

NKANGALA DISTRICT MUNICIPALITY



CONSTRUCTION OF THE LOSKOP REGIONAL BULK
WATER SUPPLY SCHEME IN THEMBISILE HANI
LOCAL MUNICIPALITY - WORK PACKAGE 4
(CONSTRUCTION OF 2x10ML CONCRETE
RESERVOIR)
PROJECT No: 150362/4

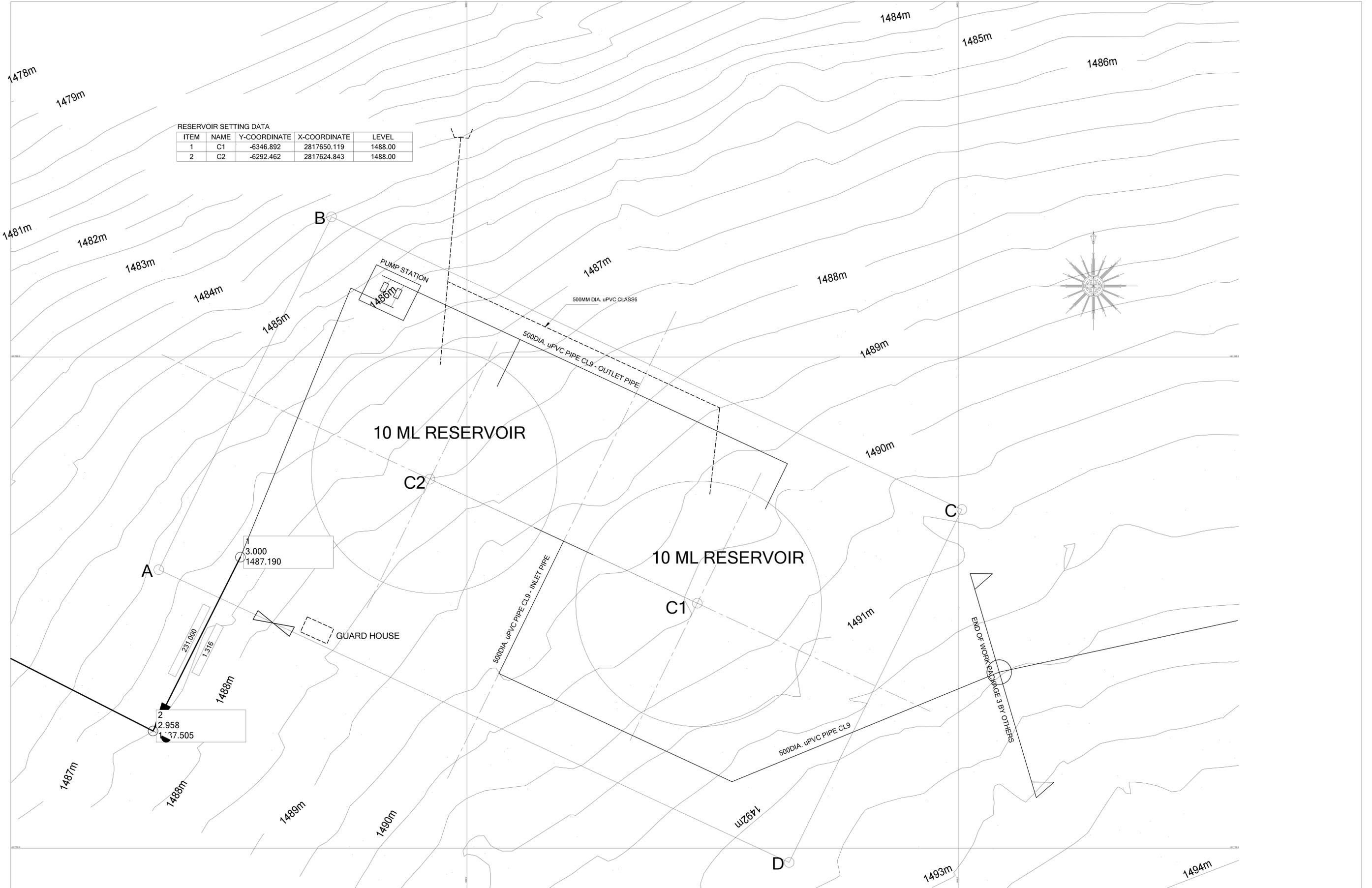
TENDER DRAWINGS

REDUCED BOOK OF DRAWINGS



PO BOX 6838
NELSPRUIT
1200

TEL: 013 752 4616
FAX: 013 752 6166



RESERVOIR SETTING DATA

ITEM	NAME	Y-COORDINATE	X-COORDINATE	LEVEL
1	C1	-6346.892	2817650.119	1488.00
2	C2	-6292.462	2817624.843	1488.00

3.000
1487.190

2
2.958
1.37.505

DRAWING CHECKED: N. MABUZA
DRAWN BY: M.P. KANGUDI
DESIGN CHECKED: M.P. KANGUDI
DESIGNED BY: N. MABUZA

MONDE CONSULTING ENGINEERS
27 HENDRIK POTGIETER STR
NELSPRUIT
1200
Tel: 013 752 4616
Fax: 013 752 6166

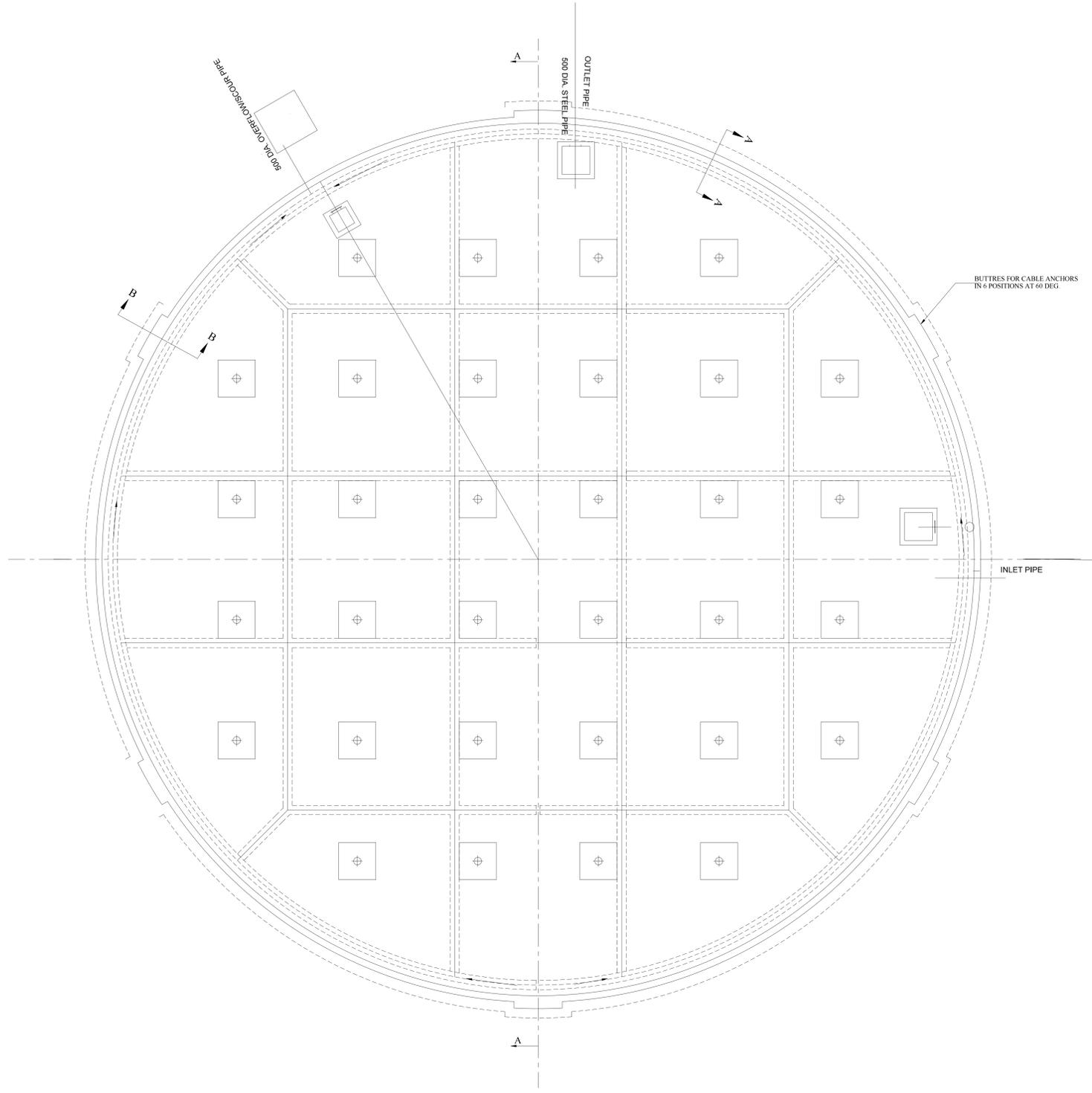
No.	AMENDMENTS	DRAWN	APPROVED	DATE
01	PRELIMINARY DRAWING			03/2020
02	DETAIL DRAWING			05/2020
03	DETAIL DRAWING REV1			01/2022
04	TENDER DRAWING			05/2022

CLIENT
NKANGALA DISTRICT MUNICIPALITY
2A WATER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2004

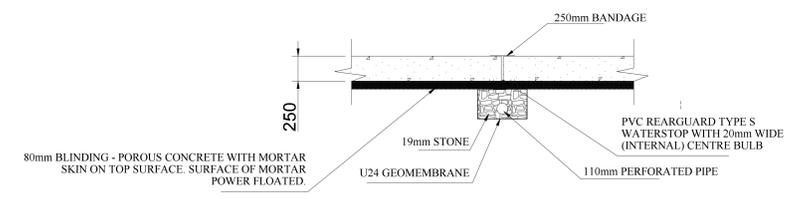
PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4
RESERVOIR SITE LAYOUT

SCALES
AS SHOWN
DRAWING No.
MONDE/W/20/01/DR01

- NOTES:**
- CONCRETE:
 - (i) WALL FOOTING CLASS 35/19
 - (ii) WALL CLASS 35/19
 - (iii) FLOOR SLAB CLASS 35/19
 - (iv) ROOF SLAB CLASS 35/19
 - (v) BLINDING CLASS 15/19
 - COVER TO REINFORCEMENT 40mm
 - EXCAVATIONS:
 - (i) EXCAVATE IN NATURAL GROUND AS SHOWN.
 - (ii) FINAL EXCAVATION DEPTH WILL BE DETERMINED ON THE SITE.
 - (iii) RECOMPACT SUITABLE EXCAVATED MATERIAL AS APPROVED BY THE ENGINEER ON SITE.
 - (iv) IMPORT SUITABLE APPROVED MATERIAL IF NECESSARY.

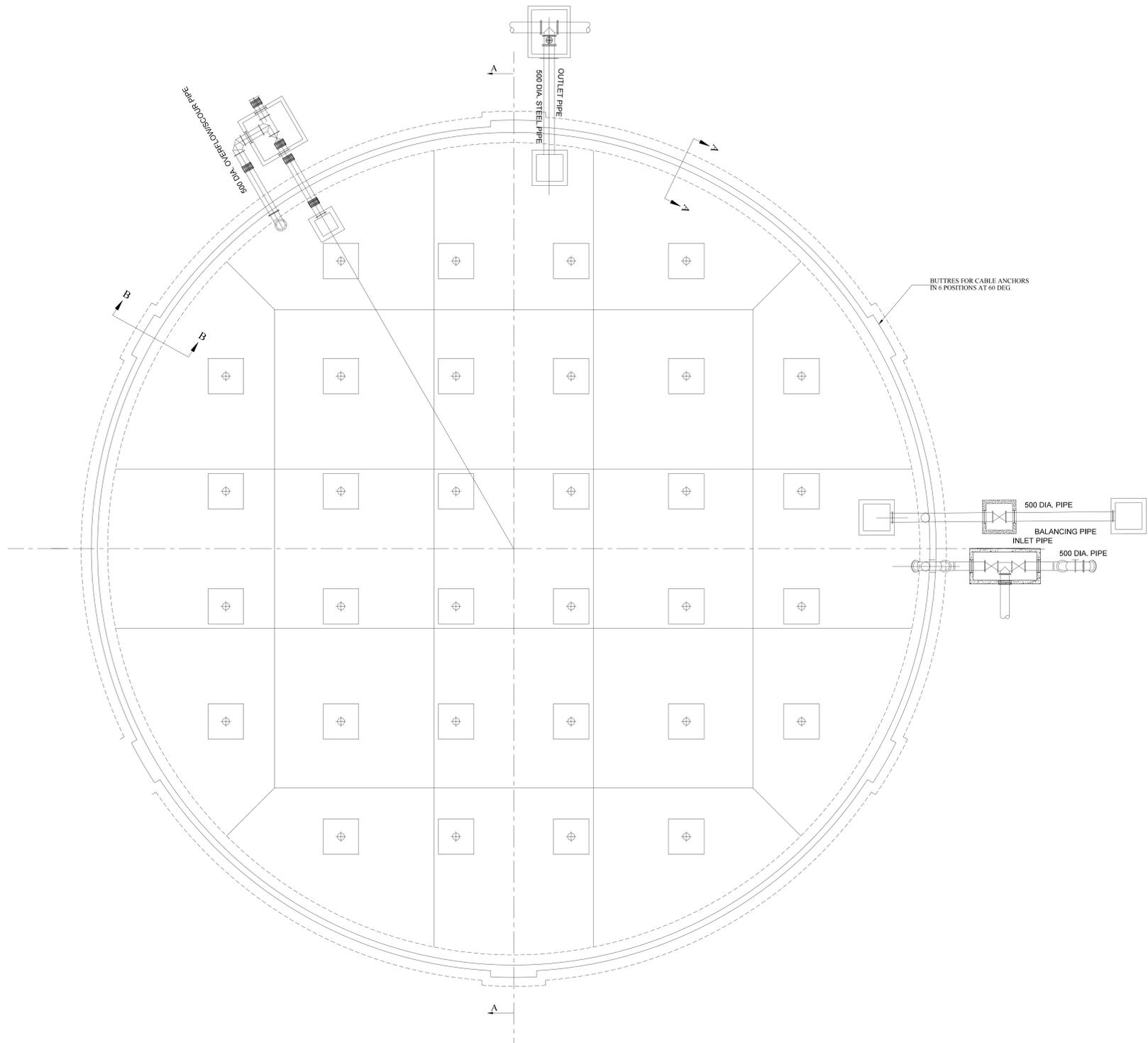


PLAN VIEW: SUBSOIL LAYOUT
SCALE 1 : 100



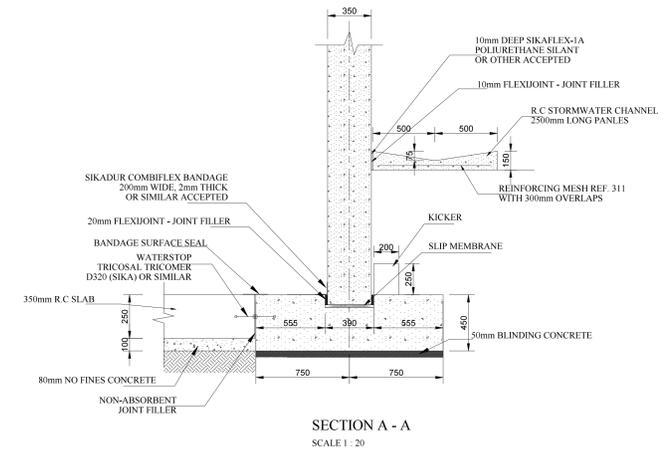
EXPANSION JOINT DETAIL
SCALE 1 : 25

DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			05/2020	NKANGALA DISTRICT MUNICIPALITY	RESERVOIR SUBSOIL DRAINAGE LAYOUT	AS SHOWN
DESIGN CHECKED: M.P. KANGUDI		02	DETAIL DRAWING			05/2020	 2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004		DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			05/2022			MONDE/W/20/01/DR02

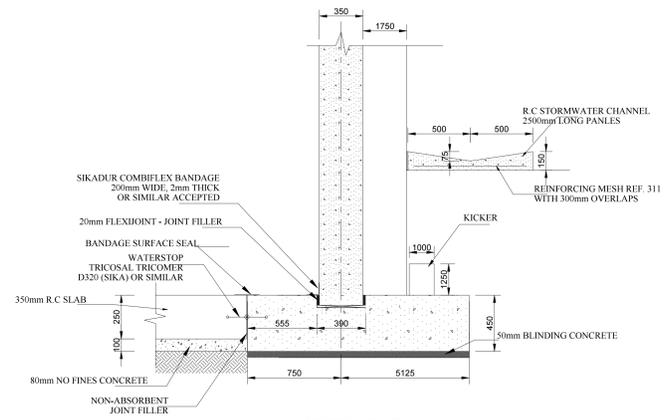


FOUNDATION LAYOUT
SCALE 1 : 100

- NOTES:
- CONCRETE:
 - (i) WALL FOOTING CLASS 35/19
 - (ii) WALL CLASS 35/19
 - (iii) FLOOR SLAB CLASS 35/19
 - (iv) ROOF SLAB CLASS 35/19
 - (v) BLINDING CLASS 15/19
 - COVER TO REINFORCEMENT 40mm
 - EXCAVATIONS:
 - (i) EXCAVATE IN NATURAL GROUND AS SHOWN
 - (ii) FINAL EXCAVATION DEPTH WILL BE DETERMINED ON THE SITE
 - (iii) RECOMPACT SUITABLE EXCAVATED MATERIAL AS APPROVED BY THE ENGINEER ON SITE
 - (iv) IMPORT SUITABLE APPROVED MATERIAL IF NECESSARY

