

MAES MAWR SOLAR FARM

EIA SCOPING REPORT

**Request for Scoping Direction under Town and Country Planning
(Environmental Impact Assessment) (Wales) Regulations 2017**

On behalf of Elgin Energy EsCO LTD



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- JPW1546-DNS-003 – Site Location Plan**
- JPW1546-DNS-004 – Site Location Plan**
- JPW1546-DNS-005 – Statutory Designations Plan**
- JPW1546-DNS-006 – Local Designations Plan**
- JPW1546-DNS-002RevB – Draft Site Layout Plan**

Appendices

- Appendix 1 – RCT Pre-application response together with some of the consultee responses**
- Appendix 2 – Preliminary Ecological Appraisal**
- Appendix 3 – Phase 2 Survey Report**
- Appendix 4 – Phase One Desktop Study (DTS) and Preliminary Risk Assessment (PRA)**
- Appendix 5 - Coal Mining Risk Assessment**
- Appendix 6 – LVIA appendix information**
- Appendix 7 – Agricultural Land Classification Report**

1 INTRODUCTION

Introduction

- 1.1 A notification of intention to submit a Developments of National Significance (DNS) was sent to Welsh Ministers on 27 August 2021. On the 9 September the Planning Inspectorate confirms that the proposed development was a DNS application. A negative screening direction was not submitted with the notification and it was the intent that the applicants would provide an Environmental Statement.
- 1.2 This Scoping Report has been prepared by RPS on behalf of Elgin Energy EsCO Ltd. It proposes the scope of environmental assessment for the proposed solar farm and ancillary development at Maesmawr, Upper Boat, Cardiff.
- 1.3 Pre-application advice was sought from Rhondda Cynon Taff County Borough Council on 11th November 2021 and the Council replied on the 17th January 2022 a copy of which can be found in Appendix 1.
- 1.4 This report sets out the proposed scope of the Environmental Statement (the report of the EIA process), which will be prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) Wales Regulations 2017 (2017 No.567(W.136)) (referred to hereafter as the EIA Regulations)]. The Environmental Statement (ES) will accompany a full Development of National Significance (DNS) planning application to be submitted to the Welsh Ministers.
- 1.5 The aim of this report is to provide information to the Welsh Ministers to enable an EIA Scoping Direction to be made under Regulation 15 of the EIA Regulations. A letter to Welsh Ministers requesting such a direction accompanies this report.

Statutory Framework and Purpose of the Environmental Statement

Purpose of EIA

- 1.6 EIA is the process of identifying and assessing the significance of effects likely to arise from a proposed development. This requires consideration of the likely changes to the environment, where these arise as a consequence of the proposed development, through comparison with the existing and likely future baseline conditions in the absence of the proposed development.

Purpose of Scoping

- 1.7 The process of identifying the matters to consider within an ES (establishing the scope of the assessment) is known as scoping. Scoping is not a mandatory requirement under the EIA Regulations. However, it is recognised that through the scoping exercise, the key environmental matters are identified at an early stage, which permits subsequent work to concentrate on those environmental topics for which significant effects may arise as a result of a proposed development.

Purpose of this Scoping Report

- 1.8 This document sets out details of the proposed development at Maesmawr, Upper Boat, Cardiff, the proposed EIA methodology and the proposed scope of technical assessments and invites comments from Welsh Ministers and its consultees regarding the scope of works. The intention of this scoping exercise is to gain agreement from all key parties regarding the proposed methodology and scope of assessment.
- 1.9 This Scoping Report has been informed by the following:

- Correspondence from Rhondda Cynon Taf County Borough Council and its consultees;
- Desk-top studies, site visits and surveys;
- Review of relevant websites, such as those provided by statutory consultees;
- Local planning policy, Planning Policy Wales and Technical Advice Notes;
- The EIA Regulations and EIA good practice guidance; and
- Experience of other similar developments.

The applicant

- 1.10 The applicant is Elgin Energy EsCO Ltd. Elgin has a proven track record for developing solar parks sympathetically within the countryside across the UK and Ireland and are dedicated to maintaining the highest standards both during and after construction of their projects. Their portfolio includes some of the largest operational solar parks to date in the UK.
- 1.11 Elgin's primarily focus on delivering large-scale solar farms, ranging from 25MW and up. This involves working closely landowners, planning authorities and local community groups to ensure the solar farms are designed and constructed to meet the needs of all parties. Through solar farm delivery, Elgin seeks to deliver the benefits of clean solar energy to the public.

Public consultation

- 1.12 An important part of the applicant's planning process is engaging with local communities to provide information on the project and gather local feedback. Due to the current Covid-19 restrictions in the UK, the applicant is seeking to ensure that all community engagement is undertaken safely. Safety is one of Elgin's core values, and in order to keep to the high standards of community engagement, consultation is anticipated to be undertaken in early 2022.
- 1.13 As part of the consultation process, the applicant will engage with the local community in order to inform local people about the proposals, to explain the development and its likely effects and to take on board any concerns or issues. The ES will include a summary of the pre-application public consultation carried out.

2 THE SITE AND THE PROPOSED DEVELOPMENT

The site and its surroundings

- 2.1 The site lies within the administrative boundary of Rhondda Cynon Taf County Borough Council (the LPA) and is located 13km north-west of Cardiff City Centre.
- 2.2 The site itself is located on land between Church Village and Treforest Industrial Estate, to the west is the main railway line linking Cardiff and the Valleys. To the west lies the A473. For a more detail location please see drawings JPW1546-DNS-003, 004, 005 and 006.
- 2.3 The site itself extends to approximately 40 hectares (98.8 acres) (including the cable route) and consists of several parcels of land. The parcels are irregular in shape and comprise a series of agricultural fields of varying sizes. They are currently primarily used for pasture grazing, bound by a mixture of mature woodland, trees and hedgerows.

Project description

- 2.4 Elgin Energy EsCO Ltd (the applicant) proposes to develop a solar photovoltaic electricity generating station (or 'solar farm') with an installed generation capacity of 30MW and associated ancillary development, including a substation. The power generated would be enough to power approximately 8,500 typical family homes and result in an approximate saving of 18,000 tonnes of CO2 per annum – the equivalent of removing 10,000 cars from the road. The point of connection is proposed to be located at existing WPD substation to the northeast within the Treforest Industrial Estate, which would be connected to the site by a cable route of less than 2km.

Solar farm

- 2.5 The main components of a solar farm are:
 - Solar panels and frames;
 - Inverters;
 - Transformers;
 - Cabling; and
 - Substation.
- 2.6 During construction and decommissioning temporary site compounds will be required to host staff facilities, take deliveries of components and store plant and equipment securely while not in use.
- 2.7 An indicative proposed site layout and typical solar panel elevation is enclosed (drawing reference: JPW1546-DNS-002RevB).
- 2.8 The solar panels 'over sail' between 25% and 40% of the land which they occupy, typically, and are arranged in series of rows up to a maximum height of 3.2 m at the highest point and tilted southwards at an angle of 10-25 degrees.
- 2.9 No significant ground works are required for the development – the support frame uprights are pile driven into the ground; 'string' inverters are usually mounted onto the support frames while some excavation is required for the transformers' foundations.
- 2.10 The majority of the cabling associated with the development will be laid underground via surface dug trenches of approximately 1 m deep and 50 cm wide and backfilled. These will utilise existing access tracks and road options wherever possible, particularly where sensitive habitats or archaeology is potentially present, such as through the adjacent SINC.
- 2.11 Several existing access points will be used for access for the construction, maintenance and decommissioning of the solar park. If necessary, some minor modifications to enable access to the

site by all vehicles anticipated to visit it will be undertaken. Existing farm tracks will be used for internal access within the site wherever possible. New access tracks, where required, will be formed, normally, using a layer permeable crushed stone. Construction is anticipated to take approximately 6-8 months while decommissioning will take up to 6 months.

- 2.12 A solar farm is a temporary and fully reversible use, unlike housing for example, with all equipment removed from site at the end of the installation's operational life (approximately 40 years). The methods used in construction (limited concrete) mean that remediation works following the removal of the panels and associated infrastructure are relatively minor and will return the site to its previous greenfield character.
- 2.13 The solar farm will be designed to accommodate sheep grazing beneath and between the rows of panels, providing an efficient dual use of land for renewable energy generation and agriculture. The solar farm will be enclosed by 2 m tall post and wire 'deer' fencing with 3 m tall security cameras in selected locations.

3 GENERAL APPROACH TO EIA

Information required

- 3.1 Although there is no statutory provision as to the form of an ES, it must contain the information specified in Regulation 17(3), including any relevant information specified in Schedule 4 of the EIA Regulations, as set out below:
1. A description of the development including in particular:
 - a. A description of the location of the development;
 - b. A description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;
 - c. A description of the main characteristics and the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the minerals and natural resources (including water, land, soil and biodiversity) used;
 - d. An estimate, by type and quantity, of expected residues and emissions (such as water, air, soils and sub soil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases).
 2. A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen opinion, including a comparison of the environmental effects;
 3. A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.
 4. A description of the factors specified in regulation 4(2) likely to be significantly affected by the development; population, human health, biodiversity (for example fauna and flora), land, (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaption), material assets, cultural heritage, including archaeological aspects, and landscape.
 5. A description of the likely significant effects of the development on the environment resulting from, inter alia:
 - a. The construction and existence of the development, including, where relevant, demolition works;
 - b. The use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;
 - c. The emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;
 - d. The risks to human health, cultural heritage or the environment (for example due to accidents or disasters);
 - e. The cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;

- f. The impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;
- g. The technologies and the substances used.

3.2 The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(a) and Directive 2009/147/EC(b).

1. A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.
2. A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.
3. A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU(c) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(d) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.
4. A non-technical summary of the information provided under paragraphs 1 to 8.
5. A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.

3.3 The information supplied in the ES will provide a clear understanding of the likely significant effects of the project upon the environment. The following sections outline the overall approach to EIA in order to meet these legal requirements.

Structure of the Environmental Statement (ES)

3.4 The ES will be structured logically, enabling all relevant environmental information to be found quickly and easily. The ES will describe the EIA process and its findings, and will include the following sections:

- Non-Technical Summary (as a stand alone document);
- Written Statement;
- Figures; and
- Appendices.

EIA methodology

Relevant EIA guidance

- 3.5 The EIA process will take into account relevant government or institute guidance, including:
- Welsh Office Circular 11/99: Environmental Impact Assessment;
 - Department for Communities and Local Government (2014) Planning Practice Guidance at <http://planningguidance.planningportal.gov.uk>;
 - Department of the Environment, Transport and the Regions (DETR) (1997) Mitigation Measures in Environmental Statements. HMSO;
 - Highways Agency et al. (2008) Design Manual for Roads and Bridges, Volume 11, Section 2, Part 5. HA 205/08;
 - Institute of Environmental Management and Assessment (2004) Guidelines for Environmental Impact Assessment;
 - Institute of Environmental Management and Assessment (2011) The State of Environmental Impact Assessment Practice in the UK. Special Report;
 - Institute of Environmental Management and Assessment (2015a) Environmental Impact Assessment: Guide to Shaping Quality Development;
 - Institute of Environmental Management and Assessment (2015b) Climate Change Resilience and Adaptation;
 - Institute of Environmental Management and Assessment (2016) Environmental Impact Assessment: Guide to Delivering Quality Development;
 - Institute of Environmental Management and Assessment (2022) Environmental Impact Assessment: Assessing Greenhouse Gas Emissions and Evaluating their Significance; and
 - Institute of Environmental Management and Assessment (2017) Health in Environmental Impact Assessment: A Primer for a Proportional Approach.
- 3.6 Other topic-specific specialist methodologies and good practice guidelines will be drawn upon as necessary.

Key elements of the general approach

- 3.7 The assessment of each environmental topic will form a separate chapter of the ES. For each environmental topic, the following will be addressed:
- Methodology and assessment criteria;
 - Description of the environmental baseline (existing conditions);
 - Identification of likely effects;
 - Evaluation and assessment of the significance of identified effects, taking into account any measures designed to reduce or avoid environmental effects which form part of the project and to which the developer is committed; and
 - Identification of any further mitigation measures envisaged to avoid, reduce and, if possible, remedy adverse effects (in addition to those measures that form part of the project).

Methodology and assessment criteria

- 3.8 Each topic chapter will provide details of the methodology for baseline data collection and the approach to the assessment of effects. Details of the proposed approach for each topic are provided

in Section 5 of this Scoping Report. Each identified environmental topic will be considered by a specialist in that area. The identification and evaluation of effects will take into account relevant topic-specific guidance where available.

Description of the environmental baseline

- 3.9 The existing and likely future environmental conditions in the absence of the project are known as 'baseline conditions'. Each topic-based chapter will include a description of the current (baseline) environmental conditions. The baseline conditions at the site and within the study area form the basis of the assessment, enabling the likely significant effects to be identified through a comparison with the baseline conditions.
- 3.10 The baseline for the assessment of environmental effects will primarily be drawn from existing conditions during the main period of the EIA work. Consideration will also be given to any likely changes between the time of survey and the future baseline for the construction and operation of the project. In some cases, these changes may include the construction or operation of other planned developments in the area. Where such developments are built and operational at the time of writing and data collection, these will be considered to form part of the baseline environment. Where sufficient and robust information is available, such as expected traffic growth figures, other future developments will be considered as part of the future baseline conditions. In all other cases, planned future developments will be considered within the assessment of cumulative effects.
- 3.11 The consideration of future baseline conditions will also take into account the likely effects of climate change, as far as these are known at the time of writing. This will be based on information available from the UK Climate Projections project (UKCP18), which provides information on plausible changes in climate for the UK (Environment Agency and Met Office, 2018) and on published documents such as the UK Climate Change Risk Assessment 2017 (Committee on Climate Change, 2016).

