LLANWONNO ENERGY PROJECT

Environmental Statement

Non-Technical Summary

March 2025

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Glossary

Term	Meaning
Baseline	The status of the landscape without the Proposed Development in place.
Conservation Area	An area of special architectural or historic interest, the character of which it is desirable to preserve or enhance.
Construction	Any activity involved with the provision of a new structure (or structures), its modification or refurbishment. A structure will include a residential dwelling, office building, retail outlet, road, etc.
Impact	Change that is caused by an action/proposed development, e.g., land clearing (action) during construction which results in habitat loss (impact).
Infrastructure	This is used to describe the various elements of the Proposed Development that require construction activities, both temporary and permanent; including turbines, hard standings and tracks (where new or existing road widened).
Landscape	An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors.
Llanwonno Energy Project	The energy project located south of Llanwonno, which comprises wind turbines and solar photovoltaic array with a combined installed generation capacity of approximately 61 MW, Battery Energy Storage System (BESS), cable route and ancillary development (referred to as the “Proposed Development).
Mitigation	Measures to avoid, prevent, reduce or control effects on the environment.
Public Right of Way	A Public Right of Way is a right by which the public can pass along linear routes over land at all times.
Site of Importance for Nature Conservation (SINC)	Sites of Importance for Nature Conservation (also known as Wildlife Sites) are non-statutory sites of nature conservation value that are designated locally on biological and/or geological grounds.
Substation	Part of an electrical transmission and distribution system. Substations transform voltage from high to low, or the reverse by means of electrical transformers.
The Applicant	The Applicant refers to Cenin Renewables Limited.
The Site	The area within which the elements of the Proposed Development are located, including the areas required on a temporary basis during construction or decommissioning.

Abbreviations/ Acronyms

Abbreviation	Meaning
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CDM	Construction Design and Management
DNS	Development of National Significance
EIA	Environmental Impact Assessment
ES	Environmental Statement
FCA	Flood Consequence Assessment
GRP	Glass Reinforced Plastic
HGV	Heavy Goods Vehicle
HSE	Health and Safety Executive
LDP	Local Development Plan
LGV	Light Goods Vehicle
LPA	Local Planning Authority
LVIA	Landscape and Visual Impact Assessment
PAC	Pre-application Consultation
PEDW	Planning Environment Decisions Wales
PV	Photovoltaic
PRoW	Public Right of Way
RCTCBC	Rhondda Cynon Taf County Borough Council
SINC	Site of Importance for Nature Conservation
SWMP	Site Waste Management Plan

Units

Unit	Description
%	Percentage
m	Metre
km	Kilometre
Ha	Hectares

Unit	Description
ft	Feet
MW	Megawatt(s)

1 Introduction

1.1 This Non-Technical Summary (NTS) has been prepared by RPS on behalf of Cenin Renewables Limited "Cenin" (the Applicant). The Environmental Statement (ES) sets out the findings of the Environmental Impact Assessment (EIA) process and accompanies the application for a Development of National Significance (DNS) to the Planning and Environment Decisions Wales (PEDW) for the development of the Llanwonno Energy Project (referred to hereafter as 'the Proposed Development').

1.2 The Proposed Development is located to the north east of Porth, south of Llanwonno, which lies approximately 5 km from Pontypridd. The Proposed Development lies within the administrative boundary of Rhondda Cynon Taff County Borough Council. A location plan is shown in **Figure 1**.

1.3 The Proposed Development comprises the construction, operation maintenance and decommissioning of eight electricity generating wind turbines and a solar photovoltaic array with a combined installed generation capacity of approximately 61 Megawatts (MW). The Proposed Development will also include a Battery Energy Storage System (BESS), cable route and associated ancillary development and would be distributed across approximately 112.4 hectares (ha) of land ('the Site').

1.4 The Proposed Development would include the following components:

- Wind turbines
- Access tracks and turning heads
- Construction Material
- Temporary construction compounds and holding areas
- Crane pads
- Glass Reinforced Plastic (GRP) Substation and Control Building
- Solar panels and mounting structures
- Inverters
- Transformers
- Cabling
- Battery storage units
- Battery interface cabinets.

1.5 Further detail on these main components is provided in Section 2 of the NTS.

The Site and Surrounding Area

1.6 The Site comprises land to the north east of Porth, south of Llanwonno, which lies approximately 5 km from Pontypridd within the administrative boundary of Rhondda Cynon Taf County Borough Council (RCTCBC). The Site is

approximately 112.4 hectares (ha) and consists of several parcels of land. The Site is currently used for semi-improved pasture in an extensive pattern of irregularly shaped large fields.

1.7 The Site is located approximately 270 m east of the consented Llwyncelyn Wind Project which comprises two turbines (application reference: 15/1635/FUL, approved in 2017). Installation of the Llwyncelyn Wind Project has commenced with construction to be completed by mid-2025.

1.8 The location and geographic extent of the Site is provided in in **Figure 1**.

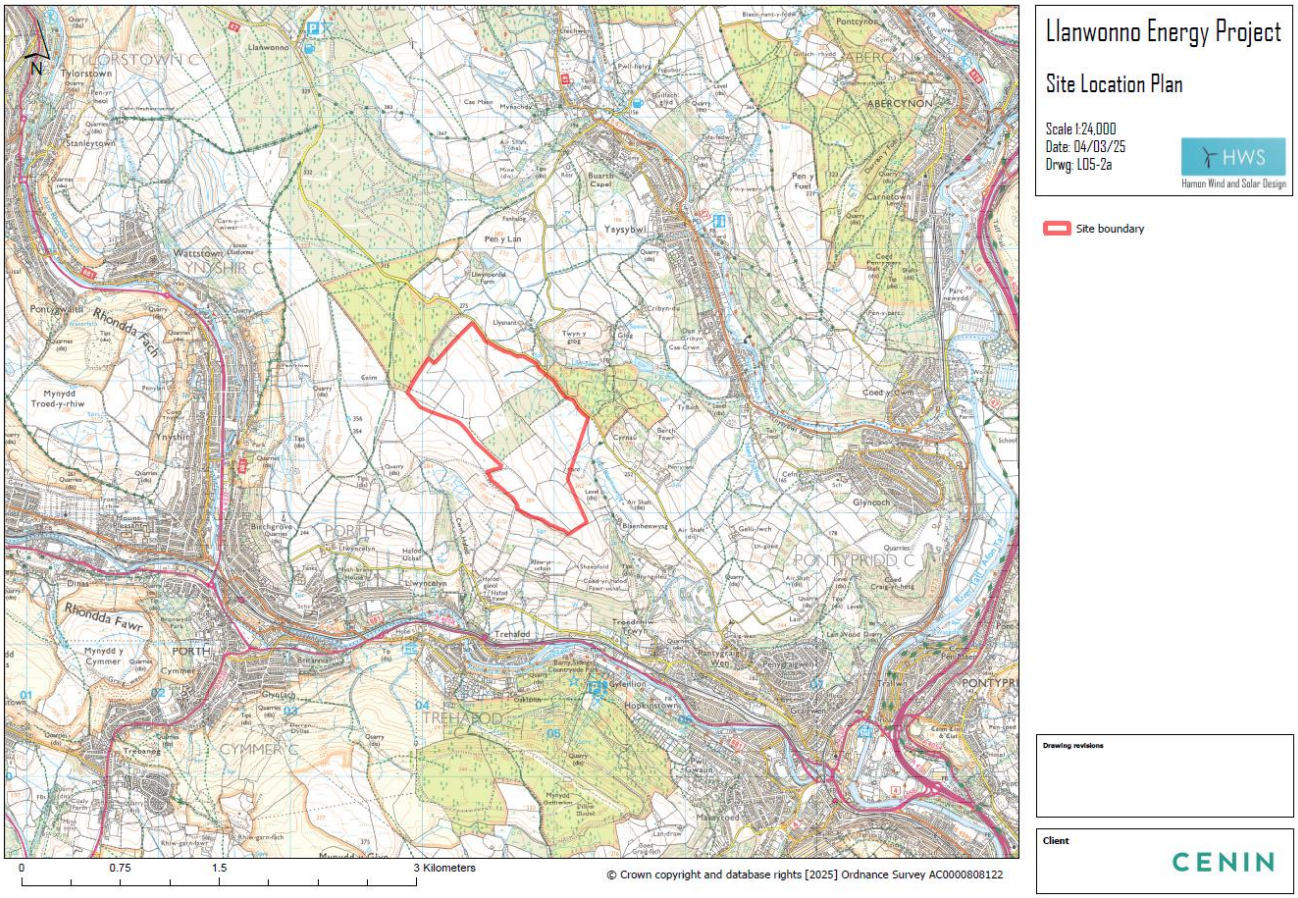

Figure 1: Site Location Plan

2 Project Description

2.1 The Proposed Development comprises the construction and operation of up to eight wind turbines and solar PV panels with battery storage facility and associated infrastructure/hardstanding.

