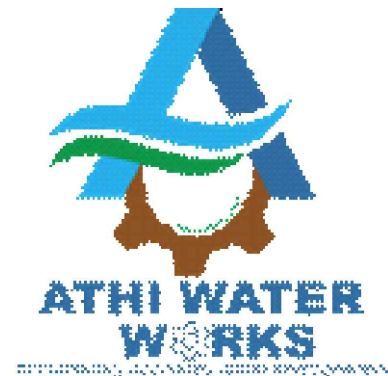


ATHI WATER WORKS DEVELOPMENT AGENCY



NARSIP PHASE II-LOT 5- CONSTRUCTIONN OF NAIROBI INFORMAL SETTLEMENTS WATER AND SANITATION INTENSIFICATION WORKS.

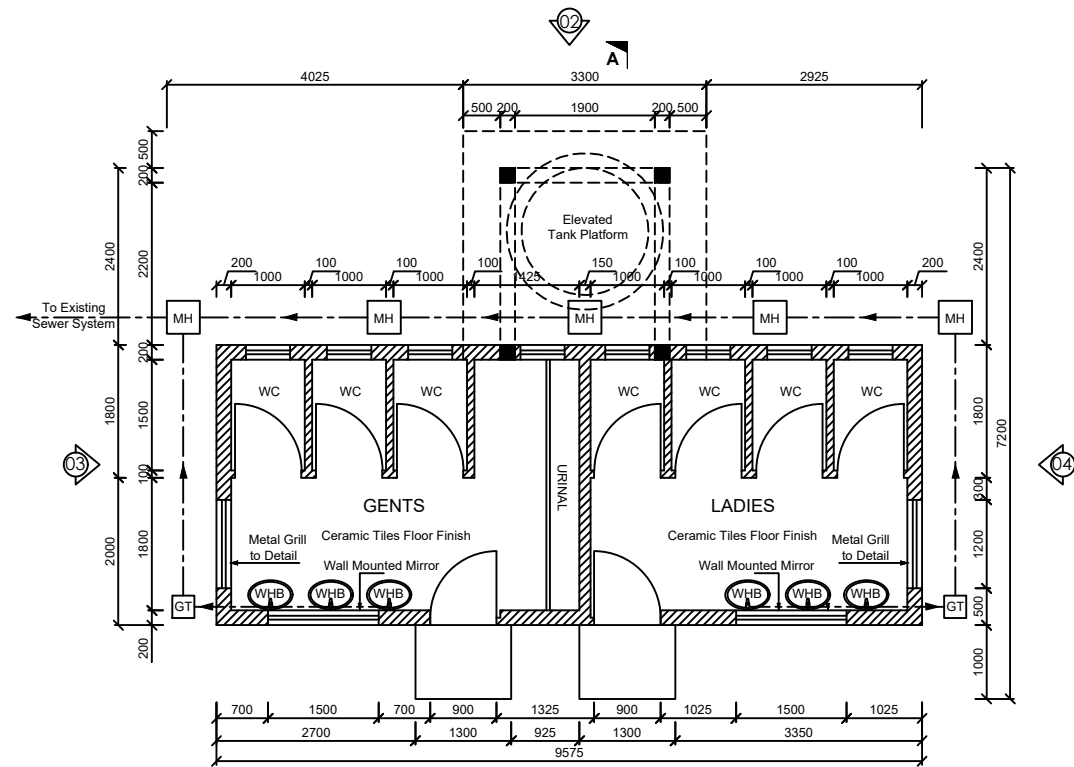
TENDER DRAWINGS

MARCH 2022

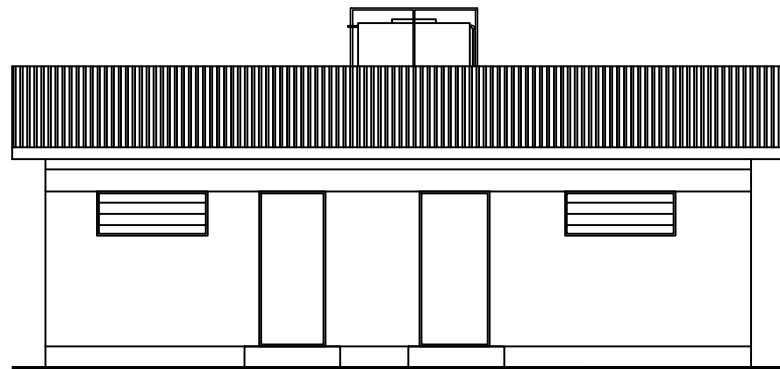
CHIEF EXECUTIVE OFFICER.
Athi Water Works Development Agency
P.O. Box 45283-00100, Nairobi
Athi Water Plaza Muthaiga North Road.
Off Kiambu Road.

NOTES:-

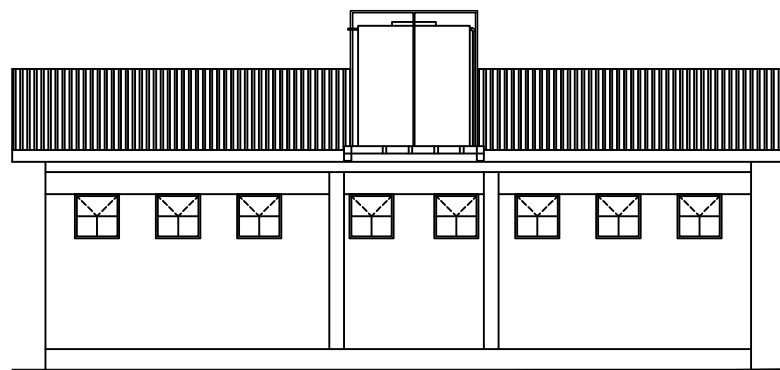
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.



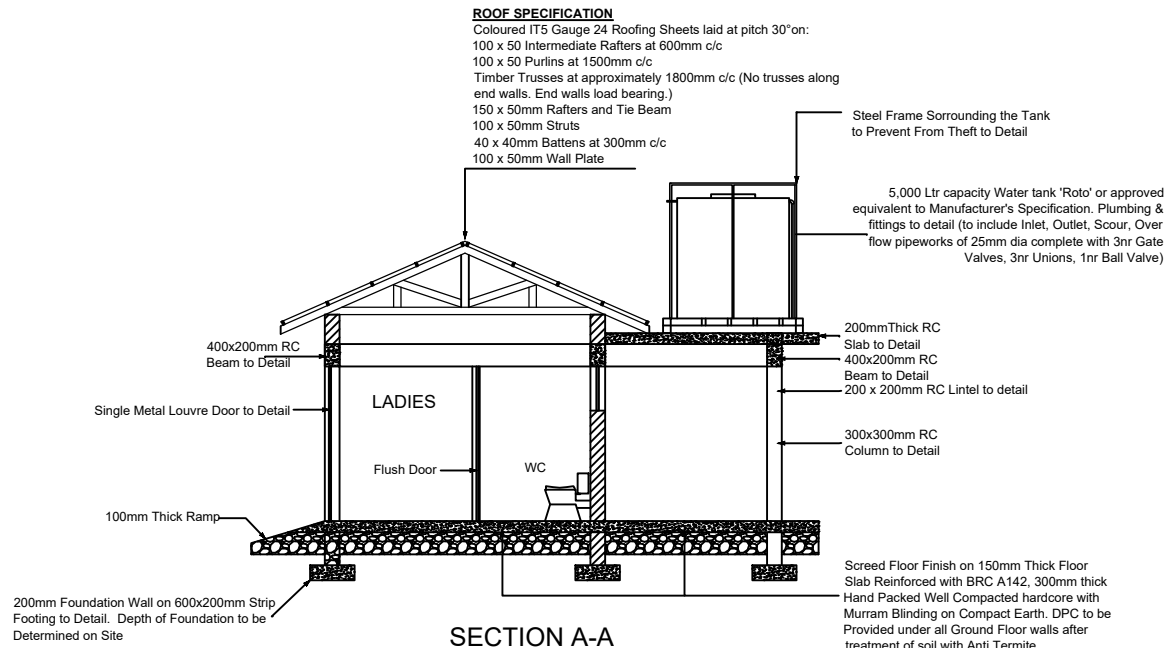
PLAN
Scale 1:50



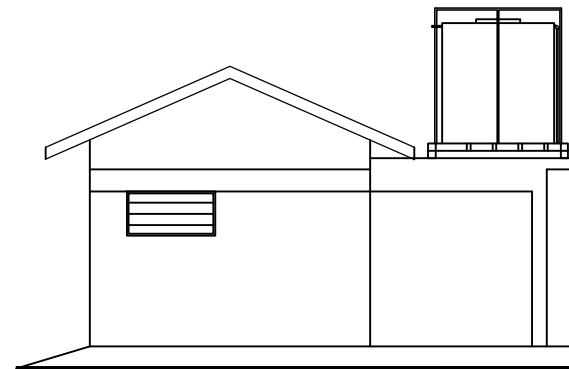
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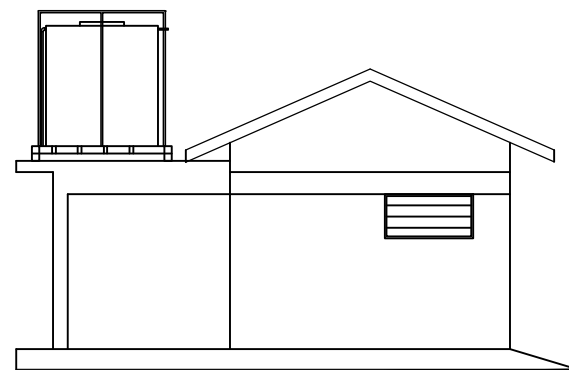
ELEVATION - 02
Scale 1:50



SECTION A-A
Scale 1:50



ELEVATION - 03
Scale 1:50



ELEVATION - 04
Scale 1:50

Client/Employer:

Financiers:

Consultants:

Revisions:

Notes:

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
SCALE: AS SHOWN (AT A1)

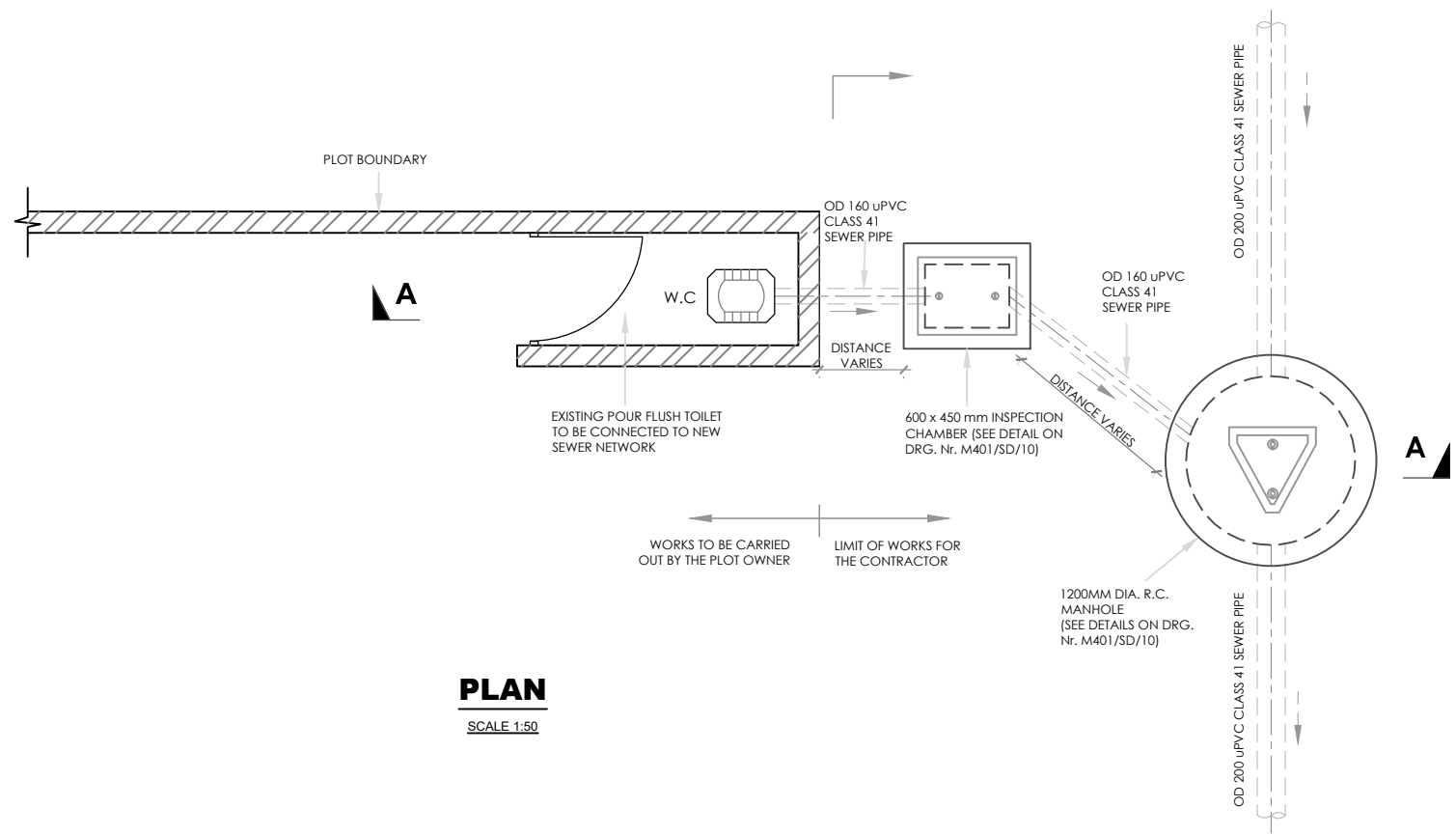
Project: NARSIP II LOT 5-CONSTRUCTION OF NAIROBI INFORMAL SETTLEMENTS
WATER AND SANITATION INTENSIFICATION WORKS.

