Larnog Solar Farm

Green Infrastructure Statement

November 2026

Issue Sheet

Report Prepared for: Trydan Gwyrdd Cymru

Green Infrastructure Statement

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Acronyms

Term	Description
BESS	Battery Energy Storage System
BMV	Best and Most Versatile
BwN	Building with Nature
DECCA	Diversity, Extent, Condition, Connectivity and Adaptability
ES	Environmental Statement
GI	Green Infrastructure
GIS	Green Infrastructure Statement
ha	Hectares
LDP	Local Development Plan
LNR	Local Nature Reserve
LVIA	Landscape and Visual Impact Assessment
MW	Megawatt
NBB	Net Benefit for Biodiversity
NLCA	National Landscape Character Area
NRW	Natural Resources Wales
oLEMP	Outline Landscape and Ecological Management Plan
PDAS	Planning Design and Access Statement
PPW	Planning Policy Wales
PPW12	Planning Policy Wales Edition 12
PRF	Potential Roost Feature
PV	Photovoltaic
RLDP	Replacement Local Development Plan
SAC	Special Area of Conservation
SINC	Site of Importance for Nature Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TAN	Technical Advice Note
WTR	Wildlife Trust Reserve

1. Introduction

1.1. Overview

1.1.1. WSP ('the Agent') have been instructed by Trydan Gwyrdd Cymru ('Trydan') ('the Applicant') to prepare and submit a full planning application for the proposed Larnog Solar Farm, Cosmeston, Vale of Glamorgan (hereafter, the 'Proposed Development') for:

The construction and operation of a ground-mounted solar photovoltaic (PV) farm with a gross electrical output capacity to the distribution grid network in the region of 35MW and associated infrastructure, including substation and a Battery Energy Storage System (BESS).

1.2. The Green Infrastructure Statement (GIS) should be read in conjunction with the accompanying Planning Design and Access Statement (PDAS), which sets out the justification for the Proposed Development in planning terms and the design rationale, and the Environmental Statement (ES), which sets out an assessment of the likely significant environmental effects of the Proposed Development; and the Net Benefit for Biodiversity (NBB) Report, which sets out the approach to delivering biodiversity enhancement and net benefit through the Proposed Development.

1.3. This GIS has been prepared in line with Planning Policy Wales Edition 12 (PPW12)[1], which includes a requirement for a GIS to be submitted with all planning applications. The GIS is seen as an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site and how the step-wise approach has been applied (Paragraph 6.2.12). The GIS has also been informed by the 'Delivering High Quality Green Infrastructure in Wales' briefing paper published by Building with Nature (BwN) (November 2023)[2] and 'Designing for Renewable Energy in Wales' published by the Design Commission for Wales (December 2023)[3].

1.4. Green infrastructure is defined in PPW12, in Paragraph 6.2.1, as:

"Green infrastructure is 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

[1] Welsh Government (2024) *Planning Policy Wales, Edition 12*. February 2024. Available online at: https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf
[2] Building with Nature (2023) *Delivering High Quality Green Infrastructure in Wales: A Briefing for Developers, Planners and Placemakers*. November 2023. Available online at: https://static1.squarespace.com/static/5c45e569c3c16a9eac56d244/t/6565ccf1517d747aa68af45c/1701170419121/Briefing_Paper_BwN_and_Planning_Policy_in_Wales_v1.0.pdf [static1.sq...espace.com]
[3] Design Commission for Wales (2023) *Designing for Renewable Energy in Wales*. December 2023. Available online at: https://www.gov.wales/designing-renewable-energy-wales

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".

1.5. Purpose and structure of the document

1.5.1. The GIS describes how green infrastructure has been incorporated into the design of the Proposed Development and how the step-wise approach has been applied. It demonstrates the multifunctional benefits associated with the Proposed Development and considers the contribution of the proposals to Net Benefit for Biodiversity (NBB) and ecosystem resilience. The BwN framework has also been used as a supporting good-practice framework for considering the multifunctionality of the proposed green infrastructure.

1.5.2. The GIS is structured as follows:

- **Section 1: Introduction** –sets out the purpose of the statement and explains the methodology that has been utilised;
- **Section 2: Summary of the Proposed Development** – sets out an overview of the Proposed Development and Site location;
- **Section 3: Policy Context** – sets out the relevant local, national and regional policy and guidance;
- **Section 4: Scheme Strategy** – outlines the objectives, design strategy, and Green Infrastructure (GI) opportunities across the Site;
- **Section 5: Green Infrastructure Assessment** – assesses the Proposed Development against the PPW step-wise approach, considers ecosystem resilience through the DECCA framework, and considers the multifunctionality of the proposed green infrastructure using the BwN framework.
- **Section 6: Conclusion** – demonstrates the positive contribution the Proposed Development makes to GI.

1.6. Development of the Green Infrastructure Statement

1.6.1. This GIS follows PPW12 and Natural Resource Wales (NRW) guidance[4] on how to integrate and assess green infrastructure as part of the Proposed Development. The assessment methodology is summarised as follows:

- **Policy and guidance context:** a review of national, regional, and local policy has been carried out to ensure that the Proposed Development incorporates best practice and green infrastructure priorities;
- **Green infrastructure assets:** Green infrastructure datasets from NRW's Data Map Wales/LANDMAP have informed the green infrastructure baseline for the Proposed Development;
- **Scheme development:** the design of the Proposed Development has been informed by the existing green infrastructure network and the ecological and landscape evidence prepared for the planning application. The evolving design has sought to retain and protect existing green infrastructure assets wherever practicable and incorporate opportunities for habitat creation, enhancement and improved ecological connectivity; and
- **Green Infrastructure assessment:** the assessment considers the application of the PPW step-wise approach and the contribution of the Proposed Development to ecosystem resilience through the DECCA framework. The Building with Nature Standards Framework 2.0 has also been used as a supplementary good-practice framework to consider the multifunctionality of the proposed green infrastructure. The 12 Building with Nature Standards which have informed the assessment are summarised in **Table 1**.

Table 1 – Building with Nature Standards

Building with Nature Standards	
Core Standards	
Standard 1	Optimises Multifunctionality and Connectivity
Standard 2	Positively responds to the Climate Emergency
Standard 3	Maximises Environmental Net Gains
Standard 4	Champions a Context Driven Approach
Standard 5	Creates Distinctive Places
Standard 6	Secures Effective Place-keeping
Wellbeing Standards	
Standard 7	Brings Nature Closer to People
Standard 8	Supports Equitable and Inclusive Places
Water Standards	

[4] Natural Resources Wales (2021) Green Infrastructure Assessments: A Guide to Key Natural Resources Wales' Datasets and How to Use Them as Part of a Green Infrastructure Assessment (Guidance Note 042). [Online] Available at: https://naturalresources.wales/media/696780/gn042-green-infrastructure-assessments-final.pdf [Accessed April 2026].

