



City West Water™

South East Water



Yarra Valley Water

The Pipeline

Melbourne Retail Water Agencies Information Bulletin

Issue Date – August 2016

WELCOME TO THE NEW MRWA BULLETIN

Welcome to the latest edition of the Melbourne Retail Water Agencies (MRWA), including City West Water (CWW), South East Water (SEW) and Yarra Valley Water (YVW) Information Bulletin. This Bulletin has been established to provide you with an understanding of current, relevant issues associated with our adopted standards, design and construction practices and any changes evolving through our industry.

Topics in this edition include:

- Supplier Accreditation System Changes – ARCUS
- Updates on the Implementation of the New MRWA Sewerage Standards:
 - > Subdivisional Plans Endorsed Prior to 1 January 2016
 - > Partially Developed Subdivisions
 - > Revised MRWA Sewerage Standards
 - > Construction of Maintenance Structure Base Connections
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 - > Prefabricated Waterseals
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- Water Supply Standards Review
- Backfill Specification Review
- Water Design Assurance Scheme Update
- Sewerage Design Assurance Scheme in Development

The opportunity is available for you to request a bulletin item to clarify a water agency's requirement for any design or construction process or practice. Please use the contacts listed at the end of this bulletin to forward your suggestions.

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Supplier Accreditation System Changes and introduction of the MRWA ARCUS system

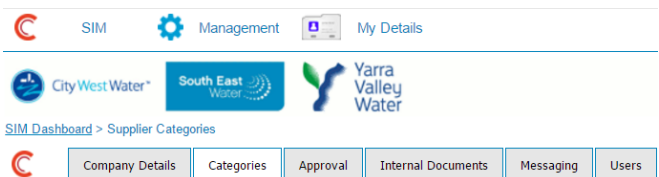
In the last couple of years, the MRWAs have been working to unify and modernise our accreditation system to make it easier for organisations to self-manage their accreditation information. The new combined system applies consistent assessment criteria and allows for a single application to be submitted to all MRWAs simultaneously.

Provided an applicant organisation meets all of the requirements and has the required certificates as evidence, applications for larger organisations generally take a day or two for a person to complete. Applications for smaller organisations generally take under a day. Long delays can occur when an organisation's documentation does not meet our requirements.

The new system is now being rolled out to all existing and new MRWA accreditation applicants with the following timetable in place:

- CWW, SEW and YVW Consultants and Contractors must already have their applications in the system.
- CWW and YVW accredited **Live Sewerage Contractors** must have fully compliant applications in the system by the end of August 2016.

ARCUS[®] Supplier Management Platform



While organisations can submit applications at any time, preference will be given to organisations that have applied by the deadline. For CWW and YVW, organisations that submit late applications will lose their accreditation up until their application is reviewed, which could take a number of months. It is important that organisations complete their applications early, so

that if there are any issues with the application, there will still be time for the issues to be resolved before the deadline lapses. Organisations that submit their application on time will keep their current accreditation until their application is reviewed.

This implementation program will not have a significant impact on organisations accredited with SEW, although there are a number of new categories that SEW is implementing that may need to be applied for if the organisation wishes to undertake the relevant work.

Sewerage Design and Construction

The following sections relate to the new MRWA sewerage standards which were published in October 2015 and apply to all developments with deeds executed after 1 January 2016.



Subdivisional Plans Endorsed Prior to 1 January 2016

Many developments have Subdivisional plans approved by councils prior to the 1st January 2016, where the Development deed agreements have been executed with the water agency after 1st January 2016. In many instances, it is not possible to honour both agreements as the original council endorsed subdivisional plans were completed with the previous MRWA sewerage code requirements in mind.

The MRWA accepts that the arrangements outlined in the original council approved subdivisional plans should be met without change. It is however expected that with these constraints in mind, the requirements of the new sewerage code shall be applied and complied with as much as practical.

It is important that designers include the original council approved pre 1st January 2016 subdivisional plans with the design verification form and stipulate what new sewerage code requirements have not been met due to these planning constraints.

Subdivisional Plans endorsed by council post 1st January 2016 shall fully meet all requirements of the new MRWA sewerage code (Version 3.1).