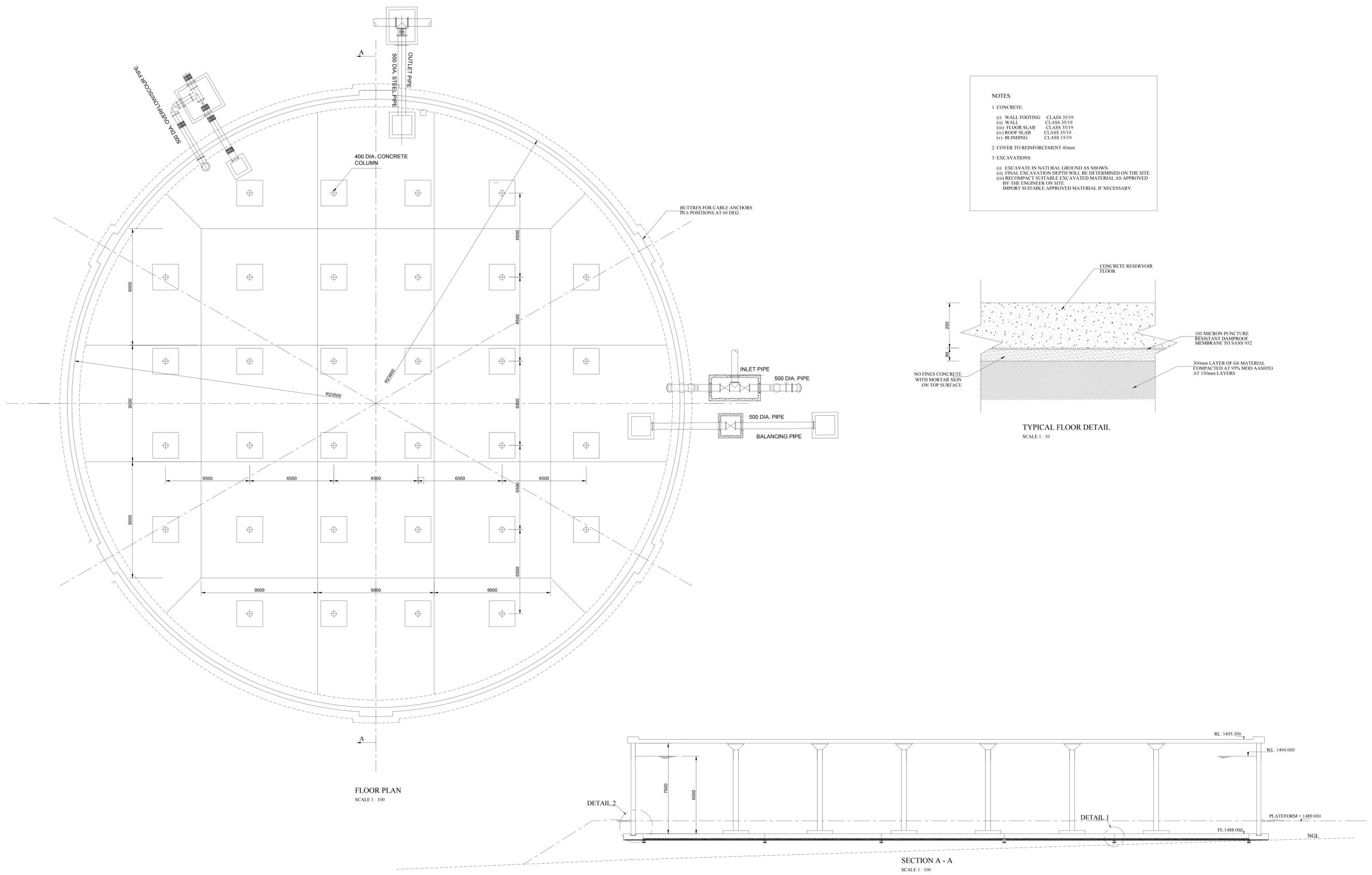


SECTION A - A
SCALE 1 : 20

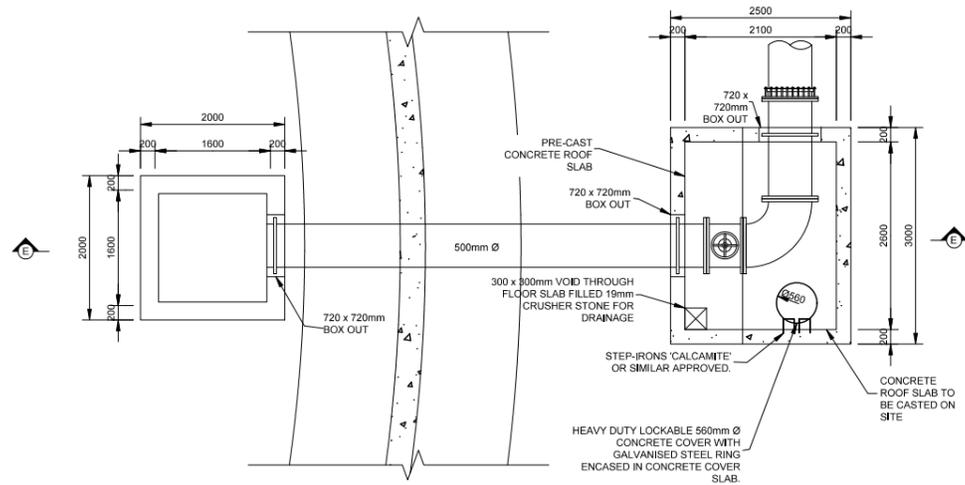


SECTION B - B
SCALE 1 : 20

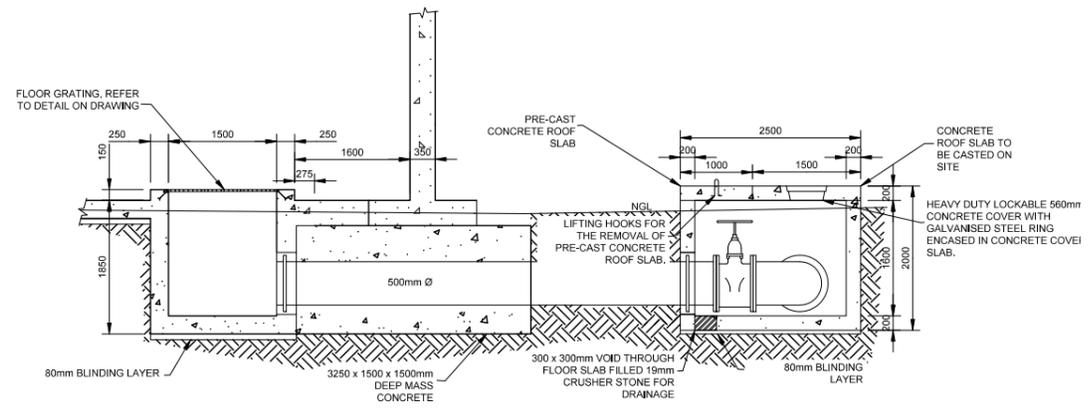
DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			05/2020	NKANGALA DISTRICT MUNICIPALITY	RESERVOIR LAYOUT- FOUNDATION DETAIL	AS SHOWN
DESIGN CHECKED: M.P. KANGUDI		02	DETAIL DRAWING			05/2020	2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004		DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			09/2022			MONDE/W/20/01/DR03



DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166 	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			05/2020	NKANGALA DISTRICT MUNICIPALITY		AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			05/2020	2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004	RESERVOIR LAYOUT- FLOOR PLAN AND SECTION	DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			06/2022			MONDE/W/20/01/DR04



PLAN OF OUTLET PIPEWORK
SCALE 1:50



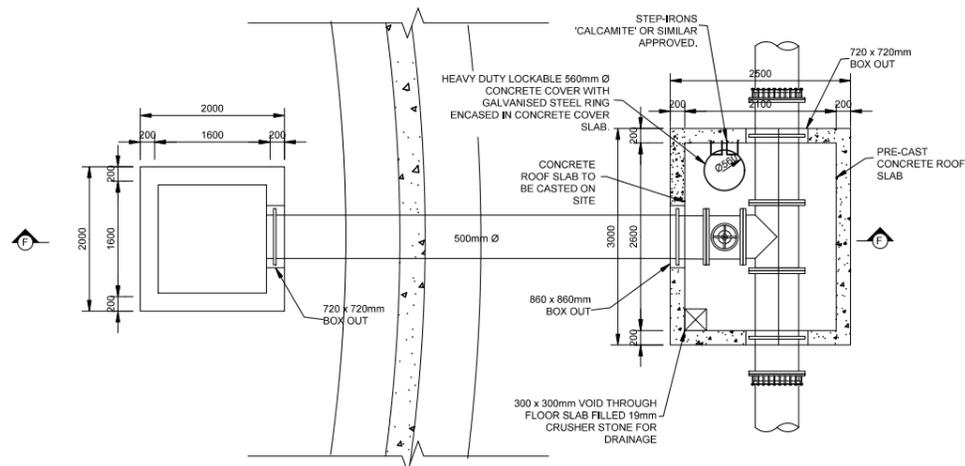
SECTION E - E : DETAILED SECTION OF OUTLET PIPEWORK
SCALE 1:50

CONCRETE NOTES:

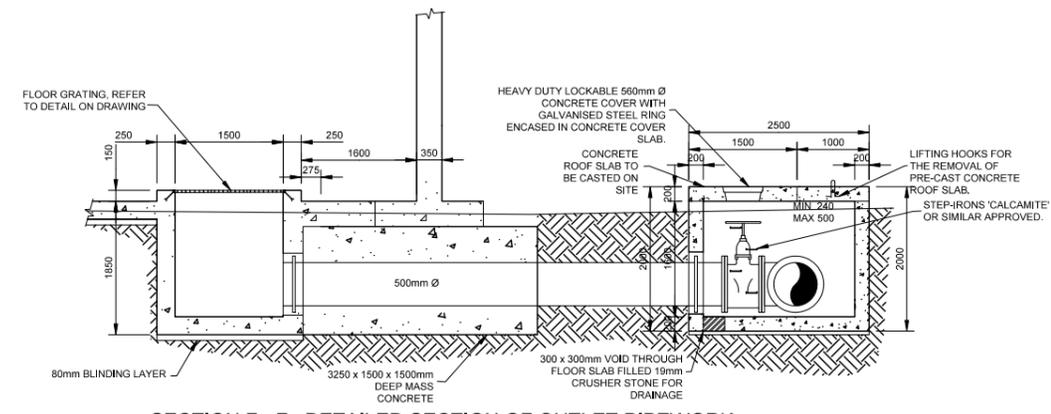
1. ALL WATER RETAINING CONCRETE TO BE CLASS 35/19 CONCRETE WITH A COVER OF 40mm.
2. ALL OTHER CONCRETE TO BE CLASS 25/19 CONCRETE WITH A COVER OF 25mm.
3. MASS CONCRETE TO BE CLASS 15/19.
4. ALL SHARP EDGES AT CORNERS OF WALLS AND FLOORS TO BE 20 X 20 CHAMFER.
5. 80mm NO.5 FINES (NF10) CONCRETE OR 50mm BLINDING LAYER TO BE PROVIDED (CLASS 15/19 CONCRETE) UNDERNEATH STRUCTURES AS INDICATED.
6. FLOOR SURFACES EXPOSED TO WATER TO BE STEEL FLOAT FINISHED, WALKWAYS AND WALL TOPS TO BE WOOD FLOAT FINISHED.

STRUCTURAL STEEL NOTES:

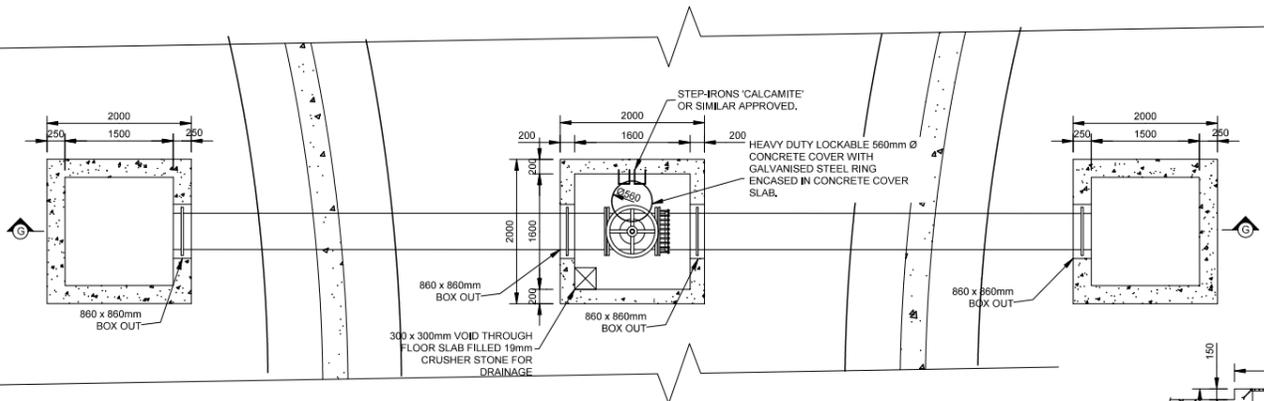
1. HANDRAILS, LADDERS, STRUCTURAL STEELWORK, FASTENERS AND MANHOLE COVER AND FRAMES TO BE GALVANIZED UNLESS INDICATED DIFFERENTLY.
2. ALL STRUCTURAL STEELWORK SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH SABS 1200H.
3. WELDS SHALL CONFORM TO SABS 0167-1984 AND 044 SPECS.
4. ALL DIMENSIONS SHALL BE CHECKED ON SITE BEFORE SHOP DRAWINGS COMMENCE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
5. A FULL SET OF SHOP DRAWINGS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE ANY MANUFACTURING MAY COMMENCE.
6. ALL STRUCTURAL STEELWORK SHALL BE GRADE 300W, UNLESS INDICATED DIFFERENTLY.
7. ALL STRUCTURAL STEEL ON SITE SHALL BE STORED AND HANDLED SO THAT IT IS NOT SUBJECTED TO DAMAGE OR EXCESSIVE STRESS AND MUST BE KEPT CLEAN.



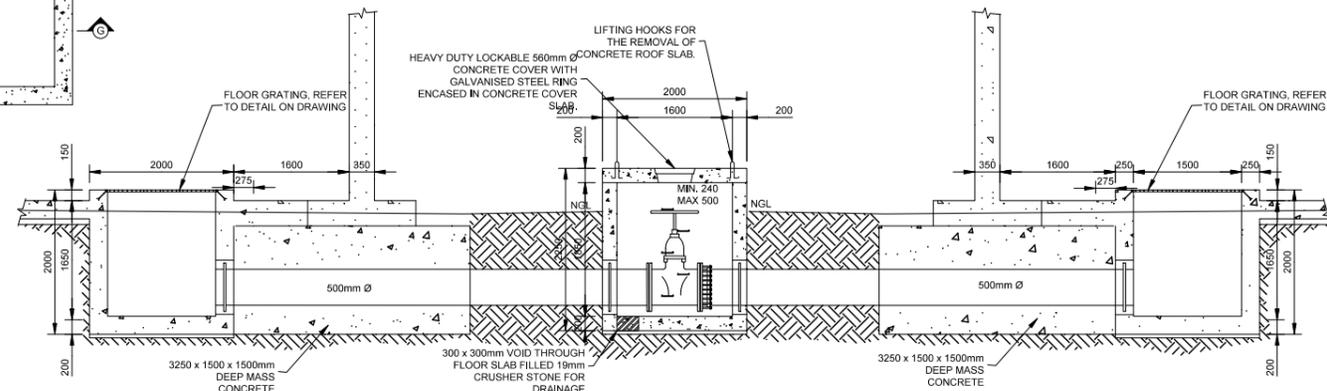
PLAN OF OUTLET PIPEWORK
SCALE 1:50



SECTION F - F : DETAILED SECTION OF OUTLET PIPEWORK
SCALE 1:50



PLAN VIEW : DETAILED SECTION OF BALANCING PIPEWORK
SCALE 1:50



No.	DATE	BY
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REVISIONS	
DESIGN BY: M.P KANGUDI	DRAWN BY: M.P KANGUDI
CHECKED BY: M.P KANGUDI	APPROVED BY: DATE:

MONDECONSULTING ENG. AND PROJECT MANAGERS

 P O BOX 6838
 NELSPRUIT
 1200
 Tel: 013 752 4616
 FAX: 013 752 6166

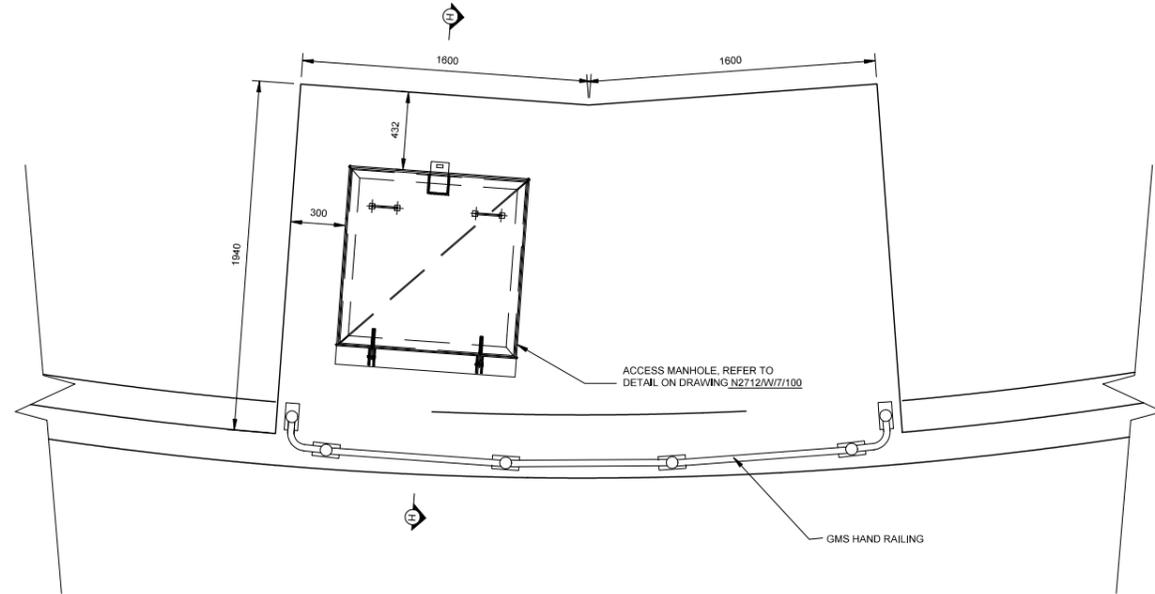
CLIENT:

 NKANGALA DISTRICT MUNICIPALITY
 2A WALTER SISULU STREET
 MIDDELBURG, 1050
 TEL: 013 249 2000

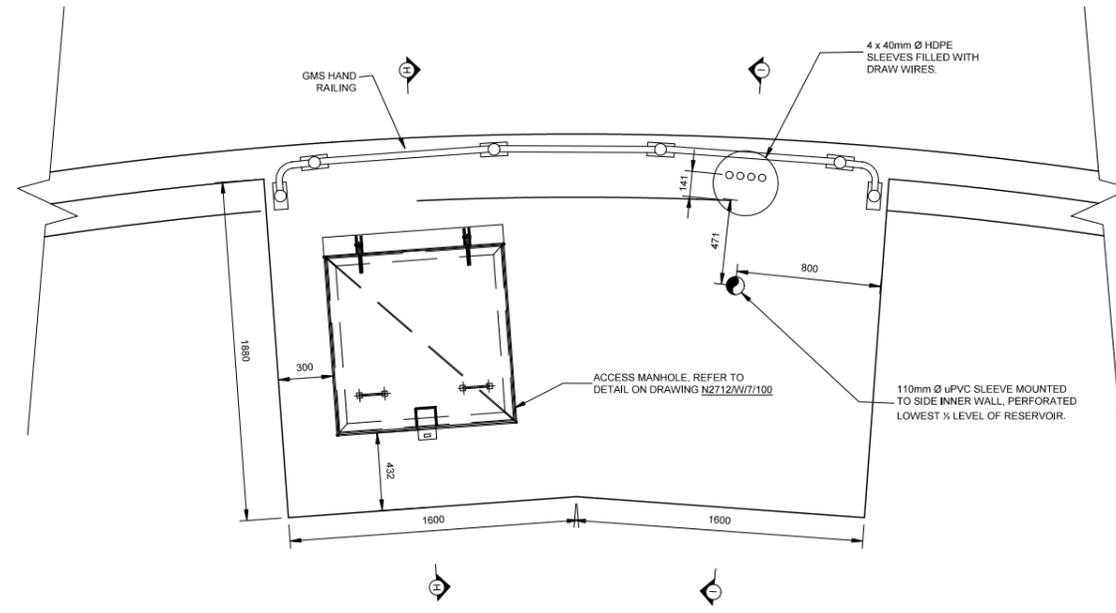
PROJECT:
 LOSKOP REGIONAL BULK WATER SUPPLY SCHEME
 2x10ML COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4

DRAWING TITLE:
OUTLET AND BALANCING DETAILS

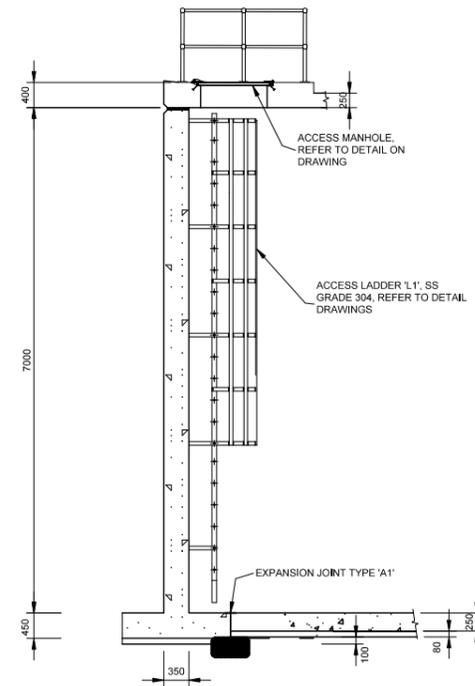
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DATE: MAY 2022	SHEET OF: SCALE AS SHOWN
DRAWING No: MONDE/W/20/01/DR07	REV: REV 00



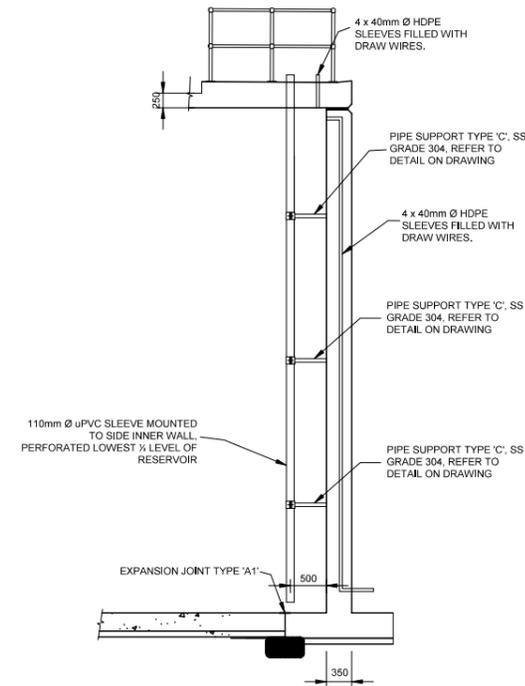
DETAIL 'C' - ACCESS MANHOLE
SCALE 1:20



DETAIL 'A' - TELEMETRY PIPES & ACCESS MANHOLE
SCALE 1:20



SECTION H-H
SCALE 1:50



SECTION I-I
SCALE 1:50

CONCRETE NOTES:

1. ALL WATER RETAINING CONCRETE TO BE CLASS 35/19 CONCRETE WITH A COVER OF 40mm.
2. ALL OTHER CONCRETE TO BE CLASS 25/19 CONCRETE WITH A COVER OF 25mm.
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No.	DATE	BY
-----	------	----

REVISIONS	
DESIGN BY: M.P. KANGUDI	DRAWN BY: M.P. KANGUDI
CHECKED BY: M.P. KANGUDI	APPROVED BY: DATE:


MONDE CONSULTING
 MONDECONSULTING ENG. AND PROJECT MANAGERS
 P.O. BOX 6838
 NELSPRUIT
 1200
 Tel: 013 752 4616
 FAX: 013 752 6166

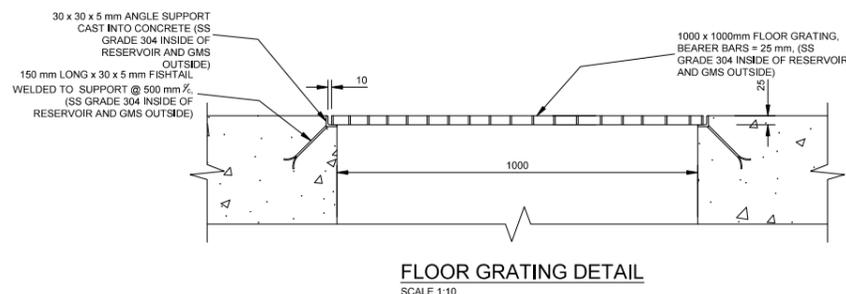
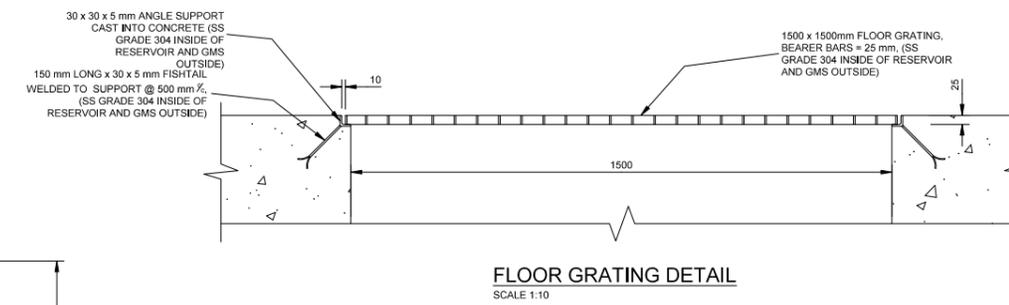
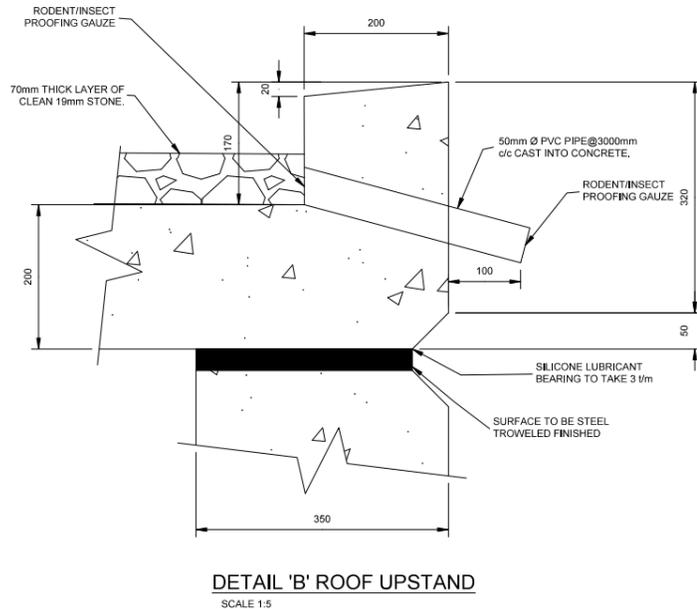
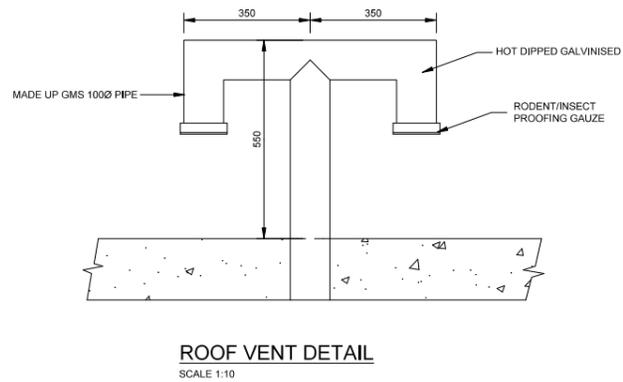
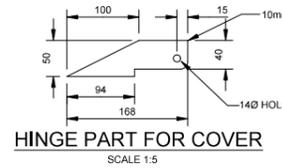
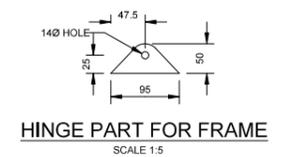
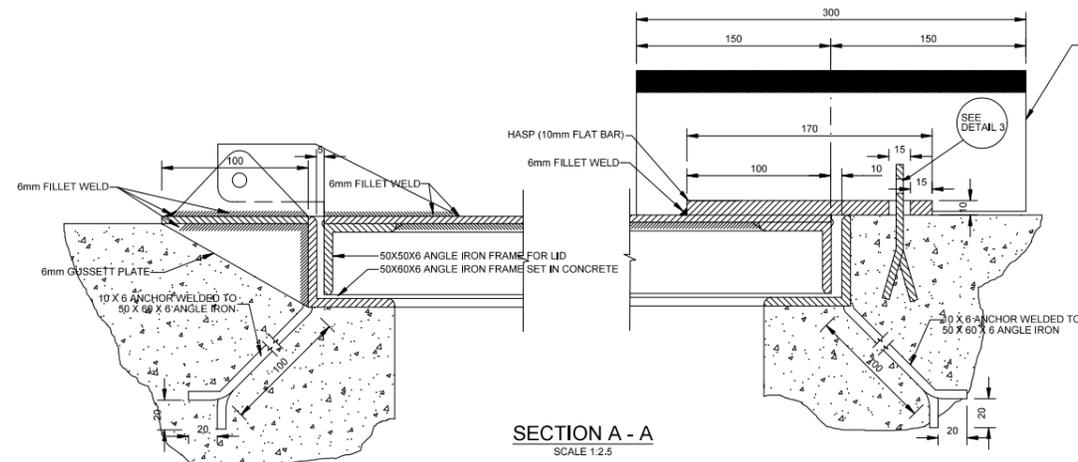
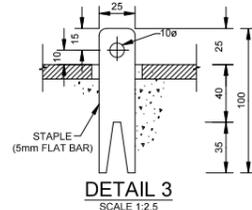
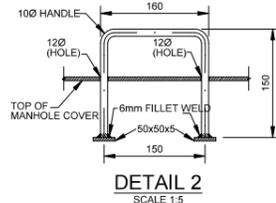
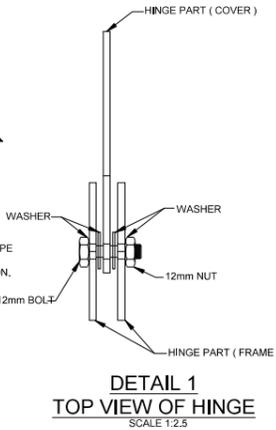
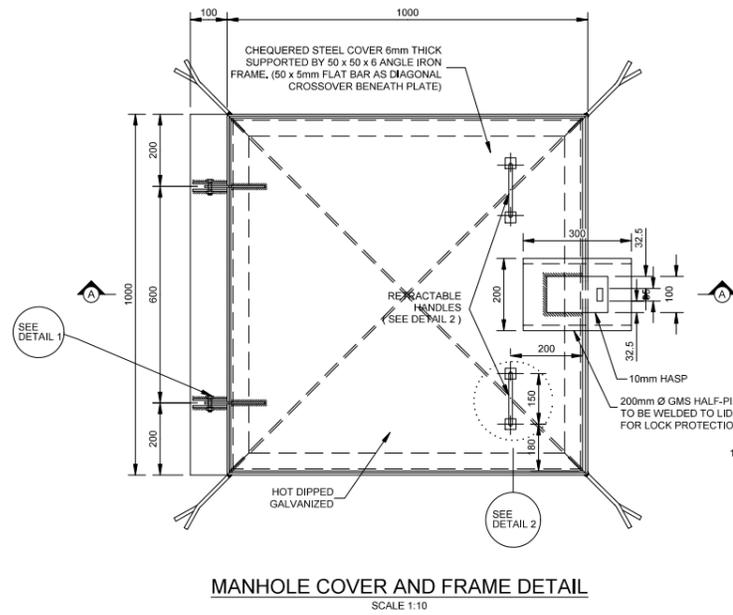
CLIENT:
 NKANGALA DISTRICT MUNICIPALITY

 2A WALTER SISULU STREET
 MIDDELBURG, 1050
 TEL: 013 249 2000

PROJECT:
 LOSKOP REGIONAL BULK WATER SUPPLY SCHEME
 2x100l COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4

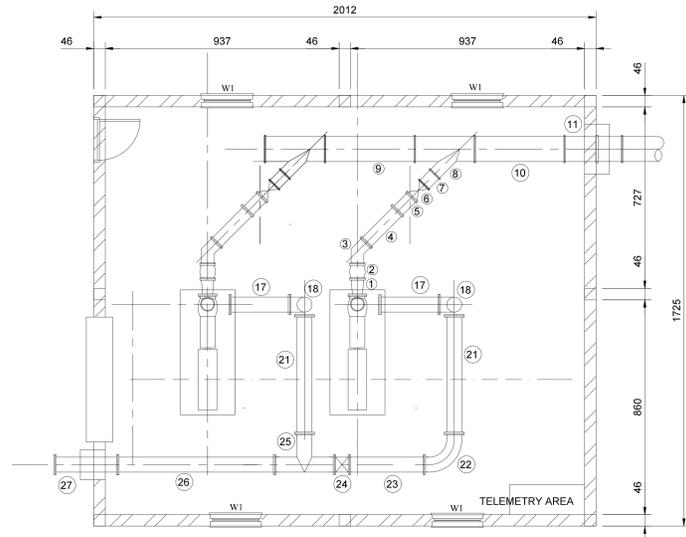
DRAWING TITLE:
ROOF ACCESS AND ACCESS LADDER

PROJECT No: MONDE/W/20/01	CAD FILE NAME: DETAIL 1 DR4
DATE: MAY 2022	SHEET OF: AS SHOWN
DRAWING No: MONDE/W/20/01/DR08	REV: REV 00

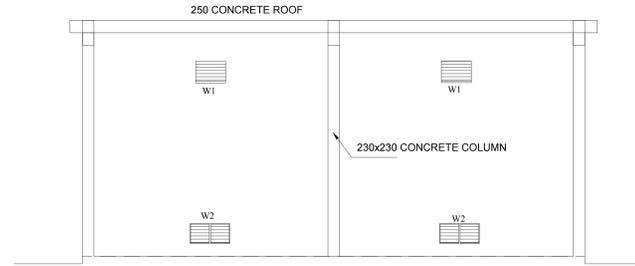


- CONCRETE NOTES:**
1. ALL WATER RETAINING CONCRETE TO BE CLASS 35/19 CONCRETE WITH A COVER OF 40mm.
 2. ALL OTHER CONCRETE TO BE CLASS 25/19 CONCRETE WITH A COVER OF 25mm.
 3. MASS CONCRETE TO BE CLASS 15/19.
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- STRUCTURAL STEEL NOTES:**
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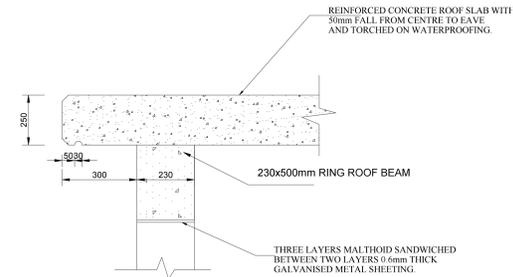
No.	DATE	BY
REVISIONS		
DESIGN BY:	DRAWN BY:	
M.P. KANGUDI	M.P. KANGUDI	
CHECKED BY:	APPROVED BY:	
M.P. KANGUDI	DATE:	
 MONDE CONSULTING ENG. AND PROJECT MANAGERS P.O. BOX 6838 NELSPRUIT 1200 Tel: 013 752 4616 FAX: 013 752 6166		
CLIENT:		
 NKANGALA DISTRICT MUNICIPALITY 2A WALTER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2000		
PROJECT:		
LOSKOP REGIONAL BULK WATER SUPPLY SCHEME 2x10ML COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4		
DRAWING TITLE:		
TYPICAL DETAILS 1		
PROJECT No:	CAD FILE NAME:	
MONDE/W/20/01	DETAIL 2.DWG	
DATE:	SHEET OF:	SCALE:
MAY 2022	OF	AS SHOWN
DRAWING No:	REV:	
MONDE/W/20/01/DR09	REV 00	



PLAN VIEW: PUMP HOUSE LAYOUT
SCALE 1 : 50



SIDE VIEW: PUMP HOUSE
SCALE 1 : 50



DETAIL A
SCALE 1 : 10

GENERAL BUILDING DESCRIPTIONS:

NOTE: ALL BUILDING WORK TO BE IN LINE WITH SABS 400-1990

ROOF DESCRIPTION:

CLASS 25/19 REINFORCED CONCRETE WITH WOOD FLOATED FINISH, 50mm FALL OVER WIDTH OF ROOF AND 4mm TORCHED ON WATER PROOFING MEMBRANE AND UV BARRIER TO BE APPROVED BY ENGINEER.