Building with Nature Standards	
Standard 9	Delivers Climate Resilient Water Management
Standard 10	Brings Water Closer to People
Wildlife Standards	
Standard 11	Delivers Wildlife Enhancement
Standard 12	Underpins Nature's Recovery

2. Overview of the Proposed Development

2.1. Site Description

2.1.1. The Application Site (hereafter referred to as "the Site"), as shown on Figure 1 below, is located within the administrative area of the Vale of Glamorgan Council, on land between the settlements of Penarth and Sully. The Site lies approximately 500 metres south-west of Penarth and approximately 550 metres east of Sully, on open coastal farmland to the south of the B4267 Lavernock Road.

2.1.2. The Site comprises approximately 46.54 ha of agricultural land, with defined hedgerow boundaries and clusters of woodland. The Site sits within an area of land owned and managed by Welsh Government. The wider Land Ownership Boundary and Site are illustrated in **Figure 2.1**. The Site is bounded to the west by the B4267 Lavernock Road, and the Glamorgan Coast to the east and south.

2.1.3. There are a number of isolated farmsteads and individual residential properties in the vicinity of the Site, including dwellings located along Fort Road and St Mary's Well Bay Road. The nearest residential properties are located adjacent to the south-western and eastern boundaries of the Site, including a dwelling on St Mary's Well Bay Road and properties at Ty-r-Orsaf and along Fort Road.

2.1.4. The Bay Caravan Park is located immediately south of the Site. Marconi Holiday Park is situated approximately 130 m to the southeast of the Site, whilst the Upper Cosmeston Farm development and Ysgol Llyn Derw (Ysgol-y-Derw) are located to the north of the Site. The settlements of Sully and Penarth comprise the nearest concentrations of residential receptors, with additional recreational receptors located at Cosmeston Lakes Country Park, approximately 0.3km north of the Site boundary.

2.1.5. The Site comprises predominantly arable agricultural land, divided into a series of irregular fields by established hedgerows, trees and occasional areas of woodland. Predictive Agricultural Land Classification mapping identifies the agricultural land as principally Grade 3b and Grade 4, and therefore not classified as Best and Most Versatile (BMV) agricultural land. In addition to the arable fields, the Site contains parcels of semi-natural broadleaved and mixed woodland, scrub, semi-improved grassland, standing water and drainage features. Hedgerows and woodland within the Site constitute Priority Habitats under the Environment (Wales) Act 2016. There is no ancient woodland within the Site boundary. Collectively, the existing hedgerows, trees, woodland, grassland, standing water and drainage features form the principal green infrastructure framework within the Site. These features provide habitat, landscape structure, ecological connectivity and water-management functions and have therefore formed an important consideration in the design of the Proposed Development.

2.1.6. The Site is located within an ecologically sensitive coastal landscape. The Severn Estuary, located 160m to the east, is designated as a Special Area of Conservation (SAC), Special Protection Area (SPA), Ramsar site and Site of Special Scientific Interest (SSSI). A number of other statutory nature conservation sites are located nearby, including Penarth Coast SSSI, adjacent to the south-eastern boundary; Cosmeston Lakes SSSI, approximately 400 m to the north; Sully Island SSSI, approximately 1 km to the south; and Cog Moors SSSI, approximately 1.5 km to the north-west. Cosmeston Lakes Country Park Local Nature Reserve is also located north of the Site, while the Lavernock Point Wildlife Trust Reserve lies adjacent to its south-eastern boundary.

2.1.7. At the local level, the Lavernock Point East and Ty-r-Orsaf Sites of Importance for Nature Conservation (SINCs) are located in close proximity to the Site boundary. The Site also lies within a designated B-Lines area, forming part of an identified network of habitat corridors for pollinating insects. Together with the existing hedgerows, woodland, grassland and water features within the Site, these designations and habitats provide an important ecological and green infrastructure context for the Proposed Development and have informed the consideration of sensitive receptors and the emerging layout.

2.2. The Proposed Development

2.2.1. The Proposed Development comprises a ground-mounted solar photovoltaic (PV) development with a total installed capacity of approximately 35 MW, comprising approximately 50,000 to 55,000 solar PV modules, with the final number subject to detailed design and equipment selection. The PV modules would be mounted on fixed-tilt support structures facing south. The solar arrays would be supported by associated electrical and operational infrastructure, including inverters, transformers, switchgear, a Project Substation and control equipment, together with underground cabling, internal access arrangements, security fencing and other ancillary infrastructure.

2.2.2. The Proposed Development would also include a Battery Energy Storage System (BESS), enabling electricity generated by the solar development to be stored and exported when required and providing support to the electricity network. The BESS would comprise battery storage units and associated power conversion, transformer, switchgear, control, safety and ancillary infrastructure. The development would connect to the electricity distribution network, with the final point of connection to be determined through the ongoing grid connection process.

3. Context

3.1. Introduction

3.1.1. The relevant national, regional and local green infrastructure planning policy has been summarised below. Further detail of all relevant policy is set out in the PDAS, to be read in conjunction with this GIS.

3.2. National Policy

Future Wales – The National Plan 2040

3.2.1. Future Wales: The National Plan 2040 (referred to as "Future Wales" hereafter) was adopted in February 2021 and forms the highest tier of the development plan in Wales. It sets out the Welsh Government's national development framework and spatial priorities, including those relating to decarbonisation, renewable energy, biodiversity, ecosystem resilience and green infrastructure.

3.2.2. The policies of relevance to the GIS are:

- **Policy 9 'Resilient Ecological Networks and Green Infrastructure'** – "*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*".
- **Policy 17 'Renewable and Low Carbon Energy and Associated Infrastructure'** – provides strong support for the principle of developing renewable and low carbon energy from all technologies and at all scales. In addition to contributing towards Wales' decarbonisation and renewable energy objectives, proposals should seek to minimise potential adverse impacts and provide positive social, economic, environmental and cultural benefits. In the context of this GIS, the environmental benefits and effects of the Proposed Development are considered alongside the requirements of Policy 9, PPW12 and the measures incorporated to protect and enhance biodiversity and ecosystem resilience.

Planning Policy Wales

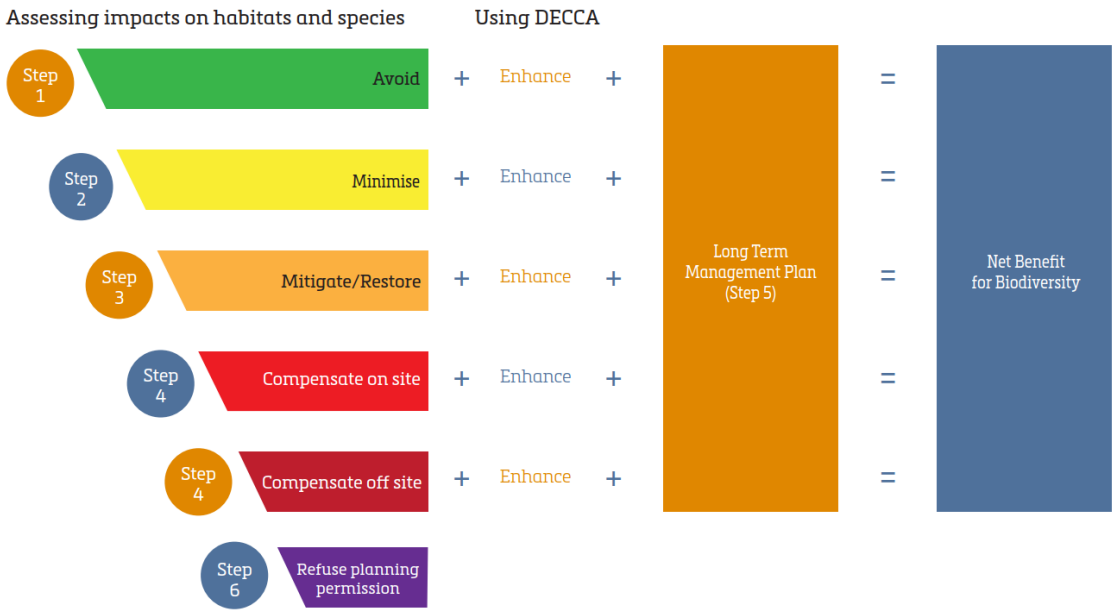
3.2.3. PPW12[5] sets out the land use planning policies of the Welsh Government, with the primary objective of the document being to ensure that the planning system contributes to the delivery of sustainable development, improving the social, economic, environmental and cultural well-being of Wales.

