

Rhosafan Sustainable Schools Challenge

Green Infrastructure Statement

Revision:	P02
Date:	18.04.2025
Written:	RF/DC
Checked:	RF/MR
Client:	Neath Port Talbot
	Morgan Sindall

fenton+reece

creating local identity



woodland courtyard classrooms

the winter gardens learning in nature

native planting

closer to nature

fenton + reece

01



Key Principles

LANDSCAPE PRINCIPLES

1. LOCAL IDENTITY

- the school offers an opportunity to enhance the local landscape character types.
- create a sense of place and identity to the school which comes from the landscape of Neath Port Talbot

- the coastal landscape is exposed and wild at times, there is the opportunity to create a safe and enclosed setting to the school, in contrast but harmony with their surroundings

2. SUSTAINABLE DESIGN

- sustainable drainage and water management can be an integral part of the site design

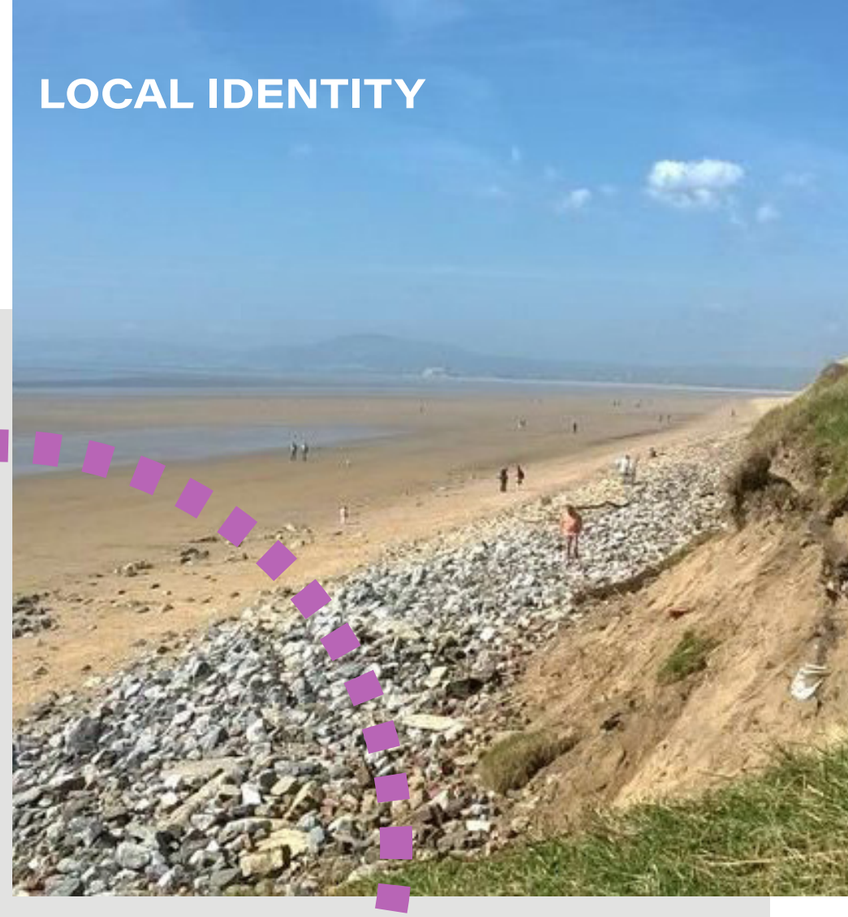
- creating new habitat areas and incorporating the water management in to everyday parts of the site

3. BRINGING NATURE CLOSER TO PEOPLE

- multifunctional design of the externals can create spaces of interest, learning opportunities and sustainable features

- creating new habitat areas alongside outdoor classrooms, growing areas and forest school should be accessible and entwined in the schools everyday activities







Delivering High Quality Green Infrastructure in Wales

Building with Nature



“Building with Nature’s purpose is to help create resilient, healthy places where wildlife thrives, where people want to live, and which respond positively in a changing climate.”

The scheme is going for the Building with Nature accreditation; as the aspiration for the school, and local community, are intrinsically linked through the Sustainable Schools Challenge, which align with Building with Nature’s standards.
The principles of the schemes design, collaboration and delivery have been based around the delivery of a scheme which delivers sustainable green and blue Infrastructure for people, wildlife and the site itself.

02



Consultation + Design

Rhosafan Sustainable Schools Challenge

07



Pupils: Weather Recording Workshop:

Objectives and Findings

The workshop was held with KS2 pupils and aimed to engage the children with the locality of their school site and how the elements effect their school day.

An introduction to weather recording and set up a weather record within the school grounds for the pupils to carry on monitoring the weather - and importantly how this effected their school day and how they felt.

KEY FINDINGS:
- the site is effected by strong coastal winds, children get wind-burn and suffer when playing outside because of the lack of shade and shelter
- the conditions on site make growing plants very difficult
- the exposed and flat nature of the site create 'big skies' to watch clouds and look back at the hill backdrop to Port Talbot.

fenton+reece

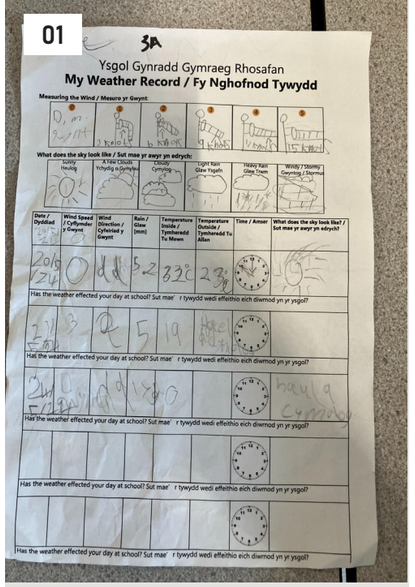
Images:

01. pupil record sheets

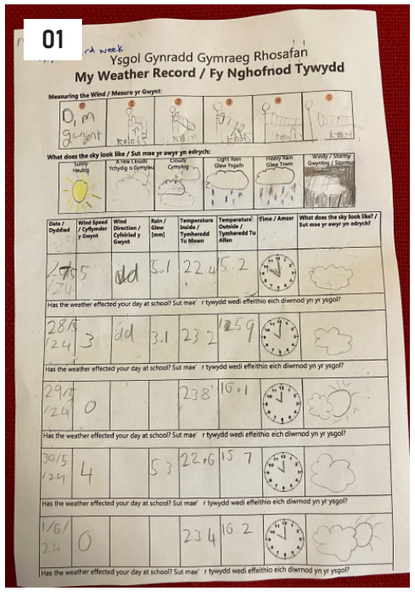
02. example record sheets

03. school weather workshop

01



01



02

Ysgol Gynradd Gymraeg Rhosafan
My Weather Record / Fy Nghofnod Tywydd

Measuring the Wind / Mesuro yr Gwynt:

0	1	2	3	4	5
No wind/ Dim gwynt	3 Knots 5.5 Km/h	6 Knots 11 Km/h	9 Knots 16 Km/h	12 Knots 22 Km/h	15 Knots 28 Km/h

