CIL-LONYDD SOLAR FARM

Green Infrastructure Statement

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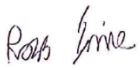
Ross Irvine		22/04/24

Prepared by:	Prepared for:
RPS	Cenin

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1 INTRODUCTION

1.1 This Green Infrastructure Statement has been prepared in support of an application for planning application for a solar photovoltaic electricity generating station (or 'solar farm') with an installed generation capacity of approximately 35MW and associated ancillary development, including Battery Storage.

1.2 Following recent revisions to Chapter 6 of Planning Policy Wales (PPW) and publication of PPW Edition 12, the purpose of this Green Infrastructure (GI) Statement is to outline the wider context of natural and semi-natural features that exist in the surrounding context of the Proposed Development and how this has influenced the Proposed Development's design, and its mitigation and enhancement measures. Furthermore, the statement will outline the Green Infrastructure Strategy to be adopted as part of the planning application, considering biodiversity and ecological resilience, the step-wise approach, DECCA framework, and the 12 Building with Nature Standards.

Policy Context

Planning Policy Wales

1.3 On 7th February 2024, Welsh Government published the 12th edition of Planning policy Wales (PPW). A key change to note is that a Green Infrastructure Statement should be submitted with all planning applications. The aim of this Green Infrastructure Statement ('GI Statement' or 'the Statement') is to evidence how green infrastructure has been incorporated into the proposal.

1.4 Green Infrastructure (GI) is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places. On a small development scale, GI measures can include landscaping, grass verges and sustainable drainage systems, whereas on a larger development scale this can consist of, but not limited to, the creation of species rich meadows, woodlands and the improvement of linkages between areas of biodiversity value.

1.5 PPW makes it clear that the quality of development should be enhanced by integrating GI through appropriate Site selection and use of creative design. Para 6.2.11 under 'Integrating Green Infrastructure and Development' states:

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

1.6 Further to this, para 6.2.12 states:

> *The green infrastructure statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the Site in question and must be used for demonstrating how the step-wise approach has been applied.*

1.7 The GI Statement should highlight any baseline data considered and surveys and assessments undertaken, including habitats and species surveys, arboricultural surveys and assessments, sustainable drainage statements, landscape and ecological management plans, open space assessments, green space provision and active travel links.

1.8 Of this, it is important to demonstrate that the 12 Building with Nature Standards and step-wise approach to biodiversity is considered.

1.9 The PPW 12 Chapter 6 goes on to outline that the 12 Building with Nature standards represent good practice and are an effective prompt for developers to improve the quality of their schemes and demonstrate the sustainable management of natural resources (Para 6.2.14).

Caerphilly County Borough Council Local Development Plan 2010-2021

1.10 The Caerphilly County Borough Council Local Development Plan (LDP) was adopted in November 2010 and is the statutory framework for the development and use of land within Caerphilly County Borough.

1.11 There are no policies that refer specifically to Green Infrastructure in the LDP, however the following policies remain relevant:

1.12 Strategic Policy SP10 – Conservation of Natural Heritage states that the Council will protect, conserve, enhance and manage the natural heritage of the County Borough in the consideration of all development proposals within both the rural and built environment

1.13 Policy CW4 – Natural Heritage Protection states that development proposals will only be permitted within, or in close proximity to sites designated as SINCs where proposals conserve and enhance the SINC, where harm is minimised by mitigation measures or offset as far as practicable.

1.14 Policy CW5 – Protection of the Water Environment outlines that development proposals will only be permitted where they do not have an unacceptable adverse impact upon the water environment, and where they would not pose an unacceptable risk to the quality of controlled waters (including groundwater and surface water)

1.15 Policy CW6 – Trees, Woodland and Hedgerow Protection states that development proposals on sites containing trees, woodlands and hedgerows will only be permitted where root systems will be retained, reasonable effort is made to retain, protect and integrate trees and where there is removal, suitable replacements are provided.

