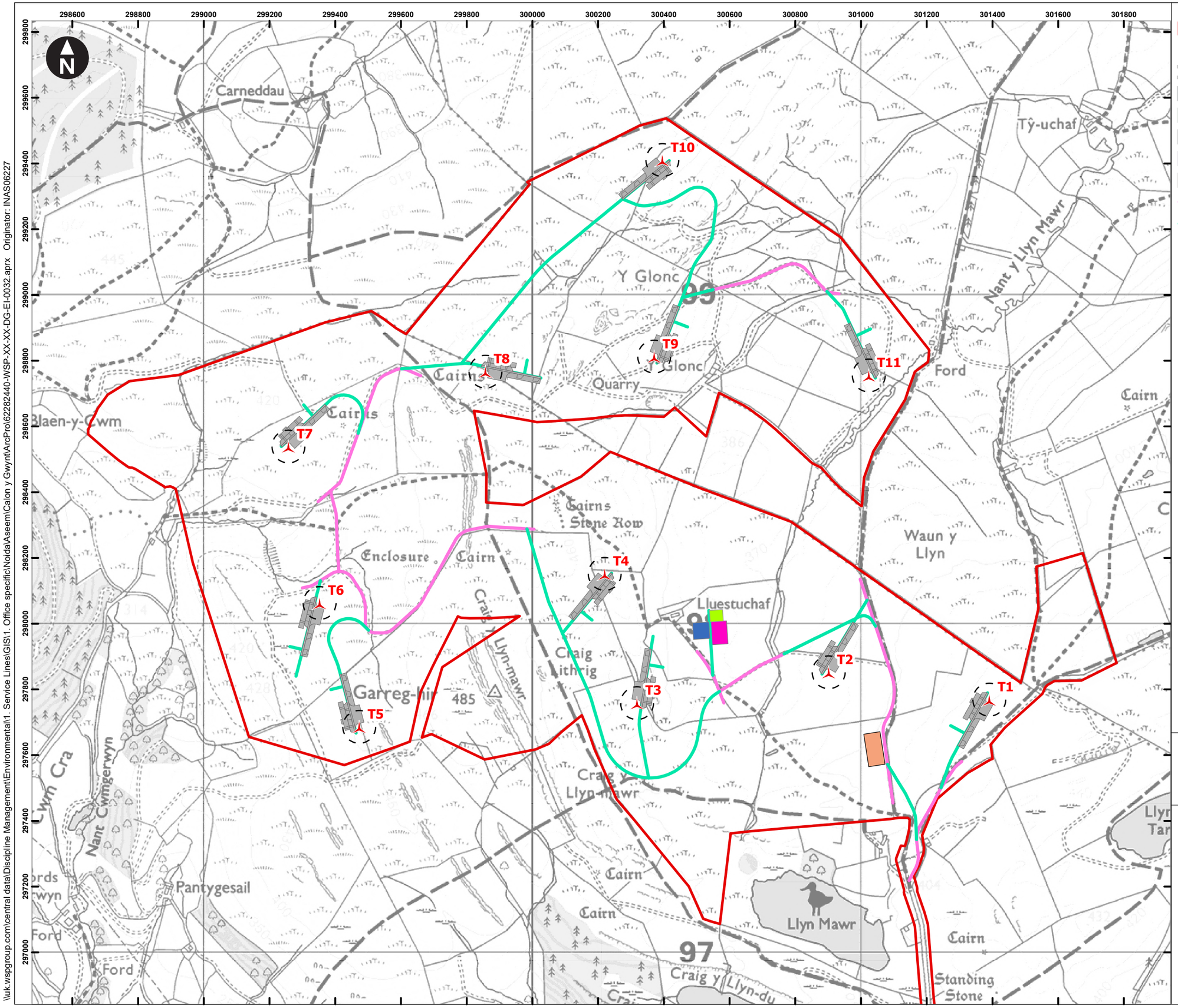
Appendix B

FIGURE 1.2 - SITE LAYOUT PLAN

\\uk.wspgroup.com\central data\Discipline Management\Environmental\1. Service Lines\GIS\1. Office specific\Noida\Aseem\Calon y Gwynt\ArcPro\62282440-WSP-XX-XX-DG-EI-0032.aprx Originator: INAS06227



Key

- Site boundary
- Wind turbine
- 50m micrositing
- Temporary construction compound
- Substation compound
- Hardstanding and Clear working area
- Control building compound
- BESS Compound
- Existing upgraded access track
- New access track

0 250 500 m

Scale at A3:1:11,000

Client

wind2

Parc Ynni Calon y Gwynt

Green Infrastructure Statement

Figure 1.2
Site Layout Plan

June 2026

Appendix C

NBB REPORT

PUBLIC

Parc Ynni Calon y Gwynt

GREEN INFRASTRUCTURE STATEMENT

Appendix C – Net Benefit for Biodiversity Report

001UK62282400-APPC_002
JULY 2026

PUBLIC

Parc Ynni Calon y Gwynt

GREEN INFRASTRUCTURE STATEMENT

Appendix C – Net Benefit for Biodiversity Report

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 62282400

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Signature				
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EXECUTIVE SUMMARY

WSP was commissioned by Parc Ynni Calon y Gwynt to prepare a Net Benefit for Biodiversity (NBB) report in support of a Development of National Significance (DNS) application for the proposed Parc Ynni Calon Y Gwynt (the 'Proposed Development') and to guide the Proposed Development to meeting Welsh policy requirements on NBB and ecosystem resilience.

Welsh policy advises that developments in Wales must demonstrate they have maintained and enhanced biodiversity and created resilient ecological networks. The NBB approach puts the emphasis on the proactive consideration of biodiversity and wider ecosystem benefits early in the design process. This has been considered throughout the Proposed Development's planning stages by conducting ecological surveys and adopting the 'step-wise approach'.

The 'step-wise approach' aims firstly to avoid, then minimise, mitigate, and as a last resort, compensate for adverse impacts on the environment that occur as part of a development. By following the step-wise approach, as detailed within this report, the Proposed Development will have the opportunity to fulfil its intention in creating the proposed energy park, whilst also providing an enhanced area for biodiversity. The measures discussed demonstrate that there is sufficient opportunity to achieve an overall NBB and improve ecosystem resilience. The measures have been designed to support the objectives listed in the DECCA Framework.

For the Proposed Development to provide NBB in the long-term; management and monitoring requirements are recommended. This will include habitat management and monitoring over a 40-year period. Regular reviews of the Habitat Management Plan will be required to assess its success and to make alterations where necessary.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 WSP UK Ltd (WSP)[1] was commissioned by Wind2 (the Applicant) to support a Development of National Significance (DNS) application for the proposed Parc Ynni Calon Y Gwynt. The proposals are located in Powys, Mid-Wales (approximate central British National Grid reference: SO 001 983).

1.1.2 Parc Ynni Calon Y Gwynt, hereafter referred to as the 'Proposed Development', is understood to comprise eleven turbines, associated infrastructure and an access road. The Site is located on hills to the north of the A470 trunk road, approximately 2.7km north of the village of Clatter, 3.5km northeast of the village of Carno, 3.5km north of the village of Pontdolgoch and 12km northwest of Newtown. The extent of the proposals, which includes both elements from the main site and the access road, is shown in **Figure C.1** (hereafter referred to as the 'Site'). The separate elements are hereafter referred to as the 'Main Site' and the 'Access Road' in this report. The Proposed Development design is shown in

1.1.3 **Figure C.2**, overlain atop habitats within the Site. Details of the Proposed Development are described further in Section 1.3.

1.1.4 The requirement for a development to achieve a Net Benefit for Biodiversity (NBB) is secured in Welsh planning policy through Edition 12 of Planning Policy Wales (PPW)[2]. This includes an approach to delivering NBB in Wales, with the onus being placed on demonstrating both a measurable NBB and promoting ecosystem resilience. The NBB approach intends to deliver an overall improvement in biodiversity. It does not utilise a metric. It instead assesses improvement in biodiversity qualitatively, putting the emphasis on proactive consideration of biodiversity and wider ecosystem benefits within a placemaking context early in the design process. This approach encourages the consideration of features that may not necessarily be protected, but are crucial for ecosystem functioning, leading to more joined up spaces for nature. There is no mandatory length of time for which post-construction management is required in Wales.

1.2 ECOLOGICAL BACKGROUND

1.2.1 The ecological baseline of the Site described within this report has been developed based on the results of a suite of ecological surveys and assessments carried out to date. These were carried out separately for the Main Site and the Access Road and are reported on in Chapters 5 and Chapters 6 of the Environmental Statement (ES). This NBB report is an appendix to that ES.

1.3 PROPOSED DEVELOPMENT

1.3.1 The Main Site will include the following infrastructure:

[1] WSP have provided this report solely for the use of the recipient and accepts no liability to any third parties or any other party using or reviewing the report or any part thereof. WSP makes no warranties or guarantees, actual or implied, in relation to this report, or the ultimate commercial, technical, economic, or financial effect on the project to which it relates, and bears no responsibility or liability related to its use other than as set out within the scope of the contract under which it was supplied.

