

- OPTIONS:**
- THIS OPTION SHALL ONLY BE USED WHEN RISER DN ≤ 50% OF TRUNK SEWER DN
  - MS OR MH FOR DN150 AND DN225 BRANCH SEWERS
  - MH FOR DN300 AND DN375 BRANCH SEWERS

**NOTES:**

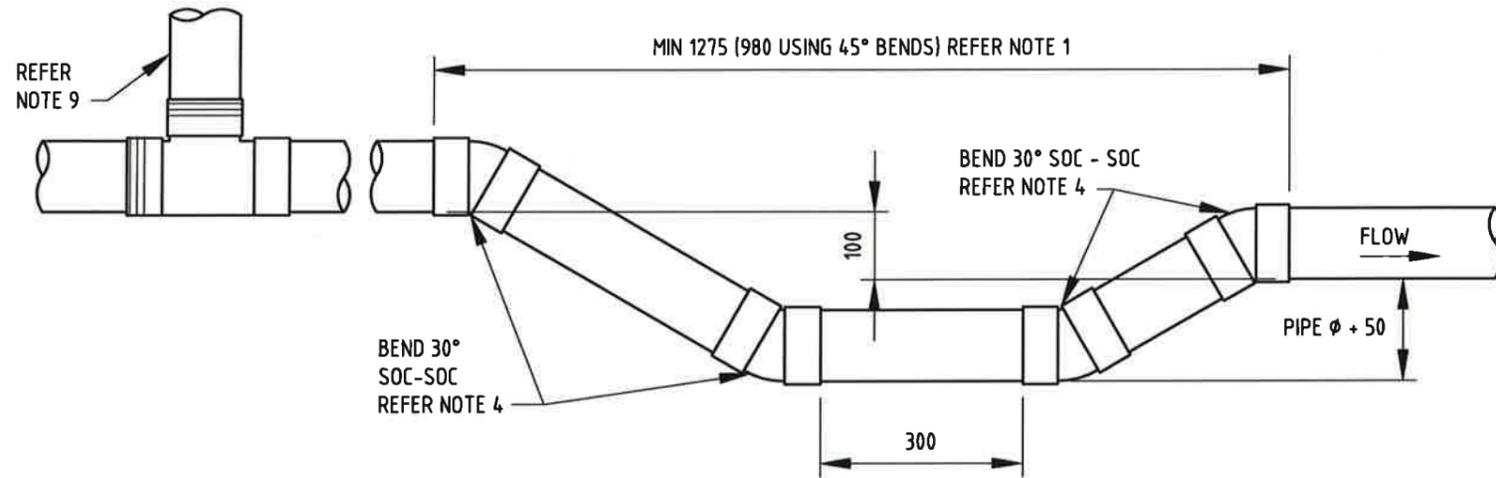
1. REFER 4005-20002-01 & 4005-20002-02 FOR GENERAL NOTES.
2. **WATER SEALS:**
  - WATER SEALS SHALL BE CONSTRUCTED ON BRANCH SEWERS UP TO AND INCLUDING DN375, WHICH FLOW INTO TRUNK SEWERS DN450 AND LARGER.
  - WATER SEALS SHALL BE LAID AT A FLAT GRADE. THE REMAINDER OF THE SEWER SHALL BE LAID ON THE DESIGNED GRADE.
  - OPTIMUM WATER SEAL DEPTH SHALL BE PIPE DIAMETER + 50 mm FOR ALL PIPE DIAMETERS.
  - WATER SEALS CAN BE FACTORY FABRICATED FROM PIPE SECTIONS (TO THE CONFIGURATION SHOWN) PARTICULARLY WHERE THE USE OF STANDARD BENDS RESULTS IN THE OPTIMUM WATER SEAL DEPTH BEING EXCEEDED.
3. **JUNCTION OF SEWERS:**
  - FOR BRANCH SEWERS UP TO AND INCLUDING DN300 THE JUNCTION OF SEWERS SHALL BE CONSTRUCTED 'TOP TO TOP'. (IN SPECIAL CIRCUMSTANCES AND DEPENDING ON SEWAGE FLOWS, THE SA WATER REPRESENTATIVE MAY DIRECT THAT THE JUNCTION BE CONSTRUCTED 'FLOW-LINE TO FLOW-LINE'.)
  - FOR BRANCH SEWERS LARGER THAN DN300 THE JUNCTION OF SEWERS SHALL BE CONSTRUCTED 'FLOW-LINE TO FLOW-LINE'.
4. **PIPE MATERIALS:**
  - APPROVED UPVC SOLVENT WELD PIPES.
  - APPROVED UPVC RIBBED PIPES FITTED WITH DUAL RUBBER RINGS AT EACH JOINT.
  - OTHER APPROVED PIPE MATERIALS (EG. VITREOUS CLAY AND CONCRETE PIPES).

