tir collective
LANDSCAPE ARCHITECTS

Pen-Cae'r-Lan Farm, Seven Sisters, Neath
Green Infrastructure Statement

R01

January 2025

This **Green Infrastructure Statement** has been prepared by:

tir collective
LANDSCAPE ARCHITECTS

On behalf of:

Greentech Invest UK Limited

With input from:

Ecology — ge consulting

Arboriculture — ArbTS

Flood Risk Assessment — JBA consulting

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01 Introduction

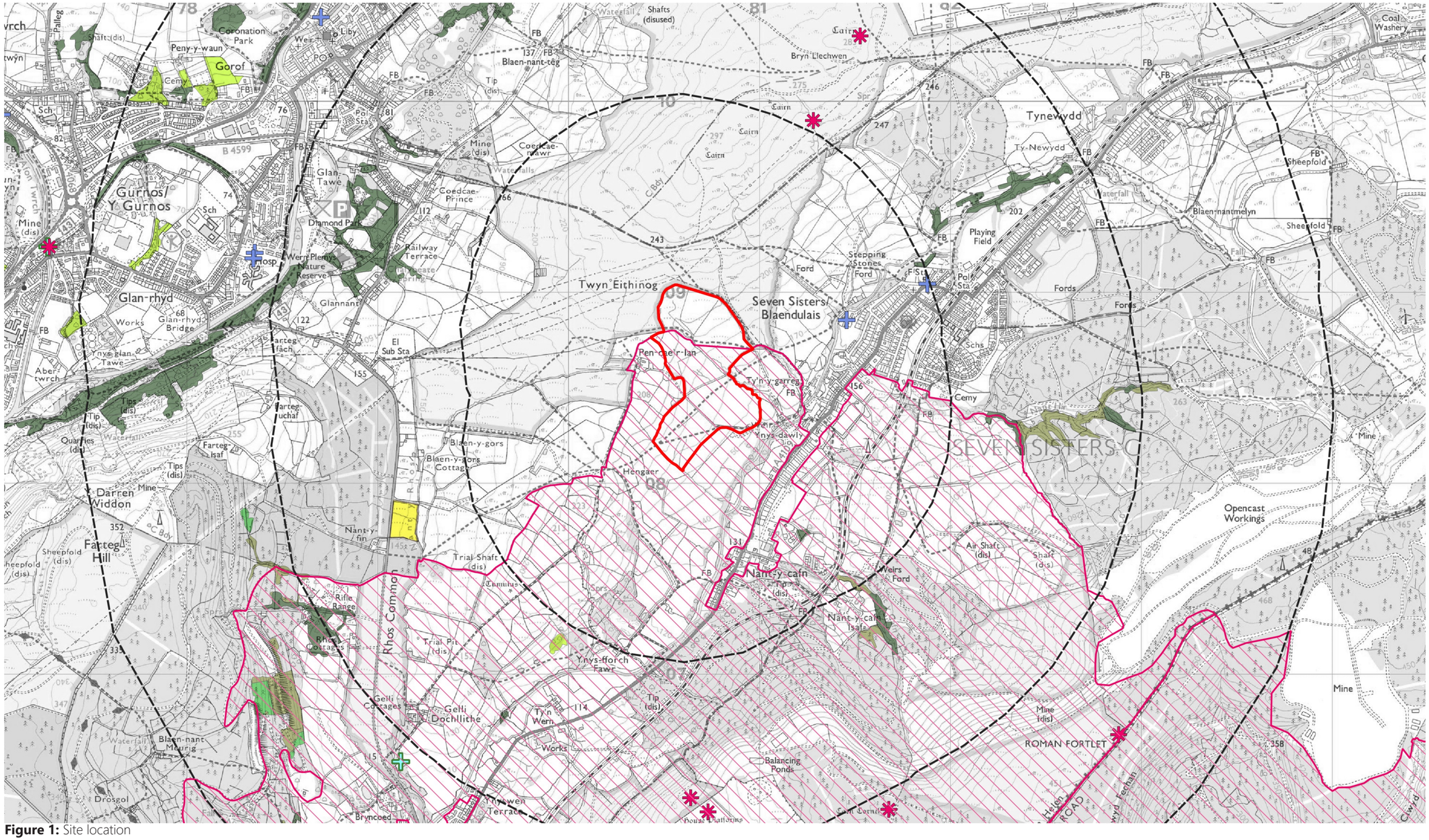


Figure 1: Site location

Key

Site Boundary

1km Buffers from Site Boundary

Special Landscape Area

Ancient Woodland

Ancient Semi Natural Woodland

Ancient Woodland Site of Unknown Category

Plantation on Ancient Woodland Site

Restored Ancient Woodland Site

Ecology Designations

Sites of Scientific Interest

Historic and Cultural Designations

Scheduled Ancient Monuments

Listed Building

Grade I

Grade II

Grade II*

Scope

Tir Collective is instructed by Greentech Invest UK Limited to prepare this **Green Infrastructure Statement**, which relates to the proposed solar farm on land at Pen-Cae'r-Lan Farm, Seven Sisters, Neath.

Proposals on site would include ground mounted solar PV panels with a generating capacity of up to 25MW, permanent grid connection hub, mounting framework, inverters, underground cabling, stock proof fence, CCTV, internal tracks and associated infrastructure, landscaping, biodiversity net benefit and environmental enhancements for a temporary period of up to 40 years. The proposed development also incorporates some landscape and ecological enhancements such as new native hedgerow, tree and scrub planting.

The site covers 23 hectares, approximately 500m west of the settlement of Seven Sisters. It is situated on semi-upland and rough grass land on the south/ southeast sloping valley sides. It is part of the pastoral mosaic landscape of the Dulais valley and forms a transitional landscape to upland moorland to the north. The landform of the site is sloping, from a high point of approximately 216m Above Ordnance Datum in the north to approximately 164m in the AOD in the south.

The shape and boundary of the site is largely defined by agricultural enclosures. The field pattern is irregular and medium-large. A mixture of linear tree groupings along outgrown hedgerows and watercourses form boundaries, which are indistinct in places. There are a number of watercourses in the site, running down and along the valley sides and shaping the site landform. An access track to Pen-Cae'r-Lan Farm runs northward through the central/ western part of the site. There is a further access track close to the eastern boundary of the site. A series of footpaths crosses the site, forming part of the local footpath network that connects Seven Sisters, Hengaer and Twyn Eithinog, however a number of these are poorly defined and appear to be infrequently used. Pylon infrastructure is prominent on the upland immediately to the north of the site, including a line of pylon towers and overhead cables that roughly follows the course of the northeastern site boundary.

To the north of the site is an area of upland with marshy grassland, where landform continues to rise to the ridge that defines the valley.

The landscape baseline conditions of the site are described in further detail within Landscape and Visual Appraisal (LVApp), which was also produced by Tir Collective. It describes the landscape details of the site and provides assessment of effects on landscape character and visual amenity. Tir Collective with input from **GE Consulting** also produced the Landscape and Ecological Management Plan (LEMP), which sets out the design, management and maintenance of the landscape and ecological proposals.

