CASE STUDY: GOLDRILL BECK REALIGNMENT AND NATURALISATION: THE ULLSWATER RIVERLANDS PROJECT

BACKGROUND INFORMATION

Over centuries rivers have been managed and engineered for the benefit of human development. This has led to more than 60% of UK rivers having been modified. They have been straightened or shaped to align with major road networks or narrowed to allow for more farming and agricultural space and as a result, sections of many river channels are now more engineered rather than natural. Floodplains have become characterised by unnatural vegetation, which reduces the effectiveness of them.

Through the process of canalisation, Goldrill Beck was modified to run parallel to the A592. The river was in poor quality and wasn't meeting the needs of the environment or the village of Patterdale in terms of flood risk management. The narrow channel became quickly overwhelmed during periods of heavy rain and the artificial straightening of the river created a pipe like river channel which resulted in extremely fast flow from the source of the beck higher up the valley the valley. Homes and businesses in Patterdale Valley had been devastated by floods in recent years, including during Storm Desmond in 2015. Properties were submerged and infrastructure such as roads and bridges were damaged, including the A592 which is a key access route.

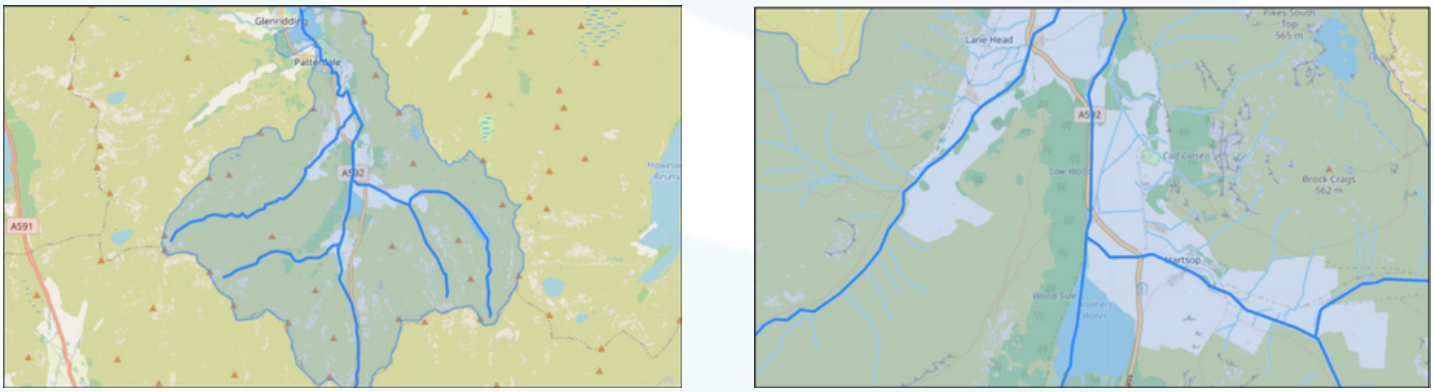


Image: Screenshots of maps taken from .gov.uk

ABOUT THE SCHEME

The aim of the Goldrill Beck's restoration project was to reduce the flood risk to the A592, increase the storage capacity of the river and its floodplains and to slow the flow. Careful consideration was taken to create a better habitat for species like Trout, Eels and Atlantic Salmon, which are key in maintaining the River Eden and Tributaries Site of Special Scientific Interest (SSSI).

The project was part of the National Trust's Riverland's scheme, a £14million UK-wide river and catchment restoration project and was completed as part of a successful partnership between the Environment Agency, The Lake District National Park Authority, Cumbria County Council, and the farm tenants. Costing £680,000 the project took six-months and was completed in August 2021.

Parties involved in the planning and design of the project were:

- AECOM
- Dynamic Rivers
- Ebsford Environmental Contractors

Funding for the project was received from:

- National Trust
- Natural England – Water Environment Grant

The design for Goldrill Beck was developed by AECOM, in consultation with partners and local community leaders and sought to improve both flood risk and the natural environment. It was also important that the site could continue to be used for grazing cattle. In total, 1.8km of Goldrill Beck was restored through re-meandering and embankment removal. The narrow, deep, and straight channel was restored to a very wide, curved and more natural river course, which allowed the river to flow more naturally, as it should. A curved, rough channel was dug through the centre of the floodplain using low-impact machinery which had special tracks to protect the peatland.

