Green Infrastructure Statement

Elan Valley Visitor Centre Re-development

Reference: 303909-ARP-XX-XX-RP-L-0002

August 2024

Green Infrastructure Statement

Introduction

The Green Infrastructure Statement has been prepared to summarise the ecological and sustainable improvements and measures integrated into the landscape and Visitor Centre design proposal. This statement has been developed in collaboration with ecologists and alongside the Design and Access Statement (DAS) and planning drawings to accompany the planning application for the redevelopment of the Elan Valley Visitor Centre in Powys, Mid Wales, commissioned by Dwr Cymru Welsh Water (DCWW).
The statement references Edition 12 of Planning Policy Wales and the Building with Nature standards, and it also addresses the Sustainable Drainage Systems (SuDS) requirements. The proposed landscape design and ecological measures will be further refined and detailed in subsequent RIBA stages, in accordance with the design principles outlined in this statement and the DAS.

Existing site

The existing visitor centre is nestled within a striking topography, surrounded by hills and the main attraction, the Caban Coch dam, with the Elan River flowing alongside the site, providing visitors with a remarkable experience. However, the current landscape around the visitor centre is dominated by asphalt and vehicle areas. Key views are limited and obstructed by various buildings, play areas, and landscape elements that have been added over time, detracting from the site's main purpose: "providing the best experience for visitors in a natural environment."
The landscape should aim to enhance visitors' sensory experiences, directing attention to the natural and built environment, such as views of key landscape and built features, the sounds of the river, and nature-based solutions that include recreational opportunities for families and other visitors etc.
The site also serves as an important meeting point for cyclists and trail enthusiasts, offering several opportunities to start, arrive, or stop by. Therefore, it is essential to create a welcoming and enjoyable space for these visitors as well.

Existing ecological features within the development site are predominantly neutral grassland with rows of trees dividing the parking and play areas and lining the access road. Habitats immediately adjacent to the site include bracken, scrub and heath with a strip of trees between the Site and the Elan River. There is a small amount of ornamental planting immediately adjacent to the north elevation of the visitor centre. The grassland habitats are maintained with a short sward by regular grazing by sheepare likely to prevent the development of a more complex botanical structure. The rows of trees linear connectivity for bats and birds as part of the riparian corridor, but most trees on the site are of a similar age likely planted during the original development of the visitor centre, therefore there is little structural diversity with no understory vegetation and the ground cover is consistent with the grassland habitats found across the site. The trees also lack features suitable to support roosting bats of nesting birds.

Landscape opportunities

There is an opportunity to improve and regenerate the landscape around the new visitor centre by considering, but not limited to, the following landscape principles:

- Draw from the spectacular landscape and focus on water to form a strong narrative thread to celebrate water in the landscape, from an experiential and functional perspective.
- Improve the visitor experience for all
- Enhance accessibility and inclusivity where possible
- Emphasise key views toward the dam, the river, and the surrounding landscape
- Provide outdoor amenity spaces, integrate nature-based solutions
- Improve sustainable drainage and permeability integrated within the landscape and play areas for the benefit of all
- Identify existing landscape features to retain, protect, and enhance, such as existing trees
- Integrate proposed landscape furniture and equipment as part of the surrounding landscape
- Provide a functional, legible, and comfortable space for all
- Enhance biodiversity and wildlife habitats where possible with mix of native planting
- Improve cycle and trail access

Afon Elan (River)

Caban Coch (Dam)

Mineral embankment

Ripisylve

Green and blue design principles

Adopting a Step-wise approach

Avoid & minimise tree removal
Retain existing trees

The landscape proposal prioritises the retention of existing trees. In coordination with the tree consultant, these groups of trees have been supplemented with new plantings to enhance the riparian and natural character of the site and strengthen the green infrastructure and ecological connections within and beyond the site boundary.

Avoid & minimise removal of walls
Retain existing stone walls

Existing stone walls are a key component of the Welsh character. Built with local stones, these walls support various types of invertebrates. Most of the retaining walls will be retained or demolition will be minimised by adapting the landscape proposal if feasible.