REVISION PANEL				
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1	31/03/16	MS	2016 STANDARDS REVIEW	TG

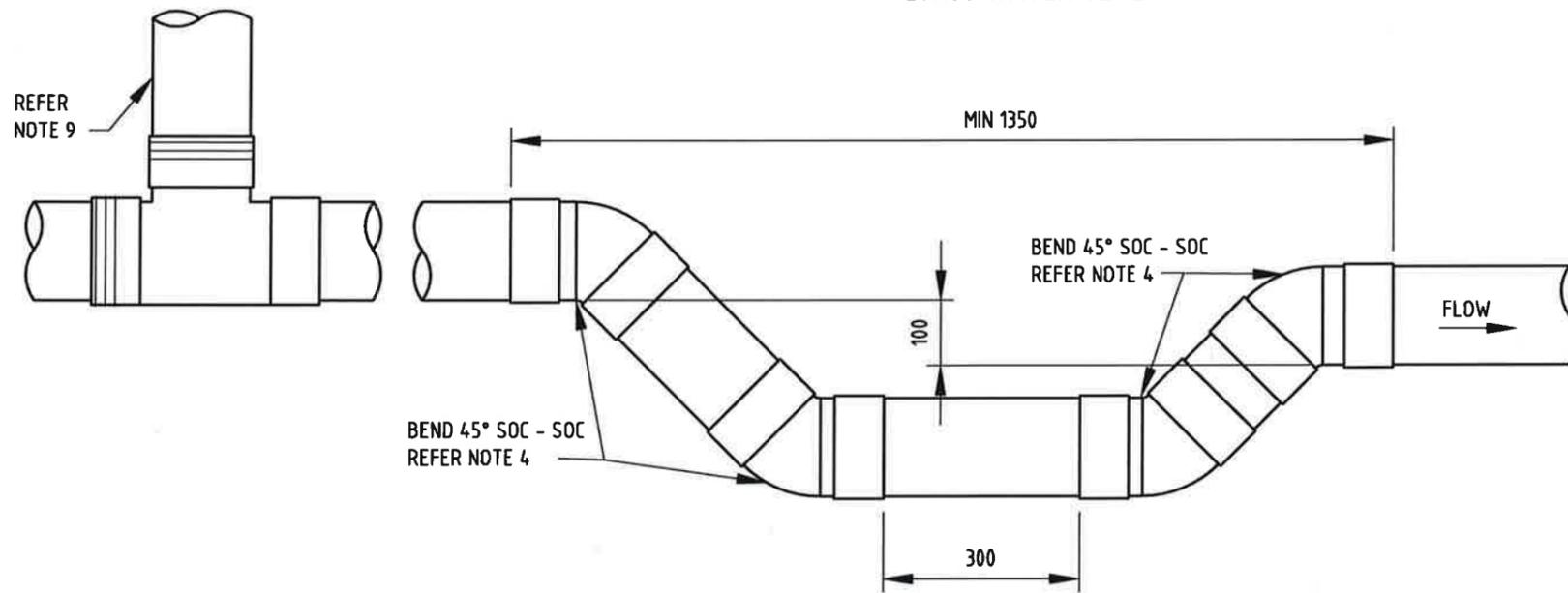
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DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 T.GALEK
DRAWN: 25/09/15 MS	SIGNATURE: T. Galek
REVIEWED: 21/03/16 TG	

**SA WATER STANDARD DRAWINGS  
SEWER CONSTRUCTION MANUAL  
WATER SEAL ASSEMBLY DETAILS  
BRANCH SEWER MAIN INTO  
TRUNK SEWER MAIN**

A3 SHT SIZE	1 REVISION
TOTAL SHEETS:	
SUPERSEDES: 96-0059-01 (H1)	
DRAWING NUMBER	
4005-20007-01	
PREFIX	NUMBER SHEET



**DN100 WATER SEAL**



**DN150 WATER SEAL**

**NOTES:**

1. REFER 4005-20002-01 & 4005-20002-02 FOR GENERAL NOTES.
2. A WATER SEAL SHALL BE CONSTRUCTED ON ALL CONNECTIONS WHICH FLOW INTO THE SEWERS DN450 AND LARGER.
3. THE WATER SEAL SHALL BE CONSTRUCTED ADJACENT AND DOWNSTREAM OF THE CONNECTION IP.
4. THE WATER SEAL SHALL BE LAID AT A FLAT GRADE. THE REMAINDER OF THE CONNECTION SHALL BE LAID AT THE DESIGNED GRADE.
5. REFER 4005-20006-03 FOR MINIMUM CONNECTION GRADE.
6. OPTIMUM WATER SEAL DEPTH SHALL BE PIPE DIAMETER + 50 FOR ALL PIPE DIAMETERS.
7. 45° BENDS SHALL ONLY BE USED WHERE SPACE IS LIMITED AND WHERE APPROVED BY THE SA WATER REPRESENTATIVE.
8. CONNECTION LENGTH SHALL NOT EXCEED 30 m.
9. REFER 4005-20006-02 FOR INSPECTION POINT CONSTRUCTION DETAIL.
10. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTE OTHERWISE.