2.2 The Proposed Site layout is shown on **Figure 2** below.

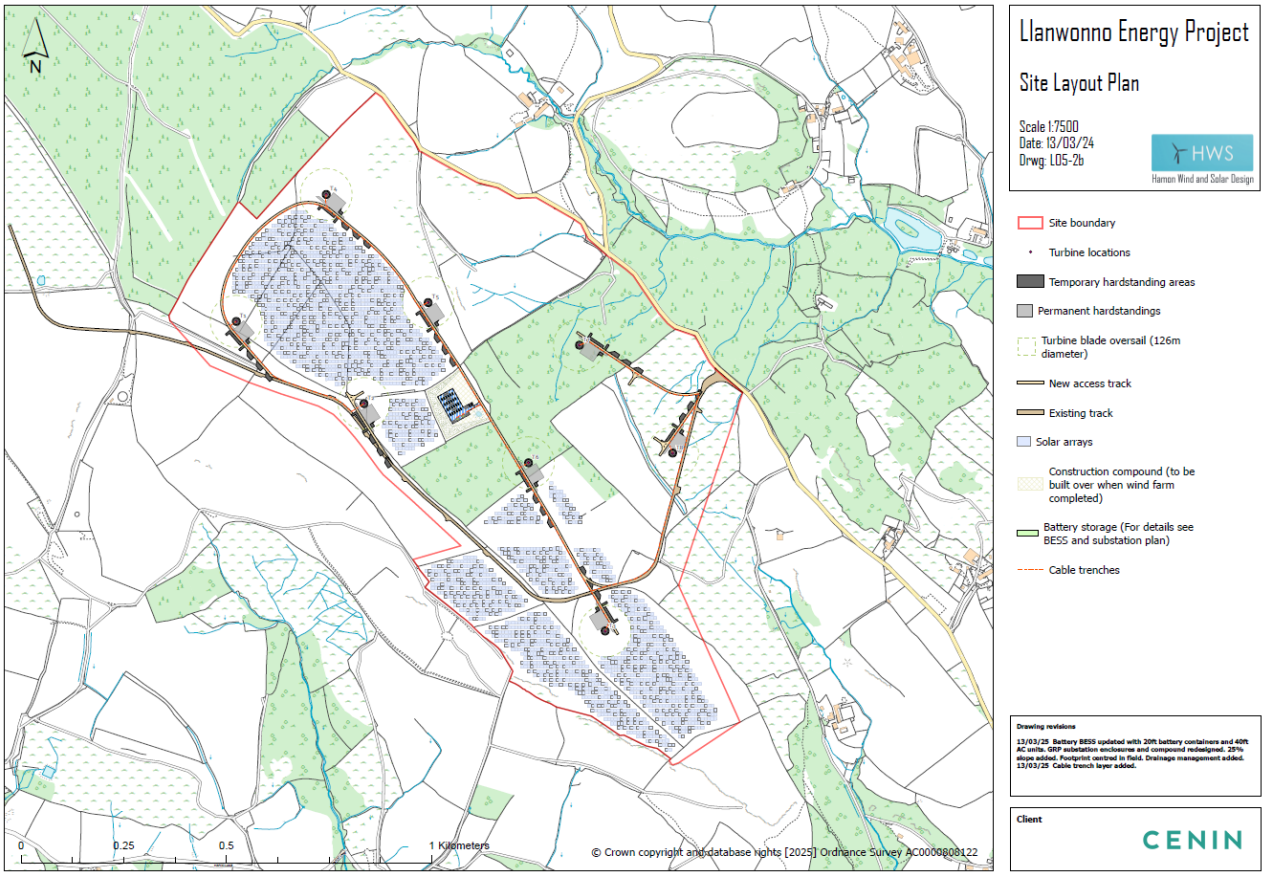

Figure 2: Site Layout Plan

Key Components

2.3 The Proposed Development comprises the construction and operation of up to eight wind turbines and solar PV panels with battery storage facility and associated infrastructure/hardstanding. The Proposed Development comprises the following key components, which have been further described below:

Wind Turbines

2.4 The Proposed Development comprises the construction, operation and maintenance and decommissioning of eight wind turbines, the proposed model of turbine is Vensys V126. The turbine layout is outlined in Volume 2, Figure 2.1: Site Layout Plan of the ES and Turbine specifications are detailed in

Volume 2, Figure 2.2: Typical Turbine Elevations and Volume 2, Figure 2.3: Turbine Foundation Details.

2.5 The turbines will have a varying base to blade tip height of 150-200m. An outline of the individual turbine sizes and their grid ref locations is as follows:

Access tracks and turning heads

2.6 The Proposed Development comprises the construction, operation and maintenance and decommissioning of on-site surfaced tracks providing access to the wind turbines, onsite substation compound and temporary construction compounds from the local highway network.

2.7 The material used for the access tracks will be graded stone of 5.5 m widths and a total track footprint/excavated area of 1.41 ha.

2.8 Most of the on-site access tracks would be required to facilitate the construction of the Proposed Development.

2.9 Additionally, a number of access tracks will be retained after construction in order to facilitate maintenance activities during the operational phase.

2.10 Details of the proposed access tracks are shown within Volume 2, Figure 2.4: Typical Track and Trench Detail.

Construction Material

2.11 Borrow pits are not included within the Proposed Development. Stone for roads will be taken from turbine foundation excavations.

Temporary construction compounds and holding areas

2.12 The compound would be used, where necessary, for temporary storage of the various components and materials which are required for construction.

2.13 The material used for the construction compound will be graded stone with a width of 95 m to 115 m. The length will be 120 m to 140 m (non-rectangular) and a footprint area/excavated area of 1.37 ha. The excavation depth will be 0.2 m to 5 m subject to existing slope to create flat area.

2.14 The temporary construction compounds will be reinstated at the end of the construction phase. The stored subsoil and the stored topsoil would be laid over the underlying stone surface and then reseeded using a seed mix selected or, where possible, turfs would be reinstated.

2.15 Details of the Construction Compound are shown on **Figure 3** below.

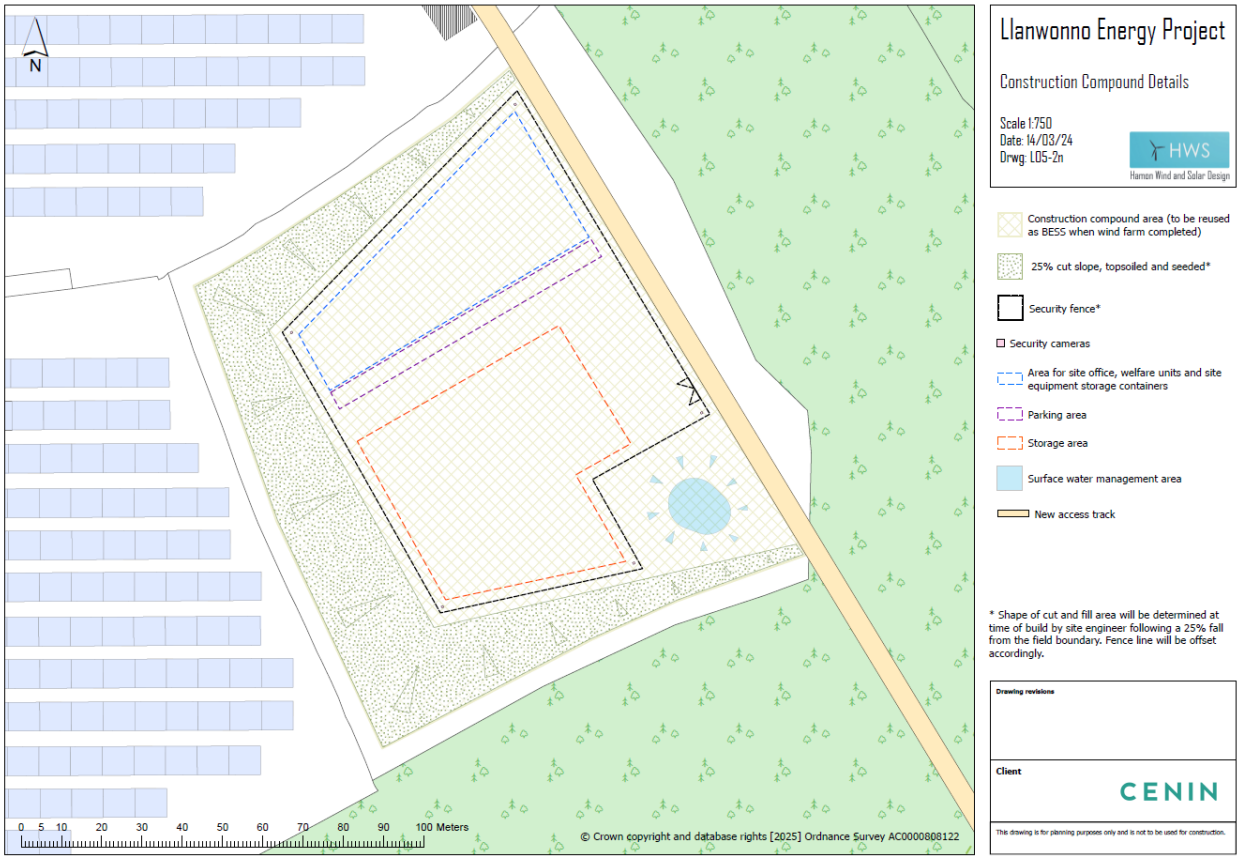

Figure 3: Construction Compound Details

Crane pads

2.16 Permanent crane hardstandings (pads) as well as temporary lay down areas will be constructed to facilitate the cranes required for the erection of turbine components. To provide stable, firm ground for safe operation of the cranes, areas of hardstanding would be laid down on one side of each turbine foundation.

