

Nant Mithil
Energy Park Limited

Non-Technical Summary

Final Report
November 2024



Chapter 1

Non-Technical Summary

Introduction

1.1 Nant Mithil Energy Park Ltd (the Applicant) is seeking planning permission to construct and operate a wind farm known as Nant Mithil Energy Park (hereafter referred to as the Proposed Development). The Proposed Development is a 'Development of National Significance' (DNS) as the Proposed Development is an onshore wind farm with an installed generating capacity greater than 10 MW. As a DNS, consent will be required from the Welsh Ministers (via Planning and Environment Decisions Wales (PEDW)).

1.2 The Site of the Proposed Development is located approximately 9 kilometres (km) east of Llandrindod Wells, within the local planning authority area of Powys County Council (PCC) and within a wider upland area called Radnor Forest as shown on **Figure 1: Site Location**. The layout of the Proposed Development is shown in **Figure 2: Site Layout**.

1.3 The Proposed Development is categorised as 'EIA development', as it could potentially result in 'significant' environmental effects under the Town and Country Planning (Environmental Impact Assessment) (Wales) 2017 Regulations as amended (the EIA Regulations). The application for planning permission is accompanied by an Environmental Statement (ES), which presents the findings of the EIA.

1.4 This Non-Technical Summary (NTS) is a standalone document and has been prepared in accordance with the EIA Regulations to provide a clear and easy to understand overview of the Proposed Development and key findings presented within the ES. The EIA has been undertaken by LUC and specialist consultants, all considered to be competent experts in accordance with the EIA Regulations.

1.5 An electronic version of the ES and all supporting documents can be viewed via the Welsh Government 'Developments of National Significance' Planning Casework website, which can be accessed at: <https://planningcasework.service.gov.wales/>.

The Applicant

1.6 The Proposed Development is being developed by Nant Mithil Energy Park Ltd, a subsidiary of Bute Energy Ltd. Bute Energy is a developer of onshore wind and solar energy parks, using the latest technology to deliver low-cost renewable energy.

Environmental Impact Assessment

1.7 EIA involves the compilation, evaluation and presentation of any potentially significant environmental effects resulting from a development, to assist the consenting authority, statutory consultees, and wider public in considering an application. Early identification of potentially adverse (negative) environmental effects also leads to the identification and incorporation of appropriate mitigation measures into the scheme design to avoid, reduce and, if possible, remedy potentially significant adverse environmental effects. The residual effect, i.e. following the identification of appropriate mitigation, is then reported in the ES.

1.8 The ES presents information on the identification and assessment of the likely significant environmental effects of the Proposed Development. The significance of these effects (either positive or negative) has been assessed using criteria defined in the individual topic chapters of the ES. Where appropriate, the significance of effects has been categorised as major, moderate, minor or negligible. In the context of the EIA Regulations, effects assessed as being of '**Major**' or '**Moderate**' significance are considered to be significant effects.

1.9 A Scoping Direction outlines the range of issues which PEDW, the local authority and other technical consultees (such as Natural Resources Wales and Cadw) consider should be contained within the EIA. A Scoping Direction for the Proposed Development was requested by the Applicant through submission of a Scoping Report and provided by the Welsh Ministers on 6 September 2022 for a development of up to 36 turbines. The EIA and wider pre-application process, including the Scoping process and subsequent consultations, led to a reduction in the scale of the Proposed Development, leading to the design that is the subject of the DNS application.

1.10 At that Scoping stage, solar and battery were included as part of the Proposed Development along with a new bridge over the River Wye and two blade transfer areas required

for the transportation of Abnormal Indivisible Loads (AIL) to the Site. These elements have been removed from the proposals during the post-scoping design review stages for a number of reasons and no longer form part of the Proposed Development.

Overview of the Site and the Proposed Development

The Site

1.11 The Site covers an area of approximately 1773 hectares (ha) and consists of a mix of lowland pasture with hedgerows and open hill grazing used for commercial agriculture and commercial coniferous plantation. Several farmsteads and residential properties are located within the low areas to the north, west and south of the Site.

The Proposed Development

1.12 The main components of the Proposed Development will comprise:

- Up to 30 wind turbines each with a three-blade rotor;
- Two options for a new access junction off the highway;
- Crane hardstandings and adjacent laydown areas for each wind turbine location;
- Approximately 23.61 km of access tracks (of which approximately 21.81 km will be new track and 1.8 km will be upgraded existing track) including turning heads, passing places and associated ancillary engineering works;
- An electrical substation compound, consisting of a switching station, gantry, transformer area and control building;
- Onsite underground electrical cables connecting the wind turbines back to the energy park substation, laid in cable trenches alongside the access tracks or existing tracks on Site;
- Watercourse crossings and associated infrastructure;
- Site signage, vehicle parking and security fencing; and
- Biodiversity enhancement proposals.

1.13 In addition to the above components of the operational Proposed Development, construction of the Proposed Development will also require the following temporary components:

- Three temporary construction and storage compounds.
- The creation of up to three temporary borrow pits for the extraction of stone (subject to detailed site investigation). The northernmost temporary borrow pit will be used as a secondary temporary construction compound following extraction.
- The temporary diversion or temporary closure of a number of Public Rights of Way (PRoW) that cross through the Site.
- A temporary security cabin at the site entrance.

1.14 The Proposed Development will be accessed via an upgraded priority junction on the A44. At this stage, the abnormal loads for the Proposed Development could come from either the north or the south of the Site, therefore provision is made for two options for the site access junction off the A44 on the south-western edge of the Site. Whilst consent is being sought for both options, only one will be constructed. These two options are shown on **Figure 2: Site Layout**.

1.15 The wind turbines will have a maximum blade tip height of 220 m (for three wind turbines), 205 m (for 24 wind turbines) and 180 m (for three wind turbines). Tip heights for each turbine by number are shown in **Table 1** below.

1.16 The indicative output capacity of the Proposed Development at this stage is 198 MW. However, this capacity may vary subject to the final turbine model chosen¹.

1.17 As well as contributing to the generation of low carbon electricity and the resulting avoidance of carbon emissions, the Proposed Development provides the opportunity for local communities to benefit financially from its operation through regular annual payments of £7,500 per MW of installed wind capacity per year (community benefit fund).

¹ The turbine to be used will be subject to a tendering process if the application receives consent. This means that output capacity could change from that currently envisaged based on current market options, however the turbine selected would need to fall within the parameters for which consent is granted and as assessed in this ES.

1.18 The operational life of the Proposed Development is 40 years. 23 months are required for construction. If planning permission is granted, it is anticipated that construction of the Proposed Development will commence in 2027. Following the 40-year operational period, the Proposed Development will be fully decommissioned, or an application could be made to extend the operational life. Decommissioning will involve the removal of the above-ground parts of the turbines, electrical equipment, control buildings and compounds.

Table 1: Proposed turbine locations and tip heights

Wind Turbine Number	Easting	Northing	Tip Height (m)
1	316131	260465	205
2	316596	260366	205
3	317056	260242	205
4	317108	260686	205
5	316502	261016	205
6	317124	261358	205
7	317925	261133	205
8	317947	261649	205
9	317999	262207	205
10	317682	262578	205
11	317438	262920	205
12	316291	262164	205
13	316867	262430	205

Wind Turbine Number	Easting	Northing	Tip Height (m)
14	316224	262791	205
15	316862	262885	205
16	316931	263317	205
17	317470	263410	205
18	317778	264231	205
19	317990	264586	205
20	317704	265046	205
21	315891	264810	205
22	316311	264691	205
23	315793	265286	205
24	316271	265282	205
25	317051	264983	220
26	317341	265575	220
28	317424	266259	220
29	317116	266614	180
30	317890	266951	180
31	318443	267407	180

Site Selection and Design Strategy

Site Selection

1.19 The Applicant's process and approach to selecting sites for renewable energy development involved early assessment of potential capacity for energy generation in balance with environmental and technical constraints, relevant policy and project deliverability in line with the urgency of reaching 2030 and 2035 renewable electricity and 2050 net zero targets for Wales. The Site Characteristics set out below demonstrate many of the characteristics that the Applicant considers when looking for potential locations for wind energy development.

1.20 Early selection of the Site for wind energy was primarily driven by the following criteria:

- A desk-based assessment to identify land suitable for development using Geographical Information System (GIS) by mapping technical and environmental constraints. These constraints included but were not limited to:
 - Nationally designated landscapes such as National Parks and National Landscapes/Areas of Outstanding Natural Beauty (AONBs)²;
 - Cultural heritage designations such as World Heritage Sites, Scheduled Monuments, Listed Buildings, Conservation Areas and Registered Battlefields;
 - Application of the mitigation hierarchy, seeking firstly to avoid effects on ecological designations such as Site of Special Scientific Interest (SSSI), Special Protection Area (SPA), Special Area of Conservation (SAC), Historic Gardens, Ancient Woodland, Peatland and Local Nature Reserves;
 - Terrain was reviewed to ensure that gradients supported the placement of a wind turbine and laydown areas;
 - Wind resource of the area was considered using publicly available wind data sources to assess wind speed and commercial viability;
 - Proximity to nearby residential properties; and

² AONBs in England and Wales were renamed as 'National Landscapes' in November 2023.

- Aviation constraints including licenced aerodromes and visibility to military and civilian RADARs.

- The GIS site search must identify an area of sufficient scale for an adequate number of turbines or capacity to accommodate a commercially viable scheme.
- Alignment with planning and renewable energy policy that forms part of the Development Plan. This included avoiding areas designated as unsuitable for large-scale wind energy development such as National Parks and National Landscapes/AONBs. Alignment with Policies 17 and 18 of Futures Wales (2021)³ and its evidence base⁴, which informed identification of the Pre-Assessed Areas (PAAs) for wind development⁵.
- Access to the Site from a port of delivery of turbine components to each of the turbine locations.
- Ground conditions for building of turbine foundations, access track and cable installation.
- Ability for extant land use to be maintained as much as possible alongside the simultaneous operation of wind turbines, such as upland grazing.

1.21 The Proposed Development will connect to the national electricity network. Nant Mithil Energy Park Ltd has a grid connection agreement from GreenGEN Cymru (GGC), an Independent Distribution Network Operator (IDNO), for capacity on their proposed Towy Usk project. The connection point to GGC's network will be located at the Nant Mithil Energy Park site substation.

1.22 From this substation, GGC plans to install a 132 kilovolt (kV) wooden-pole overhead line to integrate with their wider proposed network. It is important to note that this grid connection infrastructure does not form part of the Proposed Development and will be addressed through a separate planning application

³ [Welsh Government \(2021\) Future Wales: The National Plan 2040](#)

⁴ [Welsh Government \(2019\) Assessment of on-shore wind and solar energy potential in Wales](#)

⁵ Note that the reference to PAA was only introduced into the final version of the NDF, however site identification was already underway prior to publication, when the areas were call 'priority areas' (for wind and solar).

