Appendix 9D: Net Biodiversity Benefit Assessment Report

Glyn Taff Solar Farm

05/03/2025

Disclaimer

Neo Environmental Limited shall have no liability for any loss, damage, injury, claim, expense, cost or other consequence arising as a result of use or reliance upon any information contained in or omitted from this document.

Neo Environmental Ltd	
Head Office – Glasgow: Wright Business Centre, 1 Lonmay Road, Glasgow, G33 4EL. **T:** 0141 773 6262 **E:** info@neo-environmental.co.uk	**Bristol Office:** Spaces 8th Floor, The Programme Building, Bristol, BS1 2NB. **T:** 01174 571 610 **E:** info@neo-environmental.co.uk
Warrington Office: Lakeview, 600 Lakeside Drive, Centre Park Square, Warrington, WA1 1RW T: 01925 984 682 **E:** info@neo-environmental.co.uk	**Rugby Office:** Valiant Suites, Lumonics House, Valley Drive, Swift Valley, Rugby, Warwickshire, CV21 1TQ. **T:** 01788 297012 **E:** info@neo-environmental.co.uk
Ireland Office: C/O Origin Enterprises PLC, 4-6 Riverwalk Citywest Business Campus, Dublin 24, D24 DCW0. **T**: 00 353 (0)45 844250 **E**: info@neo-environmental.co.uk	**Northern Ireland Office:** 83-85 Bridge Street, Ballymena, Co. Antrim, BT43 5EN. **T:** 0282 565 04 13 **E:** info@neo-environmental.co.uk

Prepared For:

Renantis UK Limited

Prepared By:

Thomas Hill MEnv (Hons)

	Name	Date
Edited By:	Thomas Hill	05/03/2025
Checked By:	Russell Buckley	05/03/2025
	Name	**Signature**
Approved By	Russell Buckley	

Contents

1. EXECUTIVE SUMMARY

1.1. Neo Environmental Ltd has been appointed by Renantis UK Limited (the "Applicant") to create a Net Biodiversity Benefit Assessment Report ("NBBAR"), as part of an Environmental Impact Assessment for a proposed solar farm (the "Proposed Development") on lands at Bryn Tail Farm, Bryn Tail Lane, Pontypridd (the "Application Site"). Please see **Figure 1** for the layout of the Proposed Development.

1.2. Consideration of the baseline value of the Application Site and potential support protected or notable species has been informed by **Appendix 9B – Habitat and Species Baseline Report**, and **Appendix 9C – Breeding Bird Survey Report**. Information of proposed habitats has been informed by **Figure 4.22a-e – Landscape and Ecological Management Plan**, which provides visualisation of the habitats to be created which exceed 50ha of the 70ha site, with over 5.5km of created and managed hedgerow proposed.

1.3. The objectives include developing a mixture of species-diverse grassland habitats across the site and planting of native species-diverse hedgerows with trees and scrub to enhance the floristic diversity and available ecological niches of the site and provide a plentiful source of food and shelter for a range of fauna species.

1.4. Management recommendations have been made for new and enhanced existing habitats. This will ensure that the Application Site can not only be restored to its current agricultural use upon decommissioning but will result in **overall net benefit for biodiversity**.

2. INTRODUCTION

2.1. Neo Environmental Ltd has been appointed by Renantis UK Limited (the "Applicant") to create a Net Biodiversity Benefit Assessment Report ("NBBAR"), as part of an Environmental Impact Assessment for a proposed solar farm (the "Proposed Development") on lands at Bryn Tail Farm, Bryn Tail Lane, Pontypridd (the "Application Site"). Please see Figure 1 for the layout of the Proposed Development.

Development Description

2.2. Installation, operation and subsequent decommissioning of a renewable energy scheme comprising ground mounted photovoltaic solar arrays together with substation compound, transformer stations, internal access track, landscaping, biodiversity measures, boundary fencing, security measures, CCTV posts, monitoring house, storage containers access improvement and ancillary infrastructure. The solar arrays will have a combined capacity of up to 39.9MWp.

Site Description

2.3. The area of the Proposed Development (the "Application Site") lies at an elevation of approximately 140m – 330m AOD and covers a total area of c. 70.9 hectares. It is centred around Bryn Tail Farm at approximate National Grid Reference (NGR) E 309333, N 189800. It is south of Eglwysilan Road. The site extends west of Bryn Tail Farm and east of the Bryn Tail Lane. The site is within the administrative area of Rhondda Cynon Taf Council.

2.4. The site comprises 38 agricultural fields that are currently in use for livestock farming. It is on the east side of the Taff Valley c. 1.6 km east of Ynysangharad War Memorial Park. Access will be gained from the Bryn Tail Lane.