02 Policy Context

Wales Legislation

Well-being of Future Generations (Wales) Act 2015

The Act requires public bodies to carry out **sustainable development**. Sustainable development principle is "*the process of improving the economic, social, environmental and cultural well-being of Wales*." The principle is made up of five ways of working, including **looking to the long-term**; taking an **integrated approach**; involving a **diversity** of the population; **working collaboratively**; and **preventing issues**.

It sets out seven well-being goals including resilience and being globally responsible.

Environment (Wales) Act 2016

The Act is intended to work alongside the Well-being of Future Generations Act. It included a new biodiversity duty to **reverse the decline of biodiversity and to secure long-term resilience**.

Section 6 states *"A public authority **must seek to maintain and enhance biodiversity… and in so doing promote the resilience of ecosystems**". In relation to resilience of ecosystems, the following "must be taken into account:*

(a) diversity between and within ecosystems;

(b) the connections between and within ecosystems;

(c) the scale of ecosystems;

(d) the condition of ecosystems (including their structure and functioning);

(e) the adaptability of ecosystems."



The seven well-being goals from Well-being of Future Generations (Wales) Act, 2015

National Planning Policy

Future Wales: The National Plan

The plan provides a strategy for addressing key national priorities through the planning system, including achieving climate-resilience, developing strong ecosystems and improving the health and well-being of our communities. It also embeds the principles of the Well-being of Future Generations (Wales) Act 2015.

The key policy in relation biodiversity and green infrastructure is **Policy 9 – Resilient Ecological Networks and Green Infrastructure**. It states, "*action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit), the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals through innovative, nature-based approaches to site planning and the design of the built environment*."

Planning Policy Wales (PPW) Edition 12, February 2024

PPW aims to contribute towards the delivery of sustainable development, embedding the principles of the Well-being of Future Generations (Wales) Act 2015. PPW ingrains Placemaking Wales Charter and how sustainable development can be achieved through implementing placemaking.

Section 6.2 sets out **green infrastructure** should be given early consideration in development proposals and how it should be integrated into developments.

- **Paragraph 6.2.12** states " A **green infrastructure statement should be submitted with all planning applications**. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal… 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**."
- **Paragraph 6.2.14** states "Development proposals should be informed by the priorities identified in green infrastructure assessments and locally based planning guidance. The **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**."

Section 6.4 describes **biodiversity and ecological networks** and provides a summary of the **Step-Wise Approach** and how it should be used to "**maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity** by ensuring that any adverse environmental effects are firstly avoided, then minimised, mitigated, and as a last resort compensated for."[1] **Paragraph 6.4.12** states "providing evidence in the Green Infrastructure Statement that the step-wise approach has been followed, a scheme of enhancements must be provided to ensure a **net benefit for biodiversity**."

In relation to **trees, woodland and hedgerows, paragraph 6.4.37** sets out their importance for biodiversity and "connecting habitats for resilient ecological networks and

2 Paragraph 6.4.11, Planning Policy Wales Edition 12, February 2024

make an essential wider contribution to landscape character, culture, heritage and sense of place…"

The **planting of new trees, hedgerows, groups of trees and areas of woodland** should be promoted as part of new development. Existing trees/ groups of trees, hedgerows and areas of woodland must be protected "where they have ecological value, contribute to the character or amenity of a particular locality, or perform a beneficial green infrastructure function."[2]

In relation to the permanent removal of trees, woodland and hedgerows, it "will only be permitted where it would achieve significant and clearly defined public benefits."[3] The step-wise approach must also be followed. Where loss is unavoidable, PPW sets out the requirements of replacement planting, which "shall be at a ratio equivalent to the quality, environmental and ecological importance of the tree(s) lost and this must be preferably onsite, or immediately adjacent to the site, and at a minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 lost."[4]

2 Paragraph 6.4.39 Planning Policy Wales Edition 12, February 2024
3 Paragraph 6.4.42 Planning Policy Wales Edition 12, February 2024
4 Paragraph 6.4.42 Planning Policy Wales Edition 12, February 2024



The Step-Wise Approach from PPW Edition 12, Chapter 6

Finally, in relation to **SuDS,** paragraph 6.6.18 states "The provision of SuDS must be considered as an **integral part of the design of new development** and considered at the earliest possible stage when formulating proposals for new development." Paragraph 6.6.19 goes on to state "Design for multiple benefits and green infrastructure should be secured wherever possible…"[5]

5 Paragraph 6.6.19 Planning Policy Wales Edition 12, February 2024

Local Planning Policy

Neath Local Development Plan 2011-2026

The site is located in Neath Port Unitary Authority. Relevant LDP policies in relation to green infrastructure and biodiversity include:

BE 1: Design states "Important local features (including buildings, amenity areas, green spaces and green infrastructure, biodiversity and ecological connectivity) are retained and enhanced as far as possible."

In relation to **biodiversity**, **Policy SP 15: Biodiversity and Geodiversity** states "Important habitats, species and sites of geological interest will be protected, conserved, enhanced and managed through the following measures:

1. The identification of the following Internationally and Nationally designated sites within the County Borough to enable their protection:

(a) Special Areas of Conservation (SACs) and Ramsar Sites;

(b) Sites of Special Scientific Interest (SSSIs);

(c) National Nature Reserves (NNRs).

2. The identification and protection of sites of regional and local importance;

3. The protection of important natural heritage features".

In relation to **Trees** and **Biodiversity**, **Policy EN 7: Important Natural Features** states "Development proposals that would adversely affect ecologically or visually important natural features such as trees, woodlands, hedgerows / field boundaries, watercourses or ponds will only be permitted where:

1. Full account has been taken of the relevant features in the design of the development, with measures put in place to ensure that they are retained and protected wherever possible; or

2. The biodiversity value and role of the relevant feature has been taken into account and where removal is unavoidable, mitigation measures are agreed".

Neath Port Talbot Biodiversity and Geodiversity Supplementary Planning Guidance (SPG) May 2018

Paragraph 2.4.2 states "Green infrastructure assets are often multi-functional and can deliver a great number of benefits to society, including green space"

Point 5.1.4 highlights that sufficient information regarding existing green infrastructure assets within the Site and surrounding must be collected and considered in the design proposals, taking into account any potential direct and indirect impacts upon on-site and off-site biodiversity/geodiversity and their significance.

The document sets out a 'Stepwise approach' to maintaining and enhancing biodiversity. This approach serves the general principles for Biodiversity and geodiversity in planning and development which are set out below:

- Anticipate all potential biodiversity impacts of a development proposal as early as possible in the planning process;
- Protect designated sites, protected species, priority/S7 habitats and species;
- Ensure development does not lead to net loss of biodiversity;
- Identify opportunities for a development to contribute towards a net gain for biodiversity and protection of geodiversity;
- Take account of indirect and cumulative impacts;
- Recognise the importance of, and protect wildlife corridors and stepping stones;
- Prevent and aim to reverse habitat fragmentation and species population isolation.

