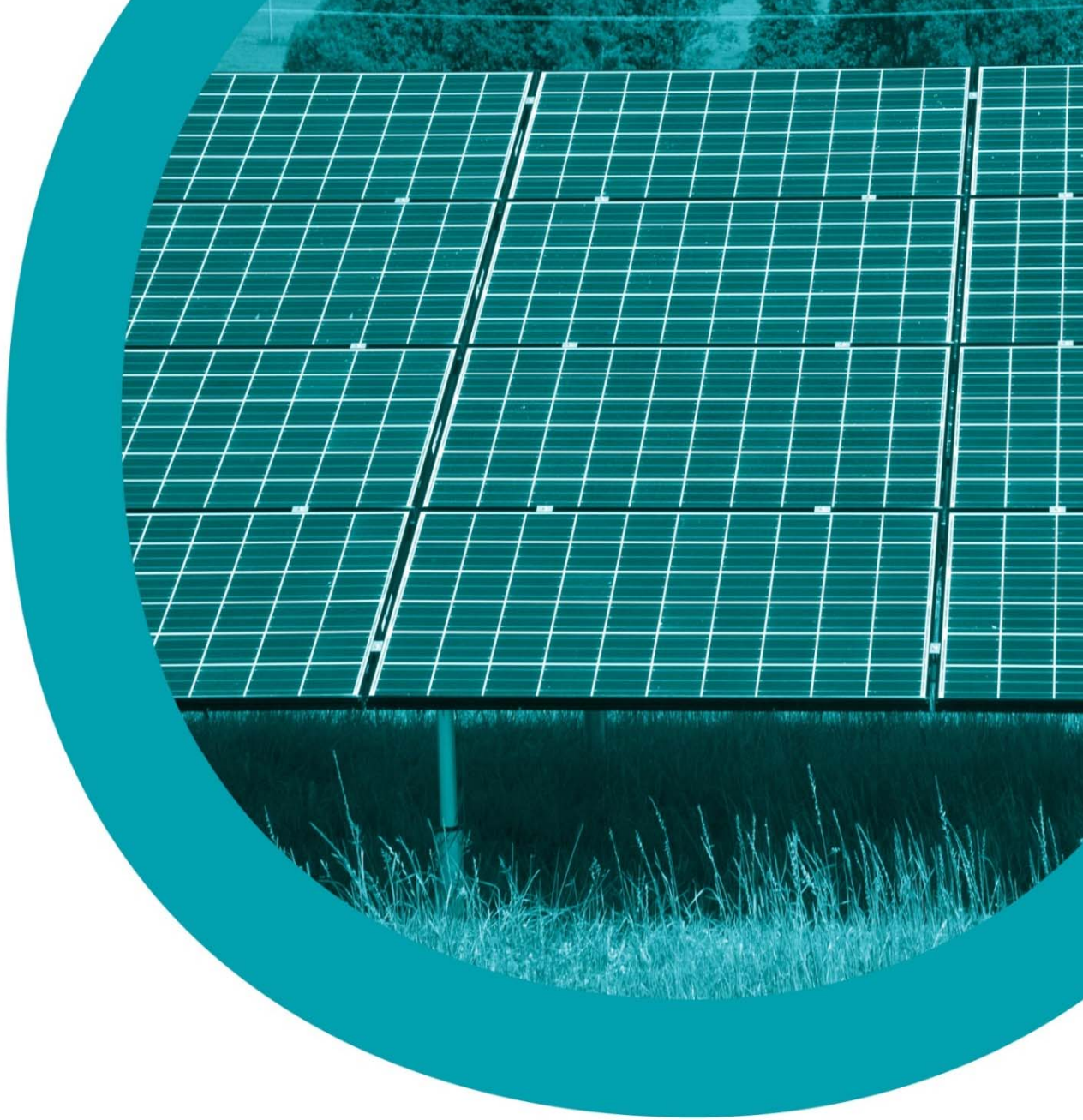




# Eirlys Solar and Storage Project

## EIA Screening Report

**Applicant: Octo Partners**



**Date: June 2022**

# CONTENTS

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## Contents i

|                                                            |     |
|------------------------------------------------------------|-----|
| Supporting Figures and Plates: .....                       | ii  |
| Glossary of Terms: .....                                   | iii |
| Document Control Sheet.....                                | 4   |
| 1..... Introduction .....                                  | 5   |
| 1.1 Purpose and Content .....                              | 5   |
| 1.2 Context to the Proposal .....                          | 7   |
| 1.3 The Applicant .....                                    | 8   |
| 2..... The Proposal .....                                  | 9   |
| 2.1 Location of Proposal.....                              | 9   |
| 2.2 Site Description .....                                 | 9   |
| 2.3 Description of Proposal .....                          | 9   |
| 2.4 Sustainable Design Principles .....                    | 13  |
| 2.5 Preliminary Design Evolution to Mitigate Effects ..... | 14  |
| 2.6 Well-being of Future Generations Act 2015 .....        | 15  |
| 3..... Receiving (Baseline) Environment.....               | 16  |
| 3.1 Natural Resources .....                                | 16  |
| 3.2 Landscape and Visual Amenity.....                      | 16  |
| 3.3 Nature Conservation and Biodiversity.....              | 17  |
| 3.4 Water Resources and Flood Risk .....                   | 18  |
| 3.5 Historic Environment .....                             | 20  |
| 3.6 Transport and Access .....                             | 24  |
| 3.7 Other Land-uses .....                                  | 25  |
| 3.8 Population and Human Health .....                      | 26  |
| 3.9 Contaminated Land and Coal Risk.....                   | 27  |
| 4..... Potential Significant Effects and Mitigation .....  | 28  |
| 4.1 Natural Resources .....                                | 28  |
| 4.2 Landscape and Visual .....                             | 28  |

|        |                                           |    |
|--------|-------------------------------------------|----|
| 4.3    | Nature Conservation and Biodiversity..... | 29 |
| 4.4    | Water Resources and Flood Risk .....      | 30 |
| 4.5    | Historic Environment .....                | 30 |
| 4.6    | Transport and Access .....                | 31 |
| 4.7    | Emissions and Waste.....                  | 31 |
| 4.8    | Other Land-uses .....                     | 32 |
| 4.9    | Population and Human Health .....         | 33 |
| 4.10   | Cumulative and Transboundary Effects..... | 33 |
| 5..... | Conclusions on EIA.....                   | 35 |

## Supporting Figures and Plates:

Figure 1: Location Plan

Figure 2: Site Boundary

Figure 3: Nationally Designated Assets within 5km of Site Boundary

Figure 4: Phase 1 Habitats

Plate 1: Typical Solar Panel

Plate 2: Standard Metal Mounting Frame and Tables

Plate 3: Watercourses and Flood Risk

Plate 4: Scheduled Monuments and Archaeological Records

Plate 5: Non Designated Historic Assets

Plate 6: Public Rights of Way

Plate 7: Development High Risk Coal Areas

## Glossary of Terms:

|                 |                                           |
|-----------------|-------------------------------------------|
| AC              | Alternating Current                       |
| AOD             | Above Ordnance Datum                      |
| BCBC            | Bridgend County Borough Council           |
| CCC             | Committee on Climate Change               |
| CCTV            | Closed Circuit Television                 |
| CO <sub>2</sub> | Carbon Dioxide                            |
| DC              | Direct Current                            |
| DNS             | Developments of National Significance     |
| EIA             | Environmental impact assessment           |
| ES              | Environmental Statement                   |
| FRA             | Flood Risk Assessment                     |
| GHG             | Greenhouse Gases                          |
| GIS             | Geographical Information System           |
| GW              | Gigawatt – unit of power, 1000MW          |
| Ha              | Hectares                                  |
| HRA             | Habitat Regulations Assessment            |
| IPCC            | Intergovernmental Panel on Climate Change |
| kW              | Kilowatt – unit of power, 1000 watts      |
| kWh             | Kilowatt hour – unit of energy output     |
| LDP             | Local Development Plan                    |
| LVIA            | Landscape and Visual Impact Assessment    |
| MW              | Megawatt – unit of power, 1000kW          |
| MWh             | Megawatt hour – unit of energy output     |
| NDF             | National Development Framework            |
| NCLA            | National Landscape Character Area         |
| NPTCBC          | Neath Port Talbot County Borough Council  |
| PEDW            | Planning and Environment Decisions Wales  |
| PV              | Photovoltaic                              |
| SLA             | Special Landscape Area                    |
| SPD             | Supplementary Planning Documents          |
| ZTV             | Zone of Theoretical Visibility            |

