Case Study

St Joseph's Primary School, Ilfracombe

SDS smart rainwater management brings multiple benefits to primary school

SDS Systems
SDS WaterBank® Intellistorm® Rainwater Management System.

Client
South West Water.

End Customer
St Joseph's Catholic Primary School, Exmouth, Devon.

Project
Pilot project showcasing the application of integrated SuDS technologies at an educational building.

Purpose
To reduce the frequency with which the CSO discharges untreated wastewater into the River Exe.

Brief to SDS
To hold back stormwater from the drainage network during peak storm conditions in order to help reduce the frequency with which the combined sewer overflows.

Timing
Initial pilot: November 2018 – July 2020.

Project Background Information
This scheme supports the primary goal of South West Water's 'Downstream Thinking' project to manage stormwater in sustainable and innovative ways.

Project Objectives
To establish the opportunities for, and barriers to, reusing rainwater in a school and understand the potential for autonomous stormwater management, using a remotely operated dynamic control system.

Project Requirements
The project required the quantification of a number of significant data including evidence of peak flow attenuation, reductions in potable water consumption and cost savings to the school.

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Surface Water System Requirements

The area of roof identified as being suitable as catchment for the rainwater collection tank measures approximately 600m^2 and represents approximately half of the school's total roof area. This area drains to a 15m^3 below-ground tank, which is equipped with a mains water back-up.

Stakeholder Engagement

SDS delivered workshops for all year groups, including some parents, and a whole-school assembly, on the theme of sustainable water. Children designed fun downpipe features and these were incorporated into the downpipes outside the classrooms.

SDS Product Features

The scheme comprises the installation of SDS WaterBank® 'Intellistorm®' rainwater management system, equipped with SDS SYMBiotIC™ remote sensing and monitoring devices to provide data and analytics.

Water from the 15m^3 collection tank installed below ground is pumped via ultra-violet treatment to the school's toilets, replacing potable supplies for flushing purposes.

The tank overflows to a surface SuDS feature, a swale and raingarden, which also receives rainwater directly from the other half of the school roof.

SDS SYMBiotIC™ devices are situated in an adjacent control box.

SYMBiotIC™

Results

Stormwater attenuated (across 640 days)	400m^3
Rainwater reused	350m^3
Dynamic releases for capacity	170m^3
Uncontrolled discharges	87m^3
Water bill approx. cost savings	£1,000
Rain days fully attenuated	66%
Estimated annual carbon reduction	139kg CO_2E

Richard Behan, Flood Risk Manager, South West Water, said: *"This innovative pilot successfully explored both high tech and nature-based ways of holding back excess rainfall from our sewers."*