Fferm Solar Larnog

Environmental Statement

Volume IV, Appendix 6G: Outline Landscape and Ecology Management Plan

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Issue Sheet

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Document Title

Volume IV, Appendix 6G: Outline Landscape and Ecological Management Plan

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Annex A – Landscape and Ecological Masterplan

Acronyms

Acronym	Meaning
AIA	Arboricultural Impact Assessment
AMS	Arboricultural Method Statement
ATR	Active Travel Route
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CLVIA	Cumulative Landscape and Visual Impact Assessment
DSM	Digital Surface Model
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
ES	Environmental Statement
LCoW	Landscape Clerk of Works
LEMP	Landscape and Ecological Management Plan
LiDAR	Light Detection and Ranging
LNR	Local Nature Reserve
LPA	Local Planning Authority
LVIA	Landscape and Visual Impact Assessment
NBB	Net Benefit for Biodiversity
NCLA	National Landscape Character Area
PEA	Preliminary Ecological Appraisal
RPA	Root Protection Area
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
WCP	Wales Coast Path
ZTV	Zone of Theoretical Visibility

1. Introduction

1.1. Purpose of this document

1.1.1. WSP has been commissioned by Trydan Gwyrdd Cymru (hereafter, the 'Applicant') to prepare an outline Landscape and Ecological Management Plan (oLEMP) in support of the Environmental Statement (ES) for the proposed Larnog Solar Farm (hereafter, the 'Proposed Development').

1.1.2. The Proposed Development comprises:

- Ground mounted Solar Photovoltaic (PV) modules, with a total installed capacity of approximately 35 MW;
- Project Substation compound;
- Battery Energy Storage System (BESS);
- Balance of Solar System (BoSS) which comprises transformers and switchgear;
- Ancillary infrastructure works, including cables, boundary treatments, security equipment, lighting, weather stations, and access tracks;
- Landscaping, habitat management, biodiversity enhancement and amenity improvements;
- Permanent diversion of Public Footpath L1/5/2; and
- Associated safety and security infrastructure.

1.1.3. The Proposed Development is located on land approximately 500 m south-west of Penarth and 550 m east of Sully in the Vale of Glamorgan, South Wales. The oLEMP forms part of the ES and should be read alongside **Chapter 6: Landscape and Visual**, **Chapter 7: Biodiversity** and **Appendix 7G: Net Benefit for Biodiversity Statement**.

1.1.4. This oLEMP has been informed by the findings of the Environmental Impact Assessment (EIA), including the Landscape and Visual Impact Assessment (LVIA) (see **Chapter 6** of the ES), Preliminary Ecological Appraisal (PEA) (see **Appendix 7A** of the ES), protected species surveys including bat surveys (see **Appendix 7D: Bat Roost Report**), green infrastructure considerations and Net Benefit for Biodiversity (NBB) objectives.

1.1.5. The document will provide the strategic framework for the future detailed LEMP and guide the ongoing management of landscape and ecological assets during the operational phase of the Proposed Development.

1.1.6. The oLEMP has been prepared to ensure the successful establishment and longevity of the embedded and additional mitigation and enhancement measures identified through the EIA process and will inform the preparation of a detailed LEMP following the granting of planning permission.

1.1.7. The detailed LEMP will be secured through appropriate planning conditions and developed in consultation with, and approved by, the Vale of Glamorgan Council (hereafter, the 'Council'). It will provide site-specific management prescriptions, maintenance operations, monitoring requirements, responsibilities and review mechanisms for implementation during the operational phase of the Proposed Development.

1.1.8. The oLEMP applies to the following landscape and ecological features and associated activities:

- Retained trees, hedgerows, woodland and other existing habitats;
- New hedgerow, tree, scrub and orchard planting;
- Species-rich neutral grassland, wildflower grassland and tussocky grassland habitats;
- Bee banks, beetle banks, habitat piles, bat boxes, bird boxes and other biodiversity enhancement features;
- Landscape and habitat monitoring; and
- Adaptive management measures required to maintain landscape, biodiversity and ecological connectivity objectives.

1.1.9. The oLEMP does not provide detailed construction methodologies, contractor responsibilities or site-specific working procedures. These matters will be addressed through separate construction-phase documents, including the Construction Environmental Management Plan (CEMP) (an outline version is provided as **Appendix 5A** of the ES), Arboricultural Method Statement, Construction Method Statements, and other approved management plans, where required.

1.1.10. The oLEMP does not prescribe detailed operational procedures relating to the management, maintenance or replacement of photovoltaic panels, battery energy storage systems, substations, security infrastructure or electrical equipment, except where such activities have the potential to affect landscape or ecological features.

1.1.11. The oLEMP also does not define the final land use following decommissioning of the Proposed Development. However, it seeks to ensure that landscape and ecological features established during the operational period are managed and maintained in good condition and remain capable of contributing to future site restoration and land management objectives.

1.1.12. This oLEMP applies from commencement of development through the construction, establishment and 40-year operational phases of the Proposed Development. The effectiveness of the management measures shall be reviewed periodically throughout the operational period and prior to decommissioning, with management prescriptions adapted where necessary to ensure that the landscape and ecological objectives of the development continue to be achieved.

1.2. Structure of the OLEMP

1.2.1. The structure of the OLEMP is set out in **Table 1.1** below.

Table 1.1: OLEMP Chapter Description

Chapter	Content
Chapter 1: Introduction	This chapter sets out the purpose, scope and objectives of the OLEMP. It provides an overview of the Proposed Development and its location and context and summarises the relevant planning policy and legislative framework.
Chapter 2: Landscape and Ecological Baseline	This chapter describes the existing landscape and ecological baseline conditions that have informed the OLEMP. It identifies the landscape character, visual context, landscape designations, existing landscape features, designated ecological sites, habitats, protected and notable species, and ecological networks relevant to the Proposed Development.
Chapter 3: Landscape and Ecological Vision	This chapter establishes the long-term landscape and ecological vision for the Proposed Development. It sets out the outline landscape strategy, ecological enhancement measures, habitat creation and enhancement principles, and measures to maintain and strengthen landscape and ecological connectivity.
Chapter 4: Pre Construction Management Framework	This chapter identifies the outline landscape and ecological management measures to be implemented prior commencing of construction. It sets out the principles for general management actions and protecting retained landscape features.
Chapter 5: Construction Monitoring Framework	This chapter sets out the outline requirements for monitoring landscape and ecological measures during construction. General management actions during construction and outlines the proposed landscape features and rationale for habitat creation.
Chapter 6: Post Construction Management and Monitoring	This chapter should set out outline management principles for grassland habitat, hedgerows, trees, woodland, habitat enhancement features, drainage features and invasive species and grazing management.

1.3. Objectives of the oLEMP

1.3.1. The key objectives of the OLEMP are to:

- Protect and enhance existing landscape structure, including retained hedgerows, trees, woodland blocks and field boundaries;

- Deliver habitat creation, restoration and enhancement measures that contribute to biodiversity resilience and ecological connectivity;
- Facilitate the successful establishment and long-term management of species-rich grassland beneath and around solar infrastructure, including opportunities for appropriate grazing management;
- Enhance habitats for priority and protected species, including bats, breeding and wintering birds including skylark, reptiles, amphibians, invertebrates and small mammals including hedgehogs where appropriate;
- Maintain and strengthen green infrastructure networks across the Site and wider landscape;
- Conserve the landscape character and visual amenity of the Site and its setting through the implementation of sensitive landscape management measures;
- Establish a monitoring and adaptive management framework to assess the effectiveness of landscape and ecological mitigation and enhancement measures over time;
- Ensure the successful establishment, management and monitoring of all landscape and ecological mitigation, compensation and enhancement measures throughout the 40-year operational lifetime of the Proposed Development; and
- Maintain and enhance landscape character, biodiversity value and ecological connectivity through adaptive management and periodic review of habitat condition and management outcomes.

1.4. Site location and context

1.4.1. The Site comprises approximately 46.54 ha of land within the Vale of Glamorgan, South Wales, approximately 500 m south-west of Penarth and 550 m east of Sully. The Site is located to the south of Lavernock Road (B4267) beyond which lies the Glamorgan coastline. Lavernock Point Nature Reserve is located adjacent to the south-eastern boundary of the Site, with Cosmeston Lakes Country Park approximately 300 m to the north.