[5] Welsh Government (2024) Planning Policy Wales. [Online] Available at: https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf [Accessed April 2026]

3.2.4. PPW12 introduced new policy in relation to GI, securing net benefit for biodiversity, strengthening protection of SSSIs and promoting new tree planting. More detail on these changes is provided below:

- **Green Infrastructure** – green infrastructure assessment policy text was strengthened, with Local Planning Authorities given additional responsibilities to adopt a strategic and proactive approach to GI. Paragraph 6.2.12 of PPW12 notes that a proportionate GIS should be submitted with all planning applications. This should highlight any baseline data considered, and surveys and assessments undertaken, including habitats and ecological management plans, open space assessments and green space provision and active travel links.
- **Net Benefit for Biodiversity (NBB) and the Step-wise Approach** – PPW12 sets out a requirement for development to provide NBB and improve, or enable the improvement, of the resilience of ecosystems, through the application of the step-wise approach, where enhancement and long-term management should be considered at each step. The use of GIS as a means of demonstrating the step-wise approach is explicit. The diagram which provides a summary of the approach in PPW12 is shown in **Figure 1**.
- **Protection for SSSIs** – PPW12 aims to strengthen the protections afforded to SSSI areas. It states that development in an SSSI must be avoided, unless necessary for the management of the site, with presumption against development likely to damage an SSSI. However, paragraph 6.4.27 notes that development may be approved in exceptional circumstances and where considered appropriate, where not likely to damage the SSSI with broad and clear mitigation and enhancement provided as part of the development.
- **Trees and Woodland** – Paragraph 6.4.42 states that planning authorities must first follow the step-wise approach where trees and hedgerows are removed as part of a proposed scheme. Where loss of greenery is unavoidable, compensation will be required through replacement planting.

Figure 1 - Step-wise Approach from PPW12



Technical Advice Note 5: Nature Conservation and Planning (2009)

3.2.5. This Technical Advice Note (TAN) [6] provides advice on how the land-use planning system should contribute to protecting and enhancing biodiversity and geological conservation. In relation to GI, the TAN states that development policies and supplementary planning guidance should promote opportunities for the incorporation of wildlife and geological features within the design of the development.

3.2.6. This TAN also sets out the key principles for planning for nature conservation, provides advice for the preparation and review of development plans, including relevant statutory requirements, and addresses nature conservation in development control procedures. It also deals with the conservation of internationally, nationally and locally designated sites and habitats, and the conservation of protected and priority species.

3.3. Local Planning Policy

3.3.1. The Proposed Development is located within the administrative area of Vale of Glamorgan Council. The adopted Local Development Plan (LDP) 2011-2026 was adopted by the Council in June 2017. The LDP provides the overarching strategic planning framework for the Vale of Glamorgan to 2026.

[6] Welsh Government (2009) Technical Advice Note 5: Nature Conservation and Planning. [Online] Available at: https://www.gov.wales/sites/default/files/publications/2018-09/tan5-nature-conservation.pdf [Accessed April 2026]

3.3.2. The Council is also preparing a Replacement Local Development Plan (RLDP), which will provide the development plan framework for the period to 2036 and is a material consideration insofar as its emerging policies are relevant to the Proposed Development.

3.3.3. The policies considered to be of relevance to green infrastructure and the Proposed Development are summarised in **Table 3-1**.

Table 3-1: Summary of relevant LDP policies

Policy Title	Summary
SP10 – Built and Natural Environment	Seeks to protect and enhance the built and natural environment, including landscape, biodiversity, habitats and heritage assets. Development should avoid unacceptable harm to designated and non-designated environmental assets and respond appropriately to their setting. Of particular relevance to green infrastructure, proposals should seek to retain and enhance existing landscape and ecological features, protect sensitive sites and habitats, and incorporate appropriate mitigation and opportunities for biodiversity enhancement.
Policy MG18 – Green Wedges	Seeks to protect the openness and undeveloped character of designated Green Wedges, maintaining the separation of settlements and preventing their coalescence. Development within Green Wedges should avoid unacceptable impacts on their open character and function, with particular regard to the siting, scale and design of development and its relationship with the surrounding landscape. Retention of existing landscape features and appropriate landscaping can help maintain the character and integrity of the Green Wedge.
Policy MD1 – Location of New Development	Sets out principles for the appropriate location of new development, including development outside defined settlement boundaries where its location is justified. Development should minimise adverse impacts on the natural environment and local character, make efficient use of land and existing infrastructure, and avoid unacceptable effects in relation to matters such as agricultural land, flood risk and the water environment. Proposals should contribute towards sustainable development while responding appropriately to the environmental characteristics and constraints of their location.
Policy MD2 – Design of New Development	Requires new development to achieve a high standard of design that responds positively to its local context and character, including through appropriate scale, form, layout and landscaping. Of particular relevance to green infrastructure, development should protect and enhance existing landscape and ecological features, incorporate appropriate landscaping and biodiversity enhancements, and minimise adverse effects on the natural environment and surrounding amenity. Design should also respond appropriately to climate change and sustainability considerations.

Policy Title	Summary
Policy MD7 – Environmental Protection	Requires development to demonstrate that it will not result in unacceptable impacts on the natural environment or environmental quality, including from pollution, contaminated land, noise, air quality and lighting. Development should also appropriately address flood risk, drainage and the water environment, ensuring that environmental effects are avoided or minimised through appropriate design and mitigation. The protection of soil and agricultural land resources is also an important consideration where relevant to the development.
Policy MD9 – Promoting Biodiversity	Requires development proposals to conserve and enhance biodiversity, including the protection of designated sites, priority habitats and species. Development should retain and protect existing ecological features and seek opportunities for habitat creation, enhancement and improved ecological connectivity. Appropriate mitigation, management and enhancement measures should be incorporated into proposals to minimise adverse effects and deliver biodiversity benefits.

