured by EDF Renewables. More detailed environmental constraints were applied to these initial areas of interest to refine the potentially suitable host land. Interest of the relevant landowners was established and then detailed site surveys were commenced.
- 3.40 Discussions and knowledge sharing with the landowners has been instrumental in the development of the solar farm design, largely with respect to ensuring that plant and equipment are positioned so as to relate adequately to existing and future planned agricultural activities.

## Pivot Power Battery Energy Storage System

- 3.41 Pivot Power, a part of EDF Renewables, is developing a stand alone grid Battery Energy Storage System on land between the northern parcel of land comprising the East Stour Solar Farm and Church Lane, immediately west of the Sellindge Converter Station (**Plate 3.3** and **Figure 3.1 of ES Volume 3, Figures**).
- 3.42 The proposal is separate and distinct from the East Stour Solar Farm and will be subject to its own planning application. Each of the schemes stand alone in their own respective rights, however, should both be consented, there is an opportunity to share a connection corridor to the substation at the Sellindge Converter Station and so reduce ancillary infrastructure.

## Agricultural Land Quality

- 3.43 As noted at **Paragraph 3.10 on page 38**, the NPPG asks Local Authorities to consider the quality of land upon which the solar farm is proposed, as well as how the land can support agricultural use in the future.



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Plate 3.3 - Pivot Power Battery Energy Storage System Location Edged Blue, East Stour Solar Farm Development Area Edged Red and Potential Shared Grid Connection Corridor Green

- 3.44 The recent draft National Policy Statement for Renewable Energy (NPS-EN3)(DBEIS, 2021b) states that;
- '...land type should not be a predominating factor in determining the suitability of the site location'*.

3.45 A full consideration of current Agricultural Land Quality and also of soil quality after the life of the project is provided in **Chapter 4 - Existing Conditions**.

## Temporary Structures

3.46 Guidance discusses that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use.

3.47 This is reflected in the site design, using modular units and minimal concrete, allowing the site to be decommissioned and removed at the end of its operating life. The site would return to agricultural use with the soils having benefited from being rested from intensive production in the intervening years.

## Glint/Glare

3.48 There is one grass airstrip proximate to the site (approximately 850m east). Other receptors that may be subject to glint/glare effects are residents and users of the nearby highways

to the proposed development. As a ground mounted scheme with panels mounted at approximately 20 degrees, the effects are unlikely to be significant. Glint and Glare is considered further at **Chapter 14 - Glint and Glare**.

## Active Solar Arrays

3.49 There may be additional impacts if solar arrays tilt to follow the daily movement of the sun. This proposal is for fixed panels that do not follow the movement of the sun. In this regard the impact is consistent through the day.

## Security

3.50 There will be temporary, sensor controlled, lighting during the construction phase while materials are stored on site. The construction phase is expected to last for up to nine months. No lighting will be erected for the operational phase.

3.51 The site will be bounded by a stock proof fence with wooden posts, to minimise visual impact.

3.52 Inward-facing CCTV will provide security monitoring. The cameras will

be mounted on 2m posts independent of the boundary fence. Any CCTV lighting will be infrared and not visible to the naked eye.

## Resource and Panel Row Spacing

3.53 As recognised in the NPPG, the energy generating potential of a solar farm can vary for a number of reasons including, latitude and aspect. As discussed at **Chapter 1 - Introduction**, the Applicant has used 'PV Syst Photovoltaic Software' to predict the potential annual yield of the solar farm. This software takes the parameters of the site and proposes an optimal array configuration. Shading and losses are factored into the simulation to estimate the total energy production from the proposed layout.

3.54 Shadows from buildings, trees or other structures can reduce performance of the PV system. Accordingly stand off distances have been built into the layout from existing and proposed vegetation. Each bank of panels is aligned with the next and orientated so as to avoid shading from neighbouring panels.

### Road Access

- 3.55 Delivery of solar farm components is a relatively straight forward process predominantly involving standard size HGVs. Deliveries would be routed to site from the M20 motorway and the A20 trunk road. Construction traffic would use the northern section of Church Lane from the A20. The anticipated delivery route and construction traffic movements are discussed further in **Chapter 8 - Traffic and Access**.
- 3.56 There are a number of public footpaths crossing and surrounding the proposed site. Church Lane bisects the site between the southern and eastern portions of the site.
- 3.57 When considering the layout of a solar farm, there is no statutory separation distance from the solar array or associated infrastructure to either public rights of way or the highway. Appropriate separation is considered on an individual basis, taking into account visual amenity, glint and glare, and noise (considered further in **Chapter 11 - Landscape and Visual Impact Assessment, Chapter 14 - Glint and Glare and Chapter 13 - Noise**).

