SA Water

SOUTH AUSTRALIAN WATER CORPORATION

TS 54

TECHNICAL STANDARD

SUPPLY OF STEEL VENT TUBE BASES AND VENT BASE HOLDING DOWN BOLTS
(TS 84 accompanies this TS)

Issued by: Standards Manager Networks Infrastructure

Issue Date: 10 January 2007

Government of South Australia

© SA WATER 2007

APPROVAL TO DEVIATE FROM THIS STANDARD

Approval may be granted by the Asset Owner to deviate from the requirements as stipulated in this Standard if the functional requirements (e.g. Asset Life) for the asset differs from those stated in the Standard, but is assessed as still being acceptable by the Asset Owner's nominated representative.

Any approval to deviate from the stated requirements of this Standard will not be seen as creating a precedent for future like project. Any request to deviate from this Standard must be carried out on a project by project basis where each alternate proposal will be individually assessed on its own merit.
The currency of these Standards should be checked prior to use.

NO CHANGES REQUIRED IN THE JANUARY 2007 EDITION

The following lists the major changes to the August 2000 edition and published in the September 2004 edition of TS 54:

1. Reformatted from DS to TS (Departmental Standard to Technical Standard), and updated referenced Australian Standards.

CONTENTS

REFERENCED DOCUMENTS

AS/NZS 1554: Structural Steel Welding

AS 1579: Arc-welded steel pipes and fittings for water and waste-water

AS 2700: Colour Standards for general purposes

AS 3768: Guide to the effects of temperature on electrical equipment

AS 3894: Site testing of protective coatings

AS/NZS 4791: Hot-dip galvanized (zinc) coatings on ferrous open sections, applied by an in-line process

AS/NZS ISO 9001: Quality management systems – Requirements

Drawing No. 94-0168-03A: Drawing J3 in the Sewer Construction Manual Drawings

Drawing No. 96-0009-01A: DN 300 Educt Vent Holding Down Bolts Manufacturing Detail

TS 55 The Supply of 350 mm Diameter Welded Steel Vent Tubes (TS12 & TS97 accompany this TS)

TS 84 Surface Preparation and Protection of Steelwork Using Mineral Flake Filled Epoxy High Build, 2-Pack

SECTION 1: GENERAL

This Technical Standard covers the fabrication of the steel vent tube base, which supports the 15 metre vent tube (installed in-location). It includes manufacture and welding of the vent base tube, base plate, gussets, bottom locating ring, top support sealing ring plus surface preparation and epoxy coating of the completed vent tube base ready for installation and assembly in accordance with Appendix A - Manufacturing Drawings (4) SA Water Drawing 94-0168-03A. Details of the 15 m vent tube are given in TS 55.

SA Water Technical Standard (TS) 84 accompanies this Technical Standard.

SECTION 2: MATERIALS

2.1 Steel

All steel used in fabrication of items shall conform to AS 3678 Grade 250.

2.2 Coating Materials

Vent Tube Base is to be coated internally and externally with epoxy in accordance with TS 84.

SECTION 3: MANUFACTURE

3.1 Vent Base Tube

The vent base tube shall be fabricated from steel plate as shown in Appendix A - Manufacturing Drawings (1).

The vent base tube shall be rolled and welded to form a tube to the following dimensions:

Inside diameter	390 mm
Wall thickness	10 mm
Length	2100 mm

3.2 Base Plate and Gussets

Base plate and gussets shall be manufactured and drilled then welded to the vent base tube as shown in Appendix A - Manufacturing Drawings (1)

3.3 Bottom Locating Ring

The Bottom Locating Ring shall be fabricated from steel plate as shown in Section CC of Appendix A - Manufacturing Drawings (2). The locating ring is to

be continuously welded to the vent tube base at both upper and lower contact points

3.4 Top Support and Sealing Ring

The Top Support and Sealing Ring shall be fabricated from steel plate as shown in Section BB Appendix A - Manufacturing Drawings (2). Similar alternatives that meet the same requirements may be accepted with approval of SA Water Infrastructure Standards Unit. The adaptor is to be continuously welded to the vent tube base.