1.4.2. The Site and surrounding landscape predominantly comprise agricultural land characterised by arable and pastoral fields bounded by hedgerows, woodland blocks and tree belts. The Bay Caravan Park sits adjacent to the south-western boundary, with the Marconi Holiday Village approximately 150 m to the south-west.

1.5. Proposed Development Overview

Principal Components of the Proposed Development

- Retention and protection of existing hedgerows, trees, woodland blocks and field boundaries;

- Ground-mounted solar photovoltaic arrays;
- Battery Energy Storage System (BESS);
- Project substation compound;
- Inverter and transformer stations;
- Underground cabling;
- Internal access tracks;
- Security fencing and associated infrastructure;
- Surface water drainage and SuDS features;
- Landscape mitigation and enhancement planting; and
- Habitat creation and biodiversity enhancement measures.

Design Evolution and Environmental Constraints

1.5.1. Proposed Development has been informed by an iterative design and environmental assessment process. Existing woodland, trees, hedgerows and other environmentally sensitive features have been retained wherever practicable, while maintaining separation from sensitive residential, recreational and ecological receptors where possible. The design evolution process was informed by landscape, ecological, heritage and engineering considerations and resulted in the removal of several land parcels from development consideration to reduce potential environmental effects and improve integration with the surrounding landscape. Further details are provided within **Chapter 4: Design Evolution and Alternatives** and **Chapter 6: Landscape and Visual** of the ES.

Operational Overview

1.5.2. The operational lifetime of the Proposed Development is anticipated to be 40 years. During this period, the Site will continue to support agricultural and ecological functions through the management of species-rich grassland beneath and between the solar arrays, including opportunities for sheep grazing, habitat enhancement and long-term biodiversity management.

1.6. Planning policy and legislative context

Landscape Policy and Legislation

1.6.1. Relevant landscape legislation, planning policy and guidance has informed the landscape mitigation, management and monitoring measures contained within this oLEMP. Key policy and guidance documents include:

- Future Wales: The National Plan 2040[1];

[1] Future Wales: The National Plan 2040, available online at: https://www.gov.wales/future-wales-national-plan-2040

- Planning Policy Wales (Edition 12)[2];
- The Vale of Glamorgan Local Development Plan 2011-2026, Supplementary Planning Guidance - Trees, Woodlands, Hedgerows[3]; and
- Natural Resources Wales LANDMAP guidance[4].

Nature Conservation Policy and Legislation

1.6.2. Relevant nature conservation legislation, planning policy and guidance has informed the ecological mitigation, management, and monitoring measures contained within this oLEMP. Considerations include legislation relating to designated sites, habitats, protected species, biodiversity enhancement, ecosystem resilience and green infrastructure. Key policy and guidance documents include:

- The Well-being of Future Generations (Wales) Act 2015[5];
- The Environment (Wales) Act 2016, including Section 6 Biodiversity and Resilience of Ecosystems Duty and Section 7 Habitats and Species of Principal Importance[6];
- The Conservation of Habitats and Species Regulations 2017 (as amended)[7];
- The Wildlife and Countryside Act 1981 (as amended)[8];
- The Hedgerows Regulations 1997[9];
- Technical Advice Note (TAN) 5: Nature Conservation and Planning[10]; and
- Renewable Energy Supplementary Planning Guidance (Vale of Glamorgan Council, 2019)[11].

[2]Planning Policy Wales (Edition12), available online at: https://www.gov.wales/sites/default/files/publications/2024-07/planning-policy-wales-edition-12.pdf
[3] The Vale of Glamorgan Local Development Plan 2011-2026, Trees, Woodlands, hedgerows, available online at: /https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/SPG/Final-Trees-Woodlands-Hedgerows-and-Development-SPG-2025.pdf
[4] Natural Resources Wales LANDMAP guidance, available online at: https://naturalresources.wales/guidance-and-advice/business-sectors/planning-and-development/evidence-to-inform-development-planning/landmap-the-welsh-landscape-baseline/?lang=en
[5] The Well-being of Future Generations (Wales) Act 2015, available online at: https://www.legislation.gov.uk/anaw/2015/2/contents
[6]The Environment (Wales) Act 2016, available online at: https://www.legislation.gov.uk/anaw/2016/3/contents
[7] The Conservation of Habitats and Species Regulations 2017 (as amended), available online at: https://www.legislation.gov.uk/uksi/2017/1012/contents
[8] The Wildlife and Countryside Act 1981 (as amended) available online at: https://www.legislation.gov.uk/ukpga/1981/69
[9] The Hedgerows Regulations 1997, available online at: https://www.legislation.gov.uk/uksi/1997/1160/contents
[10] Technical Advice Note (TAN) 5: Nature Conservation and Planning, available online at: https://www.gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning
[11]Renewable Energy Supplementary Planning Guidance (Vale of Glamorgan Council, 2019**)**, available online at: https://www.valeofglamorgan.gov.uk/Documents/Living/Planning/Policy/SPG/Renewable-Energy-SPG-March-2019.pdf

2. Baseline

2.1. Landscape Designation Overview

2.1.1. The Site and surrounding area are not subject to any statutory landscape designations.

2.1.2. There are no non-statutory landscape designations covering the Site.

2.2. Landscape Baseline

Site Description

2.2.1. The Site consists predominantly of agricultural fields enclosed by hedgerows, tree belts and small woodland blocks. The field pattern reflects the prevailing agricultural character of the surrounding landscape and provides a well-defined landscape framework across much of the Site.

2.2.2. Existing land use is predominantly agricultural, comprising a series of actively managed fields intersected by farm access tracks and bounded by a network of hedgerows and vegetation corridors.

Study Area Context

2.2.3. A 1 km study area is adopted for the assessment of local landscape character and landscape features, as reported within **Chapter 6: Landscape and Visual** of the ES.

2.2.4. The wider study area comprises a mixture of agricultural land, residential development and recreational assets. Settlement is concentrated within Penarth and Sully, with isolated farmsteads and individual residential properties also present, particularly along Fort Road and St Mary's Well Bay Road.

2.2.5. Recreational receptors form an important component of the surrounding landscape and include the Wales Coast Path, Lavernock Point Nature Reserve, Cosmeston Lakes Country Park, and The Bay Caravan Park. These features contribute to the recreational value of the area and influence the way in which the landscape is experienced.

Topography and Views

2.2.6. The Site occupies a gently undulating coastal landscape situated on the elevated plateau above the Severn Estuary.

2.2.7. The wider landscape is characterised by rolling lowland topography that descends southwards towards the coastal cliffs and shoreline of the Bristol Channel. The elevated nature of the landscape allows long-distance views across parts of the wider countryside and towards the estuary.

2.2.8. Within the Site, local landform and existing vegetation provide a degree of visual containment. Hedgerows, tree belts and woodland blocks frequently restrict views across individual field compartments and contribute to the enclosed character experienced across parts of the Site.

Land Cover and Vegetation

2.2.9. The Site is characterised by a network of agricultural fields enclosed by mature hedgerows, scattered trees, tree belts and small woodland blocks.

2.2.10. These landscape features provide visual enclosure, contribute positively to landscape character and perform an important ecological function by providing habitat connectivity throughout the Site and into the surrounding landscape.

2.2.11. The existing hedgerow network, woodland blocks and associated grassland habitats form the principal green infrastructure resource within the Site and provide the framework upon which the proposed landscape and ecological enhancements have been developed.

Public Access and Recreation

2.2.12. Four Public Rights of Way are located within or adjacent to the Site, namely Footpaths L1/5/1, L1/5/2, L1/7/1 and L1/8/1.

2.2.13. Footpaths L1/5/1, L1/7/1 and L1/8/1 form part of the Wales Coast Path, which represents a key recreational resource within the local area.

2.2.14. Additional public access and recreational opportunities are provided within the wider study area, including routes associated with Lavernock Point Nature Reserve and Cosmeston Lakes Country Park.

Landscape Character

2.2.15. At the national scale, the Site lies within National Landscape Character Area (NLCA) 35: Cardiff, Barry and Newport. This extensive character area comprises a varied landscape associated with the Severn Estuary and includes significant urban and suburban areas, major transport infrastructure, industrial development, agricultural land, woodland and hedgerow networks. While much of NLCA 35 is influenced by the urban landscapes of Cardiff, Barry and Newport, the Site is located within the more rural agricultural component of the character area, characterised by enclosed farmland, hedgerows, woodland and coastal influences.