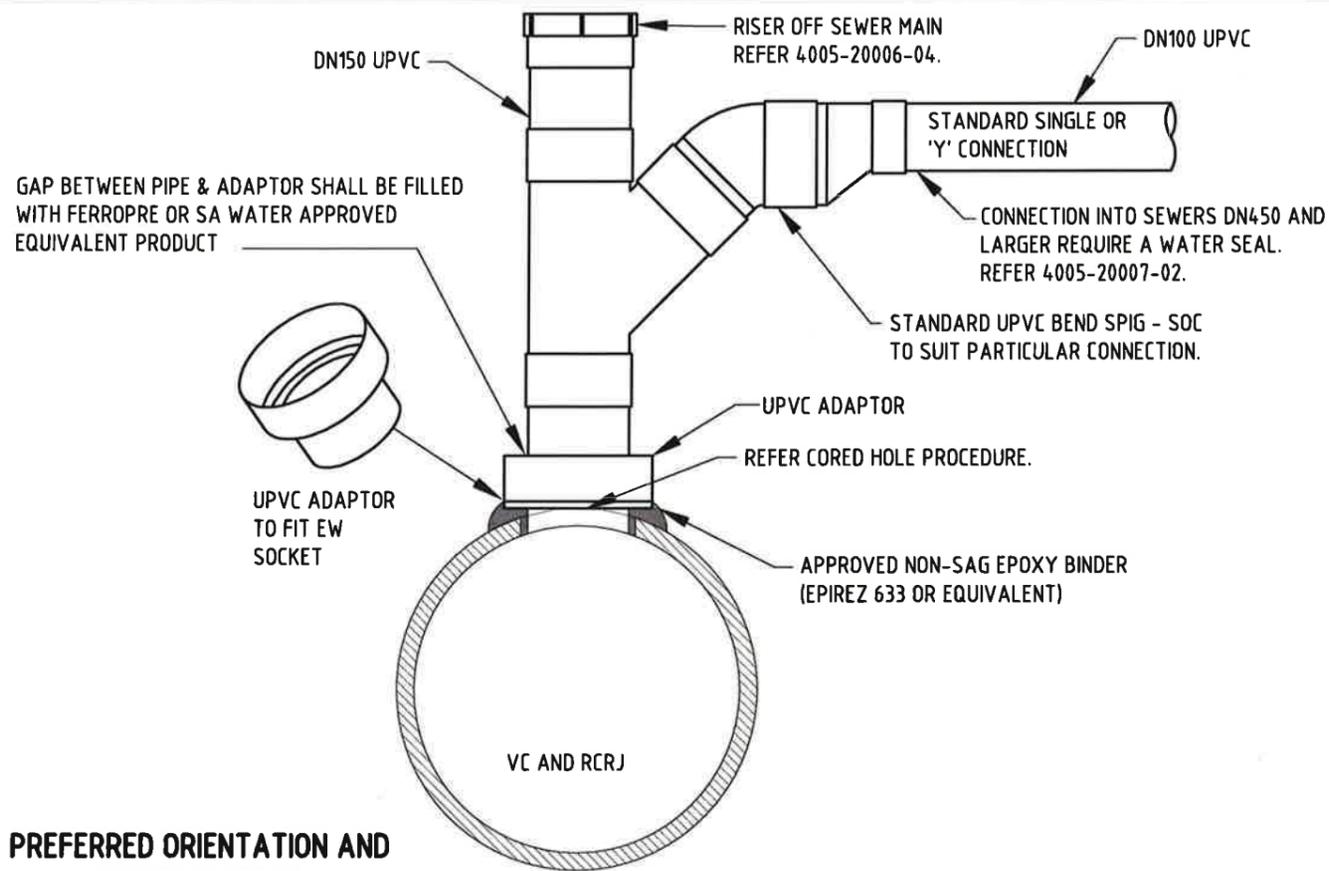
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REVIEWED: 21/03/16 TG	

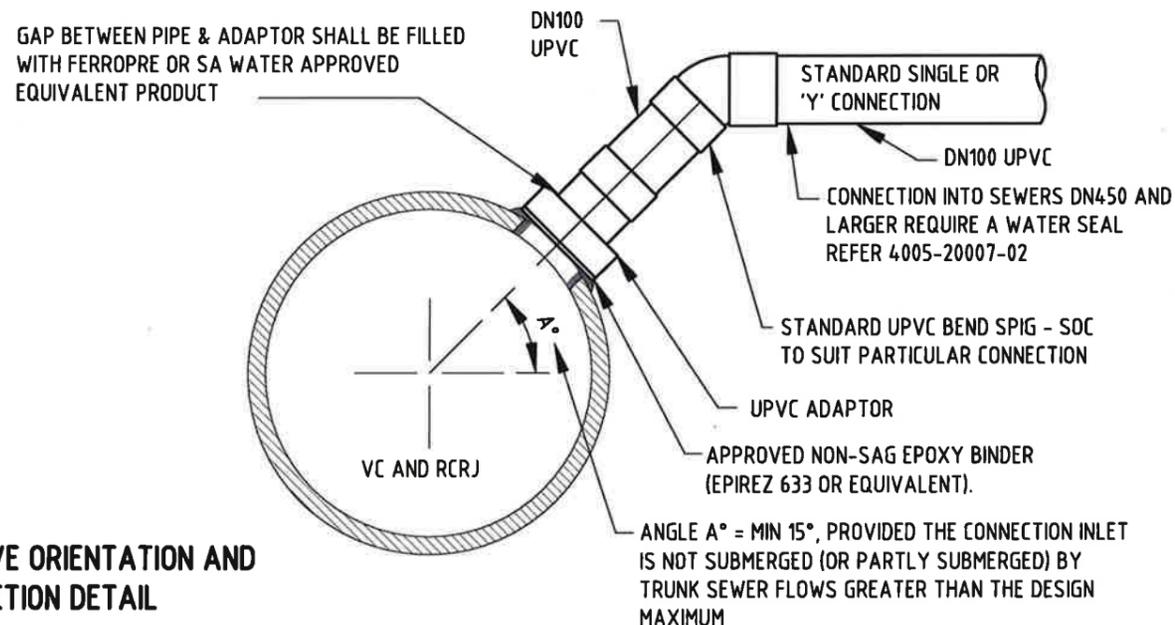
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**SA WATER STANDARD DRAWINGS  
SEWER CONSTRUCTION MANUAL  
WATER SEAL ASSEMBLY DETAILS  
PROPERTY CONNECTION INTO  
TRUNK SEWER MAIN**

A3 SHT SIZE	1 REVISION
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PREFIX	NUMBER SHEET



**PREFERRED ORIENTATION AND JUNCTION DETAIL**



**ALTERNATIVE ORIENTATION AND JUNCTION DETAIL**

**CORED HOLE:**

- ALL FACES OF THE STUB SHALL BE CUT FLUSH WITH THE INSIDE FACE OF THE TRUNK SEWER, TO AVOID SNAGGING AND TO FACILITATE THE INSTALLATION OF POSSIBLE FUTURE LININGS.
- HOLE SHALL BE CORED OVERSIZE USING A DIAMOND TIPPED CUTTER (MIN 12 - MAX 15).
- THE DRILL CORE SHALL NOT BE ALLOWED TO FALL INTO THE SEWER.
- THOROUGHLY CLEAN THE VERTICAL CUT EDGES OF THE CORED HOLE. INCLUDING A 50 WIDE BAND AROUND THE CORED HOLE ON BOTH THE INSIDE AND OUTSIDE SURFACES OF THE TRUNK SEWER, IN READINESS FOR THE STUB.
- THE CONTRACTOR SHALL RETAIN THE DRILL CORE FOR PRESENTATION TO THE INSPECTOR.