3.5 Vent Base Holding Down Bolts

Four (4) vent base holding down bolts and fixing plates are required for each vent base and are to be manufactured in accordance with Appendix A - Manufacturing Drawings (3) (SA Water Drawing 96-0009-01A) from steel conforming to AS 3678 Grade 250. All items to be hot dip galvanised to AS/NZS 4791 after manufacture.

3.6 Welding

The manufacture and welding of the **vent base tube** shall conform to the requirements of AS 1579 except that no hydrostatic testing is required. The outside welding of the pipe section shall be ground flush with the outer surface throughout its whole length. The inside weld of the pipe section shall be ground flush with the inner surface for a minimum of 100 mm from each end.

All other welding (vent tube base pipe section to base plate, gussets, locating ring and top support) shall conform to weld category GP of AS/NZS 1554.

SECTION 4: COATING

On completion of manufacture of the vent base, it is to be coated inside and out with Jotun Marathon applied in accordance with TS 84. The external finished colour shall be Mid Grey - N52 to AS 2700.

4.1 Coating Inspection.

The surface preparation and coating application shall be inspected by a third party coating inspector that is qualified in the inspection of high performance coatings. A qualified inspector shall have attained the Australasian Corrosion Association Coating Inspectors Certificate and shall be able to demonstrate that coating inspection duties have been carried out on a regular basis. Inspection reports shall comply with AS 3894.10, AS 3894.11 and AS 3894.12, ‘Site Testing of Protective Coatings’ equipment and inspection reports.

For the purposes of this Technical Standard, the term “SA Water’s Representative” referred to in TS 84 shall mean “The third party coating inspector”. At the completion of each production batch, the Inspection reports shall be forwarded to:

SA Water Infrastructure Standards Unit
PO Box 1751 ADELAIDE SA 5001

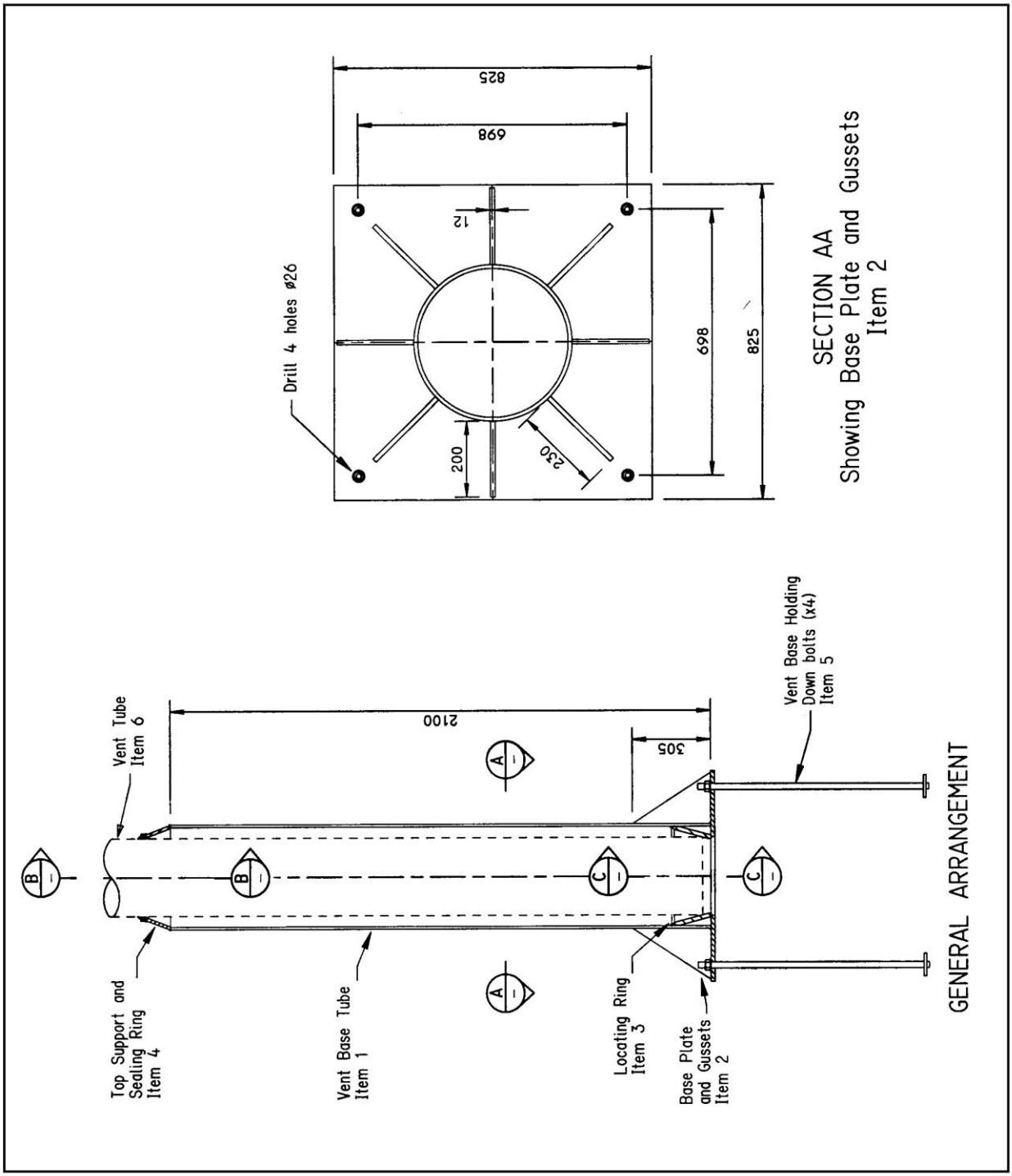
SECTION 5: QUALITY CONTROL AND ASSURANCE

The manufacturer shall implement and maintain an approved quality control/quality assurance system covering all testing and manufacturing processes, hardware, materials and workmanship used in the manufacture of the vent tube bases.

