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Galileo 03 Ltd.

Mynydd Ty-talwyn Energy Park

Green Infrastructure Statement

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Author	Ffion Perry and Katie Symmonds	**Technical reviewer**	Tim Clark
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Project manager	Sally Phillips
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1 INTRODUCTION

1.1 Proposed Development

1.1.1 This Green Infrastructure Statement has been prepared by RSK Environment on behalf of Galileo 03 Ltd (part of Galileo Empower UK Ltd) (hereinafter referred to as 'Galileo' or the 'Applicant') in respect to the construction, operation and decommissioning of the Mynydd Ty-talwyn Energy Park (hereafter referred to as the 'Proposed Development'). The Proposed Development is located north of Bridgend, South Wales within the administrative boundaries of Bridgend County Borough Council (BCBC) and Neath Port Talbot Council (NPTC).

1.1.2 As described in **ES Volume II, Chapter 2: Proposed Development Description**, the Proposed Development will comprise the following main project components:

- Six wind turbines (anticipated generating capacity of approximately 43 megawatts (MW) alternating current (ac) subject to final turbine selection, each up to 200 m in height to blade tip, associated infrastructure including access tracks, crane pad hardstandings, foundations, cabling, and laydown/storage areas and a 50 m micro-siting allowance for the turbines and ancillary infrastructure;
- Solar photovoltaic (PV) modules (anticipated generating capacity of 55 MW ac subject to final solar photovoltaic selection) and associated infrastructure including invertors, transformers, associated mounting structures, fencing, CCTV, cabling and access tracks;
- Battery Energy Storage System (BESS) comprising batteries and associated infrastructure including inverters, transformers, switchgear, enclosures, monitoring systems, air conditioning, fire safety infrastructure, water storage, cabling, fencing, CCTV and access tracks;
- An on-site electrical 33 kV/132 kV substation to connect the Solar PV modules, wind turbines and BESS to the electricity networks network, including transformers, switchgear, busbars, control equipment buildings including an office, control functions, material storage, firewalls, cabling, as well as wider monitoring and maintenance equipment;
- On-site underground electrical cables linking the wind turbines, Solar PV, BESS and the on-site substation, generally laid in trenches alongside access tracks where possible;
- Site Access from the northeast (A4063) and south (New Road). Total wind track length is approximately 11.8 km, including approximately 7.9 km new tracks and approximately 3.9 km upgrades to existing tracks, with vehicle turning heads and passing places as required;

- Watercourse crossing and associated infrastructure;
- Landscaping and biodiversity enhancements; and
- Drainage infrastructure.

1.1.3 The Proposed Development is expected to have a total capacity of approximately 98 megawatts (MW).

1.1.4 In addition to the above, the following temporary components, integral to the Proposed Development are proposed during the construction phase:

- An initial construction and storage compound at the northern site entrance to facilitate construction of the water crossing prior to its relocation further into the Site;
- A subsequent temporary construction and storage compound and laydown area, located further into the Site; and
- Temporary tracks to facilitate construction access into some solar land parcels.

1.1.5 The Proposed Development comprises an area approximately 580 hectares (ha) and the Site Boundary is located approximately 4 km north of Bridgend.

1.2 Context

1.2.1 Planning Policy Wales Edition 12 (PPW 12[1]) requires that a Green Infrastructure Statement is submitted with all planning applications to describe how green infrastructure has been incorporated into the proposal. The purpose of the Green Infrastructure Statement, as set out by PPW 12 is to demonstrate how the 'step-wise' approach (Section 6.4.15 of PPW 12) has been applied to the Proposed Development. The level of detail in the Green Infrastructure Statement should be proportionate to the scale and nature of the proposal.

1.2.2 In broader terms, PPW defines green infrastructure as the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places (refer to **Section 2.1** for a detailed definition).

1.2.3 The purpose of this Green Infrastructure Statement is to outline the wider context of natural and semi-natural features that exist in the surrounding context of the Site and how this has influenced the design of the Proposed Development, including any avoidance and minimisation of harm, mitigation, compensation and enhancement commitments.

1.2.4 PPW states that Green Infrastructure Statements should highlight the baseline data considered, and surveys and assessments undertaken as part of the planning application. This Green Infrastructure Statement should therefore be read in conjunction with the Environmental Statement (ES) chapters and technical

[1] https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf

appendices of the ES, as well as the planning documents submitted to Planning and Environment Decisions Wales (PEDW) as part of the DNS application. **Table 1.1** provides the location of relevant supporting information which has informed this Green Infrastructure Statement.

Table 1.1 Document Wayfinding

Document / Relevant Information	Location
Environmental Statement	
Volume II – Written Text	Chapter 2: Proposed Development Description; Chapter 3: Consideration of Alternatives; Chapter 5: Land, Soils and Groundwater; Chapter 6: Water; Chapter 9: Noise and Vibration; Chapter 10: Terrestrial Ecology; Chapter 11: Ornithology; and Chapter 14: Climate.
Volume III – Technical Appendices	Appendix 2.1: Outline Construction Environmental Management Plan; Appendix 2.2: Arboricultural Impact Assessment; Appendix 5.4: Outline Soil Management Plan (SMP); Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Assessment; Appendix 10.1: Ecological Baseline Report; Appendix 10.2: Mynydd Ty-talwyn - Grassland Fungi Survey; Appendix 10.4: Net Biodiversity Benefit Report; and Appendix 14.1: Carbon Assessment Tool.

1.3 Structure of this Statement

1.3.1 Acknowledging the content of PPW 12 and reflecting the assessment undertaken for the Proposed Development, this Green Infrastructure Statement is structured as follows:

- Context;
- Policies and plans;
- The application of the step-wise approach to the Proposed Development; and
- Summary and conclusion.

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2 CONTEXT TO GREEN INFRASTRUCTURE

2.1 What is Green Infrastructure?

2.1.1 In line with PPW 12 and the Well-being of Future Generation (Wales) Act 2015[2], green infrastructure encourages a wider, sustainable and problem-solving outlook, focusing on integrating and addressing multiple issues.

2.1.2 Paragraph 6.2.1 of the PPW 12 describes green infrastructure as:

"the network of natural and seminatural features, green spaces, rivers and lakes that intersperse and connect places. Component elements of green infrastructure can function at different scales and some components, such as trees and woodland, are often universally present and function at all levels. At the landscape scale green infrastructure can comprise entire ecosystems such as wetlands, waterways, peatlands and mountain ranges or be connected networks of mosaic habitats, including grasslands. At a local scale, it might comprise parks, fields, ponds, natural green spaces, public rights of way, allotments, cemeteries and gardens or may be designed or managed features such as sustainable drainage systems. At smaller scales, individual urban interventions such as street trees, hedgerows, roadside verges, and green roofs/walls can all contribute to green infrastructure networks."

2.2 Declaration of a Climate and Nature Emergency

2.2.1 The Welsh Government declared a climate emergency in April 2019[3] and recognised that climate change threatens health, economy, infrastructure, and the natural environment. As part of their response to the threat to the natural environment, the need for nature recovery was recognised, specifically in the form of a Nature Recovery Action Plan to enhance ecosystem resilience and reverse habitat decline.

2.2.2 The Welsh Government has since declared a nature emergency on 30 June 2021. The Welsh Government, through the Climate Change, Environment, and Infrastructure Committee are undertaking work to identify Wales's response to the UN Biodiversity Conference (COP 15) held in December 2022 and how these will shape the Welsh Government's response to the nature emergency and related matters. As part of this work, the Committee is considering how Wales can implement the COP15 international agreement on biodiversity at a local level, whether through legislation or updating policies.

