Case Study

Hydro International

Torrential Rain Tests Wigan's Hydro-Brake® Flood Defences

Project profile

Objective

To protect homes and businesses from flooding downstream in Wigan town centre.

Solution

Two 2 m diameter Hydro-Brake® Flood Flow Controls were installed within an 8 m high dam. The dam creates a potential 370,000 m^3 of flood storage extending along a kilometre of the Douglas Valley.

Product profile

- No moving parts.
- No power requirement.
- Self-activating and self-cleansing.
- Outlet 3-6 times larger than conventional controls. Can reduce storage requirements by up to 30% when compared to an orifice plate.

The new WRc and BBA approved Hydro-Brake® Optimum is now available.
Find out more at hydro-int.com

Heavy June rain put the Environment Agency's £12million Flood Alleviation Scheme on the River Douglas through its first major test as torrential downpours spectacularly filled its radical new flood storage area.

At the centre of the dam, just a mile from the town centre, two giant Hydro-Brake® Flood vortex flow controls successfully held back flood waters in the carefully-engineered flood storage area extending one kilometre along the steep-sided river valley.

Keith Roddy, Project Team Manager for the Environment Agency commented: "The Flood Alleviation Scheme was designed to protect 610 properties downstream in Wigan town centre. The scheme did its job successfully and significantly reduced the extent of flooding in the town centre, protecting homes and businesses previously at risk.

More than 100 mm of rain, equivalent to one month's rainfall, fell in just a few hours in the North of England during the weekend of 23 and 24 June. Over 3,000 homes were protected from flooding by Environment Agency defences, including those at Wigan.

Installation of one of the Hydro-Brake® Flood vortex flow controls.

The 2 m diameter Hydro-Brake® Flood Flow Controls are the centrepiece of an 8 m high dam, 120 m wide and 120 m long. The dam creates a potential 370,000 m^3 of flood storage extending along a kilometre of the Douglas valley.

Alex Stephenson, UK Director for Hydro International's Stormwater Division explains: "The Wigan scheme is one of the largest and the most innovative flood storage projects of its type anywhere in the world. The use of Hydro-Brake® Flood vortex flow controls was vital to the project because they could be precision engineered to 'fine-tune' the flood storage capacity.

"We also developed a new design of Hydro-Brake® Flood flow control with an adjustable intake specifically for this project to 'future-proof' the dam and allow adjustment in the light of major experiences such as this one. The addition of specially-designed restrictor plates on the Hydro-Brake® Flood flow controls' intakes enable the flow rate from the outfall to be adjusted by plus or minus 20% in the future.

The flood storage area behind the Wigan dam.

"The cone-shaped geometry of the Hydro-Brake® Flood flow control allows water to flow through the device unimpeded until it reaches a pre-determined head. At this point a self-activating vortex is triggered which throttles back the flow and releases it at a strictly controlled flow rate.

"The Hydro-Brake® Flood flood controls also have a much wider aperture than conventional valve or penstock solutions, reducing the risk of blockage from debris. This would have been a major advantage during the recent flooding."

The Wigan flood storage project was the second phase of the Environment Agency's flood alleviation scheme at Wigan. Phase one, completed in 2008, involved the raising of defences along the River Douglas.

The completed dam and flood storage has been landscaped and made attractive for visitors as part of a green corridor running from the town centre through to Haigh Hall Country Park.

Landscaped area after installation

Learn more

To learn more about how the Hydro-Brake® Flood can help you to manage water and prevent flooding more effectively, visit **hydro-int.com**, search **Hydro-Brake Flood** online or contact us:

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