Glass Reinforced Plastic (GRP) Substation and Control Building

2.17 The proposal includes a GRP Substation and Control Building. Their layout and specification are shown within Volume 2, Figure 2.6: BESS and Substation Layout Details and Volume 2, Figure 2.7: Electrical Infrastructure Cabinet Details, respectively. The GRP Substation includes substation switches to be chosen on the advice of an electrical engineer.

Solar panels and mounting structures

2.18 The Solar PV panels are fixed panels which will be positioned at a south facing 'fixed' tilt. There are no moving elements associated with the panels. They will be arranged in a series of rows known as arrays.

2.19 The panels are 2.8 m at their highest point, including posts which elevate the panel 1 m off the ground. The panel itself is 6.7 m long and tilted southwards

at an angle of 15 degrees. See Volume 2. Figure 2.8: Solar PV Panels Elevations.

2.20 The metal support frames or mounting structures for the panels will be installed by pilled technique and there would be no significant ground works required with this installation method.

Inverters and Transformers

2.21 'String' inverters will be mounted onto the support frames and will not require any additional foundations. The transformers will be housed in Glass Reinforced Plastic (GRP) containers and will be in a suitable pantone colour that can be agreed with RCTCBC.

Cabling

2.22 The proposals include 33kV cabling which will connect the scheme components to the onsite GRP substation.

2.23 Indicative dimensions of the 33 kV trench required are shown in Volume 2, Figure 2.4: Typical Track and Trench Details. This includes the following dimensions:

- A trench depth of 1.4 m.
- A width of trench at the base of 1.5 m.

2.24 Following the excavation of the trenches, the 33 kV cables would be placed towards the base and the excavated material would be backfilled. A protection tile and warning tape would be utilised above the cables to ensure they are protected. Topsoil would then reinstated, as shown within Volume 2, Figure 2.4 of the ES.

BESS

2.25 The proposal will also include a 30 MW / 4 hours BESS (24 no. 40 ft containers), which will store any surplus electricity generated by the solar panels and wind turbines and release it when needed. The proposed layout of the BESS facility can be seen in Volume 2, Figure 2.6: BESS and Substation Layout Details.

Highway Access and Parking

2.26 The Site access will make use of the existing access track which serves the two existing turbines to the west (Llwyncelyn) of the Site via Griagwen road and then via the unnamed road to the Energy Project Site.

2.27 A variety of vehicles will need to access the Site during construction. These will include rigid and articulated Heavy Goods Vehicles (HGVs), and a large mobile crane associated with manoeuvring the requisite materials (including aggregate, mounting frames and the solar panels and wind turbines) and prefabricated buildings.

2.28 A Framework Traffic Management Plan describing the delivery routes, construction routes, construction compounds and any associated parking or management of construction traffic is submitted with the planning application at Volume 3, Appendix 6.2: Framework Traffic Management Plan.

Landscaping and ecological enhancement

2.29 With regards to Landscape, a number of habitat creation measures are proposed to enhance the host landscape character area CYNONVS141 – Ynysbwl and the landscape character of LANDMAP Landscape Habitats Aspect Area CYNONLH083. Further detail is provided within Table 5.19: Mitigation measures to be adopted as part of the Proposed Development within Volume 1, Chapter 5: Landscape and Visual Impact of the ES.

2.30 An Outline Habitat Management Plan will be prepared and submitted with the DNS application. It will include the provision of the following measures in relation to ecological enhancement:

- Enhancement of the mixed plantation woodland (Perry's Wood), the creation of habitat piles and retained dead wood from the pruned / felled materials within the woodland;
- The creation of habitat piles and retained dead wood from the pruned / felled materials within the woodland;
- Fencing of field margins within the solar array (between solar panels and walls), to prevent overgrazing and allow the development of a longer and more diverse sward.
- Habitat enhancement for reptile including the creation of simple structures such as hibernacula and grass snake egg laying heaps;
- Provision of 5 bat and 5 dormouse boxes in woodland;
- SuDS to be designed to create valuable new features (particularly for water vole).
- Scrub control within the small area of dry dwarf shrub heath.
- Control of encroaching bracken within semi-improved acid and marshy grassland.
- Damming recently dug field drains to rewet the marshy grassland, to compensate for the reduction in the extent of this habitat.
- Cessation of reprofiling along the larger canalised stream to increase the structure and density of streamside vegetation. Scrub along the banks will be controlled, and controlled sectional dredging of the channel will be carried out to ensure continued flow of water along it.
- Cessation of regular cutting of the marshy grassland south of Perry's Wood, to mitigate for the reduction in the extent of this habitat.

Drainage and Flood Risk

2.31 A Conceptual drainage strategy has been prepared for the Site, please see Volume 3, Appendix 7.2: Conceptual Drainage Strategy for details.

Glint and Glare

2.32 The solar farm will cause a minimal amount of potential for redirection of light in terms of glint and glare via the surface of the panels. Any effects would be localised and unlikely to be of a magnitude that would be significant in environmental terms. Accordingly, a Glint and Glare Assessment is being undertaken and will form part of the DNS planning application.

Geology, Hydrogeology and Peat

2.33 The potential effects of the Proposed Development on geology, hydrology and hydrogeology during construction, operation and decommissioning stages are currently being assessed in accordance with the scope outlined in the Scoping Report and also considering the comments/responses received in the Scoping Direction.

2.34 The impact assessment will be informed by various sources such as site visits/walkover surveys, Coal Authority reports including mining and geological survey data. The walkover survey was undertaken on the 13th and 14th March 2025 and findings from the surveys and initial reports on existing ground conditions including mining surrounding the turbine locations have been fed back to the design and engineering teams.

2.35 While initial site visits indicate that any peat resources within the site are expected to be of a shallow thickness and of limited extent, a programme of Peat Probing is being developed and will be undertaken, and the assessment results will be included in the Final ES. An outline Soil Management Plan including measures relating to peat resources, if identified, and assessment of Land is also likely to will be developed and the assessment of land use will be included in the Final ES.

Summary of Key Parameters

Table 2.1: Key parameters of the Proposed Development

Element of Development	Key Parameter for EIA
Site area	112.4 ha
Maximum height of solar panels	2.8 m
Maximum base to blade tip height of wind turbines	200 m
BESS	A 30 MW / 4 hours battery storage facility within 24 x 40 ft containers.

Mitigation

Primary / Embedded Mitigation

2.36 Embedded mitigation consists of measures that have been incorporated into the design of development to prevent, reduce or offset any significant effects upon a receptor.

2.37 Embedded mitigation developed through the EIA process has been incorporated into the construction and operation of the proposed development in order to avoid and reduce the potential environmental impacts as far as it is practical to do so.

2.38 The Design has inherently implemented a range of embedded mitigation measures to reduce and minimise impacts to the environment, examples include but are not limited to those shown in Table :

Table 2.2: Embedded Mitigation

Topic	Mitigation Measure	How will the measure be secured
Landscape	The process of design iteration has considered landscape and visual aspects throughout the design process from an early stage. This included the relocation of a turbine (now T7) to mitigate landscape and visual impacts.	The measure has been incorporated during the evolution of the design, and secured in the final design for the Proposed Development.
	The colour of the Proposed wind turbines is 'Goosewing grey'. This colour has been shown in studies to be the least visible colour against UK skies. Mitigating the visual impact for some days and from some views.	It is anticipated that the colour of the turbines will be secured via condition as part of any consent.
Transport	It is proposed that stone for roads will be taken from turbine foundation excavations to reduce the level of traffic associated with the import of aggregate form off-site locations.	It is anticipated that this measure will be secured via condition as part of any consent.
Ecology	Routeing and design of the solar array and access tracks to minimise impacts on the habitats of highest ecological value within the Proposed Development site.	The measure has been incorporated during the evolution of the design, and secured in the final design for the Proposed Development.

Topic	Mitigation Measure	How will the measure be secured
	Rotation and micro-siting of the crane pad locations to avoid the habitats of highest ecological value within the Proposed Development site	The measure has been incorporated during the evolution of the design, and secured in the final design for the Proposed Development.
	Limitation as far as possible of habitat loss / modification within the SINC will be during the construction phase by minimising the working footprint as far as practicable. Any temporary lay-down, vehicle access points, material storage or construction compounds (as required during the turbine installation) will be confined to tracks, laybys or appropriate areas as identified / discussed with the Ecological Clerk of Works (ECoW).	The measure will be detailed in the CEMP, which will be secured via planning condition.
	Retained habitats including buffers and root zones and / or working areas will be clearly demarcated with high visibility fencing and maintained until works are complete. The fenced area will act as an exclusion zone. All equipment / plant will operate from within the marked working area, and no spoil, vegetation or other materials are to be placed or stored outside of the working area.	The measure will be detailed in the CEMP, which will be secured in a planning condition.
	Provision of a bat buffer of 50 m from blade tip to retained forest edge (as recommended in SNH, 2021) to reduce the risk of bat-strike. All other linear features that are likely to be well used by bats (i.e. woodland edge, watercourses and hedgerows) are outside the bat buffers around proposed turbines.	This measure will be secured in a planning condition for the scheme.
	Feathering of the turbines blades at idle to minimise the potential for killing and injury of bats.	This measure will be secured in a planning condition for the scheme.

