



Knowl Green Solar Park

- British Solar Renewables (BSR) is a leading renewable energy developer and provider of expert services to the renewable energy industry.
- The company was founded in 2010 and has since grown into one of the largest privately owned integrated developers of utility-scale solar and storage in the UK with over 700MWp successfully developed and built to date.

- BSR Energy is proposing to deliver a 49.99MW solar development connected to the local distribution network. The development will be unsubsidised generating revenue in the electricity wholesale market.
- The solar development would produce enough clean renewable electricity to power approximately 12,501 family homes per year *, a saving of 11,072 tonnes of CO₂e. !

* Based on an annual average domestic consumption per household (Great Britain) of 3,799 kWh. Source BEIS, Regional and Local authority electricity consumption statics 2018.

! Based on 'Emissions associated with the generation of electricity at a power station (Electricity generation factors do not include transmission and distribution).

Source BEIS Greenhouse gas reporting: conversion factors 2020

- Current use of land: Arable farming
- Land Grade: Majority grade 3a
- Flood Zone rating: Flood Zone 1 (Less than 1 in 1,000 annual probability of flooding)
- Total Land required for the PV: 132.5 acres
- Site Access: Good access from A1017 junction in Great Yeldham
- POC location: 1km cable dig to Point of Connection (POC)

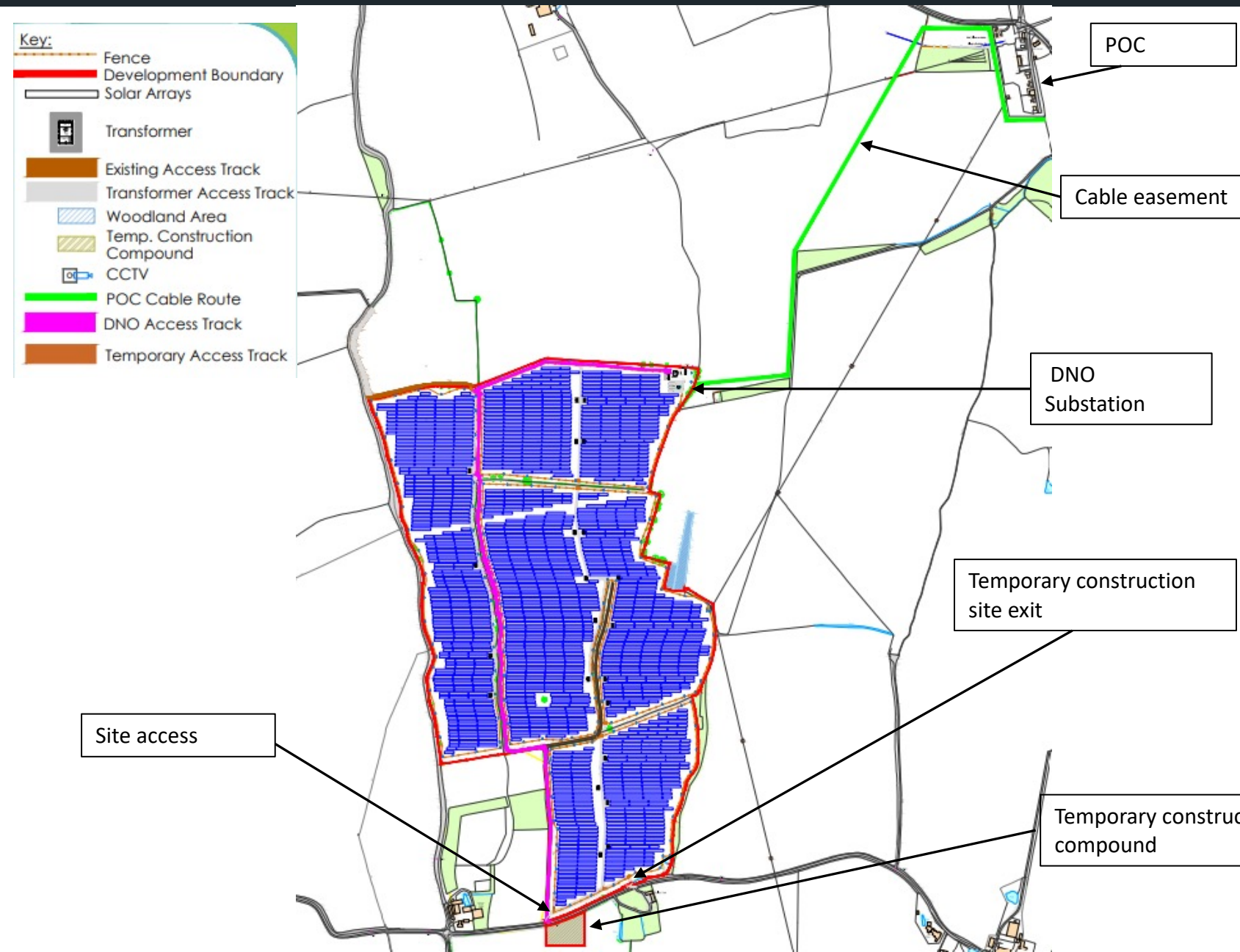
BSR would create a Community Benefit Fund, which will offer a total of £49,990 for grants to support local projects and to benefit the local community.

BSR are in the process of setting up an agreement for the community fund with Essex Community Foundation.

We are keen to see local representative(s) on the Fund. This is to ensure that the funds are distributed to important local projects by those actively involved in the community.



