Wolfs Castle, Cardiff

Green Infrastructure Statement

Revision B
Pre-Application Submission
19/12/2025

Overview

As part of the development process, the existing Green Infrastructure (GI) asset has been assessed through landscape desktop survey, and the context of the site, in its wider GI network, and within the policy framework updated Chapter 6 of PPW 12, (Feb 2024). The following statement reports on the iterative GI process and how it has influenced the design approach based on national and local policy, focusing on the appropriate and proportionate GI benefits that development of the site can contribute, with regard to, and taking all reasonable steps, to enhance the most valuable GI assets.

Chapter 6 of PPW states at that *'all reasonable steps must be taken to maintain and enhance biodiversity and promote the resilience of ecosystems and these should be balanced with the wider economic and social needs of business and local communities"*

Introduction

Definition of Green Infrastructure.

The term *'Green Infrastructure'* first came to prominence in the early 2000's most notably in the Landscape Institute Position Statement *'Green Infrastructure An integrated approach to land use' (2009).* This document defined Green Infrastructure as;

> *'The network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities. 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 than 'grey' infrastructure.'*
>
> GI Functions are described as 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 ecosystems services. They may have obvious primary functions, but each asset can perform different functions simultaneously – 'multifunctionality.'*

The natural environment between and within towns and cities, including greenspace, vegetation and water. Provision of GI offers a multitude of ecosystem services (i.e. the benefits that people derive from nature) and forms part of a sustainable approach to the

management of natural resources. New infrastructure should seek to strengthen and reinforce existing assets within a site and it should be planned and designed to be beneficially multi-functional.

Principal Targets of GI.

The principal multifunctional targeted benefits of GI are to:

1. Protect and enhance biodiversity and the resilience of ecosystems and their connectivity;
2. Consider Opportunities for habitat protection, restoration, creation and management in the provision of GI;
3. Contribute to improved mental health with more direct contact with nature, the seasons and natural processes;
4. Identify opportunities where existing and potential green infrastructure could be improved and enhanced as part of placemaking;
5. Provide opportunities for improved physical health and wellbeing through recreational access, community permeability and connectivity;
6. Enhance place-making, identity and sense of community ownership;
7. Improve townscape and landscape quality and visual amenity;
8. Integrate play and recreation in GI networks;
9. Improve micro-climate (summer cooling/winter shelter);
10. Mitigate and adapt to the impacts of climate changes improving of;
    - Oxygen production.
    - Carbon sequestration (locking carbon in vegetation and soils).
    - Water sequestration (vegetation evapotranspiration and formal attenuations).
    - Improve air and water quality.
    - Reduce flood risk.
    - Provide alternative transportation opportunities (cycling/walking/public transport links).

Policy & Guidance

Planning Policy Wales 2024 (12th Edition)

<u>6.2 Green Infrastructure</u>

“Green infrastructure plays a fundamental role in shaping places and our sense of well-being, and are intrinsic to the quality of the spaces we live, work and play in. The planning system should protect and enhance green infrastructure assets and networks because of these multi-

functional roles. The protection and enhancement of biodiversity must be carefully considered as part of green infrastructure provision alongside the need to meet society's wider social and economic objectives and the needs of local communities. The multiple benefits that resilient ecosystems and green infrastructure offer to society, including the economic and social contribution they make to local areas, should be taken into account when balancing and improving these needs."

"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, green infrastructure can embed the benefits of biodiversity and ecosystem services into new development and places, helping to overcome the potential for conflicting objectives, and contributing towards health and well-being outcomes."

Future Wales: The National Plan 2040

Policy 9 – Resilient Ecological Networks and Green Infrastructure

"To ensure the enhancement of biodiversity, the resilience of ecosystems and the provision of green infrastructure, the Welsh Government will work with key partners to:

- identify areas which should be safeguarded and created as ecological networks for their importance for adaptation to climate change, for habitat protection, restoration or creation, to protect species, or which provide key ecosystems services, to ensure they are not unduly compromised by future development; and
- identify opportunities where existing and potential green infrastructure could be maximised as part of placemaking, requiring the use of nature-based solutions as a key mechanism for securing sustainable growth, ecological connectivity, social equality and well-being.

Planning authorities should include these areas and/or opportunities in their development plan strategies and policies in order to promote and safeguard the functions and opportunities they provide. In all cases, 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."

> "As part of a green infrastructure assessment, broad opportunities for habitat protection, restoration or creation and the provision of green infrastructure may be specified as part of identifying areas to be safeguarded or may take the form of more specific allocations. This may be achieved, for example, through the provision of

buffer areas around protected sites or stepping stones connecting habitats or through the identification of green infrastructure in and around urban areas."