Topic	Mitigation Measure	How will the measure be secured
	The design has taken consideration and avoided (with stand-offs wherever possible): • Potential roost features for bats, • Watercourses suitable for otter and water vole, and • The areas of highest habitat quality for these species.	The measure has been incorporated during the evolution of the design, and secured in the final design for the Proposed Development.
	A preconstruction ecological survey programme to provide updated baseline information to feed into the Construction Environmental Management Plan (CEMP) and other operational plan documents	The measure will be detailed in the CEMP, which will be secured in a planning condition.
	A detailed Construction Environmental Management Plan (CEMP) will be secured by condition post-consent and produced in consultation with stakeholders (i.e. NRW and RCTCBC). The CEMP will outline measures to prevent effects arising on biodiversity (and other environmental) receptors during the construction phase.	These measures will be detailed in the CEMP, which will be secured in a planning condition.
Historic Environment	The site is currently enclosed by historic drystone wall field boundaries. Where possible these should be retained and repaired. The walls stand at least 1.5m in height which would help screen certain elements of the proposed development from view, lessening the impact on some of the historic assets surrounding the site.	The measure has been incorporated during the evolution of the design, and secured in the final design for the Proposed Development.
Aviation	The Proposed Development will adopt a lighting scheme, in accordance with the CAA and MOD to ensure visibility and reduce risk of a collision risk.	This measure will be detailed in a lighting scheme, which will be secured in a planning condition.

Topic	Mitigation Measure	How will the measure be secured
Ornithology	Routeing and design of the solar array and access tracks to minimise impacts on the lapwing breeding area (no panels are proposed within the breeding fields, one of which is within the landholding), or habitats likely to be of high ecological value to most passerines (e.g. marshy grassland, scrub and hedgerows) within the Proposed Development site (in line with the step-wise approach set out in PPW 12.	The measure has been incorporated during the evolution of the design, and secured in the final design for the Proposed Development.
	Retained habitat (suitable for nesting passerines) including buffers and root zones and / or working areas will be clearly demarcated with high visibility fencing and maintained until works are complete. The fenced area will act as an exclusion zone. All equipment / plant will operate from within the marked working area, and no spoil, vegetation or other materials are to be placed or stored outside of the working area.	The measure will be detailed in the CEMP, which will be secured in a planning condition.
	A preconstruction ornithological survey programme to provide updated baseline information to feed into the CEMP and other operational plan documents.	The measure will be detailed in the CEMP, which will be secured in a planning condition.

Topic	Mitigation Measure	How will the measure be secured
	The development of a detailed CEMP in consultation with stakeholders (i.e. NRW and RCTCBC) to build on the principles of the outline CEMP submitted as part of this planning application. The CEMP will include provisions relevant to birds, to prevent an offence from being committed under the Wildlife and Countryside Act 1981 (as amended), which prevents intentional or reckless killing, injury or taking of any wild bird; taking, damaging, destroying or otherwise interfering with the nest of that bird while it is in use or being built; obstruction of any wild bird from using its nest; and taking or destroying an egg of any wild bird.	The measure will be detailed in the CEMP, which will be secured in a planning condition.

2.39 Mitigation measures are also detailed within the relevant sections of the individual topic chapters within the ES (see Volume 1, Chapters 5 to 14).

Sustainability

2.40 This section outlines the effects of the Proposed Development on sustainability factors such energy demand, waste, use of natural resources, and residues and emissions.

2.41 The Welsh Government (WG) has formally committed Wales to legally binding targets to deliver the goal of net-zero emissions. Part 2 of the Climate Change Act 2008 required the formation of a body corporate to be known as the Committee on Climate Change or, in Welsh, as y Pwyllgor ar Newid Hinsawdd. The Committee on Climate Change was formed in December 2008 and is now known as the Climate Change Committee (CCC). It is an independent non-departmental public body to advise the United Kingdom and devolved Governments and Parliaments on tackling and preparing for climate change. The proposal would contribute towards the following targets set by the CCC:

- Carbon Budget 2 (2021-25): 37% average reduction with credit (offset) limit of 0%
- Carbon Budget 3 (2026-30): 58% average reduction
- 2030 target: 63% reduction
- 2040 target: 89% reduction
- 2050 target: 100% reduction (net zero).

2.42 The DNS application will be accompanied by two technical appendices:

- Greenhouse Gas (GHG) Emissions Technical Report - the carbon balance will consider the GHG emissions sources including embodied carbon, construction emissions, on-site emissions and emissions associated with transport to and from the site, as well as the potential emissions savings due to the output of the solar/wind generation. The technical report will consider the whole life carbon or net effects of the Proposed Development.
- Climate Change Risk Assessment Technical Report - the consideration of the Proposed Development's vulnerability and resilience to projected climate change.

Vulnerability to Accidents and Disasters

2.43 The EIA Regulations state that an EIA must identify, describe, and assess, in an appropriate manner, the direct and indirect significant effects arising from the vulnerability of the Proposed Development to risks of major accidents or disasters.

2.44 The EIA looks at both how the Proposed Development affects the environment and how outside dangers could impact the Proposed Development. The objective of such an assessment is to establish whether the Proposed Development increases risks to existing receptors or increases the sensitivity of those receptors to the consequences of the hazard. For example, by introducing new links/pathways between a possible hazard and a receptor.

Construction

Phasing of Construction Works

2.45 The specific techniques, timings and phasing to be adopted during construction of the Proposed Development have not yet been determined at this stage in the DNS application process. However, for the purposes of the EIA, the worst-case maximum parameters have been identified and assessed with respect to the construction phase.

Construction Working Hours

2.46 All work would be undertaken between 08:00 and 18:00 hours Monday to Friday, with limited construction activities on Saturdays between 08:00 and 13:00 hours. No construction activities would take place on Sundays or Bank Holidays.

2.47 In the event that works are required outside of these hours in exceptional circumstances, this would be agreed with the LPA (Rhondda Cynon Ta County Borough Council) prior to commencement of the activity.

Environmental Management during Construction

2.48 Construction would be undertaken in accordance with good practice environmental management procedures that will be set out in more detailed

plans and method statements contained within a Construction Environmental Management Plan (CEMP) to be developed by the contractor. The CEMP will set out the key management measures that contractors would be required to adopt and implement to protect the environment during construction.

Drainage

2.49 The construction phase would incorporate pollution prevention and flood response measures to ensure that the potential for any temporary effects on water quality or flood risk are reduced as far as practicable. Flood response and pollution prevention measures would be implemented as part of the CEMP during construction of the Proposed Development. These flood response and pollution prevention measures include (but are not limited to):

- The storage of construction materials and waste within the temporary construction compounds;
- All waste arising from construction activities would be removed from site via registered waste carriers and transported to a suitable waste management facility;
- All bonfires and burning of waste will be prohibited and labelled double skinned waste tanks will be used for the storage of waste oils on-site;
- All waste stored within the temporary construction compounds would be isolated from surface drains and bunded to contain any spillages;
- The installation of a wastewater collection systems to prevent contamination of nearby surface water or ground water features;
- Use of sediment fences along existing watercourses/waterbodies when working nearby to prevent sediment being washed into them;
- Covers for lorries transporting materials to/from site to prevent releases of dust/sediment to watercourses/drains;
- Concrete to be stored and handled appropriately to prevent release to drains;
- Obtain consent for any works (e.g. discharge of surface water) that may affect an existing watercourse. The conditions of the consent would be specified to ensure that construction does not result in significant alteration to the hydrological regime or an increase in fluvial risk; and
- Use of a documented spill procedure and use of spill kits kept in the vicinity of chemical/oil storage
- Storage of stockpiled materials on an impermeable surface to prevent leaching of contaminants and use of covers when not in use to prevent materials being dispersed and to protect from rain; and
- Stockpiles to be kept to minimum possible size with gaps to allow surface water runoff to pass through.

Disposal of Waste

2.50 Site waste generated during construction of the Proposed Development would typically comprise materials generated during excavation or earthworks. Excavated materials would be re-used onsite where these deemed suitable for re-use. Excavated peat is not classed as waste provided that is deemed suitable for a pre-determined use as part of the construction of the Proposed Development or for reinstatement activities. Where not deemed suitable for re-use, site waste would either be transported to a suitable recycling facility or landfill site (if non-recyclable).

2.51 Waste generated during the operational phase would be limited to repair and maintenance activities and would be managed in a similar way to construction waste, including adherence to the waste hierarchy and measures set out in the SWMP and CEMP. Waste generated during decommissioning of the Proposed Development would be managed similarly.

Use of Natural Resources

2.52 The construction process would take into account the principles of good practice in soil handling and restoration set out in the following documents, wherever possible, to reduce the possibility of damage to soil materials during the construction process:

- Ministry of Agriculture, Fisheries and Food (MAFF) (2000) Soil Handling Guide; and
- Department for Food and Rural Affairs (Defra) (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (including the Toolbox Talks).

2.53 The EIA Regulations also refer to the use of land and biodiversity resources. Further details are provided in Volume 1, Chapter 9: Ecology and Volume 1, Chapter 15: Geology and Hydrogeology of the ES.

Residues and Emissions

2.54 The CEMP will consider ways of minimising construction activity residues and emissions, including spills, noise and vehicle emissions during the construction phase.

