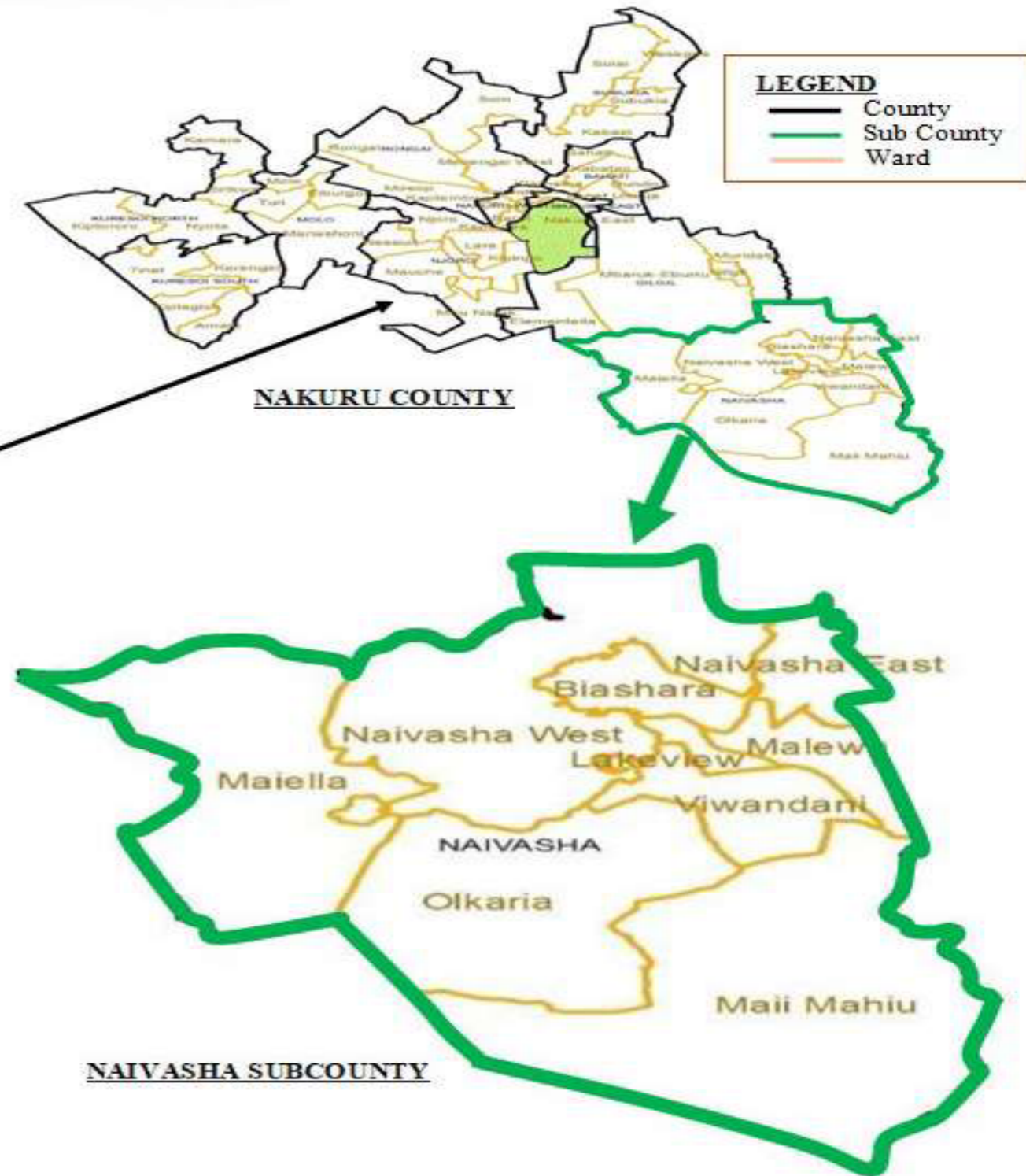
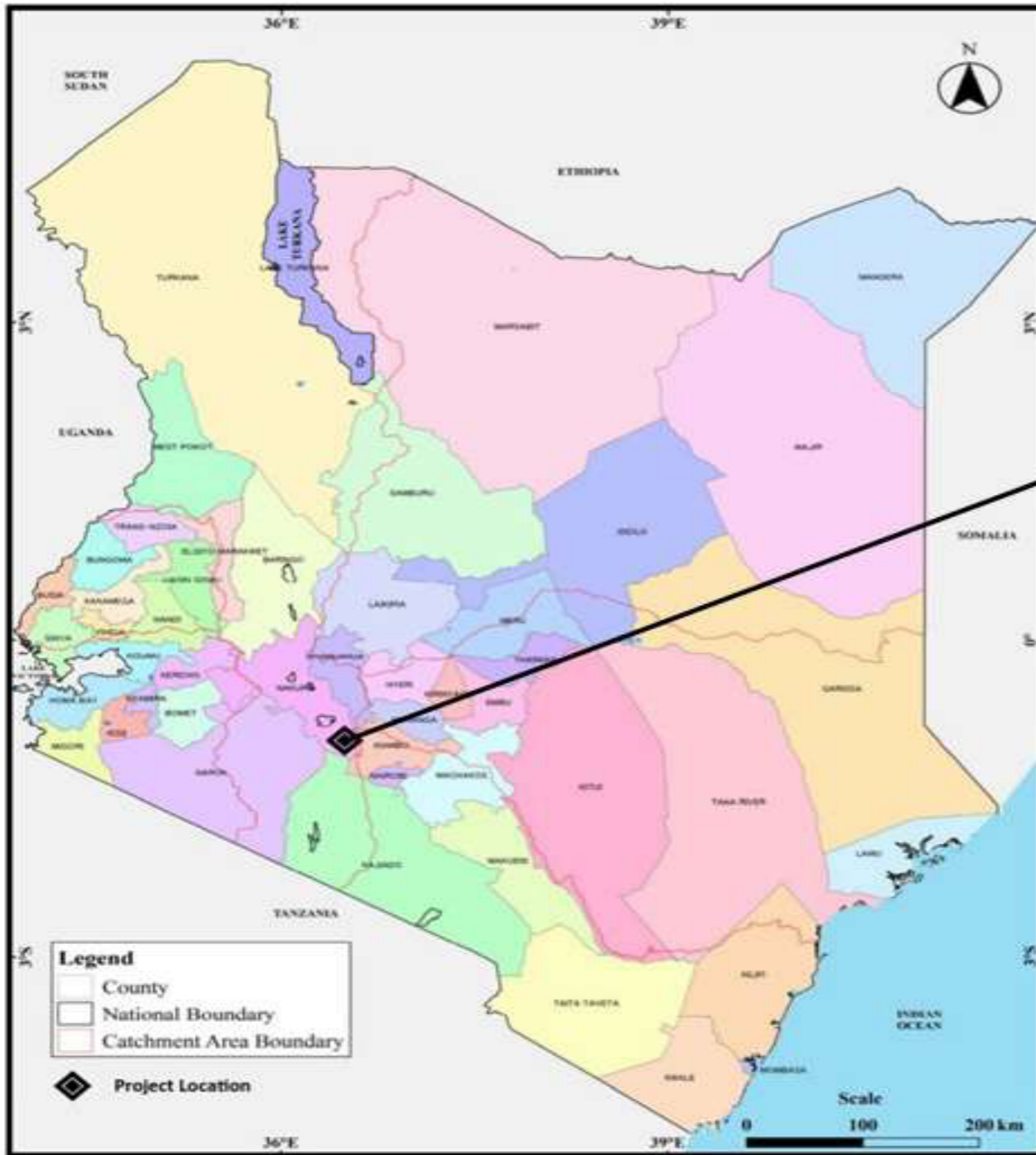


**PROJECT LOCATION MAP**



**General Notes**


**NOTE**  
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

**ABBREVIATIONS**

W.O Wash Out  
AV Air Valve  
GV Gate Valve  
HDPE High Density Polythene Pipes  
UPVC UnPlasticised Polyvynyl Chloride  
DIA Diameter  
⊙ Meter  
P.V Permanent Vent  
⊞ Weldon Flange

No.	Revision	Date

**Firm Name and Address**



NAIVASHA WATER, SEWERAGE & SANITATION COMPANY LTD.  
P. O. Box 321  
Naivasha Kenya  
Email: naivashawater@gmail.com  
Tel: 0705 877 770

