

HEOLDDU SOLAR FARM

Green Infrastructure Statement

September
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Abbreviations

Abbreviation	Meaning
BMV	Best and Most Versatile
BwN	Building with Nature
CCC	Carmarthenshire County Council
CEMP	Construction Environmental Management Plan
DNS	Development of National Significance
ES	Environmental Statement
GI	Green Infrastructure
LDP	Local Development Plan
LEDS	Landscape and Ecological Design Scheme
PPW	Planning Policy Wales
PRoW	Public Right of Way

Units

Unit	Description
Ha	Hectare
Km	Kilometre

1 INTRODUCTION

- 1.1 This Green Infrastructure Statement has been prepared by RPS on behalf of Heolddu Solar Park Ltd (the Applicant) in respect of an application to develop a proposed solar farm and associated infrastructure (herein referred to as the 'Proposed Development'). The Proposed Development includes the construction and operation of a solar photovoltaic electricity generating station ('solar farm') and associated ancillary development, including a 132 kV substation, with landscape and environmental enhancements. At the end of the Proposed Development's 40-year life it will be decommissioned, dismantled and removed, with the Site being returned in a condition suitable for continued agricultural use.
- 1.2 Following publication of Planning Policy Wales (PPW) Edition 12¹, the purpose of this Green Infrastructure Statement ('GI Statement') is to outline the wider context of natural and semi-natural features that exist in the surrounding context of the Proposed Development and how this has influenced the Proposed Development's design, and its mitigation and enhancement measures. Furthermore, the statement will outline the Green Infrastructure Strategy to be adopted as part of the planning application, considering biodiversity and ecological resilience, the stepwise approach, DECCA² framework, and the 12 Standards, forming part of Building with Nature's Standards Framework³.

Policy Context

Planning Policy Wales

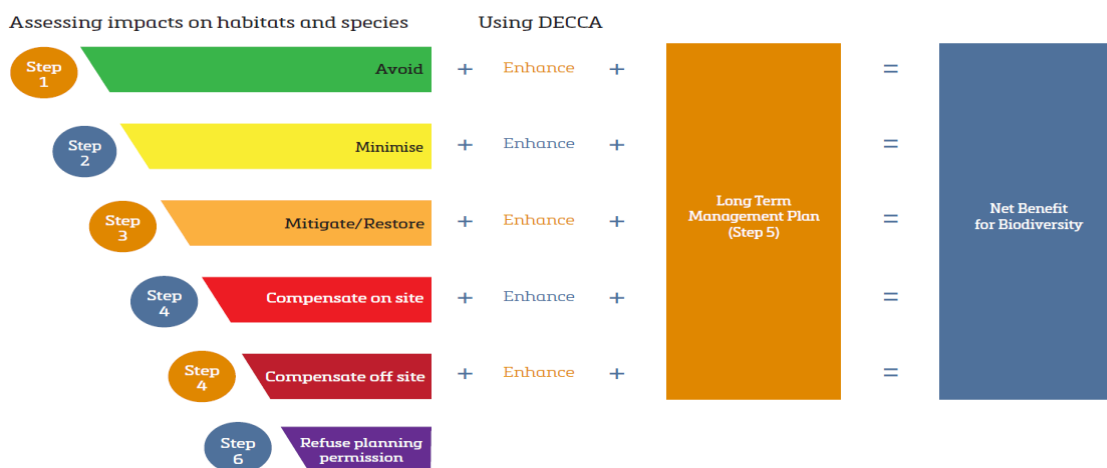
- 1.3 Green infrastructure is the network of natural and semi-natural features, such as green spaces, rivers and lakes, that intersperse and connect places. For small developments, GI can include landscaping, grass verges and sustainable drainage systems, whereas on a larger development scale this can consist of, but not be limited to, the creation of species rich meadows, woodlands and the improvement of linkages between areas of existing biodiversity value.
- 1.4 PPW makes it clear that the quality of development should be enhanced by integrating green infrastructure through appropriate site selection and use of creative design. Section 6.2 'Integrating Green Infrastructure and Development' states:

'With careful planning and design, green infrastructure can embed the benefits of biodiversity and ecosystem services into new development and places, to overcome the potential for conflicting objectives, and contribute to health and wellbeing outcomes.'

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 (Paragraph 6.4.21) has been applied.'

- 1.5 The GI Statement should highlight any baseline data considered and surveys and assessments undertaken, including habitats and species surveys, arboriculture surveys and assessments, sustainable drainage statements, landscape and ecological management plans, open space assessments, green space provision and active travel links.
- 1.6 PPW Chapter 6 states that the 12 Building with Nature Standards 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. Given the reference to the Building with Nature Standards in PPW, it is clear that the GI Statement should demonstrate how it has incorporated the standards framework.
- 1.7 Additionally, and most importantly, PPW states that the GI Statement should set out how the step-wise approach (depicted below in Graphic 1) has been adhered to as part of the design evolution, including assessing, maintaining and improving ecosystem resilience.

