



Engineered design and manufacturing services for specialised water control infrastructure

AWMA's design team has delivered over \$100M worth of customised water control infrastructure for Australian and export markets. The designs have been proven through the successful delivery of gate product into some of the industries largest water infrastructure investments with full compliance to rigorous engineering and quality scrutiny, resulting in repeat orders during expansion phases.

AWMA are in the unique position of having specialist design expertise, and a dedicated manufacturing facility, combined with installation capacity, all in-house.

AWMA also offer design consulting services for water control infrastructure including assistance with gate selections, civil structure interface and technical specifications.

This turn-key capacity leverages on experience to provide continuity, delivering better products of a consistently high standard.

To view previous projects please visit
www.awmawatercontrol.com.au

awma
Water Control Solutions



1 STAINLESS STEEL GR2205 DUAL LEAF FLOOD GATE

- Brisbane City Council – Milton Drain Backflow Prevention.
- AWMA prepared site concept, costings, design, drafting, manufacture, install supervision and commissioning of alternative design.
- 6m wide x 4m high duplex /316/2507 stainless steel dual leaf top sealing flood gate, twin 2200mm duplex non return (flap) gates and one 2200mm 316 pedestrian gate.
- Structure subject to 7.5m bi-direction head pressure, 1.8MN design load on flood gate.
- Design subject to third party RPEQ structural certification by GHD.
- Designed in accordance with AS4100-1998, AS3990-1993, AS1170.0 & AS1170.2.



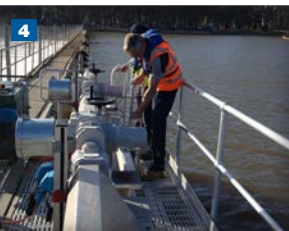
2 INTAKE, SCOUR AND HEADRACE GATES FOR INTAKE AND SEDIMENTATION POND

- Central Plains Water – Rakaia River – New Zealand.
- Two x 5.6m high x 5m wide Radial gates, approximately 8tn in weight each, subject to 6m Head pressure and 2.5m sediment loading.
- 304 stainless steel hydraulic cylinder actuated headrace gate, 7.5m on seating, subject to 6.0m/s flow velocities.
- Four 304 stainless steel top sealing fixed wheel intake gates 3.5 wide x 3.5 high.
- Epoxy coated steel isolation stoplogs up to 5m W x 5m H with rated lifting frames.
- PS1 and PS2 sign off for ECAN requirements, designs reviewed and accepted by URS on behalf of CPW.
- Design considerations include low whole of life costs during the 50yr design life, gate loadings (debris, wind and mud), flow velocities, earthquake compliance to NZ1170.5, material selection, isolation of dissimilar metals, reduced maintenance requirements, inclusion of self-engaging lifting frames to minimise operator risks, SCADA integration and operational flexibility.



3 DUAL LEAF FIXED WHEEL OVERSHOT REGULATOR GATE

- State Water Corporation (Geotechnical Engineering) – Mollee Weir Fishlock and Regulator Upgrade.
- 4 wide x 4.4m high, 316 stainless steel, dual leaf cable lift, fixed wheel regulator gate.
- 316 stainless steel hydraulic drive fishway and fish lock gates.



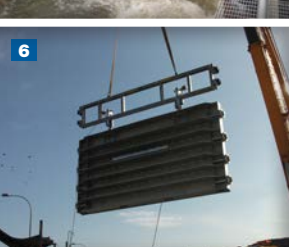
4 SUPER DUPLEX ISOLATION GATES TO WITHSTAND 11M HEAD

- Lend Lease – Barangaroo South Urban Regeneration Project.
- Design of three Super Duplex 1.5 W x 2.5m H penstocks subject to 11m off seating head, CuNi 90/10 fine and coarse removable screens, lifting frames and access platforms.
- 100 year design life permanently immersed in sea water.
- Gates designed in accordance with AS3990, AS4991, AS1170.0, 2 and 4.
- Design certified by GHD.



5 DUAL LEAF PENSTOCKS MOUNTED TO 11TN REMOVABLE TRESTLES

- Goulburn Murray Water (Crib Point Engineering) – Mildura Weir (Lock 11) Upgrade.
- Design of 15 x marine grade aluminum dual leaf downward opening gates, off seating 1.3m W x 3m H, along with isolation segmented stopboards.
- Penstocks are mounted to 11tn steel trestles which are winched into the river to form the weir and removed during flood events.
- Design review by GMW engineering dams group.



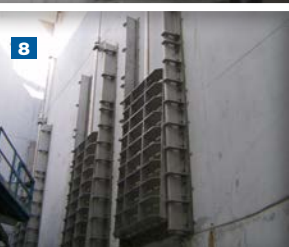
6 LAYFLAT (TILTING WEIR GATES) REGULATOR WITH FISHWAY

- State Water Corporation (Haslin Constructions) – Old Man Creek Fishway and Regulator.
- Three 3.2 wide x 5m high marine grade aluminum LayFlat gates, cable rope drum lift with hydraulic drive (design operating torque of 90kNm,) marine grade aluminum fixed wheel isolation stoplogs, lifting frames (AS4991 certified) and 4 x cable driven side opening fishway isolation gates.
- Design reviewed by GHD and also by NSW Office of Public Works on behalf of State Water.



