

Wick Street Farm is a mixed livestock family farm on the north-east-facing slopes of the Painswick Valley. The majority of the land is in permanent pasture. The Painswick Stream flows through the farm but these works have been carried out within two separate spring streams.

Location: Wick Street Farm, Pitchcombe

Water course: Two un-named spring streams

Sub-catchment: Painswick Valley, Stroud Frome

Ownership

The farm is owned and managed privately.

Access

Although a footpath crosses the farm, the works cannot be seen as they are situated in the two springs that run through the farm.

About the project

Twenty eight large woody debris (LWD) leaky dams were installed within the spring-fed streams that flow through the farm. The aim of the work was to provide a physical barrier for high flows and to slow down the rate at which flood water progresses down the valley to residential areas. These spring streams are currently unfenced but the landowner is entering into a Countryside Stewardship agreement which includes fencing the banks of the spring stream to prevent cattle access.

How it was achieved

The leaky dams were constructed from tree trunks and branches sourced mainly from trees that had already fallen within adjacent woodland or on the banks of the streams, but a small area of alder has also been coppiced and the trunks used to create large leaky dams.

A mixture of fallen beech, ash, oak, willow and softwoods has been used in the most northerly spring. The structures within the southern spring are mainly alder and willow. No structures have been pinned, but trunks as long as possible have been used. There is also significant stream-side tree growth that will prevent long timbers from moving downstream through



the system. The majority of structures were built using hand tools including chainsaws, crow bars, timber grips and ropes. In areas with good machine accessibility, the farm's telehandler and silage grab were used with chains and ropes to move large trunks into an approximate position and then hand tools were used for final positioning.

The contract for building the structures was offered to the landowner who works with a small team on the farm. The project officer then worked with the owner to plan and design the works and also acted as a supervising labourer during construction.

Timber costs were donated and not costed but are likely to be significant for this site.

Consents

The works described above required only a single type of consent:

Land drainage consent - a consent under Section 23 of the Land Drainage Act 1991 permitting works that may impede the flow of a water course. Issued by Stroud District Council under powers devolved from Gloucestershire County Council.

No felling licence was required as the majority of the timber used was sourced from trees that had fallen naturally in the vicinity of the springs.

Why this work was needed

The structures on Wick Street Farm were designed to help reduce flood risk by slowing the rate at which high flows travel to the Painswick Stream. The aim of the work was to provide a physical barrier for these high flows by creating a series of small pools to reduce flood flows and slow down the rate at which flood water progresses down the valley to residential areas. The structures were also designed to reduce the speed of sediment and silt transportation into the main stream.





Benefits

Large woody debris has several benefits. Firstly, and crucially, the structures reduce high flows, slowing the rate at which flood peaks travel downstream. Secondly, LWD will, over time, speed up the flows that are immediately downstream of each structure, cleaning gravels and stones of silts. Silt and sediment will eventually accumulate behind the structures, creating a small head of water and resulting in long-term changes to stream structure. Large woody debris can divert water during higher flows and allow it to collect on the floodplain. This allows silt and sediment to drop out of the water column onto the floodplain, decreasing the total sediment load in the stream.

Woody debris also provides a natural habitat for many invertebrates, lower plants and fungi. It engineers habitat diversity, creating a system of pools and riffles which will attract a range of invertebrates and fish.

Construction data

- **28** large woody debris leaky dams within two spring lines flowing through the farm.

Capital costs

- **15** FTE days required for construction at a total cost of **£2,160**
- Number of structures: **28**
- Cost per structure: **£77**



Why have you allowed this work on your farm?

“The work seemed to us to have minimal impact on our farming but would also have benefits for people downstream. We liked the fact that we are making a contribution to a wider project with potential benefits for flood risk and water quality.”

What impact has it had on the farming or the land?

“The work has taken a small amount of our time, but apart from that there have been no actual impacts to the farm itself. I like the fact that we have been contracted to build the structures with Chris, which meant that I was in control of siting them where they would suit us and hopefully be a benefit to the project.”

Phil Dangerfield
Owner



**STROUD VALLEYS
NATURAL FLOOD
MANAGEMENT**

e: climate@stroud.gov.uk
w: www.stroud.gov.uk/rsuds