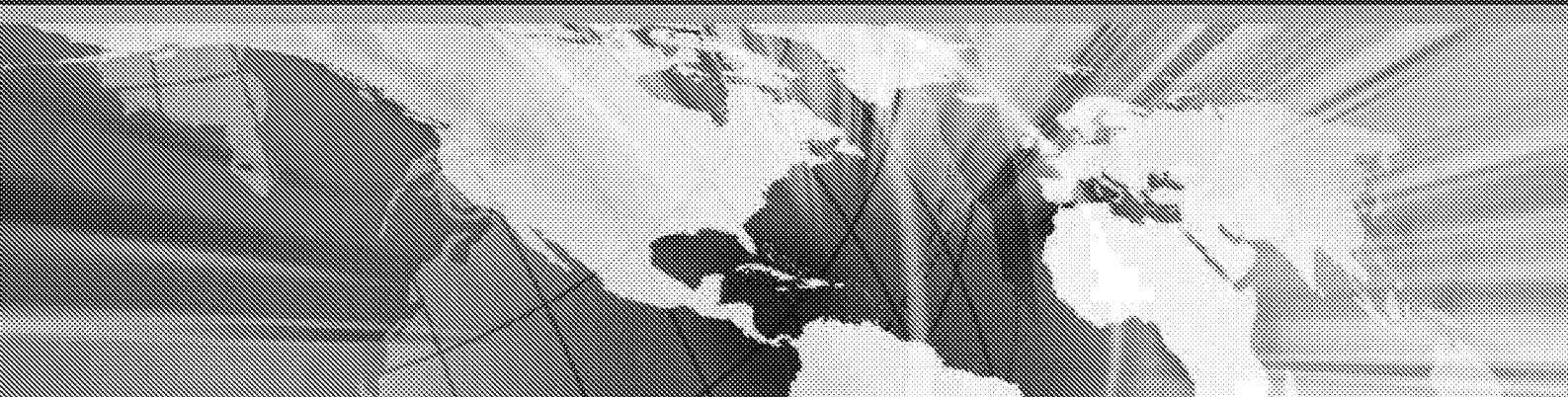




LIGHTSOURCE RENEWABLE ENERGY LTD

Solar Farm on Land at Lower Farm, Yapton Lane, Walburton, West Sussex

Flood Risk Assessment

November 2014

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DATE ISSUED: November 2014
JOB NUMBER: PE10439
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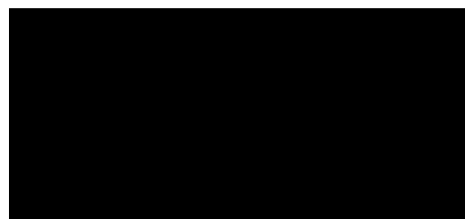
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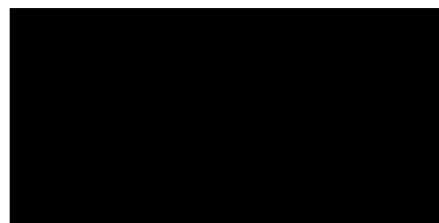
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PE10439/RPT-003
November 2014



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DRAWINGS

Drawing No	Title	Scale
PE10439-004	Site Location Plan	1:50,000 (A4)
PE10439-005	Topography & Flood Zones	1:1250 (A1)
BIN_01_Rev 5	Binsted Farm_Proposed_Layout_Rev 5	1:2000 (A3)



1 INTRODUCTION

1.1 Instructions

- 1.1.1 This Flood Risk Assessment report (FRA) has been prepared in accordance with instructions from Lightsource Renewable Energy Ltd.
- 1.1.2 The FRA is intended to support a planning application to be submitted to Arun District Council.

1.2 Background Information

National Planning Policy Framework

- 1.2.1 The National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG) explain how flood risk should be taken into consideration during the planning and development process. The NPPF categorises flood risk by *flood zone* and defines the types of development *appropriate* to each flood zone according to *vulnerability*. The flood zones are defined as:

- Zone 1: Areas with a Low Probability of flooding (annual probability less than 0.1% or 1 in 1000 years).
- Zone 2: Areas with a Medium Probability of flooding (annual probability between 0.1% (1 in 1000 years) and 1.0% (1 in 100 years) for rivers, 0.1 – 0.5% (1 in 1000 to 1 in 200 years) for coastal areas).
- Zone 3a: Areas with a High Probability of flooding (annual probability greater than 1.0% (1 in 100 years) for rivers, 0.5% (1 in 200 years) for coastal areas).
- Zone 3b: The Functional Floodplain (probability as Zone 3a).

Environment Agency Flood Maps

- 1.2.2 The Environment Agency (EA) predicts the likelihood of flooding via a national series of indicative flood maps, available to the public by request and via the EA website. The *Flood Map for Planning* shows the Flood Zones, described above, coloured in different shades of blue. The *Risk of Flooding from Surface Water* map shows potential overland flow routes resulting from rainstorm events.

Arun District Council Strategic Flood Risk Assessment

- 1.2.3 As part of their Local Development Framework (LDF) documentation, local authorities are required to maintain a Strategic Flood Risk Assessment (SFRA) which sets the scene



for flood risk in their areas. Arun District Council's SFRA was published in February 2008.

West Sussex County Council Preliminary Flood Risk Assessment

- 1.2.4 A Preliminary Flood Risk Assessment (PFRA) is a high level screening exercise to identify areas where there is significant flood risk from local sources, namely Ordinary Watercourses, surface water runoff and groundwater. It does not directly consider flooding from main rivers or from sewers. PFRAs have been produced by Lead Local Flood Authorities (LLFAs) to fulfil statutory requirements in the Flood Risk Regulations 2009. In this case the LLFA is West Sussex County Council and its PFRA was published in May 2011.

1.3 Data Sources

- 1.3.1 The EA website *Flood Map for Planning* and the *Risk of Flooding from Surface Water* map are attached at Appendix I.
- 1.3.2 The Arun District Council's SFRA Maps F1-F and F1-T are attached at Appendix I
- 1.3.3 Natural England Technical Information Note TIN101 *Solar Parks: Maximising Environmental Benefits* is attached at Appendix II.



