

AtkinsRéalis



Green Infrastructure Statement

Neath Port Talbot Council

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NE05_001-ATK-EBD-SWMWREC-RP-LS-000001

GRANDISON FLOOD ALLEVATION SCHEME

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1. Introduction

This Green Infrastructure Statement (GIS) has been prepared by AtkinsRéalis on behalf of Neath Port Talbot Council (NPTC) in support of the statutory Pre-Application Consultation (PAC) prior to submitting a planning application for the Grandison Brook Flood Alleviation Scheme (FAS) later in 2025.

The Grandison Flood Alleviation Scheme (FAS) aims to deal with the flooding problems which occur at Briton Ferry and ensure that the community is protected from flooding in the future including safeguarding against the effects of climate change.

1.1 What is Green Infrastructure?

Green infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect places. Green infrastructure can function at different scales. It might relate to individual trees, green roofs or roadside verges. It could include parks, ponds, gardens, fields, allotments or cemeteries. At a larger, landscape scale it can relate to entire ecosystems such as wetlands, waterways, peatlands and mountain ranges or be connected networks of different habitats.

Green infrastructure can provide several functions at the same time with benefits for social, economic and cultural reasons as well as environmental resilience. Multifunctional green infrastructure can result in positive benefits to a range of 'ecosystem services' that benefit people, including flood management, water purification, improved air quality, reduced noise pollution climate change mitigation and food production.

1.2 What is a Green Infrastructure Statement?

Chapter 6 of Planning Policy Wales (PPW) Edition 12 (February 2024) sets out the requirement to submit a GIS with all planning applications. There is no specific guidance on how a GIS should be produced and what should be included, however PPW says that it should:

- Be proportionate to the scale of the development;
- Describe how green infrastructure has been incorporated into the proposal;
- demonstrating positive multi-functional outcomes that are appropriate to the site;
- show how the step-wise approach has been applied;
- highlight any baseline data considered and surveys and assessments carried out

The proposal has been developed in a way which responds to the relevant national and local policies. These include Policy BE1 (Design) of Neath Port Talbot Local Development Plan (2011-2026) "*5. Important local features (including buildings, amenity areas, green spaces and green infrastructure, biodiversity and ecological connectivity) are retained and enhanced as far as possible*" Policy 9 (Resilient Ecological Networks and Green Infrastructure) of Future Wales: The National Plan 2040 and the principles set out in PPW (Edition 12).

Pre-application engagement has been undertaken with Neath Port Talbot Council (NPT) and Officers throughout 2024 to develop a proportionate approach to biodiversity. The proposed approach to biodiversity, ecology and landscaping at the application site is detailed in full within the planning application documents.



2. Proposed Development

The proposed Grandison Brook Flood Alleviation Scheme involves a series of works aimed at reducing flooding risks in Briton Ferry, specifically to properties along the Grandison Brook. The scheme includes the following key elements:

Culvert Installations

- A new culvert will be installed along the highway and through green/open spaces, replacing some sections of the existing open channel. The new culvert will re-join the existing watercourse downstream before discharging into the River Neath.
- Localised raising of the existing bank along Rhodfa Clarke Walk (The Incline) by 0.5m to help control flood waters.
- Excavation and replacement of existing culverts, particularly along Ynysymaerdy Road, where a new 1200mm diameter culvert will be installed in open trench across the playing fields and through allotments behind Llansawel AFC grounds to Old Road.

Jersey Park

- A buried surface water storage tank will be constructed beneath the play area, which will include a new inlet structure, pipe inlet, and a new section of watercourse with a pedestrian footbridge.
- Refurbishment of the existing inlet structure at Ynysymaerdy Road, replacing the galvanised steel trash and security screen with a new screen.
- Replacement of the parapet and handrail of the existing footbridge at Jersey Park, designed to reflect the early 20th-century architectural style prevalent throughout the park.