What does the sky look like / Sut mae yr awyr yn edrych:

Sunny Heulog	A Few Clouds Ychydig o Gymylau	Cloudy Cymylog	Light Rain Glaw Ysgafn	Heavy Rain Glaw Trwm	Windy / Stormy Gwyntog / Stormus

Date / Dyddiad	Wind Speed / Cyflymder y Gwynt	Wind Direction / Cyfeiriad y Gwynt	Rain / Glaw [mm]	Temperature Inside / Tymheredd Tu Mewn	Temperature Outside / Tymheredd Tu Allan	Time / Amser	What does the sky look like? / Sut mae yr awyr yn edrych?
eg/ee: 1st January 1af Ionawr	5	North Gogledd	3mm	17' C	16' C		Very rainy, all day
Has the weather effected your day at school? Sut mae' r tywydd wedi effeithio eich diwrnod yn yr ysgol? Yes, it was too rainy for PE so we played inside							
Has the weather effected your day at school? Sut mae' r tywydd wedi effeithio eich diwrnod yn yr ysgol?							

03



03





Tour of the National Botanic Gardens of Wales [NBGoW]:

Objectives and Findings

The workshop was arranged at the NBGoW to enable the client to see different landscape settings, features and environments that they might want to replicate in the new design. The NBGoW Head of Horticulture also did a technical walk about growing indoors and plant species which may be appropriate.

KEY FINDINGS:
- Introduction between Neath Port Talbot Educational Team + National Botanic Gardens of Wales
- The client saw landscape features, materials and planting that they wanted included in the scheme
- Lessons learnt on lighting, ventilation, soil spec and planting choice for the Winter Gardens
- Introduction between NPT and the Educational Department at NBGoW

Images:

01. botanical gardens walk

02. technical advisor talk

03. team workshop

04. client markup workshop

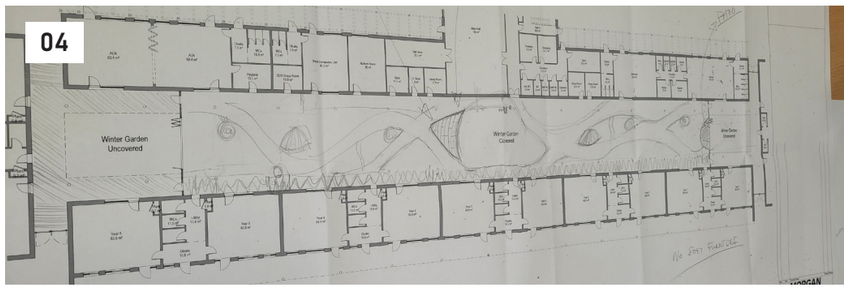
05. key landscape features















Staff Consultation + Walk Around:

Objectives and Findings

The workshop was arranged to engage with the staff and school Forest School lead about how the school currently use their externals and the opportunities for the new school and potential stewardship of the new school landscape.

KEY FINDINGS:
- Introduction to the opportunities and potential within the new school. Discussion on current external limitations
- Opportunities to embed the management and maintenance of the new landscape features into the curriculum
- Challenges for Forest School due to the lack of tree establishment due to ground conditions
- Opportunity to get free trees from the Woodland Trust

fenton+reece

Images:

01. existing biodiversity shleters on the promenade

02. Site walk with teachers

03. presentation to teachers and forest school lead

04. Woodland Trust free tree packs

05. Existing exposed site conditions









FREE TREES FOR SCHOOLS AND COMMUNITIES

We want to make sure everybody in the UK has the chance to plant a tree. So we're giving away hundreds of thousands of trees to schools and communities. Together, we'll get millions more trees in the ground.





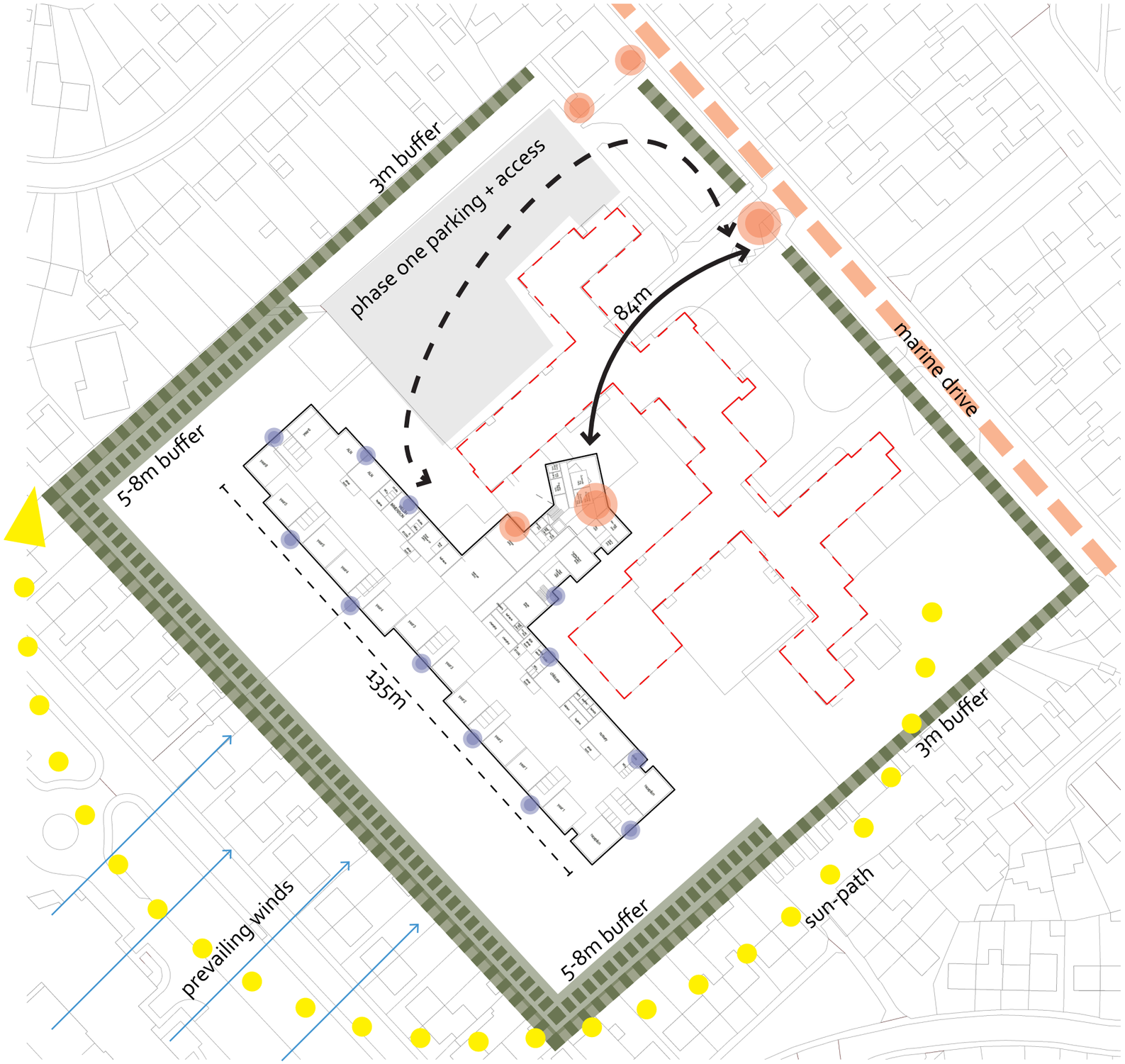
03



Landscape Design Principles

fenton+reece

11 Site Opportunities and Constraints



- screening and shelter from neighbours
- most sensitive boundaries
- primary access points
- main access route
- temporary access routes [?]
- off site drop off congestion
- access points



