

NOTES:

- SA WATER HAS SPECIFIC REQUIREMENTS FOR THE DESIGN AND INSTALLATION OF WATER INFRASTRUCTURE WHICH SHOULD BE CONSIDERED TOGETHER WITH THE ACCOMPANYING WATER SERVICES ASSOCIATION OF AUSTRALIA (WSAA) CODES.
SA WATER DOCUMENTATION COMPRISES:
 - THE WSAA WATER SUPPLY CODE OF AUSTRALIA, WSA03-2011,
 - SA WATER SUPPLEMENT TO WSA03-2011,
 - WSCM CONSTRUCTION DRAWINGS,
 - ENGINEERING STANDARDS & GUIDELINES,
 - AUTHORISED PRODUCTS WITHIN THE SA WATER SYSTEMS.
- AUTHORISED ITEMS:
 - ONLY ITEMS DISPLAYED IN THE SA WATER CATALOGUE SHALL BE USED WITHIN THE DRINKING WATER SYSTEMS,
 - ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES,
 - SHOULD A PROJECT REQUIRE AN ITEM NOT INCLUDED IN THE SA WATER CATALOGUE, APPROVAL SHALL BE SOUGHT FROM THE SA WATER REPRESENTATIVE FOR THE USE OF SPECIFIC ITEM.
- SA WATER REPRESENTATIVE:
THE CONTRACTOR SHALL SEEK APPROVAL FOR:
 - NONCONFORMITY WITH THE WSCM STANDARD DRAWINGS,
 - DEVIATION FROM THE DESIGN DRAWINGS,
 - UNFORESEEN SITE FACTORS IMPACTING THE DESIGNED LOCATION OF THE INFRASTRUCTURE.
- DRINKING WATER AND NON DRINKING WATER SYSTEMS:
 - WSCM CONSTRUCTION DRAWINGS ARE RELEVANT TO BOTH RETICULATION SYSTEMS,
 - THE AUTHORISED ITEMS DOCUMENT COVERS BOTH DRINKING WATER AND NON DRINKING WATER SYSTEMS.
- EXCAVATION:
 - ALL EXCAVATION WORK SHOULD BE UNDERTAKEN IN SUCH A MANNER AS TO MINIMISE RISK TO WORKERS AND OTHERS. AT ALL TIMES SAFE WORK PRACTICES SHALL BE IMPLEMENTED THAT AS A MINIMUM REQUIREMENT COMPLY WITH THE REQUIREMENTS OF RELEVANT LEGISLATION AND INDUSTRY GUIDELINES INCLUDING BUT NOT LIMITED TO:
 - THE WORK HEALTH AND SAFETY ACT 2012 (SA),
 - THE WORK HEALTH AND SAFETY REGULATIONS 2012 (SA),
(SPECIFICALLY CHAPTER 6, DIVISION 3 - EXCAVATION WORK.)
 - SAFE WORK AUSTRALIA'S EXCAVATION WORK CODE OF PRACTICE.
 - SA WATER RESERVES THE RIGHT TO REVIEW SAFE WORK PRACTICES UNDERTAKEN BY ALL CONTRACTORS IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.
- EMBEDMENT & BACKFILL:
 - EXCAVATION OF TRENCH, EMBEDMENT AROUND PIPES, ASSEMBLIES & CONNECTIONS, AND TRENCH BACKFILL SHALL BE IN ACCORDANCE WITH THE WSCM SECTION 3 DRAWINGS,
 - ONLY MATERIALS APPROVED FOR PLACEMENT WITHIN TRENCHES & EXCAVATIONS SHALL BE USED.
- OBSTRUCTIONS & CLEARANCE REQUIREMENTS:
 - FOR MINIMUM HORIZONTAL & VERTICAL CLEARANCE BETWEEN SA WATER INFRASTRUCTURE AND OTHER AUTHORITY PIPES/ CABLES REFER WSA03, TABLE 5.5.
 - FOR MINIMUM CLEARANCE REQUIREMENTS FOR STRUCTURES & OTHER PIPES REFER TABLE 3 WHERE THE CONTRACTOR MAY ENCOUNTER EXISTING UNDERGROUND SERVICES, A 'DIAL BEFORE YOU DIG' INVESTIGATION (DBYD) SHALL BE UNDERTAKEN.

