

ACO StormBrixx plays its part in new Academy's SuDS design for exceedance

Design goal for managing water on the surface delivers multifunctional attenuation solution



ACO Water Management's StormBrixx system has been utilised as part of an exemplar SuDS design for exceedance. ACO worked closely with the project engineers for Telford Co-Operative Academy, to develop a multi-functional solution able to manage a 1:100 year event plus an uplift of 30% for climate change - equating to around 1000m³ of surface water.

The Telford Co-Operative Academy's main building, all weather sports field and car park form three substantial drainage elements, which threw up a number of challenges for Telford and Wrekin Council and the project contractor Shepherd Construction.

The original plan was to connect the surface water drainage to a culverted watercourse. However, a number of problems were identified, not least that the site sits on clay with little over 100mm of topsoil - meaning infiltration had to be ruled out. A different approach was therefore required - and fast - as any delay to the build would be subject to contractual penalties amounting to £20,000 per week.

With a clear priority focused on surface water quantity, managing water on or near the surface became a design goal, not only to reduce costs but also to facilitate easy maintenance. Telford and Wrekin's engineers therefore turned to ACO - and its StormBrixx geocellular stormwater management system was central to the scheme.

The solution involved connecting the drainage to the highway surface water sewer just over 400mm from the site boundary and the design needed to incorporate a number of multi-functional elements, to meet wide-ranging demands.

Project:

Telford Co-Operative Academy.

Objective:

With focus on access and maintenance, provide solution which addresses additional attenuation requirements of the site.

Solution:

The final solution successfully manages water on the surface whilst achieving a valuable amenity benefit to the community - in the form of a new sports pitch - that also provides cost effective exceedance management.



“The site and its location posed considerable challenges, said Gerrol Jalving, Senior Highway Engineer from Telford & Wrekin Council. “There was a substantial drop of 3m at 200m from the receiving sewer, yet adjacent contaminated land made deep excavation undesirable. As the run-off flows exceeded a discharge limit of 5l/s, additional attenuation was also required.”

The answer was a shallow depression within the attenuation area, utilising spoil from the main contract. A topographic depression was created with a 1:15 gradient (<7%). This enabled the team to reduce the underground storage to just 175m³ of StormBrixx, meeting a design storm return period of 1:30 whilst avoiding the need for deep drilling.

The depression provides temporary ponding on the surface, with a storage capacity of 800m³, to meet

the critical volume of a 1:100 year event. This area also provides an additional amenity for the local community, with a football pitch built over the top.

In addition, this exemplar approach takes into account an uplift of 30% for climate change, with surrounding fields utilised as part of the design for exceedance.

ACO’s StormBrixx system offered the project a number of benefits.

“StormBrixx can be supplied with a concrete chamber for man access and this provided a housing for submersible pumps – set to activate when the water rises above a certain level,” said Peter Bembridge from ACO.

“More importantly, the chamber provides easy man access for a thorough inspection down each



of the system’s pathways. As a result, any issues such as the build up of silt or water sitting in the system can be identified and dealt with quickly and efficiently. With the academy having to take responsibility for the drainage maintenance, this was a major consideration.”

With access to site restricted due to the surrounding residential houses, the stackable design of the StormBrixx components was another plus point. This means the units can be packaged and transported more efficiently, meaning smaller / fewer lorries and easier storage and handling on site.

Mr Jalving from Telford & Wrekin Council concluded, *“The final solution successfully manages water on the surface whilst achieving a valuable amenity benefit to the community - in the form of a new sports pitch - that also provides cost effective exceedance management.*

“ACO’s StormBrixx met the needs of the project on a number of levels. Its brick bonding assembly ensures full structural integrity when installed and offers efficiencies in transport and on-site storage as well. Furthermore, the concrete man-access chamber will make inspections and maintenance easy, which is critical for the academy.”



Graphic highlights the attenuation capacities of this SuDS design.

ACO Technologies plc

ACO Business Park,
Hitchin Road,
Shefford,
Bedfordshire
SG17 5TE
Tel: 01462 816666
Fax: 01462 815895

ACO Water Management Contacts:
e-mail Sales: customersupport@aco.co.uk
e-mail Technical: technical@aco.co.uk
website: www.aco.co.uk

ACO Building Drainage Contacts:
e-mail Customer Enquiries: abdcommercial@aco.co.uk
e-mail Technical: abdtechnical@aco.co.uk
website: www.acobd.co.uk