Assessment of effects

- 3.12 The EIA Regulations require the identification of the likely significant environmental effects of the project. Each topic chapter will take into account both the sensitivity of receptors affected and the magnitude of the likely impact in determining the significance of the effect.

Sensitivity or importance of receptors

- 3.13 Receptors are defined as the physical resource or user group that would be affected by a proposed development. The baseline studies will identify potential environmental receptors for each topic and will evaluate their sensitivity to the proposed development. The sensitivity or importance of a receptor may depend, for example, on its frequency or extent of occurrence at an international, national, regional or local level.

Magnitude of impact

- 3.14 Impacts are defined as the physical changes to the environment attributable to the project. For each topic, the likely environmental impacts will be identified. The magnitude of the impact will be described using defined criteria within each topic chapter.
- 3.15 The categorisation of the impact magnitude may take into account the following four factors:
- Extent;
 - Duration;
 - Frequency; and
 - Reversibility.

- 3.16 Impacts will be defined as either adverse or beneficial. Depending on discipline, they may also be described as:
- Direct: Arise from activities associated with the project. These tend to be either spatially or temporally concurrent;
 - Indirect: Impacts on the environment which are not a direct result of the project, often produced away from the project site or as a result of a complex pathway.

3.17 Impacts will be divided into those occurring during the construction phase and those occurring during operation. Where appropriate, some chapters may refer to these as temporary and permanent impacts.

Significance of effects

3.18 Effect is the term used to express the consequence of an impact (expressed as the 'significance of effect'), which is determined by correlating the magnitude of the impact to the sensitivity of the receptor or resource.

3.19 The magnitude of an impact does not directly translate into significance of effect. For example, a significant effect may arise as a result of a relatively modest impact on a resource of national value, or a large impact on a resource of local value. In broad terms, therefore, the significance of the effect can depend on both the impact magnitude and the sensitivity or importance of the receptor.

3.20 Levels of significance that will be used in the assessment include, in descending order:

- Substantial;
- Major;
- Moderate;
- Minor;
- Neutral.

3.21 Where an effect is described as 'neutral' this means that there is either no effect or that the significance of any effect is considered to be negligible. All other levels of significance will apply to both adverse and beneficial effects. These significance levels will be defined separately for each topic within the methodology sections. In all cases, the judgement made as to significance will be that of the author of the relevant chapter with reference to appropriate standards/guidelines where relevant.

Cumulative effects

3.22 The cumulative effects of the proposed development in conjunction with other proposed schemes will be considered. The cumulative effects assessment will consider any developments that are formally in the planning system at the time of submission. Developments that are built and operational at the time of assessment will be considered as part of the baseline.

3.23 No cumulative developments were identified as part of the pre-application advice service provided by Rhondda Cynon Taf County Borough Council dated 17th January 2022.

3.24 Further discussions will be undertaken with the Council prior to commencing the EIA to ascertain if any new developments are forthcoming that were not highlighted at the time of the pre-application advice.

Mitigation measures

- 3.25 The EIA Regulations require that where significant effects are identified 'a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce or, if possible, offset likely significant adverse effects on the environment' should be included in the ES.
- 3.26 The development of mitigation measures is part of an iterative EIA process. Therefore, measures will be developed throughout the EIA process in response to the findings of initial assessments. The project that forms the subject of the DNS planning application will include a range of measures designed to reduce or prevent significant adverse environmental effects arising, where practicable. In some cases, these measures may result in enhancement of environmental conditions. The assessment of effects will therefore take into account all measures that form part of the project and to which Elgin are committed.
- 3.27 The topic chapters will therefore take into account all measures that form part of the proposed development, including:
- Measures included as part of the project design (sometimes referred to as primary mitigation);
 - Measures to be adopted during construction to avoid and minimise environmental effects, such as pollution control measures. These measures would be implemented through the Code of Construction Practice; and
 - Measures required as a result of legislative requirements.
- 3.28 Where required, further mitigation measures will be identified within topic chapters. These are measures that could further prevent, reduce and, where possible, offset any residual adverse effects on the environment.
- 3.29 In some cases, monitoring measures may be appropriate, for example, to ensure that proposed planting becomes established. Where appropriate, monitoring measures will be set out.

Summary tables

- 3.30 Tables will be used to summarise the effects of the project for each environmental topic.

4 SCOPE OF ASSESSMENT

Work undertaken to date

- 4.1 The following studies have been undertaken or are currently ongoing in relation to the proposed development.
- 4.2 A Preliminary Ecological Appraisal (PEA) of the area within the development red line boundary was undertaken on 22nd December 2020, which included a desk study identifying designated sites within 2 km (10 km for international designations) of the red line application boundary. (A copy is found in Appendix 2).
- 4.3 Additional Phase 2 surveys including Great Crested Newt eDNA, watervoles, wintering bird surveys have been undertaken and a copy of these documents can be found in Appendix 3.
- 4.4 A Breeding Bird Survey has been commissioned for this survey season.
- 4.5 The PEA concluded that there are no anticipated adverse impacts of the solar park development on nearby designated sites.
- 4.6 Pre-application advice received from CADW identified 23 Scheduled Monuments, two Registered Parks and Gardens, and 177 Listed Buildings within 5km of the proposed development. It concluded that there will not be a direct impact on these, although there could be an effect on their settings. A Heritage and Cultural Archaeology Report will be produced in support of the DNS application which will assess any impact on the settings of these designated historic assets as per the requirements of Chapter 6 of Planning Policy Wales, Technical Advisor Note (TAN) 24, the Historic Environment (Wales) Act, heritage-related policies in the Development Plan and relevant guidance, including Heritage Impact Assessment in Wales and Setting of Historic Assets in Wales. A Stage 1 assessment will be carried out for all of the above designated heritage assets, which will determine the need, if necessary, for Stages 2 to 4 to be carried out for specific heritage assets.
- 4.7 A desktop Agricultural Land Classification Survey of the proposed site was completed by RPS Group in November 2020 and updated in March 2022 and can be found in Appendix 7. The assessment confirmed that the majority of the site comprised Grade 3b – Grade 5 agricultural land, with only a very small section of the cable route falling within Grade 3a Best and Most Versatile Land. The cable route will follow the existing track.
- 4.8 A number of studies have been undertaken to characterise the baseline of Maes Mawr in relation to land use, geology and soils. These include a Phase One Desktop Study (DTS) and Preliminary Risk Assessment (PRA) which can be found in Appendix 4. Only very limited intrusive ground investigation data is available in the form of historic BGS borehole records for the Maes Mawr site. A relatively thin layer of Made Ground is expected across the site with inclusions of brick and coal. There is anticipated to be greater thickness of Made Ground associated with Maes Mawr Road and potential ballast in the area of the former mineral railway to the northwest of the site. The available records indicate that the underlying natural soils are predominantly Glacial Till comprising poorly sorted clay, silt, sand and gravel in a matrix of silt/clay or sand, often with cobbles and boulders. Significant thickness of Alluvium is expected to the east of Treforest Estate Railway Station (and rail line) associated with the River Taff. The Alluvium is likely to be confined to the area of the proposed cable route and is likely to comprise clay, silt, sand and gravel. A limited area to the south of Cheriton Lodge is indicated to be underlain by Glaciofluvial Deposits of unconsolidated sand and gravel. Underlying the superficial deposits are several bedrock units, namely the Grovesend Formation and Hughes Formation comprising mudstone, siltstone and sandstone. Limited sandstone of the Brithdir Member is indicated underlying the cable route.
- 4.9 Pre-application advice from the Coal Authority confirmed that the Coal Authority would not expect the planning application to be supported by a Coal Mining Risk Assessment, or equivalent, to assess the risk to the development from coal mining legacy. On this basis these activities are considered

unlikely to present a significant risk to human health or environmental receptors when the low impact nature of the development is considered. However, the applicant has undertaken a Coal Mining Risk Assessment and Mineral Assessment see Appendix 5. The Coal Mining Risk assessment confirms that some minor investigations are advisable for areas that require foundations or under heavy load. It is envisaged that this can be conditioned should consent be granted.

Topics scoped out of assessment

4.10 Taking into account the findings of the above studies, together with the feedback from the pre-application consultation and our knowledge of the site and surrounding area, it is proposed that the following topics are not included in the scope of the ES:

- Population,
- Transport,
- Human Health,
- Land (for example land take),
- Soil (for example organic matter, erosion, compaction, sealing),
- Water (for example hydromorphological changes, quantity and quality),
- Air,
- Material Assets,
- Risk of Major Accidents

Planning policy context

4.11 The ES will provide an overview of relevant legislative and planning policy context within each topic chapter. The assessment will have regard to national and local policy documents, where relevant. However, it is not proposed to include a separate chapter on Planning Policy Context in the ES. A separate Planning Statement will be submitted with the planning application and the environmental topic chapters within the ES will each set out the policy context relevant to that topic.

Population and transport

4.12 The construction will have a temporary effect on employment provision through the creation of construction jobs however, it is unlikely that the proposals will result in a significant change in population as workers are unlikely to relocate to an area on a permanent basis. Therefore, a minor beneficial effect is therefore anticipated for a temporary period.

4.13 Once operational, the solar farm will be operated remotely and only require between 10-20 visits per year for maintenance, monitoring and cleaning of the panels and site. The vehicle movements associated with the occasional visits to the site would have a negligible influence on the surrounding population and highway network.

4.14 An outline Construction and Decommissioning Method Statement will be produced and included in the application. The construction period is expected to take approximately 6-8 months. It is expected that construction hours will be between 07:00 and 18:30 hours Monday to Friday and 07:00 to 13:00 hours on Saturday.

4.15 Over the duration of the 6-8 month construction period, there will be an average of three HGV deliveries per day. Even at the most intense period of construction it is expected that there will be no more than 10 HGV deliveries per day. Even if such numbers of daily movements were to be generated, these would be balanced by other days on which fewer HGV movements than the daily average would be generated.

- 4.16 It is envisaged that the main construction route will be from the north via the A473 and Maesmawr Road. This is the same access route that the Maes Bach Solar Park (located to the south of this proposed solar park) used for its construction and thus this route has already been used previously as a construction route for a solar park.
- 4.17 Maesmawr Road provides access to a small number of residential properties, farms and agricultural fields, thus there are already large vehicles routeing along it. The residential properties are all set back from the highway with screening formed by the hedgerow which typically lines both sides of the carriageway and it is considered there are no sensitive receptors along Maesmawr Road and the access route.
- 4.18 There is no daily requirement for access when the Solar Park is operational. Access is only required for maintenance and inspection purposes which is undertaken by a 4x4 type vehicle approximately once per month / once per quarter.
- 4.19 It is therefore considered that transport, both construction and operational can be scoped out of the ES and adequately addressed through the submission of separate standalone technical reports which will accompany the planning application. A detailed Construction Traffic Management Plan detailing the delivery routes, construction routes, construction compounds and any associated parking or management of construction traffic will be prepared. It is also proposed that details of the operational traffic movements and any onsite parking and turning spaces will be provided as part of the planning application.

Human health

- 4.20 The direct human health effects of the proposed development are limited, the proposed development will displace primary fossil fuel derived electricity and the consequent Greenhouse Gases and other pollutants released during fossil fuel combustion and would result in a beneficial effect on human health.

Land (for example land take)

- 4.21 The site comprises agricultural land which will be developed for the production of renewable energy. The site will be designed to be capable of enabling sheep grazing during its operational life, and therefore it is anticipated that energy and agriculture will remain in a co-use across the site. The proposed development is fully reversable and the agricultural potential of the site can be fully restored following decommissioning.
- 4.22 The site is also within an identified Mineral Resource Area, with the geology underlying the majority of the site containing secondary shallow coal resources, isolated areas of primary shallow coal resources and superficial glacial till deposits. Whilst these deposits are present, they are recorded to extend significantly beyond the site boundary and the proposed use is temporary, and therefore sterilisation of minerals is not considered a significant impact.
- 4.23 Overall, the land will not be irreversibly developed and will remain in agricultural use as grazing of sheep will be possible whilst the solar arrays are in place and as such no likely significant lasting adverse effects on the quality of the land is expected.

Soil (for example organic matter, erosion, compaction, sealing)

- 4.24 The site comprises mainly grassland agricultural fields, interspersed with blocks of woodland. The National Soils Map (1:250,000) shows the Site comprise predominantly soils of the Withnell 1 (611d) Association or grouping of soils. These comprise mainly loamy, typical brown podzolic soils over sandstone. The soils are predominantly coarse loamy (Withnell series) but fine loamy profiles (Loxhore series) also occur where there are thin beds of shale or the sandstone contains an appreciable proportion of silt and clay. The Brickfield 2 Association may also be present on the

western fringe of the Site. This association consists of fine loamy soils in till or Head mainly derived from Carboniferous shale and sandstone.