1.16 CCBC are currently in the process of preparing a replacement LDP to cover the period up to 2035.

Structure of Statement

1.17 Taking the policy context above into account, the structure of this GI Statement is as follows:

- Section 2 – Wider Context and Site.
- Section 3 – Applying the 12 Building with Nature Standards
- Section 4 – GI Strategy
- Section 5 – Summary and Conclusion

2 CONTEXT AND SURROUNDING ENVIRONS

2.1 The site itself measures approximately 37.5 ha including cable route, and is an irregular shaped parcel of land comprising of a series of agricultural fields of varying sizes and bound by a mixture of mature woodland, trees and hedgerows. The fields are primarily used for pasture grazing and according to Data Map Wales the Agricultural Land Classification is predominantly Grades 4 and 5, which is not considered to be the best and most versatile type of agricultural land that should be conserved as a finite resource.

2.2 The eastern boundary of the enquiry site adjoins registered Common Land, Mynydd Maen Common. A number of Public Rights of Way (PRoW) are adjacent to the site or within close proximity. Bridleway Abercarn BR179 and Restricted Byways Abercarn RBW171,172, 316 and 320 run through the site.

2.3 The site is also located within Sandstone Safeguarding Area (Policy SP8) and a Mineral Site Buffer Zone. Hafod Quarry (asphalt and aggregates) is located immediately south of the Site.

2.4 The location of the site in relation to surrounding designations is illustrated in Figure 1: Site Location and Designations.

Landscape

2.5 The Site is on a westward-sloping plateau in an elevated, uplands area on Mynydd Maen. The Site is located within a Visually Important Local Landscape (VILL) NH2.3 Abercarn, allocated by the CCBC LDP to cover former Special Landscape Area that no longer meet the criteria for designations as SLAs. The closest National Park to the Site is the Bannau Brycheiniog (Brecon Beacons) National Park which lies approximately 7km to the northeast at its nearest point.

Heritage

2.6 Within a 5km radius of the study site, there are 10 Scheduled Monuments, 163 listed buildings, and 5 Conservation Areas. No other designated asset types are present within 5km of the study site.

Water

2.7 The entire site is located within Development Advice Map (DAM) Zone A (considered to be at little or no risk of fluvial or coastal/tidal flooding).

2.8 NRW surface water mapping identifies a number of isolated locations within the site boundary at low to high risk of surface water flooding. Low risk is defined as areas with a chance of flooding between 1 in 1000 (0.1%) and 1 in 100 (1%), with high-risk areas with a chance of flooding of greater than 1 in 30 (3.3%).

Ecological Baseline and the DECCA Framework

2.9 The requirements of the Environment (Wales) Act 2016 (Section 6) focus on the resilience of ecosystems and refers to the use of the DECCA framework (summarised below) when assessing impacts on ecosystem resilience, i.e.:

- **Diversity** between and within ecosystems;
- **Extent** - maintain and increase the area of semi-natural habitat/features and linkages between them;
- **Condition**, including structure and functioning of ecosystems, which is affected by multiple complex pressures including climate change, pollution, invasive species, land management neglect etc;
- **Connectivity** between and within ecosystems; and

- **Adaptability/Aspects of resilience**, i.e. adaptability, recovery and resistance.

2.10 Three Sites of Site of Importance for Nature Conservation (SINC) are located adjacent to enquiry site being Coed Cil-Lonydd, Mynydd Maen, East of Newbridge, and Cwm Hafod-Fach Woodlands.

2.11 To appreciate the ecological conditions of the site and surrounding environs a Preliminary Ecological Appraisal (PEA) was undertaken, including a Phase 1 Habitat Survey. Following the PEA, the follow surveys were also undertaken:

- National Vegetation Classification Survey
- Breeding Bird Survey
- Great Crested Newt Survey
- Extended Phase 1 Survey – completed for the site (not including cable route) and later for the cable route.
- Badger survey

2.12 A full outline of the ecological conditions of the site and findings of the surveys is outlined in Chapter 6 of the Environmental Statement.

