

## Water Environment Improvements Project Evidence Form

### Scope & Purpose

This form is to be used by the external Water Environment Governance Group (WEGG), to review, validate and formally approve the length of bluespaces improved for the Water Environment Improvements ODI. The form will be completed by the Water Environment Team with support from project partners and presented to the WEGG. After formal approval, the km of water environment improved will be recorded against the ODI and projects will be marked as completed on the Water Environment Scorecard and illustrated as delivered in the Bluespaces Mapping Portals.

### Project Name

Milkwellburn Wood

### Project Lead

Company/ Organisation	Named Lead	Position
Durham Wildlife Trust	Mark Dinning	Head of Conservation

### Bluespaces Improved

Year	Claimed	Proposed	Reason For Any Change
Year 4	3.8 km	3.8 km	NA

### Water Environment Assurance

This project has been reviewed internally to ensure it has delivered benefits above and beyond our baseline and regulatory obligations to improve the water environment accessible to customers across at least two out of three aspects. Following our assurance process, the project was approved by both our internal and external groups for review before delivery. This form presents evidence of project completion and the outputs achieved, to request project sign off.

Level	Project Acceptance Date	Project Approval Date	Completed Project Sign Off Date
Project Team	June 2023	NA	N/A
Water Environment Steering Group (Internal)	June 2023	June 2023	N/A
Water Environment Governance Group (External)	June 2023	July 2023	May 2024

### Project Timescales

Candidate Project Approved	Project Initiated	Project Completed
July 2023	July 2023	April 2024

## Project Summary and Highlights

### Summary

Funding from the NWG Bluespaces scheme has enabled Durham Wildlife Trust and partners to achieve 3.8 km of improvements to water environments within Milkwellburn Wood Nature Reserve, near Blackhall Mill, Gateshead.

Milkwellburn Wood is an 80 ha nature reserve owned by Durham Wildlife Trust. Long term PAWS restoration (Plantation on an Ancient Woodland Site) is being undertaken on the site to restore planted upon ancient woodland habitats and species. This project has allowed improvements to be delivered focusing on natural flood management on the Milkwell Burn and its tributaries flowing through the reserve, engaging both volunteers and contractors, alongside multiple access improvements to enhance the visitor experience across the reserve.

The access track between the reserve and the local village of Blackhall Mill and Blackhall Farm has experienced historic and recent flooding in spring 2023. A high flow bypass channel has been constructed by contractors at a culvert pinch point on the watercourse, and this together with leaky dam construction by volunteers on the woodland streams, has helped alleviate flood risk to the main access track and local communities downstream, providing a greater sense of security in high rainfall events. Dam construction has also resulted in more microhabitats across site, including deadwood and backed-up pools within the channels. Leaky dams are now included in the ongoing management of the site, to continue mitigation of extreme weather events and provide more varied habitat into the future.

Access improvements have also been delivered, including new interpretation signage, a review of waymarking across the site, and improvements to path surfaces by footpath flood prevention measures.

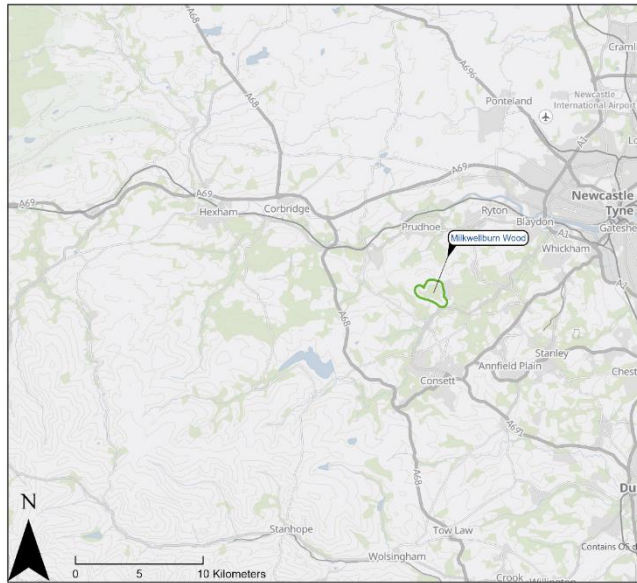
This site was visited by the Bluespaces Delivery Manager on 10/04/2024 to view the improvements made in this project.

