

## Hydro-Brake<sup>®</sup> Optimum Delivers Tight Fit for New Homes Storage

### Project profile

#### Objective

To limit the maximum surface water flow from the new development to 110 l/s for a 1 in 100 year flood event.

#### Solution

A Hydro-Brake<sup>®</sup> Optimum vortex flow control enabled the designers to meet the 110 l/s maximum limit whilst not exceeding the available storage on site.

### 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.
- Hydro-Brake<sup>®</sup> Optimum has been independently assessed, approved and certified by both the BBA (Certification no. 08/4596) and the WRc (Certification no. PT/503/0422).

Engineers challenged to solve a “tight-fit” surface water management challenge on a new homes development in West Yorkshire turned to Hydro-Brake<sup>®</sup> Optimum to keep flood protection measures well within safe limits.

At the Saffron Park housing development in Liversedge, the designers Paul Waite Associates Ltd needed to engineer stormwater attenuation in an extensive pipe storage area, necessary because of the topography of the site and the preference of the water authority.

To ensure that the discharge rate limits were met despite the site constraints, Hydro International’s Hydro-Brake<sup>®</sup> Optimum vortex flow control was specified to control the outflow to the drainage network.

“When we calculated the drainage discharge from the site and the available storage provision, it was going to be difficult to achieve the maximum limit of 110 l/s for 1 in 100 years flood event, plus an allowance for climate change. Using conventional flow control devices would have required more back up storage than would fit in the space available,” explains Luke McCabe of Paul Waite Associates.



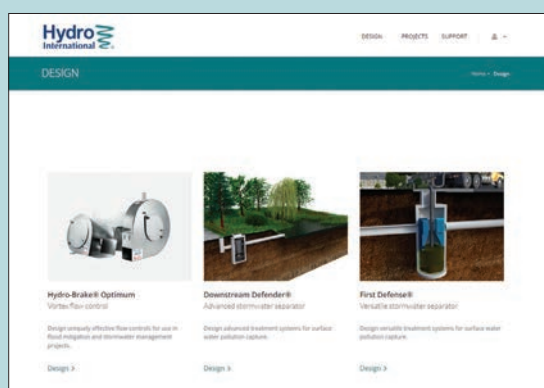
“However, when we used the online Hydro-Brake<sup>®</sup> Optimum Design Tool, it showed that we could recommend a Hydro-Brake<sup>®</sup> Optimum as it required less storage and met the Environment Agency’s planning requirements easily. The Design Tool allowed us to output drawings and data and was simple to use.”

Saffron Park, in Liversedge, is located between Huddersfield and Leeds and comprises 52 two to five bedroom houses on a plot sandwiched between existing housing and two roads. The site falls nearly three metres from north to south, and surface water from roadways and drives drains via gully traps to the temporary storage provision along the lower perimeter next to Miry Lane.

“Yorkshire Water had indicated that they preferred concrete pipe storage to cellular storage reservoirs if they were going to adopt the drainage scheme,” continued Luke McCabe. “This necessitated nearly 220 m<sup>3</sup> of storage in three 1.2 m concrete pipes, each nearly 50 metres long.

“The pipes were buried at a depth of nearly three metres under the narrow landscaped strip at the lower perimeter; there was no room for more pipe storage if we had wanted it. The Hydro-Brake<sup>®</sup> Optimum discharges to the public storm drain.”

Since its launch in 2012, Hydro-Brake<sup>®</sup> Optimum has set new standards in design versatility with its unique ability to achieve up to 15% additional stormwater storage savings compared to conventional vortex flow controls. Independently certified by the BBA and WRc, Hydro-Brake<sup>®</sup> Optimum is the only vortex flow control whose physical geometry can be precision engineered by fine-tuning the all-important hydraulic design curve.



## Design a Hydro-Brake<sup>®</sup> Optimum with our Online Design Tool

As well as Hydro-Brake<sup>®</sup> Optimum, our online design tool now enables you to design your own Downstream Defender<sup>®</sup> or First Defense<sup>®</sup> stormwater treatment separators.

The tool also allows you to save project designs and submit them to our expert technical team for a free design review.

[hydro-int.design](http://hydro-int.design)

## Learn more

To learn more about how the [product/technology/capability] can help you to manage water more effectively, visit [hydro-int.com](http://hydro-int.com), search **Hydro-Brake Optimum** online or contact us:

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