2.55 Details of residues and emissions in relation to water are set out in the Flood Consequence Assessment (FCA) and Drainage Strategy. Any impact associated with noise has been addressed by a Noise Impact Assessment, included as part of the DNS application.

Vulnerability to Accidents and Disasters

2.56 Given the nature of the Proposed Development, it is considered that the key areas of concern for major accidents and disasters include fires, flooding, mechanical failure (e.g. collapse, blade throw or ice throw).

2.57 Consideration of risks to aviation activity is considered within Volume 1, Chapter 13: Aviation, of the ES.

2.58 Vulnerability to accidents and disasters is considered within the ES on a topic-by-topic basis within each individual chapter.

Fire Risk

2.59 The Proposed Development comprises electrical infrastructure which presents a potential fire risk. Therefore, the Proposed Development will include several passive, active and additional measures to mitigate against fire risk.

Flood Risk

2.60 The evaluation of flood risk associated with the Proposed Development is provided within the Hydrology and Flood Risk Chapter and the Flood Consequence Assessment (FCA) which are in Volume 1, Chapter 7 and Volume 3, Appendix 7.1 of the ES, respectively.

Mechanical failure or blade/ice throw

2.61 The wind turbines will be designed and constructed to withstand extreme wind and weather conditions. The wind turbine scenarios under consideration at this stage in the DNS application process all have a proven record in terms of safety and reliability. As such the likelihood of collapse or blade throw is low.

2.62 However, multiple PRoWs are in proximity to the proposed wind turbines. Therefore, several measures have been incorporated into the design of the Proposed Development to reduce the likelihood of mechanical failure or blade/ ice throw and ensure the safety of PRoW users and members of the public:

2.63 The potential effects of the Proposed Development with respect to human health are considered across all EIA chapters.

Operation and Maintenance

2.64 The operational lifetime of the Proposed Development is 50 years. During this period the Proposed Development would largely be automated, with wind turbine operations being managed and monitored via control equipment located within the on-site substation compound. These systems would ensure the safe operation of the Proposed Development, including the implementation of safety measures (e.g. fire suppression, ice detection, emergency cutoff).

2.65 Once operational, the wind farm will be managed remotely and will require only occasional site visits for maintenance, as needed.

Decommissioning

2.66 After the Proposed Development's lifespan of 50 years, it is proposed that the turbines and transformers would be removed. All structures, cabling and transformers would be removed from the Site and recycled or disposed of in accordance with good practice and market conditions at that time.

2.67 The works required for decommissioning of the Proposed Development would be similar in nature to those required during construction.

2.68 A decommissioning and enhancement plan, to include timescales and transportation methods, ecological and landscape enhancements and other environmental improvements, would be developed in consultation the local planning authority, local community and key stakeholders following consent of the DNS application.

3 Need and Alternatives

3.1 The need for the Proposed Development is based on the following considerations, having regard to the relevant national and local policy context:

1. Increasing demand for electricity;
2. The need to decarbonise energy systems and combat the potentially devastating effects of climate change on current and future generations; and
3. Energy security for Wales.

3.2 Overall, there is a significant need to transition away from fossil fuels to achieve national carbon and greenhouse gas reduction targets, in particular the Welsh and UK Government's legally binding targets of net zero carbon emissions by 2050. There is also a strong requirement to consider energy security and the avoidance of the importation of energy.

3.3 A mix of non-fossil fuel energy sources are required, and onshore wind generation has an important role to play as part of the mix of energy sources required to meet increasing electricity demand in the future.

3.4 A broad overview of the key national and local policy and guidance relevant to the Proposed Development is provided below.

- **Welsh Government Climate Emergency Declaration (2019)**
- **Welsh Government Declaration of Commitment to Net Zero by 2050)**
- **National Grid Future Energy Scenarios (July 2024)**
- **Well-being and Future Generations (Wales) Act 2015** sets out 7 well-being goals. These goals define the priorities of future growth in Wales, which holds all public bodies accountable in achieving sustainable development.
- **Future Wales - the National Plan 2040 (FW),** Future Wales is the national development framework, setting the direction for development in Wales to 2040. It addresses key national priorities, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities.
- **Planning Policy Wales (PPW) Edition 12,** is the national policy outlining guidance for making planning decisions in Wales. One of five key principles of PPW concerns '*Maximising environmental protection and limiting environmental impact*' and is outlined further in Section 5.7: Energy, that gives context to, and the requirements of, energy projects.
- **Rhondda Cynon Taf County Borough Council Local Development Plan (LDP) 2006-2021**, adopted in March 2011 defines local policies to inform development and planning decisions within the County Borough.

3.5 In summary, the benefits of this Proposed Development include:

- The carbon dioxide offset would make an important contribution towards the government target to reduce carbon dioxide emissions by 100% by 2050.
- The Proposed Development could make a significant contribution towards the renewable energy objectives of RCTBC, the Welsh Government, and UK Government.
- The Proposed Development provides diversity and security of energy supply, reducing reliance on importing of energy.
- Onshore wind farms, particularly those close to areas of electricity demand, provide an important contribution towards making Wales and the UK more energy self-sufficient. If constructed, the Proposed Development would help improve this self-sufficiency and narrow the energy supply gap.
- The Proposed Development will provide a net benefit for biodiversity.

Alternatives Considered

Site Location and Selection

3.6 The first step in site selection comprises a nationwide search for suitable sites that meet suitable criteria. Once a potential site location was identified, an evaluation of site constraints and opportunities was undertaken to inform an initial concept design. In assessing the suitability of a site, the following criteria were considered:

1. Technical suitability of the Site for construction and operation

- Topography and ground conditions
- Size
- Orientation
- Accessibility

2. Grid connection feasibility

- Proximity of nearest point of connection
- Availability of grid capacity at the substation
- Accessibility substation to connect to via cables

3. Design constraints

- Designations, both national and local level
- Existing land use
- Landscape designations
- Ecological designation
- Heritage designations

- Flood risk
- Neighbouring land uses
- Potential visual receptors
- Presence of Best and Most Versatile (BMV) Agricultural Land.

4. Site Availability

3.7 The Site is outside the Pre-Assessed Areas for Wind, so Cenin have really focused on the benefits of the scheme, wider environmental benefits, and local benefits. Cenin for many years have provided sponsorship opportunities in the local area but wanted to go above and beyond this, as they are passionate about helping the University of South Wales to decarbonise their campus with local green power so they could become a groundbreaking net zero campus.

3.8 The Site selection process and design development is described in summary below.

Design Evolution

3.9 Following the Site selection process, further design evolution and refinement of the land parcels selected for inclusion of the Proposed Development took place:

3.10 A review of the design and layout of the Site components has been undertaken through an iterative design process. This review process assessed design and layout options against a range of criteria to identify the preferred approach, including those identified above.

3.11 Refinements were made to the design and layout of the Site and is detailed further in Chapter 3: Need and Alternatives Considered of the ES.

4 Environmental Assessment Methodology

EIA Scoping

4.1 Scoping is the process of identifying the issues to be addressed during the EIA process.

4.2 A Scoping Request was submitted to the Planning and Environment Decisions Wales (PEDW) in October 2024. PEDW issued their Scoping Direction in February 2025.

4.3 The ES topic chapters provide a summary of the key points raised during Scoping and as a result of any further consultation with both statutory and non-statutory consultees. Various chapters have been considered and this is summarised from Section 5 onwards.

General Approach to EIA

4.4 For each environmental topic considered as part of the EIA process, the following information has been provided in the Environmental Statement:

- legislation and policy considered;
- consultation and engagement carried out;
- the methodology and assessment criteria used for the assessment;
- a description of the existing environment;
- a description of the future environment (without the Project);
- a description of how stakeholder feedback has been considered;
- identification of suitable mitigation measures (where required); and
- identification and assessment of the likely significant effects.

Assessment of Cumulative Effects

4.5 The EIA Regulations require consideration of cumulative effects, which are effects on a receptor that may arise when the Proposed Development is considered together with other Proposed Developments in the area.

4.6 The cumulative effects of the Proposed Development in conjunction with other proposed schemes have been considered within each topic chapter of the ES.

5 Landscape and Visual Assessment

Introduction

5.1 This chapter considers the potential impacts on Landscape and Visual during the construction, operation and maintenance and decommissioning phase of the Proposed Development. The assessment considered the potential impacts on the landscape character and visual amenity including designations, PRoWs, bridleways, National Cycle Routes and Long Distance Paths.

Methodology

5.2 The assessment of landscape and visual matters has been undertaken in accordance current guidance and identifies and assesses 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 significance of an effect has been determined based on the sensitivity of a landscape (the receiving landscape) or visual receptor (people viewing) and the magnitude of an impact.

Baseline

5.3 The baseline includes an examination of all the existing conditions including National Landscape Character Areas, Regional Landscape Character Types (LANDMAP) and landscape designations.

5.4 The landscape assessment assessed the effects on the landscape character and landscape designations within the study area. The landscape character assessment followed the NRW guidance Note 46 which recommends that LANDMAP is used as a starting point for creating suitably scaled character-based reporting units and suggests that reporting units may be LANDMAP visual and sensory aspect areas (VSAAs). The landscape designations assessed were the Special Landscape Areas (SLAs), The Brecon Beacons National Park, Registered Historic Landscape and Country Parks.