3 12 BUILDING WITH NATURE STANDARDS

3.1 The 12 Building with Nature Standards are a framework of best practice standards that collectively form a definition of high-quality green infrastructure. The standards, and how they have been addressed within the Proposed Development, are outlined below.

3.2 Standard 1: Optimises Multifunctionality and Connectivity – The landscape mitigation proposes new native tree planting and hedgerow planting both on the perimeter and within the site, which will create habitats and extend wildlife links to existing habitats.

3.3 Standard 2: Positively Responds to the Climate Emergency – The nature of the development, as renewable energy generating infrastructure, responds to the climate emergency via reducing carbon emissions in energy generation.

3.4 Standard 3: Maximises Environmental Net Gains – The ecology mitigation and enhancement strategy (within Chapter 6 of the ES (Biodiversity)) was designed following the Mitigation Hierarchy / Step-wise Approach, i.e. to avoid impacts where possible, and where unavoidable, mitigate minimise and restore, and only as a last resort, compensate for residual adverse impacts that cannot be avoided or mitigated. Further details, including enhancement proposals, are provided in relation to Standard 11 below.

3.5 Standard 4: Champions a Context Driven Approach – The Applicant's approach to consultation follows best practice recommendations and has involved a continuous dialogue with Caerphilly County Borough Council, to ensure the development reflects local policies and context. The application is currently undergoing pre-application consultation, in which members of the public can provide feedback on the current proposal.

Standard 5: Creates Distinctive Places – The landscape mitigation strategy proposes minimal removal of existing vegetation across the Site, with the only proposed removal would be of the gappy, poor quality hedgerow between the two large fields in the northern part of the site. There would be additional native hedgerow/tree planting as part of the proposals which aims to strengthen the existing character of the site.

3.6 Standard 6: Secures effective Place-keeping – Regular monitoring of the onsite habitats will be carried out in accordance with the Landscape and Ecological Management Plan that outlines the aims and target conditions for each habitat within the operational site.

3.7 Standard 7: Brings Nature Closer to People – The nature of the proposed development, as energy generating infrastructure, is not intended to be open to the public. However, the numerous footpaths in proximity to the development will be retained, allowing for unimpacted use of the countryside by the public.

3.8 Standard 8: Supports Equitable and Inclusive Places – As mentioned above, the nature of the proposed development, as energy generating infrastructure, is not intended to be open to the public However, it still has a positive effect on local users and a number of social benefits, notably direct action to tackle climate change and fuel security. Producing fuel locally to be used for local services will help reduce reliance on fossil fuels that are often imported. This will help protect the services it provides from potential future supply disruptions and increasing fossil fuel costs.

3.9 Standard 9: Delivers Climate Resilient Water Management – The application has been supported by a Flood Consequence Assessment and Drainage Strategy in accordance with Planning Policy Wales, Technical Advice Note 15 and latest climate change data to ensure flood risk and hydrological impacts are managed appropriately. The strategy includes Sustainable Drainage Systems (SuDs) that is to be agreed within a SAB application running in conjunction with this proposal.

3.10 Standard 10: Brings Water Closer to People – The proposed design of the development includes appropriate seeded vegetation below and between the rows of solar panels to be managed organically and will either be mowed or used for light grazing by sheep. Providing the proposed mitigation measures, such as SuDs and vegetation, and monitoring of the site is undertaken, the proposed development would preserve the sites natural drainage regime and would not affect regimes of surrounding land.

3.11 Standard 11: Delivers Wildlife Enhancement – The enhancement measures delivered by the scheme will provide improved ecological connectivity and diversity (and subsequently resilience) across the Site. Additionally, the creation and enhancement will offer an increased foraging, sheltering and commuting resource to benefit a range of species including invertebrates, bats, badgers, breeding birds, hazel dormouse, reptiles, amphibians and other notable mammal species.

