



## DEMOUNTABLE FLOOD MITIGATION

**The Nuriootpa Flood Mitigation System protects the community of Nuriootpa from one in 100 year flood events. Demountable Flood Barriers were developed for five different locations across the township as part of a broader flood mitigation strategy, including earthen levees and masonry retaining walls.**

Over 100 metres of Demountable Flood Barriers with associated storage racks were custom designed and manufactured by AWMA Water Control Solutions for The Barossa Council. Onsite training was conducted so Council staff (and interested onlookers) could experience first-hand just how easy they are to erect. The process was also well

covered in the media giving the local community confidence that when living and working in close proximity to a natural waterway and flooding is imminent, then the equipment and procedures are now in place to protect the township.

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# GENERALLY SPEAKING

You may have seen recent articles in the media regarding the development of Australia's first conical Fish Exclusion Screens. For the past two years AWMA have been researching the viability of screening irrigation offtakes to protect native fish populations. The result is an in-depth understanding of how (and how not) screening infrastructure should be specified, designed and operated to promote sustainable fish populations in our natural waterways.

The Cohuna Irrigation Diversion Screen project will be the first to demonstrate that screening (3mm slots with 0.1m/s approach velocity at 600ML/day) can be successfully implemented on gravity irrigation offtakes in Australia, delivering sustainable results that will benefit fish, fishermen and irrigators.

We look forward to the opportunity of working collaboratively with all stakeholders to better manage our natural waterways, protect our native fish populations and ensure the sustainability of our river systems for future generations.

**Brett Kelly**  
Managing Director



## INTERNATIONAL WATER PURIFICATION

AWMA have been engaged to design and manufacture specialised DLF (downward opening) Penstocks, to be transported across the Indian Ocean for what is acclaimed to become the largest water purification project in the world. Watch the AWMA website for further details.



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Whilst the five locations selected for the Demountable Flood Barriers are quite different, AWMA worked in partnership with the Council to standardise the equipment, ensuring all installations are fast, accurate and most importantly, effective. Posts and aluminium sections are palletised and stored ready for transportation. Each site has permanent footings with removable kerb and guard railing sections as required. The footing covers are removed, posts inserted, seals laid and demountable barrier sections added to form flood protection up to 1.5m high (in this case).

Demountable Flood Barriers are manually deployed. They can be constructed by one person or very rapidly with a team. Other than the posts and barriers, no special skills, tools or equipment is required, so in an emergency situation anyone can assist.

The Demountable Flood Barrier can be constructed to any length, up to 2.5m high as standard.

AWMA manufacture a range of FloodFree Flood Barriers which include Demountable, Retractable, Concealed and Tilting Flood Barriers. Additionally, flood gates and broad-scale flood management solutions are custom-engineered by AWMA, contact us or visit our website for details.



## PENSTOCKS FOR INTAKE TOWER

**AWMA were engaged by Clough to supply Bulkhead Gates, structural frames, guides and lifting devices for the Mundaring Weir Outlet Upgrade.**

The scope of works included the design, manufacture, supply, construction, testing and commissioning of the internal bulkhead gates designed to isolate the water inlets in an Intake Tower. Internal bulkhead gate assemblies were required at two positions, i.e. the water supply inlet and bottom inlet.

The bulkhead gates were manufactured from grade 316 stainless steel with top seals to withstand a maximum working differential head pressure of 35m for the bottom inlet and 23m for the water supply inlet.

Due to the inaccessibility of the inlets, the gate assemblies required an integral self-engaging lifting frame and gantry.

The Bulkheads were designed for insertion and removal under hydrostatically balanced conditions. This process required in-house hydrostatic testing of bulkheads (to 1.5 times maximum operating head). Factory Acceptance Seal Performance Testing to more than 50mWC was also conducted at AWMA's manufacturing facility.

The Bulkheads also feature custom one-piece seals to optimise seal performance.





## CONCEALED FLOOD PROTECTION FOR RESIDENTIAL DEVELOPMENT

**An automatic flood barrier has been installed for a new residential development in Melbourne.**

The luxury building comprises of ten apartments, over four levels, with a below ground level basement car stacker.

AWMA were engaged by a Melbourne construction company to design, manufacture and install a flood barrier that complies with new specifications to meet an increased flood level, for Melbourne properties in flood prone areas. The Concealed Flood Barrier was selected due to its ease of operation (with no mechanical or human intervention), hidden profile (concealed within building architecture) and design flexibility (to meet client requirements).

The Concealed Flood Barrier is permanently situated below ground level at the isolation point, in this case across the width of the driveway, between retaining walls, parallel to the footpath.