The Stepwise approach is an six-step process, comprising the following:

Identify and safeguard any existing, or potential, important habitat/species and ecological connectivity.

Avoid loss of any existing or potential important habitats or species; or fragmentation of ecological connectivity.

Design biodiversity into applications/projects (e.g. landscaping, SUDs, site layout, living roofs and facades etc).

Mitigate for any unavoidable harm or loss to important habitat/species or fragmentation of ecological connectivity.

Compensate for any unmitigatable habitat/species losses that can be justified.

Enhance and increase the biodiversity of the site or off-site, if on-site cannot accommodate such requirements.

Monitoring to ensure compliance with agreed biodiversity/ geodiveristy obligations/conditions.

Management to maintain the quality of the biodiversity/ geodiversity for the long term.

Enhancement Opportunities have also been identified in **paragraph 5.1.28** stating *"All development proposals, whether or not there is a need to incorporate mitigation or compensation measures, should seek to provide additional benefits or 'enhancement' opportunities for biodiversity and/or geodiversity."*

Paragraph 5.1.20 emphasises what biodiversity impacts a development should avoid to ensure important habitats, species, and geological features are protected

Paragraph 5.1.23 identifies compensation of biodiversity loss will only be agreed, and should only be implemented, as a last resort if loss of biodiversity is unavoidable despite mitigation.

Paragraph 5.4.3 states that "Where measures to protect, mitigate, compensate, or enhance biodiversity and/ or geodiveristy have been set out as part of a planning permission, developers are also likely to be required to provide for their monitoring and management during and post-construction to ensure biodiversity/geodiversity objectives are fulfilled."

Guidance

Placemaking Wales Charter

The **Placemaking Wales Charter** has been developed by Welsh Government and the Design Commission for Wales in collaboration with the Placemaking Wales Partnership. The charter outlines six placemaking principles that cover the range of considerations that contribute to establishing and maintaining good places.

Well designed, maintained and connected green infrastructure is an essential component of good placemaking. The design of the proposed development should focus on well connected GI with multi-functionality to maximise the benefits to the environment.

Landscape Institute Green Infrastructure: An integrated Approach, 2013

The document defines **Green Infrastructure** (GI) as "*the **network of natural and semi-natural features, green spaces**, rivers and lakes... It is a natural, service-providing infrastructure that is often more cost-effective, **more resilient and more capable of meeting** social, **environmental** and economic **objectives**...*"

The Landscape Institute recommends "*local authorities ensure that GI is a core requirement in their policy documents*" and "*developers be aware of an area's strategic GI goals and appreciate how those goals contribute to mitigating the environmental impacts of new development and creating beautiful places.*"

Building with Nature Standards

The **Building with Nature Standards** Framework 2.0 involves twelve Standards, arranged across four groups. There are six Core Standards and three themes, Wellbeing, Water and Wildlife, containing two Standards in each.

The six Core Standards underpin the delivery of high-quality green infrastructure through design, planning and development. The Standards in the Wellbeing, Water and Wildlife themes build on this to target specific aspects:

CORE Standards

Standard 1 Optimises Multi functionality and Connectivity
Standard 2 Positively Responds to the Climate Emergency
Standard 3 Maximises Environmental Net Gains
Standard 4 Champions a Context Driven Approach
Standard 5 Creates Distinctive Places
Standard 6 Secures Effective Place-keeping

WELLBEING Standards

Standard 7 Brings Nature Closer to People
Standard 8 Supports Equitable and Inclusive Places

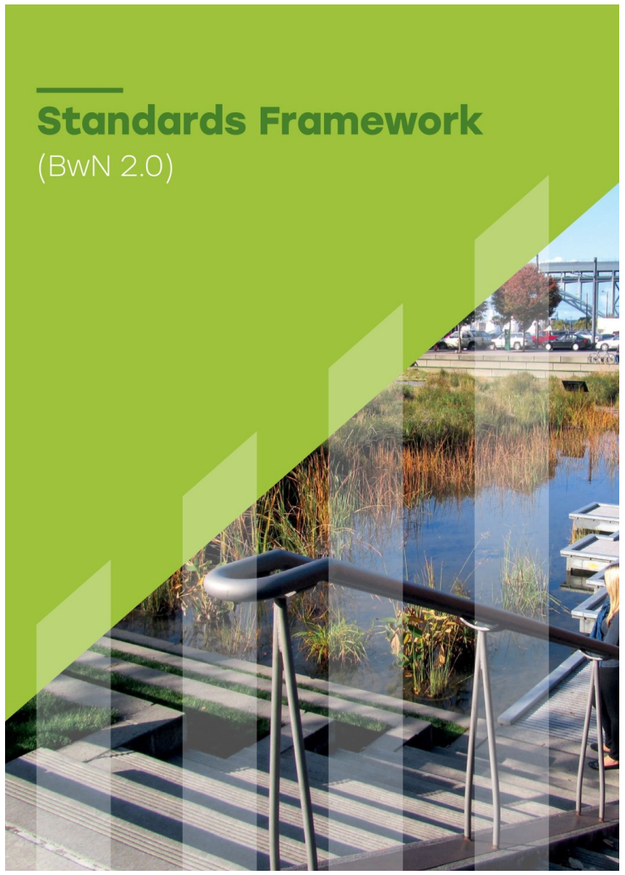
WATER Standards

Standard 9 Delivers Climate Resilient Water Management
Standard 10 Brings Water Closer to People

WILDLIFE Standards

Standard 11 Delivers Wildlife Enhancement
Standard 12 Underpins Nature's Recovery
Surveys have been carried out to confirm the green infrastructure features at the site and its surrounding context.





03 Existing Green Infrastructure

The elements that are considered to form the existing Green Infrastructure (GI) of the site and surrounding context are as follows:

- Tree lines and individual trees
- Ecology and Habitat
- Watercourses

Tree lines and individual trees

The tree survey was undertaken by **ArbTS** on the 11th March and 7th June 2024. The survey covered the site and the proposed site access route to the south.

The survey identified 37 individual trees and 42 groups of trees (79 total). The individual trees and groups are primarily located along field boundaries and watercourses. No hedgerows or areas of woodland were identified within the assessment.

14 individual trees and 19 tree groups (33 total) were surveyed as Category A, which are high quality and most desirable for retention. 3 individual trees and 14 tree groups (17 total) were surveyed as moderate quality and desirable for retention. 16 individual trees and 9 tree groups (25 total) were surveyed as Category C, which are low quality and optional for retention. 4 individual trees were surveyed as Category U, which are poor quality and unsuitable for retention.

Overall, trees surveyed on the site are mostly Category A, high quality mature Oak *Quercus robur*. Category B trees also mainly comprise Oak *Quercus robur* with tree groups comprising a mix of species. Category C trees and groups that are of low quality also comprise a mix of species with some individual Goat Willow *Salix caprea*. Of the 4 Category U trees, 3 are Ash Fraxinus excelsior and 1 is Oak *Quercus robur*.