2.2.16. At the local scale, the Site lies within the Lavernock Hinterland (VLFGLVS787) LANDMAP Visual and Sensory Aspect Area, characterised by rolling agricultural land enclosed by hedgerows and scattered trees, with occasional views towards the coast. The LANDMAP aspect area has an overall evaluation of Moderate.

2.2.17. Overall, the Site forms part of an enclosed lowland agricultural landscape characterised by a well-defined field pattern, mature hedgerows, tree belts, woodland blocks and coastal influences. These characteristics are more closely aligned with the rural agricultural elements of NLCA 35 and are representative of the Lavernock Hinterland LANDMAP aspect area.

2.3. Ecological Baseline

2.3.1. The internationally designated Severn Estuary site complex is located approximately 550 m east of the Site and comprises the Severn Estuary Special Area of Conservation (SAC), Severn Estuary Special Protection Area (SPA), and Severn Estuary Ramsar Site. These designations recognise the international ecological importance of the Severn Estuary and its assemblages of habitats, bird species and fish species.

2.3.2. There are five Sites of Special Scientific Interest (SSSIs) within approximately 2 km of the Site:

- Penarth Coast SSSI (adjacent to the south-eastern Site boundary);
- Llynnoedd Cosmeston / Cosmeston Lakes SSSI (approximately 0.4 km north);
- Severn Estuary SSSI (approximately 0.2 km east);
- Sully Island SSSI (approximately 1 km south); and
- Cog Moors SSSI (approximately 1.5 km north-west).

2.3.3. Cosmeston Lakes Country Park Local Nature Reserve (LNR) is located to the north of the Site, whilst Lavernock Point Nature Reserve lies immediately adjacent to the south-eastern boundary of the Site. Part of Lavernock Point Nature Reserve overlaps with Penarth Coast SSSI, reflecting the ecological importance of the coastal habitats surrounding the Site.

2.3.4. There are two Sites of Importance for Nature Conservation (SINCs) within 20 m of the Site boundary: Lavernock Point East SINC and Ty-r-Orsaf SINC.

2.3.5. The Site falls within a strategically important pollinator corridor identified through the Buglife B-Lines initiative UK. B-Lines are not a statutory designation but are locally important insect pollinator dispersal pathways between areas of existing wildflower and rich habitats. B-Lines serve as a strategic conservation initiative that identifies opportunities to enhance habitat connectivity for pollinating insects across the country. Existing hedgerows, woodland and semi-natural habitats within and surrounding the Site contribute to this wider ecological network.

2.3.6. The Site also contains a range of habitats, suitable for supporting protected and notable species such as bats, badger, hazel dormouse, hedgehog, breeding and wintering birds, common and widespread species of reptiles and amphibians.

2.4. Arboriculture Baseline

2.4.1. An Arboricultural Impact Assessment and Tree Survey (see **Appendix 7H** of the ES) has identified that the Site comprises predominantly open agricultural pasture subdivided by a network of field boundary hedgerows and locally occurring groups of trees and woodland vegetation. The arboricultural resource is concentrated along the field boundaries, drainage corridors and peripheral areas of the Site, with the interior of the agricultural fields largely devoid of significant tree cover.

2.4.2. The surveyed tree stock comprises a combination of individual trees, hedgerow trees, small tree groups and woodland belts of varying quality and amenity value. The majority of arboricultural features are associated with existing field boundaries which contribute to local landscape character, ecological connectivity and visual containment within the wider farmed landscape. These features are characteristic of the pastoral agricultural landscape and form an important component of the existing green infrastructure network.

2.4.3. The tree survey categorised arboricultural features in accordance with BS 5837:2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*[12]. The surveyed resource includes a number of Category A trees and groups which are considered to be of high arboricultural quality and value, together with Category B and Category C tree groups and woodland belts distributed throughout the Site. No significant concentrations of high-quality trees were recorded within the centre of the proposed development parcels, with the principal arboricultural resource located around field margins and boundary features.

2.4.4. Existing hedgerows form the dominant linear vegetation feature across the Site. These hedgerows provide structure to the landscape, define historic field patterns and support connectivity between woodland blocks, scattered trees and adjacent habitats. Mature hedgerow trees occur intermittently along these boundaries and contribute to landscape character and biodiversity value.

2.4.5. Several areas of woodland and tree groups are present around the Site perimeter, particularly along the northern, western and south-eastern boundaries. These features provide effective visual screening, reinforce the rural character of the landscape and function as important habitat corridors for birds, bats and other wildlife. The woodland blocks vary in species composition, age structure and condition, overall, the quality of the arboricultural resource is considered to be moderate to high within the context of the surrounding agricultural landscape.

[12] British Standards Institution. (2012). British Standard 5837:2012, Trees in relation to design, demolition, and construction – Recommendations. British Standards Institution, London.

3. Landscape and Ecology vision

3.1. Vision Statement

3.1.1. The vision for the Proposed Development is to establish a multifunctional landscape that successfully integrates renewable energy infrastructure within the existing agricultural landscape, while conserving and enhancing landscape character, biodiversity and ecological connectivity. The Proposed Development will maintain the agricultural function of the Site through continued sheep grazing beneath and around the solar arrays, facilitating a dual land-use approach that combines renewable energy generation with sustainable land management.

3.1.2. The landscape and ecological framework will seek to reinforce existing landscape structure through the retention, enhancement and long-term management of hedgerows, trees, grassland and other semi-natural habitats. Through targeted habitat creation and landscape enhancement measures, the Site will deliver a measurable uplift in biodiversity value, strengthen ecological networks and contribute positively to the environmental objectives of the Council. The vision is to create a resilient, biodiverse and well-managed landscape that matures over time and provides enduring landscape, ecological and agricultural benefits throughout the operational life of the development.

3.2. Landscape Strategy

Landscape Integration

3.2.1. The landscape strategy is founded on the principle of integrating the Proposed Development within the existing field pattern and landscape framework. The layout has been informed by existing hedgerows, trees, vegetation corridors and topographical features, enabling the Proposed Development to sit sympathetically within the existing, surrounding rural landscape.

3.2.2. Proposed hedgerow planting, supplementary hedge infilling, native tree planting and orchard establishment will strengthen the landscape structure and assist in assimilating the Proposed Development into its setting. The retention of existing field compartments and vegetated boundaries will maintain landscape legibility and reinforce the characteristic pattern of enclosed agricultural fields.

Retention of Existing Features

3.2.3. The strategy prioritises the protection and retention of existing landscape features that contribute to local character and ecological function. Existing hedgerows, mature trees, established vegetation corridors, grassland areas and Public Rights of Way (PRoW) will be retained/diverted and incorporated within the long-term landscape framework.

3.2.4. Where hedgerows currently exhibit gaps or are in sub-optimal condition, supplementary planting will be undertaken to restore structural continuity and improve their function as both landscape features and wildlife corridors. Existing agricultural land will remain in productive pastoral use through sheep grazing, thereby maintaining the Site's agricultural character and ensuring continuity of traditional land management practices.

Landscape Enhancement

3.2.5. The Proposed Development presents an opportunity to enhance landscape quality through the implementation of a comprehensive programme of planting and habitat establishment. Key enhancement measures include:

- Native species hedgerow planting and hedgerow reinforcement;
- Strategic native tree planting;
- Creation of a traditional orchard;
- Establishment of species-rich wildflower grasslands;
- Enhancement of field margins and boundary habitats;
- Creation of attenuation ponds and marginal wetland habitats; and
- Long-term management of landscape features to promote diversity, resilience and visual quality.

3.2.6. Collectively, these measures will strengthen landscape structure, increase vegetative cover and contribute positively to local landscape character.

Recreational Considerations

3.2.7. The landscape proposals recognise the importance of maintaining public access and preserving the recreational experience of PRoW users within the surrounding landscape. Existing PRoW, including the Wales Coast Path and local footpath network, will be retained, incorporated into the proposed layout, and maintained to ensure access for the lifetime of the Proposed Development.

