awma Water Control Solutions

SEPTEMBER 2013 EDITION 27

NEWS

CBD FLOOD PREVENTION

Up to 40 backflow prevention devices will be installed across 12 Brisbane stormwater systems at a cost of approximately $10 million.

AWMA were approached to deliver reliable, high head, customised infrastructure to protect Brisbane's CBD from flooding.

Working in conjunction with the Brisbane City Council (BCC), AWMA developed critical infrastructure to address backflow issues in key city stormwater drains.

Creek Street, one of the busiest streets in Brisbane, was found to be the most suitable location for the CBD install. BCC contractors undertook a series of night works in an effort to construct a suitable chamber and assist the AWMA installation with minimal disruption to city traffic.

AWMA's Creek Street solution involved custom designing a grade 316 stainless steel dual leaf TLF penstock to isolate the existing 2700mm diameter brick stormwater pipe. The 3 tonne multi-leaf penstock has a clear span of 3m x 3m and is designed to withstand 5.5m of water pressure.

A risk management review conducted by AWMA resulted in an integrated flap gate to prevent excess pressure on the gate and the pipe itself. Customised low profile headstocks were engineered to meet restrictions under the roadway.

AWMA are an approved supplier to the Brisbane City Council for their Backflow Program.

Many Brisbane suburbs are vulnerable to water inundation. Stormwater systems have been identified as high priority sites for backflow device installation across many flood prone areas. Backflow prevention devices stop flooding caused by river water rising up out of drains. For further information on backflow prevention or other flood mitigation strategies visit www.awma.au.com

GENERALLY SPEAKING

Australians are innovators.

Australia has some of the world's most advanced water infrastructure and technology. We lead the world because of the unique challenges our country presents and because Australians are innovators.

AWMA is proud to be 100% Australian owned and 100% dedicated to providing innovative solutions.

In this newsletter you will read about how we have designed and built unique solutions to protect Brisbane's CBD from flood waters and upgraded a regulator with a 4in1 LayFlat gate reducing traditional civil costs by 80% for State Water Corporation. Also featured is a new air operated clear span 15m wide floodway gate and the refurbishment of a key regulating structure for SA Water with 6m wide gates incorporating innovative dual rephasing hydraulic cylinders for actuation.

We always work with our clients, their designers and constructors to manufacture and supply innovative solutions that will enhance operational performance and reduce whole of life costs.

I hope you enjoy reading about AWMA's most recent projects and that we may be able to assist you in the future with some Aussie innovation.

Brett Kelly
Managing Director

INNOVATIVE UNIMPEDED FLOW

AWMA's unique pneumatically actuated tilting LayFlat Gate system provides a 15m breadth of open waterway for the clear passing of flood flows.

Standard headstocks contain gate actuation systems which impede the flow passage, making them subject to damage during flood events. The original Quambatook Weir located in northern Victoria contained eight bays of manual stopboards which suffered structural damage during the 2011 floods.

The unique air operated actuation system delivered by AWMA allows the single piece gate leaf to be raised up from the base requiring no overhead structures. This design reduces the issues associated with debris becoming entrapped on piers and walkways. An automatic locking device supports the gate in the raised position.

AWMA and APCR McDonald Construction have completed the refurbishment of the Weir which will allow the Gannawarra Shire to maintain an upstream weir pool whilst accommodating flood waters.

Gannawarra Shire Councillor Neil Gannon said that upon completion of the reconstruction, the Quambatook Weir will become an important asset to the community "The sections of the manual flood gate boards are being replaced with one full width air operated gate that will be controlled from the bank which will allow for unimpeded flow".

