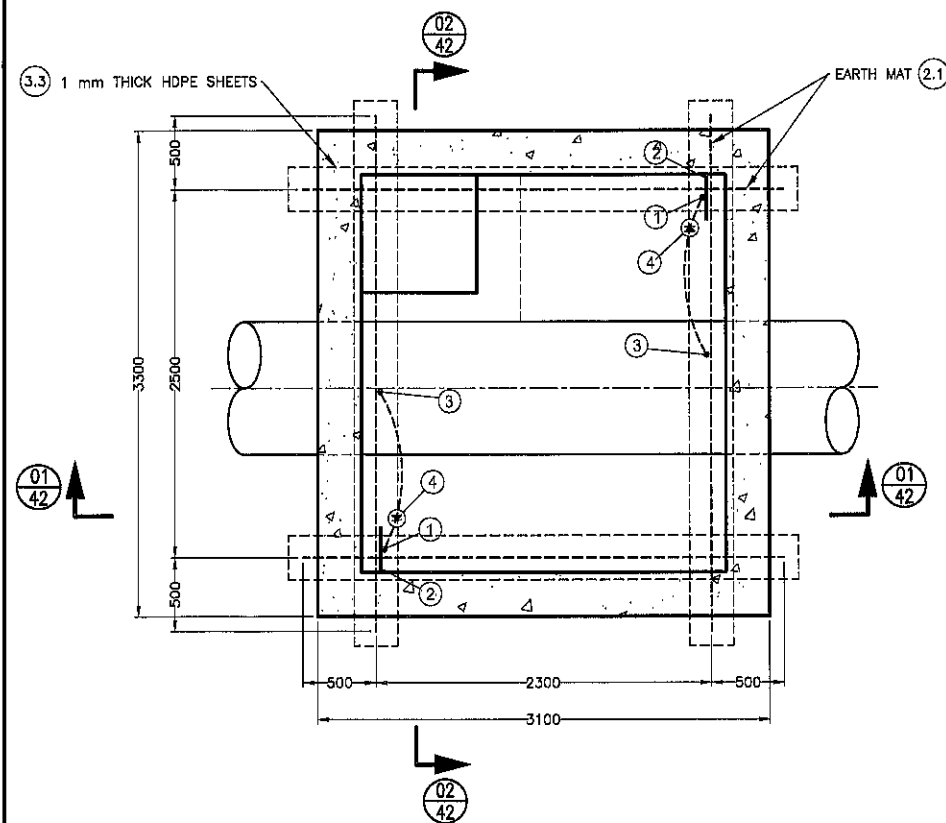
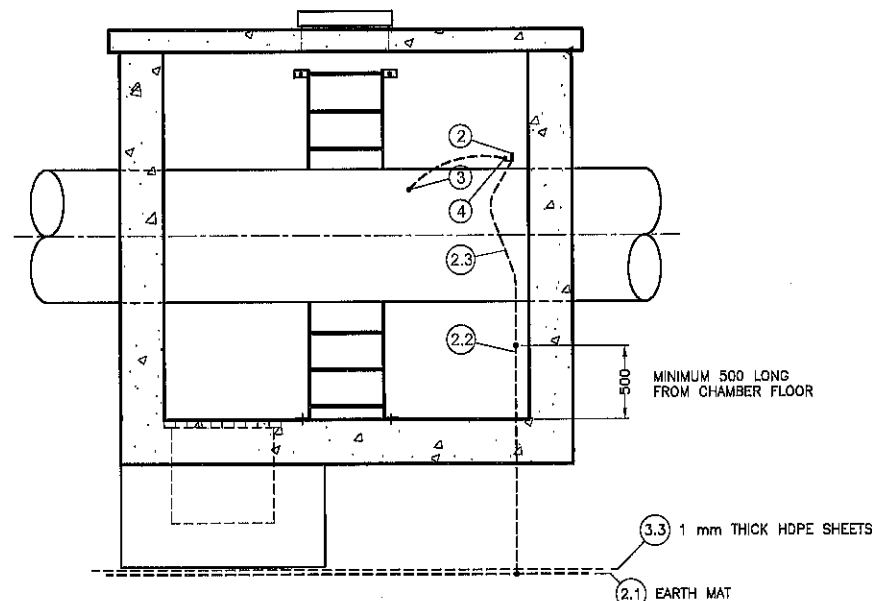




