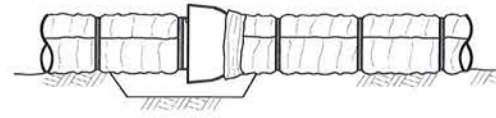
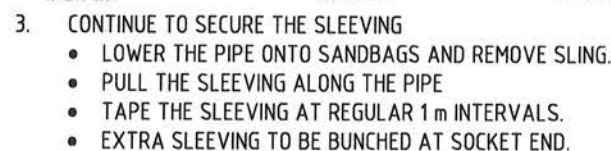
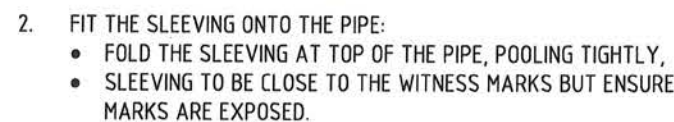


1. FOR INSTALLATION OF DCL PIPE & FITTINGS THE WORK SHALL BE UNDERTAKEN UNDER THE DIRECTION OF A PERSON WHO HAS COMPLETED THE VIADUX DCL PIPELINE COURSE & HAS PROVIDED THE SA WATER REPRESENTATIVE WITH EVIDENCE OF THE COURSE COMPLETION.
2. PRIOR TO COMMENCEMENT, REQUIRED EQUIPMENT TO UNDERTAKE THE WORK SHALL BE ON SITE & INSPECTED.
3. POLYETHYLENE SLEEVING SHALL BE INSTALLED:
  - IN ACCORDANCE WITH THE REQUIREMENT SPECIFIED IN AS3681 'GUIDELINES FOR THE APPLICATION OF POLYETHYLENE SLEEVING TO DUCTILE IRON PIPELINE AND FITTINGS.
  - IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS.
4. IN CRAMPED SITUATIONS:
  - STRAP & BUCKLES SHALL BE USED
5. IN WET CONDITIONS:
  - STRAPS & BUCKLES ARE PREFERABLE TO ADHESIVE TAPE.
6. THE PIPE & FITTINGS SHALL BE CLEANED PRIOR TO JOINTING.

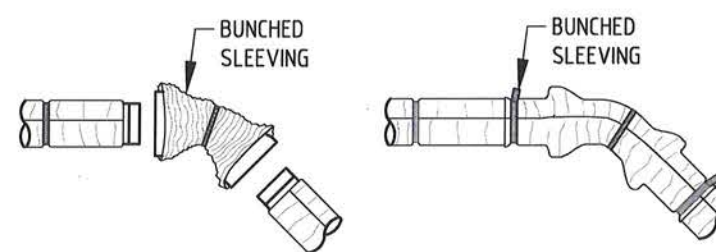


1. PULL THE SLEEVING ONTO THE PIPE:
  - CUT SLEEVING LONG ENOUGH TO COVER THE PIPE AND OVERLAP THE SOCKET END APPROX. 300 mm.
  - CENTRALISE THE SLING UNTIL THE PIPE IS BALANCED
  - PULL THE SLEEVING TOWARDS THE SLING



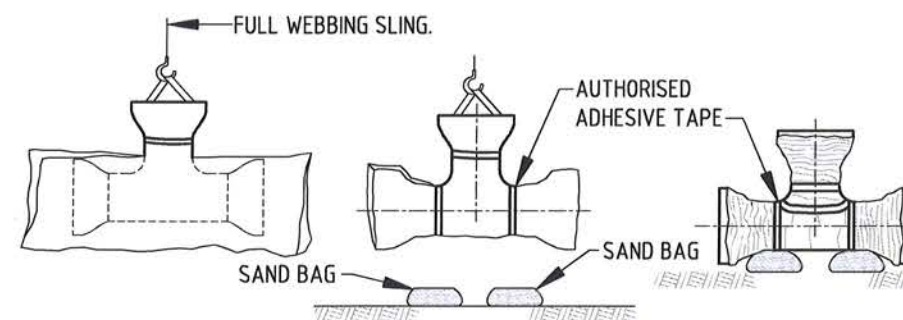
4. PLACEMENT OF PIPE & COMPLETION OF SLEEVING:
- ENSURE A SUITABLE DEPRESSION HAS BEEN MADE IN THE BEDDING WHERE THE JOINT WILL BE LOCATED,
  - LIFT THE PIPE FROM THE CENTRE WITH A SLING,
  - KEEP THE FOLD OF THE SLEEVING AT THE TOP OF THE PIPE
  - OVERLAP THE SLEEVING OVER THE JOINT AND SECURE WITH THE STRAP AND BUCKLE

## 1. BENDS



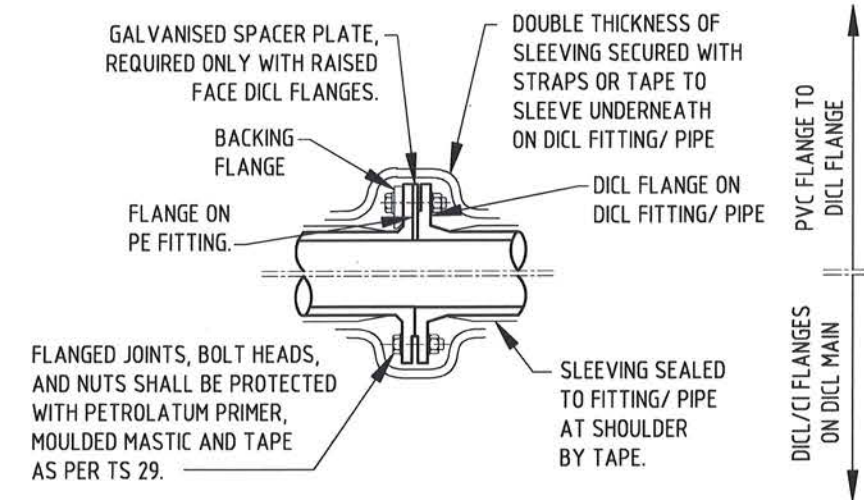
- |     |   |   |
|-----|---|---|
| RKS | <p>1. PRIOR TO JOINTING :</p> <ul style="list-style-type: none"> <li>• CUT SLEEVING LONG ENOUGH TO COVER THE BEND AND OVERLAP THE ENDS APPROX. 300 mm.</li> <li>• PLACE SLEEVING OVER THE BEND AND SECURE WITH TAPE AROUND THE CENTRE OF THE BEND.</li> <li>• BUNCH SLEEVING BEHIND THE SOCKETS.</li> </ul> | <p>2. AFTER JOINTING OF BEND TO PIPES</p> <ul style="list-style-type: none"> <li>• PLACE THE BUNCHED SLEEVING OVER OVER SOCKETS.</li> <li>• ENSURE SLEEVING FOLLOWS THE SOCKET SHAPE,</li> <li>• SEAL THE OVERLAPS TO THE SLEEVED PIPES WITH STRAPS AND BUCKLES.</li> </ul> |
|     |   |   |

## 2. TEES



1. TWO PIECES OF SLEEVING ARE REQUIRED.
2. ALLOW 300 mm OVERLAP.
3. CUT THE BODY PIECE  $\frac{3}{4}$  OF THE WAY ALONG THE SIDE OF THE SLEEVE.
4. LIFT THE TEE WITH THE SLING AT THE TOP OF THE BRANCH.
5. SLIDE THE BODY PIECE ON THE FACE. TAPE THE SLEEVE AND SEAL.
6. LOWER ONTO SAND BAG & REMOVE THE SLING.
7. SLIDE THE BRANCH PIECE OF SLEEVING INTO THE TEE. TAPE THE SLEEVING AND SEAL.

(REQUIRE SLEEVING PLUS PETROLATUM PROTECTION)



1. ALL FLANGES ON FITTINGS WHICH ARE TO BE BURIED SHALL BE PROTECTED BY PETROLATUM TAPE SYSTEM IN ACCORDANCE WITH TS 29 AND SHALL BE DOUBLE OVER WRAPPED WITH POLYETHYLENE SLEEVING.

#### 4. TAPPING SADDLES

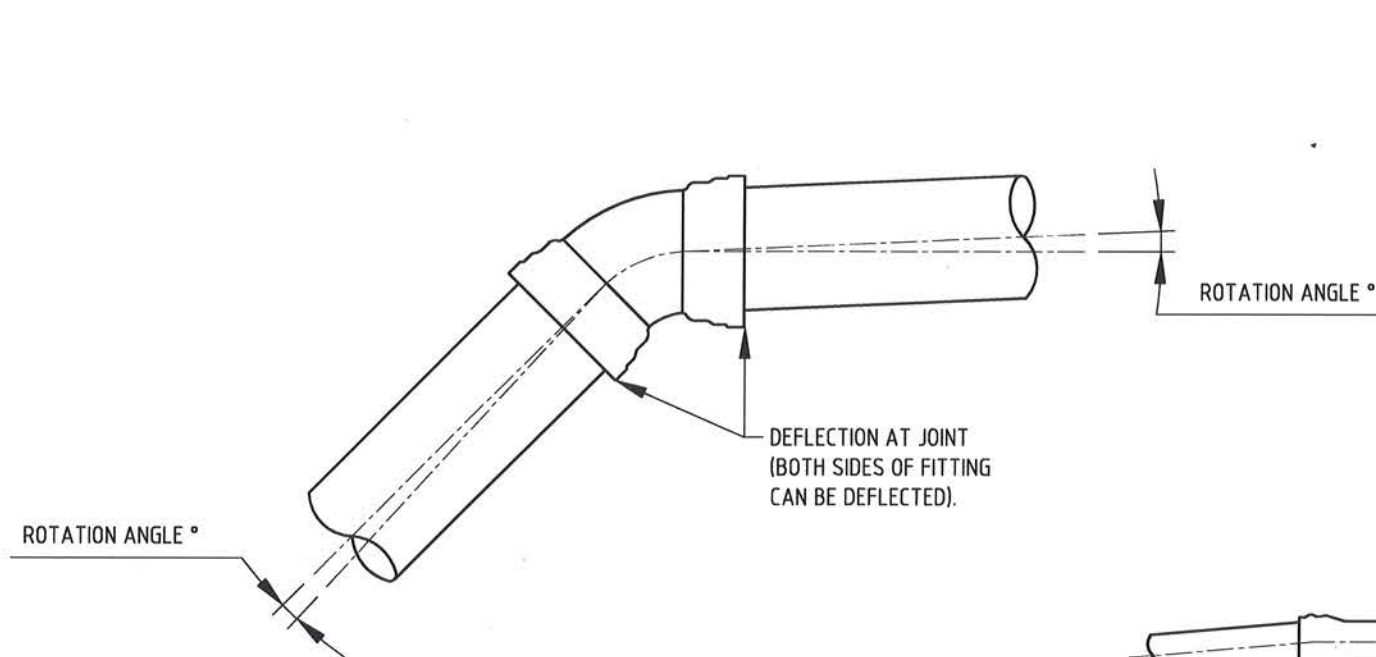
1. REMOVE A 150 mm SECTION OF SLEEVING AT THE TAPPING POSITION.
2. ASSEMBLE THE TAPPING SADDLE ONTO THE PIPE.
3. USING A SEPARATE PIECE OF SLEEVING WRAP IT CIRCUMFERENTIALLY AROUND THE EXPOSED PIPE SECTION AND TAPPING SADDLE. TAPE THE ENDS OF THE SLEEVING.
4. INSTALL THE NIPPLE TO THE TAPPING SADDLE AS REQUIRED.
5. REPAIR ANY DAMAGED SLEEVING IN THE FOLLOWING MANNER:
  - FOR HOLES SMALLER THAN TAPE WIDTH, USE ADHESIVE TAPE.
  - FOR LARGER HOLES  
EITHER OVERLAP WITH POLYETHYLENE SHEET WITH STRAP AND BUCKLE OR  
ADHESIVE TAPE WHICH SHALL BE AROUND FULL CIRCUMFERENCE OF PIPE.

**NOTES:**

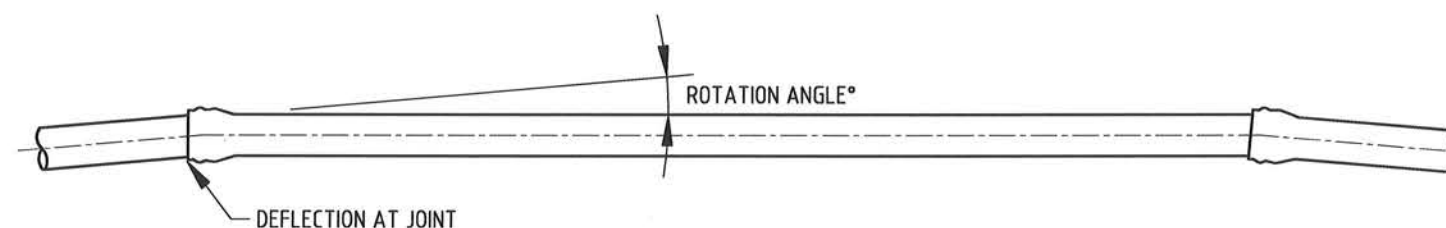
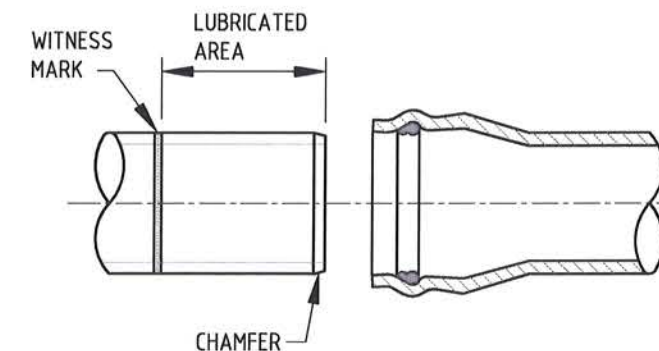
1. REFER 4005-30002-01 & 4005-30002-02 FOR GENERAL NOTES.
2. PVC MAINS:
  - ALL FITTINGS WHICH ARE TO BE BURIED SHALL BE PROTECTED BY:
    - POLYETHYLENE SLEEVING PROVIDED IF FITTING IS ASSOCIATED WITH AN ANCHOR BLOCK.
    - TAPE EXTRA SLEEVING ON FITTINGS WHERE ANCHOR BLOCK WILL CONTACT FITTING.
  - OR
    - PETROLATUM TAPE SYSTEM IN ACCORDANCE WITH TS 18.
    - PE FITTINGS - ONLY FLANGES NEED CORROSION PROTECTION.
3. WHERE THE RESTRAINED JOINTING SYSTEM IS USED THE SPECIALLY MARKED "RESTRAINED JOINT SYSTEM" MARKING TAPE SHALL BE USED.

