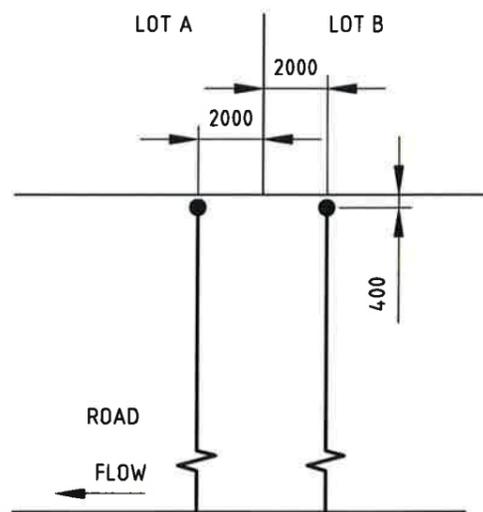
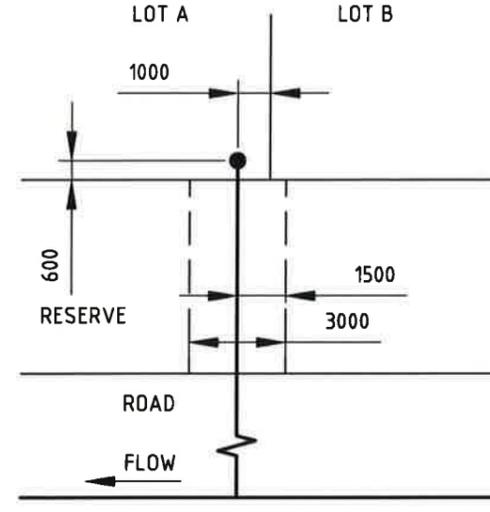


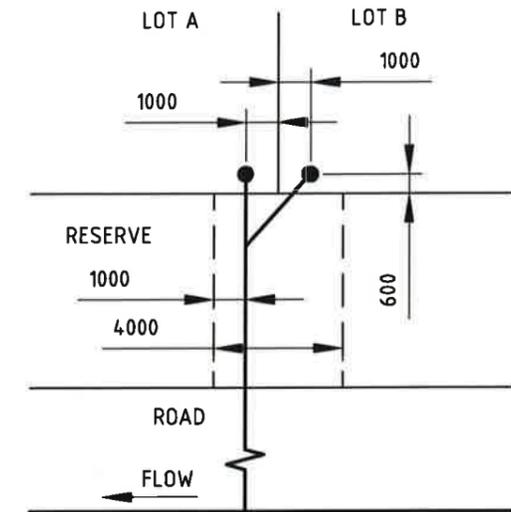
STANDARD CONNECTION IN ROADWAY



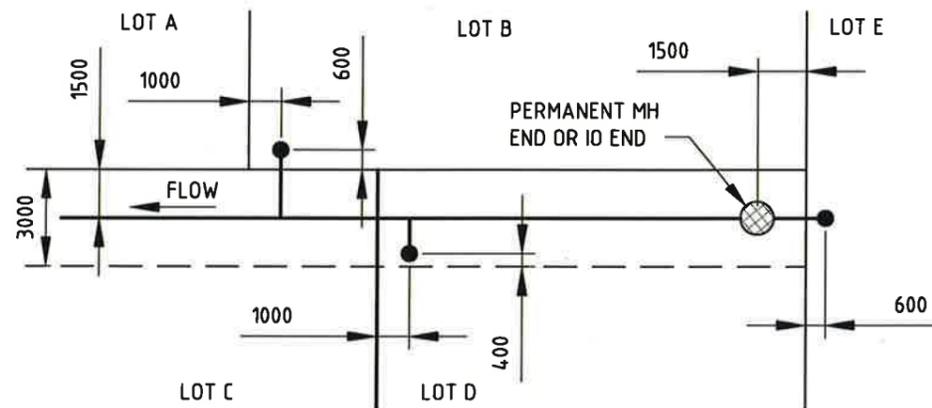
STANDARD CONNECTION ALLOTMENT FRONTAGE < 8m
REFER 4005-20004-03



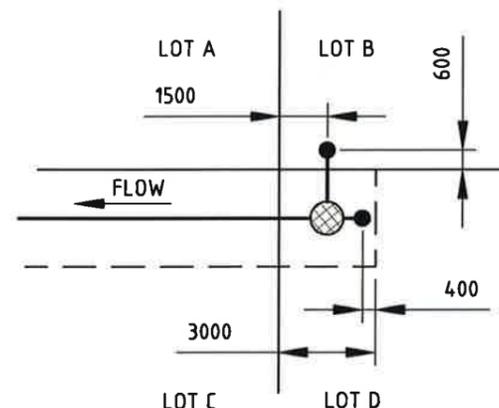
SINGLE CONNECTION THROUGH BUFFER RESERVE



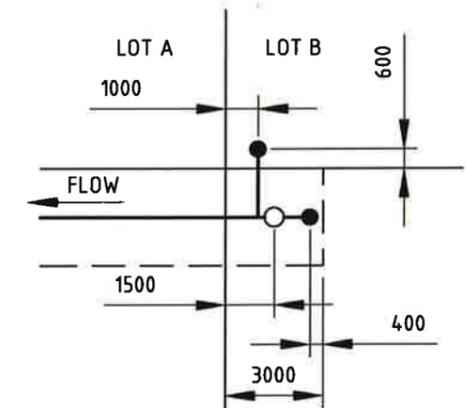
Y CONNECTION THROUGH BUFFER RESERVE



STANDARD CONNECTION IN EASEMENT



TWO CONNECTIONS OFF PERMANENT MH OR MS END IN EASEMENT



TWO CONNECTIONS OFF PERMANENT IO END IN EASEMENT

LEGEND

●	INSPECTION POINT IP		SEWER MAIN
○	INSPECTION OPENING IO		LOT BOUNDARY
⊗	MAINTENANCE HOLE MH		EASEMENT BOUNDARY

NOTES:

- REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
- REFER 4005-20005-01 FOR POSITION OF MAINTENANCE STRUCTURES.
- AT TEMPORARY MH/ IO ENDS, CONNECTIONS SHALL BE POSITIONED TO AVOID CONFLICT WITH FUTURE EXTENSIONS OF SEWER.
- WHERE EXISTING STRUCTURES INFLUENCE POSITION OF THE CONNECTION, THE STANDARD BOUNDARY OFFSET MAY BE ALTERED TO SUIT STRUCTURES/ SERVICES IMPACTING CONNECTION POSITION.
- ALL CHANGES SHALL BE APPROVED BY SA WATER REPRESENTATIVE.
- ALL DIMENSIONS ARE IN MILLIMETRES.

