7. OBTURATORS & CLEARANCE REQUIREMENTS:

- For minimum horizontal & vertical clearance between SA water infrastructure and other authority pipes/cables refer to WSAA, Table 5.5.
- For minimum clearance requirements for structures & other pipes refer to Table 3 where the contractor may encounter existing underground services. A 'dial before you dig' investigation (DBYD) shall be undertaken.

8. WATER MAIN IN EASEMENT, EASEMENT WIDTHS AND CLEARANCES

Water mains shall be located within the road reserve in accordance with 4005-30002-01. Also refer to WSAA 03-2011, Clause 5.4.1 and 4005-30002-04, Note 2.

- Approval of the SA water representative is required for locating a water main within an easement.
- Where the concept design has positioned the water main in public road the designer shall comply with the concept. SA water will not consider a change from the concept design to place a water main within an easement where a satisfactory alignment is available in road reserve (for cost minimisation).

Other easement considerations are:
- The water main shall be positioned within the easement on the opposite side to any building or structure.
- The water main position shall be on the low side, generally 1/3 from the boundary or easement edge.
- Where an easement contains dual water system pipes (drinking and non-drinking) there shall be a minimum separation of 200mm between the pipes.
- Other utilities (e.g., gas, etc.) shall not be permitted to share an SA water easement assigned for water supply purposes.
- Services crossing an easement (approximately perpendicular to the main) may be permitted.
- For an easement to be shared with a stormwater pipe, consideration will be given to the pipes diameters, easement width, any adjacent structure, and other influencing factors.
- SA water is under no obligation to share a water supply easement with a stormwater pipe.
- An easement containing dual water mains, or a water main and a sewer main, shall not be shared with a stormwater pipe.
- Refer to SA water supplement to WSAA 03-2011, Clause 5.4.4 for easement acquisition obligations.

Approved easement supplement to WSAA 03-2011, Clause 5.4.5 for easement clearance requirements are provided in Table 2.5 because of the potential for substantial damage if a water main bursts. These distances are considerably greater than those required for sewers.


10. PIPE MINIMUM COVER

- All mains and connections are to be designed and constructed at minimum cover unless specific approval is given by an SA water representative.
- Any variation from minimum pipe cover is to be labelled on design and as constructed drawings with a depth and chainage to enable SA water to accurately locate assets.
- The designer is to determine pipe cover required during construction over new and existing pipes in council and DPTI roads.
- Changes to road design surface levels in designs and existing roads that exceed or reduce minimum pipe cover require approval by an SA water representative.
- A typical cross-section is required for narrow roads and proper detail to detail the pavement design, footpath width and water connection pipe cover transition from the main to the meter. Refer to 4005-30002 drawings for sand overlay on water connections.
- A typical cross-section is required for water connections crossing beneath stormwater drains.
- The top of a valve spindle or valve spindle extension shall be minimum 150mm or maximum 300mm below the surface of the road.
9. PIPE:
- All pipe shall be series 2, PVC as a minimum.
- Refer TS 0593, Section 3 for authorised pipe materials and manufacturers.
- PVC and DCL pipe shall be RJU series 2, unless stated otherwise.
- Within Adelaide CBD & North Adelaide, PVC pipe shall be DN 25 as a minimum.
- PE pipe size shall be in accordance with TS 0592 and TS 0593, Clause 3.3.
- PE pipe colour shall be:
  - drinking water - blue (or black with blue stripes - PE).
  - non drinking water - Lilac (or black with lilac stripes - PE).
- PE wrap for DCL pipe shall be coloured to indicate the system drinking or non drinking water.

10. PIPE LENGTH:
- The minimum cut length of PVC and DCL pipe shall be in accordance with Table 1.
- DCL - The pipe OD may be variable within 75 mm of the socket end. For use of a piece of pipe within this section, the OD shall be measured and confirmed for possible use and insertion into a pipe or fitting.

<table>
<thead>
<tr>
<th>PIPE DN</th>
<th>PVC PIPE</th>
<th>PVC (SOCKET END)</th>
<th>DCL PIPE</th>
<th>DCL (SOCKET END)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-250</td>
<td>500</td>
<td>500 (EXCL SOCKET)</td>
<td>500</td>
<td>1754</td>
</tr>
<tr>
<td>300-375</td>
<td>2 x DN</td>
<td>2 x DN (EXCL SOCKET)</td>
<td>2 x DN</td>
<td>1754</td>
</tr>
</tbody>
</table>

11. PIPE INSTALLATION:
- Shall be in accordance with:
  - SA water WSM drawings & construction documentation.
  - The approved design drawings.
  - Approval of the SA Water representative shall be sought for deviation from this requirement.
- The inside of mains shall be kept clean and dry during storage and construction.
- An appropriate seal must be used to prevent contamination of pipes. Ends of pipe must be sealed when exposed to the atmosphere.
- The inside of mains shall be kept clean and dry during storage and construction.
- Any appropriate seal must be used to prevent contamination of pipes. Ends of pipe must be sealed when exposed to the atmosphere.
- Pipelines are not to be stored in any location where pollution due to rain runoff or any other cause can occur.
- Storage of pipes during storage, shall be in accordance with the manufacturer’s recommendations.