Site Layout Information

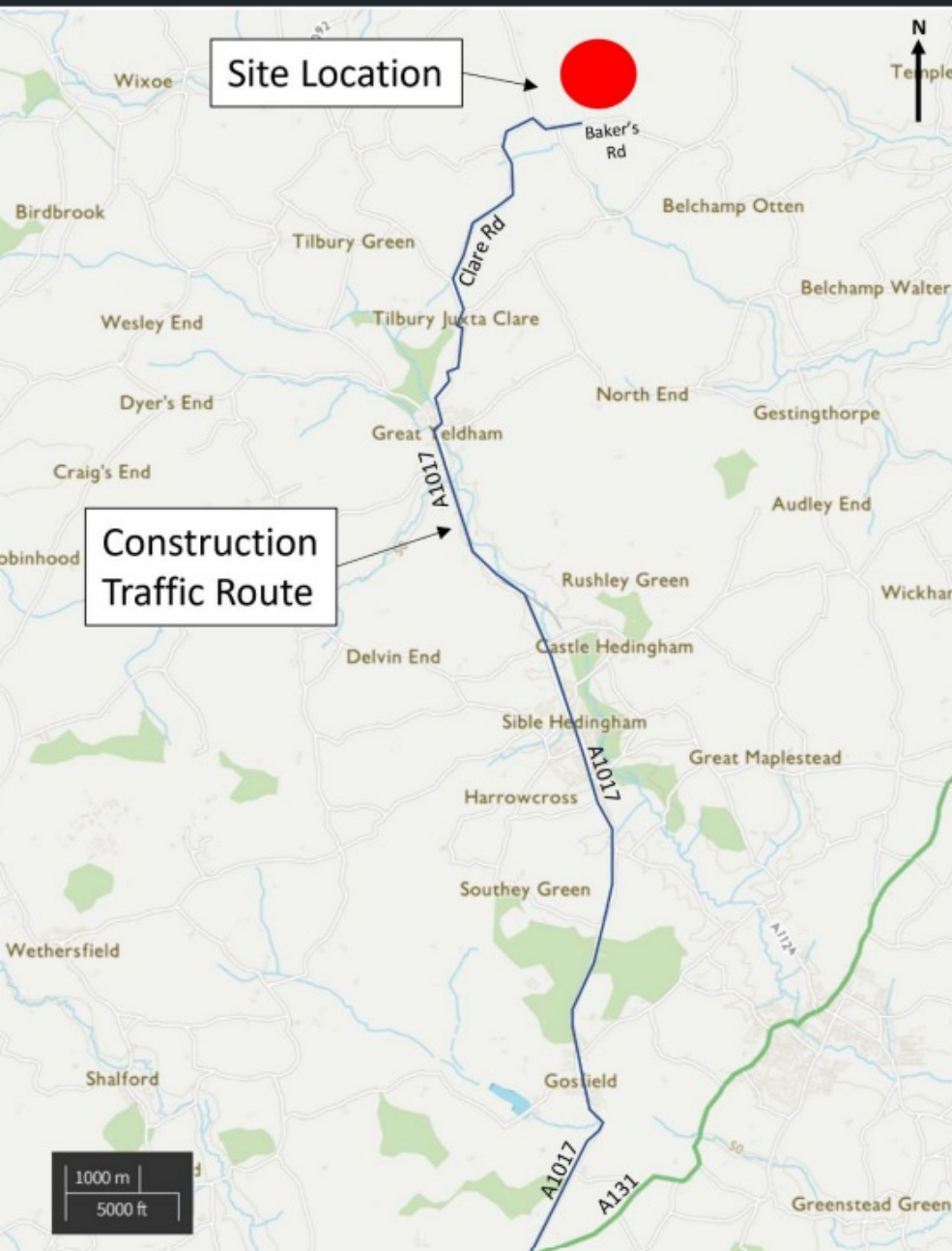


BSR submitted an Environmental Impact Assessment (EIA) screening opinion request in May 2022. The Local Planning Authority confirmed the development does not require an EIA.

Ecological surveys have been ongoing since this date and have informed the site layout.

The local authority have been consulted on the key landscape viewpoints. This has informed the soft landscaping strategy and net biodiversity gain.