WALLS:

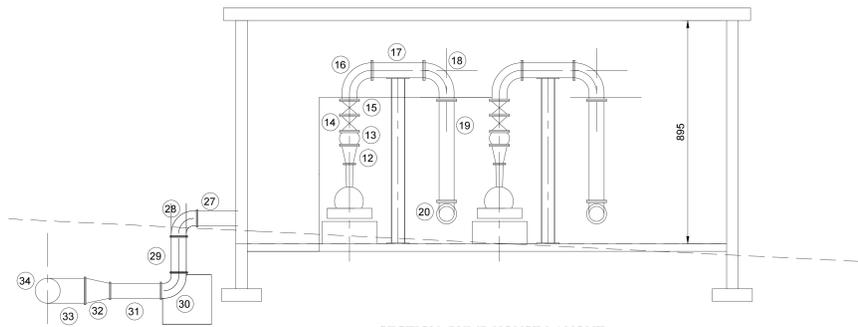
230mm BRICK WALL, OUTSIDE AND INSIDE CLAY BRICK CLASS FBS IN STRETCHER BOND WITH JOINTS FINISHED WITH SQ JOINTING TOOL +/- 4mm DEEP.

CILLS:

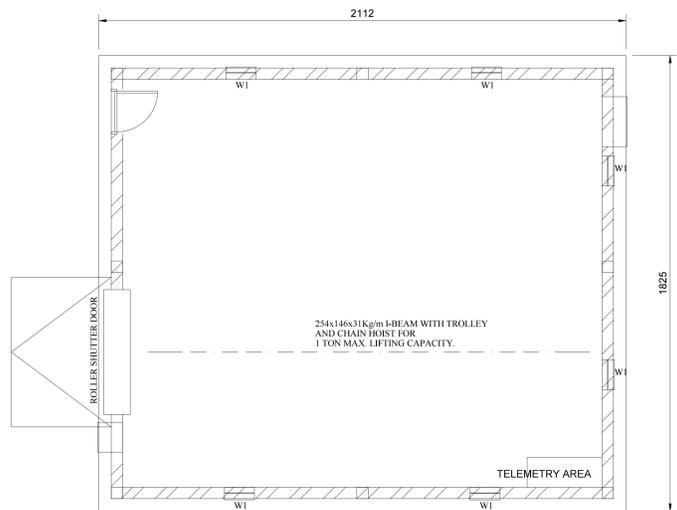
EXTERNAL FACE BRICK ON EDGE, INSIDE PLASTER

FLOOR:

PUMPROOM: 150mm THICK CLASS 25/19 REINFORCED CONCRETE WITH STEEL FLOATED FINISHING, FALL TOWARDS ROLLER SHUTTER DOOR.



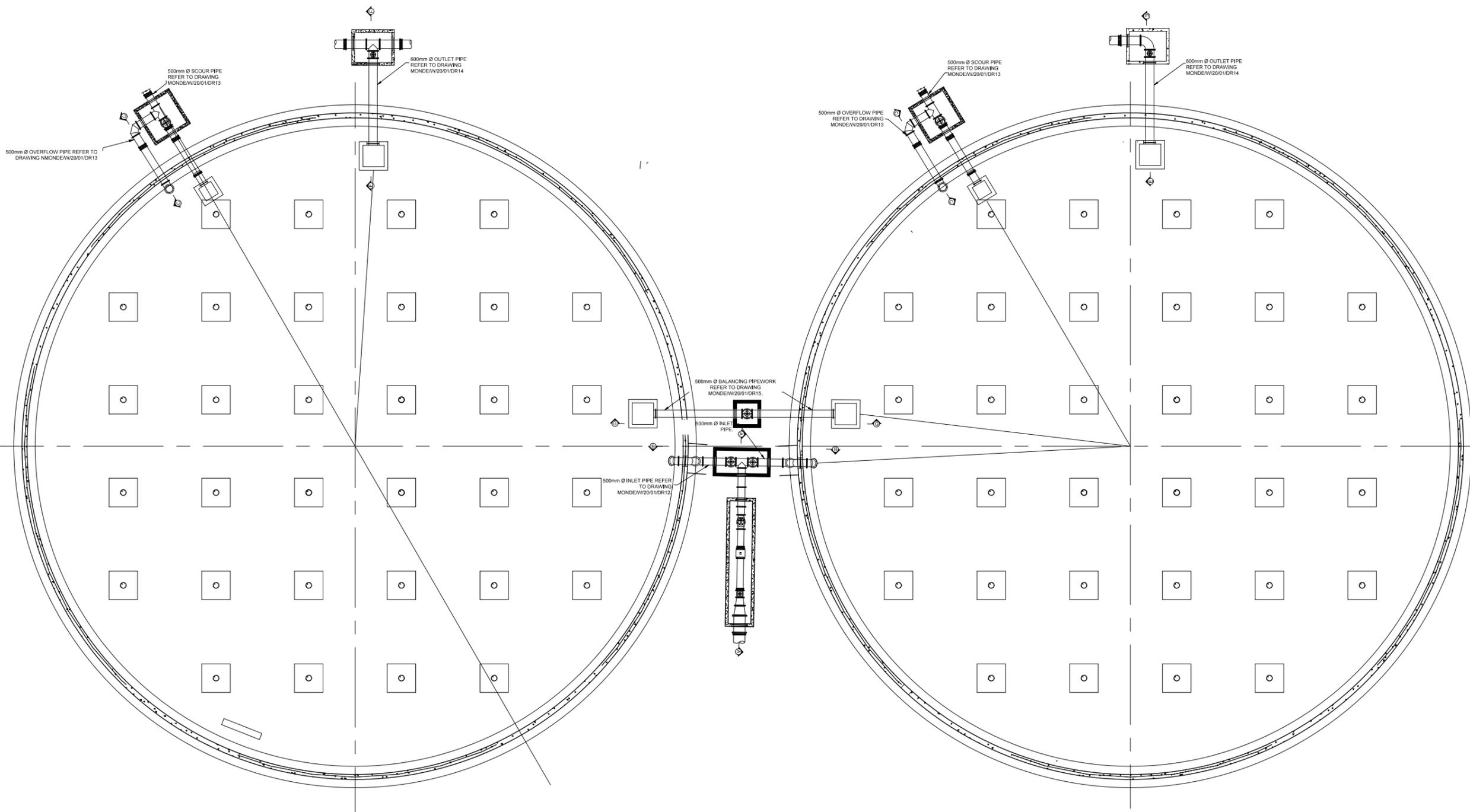
SECTION: PUMP HOUSE LAYOUT
SCALE 1 : 50



PLAN VIEW: PUMP HOUSE ROOF LAYOUT
SCALE 1 : 50

DOOR SCHEDULE	STANDARD ROLL UP DOOR		WINDOW SCHEDULE		
TYPE	D1 (1 OFF)	D2 (1 OFF)	TYPE	W1 (4 OFF)	W2 (4 OFF)
FRAME	STANDARD TRANSFORMER ROOM DOOR FRAME TO SUIT 250mm THICK CONCRETE WALL	12mm THICK GALV. PRESSED STEEL SHEET SUPPORTING POSTS AND GUIDES, CHROMA-DECK FINISH BOLTED TO INNER WALL	DESCRIPTION	STANDARD RESIDENTIAL STEEL PROFILE WITH TYPE LC PERMANENT LOUVRE AND INSECT GAUSE BACKING	WINBLOCK WA260 WITH WIN LOUVRE W88 STEEL RANGE AND BURGLAR BARS
DOOR	STANDARD TRANSFORMER ROOM DOOR WITH VENT AND HEAVY BRASS HINGES	0.5mm THICK GALV. ROLL UP DOOR WITH FINISHED PANELS, POLYURETHANE RUNNERS BOTH SIDES	FITTINGS	NOT APPLICABLE	NOT APPLICABLE
FITTING	STANDARD PAD LATCH	CENTRALLY LOCATED LOCK AND HANDLE WITH LOCKING BAR BOTH SIDES OF DOOR	GLAZING	NOT APPLICABLE	NOT APPLICABLE
FINISH	FRAME AND DOOR COATED WITH A POLYAMINE POLYAMIDE EPOXY COATING 125 MICRON DFT. OVERCOATED WITH RECOATABLE LIGHT GREY 629 POLYURETHANE	PRE GALVANISED FRAME AND STANDARD DOOR PANELS WITH CHROMA-DECK FINISH, COLOUR TO BE DECIDED BY ENG. ON SITE	FINISH	HOT DIP GALVANIZED AND POWDER COATED	HOT DIP GALVANIZED AND POWDER COATED

DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166 	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			05/2020	NKANGALA DISTRICT MUNICIPALITY		AS SHOWN
DESIGN CHECKED: M.P. KANGUDI		02	DETAIL DRAWING			01/2022	2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004 	PUMP HOUSE DETAILS	DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			05/2022			MONDE/W/20/01/DR10



No. _____ DATE _____ BY _____

REVISIONS	
DESIGN BY: M.P KANGUDI	DRAWN BY: M.P KANGUDI
CHECKED BY: M.P KANGUDI	APPROVED BY: DATE:


MONDE CONSULTING ENG AND PROJECT MANAGERS
 P.O BOX 6838
 NELSPRUIT
 1230
 Tel: 013 752 4616
 FAX: 013 752 6166

CLIENT:

NKANGALA DISTRICT MUNICIPALITY
 2A WALTER SISULU STREET
 MIDDELBURG, 1050
 TEL: 013 249 2000

PROJECT:
LOSKOP REGIONAL BULK WATER SUPPLY SCHEME
2x10MI COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4

DRAWING TITLE:
RESERVOIR CHAMBERS

PROJECT No: MONDE/W/20/01	CAD FILE NAME: RPE_H111D031.DWG
DATE: MAY 2022	SHEET OF SCALE AS SHOWN
DRAWING No: MONDE/W/20/01/DR11	REV: REV 00

GENERAL NOTES

1. SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WERE USED IN THE DESIGN LAYOUTS. SHOULD DIMENSIONS OF APPROVED EQUIPMENT NOT COINCIDE WITH THOSE OF THE DESIGN, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVISE SUCH DIMENSIONS ACCORDINGLY, TO THE APPROVAL OF THE ENGINEER.

2. **ITEM:** EACH ITEM IS TO BE CLEARLY MARKED ACCORDING TO THE NUMBERS GIVEN IN THE LIST

3. ALL FLANGES ARE TO BE IN ACCORDANCE WITH SABS 1123, UNLESS STATED DIFFERENTLY.

CLASS	WORKING PRESSURE	SABS 1123 TABLE
6	600 kPa	600/3
10	1 000 kPa	1 000/3
16	1 600 kPa	1 600/3
25	2 500 kPa	2 500/3
40	4 000 kPa	4 000/3

* FLAT FACED FLANGES TO BE USED TESTING PRESSURE = 1.5 x WORKING PRESSURE. FOR ALL FLANGES, COUPLING AS WELL AS PUDDLE FLANGES.

IT IS ESSENTIAL THAT PUDDLE FLANGES ARE NOT DRILLED. WHERE PUDDLES ARE NON STANDARD SUCH PUDDLE FLANGES NEED NOT BE CIRCULAR, BUT SHALL MEET THE SPECIFIED PRESSURE RATING AND SHALL PROJECT AT LEAST 100mm FROM OUTER WALL OF THE PIPE.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 2 500 kPa. SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION BEP J59, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS ABOVE 2 500 kPa, UP TO AND INCLUDING 4 000 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION B.S. 2815 B, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3 mm THICK CAF FULL FACE GASKETS. GASKETS FOR PRESSURE RATINGS ABOVE 1 600 kPa SHALL BE 3 mm THICK CAF RING GASKETS.

4. PROTECTION CODES:

EP: ALL SURFACES SHALL BE BLAST CLEANED TO SA 2½ AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN. DRY FILM THICKNESS OF 250µm, REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5

FP: FACTORY PROTECTION

CM: ALL PIPE SPECIALS TO BE SANDBLASTED TO SA 2½, CLEANED AND TO BE COATED WITH SINTAKOTE EXTERNAL, 10mm THICK CEMENT MORTAR LINED INTERNAL.

GM: HOT DIPPED GALVANISED MILD STEEL IN ACCORDANCE WITH THE SPECIFICATION.

5. **MATERIAL:** GRADE 300 WA STEEL AS PRESCRIBED IN SABS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED. ALL PIPE ITEMS TO BE 4.5mm MINIMUM WALL THICKNESS UNLESS INDICATED DIFFERENTLY. ALSO REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 2.3.4 FOR MINIMUM WALL THICKNESS.

6. **VALVES:** ALL VALVES TO BE FLANGED AND RATED PN10 MINIMUM. ALL GEARBOX POSITIONS TO BE AS FOR RIGHT HAND VALVE, RIGHT HAND PROJECTION, UNLESS STATED DIFFERENTLY ON DRAWINGS OR ITEM LIST. RESILIENT SEAL GATE: IN ACCORDANCE TO SABS 664, RIGHT HAND LOCKING. ALL VALVES ARE TO BE EQUIPPED WITH HAND WHEELS, UNLESS OTHERWISE STATED. VALVES TO BE SUPPLIED WITH THE NECESSARY PRESSURE REDUCERS AND / OR GEARS TO ENABLE FUNCTIONING AT THE SPECIFIED UNBALANCED PRESSURE.

7. ABBREVIATIONS:

AC - ASBESTOS CEMENT

CI - CAST IRON

FA - FLANGE ADAPTOR

FC - FLEXIBLE COUPLING

GS - GALVANISED STEEL

MS - MILD STEEL

SS - STAINLESS STEEL

8. **BOLTS** BOLT LENGTHS SHALL MAKE ALLOWANCE FOR TWO x 3mm THICK WASHERS AND A 3mm THICK GASKET SHALL BE PROVIDED FOR EACH PIPE ITEM AS LISTED. BOLTS THAT PROTRUDE BEYOND THE NUT BY A MINIMUM OF TWO THREADS. WHEN THE ASSEMBLIES ARE FULLY TIGHTENED, SHALL BE USED.

A WASHER SHALL BE FITTED UNDER ALL BOLTS/SCREW HEADS AND NUTS.

ALL BOLTS, NUTS AND WASHERS ON PIPE WORK TO BE HOT DIP GALVANISED MS

EXCEPTIONS SHALL BE

FOR SS TO SS FLANGE CONNECTIONS, OR NON-INSULATED SS TO MS FLANGE CONNECTIONS

CONNECTING MATERIAL FOR SUCH TO BE POWDER COATED 304 SS BOLTS, NUTS AND WASHERS.

9. PROVIDE APPROPRIATE BOLT UNITS (CONSISTING OF A STANDARD LENGTH BOLT, NUT AND TWO WASHERS) AND RING GASKET FOR EACH SET OF FLANGES AND FOR FLANGE ADAPTOR TO FLANGE INSTALLATIONS.

10. SUPPORTS AND ANCHOR SUPPORTS

SUPPORTS OR ANCHOR SUPPORTS ARE REQUIRED FOR CERTAIN PIPE ITEMS. TENDERER TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM, IF NOT DETAILED. NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH COULD DAMAGE FACTORY APPLIED CORROSION PROTECTION. ALL ANCHOR BOLTS TO BE 16 mm Ø MINIMUM OF 316 STAINLESS STEEL.