- 4.25 Given the existing / historical use of the site, it is not envisaged to be any significant sources of potential contaminative concern. Most of the soil will not be physically impacted from the development.
- 4.26 Appropriate construction techniques will be implemented to reduce above and below ground works and to minimise any compaction of soil mitigating any potential impact on the soils structure and ability to infiltrate water.
- 4.27 An Agricultural Land Classification Survey of the site confirmed the majority of the site comprised Grade 3b – Grade 5 agricultural land. The lowest quality land on the Site is situated on the steeply sloping areas of the Site where gradients are in excess of 11° and are either Grade 4 or where the land is steepest, Grade 5. Virtually all of the remaining area of the Site is limited to Subgrade 3b by an overall climatic limitation, as the data in Section 4.4 of this report identifies.
- 4.28 The proposed development is temporary in nature and fully reversible and following decommissioning would ensure that the future quality of the agricultural land is maintained with no likely significant lasting adverse effects on the quality of the soil.

Water (for example hydromorphological changes, quantity and quality)

- 4.29 The Development Advice Map indicates that the majority of the site is located within Zone A. Zone A is described in TAN15 as those areas “*considered to be at little or no risk of fluvial or coastal/tidal flooding*”. However, the access route from the north of the site passes through Zones B and C1 described as “*areas known to have flooded in the past*” and “*the 1000-year extreme flood outline*”, respectively.
- 4.30 The proposed solar farm site area is located within an area of very low fluvial and tidal flood risk where the risk of flooding from both sources is classified as less than 1 in 1,000 (0.1%). The access route runs through areas of “low” and “medium” fluvial flood risk whereby to risk of flooding is classified as between 1 in 1000 (0.1%) and 1 in 100 (1%), and between 1 in 100 (1%) and 1 in 30 (3.3%) respectively. This is associated with the River Taff.
- 4.31 NRW surface water mapping identifies two flow routes through the site with a mixed ‘low’ to ‘high’ risk of surface water flooding. Low risk is defined as areas with a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%), with high risk areas with a chance of flooding of greater than 1 in 30 (3.3%). These flow route exist from the centre of the solar site to the central western boundary and at the northern solar farm boundary. Additionally, there are isolated areas of ponding in the south, that are at ‘low’ risk, and in the north, that are at ‘high’ risk.
- 4.32 There is also surface water flood risk identified along the access route that extends north of the site. Taffs Mead Road is shown to be at ‘low’ risk of surface water flooding and Tonteg Road is shown to be at ‘high’ risk. There is a portion of the route at conjunction of Taffs Mead Road and Gwaelod-Y-Garth Road that has ‘medium’ surface water flood risk, corresponding to an annual probability of flooding that is between 1 in 100 and 1 in 30.
- 4.33 RPS notes that the NRW has developed a new Flood Map for Planning which was published in September 2021. This illustrates the undefended flood extents over the next 100 years taking into account the impacts of climate change. This will replace the DAM in June 2023.
- 4.34 A Flood Consequence Assessment supported by a drainage strategy will be prepared in accordance with Planning Policy Wales, Technical Advice Note 15 and latest climate change data to ensure flood risk and hydrological impacts are managed appropriately.

- 4.35 Having considered the potential impacts, hydrology and drainage can be adequately addressed as part of the planning application via a standalone Flood Consequence Assessment and Drainage Strategy and can be scoped out of the ES.

Air

- 4.36 It is not anticipated that there is any potential for significant effects on local receptors, with any potential effects being confined to during the construction and decommissioning of the solar farm. A Construction Traffic Management Plan and Outline Construction and Decommissioning Method Statement will be produced as part of the planning submission and will set out proposed management measures to limit any effects during the construction and decommissioning stages.
- 4.37 In relation to traffic movement the location of the proposed development is not within or in close proximity to any declared Air Quality Management Areas. Typically, there will be around 10 Heavy Duty Vehicle (HDV) movements per day during the more intense construction periods.
- 4.38 In terms of air quality. The number of HDV movements during the construction and installation of the solar panels together with the supporting framework will not fulfil the traffic criteria detailed in the IAQM/EP (UK) Planning Guidance. A change in the volume of traffic on the surrounding road network will not have any significant effect on air quality as experienced by the nearest receptors located in the vicinity of the site.
- 4.39 Due to the nature of the development, once operational there would be no emissions generated by the development. As mentioned above in Human Health, the proposal will have no direct adverse environmental effect on air quality and therefore will have no significant environmental effect in EIA terms. More widely, the electricity the proposed development will produce will potentially displace primary fossil fuel derived electricity that relies on thermal combustion and the consequent release of Green House Gases (GHGs) and other pollutants into the atmosphere consequently, the proposal is considered to have a beneficial effect on air quality.

Material assets

- 4.40 The EIA Regulations refer to 'material assets', including architectural and archaeological heritage. The phrase 'material assets' has a broad scope, which may include assets of human or natural origin, valued for socio-economic or heritage reasons. Material assets are in practice considered across a range of topic areas within an ES, in particular the historic environment chapter. This topic is proposed to be included within the ES (see Table 4.1). Therefore, no separate consideration of material assets is considered necessary.

Risk of major accidents

- 4.41 Solar photovoltaic technology is a relatively benign form of electricity generation with very low risk of accident or disaster and will not have a significant environmental effect in this regard. The solar park will be enclosed by appropriately designed security fencing and monitored by CCTV, which will lower the risk of unauthorised access and accidents.

Content of the Environmental Statement

- 4.42 The scope of the EIA takes into account the pre-liminary environmental information pertinent to the site and formal pre-application consultation with Rhondda Cynon Taff County Borough Council (**See Appendix 1**).
- 4.43 As a result, the issues set out below are considered appropriate for assessment in an ES. It is considered that the Proposed Development may have the potential to give rise to significant environmental effects in these areas:
- Landscape and Visual

- Biodiversity
- Cultural Heritage
- Climate Change
- Cumulative Effects

4.44 Table 4.1 identifies the chapters that are proposed for inclusion in the ES. Further details of the approach to the assessment and its scope are provided in Section 5 of this Scoping Report.

Table 4.1: Structure of the ES

Structure of ES	
Non-Technical Summary	Summary of the ES using non-technical terminology
Volume 1: Text	
	Glossary
Chapter 1	Introduction
Chapter 2	Project Description
Chapter 3	Need and Alternatives Considered
Chapter 4	Environmental Assessment Methodology
Chapter 5	Landscape and Visual
Chapter 6	Biodiversity
Chapter 7	Cultural Heritage
Chapter 8	Climate Change
Chapter 9	Cumulative Effects
Volume 2: Figures	
Including all figures and drawings to accompany the text.	
Volume 3: Appendices	
Including specialist reports forming technical appendices to the main text.	

5 TECHNICAL ASSESSMENTS

Chapter 1: Introduction

- 5.1 This chapter will provide the introduction to the ES, including details of the application, need for EIA and the structure of the ES.

Chapter 2: Project description

- 5.2 The ES will include a description of the project, which will form the basis of the assessment of effects. The EIA Regulations require an ES to include:

'A description of the development comprising information on the site, design and size and other relevant features of the development.'

- 5.3 This project description chapter will include details of the site, together with a description of the key components of the proposed development. The description will include the following information, as far as practicable at the time of writing:

- Construction phase - a description of the key works, activities and processes that would be required during the construction phase;
- Operational phase - a description of the completed development and its use;
- Decommissioning phase - a description of the key works, activities and processes that would be required during the decommissioning phase.

- 5.4 Where options remain at the time of the assessment (with regard to construction techniques, for example), the ES will provide a clear explanation of the assumptions made. Where appropriate, the realistic worst-case scenario will be assessed.

- 5.5 Where mitigation measures have been identified and developed through the EIA process and have been incorporated as part of the project, details of these measures will be set out within the project description chapter.

Chapter 3: Need and alternatives considered

- 5.6 This chapter will briefly set out the need for the proposed development. In addition, the EIA Regulations require the alternatives considered by the applicant to be set out in the ES:

- 5.7 *'A description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment.'*

- 5.8 This chapter will summarise the reasons for the selection of the site and provide an outline of the alternatives considered during the EIA process, including a description of the alternative design and layout options that have been considered.

Chapter 4: Environmental assessment methodology

- 5.9 Details of the overall approach to EIA will be set out in this chapter, together with details of the scoping process, consultation undertaken and the overall approach to the assessment of significance. Topic specific methodologies, such as survey methods, will be provided in each topic chapter.

Chapter 5: Landscape and visual

General

- 5.10 Landscape and / or Visual effects, associated with a solar farm development, are considered to be a important environmental issue. As such, a Landscape and Visual Impact Assessment (LVIA) would form an important part of the wider Environmental Impact Assessment (EIA) process for the project.
- 5.11 Chapter 5: Landscape and Visual Impact Assessment (LVIA), of the Environmental Statement (ES), would consider the potential effects of the proposed Maes Mawr solar farm development upon the physical landscape elements and features, landscape character and views and visual amenity within a 5km radius study area (as measured in all directions from the edge of the Application Site).
- 5.12 The LVIA would be undertaken with reference to best practice guidance, see ‘Assessment of Effects and Scope of Assessment’ below, and would be completed by a suitably qualified and experienced Chartered Landscape Architect (CMLI).
- 5.13 A Glint and Glare Assessment would also be completed as part of the LVIA Chapter. It will be a standalone assessment but included within the Appendices of the LVIA Chapter and referred to within the assessment of effects section of the chapter.

Consultation

- 5.14 To reiterate the Pre-Application Advice (Ref: GD/21/5130/41) received from Rhondda Cynon Taf County Borough Council (RCTBC) it is copied here below. The advice has been considered during the selection of Candidate Viewpoints (see Table 5.2 below) and has also informed the early consideration of mitigation proposals and design input into the masterplan. The following advice is of relevance for this chapter of the EIA Scoping Report and the forthcoming LVIA Chapter:

“Impact on character and appearance of the area.

Any future planning application should positively demonstrate that the impact of the proposed development on the character and appearance of the site and wider area are acceptable. In particular proposals need to have full regard to the landscape character and visual amenity of the site and wider area. Given the Special Landscape Area designation particular care needs to be taken in addressing this issue. To that end it is expected that proposals should demonstrate the overall farming character of the area can be retained and this will also involve the retention and strengthening of existing field pattern boundaries and hedgerows small woods and the overall field pattern.

Developments of this kind can if poorly designed erode the green gap between the industrial estate and the residential areas to the west and the design of the proposed development should respect the character of the area and its LANDMAP designation. Your applicant should give early consideration to the possible need for a Section 106 agreement to address this issue. Similarly, proximity of the solar arrays to the field boundaries also requires careful consideration. Generally, consideration needs to be given to this issue through the construction, operational and decommissioning phases.

Impact on residential amenity and privacy.

Given the location of the proposed development its impact on residential amenity and privacy is unlikely to be severe. However, views from and into the site need to be given careful consideration and be properly evaluated particularly in relation to the few properties that are closest to the site. The Landscape & Visual Impact Assessment will need to have due regard to the visual effect of the proposed development on residential property. Generally, consideration needs to be given to this issue through the construction, operational and decommissioning phases.”

- 5.15 In addition to the above, specific feedback from the LPA (RCTCBC) regarding the Candidate Viewpoint selections has been received, which was as follows:
- Additional viewpoint location requested to the south of viewpoint 13, located within the residential area; and,
 - Viewpoints 3 and 5 were considered to be too close to the proposed development and other viewpoints. An alternative location for these was suggested to the west within other areas covered by the ZTV.
- 5.16 To reflect this, one additional viewpoint location and two alternative viewpoint locations have been selected, Candidate Viewpoints 11, 12 and 13 respectively (ref. Figure 2, Rev A, January 2022), see Table 5.2 below.

Baseline information

- 5.17 The following forms a summary of the baseline data collated, and work undertaken to inform the landscape and visual element of the EIA Scoping Report and the forthcoming LVIA Chapter. Information is illustrated on Figures 1 and 2 (Appendix 6):
- Preliminary review of legislative and planning policy context insofar as it relates to landscape and visual matters and / or solar park developments;
 - Review of Landscape Planning Designations;
 - Preliminary review of National, Regional and Local Landscape character assessments; and,
 - Preparation of preliminary proposed ZTV.
- 5.18 A preliminary, desk based, landscape and visual appraisal of the proposed development area was completed by RPS Group in November 2021 and included as part of the request for an EIA screening direction. The following section summarises the existing baseline conditions and likely sensitive landscape and visual receptors that are likely to be affected by the proposed Maes Mawr solar farm development.