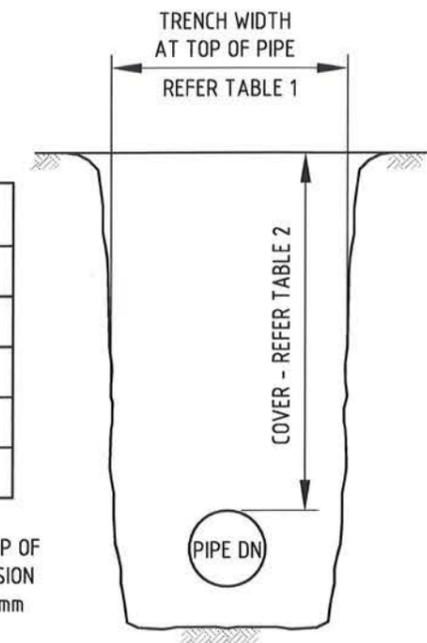
**TABLE 1
TRENCH WIDTH**

PIPE DN	TRENCH WIDTH	
	MINIMUM	MAXIMUM
63 - 90	400	700
100 - 150	500	800
200 - 250	600	1000
300 - 375	800	1000

**TABLE 2
MINIMUM PIPE COVER**

PIPE DN	PIPE COVER	
	MINIMUM	MAXIMUM
63 - 200	750	1200
250	800	1200
300	875	1200
375	950	1200

NOTE:
FOR CONSIDERATION OF PIPE COVER THE TOP OF VALVE SPINDLE OR VALVE SPINDLE EXTENSION SHALL BE MINIMUM 150mm TO MAXIMUM 300mm BELOW ROAD SURFACE LEVEL.



- EASEMENT WIDTHS AND CLEARANCES
BECAUSE OF THE POTENTIAL FOR DAMAGE IF A WATER MAIN BURSTS, THE EASEMENT WIDTH AND CLARENCE REQUIREMENTS ARE CONSIDERABLY GREATER THAN THOSE REQUIRED FOR SEWERS:
 - FOR SA WATER'S MINIMUM REQUIREMENTS FOR EASEMENT WIDTH & CLARENCE TO STRUCTURES & OTHER PIPES REFER TABLE 3.

**TABLE 3
EASEMENT WIDTHS & CLEARANCES**

WATER MAIN DIAMETER	EASEMENT WIDTHS (mm)	MINIMUM CLEARANCE (mm)	
		STRUCTURES	OTHER PIPES
DN63 TO DN150	7000	4000	1200
DN200 TO DN375	10000	5000	1500

- WHERE A WATER MAIN EASEMENT IS SHARED WITH A STORMWATER PIPELINE, THE STORMWATER EASEMENT MAY OVERLAP EITHER A PORTION OR THE WHOLE WIDTH OF THE SA WATER EASEMENT.
- THE WATER MAIN SHALL BE LOCATED WITHIN THE EASEMENT ON THE OPPOSITE SIDE TO ANY BUILDING OR STRUCTURE.
- WHERE AN EASEMENT CONTAINS DUAL WATER SYSTEM PIPES (DRINKING & NON DRINKING) THERE SHALL BE A MINIMUM SEPARATION OF 1500 mm BETWEEN THE MAINS..
- REFER SA WATER SUPPLEMENT TO WSA 03-2011, CLAUSE 5.4.4. FOR PROVISION OF EASEMENT REQUIREMENTS.

FOR ADDITIONAL NOTES REFER 4005-30002-02.

REVISION PANEL				DESIGN PANEL				SA WATER STANDARD DRAWINGS		A3		2	
REV	DATE	DRN	DETAILS	APR	CURRENT REV 16/12/16	DESIGNED: 28/09/15	AUTHORISED 31/03/16	WATER SUPPLY CONSTRUCTION MANUAL		SHT SIZE		REVISION	
					AUTHORISED: T. GALEK	RJP	T. GALEK	GENERAL NOTES		TOTAL SHEETS: 3			
					SIGNATURE: <i>T. Galek</i>	DRAWN: 16/11/15	SIGNATURE:	SHEET 1 OF 3		SUPERSEDES:			
2	19/07/16	PC	TABLE 3 AMENDED			MS	ORIGINAL SIGNED			DRAWING NUMBER			
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		REVIEWED: 21/03/16				4005-30002-01			
						TG				PREFIX		NUMBER SHEET	

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A3 SHT SIZE

2 REVISION

TOTAL SHEETS: 3

SUPERSEDES:

DRAWING NUMBER

4005-30002-01

PREFIX NUMBER SHEET

NOTES:

CONTINUED FROM 4005-30002-01.

