

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

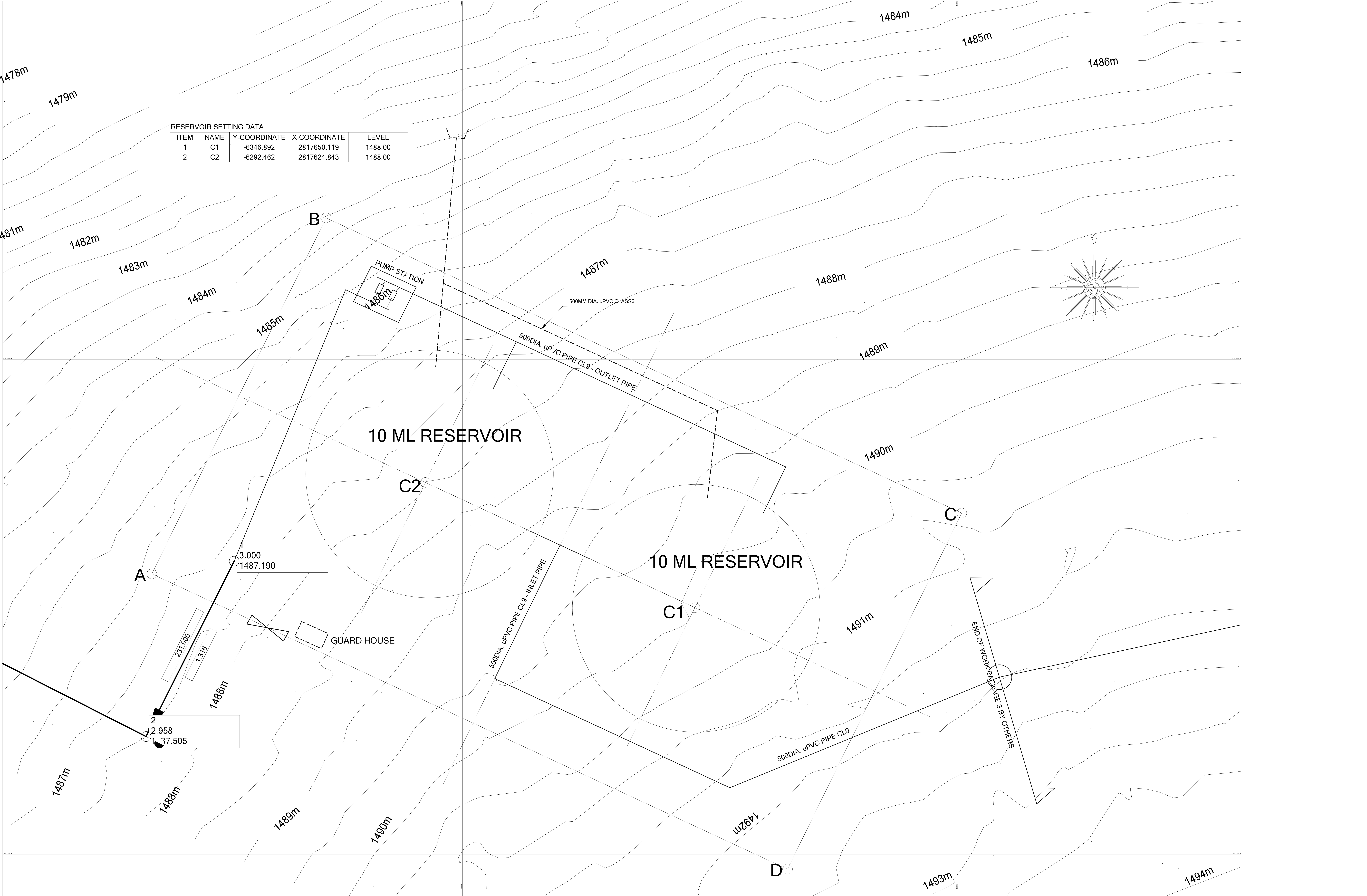
TENDER DRAWINGS

REDUCED BOOK OF DRAWINGS





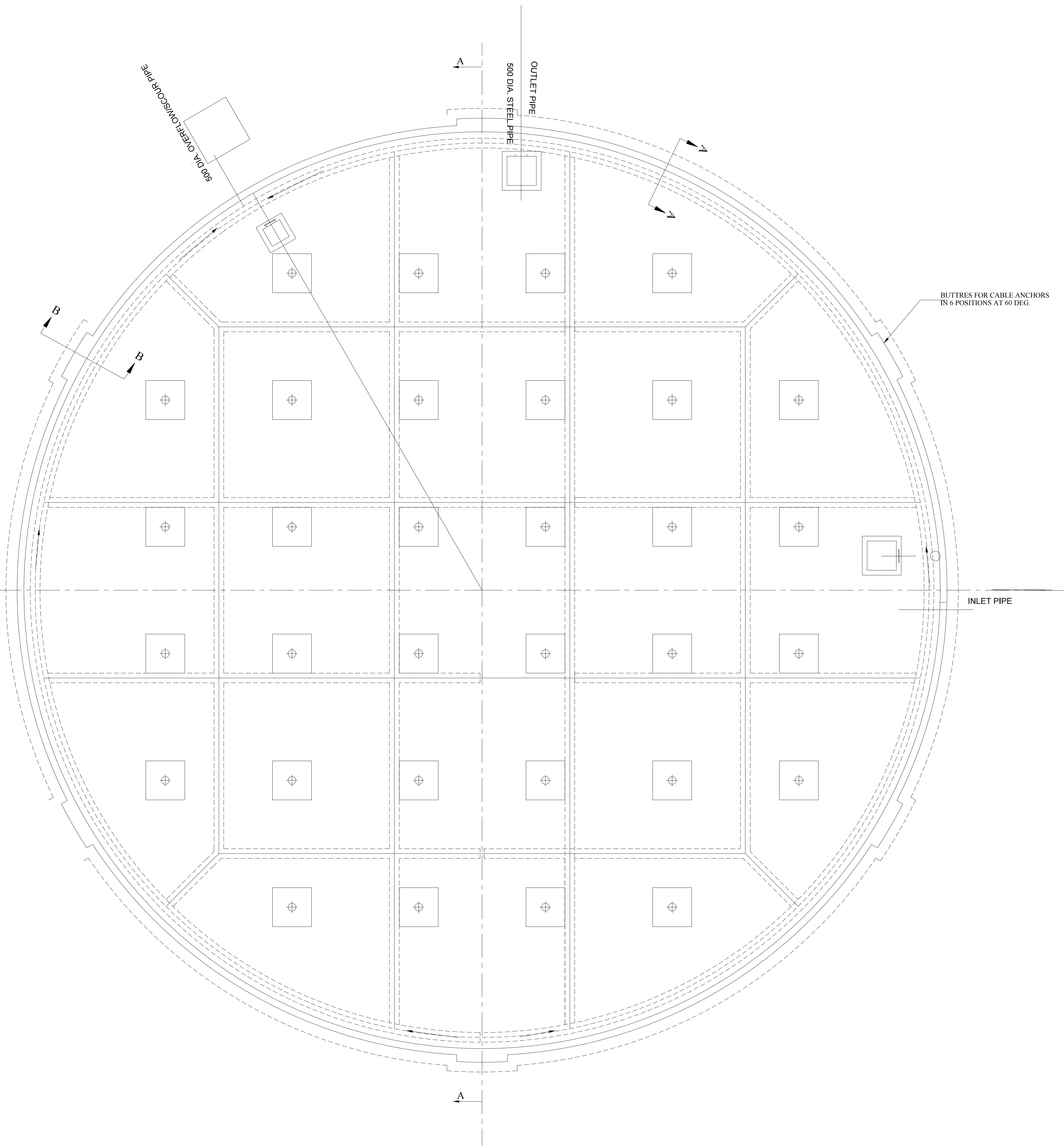
PO BOX 6838
NELSPRUIT
1200

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

DRAWING CHECKED: N. MABUZA	<div>MONDE CONSULTING ENGINEERS</div> <div>27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166</div> <div></div>	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			03/2020	<div>NKANGALA DISTRICT MUNICIPALITY</div> <div></div> <div>2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004</div>	RESERVOIR SITE LAYOUT	AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			05/2020			
DESIGNED BY: N. MABUZA		03	DETAIL DRAWING REV1			01/2022			
		04	TENDER DRAWING			05/2022			DRAWING No. MONDE/W/20/01/DR01



PLAN VIEW: SUBSOIL LAYOUT
SCALE 1 : 100

NOTES:

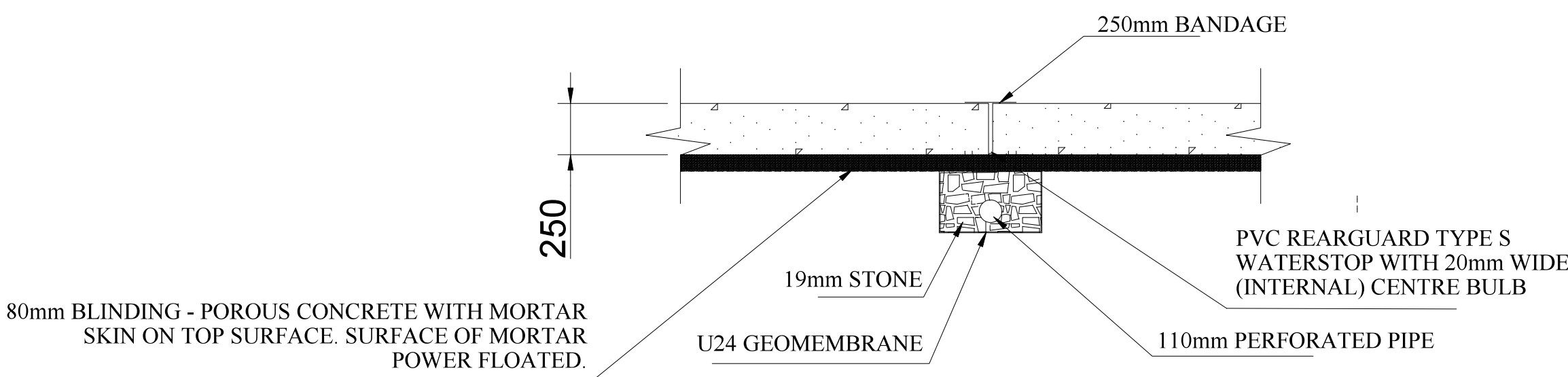
1. CONCRETE:

- (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

2. COVER TO REINFORCEMENT 40mm



3. EXCAVATIONS:

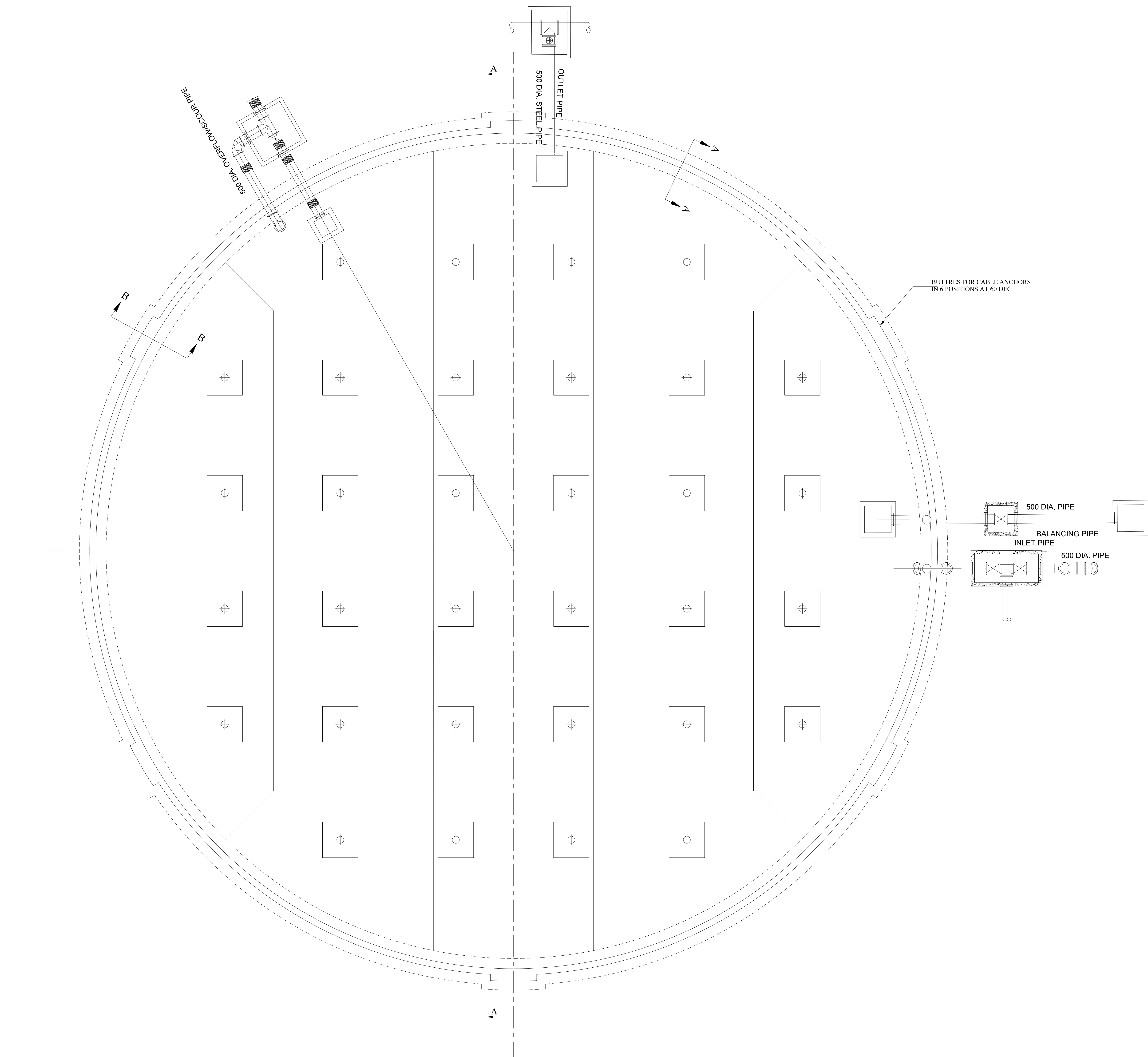
- (i) EXCAVATE IN NATURAL GROUND AS SHOWN.
- (ii) FINAL EXCAVATION DEPTH WILL BE DETERMINED ON THE SITE.
- (iii) RECOMPACT SUITABLE EXCAVATED MATERIAL AS APPROVED BY THE ENGINEER ON SITE.
- IMPORT SUITABLE APPROVED MATERIAL IF NECESSARY.



EXPANSION JOINT DETAIL

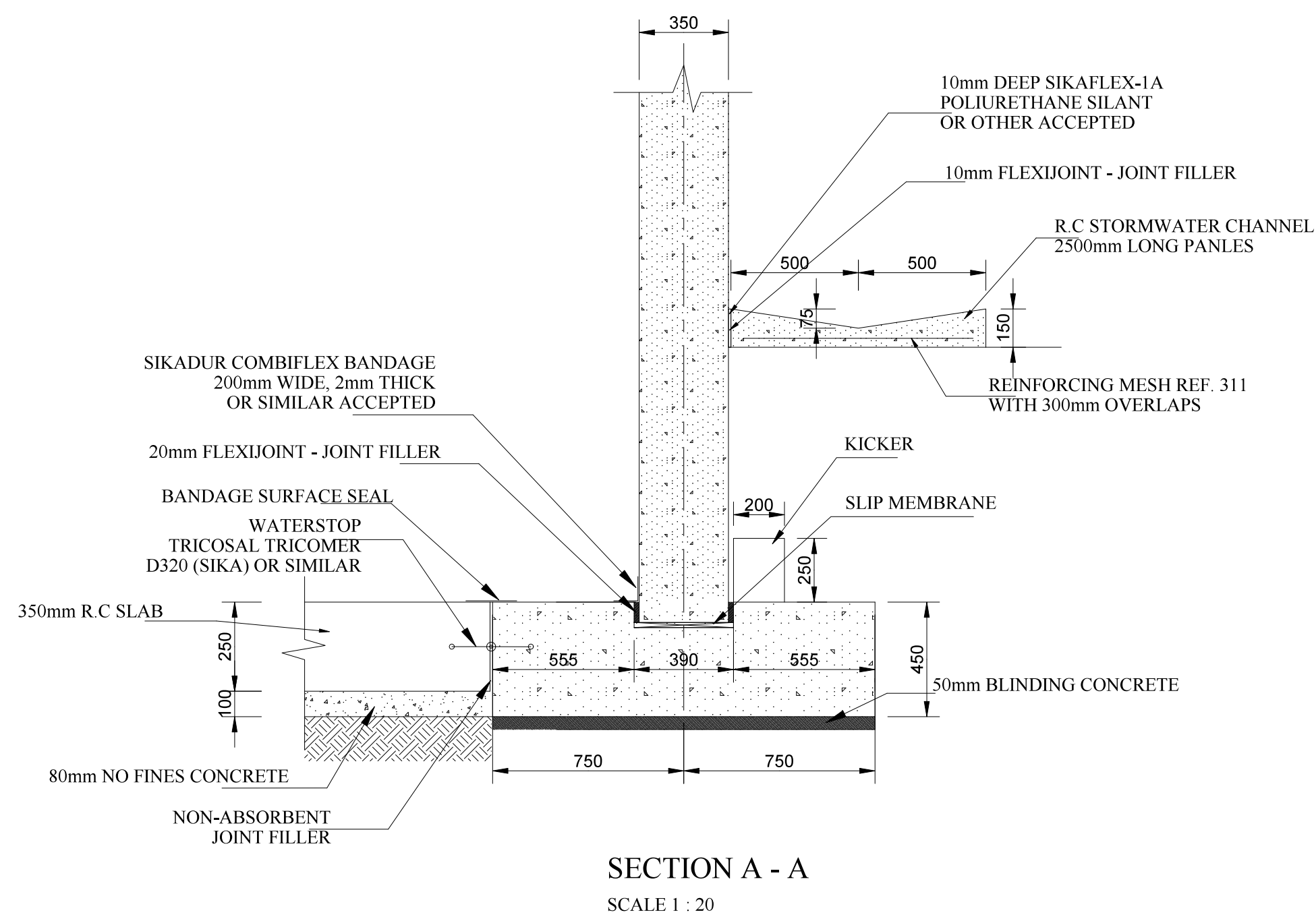
SCALE 1 : 25

DRAWING CHECKED: N. MABUZA	<div>MONDE CONSULTING ENGINEERS</div> <div>27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166</div> <div></div>	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			03/2020	<div>NKANGALA DISTRICT MUNICIPALITY</div> <div></div> <div>2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004</div>	RESERVOIR SUBSOIL DRAINAGE LAYOUT	AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			05/2020			
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			05/2022			DRAWING No. MONDE/W/20/01/DR02