Landscape planning designations

- 5.19 The Application Site is outwith any Areas of Outstanding Natural Beauty (AONB), a designation of national importance for scenic quality; the nearest being the Wye Valley AONB, located approximately 38km to the east (at its nearest point) and the Gower AONB, located approximately 45km to the west (at its nearest point) (refer to Figure 1, Appendix 6). As such, there would be no direct physical impacts upon the AONBs as a result of the proposed solar park.
- 5.20 Other designations of local importance, which fall partly or wholly within the Application Site, include Ancient Woodlands and a Special Landscape Area (SLA), as derived from the Rhondda Cynon Taf (RCT) Local Development Plan, adopted March 2011.
- 5.21 Within the wider 5km study area, there are a number of other landscape planning designations that would be indirectly impacted by the proposed development. These include:
- Listed Buildings;
 - Conservation Areas (CA); the nearest being the Gwaelod-y-Garth CA, located approximately 1.5km to the south of the Application Site (at its nearest point);
 - Sites of Special Scientific Interest (SSSI);
 - Scheduled Monuments; the nearest being Pen-y-Coedcae Roman Camp, approximately 3.4km to the northwest of the Application Site (at its nearest point);
 - Registered Common Land; the nearest being Tir Mynediad, approximately 1.5km to the south of the Application Site (at its nearest point); and,

- Historic Parks and Gardens; the nearest being Pontypridd: Ynysangharad Park, approximately 4.3km to the northwest of the Application Site at its nearest point.
- 5.22 Other designations within the local landscape, but outwith the 5km study area, include:
- Historic Landscapes;
 - RAMSAR site; and,
 - Significant Views.
- 5.23 There are a substantial number of individual trees, hedgerows and blocks of woodland across the Application Site, or immediately adjacent to it. A number of the woodland blocks, to the immediate west of the Application Site, are designated as Ancient Woodland.

National and Local Landscape Character

- 5.24 The relevant published landscape character assessments have been initially reviewed below. Within the LVIA Chapter, particular attention will be paid to the key landscape characteristics of the relevant aspect areas of the Application Site and the surrounding areas.
- 5.25 National Landscape Character Areas (NLCAs) are countrywide and form the broad scale landscape character assessment of Wales. The Application Site and majority of the 5km study area falls within NLCA 37: South Wales Valleys; with the southernmost parts of the 5km study area falling within NLCA 36: Vale of Glamorgan and NLCA 35: Cardiff, Barry and Newport.
- 5.26 LANDMAP is an “all-Wales Geographical Information System (GIS) based landscape resource where landscape characteristics, qualities and influences on the landscape are recorded and evaluated into a nationally consistent dataset” (CCW (now NRW), 2011). It is administered by Natural Resources Wales (NRW) and comprises five spatially related datasets or aspect layers as follows:
- Geological Landscape: “considers the physical, primarily geological, influences that have shaped the contemporary landscape and identifies those landscape qualities which are linked to the control or influence exerted by bedrock, surface processes, landforms and hydrology”;
 - Landscape Habitats: “Focuses on recording habitat features, characteristics and their spatial relationships within the context of the wider landscape”;
 - Visual and Sensory: “Maps landscape characteristics and qualities as perceived through our senses, primarily visually. The physical attributes of landform and land cover, their visible patterns and their interrelationship”;
 - Historic Landscape: “Landscape characteristics that depend on key historic land uses, patterns and features. Identifies only those classes of historic land uses, patterns and features that are prominent and contribute to the overall historic character of the present landscape.”; and
 - Cultural Landscape: “Describes the links between landscape and people, from the way in which cultural, or human activity shapes the landscape, to the way in which culture shapes the way we respond to landscape. Focus is on mapping the landscape where it has been, or is being, shaped by a particular cultural activity or process, or where it has been directly represented, depicted or described in art, literature or folklore.”
- 5.27 The Visual and Sensory Dataset (2021) locates the Application Site predominantly within Aspect Area ‘CYNONVS572: Hendre’. The area is described as:
- “A rolling rural landscape with small/medium sized fields, predominantly grazing, defined by hedgerows with scattered blocks of broadleaf and mixed woodland, some with a slight parkland /estate feel... landform lies between approximately 40m and 100mAOD... scattered villages and farmsteads sit within this attractive rural landscape, slightly spoilt by the presence of intrusive/visually detractive elements e.g. M4, pylons, sharply defined urban edges. Boundary*

changes in all three areas at change detection, due to recent developments, on edge of Bridgend, at Llanilid/Bryncae, and at Church Village. Recent Church Village bypass through eastern polygon has altered views and perception of area, and reduced tranquillity.”

- 5.28 Overall, Aspect Area ‘CYNONVS572: Hendre’, is evaluated as Moderate.
- 5.29 There are two other Aspect Areas within which parts of the Application Site (cable route) sit. They include;
 - CYNONVS142: Mynydd y Glyn to the north of those parts of the Application Site which would contain solar panels and covering the central section of the cable route. Evaluated as Moderate overall; and,
 - CYNONVS709: Pontypridd which occupies the northernmost parts of the Application Site (cable route). Evaluated as Low overall.

Visual Resources

Zone of theoretical visibility

- 5.30 In order to further determine the geographical extent of potential visibility, a preliminary computer-generated Zone of Theoretical Visibility (ZTV) was generated (refer to Figure 2 within Appendix 6). The ZTV broadly defines the study area for both the landscape character and visual assessment. A 5 km radius study area is proposed for this assessment due to the overall size and height of the solar panels (a maximum of 3.2m above existing ground level (EGL). It is judged that any potentially significant landscape and / or visual effects would lie within this radius. Following field survey and analysis of existing barriers, the study area radius may be reviewed.
- 5.31 Currently, the proposed development would consist of static south facing PVs (finished height of a maximum 3.2m above existing ground level (EGL)). The preliminary ZTV was completed to show the worst-case for this option with the origin points at 3.2m above EGL. The ZTV was compiled assuming observer height as 1.5m at eye level and takes into account screening effects of local settlements at 9m and existing areas of substantial vegetation (woodland) at a height of 12m. Nineteen (19) origin points, from within the Application Site, have been used to establish the likely area from which views to the proposed development may be available. Each of these origin points are within the centre of each of the fields within the Application Site.
- 5.32 OS Terrain 5 data has been used to generate the ground model for the ZTV.

View Ranges

- 5.33 For the purposes of the LVIA Chapter, views would be classified according to three distance ‘ranges’ as set out in Table 5.1 below.

Table 5.1: View Ranges

Range	Distance Threshold	Reasoning Description
Close	Less than 1 km	At close range the project could appear as a ‘prominent’ feature and visual receptors could experience high to medium/low magnitude of change when compared to existing views.
Medium	Between 1 km and 3 km	In medium range views the project could appear as ‘present’ features and visual receptors could experience medium/low to negligible magnitude of change compared to the existing situation.
Long	More than 3 km	In long range views the project would read as part of the landscape and visual receptors would tend to experience a low to negligible or lower magnitude of change compared to the existing situation.

Candidate Viewpoints

- 5.34 A number of Candidate Viewpoints have been proposed, which are considered representative of key sensitive visual receptors within the 5km study area. An assessment of potential effects upon views from each viewpoint, as a result of the proposed development, would be completed (refer to Figure 2 in Appendix 6). These Candidate Viewpoints would be further refined following field work and will form the Representative Viewpoints to be assessed as part of the LVIA Chapter.
- 5.35 All Candidate Viewpoints are situated in publicly accessible locations within the extent of the ZTV, with a range of distances and orientation to the proposed development. They include a range of receptors of varying sensitivity. Photographs would be taken from each of the chosen Representative Viewpoints and illustrated in accordance with the Landscape Institute Technical Guidance Note 06/19, Visual Representation of Development Proposals (Landscape Institute, September 2019). Any additional photographs, taken during field survey, would be included for contextual purposes and / or alternative viewpoint locations if necessary.
- 5.36 Photographs would be taken during winter, so far as possible should the project programme allow, when vegetation is devoid of its leaf cover to show the worst-case scenario. Any assessment of effects upon summer views would be necessarily made using professional judgement. Table 5.2 below describes the location of the candidate viewpoints for this assessment.

Table 5.2: Candidate Viewpoints

No. / Name	Sensitivity	View Location Description
CV1: Maesmawr Road	Medium	Close distance view from the local road on the northern boundary to the Application Site, at the southern end of the cable route.
CV2: PRoW DRE/47/2	High	Close distance view from the public right of way on the northern boundary of the Application Site.
CV3: PRoW DRE/50b/1	High	Close distance view from the public right of way, to the immediate southwest of the Application Site.
CV4: Maesmawr Road	Medium	Close distance view from the local road to the south of the Application Site.
CV5: PRoW DRE/51/4	High	Close distance view from the public right of way to the southwest of the Application Site.
CV6: Unnamed Road between Efail Isaf and Garth Isaf Farm	Medium	Close distance view from the local road to the southwest of the Application Site.
CV7: PRoW DRE/64/1	High	Close distance view from the public right of way to the south of the Application Site.
CV8: Taff Ely Ridgeway Walk (Garth Hill)	High	Medium distance view from the public right of way / promoted walk, within registered Common Land, to the south of the Application Site.
CV9: Taff Ely Ridgeway Walk	High	Long distance view from the public right of way / promoted walk to the southwest of the Application Site.
CV10: Church Village (Central Park / PRoW DRE38/3)	High	Medium distance view from the public right of way within the publicly accessible recreation ground, to the northwest of the Application Site.
CV11: Unnamed Road / PRoW DRE/14/1	High	Medium distance view from the local road / public right of way, at the edge of Upper Church Village, to the northwest of the Application Site.
CV12: Penycodcae Road / PRoW ANT/195/1	High	Long distance view from the local road / public right of way to the northwest of the Application Site.
CV13: PRoW PON/111/3	High	Long distance view from the public right of way, within the residential development area of Rhydyfelin, to the north of the Application Site.

No. / Name	Sensitivity	View Location Description
CV 14: PRoW PON/11/1	High	Long distance view from the public right of way to the north of the Application Site.
CV 15: PRoW Eglwysilian Road / Rhymney Valley Ridgeway Walk	High	Long distance view from a local road, part of the public right of way / promoted walk (Rhymney Valley Ridgeway Walk), to the north of the Application Site.

Further visual assessment

- 5.37 Within 1km of the proposed development, a broad assessment of likely effects upon views for occupants of residential receptor groups, businesses/ places of work, users of roads and PRoWs, not covered by the Representative Viewpoints, would be completed. In some cases, given access restrictions, the baseline view and / or summary of effects upon these receptors would necessarily be estimated. However, an overview assessment of the likely effects of the operational phase of the proposed development upon views for these visual receptors would be given. This would include an overall assessment of the sequential effects upon views for users of the PRoWs and roads within the local vicinity of the Application Site.

Photomontages

- 5.38 To illustrate the proposed development, and once field work is completed, views from some of the Representative Viewpoint locations would be illustrated with a photomontage, should this be required. The viewpoints would likely be selected through further consultation with RCTCBC.

Proposed approach

Baseline studies

- 5.39 Baseline information on the landscape will be gathered through a combination of desk studies, consultation and field surveys. Documents used in the assessment may include aerial photographs, Ordnance Survey (OS) maps and published landscape character assessments.
- 5.40 Further to the Baseline Information described above, the baseline assessment within the final LVIA Chapter will also include an assessment of the effects of the proposed development upon the landscape character of the Application Site itself and its immediate surrounds. It will also include an assessment of the existing landscape character within the wider study area in terms of its value and its sensitivity to the proposed development. The studies will identify the landscape resources and character of the surrounding area and examine how the proposed development will affect individual landscape features, elements, characteristics and the wider landscape.
- 5.41 Field work will be undertaken to gain a better understanding of the landscape of the Application Site and surrounding area, to determine its character and condition and to identify visual receptors and the extent of available views. Field work will help to establish those landscape resources which combine to give the area its distinct sense of place. Further consultation would be sought from key statutory organisations/consultees where applicable.

Assessment of effects

- 5.42 The Landscape and Visual Impact Assessment (LVIA), undertaken as part of the Landscape and Visual Resources chapter, will identify and assess the likely significant effects that would arise as a result of the proposed development on the landscape (its fabric, character and elements) and upon views as experienced by receptors (people). The full methodology for the LVIA can be viewed within Appendix 6 of this ES Scoping Report. Please note this is written in the present tense as it will be included within the LVIA Chapter.

- 5.43 The LVIA will be based on the current published guidelines for landscape and visual assessment provided in:
- Guidelines for Landscape and Visual Impact Assessment: Third Edition (GLVIA) (Landscape Institute and Institute of Environmental Management & Assessment, 2013);
 - An Approach to Landscape Character Assessment, Natural England (2014);
 - Planning Policy Wales LANDMAP Guidance Note 1: LANDMAP and Special Landscape Areas (2016);
 - Planning Policy Wales LANDMAP Guidance Note 3: (2013): and
 - Technical Guidance Note 06/19, Visual Representation of Development Proposals (Landscape Institute, September 2019).
- 5.44 The sensitivity of landscape and visual receptors within the 5 km study area would be assessed (through the identification of the landscape resource's susceptibility to the proposed development/susceptibility of the visual receptor to change and value of the landscape resource/view), together with the predicted magnitude of impact on that receptor (through identification of the proposed development's size/scale, geographical extent and the duration and reversibility of effect). When combining sensitivity with magnitude of impact, a judgement will be made as to the significance of effect upon the landscape resource and/or view during the construction phase, the operational and maintenance phase, as well as the decommissioning phase of the proposed development.
- 5.45 Where appropriate, mitigation measures will be identified to avoid, where possible, or reduce any potential landscape and / or visual effects as a result of the proposed development.
- 5.46 The LVIA Chapter would include an assessment of cumulative effects within the study area and, within the same LANDMAP areas and from the same Representative Viewpoints where there would be potential inter-visibility between the cumulative site and the proposed development. Cumulative projects would include those with planning permission but yet to be constructed or within the planning system. It would not include development already constructed, such as the existing solar parks of Maes Bach Farm, to the south, or Berthlwyd Farm, to the northwest. These existing solar parks would be considered as part of the baseline to the assessment.
- 5.47 The LVIA chapter will include an assessment of effects of the proposed development (as detailed above) during construction, operation and decommission phases. For the assessment of the operational phase, the LVIA Chapter will include an assessment of the proposals during daytime only, at winter year 1, when all construction and mitigation planting is assumed complete, and during summer year 15 once all mitigation planting is assumed to have reached its design and screening intention. Field work would be completed during the winter season of 2021 / 2022 and therefore the assessment of effects at summer would be completed using professional judgement.