## DOCUMENT CONTROL SHEET

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# 1. INTRODUCTION

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## 1.1 Purpose and Content

- 1.1.1 With respect to Regulation 31 of The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (the 'Regulations'), this EIA Screening Report is submitted to Planning and Environment Decisions Wales (PEDW) on behalf of developer, Octo Partners, for the prospective Eirlys Solar and Storage Project ('the Proposal').
- 1.1.2 The information provided herein informs the formal request to Welsh Ministers for an EIA Screening Direction as the proposal would be a Development of National Significance (DNS), as defined under by the Planning (Wales) Act 2015 and the Developments of National Significance (Wales) Regulations 2016 (as amended).
- 1.1.3 As prescribed under the Regulations, the information herein meets the requirements to provide:
- (a) a plan sufficient to identify the land;*
  - (b) a description of the development, including in particular—*
    - (i) a description of the physical characteristics of the whole development and, where relevant, of demolition works;*
    - (ii) a description of the location of the development, with particular regard to the environmental sensitivity of geographical areas likely to be affected;*
  - (c) a description of the aspects of the environment likely to be significantly affected by the development;*
  - (d) a description of any likely significant effects, to the extent of the information available on those effects, of the proposed development on the environment resulting from—*
    - (i) the expected residues and emissions and the production of waste, where relevant; and*
    - (ii) the use of natural resources, in particular soil, land, water and biodiversity;*
  - (e) a statement that the request is made in relation to a development of national significance for the purposes of section 62D of the 1990 Act; and*

*(f) such other information or representations as the person making the request may wish to provide or make including any features of the proposed development or any measures envisaged to avoid or prevent what might otherwise have been significant adverse effects on the environment.*

1.1.4 EIA development is defined as either '*(a) Schedule 1 development*' or '*(b) Schedule 2 development likely to have significant effects on the environment by virtue of factors such as its nature, size or location.*' The proposed solar scheme does not qualify under the descriptions of development defined in Schedule 1 of the 2017 EIA Regulations.

1.1.5 The proposed solar scheme falls within Schedule 2 (3a) of the Regulations under the category *industrial installations for the production of electricity, steam and hot water (unless included in Schedule 1) and the area of development exceeds 0.5 hectares*. Solar energy is not listed as a form of development typically subject to EIA. However, given that the proposed solar scheme would require greater than 0.5 hectares, it exceeds the applicable threshold in the relevant section of Schedule 2. Accordingly, the Applicant is requesting a Screening Direction from Welsh Ministers to determine whether the proposal is EIA development.

1.1.6 In preparing this EIA Screening Report, the Applicant has had regards to the criteria in Schedule 3 of the Regulations including the characteristics of the development, its location and the nature of potential impacts. In so doing, the Applicant has appraised the criteria set out in Scheduled 3 of the Regulations in drawing conclusions on the necessity for EIA.

1.1.7 This EIA Screening Report is structured as follows:

*Chapter 2: Project Description*

*Chapter 3: Receiving Environment*

*Chapter 4: Potential Significant Effects and Mitigation*

*Chapter 5: Conclusions.*

## 1.2 Context to the Proposal

- 1.2.1 Clear scientific evidence<sup>1</sup> has established that global warming is driving climate change across the planet and the primary cause is the burning of fossil fuels, whereby the resulting carbon dioxide emissions lead to increases in global temperatures and exacerbation of the greenhouse effect.
- 1.2.2 The result of such concentrations is that the planet's average surface temperature has risen nearly 2 degrees Fahrenheit since the late 19th century, with six of the warmest years on record taking place since 2010<sup>2</sup>. It has become widely accepted that greenhouse gas emissions (GHG) need to be significantly reduced in order to avoid catastrophic long-term damage to the environment, species and humans. In 2005, the Kyoto Protocol<sup>3</sup> came into effect providing the first ever framework for international action. Under the Protocol, the United Kingdom, together with 37 other industrialised countries (called “Annex I Countries”), committed themselves to reducing greenhouse gas emissions by 5.2% from 1990 levels by the year 2012.
- 1.2.3 The Paris Agreement<sup>4</sup> was signed following an international conference in December 2015 (COP21) and committed all nation signatories to undertake ambitious efforts to combat climate change and adapt to its effects. It commits to holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the increase to 1.5°C above these levels.
- 1.2.4 In this context, the current situation in Wales on decarbonisation and harnessing clean energy demonstrates there is still much to be done. In Wales in 2019<sup>5</sup> approx. 43% of electricity generation in Wales was from renewables, with much of the rest generated by gas fuelled power stations. In terms of electricity consumption in Wales, 51% was delivered from renewable energy sources, with 825MW of current renewable capacity being locally owned. In recent years, renewable energy installation rates have significantly reduced as a result of reductions in regulatory support and electricity network constraints. Accordingly, there

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<sup>1</sup> Intergovernmental Panel on Climate Change (IPCC) Fifth Report on Climate Change. 2014

<sup>2</sup> NASA, 2019 Evidence | Facts – Climate Change: Vital Signs of the Planet (nasa.gov)

<sup>3</sup> United Nations Framework Convention on Climate Change (2005) The Kyoto Protocol

<sup>4</sup> United Nations Framework Convention on Climate Change (2015) The Paris Agreement

<sup>5</sup> Energy Generation in Wales 2020 (Published 2021)

remain significant challenges to meeting the target of 70% of Wales's electricity demand from Welsh renewable electricity sources by 2030. This indicates that, despite the progress made to date, a substantial increase in generation capacity is still required.

- 1.2.5 The latest figures on GHG emissions in Wales were published in July 2020<sup>6</sup>. These show that an overall reduction of 30% has been achieved since 1990 (emissions from energy supply have been reduced by 36% over the same period), and again there is still a considerable way to go to meet the net zero target by 2050.
- 1.2.6 In April 2019, the Welsh Government accepted the CCC recommendation and set a carbon reduction target of 95% with an ambition to get to net zero by 2050. However, following the CCC's December 2020 report, in February 2021 the Welsh Government made a legal commitment to achieve net zero emissions by 2050, but with a desire to "get there sooner".

## 1.3 The Applicant

- 1.3.1 Octo Partners ([www.octo-partners.com](http://www.octo-partners.com)) is a Welsh-based renewable energy company. The management team have significant expertise in the renewable sector, having delivered over 400MW of clean energy projects within the UK including the 34MW Mynydd y Bettws Windfarm in Carmarthenshire and the 40MW Raventhorpe Solar Project in North Lincolnshire.
- 1.3.2 Octo is committed to delivering sustainable projects by working in partnership with our stakeholders and by combining our expertise with a sense of clarity and integrity. Octo is a development partner of EDF Renewables UK.

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<sup>6</sup> Emissions of Greenhouse Gases by year: <https://stats.wales.gov.wales/Catalogue/Environment-and-Countryside/Greenhouse-Gas/emissionsofgreenhousegases-by-year>

## 2. THE PROPOSAL

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### 2.1 Location of Proposal

- 2.1.1 The location ('the Site') for the proposed Eirlys Solar and Storage Project is on an upland plateau to the south-east of Port Talbot and immediately east of Margam Country Park, approximately 3km from the M4. The Site forms part of the southern flanks of Mynydd Margam, an area largely characterised by commercial forestry and agricultural grazing. The Site is within Neath Port Talbot County Borough Council and its location is presented in Figure 1 overleaf.

### 2.2 Site Description

- 2.2.1 The Site is formed principally by a single farm on the upland plateau surrounding Moel Tonmawr (319m AOD), inclusive of several irregular shaped fields bounded by low hedgerows, stone walls and fencing. The land at Ton Mawr Farm faces south westwards towards the M4 and Port Talbot works (250 – 280m AOD).
- 2.2.2 The fields identified with potential for solar infrastructure are currently grazed, and largely comprise improved and semi-improved grassland, with small areas of higher quality habitat. These latter habitats include small areas of unimproved acid grassland, marshy grassland, mature trees and occasional drystone walls.
- 2.2.3 Other relevant uses of the land within or near to the site boundary include an extensive rights of way network, including the Ogwr Ridgeway Walk, commercial forestry with recreational value, and overhead transmission power lines to the east of the Site.
- 2.2.4 The potential development boundary for the proposal is presented in Figure 2: Development Boundary, overleaf

### 2.3 Description of Proposal

- 2.3.1 The Eirlys Solar and Storage Project (the 'Proposal') will generate renewable energy through the operation of solar photovoltaic (PV) power that is distributed to the regional electricity network. The anticipated point of connection is Pyle Substation, which is located

to the north of Pyle, and approximately 2km south east of the Site. The anticipated installed capacity of the Proposal is 50 Megawatts and the overall land area within the application boundary for the proposed solar and storage project will be approximately 99.5ha.