Figure 1: Tree Constraints Plan for the main part of the site, produced by ArbTS.

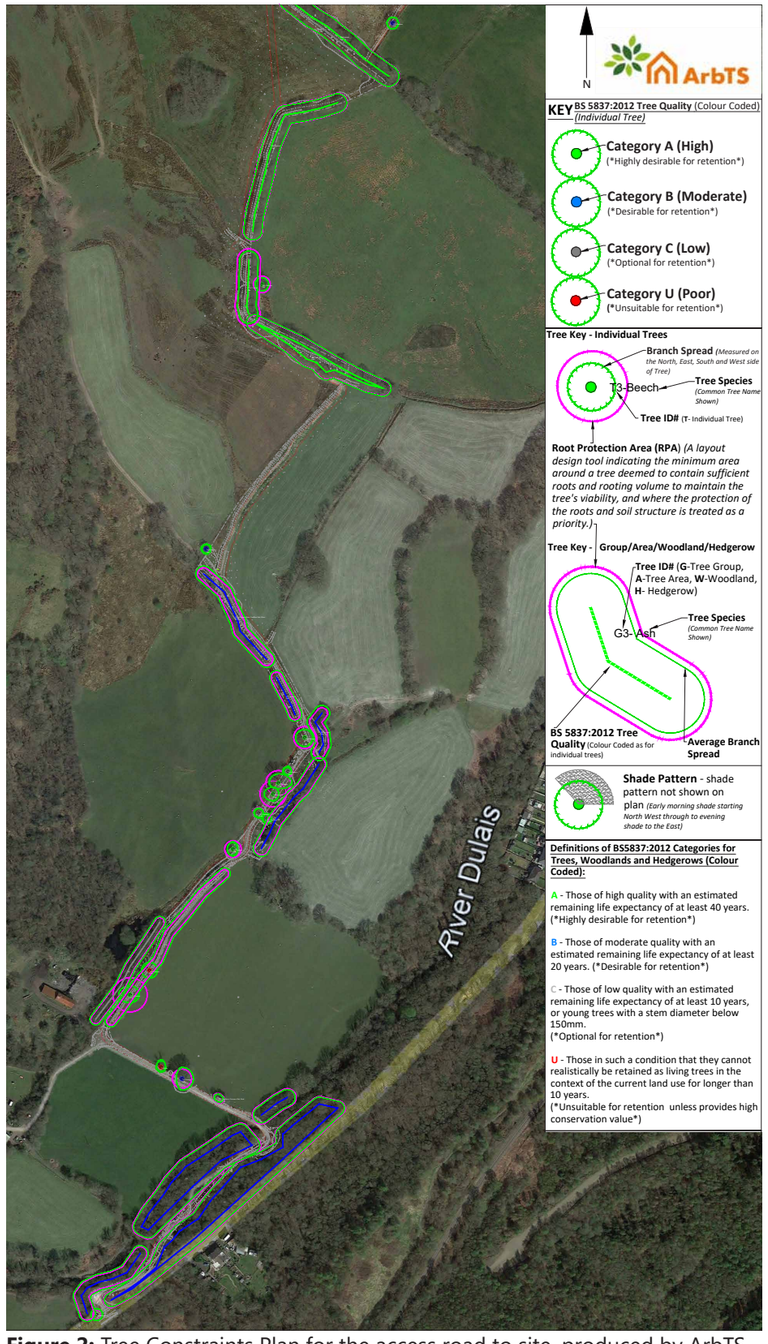


Figure 2: Tree Constraints Plan for the access road to site, produced by ArbTS.

Ecology and Habitat

An Ecological Impact Assessment (EcIA) was completed by **GE Consulting** in November 2024. The EcIA comprised a range of surveys including: desk-based study, UK Habitat Classification survey, National Vegetation Classification (NVC) survey, bat static detector survey, breeding bird survey and reptile survey.

The desk study confirmed **Nant y Rhos Site of Special Scientific Interest (SSSI)** is the only statutory designated site is within 2km of the site boundary. Its located 1.26km to the southwest. 0.5km to the west of the site is and area of **Ancient Semi-Natural Woodland**.

Within the is the locally designated **Neath Port Talbot Watercourses Site of Importance for Nature Conservation (SINC)**. It is a blanket designation afforded to watercourses and their surrounds within the County Borough. Beyond the site boundary, there are a further 9 SINCs within 1.5km of the site, which comprise heathland, woodland and grassland.

The site mainly consists of upland pasture for sheep grazing, comprising several contiguous fields. The Extended Phase 1 Habitat Survey confirmed that the site is dominated by two NCV communities: M23b (*Juncus effusus/acutiflorus - Galium palustre* rush-pasture *Juncus effusus* sub-community) and M25b (*Molinia caerulea - Potentilla erecta mire Anthoxanthum odoratum* sub-community). A small area of M23a (*Juncus effusus/ acutiflous-Galium palustre* rush-pasture *Juncus acutiflorus* sub-community (runnels and flushes)) is present in the southernmost field and several discrete areas of M25c (*Molinia caerulea- Potentilla erecta mire Angelica sylvestris* sub-community) are present in the central and northern fields. Furthermore, a complex mosaic of habitats is present adjacent to the main watercourse running through the Site. Given the irregular nature of the landforms and the small fragmentary areas of habitat in this area (which frequently merge into each other to create habitat mosaics) this area could not satisfactorily be sampled for NVC survey.

The majority of fields are bound by tree lines (containing a number of veteran trees) and associated ditches and watercourses, with the most significant watercourse running through the Site from the northwest to the southeast. In addition, a small parcel of dense scrub is present in the northeast of the Site.

Running from south to north, the access track comprises three distinct habitats, namely developed land; sealed surface, MG7b (*Lolium perenne* leys and related grasslands *Lolium perenne-Poa trivialis* leys sub-community) and M23b habitat.

The M23a, M23b, M25b and M25c communities, and the complex habitat mosaic within the Site are considered to be of **County importance**. The tree lines and watercourses are considered to be of **Local importance.** The dense scrub and MG7b community are considered to be of **Negligible importance**.

In relation to species, due to no **Great Crested Newts** records within 2km of the site and the poor aquatic habitat on the site, they are considered to be **absent** from the site and were scoped out from further assessment. There are some records of **amphibians** near to the site and there are some optimal habits on site and amphibians are known to be present on site. Amphibians are considered to be of **Site importance**.

There is 1 record of **badger** within 2km of the site. The site also provides suitable foraging, commuting and sett building habitat in the form of tussocky pasture and tree lines with associated ditches. Widespread evidence of foraging badger, in addition to a number of disused badger setts, were recorded within the Site; however, no active setts were recorded.