Issues proposed to be scoped out

- 5.48 We do not propose to undertake a Residential Visual Amenity Assessment (RVAA) or an assessment of likely night-time effects.

Chapter 6: Biodiversity

Baseline information

- 5.49 A Preliminary Ecological Appraisal of the area within the development red line boundary which included a Phase 1 habitat survey of the site and a desk study identifying designated sites within 2km (10km for international designations) of the red line application boundary has been undertaken and in Appendix 2.

- 5.50 GCN environmental DNA surveys were completed for all the accessible ponds within 250m of the development to assess the presence/absence of breeding populations. (Appendix 3).
- 5.51 Water vole surveys were undertaken for the on-site ponds, marshy grassland and small watercourse channels within and adjoining the site. (Appendix 3)
- 5.52 Surveys for signs of otter activity were undertaken around the ponds and along the watercourses (primarily located on the site boundaries) to assess their potential value as foraging habitat or resting places for otters.
- 5.53 Wintering bird survey was initiated in February 2021 and completed between November 2021 and January 2022. (Appendix 3)

Designations

- 5.54 There is one SPA, one SAC, and one Ramsar site within 10km of the site. The closest is Cardiff Beech Woods SAC located over 2.5km from the application site.
- 5.55 The site itself does not form any part of a statutory or non-statutory designated site but one Site of Importance for Nature Conservation (SINCs); The Willowford supporting blocks of ancient woodland) directly adjoins the eastern boundary and part of the northern boundary of the development.
- 5.56 Six further SINCs are located within 2km of the site; the closest being the River Taf lying within 1km to the east of the site beyond The Willowford designated site.

Habitats

- 5.57 The site can be broadly divided into an eastern section comprising short-grazed poor semi-improved grassland, with less improved margins with off-site semi-natural broadleaved woodland adjoining part of the site boundary.
- 5.58 The larger western section of the site is lower lying with wetter ground conditions. This part of the site is a mix of rush pasture with abundant soft-rush, tussocky semi-improved grassland and species-poor marshy grassland. Stands of purple moor-grass are very localised and sharp flowered-rush occurs locally within the marshy grassland.
- 5.59 The fields are bounded by hedgerows, some of which have signs of historic past management including laying and coppicing. Many hedgerows contained large semi-mature and mature trees. The hedge-based flora is typically species-poor. Dry ditches are located beneath or immediately adjacent to many of hedgerows with the channels being shallow sided and heavily shaded. A few ditch channels hold shallow running water in winter, but marginal aquatic vegetation was largely absent and many sections of channel with running water are shaded by trees.
- 5.60 A small block of broadleaved woodland lies within the application site while areas of dense scrub and bramble thicket are localised.
- 5.61 Each of the individual hedgerows is a Habitat of Principal Importance under Section 7 of the Environment (Wales) Act 2016. Species-rich hedgerows within the site may also be classified as 'Important' under the Hedgerows Regulations 1997. The small block of broadleaved woodland within the site also qualifies as a Habitat of Principal Importance under Section 7 of the Environment (Wales) Act 2016.
- 5.62 There are two man-made waterbodies within the site both of which have been created in low lying areas of marshy grassland. Emergent plants are largely absent with the exception of soft rush.

Species

Birds

- 5.63 The wintering bird survey recorded an assemblage of 43 species utilising habitats in the site and/or the wooded boundaries, of which 17 are classified as species of conservation concern (Birds of Conservation Concern Red and Amber List Wales and/or Species of Principal Importance).

- 5.64 The wintering bird assemblage comprises species that are primarily associated with hedgerows, trees and woodland with the vast majority of sightings were common species associated with both urban areas and rural landscapes.
- 5.65 Only a few farmland passerine species were recorded at the site. Most notably a large flock of 70 linnet were recorded feeding and roosting during the late winter bird survey visit. Flocks of wintering redwing (between 50 and 70) and starling are attracted to the site and surrounding area and were recorded throughout the winter period and were recorded on each visit in winter 2021/2022.
- 5.66 The other (BoCC) recorded on-site were all present in small numbers: bullfinch, reed bunting, and grey wagtail. Song thrush, mistle thrush, and dunnock are widespread species but classify as BoCC due to significant declines in their populations. All three were consistently recorded over wintering at the site. A single snipe was recorded in dense marshy grassland and a woodcock was flushed from the block of broadleaved woodland during one of the survey visits. No other wader species were recorded.

Water vole

- 5.67 Targeted surveys for water vole found no signs of activity and it is considered that this species is absent from the site.
- 5.68 The pond created in the last five years had some vertical bare earth banks but systematic searches found no water vole burrows, droppings or signs of foraging. The adjoining extensive marshy grassland is associated with small mammal activity but systematic transects through the habitat found no evidence of water vole activity. The ditches with running water have shallow banks, no stands of emergent vegetation and a minimal water depth and are not suitable habitat for water vole colonies.

Otter

- 5.68 No signs of otter activity were recorded within or alongside the watercourses, ditches or ponds. The ditch channels with shallow running water have negligible value for otter; lacking dense cover and being very sub-optimal foraging habitat.

Amphibians

- 5.69 The two ponds located within the site have limited potential to support breeding populations of great crested newts (GCN), with the Habitat Suitability Index classifying them as “Average”. The environmental DNA testing returned negative results indicating the absence of GCN from the ponds. The ponds have the potential to support other common amphibian species including common frog and smooth/palmate newts.

Reptiles

- 5.70 The closely grazed pasture fields, species-poor rush pasture and regenerating grassland lack of cover and would be expected to have a limited abundance of invertebrates.
- 5.71 The taller vegetation on the field boundaries alongside hedgerows, ditches provide areas of cover and potential foraging habitat for grass snake, slow-worm and/or common lizard. Localised areas of purple moor-grass create a dense tussocky sward of high potential value but these areas are too probably small and isolated to support a resident reptile population.
- 5.72 The wet marshy grassland field has moderate to high potential value as a foraging habitat for grass snake with this habitat and the adjoining ponds likely to support common amphibian species which would provide a source of prey for grass snake.

Badger

- 5.73 An outlier badger sett with single entrance was located at the base of a hedgerow, with vegetation growth indicating the sett is not currently active. A dead badger was found within the site during the

December 2021 wintering bird survey with the potential for it to have been a road casualty. The findings indicate that the site falls within the activity territory of a badger clan but with no active setts, latrines, or frequently foraging areas found within the site.

Bats

5.74 Mature and semi-mature trees present within hedgerows and adjoining habitats are of sufficient age and size to contain potential roost features to support bats. The site has potential to attract foraging bat species with features such as hedgerows, ditches and watercourses to be used as flight lines.

Dormouse

5.75 Most of the hedgerows in the western part of the site have continuous shrub or tree canopies with evidence of historic laying and coppicing management in the past. There is connectivity to off-site woodland to the north and the hedgerows within the site provide sufficient cover, structure and foraging opportunities for dormice. There are past dormouse records in the wider areas and the potential for this species to utilise habitat within the site.

Invertebrates

5.76 The improved grasslands and species-poor rush pasture that make up the majority of the site have limited potential value for invertebrates, including the marshy grassland which is species-poor and therefore unlikely to support priority species.

5.77 The habitats of highest invertebrate interest are the mature trees, hedgerows, and ponds. The extensive soft rush dominated marshy grassland may be associated with a higher abundance of invertebrates although the species diversity would be expected to be limited.

Proposed approach

Further Baseline studies

5.78 A breeding bird survey comprising a minimum of four survey visits will be completed in spring 2022 in advance of the planning application and will inform the impact assessment and mitigation proposals

Assessment of effects

5.79 The approach will follow the EclA methodology detailed in the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018). The ES chapter will determine the ‘importance’ of ecological features including key sites, habitats and species. The evaluation will specifically refer to:

- Statutory and non-statutory designated sites for nature conservation;
- Habitats of Principal Importance in Wales;
- Species of Principal Importance in Wales;
- Birds of Conservation Concern
- Red Data Book species

5.80 The approach will identify, qualify and, where possible, quantify the sensitivity, value and magnitude of all ecological receptors which cannot be scoped out of this assessment. Importance of each feature will be quantified in a geographic context.

5.81 The magnitude of an impact will be assessed in the context of the extent, duration, timing and frequency of the impact as well as recovery time and replaceability through restoration or compensation. This information will determine the significance of the impacts on each receptor.

- 5.82 The significance of the impact on each ecology feature will be derived from its value and the magnitude of effect. The assessment of potential impacts has been undertaken assuming implementation of embedded mitigation and commitments for the project.
- 5.83 The assessment of residual impacts will be made, based on the implementation of additional mitigation measures where required for construction operation and decommissioning.
- 5.84 Cumulative biodiversity effects resulting from the combination of effects from the Proposed Development and other developments will be assessed including improvements to the A483. The cumulative biodiversity effects will be considered together to ensure an overarching assessment of impacts on otter and GCN but will be partly dependent on the availability and accessibility of information for other developments
- 5.85 All habitats of potential value for bats and dormice within the development will be retained with stand offs/ buffer zones.

Scope of the assessment

- 5.86 The solar park is intrinsically a relatively low impact development with continued grazing of pasture fields below the installed panels alongside stand offs and buffer zones from field boundaries and trees. In the absence of mitigation, the following effects would be reviewed and scoped out where not relevant.

Construction including the cable

- Loss of improved and poor semi-improved grassland including species-poor rush pasture
- Loss marshy grassland including small patches of purple moor-grass
- Indirect effects on adjoining ancient woodland
- Indirect effects on the network of hedgerows and ditches
- Changes in water quality in wet ditches, ponds and watercourses
- Disturbance / displacement of breeding birds
- Effects on the use of the site by wintering birds
- Potential effects on reptiles
- Damage to the health of mature trees

Operation

- Change in context of retained grassland – shading
- Change in context of retained hedgerows and trees
- Effects on the water quality of waterbodies or watercourses

Decommissioning

- Habitat disturbance
- Re-instatement original land use
- Disturbance to species within or adjoining the site.

Issues to be scoped out

- 5.87 The retention and protection of hedgerows, trees, woodland and watercourses both within and adjoining the site will maintain the context of these habitats in the constructed solar park.

- 5.88 A minimum of 15m stand off will be created between the development and all adjoining areas of ancient woodland (designated as a LWS) to provide a wide buffer zone alongside high value woodland habitat.
- 5.89 Following the negative result from environmental DNA surveys of ponds there are no anticipated impacts on GCN and no species-specific mitigation / species protection.
- 5.90 The context of mature trees is to be protected. The alignment of the perimeter fence will be outside the root protection areas and canopy spread of trees to avoid root damage or the need to cut back branches and avoid the potential to effect features used by on bats. There will be no use of artificial lighting during construction or operation that could otherwise adversely affect the use the field boundary habitats and adjoining woodland.
- 5.91 Based on the proposed environmentally sensitive design, no adverse effects are anticipated on bat (both roosts and foraging habitat / flight lines), and dormouse.

Mitigation and Compensation

- 5.92 Some of the habitats within the site have the potential to support reptiles (grass snake, common lizard, and/or slow-worm), common amphibians and mammals including hedgehog. The impact on each species will be assessed in relation to the development proposal, layout and working methods. Precautionary working is to be adopted during construction on the assumption of the presence of these species where the habitats are suitable.
- 5.93 Standard construction control measures would be implemented to reduce the risk of contamination of land or water. Therefore, it is not anticipated that a significant impact on the ancient woodland, ditches with running water or ponds.
- 5.94 The indicative layout (circulated with the pre-application screening) is evolving to include land for biodiversity enhancement and stand offs. Part of the extensive area of species-poor marshy grassland will be subject to enhancement measures through the creation of micro-habitat modifications, supplementary seeding and ongoing management.
- 5.95 Additional areas of species-poor rush pasture and marshy grassland on the northern boundary of the site will also be subject to biodiversity enhancement through targeted actions and long term management.
- 5.96 Modifications to land management around the field margins will be designed to promote grassland structural diversity, to provide greater cover alongside hedgerows and increase the sources of pollen and nectar.
- 5.97 It is anticipated that the breeding bird survey being in spring 2022 will confirm the presence of ground nesting birds within the development footprint. Provision for nesting skylark would be made in selected fields through implementing a low intensity grazing regime to maintain a low tussocky grassland structure. The landscape scheme for the solar park will also include the provision of winter food resources for overwintering farmland birds.
- 5.98 Together the mitigation and enhancement measures have the potential to safeguard the existing biodiversity value of the solar park and deliver improvements through the diversification of grassland habitats through sensitive management.