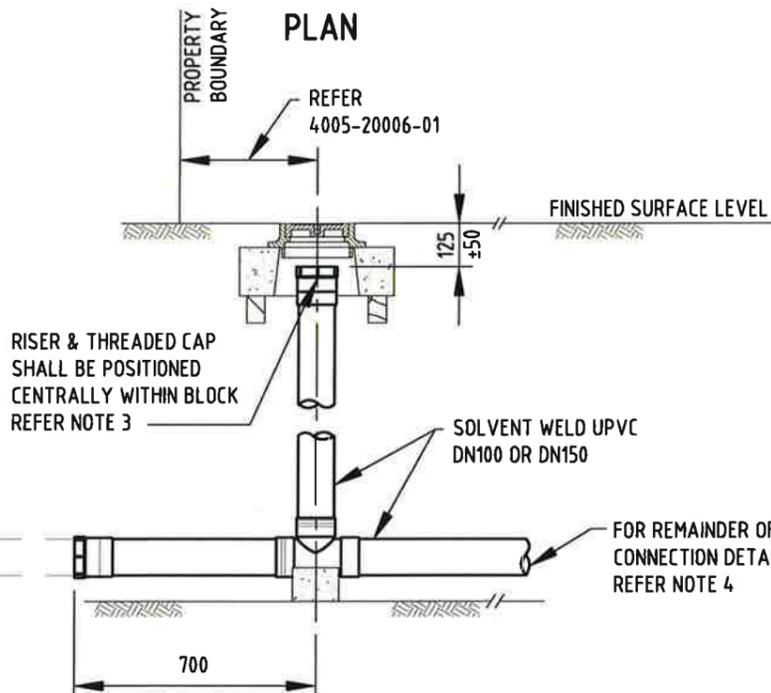
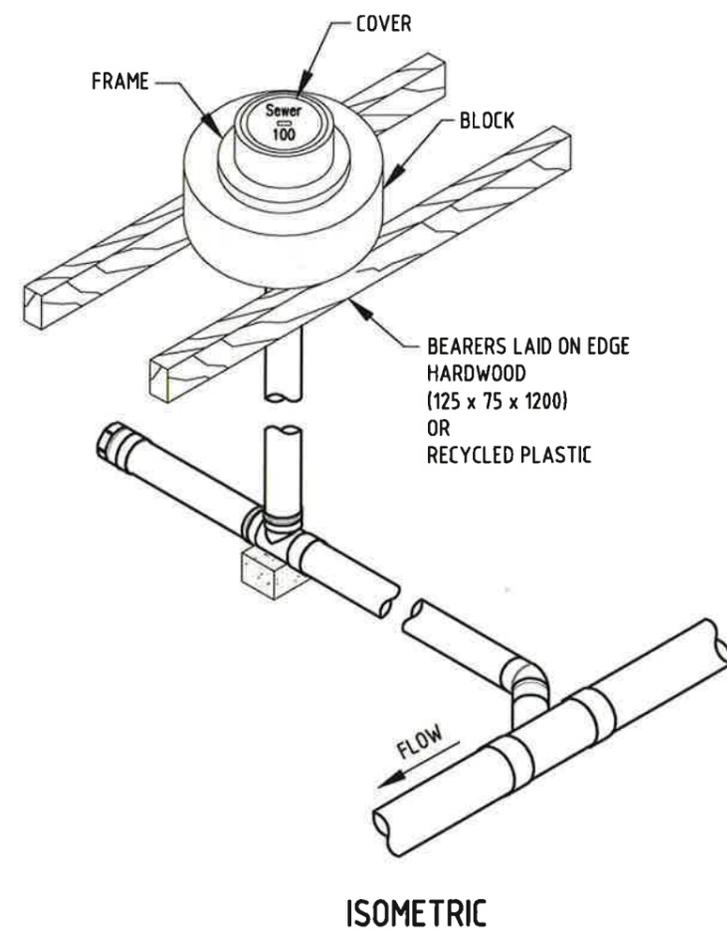
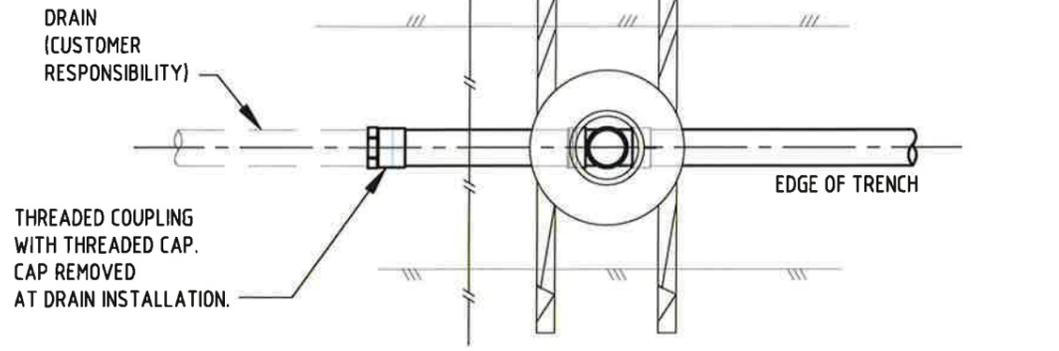
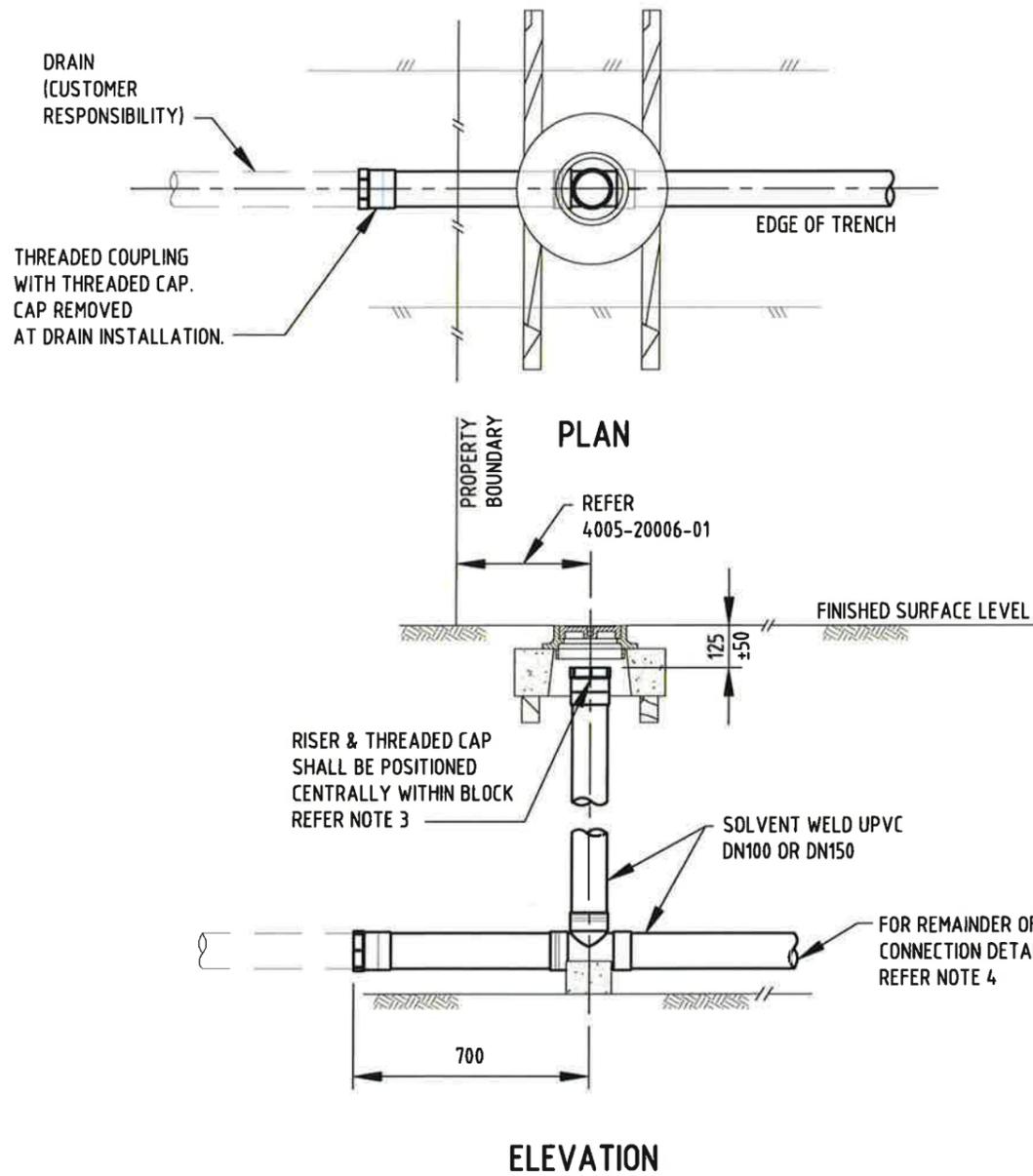
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE:
REVIEWED: 21/03/16 TG	

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**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
POSITIONING OF
PROPERTY CONNECTIONS**

A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0164-01 (K1)	
DRAWING NUMBER	
4005-20006-01	
PREFIX	NUMBER SHEET



NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. REFER 4005-20006-03 FOR TYPICAL SEWER CONNECTION DETAILS.
3. DURING COMPACTION OF THE CONCRETE BLOCK, THE COVER & FRAME SHALL BE REMOVED. THE CONTRACTOR SHALL ENSURE THE BLOCK DOES NOT MOVE TO IMPEDE FUTURE ACCESS TO THE THREADED CAP.
4. REFER SECTION 6 FOR MORE ALTERNATIVES TO THE STANDARD CONNECTION ASSEMBLY.
5. ALL DIMENSIONS IN MILLIMETRES.