2 SITE INFORMATION

2.1 Existing Site

2.1.1 The site is located at Lower Farm, Yapton Lane, Walberton, West Sussex, BN18 0AS, as shown on Drawing No. PE10439-004 *Site Location Plan*. It lies within an area bounded by the B2132 Yapton Lane to the west, the West Coastway railway line to the south, an un-named watercourse to the east and open agricultural land to the north. Lower Farm is situated just outside the north-west corner.

2.1.2 The site consists of a large field in arable use with an area of about 10 ha.

2.1.3 The site is located on low lying ground with an elevation between +10m AOD in the north-west, sloping gently down to +5m AOD in the south and east at a general gradient of about 1 in 80 and with a maximum gradient of about 1 in 15 over a small area in the centre – see Drawing No PE10439-005 *Topography & Flood Zones*.

2.2 Watercourses and Local Drainage

2.2.1 The nearest watercourse is a small un-named stream running in a north to south direction about 80 m east of the site. This turns to the east and is join by a second stream which runs from west to east about 150m south of the site. The combined watercourse eventually joins the River Arun about 2 km to the south-east. The River Arun enters the sea at Littlehampton, about 3 km further south.

2.2.2 There are two short ditches draining the eastern part of the site to the eastern watercourse and a third ditch draining the southern part of the site to the southern watercourse.

2.3 Geology

2.3.1 The geology of the site consists of Head, River Terrace and Raised Beach Deposits of Sand and Gravel with some Silt and Clay overlying Lambeth Group London Clay bedrock.

2.4 Installation Proposals

2.4.1 It is proposed to install an array of solar PV panels with a generating capacity of about 5 MW, as shown on Drawing No BIN_01_Rev 5. The array will be four panels high and arranged in rows.

2.4.2 There will be several small buildings and plant housings with impermeable roofs constructed on the site, as follows:



- Inverter Stations 4 No
- Field Transformers 2 No
- Client Side Substation 1 No
- Communications Building 1 No
- Site Transformer 1 No
- DNO substation 1 No
- Storage Shed 1 No

The estimated total impermeable area of these structures about 150 m² which constitutes 0.15% of the total site area of 10 ha.

- 2.4.3 Access will be gained off Yapton Lane via the track past Lower Farm. There will be about 450m of open-graded stone surfaced access tracks within the site which will comprise 1,800 m² of semi-permeable area, equivalent to 1.8% of the site area. The access roads will consist of permeable materials and pipe culverts will be installed below them where necessary to permit the passage of surface water.
- 2.4.4 The solar panel assemblies will be 4m across and set at an angle of 20 degrees such that they occupy a horizontal width of 3.8m and set out in rows at 7.6m centres, i.e. with a 3.8m space between them. Consequently, the panels, will occupy 50% of the site area.
- 2.4.5 Each row will consist of four individual lines of panels, separated horizontally by 25mm wide gaps through which rain water will be able to drain. This means that rainwater from the panels will run off at the three quarter points and at the lower edge the 4m slope length. The panels will be supported on metal posts driven into the ground without any form of concrete base.
- 2.4.6 The lower edge of the panels will be set at 0.8m above ground level making the upper edge about 2.4m above ground level.
- 2.4.7 Following commissioning of the project the land between and beneath the solar panels will be cultivated, as necessary, by chisel plough 'sub-soiling' and established with a thick sward of tussocky grass and used for grazing.



3 FLOODING INFORMATION

3.1 Flood History

- 3.1.1 Although located on relatively low and level ground the site is not known to flood.
- 3.1.2 The Arun District Council's SFRA does not contain any records of flooding at the site.
- 3.1.3 The West Sussex County Council PFRA does not contain any records of flooding at the site.

3.2 Potential for Flooding

Fluvial/Tidal Flooding

- 3.2.1 The site is located almost entirely within Flood Zone 1 on the EA *Flood Map for Planning* – see Appendix I – where there is a low probability of flooding, i.e. less than 0.1% (1 in 1000).
- 3.2.2 There is a small area on the eastern edge of the site where there appears to be a flood risk, but this has been shown not to be the case– see paragraphs 4.1.2 and 4.1.3 below. Consequently, there is no significant risk of flooding from fluvial and/or tidal sources.
- 3.2.3 The Arun District Council's SFRA– see Maps F1-F and F1-T at Appendix I and Drawing No PE10439-003 - indicates a much smaller area of fluvial flooding (1 in 100 year) and a slightly smaller area of tidal flooding (1 in 200 year) to that on the EA *Flood Map for Planning*.

Flooding from Surface Water Runoff

- 3.2.4 The site comprises an arable field which drains naturally by infiltration, transpiration and evaporation. Any surplus surface water that forms will run off towards the watercourses to the east and south.
- 3.2.5 The EA *Risk of Flooding from Surface Water* map – see Appendix I - shows no surface water flood risk on the site.
- 3.2.6 The West Sussex County Council PFRA does not contain any indication of surface water flooding at the site.
- 3.2.7 Although the proposed installation will introduce some impermeable roof and semi-permeable access road areas, these amount to only 1,950 m² which constitutes 1.95% of the total site area of 10 ha.



4 FLOOD RISK ASSESSMENT

4.1 Fluvial/Tidal Flooding

- 4.1.1 The site is located almost entirely within Flood Zone 1 on the EA *Flood Map for Planning*, where there is a low probability of flooding, i.e. less than 0.1% (1 in 1000).
- 4.1.2 There is a small area about 60m long and a maximum of 15m wide on the eastern boundary where the panels are shown to lie within a bulge on the Flood Zone 3 extent on the EA *Flood Map for Planning*. As can be seen from Drawing No PE10439-005 *Topography & Flood Zones*, the recently surveyed topography in this area shows that this bulge does not correspond with the contours and consequently the area will not flood in a 1 in 100 year event.
- 4.1.3 This contention is confirmed by the flood extent shown on Map F1-T in the SFRA – see Appendix I and Drawing No PE10439-005 – which is located further to the east and does not show any similar bulge.
- 4.1.4 Consequently, there is no significant risk of flooding from fluvial sources at the site. According to the NPPF all uses of land are appropriate in this zone and the proposed development will not be required to satisfy either the Sequential Test or the Exception Test.