- 2.3.2 Storage of output from the solar arrays comes in the form of battery energy storage systems (BESS), which uses groups of batteries to store electrical energy and release at required times. BESS is a fast responding dispatchable source of power to grids, bringing grid stability they can transition from standby to full power rapidly when there are grid failures. BESS are generally designed to output for up to a few hours and are used for short-term peak power, such as providing operating reserve and frequency control to minimize the chance of power outages. BESS will be incorporated into the development proposal, which will maximise the benefits of delivering clean energy to the grid and contributing towards grid stabilisation.
- 2.3.3 The physical footprint of the solar and storage components (i.e. arrays, inverters and substation, BESS, fencing, tracks etc.) would be approx. one-third of the red line boundary area, and therefore comprise an equivalent landtake of approx. 33ha. The pole-mounted solar PV table systems raise the panels above the ground such that much of the ground underneath remains unaffected, once site remediation has been affected. Agricultural activities in the form of grazing can continue alongside any agreed biodiversity enhancement measures.
- 2.3.4 The principal components of the solar and storage proposal are likely to comprise the following:
- Photovoltaic (PV) arrays (fixed) formed by PV panels on mounting tables screw-piled into the ground;
  - Inverter and transformer stations located at various positions within and around the arrays;
  - Boundary fencing (e.g. deer fencing) to ensure public safety and control levels of grazing in accordance with agreed stocking plans;
  - CCTV Units mounted on poles on the perimeter of the Site;
  - Battery energy storage system;

- Site tracks (unbound) connecting site infrastructure including inverter/transformer units;
- Storage containers for maintenance equipment and spare parts etc.;
- Energy storage units, akin to shipping containers, to store energy at times of grid limitation or curtailment for release at a later period;
- Habitat enhancements to secure net benefits to biodiversity; and
- Potential local highway improvements for vehicular access.

2.3.5 For the grid connection, a new 33kV underground cable south eastwards to Pyle from the on-site substation will enable connection to the local distribution network. It is likely that the grid connection will form part of the DNS planning submissions.

2.3.6 The installed capacity of the entire proposal is circa 50MW, based upon a nominal 500W panel. The capacity may well be increased at the time of procurement and installation (dependent upon grid capacity), assuming that permission is granted, as larger capacity panels may be available at such time: the solar PV component market is rapidly evolving and improved technologies are frequently available to developers.

2.3.7 The predicted annual power generation approximates up to 48,180 Megawatt Hours (MWh), which is equivalent to the annual domestic electricity requirements of approximately 13,021<sup>7</sup> households per year.

2.3.8 The electricity output would result in annual offsetting of carbon dioxide emissions associated with fossil fuels equal to approximately 9,636 tonnes annually based upon 450 tonnes of carbon dioxide per GWh for electricity generated by fossil fuels, predominantly gas<sup>8</sup>.

2.3.9 Solar photovoltaic (PV) modules are generally manufactured from silicon PV cells. These are typically categorised into either monocrystalline or multicrystalline modules. This gives the panels a distinctive, shingled appearance. Most panels are in a rectangular format for ease and efficiency of installation. Following is an illustration of a typical solar panel:

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<sup>7</sup> Based on DECC 2020 average household electricity consumption figures for the United Kingdom to 3,700kWh/y

<sup>8</sup> Based on DBEIS 2019 UK Greenhouse Gas Emissions, Provisional Figures Statistical Release: National Statistics (July 2019).

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**Plate 1: Typical Solar Panel**

- 2.3.10 The final design of the module units, rows and arrays will depend on the final procurement of modules and detailed design of the scheme. Typically, the individual panels are expected to be arranged in module units comprising 3 panels in landscape or 2 panels in portrait orientation, one above the other, by 24 panels wide, joined together by the mounting frame, with multiple module units connected to form rows or arrays. Each row would be elevated above ground on the mounting frame, with the bottom (southern) edge at a height of up to 0.9m above ground level and the top (northern) edge at a maximum height of 3m. The module units are orientated southwards, and will have an inclination/angle varying between 18 and 25 degrees.
- 2.3.11 Metal mounting frames would be installed on piles (fabricated from extruded aluminium, and the piles will be galvanised steel) across the Site, driven into the ground at up to a depth of 1.5m using a hydraulic ram, although depths may differ slightly depending on ground conditions. Following is an illustration of a typical metal mounting system:

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**Plate 2: Standard Metal Mounting Frame and Tables**

## 2.4 Sustainable Design Principles

- 2.4.1 The Applicant, in undertaking a review of development potential at the Site, is informed by the national and local planning policy guidance on sustainable design principles for new development, including solar ground mount. Relevant policy and guidance in Planning Policy Wales, TAN 5: Nature Conservation and Planning (2009), TAN 12: Design (2014), TAN15: Development and Flood Risk and TAN 24: The Historic Environment (2017).
- 2.4.2 From design through to delivery, the Applicant proposes to implicitly apply sustainable design criteria to the development and evolution of the proposed Scheme. The layout will be prepared to best harness the power of the sun's irradiation across the Site but in doing so it will be formulated to:
- Physically preserve the elements and associated land uses within the Site, such as rights of way, stone walls, and archaeological features;

- Incorporate the visual and ‘setting’ aspects of the character and heritage of the Site into a sequential design process that aims to avoid or attenuate impacts to as great a degree as possible whilst delivering the development;
- Account for potential flood risk or water management downstream effects through the application of a sequenced approach to Sustainable Drainage System (SuDs);
- Ensure adequate separation distance is maintained between the arrays and habitat features (i.e. trees and hedgerows) to lessen shading potential;
- Protect residential interests and the public from the construction and operational phases of the proposed scheme through good design and appropriate siting.

2.4.3 The layout of the scheme will evolve iteratively from an initial conceptualisation of the scheme within the available landholding, through to its final form which has responded and adapted to on-site features that require protection (i.e. hedgerows, rights of way, archaeology etc) and has avoided shading zones. The process will demonstrate a dynamic design process that has sought to maximise the benefits of development whilst respecting all other land-use considerations – in effect, ‘designing out’ potentially significant adverse effects at the commencement of the design process

## 2.5 Preliminary Design Evolution to Mitigate Effects

- 2.5.1 Following preliminary ecological surveys, it has been advised that certain features of the Site should be retained and protected for the duration of the development proposal. All existing stone walls will remain in situ and will be restored where they are in a poor condition. The walls are an important potential habitat for amphibians and reptiles, whilst also providing an important element in the landscape.
- 2.5.2 Set backs from the rights of way network will be applied throughout the Site to ensure they are retained for the duration of the development. Minimum separation distances between the solar infrastructure and the footpaths, as advised by a landscape architect, will be incorporated into the design so that the open nature of the views is preserved.

- 2.5.3 Following initial sensitivity testing and mapping of the zone of theoretical visibility, the solar arrays are to be held back from the edge of the escarpment above Tonmawr Farm in order to minimise visibility to visual receptors to the south.
- 2.5.4 Following a Heritage Appraisal of the available development area in February 2022, the applicant was advised against solar development to the north of the Site, which would be proximate to several Scheduled Ancient Monuments – including Y Bwlwarcaw (GM059), Roman Camp (GM058), Twmpath Diwlith Round Barrow (GM557 and Camp North of Tonmawr (GM057) – along with a number of undesigned assets within the wider Margam Mountain Registered Landscape. For reasons of preserving these features, the Applicant has removed a large swathe of land comprising several fields in the direction of Llangynwyd from the development proposal.

## 2.6 Well-being of Future Generations Act 2015

- 2.6.1 The Wellbeing of Future Generations (Wales) Act 2015 is primary legislation placing a duty on all Wales's based public bodies to put long-term sustainability at the forefront of thinking and actions. Public bodies are required to understand the long-term impact of their decisions, inclusive of how to work better with people and communities, and to prevent persistent problems such as poverty, health inequalities and climate change.
- 2.6.2 In this context, the proposed solar scheme will use a natural renewable resource, i.e. solar radiation, to generate electricity. This will offset requirements for the use of fossil fuel derived electricity, which is undeniably linked to climate change.
- 2.6.3 The Applicant is a wholly Wales' based company, with an ambition to retain the benefits of the development within Wales as far as achievable. A Collaborative Benefits Package offered by the Applicant will be associated with the application.