INSPECTION POINT DEPTH TABLE		
CATEGORY	MIN	MAX
RESIDENTIAL	1400	2600
INDUSTRIAL / COMMERCIAL	1400	3500

REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

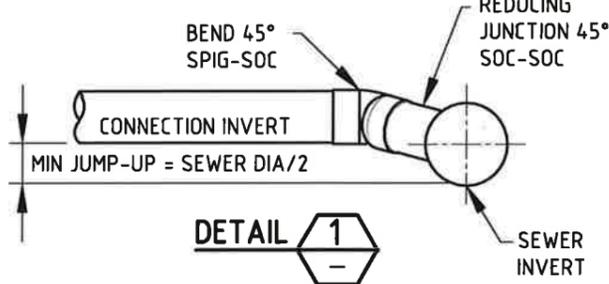
DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	

SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
INSPECTION POINT
TYPICAL DETAILS

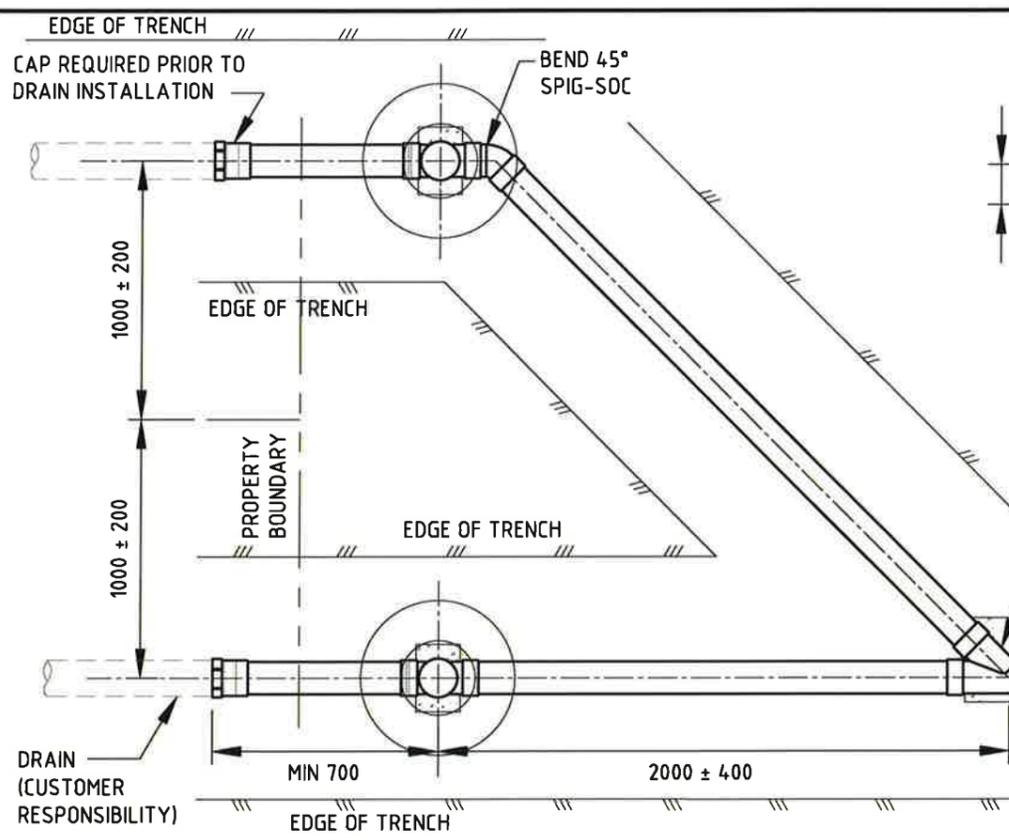
A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0164-02 (K2)	
DRAWING NUMBER	
4005-20006-02	
PREFIX	NUMBER SHEET

SEWER CONNECTION MINIMUM GRADES		
DN	STANDARD MIN. GRADE	ABSOLUTE MIN. GRADE (SUBJECT TO APPROVAL)
100	2.0	2.0
150	1.0	0.8

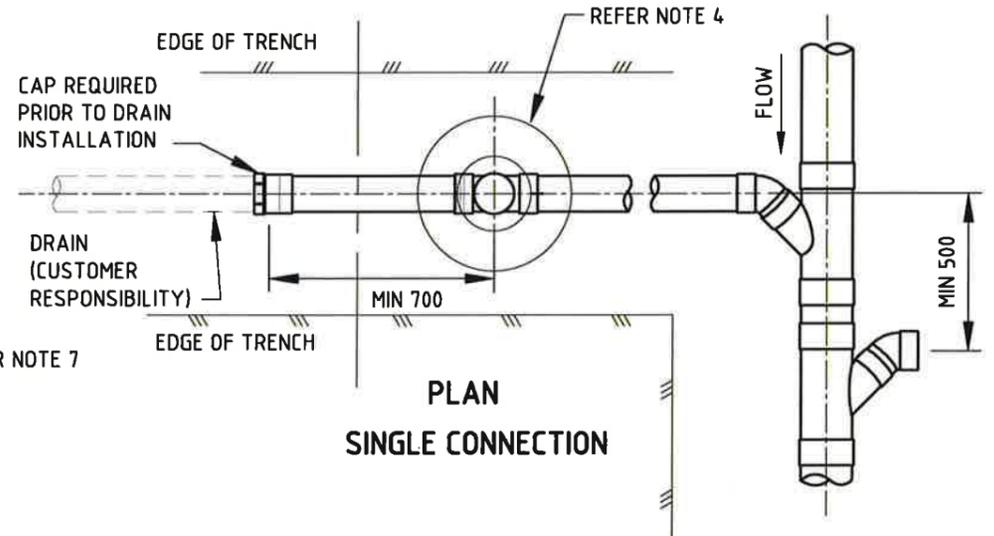
REFER NOTE 5



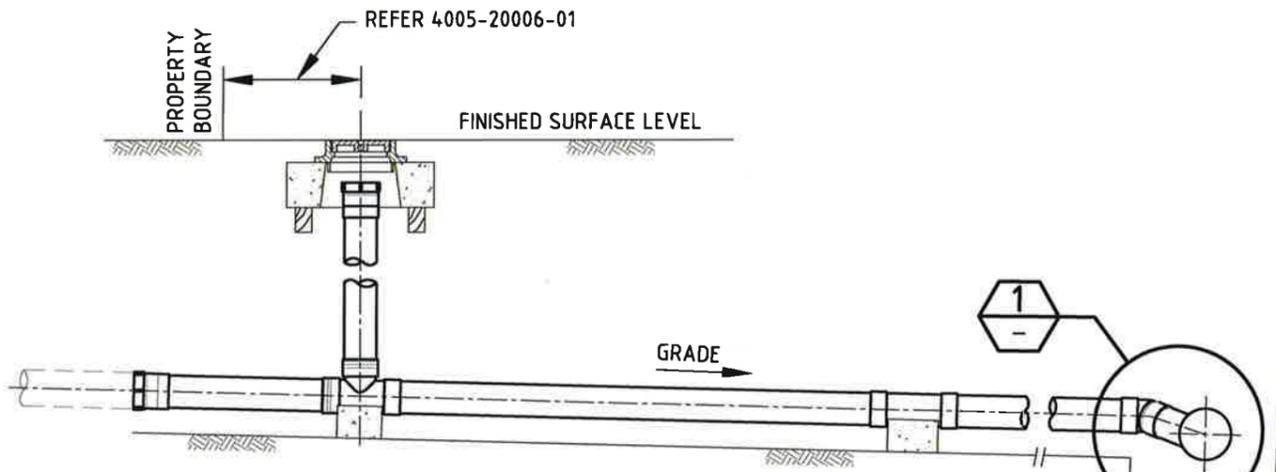
CONNECTION / SEWER JUNCTION



PLAN 'Y' CONNECTION



PLAN SINGLE CONNECTION



ELEVATION (COMMON)

NOTES:

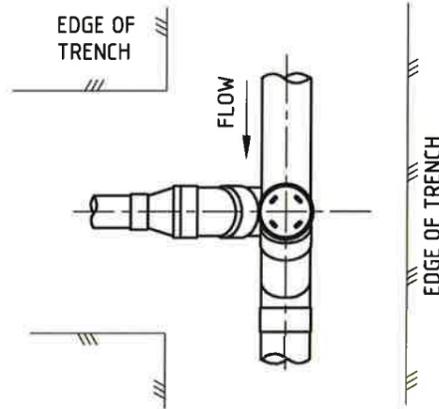
- REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
- THE CONNECTION POINT SHALL BE LOCATED IN ACCORDANCE WITH SCM SECTION 6 AND THE APPROVED DESIGN DRAWINGS.
- SHOULD SITE FACTORS IMPACT THE DESIGNED IP LOCATION, APPROVAL OF THE SA WATER REPRESENTATIVE SHALL BE SOUGHT FOR THE NEW LOCATION. THE REVISED LOCATION SHALL BE SHOWN ON THE 'AS CONSTRUCTED' DRAWINGS.
- REFER 4005-20006-02 FOR IP PIPEWORK AND COVER DETAILS.
- ABSOLUTE MINIMUM GRADES:
 - ARE ONLY PERMITTED IF THERE IS SUFFICIENT GRADE TO MAINTAIN SELF CLEANSING VELOCITY (SCV).
 - FLOW CALCULATIONS CONFIRMING SCV SHALL BE PROVIDED TO SA WATER REPRESENTATIVE FOR REVIEW AND APPROVAL.
- Y CONNECTION SHALL NOT BE USED FOR ALLOTMENTS <8m WIDE. REFER NOTES 4005-20004-04.
- REFER 4005-20006-09 FOR NEW CONNECTION OFF EXISTING VC PIPE.
- ALL DIMENSIONS IN MILLIMETRES.

REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

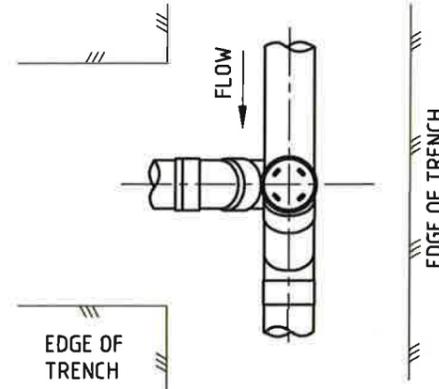
DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	

**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
STANDARD CONNECTION
SINGLE AND 'Y' TYPE**

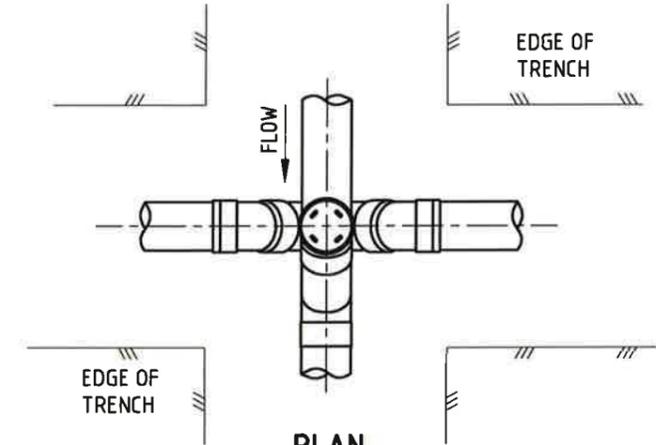
A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: K3, K4	
DRAWING NUMBER	
4005-20006-03	
PREFIX	NUMBER SHEET



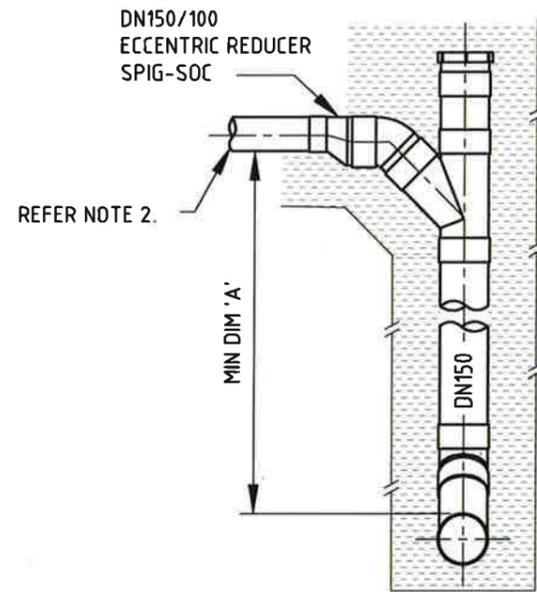
PLAN



PLAN

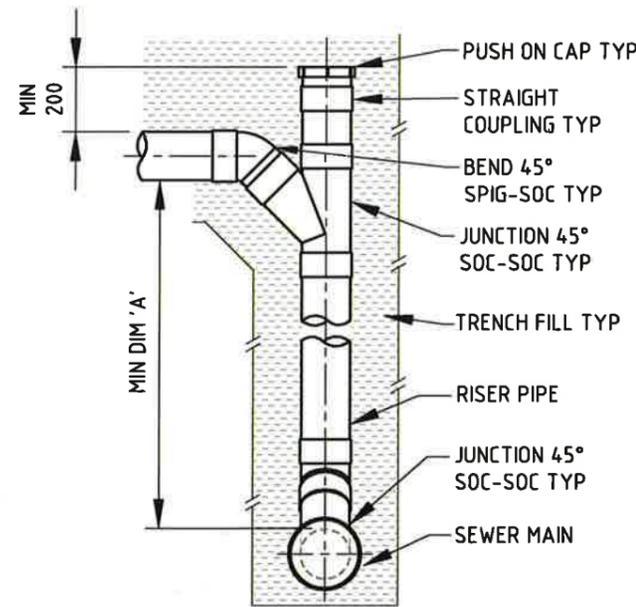


PLAN



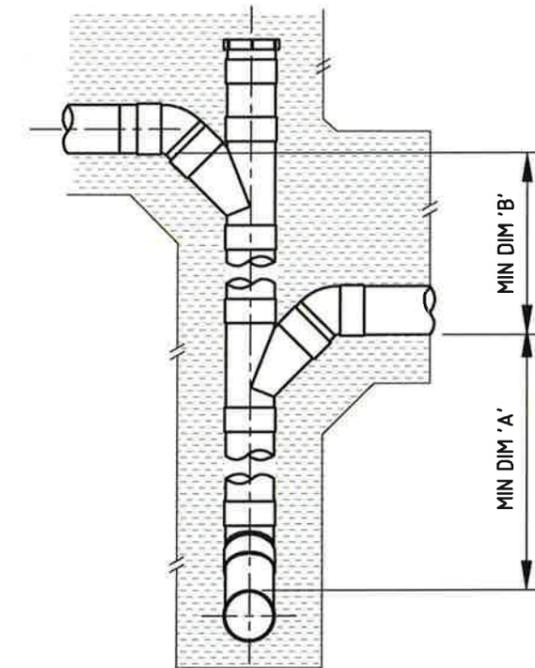
ELEVATION

RISER FOR DN100 SINGLE CONNECTION



ELEVATION

RISER FOR DN150 SINGLE CONNECTION



ELEVATION

RISER FOR DUAL CONNECTION

DROP DIMENSIONS		
DN	MIN 'A'	MIN 'B'
100	600	450
150	600	450

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. REFER 4005-20006-03 FOR TYPICAL SEWER CONNECTION DETAILS.
3. REFER SECTION 6 FOR MORE ALTERNATIVES TO THE STANDARD CONNECTION ASSEMBLY.
4. ALL DIMENSIONS IN MILLIMETRES.

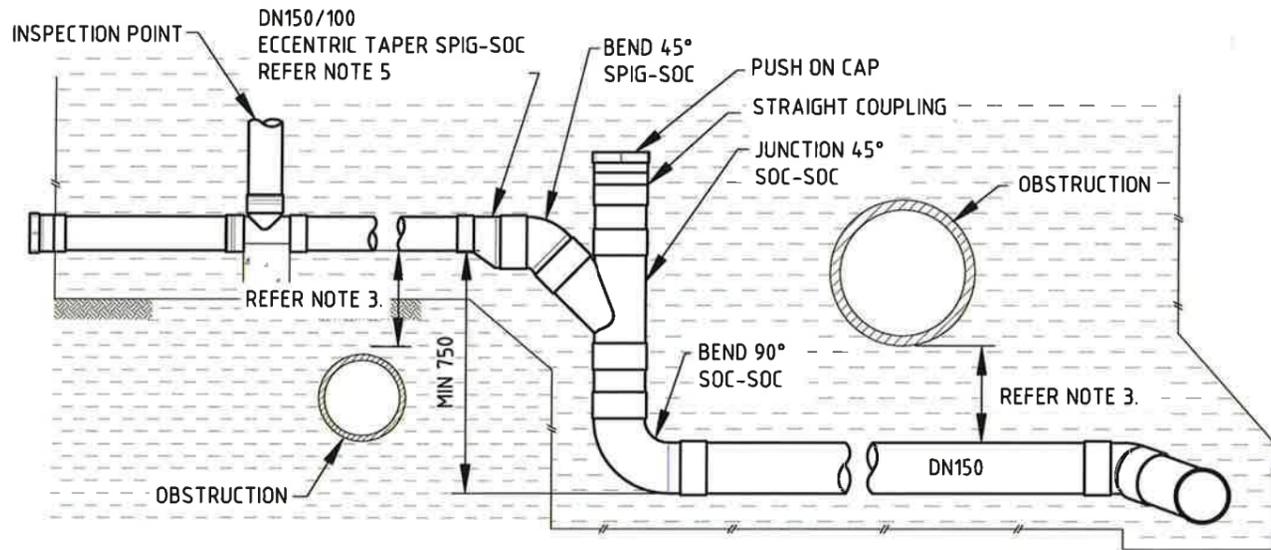
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/16 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	