Site Characteristics

1.23 Key characteristics of the Site that make it suitable for an energy park comprising wind turbines include the following:

- The Site has an excellent wind resource;
- The Site is available for wind energy development: the requisite land agreements are in place and there are no other conflicting land uses on the Site;
- Part of the Site is within a Pre-Assessed Area (PAA4) as defined in Future Wales and there are no planning policies which, in principle, preclude wind energy development at the Site;
- There are no international nature conservation designations within the Site;
- The Site has suitable ground conditions for turbine foundations, access tracks and other infrastructure; and,
- The Site is accessible for construction traffic and turbine deliveries from the trunk road network.

The Design Strategy

1.24 The design strategy for the Proposed Development has aimed to provide the best balance between minimising effects on the local and wider environment and optimising energy yield. It has sought to create a layout that relates sympathetically to the landform and scale of the Site and surrounding area, and that is well-composed from key views.

1.25 Energy yield is an important consideration for wind farm design in environmental terms, because the chief environmental benefit of the Proposed Development – mitigation of climate change via low carbon, renewable energy generation – can only be maximised by optimising the energy generation potential of the Site while taking all other design considerations into account. Where a site is generally suitable for development, it is therefore important to avoid, to the extent commensurate with other constraints and effects, the ‘opportunity cost’ of failing to deliver the site’s fullest renewable energy generation potential.

1.26 Planning Policy Wales (PPW) Edition 12 (2024)⁶ makes detailed reference to the step-wise approach as the means of demonstrating the steps which have been taken towards securing a net benefit for biodiversity. This includes addressing all the attributes identified under the diversity, extent, condition and connectivity and adaptability (DECCA) framework. Whilst PPW12 came into effect after the Site had been selected and designed, the design process has followed the mitigation hierarchy approach and therefore it is considered that the approach to design of the Proposed Development has aligned with and adopted the steps in the step-wise approach.

1.27 The design parameters for the Proposed Development evolved through the design process, as environmental baseline information became available through desk and field-based surveys and feedback from consultation was received.

1.28 One key change implemented through the design process was the option to route AILs from Swansea port via a new bridge over the River Wye, south of Builth Wells. This option was subsequently discounted as the River Wye is designated as both a SSSI and SAC as well as being subject to other environmental constraints. This approach accords with 'Step 1 Avoid' of the step-wise approach required by PPW12 since October 2023.

1.29 Further information on how the design of the Proposed Development has complied with the step-wise approach as advocated in PPW12 is provided in the **Green Infrastructure Statement** submitted with the DNS application.

1.30 While balancing the need to optimise the energy generation potential of the Site, the final design objectives included, but were not limited to, the following:

- To use the latest wind turbine technology, consisting of more efficient and larger turbines where these can be reasonably accommodated within the landscape, as supported by Policy 17 of the NDF⁷;
- Considering landform, scale and land use to locate turbines on the larger scale hill tops/ridges;

⁶ [Welsh Government \(2024\) Planning Policy Wales \(Edition 12\)](#)

⁷ [Welsh Government \(2021\) Future Wales: The National Plan 2040](#)

- Avoiding turbines appearing as overbearing on the steep sided slopes on the western and northern peripheries of the Site;
- Considering different turbine heights across the Site to respond to the varying topography and relative proximity to residential properties;
- Minimising effects on nationally designated landscapes, most notably the Shropshire Hills National Landscape/AONB and Bannau Brycheiniog National Park, including cumulative effects;
- Minimising the effects of visible aviation lighting through the implementation of all available mitigation measures to reduce the number, frequency and intensity of visible lighting required;
- Avoiding breaching the 'residential visual amenity threshold' at nearby properties, beyond which these properties could be widely regarded to be unattractive places to live;
- Limiting noise at nearby properties to acceptable levels in accordance with established guidance;
- Avoiding any part of the Proposed Development being within the Radnor Forest SSSI, which lies partially within the eastern part of the Site boundary or within the Mithil Brook and Cwm Blithus SSSI, which lies partly within the western part for the Site boundary;
- Minimising interactions with ecologically sensitive habitats to the greatest feasible extent: in particular, peatland habitats, 'Annex 1' and 'Section 7' habitats and Groundwater Dependent Terrestrial Ecosystems (GWDTEs);
- Minimising interactions with peat resource present on the Site to the greatest feasible extent;
- Protecting the Site's hydrological regime, including peatland hydrology, and the interaction of this with the hydrological regime of the Site's surroundings, with particular focus on the site setting, within the catchments of the River Wye/Afon Gwy SAC;
- Taking account of the potential for effects on all bird species of conservation concern at and around the Site;
- Taking account of the potential for effects upon bats;

- Taking account of cultural heritage assets and their settings, including Scheduled Monuments, listed buildings and non-designated but locally important heritage assets such as Cefn y Crug and Cowlod cross dykes (PRN993; PRN6871);
- Minimising the requirement for significant earthworks by considering topography and slope stability;
- Limiting infrastructure on common land to access tracks and its associated drainage; and cable trenches, and minimising land take overall as far as possible across the Site;
- Minimising effects on the access and recreation opportunities provided by the PRow network within the Site;
- Exploring opportunities within the Site to provide greater access and recreational opportunities; and,
- Securing net benefit for biodiversity.

1.31 Modifications were made to the layout to following Pre-Application Consultation (PAC) as follows:

- T27, its associated hardstanding and track was removed resulting in;
 - A reduced overall land-take of the Proposed Development because the red line boundary has been reduced as a result.
 - A reduction in visual impact and residential visual amenity impacts, where T27 was prominent in views.
 - Reduced impacts relating to the four watercourse crossings, of which two would have crossed GWDTE and well as habitat loss and noise effects.
- T25 was moved south-east within the 50m micro-siting allowance: as a result of Cadw's PAC response, moving T25 south-east retains the line of sight between the Shepherd's Tump round barrow and those at Cwm Bwch, thereby reducing the level of change to this key element of the setting of Shepherd's Tump round barrow.
- T28 and T29 were moved south within the micro-siting allowance to increase separation distances from residential properties to the north of these two turbines.

- The permanent met mast was removed as it was no longer required. This has resulted in a reduced overall land-take of the Proposed Development.
- The 50m cabling corridor between T20 and T26 was removed as a further review of the cabling strategy identified that this was no longer required. This has resulted in a reduced overall land-take of the Proposed Development.
- The 50m cabling corridor between T6 and T13 was moved east, so that the western edge of the cabling corridor runs alongside the BOAT and avoids an area of deeper peat to the west of the BOAT. This movement was informed by discussions with the Welsh Government's Land Quality Advice Service (LQAS).
- The substation was reconfigured from a 150m x 150m layout to a 75m x 130m layout (75m x 250m during construction) to optimise the configuration of the electrical equipment within the substation, resulting in a reduction in footprint of the substation by 3,750m² and associated earthworks.
- A temporary security cabin is to be placed at the Site entrance during the construction period.

Wind turbines were not re-numbered at this stage, so whilst the final layout has turbine numbering up to 31, the Proposed Development comprises a total of 30 wind turbines.

1.32 The final design for the Proposed Development is shown in **Figure 2: Site Layout**. The inherent nature of wind turbines as tall, modern structures means that the form of the Proposed Development as a whole is important, and a clear design strategy is necessary. The overall aim of the design strategy was to create an energy park with a cohesive design that is sympathetic in form and scale to the surrounding landscape context, whilst achieving an appropriate balance between maximising renewable energy yield and minimising other environmental and technical effects.

1.33 The design of the Proposed Development has evolved over multiple iterations to achieve the best feasible balance of maximising renewable and low carbon energy generation benefits and other environmental effects. It is considered that the final design presents the optimum design scenario in this respect.

Landscape and Visual Amenity

Introduction

1.34 A landscape and visual impact assessment (LVIA) has been carried out to identify the significant landscape and visual effects that are likely to arise as a result of the Proposed Development. The LVIA has considered the effects on landscape and visual receptors (people) during the short-term construction and long-term operational stages, as well as the cumulative effect of the Proposed Development in conjunction with other approved and proposed developments within the study area. The effects of visible turbine lights (aviation obstruction warning lighting) have also been assessed. A residential visual amenity assessment (RVAA) has been carried out to assess the visual effects of the Proposed Development on individual residential properties, including consideration of whether the residential visual amenity threshold would be breached at any property.

How have potential effects on landscape and visual amenity been considered?

1.35 The assessment has considered a study area extending to 28 km from the outermost turbines of the Proposed Development. It has involved a desk study, field survey and computer modelling to analyse the landscape of the study area and to understand where the Proposed Development will be visible from. Landscape and visual receptors have been identified, and their sensitivity has been recorded as part of a baseline assessment. The sensitivity of receptors and the potential effects of the Proposed Development have informed the layout and design of the Proposed Development as part of an iterative design and assessment process. The residual effects of the final Proposed Development have been assessed in accordance with current guidelines. The assessment of significance has been undertaken with reference to the sensitivity of the receptor and magnitude of effect, and the assessment has been carried out by Chartered Landscape Architects.

What is the landscape and visual amenity on and around the Site?

1.36 The Site is part of a wider upland area known as Radnor Forest, forming a large plateau, which is the highest and most extensive range within the Radnorshire Hills. A large part of the Radnor Forest is a broad upland plateau, which has steep sides, and several distinct summits

and ridges making up the wider complex of hills. The Site comprises a series of open, smoothly rounded ridges within Radnor Forest, and includes Great Rhos, which is the highest summit at 660m Above Ordnance Datum (AOD). The landscapes of the Study Area include the Radnorshire Hills (within which the Site is located), the Vales of Irfon and Ithon, the Upper Wye Valley, the Teme Valley and the Bannau Brycheiniog National Park (BBNP) (an International Dark Sky Reserve (IDSR)) located approximately 18 km to the south of the Site. The Study Area also encompasses part of the West Midlands of England including the Clun and North-West Herefordshire Hills, and the northern extent of the Black Mountains. The Study Area also includes a small part of the Shropshire Hills National Landscape/Area of Outstanding Natural Beauty (AONB) situated approximately 10 km north-east of the Site at its nearest point.

What potential effects on landscape and visual amenity were identified?