Graphic 1: Step-wise Approach as per PPW 12



¹ Welsh Government (2024) Planning Policy Wales: 12th Edition. [Planning Policy Wales - Edition 12](#) [accessed July 2025]

² Diversity, Extent, Condition, Connectivity, Adaptability (devised by Natural Resources Wales)

³ [Standards Form — Building with Nature](#)

Future Wales: The National Plan 2040

- 1.8 Future Wales⁴ is the national development framework, setting the direction for development in Wales to 2040.
- 1.9 Policy 9 ‘Resilient Ecological Networks and Green Infrastructure’ is of particular relevance to green infrastructure, biodiversity and ecosystem resilience. This policy seeks to ensure that *“action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), 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”*.

Local Policy Context

- 1.10 The Carmarthenshire County Council Local Development Plan 2006-2021 (LDP) was adopted on 10 December 2014 and is the basis for decisions on land use planning in the Carmarthenshire County Council (CCC) authority area. The CCC Revised Local Development Plan 2018-2033 is currently in the process of consultation.
- 1.11 The following policies from the LDP are relevant to green infrastructure:
- Policy SP1 Sustainable Places and Spaces
 - Policy SP2 Climate Change
 - Policy SP11 Renewable Energy & Energy Efficiency
 - Policy SP14 Protection and Enhancement of the Natural Environment
 - Policy GP1 Sustainability and High Quality Design
 - Policy EQ3 Regional and Local Designations
 - Policy EQ4 Biodiversity
 - Policy EQ5 Corridors, Networks and Features of Distinctiveness
 - Policy EQ6 Special Landscape Areas
 - Policy EP1 Water Quality and Resources

⁴ Welsh Government (2021) Future Wales: The National Plan 2040 <https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf> [Accessed June 2025]

- Policy EP3 Sustainable Drainage
- Policy REC1 Protection of Open Space

1.12 Policy RE3 Non-wind renewable Energy Installations, is of particular relevance to this strategy. The policy outlines the requirements for solar installations. The policy requires development to address the following as appropriate:

- i. Justify the need for large-scale scheme outside the Development Limits, demonstrating that exceptional circumstances and an overriding need for the project outweigh the need to protect the landscape.
- ii. Ensure the development will not cause demonstrable harm to the landscape, including its visual impact on the surrounding area, views from public footpaths, and proximity to heritage assets;
- iii. Avoid demonstrable harm from the cumulative effect of the installation, considering the impact in conjunction with other existing and approved renewable energy schemes in the vicinity; and
- iv. Satisfactorily justify why, the need for the scheme cannot be met in a less sensitive location or on a smaller scale, and where impacts are unavoidable, outline appropriate mitigation and compensation measures.

Legislative Context

The Well-being of Future Generations (Wales) Act 2015

1.13 The Well-being of Future Generations (Wales) Act⁵ outlines the seven well-being goals, which are:

1. A prosperous Wales
2. A resilient Wales
3. A healthier Wales
4. A more equal Wales
5. A Wales of more cohesive communities
6. A Wales of vibrant culture and thriving Welsh language
7. A globally responsible Wales

Graphic 2: Seven Well-being Goals



1.14 The Well-being of Future Generations (Wales) Act outlines a definition of ‘*sustainable development*’ as ‘*the process of improving the economic, social, environmental and cultural well-being of Wales by taking action, in accordance with the sustainable development principle, aimed at achieving the well-being goals.*’

1.15 The Well-being of Future Generations (Wales) Act places a duty on public bodies to align with the ‘sustainable development principle’ meaning that any bodies must act in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs.

⁵ Wellbeing of Future Generations (Wales) Act 2015. Available at <https://www.legislation.gov.uk/anaw/2015/2/contents> [accessed July 2025]

Environment (Wales) Act 2016

- 1.16 The Environment (Wales) Act⁶ was implemented to enable Wales' resources to be managed in a more proactive, sustainable and connected way and to establish the legislative framework necessary to tackle climate change.
- 1.17 Section 6 of the Environment (Wales) Act (the Section 6 Duty) imposes a duty on public authorities that exercise their functions in relation to Wales to ensure the maintenance and enhancement of biodiversity and to improve the resilience of ecosystems. The Section 6 Duty requires local planning authorities and other public bodies to take steps to protect nature in towns, cities, public places and the wider landscape, through practical action in-situ, and in the way all public functions are carried out.

⁶ Environment (Wales) Act 2016, Section 6. Available at: <https://www.legislation.gov.uk/anaw/2016/3/contents> [accessed May 2025]

2 CONTEXT AND SURROUNDING ENVIRONMENT

- 2.1 The Proposed Development Site (the 'Site') is located wholly within the administrative boundary of CCC. It is set within a rural, farmed landscape 1km to the east of Ferryside. Kidwelly is 4.0 km to the south. Smaller settlements within a 5.0 km radius of the Site include the villages of Llandyfaelog, Broadway, Llansaint, Saint Ishmael and Broadlay.
- 2.2 The Site occupies approximately 81.78 ha and is divided into two areas, Solar Area West and Solar Area East. Solar Area East extends to 25.09 ha and Solar Area West extends to 54.66 ha. The underground cable route covers 0.48 ha and the construction access route covers 1.55 ha. The Site comprises pastoral and land used for silage, with field boundaries delineated by hedgerows. Both Sites comprise watercourses, ditches and woodland. The areas are bisected by an unnamed road that routes south from the Carmarthen Road

Landscape

- 2.3 The Site is not subject to any statutory designations. It does however lie approximately 500m to the east of the non-statutory Carmarthenshire Bay and Estuary Special Landscape Area designation.
- 2.4 The Site is predominantly a farmland landscape with several mature scattered trees bounded by largely intact hedgerows with trees. The landscape is one of generally good quality and has some landscape attributes in common to that of the Special Landscape Area, to the west, which would confer a higher value for much of the Site.