Green Infrastructure Strategy :

Landscape Character Baseline

The existing extent and condition of GI at Rhosafan School is limited, with little existing Green Infrastructure, as the site mainly consists of hardstanding, amenity grass and a scattering of trees. This sparse coverage in GI extends in to the immediate residential setting, where GI is limited to grass verges and standalone trees on street corners and roundabouts.

There are a number of significant green infrastructure assets in the area immediately surrounding the site; these vary from brownfield open mosaics to coastal habitat.

Please refer to the Green Infrastructure Strategy dwg 2020 for details.

Inspiration for shaping the site and integrating the native landscape typologies has come from the Nature recovery Action Plan for NPT, detailed on the following page.

fenton+reece

Images:

01. Typical street tree off Marine Drive
02. Grass verges between Marine Drive and Western Avenue
03. Landscape Designations [dwg2020]
04. Existing GI [dwg2020]
05. Retained tree on site

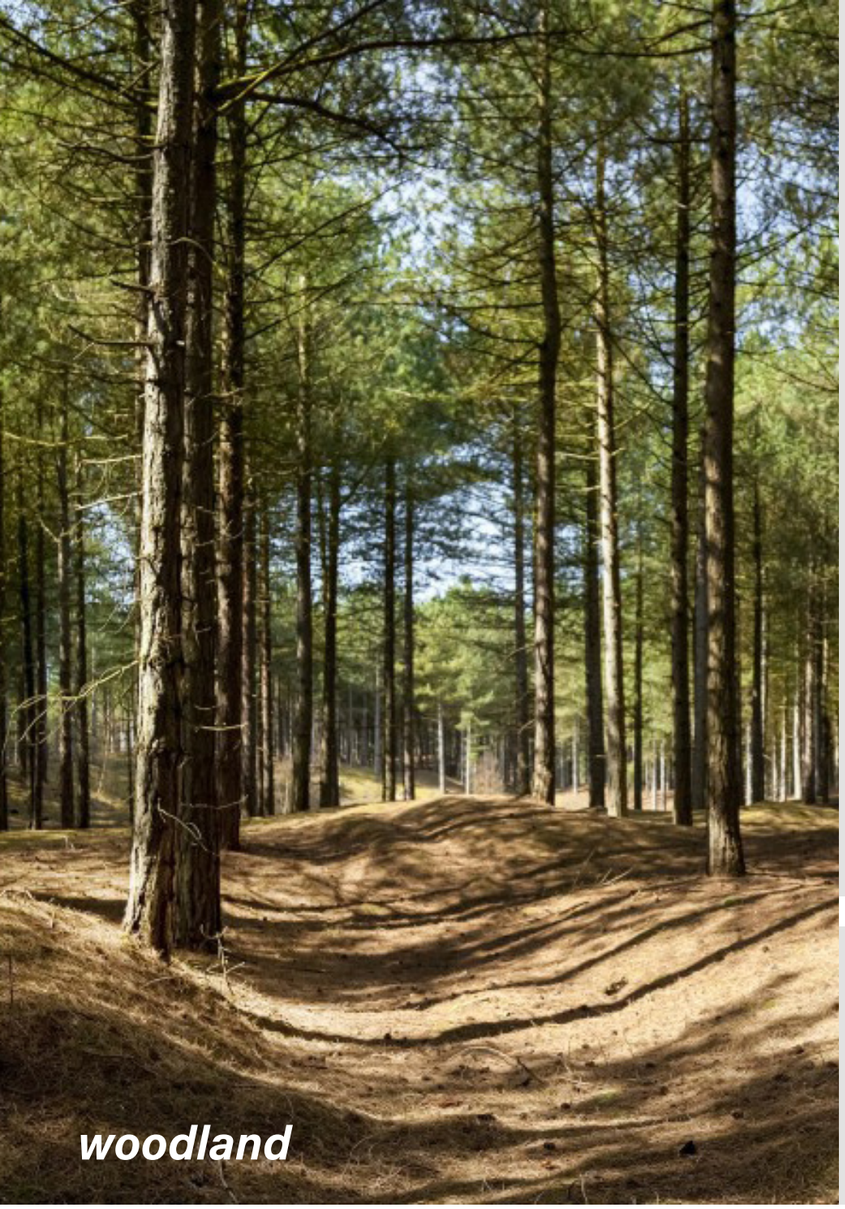






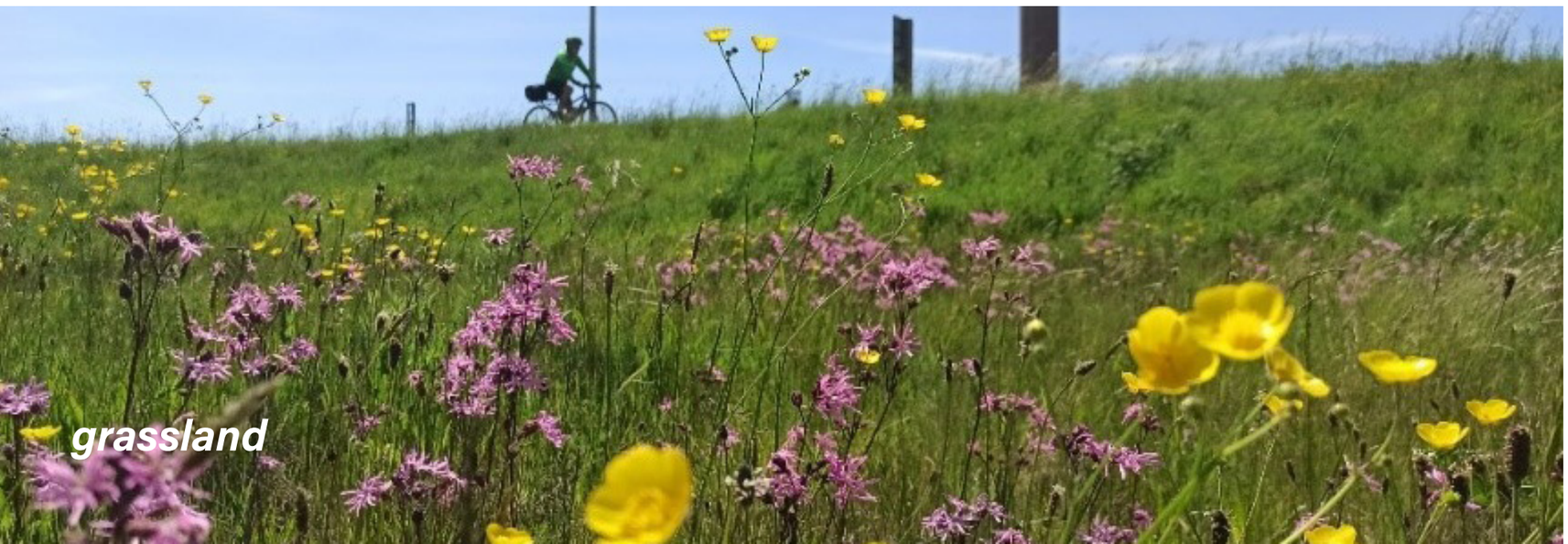


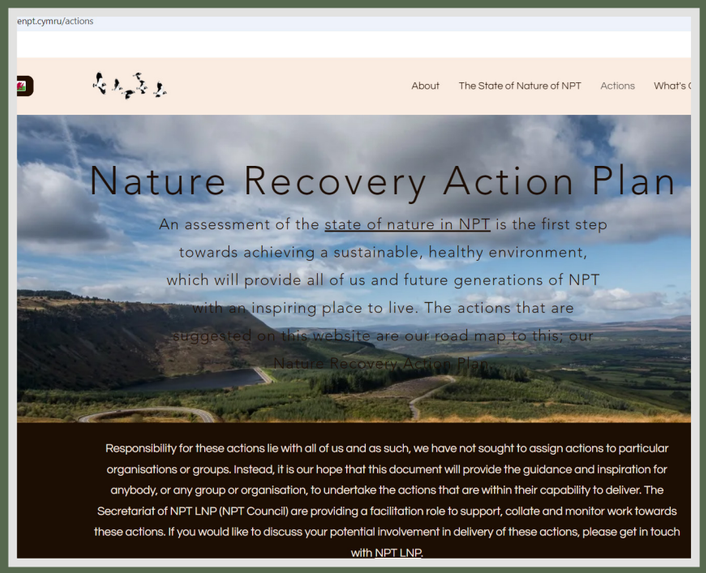