4.2 Flooding from Surface Water Runoff

- 4.2.1 The site currently comprises about 10 ha of arable land. The ground comprises superficial deposits of Sand and Gravel with some Silt and Clay.
- 4.2.2 The superficial deposits of Sand and Gravel are likely to be sufficiently permeable for rainfall to infiltrate to the ground in significant quantities. Any rainfall which does not infiltrate or is taken up by the vegetation flows overland generally towards the watercourses to the east and south.
- 4.2.3 After development, the soil will be cultivated, as necessary, using chisel plough 'sub-soiling' techniques and a thick sward of tussocky grass will be grown over the entire site area, i.e. both beneath the panels (50% of the site area) and in the spaces between them (50% of the site area). This thick grass will retard runoff and promote water retention, infiltration, transpiration and evaporation, while the cultivation, if required, will facilitate infiltration. It will be maintained in accordance with good soil husbandry practice as described in Natural England TIN101 – see Appendix II – and will be mown regularly or otherwise maintained by low intensity stock grazing. The ground will be



inspected for damage at regular intervals with any eroded areas being repaired and temporarily protected until the grass becomes re-established.

- 4.2.4 As a result of the cultivated soil and the thick grass covering the whole site, the maximum gradient of 1 in 15 at the centre of the site is not regarded as significant from the point of exacerbating runoff.
- 4.2.5 All works will be designed in a way which will not impact upon the existing surface water drainage regime. Because the solar panels are supported on metal posts driven into the ground without any form of concrete base, they will not occupy any ground surface area and their presence will not affect the present character of the ground. Rain falling on the panels will run off onto the ground and disperse by a combination of infiltration, transpiration, evaporation and runoff, just as it does at present while falling directly onto the ground. Therefore, there will be no net increase in runoff reaching the site boundary.
- 4.2.6 Rainwater running off the panels will concentrate along four lines evenly spaced beneath the rows of panels. Any local erosion which might result from this trend will be mitigated by the thick sward of tussocky grass and its regime of regular maintenance.
- 4.2.7 The proposed installation will introduce some impermeable roof areas amounting to about 150 m² which constitutes 0.15% of the total site area. The roof water from these structures will be led away via shallow swales to areas where it can disperse and infiltrate to the ground and not discharge to any land drains, thereby not increasing the likelihood of flooding elsewhere.
- 4.2.8 There will also be some 1,800 m² of semi-permeable, stone-surfaced access roads introduced which constitutes 1.8% of the total site area. The use of permeable materials will minimise the runoff from these roads and pipe culverts will be installed below them so as not to impede natural flows. Any land drains disturbed during construction will be rerouted. Shallow swales will be formed alongside the roads and flows will be turned out to the adjacent land at regular intervals to mimic the natural land drainage. This is normal practice for similar developments in the open countryside where impacts will be minimal and considered suitable for use on this site.
- 4.2.9 No other engineered drainage features are proposed and it is considered unnecessary to install any on a precautionary basis. Should it prove difficult to satisfactorily execute the maintenance regime without positive drainage features, these can be installed where needed as part of the maintenance process.



4.2.10 Consequently, it is not considered that there will be any significant detrimental effect caused either within the site or to the surrounding area by future surface water runoff from the solar farm installation which will therefore be an appropriate land use with respect to the NPPF.

4.3 Foul Sewerage

4.3.1 There will be no requirement for foul sewerage or sewage disposal at the site.



5 CONCLUSIONS

- 5.1.1 The solar farm development is effectively situated entirely in Flood Zone 1 with no significant risk of fluvial flooding. The proposed renewable energy land use fully complies with the planning guidance.
- 5.1.2 As the panels will not create impermeable area and any risk of erosion due to concentration of runoff will be mitigated by the cultivated soil and thick sward of tussocky grass and its maintenance regime, there will be no net increase in runoff reaching the site boundary. In this respect, the maximum gradient of 1 in 15 at the centre of the site is not regarded as significant.
- 5.1.3 The small increase in surface water runoff resulting from the substations and other roofs will be dealt with by dispersal to the surrounding land and not discharged to ditches or land drains, thereby not increasing the likelihood of flooding elsewhere.
- 5.1.4 Similarly, runoff from the stoned access roads will be reduced by the use of permeable materials and collected in shallow swales with regular turn out features to dissipate the flows across the site.
- 5.1.5 No other engineered drainage features will be necessary unless proven so by the maintenance regime, in which case they will be installed where needed.
- 5.1.6 There will be no requirement for foul sewerage or sewage disposal at the site.
- 5.1.7 Overall, with regard to flood risk and drainage, the site is suitable for its proposed use as a solar farm.



APPENDIX I

Environment Agency and Arun Council SFRA Flood Maps



Enter a postcode or place name:

BN18 6AS

Other topics for this area...

Flood Map for Planning (Rivers and Sea)

Flood Map for Planning
(Rivers and Sea)

Map legend

Click on the map to see what Flood Zone (National Planning Policy Guidance definitions) the proposed development is in

☒ Flood Map for Planning (Rivers and Sea)

☒ Flood Zone 3

☒ Flood Zone 2

☒ Flood defences (Not all may be shown)

☒ Areas benefiting from flood defences (Not all may be shown)