2.5. The site is adjacent to the Twyn Hywel Energy Park a consented wind farm including 14 turbines (DNS/3272053).

Wider Planning Application

2.6. This NBBAR refers to and is supported by other documents contained within the planning application. It is recommended that this report is read in conjunction with other following other documents and figures:

- Volume 2, Chapter 9 – Ecology
- Volume 2, Chapter 9, Appendix 9B – Habitats and Species Baseline Report
- Volume 2, Chapter 9, Appendix 9C – Breeding Bird Survey Report

- Volume 2, Chapter 4, Figure 4.22a – Landscape and Ecological Management Plan
- Volume 2, Chapter 4, Figure 4.22b – Landscape and Ecological Management Plan
- Volume 2, Chapter 4, Figure 4.22c – Landscape and Ecological Management Plan
- Volume 2, Chapter 4, Figure 4.22d – Landscape and Ecological Management Plan
- Volume 2, Chapter 4, Figure 4.22e – Landscape and Ecological Management Plan
- Volume 3, Annex A2 – Outline Construction Environment Management Plan

3. GUIDANCE

3.1. Biodiversity is declining across the UK; however, recent agri-environment schemes indicate that biodiversity can significantly increase through appropriate land management. Well-designed developments have the potential to support wildlife and increase biodiversity through appropriate management when located on agricultural land.

3.2. As required by Welsh planning policy, assessment of the Proposed Development's effect on biodiversity must be undertaken. This is to identify the net impacts resulting from the Proposed Development and can include the protection of existing species and habitats and the establishment of new habitats, as well as their maintenance and monitoring.

3.3. This NBB has been informed by the Phase 1 surveying that was conducted from 2021-2024 (Further information within **Appendix 9B – Habitats and Species Baseline Report**) and the habitats proposed within the Landscape and Ecological Management Plan (**Figures 4.22a to 4.22e** of **Chapter 4 – Landscape and Visual Impact**).

OBJECTIVE OF THE NET BIODIVERSITY BENEFIT ASSESSMENT REPORT

3.4. The objective of this NBBAR is to weigh the value of the habitats present within the Application Site and any impacts upon them against the enhancements and gain to biodiversity set forth by the Proposed Development. This will include measures to minimise any potential negative impacts arising from the Proposed Development, while increasing the habitat diversity.

3.5. This report will identify whether an appropriate net benefit for biodiversity is proposed and realistically likely to be provided through generation/storage of renewable energy, and whether the enhancement of the land within the development boundary will increase the site's capability of supporting wildlife compared to the current condition.

CURRENT POLICY

Future Wales: The National Plan 2040[1]

3.6. Future Wales is the Welsh national development framework, setting the direction for development to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system. Key policies have been identified below, further information on the Policies noted can be found within **Chapter 2 – Ecology**, to which this document is appended.

- Policy 9
- Policy 17
- Policy 18

Planning Policy Wales (2011)

3.7. Planning Policy Wales ("PPW")[2] Edition 12 was released in 2024 with updates from the original 2011 publication. It sets out the Welsh Government's planning policies for Wales and how they should be applied. With regards to ecology and biodiversity, **Chapter 6** (Distinctive and Natural Places) **section 6.2** covers principles for integrating green infrastructure and development and assessing green infrastructure. **Section 6.4** covers biodiversity, ecological networks, designated sites, protected species, trees, woodland and hedgerows; this includes information on implementing the Environment (Wales) Act Section 6 Biodiversity and Resilience of Ecosystems duty. Further information on the relevant Policies and statements can be found within **Chapter 2 – Ecology**, to which this document is appended.

Environment Act 2021

3.8. This Act covers England and, in part, other UK countries including Wales. It makes minor amendments to the 1981 Act and 2017 Regulations, introduces a legally binding target on species abundance for 2030, and gives statutory effect to conservation covenants. To assist in the above, it creates an Office for Environmental Protection.

3.9. It should be noted that whilst in England, this sets a statutory requirement for a 10% net gain to biodiversity units suitably underpinned by the statutory edition of the net gain metric, this requirement does not extend to Wales. The approach utilised by the Welsh Government is instead the Net Benefit to Biodiversity, which places greater emphasis upon consideration of

[1] Available at: https://www.gov.wales/future-wales-national-plan-2040-0

[2] Available at: https://gov.wales/planning-policy-wales

biodiversity ecosystem resilience in the face of impacts relating to climate change and broader benefits to wider ecosystems.