## 3. RECEIVING (BASELINE) ENVIRONMENT

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### 3.1 Natural Resources

- 3.1.1 The natural resources at the Site pertain primarily to agricultural land use and minerals safeguarding. Commercial forestry surrounds the Site area, but this will be unaffected by the proposed development.
- 3.1.2 The site is located within *Safeguarding Category 1 Sandstone Resource*. This zone covers a very extensive area of Neath Port Talbot.
- 3.1.3 The site is located entirely on agricultural land, which is valued as a mix of Grade 4 and Grade 5 agricultural land under the Predictive Agricultural Land Classification (ALC) Map 2, available through *DataMapWales*. Consequently, there will be no losses to the best and most versatile land.
- 3.1.4 The proposed solar scheme will operate for a period of up to 35 years, and thereafter as a reversible feature it can be removed from the Site and current uses will be maintained. The nature of the scheme is such that there should be no lasting effects to the quality of the soil or the minerals resource below the ground.
- 3.1.5 In this context, the proposed development will cause only negligible losses to agricultural quality and no losses to the minerals resource.

### 3.2 Landscape and Visual Amenity

- 3.2.1 The Site is not located within or near to any nationally protected landscape. Brecon Beacons National Park is approximately 22kms to the north of the Site, and intervening hills towards the heads of the valleys and commercial forestry will screen any development at the Site from the National Park.
- 3.2.2 At the local level, the Site is located outside the margins of the Western Uplands Special Landscape Area, which is described in Bridgend's *Designation of Special Landscape Areas 2010* as "... a fairly extensive upland area abutting Neath Port Talbot in the west, comprising rough grazing, plantations and small woodlands that contribute to the overall character and quality of the area ... whilst the presence of coal measures and other stone quarrying the area

*retains a largely rural, agricultural character.”* The key policy and management issues for the SLA are to maintain broadleaf mix forestry, limit forestry plantations, and limit urban development up slopes and intrusive vertical elements.

- 3.2.3 The Site is located within the south-western edge of National Landscape Character Area (NLCA) 37 *South Wales Valleys*, characterised by “... *Extensive ribbon development filling many valley bottoms and lower slopes. Their urban and industrial character is juxtaposed with dramatic upland settings with steep hillsides, open moors or forests. Networks of railways and roads connect valley settlements. Topography constrains passage between valleys, and there are only a limited number of high passes between valleys. The noise and business of many valleys contrast with the relatively remote and wild qualities of adjacent hill plateaux.*”
- 3.2.4 The Site is located within NPTCBC’s landscape character 5 *Coedhirwaun and Open Scarp Tops*, which represents the southern extent of the scarp slope dominating the coastal plain to the west. It lies above the lowland landscape of Coedhirwaun and is defined by the wooded upland of Mynydd Margam, to the north and east and Margam Park to the north-west. Its key characteristics are its prominent scarp with exposed top up to 200m AOD, its backdrop to the Coedhirwaun lowland, and sheep grazing pasture on higher ground, fringed by commercial forestry.
- 3.2.5 Following reference to LANDMAP, the eastern portion of the Site is within Visual and Sensory Area NPTVS897, *Mynydd Bromil & Scarp tops*, which is valued at Moderate overall, largely to due to its very minor scenic qualities. For main body of the Site, Visual and Sensory Area CYNONVS473 Mynydd Baedan applies, which is ascribed High value overall, as it is typified by a strong upland character reinforced by north-easterly views of Brecon Beacons with a wild /upland feel.

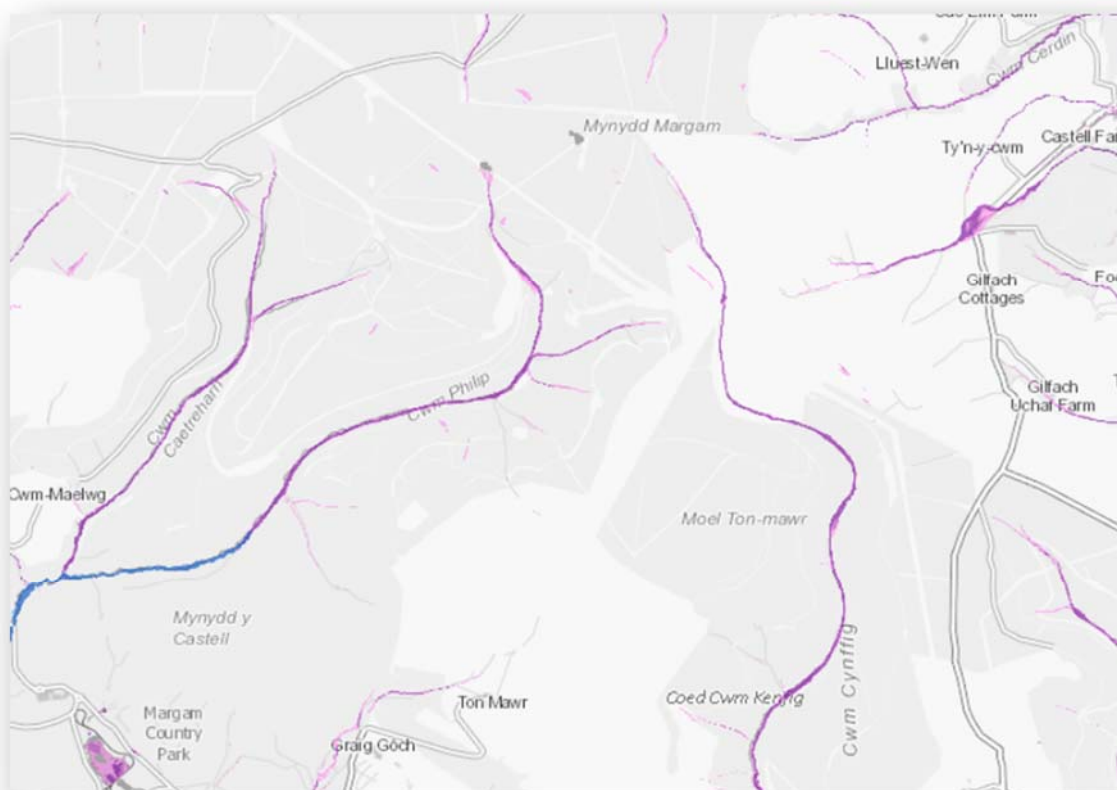
### 3.3 Nature Conservation and Biodiversity

- 3.3.1 A Phase 1 Extended Habitat Survey and Preliminary Ecology Appraisal was conducted in June 2021 and the habitats identified were: semi-natural broadleaved woodland; a line of trees; improved grassland; acid grassland; marshy grassland; bracken; acid flush; and walls. See Figure 5 for the Phase 1 Habitat Mapping.

- 3.3.2 Much of the site was of low biodiversity value, consisting of poor semi-improved grassland. Small areas of higher quality habitat present, comprising acid grassland, acid flush and a small area of scattered bracken / marshy grassland. Drystone walls were also a feature of the site, as was the presence of plantation forestry immediately to the west and east of the central portion of the site. Both these provided breeding opportunities for birds (in particular the low-growth plantation forestry in the west) as well as potential refugia (drystone walls) for reptiles.
- 3.3.3 No designated sites or non-statutory sites were identified with proximity to the solar site. Coniferous plantation is found to the immediate west and east of the site, particularly in the central portion.
- 3.3.4 The breeding bird assemblage at the site included a small number of amber and red listed species.
- 3.3.5 The site provides some foraging opportunities for bats due to the presence of a network of linear features. However, use is highly likely to be low and only in better weather conditions due to the altitude of the site. There are also no potential roost features on site.
- 3.3.6 Very few signs of badger were recorded on site (some records evident from data search). Areas of habitat were identified as suitable were surveyed in further a further visit, which also included otter, water vole and reptiles, for which little evidence of presence was recorded.
- 3.3.7 It is likely that reduced grazing levels on sections of the site would result in biodiversity gains with respect to birds (in particular skylark and meadow pipit). In addition, repairs to the drystone walls would also result in further habitat for breeding birds and refugia for reptiles comprise potential enhancement opportunities at the site.

## 3.4 Water Resources and Flood Risk

- 3.4.1 Following reference to the NRW interactive flood risk mapping resource, the Site is located such that, dependent upon the type of solar mounting system and associated infrastructure, it would be unlikely to be vulnerable to, or unlikely to exacerbate, flooding events downstream of the development. Several watercourses relative to the proposal Site have been identified that have the potential for localised flooding during high rainfall events:

**Plate 3: Watercourses and Flood Risk**

- 3.4.2 The watercourses include the Afon Cynffig to the east and north, the Nant Cwm Philips to the west, and the watercourse issuing from a series of springs above Ton Mawr Farm which drain southwards towards Coal Brook near to the M4. Solar infrastructure is unlikely to physically impact upon these watercourses except in respect of the series of springs above Ton Mawr Farm, for which sufficient separation is likely to be required (c. 25m) to protect the water features from the construction and operational effects of the development.
- 3.4.3 It is expected that a Construction Environmental Management Plan will be prepared, following consultation with relevant statutory advisors, to ensure the effects of construction do not impact upon these water features, and that surface water management plan will be devised to manage, where necessary, run-off from the Site that may be affected by the development proposal.
- 3.4.4 The watercourses will be linked to the areas of semi natural vegetation identified during Phase 1 with some biodiversity value, and it is expected that suitable construction practices and drainage provisions will need to be applied to ensure their protection.