3.12 Standard 12 Underpins Nature's Recovery – The stepwise approach has been adopted throughout the evolution of the development proposals and landscape scheme. Ecosystem resilience has been incorporated into the development proposal with consideration of future diversity, extent, connectivity, context and adaptability referred to as the 'DECCA' framework. The full extent of mitigation and enhancement measures of the proposal are outlined within Chapter 6 of the ES.

4 GI STRATEGY

4.1 PPW 12 emphasises that biodiversity enhancement should be proportionate to the scale and nature of the development. Individual design measures can include *landscaping, green roofs, grass verges, sustainable drainage and gardens* (Paragraph 6.2.13, PPW). Meanwhile wider landscape measures, such as the creation of species rich meadows, woodlands and the improvement of linkages between areas of biodiversity value should be considered for larger scale development, discussed in PPW 12.

4.2 The mitigation strategy for the development proposal takes the stepwise approach of avoidance, mitigation then compensation. The strategy incorporates on-site mitigation and enhancement including enhancement of grassland, hedgerows, field margins and woodland, as summarised below, which aligns with the objectives of the DECCA Framework.

4.3 Primary mitigation measures outlined below consist of those considered at design stage to avoid harm to the local ecosystem, followed by tertiary measures that mitigate potential effects identified within the Ecological Impact Assessment (Chapter 6 of the ES). Furthermore, landscape mitigation strategies are considered following the Landscape and Visual Assessment (Chapter 5 of the ES) and a Landscape and Ecological Management Plan is proposed to ensure effective implementation and management of landscape and ecology measures.

Primary Mitigation Measures

4.4 Following the stepwise approach of avoidance in the first instance, the Proposed Development design has been informed by series of team meetings in which ecological constraints and opportunities have been discussed. The aim of this is to minimise the ecological impact of the scheme, as far as is possible given other constraints and viability considerations, through the design process, and demonstrates that the mitigation hierarchy has been followed. This includes:

- The design of the Proposed Development has sought to avoid any direct impacts on SINCs, ancient woodland sites, priority habitats and trees in accordance with policy recommendations for ancient woodland. Stand offs of at least 5 m from trees (or the root protection zones of trees if larger than 5 m) and 15 m from woodland have been built into development design.
- The temporary loss of land under temporary construction areas will be minimised, and reinstatement and enhancement of habitats will be undertaken in line with enhancement measures outlined at the end of this Chapter (to be detailed within a Landscape and Ecological Management Plan (LEMP)).
- Vegetation removal will be limited to the removal of 14 scattered hawthorn trees within a defunct field boundary (over approximately 180 m in length) in centre of the Proposed Development.

4.5 The following types of environmental effects have been identified as potentially occurring during the operational phase of the Proposed Development in the absence of mitigation:

- Loss of breeding habitat for farmland birds (namely ground nesting species) due to the loss of marshy grassland. This could result in an overall long-term decrease in the breeding population within the Site of the Proposed Development due to loss of suitable habitats.
- Exclusion of animals from the Site by security / stock-proof fencing.

Tertiary Mitigation Measures

4.6 The following best practice construction techniques and mitigation measures will be implemented during the construction phase:

- Measures to avoid impacts on SINCs, ancient woodland sites, priority habitats and trees during construction will be detailed in a Construction Environmental Management Plan (CEMP). Ways in which accidental physical damage, lighting, pollution, soil compaction and sediment

mobilisation will be set out. There may be a requirement for the presence of an Ecological Clerk of Works (ECoW) to assist in effective implementation of the CEMP.