Drawing Title:
STANDARD DRAWING
PROPOSED ABLUTION BLOCK - PLAN, ELEVATIONS AND SECTION

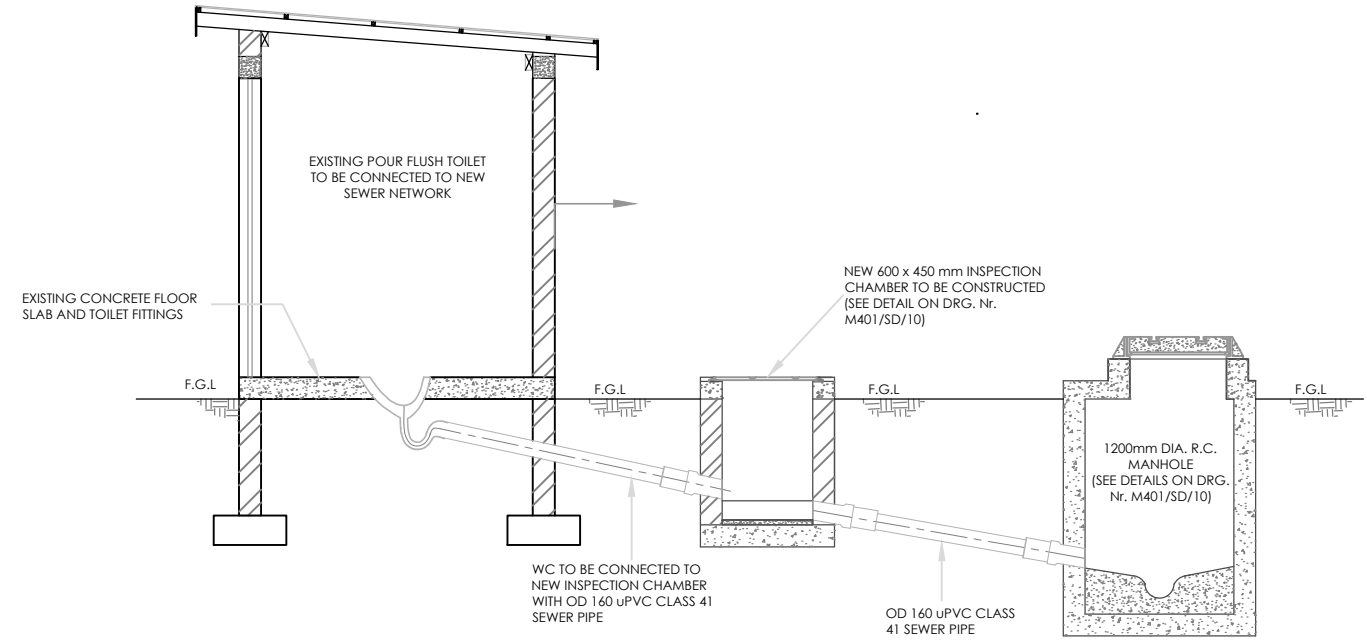
Date: MARCH 2022

Drg. No.
KTSWSSP/MSP/STD/ABLUTION BLOCK/01

SEWER CONNECTION
PLOT TO BE CONNECTED TO NEW SEWER NETWORK



PLAN
SCALE 1:50



SECTION A - A
SCALE 1:50

- SCOPE OF SEWER CONNECTION WORKS**
1. CONSTRUCT NEW 450 X 600mm EXTERNAL INSPECTION CHAMBER (I.C.)
 2. INSTALL OD160 uPVC CLASS 41 SEWER PIPE FROM EXISTING W.C. TO THE NEW PROPOSED I.C. AND FROM THE NEW PROPOSED I.C. TO NEARBY MANHOLE.

- NOTES:**
1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
 2. DETAILS SHOWN ON THIS DRAWING ARE TYPICAL. EXACT ARRANGEMENT AND DIMENSIONS OF THE COMPONENTS TO BE DETERMINED BY THE ENGINEER ON A CASE-BY-CASE BASIS ON SITE

ABBREVIATIONS

mm	- MILLIMETERS
OD	- OUTSIDE DIAMETER
F.G.L	- FINISHED GROUND LEVEL
DIA.	- DIAMETER
uPVC	- UNPLASTICISED POLYVINYL CHLORIDE
R.C	- REINFORCED CONCRETE
W.C	- WATER CLOSET
I.C	- INSPECTION CHAMBER
F.F.L	- FINISHED FLOOR LEVEL
M.H	- MANHOLE

AS-BUILT DRAWINGS

REVISIONS	BY	DATE	APPROVED
	CHECKED		
	BY		
	CHECKED		
	BY		
	CHECKED		

CLIENT:

ATHI WATER WORKS
CHIEF EXECUTIVE OFFICER
ATHI WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 45283 - 00100 NAIROBI
TEL: 020 - 2727438 FAX: 2724295

PROJECT TITLE:
**NAIROBI RIVERS BASIN REHABILITATION
PROGRAM NARSIP-2**

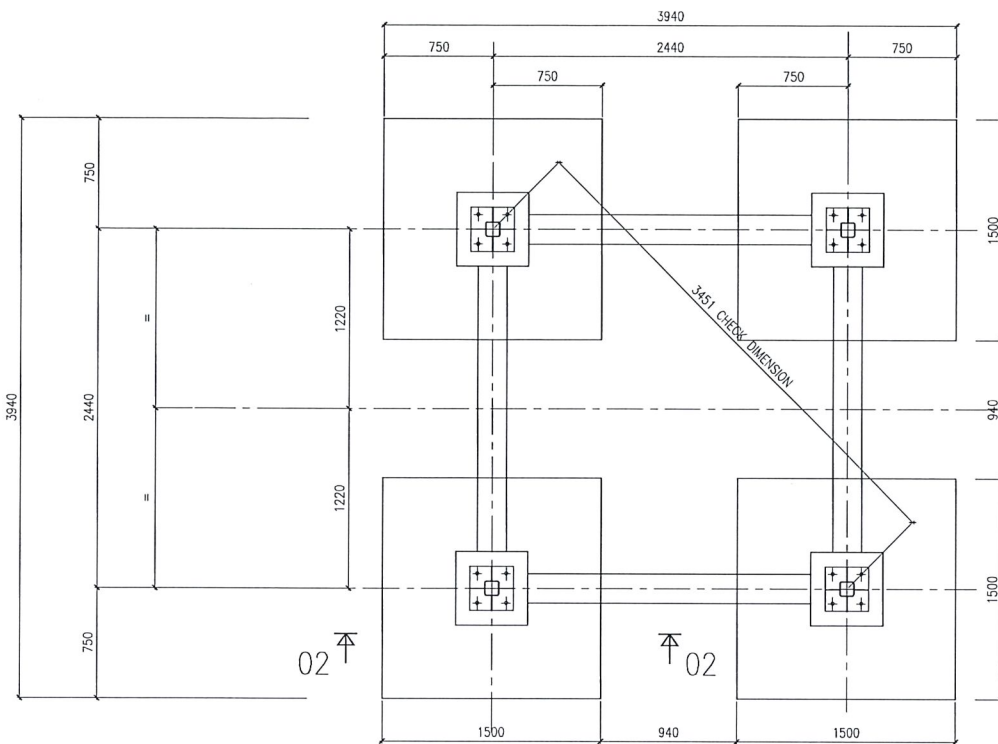
CONTRACT No. AWWDA/NARSIP II/W-04/2021

**CONSTRUCTION OF EAST AND WEST OF
NAIROBI RETICULATION SEWERS**

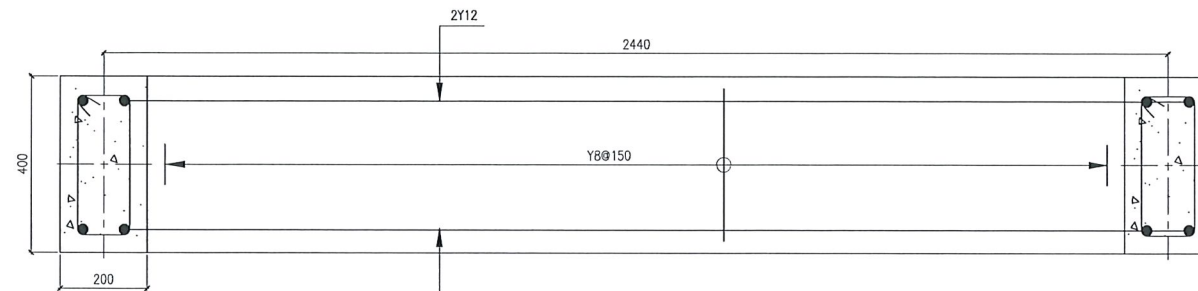
STANDARD DRAWINGS

DRAWING TITLE:
**TYPICAL SEWER CONNECTION
DETAILS**

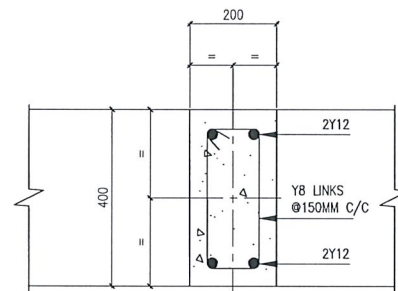
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Checked by:	Approved by:
Scale:	Date:
DRG No.	REV