3.2.8. A minimum 15 m-wide buffer will be retained between the field boundary and the proposed solar panels that will accommodate the route of the Wales Coast Path. This setback has been incorporated in response to the importance of the route as a nationally promoted recreational asset and has been designed to retain an open foreground to views experienced by users, thereby maintaining the existing perception of openness and reducing the influence of the development on the recreational experience.

3.2.9. The diversion of Footpath VG/L/1/5/2 has been designed to maintain PRoW connectivity, whilst enhancing the recreational experience of users. The proposed diversion will route users of the public footpath through the proposed orchard and species-rich wildflower habitat, providing a more attractive and biodiverse setting than the existing agricultural field edge and reducing the direct association between the route and operational solar infrastructure. The proposed diversion forms an integral part of the wider landscape and ecological enhancement strategy and promotes access through areas of enhanced green infrastructure and habitat creation.

3.2.10. The enhancement of hedgerows, grassland habitats and tree planting along public footpaths will assist in maintaining a positive visual environment for recreational users whilst contributing to the overall green infrastructure network of the area.

3.3. Ecological Enhancement Strategy

Habitat Enhancement

3.3.1. Existing habitats will be enhanced through a co-ordinated programme of management aimed at improving habitat quality, structural diversity and ecological function across the Site.

3.3.2. Habitat enhancement measures will include:

- Site-wide management of existing species-poor hedgerows;
- Supplementary native whip planting to infill gaps within retained hedgerow networks;
- Retention and management of existing woodland, tree belts and scrub habitats;
- Management of existing grassland through appropriate cutting regimes and the removal of arisings, where required;
- Maintenance of a varied mosaic of grassland and scrub communities adjacent to the Wales Coast Path;
- Management of existing and retained agricultural fields in the east, to increase their carrying capacity for supporting breeding skylark; and
- Ongoing low-intensity sheep grazing beneath and between the solar arrays.

3.3.3. Sheep grazing will provide a sustainable mechanism for managing vegetation beneath the solar PV arrays whilst maintaining the agricultural use of the Site and supporting the long-term establishment of species-rich neutral grassland.

3.3.4. Wildflower enhancement areas will be established through overseeding and managed using an appropriate mowing regime, including the removal of arisings where necessary, to reduce soil fertility and encourage greater botanical diversity.

Habitat Creation

3.3.5. The ecological strategy seeks to create a diverse mosaic of complementary habitats that support a broad range of species and contribute to increased biodiversity, habitat connectivity and ecological resilience across the Site.

3.3.6. Habitat creation measures will include:

- Establishment of wildflower areas through overseeding and a reduced mowing regime ensuring the removal of cuttings to increase species diversity;
- Wildflower strips within the proposed orchard;
- Establishment of 10m-wide tussocky grassland field margins between retained or proposed hedgerows, tree belts and woodland edges and the adjoining solar PV arrays;
- Creation of skylark plots within existing and retained agricultural fields;
- Installation of bat boxes and bird boxes on retained trees;
- Installation of bee banks and beetle banks;
- Provision of habitat piles for reptiles, invertebrates and small mammals; and
- Establishment of new orchard planting and associated species-rich grassland.

3.3.7. Wildflower areas will be established by managing the existing grassland to reduce sward vigour and encourage successful establishment of native wildflower species. The areas shall be overseeded with a locally appropriate native wildflower and fine grass seed mix of local provenance where available. The seed mix shall be suitable for the target habitat type and local soil conditions and shall contain a diverse range of perennial wildflower species characteristic of species-rich neutral grassland.

3.3.8. Tussocky grassland field margins will be established through a reduced mowing regime of the existing grass sward ensuring cuttings are removed from Site. These areas will provide an ecologically functional transition between woody landscape features and the species-rich neutral grassland beneath and between the solar arrays, whilst delivering shelter, nesting, foraging and commuting habitat for invertebrates, small mammals and farmland birds.

3.3.9. The tussocky grassland margins will be managed as livestock-exclusion areas to allow the development of a tall and structurally diverse sward. Project fencing will be utilised where it provides an effective boundary between the tussocky grassland and grazed solar PV array areas. Where no suitable fencing exists, stock-proof fencing will be installed along the inner edge of the habitat buffer to prevent sheep access.

3.3.10. The creation of species-rich grassland, orchard habitat, wildflower meadow, tussocky field margins and specialist habitat features will increase habitat diversity across the Site and provide additional resources for pollinators, birds, bats, amphibians, invertebrates and small mammals.

Connectivity Measures

3.3.11. A key objective of the ecological strategy is to safeguard and enhance functional habitat connectivity across the Site and within the wider landscape. Existing hedgerows, trees and vegetated boundaries will be retained as the primary ecological corridors and strengthened through supplementary planting and sympathetic management. Additional hedgerow is proposed that will provide additional connectivity across the Site.

3.3.12. The creation of wildflower-rich grasslands, orchard habitats, tussocky field margins, and invertebrate features will improve ecological permeability and provide stepping-stone habitats for wildlife. The proposals have been developed to support the wider ecological network, including the local B-Lines initiative, by enhancing habitat availability for pollinators and other invertebrates whilst avoiding fragmentation of existing habitat corridors.

Long-Term Outcome

3.3.13. The Site will evolve as a balanced and multifunctional landscape in which renewable energy generation, agricultural production, and biodiversity enhancement are integrated within a coherent landscape framework. The continued management of the land through sheep grazing, alongside the establishment and long-term stewardship of landscape and ecological enhancements, will ensure that the Site retains its agricultural character whilst supporting a more diverse and resilient ecological resource.

3.3.14. Over time, the strengthened network of hedgerows, trees, woodland, grassland and other semi-natural habitats will reinforce landscape structure, improve habitat connectivity and contribute to the integration of the Proposed Development within its rural setting. Through ongoing management and monitoring, the Site will deliver long-term benefits for landscape character, ecological function and ecosystem resilience, demonstrating the successful coexistence of renewable energy infrastructure, sustainable land management and nature recovery objectives.

4. Pre-construction management framework

4.1. General Management Actions

4.1.1. Prior to the commencement of development, all landscape and ecological mitigation, compensation and enhancement measures shall be clearly identified within the CEMP and communicated to Site personnel through inductions and toolbox talks, as appropriate. An Outline CEMP has been provided as part of the ES (see **Appendix 5A**).

4.1.2. A qualified Ecologist/Landscape Architect shall be appointed, where required, to provide advice and supervision during works with the potential to affect sensitive habitats, protected species or ecological enhancement areas.

4.1.3. An appropriately qualified Environmental Team shall be appointed to oversee the implementation of landscape and ecological protection measures during the construction phase.

4.1.4. An Ecological Clerk of Works (ECoW) shall be appointed prior to the commencement of construction and shall provide advice, monitoring and supervision, as required, to ensure compliance with the ecological mitigation, compensation and enhancement measures set out within this oLEMP and any associated planning conditions.

4.1.5. Where required, a suitably qualified Landscape Clerk of Works (LCoW) shall be appointed to oversee the protection of retained landscape features and the implementation of approved landscape works.

4.1.6. The Principal Contractor shall ensure that all personnel working on Site are made aware of sensitive landscape and ecological receptors, exclusion zones and protection measures through site inductions and toolbox talks prior to undertaking works.

4.2. Habitat Protection Measures

Tree and Hedgerow Protection

4.2.1. All trees, hedgerows and other vegetation identified for retention shall be protected throughout the construction period and incorporated within the long-term landscape framework of the Proposed Development.

4.2.2. Temporary protective fencing and exclusion zones shall be installed around retained trees and hedgerows prior to the commencement of construction activities. Protective measures shall remain in place for the duration of the construction period unless otherwise agreed by the project arboriculturist.

4.2.3. The extent of protective measures shall accord with the Arboricultural Impact Assessment (AIA) (see **Appendix 7H**), Arboricultural Method Statement (AMS) (to be developed as part of the final CEMP) and the principles of BS 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations*.

4.2.4. No storage of materials, plant, equipment, fuels or chemicals shall take place within retained hedgerows, Root Protection Areas (RPAs) or designated vegetation protection zones.

4.2.5. Ground disturbance within RPAs shall be avoided, wherever practicable. Where works are required in proximity to retained trees or hedgerows, these shall be undertaken in accordance with arboricultural best practice and under the supervision of the project arboriculturist, where necessary.