Traffic Routes

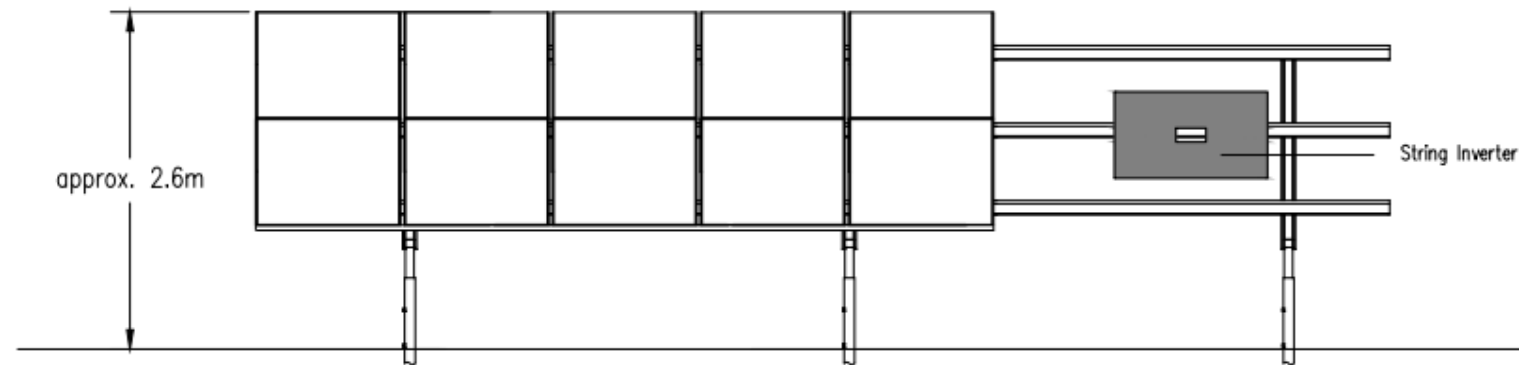
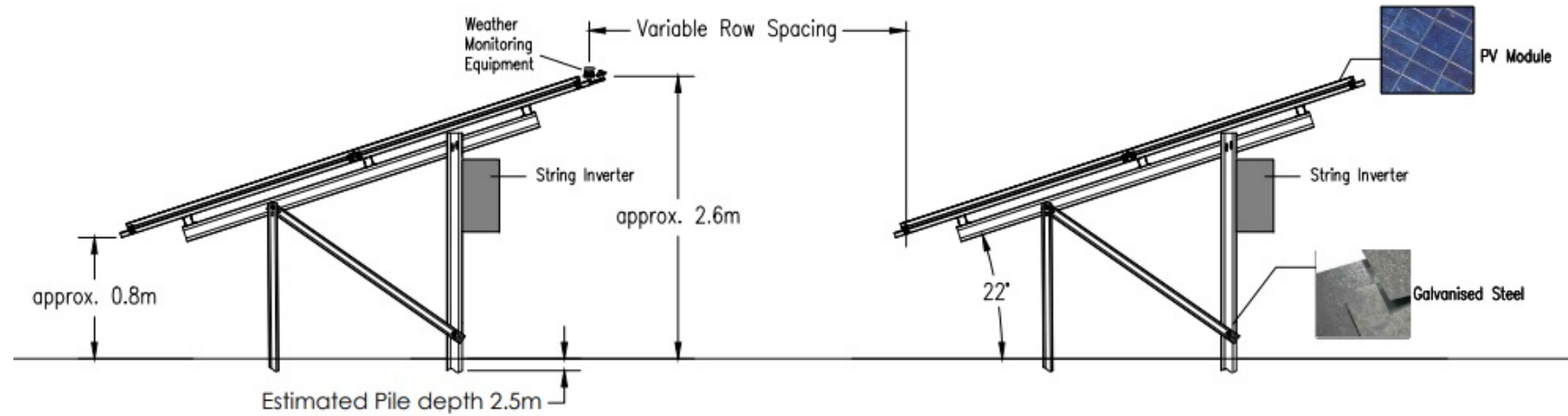


- The construction phase is likely to last for approximately 6 months, with the peak traffic movements during months 1-3. The peak of construction will result in approximately 16 two-way HGV movements a day during month 3, as a worst case.
- It is proposed that the site is accessed from Bakers Road, located to the south of the main site. The A131 is located 8.5km east and 15km south of the site and offers the primary route for construction traffic accessing the development.
- Once operational, the site will encounter low levels of traffic for maintenance purposes only. It is therefore anticipated that the largest volume of traffic will be associated with the construction phase of the project.
- Construction traffic will leave the A131 at High Garrett, and turn onto the A1017 and follow this for 12km before turning right onto Bridge Street.
- Traffic should then follow the road round onto Tilbury Road before turning left onto Clare Road, and continuing for c.4km before reaching Bakers Road, where the site access is located.

Traffic Management Measures

- HGV deliveries will be scheduled between 7:00am and 6:00pm (conditions within these hours may be imposed as outlined below)
- During peak periods of construction traffic, traffic management measures to control vehicle movement and avoid two-way conflicts will be implemented. This can take a number of forms, including the following:
 - control of timing of deliveries with suppliers – for example, to avoid ‘rush hour’
 - holding vehicles at a specific location
 - temporary traffic signals
 - Stop / go boards
 - Traffic Marshalls
 - short duration (15 minute) road closures
- During construction HGVs will stop at a pre-arranged holding location where they will be instructed by site operatives when they are permitted to enter the site. This will reduce the number of potential vehicle conflicts. Site operatives will be positioned along Clare and Baker’s Road to assist construction traffic with stop/go boards. A similar arrangement will be implemented for vehicles leaving the site, holding them within the site until the road is clear.
- Pre-construction and post-construction condition surveys of the access points will be carried out which will include a provision for any ongoing maintenance and repair to the highway as a result of the increased usage during construction. Remediation required on this road as a direct result of HGV construction traffic will be underwritten by BSR once construction works are complete. The extent of the survey will cover the entire site frontage and up to Clare Road.

