

CLARKEBURY AGRICULTURAL SCHOOL THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY AND SANITATION
FOR DOE CLUSTER-AW2023/24/05

Implementing Agent:

AMATOLA WATER



Funding Agency:

DEPARTMENT OF EDUCATION



Beneficiary:

DEPARTMENT OF EDUCATION



Consulting Engineer:

ROMH CONSULTING



Contractor:

GENERAL NOTES

No.	DATE	DESCRIPTION	CHECKED

CLIENT:



AMATOLA WATER BOARD

AMATOLA WATER BOARD
6 LANCASTER ROAD
VINCENT
EAST LONDON
5247

Tel: (043) 707 3700
Email: indubela@amatola.co.za
Web: www.aw@amatola.co.za

CONSULTANT:



ROYAL MINDANE HOLDINGS (PTY) LTD TIA ROMH CONSULTING
CEDAR SQUARE LEADWOOD HOUSE
BONZA BAY ROAD
BEACON BAY
EAST LONDON

Tel: (043) 748 0018
Email: info@romh.co.za
Web: www.romh.co.za

PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

CONTRACTOR'S NAMEBOARD

DESIGNED:	A MAYEKISO	DRAWN:	L.JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:	1:1, 1		

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd

DATE

CLIENT APPROVAL

DATE

CONTRACT No:	ORIGINAL DRAWING SIZE:	
AW2019.20.28	A1	
DRAWING No:	PREPARED FOR:	REV No:
ROM-131-07-076-04-01	DOCUMENTATION & PROCUREMENT	0

1830

30 50 275 50 1395 30

30 50 280

1375

CLARKEBURY A.S

WATER AND SANITATION

LICENCE HOLDER:
EASTERN CAPE DEPARTMENT OF EDUCATION
ADDRESS: STEVE VUKILE TSHWETE
EDUCATION COMPLEX, ZONE 6 ZWELITSHA
TEL : (043) 707 3700 FAX : (043) 707 3701
- ENTRY TO THIS WORKS IS RESTRICTED -
MUNICIPAL STAFF ONLY
- PUBLIC PERSONS TO REPORT TO THE
CLARKEBURY SENIOR SECONDARY SCHOOL OFFICE
- NO FIREARMS, CAMERAS OR ALCOHOL ARE
ALLOWED ONTO PREMISES

BLUE BORDER

BLACK LETTERS ON
WHITE BACKGROUND

No.	DATE	DESCRIPTION	CHECKED

CLIENT:



Amatola
Water - Amanzi

AMATOLA WATER BOARD

AMATOLA WATER BOARD
6 LINGCASTER ROAD
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EAST LONDON
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Tel: (043) 707 3700
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CONSULTANT:

R O M H

ROYAL INDIANE HOLDINGS (PTY) LTD TIA ROMH CONSULTING
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BONZA BAY ROAD
BRADON BAY
EAST LONDON

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PROJECT: THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

UNAUTHORIZED ENTRY
SIGNBOARD: ENGLISH

DESIGNED:	A MAYEKISO	DRAWN:	L.JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		1:4	

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd

CLIENT APPROVAL _____ DATE _____

CONTRACT No. AW2019.20.28	ORIGINAL DRAWING SIZE: A1
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DRAWING No. ROM-131-07-076-04-02	PREPARED FOR: DOCUMENTATION & PROCUREMENT	REV No.
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GENERAL NOTES			
No.	DATE	DESCRIPTION	CHECKED
CLIENT:			
 AMATOLA WATER BOARD AMATOLA WATER BOARD 6 LANCASTER ROAD VINCENT EAST LONDON 5247 Tel: (043) 707 3700 Email: indubela@amatola.co.za Web: www.aw@amatola.co.za			
CONSULTANT:			
 ROYAL MINDAWE HOLDINGS (PTY) LTD T/A ROMH CONSULTING CEDAR SQUARE/LEADWOOD HOUSE BONZA BAY ROAD BEACON BAY EAST LONDON Tel: (043) 748 0018 Email: info@romh.co.za Web: www.romh.co.za			
PROJECT:			
THE UPGRADING AND REFURBISHMENT OF BULK WATER SUPPLY AND SANITATION FOR DOE CLUSTER- CLARKEBURY AGRICULTURAL SCHOOL			
DRAWING TITLE:			
UNAUTHORIZED ENTRY SIGNBOARD: XHOSA			
DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		1:4	
DESIGN COORDINATOR APPROVAL			
ROMH CONSULTING (Pty) Ltd			DATE
CLIENT APPROVAL			DATE
CONTRACT No. AW2019.20.28		ORIGINAL DRAWING SIZE: A1	
DRAWING No. ROM-131-07-076-04-03		PREPARED FOR: DOCUMENTATION & PROCUREMENT	
		REV No. 	

The diagram illustrates the layout and dimensions of a rectangular sign. The overall width is 1830 units, divided into sections of 30, 50, 275, 50, 1395, and 30 units from left to right. The overall height is 1375 units, divided into sections of 30, 50, 280, and 1000 units from top to bottom.

The sign features a blue border and black letters on a white background. The text on the sign includes:

- CLARKEBURY A.S**
- INDAWO YOKUCOCA**
- AMANZI ANGCOLILEYO**
- IGAMA LOMNIKAZI WEMVUME:**
- UMASPALA WASE AMATOLA**
- IDILESI: STEVE VUKILE TSHWETE**
- EDUCATION COMPLEX, ZONE 6 ZWELITSHA**
- TEL : (043) 707 3700 FAX : (043) 707 3701**
- KUVUMELEKE UKUNGENA KULENDAWO -**
- ABASEBENZI BAKAMASIPALA BODWA**
- ABAHLALI MABAZICHAZE KWIOFISI**
- ZIKAMASIPALATI KUQALA**
- IMIPU, IZITHATHI ZITHOMBE NOTYWALA**
- ABUVUMELEKANGA BUNGENE KULENDAWO**

A logo for Amatola Water - Amanzi is located in the top left corner of the sign area. The logo consists of a stylized elephant silhouette above the text "Amatola" and "Water - Amanzi".

Dimensions are indicated by arrows and numbers along the edges of the sign and its components. The sign itself has a width of 1395 units and a height of 1000 units. The text is centered horizontally and vertically within the sign area.



GENERAL NOTES

1. PIPELINE MARKERS AT ALL CHANGES OF DIRECTION

2. PIPELINE TO BE LAID 10m OFFSET FROM ROAD CENTERLINE (TBC BY EA)

3. STORMWATER DIVERSION BERM TO BE CONSTRUCTED AT 10m INTERVALS ON ALL GRADIENTS BETWEEN 10% AND 15% AND AT 6m INTERVALS ON GRADIENTS STEEPER THAN 15%

4. FINAL POSITIONS OF PIPELINE,GATE VALVES ,AIR VALVES,AND SCOUR VALVES TO BE DETERMINED ON SITE

5. FROM CH 20 TO 155 SHALL BE SHARED TRENCH

6. THREE SEPARATE INLETS TO BE PROVIDED IN STEEL TANK

REFERENCE DRAWINGS

ROM-131-07-076-04-05:THRUST BLOCK DETAIL

ROM-131-07-076-04-06:VALVE DETAILS

ROM-131-07-076-04-09: BOREHOLE CHAMBER DETAILS

ROM-131-07-076-04-12:INLET WORKS ,PLANS ,SECTIONS AND DETAILS

LEGEND

BOREHOLE

AIR VALVE

SCOUR VALVE

RESEVOIR

No.	DATE	DESCRIPTION	CHECKED

CLIENT:

AMATOLA WATER BOARD

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6 LANCASTER ROAD
VINCENT
EAST LONDON
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Tel: (043) 707 3700
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PROJECT:

THE UPGRADING AND
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AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

BOREHOLE 1804 AND 1806 AND
RISING MAIN PLAN

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:	1:10_1		

DESIGN COORDINATOR APPROVAL

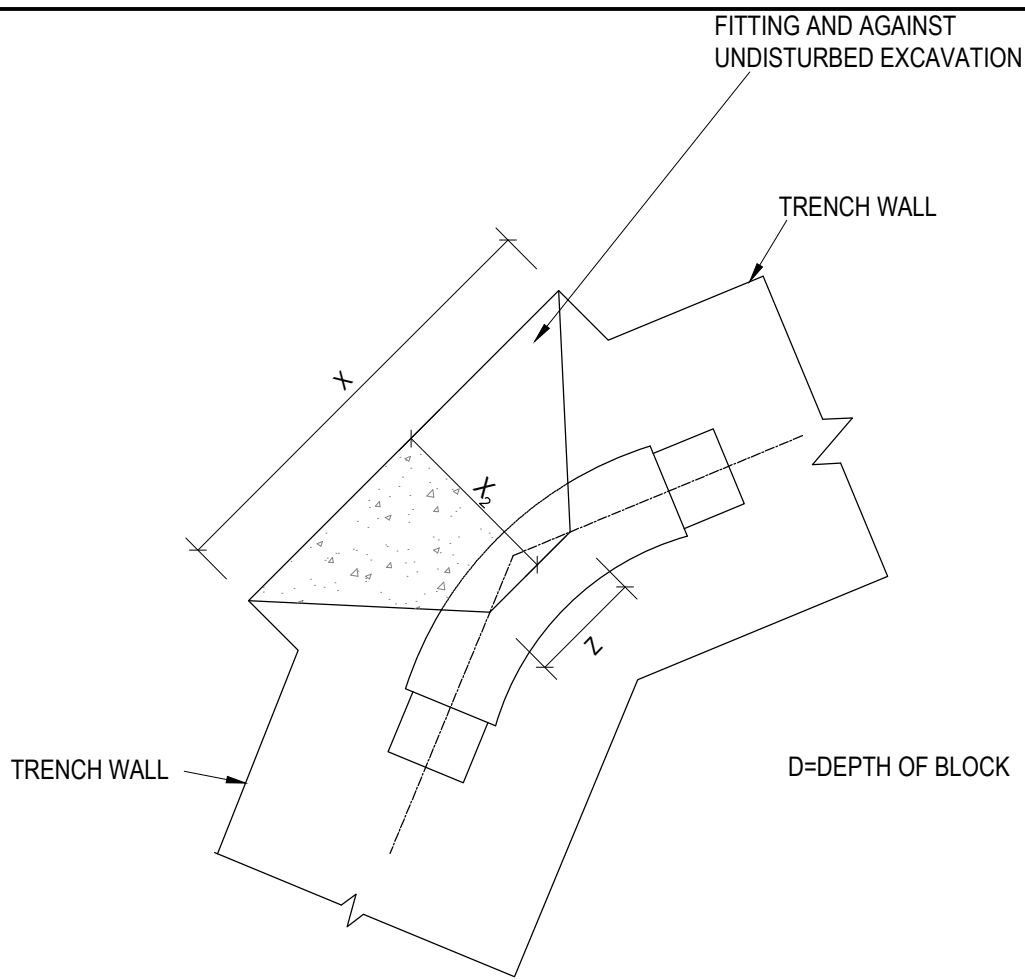
ROMH CONSULTING (Pty) Ltd

DATE

CLIENT APPROVAL

DATE

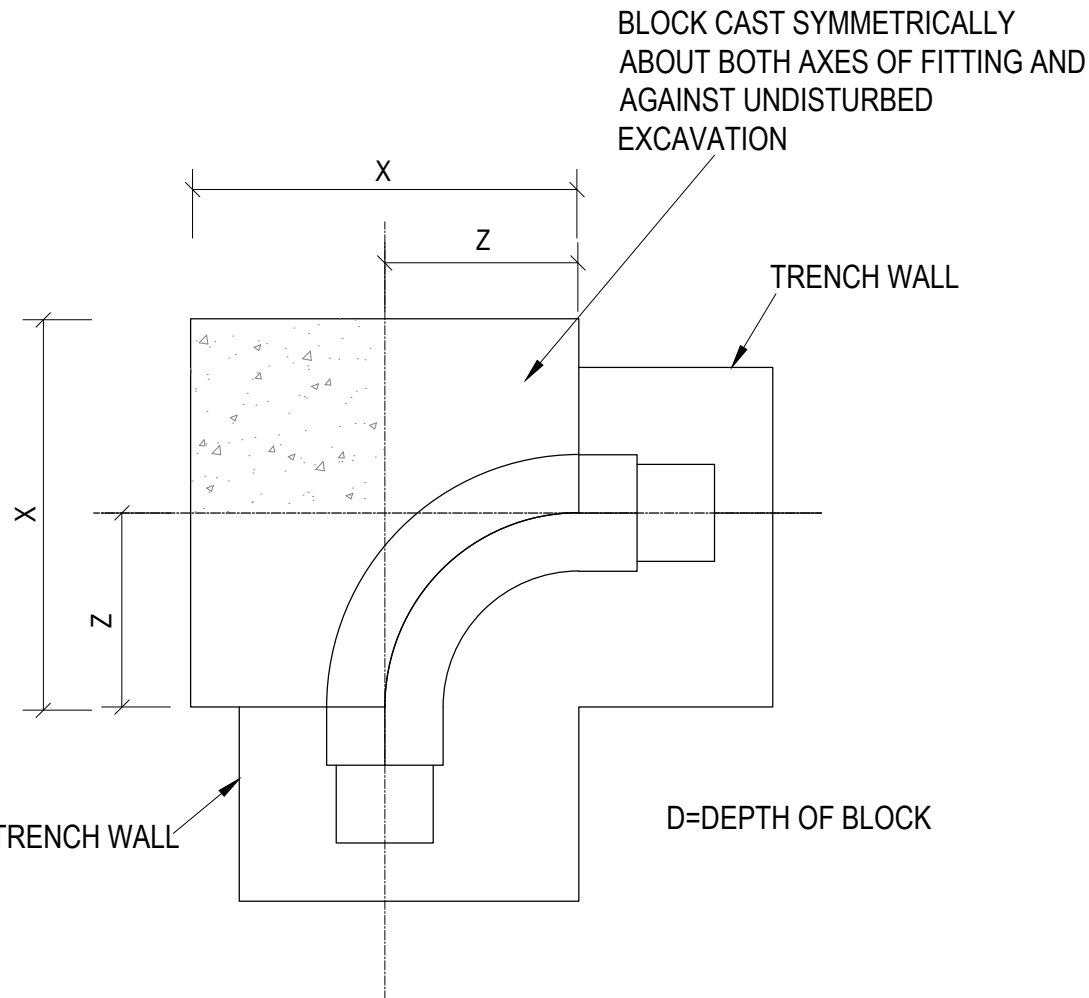
CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
DRAWING No:	ROM-131-07-076-04-04	PREPARED FOR:	DOCUMENTATION & PROCUREMENT
		REV No:	0



NOTE: COUPLINGS AND FLANGES SHALL BE LEFT CLEAR OF CONCRETE AND THE STRENGTH OF THE CONCRETE TO BE 15MPa.

PIPEØ	X	X ₂	D	Z	CONCRETE (m ³)	FORMWORK (m ²)
500	1200	2000	800	350	1.440	3.341
400	1000	1500	600	300	0.675	1.897
300	700	1000	500	350	0.263	1.059
250	700	750	400	300	0.150	0.662
200	500	750	400	250	0.113	0.632
150	400	500	400	200	0.060	0.431
100	400	500	250	150	0.034	0.269
63	300	500	250	100	0.025	0.261
50	300	500	250	100	0.025	0.261

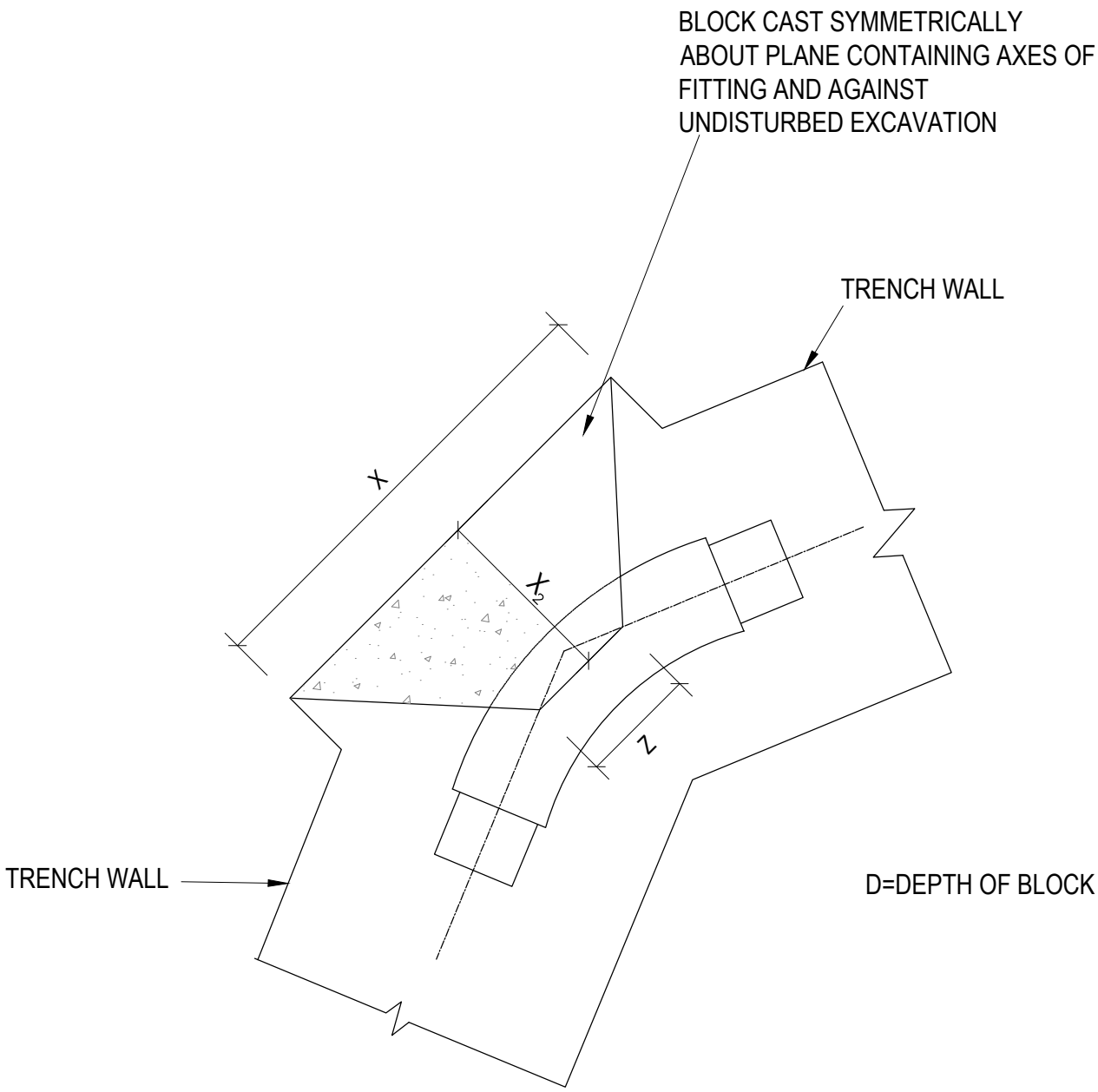
THRUST BLOCK DETAIL FOR 11,25° BEND
(CONCRETE VOLUMES SIMILAR FOR REDUCER)



NOTE: COUPLINGS AND FLANGES SHALL BE LEFT CLEAR OF CONCRETE AND THE STRENGTH OF THE CONCRETE TO BE 15MPa.

PIPEØ	X	X ₂	D	Z	CONCRETE (m ³)	FORMWORK (m ²)
500	3400	2000	1800	600	7.200	9.450
400	3000	1500	1300	400	3.413	5.515
300	2100	1000	1000	600	1.348	3.190
250	1400	750	1100	400	0.701	2.257
200	1100	750	900	300	0.455	1.674
150	900	500	700	150	0.193	0.942
100	600	500	500	100	0.094	0.583
63	500	500	300	100	0.045	0.335
50	300	500	250	100	0.025	0.261

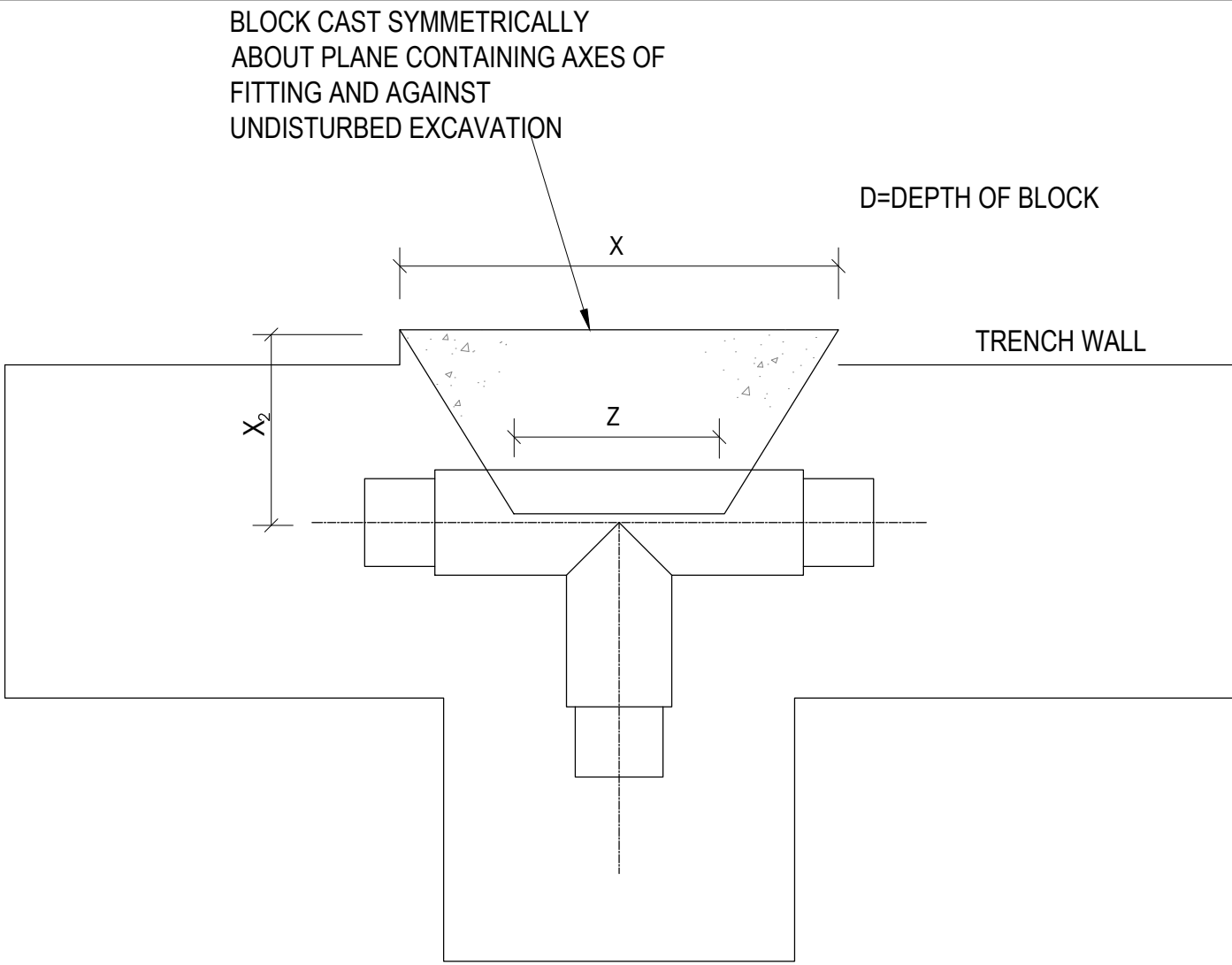
THRUST BLOCK DETAIL FOR 90° BEND



NOTE: COUPLINGS AND FLANGES SHALL BE LEFT CLEAR OF CONCRETE AND THE STRENGTH OF THE CONCRETE TO BE 15MPa.

PIPEØ	X	X ₂	D	Z	CONCRETE (m ³)	FORMWORK (m ²)
500	1600	2000	1100	350	2.420	4.739
400	1600	1500	700	300	1.103	2.380
300	900	1000	700	350	0.438	1.535
250	1100	750	400	300	0.210	0.744
200	700	750	400	250	0.143	0.662
150	500	500	400	200	0.070	0.447
100	500	500	250	150	0.041	0.280
63	300	500	250	100	0.025	0.261
50	300	500	250	100	0.025	0.261

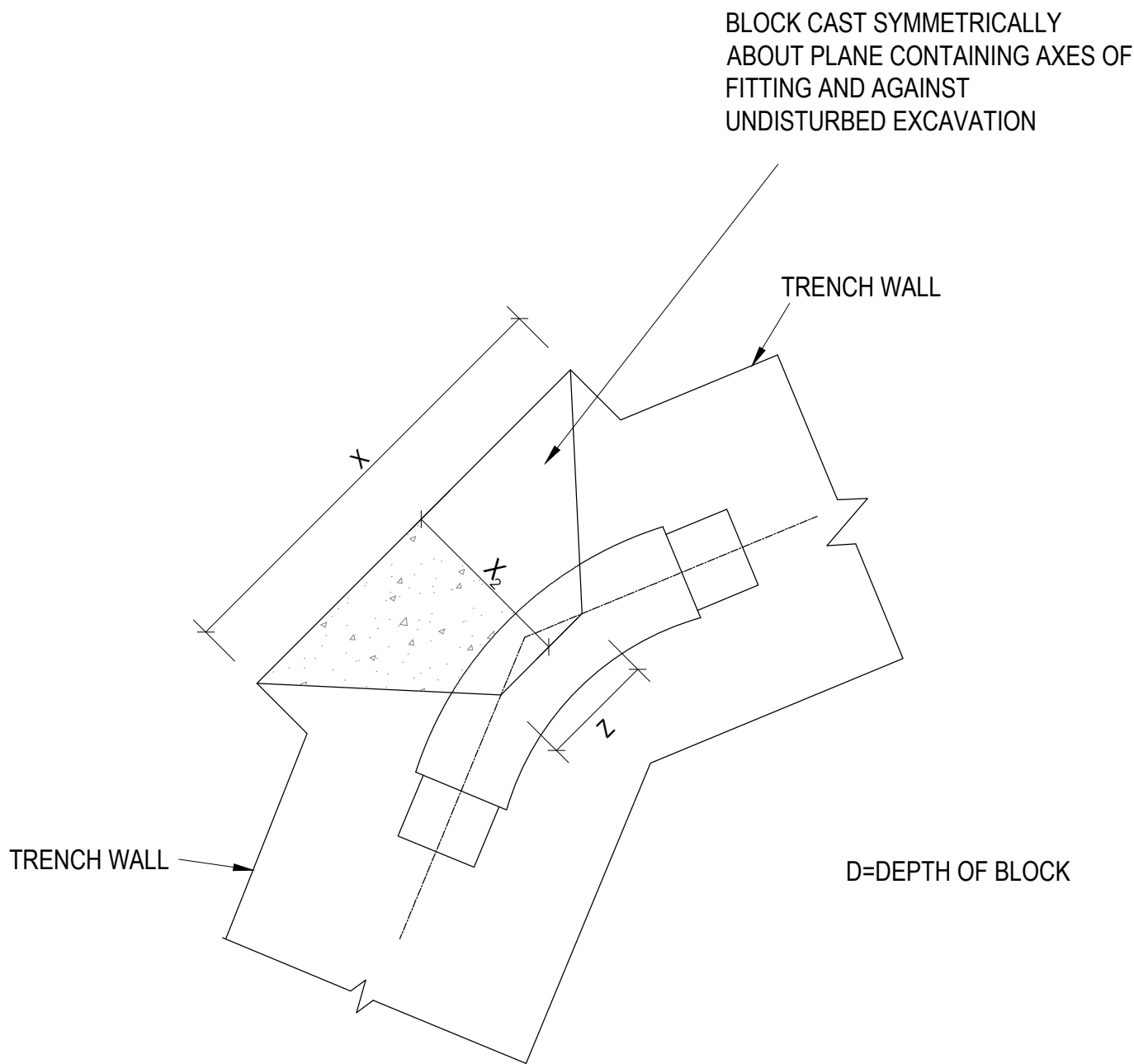
THRUST BLOCK DETAIL FOR 22,5° BEND



NOTE: COUPLINGS AND FLANGES SHALL BE LEFT CLEAR OF CONCRETE AND THE STRENGTH OF THE CONCRETE TO BE 15MPa.