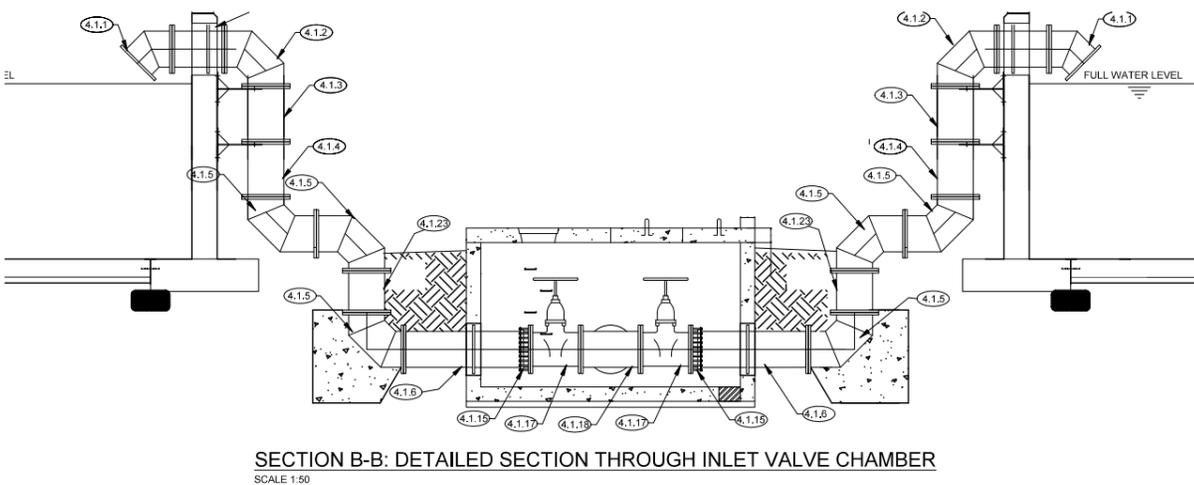
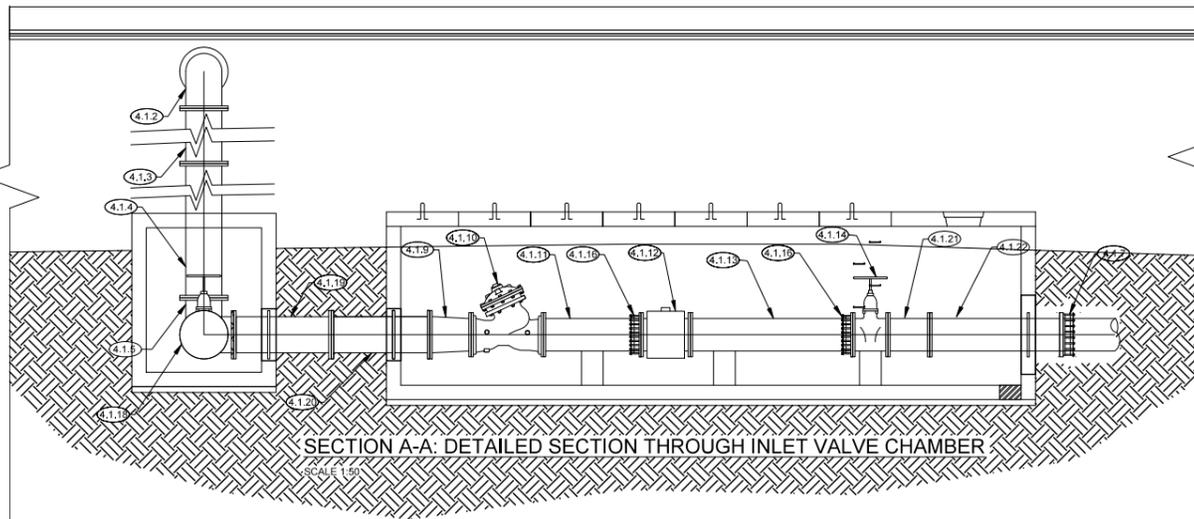
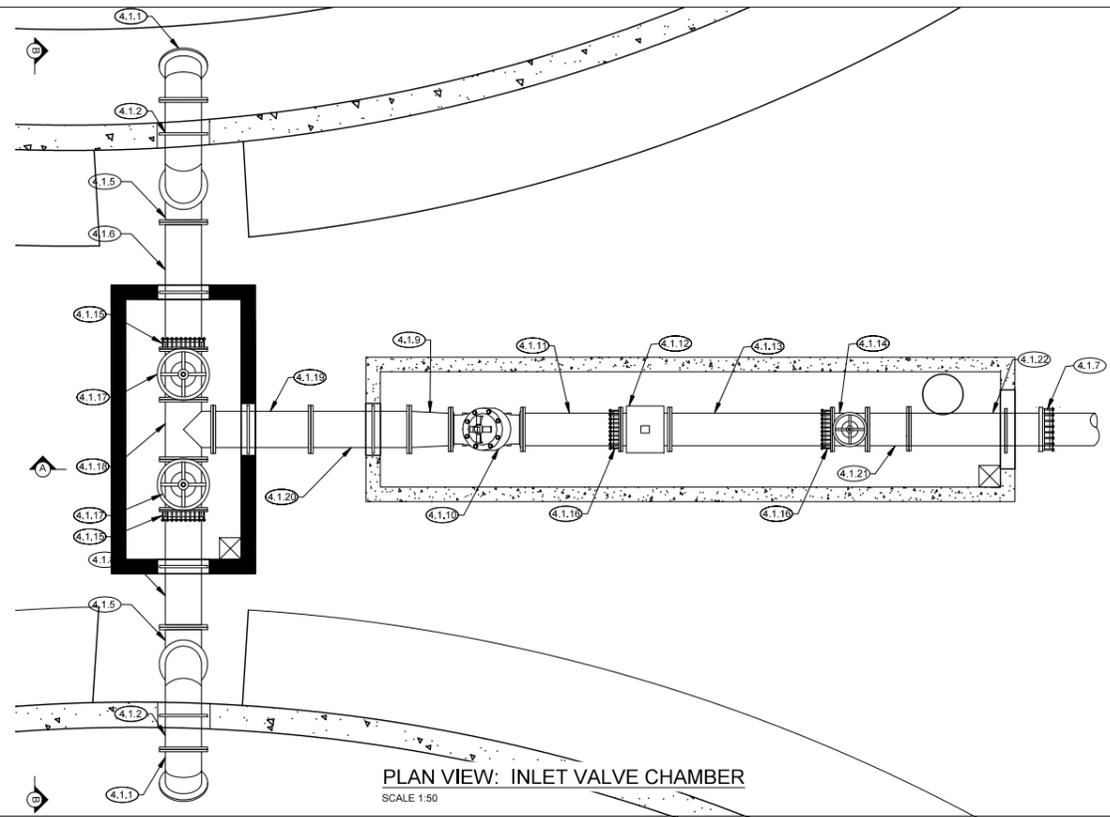
11. PIPE DETAILING:

LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.

12. PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

PIPE LIST

PIPELINE INLET ASSEMBLY				AMEND	
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
IN 4.1.1	2	10	EP	500mm Ø 45° FLANGED MS ELBOW.	
IN 4.1.2	2	10	EP	500mm Ø 90° FLANGED MS ELBOW EXTENDED WITH PUDDLE FLANGE.	
IN 4.1.3	2	10	EP	500mm Ø FLANGED MS PIPE.	
IN 4.1.4	2	10	EP	500mm Ø FLANGED MS PIPE.	
IN 4.1.5	6	10	EP	500mm Ø 90° FLANGED MS ELBOW.	
IN 4.1.6	1	10	EP	500mm Ø MS PADDLE FLANGE AS INDICATED.	
IN 4.1.7	1	10	FP	500mm Ø FLANGE ADAPTOR.	STANDARD.
IN 4.1.8	1	10	EP	500mm Ø MS PADDLE FLANGE AS INDICATED.	
IN 4.1.9	1	10	EP	500mm Ø x 450mm Ø, GMS CONCENTRIC REDUCER, FLANGED BOTH ENDS AND DRILLED TO SABS 1123, TABLE 2500/3.	
IN 4.1.10	1	10	FP	450mm Ø FLANGED BERMAID VALVE.	
IN 4.1.11	1	10	EP	450mm Ø MS PIPE PIECE, FLANGED ONE END & OTHER END SUITABLE FOR FLANGE ADAPTOR.	
IN 4.1.12	1	10	FP	450mm Ø BATTERY OPERATED SAFMAG FLOW METER ON SIMILAR APPROVED.	
IN 4.1.13	1	10	EP	450mm Ø FLANGED MS PIPE.	
IN 4.1.14	1	10	FP	450mm Ø, RSV GATE VALVE, FLANGED BOTH ENDS AND DRILLED TO SABS 1123, TABLE 2500/3.	
IN 4.1.15	2	10	FP	500mm Ø FLANGE ADAPTOR, BOLTS TO SUIT LENGTH OF RESTRAINING FLANGE.	STANDARD.
IN 4.1.16	2	10	FP	450mm Ø FLANGE ADAPTOR, BOLTS TO SUIT LENGTH OF RESTRAINING FLANGE.	STANDARD.
IN 4.1.17	2	10	FP	500mm Ø, RSV GATE VALVE, FLANGED BOTH ENDS AND DRILLED TO SABS 1123, TABLE 2500/3.	
IN 4.1.18	1	10	EP	500mm Ø, RSV GATE VALVE, FLANGED BOTH ENDS AND DRILLED TO SABS 1123, TABLE 2500/3.	
IN 4.1.19	1	10	EP	500mm Ø MS PADDLE FLANGE AS INDICATED.	
IN 4.1.20	1	10	EP	500mm Ø MS PADDLE FLANGE AS INDICATED.	
IN 4.1.21	1	10	EP	500mm Ø GMS PIPE, FLANGED BOTH ENDS AND DRILLED TO SABS 1123, TABLE 2500/3.	
IN 4.1.22	1	10	EP	500mm Ø MS PADDLE FLANGE AS INDICATED.	
IN 4.1.23	1	10	EP	500mm Ø GMS PIPE, FLANGED BOTH ENDS.	



No. DATE BY

REVISIONS

DESIGN BY: M.P. KANGUDI DRAWN BY: M.P. KANGUDI

CHECKED BY: M.P. KANGUDI APPROVED BY: DATE:

MONDE CONSULTING ENG. AND PROJECT MANAGERS

P.O BOX 6838 NELSPRUIT 1200

Tel: 013 752 4616 Fax: 013 752 6166

CLIENT: NKANGALA DISTRICT MUNICIPALITY

2A WALTER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2000

PROJECT: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME 2x10MI COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4

DRAWING TITLE: INLET PIPING DETAILS

PROJECT No: MONDE/W/20/01 CAD FILE NAME: PIPE FITTINGS.DWG

DATE: MAY 2022 SHEET OF: SCALE AS SHOWN

DRAWING No: MONDE/W/20/01/DR12 REV: 00

GENERAL NOTES

1. SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WERE USED IN THE DESIGN LAYOUTS. SHOULD DIMENSIONS OF APPROVED EQUIPMENT NOT COINCIDE WITH THOSE OF THE DESIGN, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVISE SUCH DIMENSIONS ACCORDINGLY, TO THE APPROVAL OF THE ENGINEER.

2. **ITEM:** EACH ITEM IS TO BE CLEARLY MARKED ACCORDING TO THE NUMBERS GIVEN IN THE LIST

3. ALL FLANGES ARE TO BE IN ACCORDANCE WITH SABS 1123, UNLESS STATED DIFFERENTLY.

CLASS	WORKING PRESSURE	SABS 1123
6	600 kPa	600/3
10	1 000 kPa	1 000/3
16	1 600 kPa	1 600/3
25	2 500 kPa	2 500/3
40	4 000 kPa	4 000/3

* FLAT FACED FLANGES TO BE USED TESTING PRESSURE - 1.5 x WORKING PRESSURE, FOR ALL FLANGES, COUPLING AS WELL AS PUDDLE FLANGES.

IT IS ESSENTIAL THAT PUDDLE FLANGES ARE NOT DRILLED. WHERE PUDDLES ARE NON STANDARD SUCH PUDDLE FLANGES NEED NOT BE CIRCULAR, BUT SHALL MEET THE SPECIFIED PRESSURE RATING AND SHALL PROJECT AT LEAST 100mm FROM OUTER WALL OF THE PIPE.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 2 500 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION BEP J59, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS ABOVE 2 500 kPa, UP TO AND INCLUDING 4 000 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION B.S. 2815 B, OR EQUIVALENT.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3 mm THICK CAF FULL FACE GASKETS. GASKETS FOR PRESSURE RATINGS ABOVE 1 600 kPa SHALL BE 3 mm THICK CAF RING GASKETS.

4. PROTECTION CODES:

EP: ALL SURFACES SHALL BE BLAST CLEANED TO SA 2½ AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN DRY FILM THICKNESS OF 250µm. REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5

FP: FACTORY PROTECTION.
CM: ALL PIPE SPECIALS TO BE SANDBLASTED TO SA 2½, CLEANED AND TO BE COATED WITH SINTAKOTE EXTERNAL, 10mm THICK CEMENT MORTAR LINED INTERNAL.

GM: HOT DIPPED GALVANISED MILD STEEL IN ACCORDANCE WITH THE SPECIFICATION.

5. **MATERIAL:** GRADE 300 WA STEEL AS PRESCRIBED IN SABS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED. ALL PIPE ITEMS TO BE 4.5mm MINIMUM WALL THICKNESS UNLESS INDICATED DIFFERENTLY. ALSO REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 2.3.4 FOR MINIMUM WALL THICKNESS.

6. **VALVES:** ALL VALVES TO BE FLANGED AND RATED PN10 MINIMUM. ALL GEARBOX POSITIONS TO BE AS FOR RIGHT HAND VALVE. RIGHT HAND PROJECTION, UNLESS STATED DIFFERENTLY ON DRAWINGS OR ITEM LIST. RESILIENT SEAL GATE: IN ACCORDANCE TO SABS 664. RIGHT HAND LOCKING. ALL VALVES ARE TO BE EQUIPPED WITH HAND WHEELS, UNLESS OTHERWISE STATED. VALVES TO BE SUPPLIED WITH THE NECESSARY PRESSURE REDUCERS AND / OR GEARS TO ENABLE FUNCTIONING AT THE SPECIFIED UNBALANCED PRESSURE.

7. **ABBREVIATIONS:**
AC - ASBESTOS CEMENT
CI - CAST IRON
FA - FLANGE ADAPTOR
FC - FLEXIBLE COUPLING
GS - GALVANISED STEEL
MS - MILD STEEL
SS - STAINLESS STEEL

8. **BOLTS** BOLT LENGTHS SHALL MAKE ALLOWANCE FOR TWO x 3mm THICK WASHERS AND A 3mm THICK GASKET SHALL BE PROVIDED FOR EACH PIPE ITEM AS LISTED. BOLTS THAT PROTRUDE BEYOND THE NUT BY A MINIMUM OF TWO THREADS, WHEN THE ASSEMBLIES ARE FULLY TIGHTENED, SHALL BE USED.

A WASHER SHALL BE FITTED UNDER ALL BOLT/SCREW HEADS AND NUTS.

ALL BOLTS, NUTS AND WASHERS ON PIPE WORK TO BE HOT DIP GALVANISED MS

EXCEPTIONS SHALL BE FOR SS TO SS FLANGE CONNECTIONS, OR NON-INSULATED SS TO MS FLANGE CONNECTIONS

CONNECTING MATERIAL FOR SUCH TO BE POWDER COATED 304 SS BOLTS, NUTS AND WASHERS.

9. PROVIDE APPROPRIATE BOLT UNITS (CONSISTING OF A STANDARD LENGTH BOLT, NUT AND TWO WASHERS) AND RING GASKET FOR EACH SET OF FLANGES AND FOR FLANGE ADAPTOR TO FLANGE INSTALLATIONS.

10. **SUPPORTS AND ANCHOR SUPPORTS** SUPPORTS OR ANCHOR SUPPORTS ARE REQUIRED FOR CERTAIN PIPE ITEMS. TENDERER TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM, IF NOT DETAILED. NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH COULD DAMAGE FACTORY APPLIED CORROSION PROTECTION. ALL ANCHOR BOLTS TO BE 16 mm Ø MINIMUM OF 316 STAINLESS STEEL.

11. **PIPE DETAILING:** LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.

