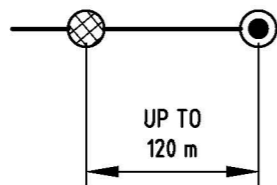
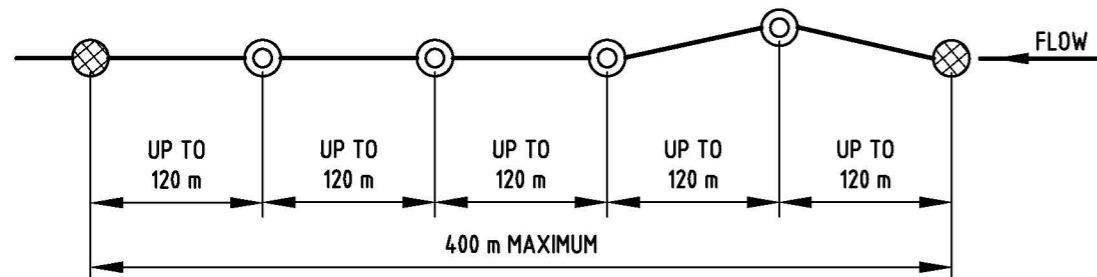


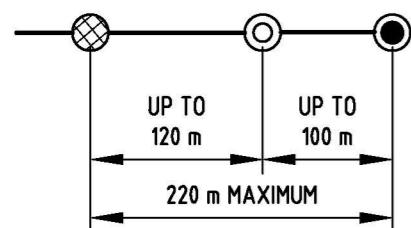
SINGLE MS BETWEEN CONSECUTIVE MH'S



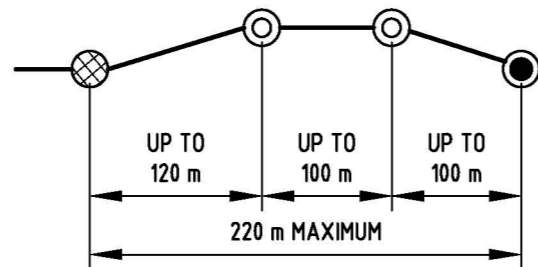
NO MS BETWEEN 'LAST' MH AND TMS



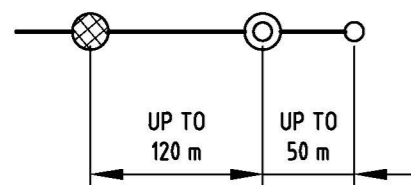
MULTIPLE MS'S BETWEEN CONSECUTIVE MH'S



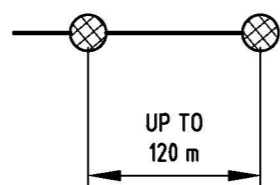
SINGLE MS BETWEEN 'LAST' MH AND TMS



MULTIPLE MS'S BETWEEN 'LAST' MH AND TMS



MS BETWEEN 'LAST' MH AND IO



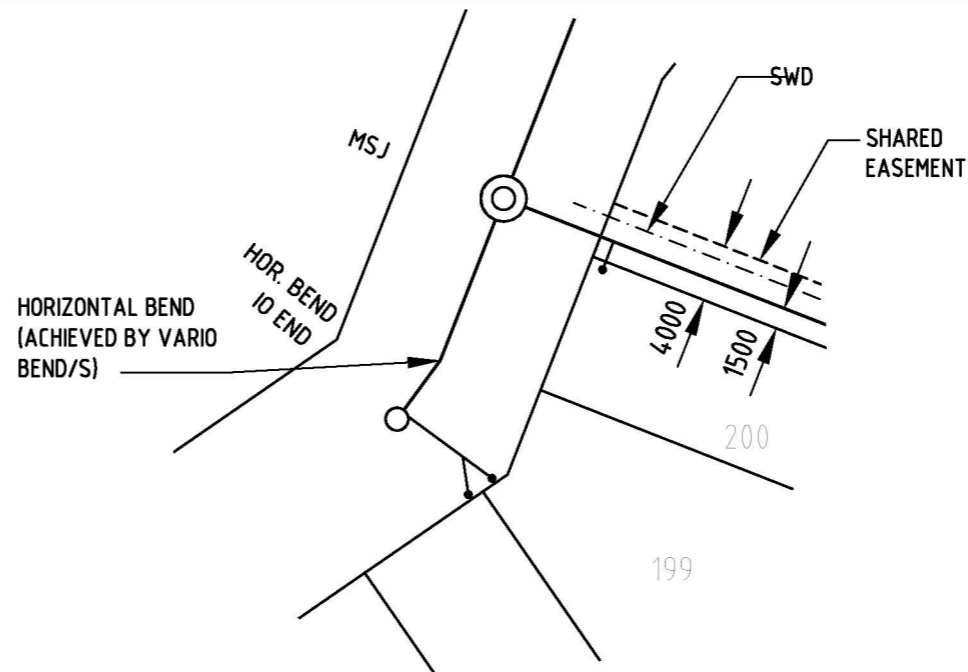
CONSECUTIVE MHS
(REFER NOTE 4)

APPROVED OPTIONS FOR SPACING OF STRUCTURES

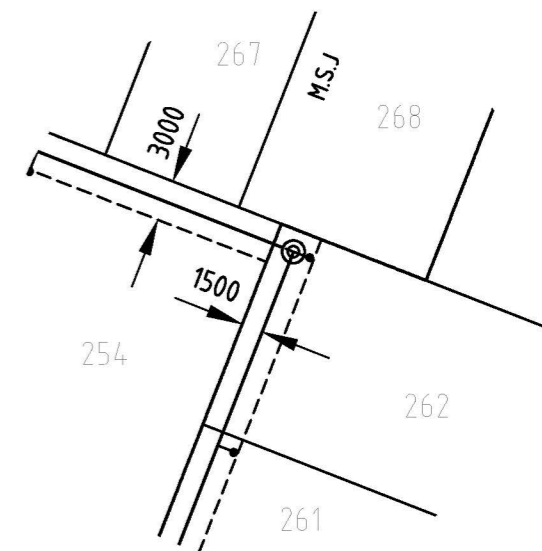
HORIZONTAL BEND (ACHIEVED BY VARIO BEND/S)

LEGEND

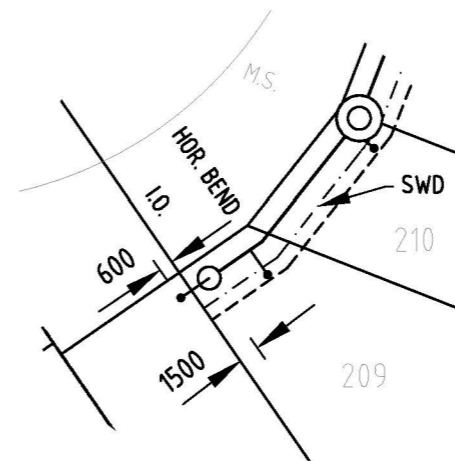
- PROPOSED SEWER
- PROPOSED MAINTENANCE HOLE
- MAINTENANCE SHAFT
- MAINTENANCE SHAFT TERMINAL
- FUTURE SEWER
- EXISTING SEWER, CONNECTION AND MAINTENANCE HOLE
- INSPECTION OPENING
- INSPECTION POINT
- EASEMENT



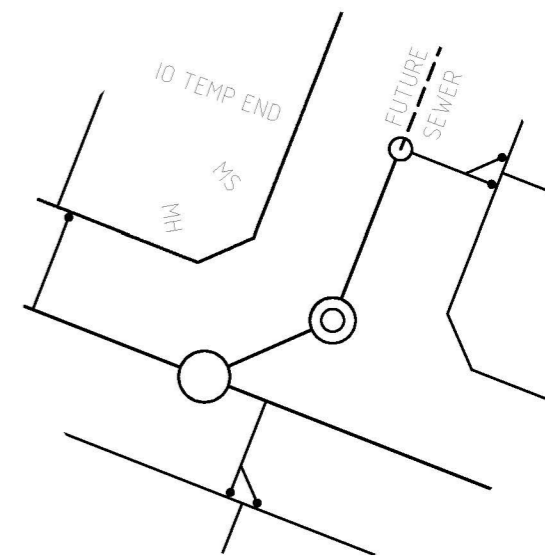
SHARED EASEMENT



SEWER ONLY EASEMENT



IO WITH CONNECTION AHEAD




TEMPORARY IO END

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. GENERALLY SEWER MAIN LOCATED CENTRALLY WITHIN ROAD RESERVE & 1.5 m FROM BOUNDARY WITHIN EASEMENT. REFER SA WATER SUPPLEMENTARY DOCUMENTATION TO WSA02-2014 FOR MORE DETAIL.
3. APPROVED OPTIONS FOR POSITIONING AND SPACING OF STRUCTURES AS DEPICTED.
4. IN SPECIAL CIRCUMSTANCES (EG. A STRAIGHT RUN WITH STEEP GRADIENT) SA WATER MAY PERMIT A MH SPACING OF MAXIMUM 150 METRES.
5. STANDARD EASEMENT WIDTHS AS SHOWN.
6. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