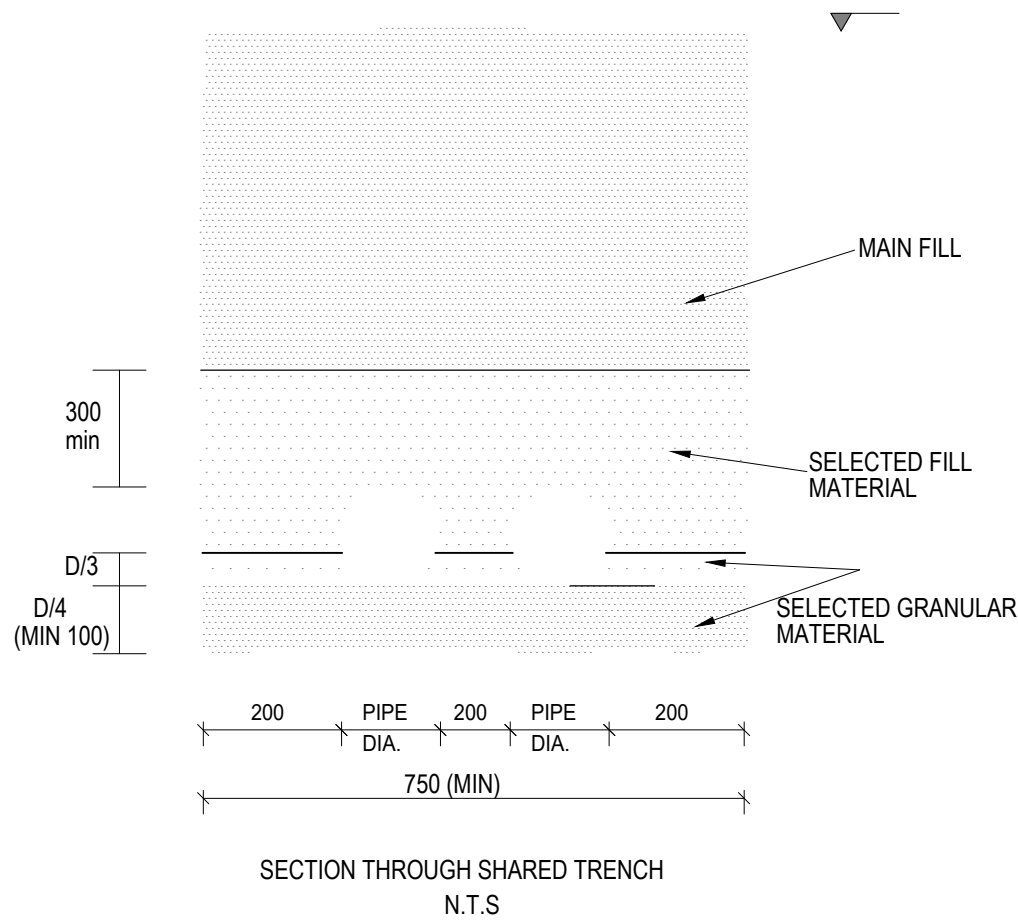
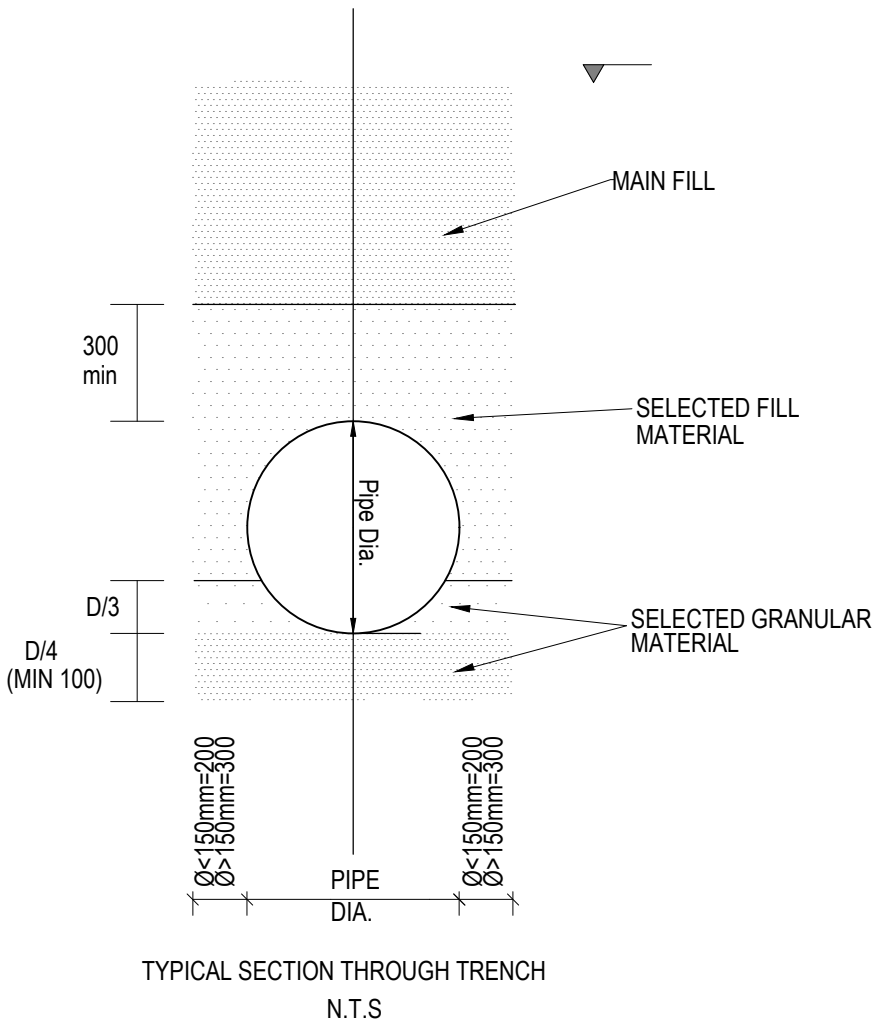
PIPEØ	X	X ₂	D	Z	CONCRETE (m ³)	FORMWORK (m ²)
500	4800	2000	1800	600	9.720	11.247
400	3100	1500	1800	500	4.860	7.765
300	2400	1000	1300	350	1.788	4.061
250	1800	750	1200	300	0.945	2.812
200	1300	750	1100	250	0.639	2.153
150	1000	500	800	200	0.240	1.131
100	700	500	500	150	0.106	0.610
63	600	500	400	100	0.070	0.466
50	500	500	250	100	0.038	0.281

THRUST BLOCK DETAIL FOR TEE AND ENDCAP



NOTE: COUPLINGS AND FLANGES SHALL BE LEFT CLEAR OF CONCRETE AND THE STRENGTH OF THE CONCRETE TO BE 15MPa.

PIPEØ	X	X ₂	D	Z	CONCRETE (m ³)	FORMWORK (m ²)
500	2800	2000	1200	350	4.080	5.859
400	1700	1500	1300	300	2.145	4.483
300	1100	1000	1100	350	0.798	2.511
250	1100	750	800	300	0.420	1.488
200	800	750	700	250	0.285	1.324
150	600	500	500	200	0.100	0.583
100	500	500	300	150	0.049	0.355
63	300	500	250	100	0.025	0.261
50	300	500	250	100	0.025	0.261



GENERAL NOTES

- THRUSTBLOCK DETAILS PROVIDED FOR BULK MAINS BASED ON A SOIL BEARING PRESSURE OF 100KN/m² WITH A HIGHER MAXIMUM PIPE TEST PRESSURE FOR BULK MAINS REFER TO EMPLOYER'S AGENT FOR VARIANCES IN SOIL BEARING PRESSURES.
- EMPLOYER'S AGENT TO INSPECT EXCAVATION PRIOR TO CASTING THRUSTBLOCKS.
- QUANTITIES PROVIDED FOR CONCRETE AND FORMWORK BASED ON X₂ DIMENSION WHICH IS TO BE CONFIRMED ON SITE.
- TRENCH SIDE WALL TOLERANCES TO BE:
 - 200mm FOR PIPE Ø LESS THAN 150mm
 - 300mm FOR PIPE Ø EQUAL TO AND GREATER THAN 150mm
 - 200mm FOR PIPES (ALL DIAMETERS) IN SHARED TRENCHES
- SELECTIVE EXCAVATION TO BE PRACTICED BY CONTRACTOR. ENGINEER TO CONFIRM SUITABILITY OF INSITU MATERIAL FOR USE AS BEDDING MATERIAL.
- TOPSOILING AND REVEGETATION TO COMMENCE IMMEDIATELY AFTER COMPLETION OF SUCCESSFUL PRESSURE TEST ON PIPEWORK.

No.	DATE	DESCRIPTION	CHECKED
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CLIENT:



AMATOLA WATER BOARD

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CONSULTANT:



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BONZA BAY ROAD
BEACON BAY
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PROJECT:

THE UPGRADING AND
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AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

WATER
RETICULATION:THRUST
BLOCK DETAILS

DESIGNED:	A MAYEKISO	DRAWN:	L.JACOBS
DESIGNED CHECKED:	S.XAWUKA	DRAWING CHECKED:	S.XAWUKA
SCALE:		AS SHOWN	

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd DATE

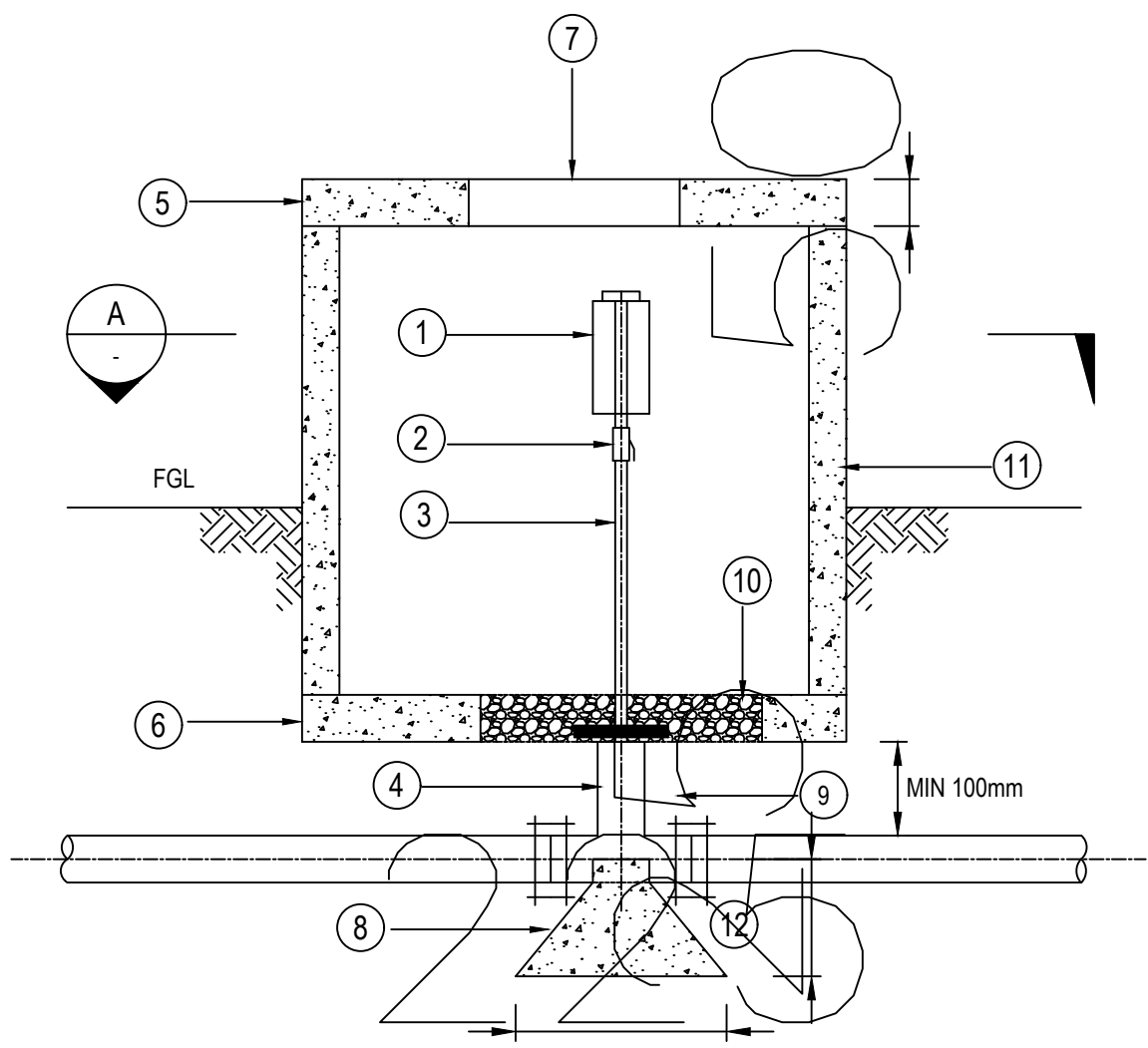
CLIENT APPROVAL DATE

CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
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DRAWING No:	ROM-131-07-076-04-05	PREPARED FOR:	DOCUMENTATION & PROCUREMENT	REV No:	0
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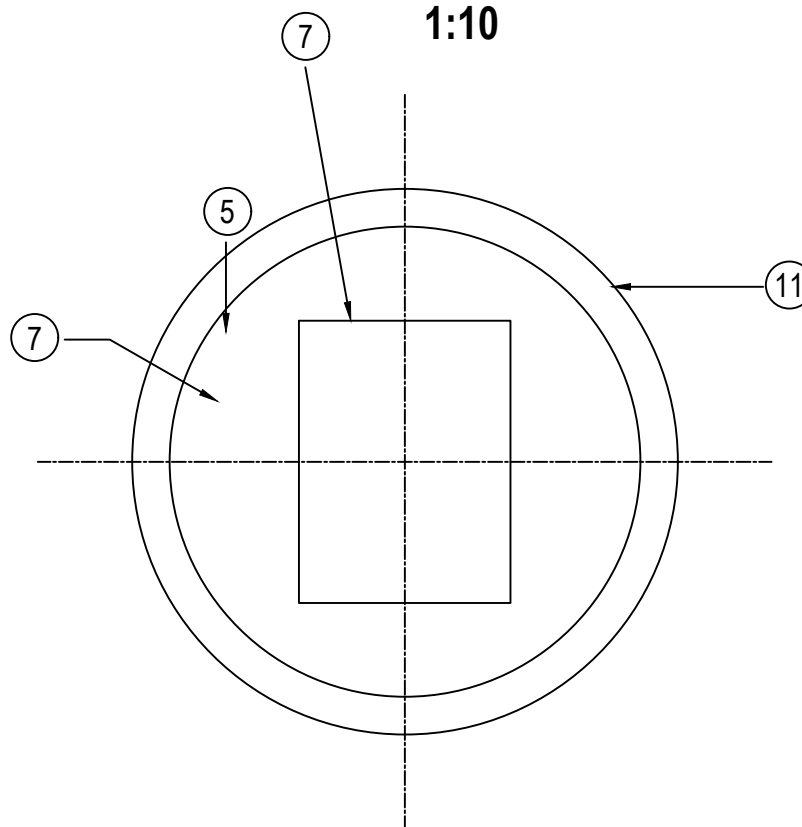
THRUSTBLOCK DETAILS

MAXIMUM PIPE PRESSURE - 400kPa



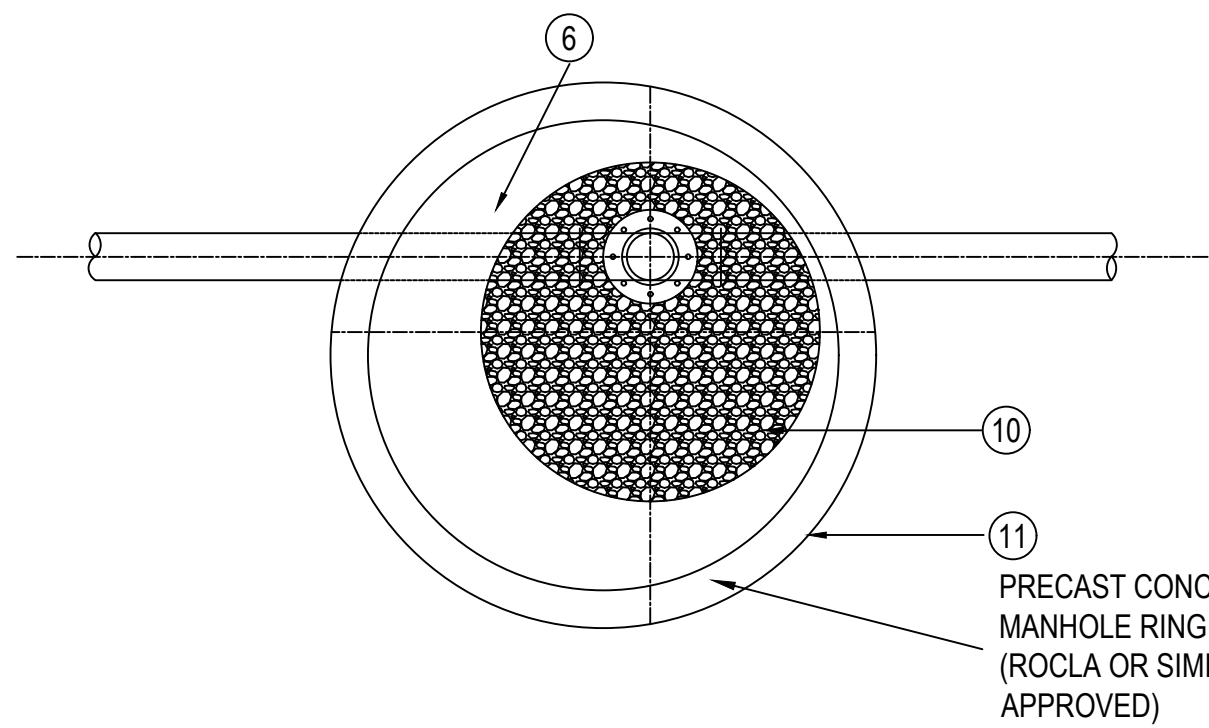
SECTIONAL SIDE ELEVATION

1:10



PLAN VIEW

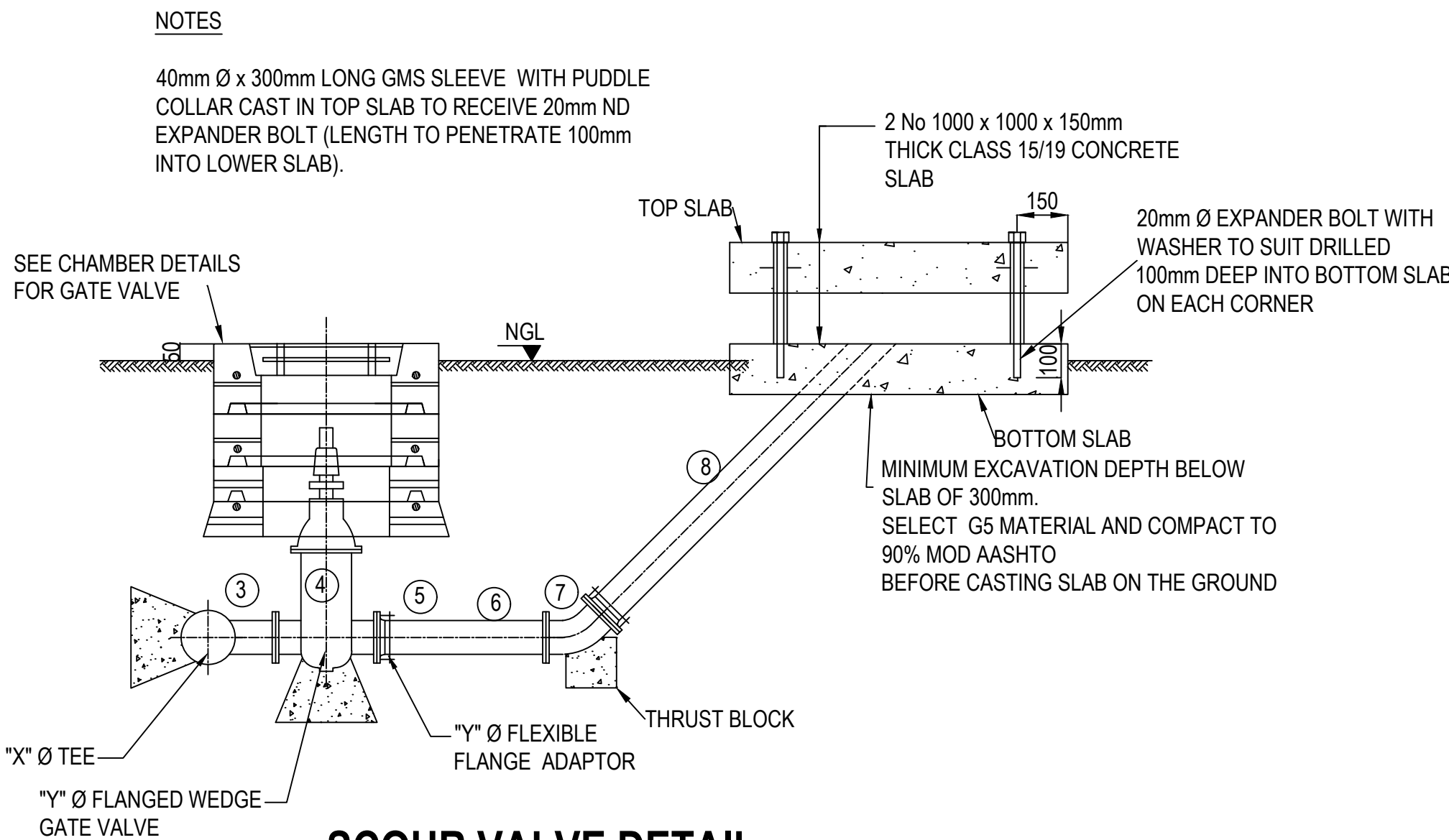
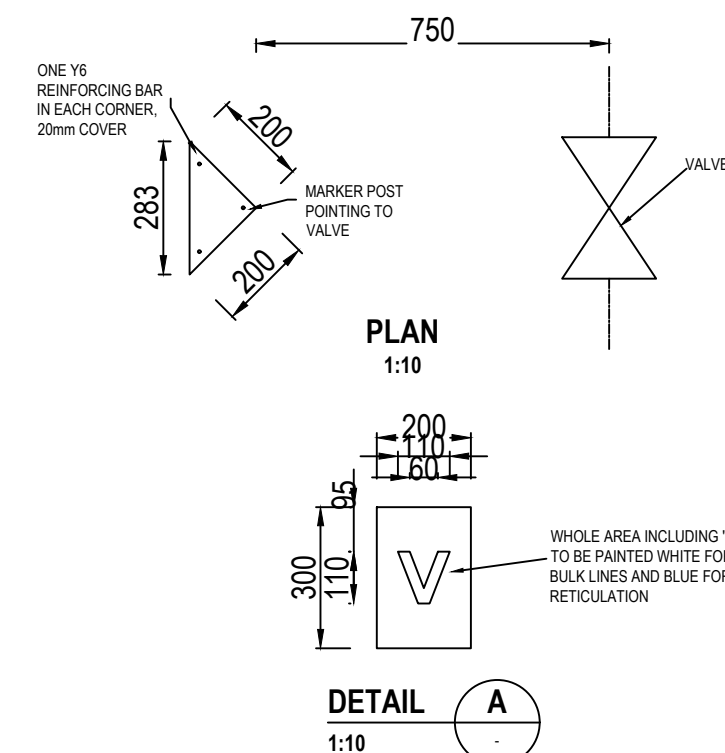
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SECTION A