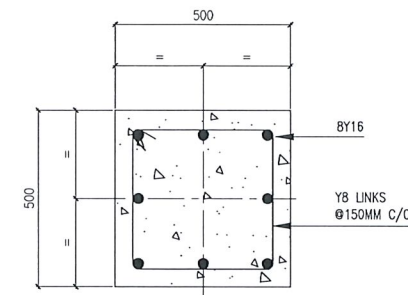
H.D. LAYOUT PLAN



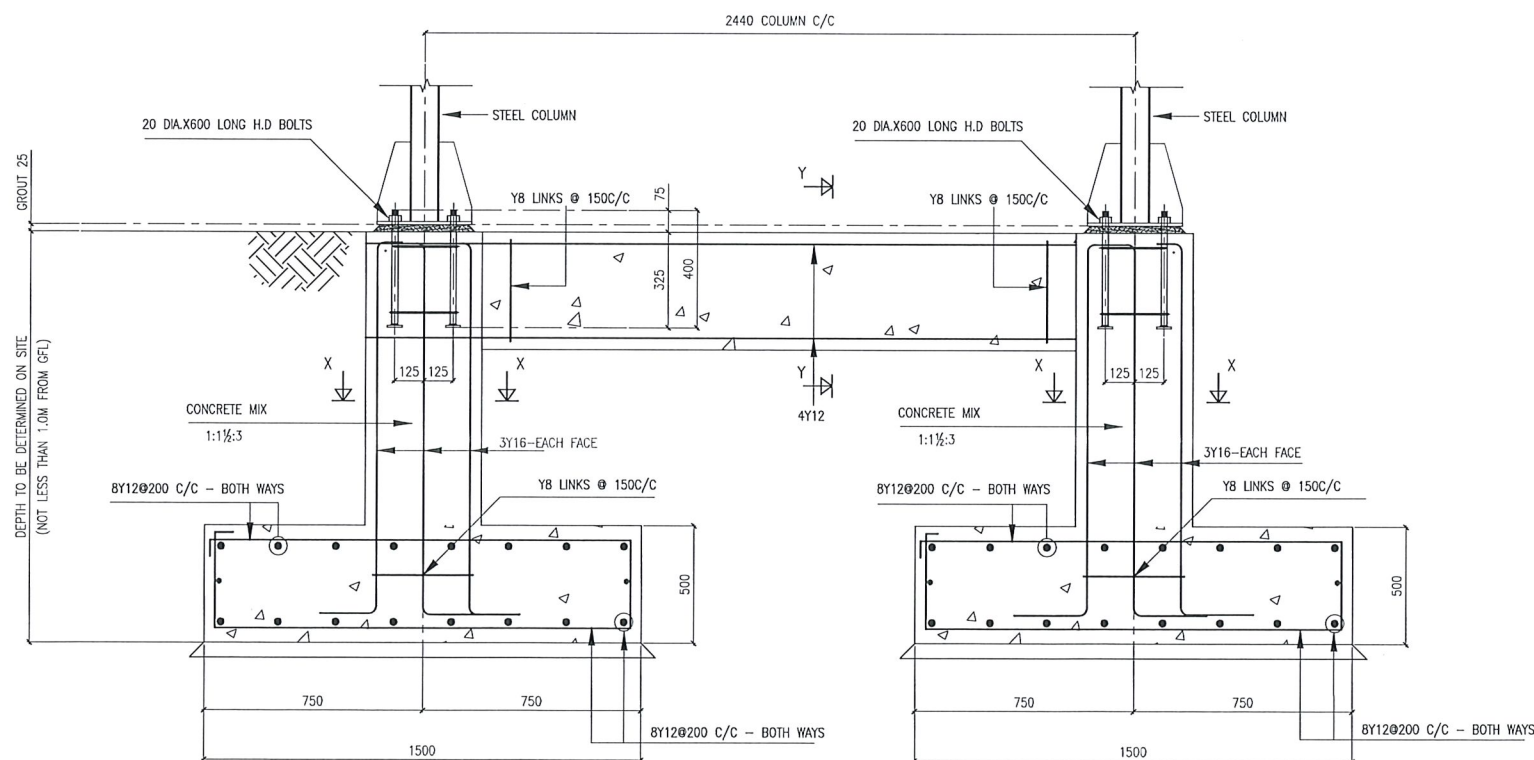
TYPICAL SECTION 01 - 01



TYPICAL SECTION Y - Y
THRU RC BEAMS B1



TYPICAL SECTION X - X
THRU STUB COLUMNS



TYPICAL SECTION 02 - 02

NOTES:

1. MIX OF CONCRETE TO ATTAIN THE STRENGTH OF F_{cu} 25 N/mm²
2. CONCRETE MIX 1:1½:3
3. CONCRETE MIX 1:4:8 BLINDING
4. WATER CEMENT RATIO 0.5
5. CUBE STRENGTH 28 DAYS - 25 N/mm²
6. REINFORCEMENT STEEL STRENGTH - 425/250 N/mm²
7. COVER TO BASE - 50mm
8. COVER TO COLUMN - 40mm
9. CONTRACTOR TO CONFIRM CHECK DIMENSION USING STEEL TAPE MEASURE.
10. HOLDING DOWN BOLTS TO BE CAST TO ±5mm ACCURACY AND SHOULD BE RECAST IF THIS TOLERANCE IS EXCEEDED.
11. CONTRACTOR TO CONFIRM LEVELS OF FOUNDATIONS.
12. ASSUMED GROUND BEARING PRESSURE - 80 KN/M²

NOTES

1. READ THE DRAWING IN CONJUNCTION WITH RELEVANT R.C.
2. DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
3. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
4. ALL PIPEWORK ARE DUCTILE IRON TO NP 10 WITH NP 16 FLANGES
5. ALL CONCRETE SHALL BE CLASS C30 UNLESS OTHERWISE STATED
6. ALL VALVES TO BE SUPPLIED WITH EXTENSION SPINDLE.
7. MIN CONCRETE COVER OF 40 mm TO THE MAIN STEEL TO BE MAINTAINED.
8. SAFE BEARING CAPACITY TAKEN AS OF 150KN/M2.
9. ALL FOUNDATIONS TO BE TAKEN DOWN TO A SUITABLE ROCK.
10. MAXIMUM AGGREGATE SIZE FOR CONCRETE IS 20mm.
11. ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER BEFORE CONCRETING.

PROJECT TITLE:

PROPOSED 24M³ PRESSED STEEL TANK ON 18M TOWER.

DRAWING TITLE

RC FOUNDATION & H.D. BOLTS LAYOUT DETAILS.

CLIENT

ATHI WATER SERVICES BOARD.
KAMBITI CHIEFS CAMP.

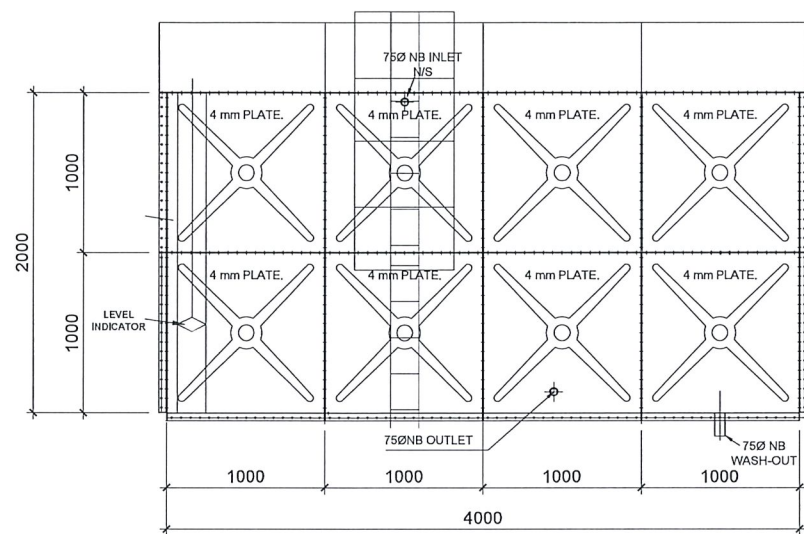
CONTRACTOR



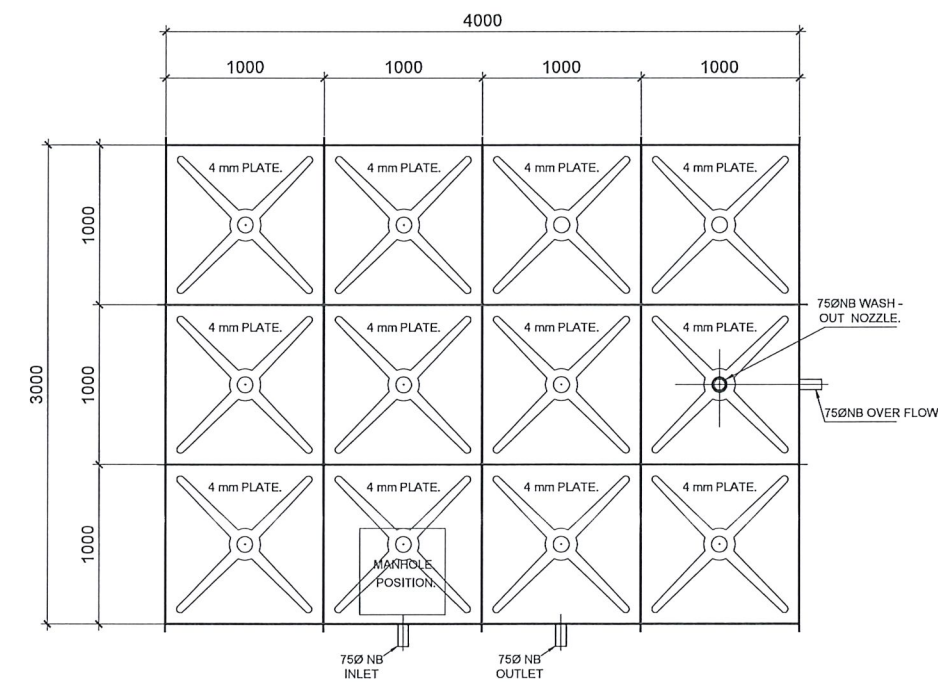
INSTA PUMPS
ENGINEERING LIMITED
P.O. Box 33248-00600
NAIROBI, KENYA

SCALE: 1:40

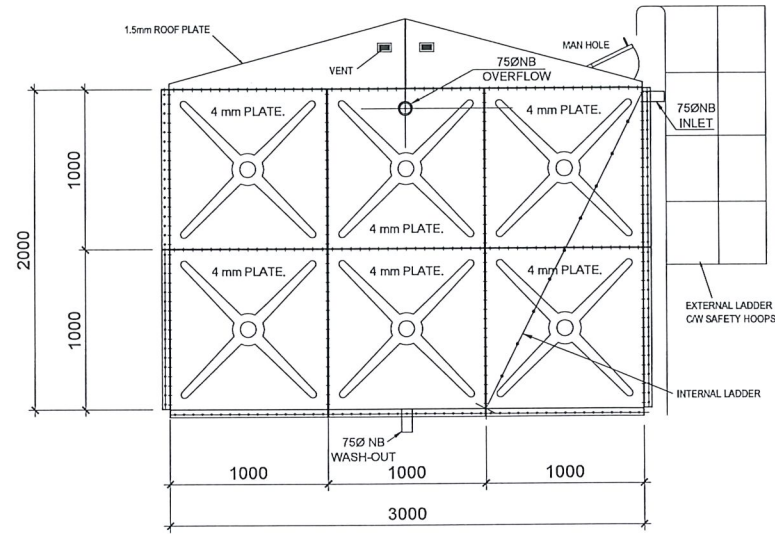
	NAME	SIGNATURE	DATE
Designed			
Drawn			
Checked			
DRG No.	Revision Suffix		
01			



SIDE ELEVATION



PLAN



END ELEVATION

DESCRIPTION

OVERFLOW	75MMØ NB
OUTLET	75MMØ NB
WASHOUT	75MMØ NB
INLET	75MMØ NB

GENERAL NOTES:

- 1) ALL STRUCTURAL STEELWORK TO BE GRADE 43C.
- 2) STEELWORK TO BE WIRE BRUSHED PRIOR TO FINISHING APPLICATION.
- 3) INSIDE TANK: ONE COAT OF PRIMER & TWO COATS OF NON TOXIC BITUMINOUS PAINT
OUTSIDE TANK: ONE COAT OF PRIMER & ONE COAT OF SILVER ALUMINIUM PAINT.
- 4) ALL SHOP WELDS TO BE 6MM FILLET WELDS UNLESS OTHERWISE NOTED.
- 5) ALL SECTION SIZES ARE AS SPECIFIED ON DRAWING UNLESS OTHERWISE NOTED.
- 6) BOLTS ARE GALVANIZED GRADE 8.8.

NOTES

1. READ THE DRAWING IN CONJUNCTION WITH RELEVANT R.C.
2. DRAWINGS. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
3. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
4. ALL PIPEWORK ARE DUCTILE IRON TO NP 10 WITH NP 16 FLANGES
5. ALL CONCRETE SHALL BE CLASS C30 UNLESS OTHERWISE STATED
6. ALL VALVES TO BE SUPPLIED WITH EXTENSION SPINDLE.
7. MIN CONCRETE COVER OF 40 mm TO THE MAIN STEEL TO BE MAINTAINED.
8. SAFE BEARING CAPACITY TAKEN AS OF 150KN/M2.
9. ALL FOUNDATIONS TO BE TAKEN DOWN TO A SUITABLE ROCK.
10. MAXIMUM AGGREGATE SIZE FOR CONCRETE IS 20mm.
11. ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER BEFORE CONCRETING.