REVISION PANEL					DESIGN PANEL		<div> Government of South Australia</div> <div> SA Water</div> <div>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.</div>	SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL SLEEVING OF DICL PIPE FITTINGS		A3 SHT SIZE	1 REVISION
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 28/09/15 RJP		AUTHORISED:	TOTAL SHEETS:		
						DRAWN: 16/11/15 MS		SIGNATURE:	SUPERSEDES: C1, C2		
					SIGNATURE:	REVIEWED: 21/03/16 TG			DRAWING NUMBER		
1	31/03/16	MS	2016 STANDARDS REVIEW	TG					4005-30005-01		
								PREFIX	NUMBER	SHEET	





TYPICAL DEFLECTION AT PIPE TO FITTING JOINTS



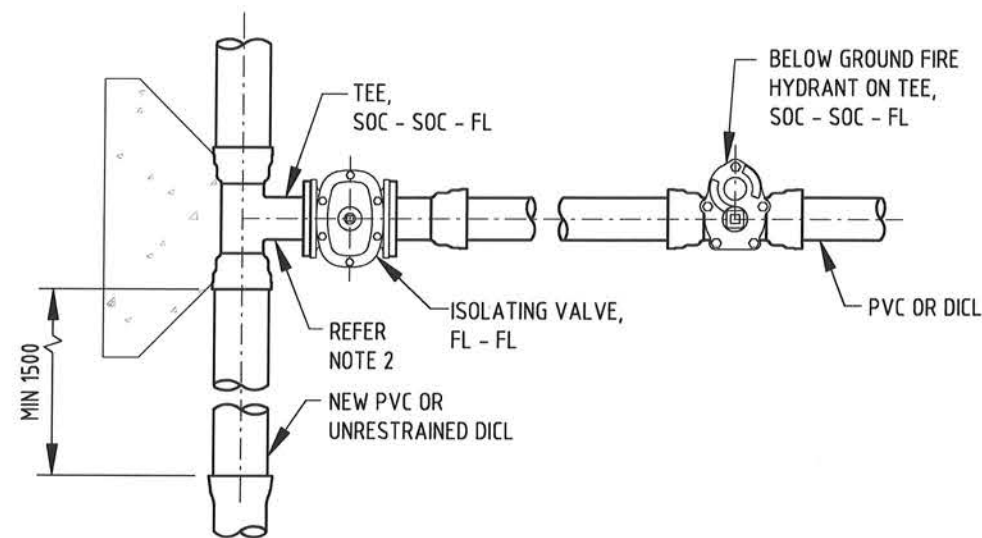
TYPICAL DEFLECTION AT PIPE TO PIPE JOINTS

NOTE: PIPE IS TO BE DEFLECTED ONLY AFTER JOINT HAS BEEN MADE.

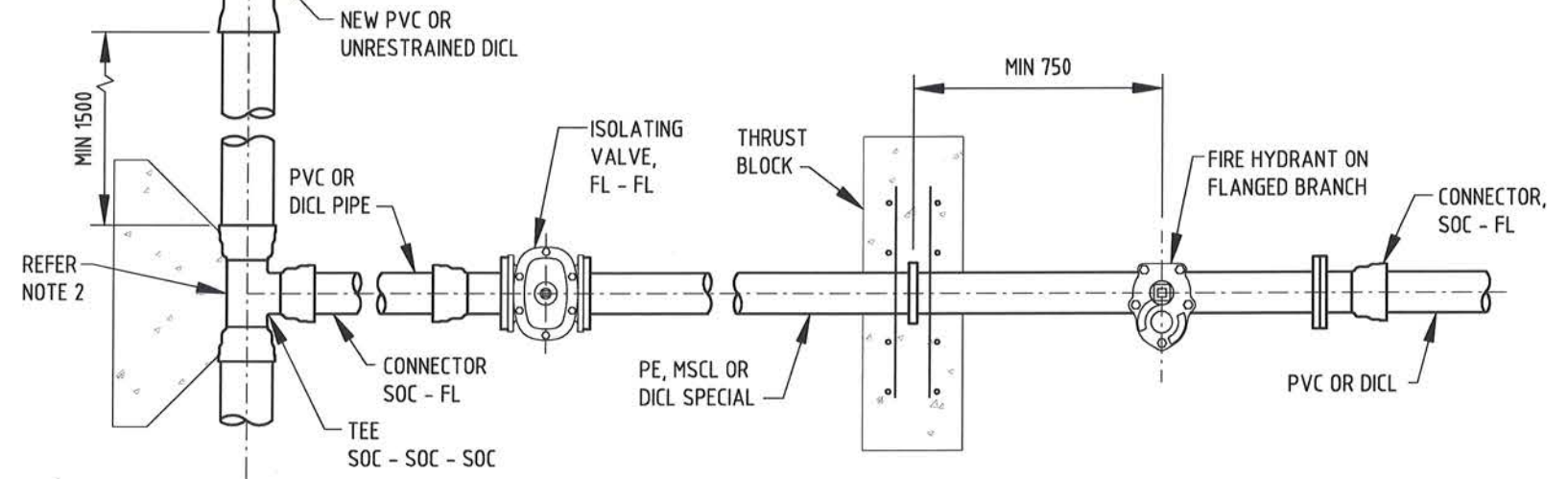
#### NOTES:

1. REFER 4005-30002-01 & 4005-30002-02 FOR GENERAL NOTES.
2. PERMISSIBLE MAXIMUM ALLOWABLE DEFLECTIONS FOR BOTH THE PIPE SOCKET & THE FITTING SOCKET VARY DEPENDENT UPON PIPE MATERIAL, PIPE SIZE & PIPE MANUFACTURER.  
THE CONTRACTOR SHALL CONFIRM THE MAXIMUM ALLOWABLE DEFLECTION WITH THE PIPE MANUFACTURER.
3. WHERE A DESIGN IS BASED UPON A REQUIREMENT FOR DEFLECTED PIPES, THE DESIGNER SHALL SPECIFY THE REQUIRED DEFLECTION ON THE DESIGN DRAWINGS.
4. PIPES SHALL BE HANDLED AND INSTALLED IN ACCORDANCE WITH SA WATER'S CONSTRUCTION DOCUMENTATION & THE PIPE MANUFACTURER'S INSTRUCTIONS.
5. WHERE REQUIRED, PIPES CAN BE CUT TO LENGTH ON SITE USING EITHER A HAND SAW OR POWERED CUTTING DISC. REFER MANUFACTURERS INSTRUCTIONS FOR REQUIREMENTS FOR CHAMFERING THE CUT PIPE CHAMFER.
6. REFER MANUFACTURERS INSTRUCTIONS FOR DETAILS ON APPLICATION OF PIPE LUBRICANT, INSERTION OF CUT SPIGOT THRUSTING OF PIPE TO WITNESS MARK.
7. PRIOR TO CUTTING & USE OF THE SOCKET END OF A DICL PIPE, THE PIPE OD SHALL BE CHECKED. REFER 4005-30005-05.
8. WHERE INSERTING PIPE INTO DUCTILE IRON FITTINGS ENSURE THE APPROPRIATE WITNESS MARK IS USED TO SUIT THESE PARTICULAR SOCKETS.
9. PIPES SHALL NOT BE CUT WITHIN 1.0 m OF THE SOCKET END OF THE PIPE. THUS, THE MINIMUM PERMISSIBLE LENGTH OF PIPE SHALL BE 1.0 m.

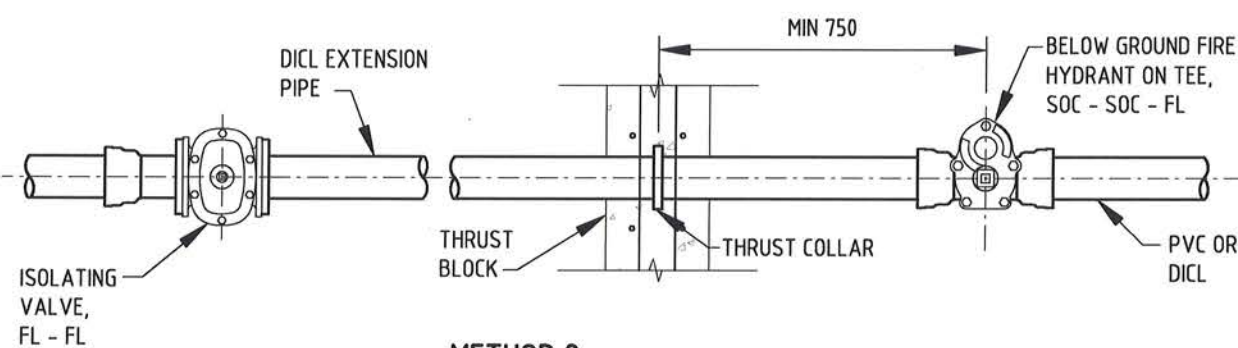
REVISION PANEL					DESIGN PANEL		 	SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL  PIPE JOINTING & DEFLECTION	A3	1
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 28/09/15 RJP DRAWN: 16/11/15 MS REVIEWED: 21/03/16 TG			AUTHORISED: 31/03/16 T.GALEK SIGNATURE: 	SHT SIZE
					SIGNATURE:		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:	
									SUPERSEDES: C3, C4	
									DRAWING NUMBER	
1	31/03/16	MS	2016 STANDARDS REVIEW	TG					4005-30005-02	
								PREFIX	NUMBER	SHEET



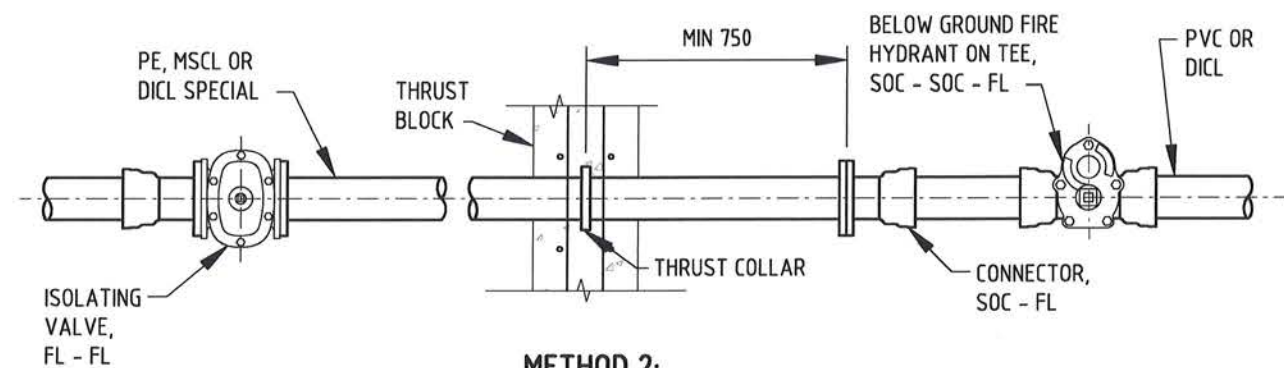
**METHOD 1:  
STOP VALVE ADJACENT TEE**



**METHOD 2: STOP VALVE SEPARATE FROM TEE  
OPTION 1: EXTENSION PIPE WITH THRUST  
COLLAR, HYDRANT TEE AND FL - FL ENDS**







**METHOD 2:  
OPTION 2: EXTENSION PIPE WITH  
THRUST COLLAR AND FL - SPIG ENDS**



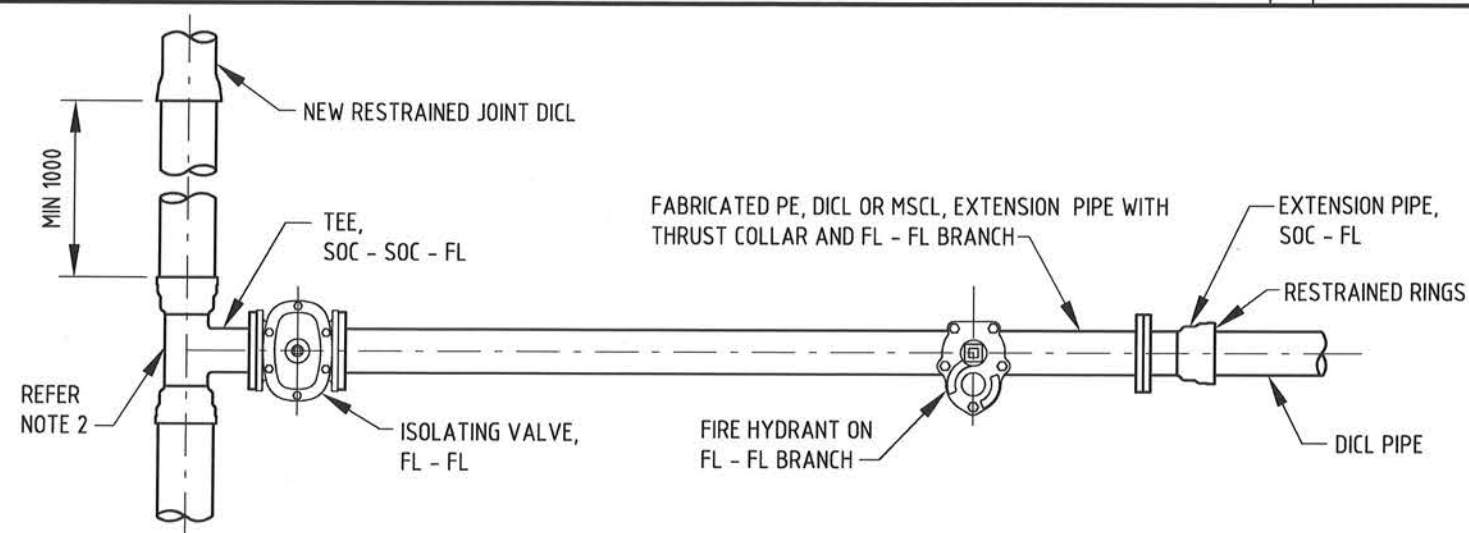
**METHOD 2:  
OPTION 3: EXTENSION PIPE WITH  
THRUST COLLAR AND FL - FL ENDS**

**NOTES:**

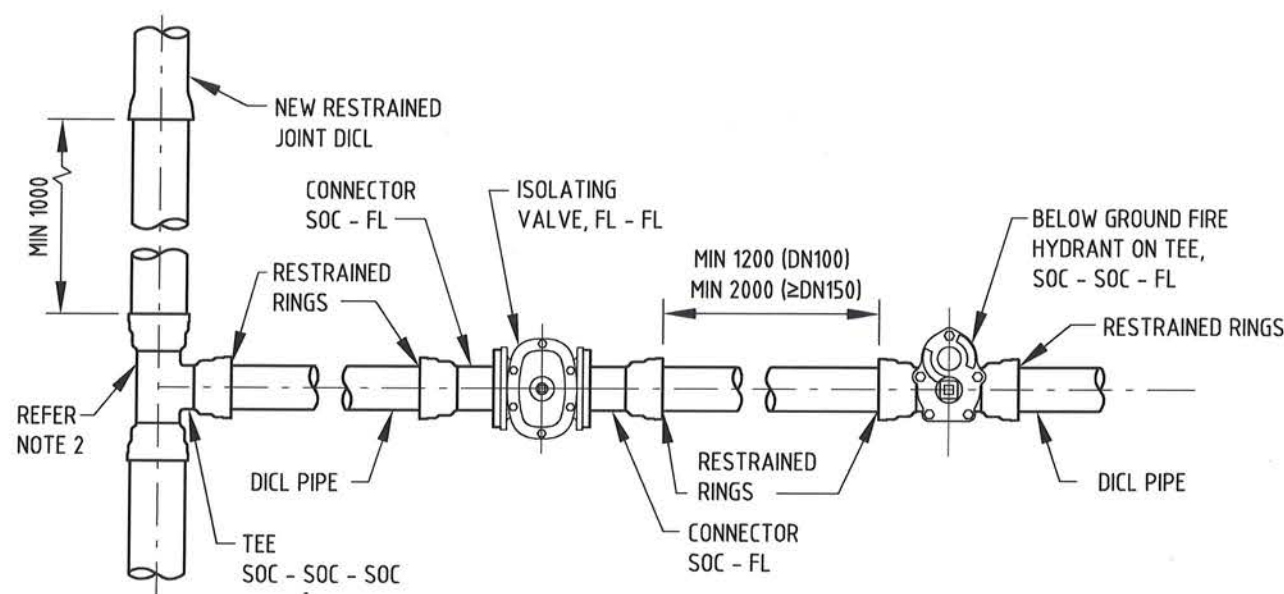
1. REFER 4005-30002-01 & 4005-30002-02 FOR GENERAL NOTES.
2. TEES SHALL NOT BE INSTALLED WITHIN MIN 1500 OF THE SOCKET END OF A DN100 PIPE.
3. WORK SHALL ONLY BE UNDERTAKEN UNDER THE DIRECTION OF A PERSON WHO HAS COMPLETED AN APPROVED DUCTILE IRON PIPE INSTALLATION TRAINING COURSE.
4. REFER SECTION 3 FOR THRUST/ ANCHOR BLOCKS REQUIREMENTS.
5. FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH 4005-30005-10 & 4005-30005-11.
6. ALL DIMENSIONS IN MILLIMETRES.