4.2.6. Existing hedgerows identified for retention shall be safeguarded throughout the construction phase to maintain their landscape, ecological and connectivity functions. Any approved supplementary hedgerow planting or gap infilling shall be undertaken as part of the landscape enhancement strategy following construction.

5. Construction Management framework

5.1. General Construction Management Actions

5.1.1. The following measures shall be implemented during the construction phase to protect retained landscape features, safeguard ecological receptors, and ensure the successful establishment of the landscape and ecological strategy:

- Construction activities shall be undertaken in accordance with the approved CEMP, incorporating best practice pollution prevention measures, soil handling procedures, and environmental protection measures.
- All site personnel shall receive an environmental induction and toolbox talk prior to commencing works. This shall include information on sensitive ecological receptors, retained habitats, protected species, biosecurity requirements, pollution prevention measures and landscape protection procedures.
- Any vegetation clearance works shall be undertaken outside the main bird nesting season (March to August inclusive), where practicable. Where this is not possible, a pre-clearance nesting bird check shall be undertaken by a suitably qualified ecologist immediately prior to commencement of works.
- Construction compounds, storage areas, material stockpiles and temporary working areas shall be located away from retained trees, hedgerows, ecological enhancement areas, and water features.
- Construction lighting will be designed to provide safe working conditions and site security while minimising light spill beyond the Site boundary.
- Temporary disturbances to habitats will be limited to the construction phase only, with no such impacts predicted during operation of the Proposed Development. Habitats will continue to be protected in accordance with the approved landscape proposals.

5.2. Habitat Protection Measures

Trees and Hedgerows

5.2.1. Existing trees, hedgerows and other vegetation identified for retention shall be protected throughout the construction phase.

5.2.2. Protective fencing and exclusion zones shall be installed prior to commencement of works and maintained for the duration of construction.

5.2.3. No storage of materials, plant, fuel, chemicals or excavated material shall be permitted within RPAs or retained hedgerow corridors.

5.3. Landscape features

5.3.1. The Landscape and Ecological Masterplan (*refer **Annex A**)* defines the landscape features and habitat enhancement for the Proposed Development. On-site habitats and ecological / landscape features are presented within this section.

Hedgerow, Scrub, Tree and Orchard Establishment

Existing Landscape Features

5.3.2. The landscape strategy has been developed to reinforce the existing landscape framework, strengthen habitat connectivity and assist in the integration of the Proposed Development within the surrounding rural landscape. The proposals build upon the established pattern of hedgerows, trees, woodland blocks and agricultural field boundaries that characterise the Site and the wider landscape.

5.3.3. Existing hedgerows throughout the Site will be retained and managed as important landscape and ecological corridors. In accordance with the ecological recommendations, hedgerows will generally be maintained at a height of 2m to assist in the visual containment of the solar PV arrays whilst maintaining their ecological function. Maintaining hedgerows at this height will also help minimise their suitability as elevated perching locations for avian predators, thereby reducing potential predation pressure on ground-nesting bird species such as skylark.

5.3.4. Supplementary planting is proposed to infill gaps within existing hedgerows across the Site, including sections adjacent to St Mary's Well Bay Road and other fragmented field boundaries identified on the Landscape and Ecological Masterplan (*refer **Annex A***). Infill planting will comprise native hedgerow whips of local provenance and will improve structural continuity, strengthen ecological connectivity and increase species diversity throughout the hedgerow network.

5.3.5. Along sections of St Mary's Well Bay Road that bound the Site and the western Site boundary adjoining The Bay Caravan Park, retained hedgerows will be managed at heights of 3m where additional visual screening of the solar PV arrays is required. These areas have been identified through the landscape and ecological design process as locations where enhanced screening can be achieved without compromising ecological objectives.

Proposed Landscape Enhancements

Hedgerow Planting

5.3.6. New native hedgerow planting is proposed along sections of the Site boundary and adjacent to Footpath VG/L/1/5/1, as shown on the Landscape and Ecological Masterplan, (*refer **Annex A**)*. The planting will reinforce the existing field pattern, strengthen habitat connectivity and provide additional visual screening of the Proposed Development.

5.3.7. Along Footpath VG/L/1/5/1, the proposed hedgerow will define the route corridor and contribute to habitat connectivity for bats, birds and other wildlife. Along the western boundary, new native hedgerow planting will assist in defining the edge of the Proposed Development and softening views from nearby residential receptors.

5.3.8. An indicative list for the hedgerow mix is in **Table 5.1**.

Table 5.1: Indicative Hedgerow mix

Scientific Name	Common Name	% Mix	Spacing (c/c)
Crataegus monogyna	Hawthorn	60%	0.5 m
Corylus avellana	Hazel	10%	0.5 m
Acer campestre	Field Maple	10%	0.5 m
Prunus spinosa	Blackthorn	10%	0.5 m
Viburnum opulus	Guelder Rose	5%	0.5 m
Rosa canina	Dog Rose	5%	0.5 m

Tree Planting

5.3.9. Native tree planting is proposed around the Project Substation Compound and within adjoining landscape enhancement areas. The primary objective of this planting is to provide long-term visual screening of the Project Substation Compound and reduce its prominence within the surrounding landscape.

5.3.10. Additional tree planting is proposed to strengthen habitat connectivity between existing woodland blocks within and adjoining the Site and to provide linear flight lines for protected species such as bats. Over time, this planting will establish linked habitat corridors, reinforce the Site's green infrastructure network and provide additional visual containment.

5.3.11. An indicative native tree species mix is in **Table 5.2**.

Table 5.2: Indicative native tree species list

Common Name	Scientific Name
Pedunculate Oak	*Quercus robur*
Sessile Oak	*Quercus petraea*
Whitebeam	*Sorbus aria*
Field Maple	Acer campestre

Common Name	Scientific Name
Rowan	*Sorbus aucuparia*
Silver Birch	*Betula pendula*
Scots Pine	*Pinus sylvestris*
Black Pine (or similar subspecies)	*Pinus nigra* subsp.
Hazel	Corylus avellana

Orchard Planting

5.3.12. A traditional orchard is proposed within the central part of the Site as a multifunctional landscape and ecological feature. The orchard will contribute to local landscape character, increase habitat diversity and provide a focal landscape feature within the Site whilst providing a valuable food source for a range of protected and notable species including hazel dormouse, birds and small mammals.

5.3.13. Species-rich wildflower grassland will be established beneath and between orchard trees, providing valuable nectar and pollen resources for pollinators and increasing habitat heterogeneity across the Site. The orchard forms part of the wider habitat enhancement strategy and contributes to the creation of a diverse landscape mosaic.

5.3.14. An indicative orchard species schedule is in **Table 5.3**.

Table 5.3: Indicative Orchard species list

Common Name	Scientific Name
Apple	*Malus domestica*
Pear	*Pyrus communis*
Plum / Damson	*Prunus domestica* / *Prunus domestica* subsp. *insititia*
Crab Apple / Medlar	*Malus sylvestris* / *Mespilus germanica*

Wales Coast Path Landscape Buffer

5.3.15. Along the Wales Coast Path corridor, a minimum 15 m-wide buffer will be retained between the field boundary hedge and the proposed solar PV array to maintain the existing sense of openness experienced by recreational users.

5.3.16. Within this corridor, a mosaic of tussocky grassland and native scrub planting will be established to soften views of the solar arrays whilst maintaining the open coastal character of the landscape. These habitats will also contribute to ecological connectivity and provide additional habitat for invertebrates, birds and small mammals.

5.3.17. An indicative Scrub mix schedule is in **Table 5.4**.

Table 5.4: Indicative Scrub mix

Common Name	Scientific Name	% Mix	Planting Spacing (c/c)
Hawthorn	*Crataegus monogyna*	30%	1 m c/c
Hazel	*Corylus avellana*	30%	1 m c/c

Common Name	Scientific Name	% Mix	Planting Spacing (c/c)
Blackthorn	*Prunus spinosa*	10%	1 m c/c
Dogwood	*Cornus sanguinea*	10%	1 m c/c
Dog Rose	*Rosa canina*	5%	1 m c/c
Pedunculate Oak	*Quercus robur*	5%	1 m c/c
Honeysuckle	*Lonicera periclymenum*	5%	1 m c/c
Holly	*Ilex aquifolium*	5%	1 m c/c

Grassland and Pollinator Habitat Creation

5.3.18. Species-rich neutral grassland shall be established beneath and between the solar PV arrays to provide a multifunctional habitat capable of supporting sheep grazing while delivering biodiversity enhancement.