Cardiff Green Infrastructure SPG November 2017

It provides further guidance to Policy KP16: Green Infrastructure set out in the Cardiff Local Development Plan 2006 – 2026 and will assist in securing the provision of sustainable development across the City

The Green Infrastructure Plan sets out six objectives upon which that plan is based:-

1. To protect and enhance Cardiff's ecosystems to ensure that they continue to support diverse habitats and species, allowing them to adapt to change.
2. To ensure that Cardiff's green infrastructure is enhanced and managed in a way that increases resilience to the changing climate and provides protection for people and places.
3. To maximise the contribution that green infrastructure makes to Cardiff's economy by enhancing the city's attractiveness for business, tourism and living.
4. To increase the potential physical and mental health benefits from a good quality, natural environment by improving, promoting and creating connected, multi-functional green infrastructure in Cardiff.
5. To use Cardiff's green infrastructure to provide opportunities for people to access the outdoor environment and to participate in learning, training and volunteering to foster social inclusion and equality and improve life chances.
6. To build upon Cardiff's reputation as a vibrant, green and attractive city by continuing to enhance and sustain the green infrastructure that underpins the city's unique qualities and sense of place.

Development GI Process

As part of the development process, the existing Green Infrastructure (GI) asset has been assessed through Landscape desktop survey including the context of the site, Ecological and Arboricultural survey. These assessments are illustrated in the submitted ecology, Arboricultural and Landscape plans and reports supporting the development's future PAC submission.

The stepwise approach (PPW 12, Feb 2024, page 148 figure 12) has been implemented. A summary of the stepwise approach;

1. **Avoid**
   To avoid damage to biodiversity and ecosystem functioning.

2. **Minimise**
   Alternative sites that would result in less harm, no harm or gain are to be fully considered to minimise the any harmful environment effects.

3. **Mitigate/Restore**
   '…ensure that features and elements of biodiversity or green infrastructure value are retained on site, and enhanced or created where ever possible.'

4. **Compensate on site**
   Onsite compensation must be sought when all other options have been exhausted.

5. **Compensate off site**
   Offsite compensation must be sought when all other options have been exhausted.

6. **Long Term Management**
   Long Term Management of retained and new GI assets to secure enhancement.

As part of a GI led masterplanning process, the GI Opportunities & Constraints identified the following aims;

- Retain and enhance existing avenue trees along Templeton Avenue with naturalising bulb species.
- Add street trees along Wolfs Castle Avenue to provide a buffer between the development, the carriageway and existing residential properties.
- The existing lawned areas on Templeton Close are available for tree mitigation planting if opportunities are limited within the red line boundary.

Summary of Effects, Mitigation & Enhancement

The submitted package of drawing information contains landscape proposals responding to the proposed development.

The Preliminary Ecological Assessment Report, (Wardell Armstrong) CA13131-001 (January 2025) includes an assessment of habitats and protected species relevant to the site.

Green Infrastructure Context Plan (2284502-SBC-XX-XX-DR-L-0001) and the Green Infrastructure Constraints and Opportunities Plan (2284502-SBC-XX-XX-DR-L-0002) illustrate the GI context, key designated habitats and GI connectivity. The masterplanning approach for the site and landscape strategy plan have been informed by the GI context and analysis through retention and enhancement of landscape habitats and connectivity, following the stepwise approach.

The following figures of existing, GI habitats are based on the Habitat Plan on page 106 of Wardell Armstrong's Preliminary Ecological Assessment Report. The habitat area measurements identified below are an estimate based on a PDF overlaid onto the topographical survey.

The revised Landscape drawing package identifies the following existing, removed, retained, and proposed habitats:

Existing Habitat	**Area (sq m)**
Modified grassland	TBC
Mixed scrub	TBC
Trees (No.)	35 (Cat A=8, Cat B=5, Cat C=18, Cat U=4)
Total Existing Habitats	**TBC**
Removed Habitat	**Area (sq m)**
Modified grassland	TBC
Mixed scrub	TBC
Trees removed (Category U trees discounted within tree loss mitigation calculation)	3 (Cat C)
Total Removed Habitats	**TBC**
Proposed Habitat	**Area (sq m)**
Proposed amenity grassland	651
Shrub planting	485
Trees	9 standards with 2m clear-stem
Bulb plantings	198
Total Proposed Habitats	**1,334**
Retained Habitats	**Area (sq m)**
Retained grassland (within Red Line Boundary)	850
Retained grassland (within Blue Line Boundary)	2,066
Total Retained Habitats	**2916**
Total Proposed and Retained Habitats within Red Line Boundary	**2184 sq m**

In response to the StepWise approach, we summarise the response to the stepwise approach below:

Step 1: **Avoid**

Ecology, Landscape and Arboricultural surveys have identified the GI assets of greatest value to contribute to the development decision making. Overall, there has been unavoidable loss to areas of existing modified grassland and three existing trees (Category C) resulting from proposed development needs. The large existing avenue trees along Templeton Avenue and towards Llangefni Place are defining features of the site that will be retained, with the development being designed to minimise intrusion into root protection areas. The site layout is focused on the area already developed land that featured the public house and car park.