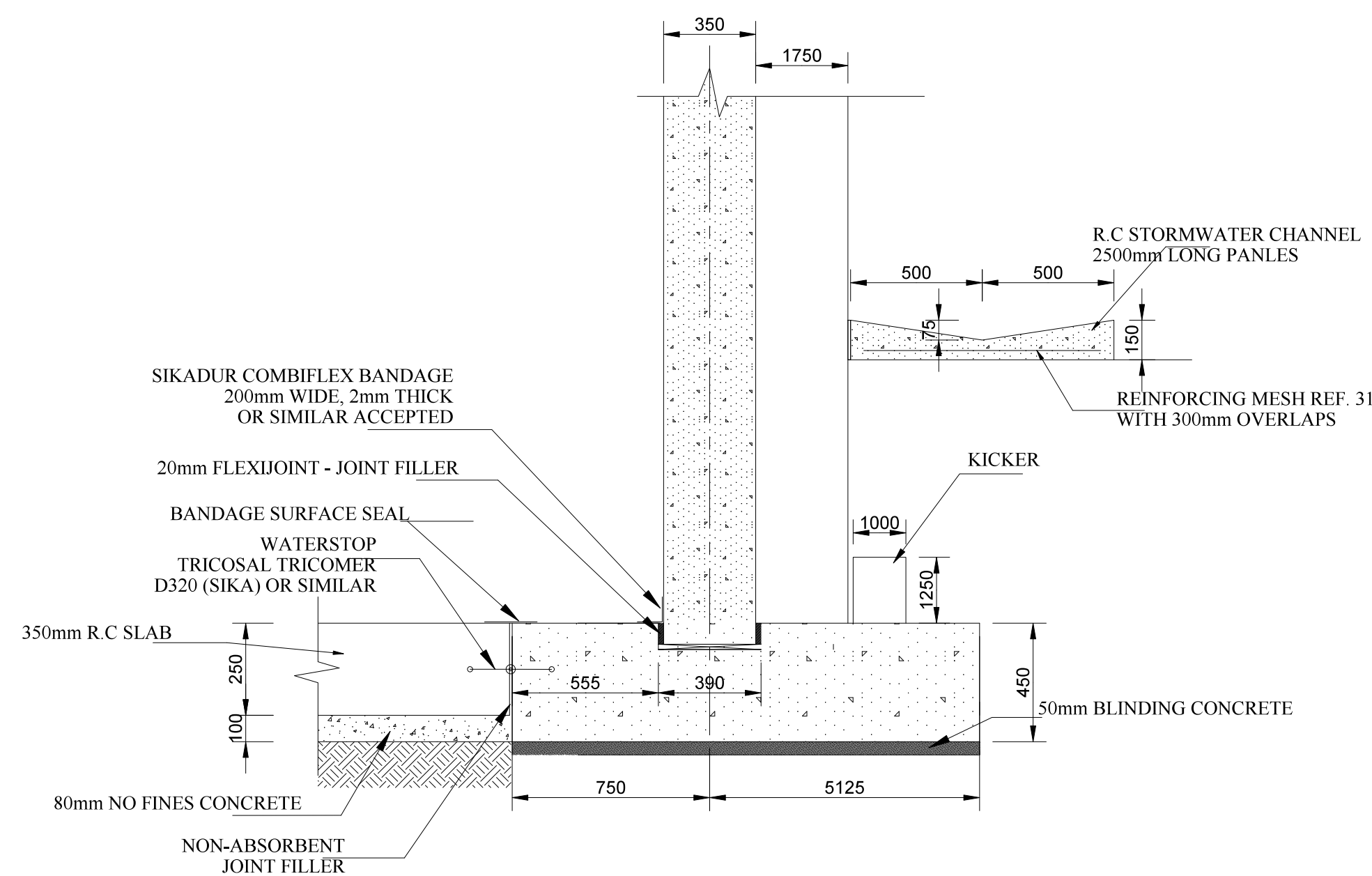


FOUNDATION LAYOUT
SCALE 1 : 100



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

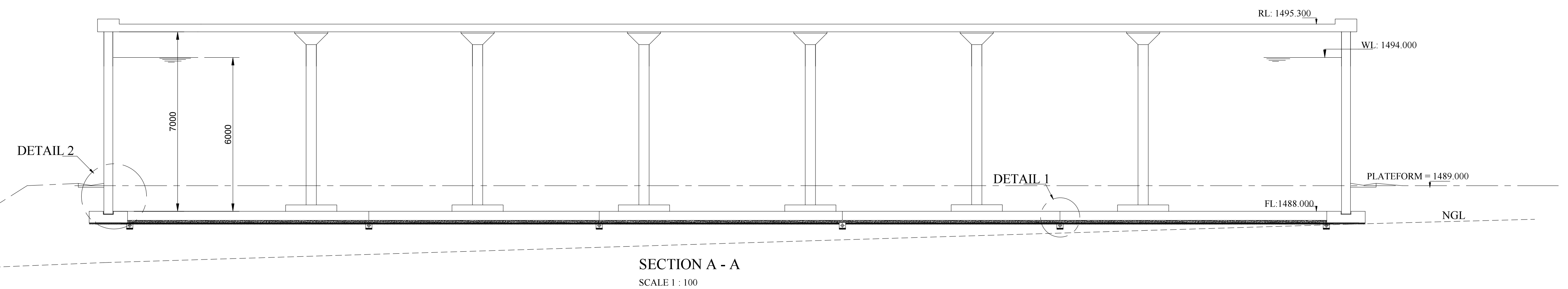
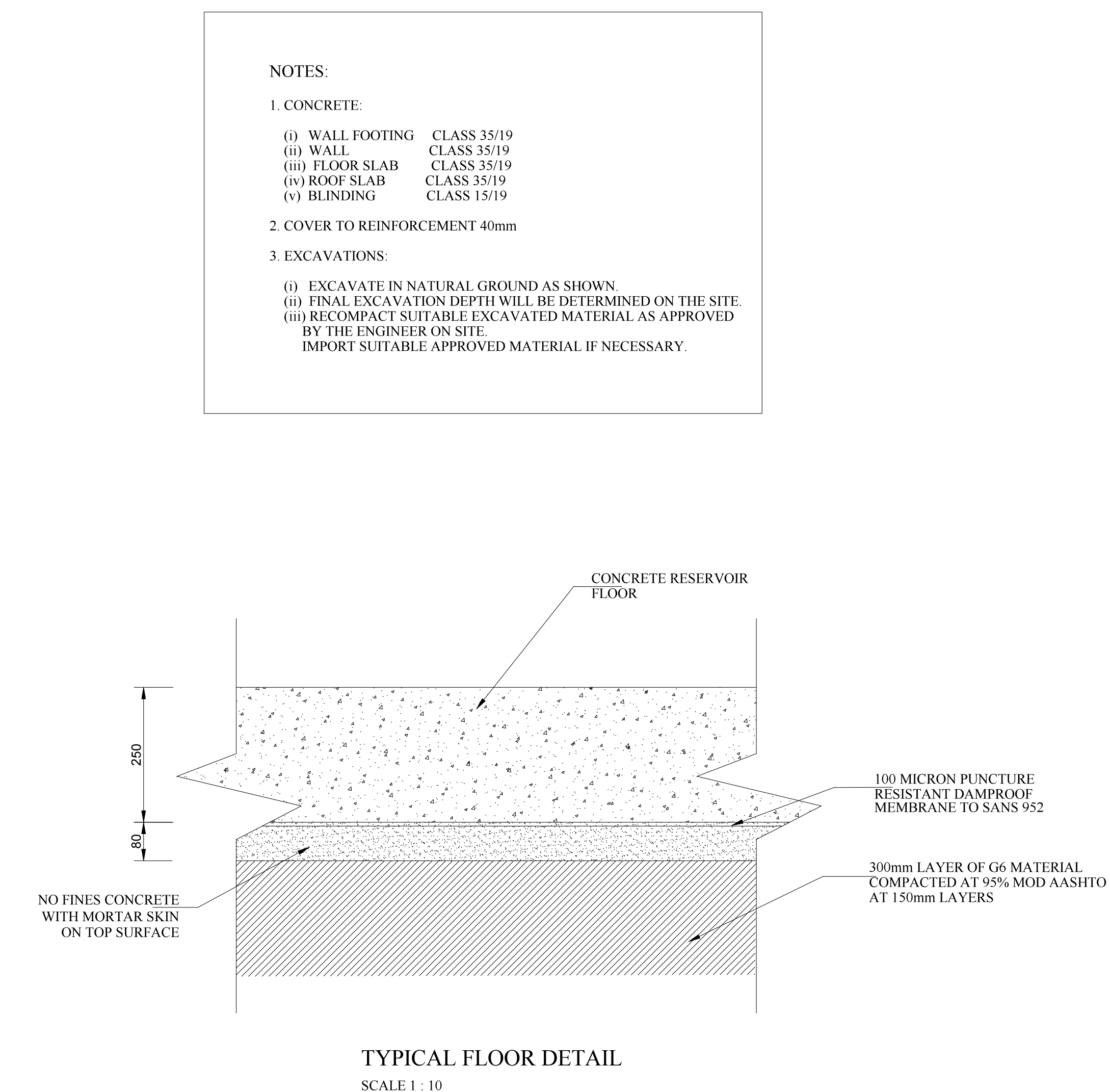




SECTION A - A
SCALE 1 : 20

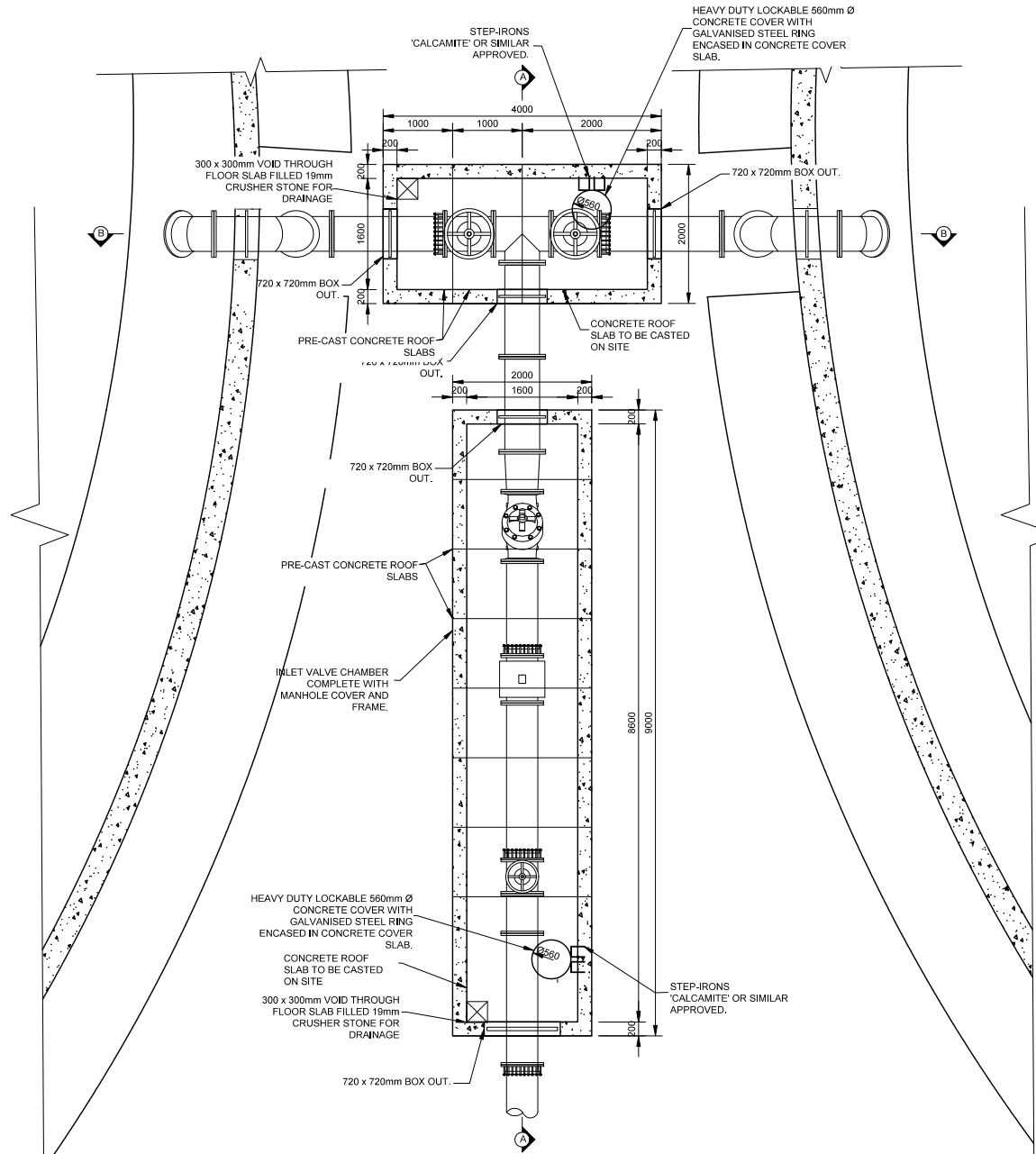


SECTION B - B
SCALE 1 : 20

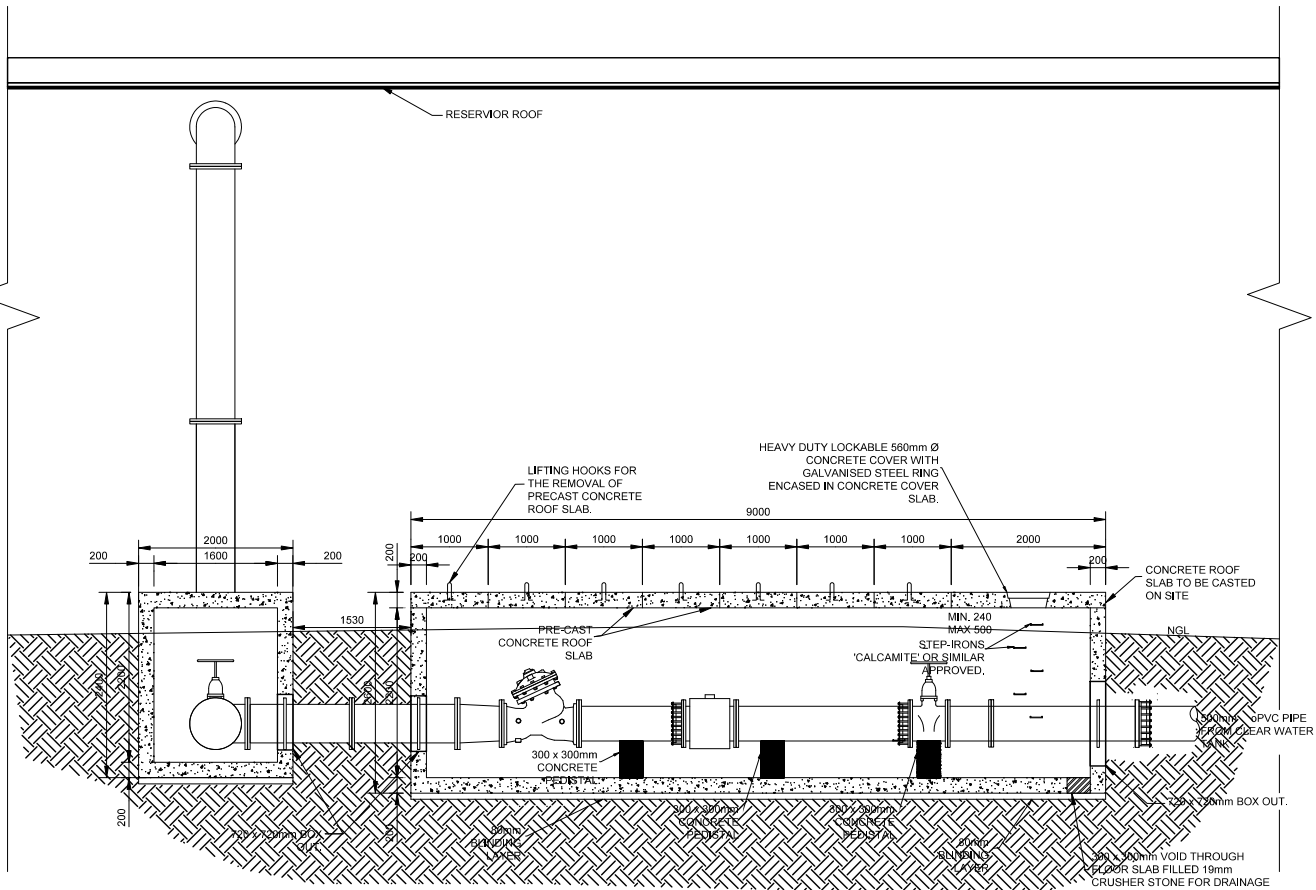
DRAWING CHECKED: N. MABUZA	<div>MONDE CONSULTING ENGINEERS</div> <div>27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166</div> <div></div>	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI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



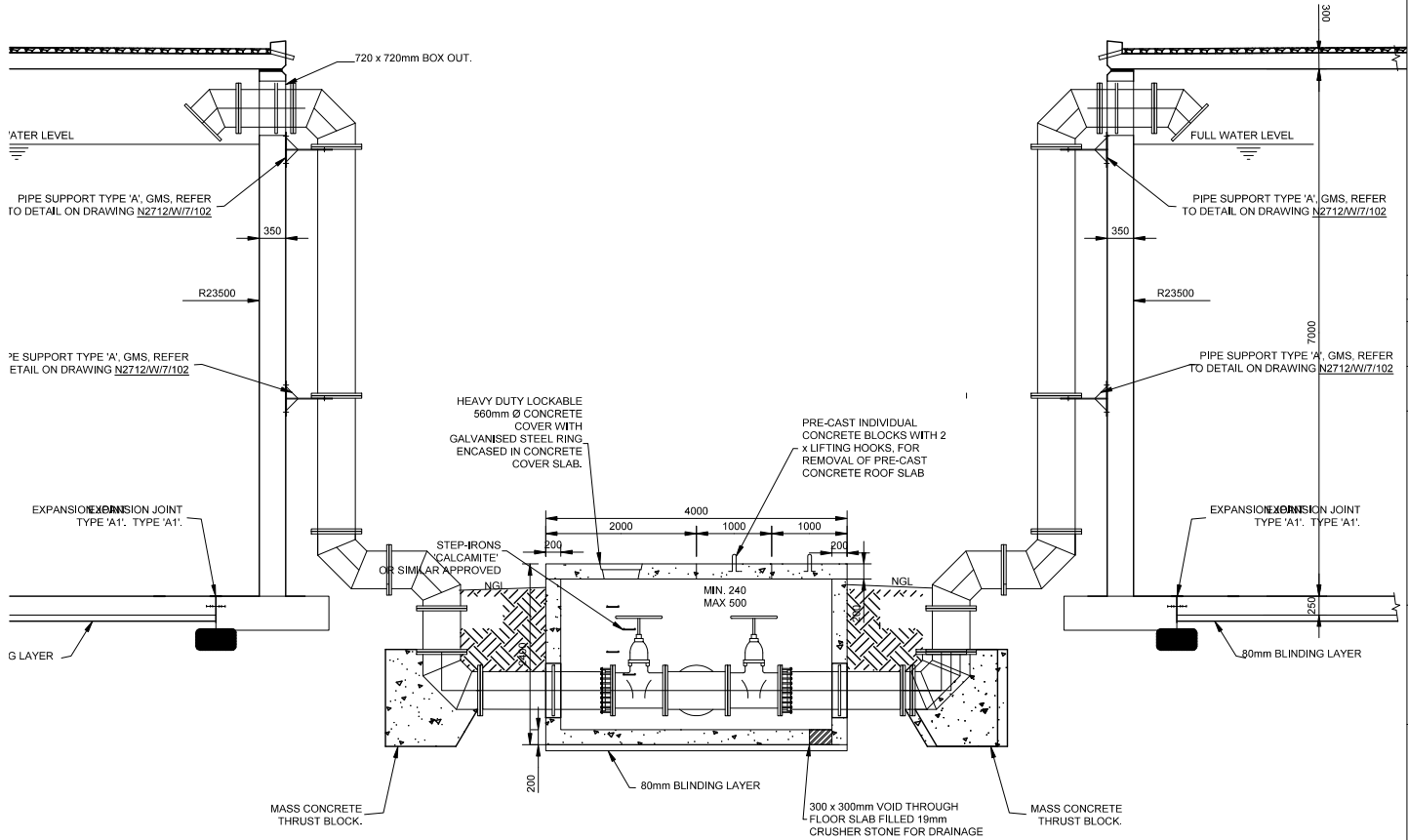
DRAWING CHECKED: N. MABUZA	<div><p>MONDE CONSULTING ENGINEERS 27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166</p></div>	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			03/2020	<div><p>NKANGALA DISTRICT MUNICIPALITY 2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004</p></div>	RESERVOIR LAYOUT- FLOOR PLAN AND SECTION	AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			05/2020			DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			09/2022			MONDE/W/20/01/DR04