Biodiversity Action Plans

3.10. The UK Biodiversity Action Plan ("UKBAP"; 1994)[3] was organised to fulfil the Rio Convention on Biological Diversity in 1992, to which the UK is a signatory. Lists of national Priority species and habitats were produced with all listed species/habitats having specific action plans, defining the measures required to ensure their conservation.

3.11. While the UKBAP has since been superseded by the Environment Act (see above), regional and local BAPs have been produced to develop plans for species/ habitats of nature conservation importance at regional and local levels.

3.12. The Application Site is covered by **Action for Nature: A Local Biodiversity Action Plan** which was produced for Rhondda Cynon Taf County Council in 2008. The BAP is separated into chapters ranging from notable habitats and species (at levels ranging from local through to nation) to the action plan of the time and key stakeholders. Locally important / priority habitats potentially relevant to the Proposed Development are:

- Broadleaved Woodland
- Road verges
- Acid Grassland
- Plantations
- Ffridd / Bracken Slopes
- Scrub

3.13. The Locally Important / Priority Species most relevant to the habitats within the Application Site and/or the local area in which the Application Site is found include:

- Badger
- Barn Owl
- Brown Hare
- Dormouse
- Grey Partridge

[3] Available at https://data.jncc.gov.uk/data/cb0ef1c9-2325-4d17-9f87-a5c84fe400bd/UKBAP-BiodiversityActionPlan-1994.pdf

- Herptiles (all)
- Lesser Horseshoe Bat
- Noctule Bat
- Skylark

4. BASELINE

Designated Sites

4.1. The Application Site does not lie within or adjacent to any statutory designated environmental sites.

4.2. Within 20km of the Application Site boundary there are six internationally designated sites, which comprise four Special Areas of Conservation ("SAC"), one Special Protection Area ("SPA") and one Ramsar. There are four nationally designated sites identified within 5km, including three Sites of Special Scientific Interest (SSSI), and one Local Nature Reserve (LNR).

4.3. Four non-statutory designated sites, Sites of Importance to Nature Conservation ("SINC") were identified within 2km of the Application Site. Two of these; Mynydd Eglwysitan SINC and Clydach Vale SINC are immediately adjacent to the Application Site. Mitigation measures have been recommended to ensure that the Proposed Development will have no likely significant effects on local species and Local Wildlife Sites.

4.4. With the implementation of the recommended measures, it has been determined that there will be **no significant adverse effects** on any designated nature conservation site as a result of the Proposed Development.

Habitats

4.5. Phase 1 habitat surveys were conducted in June 2021, August 2023, and June 2024. The survey covered all land within the Application Site and an appropriate buffer around the entire site, together comprising the Ecological Survey Area ("ESA"). This highlighted the presence of the following eighteen habitat types within the ESA:

- Woodland and scrub – Woodland – Broad-leaved – Semi-natural (A1.1.2)
- Woodland and scrub – Woodland – Coniferous – Plantation (A1.2.2)
- Woodland and scrub – Scattered scrub – (A2.2)
- Grassland and marsh – Improved grassland (B4)
- Grassland and marsh – Semi improved grassland (B6)
- Grassland and marsh – Marshy grassland (B5)
- Grassland and marsh – Semi improved acid grassland (B1.2)
- Tall herb and fern – Bracken (C1.1)

- Mire – Valley mire – (E3.1)
- Standing water – eutrophic – (G1.1)
- Wet ditch – (G2.1)
- Intact species poor hedgerow – (J2.1.2)
- Wall – dry stone wall – (J2.3.5)
- Dry ditch – (J2.3.6)
- Bare Earth – (J.4)
- Woodland and scrub – Dense scrub – (A2.1)
- Tall herb and fern – Tall ruderal – (C3.1)
- Building – (J3.6)

Flora

4.6. The vast majority of the Application Site consists of improved and semi-improved grassland that is maintained by grazing sheep and habitats presented the typical low botanical species diversity associated with this management practice. No plant species or habitat of particular note or local importance were recorded within the Application Site with the exception of the semi-natural woodlands, valley mire, and marshy grassland. Additional habitats such as wet ditches, dense scrub, and semi-improved acid grassland have some ecological value, however, do not exceed site-level interest or importance. The site is considered to be of low botanical and habitat interest at the local level. Local interest is likely to be concentrated in nearby designated sites. Further information can be found within **Appendix 9B – Habitats and Species Baseline Report**.

Fauna

Badger

4.7. Although there were no fields signs of Badger (*Meles meles*), biological records were returned within a 2km data search. Therefore, based on the habitat present and known mobility of this species, presence / utilisation of the Application Site cannot be definitively ruled out.

Bats

4.8. The hedgerows along field boundaries and scrub within the ESA provide foraging habitat of limited suitability, however the greatest value to bats comes from the connectivity to the

wider surrounding area. It is anticipated that the Application Site may be used opportunistically by species of bat present within the local area.