**PREPARATION OF UPVC STUB:**

- THOROUGHLY CLEAN THE OUTSIDE FACE OF THE STUB AT THE JOINT USING UPVC CLEANER.
- POINT THE CLEANED STUB WITH A THIN CONTINUOUS LAYER OF APPROVED SOLVENT CEMENT, AND SPRINKLE CLEAN COARSE DRY SAND OVER THE FRESHLY PAINTED SURFACE TO PROVIDE A 'KEY' FOR THE EPOXY BINDER.
- LEAVE TO DRY FOR 15 MINUTES BEFORE USING STUB. (ENSURE THE 'KEY' SHALL EXTEND FOR THE FULL DEPTH OF THE PROPOSED JOINT).

**INSTALLATION OF STUB:**

**STAGE 1 - PRIMING OPERATION:**

- APPLY ONE THICK COAT OF THE APPROVED EPOXY BINDER AS A PRIMER COAT:
  - TO THE OUTSIDE FACE OF THE UPVC STUB, OVER THE SAND 'KEY', FOR THE FULL DEPTH OF THE PROPOSED JOINT.
  - TO THE VERTICAL CUT EDGES OF THE CORED HOLE. FINISH THE EPOXY FLUSH WITH THE INSIDE FACE OF THE TRUNK SEWER AND EXTEND TO THE CLEANED OUTSIDE FACE AS SHOWN.

**STAGE 2 - INSTALL PRIMED STUB**

- INSTALL THE PRIMED STUB CENTRALLY (AS SHOWN) WHILE THE PRIMER COAT IS STILL 'TACKY' (WORK TIME IS APPROX. 30 MINUTES AT 25°C).
- FILL THE JOINT TO ITS FULL DEPTH WITH THE SAME EPOXY BINDER.
- FINISH THE EPOXY FLUSH WITH THE INSIDE FACE OF THE TRUNK SEWER AND EXTEND ON TO THE CLEANED OUTSIDE FACE AS SHOWN. TROWEL THE FINISHED JOINT.

NOTE: COVERAGE WITH THE EPOXY IS CRITICAL TO ACHIEVE A JOINT OF ADEQUATE MECHANICAL STRENGTH AND TO PROVIDE PROTECTION FROM CORROSION WHERE REINFORCEMENT HAS BEEN EXPOSED DURING CORING.

**RE-LINED TRUNK SEWER:**

- FOR CORING OF PIPE & INSTALLATION OF THE UPVC ADAPTOR UTILISE SAME PROCEDURES AS DETAILED ABOVE.
- AT THE CORED HOLE, INTEGRITY OF THE HOLE LINER SHALL BE PRESERVED BY UTILISATION OF A 'TOP HAT' OR FERROPRE PROTECTING THE EXPOSED EDGES.

**NOTES:**

1. REFER 4005-20002-01 & 4005-20002-02 FOR GENERAL NOTES.
2. USE ALTERNATIVE ORIENTATION OPTION WHERE DEPTH IS INSUFFICIENT TO ACHIEVE THE PREFERRED OPTION, AND WHERE APPROVED BY THE SA WATER REPRESENTATIVE.
3. METHOD SHALL NOT BE USED ON PLASTILINED PIPES.
4. SIMILAR DETAILS FOR VC AND RCRJ SEWERS.
5. TEMPORARY ISOLATION OF TRUNK SEWER (OR DIVERSION OF FLOWS) MAY BE NECESSARY DURING LIVE INSTALLATIONS.
6. DN100 CONNECTIONS ILLUSTRATED. DN150 IS AN APPROVED OPTION.
7. REFER SECTION 6 FOR CONNECTION CONSTRUCTION.
8. ALL DIMENSIONS IN MILLIMETRES.

