

LEPELLE NORTHERN WATER



TENDER NO: LNW 13/21/22

PROJECT NAME: PROCUREMENT AND SUPPLY OF MATERIALS

BOOK 3 of 3: TENDER DRAWINGS

CLOSING DATE: 26 JANUARY 2021 @ 11H00

ISSUED BY:

LEPELLE NORTHERN WATER

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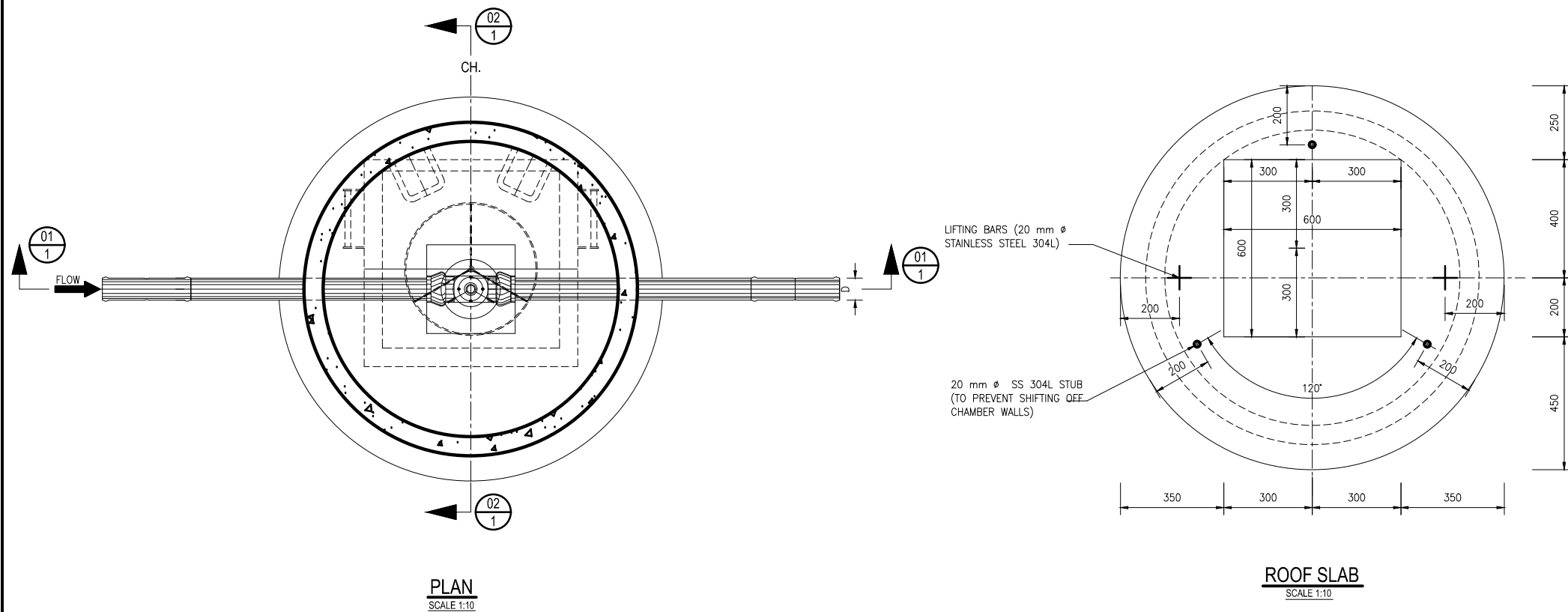
NAME OF TENDERER: _____

LIST OF DRAWINGS			
DESCRIPTION	REV NO.	SHEET	REG NO.
PART I: GENERAL			
DRAWING LIST	00	1 OF 1	C1201-1010
PART II: PIPELINE CHAMBERS			
LINE 2 CHAMBERS:			
AIR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1015
AIR VALVE CHAMBER TYPE 2	00	1 OF 1	C1201-1016
SCOUR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1017
SCOUR VALVE CHAMBER TYPE 2	00	1 OF 1	C1201-1018
ISOLATING VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1019
FLOW METER CHAMBER AT SEKHULA AND TAULOME RESERVOIR SITE	00	1 OF 1	C1201-1020
LINE 3 CHAMBERS:			
AIR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1025
SCOUR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1026
SCOUR VALVE CHAMBER TYPE 2	00	1 OF 1	C1201-1027
ISOLATING, SCOUR VALVE CHAMBER AND OFF-TAKE TYPE 1	00	1 OF 2	C1201-1028
ISOLATING, SCOUR VALVE CHAMBER AND OFF-TAKE TYPE 1	00	2 OF 2	C1201-1029
ISOLATING SCOUR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1030
FLOW METER CHAMBER AT MORAPALALA EXISTING RESERVOIR	00	1 OF 1	C1201-1031
LINE 4 CHAMBERS:			
AIR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1032
SCOUR VALVE CHAMBER TYPE 1	00	1 OF 1	C1201-1033
PART III: RESERVOIR CHAMBERS			
5000KL COMMAND RESERVOIR CHAMBERS:			
5000KL COMMAND RESERVOIR PIPE LIST	00	1 OF 1	C1201-1205
OUTLET CHAMBER AT 5000KL COMMAND RESERVOIR CIVIL ARRAIGNMENT	00	1 OF 2	C1201-1206
OUTLET CHAMBER AT 5000KL COMMAND RESERVOIR PIPE LIST	00	2 OF 2	C1201-1207
INLET CHAMBER AT 5000KL COMMAND RESERVOIR CIVIL ARRAIGNMENT	00	1 OF 2	C1201-1208
INLET CHAMBER AT 5000KL COMMAND RESERVOIR PIPE LIST	00	2 OF 2	C1201-1209
DRAINAGE CHAMBER AT 5000KL COMMAND RESERVOIR CIVIL ARRAIGNMENT	00	1 OF 2	C1201-1210
DRAINAGE CHAMBER AT 5000KL COMMAND RESERVOIR PIPE LIST	00	2 OF 2	C1201-1211
GA-MOKGWATHI CHAMBERS:			
GA-MOKGWATHI RESERVOIR DRAINAGE CHAMBER	00	1 OF 1	C1201-1244
GA-MOKGWATHI RESERVOIR INLET CHAMBER	00	1 OF 2	C1201-1245
GA-MOKGWATHI RESERVOIR OUTLET CHAMBER	00	2 OF 2	C1201-1246
MOTHOMENG CHAMBERS:			
MOTHOMENG RESERVOIR PIPE SPECIALS	00	1 OF 1	C1201-1251
MOOKGO 6 CHAMBERS:			
MOOKGO 6 RESERVOIR CIVIL ARRAIGNMENT	00	1 OF 1	C1201-1261
MOOKGO 6 RESERVOIR PIPE LIST	00	1 OF 2	C1201-1264

 <p>TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited</p>		122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No 015-298 8828 Fax No. 015-295 3900		MOD No 00		DATE 09/09/21		DESCRIPTION ISSUED FOR TENDER		FOR		REVISION	
CHECKED:		DATE:		DESIGN: C.M DRAWN: Z.S									
ENGINEER:		DATE:		N/A									
CHIEF ENGINEER / APP (Pr. Eng):		DATE:		DIRECTOR (Pr. Eng):									
TANGO'S DWG No:		FILE No:		C1201-1010									
C1201-1010		DATE:		09/09/21									

 <p>LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800</p>		 <p>water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA</p>		DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	
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GLWaP-PHASE 1: BABANANA PIPELINE PROJECT-RS 135 (XIHOKO SUB-SYSTEM) WORK PACKAGE 12 DRAWING LIST									
PROVINCE: LIMPOPO		DISTRICT: MOPANI		KEYCODES:		- - - - -		OTHER A-1	
LOCALITY No:		TENDER/ CONTRACT No.		SHEET 1 OF 1		REG. No.		C1201-1010	
CALCULATION FILE:								00	



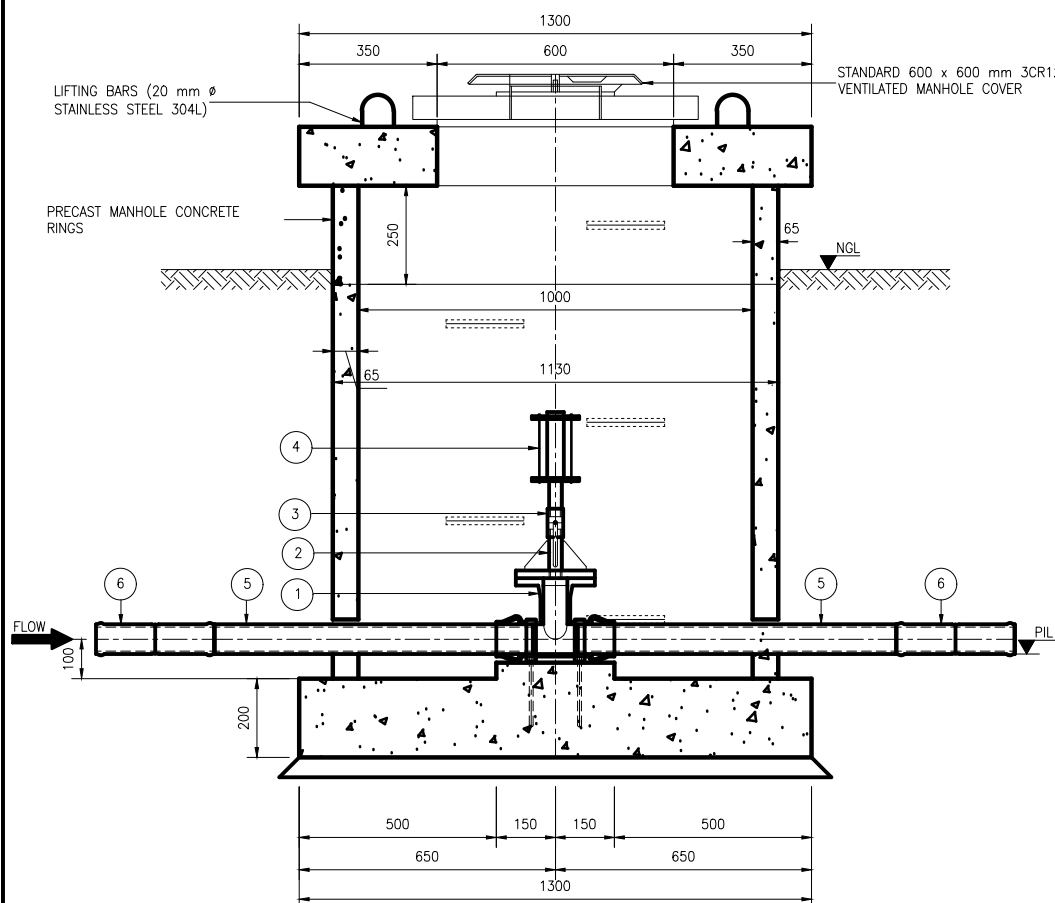
ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	D	SG	AIR VALVE TEE. STANDARD SG IRON HYDRANT TEE.	
2	1	-	MILD STEEL	SPECIAL REDUCER: 80 mm NB BLANK FLANGE WITH d mm NB STUB 125 mm LONG, WELDED IN THE CENTRE OF THE BLANK FLANGE. THREAD END OF THE STUB TO CONFIRM BALL VALVE THREADS SPEC. STUB WITH 3 X 5 mm M.S. GUSSET PLATES. FITTED.	
3	1	d	STAINLESS STEEL	BALL VALVE: d mm NB SCREWED END.	
4	1	d	STAINLESS STEEL	AIR VALVE: STANDARD SCREWED DOUBLE ORIFICE AIR VALVE	
5	2	D	uPVC	STRAIGHT PIPE, 1 000 mm LONG.	
6	2	D	uPVC	DOUBLE SOCKET	

FOR VALVE CLASSIFICATION REFER TO TABLE BELOW.

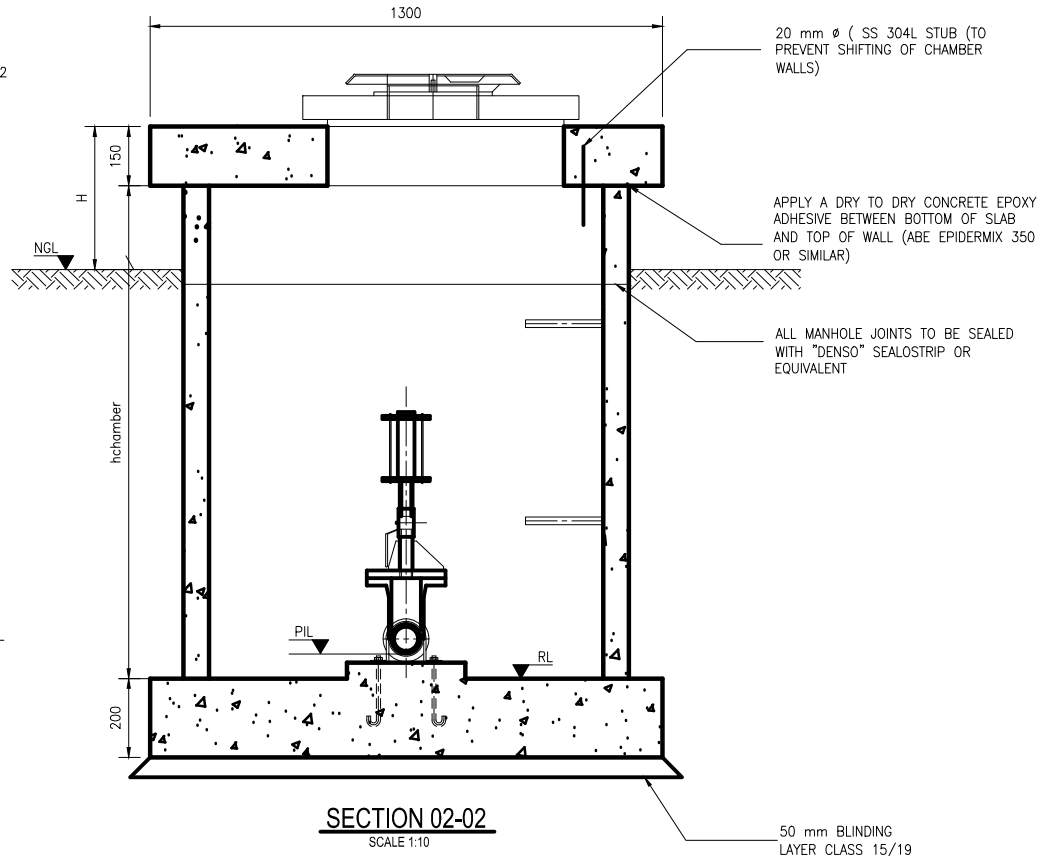
TABLE 1
AIR VALVE CHAMBERS SCHEDULE FOR LINE 2

LINE 2 AIR VALVE CHAMBERS COMMAND RESERVOIR TURN TO SEKHULA RESERVOIR										
No	CH	NGL	PIL	RL	D	PIPE CLASS	d	VALVE CLASS	h	H
AIR 1	0	639.56	638.40	638.10	160 OD	PN16	25NB	PN16	1.8	0.490
AIR 2	809	608.65	607.49	607.19	160 OD	PN16	25NB	PN16	1.8	0.490
AIR 3	1335	590.94	589.78	589.48	160 OD	PN16	25NB	PN25	1.8	0.490
AIR 4	2060	569.27	567.91	567.61	160 OD	PN16	25NB	PN25	2.0	0.490
AIR 5	2626	543.29	541.73	541.43	160 OD	PN20	25NB	PN25	2.0	0.290
AIR 6	3393	540.00	538.59	538.29	110 OD	PN20	25NB	PN25	1.8	0.240
AIR 7	4340	561.84	560.73	560.43	110 OD	PN16	25NB	PN25	1.8	0.540

LINE 2 AIR VALVE CHAMBERS TURN TO TAULOME RESERVOIR										
No	CH	NGL	PIL	RL	D	PIPE CLASS	d	VALVE CLASS	h	H
AIR 10	836	560.87	559.78	559.48	90 OD	PN12	25NB	PN16	1.8	0.560
AIR 11	1562	556.25	555.16	554.86	90 OD	PN12	25NB	PN16	1.8	0.560
AIR 12	2275	569.76	568.67	568.37	90 OD	PN12	25NB	PN16	1.8	0.560
AIR 13	2792	541.21	540.12	539.82	90 OD	PN16	25NB	PN25	1.8	0.560
AIR 14	3371	541.52	540.33	540.03	90 OD	PN16	25NB	PN25	1.8	0.460
AIR 15	3786	562.48	561.39	561.09	90 OD	PN12	25NB	PN16	1.8	0.560



SECTION 01-01
SCALE 1:10



SECTION 02-02
SCALE 1:10

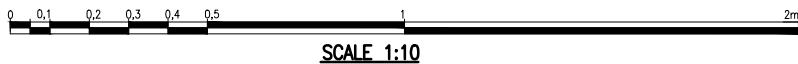
TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DATE:	DESIGN: C.M DRAWN: Z.S	
ENGINEER:	DATE:	N/A	
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No: C1201-1015	FILE No: C1201-1015	DATE: 18/03/2021	

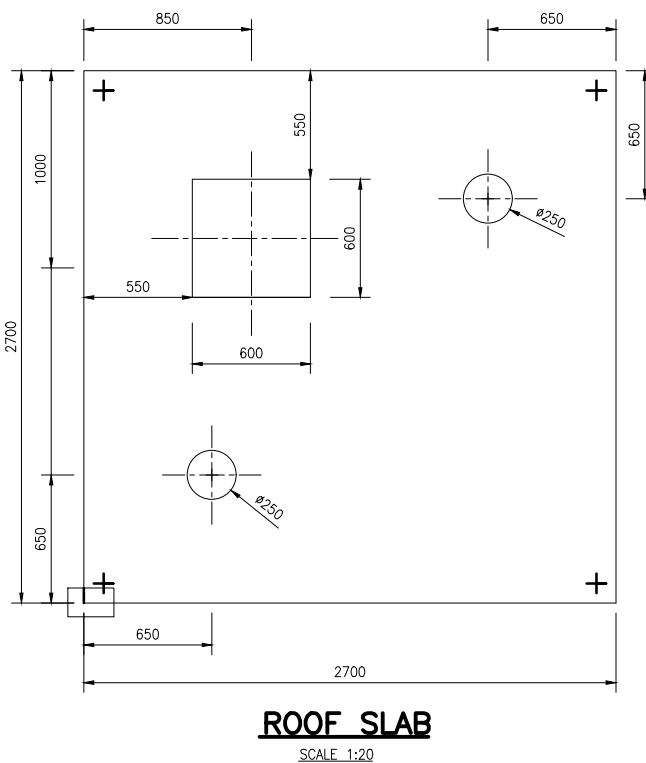
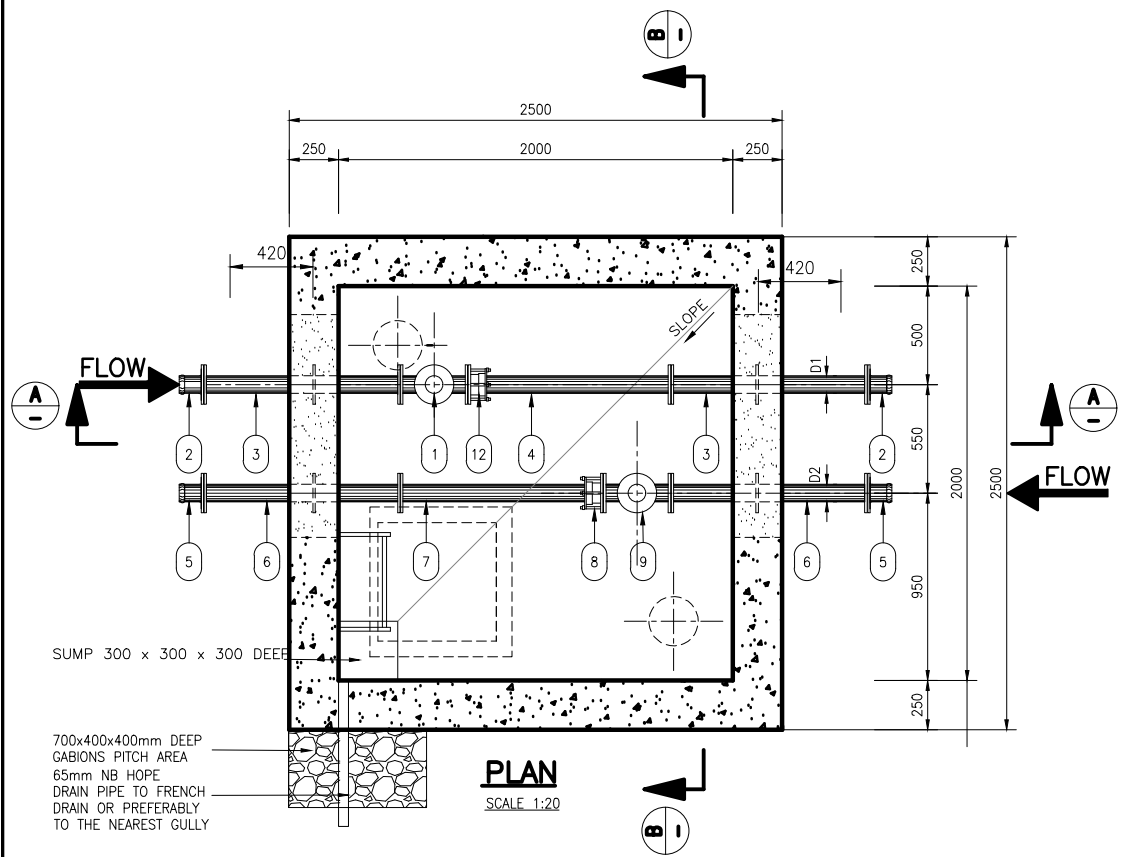
REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLWaP-PHASE 1:									
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO)									
WORK PACKAGE 8: PIPELINES									
LINE 2: AIR VALVE CHAMBERS TYPE 1 COMMAND RESERVOIR TO SEKHULA AND TAULOME RESERVOIRS PIPE SPECIAL AND CONCRETE DETAILS									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B400-26	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REC. No.	C1201-1015		
CALCULATION FILE:	20/2/B400-26/C/1/1						P-II-M-16		

- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME :
CLASS 25/19 = 0.6 m³
CLASS 15/19 = 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90 PERCENT MOD AASHTO
 - GENERAL :
 - CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30 PERCENT
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



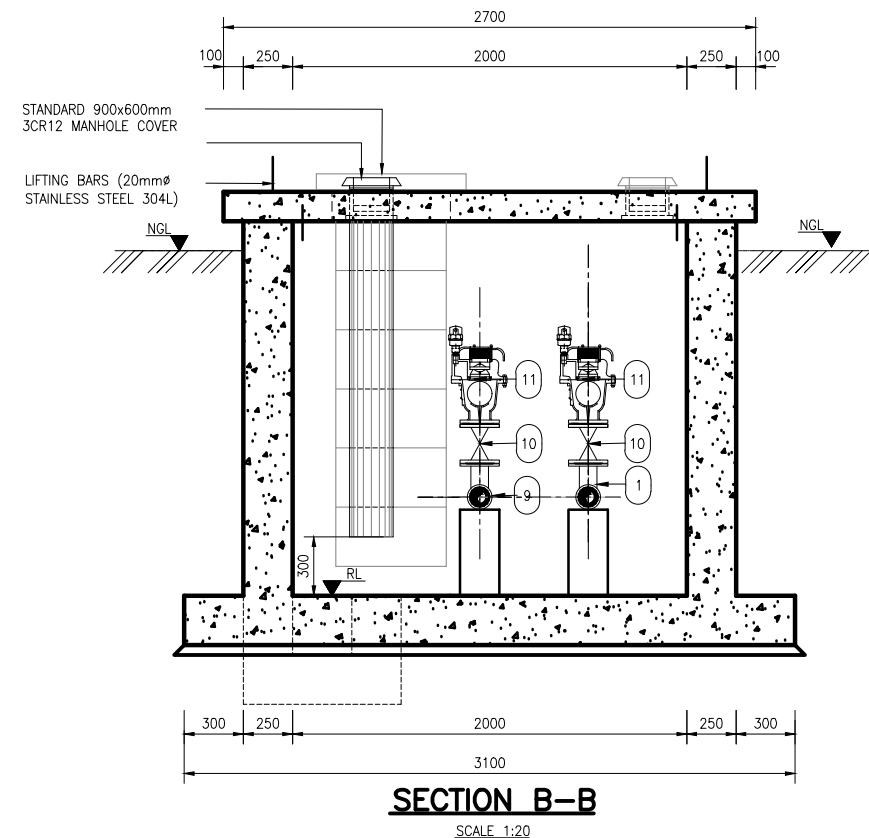
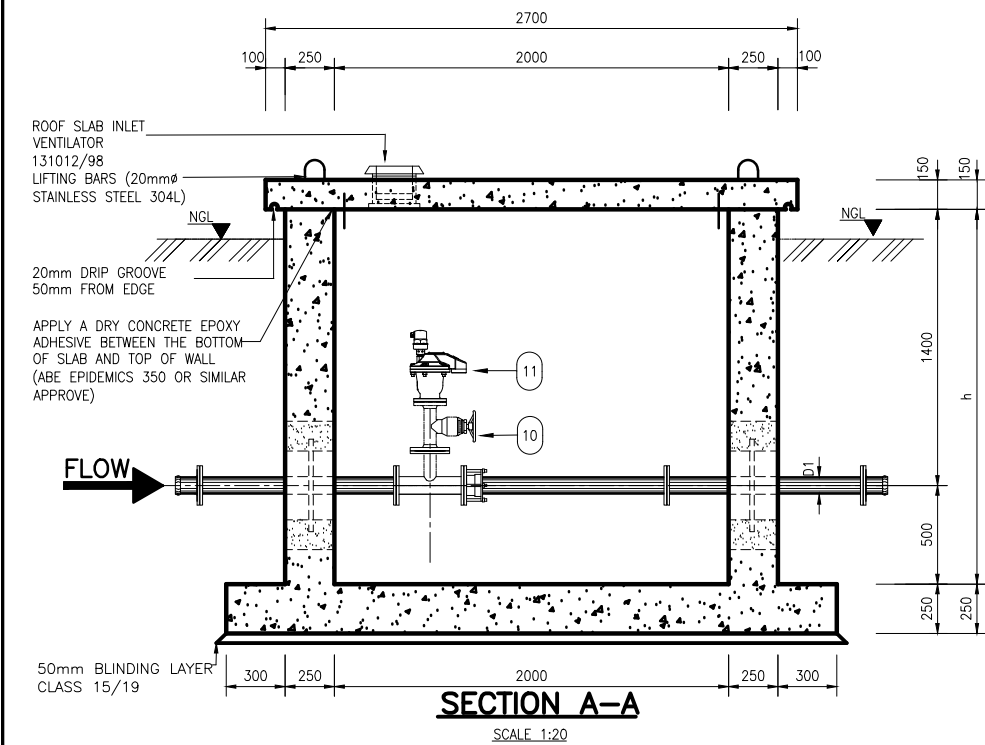


PIPES AND SPECIALS: AIR VALVE CHAMBER TYPE 2						
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH
1	1	D1	MS CL. HEAVY	4.7	TEE D1x25mm NB FLANGED	
2	2	D1	SG	4.7	SG FLANGE ADAPTOR	
3	2	D1	MS CL. HEAVY		STRAIGHT PIPE BOTH END FLANGED, ANCHOR FLANGE AS INDICATED	
4	1	D1			STRAIGHT PIPE ONE END FLANGED, OTHER PLAIN FOR CUTTING	
5	2	D2	SG		SG FLANGE ADAPTOR	
6	2	D2	MS CLASS HEAVY	4.2	STRAIGHT PIPE BOTH END FLANGED, ANCHOR FLANGE AS INDICATED	
7	1	D2	MS CLASS HEAVY	4.2	STRAIGHT PIPE ONE END FLANGED, OTHER PLAIN FOR CUTTING	
8	1	D2			FLANGE ADAPTOR 80mm NB	
9	1	D2		4.2	TEE D2x25mm NB FLANGED	
10	2	25			25mm NB FLANGED BALL VALVE	
11	2	25			25mm NB FLANGED DOUBLE ORIFICE AIR VALVE	
12	1	D1			FLANGE ADAPTOR 80mm NB	

FOR VALVE CLASSIFICATION REFER TO TABLE BELOW.

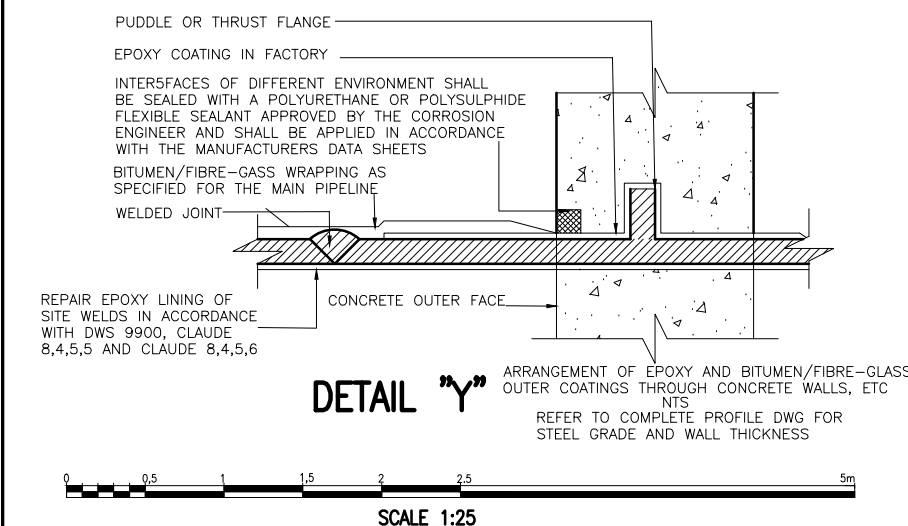
NOTES:

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 – 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE.
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DWS 9900.
- CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 7.5 m³
CLASS 15/19 = 0.5m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
- GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DWS 9 900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED.
 - OPERATING INSTRUCTIONS(LETTERING 20mm HIGH)AND VALVE NUMBERS(DETAILS "A"AND "B")BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS.LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS.



AIR VALVE CHAMBERS SCHEDULE FOR LINE 2

LINE 2(TWO PIPES IN ONE TRENCH) AIR VALVE CHAMBERS CH.5007.3(TURN TO SEKHULA RESERVOIR)														
No	CH	NGL	PIL	RL	LINE TO SEKHULA			LINE TO TAULOME			d	h	H	LADDER
					D1	PIPE CLASS	VALVE CLASS	D2	PIPE CLASS	VALVE CLASS				
AIR.8	5287	579.83	578.62	578.32	110 OD	PN16	PN25	90 OD	PN12	PN16	25NB	1.8	0.440	1.650
AIR.9	5551	610.25	609.04	608.74	110 OD	PN16	PN25	90 OD	PN12	PN16	25NB	1.8	0.440	1.650



TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited		122 DIE MEER STREET BENDOR,POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DATE:	DESIGN: C.M	DRAWN: Z.S
ENGINEER:	DATE:	N/A	EXTERNAL APPROVAL: DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No: C1201-1016	FILE No: C1201-1016	DATE: 18/03/2021	

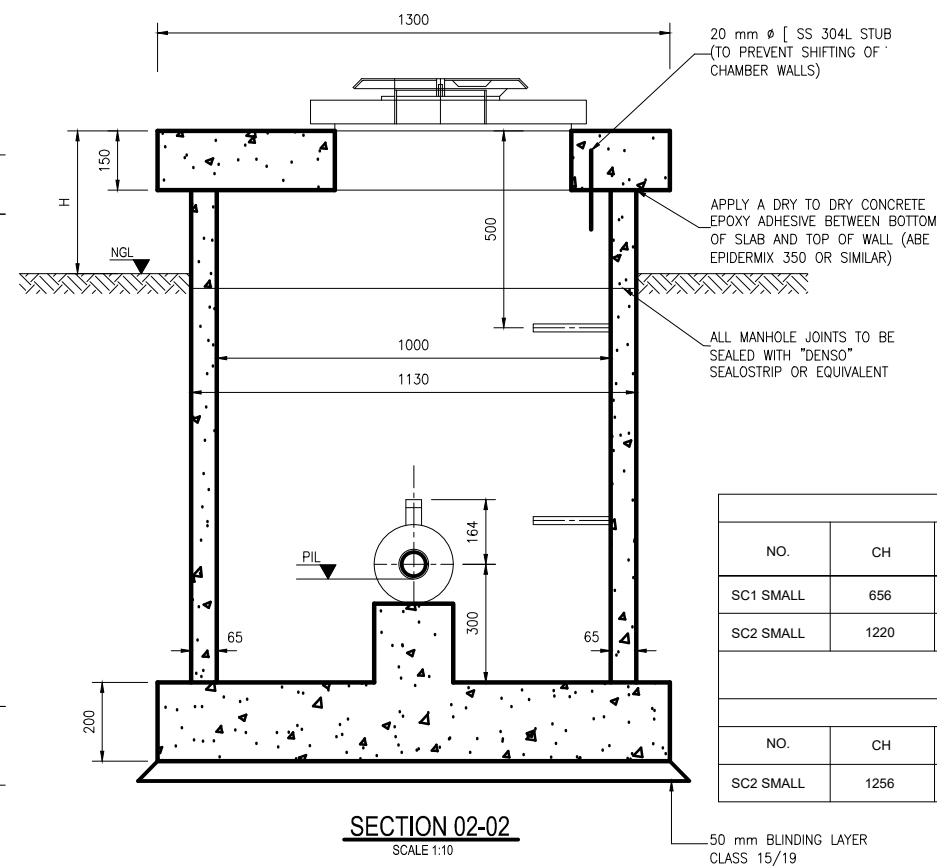
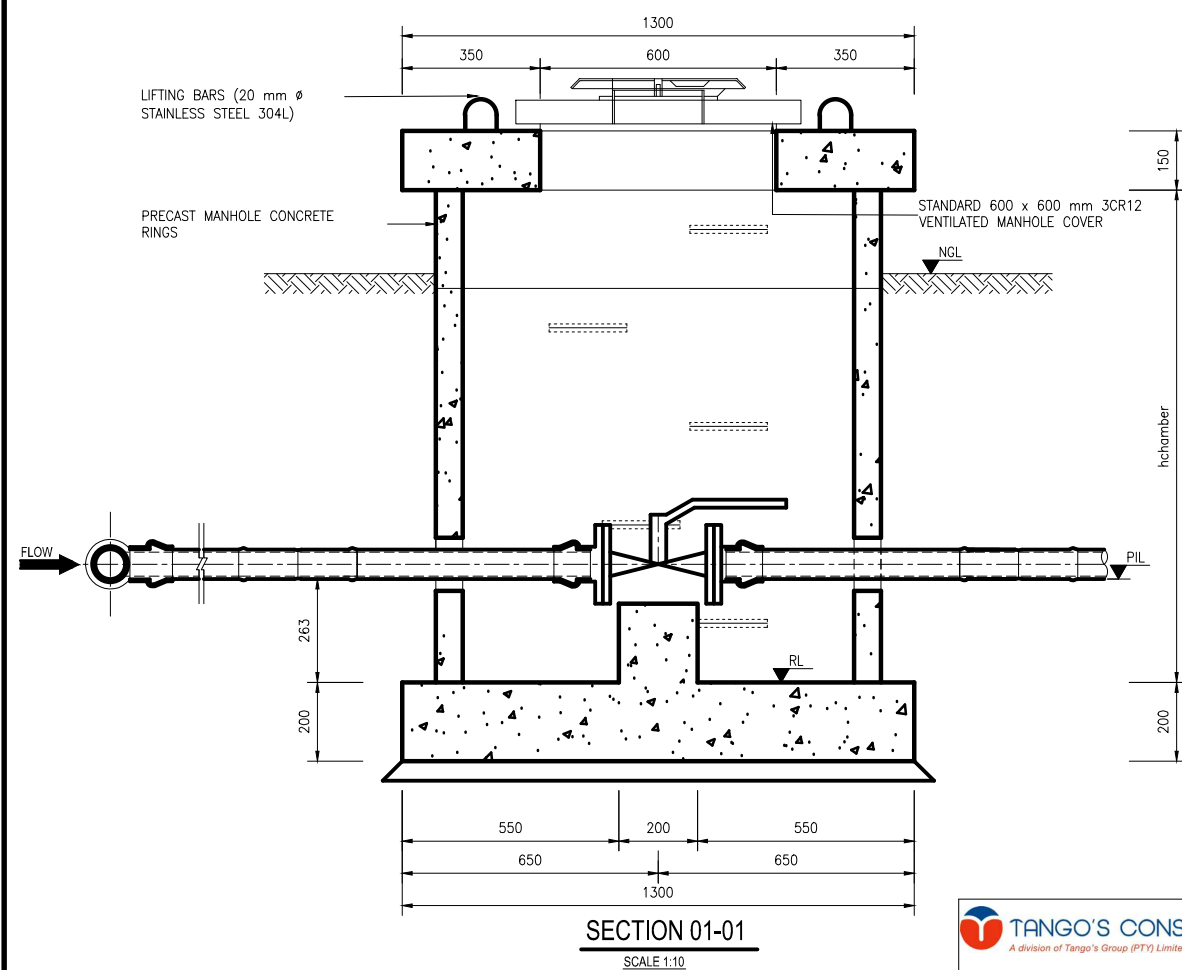
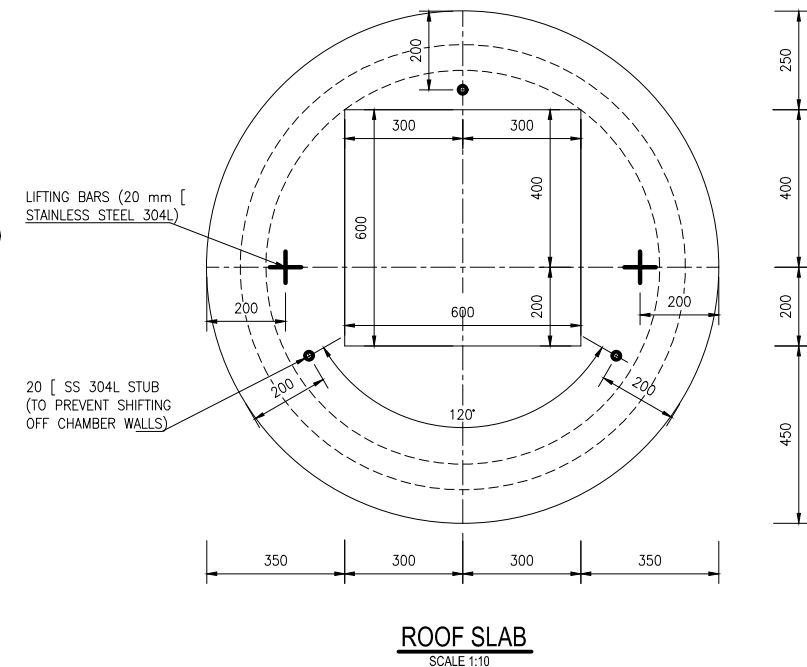
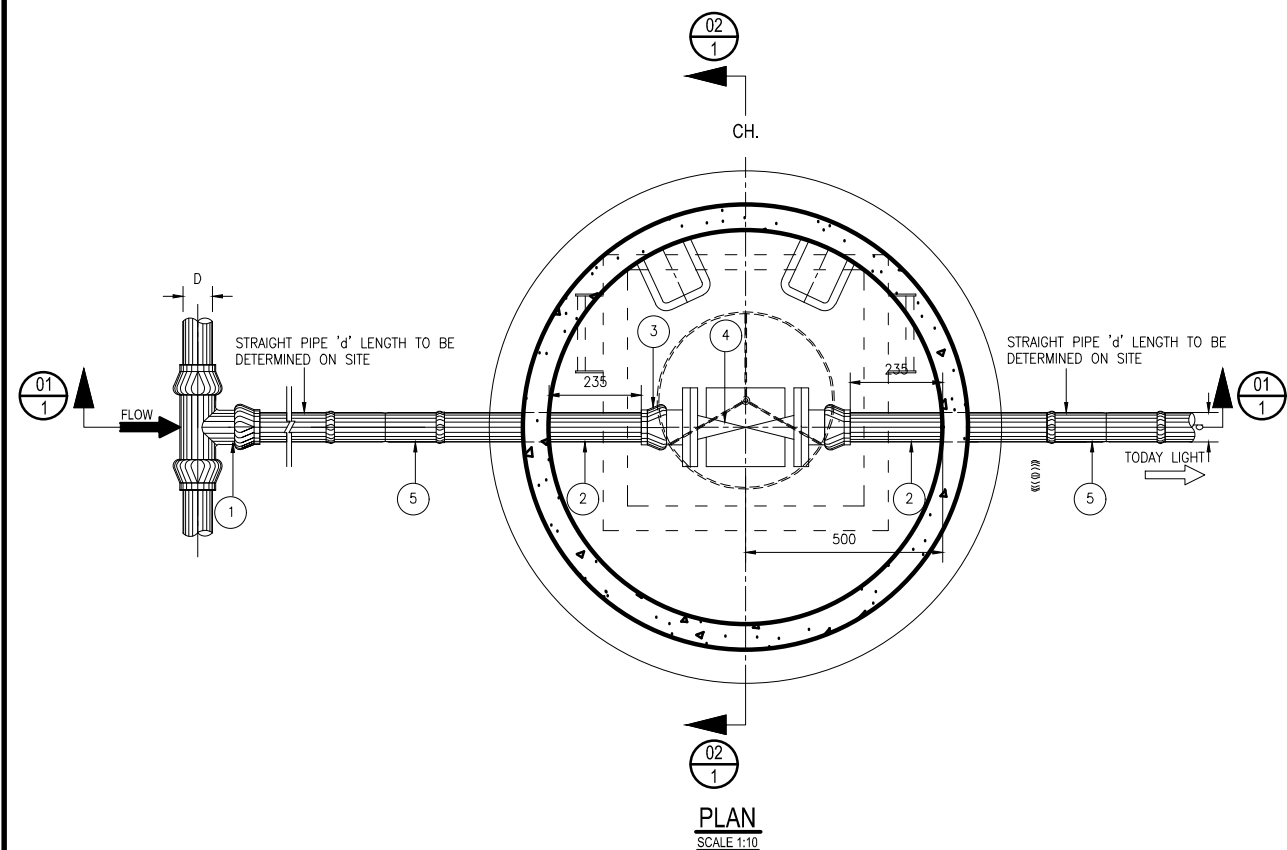
REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLWaP-PHASE 1:													
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO)													
WORK PACKAGE 8: PIPELINES													
LINE 2: (TWO PIPES IN ONE TRENCH) AIR VALVE CHAMBER TYPE 2 (TURN TO SEKHULA RESERVOIR) CONCRETE DETAILS													
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER	P-II-M-17		
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.							
CALCULATION FILE:													

C1201- 1016

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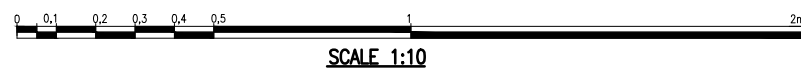


ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	D/d	CAST IRON	SG REDUCING TEE	
2	2	d	uPVC	STRAIGHT PIPE	
3	2	d	uPVC	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	d	STAINLESS STEEL	BALL VALVE: "d" NB FLANGED ENDS BALL VALVE	
5	2	d	uPVC	DOUBLE SOCKET	

FOR VALVE CLASSIFICATION REFER TO TABLE BELOW.