Green Infrastructure Strategy :

Landscape Character Typology

The design has been inspired by the typologies and habitats identified within the Nature Recovery Action Plan for NPT and how these can create a sense of place whilst supporting the local wildlife, fora and fauna.

Refer to
https://www.naturenpt.cymru/state-of-nature

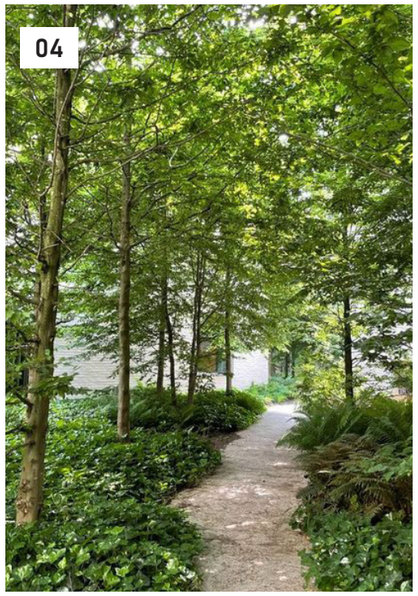
The typologies listed here have been broken down in the following design section to explain how they have informed the design and place-making efforts within the scheme.






Hippophae salicifolia 'Streetwise'



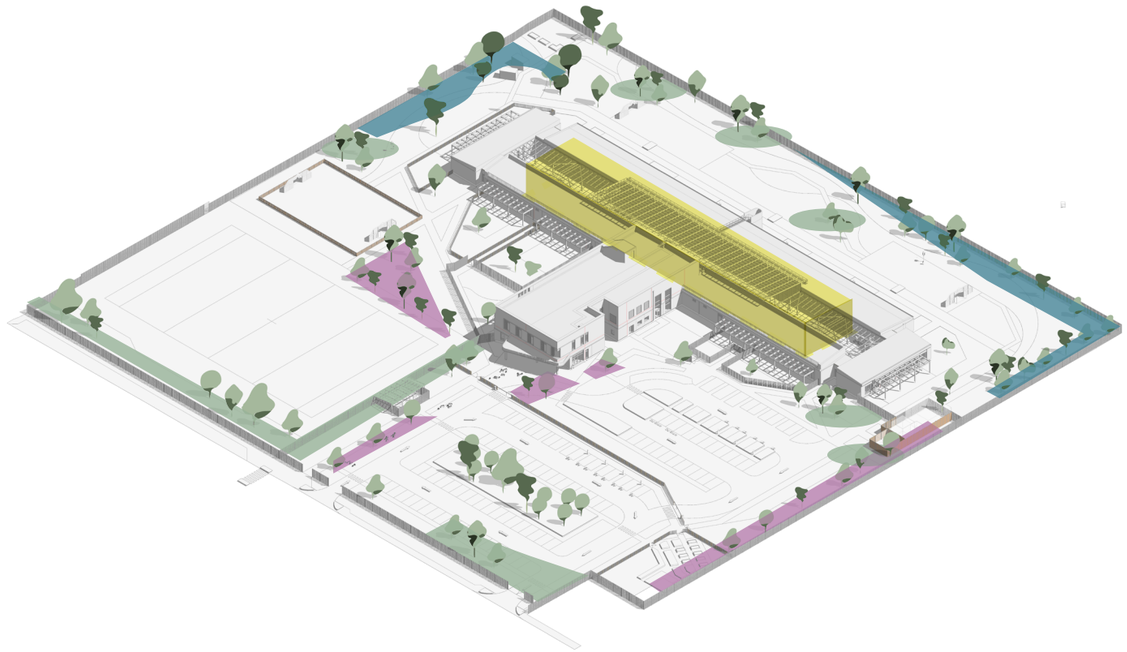





Pinus sylvestris

Legend

	Evergreen Feature Pines:	for character and all-year structure
	Native Tree + Shrub Mix:	for shelter and windbreaks
	Feature Trees:	creating focal points and seasonal interest
	Winter Gardens:	architectural species for all-year interest and structure



Green Infrastructure Strategy : Woodland = **Tree Planting**

01 creating native landscape features, tolerant of the coastal conditions
02 amplifying the native coastal landscape character
03 providing shelter and windbreaks
04 enhance the green setting to key areas of the school