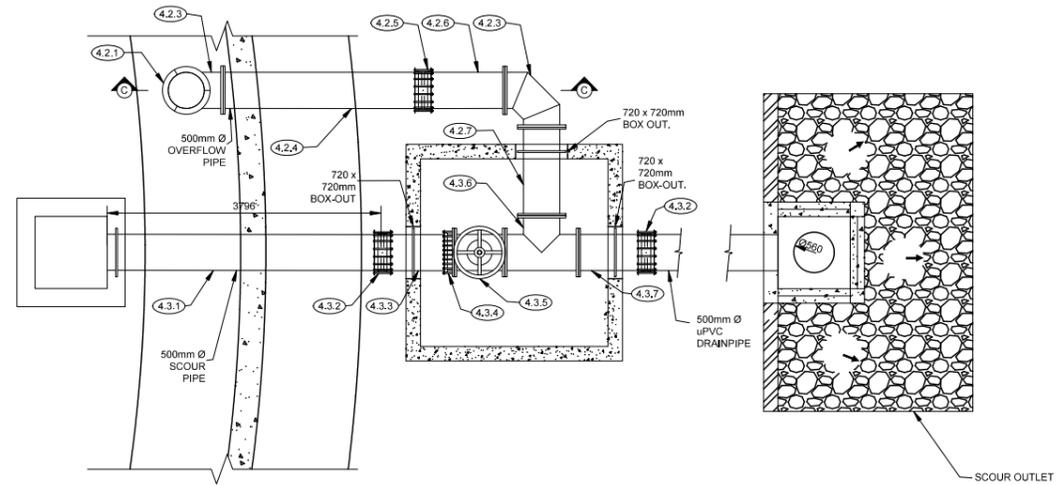
12. PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

PIPE LIST

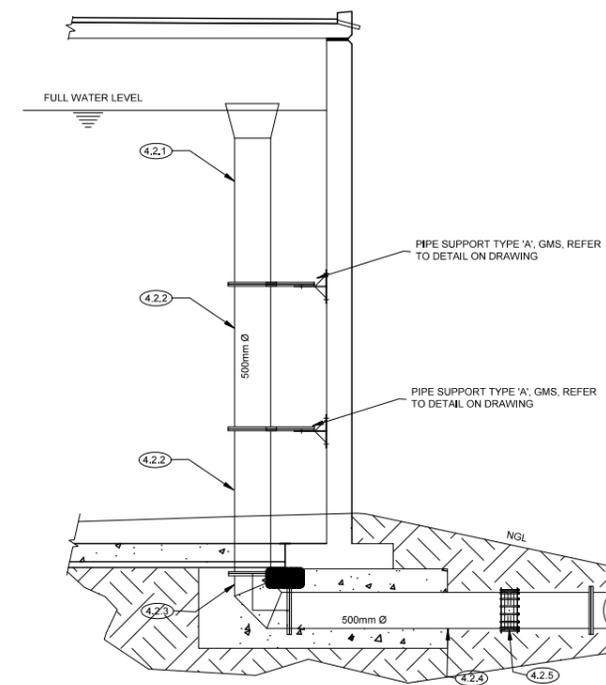
500mm Ø OVERFLOW PIPE ASSEMBLY					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
SC 4.2.1	2	10	EP	700mm Ø TO 500mm Ø MS REDUCING PIPE PIECE FLANGED ONE END.	
SC 4.2.2	4	10	EP	500mm Ø FLANGED MS PIPE.	
SC 4.2.3	4	10	EP	500mm Ø 90° FLANGED MS ELBOW.	
SC 4.2.4	1	10	EP	500mm Ø MS PIPE PIECE, FLANGED ONE END & OTHER END SUITABLE FOR FLEXIBLE COUPLING.	
SC 4.2.5	2	10	FP	500mm Ø FLEXIBLE COUPLING.	STANDARD.
SC 4.2.6	2	10	EP	500mm Ø MS PIPE PIECE, FLANGED ONE END & OTHER END SUITABLE FOR FLEXIBLE COUPLING.	
SC 4.2.7	2	10	EP	500mm Ø MS FLANGED PIPE PIECE, PUDDLE FLANGE IN POSITION AS INDICATED.	

PIPE LIST

500mm Ø SCOUR PIPE ASSEMBLY					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
SC 4.3.1	2	10	EP	500mm Ø MS PIPE PIECE, BOTH ENDS PLAIN WITH PUDDLE FLANGE IN POSITION AS INDICATED.	
SC 4.3.2	4	10	FP	500mm Ø FLEXIBLE COUPLING	STANDARD.
SC 4.3.3	2	10	EP	500mm Ø MS PIPE PIECE, BOTH ENDS PLAIN WITH PUDDLE FLANGE IN POSITION AS INDICATED.	
SC 4.3.4	2	10	FP	500mm Ø FLANGE ADAPTOR	STANDARD.
SC 4.3.5	2	10	FP	500mm Ø, RSV GATE VALVE, FLANGED BOTH ENDS AND DRILLED TO SABS 1123, TABLE 2500/3.	
SC 4.3.6	2	10	EP	5000 x 5000 FLANGED MS TEE-PIECE.	
SC 4.3.7	2	10	EP	500mm Ø MS PIPE PIECE, FLANGED ONE END & OTHER END SUITABLE FOR FLEXIBLE COUPLING.	



PLAN : OVERFLOW PIPE WORK & SCOUR VALVE CHAMBER



SECTION C-C : DETAIL SECTION THROUGH OVERFLOW PIPE

No. DATE BY

REVISIONS

DESIGN BY: M.P. KANGUDI	DRAWN BY: M.P. KANGUDI
CHECKED BY: M.P. KANGUDI	APPROVED BY: DATE:

MONDE CONSULTING ENG. AND PROJECT MANAGERS
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1200
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FAX: 013 752 6166

CLIENT:
NKANGALA DISTRICT MUNICIPALITY
2A WALTER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2000

PROJECT:
LOSKOP REGIONAL BULK WATER SUPPLY SCHEME
2x10MI COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4

DRAWING TITLE:
SCOUR AND OVERFLOW PIPING DETAILS

PROJECT No: MONDE/W/20/01
CAD FILE NAME: PIPE FITTINGS.DWG

DATE: MAY 2022
SHEET OF: AS SHOWN

DRAWING No: MONDE/W/20/01/DR13
REV: REV 00

GENERAL NOTES

1. SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WERE USED IN THE DESIGN LAYOUTS. SHOULD DIMENSIONS OF APPROVED EQUIPMENT NOT COINCIDE WITH THOSE OF THE DESIGN, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVISE SUCH DIMENSIONS ACCORDINGLY, TO THE APPROVAL OF THE ENGINEER.

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CLASS	WORKING PRESSURE	SABS 1123
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16	1 600 kPa	1 600/3
25	2 500 kPa	2 500/3
40	4 000 kPa	4 000/3

* FLAT FACED FLANGES TO BE USED
TESTING PRESSURE - 1.5 x WORKING PRESSURE, FOR ALL FLANGES, COUPLING AS WELL AS PUDDLE FLANGES.

IT IS ESSENTIAL THAT PUDDLE FLANGES ARE NOT DRILLED.
WHERE PUDDLES ARE NON STANDARD SUCH PUDDLE FLANGES NEED NOT BE CIRCULAR, BUT SHALL MEET THE SPECIFIED PRESSURE RATING AND SHALL PROJECT AT LEAST 100mm FROM OUTER WALL OF THE PIPE.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 2 500 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION BEP J59, OR EQUIVALENT.
GASKETS FOR PRESSURE RATINGS ABOVE 2 500 kPa, UP TO AND INCLUDING 4 000 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION B.S. 2815 B, OR EQUIVALENT.
GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3 mm THICK CAF FULL FACE GASKETS.
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4. PROTECTION CODES:

EP: ALL SURFACES SHALL BE BLAST CLEANED TO SA 2½ AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN. DRY FILM THICKNESS OF 250µm. REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5

FP: FACTORY PROTECTION.

CM: ALL PIPE SPECIALS TO BE SANDBLASTED TO SA 2½, CLEANED AND TO BE COATED WITH SINTAKOTE EXTERNAL, 10mm THICK CEMENT MORTAR LINED INTERNAL.

GM: HOT DIPPED GALVANISED MILD STEEL IN ACCORDANCE WITH THE SPECIFICATION.

5. **MATERIAL:** GRADE 304 W/A STEEL AS PRESCRIBED IN SABS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED.

ALL PIPE ITEMS TO BE 4.5mm MINIMUM WALL THICKNESS UNLESS INDICATED DIFFERENTLY. ALSO REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 2.3.4 FOR MINIMUM WALL THICKNESS.

6. VALVES:

ALL VALVES TO BE FLANGED AND RATED PN10 MINIMUM.
ALL GEARBOX POSITIONS TO BE AS FOR RIGHT HAND VALVE, RIGHT HAND PROJECTION, UNLESS STATED DIFFERENTLY ON DRAWINGS OR ITEM LIST.
RESILIENT SEAL GATE: IN ACCORDANCE TO SABS 664, RIGHT HAND LOCKING. ALL VALVES ARE TO BE EQUIPPED WITH HAND WHEELS, UNLESS OTHERWISE STATED. VALVES TO BE SUPPLIED WITH THE NECESSARY PRESSURE REDUCERS AND / OR GEARS TO ENABLE FUNCTIONING AT THE SPECIFIED UNBALANCED PRESSURE.

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ALL BOLTS, NUTS AND WASHERS ON PIPE WORK TO BE HOT DIP GALVANISED MS

EXCEPTIONS SHALL BE

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9. PROVIDE APPROPRIATE BOLT UNITS (CONSISTING OF A STANDARD LENGTH BOLT, NUT AND TWO WASHERS) AND RING GASKET FOR EACH SET OF FLANGES AND FOR FLANGE ADAPTOR TO FLANGE INSTALLATIONS.

10. SUPPORTS AND ANCHOR SUPPORTS

SUPPORTS OR ANCHOR SUPPORTS ARE REQUIRED FOR CERTAIN PIPE ITEMS.
TENDERER TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM, IF NOT DETAILED. NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH COULD DAMAGE FACTORY APPLIED CORROSION PROTECTION. ALL ANCHOR BOLTS TO BE 16 mm Ø MINIMUM OF 316 STAINLESS STEEL.

11. PIPE DETAILING:

LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.

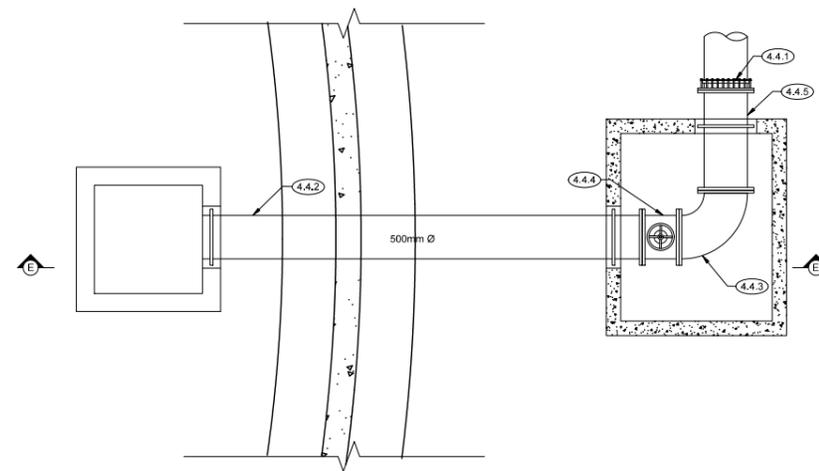
12. PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

PIPE LIST

OUTLET PIPEWORK						AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS	
4.4.1	1	10	FP	500mm Ø FLANGE ADAPTOR.	STANDARD	
4.4.2	1	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	6095 95 5604 396	
4.4.3	1	10	EP	500mm Ø 90° FLANGED MS ELBOW.	647	
4.4.4	1	10	FP	500mm Ø RSV GATE VALVE.	508	
4.4.5	1	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	887 500	

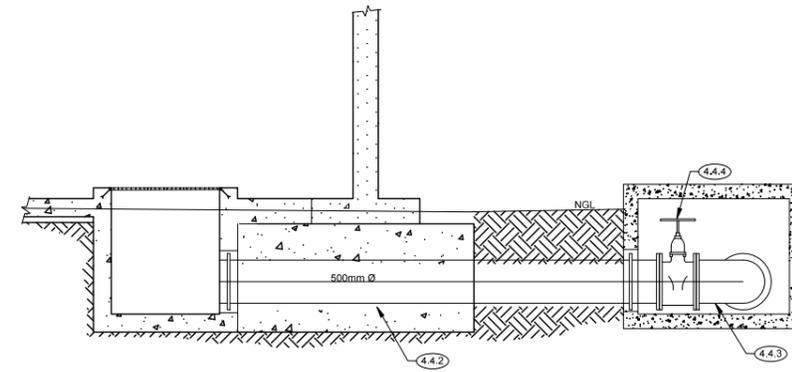
PIPE LIST

OUTLET PIPEWORK						AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS	
4.5.1	1	10	FP	500mm Ø FLANGE ADAPTOR.	STANDARD	
4.5.2	1	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	6095 95 5604 396	
4.5.3	2	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	500 927	
4.5.4	1	10	FP	500mm Ø RSV GATE VALVE.	508	
4.5.5	1	10	EP	500mm Ø 90° FLANGED EQUAL TEE.	470	

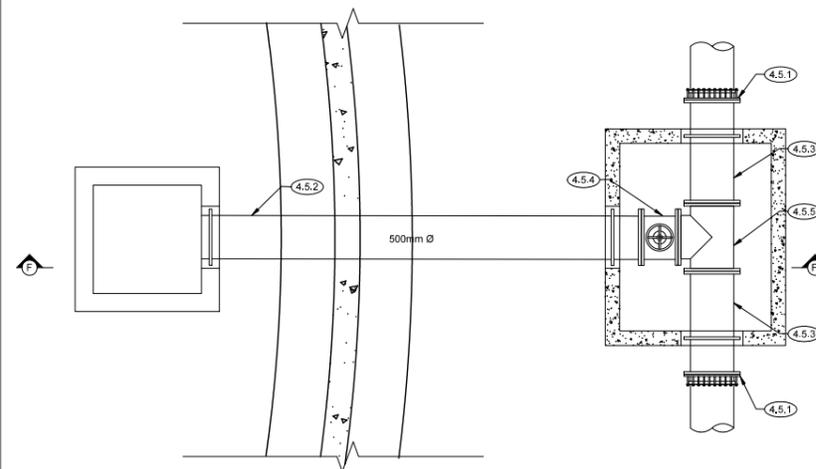


PLAN OF OUTLET PIPEWORK ON RESERVOIR 1

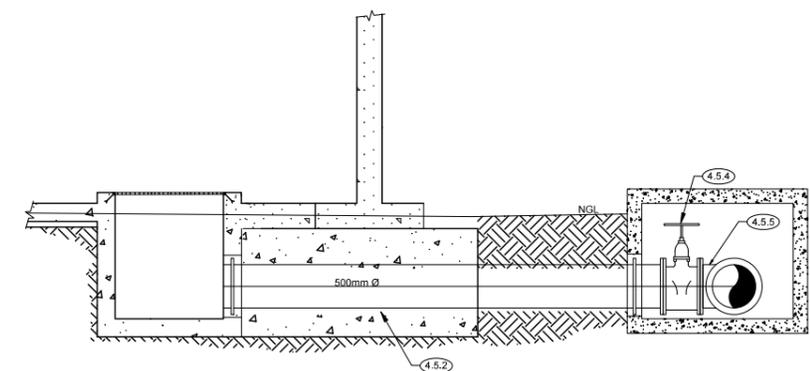
1



SECTION E-E : DETAILED SECTION OF OUTLET PIPEWORK



PLAN OF OUTLET PIPEWORK ON RESERVOIR 2



SECTION F-F : DETAILED SECTION OF OUTLET PIPEWORK

No. DATE BY

REVISIONS

DESIGN BY:	DRAWN BY:
M.P KANGUDI	M.P KANGUDI
CHECKED BY:	APPROVED BY:
M.P KANGUDI	
	DATE:



MONDE CONSULTING ENG
AND PROJECT MANAGERS
P.O BOX 6838
NELSPRUIT
1200
Tel: 013 752 4616
FAX: 013 752 6166

CLIENT:
NKANGALA DISTRICT MUNICIPALITY



2A WALTER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2000

PROJECT:
LOSKOP REGIONAL BULK WATER
SUPPLY SCHEME
2x10MI COMMAND RESERVOIR
IN VERENA D - WORK PACKAGE 4

DRAWING TITLE:

OUTLET PIPING DETAILS

PROJECT No.	CAD FILE NAME:	
MONDE/W/20/01	PIPE FITTINGS.DWG	
DATE:	SHEET OF	SCALE
MAY 2022	OF	AS SHOWN
DRAWING No.	REV:	REV 00
MONDE/W/20/01/DR14		

GENERAL NOTES

1. SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WERE USED IN THE DESIGN LAYOUTS. SHOULD DIMENSIONS OF APPROVED EQUIPMENT NOT COINCIDE WITH THOSE OF THE DESIGN, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVISE SUCH DIMENSIONS ACCORDINGLY, TO THE APPROVAL OF THE ENGINEER.

2. **ITEM:**
EACH ITEM IS TO BE CLEARLY MARKED ACCORDING TO THE NUMBERS GIVEN IN THE LIST

3. ALL FLANGES ARE TO BE IN ACCORDANCE WITH SABS 1123, UNLESS STATED DIFFERENTLY.

CLASS	WORKING PRESSURE	SABS 1123 TABLE
6	600 kPa	600/3
10	1 000 kPa	1 000/3
16	1 600 kPa	1 600/3
25	2 500 kPa	2 500/3
40	4 000 kPa	4 000/3

* FLAT FACED FLANGES TO BE USED
TESTING PRESSURE - 1.5 x WORKING PRESSURE, FOR ALL FLANGES, COUPLING AS WELL AS PUDDLE FLANGES.

IT IS ESSENTIAL THAT PUDDLE FLANGES ARE NOT DRILLED.
WHERE PUDDLES ARE NON STANDARD SUCH PUDDLE FLANGES NEED NOT BE CIRCULAR, BUT SHALL MEET THE SPECIFIED PRESSURE RATING AND SHALL PROJECT AT LEAST 100mm FROM OUTER WALL OF THE PIPE.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 2 500 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION BEP J59, OR EQUIVALENT.
GASKETS FOR PRESSURE RATINGS ABOVE 2 500 kPa, UP TO AND INCLUDING 4 000 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION B.S. 2815 B, OR EQUIVALENT.
GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3 mm THICK CAF FULL FACE GASKETS.
GASKETS FOR PRESSURE RATINGS ABOVE 1 600 kPa SHALL BE 3 mm THICK CAF RING GASKETS.