TABLE 1
SCOUR VALVE CHAMBERS SCHEDULE FOR LINE 2

SCOUR VALVE CHAMBERS COMMAND RESERVOIR TO SEKHULA RESERVOIR										
NO.	CH	NGL	PIL	RL	D	PIPE CLASS	d	VALVE CLASS	h	H
SC1 SMALL	656	603.48	602.12	559.48	160 OD	PN16	50NB	PN25	2.0	0.490
SC2 SMALL	1220	585.26	583.90	554.86	160 OD	PN16	50NB	PN25	2.0	0.490
SCOUR VALVE CHAMBERS SEKHULA RESERVOIR TO TAULOME RESERVOIR										
NO.	CH	NGL	PIL	RL	D	PIPE CLASS	d	VALVE CLASS	h	H
SC2 SMALL	1256	551.41	550.32	550.0	90 OD	PN12	50NB	PN6	1.8	0.560



CHECKED:	DATE:	DESIGN: C.M	DRAWN: Z.S
ENGINEER:	DATE:	N/A	EXTERNAL APPROVAL:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No: C1201-1017	FILE No: C1201-1017	DATE: 18/03/2021	

REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:

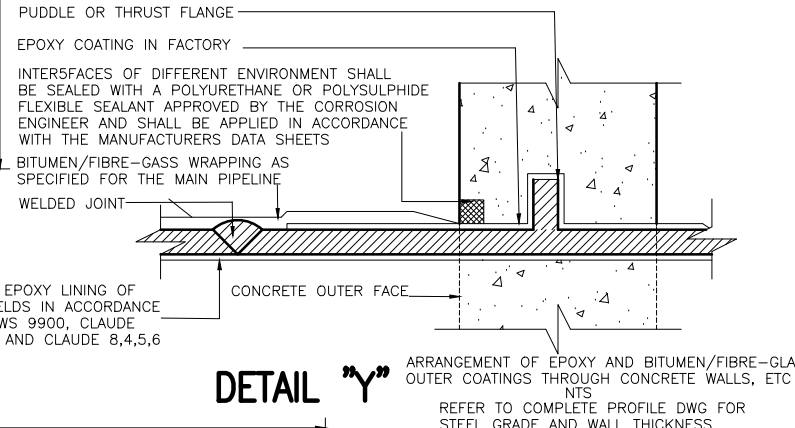
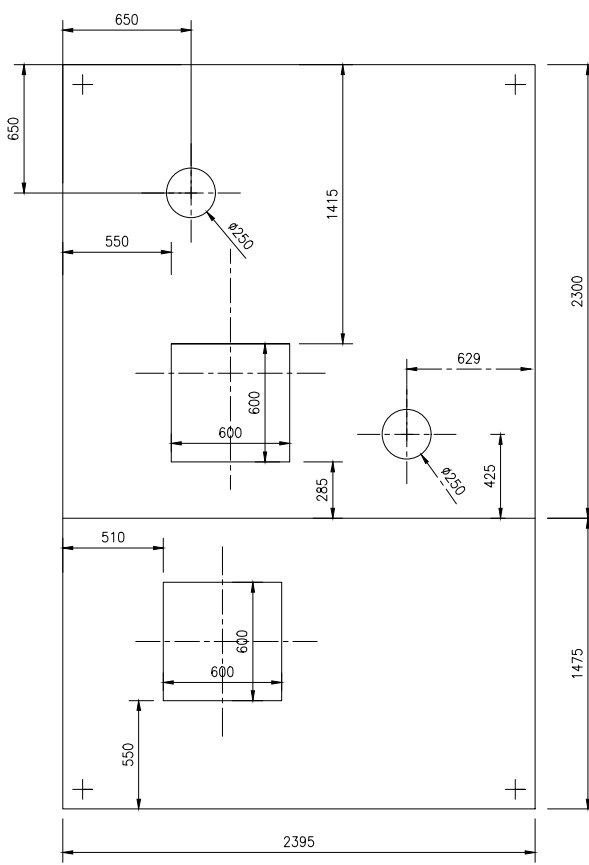
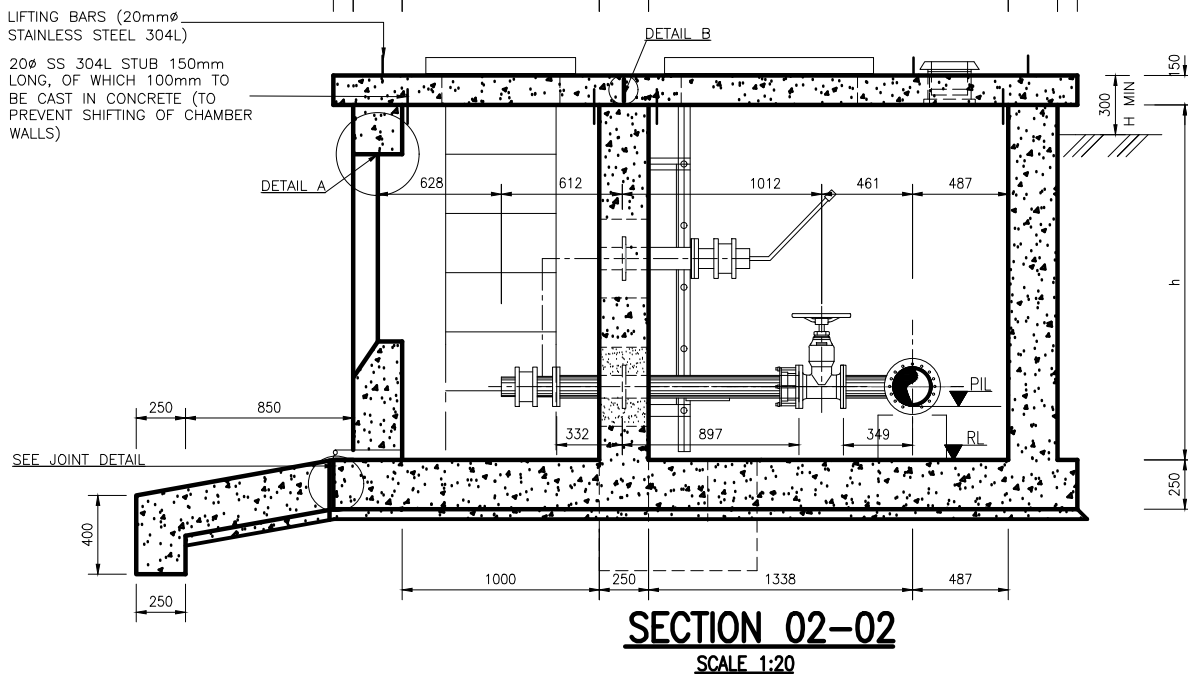
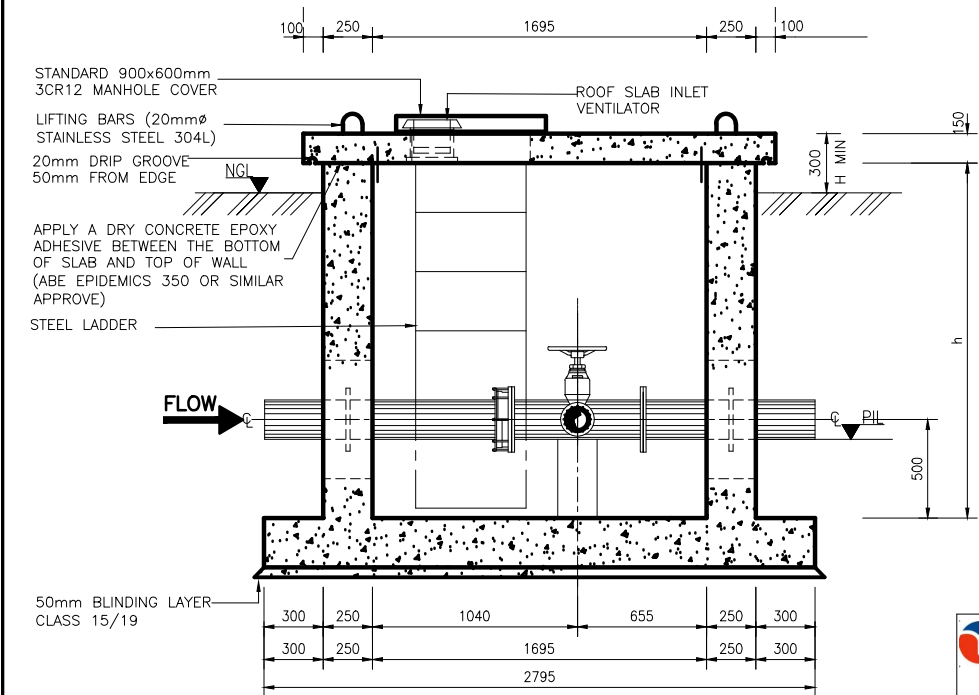
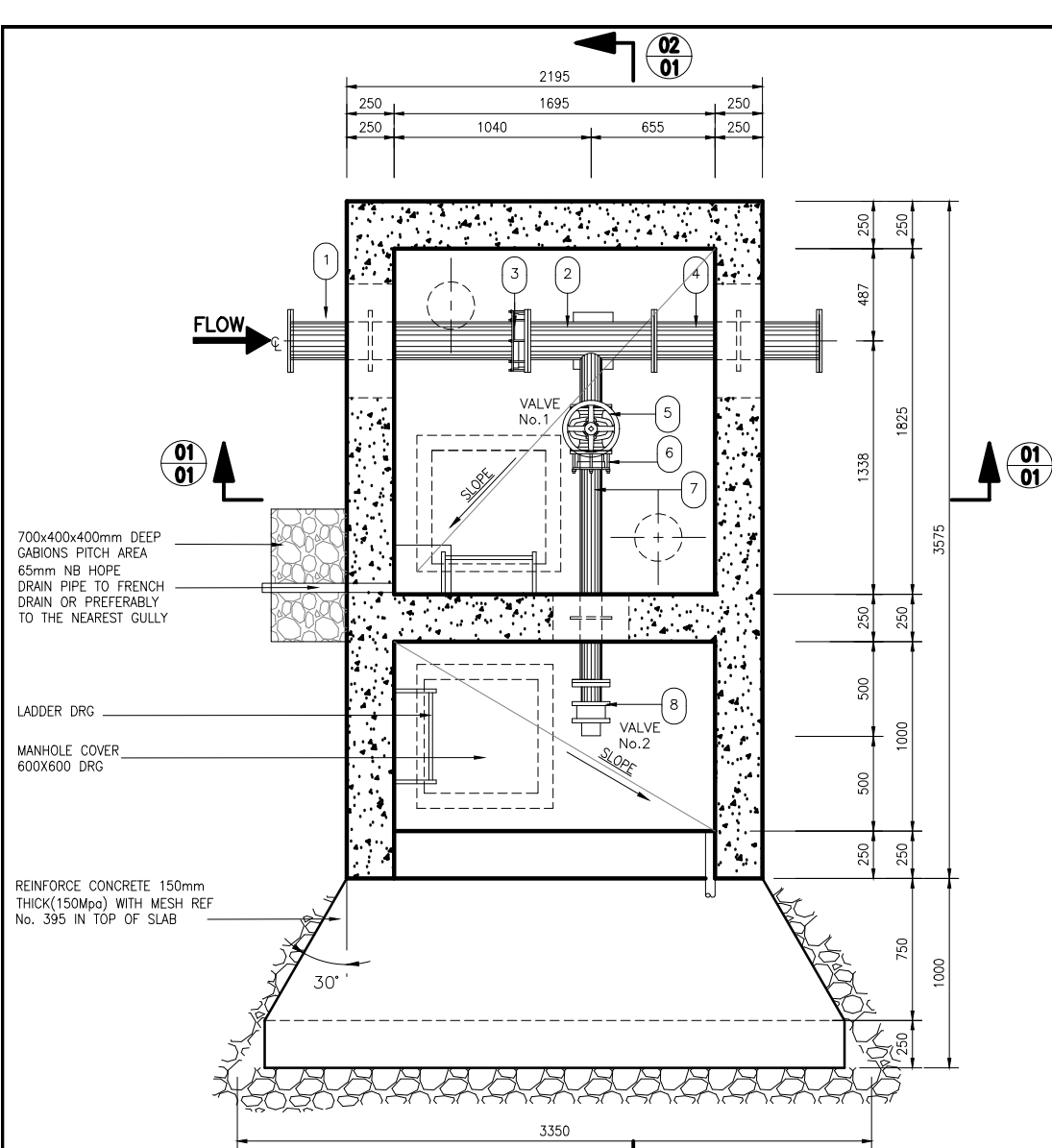
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO)

WORK PACKAGE 8: PIPELINES
LINE 2: SCOUR VALVE CHAMBER (TYPE 1)
PIPE SPECIAL AND CONCRETE DETAILS

PROVINCE: LIMPOPO	DISTRICT: MOPANI	KEYCODES: - - - - - OTHER
LOCALITY No: B801-AT	TENDER/ CONTRACT No: 8/1/3/50	SHEET 1 OF 1
CALCULATION FILE:		REG. No. C1201-1017

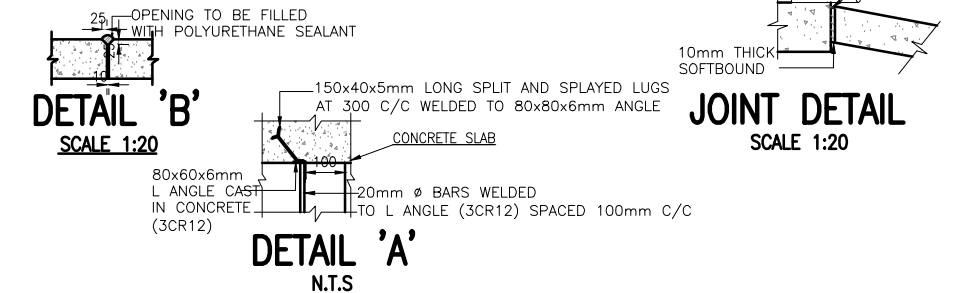
REV. 00

- NOTES
- CONCRETE AND MISCELLANEOUS
 - 1.1. ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - 1.2. CONCRETE VOLUME :
CLASS 25/19 = 7.2 m³
CLASS 15/19 = 1.1 m³
 - 1.3. ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - 1.4. BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90 PERCENT MOD AASHTO
 2. GENERAL :
2.1. REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DWS 9 900
 - 2.2. PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "y"
 - 2.3. CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - 2.4. PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30 PERCENT
 - 2.5. ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - 2.6. CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES
 - 2.7. PROVIDE LIFTING LUGS WHERE REQUIRED
 - 2.8. WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



ITEM No.	No. OFF	DIA NB	MATERIAL	DESCRIPTION	SKETCH
①	1	D	STEEL	STRAIGHT PIPE ONE END PLAIN, PUDDLE FLANGE AS SHOWN	
②	1	D	STEEL	SCOUR TEE FLANGED.	
③	1	D	STEEL	FLANGE ADAPTOR D NB	
④	1	D	STEEL	STRAIGHT PIPE BOTH FLANGED, PUDDLE FLANGE AS SHOWN	
⑤	1	d	STEEL	d WEDGE GATE VALVE	
⑥	1	d	STEEL	FLANGE ADAPTOR d NB	
⑦	1	d	STEEL	STRAIGHT PIPE ONE END FLANGED, PUDDLE FLANGE AS SHOWN	
⑧	1	d	STEEL	d NB SLEEVE VALVE WITH HYDRAULIC ACTUATOR.	
⑨	2	D	SG	FLANGE ADAPTOR	

FOR VALVE CLASSIFICATION REFER TO TABLE BELOW.



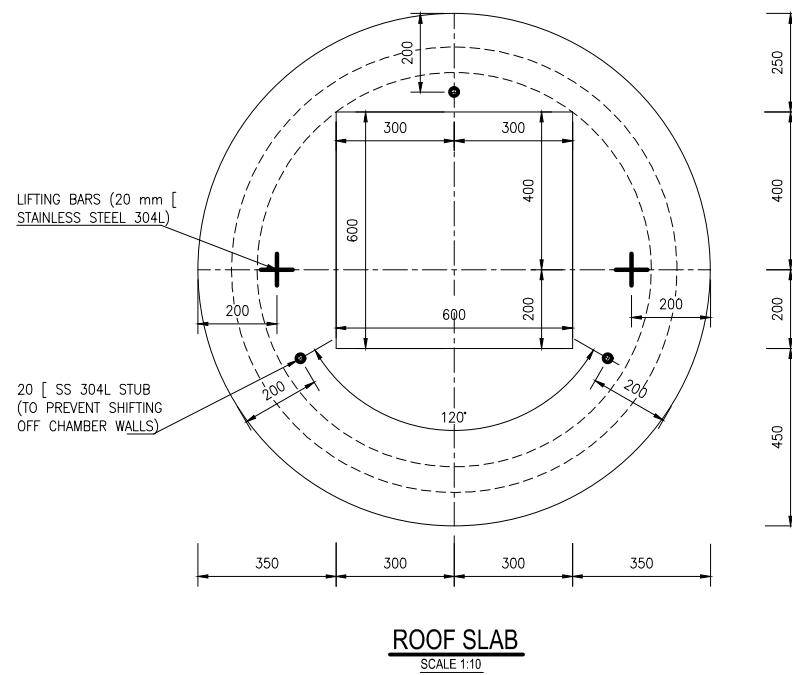
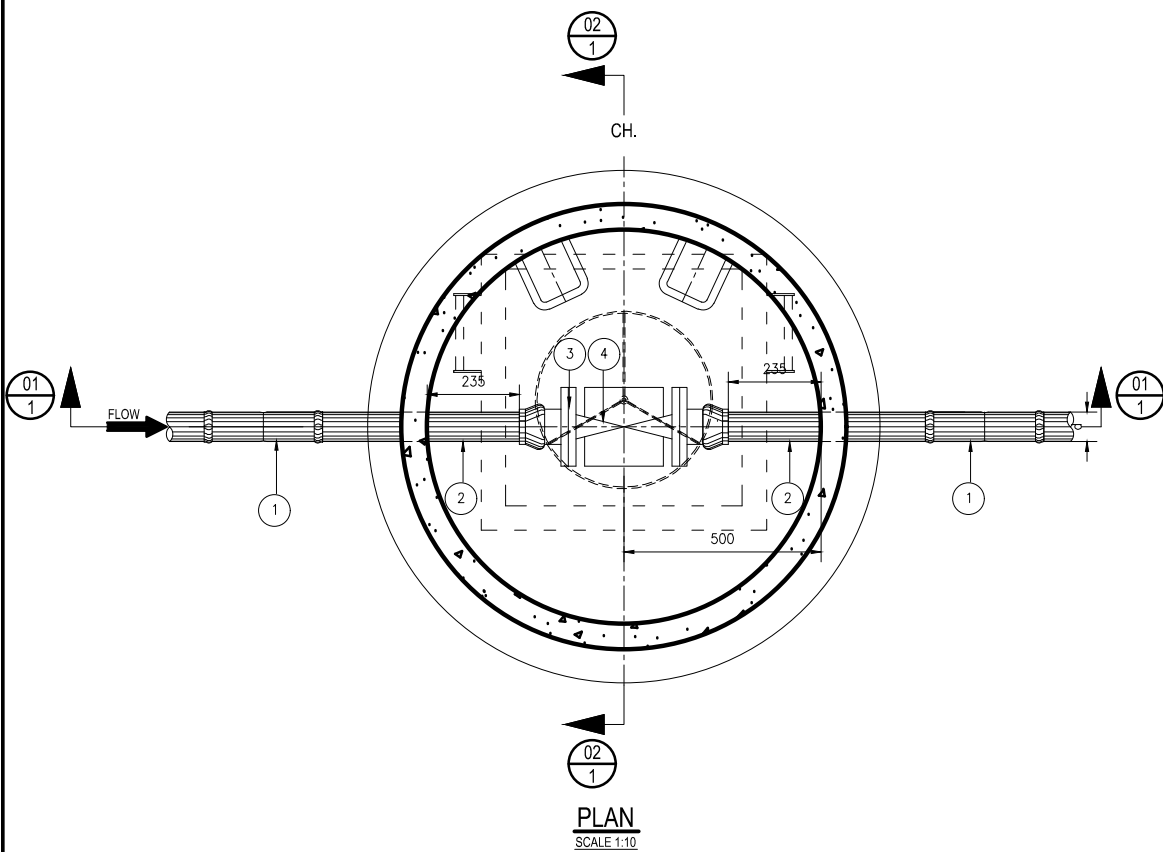
SCOUR VALVE CHAMBERS SCHEDULE LINE 2

SCOUR VALVE CHAMBERS COMMAND RESERVOIR TO SEKHULA RESERVOIR												
No	TYPE	CH	NGL	PIL	RL	PIPE OD	PIPE CLASS	VAL.NB d	VALVE CLASS	h	H	LADDER
SC3	SLEEVE	3143	529.98	528.77	528.5	110 OD	PN20	80NB	PN 25	1.800	0.440	1.650

SCOUR VALVE CHAMBERS SEKHULA RESERVOIR TO TAULOME RESERVOIR												
No	TYPE	CH	NGL	PIL	RL	PIPE OD	PIPE CLASS	VAL.NB d	VALVE CLASS	h	H	LADDER
SC5	SLEEVE	3070	526.63	525.54	525.2	90 OD	PN16	80NB	PN25	1.800	0.560	1.650

<p>TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited</p>		<p>122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900</p>		<p>REVISION</p> <table> <tr> <th>MOD No</th><th>DATE</th><th>DESCRIPTION</th><th>FOR</th></tr> <tr> <td>00</td><td>18/03/21</td><td>ISSUED FOR TENDER</td><td></td></tr> </table>		MOD No	DATE	DESCRIPTION	FOR	00	18/03/21	ISSUED FOR TENDER		<p>LEPELLE NORTHERN WATER</p> <p>01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800</p>		<p>DEPARTMENT OF WATER AND SANITATION</p> <p>49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200</p>		<p>GLeWaP-PHASE 1:</p> <p>LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO)</p> <p>WORK PACKAGE 8: PIPELINES LINE 2: SCOUR VALVE CHAMBERS COMMAND RESERVOIR TO SEKHULA AND TAULOME PIPE LINE (TYPE 2) PIPE SPECIAL AND CONCRETE DETAILS</p>				<p>PROVINCE: LIMPOPO DISTRICT: MOPANI</p> <p>LOCALITY No: B801-AT?? TENDER/ CONTRACT No: 8/1/3/50</p> <p>CALCULATION FILE:</p>		<p>KEYCODES: - - - - - OTHER</p> <p>SHEET 1 OF 1</p>		<p>REG. No. C1201-1018</p>		<p>REV. 00</p>
MOD No	DATE	DESCRIPTION	FOR																									
00	18/03/21	ISSUED FOR TENDER																										

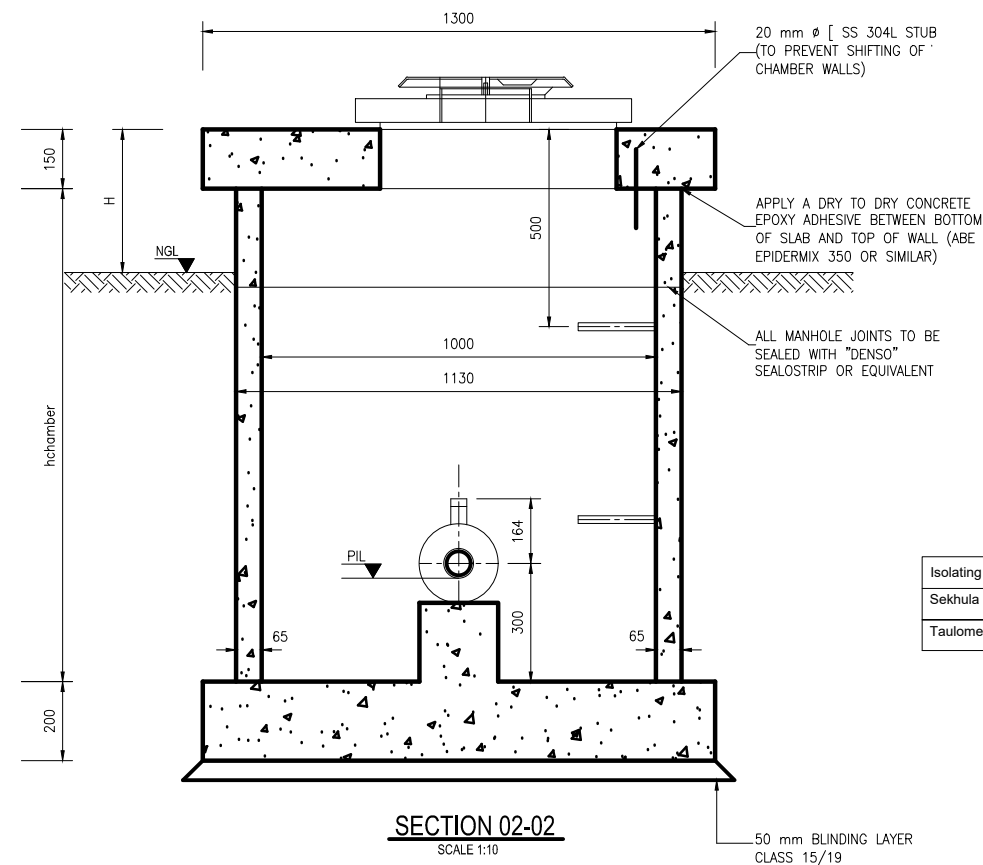
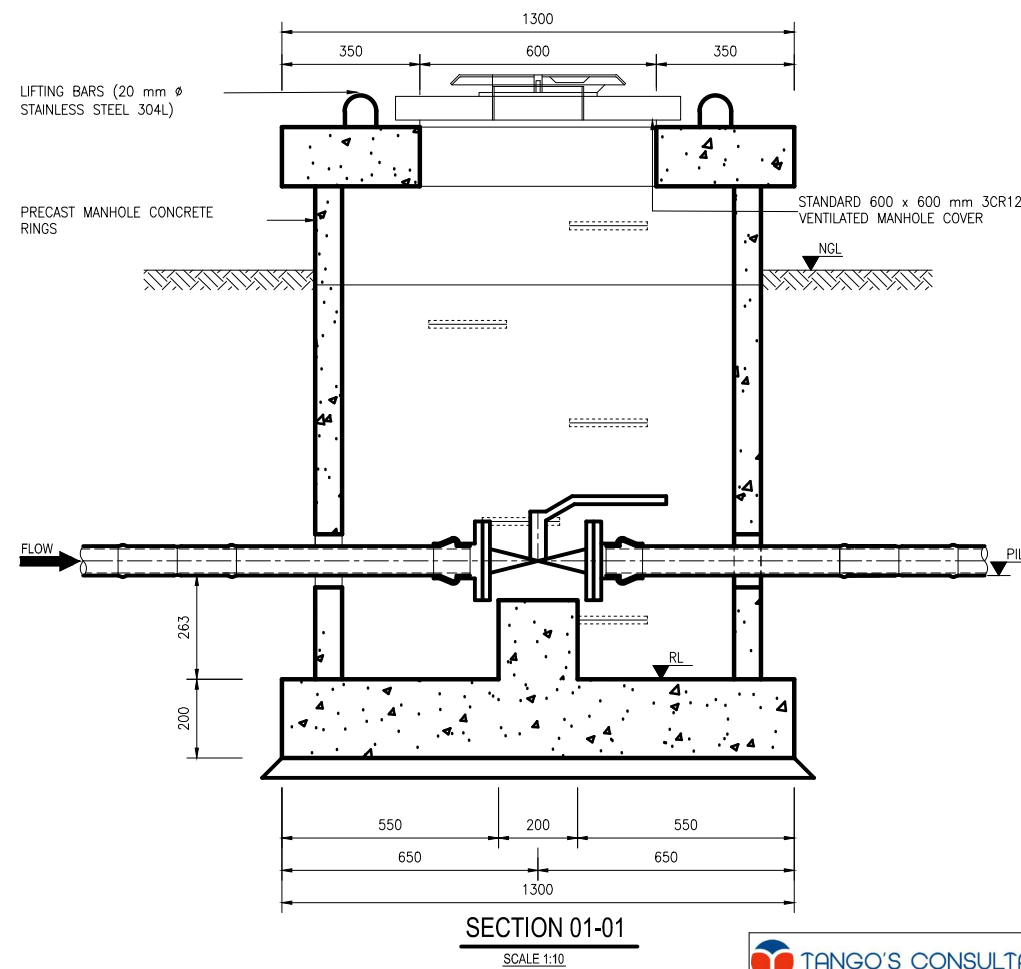
- NOTES:**
- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 'I' AS DRILLED FLANGES. FLAT FACED.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
 - CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 - 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DWS 9900.
 - CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 11.3 m³
CLASS 15/19 = 1.1m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
 - GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DWS 9 900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS (LETTERING 20mm HIGH) AND VALVE NUMBERS (DETAILS "A" AND "B") BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS.



ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	2	D	uPVC	DOUBLE SOCKET	
2	2	D	uPVC	STRAIGHT PIPE	
3	2	D	SG	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	D	STAINLESS STEEL	BALL VALVE: "D" NB FLANGED ENDS BALL VALVE	

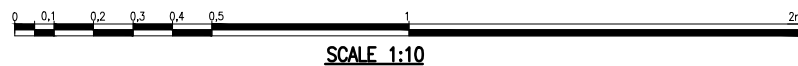
FOR VALVE CLASSIFICATION REFER TO TABLE BELOW.

- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME :
 - CLASS 25/19 = 0.4 m³
 - CLASS 15/19 = 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90 PERCENT MOD AASHTO
 - GENERAL :
 - CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30 PERCENT
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



ISOLATING VALVE CHAMBERS AT RESERVOIRS

Isolating Valve Chamber at	NGL	PIL	RL	D	PIPE CLASS	VALVE CLASS	h	H
Sekhula reservoir	610.25	609.04	608.74	110 OD	PN16	PN25	1.8	0.440
Taulome reservoir	562.48	561.39	561.09	90 OD	PN12	PN16	1.8	0.560



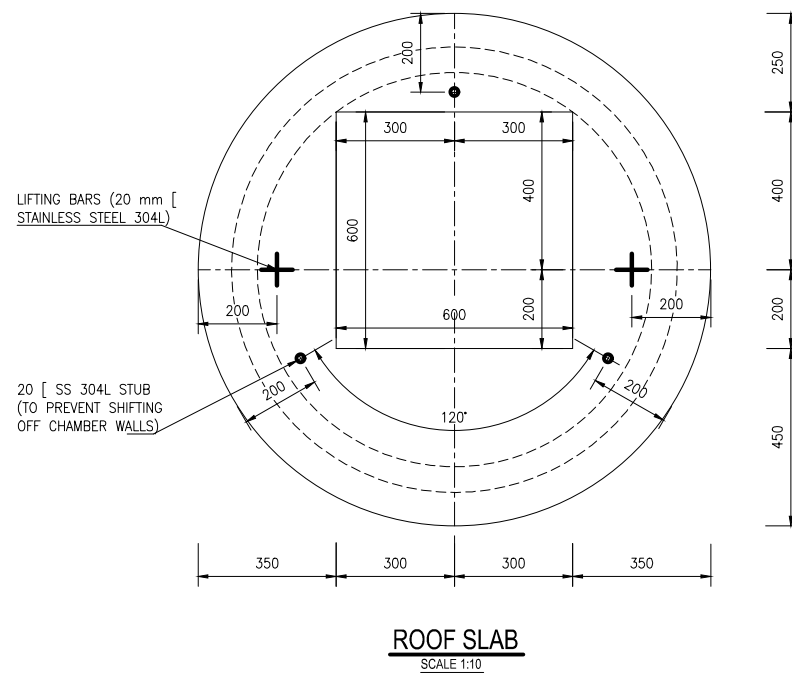
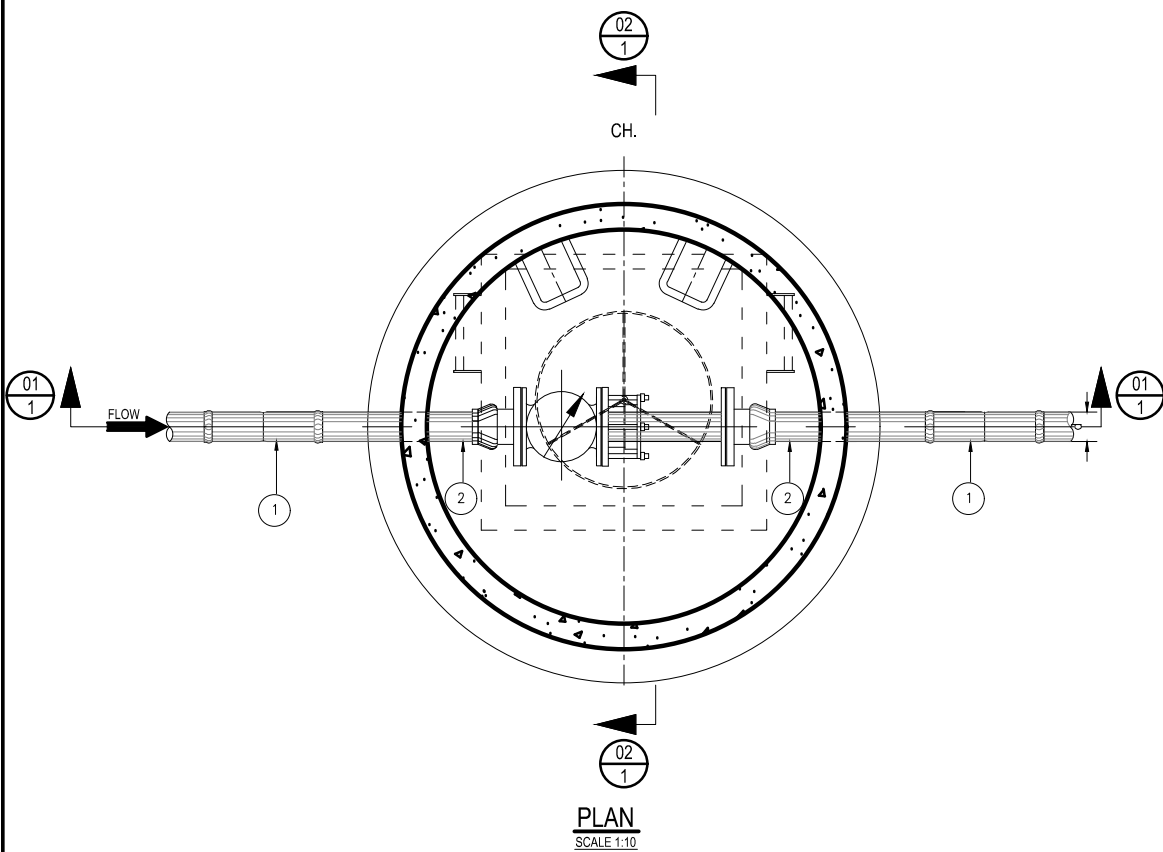
TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited 122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No. 015-298 8828 Fax No. 015-295 3900		DESIGN: C.M CHECKED: DATE: DRAWN: Z.S N/A ENGINEER: DATE: EXTERNAL APPROVAL: DATE: N/A CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE: TANGO'S DWG No: C1201-1019 C1201-1019 DATE: 18/03/2021	
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REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPILLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200
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GLeWaP-PHASE 1: LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO) WORK PACKAGE 8: PIPELINES LINE 2: ISOLATING VALVE CHAMBER AT RESERVOIRS PIPE SPECIAL AND CONCRETE DETAILS			
PROVINCE: LIMPOPO	DISTRICT: MOPANI	KEYCODES: - - - - - OTHER	
LOCALITY No: B801-AT	TENDER/ CONTRACT No: 8/1/3/50	SHEET 1 OF 1	REV. 00
CALCULATION FILE:			

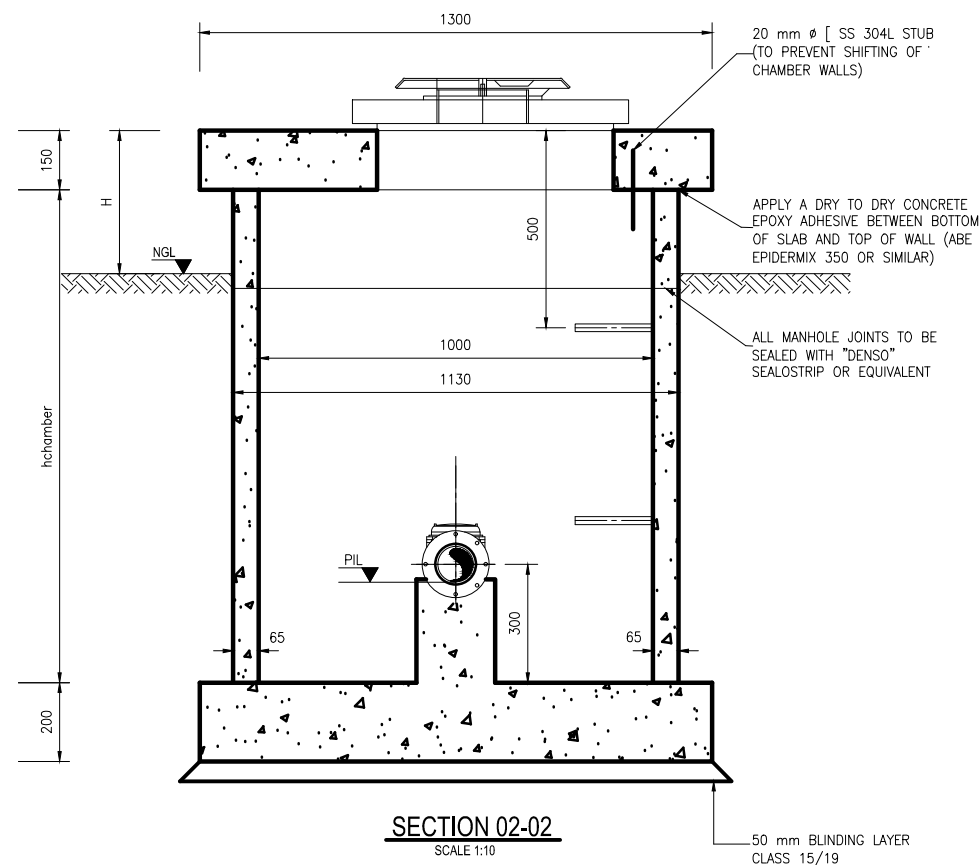
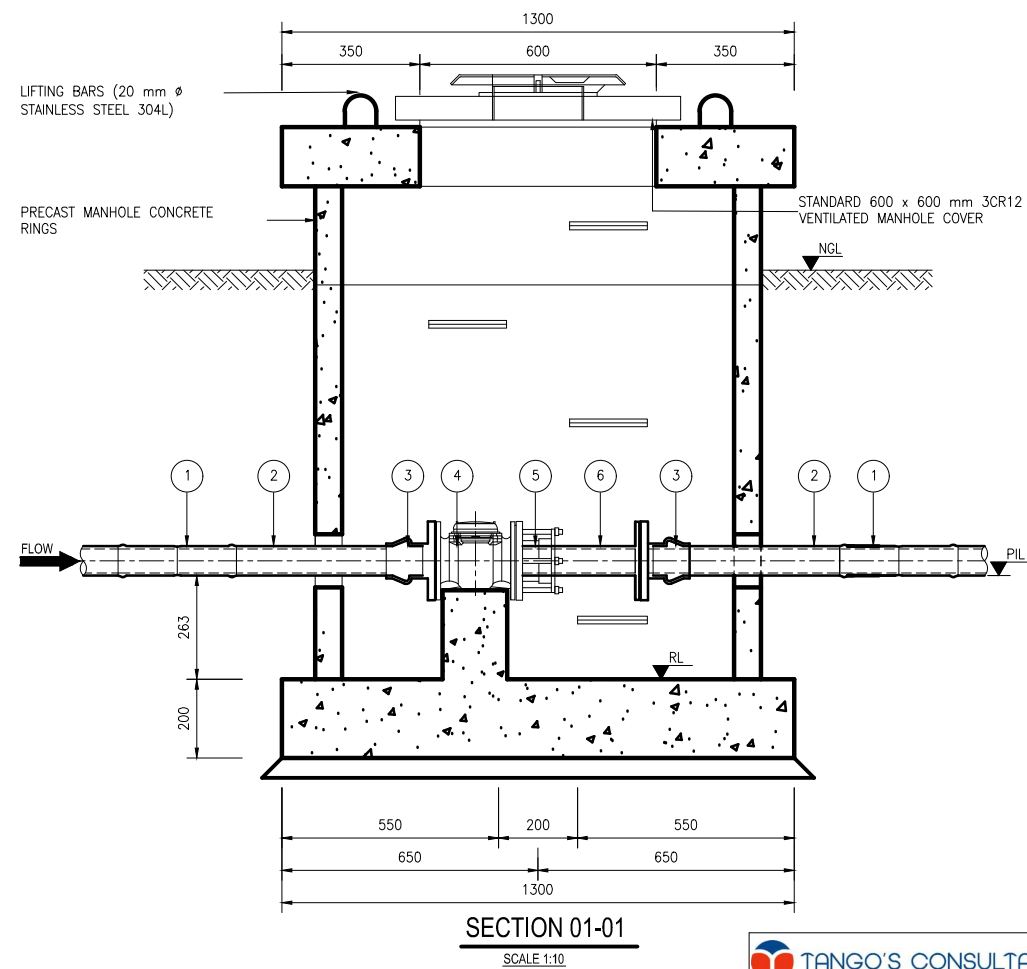
C1201-1019



ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	2	D	uPVC	DOUBLE SOCKET	
2	2	D	uPVC	STRAIGHT PIPE	
3	2	D	SG	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	D		MECHANICAL TURBINE FLOW METER	
5	1	D		FLANGE ADAPTOR	
6	1	D		STRAIGHT PIPE ONE END FLANGED OTHER PLAIN FOR CUTTING ON SITE TO SUIT	

FOR VALVE CLASSIFICATION REFER TO TABLE BELOW.

- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME :
 - CLASS 25/19 = 0.6 m³
 - CLASS 15/19 = 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90 PERCENT MOD AASHTO
 - GENERAL :
 - CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30 PERCENT
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



FLOW METER CHAMBERS AT RESERVOIRS

Flow meter chamber	NGL	PIL	RL	D	PIPE CLASS	CLASS	h	H
Sekhula reservoir	610.25	609.04	608.74	110 OD	PN16	PN25	1.8	0.440
Taulome reservoir	562.48	561.39	561.09	90 OD	PN12	PN16	1.8	0.560

0 0.1 0.2 0.3 0.4 0.5 1 2m
SCALE 1:10

TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIE MEER STREET
BENDOR, POLOKWANE
0700
Tel. No. 015-298 8828
Fax No. 015-295 3900

CHECKED: DATE: DESIGN: C.M.
DRAWN: Z.S.

ENGINEER: DATE: EXTERNAL APPROVAL: DATE: N/A

CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE: N/A

TANGO'S DWG No: C1201-1020
FILE No: C1201-1020
DATE: 18/03/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLWaP-PHASE 1:

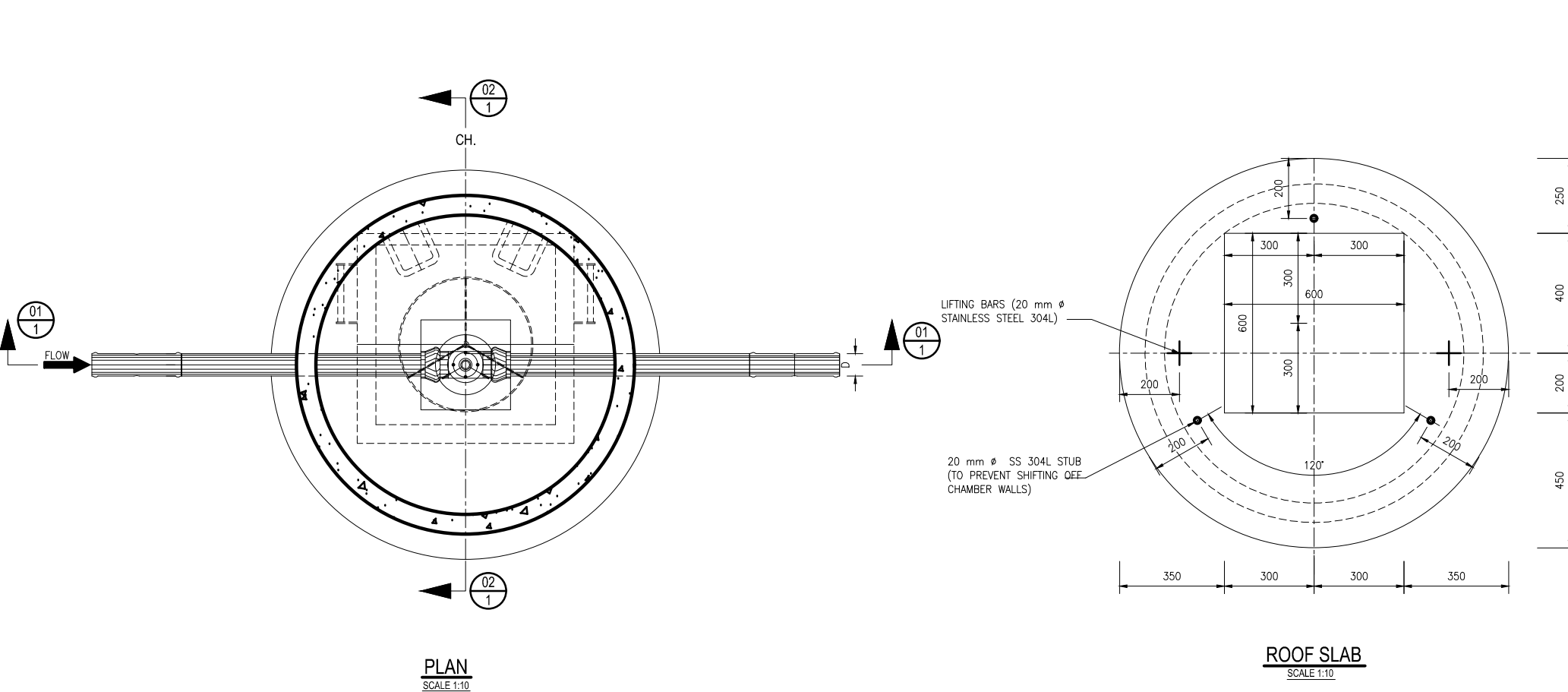
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO)

WORK PACKAGE 8: PIPELINES
LINE 2: FLOW METER CHAMBER AT SEKHULA AND TAULOME RESERVOIR SITE
PIPE SPECIAL AND CONCRETE DETAILS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.				
CALCULATION FILE:										

C1201-1020

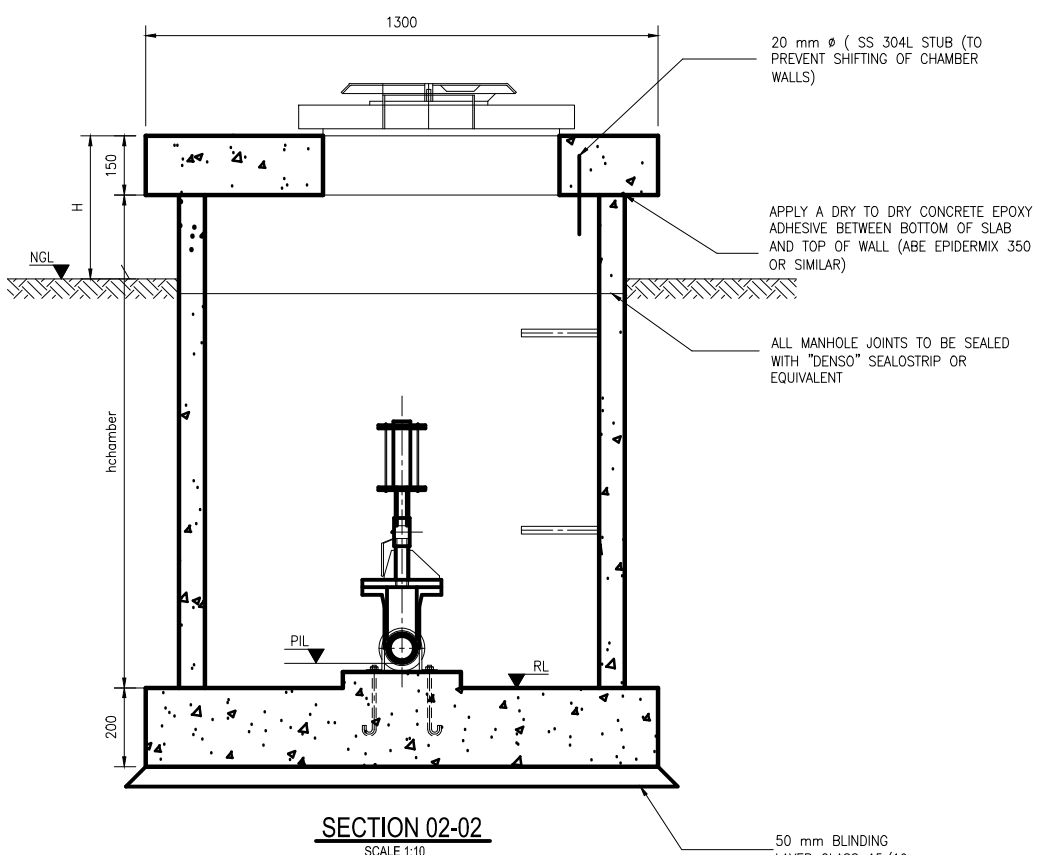
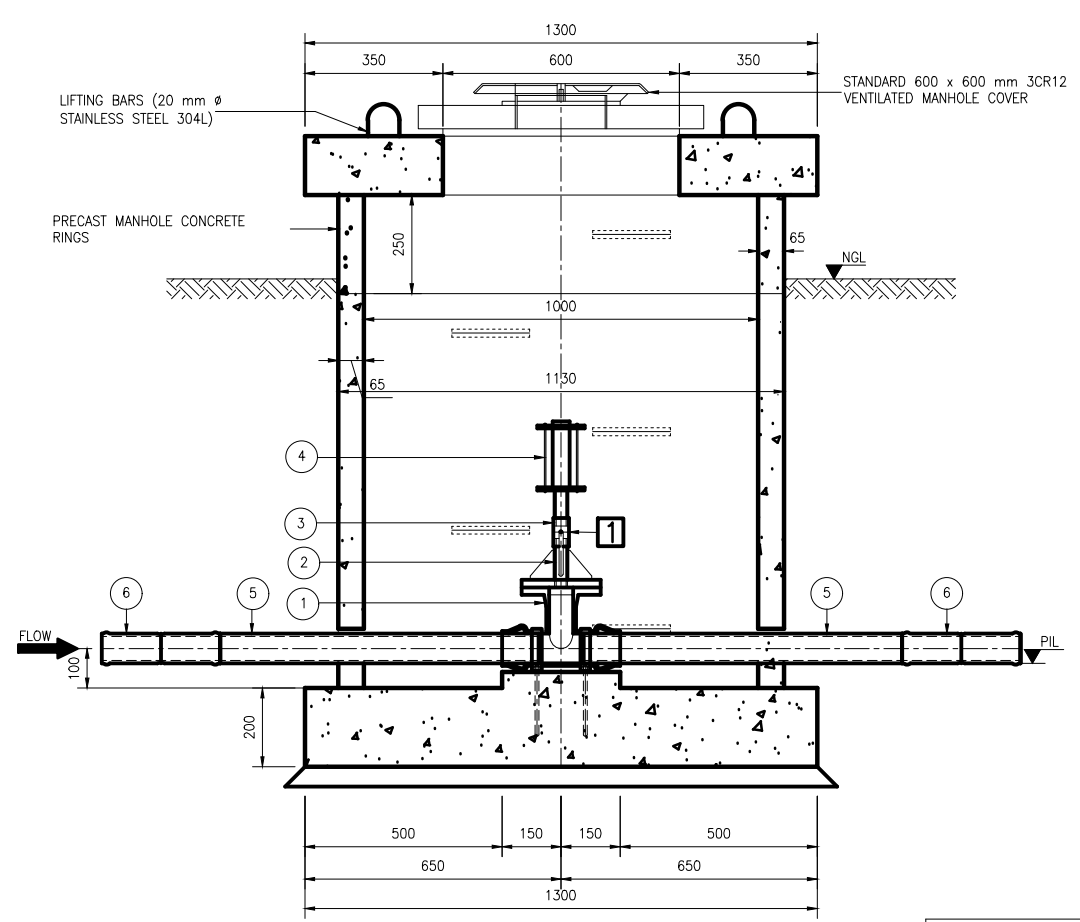
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ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	D	SG	AIR VALVE TEE. STANDARD SG IRON HYDRANT TEE.	
2	1	-	MILD STEEL	SPECIAL REDUCER: 80 mm NB BLANK FLANGE WITH d mm NB STUB 125 mm LONG, WELDED IN THE CENTRE OF THE BLANK FLANGE. THREAD END OF THE STUB TO CONFIRM BALL VALVE THREADS SPEC. STUB WITH 3 X 5 mm M.S. GUSSET PLATES. FITTED.	
3	1	d	STAINLESS STEEL	BALL VALVE: d mm NB SCREWED END.	
4	1	d	STAINLESS STEEL	AIR VALVE: STANDARD SCREWED DOUBLE ORIFICE AIR VALVE	
5	2	D	uPVC	STRAIGHT PIPE, 1 000 mm LONG.	
6	2	D	uPVC	DOUBLE SOCKET	

FOR CLASSIFICATION REFER TO TABLE BELOW

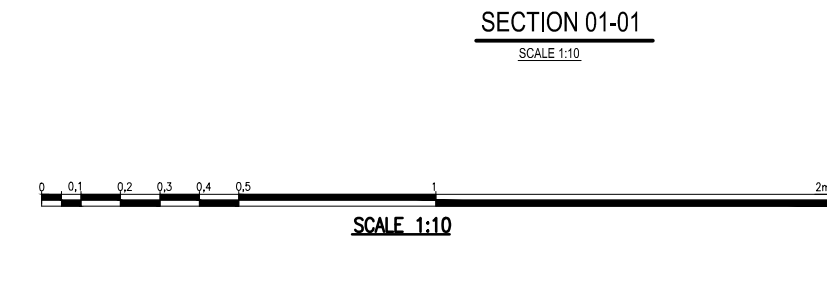
- NOTES**
- CONCRETE AND MISCELLANEOUS
 - 1.1. ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - 1.2. CONCRETE VOLUME :
CLASS 25/19 = 0.6 m³
CLASS 15/19 = 0.1 m³
 - 1.3. ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - 1.4. BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO
 2. GENERAL :
 - 2.1. CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - 2.2. PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30% ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - 2.4. CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - 2.5. PROVIDE LIFTING LUGS WHERE REQUIRED
 - 2.6. WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



AIR VALVE CHAMBERS SCHEDULE FOR LINE 3

LINE 3 AIR VALVE CHAMBERS : SPLIT MAWA 8/MOOKGO 6 TO MOTHOMENG RESERVOIR												
No	CH	NGL	PIL	RL	PIPE D	PIPE CLASS	VAL. NB d	VALVE CLASS	h	H		
AIR 1	374.0	543.00	541.76	541.26	160 OD	PN12	25 NB	PN16	1.800	0.490		
AIR 2	905.4	547.00	545.77	545.27					1.800	0.490		
AIR 3	1780.0	556.79	555.69	555.19					1.800	0.490		
AIR 4	2160.0	560.05	558.86	558.36					1.800	0.490		
AIR 5	2760.0	579.09	578.80	578.30					1.800	0.390		
AIR 6 RES	3050.1	575.50	574.04	573.74	200 OD	PN20			1.800	0.190		
AIR 7	3167.5	579.58	578.28	577.98				1.800	0.350			
AIR 8	3920.0	552.63	551.23	550.93				1.800	0.250			
AIR 9	4120.0	555.33	554.13	553.83				1.800	0.450			
AIR 10	4300.0	557.01	555.81	555.51				1.800	0.450			
AIR 11	4700.0	556.51	555.31	555.01	200 OD	PN16		PN16	1.800	0.450		
AIR 12	5520.0	571.81	570.61	570.31					1.800	0.450		
AIR 13	5940.0	574.94	573.34	573.04					1.800	0.050		
AIR 14	6580.0	598.95	597.75	597.45					1.800	0.450		
AIR 15	7213.8	641.93	640.73	640.43					1.800	0.450		
AIR 16	7660.0	666.61	665.41	665.11	200 OD	PN12				1.800	0.450	
AIR 17	8085.9	680.02	678.82	678.52					1.800	0.450		
AIR 18	8360.0	676.21	675.01	674.71					1.800	0.450		
AIR 19	8660.0	675.51	674.31	674.01					1.800	0.450		
AIR 20	9118.0	681.89	680.69	680.39					1.800	0.450		
AIR 21	9414.0	683.15	681.85	681.55	160 OD	PN12				1.800	0.350	
AIR 22	10000.0	644.17	642.97	642.67					1.800	0.450		
AIR 23	10240.0	651.10	649.90	649.60					1.800	0.450		
AIR 24	10420.0	652.99	651.79	651.49					1.800	0.450		
AIR 25	10640.0	656.02	654.82	654.52					1.800	0.450		
AIR 26	10860.0	655.52	654.32	654.02	160 OD	PN12				1.800	0.450	
AIR 27	11320.0	656.11	654.91	654.61					1.800	0.450		
AIR 28	11920.0	653.81	652.61	652.31					1.800	0.450		
AIR 29	12220.0	666.87	665.67	665.37					1.800	0.450		
AIR 30	12880.0	709.48	708.28	707.98					1.800	0.450		
AIR 31 RES	13146.9	717.60	716.40	716.10					1.800	0.450		
LINE 3 AIR VALVE CHAMBERS OFF-TAKE MORAPALPA TO MORAPALPA EXISTING RESERVOIR												
No	CH	NGL	PIL	RL	PIPE D	PIPE CLASS	VAL. NB d	VALVE CLASS	h	H		
AIR 32 RES	567.9	719.28	718.12	717.82	140 OD	PN12	25 NB	PN16	1.800	0.490		

LINE 3 AIR VALVE CHAMBERS OFF-TAKE MORAPALALA TO MORAPALALA EXISTING RESERVOIR											
No	CH	NGL	PIL	RL	PIPE D	PIPE CLASS	VAL. NB d	VALVE CLASS	h	H	
AIR 32 RES	567.9	719.28	718.12	717.82	140 OD	PN12	25 NB	PN16	1.800	0.490	



TANGO'S CONSULTANTS
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122 DIE MEER STREET
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0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED: DATE: DESIGN: K.M.
DRAWN: Z.S.

ENGINEER: DATE: EXTERNAL APPROVAL: DATE:

N/A

CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:

TANGO'S DWG No: C1201-1025 FILE No: C1201-1025
DATE: 18/03/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPILLE NORTHERN WATER

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:

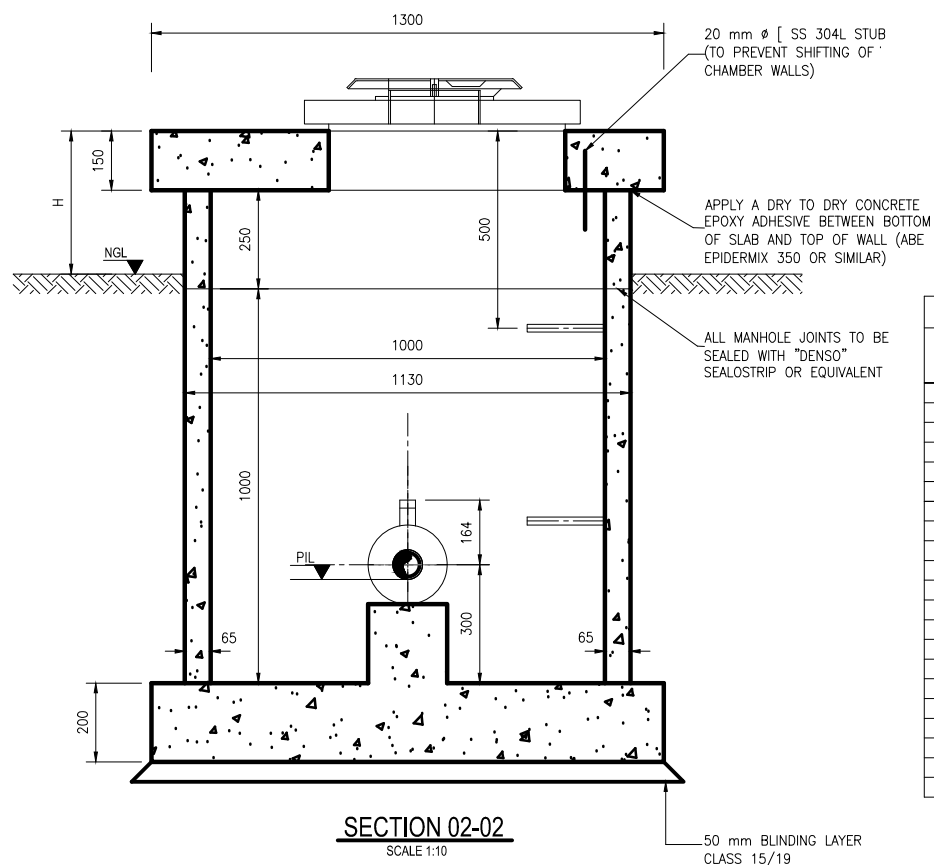
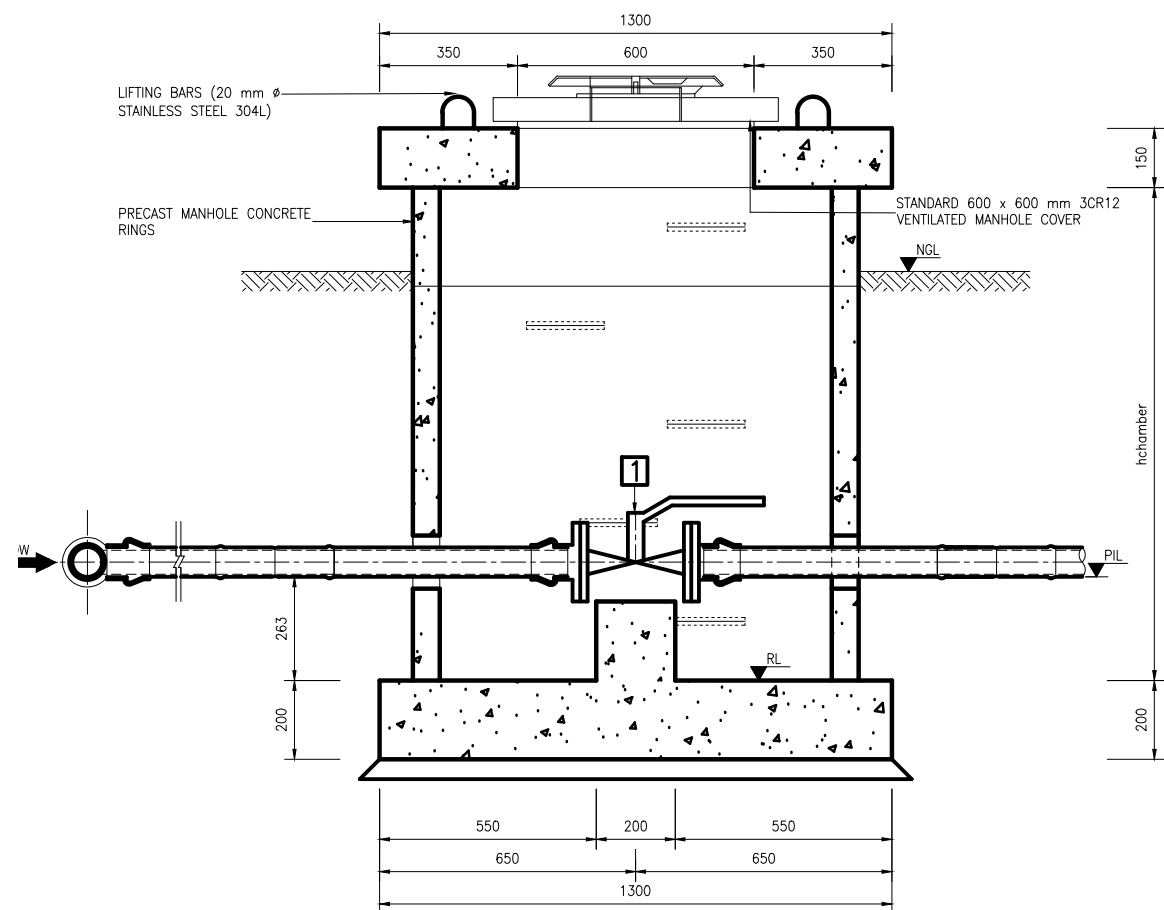
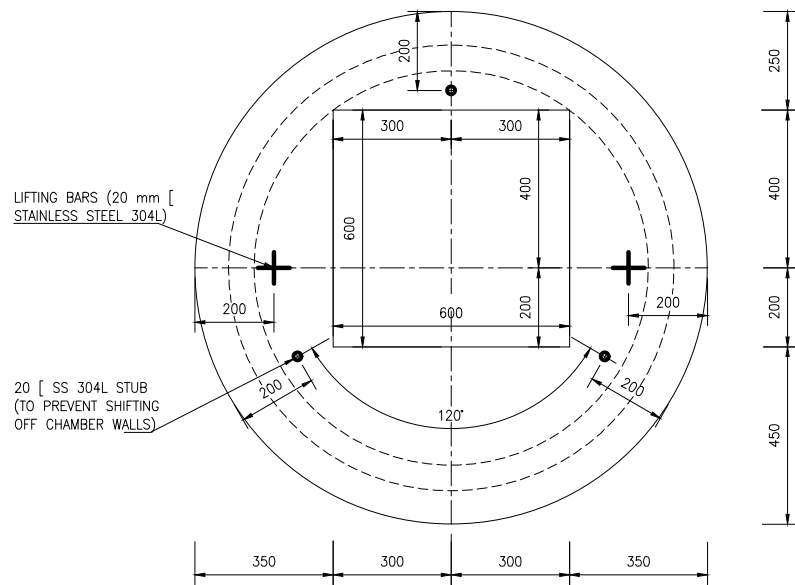
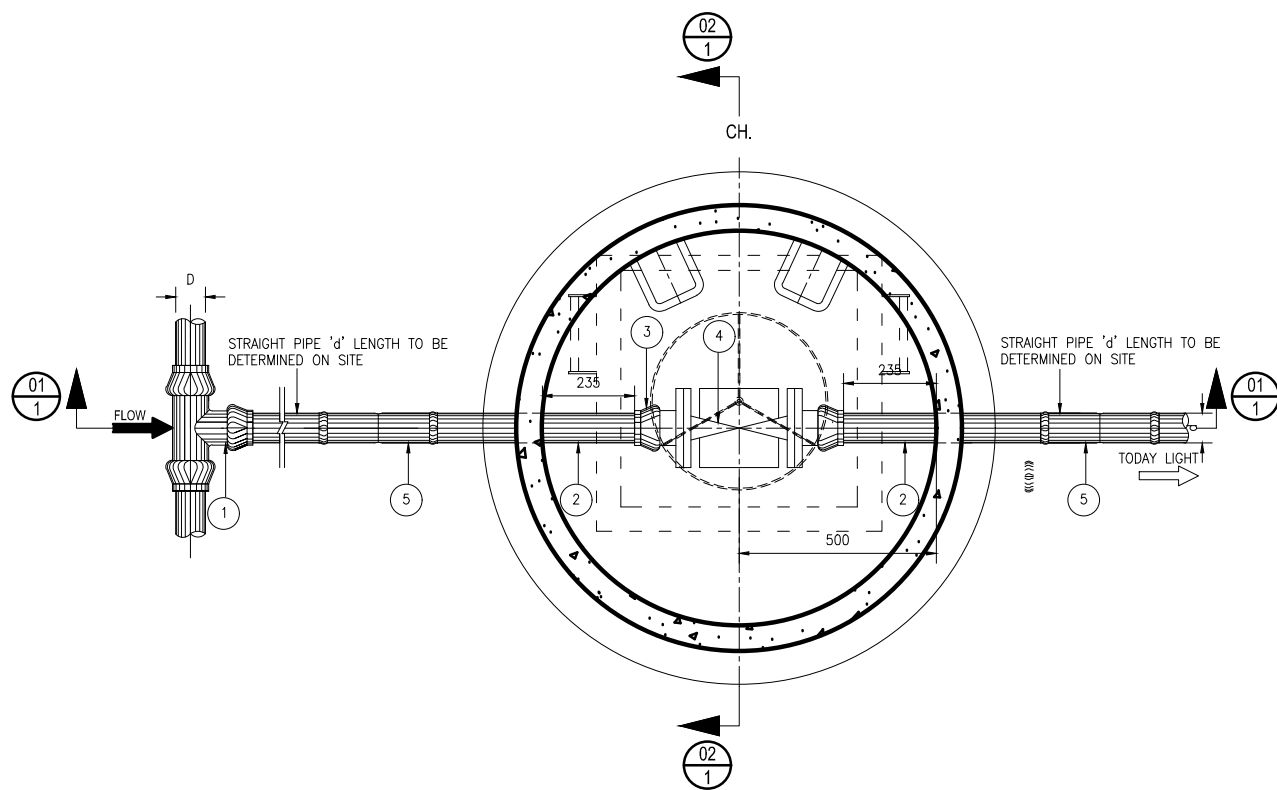
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)

WORK PACKAGE 8: PIPELINES
LINE 3: AIR VALVE CHAMBERS: SPLIT MAWA 8/MOOKGO 6 TO MOTHOMENG TO MORAPALALA RESERVOIRS PIPE SPECIAL AND CONCRETE DETAILS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	B400-26	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.				
CALCULATION FILE:										

C1201-1025

REV. 00



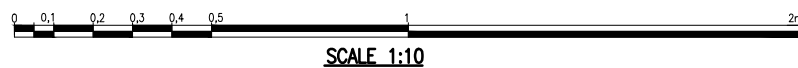
- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME : CLASS 25/19= 0.6 m³
CLASS 15/19= 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNOAINTE)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
 - GENERAL:
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA-LENGTH OF 30%
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES
 - CHECK DIMENSION OF EXISTING PIPELINES BEFORE ORDERING PIPE SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS(LETTERING 20mm HIGH) AND VALVES NUMBERS(DETAILS A AND B) BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS

ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	D/d	CAST IRON	SG	
2	2	d	uPVC	STRAIGHT PIPE	
3	2	d	uPVC	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	d	STAINLESS STEEL	BALL VALVE "d" NB FLANGED ENDS BALL VALVE	
5	2	d	uPVC	DOUBLE SOCKET	

FOR CLASSIFICATION REFER TO TABLE BELOW

SCOUR VALVE CHAMBERS SCHEDULE FOR LINE 3

LINE 3 AIR VALVE CHAMBERS : SPLIT MAWA 8/MOOKGO 6 TO MOTHOMENG RESERVOIR											
No.	TYPE	CH	NGL	PIL	RL	PIPE D	PIPE CLASS	VAL. NB d	VALVE CLASS	h	H
SC2	SMALL	560.0	540.96	539.33	538.83	160 OD	PN12	50NB	PN16	1.800	0.490
SC3	SMALL	1260	541.88	540.58	540.08	160 OD	PN12	50NB	PN16	1.800	0.340
SC4	SMALL	2400	557.22	555.69	555.19	160 OD	PN12	50NB	PN16	1.800	0.490
SC5	SMALL	2822.5	565.92	564.76	564.46	160 OD	PN12	50NB	PN16	1.800	0.340
SC7	SMALL	3960.0	550.70	549.50	549.20	200 OD	PN20	50NB	PN25	1.800	0.450
SC8	SMALL	4160.0	553.19	551.99	551.69	200 OD	PN20	50NB	PN25	1.800	0.340
SC9	SMALL	4560.0	553.86	552.66	552.36	200 OD	PN20	50NB	PN25	1.800	0.450
SC11	SMALL	8240.0	674.22	673.02	672.72	200 OD	PN12	50NB	PN16	1.800	0.340
SC12	SMALL	8523.2	670.65	669.45	669.15	200 OD	PN12	50NB	PN16	1.800	0.450
SC13	SMALL	8960.0	669.38	668.18	667.88	200 OD	PN12	50NB	PN16	1.800	0.340
SC14	SMALL	9231.9	676.02	674.82	674.52	200 OD	PN12	50NB	PN16	1.800	0.450
SC15	SMALL	10040.0	639.61	638.41	638.11	200 OD	PN12	50NB	PN16	1.800	0.340
SC16	SMALL	10280.0	649.93	648.73	648.43	200 OD	PN12	50NB	PN16	1.800	0.450
SC17	SMALL	10480.0	650.59	649.39	649.09	200 OD	PN12	50NB	PN16	1.800	0.340
SC19	SMALL	10740.0	650.60	649.40	649.10	160 OD	PN12	50NB	PN16	1.800	0.450
SC20	SMALL	10900.0	653.90	652.70	652.40	160 OD	PN12	50NB	PN16	1.800	0.340
SC21	SMALL	11080.0	653.55	652.35	652.05	160 OD	PN12	50NB	PN16	1.800	0.450
SC22	SMALL	11520.0	641.01	639.81	639.51	160 OD	PN12	50NB	PN16	1.800	0.340
SC23	SMALL	11960.0	652.87	651.67	651.37	160 OD	PN12	50NB	PN16	1.800	0.450
SC24	SMALL	12280.0	665.30	664.10	663.80	160 OD	PN12	50NB	PN16	1.800	0.340
SC25	SMALL	12980.0	706.64	705.44	705.14	160 OD	PN12	50NB	PN16	1.800	0.450



TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited 122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No. 015-298 8828 Fax No. 015-295 3900		DESIGN: K.M	
CHECKED:		DATE: DRAWN: Z.S	
ENGINEER:		N/A	
N/A		EXTERNAL APPROVAL: DATE:	
CHIEF ENGINEER / APP (Pr. Eng):		DATE: DIRECTOR (Pr. Eng):	
TANGO'S DWG No: C1201-1026		FILE No: C1201-1026	
DATE: 18/03/2021		DATE: 18/03/2021	

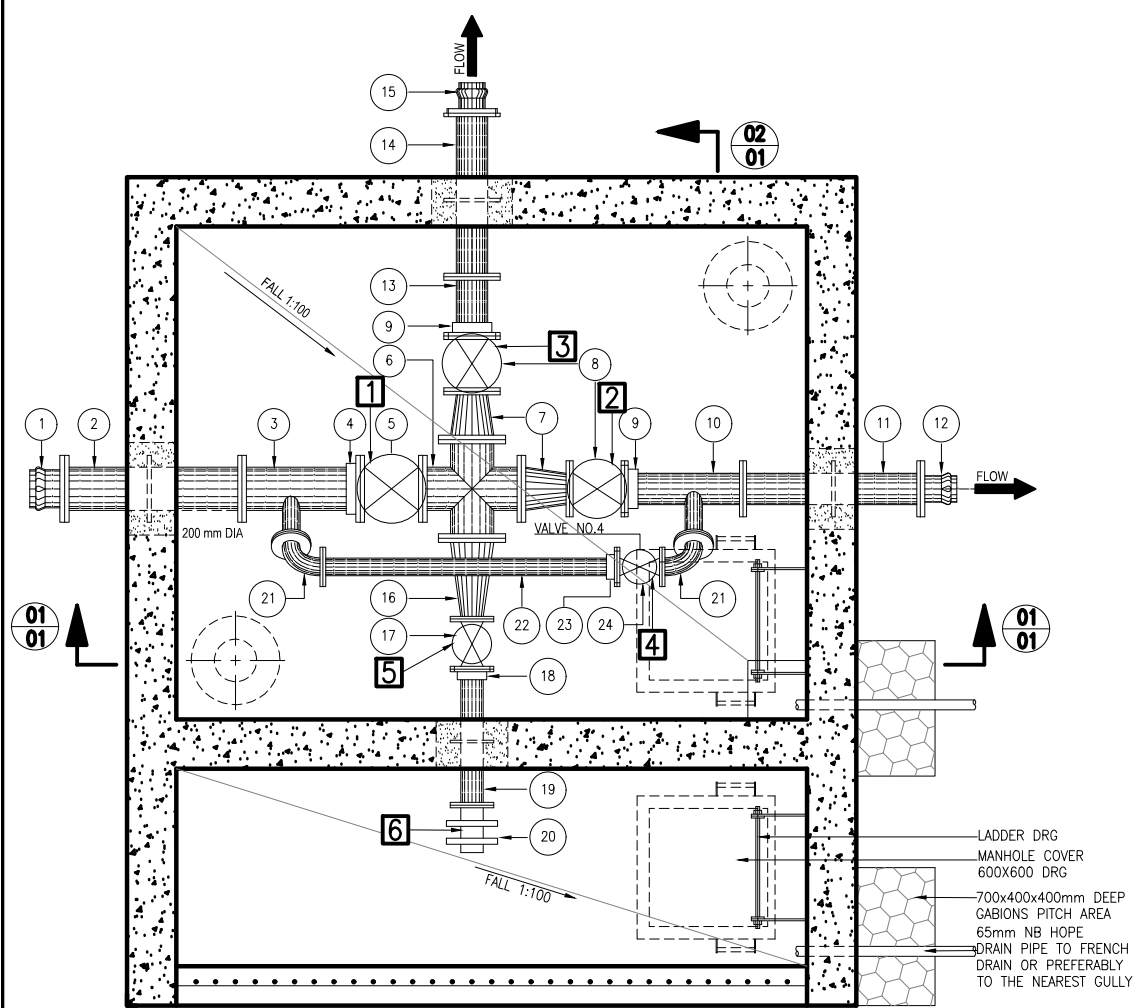
REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