5.3.19. Wildflower-rich grassland areas shall be established by overseeding and reduced mowing regime ensuring cuttings are removed from Site in the locations identified within the Landscape and Ecological Masterplan, (*refer **Annex A**)* including areas specifically designated for pollinator habitat creation.

5.3.20. Tussocky grassland field margins shall be created alongside retained hedgerows and field boundaries through a reduced mowing regime ensuring cuttings are removed from Site. The tussocky grassland margins will be managed to develop a tall, structurally diverse sward providing shelter, nesting, foraging, overwintering and movement habitat for invertebrates, small mammals and farmland birds. The margins will also protect the bases of hedgerows and tree belts from grazing pressure and strengthen habitat connectivity across the Site.

5.3.21. The inner edge of the tussocky grassland margin, adjacent to the solar PV arrays, will be defined by existing fencing where this is present and fit for purpose. Where no suitable fence exists, stock-proof fencing will be installed to prevent sheep from entering and grazing the tussocky grassland. Species-rich neutral grassland beneath and between the solar arrays will remain available for controlled sheep grazing.

5.3.22. Along the Wales Coast Path corridor, a minimum 15 m buffer will be retained to maintain the existing sense of openness experienced by users. Existing grassland within this corridor will be subject to a reduced mowing regime to create a mosaic of grassland and scrub habitats (proposed), reflecting the management objectives of the adjacent Lavernock Point Nature Reserve and supporting a diverse range of invertebrates, birds and small mammals.

5.3.23. At the western boundary of the Site, the orchard area will be established with species-rich wildflower grassland beneath and between the planted trees, creating valuable nectar and pollen resources for pollinating insects and supporting the wider B-Lines ecological network.

5.4. Species Enhancement and Habitat Creation Measures

5.4.1. Habitat piles shall be created in the locations shown on the Landscape and Ecological Masterplan (*refer* ***Annex A***) using timber, brash and other natural materials generated during site preparation works. These features shall provide shelter opportunities for invertebrates, amphibians, reptiles and small mammals.

5.4.2. Bat boxes and bird boxes shall be installed on selected retained trees in accordance with the approved ecological enhancement proposals.

5.4.3. Bee and beetle banks shall be established in the locations identified within the Landscape and Ecological Masterplan to provide additional habitat for invertebrates and support the wider ecological network. Habitat establishment shall utilise native species and locally appropriate species-rich grassland and wildflower seed mixes suitable for the local landscape character and ecological context.

5.4.4. Skylark habitat mitigation would include the creation of eight skylark plots within the field as shown in the Landscape and Ecological Masterplan (refer ***Annex A***). The plots may vary in size, but would each comprise a minimum area of 16 m², formed as unsown or sprayed-out patches within the crop to provide suitable areas for skylark use. The remainder of the field would continue to be available for normal agricultural operations. The skylark plots would be managed seasonally rather than maintained year-round, remaining in place until the winter or spring crop is harvested. Existing field boundary hedgerows would be maintained at an approximate height of 2 m as part of the ongoing management regime.

6. Post-Construction and Operational Management and Monitoring framework

6.1. General Maintenance and Management Actions

6.1.1. The post-construction management strategy will secure the successful establishment and long-term performance of the landscape and ecological mitigation and enhancement measures shown on the Landscape and Ecological Masterplan (refer **Annex A)**.

6.1.2. Prior to completion of construction, a detailed Landscape and Ecological Management Plan shall be prepared in accordance with this oLEMP. The detailed LEMP shall confirm:

- Roles and responsibilities;
- Management and maintenance prescriptions;
- Monitoring methods and frequencies;
- Performance indicators and remedial measures;
- Reporting arrangements; and
- Procedures for review and adaptive management.

6.1.3. Further details of the methodology to be undertaken, management prescriptions and monitoring schedule will be presented in the detailed LEMP.

6.1.4. Formal monitoring inspections shall be undertaken at intervals defined within the detailed LEMP. As a minimum, monitoring should include annual inspections during the initial establishment period and periodic reviews thereafter to assess habitat establishment, landscape performance, ecological function and the effectiveness of management measures.

6.1.5. Landscape and ecological management, maintenance and monitoring shall be undertaken throughout the 40-year operational lifetime of the Proposed Development. Management prescriptions shall be reviewed periodically in response to monitoring findings, and the overall effectiveness of the landscape and ecological strategy shall be reviewed at the end of the operational period. Further detail on the monitoring and management periods is provided in **Section 6.6**.

6.1.6. All personnel undertaking management operations shall possess appropriate qualifications, training and experience relevant to their area of work, including habitat management, vegetation establishment, grassland management and ecological protection measures.

6.1.7. Contractors responsible for habitat establishment and management shall demonstrate competence in the identification of native plant species, invasive non-native species and other undesirable vegetation to ensure the successful implementation of landscape and ecological management measures.

6.1.8. The establishment and management of species-rich grassland, wildflower habitats and other biodiversity enhancement features shall be undertaken in accordance with current best practice and under the advice of suitably qualified ecological and landscape specialists.

6.1.9. The operational management regime shall seek to:

- Secure the establishment of all proposed planting and seeded habitats;
- Protect and enhance retained trees, hedgerows, woodland and grassland;
- Maintain the screening and landscape integration functions of planting;
- Strengthen habitat connectivity across the Site;
- Maintain the agricultural use of land beneath and between the solar arrays through appropriately managed sheep grazing;
- Maintain access for inspection, maintenance and emergency purposes; and
- Prevent operational activities from adversely affecting retained or newly established habitats.

6.1.10. All planting shall be maintained in a healthy condition and free from significant competition from injurious weeds. Failed, dead, diseased or seriously damaged plants shall be replaced during the next appropriate planting season with plants of equivalent species and specification, unless monitoring identifies that an alternative native species would provide a more appropriate and resilient outcome.

6.1.11. Arisings generated through the management of species-rich grassland, wildflower grassland and tussocky grassland habitats shall be removed from the habitat following cutting operations to prevent nutrient enrichment and maintain botanical diversity.

6.1.12. Arisings generated from hedgerow, scrub and tree management may be removed from Site or retained in appropriate locations where they provide ecological benefit, such as habitat piles, and where this would not conflict with access requirements, fire safety, drainage infrastructure or the operation of the Proposed Development.

6.1.13. The routine use of fertilisers, pesticides and herbicides shall be avoided wherever practicable to protect biodiversity and maintain the ecological value of habitats. Any vegetation control measures shall utilise the least environmentally damaging approach available and shall only be undertaken where necessary to achieve agreed management objectives.

6.1.14. Herbicide use shall be restricted to targeted applications where essential for the control of invasive non-native species, injurious weeds or other problematic vegetation that cannot be effectively managed through alternative methods. Any such use shall be undertaken by appropriately qualified personnel and in accordance with relevant legislation and best practice guidance.

6.2. Habitat Management and Monitoring Actions

Existing Hedgerows

6.2.1. Existing hedgerows shall be managed to retain their landscape, screening and ecological functions. Management shall promote a dense, species-diverse structure whilst allowing hedgerows to flower and fruit where this is compatible with operational and visibility requirements.

6.2.2. Hedgerows throughout the Site shall generally be maintained at a height of 2m, unless otherwise specified within the Landscape and Ecological Masterplan. Along St Mary's Well Bay Road and the western boundary shared with The Bay Caravan Site, retained hedgerows will be maintained at 3 m to provide additional visual screening of the solar arrays.

6.2.3. Hedgerow cutting shall generally be undertaken on a rotational basis and outside the main bird nesting season. The frequency and timing of cutting shall be refined within the detailed LEMP, taking account of ecological requirements, landscape objectives and operational constraints.

6.2.4. Supplementary native whip planting within existing hedgerow gaps shall be inspected during the establishment period. Failed plants shall be replaced and competing vegetation controlled until a continuous and robust hedgerow structure has been achieved.