2.2.3 The Welsh Governments Future Energy National Plan 2040[4] sets out Policy 9 – Resilient Ecological Networks and Green Infrastructure. The policy describes ways in which the Welsh Government will work with key partners to ensure the

[2] https://www.futuregenerations.wales/about-us/future-generations-act/

[3] https://www.gov.wales/welsh-government-makes-climate-emergency-declaration

[4] https://www.gov.wales/future-wales-national-plan-2040-0

enhancement of biodiversity, the resilience to ecosystems and the provision of green infrastructure.

Bridgend County Borough Council

2.2.4 BCBC declared a climate emergency in June 2020[5], which included an ambition to reduce its carbon emissions to net zero by 2030, in line with the Welsh Government's ambitions for the public sector. The council identified the development of renewable energy as a key milestone in their strategy to avoid emissions and achieve net carbon zero by 2030.

2.2.5 The BCBC Replacement Local Development Plan (LDP) for the period 2018 – 2033[6], was adopted in March 2024 and emphasises the need to maximise green infrastructure and safeguard biodiversity. The Replacement LDP identifies opportunities for green infrastructure and biodiversity enhancements within the community promoting its integration into new developments. The BCBC Replacement LDP notes:

"In accordance with Future Wales Policy 9, the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals through innovative, nature-based approaches to site planning and the design of the built environment."

Neath Port Talbot Council

2.2.6 In response to the declaration of a climate emergency by the Welsh Government, NPTC produced a Decarbonisation and Renewable Energy (DARE)[7] strategy, which included a commitment to reduce carbon emissions and prioritise the sustainable management of green infrastructure opportunities. NPTC later declared a climate emergency on 28 September 2022[8].

2.2.7 The council's current Local Development Plan (2011 – 2026)[9], highlights the importance of development proposals considering biodiversity in the planning and design phase as well as demonstrating how they will maintain, protect and enhance biodiversity on and off-site.

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[5] https://www.bridgend.gov.uk/media/1xcmgjxi/draft-bridgend-2030-net-zero-carbon-strategy.pdf

[6] https://uat.bridgend.gov.uk/media/izcfgp1f/written-statement.pdf

[7] DARE The Neath Port Talbot Decarbonisation and Renewable Energy Strategy

[8] https://media.npt.gov.uk/media/jztd4hzf/doc-14-renewable-and-low-carbon-energy-assessment.pdf

[9] https://media.npt.gov.uk/media/ca2fbumd/ldp_written_statement_jan16.pdf?v=20240823155047

2.2.8 A Replacement Local Development Plan (LDP) is currently being prepared for the period 2023 – 2038[10]. The Neath Port Talbot Replacement LDP Review Report[11] notes that the need to enhance the green infrastructure network to improve biodiversity and landscape connectivity is a key issue to be addressed in the Replacement LDP along with the importance of protecting resilient ecological networks.

2.3 Planning Policy Wales

2.3.1 PPW states that a Green Infrastructure Statement should be *"proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal".* In addition, PPW envisages *"the Green Infrastructure Statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site in question and must be used for demonstrating how the step-wise approach has been applied"* (Paragraph 6.2.12 of the PPW 12).

2.3.2 PPW 12 (Paragraph 6.2.13) notes that a Green Infrastructure Statement should highlight any baseline data considered, and surveys and assessments undertaken, including habitats and species surveys, arboricultural surveys and assessments, and landscape and ecological management plans.

2.3.3 PPW states that the quality of a development should be enhanced through integrating green infrastructure through appropriate site selection and use of creative design. Section 6.2.11 'Integrating Green Infrastructure and Development' states:

"With careful planning and design, informed by an appropriate level of assessment, green infrastructure can embed the benefits of biodiversity and ecosystem services into new development and places, help to overcome the potential for conflicting objectives, and contribute to health and well-being outcomes".

2.3.4 PPW (Paragraph 6.2.14) goes on to outline that the twelve 'Building with Nature standards'[12] represent good practice and are an effective prompt for developers to improve the quality of their schemes and demonstrate the sustainable management of natural resources.

The DECCA Framework

2.3.5 PPW (Paragraph 6.4.5) states *that "development should not cause any significant loss of habitats or populations of species (not including non-native invasive species), locally or nationally and must work alongside nature and it must provide a net benefit for biodiversity and improve, or enable the improvement, of the resilience of ecosystems. A net benefit for biodiversity is the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than*

[10] neath-port-talbot-rldp-delivery-agreement-november-2023.pdf

[11] doc-6b-eng-interim-integrated-sustainability-appraisal-non-technical-summary.pdf

[12] https://www.buildingwithnature.org.uk/

before, through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site."

2.3.6 Under Section 6 of the Environment (Wales) Act 2016[13], Natural Resources Wales and local authorities (as well as other public authorities) must seek to maintain and enhance biodiversity and the resilience of ecosystems. This means that a development should not cause any significant loss of habitat or populations of species and a net benefit for biodiversity should be provided.

2.3.7 The step-wise approach provides the means in which to demonstrate the steps taken to provide a net benefit for biodiversity. In doing so, local authorities must take account of, and promote the resilience of, ecosystems, in particular the following five attributes referred to as the DECCA framework (Paragraph 6.4.5 of the PPW):

- **Diversity** between and within ecosystems;
- The **extent** or scale of ecosystems;
- The **condition** of ecosystems including their structure and functioning;
- The **connections** between and within ecosystems; and
- **Adaptability** of ecosystems including their ability to adapt to, resist and recover from a range of pressures likely to be placed on them through climate change, for example.

The Step-wise Approach

2.3.8 The step-wise approach seeks to help developments secure a net benefit for biodiversity. Applicants are required to prepare proposals which will achieve a net benefit for biodiversity and must demonstrate how they have used the step-wise approach.

2.3.9 The step-wise approach is summarised in **Table 2.1** and depicted in **Figure 2.1**. **Figure 2.1** reflects the step-wise approach detailed in Paragraph 6.4.15.

Table 2.1 Description of the Step-wise Approach (Taken from PPW: pp. 149-151)

Step	Description
Step 1: Avoid	The first priority is to avoid damage to biodiversity. Planning authorities are be satisfied that any alternative sites have been fully considered.
Step 2: Minimise	When all locational, siting and design options for avoiding damage to biodiversity have been exhausted, applications must seek to minimise impact on biodiversity (i.e., maintaining the largest possible area of existing habitat, ensuring any retained habitats remain well connected, developing management plans).

[13] https://www.legislation.gov.uk/anaw/2016/3/contents/enacted

Step 3: Mitigate/Restore	If, after measures to minimise impact, biodiversity could still be lost or damaged by residual impacts; mitigation measures must be put in place to limit the negative effects of a development.
Step 4: Compensate on site	When steps 1 to 3 have been exhausted, as a last resort option on-site compensation for unavoidable damage should be provided. On-site compensation includes circumstances where like for like mitigation or on-site restoration is not possible.
Step 4: Compensate off site	When steps 1 to 3 have been exhausted, if on-site compensation is not available, as a last resort option off-site compensation for unavoidable damage must be provided. Off-site compensation would normally take the form of habitat restoration, or creation or the provision of long-term management agreements.
Step 5: Management plan	Each stage of the step-wise approach must be accompanied by a long-term management plan which details the avoidance, minimisation, mitigation/restoration and compensation measures alongside the enhancement measures.
Step 6 Refuse planning permission	Where the adverse effect on biodiversity and ecosystem resilience clearly outweighs other material considerations, the development should be refused.