REVISION PANEL					DESIGN PANEL		 	SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL NEW WATER MAIN PVC OR UNRESTRAINED DICL BRANCH INSTALLATION ARRANGEMENTS	A3	1	
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 28/09/15 RJP DRAWN: 16/11/16 MS REVIEWED: 31/03/16 TG			AUTHORISED: 31/03/16 T.GALEK SIGNATURE: 	SHT SIZE	REVISION
					SIGNATURE:		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:		
									SUPERSEDES: 91-0059-01 (C5)		
									DRAWING NUMBER		
1	31/03/16	MS	2016 STANDARDS REVIEW	TG					4005-30005-03		
									PREFIX	NUMBER	SHEET

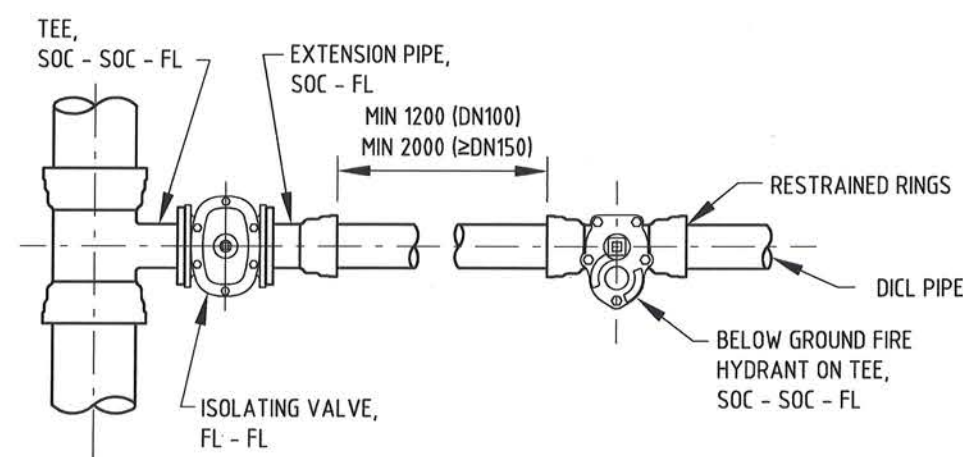




**METHOD 1**  
**STOP VALVE ADJACENT TEE**  
**DN100 & DN150 MAINS BRANCH ARRANGEMENT**



**METHOD 3:**  
**STOP VALVE SEPARATE FROM TEE**



**METHOD 2:**  
**RESTRAINED JOINT DICL BRANCHES OFF NEW**  
**DN200 & LARGER MAINS BRANCH ARRANGEMENT**

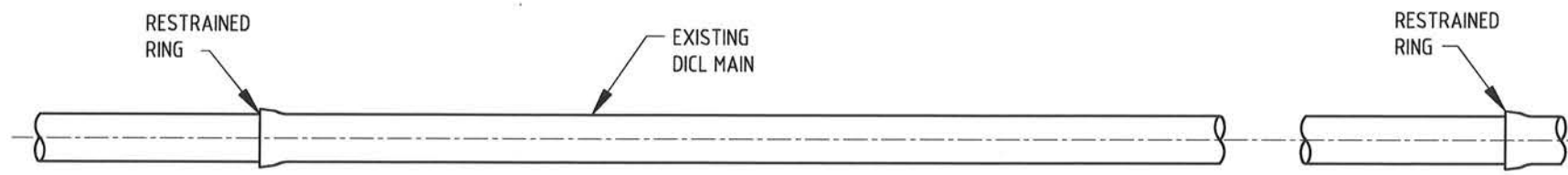
**NOTES:**

1. REFER 4005-30002-01 & 4005-30002-02 FOR GENERAL NOTES.
2. TEES SHALL NOT BE INSTALLED WITHIN MIN 1000 mm OF THE SOCKET END OF A DN100 PIPE.
3. WORK SHALL ONLY BE UNDERTAKEN UNDER THE DIRECTION OF A PERSON WHO HAS COMPLETED AN APPROVED DUCTILE IRON PIPE INSTALLATION TRAINING COURSE.
4. CUT LENGTHS OF DICL PIPE SHALL BE FROM A SECTION OF PIPE WITHIN 3.5 m OF THE SPIGOT.
5. REFER 4005-30003-08 FOR RESTRAINED JOINT REQUIREMENTS IN LIEU OF THRUST/ ANCHOR BLOCKS.
6. WHERE THE RESTRAINED JOINTING SYSTEM IS USED MARKING TAPE SHOWING 'RESTRAINED JOINT SYSTEM' SHALL BE USED.
7. FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH 4005-30005-10 & 4005-30005-11.
8. ALL DIMENSIONS IN MILLIMETRES.

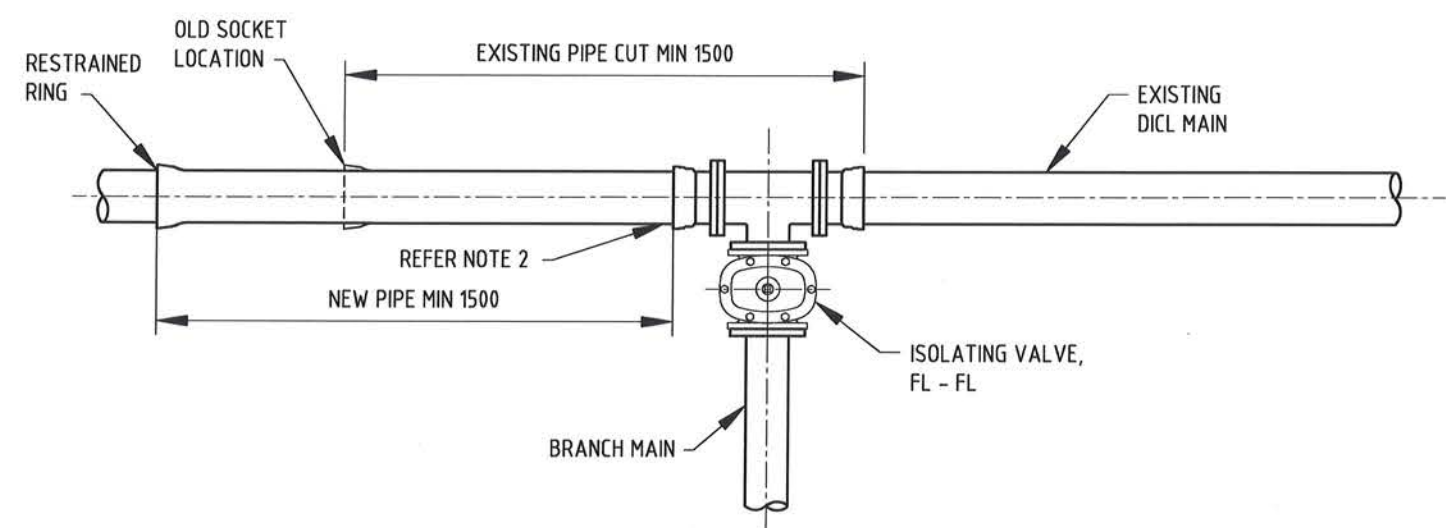
REVISION PANEL					DESIGN PANEL			SA WATER STANDARD DRAWINGS			A3	2
REV	DATE	DRN	DETAILS	APR	CURRENT REV 16/12/16	DESIGNED: 28/09/15	AUTHORISED: 31/03/16	WATER SUPPLY CONSTRUCTION MANUAL			SHT SIZE	REVISION
						RJP	T. GALEK	NEW WATER MAIN WITH			TOTAL SHEETS: 1	
						MS	SIGNATURE:	RESTRAINED JOINT DICL			SUPERSEDES: 91-0059-05 (C6)	
2	05/12/16	RP	DRAWING REFERENCE CHANGED			REVIEWED: 21/03/16	ORIGINAL SIGNED	BRANCH INSTALLATION ARRANGEMENTS			DRAWING NUMBER	
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		TG					4005-30005-04	
											PREFIX	NUMBER SHEET



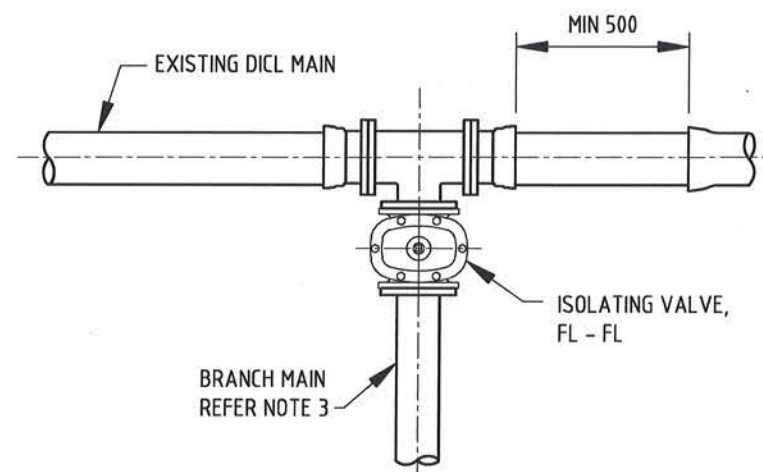
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EXISTING PIPES PRIOR TO NEW BRANCH MAIN



NEW BRANCH CUT INTO EXISTING MAIN AT SOCKET END OF PIPE



NEW BRANCH CUT INTO EXISTING MAIN AT SPIGOT END OF PIPE

TABLE 1  
PIPE OD TOLERANCE

PIPE DN	PIPE OD	TOLERANCE
100	122	+1 mm TO - 2 mm
150	177	+1 mm TO - 2 mm
200	232	+1 mm TO - 2 mm
250	286	+1 mm TO - 2 mm
300	345	+1 mm TO - 2 mm
375	426	+/- 2 mm

NOTES:

1. REFER 4005-30002-01 & 4005-30002-02 FOR GENERAL NOTES.
2. PRIOR TO THE CUTTING OF NEW SECTION OF PIPE THE NEW PIPE OD SHALL BE CHECKED TO CONFIRM OD IS WITHIN TOLERANCE AND THE PIPE IS SUITABLE FOR INSTALLATION. REFER TABLE 1.  
PIPE WITH A LARGER OD MAY BE CHAMFERED TO ACHIEVE REQUIRED OD. PIPE WITH A SMALLER OD SHALL BE REJECTED.
3. IF NEW BRANCH MAIN IS RESTRAINED JOINT DICTL REFER 4005-30005-04.  
IF NEW BRANCH MAIN IS PVC OR NON RESTRAINED JOINT DICTL, REFER 4005-30005-03.
4. WHERE THE EXISTING MAIN CANNOT BE SHUT DOWN TO ACHIEVE THE CUT IN, AN UNDER PRESSURE TAPPING SHALL BE PERFORMED. REFER 4005-30005-06.
5. WORK SHALL ONLY BE UNDERTAKEN UNDER THE DIRECTION OF A PERSON WHO HAS COMPLETED AN APPROVED DUCTILE IRON PIPE INSTALLATION TRAINING COURSE.
6. REFER 4005-30003-09 FOR RESTRAINED JOINT REQUIREMENTS IN LIEU OF THRUST/ANCHOR BLOCKS.
7. WHERE THE RESTRAINED JOINTING SYSTEM IS USED MARKING TAPE SHOWING 'RESTRAINED JOINT SYSTEM' SHALL BE USED.
8. ALL DIMENSIONS IN MILLIMETRES.

REVISION PANEL					DESIGN PANEL		SA WATER STANDARD DRAWINGS		A3		1
REV	DATE	DRN	DETAILS	APR	CURRENT REV	DESIGNED: 28/09/15	AUTHORISED: 31/03/16	WATER SUPPLY CONSTRUCTION MANUAL		SHT SIZE	REVISION
					AUTHORISED:	RJP	T.GALEK	EXISTING RESTRAINED JOINT DICTL MAIN		TOTAL SHEETS:	
					SIGNATURE:	DRAWN: 16/11/15	SIGNATURE:	NEW BRANCH MAIN		SUPERSEDES: 91-0059-04 (C9)	
						MS		RESTRAINED OR NON RESTRAINED		DRAWING NUMBER	
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		REVIEWED: 21/03/16	TG			4005-30005-05	
										PREFIX	SHEET