Applying the New MRWA Sewerage Standards in Partially Developed Subdivisions

While the industry is transitioning to the use of the new sewerage standards, some multi-stage developments will be in the situation where new stages will fall under the new sewerage standard requirements, while existing stages have already been designed and constructed to the old sewerage code. As the new standards take a different approach to sewer alignment, the interface between existing and proposed stages needs to be carefully considered.

If a major change to the sewer alignment is required, the designer may need to contact the relevant Water Agency to discuss how the transition of sewer alignments can be facilitated at these interface locations. This matter should be managed at the planning or Pre-Design phase of the project.

Revised MRWA Sewerage Standards

Since publishing the new MRWA sewerage standards in October 2015, the MRWA has become aware of a number of issues that require clarification. The main issues relate to multiple unit development, larger commercial industrial property connection arrangements and Spur Branches.

As a result, the MRWA have published revised editions of the following standards onto the MRWA web portal www.mrwa.com.au. These standards will become effective for all sewerage designs submitted from the 1st September 2016. If there are difficulties in complying with these new standards, please contact the relevant water agency to discuss.

- **MRWA-S-100-** Design Template, Notes, Schedules and Locality Plan.
Code reference error removed.
- **MRWA-S-101-** Design Template, Detailed Plan.
Minor amendments made in accordance with the changes described below.
- **MRWA-S-102A-** Long Sections.
DN100 sewers only require long sections where they cross road pavement and so the DN100 long section previously shown has been removed.
- **MRWA-S-104A-** Property Junction Arrangements.
Table 104-A has been altered to clarify the different connection arrangements for different properties and now

separates how base connections and shaft connections to maintenance structures are to be designed. As shaft connections to MSs and MCs are restricted to DN100, DN150 and larger shaft connections require connection to a MH.

There is also a new Figure 104-A which provides examples of different connection arrangements.

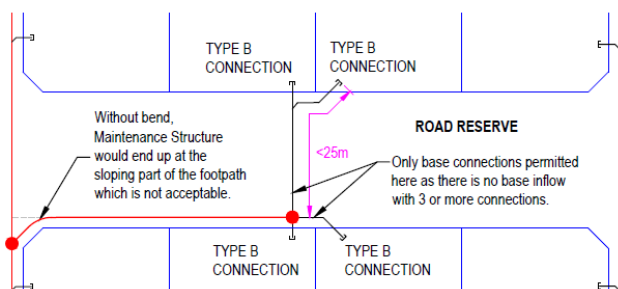
- **MRWA-S-105- Reticulation Design.**

Table 105-C has been extensively modified to provide clarity and more specific information on the definition, design limitations and drafting requirements of three different types of sewers: property connections, spur branches and reticulation sewers.

Where spur branches are located in private property, the spur branch and their property connections must have reasonable access. Spur branches in combination with the longest connection must also be less than 25m long. DN100 sewers which cross road pavement also require long sections.

It is important to note that where there are jump ups on Type S connections to maintenance structures, it is now required that the invert of the shaft connection be nominated. The location of jump ups on Type S and Type B connections shall also be nominated in the design.

Drop preferences have also been clarified. Grading sewers to achieve a drop is shown as a higher preference compared to using two vertical bends. This means that using vertical bends to achieve a drop in DN150 and DN225 sewers would only be acceptable where a graded sewer was not feasible, which would most likely occur when there is a drain in the way.



- **MRWA-S-106- Reticulation Examples.**

The design examples have been altered to conform to the updated design rules described in MRWA-S-105. Figure 106-A has been modified to provide 3 examples of end of Pod arrangements. Figure 106-D now provides an example of a maintenance structure with multiple spur and property connections servicing the ends of two pods from the road reserve. This has been observed to be a common scenario in areas being serviced by road reserve sewers. This example makes it clear that Type S

connections are not permitted unless there is also a base inflow with 3 or more lots. It also indicates how 2 reticulation sewers in crossing footpaths should be connected to keep the maintenance structure out of the part of the footpath which slopes down to the road pavement. The configuration shown is only possible with certain maintenance structures which have a base inlet at 135 deg from the outflow sewer.