PLAN VIEW: INLET VALVE CHAMBER
SCALE 1:50



SECTION A - A: DETAILED SECTION THROUGH INLET VALVE CHAMBER
SCALE 1:50



SECTION B - B : DETAILED SECTION THROUGH INLET VALVE CHAMBER
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-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.
 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.
- 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.
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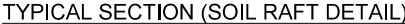
No.	DATE	BY
REVISIONS		
DESIGN BY:	DRAWN BY:	
M.P KANGUDI	M.P KANGUDI	
CHECKED BY:	APPROVED BY:	
M.P KANGUDI	DATE:	

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

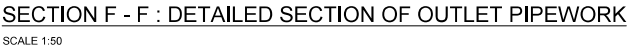
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PROJECT No:	CAD FILE NAME:	
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DATE:	SHEET OF	SCALE
MAY 2022	10	AS SHOWN
DRAWING No:	REV:	
MONDE/W/20/01/DR05	REV 00	

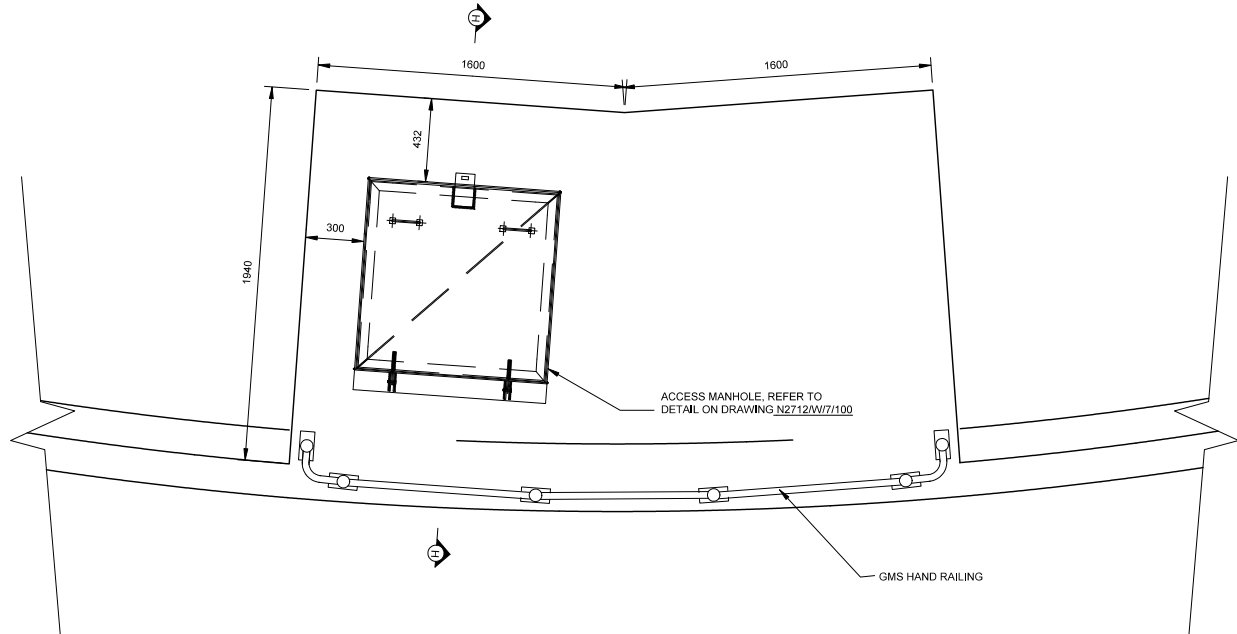


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MONDE/W/20/01/DR06	REV 00

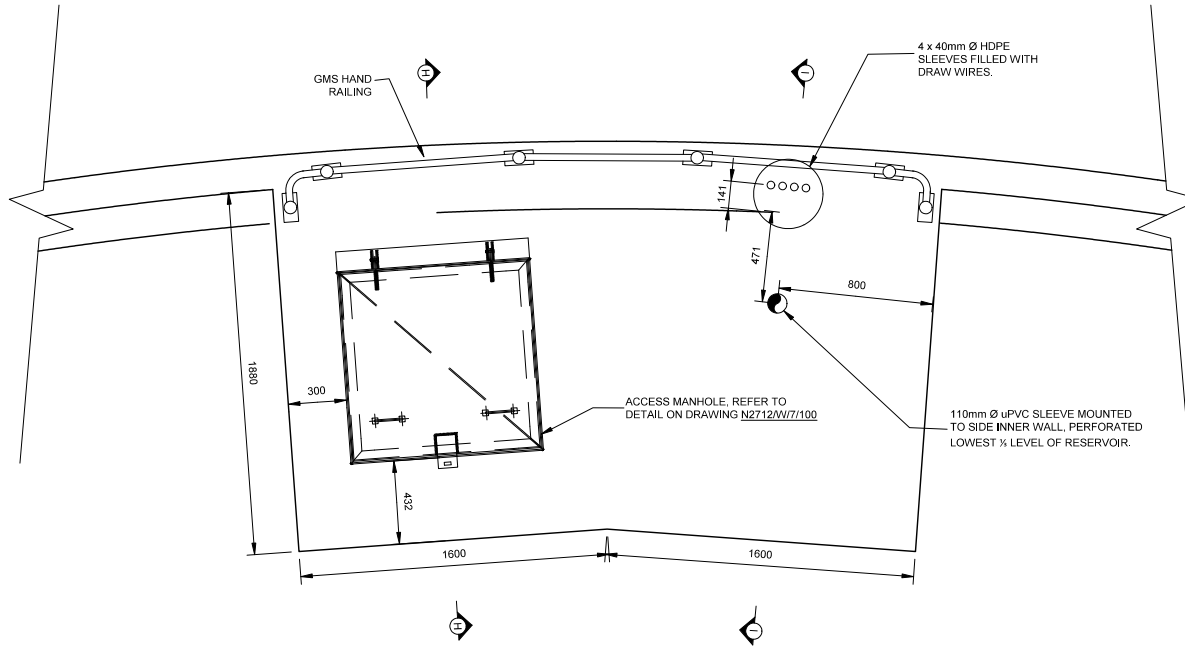


- ## PLAN OF OUTLET PIPEWORK

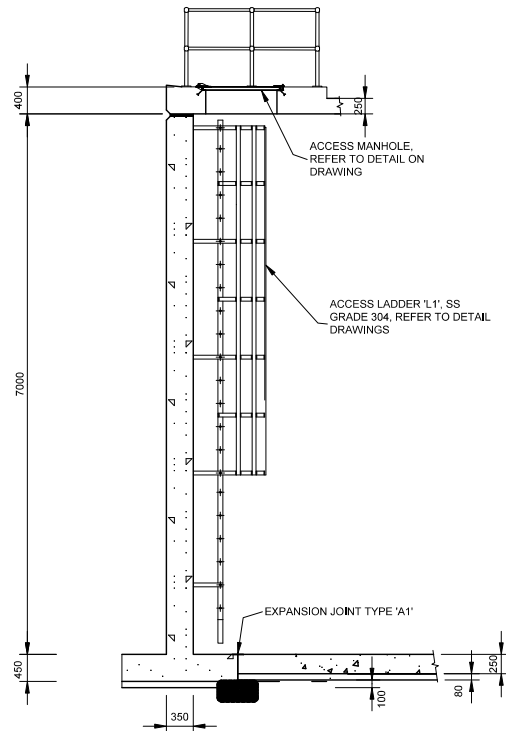




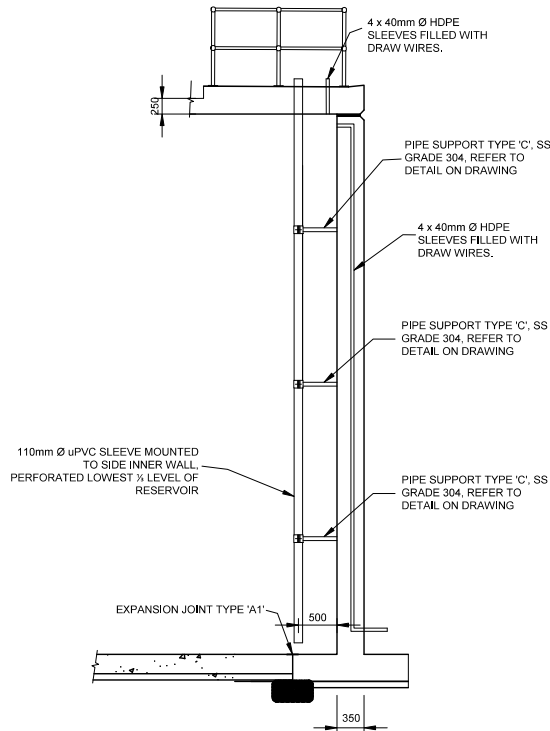
DETAIL 'C' - ACCESS MANHOLE
SCALE 1:20



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



SECTION H-H
SCALE 1:50




SECTION I-I
SCALE 1:50

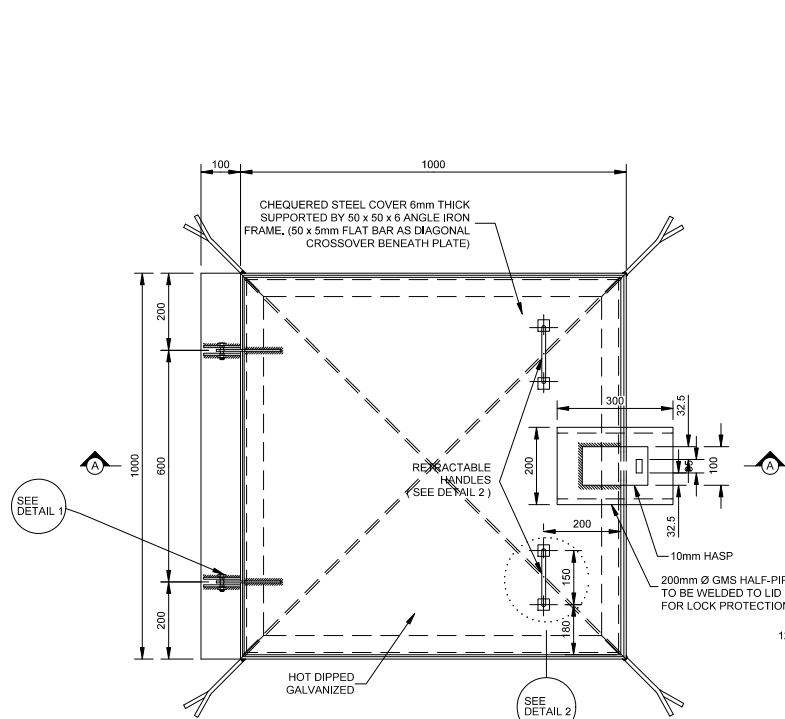
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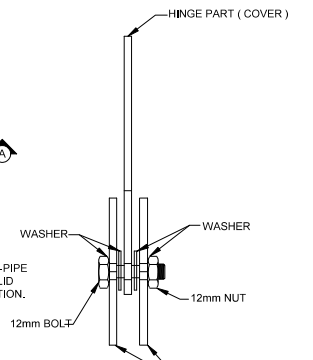
STRUCTURAL STEEL NOTES:

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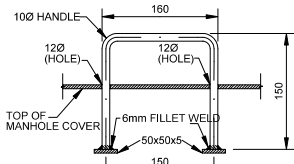
No.		DATE	BY
REVISIONS			
DESIGN BY: M.P KANGUDI		DRAWN BY: M.P KANGUDI	
CHECKED BY: M.P KANGUDI		APPROVED BY: DATE:	
<div><div><p>MONDECONSULTING ENG. AND PROJECT MANAGERS</p><p>P O BOX 6838 NELSPRUIT 1200 Tel: 013 752 4616 FAX: 013 752 6166</p></div></div>			
CLIENT:			
NKANGALA DISTRICT MUNICIPALITY			
<div><div><p>2A WALTER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2000</p></div></div>			
PROJECT:			
LOSKOP REGIONAL BULK WATER SUPPLY SCHEME 2x10MI 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	SCALE AS SHOWN	
DRAWING No: MONDE/W/20/01/DR08		REV: REV 00	



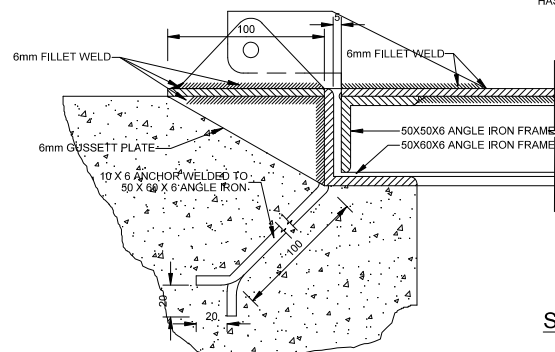
MANHOLE COVER AND FRAME DETAIL
SCALE 1:10



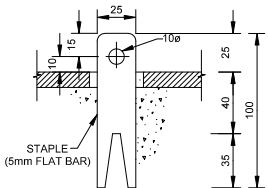
**DETAIL 1
TOP VIEW OF HINGE**
SCALE 1:2.5



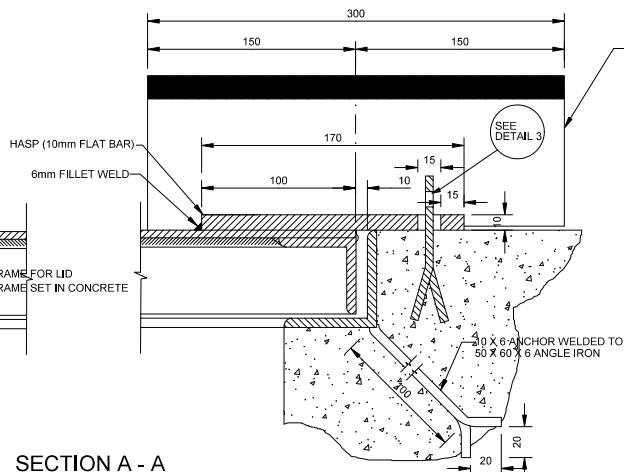
DETAIL 2
SCALE 1:5



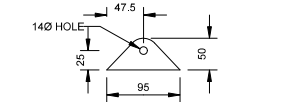
SECTION A - A
SCALE 1:2.5



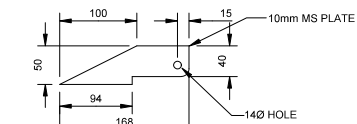
DETAIL 3
SCALE 1:2.5



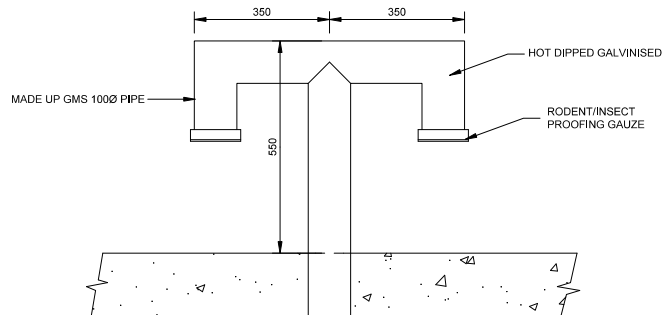
SECTION A - A
SCALE 1:5



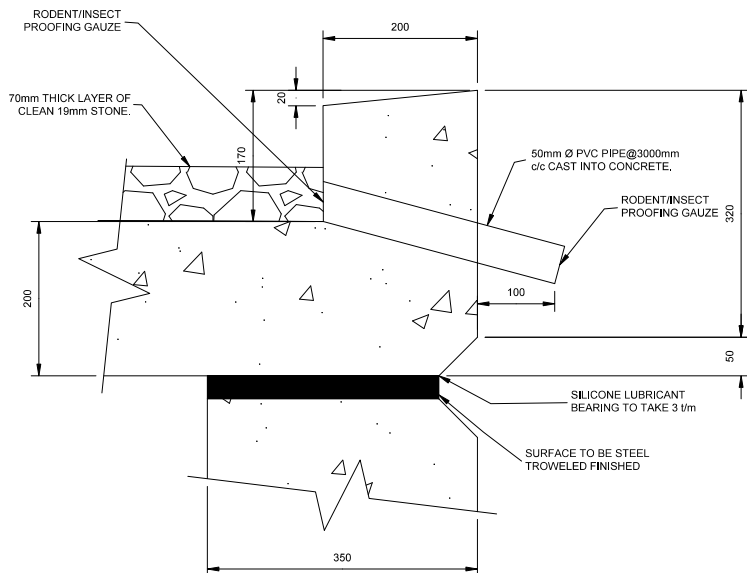
HINGE PART FOR FRAME
SCALE 1:5



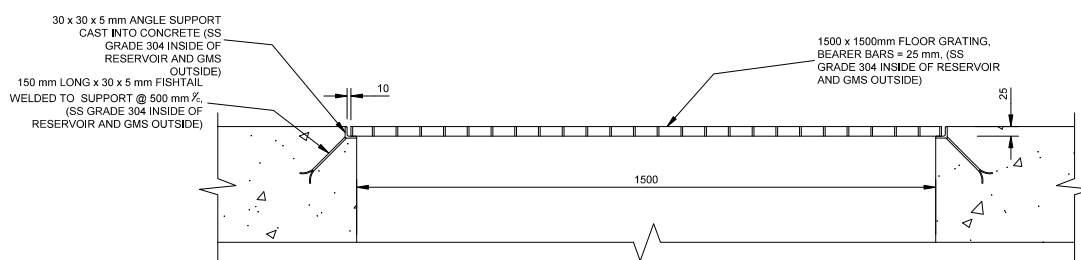
HINGE PART FOR COVER
SCALE 1:5



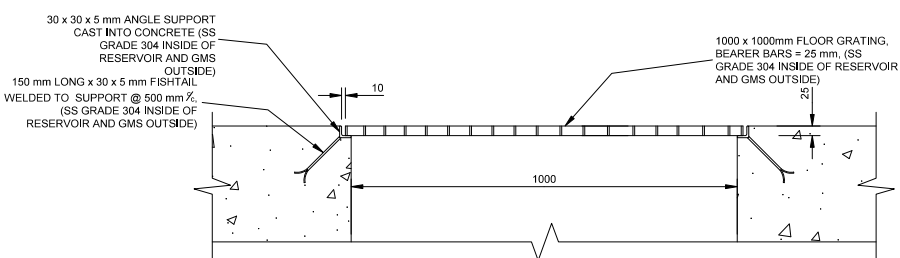
ROOF VENT DETAIL
SCALE 1:10



DETAIL 'B' ROOF UPSTAND
SCALE 1:5



FLOOR GRATING DETAIL
SCALE 1:10



FLOOR GRATING DETAIL
SCALE 1:10

CONCRETE NOTES:

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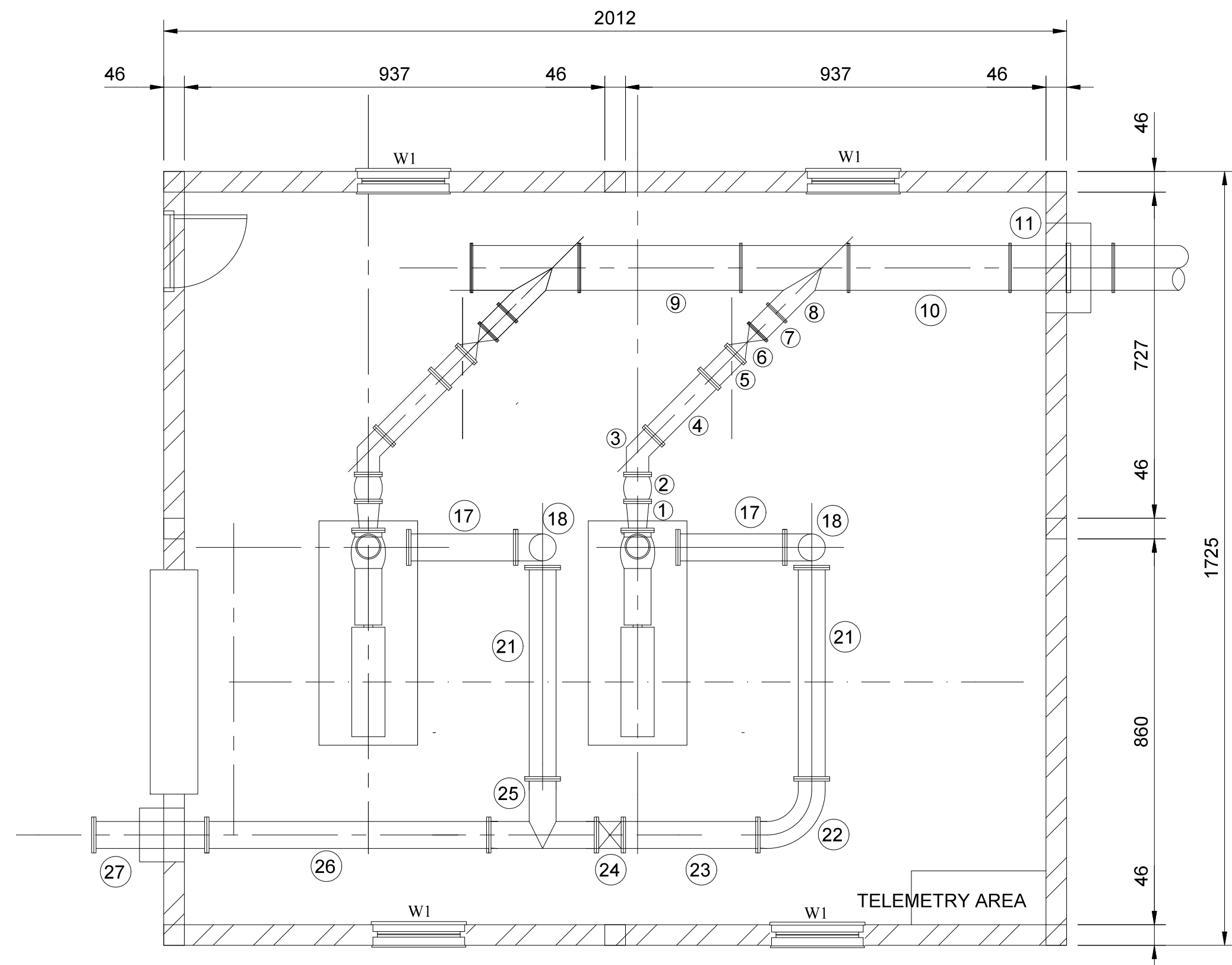
No.	DATE	BY
REVISIONS		
DESIGN BY:	DRAWN BY:	
M.P KANGUDI	M.P KANGUDI	
CHECKED BY:	APPROVED BY:	
M.P KANGUDI	DATE:	

MONDE CONSULTING ENG. AND PROJECT MANAGERS
P.O BOX 6838
NELSPRUIT
1200
Tel: 013 752 4616
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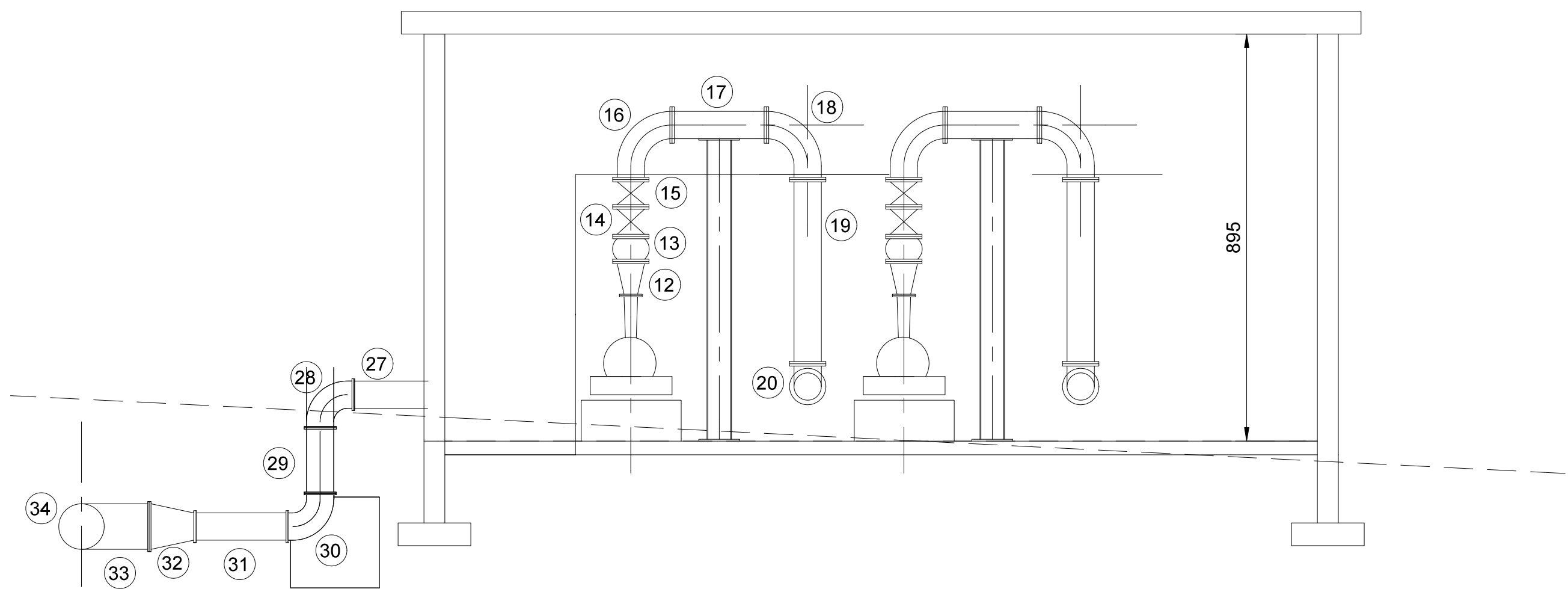
CLIENT:
NKANGALA DISTRICT MUNICIPALITY
2A WALTER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2000

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

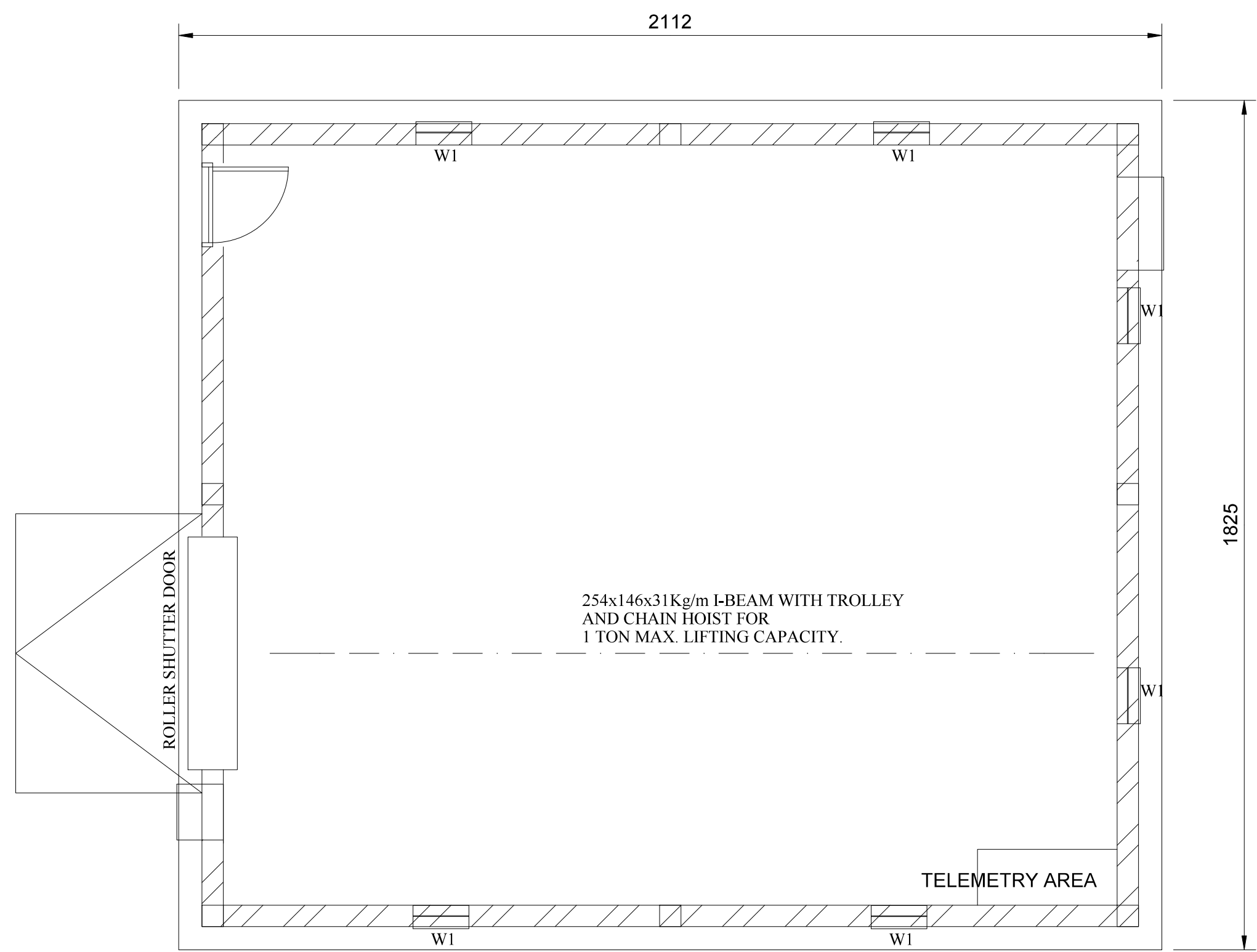
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TYPICAL DETAILS 1		
PROJECT No:	CAD FILE NAME:	
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DATE:	SHEET OF	SCALE
MAY 2022	OF	AS SHOWN
DRAWING No:	REV:	
MONDE/W/20/01/DR09	REV 00	



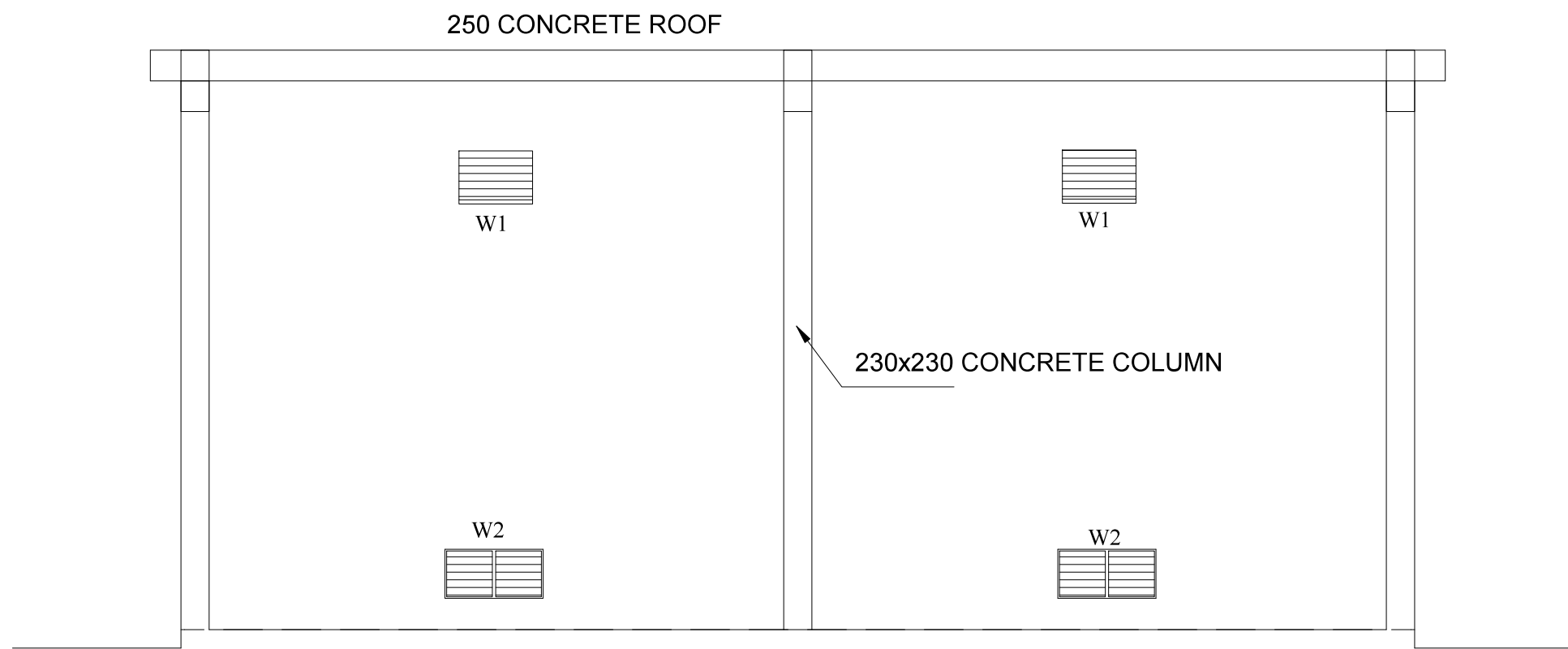
PLAN VIEW: PUMP HOUSE LAYOUT
SCALE 1 : 50



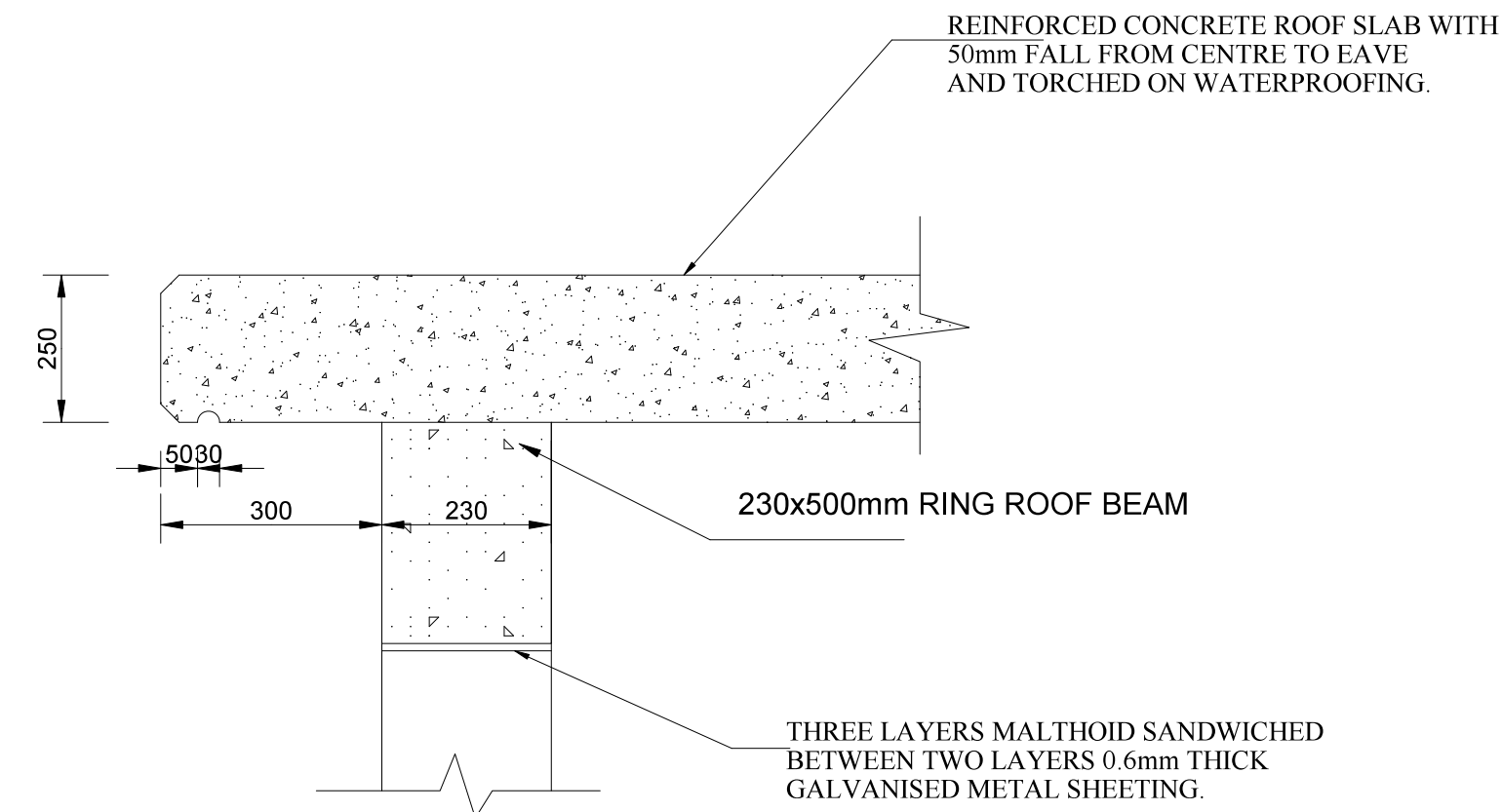
SECTION: PUMP HOUSE LAYOUT
SCALE 1 : 50



PLAN VIEW: PUMP HOUSE ROOF LAYOUT
SCALE 1 : 50



SIDE VIEW: PUMP HOUSE
SCALE 1 : 50



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:

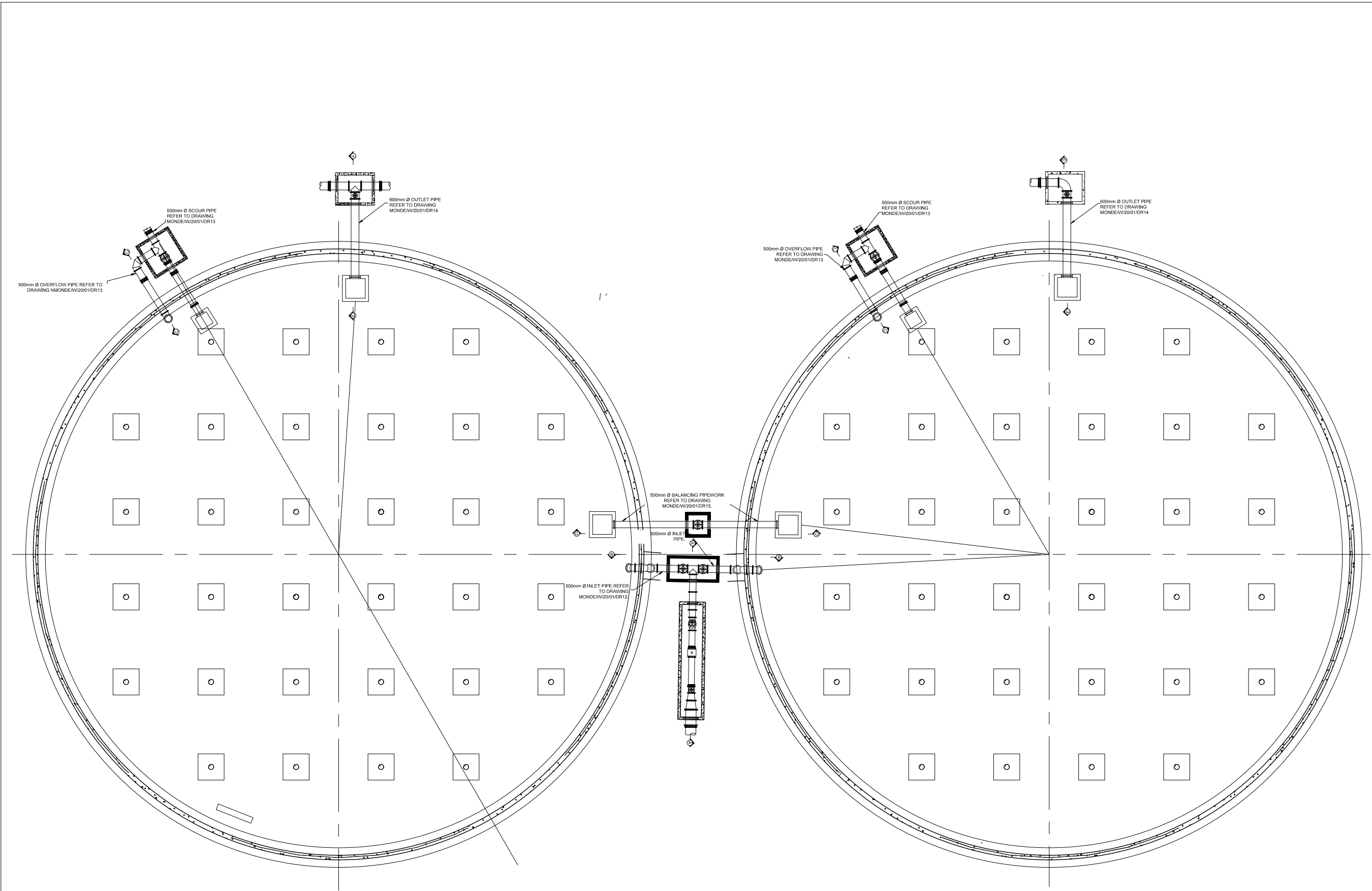
EXTERNAL FACE BRICK ON EDGE, INSIDE PLASTER



FLOOR:

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

DOOR SCHEDULE			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 W188 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 CHROMADECK 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			03/2020	 NKANGALA DISTRICT MUNICIPALITY 2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004	PUMP HOUSE DETAILS	AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			01/2022			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:	
		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: RESERVOIR CHAMBERS			
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/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	TABLE 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 864, 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.

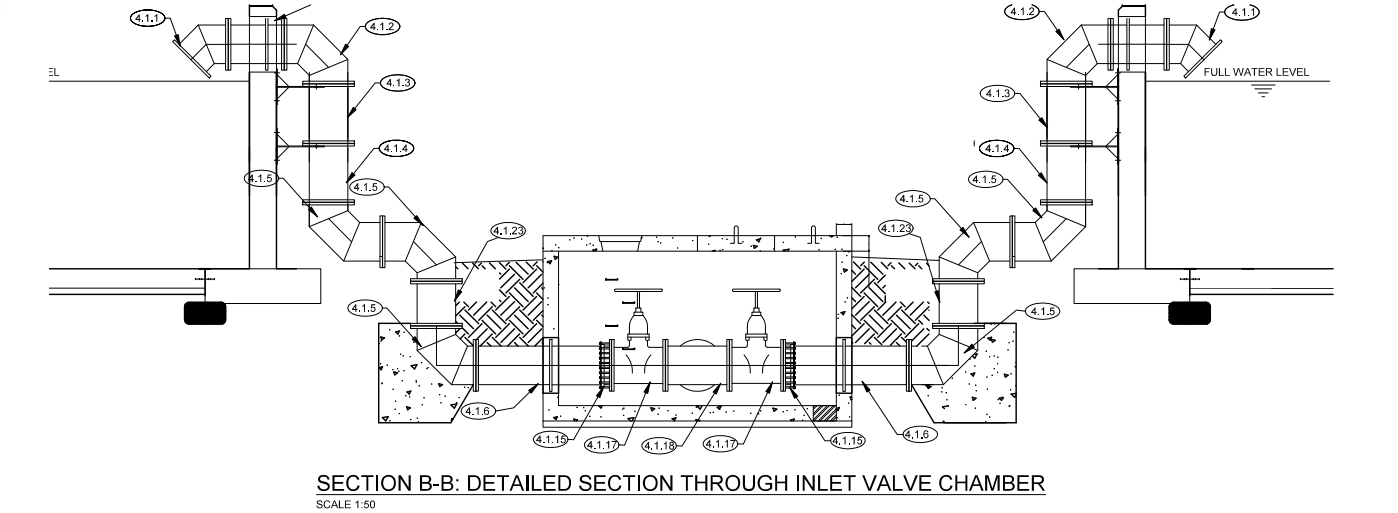
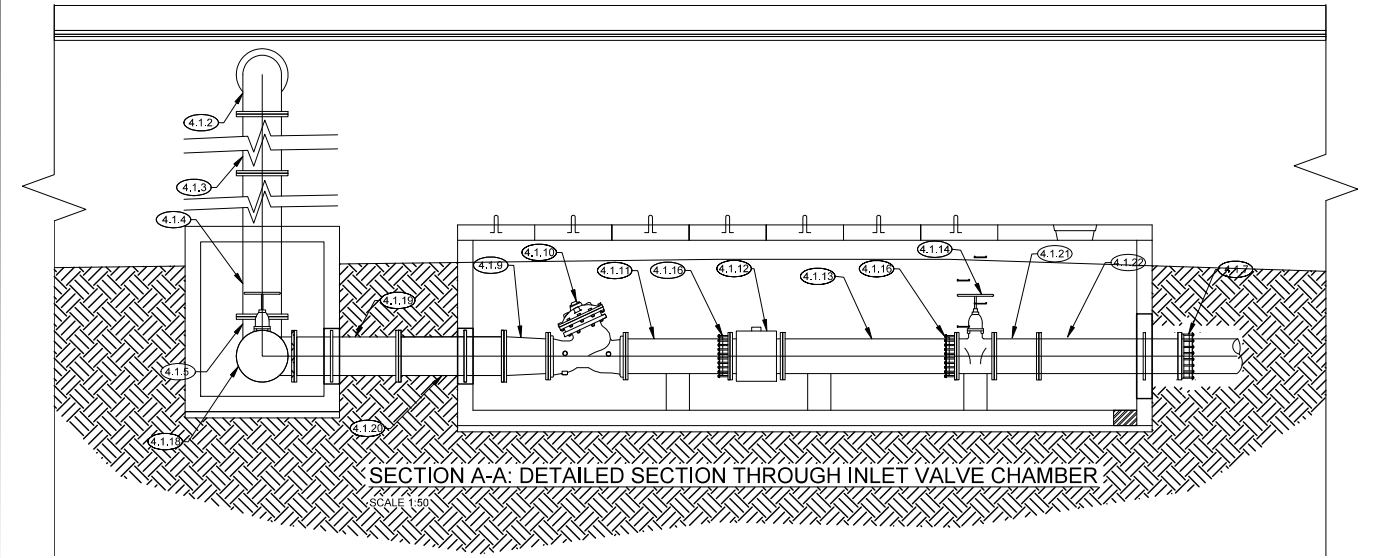
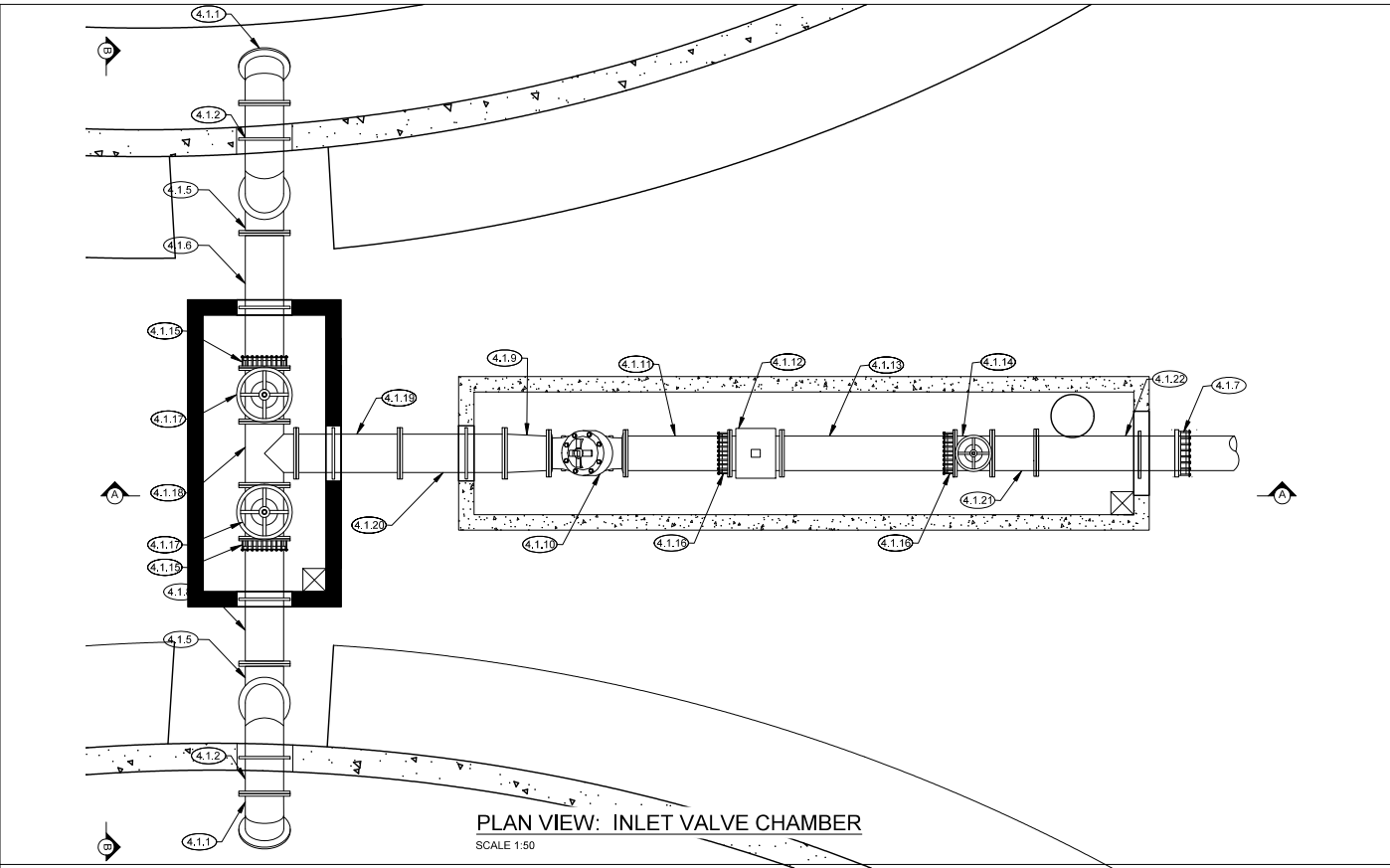
10. **SUPPORTS AND ANCHOR SUPPORTS**
SUPPORTS OR ANCHOR SUPPORTS ARE REQUIRED FOR CERTAIN PIPE ITEMS.
TENDERER TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM, IF NOT DETAILED. NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH 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

PIPELINE INLET ASSEMBLY					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	
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, MS 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:	
		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:			
INLET PIPING DETAILS			
PROJECT No: MONDE/W/20/01		CAD FILE NAME: PIPE FITTINGS1.DWG	
DATE: MAY 2022	SHEET OF	SCALE AS SHOWN	
DRAWING No: MONDE/W/20/01/DR12		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 |
|-------|------------------|-----------|
| 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 WIA 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.

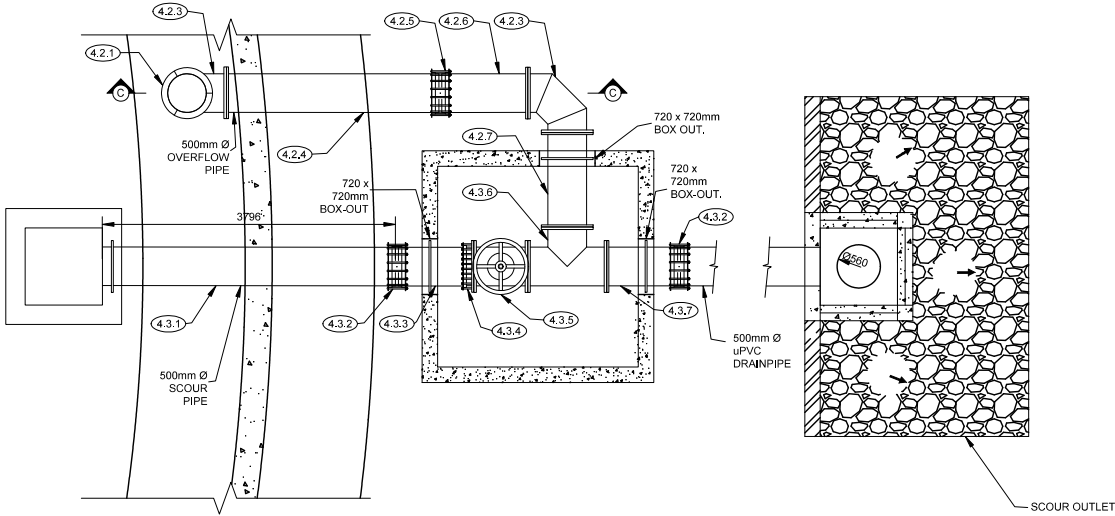
A WASHER SHALL BE FITTED UNDER ALL BOLT/SCREW HEADS AND NUTS.

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

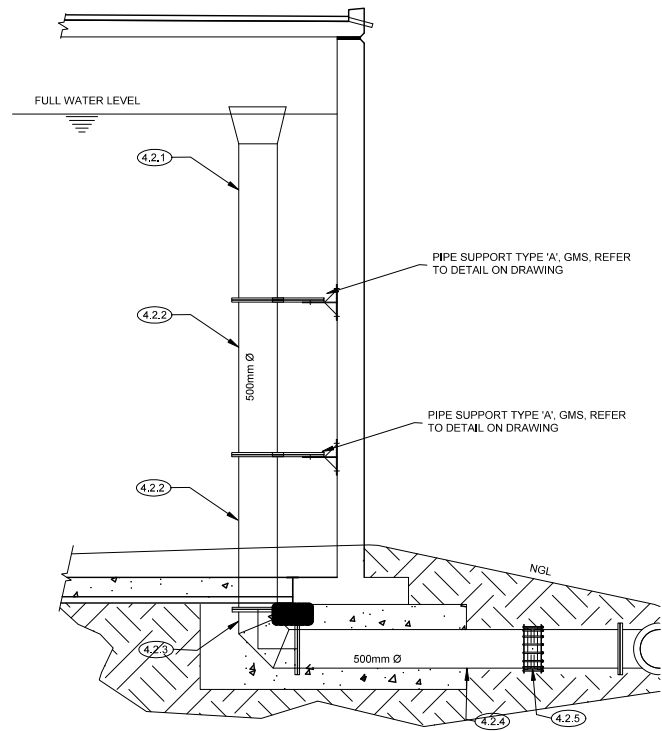
500mm Ø OVERFLOW PIPE ASSEMBLY					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
SC 4.2.1	2	10	EP	700mm Ø TO 500mm Ø MS REDUCING PIPE PIECE FLANGED ONE END.	
SC 4.2.2	4	10	EP	500mm Ø FLANGED MS PIPE.	
SC 4.2.3	4	10	EP	500mm Ø 90° FLANGED MS ELBOW.	
SC 4.2.4	1	10	EP	500mm Ø MS PIPE PIECE, 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.	





PLAN : OVERFLOW PIPE WORK & SCOUR VALVE CHAMBER

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	500Ø x 500Ø 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.	



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:	
		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: SCOUR AND OVERFLOW 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/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.

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	TABLE 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
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* 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 WIA 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:

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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.

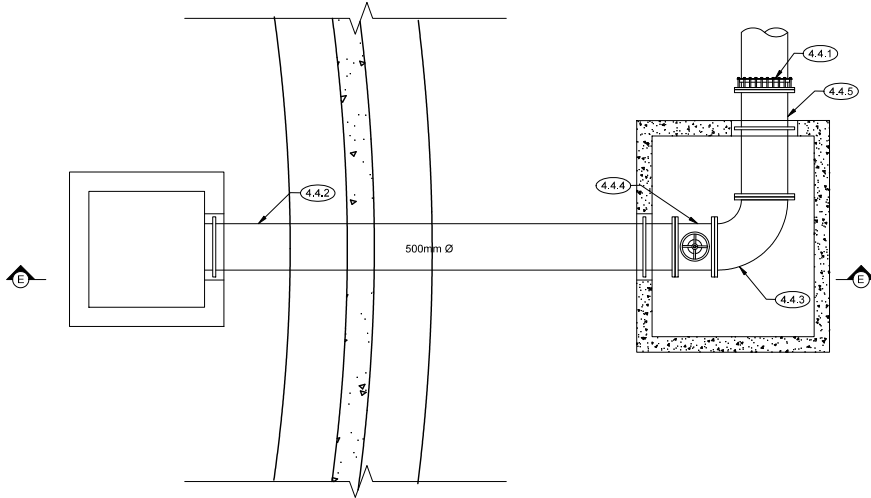
12. PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

PIPE LIST

OUTLET PIPEWORK					AMEND
ITEM	AMOUNT	CLASS	PROTEC-TION	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.	
4.4.3	1	10	EP	500mm Ø 90° FLANGED MS ELBOW.	
4.4.4	1	10	FP	500mm Ø RSV GATE VALVE.	
4.4.5	1	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	

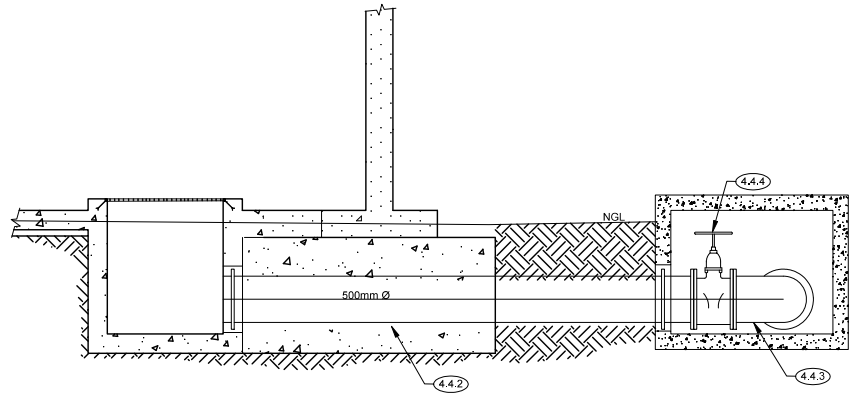
PIPE LIST

OUTLET PIPEWORK					AMEND
ITEM	AMOUNT	CLASS	PROTEC-TION	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.	
4.5.3	2	10	EP	500mm Ø FLANGED GMS PIPE PIECE, WITH POSITION OF PUDDLE FLANGE AS INDICATED.	
4.5.4	1	10	FP	500mm Ø RSV GATE VALVE.	
4.5.5	1	10	EP	500mm Ø 90° FLANGED EQUAL TEE.	