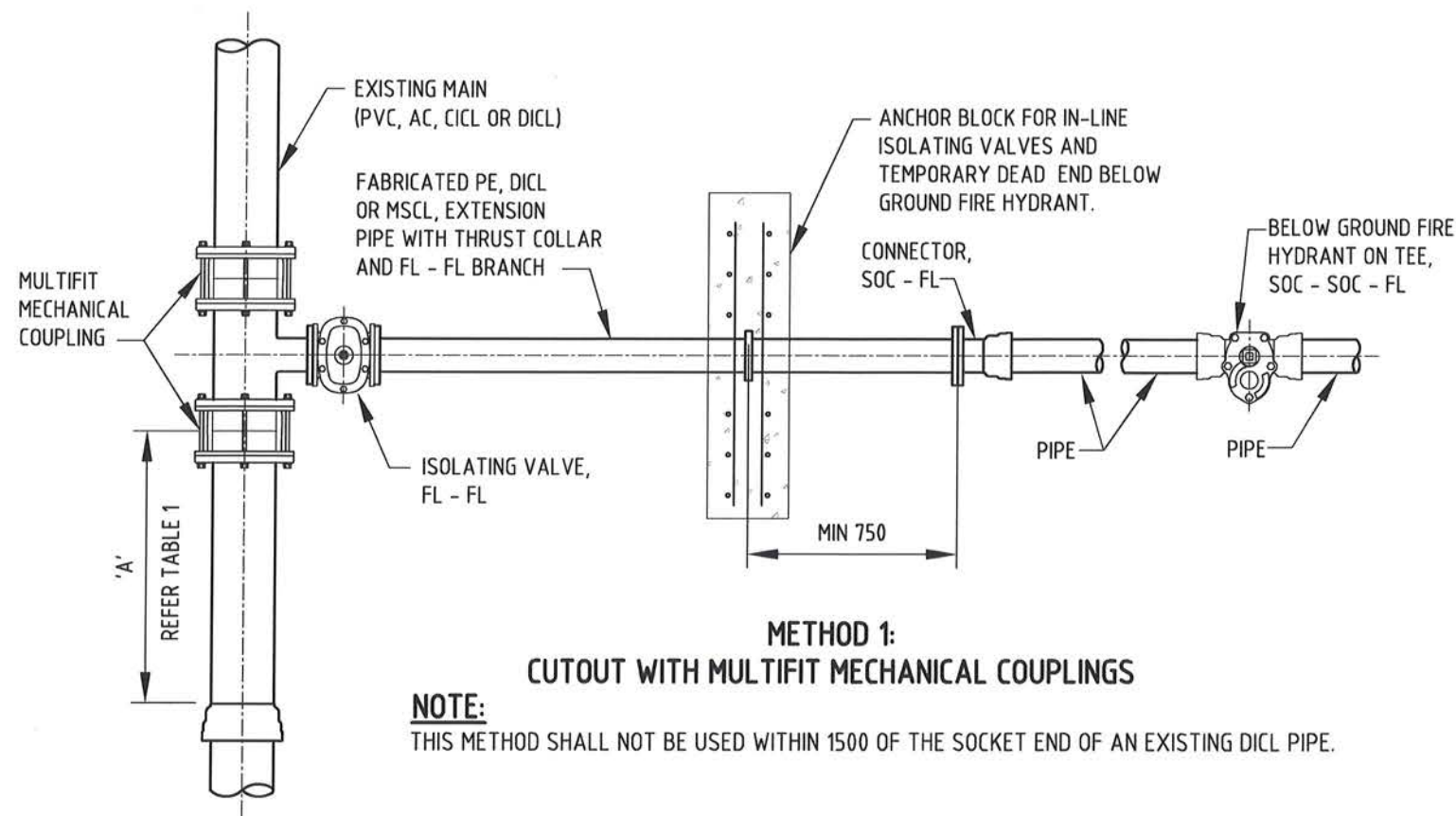
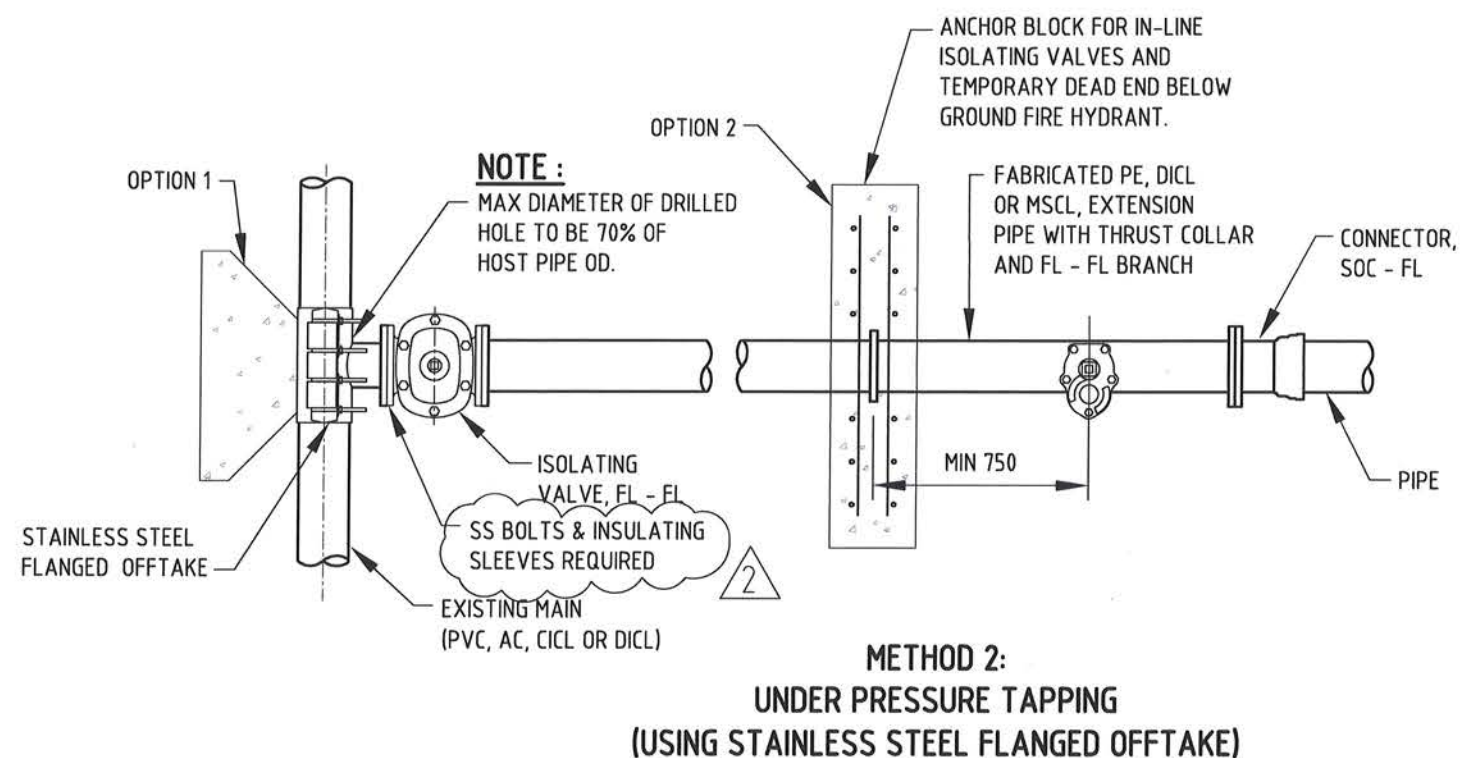


TABLE 1

PIPE	DIMENSION 'A'
PVC, AC OR CICL	1000
DICL	1500



**NOTES:**

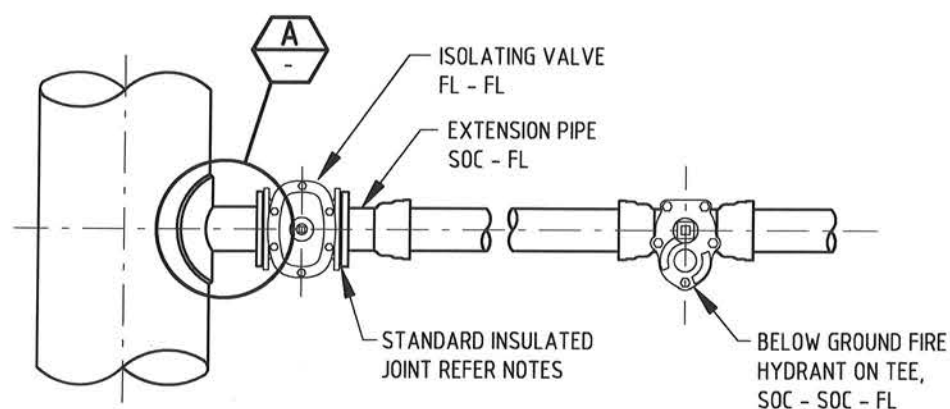
1. REFER 4005-30002-01 AND 4005-30002-02 FOR GENERAL NOTES.
2. IF EXISTING MAIN IS RESTRAINED JOINT DICL, **METHOD 1 SHALL NOT BE USED.** FOR 'CUT-IN' INTO RESTRAINED JOINT MAINS. REFER 4005-30005-05.
3. FOR METHOD 2 IF THE THE BRANCH OFFTAKE IS TO BE UNDERTAKEN AS A LIVE CONNECTION (UNDER PRESSURE TAPPING), THE WORK SHALL ONLY BE UNDERTAKEN BY AN AUTHORISED CONTRACTOR. **REFER AUTHORISED PRODUCTS FOR WATER SYSTEMS FOR CONTRACTORS APPROVED TO PERFORM THIS WORK.**
4. FOR METHOD 2, **LOCATION OF THRUST BLOCK SHALL BE EITHER OPTION 1 OR OPTION 2.**
5. PRIOR TO CONFIRMATION OF THE CONNECTING METHOD THE CONTRACTOR SHALL CONFIRM:
  - THE EXISTING MAIN PIPE MATERIAL,
  - PROXIMITY OF EXISTING PIPE SOCKET,
  - AVAILABILITY OF COUPLINGS.
6. IF BRANCH MAIN IS PVC OR NON RESTRAINED JOINT DICL, AN ANCHOR BLOCK (WITH EXTENSION PIPE AND THRUST COLLAR) IS REQUIRED.
7. IF BRANCH MAIN IS RESTRAINED JOINT DICL, AND THE NEW MAIN IS RESTRAINED JOINT DICL, AN ANCHOR BLOCK MAY NOT BE REQUIRED, SUBJECT TO CONFIRMATION OF THE PROXIMITY OF THE NEAREST SOCKET. IF SOCKET LOCATION CANNOT BE CONFIRMED, A THRUST BLOCK SHALL BE CONSTRUCTED. **REFER 4005-30003-09 FOR RESTRAINED JOINT REQUIREMENTS IN LIEU OF THRUST/ ANCHOR BLOCKS.**
8. TEE FOR FIRE HYDRANT MAY BE INCLUDED ON THE FABRICATED EXTENSION PIPE OR FURTHER ALONG THE MAIN.
9. REFER 4005-30005-01 FOR SLEEVING OF DICL PIPE.
10. REFER SECTION 3 FOR ANCHOR BLOCK INFORMATION.
11. ALL DIMENSIONS IN MILLIMETRES.

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
						RJP	T.GALEK	NEW BRANCH OFF EXISTING MAIN			TOTAL SHEETS:	
						DRAWN: 16/11/15	SIGNATURE:	CUT OUT WITH MECHANICAL COUPLINGS			SUPERSEDES: 91-0059-02 (C7)	
						MS		OR UNDER PRESSURE TAPPING			DRAWING NUMBER	
2	21/11/16	RJP	SS BOLTS & INSULATION ADDED FOR METHOD 2			REVIEWED: 21/03/16	ORIGINAL SIGNED				4005-30005-06	
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		TG					PREFIX	SHEET

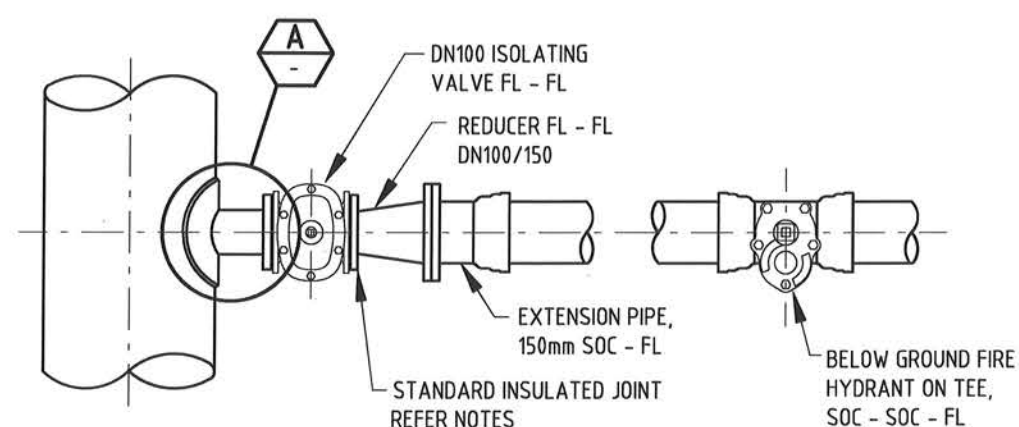
SA Water

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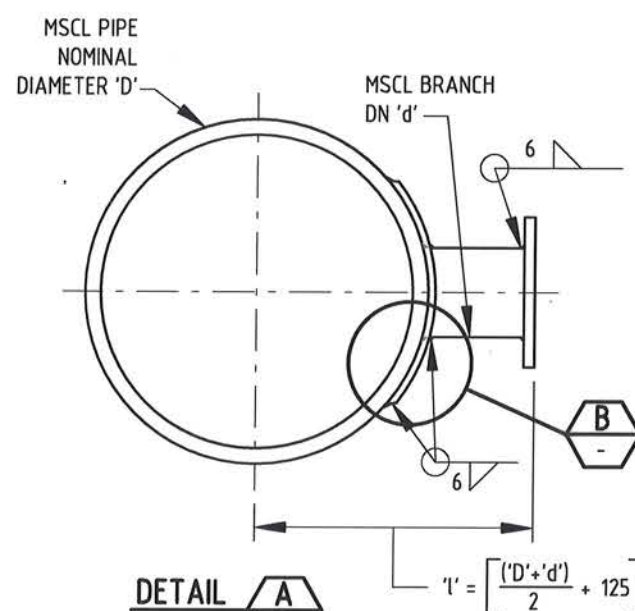