### Location of Utilities Infrastructure

- 3.58 Consultation with utilities operators including National Grid, SGN and UK Power Networks (UKPN) was undertaken by the Applicant during the initial land investigations.
- 3.59 It was established that:
- a double 400kV overhead electricity transmission line on pylons/towers crosses the central section of the site, heading south-west from the Sellindge Converter Station. An easement distance of 20m around the tower bases has been provided as a constraint within the panel row arrangement with tower access to ensure future maintenance of the electrical network can continue uninterrupted;
  - 11kV and 33kV overhead electricity lines on wooden poles cross the central section of the site in an east-west direction; and
  - a distribution water mains pipeline operated by South East Water follows the route of Church Lane.

- 3.60 Utilities operators will be re-consulted prior to construction commencing to ensure that the baseline is unchanged.

### Electricity Network Connection

- 3.61 The site will export power directly into the nearby substation at the Sellindge Converter Station. This will be through an already secured National Grid connection, with such a secured connection offer being a key feasibility constraint for the progression of a solar farm in England.
- 3.62 The Environmental Impact Assessment has been based upon five internal substations with four located within northern, central and eastern parcels of land, connected to a central substation near to the Sellindge Converter Station. From the central substation an underground cable will travel alongside internal access tracks and cross Church Lane connecting into the Sellindge Substation. Further details of the grid connection compound are provided in **Chapter 6 - Development Proposal**.

## THE APPLICANT'S SITE SELECTION AND DESIGN APPROACH

3.63 The Applicant has followed a detailed site selection process that considered a range of environmental and technical constraints as outlined in the preceding paragraphs. The site identification and validation process is described in more detail in the following sections.

3.64 As acknowledged by the Building Research Establishment's Planning Guidance (BRE, 2014a), the UK receives a significant amount of solar energy. At the proposed site, approximately 1 051 - 1 100kWh of solar irradiation falls on each square metre of horizontal surface, as shown at **Plate 3.4**.

3.65 The next principal technical constraint is available grid connection as identified. Within Ashford Borough, the Applicant secured a 49.9MW grid connection at the Sellindge Converter Station.

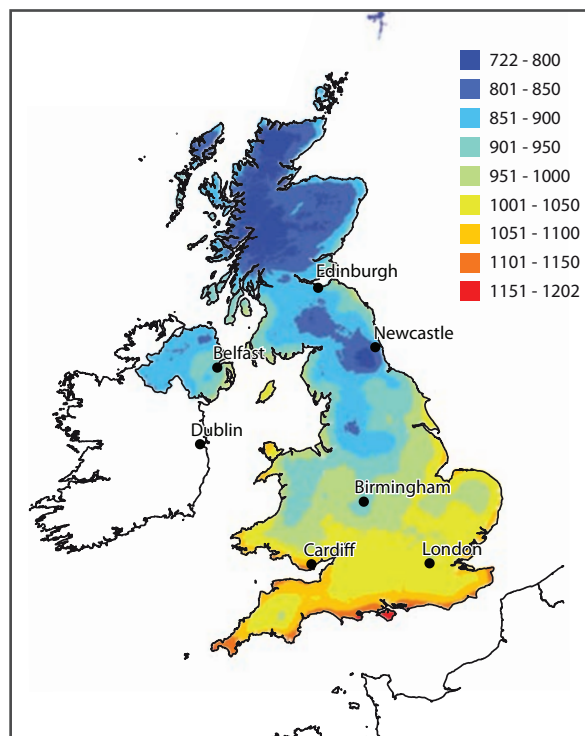


Plate 3.4 - UK Solar Irradiation Map. Yearly total of global irradiation in kWh/m<sup>2</sup>. Averaging period: 1997-2003. Map data courtesy of the Met Office (BRE, 2014a)

3.66 Land within relative proximity of this connection location was then screened to identify areas with enough contiguous land to have potential to host a solar farm meeting the 49.9MW secured connection

capacity. An arbitrary search radius was not applied, rather, a pragmatic review of proximate farmland was considered in light of environmental constraints. Considerations included:

- proximity to ecological, historic or landscape designations;
- proximity to settlements;
- access; and
- agricultural land classification.