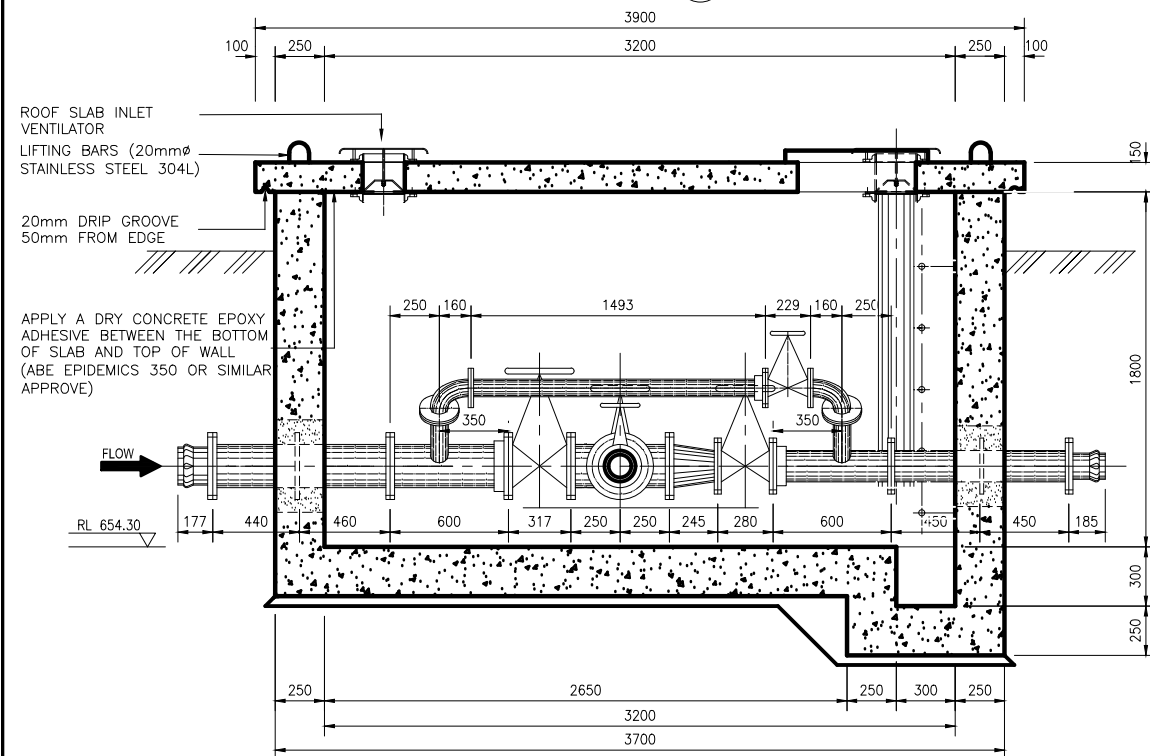
GLeWaP-PHASE 1:											
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)											
WORK PACKAGE 8: PIPELINES											
LINE 3: SCOUR VALVE CHAMBER: SPLIT MAWA8/MOOKGO6 TO MOTHOMENG RESERVOIR PIPE SPECIAL AND CONCRETE DETAILS											
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER	
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.					
CALCULATION FILE:											

C1201-1026

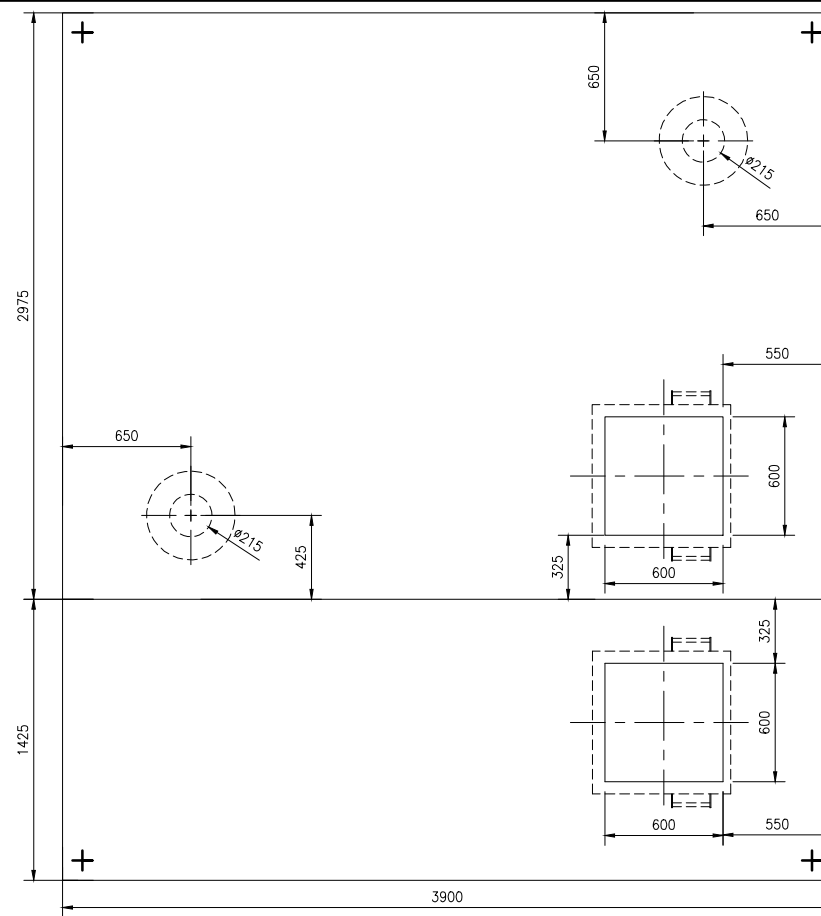
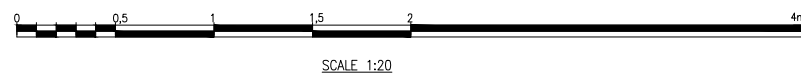
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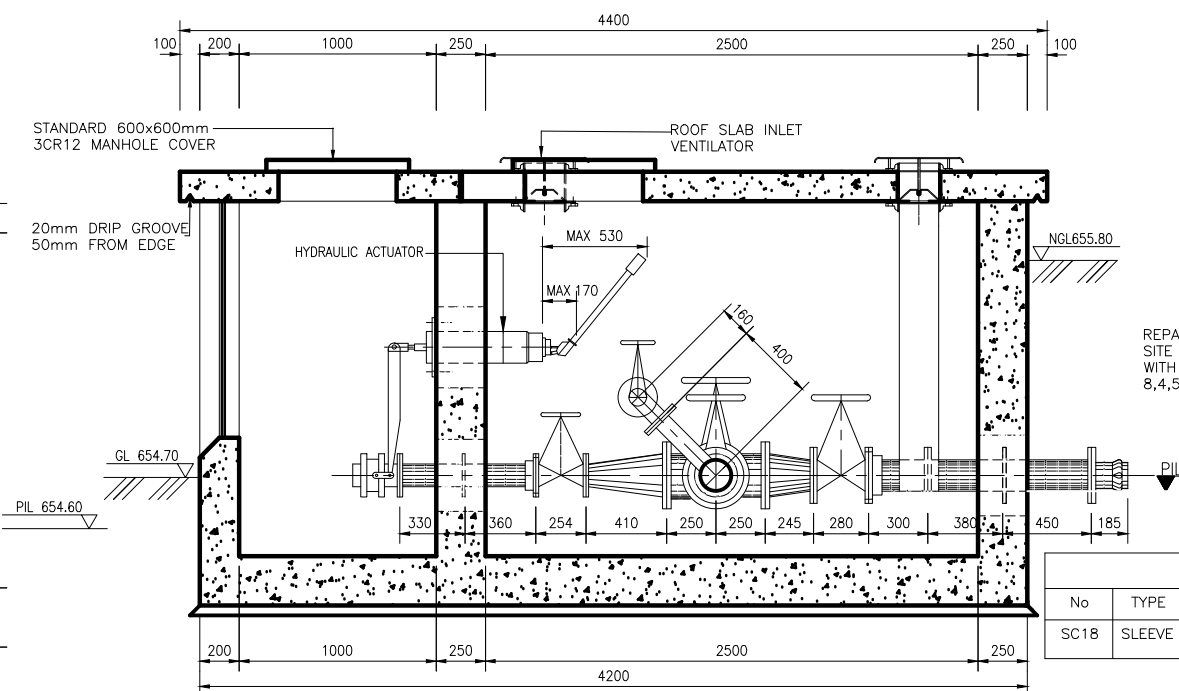
PLAN
SCALE 1:20



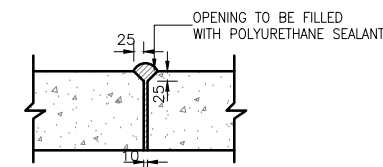
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SCALE 1:20



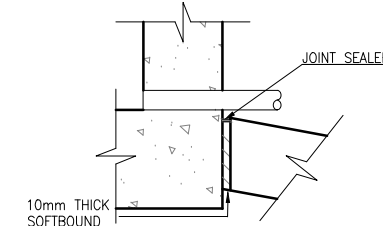
ROOF SLAB
SCALE 1:20



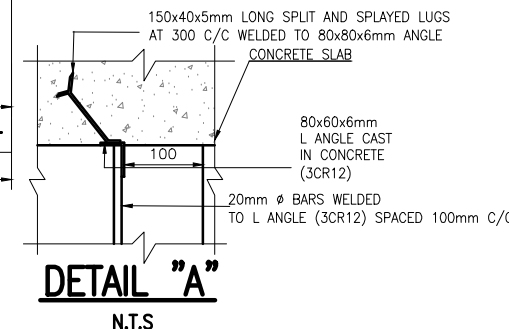
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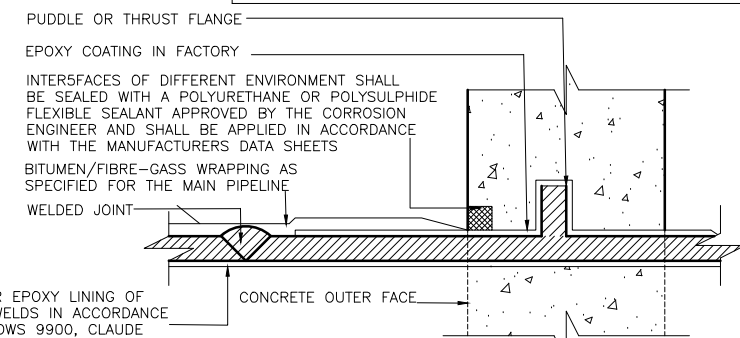
DETAIL "B"
SCALE 1:10



JOINT DETAIL
SCALE 1:10



DETAIL "A"
N.T.S.



DETAIL "Y"
ARRANGEMENT OF EPOXY AND BITUMEN/FIBRE-GLASS OUTER COATINGS THROUGH CONCRETE WALLS, ETC.
REFER TO COMPLETE PROFILE DWG FOR STEEL GRADE AND WALL THICKNESS

ISOLATING AND SCOUR VALVE CHAMBERS AT OFF-TAKE FOR MORAPALALA RESERVOIR

LINE 3 ISOLATING AND SCOUR VALVE CHAMBER AT OFF-TAKE FOR MOROPALALA RESERVOIR												
No	TYPE	CH	NGL	PIL	RL	PIPE OD	PIPE CLASS	VAL.NB	VALVE CLASS	h	H	LADDER
SC18	SLEEVE	10620.0	655.80	654.60	654.30	160 OD	PN12	100NB	PN16	1.800	0.300	1.650

1/1	INLET AND OUTLET VENTILATOR	131012/98
1/1	600x900 MANHOLE ACCESS COVER	137079/01
1/1	600x600 MANHOLE ACCESS COVER	133664/00
1/1	SCOUR VALVE CHAMBER TYPE 1 REINFORCEMENT DETAIL	P-II-N-6 C1201-1105
1/1	DRAWING LIST	P-I-A-1 C1201-900
SHEET	DESCRIPTION	OTHER No. REG. No.
	LIST OF DRAWINGS	

GLeWaP-PHASE 1:

LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)

WORK PACKAGE 8: PIPELINES LINE 3: ISOLATING AND SCOUR VALVE CHAMBER AT OFF-TAKE FOR MOROPALALA RESERVOIR PIPE SPECIAL AND CONCRETE DETAILS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER	P-II-M-29
LOCALITY No:	B801-AT??	TENDER/ CONTRACT No.:	8/1/3/50	SHEET	1 OF 2	REG. No.					C1201-1028
CALCULATION FILE:	20/2/B801-AT/C/1/1										00



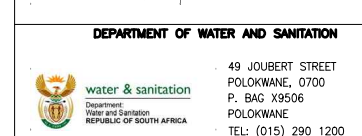
122 DIE MEER STREET
BENDOR, POLOKWANE
0699
Tel. No. 015-298 8828
Fax No. 015-295 3900

CHECKED:	DATE:	DESIGN: K.M	DRAWN: Z.S
ENGINEER:	DATE:	N/A	EXTERNAL APPROVAL:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No:	C1201-1028	DATE:
C1201-1028	18/03/2021		

MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	



01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800




49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

ITEM No.	No. OFF	DIA (mm) Wall Thick	MATERIAL	DESCRIPTION	SKECTH
1	1	200	SG	SG FLANGE ADAPTOR	
2	1	200	MS 300 WA 4mm Wall Thick	200mm NB STRAIGHT PIEPE BOTH END FLANGED. ANCHOR FLANGE AS INDICATED	
3	1	200/80	MS 300 WA 4mm WALL THICK CL. MEDIUM 4.2mm WALL THICK	200mm NB STRAIGHT PIPE ONE END FLANGED, OTHER PLAIN FOR CUTTING ON SITE TO SUIT. 80mm NB FLANGED VERTICAL STUB, 400mm LONG, WELDED AS INDICATED TO 200mm NB PIPE. ITEM ROTATED UPWARDS 45 DEGREE	
4	1	200		200mm NB FLANGE ADAPTOR	
5	1	200		200mm NB RESILIENT SEAL TYPE GATE VALVE . FLANGED	
6	1	200	MS 300 WA 4mm WALL THICK	200/200mm NB CROSS. FLANGED	
7	2	200/150	MS 300 WA 4mm WALL THICK	200/150mm NB REDUCER. ENDS FLANGED	
8	2	150		150mm NB RESILIENT SEAL TYPE GATE VALVE. FLANGED	
9	2	150		150mm NB FLANGE ADAPTOR	
10	1	150/80	MS CL. MEDIUM 4.2mm WALL THICK	150mm NB STRAIGHT PIPE ONE END FLANGED, OTHER PLAIN FOR CUTTING ON SITE TO SUIT. 80mm NB FLANGED VERTICAL STUB, 400mm LONG, WELDED AS INDICATED TO 150mm NB PIPE ITEM ROTATED UPWARDS 45°	
11	1	150	MS CL. MEDIUM 4.2mm WALL THICK	150mm NB STRAIGHT PIPE BOTH END FLANGE AS INDICATED	
12	1	160	SG	SG FLANGE ADAPTOR	

ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKECTH
13	1	150	MEDIUM 4.2mm WALL THICKNESS	150mm NB FLANGE ADAPTOR	
14	1	150	MS CL. MEDIUM 4.2mm WALL THICK	150mm NB STRAIGHT PIPE BOTH END FLANGE AS INDICATED	
15	1	140	SG	SG FLANGE ADAPTOR	
16	1	200/100	MS 300 WA 4mm Wall Thick	200/100mm NB REDUCER. BOTH FLANGED	
17	1	100		100mm NB RESILIENT SEAL TYPE GATE VALVE. FANGED	
18	1	100		100mm NB FLANGE ADAPTOR	
19	1	100	MS CL. MEDIUM 4.2mm WALL THICK	100mm NB STRAIGHT PIPE ONE END FLANGED, OTHER PLAIN FOR CUTTING ON SITE TO SUIT. ANCHOR FLANGE AS INDICATED	
20	1	100		100mm NB SLEEVE VALVE HYDRAULICALLY OPERATED. HYDRAULIC ACTUATOR INCLUDED	
21	2	80	MS CL. MEDIUM 4.2mm WALL THICK	80mm NB, 90° BEND BOTH ENDS FLANGED	
22	1	80	MS CL. MEDIUM 4.2mm WALL THICK	80mm NB, STRAIGHT PIPE ONE ENDS FLANGE, OTHER FOR CUTTING TO SUIT ON SITE	
23	1	80		80mm NB FLANGE ADAPTOR	
24	1			80mm NB RESILIENT SEAL TYPE GATE VALVE. FLANGED	

FOR CLASSIFICATION REFER TO TABLE ON DWG_C1201_1028



TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIE MEER STREET
BENDOR,POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED: DATE: DRAWN: Z.S


ENGINEER: DATE: EXTERNAL APPROVAL: DATE:

CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:

TANGO'S DWG No: C1201-1029 FILE No: C1201-1028 DATE: 18/03/2021


DESIGN: K.M
N/A

REVISION				
MOD No	DATE	DESCRIPTION	FOR	
00	18/03/21	ISSUED FOR TENDER		



LEPELLE NORTHERN WATER
Water in our passion

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800



DEPARTMENT OF WATER AND SANITATION
water & sanitation
Department: Water and Sanitation
REPUBLIC OF SOUTH AFRICA

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)
WORK PACKAGE 8: PIPELINES
LINE 3: ISOLATING AND SCOUR VALVE CHAMBER AT OFF-TAKE FOR MOROPALALA RESERVOIR
PIPE LIST

PROVINCE: LIMPOPO DISTRICT: MOPANI

LOCALITY No: B801-AT?? TENDER/ CONTRACT No. 8/1/3/50

CALCULATION FILE: 20/2/B801-AT/C/1/1

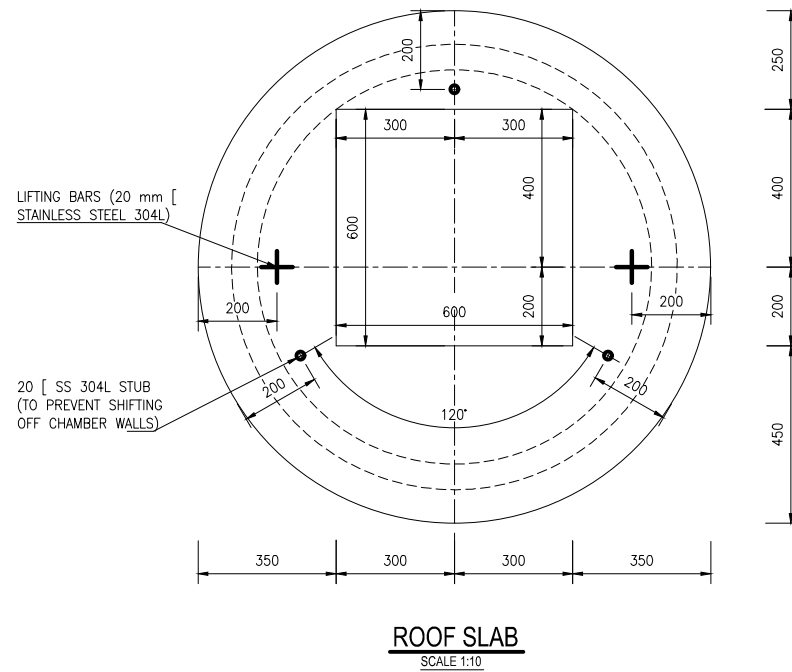
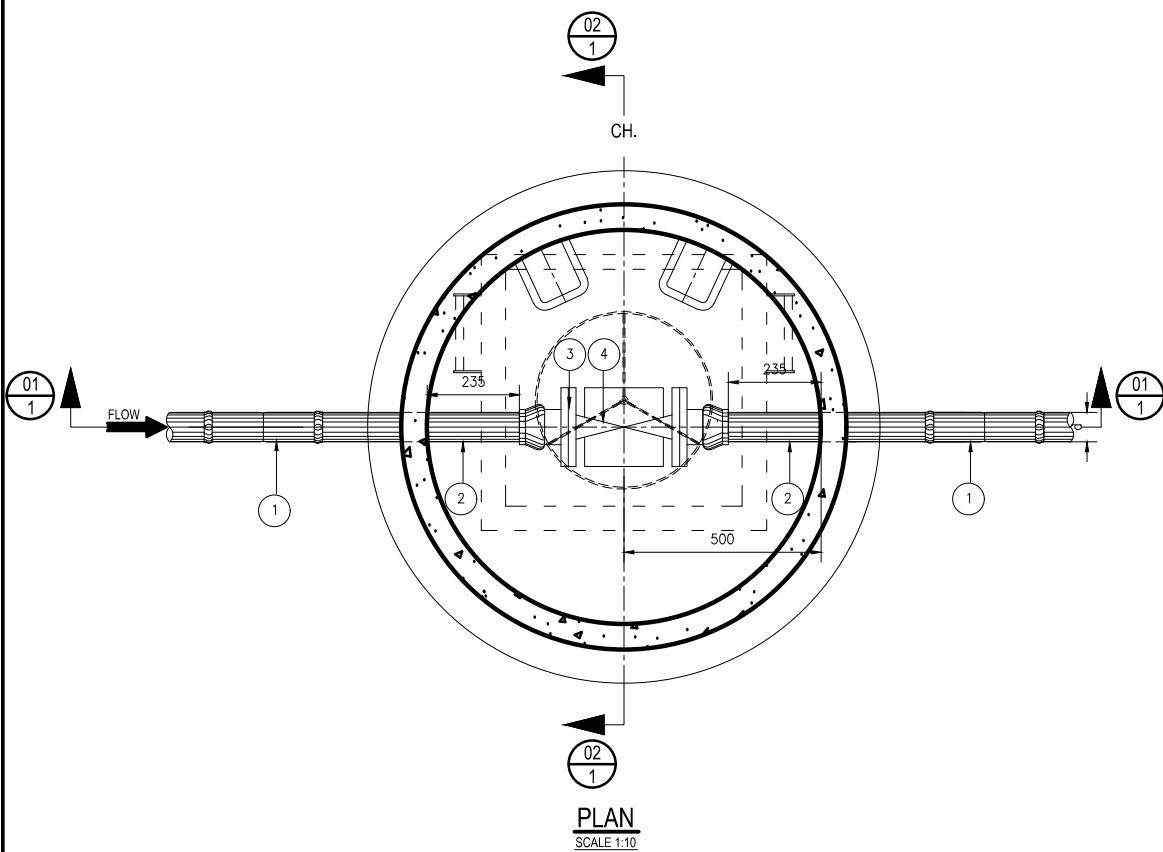
KEYCODES: - - - - - OTHER

SHEET 2 OF 2

REG. No. C1201-1029

REV. 00

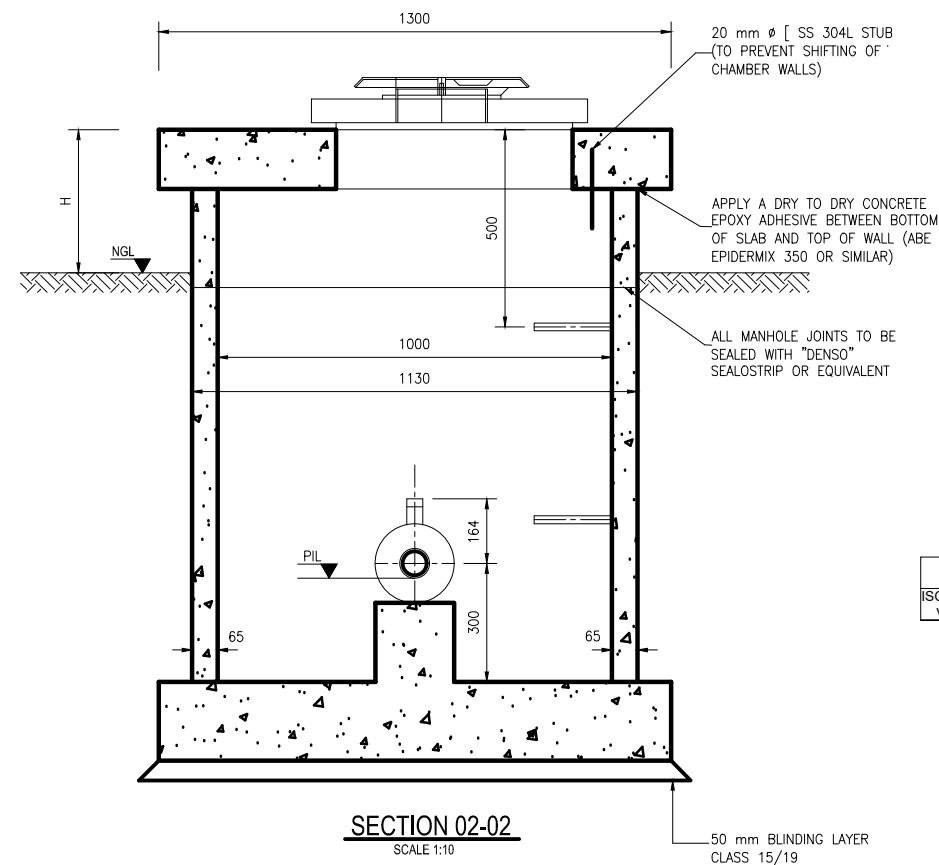
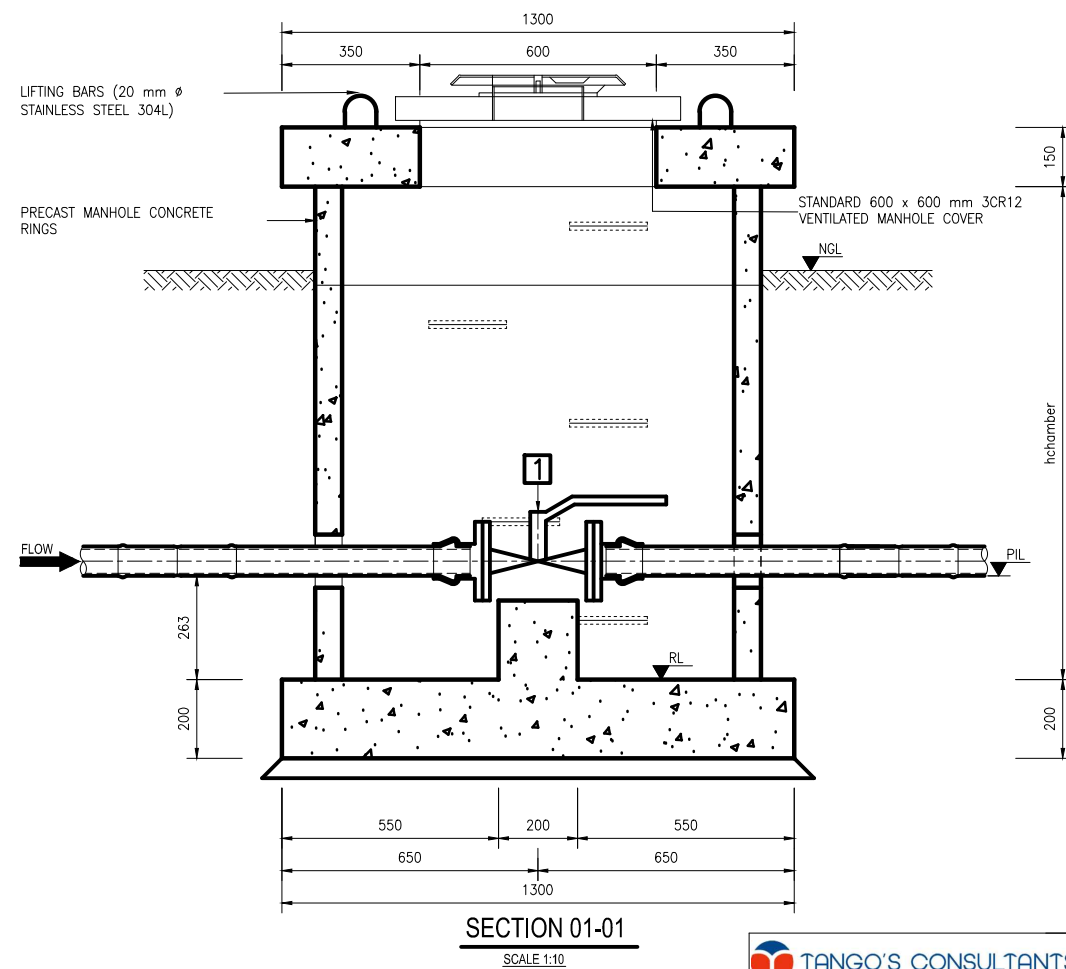
P-II-M-30



ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	2	D	uPVC	DOUBLE SOCKET	
2	2	D	uPVC	STRAIGHT PIPE	
3	2	D	SG	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	D	STAINLESS STEEL	BALL VALVE: "D" NB FLANGED ENDS BALL VALVE	

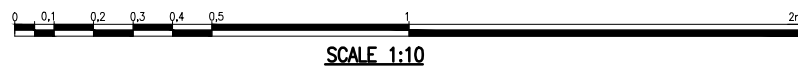
FOR CLASSIFICATION REFER TO TABLE BELOW

- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME :
 - CLASS 25/19 = 0.6 m³
 - CLASS 15/19 = 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO
 - GENERAL :
 - CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30% BETWEEN THE FLANGES.
 - CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



ISOLATING VALVE CHAMBERS AT RESERVOIR

No.	CH.	NGL	PIL	RL	D	PIPE CLASS	VALVE CLASS	h	H
ISOLATING VALVE	567.9	719.28	718.12	717.82	140 OD	PN12	PN16	1.800	0.490



TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited		122 DIE MEER STREET BENDOR, POLOKWANE 0700 Tel. No. 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DATE:	DESIGN: K.M.	DRAWN: Z.S.
ENGINEER:	DATE:	N/A	EXTERNAL APPROVAL:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No: C1201-1030	FILE No: C1201-1030	DATE: 18/03/2021	

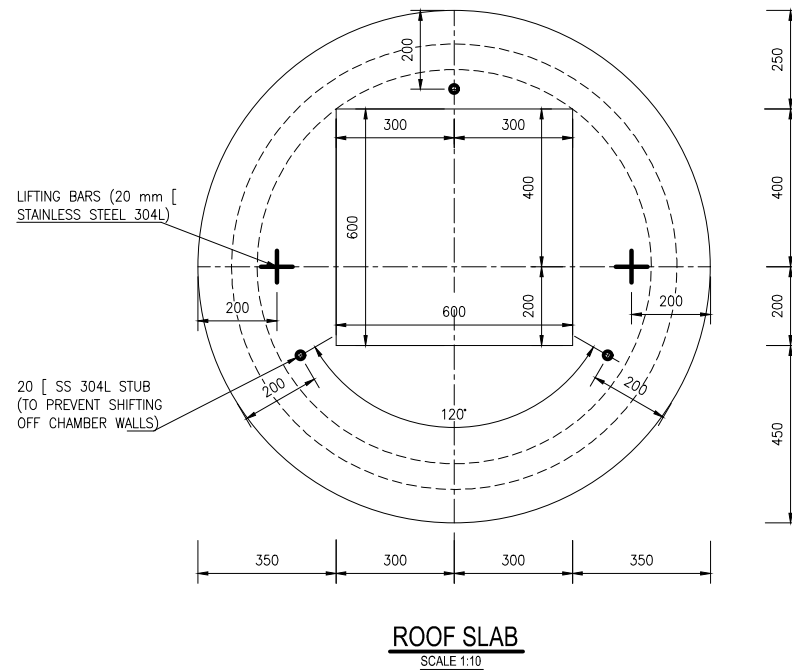
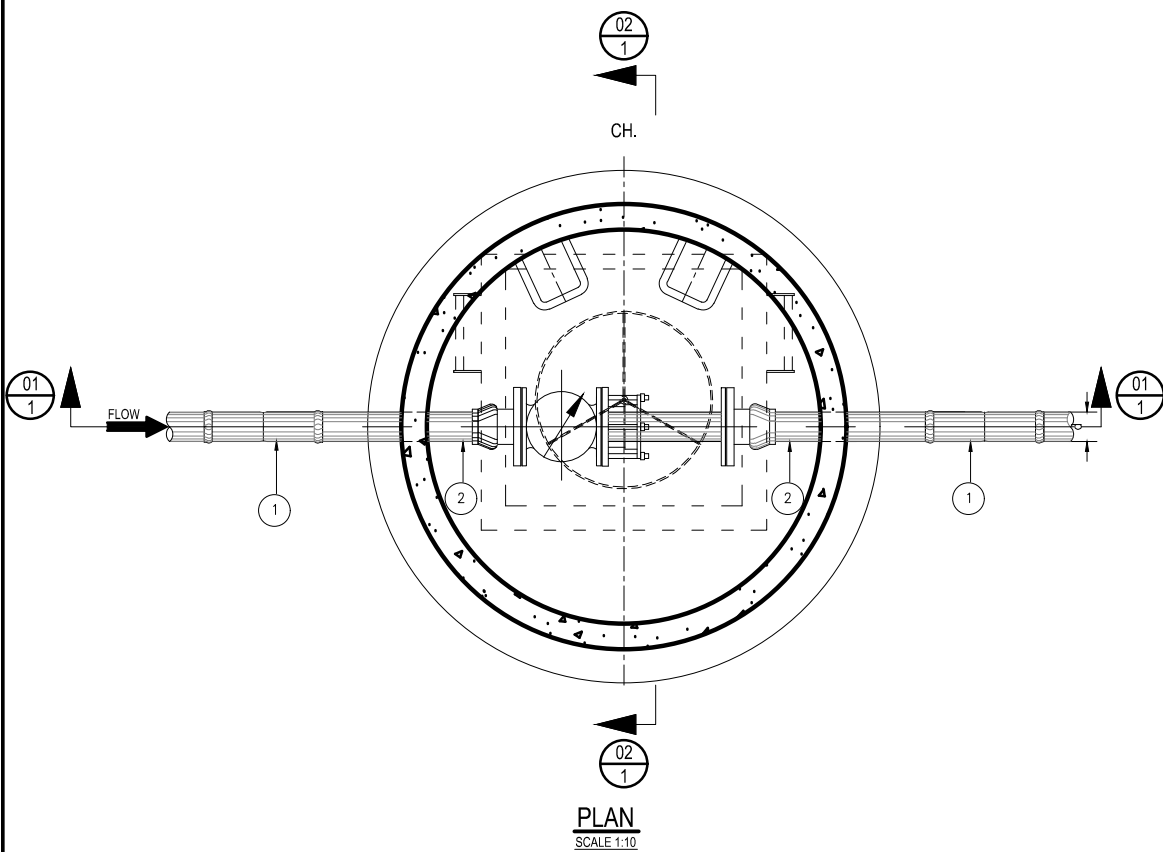
REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:									
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)									
WORK PACKAGE 8: XIHOKO PIPELINES LINE 3: ISOLATING VALVE CHAMBER AT MORAPALA RESERVOIR PIPE SPECIAL AND CONCRETE DETAILS									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.			
CALCULATION FILE:									

C1201-1030

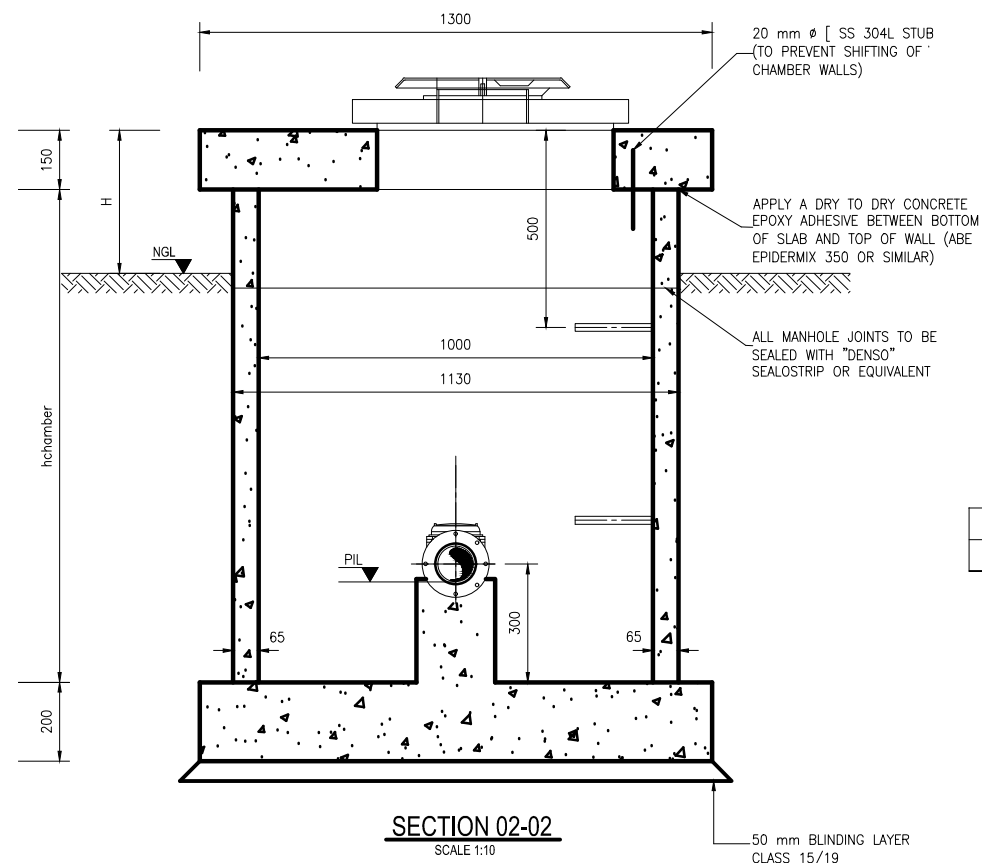
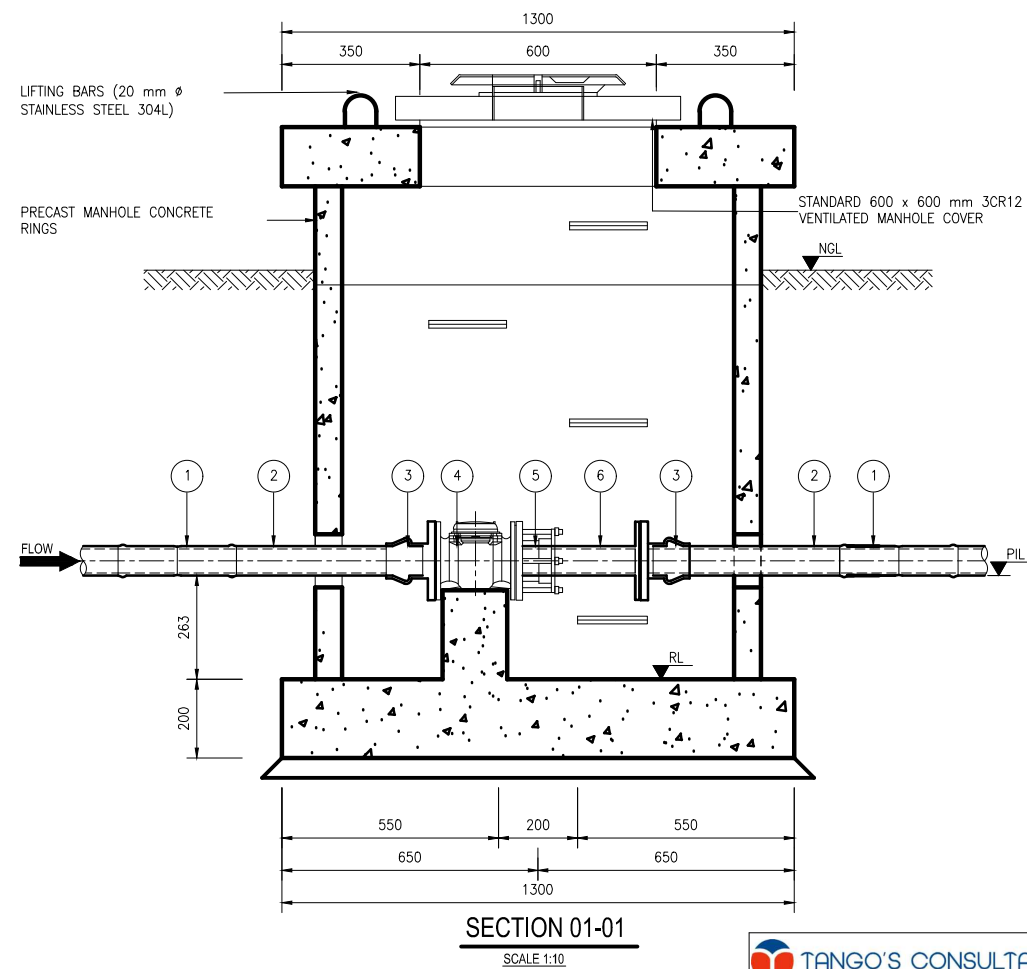
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ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	2	D	uPVC	DOUBLE SOCKET	
2	2	D	uPVC	STRAIGHT PIPE	
3	2	D	SG	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	D		MECHANICAL TURBINE FLOW METER	
5	1	D		FLANGE ADAPTOR	
6	1	D		STRAIGHT PIPE ONE END FLANGED OTHER PLAIN FOR CUTTING ON SITE TO SUIT	

FOR CLASSIFICATION REFER TO TABLE BELOW

- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME :
 - CLASS 25/19 = 0.6 m³
 - CLASS 15/19 = 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO
 - GENERAL :
 - CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30% ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG



FLOW METER CHAMBERS AT RESERVOIR

No.	CH.	NGL	PIL	RL	D	PIPE CLASS	VALVE CLASS	h	H
FLOW METER	567.9	719.28	718.12	717.82	140 OD	PN12	PN16	1.800	0.490

0 0.1 0.2 0.3 0.4 0.5 1 2m
SCALE 1:10

TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIE MEER STREET
BENDOR, POLOKWANE
0700
Tel. No. 015-298 8828
Fax No. 015-295 3900

DESIGN: K.M
CHECKED: DATE: DRAWN: Z.S
N/A
ENGINEER: DATE: EXTERNAL APPROVAL: DATE:
N/A
CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:
TANGO'S DWG No: C1201-1031 FILE No: C1201-1031
DATE: 18/03/2021