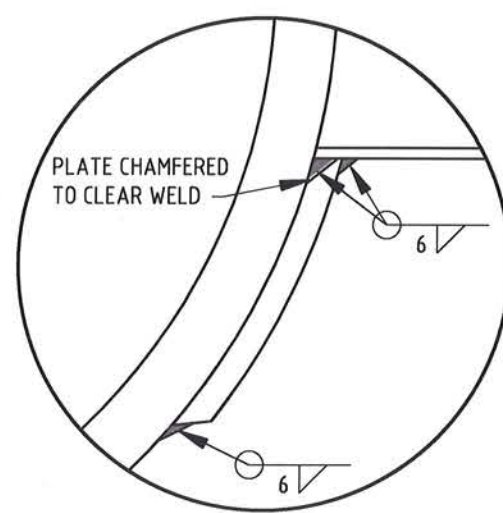
① ALL BRANCH SIZES EXCEPT DN150



② DN150 BRANCH ONLY



MSCL FLANGED OFFTAKE DETAIL  
END ELEVATION






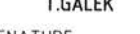
DETAIL WELDING

### MSCL FABRICATION/ INSTALLATION REQUIREMENTS:

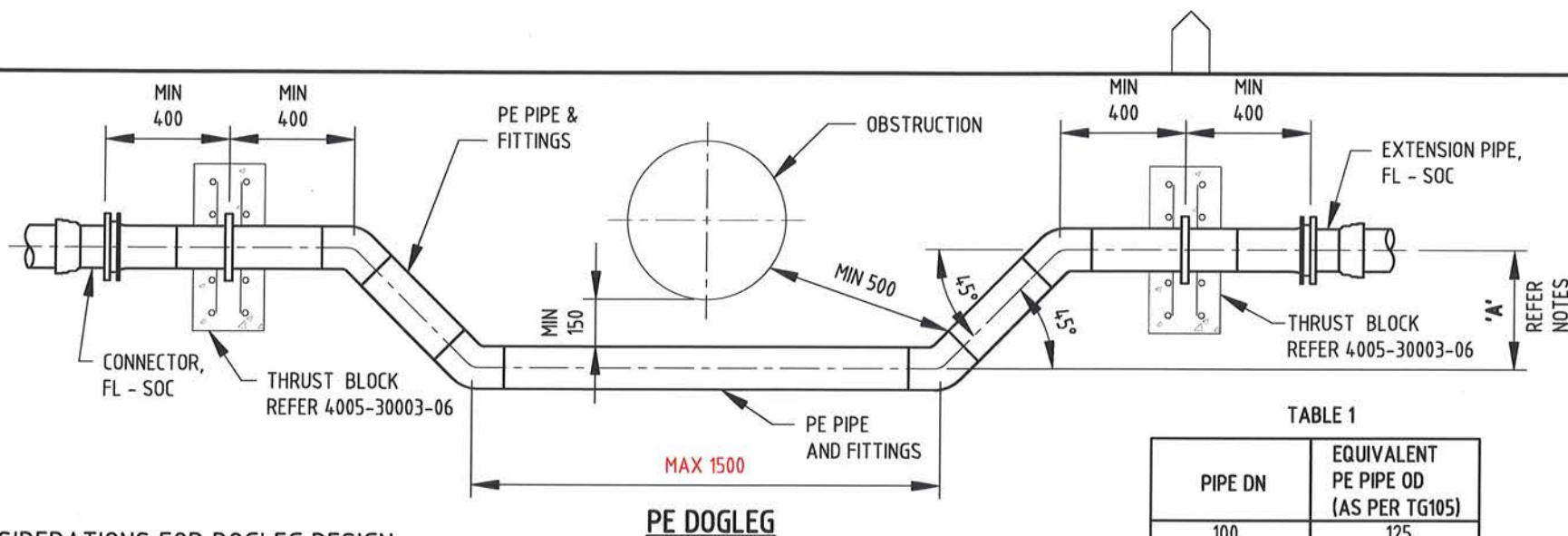
1. ALL WELDING SHALL BE IN ACCORDANCE WITH AS 4041, CLASS 2P.
2. FLANGES SHALL BE IN ACCORDANCE WITH AS 4087. DIMENSIONS FOR STEEL CLASS 16, FLAT FACED.
3. CLEAN EXISTING MAIN PIPE COATING FOR FULL PIPE CIRCUMFERENCE FOR 100 mm SURROUNDING OFFTAKE LOCATION.
4. CLEAN ENTIRE LENGTH OF BRANCH OFFTAKE.
5. ALL WELDING SLAG SHALL BE REMOVED.
6. FOR BURIED APPLICATIONS:
  - OFFTAKE SHALL BE PROTECTED WITH BITUMEN MASTIC TAPE SYSTEM IN ACCORDANCE WITH TS 18.
  - ADDITIONAL BITUMEN MASTIC TAPE SYSTEM SHALL BE EXTENDED AROUND FULL PIPE CIRCUMFERENCE, ADJACENT TO OFFTAKE, AND ONTO THE EXISTING COATING, IN ACCORDANCE WITH TS 18.

### NOTES:

1. REFER 4005-30002-01 & 4005-30002-02 FOR GENERAL NOTES.
2. A BRANCH **SHALL NOT BE INSTALLED WITHIN MIN 1000 mm OF THE SOCKET END OF A DN100 PIPE.** MSCL FLANGED OFFTAKES, DN100 & DN150, SHALL BE AN 'UNDER PRESSURE TAPPING' AND SHALL BE UNDERTAKEN BY AN AUTHORISED CONTRACTOR. **REFER AUTHORISED PRODUCTS FOR WATER SYSTEMS FOR CONTRACTORS APPROVED TO PERFORM THIS WORK.**
3. THRUST / ANCHOR BLOCKS ARE NOT REQUIRED.
4. THE CONSULTANT SHALL DETERMINE THE REINFORCING PLATE SIZE. CONFIRMATION OF PIPELINE PRESSURES SHALL BE SOUGHT FROM THE SA WATER REPRESENTATIVE TO ASSIST WITH THE CALCULATION.
5. ALL BELOW GROUND FLANGES FIRE HYDRANTS, ISOLATING VALVES AND TAPERS SHALL BE PROTECTED WITH PETROLATUM TAPE SYSTEM OR BITUMEN MASTIC TAPE SYSTEM IN ACCORDANCE WITH TS 18.
6. STANDARD INSULATED FLANGED JOINT SHALL BE INSTALLED WHERE INDICATED. REFER 04-0408-01 FOR DETAILS.
7. REFER SECTION 5 FOR DETAILS ON PIPE CONSTRUCTION FOR THE BRANCH MAIN.
8. REFER SECTION 3 FOR THRUST PROTECTION FOR THE BRANCH MAIN.

REVISION PANEL					DESIGN PANEL			 		SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL LAYING DETAILS FOR BRANCHES OFF EXISTING MSCL MAIN			A3 SHT SIZE	1 REVISION	
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:  SIGNATURE:	DESIGNED: 28/09/15 RJP	AUTHORISED: 31/03/16 T.GALEK	<div> 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.</div>	TOTAL SHEETS: SUPERSEDES: 91-0059-03 (C8) DRAWING NUMBER 4005-30005-07 PREFIX                      NUMBER                      SHEET						
				DRAWN: 16/11/15 MS		SIGNATURE: 									
				REVIEWED: 21/03/16 TG											
1	31/03/16	MS	2016 STANDARDS REVIEW	TG											





PIPE DN	EQUIVALENT PE PIPE OD (AS PER TG105)	OPTION 1 > 6m LENGTH (FROM FLANGE - FLANGE) REDUCER REQUIRED	OPTION 2 UP TO MAX 6m LENGTH (FROM FLANGE - FLANGE) SMALLER OD APPROVED
200	250	250-225	225
250	315	315-280	280

#### CONSIDERATIONS FOR DOGLEG DESIGN:

- LENGTH AND DEPTH: THE PRIMARY CONSIDERATION FOR ANY DOGLEG SHALL BE THE MINIMISATION OF LENGTH & DEPTH.
- POSITIONING OF BRANCH MAINS & FITTINGS: THE LOWER SECTION OF THE DOGLEG SHALL BE A CONTINUOUS ITEM. THE POSITIONING OF BRANCHES, VALVES AND PROPERTY CONNECTIONS IS NOT PERMITTED. APPROVAL SHALL BE OBTAINED FROM THE SA WATER REPRESENTATIVE FOR DEVIATION FROM THIS REQUIREMENT.
- VERTICAL CLEARANCE TO OBSTRUCTION: REFER WSA03 2011 TABLE 5.5 FOR MINIMUM CLEARANCE REQUIREMENTS.
- THE USE OF A SMALL DOGLEG (RATHER THAN VERTICAL DEFLECTION OF PIPES) IS NOT A GIVEN. SA WATER HAS THE AUTHORITY TO NOT APPROVE THE USE OF A DOGLEG IN SUCH INSTANCES. FOR MINOR VERTICAL CHANGES CONFIRMATION OF REQUIREMENTS SHALL BE SOUGHT FROM THE SA WATER REPRESENTATIVE.

#### STANDARD / NON STANDARD DOGLEG:

- A DOGLEG IS CONSIDERED STANDARD IF IT IN ACCORDANCE WITH THIS DRAWING. REQUIREMENTS ARE:
  - THE LOWER LENGTH BEING A MAXIMUM 1500,
  - THE VERTICAL CHANGE BEING EITHER 500 OR 1000. THE PREFERRED VERTICAL CHANGE (DIMENSION 'A') IS 500. THE 1000 OPTION MAY BE UTILISED WHERE THE OBSTRUCTION SIZE OR TYPE JUSTIFIES ITS USE, AND,
  - THERE IS ONLY ONE OBSTRUCTION.
- A DOGLEG IS CONSIDERED NON STANDARD IF IT:
  - INVOLVES MULTIPLE OBSTRUCTIONS,
  - IS UNUSUALLY DEEP, OR, IS EXCESSIVELY LONG.
  - IS OVER THE TOP OF AN OBSTRUCTION. THIS REQUIRES APPROVAL BY THE SA WATER REPRESENTATIVE.
 FOR THIS OPTION, AN AUTHORISED AIR RELEASE MECHANISM SHALL BE INSTALLED. THE VALVE FLANGE & BOLTS SHALL BE WRAPPED IN ACCORDANCE WITH TS 18.

#### DESIGN DRAWINGS:

- 'NON STANDARD' DOGLEGS SHALL BE DETAILED ON THE DESIGN DRAWINGS. SUFFICIENT DETAIL SHALL BE PROVIDED TO ALLOW PROPER ASSESSMENT. THIS REQUIRES THE INCLUSION OF A SECTION AND/ OR ENLARGEMENT ON THE DESIGN DRAWING. ALL OBSTRUCTIONS SHALL BE LABELLED, EG 375 SWD, TOGETHER WITH THE WATER MAIN CHAINAGE, THE DESIGNED CLEARANCE BETWEEN THE WATER MAIN AND THE OBSTRUCTION. INDICATIVE DIMENSIONS ARE UNACCEPTABLE.
- WHERE A DOGLEG IS IN ACCORDANCE WITH THIS DRAWING (WITH STANDARD CLEARANCES), A NOTE PLACED ON THE DESIGN DRAWING IS SUFFICIENT. THE NOTE SHALL IDENTIFY THE CHAINAGE FOR THE DOGLEG TOGETHER WITH THE TYPE OF CONFLICTING SERVICE, AND THE DESIGNED CLEARANCE.

TABLE 1

PIPE DN	EQUIVALENT PE PIPE OD (AS PER TG105)
100	125
150	180
200	250
250	315

#### PE DOGLEGS:

- PE PIPE FOR USE AS A DOGLEG SHALL BE PERMITTED FOR DIAMETERS UP TO AND INCLUDING DN250. LARGER DIAMETER DOGLEGS SHALL BE CONSTRUCTED USING OTHER APPROVED PIPE MATERIAL.
- FOR DN200 & DN250 DIAMETERS, THE PE OD EQUIVALENT MAY REQUIRE A REDUCER TO MATCH THE FLANGE OF THE ADJOINING PVC OR DCL PIPE. DETERMINATION IS DEPENDENT UPON THE LENGTH OF THE DOGLEG (6 METRES). REFER TABLE 2 ABOVE.
  - FOR LENGTHS GREATER THAN 6 METRES A REDUCER WILL BE REQUIRED.
  - FOR LENGTHS UP TO 6 METRES, AN ALTERNATIVE SMALLER OD IS APPROVED.

#### FABRICATION OF PE SPECIALS & DELIVERABLES:

- APPROVED FABRICATION METHODS:
  - BUTT WELD (FACTORY MANUFACTURE)
  - OR
  - ELECTROFUSION COUPLINGS.
- FABRICATION SHALL ONLY BE UNDERTAKEN BY QUALIFIED PE WELDERS. BUTT WELDING OF PE SPECIALS MAY ONLY BE UNDERTAKEN BY AN AUTHORISED MANUFACTURER LISTED IN THE AUTHORISED PRODUCTS FOR WATER SYSTEMS.
- THE FABRICATION COMPANY SHALL PROVIDE A FORM:
  - IDENTIFYING EVERY WELD, WITH THE DATE OF THE WELD AND NAME AND ID OF THE EMPLOYEE WHO UNDERTOOK THE WELD.
  - DETAILING THE MATERIALS USED, IE ITEM MANUFACTURER & DESCRIPTION.
  - THE TECHNICIAN WHO UNDERTOOK THE WELD. EACH WELD SHALL BE STAMPED WITH THE WELDER ID.
- AN AUTHORISED OFFICER OF THE FABRICATION COMPANY SHALL SIGN THE FORM.
- A COPY OF THE FABRICATION COMPANY'S FORM SHALL BE PROVIDED TO THE CONSTRUCTION CONTRACTOR WHO SHALL INITIAL THE FORM AND PROVIDE A COPY TO THE SA WATER REPRESENTATIVE.

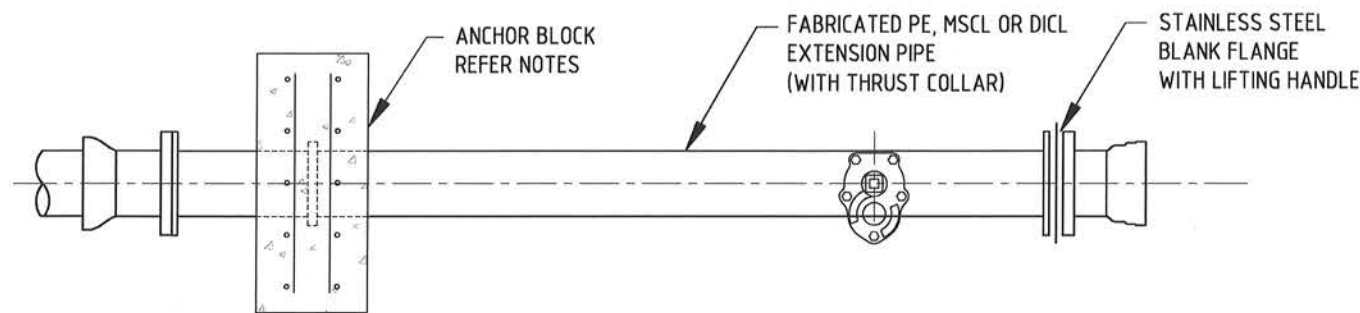
1. FOR GENERAL NOTES REFER 4005-30002-01 & 4005-30002-02.
2. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

REVISION PANEL				DESIGN PANEL		 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.	SA WATER STANDARD DRAWINGS		A3	1
REV	DATE	DRN	DETAILS	APR	CURRENT REV		DESIGNED: 28/09/15	AUTHORISED: 31/03/16		
					AUTHORISED:	RJP	T.GALEK			
					SIGNATURE:	MS	T. Galek			
						REVIEWED: 21/03/16	TG			
1	31/03/16	MS	2016 STANDARDS REVIEW	TG						
								DOGLEG CONSIDERATIONS & STANDARD PE DOGLEG		
								TOTAL SHEETS: SUPERSEDES: 91-0060-02 (C13) DRAWING NUMBER 4005-30005-08 PREFIX NUMBER SHEET		

