

GREEN INFRASTRUCTURE STATEMENT

CLIENT: Andrew Scott Ltd



Introduction

dp landscape architecture [DPLA] have been commissioned by Andrew Scott Ltd to provide a Green Infrastructure Statement [GIS] to support the proposed redevelopment of the Gnoll Estate Country Park, Neath. An assessment of the existing landscape and surrounding context was undertaken on 31st January 2024 by Dan Patterson BA [hons] DipLA MLI. The assessment comprised a site walk-over and brief desktop study.

This GIS covers 6 separate zones within the park. Whilst each zone is subject to a separate planning application, the aim of this report is to examine the Green Infrastructure [GI] of the park in a holistic manner to avoid unnecessary repetition and then cover each site in more detail under separate sections. The 6 zones are referred to as:

- 01 Gnoll Ruins
- 02 Visitor Centre
- 03 Pond Cottage / tea room
- 04 Kitchen Garden
- 05 Main Car Park
- 06 Bridge to Woodland Trust



Location of the 6 zones covered in this report.

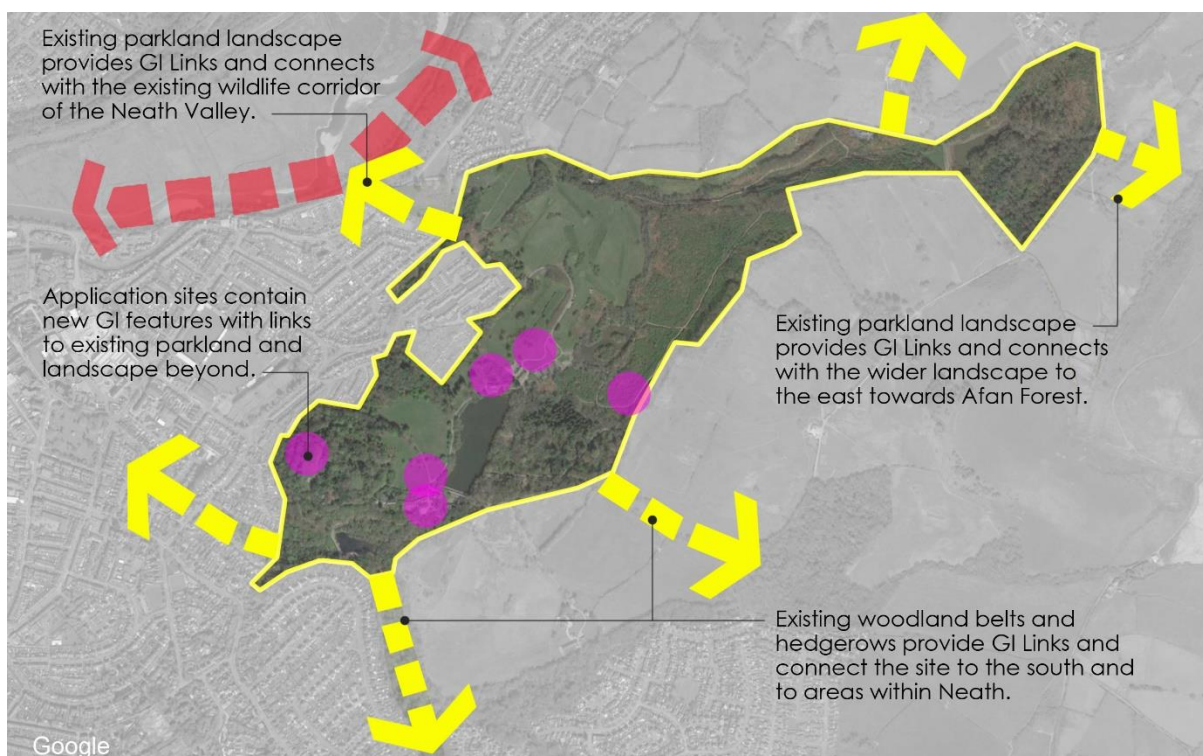
Site Context

Gnoll Estate Country Park is a Grade 2* park which is located to the east of Neath and extends in a northeasterly direction away from the town. The western edges of the park are bounded by the town of Neath whilst the eastern parts of the park naturally blend in with the surrounding countryside.