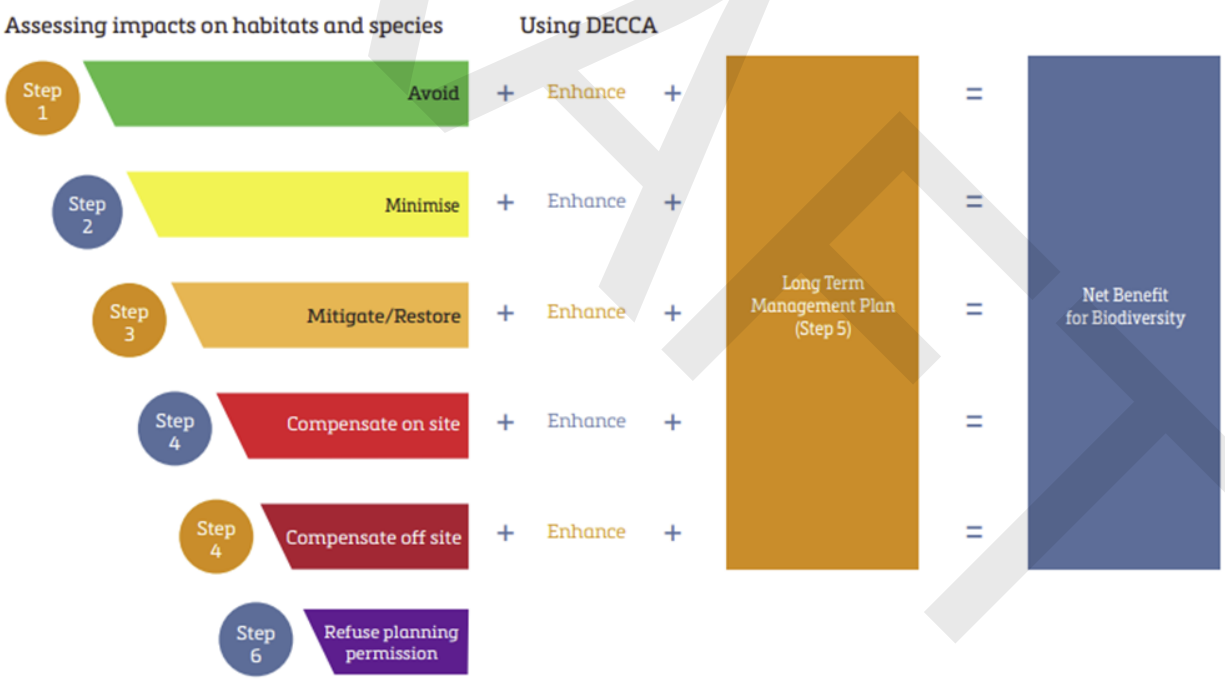

Figure 2.1 PPW Summary of the Step-wise Approach [1]

2.3.10 The step-wise approach should be worked through iteratively, with the result being a scheme of enhancement secured through the Proposed Development to provide a

net benefit for biodiversity, with the improvement of ecosystem resilience, particularly improving the connectivity to the immediate surroundings, being a key contribution to on-site avoidance, minimisation, and mitigation strategies and enhancement.

Designated Sites

2.3.11 In considering biodiversity and ecological networks within PPW, the third bullet point in Paragraph 6.4.3 of PPW 12 notes that development plan strategies, policies and development proposals must consider the need to "*ensure statutorily and non-statutorily designated sites and habitats are properly protected and managed and their role at the heart of resilient ecological networks is safeguarded"*.

2.3.12 As detailed in Paragraph 6.4.18 of PPW, both statutorily and non-statutorily designated sites make a vital contribution to protecting biodiversity, maintaining the resilience of ecosystems and are important in providing opportunities for achieving wider well-being objectives. Paragraph 6.4.19 states that *"…all designated sites must be able to continue to protect the biodiversity and features for which they were designated and contribute to the resilience of ecosystems at the appropriate scale. This ability should not be compromised by inappropriate development or other activity"*.

2.3.13 Designated sites such as Special Areas of Conservation (SACs), Special Protection Areas (SPAs), RAMSAR sites, Sites of Special Scientific Interest (SSSIs) and National Nature Reserves must be protected from damage and deterioration because of their important contribution to wider resilient ecological networks, as detailed above. Non-statutory and development plan designations should still be considered in line with the step-wise approach.

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3 POLICIES AND PLANS

3.1 Introduction

3.1.1 This section provides an overview of the relevant green infrastructure policies relating to BCBC and NPTC. It also includes an overview of Natural Resources Wales's Area Statements which identify areas where action at the right scale can maximise ecological networks and ecosystem benefits. The Statement does not have policy status but provides guidance which can be considered relevant to green infrastructure.

3.2 Bridgend County Borough Council

3.2.1 A series of action plans and strategies have been developed for protecting and enhancing green infrastructure within Bridgend.

3.2.2 As part of Bridgend's Replacement LDP 2018 - 2033, BCBC prepared a Green Infrastructure Assessment (GIA) in 2022[14]. The assessment notes that green infrastructure is vital for ecosystem connectivity as well as creating spaces for health and recreation within the community.

3.2.3 BCBC's GIA identifies aims to:

- Protect existing green infrastructure assets including community green spaces, sustainable drainage systems, woodlands and wetlands;
- Facilitate the connection of green infrastructure assets to create adaptive and resilient ecosystems; and
- Improve health and well-being by promoting access to nature and strengthening the county's sense of place.

3.2.4 BCBC's GIA presents opportunities for improving green infrastructure including enhancing carbon storage capabilities through native tree planting and highlights the role green infrastructure plays in providing health and economic benefits. It also sets out policies included within the Replacement LPD including the need for development proposals to:

"Integrate, protect and maintain existing green infrastructure assets and enhance the extent, quality, connectivity and multi-functionality of the green infrastructure network and maximise as far as practicable, the amount of green infrastructure on site, as well as the interconnectedness of green infrastructure within and around the site to the wider green infrastructure network".

[14] https://www.bridgend.gov.uk/media/hreje5tb/sd72-green-infrastructure-assessment-2022.pdf

3.3 Neath Port Talbot Council

3.3.1 As part of Neath Port Talbot's Replacement LDP 2023 - 2038, NTPC prepared a Green Infrastructure Assessment (GIA) (December 2024)[15] which sets out the approach to maintaining and improving green infrastructure within the county.

3.3.2 NPTC's GIA sets out priority areas for green infrastructure integration including the creation of new wetland features as natural flood management and the expansion of existing woodland sites to improve connectivity and support priority species.

3.3.3 NPTC's GIA identifies a number of opportunities to enhance biodiversity:

- The management of invasive non-native species in green spaces;
- The restoration of drained or afforested peatlands;
- The introduction of sustainable urban drainage schemes to prevent pollutants entering watercourses; and
- The provision of new nesting and roosting sites.

3.4 Natural Resources Wales Area Statements

3.4.1 In 2020, Natural Resources Wales published the first version of the Area Statements which cover seven different parts of Wales. The seven Area Statements are a collaborative response to the National Resources Policy, published by the Welsh Government in 2017[16]. The National Resources Policy sets out the key challenges and opportunities for sustainable management of Wales natural resources in the future[17]. Area Statements are to be utilised in the preparation of LDPs.

3.4.2 Area Statements set out the key challenges and opportunities to better manage natural resources, strengthen ecological networks and ecosystem services at the local scale. They identify areas where taking action at the right scale can maximise benefits.

3.4.3 Natural Resources Wales Area Statements are delineated by local authority boundaries and in this case, the Site and the Proposed Development are located within South Central and South West Wales.

Natural Resources Wales South Central Wales Area Statement

3.4.4 The South Central Wales Area Statement encompasses the counties of Bridgend, the Vale of Glamorgan, Merthyr Tydfil, Rhondda Cynon Taff and Cardiff.