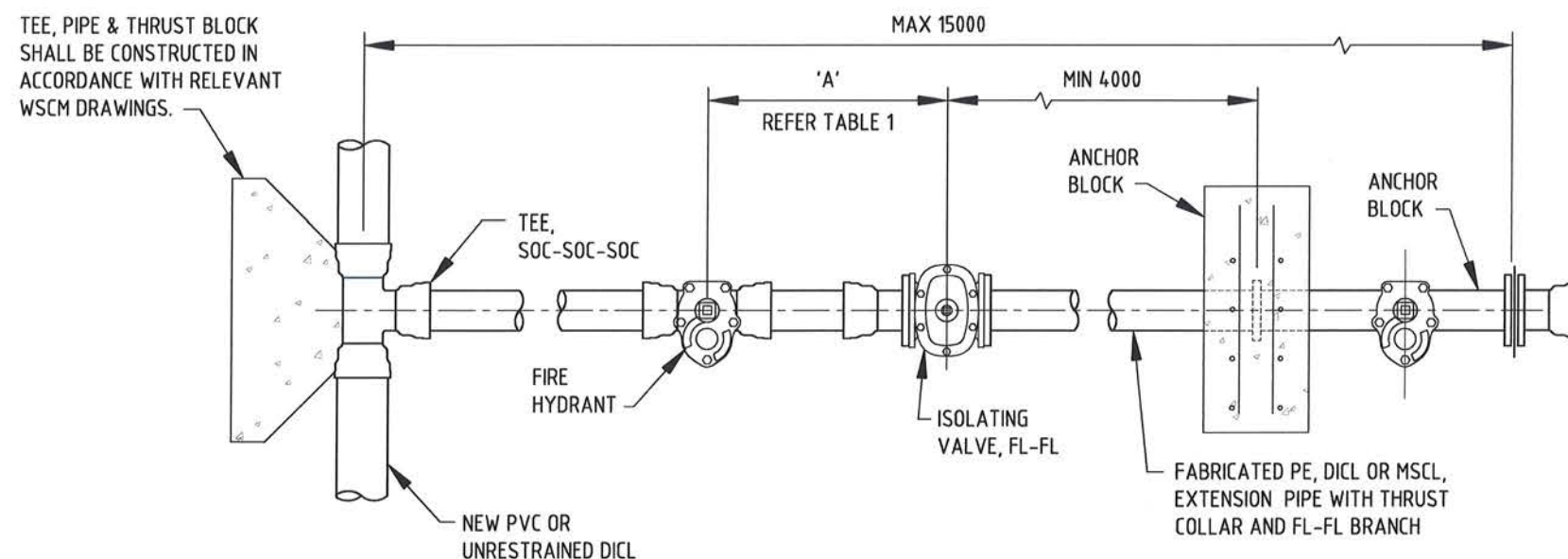








**TEMPORARY END FIRE HYDRANT  
DN100 TO DN375 MAINS**  
USING AUTHORISED FABRICATED EXTENSION PIPE



**TABLE 1**

DN	'A'
100	1200
>100	2000

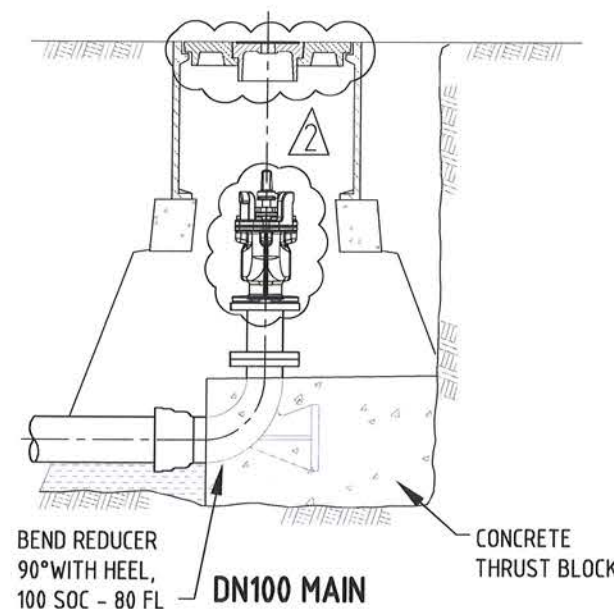
**NOTES:**

1. REFER 4005-30002-01 AND 4005-30002-02 FOR GENERAL NOTES.
2. HYDRANT SHALL BE INSTALLED WITH CUP FACE TO ROAD CENTRE.
3. BELOW GROUND FIRE HYDRANT SHALL BE PROTECTED WITH PETROLATUM TAPE SYSTEM OR BITUMEN MASTIC TAPE SYSTEM IN ACCORDANCE WITH TS 18.
4. REFER 4005-30003-07 FOR THRUST BLOCK DETAILS.
5. REFER 4005-30007-01 FOR CAST IRON STREET BOX INSTALLATION.
6. REFER 4005-30007-03 FOR PLACEMENT OF RRPMS.
7. REFER 4005-30007-04 FOR MARKER POST DETAILS.
8. ALL DIMENSIONS IN MILLIMETRES.

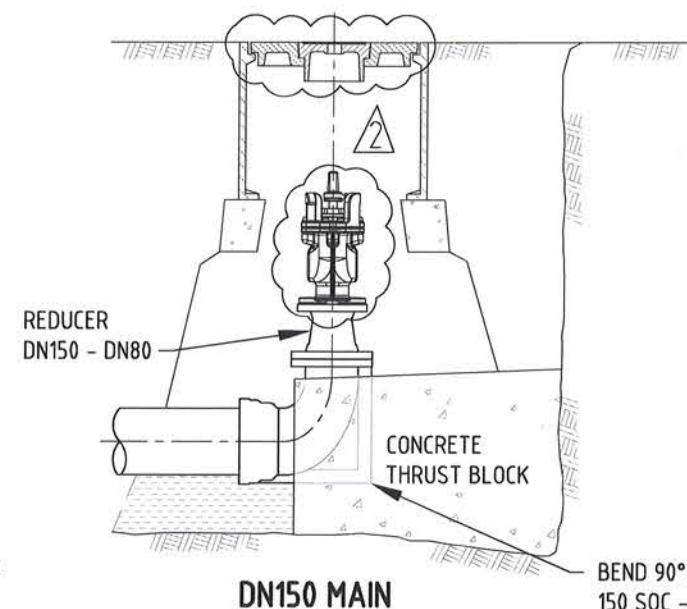
**TEMPORARY END FIRE HYDRANT  
WITHIN 15m OF BRANCH**

REVISION PANEL					DESIGN PANEL		 SA WATER STANDARD DRAWINGS WATER SUPPLY CONSTRUCTION MANUAL TEMPORARY END FIRE HYDRANTS	A3 SHT SIZE	1 REVISION
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 28/09/15 RJP DRAWN: 16/11/16 MS REVIEWED: 21/03/16 TG			
					SIGNATURE:	T. GALEK SIGNATURE: <i>T. Galek</i>	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: SUPERSEDES: 91-0068-04 (F4) DRAWING NUMBER <b>4005-30005-10</b> PREFIX NUMBER SHEET	
1	31/03/16	MS	2016 STANDARDS REVIEW	TG					

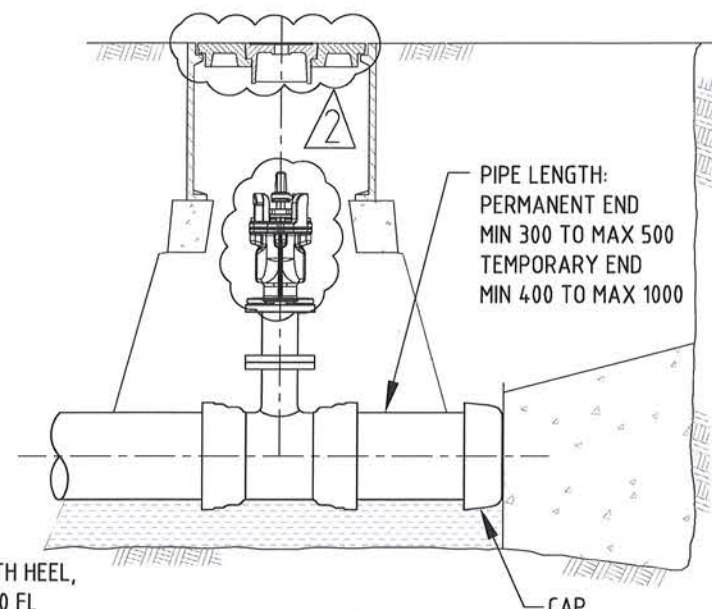




**PERMANENT END FIRE HYDRANTS**  
USED WHERE NO FUTURE EXTENSION IS REQUIRED  
(DEAD END STREETS ETC.).

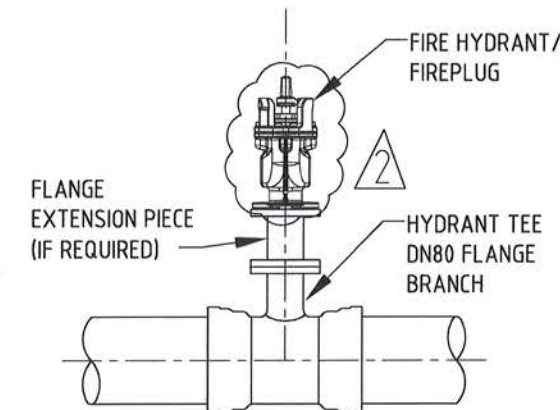


BEND 90° WITH HEEL,  
150 SOC - 150 FL



**DN200 TO DN375 MAINS  
USING CAP**

IN CERTAIN CIRCUMSTANCES MAY BE UTILISED AS TEMPORARY END.  
APPROVAL SHALL BE SOUGHT FROM THE SA WATER REPRESENTATIVE.



**INTERMEDIATE FIRE HYDRANT  
DN100 TO DN375 MAINS**

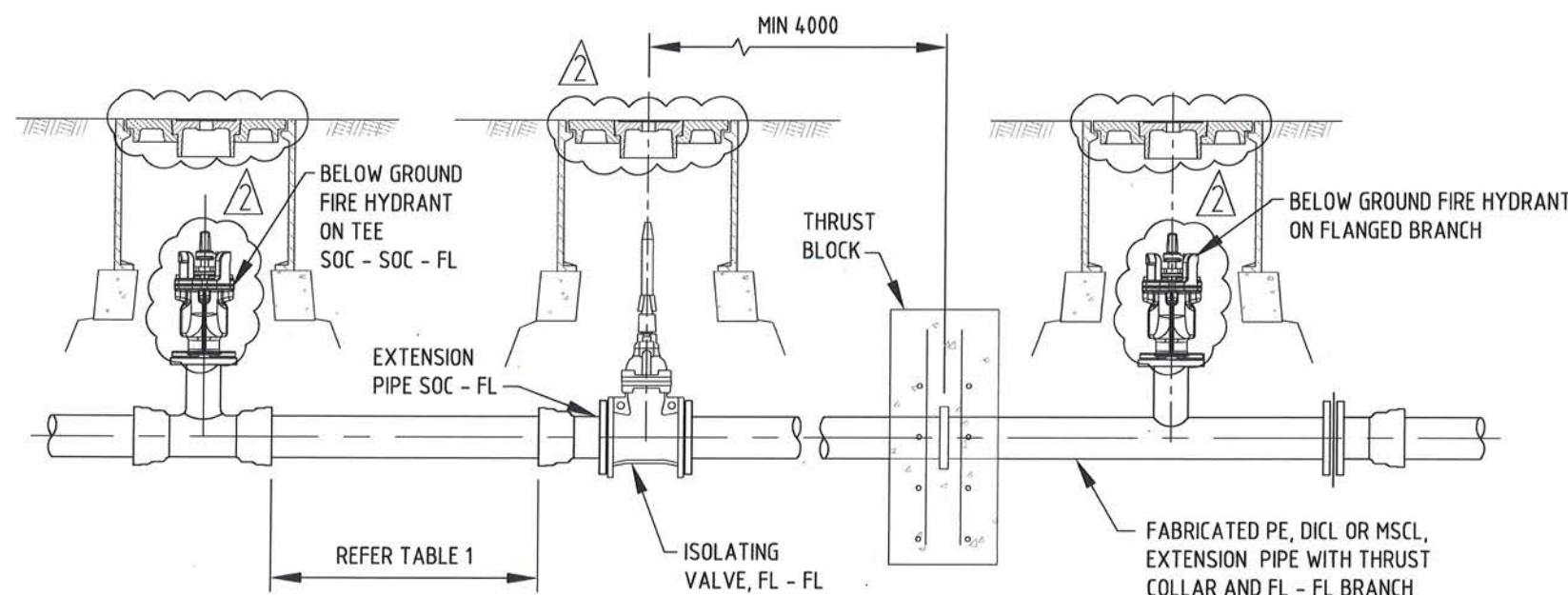
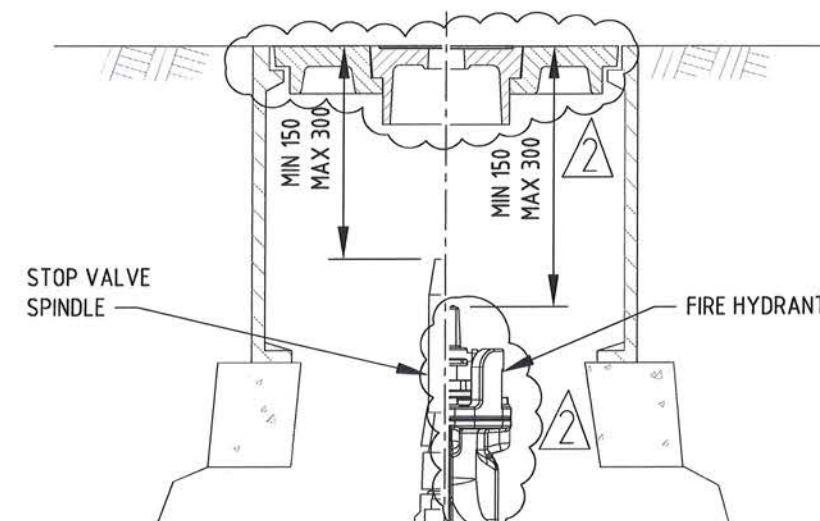


TABLE 1

DN	'A'
100	1200
>100	2000

**ELEVATION  
BELOW GROUND ISOLATING VALVE  
AND FIRE HYDRANT SET**



**SETTING DETAIL FOR SPINDLE HEIGHT  
RELATIVE TO FINISHED LEVEL**

**NOTES:**

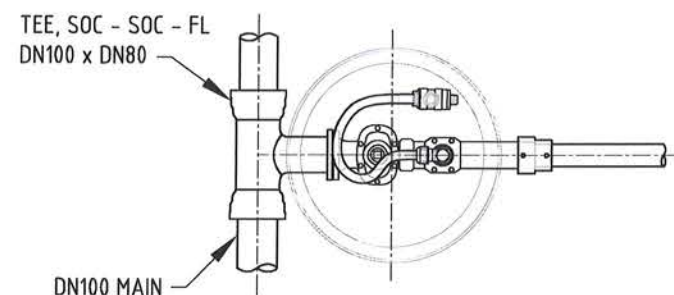
1. REFER 4005-30002-01 AND 4005-30002-02 FOR GENERAL NOTES.
2. HYDRANT SHALL BE INSTALLED WITH CUP FACE TO ROAD CENTRE.
3. BELOW GROUND FIRE HYDRANT SHALL BE PROTECTED WITH PETROLATUM TAPE SYSTEM OR BITUMEN MASTIC TAPE SYSTEM IN ACCORDANCE WITH TS 18.
4. REFER 4005-30003-07 FOR THRUST BLOCK DETAILS.
5. REFER 4005-30007-01 FOR CAST IRON STREET BOX INSTALLATION.
6. REFER 4005-30007-03 FOR PLACEMENT OF RRPMS.
7. REFER 4005-30007-04 FOR MARKER POST DETAILS.