1.37 The assessment has found that there would be unavoidable significant landscape effects on the character of the landscape units directly affected by the Proposed Development, within the Radnor Forest Upland Complex (Radnor Forest Landscape Character Area (LCA) 43). The effect will be major in close proximity to the Proposed Development, decreasing with distance. There will be lesser (albeit still significant) effects on the perceptual character of landscape units that surround the Proposed Development, including elevated areas of the Aberedw Uplands (LCA 50) to the south of the Site, settled lower lying areas and small hills within the Llanbister and Penybont Uplands (LCA 40) west and north-west of the Site, areas of the Ithon Valley (LCA 39) to the north-west of the Site, hills and east facing slopes above the River Dulas Valley (LCA 38) and south-east facing slopes and hillsides of the Teme Valley (LCA 32) to the north-east of the Site. These moderate to moderate-major scale effects will extend to a distance of approximately 5-7 km from the proposed turbines, during both the construction and operational stages.

1.38 There will be significant visual effects during both the construction and operational stages from some of the local communities in Powys within 7.5 km of the proposed turbines. Moderate-major effects are predicted for views from Llanfihangel Rhydithon and Dolau within 3 km to the north of the Site, and Llandegley to the west of the Site. There will also be lesser (Moderate, although still significant) effects on views from the settlements of Penybont and Crossgates within 7 km to the west, north-west of the Site, and Old Radnor approximately 7.5 km to the

south-east of the Site, from where the Proposed Development will appear in views above the skyline from the north-west facing parts of the settlement.

1.39 Significant Moderate visual effects will also be experienced by motorists travelling along the roads in proximity to the Site, including the A44 to the south-west and west of the Site for a section of the road between Llandegley and Llanfihangel-nant-Melan. Similar significant visual effects are also predicted from the A481 for receptors travelling east, north-east as the road ascends between Hundred House to meet the A44 west of Llanfihangel-nant-Melan. These effects will occur within approximately 3-5 km of the proposed turbines.

1.40 Significant visual effects are predicted for passengers travelling on the Heart of Wales Train Line, which passes within 5 km to the north of the Site. These views will be experienced along a short section of the route between the section of track south of Crossgates and approaching Dolau.

1.41 Significant Major visual effects will arise for recreational users of the Heart of Wales Line Trail and Elan Valley Way long distance footpaths, from sections of these trails near Llanfihangel Rhydithon and Llywncaedu, and near Dolau within approximately 5 km of the proposed turbines to the north of the Site. Users of the Offa's Dyke Path National Trail where it passes through Powys and Herefordshire are predicted to experience significant visual effects for sections of the route within 9km where open views of the Proposed Development are afforded, limited to those experienced from where the route crosses the area of Open Access Land along the Hergest Ridge near the boundary between Mid-Wales and the West Midlands of England. Significant Moderate visual effects are also predicted to arise for recreational users on sections of Glyndŵr's Way National Trail to the north of the Site where it crosses elevated ground west of the Teme Valley within approximately 6.7 km of the proposed turbines.

Significant Moderate visual effects will arise for recreational users of the National Cycle Network (NCN) Route 825, the Radnor Ring Route from sections of the route between Sunny Bank and Bwlchau, and along the western slopes of Mynydd yr Heol within approximately 5 km of the Site.

1.42 Recreational users of the Site will experience Major visual effects from the areas of Open Access Land which is accessed and crossed by several Public Rights of Way (PRoW), routes including a Byway Open to All Traffic (BOAT) which crosses south, south-east from Cefn-y-Grug

in the north. Users will experience large scale changes as turbines and other ancillary infrastructure will be introduced in close proximity.

1.43 Significant moderate-major visual effects will also be experienced by visitors to areas of Open Access Land within the wider Radnor Forest Complex east of the Site, Coed-swydd west, north-west of the Site and Llandegley Rhos to the west of the Site, within approximately 4 km of the proposed turbines. There will also be lesser (Moderate, although still significant) effects on views experienced from elevated areas of Open Access Land at Llanfihangel Hill, Gwaunceste Hill and Little Hill to the south, the Gilwern Hills, Bwlch-llwyn Bank and Cwm-brith Bank and Cefnlllys to the west of the Site, and Glascwm Hill and Llandeilo Hill between Aberedw and Gladestry. These effects will occur within approximately 8 km of the proposed turbines.

1.44 Several residential properties will experience a high magnitude of change but not to the extent where the turbines will be so overwhelming, unpleasantly encroaching or inescapably dominant from any property so as to breach the residential visual amenity threshold (or render the property an unpleasant place to live).

1.45 A significant visual effect has been judged to occur at dusk/night from near Llandegley/A44 when the turbine aviation lights are operating in their brightest mode. Based on meteorological data the lights are expected to operate in this mode just 12% of the time (when visibility is below 5 km).

1.46 The assessment of combined cumulative effects considers the effect on landscape and visual receptors if all potential future developments (consented and proposed: Llandinam Repowering, Bryngydfa and Garn Fach Wind Farm), including the Proposed Development, are implemented when compared to the existing baseline (operational and under construction: Garreg Lwyd Hill, Cefncynfal and Hendy Wind Farm). It was concluded that the combined effects arising from all of the developments will be no greater than the sum of their individual effects as set out in the LVIA for each individual scheme.

Can these effects be mitigated?

1.47 The layout of the Proposed Development has been developed as part of an iterative assessment and design process, as described under the Site Selection and Design Strategy

section above. Through this process, mitigation has been designed-in to the final layout of turbines and other site infrastructure.

After mitigation, what effects will remain?

1.48 All effects are predicted to remain the same as set out above, as the final layout of turbines and other site infrastructure has been designed to minimise the landscape and visual impacts.

Historic Environment

Introduction

1.49 The historic environment is defined in PPW12 as comprising all surviving physical elements of past human activity, the individual elements of which constitute historic assets. These historic assets can include historic buildings, places, landscapes, as well as archaeological remains that provide physical evidence of past human activity and hold sufficient value (i.e. heritage significance) to this and future generations to merit consideration in the planning system. The historic environment assessment therefore focuses on if, and how, the Proposed Development will change the heritage significance of historic assets within and around it.

How have potential effects on the historic environment been considered?

1.50 This impact assessment was carried out in accordance with relevant legislation and current best practice.

1.51 In historic environment policy and guidance, the heritage significance of a historic asset comprises a series of qualities, known as 'heritage values'. The heritage significance of assets has been identified using the heritage values in Cadw's Conservation Principles⁸. This can include whether and how a historic asset's setting contributes to its heritage significance and allows this to be appreciated.

1.52 Whilst heritage values help describe the heritage significance of assets, they do not articulate the relative importance of assets. The 'importance' of historic assets has been assessed as either High, Medium or Low (national, regional or local significance).

1.53 Effects may result from direct physical effects to historic assets within the Site during construction, or effects due to changes to the setting of historic assets within the Site and wider study area during operation. The assessment was informed through desk-study, field surveys,

⁸ Welsh Government (2011) Conservation Principles for the sustainable management of the historic environment in Wales

the 'zone of theoretical influence (ZTV)'⁹ for the Proposed Development and visualisations, and consultation with Clwyd Powys Archaeological Trust and Cadw. The study area comprised the Site, a Core Study Area (within 5 km of the Site) and a Wider Study Area (between 5 km and 10 km of the Site).

1.54 All effects were assessed in terms of the way in which the Proposed Development will, either physically or through change in setting, affect the heritage significance of historic assets. This has been articulated with reference to the Conservation Principles heritage values. Assessment of effects related to setting change has been undertaken using the staged approach laid out in the Cadw setting guidance¹⁰. In articulating effects, a clear statement has been made as to whether the effect is considered to be significant in EIA terms.

1.55 The assessment of cumulative effects has reviewed the agreed list of cumulative schemes for the Proposed Development and identified whether any further effects (i.e. effects that will not be caused solely by the Proposed Development itself) will arise. This assessment has been undertaken and articulated in the same terms as the assessment of the effects of the Proposed Development in its own right.

What historic assets are there on the Site?

1.56 Historic assets forming the historic environment baseline are characterised by evidence of prehistoric activity from the Neolithic to the Iron Age, including Bronze Age round barrows found on the Site and late prehistoric settlements, such as hillforts and defended enclosures in the wider area outside the Site. Also included in the historic environment baseline of the Site are the remains of medieval cross dykes, post-medieval building platforms and deserted agricultural buildings, and a military aircraft crash site.

1.57 Six designated historic assets of high importance have been identified within the Site, including three Bronze Age round barrows at Cwm Bwch, Great Rhos and Shepherd's Tump (Cadw Refs. RD255; RD254; RD253). Seventy-five non-designated historic assets of medium and low importance have been identified within the Site, of which 17 are previously unrecorded

⁹ Zone of Theoretical Visibility (ZTV) maps show the area from which an object could theoretically be seen. ZTVs are based on digital terrain models (DTMs).

¹⁰ [Welsh Government \(2017\) Setting of Historic Assets in Wales](#)

historic assets identified from LiDAR data. The potential for the presence of previously unrecorded historic assets in open grassland and under agricultural management has been assessed to be negligible to low. Peat surveys have identified that areas of deep peat (greater than 30 cm) are confined to isolated areas within the Esgairnantau forest and on the Great Rhos plateau. The design process for the Proposed Development has sought to avoid areas of peat and changes in hydrology which may result in peat loss or degradation of paleoenvironmental potential due to de-watering.

What potential effects on the historic environment were identified?

1.58 Direct physical effects on six non-designated historic assets of medium and low importance have been identified, including a moderate effect to Earthwork Enclosure (LUC_08; low importance), which is a significant effect in EIA terms.

1.59 Several historic assets may experience setting change as a result of the operation of the Proposed Development. These changes have the potential to affect the way their setting contributes to how they are experienced. However, the elements of their setting which contribute most to their heritage significance, and the evidential and historical value of their physical remains will not be affected.

1.60 Changes to the setting of Cwm Bwch, Great Rhos and Shepherd's Tump round barrows, Crug Eyr Mound and Bailey Castle (high importance) and Nyth-grug Cairn (medium importance) will affect how these historic assets are experienced in the landscape. This change could lead to a moderate potential level of effect for all five assets, which is a significant effect in EIA terms.

1.61 No cumulative effects for the historic environment have been identified.

Can these effects be mitigated?

1.62 Specific additional mitigation for significant direct physical effects to an Earthwork Enclosure (LUC_08) is proposed (shown on **Figure 6.1, Volume 3** of the ES). This comprises a landscape survey record including preparation of a report on the results of the landscape survey and preparation and submission of an ordered archive. This provides an enhanced and integrated, multidisciplinary record. It will comprise an account of the historic asset and its

setting accompanied by a full range of measured and annotated drawings as well as photographs and reconstruction/phased diagrams and an accurate measured survey plan alongside three-dimensional data.

1.63 Archaeological recording during construction ('watching brief') including preparation of a report on the results of the archaeological recording and preparation and submission of an ordered archive will also be carried out.