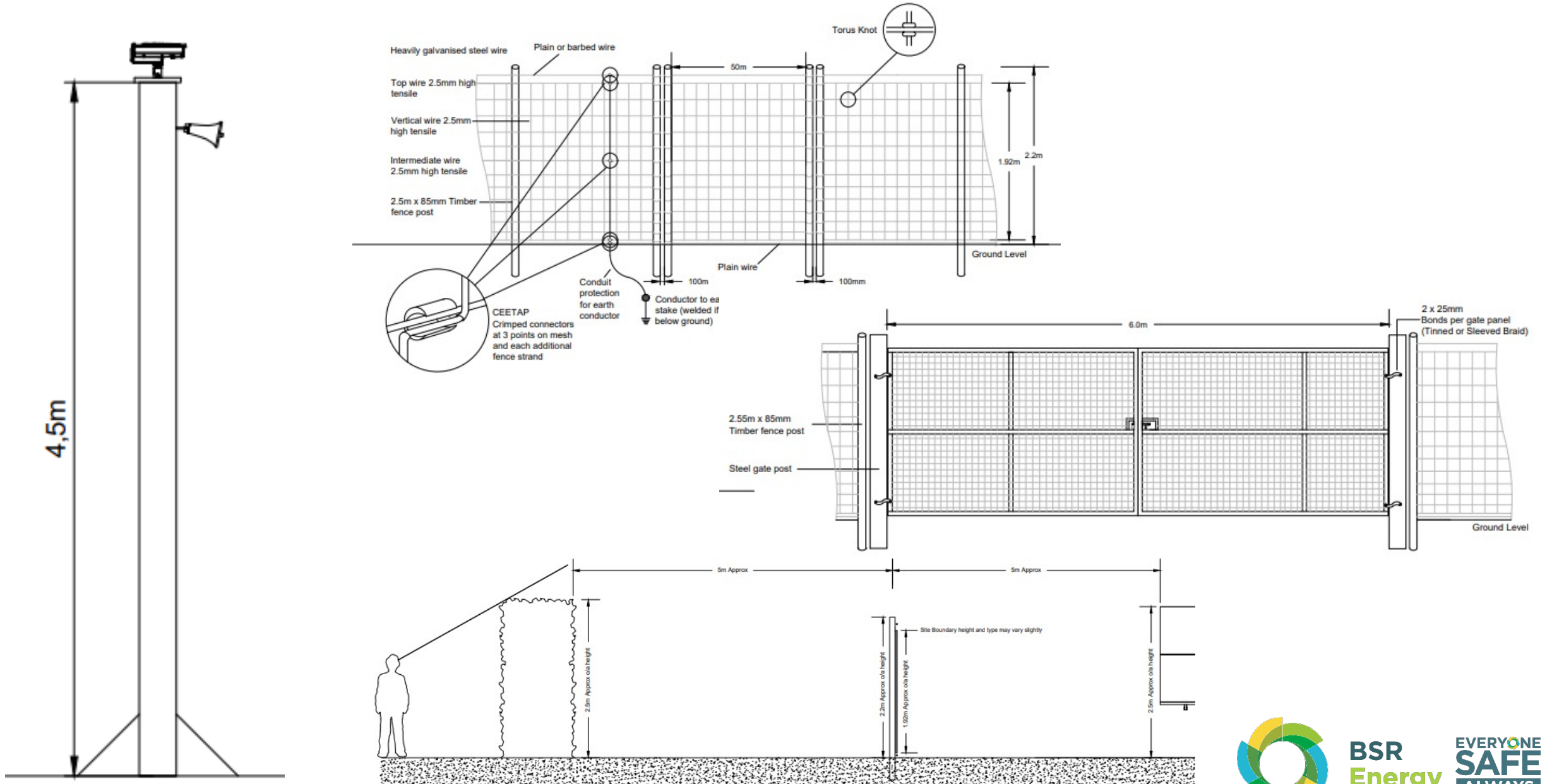
Technical Details – Panel and Mounting System



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EVERYONE
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ALWAYS

Technical Details – CCTV and Fencing



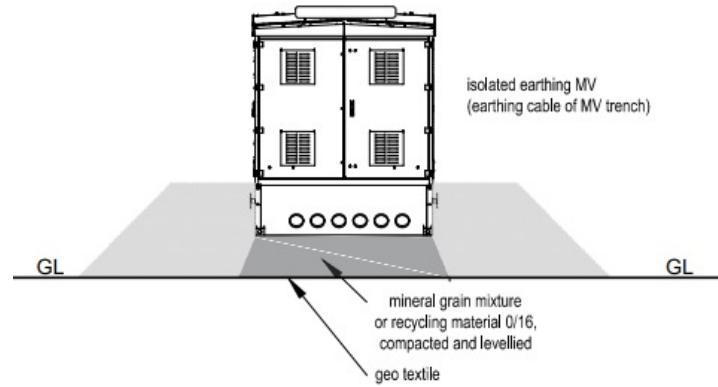
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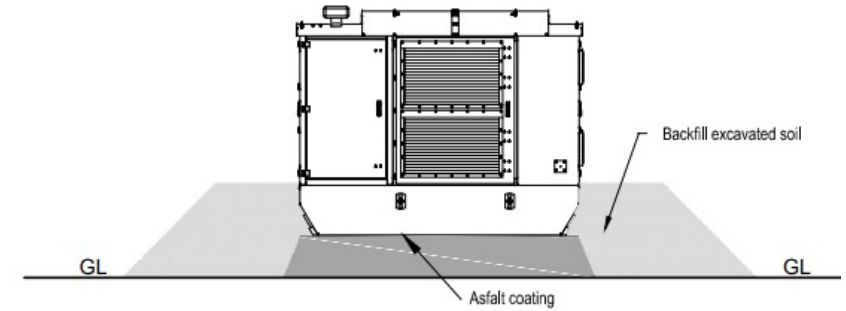
Technical Details – Transformer and Private Switchgear

Transformer

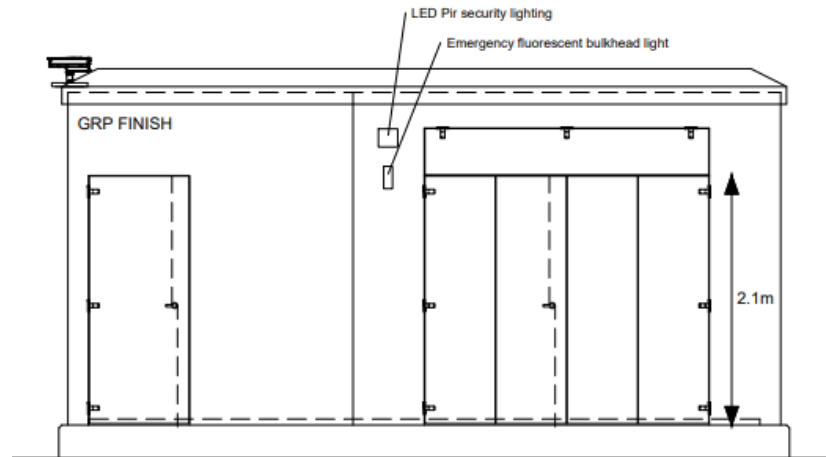
Side View (LV Switchboard)