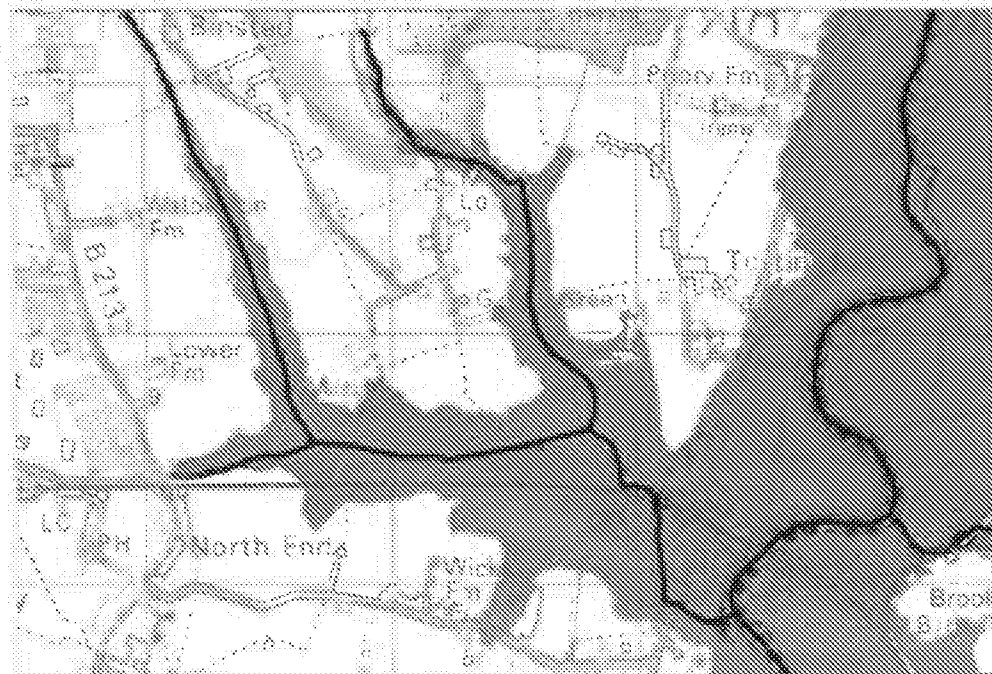
☒ Main rivers

BN18 6AS at scale 1:20,000

Other maps

Data search

Text only version



Customers in Wales: From 1 April 2013 Natural Resources Wales (NRW) has taken over the responsibilities of the Environment Agency in Wales

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A more detailed explanation to help you understand the flood map shown above.

Current flood warnings

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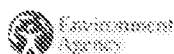
* **Legend information:** Flood defences and the areas benefiting from them are gradually being added through updates. Please contact your local environment agency office for further details.

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Other topics for this area...

Flood Map for Planning (Rivers and Sea)

Flood Map for Planning
(Rivers and Sea)

Map legend

Click on the map to see what Flood Zone (National Planning Policy Guidance definitions) the proposed development is in.

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☒ Flood defences (Not all may be shown)

☒ Areas benefiting from flood defences (Not all may be shown)

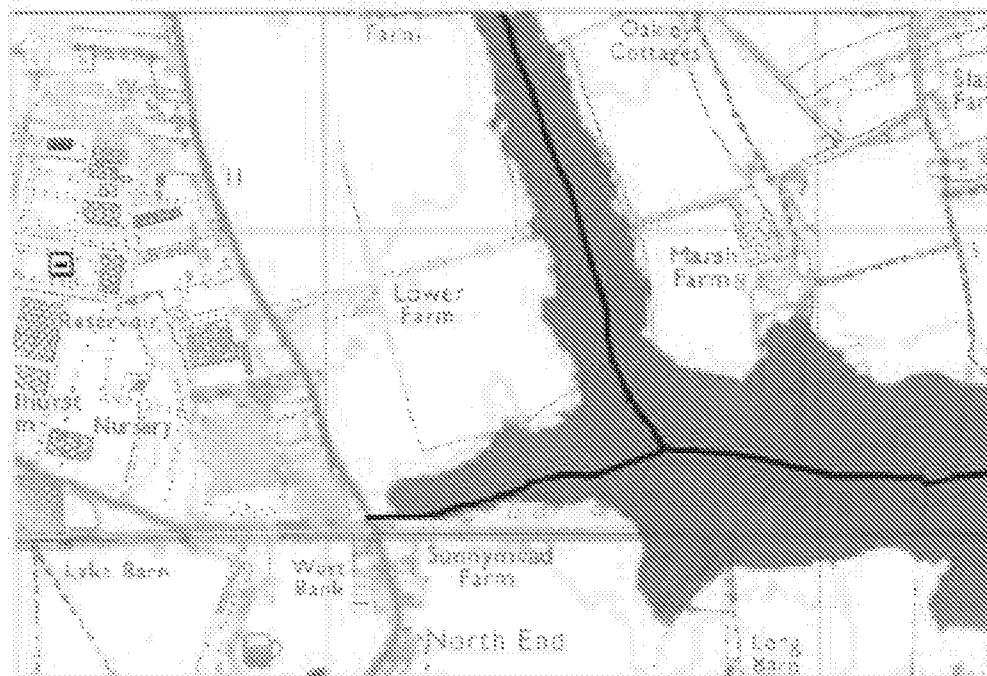
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Other topics for this area...

Risk of Flooding from Surface Water



[View other Interactive Maps](#)

Risk of Flooding from Surface Water

Surface water flooding happens when rainwater does not drain away through the normal drainage systems or soak into the ground, but lies on or flows over the ground instead.

The shading on the map shows the risk of flooding from surface water in this particular area.

[Click on the map for a more detailed explanation.](#)

Map legend

- ☒ Risk of Flooding from Surface Water
- ☒ High
- ☒ Medium
- ☒ Low
- ☒ Very Low

Map of BN18 0AS at scale 1:10 000

[Data search](#)