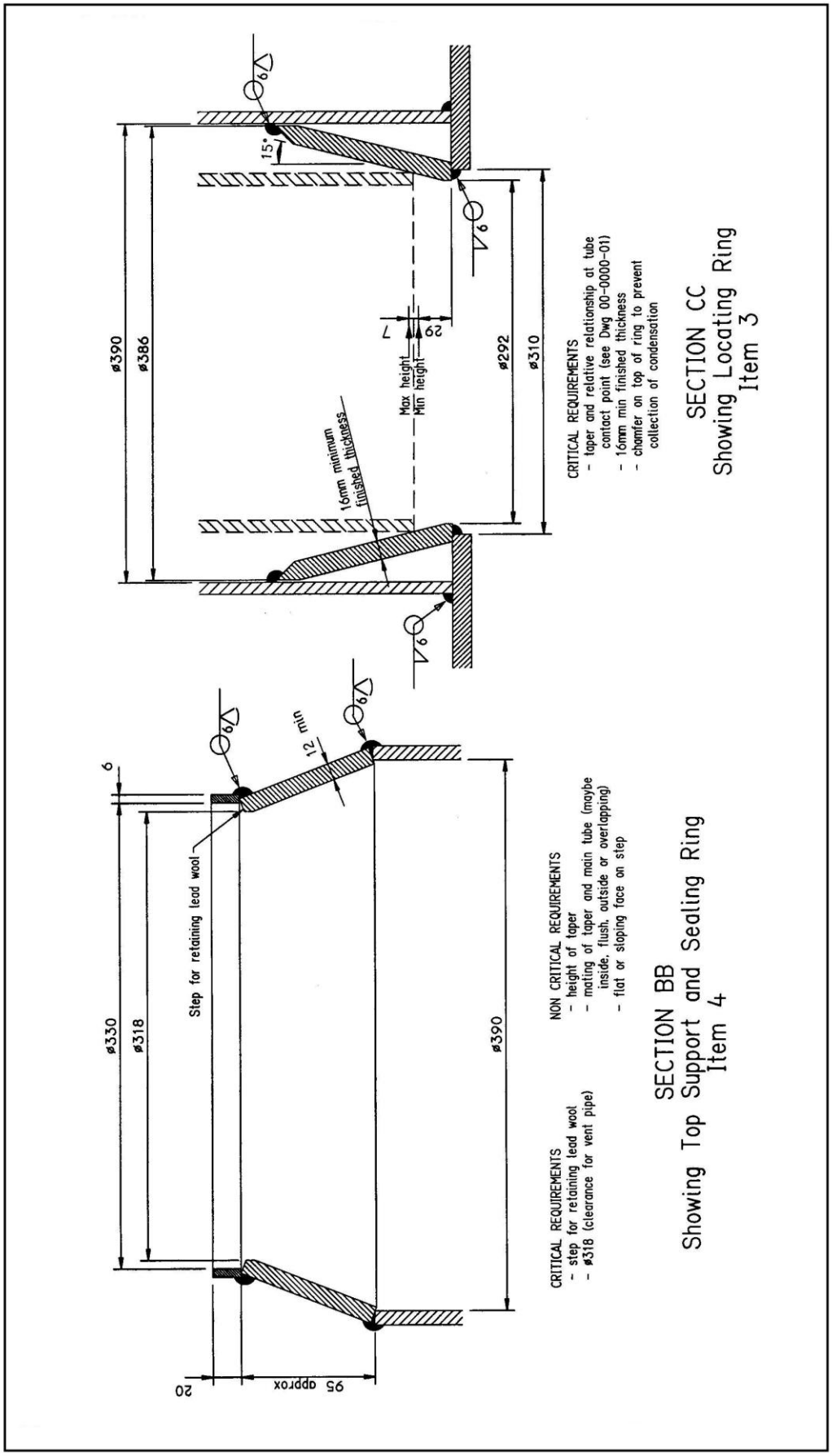
Unless specified otherwise, the minimum quality control and assurance system shall be in accordance with AS/NZS ISO 9001 and shall comply with all standards relevant to the manufacture of the vent tube bases.