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

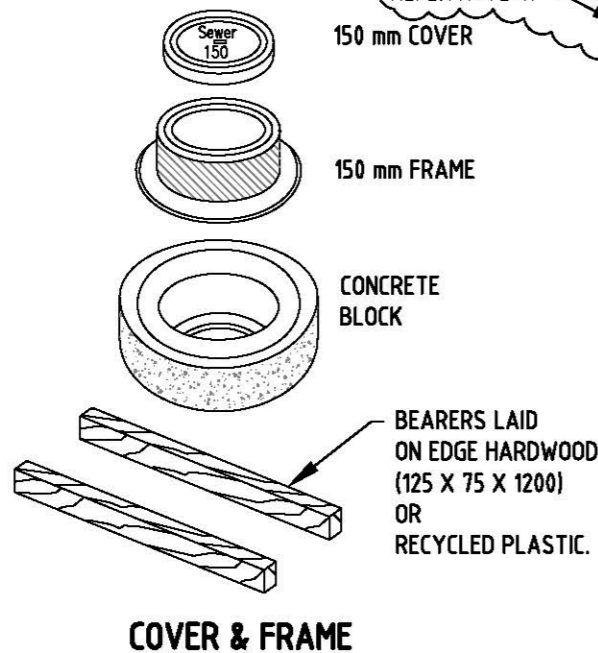
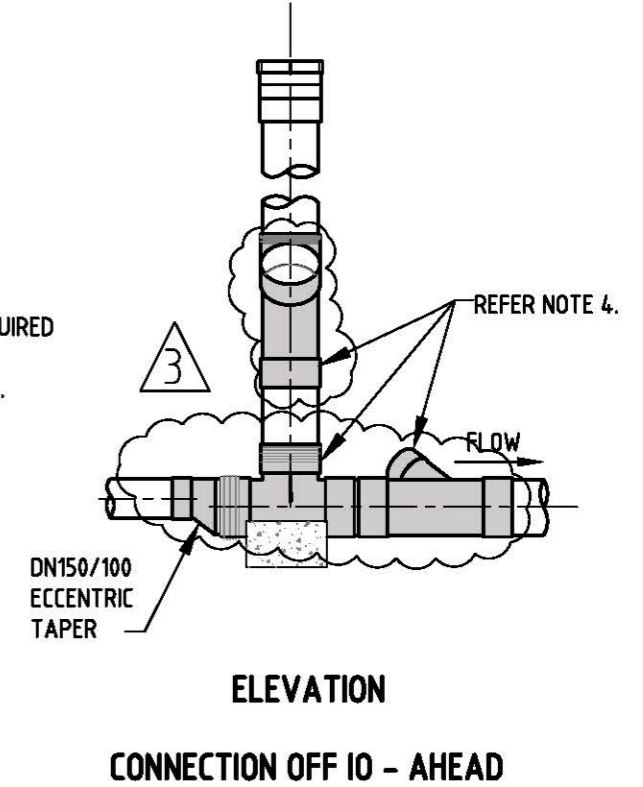
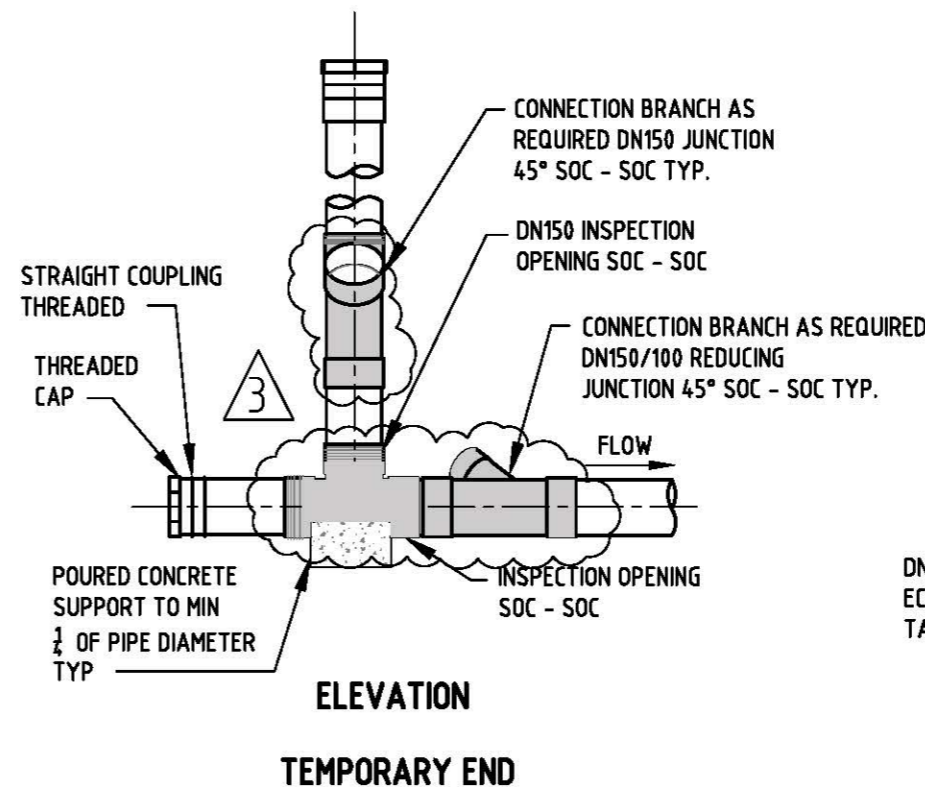
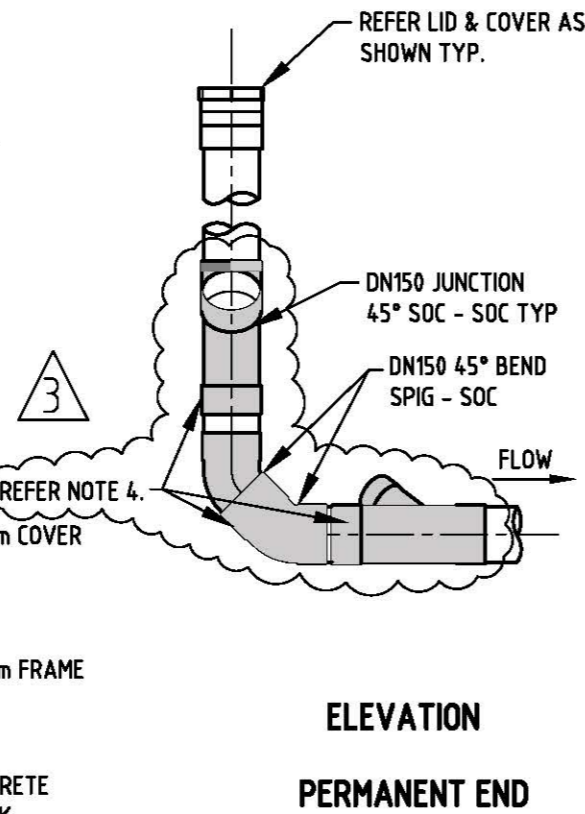
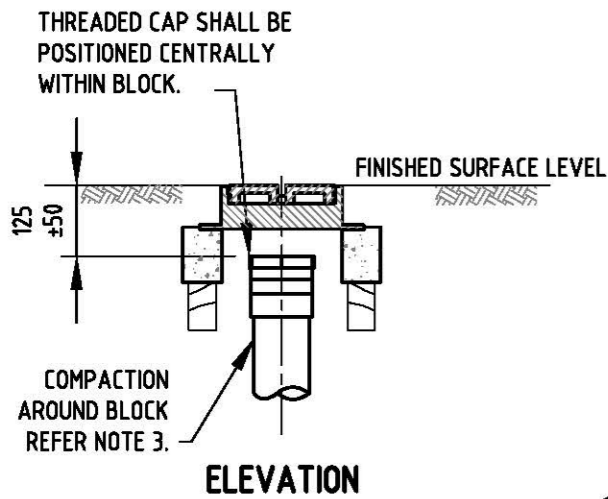
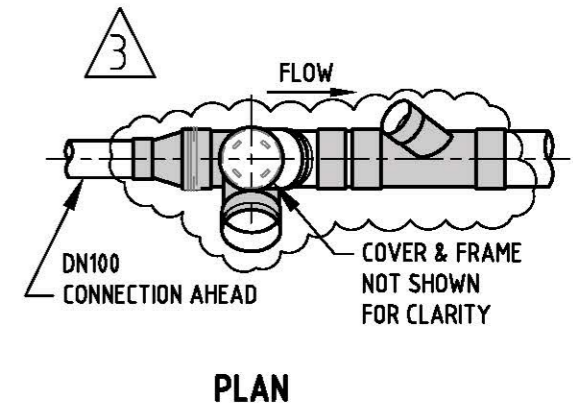
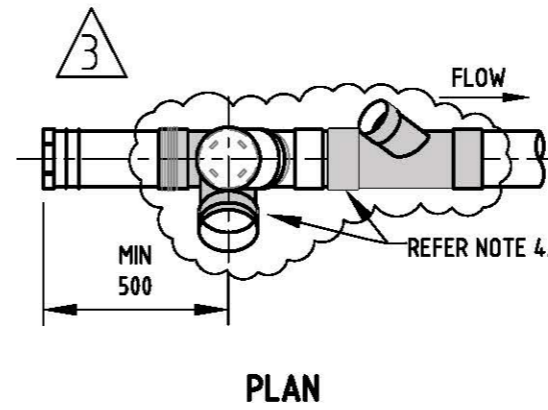
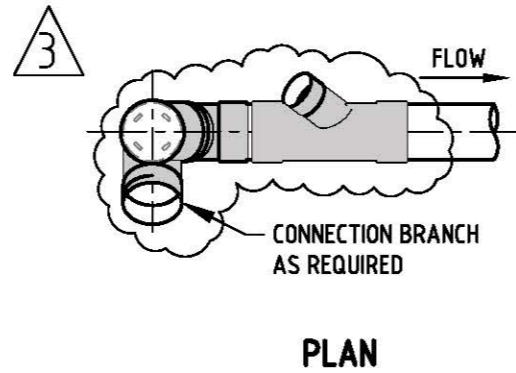
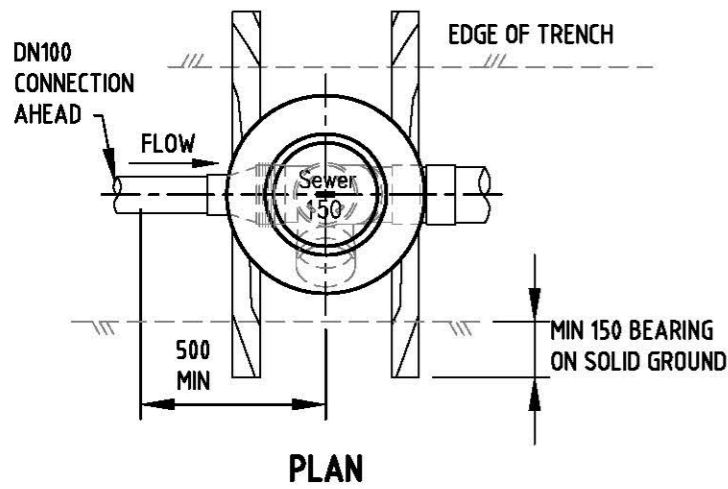
DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>
REVIEWED: 21/03/16 TG	



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SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
LOCATION OF MAINTENANCE STRUCTURES
IN ROADWAY & EASEMENT
(TYPICAL)

A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: L1, L2	
DRAWING NUMBER	
4005-20005-01	
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 ACCESS TO THE THREADED CAP.
4. ALL FITTINGS IDENTIFIED BY SHADING SHALL BE A 'REINFORCED' FITTING. REFER TS 0502, 3.2.1.1.
5. ALL DIMENSIONS IN MILLIMETRES.

REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
3	10/01/19	PH	REINFORCED FITTINGS ADDED WHERE INDICATED	TG
2	03/04/17	RP	COVER & FRAME CHANGED	TG
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			
REVIEWED:	21/03/16	ORIGINAL SIGNED	
TG			

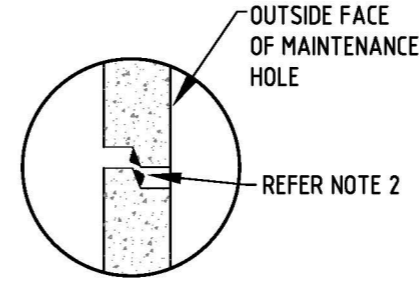
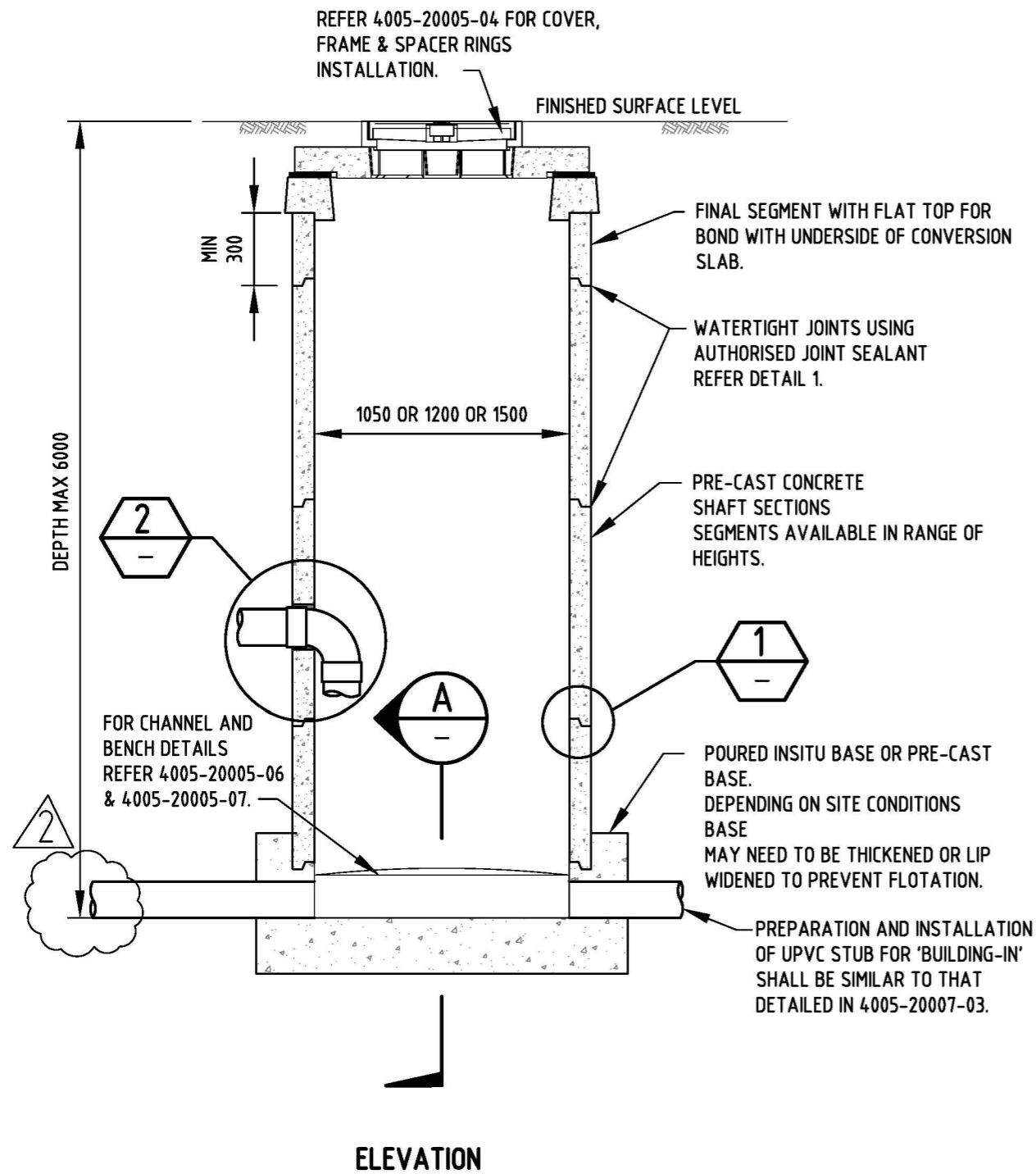
SA Water
Government of South Australia