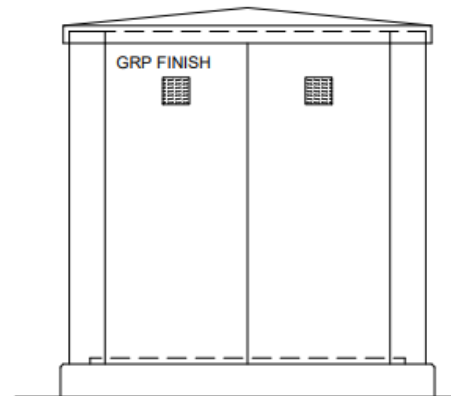
Front View



Private Switchgear

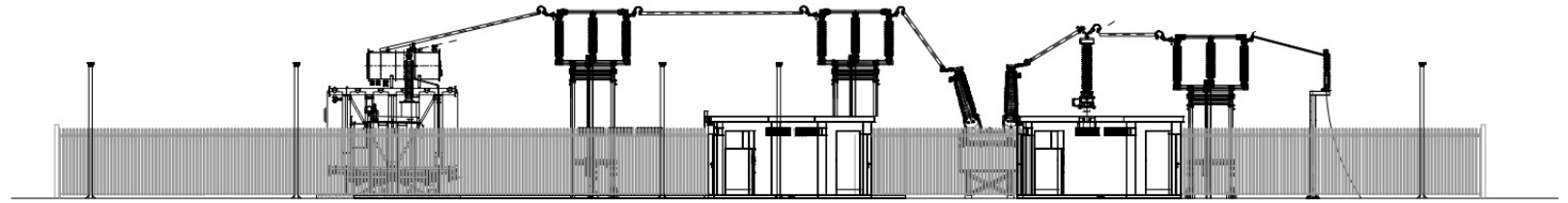


FRONT ELEVATION

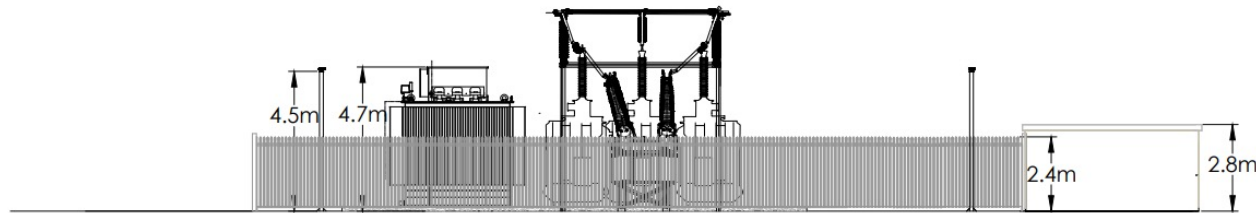


SIDE ELEVATION

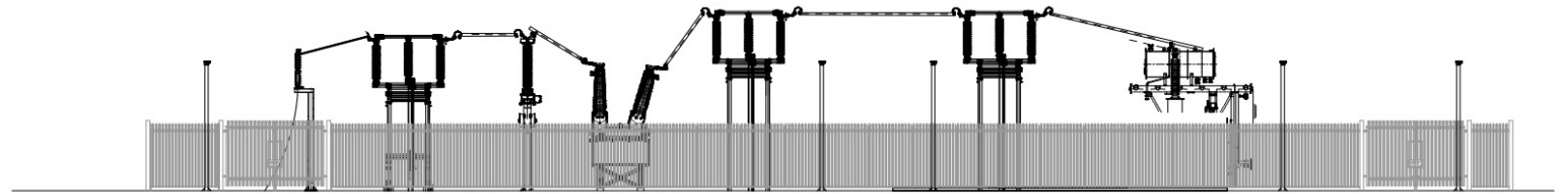
Technical Details – DNO Substation



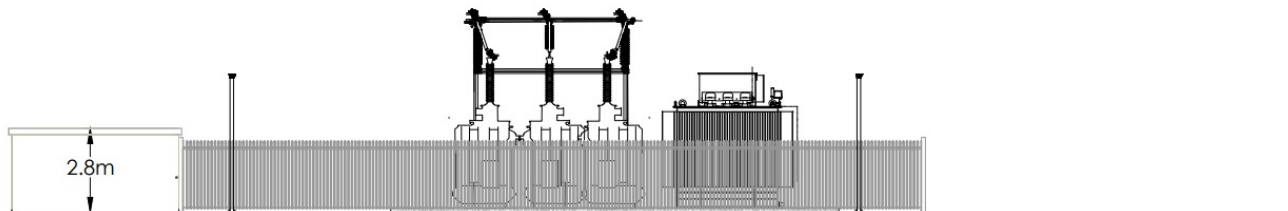
Elevation View A



Elevation View B



Elevation View C

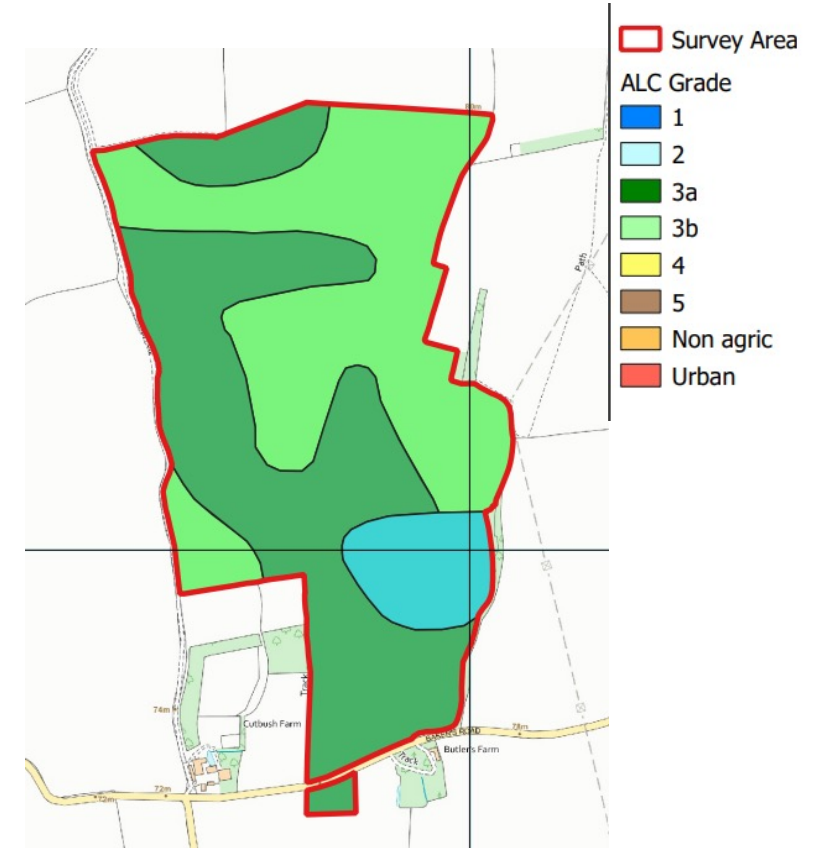


Elevation View D

Land Grade – Agricultural Land Classification (ALC) Survey

Grade / subgrade	Area (ha)	Area (%)
Grade 1	-	-
Grade 2	4.2	8.0
Subgrade 3a	25.7	48.2
Subgrade 3b	23.3	43.8
Grade 4	-	-
Grade 5	-	-
Non-agricultural	-	-
Urban	-	-
Total	53.2	100.0

- A detailed soil survey was carried out via a combination of auger borings and soil description pits.
- Results identified 56.2% is considered Best and Most Versatile (BMV) land.
- The other 43.8% is land of moderate agricultural value.
