



Featured on page 6: Using the innovative spiral flush piling technique in Kendal.

innovation

Current Magazine Supplement

Issue 10 June 2025

PREVENTING POLLUTION

Using innovative silt capture at Lowdham Flood Storage

Key stats: £30million flood storage reservoir protecting 191 properties. Construction will provide a BNG of 20% increase.

Challenge: To prevent the risk of polluting nearby watercourses and causing harm to aquatic life.

Solution: Our team installed a simple but innovative silt capture channel.

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Further information:
[Frog Environmental silt control](#)

Benjamin Doughty, Flood Risk Officer, Partnership & Strategic Overview Team, Environment Agency: "The Environment Agency is committed to ensuring that the watercourse is not polluted as a result of the scheme earthworks – and the silt trap channel helps achieve just that. The silt trap channel has successfully reduced the risk of siltation to the river and pollutants to the Cocker Beck which may have otherwise affected fish and other ecology within the river habitat."

A Jackson Civil Engineering team, working on behalf of the Environment Agency, is using an innovative silt capture channel during the building of a major Flood Storage Reservoir (FSR). The £30 million FSR will protect 191 properties and businesses from flooding in a 1 in 100 year flood event in the village of Lowdham in Nottinghamshire. The construction of the reservoir will simultaneously be providing a biodiversity increase of 20% Biodiversity Net Gain (BNG). We are using the channel to keep as much silt as possible out of a nearby watercourse.

Background

Our scheme involves a high level of earthworks and much of the water running off the site goes into a stream called the Cocker Beck. The use of the silt capture channel as a natural water treatment system, helps clean the water. This reduces the risk of polluting nearby watercourses and causing harm to aquatic life. We installed the channel, working with Frog Environmental, at a cost of £8,000.

What did you do differently?

The system over-pumps water into a holding pond, which is then gravity fed into an outlet pipe containing gel flocculant bricks. This is an environmentally safe way of introducing flocculant into ditches, drains, pumped discharges or effluent streams to cleanse muddy water, and trap silt and other contaminants like nutrients, metals and hydrocarbons.

A flocculant is an agent that helps other agents, like fine suspended particles, clump together into larger particles, which can be captured more easily. Unmade ground on construction sites is particularly vulnerable and, without adequate protection, rain will lead to fine particles of clayey soil and silt being carried long distances off-site into streams and rivers.

The water from the pipe then runs into the silt capture channel made up of a series of mainly coir products. Formed on an impermeable membrane and made up of a combination of Floc Mat™, Silt Mats™ and Silt Wattles, silt capture channels are used to slow the flow of water, and to filter and trap silt and fine sediment.

These mats and wattles hold up to 40 – 50kg of silt sediment and on Lowdham have a lifespan of typically six months, depending on the rain and the sediment that is washed down as a result. Being 100% biodegradable, the silt-filled mats can be utilised within an area of landscape fill.

Benefits

- Captures and binds silt, cleaning muddy construction site water.
- It can be made in any shape and size, and a second channel can be built to handle higher volumes of silty water.
- Easily monitored with consumable products replaced quickly and simply.
- No ground disturbance or excavations required.
- Quick and easy to install.
- Captures material and holds up to 40–50kg of silt sediment and part can be replaced.

Lessons learnt and future uses

Depending on the available space, topography and pumping rate, the silt capture channel can be formed in different configurations to suit the constraints of the construction site.

Our site team and supply chain have collaborated over this passive approach to create this site-based solution, which could be replicated by other projects and teams. It will help reduce carbon emissions as the project is carried out and ensure that silt runoff from our project activities does not affect existing watercourses.

Lowdham silt trap



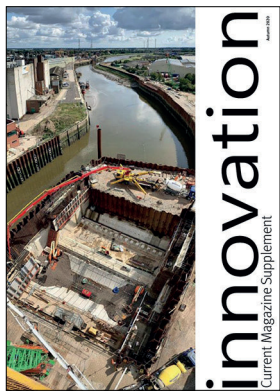


The new issue of Current Magazine has been published.
This new edition focuses on the application of Artificial Intelligence into flood & coastal projects to save time, cost and carbon. This edition also delves into projects improving climate resilience and social value. [Click here to read.](#)

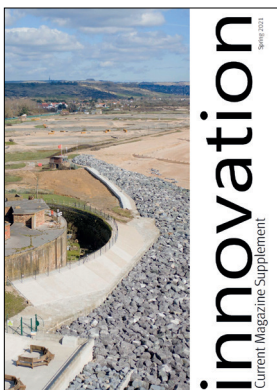
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