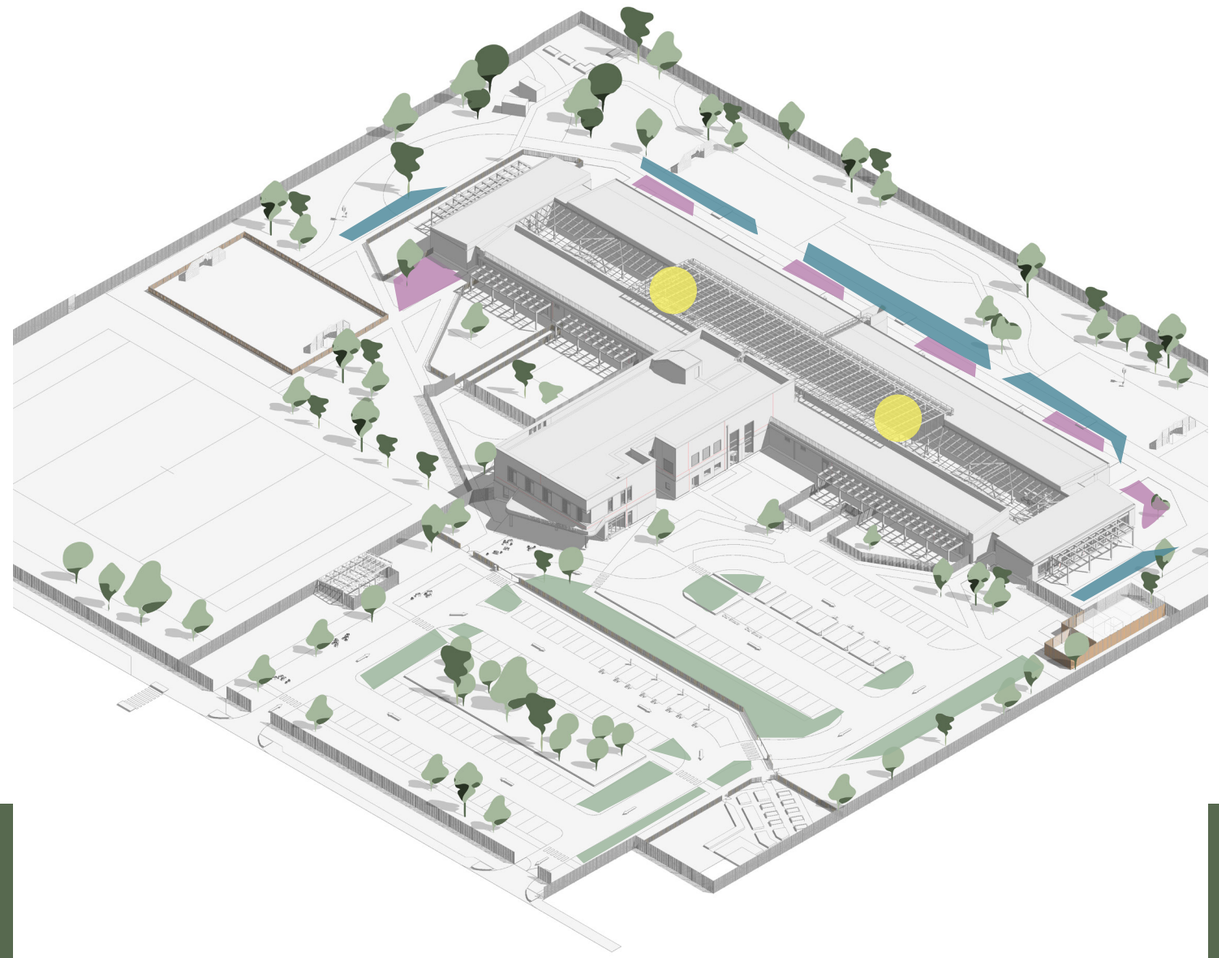






Legend

- Rain gardens
- Bio-retention feature
- Dry ditch, event ponds
- Interactive water features to capture rain movement



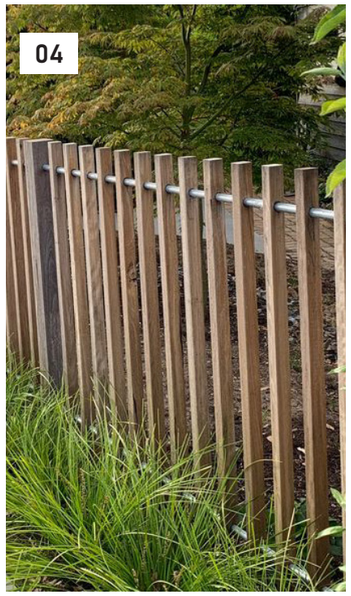
Green Infrastructure Strategy : Wetlands = **SUDS**

01 rain gardens supports sustainable drainage and biodiversity
02 bio-retention areas form part of a tapestry of habitat types
03 learning opportunities and to get children closer to natural system