Chapter 7: Cultural heritage

Baseline information

- 5.99 No archaeological or built heritage baseline studies have yet been completed for the Application Site, although an archaeological desk-based assessment and built heritage statement are planned to support an application and inform an ES chapter.

- 5.100 An initial search of accessible online sources has indicated there are no designated or undesignated archaeological heritage assets recorded within the application site. There are no designated or non-designated built heritage assets recorded within the application site.
- 5.101 Pre-application consultation with the Local Planning Authority and their archaeological/heritage advisors at Glamorgan-Gwent Archaeological Trust (GGAT) and Cadw, has elicited responses from those sources.
- 5.102 GGAT responded as follows:
- “We have consulted the regional Historic Environment Record (HER) and note the proposal is located in an area of archaeological potential. Previous archaeological work in the close vicinity of the proposal has identified historically significant hedgerows and field boundaries, Post-medieval farmsteads and mining activity. We note that in the pre-application letter by RPS dated 11th November 2021, it is proposed to submit a ‘Heritage and Cultural Archaeology report’, and we would agree that such an approach is appropriate. This would certainly be our recommendation and is in accordance with PPW and TAN 24.*
- The report will need to conform to the Standards and Guidance for historic environment desk-based assessment of the Chartered Institute for Archaeologists (CIfA) and to a methodology detailed in an agreed Written Scheme of Investigation (WSI).*
- It is our policy to recommend that all archaeological work is carried out by either a Registered Organisation (RO) with CIfA, or by a full Member (MCIfA) of CIfA”.*
- 5.103 Cadw provided a detailed response and considered that the application was inadequately documented to date. They identified a large number of designated heritage assets, both archaeological and built heritage, which could potentially be affected by the development. They identified that no designated heritage assets would be directly impacted by the proposals, but that impacts are more likely to be on the settings of heritage assets. Cadw considered that a 5km radius from the proposed development boundary would be an appropriate distance to consider impacts on settings.
- 5.104 Cadw listed 23 Scheduled Monuments, 2 Registered Parks and Gardens, and 177 listed buildings within 5km of the development site boundary. Cadw continued to state:
- “The above designated historic assets are located inside 5km of the proposed development, but there will not be a direct impact on them, although there could be an effect on their settings. The applicant is proposing to commission a heritage and cultural archaeology report to accompany the planning application. This report should assess any impact on the settings of these designated historic assets following the Welsh Government guidance given in the document “The Setting of Historic Assets in Wales”. It is expected that a stage 1 assessment should be carried out for all of the above designated heritage assets, which will determine the need, if necessary, for stages 2 to 4 to be carried out for specific heritage assets. The results of the stage 1 assessment should be included in the report, possibly as an appendix, in order to evidence that the possible impact on the setting of the designated historic assets has been fully considered.”*
- 5.105 The pre-application submission indicated that a Historic Environment Desk-based Assessment would be prepared to support the application. It was envisaged that this assessment would combine a study of the archaeological potential within the application site, any impacts on the settings of designated archaeological heritage assets, and any impacts on the settings of designated built heritage assets. It was considered that a 3km search radius would be sufficient.
- 5.106 Given the large number of designated heritage assets that need to be considered, it would be more appropriate to separate baseline archaeological assessment from built heritage assessment, and therefore it is now proposed to prepare the following baseline studies, both in support of any non-EIA application, and to inform any ES chapter on cultural heritage:
- An Archaeological Desk-Based Assessment;

- A Built Heritage Statement.

5.107 These reports will be prepared in accordance with the guidance and best practice outlined by Cadw and GGAT in their pre-app responses.

Proposed approach

Baseline studies

Archaeology

5.108 An archaeological desk-based assessment will be prepared. This would allow for assessment of non-designated archaeological heritage assets within the site and a 1 km radius, and of designated assets within a 5 km radius. This would comprise the following activities

- Initial discussion with GGAT to determine final scope of works, e.g. search radii for different classes of asset, and preparation and approval of a Written Scheme of Investigation for the desk-based assessment
- Discussion/liaison as required with Cadw;
- Examination of data in the GGAT Historic Environment Record (HER);
- Examination of data in the National Monuments Record for Wales;
- Examination of aerial photographs in the Central Register for Aerial Photographs in Wales (Cardiff);
- Examination of historic maps and other data in the Glamorgan Archives (Cardiff);
- Examination of open-source LiDAR data;
- Visit to GGAT HER and planning archaeologists;
- Assessment of potential impacts via use of a Zone of Theoretical Visibility (ZTV) model;
- Site walkover survey and visits to heritage assets in the surrounding landscape as appropriate within agreed radius;
- Preparation of a fully illustrated report to Chartered Institute for Archaeologists' standard, which also conforms to the Guidance for the Submission of Data to the Welsh Historic Environment Records 2018, and the RCAHMW Guidelines for Digital Archives 2015 (including Welsh translation of report summary).

5.109 The methodology used will be as outlined by the Chartered Institute for Archaeologists Standard and Guidance for Historic Environment Desk-Based Assessment (2017). Potential impacts on settings of heritage assets will be made with reference to the Cadw Setting of Historic Assets in Wales (2017) guidance. Guidance outlined in Technical Advice Note TAN 24: The Historic Environment and Planning Policy Wales Edition 11 will also be considered in the assessment of impacts.

Built Heritage

5.110 A built Heritage Assessment will be prepared. This would allow for assessment of non-designated built heritage assets within the site and a 1km radius, and of designated assets within a 5km radius. This would comprise the following activities:

- Discussion/liaison as required with Cadw;
- Examination of data in the GGAT Historic Environment Record (HER);
- Examination of data in the National Monuments Record for Wales;

- Examination of historic maps and other data in the Glamorgan Archives (Cardiff);
- Assessment of potential impacts via use of a Zone of Theoretical Visibility (ZTV) model;
- Site walkover survey and visits to heritage assets in the surrounding landscape as appropriate within agreed radius;
- Preparation of a fully illustrated report to Chartered Institute for Archaeologists' and Institute for Historic Building Conservation standards, which also conforms to the Guidance for the Submission of Data to the Welsh Historic Environment Records 2018, and the RCAHMW Guidelines for Digital Archives 2015 (including Welsh translation of report summary).

5.111 The baseline studies will be carried out in accordance with standards and guidance provided by the relevant bodies, such as Cadw, GGAT, the Chartered Institute for Archaeologists (CIfA) and the Institute of Historic Building Conservation (IHBC).

Future Baseline

5.112 The current baseline scenario has been outlined above. The application site currently comprises a number of parcels of agricultural land used for a mix of pasture and arable purposes. No heritage assets are recorded within the application site.

5.113 In terms of the future baseline, it is considered that without the implementation of the project the application site would remain in use as agricultural land. If any hitherto unknown archaeological receptors are present, the likely evolution of the current archaeological environment would include the unrecorded loss of any such archaeological receptors on the application site through continued agricultural practices.

Assessment of effects

5.114 There is no definitive industry standard methodology published for the assessment of heritage assets in EIAs. It is proposed to use the guidelines set out in the Design Manual for Roads and Bridges, particularly LA106 Cultural Heritage Assessment (updated Jan 2020) and LA104 Environmental Assessment and Monitoring (Revision 1 August 2020). All archaeological and built heritage assets identified will be categorised in terms of their value and sensitivity in accordance with these guidelines.

5.115 The assessment will identify and evaluate the nature and likelihood of the impacts of the proposed development, both during construction and on completion, on archaeological and built heritage assets against clearly defined criteria. Significance will be assigned to impacts relative to the sensitivity of the resource and the magnitude of effect in accordance with good practice.

5.116 Archaeological resources are susceptible to a range of impacts during development. These relate to works associated with site preparation as well as construction related activities, including, for example:

- Demolition and site clearance activities, e.g. for constructing access roads;
- Excavation that extends into archaeological sequences, such as deep foundations, cable trenches;

5.117 In terms of effects on built heritage resources; these can be direct, for example resulting from loss or damage to historic fabric, or indirect through changes to their settings. The assessment of impact on the setting of heritage assets will be carried out in full accordance with the guidance contained within Setting of Historic Assets in Wales (Cadw 2017).

5.118 Once impacts have been identified, the means by which they can be mitigated through design will be explored and appropriate mitigation measures will be identified and incorporated into the proposals. The residual impacts following the implementation of these measures will then be defined and significance criteria applied.

5.119 The magnitude of impact is assessed by taking into consideration the extent/proportion of the asset affected, its type, its existing degree of survival/condition, and its potential amenity value. In considering these factors, the criteria for assessing the magnitude of predicted change on cultural heritage assets will be as follows (subject to chapter terminology styles and LPA approval):

Magnitude	Typical Descriptors
<i>High</i>	<i>Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements (Adverse).</i>
	<i>Large scale or major improvement of resource quality; extensive restoration or enhancement; major improvement of attribute quality (Beneficial).</i>
<i>Medium</i>	<i>Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements (Adverse).</i>
	<i>Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).</i>
<i>Low</i>	<i>Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse).</i>
	<i>Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).</i>
<i>Negligible</i>	<i>Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse).</i>
	<i>Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).</i>
<i>No change</i>	<i>No loss or alteration of characteristics, features or elements; no observable impact in either direction.</i>

5.120 The sensitivity of the receiving environment, together with the magnitude of change, defines the significance of effects. Effects of 'moderate' or 'major/substantial' significance are considered to equate to significant effects highlighted in the context of EIA Regulations. The criteria for assessing significance of effect are outlined below (subject to chapter terminology styles and LPA approval):

Sensitivity	Magnitude of Impact				
	No Change	Negligible	Low	Medium	High
Negligible	No change	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	No change	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	No change	Negligible or Minor	Minor	Moderate	Moderate or Major
High	No change	Minor	Minor or Moderate	Moderate or Major	Major or Substantial
Very high	No change	Minor	Moderate or Major	Major or Substantial	Substantial

5.121 Cumulative effects will be measured against an agreed list of developments in the local area which may have potential effects on the same receptors as the proposed development.

Scope of the assessment

5.122 The value of the historic environment and the contribution it makes to our cultural, social and economic life is acknowledged by the Welsh Government in their published legislation and guidance. The Cultural Heritage chapter for the ES, covering both archaeological and built heritage

considerations, will assess the value and sensitivity of heritage assets within and adjacent to the proposed development and consider the effect of the proposed development on these assets' value and sensitivity. This will include full consideration of the assets' settings, where relevant. The aim of the assessment will be to identify, as far as is reasonably possible, the nature of the archaeological and built heritage resource within the application site and its surroundings, to assess the value and sensitivity of all relevant features or assets. The assessment will include appropriate mitigation measures and provide for the future treatment of any assets or their settings where they are likely to be affected by the proposed development.

- 5.123 This appraisal will be placed in the local, regional and national context, and assessed against appropriate national criteria and in line with relevant guidance. The Cultural Heritage Chapter will be written by RPS, and any supporting fieldwork will be managed by RPS.

Issues proposed to be scoped out

- 5.124 No issues to be scoped out.

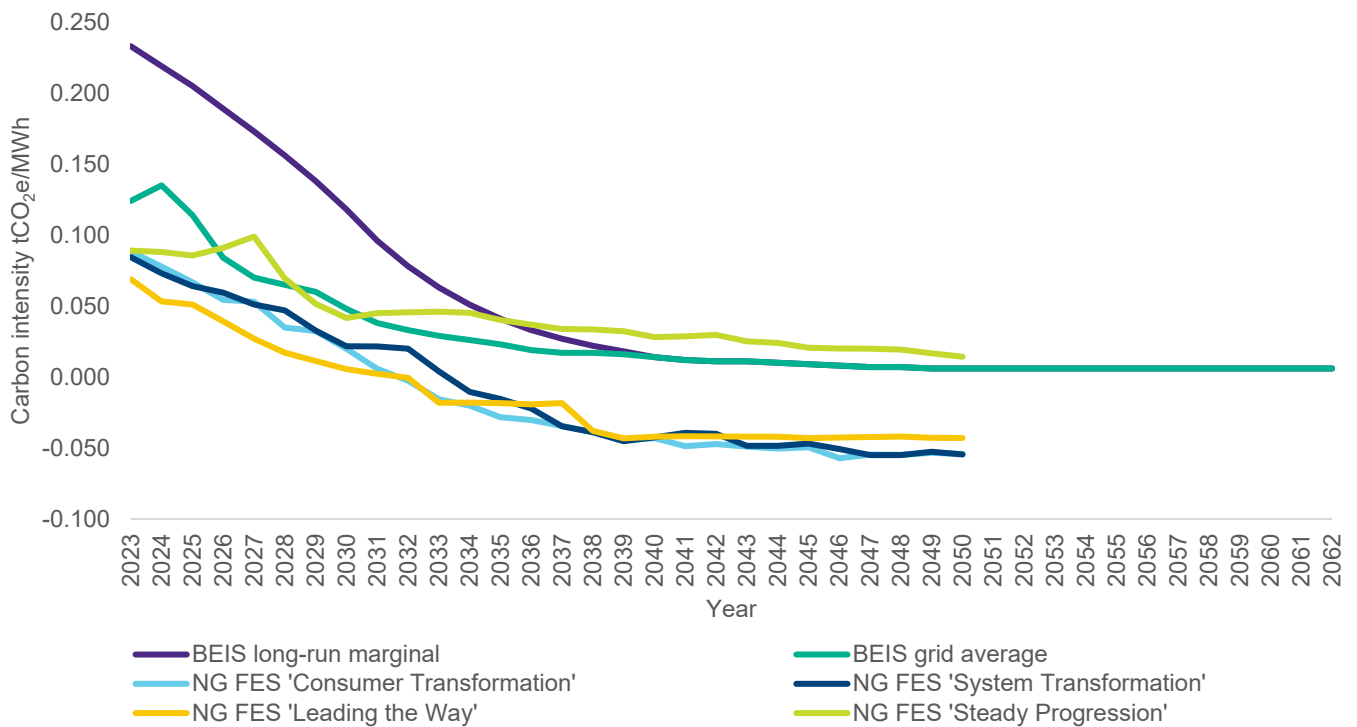
Chapter 8: Climate change

- 5.125 This section of the scoping report considers the assessment of potential impacts on and due to climate change. Climate change here is considered in terms of the impact of greenhouse gas emissions (GHGs) caused directly or indirectly by the proposed development, which contribute to climate change. The potential impact of changes in climate to the development, which could affect it directly or could modify its other environmental impacts, are proposed to be scoped out of the assessment, with the exception of the likely changes to cloud cover over its expected lifetime (explained in greater detail in paragraph 5.135).