- Natural England Discretionary Advice Service was requested and it was advised that the ALC is 'reasonably robust' but further details were requested to confirm appropriate climatic information used. The ALC has been updated with these details.
- Soil management plan is also required as part of the development and this has been completed and is included in the planning submission pack.



Flood Risk Assessment

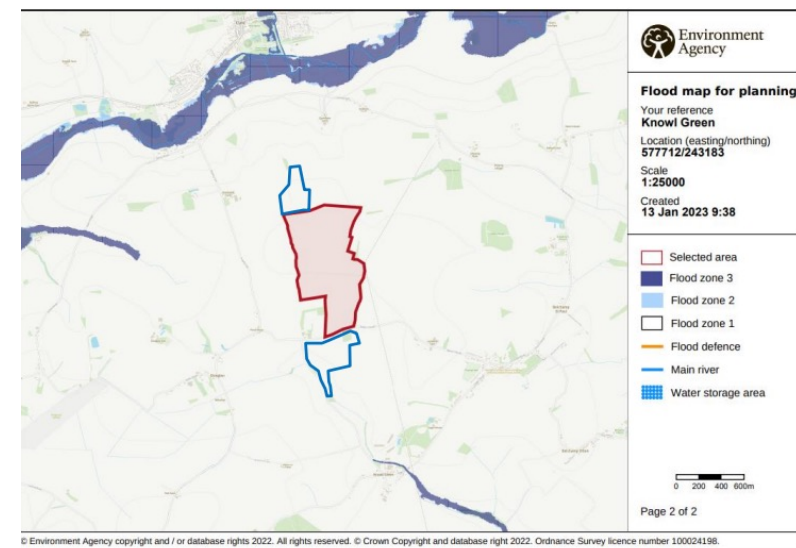


Figure 4.1: Environment Agency 'Flood map for planning' (accessed January 2023)

Site in Flood zone 1 (Figure 4.1)

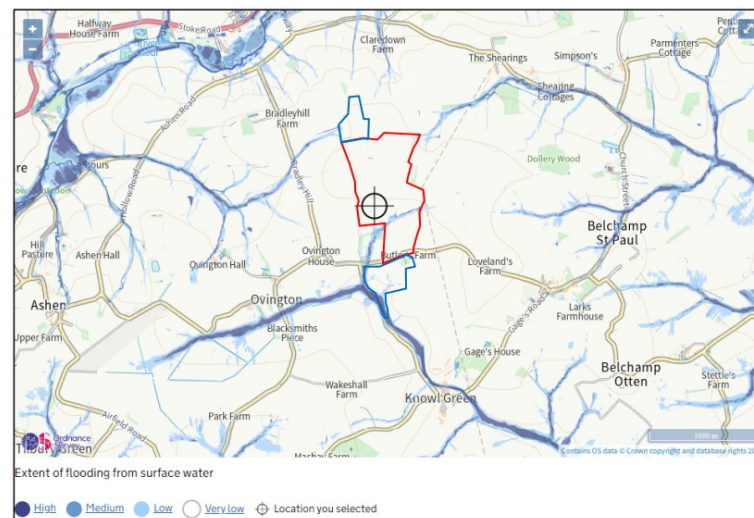


Figure 4.3: Environment Agency 'Flood risk from surface water' map (accessed May 2022)

- Very low risk of surface water flooding.
- Low-high risk surface water flow path running east to west across the south of the site. A surface water drainage network has been designed to ensure any runoff will be controlled and managed.

- Pollution Prevention Measures will be outlined in the Construction Environmental Management Plan.