5.5 Viewpoint photography and fieldwork was carried within the 30 km study including winter and nighttime photographs. The visual baseline examined various locations, representing views by residents, recreational users and road users and each of these receptors were judged for their susceptibility against the value of the view.

5.6 The cumulative baseline included checking all other developments including wind and solar developments within the study area.

Mitigation

5.7 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on Landscape and Visual:

- There are a number of habitat creation measures that would also enhance the host landscape character area CYNONVS141 including

mixed plantation woodland, planting of native fruiting understorey species and overseeding with a native-species woodland ground flora seed mix.

- The elements of habitat that include enhancement of the mixed plantation woodland, planting of native fruiting understorey species and overseeding with a native-species woodland ground flora seed mix all contributes to the landscape character of LANDMAP Landscape Habitats Aspect Area CYNONLH083.

Design Iteration:

- The process of design iteration has considered landscape and visual aspects throughout the design process from an early stage and aimed to mitigate the landscape and visual effects.
- The colour of the Proposed wind turbines is 'Goosewing grey' to reduce visual effects.

Likely significant effects

5.8 Following the recommended LANDMAP filtering process, a total of 45 Landscape Units were assessed and of those and the following significant landscape effects are likely to occur:

- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS141 – Ynysybwl;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS142 – Mynydd y Glyn;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS317 – Mynydd Eglwysilon & Mynydd Meio;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS143 – Llanfabon;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS738 – Cefn y Rhondda;
- A Major significance of effect on Special Landscape Area - Cwm Clydach;
- A Major significance of effect on Special Landscape Area - Mynydd y Glyn & Nant Muchudd Basin;
- A Moderate significance of effect on Special Landscape Area - Mynydd y Cymmer;
- A Moderate significance of effect on Special Landscape Area - Taff Vale Eastern; and
- A Moderate significance of effect on The Rhondda Landscape Registered Historic Landscape.

5.9 A total of 31 viewpoints were assessed and out of these eight were found to be Significant. These are all within 4 km of the Proposed Development.

Inevitably the significance of effect would be Major and significant with sensitivities of Medium. There would also be Major significance of effects at from the south with High and Medium sensitivity and from the east with Medium sensitivity.

5.10 Taking into account the mitigation measures described above, the following significant visual effects are likely to occur:

- A Major significance of effect on views from the south including Rhiwgarn Road, Trebanog and Mount Pleasant, Trehafod and Darren Dyllas, Mynydd y Glyn.

5.11 The following significant cumulative landscape effects are likely to occur with respect to the Proposed Development with Mynydd y Glyn and Twyn Hywel and other operational schemes and consented schemes:

- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS141 – Ynysybwl;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS142 – Mynydd y Glyn;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS317 – Mynydd Eglwysilon & Mynydd Meio;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS143 – Llanfabon;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS738 – Cefn y Rhondda;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS903 – West of Mountain Ash; and
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS143 – Llanfabon.

5.12 The following significant cumulative landscape effects are likely to occur with respect to the Proposed Development and operational schemes, consented schemes and in planning schemes:

- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS141 – Ynysybwl;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS142 – Mynydd y Glyn;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS317 – Mynydd Eglwysilon & Mynydd Meio;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS143 – Llanfabon;
- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS738 – Cefn y Rhondda; and

- A Major significance of effect on LANDMAP Landscape Unit (VSAA) CYNONVS903 – West of Mountain Ash.

5.13 The following significant cumulative visual effects are likely to occur with respect to the Proposed Development with Mynydd y Glyn and Twyn Hywel and other operational schemes and consented schemes:

- A Major significance of effect on views from the south including Rhiwgarn Road, Trebanog and Mount Pleasant, Trehafod and Darren Dyllas, Mynydd y Glyn.

5.14 The following significant cumulative visual effects are likely to occur with respect to the Proposed Development with Mynydd y Glyn and Twyn Hywel and operational schemes, consented schemes and in planning schemes:

- A Major significance of effect on views from the south including Rhiwgarn Road, Trebanog and Mount Pleasant, Trehafod and Darren Dyllas, Mynydd y Glyn.

6 Transport

Introduction

6.1 This chapter considers the potential impacts on Transport during the construction, operation and maintenance and decommissioning phase of the Proposed Development. The assessment considered the potential impacts of construction traffic on receptors within the Transport study area, comprising A470, A4058, A4223, B4273, Heol-Y-Mynach, Pleasant View, Rhondda Road, Graigwen Road and Pen-y-Wal Road and Public Rights of Way around the site and delivery route.

Methodology

6.2 Receptor sensitivity was identified through a combination of desk-based analysis and site-specific traffic surveys. Desk based analysis of existing studies and datasets were used to identify the sensitivity of receptors and magnitude of impact expected against the six metrics identified in Environmental Impact Assessment guidance, comprising severance, driver delay, pedestrian delay (including non-motorised users), non-motorised user amenity, fear and intimidation, and road safety. Construction traffic flows were estimated to inform the assessment.

Baseline

6.3 Traffic surveys recorded baseline traffic volumes along roads within the study area, which also identified an existing issue with speeding along B4273 Ynysybwl Road between Glyncoch and Ynysybwl. A highway safety audit was completed, which identified no issues with the local highway network within the study area that would need addressing or would be worsened by the proposed development.

6.4 The desktop study identified several PRoWs, Active Travel Routes and National Cycle Routes within the study area.

6.5 It also identified key receptors outside of highway users, comprising residents of Pontypridd, Glyncoch, and Ynysybwl, and students at Craig-yr-Hesg Primary School and Trerobart Primary School.

Mitigation

6.6 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on Transport:

- A full Traffic Management Plan will be developed in general accordance with the Framework Traffic Management Plan, which has been submitted with the DNS application. The Traffic Management Plan will include measures to minimise the impact of construction traffic and abnormal load deliveries (where possible).

- A Staff Travel Plan will be developed prior to commencement and will include measures to encourage site staff to use more sustainable means to single occupancy car travel when travelling to and from the site.

Likely significant effects

6.7 Taking into account the mitigation measures described above, no significant effects are likely to occur with respect to transport.

6.8 No significant cumulative effects are likely to occur with respect to transport

7 Hydrology and Flood Risk

Introduction

7.1 This chapter considers the potential impacts on hydrology and flood risk during the construction, operation and maintenance and decommissioning phase of the Proposed Development. The assessment considered the potential impacts on the deterioration of water quality of waterbodies (surface water and ground water) and the impact of increased flood risk arising from additional surface water runoff.

Methodology

7.2 Impacts on hydrology and flood risk were identified through a combination of desk-based analysis and site-specific surveys. Desk based analysis of existing studies and datasets were used to identify waterbodies, baseline and future flood risk and water use within the study area

Baseline

7.3 OS Mapping shows there are several ordinary watercourses within the study area:

- Nant Hafod flows south across the south western extent of the study area;
- Nant Blaenhenwysg flows south across the south eastern extent of the study area;
- Llys Nant flows east across the northern extent of the study area; and
- A tributary to the Nant Clydach flowing north in the northern extent of the study area.

7.4 The study area is located within the Nant Clydach – souce to confluence R Taff, Rhondda R – conf Afon Rhondda Fach to conf R Taff and Afon Rhondda Fach – source to conf Rhondda R surface water bodies and the SE Valleys Carboniferous Coal Measures ground water body.

7.5 The Site is located within Flood Zone 1 / DAM Zone A has a low risk of flooding from all assessed sources. Nearest areas of flood risk to the Site are located within the southern extent of the study area, in association with flood risk from Rhondda Afon.

7.6 The study area contains four surface water abstractions, associated with ponds located within the north-eastern extent of the study area used for aquaculture. There are also four discharge consents, all associated with discharges to Afon Rhondda within the southern extent of the study area.

Mitigation

7.7 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on hydrology and flood risk:

- The undertaking of an Flood Consequence Assessment to understand hydraulic features within the study area and propose site-specific mitigation measures where necessary;
- The undertaking and implementation of a Drainage Strategy and SAB application for new impermeable areas arising from permanent development;
- The implementation of a Construction Environment Management Plan to manage surface water runoff and water quality during construction;
- The implementation of an Operational Surface Water Drainage Strategy to ensure adequate management and maintenance of proposed development during operation;
- The undertaking of a draft decomissioning plan to ensure key details are agreed with relevant authorities prior to decomissioning;
- The implementation of 8m buffers to be maintained from the banks of ordinary watercourse, and where this cannot be achieved, the approval of land drainage consents where applicable.

Likely significant effects

7.8 Taking into account the mitigation measures described above, there are no significant effects in respect to hydrology and flood risk.

8 Historic Environment

Introduction

8.1 This chapter considers the potential impacts on Historic Environment during the construction, operation and maintenance and decommissioning phase of the Proposed Development. The assessment considered the potential impacts on the designated historic assets within 5km of the Proposed Development, all non-designated historic assets within 1km of Proposed Development and the potential for any previously unrecorded assets within the site boundary.

Methodology

8.2 Desk-based assessment of existing studies and datasets were used to identify both the designated and non-designated assets within the landscape surrounding the Proposed Development. Interrogation of the historic maps sheets, aerial photographs, Lidar 1m DTM and SM datasets as well as a site walkover survey highlighted changes that have taken place within the site and helped to identify previously unknown historic assets within the bounds of the Proposed Development.