4.9. Overall, the Application Site was determined to have low suitability for roosting and foraging bats at best. It is considered likely that higher levels of bat activity will be confined to areas of local woodland and nearby designated sites.

Hazel Dormouse

4.10. Whilst potentially suitable habitats are present for hazel dormouse, no signs of the species were identified during any of the surveying. Furthermore, relevant records of this species are limited to approximately 3.5km away, with no evidence of presence of the species found within the land between the records and Application Site.

Other Mammals

4.11. Brown hare (*Lepus europeaus*) is anticipated likely to be present throughout the Application Site due to the suitability of the habitat.

4.12. Species such as red squirrel, hedgehog, fox, house mouse and brown rat may use the site due to the nearby habitats in the local area. Overall, the site is likely to be of low value for mammals within a local context due to the management practices of the Application Site.

Herptiles

4.13. The Application Site, as it contains some hedgerow, woodland, and mire habitats; provides foraging opportunities for reptiles and amphibians, however no signs of either group were observed. Furthermore, the adjacent Clydach Vale SINC is noted to contain protected species of reptiles, so individuals visiting the Application Site opportunistically cannot be definitively ruled out.

Birds

4.14. A number of bird species were recorded during the breeding bird survey visits undertaken in 2021 and 2024. The most notable breeding species, in relation to the Proposed Development, are skylark (*Alauda arvensis*) and meadow pipit (*Anthus pratensis*) which were noted in both years of survey to have breeding territories within the Application Site. Further information on breeding birds can be found within **Appendix 9C – Breeding Bird Survey Report**.

Invertebrates

4.15. Given the habitats present, a small assemblage of common invertebrates is considered likely to use the site. Local interest is likely to be concentrated in nearby designated sites and woodland. The boundary hedgerows and grasslands surrounding the Proposed Development are assessed to provide suitable habitat for a variety of butterfly species.

4.16. No notable or protected invertebrate species were recorded during the surveys.

Other Species

4.17. No evidence of other protected or Priority species was found within the Application Site.

5. POTENTIAL IMPACTS

5.1. Potential impacts which could arise from the development of the solar farm include;

- Potential habitat loss/degradation and fragmentation;
- Disturbance during construction and decommissioning; and
- Potential contamination of surface waters.

Potential Habitat Loss and Fragmentation

5.2. The main impacts during the construction phase include the direct loss of habitat under the Proposed Development footprint, and indirect loss of habitat due to noise and vibration disturbance, and dust and surface-water pollution. The loss of habitat will primarily occur in improved grassland areas, this habitat is considered to be of negligible significance to nature conservation interest within the local area. However, it should be noted that areas of semi-improved grassland, and semi-improved acid grassland are beneath proposed areas of solar panels, so some loss of these habitats resulting from the creation of access tracks and piling of panels is unavoidable.

5.3. The Proposed Development has been designed in such a way to avoid significant losses of agricultural land during the operational stage, with habitats proposed to allow the current grazing practice to continue, if desired, with appropriate accommodations for the Proposed Development and habitats. No hedgerow removal is anticipated necessary to facilitate the Proposed Development, however three areas of trimming are anticipated to be required.

5.4. The main habitat loss will occur under the Proposed Development footprint in regard to structures such as access tracks and cable trenches. The Application Site can be fully restored upon termination of its use. Further areas of loss are anticipated beneath other site design elements such as transformers or substations, however this loss is proportionally low when compared to the solar footprint or access tracks.

5.5. New habitats will be created using native species appropriate to the Application Site including local priority species as defined by the LBAP, where possible. Overall, biodiversity value will increase as a result of the Proposed Development. The Proposed Development has been designed in a manner to limit fragmentation and provide improved connectivity between wildlife habitats. It is therefore considered that habitat loss and fragmentation from the Proposed Development will not be significant.

Disturbance During Construction and Decommissioning

5.6. The construction and decommissioning phases of a development have the potential to impact upon local wildlife.

5.7. To minimise any potential disturbance to wildlife, several measures will be implemented prior to construction and decommissioning work taking place. Avoidance and precautionary survey work recommended within the Chapter 9 – Ecology include:

- Toolbox Talk prior to the commencement of construction;
- Creation of a Non-Licence Protected and Notable Species Method Statement, to cover all species with the potential of being impacted by the Proposed Development;
- Demarcation of exclusionary zone relating to high value ecological habitats;
- Pre-construction survey for works with the potential to impact badger, dormouse, herptiles, or breeding bird (the last of which only if works commence between March and August inclusive);
- Supervision of all works with the potential to impact badger, dormouse, or herptiles; and
- Securely covering all excavations at the end of each working day to prevent accidental trapping of badger or other mammals.