4. PROTECTION CODES:

EP: ALL SURFACES SHALL BE BLAST CLEANED TO SA 2½ AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN. DRY FILM THICKNESS OF 250µm. REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5

FM: FACTORY PROTECTION.

CM: ALL PIPE SPECIALS TO BE SANDBLASTED TO Sa 2½, CLEANED AND TO BE COATED WITH SINTAKOTE EXTERNAL, 10mm THICK CEMENT MORTAR LINED INTERNAL.

GM: HOT DIPPED GALVANISED MILD STEEL IN ACCORDANCE WITH THE SPECIFICATION.

5. **MATERIAL:** GRADE 300 W/A STEEL AS PRESCRIBED IN SABS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED.

ALL PIPE ITEMS TO BE 4.5mm MINIMUM WALL THICKNESS UNLESS INDICATED DIFFERENTLY. ALSO REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 2.3.4 FOR MINIMUM WALL THICKNESS.

6. VALVES:

ALL VALVES TO BE FLANGED AND RATED PN10 MINIMUM.
ALL GEARBOX POSITIONS TO BE AS FOR RIGHT HAND VALVE, RIGHT HAND PROJECTION, UNLESS STATED DIFFERENTLY ON DRAWINGS OR ITEM LIST.
RESILIENT SEAL GATE: IN ACCORDANCE TO SABS 664, RIGHT HAND LOCKING. ALL VALVES ARE TO BE EQUIPPED WITH HAND WHEELS, UNLESS OTHERWISE STATED. VALVES TO BE SUPPLIED WITH THE NECESSARY PRESSURE REDUCERS AND / OR GEARS TO ENABLE FUNCTIONING AT THE SPECIFIED UNBALANCED PRESSURE.

7. ABBREVIATIONS:

AC - ASBESTOS CEMENT
CI - CAST IRON
FA - FLANGE ADAPTOR
FC - FLEXIBLE COUPLING
GS - GALVANISED STEEL
MS - MILD STEEL
SS - STAINLESS STEEL

8. BOLTS

BOLT LENGTHS SHALL MAKE ALLOWANCE FOR TWO x 3mm THICK WASHERS AND A 3mm THICK GASKET SHALL BE PROVIDED FOR EACH PIPE ITEM AS LISTED. BOLTS THAT PROTRUDE BEYOND THE NUT BY A MINIMUM OF TWO THREADS, WHEN THE ASSEMBLIES ARE FULLY TIGHTENED, SHALL BE USED.

A WASHER SHALL BE FITTED UNDER ALL BOLTS/SCREW HEADS AND NUTS.

ALL BOLTS, NUTS AND WASHERS ON PIPE WORK TO BE HOT DIP GALVANISED MS

EXCEPTIONS SHALL BE

FOR SS TO SS FLANGE CONNECTIONS, OR NON-INSULATED SS TO MS FLANGE CONNECTIONS

CONNECTING MATERIAL FOR SUCH TO BE POWDER COATED 304 SS BOLTS, NUTS AND WASHERS.

9. PROVIDE APPROPRIATE BOLT UNITS (CONSISTING OF A STANDARD LENGTH BOLT, NUT AND TWO WASHERS) AND RING GASKET FOR EACH SET OF FLANGES AND FOR FLANGE ADAPTOR TO FLANGE INSTALLATIONS.

10. SUPPORTS AND ANCHOR SUPPORTS

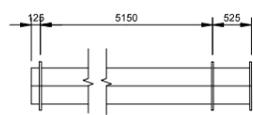
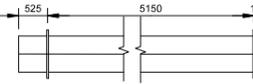
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TENDERER TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM, IF NOT DETAILED. NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH COULD DAMAGE FACTORY APPLIED CORROSION PROTECTION. ALL ANCHOR BOLTS TO BE 16 mm Ø MINIMUM OF 316 STAINLESS STEEL.

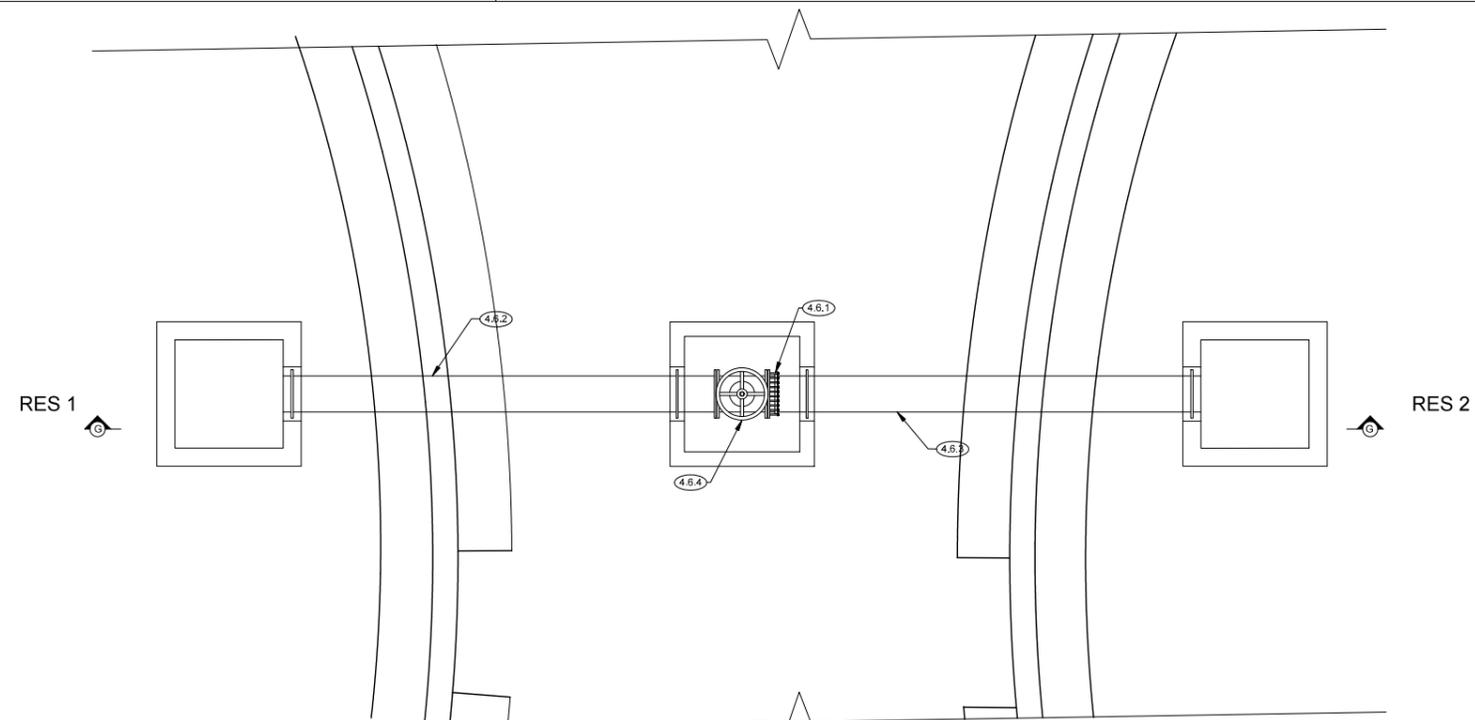
11. PIPE DETAILING:

LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.

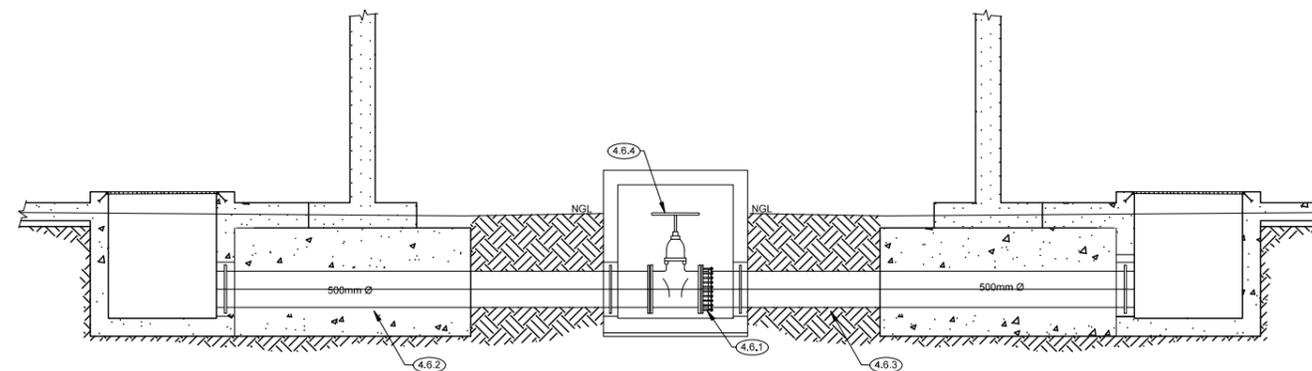
12. PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

PIPE LIST

BALANCING PIPEWORK					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
4.6.1	1	10	FP	500mm Ø FLANGE ADAPTOR.	STANDARD
4.6.2	1	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	
4.6.3	1	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	
4.6.4	1	10	FP	500mm Ø RSV GATE VALVE.	



PLAN VIEW : DETAILED SECTION OF BALANCING PIPEWORK



SECTION G-G : DETAILED SECTION OF BALANCING PIPEWORK

No. DATE BY

REVISIONS

DESIGN BY: M.P KANGUDI	DRAWN BY: M.P KANGUDI
CHECKED BY: M.P KANGUDI	APPROVED BY: DATE:



MONDE CONSULTING ENG.
AND PROJECT MANAGERS

P.O BOX 6838
NELSPRUIT
1200
Tel: 013 752 4616
FAX: 013 752 6166

CLIENT:
NKANGALA DISTRICT MUNICIPALITY



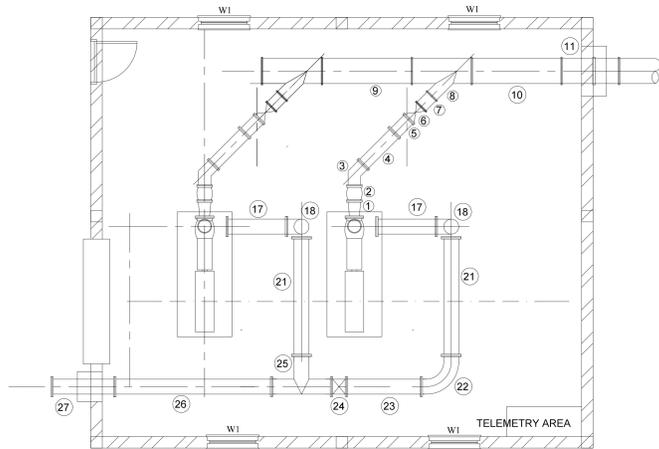
2A WALTER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2000

PROJECT:
LOSKOP REGIONAL BULK WATER
SUPPLY SCHEME
2x10MI COMMAND RESERVOIR
IN VERENA D - WORK PACKAGE 4

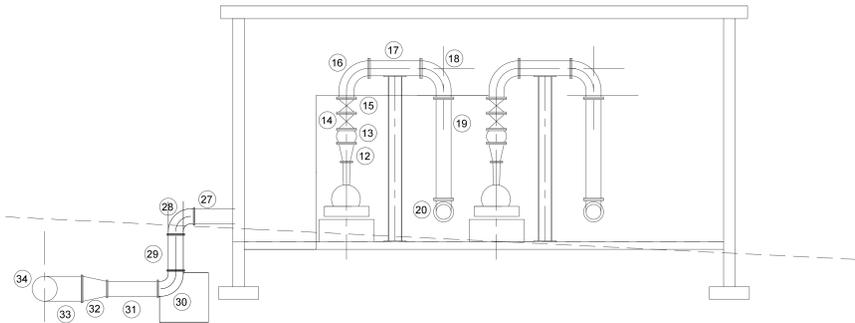
DRAWING TITLE:

BALANCING PIPING DETAILS

PROJECT No: MONDE/W/20/01	CAD FILE NAME: PIPE-FITTINGS.DWG
DATE: MAY 2022	SHEET OF SCALE AS SHOWN
DRAWING No: MONDE/W/20/01/DR15	REV: REV 00



PLAN VIEW: PUMP HOUSE LAYOUT
SCALE 1:50



SECTION: PUMP HOUSE LAYOUT
SCALE 1:50

PIPE LIST					AMEND	
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS	
1	2	16	EP	300x350mm DIA. ECCENTRIC REDUCER FLANGED.		325
2	2	16	EP	350mm DIA. EXPANSION JOINT PIECE.		
3	2	16	EP	350mm DIA. 45 DEG. FLANGED MS ELBOW.		
4	2	16	EP	350mm DIA. FLANGED MS PIPE.		880
5	2	16	EP	350mm DIA. FLANGED MS PIPE.		400
6	2	16	EP	350mm DIA. RSV GATE VALVE.		
7	2	16	EP	350mm DIA. Y-FILTER FLANGED.		
8	2	16	EP	500x350mm DIA. FLANGE Y-PIECE.		1200 500mm Ø 350mm Ø
9	1	16	EP	500mm DIA. FLANGED MS PIPE.		1800
10	1	16	EP	500mm DIA. FLANGED MS PIPE.		1800
11	1	16	EP	500mm Ø MS PIPE PIECE FLANGED WITH PUDDLE FLANGE.		675 475
12	2	16	EP	250x300mm DIA. CONCENTRIC REDUCER FLANGED.		375
13	2	16	EP	300mm DIA. EXPANSION JOINT PIECE.		
14	2	16	EP	300mm DIA. CHECK VALVE FLANGED.		
15	2	16	EP	300mm DIA. RSV GATE VALVE.		
16	2	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.		
17	2	16	EP	300mm DIA. FLANGE MS PIPE.		1040
18	2	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.		

PIPE LIST					AMEND	
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS	
19	2	16	EP	300mm DIA. FLANGED MS PIPE.		2025
20	2	16	EP	300mm DIA. 90 DEG. FLANGED MS ELBOW.		
21	2	16	EP	300mm DIA. FLANGED MS PIPE.		2355
22	1	16	EP	300mm DIA. 90 DEG. FLANGED MS ELBOW.		
23	1	16	EP	300mm DIA. FLANGED MS PIPE.		1450
24	1	16	EP	300mm DIA. RSV GATE VALVE.		
25	1	16	EP	300x300mm FLANGED MS PIPE FLANGE.		450 475
26	1	16	EP	300mm DIA. FLANGED MS PIPE.		3140
27	1	16	EP	300mm DIA. FLANGED MS PIPE.		1250
28	1	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.		
29	1	16	EP	300mm DIA. FLANGED MS PIPE.		720
30	1	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.		
31	1	16	EP	300mm DIA. FLANGED MS PIPE.		1030
32	1	16	EP	300x500mm DIA. CONCENTRIC REDUCER FLANGED.		500
33	2	16	EP	500mm DIA. FLANGED MS PIPE.		1030
34	1	16	EP	500mm DIA. 90DEG. FLANGED MS ELBOW.		
35	4	16	EP	500mm FLANGE ADAPTOR.		
36	4	16	EP	500mm DIA. FLEXIBLE COUPLING.		

GENERAL NOTES

- SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WHERE USED IN THE DESIGN LAYOUTS SHOULD DIMENSIONS OF APPROVED EQUIPMENT NOT CONFLICT WITH THOSE OF THE DESIGN. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVISE SUCH DIMENSIONS ACCORDINGLY, TO THE APPROVAL OF THE ENGINEER.
- ITEM: EACH ITEM IS TO BE CLEARLY MARKED ACCORDING TO THE NUMBERS GIVEN IN THE LIST.
- ALL FLANGES ARE TO BE IN ACCORDANCE WITH SABS 1123 UNLESS STATED DIFFERENTLY.

CLASS	WORKING PRESSURE	SABS 1123
6	600 kPa	6003
10	1 000 kPa	1 0003
16	1 600 kPa	1 6003
25	2 500 kPa	2 5003
40	4 000 kPa	4 0003

* FLAT FACED FLANGES TO BE USED
TESTING PRESSURE - 1.5 X WORKING PRESSURE. FOR ALL FLANGES, COUPLING AS WELL AS PUDDLE FLANGES.

IT IS ESSENTIAL THAT PUDDLE FLANGES ARE NOT DRILLED. WHERE PUDDLES ARE NON-STANDARD SUCH PUDDLE FLANGES NEED NOT BE CIRCULAR, BUT SHALL MEET THE SPECIFIED PRESSURE RATINGS AND SHALL PROJECT AT LEAST 100mm FROM OUTER WALL OF THE PIPE.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 2 500 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION BIP-JB, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS ABOVE 2 500 kPa, UP TO AND INCLUDING 4 000 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION SLS, 2B15 B, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3mm THICK CAF FULL FACE GASKETS. GASKETS FOR PRESSURE RATINGS ABOVE 1 600 kPa SHALL BE 3mm THICK CAF RING GASKETS.
- PROTECTION CODES:

EP - ALL SURFACES SHALL BE BLAST CLEANED TO SA 2½ AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN. DRY FILM THICKNESS OF 260µm. REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5.

FF - FACTORY PROTECTION

CM - ALL PIPE SPECIALS TO BE SANDBLASTED TO SA 2½, CLEANED AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN. DRY FILM THICKNESS OF 260µm. REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5.