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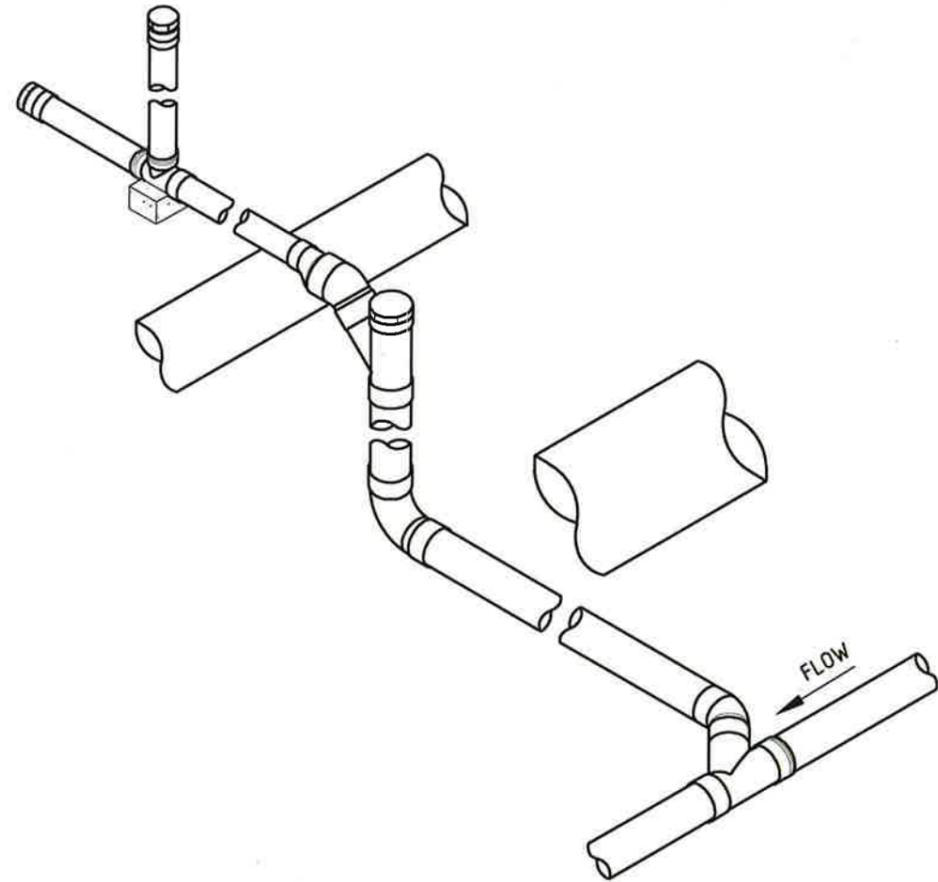
SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
PROPERTY CONNECTION
WITH VERTICAL RISER

A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0164-05 (K5)	
DRAWING NUMBER	
4005-20006-04	
PREFIX	NUMBER SHEET

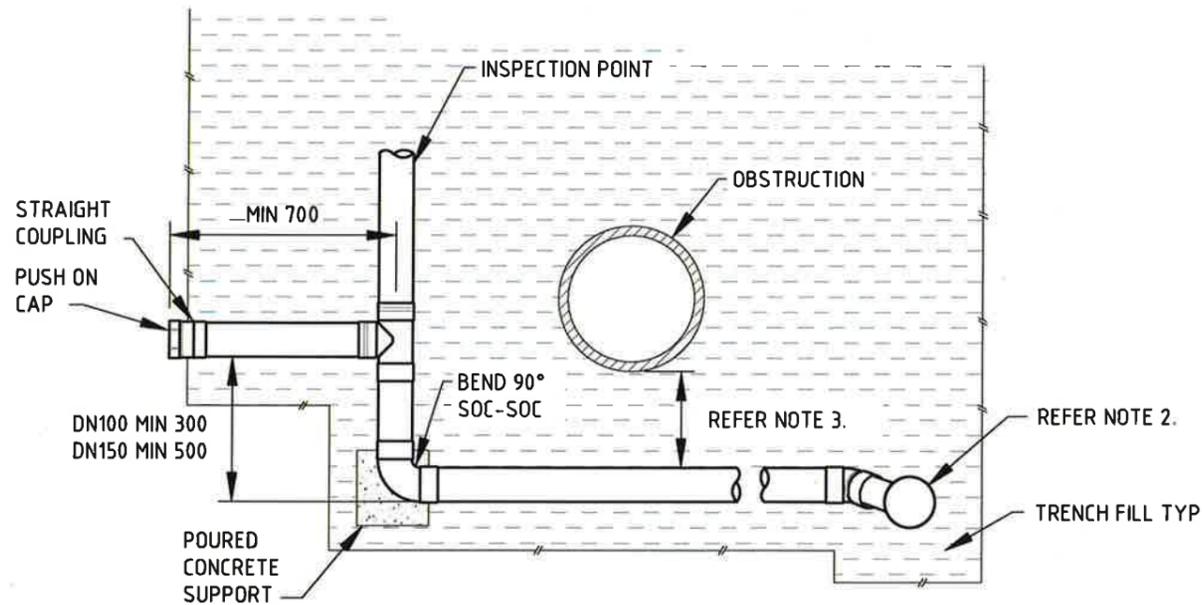


ELEVATION

DOUBLE OBSTRUCTION WITH INTERMEDIATE RISER



ISOMETRIC



ELEVATION

SINGLE OBSTRUCTION

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. REFER 4005-20006-03 FOR TYPICAL SEWER CONNECTION DETAILS.
3. REFER WSA02 TABLE 5.4 FOR MINIMUM CLEARANCE DIMENSION FROM OBSTRUCTION.
4. AN INTERMEDIATE RISER SHALL ONLY BE USED WHERE OBSTRUCTIONS PRECLUDE THE USE OF A STANDARD CONNECTION. THE USE OF AN INTERMEDIATE RISER SHALL BE APPROVED BY THE SA WATER REPRESENTATIVE.
5. FOR A DN150 CONNECTION USING THE INTERMEDIATE RISER OPTION, THE ECCENTRIC TAPER IS NOT REQUIRED.
6. ALL DIMENSIONS IN MILLIMETRES.

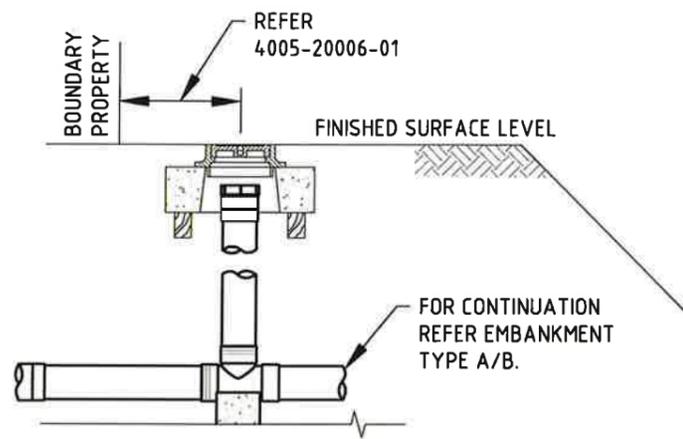
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/15	AUTHORISED: 31/03/16
RJP	T.GALEK
DRAWN: 25/09/15	SIGNATURE:
MS	<i>T. Galek</i>
REVIEWED: 21/03/16	TG

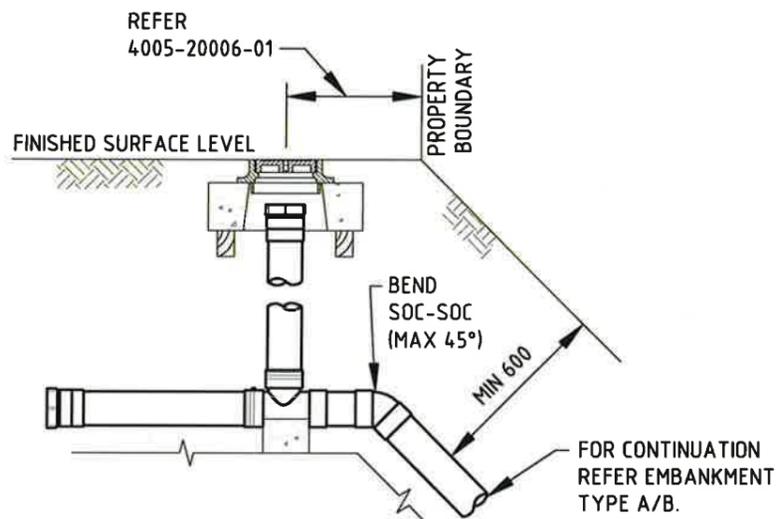
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**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
PROPERTY CONNECTION
WITH INTERMEDIATE RISER**