3.67 Taking these constraints into account, land was identified to the south and east of Sellindge Converter Station on Bested Hill, fields adjoining Partridge Plantation and land north of the railway lines south of the A20. As discussed further in **Chapter 4 - Existing Conditions**, the land was observed to have an association with energy and other existing infrastructure, including:

- the Sellindge Converter Station and associated overhead electricity lines;
- the operational Sellindge Solar Farm;
- the High Speed 1 (HS1) and South Eastern Mainline railway lines; and



- the M20 motorway and A20 trunk road.

3.68 Landowners in the area were approached and their interest was ascertained. The area taken forward for further appraisal is shown at **Plate 3.5**.

3.69 The M20 was identified as a constraining feature to the proposal with adequate land available to the south to host the land required by the secured 49.9MW solar farm capacity. The land east of Partridge Plantation was discounted again as being beyond that which was required.

3.70 The largest section of contiguous land, east of Church Lane and south of the Sellindge Solar Farm, were identified to have potential to extend visual impacts on the surrounding AONBs and the Aldington Church Conservation Area. As a result, eastern and southern areas were excluded at this early stage and in advance of detailed assessment.



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Plate 3.5 - Land area taken forward for further appraisal (blue line)

3.71 Following consideration of the environmental, physical and technical limitations associated with the land taken forward for initial appraisal,

three areas of the landholding were progressed for assessment:

- land around Partridge Plantation, south of the Sellindge Solar Farm;
- land around Bested Hill, west of Church Lane and south of the railway lines; and
- land to the west of the Sellindge Converter Station, south of the M20 and north of the railway lines.

3.72 Early consultation was initiated with the Officers of Ashford Borough Council. Formal contact was made for pre-application advice, then for EIA Screening and thirdly via the Scoping process (discussed further in **Chapter 5 - Environmental Impact Assessment**). The development boundary proposed at project Scoping is shown at **Plate 3.6**.

3.73 During the consultation stages with the Council, the Developer undertook pre-application consultations with the local community, including parish councils. Public consultation is discussed further in **Chapter 5** and the feed back received was constructive in shaping the refinement of the development design and mitigations proposals (as discussed further in **paragraph 3.80 on page 53**).



Not to Scale. © Getmapping plc.

Plate 3.6 - Site Selection Stage 3 - Initial Development boundary considered during pre-application discussions with Ashford Borough Council and formal EIA Screening and Scoping

3.74 Concurrently with public consultation, the environmental assessments were commencing to determine the detailed arrangement of panels and site infrastructure.

3.75 Discussions with Environment Agency concluded that whilst Bested Hill is identified as being in flood Zone 2, this was as a result of a mapping error. It was agreed that sensitive equipment would be removed from below the 51.3m height contour - this removed an area from along the East Stour river as well as development area within the northern field. A portion of Bested Hill east of the north-south hedgeline was also removed from development to maximise separation from Bested House. This also avoided potential impacts on a number of possible heritage features identified during the geophysics scan of the site.

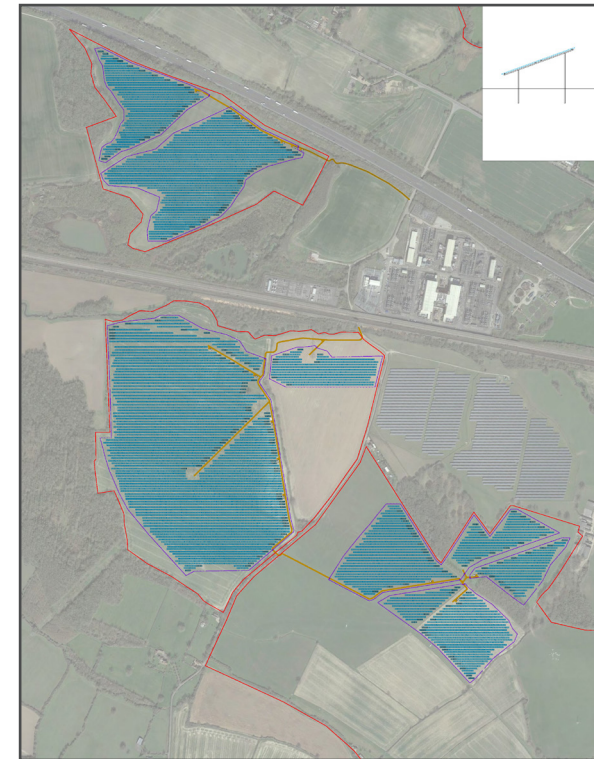
3.76 To minimise use of Church Lane, a site track to the eastern portion of the site was included within the southern land area with a crossing of Church Lane to access the eastern area.