There are a broad range of existing landscape and GI features of note within the largely 18th Century park. These include open grassed areas, ornamental and native planting, areas of woodland and wetland habitats.

The parkland setting and its components, whilst not a completely natural landscape, nevertheless play an important role in connecting the site to the wider ecological networks around Neath. This includes the existing wildlife corridor of the Neath Valley, woodland belts and ribbons of Green Infrastructure that penetrate the town and much wider connections east towards open countryside and forests.

The existing Green Infrastructure is fundamental to the development of the park and will be retained where possible and enhanced by the introduction of new native tree planting throughout the site as well as new hedges, shrubs, plants known for wildlife value, wetland plant mixes, wildflower meadow areas and other habitat types.



Aerial view of Gnoll Estate Country Park showing existing GI in relation to application sites.

Green Infrastructure

Planning Policy Wales defines Green infrastructure as the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places. Component elements of green infrastructure can function at different scales and some components, such as trees and woodland, are often universally present and function at all levels.

The Environment (Wales) Act 2016, provides a context for the delivery of multi-functional green infrastructure. Its protection and provision can make a significant contribution to the sustainable management of natural resources, and in particular to protecting, maintaining and enhancing biodiversity and the resilience of ecosystems in terms of the diversity within and connections between ecosystems and the extent and condition of these ecosystems, so that they are better able to resist, recover from and adapt to pressures.

The quality of the built environment should be enhanced by integrating green infrastructure into development through appropriate site selection and use of creative design. 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.

This report uses the following five principles of Green Infrastructure as a guide to inform the landscape designs to ensure the landscape maximises the benefits to people and wildlife.

The five principles:

- Multi-functional
- Adapted for Climate Change
- Healthy
- Biodiverse
- Smart & Sustainable

Multi-functional:

The landscape design for each zone includes a range of GI features for the benefit of people and wildlife. These include native tree planting to improve amenity as well as providing summer shade and a food source for wildlife.

The planting designs include native hedges, formal hedges, ornamental shrubs and those that are known to support wildlife. This will improve amenity and tie in visually with the adjoining landscape. This planting also provides safe routes through the sites for mammals and foraging opportunities for local fauna.

Areas of wildflower meadow are also proposed to the edges of sites and as a ground cover to scrub and woodland planting. The proposed seed mix contains a range of flowering species which will add to the amenity and support endangered species such as bees and butterflies.

The combination of the above measures will enhance biodiversity across the 6 zones and demonstrates every effort is being made to create a multi-functional landscape.



Landscape features to benefit people and wildlife.

Adapted for Climate Change:

The drainage design includes a Sustainable Urban Drainage System. [SUDS] and this design comprises a series of rain gardens associated with the Visitor Centre and the Kitchen Garden.

This provides an excellent opportunity at surface level to create rich wetland and grassland habitats capable of holding water on site. This will improve and manage water quality, enhance biodiversity as well as providing amenity for the people using the site.



Rain Garden Mix.

Healthy:

The underlying principles of the landscape design for the site are to create an attractive setting for each zone, appropriate for the surrounding context and for the benefit of all users.

This will be achieved by retaining and enhancing existing landscape features where possible and introducing new native tree and shrub planting as well as native hedges and areas of wildflower meadow as described earlier.

The combination of the above GI features will contribute positively to the amenity of the park and to the wellbeing of those who work there and / or visit.

Biodiverse:

The planting schemes include a large number of native species and species noted for wildlife value. These features include trees, hedges, shrubs, wildflower meadows and wetland habitats across the sites.

The existing planting infrastructure will be retained where possible and enhanced. It will also be maintained to ensure a healthy biodiverse site in the long term, which in turn will benefit local ecosystems and the wellbeing of people.

Green roofs are also proposed at the Pond Cottage / tearoom and at the Visitor Centre. This adds an additional layer of biodiversity to the park.

In addition to the habitats created through the planting design, the site will also include other ecological measures. Bat and bird boxes will be installed on the walls of the Ruins, the new Visitor Centre building and in the Kitchen Garden.



Bat boxes, bird boxes and invertebrate refugia.

Smart & Sustainable:

The planting design for the development has been carefully considered to ensure that it is not reliant on artificial irrigation.