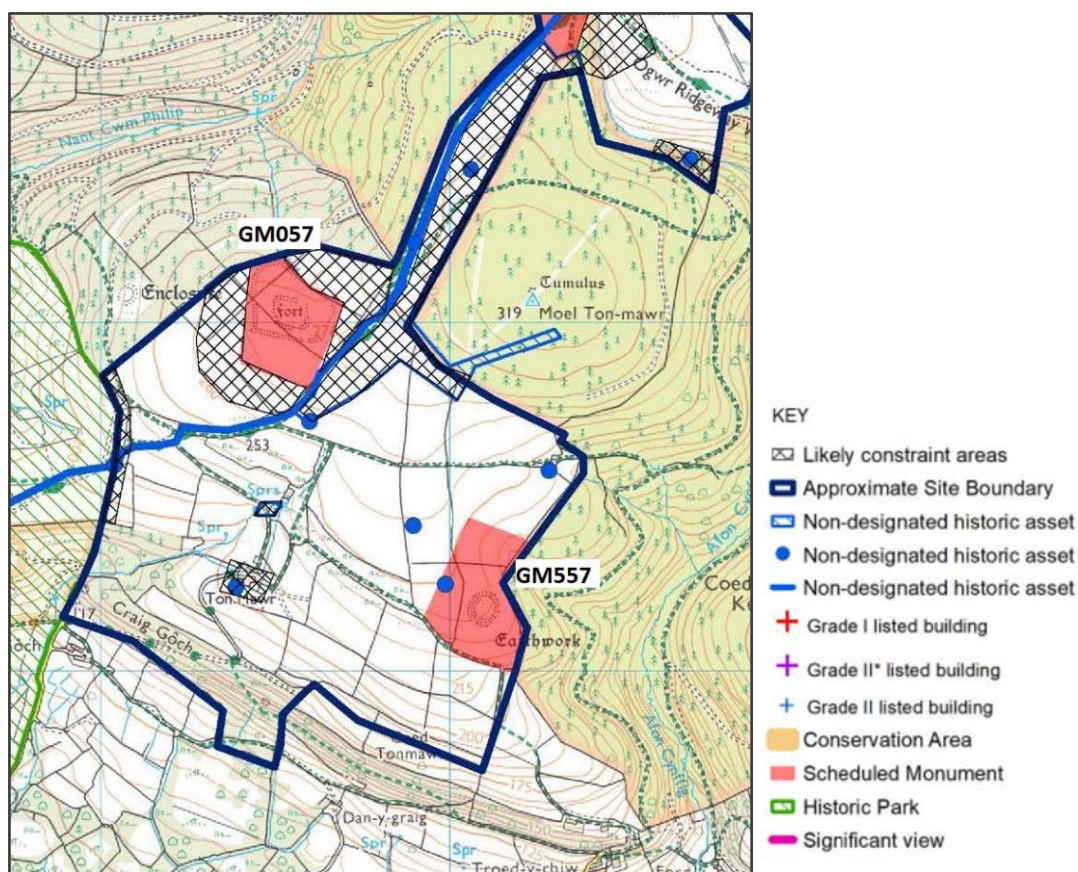
## 3.5 Historic Environment

- 3.5.1 A desk-based analysis of existing records of historic assets followed up by a site visit on 23'd February 2022 was conducted by a professional heritage advisor.
- 3.5.2 Records for designated assets were downloaded from the Data Map Wales website (<https://datamap.gov.wales>). Records for designated assets included the following historic environment designations:
- World Heritage Sites
  - Listed Buildings
  - Scheduled Monuments
  - Conservation Areas
  - Historic Landscapes
  - Historic Parks and Gardens
- 3.5.3 Information on non-designated assets was compiled from a previous desk-based assessment for the Site area supplied by the Gwent Glamorgan Archaeological Trust.

### **Scheduled Ancient Monuments**

- 3.5.4 The original wider solar farm site incorporating land to the north of Coed Cwm Kenfig contained seven scheduled monuments, all of which comprised earthworks and buried remains. Following initial heritage advice, the northern section of the Site has been removed from the development proposal, except in respect of retaining a potential transport access option for the proposal from this direction.
- 3.5.5 The recorded SAMs for the principal development area are as follows:
- Camp N of Tonmawr (GM057) or recorded by the HER as Caer Cwmphilip or Moel Ton Mawr comprises two polygonal enclosures (the smaller inside the larger) and is of probable prehistoric date based on its form.
  - Twmpath Diwlith round barrow (GM557) is a Bronze Age funerary monument surviving as a damaged earthwork.
- 3.5.6 The locations of these SAMS are illustrated in the following plan:

#### Plate 4: Scheduled Monuments and Archaeological Records



#### Historic Landscapes

- 3.5.7 The development site is situated within the Margam Mountain Registered Landscape and includes the whole of one Historic Landscape Character Area (HLCA) and parts of two others. Five other HLCAs border the site and may experience indirect visual effects. A DNS planning application will be required to submit an assessment of the impacts on this landscape following the ASIDOHL methodology.

#### Non Designated Historic Assets

- 3.5.8 The searches for the original development boundary identified 35 non-designated assets within the site boundary. These include six entries that duplicate the scheduled monuments and a duplicate entry for Margam Park, all of which have already been considered. This leaves 28 non-designated assets remaining.

- 3.5.9 These assets include:

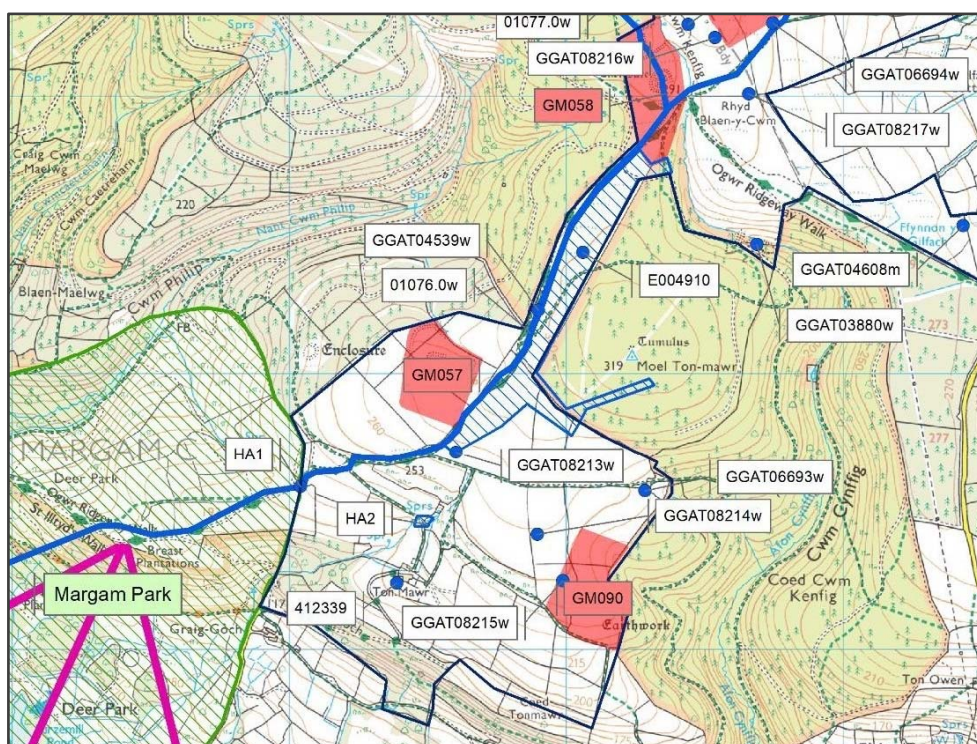
- Two assets within the site area were identified from geophysical survey carried out by Archaeological Investigations Ltd including possible ditches (GGAT0821 4w) and

a drain (GGAT08215w) west of GM090. Also a hollow (GGAT08217w) southwest of GM059 along the potential transport route to the Site from the north east was identified.