New Hedgerows

6.2.5. New hedgerows, including planting adjacent to Footpath VG/L1/5/1 and along identified Site boundaries, as shown in the Landscape and Ecological Masterplan (*refer **Annex A***), shall be managed to establish a dense, structurally diverse feature capable of providing:

- Visual containment of the solar PV arrays;
- Definition of the Site and field boundaries;
- Habitat connectivity;
- Nesting and foraging habitat; and
- Commuting routes for bats and other wildlife.

6.2.6. Formative pruning shall be undertaken during the establishment period to encourage dense lateral growth. Thereafter, cutting shall be undertaken using a rotational regime that avoids cutting all hedgerows within the same year, where practicable.

Tree, Woodland and Screening Planting

6.2.7. Proposed tree and woodland planting shall be managed to achieve successful establishment, structural diversity and long-term landscape integration. Particular attention shall be given to planting around the Project Substation Compound, where the primary objective is to provide effective visual screening.

6.2.8. Planting intended to connect existing woodland blocks shall be managed to develop a robust and continuous habitat link, whilst providing a definitive boundary to the Proposed Development.

6.2.9. During the establishment period, a minimum 1 m diameter vegetation-free area shall be maintained around each newly planted tree to minimise competition from grasses and other herbaceous vegetation. Vegetation control shall be achieved through mulching or other approved management measures in accordance with the detailed LEMP.

6.2.10. Trees shall be inspected for establishment, stability, disease, damage and the condition of guards, ties and stakes. Supports shall be adjusted or removed when no longer required.

6.2.11. Failed or poorly established trees and shrubs shall be replaced during the next appropriate planting season with stock of the same species and specification, unless otherwise agreed as part of the adaptive management process. Replacement planting shall maintain the intended screening, landscape, woodland or habitat connectivity function of the original planting.

Orchard

6.2.12. The proposed orchard shall be managed to establish a healthy and structurally varied group of fruit trees within species-rich grassland. Management shall include formative pruning, replacement of failures and inspection of guards and supports.

6.2.13. Grassland beneath and between orchard trees shall be managed to maintain species diversity and provide nectar, pollen and foraging resources.

6.2.14. During the establishment period, vegetation immediately surrounding individual trees shall be controlled to minimise competition from grasses and herbaceous vegetation.

6.2.15. Management operations shall avoid damage to tree stems and root systems. During the establishment period, a minimum 1 m diameter vegetation-free area shall be maintained around each newly planted tree to minimise competition from grasses and other

herbaceous vegetation. Vegetation control shall be achieved through mulching or other approved management measures in accordance with the detailed LEMP.

Species-Rich Neutral Grassland

6.2.16. Species-rich neutral grassland shall be established beneath and between the solar PV arrays following completion of construction. The grassland shall be managed as a multifunctional habitat supporting biodiversity enhancement and continued agricultural use through sheep grazing.

6.2.17. Grazing intensity and timing shall be controlled to prevent:

- Overgrazing and excessive poaching;
- Damage during periods of waterlogged ground;
- Suppression of flowering before seed set;
- Compaction around gates and access points; and
- Encroachment of undesirable or invasive species.

6.2.18. Where grazing alone does not achieve the required sward structure, supplementary cutting may be undertaken. Cut material shall be removed where necessary to reduce nutrient enrichment and support biodiversity.

6.2.19. Monitoring shall assess biodiversity, vegetation cover, bare ground, undesirable species, soil disturbance and the overall condition of the grassland. The grazing regime shall be amended where monitoring indicates that habitat objectives are not being achieved.

Wildflower and Tussocky Grassland

6.2.20. Wildflower grassland, including areas associated with the proposed orchard, shall be managed to maintain a varied flowering period and prevent dominance by coarse grasses or scrub.

6.2.21. Tussocky grassland adjacent to hedgerows and field margins shall be managed less intensively than the grazed grassland beneath the solar arrays. Management shall retain a varied sward structure that provides shelter, overwintering habitat and ecological connectivity.

6.2.22. Cutting shall be undertaken on a rotational basis, where practicable, so that uncut areas remain available for invertebrates, small mammals and other fauna.

6.2.23. All arisings generated from the management of wildflower grassland and tussocky grassland habitats shall be removed from the habitat following cutting operations to prevent nutrient enrichment thereby favouring wildflower species and preventing the dominance of coarse grasses and other competitive vegetation.

Scrub and grassland mix - Wales Coast Path Buffer

6.2.24. The minimum 15 m buffer accommodating the Wales Coast Path shall be managed to retain a sense of openness whilst developing a mosaic of grassland and native scrub.

6.2.25. A reduced and rotational cutting regime to promote structural diversity and maintain a varied habitat mosaic. Cutting operations shall be undertaken on a phased basis, where practicable, to ensure that areas of standing vegetation remain available throughout the year for invertebrates, small mammals and other fauna.

6.2.26. All grassland arisings shall be removed from the habitat following cutting operations to prevent nutrient enrichment.

6.2.27. Scrub shall be monitored and managed to prevent complete succession to dense scrub or woodland, whilst retaining sufficient cover to soften views of the solar arrays and provide habitat connectivity.

6.2.28. Scrub management shall be undertaken on a rotational basis to maintain a varied age and structural profile across the habitat.

6.2.29. Management within this area shall have regard to the objectives for the adjoining Lavernock Point Nature Reserve and Penarth Coast SSSI, including the retention of woodland and the maintenance of a grassland and scrub mosaic.

6.3. Species Management and Monitoring Actions

Birds

6.3.1. Bird boxes shall be installed at location and numbers as shown in the Landscape and Ecological Masterplan, (*refer **Annex A**)*

6.3.2. Bird boxes will be suited to a variety of different species, targeted towards woodland nesting birds and will include different sized entrances. Boxes will be placed around 3m from the ground and angled downwards to protect it from the weather. Where possible, the entrances to nest boxes will face north-east to shelter them from prevailing wind and rain.

6.3.3. Damaged or missing boxes shall be replaced where required.

6.3.4. Hedgerow, scrub and tree management shall be undertaken outside the main nesting bird season, generally March to August inclusive, unless a suitably qualified ecologist confirms that the works can proceed without affecting active nests.

6.3.5. Monitoring shall consider the use of grassland, hedgerows, scrub, orchard and woodland-edge habitats by farmland and ground-nesting birds. Management shall be reviewed where vegetation structure or grazing pressure is reducing habitat suitability.

Bats

6.3.6. Bat boxes shall be installed at location and numbers as shown in the Landscape and Ecological Masterplan, (*refer **Annex A**)*.

6.3.7. Bat boxes shall be retained in suitable positions on mature trees and installed at least 4m above ground level, on a south-east, south and south-west axis. A range of designs will be installed suitable for individual and multiple bats roosting together, and for hibernation use. Preference will be given to boxes with entry points at the base, removing the need for annual maintenance. Damaged or missing boxes shall be replaced where required.

6.3.8. Hedgerows, woodland edges and tree lines shall be maintained as continuous, functional commuting and foraging corridors.

Pollinators and Other Invertebrates

6.3.9. Wildflower grassland, orchard planting, grassland margins and bee and beetle banks shall be managed to provide a varied structure and continuity of flowering resources throughout the growing season.

6.3.10. Bee banks shall be maintained with areas of exposed substrate and shall be protected from excessive vegetation growth, shading, compaction and disturbance.

Habitat Piles

6.3.11. Habitat piles shall be retained in sheltered locations close to hedgerows, scrub or other semi-natural habitats. Material may be added or repositioned where monitoring identifies deterioration or loss of habitat function.

6.3.12. Habitat piles shall remain undisturbed except where intervention is required for safety, access or ecological management purposes.

6.4. Monitoring Approach

6.4.1. Species monitoring shall be proportionate to the ecological objectives of the scheme and shall focus on whether the habitat measures are functioning as intended. Survey methods, locations and frequencies shall be defined within the full detailed LEMP.

6.4.2. Monitoring should use repeatable methods to allow comparison between survey years and to identify changes in habitat condition, species use and management outcomes. Standardised solar-farm monitoring is intended to assess ecological change, identify land-management issues and demonstrate compliance with planning obligations.

6.5. Adaptive Management

6.5.1. Management prescriptions shall be reviewed following each formal monitoring visit. Where the monitoring results indicate that the landscape or ecological objectives are not being achieved, appropriate remedial measures shall be identified and implemented.