- Measures to avoid harm to great crested newt will be implemented during construction, to include staged removal of vegetation (if required), hand-searching where necessary and discussion of material storage, vehicle access or compound locations / positioned, as required, by a Suitably Qualified Ecologist. These measures should be included within a CEMP.
- Clearance of grassland vegetation (where required) will be conducted outside bird nesting season to avoid disturbing or destroying birds' nests. Should works commence during the nesting bird season (which is typically taken as March to August inclusive), any removal of vegetation or construction within marshy grassland fields should be preceded by a walkover survey by a suitably experienced ecologist. The surveyor will identify any active nests, and in the event that nests are found, work in their immediate vicinity (that could result in the damage / destruction of the nest and / or killing / injury of adult birds or dependent young) will be suspended until the nest is no longer active. A 5 - 15 m buffer around the field boundary and woodland features will be in place during construction to minimise disturbance to breeding birds, as a matter of good practice. A practical method statement will be produced detailing measures to avoid impacts on nesting birds (as outlined above) and included in the CEMP. This will provide clear guidance to contractors working on the construction of the proposed development.
- A pre-commencement check for new badger setts will be completed in advance of ground investigation and construction works. Appropriate further mitigation measures to protect badgers, and avoid contravention of the law, will be set out in the CEMP (as necessary).
- Measures to avoid harm to amphibians and reptiles will be implemented during construction. These will include staged removal of vegetation and hand-searching by an Ecological Clerk of Works (ECoW) where necessary. These measures should be included within a CEMP.
- Construction and pre-commencement ground investigations will be timed, to minimise night-time working to minimise disturbance to bats. Artificial light to aid construction will be minimised with that present designed to minimise light spillage outside active construction areas. Artificial light will be directed away from any field boundaries, trees or buildings within and / or adjacent to the Site. Ground investigations will be undertaken away from any potential bat roosts to minimise disturbance by noise / vibration. Control measures will be outlined in a CEMP.
- The CEMP will identify best practice to be applied to minimise water pollution from spillages associated with construction works and air pollution from construction vehicle emissions and dust generation.
- Night working will be avoided where possible during the construction phase, however where required, by using sensitive lighting strategies to direct light away from habitat features as outlined within the CEMP.
- Sufficient gaps will be left under perimeter security fences to allow access for small mammals such as hedgehog.
- Sensitive working practices will be adopted during the construction phase to prevent entrapment or other causes of harm to mammals (i.e. providing means of escape for any uncovered excavations, appropriately store chemicals and capping exposed piping). These mitigation measures should be included in a method statement within a CEMP.

4.7 The following best practice construction techniques and mitigation measures will be implemented during the construction phase:

- Sufficient gaps will be left under perimeter security fences to allow access for small mammals such as hedgehog.

Landscape Mitigation

4.8 **Figure 1: Planting Plan** has been prepared in collaboration with the project's ecologist to ensure that habitat creation particular to this site has been included. The mitigation measures are the

planting of indigenous trees and hedgerows. The proposed tree planting and hedgerow planting would integrate the Proposed Development into the landscape as well as provide screening.

4.9 The objective of the mitigation planting would be to reinforce the existing and historical character of the Site as well as screening views.

4.10 Existing mature trees were former Beech hedgerows which have been left unmanaged. This is a typical feature in the local landscape. There are other types of boundary treatments in the same character area (stone walls, managed hedgerows, post and wire fences, coniferous trees).

5.6.11 The tree planting and hedgerow planting would provide the following benefits and follow landscape character guidelines:

- Create habitats and extend wildlife links to existing habitats.
- Increase biodiversity.
- Provide additional screening effects to reduce visibility.
- Enhance the landscape character.
- Adhere to the landscape character guidelines.

Landscape and Ecological Management Plan

4.12 The approach to delivering Biodiversity Net Benefit as part of the Proposed Development would be contained in the LEMP.