Baseline

8.3 The desk-based assessment determined that the Proposed Development site lies in a remarkably untouched upland landscape from the earliest available mapping. The most significant impact to the landscape has been the installation of the Llwyncelyn wind farm to the north-west of the site. Historically, the site was agricultural in nature, which remains unchanged today.

8.4 The assessment identified 33 recorded heritage assets within the 1km study area, which include the Rhondda Registered Historic Landscape of Outstanding Interest (HLW (MGI) 5) and a Listed Building. The Registered Historic Landscape lies partially within the site boundary. Although there will be no direct impacts upon the key characteristics of the HLCAs that make up the Registered Historic Landscape, the overall impact is considered to be moderate.

8.5 Within the wider 5km study area there are fourteen Scheduled Monuments, 149 Listed Buildings, eight Conservation Areas and a Registered Historic Park and Garden. The development of the site would have a negligible impact upon the Conservation Areas and the Registered Historic Park and Garden Ynysangharad (Park PGW(Gm)3(RCT)). The development will have a moderate impact on the Scheduled Monument of Carn-y-Wiwer Cairnfield & Platform Houses (GM323) located just over 1km to the north-west of the site. There will be a negligible visual impact on the rest of the Scheduled Monuments and all of the Listed Buildings in the search areas.

8.6 The desk-based assessment and site walkover survey identified three new assets within the bounds of the Proposed Development, the historic drystone

field boundaries, an associated boundary marker stone and possible surface quarries. The development will require parts of the drystone walls be destroyed. It is also possible that currently unknown archaeological remains survive below ground within the bounds of the site, particularly within the peat deposits across the site.

Mitigation

8.7 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on Historic Environment:

- A watching brief is suggested for all groundworks on site during the construction of the scheme. Although there is thought to be a low potential for archaeological features and deposits below ground across the site, the presence of the surface quarries, the two Bronze Age findspots located in close proximity to the site and the peat deposits within the site, mean it is not possible to certain of this. A watching brief would allow any buried archaeology disturbed by the groundworks to be fully mitigated.
- A photographic survey should be conducted on the drystone walling that will need to be removed during the construction of the scheme. This should include the associate boundary marker stone. This would allow preservation by record of the historic field boundaries.

Likely significant effects

8.8 Taking into account the mitigation measures described above, the following significant effects are likely to occur with respect to Historic Environment:

- Negligible impact on buried archaeology;
- Minor impact of the historic drystone walls;
- Moderate impact on the Rhondda Registered Historic Landscape of Outstanding Interest (HLW (MGI) 5); and
- Moderate impact on the Scheduled Monument of Carn-y-Wiwer Cairnfield and Platform Houses (GM323).

8.9 The following significant cumulative effects are likely to occur with respect to Historic Environment:

- Moderate adverse cumulative effect on Rhondda Registered Historic Landscape of Outstanding Interest (HLW (MGI) 5); and
- Moderate adverse cumulative effect on the Scheduled Monument of Carn-y-Wiwer Cairnfield and Platform Houses (GM323).

9 Ecology

Introduction

9.1 This chapter of the Environmental Statement (ES) evaluates the effects of the Proposed Development on habitats and protected species. It describes the methods used to evaluate the habitat and protected species interest within the Study Area boundary, and to determine the nature conservation importance of this interest. It explains the ways in which these ecological features may be affected by the Proposed Development and assesses the likely effects of the Proposed Development and their significance. In making an assessment of effects, the chapter draws on information obtained through desk study, consultation, and field survey.

9.2 The assessment has been undertaken by BSG Ecology Ltd.

Methodology

9.3 A detailed desk-based review was undertaken to inform the baseline assessment for ecology. Site-specific surveys were undertaken to inform the baseline ecological assessment for ecology. These were; Phase 1 Habitat survey, bat survey (bat activity survey and Ground-Level Tree Assessment (GLTA)), dormouse survey and riparian mammal (otter and water vole survey).

Baseline

9.4 No statutory designated sites exist within 2 km of the Study Area. One Site of Interest for Nature Conservation (SINC) (the Llys Nant and Twyn-y-Glog Woodlands SINC) falls within the Study Area boundary and a further four are within 500 m. No areas of Ancient Semi Natural Woodland (ASNW) are present within the Study Area, there are two areas of ASNW immediately outside the Study Area (to the east, <5 m from the Study Area boundary) associated with Llys Nant & Graig Twyn-y-glog Woodlands SINC.

9.5 The habitats present on or immediately adjacent to the Proposed Development are:

- Acid grassland – semi-improved (B1.2)1
- Improved grassland (B4)
- Marshy grassland (B5)
- Cultivated / disturbed land – arable (J1.1)
- Bracken – continuous (C1.1) and scattered (C1.2)
- Dry dwarf shrub heath – acid (D1.1)

[1] For each habitat, the JNCC habitat code is provided (in parentheses).

- Running water (G2)
- Hedgerows with trees (J2.3)
- Scrub – dense / continuous (A2.1) and scattered (A2.2)
- Broadleaved (A3.1) and coniferous (A3.2) scattered trees
- Mixed woodland – plantation (A1.3.2)
- Coniferous woodland – plantation (A1.2.2)
- Broadleaved woodland – semi-natural (A1.1.1)
- Other rock exposures – acid / neutral (I1.4.1)
- Quarry (I2.1)
- Hardstanding (J3), bare ground (J4), fencing (J2.4) and dry-stone walls (J2.5)

9.6 Four of these habitats; marshy grassland[2], headwaters[3], lowland heath and hedgerows, are considered Habitats of Principal Importance (under Section 7 of the Environment (Wales) Act, 2016).

9.7 The data search returned 635 records of bats within 10 km of the Study Area (none from within the Study Area), which comprised records of at least 11 species. A total of 19,314 passes from a minimum of nine species of bat were recorded during the bat activity survey, from a minimum of nine species of bat; common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle *Pipistrellus nathusii*, (one or more) *Myotis* species[4], noctule, Leisler's bat *Nyctalus leisleri*, serotine *Eptesicus serotinus*, long-eared bat species *Plecotus species*[5], and lesser horseshoe bat. The GLTA of the Study Area found five trees with PRF-M features (at the south-eastern edge of the mixed plantation woodland in the central – eastern part of the Study Area (Perry's Wood)) and a further 82 trees with PRF-I features were recorded in the Study Area, 54 of which were within Perry's Wood.

9.8 The data search did not return any records of hazel dormouse *Muscardinus avellanarius.* A scoping comment from RCT noted that *"dormouse has recently been found in the locality for the first time"*, but did not give a precise location. No dormice or evidence of their presence was recorded during the survey work.

9.9 SEWBReC returned eight records of otter within the last 10 years, all of which were associated with the River Rhondda and its tributaries, the closest record is approximately 1 km to the south of the Study Area boundary, recorded in

[2] Those areas that conform to the M25 NVC community.

[3] One section of watercourse in the central – eastern part (lower slopes) of the surveyed area.

[4] Species of the genus *Myotis* were grouped together as all UK species have overlapping call parameters, making species identification problematic (Hundt, 2012).

[5] All long-eared bat species records were likely to be brown long-eared bat. Grey long-eared bat is very rare in Wales (Russ, 2012).

2019. No evidence of the presence of otter was recorded during the riparian mammal survey on 03 October 2024.

9.10 The data search did not return any records of water vole *Arvicola amphibius*. Field signs of water vole were recorded on the banks of the watercourse south of Perry's Wood. These included, a latrine, fresh cut stems (feeding remains) and a burrow entrance.

Mitigation

9.11 The following mitigation measures have been adopted as part of the Proposed Development to mitigate potential impacts on ecology:

- Feathering of the turbines blades at idle to minimise the potential for killing and injury of bats.
- Minimising the working footprint as far as practicable during construction (with temporary lay-down, vehicle access points, material storage or construction compounds confined to tracks, laybys or appropriate areas as identified / discussed with the ECoW).
- Retained habitats including buffers and root zones clearly demarcated with high visibility marker posts.
- Bat buffer of 50 m from blade tip to retained forest edge.
- A preconstruction ecological survey programme, for sensitive ecological receptors.
- Enhancement of the mixed plantation woodland through measures such as limited selective felling of non-native species (e.g. spruce sp.), planting of fruiting understorey species (tolerant of low light levels) and overseeding with a woodland ground flora seed mix, to compensate for the reduction in the extent of this habitat.
- The creation of habitat piles and retained dead wood from the pruned / felled materials within the woodland, which would provide habitat for invertebrates and reptiles.
- Cessation of regular cutting of the marshy grassland south of Perry's Wood, to compensate for the reduction in the extent of this habitat.
- Control of encroaching bracken within semi-improved acid and marshy grassland.
- Scrub control within the small area of dry dwarf shrub heath.
- Fencing of field margins within the solar array (between solar panels and walls), to prevent overgrazing and allow the development of a longer and more diverse sward. This habitat will be cut annually in late summer / early autumn.
- Incorporating habitat enhancement for reptile including the creation of simple structures such as hibernacula and grass snake egg laying heaps within fenced field margins.

- Provision of bat and dormouse boxes in Perry's Wood.
- A treatment plan to remove / reduce the invasive Japanese knotweed present in Perry's Wood.

Likely significant effects

9.12 No significant adverse effects on Ecology are anticipated.

9.13 Adverse residual effects of significance at the Site level are anticipated on; mixed plantation woodland and water vole.