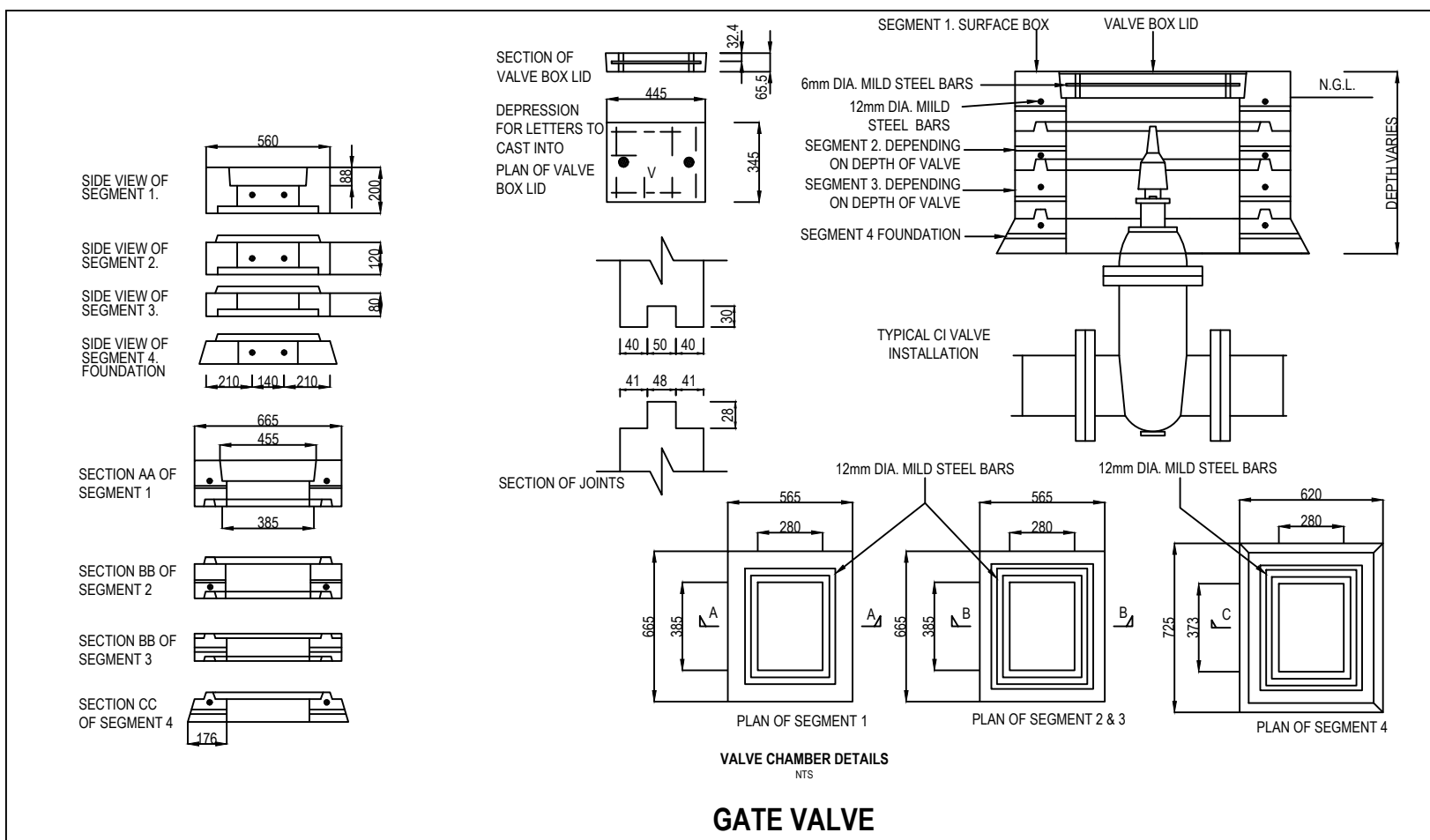
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AIR VALVE

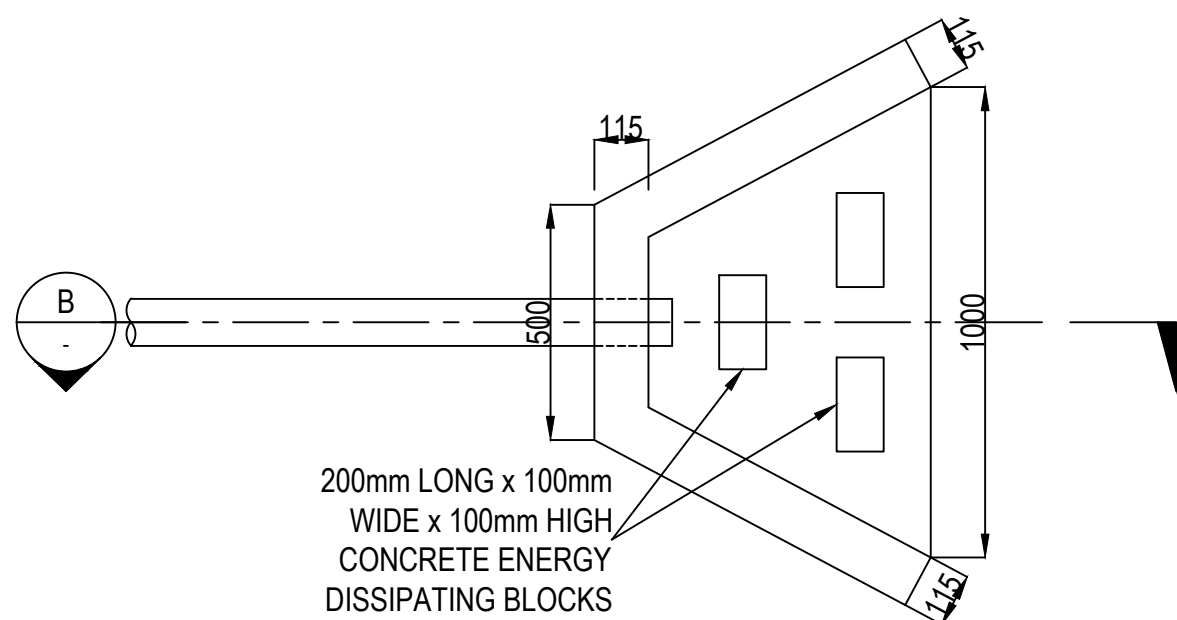


SCOUR VALVE DETAIL

1:20

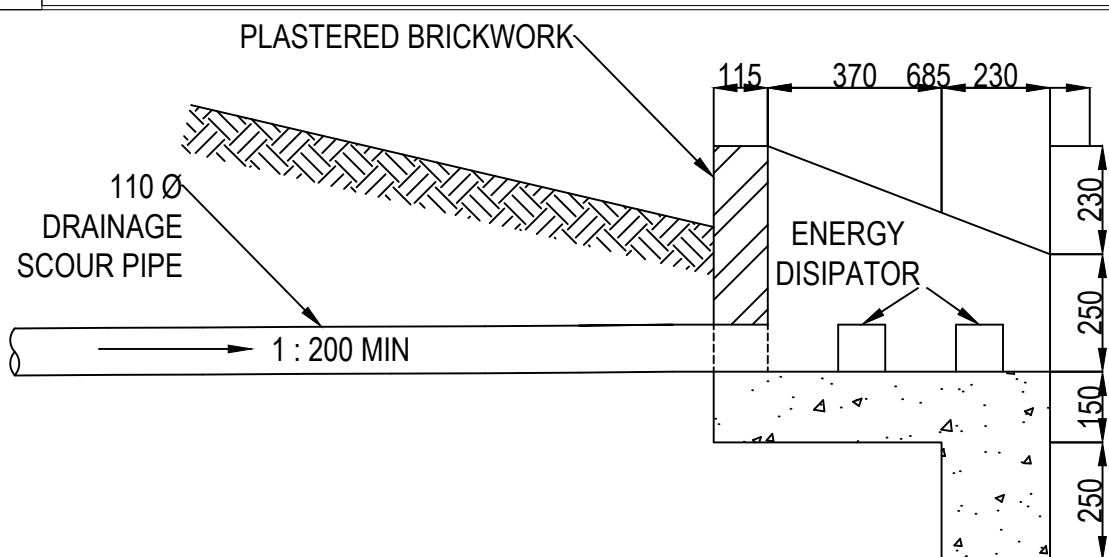


GATE VALVE



PLAN VIEW

1:20



SECTION B

1:20

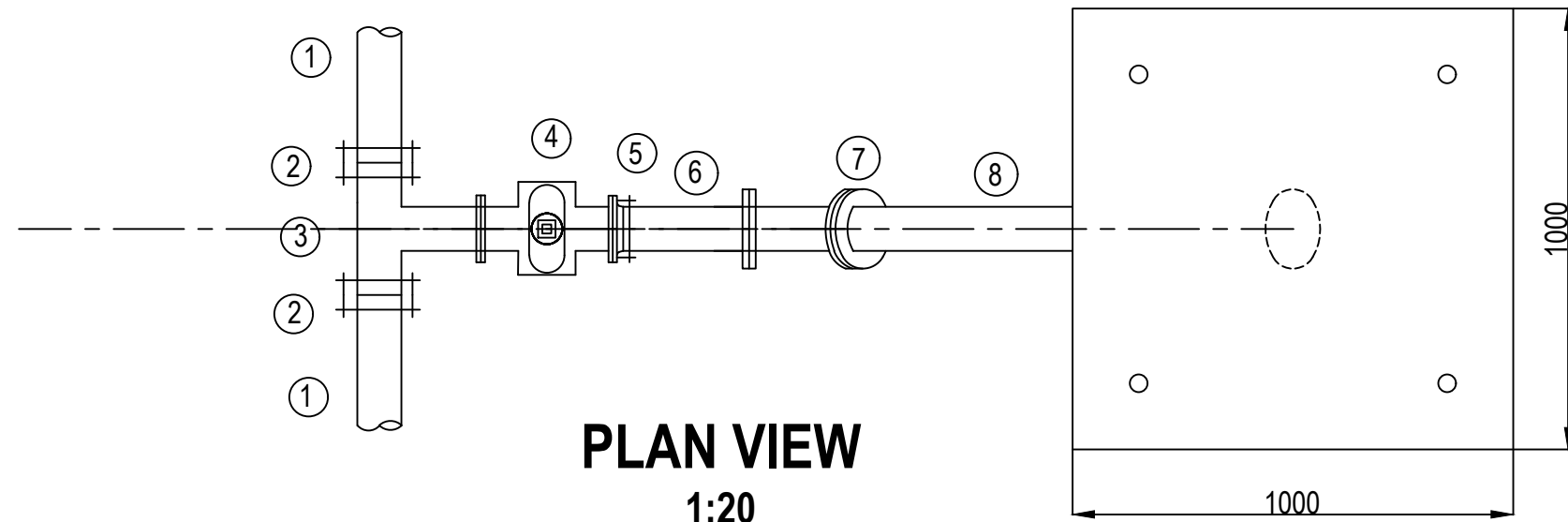
HEADWALL DETAIL

NODE	PVC/GMS SCOUR VALVE ASSEMBLY
1	RETICULATION/BULK SUPPLY PIPEWORK
2	FLEXIBLE COUPLING (KLAMFLEX RANGER OR SIMILAR APPROVED) TO SUIT
3	PLAIN ENDED GMS SCOUR TEE (FLANGED BRANCH) WITH FLANGED ADAPTORS TO SUIT.
4	"Y" ND FLANGED SG IRON GATE VALVE PRESSURE RATING TO SUIT (SEE ADJUSTMENT TABLE FOR BRANCH / SCOUR DIAMETER)
5	FLEXIBLE FLANGED ADAPTOR TO SUIT MS/PVC PIPE (KLAMFLEX RANGER OR SIMILAR)
6	"Y" Ø MS EXTENSION PIECE FLANGED ONE END.
7	"Y" Ø 45° FLANGED MS BEND
8	APPROX 1000mm LONG PLAN ENDED PVC EXTENSION PIECE WITH ONE END CUT AT 45°

"X" Ø	TEE CLASS TO SUIT (FLANGED BRANCH)	"Y" Ø VALVE CLASS TO SUIT
400mm Ø	GMS SCOUR TEE	100mm Ø
300mm Ø	GMS SCOUR TEE	100mm Ø
250mm Ø	GMS SCOUR TEE	100mm Ø
200mm Ø	GMS SCOUR TEE	100mm Ø
160mm Ø	GMS SCOUR TEE	100mm Ø
110mm Ø	GMS SCOUR TEE	100mm Ø
90mm Ø	GMS SCOUR TEE	80mm Ø
63mm Ø	GMS SCOUR TEE	63mm Ø
50mm Ø	GMS EQUAL TEE	50mm Ø S/S BALL VALVE

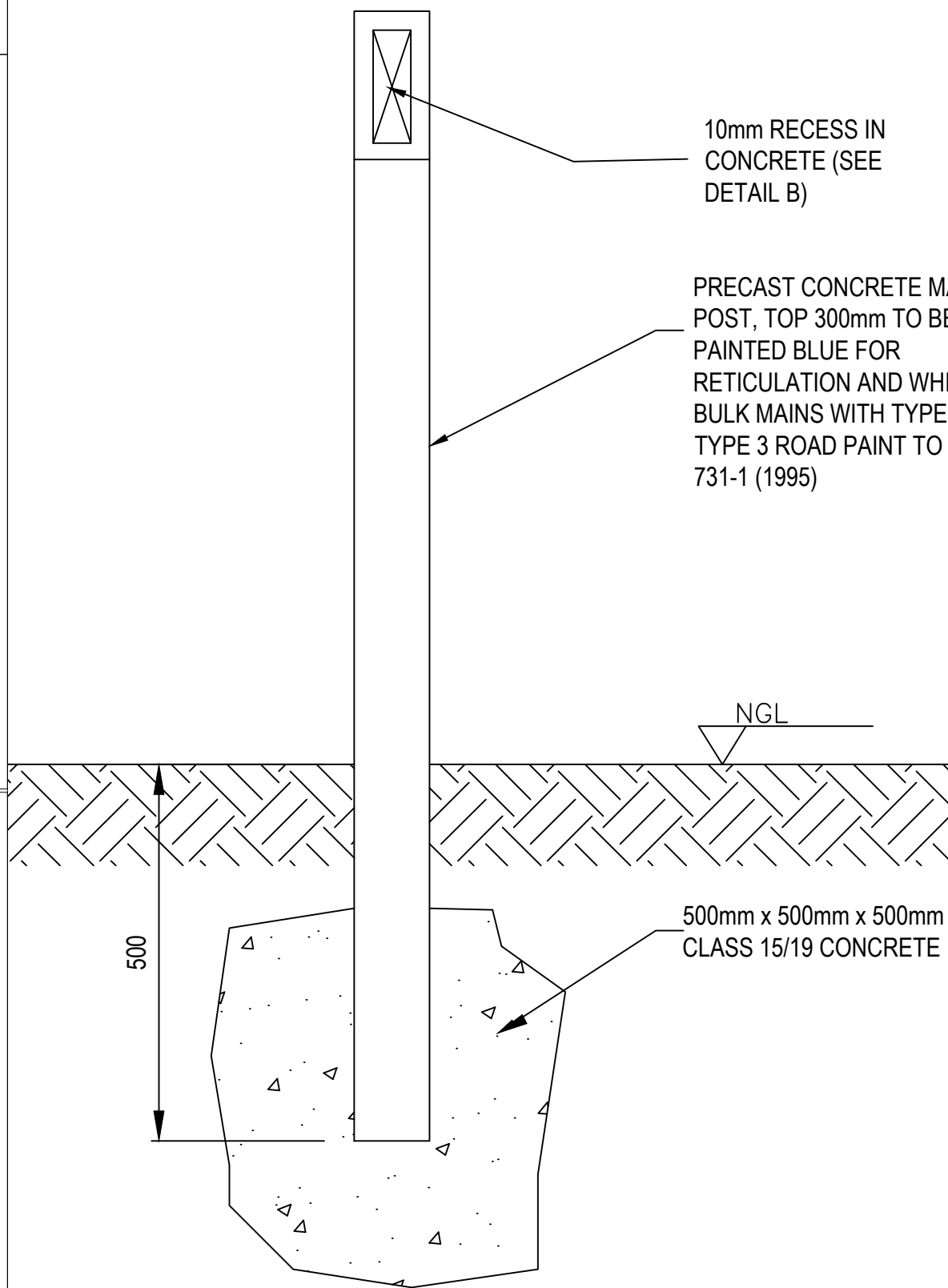


PLAN 1:10



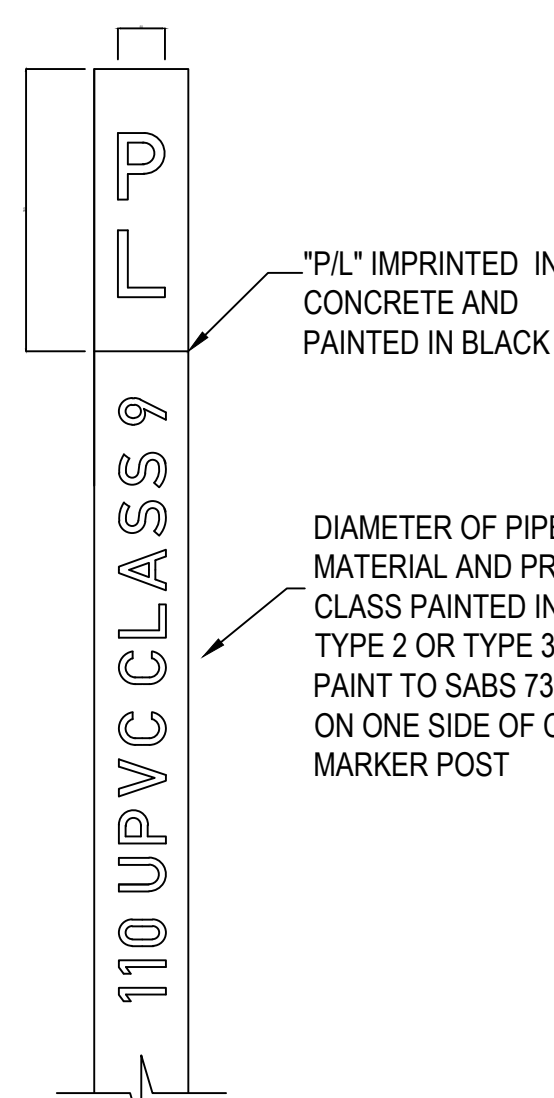
PLAN VIEW

1:20



ELEVATION

1:10



DETAIL B

1:10

GENERAL NOTES	
MATERIALS:	
1.	AIR VALVE OF SIZE 25mm Ø AS INDICATED ON LONG SECTIONS DRAWINGS TO BE DOUBLE ORIFICE AIR RELEASE AND VACUUM BREAK VALVE
2.	ISOLATING VALVE (25mm S/S BAR VALVE)
3.	RISER PIPE (25mm Ø AS SCHEDULED) 300mm LONG x 25mm ND EXTENSIONS PIECE(MS) WITH ONE END FLANGED TO SUIT 65mm ND AND THE OTHER THREADED.
4.	AIR VALVE TEE 63 x 63 GMS FLANGED EQUAL TEE WITH FLANGE ADAPTOR TO SUIT.
5.	PRECAST MANHOLE COVER SLAB WITH 450 Xx 600mm GMS COVER AND FRAME CAST IN SITU
6.	PRECAST MANHOLE COVER SLAB USED AS BASE/FLOOR TO MANHOLE
7.	450mm x 600mm GMS LOCKABLE COVER AND FRAME
8.	200MPa CONCRETE STONE TO INVERT FLOOR LEVEL
9.	BEDDING
10.	25mm CONCRETE STONE TO INVERT FLOOR LEVEL
11.	1000mm ID PRECAST CONCRETE MANHOLE RING(ROCLA OR SIMILAR)
12.	FLEXIBLE COUPLING TO SUIT HDPE MAIN.

PIPELINE MARKER POSTS	
1.	CONCRETE MARKER POSTS TO BE PLACED AT AN OFFSET OF 1m FROM CENTER LINE OF PIPE.
2.	WHEN LOOKING IN THE DIRECTION OF WATER FLOW, CONCRETE MARKER POSTS TO BE PLACED ON THE LEFT HAND SIDE.
3.	CONCRETE MARKER POSTS TO BE PLACED AT BENDS AND TEES ON ALL PIPELINES.
4.	THE CONCRETE MARKER POSTS MUST BE PLACED IN LINE OF SITE, SO THAT THE NEXT MARKER POST IS VISIBLE FROM THE PREVIOUS MARKER POST.
5.	ALL COUPLINGS, JOINTS FLANGES, BOLTS AND BURIED BELOW GROUND LEVEL TO BE TREATED WITH DENSO SS PRIME, DENSO MASTIC & DENSO HT TAPE OR SIMILAR APPROVED.
6.	ALL STEEL FITTINGS TO BE HEAVY DUTY HOT DIPPED GALVANIZED TO SANS 32 BEFORE FBE COATING. FURTHER MACHINING, CUTTING OR WELDING AFTER HOT DIPPED GALVANIZING WILL NOT BE ALLOWED.

No.	DATE	DESCRIPTION	CHECKED

CLIENT:

Amatola Water - Amanzi

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CONSULTANT:

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PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

WATER RETICULATION: AIR
VALVE, SCOUR VALVE AND GATE
VALVE DETAILS

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:	AS SHOWN	AS SHOWN	AS SHOWN

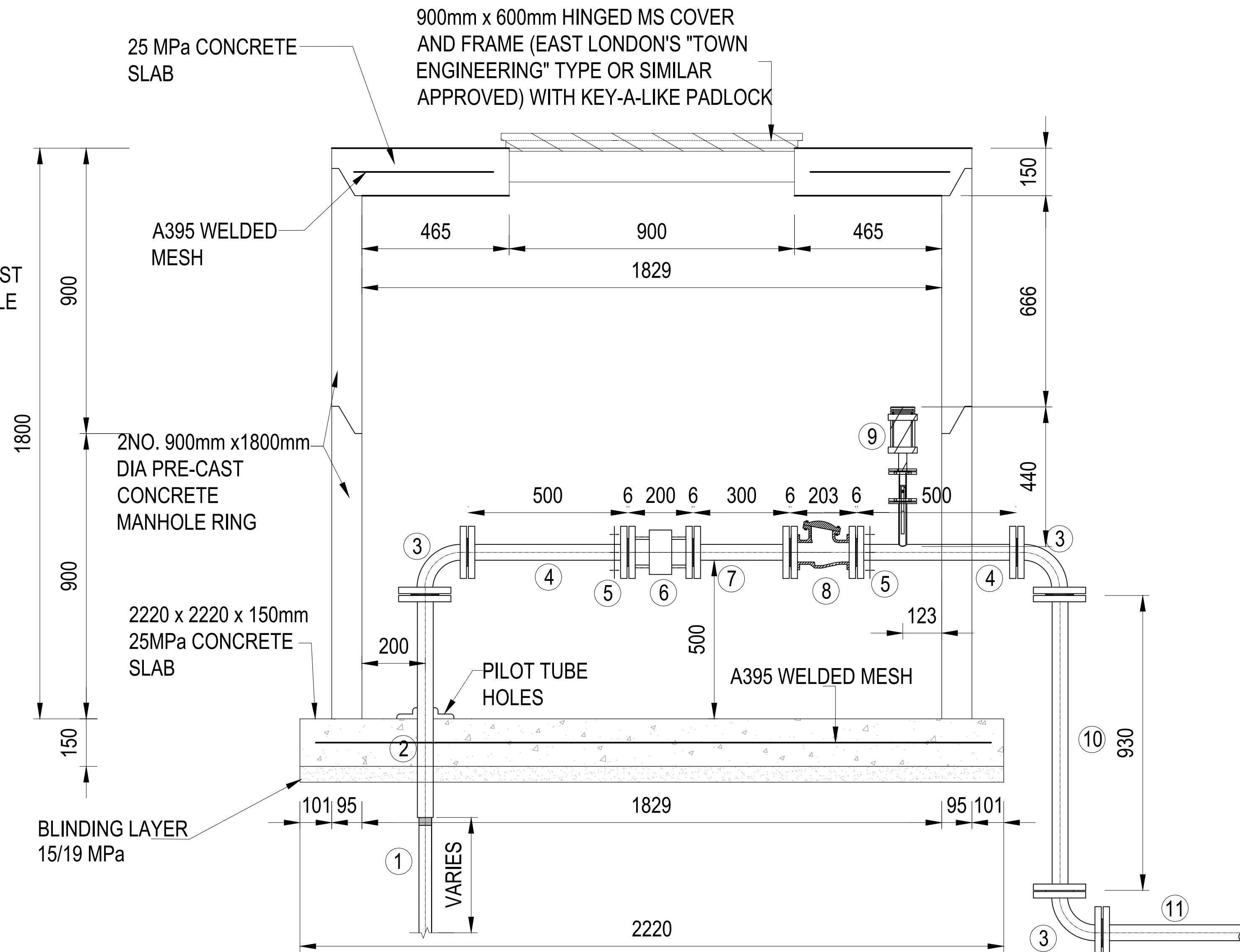
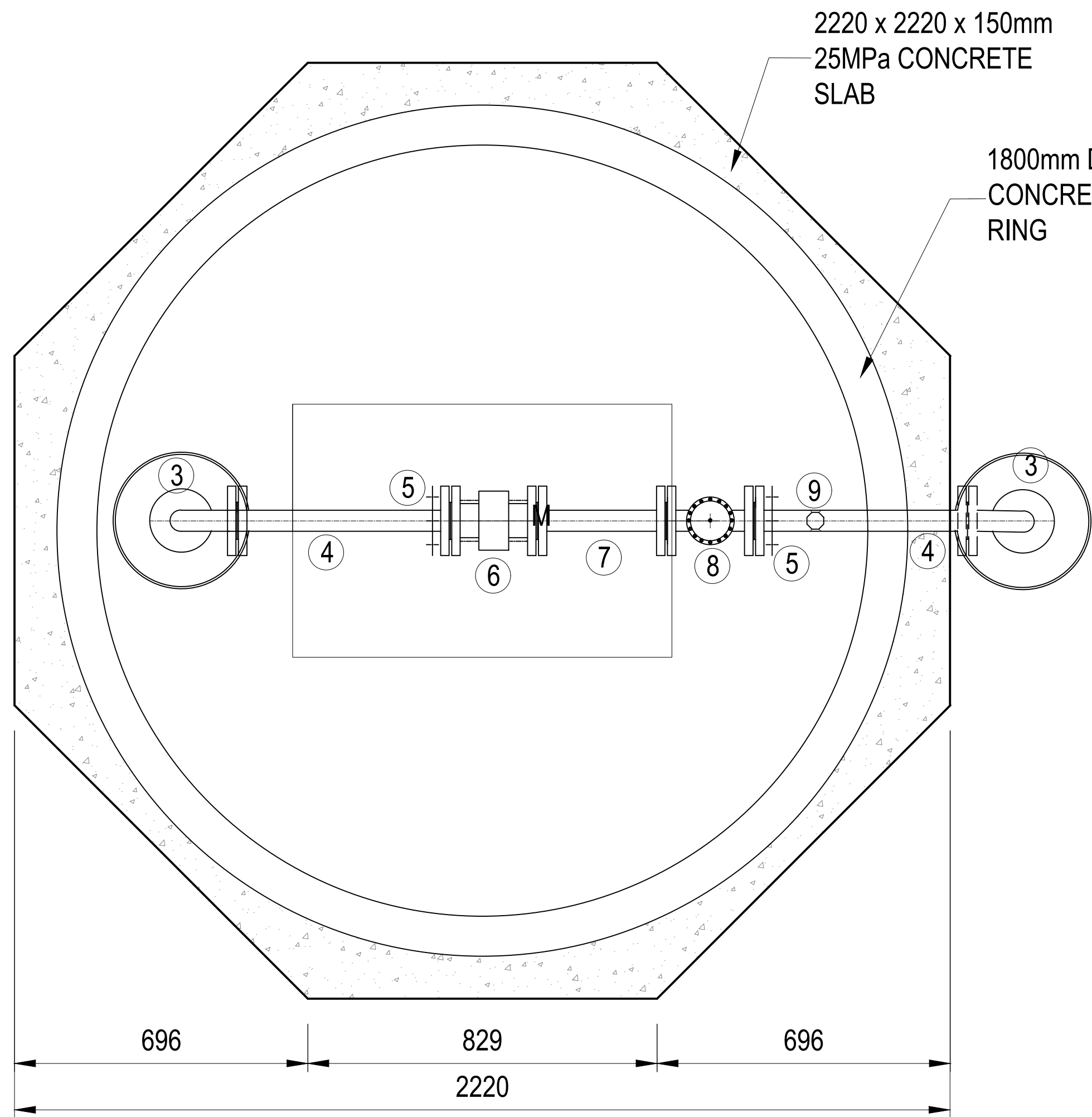
DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd DATE