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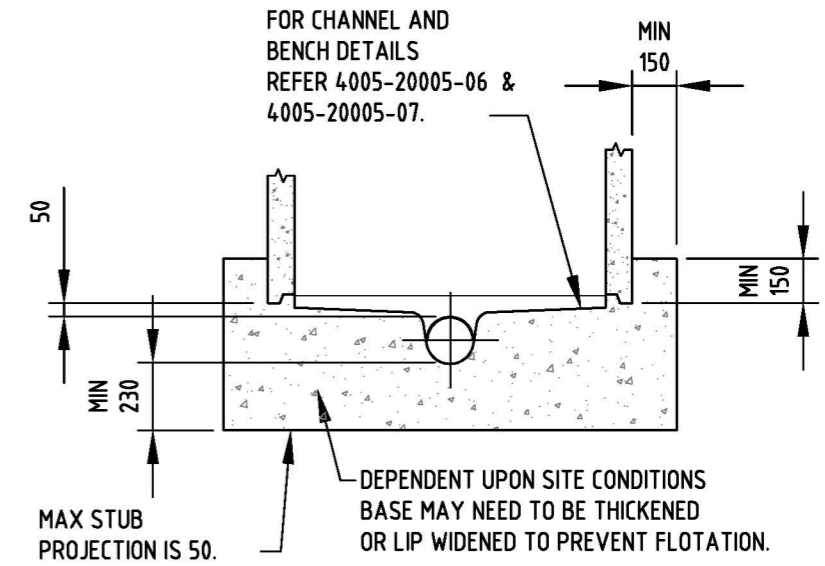
SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL

DN150 INSPECTION OPENINGS

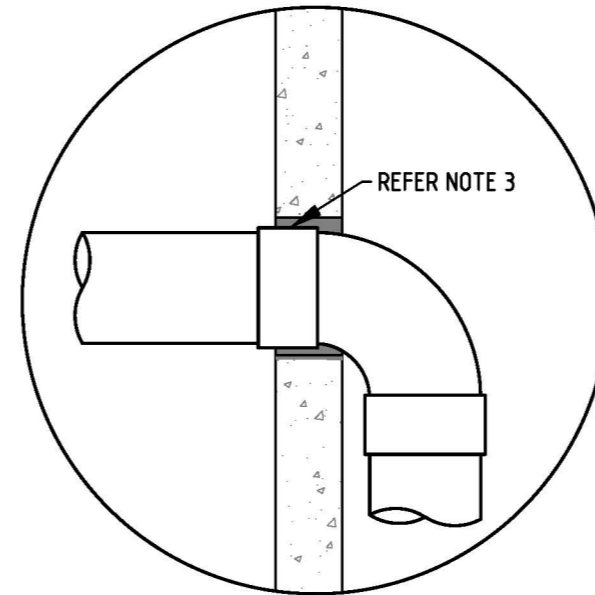
A3	3
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0167-03 (L3)	
DRAWING NUMBER	
4005-20005-02	
PREFIX	NUMBER SHEET



DETAIL 1
TYPICAL JOINT SEALANT



SECTION A

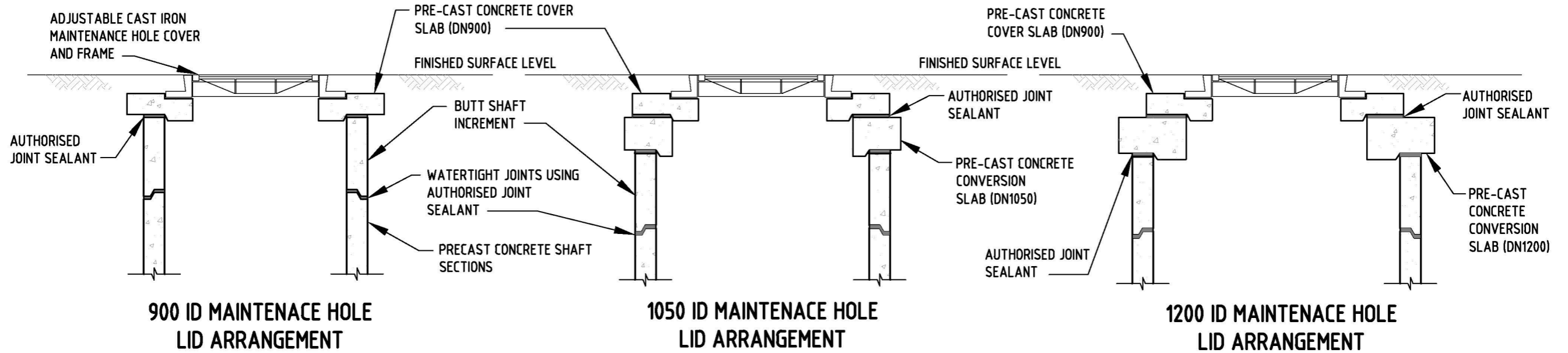


DETAIL 2
TYPICAL WALL REPAIR

NOTES:

- REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
- APPLICATION OF PRECAST SECTIONS JOINT SEALANT:
 - INSPECT COMPONENTS TO ENSURE THERE IS NO DAMAGE TO JOINING SURFACES.
 - ATTACH SEALANT STRIP TO EACH SLOPING FACE.
 - TOP INCREMENT LOWERED INTO PLACE.
 - SEALING COMPOUND IS SQUEEZED INTO JOINT.
- WALL REPAIR OF CORED HOLE
 - CORE HOLE IN WALL.
 - CLEAN EDGES OF CUT HOLE AROUND INTERNAL/ EXTERNAL WALLS MIN 50 AROUND HOLE.
 - INSERT PIPE & FILL GAP WITH EPIREZ 633, FERROPRE OR APPROVED EQUIVALENT.
 - FOR THICK IN SITU WALLS, MORTAR IS PERMITTED FOR EXTERNAL PORTION (50%).
 - FOLLOWING MANUFACTURERS DRYING TIME REAPPLY FILLER TO INTERNAL WALL TO SEAL ANY POTENTIAL GAPS.
- CONCRETE POURED IN SITU SHALL BE GRADE N40 IN ACCORDANCE WITH AS 1379.
- ALL DIMENSIONS IN MILLIMETRES.

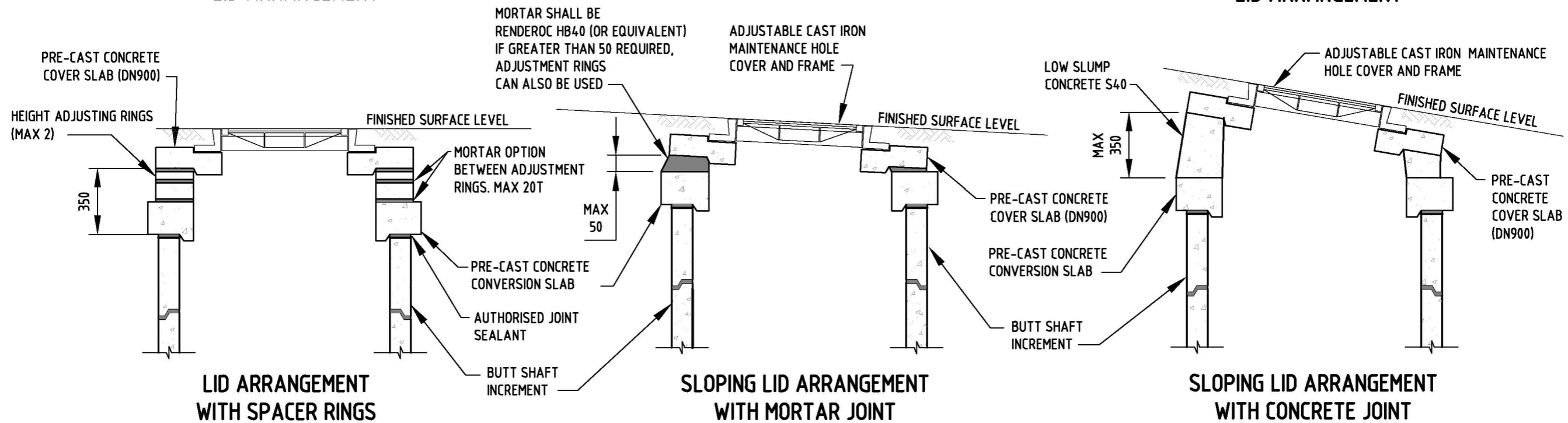
REVISION PANEL					DESIGN PANEL			SA WATER STANDARD DRAWINGS		A3	2
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 03/08/15		AUTHORISED: 31/03/16	SEWER CONSTRUCTION MANUAL	SHT SIZE	REVISION
2	03/04/17	RP	MAX. DEPTH DIMENSION TO MH INVERT			RJP	T.GALEK	This drawing is the property of the SOUTH AUSTRALIAN WATER CORPORATION and shall not be copied or modified in part or in whole without authorization.	TOTAL SHEETS:		
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		MS	ORIGINAL SIGNED		SUPERSEDES: L4, L5		
						TG			DRAWING NUMBER		
								4005-20005-03		PREFIX NUMBER SHEET	



900 ID MAINTENACE HOLE LID ARRANGEMENT

1050 ID MAINTENACE HOLE LID ARRANGEMENT

1200 ID MAINTENACE HOLE LID ARRANGEMENT



LID ARRANGEMENT WITH SPACER RINGS

SLOPING LID ARRANGEMENT WITH MORTAR JOINT

SLOPING LID ARRANGEMENT WITH CONCRETE JOINT

FINISHED SURFACE LEVEL TOLERANCES	
SITUATION	TOLERANCES
IN ROAD RESERVE INCLUDING SEALED PAVEMENTS, ROAD VERGES DRIVEWAYS, FOOTPATHS, PEDESTRIANS THOROUGHFARES.	+10 mm HIGH - 5 mm LOW
SEALED AND TRAFFICABLE AREAS WITHIN PRIVATE PROPERTIES. (PEDESTRIAN AND/OR VEHICULAR TRAFFIC)	+15 mm HIGH - 5 mm LOW
IN PRIVATE PROPERTY INCLUDING GARDEN AREAS, UNSEALED AREAS, NON-TRAFFICABLE AREAS OR AREAS OF OCCASIONAL TRAFFIC (PEDESTRIAN AND/OR VEHICLE TRAFFIC)	+20 mm HIGH - 5 mm LOW

NOTES:

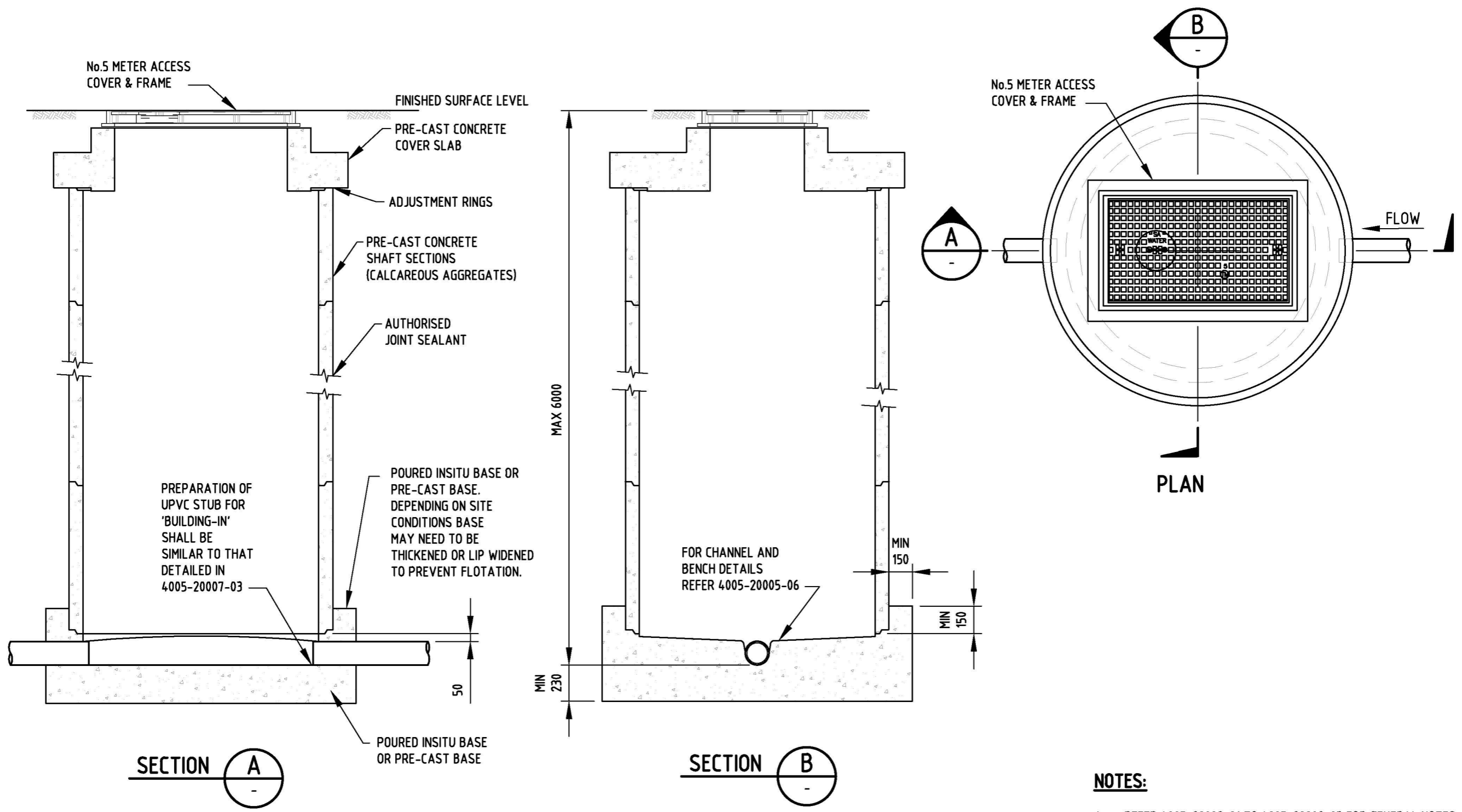
1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. REFER 4005-20005-03, NOTE 2 FOR INSTRUCTIONS REGARDING COMPONENTS.
3. APPROVED METHODS OF ACHIEVING THE REQUIRED FINISHED LEVEL (FSL) ARE PRESENTED ON THIS DRAWING.

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	

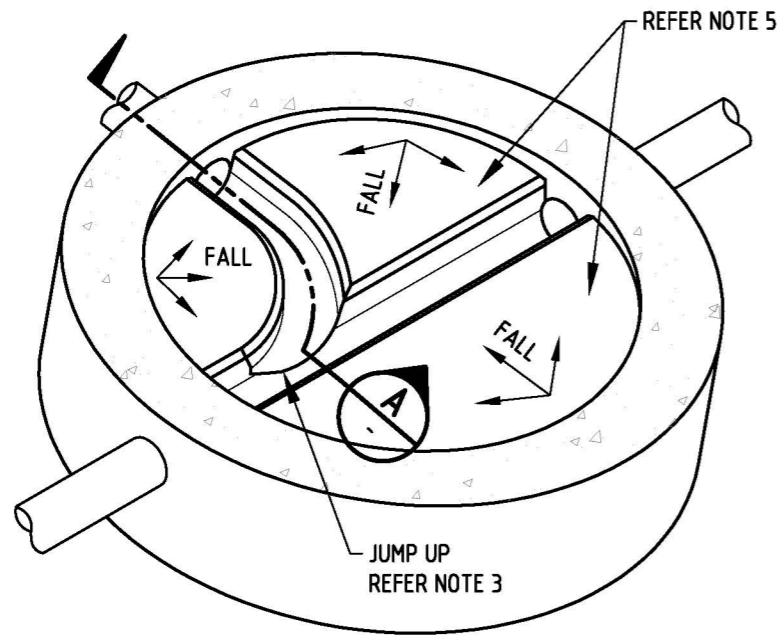
**SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE HOLE LID ADJUSTMENT
TYPICAL DETAILS**

A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: L5, L6, L15	
DRAWING NUMBER	
4005-20005-04	
PREFIX	NUMBER SHEET

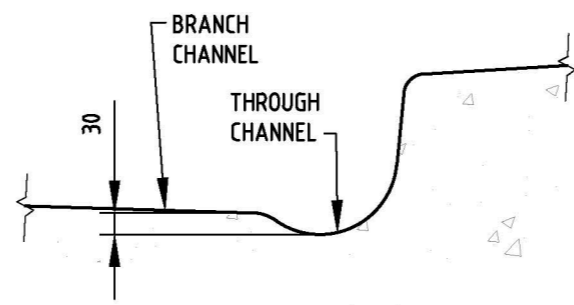


- NOTES:**
- REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
 - ALL DIMENSIONS IN MILLIMETRES.

REVISION PANEL					DESIGN PANEL			 SA WATER STANDARD DRAWINGS SEWER CONSTRUCTION MANUAL 1500 ID MAINTENANCE HOLE TYPICAL DETAILS	A3 SHT SIZE		1 REVISION	
REV	DATE	DRN	DETAILS	APR	CURRENT REV	AUTHORISED:			TOTAL SHEETS:			
						RJP	T.GALEK	SUPERSEDES:	94-0167-08 (L8)			
						DRAWN: MS	SIGNATURE:	DRAWING NUMBER	4005-20005-05			
						REVIEWED: TG	<i>T. Galek</i>	PREFIX	NUMBER	SHEET		
1	31/03/16	MS	2016 STANDARDS REVIEW	TG			 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.					

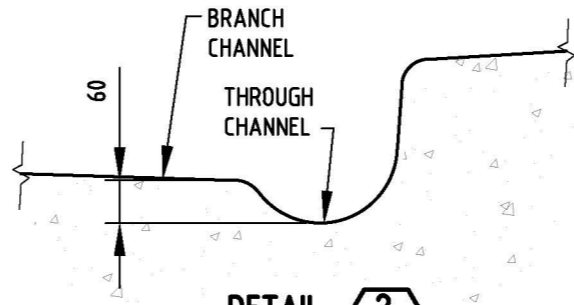


TYPICAL BRANCH



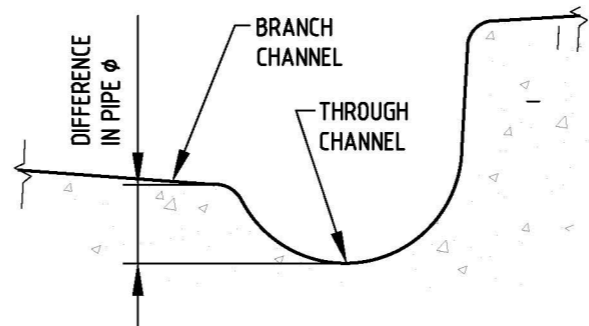
DETAIL 1

JUNCTION BETWEEN SEWERS OF EQUAL DIAMETER (BRANCH DEFLECTION >45° AND ≤ 90°)



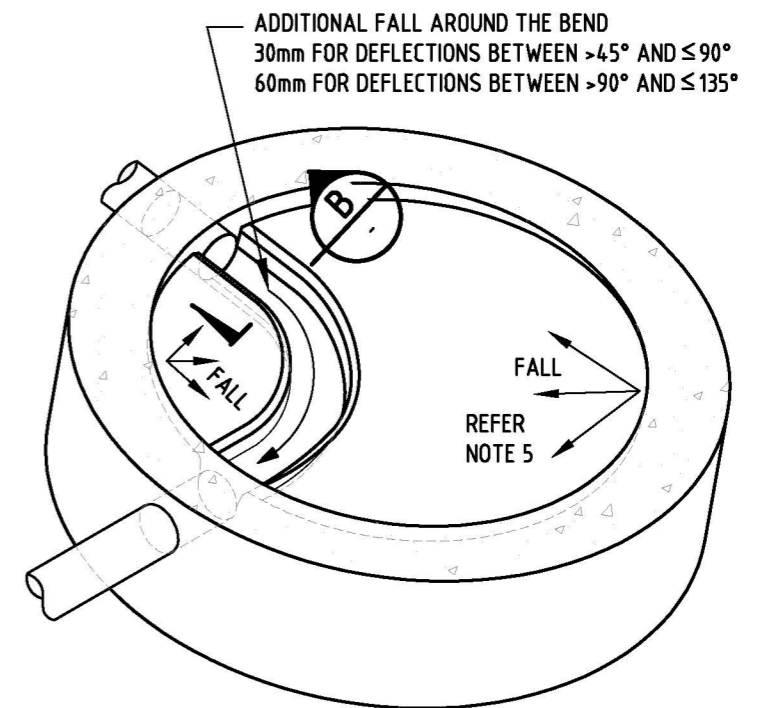
DETAIL 2

JUNCTION BETWEEN SEWERS OF EQUAL DIAMETER (BRANCH DEFLECTION >90°)

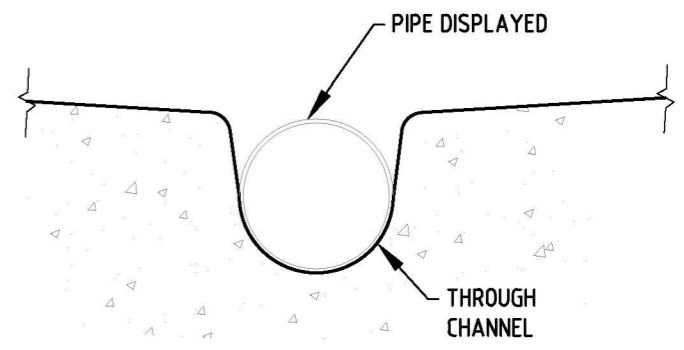


DETAIL 3

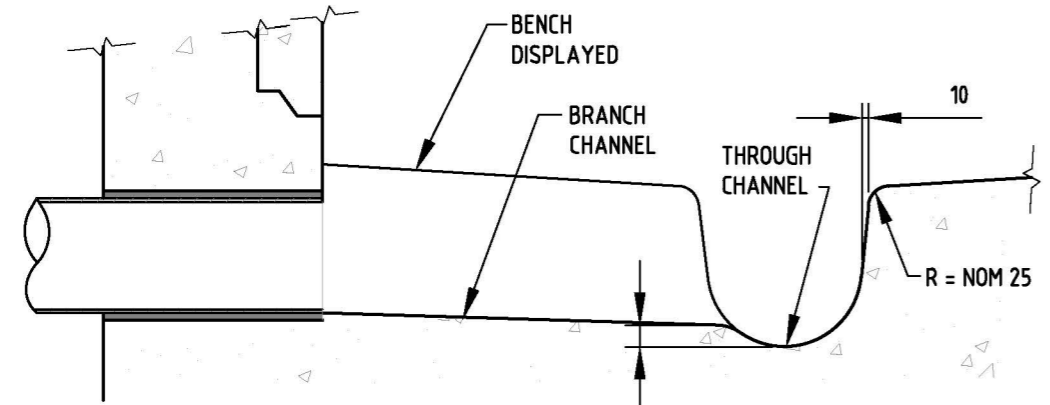
JUNCTION BETWEEN SEWERS OF DIFFERENT DIAMETER DN300 OR LARGER



BEND (TYPICAL)



SECTION B



SECTION A


REFER DETAIL 1, 2 & 3

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. RADIUS OF CURVATURE TO THE INSIDE WALL OF THE CHANNEL SHALL BE EQUAL TO THE PIPE DIAMETER FOR THAT PARTICULAR BEND/ BRANCH.
3. 'JUMP-UPS' AND ADDITIONAL FALL AROUND BENDS ARE APPLICABLE UP TO DN225 SEWERS ONLY.
4. FOR SEWERS DN300 & DN375 THE JUNCTION WITH BRANCH SEWERS SHALL BE DESIGNED TOP TO TOP.
5. BENCH FALL FROM WALL TO CHANNEL = 25 - 30 mm.
6. ALL DIMENSIONS IN MILLIMETRES.