3.4.5 The South Central Wales Area Statement consists of five key themes[18]. These are:

[15] doc-13-green-infrastructure-assessment.pdf

[16] https://www.gov.wales/natural-resources-policy

[17] https://naturalresources.wales/about-us/what-we-do/strategies-and-plans/area-statements/?lang=en

[18] Natural Resources Wales / South Central Wales Area Statement

- Building resilient ecosystems through improved habitat management and developing ecological networks;
- Connecting people with nature, improving health and well-being as well as knowledge of environmental issues within the community;
- Working with water. Adopting an integrated approach to water management including reducing flood risk and ensuring the quality of water;
- Improving community health by supporting preventative approaches to key public health issues and maintaining healthy and connected communities; and
- Improving air quality. Taking a multi-sector approach towards reducing and preventing emissions.

3.4.6 The themes, building resilient ecosystems and connecting people with nature underpin the Area Statements approach to current environmental challenges. The South Central Wales Area Statement highlights the role of quality ecosystems in mitigating the effects of climate change.

Natural Resources Wales South West Wales Area Statement

3.4.7 The South West Wales Area Statement encompasses the counties of Neath Port Talbot, Swansea, Pembrokeshire and Carmarthenshire.

3.4.8 The South West Wales Area Statement consists of four key themes[19]. These are:

- Reducing health inequalities within the community through the use of accessible green spaces, green and blue active travel and supporting actions to address health and economic inequalities;
- Ensuring land is managed sustainably by restoring hedgerows, improving soil quality and taking a catchment-based approach to reducing flood risk;
- Reversing the decline of, and enhancing biodiversity by improving habitat quality and connectivity; and
- Using ecosystem and biodiversity based approaches to mitigate and adapt to climate change including addressing air and noise pollution as well as encouraging the development of renewable energy.

3.4.9 These themes have been considered in the design of the Proposed Development and as part of the DNS application.

3.4.10 Underpinning these four themes is the need to address climate change and work with natural processes to make the natural and built environment more adaptable and resilient in the face of the current climate emergency. These themes are central to ensuring everything delivered through the Area Statement considers the climate emergency.

[19] Natural Resources Wales / South West Wales Area Statement

3.4.11 The South Central and South West Wales Area Statements have taken a place-based approach to detail how green infrastructure can help with achieving the management of the communities' natural resources. The Area Statements detail how green infrastructure should be utilised within landscapes and catchments to reduce flood risk. This approach includes sustainable drainage systems, catchment restoration, and increasing vegetation around the riparian zone.

3.4.12 The Area Statements also note that green infrastructure is a vital resource to improve biodiversity, enhance species and habitat connectivity, create resilient ecological networks and ultimately protect, restore and enhance ecosystems.

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4 ENVIRONMENTAL CONTEXT

4.1 Habitats

4.1.1 The following habitats are located within the Site:

- Woodland:
  - Coniferous woodland – Plantation;
  - Broadleaved woodland – Semi-natural and plantation; and
  - Mixed woodland – Semi-natural and plantation.
- Grassland:
  - Semi-improved acid grassland;
  - Semi-improved neutral grassland;
  - Improved grassland;
  - Poor semi-improved grassland;
  - Marshy grassland; and
  - Bracken – continuous.
- Heathland and Scrub:
  - Dense scrub;
  - Bramble scrub; and
  - Gorse scrub.
- Wetland:
  - Fen marsh and swamp.
- Standing / Running water;
- Cultivated / disturbed land – arable;
- Buildings and hardstanding; and
- Hedgerows.

4.1.2 Detailed descriptions of these habitats are provided in **ES Volume II, Chapter 10: Terrestrial Ecology** and **ES Volume III, Appendix 10.1: Ecological Baseline Report** and **ES Volume III, Appendix 10.4: Net Biodiversity Benefit Report.**

4.1.3 The Proposed Development will result in the loss of approximately 0.03 hectares (ha) of semi-natural Broadleaved Woodland, 16.94 ha of Grassland, decrease of 0.17 ha Bracken, decrease of 0.4 ha cultivated / disturbed land, loss of 0.3 km line of Broadleaved trees, 0.01 km of embankment associated with a roadside watercourse and 0.2 km hedgerow.

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4.2 Trees, Groups of Trees and Hedgerows

4.2.1 An arboricultural survey, identified in **ES Volume III, Appendix 2.2: Arboricultural Impact Assessment** recorded the presence of 470 arboricultural features which comprise 383 trees, 39 tree groups, 15 wooded areas and 33 hedgerows. These features were categorised based on their quality and value:

- There are two trees, one tree group and three wooded areas regarded as high quality (Category A – trees with an estimated remaining life expectancy of at least 40 years) within the Site;
- 70 features were classified as moderate quality (Category B – trees with an estimated remaining life expectancy of at least 20 years);
- 383 features were classified as of low quality (Category C – trees with an estimated remaining life expectancy of at least ten years or young trees with a stem diameter below 150 mm); and,
- A single very-low quality tree group was recorded as was a single very-low quality wooded area (Category U – trees in such condition that they cannot realistically be retained as living trees in the context of the current land use for longer than ten years. These trees are dead, infected or have serious, irremediable or structural defects).

4.2.2 The Site's tree stock comprises a mixture of individual trees, groups of trees, wooded areas and hedgerows, all of varying age-classes. The arboricultural features are predominantly found bordering agricultural fields.

4.2.3 There are no trees protected under a Tree Preservation Order (TPO) within the Site and no ancient or veteran trees were recorded. The arboricultural desk study also identified 52.6 ha of ancient woodland comprised of ancient semi-natural woodland, plantation on ancient woodland sites and restored ancient woodland within the study area with pockets of woodland located within the Stie.

4.2.4 As part of the Proposed Development, 15 individual trees comprised of one moderate-quality (T356) and 14 low-quality trees (T114, T171, T178, T186, T213, T216, T223, T224, T225, T326, T328, T357 and T358) will require removal to facilitate construction. The partial removal of tree groups and one wooded area will amount to an overall area of approximately 338 m² which includes 189 m ² of mixed broadleaved woodland.

4.2.5 Construction of the Proposed Development will also require the partial removal of five tree groups, one wooded area and 12 hedgerows. These include one moderate-quality tree group (G24), five low-quality tree groups (G22, G40, G52, G53 and G86), one low-quality wooded area (W41) and 12 low-quality hedgerows (H13, H15, H16, H26, H27, H45, H60, H62, H67 and H73-H75).

4.2.6 Further details of the trees surveyed during the construction phase is provided in **ES Volume III, Appendix 2.2: Arboricultural Impact Assessment.**

4.3 Habitat Management

4.3.1 A Net Biodiversity Benefit Report (**ES Volume III, Appendix 10.4: Net Biodiversity Benefit Report**) sets out the proposed habitat creation and habitat management measures, designed to compensate for the loss of habitats and provide additional biodiversity enhancements that could be implemented over the project life cycle of 50 years, to demonstrate a Net Benefit for Biodiversity. The Net Biodiversity Benefit Report includes a Habitat Management Plan (HMP) which outlines measures utilised to manage and monitor the success of created and enhanced habitats.

4.3.2 Habitat loss associated with the Proposed Development is largely grassland, bracken, cultivated/disturbed land, broadleaved trees, running water and hedgerows. Habitat loss will be compensated by enhancing parts of the remaining habitat and creating habitats of higher value, namely the creation of new woodland, marshy grassland and hedgerow habitats. There will be a small loss of a line of broadleaved trees which will be offset in the creation of 28 ha of woodland. The loss of grassland will be compensated for through the enhancement of the remaining areas and creation of 12.5 ha marshy grassland.

