

OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN: CYP SOLAR FARM

GLAIS | SWANSEA



PREPARED BY



PREPARED FOR

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1. INTRODUCTION

1.1 INTRODUCTION

- 1.1.1 This Outline Construction Environmental Management Plan (OCEMP) has been prepared by Sirius Planning on behalf of CYP Solar Ltd, in support of a planning application for a 20MW Solar Farm at Craig Y Perchych, Glais, Swansea.
- 1.1.2 This OCEMP describes how a detailed, site specific CEMP will be developed to avoid, minimise or mitigate any construction effects on the environment and the surrounding community. This OCEMP covers site activities which may require operational controls in relation to potential environmental impacts and details mitigation measures to minimising risks to the environment.
- 1.1.3 The Outline CEMP will be monitored regularly throughout the duration of the works to ensure best practice is followed.

1.2 PROPOSED WORKS DURING CONSTRUCTION PHASE

- 1.2.1 The proposed development is for the construction and operation of a ground mounted solar farm with a generating capacity of up to 20MW, below ground cabling, substations, associated infrastructure, biodiversity and public access enhancements. The operational life of the solar farm will be 40 years.
- 1.2.2 The principal construction works include:
- Creation of temporary set down areas and improvements to Graig Y Pal;
 - Laying of aggregate to form access tracks;
 - Piling of steel frame mounting systems;
 - Fixing solar panels to steel frame mounting system;
 - Concrete base formation for transformers, substations and cabins;
 - Trenching and laying of electrical cables;
 - Construction of substation compound and electrical transmission components;
 - Installing fencing and ancillary equipment including CCTV cameras; and
 - Removal of set down areas and the reinstatement of the land as per its current use.

1.3 SITE OVERVIEW

- 1.3.1 The application site comprises numerous grazing fields, scrub and woodland on an elevated plateau. 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. Farm buildings are dispersed throughout the landscape. Graig Y Pal, an adopted highway (albeit a non-thoroughfare) provides access to the centre of the application site.
- 1.3.2 The centre of Glais is approximately 570m south west of the application site. The larger town of Clydach is located approximately 2km to the west of the application site.
- 1.3.3 For descriptive purposes the application site can be divided into three areas; land to the west and east of Graig Y Pal and land off Ynys Y Mond Road.
- 1.3.4 The Graig Ola - Cwm-cymach Site of Importance for Nature Conservation (SINC) covers an area of 186ha and incorporates a variety of habitats. Approximately 56ha of the application site is located within the SINC. Designated ancient woodland is located (partially) along the northern boundary of the application site. The majority of the southern boundary and land within the application site is ancient woodland.
- 1.3.5 Running parallel to the southeast of the site is an overhead 400kV power line. A below

ground gas main crosses the site towards the northern boundary in a north west to south east alignment.

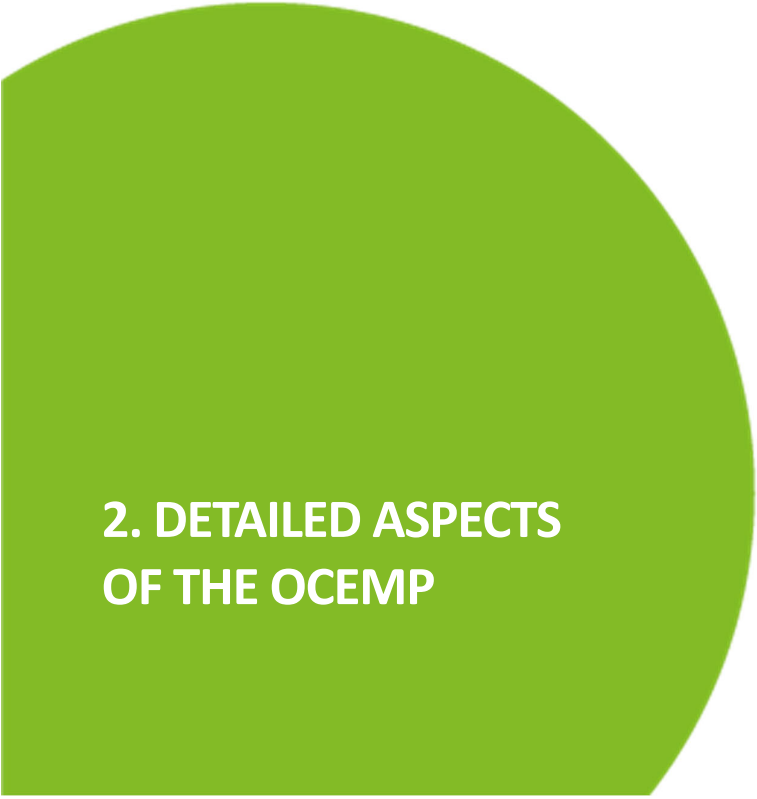
- 1.3.6 The nearest residential properties to the application site are Lletty'r-Wiwer (c. 115m south), Llwyn-erch-Idwal (c.215m south), Cwm -cymach-uchaf (c.200m south) and properties on Graigola Road (c.240m south west).