- Area of earthworks in the centre of the site (GGAT08213w), but the extent of this asset is not mapped;
- Group of earthworks east of GM057 which extend northeast onto Moel Tonmawr, which is the route of a tramway recorded on historic mapping (GGAT04539w).
- One quarry recorded within the site on historic mapping (GGAT06693w) and two beyond the site boundary (GGAT06694w and GGAT03880w);
- Hillfort at Tonmawr (412339); and
- Remains of buildings at Ty'n-y-parc (HA2) north of Tonmawr Farm.

3.5.10 These assets are illustrated on the plan overleaf:

**Plate 5: Non Designated Assets**



#### Assets Beyond the Site Boundary

3.5.11 The site is bounded to the west by the **registered area** of Margam Park. The park comprises the deer park associated with the Cistercian abbey at Margam which was later developed

into an estate for the Talbot family, and parkland around Margam Castle which they built in the 19th century. The focus of the registered area is on the Grade I listed Margam Castle, associated listed buildings, pleasure grounds and the scheduled remains of the abbey which lie over 1.2km west of the potential solar and storage site. The significance of the park derives from its multi-period landscape and the intrinsic and group value of the buildings.

3.5.12 There is one **conservation area** within 2km of the site. The Margam conservation area protects the character and appearance of the small former estate village in the western part of the registered park.

3.5.13 There are 40 **Listed Buildings** within 2 km of the potential solar and storage site. The majority of these (33) are within Margam Park.

3.5.14 There are 11 **Scheduled Monuments** within 2km of the potential solar and storage site. These include:

- Mynydd y Castell Camp (GM162), Danish Camp (GM056) and Half Moon Camp (GM477), all earthworks of probable Iron Age date.
- Three monuments on Mynydd Ty-talwyn (GM340, GM092 and GM093) comprise the remains of multiple house platforms and farmsteads of medieval date.
- Similarly, the "British Fortified Residence" (GM086) is also a deserted medieval settlement located on gently sloping ground between two un-named hills northeast of Mynydd Ty- talvvyn.
- Hen Eglwys (GM1 63), Margam Abbey (GM005), Margam medieval bath house (GM545) and the Margam inscribed and sculptured stones (GM011) all derive significance from their relationships with the other assets within Margam Park.

3.5.15 Following preliminary heritage advice, the potential for adverse impacts on historic assets to constrain the development of a solar and storage project on land at Tonmawr was analysed. The review of desk-based information and site visit found that the northern part of a larger landholding was constrained by the presence of scheduled monuments and associated non-designated remains, and this area north of Coed Cwm Kenfig was removed from the proposal. Although the main body of the proposal site also included Scheduled Monuments, these have been avoided through site design and physical impacts to these features will not

arise. Indirect effects to these features will be included in a historic environment assessment. Large parts of the main site area would not impact on known assets and can therefore be utilised for solar infrastructure.

- 3.5.16 The analysis also found that the Site would result in direct impacts on up to four Historic Landscape Character Areas within the Margam Mountain Registered Landscape and indirect (visual) impacts on up to five more. Accordingly, an assessment of potential effects will be conducted in accordance with the ASIDOHL methodology.
- 3.5.17 It is acknowledged that heritage is a key issue to development at this Site, but that any effects to the historic resource can be sufficiently addressed through a detailed historic environment assessment in preference to any requirement for EIA.

## 3.6 Transport and Access

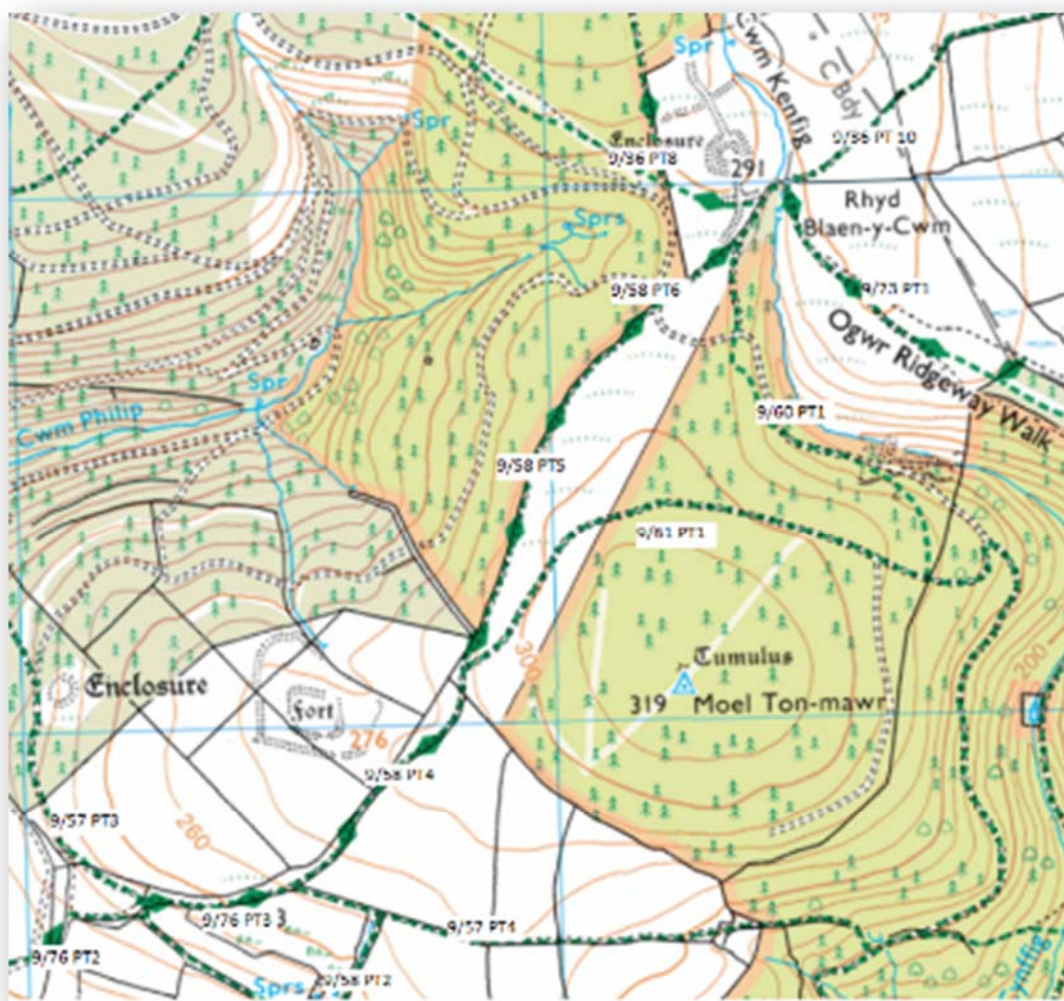
- 3.6.1 For construction purposes, the development is likely to be served by two vehicular access points on the eastern and western aspects of the development site boundary. The first of the accesses would be via the M4, A48 and a local C class road to the east of the Margam Deer Park. Some improvements and clearance of overhead trees is likely to be required to this track to ensure a safe and secure running surface for delivery and construction materials. The route will ascend the local road on to Graig Goch and thereafter onto Tonmawr Farm and into the Site. The second access point will be via the A4063 towards Maesteg, and thereafter on local C class roads to access the Site from the east.
- 3.6.2 Access to the highway will likely be required under Section 248 of the Town and Country Planning Act 1990 as a secondary consent, which includes for the provision of new or improved highways where they are part of the planning permission.
- 3.6.3 It is expected that the solar and storage components – mounting frames, solar panels, inverters etc - will be delivered on 15.4m long articulated vehicles. Other site vehicles are likely to include earth moving equipment, vans and minibuses bringing staff to site. Within the context of the normal daily movements on the A48 and A4063 the vehicle movements for construction of the scheme will be unlikely to affect typical flows. Movements on all local C class roads are likely to increased traffic levels to a degree that traffic management measures are likely to be required.

- 3.6.4 The traffic management measures will need to be implemented during construction to minimise any potential effects to local traffic, and these would need to be agreed prior to construction as part of a Transport and Travel Management Plan with the relevant highways authorities.
- 3.6.5 Once operational, the scheme will generate relatively few vehicular trips, primarily for maintenance and cleaning purposes. Approximately 12 visits will be required annually.