Baseline information

- 5.126 The current baseline for land that would be taken by construction of the proposed development is the existing agricultural land-use. However, installing solar panels above ground on agricultural land will not cause any disturbance to significant soil or vegetation carbon stocks and GHG emissions from the existing land-use are not therefore considered further.
- 5.127 The current baseline for electricity generation in the operational phase of the proposed development, with regard to GHG emissions, is the equivalent level of electricity generation from alternative sources connected to the electricity grid. The current average carbon intensity of electricity generation on the UK National Grid is 0.21233 kgCO₂e/kWh in the present-day baseline.
- 5.128 Potential scenarios for the future baseline of electricity generation are shown in Figure 5.1, which displays the carbon intensity of future marginal electricity generation projected by BEIS (as generated from alternative sources, in the absence of generation capacity provided by the proposed development). For means of comparison, the figure also displays the projected grid-average carbon intensity and the National Grid's 'Future Energy Scenarios' projected grid carbon intensities.
- 5.129 In most of these scenarios a rapid and sustained decarbonisation of baseline electricity generation is projected; in certain scenarios, the negative values are projected in this sector (i.e. from carbon capture and storage) in order to deliver 'net zero' for the UK economy as a whole.

Figure 5.1: Projected carbon intensity of electricity generation



5.130 The current climatic conditions baseline is established by meteorological records for the area of the proposed development. The potential future climatic baseline can be considered using the 'UKCP18' projections published by the Met Office Hadley Centre, which encompass the potential climatic outcomes in the UK from a range of potential global emissions and climate change scenarios.

Proposed approach

- 5.131 GHG emissions would contribute to the effect of global climate change. Assessment guidance from (IEMA, 2022) describes five levels of significance for emissions resulting from a development, each based on how the project contributes towards achieving net zero by 2050. To aid in considering whether effects are significant, the guidance recommends that resultant GHG emissions should be contextualised against pre-determined carbon budgets, or emerging policy and performance standards where a budget is not available. It is a matter of professional judgement to integrate these sources of evidence and evaluate them in the context of significance.
- 5.132 The proposed approach for assessing the impacts on climate change from the proposed development will take a life-cycle approach, considering the manufacturing-stage emissions and the benefits of renewable energy generation in operation compared to a future baseline.
- 5.133 The embodied carbon of the proposed development will be assessed using published literature values from lifecycle studies. This is likely to include manufacturing, transport, installation, maintenance and end of life for the PV modules, and balance of system components (primarily inverters, transformers and cabling).
- 5.134 GHG emission reductions from operation of the PV system will be assessed based on the carbon intensity of the alternative marginal generator that is displaced, i.e., the generator that would have been supplying the grid with electricity in the absence of the proposed development.
- 5.135 As set out below, no significant adverse effects due to climate risks to the proposed development are considered likely, with the potential exception of flooding. Assessment of climate risks is therefore proposed to be scoped out of the assessment. However, the potential effect on power

generation from changes in sunlight hours or cloud cover will be considered based on the UKCP18 projections.

Baseline studies

5.136 The sources of data concerning the present and future baseline have been described above, and no baseline surveys will be required.

Assessment of effects

5.137 The magnitude of impact will be expressed as tonnes of carbon dioxide equivalent (tCO₂e), using 100 year global warming potential values for non-CO₂ GHGs from the Intergovernmental Panel on Climate Change’s Sixth Assessment Report or as otherwise defined in literature sources used.

5.138 The sensitive receptor will be defined as the global atmospheric concentration of GHGs and it will be characterised as having a ‘high’ sensitivity, given the severe consequences of climate change and cumulative contributions of other sources.

5.139 The IEMA guidance referenced above states that a development’s GHG impacts should be contextualised, for example on a sectoral basis or compared to the UK’s national carbon budget, to determine whether a project’s carbon footprint will support or undermine a trajectory towards a science-based 1.5°C compatible trajectory towards net zero.

5.140 It is considered that broadly speaking, the significance of the proposed development’s GHG emissions can be contextualised in the following ways:

- with reference to the absolute magnitude of net GHG emissions as a percentage of applicable carbon budgets at the UK, Wales and local authority scale;
- through considering any increase/reduction in absolute GHG emissions and GHG intensity compared with baseline scenarios, including projections for future changes in those baselines; and/or
- with reference to whether the proposed development contributes to and is in line with the UK’s national carbon budget sectoral goals for GHG emissions reduction, which are consistent with science-based commitments to limit global climate change to an internationally-agreed level.

5.141 Taking these factors into account, effects may be described as: major adverse, moderate adverse, minor adverse, negligible, or beneficial. Minor adverse and negligible effects are considered to be non-significant, the remaining levels of effect (major adverse, moderate adverse, minor adverse), are all considered to be significant. The evaluation of significance will be carried out in accordance with the guidance, which will include the application of professional judgement to contextualise and determine levels of significance in a way that makes clear the relationship between the project’s carbon footprint and compliance with the Paris Agreement’s 1.5°C target.

Scope of the assessment

5.142 The scope of the assessment is the impact of life-cycle GHG emissions from solar farm, relative to the future baseline of displaced electricity generation.

5.143 Potential changes in generating capacity of the PV system due to climatic changes during the proposed development’s operational lifetime (i.e., cloud cover or sunlight hours) will also be considered using UKCP18 projections.

Issues proposed to be scoped out

5.144 Risks to the proposed development from climate change proposed to be scoped out of Chapter 8: climate change, as these are not considered likely to be significant during the development’s operating lifetime.

- 5.145 Potential risks that have been evaluated are increased rainfall (and corresponding flood risk), increased likelihood of extreme weather events, and increased ambient temperature (with resulting PV module efficiency losses).
- 5.146 Flood risk will be assessed, with appropriate climate change allowance, in the Flood Risk Assessment for the proposed development.
- 5.147 Extreme weather events such as storms with high winds are also possible in the existing baseline and the proposed development's design will need to account for this. It is not considered that the potential for any increase in frequency or severity over the development's lifetime, due to climate change, could cause significant environmental effects.
- 5.148 The potential for small system efficiency losses due to hotter temperatures during the development's lifetime are not considered to have any potential to significantly affect the lifecycle GHG emissions and thus significantly reduce the environmental effect of the renewable electricity generation.

Chapter 9: Cumulative effects

- 5.149 As set out in Section 3 of this report, each topic chapter will consider the potential for significant cumulative effects with other major proposed developments. Other developments considered within the cumulative assessment include those that are:
- Under construction;
 - Permitted, but not yet implemented;
 - Submitted, but not yet determined; and
 - Identified in the Development Plan (and emerging Development Plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited.
- 5.150 At the time of writing this scoping, no cumulative developments have been identified as part of the pre-application discussions with the Council.
- 5.151 Comments are invited on whether there are any developments that should be included and a list and the extent to which allocations from neighbouring authorities may need to be considered.
- 5.152 Each topic author will review the overall list of developments and allocations and identify those relevant to their topic. The chapter will include an assessment of the potential for significant cumulative effects with the relevant developments.

6 REFERENCES

BEIS (2021): Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal. Electricity emissions factors to 2100. [Online] Available at:

<https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal> accessed: 7/2/2021

BEIS and Defra (2022): UK Government GHG Conversion Factors for Company Reporting, v1.0; including fuel supply-chain emissions and as-generated (excluding transmission and distribution losses). [Online] Available at: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021> accessed: 7/2/2021

Environment Agency and Met Office (2018): UK Climate Projections project (UKCP18). [Online] Available at: <https://ukclimateprojections-ui.metoffice.gov.uk>. Accessed: 7/2/2021

Institute of Environmental Management and Assessment (IEMA) (2022) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. *2nd Edition*. [Online] Available at: <https://www.iema.net/resources/blog/2022/02/28/launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions> :accessed: 2/3/2022

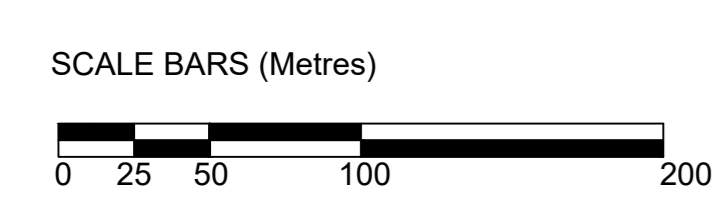
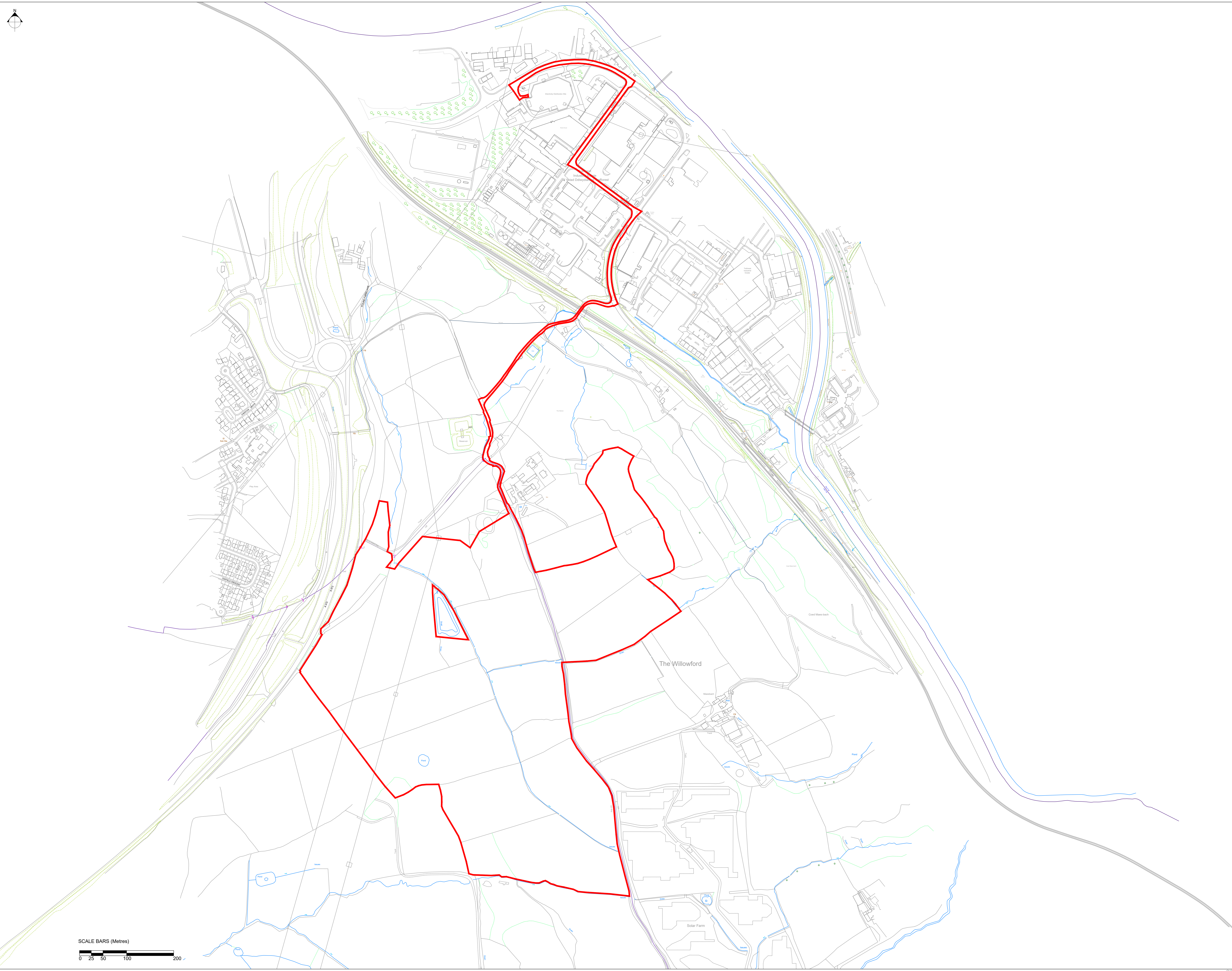
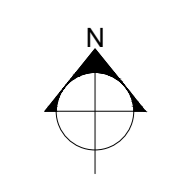
IPCC, 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press. In Press.

