Bryyncaerau, Tenby Road, Carmarthenshire

Green Infrastructure Statement

(in accordance with Section 6.2 of PPW Edition 12)

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CONTENTS

Refers to:
Preliminary Ecological Assessment: Acer Ecology 2003
Tree Survey: Treescene 2003
Landscape Concept Statement: HLC Ltd 2024

1. Introduction

This statement has been prepared by Michael Haire, who is a Chartered Landscape Architect. It is a simple statement *'proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal'*

2. The Site

The site comprises two separate improved pastures that slope gently down towards Tenby Road. Traditional hedgebanks contain the southern field and these include many large trees. The northern field is contained by a less substantial boundary hedge to the north and west. The minor road that links St Clears with the nearby settlement of Pwll-trap is one field away to the north.

The adjacent development of a service station and food outlets is close enough to influence the character of the proposal site, as does the nearby busy road junction and hotel. The landscape associated with the service area also includes retained agricultural hedgebanks with mature trees and this character is perpetuated in the recently established structural landscape.

Wider Landscape (refer PEA)

The site is at the edge of a built-up area of modest size that is dominated by the transport corridor of the A40/A477 but lies within a predominantly rural area. There is a mixed landcover in the surrounding landscape with recognised features of biodiversity value including SSSI and SAC within 1km to the south comprising the Taf Estuary (SSSI) & Carmarthen Bay and Estuaries (SAC). There are no non-statutory sites designated for their conservation value within 2km of the site.

There are also numerous ancient woodland sites close to the site and the landscape is relatively well connected by agricultural hedges and linear woodlands along railways, roads and riparian corridors.

3. The proposed housing development

The proposed layout will create a series of residential roads (cul-de-sacs) each accessed from a central road that links to Tenby Road via the existing access that serves the service station and fast food outlets to the south (Heol Waun Saggard). The existing hedgebanks, together with the established trees and hedges that contain and define the site will be retained except for a short length of hedge where the main spine road will connect the two fields and part of the hedgerow to the east of this point.

The housing proposed comprises 115 units within 71 buildings, a combination of detached and semi-detached houses and a small number of terraces of three. All of the houses will have fenced rear gardens, the front gardens being a more 'open' arrangement, comprising parking bays, extensive attenuation 'rain' gardens, lawns, and small areas of amenity planting and street trees where. Knee rails will prevent pedestrian access to the rain gardens and where appropriate, ball topped railings and some timber fencing will provide containment and privacy.

Where the fenced rear gardens extend towards the hedgerows and hedgebanks, access will be retained via narrow maintenance corridors. Management of the hedgerows will comprise trimming and some coppicing. Succession planting will ensure a sustainable future for these important features.

There will be amenity areas around the site, including two Local Areas for Play (LAP). More typically, the amenity space will be remnants of the agricultural fields at the edges of the access roads, seen against the backdrop of the retained boundary hedgerows.

These areas are most extensive along the eastern edge of the development, where three attenuation basins are proposed, two in the northern field and a single large feature in the southern field. The area around these basins constitutes a significant green infrastructure asset in this part of the site. Oak dominated tree planting is proposed around the attenuation ponds and differential mowing of the grassland will provide informal recreation access routes for residents and generate biodiversity benefit, particularly at the interface between the 'rougher' grassland and the attenuation basins and along the hedgerows. Small community orchards are proposed. These will provide blossom and fruit and will encourage community interaction with the environment.

4. GI Baseline Refers to Preliminary Ecological Assessment prepared by Acer Ecology, summarised below.

The site consists of the following habitat types:

- Semi-improved neutral grassland (most of the site area)
- Hedgerows (varying in quality and character*)
- Scrub dense/continuous (a small area)
- Areas of ruderal growth (particularly around the margins of the fields

** Intact hedgerows with trees divide the two fields, along the eastern and western boundaries of the south field and the eastern boundary of the north field. These are dominated by oak (Quercus) and ash (Fraxinus) (young to mature). A dead ash tree is also present within the central hedgerow. Other species include: frequent hawthorn (Crataegus monogyna), ivy (Hedera helix), honeysuckle (Lonicera periclymenum); occasional blackthorn (Prunus spinosa); rare hazel (Corylus avellana), sycamore (Acer pseudoplatanus), gorse (Ulex europaeus), elder (Sambucus nigra), dogwood (Cornus sanguinea), goat willow. The understorey is dominated by dense bramble. Other species include: frequent common nettle, bracken (Pteridium aquilinum), hedge bindweed (Calystegia sepium), meadowsweet; occasional cocksfoot; rare false oat grass, willowherb, fern sp. (Dryopteris sp.), lords and ladies (Arum maculatum), herb Robert (Geranium robertianum), vetch (Vicia sp.), red campion (Silene dioica). rare hazel and young oak. The understorey dominated by bramble. A single mature oak tree is within the hedgerow to the east.*

No plants listed as locally important species were recorded within 1km of the site

The perimeter landscape structure of established, continuous hedgerows, often including mature trees is considered in the PEA to be of high value for bats, representing good commuting and foraging habitat. The hedgerows are also said to be

of high value for birds (nesting habitat) and some local value for hedgehogs and other small mammals, with some potential for invertebrates within grassland habitats, particularly around the edges of the site.