APPENDIX A: MANUFACTURING DRAWINGS

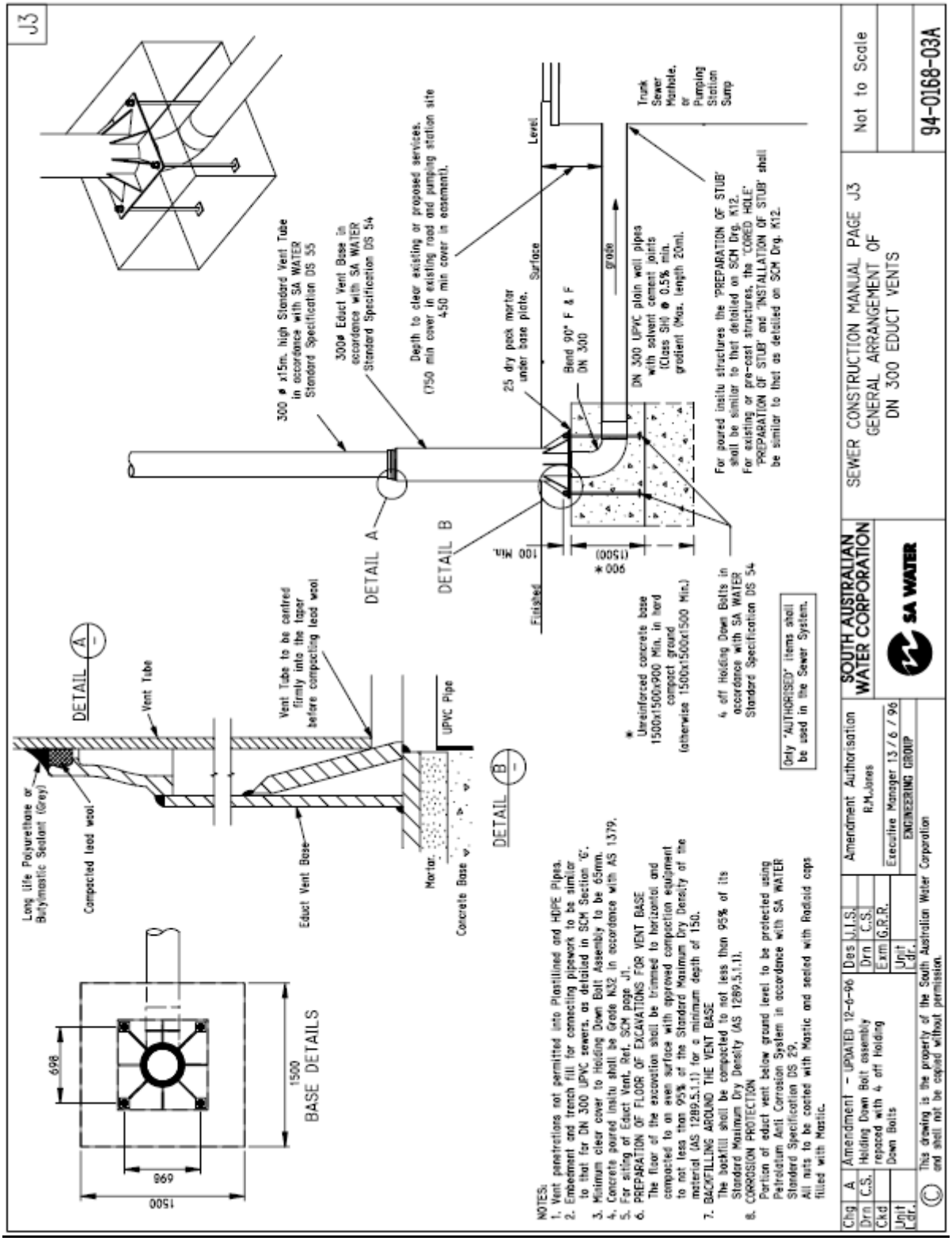
(1)