5.8. With the creation of multiple types of species-diverse grassland, species-diverse hedgerow and screening hedgerow planting with feathered trees, and creation of artificial ecological features (such as bird and bat boxes) for multiple types of protected or notable species , along with the associated management, the Application Site's overall biodiversity and potential for supporting local wildlife is anticipated to increase post-construction.

6. HABITAT CREATION

6.1. The majority of existing improved and semi-improved grassland groundcover will be replaced by a mix of native grass species appropriate to the proposed conditions. New hedgerow and tree planting will be undertaken within the Application Site. These habitats will be in place and managed for the duration of the Proposed Development's lifespan.

6.2. Various options exist to enhance the biodiversity value of the Application Site and have been considered. Habitat creation planned as part of the Proposed Development is summarised in below. Habitats that will be created include:

- Species-diverse neutral grassland;
- Species-diverse acid grassland;
- Native species-rich hedgerows with trees; and
- Species-diverse scrub.

6.3. These habitats individually offer shelter and a food source for supporting a variety of wildlife. Existing and new habitats, combined with the existing hedgerows, will support the existing wildlife within the Application Site. By offering a wider range of habitats and flora that benefit local wildlife, they also have excellent potential to increase the biodiversity of the site.

Neutral Grassland

6.4. The planting of shade tolerant species-diverse grassland, and native Welsh countryside wildflower mixes will occur within the Application Site over areas of current improved and semi-improved grassland habitat that will be disturbed during the construction phase, as shown in Figures 4.22a-4.22e – Landscape and Ecological Management Plan. An appropriate management regime can ensure a varied sward structure.

6.5. Among other wildlife, these species-diverse neutral grasslands will be of benefit to invertebrates. This will, in turn encourage foraging by species such as the noctule bat, a UK and local priority species anticipated to be present, based upon local biological records.

6.6. The shade tolerant species diverse grassland seeding mix (Provided in detail in Table 9D-1 below) is proposed around and beneath areas of solar panels and hedgerow, where the lack of full sun limits planting and management opportunities. This mix additionally has been selected with the potential option of low-density sheep grazing in mind to continue to provide a level of agricultural productivity from the Application Site, and it's inclusion of black knapweed (a local priority species). The shade tolerant species diverse grassland mix is recommended to be sown at a rate of 40kg/ha at a 4:1 ratio of grasses to wildflower by seed weight.

6.7. It is proposed that 46.09ha of this habitat to be created and managed, as an integral part of the design of the Proposed Development.

Table 9D-1: Shade Tolerant Species Diverse Grassland Mix

SHADE TOLERANT SPECIES DIVERSE GRASSLAND MIX		
SCIENTIFIC NAME	**ENGLISH NAME**	**FLORA TYPE**
Succisa pratensis	Devils bit scabious	Wildflower
Alliaria petiolata	Garlic mustard	Wildflower
Aruncus dioicus	Goats beard	Wildflower
Geranium robertianum	Herb Robert	Wildflower
Rabelera holostea	Greater stitchwort	Wildflower
Achillea millefolium	Yarrow	Wildflower
Agrimonia eupatoria	Agrimony	Wildflower
Filipendula ulmaria	Meadow sweet	Wildflower
Leucanthemum vulgare	Oxeye daisy	Wildflower
Primula veris	Cowslip	Wildflower
Lotus corniculatus	Birdsfoot trefoil	Wildflower
Prunella vulgaris	Selfheal	Wildflower
Lathyrus pratensis	Meadow vetchling	Wildflower
Knautia arvensis	Field scabious	Wildflower
Anthriscus sylvestris	Cow parsley	Wildflower
Centaurea nigra	Black knapweed	Wildflower
Malva moschata	Musk mallow	Wildflower
Silene dioica	Red campion	Wildflower
Galium mollugo	Hedge bedstraw	Wildflower
Plantago lanceolata	Ribwort plantain	Wildflower
Silene latifolia	White campion	Wildflower
Ranunculus acris	Meadow buttercup	Wildflower
Avenella flexuosa	Wavy hairgrass	Grass
Agrostis capillaris	Common bent	Grass
Festuca rubra	Creeping red fescue	Grass

Festuca ovina	Sheeps fescue	Grass
Trisetum flavescens	Yellow oatgrass	Grass
Festuca rubra litoralis	Slender creeping red fescue	Grass

6.8. The native Welsh countryside wildflower mix (Provided in detail in **Table 9D-2** below) is proposed around in areas of neutral soil and appropriate slope gradient. This mix has been selected for it's inclusion of local priority species bluebell, and visual amenity value due to proximity of the Application Site to public rights of way. The native Welsh countryside wildflower mix is recommended to be sown at a rate of 40kg/ha at a 1:1 ratio of grasses to wildflower by seed weight.