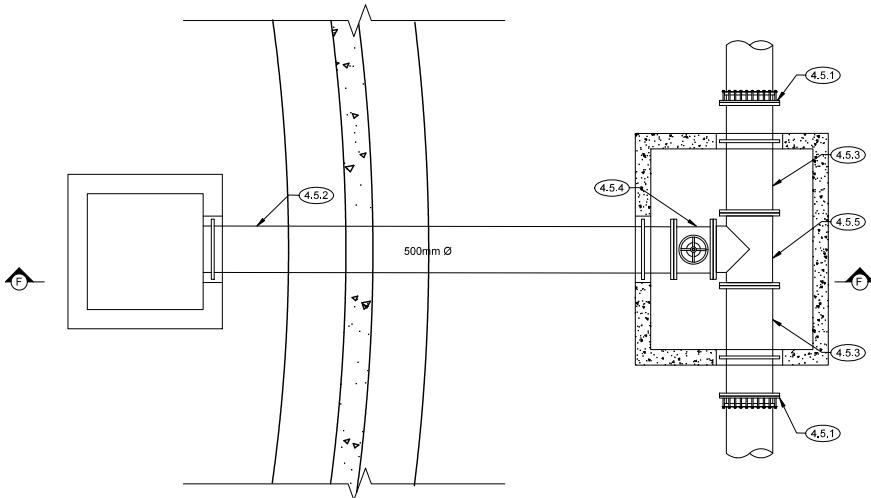


PLAN OF OUTLET PIPEWORK ON RESERVOIR

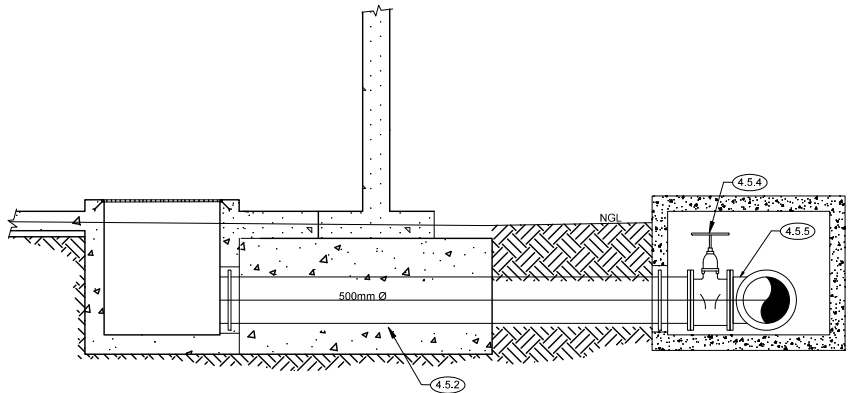
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SECTION E-E : DETAILED SECTION OF OUTLET PIPEWORK



PLAN OF OUTLET PIPEWORK ON RESERVOIR 2



SECTION F-F : DETAILED SECTION OF OUTLET PIPEWORK

No.		DATE	BY
REVISIONS			
DESIGN BY: 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: OUTLET PIPING DETAILS			
PROJECT No: MONDE/W/20/01		CAD FILE NAME: PIPE FITTINGS1.DWG	
DATE: MAY 2022	SHEET OF	SCALE AS SHOWN	
DRAWING No: MONDE/W/20/01/DR14		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
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 WIA 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.

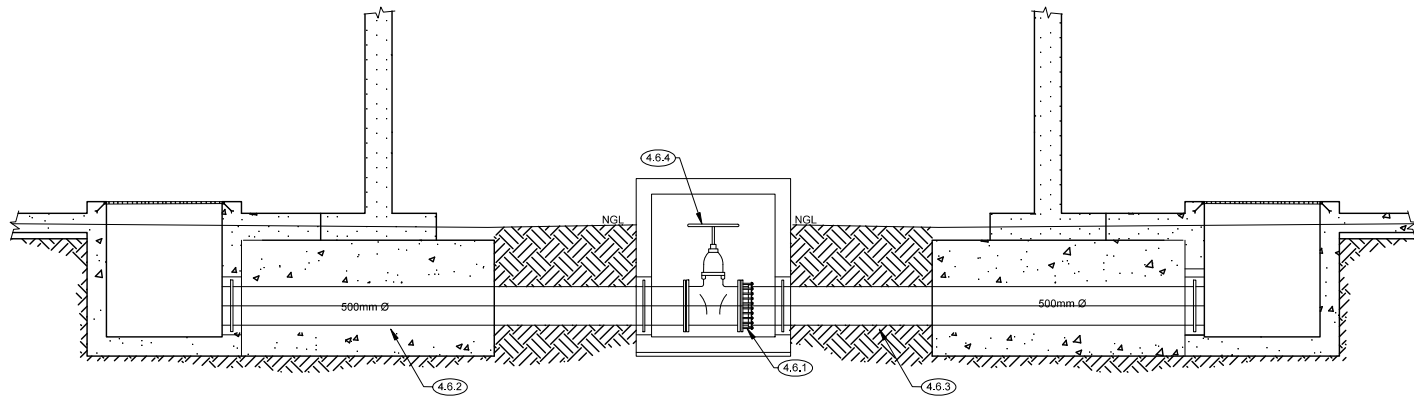
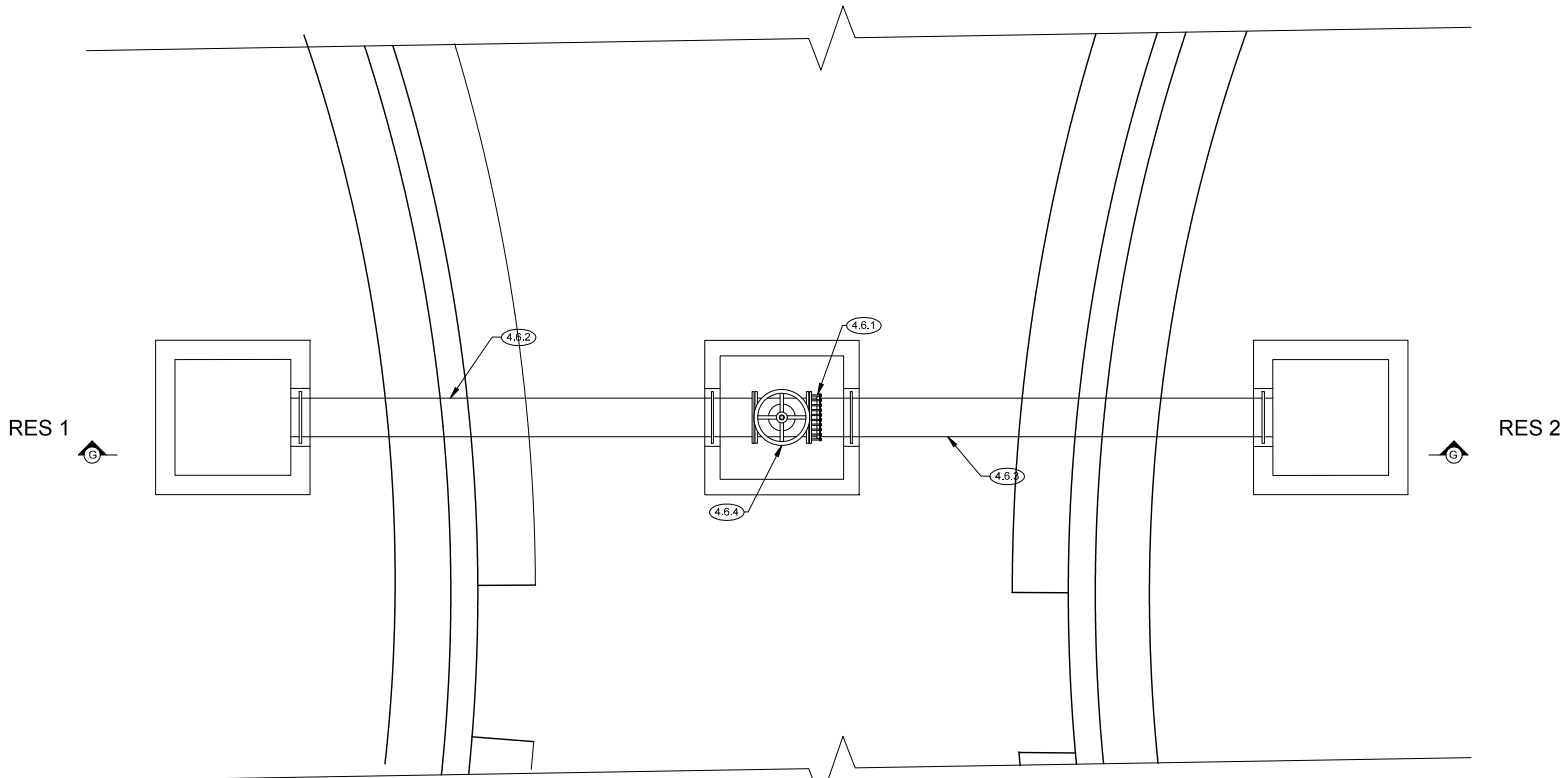
11. PIPE DETAILING:

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

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.	



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



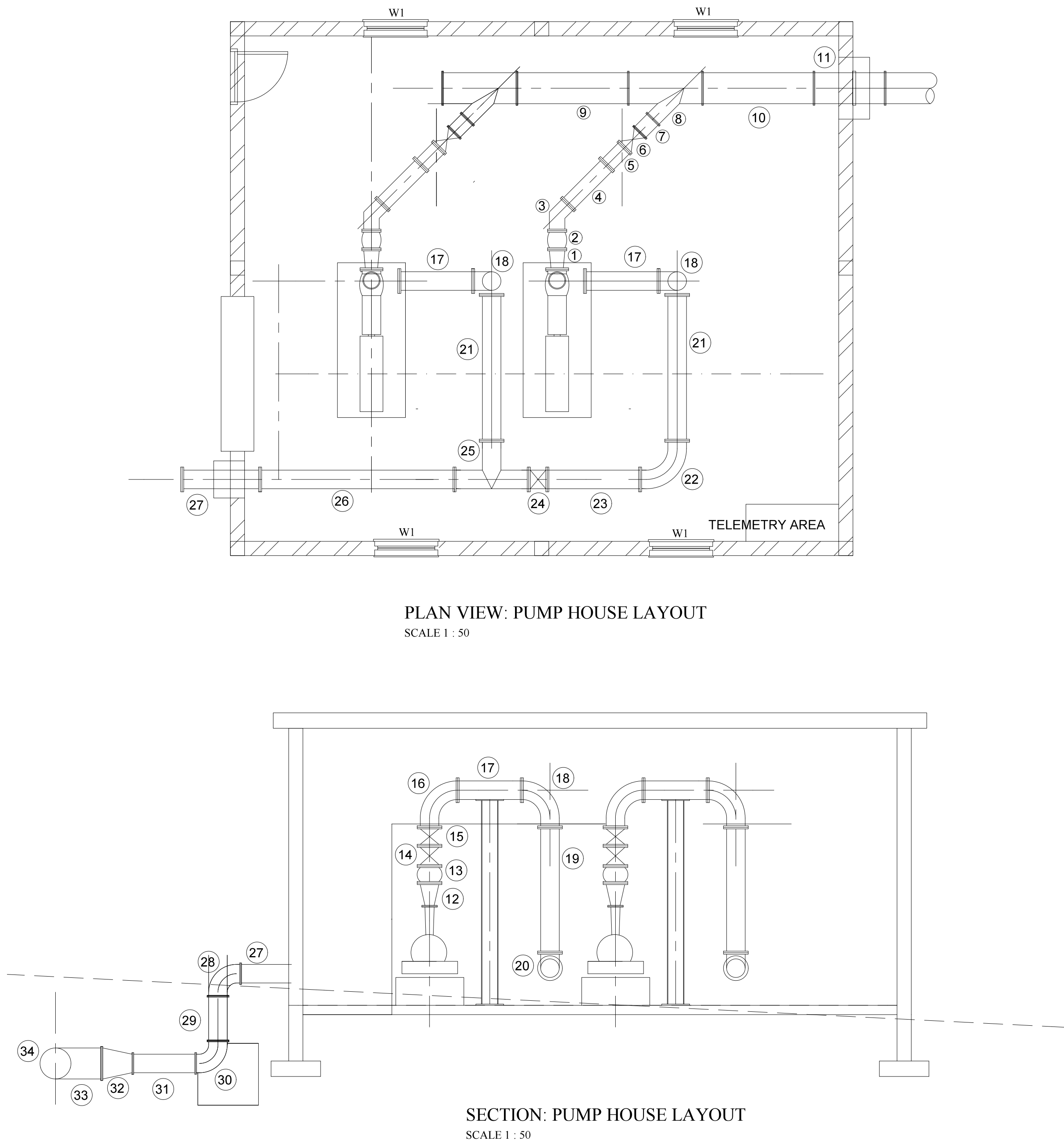
2A WALTER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2000

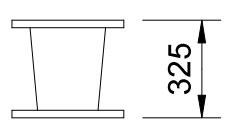

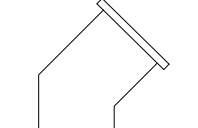
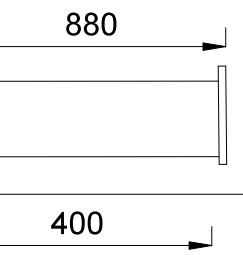
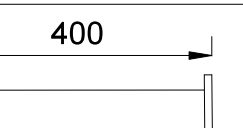
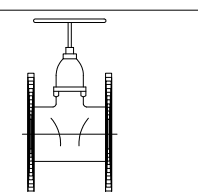
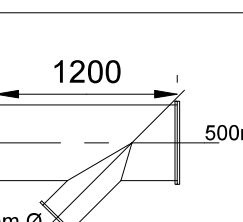
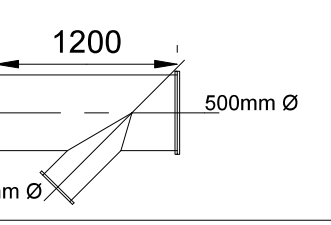
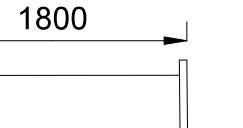

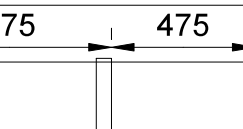

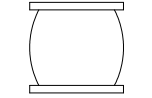
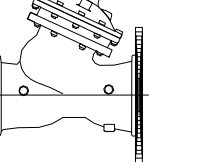
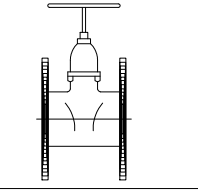
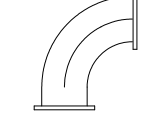
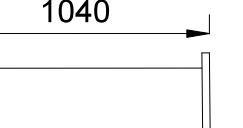
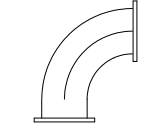
PROJECT:
LOSKOP REGIONAL BULK WATER
SUPPLY SCHEME
2x10MI COMMAND RESERVOIR
IN VERENA D - WORK PACKAGE 4

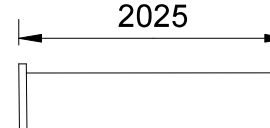

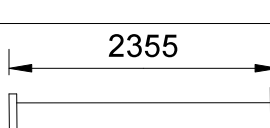

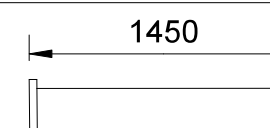
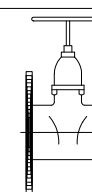
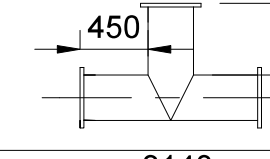
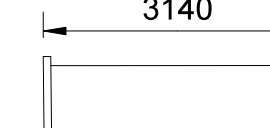
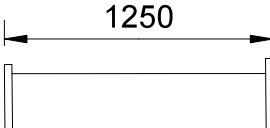

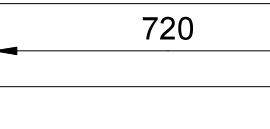

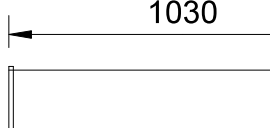
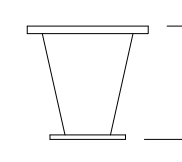
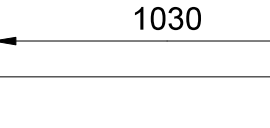

DRAWING TITLE:

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



PUMP HOUSE PIPE ASSEMBLY					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
1	2	16	EP	300x350mm DIA. ECCENTRIC REDUCER FLANGED.	
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.	
5	2	16	EP	350mm DIA. FLANGED MS PIPE.	
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.	
9	1	16	EP	500mm DIA. FLANGED MS PIPE.	
10	1	16	EP	500mm DIA. FLANGED MS PIPE.	
11	1	16	EP	500mm Ø MS PIPE PIECE, FLANGED WITH PUDDLE FLANGE.	
12	2	16	EP	250x300mm DIA. CONCENTRIC REDUCER FLANGED.	
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.	
18	2	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.	

PUMP HOUSE PIPE ASSEMBLY					AMEND
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	DIMENSIONS
19	2	16	EP	300mm DIA. FLANGED MS PIPE.	
20	2	16	EP	300mm DIA. 90 DEG. FLANGED MS ELBOW.	
21	2	16	EP	300mm DIA. FLANGED MS PIPE.	
22	1	16	EP	300mm DIA. 90 DEG. FLANGED MS ELBOW.	
23	1	16	EP	300mm DIA. FLANGED MS PIPE.	
24	1	16	EP	300mm DIA. RSV GATE VALVE.	
25	1	16	EP	300x300 mm FLANGED MS PIPE Y-PIECE.	
26	1	16	EP	300mm DIA. FLANGED MS PIPE.	
27	1	16	EP	300mm DIA. FLANGED MS PIPE.	
28	1	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.	
29	1	16	EP	300mm DIA. FLANGED MS PIPE.	
30	1	16	EP	300mm DIA. 90DEG. FLANGED MS ELBOW.	
31	1	16	EP	300mm DIA. FLANGED MS PIPE.	
32	1	16	EP	300x500mm DIA. CONCENTRIC REDUCER FLANGED.	
33	2	16	EP	500mm DIA. FLANGED MS PIPE.	
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

1. SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WHEN 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 REVERSE 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	6000
16	1 000 kPa	1 0000
16	1 600 kPa	1 6000
25	2 500 kPa	2 5000
40	4 000 kPa	4 0000

* 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 BEP-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 S.S. 2815 B, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3 mm THICK CAP FULL FACE GASKETS. GASKETS FOR PRESSURE RATINGS ABOVE 1 600 kPa SHALL BE 3 mm THICK CAP 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 SINTARGITE EXTERNAL, 10mm THICK CEMENT MORTAR LINED INTERNAL.