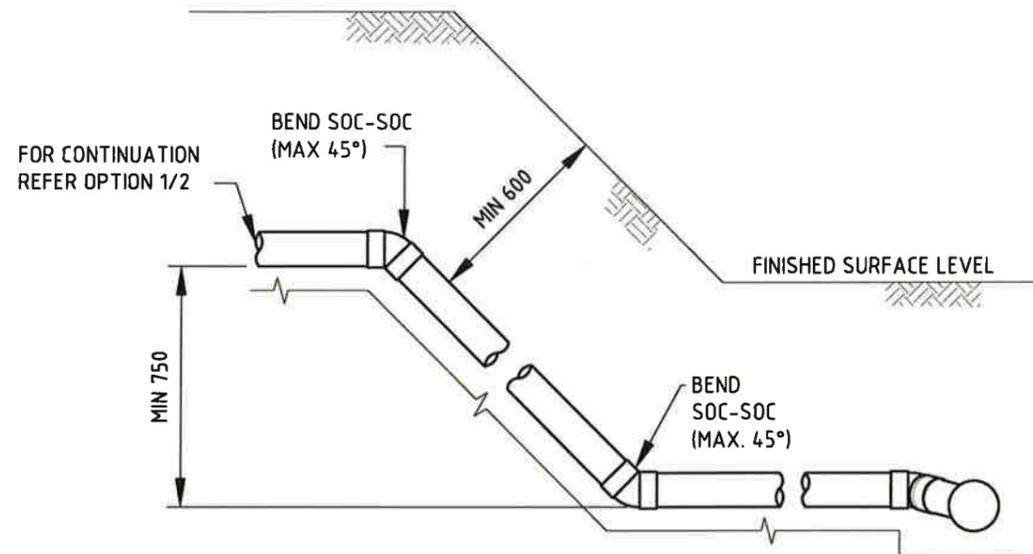
A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: K6, K7	
DRAWING NUMBER	
4005-20006-05	
PREFIX	NUMBER SHEET



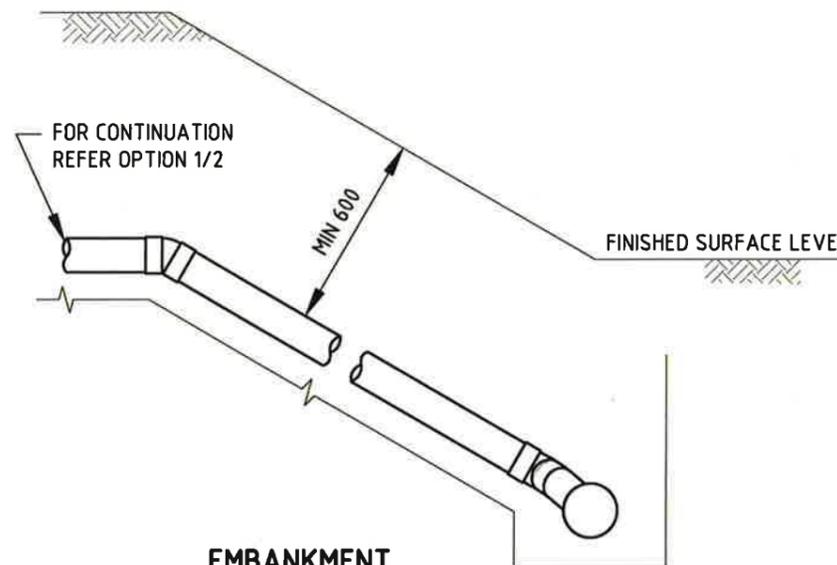
**OPTION 1
IP OUTSIDE PROPERTY BOUNDARY**



**OPTION 2
IP WITHIN ALLOTMENT BOUNDARY**



**EMBankMENT
TYPE A**



**EMBankMENT
TYPE B**

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. REFER 4005-20006-03 FOR TYPICAL SEWER CONNECTION DETAILS.
3. SHOULD SITE CONDITIONS REQUIRE MODIFICATION TO THE STANDARD ARRANGEMENTS DISPLAYED, APPROVAL SHALL BE SOUGHT FROM THE SA WATER REPRESENTATIVE PRIOR TO ANY WORK BEING UNDERTAKEN.
4. ALL DIMENSIONS IN MILLIMETRES.

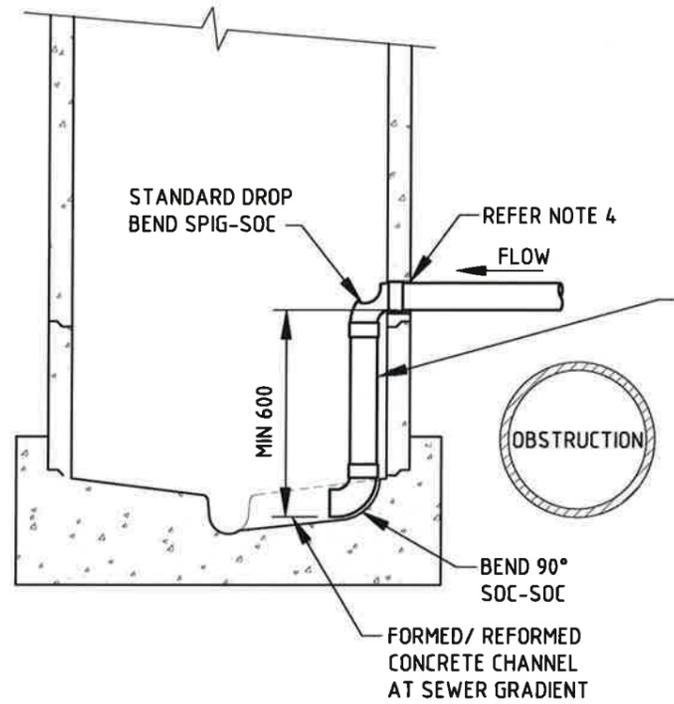
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	

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**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
PROPERTY CONNECTIONS
THROUGH EMBANKMENT**

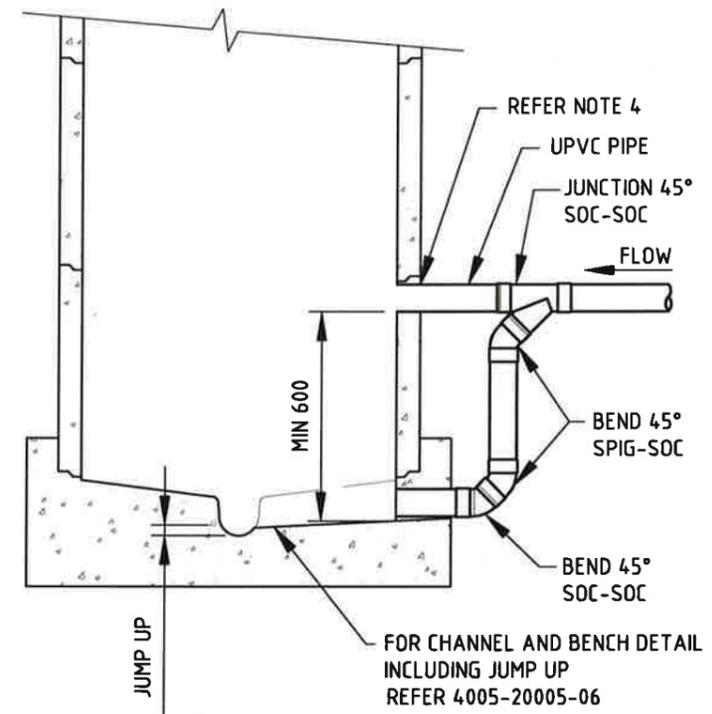
A3 SHT SIZE	1 REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0164-09 (K8)	
DRAWING NUMBER	
4005-20006-06	
PREFIX	NUMBER SHEET



IF JUMP UP LARGER THAN 900,
FIX TO WALL WITH GRADE 316
STAINLESS STEEL STRAP AND
STAINLESS STEEL ANCHORS
AT TOP AND BOTTOM AND
AT MAX OF 750 INTERVALS.

ELEVATION

**MAINTENANCE HOLE WITH
INTERNAL JUMP UP CONNECTION
(PREFERRED)**



ELEVATION

**MAINTENANCE HOLE WITH
EXTERNAL JUMP UP CONNECTION
(SUBJECT TO APPROVAL)**

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. INTERNAL JUMP UP IS THE PREFERRED OPTION.
FOR USE OF THE EXTERNAL OPTION APPROVAL FROM THE SA WATER REPRESENTATIVE SHALL BE SOUGHT.
3. FOR STEEP SEWER GRADIENTS, USE ADDITIONAL BEND(S) TO ENSURE JUMP UP REMAINS VERTICAL.
4. REFER 4005-20005-03 FOR MAINTENANCE HOLE TYPICAL PRECAST STRUCTURE ASSEMBLY DETAILS AND CORING/ REMEDIATION OF THE PIPE THROUGH THE WALL.
5. MAXIMUM OF 2 INTERNAL JUMP-UPS PER MAINTENANCE HOLE SHALL BE PERMITTED.
6. ALL DIMENSIONS IN MILLIMETRES.