Culvert Work

- The culvert will change form at Pant Yr Heol from a 1200mm diameter pipe culvert to twin culverts (1250 x 750mm). It will be installed across the road and through a gap between houses, continuing towards the railway crossing.
- A new 1750 x 1000 box culvert will be constructed east of the mainline railway, connecting to the existing brick arch culvert near Collins Street, with the land raised slightly along the route of the culverts. Gabion baskets will be used to support the earthworks.

Flood Defence

A proposed flood defence bund, with a crest level at 6.5m AOD, will be built to protect the railway line from increased flood levels during extreme storms. A small section of concrete retaining wall will be constructed around an existing culvert parapet wall.

Landscaping and Reinstatement

Reinstatement of disturbed areas along the construction route, particularly where the culverts cross highways and playing fields. Some trees will be removed in the school grounds and near the cricket pitch, with mitigation planting planned off the line of the new culvert.

2.1 Development site context

The proposed Grandison Brook Flood Alleviation Scheme is located within Briton Ferry approximately 8 km northeast of Swansea and 3 km south of Neath. The Scheme is set predominantly within the residential zones of Briton Ferry, encompassing key infrastructure, community facilities, and undeveloped areas.



The site includes a range of notable features, such as a large cemetery on Ynysymaerdy Road, Carreg Hir School, and multiple recreational facilities. These facilities comprise a public park, a bowling green, sports clubs for rugby and cricket, football pitches, and allotments. Additionally, the area contains undeveloped scrubland that was previously used for industrial purposes. Critical transport infrastructure also forms part of the site, including the main A474 road and sections of railway, such as the South Wales main line.

Briton Ferry is positioned to the east of the River Neath, which flows along a northeast to southwest axis through the Neath Valley. The upper sections of the valley are characterised by steep, wooded slopes that rise above 100 metres Above Ordnance Datum (AOD) on both the north and south sides. The town is centred around the A474 (Neath Road and Pant Yr Heol), a key district thoroughfare, while densely populated housing dominates the western side of this road.

The Pant Yr Heol area in Briton Ferry frequently experiences flooding that affects both residential and commercial properties. These incidents occur due to the inadequate capacity of the existing Grandison Brook culvert. Floodwaters overflow at the inlet near Ynysymaerdy Road, flowing overland towards Pant Yr Heol, with additional surcharges occurring at various points along the culvert. At the A474 Pant Yr Heol highway, the surcharged culvert prevents effective drainage of surface water, resulting in water accumulation on the road and flooding of nearby properties.

Grandison Brook originates in the Ynysymaerdy district of Briton Ferry, fed by two open-channel tributaries, Upper Grandison Brook and Ynysymaerdy Brook. These tributaries enter separate culverts that converge near the junction of Ynysymaerdy Road and Pant Howell Ddu. From this point, Grandison Brook flows underground for approximately 1.5 km, passing beneath the A474 Pant Yr Heol, a secondary service road (near Brook Court/Lys-y-Nant Road), and the Neath Branch railway line, before ultimately discharging into the River Neath west of the two railway corridors.

The existing drainage system lacks sufficient capacity to handle the surface water flows generated by certain storm events, leading to flooding in properties near Pant Yr Heol. The proposed flood alleviation scheme is critical to reducing the risk of flooding from Grandison Brook to these properties. Through extensive feasibility studies and hydraulic modelling, a solution has been identified to provide flood mitigation for up to a 1 in 100-year event (1% Annual Exceedance Probability, AEP). The scheme will protect over 264 properties from the predicted flood extents associated with a 1% AEP event.

The scheme does not involve any areas of permanent land take with works predominantly underground. The exception being a single concrete structure which is required to connect the new underground drainage system into an existing tunnel entrance. Temporary access to land will be required for construction vehicles as well as for the site compound and storage areas.