[2] Welsh Government. (2024). Planning Policy Wales (PPW). (Edition 12) 2024.

- Eleven three bladed horizontal axis wind turbines, with an anticipated rotor diameter of 163m and height to blade tip of 180 – 200m;
- Battery Energy Storage System (BESS) infrastructure and compound;
- Crane pads (hardstanding) and laydown areas adjacent to each wind turbine;
- Power cables linking the wind turbines laid in trenches underground, including cable markers;
- Health and safety and other signage;
- New and upgrading of existing access tracks, passing places and turning heads;
- Construction of a new access road from an existing junction of the A470 with the B4568 to facilitate access onto the Site;
- Grid connection infrastructure, including an onsite substation compound, consisting of a 33kV/132kV switching station, transformer area and control building.
- The creation of temporary borrow pits for the extraction of stone (the potential locations within the Site are currently being reviewed); and
- Temporary construction compound(s).

1.3.2 The 'Access Road (as it will be hereafter referred to) will include:

- Construction of a new access road from an existing junction of the A470 with the B4568 to facilitate access onto the Site.

1.4 SCOPE OF REPORT

1.4.1 The aim was to assess if the Proposed Development achieves an NBB whilst also promoting ecosystem resilience, thus demonstrating compliance with planning requirements. The scope of this report is to:

- Summarise the legislative and policy requirements that shaped the assessment (**Sections 1.4, 1.5** and **1.6**);
- Provide an ecological baseline of the Site through providing an overview of the relevant ecological assessments that have informed the Proposed Development to date (**Section 2**);
- Provide details of habitats lost to the Proposed Development (**Section 3**);
- Provide details of mitigation measures provided following the 'step-wise approach'[3] (**Section 4**);
- Provide examples of how the Proposed Development promotes the resilience of ecosystems through reference to the DECCA Framework (**Section 5**);
- Provide future management and monitoring requirements (**Section 6**); and
- Summarise the conclusion of the NBB assessment (**Section 7**).

[3] See Section 1.6f or further information about the 'step-wise approach'.

1.5 RELEVANT LEGISLATION AND POLICY

1.5.1 The report has been compiled with reference to the following relevant nature conservation legislation and planning policy from which the protection of sites, habitats and species is derived in Wales. Relevant information regarding legislation/planning policy which is relevant to the Proposed Development and achieving a NBB is detailed in **Annex C-1** and is listed below:

- The Environment (Wales) Act 2016[4];
- The Wellbeing of Future Generations Act 2015[5];
- Nature Recovery Action Plan Wales (NRAP) – the Biodiversity Strategy for Wales. Part 1: Our Strategy for Nature (2015) and Part 2: Nature Recovery Action Plan (2020 – 2021)[6];
- PPW 2024 (Edition 12)[2];
- Future Wales – The National Plan 2040[7];
- The DECCA Framework (see **Section 1.7**);
- Powys Adopted Local Development Plan (LDP) (2011 – 2026)[8];
- Powys Local Biodiversity Action Plan (LBAP)[9]; and
- Powys Nature Recovery Action Plan (2022)[10].

1.6 STEP-WISE APPROACH AND COMPENSATION

1.6.1 Biodiversity enhancements that achieve NBB must be delivered following the implementation of the 'step-wise approach' of firstly avoiding, then minimising, mitigating and, as a last resort, compensating for adverse impacts on the environment that occur as part of a development. Compensation should only be considered as a last resort, where it has been demonstrated clearly that adverse effects on the environment cannot be avoided or fully mitigated. If compensation is necessary, this must be delivered on-site where possible but off-site compensation can be sought if demonstrated that on-site compensation is not possible.

1.6.2 This approach will encourage the consideration of features that may not necessarily be protected, but are crucial for ecosystem functioning, leading to more joined up spaces for nature.

1.7 DECCA FRAMEWORK

1.7.1 PPW 2024 instructs planning authorities to take account of and promote the resilience of ecosystems when assessing planning applications.

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4 Welsh Government. (2016). Environment (Wales) Act 2016.
5 Welsh Government. (2015). The Wellbeing of Future Generations Act 2015.
6 Welsh Government. (2020). Nature Recovery Action Plan Wales (NRAP) – the Biodiversity Strategy for Wales. Part 2: Nature Recovery Action Plan (2020 – 2021).
7 Welsh Government. (2021). Future Wales – The National Plan 2040.
8 Powys County Council (2018). Powys Local Development Plan (LDP) 2011 – 2026. Adopted April 2018. Llandrindod Wells: Powys County Council.
9 Powys County Council (2002). Local Biodiversity Action Plan.
10 Powys Nature Partnership. (2022). Powys Nature Recovery Action Plan (PNRAP). Powys County Council. Available at: https://en.powys.gov.uk/article/15334/Climate-Change-and-Biodiversity [Accessed: June 2026].

1.7.2 Natural Resources Wales (NRW) have developed a framework for evaluating ecosystem resilience based on five attributes and properties specified in the Environment (Wales) Act 2016[4]. This is referred to as DECCA and comprises the objectives listed:

- Diversity – maintaining and enhancing diversity at every scale, including genetic, structural, habitat and between-habitat levels. This supports the complexity of ecosystem functions and interactions that deliver services and benefits;
- Extent – incorporating measures which maintain and increase the area of semi-natural habitat/features and linkages between habitats. In general, smaller ecosystems have reduced capacity to adapt, recover or resist disturbance;
- Condition – the condition of an ecosystem is affected by multiple and complex pressures acting both as short term and longer-term types of disturbance. Both direct and wider impacts should be considered, for example avoiding or mitigating pressures such as climate change, pollution, invasive species, land management neglect etc;
- Connectivity – this refers to the links between and within habitats, which may take the form of physical corridors, stepping stones in the landscape, or patches of the same or related vegetation types that together create a network that enables the flow or movement of genes, species and natural resources. Developments should take opportunities to develop functional habitat and ecological networks within and between ecosystems, building on existing connectivity; and
- Adaptability to change – ecosystem resilience is a product of the above four attributes. Adaptability, recovery and resistance to/from a disturbance are defining features of ecosystem resilience.

1.7.3 NRW define ecosystem resilience as “An environment that can respond to pressures by resisting, recovering or adapting to change, and is able to continue to provide natural resources and benefits to people”.

1.7.4 NRW has a duty to ensure that the environment and natural resources of Wales are sustainably maintained, sustainably enhanced and sustainably used. Article 4 of the Natural Resource Body for Wales (Establishment) Order 2012[11] sets a general purpose for NRW to pursue the Sustainable Management of Natural Resources (SMNR) in the exercise of its functions. In order to achieve this, NRW applies a set of 9 principles: adaptive management, scale, collaboration and engagement, public participation, evidence, multiple benefits, long term (consequences of actions), preventative action, and building resilience.

1.7.5 Importantly, the objective of the SMNR is to maintain and enhance the resilience of ecosystems and the benefits they provide and, in so doing, meet the needs of present generations of people without compromising the ability of future generations to meet their need, and contribute to the achievement of the goals of the Well-being of Future Generations Act 2015.

[11] Welsh Government (2012). The Natural Resources Body for Wales (Establishment) Order 2012.

2 SITE BASELINE

2.1 OVERVIEW

2.1.1 The below section outlines the ecological baseline of the Site based on a suite of ecological surveys carried out from 2024 onwards. Full details, including recommendations and mitigation measures for each ecological receptor can be found in the respective reports (as appended to this ES). Mitigation measures have been included within this report where they hold relevance to the step-wise approach (see **Section 4**).

2.2 DESK STUDY CONTEXT

2.2.1 A desk study was carried out to support the Preliminary Ecological Appraisal (PEA) of both the Main Site and Access Road elements of the Site in May 2024. It was then reappraised in 2026 as part of the update PEA – see **Appendices 5A and 5B – Main Site and Access Route PEA reports**.

2.2.2 One designated site of international importance was identified within 10km of the Site. This was Coedydd Llawr-y-glyn Special Area of Conservation (SAC), which was located 7.6km southwest of the Site.

2.2.3 The desk study identified two sites of international importance within 20km which were designated for birds and two within 30km designated for bats. The ornithological sites included Berwyn Special Protection Area (SPA) (15km northwest of the Site) and Elenydd – Mallaen SPA (19km south). The bat sites included Tanat and Vyrnwy Bat Sites/Safleoedd Ystlumod Tanat ac Efyrnwy SAC (23km northeast).

2.2.4 All five sites of international importance identified were considered in a Habitats Regulations Screening Assessment (HRSA) produced in June 2026 (**Appendix 5N**) which identified no potential impact pathways that could result in Likely Significant Effects (LSEs) on the sites of international importance.

2.2.5 Llyn Mawr Site of Special Scientific Interest (SSSI) and the Llyn Mawr Wildlife Trust Reserve were identified within the Site, with its northern extent being within the south of the Main Site, and its eastern extent extending into the north of the Access Road. It was therefore considered to be potentially impacted by the Proposed Development in the absence of a design or mitigation. B-lines were also recorded within the Site, and Llyn Du Site of Importance for Nature Conservation (SINC) was recorded 500m south of the Main Site and 300m west of the Access Road. These were also considered for potential impact by the Proposed Development in the absence of a design or mitigation.