4.13 The LEMP would aim to deliver the following measures:

- Creation / enhancement of approximately 400 m of new hedgerow canopy along historic field margins / fence lines between mature trees and planting of 400 new hedgerow trees and prescriptions for the appropriate management of.
- Management of 5 m -15 m perimeter grassland strips to improve species diversity over time, and the creation of habitat that will support small mammals and a wide variety of invertebrates.
- Management prescriptions for the enhanced areas of species-rich semi-improved neutral grassland.
- The creation of habitat piles and hibernacula within filed margins and close to off-Site ponds.
- The installation of owl nest boxes, breeding bird boxes and bat boxes in suitable locations.
- The potential for low intensity grazing of areas between and beneath solar panels by sheep.
- An appropriate monitoring scheme to ensure the enhancement measures are delivered in accordance with the objectives set out within the LEMP.

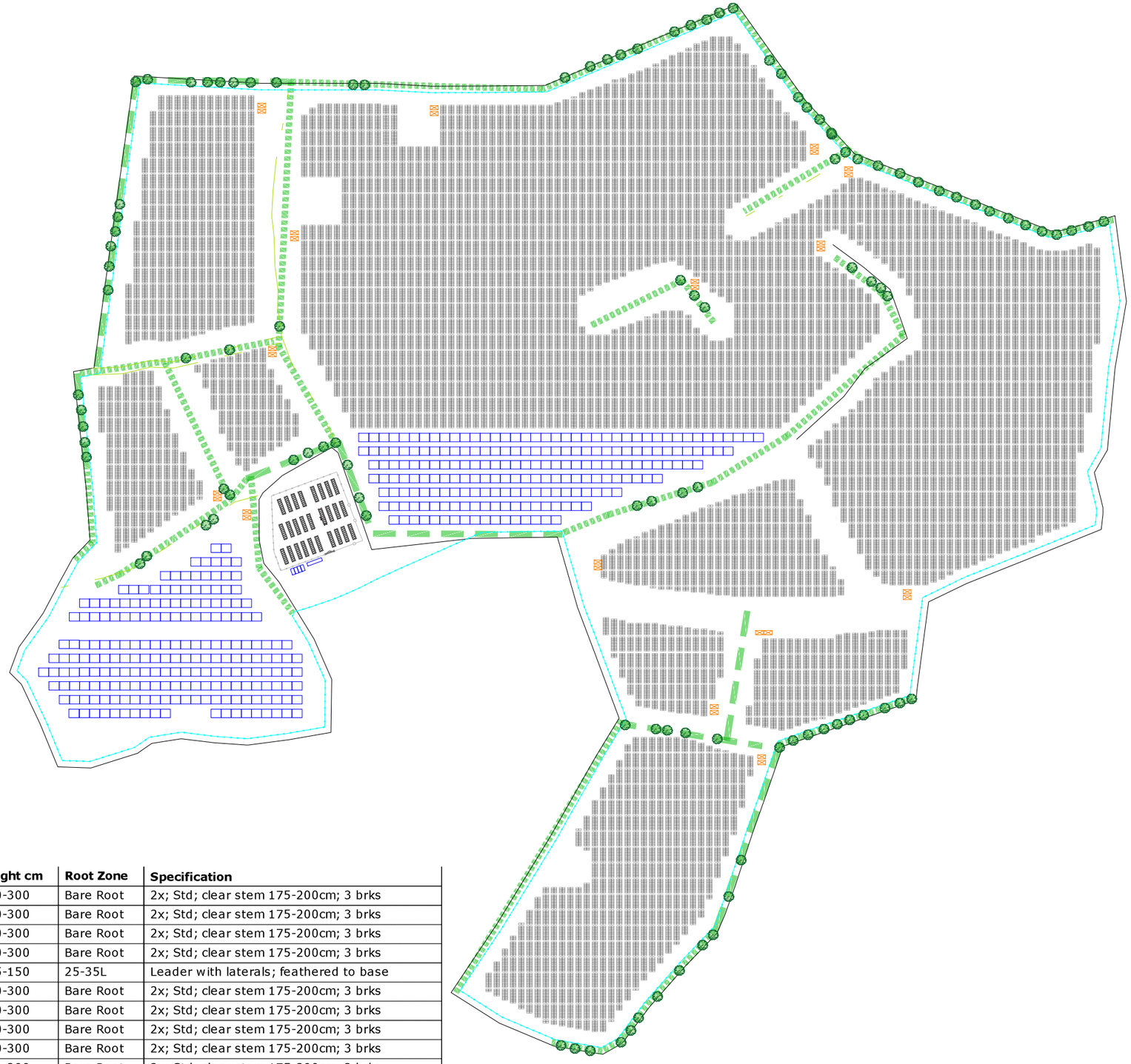
4.14 Overall, the enhancement measures delivered by the scheme will provide improved ecological connectivity and diversity (and subsequently resilience) across the Site. Additionally, the creation and enhancement will offer an increased foraging, sheltering and commuting resource to benefit a range of species, including small mammals and invertebrates.