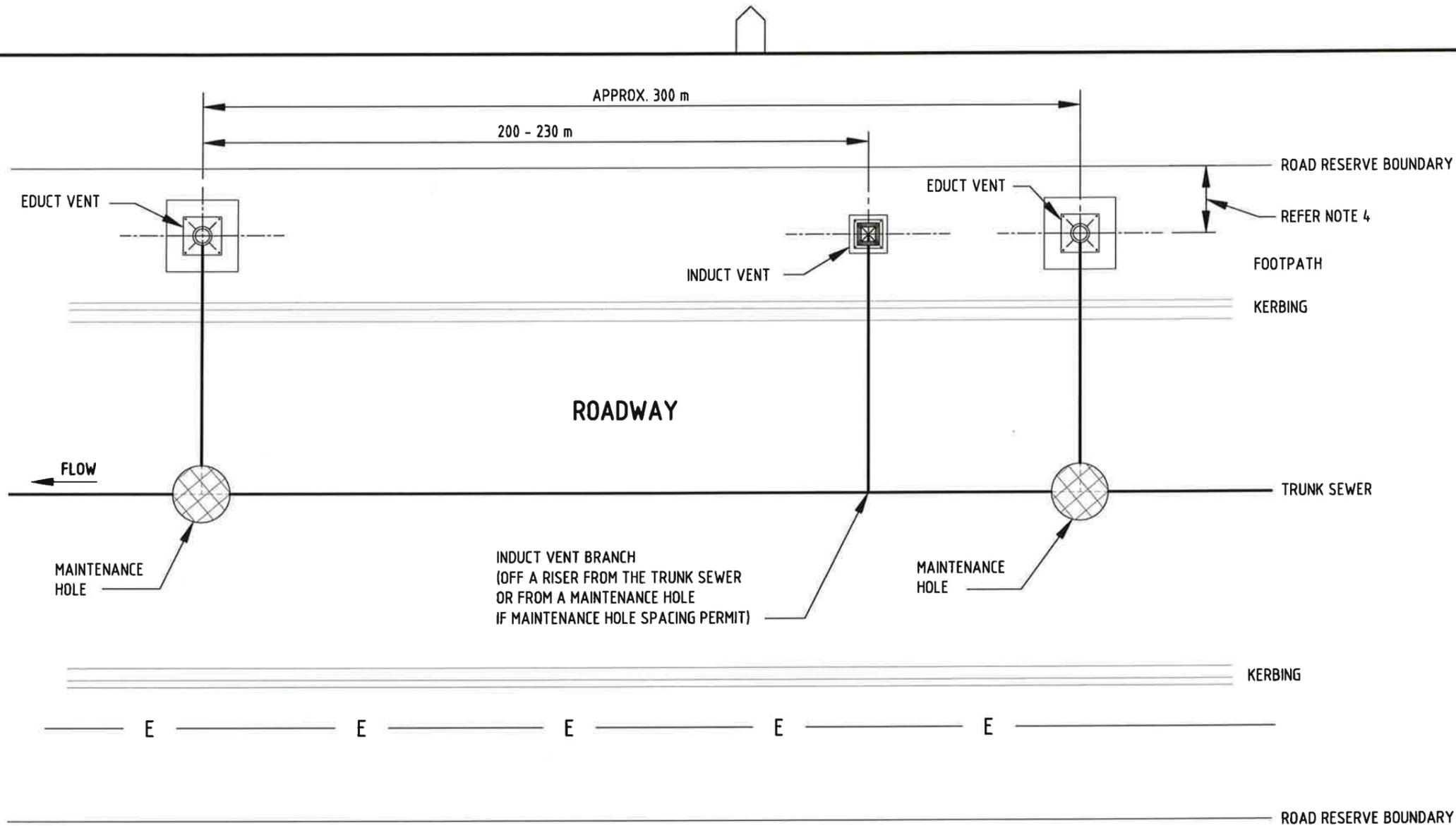
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REV	DATE	DRN	DETAILS	APR
1	31/03/16	MS	2016 STANDARDS REVIEW	TG

DESIGN PANEL	
DESIGNED: 03/08/15 RJP	AUTHORISED: 31/06/16 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  
NEW PROPERTY CONNECTION OFF  
EXISTING VC & RCRJ  
SEWER DN375 & LARGER**

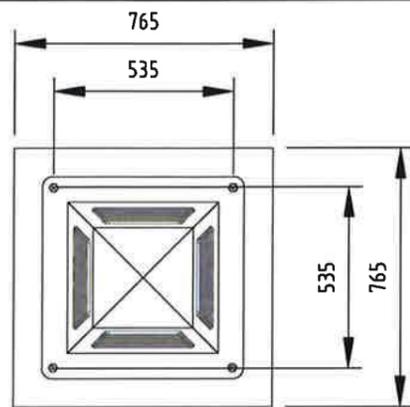
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SUPERSEDES: 94-0162-01 (K12)	
DRAWING NUMBER	
4005-20007-03	
PREFIX	NUMBER SHEET