3.77 Setbacks were provided from footpaths, low voltage overhead lines, the electricity pylons and Backhouse Wood.

3.78 This layout iteration is shown at **Plate 3.7**.

3.79 A design freeze meeting took place involving the EIA assessment team.

The purpose of this was to ensure all technical and environmental parameters were accounted for and balanced with optimising the potential generation from the site.



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Plate 3.7 - Development Area with Initial Panel Layout

3.80 The specific site design further evolved through the Environmental Impact Assessment process, whereby any impacts identified by the specialist assessment team, consultees or local community were mitigated for, where possible, through alterations in the site design. Measures taken include:

- removal of panels from an area of some 4.9ha to the far south-east of the site to reduce landscape character impacts when viewed from some rights of way to the south of the site;
- inclusion of tree planting south of the panels on Bested Hill, and hedge planting (both new and improvement of existing hedges) as landscape mitigation and habitat improvement (please see **Figure 11.9** of **ES Volume 3**); and
- inclusion of swales for surface water management.

3.81 The resulting layout assessed as reported in this ES, and progressed for submission is shown at **Plate 3.8** on **page 54**, as well as **Figure 1.2** and **Figure 1.3** of the **ES Volume 3 - Figures**.

3.82 The East Stour Solar Farm was judged by the Applicant and the EIA assessment team to be a location offering the prospect of a suitable balance of the site-specific features which render a solar development (with its associated environmental benefits) both technically and financially viable, and the need to keep any adverse environmental impact of such a development to an acceptable minimum.