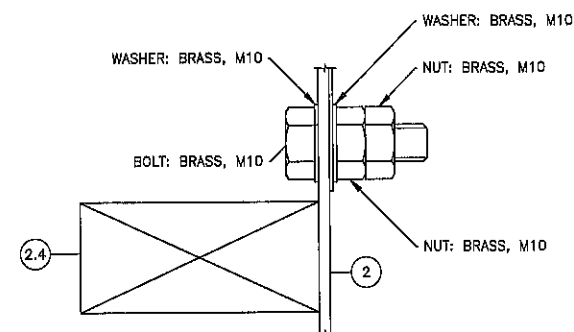
PLAN ON METER CHAMBER FLOOR

SCALE 1 : 25



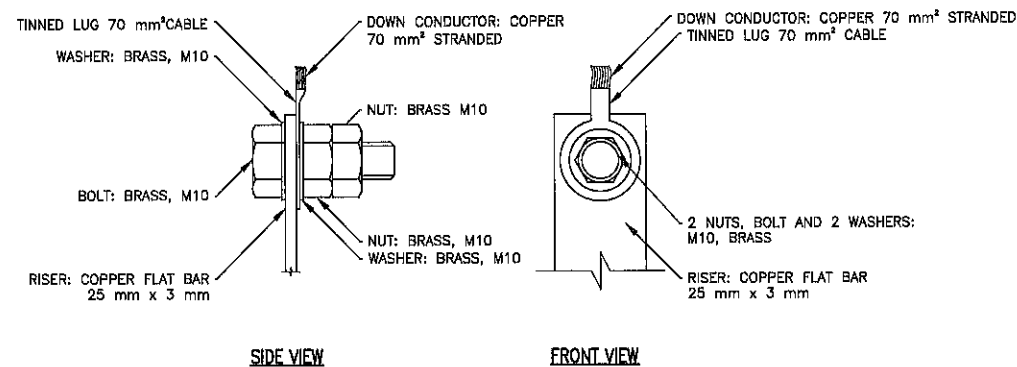
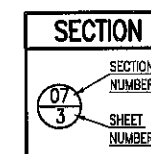
SECTION 01 - 01