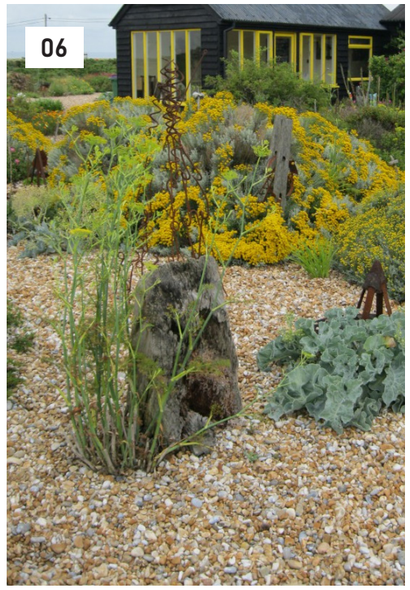






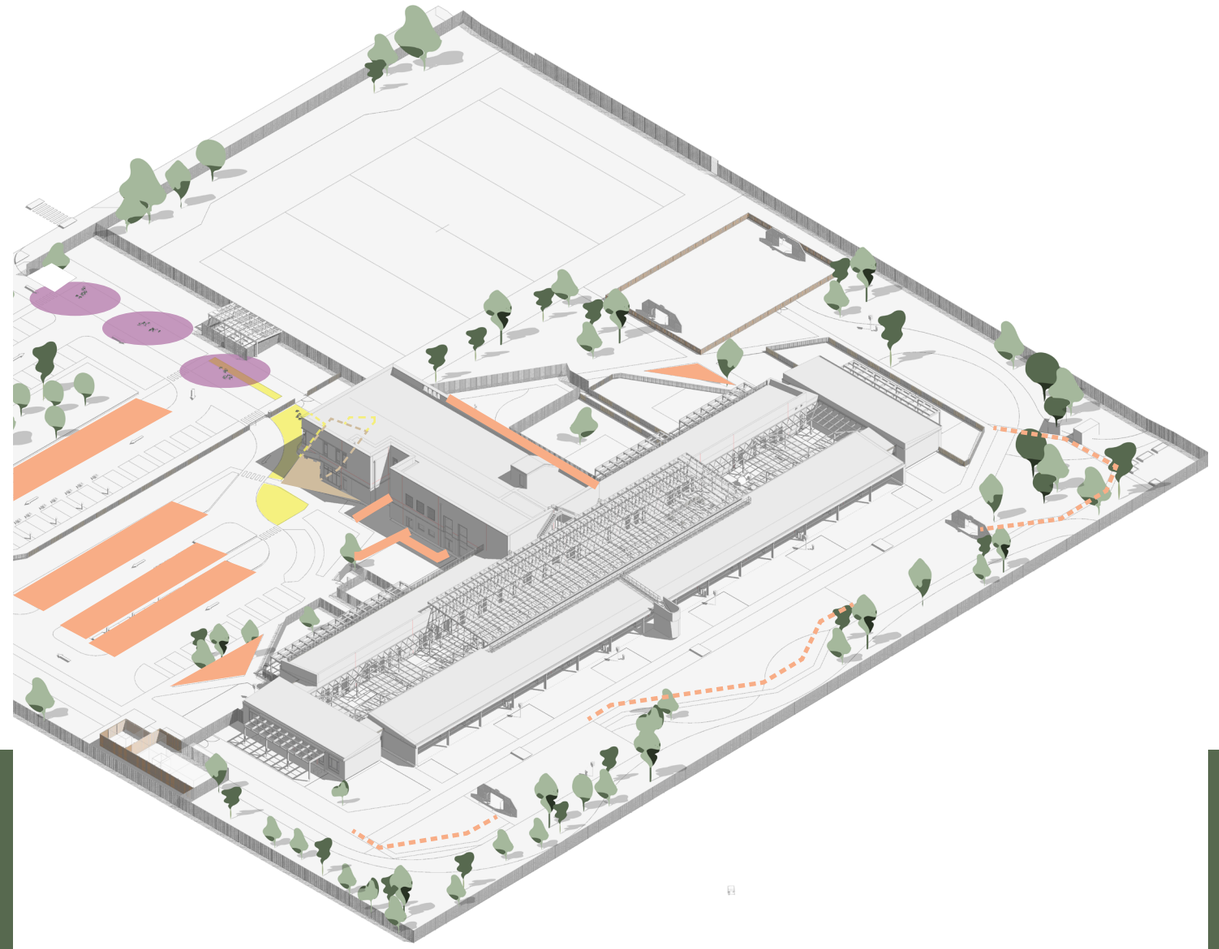






Legend

- Crushed Shell Paths to forest school and alternative routes for pupils to explore
- Self-binding Paths for way-finding and parking bays
- Natural Play Features
- Coastal gravel planting beds
- Pedestrian Paving to Entrance



Green Infrastructure Strategy : Sand Dunes = **Materiality + Planting**

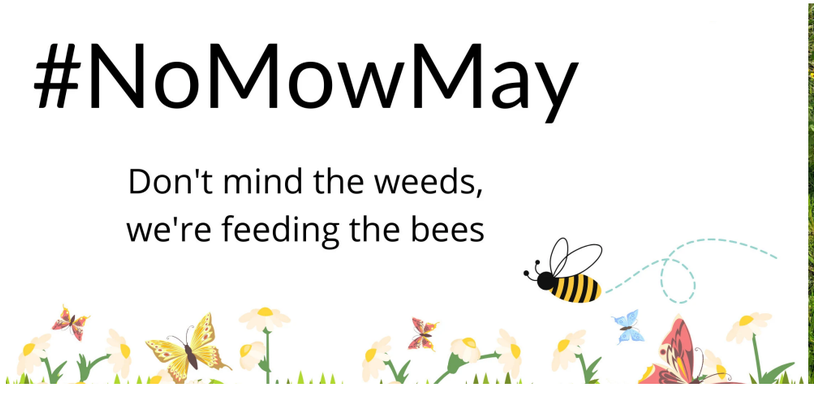
01 crushed shell paths, sensory pebble walkways, alternative mulch
02 warm coloured surfacing, add colour and vibrancy
03 self-binding gravel to reduce tarmac and increase permeable area
04 natural timber, demarcation fencing
04 informal natural timber play features
05 enhancing coastal character and sense of place through planting

04



Biodiversity Enhancements







Biodiversity Enhancements:

No statutory or non-statutory designations cover the site, and the site is over 5km from the nearest statutory designated site, the Margam Moors SSSI, Eglwys Nunydd Reservoir SSSI and Crymlyn Burrows SSSI.

The baseline Green Infrastructure and Biodiversity Features is low, due to the mono-culture of the playing fields, and lack of planting across the site. Therefore the proposals see the proposal as an opportunity to enhance the biodiversity potential of the site.

Invertebrates

- Shrill carder bee Bombus sylvarum:

- NPT Bee Friendly Action Plan and Management Strategy will be included in the proposals and introduced to the school for part of the annual wildife enhancement strategy

- Using an appropriate grass and wild-flower mix, locally sourced

- Encouraging a management and grass cutting regime to encourage flowering for pollinators

- Fun signage to inform the pupils and community of “Nature isn’t Neat’ and “Bees need Weeds”

https://beta.npt.gov.uk/leisure-parks-and-culture/countryside-and-wildlife/npt-wildlife/npt-bee-friendly/

- Pollinator habitat features located in new planting beds





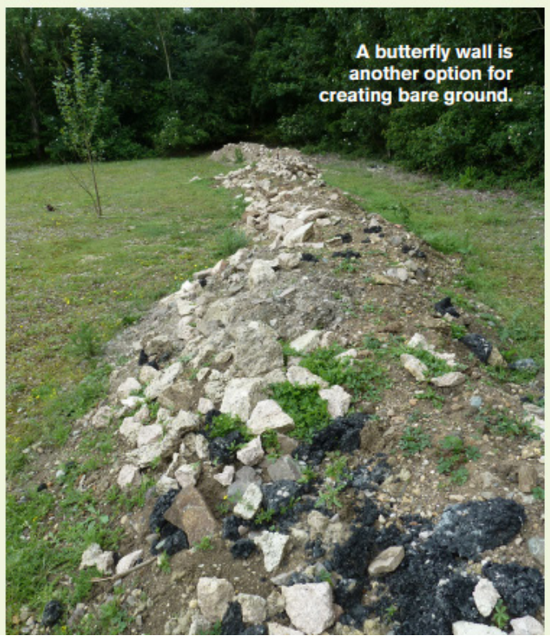
A scrape creates bare ground.

Creating bare ground habitat and maximising opportunities

Habitats are dynamic and bare ground will not remain forever as plants colonise and spread. It is important that new areas of bare ground are created at the same time, to balance the progressive loss of older ones. Some management options are outlined below.

- Open habitats can be restored by rotational ground disturbance by scarification or even turf-stripping of areas of closed (little or no bare ground) grassland or scrub.
- On sites such as brownfields, management should be rotational (piecemeal), with only parts of a site managed in a single year to maintain a habitat mosaic.
- Regular, well-planned management is required to provide continuity of short-lived habitat conditions.
- Butterfly banks and scrapes can be created to add a variety of aspects, incorporate bare ground, encourage the growth of important butterfly and moth larval foodplants and improve habitat connectivity. Seeding and plug-planting these features is beneficial as there is no guarantee that they will colonise naturally. Downloadable factsheets are available from Butterfly Conservation's website **butterfly-conservation.org** and **butterfly-conservation.org/our-work/reports-and-factsheets/habitat-creation**
- Creating butterfly walls of closely spaced brick and rubble pieces or laying them in floors can encourage egg-laying in foodplant-rich areas.
- Clearing woodland plots (e.g. by coppicing) and occasional disturbance along wide sunny rides (by scarification or general machinery disturbance) can create areas of bare ground for breeding.
- Suitable conditions for some species can be maintained by low to moderate stock grazing, especially winter cattle, which creates patches of bare ground and short vegetation.
- Avoid the use of pesticides, except to control invasive plants.
- Nutrients are bad for butterflies and moths – topsoil and fertilisation should be avoided. Fewer nutrients mean less management and more biodiversity.