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
						RJP	T. GALEK	FIRE HYDRANTS			TOTAL SHEETS:	
						MS	SIGNATURE:	PERMANENT INSTALLATION			SUPERSEDES: F5, B17	
2	08/11/16	RJP	FP IMAGE CHANGED. LID CHANGED TO TWO PIECE.			MS					DRAWING NUMBER	
1	31/03/16	MS	2016 STANDARDS REVIEW			TG	ORIGINAL SIGNED				4005-30005-11	
											PREFIX	SHEET

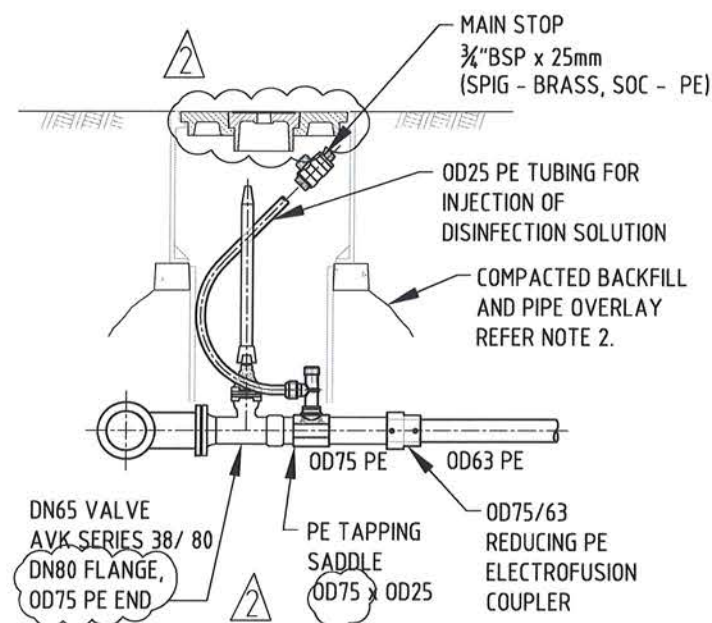


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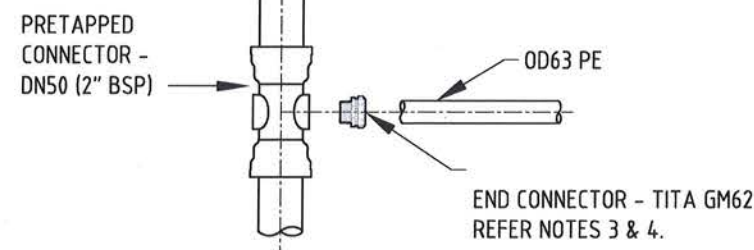
PLAN



ELEVATION

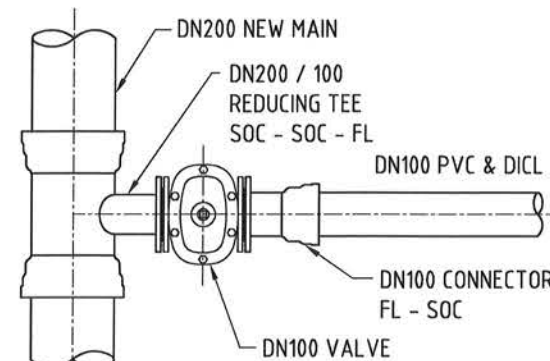
**DN80 BRANCH OFFTAKE  
(REDUCING TO OD63 PE MAIN)**

NOTE: REQUIRES AN ADJACENT FIRE HYDRANT

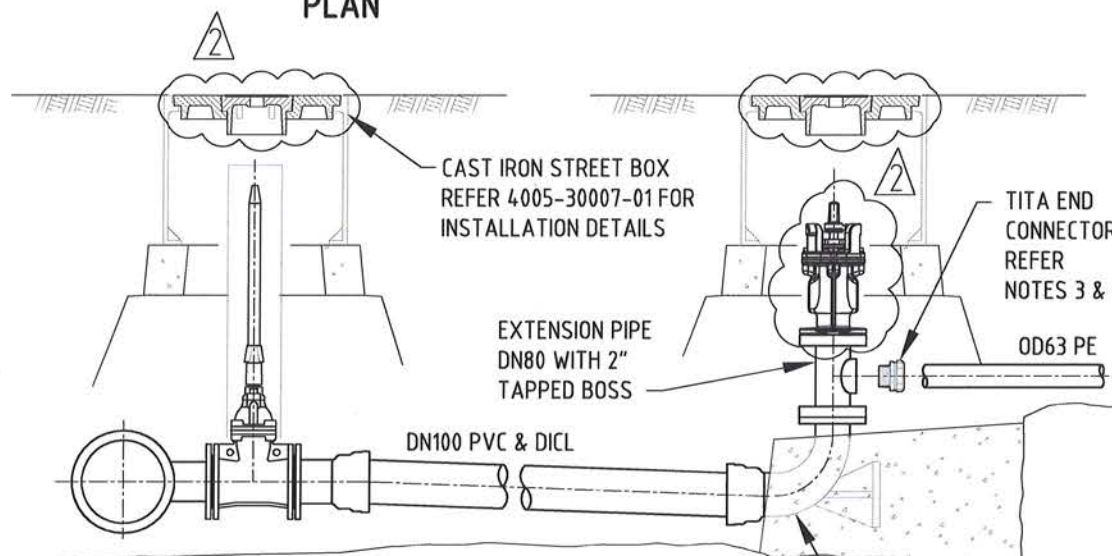


**DN100 OR DN150 BRANCH OFFTAKE  
UTILISING PRETAPPED CONNECTOR**

NOTE: REQUIRES AN ADJACENT FIRE HYDRANT



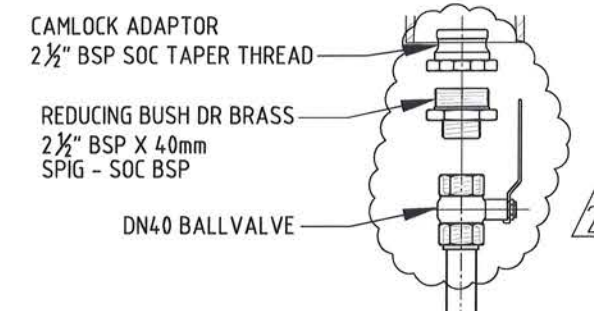
PLAN



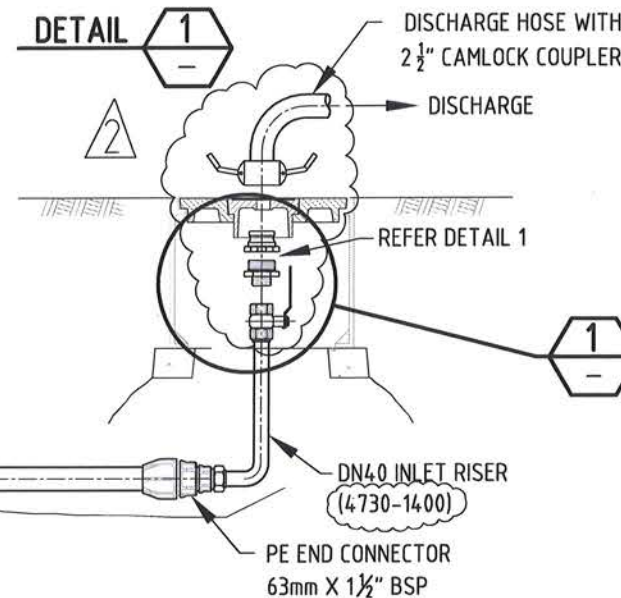
ELEVATION

**DN100 BRANCH OFFTAKE  
FROM DN200 & LARGER MAINS.  
(REDUCING TO OD63 PE MAIN)**

NOTE: REQUIRES AN ADJACENT FIRE HYDRANT



DETAIL 1




**END OF LINE AIR BLEED / FLUSHING PIT**

PIPEWORK TO BE PLACED CENTRALLY IN  
STREET BOX CHAMBER

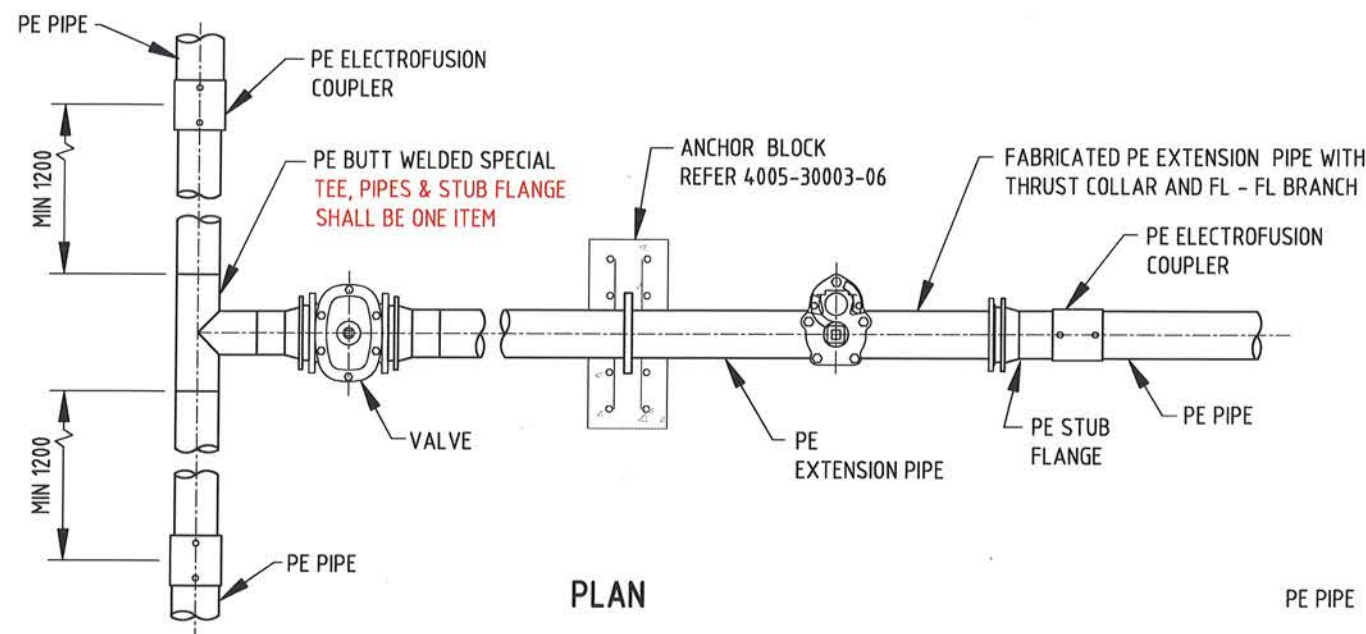
**NOTES:**

1. REFER 4005-30002-01 AND 4005-30002-02 FOR GENERAL NOTES.
2. REFER 4005-30005-11 FOR OD63 WATER MAIN & WATER CONNECTIONS DETAIL.
3. THE TITA BRASS END CONNECTOR SHALL BE BRASS FITTED WITH BLUE THIMBLE AND BLUE SEALING RING - PE100 PN16
4. INSTALLATION OF THE TITA BRASS END CONNECTOR
  - CUT PE PIPE AND PLACE NUT AND BLUE SEALING RING ON PIPE
  - INSERT CORRECT THIMBLE INTO PIPE
  - FULLY HOME THIMBLE USING A PIECE OF WOOD OR A SOFT FACED Mallet
  - START NUT ON THREAD AND TIGHTEN WITH C-SPANNER OR SIMILAR. (DO NOT APPLY UNDUE FORCE AS PIPE WILL DISTORT).
  - AFTER 5 MINUTES RE-TIGHTEN NUT.

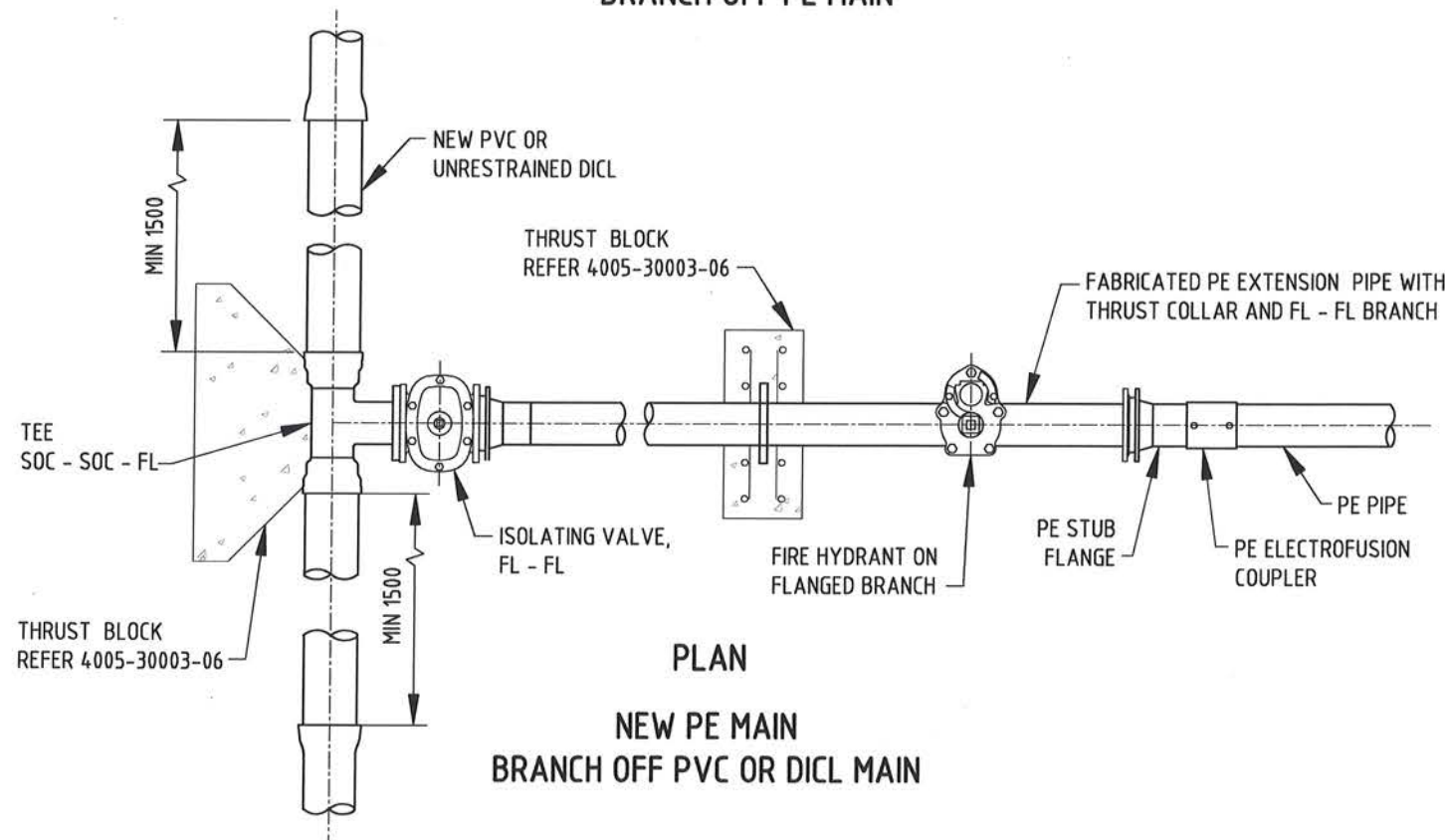
(SEALING RING MAY EXTRUDE OUT BETWEEN PIPE & NUT. THIS IS ACCEPTABLE).
5. MAXIMUM DISTANCE BETWEEN ANY ALLOTMENT AND NEAREST FIRE HYDRANT SHALL BE 80 m.
6. MAXIMUM NUMBER OF WATER CONNECTIONS FROM A OD63 MAIN IS 10.