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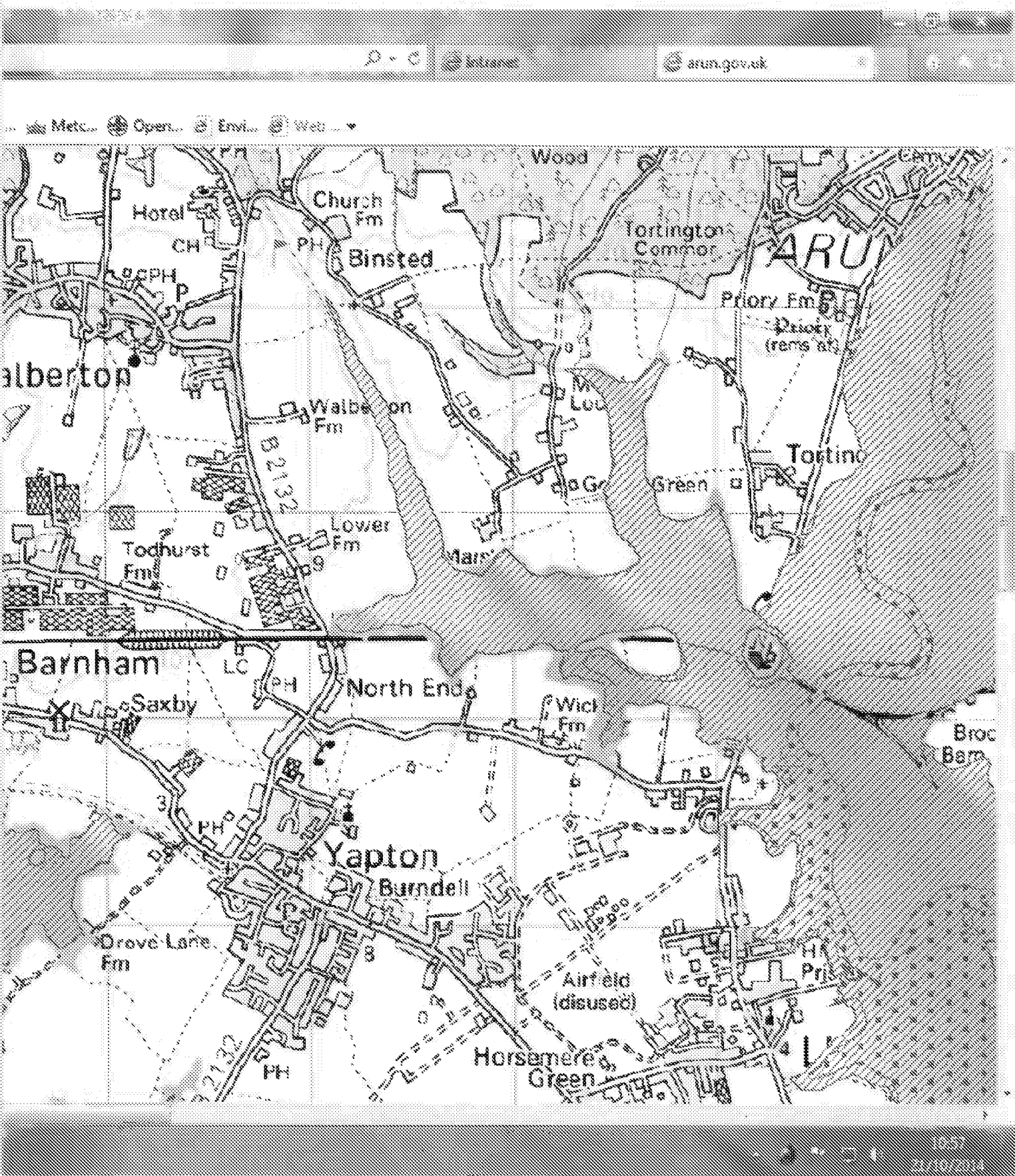
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Arun Council SFRA - Map F1-T - Tidal Flood Zone Extents



APPENDIX II

Natural England Technical Information Note TIN101

Solar parks: maximising environmental benefits

Solar energy, in common with other forms of renewable and low carbon energy sources is a valuable part of the UK's energy future. This information note pulls together a summary of advice relating to solar parks, their siting, their potential impacts and mitigation requirements for the safeguarding of the natural environment and the opportunities there may be for financial support through environmental stewardship. The aim is to help developers and landowners consider how they might maximise the environmental benefits of a solar park whilst avoiding or minimising the risk of damaging environmental features. If you would like to discuss any issues please see the *Further information* section below for contact details.

Definition

Solar parks are installations of multiple solar photovoltaic (PV) modules, usually mounted 1.5-2.5 metres above either greenfield or brownfield land occupying between 2 and 15 hectares. These figures are based on current installations and technology and this note will be updated as the technology and circumstances develop. Other notes also may be written as and when required and information becomes available.

Background

Like any type of development, solar parks have the potential to affect the landscape, natural habitats, soils and geological and archaeological features. Damage may be caused during operation or when panels are being erected or decommissioned. Cumulative impacts might also occur when parks are sited close to one another. Well located and designed solar parks may not only avoid negative environmental impacts, but may also deliver additional benefits to the environment beyond low carbon energy.

Some solar farms will need planning permission from the planning authority, for more information contact your local council. If you are considering developing a solar park you can avoid any unnecessary delays and costs by discussing

your proposals with Natural England at the earliest opportunity.



German solar farm with sheep grazing below panels

Our specialists should be able to advise you from the outset on what to do to safeguard the environment. To date (June 2011) Natural England has recommended consent to 90% of all onshore energy schemes (of all types) and 100% of those offshore. Schemes which progress smoothly share some common characteristics, including engagement with Natural England well before the formal consultation phase required by legislation.

Key points

A range of technical considerations inform site selection and the detailed design of solar park developments. These include:

- solar resource;
- topography; and
- proximity to existing grid infrastructure.

Environmental considerations that also need to take into account include:

- soils and soil structure;
- wildlife habitats and designated sites;
- effects on specific wildlife species;
- damage to designated landscapes;
- effects on the character of the landscape;
- damage to geological and archaeological features; and
- implications of water run-off.

The importance of vegetation

Vegetation is vital for wildlife, and steps should be taken to reduce the risk of reducing vegetation, for example, through excess shade or lack of rainwater. Good vegetation cover is also needed to protect soil and water, as well as provide grazing for livestock. Therefore the need to retain, encourage and manage appropriate vegetation cover needs to be considered early in the design of any solar farm.

Soil protection and husbandry

The long term capability of agricultural land, in particular the *Best and Most Versatile* agricultural land, needs to be safeguarded during the construction, operation and decommissioning of solar panels. To maintain good soil structure and water infiltration:

- soil organic matter levels should be retained or enhanced;
- compact areas of soil should be loosened; and
- existing land drainage maintained.

Excessive run-off may need to be diverted to grassed soak-aways so as to avoid soil erosion.

Good soil husbandry includes avoiding unnecessary soil disturbance and avoiding trafficking on soils when they are wet as this will cause compaction. Trackways and other sealed areas should have carefully designed drainage to avoid creating a pathway for erosion.

Reversibility and permanence also need to be considered. How easy would it be to convert and decommission these areas and put them to other use?

Any development should leave the land capable of supporting agriculture, especially if it is *Best and Most Versatile*, and/or semi-natural habitats in the future.

For information on identifying best and most versatile agricultural land see TIN049 *Agricultural Land Classification: protecting the best and most versatile agricultural land* and for guidance on soil protection see the Defra publication *Construction Code of Practice for the Sustainable Use of Soil on Construction Sites*. Details are available in *Further information* below.

