

## Closed conduit outlets

### Information for our customers about the outlets, testing and innovations in design

#### About the outlets

Closed conduit outlets are outlets that have the meter buried below ground. GMW also uses outlet configurations that have the meter located in pits.

In a gravity pipeline system – a closed conduit outlet is made up of a telemetry unit, flow meter, isolation valve, air vent and connection flange.

In GMW channel system the equipment is the same – without the need for an air vent.

#### Cost benefits of closed conduit outlets designs

Closed Conduit outlets are one of our business' most cost effective outlets. Even with the associated earth works, their replacement costs are in-line with large pit mount meters.

We understand concerns have been raised about access to these buried meters and the costs associated with their replacement.

GMW and the Connections Project take many things into consideration when selecting the most appropriate meter and design for a specific project and application.

In this application, closed conduit outlets are effective and economical for our business and, in turn, our customers.

#### Our testing program

GMW and the Project have continually tested and audited the modernised meter fleet and found the closed conduit outlet fleet is one of the organisation's most consistent metered outlet. It is compliant with the National Non-Urban Metering Policy and Australia Standards (AS4747).

More than 2000 of these outlets have been installed since 2008, with a failure rate of about five per cent. National Water Meter allows for an accuracy tolerance of  $\pm 5$  per cent for installed meters.

All GMW metered outlets are subject to testing programs conducted by certified hydraulic engineers employing best practice methods.

#### New design trial for continual improvements

Our business and the Project are committed to creating efficiencies and constantly improving service to our customers. GMW is now trialling a new end mount insertion meter design, which allows these closed conduit meters to be located at the end of the piped outlet.

This new meter innovation will be tested infield starting December 2017 and will be tested to the highest quality and compliance standards by independent certified hydraulic engineers as well as GMW's meter acceptance testing procedure. This trial will be a minimum of six months in-service as well as extensive lab and flow rig testing.

This innovation will make closed conduit outlets even more cost effective, reducing replacement and whole of life costs, as well as extending meter life.

This will make the closed conduit meters even more economical for GMW and its customers. This is currently in trial stage, but is part of our commitment to listening to our customers concerns and continually improving for them.

#### Fish movement and 'creep'

We have identified fish movement and other environmental conditions that cause 'creep' and recording of flow when the outlet is not in operation.

A solution has been developed, tested and is now rolling out. Environmental issues including creep from fish movement have been a challenge for our design and engineering teams throughout our metering program, however we are confident in our updated designs and installation procedures implemented through learnings from Modernisation during the past five years. Through innovative designs and working with meter and valve manufacturers, GMW has ensured this will not be an issue for future meter installations.

In our modernised fleet of closed conduit outlets we are fitting a switch which ensures the meter does not record flows when the valve is closed. Fitting is a simple process and does not require remodelling or redoing of existing civil works.