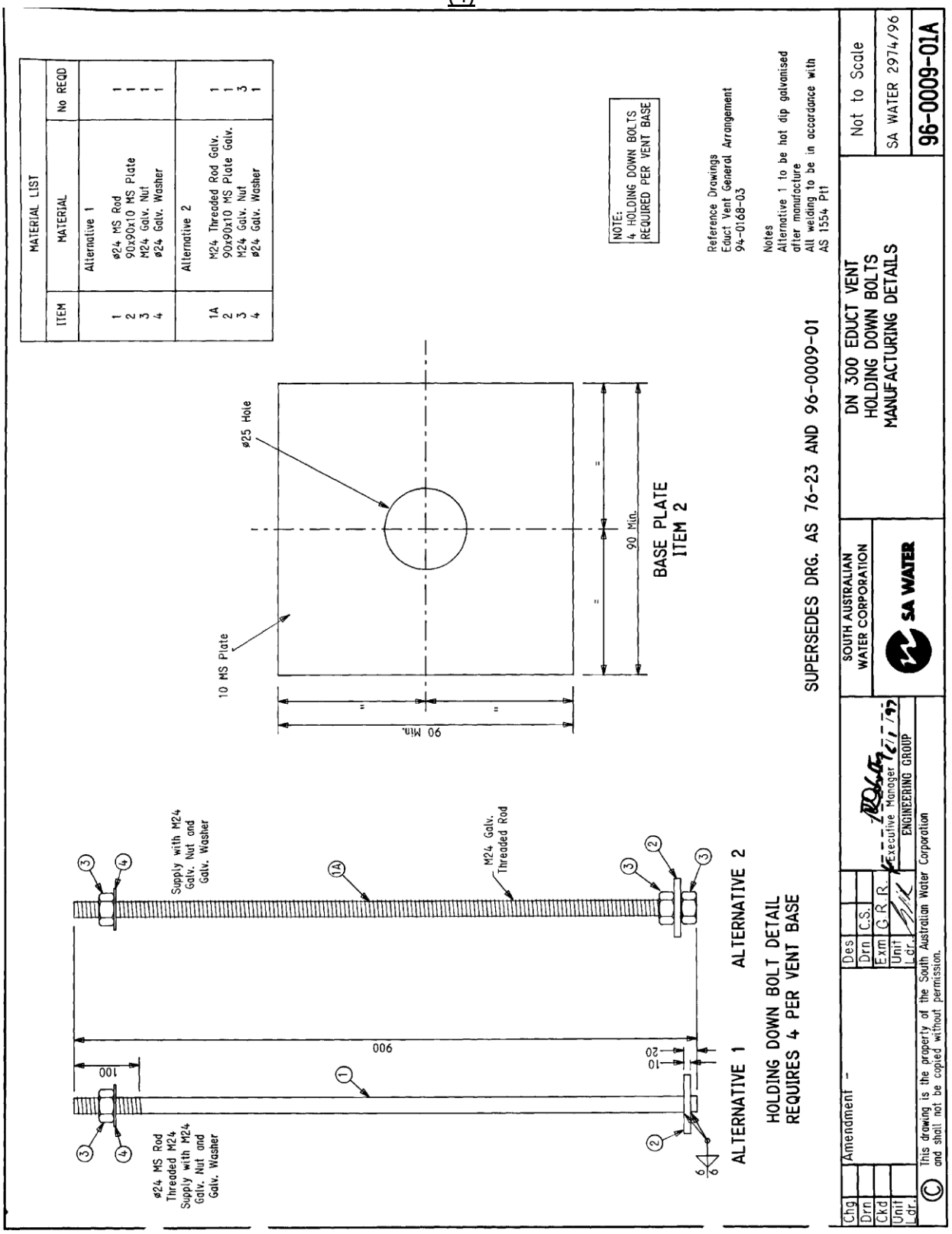


(2)


SECTION CC
Showing Locating Ring
Item 3
CRITICAL REQUIREMENTS
- taper and relative relationship at tube contact point (see Dwg 00-0000-01)
- 16mm min finished thickness
- chamfer on top of ring to prevent collection of condensation
ø390
ø386
ø292
ø310
15°
7
29
Max height
Min height
16mm minimum finished thickness
SECTION BB
Showing Top Support and Sealing Ring
Item 4
CRITICAL REQUIREMENTS
- step for retaining lead wool
- ø318 (clearance for vent pipe)
NON CRITICAL REQUIREMENTS
- height of taper
- mating of taper and main tube (maybe inside, flush, outside or overlapping)
- flat or sloping face on step
ø330
ø318
ø390
Step for retaining lead wool
12 min
6
20
95 approx

(3)