Protecting watercourses

The key to avoiding increased run-off and soil into watercourses is to maintain soil permeability and vegetative cover. Permeable land surfaces underneath and between panels should be able to absorb rainfall as long as they are not compacted and there is some vegetation to bind the soil surface. Spraying off vegetation to prevent it growing between the panels would increase the risks of erosion, carbon emissions, run-off and pollution to watercourses.

Any associated infrastructure such as concrete surfaces and tracks should be designed so as to avoid direct run-off into watercourses and other sensitive areas.

The risks of run-off and soil erosion are lowest on low gradient land and cohesive soils and highest on dry, sandy and steeply sloping soil surfaces.

Solar Parks: maximising environmental benefits

Biodiversity

Protecting wildlife

The location of solar parks should avoid sites of high wildlife value. In particular, designated sites such as Sites of Special Scientific Interest (SSSIs), Special Protection Areas and Special Areas of Conservation. Any development proposed on land within or adjacent to designated sites is likely to have an adverse effect on the environmental features for which they were designated, in particular during the construction phase.

Solar parks can affect wildlife where they are near sites of high wildlife value. For example, near a bat roost where the land may be used for foraging or to navigate to foraging sites, thereby reducing the foraging area available to them. There are some indications that very large, unbroken expanses of uniform solar panels may mimic water surfaces on which insects may attempt to settle and breed. If this proves to be a problem, then mitigation measures will be sought and publicised.

Very little research has been conducted to date, but one laboratory study undertaken by Björn Siemers and Stefan Grief (2010) showed that bats attempted to drink from the panels and occasionally collided with them. If the panels were vertically aligned they often crashed into them when attempting to fly through them. Juvenile bats are expected to be more prone to this behaviour. Some birds and invertebrates are also likely to be affected by solar parks developed close to areas of high wildlife value.

Where a solar park is proposed within or close to such sensitive sites, the planning application should include a detailed assessment of the likely impacts on the ecological interest of the sites and contain practical measures which avoid or minimise any adverse effects on their features of interest. Any solar park close to a designated site will need to demonstrate that it would not compromise the objectives of the designation.

Biodiversity: mitigation

With specialist ecological advice there may be opportunities to mitigate potential impacts on species and habitats through measures such as:

- Precise layout and spacing of PV modules.
- Habitat creation and enhancement on adjacent land to offset habitat loss.
- Timing of construction activity.
- Careful use of lighting.

Sites with low wildlife value, for example, intensive arable or grassland fields are likely to offer greatest opportunity for wildlife. Not only will they avoid adverse impacts, but they are also more likely to deliver environmental benefits.

Biodiversity enhancement

Solar park sites, especially on sites of lower existing biodiversity value may offer opportunities to deliver enhancement measures.

These should be considered on a site by site basis and are likely to be most effective when they contribute to local biodiversity priorities identified through your local Biodiversity Action Plan. These should be available on the web.

Creating grasslands and hedgerows on the areas around the panels is likely to offer most benefits for plant and animal communities. You can also consider creating ponds where the conditions are appropriate and planting wild bird seed mixtures for birds and nectar and pollen rich margins for bees and butterflies.

You need to consider what ongoing management will be required to maintain the habitat and who and how this will be done. You can get advice from a variety of sources, including consultants and voluntary groups, as well as Natural England.

Some habitats require more management than others. For example if you want to establish flower-rich grassland around panels you will need to graze or cut and remove the herbage. Grazing is best and sheep or goose grazing is likely to be more suitable than cattle grazing, which is unlikely to be practical.

Establishing native trees and hedgerows will provide nesting, roosting and foraging opportunities for birds and invertebrates. They can also help screen the panels where they may be intrusive in the landscape.

Solar Parks: maximising environmental benefits

When planning and creating habitats consider long term management issues, such as:

- Is the management sustainable while the park is operating?
- Will the habitat survive and continue to be managed once the park has been decommissioned?

A management plan should help establish clear objectives and responsibilities for management and maintenance of any habitats created. The plan should also consider the budget needed to cover regular maintenance. If you are not the landowner, then local farmers may be best able to do this flexibly in response to need.

Landscape

It is recognised that solar parks can change the character and visual experience of a given area or landscape, and that they may become an element of the future UK landscape as part of our response to climate change. Careful site selection and design is the best way to avoid or minimise potential adverse landscape and visual impacts.

The location and design can be informed by existing Landscape Character Assessments and by responding to any landscape and visual assessments that are undertaken.

Designated landscapes

The presence of a designated landscape for example a National Park or an Area of Outstanding Natural Beauty is likely to reduce the degree to which a solar park can be successfully accommodated, and a proposal within, or close to, one of these sites will need to demonstrate that it would not compromise the objectives of designation.

Landscape character considerations

Table 1 on page 6 identifies landscape character factors that can aid site selection and design. It provides a general guide, but is not a rigid checklist as most landscapes will display a mixture of factors indicating both greater and lesser degree to which solar PV parks can be accommodated, these should be considered 'in the round'.

Visual considerations

Generally impacts are likely to be greater in hilly areas and more easily avoided or mitigated against in flatter areas. Solar parks are also likely to be more acceptable where there are simple landscape patterns, such as those associated with later phases of agricultural enclosure.

Where the land form is flatter existing and new natural features (for example, trees, hedgerows, ridges) as well as buildings, roads and railways are more likely to screen solar parks.

Historic environment

The historic environment is linked to wider landscape considerations and in some locations can also be an important feature in its own right. Solar parks should not be located on Scheduled Ancient Monuments. Other archaeological sites should also be avoided as they could easily be damaged, even where they are not visible above soil level.

Geology and geomorphology

Geological and geomorphological features may be designated as SSSIs or Local Geological Sites or may be an important part of the local landscape character. The siting of solar parks should take full account of designated geological and geomorphological features and in particular ensure they do not impact of the integrity and visual appreciation of geomorphological landforms and processes.

Landscape enhancement

Where enhancement measures (these may also be biodiversity measures) will contribute to a local landscape strategy or enhancement plan, solar park developments may be able to leave a positive landscape legacy.

Single Payment Scheme

If you have land which is being developed as a solar park, you will need to consider whether it needs to be deducted from any claim for payments under the Single Payment Scheme (SPS). This section explains how the SPS eligibility rules relate to solar park land.