1.4 EMERGENCIES

- 1.4.1 Procedures for a general response will be included in the Health and Safety Plan detailed to be prepared by the appointed contractor. This will state the chain of command and standby operatives and will be clearly advised to all site operatives. The emergency contact details for the works will be clearly displayed at the site
- 1.4.2 A list of all nearby residential properties, downstream abstractors and other sensitive receptors that could be affected by an environmental incident will be compiled by the appointed contractor.
- 1.4.3 Lessons learnt will be reviewed and imparted to site operatives through safety and environment briefings. The CEMP would be updated/amended where necessary.

1.5 MONITORING

- 1.5.1 Daily inspections will be carried out on site. Where necessary reporting will record environmental performance and any non-compliances with the detailed CEMP.



2. DETAILED ASPECTS OF THE OCEMP

2.1 SCOPE OF THE OCEMP

2.1.1 The OCEMP has been prepared with reference to the environmental assessments which have been undertaken in support of the planning application, these include: Transport Statement, Ecology Appraisal, Flood Risk and drainage and heritage.

2.1.2 **Table 2.1** below identifies environmental receptors and summarises potential impacts.

Table 2.1: Environmental Receptors and Potential Impacts

Receptor	Potential Impact
Designated Sites	Physical damage, pollution (water/dust/noise)
Habitats	Physical damage, pollution (water/dust/noise)
Protected Species	Disturbance, movement restriction, habitat loss
Hydrology	Pollution
Hydrogeology	Pollution
Soils	Contamination, erosion and compaction

2.1.3 The OCEMP is structured to address the above potential impacts through the following issues associated with construction works:

- Safety and Security;
- Noise;
- Air Quality;
- Ecology;
- Lighting;
- Ground Conditions;
- Contaminated Land;
- Water Pollution;
- Waste;
- Local Community Responsibility; and
- Traffic and Transport.

2.2 SAFETY AND SECURITY

2.2.1 An appointed Site Manager will have the responsibility of Health and Safety on site. Duties may include providing a daily update to a Health and Safety Board identifying potential hazards. All visitors to the site will be required to sign in and adhere to on-site Health and Safety practices. All personnel working on site will be required to wear the appropriate Personal Protective Equipment (PPE) Including a high visibility vest or jacket, steel toe cap boots, and a hard hat as well as any other activity-specific safety wear.

2.2.2 Security fencing will surround the site throughout the 40 year operational life of the proposal. It is proposed to erect this fence at the start of construction works to ensure that the site is secure during this phase.

