

Final Development Masterplan

Application Number: PA23/08726
Proposal: Ground installation of 28 black solar panels together with all associated cabling and equipment for connection to the consumer unit.

Background

Our House (The Oak House) was built in 2010, as one of several eco-friendly holiday homes at Little White Alice, where it benefitted from solar and wind energy generated by a communal array of solar panels, and a wind turbine. When the house was sold some years later, it no longer had access to the green energy generation infrastructure. Electricity is the only source of energy available to the house and our annual electricity consumption is approximately 11,000 kWh, which is proving to be very expensive, both in terms of the monetary cost and of the consequent carbon footprint. It is for these reasons that we are keen to instal solar panels in the field next to our house. We have been advised that a generation capacity in the region of 11 kW (requiring 28 solar panels) together with 10kWh of battery storage, would be appropriate for our requirements.

- The Historic Landscape Characterisation of the proposed site is 20th Century Farmland [1].
- Wendron Parish Council is the designated neighbourhood area for the formation of a Neighbourhood Development Plan, but no such plan has yet been made [2].
- The site lies within the UNESCO WHS of the Wendron Mining District [3], but there are no shafts, mines or engine houses any closer than 110 m to the proposed position, neither are there any archaeological sites, finds or suspected sites closer than 130 m [1].

The Plan

Vehicles used by the Contractors will be parked either on the drive at the front of The Oak House, or in a designated car parking area 50 m to the North of The Oak House. Access from here to the field in which the solar panels are to be positioned, will be along a wide grass track (2.1 – 3.0 m wide) which runs alongside The Oak House. This track is also a public footpath which will remain open throughout the installation, with appropriate signage to warn of the work taking place and of the occasional use of the track/footpath for access. At no time will any building materials or vehicles be a stationary obstacle on this path. The third-party liability insurance of the contractors will be confirmed prior to the work commencing.

Energy Store Dorset Ltd will supply, design, and install the system, in compliance with the small-scale embedded generator guidelines (SSEG), engineering recommendations G98 or G99, and the Installation of Photovoltaic Systems published by MCS. They will also liaise with the local District Network Operator, issue an MCS certificate of conformity, and notify the local building control office of conformity under Part P.

In the field to the immediate South-East of The Oak House, 28 solar panels (each measuring 1722mm x 1134mm) will be arranged into four sets: two containing 8 solar panels each (4 x 2 arrays: 2 high, 4 wide) and two containing 6 each (3 x 2 arrays: 2 high, 3 wide). The arrays will be placed one in front of the other with a gap of about 6 m between each, to prevent self-shading. In each array, the panels will be arranged in profile and will face due South at an inclination of 30 degrees from the horizontal [4]. The area within the field encompassing the solar panels and gaps in between, will be 30 m x 5 m = 150 sq m. Bespoke ground mount kits, comprising galvanized steel rail assemblies with 1.3 m deep ground screws, will be used to mount and secure the PV panels.

Weatherproof inverters to convert DC to AC electricity will be attached to, or positioned beside, the panels. A narrow trench, 70 m long, running between the panels and the house will be carefully excavated to accommodate 16 sq. mm, 4-core, steel armour-shielded cable, which will conduct the generated electricity towards 2 x 5kW batteries sited in an existing storeroom, attached to the front of The Oak House. Where stone paving has been laid alongside the House, the cable will not be buried, but will be secured into the right-angle between wall and paving. Connections will also be made to the 3-phase electricity supply beside the storeroom and a car charging point will be installed. The position of these elements are shown in [5].

While the cable trench is being dug, any unusual objects or ground discontinuities which emerge (indicative of below-ground archaeology) will be reported immediately to Cornwall Council Archaeologists. In such an event, any further excavation would stop until permission to proceed was given. If further trenching was prohibited, it would then become necessary to route the cable above ground instead. The Company carrying out these works will be notified in writing of these requirements before any work commences.

Once the cables have been laid, the trenches will be carefully refilled and restored to grass and the area in between and beneath the arrays of solar panels will be restored and maintained as meadow. Any damage to the ground along the access route will be repaired. Foxglove and red campion seeds will be scattered onto, and blackthorn and hawthorn saplings will be planted next to, a lower section of Cornish hedge to the immediate South of the solar panels, to reduce the visual impact of the panels for anyone using the public footpath which runs along the other side of this Cornish hedge.

Due to the undulating topography, views of the development can only be seen outside the immediate setting where the viewpoint is at an elevated position and not obscured by vegetation or hedges. The only sites which meet these criteria in areas open to the public (highways and public footpaths) are 300 to 750 m away [6]. At this distance away, the panels would occupy only a small section of the visual field. Only close-up, where a Cornish hedge dips along a section of the boundary do the panels have a greater visual impact [7]. As stated above, this will be remedied by planting additional hawthorn, blackthorn and foxglove in the vicinity of the Cornish Hedge to the immediate South of the panel array.

Apart from partial shading of the ground immediately beneath the solar panels, none of the existing GI elements will be altered as a result of the solar panel installation. Green Infrastructure undertakings are: (i) restoration of the meadow where trenches were dug as well as beneath and between the solar arrays; (ii) the positioning of bird boxes and bee hotels (6 of each) in suitable positions within the field; and (iii) planting additional hawthorn, blackthorn, red campion and foxglove in the vicinity of the Cornish Hedge to the immediate South of the panel array [8].

References

- [1] Cornwall Council interactive map, <https://map.cornwall.gov.uk/website/ccmap>
- [2] List of neighbourhood plans, <https://www.cornwall.gov.uk/planning-and-building-control/neighbourhood-development-plans-made/>
- [3] Wendron WHS, <https://www.cornishmining.org.uk/areas/wendron-mining-district>
- [4] Dimensions & Layout of Solar Panel Arrays.pdf (Attachment to Application)
- [5] Site Plan.pdf (Attachment to Application)
- [6] Aerial View.pdf (Attachment to Application)
- [7] Panel Views.pdf (Attachment to Application)
- [8] Landscape Plan Showing GI Assets.pdf (Attachment to Application)