- **MRWA-S-107- Pipeline Details.**

A figure has been included to illustrate how a Type S connection with a jump up should be designed and constructed.

- **MRWA-S-110- Road Reserve Sewerage Servicing, Road Crossing Arrangements.**

This standard has been corrected to show that a reticulation sewer with 3 or more connections must have an IS at the end of line.

- **MRWA-S-201- Trenching and Trenchfill.**

The backfill arrangement for driveways has now been changed to require Type F backfill. The trench profile levels have been changed so that in deeper trenches, Class 3 is now required down to the bottom of the sub grade, rather than to 600mm depth. Remember that the road owner's requirements take precedence over MRWA standards when it comes to work in the road reserve.

- **MRWA-S-300- Maintenance Structure Selection, Placement and Connection to Properties.**

Table 300-C has been modified so that MS and MC shaft connections may only be DN100 in size.

Where additional maintenance structures need to be located to comply with maximum spacing requirements, they shall now be located to remove the need for bends and they shall be located centrally if practical.

The MRWA has clarified that from its perspective, larger than the minimum sized structure may be constructed provided the nominated conditions are met. The standard does not describe how the Contractor and Designer should work together to make this happen, however it is expected that the two parties will consult and agree on the change before it is constructed. This design change however, would not need to be submitted to the Water Agency.

The situations where MSs, MCs and MHs may be situated at dead ends has also been included.

- **MRWA-S-305- Maintenance Shafts.**

The design allowance for the drop through the chase of a MS has now been nominated at 30mm. More information on how MS shaft connections are to be designed and constructed is also provided. There is now also some instruction on where to locate MSs when they need to be offset from the intersection of two sewer lines.

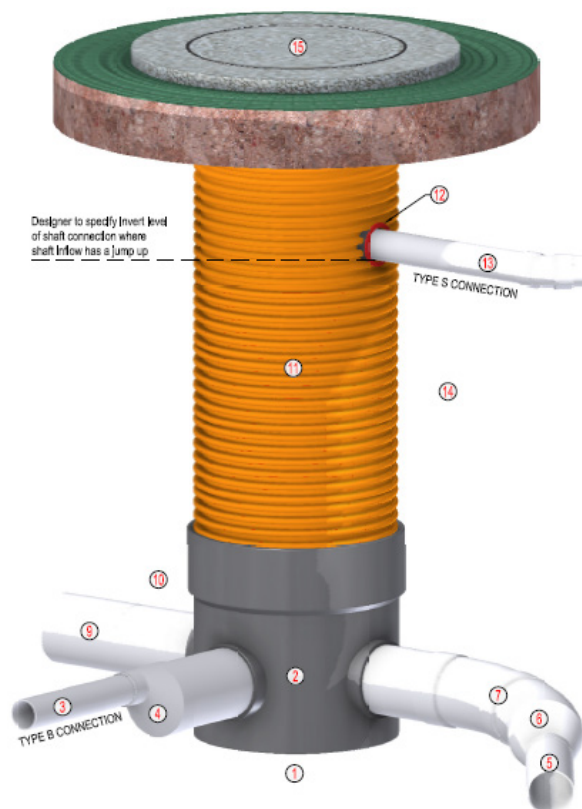
Designers need to be aware that minor changes in the location of Maintenance Shafts may occur during construction. Where such changes may lead to a conflict with other services, this potential shall be noted in the design.

Construction Contractors shall then look to select a Maintenance Structure which can accommodate the configuration without an external bend. If this is not possible, an acceptable solution will need to be negotiated between the designer and the contractor.

- MRWA-S-306- Maintenance Chambers.**
 The additional information supplied in MRWA-S-305 is also included in S-306. Note that there are fewer MC options with inflows at 135 deg to the outlet. This makes it more difficult to offset MCs away from the intersection of two sewer lines.