Restore & enhance existing planting
Propose mix of native planting species

The proposed planting consists primarily of native species integrated with the existing vegetation. Various planting typologies are planned to enhance biodiversity, support pollinators, and beautify the site for visitors throughout the year.

Restore & implement SuDS
Introduce SuDS

A series of Sustainable Drainage Systems (SuDS) have been implemented on-site to collect rainwater and maximise percolation into the ground before the water reaches the river. A couple of swales will allow retention of approximately 150mm of water to improve amphibian habitats.

Compensate on site & enforce native tree
Enhance tree planting and connections

Only seven trees will be removed due to their condition or their proximity to the upgraded Visitor Centre and critical pathways. This removal has been minimised by adapting the locations of the proposed paths and car park spaces to protect tree root zones. Fifty-eight proposed native trees species will compensate the loss and will enforce the green infrastructure on site.

Restore & enhance permeability

Improve permeability

To enhance permeability, green and permeable spaces on-site have been increased through the use of various types of planting and surfacing materials, addressing needs for comfort and accessibility.

Mitigate rainwater into the river & restore rainwater harvest via SuDS
Integrate rainwater harvest system from roof to SuDS

To complete the water management cycle, rainwater harvesting downpipes have been proposed to feed the SuDS and reduce the amount of water entering the river. These elements promote sustainability and serve an educational and entertaining purpose for children and visitors through artistic and sensory downpipes.

Mitigate water waste, pollution & enhance water awareness
Integrate recreational SuDS and water management for play and education.

SuDS play a crucial role in sustainable drainage and biodiversity, featuring pollinator-friendly and native plantings. Some of the shallow SuDS near the play area will also serve as natural play spaces for children when dry and accessible, incorporating natural elements such as boulders and timber logs.

Mitigate urban and hard landscape, restore natural character
Respect the characters of the site

The landscape design draws from key site features: the Elan River with riparian planting to the south, the Caban Coch Dam to the west, and a rocky slope with a trail and PRoW access to the north. These elements shape the design's foundation.

Avoid lighting pollution & wildlife disturbance, enhance & promote existing character
Preserve Dark Sky

The design proposal promotes Dark Sky events with designated grass and seating areas for visitors. This Dark Sky area is also convenient and beneficial for the bat habitats.

Habitats and species assessment

Adopting a Step-wise approach

Avoid & minimise impacts to species & habitats

Appropriate surveys to understand the baseline conditions

A Preliminary Ecological Appraisal has been undertaken to determine the habitats present on Site, the potential for protected and/or priority species, and the proximity of sites designated for nature conservation. Additional protected species surveys for bats and otters are ongoing to determine the presence of or potential for these species on or near to the Site, and to assess the potential impacts on these species.

Avoid & minimise grassland removal

Retain existing grassland

The Preliminary Ecological Appraisal identified neutral grassland across the Site which is subject to regular grazing by sheep, limiting the diversity of the sward and potential to support a diverse invertebrate assemblage. Where grassland will be lost, this is limited to low distinctiveness habitat, and the proposed grassland and wildflower planting will result more diverse habitats.

Avoid impact to birds & bats

Retain existing features

The roof and wall tops of the existing building will be retained so any exisitng features suitable for bats or birds such as sparrows, swifts or house martins such as crevices and overhangs will be retained to avoid impacts on these species.

Avoid wildlife disturbance & enhance

Improve wildlife habitats

In coordination with the ecologists, several ecological and wildlife habitat measures are proposed with indicative locations at this stage. The placement of habitats, such as bat and bird boxes, will be supervised by an ecologist in subsequent design stages.

Ecological enhancements

Introduce additional ecological features

The addition of SuDS features designed to retain a minimum water level year-round, will provide habitat for aquatic plants and invertebrates, and breeding sites for amphibians resulting in increased diversity of the Site.