3.4. Green Infrastructure Assets

Introduction

3.4.1. PPW12 paragraph 6.12.13 states that a GIS should highlight the baseline data considered, along with the surveys and assessments undertaken to establish such baseline. These are described in ES Chapter 7 Biodiversity.

3.4.2. The baseline ecological conditions were informed by the following:

- Preliminary Ecological Appraisal, based on:
  - Ecological desk study;
  - Extended Phase 1 Habitat Survey;
- Close inspection surveys of Potential Roost Features (PRFs) in trees;
- Bat activity surveys;
- Wintering birds survey;
- Threatened arable plant survey; and
- Arboricultural Survey.

3.4.3. A summary of the green infrastructure assets is provided below.

Green Infrastructure Network

3.4.4. The Site contains an established network of green infrastructure assets associated with its agricultural and coastal landscape. The principal assets comprise the existing hedgerow and field-boundary network; individual trees, tree groups and woodland blocks; areas of scrub and semi-improved grassland; standing water, ponds, ordinary watercourses, field ditches and other drainage features; and the agricultural fields themselves. Public Rights of Way (PRoW) crossing and adjoining the Site also provide a recreational component of the green infrastructure network and connect the Site with the Wales Coast Path and surrounding countryside.

3.4.5. The existing hedgerows and field boundaries provide the principal structural framework within the Site. In addition to defining the established field pattern and contributing to local landscape character, they provide linear habitat connections between woodland, scrub, grassland and water features. Trees, woodland and hedgerows within the Site include Priority Habitats under Section 7 of the Environment (Wales) Act 2016 and provide opportunities for nesting, sheltering, foraging and movement by a range of species.

3.4.6. The Site's water-related assets include ponds, standing water, field ditches, ordinary watercourses and drainage features. These features contribute to surface-water conveyance and habitat diversity and, together with their associated terrestrial margins, form part of the wider ecological network. No statutory main rivers are present within the Site, but the existing drainage network ultimately connects towards St Mary's Well Bay and the Bristol Channel.

3.4.7. Although the Site is predominantly arable agricultural land, the combination of its boundary features, woodland, trees, scrub, grassland and water features creates an interconnected green infrastructure framework. The existing arable fields are generally of comparatively lower ecological value than the semi-natural habitats, but they provide foraging habitat for some species and support arable plants and ground-nesting birds, including skylark.

3.4.8. The Site-level network also connects with green infrastructure assets in the surrounding landscape. These include the coastal habitats and designated sites associated with Penarth Coast and the Severn Estuary, the habitats at Lavernock Point, nearby Sites of Importance for Nature Conservation, the wider B-Lines network and the landscape and ecological network associated with Cosmeston Lakes Country Park. The relationship between the Site and these wider assets has informed consideration of habitat connectivity, sensitive receptors and opportunities for enhancement.

3.4.9. These existing green infrastructure assets established the framework for the design of the Proposed Development. Higher-value habitats and features have been retained and protected wherever practicable, with solar infrastructure focused primarily within existing arable fields. The proposed green infrastructure strategy builds upon this retained framework through habitat creation, enhancement and long-term management, as described in Sections 4 and 5 of this GIS.

Nature Conservation Designations and Wider Ecological Context

3.4.10. The Site-level green infrastructure network sits within a wider ecological context that includes internationally, nationally and locally designated sites, coastal habitats and identified habitat-connectivity networks.

3.4.11. The principal designations and wider ecological assets considered in establishing the baseline are summarised in Table 3-2.

Table 3-2: Designated Sites and Other Nature Conservation Features

Site name	Designation	Nature Conservation Importance	Approximate distance from site and key attributes
Severn Estuary (Wales)	Special Area of Conservation (SAC)	International	Located 160m east of the Site. The Severn Estuary is designated as a SAC due to the presence of the following Annex I habitats and Annex II species: • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; and • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*). The Severn Estuary SAC is also designated for the following Annex II species: • Sea lamprey (*Petromyzon marinus*); • River lamprey (*Lampetra fluviatilis*); and • Twaite shad (*Alosa fallax*). The following Annex I habitats are present as a qualifying feature, but not a primary reason, for selection of this site: • Sandbanks which are slightly covered by sea water all the time; and • Reefs.
Severn Estuary (Wales)	Special Protection Area (SPA)	International	Located 160m east of the Site. The Severn Estuary SPA supports the following qualifying features:

Site name	Designation	Nature Conservation Importance	Approximate distance from site and key attributes
			• An internationally important wintering population of Bewick's swan (*Cygnus columbianus bewickii*); • Over 20,000 waterfowl in winter, including international important numbers of European white-fronted goose (Anser *albifrons albifrons)*, shelduck (*Tadorna tadorna)*, gadwall (*Anas strepera)*, dunlin (*Calidris alpina)*, and redshank (*Tringa tetanus)*. It also supports nationally important wintering populations of a further ten species, nationally important passage populations of four species, and a nationally important breeding population of one species.
Severn Estuary (Wales)	Ramsar	International	Located 160m east of the Site. The Severn Estuary Ramsar consists of an extensive intertidal zone and qualifies as a Ramsar due to the presence of the following Annex I habitats: • Sandbanks which are slightly covered by sea water all the time; • Estuaries; • Mudflats and sandflats not covered by seawater at low tide; and • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*). The Ramsar also qualifies due to: • Unusual estuarine communities, reduced diversity and high productivity; • The run of migratory fish between sea and river via estuary, including salmon (*Salmo salar*), sea trout (*Salmo trutta*), sea lamprey, river lamprey, allis shad (*Alosa alosa*), twaite shad and eel (*Anguilla anguilla*); • Migratory birds during spring and autumn;

Site name	Designation	Nature Conservation Importance	Approximate distance from site and key attributes
			• High fish diversity, with over 110 species recorded. The species listed in bullet point two use the Severn Estuary as a key migration route to their spawning grounds. It is also an important feeding and nursery ground, particularly for allis shad and twaite shad; • 70919 waterfowl with peak counts in winter, and thus an assemblage of international importance; • Peak counts of tundra swan (*Cygnus columbianus bewickii*), greater white-fronted goose, common shelduck, gadwall, dunlin, and common redshank; • Supporting of lesser black-backed gull (*Larus fuscus graellsii*) during the breeding season; • Supporting ringed plover (*Charadrius hiaticula*), which has peak counts in spring/autumn; and • Supporting Eurasian teal (*Anas crecca)*, and Northern pintail (*Anas acuta)*, both with peak counts in winter.
Penarth Coast	Site of Special Scientific Interest (SSSI)	National	Located adjacent to the Site. This coastal section is regarded as the type locality for the Penarth Group, showing an extensive section from the Blue Anchor Formation to the Lower Lias. The site also includes some species rich calcareous grassland and cliff-top scrub which supports a number of plant species of limited occurrence.
Severn Estuary	SSSI	National	Located 160m east of the Site. The Severn Estuary SSSI forms part of a larger area which includes the Upper Severn Estuary SSSI and Bridgwater Bay SSSI. The larger area of the Severn Estuary is designated a Special Protection Area under the 'EEC Wild Birds Directive' and a Wetland of International Importance under the Ramsar Convention.