**Project Name and Address**

PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT

DWG/01/2024	Sheet : 01 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : FMWAREMA
SCALE : #	Revised By : FMWAREMA



# IHINDU KINUNGI WATER SUPPLY PROJECT

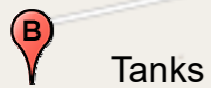


Naivasha Water & Sanitation Company  
 P.O. Box 321 – 20117, Naivasha, Kenya  
 T: (+254) 705 877 770  
 W: www.naivashawater.co.ke



## Legend

### SymbolID



Tanks

### Polylines

#### Diameters

- 40mm HDPE Pipe
- 63mm HDPE Pipe
- 32mm HDPE Pipe
- 75mm HDPE Pipe



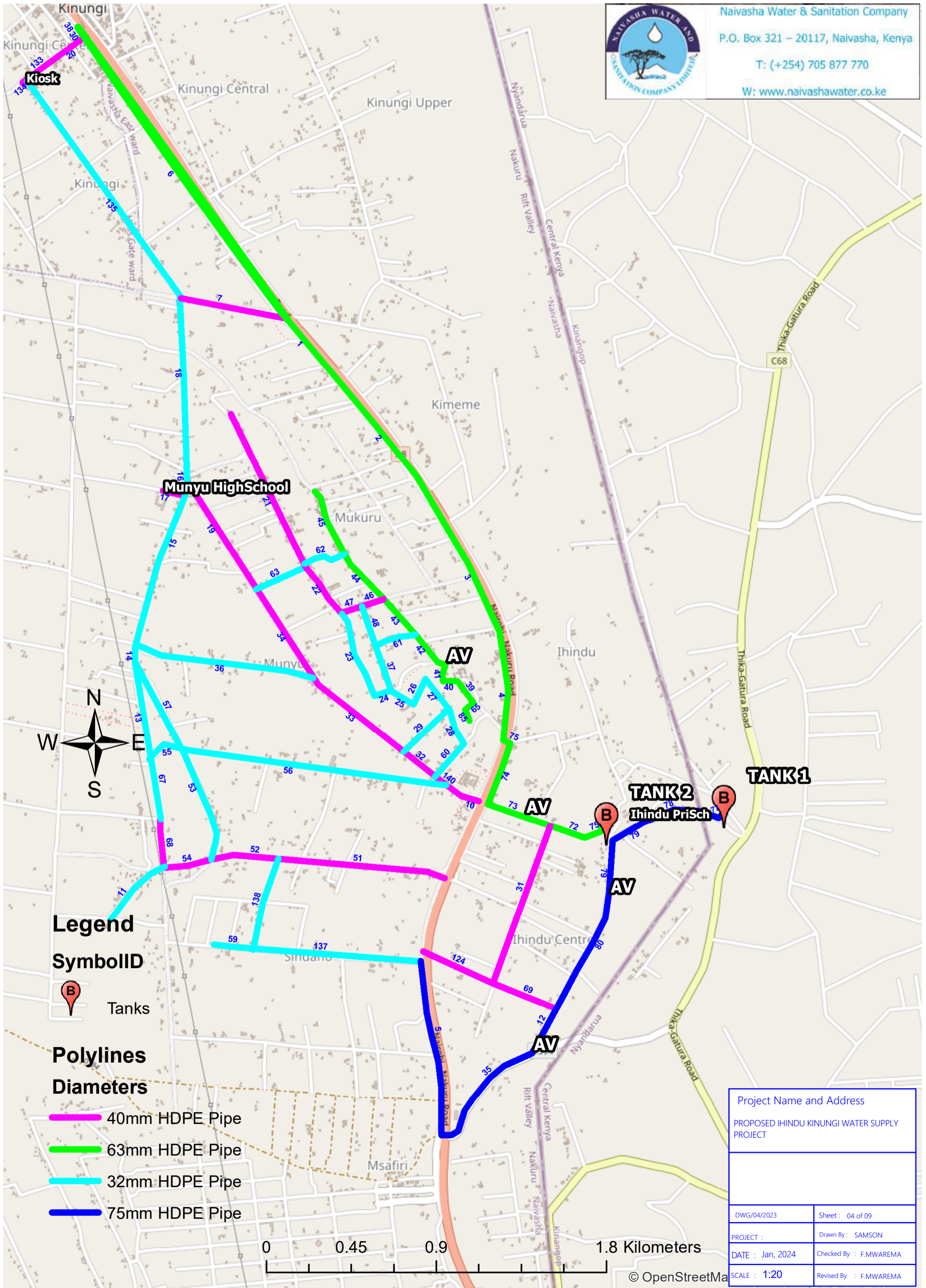
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PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT	
DWG/02/2023	Sheet : 02 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA



# IHINDU KINUNGI WATER SUPPLY PROJECT



Naivasha Water & Sanitation Company  
 P.O. Box 321 – 20117, Naivasha, Kenya  
 T: (+254) 705 877 770  
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### Legend

#### SymbolID

Tanks

#### Polylines Diameters

- 40mm HDPE Pipe
- 63mm HDPE Pipe
- 32mm HDPE Pipe
- 75mm HDPE Pipe



Project Name and Address	
PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT	
DWG/04/2023	Sheet: 04 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA

**PROPOSED IHINDU-KINUNGI WATERSUPPLY PROJECT**

Link ID	Length m	Diameter ID (mm)
Pipe 53	626.04	26
Pipe 55	210	26
Pipe 56	1410	26
Pipe 57	493.29	26
Pipe 48	232.71	26
Pipe 28	218.29	26
Pipe 29	324.4	26
Pipe 36	1015.91	26
Pipe 37	243.62	26
Pipe 135	1404.61	26
Pipe 137	889.92	26
Pipe 138	496.66	26
Pipe 59	207	26
Pipe 67	451.4	26
Pipe 60	225.39	26
Pipe 61	220.08	26
Pipe 62	223.91	26
Pipe 63	286.15	26
Pipe 14	153.72	26
Pipe 15	770.49	26
Pipe 16	134.64	26
Pipe 13	459.9	26
Pipe 11	410.5	26
Pipe 23	232.43	26
Pipe 24	95.37	26
Pipe 27	204.69	26
Pipe 26	148.64	26
Pipe 18	969.52	26
Pipe 25	138.73	26

	Length m	Diameter ID (mm)
Pipe 17	125	32
Pipe 20	368	32
Pipe 82	617.9	32
Pipe 10	181.85	32
Pipe 19	704.74	32
Pipe 31	893.5	32
Pipe 124	481.39	32
Pipe 68	244.96	32
Pipe 134	18.71	32
Pipe 133	26.4	32
Pipe 69	364.07	32
Pipe 21	905.35	32
Pipe 47	109.08	32
Pipe 46	126.64	32
Pipe 140	66.91	32
Pipe 34	541.24	32
Pipe 7	606.39	32
Pipe 33	638.46	32
Pipe 54	301.18	32
Pipe 22	346.78	32
Pipe 52	317.84	32
Pipe 32	213.17	32
Pipe 51	893.26	32

	Length m	Diameter ID (mm)
Pipe 85	49.67	51
Pipe 4	550.06	51
Pipe 3	1229.86	51
Pipe 1	16	51
Pipe 6	1810	51
Pipe 39	131.16	51
Pipe 45	357.98	51
Pipe 65	52.65	51
Pipe 44	307.05	51
Pipe 40	69.99	51
Pipe 41	79.89	51
Pipe 42	226.33	51
Pipe 43	286.58	51
Pipe 74	447.2	51
Pipe 75	76.03	51
Pipe 76	182.78	51
Pipe 30	283.53	51
Pipe 2	897.18	51
Pipe 38	361.68	51
Pipe 73	359.36	51
Pipe 72	211.16	51
Pipe 5	971.23	61
Pipe 77	80.38	61
Pipe 35	670.81	61
Pipe 12	283.86	61
Pipe 78	291.86	61
Pipe 81	422.36	61
Pipe 80	518.83	61
Pipe 79	235.67	61

**General Notes**

**NOTE**

ALL DIMENSIONS ARE IN mm  
UNLESS OTHERWISE STATED

**ABBREVIATIONS**

- uPVC UnPlasticised Polyvynyl Chloride
- DIA Diameter
- HDPE HIGH Density Polythene Pipes
- GV Gave Valve

No.	Revision	Date

Firm Name and Address



NAIVASHA WATER,  
SEWERAGE  
& SANITATION  
COMPANY LTD.  
P. O. Box 321  
Naivasha Kenya  
Email:  
naivashawater@gmail.com  
Tel: 0705 877 770