Heritage

- 2.5 There are no Listed Buildings, Scheduled Monuments, World Heritage Sites, Registered Parks and Gardens, Registered Battlefields or Conservation Areas within the Site. A total of 24 Scheduled Monuments, three Conservation Areas, one Registered Park and Garden, 71 Listed Buildings and two Registered Historic Landscapes (RHL) are located within 5 km of the Site.
- 2.6 Part of Solar Area West is located in Tywi Valley Registered Historic Landscape but does not occupy any of its defined Historic Landscape Character Areas.

Land Use and Soils

- 2.7 Detailed Agricultural Land Classification Survey has confirmed that the Site contains a mixture of ALC grades 3a 'good' and 3b 'moderate'. There is a climatic limitation in this area, and land cannot be classified higher than Subgrade 3a.
- 2.8 The current land use of the Site is agricultural in nature, comprising two farming businesses that use the land for the grazing of farm animals.

Topography and Flood Risk

- 2.9 The Site is gently undulating with a maximum elevation of approximately 126 m AOD to Solar Area West, and the lowest elevation of approximately 79 m AOD within the southeasterly corner of Solar Area East. Generally, the landfall within the Site rises within Solar Area West toward the minor road of C2074 near Nyth Y Wennol. Within Solar Area East, the landform peaks at an elevation of approximately 117 m AOD in the most north-westerly corner and gradually descends toward the northeast to approximately 86 m AOD.
- 2.10 The Site lies wholly within Flood Zone 1 according to the Natural Resources Wales (NRW) Flood Map for Planning meaning that the Site is not at risk of flooding from rivers or the sea. There are small areas of surface water flooding identified within the Site associated with small watercourses.

Ecological Baseline and the DECCA Framework

- 2.11 The requirements of the Environment (Wales) Act 2016 (Section 6) focus on the resilience of ecosystems and refers to the use of the DECCA framework (summarised below) when assessing impacts on ecosystem resilience, i.e.:
- Diversity between and within ecosystems;
 - Extent – maintain and increase the area of semi-natural habitat/features and linkages between them;
 - Condition, including structure and functioning of ecosystems, which is affected by multiple complex pressures including climate change, pollution, invasive species, land management neglect etc;
 - Connectivity between and within ecosystems; and
 - Adaptability/Aspects of resilience, i.e. adaptability, recovery and resistance.
- 2.12 The Site comprises poor semi-improved or 'modified grassland', with a small section of rye-grass ley. The fields are bounded by hedgerows throughout. Mature trees are present in some of the hedgerows. Few areas of semi-improved grassland and field ditches are present. A few parcels of woodland are situated within the Site, which connect to off-Site woodlands and hedgerows. A single pond is present within the Site in Field 24.

-
- 2.13 There are numerous parcels of ancient woodland in the wider landscape. A parcel of ancient semi-natural woodland is situated adjacent to Solar Area West, west of Field 5.
- 2.14 There are no designated sites (e.g. Special Area of Conservation (SAC), Special Protection Area (SPA) or Sites of Special Scientific Interest (SSSI)) within or in proximity to the Site.
- 2.15 To ascertain the ecological baseline and support the Proposed Development's Environmental Statement (ES), the following surveys and assessments have been undertaken:
- Preliminary Ecological Appraisal (ES Volume 3, Appendix 3.1);
 - Protected and notable species surveys (ES Volume 3, Appendix 3.2):
 - Bat activity surveys and inspections of trees
 - Hazel dormouse surveys;
 - Otter, water vole and badger surveys;
 - Great crested newt eDNA sampling;
 - Breeding and wintering bird surveys (ES Volume 3, Appendix 3.3)
- 2.16 A summary of the findings of the surveys and assessments are provided in Volume 1, Chapter 6: Biodiversity of the ES which is submitted with the planning application.

3 GREEN INFRASTRUCTURE ASSESSMENT

- 3.1 The Proposed Development’s approach to integrating green infrastructure into the design (with reference to the step-wise approach) is summarised in Table 3.1.
- 3.2 Where applicable, reference has been made to the DECCA framework, to demonstrate how the Proposed Development has considered ecosystem resilience and the enhancement of ecological networks. DECCA is covered in more detail in **Section 5** of this document. The DECCA framework is defined as:
 - **Diversity** between and within ecosystems;
 - **Extent** of habitats and ecosystems, with the aim of maintaining and increase the area of semi-natural habitat/features and linkages between them;
 - **Condition** including structure and functioning of ecosystems, which is affected by multiple complex pressures including climate change, pollution, invasive species, land management neglect etc;
 - **Connectivity** between and within ecosystems; and
 - **Adaptability** and other Aspects of resilience, i.e. recovery and resistance to environmental pressures.
- 3.3 Avoidance, minimisation, mitigation, restoration and enhancement measures that form part of the Proposed Development are set out in in ES Volume 1, Chapter 6.
- 3.4 A summary of the Step-Wise approach applied to the Proposed Development is provided in **Feature** proposed as part of the Proposed Development with the aim of delivering improved ecosystem functioning, habitat restoration and biodiversity enhancement with the aim of delivering a Net Benefit for Biodiversity is set out in **Table 5.1**.
- 3.5 **Table 3.1.** Feature proposed as part of the Proposed Development with the aim of delivering improved ecosystem functioning, habitat restoration and biodiversity enhancement with the aim of delivering a Net Benefit for Biodiversity is set out in **Table 5.1**.