CLIENT APPROVAL DATE

CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
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DRAWING No:	ROM-131-07-076-04-06	PREPARED FOR:	DOCUMENTATION & PROCUREMENT	REV No:	1
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PIPE CONNECTION ASSEMBLY

NODE	DESCRIPTION	NODE	DESCRIPTION
1.	40mmØ HDPE MALE THREADED CONNECTION PIECE TO BOREHOLE (LENGTH TO BE FINALISED ON SITE)	6.	50mm ND KLAMFLEX RANGER FLANGED COUPLING OR SIMILAR APPROVED
2.	700 mmØ x 50 mmØ GMS FLANGED ONE END EXTENSION PIECE AND FEMALE THREADED ON THE OTHER	7.	300mm LONG x 50mm ND GMS FLANGED EXTENSION PIECE (PN 25)
3.	50mm Ø FLANGED GMS 90° BEND (130 mm LONG)	8.	203mm LONG x 50mm ND GMS FLANGED ISOLATION VALVE (PN 25)
4.	500mm LONG GMS EXTENSION PIECE FLANGED BOTH ENDS, WITH PRESSURE GAUGE SWITCH AND FLOW SWITCH ATTACHED.	9.	50/80mm ND RBX VENT-O-MAT AIR VALVE PN25
5.	200mm LONG x 50mm Ø SENSUS TYPE WATER METER/HELIX 4000 OR SIMILAR APPROVED	10.	930mm x 50mmØ GMS FLANGED EXTENSION PIECE

GENERAL NOTES

- GENERAL:**
- AREA AROUND STRUCTURE TO BE SHAPED TO AVOID PONDING OF WATER
 - ALL PIPEWORK TO BE PROVIDED AND INSTALLED BY M&E CONTRACTOR
 - EMPLOYER'S AGENT TO INSPECT AND APPROVE MATERIAL BEFORE BLINDING IS CAST
 - ALL EXPOSED EDGES TO BE CHAMFERED 20X20 UNLESS OTHERWISE NOTED.
 - BACKFILL MATERIAL TO BE COMPACTED TO 93% MOD AASHTO IN MAX 150mm LAYERS.
 - ALL CONCRETE TO BE 25 MPa AT 28 DAYS.
 - EXISTING CONCRETE SLAB AROUND EXISTING HAND PUMP TO BE INCORPORATED INTO NEW FLOOR SLAB.
- PIPEWORK:**
- CIVIL WORK:**
- INSTALL SAFE CABLING.

No.	DATE	DESCRIPTION	CHECKED
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CLIENT:



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PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

BOREHOLE CHAMBER DETAILS

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		1:10_1	

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd DATE

CLIENT APPROVAL DATE

CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
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DRAWING No:	ROM-131-07-076-04-09	PREPARED FOR:	DOCUMENTATION & PROCUREMENT	REV No:	0
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LOCATION OF CLARKEBURY SCHOOL CO-ORDINATES:
X: -3518336.947
Y: -67408.788
NEW BH 1804 CO-ORDINATES:
X: -3518108.446
Y: -67229.791
NEW BH 1806 CO-ORDINATES:
X: -3517838.122
Y: -67438.606

BOREHOLE 3 (EC/T12/1806)
Y : -67438.606
X : -3517838.122

BOREHOLE 2 (EC/T12/1804)
Y : -67229.791
X : -3518108.446

POSITION OF NEW 615 KI (GROSS CAPACITY), GROUND
STEEL TANK, TO BE CONSTRUCTED WHERE OLD
RESERVOIR CURRENTLY STANDS. REINFORCED
CONCRETE BASE TO BE CONSTRUCTED TO SUPPORT
TANK.

EXISTING WATER
TREATMENT WORKS

EXISTING GRAVEL
ACCESS ROAD TO
BE REHABILITATED

CLARKEBURY SENIOR
SECONDARY SCHOOL

EXISTING GRAVEL
ACCESS ROAD TO
BE REHABILITATED



ANAEROBIC POND
RETENTION TIME = 6 DAYS
DEPTH = 3 m
POND VOLUME = 600 m³
POND AREA = 200 m²

NEW FENCE AND
PROPERTY. LIAISON
WITH OWNER TO BE
DONE.

STONE
PITCHING
AND
OVERFLOW
PIPE TO
STREAM/DONGA

MATURATION POND 2
RETENTION TIME = 7 DAYS
DEPTH = 1.5 m
POND VOLUME = 837.5 m³
POND AREA = 1116.5 m²
OVERFLOWS TO RIVER

MATURATION POND 1
RETENTION TIME = 7
DAYS
DEPTH = 1.5 m
POND VOLUME = 837.5 m³
POND AREA = 1116.5 m²

FACULTATIVE POND 1
RETENTION TIME = 44 DAYS
DEPTH = 1.5 m
POND VOLUME = 2269 m³
POND AREA = 1512.5 m²

FACULTATIVE POND 2
RETENTION TIME = 44 DAYS
DEPTH = 1.5 m
POND VOLUME = 2269m³
POND AREA = 1512.5 m²

GENERAL NOTES

- ALL INFRASTRUCTURE TO BE CONFIRMED UPON RECEIPT OF CADASTRAL INFORMATION AND LIAISON AND APPROVAL OF POSITIONS BY THE LOCAL AUTHORITY.
- SPECIALIST STUDIES (GEOTECH AND SURVEY) TO BE OBTAINED IN ORDER TO COMPLETE DETAIL DESIGN AND FINALIZE SEWAGE INFRASTRUCTURE COMPONENTS.

REFERENCE DRAWINGS

ROM-131-07-076-04-13:SEWER MANHOLE ,TRENCH AND INSPECTION CHAMBER DETAILS
ROM-131-07-076-04-14:POND OVERFLOW CHANNEL DETAILS
ROM-131-07-076-04-15-17: POND LINING AND EMERGENCY OVERFLOW STRUCTURE DETAILS
ROM-131-07-076-04-12:INLET WORKS ,PLANS ,SECTIONS AND DETAILS
ROM-131-07-076-04018: SECURITY FENCING DETAILS

LEGEND

- FENCING
- EXISTING SEWERLINE
- PROPOSED 160mm ND HEAVY DUTY CLASS 34 PVC SEWER PIPELINE
- EXISTING PONDS
- NEW 6 m SLIDING GATE
- INLET/SCREENING CHAMBER
- PIPEWORK
- NEW 615 KI (GROSS CAPACITY) GROUND STEEL TANK
- BOREHOLE

No.	DATE	DESCRIPTION	CHECKED
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PROJECT: THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

GENERAL LAYOUT

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		1:10_1	

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd DATE

CLIENT APPROVAL DATE

CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
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DRAWING No:	ROM-131-07-076-04-10	PREPARED FOR:	DOCUMENTATION & PROCUREMENT	REV No:	0
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LOCATION OF CLARKEBURY SCHOOL CO-ORDINATES:
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Y: -67408.788
NEW BH 1804 CO-ORDINATES:
X: -3518108.446
Y: -67229.791
NEW BH 1806 CO-ORDINATES:
X: -3517838.122
Y: -67438.606

GENERAL NOTES

1. SPECIALISTS STUDIES (GEOTECH AND SURVEY) TO BE OBTAINED IN ORDER TO COMPLETE DETAILED DESIGN AND FINALIZE SEWAGE INFRASTRUCTURE COMPONENTS.
2. THE BULK SEWAGE WAS CALCULATED TO BE 160mm ND CLASS HEAVY DUTY PVC PIPELINE AND DESIGNED FOR A VELOCITY OF 0.6M/S.
3. THE PIPELINE WILL INCLUDE SEWAGE MANHOLES AT 80m INTERVALS.
4. TWO EARTH EMBANKMENTS WALLS BE CONSTRUCTED TO SEPERATE THE ANAEROBIC POND PRIMARY AND SECONDARY FACULTATIVE PONDS.
5. THE ANEROBIC PONDS WILL BE CONCRETE LINED TO ACCOMODATE MOST OF THE SLUDGE THAT WILL BE ACCUMULATE IN THIS POND.
6. THE REMAINING PONDS WILL BE GEO-LINED.

REFERENCE DRAWINGS

ROM-131-07-076-04-13:SEWER MANHOLE, TRENCH AND INSPECTION CHAMBER DETAILS
ROM-131-07-076-04-14:POND OVERFLOW CHANNEL DETAILS
ROM-131-07-076-04-15-17:POND LINING AND EMERGENCY OVERFLOW STRUCTURE DETAILS
ROM-131-07-076-04-12:INLET WORKS ,PLANS, SECTIONS AND DETAILS
ROM-131-07-076-04018: SECURITY FENCING DETAILS

LEGEND

- x — FENCING
- EXISTING SEWERLINE
- PROPOSED 160mm ND HEAVY DUTY CLASS 34 PVC SEWER PIPELINE
- EXISTING PONDS
- NEW 6 m SLIDING GATE
- INLET/SCREENING CHAMBER
- PIPEWORK
- NEW 615 KI (GROSS CAPACITY) GROUND STEEL TANK
- BOREHOLE

No.	DATE	DESCRIPTION	CHECKED
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PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

GENERAL LAYOUT: SEWER

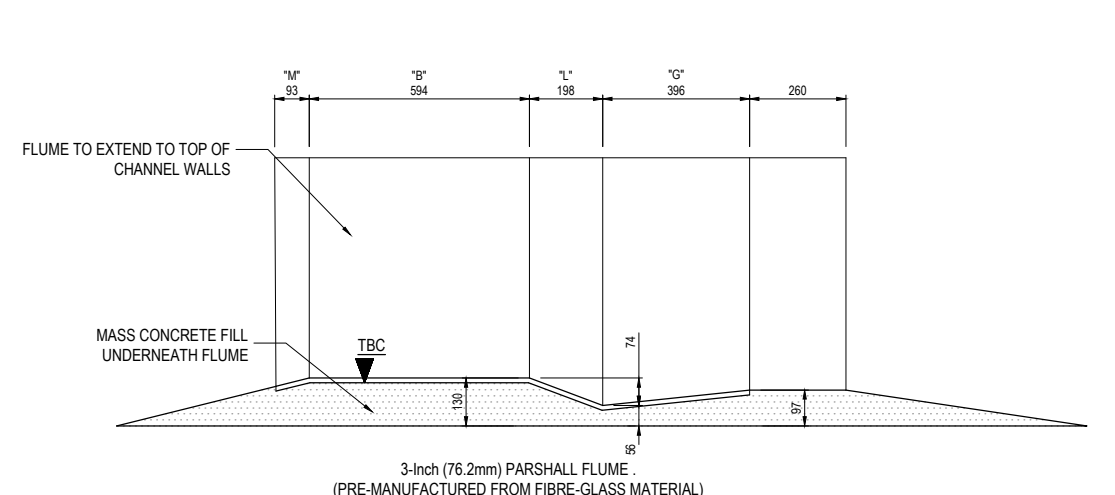
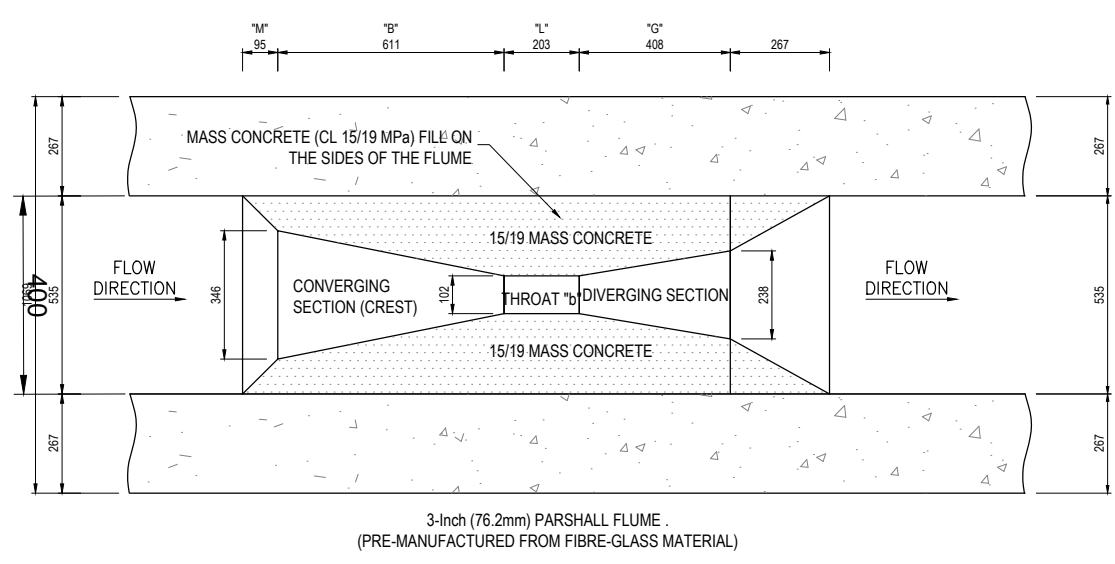
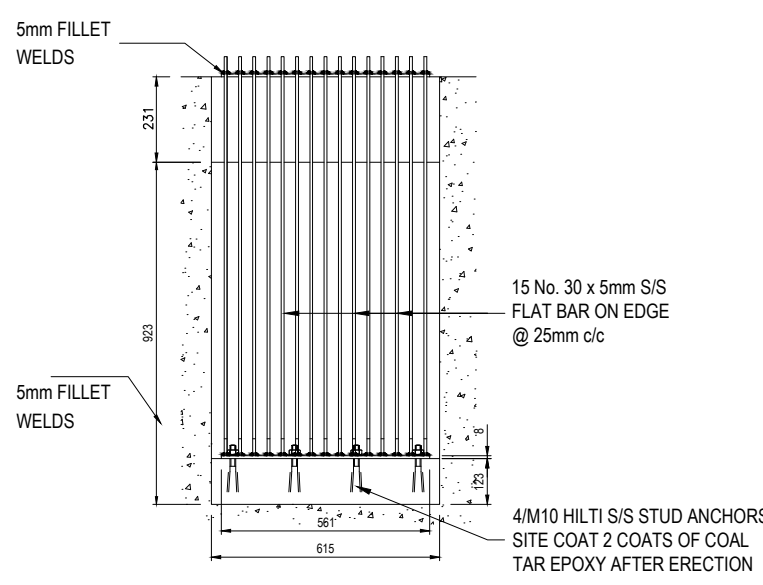
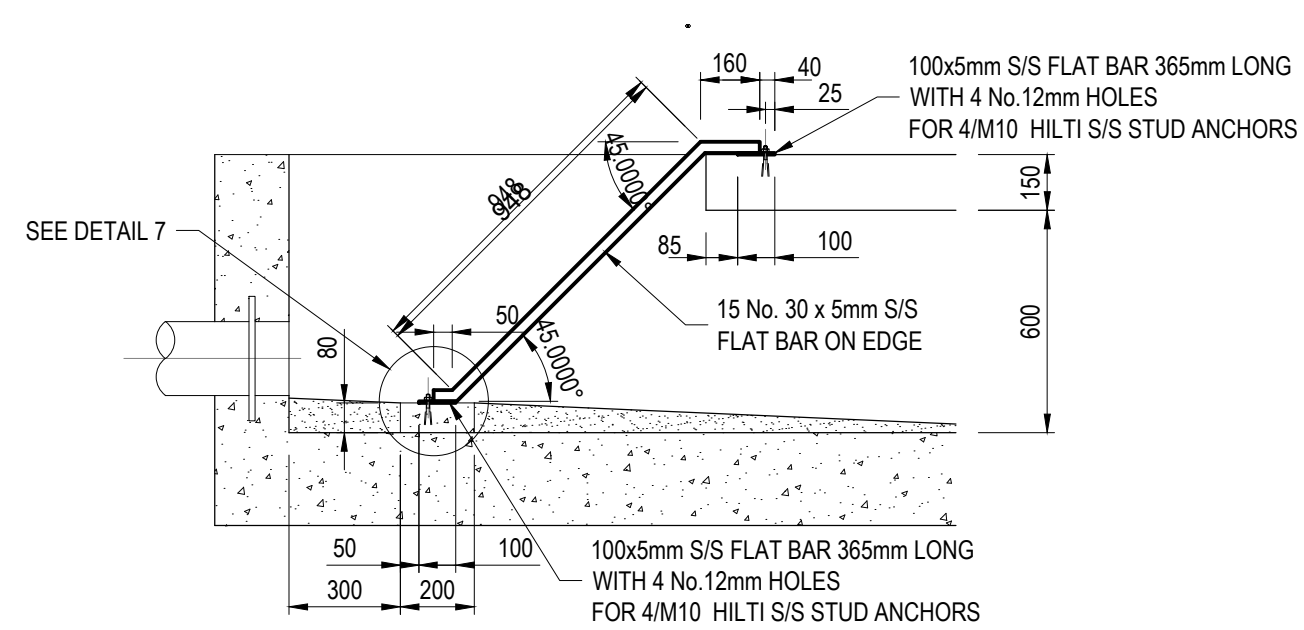
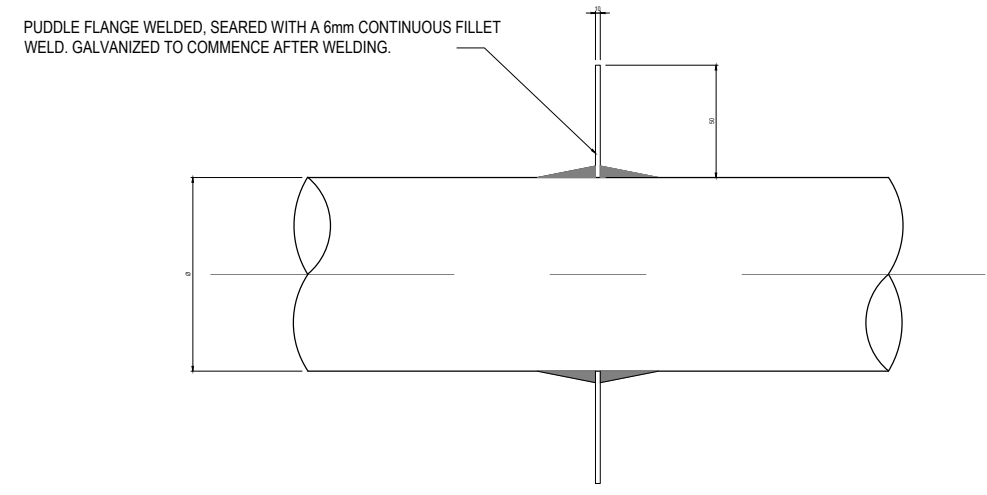
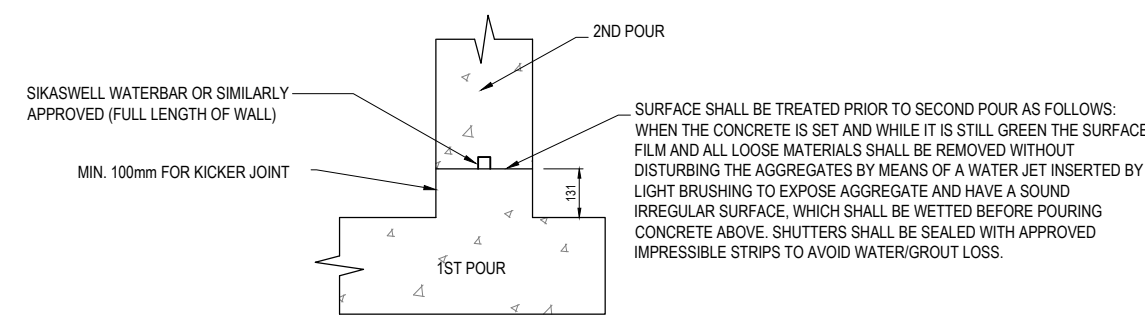
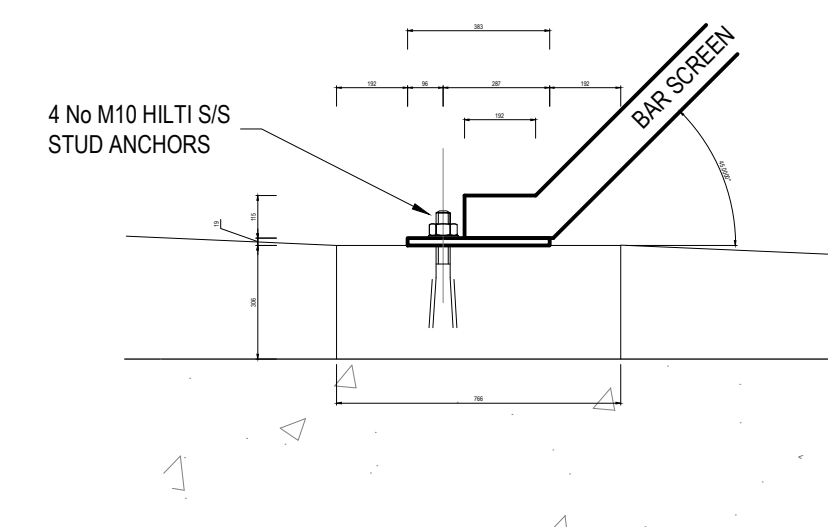
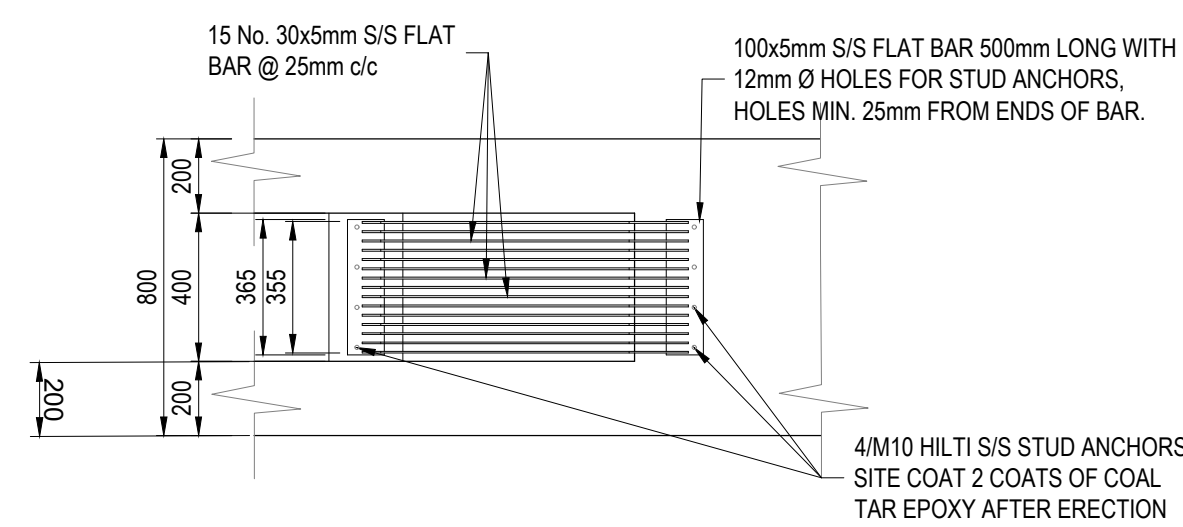
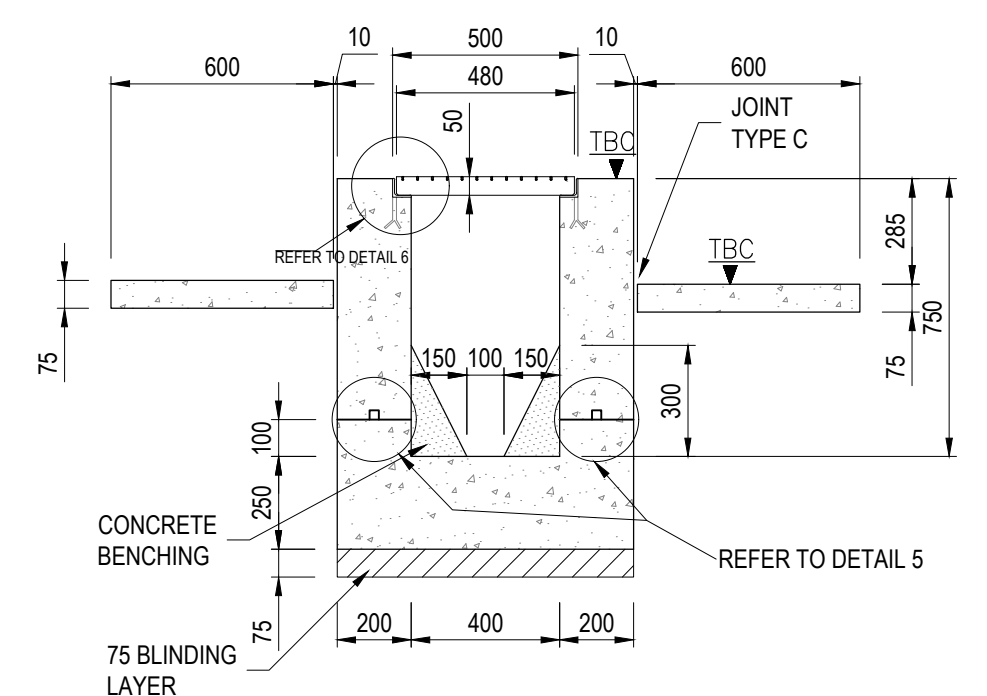
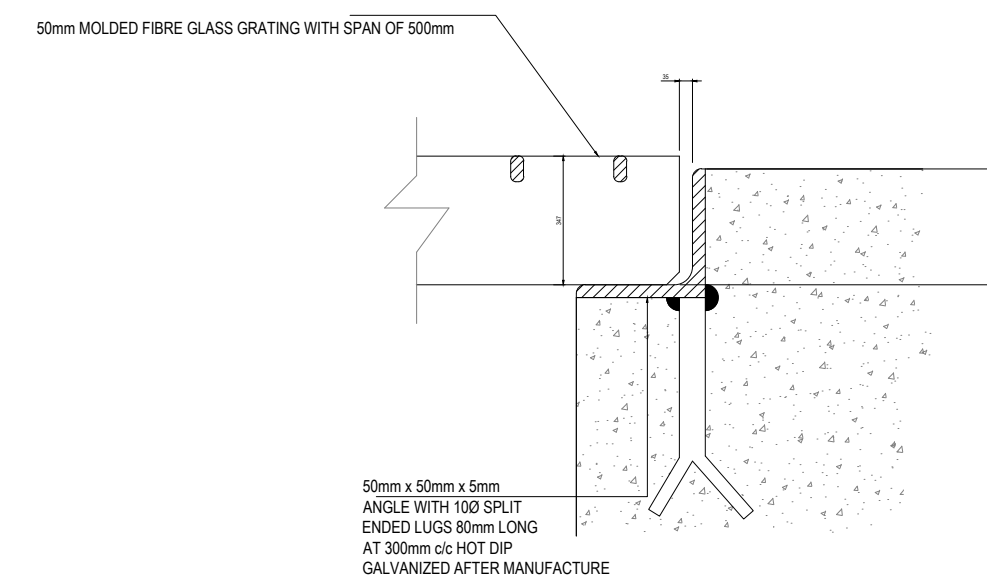
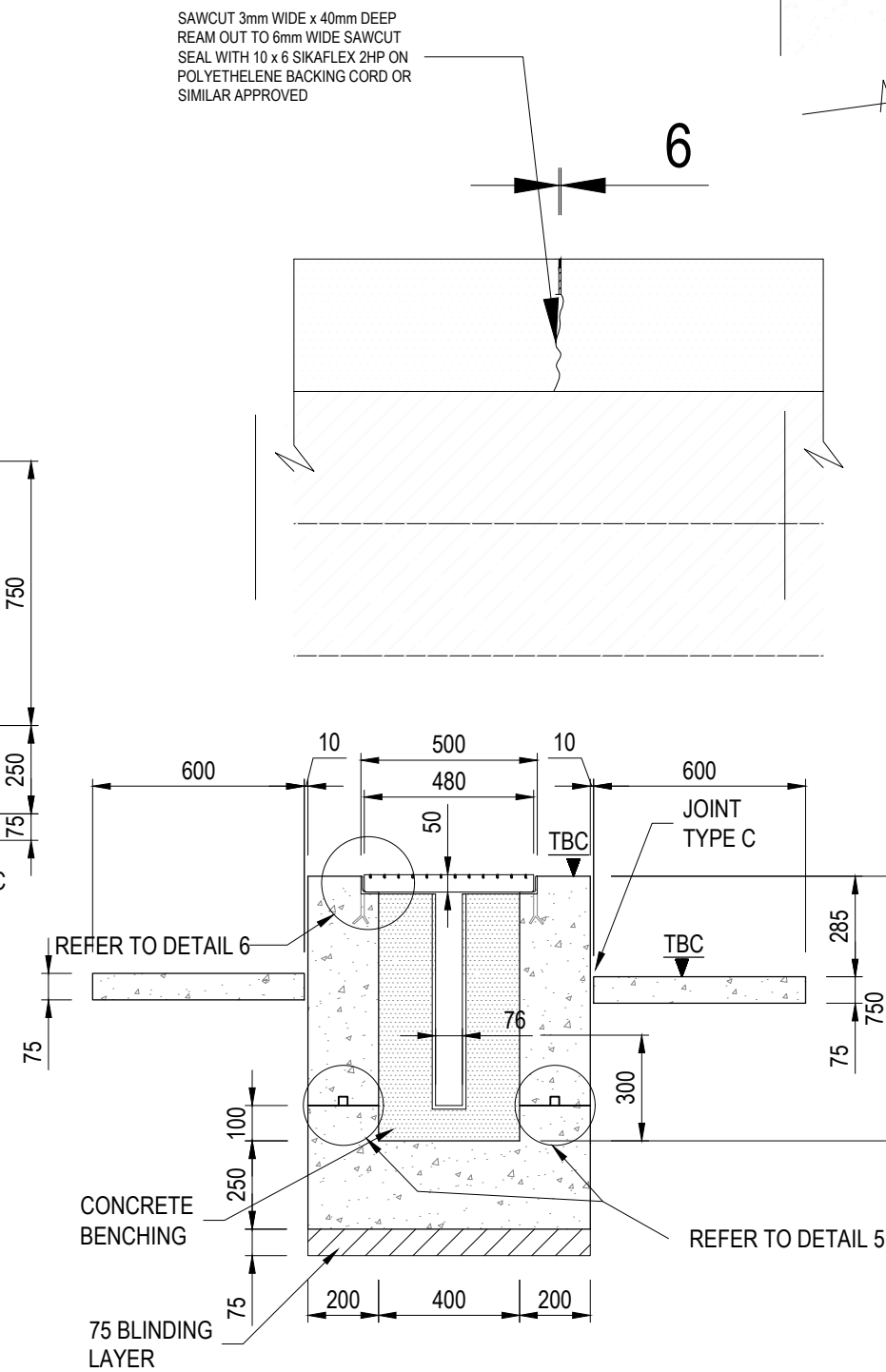
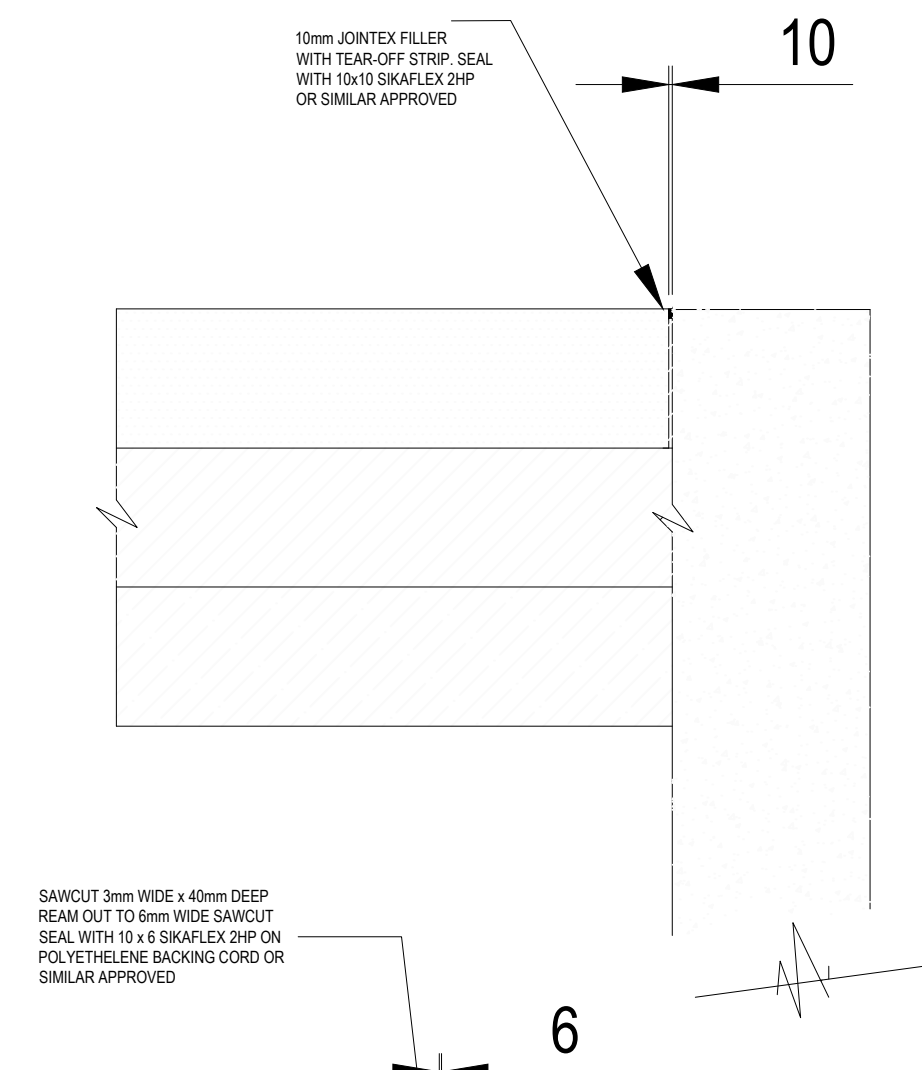
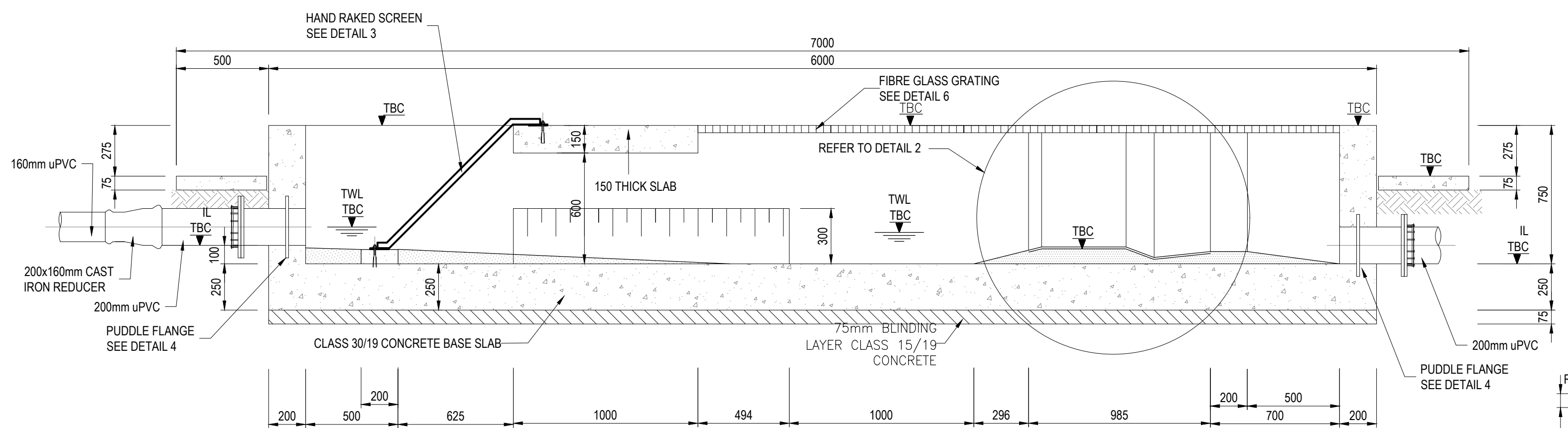
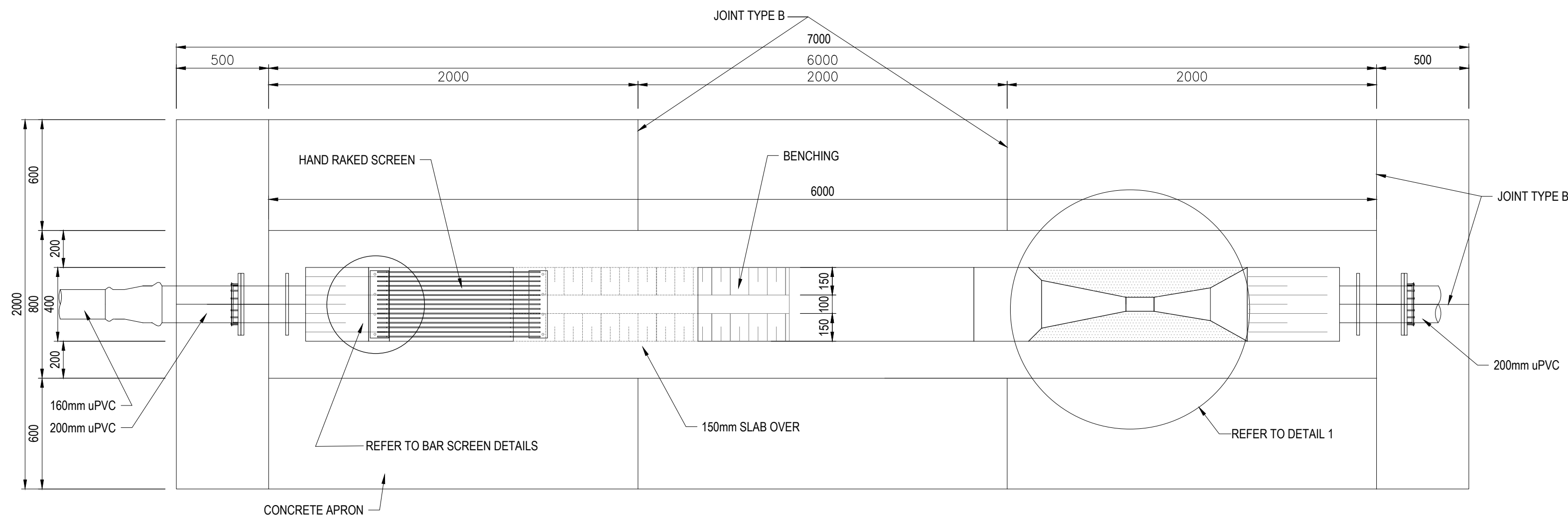
DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		1:10_1	