There are numerous records of **bats** within 2km of the site. A number of the trees within the tree lines support potential roost features (PRFs) for roosting bats. The tree lines, ditches and watercourses also provide suitable commuting and foraging habitat for a variety of bat species, and these are connected to a network of suitable habitat (hedgerows, tree lines, watercourses and woodland) within the wider area.
The Site is predominantly used by common and widespread species of bats and is therefore considered to be of **Site importance for commuting and foraging bats**.
The breeding **bird** surveys recorded a total of 41 species. These species were recorded throughout the tussocky pasture and boundary vegetation, and a particular concentration of records were noted within and adjacent to the major watercourse and along the north-eastern Site boundary. There are notable breeding species within the Site and the Site is therefore considered to be up to **County importance** for breeding birds.

No records were returned for **dormice** within 2km of the Site. The tree lines and dense scrub within the Site lack connectivity both within the Site and the wider area. Furthermore, the tree lines within the Site are considered sub-optimal due to the lack of suitable understorey vegetation. Dormice are therefore considered to be **absent** from the Site.



Figure 3: Phase 1 Habitat Survey results for the main part of the site, produced by GE Consulting

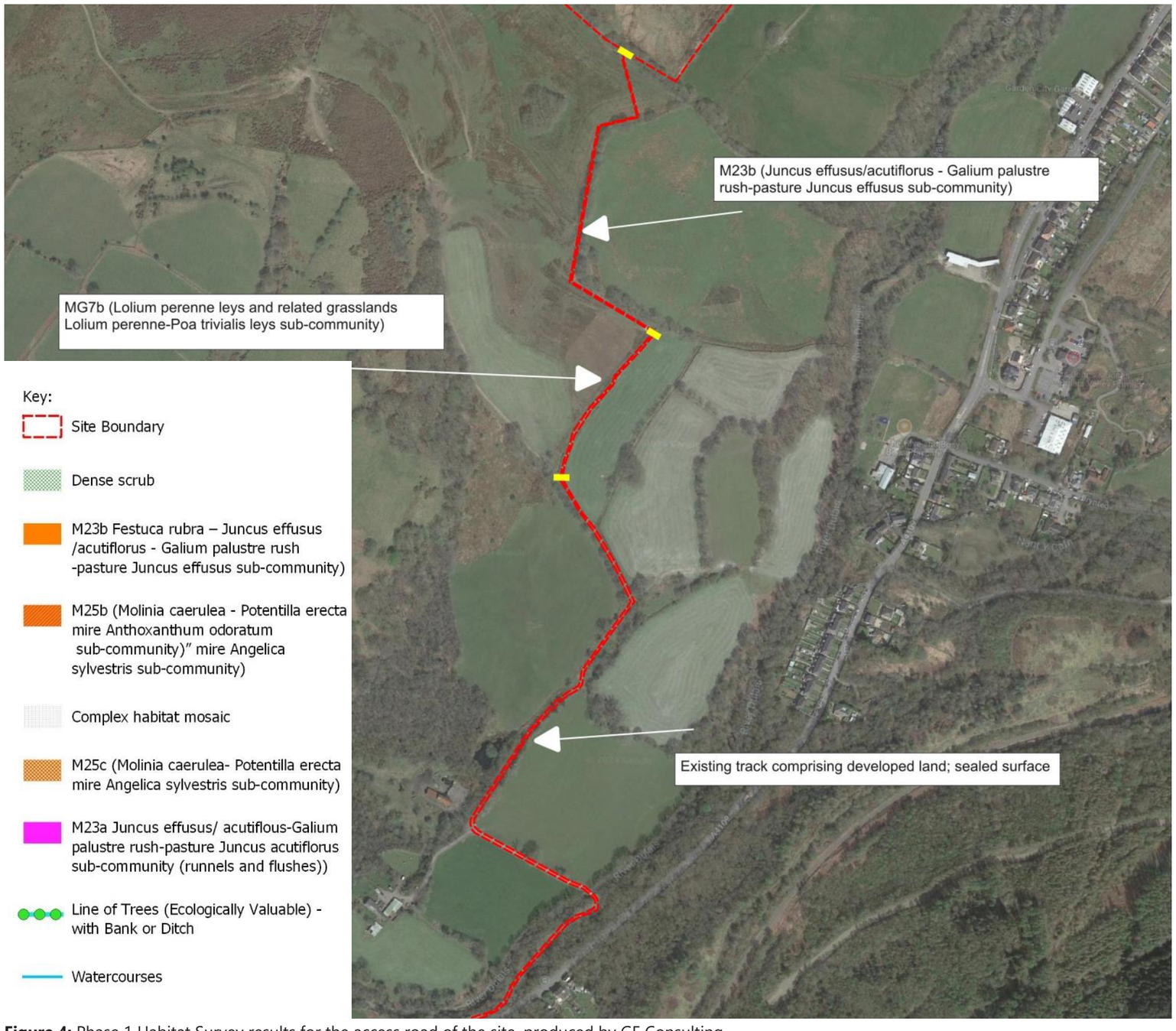


Figure 4: Phase 1 Habitat Survey results for the access road of the site, produced by GE Consulting

No records of notable/ protected **invertebrates** were recorded within the Site boundary or adjacent habitats, however, it is likely that these species could be using the onsite habitats. The tussocky pasture, tree lines and associated ditches and watercourses provide suitable habitat for a range of invertebrates, especially deadwood-associated species. The Site is considered to be of no more than **Site importance** for invertebrates.

There are several records for **reptiles** within 2km of the Site. The tussocky pasture, tree lines, wet ditches and watercourses provide optimal habitat for a number of reptile species. The reptile surveys recorded the presence of a breeding common lizard population, with the majority of observations recorded within the tussocky pasture habitat in the northeast of the Site. However, due to the abundance of similar habitat within the local area, the Site is considered to be of no more than **Local importance** for reptiles.

9 records for **hedgehog** were returned with the closest being 0.4km to the east of the site. One record for **otter** was returned, 1.38km northwest. No records were returned for **water vole**. The tussocky pasture and tree lines provide suitability for hedgehog whilst the watercourses provides some suitability for otter. Although no evidence of either species was recorded within the Site, it is considered possible that both species could utilise the Site to commute and forage.

Watercourses

A **Flood Risk Statement** was produced by **JBA Consulting** in December 2024. It included a topographic survey undertaken by Landmark Surveys Wales in May 2024 that confirmed the Main Site falls steeply in a general northwest to southeast direction.

The Statement also included an assessment of geology using the British Geological Survey (BGS) Geology Viewer. The bedrock geology across the entirety of the development site is shown to be the South Wales Middle Coal Measures Formation- comprised of mudstone, siltstone and sandstone.

There are varying superficial deposits within the site, with some areas having no recorded superficial deposits.

In relation to watercourses, the Afon Dulais, an NRW Main River, flows in a general south-westerly direction approximately 60m east of the site at its closest point.

A number of small unnamed ordinary watercourses, tributaries to the Afon Dulais, flow through the Main Site in a predominantly easterly direction.