2.3 NOISE

- 2.3.1 It is proposed that deliveries of materials will be made to the remote set down area or direct to the deployment area during the following hours:
- Monday to Friday: 0800 to 1800;
 - Saturdays: 0800 hours to 1600; and
 - Sundays and Bank Holidays: No deliveries.
- 2.3.2 Deliveries will be carried out within the hours above. Under exceptional circumstances, both working and deliveries outside of these hours may be required, however, this would be agreed with the LPAs in advance.
- 2.3.3 Residential properties are located along Ynys Y Mond Road and also partially along Graig Y Pal.
- 2.3.4 Any potential for noise nuisance arising from construction activities will largely be due to vehicle movements, and from plant and machinery operating on site, such as the movement of soils, piling and the construction of infrastructure and solar panels and associated plant. Excavators, haulage lorries, hydraulic piling, cranes, mobile plant, concrete plant, and power tools would all, at some time during the construction programme, be operating.
- 2.3.5 Noise and vibration impacts associated with the construction works relating to the construction of the infrastructure and associated plant could adversely affect nearby sensitive receptors. However, given the temporary nature of the construction phase noise sources would vary throughout the different stages of the construction period, and for relatively short durations.
- 2.3.6 To minimise noise impacts the following measures will be implemented:
- Vehicles will be fitted with effective silencers
 - Engines will be turned off when not in use
 - Vehicles will avoid reversing on site to minimise reversing and associated beepers; and
 - Plant and machinery will be maintained in good working order.

2.4 AIR QUALITY

- 2.4.1 Possible impacts to local air quality only have the potential to occur during the relatively short construction phase through vehicular and plant emissions and through the creation of dust.
- 2.4.2 The site is not within or near an Air Quality Management Area and proposed traffic generation will not lead to significant vehicle emissions. Excessive dust is unlikely to be generated through anchoring of the frames to the ground as the frames will be secured by piles that will be pushed into the ground. Excavation is limited to scraping of top and sub soil for proposed tracks and foundations for the substation and transformer bases and trenching thus minimising the potential for ground disturbance and the entertainment of dust. Vehicle movements on site will be limited to transportation of equipment to site.
- 2.4.3 Measures outlined below are proposed to ensure that adequate mitigation procedures are in place during the construction phase:
- Wheel washing equipment will be available and used on-site, as required to prevent the transfer of dirt and stones onto the public highway;
 - Dust generating activities will be minimised during windy conditions where possible;
 - Where necessary, loads into and out of the site will be sheeted;

- Soil stockpiles will be covered when left for extended periods;
- Where necessary a dust suppression/water spray system will be available; and
- Implement a dust monitoring scheme.

2.5 ECOLOGY

2.5.1 The 67.8ha site (this does not include the temporary set down area or the cable route) is a diverse mix of habitats and is strongly influenced by its geomorphology. The Site is currently grazed by horses, which are having both a positive and negative impact. 56ha of the site is designated as a within Graig Ola - Cwm-cymach SINC, only the northern most fields are outside the SINC.

2.5.2 The western extent of the Site, is a steep outcrop and plateaux of moorland character. The majority of this area is dominated by two habitats – dry acid grassland with ant hills and semi-improved neutral grassland.

2.5.3 The southern fields consisted of small, enclosed fields, with mature sessile oak woodland and scrub forming the boundaries. The most southern fields supported the acid grassland habitats of highest value on Site, one field was particularly diverse and species-rich with acid bog, lowland acid grassland, and semi-improved grassland (probable MG5 in medium condition). Scrub in several of these fields is beginning to encroach on the higher value habitats.

2.5.4 Most the fields inside the SINC have been mapped as poor semi-improved grassland.

2.5.5 The northern fields outside the SINC have been mapped as “Improved Grassland” or poor semi-improved due to intensive grazing, low species richness and high prevalence of undesirable species.

The identification of key ecological and nature conservation features and the assessment of the likely significant effects of the proposed development upon these features are outlined within Ecology Appraisal in Appendix 4.7.

2.5.6 The Principal Contractor will comply with relevant legislation for protected species and habitats and should retain habitats intact and undisturbed, and if possible, enhance natural habitats. If it is impossible to maintain habitats in their existing condition, the habitat and species it contains should be relocated / transplanted or restocked to an equivalent or richer ecological status.

2.5.7 Following pre-application discussion with Local Authority Ecologists the following detailed species surveys were undertaken:

- Wintering and breeding bird
- Reptile
- Otter
- Invertebrate
- Bats

2.5.8 A detailed overview of the ecological baseline conditions is outlined within Appendix 4.7. A large number of enhancement and mitigation measures have been designed into the proposed development, designed to avoid and minimise impacts during the construction and operation of the solar farm. These include setbacks from boundary features, avoiding more sensitive areas of the SINC, minimisation of vehicle movements and retention of hedgerows/trees.