1.64 The Construction Environmental Management Plan (CEMP) for the Proposed Development secures construction best practice measures for protecting the historic environment, including the appointment of an Archaeological Clerk of Works to supervise targeted ground-breaking operations and provide onsite advice on avoidance of effects and the implementation of a working protocol should previously unrecorded historic assets, including buried archaeological remains (e.g. archaeological deposits and features) be discovered. No additional specific mitigation for potential physical effects during construction on previously unrecorded historic assets, including buried archaeological remains, is considered necessary.

1.65 For developments of this sort, it is difficult to fully mitigate impacts to historic assets resulting from setting change during operation beyond those changes already made to the design and layout of the Proposed Development during the EIA process. During the design process, effects on historic assets were minimised as far as possible, such as retaining lines of sight between the Cwm Bwch, Great Rhos and Shepherd's Tump round barrows. Following this, no further specific mitigation to reduce the potential effects to historic assets due to setting change resulting from the operation of the Proposed Development has been identified.

1.66 To help offset effects and improve the conservation and management of the historic environment resource in and around the Site, opportunities for enhancement measures have been produced for discussion with interested parties.

After mitigation, what effects will remain?

1.67 After additional mitigation the residual effect to the Earthwork Enclosure (LUC_08) will not be significant.

1.68 Five residual significant effects due to direct effects resulting from setting change have been assessed for the historic environment for Cwm Bwch, Great Rhos and Shepherd's Tump round barrows, Crug Eyr Mound and Bailey Castle and Nyth-grug Cairn.

Ecology (not birds)

Introduction

1.69 An Ecological Impact Assessment has been undertaken, drawing on the ecological baseline conditions and the identification of important ecological features, to provide an assessment of the potential effects of the Proposed Development on Ecology, not including birds. Bird life is considered below under 'Ornithology'.

How have potential effects on ecology been considered?

1.70 The impact assessment was carried out in accordance with relevant legislation and current best practice. A range of ecology surveys were undertaken between 2020 and 2024 to define the ecological baseline for the Site. The surveys included a Desk Study, Phase 1 habitat surveys, Phase 2 (National Vegetation Classification (NVC)) surveys, [REDACTED]

[REDACTED]

[REDACTED]

1.71 Study Areas were defined as follows:

- The Phase 1 habitat and NVC surveys covered the Proposed Development area plus a 100 m buffer;
- [REDACTED] covering the proposed turbine area plus additional [REDACTED] in accordance with guidance;
- [REDACTED] assessment surveys covered buildings, structures and trees within the Site and up to a 250 m buffer;
- [REDACTED] covered suitable habitat within the Site and up to a 100 m buffer;
- [REDACTED]
[REDACTED]
[REDACTED] the water's edge (where suitable habitat was found to be present);
- The GCN survey area encompassed the Site and a 250 m buffer;

- Aquatic habitat assessment survey methodology incorporated habitat types for all groups of fish and covered all watercourses within the Site;
- The fish and white-clawed crayfish surveys encompassed watercourses within the Site;
- The Bryophyte survey covered all potential habitat within the Site comprising springs, flushes and mires; and,
- NVC surveys 2024 covered NVC vegetation communities within three survey areas within the Site, for which further survey work had been requested by Natural Resources Wales (NRW) during consultation.

What wildlife species currently use the Site?

1.72 The Site occupies an area of upland ground in the vicinity of Radnor Forest. The eastern boundary of the Site overlaps with Radnor Forest SSSI, though none of the Proposed Development lies within the SSSI. The Site boundary also lies within 1.6 km of the River Wye SAC, to which part of the Site drains via Mithil Brook and tributaries of the River Aran.

1.73 The majority of the Site is closely grazed pasture. The condition of the habitats vary across the Site, with open habitats in particular showing signs of past overgrazing, which has reduced their nature conservation interest. Habitats on the Site include grasslands, bracken, woodlands, dry heath, mires (swampy or boggy ground) and flushes (areas where water from underground flows out onto the surface). Parts of the Site comprise Common Land subject to grazing by livestock, mainly by sheep but also cattle and ponies.

1.74 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]
[REDACTED]

1.75 [REDACTED]
[REDACTED]

[REDACTED]. Limited evidence of otter was recorded during the surveys with only a spraint (droppings) and a possible resting site identified which is more than 270 m from any proposed infrastructure, therefore no further surveys were undertaken. No evidence of water vole was recorded within the Study Area. GCN were found to be present within several ponds supporting small to medium populations. The aquatic habitat survey identified suitable habitats to support minor fish species in 15 watercourses, habitats suitable for juvenile salmonids in five watercourses and habitats suitable to support white-clawed crayfish populations in 12 watercourses. Common species of reptiles and amphibians may also use the Site.

1.76 [REDACTED]
[REDACTED]

[REDACTED] White-clawed crayfish were not recorded in any of the watercourses and all of the eDNA samples for this species came back negative.

1.77 [REDACTED]
[REDACTED]
[REDACTED]

What potential effects on wildlife species were identified?

1.78 The Proposed Development could result in potential mortality or injury of River Wye SAC qualifying species (Atlantic Salmon and white clawed crayfish) due to work within or in close proximity to watercourses, as well as removal of habitat due to watercourse crossings. Indirect impacts may occur through accidental spillages and siltation of the downstream environment. This may result in pollution to the tributary and downstream River Wye SAC. Before additional mitigation is put in place, this is considered a moderate adverse and significant effect on this feature.

1.79 The Proposed Development could affect the water table of the Radnor Forest SSSI blanket bog at the current level, potentially compromising the condition of the SSSI. Without mitigation, there is considered to be a moderate adverse and significant effect on this feature.

[REDACTED]

1.80 The loss of habitats including upland dry dwarf shrub heath, purple moor grass and rush pasture and hedgerow during construction will result in minor adverse but not significant effects. In the absence of any mitigation there is also likely to be a moderate adverse and significant effect on badger during construction due to the potential loss of one outlier sett and another three outlier/subsidiary setts potentially being impacted. Moderate adverse and significant effects are also considered likely for GCNs prior to mitigation as the construction phase could result in potential mortality as well as the loss of terrestrial habitat. There is likely to be a moderate adverse and significant effect on noctule, common pipistrelle and soprano pipistrelle bats in the absence of mitigation from operation of the turbines.

1.81 The construction of watercourse crossings could directly impact fish species and there could be up to moderate adverse and significant effects in the absence of mitigation.

1.82 The cumulative assessment for bats with the Proposed Development and the constructed but not operational Hendy Wind Farm concluded that the effects would be negligible and not significant.

Can these effects be mitigated?

1.83 A water quality monitoring program will be developed to monitor water quality within the Site during construction, to detect and rectify any pollution incidents that occur immediately, thereby mitigating impacts on the River Wye SAC. This will be secured through the CEMP.

1.84 Measures to protect qualifying aquatic species of the River Wye SAC include works within or in close proximity to watercourses being undertaken during the summer months (mid-June – end of September) to minimise potential disruption or disturbance to breeding fish and crayfish, fish rescues to remove any fish from within the working area to prevent harm. In addition, an invasive non-native species (INNS) method statement will be followed during the works to reduce the potential risk of spreading INNS.

1.85 To enhance the blanket mire habitat within the Radnor Forest SSSI, additional measures will be undertaken, including conservation grazing. This will not only enhance habitats adjacent to the SSSI but extend the extent of good quality habitat outside the SSSI boundary thereby improving good quality ecological networks. During construction, signage and cones will be erected along the length of the SSSI boundary within the Site to prevent any vehicles,

machinery or construction workers from entering the SSSI and avoid accidental damage to the habitats within the SSSI and litter checks will be carried out.

1.86 So that a measurable overall net benefit for biodiversity can be achieved for the Proposed Development, a habitat management plan (HMP) will be implemented to enhance the condition of dry heath, acid grassland and purple moor grass and rush pasture within the Site. In addition the HMP includes hedgerow creation at low level (away from turbines) that will benefit a range of species including bats and birds. Riparian (the land adjacent to watercourses) restoration is also proposed that will include tree planting around watercourses (away from turbines) and riparian vegetation establishment, which will benefit aquatic species as well as water quality. Further measures include the introduction of multi-species grasslands which will enhance the biodiversity of improved grassland for the benefit of invertebrates which in turn will provide food resources for bats, badger and birds. Broadleaved woodland creation in small pockets throughout the Site will also benefit a number of species including bats, badger, and birds and bracken control will enhance the biodiversity of the Site allowing more species rich habitats to establish.

1.87 Turbines have been located away from features of highest value to bats such as woodland edges and watercourse corridors. In addition to this, a bat mitigation and monitoring strategy is proposed to reduce impacts on bats through feathering of turbines and curtailment of certain turbines, if required, in conditions when bats are likely to be active, and to monitor the level of bat activity and any fatalities at turbines. This will then be analysed to further refine the mitigation strategy for the remainder of the operational phase of the Proposed Development.

1.88 If required, following pre-construction surveys and monitoring, a NRW badger development licence will be sought prior to any works commencing on Site for the closure of an outlier sett and potential impact to three subsidiary/outlier setts. The licence will be supported by a Badger Protection Plan detailing mitigation and compensation measures to minimise the impact on individual badgers and the local badger population.

1.89 A NRW mitigation licence will be required for the proposed works on a project-wide basis due to the presence of GCN in different areas of the Site. In addition all waterbodies within 250 m of the Proposed Development footprint will have an updated Habitat Suitability Index (HSI) assessment and/or eDNA survey undertaken for GCN, if said watercourses hold water. A

GCN Mitigation and Enhancement Plan will be required as part of the licencing requirements which will detail mitigation and compensation measures.

1.90 Mitigation for the River Wye SAC and its qualifying fish species includes an aquatic species mitigation plan for all watercourses within the Site. Restoration of banks along watercourses within the Site will improve habitat quality in these areas and provide further shade, shelter and nutrients for fish species in those watercourses.

After mitigation, what effects will remain?

1.91 Impacts on the River Wye SAC after mitigation are considered to be negligible and not significant during construction and minor beneficial and not significant during operation. This is because riparian restoration as proposed in the Outline Habitat Management Plan (oHMP) will reduce pollution as well as provide habitat for SAC qualifying species. Impacts on habitats including upland dry dwarf shrub heath, purple moor grass and rush pasture and hedgerows after implementation of the HMP are considered to be minor beneficial and not significant. Impacts on badger during construction and operation are considered to be negligible and not significant and for GCN, minor beneficial and not significant. With mitigation, impacts on bats reduce from minor to negligible adverse and not significant.

1.92 Impacts on the Radnor Forest SSSI after mitigation are considered to be negligible and not significant.

1.93 Impacts on fish after mitigation are considered to be minor adverse and not significant. The mitigation strategy will prevent significant impacts to the local fish population, and the favourable conservation status of bullhead will be maintained.