REVISION

MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION

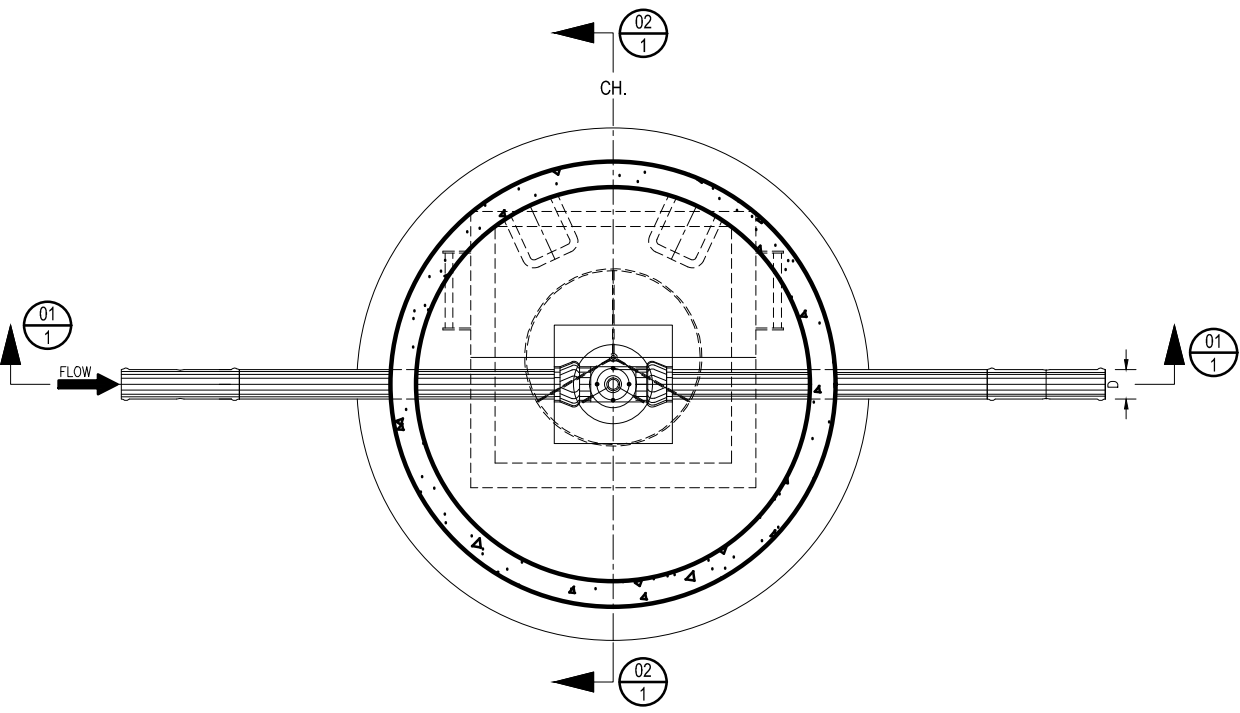
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:

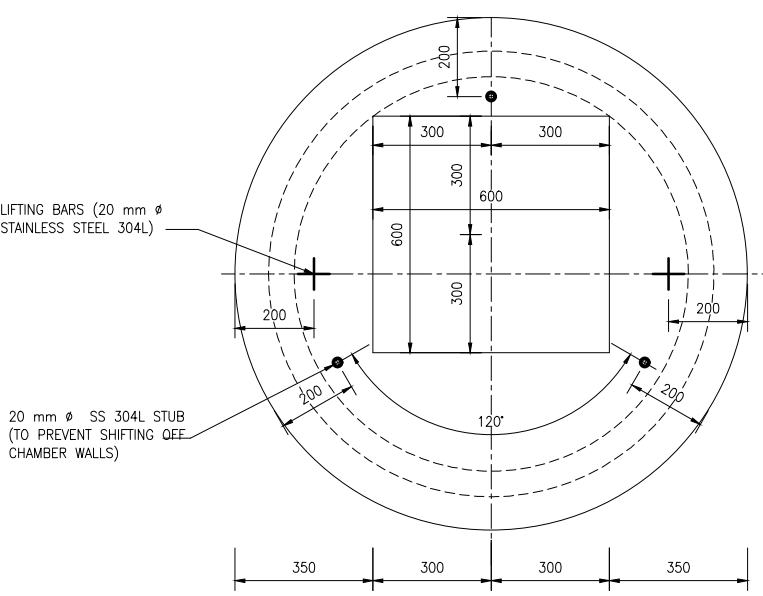
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)

WORK PACKAGE 8: PIPELINES
LINE 3: FLOW METER CHAMBER AT MORAPALALA EXISTING RESERVOIR
PIPE SPECIAL AND CONCRETE DETAILS

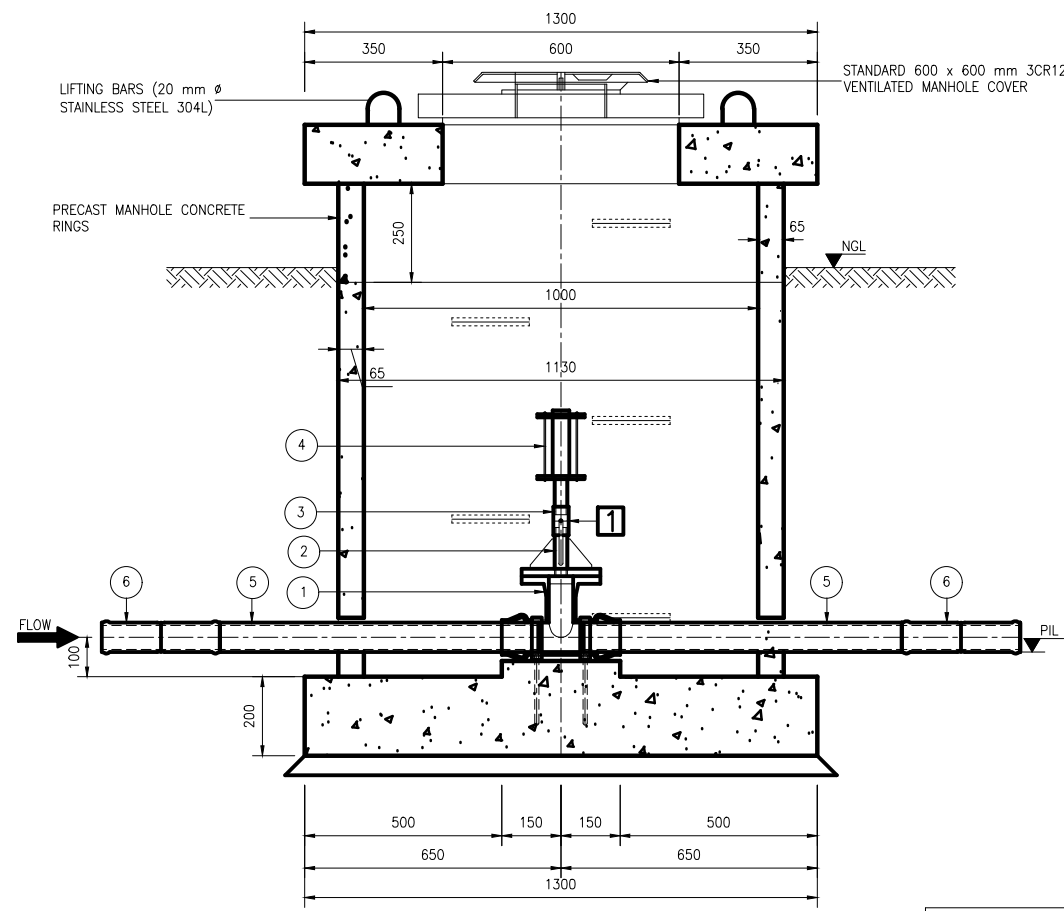
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.	C1201-1031	REV.	00	



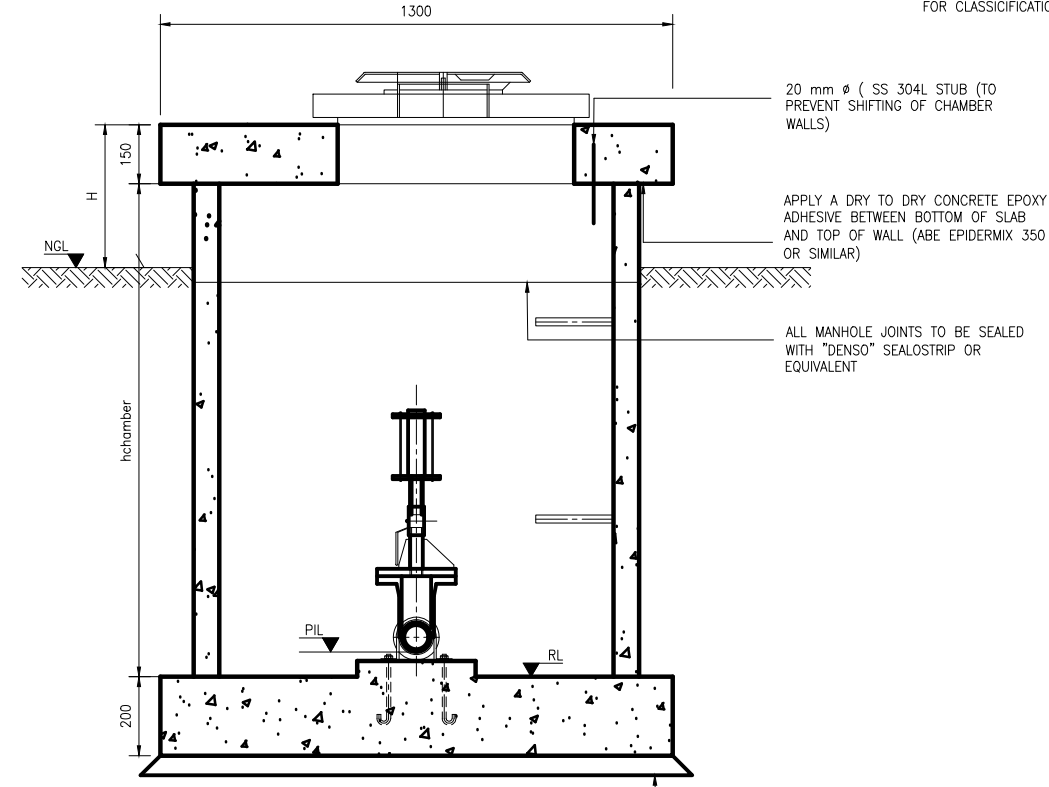
PLAN
SCALE 1:10



ROOF SLAB
SCALE 1:10



SECTION 01-01
SCALE 1:10



SECTION 02-02
SCALE 1:10

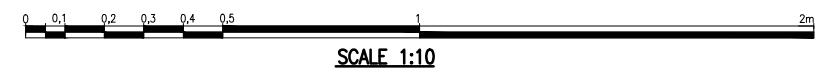
ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	D	SG	AIR VALVE TEE: STANDARD SG IRON HYDRANT TEE.	
2	1	-	MILD STEEL	SPECIAL REDUCER: 80 mm NB BLANK FLANGE WITH d mm NB STUB 125 mm LONG, WELDED IN THE CENTRE OF THE BLANK FLANGE. THREAD END OF THE STUB TO CONFIRM BALL VALVE THREADS SPEC. STUB WITH 3 X 5 mm M.S. GUSSET PLATES. FITTED.	
3	1	d	STAINLESS STEEL	BALL VALVE: d mm NB SCREWED END.	
4	1	d	STAINLESS STEEL	AIR VALVE: STANDARD SCREWED DOUBLE ORIFICE AIR VALVE	
5	2	D	uPVC	STRAIGHT PIPE, 1 000 mm LONG.	
6	2	D	uPVC	DOUBLE SOCKET	

FOR CLASSIFICATION REFER TO TABLE BELOW

- NOTES
- CONCRETE AND MISCELLANEOUS
 - 1.1. ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - 1.2. CONCRETE VOLUME :
CLASS 25/19 = 0.6 m³
CLASS 15/19 = 0.1 m³
 - 1.3. ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - 1.4. BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO
 2. GENERAL :
 - 2.1. CHECK THAT PIPES SPECIALS FIT CORRECTLY IN THE CHAMBERS BEFORE MANUFACTURE
 - 2.2. PIPE SPECIAL TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%
 - 2.3. ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - 2.4. CHECK DIMENSION OF THE EXISTING PIPELINE BEFORE ORDERING PIPES SPECIALS AND COUPLING
 - 2.5. PROVIDE LIFTING LUGS WHERE REQUIRED
 - 2.6. WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN A RELEVANT DRG REFER TO LIST OF DRG

AIR VALVE CHAMBERS SCHEDULE FOR LINE 4

LINE 4 AIR VALVE CHAMBERS : MOTHOMENG RESERVOIR TO END P/L										
No	CH	NGL	PIL	RL	PIPE OD	PIPE CLASS	VAL. NB d	VALVE CLASS	h	H
AIR 1	-32.2	718.00	716.84	716.54	125 mm OD	PN9	25mm NB	PN10	1.800	0.490
AIR 2	460.0	710.46	709.30	709.00					1.800	0.490
AIR 3	840.0	701.15	699.99	699.69					1.800	0.490
AIR 4	1260.0	686.60	685.44	685.14				PN16	1.800	0.490
AIR 5	1769.2	673.60	672.44	672.14					1.800	0.490
AIR 6	2133.5	676.44	675.28	674.98					1.800	0.490



SCALE 1:10

TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIE MEER STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED: DATE: DESIGN: K.M. DRAWN: Z.S.

ENGINEER: DATE: EXTERNAL APPROVAL: DATE:

N/A

CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:

TANGO'S DWG No: C1201-1032 FILE No: C1201-1032 DATE: 18/03/2021

REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

LEPELLE NORTHERN WATER

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION

49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:

LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)

WORK PACKAGE 8: PIPELINES
LINE 4: AIR VALVE CHAMBERS: MOTHOMENG RESERVOIR TO ELEVATED TANK
PIPE SPECIAL AND CONCRETE DETAILS

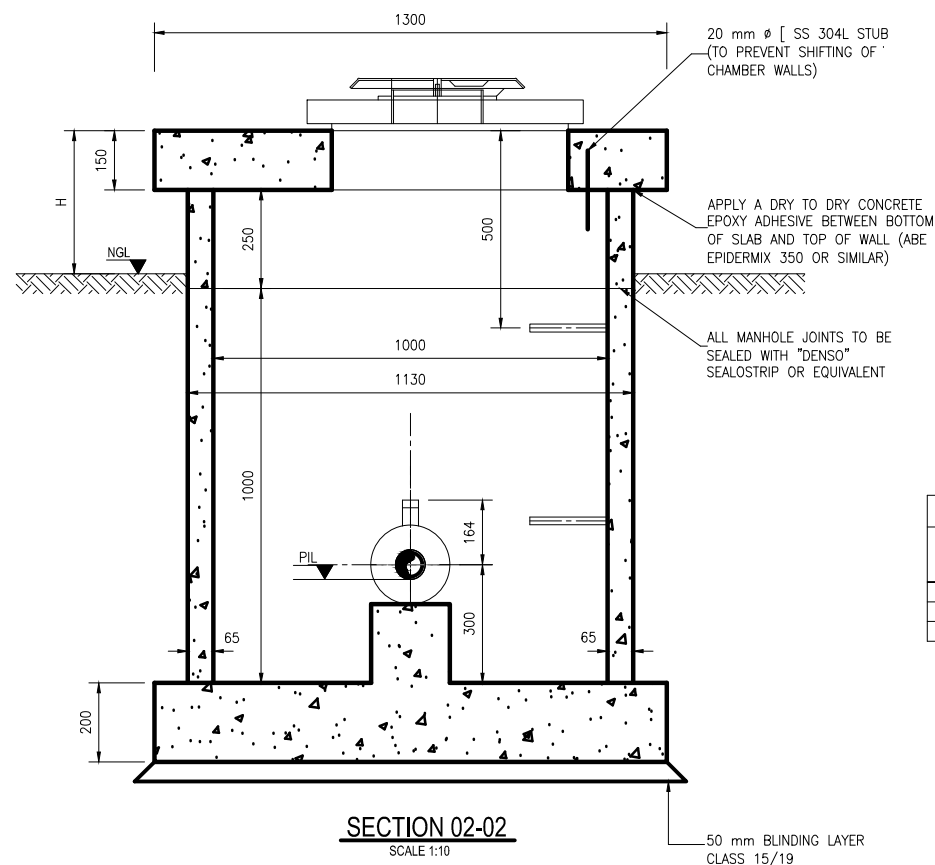
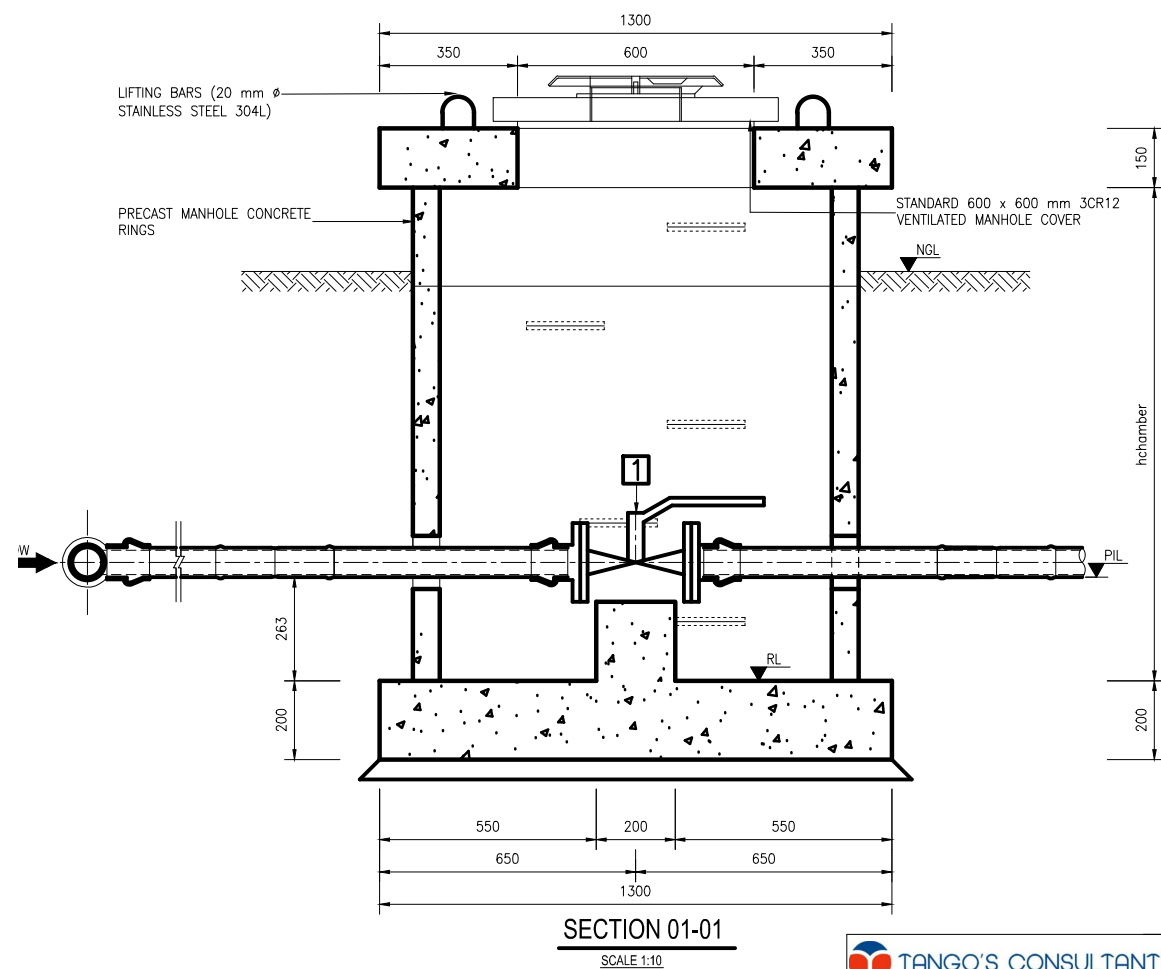
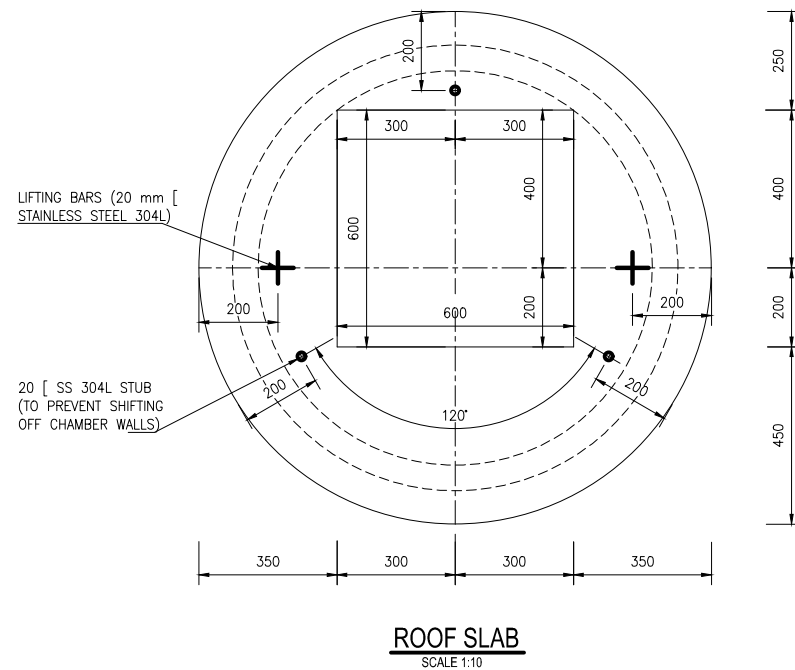
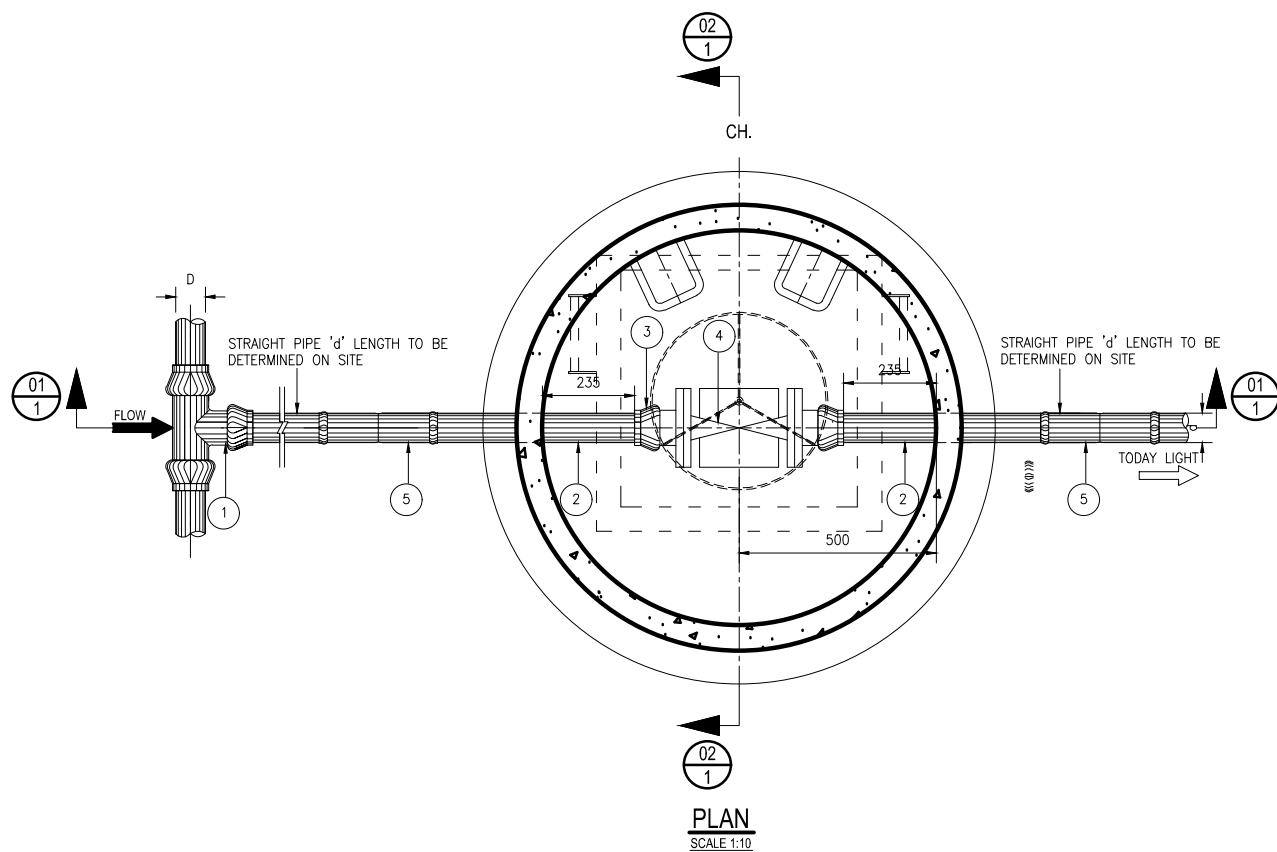
PROVINCE: LIMPOPO DISTRICT: MOPANI

LOCALITY No: B400-26 TENDER/ CONTRACT No: 8/1/3/50

CALCULATION FILE:

KEYCODES: - - - - - OTHER

SHEET 1 OF 1 REG. No. C1201-1032



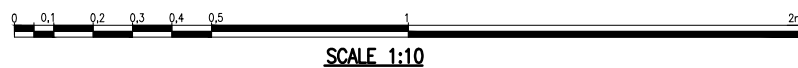
- NOTES**
- CONCRETE AND MISCELLANEOUS
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED
 - CONCRETE VOLUME : CLASS 25/19= 0.6 m³
CLASS 15/19= 0.1 m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNOAINTE)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
 - GENERAL:
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA-LENGTH OF 30%
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES
 - CHECK DIMENSION OF EXISTING PIPELINES BEFORE ORDERING PIPE SPECIALS AND COUPLING
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS(LETTERING 20mm HIGH) AND VALVES NUMBERS(DETAILS A AND B) BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG REFER TO LIST OF DRGS

ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	D/d	CAST IRON	SG	
2	2	d	uPVC	STRAIGHT PIPE	
3	2	d	uPVC	SG STANDARD SG IRON FLANGE ADAPTOR.	
4	1	d	STAINLESS STEEL	BALL VALVE: "d" NB FLANGED ENDS BALL VALVE	
5	2	d	uPVC	DOUBLE SOCKET	

FOR CLASSIFICATION REFER TO TABLE BELOW

SCOUR VALVE CHAMBERS SCHEDULE FOR LINE 4

LINE 4 SCOUR VALVE CHAMBERS: MOTHOMENG RESERVOIR TO END P/L											
No.	TYPE	CH	NGL	PIL	RL	PIPE D	PIPE CLASS	VAL. NB d	VALVE CLASS	h	H
SC1	SMALL	300	708.29	707.13	706.83	125 mm OD	PN9	50NB	PN10	1.800	0.490
SC2	SMALL	1180	685.51	684.35	684.05			50NB	PN10	1.800	0.490
SC3	SMALL	1880	669.06	667.90	667.60			50NB	PN16	1.800	0.490



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CHECKED:	DATE:	DESIGN: K.M. DRAWN: Z.S.	
ENGINEER:	DATE:	N/A	
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No: C1201-1033	FILE No: C1201-1033	DATE: 18/03/2021	


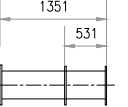
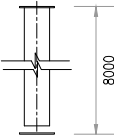

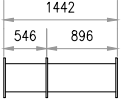
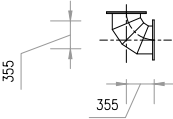
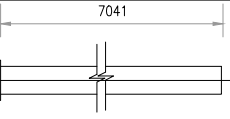
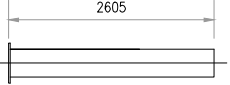

REVISION			
MOD No	DATE	DESCRIPTION	FOR
00	18/03/21	ISSUED FOR TENDER	

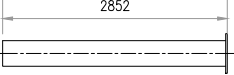
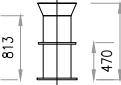
LEPELLE NORTHERN WATER		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:											
LETABA RITAVI BULK WATER DISTRIBUTION SYSTEM (XIHOKO SUB-SYSTEM)											
WORK PACKAGE 8: PIPELINES LINE 4: SCOUR VALVE CHAMBER MOTHOMENG RESERVOIR TO ELEVATED TANK PIPE SPECIAL AND CONCRETE DETAILS											
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER	
LOCALITY No:	B801-AT	TENDER/ CONTRACT No:	8/1/3/50	SHEET	1 OF 1	REG. No.					
CALCULATION FILE:											


C1201-1033

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PIPES AND SPECIALS: CONNECTION AT BOOSTER PUMP									
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
1	1	350	STEEL GR. X42	4.5	90° SHORT RADIUS BEND, (SABS 719) 300NB BELLMOUTH PN 16		3.1	3.2	3.3
2					NOT IN USE				
3	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED PUDDLE FLANGE AS SHOWN PN16		3.1	3.2	3.3
4	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED, OTHER FOR CUTTING TO SUIT ON SITE. LOOSE FLANGE TO BE WELDED ON SITE. PN16		3.1	3.2	3.3
5	1	350			FLOW CONTROL VALVE PN16		3.1	3.2	3.3
6	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED PUDDLE FLANGE AS SHOWN PN16		3.1	3.2	3.3
7	4	350	STEEL GR. X42	4.5	90° SHORT RADIUS BEND, (SABS 719) PN 16		3.1	3.2	3.3
8	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED; OTHER FOR CUTTING TO SUIT ON SITE. LOOSE FLANGE TO BE WELDED ON SITE PN16		3.1	3.2	3.3
9	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED, OTHER END PLAIN FOR CUTTING TO SUITE ON SITE PN16		3.1	3.2	3.3
10	2	350			FLANGE ADAPTOR PN16		3.1	3.2	3.3

PIPES AND SPECIALS: CONNECTION AT BOOSTER PUMP									
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
11	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED, OTHER END PLAIN FOR CUTTING TO SUITE ON SITE PN16		3.1	3.2	3.3
12	1	350	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED, PUDDLE FLANGE AS SHOWN, 350NB BELLMOUTH PN16		3.1	3.2	3.3

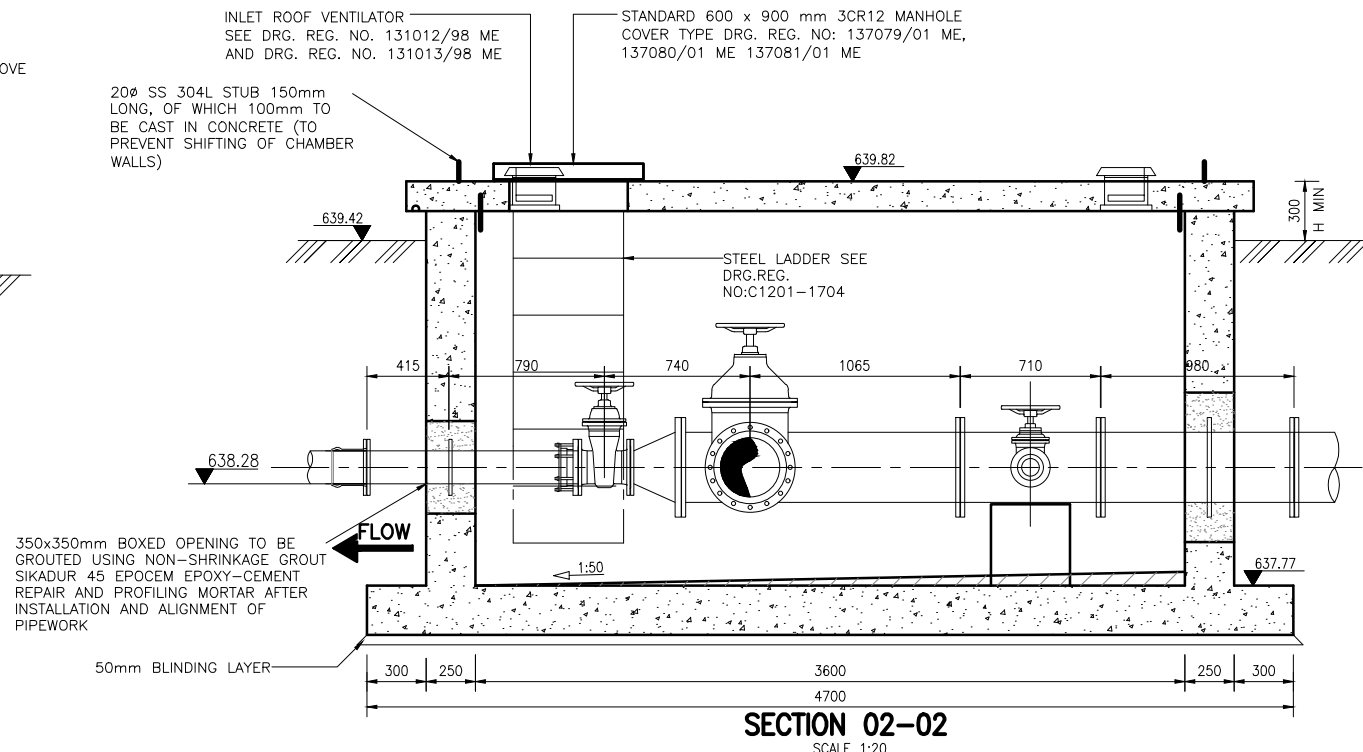
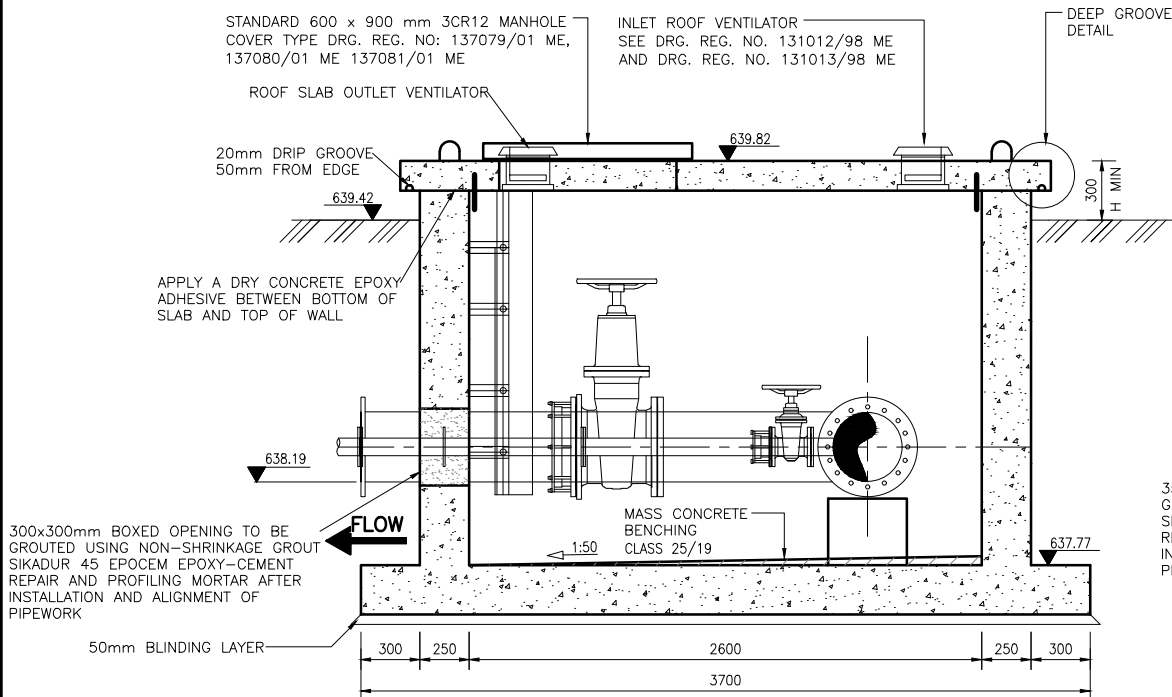
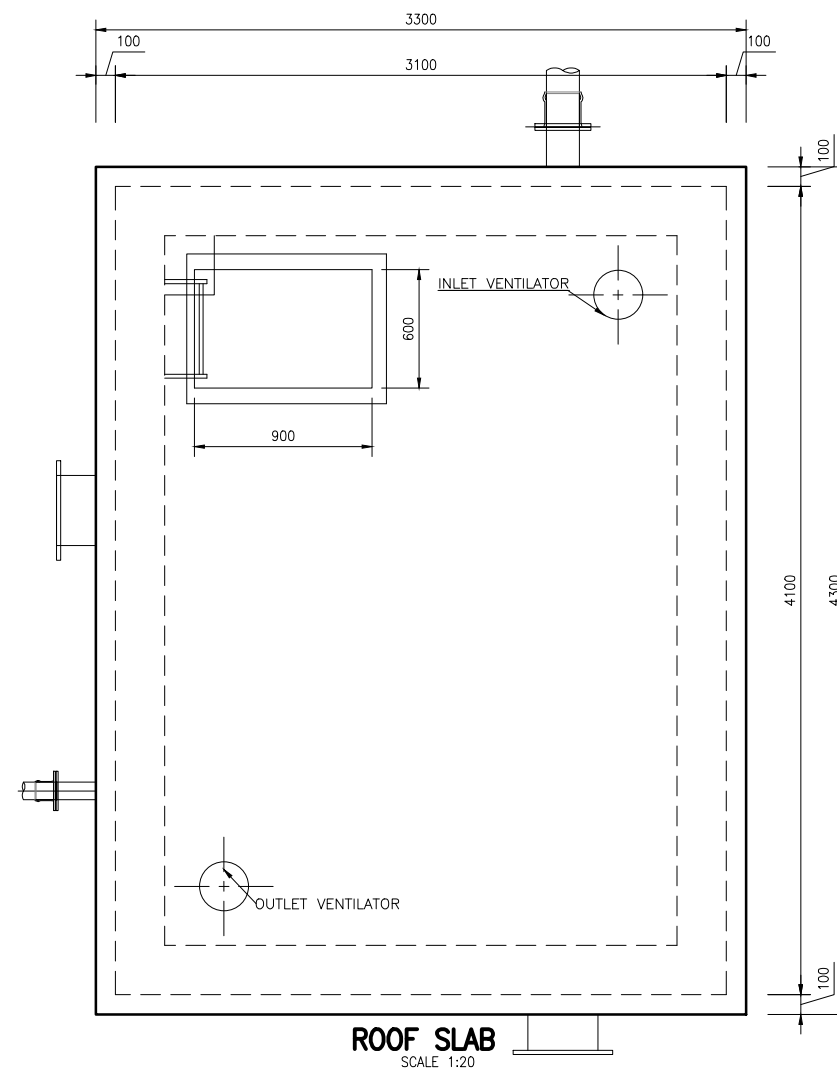
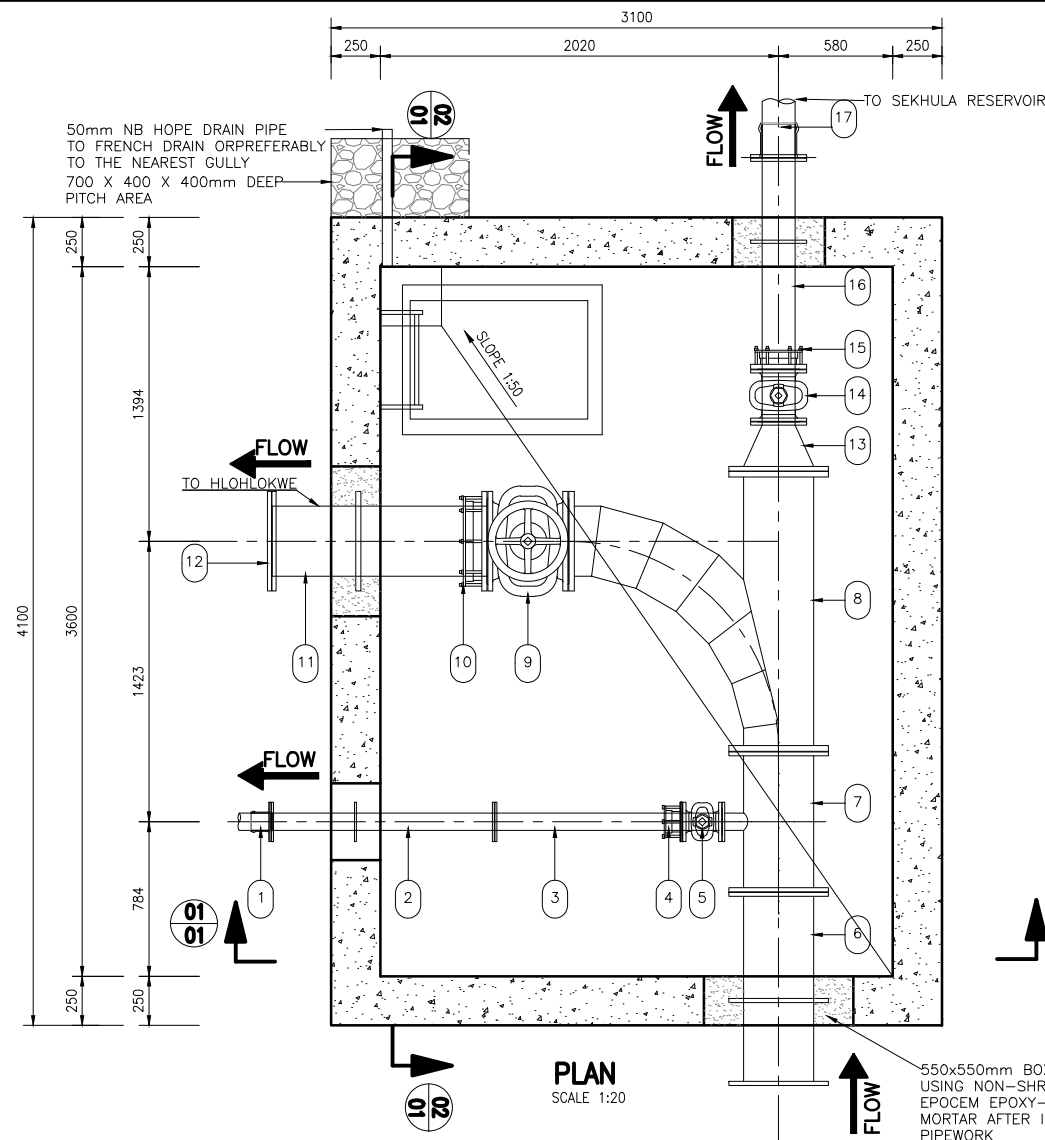
- GENERAL NOTES:**
UNLESS OTHERWISE NOTED, ALL CONCRETE WORK TO CONFORM TO THE FOLLOWING:
- STANDARD SPECIFICATIONS:
 - SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
 - TOLERANCES:
 - SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE NOTED)
 - CONCRETE GRADE:
 - CUBE STRENGTH IN MPa AT 28 DAYS
 - MASS CONCRETE:
 - BLINDING/SCREED:
 - FOUNDATIONS/ WALLS/ ROOF SLAB: 35 MPa/19mm
 - CONCRETE FINISH:
 - FORMWORK:
 - "ROUGH" – WHERE FACE IS NOT EXPOSED
 - "SMOOTH" – WHERE FACE IS EXPOSED.
 - SMOOTH OFF–SHUTTER TO ALL EXPOSED SURFACES.
 - CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
 - FLOAT:
 - SMOOTH WOOD TO ALL EXPOSED SURFACES.
 - GROUT GRADE:
 - CEMENTITIOUS, NON–SHRINK, SABS APPROVED, MINIMUM STRENGTH 40MPa.
 - 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS.
 - 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200
 - TO BE PROVIDED UNDER ALL GROUND SLABS.
 - ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER – PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
 - ANY OVER–BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEERS INSTRUCTIONS.
 - FOUNDING MATERIAL SPECIFICATION & DESIGN BEARING PRESSURE.
 - AN ALLOWABLE BEARING PRESSURE OF 250 KPa HAS BEEN USED IN THE DESIGN OF ALL FOUNDATIONS.
 - ENGINEERING BACKFILL TO BE CONSTRUCTED WITH SELECTED MATERIAL, COMPACTED TO 98 % MOD AASHTO. IN 150 LAYERS WITH OPTIMUM MOISTURE CONTENT.
 - ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
 - THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
 - GENERAL INSTRUCTIONS:
 - DO NOT SCALE, IF IN DOUBT ASK
 - ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
 - SI UNITS:
 - DIMENSIONS IN MILLIMETRES.
 - CO–ORDINATES AND LEVELS IN METRES.
 - ALL CO–ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
 - ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L. (ABOVE MEAN SEA LEVEL).