Sometimes, particular MS or MC products will need to be specified in the design to provide a practical solution in an unusual situation. In such cases, the designer will need to consult with product catalogues for more detailed information. It is also recommended that you contact the suppliers listed below where the product catalogues are not sufficient:

- Aymroo (Joel Leaves)- ph: 0417 498 943
- Iplex (Michael Lancuba)- ph: 0418 792 737
- PooPit (David Porteous)- ph: 0418 315924
- Rehau (Damon God)- ph: 0400 515 225
- SMS (Kevin Kitchen)- ph: 0418 142 242



Where you or your business has electronic or hard copies of the superseded standards, it is important that these copies be replaced with the revised standards.

Construction of Maintenance Structure Base Connections

Different maintenance structure systems have different pipe base configurations. Some have connections at a 90 degree angle to the outlet, some at 135 degree angle to the pipe outlet and some can be fabricated to achieve specific angles. Long radius bends can be installed to enable pipe connections into the base to be made when the maintenance shaft unit does not match the designed pipe connection angle. Alternatively, a maintenance shaft base with the correct inlet/outlet pipe angle could be purchased, eliminating the need for a long radius bend. Either method is acceptable to the MRWA.

Some maintenance shaft systems may also come with more pipe base connections than is required. For example, you may require pipe inflows at 135 degree and 180 degree orientations. This may lead to the purchase of a maintenance structure base unit with pipe inflows set at 135, 180 and 225 degree angles. This would be acceptable provided that a more suitable maintenance shaft was not available and that redundant pipe inflow connectors were correctly plugged in accordance with the manufacturer’s instructions.

Where the unused pipe inflow connector is a temporary stub pipe required for a future connection, it is important that the plug can be removed from outside the structure when the new pipe connection is made.

MRWA Sewerage Code Implementation

During the roll out presentations of the new Sewerage code and Standards in October 2015, the MRWA advised that non-conformance issues identified on new sewerage code designs would not be issued until 1 July 2016. This decision was taken to provide Consultants and Contractors with additional time to become familiar with the new standards.

The MRWA understands that there are still a number of design and construction key personnel who have yet to be exposed to the new requirements and principles. In most cases, where the Water Agency auditors identify something that does not meet the new requirements, the MRWA will continue to adopt an education and coaching approach rather than issuing a non-conformance. Where there is clear evidence of repeat instances of observations noted by the Water Agency or no genuine attempt has been made to conform to the requirements set out in the Code and Standards, the Water Agency will still issue a notice to the nominated Consultant or Contractor. This approach to auditing and quality control will now continue until 1 October 2016.

The MRWA are happy to undertake Question and Answer workshops initially with the Consultants to assist with the

transition. Where your Consultancy has undertaken a number of projects under the new sewerage code and you have a number of questions or issues that you wish to clarify, please contact one of the MRWA representatives to discuss the possibility of organising a workshop.

As Constructed Information

Changes to the sewerage standards have led to substantial changes in the type of components being used in the system. In particular, more prefabricated maintenance structures and bends are being used. These components and property connection points should be recorded in the following way:

- Measure and record the location of all Property Connection Points (X, Y and Z co-ordinates)
- Measure and record the centre of the chase of all MSs and MCs (X, Y and Z co-ordinates)
- Subtract 15mm from this level to get the IL of the outflow sewer.
- Add 15mm from this level to get the IL of all base inflow connections.
- Measure and record the X,Y and Z co-ordinates of the ends of all straight pipes longer than 2m.
Where there is a bend adjacent to a maintenance structure, only the intersection of the bend and straight pipe needs to be measured and recorded.
- Measure and record the X,Y & Z of the pipe invert in the middle of all curves < 20m long and at the ends of the adjacent straight pipes.
- Measure and record the X,Y & Z of the pipe invert every 10m for curves \geq 20m long and at the ends of the adjacent straight pipes.

The Contractor shall leave these locations open and safe so the surveyor can measure and record the pipe components. When this primary method is not practical to undertake, in non-trafficable areas the contractor shall install \geq DN90 white conduit from the top of pipe at the point to be picked up, vertically to at least 500mm above ground. They should paint a 100mm high red band or wrap 100mm high red duct tape around the circumference of the top of the conduit to indicate that it is a sewerage survey point. The Contractor shall protect this conduit from damage by installing a suitable protective measure such as star pickets and para webbing or portable bollards. The surveyor shall then measure and record the pipe location by dropping a staff or pole down this conduit. If the conduit is smaller than 90mm, the experience is that the survey equipment will get caught up in the conduit if it has a bend in it. It is expected that the surveyor will attend site within a reasonable period to reduce the risk of damage to the conduit.