### Highlights

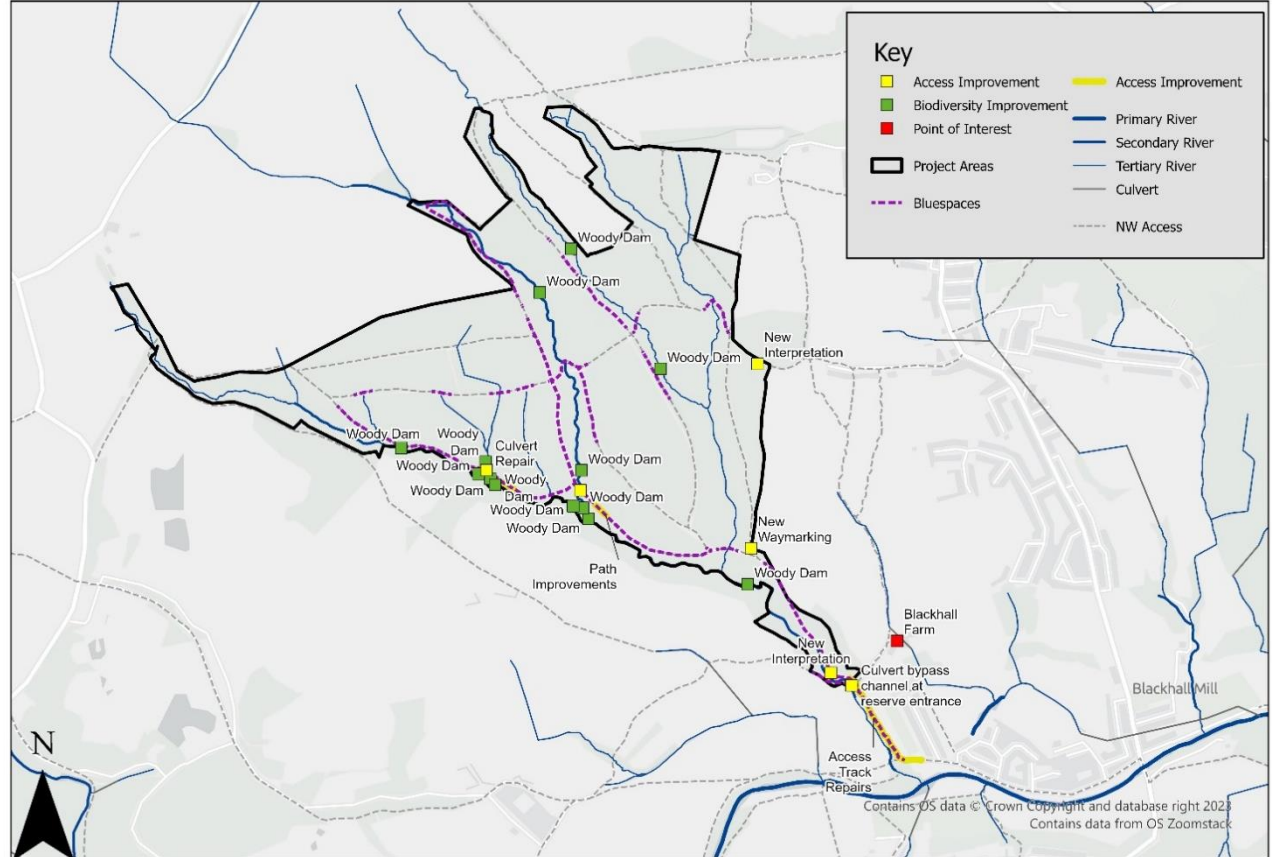
- Footpath surface improvements
- Design and production of 2 new interpretation panels (due to be installed summer 2024)
- Construction of 10 leaky dams using volunteers and local materials
- Construction of an overflow by-pass channel to prevent flooding in high rainfall