GM: HOT DIPPED GALVANISED MILD STEEL IN ACCORDANCE WITH THE SPECIFICATION. 5. **MATERIAL:** GRADE 304 WA STEEL AS PRESCRIBED IN SABS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED. ALL PIPE ITEMS TO BE 4 mm 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 864. 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

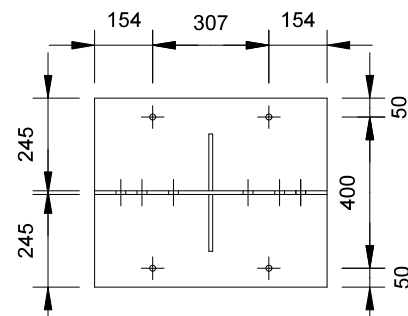
SUPPORTS OR ANCHOR SUPPORTS ARE REQUIRED FOR CERTAIN PIPE ITEMS. TENDERS TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM. IF NOT DETAILED, NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH COULD DAMAGE FACTORY APPLIED CORROSION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

11. PIPE DETAILING:

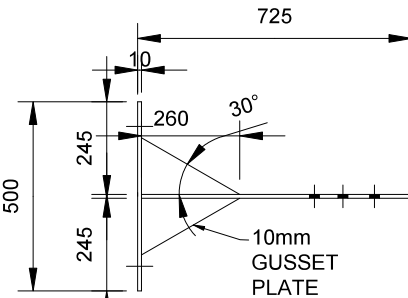
LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.

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

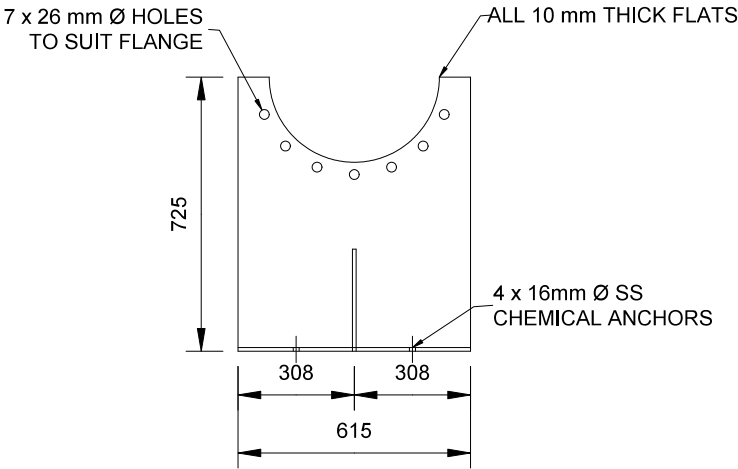
DRAWING CHECKED: N. MABUZA	MONDE CONSULTING ENGINEERS  27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166	No.	AMENDMENTS	DRAWN	APPROVED	DATE	CLIENT	PROJECT NAME: LOSKOP REGIONAL BULK WATER SUPPLY SCHEME - WORK PACKAGE 4	SCALES
DRAWN BY: MP KANGUDI		01	PRELIMINARY DRAWING			03/2020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



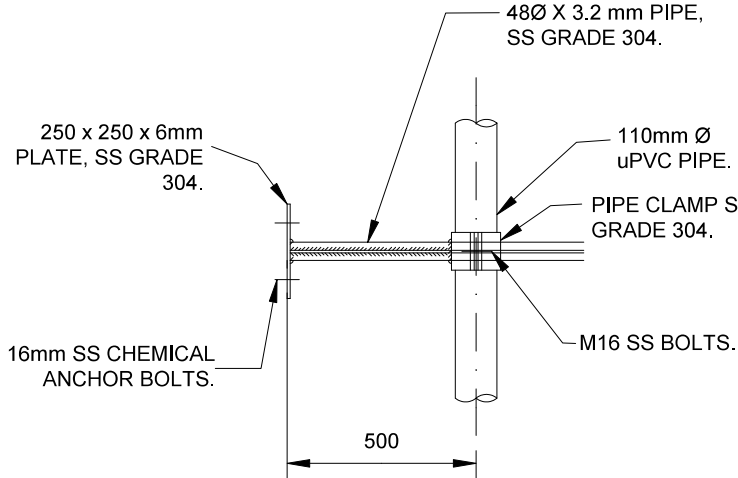
FRONT ELEVATION



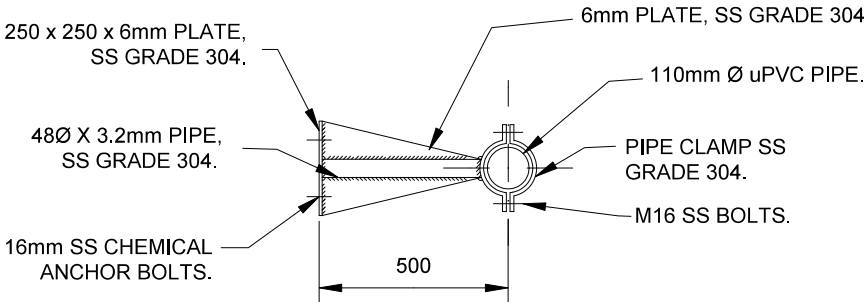
SIDE ELEVATION



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
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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



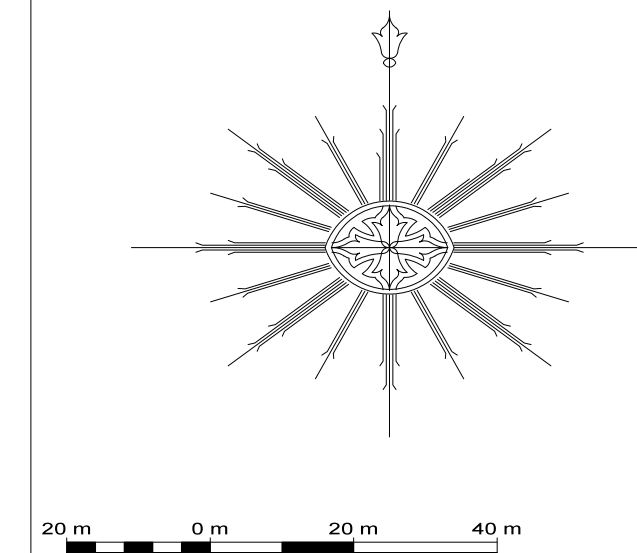
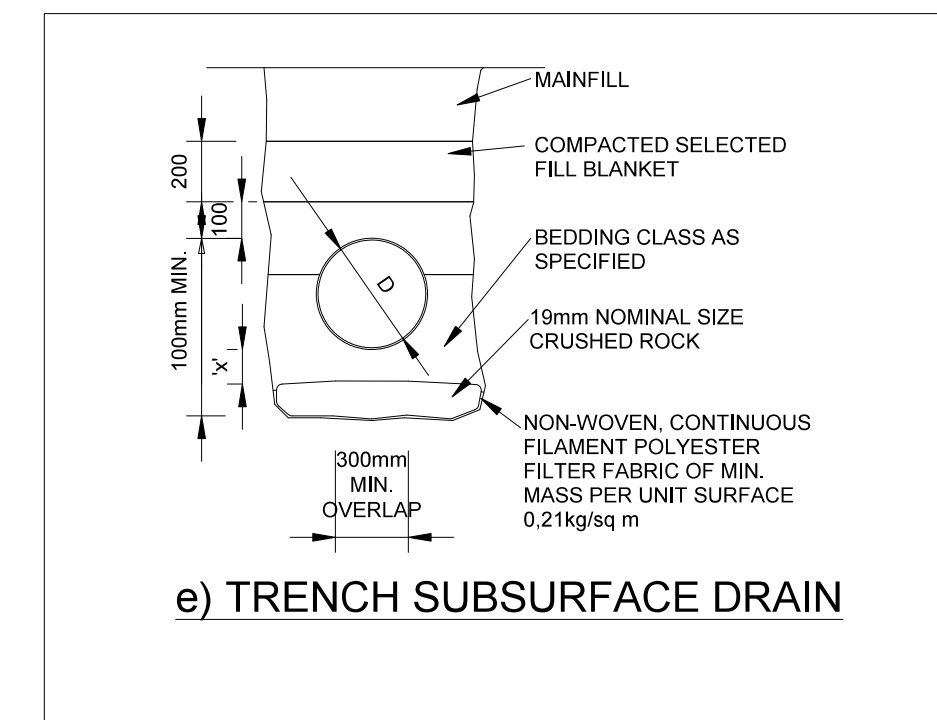
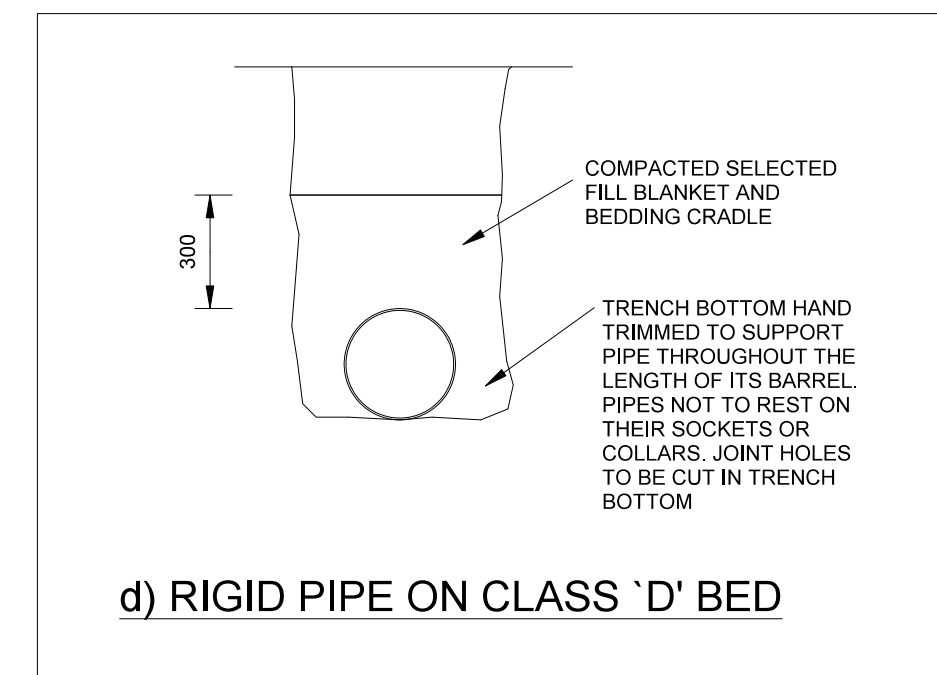
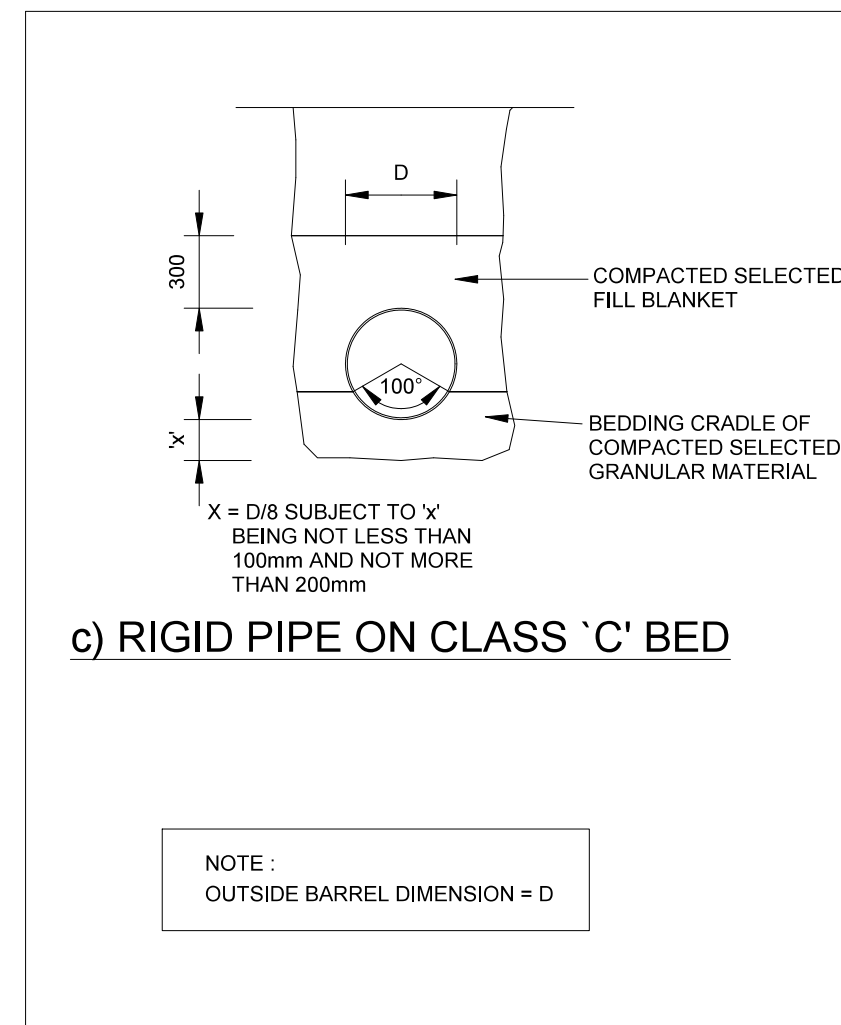
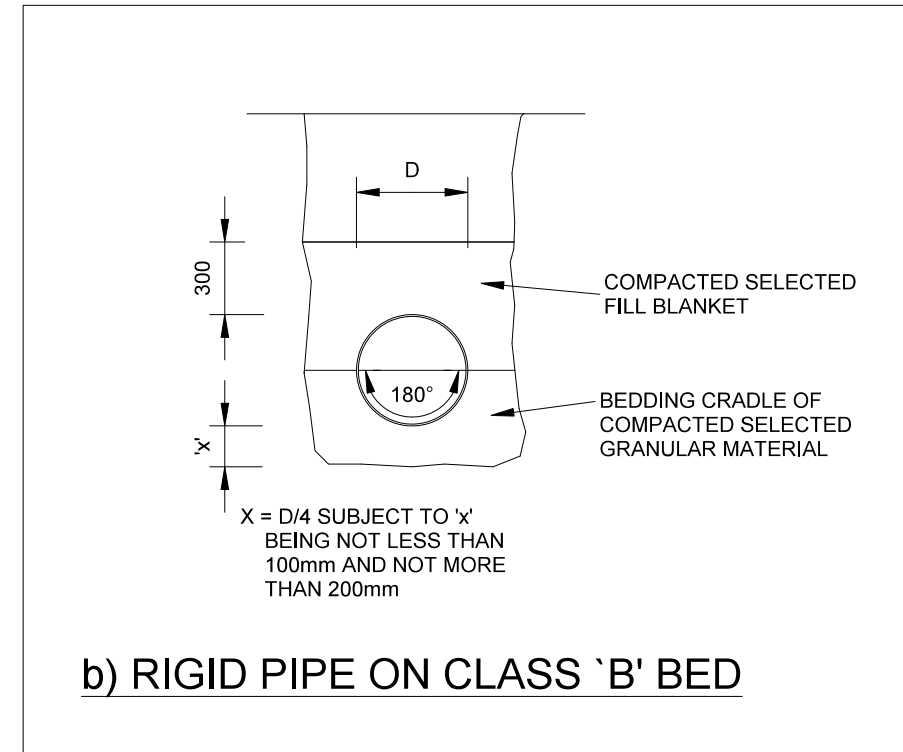
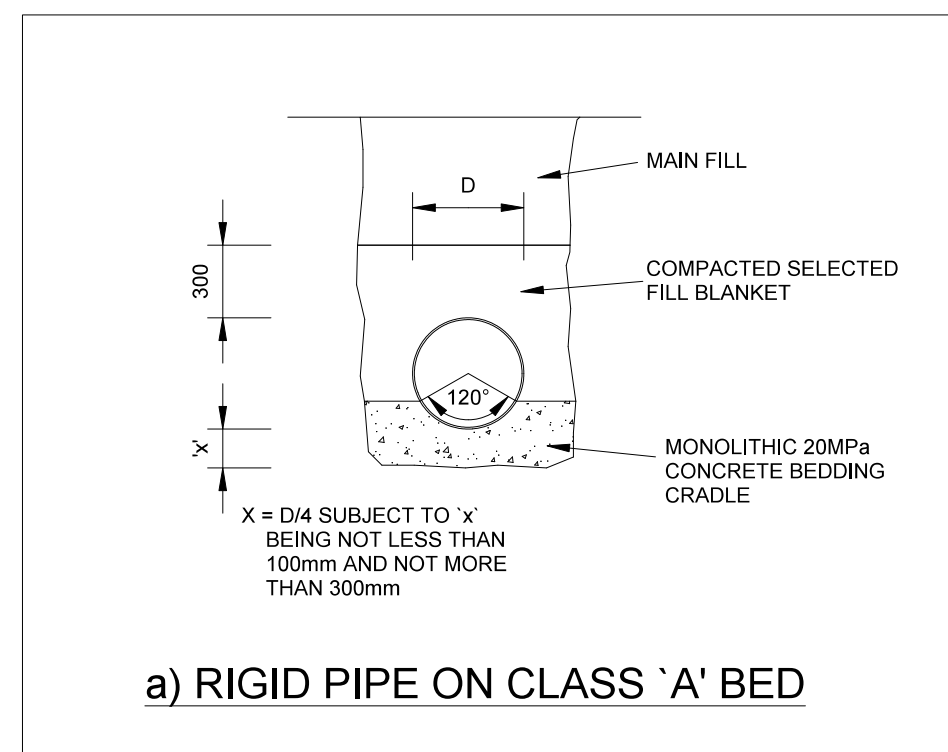
2A WALTER SISULU STREET
MIDDELBURG, 1050
TEL: 013 249 2000