The only exception to this could be during the establishment period, where, during periods of prolonged dry weather, the young plants may require some watering to prevent loss and to aid their successful establishment. In these circumstances, the watering should be carried out using harvested rainwater where possible.

The following sections of this report now focus on each individual zone and addresses the GI issues specific to each application site as a series of sketches indicating GI Opportunities and Constraints.

The 6 zones described earlier have been designed to contain a range of measures to ensure GI is maintained and enhanced as part of the development.

Key measures include:

- Native tree planting around the sites. This provides an attractive setting and adds to the existing landscape infrastructure.
- The retention, protection and enhancement of existing vegetation where possible. This ensures that important existing habitats are maintained and linked to new GI features.
- Areas of woodland will be managed effectively so that ground flora can establish and room will be created for tree canopies to develop properly. This will result in better quality and more diverse woodlands.
- Native hedges are included in a number of the zones which will provide a food source and nesting opportunities for birds.
- Native scrub / structure planting is included which will add to the ecology of the park and provide cover for small mammals.
- Shrub planting including species known for wildlife value. This softens building lines, adds to the amenity value of the park and enhances biodiversity.
- Rain garden planting and grasses include a broad range of species and create wetland habitats.
- Green roofs on buildings add another layer of important ecological habitats, further increasing biodiversity.
- Wildflower meadows and areas of long grass improve on the existing mown, species poor amenity grass and further enhance the external environment.
- In addition to the above, some further off-site mitigation is planned within the park, in an areas of existing woodland between the Gnoll Ruins site and the Visitor Centre. This involves the removal of 97 dead / dying Ash trees and replacing these with new native tree planting. The new planting will contain a broad range of species which will improve the biodiversity of the woodland and increase longevity by being more climate resilient.

The combined effect of the above measures will be the creation of a species rich landscape, well connected to the existing Green Infrastructure and appropriate to the scale and nature of each of the developments.

The DECCA Framework and Net Benefits for Biodiversity

The DECCA framework is used for evaluating ecosystem resilience based on five attributes and properties specified in the Environment (Wales) Act. These are: Diversity, Extent, Condition, Connectivity and Aspects of ecosystem resilience.

A summary of the definitions is described below:

- **Diversity:** *maintaining and enhancing diversity at every scale, including genetic, structural, habitat and between-habitat levels. This supports the complexity of ecosystem functions and interactions that deliver services and benefits.*
- **Extent:** *incorporating measures which maintain and increase the area of semi-natural habitat/features and linkages between habitats. In general, smaller ecosystems have reduced capacity to adapt, recover or resist disturbance.*
- **Condition:** *The condition of an ecosystem is affected by multiple and complex pressures acting both as short term and longer term types of disturbance. Both direct and wider impacts should be considered, for example avoiding or mitigating pressures such as climate change, pollution, invasive species, land management neglect etc.*
- **Connectivity:** *This refers to the links between and within habitats, which may take the form of physical corridors, stepping stones in the landscape, or patches of the same or related vegetation types that together create a network that enables the flow or movement of genes, species and natural resources. Developments should take opportunities to develop functional habitat and ecological networks within and between ecosystems, building on existing connectivity.*
- **Aspects** of ecosystem resilience (adaptability, recovery and resistance): *ecosystem resilience is a product of the above four attributes. Adaptability, recovery and resistance to/from a disturbance are defining features of ecosystem resilience.*

The landscape proposals for each development seek to maintain and enhance diversity where possible by introducing new and varied habitats. The extent of habitats have been increased by introducing new hedges, areas of native scrub and wildflower meadow.