Ornithology (Bird Life)

Introduction

1.94 An ornithological impact assessment has been undertaken, drawing on the ornithology baseline conditions and the identification of important ornithological features, to provide an assessment of the potential effects of the Proposed Development on bird life.

How have potential effects on birds been considered?

1.95 This impact assessment was carried out in accordance with relevant legislation and current best practice. The following surveys were carried out to identify the bird life baseline conditions for the Proposed Development: vantage point surveys, breeding bird surveys, breeding raptor (bird of prey) surveys, breeding nightjar surveys and winter walkover surveys, all undertaken between September 2019 and March 2022. Following review of the desk study and field survey data and based on professional judgement and experience, it was concluded that no likely significant effects on designated sites were predicted, therefore they were scoped out of the assessment.

What bird species currently use the Site?

1.96 Seven species of high conservation value raptor [REDACTED] and three species of common raptor [REDACTED] were registered during the full two years of surveys. Of the seven species, three ([REDACTED]) were assessed as breeding within the Site or within the 2 km survey area. Two species of waders ([REDACTED]) were confirmed as breeding during walkover surveys but neither were confirmed as breeding within the Site, while three species of waders ([REDACTED]) were recorded from vantage point surveys and three ([REDACTED]) were recorded during winter walkover surveys. Nightjar were not recorded during vantage point surveys but [REDACTED] A [REDACTED] [REDACTED] A total of 65 other species assessed as confirmed breeding were recorded during the 2020 and 2021 breeding bird surveys.

What potential effects on birds were identified?

1.97 A total of seven species and one species group ([REDACTED], [REDACTED]) were taken forward for assessment. In line with guidelines, the impact assessment process assumes the application of standard mitigation measures, such as turbine design and location, avoiding flight corridors and migration routes and avoiding areas of higher conservation or biodiversity value for the turbines and associated infrastructure, as far as practicable.

1.98 With these in place, predicted effects were considered to be minor adverse or negligible and therefore not significant for all important ornithological features except red kite. Red kite operational collision risk was assessed as moderate and significant prior to mitigation.

1.99 The potential for cumulative effects relating to collision risk for red kite and golden plover with the Proposed Development and operational, under construction, consented and submitted wind farms concluded that the cumulative effects would be minor and not significant.

Can these effects be mitigated?

1.100 A Habitat Management Plan (HMP) will be put in place, which will improve current and create new foraging and breeding habitats for identified ornithological features on the Site. The HMP measures include hedgerow restoration, restorative grazing and pond restoration which will lead to improved habitats for a broad range of species. Also included in the HMP are sections of regrowth in areas habituated by red kite, with the aim to encourage this species to forage away from the wind turbines. In addition, further land management will be in place during the lambing season with a similar aim.

After mitigation, what effects will remain?

1.101 All effects are predicted to remain the same following the implementation of mitigation through the HMP, with the exception of the residual effect on red kite which is predicted to reduce from moderate to minor adverse and not significant.

Noise and Vibration

Introduction

1.102 Noise will be emitted by equipment and vehicles used during construction and decommissioning of the wind farm and by the turbines and substation during operation. The level of noise emitted by the sources and the distance from those sources to the receiver locations are the main factors determining levels of noise at receptor locations.

1.103 Operational turbines emit noise from the rotating blades as they pass through the air. This noise can sometimes be described as having a regular 'swish'. The amount of noise emitted tends to vary depending on the wind speed. When there is little wind, the turbine rotors will turn slowly and produce lower noise levels than during high winds when the turbine reaches its maximum output and maximum rotational speed. Background noise levels at nearby properties will also change with wind speed, increasing in level as wind speeds rise due to wind in trees and around buildings, etc.

How have potential effects relating to noise and vibration been considered?

1.104 This impact assessment was carried out in accordance with relevant legislation and current best practice.

1.105 Construction noise has been assessed by a desk-based study of a potential construction programme and by assuming the Proposed Development is constructed using standard and common methods. Noise levels have been calculated for receiver locations closest to the areas of work and compared with guideline and baseline values. Construction noise, by its very nature, tends to be temporary and highly variable and therefore much less likely to cause adverse effects. Factors including in particular the restrictions of hours of working have been taken into consideration.

1.106 Noise levels from operation of the turbines have been predicted for those locations around the Site most likely to be affected by noise. Noise limits have been derived from data about the existing noise environment following the method stipulated in national planning guidance. Predicted noise levels take full account of the potential combination of the noise from the Proposed Development along with Hendy Wind Farm (using data provided in the planning

application and noise limits set by the planning consent for Hendy Wind Farm). Other, more distant wind farms were not considered as they do not make an acoustically relevant contribution to cumulative noise levels.

What are the existing noise conditions at the Site?

1.107 Surveys have been carried out to establish existing baseline noise levels at ten representative properties neighbouring the Site.

What potential noise effects were identified?

1.108 It is concluded that noise generated through construction activities would have a temporary minor effect which is not significant.

1.109 Predicted operational noise levels have been compared to the limit values to demonstrate that turbines of the type and size which would be installed can operate within the limits so derived, even when accounting for cumulative effects. It is concluded therefore that operational noise levels from the Proposed Development will be within levels recommended in national guidance for wind energy schemes and are therefore not significant. Operational noise from the substation was assessed as likely to represent a negligible effect which is not significant.

Can these effects be mitigated?

1.110 During construction, noise will be managed through the Construction Environmental Management Plan (CEMP), including a restriction on working hours.

1.111 Appropriate control measures will be put in place through the imposition of planning conditions which will enforce operational noise levels from the turbines in practice.

After mitigation, what effects will remain?

1.112 At some locations, under some wind conditions and for a certain proportion of the time, the Proposed Development may be audible, which represents an adverse noise effect. However, the noise effect associated with the operation of the Proposed Development is considered to be not significant.

1.113 No significant residual effects were identified.

Access, Traffic and Transport

Introduction

1.114 An assessment of the potential effects of the Proposed Development on receptors along the transport routes and users of PRowS anticipated to be used during construction has been carried out. The methodology adopted in this assessment involved the following key stages:

- Determine baselines;
- Review Proposed Development for impacts;
- Evaluate significance of effects on receptors;
- Identify mitigation; and,
- Assess residual effects.

1.115 The traffic effects during the operational phase of the Proposed Development will be low, with two to three vehicles per week for maintenance purposes, far below the recognised thresholds for triggering a transport assessment. As such, the effects during the operational phase are scoped out of the assessment. Effects on users of the PRow network within the Site, considered to have high sensitivity, are assessed.

1.116 Effects during decommissioning are also scoped out as elements of the Proposed Development are likely to remain in-situ (such as cable trenches, some access tracks, etc.), therefore the traffic flows associated with the decommissioning works will be lower than those associated with the construction phase.

1.117 Two routes to the Site for the turbine components (known as abnormal indivisible loads – AILs) are being considered, one coming north from Birkenhead Port, the second from Swansea Port to the south of the Site. These routes do not form part of this DNS application and will be subject to approval via other consents.

How have potential effects on road and PRow users been considered?

1.118 The impact assessment has been carried in accordance with relevant legislation and current best practice. Baseline condition information was collected, as set out below.

What are the existing traffic and transport conditions of the Site?

1.119 The Proposed Development will be accessed from the A44. There are currently two Site access options being considered along the A44. The finalised access strategy will be secured by planning condition for the construction and operational phases.

1.120 Construction traffic associated with the delivery of materials to the Proposed Development will approach the Site predominantly from the east, via the A44.

1.121 Baseline traffic information was obtained from the UK Department for Transport database and from Automatic Traffic Count surveys. National Road Traffic Forecast low growth factors were applied to the current baseline to estimate future baseline flows.

1.122 There are limited pedestrian facilities, such as footways, in the immediate vicinity of the Site, reflecting the rural nature of the location. There are no facilities on the A44 between the western extents of Llanfihangel and the eastern extents of Llandegley.

1.123 There are several PRoWs within the Site which comprise footpaths, bridleways and byways open to all traffic (BOATs).

What potential construction effects on traffic and transport conditions were identified?

1.124 The peak of construction occurs in Month 7 with 344 movements per day (82 car/light goods vehicles and 262 heavy goods vehicles (HGV) journeys). These figures on average indicate approximately an additional 22 HGV movements per hour on the network at the peak of construction activities.

1.125 The assessment of significance identifies that total traffic flows may impact users of the PRoW network during peak construction works and are considered to result in significant adverse effects, prior to the application of additional mitigation measures.

1.126 The assessment of significance also identifies that users of the A44 (near the Site access, to the east of the A44/A481 priority junction and to the south of Walton) may experience significant adverse effects relating to road safety and large loads, prior to the application of additional mitigation measures. All other effects on these receptors are considered to be not significant.

1.127 It should be noted that the impacts relate solely to the peak of construction activities and that the construction period is twenty three months and the effects are transitory in nature.

1.128 No cumulative transport or access effects have been identified.

Can these effects be mitigated?

1.129 The following measures will be implemented to mitigate any adverse effects of construction traffic during the construction phase:

- Construction Traffic Management Plan;
- Transport Management Plan for abnormal loads;
- Path Management Plan;
- A Staff Travel Plan; and,
- Wear and Tear Agreement.

1.130 In addition, a Strategic Recreational Framework is proposed to enhance the recreational opportunities on the Site.

After mitigation, what effects will remain?

1.131 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of access, traffic and transport issues. The residual effects will occur during the construction phase only are all assessed to be minor or negligible as they are temporary and reversible.

Hydrology, Hydrogeology, and Geology

Introduction

1.132 This assessment considers the potential effects of the Proposed Development on the local water resources (including private water supplies, surface water, groundwater, flood risk and drainage) and on the soil and rock beneath the Site (including slope stability, peat, soils and protected geological sites).

How have potential effects on the water environment and ground conditions been considered?

1.133 A series of studies were undertaken of the Site in order to provide a detailed understanding of the current, baseline conditions. This included several phases of fieldwork, as well as desk-based assessments. The soils were investigated by probing into the ground surface in thousands of locations across the Site and the water features were thoroughly mapped. Data was gathered from a number of sources, including on private water supplies, groundwater behaviour and the interaction of groundwater with the habitats on the Site. The baseline fieldwork also included an assessment of slope stability.

1.134 This baseline data was used to inform the assessment of impacts associated with the Proposed Development. This impact assessment was carried out in accordance with relevant legislation and current best practice. It considers the potential effects associated with the construction and operation of the Proposed Development. It also considers the interaction of decommissioning activities with soils specifically.

What are the current water environment and ground conditions of the Site?