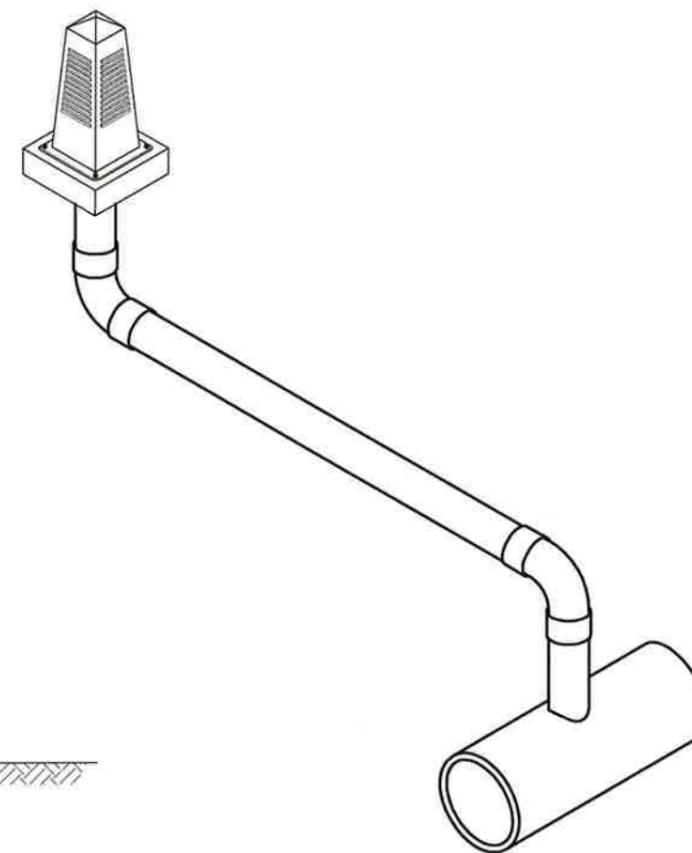
**NOTES:**

1. REFER 4005-20002-01 & 4005-20002-02 FOR GENERAL NOTES.
2. INDUCT AND EDUCT VENTS:
  - SHALL BE USED ON ALL TRUNK SEWERS DN450 AND LARGER, UNLESS OTHERWISE DIRECTED BY SA WATER REPRESENTATIVE,
  - SHALL BE SITED IN THE LEAST OBTRUSIVE LOCATION, GIVING DUE REGARD TO THE GENERAL STREETScape.
3. INDUCT VENTS (REFER 4005-20007-05)
  - CAN BE SITED ON EITHER SIDE OF THE ROAD RESERVE PROVIDING THEY ARE WELL CLEAR OF ALL UNDERGROUND SERVICES (INCLUDING SAPN, GAS, TELSTRA, OPTUS ETC), TREES, DRIVEWAYS AND ANY OTHER FACILITIES.
  - SHALL BE PREFERABLY ALIGNED WITH THE SIDE BOUNDARY OF ADJACENT ALLOTMENTS, REMOTE FROM DRIVEWAYS.
4. EDUCT VENTS, (REFER 4005-20007-06):
  - SHALL BE SITED ON THE OPPOSITE SIDE OF THE ROAD RESERVE TO SAPN OVERHEAD MAINS (OR UNDERGROUND DISTRIBUTION CABLES) .
  - WHERE THIS IS NOT POSSIBLE APPROVAL SHALL BE SOUGHT FROM THE SA WATER REPRESENTATIVE FOR THE VENTS TO BE LOCATED ON THE SAME SIDE AS THE SAPN INFRASTRUCTURE.
  - SHALL ALWAYS BE SITED WELL CLEAR OF ALL OVERHEAD AND UNDERGROUND SERVICES (INCLUDING SAPN, GAS, TELSTRA, OPTUS ETC),
  - SHALL BE WELL CLEAR OF ALL TREES, DRIVEWAYS AND ANY OTHER FACILITIES. PREFERABLY THEY SHALL BE ALIGNED WITH THE SIDE BOUNDARY BETWEEN ADJACENT ALLOTMENTS, REMOTE FROM DRIVEWAYS.
  - BOUNDARY OFFSET VARIABLE DEPENDING ON COMMON SERVICE TRENCH AND OTHER SERVICES WITHIN THE FOOTPATH AREA.

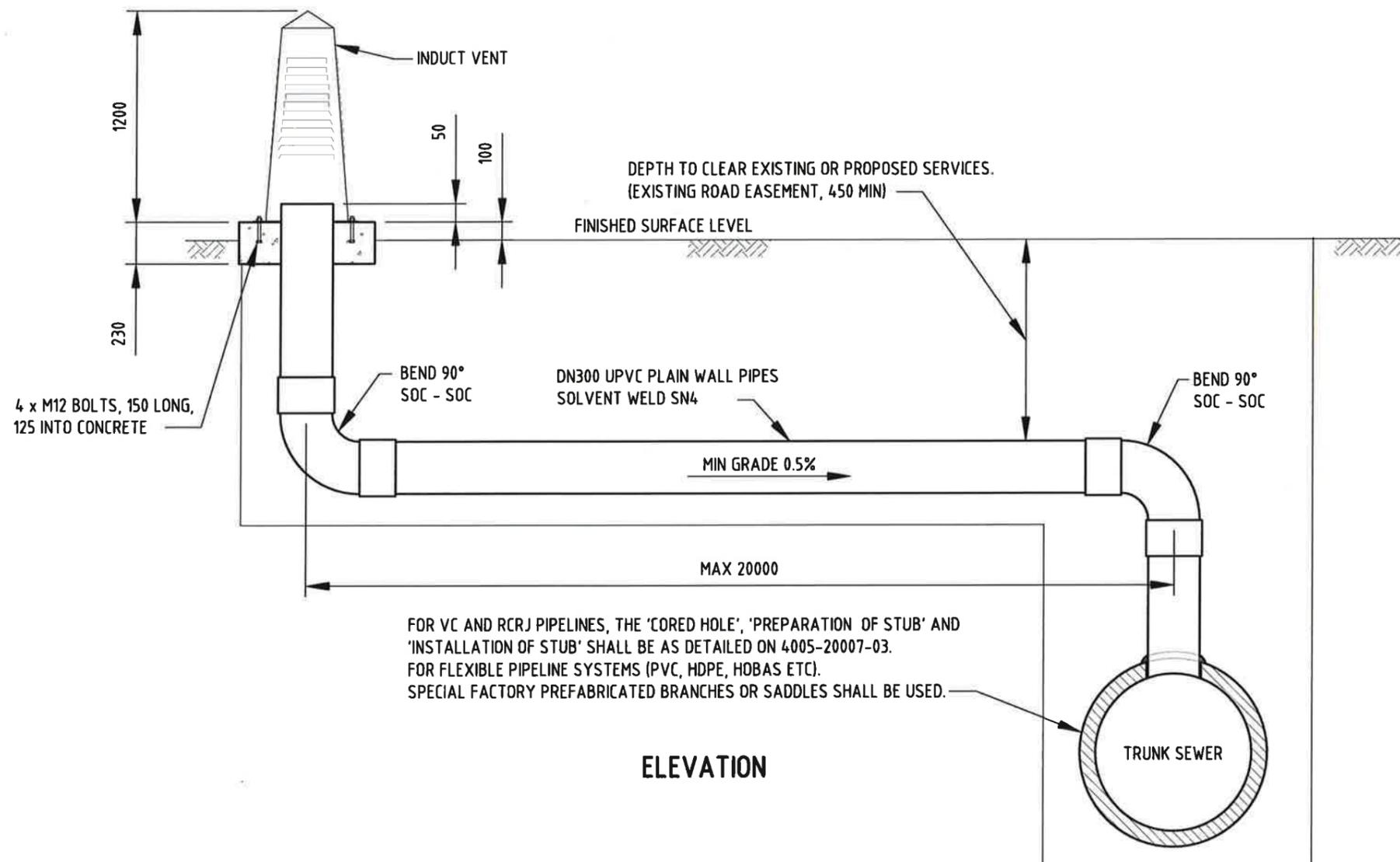
REVISION PANEL					DESIGN PANEL		<p>SA Water</p> <p>This drawing is the property of the SOUTH AUSTRALIAN WATER CORPORATION and shall not be copied or modified in part or in whole without authorization.</p>	SA WATER STANDARD DRAWINGS SEWER CONSTRUCTION MANUAL		A3 SHT SIZE	1 REVISION	
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 03/08/15 RJP		AUTHORISED: 31/03/16 T.GALEK	END EDUCT VENTS SITTING AND SPACING FOR TRUNK SEWER		TOTAL SHEETS:	
					SIGNATURE:	DRAWN: 25/09/15 MS	SIGNATURE: <i>T. Galek</i>			SUPERSEDES: 94-0168-01 (J1)		
1	31/03/16	MS	2016 STANDARDS REVIEW	TG		REVIEWED: 21/03/16 TG				DRAWING NUMBER <b>4005-20007-04</b>		
										PREFIX	NUMBER	SHEET