These management recommendations, whilst focusing on butterflies and moths, will encourage a wide range of invertebrates such as beetles, solitary bees and wasps, and other wildlife.



A butterfly wall is another option for creating bare ground.

Biodiversity Targets:

Invertebrates

- Small Blue Butterfly:

- Creating bare ground habitat in the form of butterfly bunds

- Planting locally sourced wildflowers

- Encouraging the school to engage with wildlife friendly grass management

- Fun signage to inform the pupils and community of "Nature isn't Neat' and "Bees need Weeds"













Legend

- No mow areas of pollinator friendly wildflower and grass
- Butterfly bund located within the forest school and playground area
- Bug hotels
- Habitat boxes for bats and birds located around the building
- Rain gardens fed by drain downpipes outside classrooms



Green Infrastructure Strategy : BIODIVERSITY FEATURES

01 Butterfly bunds create new habitat and learning opportunity
02 No mow areas of the amenity grass areas
03 Habitat features located around the building and playground areas
04 Raingardens outside classrooms

05

Appendix: Green Infrastructure Strategy



2020.1 Significant Landscape Designations

8km diameter study area

- Sites of Special Scientific Interest
- Ancient Woodland
- Special Landscape Area
- Historic Landscape Area
- Historic Registered Parks and Gardens
- Traditional Orchards

Sites of Importance for Nature Conservation [SINC] - NOT MAPPED HERE

There are eight Sites of Importance for
Nature Conservation (SINC) within 2km of the site.

Listed below:

- BAGLAN BROWNFIELD SLACK	(1.4km north)
- BAGLAN PANHANDLE	(880m north)
- JAFFA LAND BAGLAN	(1.9km north)
- LOWER RIVER AFAN ESTUARY	(1.9km southeast)
- LITTLE WARREN	(1.8km southeast)
- PANASONIC	(1.2km northeast)

The proposed development site sits within a B-Lines designation:

B-Lines are non-statutory protected sites which aim to restore and create wildflower habitats forming stepping stones that link existing wildlife areas together creating a network of habitats across the landscape benefiting not only pollinators but a host of other wildlife.

Green Infrastructure Statement

Site Location: Rhosafan, Ysgol Ysgol Gynradd Gymraeg, Port Talbot
fenton+reece ltd have been asked to prepare a Green Infrastructure Strategy for the planning application for the replacement school at Rhosafan, Port Talbot. Following recent updates to Planning Policy Wales 12 there is now a requirement for all planning applications in Wales to be supported by a Green Infrastructure Statement. Section 6.2.5 has been updated to include the following statement:

"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. In the case of minor development this will be a short description and should not be an onerous requirement for applicants. 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 stepwise approach (Paragraph 6.4.21) has been applied."

Baseline Summary: [referenced Ecology Assessment report 26CC04-ECO-10-XX-T-YU-000007 _Preliminary Ecological Assessment_S2 P01_1]
Site History & Existing Site Condition:
The existing extent and condition of GI at Rhosafan School is limited, with little existing Green Infrastructure, as the site mainly consists of hardstanding, amenity grass and a scattering of trees. This sparse coverage in GI extends in to the immidiate residential setting, where GI is limited to grass verges and standalone trees on street corners and roundabouts **[Fig.2020.3]**

The site and Rhosafan area is on a very exposed, coastal location, windy and salty conditions with a sandy, dry soil profile. This has limited establishment of any green features on site with stunted trees or faillures located within the forest school.

Site Context:
The 4km study area around the site found landscape designations including two Sites of Special Scientific Interest *Crymlyn Burrows* and *Earlswood Road Cutting and Ferryboat Inn Quarries* around 3km to the north west of the school site. The area north of the site contains ancient woodland of which the most significant area is around 3km distance. Margam mountain lies to the east of the site and contains designations of Special Landscape Area and Historic Landscape Area. There are two smaller designations of Traditional Orchard and Historic Registered Parks and Gardens Special. **[Fig.2020.1]**
There are a number of significant green infrastructure assets in the area immediately surrounding the site; these vary from brownfield open mosaics to coastal habitat - there is great opportunity to connect with these assets when assessing the site using the DECCA framework **[Fig.2020.2]**
Given the scale of the development it will be important to consider a wide range of aspects in relation to Green Infrastructure, for ecological considerations it will be positive to attract invertebrates and birds, plus providing reptile refugia/hibernaculum for the benefit of local GI connectivity, supporting the B-line status of the site and local Biodiversity Action Plan to create a healthy mosaic of habitats.

Priorities for Green Infrastructure:

The landscape design, planting strategy and biodiversity enhancements for this scheme have been based on a multifunctionality of Green Infrastructure to align and support the Building with Nature Standards.

Landscape Design Key Principles:
- Local Identity:
- the school offers an opportunity to enhance the local landscape character types
- create a sense of place and identity inspired by the landscape of Neath Port Talbot
- the coastal landscape is exposed and wild at times, there is the opportunity to create a safe and enclosed setting to the school, in contrast but harmony with their coastal surroundings

- Sustainable Design:
- sustainable drainage and water management will be an integral part of the site design
- creating new habitat areas and incorporating the water management in to all parts of the site

- Bring Nature Closer to People:
- multifunctional design of the exteranls can create spaces of interest, learning opportunities and sustainable features
- creating new habitat areas alongside outdoor classrooms, growing areas and forest school should be accessible and entwined in the schools everyday activities