Landscape Strategy

1. Retention of all existing hedgerows and trees along the boundaries and within the site

2. Allow existing hedgerows to grow to a height of 3 to 4 metres to help in blocking views of the site

3. Creation of new tree-lined hedgerow along three sections of the southern boundary to block and filter views from the south



4. Infilling of gaps in the existing hedgerows along all boundaries

5. Species rich grassland within the site fenced area beneath the solar panels

Photomontages – Baker's Road, looking north towards the site – Existing View



EXISTING VIEW (TYPE 1)
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH



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Photomontages – Baker's Road, looking north towards the site – Year 0



Notes
This photomontage illustrates location, size, colour and degree of visibility of proposal. The photomontage illustrates the massing of the proposal overlaid onto the original photograph. It aims to provide an impression of the proposed development subject to the limitations of those photographic, IT and printing technologies used in this production. This photomontage visualization has been produced using current best practice methodology.

How To Use This Visualization
This visualization is a tool for assessment and is best used for comparison in the field from the viewpoint location noted. It cannot be considered a substitute for visiting the viewpoint location.

VISUALIZATION (TYPE 3) - PROPOSED PHOTOMONTAGE VIEW - YEAR 0
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH

Photomontages – Baker's Road, looking north towards the site – Year 15

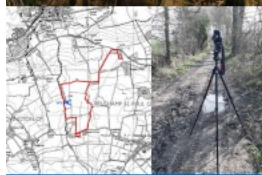


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VISUALIZATION (TYPE 3) - PROPOSED PHOTOMONTAGE VIEW - YEAR 15
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH

Photomontages – PRow EX/59/5, looking east towards the site – Existing View



EXISTING VIEW (TYPE 1)
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH

Photomontages – PRow EX/59/5, looking east towards the site – Year 0



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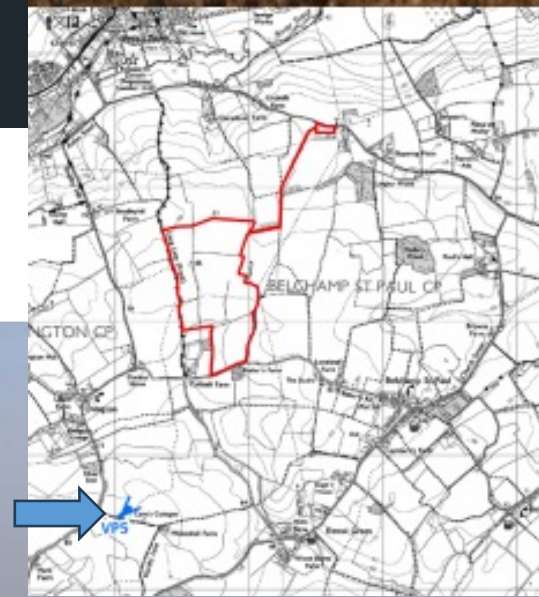
VISUALIZATION (TYPE 3) - PROPOSED PHOTOMONTAGE VIEW - YEAR 15
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH

Photomontages – PRow EX/62/29, looking north-east towards the site – Existing View



EXISTING VIEW (TYPE 1)
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH

Photomontages – PRow EX/62/29, looking north-east towards the site – Year 0

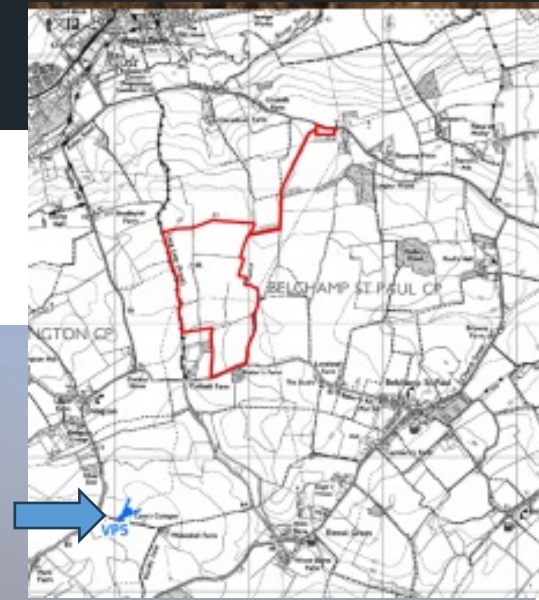


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VISUALIZATION (TYPE 3) - PROPOSED PHOTOMONTAGE VIEW - YEAR 15
VIEW FLAT AT A COMFORTABLE ARM'S LENGTH

- Preliminary Ecological Appraisal carried out – further surveys required for wintering birds, breeding birds and great crested newts.
- Wintering bird surveys – one survey per month during October, November and December 2021 and January and February 2022. A total of 34 species recorded, including 18 notable species.
 - Enhancements such as seeding the site boundaries with appropriate tussocky grass or meadow seed mixes to help provide cover and potential nesting spots and improvements to the structure and species diversity of existing hedgerow with native berry-bearing shrubs favoured by migratory birds and hedge management on a three year rotation to encourage an abundance of fruits.
- Breeding bird surveys – five surveys between April and June 2022. A total of 33 species recorded, including 16 notable species.
 - A skylark mitigation strategy would be secured via planning condition to create a skylark plots.
 - Habitat enhancements with seed mixes and hedgerow management as per recommendations in the wintering bird surveys.
- Great Crested Newt (GCN) surveys – two ponds on site which were assessed for the presence of GCN using environmental DNA (eDNA) surveys. GCN confirmed as likely being absent from the ponds on site.
 - Enhancements to the ponds by reducing shading, de-silting, planting aquatic plants on the pond margins and plug planting species that GCN utilise for egg laying to be introduced. Any brash or tree limbs removed to reduce shading would be retained and used to create on site woodpiles to serve as hibernacula for the GCN.

