Case Study

Hydro International®

Hydro-Brake® Flow Controls Specified to Relieve Yorkshire Flooding

Project profile

Objective

To prevent flooding of the Thorncliffe Industrial estate and surrounding residential areas.

Solution

A dam with a potential storage capacity of 32,000 cu.m was specified with two 1098 mm diameter Hydro-Brake® Flow Controls to restrict the flow to a design maximum of 5.7 cu.m/sec, protecting the culvert on the local Blackburn Brook.

Product profile

- Reduces stormwater storage requirements by up to 30%.
- Up to 50% savings in project costs.
- Self-activating and self-cleansing with no moving parts or power requirements.
- Area of opening is 3-6 times larger than the equivalent orifice.
- Virtually maintenance free.

Hydro International's Hydro-Brake® Flow Controls have been installed into a new dam near Devil's Bridge, on the Blackburn Brook just outside Sheffield. JBA Consulting specified two of the large flow control devices to reduce the risk of flooding on the nearby Thorncliffe Industrial Estate, and surrounding residential areas.

The Blackburn Brook runs through a 500 m long culvert beneath the Thorncliffe Industrial Estate. The small existing weir, situated on the brook, creates a holding capacity of just 4000 cu.m; this isn't large enough to provide protection from flooding. As a result, the industrial estate and nearby housing have suffered flood damage and disruption. To alleviate this, a dam, creating a potential storage capacity of 32,000 cu.m, has been constructed approximately 300 m upstream of the culvert.

João Santa-Clara, consulting engineer, JBA Consulting, commented: "The area suffered from extensive flooding in 2007, due to a 150 year storm event which exceeded the capacity of a culvert on the local Blackburn Brook. The flood caused a great deal of damage and a dam was needed to prevent a repeat.

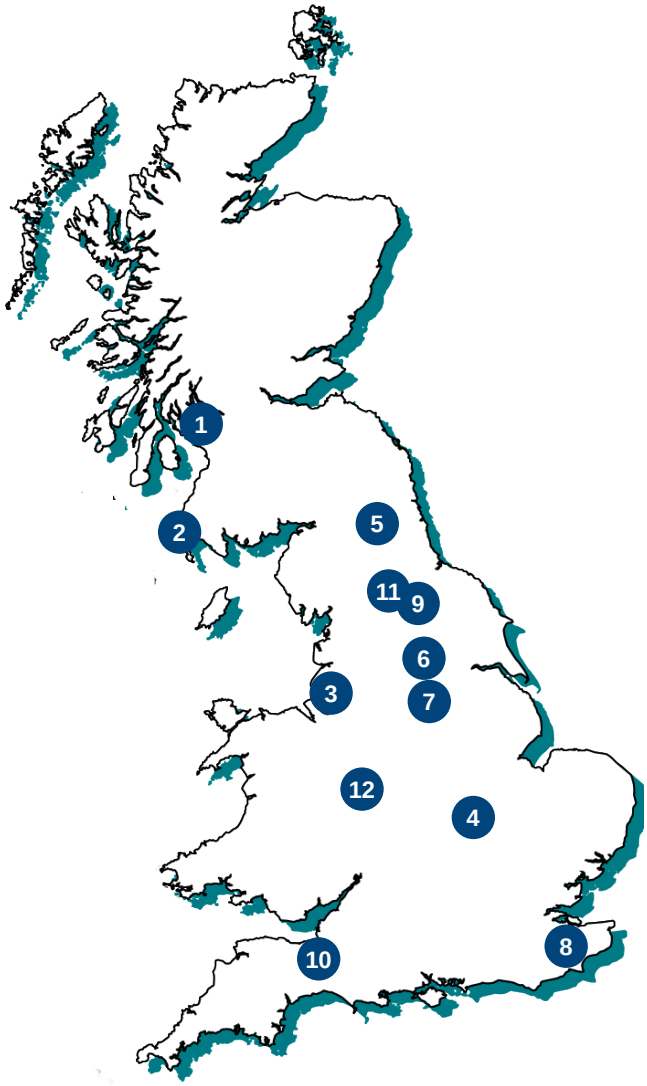
One of the two Hydro-Brake® Flow Controls being craned into position.

"By installing two 1098 mm diameter Hydro-Brake® Flow Control devices we can control the water flow to match the maximum capacity of the culvert, without the stored water taking excessive land in a restricted area and country park."

Phil Collins, Sales Director, Hydro International, added: “The Hydro-Brake® Flow Control installation will control the flow, up to a design maximum of 5.7 cu.m/sec, so will protect the culvert and prevent overtopping.

“Above this flow, the stored water will back up behind the dam but the flow characteristic of the devices limits the speed of back-up compared to other forms of flow control, saving in the region of 10-15 per cent of land grab.”

The finished installation.



Some of our Hydro-Brake® Flood installations

1) White Cart Water, Glasgow Properties protected: 1,750	**7) Devil’s Bridge, Sheffield** Properties protected: 70
2) Portpatrick Properties protected: 104	**8) Ashford, Kent** Properties protected: >100
3) River Douglas, Wigan Properties protected: 610	**9) Northallerton, North Yorkshire** Properties protected: 172
4) Weedon Bec, Northants Properties protected: 95 Featured as a case study in the Environment Agency’s Fluvial Design Guide.	**10) Cannington, Somerset** Properties protected: 200
5) River Gaunless, Co. Durham Properties protected: 660	**11) Catterick, North Yorkshire** Properties protected: 130
6) Ings Beck, Wakefield Properties protected: 715	**12) Much Wenlock, Shropshire** Properties protected: 171

Learn more

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

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