SCALE 1 : 25



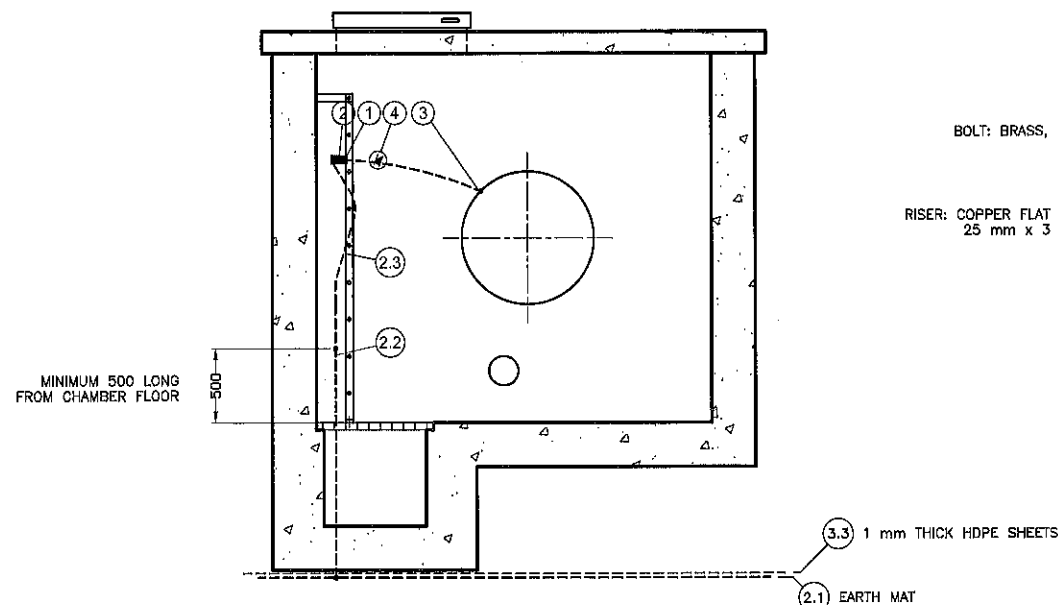
DETAIL 1

REMOVABLE CONNECTION
NOT TO SCALE



**DETAIL OF DOWN CONDUCTOR/
EARTH MAT CONNECTION**

NOT TO SCALE



SECTION 02 - 02

SCALE 1 : 25

SPECIFICATIONS:

1. NUMBER LEGEND:

- (1) : TERMINAL CONNECTION
- (2) : EQUIPOTENTIAL BONDING BAR - 300x20x6mm INSULATED FROM THE CONCRETE
- (3) : THERMOWELD TO PIPELINE FOR SPARK GAP
- (4) : SPARK GAP (EXPLOSION PROOF, TYPE EXFS, RATED FOR $\approx 100kA$)

2. MATERIAL:

- 2.1. EARTH MAT: SOLID COPPER FLAT BAR OF NOT LESS THAN 25x3mm IN CROSS SECTION
- 2.2. SECTION OF THE EARTH MAT THAT PASSES THROUGH THE FLOOR: SOLID COPPER FLAT BAR OR ROD OF NOT LESS THAN 70mm² IN CROSS SECTION
- 2.3. EARTH MAT TO BUSBAR CONNECTION (DOWN CONDUCTOR): STRANDED COPPER CONDUCTOR OF NOT LESS THAN 70mm² WITH TINNED LUGS ON BOTH ENDS
- 2.4. EQUIPOTENTIAL BONDING BAR: TO BE MANUFACTURED FROM ELECTRICAL NEUTRAL BAR OF AT LEAST 20x6mm, ISOLATED FROM THE CONCRETE BY AT LEAST TWO ISOLATORS AND TO BE AT LEAST 300mm IN LENGTH. BUSBAR TO BE INSTALLED 150mm ABOVE THE PIPELINE

3. GENERAL:

- 3.1. ALL JOINTS IN THE EARTH MAT TO BE BRAZED WITH AN OVERLAP OF AT LEAST 100mm OR TO BE EXOTHERMIC WELDED
- 3.2. FOR CROSS CONNECTIONS IN THE EARTH MAT THE CROSS HAS TO BE BRAZED AT ALL FOUR OPENINGS
- 3.3. THE EARTH MAT TO BE INSTALLED ON TOP OF UNDISTURBED SOIL BELOW THE CHAMBER WITH A 1mm THICK HDPE SHEET BETWEEN THE EARTH MAT AND THE CHAMBER
- 3.4. WHERE A COPPER CONDUCTOR PASSES THROUGH THE CONCRETE FLOOR IT SHALL BE ENCASED IN CONCRETE AND SHALL EXTEND FOR AT LEAST 500mm ABOVE THE FLOOR SURFACE
- 3.5. THE COPPER CONDUCTORS THAT PASS THROUGH THE FLOOR SHALL BE JOINED TO THE EARTH MAT AT A CROSS IN THE EARTH MAT
- 3.6. THE COPPER CONDUCTORS THAT PASS THROUGH THE FLOOR SHALL BE SITUATED ONE ON EACH SIDE OF EACH PIPELINE AND ONE CONDUCTOR SHALL BE CLOSE TO THE UP AND THE OTHER TO THE DOWN STREAM SIDE OF THE CHAMBER WALL
- 3.7. NO PART OF THE EARTH MAT OR ANY SURGE CONDUCTOR TO BE ENCLOSED BY A METAL PIPE
- 3.8. ANY BEND IN THE DOWN CONDUCTOR MAY NOT HAVE A RADIUS OF LESS THAN 1 METRE
- 3.9. THE CONNECTION BETWEEN THE DOWN CONDUCTOR AND THE BUSBAR MUST BE REMOVABLE
- 3.10. ALL NUTS, BOLTS AND WASHERS USED IN CONNECTING THE DOWN CONDUCTOR TO THE EARTH MAT AND EQUIPOTENTIAL BONDING BAR ARE TO BE MANUFACTURED FROM BRASS AND MUST BE AT LEAST M10 SIZE
- 3.11. THE SPARK GAPS TO BE INSTALLED ON THE EQUIPOTENTIAL BONDING BAR WITH THE CABLE OF THE SPARK GAP SECURED TO THE PIPELINE. ISOLATING SPARK GAP TO BE SUPPLIED WITH A 300mm FLEXIBLE CONDUCTOR
- 3.12. ONE HEAVY DUTY EXPLOSION PROOF ISOLATING SPARK GAPS TO BE MOUNTED ONTO EACH EQUIPOTENTIAL BONDING BAR TO PROTECT THE ULTRASONIC FLOW METER (ONE AT EACH END OF THE CHAMBER)