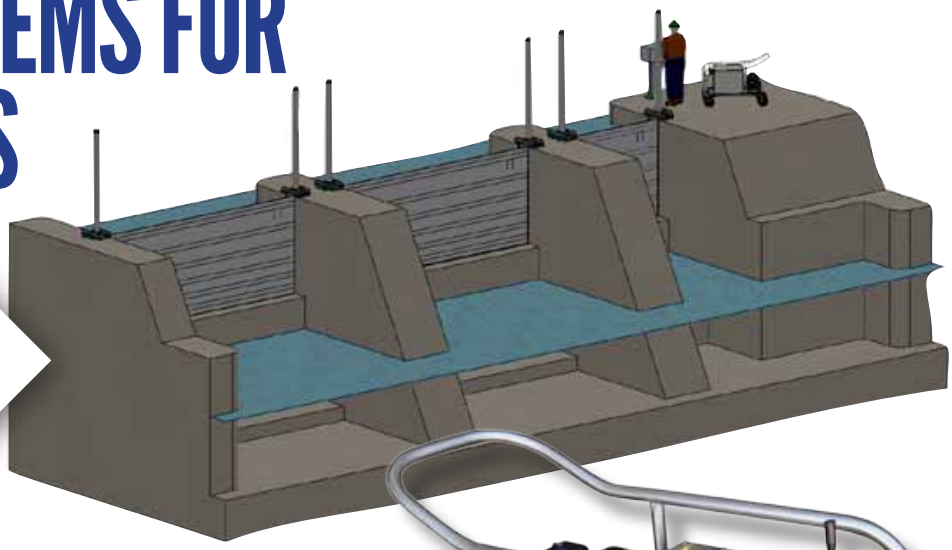
PORT PROJECTS

AWMA have been engaged by McConnell Dowell to fit two stainless steel flood gates to the counterfort wall for the Sydney Ports Corporation as part of the Port Botany Expansion project.

The project involves developing the "Knuckle" area allowing the expansion of the terminal capacity from 1.15M TEU (20' equivalent units) to 1.60M TEU. The floodgates are to have a 50 year design life and be fabricated from stainless steel.

The expansion is one of the largest port projects to be undertaken in Australia in the last 30 years.

PORTABLE SYSTEMS FOR ISOLATED GATES



York Civil Pty Ltd engaged AWMA to custom design vertical gates, fishway gates and hydraulic actuation systems for SA Water's Pipeclay and Slaney Weirs.

Five large AWMA Fixed Base Overshot (decant) gates were developed to simulate overshot flow patterns of the existing stoplogs, whilst Segmented Stopboards were supplied for the new fishways.

The Pipeclay Weir requires a three gate regulator whilst Slaney's is a two gate regulator. The largest water control gate provides a clear water opening of 5800mm, has a gate leaf height over 2m high and is subject to 10tn of water pressure plus environmental debris loading. The overshot gate leaves were manufactured from marine grade aluminium with grade 316 stainless steel embedded frames and stainless steel dual cylinder actuation systems.

Extensive engineering and testing was undertaken on the dual hydraulic re-phasing cylinders supplied by Queensland Hydraulics, which maintain synchronisation without the need for expensive electronic transducers.

This project is subject to isolation issues with the Slaney regulator accessible only via boat. SA Water will operate these gates using AWMA's petrol driven Hydraulic Power Pack, designed to allow easy operation of remote sites. The portable device will be quick coupled to the control manifold via hydraulic hosing for 'plug and play' operation. Additionally, this option limits the asset investment permanently required on-site, reducing the risks of vandalism and system damage.

Marine grade aluminium segmented stopboards and AWMA lifting ladders were supplied for the fishway gates. Design features include overshot flows with low velocities for safe fish passage. To view additional images and drawings visit the AWMA website under Environmental Projects.

'DROP, PLUG & PLAY' REGULATOR REFURBISHMENT

A comprehensive set of specifications come into play when considering the replacement or refurbishment of aging infrastructure. Greater emphasis now exists on characteristics affecting water savings, fish migration, down time, operational risks, environmental footprints and energy consumption.

AWMA's research and development team are able to customise gate designs to ensure we can 'drop' onto site an all-inclusive product that meets site conditions and customer requirements.

State Water have recently replaced an aging drop board structure with a new 4-Bay LayFlat regulator. The LayFlat is a tilting gate allowing smooth flows over the gate, providing a low velocity fish passage, maximum clear water, safe operational performance and accurate flow regulation. The multi-bay LayFlat regulator can be manually operated by a single SWC employee under safe work conditions.

State Water's Glen Dee Regulator is on the Redbank Weir pool near Balranald, NSW. Photo courtesy of Webbs Transport.

CURRENT PROJECTS INCLUDE...

IN-HOUSE TESTING

WASTEWATER DESALINATION FLOOD MITIGATION ENVIRONMENTAL IRRIGATION

awma Water Control Solutions

HEAD OFFICE

Phone +61 3 5456 3331 Email info@awma.au.com
118 Roviras Road, PO Box 433, Cohuna Victoria 3568

www.awma.au.com

ASSDA ACCREDITED

Certified System Quality ISO 9001 SAI GLOBAL