5 CONCLUSION

5.1 Overall, the application of the GI Strategy will ensure that any potential adverse impacts on ecology are mitigated against, and the existing biodiversity interests enhanced, providing biodiversity net gain overall.

5.2 Where significant effects have been identified, the mitigation hierarchy has been taken into account, which sets out a sequential approach of avoiding significant effects where possible; applying mitigation measures to minimise unavoidable significant effects and then compensating for any remaining significant effects. Once avoidance and mitigation measures, and any necessary compensation measures, have been applied, and opportunities for enhancement incorporated, residual significant effects have then been identified.

Figure 1: Planting Plan



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REVISIONS

0	Revision	Date	By

KEY

- Proposed Native Hedgerow
- Proposed Native Hedgerow (50% mix for gaps)
- Proposed Native Trees
- Proposed Solar Panels
- Proposed Inverters
- Proposed Fencing

Tree Schedule

Abbrev.	Name	Girth/ Dia. cm	Height cm	Root Zone	Specification
Agl	*Alnus glutinosa*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Bpe	*Betula pendula*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Bpu	*Betula pubescens*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Fs	*Fagus sylvatica*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Psyl	*Pinus sylvestris*		125-150	25-35L	Leader with laterals; feathered to base
Pav	*Prunus avium*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Ppa	*Prunus padus*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Qpe	*Quercus petraea*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Qr	*Quercus robur*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Sau	*Sorbus aucuparia*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks
Tc	*Tilia cordata*	8-10	250-300	Bare Root	2x; Std; clear stem 175-200cm; 3 brks

Hedgerow Mix (Native Mix)

Abbrev.	Name	Height cm	Root Zone	Specification	Mix %	Ctr m
Cav	*Corylus avellana*	80-100	Bare Root	1+2; Transplant - seed raised; branched; 4 brks	15	0.5
Cmo	*Crataegus monogyna*	125-150	Bare Root	1+2; Transplant - seed raised	25	0.5
Fs	*Fagus sylvatica*	100-125	Bare Root	1+2; Transplant - seed raised	10	0.5
Ia	*Ilex aquifolium*	40-60	3L	Leader with laterals	10	0.5
Psp	*Prunus spinosa*	80-100	Bare Root	1+2; Transplant - seed raised; branched; 3 brks	20	0.5
Rca	*Rosa canina*	80-100	Bare Root	1+1; Transplant - seed raised; Provenance UK Area 304	15	0.5
Sn	*Sambucus nigra*	80-100	Bare Root	1+1; Transplant - seed raised; branched; 3 brks	5	0.5

Galpin Landscape Architecture
info@galpinlandscape.co.uk
www.galpinlandscape.co.uk

Client
Cenin

Project
Cil-Lonydd Solar Farm

Location
Abercarn, South Wales

Drawing
Masterplan (Planting Plan)

Scale	Date	Drawn By
As Shown	15.04.24	PM
Drawing Number	**Revision**	**Checked by**
Figure 1	Rev0	SG