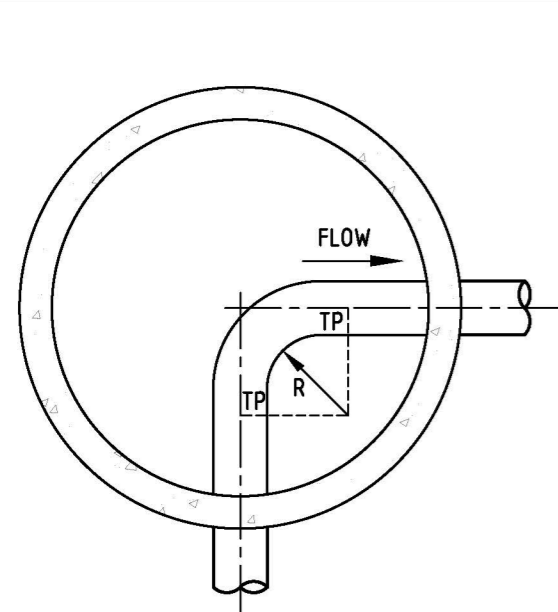
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
1	03/08/15	MS	2016 STANDARDS REVIEW	TG

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	

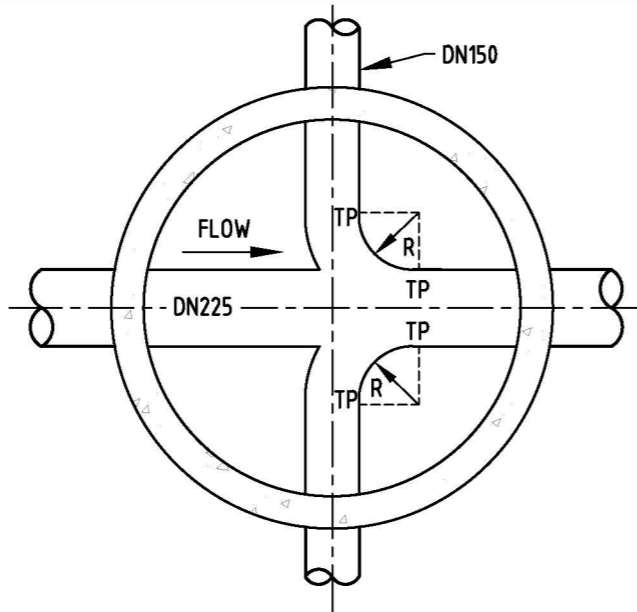

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SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE HOLE
BENCH & CHANNEL
TYPICAL DETAIL

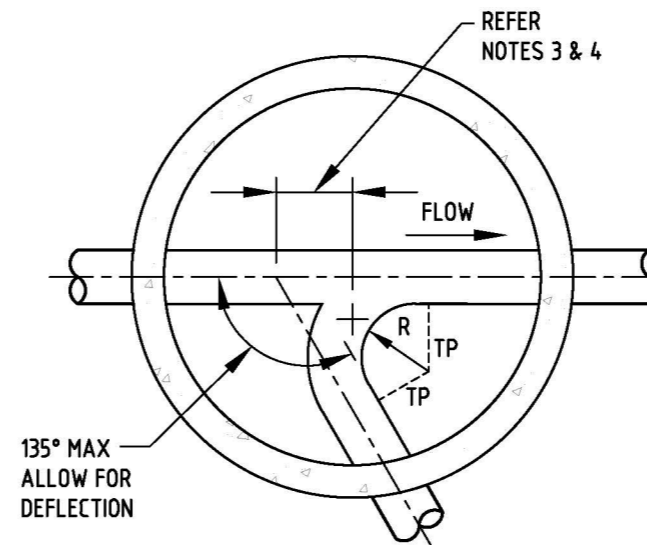
A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0167-09 (L9)	
DRAWING NUMBER	
4005-20005-06	
PREFIX	NUMBER SHEET



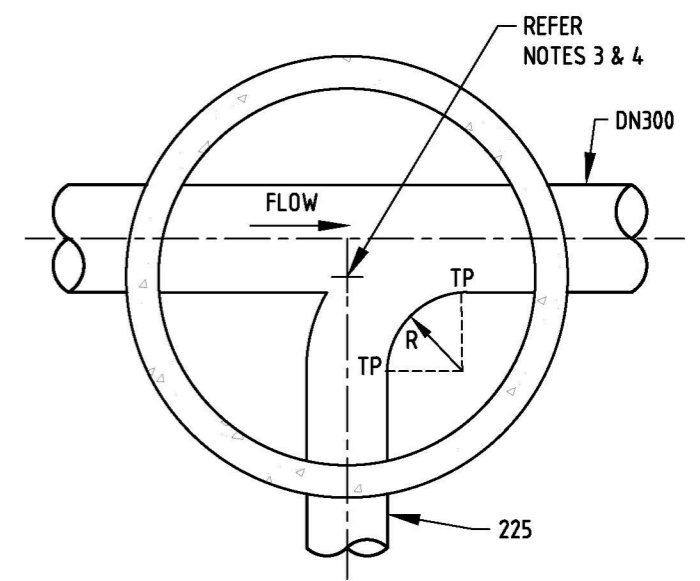
90° BEND



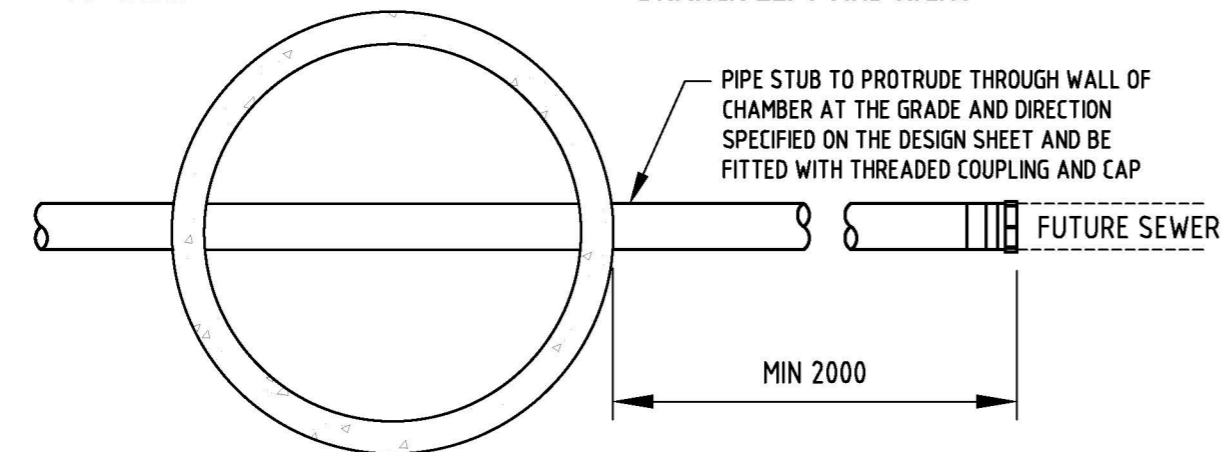
BRANCH LEFT AND RIGHT



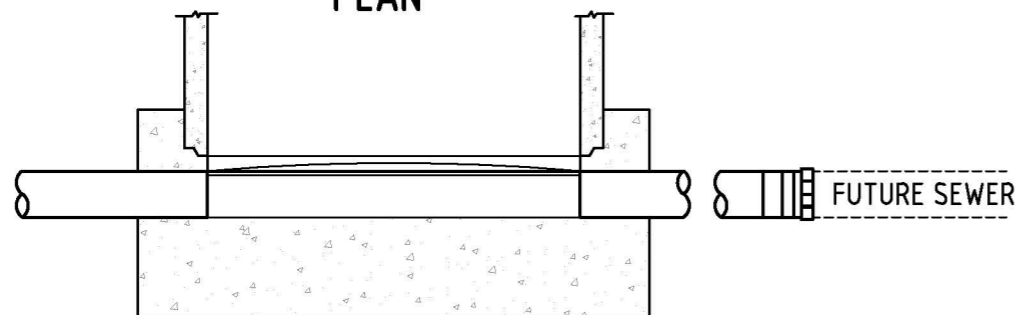
OBTUSE BRANCH



BRANCH INTO LARGER MAIN
(MH IS OFFSET REFER NOTE 3)

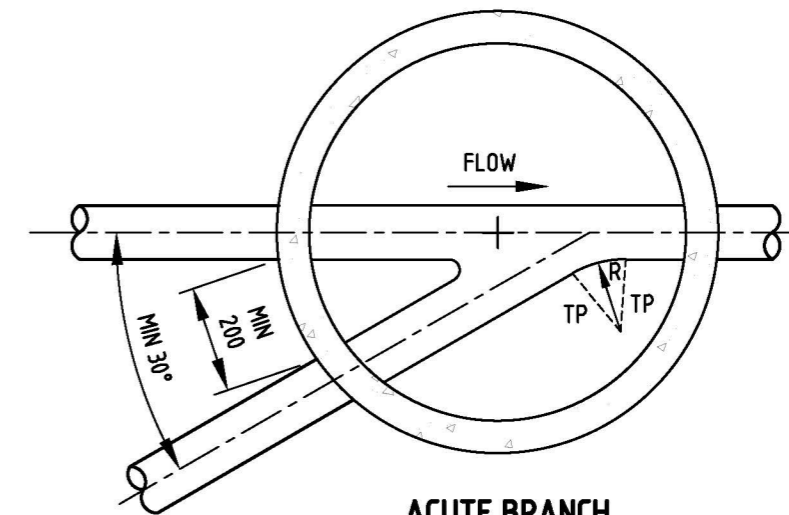


PLAN



ELEVATION

MAINTENANCE HOLE WITH TEMPORARY END



ACUTE BRANCH

NOTES:


1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. RADIUS OF CURVATURE (R) TO THE INSIDE WALL OF THE BEND SHALL BE EQUAL TO THE PIPE DIAMETER FOR THAT PARTICULAR BEND/ BRANCH.
3. MAINTENANCE HOLE MAY BE OFFSET FROM THE INTERSECTION POINT TO ENSURE MAXIMUM LENGTH OF OPEN CHANNEL OR FOR THE TEMPORARY END OPTION MAINTAIN THE MINIMUM 200 LENGTH OF THE SHAFT SECTION.
4. ALL TANGENT POINTS OF BENDS AND BRANCHES SHALL BE CONTAINED WITHIN MAINTENANCE HOLE.
5. ALL DIMENSIONS IN MILLIMETRES.

LEGEND:

- R RADIUS - REFER NOTE 2
- TP TANGENT POINT
- + CENTRE OF ACCESS CHAMBER
- INTERSECTION POINT

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	

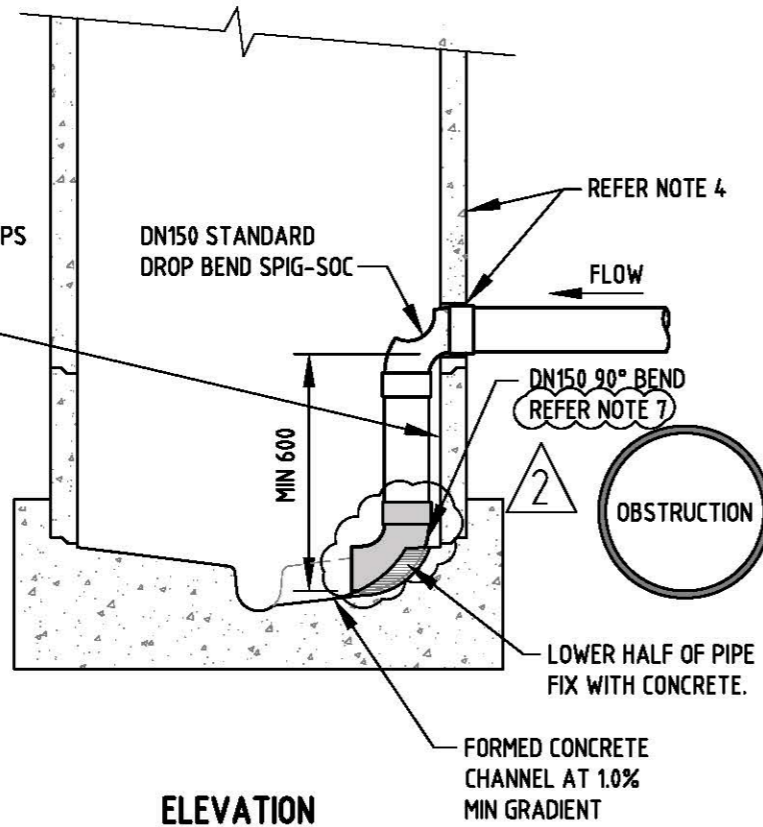


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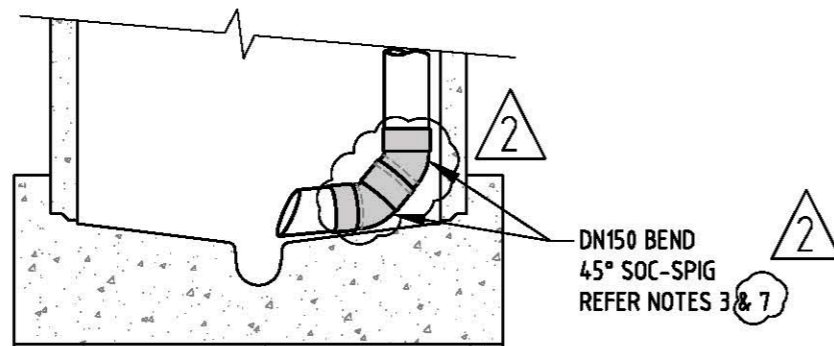
SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE HOLE
CHANNEL CONFIGURATIONS
AND TEMPORARY END