Solar Parks: maximising environmental benefits

To be eligible for SPS, the land must be predominantly used for agricultural activity and, with limited exceptions, this requirement applies throughout the whole calendar year. For further information about the SPS eligibility rules please read the latest version of the SPS Handbook for England which is available on the Rural Payments Agency website (see link in *Further information* below).

SPS eligibility: land use

For a land parcel to be eligible for SPS, you must be able to demonstrate that the land is predominantly used for agricultural activity. This is easier to do if the land is being grazed or harvested rather than if it is just being kept in Good Agricultural and Environmental Condition (GAEC).

In a land parcel which is predominantly used for agricultural activity, any areas which are taken up by the solar panels themselves, in a way that does not allow the areas underneath to be grazed or used for agricultural activity, will not be eligible for SPS. These areas must therefore be shown on the Rural Land Register (RLR) as SPS ineligible features, and must be deducted from any SPS application.

Where the solar panels are elevated from the ground, such as on a mast or framework of multiple poles, the area of the mast itself (or of the poles), and any associated hard-standing, is not eligible but the land surrounding it (ie under the panels) may be eligible, provided it can still be used for agricultural activity, for example if it is capable of being grazed. Such eligible land may be claimed for SPS, and should be shown on the RLR as part of the maximum eligible area for SPS.

If the predominant use of the land parcel is for solar panels, ie non-agricultural activity, the whole land parcel will be ineligible for SPS.

SPS eligibility: land availability

The farmer must be carrying out an agricultural activity on the land (at least maintaining it in good agricultural and environmental condition) and have it at their disposal on the date of the application deadline (usually 15 May) of the scheme year. The land must also remain eligible for SPS for the full calendar year.

SPS eligibility during the installation

Depending on how much of the land parcel is affected by the work, and the extent to which it is affected, it is unlikely that the land parcel will be eligible while this is being done. Therefore the land parcel should probably be excluded from the claimed area for the scheme year in which the solar park is being set up.

Agri-environment schemes

Developers and land managers have sought clarification on the extent to which solar PV affects, or is compatible with, Environmental Stewardship agreements. There is some potential for solar PV parks to coexist with agricultural land use and/or land managed for nature conservation benefit. The extent to which this occurs will depend on the existing land use and, where agri-environment agreements are in place, the requirements of those schemes. The criteria used to identify eligible land under SPS also applies to agri-environment schemes.

Entry Level Stewardship

Based on Section 1.3 (the eligibility section) of the 3rd edition of the Entry Level Stewardship Handbook, where the land can be grazed or used for any agricultural purpose then it can count towards the points target for the agreement. However, management options must not be placed directly on this land. Part parcel or boundary options can be located on the specific land parcel as long as they are not directly located on the actual area covered by solar arrays.

Higher Level Stewardship

Your local Natural England Adviser should be contacted for advice when considering Higher Level Stewardship and the impact of solar PV parks. They will be able to interpret the proposals and determine the potential impact from the installation of the solar panels. The issues raised within this guidance should be considered in the round by the adviser before a decision is made regarding an application or agreement.

Cross compliance

If you claim SPS, Uplands Transitional Payment and/or Environmental Stewardship, all your

Solar Parks: maximising environmental benefits

agricultural land must also meet the cross compliance requirements, including keeping the land in Good Agricultural and Environmental Condition (GAEC), for the whole of the calendar year.

If you have concerns about complying with any cross compliance rules during the installation of the solar park, it may be possible to get a derogation by requesting one from the Rural Payments Agency in advance of the work taking place and explaining what standards may not be met. See below for a link to the cross compliance advice website.

Further information

Natural England Technical Information Notes are available to download from the Natural England website: www.naturalengland.org.uk. In particular see:

- TIN049 *Agricultural Land Classification: protecting the best and most versatile agricultural land*

See also:

Construction Code of Practice for the Sustainable Use of Soils on Construction Sites
www.defra.gov.uk/publications/2011/03/27/construction-cop-soil-pb13293/

Rural Payments Agency rpa.defra.gov.uk

Cross compliance
www.defra.gov.uk/crosscompliance/

For further information and details of your local Natural England Adviser contact the Natural England Enquiry Service on 0300 060 0863 or e-mail enquiries@naturalengland.org.uk.

Prepared by Natural England in consultation with NFU and FWAG. Editor Susie Smith. Photograph courtesy of Low Carbon Solar Partners.

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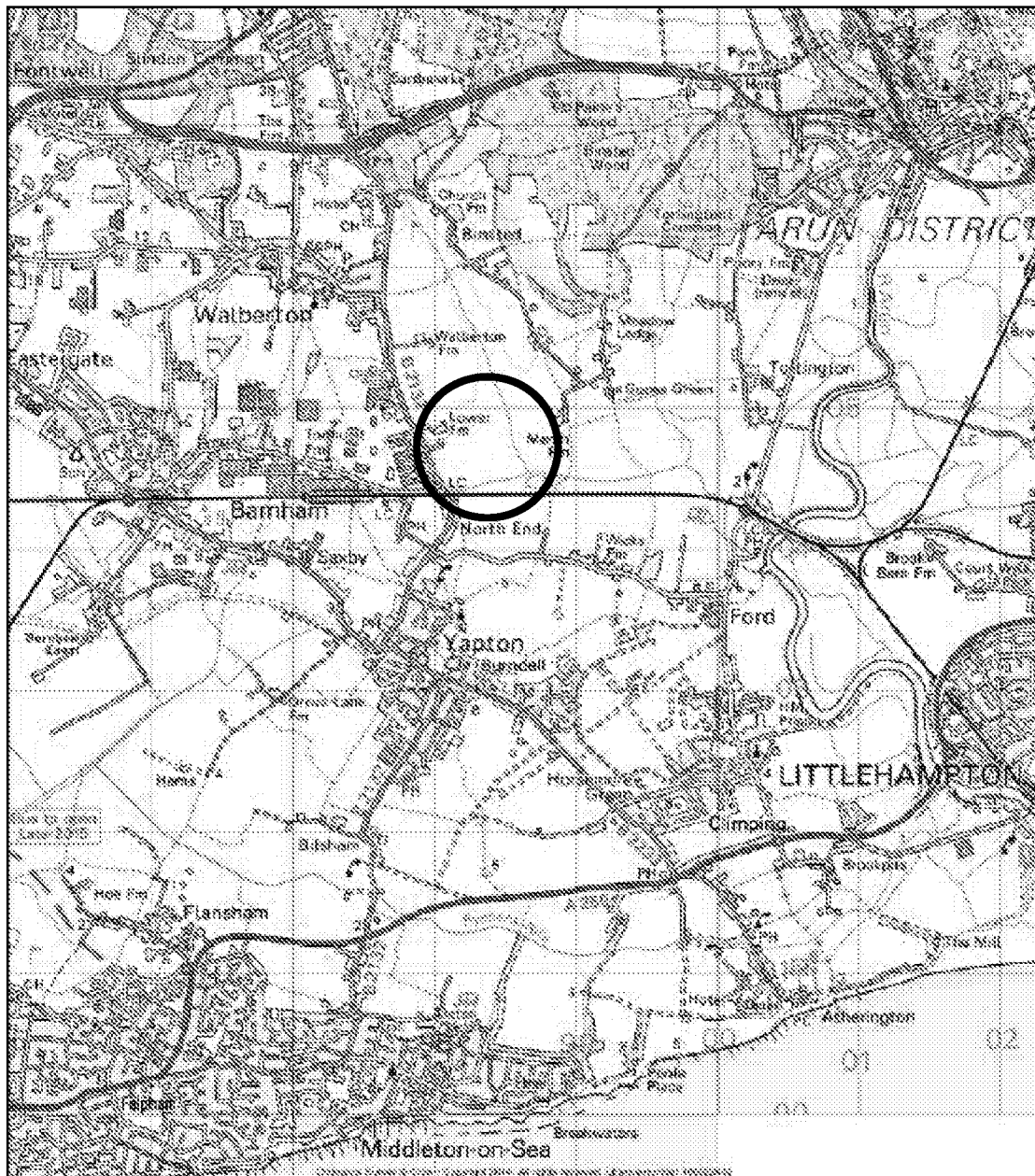
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Table 1 Landscape character factors