4.4 Summary of Habitat Loss and Creation

4.4.1 A summary of the approximate total loss of habitat as the result of the Proposed Development and the approximate proposed area of habitat creation is provided in **Table 4.1**Error! Reference source not found..

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Table 4.1 Summary of Habitat Loss and Creation as a Result of the Proposed Development

Habitat types	Baseline habitat area and length within RLB*	Area to be permanently lost to construction, operation and decommissioning	Minimum area of habitat of equal or greater ecological value to be created/enhanced	Post Development habitats within the RLB.
AREA HABITATS				
Semi-natural Broadleaved Woodland	26.88 ha	0.03 ha	28 ha (Created)	54.85 ha
Grassland	467.94 ha	16.94 ha	62.03 ha (enhanced)	423 ha
Marshy Grassland	0.32 ha	0 ha	12.5 ha (Created)	12.82
Bracken	26.40 ha	0.17 ha	0 ha (The reduction of this habitat will help control the encroachment of bracken into the fungi rich grassland areas).	26.23
Cultivated/Disturbed Land	30.25	0.4 ha	0 ha	29.85
TOTAL AREAS		**17.54 ha lost**	**40.5 ha to be created / 62.03 ha to be enhanced**	
LINEAR HABITATS				
Hedgerows (native species rich) (Ecology)	710 m	0 m	2,890 m (Created)	3,600 m
Hedgerows (species poor)	12,000 m	200 m	0 m	11,800 m
Embankment associated with a roadside watercourse		10 m	0 m	
Line of Broadleaved Trees	1,590 m	20 m	(Compensated by created woodland habitat)	1,570 m
TOTAL LINEAR		**230 m lost**	**2,890 m to be created**	
Please note that the figures for trees and hedgerows may not match with those stated in the arboriculture report. This is due to the differing definitions between ecology and arboriculture. I.e., some of the areas of trees from the arboriculture report are defined as continuous scrub in ecology. *RLB = Red Line Boundary				

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5 APPLICATION OF THE STEP-WISE APPROACH TO THE PROPOSED DEVELOPMENT

5.1 Introduction

5.1.1 This section demonstrates how the principles set out in the step-wise approach outlined in the PPW 12 have inherently informed the Site selection and design of the Proposed Development. This section also highlights the positive biodiversity outcomes that will be realised as a result of the Proposed Development.

5.1.2 PPW 12[1] notes that pre-application surveys, research and data searches by developers will be necessary to establish the baseline state of biodiversity and ecosystem resilience on-site, taking into account the Site's contribution to resilient ecological networks through its diversity, extent, connectivity and condition and the provision of ecosystem services.

5.1.3 In support of the Proposed Development and informed by both pre-application dialogue and the Environmental Impact Assessment scoping direction process, the Applicant has prepared an ES which includes chapters focusing on: Land and Soils, Water, Cultural Heritage, Landscape and Visual, Noise and Vibration, Terrestrial Ecology, Ornithology, Traffic and Transport, Population and Climate. These chapters are supplemented by technical assessments (refer to **Volume II** and **Volume III** of the ES) which include baseline data, survey methodology and results.

5.1.4 The assessments undertaken in the ES inform this step-wise approach for the Proposed Development's contribution to achieving the PPW aim of a net benefit for biodiversity.

5.2 Step 1 – Avoid

5.2.1 Paragraph 6.4.15 (1b) of PPW 12 highlights that proposals in statutory designated sites are, as a matter of principle, unacceptable and therefore must be excluded from site searches undertaken by developers. It goes on to state that this principle also extends to those sites containing protected species and habitats which are irreplaceable. PPW defines habitats that are irreplaceable as those which would be technically very difficult to restore, recreate or replace once destroyed i.e. ancient woodland, sand dunes, peatland, salt marsh and lowland fen.

5.2.2 The Site selection criteria applied to the Proposed Development included early desk-based assessment of site technical and environmental constraints including known heritage, ecological, hydrological and other statutory designations, utilities and services to provide information regarding the suitability of the Site for renewable energy park development and the potential land area where turbines, Solar PV modules, BESS and associate infrastructure could be placed.

5.2.3 The Site of the Proposed Development was selected on the basis that it was considered, following further survey and assessment, a viable renewable energy park could be designed and developed in this location whilst avoiding, minimising and mitigating effects upon and enhancing key environmental assets, in line with the step-wise approach.

5.2.4 The initial site selection ensured that the Site is not located within any nationally or locally designated landscapes. The closest nationally designated landscape is the Bannau Brycheiniog (Brecon Beacons) National Park (BBNP) approximately 21.5 km to the north of the Site.

5.2.5 **ES Volume II, Chapter 3: Consideration of Alternatives**, outlines the Site selection process and evolution of the project design. The final layout of the Proposed Development has resulted in the avoidance of Public Rights of Way (PRoWs), designated and non-designated cultural heritage assets within the Site whilst providing a 50 m buffer, as well as the avoidance of steep topography to ensure constructability and the reduced need for significant cut and fill engineering works. The Proposed Development will also maintain a buffer of 800 m around residential properties to avoid breaching of any amenity thresholds.

5.2.6 As highlighted in **ES Volume II, Chapter 5: Land, Soils and Groundwater**, there is only one small pocket of peat on Site (which is greater than 1 m in depth). Site infrastructure has not been proposed in this location.

5.2.7 **ES Volume II, Chapter 10: Terrestrial Ecology** highlights the survey findings that have influenced design by implementing buffers around designated sites, avoidance of sensitive habitats areas and sensitive lighting design.

5.2.8 The NPT Watercourses Site of Importance for Nature Conservation (SINC) and Cwm Nant Gwyn SINC have been avoided through the use of a 15 m buffer. Nant Cwm-bach and Gilfach Uchaf SINCs will be avoided (with exception of where the access track is required to cross the SINC). Crossings have been kept to a minimum and mitigated for within the Site. Cwm Risca Meadow Site of Special Scientific Interest (SSSI) is located in close proximity to the red line boundary of the Proposed Development.

5.2.9 A Fungi Survey was undertaken across parts of the Site (**ES Volume III, Appendix 10.2: Mynydd Ty-talwyn - Grassland Fungi Report).** Recommendations for the project design were considered and opportunities for enhancement have been incorporated into the design.

5.2.10 As detailed in **ES Volume II, Chapter 5: Land, Soils and Groundwater**, the Site is not located in a Source Protection Zone (SPZ) with respect to a groundwater abstraction source and there are no private water supplies on Site. It is also noted in **ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Assessment** that there are no Main Rivers within the Site Boundary.

5.2.11 **ES Volume III, Appendix 2.2: Arboriculture Impact Assessment** highlights that the removal of trees has been avoided wherever reasonably practicable. This has been achieved by the review of the Proposed Development during detailed design and adopting design changes which secures the retention of trees otherwise identified for removal.

5.3 Step 2 – Minimise

5.3.1 Once options for avoiding loss of or damage to biodiversity have been exhausted, Paragraph 6.4.15 (2) of PPW 12[1] requires that applicants must seek to minimise the initial impact on biodiversity and ecosystems by e.g. maintaining the largest possible area of existing habitat supporting biodiversity and functioning ecosystems, particularly habitats and species where present; ensuring that retained habitats continue to be well connected to adjacent habitats; and retaining existing features.

5.3.2 As detailed in **ES Volume II, Chapter 3: Consideration of Alternatives**, the design has sought to balance the capacity for energy generation and environmental and technical constraints however, it has not been possible for the Proposed Development to avoid all environmental effects. As such, effects have been minimised wherever possible.