Table 3.1: Application of the Step-Wise Approach

Step	Development Design Measures	Enhancement
Step 1 – Avoid	The Proposed Development is sited largely within grassland habitats, most of which are considered to be relatively species-poor. As part of the iterative design process of the Proposed Development, photovoltaic arrays that were originally sited within more diverse areas (specifically neutral grassland) such as the area in the north	

Step	Development Design Measures	Enhancement
	<p>west of Field 20 have been relocated into habitats of lower biodiversity value (specifically poor semi-improved grasslands).</p> <p>Waterbodies and large, mature broadleaved trees have been avoided as part of the Proposed Development design.</p>	
<p>Step 2 – Minimise</p>	<p>Initial design iterations of the Proposed Development sited panels on a significant proportion of best and most versatile (BMV) agricultural land. During the design phase, it was recommended that the design was revised in order to reduce the impact on both BMV agricultural land, whilst also considering commercial viability.</p> <p>The design was amended to exclude a large proportion of the BMV land, reducing it to an impact on 25 ha whilst still achieving the necessary megawatt capacity.</p> <p>Hedgerow breaks have been minimised as far as practicably possible, with less than 130m of hedgerows (in small sections) being lost. Initial areas of hedgerow loss have been reduced. Hedgerow loss from the access road onto Carmarthen Road north of Field 24 and the hedgerow north of Field 11 have been minimised considerably.</p> <p>Permanent habitat loss to the Proposed Development is estimated to be 2.02 as a worst case, with 0.25ha of temporary loss estimated as part of temporary construction compounds.</p>	<ul style="list-style-type: none"> Proposed enhancement of hedgerows through relaxation in current management Proposed enhancement of existing grasslands (under photovoltaic arrays)

Step	Development Design Measures	Enhancement
<p>Step 3 – Mitigate / Restore</p>	<p>To mitigate for permanent and temporary habitat loss, a number of habitats are being created, enhanced and restored on Site:</p> <ul style="list-style-type: none"> • Over 3km of new hedgerows are proposed. Additionally, defunct hedgerows are proposed to be restored through infilling of gaps. • Pond and wetland restoration by removing grazing pressure, ultimately reducing bare ground and increasing vegetation cover. Proposals aim to restore a diverse wetland which could support birds, bats, other mammals, herpetofauna and invertebrates. • Grassland restoration to encourage a diverse rush pasture vegetation in Field 21. • Rough tussock grassland with swales and tall wildflower mosaics with varying sward heights in the north of Solar Area East and wet meadow/ditch managed through low intensity grazing in the south of Solar Area East. • Grassland management in Solar Area West would target the establishment of a wet meadow under photovoltaic arrays • Ditch and riparian zone protection to encourage more diverse vegetation growth • Creation of vegetated filter strips as a Sustainable Drainage System (SuDS) 	<ul style="list-style-type: none"> • Woodland meadow planting / tree planting • Native tree planting / scrub edge to reduce hard woodland edge • Wet and lowland meadows outside of photovoltaic arrays to mitigate for permanent loss

Step	Development Design Measures	Enhancement
<p>Step 4 – On Site Compensation</p>	<p>Permanent loss has been restricted to areas considered to be of lower biodiversity value as far as practicably possible. Access tracks and the substation compound are to be sited within poor-semi improved grassland.</p> <p>Areas of higher value, that are to be lost permanently, specifically hedgerows would be re-created within the Site, in proximity to areas of loss.</p> <p>Hedgerow replacement to offset the impact of loss has been considered, with replacement based on the woodland ratio set out within PPW 12, Section 6.</p> <p>Permanent habitat loss is estimated to be 2.02 ha. This would be replaced through enhancement of grasslands within the Site, specifically Fields 1, 2, 3, 13 and 25. Photovoltaic arrays have been omitted from these fields.</p>	<ul style="list-style-type: none"> • Installation of wildlife boxes to increase in opportunities available for nesting birds and roosting bats.
<p>Step 4 – Off Site Compensation</p>	<p>As all compensation for estimated lost habitats would be secured within the Site, proximal to the areas of loss, off-site compensation is not required for the Proposed Development.</p>	
<p>Step 5 – Long Term Management Plan and Additional Measures (including enhancement)</p>	<p>The details of the mitigation, restoration and enhancement measures are set out within the Landscape and Ecological Design Scheme Strategy (LEDS) (Volume 3, Appendix 2.1 of the ES).</p>	

Step	Development Design Measures	Enhancement
	<p>It is anticipated that measures set out in the LEDS Strategy would be secured via planning condition.. This would require a final, detailed version of the LEDS Strategy to be prepared prior to implementation of the Proposed Development. A detailed Construction Environmental Management Plan (CEMP) would also be secured by conditions of the DNS consent. All documents and their associated measures would be subject to consultation with CCC prior to construction of the Proposed Development.</p> <p>All management and maintenance of the landscape and biodiversity measures would be secured for the entirety of the operational lifetime of the Proposed Development.</p>	

4 THE STANDARDS FRAMEWORK

- 4.1 The Building with Nature (BwN) Standards are the UK's first green infrastructure benchmark for the built-environment sector and are good practice guidelines to deliver high-quality and defined green infrastructure.
- 4.2 The 12 standards, and how they have been addressed within the Proposed Development, are outlined below.