Factor	Increased chance that solar parks can be accommodated in the landscape	Reduced chance that solar parks can be accommodated in the landscape
Landform (also related to visual factors such as elevation and viewing angle)	Absence of strong topographical variety. Featureless, convex or flat.	Presence of strong topographical variety or distinctive landform features
Landscape pattern and complexity	Simple, regular or uniform	Complex, rugged and irregular
Settlement and man-made influence	Presence of contemporary structures, for example, utility, infrastructure or industrial elements. Presence of roads and tracks in the landscape	Absence of modern development, presence of small scale, historic or vernacular settlement, roads and tracks
Inter-visibility with adjacent landscapes	Little inter-visibility with adjacent sensitive landscapes or viewpoints	Strong inter-visibility with sensitive landscapes. Forms an important part of a view from sensitive viewpoints
Perceptual aspects (sense of remoteness, tranquillity)	Close to visible signs of human activity and development	Physically or perceptually remote, peaceful or tranquil

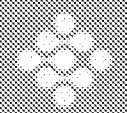


DRAWINGS



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CLIENT	LIGHTSOURCE RENEWABLE ENERGY LTD	DRG No.	PE10439-004	SCALE	1:50000 @ A4	DATE	27/11/14
PROJECT	SOLAR FARM ON LAND AT LOWER FARM, WALBERTON	DRAWN BY	DP	CHECKED BY	SR	APPROVED BY	SR
DRAWING TITLE	SITE LOCATION PLAN  wardell armstrong your earth our world						



DO NOT SCALE FROM THIS DRAWING

A1

REFERENCE

SITE BOUNDARY

FLOOD ZONE 3

FLOOD ZONE 3 EXTENT
EA FLOOD MAP FOR PLANNING

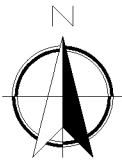
TIDAL FLOOD ZONE EXTENT
SFRA MAP F1 - T

FLUVIAL FLOOD ZONE EXTENT
SFRA MAP F1 - F

A	First Issue				
REVISION	DETAILS	DATE	BY	CHKD	APPD
CLIENT LIGHTSOURCE RENEWABLE ENERGY LTD					
PROJECT SOLAR FARM ON LAND AT LOWER FARM, WALBERTON					
DRAWING TITLE TOPOGRAPHY AND FLOOD ZONES					
DRG No. PE10439-005	SCALE 1:1250 @ A1	DATE 27/11/14			
DRAWN BY DP	CHECKED BY SR	APPROVED BY SR			
☐ SICKLE-ON-TRENT HEAD OFFICE, TEL 01945 111 7777	☐ CAVERSHAM TEL 01453 2812 9191	☐ LONDON TEL 0131 555 5311			
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☐ WEST BRIDGMAN TEL 0121 580 0009	☐ LIVERPOOL TEL 0151 494 5431				
wardell armstrong your earth our world					

Binsted Farm_Proposed_Layout_Rev 5

Area 99,2214 m2 (24.52 acres)



	Site Boundary
	Site Access
	Security Fence
	Field Boundary
	Module Table 11 x 4
	Module Table 22 x 4
	Field Transformer
	Module Layout
	DNO Substation
	Open Side Substation
	Access/Access Building
	Access/Access Road
	DNO Busbar
	Storage shed
	Access Road
	Overhead Line
	Tree
	Access Gates
	ODTV
	Temporary Access Road

Revisions:			
5	20/11/14	Changed to 3 landscape, 25/17	NV
4	20/11/14	Capacity Reduced to 5MWp	NV
3	03/11/14	Inverters-Transformers moved	DA
2	24/10/14	Topo data added	NV
1	04/09/14	Fields added + Redesign 4 landscape	DA
Rev	Date	Comments	Drawn Date

VB	XX	XX	20.12.13
DRAWN	CHECKED	APPROVED	DATE

PROJECT NAME & ADDRESS:
Location: Binsted, Walburton
Postcode: BN18 0LN
XX.XXdegrees
XX.XXdegrees

NOTES:
-
-
-
-

Paper Size:	Scale:	Sheet:
A3	1:2000@A3	1

CAPACITY:
5.00 MWp

DRAWING TITLE:
Binsted Farm_Proposed_Layout_Rev 5

DRAWING NUMBER: BIN_01_Rev 5	STATUS: Preliminary
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SWITCHING ON SUNLIGHT

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Scale 1:10000



A3 - (420 x 297)mm

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