GM - HOT DIPPED GALVANISED MILD STEEL. IN ACCORDANCE WITH THE SPECIFICATION.
- MATERIAL: GRADE 300 WA STEEL AS PRESCRIBED IN SABS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED. ALL PIPE ITEMS TO BE 4mm MINIMUM WALL THICKNESS UNLESS INDICATED DIFFERENTLY. ALSO REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 2.3.4 FOR MINIMUM WALL THICKNESS.
- VALVES:

ALL VALVES TO BE FLANGED AND RATED PN10 MINIMUM.

ALL GEARBOX POSITIONS TO BE AS FOR RIGHT HAND VALVE. RIGHT HAND PROJECTION, UNLESS STATED DIFFERENTLY ON DRAWINGS OR ITEM LIST.

RESILIENT SEAL GATE. IN ACCORDANCE TO SABS 984 RIGHT HAND LOCKING. ALL VALVES ARE TO BE EQUIPPED WITH HAND WHEELS, UNLESS OTHERWISE STATED. VALVES TO BE SUPPLIED WITH THE NECESSARY PRESSURE REDUCERS AND / OR GEARS TO ENABLE FUNCTIONING AT THE SPECIFIED UNBALANCED PRESSURE.
- ABBREVIATIONS:

AS - ASBESTOS CEMENT
CI - CAST IRON
FA - FLANGE ADAPTOR
FS - FLEXIBLE COUPLING
GS - GALVANISED STEEL
MS - MILD STEEL
SS - STAINLESS STEEL
- BOLTS

BOLT LENGTHS SHALL MAKE ALLOWANCE FOR TWO 3mm THICK WASHERS AND A 3mm THICK GASKET SHALL BE PROVIDED FOR EACH PIPE ITEM AS LISTED. BOLTS THAT PROTRUDE BEYOND THE NUT BY A MINIMUM OF TWO THREADS, WHEN THE ASSEMBLIES ARE FULLY TIGHTENED, SHALL BE USED.

A WASHER SHALL BE FITTED UNDER ALL BOLT/SCREW HEADS AND NUTS.

ALL BOLTS, NUTS AND WASHERS ON PIPE WORK TO BE HOT DIP GALVANISED MS.

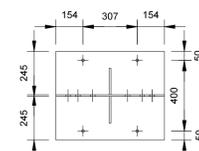
EXCEPTIONS SHALL BE FOR SS TO SS FLANGE CONNECTIONS, OR NON-INSULATED SS TO MS FLANGE CONNECTIONS.

CONNECTING MATERIAL FOR SUCH TO BE POWDER COATED 304 SS BOLTS, NUTS AND WASHERS.
- PROVIDE APPROPRIATE BOLT UNITS (CONSISTING OF A STANDARD LENGTH BOLT, NUT AND TWO WASHERS) AND RING GASKET FOR EACH SET OF FLANGES AND FOR FLANGE ADAPTOR TO FLANGE INSTALLATIONS.
- SUPPORTS AND ANCHOR SUPPORTS

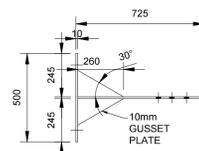
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- PIPE DETAILING:

LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.
- PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

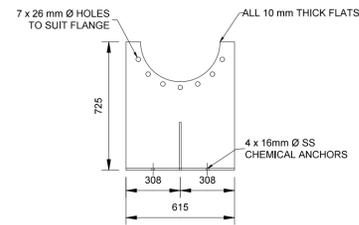
DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			02/2020	NKANGALA DISTRICT MUNICIPALITY		AS SHOWN
DESIGN CHECKED: M.P. KANGUDI		02	DETAIL DRAWING			01/2022			
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			05/2022	 2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004	PUMP PIPING DETAILS	DRAWING No. MONDE/W/20/01/DR16



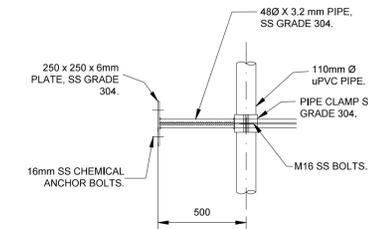
FRONT ELEVATION



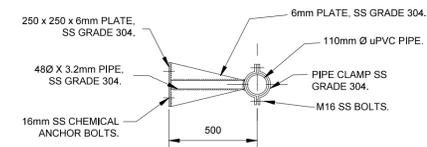
SIDE ELEVATION



PIPE SUPPORT TYPE 'A'



ELEVATION



PIPE SUPPORT TYPE 'C'

SCALE 1:20

CONCRETE NOTES:

1. ALL WATER RETAINING CONCRETE TO BE CLASS 35/19 CONCRETE WITH A COVER OF 40mm.
2. ALL OTHER CONCRETE TO BE CLASS 25/19 CONCRETE WITH A COVER OF 25mm.
3. MASS CONCRETE TO BE CLASS 15/19.
4. ALL SHARP EDGES AT CORNERS OF WALLS AND FLOORS TO BE 20 X 20 CHAMFER.
5. 80mm NO-FINES (NF19) CONCRETE OR 50mm BLINDING LAYER TO BE PROVIDED (CLASS 15/19 CONCRETE) UNDERNEATH STRUCTURES AS INDICATED.
6. FLOOR SURFACES EXPOSED TO WATER TO BE STEEL FLOAT FINISHED. WALKWAYS AND WALL TOPS TO BE WOOD FLOAT FINISHED.

STRUCTURAL STEEL NOTES:

1. HANDRAILS, LADDERS, STRUCTURAL STEELWORK, FASTENERS AND MANHOLE COVER AND FRAMES TO BE GALVANIZED UNLESS INDICATED DIFFERENTLY.
2. ALL STRUCTURAL STEELWORK SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH SABS 1200H.
3. WELDS SHALL CONFORM TO SABS 0167-1984 AND 044 SPECS.
4. ALL DIMENSIONS SHALL BE CHECKED ON SITE BEFORE SHOP DRAWINGS COMMENCE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
5. A FULL SET OF SHOP DRAWINGS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE ANY MANUFACTURING MAY COMMENCE.
6. ALL STRUCTURAL STEELWORK SHALL BE GRADE 300W, UNLESS INDICATED DIFFERENTLY.
7. ALL STRUCTURAL STEEL ON SITE SHALL BE STORED AND HANDLED SO THAT IT IS NOT SUBJECTED TO DAMAGE OR EXCESSIVE STRESS AND MUST BE KEPT CLEAN.

No.	DATE	BY
-----	------	----

REVISIONS	
DESIGN BY: M.P KANGUDI	DRAWN BY: M.P KANGUDI
CHECKED BY: M.P KANGUDI	APPROVED BY: DATE:


 MONDECONSULTING ENG. AND PROJECT MANAGERS
 P.O BOX 6838
 NELSPRUIT
 1200
 Tel: 013 752 4616
 FAX: 013 752 6166

CLIENT:
 NKANGALA DISTRICT MUNICIPALITY

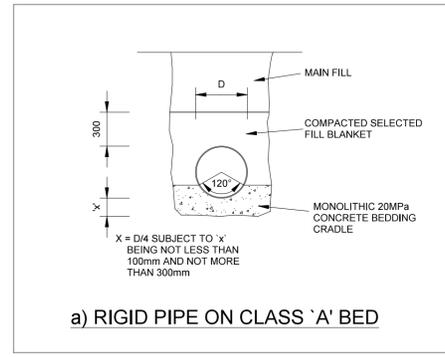
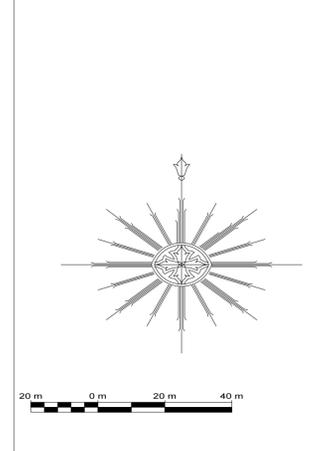
 2A WALTER SISULU STREET
 MIDDELBURG, 1050
 TEL: 013 249 2000

PROJECT:
 LOSKOP REGIONAL BULK WATER SUPPLY SCHEME
 2x10MI COMMAND RESERVOIR IN VERENA D - WORK PACKAGE 4

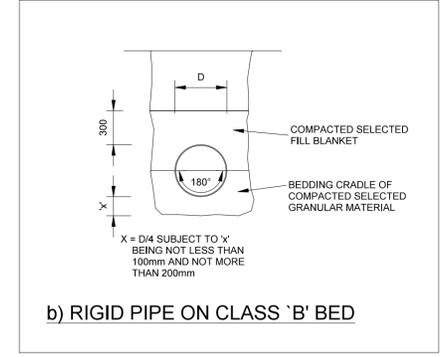
DRAWING TITLE: PIPE SUPPORT DETAILS		
PROJECT No: MONDE/W/20/01	CAD FILE NAME: DETAIL_2.DRW	
DATE: MAY 2022	SHEET OF	SCALE AS SHOWN
DRAWING No: MONDE/W/20/01/DR17	REV: REV 00	

DRAWING REFERENCE		
No	Drg No	Title

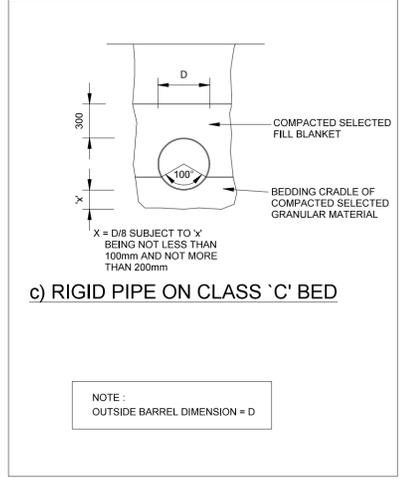
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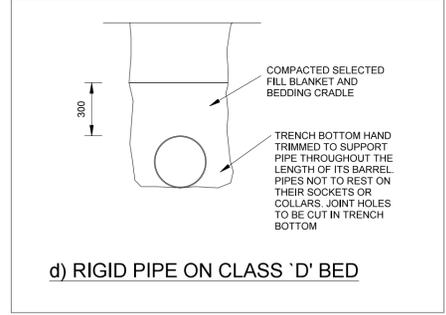
a) RIGID PIPE ON CLASS 'A' BED



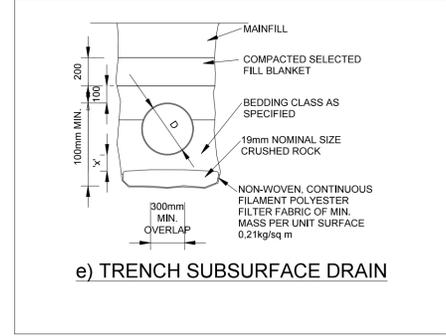
b) RIGID PIPE ON CLASS 'B' BED



c) RIGID PIPE ON CLASS 'C' BED

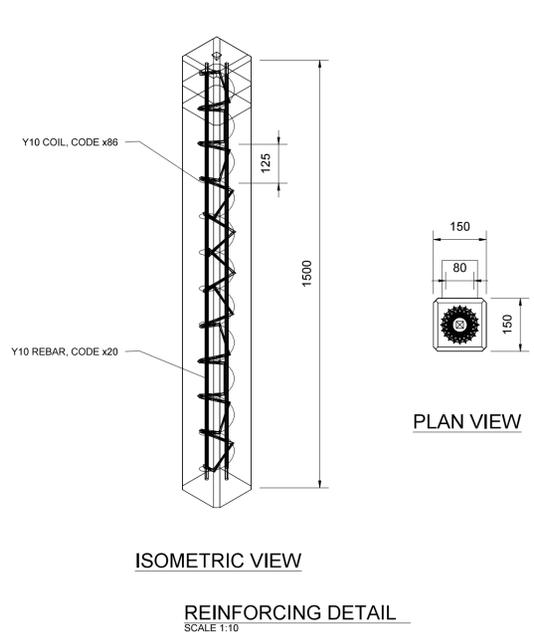


d) RIGID PIPE ON CLASS 'D' BED

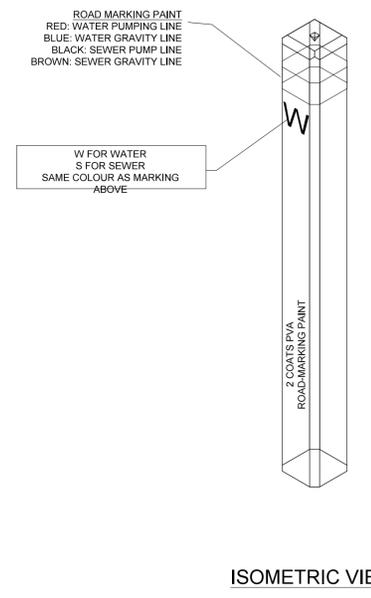


e) TRENCH SUBSURFACE DRAIN

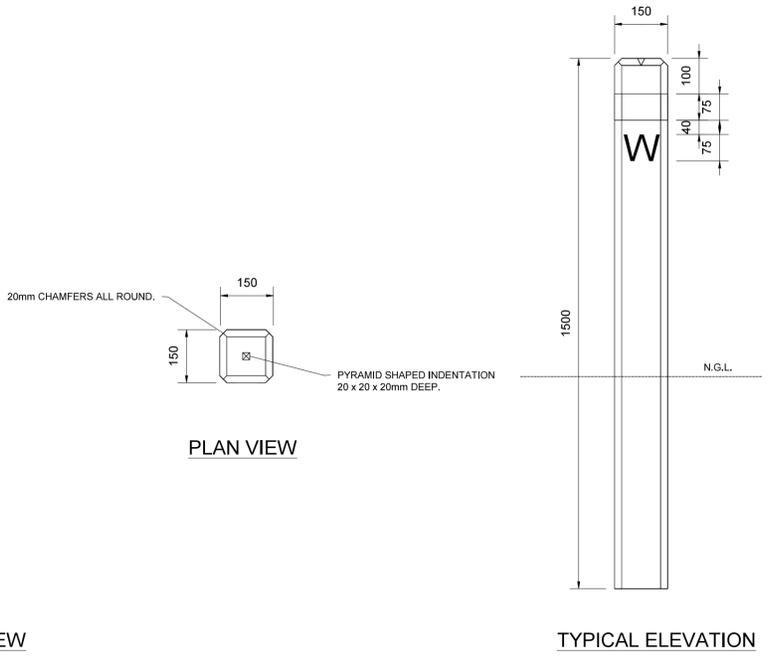
TYPICAL BEDDING DETAILS



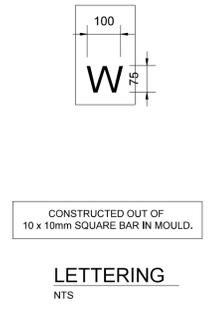
ISOMETRIC VIEW
REINFORCING DETAIL
SCALE 1:10



ISOMETRIC VIEW



TYPICAL ELEVATION



1500mm COLUMN MARKERS
SCALE 1:10

No	Description	Date	By

REVISIONS

Drawn	M.P	Designed	M.P
Checked	M.P	Engineer	
Client App.		Date	

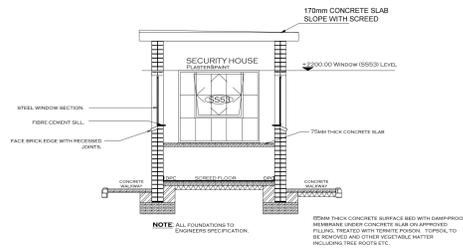
CONSULTANT
MONDE CONSULTING ENGINEERS
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NELSPRUIT
1200
TEL: 013 7524616
FAX: 013 7528166

Client
NKANGALA DISTRICT MUNICIPALITY
2A WATER SISULU STREET
MIDDELBURG
1050
TEL: 013 249 2000

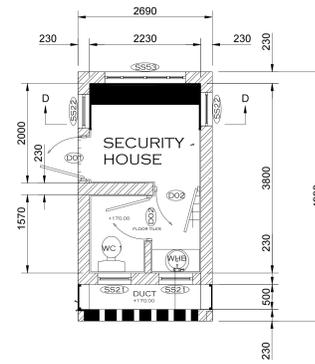
Contract
LOSKOP REGIONAL BULK WATER SUPPLY SCHEME BULKLINE SUPPLY (WORK PACKAGE 4)

Title
TYPICAL PIPE TRENCH DETAILS

Drawing No
MONDE/W/20/01/DR18



SECTION D - D
SCALE 1:50



GUARDHOUSE FLOOR PLAN
SCALE 1:50

DOOR SCHEDULE

CODE	ENTRANCE	TOILET	WATER DISPENSAL
QTY	02	1	2
FRAME	1.50 x 2.100 (DOOR)	1.50 x 2.100 (DOOR)	1.50 x 2.100 (DOOR)
FINISH	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
LEAF	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
IRON	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
MONGERY	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
DETAIL	DOOR AND LEAF AT 1000mm O.P.L.	DOOR AND LEAF AT 1000mm O.P.L.	DOOR AND LEAF AT 1000mm O.P.L.

WINDOW SCHEDULE

CODE	SECURITY HOUSE	SLAB ROOM	TOILET
LOCATION	SECURITY HOUSE	SLAB ROOM	TOILET
QTY	1	1	1
FRAME	1.50 x 2.100 (DOOR)	1.50 x 2.100 (DOOR)	1.50 x 2.100 (DOOR)
FINISH	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
IRON	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
MONGERY	WOOD GRAIN	WOOD GRAIN	WOOD GRAIN
DETAIL	DOOR AND LEAF AT 1000mm O.P.L.	DOOR AND LEAF AT 1000mm O.P.L.	DOOR AND LEAF AT 1000mm O.P.L.

DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			05/2020	NKANGALA DISTRICT MUNICIPALITY		AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			01/2022	 2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004	GUARDHOUSE DETAILS	DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			05/2022			MONDE/W/20/01/DR19