2.2 Baseline data, surveys and assessments

The following surveys and assessment have informed this GIS:

1. An ecology survey was carried out by TACP in 2019 and 2022 and the findings are reported in an EclA report (TACP: 60940B) which has been carried out to support the statutory PAC for the planning application for the Grandison FAS.
2. An EIA Screening (Ref. NE05_001-ATK-GEN-SWMWREC-RP-LP-000002) opinion was sought in January 2025 which concluded that there was no requirement to carry out an Environmental Impact Assessment (EIA).
3. The findings of the Flood Consequence Assessment (FCA) (Ref. NE05_001-ATK-GEN-SWMWREC-RP-HY-000001), which concludes that there are no detrimental impacts from flooding as a result of the scheme proposals.
4. The Water Framework Assessment (Ref. NE05_001-ATK-EWE-SWMWREC-RP-LW-000001) which advises there are no permanent impacts on any WFD quality elements at a waterbody scale. There may be some localised temporary impacts during construction, however these will be managed to an acceptable level.

An assessment of potential impacts on the ecosystems services resulting from the project's ecological effects was carried out with the EclA report and it was reported that the site provides:

- Supporting services – soil formation, photosynthesis, primary production, nutrient cycling, and water cycling.
- Regulating services – air quality regulation, climate regulation, water regulation, erosion regulation, water purification, and pollination.
- Cultural services – the site is open to formal public use and as such provides cognitive development, reflection, recreation, and aesthetic experiences.
- The site does not provide Provisioning services (products obtained from ecosystems, including food, fibre, fuel, genetic resources, biochemical, natural medicines, pharmaceuticals, and fresh water).

For the operational phase the project is anticipated to have a continued impact in terms of supporting services resulting from the overall impacts of flood alleviation. The magnitude of this impact would be slight positive at the Site level only and is therefore of a negligible magnitude and neutral significance.

No operation impacts are anticipated in relation to the cultural services and there is potential, depending on the design proposals for some benefits to these services. These are likely to be slight positive at the Site level only and of neutral significance

3. Applying the step-wise approach

PPW 12, 6.4.15 sets out a 'step wise approach' and the **DECCA Framework** (Diversity, Extent, Condition, Connectivity, Adaptation) that is to be applied through the planning system:

- Diversity between and within ecosystems;
- The extent or scale of ecosystems;
- The condition of ecosystems including their structure and functioning;
- The connections between and within ecosystems; and



- Adaptability of ecosystems including their ability to adapt to, resist and recover from a range of pressures likely to be placed on them through climate change for example.

Diversity, extent, condition and connectivity are four attributes of ecosystems that can be used as proxies for resilience. Adaptability, recovery and resistance are emergent properties of these four attributes. Together these contribute to overall ecosystem resilience.

3.1 Incorporating GI into the design

The table below shows how design decisions in the design area assessed using the step-wise approach. Where it is possible to enhance biodiversity this has also been indicated.

Table 3-1 - Summary of key decisions during the development of the design as part of the step-wise approach

Decision	Step: Avoid/ Minimise / Mitigate/Restore / Compensation on site / compensation off site	Comment
Preferred route for the culvert	Avoid	Avoids ecologically valuable sites and ecosystems. There are no statutory designated sites or SINC's within the site area and none of those identified by the desk study would be affected by the current construction proposals. Avoids culverting of existing watercourses wherever possible to retain aquatic biodiversity.
Preferred route for the culvert	Minimise	Works are minimised in semi-natural areas with woodland. Instead selection of culvert routing through areas of semi-cultivated/amenity grassland or hard surfaced areas (roads).
Surfacing for maintenance	Mitigate	Permeable surfaces are used complying with SuDS principles to reduce risks of creating additional impermeable areas which increase the risk of rainfall run-off
	Avoid	Removal of the road does not enable an increase in road capacity by creating an additional route.
Tree removal	Mitigate + Enhance	Where tree removal is unavoidable, replacement planting is considered in the ratio of 3:1 be onsite, or immediately adjacent to the site.
Above ground works	Minimise	Reduce the visual impact of any structures, by reducing the scale and screening with earthworks.
	Minimise	Selecting materials which blend in with the environmental and minimise hard construction wherever possible
Drainage ditch and bridge in Jersey	Minimise	Location selected to avoid removal of any mature