PLAN



ISOMETRIC



ELEVATION

FOR VC AND RCRJ PIPELINES, THE 'CORED HOLE', 'PREPARATION OF STUB' AND 'INSTALLATION OF STUB' SHALL BE AS DETAILED ON 4005-20007-03.  
 FOR FLEXIBLE PIPELINE SYSTEMS (PVC, HDPE, HOBAS ETC). SPECIAL FACTORY PREFABRICATED BRANCHES OR SADDLES SHALL BE USED.

**NOTES:**

1. REFER 4005-20002-01 & 4005-20002-02 FOR GENERAL NOTES.
2. VENT PENETRATIONS NOT PERMITTED INTO PLASTILINED AND HDPE PIPES.
3. HOLDING DOWN BOLTS AND NUTS SHALL BE HOT DIP GALVANISED.
4. REFER 4005-20007-04 FOR POSITIONING OF VENTS.
5. ALL DIMENSIONS IN MILLIMETRES.

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

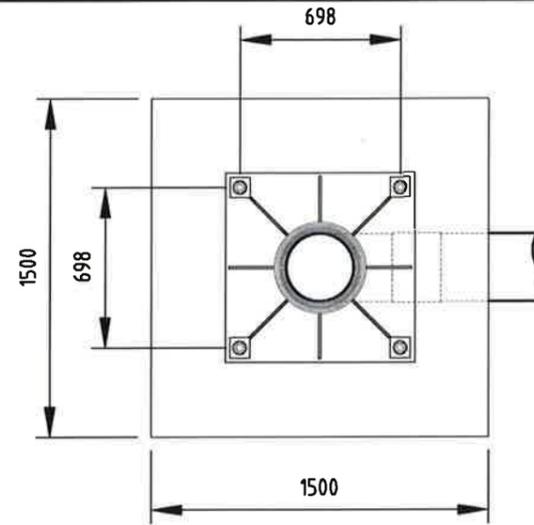
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**SA WATER STANDARD DRAWINGS**  
**SEWER CONSTRUCTION MANUAL**  
**INDUCT VENT**  
**GENERAL ARRANGEMENT**

A3	1
SHT SIZE	REVISION
TOTAL SHEETS:	
SUPERSEDES: 94-0168-02 (J2)	
DRAWING NUMBER	
<b>4005-20007-05</b>	
PREFIX	NUMBER SHEET

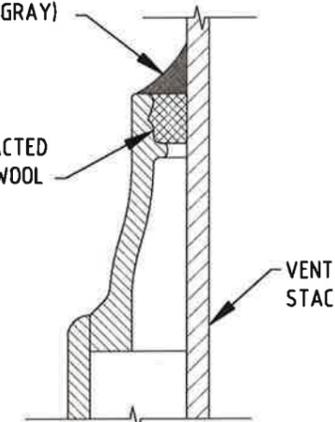
Ø300 X 15 m HIGH  
STANDARD VENT STACK



**BASE DETAILS**

LONG LIFE  
POLYURETHANE OR BUTYLMASTIC  
SEALANT (GRAY)