- Ecological Impact Assessment (EclA) completed:
 - All on site trees and hedgerows would be retained;
 - Two on site ponds would be retained and enhanced;
 - A Construction and Ecological Management Plan (CEMP) includes pre-work checks for badgers, precautionary methods of vegetation clearance in respect to breeding birds, reptiles and amphibians. This would be secured via planning condition;
 - Bird boxes would be installed on mature trees to increase the overall provision of nesting habitat;
 - Bat boxes would be installed in suitable retained habitat to increase the overall provision of roosting habitat;
 - Field margins would be enhanced with native tussocky grassland seed mixes to provide nesting habitat for red listed skylark as well as supporting other species such as hedgehog;
 - Enhancing hedgerows and infilling gaps would form continuous wildlife corridors and provide nectar and berries for insects and birds;
 - A Biodiversity Management Plan provides avoidance, mitigation, protection and enhancement details for habitats and protected/notable species and the management regime to be adhered to.
- Biodiversity Net Gain – taking the baseline of the area assessing what is currently in place and then adding in the enhancements and management plans per the ecology reports provides:
 - 179.96% biodiversity net gain in habitat units;
 - 53.59% biodiversity net gain in hedgerow units.

Archaeology

- Available evidence suggests archaeological remains most likely to be agricultural features of low importance but potential for survival of previously unknown remains.
- Ground impacts from piles and cable runs would amount to less than 4% of the total site area.
- Trial trenching proposed and scope currently in discussion with the County Archaeologist.

Heritage

- No designated heritage assets within site boundary
- Only two Listed Buildings within a 1km study area considered to have potential to be affected – Cutbush Farmhouse and barn at Cutbush Farm.
- Visual connection between the site and Cutbush Farm Listed Buildings does not contribute to heritage significance of the buildings.
- Historical functional association between some parts of the site and the farm is legible but this is through historical, archival sources which will remain in perpetuity rather than in how the site is experienced with, or from, the Listed Buildings. The topography of the site means there is very limited intervisibility. Therefore no harmful effect on the heritage significance.
- Grade II Listed Building and Monument at Clare Castle is outside study area but there are views of the site from the motte. However, the topography, intervening distance and field boundaries limit the ability to see the site clearly. So offers a neutral contribution to the significance and it is concluded it will have no harmful effect on the heritage significance.

Glint & Glare

- Ridgewell Glider Field – report found the proposals operationally acceptable and no mitigation is recommended.
- Waits Farm Airfield – report found the proposals operationally acceptable and no mitigation is recommended.
- Report recommends a 'Notice to Airmen' is issued containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard and stipulate the times and conditions under which glare is possible, so that pilots who could potentially observe the glare are made aware in advance.
- It also recommends that an update is provided for aerodrome's own documentation to include times and conditions under which glare is possible as appropriate.
- Dwellings – the report concluded that there is no impact predicted to neighbouring residential properties and as such, no mitigations are recommended.
- Roads – the development is considered to have a low impact in the worst case on road users along local roads.

Noise Impact Assessment

- Baseline noise survey undertaken over an 8-day period to determine representative background noise levels. Then a computer noise model has been developed to incorporate the proposed operational plant items.
- Rating Levels are below the representative background noise level for all receptor locations during daytime operations.
- Rating Levels are below the representative background noise level for 7 of the 11 receptor locations during night-time operations. However, the rating for the remaining 4 receptor locations is of low impact and mitigation measures are therefore not recommended to be implemented.

Site Selection

- BSR primarily selects sites based on where there is grid capacity, and then, where within the grid capacity hotspot is there a viable grid connection. From this point, BSR searches for viable sites.
- A desktop search for brownfield sites is then undertaken using viable criteria. Two sites were found but both had end-use established through planning already and therefore no suitable brownfield sites were available.
- The team then searches for lower grade agricultural land as a priority. This is a significant challenge in Braintree. The Local Plan (Part 2) states 'the majority of agricultural land in Braintree District is classified as Grade 2/3, with 65.8% (40,243 hectares) of agricultural land being classified as Grade 2, and 29.9% (18,304 hectares) as Grade 3.' There is a low provision of suitable sites within the immediate area which are identified as being subgrade 3b, 4 and 5.
- Owing to the high volume of Best and Most Versatile (BMV) agricultural land within the district, the use of the site for solar energy generation would represent a negligible temporary loss of agricultural output when viewed on balance.
- Connectivity to the grid is the most essential requirement. The further the distance the greater the challenge of transferring the electricity. Longer cable routes lead to more ground disturbance and impacts as well as increased cable losses.

Recycling

Panels

First thing to happen is material separation, solar panels are composed of several different parts, so these need dividing up.

The panel's aluminium frame and glass casing are disassembled and sent their separate ways. 100% of the aluminium and 95% of the glass is used again.

Then it's time for thermal processing. The temperature is ramped up to 500°C, which evaporates the small plastic components and easily allows for the cell modules to be physically separated. Around 80% of the cell modules are reused.

Finally, you're left with the silicon wafers. These are etched away and smelted into reusable slabs. 85% of the silicon is repurposed for new solar panels, but 15% of it is lost in the process.

Frame

As steel or aluminium these will be able to be recycled.

Cables

Can be stripped for the metals to be recycled.

Electrical (Inverters, Transformers, Combiner Boxes)

Transformers can be repowered or the components containing metals can be recycled. Inverters can be recycled for parts, upgraded or repowered.

Questions?

If you have any further questions you can contact a member of the project team using the details below. We would be happy to discuss any questions you have.

Website – www.BSRknowlgreen.co.uk

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