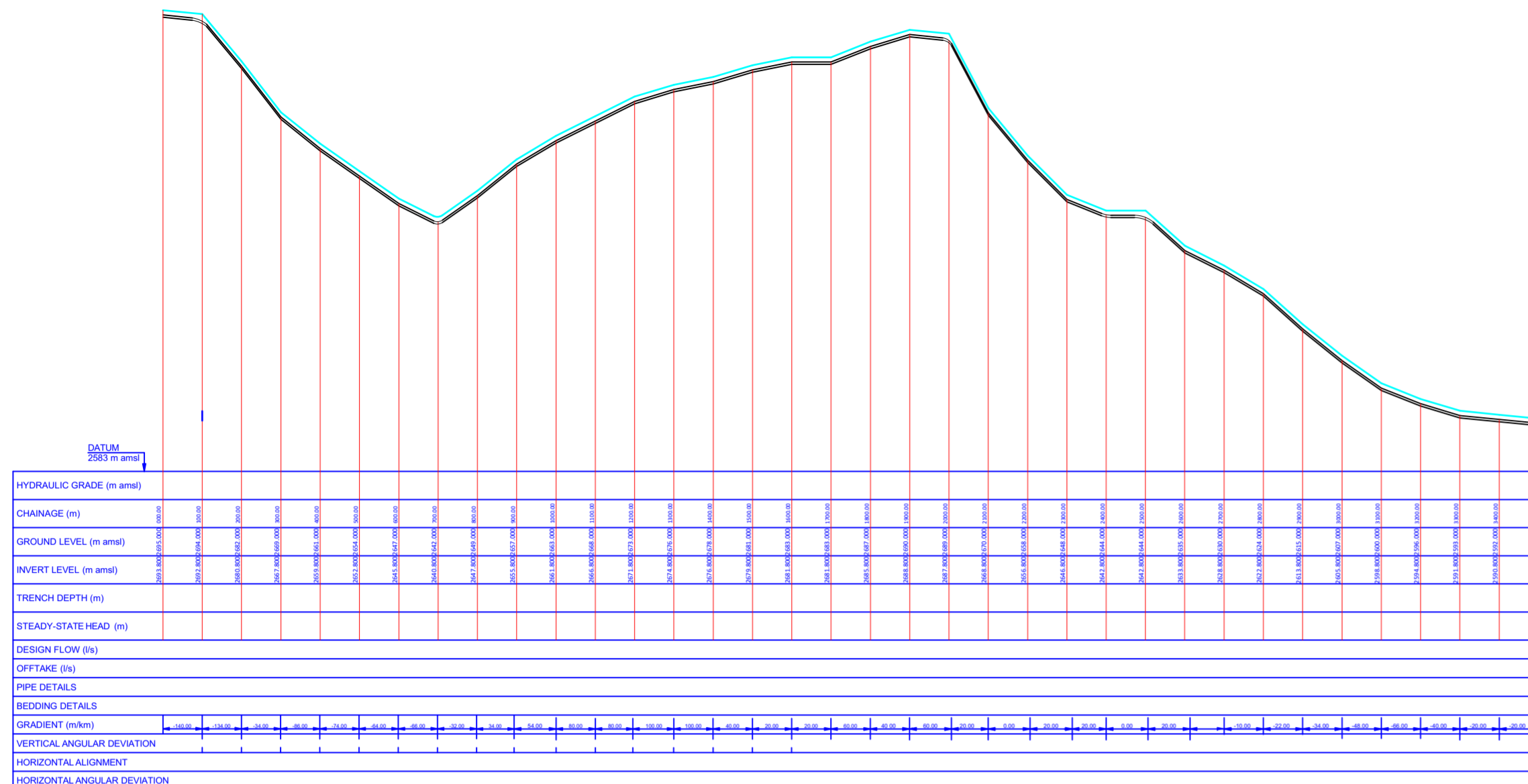
Project Name and Address

PROPOSED IHINDU KINUNGI WATER SUPPLY  
PROJECT

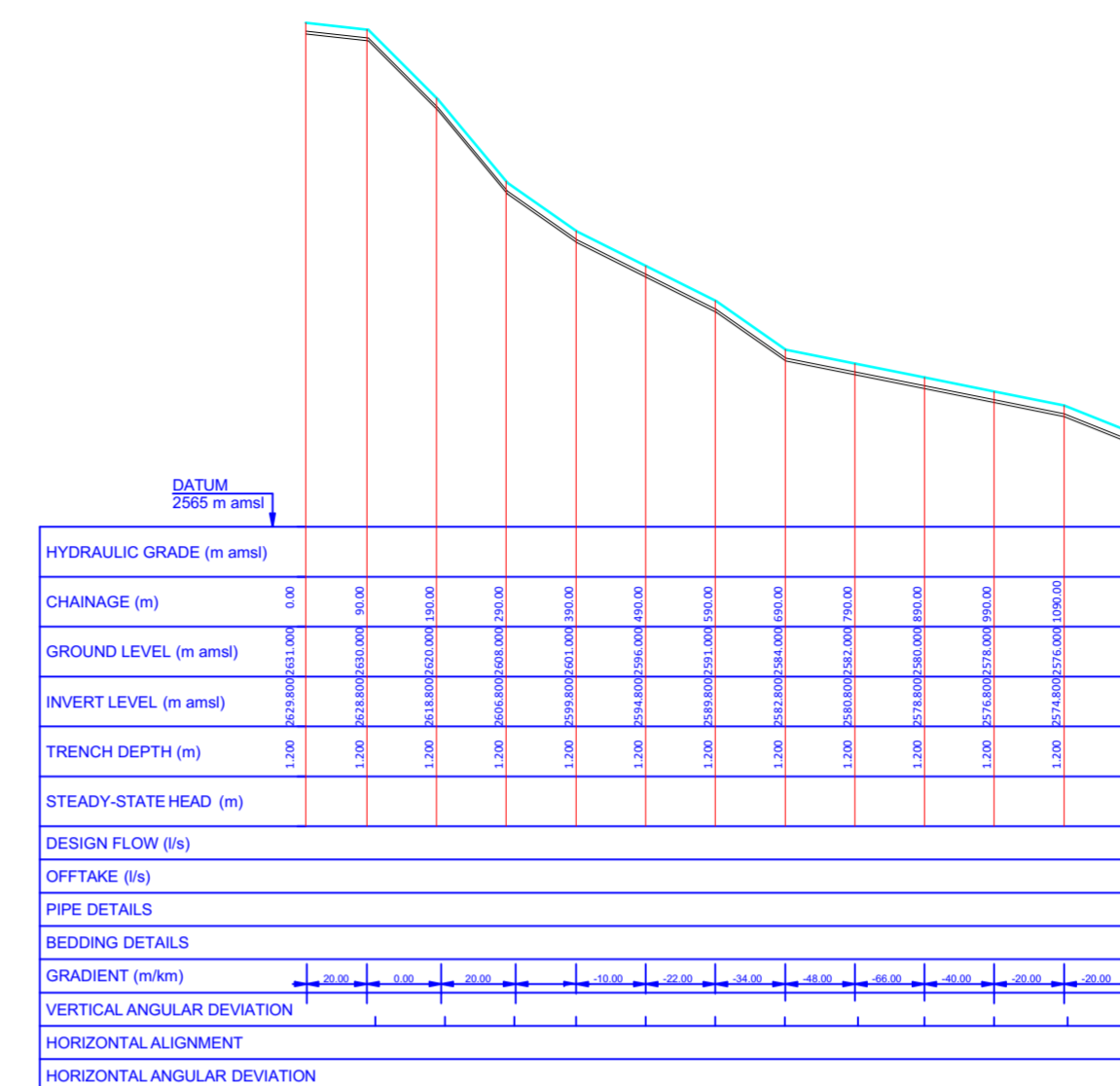
DWG/04/2023	Sheet : 04 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA



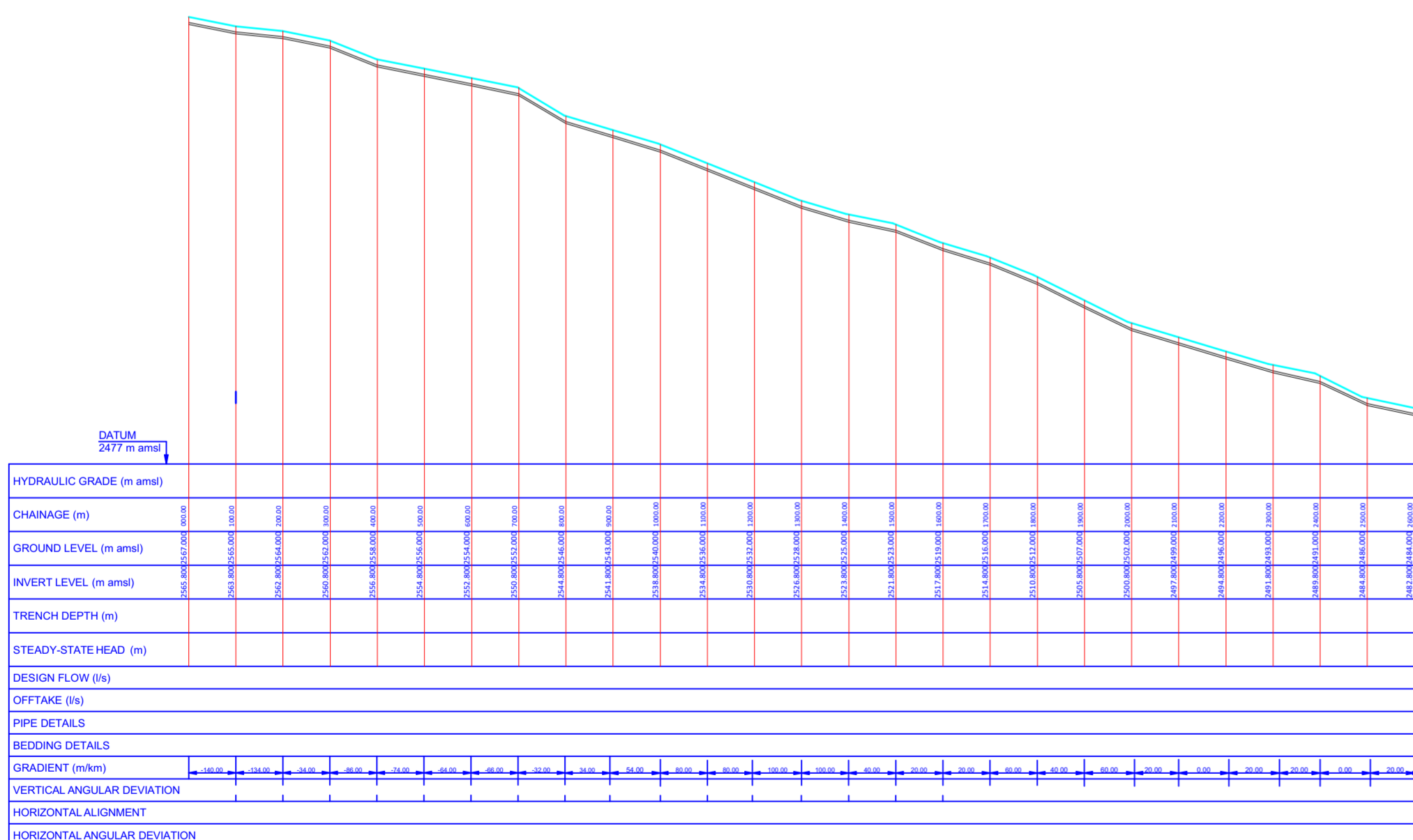
**PROPOSED IHINDU-KINUNGI WATER SUPPLY PROJECT**



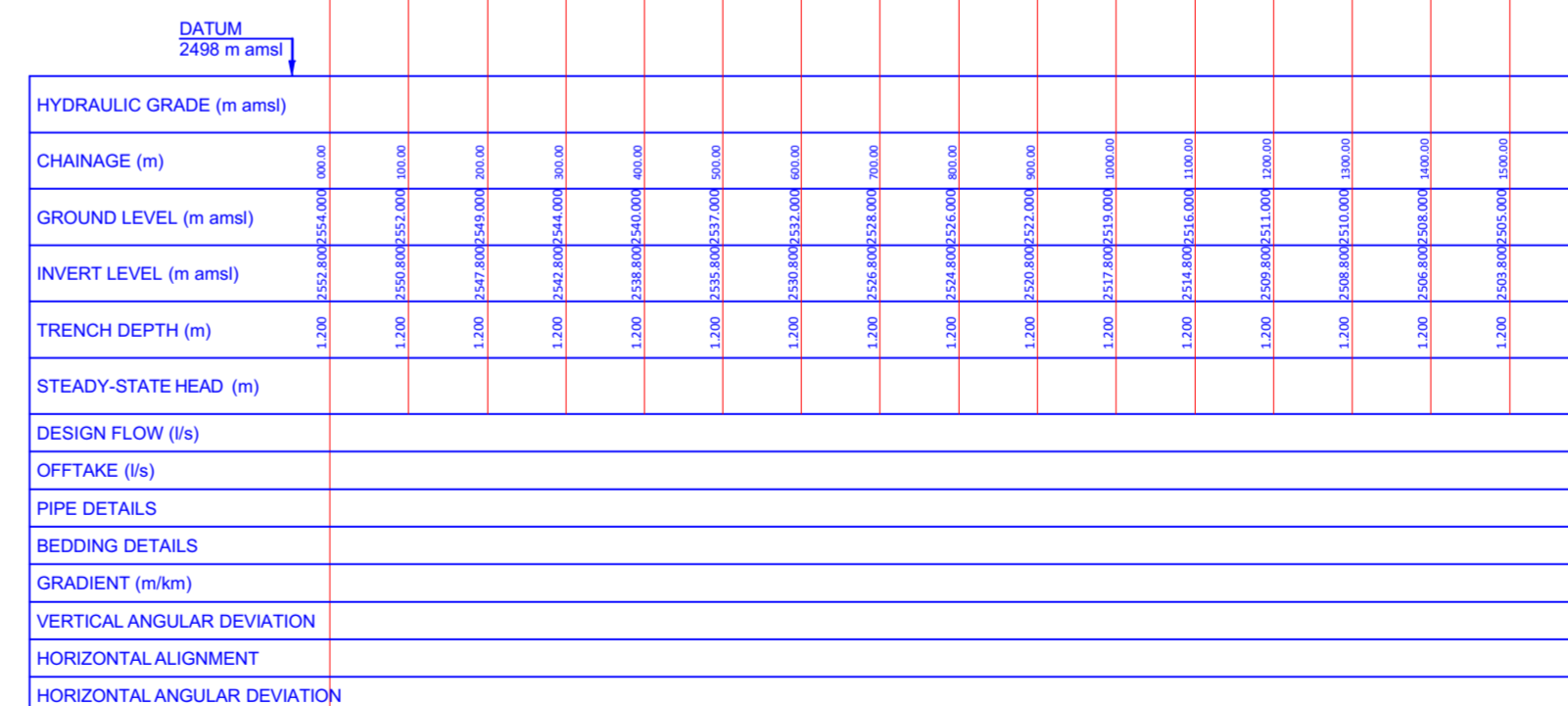
**LONGITUDINAL PROFILE 75mm line  
(5.12.35, 77-80)**



**LONGITUDINAL PROFILE 63mm line  
(72-76)**



**LONGITUDINAL PROFILE 63mm line  
(1-4)**



**LONGITUDINAL PROFILE 63mm line  
(39-45)**

**General Notes**

**NOTE**  
ALL DIMENSIONS ARE IN mm  
UNLESS OTHERWISE STATED

**ABBREVIATIONS**

- uPVC UnPlasticised Polyvinyl Chloride
- DIA Diameter
- HDPE HIGH Density Polythene Pipes
- GV Gave Valve

No.	Revision	Date

**Firm Name and Address**

**NAIVASHA WATER AND SANITATION COMPANY LIMITED**  
 P. O. Box 321  
 Naivasha Kenya  
 Email: naivashawater@gmail.com  
 Tel: 0705 877 770