Standard 1: Optimises Multifunctionality and Connectivity

The purpose of Building Standard 1 is “... to ensure that green infrastructure features form and contribute to creating an optimal multifunctional network within the development and wider area, contributing towards the restoration, creation and enhancement or expansion of these networks to achieve the maximum benefits for people, wildlife and environment”.

- 4.3 Hedgerow management and creation, particularly the restoration of species-poor defunct hedgerows, will provide additional green infrastructure and improved connectivity across the Site. This will enhance habitat connectivity to facilitate species movement across the Site and into surrounding areas.
- 4.4 In addition to hedgerow enhancement, tree planting, scrub management and woodland management aim to reconnect green infrastructure with the wider landscape and reduce fragmentation. The restoration of the onsite waterbody will increase connectivity by reducing bare ground and creating a diverse wetland for birds, bats, other mammals, herpetofauna and invertebrates.

Standard 2: Positively Responds to the Climate Emergency

The purpose of Standard 2 is “... to minimise the vulnerability and exposure of the green infrastructure to wider climate-related hazards and impacts and ensure it maximises opportunities to contribute to net zero carbon goals and nature recovery.”

- 4.5 Climate change is the greatest threat to the environment, in particular to biodiversity. The Proposed Development will provide renewable, sustainable electricity helping to respond to the climate emergency by reducing the country's Greenhouse Gases, and climate change impacts. Solar projects not only help reduce carbon emissions, but well-considered, designed and managed solar projects can also increase the diversity of plant species, encourage pollinators (which would support food security) as well as provide new and enhanced habitats for wildlife.
- 4.6 This Site has been designed to minimise disruption to native species. Existing habitats on Site will be enhanced and new habitats will be created, including tussocky grasslands, wet and lowland meadows, new hedgerows and shrub planting. More than 3 km of hedgerow are proposed for creation. More than 50 hectares of grassland would be managed to enhance its species and structural diversity. The increase in vascular plant coverage and the resultant increase in diversity of species would increase the ability of vegetation to sequester carbon⁷.
- 4.7 The proposed planting and habitat creation, along with the implementation of the SuDS features at the Site will also help improve attenuation on-Site and reduce run-off and flood risk both on-Site and downstream. This is increasingly important with increased extreme weather events as a result of climate change.

Standard 3: Maximises Environmental Net Gains

- 4.8 The purpose of Standard 3 Maximises Environmental Net Gains is to “... *ensure new development uses green infrastructure to help mitigate any unavoidable residual harms to the local environment resulting from development, particularly from new sources of air or noise pollution and soil degradation. As with all Standards, the purpose here is to secure benefits that go beyond statutory minimums and encourage greater enhancement of the local environment for people and wildlife, which in-turn aids individual wellbeing, social cohesion, community wellbeing and supports wildlife*”.
- 4.9 The Proposed Development has been carefully designed to mitigate unavoidable harmful environmental impacts. The nature of the operational Proposed Development is also such that there are very limited emissions – any emissions

⁷ Bai, Y., & Cotrufo, M. F. (2022). Grassland soil carbon sequestration: Current understanding, challenges, and solutions, 608 (August), 603–608.

associated with the Proposed Development are also considered as part of the ES. Volume 3, Chapter 9: Noise specifically considers noise emissions⁸.

- 4.10 The incorporation of green infrastructure within the Proposed Development would result in multiple benefits – not least providing natural screening to reduce landscape and visual impacts and enhanced connectivity for wildlife. The LEDS Strategy (ES Volume 3, Appendix 2.1), ES Volume 1, Chapter 5: Landscape and Visual Impact and ES Volume 1, Chapter 6: Biodiversity provide detailed assessment and information which set out the benefits of the incorporation of green infrastructure in this respect.

⁸ Wilberforce, T., Olabi, A.G., Sayed, E.T., Elsaid, K and Abdelkareem, A.M (2019) Progress in carbon capture technologies. Science of the Total Environment. Volume 761

Standard 4: Champions a Context Driven Approach and Standard 5: Creates Distinctive Places

The purpose of Standards 4 and 5, respectively are “... to ensure from the outset that the project team and development’s green infrastructure features take account of and is shaped by existing local policy, physical landscape and community priorities” and “... to ensure the design of green infrastructure, alongside any built form, is integral to the creation of a great place and used to reinforce the distinctiveness of the local area.”

