

DRAINAGE SOLUTIONS FOR LIGHT RAIL

ACO HAS DEVELOPED ITS PURPOSE-BUILT TRAMDRAIN SYSTEM TO HELP DEAL WITH MANAGING EXCESS STORMWATER RUNOFF FROM LIGHT RAIL INFRASTRUCTURE. TOM O'KEANE REPORTS.



ACO's TramDrain uses a linear drainage system to divert stormwater.

For the average pedestrian or commuter, excess rainfall runoff can present a range of nuisances. Modes of transport, routes to work and outdoor activities can all be affected by rain.

This is also considered for light rail infrastructure, where the weather can have an immediate impact on services, as well as on commuter safety.

As John Sordo, Head of Product Management at ACO explains, the ability

to divert stormwater runoff is an essential aspect of light rail infrastructure.

"There are various applications where the lack of water management can have severe consequences," he says. "When it comes to roads, you have aquaplaning and potentially fatal accidents due to a lack of tyre traction. One of the hardest things to do is to manage water on flat and level surfaces, where there is nowhere to direct the runoff to. So you have to intercept the water and take

it under ground, and the best way of doing that is through a linear collection system," Sordo says.

ACO's TramDrain product aims to satisfy this requirement. By using a linear drainage system, the TramDrain is specifically developed to suit grooved rail and track slabs for light rail.

As a mode of transport which is becoming increasingly popular, light rail provides a service which can be more time and energy

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efficient when compared to traditional railways and buses.

ACO Brand Manager – Civil Construction Products, Darren Chan says that ACO has adapted and modified proven overseas solutions from ACO’s sister companies to be suitable for Australian applications.

“This product is popular in Europe, where ACO is very well established and light rail is a common mode of transport. There are a few TramDrain designs currently being used throughout Europe in places such as the UK and France,” Chan says.

“France utilises a wider TramDrain system compared to the UK, which is due to its higher volume of rainfall. We have adopted the French design and their technologies for the Australian market.”

The TramDrain system features a rubber chute, which connects the linear trench drain to the tram rail. The rubber material enables stray currents from the rail to be isolated from metallic drainage elements such as grates and bolts, while also draining the tracks. The chute is designed to remove the collected water from the groove in the track rail. Holes are drilled into the track rails so the water can pass through the chutes into the polymer concrete channel, installed below the surface.

For a continuous line of uninterrupted drainage, pipe connectors on the system enable the runoff to be transferred under the rail horizontally to another channel section across the track and into the underlying stormwater pipe network.

Sordo says the systems offer a range of flexibilities in design, allowing them to be altered to fit the specifications of a given light rail track system.

“So, you have a product that not only solves a problem, but it is also adaptable to different methodologies of construction. TramDrain also satisfies the requirements of AS 3996 Access Covers and Grates.

“While the primary application of TramDrain is to facilitate drainage for tracks, it can also be urbanised to satisfy the requirements of streetscapes where pedestrian and bicycle also share the space,” according to Sordo.

According to Sordo, ACO is in a unique

position as an Australian manufacturer with global experience when it comes to designing surface water drainage systems.

“As an Australian manufacturer, we can use overseas technologies and adapt these products to satisfy the requirements for the constructability objectives of a project. We understand these requirements, which is important, because track designers are not going to readily adapt their construction

methods around a product. The product needs to be adaptable to the project.

SYDNEY SOUTH EAST LIGHT RAIL

TramDrain drainage systems can be adapted to meet light rail specifications in different Australian states, as well as to fit the needs of specific projects.

One such project was the Sydney South East Light Rail project, where designers were tasked with managing the surface water runoff. With the rail cutting through areas with heavy vehicle and foot traffic, the designers needed to consider the safety of pedestrians, cyclists and commercial vehicles.

The 12-kilometre light rail network connects major precincts in central Sydney, such as the Prince of Wales Hospital, University of New South Wales and the Moore Park sporting and entertainment complex.

As Chan explains, the TramDrain 200A system was selected for the project, along with a Heelsafe® Anti-Slip grate, to help divert water flow and ensure road

users’ safety.

“Light rail is usually used in high pedestrian volume areas, so it’s key to get rid of water so that there is no standing water for people to slip on or for vehicles to aquaplane,” he says.

“In this case, we used the Heelsafe® Anti-Slip grate, which is both heel friendly and slip resistant to ensure maximum safety for pedestrians, cyclists and wheelchairs. These grates are load rated to the AS 3996 Class D requirement, which means they can accommodate commercial vehicle traffic. This was an important requirement of the Sydney Light Rail project,” Chan adds.

Apart from the TramDrain 200A, ACO offers the TramDrain 175A and the TramDrain 200B systems, each offering slightly different



TramDrain 200B is a high capacity drainage system with 200-millimetre clear opening width.

dimensions and other customisable features. ACO also provides on-hand project support from its Sydney base technical department to assist with the implementation or alteration of its light rail drainage products.

As Sordo notes, products such as the TramDrain are an important contribution to creating safe and reliable operations for public transport networks.

“When designing drainage systems, our main objective is that the product should meet the project’s requirements, rather than just ticking a box and satisfying a general industry standard,” he says.

“More and more cities are building light rails, as they want to facilitate the removal of cars from the CBD and the light rail system is an elegant and efficient alternative. However, if water isn’t managed properly, it could bring a halt to essential public transport.” ■

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