PROJECT TITLE:

PROPOSED 24M³ PRESSED STEEL TANK ON 18M TOWER.

DRAWING TITLE

PANEL DETAILS

CLIENT

ATHI WATER SERVICES BOARD.
KAMBITI CHIEFS CAMP.

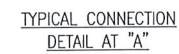
CONTRACTOR



INSTA PUMPS
ENGINEERING LIMITED
P.O. Box 33248-00600
NAIROBI, KENYA

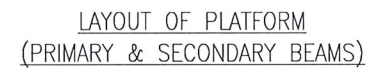
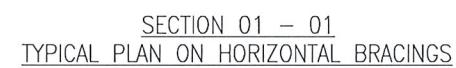
SCALE: 1:50

	NAME	SIGNATURE	DATE
Designed			
Drawn			
Checked			
DRG No. 02	Revision Suffix		



- 1) ALL STRUCTURAL STEELWORK TO BE GRADE 43C.
- 2) STEELWORK TO BE WIRE BRUSHED PRIOR TO PAINT APPLICATION.
- 3) APPLY ONE COAT OF GREY OXIDE PRIMER.
- 4) APPLY ONE COAT OF SILVER ALUMINIUM PAINT.
- 5) ALL SHOP WELDS TO BE 6MM FILLET WELDS U.O.N.
- 6) BOLTS BE GALVANIZED GRADE 4.6. & GRADE 8.8
- 7) ALL SECTION SIZES TO BE AS SPECIFIED ON DRAWING.
- 8) THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.

DRG No.	Revision Suffix			
03				



- ## NOTES
1. READ THE DRAWING IN CONJUNCTION WITH RELEVANT R.C.
 2. DRAWINGS, ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED.
 3. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
 4. ALL PIPEWORK ARE DUCTILE IRON TO NP 10 WITH NP 16 FLANGES
 5. ALL CONCRETE SHALL BE CLASS C30 UNLESS OTHERWISE STATED
 6. ALL VALVES TO BE SUPPLIED WITH EXTENSION SPINDLE.
 7. MIN CONCRETE COVER OF 40 mm TO THE MAIN STEEL TO BE MAINTAINED.
 8. SAFE BEARING CAPACITY TAKEN AS OF 150KN/M²,
 9. ALL FOUNDATIONS TO BE TAKEN DOWN TO A SUITABLE ROCK.
 10. MAXIMUM AGGREGATE SIZE FOR CONCRETE IS 20mm.
 11. ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER BEFORE CONCRETING.

PROJECT TITLE:
PROPOSED 24M³ PRESSED STEEL TANK ON
18M TOWER.

DRAWING TITLE

PLATFORM DETAILS

CLIENT
ATHI WATER SERVICES BOARD.
KAMBITI CHIEFS CAMP.

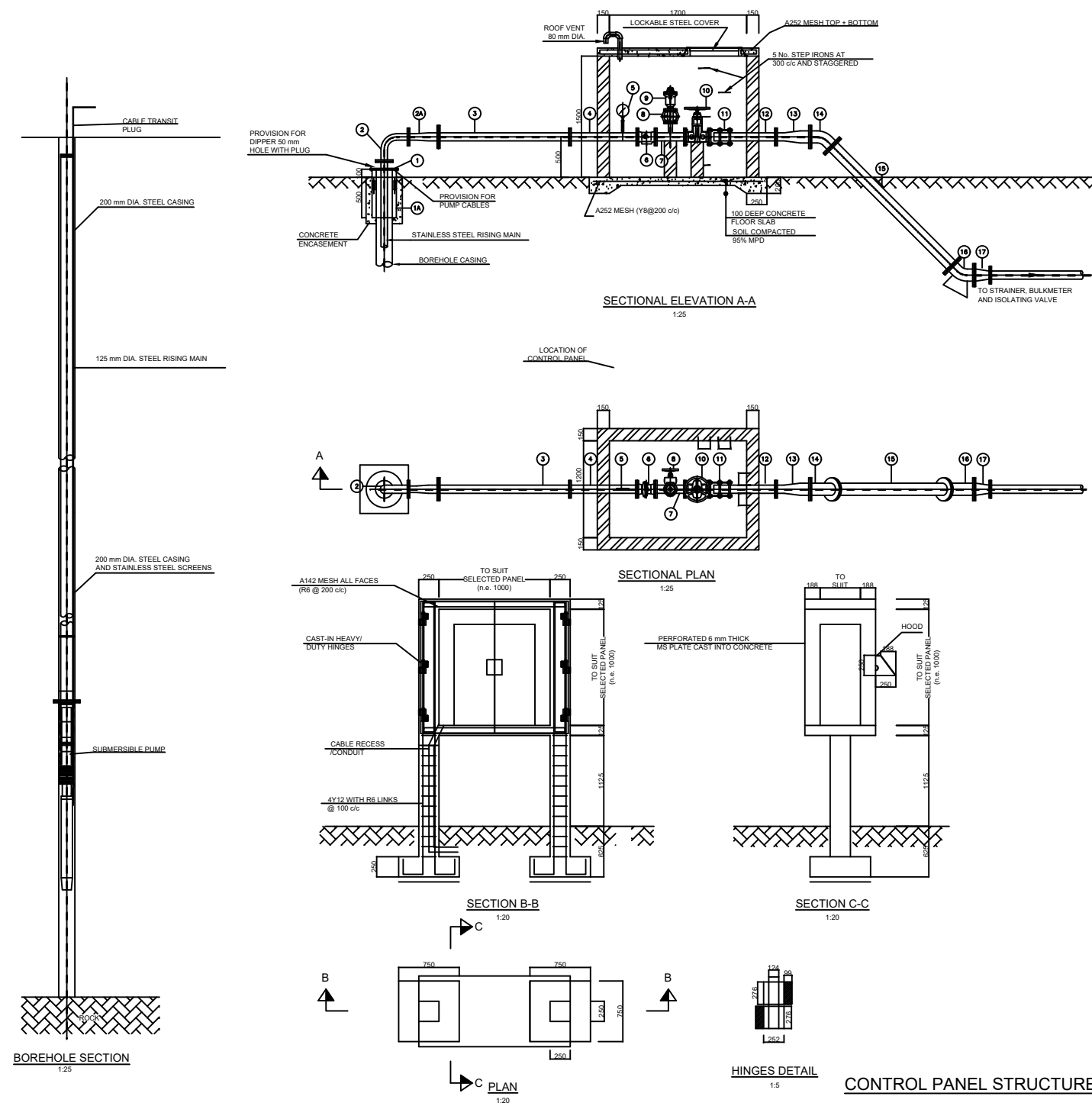
CONTRACTOR



INSTA PUMPS
ENGINEERING LIMITED
P.O. Box 33248-00600
NAIROBI, KENYA

SCALE: 1:30

	NAME	SIGNATURE	DATE
Designed			
Drawn			
Checked			
<u>DRG No.</u> 04		Revision Suffix	



SCHEDULE OF PIPEWORK & FITTINGS PER BOREHOLE		
ITEM No.	DESCRIPTION	No.
1	10 mm THICK WELL HEAD PLATE BOLTED TO CASING FLANGE	1
1A	MILD STEEL CASING CAST INTO CONCRETE WITH FLANGE FOR WELL HEAD PLATE	1
2	DOUBLE FLANGED 90° BEND	1
2A	DOUBLE FLANGED REDUCER	1
3	DOUBLE FLANGED PIPE PIECE, 2000 mm LONG	1
4	DOUBLE FLANGED PIPE PIECE, 800 mm LONG WITH PROVISION FOR PRESSURE GAUGE	1
5	PRESSURE GAUGE	1
6	DOUBLE FLANGED NON-RETURN VALVE	1
7	DOUBLE FLANGED TEE (WITH THREADED ADAPTOR FOR DN 50)	1
8	DOUBLE FLANGED (OR THREADED DN 50) SLUICE VALVE	1
9	ANTI SHOCK ANTI SURGE AIR VALVE	1
10	DOUBLE FLANGED SLUICE VALVE	1
11	RESTRAINED DISMANTLING JOINT	1
12	SINGLE FLANGED PIPE PIECE 800 mm LONG	1
13	DOUBLE FLANGED REDUCER	1
14	DOUBLE FLANGED 45° BEND	1
15	DOUBLE FLANGED PIPE PIECE 2100 mm LONG	1
16	DOUBLE FLANGED 45° BEND	1
17	DOUBLE FLANGED REDUCER	1

- NOTES :**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.
 - THE CONTROL PANEL AS APPROVED SHALL DETERMINE THE EXACT DIMENSIONS FOR THE SUPPORT STRUCTURE.
 - THE CONTROL PANEL DOOR SHALL BE PROVIDED WITH A BURGLAR PROOF LOCKABLE HOOD FABRICATED FROM 5 mm THICK MS PLATE CLOSED ON TOP AND SIDES AND OPEN AT BOTTOM
 - THRUST BLOCKS AT BENDS ARE OMITTED FOR CLARITY BUT SHALL BE PROVIDED AS DIRECTED BY ENGINEER.



Notes		Revisions			
No.	Date	Details	Chd.	App.	

CONSTRUCTION OF BOREHOLES IN THE NAIROBI INFORMAL SETTLEMENT

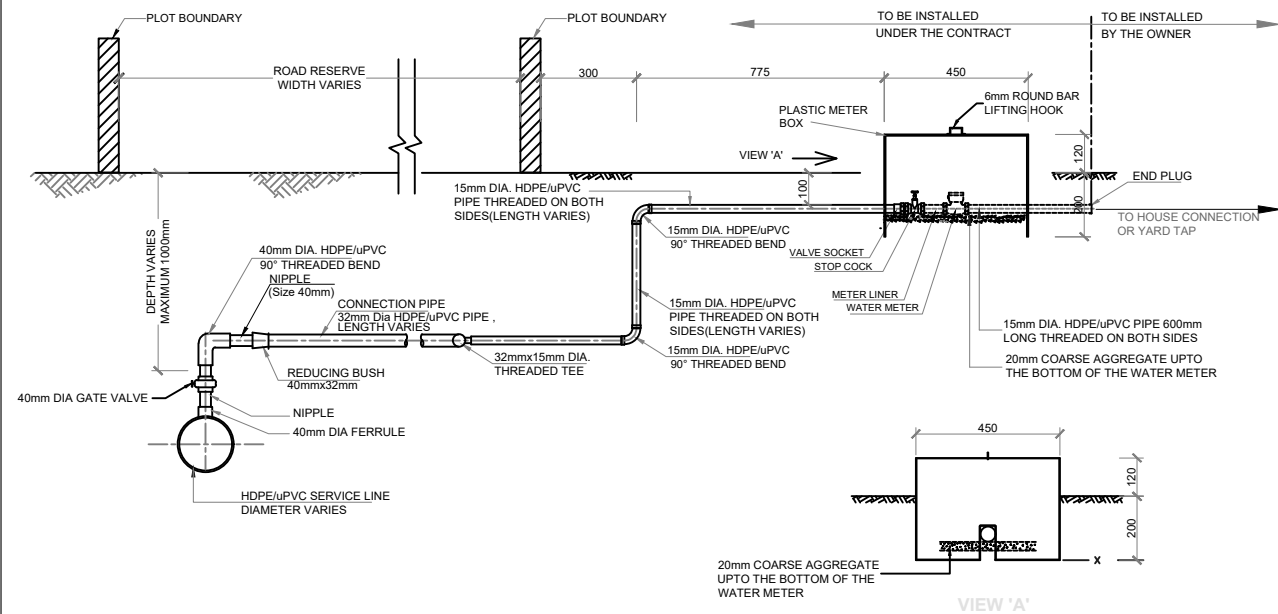
BOREHOLE, ELEVATED TANK SUPPORT STRUCTURE AND FITTINGS

AWWDA/NARSIP II/W-05/2022

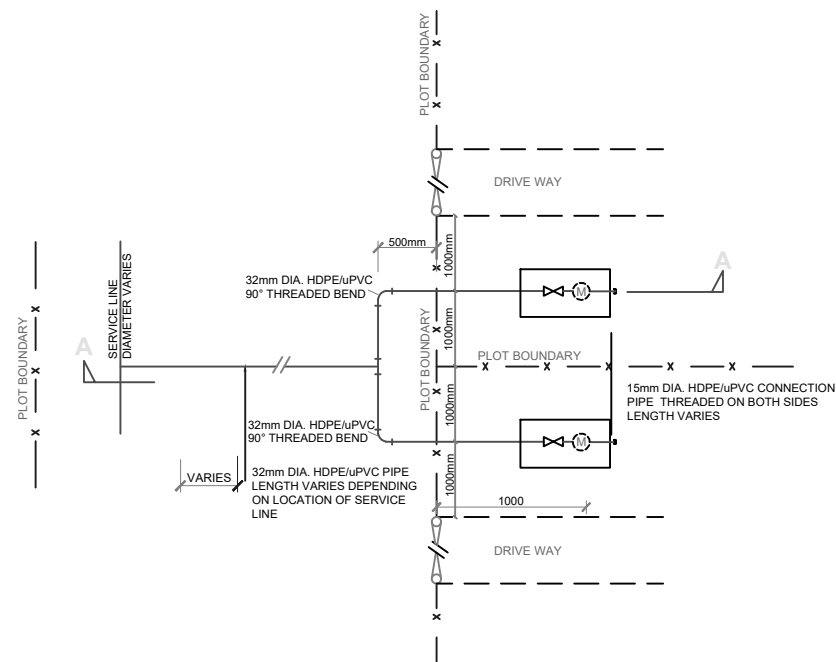
Description	BOREHOLE AND FITTINGS DETAILS	
Scale:	AS SHOWN	
Date:	December 2021	
Checked By:	Eng. D. Ongesa	
Approved By:	Eng. B. Nyandwaro	Drawn By: Albert Ocharo