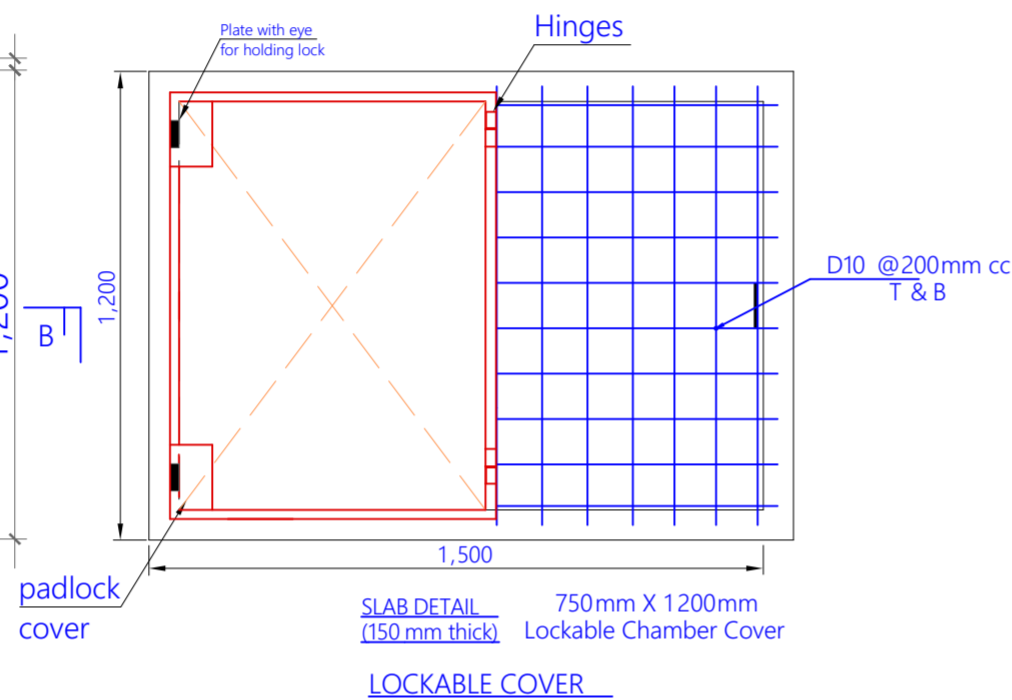
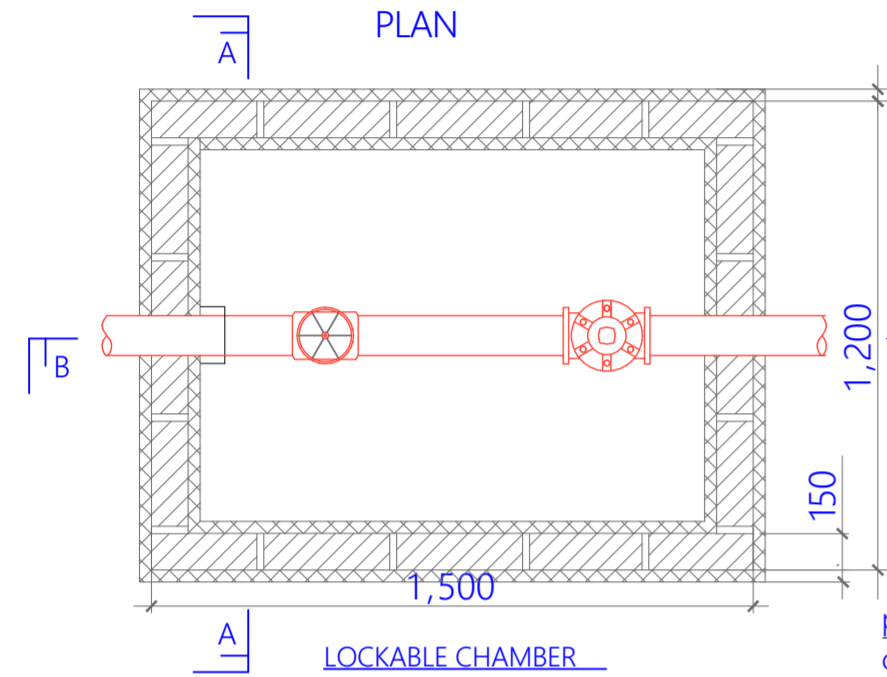
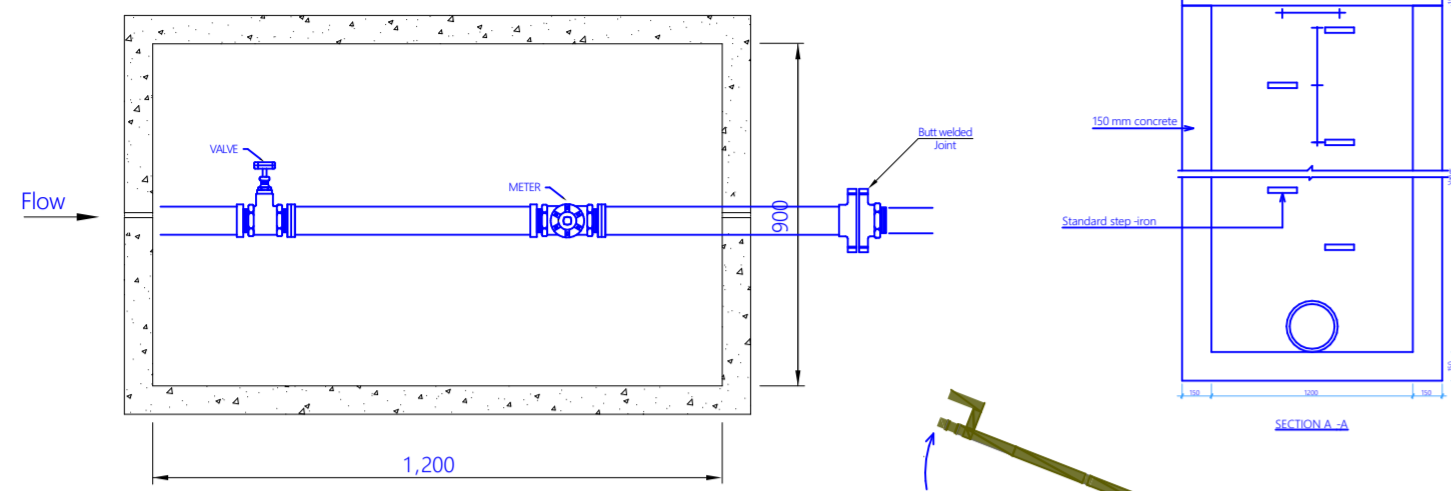
**Project Name and Address**  
 PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT

DWG/05/2023	Sheet : 05 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA



**PROPOSED IHINDU-KINUNGI WATER SUPPLY PROJECT**

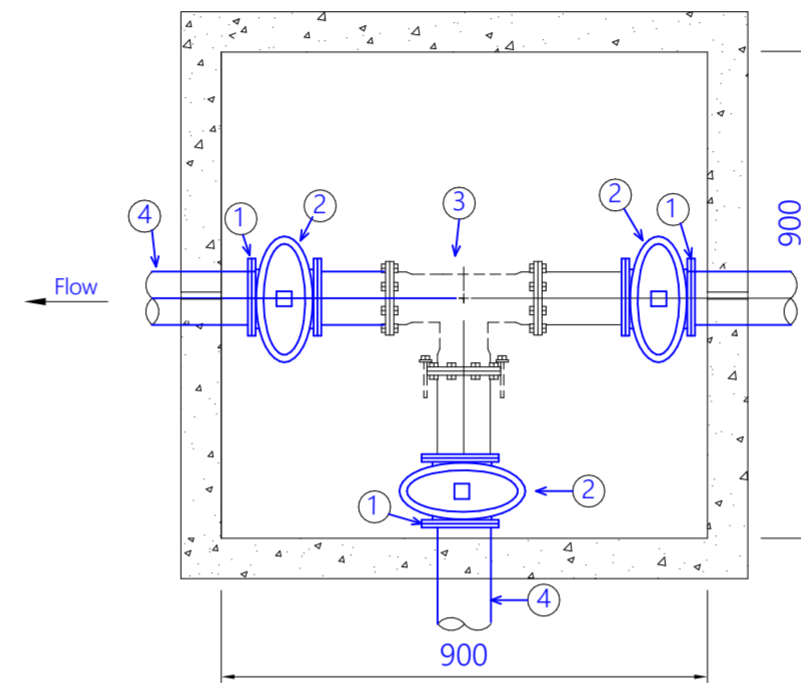
METER CHAMBER



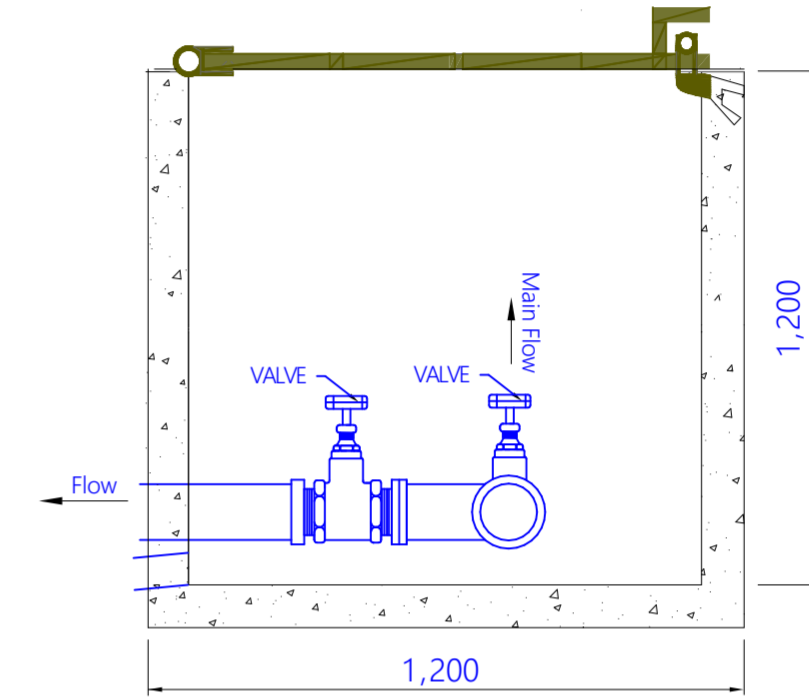
**WO**

SN.	SPECIFICATIONS	No.
①	HDPE Butt -fused Stub + Flange	3
②	Sluice Valve , AVK ype	3
③	Fabricated Steel Flanged Equal Tee	1
④	HDPE Pipe	

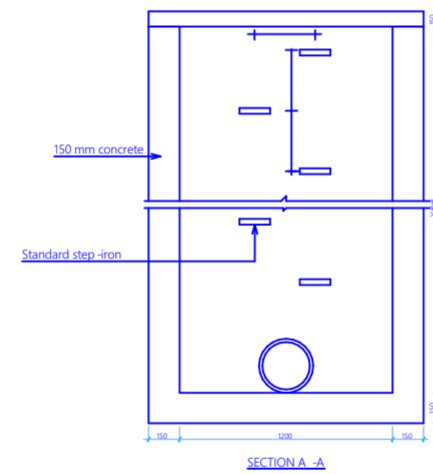
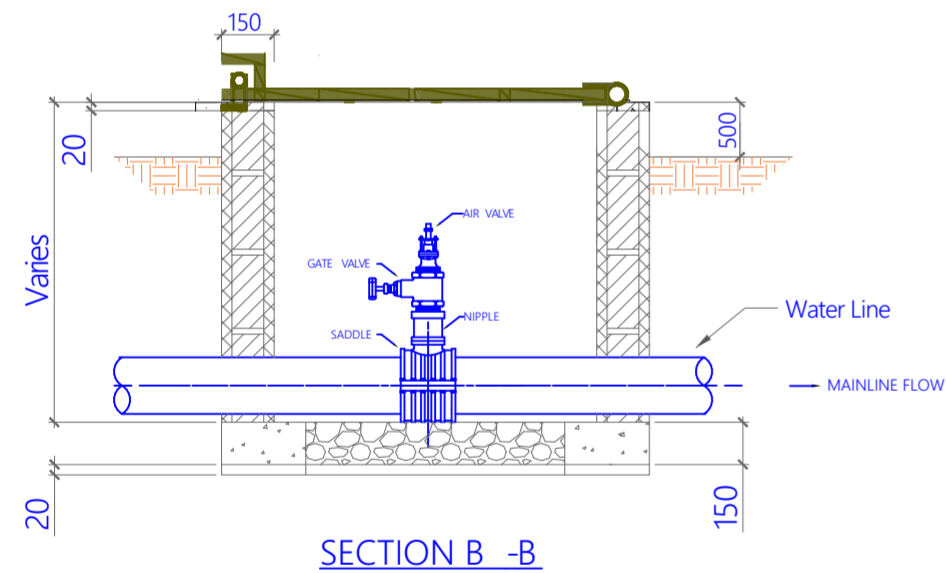
WASH OUT PLAN



WASH OUT SECTION



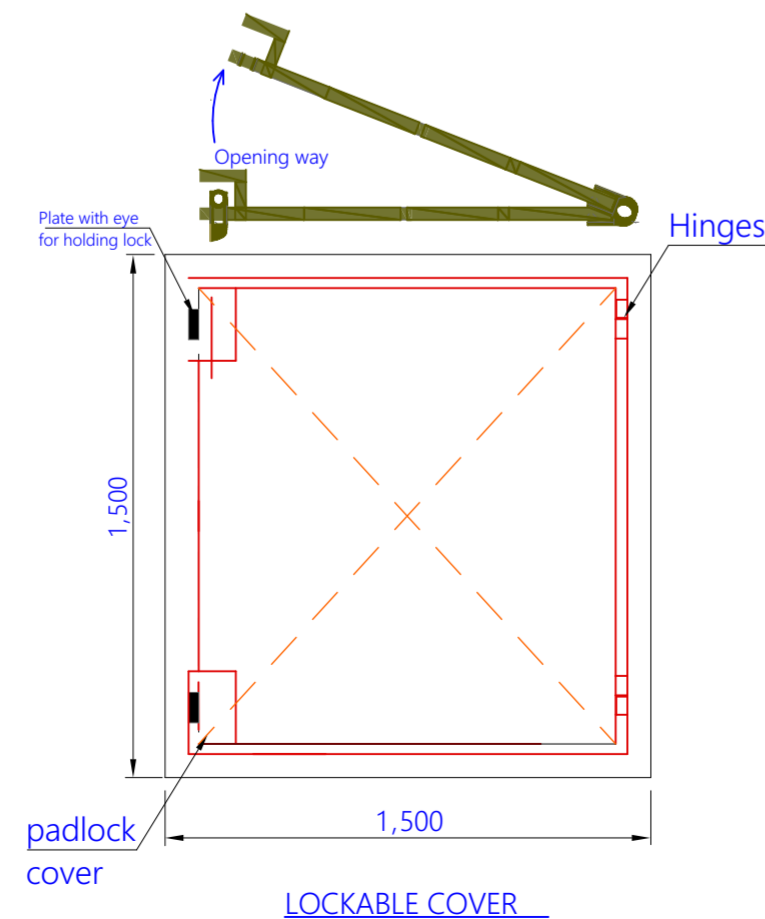
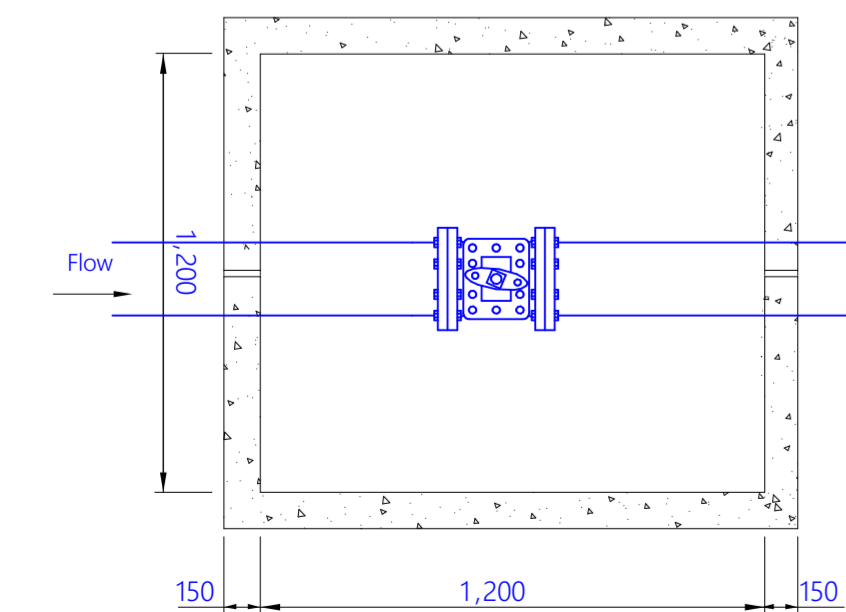
VALVE CHAMBER



**LEGEND**

- Concrete finishing
- Building Stones
- Blinding
- Packed Gravel
- Earth
- Reinforced Concrete

SN.	SPECIFICATIONS	No.
①	HPDE Saddle Clamp	1
②	G.I Hex Nipple	1
③	Peglar Gate Valve	1
④	A.R.I Air Valve	1