The DECCA Framework	Step-Wise Approach			
	Avoid	Minimize	Mitigate	Compensate
Diversity: *Individual development proposals should avoid negative impacts on biodiversity, ay considering how biodiversity assets, can be maintained and enhanced.*	Due to the lack of existing green infrastructure currently present across site any adverse effects on diversity will be avoided. the avoidance of any adverse effects is not applicable.			The proposal will introduce biodiversity enhancements in planting typologies, introducing native planting types which will bring a richness and diversity to the green infrastructure on site.
Diversity Summary:	Green infrastructure on site is limited in complexity as the site predominantly features amenity grass coverage, with few trees scattered through the site. The new landscape proposal will champion native landscape and biodiversity features, creating a mix and mosaic of planting, introducing a habitat diversity across the site			
Extent: *Individual development proposals must avoid loss in the extent of biodiversity and incorporate measures to appropriately maintain and enlarge existing habitats, especially where extent is small or declining, through habitat restoration and creation with adjoining and nearby areas, green infrastructure features and networks*	Due to the limited extent of existing GI on site the current extent will not be adversely effected	The existing tree within the site will be retained and the site design has been developed around its retention.		The proposal will introduce biodiversity enhancements in planting typologies, introducing native planting which will mitigate and improve the extent of GI across the site. This will include above ground drainage solutions through the SUD's design. Habitat features including the butterfly bund, bat and bird boxes and no-mow areas of the site.
Extent Summary:	Whilst the location of the building and hard standing have been repositioned to reduce the developments impact on the extent of biodiversity, there will be some temporary loss in this respect due to nature of the works extent. However, there will be great improvements to the extent of these within 5 years if delivered in line with the proposed planting plan, featuring a wider extent of green infrastructure and site wide approach to the scheme integrated with the building.			
Condition: *Individual development proposals must not compromise the condition of ecosystems. consideration to both direct, indirect and cumulative impacts and benefits. securing the long term management of retained habitats is key to maintaining condition*	Due to the limited quality and condition of the existing GI the current condition will only be temporarily affected during construction.			Condition of GI will be significantly improved from the baseline. The scheme has been designed to incorporate the curriculum and active growing groups in the school and community. The nature of the proposals will encourage engagement and learning resource in the management and maintenance of the site.
Condition Summary:	The scheme will improve the GI condition, considering the benefit of having a long-term maintenance plan in place with the local authority and school to ensure the condition of the proposed habitats will have longevity and sustained value. For example, native planting to create low maintenance shelter belts, no-mow areas will be celebrated with signage. Community and school allotment areas will be promoted as part of the curriculum and school approach to community engagement.			
Connectivity: *Individual development proposals should identify and incorporate measures which enable appropriate links to be made between the site and its surroundings so as to improve connectivity*	The existing connectivity is limited by the existing extent of GI across the site.			The site design has put connectivity at the heart of the proposals creating layers of new GI and landscape features to create an accessible green space for the school and wider community.
Connectivity Summary:	The proposals are seeking to enable connections between new green infrastructure assets across the site and helping to facilitate wildlife corridors and refuge for a greater range of fauna. Native, coastal tree planting to the edges of the site create variety of species, creates a local character typology and strong new green corridors across the site			
Adaptation: *Individual development proposals should identify impacts to the ecosystem resilience attributes of biodiversity*	The existing GI has little to no adaptation qualities across the site.			The landscape scheme has been designed to be resilient through planting native habitat typologies, working with the exposed and sandy conditions of the site. The new tree belts and earth bunds will be planted to create much needed shade and shelter across the site, protecting children from the strong winds and summer sun. SuDs features will be above ground and managed easily from accessible parts of the site. Habitat features such as the butterfly bund and habitat boxes will encourage new wildlife into the site.
Adaptation Summary:	The proposals have been developed to have a positive impact on the sites ability to adapt to possible future changes on its GI, a particular benefit the proposed scheme will have its contribution to the wider changes in ecosystem resilience. The courtyards and winter gardens will have cooling effects on the classrooms and circulation areas, provide alternative, sheltered locations to teach and learn in our wetter/ warmer climates. The schools engagement with natural spaces will be increased to encourage ownership and successful management.			

Summary: See dwg. 2021 for details of all the Biodiversity Enhancements

To align with the landscape design principles the GI has been at the heart of the site design, supported by the ambition to get Building with Nature Accreditation.

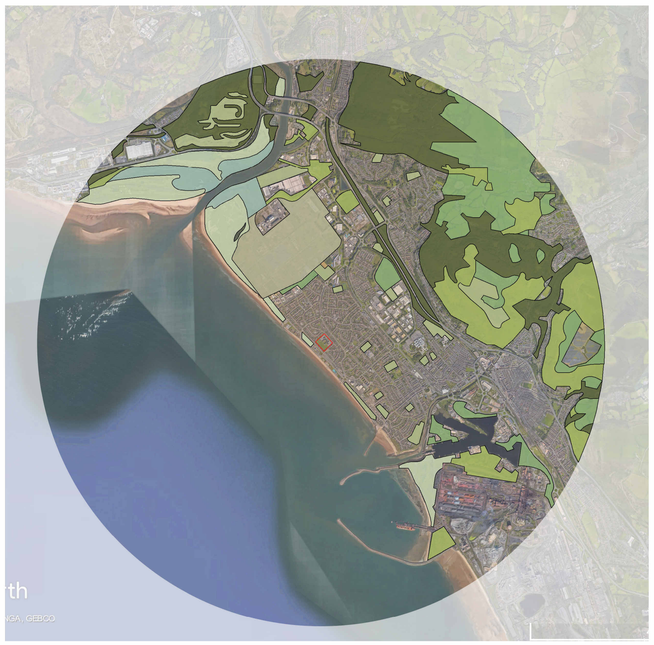
Specific GI Priorities:
- Improving ecological condition and diversity of site
- Promote connectivity to contextual GI as part of a sustainable learning environment
- Support identified priority habitats for rare invertebrates

Connected public green infrastructure to the site is limited in diversity and extent, with public GI mostly being in the form of grass verges and occasional standard trees. The existing condition of GI on site currently provides a low amount of biodiversity and habitat connectivity. The coastal location of the site and surrounding green typologies will inform the landscape provision on site; establishment of border tree planting to improve connectivity and provide shelter; coastal grassland typologies will be incorperated into the design providing suitable habitat for local species and supporting B-line species such as the Shrill Bee.

The proposal will have an overall positive impact on GI to the benefit of the local wildlife, people and sense of place.

Notes

- Drawing is copyright of fenton+reece
- Only labelled dimensions are to be taken from this drawing. Do not scale from this drawing.
- Contractor is responsible for taking and checking all dimensions, below ground services and setting out.
- All elements of design should be checked on site and conflicts reported to responsible designer... **If in doubt ask**



2020.2 Significant Green Infrastructure Assets by Broad Habitat Typologies

8km diameter study area

- Coastal Grassland
- Coastal Saltmarsh
- Formal Grassland
- Informal Grassland and Meadow
- Scrub and Intermediate
- Woodland and Shrub
- Post Industrial Grassland

[Typologies incorporated from aerial mapping]



2020.3 Existing Green Infrastructure

1km diameter study area

Private Green Infrastructure
18.0% of Area within 500m

Public Green Infrastructure
5.5% of area within 500m

Potential Green Infrastructure on Site
3.5% of area within 500m
12.5% of all GI within 500m

Existing Publicly Accessible Tree

Rev	Description	Drawn	Checked	Date
P04	Planning Issue	DC	RF	28.04.25
P03	Revised for PAC Issue	RF	RF	13.03.25
P02	PAC Submission	MR	RF	12.12.24
P01	Stage 3 Issue	DC/RF	RF	15.11.24

fenton+reece

Project
YGG Rhosafan
for Morgan Sindall

Title
Green Infrastructure Strategy

Project Status
Planning

Drawing Number
26CC04 -FRL -30 -XX -D -L -2020 P04

C:\Users\racha\OneDrive - fenton reece\fenton+reece\001_Projects\024 - Rhosafan Sustainable School\02 Design\RVT\26CC04-FRL-90-XX-M-L-00001.rvt

Thank You

Visit Us
queens house
queens road
chester
ch1 3bq

Call Us
07537811181
07810025562

Email Us
hello@fentonreece.com

fenton+reece