## 3.7 Other Land-uses

- 3.7.1 Several public rights of way, including the Ogwr Ridgeway Walk, are routed through or on the margins of the development site. These rights of way are denoted in the following plan:

**Plate 6: Public Rights of Way**



- 3.7.2 It is considered likely that effects to users of the rights of way network will arise during construction and operation of the proposed scheme. The Applicant does not propose to alter or stop up a right of way.
- 3.7.3 During construction, it is likely that a sequenced approach to temporary closures will be required, primarily to ensure protection to the public during this phase. Dependent upon the location of construction activities, rights of way may be kept open, or in incidences where they require temporary closure, signposting to alternative routes will be required.
- 3.7.4 Solar and storage design will need to protect the physical and amenity aspects of the rights of way network. Accordingly, a minimum stand-off of panels and fencing from rights of way is to be embedded in the design, along with the retention of the wider views westwards across Swansea Bay and eastwards and northwards over the Cwm Llyffni Valley and toward the Brecon Beacons National Park.
- 3.7.5 During operation, it is the intention of the Applicant to retain all rights of way access and to minimise any amenity or visual effects to users through the application of appropriate separation distances from them.

### 3.8 Population and Human Health

- 3.8.1 The Site is located on the western extents of the South Wales Valleys, which are characterised by extensive ribbon development along the valley floors and lower slopes, inclusive of the major towns of Bridgend, Maesteg and Port Talbot, juxtaposed with upland settings with steep hillsides, open moors or forests. Directly to the west of the site are slopes rising up from the fringes of Port Talbot, including Margam Park and Garden, and directly to the west are the villages of Llangynwyd and Cwmfelyn, which are on the lower slopes of the Cwm Llyfni Valley.
- 3.8.2 Across the upland area of the main site, comprising rough grazing, plantations and small woodlands, there are only scattered farmsteads, which are principally on the lower slopes of Moel Ton-mawr except for Ton Mawr Farm, which is located on the upland plateau.
- 3.8.3 The upland area is notable for its rights of way network, inclusive of the Ogwr Ridgeway Walk, which routes through the development site, and more broadly for its recreational value around the commercial forestry. Accordingly, the site area is beneficial to human

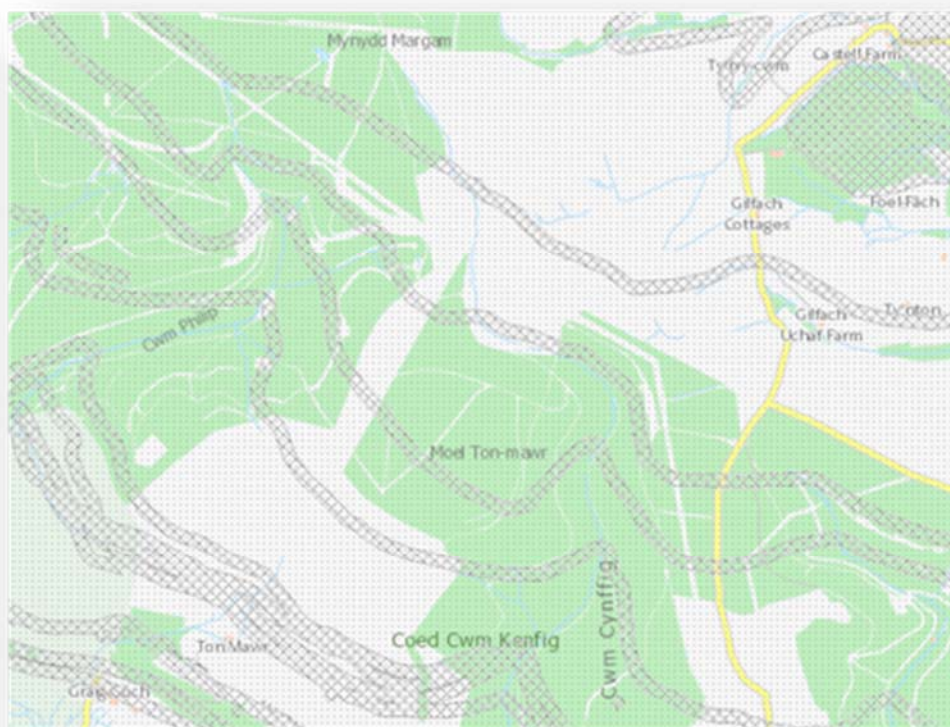
health through providing opportunities for exercise and open air. Retaining the rights of way network and recreational availability will need to be a core consideration of the design of the solar and storage project.

### 3.9 Contaminated Land and Coal Risk

- 3.9.1 Following searches of the contaminated land register, the site is not subject to any historical or present activities that have caused contamination.
- 3.9.2 The Site is within the *South Wales Valleys Development High Risk Area* following a search of the Coal Authority's interactive mapping facility<sup>9</sup>. An extract of the Site relative to potential high risk features is presented below:

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**Plate 7: Development High Risk Coal Areas**



- 3.9.3 It is anticipated that a coal risk mining assessment will be a validation requirement of the planning application, with the adoption of any risk amelioration measures as required.

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<sup>9</sup> <https://mapapps2.bgs.ac.uk/coalauthority/home.html>

## 4. POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

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### 4.1 Natural Resources

- 4.1.1 The site is located entirely on agricultural land valued as a mix of Grade 4 and Grade 5 agricultural land and consequently there will be no losses to the best and most versatile land.
- 4.1.2 The nature of the scheme is such that there should be no lasting effects to the quality of the soil or the minerals resource below the ground where suitable provisions are in place to avoid run-off or subsidence.
- 4.1.3 In this context, the proposed development will not have significant adverse effects upon agricultural quality or the minerals resource.

### 4.2 Landscape and Visual

- 4.2.1 The Site is not located within or near to any nationally protected landscape. Brecon Beacons National Park is approximately 22kms to the north of the Site. No significant effects on landscape protections at the national level are anticipated.
- 4.2.2 At the local level, the Site is located on the margins of the Western Uplands Special Landscape Area, for which the key policy and management issues are to maintain broadleaf mix forestry, limit forestry plantations, and limit urban development up slopes and intrusive vertical elements. No significant effects upon these purposes are likely to arise from the Proposal.
- 4.2.3 The main development site will be located within NPTCBC's landscape character 5 Coedhirwaun and Open Scarp Tops, which is the southern extent of the scarp slope dominating the coastal plain to the west. Its key characteristics are its prominent scarp with exposed top sheep grazing pasture on higher ground, and an area fringed by commercial forestry. Effects on the landscape character and features of the Proposal site within the wider landscape character type are not, on the basis of the extents of the solar scheme and ensured protection of landscape features – walls, hedgerows etc. – in the design of scheme will limit effects largely to within the site only, as the site is visually well contained and only

visible from the higher peaks, which are dominated by commercial forestry. The scheme will not diminish the upland character to a significant degree and will not affect north-easterly views of the Brecon Beacons. Similarly, although the scheme has the potential to be visible to receptors to the south and west of the proposed scheme on the lower elevations toward the coast, if sufficient set-back of the scheme from the edge of the escarpment below Tonmawr Farm is achieved this should ensure negligible visibility to such receptors.

- 4.2.4 Through appropriate design, the protection of existing landscape features, and limiting the scheme to the northern edge of the escarpment formed by the Graig Goch woodland, the proposed scheme should not cause significantly harmful effects on landscape character and visual amenity.

### 4.3 Nature Conservation and Biodiversity

- 4.3.1 No designated or non-statutory sites are likely to be affected by the proposed development.
- 4.3.2 Small areas of semi-natural broadleaved woodland as well acid grassland and acid flush should be avoided by the proposed scheme and be retained as good quality habitat, with associated species. It is also recommended that any development in the central portion of the site, including the installation of new trackways, should be screened for potential disturbance impacts on breeding birds associated with the forestry plantation in these areas (e.g. potential effects on nightjar). All drystone walls should be retained (and enhanced) for breeding birds and reptile refugia.
- 4.3.3 The breeding bird assemblage at the site included a small number of amber and red listed species. Mitigation for breeding birds would apply if works are to take place during the breeding season (March – August inclusive). Pre-construction survey of all potential breeding habitat, including open grassland (for skylark and meadow pipit) would be required, should development take place in the breeding season.
- 4.3.4 The site provides some foraging opportunities for bats due to the presence of a network of linear features. However, use is highly likely to be low and only in better weather conditions (due to the altitude of the site). There are also no potential roost features on site.
- 4.3.5 Very few signs of badger were recorded on site (some records evident from data search) during the Phase 1 habitat survey. However, a further detailed survey took place in April

2022 and no setts were recorded within the development site. This detailed survey also included searching for evidence of otter and water vole, and no records were identified.

- 4.3.6 Given the presence of suitable habitat, further surveys for reptiles and amphibians were undertaken also in April 2022. Potential habitat was limited to a single area, close to Tonmawr Farmhouse. This area will be avoided by construction works and further survey is considered unnecessary for this species group. A Non-licensed Method statement with respect to reptiles will be submitted with a planning application.
- 4.3.7 It is likely that reduced grazing levels on sections of the site would result in biodiversity gains with respect to birds (in particular skylark and meadow pipit). In addition, repairs to the drystone walls would also result in further habitat for breeding birds and refugia for reptiles.
- 4.3.8 Through design mitigation, robust construction methods and improvements to biodiversity, the proposed scheme is not expected to have significant effects on nature conservation interests.