1.135 The Site is situated on an area of upland grassland that drains to the River Lugg (via Ystol Bach Brook, Black Brook and Summeril Brook) to the north and east, and the River Wye (via Mithil Brook and tributaries of the River Aran) to the west and south.

1.136 The Site lies on the western side of the upland plateau known as Radnor Forest. The highest point on Site is approximately 660m above Ordnance Datum (m aOD). This is on its eastern edge near to the summit of Great Rhos, which is offsite to the east. South of Great

Rhos, the Site includes the north-south aligned ridge of Esgairnantau, which is covered in commercial conifer forestry. Esgairnantau is separated from other high ground on Site by two streams. The headwaters of Mithil Brook flows north to south on the south-western flanks of Great Rhos, before turning to flow westward. A small saddle of higher ground separates this upper section of Mithil Brook from the headwaters of Nant Cwm Du, which flows north-south on the western flank of Esgairnantau, before descending the waterfall known as Water-break-its-neck, offsite to the south.

1.137 Towards the northern end of the Site, Cefn-y-grug and Great Rhos are separated by an extremely steep-sided and incised valley known as Cwm Bwch, which has two upper arms orientated east-west, draining to Maes Brook, which flows northwards offsite.

1.138 Great Rhos, Cwm Bwch, Cowlod, Foel and the western flanks of Esgairnantau are covered in heath vegetation with few fences or boundary lines. Elsewhere, the land is predominantly covered in semi-improved and improved grazing land separated into large fields by post and wire fencing, with some fields in the northern and southern ends of the Site supporting winter forage crops.

1.139 The streams on Site typically have formed incised rocky gullies, with exposures of weathered mudstone evident in numerous areas.

1.140 The Site is predominantly in Flood Zone 1 (the lowest risk that is mapped). Flood Zones 2 and 3 (moderate and high risk) are limited to land immediately either side of streams only. Offsite, the Rivers Lugg and Ithon both have large floodplains, which are considered to be sensitive to change in river flows and drainage.

1.141 The Rivers Ithon, Lugg and Arran (a tributary of the Ithon) are all classed as being in Good condition, with High water quality.

1.142 There are numerous springs, groundwater seeps and wells situated within and around the Site. Many of these are identified as providing water to residential and agricultural properties in the wider area and are considered to be highly sensitive receptors. Groundwater seeps and springs also support different habitats on the Site and are also considered to be potentially sensitive to change. There are a large number of small ponds across the upland areas of the Site, primarily created or altered to provide water for livestock.

1.143 The rocks beneath the Site are similar across the entire Site, comprising mudstones, and siltstones. A landslide is present in Cwm Bwch, where a large rock mass has slid downhill. Peat deeper than 30 cm is only present in the area of Great Rhos and Esgairnantau. On Great Rhos, this deeper peat lies within a larger area of organic rich and peaty topsoil. On Esgairnantau, the deeper peat is within a number of hollows in the landscape. Elsewhere on Site, soils are typically thin and with limited organic content.

1.144 There are two areas of Site that are of special interest for their geology. Mithil Brook and Cwm Blithus SSSI is within the Site along the Mithil Brook. Gwernargllwyd Cutting Regionally Important Geological Site (RIGS) is situated on the boundary of the Site where it abuts the verge of the A44.

What potential effects on the water environment and ground conditions were identified?

1.145 The Proposed Development has been designed to avoid impact to receptors as much as is possible. As a result the turbines, substation, borrow pits and temporary construction compounds remain at least 50 metres from all watercourses and most water features. This is with the exception of the eight watercourse crossings that need to be built to carry the proposed access tracks and cabling. The Proposed Development has limited interaction with springs and groundwater seeps and remains at least 250 m from all identified private water supplies, with the exception of four that are likely to be associated with livestock watering within the Site itself. Areas of peat deeper than 30 cm have been avoided.

1.146 A series of controls will be placed on the construction of the Proposed Development, including;

- The management of any unexploded ordnance associated with the historical use of some of the Site for WWII military training;
- Sustainable Urban Drainage (SUDS) measures;
- Protocols for the management and storage of soils;
- Requirements for the restoration of borrow pits; and,
- The undertaking of a detailed ground investigation.

1.147 Taking into consideration the above aspects of the Proposed Development, all operational phase effects associated with hydrology, hydrogeology and geology are assessed as being of Minor significance or lower. The majority of construction phase effects also have been assessed to be of either Minor or Negligible Significance (i.e. not significant).

1.148 There are four areas within the Site where, without mitigation, a habitat that might be supported by groundwater may suffer Moderate or Major effects associated with the Proposed Development. There are a number of private water supplies close to and within the Site that have been assessed as potentially being subjected to a Moderate effect in the absence of mitigation. Whilst there is no direct impact on deep peat associated with the Proposed Development, there is potential to alter the hydrology of peatland in the area of Great Rhos and this is assessed to be of Major significance prior to mitigation.

1.149 No cumulative hydrology, hydrogeology or geology effects have been identified.

Can these effects be mitigated?

1.150 In order to mitigate the potential effects on habitats that might be supported by groundwater, a sequence of additional mitigating actions will be undertaken, whereby a bespoke drainage design will be implemented to maintain the groundwater feed to the GWDTE, both during the temporary works of the construction phase, and during the operational phase of the Proposed Development.

1.151 To mitigate the potential effects on private water supplies and minimise the likelihood and consequence of any impacts, a sequence of actions will be undertaken, including suitable permanent drainage design, construction-phase controls for pollution and sediment, a water quality monitoring plan, clear and frequent communication and liaison with the relevant landowners, and a series of emergency measures to address any impacts, in the unlikely event that they occur. This could include the provision of temporary (or, if required, permanent) water supply if required. For one private water supply, a well near the proposed turbine 24, groundwater monitoring will also be undertaken as additional mitigation.

1.152 The proposed infrastructure around turbines number 17, 18 and 19 has the potential to alter the hydrology in this area, by altering drainage between Great Rhos to the north, and Cwm Bwch to the south. This will be mitigated by designing and implementing a detailed drainage

scheme for this area. The precise scope of the scheme cannot be fully defined until the detailed design phase has been entered into, but there is a high degree of certainty that suitable mitigation can be achieved through the deployment of standard drainage measures and controls, for which there is a long track record of proven effectiveness.

After mitigation, what effects will remain?

1.153 As a result of the above mitigation, the residual construction effects are all assessed to be of Minor significance or lower.

1.154 All operational effects also remain assessed as of Minor significance or lower.

Aviation

Introduction

1.155 This assessment considers the potential effects of the Proposed Development on the aviation and air defence activities of the Ministry of Defence (MOD) as safeguarded by the Defence Infrastructure Organisation (DIO). It also considers the possible effects of the Proposed Development upon civil airports and the National Air Traffic Services En Route Ltd (NERL) communications, navigation and surveillance (CNS) systems, which consist of a network of primary and secondary radars and navigation facilities around the country.

How have potential effects on aviation and radar been considered?

1.156 The methodology employed to determine the effect of the Proposed Development upon aviation interests was carried out in accordance with relevant legislation and current best practice.

What potential effects on aviation and radar were identified?

1.157 There is the potential that, without mitigation, aircraft can fly into wind turbines as turbines can create 'clutter' or unwanted radar returns and false tracks. The assessment undertaken for the Proposed Development concluded that the only affected Air Traffic Control facility is the NERL long range surveillance radar located at Clee Hill in Shropshire.

Can these effects be mitigated?

1.158 With regard to NERL Clee Hill radar, discussions are taking place with NERL to identify a suitable technical mitigation. NERL is planning to replace this radar and anticipate that radar mitigation should be available within the capability of the new radar, in much the same way as that already installed at Lowther Hill in southern Scotland where the inbuilt capabilities of the radar are capable of mitigating the effect of wind turbines in view of the radar.

1.159 An aviation lighting and mitigation assessment identified that 14 turbines will require aviation lighting, comprising medium intensity red obstruction lights. Further mitigation is available through the design of the lights which reduce in vertical intensity below the horizontal, together with the capability to reduce the lights to only 10% intensity when the visibility is in

excess of 5km which is likely to be for approximately 88% of the time. An assessment of effects of this aviation lighting on landscape and visual amenity is considered under Landscape and Visual Amenity Assessment.

After mitigation, what effects will remain?

1.160 Radar mitigation will remove any residual effects on radar performance.

Shadow Flicker

Introduction

1.161 Shadow flicker is an effect that can occur when the shadow of a moving wind turbine blade passes over a small opening (e.g. a window), briefly reducing the intensity of light within the room, and causing a flickering to be perceived. Shadow flicker occurs when a certain combination of conditions prevails at a certain location, time of day and year, and may have a negative effect on residents and occupants of affected properties.

How have potential effects of shadow flicker on nearby residents been considered?

1.162 This impact assessment was carried out in accordance with relevant legislation and current best practice. The shadow flicker assessment identifies which properties close to the Proposed Development could theoretically experience shadow flicker. This is undertaken using computer software which uses worst-case assumptions to develop a maximum theoretical scenario of when shadow flicker could occur. The assessment then identifies the more likely occurrence of shadow flicker at properties under a reasoned scenario, which takes into account more typical daylight and sunlight hours (when sunshine would be bright enough to cause the effects of shadow flicker). This information from both scenarios is used to identify when and under what conditions certain turbines may need to be curtailed (turned off) to ensure that significant shadow flicker effects on residential properties do not occur.

What potential shadow flicker effects could nearby residents experience?

1.163 Any occurrence of shadow flicker in the assessment is dependent on several other factors including wind speed and direction, potential shielding/screening effects of buildings, trees, vegetation or other obstacles, orientation for both the property windows and turbines, or whether a room is occupied at the time of occurrence.

1.164 Applying worst-case assumptions, which does not consider the above factors, 41 properties of those included in the assessment have been identified as potentially experiencing significant shadow flicker effects before applying mitigation. All of these properties surpass the threshold of 30 minutes of shadow flicker experienced by an individual property in any one day

of the year. One property has also been identified as potentially experiencing significant shadow flicker effects under the threshold of 30 hours of shadow flicker per year.

1.165 No cumulative shadow flicker effects have been identified.

Can these effects be mitigated?

1.166 It is noted that the Proposed Development has a number of turbines which were assessed as not contributing to shadow flicker (T7, T8, T9, T10, T11, T15, T16, T17, T18, T19, T20, T25). However, noting the 50 m micrositing allowance included within the Proposed Development, should any of these turbines need to be micrositied post-consent, further assessment will be undertaken to confirm and agree with PCC which wind turbines would require a Shadow Flicker Module. A Shadow Flicker Module is a piece of equipment fitted to a turbine that uses Site-specific date, time, wind direction and sunlight intensity data which can enable the turbines to be shut down if required.