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd DATE

CLIENT APPROVAL DATE

CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
DRAWING No:	ROM-131-07-076-04-11	PREPARED FOR:	DOCUMENTATION & PROCUREMENT
REV No:	0		



GENERAL NOTES

- PARSHALL FLUME NOTES:**
- PARSHALL FLUMES SHALL BE CONSTRUCTED OR PRE-FABRICATED FROM DURABLE AND CORROSION-RESISTANT MATERIALS
 - IN THE CASE OF PRE-FABRICATED FLUMES, GRP MATERIAL IS PREFERRED. PROPOSALS TO USE ALTERNATIVE MATERIALS SHALL BE SUBMITTED TO EMPLOYERS AGENT IN WRITING FOR APPROVAL.
 - ALLOWABLE CONSTRUCTION DEVIATION TOLERANCES FOR THE PARSHALL FLUME AS FOLLOWS
 - ON BOTTOM THROAT WIDTH "b" .02% OF b WITH ABSOLUTE MAXIMUM OF 0.01m
 - ON POINT DEVIATIONS FROM A PLANE SURFACE IN THE THROAT .01% OF "L"
 - ON WIDTH BETWEEN VERTICAL SURFACES IN THE THROAT .02% OF WIDTH WITH MAX OF 0.01m
 - ON AVERAGE LONGITUDINAL AND TRANSVERSE SLOPES OF THE BASE OF THE THROAT .01%
 - ON SLOPE OF INCLINED SURFACES IN THE THROAT .01%
 - ON THROAT LENGTH .1% OF "L"
 - ON POINT DEVIATIONS FROM A PLANE SURFACE IN THE ENTRANCE TRANSITION TO THE THROAT .01% OF "L"
 - ON POINT DEVIATIONS FROM A PLANE SURFACE IN THE EXIT TRANSITION FROM THE THROAT .03% OF "L"
 - ON DEVIATIONS FROM A PLANE OR CURVE ON OTHER VERTICAL OR INCLINED SURFACES .1%
 - ON DEVIATION FROM A PLANE OF THE BED OF THE LINED APPROACH CHANNEL .01% OF "L"
 - THE STRUCTURE TO BE MEASURED ON COMPLETION OF CONSTRUCTION AND AVERAGE VALUES OF RELEVANT DIMENSIONS AND THEIR STANDARDS DEVIATIONS AT 95% CONFIDENCE LIMITS SHALL BE COMPUTED
 - THE AVERAGE VALUES OF DIMENSIONS TO BE USED FOR COMPUTING DISCHARGE OF THEIR STANDARDS DEVIATIONS TO OBTAIN UNCERTAINTY IN THE DETERMINATION OF DISCHARGE
 - THE VOIDS BETWEEN THE FLUME AND THE CONCRETE WALLS AND UNDERNEATH TO BE CAREFULLY FILLED WITH CLASS 15/19 MASS CONCRETE
 - A METHOD STATEMENT FOR CONSTRUCTING AND/OR INSTALLING THE FLUME TO BE SUBMITTED IN WRITING TO THE EMPLOYERS AGENT FOR APPROVAL.

No.	DATE	DESCRIPTION	CHECKED
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PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
NYANGA SENIOR SECONDARY SCHOOL

DRAWING TITLE:

INLET WORKS :PLAN ,SECTIONS &
DETAILS

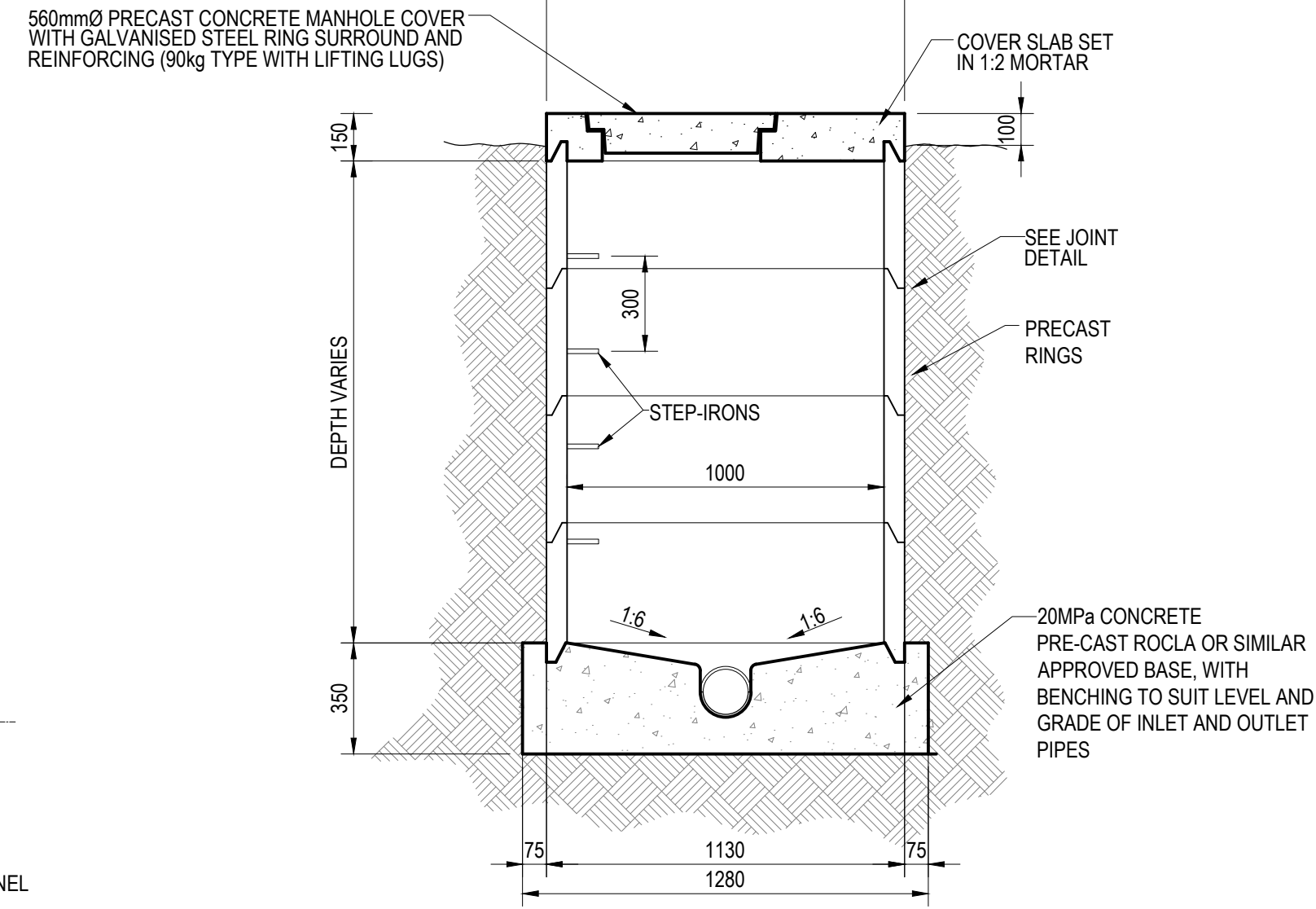
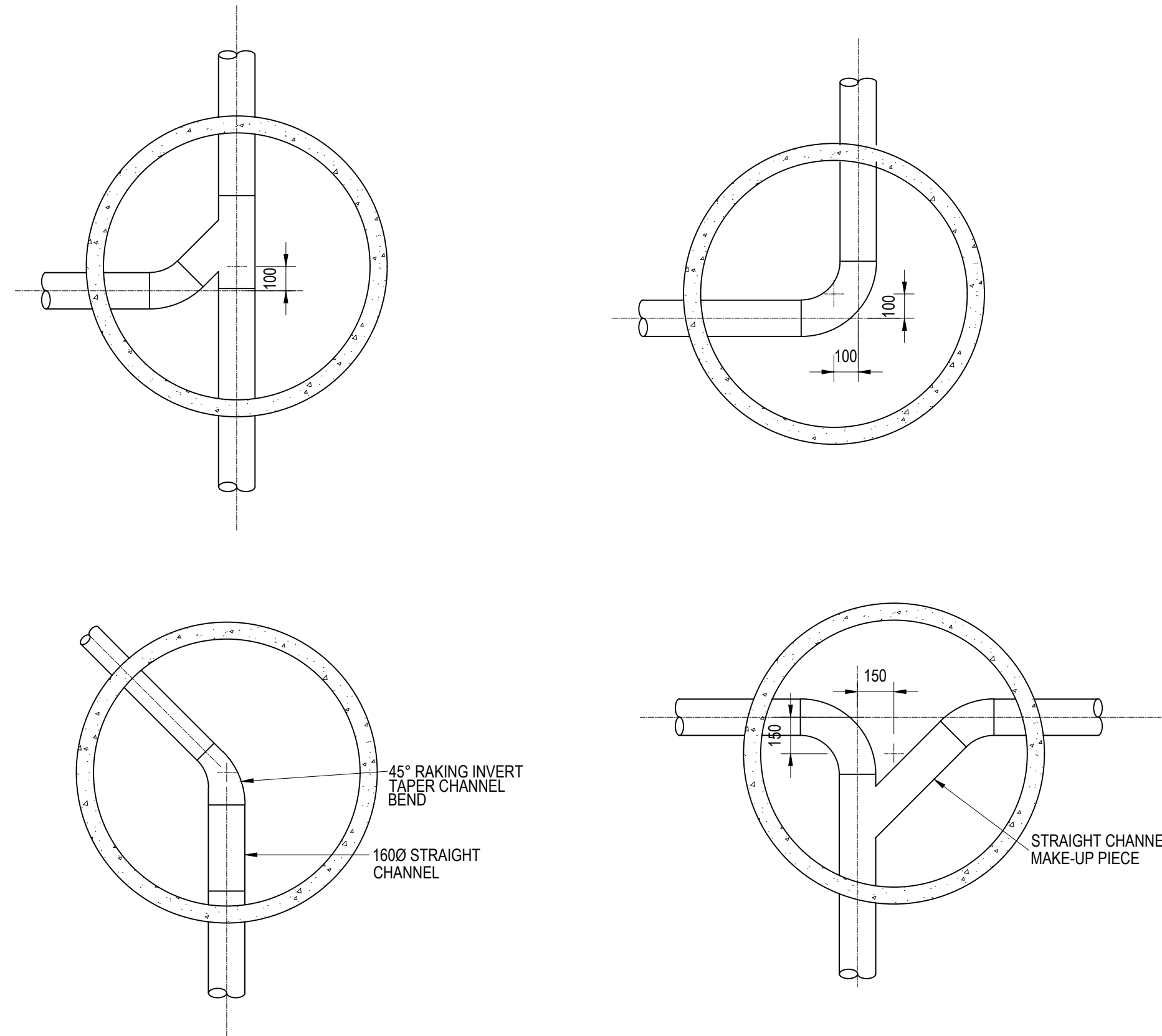
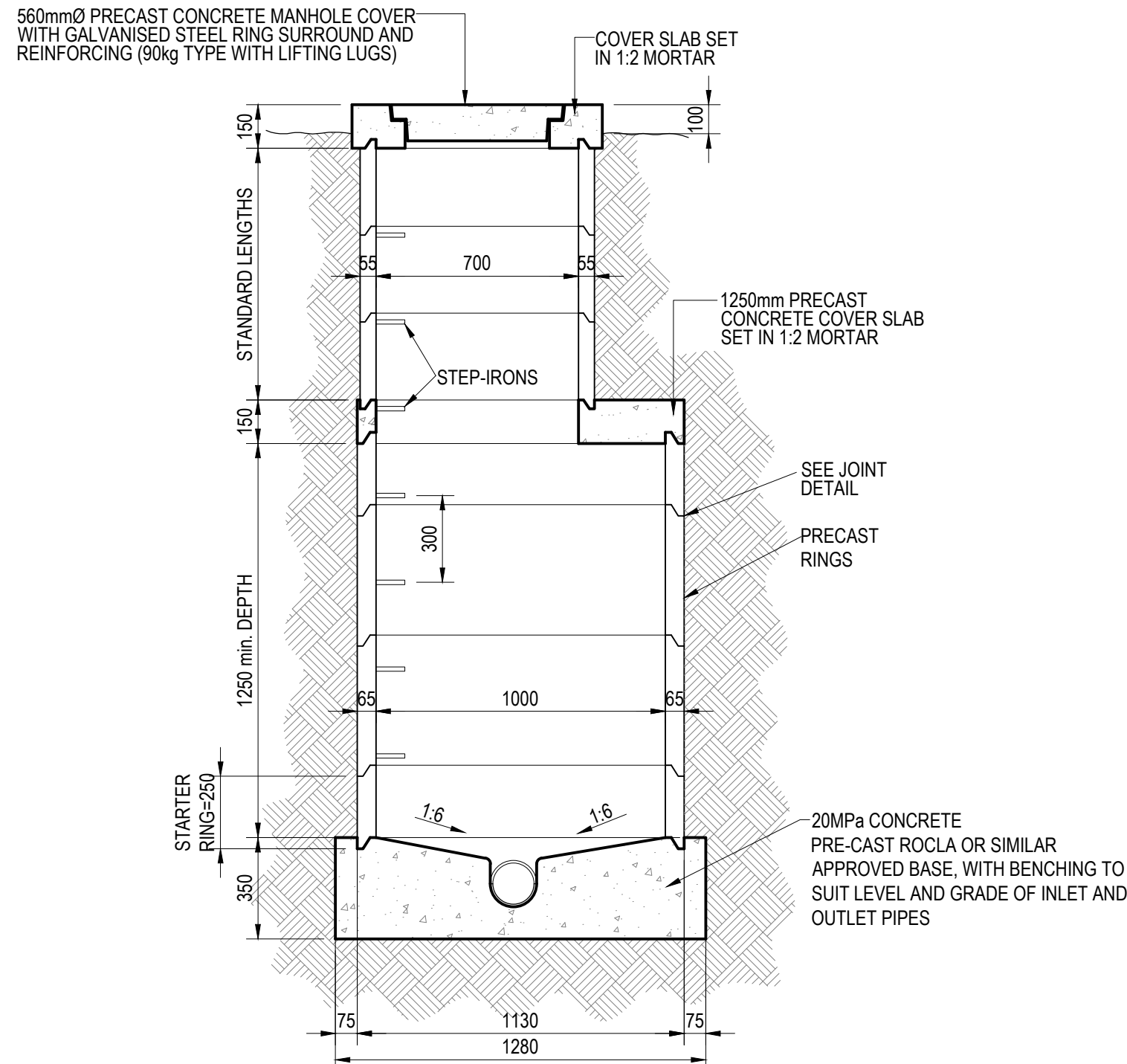
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DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		AS SHOWN	