AIR VALVE CHAMBER

LOCKABLE COVER

General Notes

**NOTE**

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

**ABBREVIATIONS**

- uPVC UnPlasticised Polyvynyl Chloride
- DIA Diameter
- HDPE HIGH Density Polythene Pipes
- GV Gave Valve

No.	Revision	Date

**Firm Name and Address**



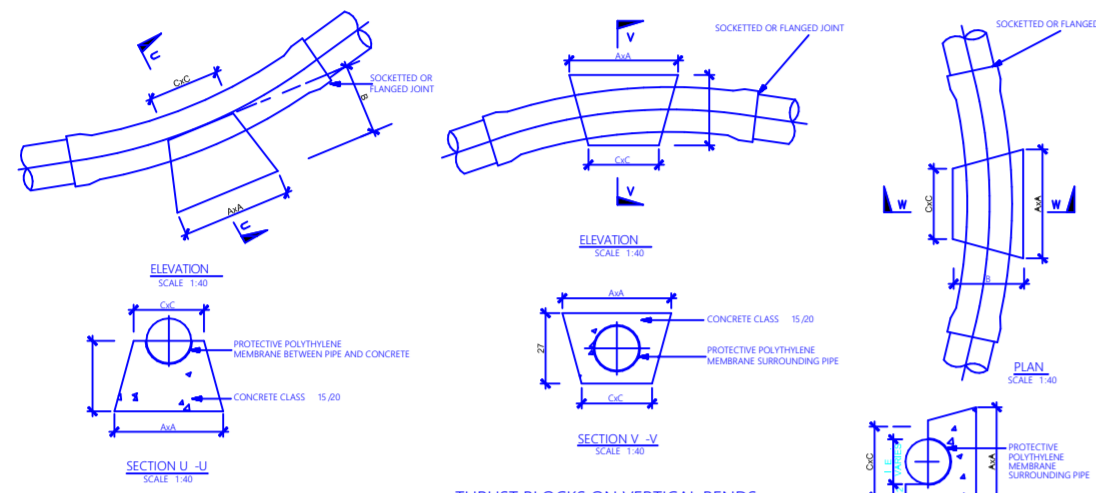
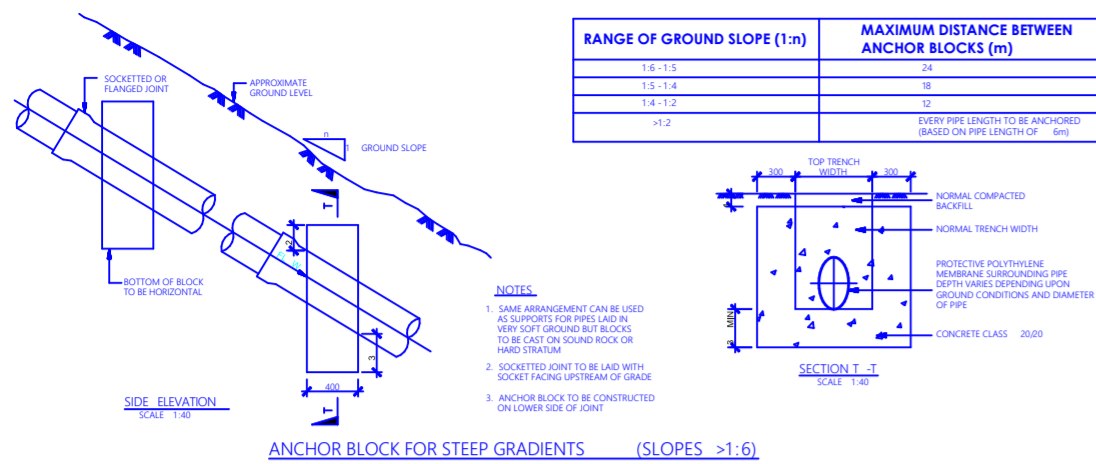
**NAIVASHA WATER, SEWERAGE & SANITATION COMPANY LTD.**  
 P. O. Box 321  
 Naivasha Kenya  
 Email: naivashawater@gmail.com  
 Tel: 0705 877 770

**Project Name and Address**  
 PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT

DWG/06/2023	Sheet : 06 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA

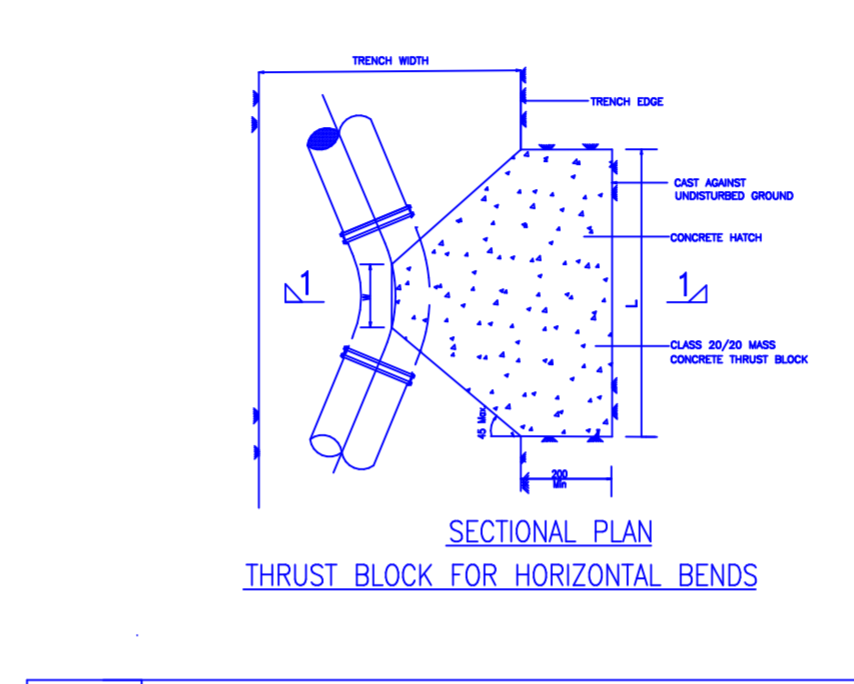
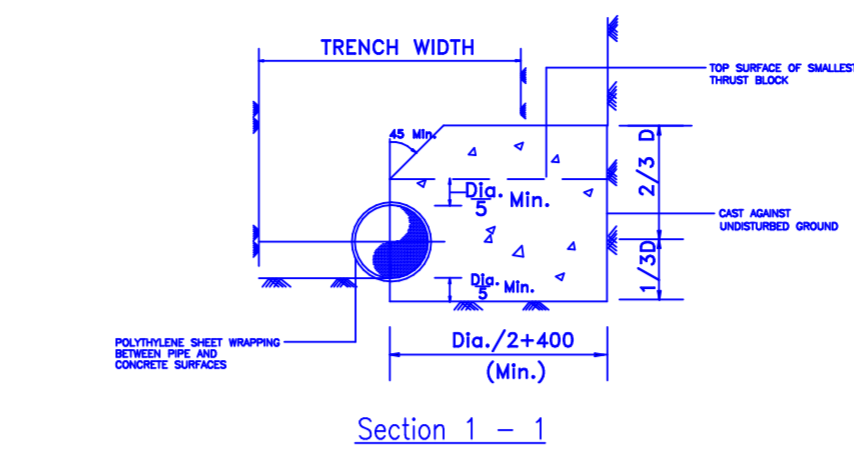
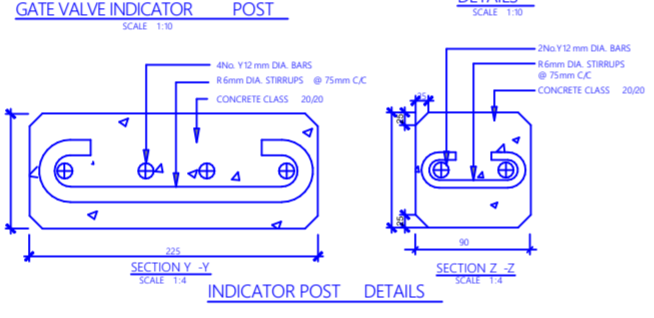
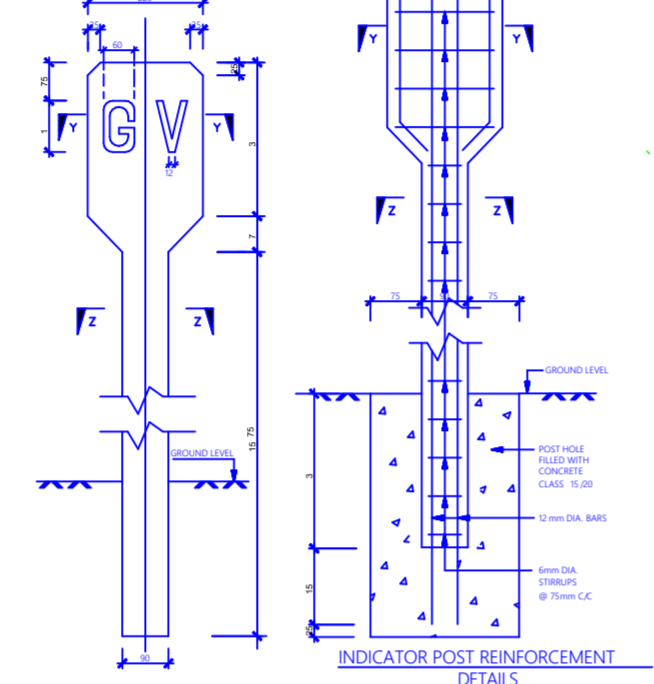
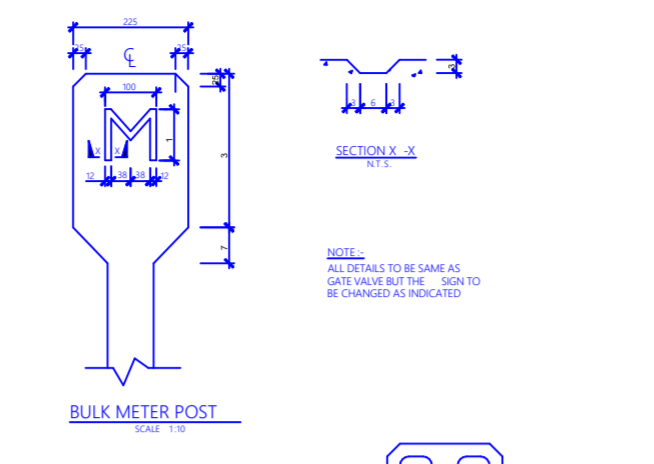