1.167 As the remaining proposed turbines (T1, T2, T3, T4, T5, T6, T12, T13, T14, T21, T22, T23, T24, T26, T28, T29, T30, T31) have all been assessed to contribute to shadow flicker in the right conditions, including a consideration of micrositing, these turbines will need to be monitored by a Shadow Flicker Module. Depending on the model of Shadow Flicker Module chosen, a module could monitor more than one turbine, therefore the turbines selected to house the Shadow Flicker Module will be selected as part of the turbine procurement process.

1.168 The maximum theoretical or reasoned occurrences of shadow flicker assessed are also dependent on other factors including wind speed and direction, potential shielding/screening effects of buildings, trees, vegetation or other obstacles, orientation for both the property windows and turbines, or whether a room is occupied at the time of occurrence.

1.169 Should any of the residents experience significant shadow flicker effects at their property, mitigation will be explored to limit shadow flicker at that location, such as vegetation planting to shield the property from the turbine(s), if appropriate. If other measures do not satisfactorily mitigate effects, then the relevant turbines can be shut down in conditions and at times where shadow flicker could occur. This approach will ensure that residents do not experience adverse shadow flicker effects, while also reducing unnecessary turbine shutdowns that could be the result of the worst-case scenario modelling.

1.170 An appropriately worded planning condition will secure these mitigation measures.

After mitigation, what effects will remain?

1.171 The predicted effects of the operation of the Proposed Development with respect to shadow flicker are not significant following the implementation of mitigation.

Climate Change

Introduction

1.172 The impacts of climate change are widely recognised as being one of the greatest global challenges facing the world today. A major cause of climate change is a rise in the concentration and volume of greenhouse gases (GHGs) in the atmosphere, a significant contributor to which is the use of fossil fuels to generate electricity.

1.173 The purpose of the Proposed Development is to generate electricity from a renewable source of energy, avoiding the need for electrical generation from the combustion of fossil fuels. Consequently, the electricity that will be generated and distributed by the Proposed Development will result in a saving in emissions of carbon dioxide (CO₂) with associated environmental benefit. This assessment considers the potential effects of the Proposed Development on climate change mitigation (including carbon balance) and adaptation.

How have potential effects relating to climate change been considered?

1.174 This impact assessment was carried out in accordance with relevant legislation and current best practice. The assessment has been desk-based, drawing from published guidance and data. Peat depth probing was undertaken to inform the layout of the Proposed Development, and this data was also used to inform the carbon balance assessment.

1.175 The assessment considers whether future climatic conditions are likely to affect the predicted effects of the Proposed Development (under the existing climate baseline), and whether the Proposed Development will affect a receptor's ability to adapt to these conditions.

What potential effects on climate change were identified?

1.176 Emissions during the life of a wind turbine include those that occur during production, transportation, erection, operation, dismantling and removal of turbines and foundations.

1.177 It is estimated that approximately 47% of the total carbon losses of the Proposed Development will occur during the construction, manufacture and decommissioning of the turbines.

1.178 Therefore, the effects of carbon losses including direct and indirect emissions during the construction phase of the Proposed Development is predicted to be **negative** and **minor**.

1.179 A further 40% of the emissions of the Proposed Development is estimated to occur during the operational phase, with the majority coming from the requirement for back-up power in the grid, which is assumed to come from a fossil fuel source.

1.180 The carbon balance assessment calculated the 'payback time' of CO₂ emissions, i.e. the length of time (in years) required for the Proposed Development to be considered a net avoider of emissions rather than a net emitter. The expected carbon payback period is calculated to be approximately 1.4 years (or 16 months).

1.181 Assuming a 40-year operational life, the Proposed Development is estimated to save 28 times the emissions emitted over its operational lifetime.

1.182 Construction traffic emissions for Heavy Goods Vehicles (HGVs) is predicted to be offset during the Proposed Development's operational life along with any backup generation if required resulting in a **positive** and **significant** effect.

1.183 In relation to climate change adaptation, it is considered that the Proposed Development will not adversely affect any receptors' ability to adapt to a changing climate. As such, the climate adaptation effects are considered to remain as set out in the topic chapters of the ES.

1.184 The Proposed Development, in-combination with other renewable energy developments, is predicted to have a **minor (negative)** cumulative construction effect in relation to climate change mitigation and a **major (positive)** cumulative effect during the operation of the Proposed Development. This is because existing and proposed renewable energy developments will have a positive effect on avoiding emissions released from the burning of fossil fuels, playing a key part in helping Wales meet its climate change and energy targets.

Can these effects be mitigated?

1.185 No specific mitigation measures for adverse effects are proposed in relation to climate change, although a Construction Traffic Management Plan (CTMP), as referenced in **Chapter 10: Access, Traffic and Transport** of the ES, will be implemented to ensure traffic movements are undertaken efficiently during construction. A Site Waste Management Plan will also be

implemented as part of the outline Construction Environmental Management Plan (CEMP) to reduce materials wastage onsite. Measures to ensure the efficient re-use and handling of soil and peat material are included in an Outline Soil Management Plan. The procurement of turbines and associated equipment for the Proposed Development will also, where appropriate, include prioritisation of sustainable construction methods and materials. A Habitat Management Plan (HMP) will be implemented to create new habitats and net benefits for biodiversity on Site, which will function as a means of absorbing carbon emissions.

After mitigation, what effects will remain?

1.186 All residual construction and operation effects are considered to remain as assessed.

Inter-related Effects

Introduction

1.187 Each individual topic assessment in the ES considers the potential effects that the Proposed Development will have with regards to that topic area, for example ecology or shadow flicker.

1.188 However, there is the potential for effects to interact, spatially and temporally, to create inter-related effects. As an example, all effects on a given receptor such as local residents, from construction dust and noise, increased traffic and visual change etc. may interact to produce a greater effect on this receptor than when the effects are considered in isolation.

1.189 Therefore, the impact interactions assessment identifies where any additional effects arise through a combination of the effects identified in the individual topic assessments.

Overview of Methodology

1.190 The assessment has been undertaken on a qualitative basis, informed by professional judgement and experience, in a three-stage process as follows:

- **Stage 1: Topic Specific Assessment** – as set out in **Chapters 5-14** of the ES (and summarised above in this NTS).
- **Stage 2: Identification of Receptors** – common receptors across the topic chapters are identified, where that receptor is likely to experience effects across more than one topic.
- **Stage 3: Assessment of Potential Effect Interactions on Receptor Groups** – a qualitative assessment considering the scope for all effects to interact, spatially and temporally, to create inter-related effects.

Summary of Impact Interactions

1.191 The following trends in potential interrelated effects at specific receptors were identified:

- Effects relating to cultural heritage assets may fall within the scope of both heritage and landscape and visual assessments within EIA and **Table 2** identifies that interrelated effects could affect Llandegley Rocks Hillfort. However, for EIA purposes the nature of the

receptors and effects differ between these two topics. The description of methodology and scope of **Chapter 5: Landscape and Visual Amenity** and **Chapter 6: Historic Environment** of the ES presents the differences in these respects transparently. For Landscape and Visual Amenity, the receptors are the landscape and the people who may experience views of the Proposed Development and effects assessed with reference to the sensitivity of the receptor and the magnitude of change (taking account of the scale of effect, duration and reversibility). Regarding historic assets, **Chapter 5** focuses on a development's visibility from a location, such as a historic asset, and the effect that visibility has on visitors to that location. In contrast, the historic environment assessment (**Chapter 6**) focuses on effects to the heritage significance of historic assets (also taking account of the scale of effect, duration and reversibility). Although both assessments identify Llandegley Rocks Hillfort as a receptor, in the case of **Chapter 5**, the receptor is actually visitors to the site rather than the heritage asset itself, which is assessed in **Chapter 6**. As such, beyond the topic specific effects identified, there are no interrelated effects.

- There are receptors identified as being affected in **Chapter 7: Ecology (not birds)** and **Chapter 11: Hydrology, Hydrogeology and Geology**. This includes the River Wye SAC and Radnor Forest SSSI. Interrelated effects may relate to changes to hydrology resulting from the Proposed Development which could affect the functioning of GWDTEs, peat, aquatic habitats and other ecological receptors. Both chapters consider the need for mitigation to address effects on hydrology, such as a Drainage Strategy to be appended to the CEMP and an Outline Habitat Management Plan. With this mitigation in place, no significant effects are identified on these receptors in either **Chapter 7** or **Chapter 11**, and therefore any potential interrelated effects would not be significant. These receptors are also assessed in **Chapter 5**, however there would not be direct effects on the functioning of the SAC or SSSI and would not contribute towards the interrelated effects discussed above.
- **Table 2** identifies receptors assessed in **Chapter 5**, **Chapter 9: Noise and Vibration** and **Chapter 13: Shadow Flicker**. Noise, visual and shadow flicker effects could have an interrelated effect on residents during the operational phase of the Proposed Development, with noise and visual effects also arising during construction. Visual effects will not breach the residential visual amenity threshold, in accordance with the Landscape Institute's

Residential Visual Amenity Assessment (RVAA) Technical Guidance Note 2/19 (LI TGN 2/19) (as reported in **Appendix 5.7: RVAA**). Noise effects for high sensitivity dwellings are assessed as not significant in **Chapter 9** and Shadow flicker effects are also not significant (see **Chapter 13**) due to the control measures identified. Furthermore, control measures for shadow flicker will be implemented such that dwellings will experience no significant shadow flicker effects. If residents were to experience the interrelated effect of seeing and hearing wind turbines simultaneously, it is considered unlikely, given the requirement for the operational turbines to adhere to the agreed noise limits and the findings of the RVAA, that this in combination effect on those residents would be of a magnitude that would lead to any increased effect (either significant or non-significant depending on the assessment of the receptor in the topic specific chapter) in EIA terms.

- Effects on recreational users are assessed in **Chapter 10: Access, Traffic and Transport** in respect of the potential to disruption to public rights of way (PRoW) and open access land, and in **Chapter 5** in respect of the visual amenity of the users of PRoWs and open access land. For the purpose of the EIA, although the receptors are the same (users of the PRoW network), the nature of the effect differs between the topics. **Chapter 10** considers direct effects on the ability of the user to travel from A to B along a PRoW and through open access land; **Chapter 5** considers the visual amenity of the user while doing so. **Chapter 10** concludes that residual effects for PRoW users for all aspects considered (severance, delay, user amenity, fear and intimidation and safety) will be minor and not significant. **Chapter 5** concludes that there will be major adverse visual effects for PRoW users on the Site during construction of the Proposed Development as they move through what will be a temporary construction site. Major adverse visual effects for PRoW users on the Site are also identified for the operational phase of the Proposed Development as they move through what will become a wind farm landscape. Whilst Major adverse effects are identified with respect for visual amenity, no effects greater than minor are identified for disruption to PRoWs, therefore it is considered that no significant interrelated effects on users of the PRoWs and open access land are likely to occur as a result of the Proposed Development.