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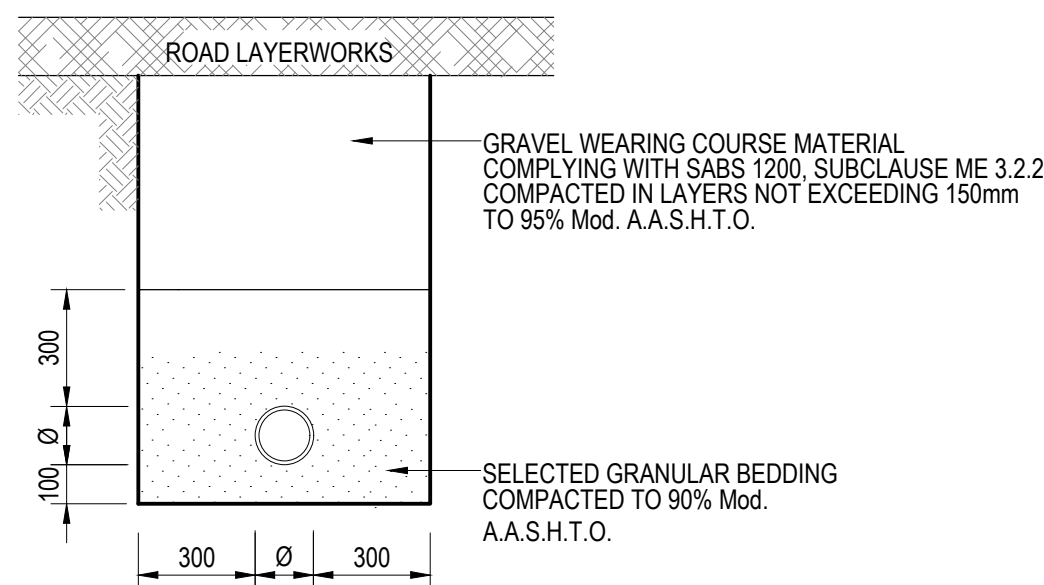
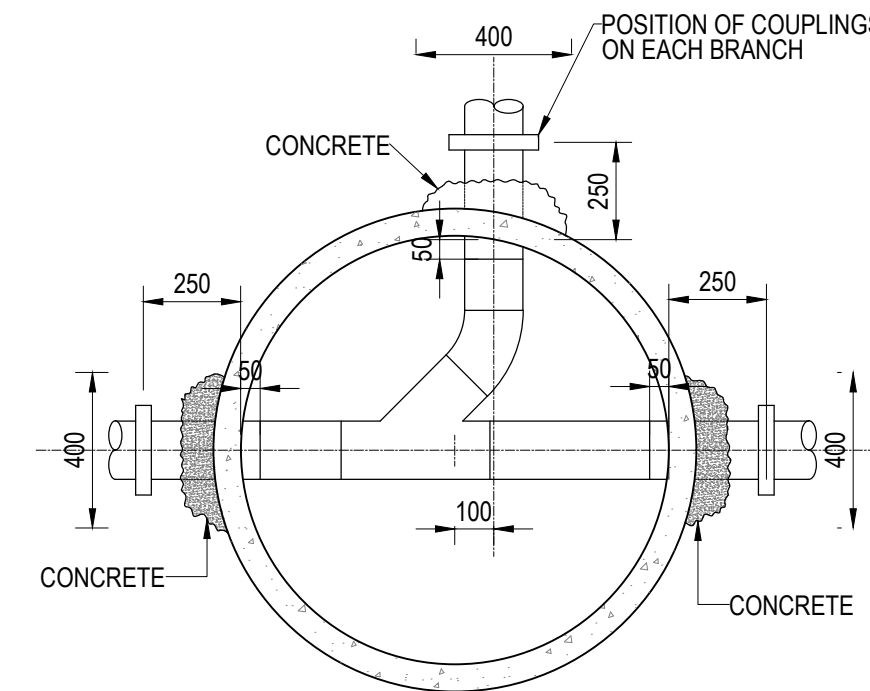
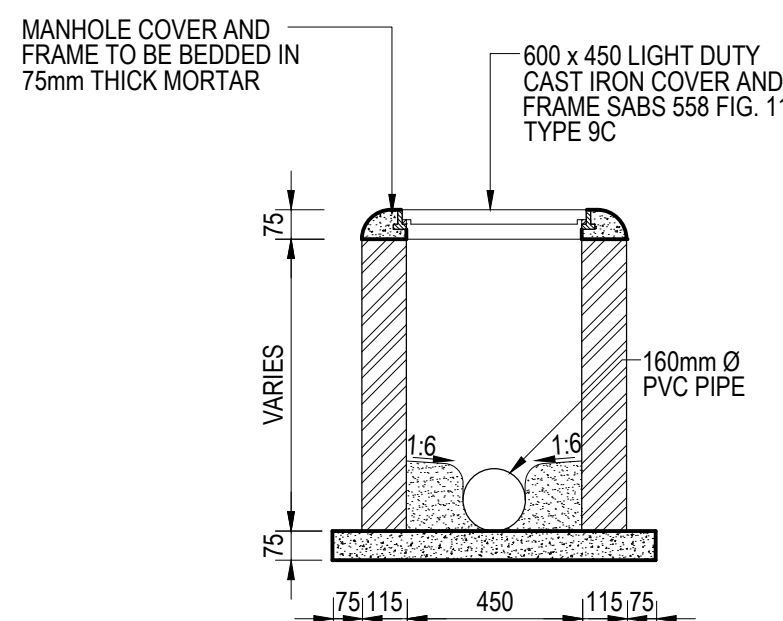
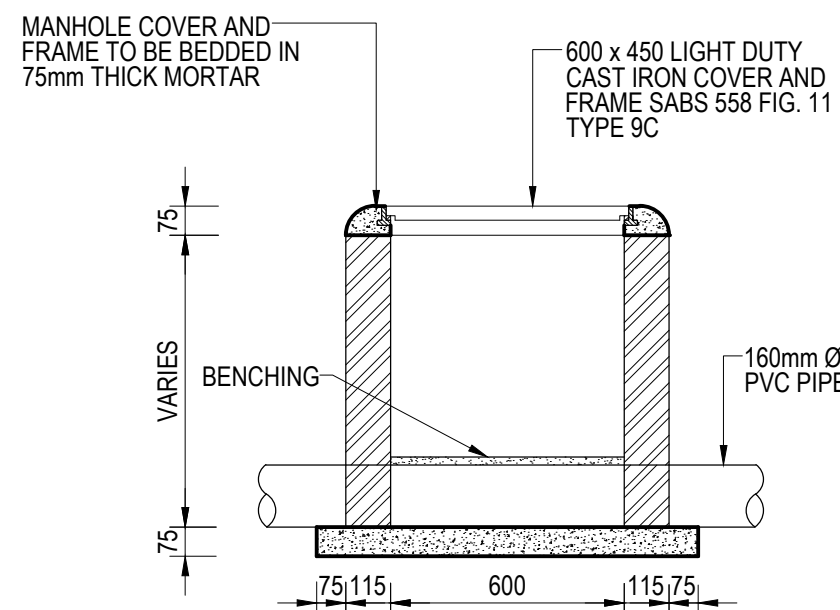
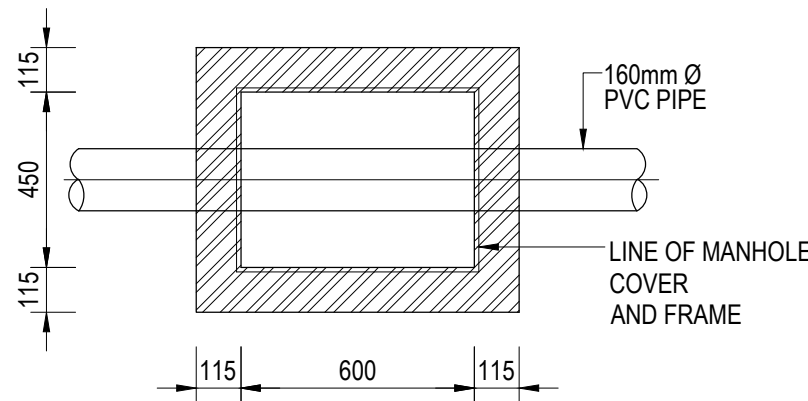
ROMH CONSULTING (Pty) Ltd

CLIENT APPROVAL

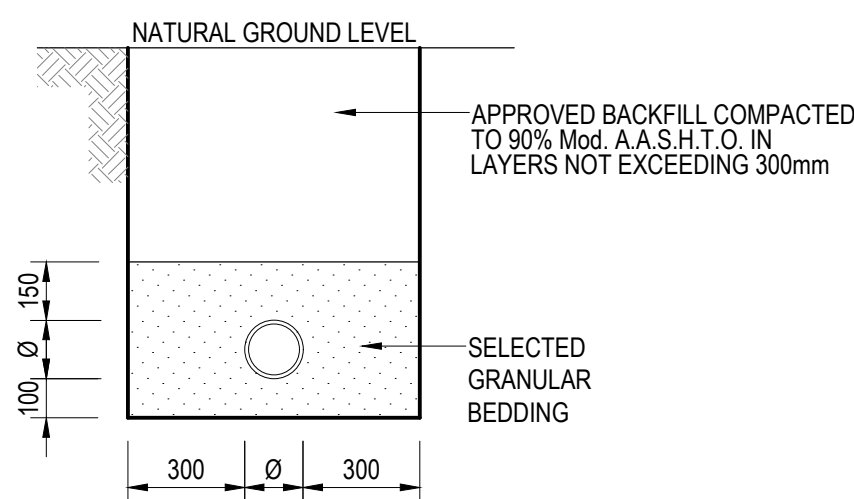
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DRAWING No:	ROM-131-07-076-04-19	PREPARED FOR:	DOCUMENTATION & PROCUREMENT
		REV No:	0



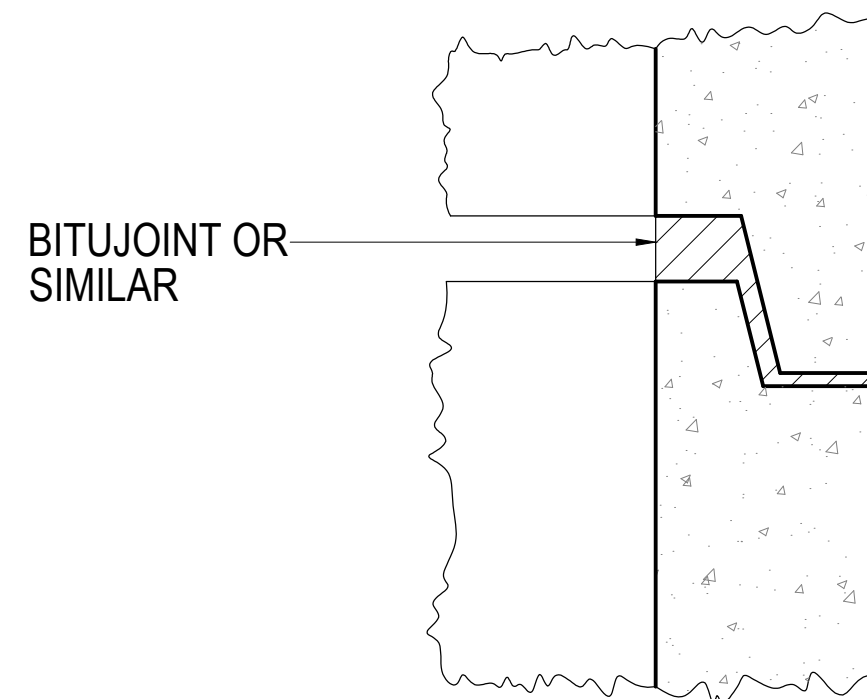
NOTE:
1.) CENTRES OF MANHOLES TO BE OFFSET FROM PIPELINE CENTRE LINES AS DIMENSIONED.
2.) LONG RADIUS CHANNEL BENDS TO BE USED IN ALL INSTANCES.



IN AREAS SUBJECT TO TRAFFIC LOADS



AREAS NOT SUBJECT TO TRAFFIC LOADS



GENERAL NOTES

- STEEL BAR INSERTS TO MANHOLE LIDS TO BE HEAVY DUTY HOT DIPPED GALVANISED TO SANS 763 AFTER MANUFACTURING
- THE POSITION OF THE INSPECTION CHAMBER IS TO BE CONFIRMED BY THE EMPLOYERS AGENT BEFORE CONSTRUCTION
- THE DRAWING SHOWS TYPICAL DETAILS APPLICABLE TO ALL TYPES OF PIPES
- CHANNELS AND SPECIALS TO BE OF THE SAME MATERIAL AS THE PIPE
- STARTER RING TO BE 500mm NOMINAL HEIGHT
- ALL CONCRETE TO BE BASE AND ENCASMENT TO BE CLASS 20/10 ALL BENCHING TO BE CONCRETE CLASS 20/13
- BENCHING ABOVE THE CHANNEL TO BE VERTICAL WITH REMAINDER TO BE AT SLOPE OF 1:3
- ALL PIPES TO PROTRUDE 100mm MIN INTO MANHOLE
- ALL MANHOLES TPO HAVE FLEXIBLE JOINTS AS DETAILED IN SANS 1200LD
- ALL PRECAST ELEMENTS TO COMPLY WITH SANS 677&1294
- NO MANHOLE IS TO BE BACKFILLED WITHOUT THE PERMISSION OF THE EMPLOYERS AGENT
- ALL TERMINAL MANHOLES ARE TO BE BRICKED-UP AND SEALED WITH AN APPROVED SEALANT

NOTE: ANY REFERENCE TO A SABS STANDARD, IN ANY CONTEXT OR FORM, WILL BE DEEMED TO BE A REFERENCE TO THE CORRESPONDING SANS STANDARD, AND VICE VERSA.

No.	DATE	DESCRIPTION	CHECKED

CLIENT:



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PROJECT: THE UPGRADING AND REFURBISHMENT OF BULK WATER SUPPLY AND SANITATION FOR DOE CLUSTER-NYANGA SENIOR SECONDARY SCHOOL

DRAWING TITLE: SEWER MANHOLE, TRENCH AND INSPECTION CHAMBER DETAILS

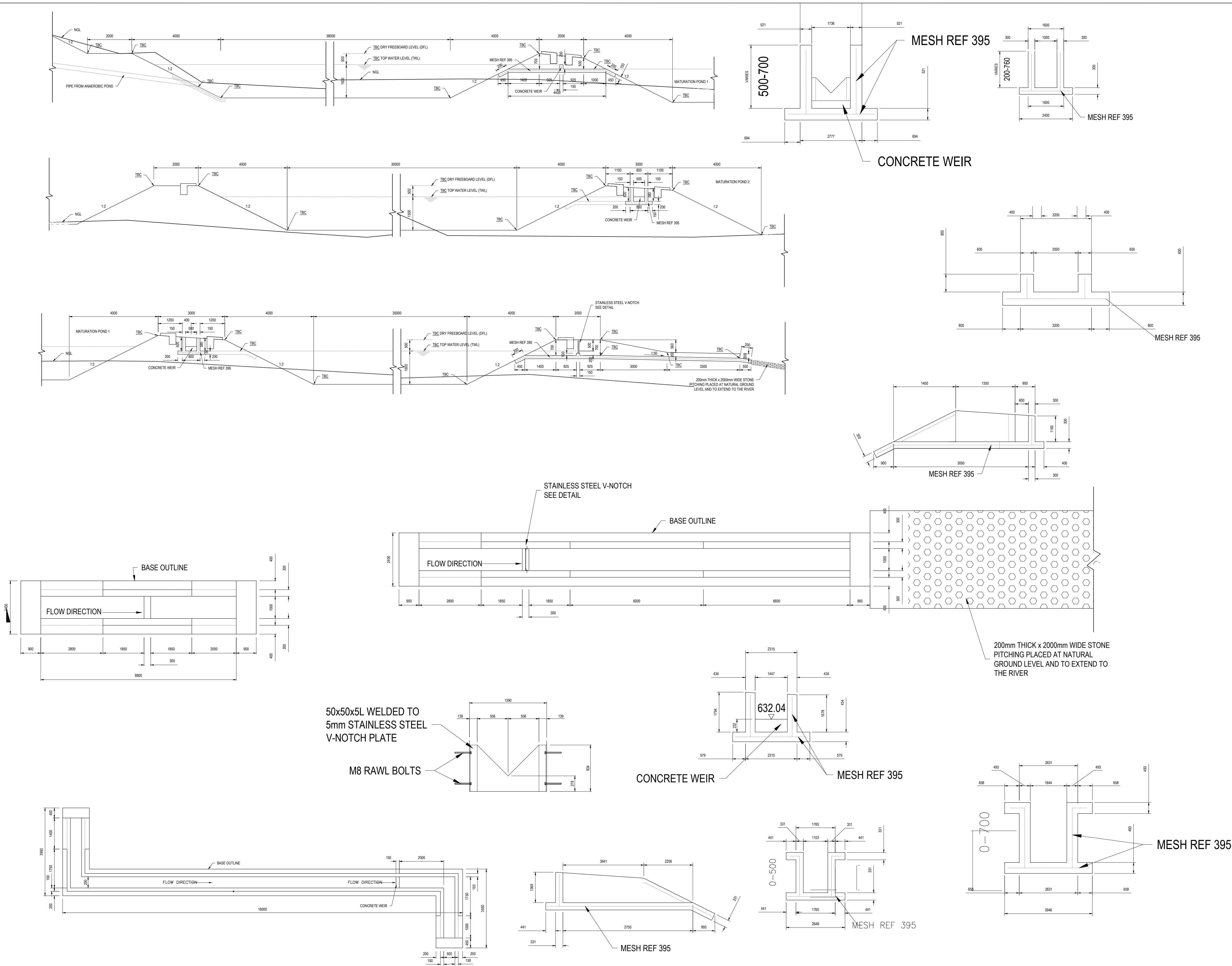
DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		AS SHOWN	

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd DATE

CLIENT APPROVAL DATE

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DRAWING No:	ROM-131-07-076-04-13	PREPARED FOR:	DOCUMENTATION & PROCUREMENT
		REV No:	0



- GENERAL NOTES**
- GENERAL:**
1. ALL DIMENSIONS IN mm
 2. DIMENSIONS TO BE CONFIRMED ON SITE
 3. LEVELS GIVEN IN mSL
 4. LINING "KEY" INTO EMBANKMENT TO MANUFACTURES /SUPPLIERS GUARANTEED SPECIFICATIONS
 5. LINING SEAL AROUND INCOMING PIPE /OUTGOING CONCRETE WEIR STRUCTURE TO BE MANUFACTURES /SUPPLIERS GUARANTEED SPECIFICATION WITH 'LIFELONG' COMMITMENT
- CONCRETE:**
6. EXCAVATIONS TO BE APPROVED BY EMPLOYERS AGENT BEFORE CASTING OF CONCRETE
 7. REINFORCEMENT AS PER BENDING SCHEDULE.
 8. CONCRETE STRENGTH =25mPa /19mm OR AS OTHERWISE SPECIFIED.
 9. UNFORMED SURFACES:SMOOTH FORMWORK TO BE USED WHERE CONCRETE SURFACE IS BURIED /UNDERGROUND .
 10. FORMED SURFACES:SMOOTH FORMWORK TO BE USED WHERE CONCRETE SURFACE IS EXPOSED /ABOVE GROUND.
 11. EXPOSED CONCRETE BASE/TOP FLAT SURFACES ARE TO RECEIVE A STEEL FLOAT FINISH UNLESS OTHERWISE SPECIFIED.
 12. COVER TO MESH REINFORCEMENT =50mm OR AS OTHERWISE SPECIFIED.
 13. ALL EXPOSED CONCRETE CORNERS TO HAVE 20mm x 20mm CHAMFERS.

No.	DATE	DESCRIPTION	CHECKED
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PROJECT:

**THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL**

DRAWING TITLE:

**SEWER : POND OVERFLOW
CHANNEL DETAILS**

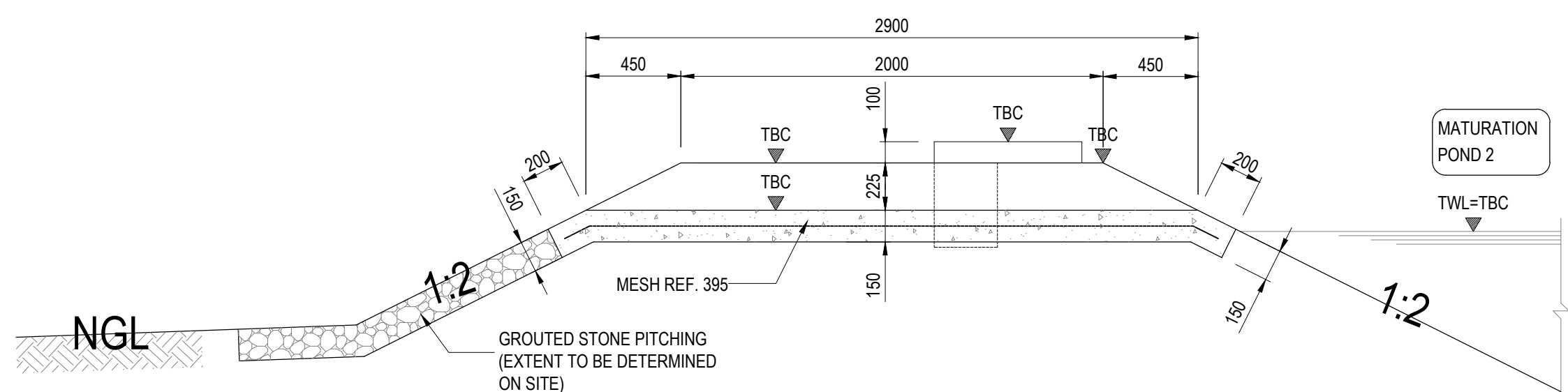
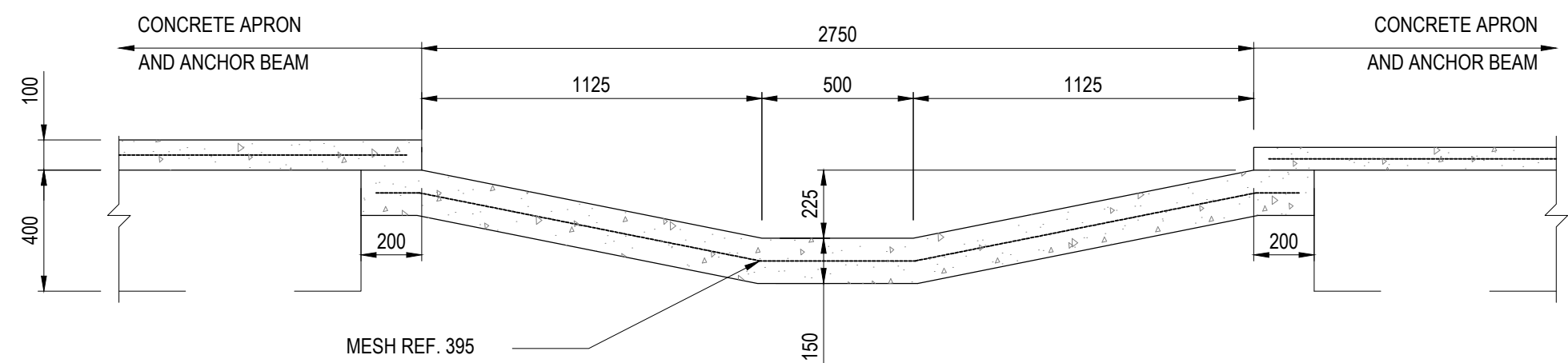
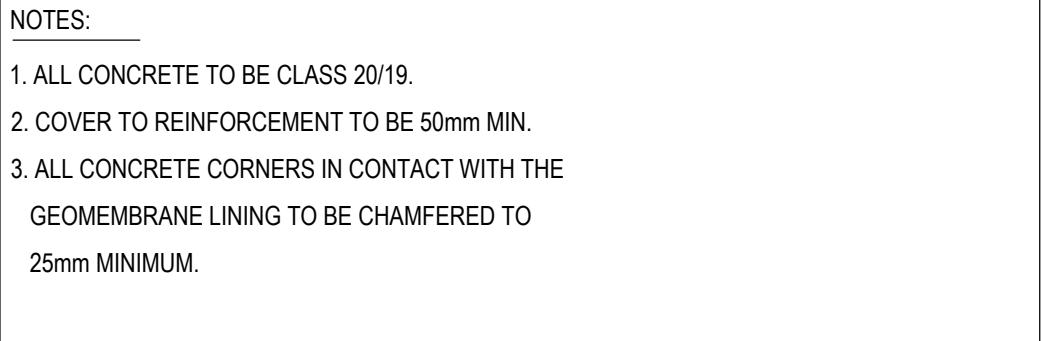
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DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		AS SHOWN	