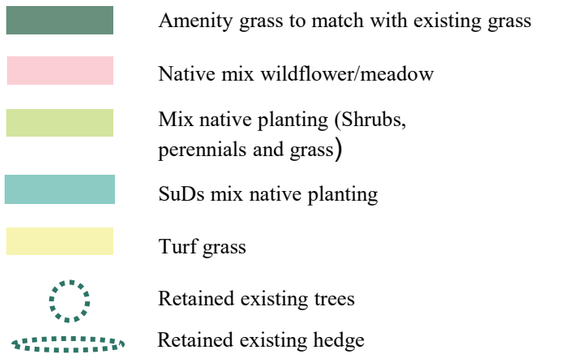
Avoid & minimise tree removal

Retain existing trees

The trees that require removal are limited to a small number adjacent to the visitor centre and where minor changes are required to the car park access. The proposed tree planting will compensate for the loss of these trees and provide a significant enhancement in connectivity and species diversity with flowering and fruiting species that will provide foraging opportunities for a range of invertebrates and birds, and increased connectivity with the adjacent riparian corridor.

Planting & biodiversity improvements

The trees have been selected to align with the existing species on-site, reinforcing their presence and creating clusters of similar species in certain areas.
The chosen tree species are based on those already present, with the aim of promoting biodiversity.
To enhance the visitor experience and support pollinators, additional native species that blossom have been selected to complement the existing palette.
These new trees will play both a visual and ecological role on-site, providing seasonal colour interest and attracting pollinators.
For more information about the retention or removal of existing trees, please refer to the Arboricultural Impact Assessment.
The planting typology is primarily inspired by the existing vegetation on site, including riparian plantings along the river and pioneer species on the mineral slope. The proposed planting will mainly consist of native species, incorporating a mix of pollinator-friendly plants to enhance biodiversity. Additionally, turf grass will be implemented to support recreational and event activities throughout the year.