6.9. It is proposed that **2.65ha** of this habitat to be created and managed, as an integral part of the design of the Proposed Development.

Table 9D-2: Native Welsh Countryside Wildflower Mix

NATIVE WELSH COUNTRYSIDE WILDFLOWER MIX		
SCIENTIFIC NAME	**ENGLISH NAME**	**FLORA TYPE**
Narcissus pseudonarcissu	Wild daffodil	Wildflower
Hyacinthoides non-scripta	Bluebell	Wildflower
Silene dioica	Red Campion	Wildflower
Centaurea stoebe	Knapweed	Wildflower
Echium vulgare	Vipers Bugloss	Wildflower
Filipendula viulgaris	Dropwort	Wildflower
Campanula rotundifolia	Harebell	Wildflower
Centaurea scabiosa	Greater knapweed	Wildflower
Linaria vulgaris	Toadflax	Wildflower
Anthoxanthum odoratum	Sweet Vernal Grass	Grass
Cynosurus cristatus	Crested dogstail	Grass
Festuca rubra ssp. commutata	Chewings fescue	Grass
Festuca ovina	Sheeps fescue	Grass
Briza media	Quaking grass	Grass
Agrostis capillaris	Common Bent	Grass

Acid Grassland

6.10. The planting of acidic soil mix will occur within the Application Site over areas of current semi-improved acid grassland habitat and areas adjacent to acid habitats that will be disturbed during the construction phase, as shown in **Figures 4.22a-4.22e – Landscape and Ecological Management Plan**. An appropriate management regime can ensure a varied sward structure.

6.11. This mix (Provided in detail in **Table 9D-3** below) has been selected to capitalise on the opportunity presented by the acidic soils of the Application Site, the expansion of available acidic grassland will provide a wider variety of habitats and ecological niches for invertebrates. The acidic soil mix is recommended to be sown at a rate of 40kg/ha at a 4:1 ratio of grasses to wildflower by seed weight.

6.12. It is proposed that **8.70ha** of this habitat to be created and managed, as an integral part of the design of the Proposed Development.

Table 9D-3: Acidic Soil Mix

ACIDIC SOIL MIX		
SCIENTIFIC NAME	**ENGLISH NAME**	**FLORA TYPE**
Hypochaeris radicata	Common catsear	Wildflower
Primula veris	Cowslip	Wildflower
Leontodon hispidus	Autumn hawkbit	Wildflower
Achillea millefolium	Yarrow	Wildflower
Teucrium scorodonia	Wood sage	Wildflower
Vicia cracca	Tufted vetch	Wildflower
Lotus corniculatus	Birdsfoot trefoil	Wildflower
Silene flos-cuculi	Ragged robin	Wildflower
Plantago lanceolata	Ribwort plantain	Wildflower
Betonica officinalis	Betony	Wildflower
Digitalis purpurea	Wild foxglove	Wildflower
Rumex acetosa	Common sorrel	Wildflower
Rhinanthus minor	Yellow rattle	Wildflower
Rumex acetosella	Sheeps sorrel	Wildflower
Centaurea nigra	Common knapweed	Wildflower
Galium verum	Ladys bedstraw	Wildflower
Ranunculus acris	Meadow buttercup	Wildflower
Agrostis capillaris	Common bent	Grass
Cynosurus cristatus	Crested dogstail	Grass
Festuca ovina	Sheeps fescue	Grass
Festuca rubra litoralis	Slender creeping red fescue	Grass
Festuca rubra ssp. rubra	Strong creeping red fescue	Grass
Poa pratensis	Smooth stalked meadow grass	Grass

Hedgerow, Scrub, and Screening

6.13. The planting of hedgerow, screening and scrub comprising a variety of native species (Provided in detail in **Table 9D-4** below). As shown in **Figures 4.22a-4.22e – Landscape and Ecological Management Plan**, these habitats have been proposed in areas which enhance both visual screening effects and ecological connectivity within the site. Areas of low density scrub will provide additional ecological niches for birds and herptiles which are not currently present on the Application Site. Furthermore, the proposed scrub habitat has been specifically positioned close to Clydach Vale SINC to provide value to species which may utilise the Application Site. An appropriate management regime can ensure a variety of ecological niches.