ATHI WATER WORKS DEVELOPMENT AGENCY

Drawing No: AWWDA/ACPEU/BH/01

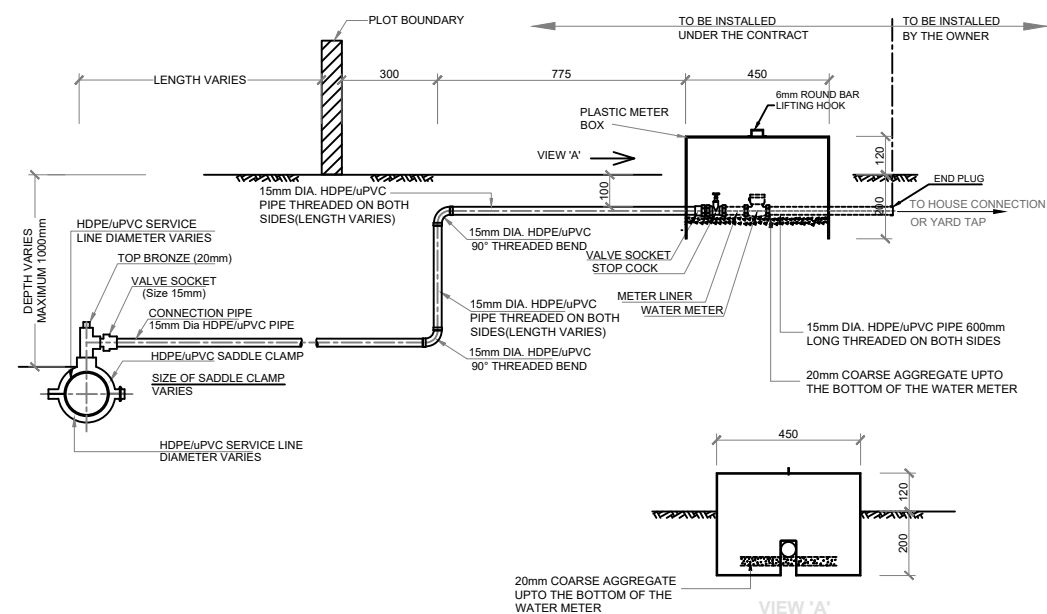


SECTION A-A
NTS

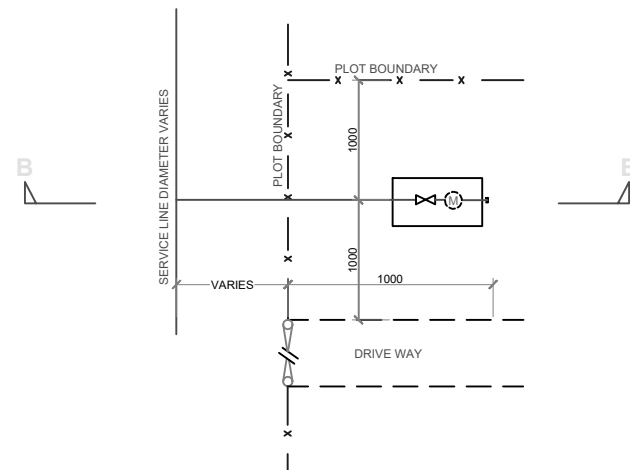


TYPICAL CONSUMER CONNECTION ACROSS CARRIAGE WAY
FOR TWO HOUSEHOLDS ON A HDPE/uPVC SERVICE LINE

NTS



SECTION B-B
NTS



TYPICAL CONSUMER CONNECTION FOR ONE
HOUSEHOLD ON A uPVC/HDPE SERVICE LINE

NTS

NOTE

ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED

ABBREVIATIONS

mm	- MILLIMETERS
G.L	- GROUND LEVEL
D.I.A	- DIAMETER
HDPE	- HIGH-DENSITY POLYETHYLENE
uPVC	- UNPLASTICISED POLYVINYL CHLORIDE

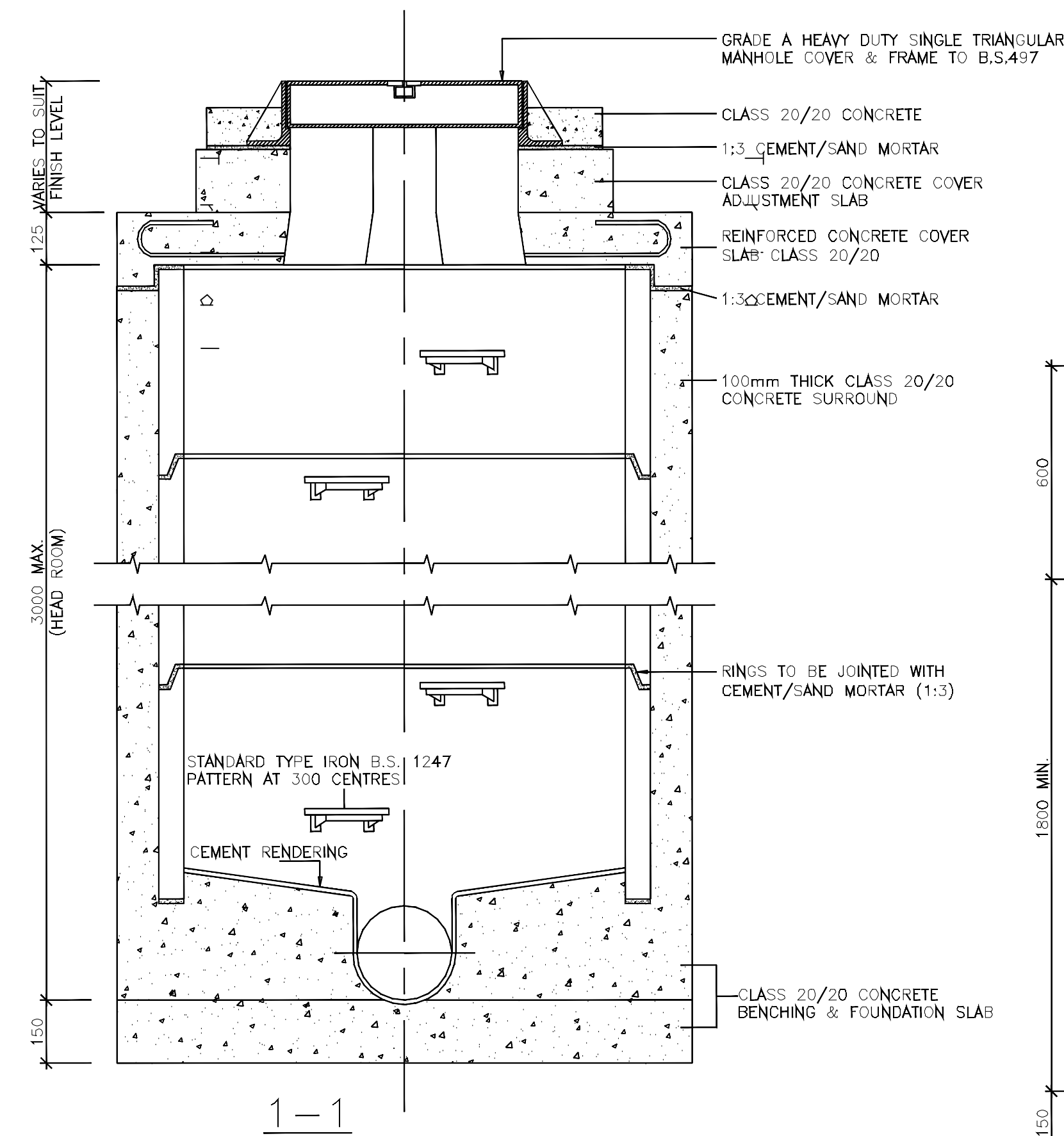
REV	REVISIONS	SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			

ATHI WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 45283 - 00100 NAIROBI
TEL: 020 - 2727438 FAX: 2724295

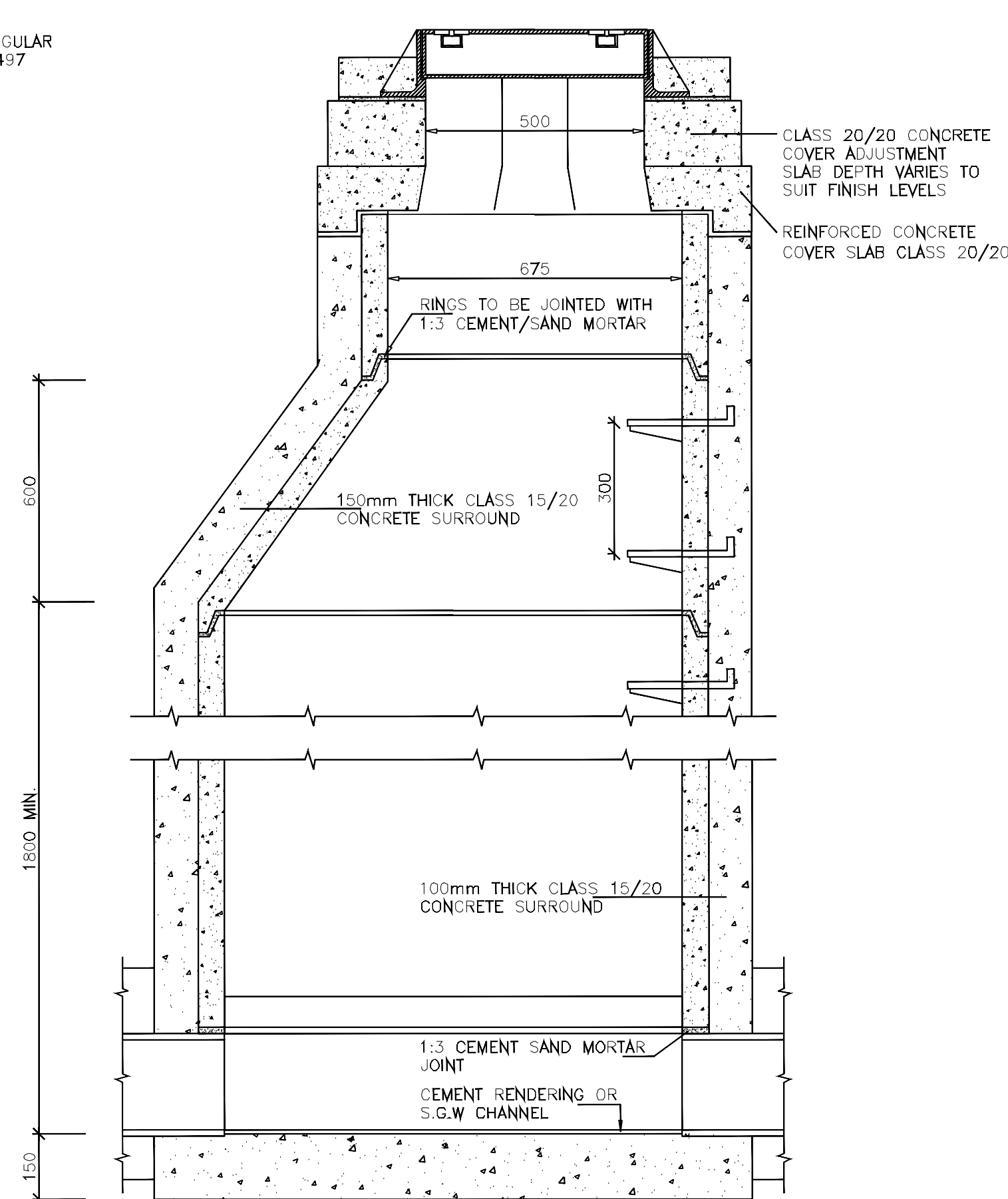


DRAWING TITLE:
STANDARD DRAWINGS
TYPICAL DETAILS OF CONSUMER
WATER SUPPLY CONNECTION

DESIGNED BY:	DRAWN BY:
CHECKED BY:	APPROVED BY:
SCALE:	DATE:
DRAWING No.	