- 4.11 Local context is at the forefront of the Proposed Development’s siting and design. The Proposed Development is supported by a Planning Statement which sets out how the Proposed Development responds to national and local policy. Chapter 5 of the ES also includes an assessment against the relevant landscape policies. Overall, the Site is not located within any locally (or nationally) designated landscape protections and has been assessed to be in full accordance with the relevant LDP policies by including measures to protect and enhance the natural environment and improving connectivity, protection of valuable features and provision of mitigation measures as appropriate.
- 4.12 The EIA process has influenced the iterative design process of the Proposed Development through the identification of environmental receptors and the necessary considerations required. The biodiversity design of the Proposed Development has factored in local biodiversity interests, with all habitat creation, restoration and enhancement measures reinstating the existing or historic features of the local area.
- 4.13 The Proposed Development includes a range of measures that have been specifically designed to maintain and enhance existing green infrastructure. Existing features including trees and hedgerows have been retained and enhanced as part of the Proposed Development through a planting palette of native species reflective of the local landscape. Existing woodlands would be enhanced through woodland edge tree planting and appropriate stand-offs / protection barriers.
- 4.14 The Applicant’s approach to consultation follows best practice recommendations and has involved early and continuing dialogue with local interested parties such as local members and the public. That dialogue has extended to locally held, Site visits and meetings, and will include the consideration of responses received as part of the Pre-Application Consultation (PAC) process.

- 4.15 Liaison with CCC's Landscape, Ecology and Flood Risk Officers has resulted in a design which has been developed based on advice and guidance from important stakeholders.

Standard 6: Secures effective Place-keeping

The purpose of Standard 6 is “... to ensure early and effective planning for and implementation of management, maintenance and monitoring of green infrastructure”.

The key characteristics of the standard include to:

- achieve a more resource efficient approach to management and maintenance; and
- ensure the long-term management and maintenance of the green infrastructure, including through a suitable governance structure that can adapt the management plan as required to deliver the outcomes and benefits, sufficient funding, and appropriately trained and qualified personnel.

- 4.16 The details of the mitigation, restoration and enhancement measures together with provision for long-term management are set out within the LEDS (Volume 3, Appendix 2.1 of the ES)
- 4.17 It is anticipated that measures set out in the LEDS Strategy would be secured via a planning condition attached to the Proposed Development's planning permission.. This would require a final, detailed version of the LEDS Strategy (or similar) to be prepared prior to implementation of the Proposed Development. A detailed CEMP would also be secured by planning condition. All documents and their associated measures would be subject to consultation between the Applicant and CCC prior to construction of the Proposed Development.
- 4.18 All management and maintenance of the landscape and biodiversity measures would be secured for the entirety of the 40 year operational lifetime of the Proposed Development.

Standard 7: Brings Nature Closer to People

The purpose of Standard 7 is “... to ensure green infrastructure features are available and accessible to all, at all times, optimising their use and enjoyment”.

- 4.19 The operational Site will not be open to members of the public and therefore will only be accessed by those authorised to do so (i.e. those tasked with constructing

and maintaining the Site, tasked with landscape interventions and habitat management).

- 4.20 The Proposed Development includes provision to re-align a section of Public Right of Way (PRoW) 62/12/4 within the Site along Fields 7 and 4 of Solar Area West. The purpose of the re-alignment is to enhance the route which is currently inaccessible due to overgrown vegetation and runs proximal to slurry tanks associated with Maes Mawr Farm. The proposals have been developed in liaison with CCC's PRoW Officers and will allow for increased public usage of the path. Together with the proposed landscaping as set secured by the LEDS Strategy, the proposal brings people closer to nature by facilitating countryside access. The route would be screened on either side by new wooded vegetation to provide a buffer from photovoltaic arrays.

Standard 8: Supports Equitable and Inclusive Places

The purpose of Standard 8 is “... to ensure that green infrastructure is used to enhance social cohesion and overcome cultural barriers, encouraging all people to use and enjoy such features.”

- 4.21 Whilst the Site is not intended to be publicly accessible, there would still be a positive effect upon social cohesion and health inequalities. This would be indirectly, through public health. Humans are reliant on energy security for crucial day-to-day electricity use such as safe cooking and refrigeration of food, regulation of temperature and lighting of homes and schools, operation of health and social care services, maintenance of economic productivity and employment, and operation of technologies that improve quality of life. Where the Site is accessible, it has been designed to minimise impact on the users of the PRoW, improve the users experience including accessibility for footpaths and access to landscaped areas. The proposals ensure connectivity is maintained with the wider PRoW network.
- 4.22 Renewable energy generation helps to reduce adverse health effects associated with climate change through reducing greenhouse gases associated with other non-renewable energy sources. Negative health effects associated with climate change include heat-related disorders (e.g. heat stress and lower work capacity), respiratory disorders (e.g. worsened asthma), infectious diseases, food insecurity (e.g. lower crop yields), and injury and mental stress associated with natural disasters (e.g. drought, flooding, fires). Available and affordable renewable energy can also support transitions to electric vehicles, thereby further reducing greenhouse gases and improving air quality.

Standard 9: Delivers Climate Resilient Water Management

The purpose of Standard 9 is “... to ensure new development uses green infrastructure as a means of above ground water management for regulating water quality and water quantity and flow”.

- 4.23 The conceptual drainage strategy (ES Volume 3, Appendix 10.1) includes the provision of SuDS to manage surface water and mitigate pollutants. This includes natural filter strips to provide surface water attenuation. Gravel bases in which ancillary buildings e.g. transformers, substations etc. are positioned upon will filter pollutants from associated impermeable areas. This SuDS strategy mitigates any potential increase in runoff from the Proposed Development.
- 4.24 Furthermore, vegetation will be managed without the use of inorganic or organic fertilisers and will either be cut, grazed or a combination of both techniques. It is proposed that the internal access tracks would be fully permeable with no tarmac or other hardstanding type surface. Most will follow existing farm tracks to minimise amount of new tracks that would be laid.