Site name	Designation	Nature Conservation Importance	Approximate distance from site and key attributes
			The estuarine fauna includes internationally important populations of waterfowl, invertebrate populations of considerable interest, and large populations of migratory fish, including the nationally rare allis shad.
Cosmeston Lakes Country Park	Local Nature Reserve (LNR)	Local	Cosmeston Lakes Country Park LNR includes the following habitats: coastal grassland, reedbeds, meadows, lakes and ponds, woodland, rocky shores, dunes, cliffs, farmland and commons.
Llynnoedd Cosmeston/ Cosmeston Lakes	SSSI	National	Llynnoedd Cosmeston/Cosmeston Lakes is situated 2km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort (*Nitellopsis obtusa)*.
Sully Island	SSSI	National	The excellent sea-cliff exposures of Sully Island provide sections in the marginal facies of the Triassic Mercia Mudstone Group. These rocks include a series of breccias and sands, interpreted as lake-shore deposits which are overlain by nodular evaporites and carbonates. It additionally provides the main roost site for feeding winter waders in the Teff/Ely Estuary, supporting up to 100% of the dunlin, grey plover (*Pluvialis squatarola)* and ringed plover, and over 50% of the redshank and knot (*Calidris canutus)* populations within this area.
Cog Moors	SSSI	National	Cog Moors is situated approximately 2km east of Barry and consists of a series of fields adjacent to Sully Brook. This site is of special interest for its large continuous area of damp esotrophic (neutral) seminatural grassland, which is associated with several stands of tall sedges, and for populations of two uncommon plant species.

Site name	Designation	Nature Conservation Importance	Approximate distance from site and key attributes
Lavernock Point	Wildlife Trust Reserve (WTR)	Local	Lavernock is made up of multiple habitats, principally coastal Jurassic limestone grassland and scrub, along with ash wood and meadow. It hosts species including the purple hairstreak butterfly (*Favonius quercus)* and adder's tongue fern (*Ophioglossum vulgatum)*.
Lavernock Point East	SINC	Local	No information available
Ty-r-Orsaf	SINC	Local	No information available
B-Lines	B-Lines - Buglife	Local	The B-Lines are a series of 'insect pathways' which have been established by Buglife. They run throughout the British countryside and towns, and act as a restorative series of wildflower-rich habitat stepping stones. They link existing wildlife areas together, creating a network which provides large areas of brand-new habitat benefiting bees and butterflies.
Cosmeston Lakes	SINC	Local	Llynnoedd Cosmeston/Cosmeston Lakes is situated 2km south of Penarth. It includes two lakes, created from flooded limestone quarries, which are connected by a narrow channel. One of the lakes is of special interest as the only known site in Wales for the presence of starry stonewort *Nitellopsis obtusa*.
Downs Wood	SINC	Local	No information available
Cog Moors	SINC	Local	Cog Moors is situated approximately 2km east of Barry and consists of a series of fields adjacent to Sully Brook.
Cogan Pond	SINC	Local	No information available
North of Cog Moors	SINC	Local	No information available
Pop Hill	SINC	Local	No information available

Arboricultural Assets

3.4.12. The Site contains a well-established network of arboricultural features associated with its agricultural landscape, including individual trees, groups of trees, established hedgerows and areas of semi-natural woodland. The Arboricultural Impact Assessment (AIA) records 131 arboricultural features, comprising 70 individual trees, 31 tree groups, 25 hedges and five woodlands. The tree resource is predominantly of moderate to low arboricultural quality, although a number of high-quality features are present and many trees and groups make a prominent contribution to the local landscape.

3.4.13. A number of trees, tree groups and woodlands within the Site are protected by Tree Preservation Order 008 'Swanbridge'. No ancient woodland or ancient or veteran trees were identified within influencing distance of the Site. The Proposed Development has been designed to retain existing trees as far as practicable, with no removal of individual trees, tree groups or woodlands anticipated to facilitate construction. Solar arrays and associated infrastructure have been positioned to avoid conflict with identified Root Protection Areas, with any necessary works close to retained trees to be controlled through an Arboricultural Method Statement.

National Landscape Character

3.4.14. There are no nationally designated landscapes, including National Parks or National Landscapes, within the Site or the surrounding Landscape and Visual Impact Assessment (LVIA) Study Area.

3.4.15. The Site is located within National Landscape Character Area (NLCA) 35: Cardiff, Barry and Newport. At the national scale, this character area encompasses an extensive and varied landscape containing major urban areas and infrastructure alongside areas of open countryside, including woodland, pasture, hedgerows, green wedges and corridors.

3.4.16. The Landscape and Visual Impact Assessment identifies that the Site and its immediate surroundings are more specifically characterised by a predominantly agricultural landscape of irregular fields enclosed by hedgerows, tree belts, tree groups and woodland blocks. Given the strategic scale of NLCA 35, the LVIA uses more geographically specific landscape evidence, including LANDMAP, to characterise the Site and its immediate surroundings.

Water environment

3.4.17. The Site's water features form an important component of the existing green infrastructure network described above. Ponds, ordinary watercourses, field ditches and other drainage features contribute to habitat diversity, ecological connectivity and the conveyance of surface water across the Site. As identified in the NBB Report, waterbodies are amongst the higher-value habitat features that have informed the design of the Proposed Development.

3.4.18. No statutory main rivers are present within the Site. Sully Brook is located approximately 250 m north of the Site, while several ordinary watercourses, drainage ditches and field drainage features are present within and adjacent to the Site. These include field ditches within the southern and south-eastern parts of the Site and a possible drainage ditch along St Mary's Well Bay Road. Surface water runoff generally follows the local topography towards these drainage features and ultimately towards St Mary's Well Bay and the Bristol Channel.

3.4.19. The wider water environment is influenced by the Site's proximity to the Severn Estuary, located approximately 160m to the east. The Estuary is subject to multiple international and national nature conservation designations, including the Severn Estuary SAC, SPA, Ramsar site and SSSI. These designations reflect the importance of the estuarine environment for its habitats and associated species.

3.4.20. Existing water features and their associated terrestrial habitats therefore form part of the ecological network considered within the design of the Proposed Development. The protection and enhancement of these features, and their relationship with the wider network of habitats across the Site, is considered further within the Scheme Strategy and Green Infrastructure Assessment sections of this GIS.

4. Scheme Strategy

4.1. Objective and Design Strategy

4.1.1. The green infrastructure strategy for the Proposed Development has evolved through an iterative and multidisciplinary design process, informed by the ecological and landscape baseline, environmental assessment, technical requirements and consultation. Green infrastructure has therefore been considered as an integral component of the design, rather than as mitigation added following development of the layout. The approach seeks to retain and strengthen the existing network of hedgerows, trees, woodland, grassland and other semi-natural habitats, while providing new and enhanced habitats which complement the existing landscape structure and improve ecological connectivity across the Site.