NationalgridESO (2021): Future Energy Scenarios. [Online]. Available at:

<https://www.nationalgrideso.com/future-energy/future-energy-scenarios/fes-2021/documents> accessed: 7/2/2021



FIGURES



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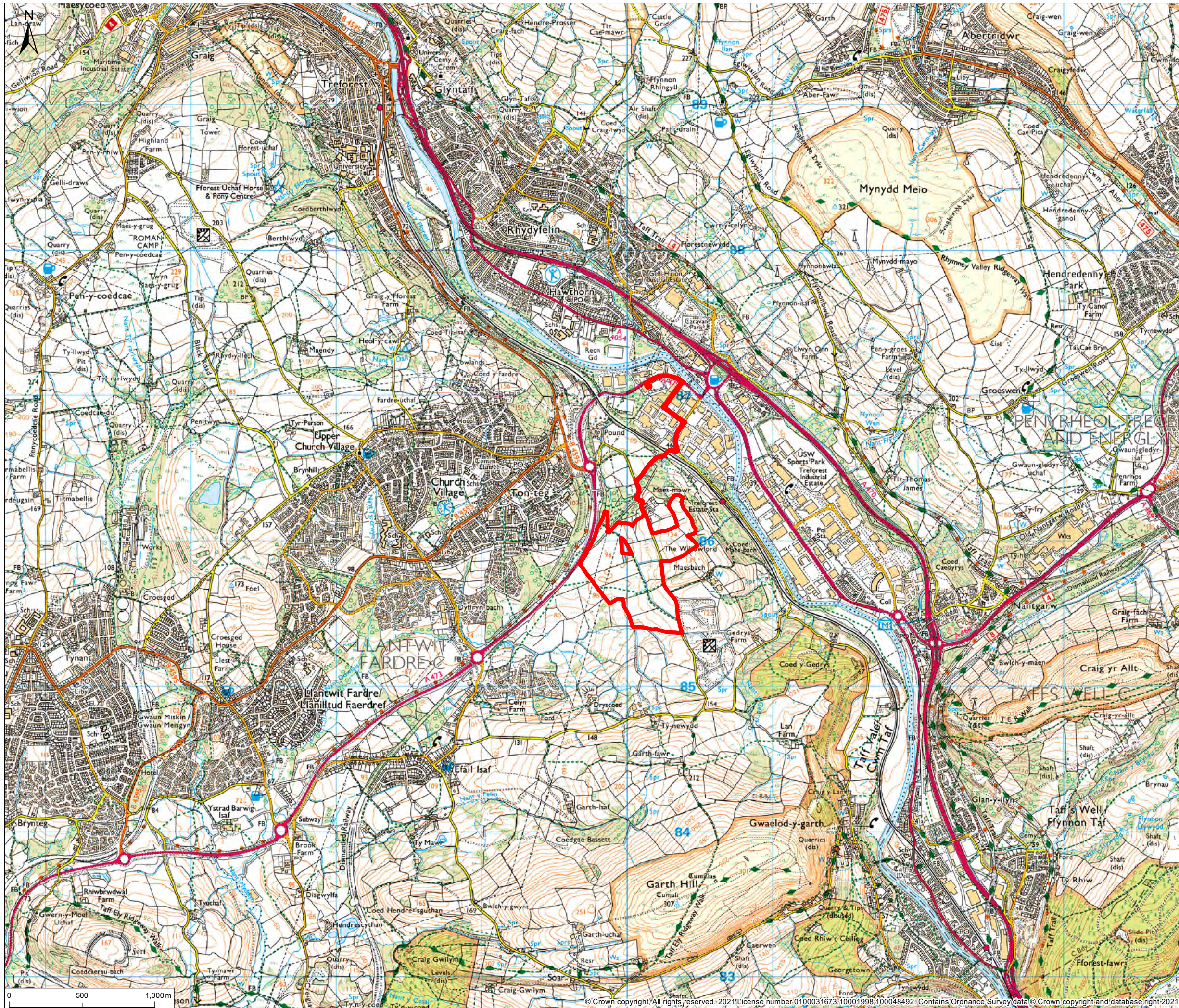
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Job Ref	Scale @ A0	Date Created
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RPS Drawing/Figure Number	Rev
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Legend

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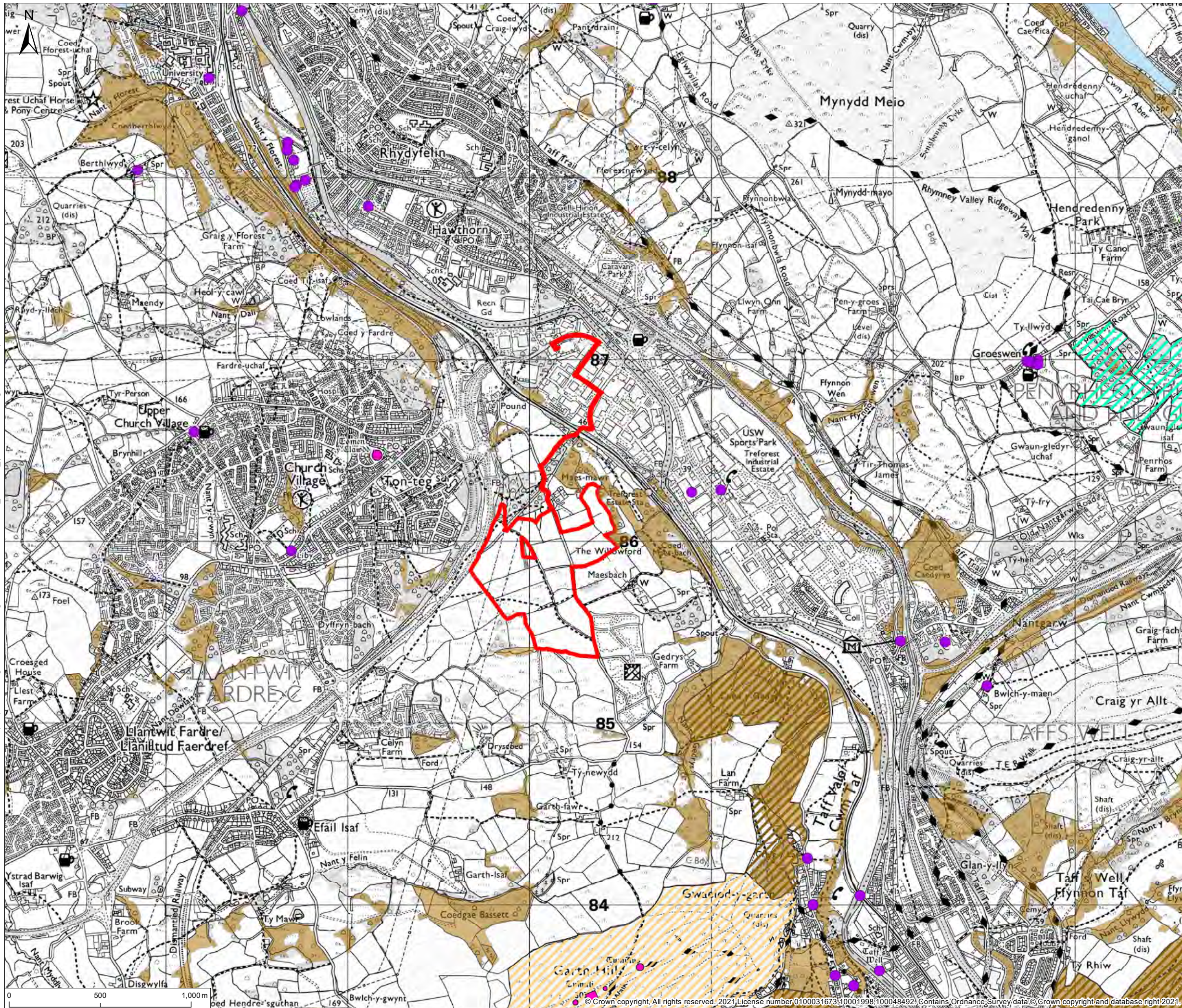
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- Legend**
- Site Boundary
 - Listed Buildings
 - SSSI
 - Schedule Ancient Monument
 - Ancient Woodland
 - Common Land
 - NRW CROW Dedicated Land
 - NRW Open Country Land

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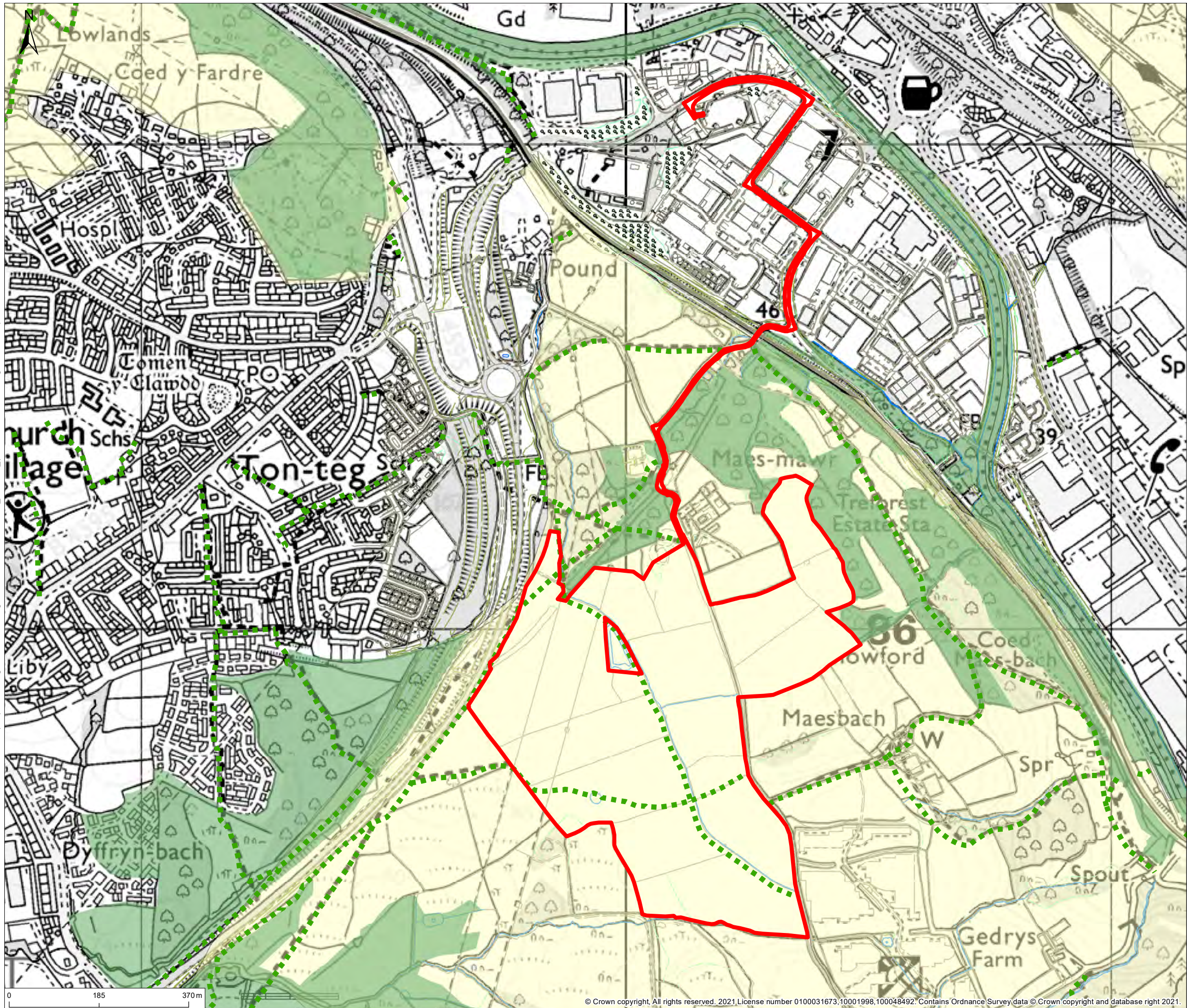
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Project Number	Scale @ A3	Date Created
JPW1546	1:20,000	NOV 2021
Drawing Number		Rev
JPW1546-DNS-005		-

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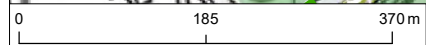
- Site Boundary
- Footpath
- SINC
- Special Landscape Areas

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 Project **MAES MAWR SOLAR FARM**
 Title **LOCAL DESIGNATION PLAN INCLUDING PUBLIC RIGHTS OF WAY**
 Status **DRAFT** Drawn By **GG** PM/Checked By **AL**
 Project Number **JPW1546** Scale @ A3 **1:7,500** Date Created **NOV 2021**
 Drawing Number **JPW1546-DNS-006** Rev **-**

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APPENDICES

Appendix 1

RCT Pre-application response together with some of the consultee responses

Appendix 2

Preliminary Ecological Appraisal

Appendix 3

Phase 2 Survey Report

Appendix 4

Phase One Desktop Study (DTS) and Preliminary Risk Assessment (PRA)

Appendix 5

Coal Mining Risk Assessment

Appendix 6

LVIA Appendix information

Appendix 7

Agricultural Land Classification Report