NOTES:

1. DIMENSIONS IN mm UNLESS SPECIFIED ON THE DRAWING
2. MEASUREMENTS TO BE CONFIRMED ON SITE BY THE CONTRACTOR BEFORE ANY WORK IS CARRIED OUT.
3. ALL SETTING OUT AND LEVELS TO BE VERIFIED ON SITE BEFORE COMMENCING ANY WORK WHATSOEVER

STATUS: CONSTRUCTION

SHEET	DESCRIPTION	OTHER No.	REG. No.
48/55	FLOW METER CHAMBER: BENDING SCHEDULE	-	174 893/18
45/55	FLOW METER CHAMBER: FOUNDATION AND CORNER BEND REINFORCEMENT DETAILS	-	174 892/18
44/55	FLOW METER CHAMBER: WALL REINFORCEMENT DETAILS	-	174 891/18
43/55	FLOW METER CHAMBER: ROOF SLAB REINFORCEMENT DETAILS	-	174 890/18
42/55	FLOW METER CHAMBER: EARTHING SURGE PROTECTION	-	174 889/18
41/55	FLOW METER CHAMBER: CONCRETE DETAILS	-	174 888/18
40/55	FLOW METER CHAMBER: CONCRETE DETAILS	-	174 887/18
2/55	GENERAL LAYOUT OF OUTLET WORKS (KEY PLAN)	-	174 849/16
1/55	LIST OF DRAWINGS FOR SERIES 06 00 OUTLET WORKS: CONCRETE AND REINFORCEMENT DETAILS	-	174 848/16

LIST OF DRAWINGS

REVISION					DEPARTMENT OF WATER AND SANITATION REPUBLIC OF SOUTH AFRICA		DAM SAFETY REHABILITATION PROJECT									
MOD No.	DATE	DESCRIPTION	FOR	DWA	HEAD OFFICE DAM SAFETY SURVEILLANCE PRIVATE BAG X 313 PRETORIA 0001		SEDIBENG BUILDING 185 FRANCIS BAARD STREET PRETORIA 012 336 7500		KWAGGASKLOOF DAM REHABILITATION							
					DESIGNED: K. POOE		DRAWN: K. POOE									
					CHECKED: T. MABALE		DATE: 2/2/17									
					ENGINEER: L. MUNRO		DATE: 17/6/17									
					EXTERNAL APPROVAL		DATE: 17/6/17									
					CHIEF ENG/ APP (PR ENG)		DATE: 17/6/17		PROVINCE: EASTERN CAPE		DISTRICT: WORCESTER		KEY CODES: CHH ETP SRG - OTHER No.			
					DIRECTOR (PR ENG)		DATE: 17/6/17		LOCALITY No: H100-08		TENDER/ CONTRACTS No.		SHEET 42 OF 55			
									CALCULATION FILE:				REG. No. 174 889/16			