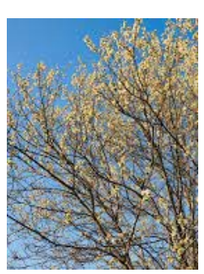

Betula pendula

Sorbus aucuparia

Crataegus monogyna

Quercus robur


Tilia cordata


Salix caprea


Prunus avium


Planting typology diagram

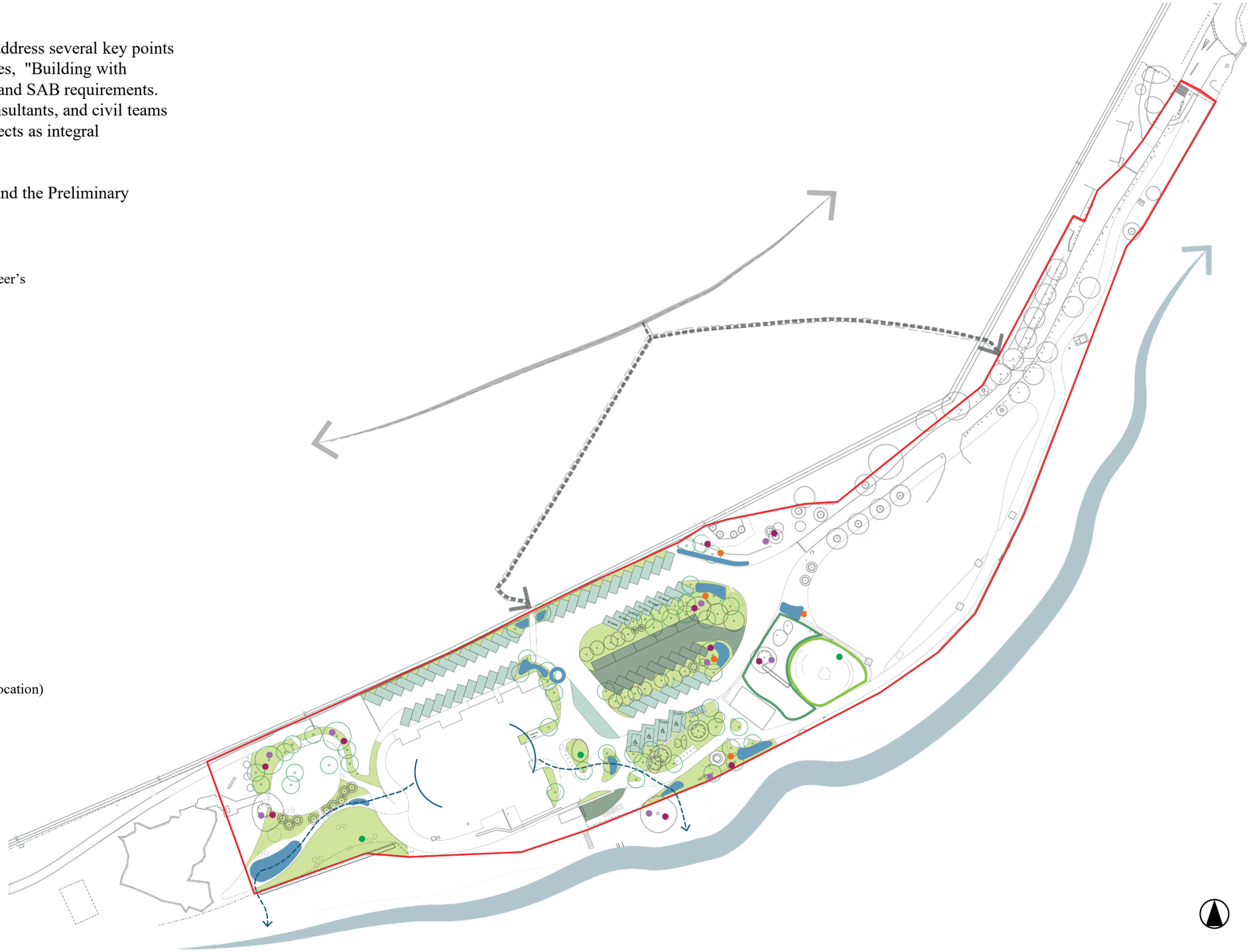
Tree planting diagram

Ecological and sustainability measures

The landscape proposal has been developed to address several key points aligned with Edition 12 of Planning Policy Wales, "Building with Nature" standards, the Net Benefit biodiversity and SAB requirements. It has been coordinated with ecologists, tree consultants, and civil teams to enhance the ecological and sustainability aspects as integral components of the scheme.

For more information, please refer to the DAS and the Preliminary Ecological Appraisal.

- Improved and new planting areas
- SuDS network (refer to the civil engineer's chapter for more information)
- Permeable paving (carpark bays)
- Permeable grasscrete/grassgrid (vehicle bays and driveway)
- Retained existing planting as part of the green infrastructure network
- Retained and improved existing biodiverse sanctuary (native mix species, wildflower, perennials etc)
- Harvested rainwater into SuDS, water tank to be reused for bike washing, WC or water play
- Indicative location of the water tank
- X 150mm water for amphibian habitats
- Bird boxes (Indicative location)
- Bat boxes (Indicative location)
- Hibernacula/Habitat pile (Indicative location)
- Insect hotel (Indicative location)



Tree planting diagram

Conclusion

The Green Infrastructure design outlined in the preceding pages promotes sustainability, biodiversity, wildlife, and the interests of people.
These elements collectively integrate the site both within and beyond the red line boundary, seamlessly merging with the broader landscape character and creating an appealing ecological destination for visitors, fauna, flora, and people.
The proposed landscape design will result in a net benefit for biodiversity due to an increase in the connectivity and diversity of habitats and the species they support, fulfilling the requirements of Planning Policy Wales Edition 12.

As detailed in the Design and Access Statement (DAS), these elements have been carefully developed, shaped, and selected with a focus on maintenance and management.

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The table below summarises the arboricultural and ecological surveys conducted to develop a landscape proposal aligned with the Green Infrastructure Statement.

Survey number	Survey title	Author	Date(s) of survey
1	Tree survey	Mackley Davies Associates ltd	August 2024
2	Preliminary Ecological Appraisal	APEM Ltd	June 2024
3	Protected Species Survey	APEM Ltd	July to September 2024

ARUP