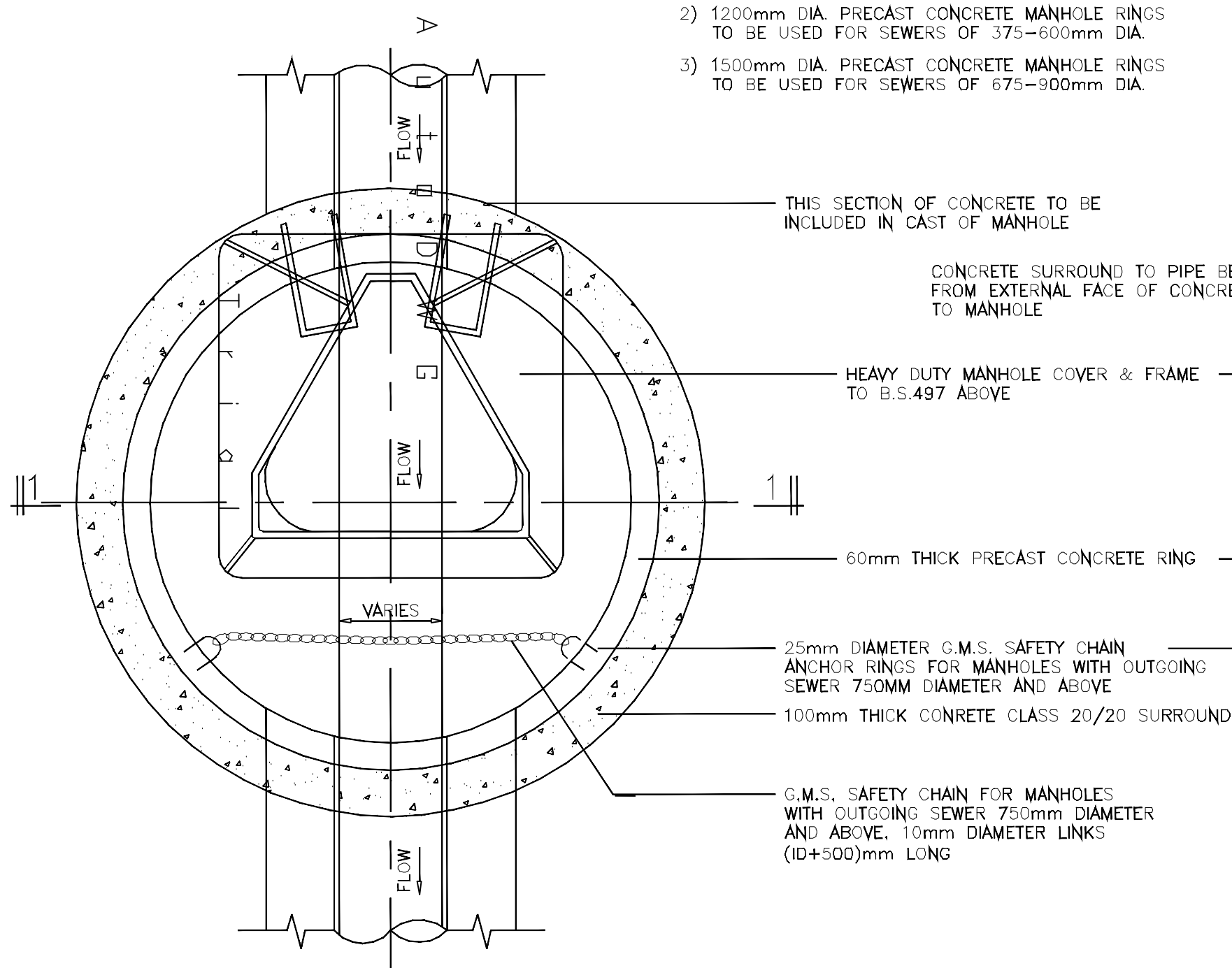
STANDARD MANHOLE DETAILS
TYPE A
(Where Manhole Depth <3.0m)



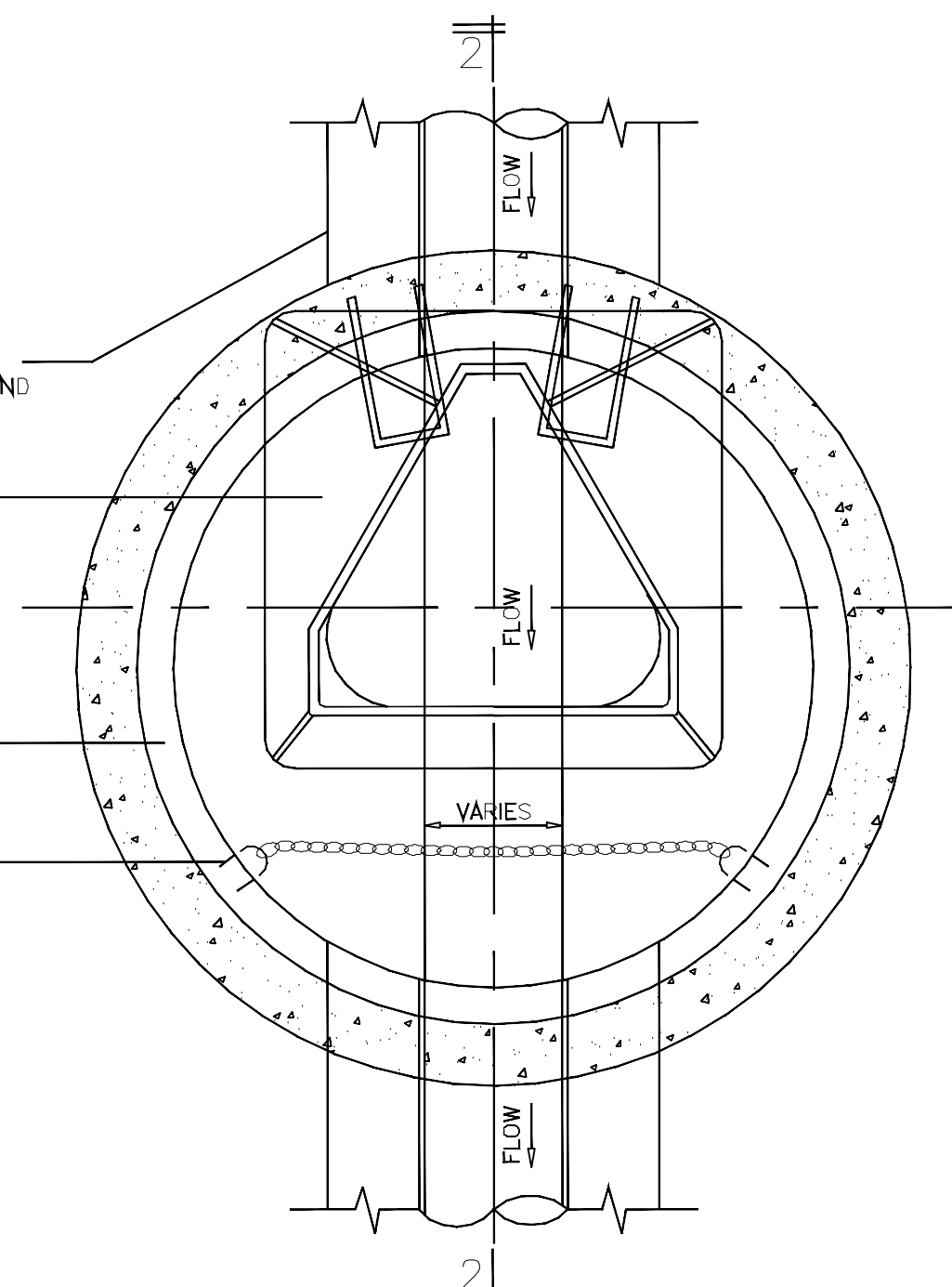
STANDARD TAPERED MANHOLE DETAILS
TYPE B
(Where Manhole Depth ≥3.0m)

NOTES

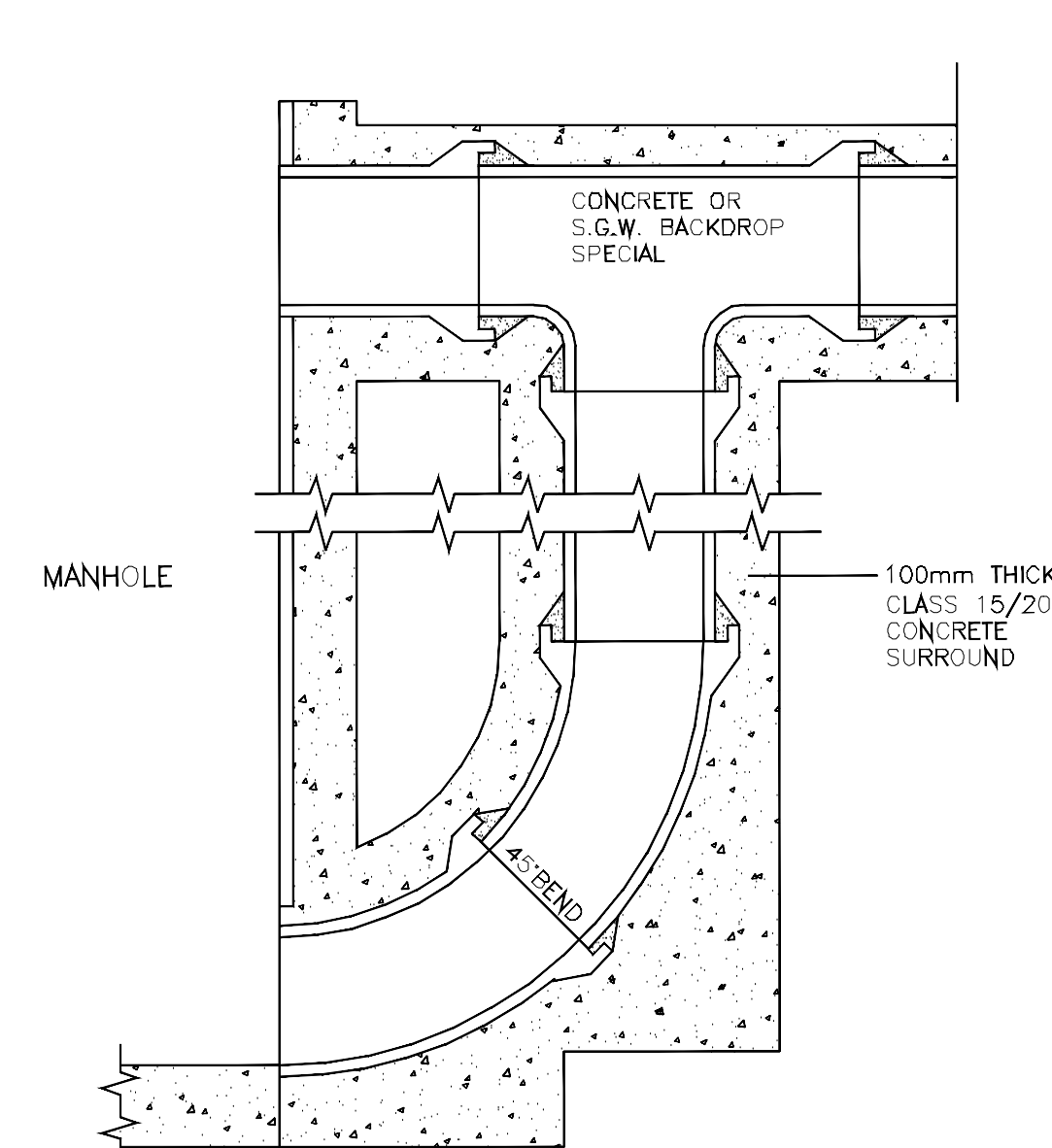
- 1) 1050mm DIA. PRECAST CONCRETE MANHOLE RINGS TO BE USED FOR SEWERS UP TO AND INCLUDING 300mm DIA.
- 2) 1200mm DIA. PRECAST CONCRETE MANHOLE RINGS TO BE USED FOR SEWERS OF 375-600mm DIA.
- 3) 1500mm DIA. PRECAST CONCRETE MANHOLE RINGS TO BE USED FOR SEWERS OF 675-900mm DIA.