DESIGN COORDINATOR APPROVAL

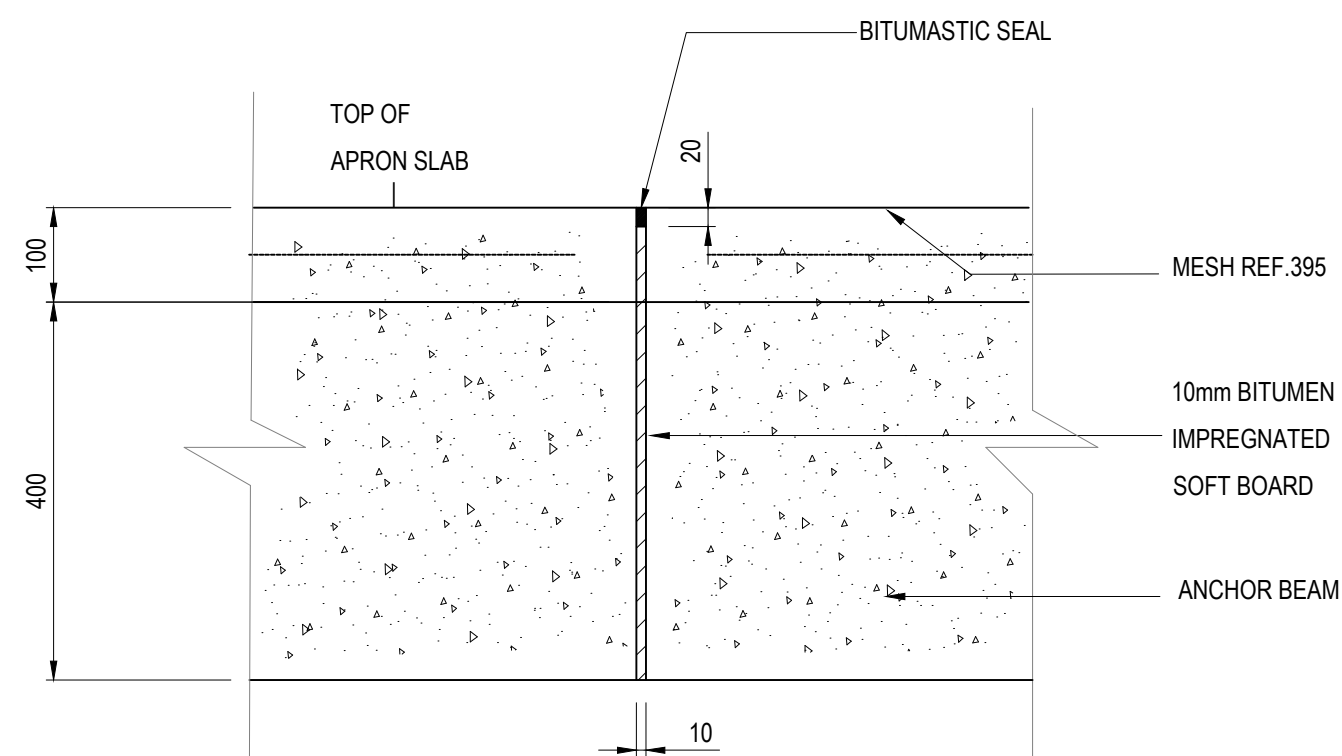
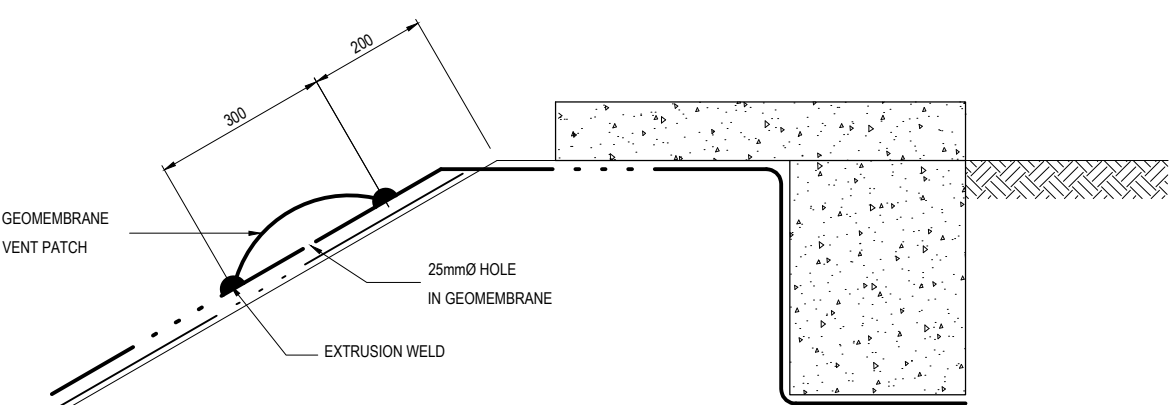
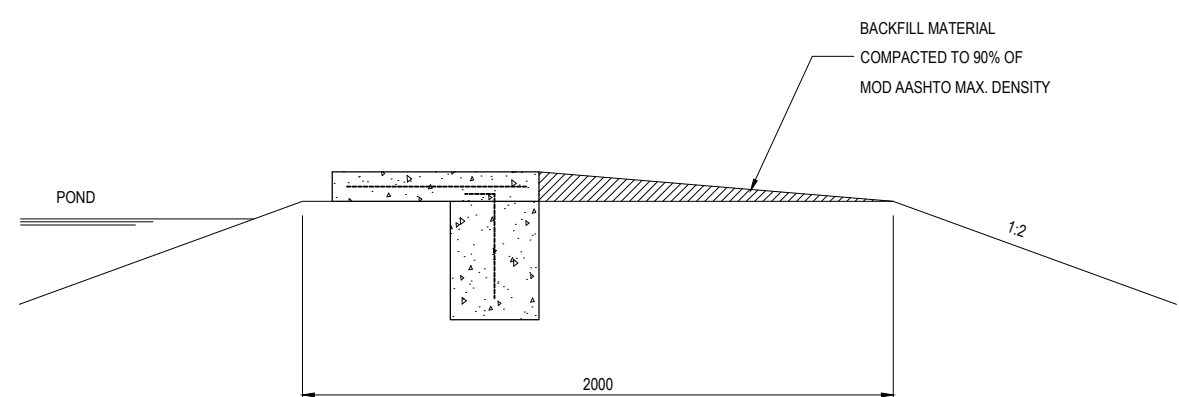
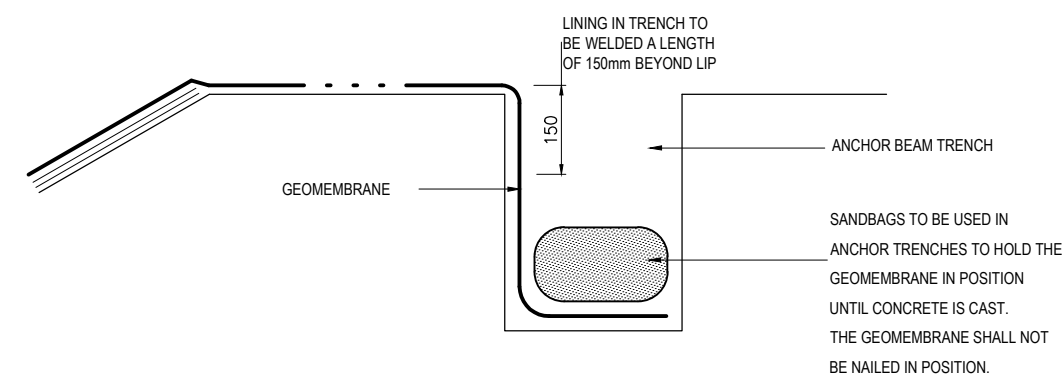
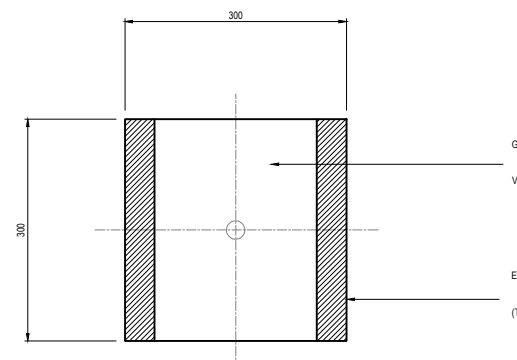
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CONTRACT No: AW2019.20.28	ORIGINAL DRAWING SIZE: A1
DRAWING No: ROM-131-07-076-04-14	PREPARED FOR: DOCUMENTATION & PROCUREMENT
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SCALE
1:25



GENERAL NOTES

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PROJECT: THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE: SEWER : POND LINING AND
EMERGENCY OVERFLOW
STRUCTURE (SHEET 1 OF 3)

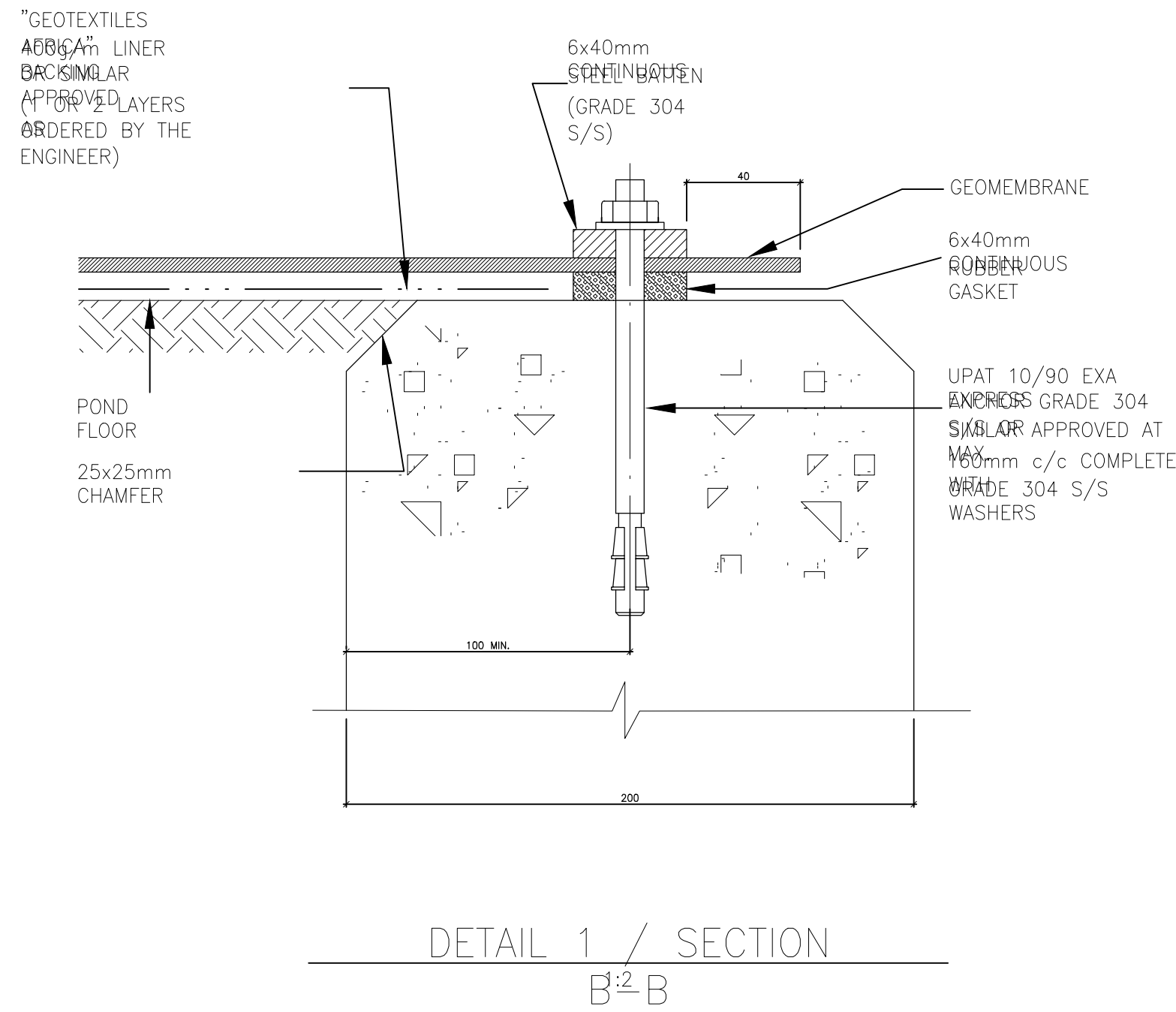
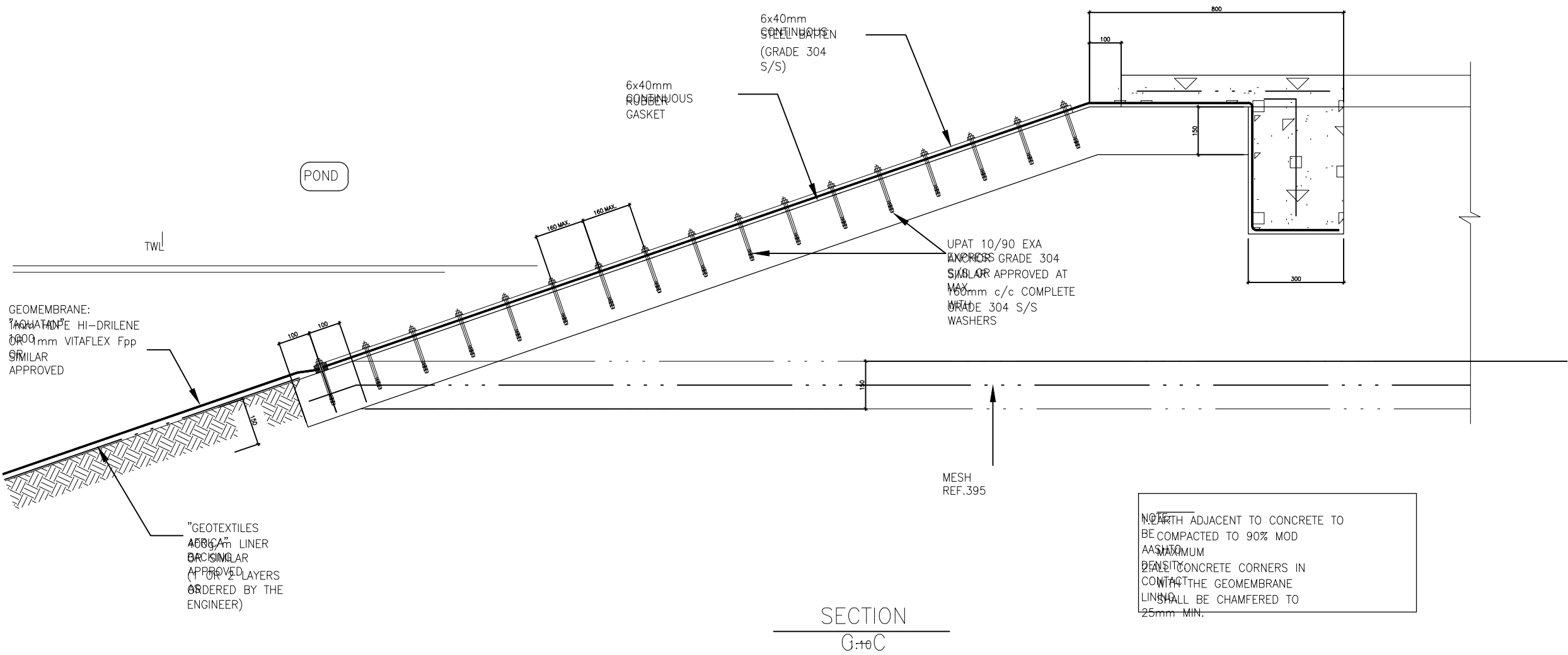
DESIGNED:	A MAYEKISO	DRAWN:	L.JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:	AS SHOWN		

DESIGN COORDINATOR APPROVAL

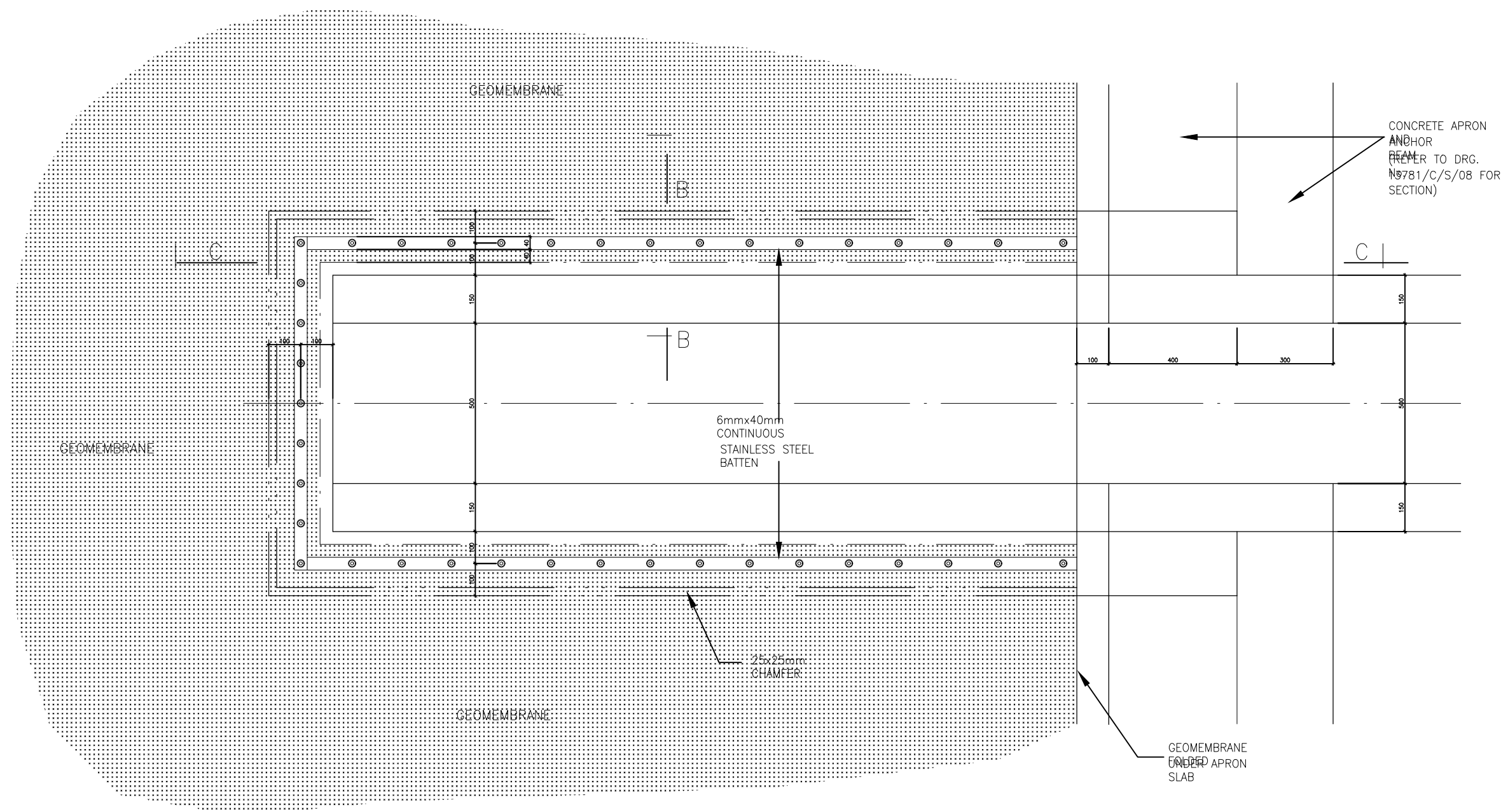
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DRAWING No. ROM-131-07-076-04-15		PREPARED FOR: DOCUMENTATION & PROCUREMENT	
		REV No.  0	



DETAIL AT OUTLET DRAINAGE
SUMPS



DETAIL AT OVERFLOW WEIR
STRUCTURES

1:10

GENERAL NOTES

No.	DATE	DESCRIPTION	CHECKED

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PROJECT:

THE UPGRADING AND
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AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

SEWER : POND LINING AND
EMERGENCY OVERFLOW
STRUCTURE (SHEET 2 OF 3)

