

ACO Delivers on all Counts to Three Bridges

Surface water management solution helps overcome challenging on-site logistics of new maintenance depot whilst meeting project's specification.



ACO Water Management has provided a complete surface water management solution at Network Rail's Three Bridges railway maintenance depot near Crawley. By utilising products from its permanent way and rail infrastructure range, ACO was able to meet the project's specification and help overcome challenging on-site logistics.

The new rail depot is part of the Thameslink rolling stock project, which is an initiative to provide additional passenger capacity and remove bottlenecks on the London commuter network. The development is split into east and west side facilities and among other buildings includes a five-road, 12-car train care building, two carriage washing machines and an under-frame jet wash. The project is led by Siemens, with Hyder Consulting as the consulting engineer working for main contractor Volker Fitzpatrick, and is due for completion in 2015.

The project required two stormwater attenuation tanks to meet site hydraulic requirements. The tanks collected flows from the shed roofs and highways. In addition, the project required a series of drainage channels to collect trade effluent flows from maintenance building services pits, train wash facilities and track in front of buildings; these flows then went to the sewer. Adding to the complexity was a low bridge that restricted access to the site, with larger delivery vehicles not able to pass underneath.

Project:

Network Rail's new Three Bridges railway maintenance depot near Crawley.

Objective:

Provide suitable surface water management system to meet the site's varying hydraulic and drainage requirements.

Solution:

Two ACO StormBrixx attenuation tanks and ACO's Q-Brake Vortex Flow control manage the site's surface water run-off and control the rate of discharge into a local watercourse. In addition, a series of drainage channels collect flows from various areas around the maintenance buildings.

Two ACO StormBrixx tanks, of 1150m³ and 370m³ volume, were integral to the surface water solution. The unique geocellular stormwater management system is designed to stack for shipment, saving space and keeping transport costs to a minimum. With smaller delivery vehicles required to reach the Three Bridges site, this meant deliveries were minimised – ACO StormBrixx was supplied using around 75% less deliveries than would have been required for comparative tanks.

The system also benefits from a patented cell brick and cross bonding feature that speeds up installation time because of its stackable; meaning the installer, Environmental Construction Solutions Ltd, was able to deliver on the exceptionally tight, six day installation deadline.

The system will work in conjunction with ACO Q-Brake Vortex controllers to manage surface water run-off and control the rate of discharge into a local watercourse. The design of the ACO Q-Brake Vortex is based on the fluid mechanics principle of the forced vortex, which permits regulation without any moving parts – and it is fitted with an integral bypass door that can be opened in the event of a blockage.

With the ACO StormBrixx's open cell structure permitting completely free access for CCTV and jetting equipment – meaning it can be inspected and maintained from just a few access points – the system offers Network Rail an easy to maintain solution.

A series of drainage channels were also used on site. For the efficient removal of fluids from the service pits in the main train care and wash-down facilities ACO supplied 1500m of ACO MultiDrain MD channel drainage, fitted with sump units and roddable foul air traps to prevent debris from entering the drainage system.

ACO TramDrain was used to prevent water from the external trackslab running along the track profiles into the buildings and maintenance pits. ACO TramDrain has been developed in the UK specifically for rail applications and is designed to suit a wide range of rail profiles and varying track configurations. Its one-piece, high capacity, high strength design, has a large intake area and offered easy installation across the tracks at the perimeter of the building, to collect water from the rail and flange ways.

Susanne Brocken, Design Team Leader at Hyder Consulting said, "ACO was very helpful on the project and especially proactive in producing calculation packs to assist in scoping the project. Their collaborative approach helped to ensure the right system was selected, which was beneficial and useful."



For additional assurance, as the work was carried out by Environmental Construction Solutions Ltd, they provided a warranty for the complete installation.

As a major supplier to the rail sector, ACO's high performance product ranges have been used extensively across the UK's national and light rail networks. The range covers a wide variety

of applications – including track slab platforms, station buildings and infrastructure, parking areas, maintenance and storage depots. ACO is also able to provide engineers and contractors with technical support and guidance.

For further information on ACO's specialist offer for the rail sector visit www.aco.co.uk/rail

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