4.1.2. The established field pattern and associated hedgerows, trees and woodland have provided the principal framework within which the Proposed Development has been arranged. Habitats of comparatively high ecological value, including woodland, trees, scrub, hedgerows, field boundaries and waterbodies, have been retained and protected wherever practicable. Any proposed infrastructure has primarily been directed towards existing arable land of comparatively lower ecological value, while existing farm tracks, gateways and gaps in field boundaries have been incorporated into the layout where practicable to limit the loss and fragmentation of existing habitats. A 10 m buffer from existing field boundaries has also been incorporated into the design, providing protection to retained features and opportunities for complementary habitat enhancement.

4.1.3. The landscape and ecological strategy builds upon this retained framework through the strengthening and creation of hedgerows; native tree, scrub and traditional orchard planting; species-rich wildflower grassland and tussocky grassland margins; attenuation ponds and marginal wetland habitats; and targeted habitat features for a range of species. These measures have been designed to increase the diversity, extent, condition and connectivity of habitats across the Site and contribute towards NBB and improved ecosystem resilience.

4.1.4. The strategy is also intended to deliver multifunctional benefits. Landscape planting has been designed to reinforce existing locally characteristic vegetation patterns and integrate the Proposed Development into the established agricultural landscape, rather than relying solely on extensive screening. Ecological measures strengthen habitat connectivity and provide additional opportunities for protected and notable species, while the proposed landscape treatment associated with Public Footpath L1/5/2 combines habitat creation and landscape enhancement with improvements to the recreational setting of the route.

4.1.5. The landscape and ecological proposals are brought together through the Landscape and Ecological Masterplan and outline Landscape and Ecological Management Plan (oLEMP). These documents establish the framework for the implementation, establishment and long-term management of the proposed landscape and ecological measures throughout the operational lifetime of the Proposed Development.

4.2. Environmental Measures

4.2.1. The Proposed Development incorporates a range of green infrastructure measures which respond to the existing landscape and ecological context of the Site. Together, these measures seek to protect and enhance existing green infrastrucutre assets, create additional habitat and strengthen connections between habitats within and beyond the Site.

4.2.2. The principal measures include:

- Retention and protection of existing habitats: woodland, trees, scrub, hedgerows and field boundaries are retained wherever practicable, with solar infrastructure predominantly located within existing arable fields. Waterbodies are also avoided.
- Protection of existing field boundaries: a 10 m buffer is provided around existing field boundaries, with the retained margins providing separation between infrastructure and existing woody habitats and opportunities for tussocky grassland habitat.
- Hedgerow enhancement and creation: gaps and areas of existing species-poor hedgerow will be strengthened through supplementary native planting, alongside the creation of new hedgerows where appropriate. This will reinforce the existing landscape structure and improve habitat connectivity.
- Tree, scrub and orchard planting: native tree and scrub planting is proposed at targeted locations, including around the Project Substation Compound and between existing woodland blocks. A traditional orchard will provide an additional multifunctional landscape and ecological feature.
- Grassland creation and management: 10 m wide tussocky grassland margins will be established alongside retained and proposed woody features, together with species-rich wildflower grassland around the orchard and elsewhere within the Site. A varied mosaic of grassland and scrub will also be maintained adjacent to the Wales Coast Path.
- Wetland habitat: attenuation ponds and associated marginal wetland habitat will provide additional habitat diversity alongside their surface-water management function.
- Species-specific measures: dedicated skylark plots, bee banks, beetle banks, habitat piles and bat and bird boxes are proposed to provide additional nesting, sheltering, breeding and foraging opportunities.

- Recreation and accessibility: the landscape treatment associated with the proposed diversion of Footpath L1/5/2 includes a traditional orchard and species-rich habitat, providing an enhanced recreational setting while maintaining connectivity through the Site.

5. Green Infrastructure Assessment

5.1. Introduction

5.1.1. This section considers how the green infrastructure strategy for the Proposed Development responds to the requirements of Planning Policy Wales (PPW), including the application of the step-wise approach to maintaining and enhancing biodiversity and building resilient ecological networks. It draws principally upon the Net Benefit for Biodiversity (NBB) assessment undertaken for the Proposed Development, supported by the ecological, landscape and other environmental evidence prepared as part of the planning application.

5.1.2. The assessment considers how the design has sought firstly to avoid and minimise effects on biodiversity and existing green infrastructure assets, before considering mitigation, restoration and compensation where effects cannot be avoided. It also considers the contribution of the Proposed Development to ecosystem resilience through the DECCA attributes of diversity, extent, condition, connectivity and adaptability, and the opportunities provided to deliver a net benefit for biodiversity.

5.2. Step-wise approach

5.2.1. Planning Policy Wales (PPW) establishes a step-wise approach to maintaining and enhancing biodiversity and building resilient ecological networks. The approach requires consideration to be given firstly to avoiding damage to biodiversity and ecosystem functioning, before seeking to minimise effects and, where necessary, restore or compensate for unavoidable impacts. Enhancement should be secured through the development process to deliver a Net Benefit for Biodiversity (NBB).

5.2.2. The step-wise approach has informed the development and refinement of the Proposed Development. As set out within the NBB Report, the design has sought to retain and protect the existing ecological network as far as practicable and to focus development on areas of comparatively lower ecological value. Where effects cannot be avoided, measures have been incorporated to minimise and mitigate effects, alongside habitat creation and enhancement measures designed to increase habitat diversity, extent, condition and connectivity across the Site.

Avoid

5.2.3. Avoidance has been embedded within the design of the Proposed Development through the retention of habitats and features of higher ecological value wherever practicable. The layout has been developed to avoid woodland, trees, scrub, hedgerows, field boundaries and waterbodies, with development principally located within existing arable fields of comparatively lower ecological value.

5.2.4. The design has also sought to avoid impacts upon locally designated sites. The refined Site layout excludes development within the Lavernock Point East and Ty-r-Orsaf Sites of Importance for Nature Conservation (SINCs). Existing waterbodies and trees identified as having suitability for roosting bats have also been avoided.

5.2.5. The existing network of field boundaries has provided an important framework for development of the layout. A general 10 m buffer from existing field boundaries has been incorporated into the design, helping to protect retained hedgerows, trees and associated habitats. Existing access tracks, gateways and gaps within field boundaries have also been utilised wherever practicable, reducing the requirement for new access routes and additional breaks in hedgerows.

5.2.6. These measures demonstrate that avoidance has been considered at the outset of the design process, with existing habitats and ecological connections used to influence the location and arrangement of development rather than relying principally upon subsequent mitigation.

Minimise

5.2.7. Where effects cannot be avoided entirely, the Proposed Development incorporates measures to minimise impacts upon retained habitats and species during both the construction and operational phases.

5.2.8. The retention of hedgerows and tree lines will maintain the principal linear habitat connections across the Site. Where existing gateways require widening to accommodate construction and operational access, the extent of vegetation removal will be limited as far as practicable, generally comprising approximately 1 to 2 m on either side of an existing gateway where widening is required.

5.2.9. Construction-phase measures will further minimise the potential for indirect effects upon retained habitats and protected or notable species. The measures identified within the NBB Report include the implementation of Precautionary Methods of Working, Ecological Clerk of Works supervision where required, ecological toolbox talks, pollution prevention measures, appropriate controls over vehicle movements and working hours, and appropriate storage of construction materials and cut vegetation.