2.5.9 The Contractor will implement the following measures, to avoid or minimise potential ecological impacts during construction:

- No field margins will be constructed upon, avoiding impacts to invertebrates, reptiles and foraging birds.

- Good site management will be implemented to avoid generation of excessive litter, dust, noise, and vibration.
- Existing farm access tracks will be used wherever possible
- Establish site boundary by erecting fencing to prevent access to areas outside working areas, particularly in areas adjacent to features of ecological interest / value.
- Workforce will be restricted to working areas through the erection of fencing to prevent additional damage.
- Cover trenches over night to prevent wildlife (for example, badgers) from falling in and becoming trapped resulting in injury or death.
- Restricted night-time working and minimal lighting directed away from retained habitats.
- Temporary lighting would only be required at the set-down areas during construction.

2.6 LIGHTING

2.6.1 During the construction phase it will be necessary to utilise security lighting at the temporary set down areas during hours of darkness. However, efforts will be made to ensure that the lighting will be directed away from identified site habitats and inward facing. Furthermore, where lighting is required, cowlings will be used to ensure light spill is limited to the set down area.

2.6.2 No lighting is required during the operational phase.

2.7 GROUND CONDITIONS

2.7.1 Potential impacts to the soil resource during the construction phase include movement of vehicles and plant and incorrect soil management, which can cause damage to soil structure through compaction and erosion. This risk increases through soil wetness. The following measures should be followed to minimise adverse impacts on soil:

- No vehicle/plant movements over reinstated soil;
- Where practicable soil handling when soil moisture content is above the plastic limit will be avoided;
- avoid handling of soils during periods of prolonged, heavy rainfall;
- no mixing of topsoil with subsoil;
- stabilise newly created surfaces and/or re-vegetate as soon as possible.
- soil only to be stored in designated soil storage areas; and
- use machines with low pressure tyres.

2.8 CONTAMINATED LAND

2.8.1 The application site comprises grazing fields and woodlands. There is no known previous use to suggest brownfield land or contamination will exist. It is therefore reasonable to assume that none of the land to which the proposal relates is contaminated.

2.9 WATER POLLUTION

2.9.1 Construction activities may result in both direct and indirect impacts on the water quality, flooding, drainage and the hydrogeology of the site. Potential receptors may include watercourses, surface water bodies, groundwater, floodplains and flood sensitive areas.

2.9.2 A watercourse runs within and adjacent to the application site. NRW's Development Advice Maps (DAMs) confirms that whilst the deployment is not effected by a higher flood risk area, the temporary set down area off Ynys Y Mond Road is within Flood

Zone C2. Fluvial flood risk is posed by the River Tawe. NRW's Flood Map for Planning identifies the remoted set down area as with Flood Zone 2.

2.9.3 Potential impacts to the water environment may include:

- Increased surface water runoff;
- Increased sediment from runoff from rainfall on exposed ground; and
- Chemical and fuel spillages from operational areas.

2.9.4 The FCA (Appendix 4.5) confirms that the proposed development is categorised by TAN 15 as "utilities infrastructure" and is a "less vulnerable development" category. The DAM classification therefore indicates that the site is suitable for the proposed use. Furthermore, the proposed development will be in accordance with the requirements of the National Standards for Sustainable Development Systems which will be demonstrated through the application for Sustainable Drainage Approval to the Sustainable Drainage Approval Body (SAB), prior to the commencement of works.

2.9.5 The following measures should be followed to minimise adverse impacts on the water environment:

- In the event of a liquid spill work shall cease immediately in the vicinity, then locate the source of the pollution and stop/contain any further flow if possible. If spillage is flammable, extinguish all ignition sources. Immediately deploy the spill kit and clean up the spill. Used spill kit materials should be disposed of in an appropriate manner.
- The surface water runoff from the hardstanding of the temporary set down areas will be directed to a swale on the hardstanding's lowest boundary. This drainage feature will be removed at the end of the construction stage and the area reinstated.
- Early preparation, seeding and protection to encourage vegetation to establish on all bare areas as soon as possible after construction.
- Monitoring the weather and being alert to the implications of wet weather;
- Sewage and foul water drainage will be collected in appropriate collection tanks (toilet blocks) at Welfare areas. Regular collection and disposal of sewage and foul water will be conducted by a licenced company.
- Any wheel wash facilities will be securely constructed with no overflow and the effluent will be contained for proper treatment and disposal.
- Use cut off ditches to prevent entry of surface water and well point dewatering or cut-off walls for groundwater. The corner of the excavation can be used as a pump sump. Do not allow personnel or plant to disturb water in excavations.