A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0167-10 (L10)	
DRAWING NUMBER	
4005-20005-07	
PREFIX	NUMBER SHEET

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

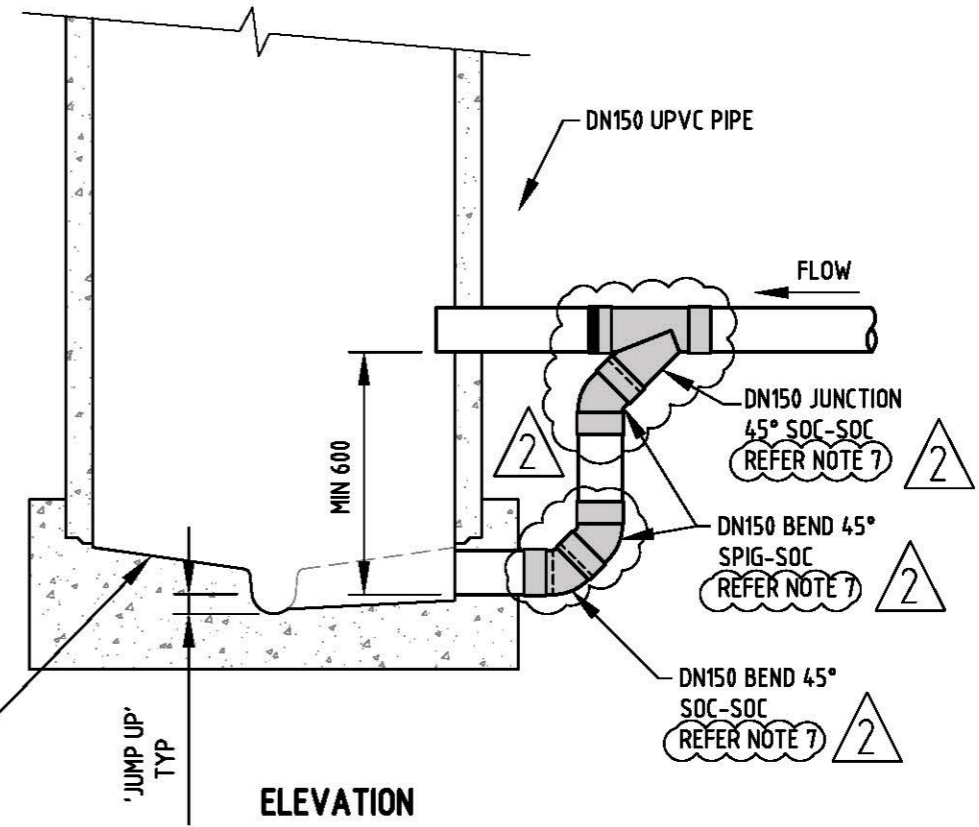


ELEVATION
NEW MAINTENANCE HOLE
INTERNAL JUMP UP OPTION
(PREFERRED)



ELEVATION
EXISTING MAINTENANCE HOLE
INTERNAL JUMP UP OPTION

FOR CHANNEL AND
BENCH DETAIL
INCLUDING 'JUMP UP'
REFER 4.005-20005-06.




ELEVATION
NEW MAINTENANCE HOLE
EXTERNAL JUMP UP OPTION

NOTES:

1. REFER 4.005-20001-01 TO 4.005-20001-03 FOR GENERAL NOTES.
2. THE INTERNAL JUMP UP OPTION SHALL BE PREFERRED METHOD. THE EXTERNAL JUMP UP OPTION IS SUBJECT TO APPROVAL BY SA WATER REPRESENTATIVE.
3. DISCHARGE PIPE TO BE TURNED TO DIRECT SEWAGE IN DIRECTION OF MAIN FLOW.
4. REFER TO 4.005-20005-03 FOR MAINTENANCE HOLE TYPICAL PRECAST STRUCTURE ASSEMBLY DETAILS AND INSTALLATION OF THE PIPE THROUGH THE WALL.
5. EXTERNAL JUMP UP: FOR STEEP SEWER GRADIENTS, USE ADDITIONAL BEND(S) TO ENSURE 'JUMP UP' REMAINS VERTICAL.
6. MAXIMUM OF 2 INTERNAL JUMP-UPS PER MAINTENANCE HOLE IS PERMITTED.
7. ALL FITTINGS IDENTIFIED BY SHADING SHALL BE A 'REINFORCED' FITTING. REFER TS 0502, 3.2.1.1.
8. ALL DIMENSIONS IN MILLIMETRES.

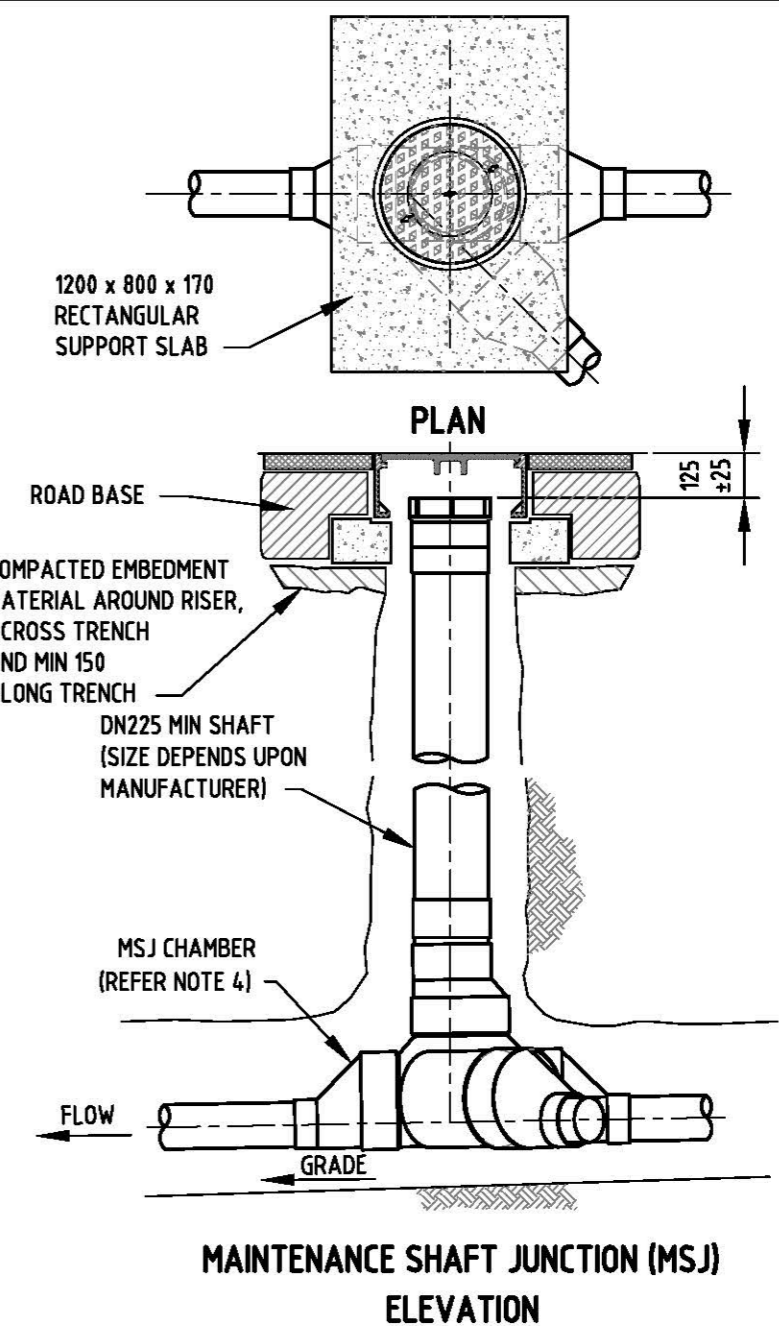
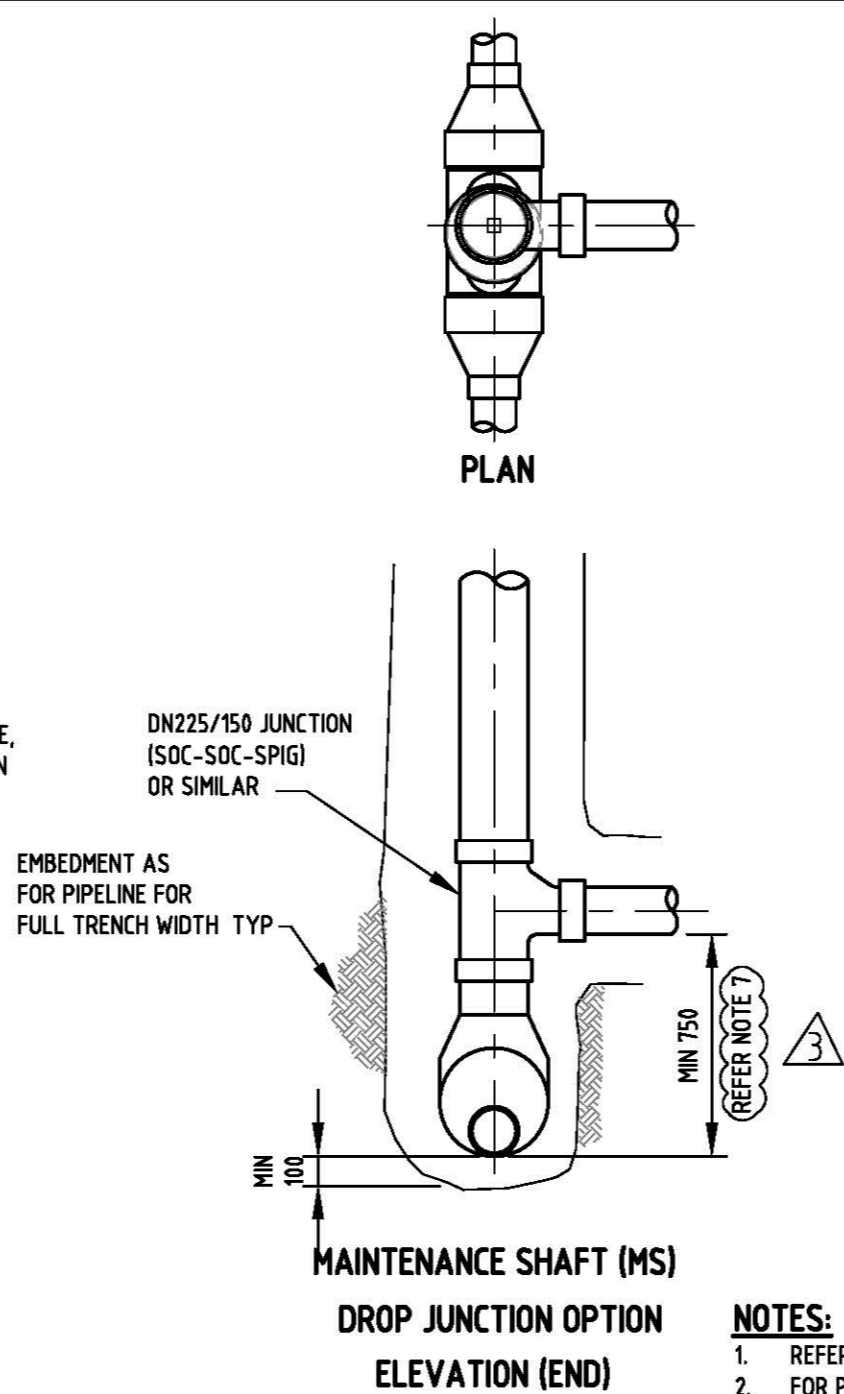
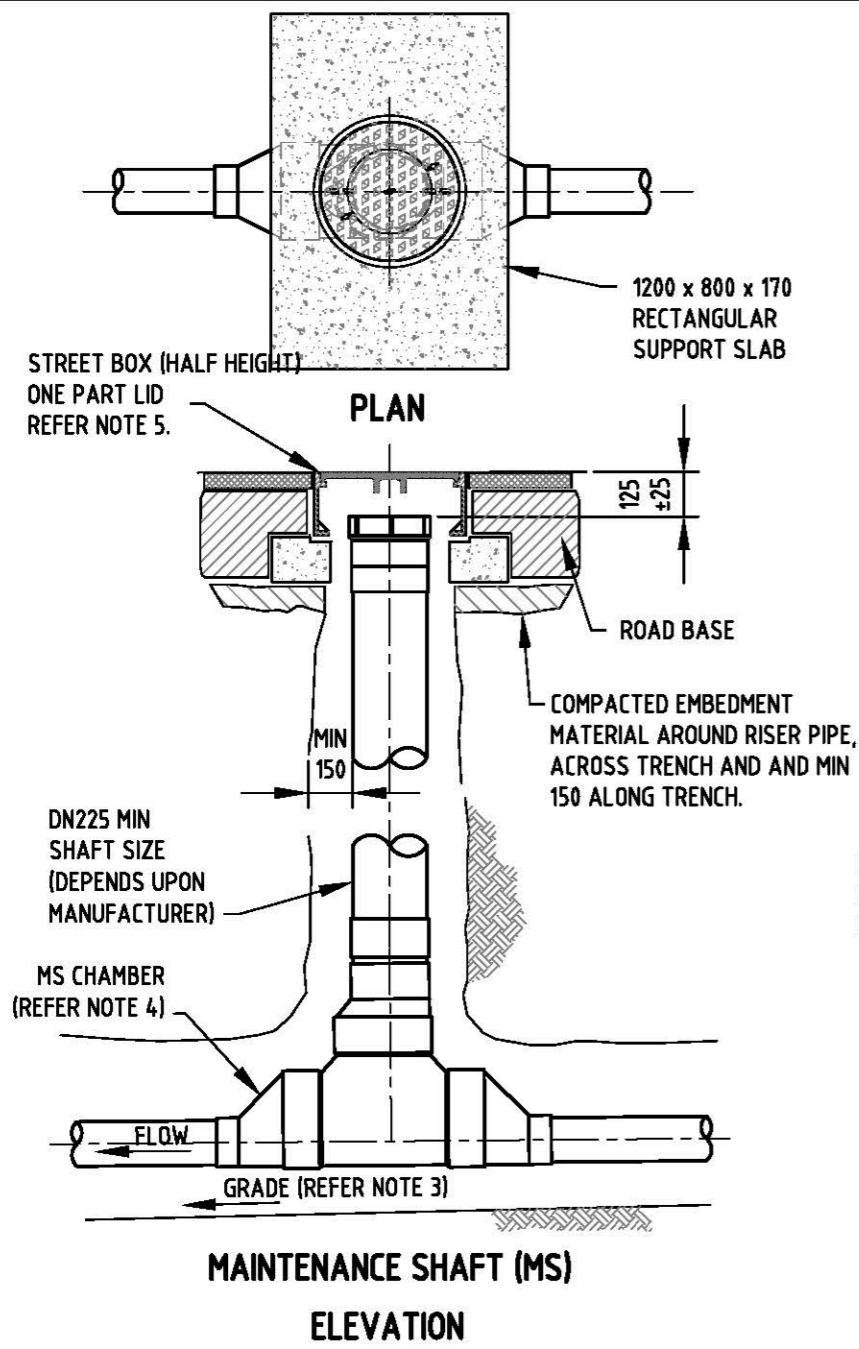
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
2	10/01/19	RP	REINFORCED FITTINGS ADDED WHERE INDICATED	TG
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