2.2.6 A total of 84 Ancient Woodland Inventory (AWI) parcels were recorded within the 2km of the Site, of which four were recorded within the Access Road.

2.2.7 The desk study identified 13 ponds within 500m of the Site. Of these, four were located within 250m of the Site, and therefore were later assessed further for their suitability to support great crested newt (GCN) *Triturus cristatus*. This is discussed in more detail in the GCN section below, with full details available in the GCN report (**Appendix 5I**).

2.2.8 Several watercourses were identified within the Site. All watercourses within the Site were tributaries of three larger named rivers/streams. These were the Afon Carno, Nant Cwmgerwyn and Nant y Llyn Mawr, which all had connectivity with the River Severn/Severn Estuary SAC/SPA/Ramsar. As the Severn Estuary SAC/SPA/Ramsar was located >200km downstream from the Site, it was scoped out for potential impact by the Proposed Development.

2.3 MAIN SITE

Extended Phase 1 Habitat Survey

2.3.1 Habitat surveys within the Main Site and an additional 30m buffer (hereafter referred to as the 'Phase 1 habitat Survey Area' as shown in

2.3.2 **Figure C.2)** have been carried out to support the 2024 and 2026 PEA reports (**Appendix 5A**). The habitats within the Main Site were dominated by acid grassland, with heath, bracken *Pteridium aquilinum* and marshy grassland abundant. Coniferous woodland, scrub and improved grassland were present within the Main Site but to a far lesser extent. In total, surveys have identified 13 Phase 1 habitat types within the Main Site, of which five qualify or have potential to qualify as Section 7 Priority Habitats.

2.3.3 It should be noted that a revised list of Section 7 Priority Habitats was announced by the Welsh Government on the 1st April[12], since the 2024 PEA. This is addressed in detail in the update 2026 PEA report and therefore all Priority Habitats listed below and within this report refer to the revised list. These include:

- Upland heathland;
- Montane heaths and grassland;
- Permanent ponds;
- Inland rock outcrops and scree habitats;
- Small, medium altitude rivers on acidic geology; and
- Blanket bog (see below).

2.3.4 The Main Site was also assessed for its suitability to support Priority Habitats and/or ground water dependent terrestrial ecosystems (GWDTEs) such as blanket bog owing to the potential for such habitats identified during the Phase 1 habitat survey. This is discussed below with relevance to the National Vegetation Classification (NVC) surveys (**Appendix 5C**). Blanket bog is a Priority Habitat as listed under **Section 7** and is therefore also listed above.

2.3.5 The habitats within the Main Site were assessed to have potential suitability to support commuting, foraging and roosting bats, brown hare *Lepus europaeus*, hedgehog *Erinaceus europaeus*, pine marten *Martes martes*, polecat *Mustela putorius*, badger *Meles meles,* otter *Lutra lutra*; water vole *Arvicola amphibius*; breeding birds; amphibians including GCN; reptiles; common and widespread invertebrates; and INNS.

[12] Welsh Government (2026). Letter: Revised Section 7 list of species and habitats under the Environment (Wales) Act 2026 Date: 01/04/2026.

2.3.6 Further surveys were carried out for bats, badger, otter, water vole, reptiles, GCN and aquatic ecology. These are discussed below. Other recommendations were provided for the remaining receptors within the 2024 and 2026 PEA reports (**Appendix 5A**), such as working under a PMoW.

NVC survey

2.3.7 An NVC survey was undertaken in May 2024 (**Appendix 5C**). Quadrat samples were taken in prospective turbine locations under a previous design of the Proposed Development and within each quadrat, all species were recorded with an estimate of abundance. Habitats were analysed using frequency tables to approximate to an NVC community, and, where applicable, a sub-community. This was supplemented by analysis of the quadrat data using a statistical package: R Modular Analysis of Vegetation Information System (RMAVIS).

2.3.8 Seven NVC sub-communities were identified within the Site in 2024:

- M20a *Eriophorum vaginatum* blanket and raised mire typical sub-community;
- M25b *Molinia caerulea – Potentilla erecta* mire *Anthoxanthum odoratum* sub-community;
- M23b *Juncus effusus/acutiflorus – Galium palustre* rush pasture *Juncus effusus* sub-community;
- MG6a *Lolium perenne – Cynosurus cristatus* grassland typical sub-community;
- MG10a *Holcus lanatus – Juncus effusus* rush pasture typical sub-community;
- U4a *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland typical sub-community; and
- U4b *Festuca ovina – Agrostis capillaris – Galium saxatile* grassland *Holcus lanatus-Trifolium repens* sub-community.

2.3.9 Two of these habitats were considered to qualify as Priority Habitats under the provision of Section 7 of the Environment (Wales) Act 2016 (M25b: Purple moor grass and rush pastures, and M20a: Blanket bog)[13].

2.3.10 Three of the identified sub-communities may support GWDTEs when compared to the groundwater dependency score provided by UKTAG[14]: M25b, M23b, and MG10.

2.3.11 Due to the time elapsed since this survey was carried out (approximately two years) and updates to the Proposed Development design, an updated NVC survey was carried out in the week of 11th May 2026. This was to ensure ecological validity with respect to typical lifespan of ecological data[15]. This updated NVC survey aimed to confirm the distribution and condition of 'Notable Habitats'[16] within the Site which will be affected by the Proposed Development (i.e. within the construction footprint). At this stage, NVC has been assigned based on the floristic tables and keys available in the NVC Users' Handbook[17], but statistical analysis has not yet been undertaken. As such, detailed and accurate mapping has not yet been produced, and an interim report has been produced (**Appendix**

[13] In 2026, a revised list of Section 7 species and habitats under the Environment (Wales) Act 2016 was produced. The results of the previous survey refer to the previous iteration of the list of Section 7 species and habitats, that was correct at the time of reporting in 2024.
[14] UKTAG (2009) Guidance 5 ab Annex 1: NVC plant communities and dependency on groundwater
[15] CIEEM (2019) Advice note of the Lifespan of Ecological Reports and Surveys.
[16] The term 'Notable Habitats' is exclusive to the NVC report and acts as an umbrella term for Priority Habitats, Irreplaceable Habitats (such as blanket bog communities and Ancient Semi-Natural Woodland (ASNW)) and GWDTEs.
[17] Rodwell, J.S. (ed.) (2006). *National Vegetation Classification: Users' Handbook*. Joint Nature Conservation Committee (JNCC), Peterborough.

5C: Notable Habitats Report of the ES). The interim report identifies Notable Habitats within the Site, within the footprint of the Proposed Development, including:

- Blanket bog;
- Upland heathland; and
- A range of habitats that are likely to be GWDTEs.

2.3.12 The exact extent of these Notable Areas will be determined in an updated NBB report, following the statistical analysis and mapping of the updated NVC data.

Bats

2.3.13 A Daytime Bat Walkover (DBW) was carried out concurrently with the extended Phase 1 habitat survey (**Appendix 5A**). The DBW did not identify any Potential Roost Features (PRFs) within any of the trees within the Main Site, however buildings could not be assessed for PRFs due to access restrictions and therefore roosting suitability could not be ruled out at this stage.

2.3.14 Following this, bat activity surveys (**Appendix 5G**) were carried out in spring 2024, summer 2025 and autumn 2025. In the spring 11 automated static bat detectors were deployed at all 11 turbine locations, in the 2025 surveys, only 10 were deployed, as at the time only 10 turbine locations were being considered.

2.3.15 Eleven species/genera of bats were recorded, including common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii*, unidentified bats belonging to the Myotis genera, Daubenton's bat *Myotis daubentonii*, noctule *Nyctalus noctula*, Leisler's bat *Nyctalus leisleri*, serotine *Cnephaeus serotinus*, brown long-eared bat *Plecotus auritus*, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe *Rhinolophus hipposideros*.

2.3.16 The most widely recorded species was noctule (34.9% of all bat passes), followed by common and soprano pipistrelle (28.6% and 24.1% of all bat passes respectively).

2.3.17 Following analysis using Ecobat[18], for species identified as having a high risk of turbine collision, activity levels were 'Low', with the exception of noctule that was recorded as having 'Low/Moderate' activity at one detector location.

2.3.18 Further analysis also identified multiple species activity overlapping with Species-Specific Emergence Times (S-SET), suggesting proximity to a roost location, either within or outside the boundary of the Site.

2.3.19 A Ground Level Tree Assessment (GLTA) and Preliminary Roost Assessment (PRA) of trees and structures respectively within 200 m of the proposed turbine locations identified no suitability for supporting roosting bats.