5.2.10. Together with the buffers incorporated within the layout, these measures seek to reduce disturbance, habitat damage and fragmentation where effects cannot be wholly avoided.

Mitigate and Restore

5.2.11. Where potential effects remain following avoidance and minimisation, measures are incorporated to mitigate those effects and restore and strengthen habitats within the Site.

5.2.12. Existing hedgerows will be retained and managed to improve their ecological function, with supplementary planting used to reinforce existing field boundaries where appropriate. Tussocky grassland margins, generally 10 m in width, will be established around retained and proposed woody features. These areas will provide complementary habitat alongside the existing network of hedgerows, trees and woodland and help strengthen habitat connectivity across the Site.

5.2.13. A grassland and scrub mosaic will also be maintained adjoining the Wales Coast Path, while habitat piles and artificial hibernacula will provide additional opportunities for sheltering and overwintering fauna. Management of scrub and bramble will be undertaken where appropriate to maintain a varied vegetation structure.

5.2.14. The NBB strategy also responds specifically to the potential effects upon breeding skylark. Eight dedicated skylark plots are proposed in response to the four potential breeding territories identified within the Site, providing suitable areas of habitat as part of the ecological strategy for the Proposed Development.

5.2.15. These measures will be supported by the ongoing management of habitats through the Landscape and Ecological Management Plan, providing a mechanism through which establishment and longer-term habitat objectives can be secured.

Compensate

5.2.16. Potential ecological effects have been addressed through the design and assessment process through avoidance, minimisation, mitigation and habitat restoration. Where effects could not be fully addressed through these measures, compensation has been incorporated within the Site, including dedicated skylark plots to compensate for the predicted loss or displacement of breeding habitat. All habitat enhancement, creation and compensation measures are provided on-site, with no off-site provision required.

5.2.17. The NBB Report identifies a range of on-site measures, including new native hedgerows and trees, traditional orchard and wildflower planting, attenuation ponds and marginal wetland habitats, together with bee banks, beetle banks and bat and bird boxes. The dedicated skylark plots also provide targeted habitat in response to the potential effects upon breeding skylark.

5.2.18. These measures form part of the wider landscape and ecological strategy and have been located and designed to complement retained habitats and strengthen the ecological network across the Site. The NBB Report does not identify a requirement for off-site compensation, with the necessary measures considered capable of being accommodated within the Site.

Enhancement and Net Benefit for Biodiversity

5.2.19. In addition to addressing the potential effects of the Proposed Development, the landscape and ecological strategy provides opportunities to enhance biodiversity and improve ecosystem resilience.

5.2.20. The Proposed Development will diversify land currently dominated by arable agriculture through the creation and management of a broader range of habitats. Enhancement of existing hedgerows and the creation of new hedgerows, trees, scrub, traditional orchard, species-rich and tussocky grassland and wetland habitats will increase the variety and extent of semi-natural habitat across the Site. These measures will also strengthen connections between existing habitats and provide additional nesting, sheltering and foraging opportunities for a range of species.

5.2.21. The NBB Report provides a qualitative assessment rather than a numerical biodiversity metric. It concludes that, subject to implementation of the proposed measures and their appropriate management through the Landscape and Ecological Management Plan, there is sufficient opportunity for the Proposed Development to deliver an overall NBB and improve ecosystem resilience over its operational lifetime.

5.2.22. The contribution of these measures to ecosystem resilience is considered further below through assessment of the DECCA attributes of Diversity, Extent, Condition, Connectivity and Adaptability.

5.3. Ecosystem Resilience and the DECCA Framework

5.3.1. PPW identifies the maintenance and enhancement of ecosystem resilience as an important component of securing NBB. Ecosystem resilience can be considered through the DECCA framework, comprising the attributes of Diversity, Extent, Condition, Connectivity and Adaptability.

5.3.2. The green infrastructure strategy for the Proposed Development has been considered against these attributes within the NBB assessment. The retention and protection of existing habitats, together with the proposed creation, enhancement and long-term management of habitats across the Site, provides opportunities to strengthen each of the DECCA attributes and thereby contribute to improved ecosystem resilience.

Diversity

5.3.3. The Proposed Development provides opportunities to increase the diversity of habitats present across the Site. The Site is currently predominantly characterised by agricultural land, with the more ecologically valuable features principally associated with the existing network of hedgerows, trees, woodland, scrub, field boundaries and water features.

5.3.4. The landscape and ecological strategy will supplement this existing habitat network through the creation and enhancement of a variety of habitat types, including species-rich and tussocky grassland, native hedgerows, trees and scrub, traditional orchard, attenuation ponds and associated marginal wetland habitat. Species-specific features, including bee and beetle banks, habitat piles, bat and bird boxes and dedicated skylark plots, will provide further variety in the ecological opportunities available across the Site.

5.3.5. Collectively, these measures will provide a broader range of habitat types and ecological niches than currently occurs across the predominantly agricultural parts of the Site, increasing habitat diversity and opportunities for a range of species.

Extent

5.3.6. The Proposed Development will retain the principal existing semi-natural habitats and complement these through additional areas of habitat creation and enhancement.

5.3.7. Existing hedgerows, trees, woodland and other higher-value habitats will be retained wherever practicable, while the proposed establishment of grassland, hedgerows, trees, scrub, orchard and wetland habitats will increase the extent of more diverse semi-natural habitats within the Site. In particular, management of land around retained field boundaries and woody habitats will extend the ecological function of those features beyond their existing footprint.

5.3.8. These measures will increase the overall extent and distribution of habitats capable of supporting biodiversity within the Site and complement the retained ecological network.

Condition

5.3.9. The strategy seeks to improve the condition and ecological functionality of existing and newly created habitats through appropriate establishment and long-term management.

5.3.10. Existing hedgerows will be retained and strengthened through supplementary native planting where appropriate, improving their structure, species diversity and ecological function. Grassland management will seek to establish a more varied sward structure and composition, while appropriate management of scrub, trees, orchard and other habitats will support their successful establishment and continued ecological value.

5.3.11. The Landscape and Ecological Management Plan will provide the mechanism for establishing management prescriptions and monitoring requirements for these habitats over the operational lifetime of the Proposed Development.

Connectivity

5.3.12. The existing network of hedgerows, trees, woodland and field boundaries provides important ecological connections through the Site and with habitats in the surrounding landscape. Retention of these existing linear features has therefore been an important consideration in development of the layout.

5.3.13. The proposed reinforcement and creation of hedgerows, tree and scrub planting and establishment of complementary grassland habitats will strengthen connections between retained habitats. The proposals will therefore seek to reduce fragmentation and establish a more coherent network through which species can move and disperse across the Site and into the wider landscape. These measures also complement the wider ecological connectivity associated with the B-Lines network.

Adaptability

5.3.14. The adaptability of ecosystems is influenced by the combined effects of their diversity, extent, condition and connectivity. Improving these attributes can increase the capacity of habitats and species to respond to changing environmental conditions and pressures.

5.3.15. By retaining the existing ecological framework and increasing the diversity, extent, condition and connectivity of habitats across the Site, the Proposed Development provides opportunities to improve the resilience of the local ecological network. A greater diversity of appropriately managed and interconnected habitats will provide a wider range of ecological niches and opportunities for species to move through the landscape, increasing the capacity of the network to adapt to pressures including climate change and other environmental change.