9. PIPE:
 - ALL PVC PIPE SHALL BE SERIES 2, PN16, RRJ UNLESS STATED OTHERWISE.
 - PIPE COLOUR SHALL BE:
 - DRINKING WATER - BLUE (OR BLACK WITH BLUE STRIPES - PE).
 - NON DRINKING WATER - LILAC (OR BLACK WITH LILAC STRIPES - PE).
10. PIPE INSTALLATION:

SHALL BE IN ACCORDANCE WITH:

 - SA WATER WSCM DRAWINGS & CONSTRUCTION DOCUMENTATION.
 - THE APPROVED DESIGN DRAWINGS,

APPROVAL OF THE SA WATER REPRESENTATIVE SHALL BE SOUGHT FOR DEVIATION FROM THIS REQUIREMENT.
11. PIPE INSTALLATION DURING HIGH TEMPERATURES:

CONSTRUCTION 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 EMBEDMENT & TRENCH FILL MATERIAL.

PE:

 - PE PIPES SHALL NOT BE LAID AND BACKFILLED IF THE AMBIENT TEMPERATURE ADJACENT TO THE PIPE FALLS OUTSIDE THE RANGE 12 - 27 °C.
 - DUE TO PIPE EXPANSION DURING HOT TEMPERATURES, FOR EVERY METRE OF MEASURED PIPE, THE ADDITIONAL CUT LENGTH SHALL BE A MINIMUM OF 0.18 mm / m / °C ABOVE 12°C.
12. 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 DOME SHALL BE COLOURED LILAC.
13. THRUST BLOCKS:
 - REFER WSCM SECTION 3.
 - ALL CONCRETE SHALL BE MINIMUM GRADE 25.
 - THE THRUST AREA OF ALL THRUST BLOCKS SHALL BE CAST AGAINST A CLEAN FACE OF UNDISTURBED NATURAL SOIL.
 - THRUST BLOCKS SHALL NOT INTERFERE WITH OTHER SERVICES.
 - TIMBER AND PLASTIC BLOCKS ARE NOT AN APPROVED METHOD OF PERMANENT THRUST RESTRAINT. HOWEVER, THEY BE MAY BE USED FOR THE PURPOSE OF TEMPORARY THRUST RESTRAINT.
14. PROPERTY CONNECTIONS:
 - ALL CONNECTIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH WSCM SECTION 6 DRAWINGS.
15. PE WELDING:
 - WELDING SHALL ONLY BE UNDERTAKEN BY PERSONS WHO HAVE THE APPROPRIATE QUALIFICATION FOR THE TASK:
 - BUTT WELD, PMBWELD301B
 - ELECTRO FUSION, PMBWELD302B.
16. WRAPPING OF BELOW GROUND FITTINGS AND COMPONENTS:

ALL BELOW GROUND, BARE STEEL FITTINGS, BOLTS AND SCRATCHED PIPES SHALL BE PROTECTED WITH EITHER:

 - PETROLATUM TAPE SYSTEM OR BITUMEN MASTIC TAPE SYSTEM IN ACCORDANCE WITH TS 18.

17. BORED PIPE DESIGN & INSTALLATION OF NEW PIPES USING DRILLING OR MICRO TUNNELLING:
 - SA WATER **REQUIRES A DESIGN DRAWING FOR ALL BORED INSTALLATIONS.** SHOULD THE ORIGINAL DESIGN BE FOR INSTALLATION BY EXCAVATION AND BE AMENDED FOR THE BORE, THE CONSULTANT SHALL RESUBMIT AN AMENDED DESIGN SHOWING AMENDMENT AND DEPTHS FOR ASSESSMENT.
 - THE DRAWING/S FOR THE BORE **SHALL BE APPROVED PRIOR TO COMMENCEMENT OF ANY WORK.** REFER BELOW FOR DESIGN REQUIREMENTS.
 - THE PIPE ALIGNMENT AND A LONGITUDINAL SECTION SHALL BE SHOWN WITH MINIMUM / MAXIMUM COVER, ALL FITTINGS, CHAINAGES, BEND ANGLES, ANCHOR BLOCKS ETC SPECIFIED ON THE DRAWINGS.
 - ANY **DEVIATION FROM THE APPROVED DESIGN (DEPTH OR ALIGNMENT) SHALL BE SUBMITTED TO THE SA WATER REPRESENTATIVE FOR APPROVAL.**
 - THE LOCATION OF ANCHOR BLOCKS SHALL BE SUFFICIENTLY CLEAR OF ANY EXCAVATED AREA FOR A BORE PIT FOR **LOCATION OF THE BLOCK IN UNDISTURBED SOIL.**
 - A VALVE SHALL BE LOCATED EACH SIDE OF THE BORE. A HYDRANT SHALL BE LOCATED ON THE HIGH SIDE.
 - THE DESIGNER/ CONTRACTOR SHALL CONFIRM WITH THE ROAD/ RAIL/ LOCAL AUTHORITY THE REQUIREMENT FOR A SLEEVE PIPE AND REQUIRED PIPE DEPTH.
 - CONCRETE ENCASEMENT OF THE PIPE IS NOT APPROVED.
 - BUTT WELDED PE IS APPROVED UP TO DN250. SHOULD A LARGER DIAMETER PE BE CONSIDERED FOR THE PROJECT, SPECIFIC APPROVAL FROM THE SA WATER REPRESENTATIVE WILL BE REQUIRED FOR THE PIPE SIZE AND FABRICATION METHOD.
 - FULLY WELDED MSCL OR DICI (RRJ OR FLANGED) MAIN MAY BE PERMITTED PROVIDED THERE IS **A MAXIMUM OF ONE PIPE JOINT UNDER THE STRUCTURE BEING CROSSED.**
 - ALL STEEL PIPEWORK SHALL BE FABRICATED AND PROTECTED IN ACCORDANCE WITH SA WATER REQUIREMENTS.
 - THE SLEEVE SHALL BE GRP, BUTT WELDED PE OR STEEL OF A PN RATING APPROPRIATE TO THE GROUND CONDITIONS. A STEEL SLEEVE SHALL REQUIRE CATHODIC PROTECTION.
 - PIPE SPACERS SHALL BE UTILISED WITHIN THE SLEEVE PIPE.
 - WHERE BORE HOLE ANNULUS > 50, SLEEVE VOID SHALL BE GROUTED WITH A FLOWABLE GROUT, (EG. LIQUAFILL OR BENTONITE).
 - ENSURE GROUTING PRESSURES DO NOT EXCEED THE BUCKLING CAPABILITY OF THE PIPE WHEN EMPTY.
 - ONLY A SA WATER APPROVED CONTRACTOR CAN UNDERTAKE THE BORE. THE NAME OF THE CONTRACTOR SHALL BE SUBMITTED TO THE SA WATER REPRESENTATIVE FOR APPROVAL PRIOR TO COMMENCEMENT. SA WATER RESERVES THE RIGHT TO REJECT THE NOMINATED CONTRACTOR.