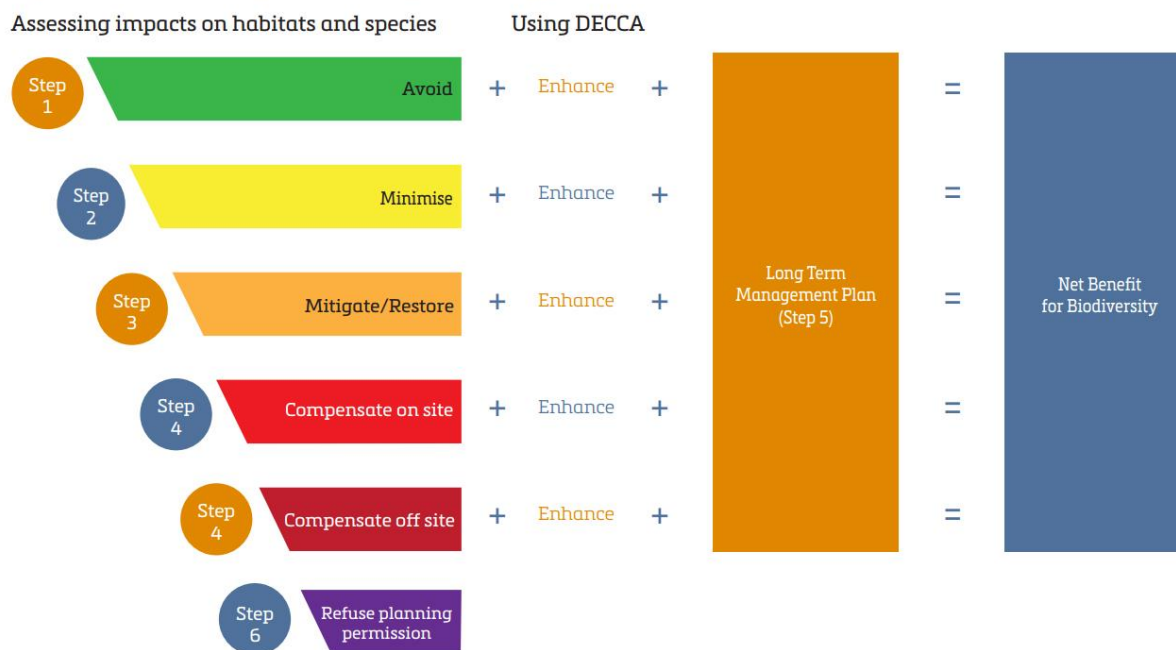
The application sites involve the removal of non-native species and the better management of existing habitats, thereby improving the condition of the existing ecosystems. The new landscape proposals improve the existing connectivity between habitats and also create important links and stepping stones throughout the park using tree planting, new hedges and green roofs.

The variation in species used in the proposed tree and shrub planting, the areas of scrub and new wildflower meadows all contribute positively to the long term resilience of the park's ecosystems.

Demonstrating Net Benefits for Biodiversity [NBB]

The landscape proposals for each site demonstrate that they have both maintained and enhanced biodiversity and built resilient ecological networks. The biodiversity enhancements described above, achieve NBB by following the Step-Wise Approach of firstly avoiding, then minimising, mitigating and as a last resort compensating for, adverse impacts on the environment in a development.

Figure 12: Summary of the Step-Wise Approach



Summary of the Step-Wise Approach taken from Planning Policy Wales. 12 Edition – February 2024.

The examples of using the Step-Wise Approach are evident within the designs for each site. The removal of existing vegetation has been avoided where possible, for example in the car park where the layout has been designed to accommodate existing trees.

Where removal of existing vegetation has been unavoidable, either due to the developments or due to other reasons such as removing dead / dying trees, this has been minimised and then mitigated with new planting and ecological measures to ensure the appropriate restoration of habitats.

Finally, the majority of the mitigation measures have been included within each site and these are listed on each sketch, demonstrating that all attempts have been made to compensate on site. The only exception to this would be the main car park service yard where the compensation is being provided 'off-site' by bringing an area of woodland into long term management.

The NBB's for each site have been achieved through a range of actions, ranging from installation of bat and bird boxes to the creation, and/or restoration or long term management of habitats. The sketches and summaries provided for each site are proportional to the extent and impact of each development and contribute to a more joined up approach to a resilient and biodiverse ecological network in the park.

Conclusion



The existing landscape has been assessed and important existing features have been identified. These will be retained and enhanced where possible and as appropriate, as part of the new landscape proposals for the sites.

The impact of the new developments will be mitigated by creating new planting zones, wildflower meadows and other landscape features which will improve biodiversity, provide important ecological habitats and enhance the amenity value of the sites.

The successful establishment of the landscape design for each of the sites will provide a network of healthy, multi-functional and biodiverse green spaces, capable of delivering a wide range of environmental and quality of life benefits for people and wildlife.