12. PIPE INSTALLATION DURING HIGH TEMPERATURES:
- Construction of pipelines during periods of high temperature will require special precautions to minimise pipe expansion issues prior to backfill. All control techniques shall be approved by the SA Water representative prior to implementation.
- PVC pipes shall not be laid and backfilled while the ambient temperature adjacent to the pipe is more than 35°C.
- Upon the temperature falling below 35°C, all joints shall be inspected and, if necessary, homed again prior to placement of any embankment or trench fill material.
- PE pipes shall not be laid and backfilled if the ambient temperature adjacent to the pipe falls outside the range 12° - 27°.
- Due to pipe expansion during hot temperatures, for every metre of measured pipe, the additional cut length shall be a minimum 0.19 mm/m above 12°C.

13. VALVES:
- All stop/gate valves shall have a square drive and be clockwise closing. The spindle cap shall have a red dot (indicating clockwise closing).
- Within non drinking water systems the spindle cap and valve body shall be coloured lilac.
**Design Drawings Fittings Symbols**

- **Cap**
- **Socket Socket Extension**
- **Flanged Socket Extension**
- **Flanged Spigot Extension**
- **Flanged Extension Pipe**
- **Flanged Spigot Extension Pipe (with Puddle Flange)**
- **Flanged Socket Extension Pipe (with Puddle Flange)**
- **Temporary Fire Hydrant End**
- **Fire Service End - Flanged Socket Extension Pipe (with Puddle Flange) and Blind Flange**
- **Blind Flange**
- **Multi-Fit Coupling**
- **Flanged Reducer**
- **Flanged Offtake**
- **Flanged Cross**
- **Socketed Cross**

**Proposed Future Fittings**
- Proposed Fire Hydrant
- Proposed Isolating Valve
- Proposed Reducer

**Existing Fittings**
- Existing Fire Hydrant
- Existing Isolating Valve
- Existing Meter

**NOTE:** Fitting symbols based on AS 1100.

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**SA Water Standard Drawings**
**Water Supply Construction Manual**
**General Notes**
**Sheet 3 of 4**

**Design Drawings Fitting Symbols**
**WATER INFRASTRUCTURE POSITION TECHNICAL NOTES**

**GENERAL**
1. The authorised consultant shall prepare design drawings for review by SA Water for compliance with SA Water design and construction standards. Refer 4005-30002-05.
2. For obstructions and clearance requirements refer 4005-30002-01, note 7.

**WATER MAINS**
3. Refer WSCM, section 5 for mainlaying details.
4. Mains shall be located within the road reserve. Approval of the SA Water representative is required for location within an easement, refer 4005-30002-01, note 8.
5. Within the road, the typical alignment is 5 metres from the boundary or 15 metres from the kerb.
6. Where located within easement, refer 4005-30002-01, note 8 for permissible easement widths and other easement details, e.g., the water main position.
7. Where an allotment is served by a road at the front and a lane way at the rear the water main shall be positioned in the road, for consideration of positioning the water main in the lane way specific SA Water approval shall be required. The consultant will be required to provide substantial justification for consideration of this option.
8. Refer 4005-30004-01 for the minimum distance between tapping fittings.

**SERVICE CROSSINGS**
9. The water main is generally above the stormwater and sewer pipes.
10. Where a SWD (or other service) crosses the water main and results in a clash, or does not achieve adequate clearance between the pipes, a dogleg of the water main may be allowed.
11. Doglegs may result in pressure losses and water turbulance and should be avoided where possible.
12. Refer 4005-30005-08 and 4005-30005-09 for guidelines and approved assemblies of doglegs.
13. The design drawings shall identify and highlight all dogleg locations. Each dogleg shall be shown as a detail or labelled in accordance with 4005-30005-08.

**VALVES AND HYDRAULS**
14. Stop valves. For residential areas, shall be positioned such that the maximum number of properties impacted by a shut down of the main is 50.
15. For details of branch locations with multiple valves, refer 4005-30005-03.
16. Hydrants shall be located at high points and low points along the main and at a maximum spacing in accordance with Table 1:

<table>
<thead>
<tr>
<th></th>
<th>Residential</th>
<th>Commercial/Industrial</th>
<th>CBD</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>150</td>
<td>80</td>
<td>80</td>
<td>400</td>
</tr>
</tbody>
</table>

17. Hydrants and valves are also required for disinfection purposes. Refer note 35.

**WATER CONNECTIONS**
18. For typical water, sewer and ‘other authority’ connection positions refer 4005-30006-02.
19. New DN 100 & DN 150 mains – connections shall be provided off pretapped connectors.
20. New DN 250 to DN 375 mains – connections shall be provided off tapping saddles, tapping bands or tapped collars.
21. All existing mains (DN 100 to DN 375) – connections shall be provided off tapping saddles, tapping bands or tapped collars.

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**SA WATER STANDARD DRAWINGS**

**WATER SUPPLY CONSTRUCTION MANUAL**

**GENERAL NOTES**

**WATER INFRASTRUCTURE POSITION NOTES**

**REVISION PANEL**

**DESIGN PANEL**

**SA Water Standard Drawings**

**Water Supply Construction Manual**

**General Notes**

**Water Infrastructure Position Notes**

**Revision**

**Date**

**Details**

**Approved**

**Signature**

**Designed**

**Authorised**

**Reviewed**

**Signature**

**Drawing Number**

**Sheet**

**A3**

**Revision**

**Drawn By**

**Date**

**Number**

**Sheet**

**Total Sheets**

**SUPERSEDES**

**Drawing Number**

**4005-30002-04**

**4005-30002-03-1**

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