Maps



**Milkwellburn Wood**




**Total length of Bluespaces: 3.8km**

**Bluespaces improved in the Milkwellburn Wood project area**



**Project Outputs, Benefits & Evidence Against Criteria**

Access, Facilities & Recreation	
Expected Project Outcomes	Benefits
<ol style="list-style-type: none"> <li>1. Access and signage improvements will encourage greater use and ownership of water environments.</li> <li>2. Access improvements and repairs to the main reserve track will enable better access to the site and along the burn</li> <li>3. Engagement of volunteers and the local community, delivering riparian habitat and access works will increase the time spent in nature and benefit mental and physical wellbeing</li> </ol>	<ul style="list-style-type: none"> <li>➤ A1: Increases access to, engagement with and enjoyment of the water environment</li> <li>➤ A2: Benefits health and wellbeing through:</li> </ul>
Outputs	
<ol style="list-style-type: none"> <li>1. Accessibility to visitors for the site has improved significantly through this project. Ditching, path repair works and repairs of multiple culverts on site have seen flooding and erosion issues reduce on paths and tracks. These improvements coupled with increased on-site signage will encourage greater public use and knowledge of the site. Installation of new interpretation signage has faced delays due to errors with Durham County Council’s bridleway maps – this is in production, and the reserve team are awaiting delivery of the new signage to install it this summer.</li> <li>2. Repairs to the entrance track and the creation of an overflow by-pass channel to prevent future flooding has made the site accessible to all, which should still be possible during high rainfall events.</li> <li>3. Volunteers have been given the opportunity to learn new skills and deliver huge improvements to the reserve through the construction of leaky dams, the use of willow weaving to protect banks from erosion, repair of access tracks and culvert maintenance activities. Durham Wildlife Trust also now has a local volunteer ranger to help monitor the watercourses and infrastructure on this site. 11 volunteer sessions have been possible through this project, engaging 20 volunteers.</li> </ol>	
Evidence	
	
<p><b>Entrance track before repairs, impacted by flood damage, and improved surface during volunteer repairs</b></p>	

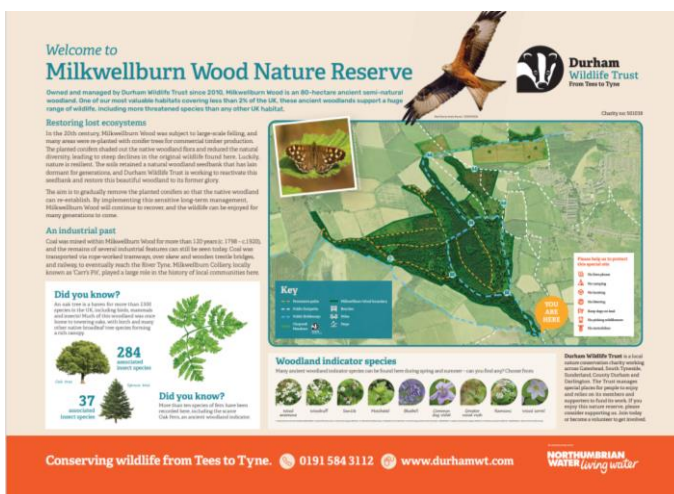




Before and after images of the entrance path surface improvements (after photo taken after heavy rainfall)



Before and after erosion repairs by a contractor and culvert repairs by volunteers (surfacing to be completed soon)



Design of interpretation signage



Volunteers in action



**Wildlife & Biodiversity**

**Expected Project Outcomes**

1. Run off attenuation features installed using natural material on site along with the creation of a culvert bypass channel will improve riparian ecological function and habitat connectivity

**Benefits**

- B1: Improves the quantity, quality and connectivity of habitats

**Outputs**

1. In total 13 run off attenuation features (woody dams) have been installed by volunteers using natural material on site, creating microhabitats for invertebrates and other wildlife. A culvert overflow bypass channel was also created by contractors in 2023. Willow weaving was also used across the site as a natural solution to protect banks from erosion. The success of the woody dams means further features will be incorporated into future site management activities.

**Evidence**



**Woody dam construction**



**Overflow channel construction**



**Overflow channel after heavy rain**



**Willow barrier to prevent erosion**



**Water Quality**

Expected Project Outcomes	Benefits
<ol style="list-style-type: none"> <li>1. New features will slow the flow of water during periods of intense rainfall, trapping sediments and reduce diffuse pollution reaching the River Derwent</li> <li>2. Slowing the flow of water during heavy rainfall will reduce aggravated erosion and trap stones and vegetation which may block infrastructure downstream</li> </ol>	<ul style="list-style-type: none"> <li>➤ C1: Reduces pollutants entering waters from point or diffuse sources</li> <li>➤ C3: Improves state and function of water, including naturalisation, visual appearance, litter and odour</li> </ul>

**Outputs**

<ol style="list-style-type: none"> <li>1. New features have already made an impact in slowing the flow and sedimentation has developed quickly behind some of the dams as a result. The culvert has not been breached since the project began, even after an extended wet period, and the dams are trapping sediments and reducing diffuse pollution reaching the River Derwent further downstream,.</li> <li>2. As part of the project, culverts have all been cleared by volunteers and dams installed upstream where blockages are particularly likely, and a volunteer ranger is now instated to monitor culverts on-site to prevent and act on blockages quickly. There have been no issues with blocked infrastructure since the project began.</li> </ol>
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**Evidence**



