DESIGN AND ACCESS STATEMENT:
ELY VALLEY SOLAR FARM

LAND OFF ELY VALLEY ROAD | YNYSMAERDY | NR LLANTRISANT

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DRAWING SCHEDULE

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1. INTRODUCTION

1.1 INTRODUCTION

1.1.1 This Design and Access Statement (DAS) accompanies a planning application submitted on behalf of Windel Solar 8 Ltd for the construction and operation of a solar farm on land off Ely Valley Road, near the village of Ynysmaerdy.

1.1.2 The purpose of this DAS is to allow the applicant to demonstrate that development proposals are based on a thoughtful design process and a sustainable approach to access. The DAS also demonstrates how the development proposals have evolved during the design process.

1.1.3 This statement sets out the design and access principles for the proposed development in accordance with the objectives of good design as set out in Planning Policy Wales (PPW) and Technical Advice Note 12: Design (TAN 12) and Policy AW6 of the Rhondda Cynon Taf County Borough Council Local Development Plan.

1.1.4 The planning application is also accompanied by a Planning Statement including Technical Appendices. The Planning Statement provides an appraisal of the proposed development against the Development Plan and other material considerations.

1.1.5 This DAS has the following structure:

- **Chapter 1** provides an introduction to the development;
- **Chapter 2** describes the high-level design considerations;
- **Chapter 3** considers the design of the scheme;
- **Chapter 4** considers the access arrangements for the site; and
- **Chapter 5** provides a summary and conclusion.

1.2 OUTLINE DESCRIPTION OF THE SITE AND SURROUNDINGS

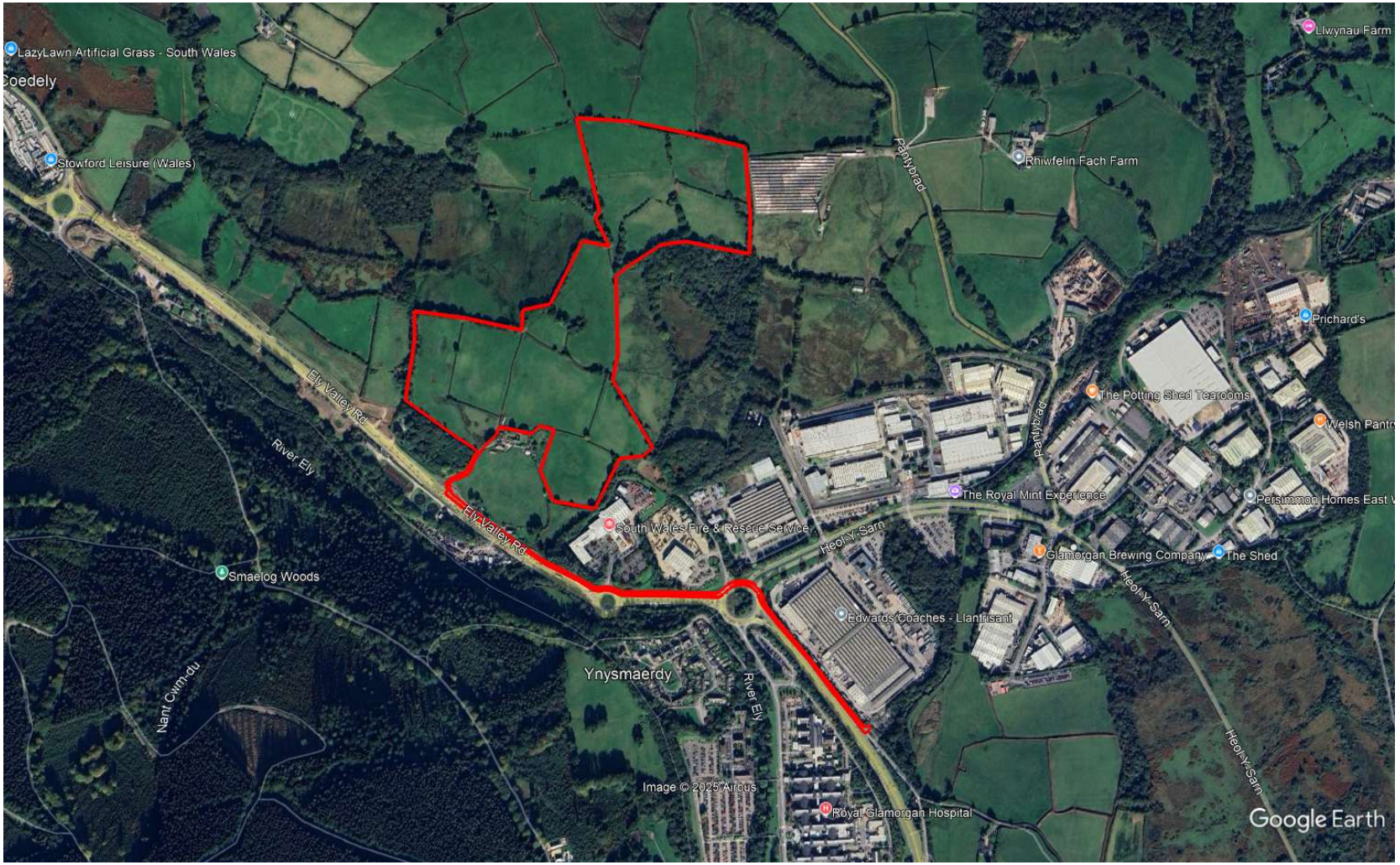
1.2.1 The application site covers an area of approximately 20.9ha is irregular in shape and comprises several agricultural fields as shown on drawing WN1011/01/01 and Figure 1.1 below.