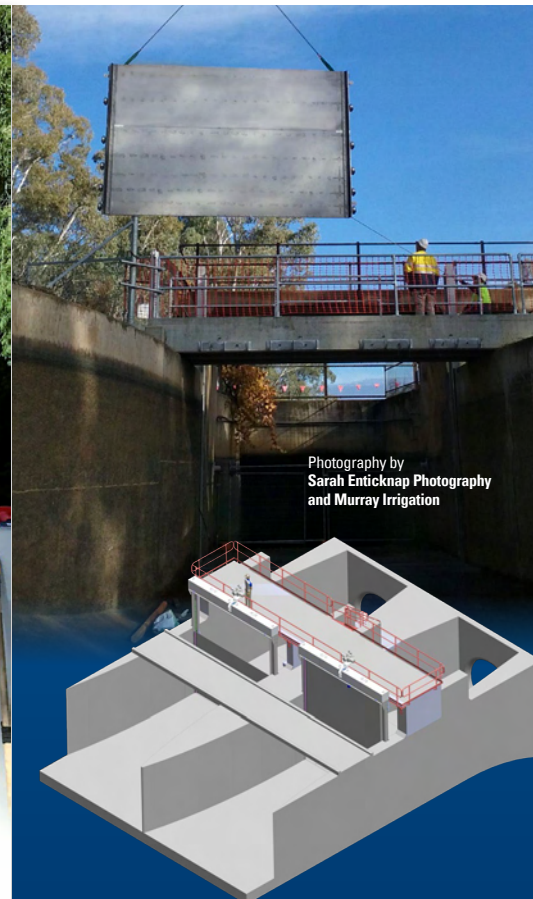
Under normal conditions, the barrier is contained within a cassette that sits below the driveway with a capping plate on top of the barrier, flush at ground level. The capping plate can be designed to accommodate heel safe pedestrian traffic through to heavy vehicle loadings on high use roads (meeting Australian Standards for vehicular

traffic AS1170.1). The capping plate may be fabricated from a range of materials allowing the only visible part of the barrier to be integrated with the surrounding surface finishes.

The flood barrier will not engage during normal rain events, within a predetermined level. As flood levels increase, water flows into the cassette through an automatically controlled drain system causing the barrier, which has a displacement less than that of water, to fully rise, creating a barrier to any floodwater starting to pool above ground level. No external power or human intervention is required for this flood protection barrier to activate.

Once water levels drop, the water pressure reduces, which in turn causes the barrier to return to a closed position inside the below ground cassette.

This barrier is suitable for access areas up to 15m wide and 1.5 meters high. Operation of the Concealed Flood Barrier is engineered on the principles of buoyancy making it the ultimate fail safe barrier, and often specified over actuated options, for emergency management.



Photography by Sarah Enticknap Photography and Murray Irrigation

## LAWSON SYPHONS UPGRADE

**Murray Irrigation's iconic Lawson Syphons have a new water control solution.**

The 60 year old wheel-operated regulating gates have been replaced with AWMA ULF Undershot Roller Gates. The new regulator gates allow automated water control through the twin 3.6m diameter syphons that extends 700m under the Edward River at Deniliquin, NSW.

Manufactured from grade 304 stainless steel the new gates at Lawson Syphons have a design life of 50 years, reducing long term maintenance and infrastructure costs for Murray Irrigation.

Each gate spans 5.5m in width, weighs in excess of 2600kg and includes a series of integral side rollers to minimise lift forces required to open and close the gate. Operation shall be via AWMA's cable drive hoist system coupled to 415VAC electric actuators and integrated back to Murray Irrigation's operations centre via their dedicated telemetry network.

Design, engineering, manufacture and testing services for the gated infrastructure were all carried out by AWMA, 'Australian-made' in northern Victoria.

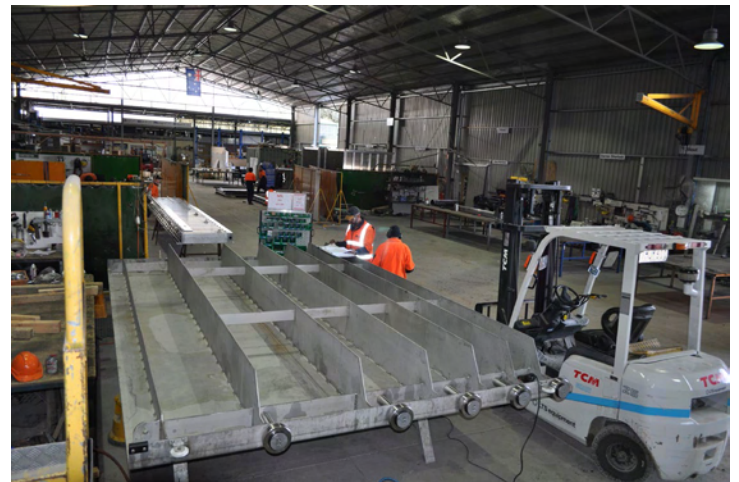
The Lawson Syphons is a remarkable engineering initiative commissioned in 1955, which resulted in a water control structure that diverts the canal under the Edward River, to deliver irrigation water to the agricultural areas west of Deniliquin.

Ongoing works continue as part of Murray Irrigation's Private Irrigation Infrastructure Operators Program (PIIOP) Round 3 project, which has received approval for funding of up to \$114.8 million from the Australian Government.



# RECENT PROJECT GALLERY

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