10 Ornithology

Introduction

10.1 This chapter of the Environmental Statement (ES) evaluates the effects of the Proposed Development on bird species. It describes the methods used to evaluate the ornithological interest within the Study Area boundary, and to determine the nature conservation importance of this interest. It explains the ways in which these ornithological features may be affected by the Proposed Development and assesses the likely effects of the Proposed Development and their significance. In making an assessment of effects, the chapter draws on information obtained through desk study, consultation, and field survey.

10.2 The assessment has been undertaken by BSG Ecology Ltd.

Methodology

10.3 A detailed desk-based review was undertaken to inform the baseline assessment for ornithology. Site-specific surveys were undertaken to inform the baseline assessment for ornithology. These were; Vantage Point (VP) survey, breeding raptor survey, breeding wader (and notable passerine) territory mapping survey and nightjar survey.

Baseline

10.4 The Study Area shows the most use by red kite, which are present year-round. A red kite territory outside the Study Area boundary was active in both breeding seasons.

10.5 Lapwing bred within or immediately adjacent to the Study Area in both years, with one territory detected in 2022 and two in 2023 (productivity was noted at the nest in 2022).

10.6 The Study Area is used infrequently by peregrine; although flights were noted during all survey seasons, no peregrine territories were recorded. Goshawk and kestrel also use the Study Area infrequently, neither species was recorded in the breeding season of 2022, but both were present over winter 2022-2023, during the breeding season of 2023 and winter 2023-2024. A probable goshawk territory was detected approximately more than 1 km outside the Study Area in 2023.

10.7 A wider range of species use the Study Area over the non-breeding season with migrant osprey and honey buzzard recorded.

10.8 Twenty golden plover flights were recorded (outside the breeding season for the species) over the two years of survey, with flocks numbering up to 22 birds recorded.

10.9 One nightjar territory was identified in a similar location in both years of survey, outside the Study Area boundary.

10.10 The Study Area is well used by buzzard and corvids, including raven and rook. Buzzard, raven and rook are resident in the area, with territories recorded

during the breeding raptor surveys in 2022. Herring gull and lesser black-backed gull were also recorded frequently.

Mitigation

10.11 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on ornithology:

- Routeing and design of the solar array and access tracks to minimise impacts on the lapwing breeding area or habitats likely to be of high ecological value to most passerines.
- Retained habitats including buffers and root zones clearly demarcated with high visibility marker posts.
- A preconstruction ornithological survey programme, for sensitive ornithological receptors.
- Creation of Lapwing Management Areas (in addition to those being created for Llwyncelyn).
- Enhancement of the mixed plantation woodland through measures such as planting of fruiting understorey species (tolerant of low light levels) and overseeding with a woodland ground flora seed mix, to compensate for the reduction in the extent of this habitat, will improve the value of the habitat foraging resource for insectivores (such as Phylloscopus warblers) and berry-eating birds (e.g. fieldfare and redwing).
- Cessation of regular cutting of the marshy grassland south of Perry's Wood, to compensate for the reduction in the extent of this habitat, thereby increasing its suitability for passerines (e.g. meadow pipit and grasshopper warbler).
- Control of encroaching bracken within semi-improved acid and marshy grassland. This will enhance the area of suitable foraging and breeding habitat for ground-nesting species (including skylark and meadow pipit).
- Provision of bird boxes in Perry's Wood.

Likely significant effects

10.12 Significant adverse effects on the following ornithological receptors are anticipated:

- Red kite – effects of significance at the Local level are anticipated.
- Golden plover – effects of significance at the Local level are anticipated.
- Lapwing – effects of significance at the County level are anticipated.

11 Noise and Vibration

Introduction

11.1 This chapter considers the potential impacts on noise during the construction, operation and maintenance and decommissioning phase of the Proposed Development. The assessment considered the potential impacts on amenity at the nearby noise-sensitive receptors.

Methodology

11.2 Construction noise was assessed in accordance with the guidance contained within British Standard 5228-1:2009+A1:2014 with operational noise from the wind farm assessed in accordance with ETSU-R-97 and the Institute of Acoustics Good Practice Guide. Operational noise from the solar and BESS was assessed in accordance with British Standard 4142:2014+A1:2019.

Baseline

11.3 Baseline noise monitoring was undertaken at five nearby noise-sensitive receptors over a period of 4-weeks to establish the prevailing noise climate in the area. The monitoring was undertaken in accordance with the Good Practice Guide with the results analysed in order to derive day and night-time noise limits in accordance with ETSU-R-97.

Mitigation

11.4 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on noise:

- The adoption of Best Practicable Means for construction activities to minimise noise as far as practicable.

Likely significant effects

11.5 Taking into account the mitigation measures described above, the following significant effects are likely to occur with respect to noise:

- The predicted noise levels from all assumed construction plant and activities are shown to be comfortably below the adopted criterion of 70dB L_{Aeq} and therefore effects would be **temporary** and **not significant**.

12 Shadow Flicker

Introduction

12.1 This chapter considers the potential impacts on shadow flicker during the construction, operation and maintenance, and decommissioning phase of the Proposed Development.

Methodology

12.2 Relevant guidance pertaining to shadow flicker had informed the assessment methodology. A desk-based study had been conducted to determine the impact upon residential dwellings

Baseline

12.3 Residential dwellings exist within 10 rotor diameters of the Proposed Development. The nearby existing Mynydd Portef wind farm is considered not to have any existing impacts upon residential dwellings.

Mitigation

12.4 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on shadow flicker:

- A shutdown scheme will be implemented for 17 dwelling receptors experiencing shadow flicker effects for more than 30 minutes on any given day and/or 30 hours per year.

Likely significant effects

12.5 Taking into account the mitigation measures described above, the following significant effects are likely to occur with respect to shadow flicker:

12.6 No significant effects are likely to occur with the implementation of the mitigation measure

12.7 No significant cumulative effects are likely to occur with respect to shadow flicker.

13 Aviation and Telecommunications

Introduction

13.1 This chapter considers the potential impacts on Aviation and Telecommunications infrastructure during the construction, operation and maintenance, and decommissioning phase of the Proposed Development.

Methodology

13.2 Relevant guidance pertaining to Aviation and Telecommunications had informed the assessment methodology. The Ofcom Spectrum Information Portal and consultation with telecommunication link operators had informed the baseline conditions to consider during the assessment. A desk-based study had been conducted to determine the impact upon aviation activity.

Baseline

13.3 The Proposed Development is within line-of-sight to the Bristol Airport and Cardiff Airport Primary Surveillance Radar.

13.4 The Proposed Development is within the vicinity of telecommunication link infrastructure pertaining to Arqiva.

Mitigation

13.5 The following measures have been adopted as part of the Proposed Development to mitigate potential impacts on Aviation and Telecommunications:

- Consultation with Bristol Airport and Cardiff Airport will be undertaken to confirm their position on the Proposed Development. Although a technical impact is considered possible due to being visible to the radar, the impact may be accommodated for, as it may not cause an operational impact.
- The details of the telecommunication infrastructure pertaining to Arqiva have been used to model exclusion zones to avoid causing impact.

Likely significant effects

13.6 Taking into account the mitigation measures described above, no significant effects are likely to occur with respect to Aviation and Telecommunications

13.7 With respect to Aviation and Telecommunications, no transboundary effects are likely to occur during construction, operation and maintenance and decommissioning of the Proposed Development on the interests of European Economic Area states.

14 Socioeconomics

Introduction

14.1 This chapter considers the potential impacts on socioeconomics, tourism and recreation during the construction, operation and maintenance and decommissioning phase of the Proposed Development. The assessment considered the potential impacts on unemployment, economic output, the visitor economy, temporary worker accommodation, commuting patterns and access to recreation.

Methodology

14.2 There is no specific guidance available which establishes a methodology for undertaking an Environmental Impact Assessment (EIA) of the socio-economic effects of a project. Accordingly, the approach adopted for this assessment is based on professional experience and best practice, and in consideration of the policy requirements/tests set out within the National Planning Policy Framework (NPPF) National Planning Statement's (NPS), Draft NPS and local planning policy. The approach is in line with methodologies used by others, that have withstood public inquiry/DCO examination.

14.3 The assessment of effects has been informed by desktop-based analysis of social and economic data for the study area. This has been used to assess the sensitivity, magnitude and significance of effects on multiple socioeconomic, tourism and recreation receptors in relation to specific project design parameters.

Baseline

14.4 Employment in the construction sector within the study area accounts for 7.3% of employees, considerably higher than observed in Wales (5.1%). The share of employees employed within the Manufacturing sector (13.4%) is also higher than the Welsh average (10.7%).

14.5 There is a low level of deprivation within RCT identified within the Welsh Index of Multiple Deprivation. In terms of unemployment, rates have fluctuated in the study area over the last five years. Typically, the study area had a higher rate of unemployment than observed both regionally and nationally between 2023-2024.

Likely significant effects

14.6 Taking into account the mitigation measures described above, significant effects with respect to socioeconomics, tourism and recreation are only likely to occur in relation to economic output, during all phases.

14.7 No significant cumulative effects are likely to occur with respect to socioeconomics, tourism and recreation.

14.8 With respect to socioeconomics, tourism and recreation, no transboundary effects are likely to occur during construction, operation and maintenance and decommissioning of the Proposed Development on the interests of European Economic Area states.

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