2.10 WASTE

2.10.1 The reduction of waste and the recycling of waste materials is a key environmental consideration during the construction phase. Materials such as packaging, plastic, pallets, metal, residual waste will be segregated and collected from site by a permitted waste management operator. As part of the detailed CEMP and Site Waste Management Plan will be prepared and implemented by the appointed contractor.

2.10.2 The waste management hierarchy prescribes the most sustainable approach to resource management:

- Prevention and Minimisation - Reduce the amount of waste generated at each stage of the project.
- Reuse of Waste – Maximising reuse of waste generated on site. This will reduce the quantities of waste transported from site.
- Recycling of Waste – Segregating materials for collection and off-site

management.

2.10.3 The following measure will be implemented to minimise waste generation during the construction phase:

- Ordering of materials will be on an 'as needed' basis to prevent over supply. Requirement for take/buy back surplus stock with suppliers;
- Use of materials pre-cut to length to avoid surplus waste generated on site;
- Use suppliers that use the least amount of packaging on purchase products;
- Correct storage and handling of goods to avoid damage resulting in unnecessary disposal;
- Ensuring correct sequencing of operations; and
- Use reclaimed/recycled materials in the construction works.

2.11 LOCAL COMMUNITY RESPONSIBILITY

2.11.1 The Site Manager will manage and co-ordinate on-site environmental activities and act as a point of contact for local residents. Liaison between the Site Manager and local residents will seek to ensure that any concerns are resolved quickly and efficiently.

2.11.2 The Site Manager will be responsible for briefing the Construction Environmental Management Plan to construction staff; fulfilling environmental obligations on site; attending to any on-site environmental incidents or concerns; reporting and monitoring any environmental incidents; and ensuring waste management procedures are followed.

2.12 TRAFFIC AND TRANSPORT

2.12.1 A Transport Statement (TS) accompanies the planning application submission. The TS sets out the predicted transport impact of the proposed development, including the likely trip generating potential of the site, the likely vehicles needing access to the site and how this will be achieved. An outline Construction Traffic Method Plan (CTMP) is appended to the TS.

2.12.2 During the construction phase a temporary, remote set down area is proposed as Graig Y Pal, that leads to the proposed deployment area, cannot accommodate large HGVs.

2.12.3 Land of Ynys Y Mond Road was identified as being suitable and swept path analysis shown in the CTMP confirm this. Smaller vehicles (7.5 tonne) will transport materials from the remote set down area to the development site during the 9-month construction phase. Once the solar farm is operational the remote set down area will be returned to grazing land.