1.2.2 The solar farm will connect to the local distribution network at the existing substation located c.1.3km to the south of the application site off Ely Valley Road. The cable from the on site substation will be underground and will largely run in the highway.

1.2.3 The application site comprises numerous grazing fields and scrub on a south facing slope. The application site and surrounding areas are rural in nature, characterised by villages and towns in the valleys, typically wooded valley sides above which is grazing land.

1.2.4 There are a number of overhead electricity transmission lines that cross the site, drainage channels and streams, and underground utility infrastructure. A small-scale solar farm (1.3MW) and two wind turbines located adjacent to the eastern boundary of the proposal site. There is significant industrial development located adjacent to the south east of the site.

Figure 1.1: Site Location



1.2.5 The Local Plan Proposals Map shows that the site is within a Special Landscape Area outside of settlement limits, in an area designated as comprising Sandstone resources.

1.2.6 The Rhos Tonyrefail Site of Special Scientific Interest (SSSI) is located adjacent on the eastern boundary of the application site. In addition, the Rhiwfelin Fawr Site of Importance for Nature Conservation (SINC) which is located 0.09km northwest of the site.

1.2.7 The site is withing Flood Zone 1 and therefore has a low risk of flooding.

1.2.8 There are no designated heritage assets on site. Historic Wales Maps show there are three national monuments near the site; Rhiwefelen is a Post Medieval House located to the northeast of the site (c.125m) and Dyffryn-Uchaf is noted on the Historic Environment Record as a Post Medieval House and Farmstead located to the south of the site (c.220m). Beddw, a Post-Medieval House is sited c.215m to the northwest of the site.

1.2.9 There are no Scheduled Monuments within the proposed site, but there is one within 2.5km of the site. No Listed Buildings lie within the proposed site. There are 27 Listed Buildings within 2.5km of the site, 8 of which are within 1km. The site does not form part of a Conservation Area, nor are there any Conservation Areas in proximity to the site.

1.2.10 Figure 1.2 shows a photograph of the elevated plateau looking north east.

Figure 1.2: Photograph from the Application Site Looking north east towards existing turbines

1.3 THE PROPOSAL

1.3.1 Windel Solar 8 Ltd is seeking planning permission to construct and operate a solar photovoltaic (PV) farm, together with a below ground cable to the point of connection, on approximately 20.9ha of grazing land located c.0.4km north of Ynysmaerdy and 0.8km east of Coedely. It is anticipated that the proposed Solar Farm will have an export capacity of up to 9.9MW of electricity, enough to power approximately 2,600 homes per year based on the UK Average annual

domestic electricity consumption during 2021[1].