Once the surveyor has measured and recorded the pipeline component, they should paint a 100mm high yellow band or

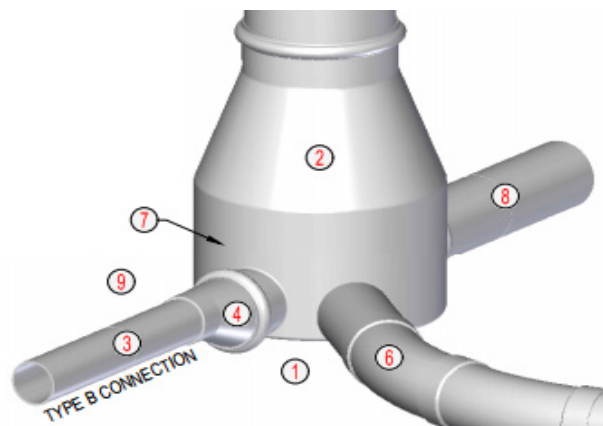
wrap 100mm high yellow duct tape around the circumference of the conduit underneath the contractor's red band to indicate that survey work has been finished. The Contractor may then remove the conduit and protective measures and backfill and compact the area. The top 200mm may be chopped off the conduit to enable it to be reused. If the entire conduit is not removed, at least the top meter should be cut down to ensure the conduit does not exert any downwards force on the top of the pipe.

In trafficable areas where conduits would lead to compaction issues, it is recommended that the contractor should spray a mark with an offset and depth from this mark to the top of the asset concerned. Alternatively, a number could be sprayed next to the mark and the contractor may keep a running sheet with corresponding numbers and relevant information assigned to that number. The exact method to be used should be negotiated and accepted by the surveyor prior to implementation.

It is critical that the required information be accurately measured and recorded.

Long Radius Bend Selection

Long radius bends typically have formed sockets and therefore cannot be cut down or changed to accommodate unusual angles. Long Radius Bends are typically available in the following configurations: 5, 10, 15, 22.5, 30, 45 and 90 degree angles. It is important that all long radius bends stipulated in the design consist of one or a combination of these angles.



Prefabricated Waterseal pipework

The MRWA is currently working with suppliers and contractors to design and manufacture prefabricated water seals to improve the quality, cost and timeliness of water seal construction. Product(s) will soon be available in DN150 and DN225 diameters which conform to the requirements specified in standard MRWA-S-403. Products will likely be available this month. Contact your sewerage products supplier(s) to make enquiries.

Marking Discs for Bends

Marking discs are required at bends which are not located adjacent to maintenance structures as described in MRWA-S-104B. There has been an issue with the availability of these marking discs which we have now addressed. The marking discs will be available from Reece Civil stores in Melbourne from about the middle of August. In the meantime, please wrap tracer wire around the bend and bring the tracer wire to surface.

SEW Maintenance Hole Technical Addendum

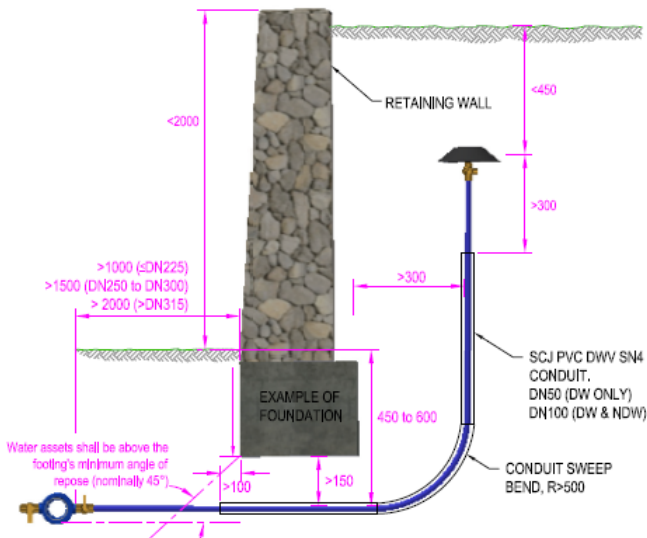
The information set out in Maintenance Hole (MH) Technical Addendum SEW TA-01- Revision C applies to Sewerage projects designed and constructed to the superseded MRWA Edition of the Sewerage Code Version 1.0. (WSA 02-2002-2.3 published July 2004.)