6.14. The following amounts of each habitat are proposed to be created, as an integral part of the design of the Proposed Development:

- Species rich hedgerow – **3.49km**
- Species rich screening hedgerow with trees – **0.51km**
- Low density species rich scrub – **1.16ha**

Table 9D-4: Hedgerow, Scrub, and Screening Mix

HEDGEROW, SCRUB, AND SCREENING MIX		
SCIENTIFIC NAME	**ENGLISH NAME**	**FLORA TYPE**
Corylus avellana	Hazel	Tree
Crategus monogyna	Hawthorn	Shrub
Euonymus europaeus	Spindle	Shrub
Ilex aquifolium	Holly	Shrub
Prunus spinosa	Blackthorn	Shrub
Rosa canina	Dog Rose	Shrub
Vibumum opulus	Guelder Rose	Shrub
Alnus glutinosa	Alder	Tree
Prunus padus	Bird Cherry	Tree
Quercus petrea	Sessile Oak	Tree
Malus sylvestris	Crab Apples	Tree
Sambucus nigra	Whitebeam	Tree
Sambucus nigra	Elderberry	Shrub
Salix cinerea	Grey Willow	Tree

6.15. In addition to these created habitats, 1.4km of existing hedgerow within the Application Site will be enhanced with infilling, further strengthening the green infrastructure of the local area. This infilling will utilise the same species as the proposed new hedgerow, and will enhance the hedges from species-poor to species-rich with the inclusion of additional native species.

Ecological Features

6.16. The Application Site provides opportunities to create ecological features alongside the Proposed Development which will provide habitat and niches which can be target to specific priority species.

6.17. Alongside the habitats, the creation of the following ecological features is proposed within **Figure 4.22a-e: Landscape and Ecological Management Plan** in locations appropriate for optimal usage by the target species:

- Eight Bird Boxes
- Eight Bat Boxes
- Three Hedgehog Houses
- Six Bee Banks
- Three Insect Hotels
- Four Herptile Hibernacula

6.18. Whilst at this stage, specific type (such as make and model of bat/bird box) is yet to be determined, this can be determined to specifically to benefit priority species in a detailed habitat management plan.

7. MANAGEMENT RECOMMENDATIONS

7.1. Management recommendations have been made below for new habitats with the aim of achieving the following:

- to maintain and improve species biodiversity within the site;
- to enhance the quality of the habitats;
- increase the site's potential for supporting wildlife; and
- to avoid any potential negative impacts arising from the development of the site.

Grassland

Soil Stabilisation and Sward Establishment

7.2. Prior to sowing, the soil nutrient levels may require to be altered by fertilisation or soil homogenisation as necessary to optimise the planting and uptake of seeds. The fields beneath the panels will be sown with the appropriate mix displayed by Figure 4.22a-e LEMP, which could be managed by lightly grazing with sheep or cutting. This process should not be undertaken where considerations to the pH must be account ed for, as the planting regime has been designed to incorporate the natural characteristics of the soil in these areas.

7.3. Species such as common couch, broad-leaved dock, stinging nettle and creeping thistle can be difficult to eradicate and may cause problems with sward establishment. These species should therefore be monitored when undertaking weed control on site. If required, they may need to be targeted by selective scything before they seed in late summer / autumn.

7.4. In the unlikely event that the acidic mix grassland does not establish in areas beneath the panels, consideration should be made to either altering this mix or utilising the shade tolerant species diverse grassland mix when reseeding.

Grazing Regime

7.5. Due to selective grazing habits, sheep grazing can lead to a diverse sward structure, if stocked at correct numbers. It also leads to an increase in the nesting suitability of fields for any ground nesting bird species that may be present. Appropriate mid-size hardy breeds should be utilised for grazing, as this minimise any risk of damage to the infrastructure elements whilst being suitably in-keeping with local practices. Stocking density should be appropriately low (around three sheep per acre across the site with no more than five sheep per acre in any individual field) to prevent effects of overgrazing or trampling of soil/ plants which may inhibit growth and/or species diversity.

7.6. In any years that sheep grazing cannot occur, a sit-on mechanical mower and/or manual scything will be used. Cuts down to 50mm will be taken in April, early September (to avoid conflict with nesting birds) and (if necessary) in October. Cuttings will be left onsite for ten days to set seed, before being removed from site.

Hedgerows and Trees

7.7. New hedgerows and trees should be planted within the first available planting season (November to March inclusive) unless there are extenuating circumstances providing suitable justification for delay.

7.8. In year 2, newly planted hedgerow sections will be pruned. Existing hedgerows will be cut on a two-year cycle, with no more than 1/3 cut in any one year. From year 5, new hedgerows will also enter this cycle.

7.9. Newly planted trees will be pruned as needed in years 2 and 3, and as necessary until established. They will then be left to continue their natural development.