Standard 10: Brings Water Closer to People

The purpose of Standard 10 is “... to ensure that water management constraints and requirements on a project are used as opportunities to enhance the development to create and sustain better places and benefits for people and nature.”

- 4.25 The LEDS Strategy proposes the retention and restoration of the existing pond within Field 24, through reduction in grazing pressure. Other enhancement measures such as new and improved hedgerows, tussocky grassland, wildlife boxes and native tree planting will benefit a range of species including bats and birds, other mammals, herpetofauna and invertebrates. This measure will enhance the natural environment, promote biodiversity through the creation of an additional habitat.
- 4.26 Compared to agricultural (arable and livestock) use, the solar aspects are likely to create an overall betterment in surface water drainage than a continuation of the existing use. Additionally, the surface water and soil management measures incorporated within the Proposed Development will ensure that there is negligible alteration to local drainage patterns, flow directions and will managed suspended sediments from entering the drainage channels.

Standard 11: Delivers Wildlife Enhancement

The purpose of Standard 11 is to “... *enhance existing and create new, linked habitat for wildlife ... [support] the conservation status of priority species and habitats and [deliver] positive benefits for wildlife, within and beyond the boundary (and life) of the development*”.

The key characteristics of the standard include to:

- deliver a biodiversity enhancement;
- follow the mitigation hierarchy approach; and
- employ appropriate mechanisms to secure the successful implementation of green infrastructure (e.g. an appropriate managing group, funding and personnel).

- 4.27 As evidenced in Table 3.1, the step-wise approach (the Welsh Government’s targeted mitigation hierarchy) has been adopted and adhered to, prioritising avoidance of sensitive ecological receptors during the Proposed Development design iteration, minimising loss as far as reasonably practicable. Mitigation and restoration have been incorporated into the design whereby habitats are to be reinstated beyond the estimated area of loss, and habitats in unfavourable conditions are to be restored to enable resilient, appropriately functioning ecosystems.
- 4.28 The Proposed Development has been designed avoid and limit impact on the environment and community close to the Site and deliver wider environmental and community benefits. Existing habitats (grasslands, hedgerows, woodlands, waterbodies, ditches) would be enhanced to expand green (and blue) infrastructure. The landscape would be managed to deliver meadows or as close to meadow type habitats as practicably possible. Bare and open vegetation would be restored through reduction in grazing pressure, and woodland edges would be protected through proposed grassland-shrub ecotones.
- 4.29 Given the mitigation, restoration and enhancement measures proposed, the Site would not experience a net increase in high quality habitats. Moreover, grasslands would be retained and enhanced under photovoltaic arrays. Whilst it is acknowledged that vegetation would be subject to additional shading, the grassland would benefit from the removal of fertiliser and continuous cutting. The management proposals for these grasslands aims to deliver an increase in vascular plant diversity per m².

Standard 12: Underpins Nature's Recovery

The purpose of Standard 12 is to “... ensure that opportunities to restore and improve the connectivity of existing and planned for habitats are taken” to help sustain “... wider ecological networks and nature recovery goals”.

Key characteristics of Standard 12 are to:

- identify and, where appropriate, protect existing and planned for key habitat areas for the benefit of priority species;
- identify and protect effective links with or stepping-stones to and from the Site and existing and planned for, local ecological networks, large-scale areas for wildlife and designated Sites beyond the Site;
- restore, enhance or create effective links with existing on-Site habitats (where present) and existing and planned for ecological habitats and networks beyond the Site; and
- maximise the potential for effective linkages between habitats and enhancement of adjacent and nearby wildlife assets and networks.

4.30 The design of the Proposed Development has been informed by habitat and protected and notable species surveys. Negative impacts on important ecological features have been avoided as far as practicably possible. Where unavoidable impacts have been identified, appropriate mitigation has been identified.

4.31 In line with the DECCA framework, the landscape and ecology measures have been designed with the primary aim of restoring poorly functioning or unfavourable habitats and delivering enhanced conditions. This includes infilling defunct hedgerows, relaxing hedgerow management, restoring waterbodies and ditches, and enhancing grasslands that are currently subject to agricultural input. Creating a softer woodland edge (in Field 26), creating new mosaics and ecotones and reconnecting the landscape drives up the ability of ecosystems to adapt to our changing climate. Diverse habitats would increase colonisation of an array of fauna, which would in turn support seed dispersal, pollination and nutrient cycling

5 NET BENEFIT FOR BIODIVERSITY

- 5.1 The Proposed Development has integrated the stepwise approach as part of the design optioneering process.
- 5.2 Information on the relevant mitigation / restoration and enhancement measures are set out in Table 5.1 below. This includes the relative functions and benefits of each habitat type or landscape feature proposed, the minimum extents to be delivered and how the features adhere to the DECCA framework has been incorporated with the aim of achieving a Net Benefit for Biodiversity.