**Woody dam with rapid sediment build-up from high flows, and a culvert being unblocked by volunteers**



**Woody dams installed upstream of culverts to protect them from debris**

Additional & Secondary Benefits	
Expected Project Outcomes	Benefits
<ol style="list-style-type: none"> <li>1. The UK has seen an increase in the number of extreme weather events over the past decade and natural flood management using green engineering is a sustainable and sympathetic way to help us cope with our changing climate. Improved water attenuation across the site will reduce the peak flows of the burn to reduce flood risk downstream. A high flow diversion channel around an existing culvert will reduce blockages reduces the risk of flooding to the farm/ reserve access track</li> <li>2. Site is a popular destination for local communities and visitors. Improved access and biodiversity will benefit the local community and local economy</li> </ol>	<ul style="list-style-type: none"> <li>➤ D1: Provides resilience and adaptation to climate change and/or reduces the risk of flooding</li> <li>➤ D2: Provides benefits to local communities, the local economy or NWG</li> </ul>
Outputs	
<ol style="list-style-type: none"> <li>1. Materials and techniques used by volunteers on this project have been nature-based solutions, slow the flow approaches which are sustainable and sympathetic to the local environment. Materials have all been locally sourced and completely natural. Peak flows have been reduced through the use of leaky woody dams, and are expected to continue as flood water is held longer on site through continued dam repairs and installations each winter. The overflow bypass channel has also been very successful in diverting water.</li> <li>2. The local community, including many people who live in a high flood risk zone and have experienced historical flooding, have expressed appreciation for the project, and also commented on the improved access around the site.</li> </ol>	
Evidence	
<p>See above sections and customer testimonies.</p>	



Customer Testimonies & Media



**Durham Wildlife Trust**  
January 27 · 🌐

Shoutout to our Task Force volunteers, who recently created some leaky dams at Milkwellburn Wood 🌿 This natural flood management measure will help slow water flow to prevent flooding on site, and create new wetland habitat to benefit other wildlife.

Take action for nature and find out more about volunteering opportunities at Durham Wildlife Trust here 🙌 [www.durhamwt.com/volunteer](http://www.durhamwt.com/volunteer)

You and 49 others · 1 🗨️ 1 ➦

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**Matthew Sponge Grant**  
Chuck a few beavers in sorted 🙌  
14w Like Reply

Write a comment...  
🗨️ 😊 📷 📄 🗑️ ➦

*“My husband never believed this overflow channel would work, but we had a huge amount of rain yesterday and it did! We’ve experienced some awful floods in the village, so it’s really nice to see this kind of work being done”*

**Local site user**

*“It’s great to see some investment in the place, that flooding on the entrance path was dreadful, glad it’s all sorted. Well done!”*

**Local site user**

## Lead Partner Quotes & Testimonials

*“The Bluespaces funding has enabled us to provide improvements to Milkwellburn Wood that would not have otherwise been possible. It has been incredibly rewarding to make such a big difference to the site, and to learn new skills and techniques alongside our volunteers. Both the infrastructure improvements and woody dams have received positive comments from many site visitors whilst we’ve been working on site, and it is especially great to know that the main culvert flowing from the reserve is now much more resilient and less likely to cause major flooding issues downstream. “*

**Andy Wadds, Reserves Manager, Durham Wildlife Trust**

*Due to changes in our climate we are experiencing more frequent heavier rain fall which our waterways are struggling to cope with. The team’s excellent work will ensure that future flooding is controlled for many years to come.*

**Alan Dodd, Volunteer Reserve Ranger, Durham Wildlife Trust**

*“This project has really helped to shine a light on Milkwellburn Wood and its hydrology. There’s been a lot of indirect benefits of the project, like new skills and experience for our volunteer task force. Looking at the hydrology as a whole has also helped us identify hidden culvert blockages that were leading to flooding of paths, and identify footpaths and drainage channels in need of repair from water damage. The funding has also enabled us to vastly improve the visitor experience through better signage, footpath improvements and new infrastructure to enhance accessibility. It’s made a huge difference to the site and has improved our management of it going forward”*

**Ruby Merriman, Bluespaces Delivery Manager, Durham Wildlife Trust**