In summary, the baseline is that the main areas of the site (the fields) are of low ecological value, with the surrounding hedgerow features being of high value. This is primarily because of the substantial dark 'commuting' corridor they provide, together with nesting, roosting and foraging opportunities. The assessment says that the structure provided by these features and the marginal habitats along their edges are of some local value and potential value for other ground-based species.

The assessment confirms the value of the surrounding landscape, with designated areas within relatively close proximity. The site lies within and close to an established rural landscape, with the field boundaries in particular, providing a network of Green Infrastructure features that connect the site with its surroundings.

5. GI Strategy *(*refers to the 'Landscape Concept Statement')

According to PPW (Edition 12), Green infrastructure *'is 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. At the landscape scale green infrastructure can comprise entire ecosystems such as wetlands, waterways, peatlands and mountain ranges or be connected networks of mosaic habitats, including grasslands. At a local scale, it might comprise parks, fields, ponds, natural green spaces, public rights of way, allotments, cemeteries and gardens or may be designed or managed features such as sustainable drainage systems. At smaller scales, individual urban interventions such as street trees, hedgerows, roadside verges, and green roofs/walls can all contribute to green infrastructure networks'.*

The RTPI definition identifies the key features of green infrastructure as *'a network of integrated spaces and features, not just individual elements; and that it is 'multi-functional' – it provides multiple benefits simultaneously.*
These can be to:

- *support people's mental and physical health*
- *encourage active travel*
- *cool urban areas during heat waves*
- *attract investment*
- *reduce water run-off during flash flooding*
- *carbon storage*
- *provide sustainable drainage*

The extent to which green infrastructure provides these benefits depends on how it is designed and maintained, and the maturity and health of the elements (such as trees) that form it'.

In accordance with the latest updated PPW Chapter 6, the stepwise approach* has been followed in protecting, (creating) and enhancing GI at the Bryncaerau site (refer Appendix 1).

The value of the established landscape structure is acknowledged and respected. The majority of the hedgebanks and trees will be retained and reinforced as appropriate.

The SAB regulations require the establishment of a new 'water influenced' landscape within the established agricultural structure. This includes rain gardens close to the houses and larger swales in the wider area, along the eastern edge of the site. This arrangement is as a result of topography, yet within the site layout, it provides coherent amenity areas of a reasonable scale within the enclosure provided by the retained hedgerow structure.

The management proposals will combine the existing and proposed landscapes to achieve a valuable mosaic of complementary habitats that is sustainable

Stepwise approach (*refer appendix 1)

5.1 Avoid

The PEA has identified the main features of value within the site and the proposals are such that effects on the majority of the established trees and hedgerows will be avoided.

5.2 Minimise

The elements of the existing landscape that are of particular value are in the established hedgerows, mainly around the perimeter. These provide dark corridors for bats and birds and provide the backdrop for marginal vegetation habitats around the edges of the development. The layout of the proposal minimises effects on these features and allows for them to be extended (into adjacent marginal areas), reinforced and enriched.

5.3 Mitigate/Restore

This has been recognised in the proposals. Some loss of trees in the hedgerow at the centre of the site will be compensated for by translocating and reinforcing this feature. Reinforcement planting of specimen trees is proposed to strengthen the perimeter hedgerows, particularly in the northern part of the site where biodiversity is more limited, and the structure is physically smaller and less robust.

The margins of the retained hedgerows will in almost all cases be managed to improve biodiversity, with rough grassland and scrubby areas in close proximity to the structure they provide. This will either be in the Public Open Space (amenity areas) or in the maintenance access strips that will separate these features from the adjacent gardens. These 'wilder' hedgerow margins will enrich these features in biodiversity terms, helping to realise the potential identified in the PEA.

5.4 Compensate on site

Apart from the reinforcement works to the established hedgerows, the development of the new drainage system will generate a new range of habitats that will complement the established landscape structure.