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


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SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE HOLE
WITH JUMP UP INTERNAL/ EXTERNAL
OPTIONS


A3	2
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: L11, L12	
DRAWING NUMBER	
4005-20005-08	
PREFIX	NUMBER SHEET



- NOTES:**
- REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
 - FOR PROPERTY CONNECTIONS INTO 'DROP JUNCTION' (INCLUDING APPROVED) NUMBER REFER 4005-20006-08.
 - 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 KICKER BEND IF REQUIRED TO ADJUST RISER TO VERTICAL.
 - MAINTENANCE SHAFT & COMPONENTS (BASE, SHAFT, JUNCTIONS ETC.) SHALL BE OBTAINED FROM ONE MANUFACTURER & SHALL NOT BE MIXED.
 - LID & COVER TO BE STREET BOX. LID TO BE MARKED SEWER. REFER TS 0502 FOR MANUFACTURER DETAILS. INSTALLATION TOLERANCE SHALL BE IN ACCORDANCE WITH 4005-20005-04.
 - MANUFACTURERS OF MAINTENANCE SHAFTS CONFIRM A MAXIMUM DEPTH TO INVERT VARYING FROM 3000 TO 5000. THE DESIGNED DEPTH OF THE MS SHALL BE UTILISED FOR THE SELECTION OF THE BRAND OF MS.
 - FOR THE AYMROO 'CAMS' MS THE SHOWN DIMENSION IS NOT APPLICABLE. AYMROO SHALL BE CONTACTED FOR CONFIRMATION OF HEIGHT BASED UPON USE OF THE 'CAMS' TYPE MS.
 - ALL DIMENSIONS IN MILLIMETRES.

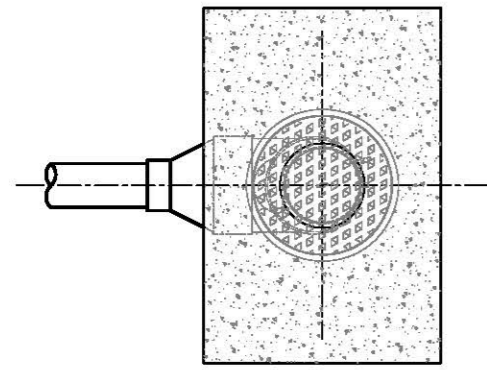
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
4	15/02/19	RP	NOTES AMENDED FOR CAMS MS DIMENSION	TG
3	22/03/18	RP	NOTES 2 & 5 CHANGED. SHROUD REMOVED.	TG
2	03/04/17	RP	COVER CHANGED TO STREET BOX. NOTES CHANGED.	TG
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

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

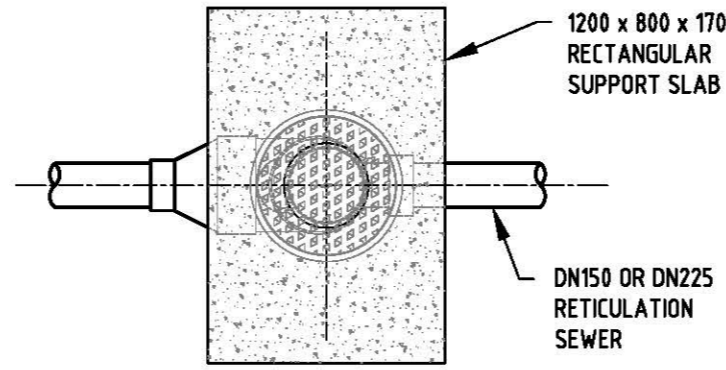

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SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE SHAFT
INSTALLATION

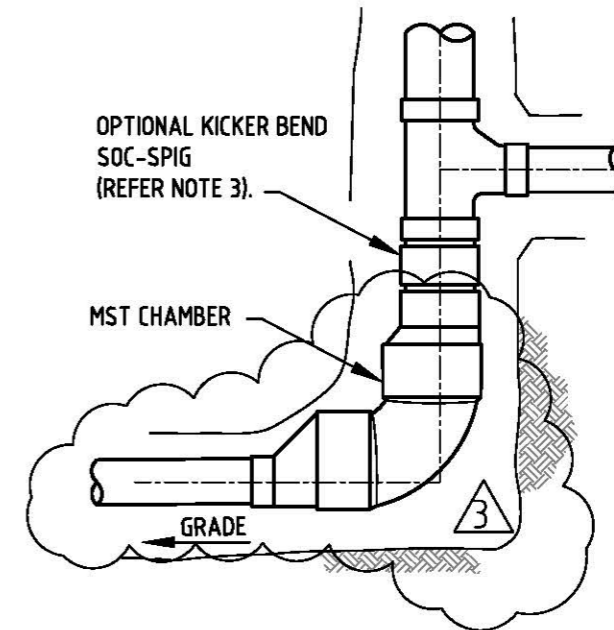
A3	4
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 02-0291-01 (L18)	
DRAWING NUMBER	
4005-20005-09	
PREFIX	NUMBER SHEET



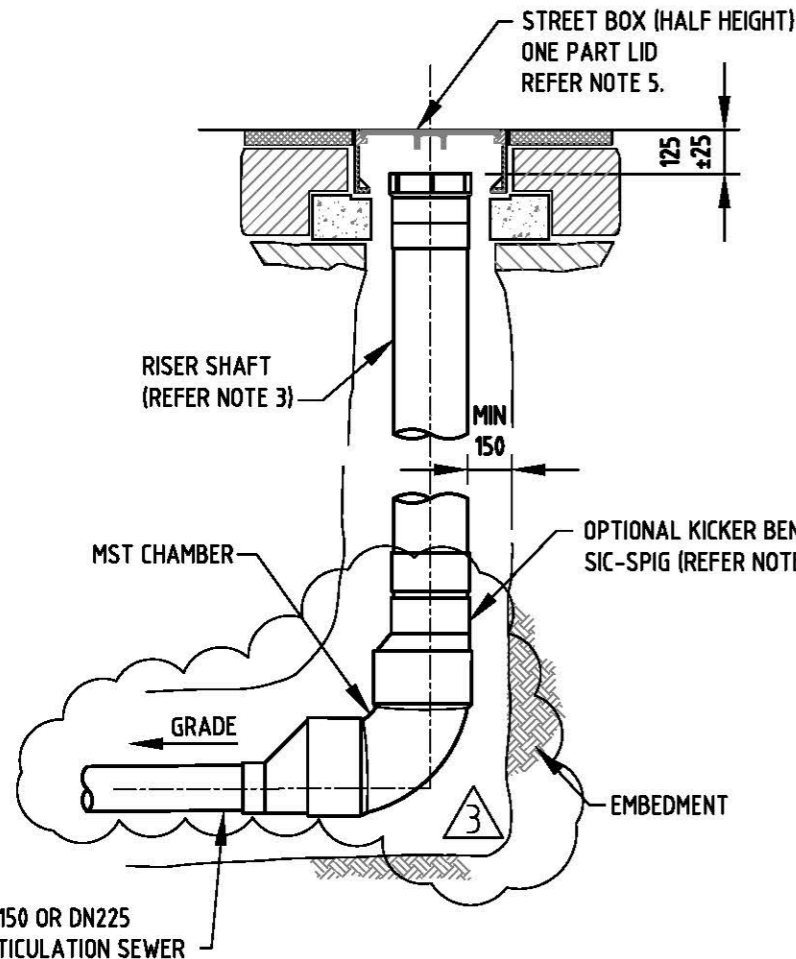
PLAN



PLAN

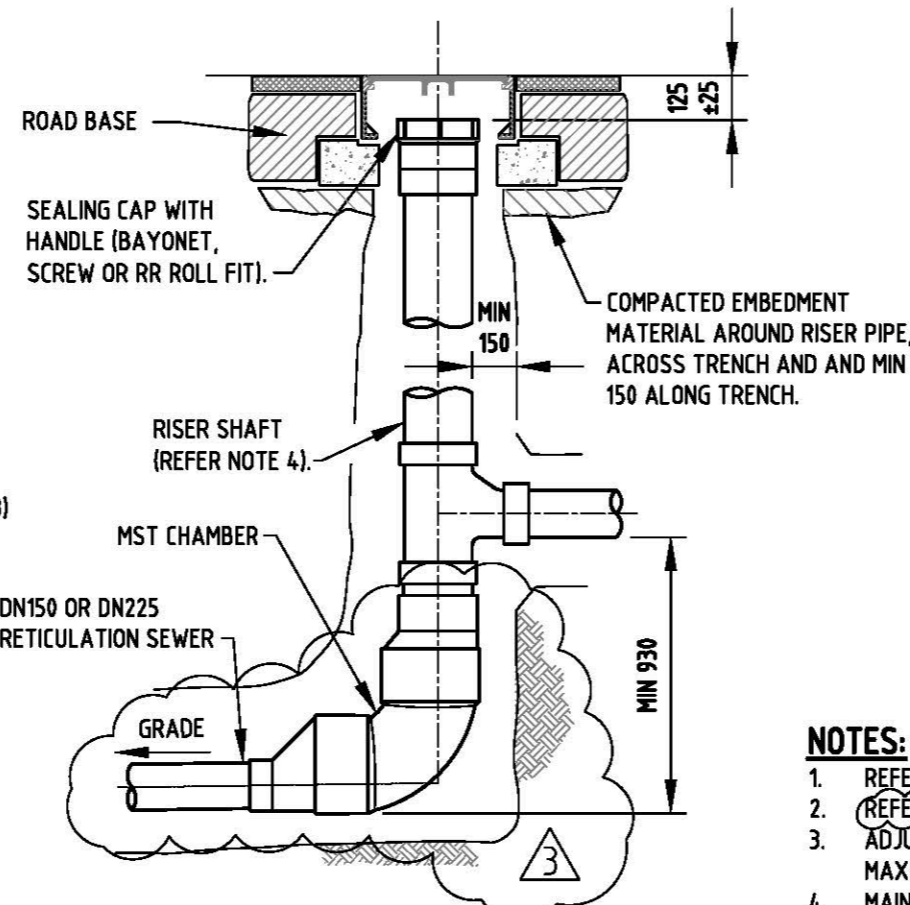


TERMINAL END (MST)
WITH DROP JUNCTION & KICKER BEND
ELEVATION



TERMINAL END (MST)