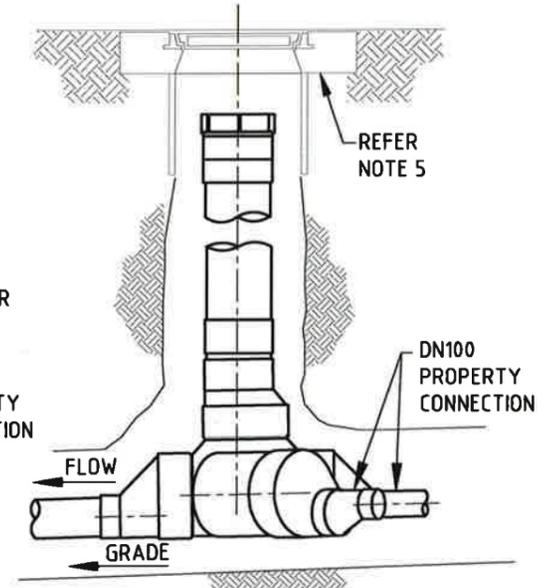
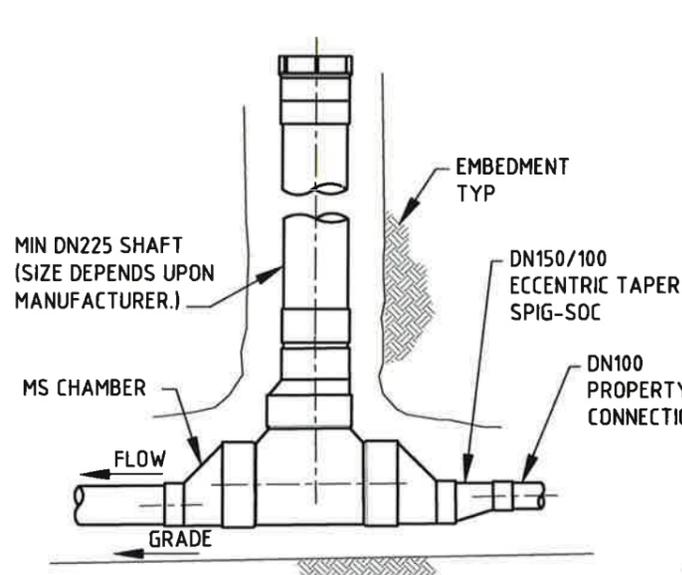
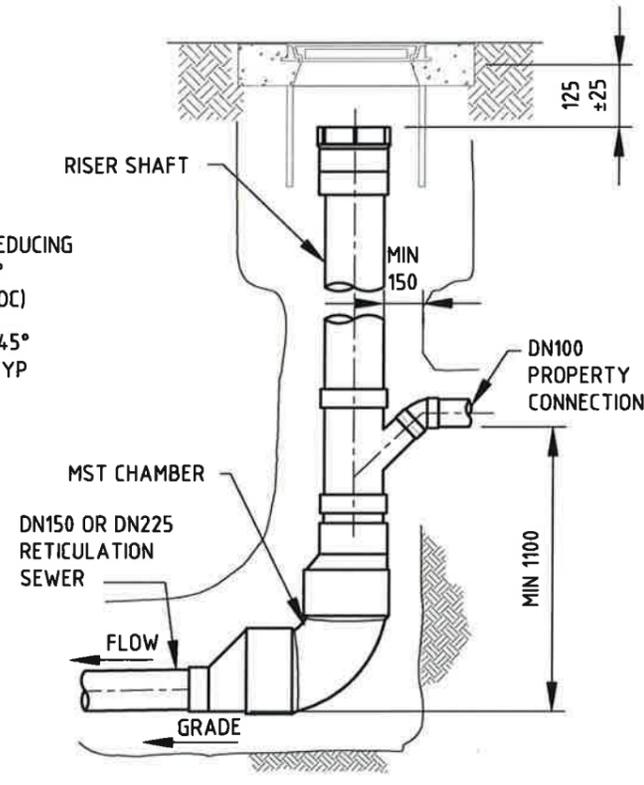
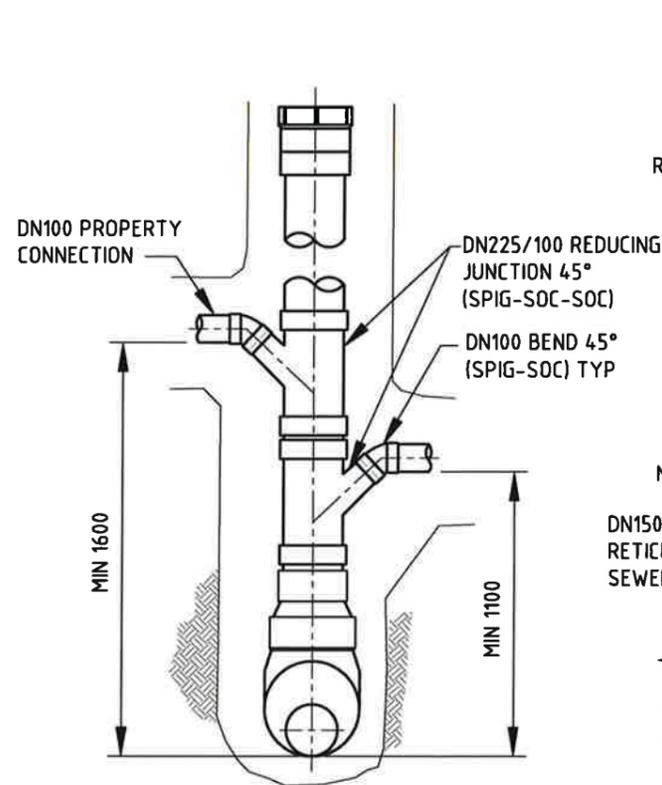
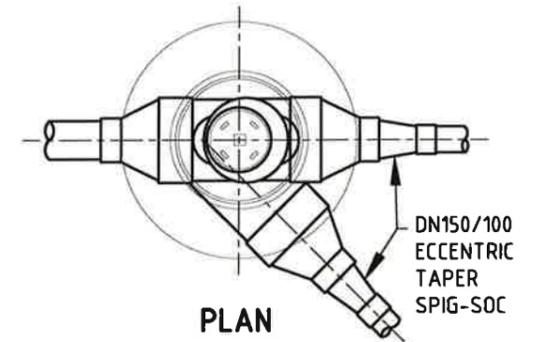
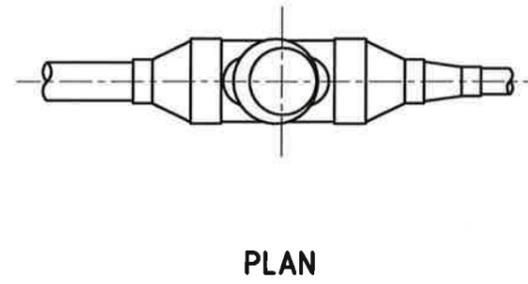
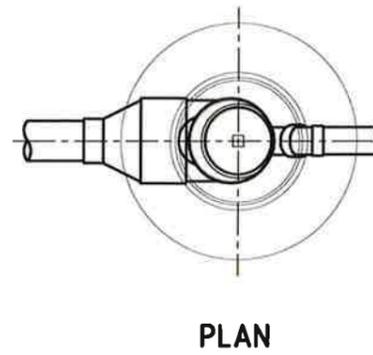
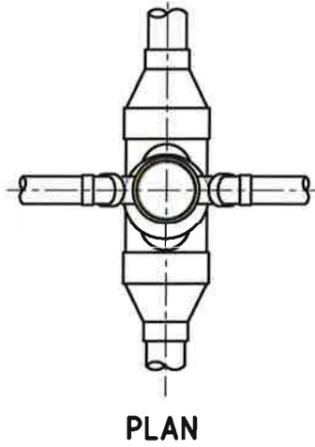
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	

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**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
PROPERTY CONNECTIONS
INTO MAINTENANCE HOLE WITH
INTERNAL / EXTERNAL JUMP UP**

A3 SHT SIZE	1 REVISION
TOTAL SHEETS:	
SUPERSEDES: K9, K10	
DRAWING NUMBER 4005-20006-07	
PREFIX	NUMBER SHEET



NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. MAXIMUM 2 PROPERTY CONNECTIONS PERMITTED INTO ONE MAINTENANCE SHAFT, INCLUDING 'DROP JUNCTION' OPTION.
3. ADJUST MS TO PIPE GRADE BY TILTING CHAMBER. MAX DEVIATION FROM VERTICAL OF THE RISER TO BE 1:10 OR A MAXIMUM OF 300 AT SURFACE. USE THE 'KICKER BEND' (NOT SHOWN), IF REQUIRED TO ADJUST RISER TO VERTICAL.
4. REFER 4005-20005-10 & 4005-20005-11 FOR MAINTENANCE SHAFT DETAILS.
5. FOR LID & COVER TYPE REFER AUTHORISED ITEMS CATALOGUE. INSTALLATION SHALL BE AS PER 4005-20005-04.
6. ALL DIMENSIONS IN MILLIMETRES.