7 WEDGE PENSTOCKS TO WITHSTAND 14M HEAD

- Queensland Urban Utilities (John Holland Tunneling) – Woolongabba Sewage Main Project.
- 6 x 316 stainless steel wedging penstocks up to Ø1500mm tested drip tight to 14m head off seating head pressure, installed in round HDPE lined pits which created extra challenges with structure interface.



8 DUAL LEAF COMBINATION GATES

- Goulburn Murray Water (Comdain Infrastructure) – Hattah Lakes Living-Murray Water Management.
- Marine grade aluminum dual leaf Combination Gates up to 6.5m high x 2m wide, along with segmented stopboard structures.
- Penstocks actuated with hydraulic motors via a portable power pack, designed and manufactured by AWMA.
- Design independent review by NPER3 structural engineer (Deacon Pty Ltd), and by GHD.



9 STILLING BASIN BYPASS GATES

- Southern Rural Water – Glen Maggie Dam.
- Design, manufacture and installation of 1.6m W x 2.4m high 316 stainless steel penstock, installed in the stilling basin of the hydro outlet, subject up to 4.5m static head pressure, with 2.2m additional head pressure to account for hydraulic jump and design flow velocities up to 12 m/s when needle valves fully discharging.
- Design reviewed and accepted by Southern Rural Water dams group.

10 FIXED WHEEL 316 STAINLESS STEEL SEGMENTED STOPLOGS WITH ANODE PROTECTION

- Alstom Power - Keppel Merlimau Cogen II Power Plant, Singapore.
- Design, manufacture and installation of three sets of anode protected 316 stainless steel fixed wheel segmented stoplogs, up to 6m high x 4m wide, with a requirement for insertion into 4.3 cumec flow (testing in wet commissioning) and 6m head pressure. Lifting frames designed in accordance with AS4991 and AS1418, rated to WLL of 3.0tn.
- Operating environment was high temperature water with tidal sea water effects.
- Designs reviewed and accepted by Worley Parsons on behalf of Alstom Power.

2507 STAINLESS STEEL WEDGING PENSTOCKS FOR 14M OFF SEATING HEAD PRESSURE

- Melbourne Water (John Holland Tunneling) – Melbourne Main Sewer and Northern Sewerage Projects.
- Design of Super Duplex and 316 stainless steel wedging penstocks, 3.2 x 3.2m penstock subject to 14m head.
- Ø1800mm, round bottom penstock subject to 12m off seating head.
- Design reports reviewed by SKM.
- Manufacturing process subject to independent QA audit by JHG.

7 2507 STAINLESS STEEL CONTROL STRUCTURES AND INTAKE GUARD STOPLOGS

- Melbourne Water (Thiess Degrémont Joint Venture) – Victorian Desalination Project.
- 96 marine grade aluminum stoplogs, ranging from the intake guard stoplogs 2m wide x 4m high subject to 12m head (400kN) to 3.2m wide x 7m high segments, all with AS4991 certified lifting frames and transportation trailers.
- All stoplog frames were designed and manufactured from 2507 Super Duplex to withstand super chlorination up to 12 ppm Chlorine.
- Decanting penstocks fabricated from Super Duplex.
- Design report for intake guard stoplogs accepted by BECA.

2507 STAINLESS STEEL PENSTOCKS TO WITHSTAND 10M HEAD AND 12PPM CHLORINE

- Water Corporation – Southern Seawater Desalination Plant.
- 8 x 2m W x 4m H topsealing penstocks manufactured from 2507 Super Duplex to withstand super chlorination up to 12 ppm chlorine.
- Design pressure 10m on seating, 8m off seating.

8 SUPER DUPLEX SS CONTROL GATES

- Sydney Water (BlueWater JV) – Sydney Desalination Plant.
- AWMA designed, manufactured, installed and commissioned over 72 water control penstocks and stopboards, up to 4m x 4m in size.
- The Super Duplex stainless steel control gates were manufactured to the highest specifications including hydrostatic testing to over 200 tonnes.

9 DAM GATES & FISHLIFT

- Sydney Catchment Authority (Leighton Contractors) – Tallowa Dam.
- AWMA developed a number of unique flow control structures for the dam and fishway.
- Control structures included a positive cable drive on an 8m high overshot gate on the surface water draw off chamber a hydraulically actuated spillway gate that was cut into the existing dam crest and a segmented gate for the fishway entrance.

10 PIPELINE CONTROL STRUCTURE FOR FLOOD PROTECTION

- Sydney Catchment Authority – Bendeela Power/Pumping Station.
- Multiple 4m x 2m top sealing stopboard segments provide complete sealing against a water depth of 16m.
- Venting of the internal chamber to prevent a vacuum was provided via flexible pipe connected to the surface.



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