

Hydro's Downstream Defender® Provides the 'Missing Link' in Scottish SuDS Dilemma

Project profile

Objective

To provide a treatment solution to surface water runoff from the A7 near Auchenvick where there was no nearby space for a SuDS pond.

Solution

Hydro International's advanced vortex separator, the Downstream Defender® was installed to provide pollutant and sediment removal in a very small footprint compared to a SuDS pond. The treated surface water is discharged into the River Esk.

Product profile

- Removes fine particles, oils and other floatable debris from surface water runoff.
- No risk of pollutant wash out.
- Easy to install and maintain.
- Repeatable, reliable performance.
- High efficiency over a wide range of flows.
- Adaptable.

An innovative sustainable drainage solution using Hydro's Downstream Defender® hydrodynamic vortex separator provided the 'missing link' in a scheme to minimise the environmental impact of an £8 million Scottish trunk road realignment.

Plans to rebuild a two mile stretch of the A7 near Auchenvick, Dumfries, originally involved the design of three SUDS ponds to minimise flooding risk and treat pollutants and sediments in a sensitive rural location. But the development of the most northern of the ponds could have led to severe construction delays and traffic disruption, said Resident Engineer James McLeod of Dumfries and Galloway Council's in-house Design Function, DGDesign:



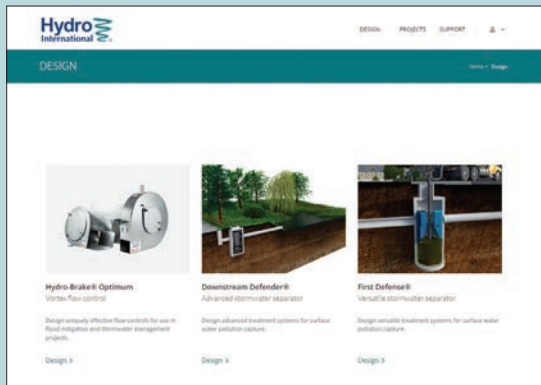
"The new single carriageway was constructed in hilly terrain to the west of the original road and the only level ground available for a SuDS pond was some distance away. To construct a third pond would have meant building a new 300 m length of sewer and required major sewer works to be carried out during the road construction phase, with a potential consequent road closure.

"It was identified that a Hydro Downstream Defender® could provide a space-saving solution which achieved the required level of pollutants and sediments removal before discharging stormwater into the nearby River Esk. The remaining two ponds were redesigned to accommodate the additional stormwater storage capacity."

The new stretch of the A7 between Carlisle and Langholm has been built to replace the original winding trunk road which had no overtaking opportunities and a poor accident record. The Hydro Downstream Defender® is the first to be constructed on Transport Scotland's trunk road network.

Minimising the environmental impact of the scheme was a

key consideration for the council and Transport Scotland. A SuDS-compliant drainage solution was one of a range of strict environmental requirements, including measures to facilitate the movement of fish and mammals, preserve habitats and provide sympathetic landscaping. As part of the project, the original road is to be de-trunked and part of it converted into a cycle path.



Design a Downstream Defender® with our Online Design Tool

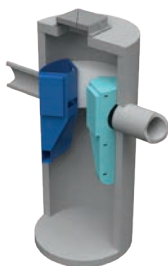
Our online design tool now enables you to design your own Downstream Defender® or First Defense® stormwater treatment separators as well as Hydro-Brake® Optimum.

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

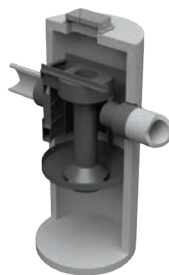
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The Hydro StormTrain® Series of Surface Water Treatment Devices

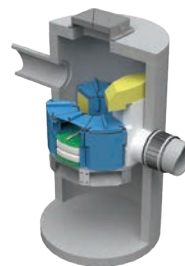
The Downstream Defender® is one of the Hydro StormTrain® Series of surface water treatment devices. Each device delivers proven, measurable and repeatable surface water treatment performance. Each can be used independently to meet the specific needs of a site or combined to form a management train. They can be used alongside natural SuDS features to protect, enable or enhance them. To find out more visit hydro-int.com/stormtrain or search "hydro stormtrain" online.



First Defense®
Vortex Separator



Downstream Defender®
Advanced Hydrodynamic
Vortex Separator



Up-Flo™ Filter
Fluidised Bed Up Flow
Filtration System



Hydro Biofilter™
Biofiltration System

Learn more

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

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