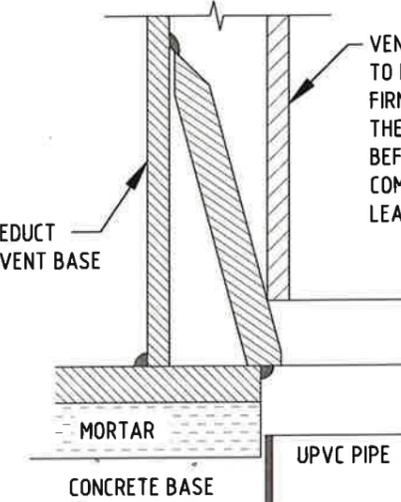
COMPACTED  
LEAD WOOL



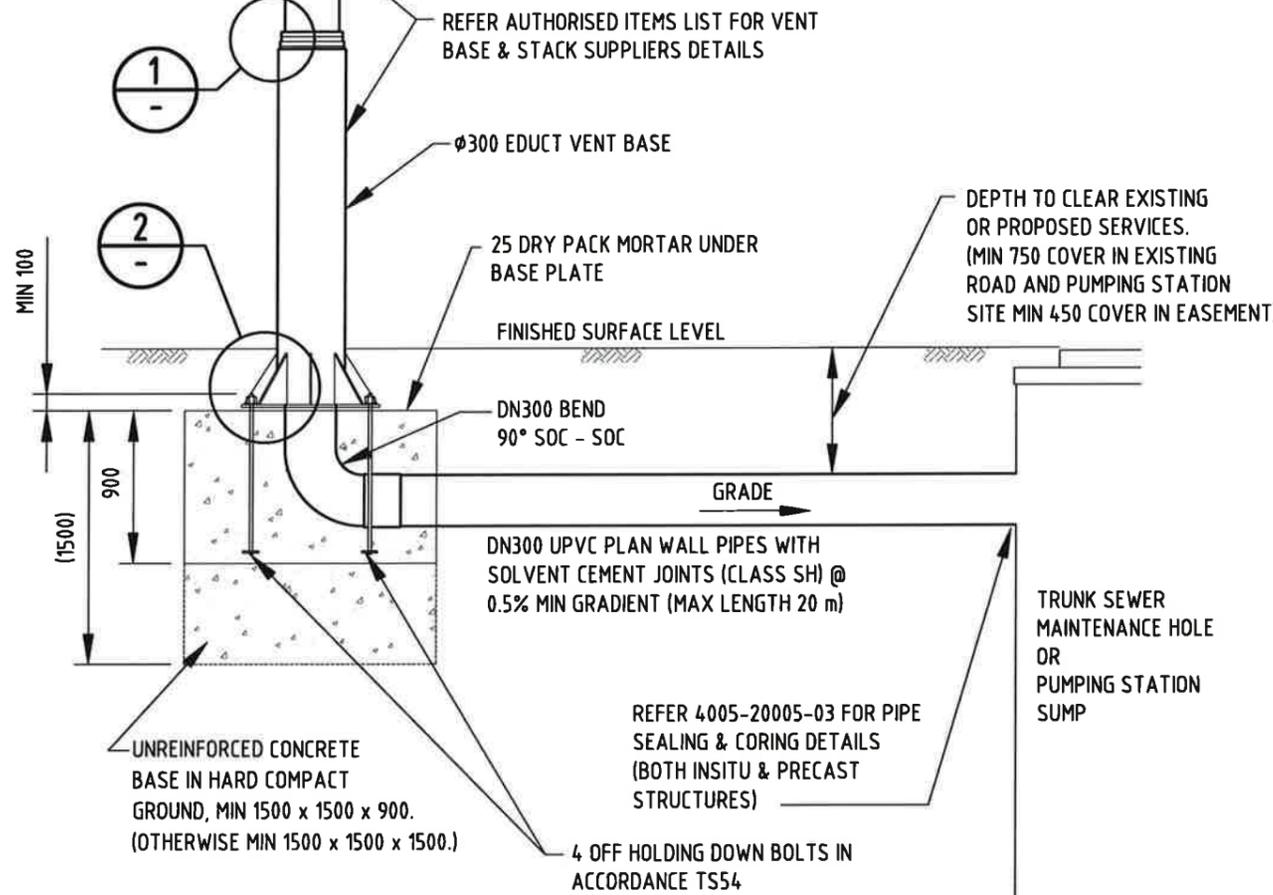
**DETAIL 1**

VENT STACK  
TO BE CENTERED  
FIRMLY INTO  
THE TAPER  
BEFORE  
COMPACTING  
LEAD WOOL

EDUCT  
VENT BASE



**DETAIL 2**



**ELEVATION**

**NOTES:**

1. REFER 4005-20002-01 & 4005-20002-02 FOR GENERAL NOTES.
2. VENT PENETRATIONS NOT PERMITTED INTO PLASTILINED & HDPE PIPES.
3. REFER 4005-20007-04 FOR POSITIONING OF VENTS.
4. CLEAR COVER TO HOLDING DOWN BOLT ASSEMBLY SHALL BE MIN. 65 mm.
5. CONCRETE POURED IN SITU SHALL BE MINIMUM GRADE 25.
6. EXCAVATION/ BACKFILL:
  - THE EXCAVATION SHALL BE HORIZONTAL & LEVEL,
  - COMPACTION SHALL MIN. 95% SMDD,
  - COMPACTION DEPTH 150 mm.
  - BACKFILL AROUND CONCRETE BASE SHALL BE MIN. 95% SMDD.
7. CORROSION PROTECTION:
  - BELOW GROUND LEVEL PORTION OF VENT SHALL BE PROTECTED USING PETROLATUM ANTI CORROSION SYSTEM IN ACCORDANCE WITH TS29.
  - ALL NUTS SHALL BE COATED WITH MASTIC AND SEALED WITH RADLOID CAPS FILLED WITH MASTIC.
8. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

REVISION PANEL				DESIGN PANEL				SA WATER STANDARD DRAWINGS SEWER CONSTRUCTION MANUAL EDUCT VENT GENERAL ARRANGEMENT			A3 SHT SIZE	1 REVISION
REV	DATE	DRN	DETAILS	APR	CURRENT REV AUTHORISED:	DESIGNED: 03/08/15 RJP	AUTHORISED: 31/03/16 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:	
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1	31/03/16	MS	2016 STANDARDS REVIEW	TG							4005-20007-06	
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