TABLE 4

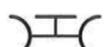
WATER PIPE / BORED ENCASING SIZES					
WATER PIPE (DN)	100	150	225	300	375
BORED ENCASING PIPE MIN (DN)	300	375	425	500	575

18. NON DRINKING CONNECTION AND WATER METER INSTALLATIONS
- NON DRINKING WATER MAINS TAPPING AND CONNECTION PIPE SHALL BE LAID IN ACCORDANCE WITH WSCM SECTION 6.
 - ALL MATERIALS SHALL COMPLY WITH TS 0503.
 - FOR ALL NDW PE CONNECTION PIPE, METALLIC LOCATION TAPE SHALL BE PLACED IN THE TRENCH APPROXIMATELY 150 ABOVE THE PIPE.
 - FOR NDW METER INSTALLATION DETAILS REFER WSCM DRAWINGS 4005-30008-09 TO 4005-30008-12.
 - ALL METER INSTALLATIONS (WATER METER AND FITTINGS) SHALL BE PAINTED LILAC P23 (AS2700).

REVISION PANEL				DESIGN PANEL				SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL		A3 SHT SIZE	2 REVISION
REV	DATE	DRN	DETAILS	APR	CURRENT REV 16/12/16	DESIGNED: 28/09/15	AUTHORISED 31/06/16	This drawing is the property of the SOUTH AUSTRALIAN WATER CORPORATION and shall not be copied or modified in part or in whole without authorization.		TOTAL SHEETS: 3	
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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
-  FLANGED SOCKET CROSS
-  SOCKETED CROSS

-  FLANGED TEE WITH FLANGED BRANCH
-  SPIGOTED TEE WITH FLANGED BRANCH
-  SOCKETED TEE WITH FLANGED BRANCH
-  SOCKETED FLANGED TEE WITH FIRE HYDRANT
-  SOCKETED TEE WITH SOCKETED BRANCH
-  100 SOCKETED x 80 FLANGED BEND WITH FIRE HYDRANT
-  150 SOCKETED x 80 FLANGED BEND WITH FIRE HYDRANT
-  SOCKET SPIGOT FLANGED TEE
-  SOCKETED BEND (ANGLES AVAILABLE 11½°, 22½°, 45° & 90°)
-  FLANGED BEND (ANGLES AVAILABLE 11½°, 22½°, 45° & 90°)
-  FIRE HYDRANT
-  ISOLATING VALVE FLANGED

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.

REVISION PANEL					DESIGN PANEL		 SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL GENERAL NOTES SHEET 3 OF 3 DESIGN DRAWINGS FITTING SYMBOLS	A3	1
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	AUTHORISED: 31/03/16		SHT SIZE	REVISION
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