1.3.2 The proposal will comprise the following:

- Photovoltaic (PV) panels;
- Mounting frames – matt finished small section metal structure;
- Scheme of landscaping and biodiversity enhancement;
- Inverters and transformers and associated cabling (largely below ground);
- Distribution Network Operator (DNO) substation and customer cabins;
- Deer fencing, sympathetic to the area, and infra-red CCTV (CCTV cameras would operate using motion sensors and would be positioned inward only to ensure privacy to neighbouring land and property);
- Temporary set down area;
- Internal service roads; and
- Site access for the construction, operational and decommissioning phases.

1.3.3 The solar farm will connect to the local distribution network at the existing substation located c.1.3km to the south of the application site off Ely Valley Road. The cable from the on site substation will be underground and will largely run in the highway.

1.3.4 The indicative cable routes are presented in Drawing WN1011/04/13. The drawing shows a 'corridor' within which the cable will be laid. The exact alignment of the route is to be confirmed at the detailed design stage via separate authorisation from the Local Highway Authority.

[1] Assumes annual average domestic household power consumption is 3,578kWh

2. DESIGN PROCESS

2.1 DESIGN PROCESS

2.1.1 The application site was selected through an extensive search criteria exercise undertaken by the Applicant. South Wales represents a particularly favourable area for solar deployment because of the high levels of solar irradiation.

2.1.2 A range of technical, environmental and economic factors are considered when assessing a site for ground-mounted solar PV development. Key factors for consideration include:

- Solar irradiation levels;
- Availability and proximity of the local distribution network (grid);
- Proximity to local population;
- Topography;
- Field size and shape;
- Potential for overshadowing;
- Development Plan Policy;
- Access to the site for construction/decommissioning traffic;
- Agricultural land quality;
- Landscape sensitivity and visual impact amenity;
- Nature conservation and potential for enhancement;
- Flood risk; and
- Land availability.

2.1.3 Based on the high-level selection criteria mentioned above, the proposal site was considered suitable to accommodate a solar farm. As detailed environmental survey and assessment work progressed the design of the proposed development evolved. Ecological considerations were identified as having the greatest constraints and opportunities.

2.1.4 Rhos Tonyrefail Site of Special Scientific Interest (SSSI) is located adjacent to the east of the application site. After thorough baseline survey works it was noted that the two north eastern most fields contained good quality acid grasslands and as such should not be used for PV deployment and instead be managed to maintain and enhance their habitat status.

2.1.5 Appropriate standoffs from existing trees and hedgerows have also been incorporated into the design of the site.

2.1.6 Various landscape and ecological enhancements have been incorporated into the scheme. This includes provision for conservation grazing of existing grassland habitat, planting of additional hedgerow and planting of trees.

2.1.7 Surveys relating to flood risk, noise, soils, heritage, and coal mining were undertaken. None of these surveys identified any constraints which influenced the design of the proposed scheme.

2.1.8 The proposed access is considered to be acceptable from a highways perspective.

2.2 COMMUNITY ENGAGEMENT

2.2.1 As part of the Pre-Application Consultation (PAC) process, an appropriate consultation exercise will be undertaken.

2.2.2 This will involve distributing letters to local Ward Members and the Community Council, neighbouring Ward Members and Town and Community Councils. Specialist consultee will also receive letters. Adjacent landowners and local residents will be sent letters by post. Site notices will be provided where appropriate.

2.2.3 Site notices will be positioned adjacent to the application site. One is to be positioned adjacent to the proposed main construction entrance off Ely Valley Road. The others are to be located along the cable route to the point of connection.

2.2.4 A website (www.elyvalleyroadsolarfarm.co.uk) has been set up and this will include the draft planning documents for people to review and download if required.

2.2.5 A summary of the consultation work and the feedback provided as part of this will be included in the Consultation Report which will form part of the subsequent planning submission.

3. SCHEME DESIGN

3.1 GENERAL CONSIDERATIONS

3.1.1 The importance of renewable energy generation as part of the response to climate change is recognised at all levels of governance in Wales. Furthermore, renewable energy from solar supports the national economic objective to decentralise energy supply and to lessen dependence on fossil fuels. The Welsh Government consequently considers that the wider benefits of renewable energy schemes to society and the economy are significant and must be given significant weight by decision makers in reaching their decisions on individual planning applications.

3.1.2 The proposed solar farm has been carefully designed to ensure visibility from outside the application site is reduced as far as possible. The renewable energy will be exported to the Local Distribution Network providing energy to homes and business in the locality.