Overall contribution to ecosystem resilience

5.3.16. Taken together, the measures incorporated into the Proposed Development provide opportunities to strengthen each of the five DECCA attributes. As identified within the NBB Report, the combination of habitat retention, enhancement, creation and long-term management provides sufficient opportunity for the Proposed Development to deliver an overall Net Benefit for Biodiversity and improve ecosystem resilience over its operational lifetime.

5.4. Building with Nature Framework

5.4.1. Building with Nature provides a framework for considering the quality and multifunctionality of green infrastructure within new development. The framework considers green infrastructure through four principal themes: Core, Wellbeing, Water and Wildlife.

5.4.2. The Building with Nature framework has been used within this GIS as a useful means of considering the Proposed Development's green infrastructure strategy in the round, alongside the assessment against the PPW step-wise approach and DECCA attributes presented above. The assessment does not represent a formal Building with Nature accreditation assessment. Rather, it demonstrates how the landscape and ecological measures incorporated into the Proposed Development respond to the principles of multifunctional green infrastructure.

5.4.3. The Proposed Development's response to the four themes is summarised in Table 5.1.

Table 5.1 Assessment of the Proposed Development against the Building with Nature Themes

Building with Nature theme	Larnog Solar Farm response
Core	Green infrastructure has been considered as an integral part of the design evolution of the Proposed Development. The layout responds to the existing landscape and ecological framework, with higher-value habitats including woodland, trees, scrub, hedgerows, field boundaries and waterbodies retained and protected wherever practicable. Development has been focused principally within existing arable fields, while existing tracks, gateways and gaps in field boundaries have been used wherever practicable to reduce habitat loss and fragmentation. The retained green infrastructure network is supplemented by new habitat creation and enhancement, with long-term management to be delivered through the landscape and ecological management framework.
Wellbeing	The green infrastructure strategy provides opportunities for benefits beyond biodiversity. Existing public access through and around the Site has informed the landscape design, including the treatment associated with Public Footpath L1/5/2 and the landscape adjoining the Wales Coast Path. Proposed orchard, grassland and other planting will contribute to the setting of these routes, while the retention and reinforcement of existing landscape features will help maintain the rural landscape framework within which they are experienced.
Water	Existing waterbodies have been treated as features to be retained and protected within the design. The Proposed Development also incorporates attenuation ponds and associated marginal wetland habitats. These features provide opportunities for surface-water management to contribute simultaneously to habitat creation and biodiversity, adding to the diversity of habitats forming the green infrastructure network across the Site.

Building with Nature theme	Larnog Solar Farm response
Wildlife	The green infrastructure strategy seeks both to protect the existing ecological network and provide opportunities for enhancement. Existing woodland, trees, hedgerows, field boundaries and other higher-value habitats are retained wherever practicable and supplemented through native hedgerow, tree and scrub planting, traditional orchard, species-rich and tussocky grassland and wetland habitats. Dedicated skylark plots, bee and beetle banks, habitat piles and bat and bird boxes provide additional species-specific opportunities. Collectively, these measures are intended to increase habitat diversity, extent, condition and connectivity and provide sufficient opportunity to deliver an overall Net Benefit for Biodiversity and improved ecosystem resilience, subject to appropriate implementation and management.

5.4.4. Considered collectively, the Proposed Development demonstrates an integrated approach to green infrastructure which extends beyond biodiversity mitigation alone. The retention and reinforcement of the existing landscape and ecological framework, together with new habitat creation, water management and measures associated with public access, provide a multifunctional green infrastructure network which responds to the environmental characteristics of the Site. These measures complement the application of the step-wise approach and the measures identified to strengthen ecosystem resilience and provide opportunities to secure a Net Benefit for Biodiversity.

6. Conclusion

6.1.1. This Green Infrastructure Statement has been prepared to demonstrate how green infrastructure has been considered and incorporated into the design of the Proposed Development, with particular regard to the requirements of PPW. It should be read alongside the supporting documents submitted with the planning application, in particular the Planning Design and Access Statement (PDAS), Net Benefit for Biodiversity (NBB) Report, Biodiversity ES Chapter, Landscape and Visual ES Chapter, Landscape and Ecological Masterplan and outline Landscape and Ecological Management Plan (oLEMP).

6.1.2. The Proposed Development has been informed by the existing green infrastructure network within and surrounding the Site. The established network of hedgerows, trees, woodland, field boundaries, grassland and water features has provided an important framework for the Proposed Development. Habitats of comparatively higher ecological value have been retained and protected wherever practicable, with development principally focused within existing arable fields of lower ecological value.

6.1.3. The design has applied the step-wise approach set out in PPW. Potential impacts upon biodiversity and existing green infrastructure have firstly been avoided through the siting and design of the Proposed Development. Where effects could not be avoided entirely, measures have been incorporated to minimise and mitigate those effects, restore and strengthen existing habitats, and provide appropriate habitat creation and enhancement. The strategy includes the retention and reinforcement of existing hedgerows and other field boundaries, native tree and scrub planting, species-rich and tussocky grassland, traditional orchard planting, wetland habitats and targeted measures for individual species.

6.1.4. These measures have been brought together as an integrated green infrastructure network rather than as individual mitigation measures. In addition to their biodiversity function, the measures respond to the existing landscape structure, contribute to landscape integration, provide opportunities associated with surface water management and wetland habitat creation, and contribute to the setting of recreational routes through and around the Site. The approach therefore seeks to provide multifunctional green infrastructure, as reflected in the assessment against the Building with Nature framework.

6.1.5. The assessment against the DECCA attributes of Diversity, Extent, Condition, Connectivity and Adaptability demonstrates how the proposed measures can contribute to ecosystem resilience. The creation of a greater variety and extent of semi-natural habitats, enhancement and appropriate management of retained habitats, and strengthening of connections between habitats will complement the existing ecological network across the Site and its relationship with the wider landscape.

6.1.6. The landscape and ecological measures will be supported by appropriate implementation, management and monitoring through the landscape and ecological management framework. This will provide a mechanism for the establishment and longer-term management of habitats and landscape features during the operational lifetime of the Proposed Development.

6.1.7. Overall, the NBB assessment concludes that, subject to implementation and appropriate management of the proposed measures as set out in the NBB Report and supporting ES, there is sufficient opportunity for the Proposed Development to deliver an overall NBB and improve ecosystem resilience over its operational lifetime. The green infrastructure strategy therefore provides an integrated response to the existing environmental characteristics of the Site and demonstrates how biodiversity, ecosystem resilience and multifunctional green infrastructure have been embedded within the design of the Proposed Development.

6.1.8. Accordingly, in respect of green infrastructure, biodiversity and ecosystem resilience, this GIS demonstrates that the Proposed Development complies with Future Wales Policy 9, the green infrastructure and biodiversity requirements of Planning Policy Wales (Edition 12), and the relevant provisions of Vale of Glamorgan Local Development Plan Policies SP10, MD2 and MD9.