Table 2: Summary of interrelated effects

Receptor	Chapter 5: Landscape & Visual	Chapter 6: Historic Environment	Chapter 7: Ecology (non-avian)	Chapter 8: Ornithology	Chapter 9: Noise & Vibration	Chapter 10: Access, Traffic & Transport	Chapter 11: Hydrology, Hydrogeology & Geology	Chapter 12: Aviation	Chapter 13: Shadow Flicker	Chapter 14: Climate Change
Llandegley Rocks Hillfort (Cadw SM Ref. RD264)	X	X								
River Wye Special Area of Conservation (SAC)			X				X			
Radnor Forest Site of Special Scientific Interest (SSSI)	X		X				X			
A44 road	X				X	X				
Residential Receptors: Cwm Farm, Llanevan, Old Hall, Wern Fach, Pye Corner, Corn Hill	X				X					
Residential Receptors: 1 and 2 Cwmygerwyn, Graig, Upper Penrhiw, Gwernargllwydd					X				X	
Public Rights of Way (PROW)/Common Land users	X				X	X				

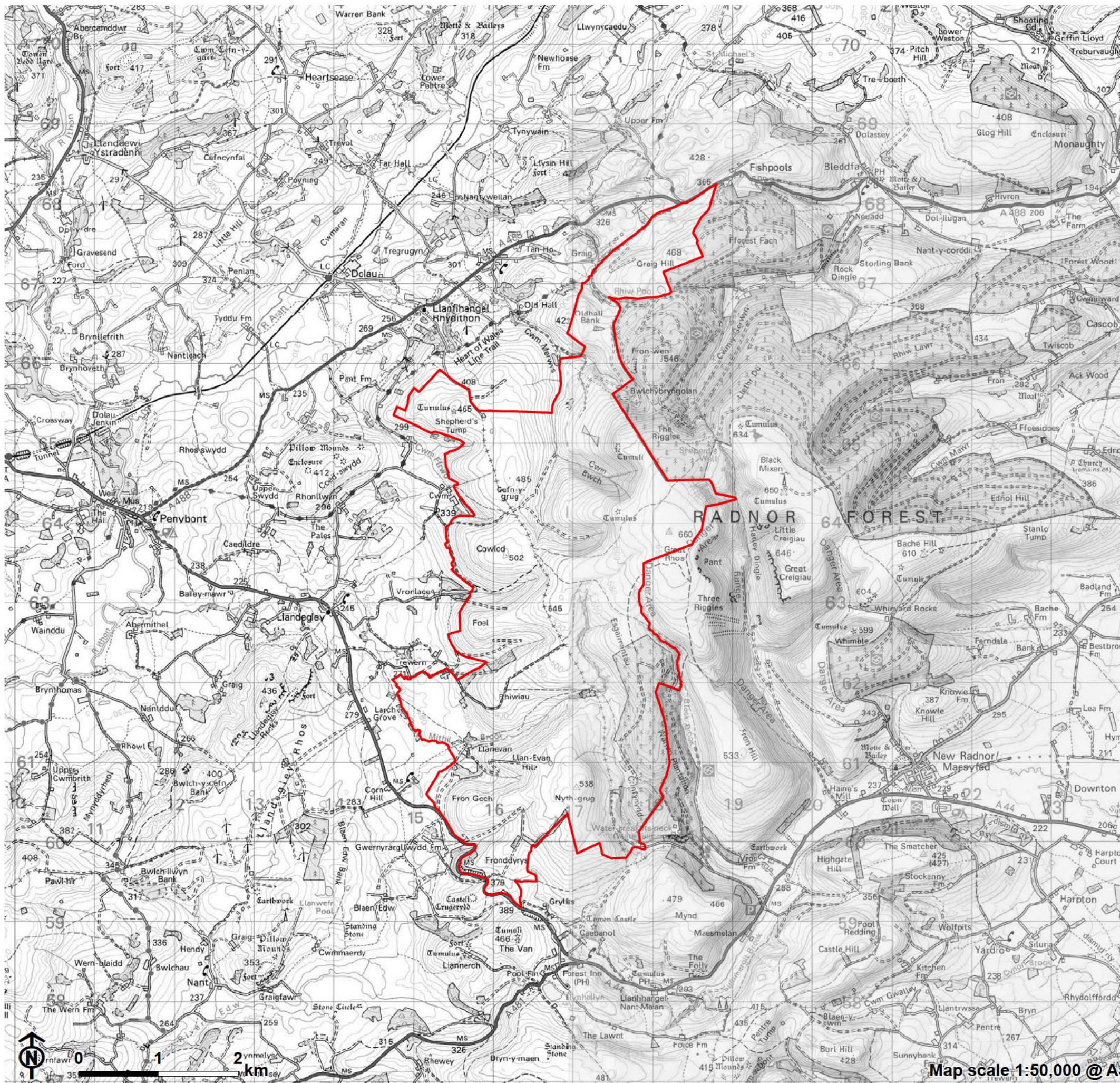
Summary

1.192 The EIA for the Proposed Development has been carried out in accordance with regulatory requirements and guidance on good practice. The findings of the surveys undertaken, in addition to consultation, have informed the design process and, as a result, effects have been reduced for a number of receptors.

1.193 Prior to mitigation, potential significant effects have been predicted within the ES in relation to landscape and visual; historic environment; ecology (not birds); ornithology (birds); access, traffic and transport; hydrology, hydrogeology, and geology; and climate change (positive). Aviation effects have also been predicted which will require a mitigation solution to be agreed prior to the Proposed Development becoming operational. However, there is scope to mitigate many of the predicted significant adverse effects and a number of these effects are predicted to be not significant following implementation of the proposed mitigation.

1.194 Significant (negative) residual effects from the Proposed Development are limited to landscape and visual impact during construction and operation; and in relation to cultural heritage during operation (residual effects on the setting of five heritage assets). These effects have been reduced to the lowest practical level via the iterative design process for the Proposed Development. There will be significant (positive) residual effects for climate change relating to carbon losses and savings.

1.195 Throughout the EIA process consideration has also been given to the potential for cumulative and interrelated effects. No significant cumulative or additional significant interrelated effects are predicted to occur, over and above the significant effects reported as a result of the Proposed Development.



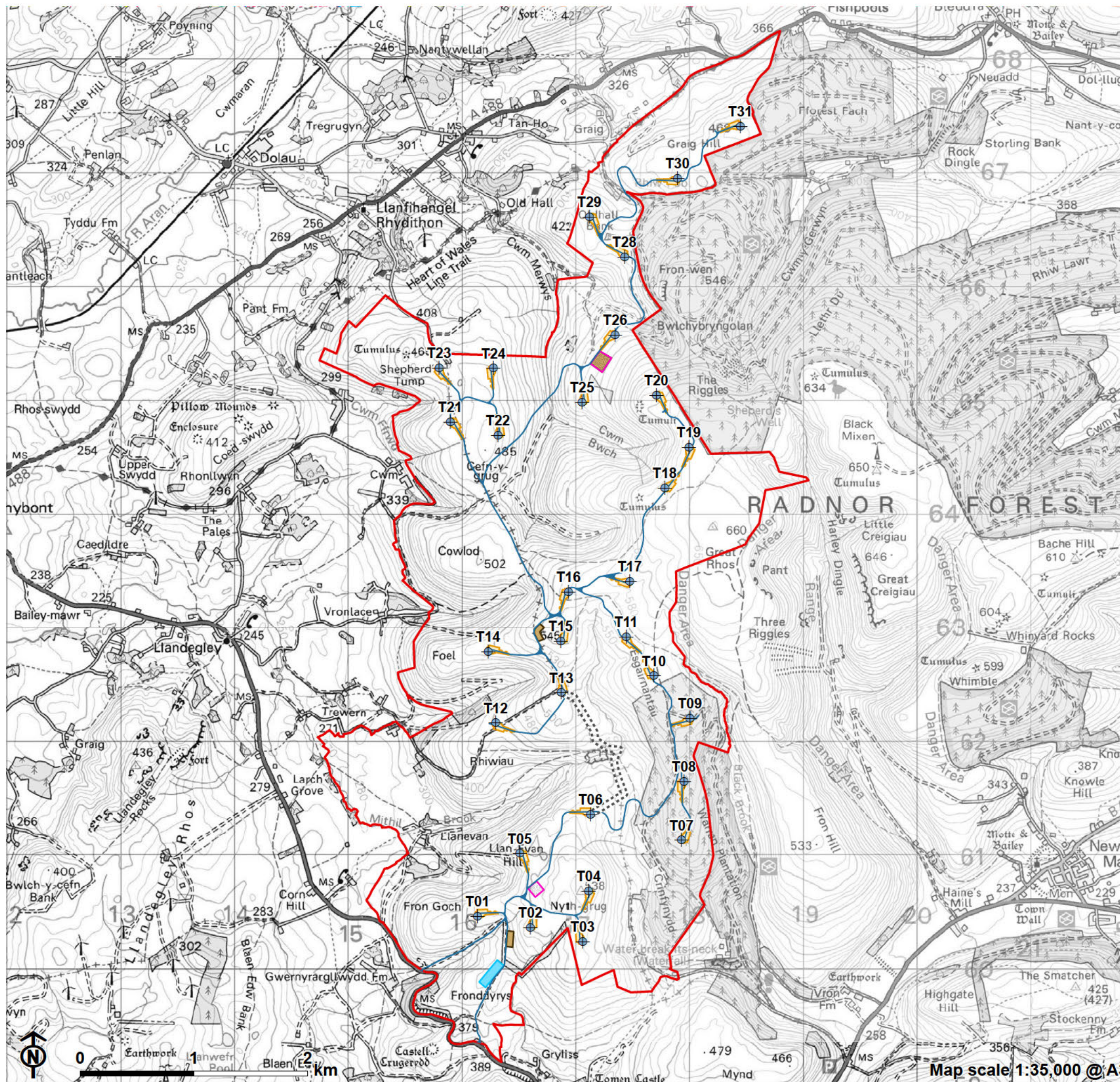
Nant Mithil Energy Park
Nant Mithil Energy Park Ltd



Figure 1: Site Location

 Application Boundary

Figure 2: Infrastructure Layout



- Application Boundary
- + Turbine
- Turbine Hardstanding and Crane Pad
- Substation
- Temporary Construction Compound
- Borrow Pit Search Area
- New Track
- Underground Cable 50m Corridor