

Benefits of using a surface water flow control system

Storage and the controlled release of clean water into the natural environment is an important aspect of managing surface water in the WSUD approach. Councils have overall responsibility to impose, where appropriate, the discharge rate of a surface water flow control system.

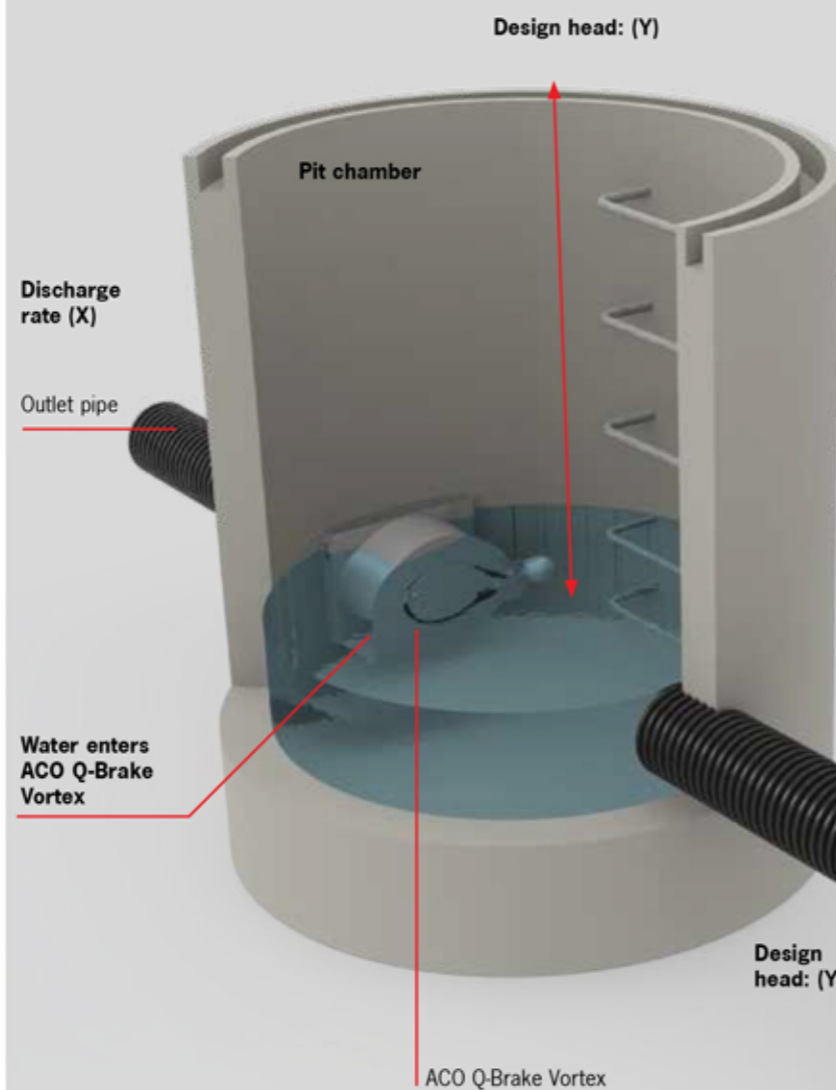
ACO's range of flow control systems can be used in conjunction with ACO StormBrixx®, to provide a fully integrated and compliant solution.

This diagram shows how the ACO StormBrixx® system is used to provide stormwater detention, as the ACO Q-Brake is used to regulate the rate of discharge from the development into the watercourse or stormwater network.

This benefit is best demonstrated in the example opposite, where the upstream storage can be reduced by 32m³ compared to a traditional flow control system.

Example:

There is a development project with a catchment area of 9,000m². The project has predefined design criteria of a 1 in 25 year storm, with a 10% increase in rainfall intensity over the lifetime of a development, due to climate change, and runoff from the site must not exceed 5 L/s at a design head of 1.3m.



Results:

Using drainage software, ACO has identified the potential saving in upstream storage requirements when using a Q-Brake instead of a traditional orifice plate. Results are summarised below:

- An ACO Q-Brake system would require a 95mm diameter orifice to best manage the design head and flow, which lead to 301m³ upstream storage being required.
- An equivalent orifice plate system would require a 44mm diameter orifice and lead to 333m³ upstream storage being required to deliver against the same design criteria.
- ACO Q-Brake would therefore reduce upstream detention requirements by approximately 32m³ relative to a traditional orifice plate system. This equates to a reduction in storage of 10%.

The increased orifice diameter also means the Q-Brake orifice has a cross-sectional area 4.6 times that of the equivalent traditional orifice plate. Therefore, it is less prone to blockage than a traditional orifice plate flow controller.

Discharge characteristics