This existing Technical Addendum does not apply to Sewer projects designed and constructed to the new MRWA Sewerage Code and Standards. There are currently no SEW Technical Addendums applicable to the new MRWA Sewerage Code and Standards.

For unusual situations where dispensation is required to depart from the current MH requirements, SEW may direct Designers and Constructors to utilise certain details set out in the MH Technical Addendum. (For example where a type 5 internal drop is required for sewers \geq DN375mm.)

The MH Technical Addendum will remain published on SEW's external website until further notice.

MRWA Water Supply Standards Review



The 2012 MRWA edition of the water supply standard drawings have now been in place for a number of years and in that time, a number of suggestions and improvement opportunities have been identified. A joint MRWA, ALDE and CCF working group have been reviewing the existing standard

drawings to further develop and update our Water Supply Standards. The majority of the Standard drawings have been draft updates and several new Water Supply standards have been created during the industry review process.

It is not expected that these changes will cause any disruption and so the industry working group has agreed to publish the new and revised MRWA water supply standards in the short term. An industry notice will go out when the standards are published, which will probably occur sometime in August or September 2016.

MRWA Backfill Specification Review

The MRWA is committed to unifying standards across City West Water (CWW), South East Water (SEW) and Yarra Valley Water (YVW) as much as possible. Currently CWW is the only MRWA water agency to have adopted the current edition of the MRWA Backfill Specification 04-03.2 and SEW and YVW are still referring to MRWA Backfill Specification 04-03.1. A joint MRWA, ALDE and CCF working group has been established to review the existing specification requirements to put together an updated revision that can be applied to all three MRWA service areas. A draft version of an amended backfill specification has been prepared and feedback received from the industry panel.

All but one matter has now been resolved and the MRWAs are close to agreement on the revised specification which will likely be published in late 2016.

MRWA Water Design Assurance Scheme Update

Over the last 2 years, the MRWA have been implementing a program of training and assessment of design personnel wishing to be accredited to water supply design. This program is nearing completion and approximately 150 people have now been trained and assessed for water supply design. The deadline for completing both Part A and Part B of the assessment has now expired.

Those that have not passed Part A of the assessment are no longer eligible to be accredited. Those that have not passed Part B of the assessment have been granted an extension until 1 October 2016 to successfully complete this assessment. The MRWA are now reviewing and updating their accreditation lists accordingly. Any organisation that no longer has WD1 and/or WD2 accredited key personnel will also lose their accreditation. A similar accreditation review process will be undertaken post 1 October 2016 once the deadline for the Part B has expired.

Further training and assessment sessions will be organised in future as demand comes in for more sessions. If you wish to participate, please put your name down on the Expression of Interest list by following the link:

<http://www.eventgate.com.au/Event/4673/Expressions-of-Interest-2016---WSAA-Design-Assurance-Scheme-DAS-Water-Supply-Training-Course>.

MRWA Sewerage Design Assurance Scheme in Development

The MRWA is currently developing sewerage designer training and assessment material to undertake a similar program to that undertaken for water supply design. We are looking to complete this preparatory work by the end of 2016 and implement Sewerage DAS in 2017 and 2018. This training and assessment will be based on the latest MRWA edition of the WSAW Sewerage Code.



MRWA Documentation

All MRWA standards documentation is available on the MRWA website at:

<http://www.mrwa.com.au/Pages/Standards.aspx>

The new specifications will be uploaded to the MRWA Specifications and Tools tab of this web page at about the time the briefing sessions are undertaken.

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