3.1.3 A typical site arrangement will include ground mounted PV panels aligned east to west facing south, similar to that as shown in figure 3.2 below. There will also be transformers, substations (DNO and customer) and control cabins. The site will be secured by deer fencing and CCTV.

3.1.4 A customer and DNO substation will be located towards the southern boundary of the application site and from here a below ground cable will connect to the local distribution network at the existing substation which is located c.1.3km to the south. The cable will run in the highway.

Figure 3.1: Image of ground mounted PV panels

Figure 3.2: Ground mounted PV panels and transformer

3.2 AMOUNT

3.2.1 The extent of deployment is determined largely by the

acceptability of environmental effects when weighed against the benefits of the proposal and the contribution it will make in reducing carbon emissions. Whilst indicative site arrangements are provided in Drawing WN1011/04/03 a detailed layout and phasing of construction will be agreed with the Local Planning Authority (LPA) by way of an appropriately worded planning condition following grant of planning permission.

3.2.2 Subject to ground conditions, pile foundations to support the mounting frames that carry the panels will be used. The piles are typically pushed into the ground to a depth of 1.5m. The transformers and substations will sit on concrete bases to ensure stability. Perimeter deer fencing (c.2m high) and CCTV (using invisible infra-red lighting) will also be installed.

3.2.3 The panels are constructed from impermeable materials; rainwater will run off directly onto the ground below. As the panels are raised off the ground, the surface below remains permeable. The amount of land that is made impermeable by the installation of the facility is limited to the concrete pads of the transformers and substations. The land on the site can continue to be used for agricultural purposes (sheep grazing or similar) and for biodiversity enhancement.

3.2.4 During the construction phase temporary roads and a construction compound will be required. The compound will accommodate deliveries of materials and equipment during construction. The location for the construction compound is shown on Drawing WN1011/04/12.

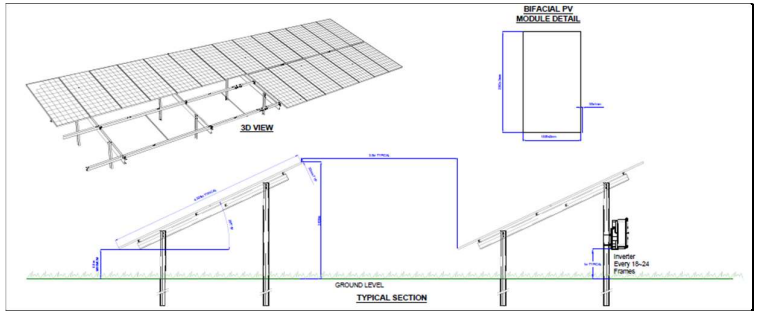
3.2.5 Transformer and substations are typically 3m in height and are designed to be as small as possible. These structures will not be prominent within the landscape and will be significantly smaller than agricultural buildings/barns typically found in the countryside.

3.3 SCALE

3.3.1 The proposed solar farm will consist of photovoltaic panels laid out in arrays running from east to west.

3.3.2 The maximum height of the panels will be 2.6m above the ground, with a gap of at least 0.8m above the ground on the lowest edge of the panels.

Figure 3.3: Pannel and Frame Specification



3.3.3 The panels are spaced between 4m and 6m between rows so as to avoid any potential for shading which would reduce the operational efficiency of the system.

3.4 APPEARANCE

3.4.1 The layout of the solar farm has been designed to fit within the context of the area and all existing perimeter trees and hedgerows will be retained and where necessary managed.

3.4.2 Significant standoff areas are to be included from hedges, woodland and ecologically designated sites.

3.4.3 The panels will sit on galvanised matt finish metal supports.

3.4.4 Transformer and substations will not be prominent within the landscape and will be painted in a dark green (or similar) colour.

3.4.5 The Landscape and Visual Impact Assessment contained in chapter 7 of the Environmental Statement considers the potential visual impacts of the proposal. As part of the assessment a scheme of biodiversity enhancement is proposed which has been designed to reduce any adverse visual effects and strengthen landscape character. As the scheme of biodiversity management matures over time any visual effect will continue to be minimised.