Table 5.1: Features Proposed as Part of the Proposed Development

Existing Habitat	Proposed Biodiversity Measure	Nature Proposal	Area / Length / Quantity of Proposed Measure	DECCA Framework
Grasslands				
Poor Semi-Improved Grassland	Lowland meadow – managed through cutting	Enhancement	6.87 ha	Diversity Pond and wetland restoration to deliver enhanced ecotones Enhancement of existing relic hedgerow with grassland tussocks and tall wildflowers to increase structural and vascular plant diversity Increase in vascular plant diversity through enhancement of all grassland parcels within Site (under and outside of photovoltaic arrays) Newly proposed woodland meadow, scrub edge, and shrub / grassland mosaic proposed to increase habitat composition within Site New hedgerow trees within defunct hedgerows and hedgerows with gaps to enhance structural diversity of existing hedgerows.
	Lowland meadow / tall wildflower mosaic – managed through cutting	Enhancement	5.62 ha	
	Wet meadow – managed through low intensity grazing ⁹	Enhancement	61.41 ha	
	Wet meadow – managed through cutting	Enhancement	2.23 ha	
	Tussock grassland and ruderal	Enhancement / restoration	0.34	
Hedgerows				
Poor semi-improved grassland	Proposed hedgerows	Creation	3.24 km	Extent Over 3 km of species-rich hedgerows proposed. Additionally, over 1 km of existing species-rich and species-poor hedgerows are to be enhanced through relaxed management and new hedgerow trees. New border hedgerows would create a double hedge with the existing boundary hedgerow.
Species-rich and species-poor hedgerows	Enhanced hedgerows	Enhancement	1.24 km	
Species-poor	Proposed hedgerows	Restoration and enhancement	0.49 km	

⁹ Includes 23.04 ha of grassland underneath photovoltaic arrays

Existing Habitat	Proposed Biodiversity Measure	Nature Proposal	Area / Length / Quantity of Proposed Measure	DECCA Framework
defunct hedgerow	hedgerow with trees			Installation of wildlife boxes to increase opportunities available for nesting birds and roosting bats.
Trees and Woodland				
Poor semi-improved grassland	Native tree planting (scrub edge)	Creation	0.40 ha	<p>Increase in vegetation cover of bare ground and open vegetation habitats currently subject to trampling and grazing pressure</p> <p>Connectivity Infilling defunct hedgerows and hedgerows with gaps to increase connectivity within the Site and to the wider landscape</p>
	Lowland meadow and native tree planting	Creation and enhancement	0.83 ha	
	Woodland meadow planting / tree planting	Enhancement and creation	0.09 ha	
Wetland				Expanding wooded connectivity through new border hedgerows and native tree planting (scrub edge) to reduce fragmentation.
Marginal / Inundation – Open vegetation	Wetland planting and pond enhancement	Restoration	0.16 ha	Taller swards, tussock grassland and tall wildflower mosaics linking hedgerows, scrub, woodland and new grasslands
Dry ditch / poor semi-improved grassland banksides	Riparian zone and Ditch Enhancement	Restoration / enhancement	0.10 ha	Condition Restoration and enhancement of poorly functioning habitats and features in unfavourable condition (such as the waterbody and associated open vegetation, watercourse/ditches, defunct hedgerows, species-poor hedgerows and poor semi-improved grasslands) through management techniques and introduction of native vascular plants
Poor semi-improved grassland	Drainage Features (interceptor channels)	Creation	0.91 km	Adaptability Reconnecting and bolstering existing defunct hedgerows, to increase their adaptability to changing weather patterns
Wildlife Boxes				
Broadleaved woodland	Schwegler 1B 32 mm bird box	Creation	x2	<p>Developing a softer woodland edge (in Solar Area East) to increase the ability of the woodland to endure changing weather patterns and environmental hazards</p> <p>Tree planting and grassland enhancement to increase Site's ability to sequester carbon.</p> <p>Increase in the invertebrate pollinator assemblage through vascular plant diversity, thus contributing to food security. Better quality, more diverse</p>
	Schwegler 2FN bat box		x1	
	Schwegler 2FD bat box		x1	
Dense scrub	Schwegler 2M 32 mm bird box	Creation	x2	

Existing Habitat	Proposed Biodiversity Measure	Nature Proposal	of Area / Length / Quantity of Proposed Measure	DECCA Framework
				<p>grasslands to support soil health and structure, soil erosion, nutrient cycling and water management.</p> <p>Natural SuDS to improve water management.</p>

6 CONCLUSION

- 6.1 The Proposed Development would provide a source of sustainable renewable energy, helping to reduce carbon emissions and strengthen energy security by reducing reliance on imported fossil fuel energy sources.
- 6.2 The Proposed Development has been designed considering local policy, the existing ecosystem baseline and its functioning, and has adhered to the step-wise approach. The design respects the wider context of natural and semi-natural features, minimising its impact on the environment and nearby communities, and maximising wider environmental and community benefits for the lifetime of the project, including green infrastructure.
- 6.3 The LEDS Strategy provides an outline on the proposed creation, restoration and enhancement that respond to both local and national policy. This includes the retention, protected maintenance of habitats from construction through to operation to ensure impacts are minimised and benefits are maximised. In addition to landscape and biodiversity benefits, the Proposed Development would provide wider ecosystem services as an indirect consequence of the proposals including food and water security and elevated carbon sequestration.
- 6.4 This statement - along with the wider planning application documents - demonstrates the multi-functional benefits of the Proposed Development.