Badger

2.3.20 A badger survey was carried out concurrently with the extended Phase 1 habitat survey (**Appendix 5A**). The habitats were considered suitable for commuting and foraging badger, but sett-building opportunities were considered sub-optimal at the time of survey due to a limited extent of habitats within the Main Site considered to be of high suitability to support badger, such as woodlands and hedgerows. Furthermore, there were no signs or evidence of badgers identified within the Main Site

[18] Mammal Society (2024). *Ecobat*. Available at: https://ecobat.mammal.org.uk/login [Accessed July 2026]

during this visit. Later, targeted badger surveys undertaken in 2024 and 2026 within the Main Site (**Appendix 5D**) also did not identify any confirmed evidence of badger. Mammal paths were recorded throughout the woodland area, although these were not confirmed as badger. Then, during the update NVC survey in May 2026 (**Appendix 5C**), an active outlier badger sett was identified within the construction footprint. The Main Site is therefore considered suitable for commuting, foraging and sett-building activities, with badger confirmed to be present.

Riparian Mammals

2.3.21 During a targeted otter survey of the Main Site (**Appendix 5K**), no signs to indicate otter presence were identified. No confirmed resting places or otter holts were identified; however potential resting places were recorded, which may be suitable to be used by otter periodically.

2.3.22 A water vole survey of the Main Site (**Appendix 5K**) identified no evidence of water vole. Further, the watercourses were assessed as being unsuitable to support water vole, and therefore water vole have been scoped out of this assessment.

Reptile

2.3.23 A site visit was undertaken to map the location of reptile hibernacula (**Appendix 5J**). Most of the rocky outcrops within the Main Site were heavily grazed pasture, so were considered to have a lower suitability to support hibernating reptiles. Rocky outcrops or stone walls considered suitable to support hibernating reptiles were scattered throughout the Site. The area between turbines 3 and 4 was considered to be most suitable to support hibernating reptiles; due to the presence of a basin flanked by stony outcrops. Areas of tussocky grassland, bracken and gorse occur within the basin.

2.3.24 Owing to the suitable habitat within the Main Site to support reptiles and the results from the 2024 and 2026 PEA reports, reptile presence has been assumed within the Site.

GCN

2.3.25 Habitat Suitability Index (HSI) assessments of the four ponds located within 250m from the Site were planned to be carried out concurrently with the extended Phase 1 habitat survey of the Main Site in 2024 (**Appendix 5A**). Of these, only three could be accessed due to land access restrictions. These HSI scores of these ponds indicated that two had a 'below average' suitability for GCN, and one 'poor'. An eDNA survey of the three accessible ponds was undertaken, which identified one pond with a positive eDNA result (**Appendix 5I**).

Aquatic Ecology

2.3.26 An aquatic habitat survey was undertaken in August 2025 (**Appendix 5F**). The survey was undertaken to accord with a previous iteration of the Proposed Development design, which has since been amended. This was carried out where access routes bisected identified watercourses and up to 200m upstream and downstream and therefore the survey extent is still considered relevant. The survey found that watercourses within the Main Site (and within 200m up- and down-stream) have limited potential to support protected and/or notable aquatic species. However, the Afon Carno, which receives flow from watercourses within the Site, supports protected and/or notable aquatic species, including salmon *Salmo salar*, brown trout *Salmo trutta*, lamprey sp. *Lampetras sp*. and bullhead *Cottus gobio*.

2.4 ACCESS ROAD

Extended Phase 1 Habitat Survey

2.4.1 Habitat surveys within the Access Road and an additional 30m buffer ('Phase 1 habitat Survey Area') have been carried out to support the 2024 and 2026 PEA reports (**Appendix 5B**). The Access Road was dominated by agricultural habitats comprising improved, semi-improved grasslands and arable land. Woodland, hedgerows, tree lines and watercourses transected the Access Road site at various locations. In total, surveys have identified 20 habitat types within the Access Road, of which, four qualify or have potential to qualify as Section 7 Priority Habitats. These include:

- Lowland mixed deciduous woodland;
- Native hedgerows;
- Small, medium altitude rivers on acidic geology; and
- Upland heathland.

2.4.2 The Access Road supported habitats that were considered to be suitable to support bats, badgers, hazel dormice, otter, hedgehog, brown hare, reptiles, amphibians including GCN, breeding birds, invertebrates, INNS and notable plants.

2.4.3 Further surveys were carried out for bats, badger, hazel dormouse, otter and birds. These are discussed below. Other recommendations were provided for the remaining receptors within the 2024 and 2026 PEA reports (**Appendix 5B**), such as working under a PMoW.

Bats

2.4.4 A DBW was carried out concurrently with the extended Phase 1 habitat survey (**Appendix 5B**). The DBW identified six buildings within the Access Road. These comprised agricultural or residential complexes and a barn. Of these, the barn and one farm shed within one of the agricultural complexes could be assessed for their potential for supporting roosting bats. These were both assigned 'low' suitability[19]. All unassessed buildings were considered to be suitable to support roosting bats and barn owl *Tyto alba* as a precaution.

2.4.5 The DBW identified 16 trees with potential suitability for roosting bats, which required further assessment to establish level of suitability. Linear habitats including hedgerows, lines of trees, dry-stone walls and rivers provided suitable commuting corridors and foraging opportunities for bats.

2.4.6 A Ground Level Tree Assessment (GLTA) was undertaken of all the trees within the Access Road and up to 20m either side of the route in July 2024 (**Appendix 5H**). Where possible (and if required) the trees were subsequently inspected either from the ground or climbed to be inspected at height. Whilst no bats, or evidence of use by bats, were identified during the PRF inspection surveys, 13 trees were assessed as having suitability for supporting roosting bats. The trees were classified as follows:

- PRF-M20 – seven trees;

[19] Collins. J. (ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London.

[20] PRF is suitable for multiple bats and may therefore be used by a maternity colony.

- PRF-I21 – five trees; and
- Further Assessment Required (FAR) – one tree.

2.4.7 Trees with suitability to support roosting bats which will be impacted by the Proposed Development through lopping or removal are to be subject to further surveys. These will be carried out prior to full ES submission.

Badger

2.4.8 Badger surveys were carried out of the Access Road in June, July and November 2024 (**Appendix 5H**). Although mammal paths were recorded within woodland parcels present within the Access Road footprint, the surveys did not confirm any evidence of badger at the time of survey. Badger setts were therefore considered likely to be absent at the time of survey, although given the suitability of habitats, a precautionary approach was advised.

Hazel Dormouse

2.4.9 A suite of dormouse nest tube surveys were carried out between June and November 2024 (**Appendix 5M**). These surveys confirmed the presence of dormice using woodland and hedgerow habitats within the Access Road. It was determined that some of these areas would be cleared during the construction phase of the Proposed Development and individual dormice may be at risk during construction of the Proposed Development. Dormouse presence is assumed within all suitable habitats within the Site.

Riparian Mammals

2.4.10 Riparian mammal surveys were carried out in June and July 2024 of seven watercourses within the Access Road (**Appendix 5L**). Watercourses were considered to be unsuitable to support water vole as they were either dry at the time of survey or lacked the emergent vegetation and bankside structure suitable for this species.

2.4.11 Watercourses 1-5 (see **Appendix 5L**) were considered suitable to support commuting otter, however due to being seasonally dry were considered unlikely to support a suitable food source for otter across the season. Although no evidence was recorded, the woodland surrounding Watercourses 1-3 may be suitable to support otter resting places. Watercourses 6 and 7 were dry at the time of survey. Overall, although there were no resting places identified within the Access Road, the habitats provided suitability for commuting and resting otter, with limited foraging opportunity.

2.5 ORNITHOLOGY

2.5.1 Targeted bird surveys were designed and carried out by ecological consultants outside of WSP. Surveys considering both elements of the Site (i.e. the Main Site and Access Road) were carried out concurrently within appropriate study areas. These included:

- Vantage point surveys;
- Breeding raptor surveys;
- Breeding wader surveys;

[21] PRF is suitable for individual bats or very small numbers of bats.

- Llyn Mawr waterbody counts;
- Winter walkover surveys; and
- Nightjar surveys.

2.5.2 Full results are referenced in **Chapter 6: Ornithology**.

2.5.3 This chapter makes more detailed reference to observations of red kite *Milvus milvus*, hen harrier *Circus cyaneus*, hobby *Falco subbuteo*, peregrine *Falco peregrinus*, merlin *Falco columbarius*, short-eared owl *Asio flammeus*, kestrel *Falco tinnunculus*, nightjar *Caprimulgus europaeus*, mallard *Anas platyrhynchos*, tufted duck *Aythya fuligula*, goosander *Mergus merganser*, golden eye *Bucephala clangula*, golden plover *Pluvialis apricaria*, lapwing *Vanellus vanellus*, turnstone *Arenaria interpres*, redshank *Tringa totanus*, snipe *Gallinago gallinago*, whimbrel *Numenius phaeopus*, curlew *Numenius arquata* and various passerine species.

2.5.4 Key findings included presence of breeding kestrel within the Site, evidence of curlew territories and large flocks of golden plover within the Site and local surroundings (as described in **Chapter 6**) indicating use of the Site for foraging/loafing during passage periods.