 TANGO'S CONSULTANTS <small>A division of Tango's Group (PTY) Limited</small>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015–298 8828 Fax No. 015–295 3900	
DESIGN: M.T			
CHECKED:	DATE:	DRAWN: A.P	
N/A			
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
N/A			
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No: C1201–1205		
	DATE: 18/03/21		

REVISION				
MOD No	DATE	DESCRIPTION	FOR	DWA
01	18/03/21	ISSUED FOR CONSTRUCTION		

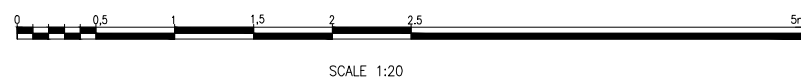
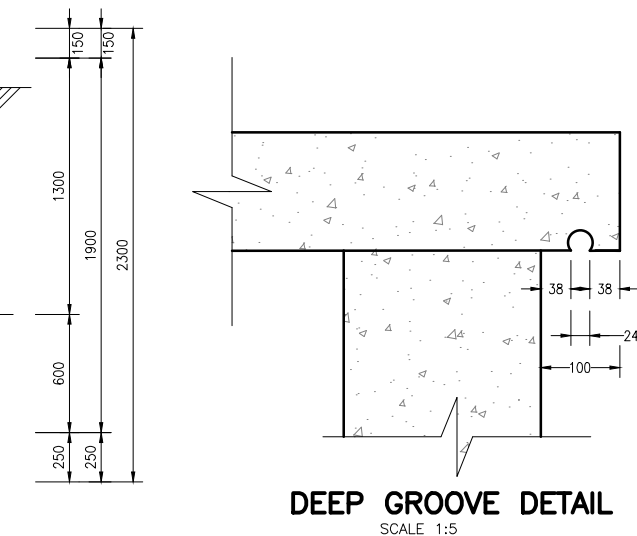
LEPELLE NORTHERN WATER	
	01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800
DEPARTMENT OF WATER AND SANITATION	
	49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200

GLeWaP–PHASE 1:									
BABANANA PIPELINE PROJECT RS 135									
WORK PACKAGE 9: RESERVOIRS 5ML COMMAND RESERVOIR NORTH OF HLOHLOKWE RESERVOIR PIPE SPECIAL									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	BB01–AT	TENDER/ CONTRACT No.	8/1/3/50	SHEET	5	OF	5	REG. No.	C1201–1205
CALCULATION FILE:				REV. 01					



NOTES:

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
- PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
- ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 - 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE.
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DMS 9900.
- CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 7.2 m³
CLASS 15/19 = 1.1m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
- GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DMS 9 900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS (LETTERING 20mm HIGH) AND VALVE NUMBERS (DETAILS "A" AND "B") BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG. REFER TO LIST OF DRGS.



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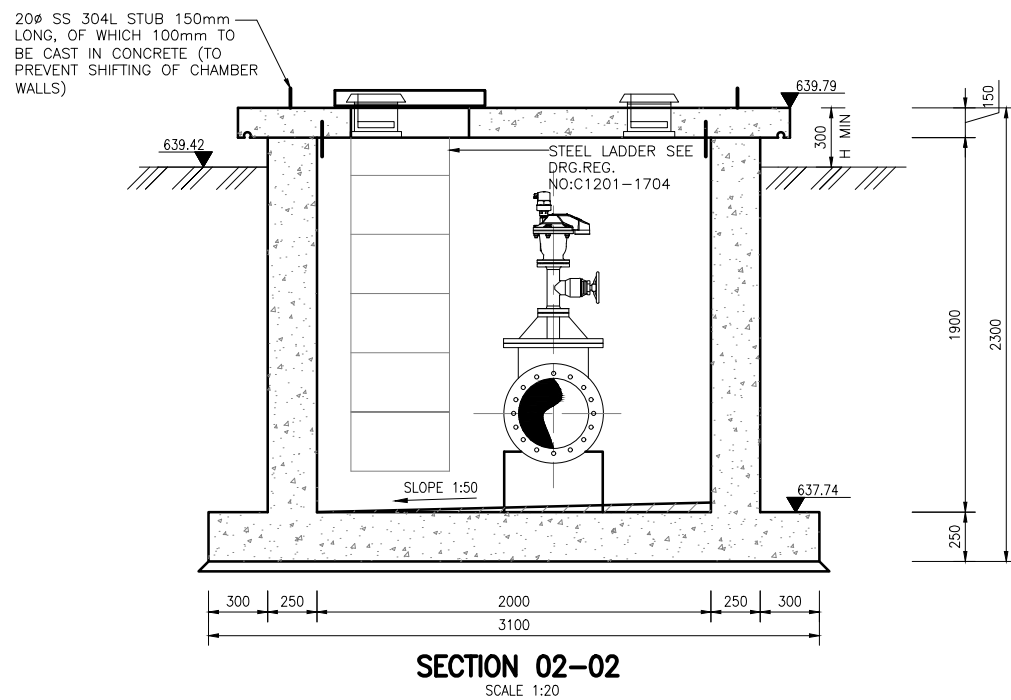
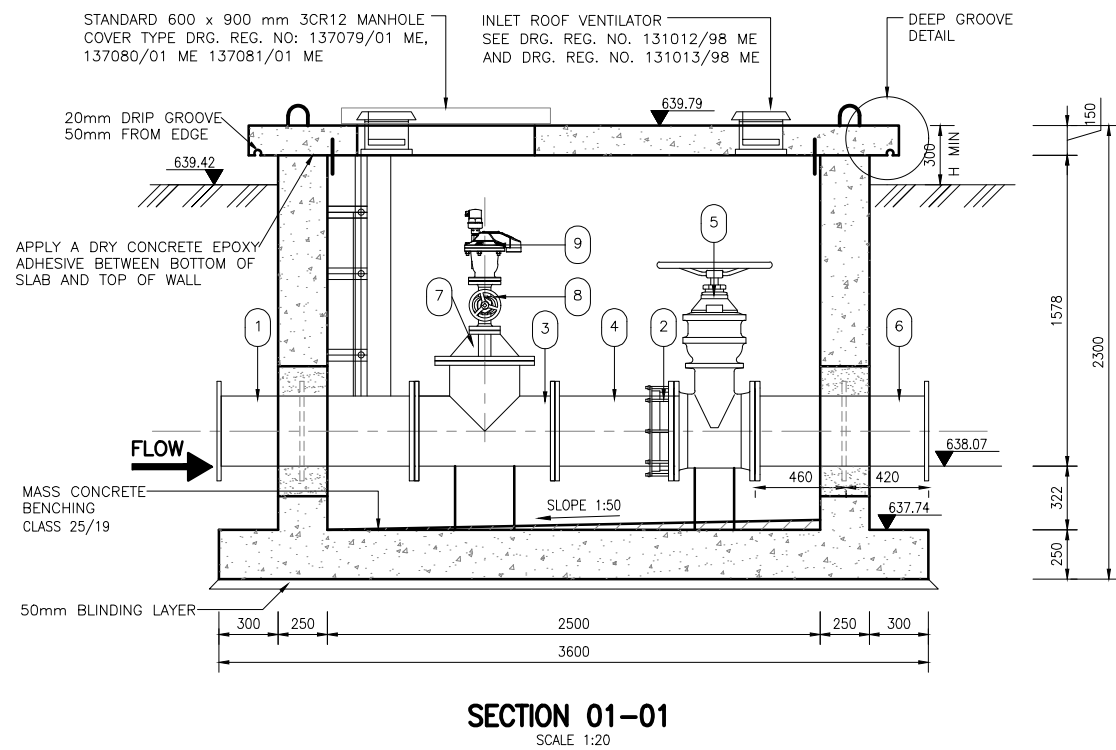
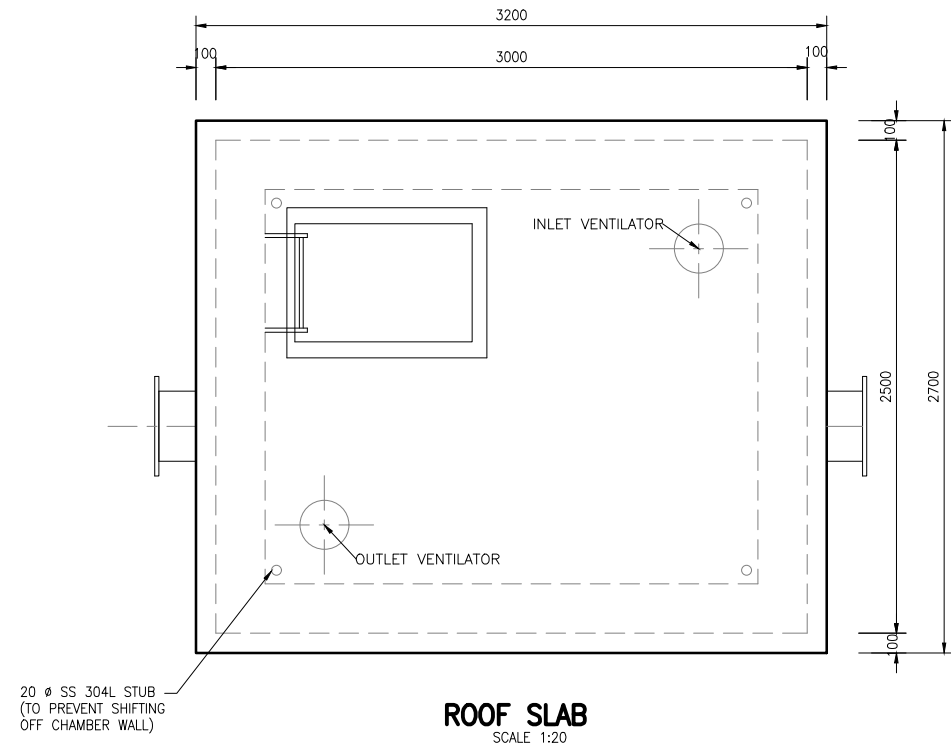
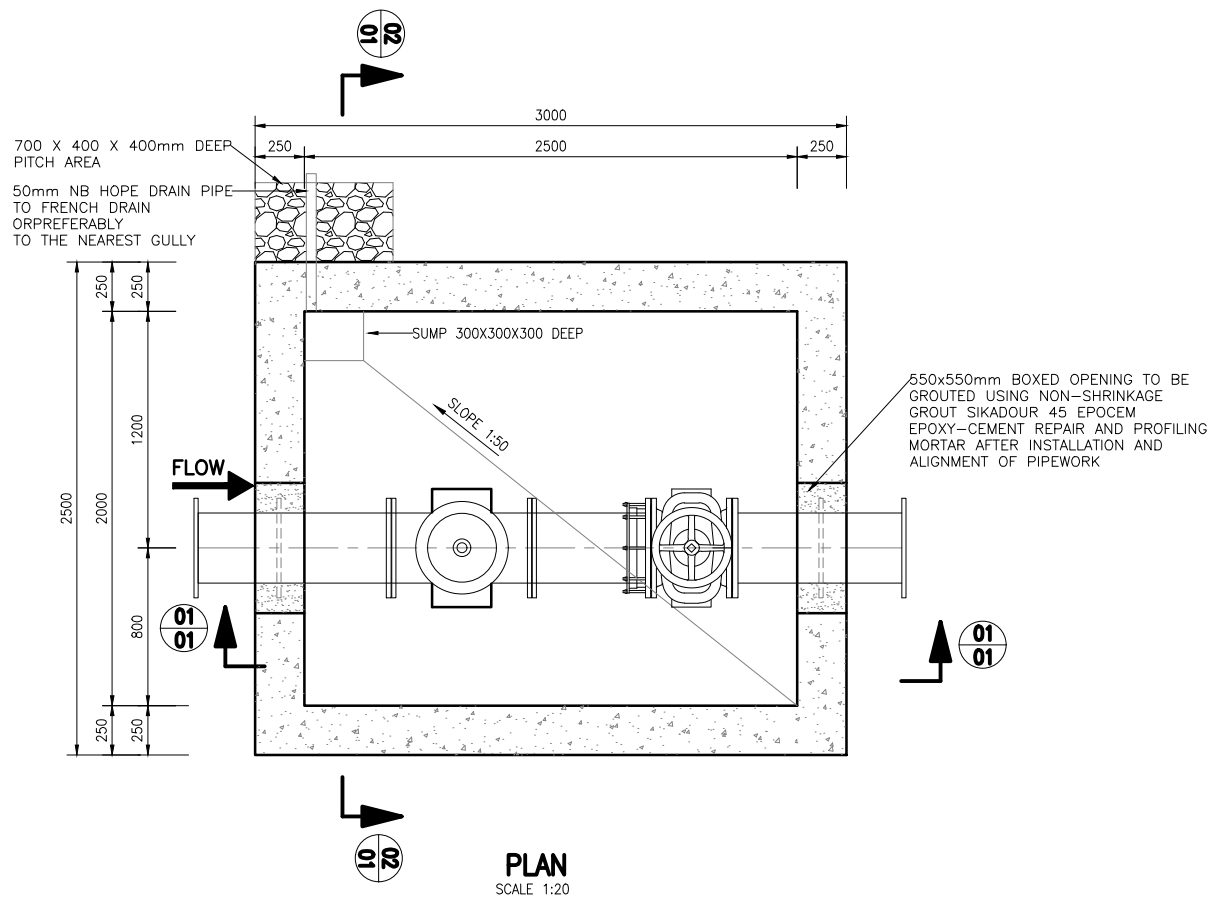
122 DEMIER STREET
DENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED:	DATE:	DESIGN: M.T	DRAWN: A.P
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
N/A			
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No:	C1201-1206	DATE:
		18/03/21	

MOD No	DATE	DESCRIPTION	FOR
01	18/03/21	ISSUED FOR CONSTRUCTION	

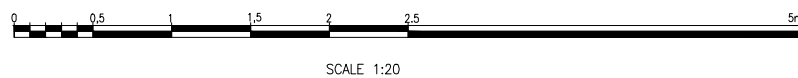
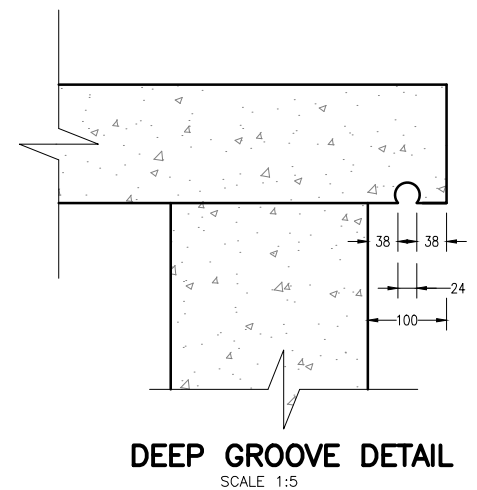
LEPELLE NORTHERN WATER	01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800
DEPARTMENT OF WATER AND SANITATION	49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200

GLWaP-PHASE 1:					
BABANANA PIPELINE PROJECT RS 135					
WORK PACKAGE 9: XIHOKO RESERVOIRS OUTLET CHAMBER AT 5000KL COMMAND RESERVOIR NORTH OF HLOHOKWE PIPE SPECIALS AND CONCRETE DETAILS					
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	- - - - - OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	REG. No.
CALCULATION FILE:				1 OF 2	
C1201-1206					01



NOTES:

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 - 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DWS 9900.
- CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 7.2 m³ CLASS 15/19 = 1.1m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
- GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DWS 9 900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS (LETTERING 20mm HIGH) AND VALVE NUMBERS (DETAILS "A" AND "B") BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG. REFER TO LIST OF DRGS.

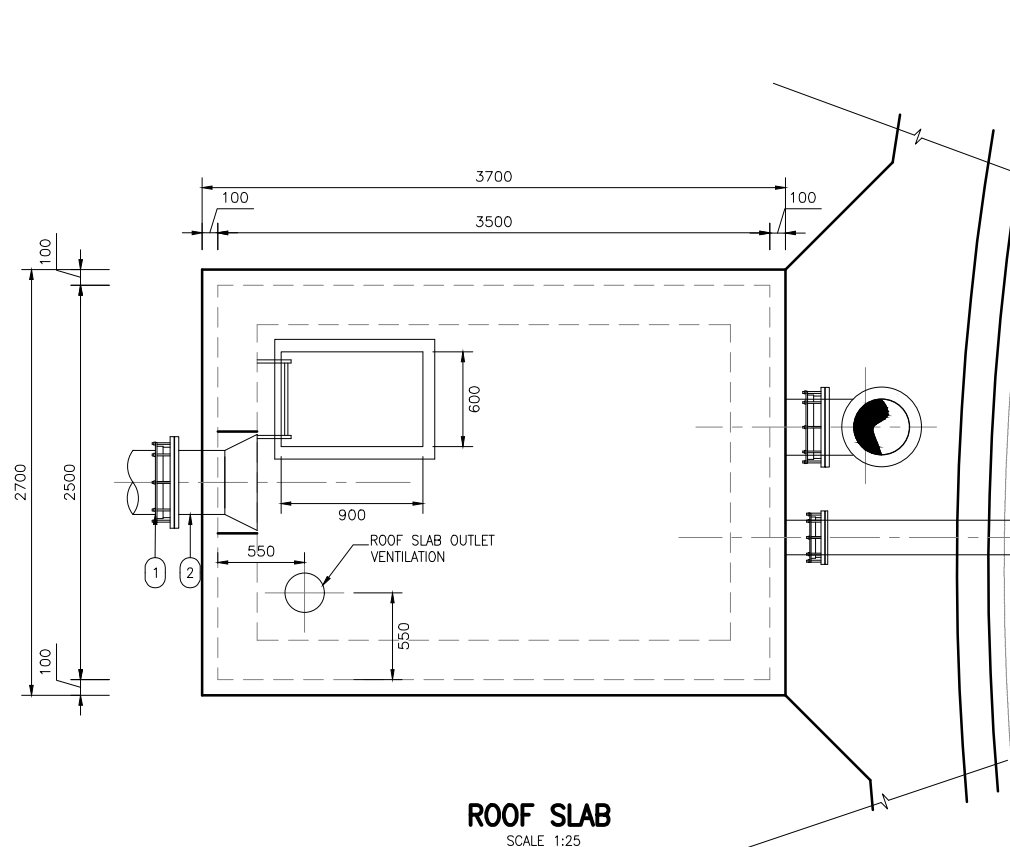
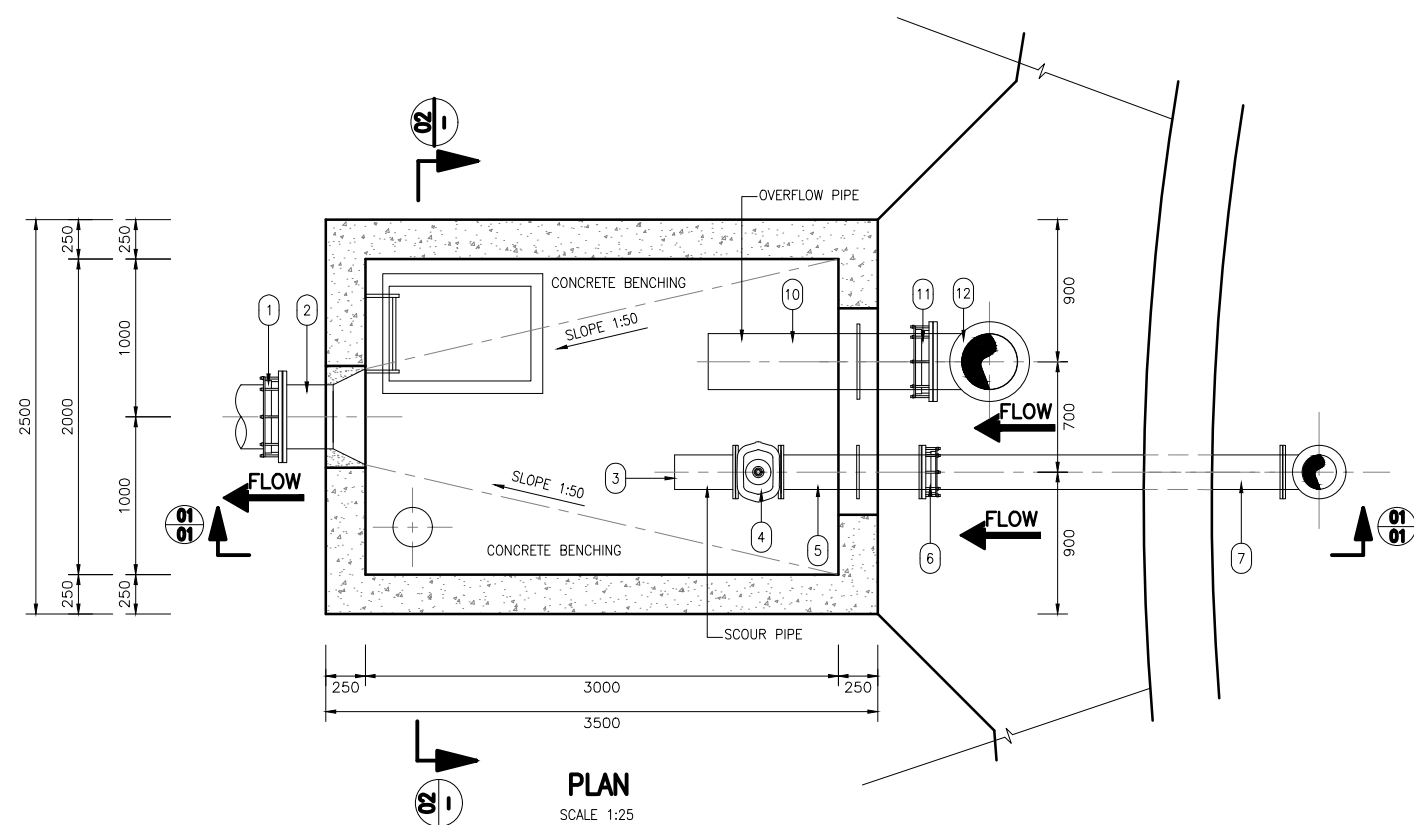


TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited 122 DIEMER STREET DENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900		DESIGN: M.T
CHECKED:	DATE:	DRAWN: A.P
N/A		DATE:
ENGINEER:	DATE:	EXTERNAL APPROVAL: DATE:
N/A		DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng): DATE:
TANGO'S DWG No:	FILE No: C1201-1209	DATE: 18/03/21

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MOD No	DATE	DESCRIPTION	FOR
01	18/03/21	ISSUED FOR CONSTRUCTION	

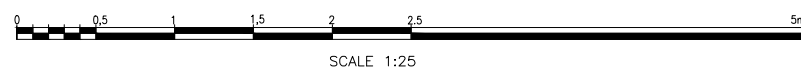
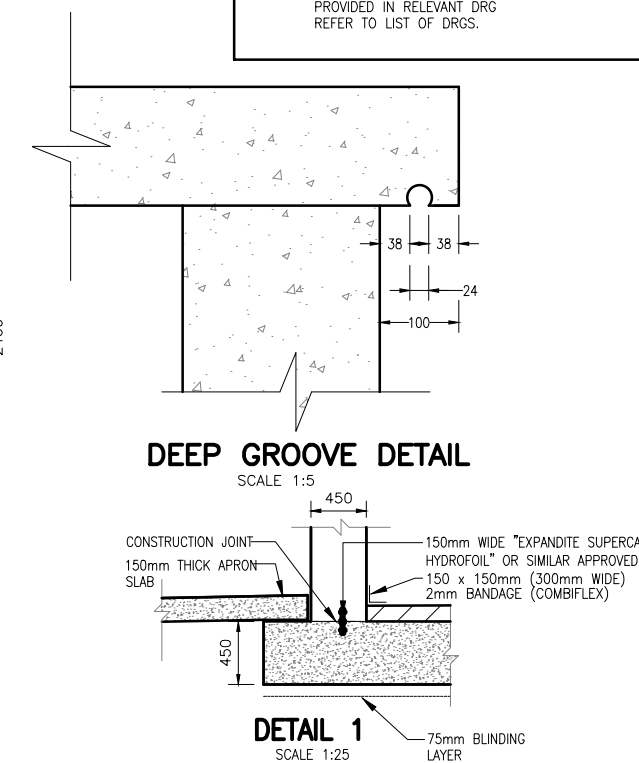
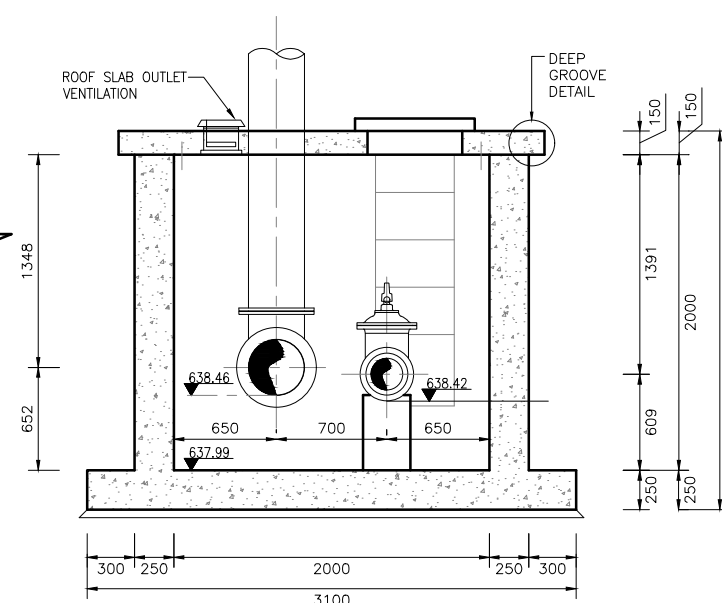
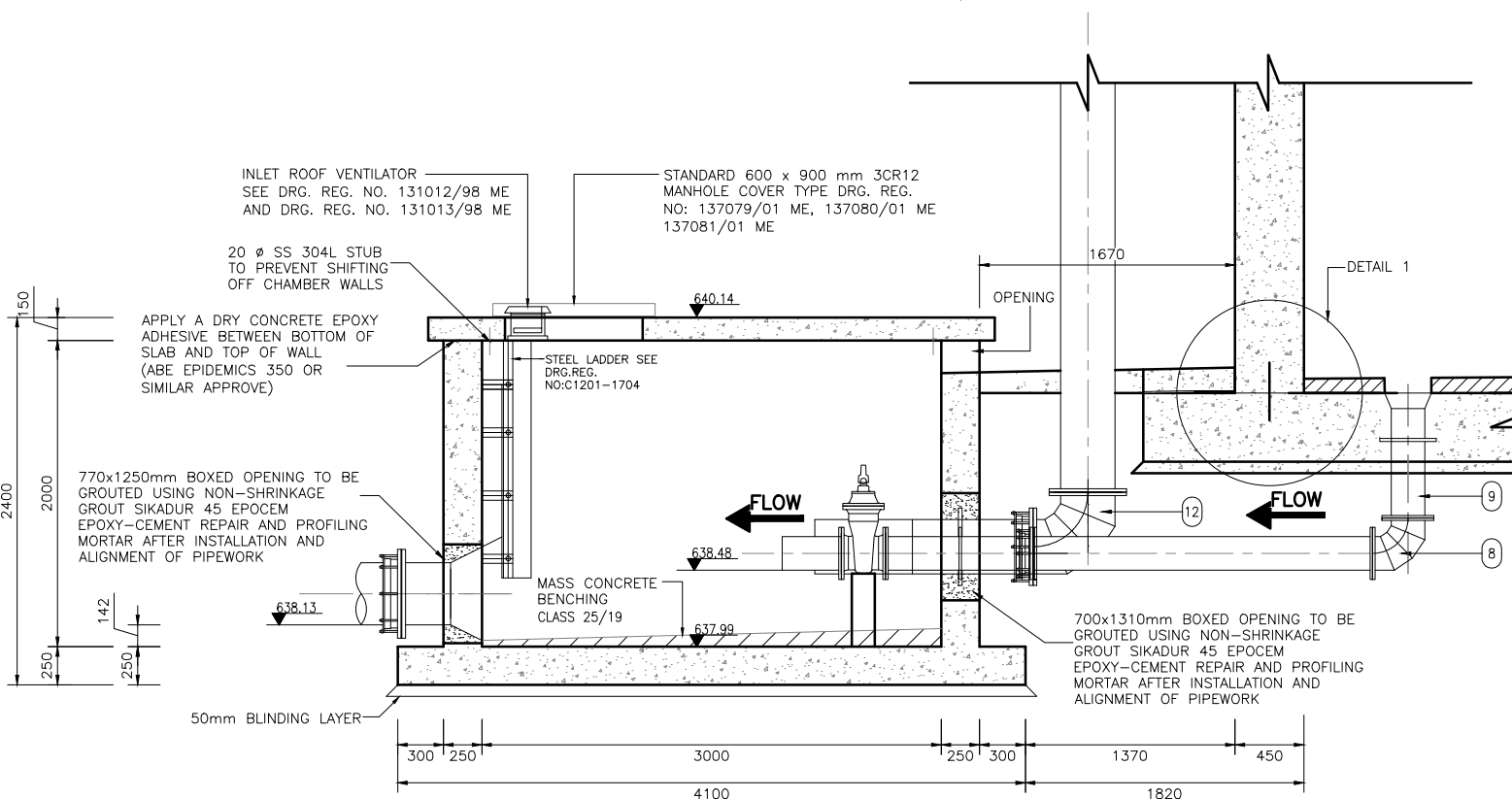
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DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP—PHASE 1:																					
BABANANA PIPELINE PROJECT RS 135																					
WORK PACKAGE 9: XIHOKO RESERVOIRS INLET CHAMBER AT 5000KL COMMAND RESERVOIR NORTH OF HLOHLOKWE PIPE SPECIAL LIST AND CONCRETE DETAILS																					
PROVINCE:		LIMPOPO		DISTRICT:		MOPANI		KEYCODES:		—		—		—		—		—		OTHER	
LOCALITY No:		B801—AT		TENDER/ CONTRACT No.				SHEET		REG. No.										01	
CALCULATION FILE:								1 OF 2		C1201—1208											



NOTES:

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SABS 1123, TYPE 3
 - PUDDLE FLANGES: SAME TYPE AND DD AS DRILLED FLANGES. FLAT FACED.
 - ANCHOR/THRUST FLANGES: SAME TYPE AND DD. 't' AS DRILLED FLANGES. FLAT FACED.
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINT, TOP AND BOTTOM.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTI-SEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- CORROSION PROTECTION:
 - LINING: TWO PACK EPOXY, 0.400mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900.
 - COATING: TWO PACK EPOXY, 0.300mm THICK, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DMS 9900. OVERCOAT WITH A 0.040mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT ARCTIC BLUE TO SABS 109 1 CODE F28.
 - FLANGE FACES: TWO PACK EPOXY 0.060 – 0.090 mm.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DMS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
 - 3CR12 COMPONENT: PICKLE AND PASSIVATE AFTER MANUFACTURE.
 - CORROSION PROTECTION FOR STAINLESS STEEL: LINING: TWO PACK EPOXY, 0.250mm THICK. COATING: TWO PACK EPOXY, 0.250mm THICK (IN WATER). TWO PACK EPOXY, 0.150mm THICK PLUS SEALANT OF POLYURETHANE OR POLYSULPHIDE (IN CONCRETE). LINING AND COATING: MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900.
 - ALL PIPES 200mm NB AND LESS SHALL BE HDG IN ACCORDANCE WITH DWS 9900.
- CONCRETE AND MISCELLANEOUS:
 - ALL CONCRETE EDGES TO BE 25mm CHAMFERED.
 - CONCRETE VOLUME: CLASS 25/19 = 7.2 m³
CLASS 15/19 = 1.1m³
 - ALL EXPOSED METAL WORK TO BE CR12(UNPAINTED)
 - BACKFILL BELOW CHAMBER TO BE COMPACTED ON 250mm LAYERS TO 90% MOD AASHTO.
- GENERAL:
 - REPAIR EPOXY LINING OF PIPE ENDS IN ACCORDANCE WITH DWS 9 900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL "Y"
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 30%.
 - ALLOW FOR 3mm THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING PIPE SPECIALS AND COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED
 - OPERATING INSTRUCTIONS (LETTERING 20mm HIGH) AND VALVE NUMBERS (DETAILS "A" AND "B") BAKED ENAMEL ON STEEL WITH BLACK LETTERS ON A WHITE BACKGROUND TO BE MOUNTED CLOSE TO EACH VALVE.
 - WHERE H>1m PROVIDE OUTSIDE LADDERS. LADDERS DETAILS ARE PROVIDED IN RELEVANT DRG. REFER TO LIST OF DRGS.



TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited 122 DIEMER STREET DENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900		DESIGN: M.T	
CHECKED:	DATE:	DRAWN:	
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No:	C1201-1210	DATE:
	DATE:	18/03/21	

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MOD No	DATE	DESCRIPTION	FOR
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LEPELLE NORTHERN WATER	
01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION	
49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLWaP-PHASE 1:					
BABANANA PIPELINE PROJECT RS 135					
WORK PACKAGE 9: XIHOKO RESERVOIRS DRAINAGE CHAMBER AT 5000KL COMMAND RESERVOIR C PIPE SPECIAL AND CONCRETE DETAILS					
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	- - - - - OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	REG. No.
CALCULATION FILE:				1 OF 2	
C1201-1210					01

PIPES AND SPECIALS: DRAINAGE CHAMBER AT 5000KL COMMAND RESERVOIR						
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH
1	1	400			FLANGE ADAPTOR PN16	
2	1	400	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED THE OTHER WITH BELLMOUTH PN16	
3	1	200	STEEL GR. X42		STRAIGHT PIPE ONE END FLANGED, THE OTHER PLAIN FOR CUTTING TO SUIT ON SITE PN16	
4	1	200			200mm WEDGE GATE VALVE FLANGED .PN16	
5	1	200	STEEL GR. X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED PUDDLE FLANGE AS SHOWN PN16	
6	1	200			FLANGE ADAPTOR PN16	
7	1	200	STEEL GR. X42	4.5	STRAIGHT PIPE ONE END FLANGED, OTHER FOR CUTTING TO SUIT ON SITE PN16	
8	1	200	STEEL GR. X42	4.5	ELBOW FLANGED PN16	
9	1	200	STEEL GR. X42		STRAIGHT PIPE ONE END FLANGED, OTHER WITH BELLMOUTH PN16	

PIPES AND SPECIALS: DRAINAGE CHAMBER AT 5000KL COMMAND RESERVOIR						
ITEM	NO. OFF	DIA(mm) NB/00	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH
10	1	350	STEEL GR. X42		STRAIGHT PIPE BOTH ENDS PLAIN, PUDDLE FLANGE AS SHOWN PN16	
11	1	350			FLANGE ADAPTOR PN16	
12	1	350	STEEL GR. X42	4.5	ELBOW FLANGED PN16	

NOTE: LINING AND COATING REFER TO DRG NO. C1201-1210



TANGO'S CONSULTANTS
A division of Tango's Group (PTY) Limited

122 DIEMEER STREET
DENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

DESIGN: M.T
DRAWN: A.P
N/A
EXTERNAL APPROVAL:
N/A
DIRECTOR (Pr. Eng):
C1201-1211
18/03/21

MOD No
01

DATE
18/03/21

DESCRIPTION
ISSUED FOR CONSTRUCTION

FOR



LEPELLE NORTHERN WATER
Water in our protection

01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION
**water & sanitation**
Department of Water and Sanitation
REPUBLIC OF SOUTH AFRICA

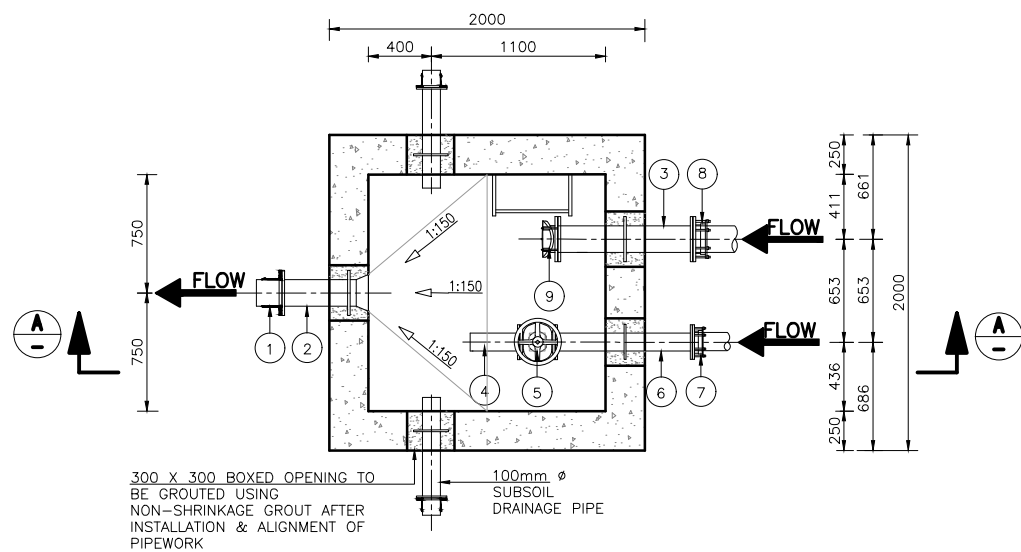
49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:
BABANANA PIPELINE PROJECT RS 135
WORK PACKAGE 9: XIHOKO RESERVOIRS
DRAINAGE CHAMBER AT 5000KL COMMAND RESERVOIR NORTH OF HLOHLOKWE
LIST OF PIPE SPECIAL

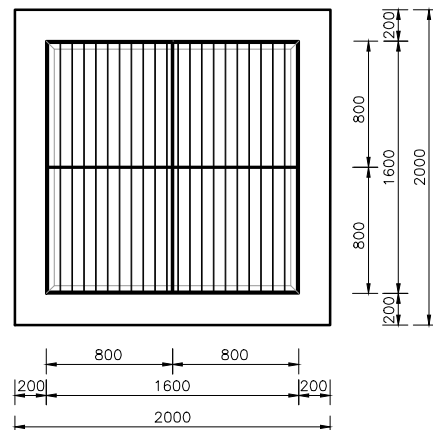
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LOCALITY No: BB01-AT??TENDER/ CONTRACT No: SHEET 2 OF 2REG. No: **C1201-1211**REV. **01**

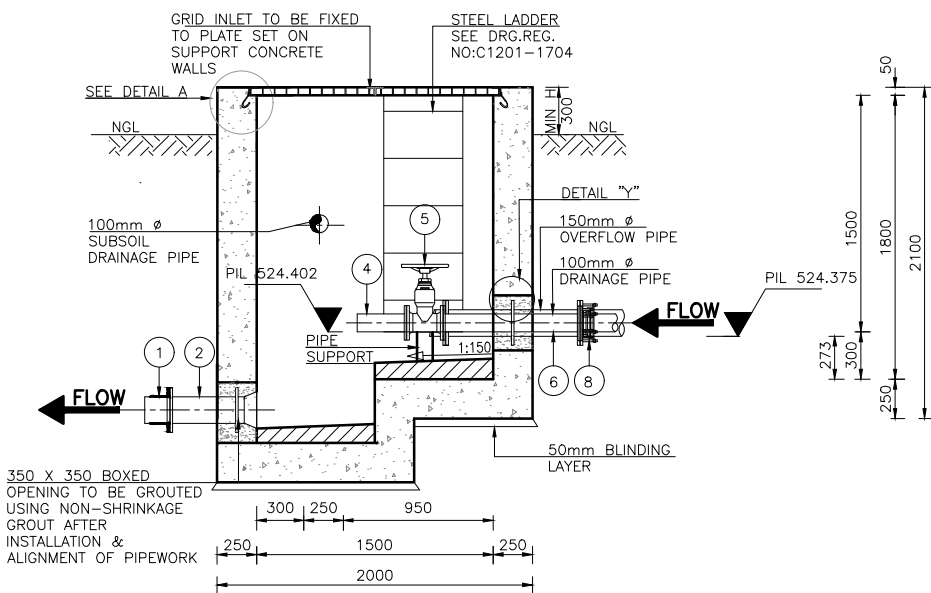
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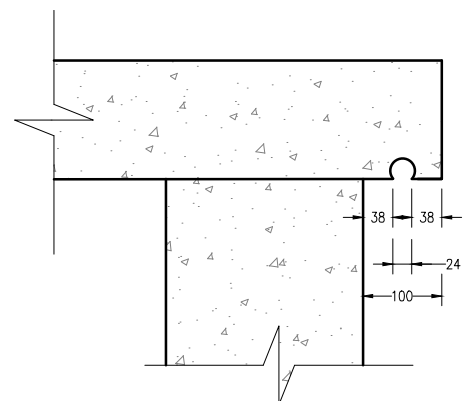
DRAINAGE CHAMBER PLAN
SCALE 1:25



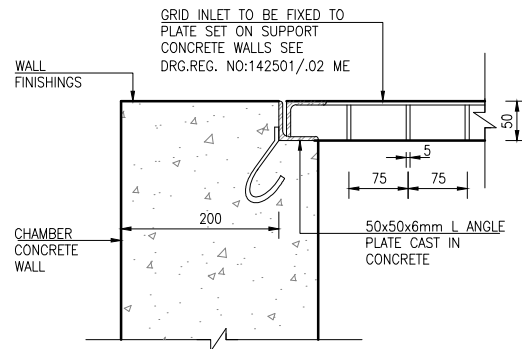
DRAINAGE CHAMBER ROOF PLAN
SCALE 1:25



SECTION A-A
SCALE 1:25



DEEP GROOVE DETAIL
SCALE 1:5



EDGE DETAIL GRID INLET
SCALE 1:5

NOTES:

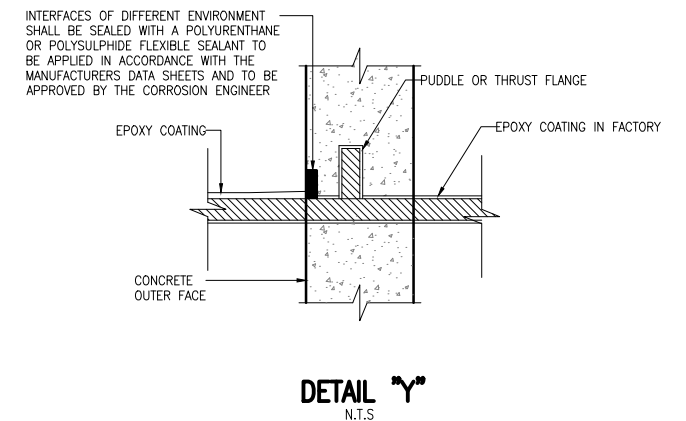
- FLANGES:**
 - 1.1. ALL DRILLED FLANGES' THICKNESS TO SANS 1123, TYPE 3, AND FOR CLASSIFICATION REFER TO THE RELEVANT DRAWING.
 - 1.2. PUDDLE FLANGES: SAME TYPE AND OD AS DRILLED FLANGES. FLAT FACES.
 - 1.3. ANCHOR/TRUST FLANGES: SAME TYPE AND OD. 'I' AS DRILLED FLANGES. FLAT FACED.
 - 1.4. COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DWS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:**
 - 2.1. FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINTS, TOP AND BOTTOM.
- CORROSION PROTECTION:**
 - 3.1. LINING:
 - PIPES 250 & 300 mm NB: CEMENT MORTAR LINING; THICKNESS, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 17.
 - PIPES 50, 80 AND 150 mm NB: TWO PACK EPOXY, 0,400 mm THICK; MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 7 AND 8.
 - 3.2. COATING: TWO PACK EPOXY, 0,300 mm THICK. MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0,040 mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT BRILLIANT GREEN TO SABS 1091 CODE-H10.
 - 3.3. FLANGE FACES: TWO PACK EPOXY 0,060 - 0,090 mm.
 - 3.4. FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTISEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- GENERAL:**
 - 4.1. REPAIRS OF PIPE ENDS LINING TO BE IN ACCORDANCE WITH DETAIL 'Y' AND DWS 9900.
 - 4.2. PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL 'Y' AND DWS 9900.
 - 4.3. CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - 4.4. PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 20%.
 - 4.5. ALLOW FOR THREE THICK GASKETS BETWEEN THE FLANGES. 4.6. CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING COUPLINGS.
 - 4.7. PROVIDE LIFTING LUGS WHERE REQUIRED.

CONCRETE & MISCELLANEOUS

1. ALL EXPOSED CONCRETE EDGES TO BE 25 mm CHAMFERED.
2. CONCRETE VOLUME: CLASS 25/19 = 20,0 m.
CLASS 15/19 = 1,0 m.
3. ALL EXPOSED METALWORK TO BE 3CR12 AND LEFT UNPAINTED.
4. BACKFILL BELOW CHAMBER TO BE COMPACTED IN 200 mm LAYERS TO BE 95% MOD AASHTO.

NOTES:

POSITION OF THE CHAMBER MUST BE DECIDED ON SITE ACCORDING TO THE TERRAIN SLOPE



DETAIL Y
N.T.S.

ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	150/160		STANDARD SG FLANGE ADAPTOR. PN 6	
2	1	150	CLASS MEDIUM	STRAIGHT PIPE ONE END FLANGED OTHER SIDE FITTED BELLMOUTH, PUDDLE FLANGE AS SHOWN. PN 6	
3	1	150	CLASS MEDIUM	STRAIGHT PIPE BOTH ENDS FLANGED, PUDDLE FLANGE AS SHOWN. PN 6	
4	1	100	CLASS MEDIUM	STRAIGHT PIPE ONE END FLANGED, THE OTHER PLAIN, FOR CUTTING TO SUIT ON SITE. PN 6	
5	1	100		RESILIENT SEAL GATE VALVE 100mm NB FLANGED. PN 6	
6	1	100	CLASS MEDIUM	STRAIGHT PIPE ONE END PLAIN, PUDDLE FLANGE AS SHOWN. PN 6	
7	1	100		FLANGE ADAPTOR 100mm NB. PN 6	
8	1	150		FLANGE ADAPTOR 150mm ND. PN 6	
9	1	150		FLAP VALVE 150mm ND. PN 6	

TANGO'S CONSULTANTS A division of Tango's Group (PTY) Limited 122 DEMIERS STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900		DESIGN: M.T
CHECKED:	DATE:	DRAWN: A.P
ENGINEER:	DATE:	EXTERNAL APPROVAL: DATE:
N/A		
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng): DATE:
TANGO'S DWG No:	FILE No: C1201-1244	DATE: 18/03/21

REVISION			
MOD No	DATE	DESCRIPTION	FOR DWA
01	18/03/21	ISSUED FOR CONSTRUCTION	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800		DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200
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GLeWaP-PHASE 1:					
BABANANA PIPELINE PROJECT RS 135					
WORK PACKAGE 9: XIHOKO RESERVOIRS DRAINAGE CHAMBER AT 1ML GA-MOKGWATHI RESERVOIR CONCRETE ARRANGEMENT AND PIPE MATERIAL SCHEDULE					
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	- - - - - OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	REG. No.
CALCULATION FILE:				1 OF 1	

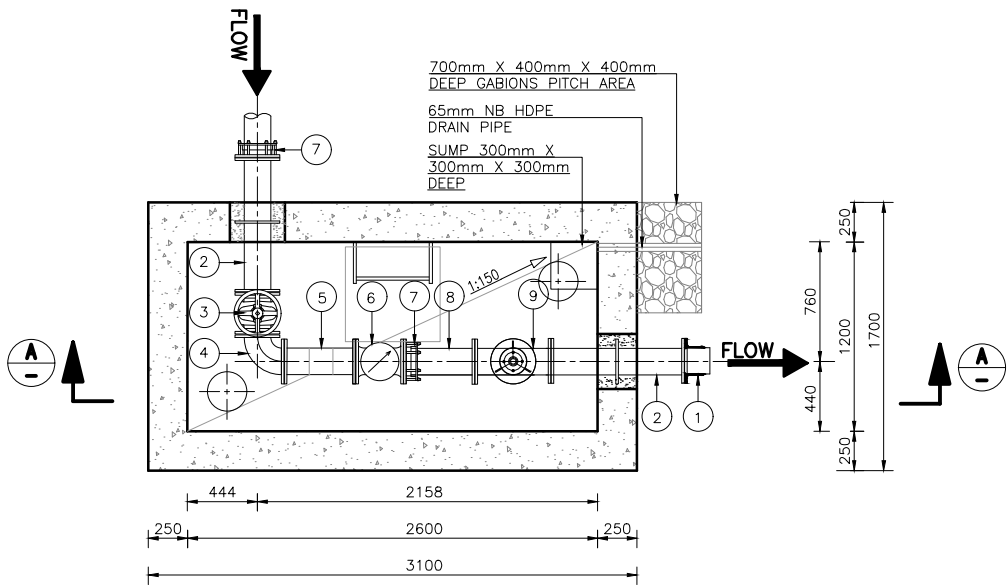
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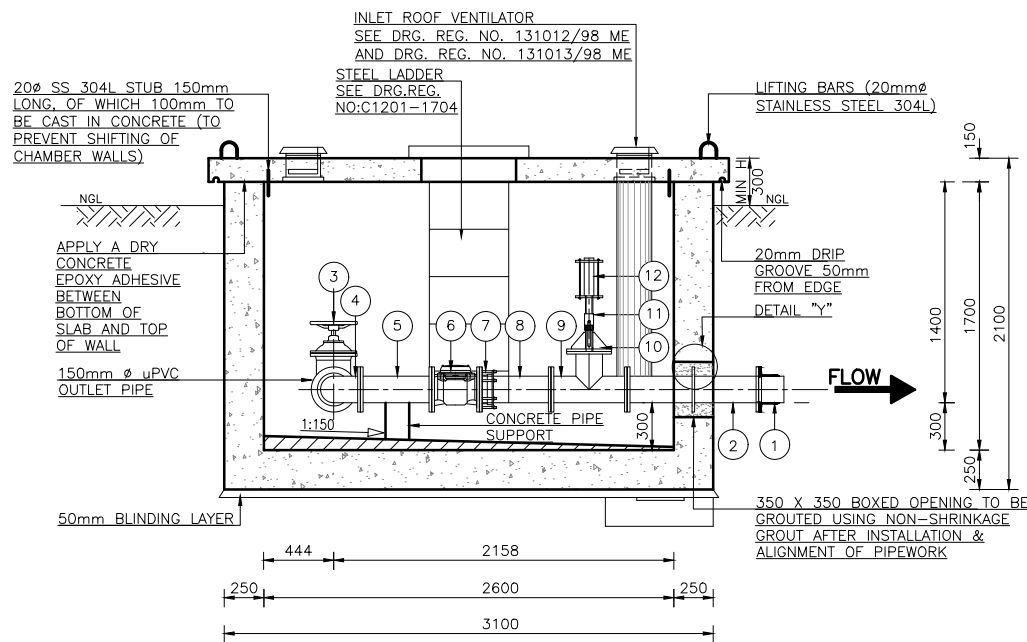
SCALE 1:5

SCALE 1:25

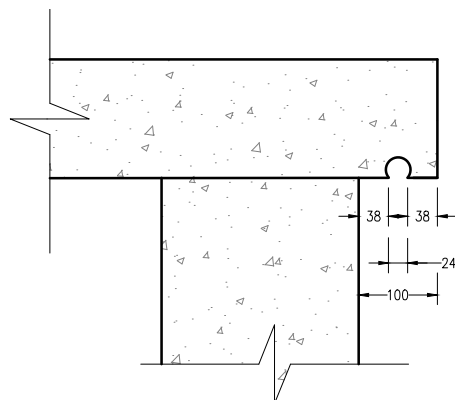




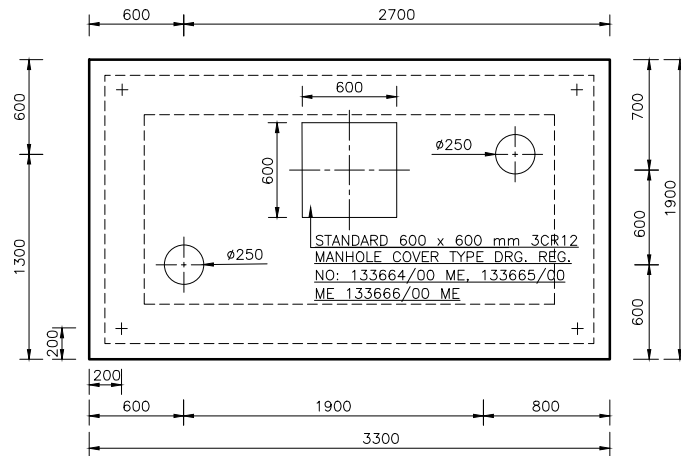
OUTLET CHAMBER PLAN
SCALE 1:25



SECTION A-A
SCALE 1:25



DEEP GROOVE DETAIL
SCALE 1:5



OUTLET CHAMBER ROOF PLAN
SCALE 1:25

ITEM No.	No. OFF	DIA (mm) NB	MATERIAL	DESCRIPTION	SKETCH
1	1	250		STANDARD SG FLANGE ADAPTOR. PN 6	
2	2	250	CLASS MEDIUM	STRAIGHT PIPE BOTH ENDS FLANGED, PUDDLE FLANGE AS SHOWN. PN 6	
3	1	250		RESILIENT SEAL GATE VALVE 150mm NB FLANGED. PN 6	
4	1	250	CLASS MEDIUM	90° SHORT RADIUS ELBOW FLANGED. PN 6	
5	1	250	CLASS MEDIUM	STRAIGHT PIPE BOTH ENDS FLANGED. PN 6	
6	1	250		MECHANICAL TURBINE FLOW METER FLANGED. PN 6	
7	2	250		FLANGE ADAPTOR 150mm NB. PN 6	
8	1	250		STRAIGHT PIPE ONE END FLANGED, THE OTHER PLAIN, FOR CUTTING TO SUIT ON SITE. PN 6	
9	1	250		STANDARD EQUAL TEE FLANGED. PN 6	
10	1	250		SPECIAL REDUCER: STANDARD NB BLANK FLANGE WITH 25 mm NB STUB 125 mm LONG, WELDED IN THE CENTRE OF THE BLANK FLANGE. THREAD END OF THE STUB TO CONFIRM BALL VALVE THREADS SPEC. STUB FLANGED WITH 3 X 5 mm M.S. GUSSET PLATES. PN 6.	
11	1	25		BALL VALVE 25mm NB SCREWED. PN 6	
12	1			AIR VALVE : 25 mm NB SCREWED DOUBLE ORIFICE AIR VALVE PN 6	

NOTES:

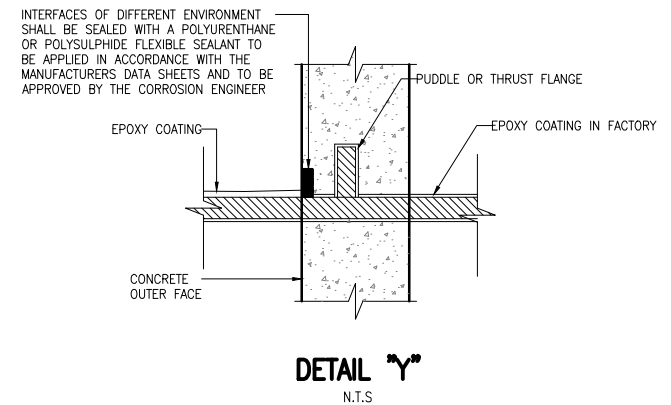
- FLANGES:**
 - ALL DRILLED FLANGES' THICKNESS TO SANS 1123, TYPE 3, AND FOR CLASSIFICATION REFER TO THE RELEVANT DRAWING.
 - FLANGES TO BE DRILLED OFF-CENTRE AND TO BE FLAT JOINT FACES MACHINED N11.
 - PUDDLE FLANGES: SAME TYPE AND OD AS DRILLED FLANGES. FLAT FACES.
 - ANCHOR/TRUST FLANGES: SAME TYPE AND OD. 'Y' AS DRILLED FLANGES. FLAT FACED.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DWS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:**
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINTS, TOP AND BOTTOM.
- CORROSION PROTECTION:**
 - LINING:**
 - PIPES 250 & 300 mm NB: CEMENT MORTAR LINING; THICKNESS, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 17.
 - PIPES 50, 80 AND 150 mm NB: TWO PACK EPOXY, 0,400 mm THICK; MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 7 AND 8.
 - COATING:** TWO PACK EPOXY, 0,300 mm THICK. MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0,040 mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT BRILLIANT GREEN TO SABS 1091 CODE-H10.
 - FLANGE FACES:** TWO PACK EPOXY 0,060 – 0,090 mm.
 - FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS** AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTISEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- GENERAL:**
 - REPAIRS OF PIPE ENDS LINING TO BE IN ACCORDANCE WITH DETAIL 'Y' AND DWS 9900.
 - PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL 'Y' AND DWS 9900.
 - CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 20%.
 - ALLOW FOR THREE THICK GASKETS BETWEEN THE FLANGES.
 - CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING COUPLINGS.
 - PROVIDE LIFTING LUGS WHERE REQUIRED.

CONCRETE & MISCELLANEOUS

- ALL EXPOSED CONCRETE EDGES TO BE 25 mm CHAMFERED.
- CONCRETE VOLUME: CLASS 25/19 = 20,0 m.
CLASS 15/19 = 1,0 m.
- ALL EXPOSED METALWORK TO BE 3CR12 AND LEFT UNPAINTED.
- BACKFILL BELOW CHAMBER TO BE COMPACTED IN 200 mm LAYERS TO BE 95% MOD AASHTO.

NOTES:

POSITION OF THE CHAMBER MUST BE DECIDED ON SITE ACCORDING TO THE TERRAIN SLOPE



DETAIL 'Y'
N.T.S



122 DIEMEER STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED:	DATE:	DESIGN: M.T	DRAWN: A.P
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
N/A			
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No:	C1201-1246	
	DATE:	18/03/21	

REVISION

MOD No	DATE	DESCRIPTION	FOR	DWA
01	18/03/21	ISSUED FOR CONSTRUCTION		

LEPELLE NORTHERN WATER



01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800



49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLeWaP-PHASE 1:

BABANANA PIPELINE PROJECT RS 135

WORK PACKAGE 9: XIHOKO RESERVOIRS OUTLET CHAMBER AT 1ML GA-MOKGWATHI RESERVOIR CONCRETE ARRANGEMENT AND PIPE MATERIAL SCHEDULE

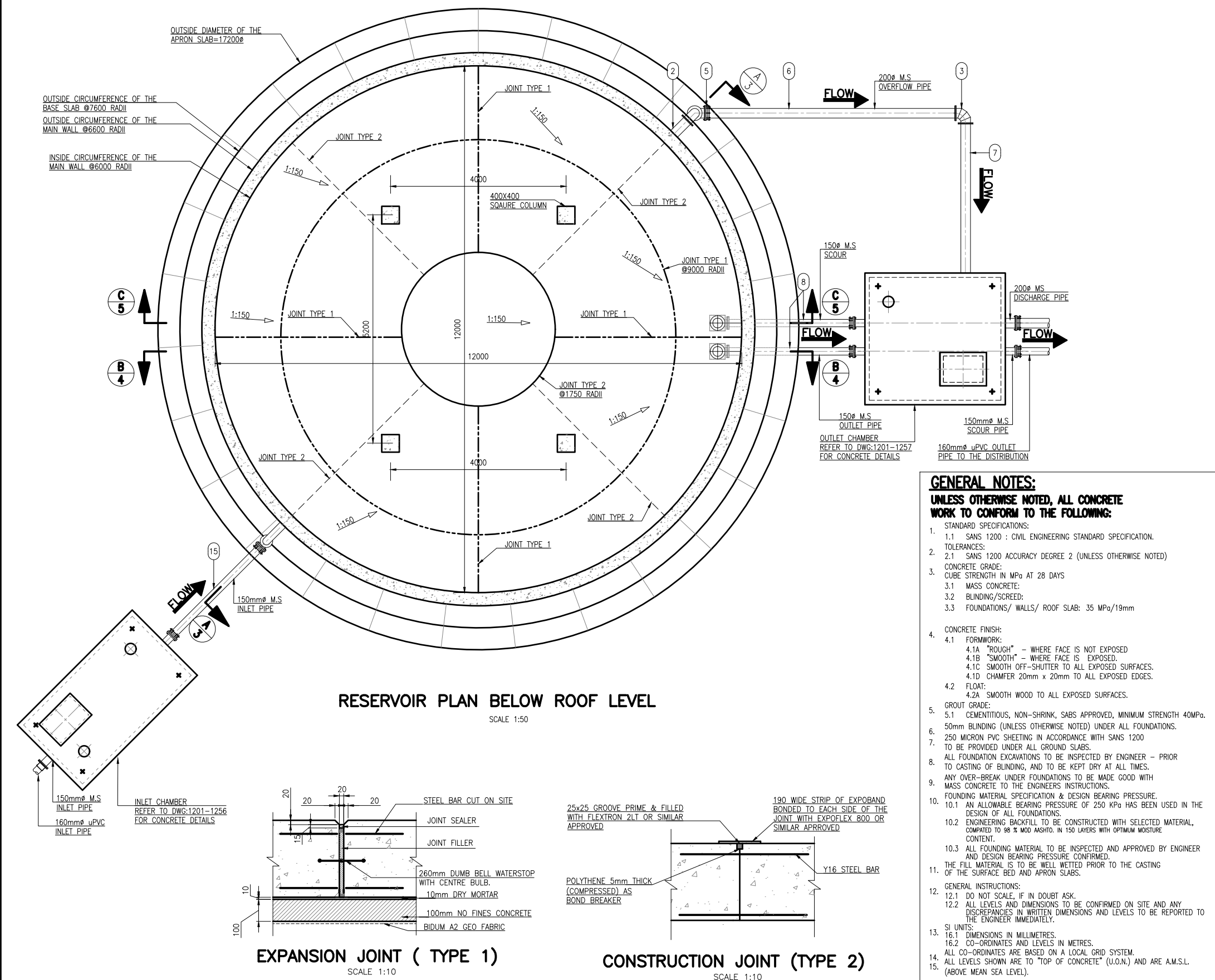
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	REG. No.				
CALCULATION FILE:				1 OF 1					

C1201-1246

01

SCALE 1:5

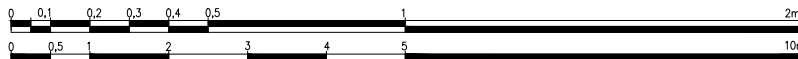
SCALE 1:25



ITEM No.	No. OFF	DIA(mm) NB	MATERIAL	DESCRIPTION	SKETCH	CORROSION PROTECTION		
						LINING	COATING	FLANGES
1	1	200	STEEL GRADE X42	SHORT RADIUS 90° BEND ONE END FLANGED THE OTHER PLAIN AND WELDED TO BELLMOUTH PN 16		3.1	3.2	3.3
2	1	200	STEEL GRADE X42	STRAIGHT PIPE BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
3	3	200	STEEL GRADE X42	SHORT RADIUS 90° BOTH ENDS FLANGED PN 16		3.1	3.2	3.3
4	1	200	STEEL GRADE X42	STRAIGHT PIPE BOTH ENDS FLANGED. PN 16		3.1	3.2	3.3
5	1	200		FLANGE ADAPTOR PN 16				
6	1	200	STEEL GRADE X42	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
7	1	200	STEEL GRADE X42	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
8	1	150	STEEL GRADE X42	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
9	4	150	STEEL GRADE X42	SHORT RADIUS 90° BOTH ENDS FLANGED PN 16		3.1	3.2	3.3
10	1	150	STEEL GRADE X42	STRAIGHT PIPE ONE END FLANGED THE OTHER PLAIN AND WELDED TO BELLMOUTH PUDDLE FLANGE AS INDICATED PN 16		3.1	3.2	3.3
11	1	150		BALL VALVE PN 16				
12	1	150	STEEL GRADE X42	STRAIGHT PIPE BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
13	1	150	STEEL GRADE X42	STRAIGHT PIPE BOTH ENDS FLANGED. PN 16		3.1	3.2	3.3
14	1	150		FLANGE ADAPTOR PN 16				
15	1	150	STEEL GRADE X42	STRAIGHT BOTH ENDS FLANGED, CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3

SCALE 1:10

SCALE 1:50



TANGO'S CONSULTANTS A division of Tango's Group (Pty) Limited 122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DESIGN: M.T. DATE: DRAWN: A.P.
ENGINEER:	N/A
CHIEF ENGINEER / APP (Pr. Eng):	DATE: DIRECTOR (Pr. Eng):
TANGO'S DWG No:	FILE No: C1201-1251 DATE: 23/06/21

REVISION			
MOD No	DATE	DESCRIPTION	FOR
01	23/06/21	ISSUED FOR CONSTRUCTION	DWA

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:					
BABANANA PIPELINE PROJECT RS 135					
WORK PACKAGE 9: XIHOKO RESERVOIRS 600KI MOTHOMENG RESERVOIR BASE PLAN, DETAILS AND PIPE SPECIALS					
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	- - - - - OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	REG. No.
CALCULATION FILE:				1 OF 7	C1201-1251
					REV. 01

**UNLESS OTHERWISE NOTED, ALL CONCRETE
WORK TO CONFORM TO THE FOLLOWING:**

1. STANDARD SPECIFICATIONS:
 - 1.1 SANS 1200 : CIVIL ENGINEERING STANDARD SPECIFICATION.
2. TOLERANCES:
 - 2.1 SANS 1200 ACCURACY DEGREE 2 (UNLESS OTHERWISE NOTED)
3. CONCRETE GRADE:
 - 3.1 CUBE STRENGTH IN MPa AT 28 DAYS
 - 3.1.1 MASS CONCRETE:
 - 3.2 BLINDING/SCREED:
 - 3.3 FOUNDATIONS/ WALLS/ ROOF SLAB: 35 MPa/19mm
4. CONCRETE FINISH:
 - 4.1 FORMWORK:
 - 4.1A "ROUGH" - WHERE FACE IS NOT EXPOSED
 - 4.1B "SMOOTH" - WHERE FACE IS EXPOSED.
 - 4.1C SMOOTH OFF-SHUTTER TO ALL EXPOSED SURFACES.
 - 4.1D CHAMFER 20mm x 20mm TO ALL EXPOSED EDGES.
 - 4.2 FLOAT:
 - 4.2A SMOOTH WOOD TO ALL EXPOSED SURFACES.
5. GROUT GRADE:
 - 5.1 CEMENTITIOUS, NON-SHRINK, SABS APPROVED, MINIMUM STRENGTH 40MPa.
6. 50mm BLINDING (UNLESS OTHERWISE NOTED) UNDER ALL FOUNDATIONS.
7. 250 MICRON PVC SHEETING IN ACCORDANCE WITH SANS 1200
8. TO BE PROVIDED UNDER ALL GROUND SLABS.
9. ALL FOUNDATION EXCAVATIONS TO BE INSPECTED BY ENGINEER - PRIOR TO CASTING OF BLINDING, AND TO BE KEPT DRY AT ALL TIMES.
10. ANY OVER-BREAK UNDER FOUNDATIONS TO BE MADE GOOD WITH MASS CONCRETE TO THE ENGINEERS INSTRUCTIONS.
11. FOUNDING MATERIAL SPECIFICATION & DESIGN BEARING PRESSURE.
 - 10.1 ANY ALLOWABLE BEARING PRESSURE OF 250 kPa HAS BEEN USED IN THE DESIGN OF ALL FOUNDATIONS.
 - 10.2 ENGINEERING BACKFILL TO BE CONSTRUCTED WITH SELECTED MATERIAL, COMPACTED TO 98 % MOD ASHTO. IN 150 LAYERS WITH OPTIMUM MOISTURE CONTENT.
 - 10.3 ALL FOUNDING MATERIAL TO BE INSPECTED AND APPROVED BY ENGINEER AND DESIGN BEARING PRESSURE CONFIRMED.
12. THE FILL MATERIAL IS TO BE WELL WETTED PRIOR TO THE CASTING OF THE SURFACE BED AND APRON SLABS.
13. GENERAL INSTRUCTIONS:
 - 12.1 DO NOT SCALE, IF IN DOUBT ASK.
 - 12.2 ALL LEVELS AND DIMENSIONS TO BE CONFIRMED ON SITE AND ANY DISCREPANCIES IN WRITTEN DIMENSIONS AND LEVELS TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
14. SI UNITS:
 - 16.1 DIMENSIONS IN MILLIMETRES.
 - 16.2 CO-ORDINATES AND LEVELS IN METRES.
15. ALL CO-ORDINATES ARE BASED ON A LOCAL GRID SYSTEM.
16. ALL LEVELS SHOWN ARE TO "TOP OF CONCRETE" (U.O.N.) AND ARE A.M.S.L. (ABOVE MEAN SEA LEVEL).




SCALE 1:10



SCALE 1:10

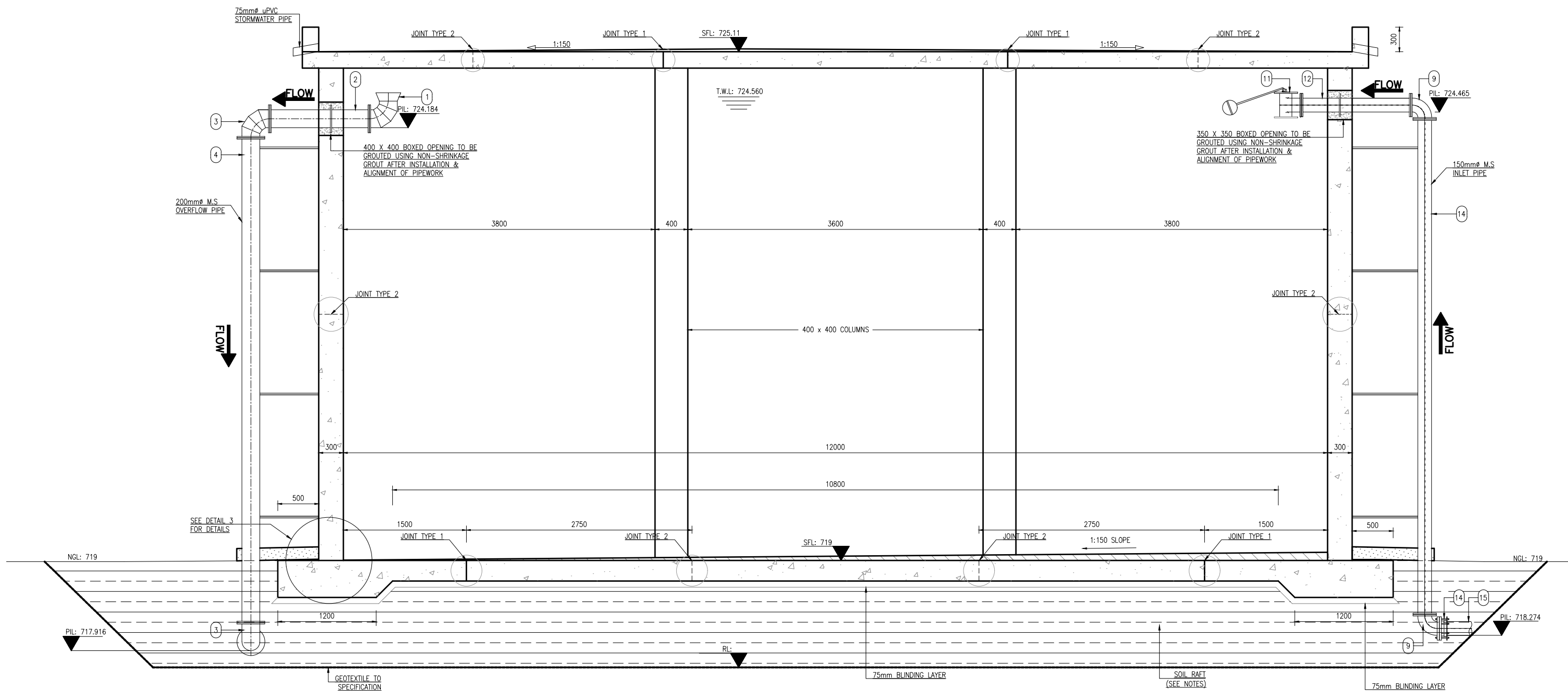


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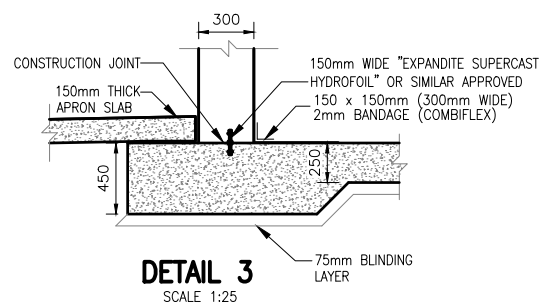
 TANGO'S CONSULTANTS <i>A division of Tango's Group (PTY) Limited</i>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 390	
CHECKED:		DESIGN: M.T	
DATE:		DRAWN: A.P	
ENGINEER:		N/A	
DATE:		EXTERNAL APPROVAL:	
N/A			
CHIEF ENGINEER / APP (Pr. Eng):		DATE: DIRECTOR (Pr. Eng):	
TANGO'S DING No:		FILE No: C1201-1252	
		DATE: 23/06/21	


[illegible]

GLeWaP—PHASE 1:											
BABANANA PIPELINE PROJECT RS 135											
WORK PACKAGE 9: XIHOKO RESERVOIRS 600k MOTHOMENG RESERVOIR ROOF PLAN AND DETAILS											
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	—	—	—	—	—	OTHER	
LOCALITY No:	B801—AT	TENDER/ CONTRACT No.		SHEET	REG. No.					C1201—1252	REV. 01
CALCULATION FILE:				2 OF 7							



SECTION A-A
SCALE 1:25



 TANGO'S CONSULTANTS <small>A division of Tango's Group (PTY) Limited</small>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
DESIGN: M.T.		DATE: 23/06/21	
CHECKED: DATE: DRAWN: A.P.		N/A	
ENGINEER: DATE: EXTERNAL APPROVAL: DATE:		N/A	
CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:		N/A	
TANGO'S DWG No: FILE No: C1201-1253		DATE: 23/06/21	

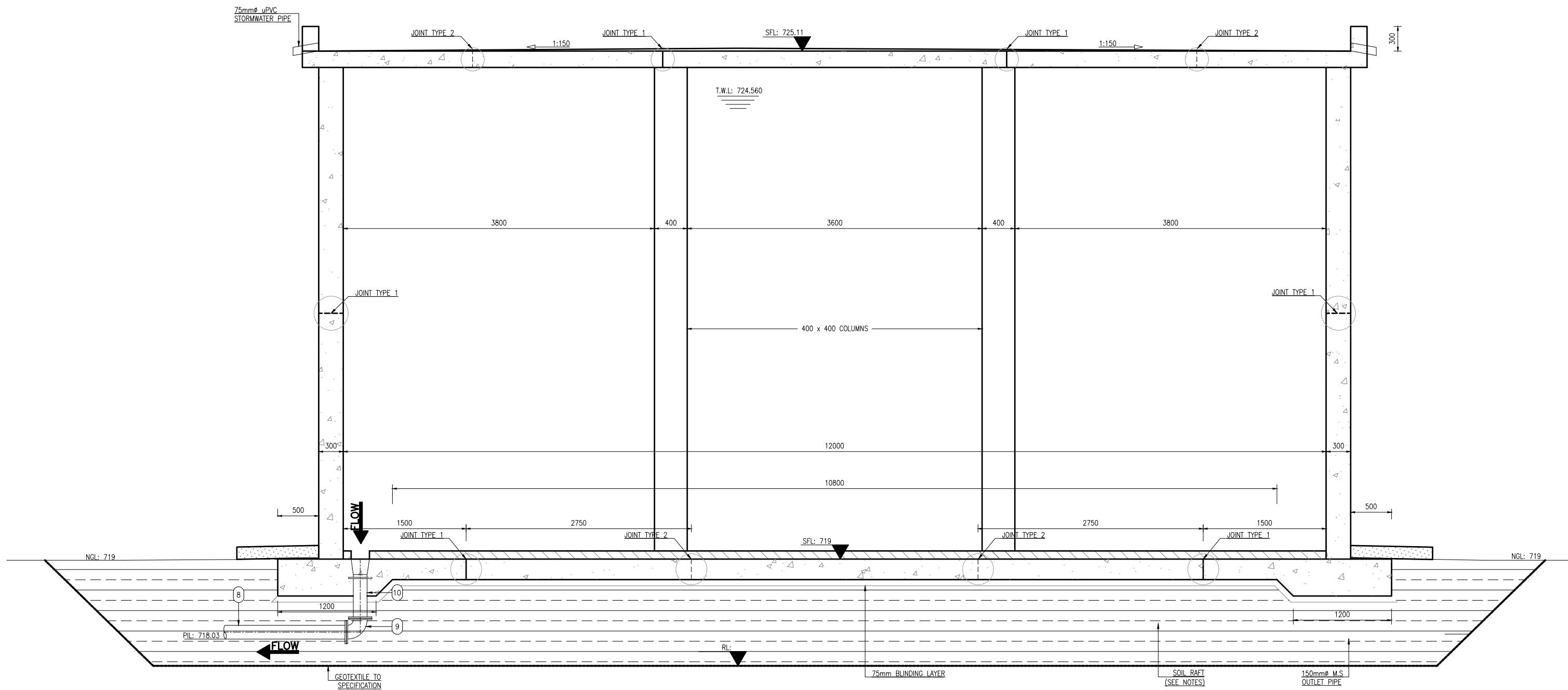
REVISION			
MOD No	DATE	DESCRIPTION	FOR DWA
01	23/06/21	ISSUED FOR CONSTRUCTION	

 LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
 DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:									
BABANANA PIPELINE PROJECT RS 135									
WORK PACKAGE 9: XIHOKO RESERVOIRS 600kl MOTHOMENG RESERVOIR SECTION A-A									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	3 OF 7	REG. No.			
CALCULATION FILE:									