5.4.1 Drainage and rain gardens

'Rain gardens' will be created along the main access roads into the site, effectively forming a wetland 'core' to the development. This will generate new habitats and will improve the landscape character, providing amenity benefit for residents and visitors.

This core of wetland planting will extend through the development, increasing the biodiversity of the site and will allow wildlife that is attracted to water to colonise currently 'dry' areas.

The planting within the rain garden areas will include native marginal species such as moisture tolerant ferns, grasses and herbaceous plants. This will offer a protective habitat for birds and small mammals, nectar for insects and bees, and foodplants for moths and butterflies.

5.4.2 Drainage attenuation swales

Large attenuation basins are proposed in the amenity areas at the eastern end of both parts of the site. These will form the core of a relatively extensive area of mixed grassland and scrub with native trees that will be situated within the established hedgerow framework.

These features will be wet periodically and a grassland sward based around damp-tolerant species is proposed for the base of the swales. The management objectives will be to create and maintain a range of grassland habitats, particularly at the interfaces between the swales and the amenity area and along the hedgerows, whilst allowing low-level informal recreational access for residents to this area.

5.4.3 Hedges and ornamental planting

Short sections of native hedge are proposed within the housing areas of the site to provide containment and separation. In other areas, where space is limited, front garden planting will comprise robust flowering shrubs and some herbaceous and groundcover planting. This is a practical solution that provides a simple visual backdrop and will provide foraging and cover for birds.

5.4.4 Proposed Tree Planting

Street and garden trees will provide structure within the housing environment, screening and containing built elements. All the tree species proposed will provide visual interest, shade and will contribute to biodiversity and Green Infrastructure.

5.4.5 Nesting and roosting opportunities

Other biodiversity enhancements include bird and bat boxes and hibernacula/refugia and the introduction of fruit-bearing trees where possible as street trees and in small community orchards within the amenity area.

6 Conclusion

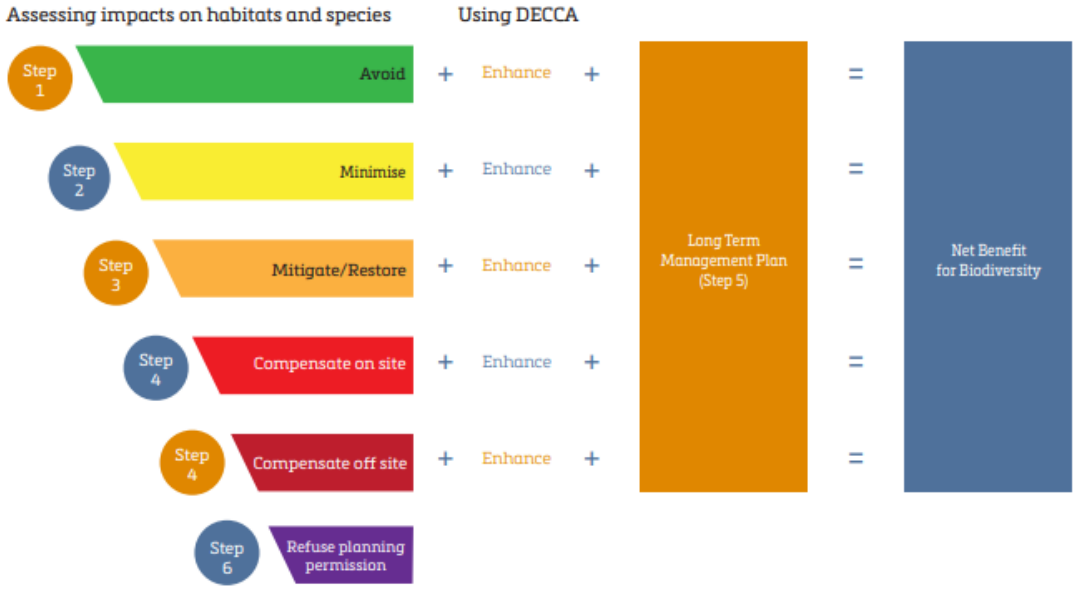
The ‘baseline’ is of much of the site is of limited biodiversity value although the surrounding hedgerow structure is of high value and has the potential to be improved. It is situated within a rural landscape that has some notable biodiversity assets and is relatively well-connected to it.

The proposed development will introduce new habitats associated with the site drainage and will reinforce the existing hedgerow features, particularly around the perimeter, fulfilling some of the potential biodiversity value identified in the PEA. This will increase the range of habitats and improve links with the surrounding landscape.

Green Infrastructure connectivity will be enhanced as a result.

Appendix 1: Stepwise Approach and DECCA

In accordance with the latest updated PPW Chapter 6, the stepwise approach has been followed in developing the GI Strategy and this is reflected in the GI Statement.