2.6 HIGH SENSITIVITY SOILS

2.6.1 Peat probes were deployed to take targeted core samples within the Main Site in proximity of the Proposed Development to inform design iteration by reducing impacts on high sensitivity soils. Peat and peaty soils were identified within the Main Site (collectively referred to as high Sensitivity Soils) **Figure C3** and **Chapter 9: Hydrology** and **Chapter 10: Geology and Soils; Appendix 10A: Baseline Soils Report; Appendix 10D: Outline Soil Peat Management Plan**.

In respect of peat sediments, the Welsh Government have commented that the definition of ‘peat’ as defined by the National Peatland Action Programme (NPAP) is as follows:

- More than 40cm of organic (O horizon) material within the upper 80cm, excluding fresh litter and living moss; or
- more than 30cm of O horizon material resting directly on the bedrock or extremely stony material; and
- no overlying non-humose material mineral horizon that has a colour value of 4 or more and extends below 30cm depth.
- In line with these definitions, the threshold of ≥ 30cm has been used to identify the presence of ‘peat’. Where soils containing peat deposit are present, but do not meet the minimum threshold depth of 30cm, these are referred to as ‘peaty soils’ – collectively these are referred to as ‘high sensitivity soils’.

ES Chapter 10 Appendix 10A constructs the concept of areas of High Sensitivity Soils, identified through the combined interpretation of desk-based information, peat depth probing, confirmatory coring surveys and landscape setting. These areas include confirmed peat deposits, peaty soils, organic-rich wet soils and land considered to have a potential functional association with peat-forming conditions. The resulting areas were used in the design evolution of the Proposed Development by informing infrastructure siting and hence safeguarding avoidance and minimisation of disturbance of sensitivity soil receptors, in accordance with principles in the Step-Wise approach.

The Main Site is characterised by a series of wet basins and depressions, bounded by better-drained slopes and rocky outcrops, rather than extensive plateau peatland. Combined soil and ecological survey findings indicate that high sensitivity soils are largely concentrated within these discrete landscape features.

Appendix 10A concluded that the majority of these areas comprise peat soils and peaty soils which associated peatland condition was assessed as modified or drained, and therefore present opportunities to improve habitat condition, hydrological function and associated ecosystem services through targeted management and restoration works.

The mapping of areas with High Sensitivity Soils within the Main Site, as illustrated in **Figure C3**, and described in ES Chapter 10 Appendix 10A, provides therefore a starting point for the habitat restoration and enhancement measures set out within this Outline Habitat Management Plan.

No areas of High Sensitivity Soil, as identified by core sample data only, will be subject to permanent land take. However, some areas of peaty soils will be temporarily removed before being replaced ; and some of these areas of peaty soils will be subject to compaction from the installation of 'floating' access tracks, reducing take and effects on subterranean hydrology.

Terrestrial habitat; montane heath and grassland (a Priority Habitat containing GWDTEs) identified within areas of High Sensitivity Soil, including Blanket Bog, an irreplaceable and Priority Habitat, will be avoided where possible or impact minimised through micro-siting of track routes and other infrastructure.

Measures to enhance High Sensitivity Soils will provide ecological enhancement across the Site Priority Habitats and for a variety of species (such as foraging and commuting bats; reptiles and amphibians; and commuting and foraging mammals) and will help to contribute to the breeding success of these species.

High Sensitivity Soils management during and following construction is detailed separately in a soil management plan (**Appendix 10D: Outline Soil and Peat Management Plan**) and iterations of the HMP (presently, **Appendix 5O: Outline Habitat Management Plan**) a Construction Environmental Management Plan (CEMP) will be submitted prior to construction to PCC for approval as part of a secured planning condition and agreed with all necessary consultees. The CEMP will detail the methods and techniques to be employed across the whole of the Proposed Development to ensure compliance with legislation, construction best practice, and the mitigation measures to be employed. An Outline CEMP has been submitted alongside the ES.

Issues relating specifically to the construction of the Proposed Development (e.g. preventing pollution of watercourses, disturbance of protected species of reinstatement/restoration of habitats within the development footprint) are not considered in this document but is included in the outline CEMP. Further information about the mitigation measures to be employed during the construction, operation and decommissioning periods are included in **Chapter 5: Ecology**.

3 HABITAT LOSS AND GAINS

3.1.1 Targeted temporary and permanent habitat removal will be required to facilitate the Proposed Development. Turbines and associated infrastructure have been positioned, where practicable, away from ecologically sensitive areas, with appropriate buffers applied (see **Section 5**). Existing tracks have also been incorporated into the design wherever possible, avoiding additional habitat loss from constructing new access routes.

3.1.2 Some temporary and permanent removal of Phase 1 habitats will nonetheless be unavoidable to deliver the Proposed Development, as outlined in **Table 3-1**. This includes seven Priority Habitat types and one parcel of Ancient Semi-Natural Woodland (ASNW).

3.1.3 Indicative permanent and temporary habitat loss are shown in **Table 3-1, Table 3-2** and **Table 3-3**. Indicative losses of habitats of Priority Habitats and irreplaceable habitat are shown in **Table 3-4** and **Table 3-5**. Loss of GWDTEs is discussed concurrently with the loss of montane heath and grassland and blanket bog. This is because the enhancement measures proposed have relevant to all of these habitat types.

3.1.4 It should be noted that some of the Phase 1 habitats within the Site may also qualify for designation as a Priority Habitat, an irreplaceable habitat and/or a GWDTE. This introduces overlaps in definitions which means that areas of Phase 1 habitats and areas of Priority Habitat/irreplaceable habitats/GWDTE should not be added together to calculate a total loss. Total hectare loss can be found by looking at the total loss of Phase 1 habitats alone.

3.1.5 Furthermore, all areas of ASNW within the Site qualify as Lowland mixed deciduous woodland, whilst not all Lowland mixed deciduous woodland qualifies as ASNW. This is discussed further within this section.

Table 3-1 - Indicative Temporary and Permanent Land Take Areas relating to elements of the Proposed Development

Element of Proposed Development	Indicative Permanent Land Take Area (ha)	Indicative Permanent Land Take of Linear habitats (m)	Indicative Temporary Land Take Area (ha)	Indicative Temporary Land Take of Linear habitats (m)	Phase 1 habitat impacted (coding system as per JNCC, 2016[22,23])	Priority habitat/ASNW parcel impacted
Wind Turbine Generator (WTG) foundations and hardstandings including primary and auxiliary hardstandings, and blade laydown areas	2.30	36.30	4.48	57.13	B1.2; B2.2; B5; C1.1; D1.1; G2; I1.1; J2.6; J5	Upland heathland Montane heaths and grassland (of which three parcels have been determined to qualify as blanket bog, two of which are within the footprint of the Proposed Development) Inland rock and cliff Small, medium altitude rivers on acidic geology
Temporary construction compounds	-	-	0.5	-	B2.2	N/A
Control building compound	0.14	-	-	-	B2.2	N/A
Substation compound	0.35	-	-	-	B2.2	N/A
BESS compound	0.25	-	-	-	B2.2	N/A

[22] JNCC. 2010. Handbook for Phase 1 habitat survey – a technique for environmental audit, JNCC, Peterborough, ISBN 0 86139 636 7.

[23] A1.1.1 – Semi-natural broadleaved woodland; A1.3.2 – Plantation mixed woodland; A3.1 – Broadleaved scattered trees; A3.3 – Mixed scattered trees; A2.1 – Dense/continuous scrub; B1.2 – Semi-improved acid grassland; B2.2 – Semi-improved neutral grassland; B4 – Improved grassland; B5 – Marsh/marshy grassland; C1.1 – Continuous bracken; D1.1 – Acid dry dwarf shrub heath; D5 – Dry heath/acid grassland mosaic; G2 – Running water; HS – Hardstanding; I1.1 – Natural inland cliff; J1.1 – Arable cultivated/disturbed land; J2.1.1 – Native species-rich intact hedge; J2.1.2 – Species-poor intact hedge; J2.2.2 – Species-poor defunct hedge; J2.5 – Wall; J2.6 – Dry ditch; J4 – Bare ground; J5 – Other habitat; and NA – Not Accessed.