ELEVATION



TERMINAL END (MST)
WITH DROP JUNCTION


ELEVATION

NOTES:

1. REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
2. REFER 4005-20006-08 FOR PROPERTY CONNECTIONS INTO MS.
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 KICKER BEND IF REQUIRED TO ADJUST RISER TO VERTICAL.
4. MAINTENANCE SHAFT & COMPONENTS (BASE, SHAFT, JUNCTIONS ETC.) SHALL BE OBTAINED FROM ONE MANUFACTURER & SHALL NOT BE MIXED.
5. LID & COVER TO BE STREET BOX. LID TO BE MARKED SEWER. REFER TS 0502 FOR MANUFACTURER DETAILS. INSTALLATION TOLERANCE SHALL BE IN ACCORDANCE WITH 4005-20005-04.
6. MAXIMUM 1 RETICULATION PIPE PERMITTED INTO THE MAINTENANCE SHAFT RISER.
7. MANUFACTURERS OF MAINTENANCE SHAFTS CONFIRM A MAXIMUM DEPTH TO INVERT VARYING FROM 3000 TO 5000. THE DESIGNED DEPTH OF THE MS SHALL BE UTILISED FOR THE SELECTION OF THE BRAND OF MS.
8. ALL DIMENSIONS IN MILLIMETRES.

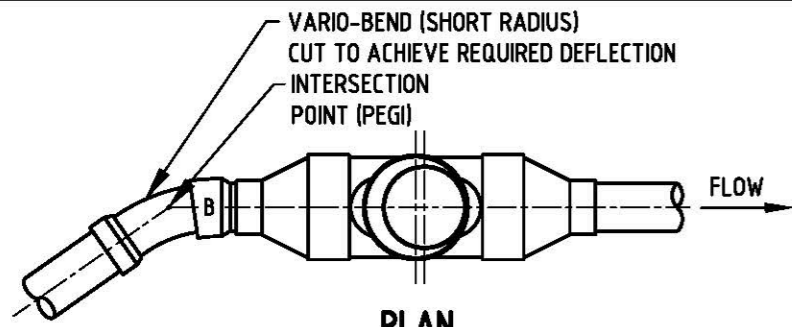
REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
3	08/05/18	MT	MST FITTINGS CHANGED. NOTES CHANGED.	
2	03/04/17	RP	LID & CHAMBER CHANGED TO STREET BOX	TG
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

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

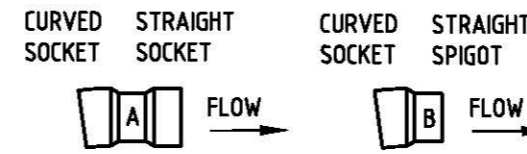
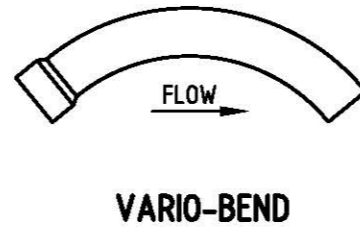

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SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE SHAFT
TERMINAL

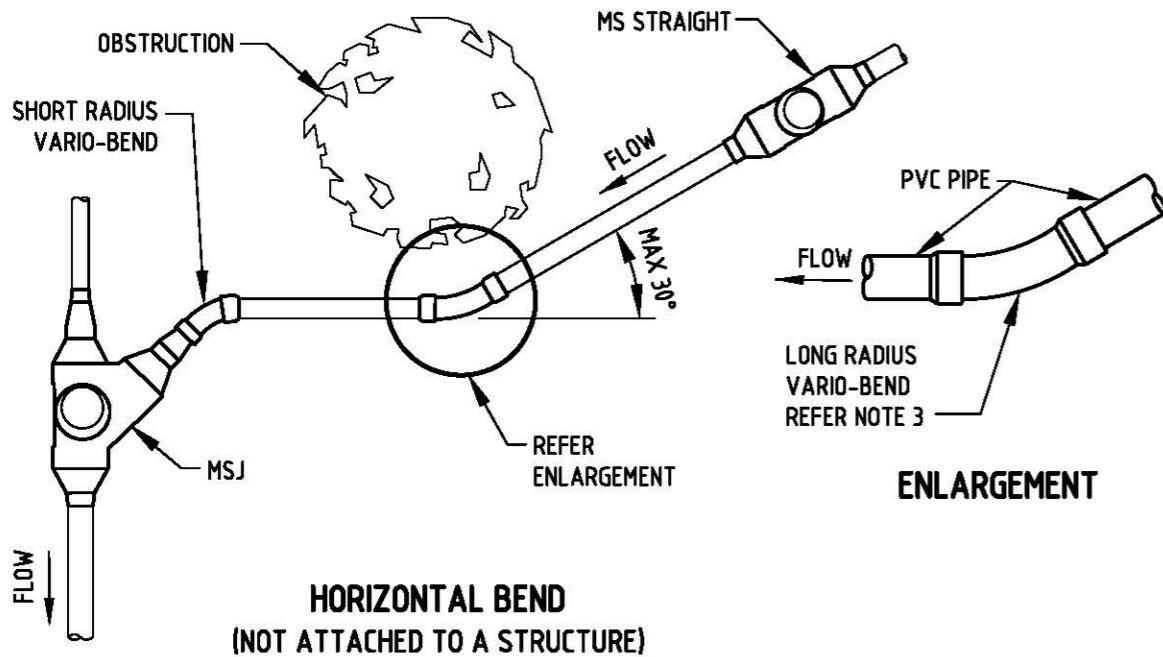
A3	3
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 02-0289-01 (L16)	
DRAWING NUMBER	
4005-20005-10	
PREFIX	NUMBER SHEET



PLAN
MS WITH HORIZONTAL BEND



VARIO-BEND ADAPTORS



ENLARGEMENT

NOTES:

- REFER 4005-20002-01 TO 4005-20002-03 FOR GENERAL NOTES.
- POSSIBLE VARIO-BEND ALTERNATIVES USING DIFFERENT COMBINATIONS OF ADAPTORS:
 - SOCKET/SPIGOT BEND
 - SOCKET/SOCKET BEND
 - SPIGOT/SPIGOT BEND
- BEND CONFIGURATION:
PIPES SHALL BE LAID FROM THE DOWNSTREAM END OF THE SYSTEM, WITH THE SOCKET ENDS FACING UPSTREAM.
SHOULD THIS NOT BE POSSIBLE, APPROVAL OF THE SA WATER REPRESENTATIVE SHALL BE SOUGHT FOR AN ALTERNATIVE ARRANGEMENT.
- HORIZONTAL BEND NOT ATTACHED TO A STRUCTURE:
LONG RADIUS VARIO-BEND OPTION ILLUSTRATED. THE USE OF MULTIPLE BENDS AND COLD BENDING OF PVC PIPE ARE ALSO PERMITTED. HOWEVER BETWEEN STRUCTURES, THE COMBINED TOTAL OF ALL DEFLECTIONS SHALL NOT EXCEED 30°.
- REFER 4005-20002-01 FOR INFORMATION ON COLD BENDING PVC PIPE.
- ALL VERTICAL BENDS SHALL BE LONG RADIUS BENDS.
- COMPOUND BENDS (HORIZONTAL AND VERTICAL BENDS AT THE SAME POINT) SHALL NOT BE USED WITHOUT SPECIFIC APPROVAL FROM THE SA WATER REPRESENTATIVE.

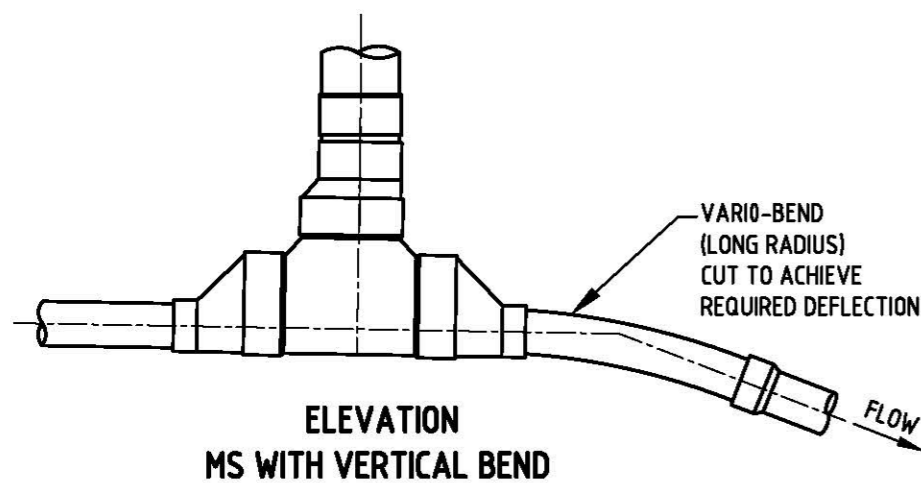


TABLE 1: 'VARIO-BEND' CUTTING DETAILS				
DEFLECTION		HORIZONTAL/VERTICAL BEND LONG RADIUS R=3000mm		HORIZONTAL BEND IMMEDIATELY UPSTREAM OF MS SHORT RADIUS R=635mm
DEGREES	%	LENGTH (mm)		
		MEASURED ALONG OUTSIDE CURVED FACE OF 'VARIO-BEND'		
		L=53.8mm PER 1°	L=12.5mm PER 1°	
2	3.49	MIN 110	N/A	
3	5.24	160	N/A	
4	6.99	215	N/A	
5	8.74	270	N/A	
6	10.51	325	N/A	
7	12.27	375	N/A	
8	14.05	430	MIN	100
9	15.83	485	110	
10	17.63	540	125	
11	19.43	590	135	
12	21.25	645	150	
13	23.08	700	160	
14	24.93	755	175	
15	26.79	805	185	
16	28.67	860	200	
17	30.57	915	210	
18	32.49	970	225	
19	34.43	1020	235	
20	36.40	1075	250	
21	38.38	1130	260	
22	40.40	1185	275	
23	42.44	1235	285	
24	44.52	1290	300	
25	46.63	1345	310	
26	48.77	1400	325	
27	50.95	1450	335	
28	53.17	1505	350	
29	55.43	1560	360	
30	57.73	MAX 1615	375	
31	60.08	-	390	
32	62.48	-	400	
33	64.94	-	415	
34	67.45	-	425	
35	70.02	-	440	
36	72.65	-	450	
37	75.35	-	465	
38	78.12	-	475	
39	80.97	-	490	
40	83.90	-	500	
41	86.92	-	515	
42	90.04	-	525	
43	93.25	-	540	
44	96.56	-	550	
45	100.00	-	MAX	565

REVISION PANEL				
REV	DATE	DRN	DETAILS	APR
2	23/07/18	RP	NOTE 3 CHANGED.	
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			
REVIEWED:	21/03/16	ORIGINAL SIGNED	
TG			

SA Water
Government of South Australia

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SA WATER STANDARD DRAWINGS
SEWER CONSTRUCTION MANUAL
MAINTENANCE SHAFT
VARIO BEND OPTIONS
AND CUTTING TABLE

A3	2
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 02-0290-01 (L17)	
DRAWING NUMBER	
4005-20005-11	
PREFIX	NUMBER SHEET