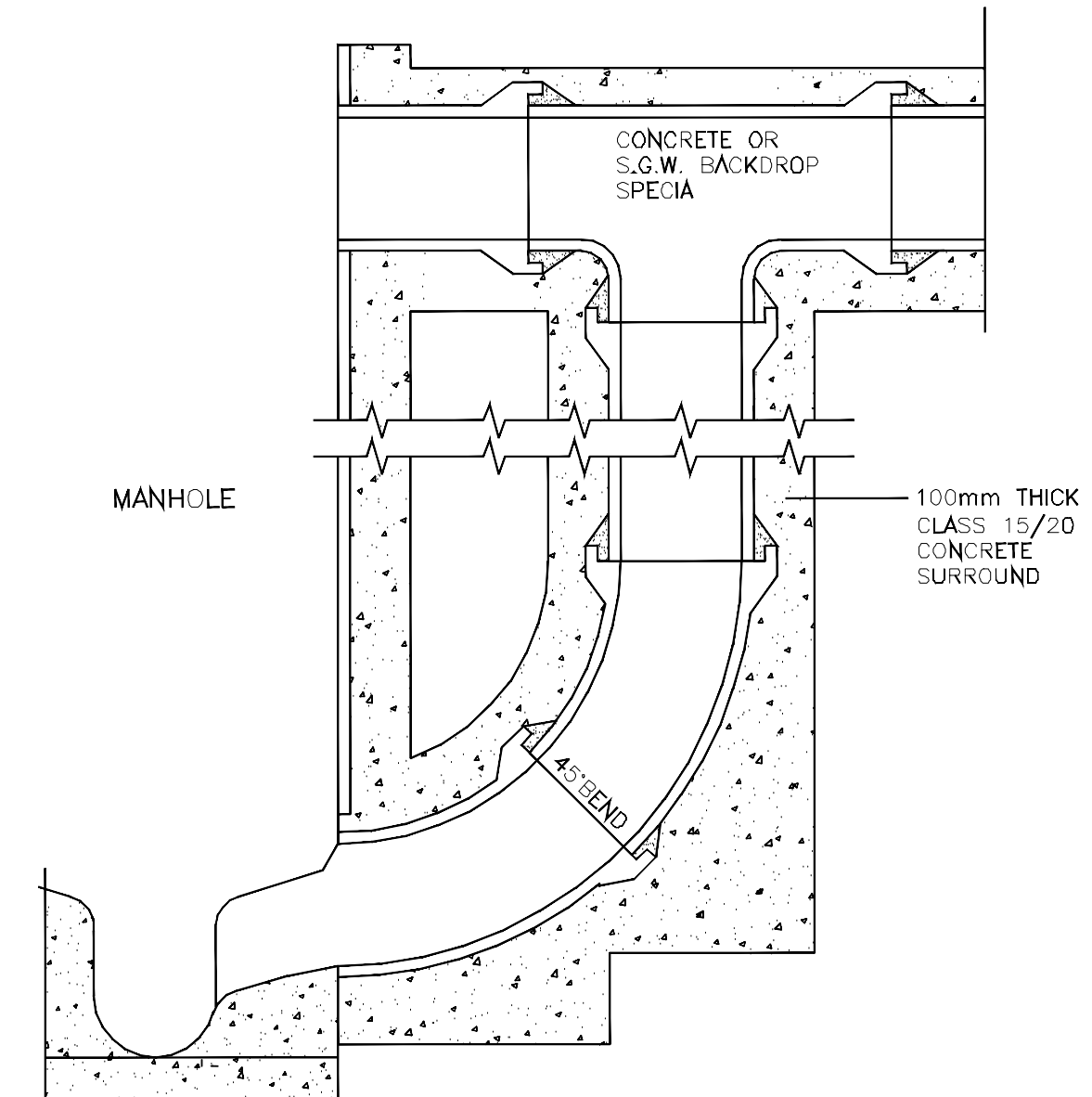
SECTIONAL PLAN



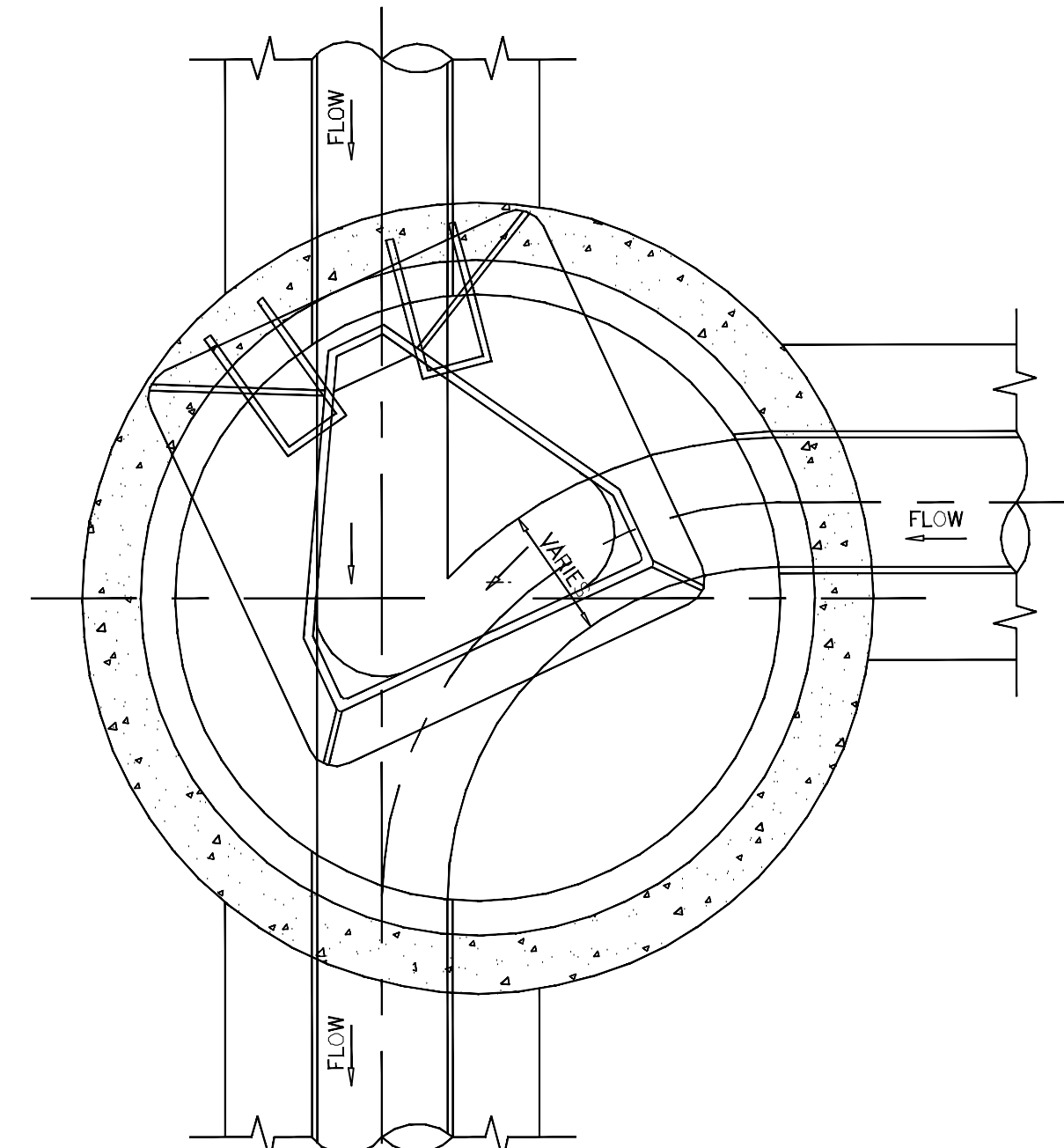
SECTIONAL PLAN



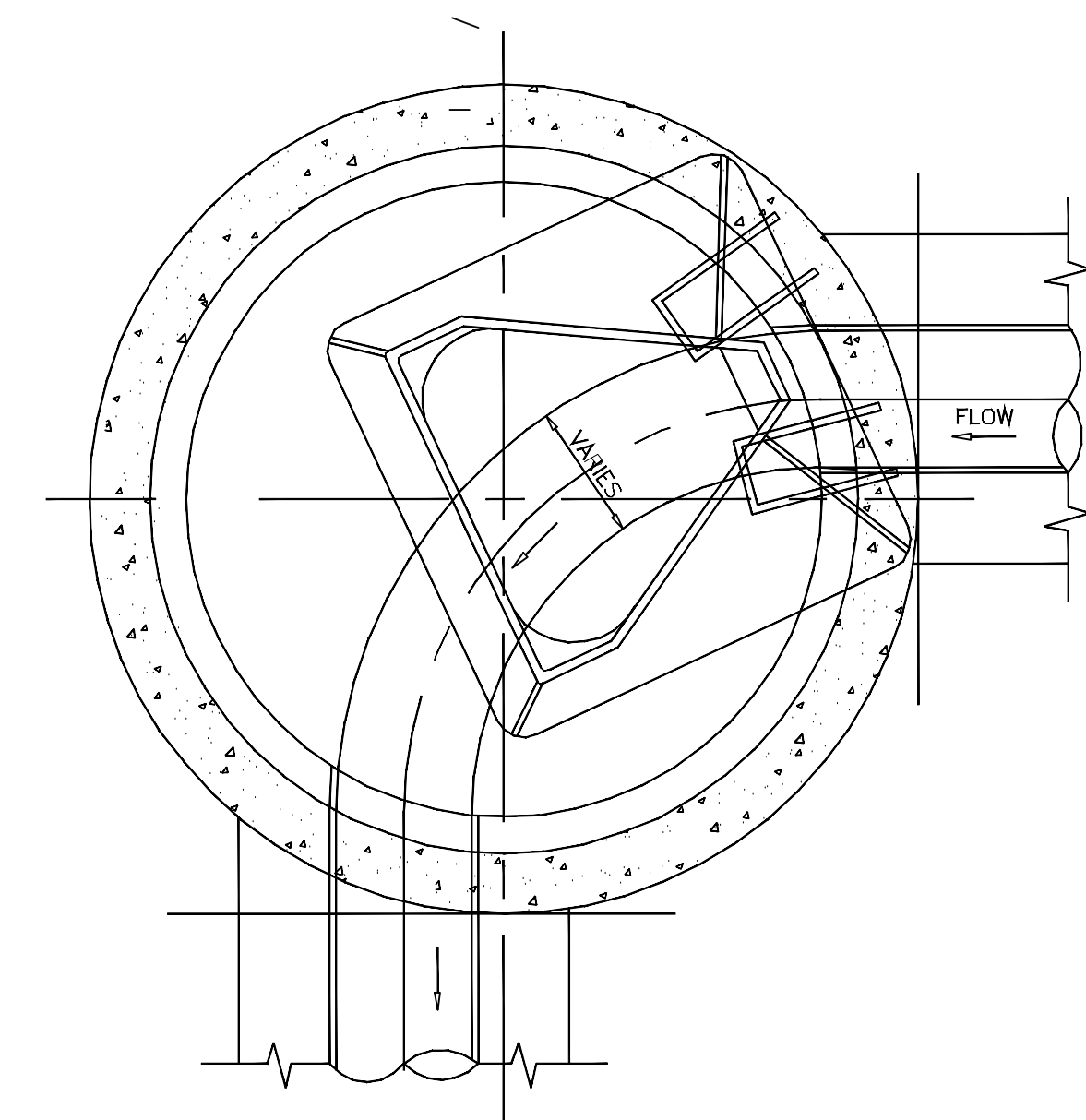
END ENTRANCE BACKDROP



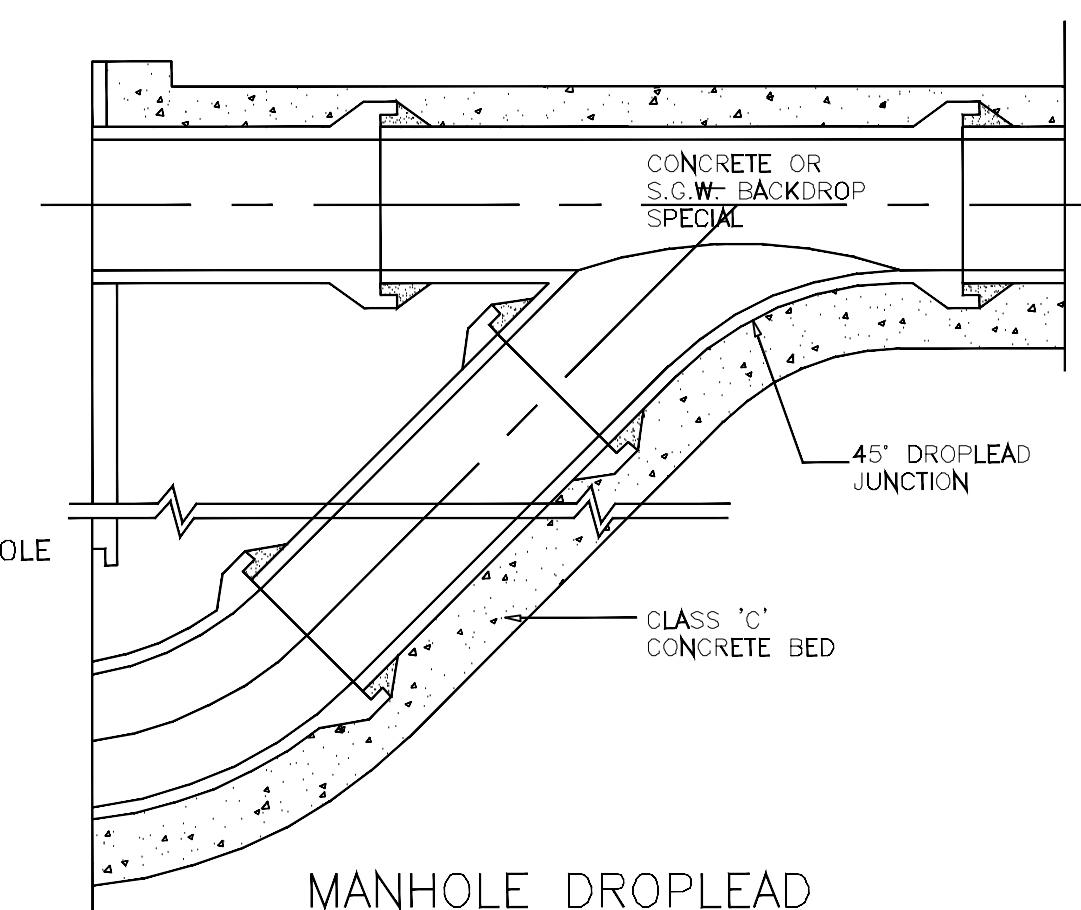
SIDE ENTRANCE BACKDROP



90° SIDE ENTRANCE



90° CHANGE OF DIRECTION



MANHOLE DROPLEAD

Civil Engineer:



Client:



Project:

NAIROBI RIVERS SEWERAGE
IMPROVEMENT PROJECT - PHASE II
(NaRSIP II)

Drawing Title

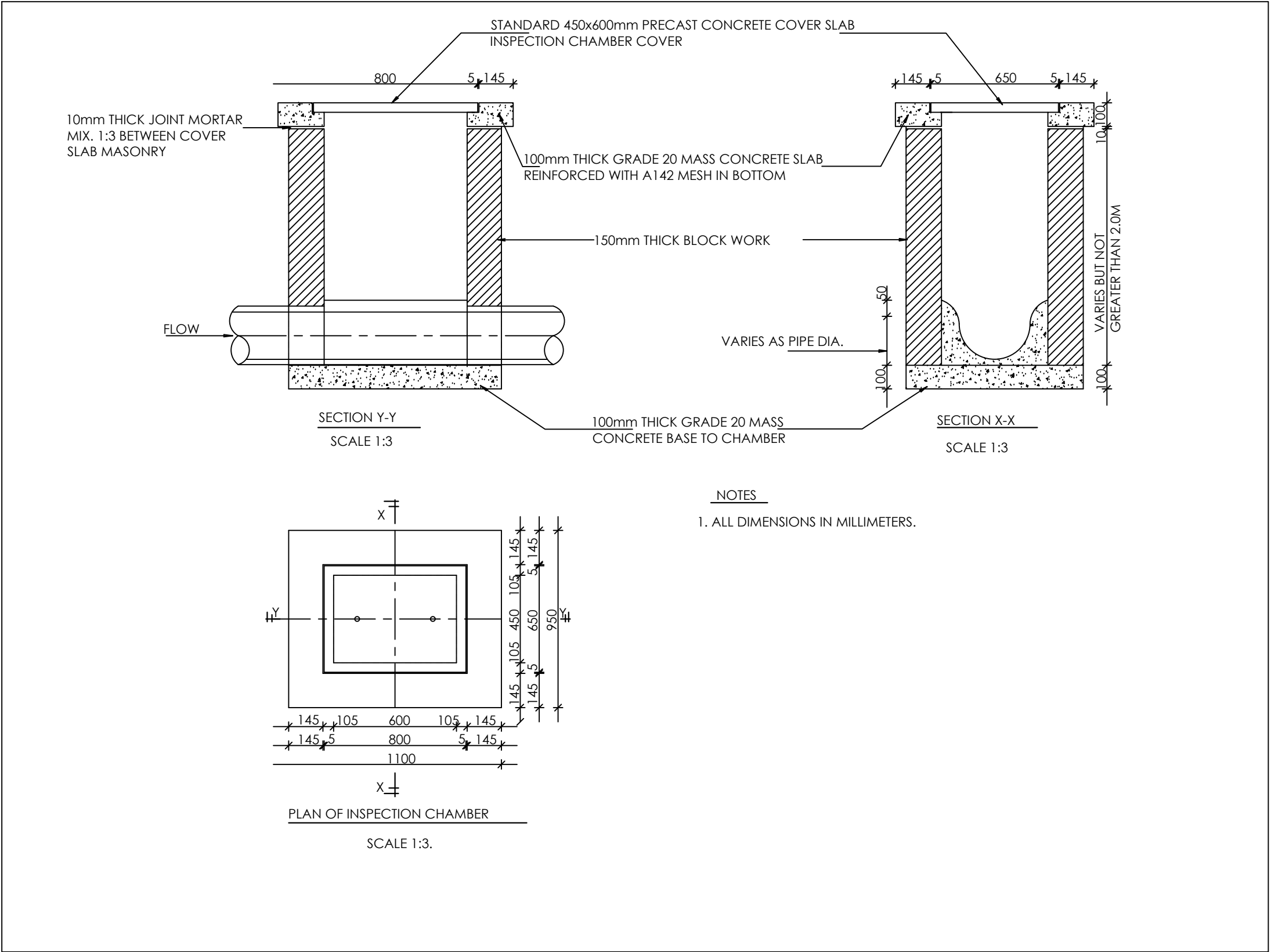
STANDARD DETAILS
MANHOLE TYPES A, B AND BACKDROP
DETAILS


NOTES

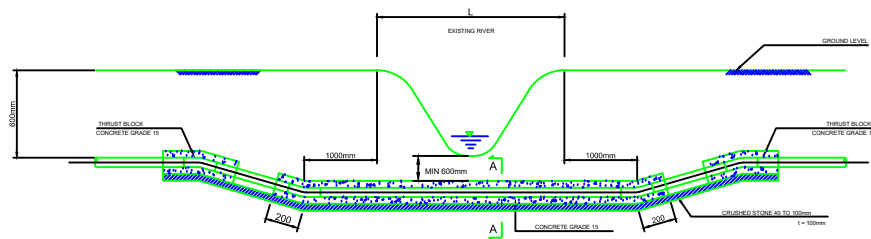
1. Sewer diameter, Orientation, Depth of Manhole and dimensions to be obtained from the relevant plan and profile drawings
2. Longitudinal slopes of channels in manholes shall be equal to the slope of the incoming and outgoing sewers
3. Manhole floors and walls shall be of Class "20" R.C; The ceiling of Class "25" R.C and Benching Class "10" mass concrete
4. All step Irons shall be protected from rusting by painting with bituminous paint or have plastic/rubber cover

REV	REVISIONS	SIGN	DATE	APPROVED	Designed by	Drawn by
D	CHECKED				ALBERT OCHARO	ALBERT OCHARO
C	CHECKED				Not to Scale	Date: DECEMBER 2021
B	CHECKED				Job No.	ACAD File:
A	CHECKED				P STATUS	DRG No. FC/CE90/SD/01

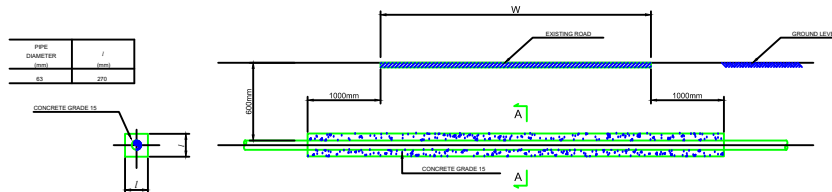
DETAILS OF CHAMBERS



Civil Engineer:	Client:	Project	Drawing Title	NOTES	