J3
SEWER CONSTRUCTION MANUAL PAGE J3
GENERAL ARRANGEMENT OF
DN 300 EDUCT VENTS
Not to Scale
94-0168-03A
SOUTH AUSTRALIAN WATER CORPORATION
SA WATER
Amendment Authorisation
R.H.Jones
Executive Manager 13/6/96
ENGINEERING GROUP
Chg A Amendment - UPDATED 12-6-96 Des U.I.S.
Drn C.S. Holding Down Bolt assembly Drn C.S.
Ckd replaced with 4 off Holding Down Bolts Exm G.R.R.
Unit Cdr.
This drawing is the property of the South Australian Water Corporation and shall not be copied without permission.
DETAIL A
DETAIL B
DETAIL A
DETAIL B
Vent Tube
Long life Polyurethane or Butylmastic Sealant (Grey)
Compacted laod wool
Educt Vent Base
Vent Tube to be centred firmly into the layer before compacting laod wool
Mortar
UPVC Pipe
Concrete Base
300 ø x15m. high Standard Vent Tube in accordance with SA WATER Standard Specification DS 55
300ø Educt Vent Base in accordance with SA WATER Standard Specification DS 54
Depth to clear existing or proposed services. (750 min cover in existing road and pumping station site 450 min cover in easement).
25 dry pack mortar under base plate.
Bend 90° F & F DN 300
DN 300 UPVC plain wall pipes with solvent cement joints (Class SN8 @ 0.5% min. gradient (Max. length 20m).
Level
Surface
grade
Trunk Sewer Manhole, or Pumping Station Sump
For poured insitu structures the 'PREPARATION OF STUB' shall be similar to that detailed on SCM Drg. K12.
For existing or pre-cast structures, the 'CORED HOLE' 'PREPARATION OF STUB' and 'INSTALLATION OF STUB' shall be similar to that as detailed on SCM Drg. K12.
100 Min.
Finished
(1500)
* 900
* Unreinforced concrete base 1500x1500x900 Min. in hard compact ground (otherwise 1500x1500x1500 Min.)
4 off Holding Down Bolts in accordance with SA WATER Standard Specification DS 54
Only "AUTHORISED" items shall be used in the Sewer System.
NOTES:
1. Vent penetrations not permitted into Plastilined and HDPE Pipes.
2. Embedment and trench fill for connecting pipework to be similar to that for DN 300 UPVC sewers, as detailed in SCM Section "G".
3. Minimum clear cover to Holding Down Bolt Assembly to be 65mm.
4. Concrete poured insitu shall be Grade N32 in accordance with AS 1379.
5. For siting of Educt Vent, Ref. SCM page J1.
6. PREPARATION OF FLOOR OF EXCAVATIONS FOR VENT BASE
The floor of the excavation shall be trimmed to horizontal and compacted to an even surface with approved compaction equipment to not less than 95% of the Standard Maximum Dry Density of the material (AS 1289.5.1.1) for a minimum depth of 150.
7. BACKFILLING AROUND THE VENT BASE
The backfill shall be compacted to not less than 95% of its Standard Maximum Dry Density (AS 1289.5.1.1).
8. CORROSION PROTECTION
Portion of educt vent below ground level to be protected using Petrolatum Anti Corrosion System in accordance with SA WATER Standard Specification DS 29.
All nuts to be coated with Mastic and sealed with Radaid caps filled with Mastic.
BASE DETAILS
698
1500
698
1500


MATERIAL LIST
ITEM
MATERIAL
No REQD
Alternative 1
1 ø24 MS Rod 1
2 90x90x10 MS Plate 1
3 M24 Galv. Nut 1
4 ø24 Galv. Washer 1
Alternative 2
1A M24 Threaded Rod Galv. 1
2 90x90x10 MS Plate Galv. 1
3 M24 Galv. Nut 3
4 ø24 Galv. Washer 1
NOTE:
4 HOLDING DOWN BOLTS
REQUIRED PER VENT BASE
Reference Drawings
Educt Vent General Arrangement
94-0168-03
Notes
Alternative 1 to be hot dip galvanised
after manufacture
All welding to be in accordance with
AS 1554 P11
SUPERSEDES DRG. AS 76-23 AND 96-0009-01
ø25 Hole
10 MS Plate
90 Min.
BASE PLATE
ITEM 2
Supply with M24
Galv. Nut and
Galv. Washer
M24 Galv.
Threaded Rod
ø24 MS Rod
Threaded M24
Supply with M24
Galv. Nut and
Galv. Washer
100
900
20
10
ALTERNATIVE 1
ALTERNATIVE 2
HOLDING DOWN BOLT DETAIL
REQUIRES 4 PER VENT BASE
SOUTH AUSTRALIAN
WATER CORPORATION
SA WATER
DN 300 EDUCT VENT
HOLDING DOWN BOLTS
MANUFACTURING DETAILS
Not to Scale
SA WATER 2974/96
96-0009-01A
Chg
Drn
Ckd
Unit Ldr
Amendment -
Des
Drn C.S.
Exm G R R
Unit Ldr
Executive Manager
ENGINEERING GROUP
© This drawing is the property of the South Australian Water Corporation
and shall not be copied without permission.