The access track crosses the Afon Dulais in the southern extent via an existing bridge. In addition to this a number of small unnamed ordinary watercourses also cross the access track along its length.

In relation to flooding, the site is at low flood risk from rivers, very low risk from the sea, and very low risk from ground water.

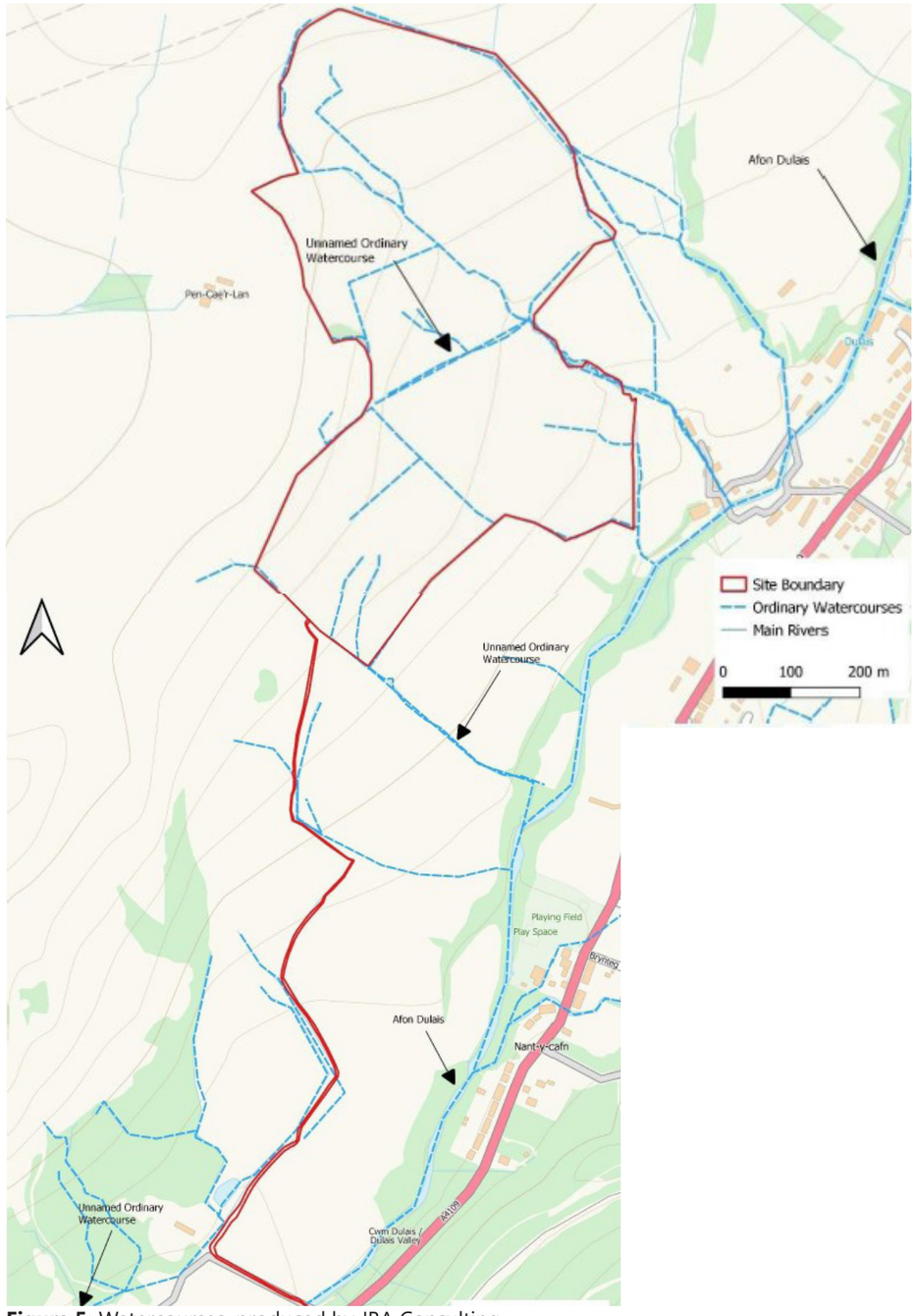


Figure 5: Watercourses, produced by JBA Consulting





Site Photographs (refer to LVApp for more detail):

1

1- View from track and footpath intersection in the south part of the site, looking southeast.

2

2- View from track and footpath intersection in the south part of the site, looking northeast.

3

3- View from track and footpath intersection in the south part of the site, looking southwest.



04 Landscape Strategy



Figure 6: Landscape Strategy

The following list defines the key landscape design concepts which have guided the preparation of the landscape proposals:

Protection of retained habitats, which are of ecological and nature conservation interest, include retaining existing trees and tree lines, watercourse and drainage ditches. There will be a 15m buffer between the retained trees, ditches and watercourses and the proposed solar panels.

Enhancement / creation of ecologically valuable habitats and features, including:

- Retention, enhancement and protection of existing vegetation along field boundaries and alongside watercourses and drainage ditches.
- Retention and buffering (15m) of 'complex habitat mosaic' and partial retention of M23b, M25b and M25c communities.
- Proposed tree planting to reinforce the existing vegetation pattern and providing succession to mature stock whilst filtering views towards the site.
- Native hedge planting to re-introduce hedgerows to the site and strengthen and gap up tree line boundaries. Species chosen will be native species of local provenance.
- Habitat creation for fauna such as reptiles, mammals and invertebrates with the installation of hibernaculum/ habitat piles and an otter holt.
- The erection, maintenance and periodic replacement (as necessary) of bird boxes.
- The erection, maintenance and periodic replacement (as necessary) of bat boxes on suitable trees within / bordering the site.
- A suitable buffer established around the root protection zone of each tree/ tree line to be retained.
- Management techniques on site to provide habitats suitable for grazing sheep under solar panels.

Maintenance and Management

The Landscape Ecological Management Plan (LEMP) sets out the management and maintenance of the proposed development over the 40 year operational phase of the solar farm.

The existing habitats identified as of value within the immediate zone of influence will be retained and protected during the construction and operational phase of the development. Following decommissioning, the new areas of habitat that have been created will be retained.

The maintenance and management objectives of the proposals and enhancements are to ensure the overall design concepts are achieved and the planting is established.

Retained tree lines and trees





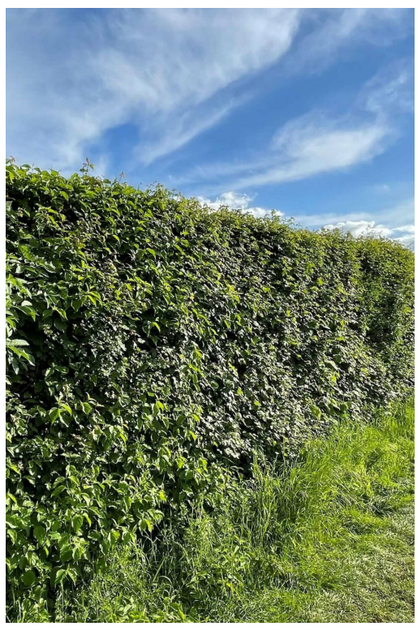
Retained trees and vegetation along watercourse



Proposed native tree and hedgerow planting







05 Green Infrastructure Statement

This statement provides a description of the effects of mitigation of the individual green infrastructure components, which forms the **Step D: Mitigate**, with a view to minimising any negative impacts on biodiversity as far as possible. The proposed result in enhancements over and above mitigation for loss.