3.5 LANDSCAPING AND BIODIVERISTY MANAGEMENT

3.5.1 A key aspect of the proposal is to provide biodiversity enhancements across the site. This and the need for existing planting to reduce potential impacts to visual amenity will be informed by the ecological survey works and the landscape and visual impact assessment.

3.5.2 The proposed Landscape Masterplan for the application site can be viewed in figure 3.4 and on drawing WN1011/07/07 contained in Appendix G2. The drawing identifies the existing habitats to be retained and how they will be managed. Biodiversity and landscape enhancements are at the fore of the Windel Solar 8 Ltd proposals. In addition to land between and beneath the panels, there will be significant areas of non-deployment land that will be brought under formal management to provide ecological enhancement for the life of the scheme.

3.5.3 The landscape and visual impact assessment and ecology and nature conservation ES chapters provide full details of the enhancement proposals, but in summary these include:

- The existing field boundary vegetation, in the form of native hedgerows and trees, including those within the site, will be retained where possible and managed to an appropriate height to provide visual screening, but also to enhance landscape and ecological structure.
- Analysis of historic mapping will be undertaken to determine whether there are any lost landscape features that could be reinstated and integrated with the solar development e.g. copses, banking, ditches and hedgerows.
- Grassland will be managed and enhanced for landscape and ecological benefit, Species mixes will be appropriate to the local area and follow recommendations of the project and County Ecologists
- Appropriate development offsets (clear zones) will be initiated from adjacent habitats including the woodland and grassland SINC and neighbouring SSSI as well as field margins to ensure visual effects are not of a significant nature and that existing habitats have a sufficient buffer to enable transition/connectivity between existing and proposed habitat areas.
- Development will facilitate the management of the range of semi-natural habitats – trees, hedgerows and grassland mosaic/upland meadows, found throughout the solar plot and adjoining areas.
  Mitigation proposals will serve the dual purpose of providing landscape and visual mitigation and to increase the site's value and reflect Local Biodiversity Action Plan

objectives.

Figure 3.4: Proposed Landscape Masterplan

4. ACCESS

4.1 ACCESS

4.1.1 **Figure 4.1** below shows the proposed vehicle routes to (yellow) and from (orange) the application site

Figure 4.1 Proposed Vehicle Routes during Construction Phase

4.1.2 Access to the application site is taken from Ely Valley Road (A4119) using an existing access that serves Dyffryn Farm and another residential property. The access will be used during both the construction and operational phases of the development.

4.1.3 Within the site, the set down area will be constructed from compacted crushed stone. Internal service roads will be similarly constructed to allow vehicular access within the site.

4.1.4 Signage will be displayed on site.

4.1.5 The main traffic and transport related effects will be associated with the movement of HGVs to and from the site during the construction phase of the development.

4.1.6 The construction phase of the solar farm would result in the temporary generation of construction and staff related traffic over a 6-month construction period.

4.1.7 During the construction period, there is predicted to be 175 two way vehicle movements, or 350 individual movements (in and out), which is the equivalent of 1.16 deliveries a day over the 6 month construction period (6 day working week/25 working days a month/6 months).

4.1.8 The first month is expected to see the highest deliveries to the site. 60 deliveries are predicted in the first month. The majority of these movements are related to the delivery of PV panels.

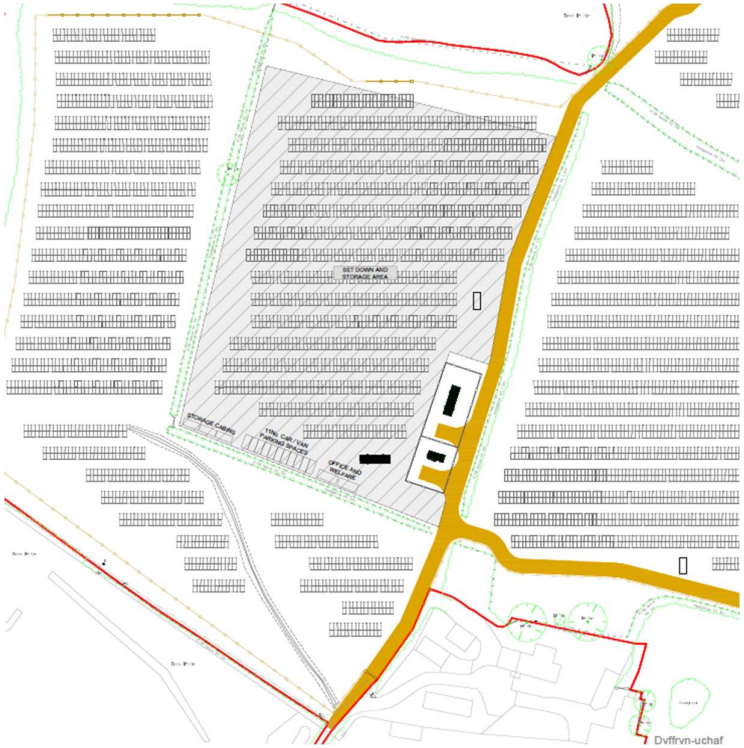
4.1.9 It is considered that this level of trip generation, is unlikely to have severe impact on the operation of the local highway network.