REVISION PANEL					DESIGN PANEL			<div><p>SA Water</p><p>Government of South Australia</p></div> <div><p>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.</p></div>	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		NEW OD63 POLYETHYLENE (PE) MAIN			TOTAL SHEETS:			
					SIGNATURE: T. Galek	DRAWN: 16/11/15	SIGNATURE:		BRANCH OFF PVC OR DICL PIPE			SUPERSEDES: 96-0085-02 (C15)			
2	20/11/16	PC	AIR BLEED VALVE; DN50 VALVE; LID CHANGED			MS	ORIGINAL SIGNED		INSTALLATION OPTIONS			DRAWING NUMBER			
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		TG					4005-30005-12				
												PREFIX	NUMBER	SHEET	

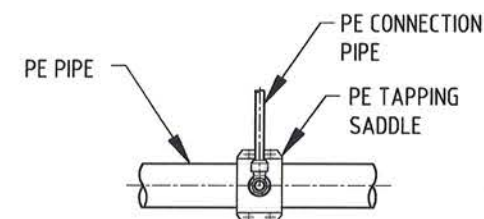




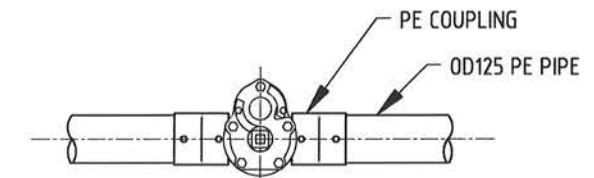
PLAN  
NEW PE MAIN  
BRANCH OFF PE MAIN



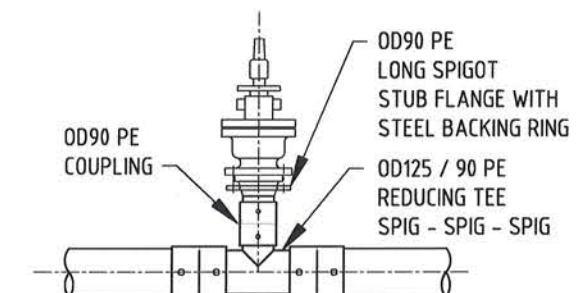
PLAN  
NEW PE MAIN  
BRANCH OFF PVC OR DI CL MAIN



PLAN  
WATER CONNECTION  
(PE TAPPING SADDLE & PIPE  
REFER 4005-30006-03)



PLAN



ELEVATION

INTERMEDIATE FIRE HYDRANT  
(REFER 4005-30005-11)

#### NOTES:

1. REFER 4005-30002-01 AND 4005-30002-02 FOR GENERAL NOTES.
2. FOR APPROVED EQUIVALENT PE PIPE SIZING REFER TG105.
3. BUTT WELDING OF PE SPECIALS MAY ONLY BE UNDERTAKEN BY AN AUTHORISED MANUFACTURER LISTED IN THE AUTHORISED ITEMS FOR WATER INFRASTRUCTURE. REFER 4005-30005-08 FOR FABRICATION REQUIREMENTS AND DELIVERABLES.
4. REFER 4005-30002-02 FOR SPECIFIC REQUIREMENTS FOR PE:
  - ALL PE WELDING SHALL ONLY BE UNDERTAKEN BY QUALIFIED WELDERS.
  - INSTALLATION DURING HIGH TEMPERATURE.

REVISION PANEL					DESIGN PANEL		SA Water		SA WATER STANDARD DRAWINGS		A3	1
REV	DATE	DRN	DETAILS	APR	CURRENT REV	AUTHORISED:	DESIGNED:	AUTHORISED:	WATER SUPPLY CONSTRUCTION MANUAL		SHT SIZE	REVISION
							RJP	T.GALEK	NEW POLYETHYLENE (PE) WATER MAIN			
							DRAWN: 16/11/15	SIGNATURE:	OPTIONS FOR INSTALLATION			
							MS		OD125 OR LARGER			
							REVIEWED: 21/03/16					
							TG					
1	31/03/16	MS	2016 STANDARDS REVIEW	TG								

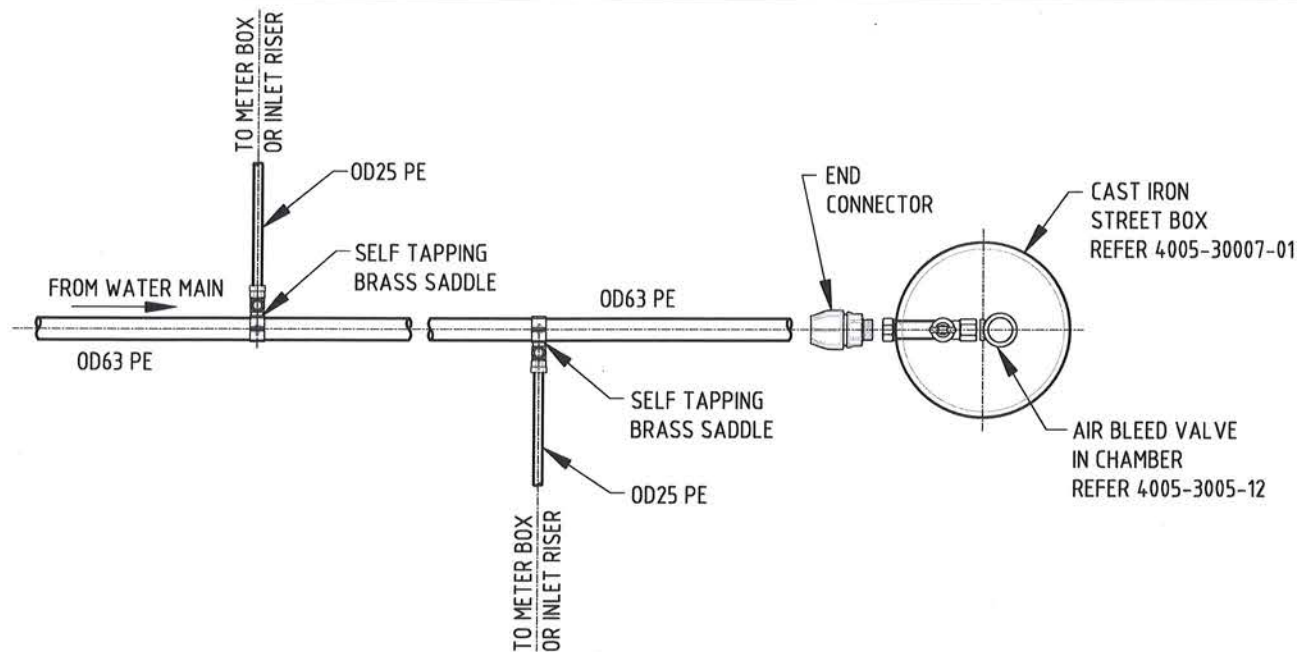


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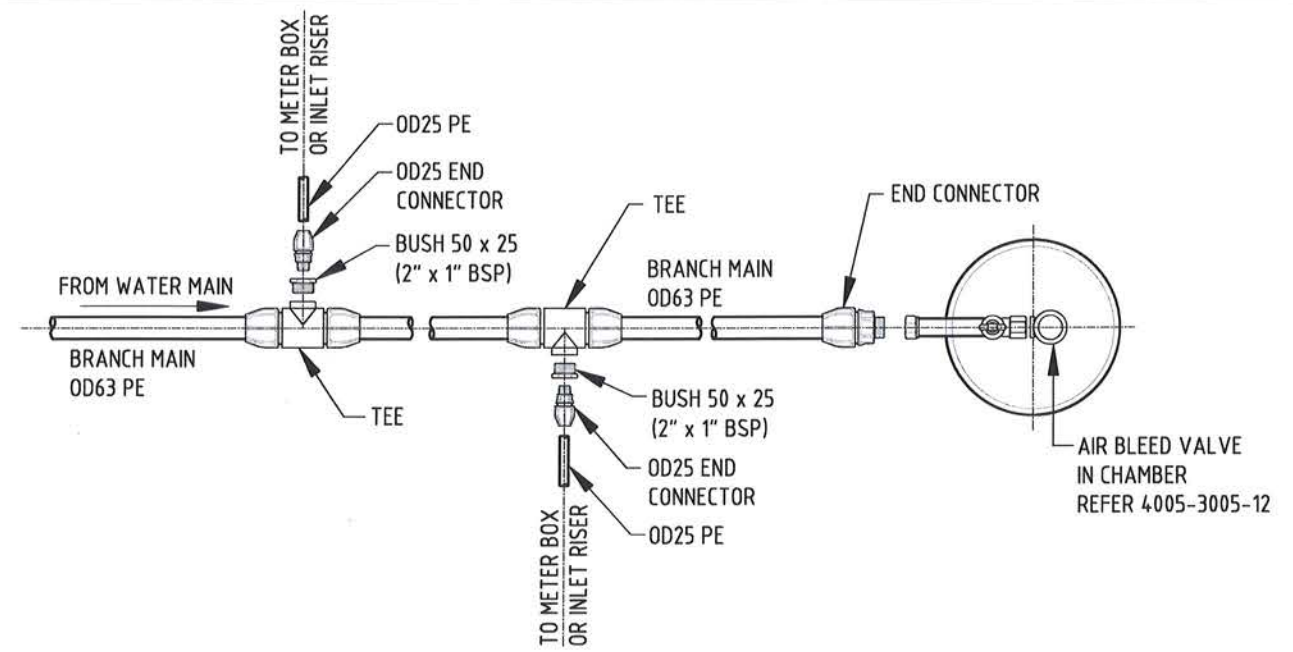
SA WATER STANDARD DRAWINGS  
WATER SUPPLY CONSTRUCTION MANUAL  
NEW POLYETHYLENE (PE) WATER MAIN  
OPTIONS FOR INSTALLATION  
OD125 OR LARGER

TOTAL SHEETS:  
SUPERSEDES:  
DRAWING NUMBER  
4005-30005-13  
PREFIX NUMBER SHEET

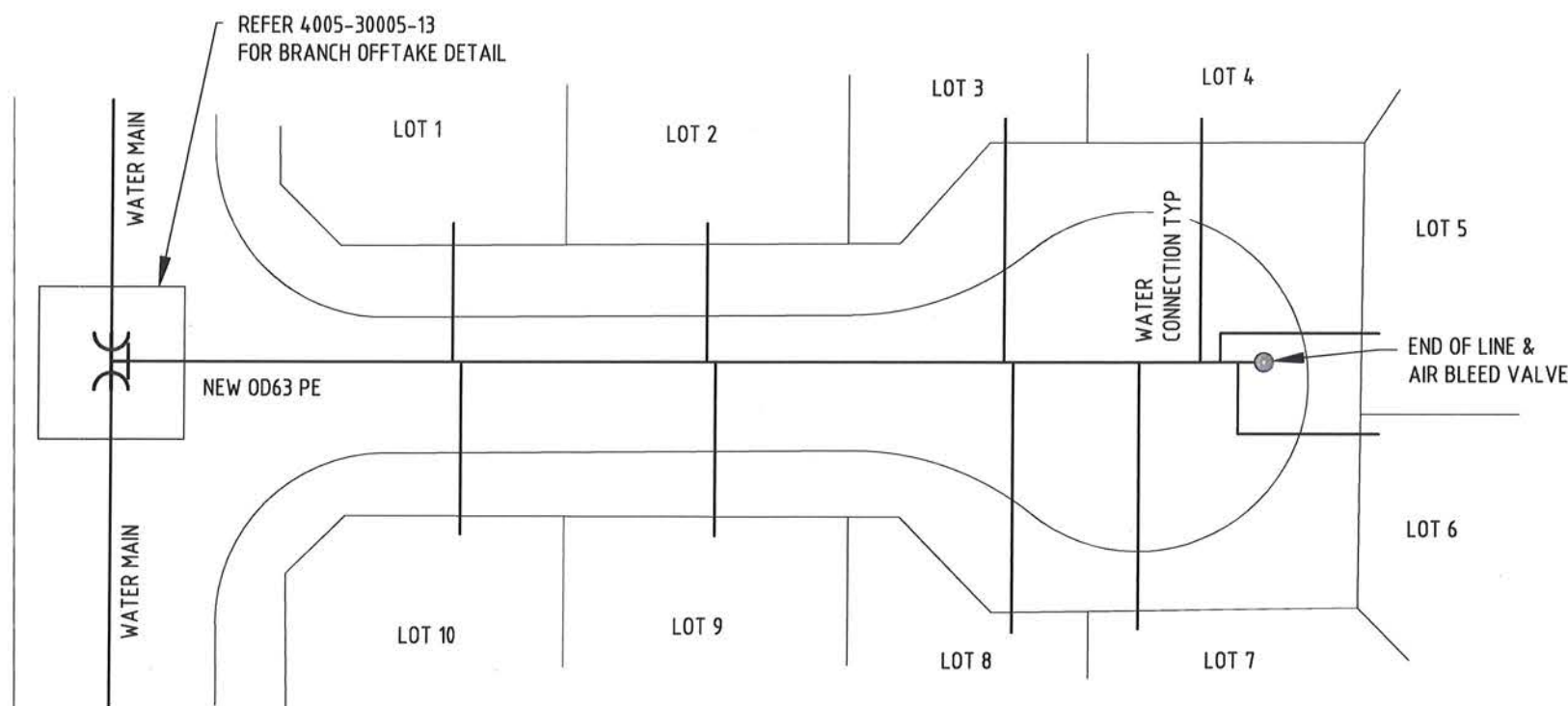




**WATER CONNECTION  
SELF TAPPING SADDLE OPTION**





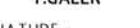
**WATER CONNECTION  
MECHANICAL COUPLING OPTION**



**OD63 PE MAIN  
TYPICAL LAYOUT**

**NOTES:**

1. REFER 4005-30002-01 AND 4005-30002-02 FOR GENERAL NOTES.
2. MAXIMUM DISTANCE BETWEEN ANY ALLOTMENT AND NEAREST FIRE HYDRANT SHALL BE 80 METRES.
3. MAXIMUM LENGTH OF OD25 TUBING IS 25 METRES.
4. MAXIMUM NUMBER OF WATER CONNECTIONS FROM A OD63 PE MAIN IS 10.
5. REFER SECTION 3 FOR COMPACTED PIPE BEDDING AND BACKFILL.
6. REFER 4005-30006-01 FOR WATER CONNECTIONS TYPICAL LAYOUT.
7. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

REVISION PANEL					DESIGN PANEL		<div><div>SA Water</div></div>		SA WATER STANDARD DRAWINGS		A3	1
REV	DATE	DRN	DETAILS	APR	CURRENT REV	DESIGNED: 28/09/15	AUTHORISED: 31/03/16	<div><div>Government of South Australia</div></div> <div>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.</div>	WATER SUPPLY CONSTRUCTION MANUAL		SHT SIZE	REVISION
						RJP	T.GALEK		OD63 POLYETHYLENE (PE) MAIN BRANCH		TOTAL SHEETS:	
						DRAWN: 16/11/16	SIGNATURE:		CONNECTION DETAILS		SUPERSEDES: C14, C16	
						MS					DRAWING NUMBER	
						REVIEWED: 21/03/16	TG				4005-30005-14	
1	31/03/16	MS	2016 STANDARDS REVIEW	TG						PREFIX	NUMBER	SHEET



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4005-30005-14	1
PREFIX	REVISION
NUMBER	
SHEET	