Step 2 **Minimise**

The masterplanning approach will maintain existing external GI corridor connections by retaining mature avenues of existing trees and the associated landscape within their Root Protection Areas. With much of the existing site being made up of modified grassland and built ground, it provides opportunities for the creation of new habitats.

The site layout has been constrained by the presence of utility easements in the western and northern portion of the site along Wolf's Castle Avenue.

Existing landscape within the Root Protection Areas of retained trees will be maintained as-is to minimise root disturbance.

Step 3: **Mitigate/Restore**

Approximately 2814.sq m of retained and proposed new landscape GI is identified within the landscape strategy, focusing on a mixture of more formal shrub and tree planting that is supplemented by areas seeded with a biodiverse mix of species.

Collectively the proposed landscape delivers a more diverse and multi-functional landscape with enhanced climate change resilience and biosecurity in the greater diversity of habitats and species. The increased diversity of and multifunctionality of GI will also have the benefit of improved visual amenity and a better environment for future residents of the social housing.

Mitigation/restoration of habitats within the design are focused along the west, south, and southeast of the site on Templeton Avenue which represent the outer edges of the housing layout and where retained existing trees and their respective Root Protection Areas are situated.

The retained areas of grassland underneath existing mature trees will be enhanced with scattered bulb planting to provide additional floral interest in early spring and important nectar sources for pollinators along the green corridor.

Step 4: **Compensate (onsite)**

All compensation available within the site has been considered. Proposed areas of planting have been informed by Ecological and Arboricultural surveys, as well as SUDs drainage design and GI considerations to enhance the mix of habitat types and the targeted value, appropriate to the site context.

9 trees have been prospectively proposed as part of the development, that meets the 3:1 tree mitigation ratio prescribed by Planning Policy Wales 12th Edition with three trees proposed to be removed as part of the development. All of these trees are currently proposed within the red line boundary. Tree planting within the development is constrained by several factors:

- Two utility easements overlap on the western and northern edges of the red line boundary; no tree planting nor SUDS features are permitted within the easements.
- The existing avenue trees in the south and east of the site and their respective Root Protection Areas has further restricted the developable area for housing and creation of SUDS features to meet SAB requirements.
- Overhead telecommunication wires within the site along Wolfs Castle Avenue would prevent tree planting unless the wires could be relocated.
- Limited soil depths within rain gardens.

Indicative tree species selected for the soft landscape have an emphasis on biodiversity value, drought tolerance, and having the appropriate Root Available Soil Volume (RASV).

Beyond the existing avenue trees and modified grassland, the site would benefit from shrub and herbaceous perennial planting to increase ecological resources and provide additional visual amenity for future residents. Indicative species have been selected to collectively provide a long season of floral/structural interest, act as an ecological resource for local wildlife, and be able to thrive long-term in the site conditions.

The planting is key to creating a multifunctional GI landscape for the benefit of the site as a whole.

Step 5: **Compensate (offsite)**

At this point in time, there is no intention to offer off-site compensation because the scheme meets the 3:1 tree loss mitigation ratio within the Red Line Boundary. If any of the indicative trees within the site become unviable and there isn't sufficient space within the Blue Line Boundary, then off-site compensation will need to be considered.

Step 6: **Long Term Management**

The greatest benefit resulting from the proposed development would be the opportunity for the long-term management of retained and new GI assets to secure the range of enhancements and their multi-functional value and longevity. Altering the maintenance of existing areas of grassland within the root protection areas of retained existing trees to have arisings from mowing removed would reduce soil fertility and encourage greater diversity of flowering species within the lawn.

All GI landscape components will benefit from active management. Long term management of these components could secure meaningful enhancement of these GI components.

GI Conclusion

The above stepwise GI assessment demonstrates that negative impacts have been minimised where possible, through the assessment and design process, whilst achieving the necessary development outcomes. The proposed landscape/GI approach strengthens the current GI network connections and provides the opportunity to secure beneficial long-term management, enhancing the retained and proposed GI components to create a multifunctional and climate-resilient landscape for residents and the local ecosystem.