5.3.3 As highlighted in **ES Volume II, Chapter 5: Land, Soils and Groundwater** and **ES Volume II, Chapter 6: Water**, the Proposed Development has designed site infrastructure to minimise the number and extent of new watercourse crossings as well as maintaining a 15 m buffer from ordinary watercourses and flood zones where possible. This has reduced the amount of works required within and adjacent to watercourses and will reduce the likelihood that spillage of potential contaminants would enter surface watercourses. This approach to water management and ensuring quality of water is aligned to the 'Working with Water' theme within the South Central Wales Area Statement.

5.3.4 The Proposed Development infrastructure uses existing tracks, crossings and gaps in hedgerows where reasonably practicable to minimise impacts to sensitive receptors. Vegetation below Solar PV will be utilised to reduce risk of soil erosion and improve soil stability during the operational phase. Impacts on land or water due to contamination will be minimised by measures noted in the outline Construction Environment Management Plan (CEMP) (**ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan**), including mitigating against erosion and managing contamination. A Decommissioning Environmental Management Plan (DEMP) will be submitted by the Applicant for agreement with BCBC and NPTC. Vegetation removal will be undertaken on a phase by phase basis to avoid excessive exposure of bare soil.

5.3.5 In order to minimise the impact on Great Crested Newts a small Solar PV to the south of the Site was removed as part of the design evolution. In addition to this there are no construction activities taking place within 350 m of the nearest waterbody with great crested newt presence.

5.3.6 **ES Volume II, Chapter 10: Terrestrial Ecology** outlines the implementation and maintenance of 15 m buffers to existing woodland and 10 m buffers to existing hedgerows in order to avoid Root Protection Areas (RPAs) and prevent any damage to retained vegetation during construction.

5.3.7 The buffer also provides a 10 m wide wildlife corridor across the Proposed Development, providing uninterrupted foraging and dispersal. The wide buffers from linear field boundaries will maintain bat flight lines across the landscape. The placement of the access track through hedgerow gaps minimises the amount of hedgerow removal required which will maintain connectivity throughout the Site. The

fencing design will limit the impact on dispersal of animals throughout the landscape while also providing protection to those areas of high value habitat identified.

5.3.8 A triangulated 50 m buffer between the turbines and any hedgerows or woodland has been implemented and will be maintained during construction and operation. This will minimise the collision risk of foraging bats. In addition to this, there will be no nighttime working (unless otherwise agreed with the BCBC and NTPC). Working hours for construction will be from 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturday.

5.3.9 Pollution prevention measures will be implemented to prevent spills contaminating important ecological features and dust suppression measures will be implemented throughout the Site. These have been captured in the Outline CEMP provided within **ES Volume III, Appendix 2.1: Outline Construction Environmental Management Plan.**

5.3.10 These measure to minimise impacts on biodiversity directly link to the following BCBC GIA *"Protect existing green infrastructure assets including community green spaces, sustainable drainage systems, woodlands and wetlands"* and *"Facilitate the connection of green infrastructure assets to create adaptive and resilient ecosystems".*

5.3.11 The measures also align with the South Central Wales Area Statement theme of *"Building resilient ecosystems through improved habitat management and developing ecological networks"* and the South West Wales Area Statement of *"Reversing the decline of, and enhancing biodiversity by improving habitat quality and connectivity".*

5.3.12 As noted in **ES Volume II, Chapter 9: Noise and Vibration, ES Volume II, Chapter 10: Terrestrial Ecology** and **ES Volume II, Chapter 11: Ornithology**, noise suppressors will be installed on the BESS container to attenuate noise that may impact foraging bats. Serrated trailing edge to turbine blades will also be utilised to reduce noise impacts on high activity habitats such as woodland and hedgerows.

5.3.13 The lighting design as outlined in **ES Volume II, Chapter 10: Terrestrial Ecology**, would limit impact on important ecological features by directing lighting downward and away from the Proposed Development boundary. During operation (including maintenance), no part of the Proposed Development would be continuously lit; manually operated and motion detection lighting would be utilised for operational and security purposes. Passive infrared detectors (PID) would be implemented around Solar PV modules, and lighting sensors implemented around the Mynydd Ty-talwyn substation and BESS compound. A reduced lighting scheme has been designed for the turbines. This aims to identify the outline of the energy park by using 2000 candela (cd) visible red lights on only three perimeter turbines (turbines 1, 5 and 6). Infrared lighting would also be installed on all six turbines. Use of lighting only when necessary and directing lighting downward, away from boundaries and vegetation, would reduce impact to bats and other nocturnal species such as the otter.

5.4 Step 3 – Mitigate

5.4.1 Paragraph 6.4.15 (3a) of PPW 12[1] states that where biodiversity and ecosystems could still be damaged or lost after measures to minimise impact, a proposal should mitigate that damage to limit the negative effects of the development.

Drainage

5.4.2 An Outline Drainage Strategy has been provided in **ES Volume III, Appendix 6.2: Flood Consequence Assessment and Surface Water Drainage Assessment** as part of the **ES Volume II, Chapter 6: Water** to manage drainage on Site. It sets out mitigation measures for appropriate drainage to manage local flood risk, water quality and contamination.

5.4.3 In line with Sustainable Drainage Systems (SuDs) hierarchy, surface water on Site will be discharged to watercourses utilising the Site's natural drainage system. Rows of Solar PV modules are separated by a horizonal rainwater gap allowing rainwater to drain freely replicating greenfield runoff conditions.

5.4.4 The inclusion of cut off swales along the downslope perimeter of the panel areas will be constructed to ensure that any additional volumes of runoff are captured and managed before discharging to the nearby watercourses. The runoff from access tracks will be captured and stored within the conveyance swales designed for the Solar PV drainage. It is intended that surface water runoff from the transformer stations will be captured within a gravel back-filled drainage trench along the perimeter of the component.

5.4.5 Drainage systems will be designed to incorporate storage features to contain runoff from any firewater in the unlikely event of a fire preventing contaminated water entering surrounding watercourses as well as manage additional runoff contributed by any intense rainfall events. All surface waters and drains will be protected from silt runoff during construction by the use of gully guards, straw bales, gravel traps or silt fencing.

5.4.6 This approach to sustainable drainage practices aligns with both BCBC and NPTC GIAs and the 'Working with Water' theme within the South Central Wales Area Statement.

Trees

5.4.7 As outlined in **ES Volume III, Appendix 2.2: Arboricultural Impact Assessment**, all retained trees, tree groups, wooded areas and hedgerows shall be protected during construction in accordance with British Standards BS5837. Tree protection measures shall be specified within an Arboricultural Method Statement (AMS) supported by a Tree Protection Plan. The AMS will detail tree protection measures which shall be applied to all construction activities with the potential to result in the loss of, or damage to any retained tree, tree group or wooded area.

5.4.8 All retained trees shall be protected by tree protection barriers and/or ground protection where required. These measures will be installed prior to construction.

Land and Soils

5.4.9 As noted in **ES Volume II, Chapter 5: Land, Soils and Groundwater**, mitigation measures including an emergency response plan for environmental incidents, management of materials and waste and best practice guidance for reducing risk of pollution will be further detailed in a Construction Environmental Management Plan, an outline version of which is provided in **ES Volume III, Appendix 2:1: Outline Construction Environmental Management Plan**.

5.4.10 Measures to manage any potential impacts to soil during and on completion of construction of the Proposed Development are set out in **ES Volume III, Appendix 5.4: Outline Soil Management Plan (SMP).** These measures include the following:

- To utilise low ground pressure vehicles (tracked vehicles or vehicles fitted with tyres designed to operate at low inflation pressures) wherever possible;
- To install gravel access tracks early on to avoid unnecessary trafficking on agricultural soils, or use track matting where needed in the early stages of construction;
- Outline measures and principles for soil management and best practice to maintain the physical properties of the soil, with the aim of maintaining the condition of the land until the end of the lifetime of the Proposed Development;
- Definition of standard parameters to identify when soil conditions are suitable for handling or trafficking;
- Identification of those areas within the Site which may be more susceptible to damage;
- Methods to ensure that soil profiles are reinstated in the same order as they were excavated; and
- Information to avoid compaction of soils.