		NAIROBI RIVERS SEWERAGE IMPROVEMENT PROJECT - PHASE II (NaRSIP II)	STANDARD DETAILS MANHOLE COVER, BACKDROP AND CHAMBER DETAILS	1. Sewer diameter, Orientation, Depth of Manhole and dimensions to be obtained from the relevant plan and profile drawings 2. Longitudinal slopes of channels in manholes shall be equal to the slope of the incoming and outgoing sewers 3. Manhole floors and walls shall be of Class "20" R.C; The ceiling of Class "25" R.C and Benching Class "10" mass concrete 4. All step irons shall be protected from rusting by painting with bituminous paint or have plastic/rubber cover	



RIVER CROSSING




A-A

ROAD CROSSING

NOTES :

1. WALLS BUILT OF SOLID CONCRETE BLOCKS OR MASONRY, 150 mm (225 mm) THICK. ALL JOINTS ARE 10 mm THICK.
2. EXTERNAL FINISH ON CONCRETE BLOCK WALLS IS 10 mm CEMENT RENDERING WITH TWO COATS EXTERNAL QUALITY WATER PAINT FINISH.
3. PLINTH IS 15 mm CEMENT RENDERING WITH BITUMINOUS PAINT FINISH. MINIMUM HEIGHT OF PLINTH ABOVE FINISHED GROUND LEVEL IS 300 mm.
4. INTERNAL FINISH ON WALLS IS 10 mm INTERNAL GAUGED LIME PLASTER WITH GLOSS PAINT FINISH.
5. THE PIPES INSIDE THE KIOSK ARE DN 15mm G.I. PIPES.
6. WATER METERS ARE INSTALLED INSIDE WATER KIOSK NEAR FENCE.

Notes		Revisions			STANDARD DRAWINGS RIVER AND ROAD CROSSINGS DETAILS	AWWDA/NARSIP II/W-05/2022	Description		 ATHI WATER WORKS DEVELOPMENT AGENCY
No.	Date	Details	Chd.	Appr.			INDEX		
							Scale: 1 : 50 (A3)		
							Drawn: December 2021		
							Checked By: Eng. D. Ogesa		
							Approved By: Eng. B. Nwando	Drawn By: Albert Ocharo	Drawing No: AWWDA/ACPEU/RRC/01