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:	AS SHOWN		

DESIGN COORDINATOR APPROVAL

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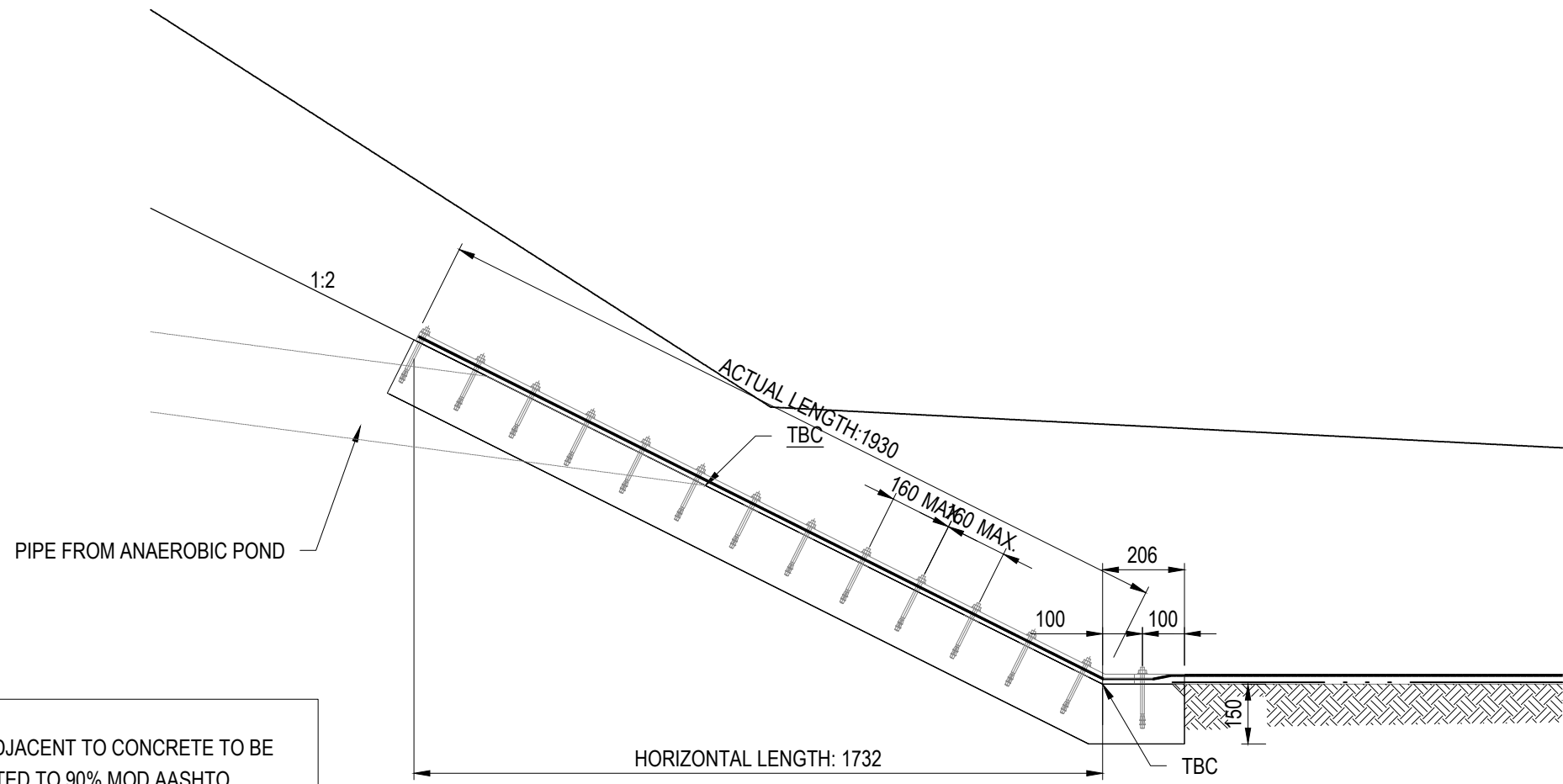
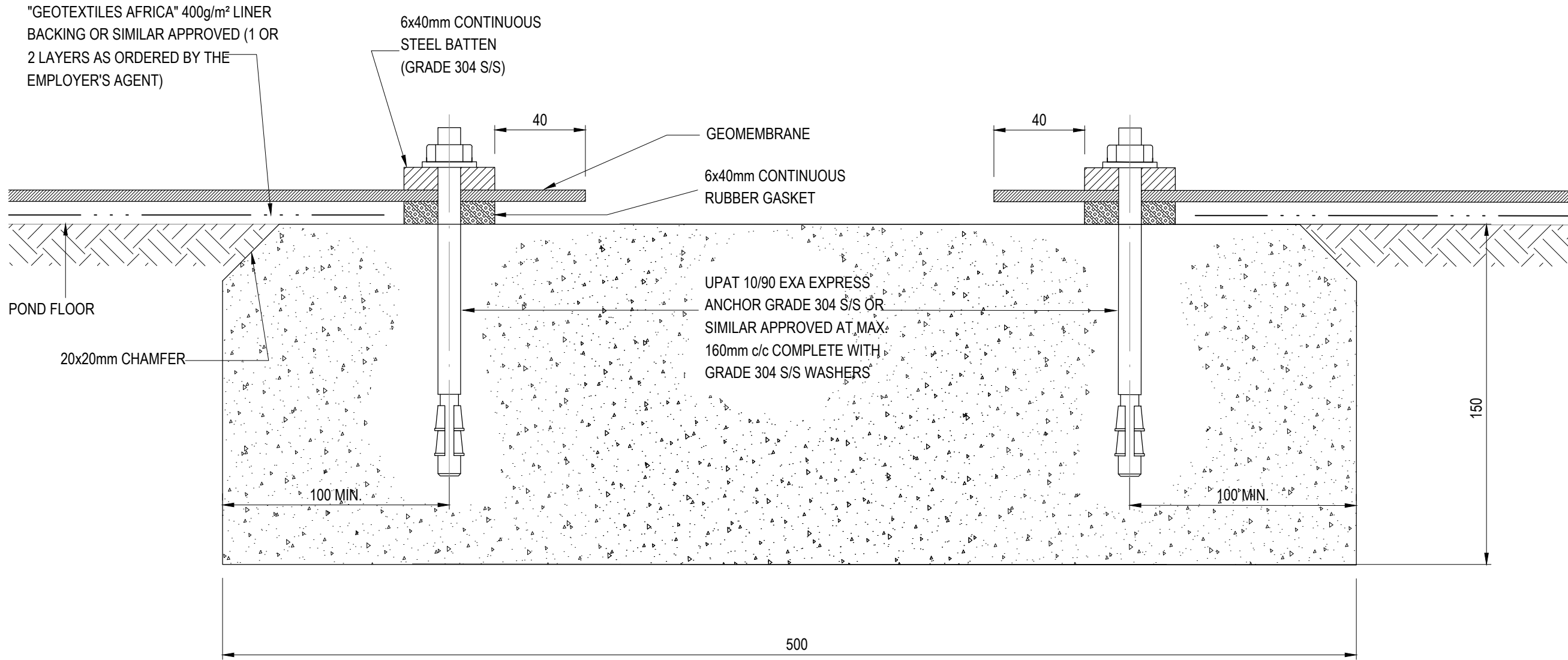
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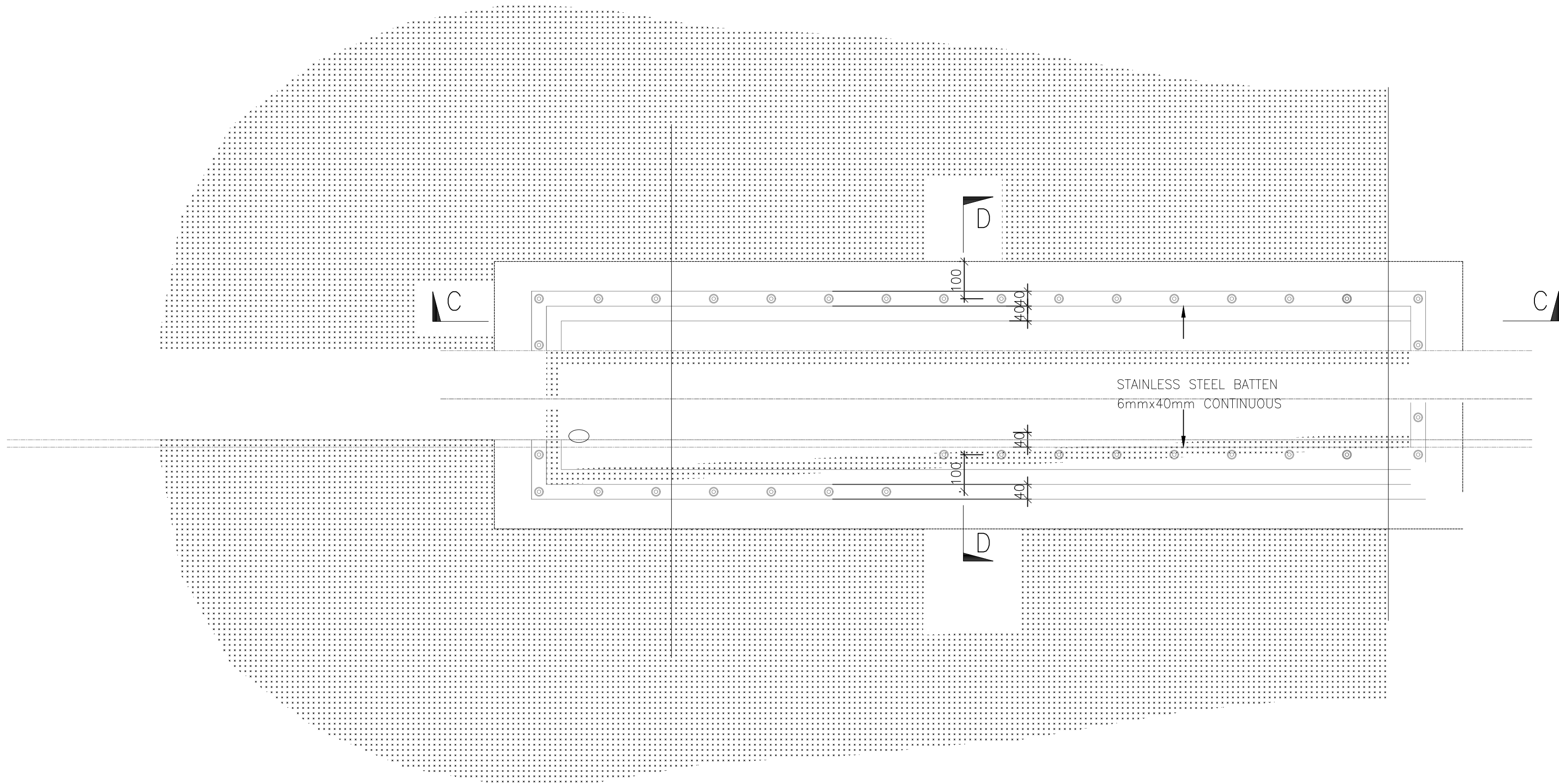
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CONTRACT No:	AW2019.20.28	ORIGINAL DRAWING SIZE:	A1
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DRAWING No:	ROM-131-07-076-04-09	PREPARED FOR:	DOCUMENTATION & PROCUREMENT	REV No:	0
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- NOTE:
1. EARTH ADJACENT TO CONCRETE TO BE COMPACTED TO 90% MOD AASHTO MAXIMUM DENSITY.
 2. ALL CONCRETE CORNERS IN CONTACT WITH THE GEOMEMBRANE LINING, SHALL BE CHAMFERED TO 20mm MIN..
 3. uPVC PIPES TO BE CAST INTO CONCRETE SHALL BE EXTERNALLY COATED WITH A MIXTURE OF SOLVENT WELD GLUE AND COARSE SAND AT LEAST 12 HOURS PRIOR TO CASTING-IN OF CONCRETE.



DETAIL AT FACULTATIVE POND

1:10

GENERAL NOTES

No.	DATE	DESCRIPTION	CHECKED
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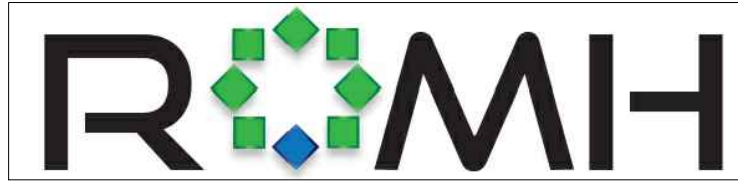


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PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

SEWER : POND LINING AND
EMERGENCY OVERFLOW
STRUCTURE (SHEET 3 OF 3)

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:		AS SHOWN	

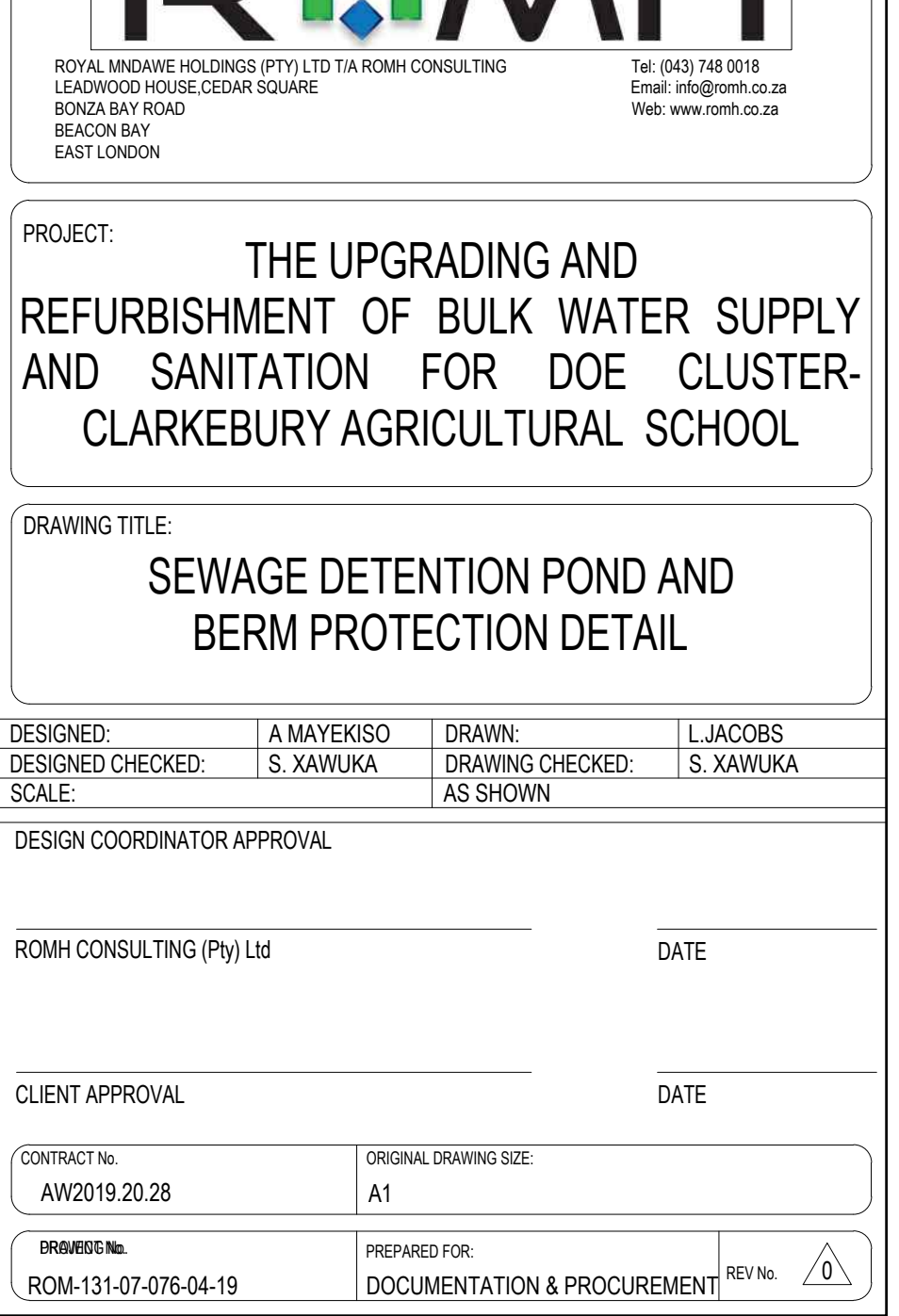
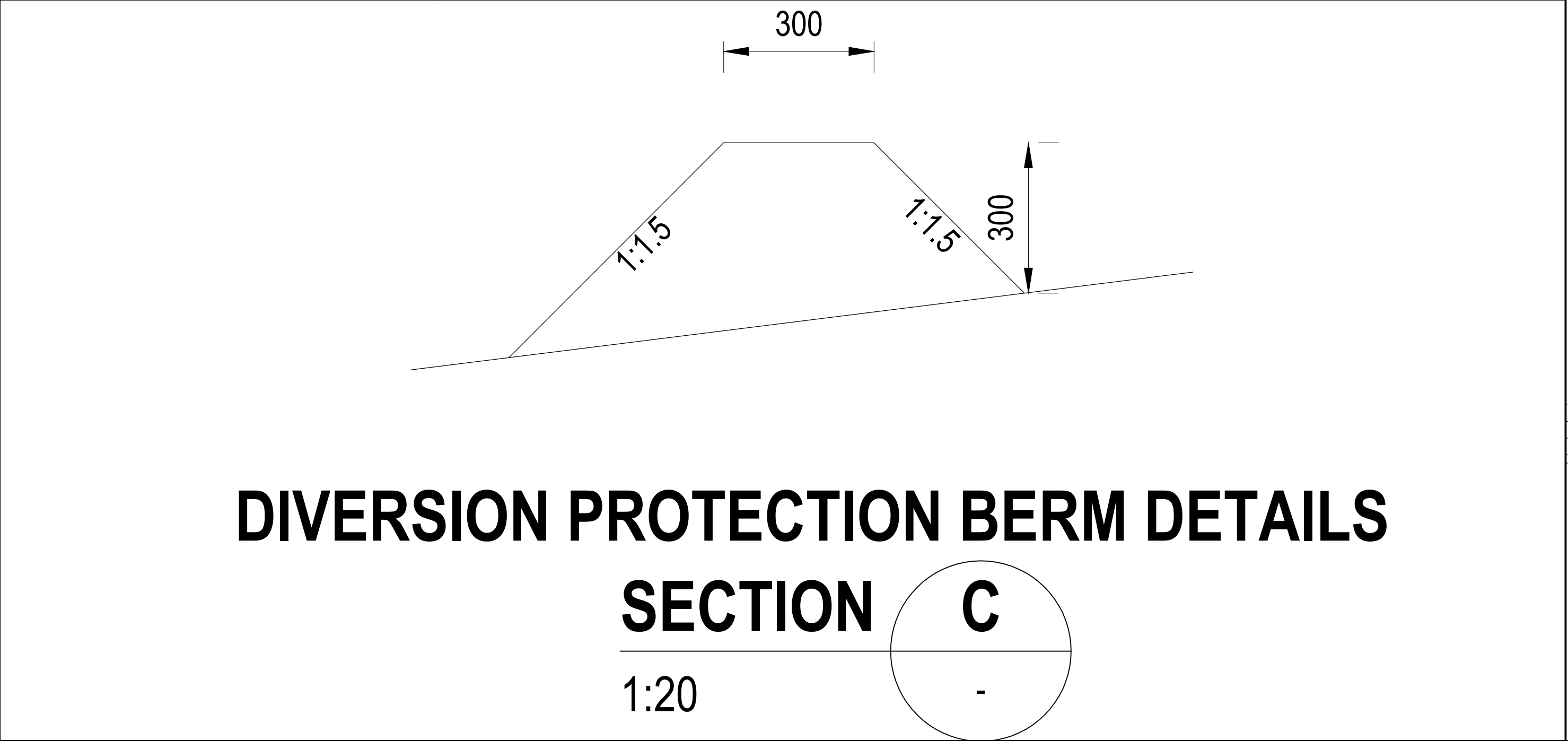
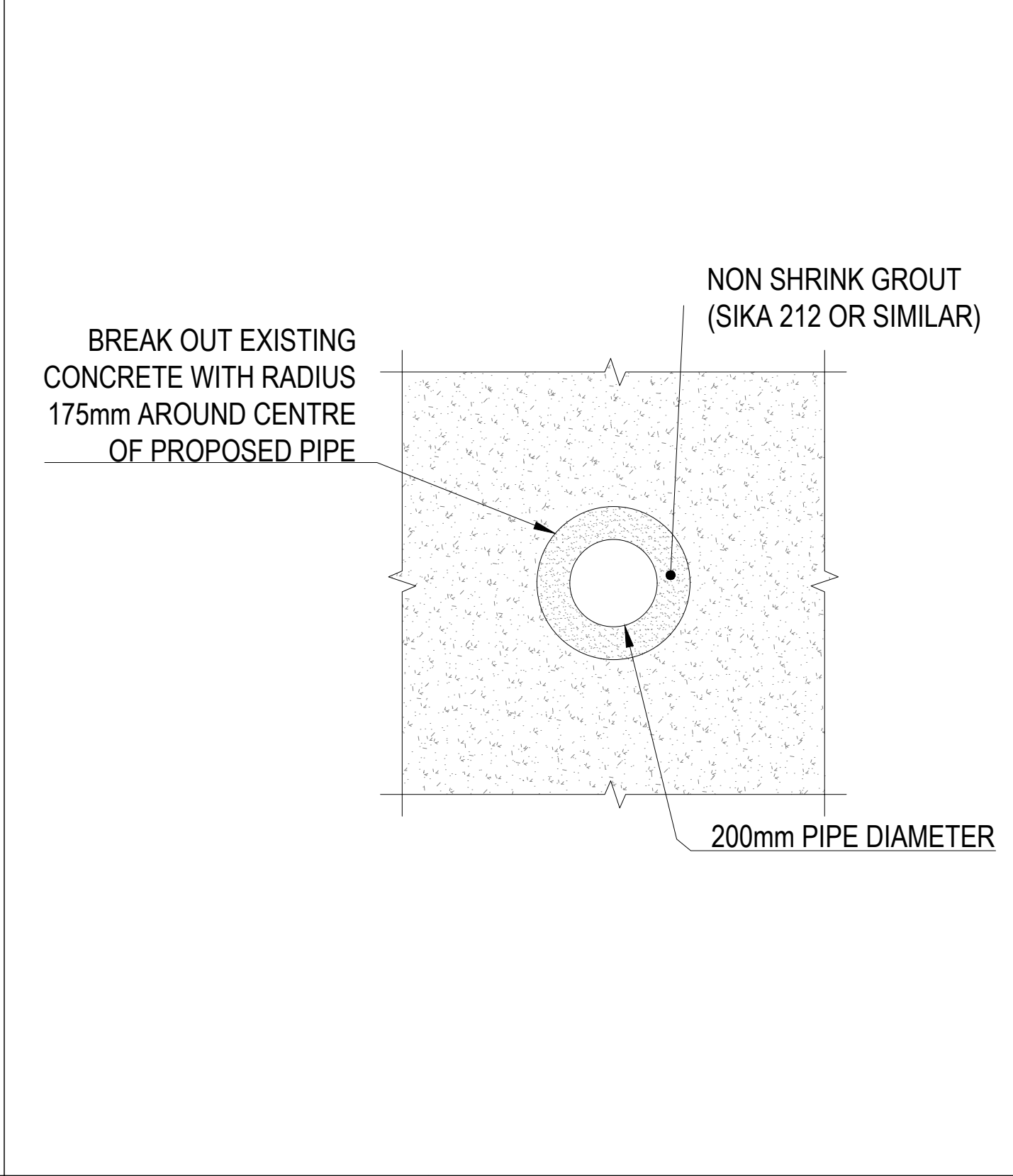
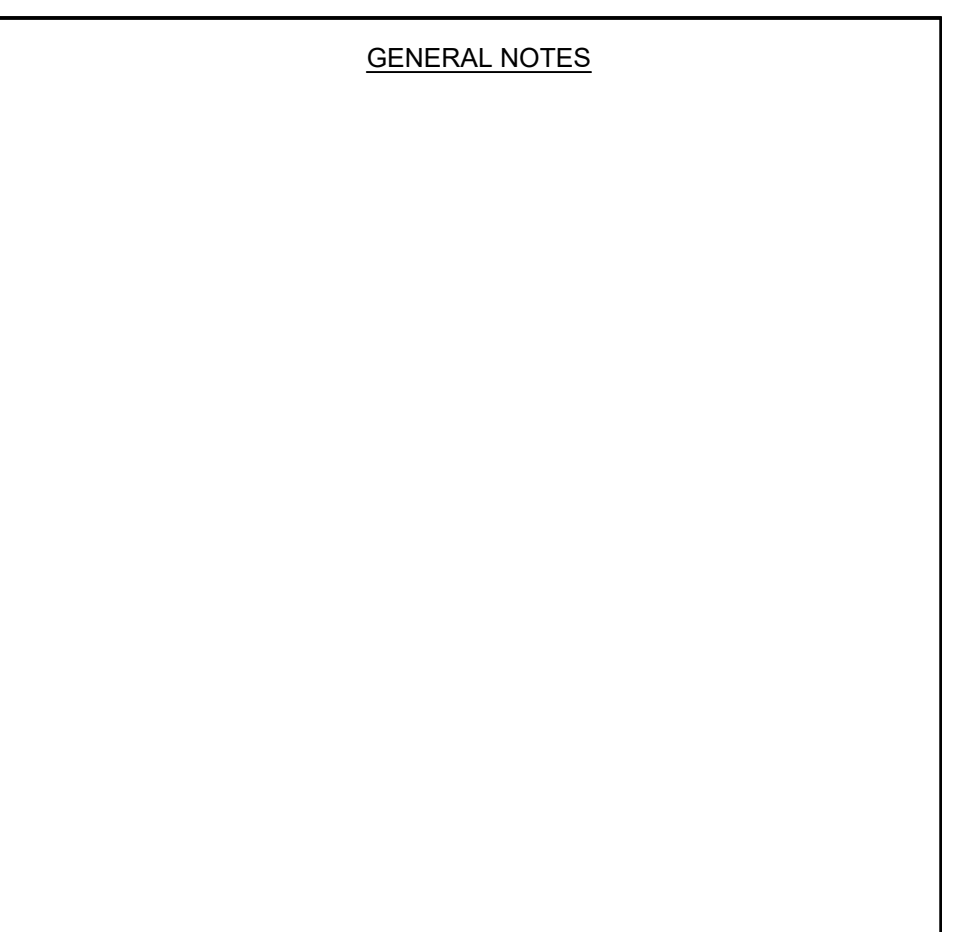
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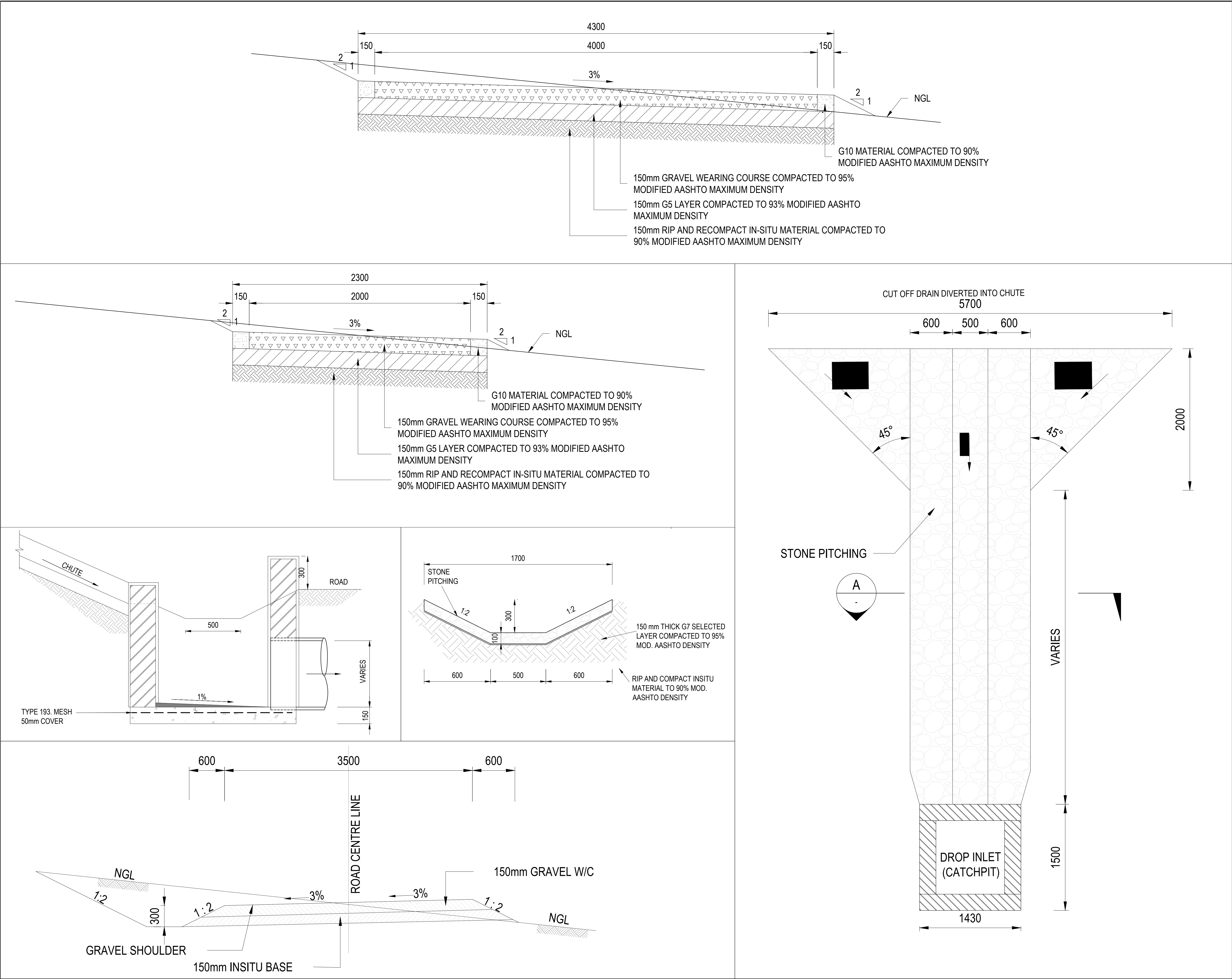
ROMH CONSULTING (Pty) Ltd DATE

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CONTRACT No.	ORIGINAL DRAWING SIZE:
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DRAWING No.	PREPARED FOR:	REV No.
ROM-131-07-076-04-17	DOCUMENTATION & PROCUREMENT	0





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Amatola
Water-Amanzi

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PROJECT:

THE UPGRADING AND
REFURBISHMENT OF BULK WATER SUPPLY
AND SANITATION FOR DOE CLUSTER-
CLARKEBURY AGRICULTURAL SCHOOL

DRAWING TITLE:

ROAD WORKS -SETTING OUT AND
CROSS SECTION DETAIL

DESIGNED:	A MAYEKISO	DRAWN:	L JACOBS
DESIGNED CHECKED:	S. XAWUKA	DRAWING CHECKED:	S. XAWUKA
SCALE:	AS SHOWN	AS SHOWN	AS SHOWN

DESIGN COORDINATOR APPROVAL

ROMH CONSULTING (Pty) Ltd

DATE

CLIENT APPROVAL

DATE

CONTRACT No.	ORIGINAL DRAWING SIZE:
AW2019.20.28	A1

DRAWING No.	PREPARED FOR:	REVISION
ROM-131-07-076-04-20	DOCUMENTATION & PROCUREMENT	0