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

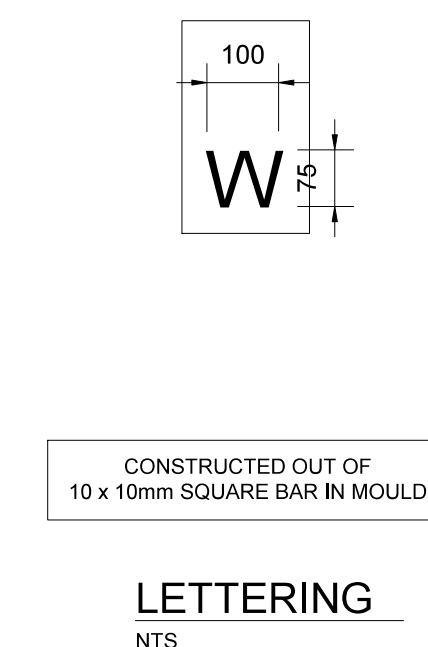
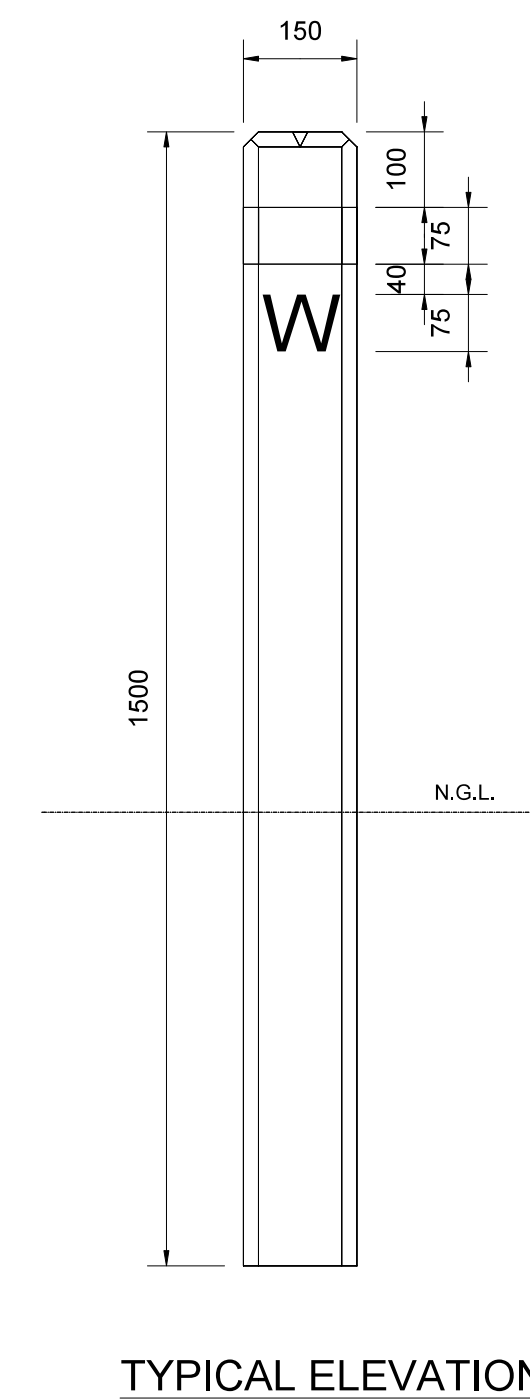
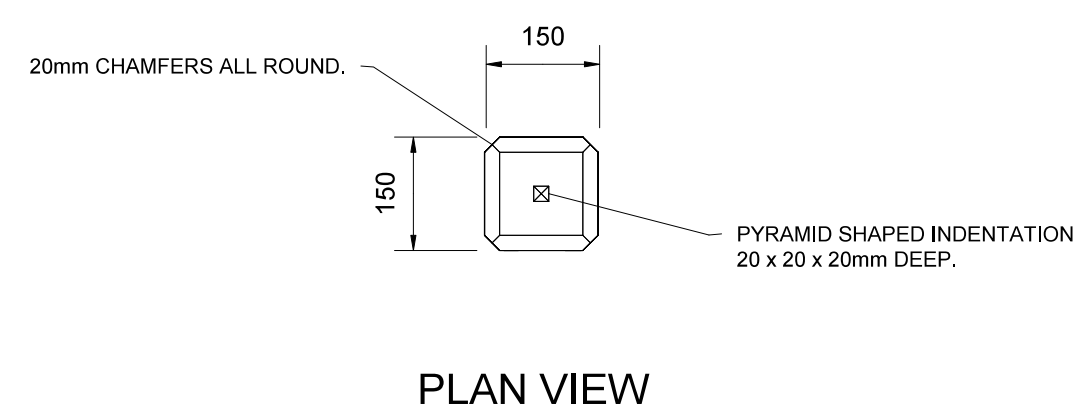
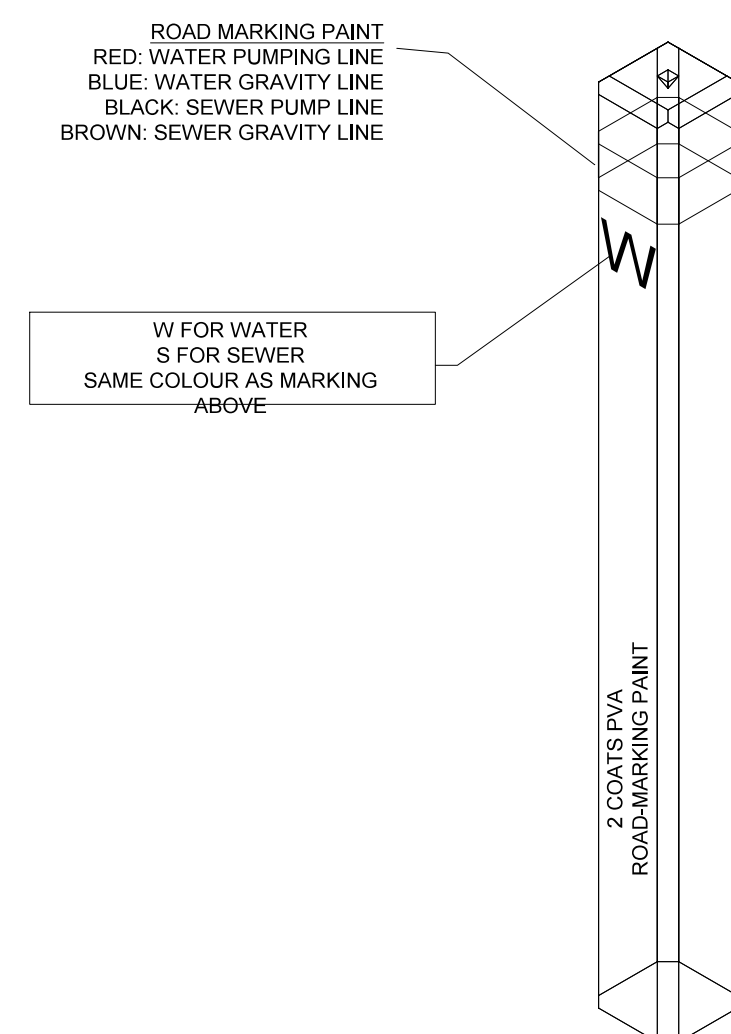
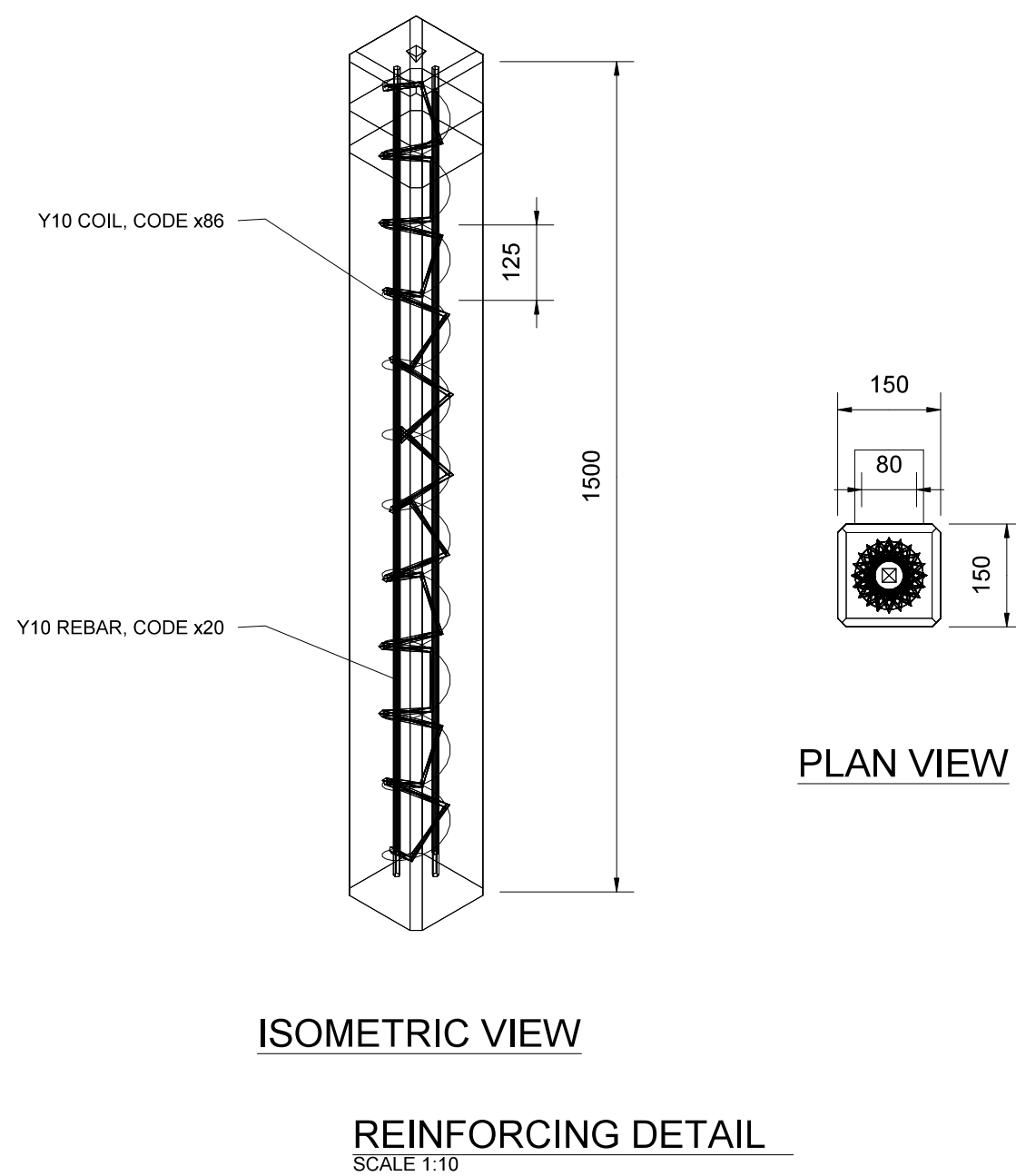
DRAWING TITLE:

PIPE SUPPORT DETAILS

PROJECT No: MONDE/W/20/01		CAD FILE NAME: DETAIL 2.DWG
DATE: MAY 2022	SHEET OF	SCALE AS SHOWN
DRAWING No. MONDE/W/20/01/DR17		REV: REV 00



TYPICAL BEDDING DETAILS



No	Description	Date	By
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Drawn M.P	Designed M.P
Checked M.P	Engineer
Client App.	Date

CONSULTANT

MONDE CONSULTING ENGINEERS

 **MONDE**
CONSULTING
ENGINEERS & ARCHITECTS

PO BOX 6838
NELSPRUIT
1200
TEL: 013 7524616
FAX: 013 7526106

Client
NKANGALA DISTRICT MUNICIPALITY

 2A WATER SISULU STREET
 MIDDELBURG
 1050
 TEL: 013 249 2000

Contract

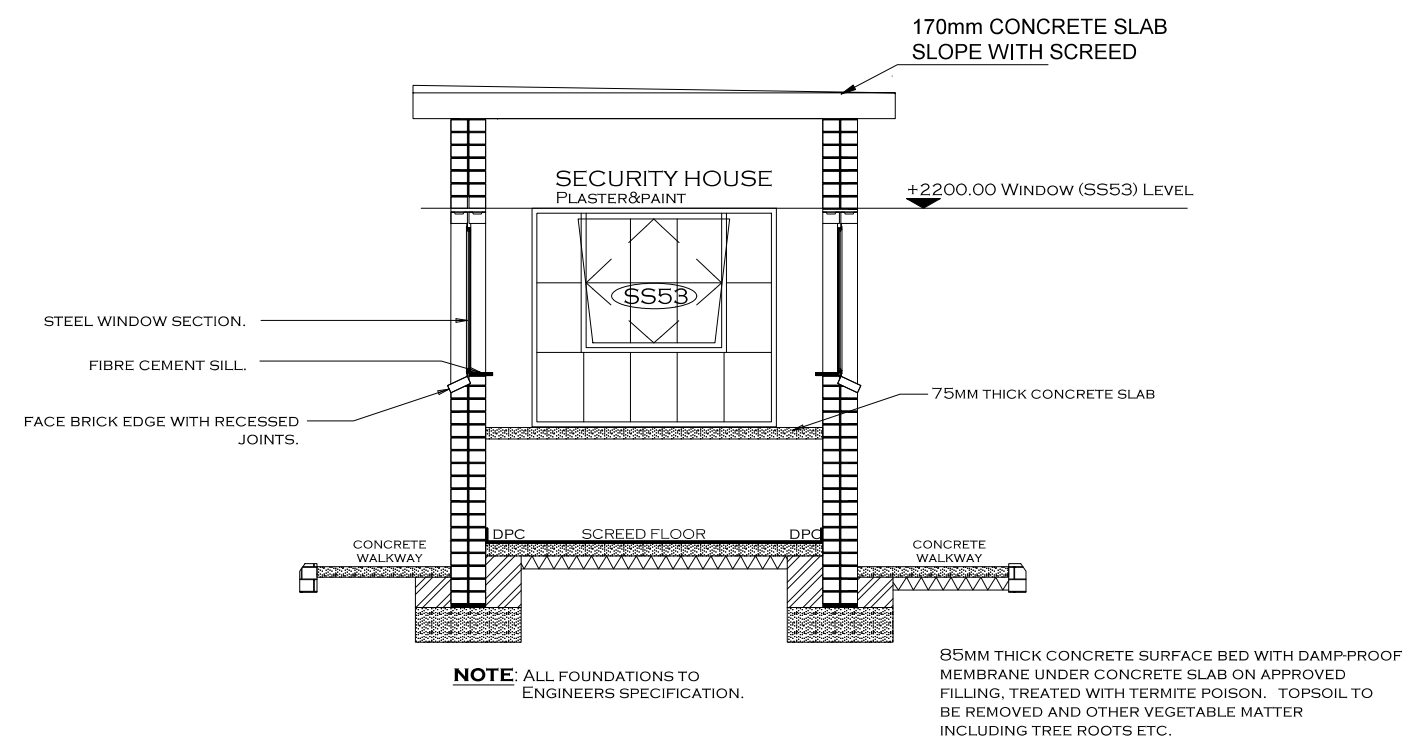
LOSOP REGIONAL BULK
WATER SUPPLY SCHEME
BULKLINE SUPPLY (WORK
PACKAGE 4)

Title

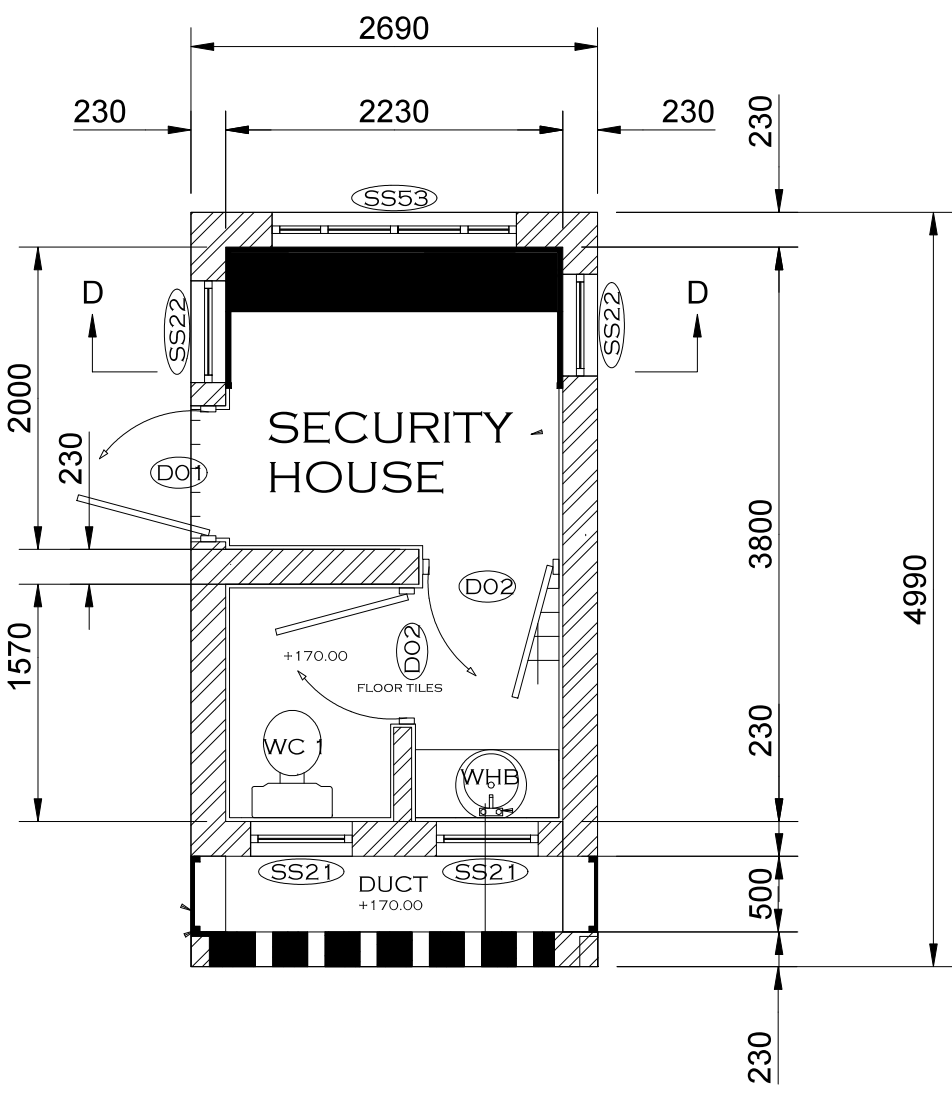
TYPICAL PIPE TRENCH DETAILS

MONDE/W/20/01/DR18

Drawing No



SECTION D - D
SCALE 1:50




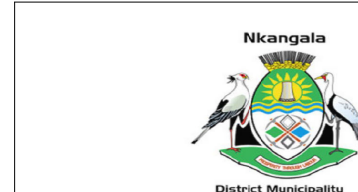
GUARDHOUSE FLOOR PLAN
SCALE 1:50

DOOR SCHEDULE

CODE	ENTRANCE	TOILET	WASTE DISPOSAL
LOCATION	ENTRANCE	TOILET	WASTE DISPOSAL
QTY	02	01	01
FRAME	1. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	1. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	1. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
FINISH	2. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	2. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	2. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
LEAF	3. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	3. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	3. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
FINISH	4. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	4. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	4. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
IRON MONGERY	5. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	5. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	5. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
DETAIL	6. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	6. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	6. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.

WINDOW SCHEDULE

CODE	ENTRANCE	TOILET	WASTE DISPOSAL
LOCATION	ENTRANCE	TOILET	WASTE DISPOSAL
QTY	02	01	01
FRAME	1. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	1. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	1. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
FINISH	2. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	2. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	2. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
LEAF	3. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	3. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	3. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
FINISH	4. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	4. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	4. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
IRON MONGERY	5. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	5. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	5. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.
DETAIL	6. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	6. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.	6. 100% GALVANIZED STEEL FRAME WITH 100% GALVANIZED STEEL DOOR LEAF TO CORRESPOND TO THE FRAME.

DRAWING CHECKED: N. MABUZA	<div>MONDE CONSULTING ENGINEERS</div> <div>27 HENDRIK POTGIETER STR NELSPRUIT 1200 Tel: 013 752 4616 Fax: 013 752 6166</div> <div></div>	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			03/2020	<div>NKANGALA DISTRICT MUNICIPALITY</div> <div></div> <div>2A WATER SISULU STREET MIDDELBURG, 1050 TEL: 013 249 2004</div>	GUARDHOUSE DETAILS	AS SHOWN
DESIGN CHECKED: M.P KANGUDI		02	DETAIL DRAWING			01/2022			DRAWING No.
DESIGNED BY: N. MABUZA		03	TENDER DRAWING			05/2022			MONDE/W/20/01/DR19