Tree lines and individual trees

Existing trees and tree lines on the site contribute to the landscape character and setting of the area. The landscape approach to the design of the proposed development identified this importance as **Identify and Assess** and retention was a priority wherever possible, in accordance with **Avoid** and **Respond and Design**.

During the design development of the project, consideration was given to the existing trees and tree lines on site. In addition to the landscape character contribution, they also help to reduce potential visual impacts of the proposed solar farm. It was therefore critical to the design layout of the site that these features should be retained.

A minimum of a 15m buffer was incorporated into the site layout between existing trees and tree lines, and proposed solar panels. The Root Protection Areas (RPAs) of trees were mapped to ensure they would also be protected from development, where possible. Proposed access routes within the site will introduce temporary bridge crossings over watercourses, these are placed to utilise breaks in existing boundary tree lines and vegetation.

As part of the proposals, 4 Category C trees, which are of low quality are identified for removal to accommodate the proposed solar arrays. 3 of the trees are Goat Willow and 1 tree is a Birch. They are all located within the north of the site and do not contribute to linear tree or vegetation pattern.

The **avoid** measures has resulted in all high and moderate quality trees and tree lines within the site being retained. 4 low quality trees are to be removed and the 4 trees surveyed as Category U, which are unsuitable for retention are also to be removed.

As part of the mitigation proposals for the loss of 4 low quality trees, the landscape masterplan for the site includes tree planting. A number of trees are proposed throughout the site, mainly along existing field boundaries to infill some gaps in tree lines. The proposed tree species are native species that reflect tree species that exist on site, but there is also an opportunity to introduce new species to provide resilience. New tree planting would also provide some succession for the site, as much of the existing trees are mature. Tree planting proposed vastly exceeds the 3:1 replacement planting ratio as set out in PPW, Chapter 6.

The landscape masterplan also illustrates opportunities to reinstate native hedgerows on the site, as much of the existing mature trees lines are outgrown hedges. Hedgerow planting will comprise a mixture of locally sourced native species The hedgerow planting on the site would increase species diversity, improve the linear green corridors, and contribute to the habitat enhancement on the site.

Ecology and Habitat

The following paragraphs identifies the **avoidance** of the ecological features of greatest importance and the **compensation** measures, as a last resort, to mitigate unavoidable impacts.

The entire Site lies within the Neath Port Talbot Watercourses SINC To mitigate for the potential loss and/or fragmentation of habitats, all watercourses within the Site have been afforded a 15m buffer. A temporary bridge will be installed over the main watercourse to allow construction to be undertaken in the northeast of the Site. Furthermore, standard airborne and water pollution prevention measures, in line with the Pollution Prevention for Businesses (2024) guidance, will be followed construction to avoid negative impacts through pollution and run-off. With the proposed mitigation measures in place, no significant impacts are anticipated for Neath Port Talbot Watercourses SINC, or the nearby Ynysdawle SINC or Nant y Cafn SINC.

All tree lines, ditches and watercourses are to be retained and suitably protected during construction with 15m buffers. The area identified as 'complex habitat mosaic' will be retained and suitably protected during installation although a negligible area (c.0.005ha) will be lost to allow the creation of an access track across the watercourse.

Whilst proposals will not result in wholesale losses to habitats, effects of shading and the existing hydrological regime would be expected to lead to partial degradation of habitats and a reduction in species diversity beneath the panels.

During construction there is potential for damage to M23a/ M23b/M25b/M25c NVC community habitats, for example, by rutting and compaction in wet weather from site vehicles.

The proposals would impact the various grassland and rush pasture communities within the Site. The hydrological regime and drainage of the Site could be altered by the installation of the solar arrays effecting the way in which water naturally flows and is stored within these habitats. This could negatively impact the habitats' ability to function and the suitability of ground conditions for the species that form the specific habitats. In addition, although the tussocky structure of the grassland is likely to regenerate following installation, the increased shading under the arrays will lead to a reduction of species diversity. Shade-tolerant species would be expected to dominate, out-competing those species which are less accustomed to the shade leading to a reduction in overall species diversity. However, within margins and the gaps in the solar arrays and in areas receiving less shading, similar species composition and habitats structure would be expected to continue to prevail.

It is acknowledged that, despite the mitigation proposed (partial retention of some habitats), the proposals could lead to a reduction in the coverage and quality of the M23a, M23b, M25b and M25c habitats within the Site for the operational lifetime of the development.

It is anticipated that the pasture will still provide the necessary vegetation structure to support the population of reptiles currently present within the Site. Furthermore, the provision of solar panels will provide new opportunities for reptiles to bask. A method statement will also be followed during construction to protect reptiles and amphibians from harm.

Precautionary measure will be undertaken during construction to protect any badgers, hedgehogs, other mammals, and bats that are/maybe utilising the site.

The retention and protection of habitats on the site would mitigate impacts on the non-ground nesting birds recorded breeding within the Site. However, the proposals will necessitate the temporary clearance of purple moor grass and rush pasture habitat to facilitate the installation of the solar arrays and also the permanent loss of c. 0.30ha of pasture habitat to create the internal tracks and access track. These works will lead to significant, albeit predominantly temporary impacts, on three of the four ground-nesting bird species within the Site. As discussed, the pasture will be allowed to regenerate following the completion of works and although it is considered likely that, due to additional shading, the pasture within the main Site may lose some suitability for ground-nesting birds, it will still provide notable value.

The loss of suitable ground-nesting habitat under the solar panels will be suitably compensated for through an increase in structural diversity, creation of new micro-climates and an increase in invertebrate abundance. In addition, the conversion of the Site to a solar farm will lead to a cessation of the current topping management technique, which will also be favourable for breeding birds, and the solar panels will provide new perching and singing habitats for a number of bird species.

Vegetation clearance, including the future management of habitats, should be undertaken outside of the breeding bird season (March to August inclusive). If this is not practicable, then works should be preceded by a nesting bird check by a suitably qualified ecologist within 48 hours of the commencement of works.

The following **enhancement** measure are recommended for the site, which are also illustrated on the Landscape Strategy Figure 6:

- Gappy tree lines across the Site will be enhanced with additional native planting;
- Opportunities to reinstate hedgerows and improve habitat connectivity will be taken where possible with lengths of new hedgerow comprising a variety of native species;
- Management of new hedgerows will aim to achieve hedgerows which are bushy and minimum 3m tall and 2m wide. Hedgerows will be cut on a minimum 3 year rotation, with a third of the hedgerow allowed to grow for a minimum of 5 to 7 years, allowing vegetation to fruit, which provides a food source for biodiversity;
- Retained field margins and buffers will be appropriately managed under provisions of a LEMP.
- 15no. tree mounted bat boxes.
- 15no. tree mounted bird nest boxes.
- 6no hibernaculum/ habitat piles.
- 1no. otter holt.