4.1.10 After commissioning, the site will only be visited during routine monthly maintenance checks. The access during the operational phase will be as per the construction route. A service track is required to the transformer stations as well as through the solar farm which will provide vehicular access around the site as part of regular inspections and maintenance. The track will be approximately 4m wide and will be finished with compacted crushed stone.

4.1.11 The proposed development will have restricted public access. In designing the proposed development emphasis will be placed on security. The design ensures the site is secure and

not readily accessible to the public through the installation of deer fencing and infra-red CCTV. Access to the site will be through invitation only.

Figure 4.2 Details of the Set Down Area



4.1.12 During the construction period approximately 50 staff will be on-site, depending on the phase of the development. All vehicle parking will be provided within the temporary construction compound at the development site. There will therefore be no parking on the local highway network.

4.1.13 The TS sets out the details on the proposed measures to manage construction vehicle movements.

4.1.14 The decommissioning phase is expected to generate similar levels of traffic as the construction phase.

5. SUMMARY AND CONCLUSIONS

5.1 SUMMARY AND CONCLUSION

5.1.1 This DAS accompanies a planning application for a solar farm submitted on behalf of Windel Solar 8 Ltd.

5.1.2 The Environmental Statement and accompanying technical appendices assess the potential impacts of the proposal on the receiving environment. The ES concludes that overall on balance the proposal will deliver a substantial number of benefits, including the generation of renewable energy and the delivery of ecological enhancements and on balance the positives are considered to outweigh any potential adverse impacts which have been identified.

5.1.3 Alongside generating sufficient renewable energy to power approximately 2,600 local homes, the proposal will provide significant improvements to local biodiversity. This will be achieved principally through:

- The existing field boundary vegetation, in the form of native hedgerows and trees, including those within the site, will be retained where possible and managed to an appropriate height to provide visual screening, but also to enhance landscape and ecological structure.
- Analysis of historic mapping will be undertaken to determine whether there are any lost landscape features that could be reinstated and integrated with the solar development e.g. copses, banking, ditches and hedgerows.
- Grassland will be managed and enhanced for landscape and ecological benefit, Species mixes will be appropriate to the local area and follow recommendations of the project and County Ecologists
- Appropriate development offsets (clear zones) will be initiated from adjacent habitats including the woodland and grassland SINC and neighbouring SSSI as well as field margins to ensure visual effects are not of a significant nature and that existing habitats have a sufficient buffer to enable transition/connectivity between existing and proposed habitat areas.
- Development will facilitate the management of the range of semi-natural habitats – trees, hedgerows and grassland mosaic/upland meadows, found throughout the solar plot and adjoining areas.

5.1.4 This DAS discusses the findings of the assessments undertaken to inform the design of the proposal in parallel with an inclusive scheme of community engagement.

5.1.5 The proposed development clearly accords with the 'presumption in favour of sustainable development' under Future Wales, PPW12 and the Rhondda Cynon Taf County Borough Council Local Development Plan as it secures environmental, economic and social betterment. The potential impacts (with mitigation) of the proposal have been demonstrated to be limited and are significantly outweighed by the renewable energy benefits.

5.1.6 It is considered that this DAS illustrates how the development proposals have been subject to a thoughtful design process by a range of professionals, demonstrating a sustainable approach to accessibility and design of the solar farm. Accordingly, the proposals are considered to be in line with Future Wales and planning permission should be granted accordingly.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