CATCHING THE RAIN, THE ACO WAY

FROM HIGHWAYS TO PORTS AND AIRPORTS, ACO AUSTRALIA'S DRAINAGE SYSTEMS OFFER SOLUTIONS TO ENGINEERS AND ASSET OWNERS. *ROADS & INFRASTRUCTURE* CAUGHT UP WITH THE COMPANY'S HEAD OF MARKETING AND PRODUCT MANAGEMENT, JOHN SORDO, TO DISCUSS SAFE AND EFFECTIVE ROAD SURFACE DRAINAGE OPTIONS.

Efficiently removing stormwater runoff is top of mind for engineers as they design new highways and motorways or plan for road upgrades. With a variety of vehicle types travelling at high speed under varying weather conditions, the drainage system plays a key role in safety and comfort for road users.

There are several ways to remove runoff from roads, from drainage inlet pits to side entry inlets and kerb openings. But, as is often the case, the ultimate decision on the best drainage option comes down to cost and effectiveness, as ACO Australia's John Sordo explains.

Established in the 1940s in Germany, ACO has been pioneering on many fronts new designs and materials for road drainage systems. In the 1970s, ACO was the first company to introduce modular drainage channels and to use polymer concrete for drainage products.

Today, ACO has expanded throughout Europe, The Americas, Asia and Australasia with subsidiaries and manufacturing facilities in over fourty countries. In Australia, ACO manufactures drainage systems, as well as a host of other water management products for different industry sectors, from its factory in Emu Plains, Sydney.

The company's global mission is to collect, clean, hold and release stormwater sustainably back to the environment. This explains the multiple product lines, from trench drains to stormwater tanks and access covers.

With a 25 year manufacturing history in Australia, ACO's brands in Australia include ACO Drain, which covers commercial drainage for urban areas and ACO Infrastructure, which cater to drainage requirements for transport infrastructure such as roads, airports, ports and light rail.

ACO's TraffikDrain efficiently captures water from road surfaces.

TRENCH DRAINAGE SYSTEMS

Two of the most popular trench drain systems in the ACO portfolio, according to Sordo, are TraffikDrain and KerbDrain. ACO's grated trench systems are either monolithic in construction for optimum safety in high-speed traffic or are available with removable grates that are locked with boltless mechanisms into integrally cast ductile iron edge rails with anti-shunt mechanisms.

Sordo elaborates on how the two drainage systems compare with the conventional kerb inlet pit and pipe systems from a cost perspective.

"Other advantages aside, cost is always an important factor for contractors. So we ran a comparison between the traditional kerb pit and pipe drainage system, ACO's TraffikDrain grated trench drainage and ACO's KerbDrain integral kerb and drainage channel.

We found that the cost of installation of TraffikDrain, including trench excavation, backfilling, product price and kerb installation was 15 per cent cheaper than the kerb inlet pit and pipe installation. Furthermore, KerbDrain's installation was 36 per cent lower than the conventional installation," says Sordo.

Though important, cost is not the only advantage with these ACO solutions. Continuous capture of runoff by TraffikDrain grates or KerbDrain inlet slots minimises the width of flow which produces ponding and gutter flow from encroaching into the traffic lane. This is contrasted against the kerb inlet pit and pipe system where runoff can flow out on to the road between pits creating hazards to road users and pedestrians.

TraffikDrain and KerbDrain channels also require a shallower trench excavation compared to the kerb inlet pit and pipe system, which minimises the risk of interference with other services. Ease of maintenance is another advantage as trench drain blockage can be easier and quicker to remove in grated systems compared to underground pipe systems. In some cases, cleaning can take place without the grate needing to be removed.

CASE STUDIES

These advantages were demonstrated in a recent application where ACO's TraffikDrain solution was adopted in the Bruce Highway upgrade in Queensland between Cooroy to Curra. The 62-kilometre realignment and road widening project involved the inclusion of several turning lanes in the section running through the town of Gympie. Designers wanted to ensure that during storms, all surface runoff could be effectively captured so that there would be no ponding against the centre median

As Sordo explains, the large openings of the Hi-Flo grate ensured runoff was efficiently captured, eliminating the hazard of gutter flow to motorists. Anti-shunt lugs also ensured the grates remained firmly in place and were not dislodged by excessive wheel movements and braking.

In another project, ACO provided KerbDrain as a solution to the Queensland Department of Transport and Main Roads (TMR) for the upgrade of the Pialba-Burrum Heads Road intersection. Installation of centre medians to separate traffic was a key part of the safety upgrade.

Sordo says KerbDrain helped transform the kerbs into continuous capture inlets requiring minimal excavation, with KerbDrain's compact design fitting neatly into the shoulder of the carriageway.

"Installing KerbDrain reduced the cost compared to conventional kerb inlet drainage, due to fewer pits and pipes resulting in less excavation," says Sordo. "Additionally, installing KerbDrain reduced the cost compared to conventional kerb inlet drainage, due to fewer pits and pipes resulting in less excavation."

A MULTI-FACETED SERVICE

With over 50 years' experience in providing drainage solutions worldwide, Sordo says what sets the ACO service offering apart is the ability to make documented recommendations for individual projects. ACO has provided drainage solutions to five types of problems commonly faced by designers.

These being wide roads with flat grades (Intersections), restricted depth applications bridges, super elevated transitions, medians/ kerbs built close to roads thoroughfare and containing the contaminated runoff (WSUD).

"There's no one-size-fits-all when it comes to drainage systems. So, our engineers study site-specific catchment hydraulics and they provide designers with hydraulics recommendations," Sordo explains.

"This may include anything from determining the size of a trench drain to advising on optimum pit spacing. We base all of our hydraulic calculations on the correct approach and this is backed by university testing."

To further support designers and contractors, ACO has developed "askACO", a corporate initiative designed around advice and industry education. ACO's qualified technical team can provide them with free advice to make daily work easier for designers and help them select the right product for their application.

"It's essentially a landing page where designers can submit project-specific questions or to get training," he says.

And with a fully Australian manufacturing facility, there's nothing the team should worry about in terms of supply during global disruptions, as seen in the recent COVID-19 pandemic.

"We actually had an interesting story recently on a Western Sydney road project. A contractor decided to pick one of our competitors because their offer came to be about three per cent cheaper. But because of delays on the supplier side, the project ended up costing a lot more," says Sordo.

"That's an issue we don't need to worry about as our product is manufactured in Australia, which means we can offer short supply times, customised solutions and a technical support team familiar with the Australian standards." To visit the landing page go to www.askACO.com.au.

"In addition to this we have launched a free web-based software program to assist engineers and contractors select the most hydraulically efficient trench drain for their projects," Sordo says.

The program can be accessed at: www.acodrain.com.au/hydrolite.