C1201-1253

01





SECTION B-B
SCALE 1:25

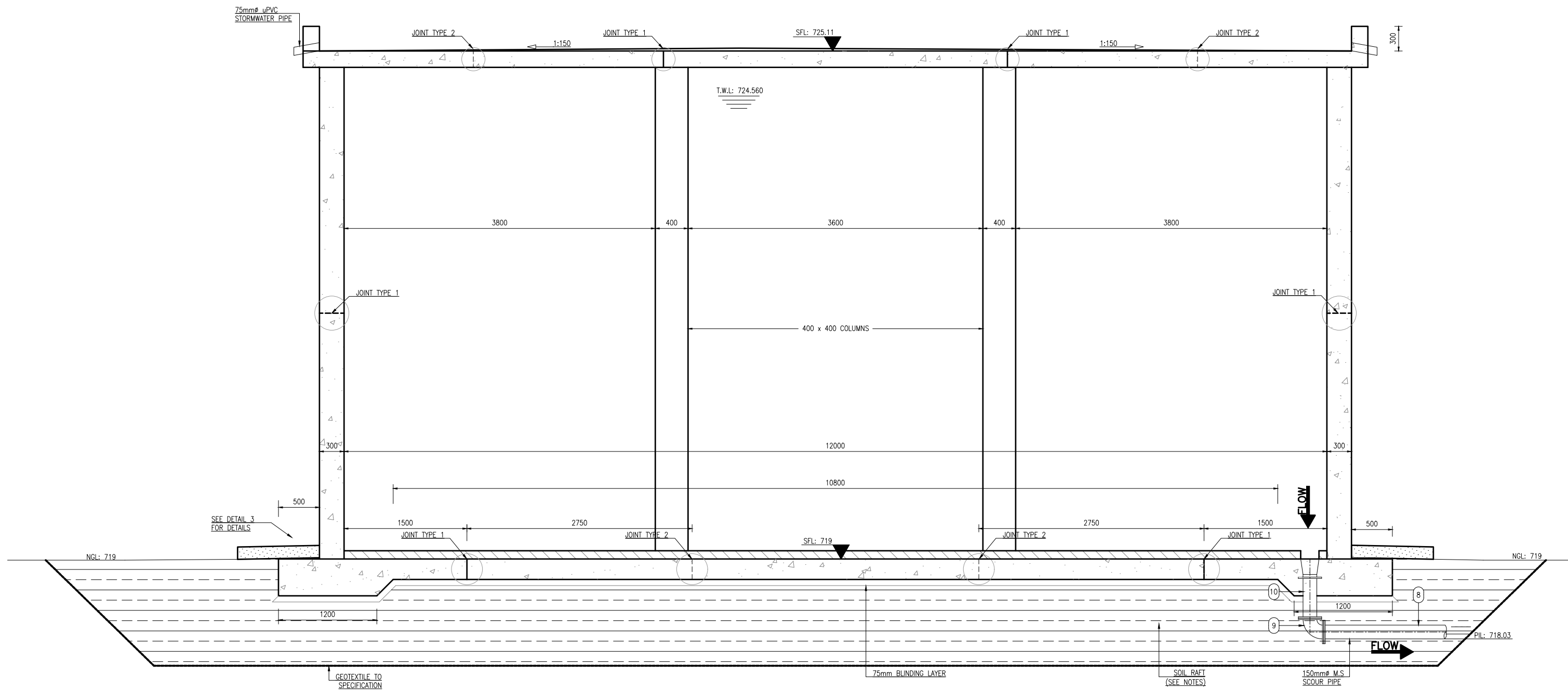
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 TANGO'S CONSULTANTS <small>A division of Tango's Group (PTY) Limited</small>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
DESIGN: M.T.			
CHECKED:	DATE:	DRAWN: A.P.	
ENGINEER:		N/A	
DATE:		EXTERNAL APPROVAL:	
N/A			
CHIEF ENGINEER / APP (Pr. Eng):		DIRECTOR (Pr. Eng):	
TANGO'S DWG No:		FILE No: C1201-1254	
		DATE: 23/06/21	

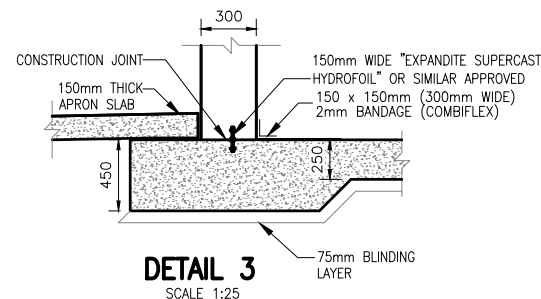
REVISION			
MOD No	DATE	DESCRIPTION	
01	23/06/21	ISSUED FOR CONSTRUCTION	

 LEPELLE NORTHERN WATER <small>Water in our passion</small>		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
 water & sanitation <small>Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA</small>		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:			
BABANANA PIPELINE PROJECT RS 135			
WORK PACKAGE 9: XIHOKO RESERVOIRS 600kl MOTHOMENG RESERVOIR SECTION B-B			
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.	
CALCULATION FILE:		SHEET	4 OF 7
KEYCODES:	- - - - -	REG. No.	C1201-1254
OTHER		REV.	01




SECTION C-C
SCALE 1:25





DETAIL 3
SCALE 1:25

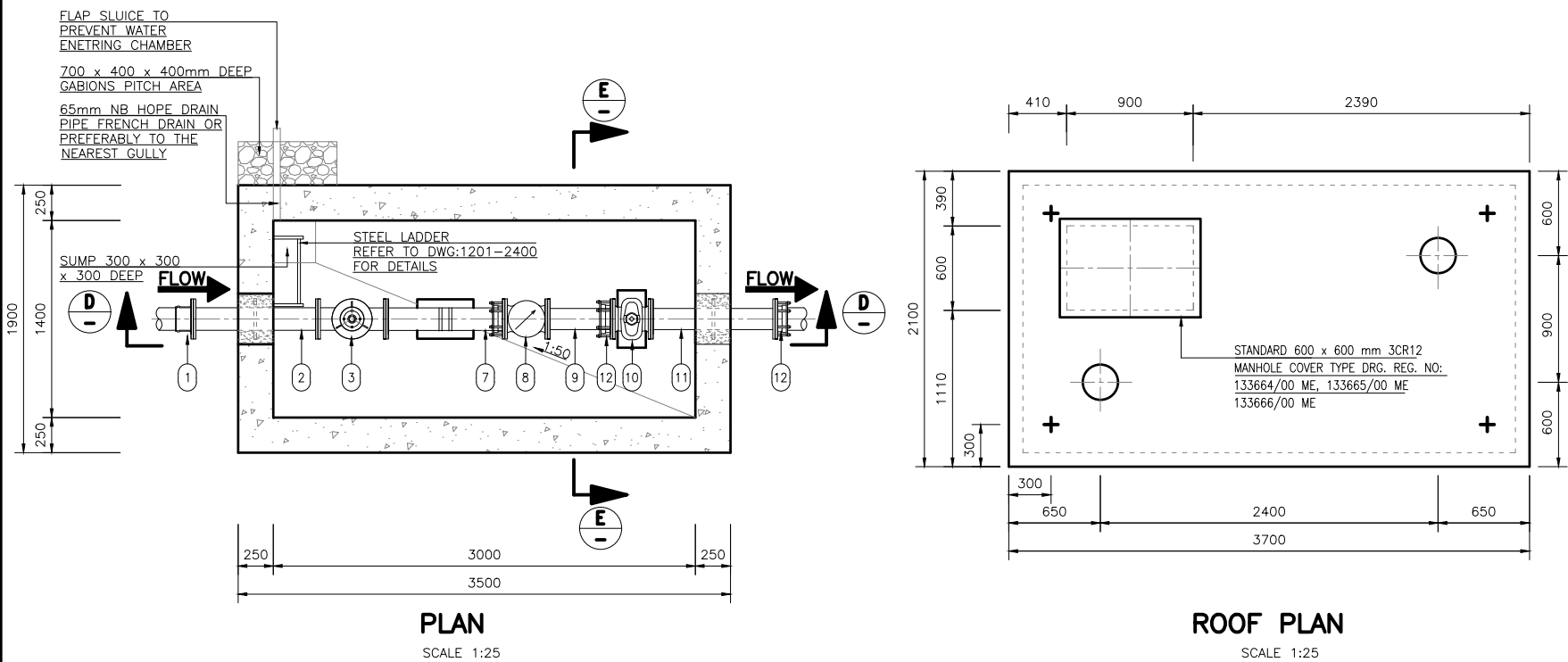


 TANGO'S CONSULTANTS <small>A division of Tango's Group (PTY) Limited</small>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
DESIGN: M.T		DATE: 23/06/21	
CHECKED: DATE: DRAWN: A.P		N/A	
ENGINEER: DATE: EXTERNAL APPROVAL: DATE:		N/A	
CHIEF ENGINEER / APP (Pr. Eng): DATE: DIRECTOR (Pr. Eng): DATE:		N/A	
TANGO'S DWG No: FILE No: C1201-1255		DATE: 23/06/21	

REVISION			
MOD No	DATE	DESCRIPTION	FOR DWA
01	23/06/21	ISSUED FOR CONSTRUCTION	

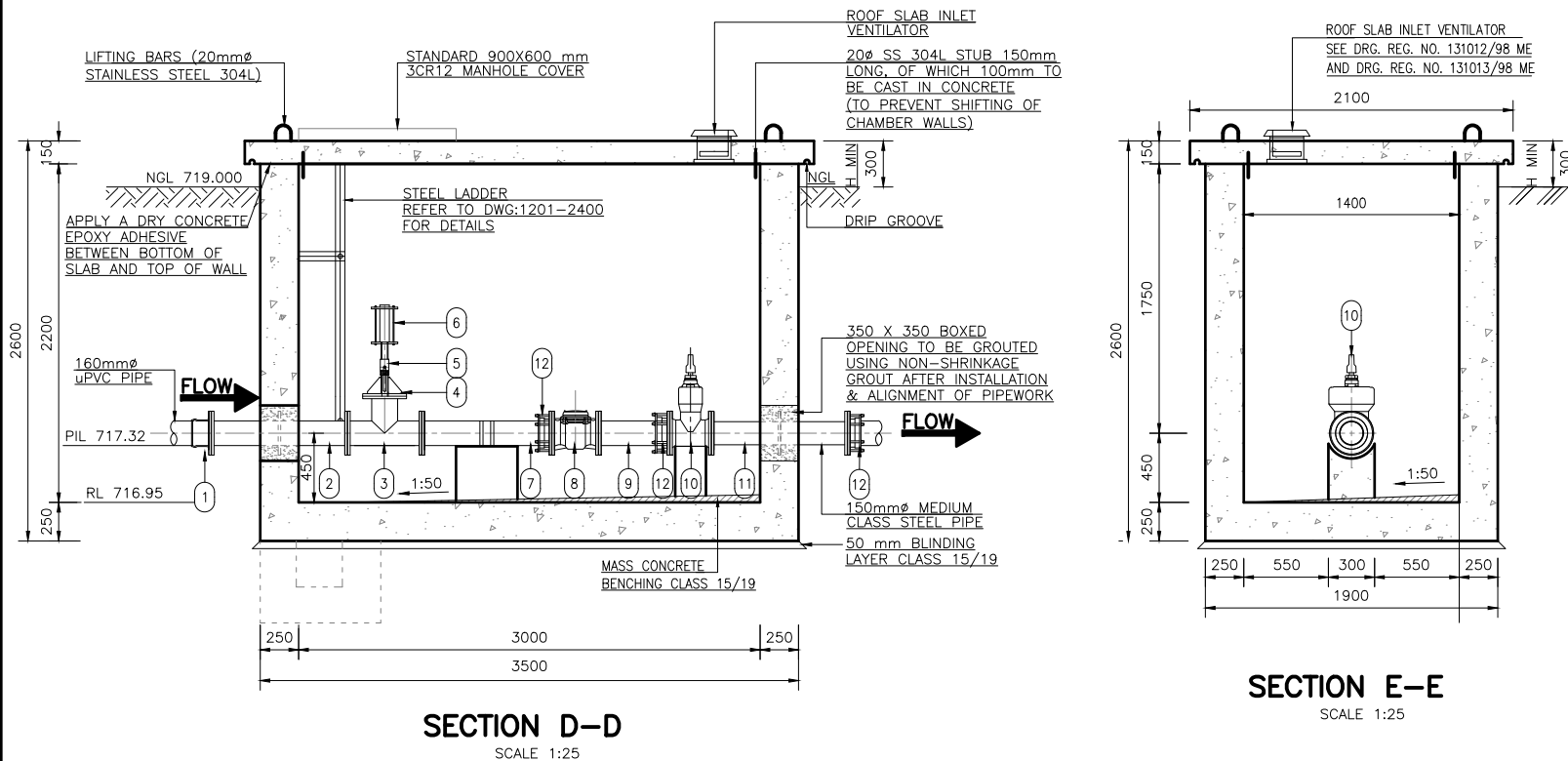
 LEPELLE NORTHERN WATER <small>Water & Sanitation</small>		01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
 DEPARTMENT OF WATER AND SANITATION <small>Department of Water and Sanitation REPUBLIC OF SOUTH AFRICA</small>		49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:									
BABANANA PIPELINE PROJECT RS 135									
WORK PACKAGE 9: XIHOKO RESERVOIRS 600KI MOTHOMENG RESERVOIR SECTION C-C									
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	5 OF 7	REG. No.	C1201-1255	REV.	01
CALCULATION FILE:									



NOTES.

POSITION OF THE CHAMBER MUST BE DECIDED ON SITE ACCORDING TO THE TERRAIN SLOPE



NOTES

1. **FLANGES:**

1.1. ALL DRILLED FLANGES' THICKNESS TO SANS 1123, TYPE 3, AND FOR CLASSIFICATION REFER TO THE RELEVANT DRAWING: FLANGES TO BE DRILLED OFF-CENTRE AND TO BE FLAT JOINT FACES MACHINED N11.

1.2. PUDDLE FLANGES: SAME TYPE AND OD AS DRILLED FLANGES. FLAT FACES.

1.3. ANCHOR/TRUST FLANGES: SAME TYPE AND OD. 't' AS DRILLED FLANGES. FLAT FACED.

1.4. COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DWS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).

2. **FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:**

2.1. FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINTS, TOP AND BOTTOM.

3. **CORROSION PROTECTION:**

3.1. **LINING:**

PIPES 250 & 300 mm NB: CEMENT MORTAR LINING; THICKNESS, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 17. PIPES 50, 80 AND 150 mm NB: TWO PACK EPOXY, 0,400 mm THICK; MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 7 AND 8.

3.2. **COATING:** TWO PACK EPOXY, 0,300 mm THICK. MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0,040 mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT BRILLIANT GREEN TO SABS 1091 CODE-H10.

3.3. **FLANGE FACES:** TWO PACK EPOXY 0,060 – 0,090 mm.

3.4. **FASTENERS FOR STAINLESS STEEL BALL VALVES:** HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTISEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.

4. **GENERAL:**

4.1. REPAIRS OF PIPE ENDS LINING TO BE IN ACCORDANCE WITH DETAIL 'Y' AND DWS 9900.

4.2. PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL 'Y' AND DWS 9900.

4.3. CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.

4.4. PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 20%.

4.5. ALLOW FOR THREE THICK GASKETS BETWEEN THE FLANGES.

4.6. CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING COUPLINGS.

4.7. PROVIDE LIFTING LUGS WHERE REQUIRED.

CONCRETE & MISCELLANEOUS

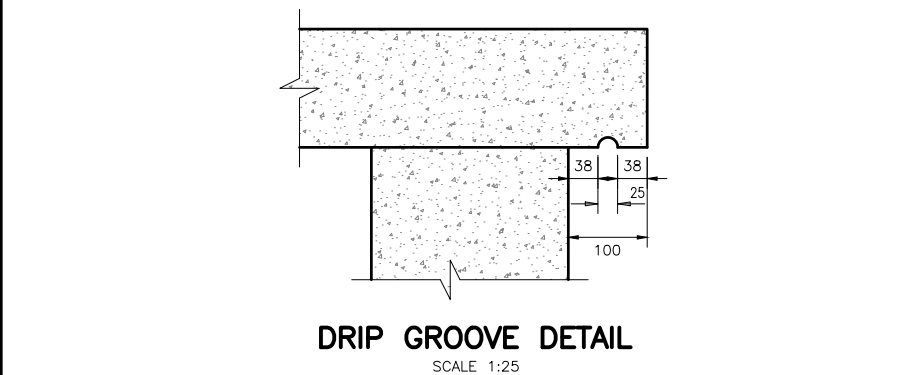
1. ALL EXPOSED CONCRETE EDGES TO BE 25 mm CHAMFERED.



2. CONCRETE VOLUME: CLASS 25/19 = 20,0 m.
CLASS 15/19 = 1,0 m.

3. ALL EXPOSED METALWORK TO BE 3CR12 AND LEFT UNPAINTED.

4. BACKFILL BELOW CHAMBER TO BE COMPACTED IN 200 mm LAYERS TO BE 95% MOD AASHTO.

ITEM No.	No. OFF	DIA(mm) NB	MATERIAL	DESCRIPTION	SKETCH	CORROSION PROTECTION		
						LINING	COATING	FLANGES
1	1			STANDARD SG FLANGE ADAPTOR. PN 16				
2	1	150	STEEL	STRAIGHT PIPE BOTH ENDS FLANGED. ANCHOR FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
3	1	150	STEEL	STANDARD EQUAL TEE. PN 16		3.1	3.2	3.3
4	1			SPECIAL REDUCER: STANDARD NB BLANK FLANGE WITH 25 mm NB STUB 125 mm LONG, WELDED IN THE CENTRE OF THE BLANK FLANGE. THREAD END OF THE STUB TO CONFIRM BALL VALVE THREADS SPEC. STUB FLANGED WITH 3 X 5 mm M.S. GUSSET PLATES. PN 16.				
5	1			BALL VALVE 25mm TO BE PN16, ASSEMBLY FOR VALVE CONNECTION TO uPVC OR HDPE PIPE.				
6	1	\varnothing 25		AIR VALVE : 25 mm NB SCREWED DOUBLE ORIFICE AIR VALVE PN 16				
7	1		STEEL	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
8	1			MECHANICAL TURBINE FLOW METER OR SIMILAR APPROVED PN 16				
9	1		STEEL	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
10	1	150		STANDARD WEDGE TYPE GATE VALVE. PN 16				
11	1	150	STEEL	STRAIGHT PIPE BOTH ENDS FLANGED. ANCHOR FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
12	2	160		FLANGE ADAPTOR PN 16				

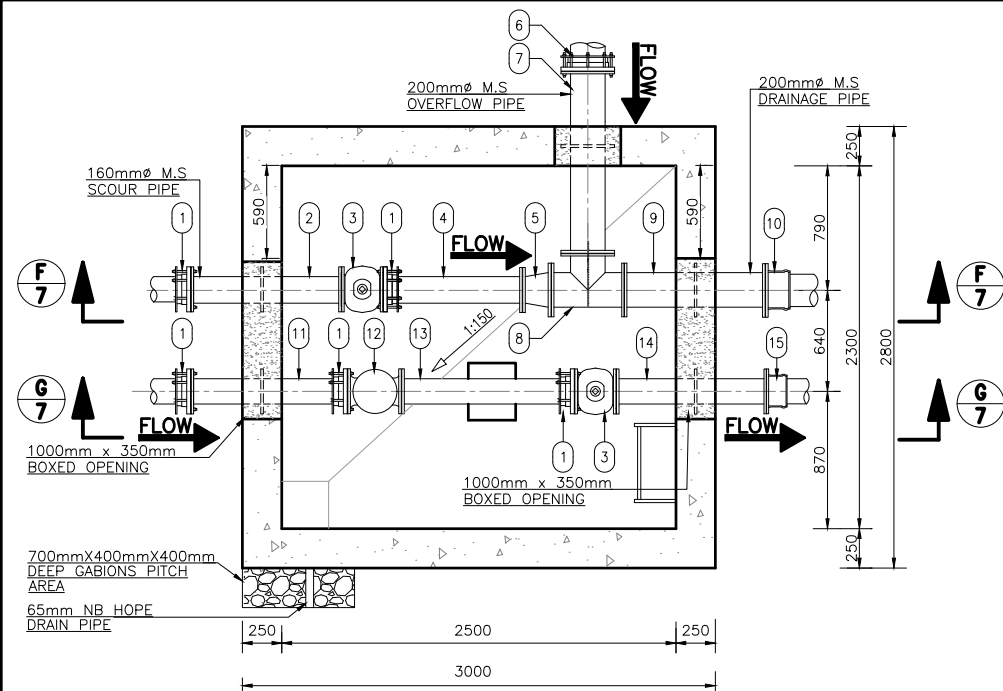


 TANGO'S CONSULTANTS <i>A division of Tango's Group (PTY) Limited</i>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900		REVISION				LEPELLE NORTHERN WATER	
MOD No		DATE		DESCRIPTION		FOR		DWA	
01		23/06/21		ISSUED FOR CONSTRUCTION					
CHECKED:		DATE:		DESIGN: M,T DRAWN: A,P				 LEPELLE NORTHERN WATER <i>Water in our solutions</i>	
ENGINEER:		DATE:		EXTERNAL APPROVAL: N/A					
N/A									
CHIEF ENGINEER / APP (Pr. Eng):		DATE:		DIRECTOR (Pr. Eng):					
TANGO'S DWG No:		FILE No:		C1201-1256					
		DATE:		23/06/21					
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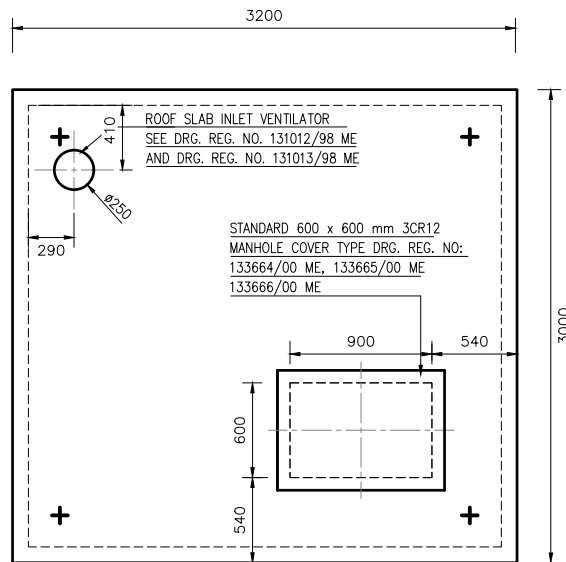
GLeWaP-PHASE 1:							
BABANANA PIPELINE PROJECT RS 135							
WORK PACKAGE 9: XIHOKO RESERVOIRS 600kl MOTHOMENG RESERVOIR INLET CHAMBERS PLANS, SECTIONS AND PIPE LIST							
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	6 OF 7	REV. No.	
CALCULATION FILE:							

C1201-1256

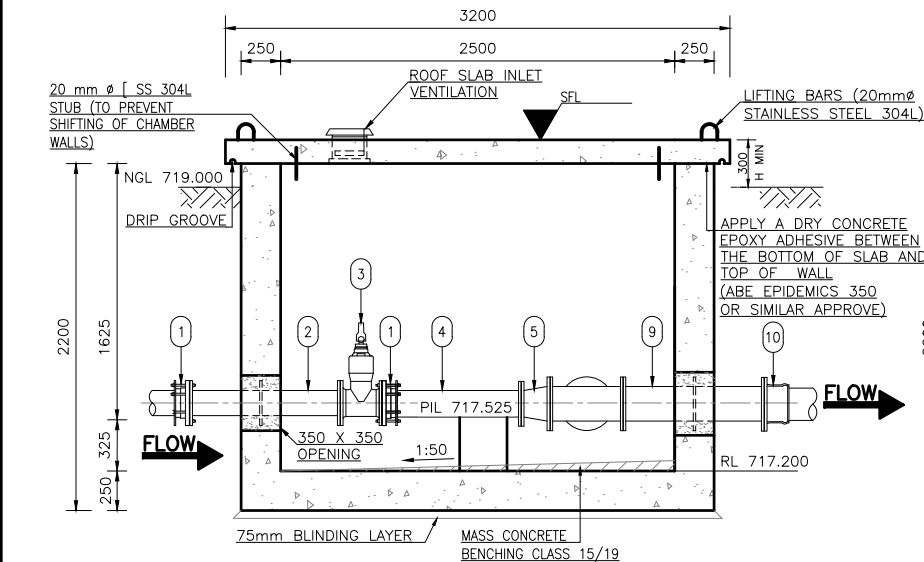
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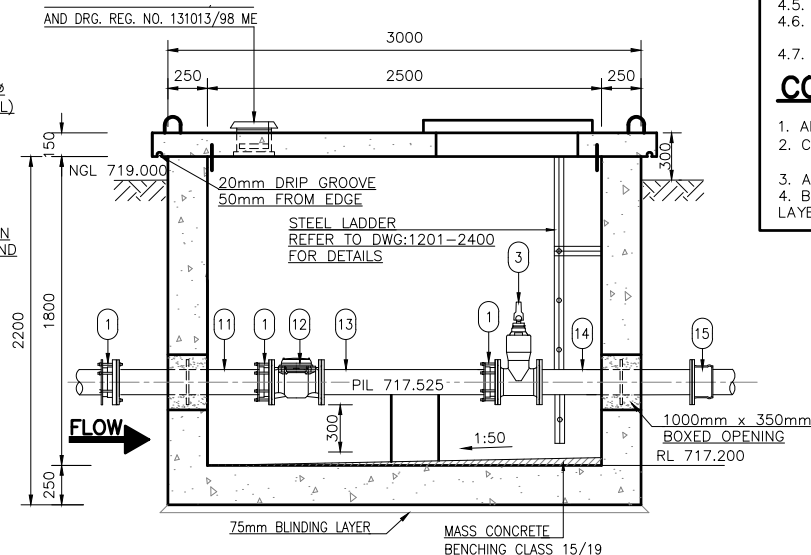
PLAN
SCALE 1:25



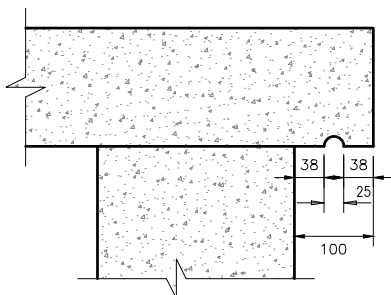
ROOF PLAN
SCALE 1:25



SECTION F-F
SCALE 1:25



SECTION G-G
SCALE 1:25



DRIP GROOVE DETAIL
SCALE 1:25

NOTES

- FLANGES:
 - ALL DRILLED FLANGES' THICKNESS TO SANS 1123, TYPE 3, AND FOR CLASSIFICATION REFER TO THE RELEVANT DRAWING: FLANGES TO BE DRILLED OFF-CENTRE AND TO BE FLAT JOINT FACES MACHINED N11.
 - PUDDLE FLANGES: SAME TYPE AND OD AS DRILLED FLANGES. FLAT FACES.
 - ANCHOR/TRUST FLANGES: SAME TYPE AND OD. 't' AS DRILLED FLANGES. FLAT FACED.
 - COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DWS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
- FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:
 - FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINTS, TOP AND BOTTOM.
- CORROSION PROTECTION:
 - 3.1. LINING:
 - PIPES 250 & 300 mm NB: CEMENT MORTAR LINING; THICKNESS, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 17.
 - PIPES 50, 80 AND 150 mm NB: TWO PACK EPOXY, 0,400 mm THICK; MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 7 AND 8.
 - 3.2. COATING: TWO PACK EPOXY, 0,300 mm THICK. MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0,040 mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT BRILLIANT GREEN TO SABS 1091 CODE-H10.
 - 3.3. FLANGE FACES: TWO PACK EPOXY 0,060 – 0,090 mm.
 - 3.4. FASTENERS FOR STAINLESS STEEL BALL VALVES: HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTISEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
- GENERAL:
 - 4.1. REPAIRS OF PIPE ENDS LINING TO BE IN ACCORDANCE WITH DETAIL 'Y' AND DWS 9900.
 - 4.2. PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL 'Y' AND DWS 9900.
 - 4.3. CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
 - 4.4. PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 20%.
 - 4.5. ALLOW FOR THREE THICK GASKETS BETWEEN THE FLANGES.
 - 4.6. CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING COUPLINGS.
 - 4.7. PROVIDE LIFTING LUGS WHERE REQUIRED.

CONCRETE & MISCELLANEOUS

- ALL EXPOSED CONCRETE EDGES TO BE 25 mm CHAMFERED.
- CONCRETE VOLUME: CLASS 25/19 = 20,0 m.
CLASS 15/19 = 1,0 m.
- ALL EXPOSED METALWORK TO BE 3CR12 AND LEFT UNPAINTED.
- BACKFILL BELOW CHAMBER TO BE COMPACTED IN 200 mm LAYERS TO BE 95% MOD AASHTO.

NOTES.

POSITION OF THE CHAMBER MUST BE DECIDED ON SITE ACCORDING TO THE TERRAIN SLOPE

ITEM No.	No. OFF	DIA(mm) NB	MATERIAL	DESCRIPTION	SKETCH	CORROSION PROTECTION		
						LINING	COATING	FLANGES
1	5	150		FLANGE ADAPTOR PN 16				
2	1	150	STEEL	STRAIGHT PIPE BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
3	2	150		WEDGE GATE VALVE. PN 16				
4	1	150	STEEL	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
5	1	150/200		CONCENTRIC REDUCER FLANGED. PN 16		3.1	3.2	3.3
6	1	200		FLANGE ADAPTOR PN 16				
7	1	200	STEEL	STRAIGHT PIPE BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
8	1	200	STEEL	EQUAL TEE. PN 16		3.1	3.2	3.3
9	1	200	STEEL	STRAIGHT PIPE BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
10	1	200		STANDARD SG FLANGE ADAPTOR. PN 16				
11	1	150	STEEL	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
12	1	150		MECHANICAL TURBINE FLOW METER OR SIMILAR APPROVED PN 16				
13	1	150	STEEL	STRAIGHT PIPE ONE END FLANGED THE OTHER CUT TO SUIT ON SITE. PN 16		3.1	3.2	3.3
14	1	150	STEEL	STRAIGHT PIPE BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 16		3.1	3.2	3.3
15	1	150		STANDARD SG FLANGE ADAPTOR. PN 16				

SCALE 1:25

TANGO'S CONSULTANTS <i>A division of Tango's Group (PTY) Limited</i>		122 DIE MEER STREET BENDOR, POLOKWANE 0699 Tel. No 015-298 8828 Fax No. 015-295 3900	
CHECKED:	DATE:	DESIGN: M.T	DRAWN: A.P
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
N/A		N/A	
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No: C1201-1257	DATE: 23/06/21	

REVISION			
MOD No	DATE	DESCRIPTION	FOR DWA
01	23/06/21	ISSUED FOR CONSTRUCTION	

LEPELLE NORTHERN WATER 01 LANDROS MARE STREET POLOKWANE, 0700 P. BAG X9522 POLOKWANE TEL: (015) 295 1800	
DEPARTMENT OF WATER AND SANITATION 49 JOUBERT STREET POLOKWANE, 0700 P. BAG X9506 POLOKWANE TEL: (015) 290 1200	

GLeWaP-PHASE 1:					
BABANANA PIPELINE PROJECT RS 135					
WORK PACKAGE 9: XIHOKO RESERVOIRS 600kl MOTHOMENG RESERVOIR OUTLET CHAMBERS PLANS, SECTIONS AND PIPE LIST					
PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	- - - - - OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	REG. No.
CALCULATION FILE:				7 OF 7	C1201-1257
					01

PIPES AND SPECIALS: CONNECTION AT PUMP STATION									
ITEM	NO. OFF	DIA NB	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
①	1	200ø	GRADE X42	4.5	BELLMOUTH WELDED TO A SHORT RADIUS ELBOW PN 600 kPa		3.1	3.2	3.3
②	1	200ø	GRADE X42	4.5	MEDIUM RADIUS 90° ELBOW ONE END FLANGED OTHER WELDED TO A BELLMOUTH PN 600 kPa		3.1	3.2	3.3
③	1	200ø	GRADE X42	4.5	STRAIGHT PIPE BOTH ENDS FLANGED, PUDDLE FLANGE AS INDICATED. PN 1600kPa		3.1	3.2	3.3
④	1	150ø		4.2	CONTROL VALVE. PN 1600kPa		3.1	3.2	3.3
⑤	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE BOTH ENDS FLANGED,PUDDLE FLANGE AS INDICATED. PN 1600kPa		3.1	3.2	3.3
⑥	4	150ø	STEEL CLASS MEDIUM	4.2	SHORT RADIUS 90° ELBOW BOTH ENDS FLANGED OTHER WELDED PN 1600 kPa		3.1	3.2	3.3
⑦	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE,BOTH ENDS FLANGED PN 1600 kPa		3.1	3.2	3.3
⑧	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, ONE END FLANGED THE OTHER PLAIN TO CUT TO SUIT ON SITE PN 1600 kPa		3.1	3.2	3.3
⑨	6	150ø		4.2	FLANGE ADAPTOR PN 600 kPa		3.1	3.2	3.3
⑩	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE ONE END FLANGED OTHER PLAIN FOR PUDDLE FLANGE CUTTING TO SUIT ON SITE, PN 1600 kPa		3.1	3.2	3.3
⑪	2	150ø			RESILIENT SEAL GATE VALVE PN 600 kPa		3.1	3.2	3.3
⑫	1	150ø	STEEL CLASS MEDIUM	4.2	AIR VALVE TEE: PN 600 kPa		3.1	3.2	3.3
⑬	2	150ø			BLANK FLANGE: 150mm NB FITTED WITH 25mm NB SS NIPPLE SCREWED TO SUIT SS BALL VALVE THREADS. PN 600 kPa		3.1	3.2	3.3
⑭	2	150ø			BALL VALVE:80mm NB FLANGED SPHERICAL BALL VALVE. PN 1600 kPa		3.1	3.2	3.3
⑮	2	150ø			DOUBLE ORIFICE AIR VALVE PN 600 kPa		3.1	3.2	3.3
⑯	2	150ø			MECHANICAL TURBINE FLOW METER, FLANGED PN 600 kPa		3.1	3.2	3.3

PIPES AND SPECIALS: CONNECTION AT PUMP STATION									
ITEM	NO. OFF	DIA NB	MATERIAL	WALL THK (mm)	DESCRIPTION	SKETCH	PROTECTION		
							LINING	COATING	FLANGES
⑰	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED PN 600 kPa		3.1	3.2	3.3
⑱	2	150ø			SG FLANGE ADAPTOR		3.1	3.2	3.3
⑲	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE ONE END FLANGED, PUDDLE FLANGE AS INDICATED PN 600kPa		3.1	3.2	3.3
⑳	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, ONE END FLANGED THE OTHER PLAIN TO CUT TO SUIT ON SITE PN 600 kPa		3.1	3.2	3.3
㉑	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE,BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 1600 kPa		3.1	3.2	3.3
㉒	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, ONE END FLANGED THE OTHER PLAIN TO CUT TO SUIT ON SITE PN 600 kPa		3.1	3.2	3.3
㉓	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, ONE END FLANGED THE OTHER PLAIN TO CUT TO SUIT ON SITE PN 600 kPa		3.1	3.2	3.3
㉔	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, BOTH ENDS FLANGED. PUDDLE FLANGE AS INDICATED. PN 600 kPa		3.1	3.2	3.3
㉕	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE,BOTH ENDS FLANGED PUDDLE FLANGE AS INDICATED. PN 600 kPa		3.1	3.2	3.3
㉖	1	150ø	STEEL CLASS MEDIUM	4.2	STRAIGHT PIPE, ONE END FLANGED, OTHER PLAIN TO WELD TO LOOSE FLANGE ON SITE PN 600 kPa		3.1	3.2	3.3
㉗	1	150ø	STEEL CLASS MEDIUM	4.2	EQUAL TEE. FLANGED PN 600 kPa		3.1	3.2	3.3
㉘	1	200ø			FLANGE ADAPTOR PN 600 kPa		3.1	3.2	3.3
㉙	1	150ø	STEEL CLASS MEDIUM	4.2	BELL MOUTH/ELBOW PN 600 kPa		3.1	3.2	3.3

NOTES:

1. **FLANGES:**
1.1. ALL DRILLED FLANGES' THICKNESS TO SANS 1123, TYPE 3, AND FOR CLASSIFICATION REFER TO THE RELEVANT DRAWING:
FLANGES TO BE DRILLED OFF-CENTRE AND TO BE FLAT JOINT FACES MACHINED N11.
1.2. PUDDLE FLANGES: SAME TYPE AND OD AS DRILLED FLANGES. FLAT FACES.
1.3. ANCHOR/TRUST FLANGES: SAME TYPE AND OD. 't' AS DRILLED FLANGES. FLAT FACED.
1.4. COUPLINGS BURIED IN SOIL TO BE PROTECTED IN ACCORDANCE WITH DWS 9900, SECTION 13 (COATING SYSTEM PLUS PETROLATUM WRAPPING).
2. **FASTENERS FOR STAINLESS STEEL BALL VALVES ONTO MILD STEEL FLANGES:**
2.1. FASTENERS SHALL BE STAINLESS STEEL ON BOTH JOINTS, TOP AND BOTTOM.
3. **CORROSION PROTECTION:**
3.1. **LINING:**
PIPES 250 & 300 mm NB: CEMENT MORTAR LINING; THICKNESS, MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 7 AND 8.
PIPES 50, 80 AND 150 mm NB: TWO PACK EPOXY, 0,400 mm THICK; MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900, CLAUSES 7 AND 8.
3.2. **COATING:** TWO PACK EPOXY, 0,300 mm THICK. MATERIALS, SURFACE PREPARATION AND APPLICATION AS PER DWS 9900 CLAUSES 7 AND 8. OVERCOAT WITH A 0,040 mm THICK RECOATABLE ALIPHATIC POLYURETHANE LAYER OF PAINT BRILLIANT GREEN TO SABS 1091 CODE-H10.
3.3. **FLANGE FACES:** TWO PACK EPOXY 0,060 – 0,090 mm.
3.4. **FASTENERS FOR STAINLESS STEEL BALL VALVES:** HEADS AND SHANKS AREAS OF BOLTS, NUTS AND WASHERS SHALL BE EPOXY POWDER COATED TO DFT 50 MICRONS. THREADS SHALL BE PROTECTED WITH MOLYBDENUM DISULPHIDE LUBRICANT OR A NICKEL ANTISEIZE COMPOUND. THREAD OF THE BOLTS MUST BE ON THE STAINLESS STEEL FLANGE.
4. **GENERAL:**
4.1. REPAIRS OF PIPE ENDS LINING TO BE IN ACCORDANCE WITH DETAIL 'Y' AND DWS 9900.
4.2. PROTECT PIPE IN THE CHAMBER WALL AS PER DETAIL 'Y' AND DWS 9900.
4.3. CHECK THAT PIPE SPECIALS FIT CORRECTLY IN THE CHAMBER BEFORE MANUFACTURE.
4.4. PIPE SPECIALS TO BE CUT ON SITE SHALL BE MANUFACTURED WITH AN EXTRA LENGTH OF 20%.
4.5. ALLOW FOR THREE THICK GASKETS BETWEEN THE FLANGES.
4.6. CHECK DIMENSIONS OF THE EXISTING PIPELINE BEFORE ORDERING COUPLINGS.
4.7. PROVIDE LIFTING LUGS WHERE REQUIRED.

CONCRETE & MISCELLANEOUS

1. ALL EXPOSED CONCRETE EDGES TO BE 25 mm CHAMFERED.
2. CONCRETE VOLUME: CLASS 25/19 = 20,0 m.
CLASS 15/19 = 1,0 m.
3. ALL EXPOSED METALWORK TO BE 3CR12 AND LEFT UNPAINTED.
4. BACKFILL BELOW CHAMBER TO BE COMPACTED IN 200 mm LAYERS TO BE 95% MOD AASHTO.



122 DEMIERS STREET
BENDOR, POLOKWANE
0699
Tel. No 015-298 8828
Fax No. 015-295 3900

CHECKED:	DATE:	DESIGN: M.T	DRAWN: A.P
ENGINEER:	DATE:	EXTERNAL APPROVAL:	DATE:
N/A			
CHIEF ENGINEER / APP (Pr. Eng):	DATE:	DIRECTOR (Pr. Eng):	DATE:
TANGO'S DWG No:	FILE No:	C1201-1264	DATE:
		18/03/21	

REVISION

MOD No	DATE	DESCRIPTION	FOR	DWA
01	18/03/21	ISSUED FOR CONSTRUCTION		

LEPELLE NORTHERN WATER



01 LANDROS MARE STREET
POLOKWANE, 0700
P. BAG X9522
POLOKWANE
TEL: (015) 295 1800

DEPARTMENT OF WATER AND SANITATION



49 JOUBERT STREET
POLOKWANE, 0700
P. BAG X9506
POLOKWANE
TEL: (015) 290 1200

GLWaP-PHASE 1:

BABANANA PIPELINE PROJECT RS 135

WORK PACKAGE 9: XIHOKO RESERVOIRS
200KL RESEVOIR AT MOOKGO 6
LIST OF PIPE SPECIALS

PROVINCE:	LIMPOPO	DISTRICT:	MOPANI	KEYCODES:	-	-	-	-	-	OTHER
LOCALITY No:	B801-AT	TENDER/ CONTRACT No.		SHEET	5 OF 5	REG. No.				
CALCULATION FILE:										

C1201-1264

01