Element of Proposed Development	Indicative Permanent Land Take Area (ha)	Indicative Permanent Land Take of Linear habitats (m)	Indicative Temporary Land Take Area (ha)	Indicative Temporary Land Take of Linear habitats (m)	Phase 1 habitat impacted (coding system as per JNCC, 2016[22,23])	Priority habitat/ASNW parcel impacted
Access tracks including passing places and turning heads (both Main Site and Access Road)	9.43	2288.39	7.18	1794.36	A1.1.1; A3.1; A3.3; A2.1; B2.2; B4; C1.1; G2; HS; J1.1; J2.1.1; J2.1.2; J2.2.2; J2.5; J4; NA	Lowland mixed deciduous woodland Ancient semi-natural woodland Native hedgerows Small, medium altitude rivers on acidic geology
Oversail (including 10m buffer)	-	-	3.85	1565.49	A1.1.1; A1.3.2; A3.1; A3.3; B2.2; B4; C1.1; D5; G2; J2.1.1; J2.1.2; J2.2.2; J2.5;	Lowland mixed deciduous woodland Native hedgerows Small, medium altitude rivers on acidic geology
Overrun	0.02	2.62	-	-	A1.1.1; A3.1; B2.2; B4; J4; J5	Lowland mixed deciduous woodland Native hedgerows
Total	**12.50**	**2327.31**	**16.00**	**3416.89**	**-**	**-**

Table 3-2 - Indicative Permanent and Temporary Land Take Areas of Phase 1 habitats – Main Site and Access Road elements combined

Phase 1 habitat	Indicative Permanent Land Take Areas (ha)	Indicative Temporary Land Take Areas (ha)
A1.1.1 – Semi-natural broadleaved woodland	0.28	0.55
A1.3.2 – Plantation mixed woodland	-	0.05
A2.1 – Dense/continuous scrub	0.01	0.05
B1.2 – Semi-improved acid grassland	3.52	2.43
B2.2 – Semi-improved neutral grassland	1.91	2.28
B4 – Improved grassland	2.57	5.40
B5 – Marsh/marshy grassland	1.04	0.94
C1.1 – Continuous bracken	0.81	0.63
D1.1 – Acid dry dwarf shrub heath	0.47	0.28
D5 – Dry heath/acid grassland mosaic	-	0.11
HS – Hardstanding	0.69	0.13
I1.1 – Natural inland cliff	0.08	-
J1.1 – Arable cultivated/disturbed land	0.77	1.74
J4 – Bare ground	0.19	0.14
J5 – Other habitat	0.13	0.15
NA – Not Accessed	0.02	0.13
Total	**12.50**	**16.00**

Table 3-3 - Indicative Permanent and Temporary Land Take of Linear Phase 1 habitats – Main Site and Access Road elements combined

Phase 1 habitat	Indicative Permanent Land Take of Linear habitats (m)	Indicative Temporary Land Take of Linear habitats (m)
A3.1 – Broadleaved scattered trees	250.16	194.26
A3.3 – Mixed scattered trees	60.86	187.20
G2 – Running water	350.87	281.39
I1.1 – Natural inland cliff	36.30	-
J1.1 – Arable cultivated/disturbed land	-	248.52
J2.1.1 – Native species-rich intact hedge	48.73	374.16
J2.1.2 – Species-poor intact hedge	1370.02	1049.55
J2.2.2 – Species-poor defunct hedge	147.94	495.42
J2.5 – Wall	78.78	545.69
J2.6 – Dry ditch	40.79	--
Total	**2384.44**	**3359.85**

Table 3-4 - Indicative Permanent and Temporary Land Take Areas of Priority Habitats and ASNW

Habitats of conservation importance	Indicative Permanent Land Take Areas (ha)	Indicative Temporary Land Take Areas (ha)
Lowland mixed deciduous woodland	0.28	0.55[24]
Montane heaths and grassland	1.04[25]	0.89
Upland heathland	0.47	0.38
Inland rock outcrops and scree habitats	0.08	-
Total	**1.88[26]**	**1.83[25]**
Ancient Semi-Natural Woodland	0.43[27]	-
Blanket bog	0.07[27]	-

[24] Where the indicative land take area of lowland mixed deciduous woodland falls within the same boundary of ASNW, this should be considered as permanent loss due to the ASNW's status as irreplaceable habitat. lowland mixed deciduous woodland calcs include overlapping areas of ANSW.

[25] This total 1.04ha also includes the 0.07ha blanket bog, which is separated out in the below rows.

[26] The 0.01 is accounted for in rounding errors.

[27] Ancient Semi-Natural Woodland and blanket bog are considered irreplaceable habitats which are defined in Planning Policy Wales (PPW) (Welsh Government, 2024) as those which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, taking into account their age, uniqueness, species diversity or rarity. For this reason, any removal of these habitats is considered to be permanent regardless of whether habitats will or will not be replanted or left to regenerate following the completion of the Proposed Development.

Table 3-5 - Indicative Permanent and Temporary Land Take of Linear Priority Habitats

Phase 1 habitat	Indicative Permanent Land Take of Linear habitats (m)	Indicative Temporary Land Take of Linear habitats (m)
Native hedgerows	297.58	381.46
Small, medium altitude rivers on acidic geology	350.87[28]	281.39[29]
Total	**648.45**	**662.84**

3.1.6 Habitat retention is considered the most desirable option for biodiversity. The Proposed Development has been designed to retain habitats as far as practicable, through utilisation of existing access tracks, where available, and targeted positioning of infrastructure.

3.1.7 Where habitats have been designated for permanent removal, the guidance (as set out within PPW[2]) is that habitats should be replaced to meet or exceed the following ratios:

- Trees: 3:1;
- Priority Habitats: 2:1; and
- Non-priority habitats: 1:1.

3.1.8 It is acknowledged that, in the case of the Proposed Development, new habitat creation is not possible within the remit of the Site, as the majority of the Site is already vegetated. Therefore, where this cannot be achieved, areas of existing habitats will be enhanced to greater ratios to provide a significantly greater biodiversity value. These amended ratios are provided below:

- Trees: 6:1;
- Priority Habitats: 4:1; and
- Non-priority habitats: 2:1.

3.1.9 This habitat enhancement should be carried out within habitat management units (as set out within the outline Habitat Management Plan (oHMP)) within the Site, and to a biodiversity value which will be agreed in consultation with NRW.

3.1.10 A percentage value of each available 'Unit' (see, oHMP **Appendix 5O** of the ES) / area available for habitat restoration has been used to demonstrate a practical and realistic approach, prior to stakeholder engagement (landowners/tenants) and agreed integration of oHMP prescriptions and existing practices such as grazing. Restoration is discussed in the following sections, and as summarised in **Table 3-6.**

[28] Rivers will be culverted to support the construction of the access road, allowing the continuation of river flow but de-naturalising the river habitat.

[29] Where river habitat is demarcated for temporary habitat removal this is likely to be temporary removal of marginal riparian habitat.

Priority Habitats

3.1.11 The Proposed Development requires the removal of Priority Habitats, including the permanent loss of areas of lowland mixed deciduous woodland, montane heaths and grassland, blanket bog, upland heathland, inland rock outcrops and scree habitats, native hedgerows and small, medium altitude rivers on acidic geology[30].

3.1.12 Details and further measures are detailed in the oHMP which further describe proposed habitat enhancement methodologies and habitat management units.

3.1.13 These measures will include:

Lowland mixed deciduous woodland and native hedgerows

- Selective thinning of the woodland canopy and/or coppicing to allow light to reach the woodland understorey to promote new growth, encouraging natural regeneration and ground flora development;
- Rotational hedgerow management is recommended on a three-year rotation;
- Doubling up of retained hedgerows to enhance size, connectivity and robustness of existing hedgerows. To achieve this, hedgerows proposed for removal may be translocated to these retained locations;
- Planting of replacement tree species along retained woodland edge and in defunct areas of hedgerows and lines of trees to create stronger connectivity of habitats and to increase the diversity of tree species. Planted trees should all be UK native species such as hazel *Corylus avellana*, silver birch *Betula pendula*, hawthorn *Crataegus monogyna*, and sessile oak *Quercus petraea*. This will not only help to improve connectivity within these habitats and to the wider environment beyond the Site but it will also provide good foraging opportunities for species e.g., hazel dormice and birds (see location in Units attached to oHMP); and
- During the establishment of newly planted trees, protection measures may be implemented, depending on best practice guidance at the time of planting, to protect them from grazing animals.

3.1.14 Where tree planting measures are recommended, these should meet the 3:1 tree replacement ratio.

3.1.15 These ratios can be achieved if the above measures are applied to **37%** of retained areas of woodland and **all** retained hedgerows within the Site plus restoration of temporarily removed woodland and hedgerows.

Montane heaths and grassland and blanket bog

- Ditch blocking: to benefit existing areas of montane heaths and grasslands and blanket bog which support sensitive soils (and GWDTEs);
- Removal/management of grazing pressures: to remove or reduce the potential for micro-erosion in the soil, especially sensitive soils, allow the establishment of a more diverse flora and reduce bracken encroachment which can be exacerbated by intensive grazing; and

[30] Medium altitude rivers on acidic geology habitat will be lost to culverted sections.

- Bracken removal: to support the establishment of more biodiverse and higher quality habitat. Bracken typically dominates and aggressively outcompetes a more diverse, e.g. heathland or acid grassland, flora.

3.1.16 The 4:1 enhancement ratio can be achieved if the above measures are applied to 5% of retained marshy grassland.

Upland heathland

- Bracken removal: As above;
- Removal/management of grazing pressures: As above; and,
- Introduction of green straw and hay.

3.1.17 The 4:1 enhancement ratio can be achieved if the above measures are applied to 0.7% of retained bracken and upland heathland habitat.

Inland rock outcrops and scree habitats

3.1.18 It is acknowledged that 0.08ha of inland rock outcrops and scree habitats are anticipated for permanent removal. This type of habitat is implausible to replace like-for-like. Considering the small area proposed for loss, it is considered appropriate that habitat enhancements across the wider Site (within habitats discussed in this section) will go towards mitigating for the loss of inland rock outcrops and scree habitats. Any inland rock outcrops and scree habitats that are suitable to support reptiles (as identified in **Appendix 5J: Reptile Survey Report**) will be mitigated for through creation of reptile refugia.