Watercourses and ditches

All watercourses and ditches within the site are to be retained and protected. A 15m buffer is incorporated to the site layout to ensure the watercourse and associated habitat is retained and protected.

Resilience of Ecosystems

The Environment (Wales) Act 2016 provides a duty upon public bodies such as Neath Port Talbot Council to promote the resilience of ecosystems.

The illustrative landscape masterplan for the proposed development shows that new and enhanced green corridors will be created to re-enforce connectivity along field boundaries within the site and to the wider landscape. The LEMP sets out in detail the management and maintenance objectives, habitat creation, and measures to maximise ecological value.

The proposals would result in habitat enhancement and creation that will increase diversity across a range of species groups. The extent of new planting will be a significant increase, and condition will be maintained through measures identified in the LEMP. Wildlife corridors and connectivity would be enhanced by the infill planting of trees and new hedgerows, which would also introduce new species to the site. Overall, the proposed development would make a positive contribution to achieving ecosystem resilience locally.

Multi-functionality of Green Infrastructure

This section identifies the multi-functionality of each green infrastructure element: woodland trees and hedgerows; ecology and habitat; and drainage and watercourses. These elements reflect the over arching principle of **Step F: Enhance**, applying the principles of good green infrastructure.

The multi-functionality of green infrastructure is described as "GI functions are the roles that assets can play if planned, designed and managed in a way that is sensitive to, and includes provision for, natural features and ecosystem services. They may have obvious primary functions, but each asset can perform different functions simultaneously". Figure 6 establishes the Landscape Strategy aims, and the Green Infrastructure functions and benefits of the proposals are listed in Figure 7, against the list below:

- Retaining key natural characteristics
- Connected habitats for wildlife
- Reduce impact of climate change
- Nutrient cycling
- Wildlife habitat
- Improve water quality
- Improve soil organic matter
- Increase species and biodiversity

Figure 7 lists the key retained and proposed landscape assets, its green infrastructure element, and the functions of each landscape asset while signposting against the Building with Nature Standards.

Landscape asset	Green infrastructure element	Functions	Building with Nature Standards
Retained trees and tree lines	Tree lines and trees	• **Retaining key natural characteristics** • Wildlife habitat • Connected habitats for wildlife • Nutrient cycling	• 1 - Optimises Multifunctionality and Connectivity • 2 - Positively Responds to the Climate Emergency • 4 - Champions a Context Driven Approach • 5 - Creates Distinctive Places • 6 - Secures Effective Place-keeping
New native tree, hedgerow and scrub planting	Tree lines and trees	• Wildlife habitat • Connected habitats for wildlife • Reduce impact of climate change • Nutrient cycling • Improve soil organic matter • Increase species and biodiversity	• 1 - Optimises Multifunctionality and Connectivity • 2 - Positively Responds to the Climate Emergency • 3 - Maximises Environmental Net Gains • 5 - Creates Distinctive Places • 7 - Brings Nature Closer to People • 11 - Delivers Wildlife Enhancement • 12 - Underpins Nature's Recovery
Retained watercourses	Watercourses	• **Retaining key natural characteristics** • Wildlife habitat • Connected habitats for wildlife • Improve water quality	• 1 - Optimises Multifunctionality and Connectivity • 2 - Positively Responds to the Climate Emergency • 3 - Maximises Environmental Net Gains • 7 - Brings Nature Closer to People
Retained habitats	Ecology and Habitat	• **Retaining key natural characteristics** • Connected habitats for wildlife • Wildlife Habitat	• 4 - Champions a Context Driven Approach • 6 - Secures Effective Place-keeping • 11 - Delivers Wildlife Enhancement • 12 - Underpins Nature's Recovery
Proposed SuDS features	Drainage and Watercourses	• **Improve water quality** • Reduce flood risk • Wildlife Habitat • Increase species and biodiversity	• 1 - Optimises Multifunctionality and Connectivity • 2 - Positively Responds to the Climate Emergency • 4 - Champions a Context Driven Approach • 9 - Delivers Climate Resilient Water Management • 11 - Delivers Wildlife Enhancement • 12 - Underpins Nature's Recovery
Proposed bird and bat boxes, hiberrnaculum and otter holt for habitat creation	Ecology and Habitat	• **Wildlife Habitat** • Connected habitats for wildlife • Increase species and biodiversity	• 3 - Maximises Environmental Net Gains • 7 - Brings Nature Closer to People • 11 - Delivers Wildlife Enhancement • 12 - Underpins Nature's Recovery

06 Conclusion

In relation to the Step-Wise Approach, the site is not located within a statutory designated landscape or site of ecological importance, but the central and southern part of the site is located in the locally designated Dulais Valley Special Landscape Area and the entirety of the site is located within the Neath Port Talbot Watercourses SINC.

The existing green infrastructure on the site and immediate vicinity contributes to the landscape character of the area. Features such as mature tree lines and trees contribute to the potential screening and filtering of views of the proposed development, it was essential to the design of the site layout that these features should be retained. The watercourse and associated ditches are also a key feature, whilst the upland pasture landscape reflects the valley locations before transitioning to upland.

Several surveys for the site were carried out by a range of consultants. Desk-based studies and field surveys have ensured that important features on the site are retained.

15m buffers from trees, tree lines, the watercourse and associated riparian vegetation was incorporated into the development of the proposed site layout. Existing gaps in vegetation were also utilised in the development of the proposed access routes. All these **avoid** measures has resulted in the majority of trees within the site being retained, except for 4no. category C trees which are considered low quality, and trees surveyed as Category U, which are unsuitable for retention regardless of the development proposals.

The proposed development provides an opportunity to provide succession to mature trees, and to introduce new species to the site to increase resilience. The proposals also provide the opportunity to re-instate hedgerows to the site, which are to be appropriately managed. The new planting would enhance connectivity on the site and to the wider area.

In relation to other ecological and habitat features, avoidance, mitigation and compensation measures have been incorporated into the design to ensure that the proposals have minimal adverse impacts on designated sites and protected species. However, following mitigation and compensation, degradation and impacts to grassland and rush pasture habitats are considered likely.

Enhancement features include the installation of bird and bat boxes throughout the site, the installation of an otter holt and hibernaculum/ habitat piles. These have the aim of providing an increase in wildlife opportunities on site post-development, contributing to the aims of Planning Policy Wales and local policy.

The proposals contribute well to the 12 Standards of Building with Nature, creating well connected, multi-functional green infrastructure.

Overall, it is considered that the proposed development would be in accordance with PPW Edition 12 and the Neath Port Talbot Local Development Plan policies relating to Green Infrastructure.

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