Planning authorities must follow a **step-wise approach** to maintain and enhance biodiversity - adverse effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for – and secure the maintenance and enhancement of ecosystem resilience and resilient ecological networks by improving diversity, extent, condition, and connectivity i.e. the DECCA Framework.

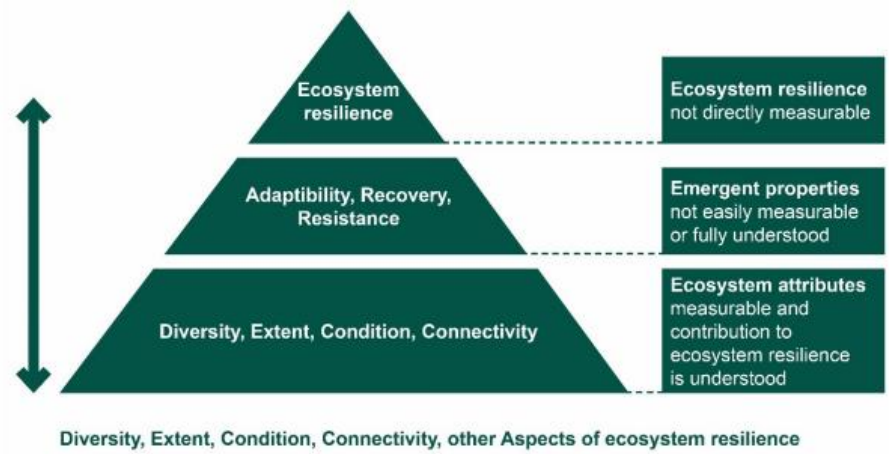


Figure 1 DECCA framework showing the relationship between the attributes and the emergent properties of resilience (NRW).

Diversity attribute

Diversity matters at every level and scale, from genes to species, and from habitats to landscapes. It supports the complexity of ecosystem functions and the cascade of interactions that deliver services and benefits, so diversity is important for enhancing the capacity of the whole system to adapt to future change. There are three measurable components of diversity: genetic characteristics, species and habitats. These diversity assessments draw on species and habitat data because NRW does not routinely collect genetic evidence.

Extent attribute
The size of an ecosystem will affect its capacity to adapt, recover or resist disturbance. Fewer species can survive in a smaller patch, and the demography of species is altered when habitat is lost, leading to species loss and ecosystem decay. Size also determines resilience in the face of extreme events. Smaller units are at higher risk of random extinction due to catastrophic events, for example, extreme drought, storm, major pollution incident, fire, disease outbreak.

Condition attribute
The condition of an ecosystem is investigated by collating evidence about both the biotic (biological) and abiotic (environmental) factors associated with a habitat or species. For example, biotic data could be collected about the presence, abundance, structure, function and range of habitats and species. Abiotic data relating to the status of environmental conditions relevant to the habitat or species could also be sampled, for example, water, soil and air quality. The condition of habitats is affected by multiple and complex pressures acting both as short term “pulse” and longer term “press” types of disturbance that affect the resilience of ecological communities and their capacity to resist, persist or recover.

Connectivity attribute
Connectivity refers to the links between and within habitats, which may take the form of corridors, stepping stones or patches of the same or related vegetation types. Environmental factors such as geology, soil type or hydrological links affect sea / landscape connectivity. For any given species, connectivity is related to the relative distance that species can move to feed, breed and complete lifecycles that may need different environments. Connectivity is a major driver for spatial variation which affects diversity and the abundance of living organisms.

Adaptability, recovery and resistance to change are aspects of resilience Ecosystem resilience is thought to be an emergent property of these four attributes, and may appear in three different ways, or aspects: adaptability, resistance, or recovery to/from disturbance. Adaptability was previously (e.g. in SoNaRR2016) listed as an attribute of resilience, but recent work has clarified the relationships of these terms, as shown in Figure 1.

Summarised as follows
D Diversity between and within ecosystems
E Extent and scale of ecosystems
C Connectivity between and within ecosystems
C Condition of ecosystems including their structure and functioning; and
A Adaptability to change of ecosystems

DECCA, or Diversity, Extent, Condition, Connectivity and other Aspect of ecosystem resilience, is used as an acronym to refer to this framework of ecosystem resilience. DECCA can be applied to environmental processes at different scales, habitats and land uses. This recognition of interconnectivity makes an approach based on resilience different to the traditional, more reactive responses in the management of natural resources. These attributes have been used for decades to guide the design of networks of marine protected areas in order to contribute to the overall health and resilience of the marine environment.