## 4.4 Water Resources and Flood Risk

- 4.4.1 The principal catchments and watercourses within and surrounding the Site include the Afon Cynffig, Nant Cwm Philips, and the watercourse issuing above Ton Mawr Farm which drains southwards towards Coal Brook.
- 4.4.2 These watercourses, which also have semi natural vegetation with some biodiversity value, will require protection from development, a suitable construction practices and drainage provisions will be required to ensure their protection. This can form part of a pre-agreed pre-commencement construction environmental management plan.
- 4.4.3 With such provisions in place, the development is unlikely to have significant effects upon the water resource and flood risk of the receiving environment.

## 4.5 Historic Environment

- 4.5.1 Following a preliminary heritage appraisal of a wider site area, encompassing additional land to the north of the Margam forestry block in the direction of Llangynwyd, the potential for adverse impacts on historic assets was evaluated. The review of desk-based information and

associated site visit found that the northern and eastern parts of the Proposal site are heavily constrained by the presence of scheduled monuments and associated non-designated remains, and that the south western parts of the site are also partly constrained by similar assets. There are, however, areas of the south-western part of the site that would not impact on known assets and which – subject to further survey to evaluate the archaeological potential – are more suitable for the proposed solar and storage project.

- 4.5.2 The appraisal also found that the site would result in direct impacts on up to four Historic Landscape Character Areas within the Margam Mountain Registered Landscape and indirect (visual) impacts on up to five more. It has been identified that further changes to the layout as described in section 4.5.1 above in response to the other designated and non-designated assets will have the effect of reducing effects on the Registered Landscape.
- 4.5.3 Following investigation of potential below-ground archaeological remains and where changes to the setting of designated assets can be resolved by the proposed layout changes described above, low to moderate effects on the overall heritage resource are expected which would not be significant. However, it is acknowledged that further site investigation will be necessary to confirm this, which can be achieved through a Historic Environment Assessment submitted with a planning application.

## 4.6 Transport and Access

- 4.6.1 Owing the short duration of construction, estimated to be up to 26 weeks, and absence of vehicle movements during operation except for quarterly O&M visits, it is not anticipated that, subject to agreements on a Transport and Traffic Management Plan, significant effects to the highways network would arise from the Proposal.

## 4.7 Emissions and Waste

- 4.7.1 The proposed development will not give rise to any emissions to air that are polluting or would result from harmful activities that might give rise to contamination. It is expected that suitable provisions within pre-construction management plans will ensure construction practices are in place that ensure safe storage of materials and disposal of waste following

installation. Industry standard dust suppression methods during construction are expected to be applied to protect air quality in the vicinity of the scheme.

- 4.7.2 Audible noise emissions from on-site solar infrastructure, including inverters, transformers and any on-site substation will need to be modelled to assure regulators that residential amenity will be protected. Given the location of the Site some distance from residential properties, this is unlikely to give rise to significance effects where good siting is applied.
- 4.7.3 Emissions related to Greenhouse Gases (GHGs) will be incurred as a result of manufacturing the components of the scheme, and construction activities. Given the purpose of the scheme, which is generate power without associated GHGs, the minor adverse effects of manufacture and construction are significantly outweighed by the benefits of the GHG offsetting the scheme would likely deliver. Accordingly, the GHG savings associated with the scheme will be beneficial, and potentially significant, and will outweigh any GHG arisings.
- 4.7.4 A Glint and Glare assessment will form part of the planning documentation, which will assess any potential effects of these reflections upon key receptors, which in the case of the Eirlys site are upland farmsteads, residential properties and users of the rights of way network. However, given the nature of the Site on an upland plateau and the angle of the panels relative to receptors which will be below the potential reflection range, it is not anticipated that glint and glare will give rise to significant adverse effects.

## 4.8 Other Land-uses

- 4.8.1 On the basis of the dense network of rights of way, including the Ogwr Ridgeway Walk, it is anticipated that significant adverse effects will arise to users in the absence of appropriate design mitigation and enhancement measures. Such effects will arise during construction, when there is likely to be significant curtailment of access to the footpaths due to temporary closures over the construction phase, and during operation in terms of the visual experience witnessed by users as they traverse the network within a landscape that has altered to one of power generation alongside agricultural production.
- 4.8.2 Design mitigation in the form of stand-offs and buffers from rights of way alongside the preservation of the network during the operational period of the scheme will ameliorate impacts to users. In addition, given the level of change that would be witnessed by users due

to the solar and storage project, it is recommended that enhancement measures are adopted that improve the quality of the rights of way. Such measures would reasonably include improvements to the surfaces of rights of way in very wetted areas (as long as hydrology is not inhibited), signposting, and information boards giving information on solar power and the surrounding area, including its rich heritage assets.

- 4.8.3 The adoption of these design, footpath management and enhancement measures would be sufficient to ensure significant adverse effects to rights of way would not arise.

## 4.9 Population and Human Health

- 4.9.1 No significant effects to the population in the vicinity of the scheme, either positive or negative, are anticipated due to its short construction period, which will limit disturbance, and the operational nature of the scheme.
- 4.9.2 Noise modelling and suitable siting of components of the solar and storage project should be sufficient to confirm that acceptable noise thresholds are not breached, and no significant adverse effects are therefore anticipated.

## 4.10 Cumulative and Transboundary Effects

- 4.10.1 For the landscape and visual studies, for which a 10km study area is anticipated in respect of potential effects, the following operational and approved schemes that may give rise to cumulative effects have been identified:
- Newlands Farm, Margam, Single Wind Turbine 78m to tip;
  - Newlands Solar Farm, east of the M4 and the main railway line and to the north west of Pyle;
  - Mynydd Brombil, Margam, x4 WTGs 100m to tip;
  - Gelli Las Farm, Coytrahen, Single Wind Turbine 56m to tip.
- 4.10.2 In addition, the Applicant is aware that the Y Bryn Wind Farm Project, which is a Development of National Significance, is likely to be submitted for planning in 2022. This proposal would be to the north-west of the Proposal site. Due to intervening commercial forestry, there would be reduced inter-visibility between the two sites, especially from lower

elevations. Some rights of way on the higher peaks to the east and north east may see both developments in combination, but the solar and storage project is not expected to add significantly to the potential for significant effects as it is expected to have less than significant effects to landscape character and visual amenity as an individual scheme in its own right.

- 4.10.3 No transboundary effects will arise to other authorities in the likely study areas for landscape, heritage and biodiversity.

## 5. CONCLUSIONS ON EIA

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- 5.1.1 For the purposes of informing a Screening Direction Request to the Planning and Environment Decisions Wales on behalf of the Applicant, Octo Partners, this EIA Screening Report has been prepared following initial desk based studies and site reconnaissance of the available development boundary.
- 5.1.2 In identifying and appraising the site as a development prospect, no overriding land-use planning interests have been identified that necessarily preclude the deployment of renewable energy at the Proposal site. As a Development of National Significance, the Proposal is expected to have both beneficial (clean energy generation, decarbonisation, local ownership) effects and adverse effects upon the receiving environment. Potentially significantly adverse effects have been appraised for landscape and visual amenity, biodiversity and heritage, among other issues, and, subject to appropriate siting and design of the solar and storage project infrastructure, it is not anticipated that greater than low to moderate adverse effects will arise.
- 5.1.3 Further, in respect of Schedule 3 criteria in the Wales EIA Regulations 2017, the scheme:
- will not give rise to hazardous or harmful emissions, and does not entail processes that are potentially contaminating;
  - will not adversely harm or deteriorate natural resources;
  - does not give rise to waste products;
  - does not pose a risk to human health;
  - is located outside of protected areas for landscape and biodiversity;
  - has a limited spatial extent of effects that are unlikely cumulatively to harm protected areas or receptors;
  - will not have transboundary effects;
  - will be of limited duration up to 35 years of operation, after which the scheme can be removed in its entirety should the need for renewable energy have lapsed at that time.

- 5.1.4 Following consideration of the nature, scale and potential impacts of the Proposal upon the receiving environment and local receptors, it is concluded that, for the purposes of informing a decision on whether the scheme is EIA development, there are no eminent or overriding factors that would lead to a conclusion that significantly adverse and unacceptable effects are not anticipated and, accordingly, the Proposal scheme should not be deemed EIA development as defined under the EIA Regulations for Wales.