2.12.4 A series of vehicle swept-path analyses shown in the outline CTMP demonstrate that:

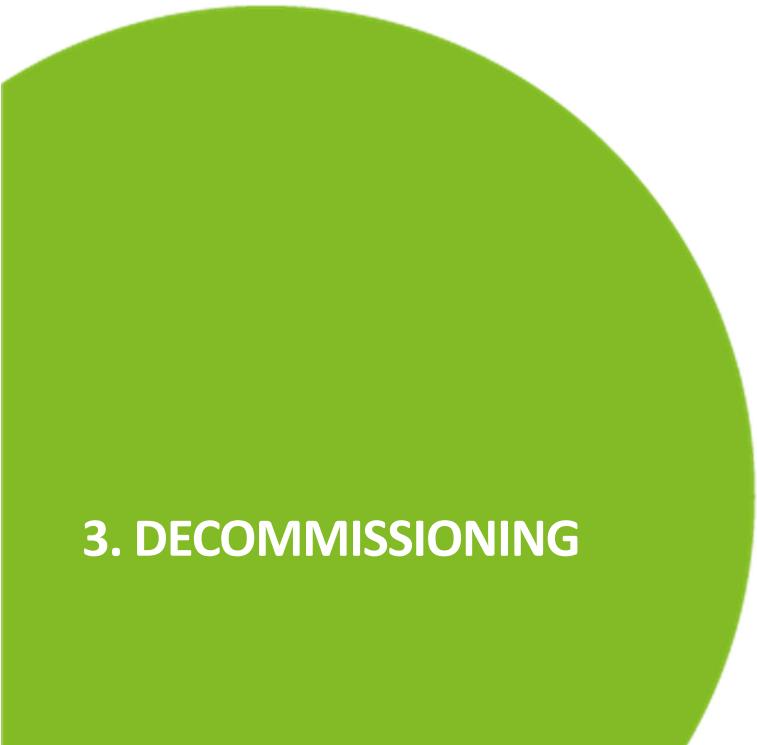
- a 10m long rigid body vehicle can access the proposed deployment area along Graig Y Pal with some minor improvements; and
- an articulated 16.1m HGV can access the proposed remote set down area off Ynys Y Mond Road.

2.12.5 The construction phase of the solar farm would result in the temporary generation of construction and staff related traffic over a 9-month construction period. During this period, there will be approximately 190 deliveries to the remote set down area, or 380 individual movements (in and out).

2.12.6 Only small HGVs (10m rigid) will be able to access the site directly, without using the remote set down area. It is envisaged that approximately 60 deliveries will be made by small HGVs during the 9-month construction phase, the equivalent of one delivery

each working day.

- 2.12.7 The seventh month may see the highest deliveries to the remote set down area at 40 over the four weeks, the equivalent of less than two deliveries each working day.
- 2.12.8 In terms of vehicle movements between the remote set down and the deployment area it is assumed that one delivery to the remote set down area will equate to two deliveries to deployment site, equating to a total of 380 shuttle deliveries across the nine-month construction period. When combined with the 60 direct deliveries this equates to 440 across the nine months using Graig Y Pal.
- 2.12.9 The 440 deliveries equate to an average of approximately two per day during the nine-month period. Months two, four and seven are the busiest months.
- 2.12.10 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.
- 2.12.11 Given the nature of Graig Y Pal and Ynys Y Mond Road a scheme of traffic management will be put in place. The outline CTMP sets out the details on the proposed measures to manage construction vehicle movements.
- 2.12.12 Given the trip generation outlined above and the temporary nature of the construction phase, it is expected that the construction of the proposed solar farm will have minimal impact on the local highway network and is therefore suitable.



3. DECOMMISSIONING

3.1 APPROACH TO DECOMMISSIONING

- 3.1.1 At the end of the operational phase of the development the site shall be reinstated to its former use within a year of the last export.
- 3.1.2 The potential impacts during the decommissioning phase are expected to be similar to those identified for the construction phase. It is therefore recommended that the pre-construction measures set out in this OCEMP should also be applied during the decommissioning stage of the development.
- 3.1.3 During the decommissioning phase the majority of the infrastructure will be removed from site and recycled. Due to the long-life span of the project, no details of this can be provided at present, however it is recommended that a condition outlining the requirement for a Decommissioning Method Statement is attached to any planning decision.

4. CONCLUSIONS

4.1 CONCLUSION

- 4.1.1 The purpose of this Outline Construction Environmental Management Plan is to detail appropriate pollution protection techniques that will be adopted by the appointed contractor for the construction of CYP Solar Farm, Glais.
- 4.1.2 The purpose of this document is to demonstrate the scope of measures that could be put in place during the construction/decommissioning phases to adequately protect the identified environmental resources and sensitive receptors, including human receptors. This OCEMP should be read in conjunction with Construction Traffic Management Plan.
- 4.1.3 Following a decision by Welsh Government this Outline CEMP will be updated in accordance with approved documentation by the appointed contractor prior to any commencement works on-site. The Detailed CEMP will be submitted to both Swansea Council and Neath Port Talbot CBC for approval prior to the start of construction.