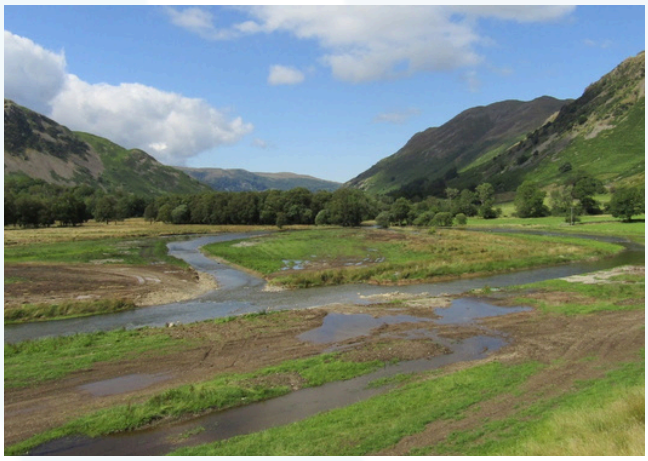
FLOOD RISK MANAGEMENT

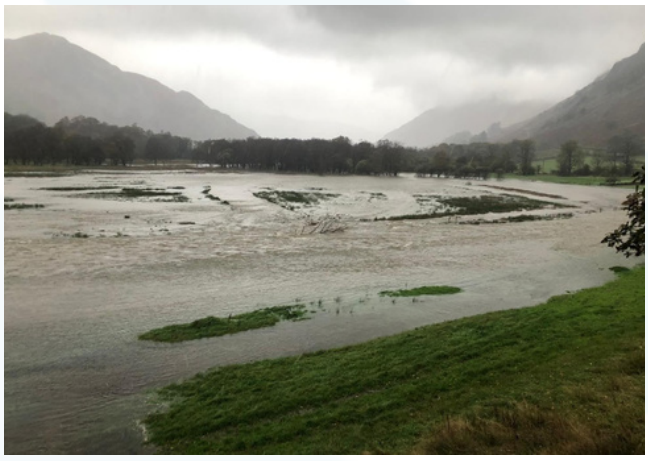
The project has been able to slow the flow of water and reconnect the beck with the floodplains which will allow the wider landscape to absorb floodwater. This has been achieved through installing features which have promoted a more natural flow. Such features are: gravel bars, riffles, meanders, pools, and planting of tall vegetation.

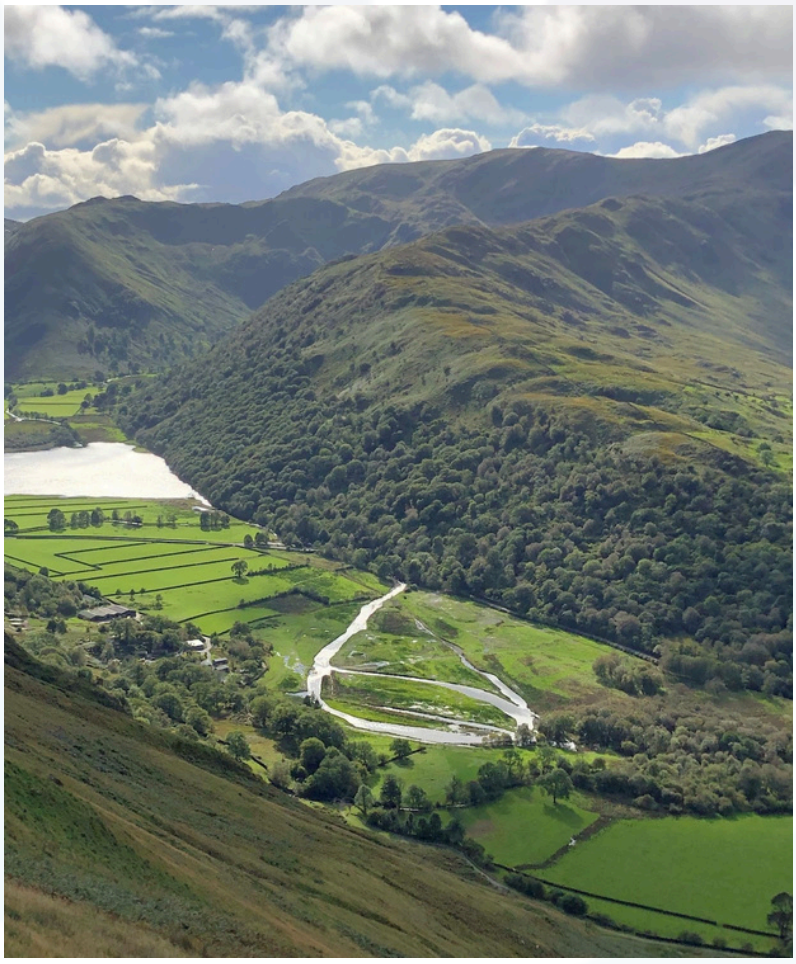
These features allow the river to vary in depth and speed and when the river is high, it can gently spill onto the surrounding fields before draining away. The new river course splits into multiple channels as it travels through the woods, which creates valuable, wet woodland habitat. The old channel has been partially filled so it can act as a water store if needed whilst also leaving a legacy of the heritage of the beck. The affect the re-naturalisation project has had on the area surrounding Goldrill Beck has complimented other projects which are part of the wider catchment based Ullswater Catchment Management CIC.

MULTIPLE BENEFITS

The new river now flows as two channels before it meets the woodland where it then splits off into multiple smaller channels, creating a wetland habitat whilst also slowing the flow. The new habitat has benefitted fish, animals and plant life. Prior to works starting, the Environment Agency temporarily relocated the fish from the engineered channel to a safe location. On completion of the project, the fish were moved into their new and more diverse habitat. The fish were previously small due to the fast flow however, the slower flow of the river has allowed them to thrive in their new habitat. The importance of biodiversity was maintained throughout the projects works and has improved the ecosystem surrounding Goldrill Beck.







Images: National Trust on UllswaterHeritage.org

Sources used: BBC, EnvAgencyNW Twitter, Ullswater Heritage, Aquauos – University of Salford, Youtube, National Trust, CW Herald,