Park		trees.
	Minimise	Vegetated bank protection solutions will be used.
Flood bund on the Incline	Minimise	The proposed construction using soft-engineering solutions will over the long-term blend with the existing banks. Some temporary disturbance would occur during construction.
	Enhance	Lack of maintenance surfacing at the Incline has led to deep furrows and scour channels being formed. Levelling the surface will avoid further formation and deepening of these narrow tracks.
	Enhance	Enhancements here could include bat boxes on retained trees and bird boxes suitable for tit species for both enhancement and to limit the use of bat boxes by these species.
Flood bund in Penrhiwtin	Minimise	Location selected on perimeter of site to avoid impacts on areas of scrubland.
	Mitigate	Reuse of excavated materials from other parts of the site to avoid importation or disposal quantities for soils. To minimise disturbance the CEMP will limit the hours of working to daylight hours.
	Enhance	Use of earth banks in preference to hard construction and consideration of seeding to naturally colonise with the local seed bank or to encourage wildflower establishment.
Construction lighting	Minimise	Lights will not be aimed directly into the watercourse, nor will they be lit at nighttime. Nighttime working (more than 30 minutes either side of sunset / sunrise) will be avoided.
SuDS drainage design	Minimise	Drainage design provides attenuation basins to treat the surface water runoff before discharge into existing surface water piper systems. Discharges will be limited to baseline (without scheme) runoff rates.
Landscape design	Minimise	Hard landscaping features include a small bridge over the planned ditch in Jersey Park, which will be designed to replicated the existing historic early-industrial age vernacular in the Park.
Ecosystem Services	Avoid	The scheme will not impact on Supporting services (soil formation, photosynthesis, primary production, nutrient cycling, and water cycling). Regulating services – air quality regulation, climate regulation, water regulation, erosion regulation, water purification, and pollination. Cultural services – the site is open to formal public use and as such provides cognitive development, reflection, recreation, and aesthetic experiences.

Timing of the works	Avoid	Disturbance to birds to be minimised by reducing the duration and clearance of any scrubland and timed to avoid nesting/breeding season.
Removal of INNS	Avoid	An Invasive Non-Native Species Management Plan would be produced to cover the clearance works in areas where Knotweed is noted, construction and post construction periods. This management plan would include appropriate methodologies for vegetation clearance, soil excavation and disposal, and ongoing management during and post construction.

3.2 Management and Monitoring

The enhanced habitats will be subject to annual monitoring for a minimum of 12 months from the start of operation to assess the extent to which plant populations are establishing in the green space and the effectiveness of bat and bird boxes.

3.3 Delivery and Responsibility

The detailed measures will be subject to a planning condition requiring implementation of all approved landscaping, community adaptations and biodiversity gain. The works will be delivered in a single phase of work, with a contractual period of maintenance of 12 months following completion of the works.



4. Conclusion

The scale and nature of the project provides its principal benefits to the community of Briton Ferry by reducing the risk of flooding and safeguarding communities from the effects of climate change.

The project offers small scale opportunities to enhance biodiversity on a proportionate basis. Net biodiversity benefit will be achieved through the proposal. This includes through the holistic approach to maximising on-site green infrastructure through the careful co-ordination of the drainage works, landscape and ecology considerations.

Green infrastructure will be delivered on land owned and controlled by the Applicant and through agreement with private landowners.

The works will have temporary impacts to habitats in the short terms due to disturbance. These have been avoided, minimised and mitigated as far as possible. Long-term management and maintenance of all green infrastructure will be conducted by the Applicant.



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