6.5.2. Adaptive management measures may include:

- Adjustment of sheep stocking density, grazing duration or grazing season;
- Modification of cutting frequencies or timings;
- Reseeding or overseeding poorly established grassland;
- Replacement of failed or unsuitable planting;
- Additional control of weeds, scrub or invasive non-native species;
- Adjustment of hedgerow cutting regimes;
- Repair or replacement of guards, fencing and habitat features;
- Modification of pond and marginal vegetation management; and
- Additional ecological surveys where unexpected changes are identified.

6.5.3. Any material departure from the objectives or principles of the approved oLEMP shall be agreed with the Council, in consultation with the project landscape architect, ecologist and other relevant specialists as appropriate.

6.5.4. The detailed LEMP shall remain a live management document and shall be updated, where necessary, to reflect monitoring findings, changes in Site conditions and emerging good practice.

6.6. Climate Change Adaptation

6.6.1. The management regime will incorporate an adaptive approach to ensure that replacement and enhancement planting remains resilient to changing climatic conditions, including periods of drought and increasing temperatures. Management prescriptions will be reviewed at **five-year intervals**, with adjustments made where necessary to maintain successful establishment, long-term plant health and the intended landscape objectives. This may include amendments to species selection, establishment and maintenance practices, or replacement planting where required in response to observed or anticipated climatic conditions.

6.7. Monitoring and Management Periods

Establishment Period: Years 1 to 5

6.7.1. The first five years following implementation shall comprise the principal establishment and aftercare period. Management shall focus on:

- Plant survival and replacement;

- Weed control;
- Watering during prolonged dry periods, where required;
- Adjustment and removal of stakes, ties and guards;
- Establishment of hedgerows, trees, woodland and orchard planting;
- Establishment of species-rich and wildflower grassland;
- Control of grazing pressure; and
- Installation, inspection and maintenance of species enhancement features.

6.7.2. Landscape inspections shall be undertaken at least twice annually during the establishment period, with visits timed to identify both growing-season and dormant-season requirements.

Early Operational Period: Years 1 to 10

6.7.3. Formal ecological monitoring should be undertaken at appropriate intervals during the early operational period. As an outline framework, monitoring is anticipated during Years 1, 3, 5 and 10, subject to refinement within the detailed LEMP.

6.7.4. Monitoring shall assess:

- Establishment and condition of proposed habitats;
- Achievement of landscape screening and integration objectives;
- Grassland species diversity and sward structure;
- Effects of sheep grazing;
- Hedgerow continuity and structural condition;
- Condition of woodland, tree and orchard planting;
- Condition and use of specialist habitat features; and
- Requirement for remedial or adaptive management.

Long-Term Operational Period

6.7.5. Following the initial ten-year period, landscape and habitat condition shall be reviewed at intervals appropriate to the planning requirements and operational lifetime of the Proposed Development. An indicative interval of five years is recommended, unless earlier monitoring identifies a need for more frequent review.

6.7.6. Routine management, including grazing, cutting, hedgerow management, tree inspections, replacement planting and control of undesirable vegetation, shall continue throughout the operational life of the Proposed Development.

6.7.7. A monitoring report shall be prepared following each formal monitoring event, recording:

- Survey methods and findings;
- Progress against defined management objectives;

- Photographic monitoring from repeatable locations;
- Management operations undertaken;
- Plant or habitat failures;
- Species observations, where relevant;
- Recommended remedial measures;
- Responsibility and timescale for implementation; and
- Any required amendments to the detailed LEMP.

6.7.8. The management programme and monitoring frequencies shall be confirmed through the detailed full LEMP, ensuring that the approved landscape and ecological measures remain effective throughout the operational lifetime of the Proposed Development.

Annex A: Mitigation Plans Figure – 1: Landscape and Ecological Masterplan

N

Location of construction compound. Field will be reinstated to current condition when construction is completed.

Supplementary native species planting infilling gaps in existing hedges either side of St Mary's Well Bay Road. Hedges to be maintained at a minimum height of 3m to provide visual screening of the panels during operational phase of the solar farm.

Skylark habitat mitigation would include creating 8 skylark plots within the field. Skylark plots can be of varying sizes but should be a minimum of 16m2 each and essentially comprise unsown or sprayed-out patches within the crops. The rest of the field can still be used for agricultural operations, and the skylark plots do not need to be maintained year-round and instead are managed seasonally until the winter or spring crop is harvested. Field boundary hedges to be maintained at a height of 2m.

Tree planting to provide visual screening of substation.

Area to be allowed to regenerate naturally

Footpath VG/L1/5/2 to be diverted through proposed orchard and wildflower habitat.

Field to remain in agricultural use.

Lavernock Road (B4267)

Fort Road

Lavernock Point Nature Reserve

Marconi Holiday Park

Penarth Coast SSSI

The Bay Caravan Park

St Mary's Well Bay Road

The condition and accessibility of the PRoW running through the Site will be maintained during the operational lifetime of the solar farm.

This portion of the field to remain in agricultural use.

New hedge to define the edge of the Site and to soften the appearance of panels in potential views from nearby property.

New hedge to enclose Footpath VG/L1/5/1 screening views of the panels. Will provide variety across recreational routes as well as habitat connectivity for bats, birds and other species.

Hedges throughout the Site to be maintained at a minimum height of 2m to ensure containment of the panels within (unless otherwise specified). Hedges to be supplemented with additional native species whip planting within gaps to improve diversity and habitat connectivity.

15m buffer to accommodate existing route of the Wales Coast Path and retain a sense of openness. New native scrub planting will soften the appearance of panels. A reduced mowing regime for the existing grass sward will create a mosaic of grassland and scrub habitat connecting to the management aims of Lavernock Point Nature Reserve.

0 100m
SCALE 1:2500

NOTE
1. Do not scale from this drawing.
2. Drawing to be printed in colour.
3. Drawing to be read in conjunction with Outline Landscape and Ecological Management Plan (OLEMP).
4. Drawing is indicative and not to be used for planting or construction.

LEGEND
- Site Boundary
- Existing Overhead wires
- Existing Underground Water Pipe
- Exclusion Buffer
- Section of Footpath L1/5/2 stopped and diverted
- Existing Public Right of Way (PRoW)
- Existing Route of Wales Coast Path
- Existing Tree/ Tree Group
- Existing Hedge
- Grass sward below panels to be maintained by grazing sheep
- 1 Proposed Substation
- 2 Proposed Solar Panels
- 3 Proposed Access Track
- 4 Proposed diversion of Footpath L1/5/2
- 5 Proposed Hedge
- 6 Proposed Tussock Grassland
- 7 Proposed Wildflower
- 8 Proposed tree/scrub planting
- 9 Proposed Attenuation Basin
- 10 Proposed Supplementary Planting and Hedge to be maintained at 3m high
- 11 Proposed Orchard with Wildflower Strips
- 12 Existing overgrown vegetation to be cleared to allow access along existing public right of way
- Proposed Habitat Piles
- Proposed Bee Bank
- Proposed 1 no. of Tree to be fitted with 2 nos. of Bird Boxes
- Proposed 2 nos. of Tree to be fitted with 2 nos. of Bird Boxes each
- Proposed 1 no. of Tree be fitted with 3 nos. Bat Boxes
- Proposed 2 nos. of Tree be fitted with 3 nos. Bat Boxes each
- Proposed Skylark Mitigation

REV	DATE	BY	DESCRIPTION	CHK	APP
B	NOV 2026	CL	UPDATES FOLLOWING CLIENT REVIEW	NB	NB
A	OCT 2026	CL	UPDATES BASED ON COMMENT	NB	NB
-	SEP 2026	CL	LANDSCAPE MASTERPLAN	NB	NB

DRAWING STATUS: S0 - WORK IN PROGRESS

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CLIENT: Trydan Gwyrdd Cymru

SITE/PROJECT: Fferm Solar Larnog

TITLE: Landscape and Ecological Masterplan

SCALE @ A1	CHECKED:	APPROVED:
1:2500	Nick Bunn	Sophie Entwisle

PROJECT NO:	DESIGNED:	DRAWN:	DATE:
UK0028363.7660	Nick Bunn	Carly Leung	OCT 2026

DRAWING No: UK0028363.7660 REV: -

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