7.10. It is also important to maintain ground flora along the hedgerows to provide suitable commuting corridors for small mammals and herptiles. This will be achieved by allowing natural colonisation of ground flora from nearby hedgerows. These will be best suited to flourish in the shaded conditions created.

7.11. For all hedgerows and trees, any pruning or cutting should be done outside of the breeding bird season (which is March to August inclusive) to minimise disturbance to nesting birds. All hedgerow and tree management will be undertaken by a suitably qualified and experienced arboricultural professional.

Responsibilities

7.12. It will be the responsibility of the Applicant to ensure that the proposed biodiversity management and monitoring is undertaken. It is expected that suitably qualified and experienced vegetation management contractors, arboriculturists and ecologists will be engaged by the Applicant for this purpose.

8. GENERAL CONSIDERATIONS

Obligations

8.1. During each of the development phases there are a number of legal obligations that should be considered by all those involved in site work:

- Ensure obligations of the Conservation of Habitats and Species Regulations 2017[4] are met by all involved with the site.
- Ensure obligations of the Wildlife & Countryside Act 1981 (as amended)[5] are met by all involved with the site (see **Technical Appendix 2: Extended Preliminary Ecological Appraisal** for further detail).
- Ensure all relevant Health & Safety at Work Act obligations[6] are met.

Good Ecological Practice

8.2. At the time of writing, all habitats proposed, and composition species mixes are to be considered indicative rather than prescriptive until secured by a suitably worded planning condition. Where there is scope to further optimise the recommendations set forth within this document, for instances such (but not limited to) the future development of management techniques or suitable mixes of species to provide greater value to the biodiversity and wider ecosystem, this should be incorporated into the Proposed Development where appropriate.

8.3. Whilst management practices should only be altered if there is a good ecological reason for doing so, they should not rigidly be adhered to if they are obviously detrimental to wildlife.

8.4. The habitats and management recommendations set forth within this document should therefore be reviewed in Year 5, Year 10, and every 10 years of operation after this point.

[4] Parliament of the United Kingdom, 2017. The Conservation of Habitats and Species Regulations 2017. Available at https://www.legislation.gov.uk/uksi/2017/1012/contents/made

[5] Parliament of the United Kingdom, 1981. Wildlife and Countryside Act 1981 (as amended). Available at http://www.legislation.gov.uk/ukpga/1981/69

[6] Parliament of the United Kingdom, 1974. Health and Safety at Work etc. Act 1974 (as amended). Available at https://www.legislation.gov.uk/ukpga/1974/37/contents

9. DECOMMISSIONING

9.1. At the end of the operational period, decommissioning will take place. This will entail dismantling and removing all of the materials and equipment in order to reinstate the land back to its original condition.

9.2. As impacts relating to construction can also occur during decommissioning, a review of the recommendations set forth within Volume 3 Annex A2 – Outline Construction Environment Management Plan or similar document which supersedes this report should be reviewed prior to decommissioning and implemented where relevant.

9.3. Where possible, retaining features such as species-rich grassland and maintaining the hedgerow boundary and mature scrub beyond the 35-year lifespan of the Proposed Development will be of benefit to wildlife. This will enable net benefit for biodiversity to be sustained in the long term.

10. CONCLUSION

10.1. In conclusion, the Application Site currently contains a wide variety of habitats as found within **Appendix 9B – Habitat and Species Baseline Report**, however, the habitats of moderate or greater value have been identified as an overall small proportion of the site. High value habitats have been avoided and buffered from the design, with mitigation measures to ensure that the Proposed Development does not result in significant impacts upon them. Following the precautionary principal; moderate value habitats have been avoided where possible, and mitigated for where not. Additionally, areas of habitat within the Application Site will be less anthropogenically influenced, and monitored and managed for the benefit of ecological value and ecosystem diversity, as a result of the Proposed Development.

10.2. In total, the Proposed Development will create or enhance approximately **58.61ha** of area habitat, and **5.78km** of linear hedgerow habitats. Additionally, the reduction of anthropogenic influence and disturbance resulting due to the land use change from intensive agriculture to renewable energy generation will passively enhance habitats on and immediately adjacent to the Application Site.

10.3. The loss of habitat and disturbance is not likely to cause significant impacts upon protected, priority, or notable species with the implementation of appropriate mitigation measures. Additionally, with the creation and management of suitable habitat and features of ecological interest, the value of the Application Site to protected and notable fauna species will significantly increase.

10.4. Overall, it is considered that the Proposed Development offers an excellent opportunity to enhance the ecological value of the land, if managed and monitored appropriately. Therefore, the Proposed Development will result in a significant net benefit to biodiversity for the local area.