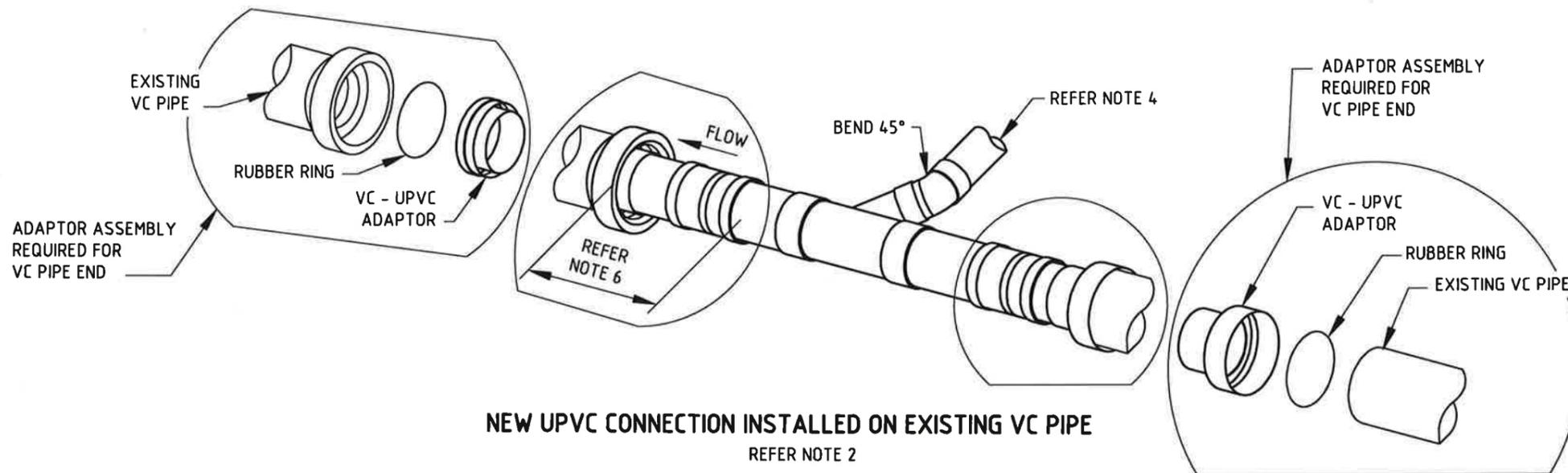
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	

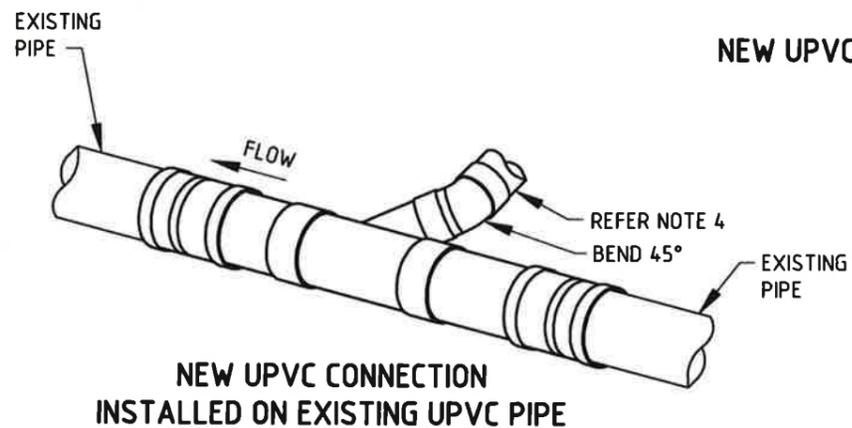
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**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE SHAFT
WITH PROPERTY CONNECTION**

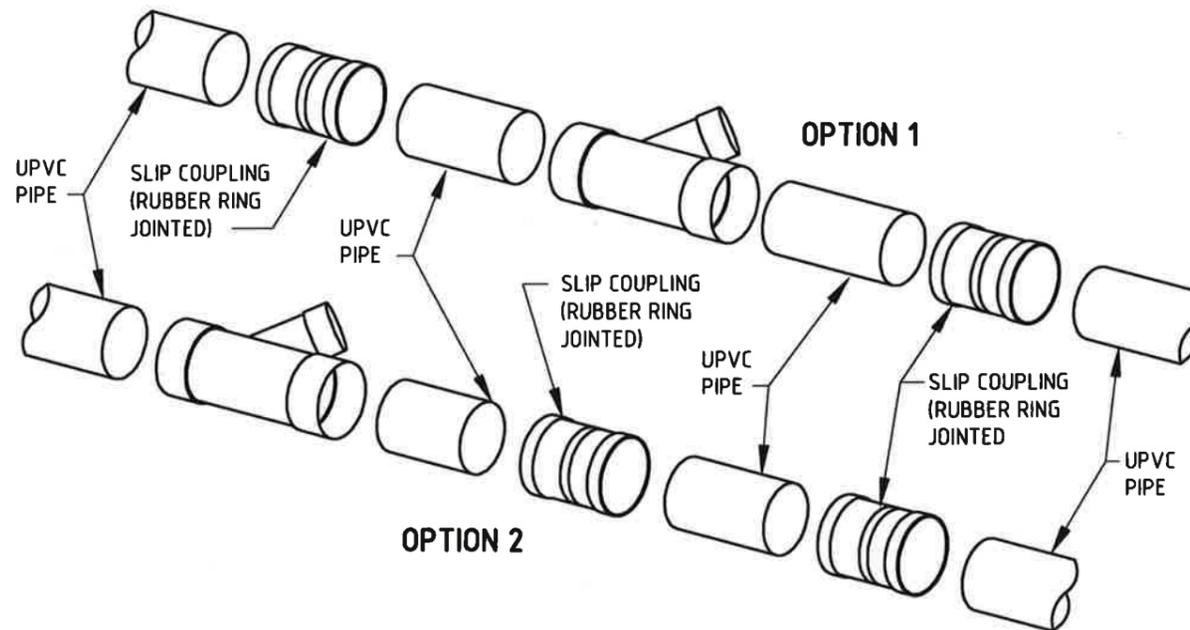
A3 SHT SIZE	1 REVISION
TOTAL SHEETS:	
SUPERSEDES:	
DRAWING NUMBER 4005-20006-08	
PREFIX	NUMBER SHEET



NEW UPVC CONNECTION INSTALLED ON EXISTING VC PIPE
REFER NOTE 2



NEW UPVC CONNECTION INSTALLED ON EXISTING UPVC PIPE



NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. THE VC PIPE ARRANGEMENT IS SIMILAR TO THE UPVC ARRANGEMENT WITH AN ADAPTOR AT EACH END.
3. THE USE OF 2 SLIP COUPLINGS ALLOWS THE PRE-ASSEMBLED ARRANGEMENT TO BE FITTED WITH A MINIMUM OF END CLEARANCE/ DISCONTINUITY. ALTERNATIVES FOR POSITION OF COUPLINGS ARE DISPLAYED IN OPTIONS 1 & 2.
4. REFER SECTION 6 FOR CONNECTION CONSTRUCTION.
5. FOR TRUNK SEWERS, TEMPORARY ISOLATION OR DIVERSION OF FLOWS MAY BE NECESSARY DURING LIVE INSTALLATIONS. METHOD FOR UNDERTAKING WORK SHALL BE APPROVED BY THE SA WATER REPRESENTATIVE PRIOR TO COMMENCEMENT.
6. THE USE OF AN ALTERNATIVE ADAPTOR SYSTEM SHALL BE APPROVED BY THE SA WATER REPRESENTATIVE.

REVISION PANEL					
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:
1	31/03/16	MS	2016 STANDARDS REVIEW	TG	

DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	

**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
UPVC FITTINGS
FOR CONNECTION FROM EXISTING
UPVC & VC SEWERS**

A3 SHT SIZE	1 REVISION
TOTAL SHEETS:	
SUPERSEDES: K13, K14	
DRAWING NUMBER 4005-20006-09	
PREFIX	NUMBER SHEET