Water

5.4.11 As noted in **ES Volume II, Chapter 6: Water,** possible impacts on watercourses due to contamination will be minimised by measures within the CEMP (or DEMP) that will include managing contamination. A specific risk assessment will be required for any piling works that may be needed to construct foundations, to ensure all potential impacts to groundwater are considered and addressed.

5.4.12 A Battery Safety Management Plan (BSMP) (secured via planning condition) will outline measures taken to ensure the safety of BESS components in the Proposed Development. Including the use of water for cooling purposes, sourced from on-site containers and an automated fire suppression system.

Biodiversity

5.4.13 An outline Habitat Management Plan has been provided **in ES Volume III, Appendix 10.4: Net Biodiversity Benefit Report** as part of the **ES Volume II, Chapter 10: Terrestrial Ecology**. It sets out mitigation measures to manage the impacts on both terrestrial ecology and ornithology from the Proposed Development.

5.4.14 A management plan including a grazing regime will be implemented to benefit grassland fungi species. **ES Volume III, Appendix 10.4: Biodiversity Benefit Report** includes measures to enhance areas of grassland to provide better quality habitat for marsh fritillary. Mitigation measures include:

- Construction areas will be marked and fenced off by the Ecological Clerk of Works (ECoWs) to prevent accidental encroachment onto grassland fungi species;

- Grazing will be minimised to the recommended stocking unit per hectare;
- Where grass vegetation is well established, an annual cutting regime of random areas to diversify grassland – 5 – 10%, with the arisings removed each year. This would provide habitat for ground nesting birds and grassland fungi. The cut would need to be timed to avoid the ground nesting bird season i.e. at the end of summer;
- Where areas of local importance for fungi are present and due to be permanently lost to the Proposed Development, turf stripping will be completed to retain mycelium with the soil and keep the assemblage local to the Site; and
- An Ecology Management Plan within the CEMP will be implemented for the duration of construction and decommissioning. The Ecology Management Plan will discuss methods of undertaking work to minimise disturbance and impacts to species.

5.4.15 As described in **ES Volume III, Appendix 10.2: Mynydd Ty-talwyn – Grassland Fungi Survey** and **Appendix 10.4: Net Biodiversity Benefit Report**, an area of grassland (12.5 ha) within the north of the Site will be improved to improve existing habitat and carrying capacity of marsh fritillary. This would be management of an existing area of wet grassland to encourage more marshy grassland species, including planting of additional native species to improve the condition.

5.4.16 An invasive non-native species management plan will be implemented prior to the start of enabling works. The management plan will discuss methods to treat and manage invasive species for the duration of the works. This aligns with NPTCs GIA opportunity to enhance biodiversity through *"the management of invasive non-native species in green spaces*".

5.4.17 To mitigate for the loss of 230 m of hedgerow to be removed, 2,890 m of hedgerow will be planted and provide connectivity between habitats within and adjacent to the Site. Woodland habitat will be planted throughout the Site to extend the woodland associated with Cwm Nant Gwyn SINC and provide additional foraging/ nesting habitat for a range of protected species (birds, bats, hedgehog, toad, dormice).

5.4.18 Bird boxes will be installed throughout pockets of woodland within the Site to increase nesting habitats for bird species. Boxes will be positioned sensitively so as to avoid increasing the risk of collisions with turbines avoiding positions that are prone to strong sunlight and strong winds. Bat boxes will also be erected to compensate for the loss of any bat roosting habitats (trees) and overall provide an increase in roosting availability within the Site.

5.4.19 The installation of aviation lighting on turbines will help to increase their visibility, thereby reducing the risk of bird collision. Three of the turbines (T01, T05 and T06) will be fitted with CAA CAP764 compliant aviation warning lights in accordance with the requirements of the Civil Aviation Authority and Military of Defence in advance of Project operation.

5.5 Step 4 – Compensate

5.5.1 Paragraph 6.4.15 (3b) of PPW 12[1] notes that where like-for-like mitigation measures are not possible it may be necessary to consider on-site or off-site compensation measures in the first instance. Paragraph 6.4.15 (4) of PPW 12 indicates that measures that are immediately proximate to the Site may be regarded as on-site compensation. Paragraphs 6.4.5 and 6.4.11 of the PPW 12 also state that Net Benefit for Biodiversity should be provided either on or immediately adjacent to a subject site.

5.5.2 An outline Habitat Management Plan (HMP) has been provided in **ES Volume III, Appendix 10.4: Net Biodiversity Benefit Report** as part of the **ES Volume II, Chapter 10: Terrestrial Ecology**. It sets out measures to manage the impacts on both terrestrial ecology and ornithology from the Proposed Development. The outline HMP is a working document which will evolve following discussions between the developer, the landowners, the Ecological Clerk of Works (ECoW) and organisations with responsibility for and an interest in key wildlife species, including BCBC and NPTC. The detailed HMP would be secured through a planning condition.

5.5.3 The outline Habitat Management Plan identifies that a net benefit for biodiversity from the Proposed Development can be achieved entirely through mitigation and compensation measure within the Site. In order to achieve the net biodiversity benefit target, the Proposed Development as a whole could deliver approximately 102.53 ha of new and enhanced habitats, including, grassland and woodland. These habitats, once at target condition, will be considerably more diverse and of a higher quality than the baseline habitats within the Site. The creation of new habitats has been strategically placed to either extend existing habitats (DECCA requirement for connections), or replace those of poor quality for higher quality habitats to increase their diversity and structure.

5.5.4 As detailed in **ES Volume III, Appendix 2.2: Arboricultural Impact Assessment**, adverse arboricultural impacts associated with the removal of trees, tree groups, wooded areas and hedgerows will be mitigated by the planting of replacement trees. Replacement tree planting shall be specified in accordance with all relevant guidance and planning policy and will achieve a minimum ratio of three new trees for each tree that is lost. For tree groups, wooded areas and hedgerows, replacement planting shall be a scale, design and species which is commensurate with that which is lost.

5.5.5 The creation of 28 ha of woodland within the Site will more than compensate for the loss of 0.03 ha of woodland and overall provide a 104.1% increase in woodland habitats throughout the Site. Woodland planting within the Site would compensate for the loss of trees within the non-statutorily designated Nant Cwm-bach SINC, and provide an increase in the amount of woodland habitat within the county. Native woodland species will be planted in locations to extend and connect existing areas of woodland.

5.5.6 Creation of 2.89 km of native species-rich hedgerows within the Site will more than compensate for the 0.2 km loss of species poor hedgerows and provide a 21.2% increase in the overall abundance of hedgerows and increase habitat connectivity throughout the Site. Planting of native hedgerow species in locations to provide connections between woodland blocks providing additional habitat for nesting birds, bats and dormice.

5.5.7 The retention and enhancement of at least 62.03 ha of dry meadow grassland habitat within the Site will improve biodiversity value for grassland fungi, invertebrates, birds, and mammals. The management of existing wet grassland will encourage more marshy grassland species.

5.5.8 The considerations above will provide multiple benefits for biodiversity, in line with themes identified in the South Central Wales Area Statement "*Building resilient ecosystems through improved habitat management and developing ecological networks*" and South West Wales Area Statement *"Reversing the decline of, and enhancing biodiversity by improving habitat quality and connectivity*". The Proposed Development will "*Facilitate the connection of green infrastructure assets to create adaptive and resilient ecosystems*" as set out in the BCBC GIA (3.2.3).