Small, medium altitude rivers on acidic geology

- It is acknowledged that all G2 – running water within the Site qualify as small, medium altitude rivers on acidic geology[31], which is a Priority Habitat. These will be culverted, therefore, maintaining connectivity of river habitat across the Site. However, riparian marginal habitat will be permanently removed to install the culverts and further extents will be temporarily removed to support the construction phase. Mitigation measures will include:
- Removal/management of grazing pressures: along grassland edge – watercourse interface in order to limit grazing to reduce poaching a eutrophication of the watercourse;
- Creation of rocky areas and/or log features along the riparian habitat to create new ecological niche opportunities; and
- Where restoring temporarily removed habitat, measures will include planting up using a suitable riparian seed mix.

3.1.19 The 4:1 enhancement ratio can be achieved if the above measures are applied to **44%** of retained riparian habitat plus restoration of temporarily removed riparian habitat (see below).

[31] This Priority Habitat sits within the broader habitat type of 'Rivers and Streams'. The watercourses on Site have been described as a network of slow flowing 'streams' with depths between 10cm to 15cm, some chocked with reeds and surrounded by steep vegetated banks and hydrologically connected to the River Seven SAC.

Non-Priority Habitats

3.1.20 The Proposed Development requires the removal of non-priority habitats, as shown in **Table 3-2** and **Table 3-3**. Of this 8ha will include:

- B1.2 – Semi-improved acid grassland;
- B2.2 – Semi-improved neutral grassland; and
- B4 – Improved grassland.

3.1.21 It is recommended that retained areas of non-priority habitats should be enhanced to a 2:1 ratio following the below measures:

- Bracken removal: As per montane heaths and grassland, blanket bog and upland heathland; and
- Removal/management of grazing pressures: As per montane heaths and grassland, blanket bog and upland heathland.
- Seeding with a suitable wildflower/meadow seed mix: to increase the botanical species diversity of retained areas of grassland within the Site.

3.1.22 The 2:1 enhancement ratio for non-priority habitats can be achieved if the above measures are applied to **7.5%** of retained semi-improved grassland (i.e. B1.2 and B2.2).

3.1.23 Additionally, where available leaving retained arable field margins fallow would be a further measure that would support improved biodiversity and habitat connectivity within the Site.

3.1.24 Furthermore, 40.79m of ditch network will be permanently impacted by the Proposed Development. Whilst this is a non-priority habitat, measures proposed to retained ditch networks in the Main Site are more relevant to the enhancements proposed to mitigate for the loss of montane heaths and grassland, blanket bog (and GWDTEs) – as discussed in the above sections.

Irreplaceable Habitats

Ancient Semi-Natural Woodland

3.1.25 With regards to ASNW, removal has been limited as far as practicable, however, loss will still occur. ASNW is an irreplaceable habitat and therefore replacement planting is not an option. Specific mitigation measures, therefore, have been outlined within the oHMP (see **Appendix 5O** of the ES). Such measures include enhancing areas of woodland through coppicing and managed thinning and improving woodland connectivity by planting at the ASNW edge.

Blanket bog

3.1.26 Whilst it has largely been avoided, it is recognised that three discrete areas of moderate – good condition blanket bog irreplaceable habitat will be subject to permanent removal as a result of the Proposed Development. These areas are present within the wider 'montane heaths and grasslands' Phase 1 habitat. Blanket bog is recognised as an irreplaceable habitat in PPW 2024, due to the technical difficulty and time taken to create such a habitat. Measures are detailed in the oHMP to mitigate the effects of construction, although this will be achieved over a longer timescale than for other habitats within the Site. Habitats identified as being suitable to restore areas of blanket bog are adjacent to existing areas of blanket bog or within sensitive soils or peaty soils, with an appropriate hydrological regime. Furthermore, habitat enhancements across the wider Site will go towards mitigating for the loss of blanket bog habitats.

Temporarily removed habitat

3.1.27 In the most part, temporarily removed habitat will be left to allow for natural regeneration as soon as possible following construction.

3.1.28 However, active restoration of habitats will be employed to restore temporarily removed riparian vegetation, woodland and hedgerows as is discussed in the relevant sections above.

oHMP

3.1.29 An oHMP has been produced for the Proposed Development (**Appendix 5O** of the ES). This identifies the vision and objective for habitat restoration and creation within the Site and sets out the proposed compensation areas. It details a management and monitoring plan, with clear commitments and timetabling over a 40-year period.

3.1.30 Specific restoration, creation, management and monitoring measures are detailed in the oHMP, and will be finalised in a Habitat Management Plan (HMP).

Table 3-6 - Proposed Habitat Enhancement Measures by Habitat Type

Habitat	Area (ha)/ Length (m) (% of suitable habitat)	Enhancement ratio	Restoration measures	Ecological features likely to benefit
High Sensitivity Soils, Blanket Bog and marshy grassland	3.88ha (5%)	4:1	Ditch blocking Reduction of grazing pressure Removal of bracken	Peat deposits/'peaty soils' Marshy grassland and wetland communities, GWTDEs, Blanket Bog and Priority Habitats
Heathland	1.88ha (0.7%)	4:1	Removal of bracken Reduction of grazing pressures Introduction of green hay and straw	Upland Heathland Acid grassland and Priority Habitats
Non-priority grassland	16.00ha (7.5%)	2:1	Removal of bracken Reduction of grazing pressures Introduction of green hay and straw Sowing habitat seed mixes	Grassland communities
Broadleaved woodland, ASNW, lines of trees and hedgerows	1.12ha (37%) and 985.14m (100%)	4:1 (with individual trees to be replaced at a minimum of 3:1)	Supplementary planting of tree and shrub species	Bats Breeding birds Commuting and foraging mammals Priority Habitats
Small, Medium Altitude Rivers	1,404.48 (44%)	4:1	Placement of locally sourced native deadwood and locally sourced stone and rocks to create bankside structure Planting of riparian shrub plant species	Otter Bats Priority Habitats
Rock Outcrops and Scree Habitats	Refer to reptile report for details (Appendix 5J)	N/A	Placement of locally sourced stone and rocks to create structure	Flora diversity Small mammals Herpetofauna Priority Habitats

4 STEP-WISE APPROACH TO MITIGATION

4.1.1 This section outlines the ‘step-wise approach’ that has been followed to avoid, minimise, mitigate and compensate for impacts resulting from the Proposed Development.

4.1.2 An experienced ecologist has been involved with the Proposed Development from the outset, advising on survey requirements and measures to avoid, minimise, mitigate and/or compensate impacts to species and habitats. This step-wise approach taken to deliver a NBB is described in detail in **Table 4-1**.

4.1.3 Biodiversity and wider ecosystem benefits were considered early in the design process for the Proposed Development. This led to design changes, including the retention of habitats (through deliberate siting of turbines and associated infrastructure; utilising existing tracks where available) and avoidance of disturbance to protected species where possible (i.e., away from areas identified as ecologically sensitive, with suitable buffers implemented). This accords with the ‘Avoidance’ principle of the step-wise approach.

4.1.4 Where it was not possible to avoid specific biodiversity impacts, measures to minimise the impacts were recommended. This led to the recommendation of several strategies and method statements (e.g., outline Constructional Environmental Management Plan (oCEMP)) which aims to minimise the Proposed Development’s impact on biodiversity. This accords with the ‘Minimise’ principle of the step-wise approach.

4.1.5 Where predicted impacts may still occur following avoidance measures and measures to minimise impacts, mitigation measures will be implemented. Mitigation and enhancement measures have been designed to reduce the impacts of the Proposed Development, supporting the ‘Mitigate’ principle of the step-wise approach.

4.1.6 The step-wise approach applied for ecological receptors through the development of proposals is summarised in **Table 4-1**. By following this approach, the Proposed Development will have the opportunity to fulfil its intention in creating the proposed energy park and associated infrastructure, whilst also providing an enhanced area for biodiversity. The measures discussed will lead to an overall NBB and improve ecosystem resilience.