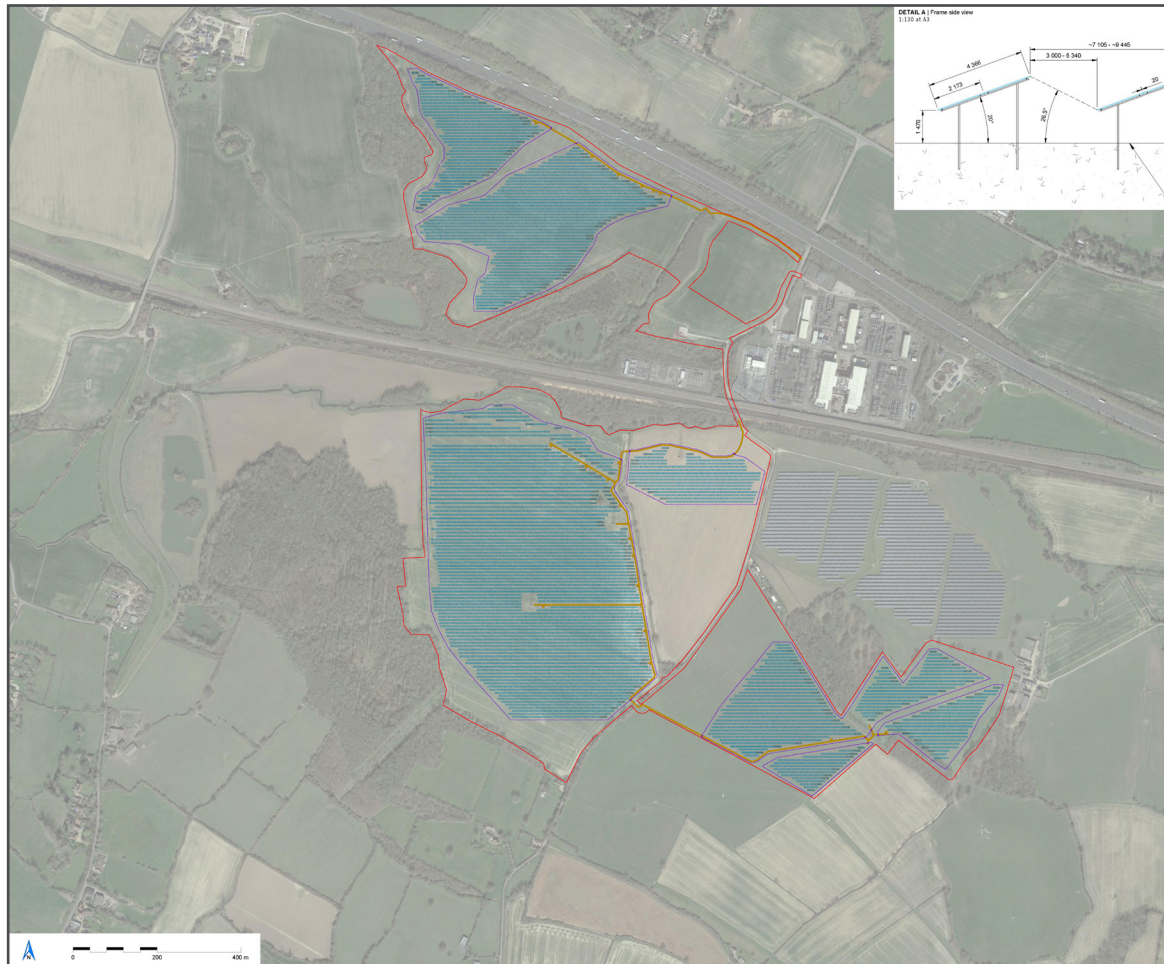
### Industry Guidance

3.83 Throughout the design of the project, the following industry guidance has been considered during the site design phase:

- Planning Guidance for the Development of Large-Scale Ground Mounted Solar PV Systems (Building Research Establishment (BRE), 2014a);
- Agricultural Good Practice Guidance for Solar Farms (BRE, 2014b);
- BRE National Solar Centre Biodiversity Guidance for Solar Developments (BRE, 2014c);

- Natural England Technical Information Note 101: Solar Parks: Maximising Environmental Benefits (Natural England, 2011); and
- UK Solar PV Strategy Part 2 (DECC, 2014).

3.84 Incorporating the guidance, the design aim is to minimise the potential visual and long-term land use impacts of the solar farm whilst supporting renewable energy generation through solar PV and bringing benefits to local communities.



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Plate 3.8 - Optimised Layout Determined through the EIA

## REFERENCES

Ashford Borough Council, 2013, Renewable Energy Planning Guidance Note 2: The development of large scale (>50kW) solar PV arrays, Ashford Borough Council, UK.

Ashford Borough Council, 2019, Ashford Local Plan 2030, Ashford Borough Council, UK.

Ashford Borough Council, 2021, Ashford to Zero: Our route to net zero carbon emissions (Consultation Draft), Ashford Borough Council, UK.

Building Research Establishment (BRE), 2014a, Planning Guidance for the Development of Large-Scale Ground Mounted Solar PV Systems, BRE National Solar Centre, UK.

Building Research Establishment (BRE), 2014b, Agricultural Good Practice Guidance for Solar Farms, BRE National Solar Centre, UK.

Building Research Establishment (BRE), 2014c, BRE National Solar Centre Biodiversity Guidance for Solar Developments, BRE National Solar Centre, UK.

Department of Energy and Climate Change (DECC), 2011a, Overarching National Policy Statement for Energy (EN-1), HMSO, UK.

Department of Energy and Climate Change (DECC), 2011b, National Policy Statement for Renewable Energy Infrastructure (EN-3), HMSO, UK.

Department of Energy and Climate Change (DECC), 2014, UK Solar PV Strategy Part 2, HMSO, UK.

Jacobs, 2009, Ashford Landscape Character Assessment, Jacobs and Ashford Borough Council, UK.

Ministry of Housing, Communities and Local Government, 2019, Planning Practice Guidance, HMSO, UK, Online Resource, retrieved from: <https://www.gov.uk/government/collections/planning-practice-guidance> [Accessed 04/11/21].

Ministry of Housing, Communities and Local Government (MHCLG), 2021, National Planning Policy Framework, HMSO, UK.

Multi-Agency Geographic Information for the Countryside (MAGIC), 2020, Interactive Mapping At Your Fingertips, retrieved from: <http://magic.defra.gov.uk/#> [Accessed 04/11/21].

Natural England, 2011, Technical Information Note 101: Solar Parks: Maximising Environmental Benefits, Natural England, UK.

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