5.6 Management and Ongoing Monitoring

5.6.1 The Proposed Development will include management and monitoring over the lifetime of the Proposed Development that will provide long-term control and security of the enhancements documented.

Trees

5.6.2 Wherever trees on or adjacent to the Site have been identified within the Tree Protection Plan for protective measures, there should be an auditable system of arboricultural site monitoring. The Applicant shall appoint a Project Arboriculturist. This person shall be suitably qualified and experienced in the field of trees in relation to construction. Further details on arboricultural monitoring and supervisions are considered within **ES Volume III, Appendix 2.2: Arboricultural Impact Assessment**.

Water

5.6.3 **ES Volume III, Appendix 2.1 Outline Construction Environmental Management Plan** and **ES Volume II, Chapter 6: Water**, provide a summary of the measures for pollution prevention management and an outline drainage plan.

5.6.4 Dust prevention measures and management are included in **ES Volume III, Appendix 2.1 Outline Construction Environmental Management Plan**.

Habitats and Species

5.6.5 The outline Habitat Management Plan has been provided in **ES Volume III, Appendix 10.4: Net Biodiversity Benefit Assessment** as part of the **ES Volume II, Chapter 10: Terrestrial Ecology**, and sets out measures to manage the impacts on both terrestrial ecology and ornithology from the Proposed Development.

5.6.6 The enhancement proposals are to improve the ecological condition of the habitats within the Site, in line with the DECCA requirement Management strategies are designed for the long-term to help mitigate for expected future pressures i.e. climate change. The management strategy includes Invasive species control and land management practices (i.e. reduced grazing / hay cuts) to the enhanced areas of grassland.

5.6.7 A management and monitoring programme will be created to determine effective establishment for woodland planting, dry/ wet grassland enhancement, hedgerow planting and invasive non-native species management.

5.6.8 Bat monitoring will involve monthly searches of carcasses within monitoring years (January-December), ensuring that bat carcasses are discovered during periods of time when bats are active (between March-October). Monitoring will take place within the first three years of operation and subsequently in years 5, 7, 10, 15, 20, 25, 30, 35, 45 and 50.

5.7 Green Infrastructure Improvements in the Context of Climate Change

5.7.1 In 2019, the Welsh Government declared a climate emergency in order to co-ordinate action nationally and locally to help combat threats of climate change. Welsh Government planning policy recognises an energy hierarchy and expects all new developments to mitigate the causes of climate change in accordance with the energy hierarchy for planning. These are set out in the following energy policies:

- Reducing energy demand;
- Increasing energy efficiency;
- Renewable energy generation;
- Minimising carbon impact of other green generation; and
- Minimised extraction of carbon intensive energy materials.

5.7.2 PPW 12[1] discusses how green infrastructure helps to improve ecosystem resilience resulting in positive benefits to well-being including climate change mitigation. The benefits of which are important in urban environments where they can facilitate health and well-being related benefits of open space and clean air.

5.7.3 In the context of achieving benefits for green infrastructure through addressing the consequences of climate change, the Proposed Development provides significant positive outcomes for carbon losses and savings as described in the **ES Volume II, Chapter 14: Climate** and **ES Volume III, Appendix 14.1: Carbon Assessment Tool**. The results presented in these documents show that while the Proposed Development is likely to result in the emission of carbon dioxide (CO_2) during the pre-construction (embodied emissions), construction and decommissioning stages, these losses would be paid back within approximately 2.3 years after the Proposed Development becoming operational when compared against a fossil fuel mix of electricity.

5.7.4 Given the Proposed Development's projected operational life of 50 years, its total greenhouse gas savings are expected to be 4,185,159 tCO_2e against a fossil fuel mix of electricity. The overall impact of the Proposed Development with respect to CO_2 emissions is noted as significant and beneficial. The Proposed Development will make a considerable contribution to the reduction of greenhouse gas emissions and climate change providing a benefit to the ecosystems and green infrastructure within and around the Proposed Development.

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6 SUMMARY AND CONCLUSIONS

6.1.1 This Green Infrastructure Statement, and the ES submitted with the planning application demonstrates the Proposed Development has been developed in accordance with a range of legislative and policy matters, including but not limited to: Planning Policy Wales (PPW) [1]; Future Wales[20], Bridgend's and Neath Port Talbot's LDP and Natural Resource Wales's South Central and South West Area Statements.

6.1.2 The principles set out in the PPW step-wise approach have inherently been followed in the design of the Proposed Development and demonstrated in **Section 5** of this report**.**

6.1.3 The Proposed Development was designed to retain as much greenfield areas as practicable and ensure that none of the retained areas would become isolated from surrounding habitat. Where the habitats are currently in poor condition, they will be enhanced to increase their diversity and structure. Where habitat is being lost, the same habitat type or that of a higher value is being created in other places within the Site, ensuring that there are no isolated areas of habitat.

6.1.4 Areas of habitat creation have been designed to create green corridors throughout the Site linking all areas of habitats. The linkages between the habitats within the Site and the wider landscape have also been maintained as part of a larger green corridor. This supports the DECCA framework requirement to improve connectivity between habitats. The landscape proposals have been designed to minimise disturbance to the Site's ecosystem and enhance its resilience.

6.1.5 NPT Watercourses Site of Importance for Nature Conservation (SINC) and Cwm Nant Gwyn SINC have been avoided through the use of a 15 m buffer. Nant Cwm-bach and Gilfach Uchaf SINCs will be avoided (with exception of where the access track is required to cross the SINC). Crossings have been kept to a minimum and mitigated for within the Site. A 50 m buffer will be implemented and maintained to avoid any potential impacts to Cwm Risca Meadow SSSI. Appropriate buffers have also been applied to woodland and hedgerow habitats on-site in order to avoid RPA's during construction. The infrastructure of the Proposed Development has avoided the small pocked of peat present on site. A range of mitigation measures have been proposed to further minimise and off-set potential effects.

6.1.6 Measures to minimise impacts on watercourses, soils, habitats and species will be implemented across the Proposed Development. Where possible, existing tracks and gaps in hedgerows will be used. The risk of soil erosion will be minimised through the use of vegetation in solar areas. In addition to this, standard practice pollution prevention measures will be undertaken, and measures will be put in place to minimise risk of non-chemical pollution.

6.1.7 Measures will be implemented during construction to mitigate impacts on trees, water and biodiversity. Trees will be protected from any damage that may occur during construction and surface water will be managed through a sustainable drainage system that replicates the Sites natural runoff processes. The outline Habitat Management Plan sets out mitigation to off-set any potential impacts to biodiversity

[20] https://www.gov.wales/future-wales-national-plan-2040

and includes measures such as the installation of bird boxes to increase nesting spaces, the use of lighting on turbines to reduce the collision risk of bats and birds as well as the enhancement of grasslands on site.

6.1.8 Habitat lost to the construction of the Proposed Development will be compensated for on-site. The Proposed Development will deliver approximately 102.53 ha of new and enhanced habitats in order to support species on site including nesting birds, bats, dormice, grassland fungi, invertebrates and mammals. Created habitats will be monitored through a management plan to ensure the habitats effective establishment.

6.1.9 The positive enhancements and improvements to biodiversity resulting from the Proposed Development aligns with objectives outlined in BCBC GIA, NPT GIA and Natural Resources Wales's Area Statements including creating resilient ecosystems by protecting existing green infrastructure and improving habitat connectivity, introducing sustainable drainage systems to manage flood and contamination risk, protecting and restoring woodland and hedgerows, managing invasive non-native species in green spaces within the Site and improving habitat quality.

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