Table 4-1 - Step-wise approach taken to deliver NBB

Stage of step-wise approach	Measures taken in the design of the Proposed Development
Avoid	• The Proposed Development layout has been designed to avoid the loss of key habitats on Site. The retainment and protection of habitats was particularly considered for Priority Habitats (lowland mixed deciduous woodland, montane heaths and grassland, blanket bog, upland heathland, inland rock outcrops and scree habitats, native hedgerows, small, medium altitude rivers on acidic geology and ponds). Through careful design, land take of pond habitat has been avoided and removal of other classifications have been limited, i.e. the infrastructure is generally located within improved grassland, semi-improved grassland and arable land which makes up 8.77ha of the total 12.50ha proposed permanent habitat loss. • Ponds avoided also included a pond which had a positive eDNA result for the presence of GCN. • Where existing tracks are available, these have been incorporated into the Proposed Development layout to avoid unnecessary creation of new tracks. • Direct impacts on all habitats within SSSI designations or SINCs have been avoided. There are no International or other National statutory designations present within the Site. • Turbine locations have been sited incorporating a minimum 50m stand-off between all turbine blade tips and the nearest point of linear/foraging features likely to be well-used by bats (for example hedgerows). • Turbine locations have been sited incorporating a minimum of 200m between any turbine and structures or trees considered to be suitable to support roosting bats. • Light spill on any retained/boundary habitats has been avoided through limited construction activities to normal working hours and largely avoiding the hours of darkness, as detailed in the oCEMP. • The access track has been sited a minimum of 100m from potential otter holts identified within the Main Site.
Minimise	• Retainment of boundary features, including hedgerows and lines of trees, as far as possible. This will ensure that the connectivity of the Site is maintained and will benefit commuting and foraging species such as bats and small mammals and will also provide a food source for species such as dormice. • Production of and adherence to a Precautionary Method of Works (PMoW). This will include a pre-works check to confirm that Site conditions have not changed and that no additional ecological receptors require consideration before the commencement of works. This will minimise impacts to ecological receptors and will be outlined as part of the CEMP. • Employment of an Ecological Clerk of Works (ECoW) during construction in order to ensure compliance with the oCEMP and PMOW. Vegetation clearance of habitats considered suitable to support dormice, reptiles and amphibians will be supervised by the ECoW.

Stage of step-wise approach	Measures taken in the design of the Proposed Development
	• Provision of a Toolbox Talk (TBT) to contractors at the start of works to describe the biodiversity considerations associated with the Site and the measures to be taken to avoid/minimise impacts on these considerations. • The outline Constructional Environmental Management Plan (oCEMP) will also set out various working practices and methods which will ensure working to best environmental practices. This will include measures to prevent surface water run-off/hydrological pollution events and other pollution events. There will also be measures to prevent the entrapment of animals and vehicle movements will be restricted to daylight hours as far as possible, with speed limits in place to reduce the risk of wildlife/traffic collisions. • Appropriate storage of construction materials and cut vegetation. Materials that could be used by sheltering animals will not be stored adjacent to potentially suitable habitat, to ensure mammals, reptiles and amphibians do not move onto the construction site. • Where there is proposed permanent impact to streams, culverts will be installed sympathetic to fish passage, minimising disturbance to commuting activities. • Where relevant, works will be carried out under a European Protected Species Licences (EPSL). Licences will be sought for GCN, dormice, for bats and badger (should roosts be identified during the scheduled bat surveys within suitable trees along the Access Road).
Mitigate/Restore	▪ The following enhancement ratios have been set out within this report: • Trees: 3:1 • Priority Habitats: 4:1 • Non-priority habitats: 2:1. ▪ Enhancement measures will include: • ditch blocking; • bracken removal; • removal/management of grazing pressures; • woodland management; • planting up; and • incorporation of natural and artificial ecological features, e.g., rock and/or log features, refugia etc. ▪ The measures are set out within Section 3 of this report. Further mitigation measures are detailed in the oHMP and CEMP.

Stage of step-wise approach	Measures taken in the design of the Proposed Development
Compensate on-Site	▪ Removed trees are to be replaced at a 3:1 ratio within the Site. Such planting will be selective in focus to bolster connectivity of habitats within and beyond the Site. • Dormouse nest boxes are likely to be included as part of the dormouse EPSL method statement which is yet to be produced and will confirm number and locations. Bat boxes may also be used should they be required to replace any existing roosting sites under EPSL methodology.
Compensate off-Site	• At this stage there is no anticipated off-Site compensation. This report demonstrates how enhancement ratios are achievable within the Site boundary.

5 NET BENEFIT FOR BIODIVERSITY

5.1.1 NBB in Wales is a qualitative approach that emphasises the consideration of biodiversity and wider ecosystem benefits early in the design process, hence utilising the 'step-wise approach'. The onus is placed on not only delivering an overall improvement in biodiversity but also promoting ecosystem resilience.

5.1.2 Although the Welsh assessment does not utilise a metric, demonstrating an overall net benefit is often quantifiable. The Welsh approach aims to demonstrate an increase in ecosystem resilience; this is difficult to quantify as ecosystems are complex and dynamic. The Welsh Government and NRW have developed the DECCA framework (see Section 1.7), which is utilised for a better understanding of aspects of ecosystem resilience.

5.1.3 The construction of the Proposed Development will result in permanent and temporary habitat loss to allow for the installation of turbines and the access road, with associated infrastructure. This is proposed to be targeted removal through deliberate siting of infrastructure to minimise the requirements for habitat removal.

5.1.4 Habitat enhancement at the appropriate ratios (as discussed in Section 3) will ensure that habitats are enhanced appropriately and according to their importance for biodiversity and ecosystem resilience. All enhancement is anticipated to be carried out on-Site, with no off-Site provision required.

5.1.5 The Proposed Development demonstrates a proactive consideration for biodiversity and the wider ecosystem throughout the design process. Where impacts to biodiversity were predicted, following the application of avoidance measures and measures to minimise impacts, mitigation was implemented, and compensation provided. The measures aiming to increase ecosystem resilience are summarised in **Table 5-1**. Each measure's contribution to ecosystem resilience is also discussed using the DECCA Framework. These include; 'Diversity', 'Extent', 'Condition' and 'Connectivity'. It is considered in the framework that when these four factors are in good condition, the habitats' 'Adaptability to change' is enhanced, creating habitats that are more resistant and more likely to recover from external pressures such as unexpected weather events, pollution and climate change.

Table 5-1 - Mitigation and Compensation Measures and their Contribution to Ecosystem Resilience

DECCA objective	Measures taken in the design of the Proposed Development
Diversity	• Strengthening of existing habitats through bracken management, ditch blocking, grazing management, woodland management, new planting and incorporation of natural and artificial ecological features will increase diversity by providing a higher number of ecological niche opportunities within the Site. • Increasing the diversity of existing species-poor hedgerows through planting native tree species.
Extent	• Woodland and hedgerow enhancements including tree planting, will focus on increasing the extent of higher-quality semi-natural habitat/features and linkages between habitats.
Condition	• Strengthening of existing habitats will establish higher quality habitats, such as reducing bracken prevalence or increasing species diversity. • Increasing the diversity of the sward structure and the species composition will further establish higher quality habitats. • Ditch blocking will increase the condition of habitats present over sensitive soils and peat-containing soils.
Connectivity	• Retaining and strengthening (through planting in defunct areas) linear features such as hedgerows and tree lines as far as possible will maintain connectivity and corridors for wildlife. • Improved biodiversity of grasslands through increased diversity and composition of sward will contribute to invertebrate corridors if connected to wider suitable habitat. This will support the protection of the existing B-line which is present within the Site. • Connectivity will ensure population connectivity and dispersal for a range of protected and/or notable species, as well as ensuring continued access to potential foraging habitats within and around the Site.
Aspects of ecosystem resilience	• Strengthening of existing habitats will improve ecological diversity, condition and connectivity, improving its resilience to climate change, pollution and other external factors.

6 FUTURE MANAGEMENT AND MONITORING

6.1.1 To ensure the Proposed Development delivers NBB and ecosystem resilience, it will be necessary to undertake future management and monitoring. This should be undertaken during the operational phase of the Proposed Development.

6.1.2 An oHMP has been produced for the Proposed Development (**Appendix 5O** of the ES). This identifies the vision and objective for habitat restoration and creation within the Site and sets out the proposed compensation areas. It also details a management and monitoring plan, with clear commitments and timetabling over a 40-year period. The details set out in the oHMP will later be finalised in an HMP.

6.1.3 It is understood that monitoring will be carried out at years 1, 2, 3 and 5, and then every 5 years following for the 40-year duration, although this will be refined as required.

6.1.4 Post-construction monitoring will determine the efficacy of mitigation measures and help to identify mitigation improvements or changes where necessary. Regular reviews of the HMP, in collaboration with NRW and the Local Planning Authority (LPA), are likely to be required to assess its success and to make alterations where necessary.

6.1.5 The implementation of the above measures will help to ensure the delivery of NBB and ecosystem resilience in the long-term.

7 CONCLUSIONS

7.1.1 In conclusion, the Proposed Development demonstrates a proactive consideration for biodiversity and the wider ecosystem throughout the design process. Where impacts to biodiversity were predicted, following the application of avoidance measures and measures to minimise impacts, mitigation was implemented, and compensation provided. The measures aiming to increase ecosystem resilience included habitat enhancement through:

- Ditch blocking;
- Bracken removal;
- Removal/management of grazing pressures;
- Woodland management;
- Supplemental planting within hedgerows; and
- Incorporation of natural and artificial ecological features, e.g., rock and/or log features, refugia etc.

7.1.2 This will be carried out at the following ratios:

- Trees: 6:1;
- Priority Habitats: 4:1; and
- Non-priority habitats: 2:1.

7.1.3 By following the approach, as laid out within this report and within the oHMP, the Proposed Development will have the opportunity to fulfil its intention in developing Parc Ynni Calon y Gwynt, whilst also providing an enhanced area for biodiversity. The measures discussed demonstrate that there is sufficient opportunity to achieve an overall NBB and improve ecosystem resilience.