**PROPOSED IHINDU-KINUNGI WATER SUPPLY PROJECT**

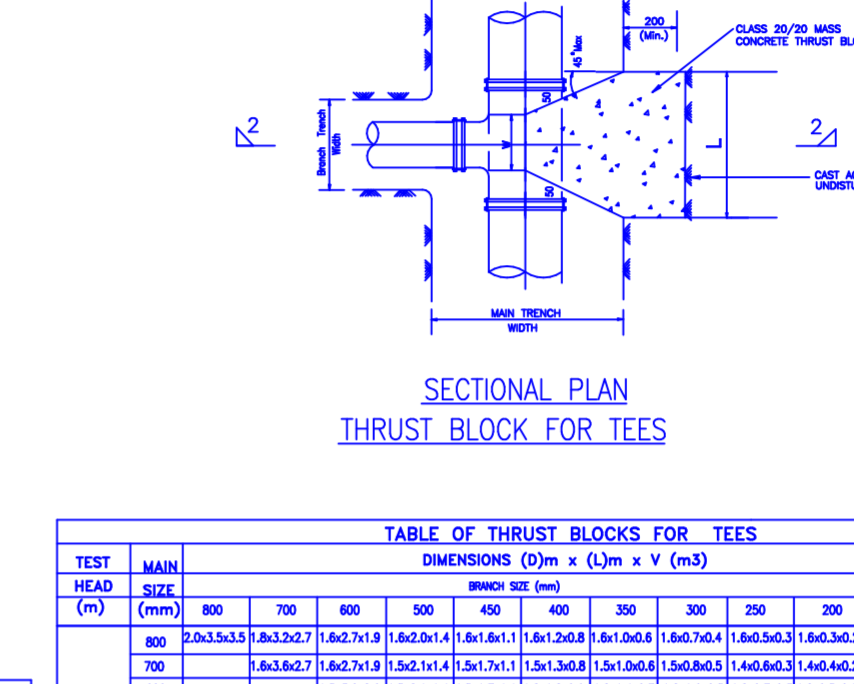
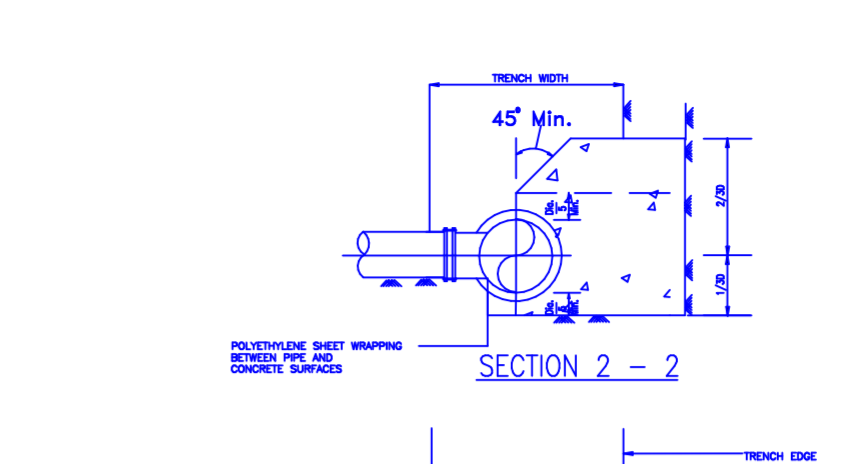


PIPE NOMINAL DIAMETER (mm)	90° BENDS	45° BENDS	CLAPPED ENDS	MITRE JOINTS
80	0.240x0.240	0.250x0.250	0.250x0.240	0.400x0.240
100	0.240x0.240	0.260x0.260	0.260x0.240	0.400x0.240
150	0.400x0.240	0.400x0.240	0.400x0.240	0.400x0.240
200	0.400x0.240	0.550x0.350	0.550x0.240	0.550x0.240
250	0.500x0.350	0.850x0.400	0.750x0.400	1.200x0.400
300	0.500x0.350	0.850x0.400	0.750x0.400	1.200x0.400
350	0.600x0.400	1.000x0.400	0.900x0.400	1.400x0.400
400	0.600x0.400	1.000x0.400	0.900x0.400	1.400x0.400
450	0.800x0.400	1.100x0.400	1.000x0.400	1.600x0.400
500	0.800x0.400	1.100x0.400	1.000x0.400	1.600x0.400
550	0.800x0.400	1.100x0.400	1.000x0.400	1.600x0.400
600	1.100x0.400	1.200x0.400	1.100x0.400	1.800x0.400

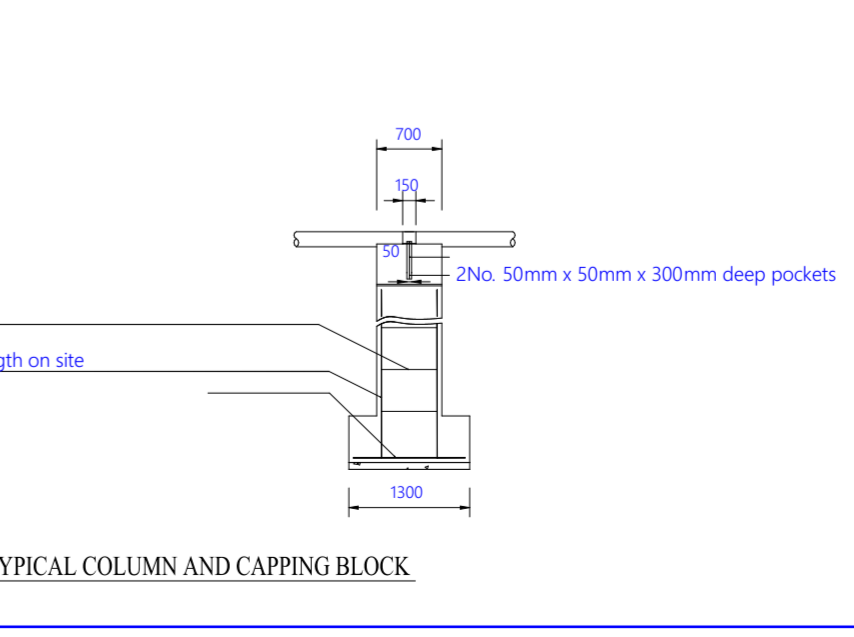
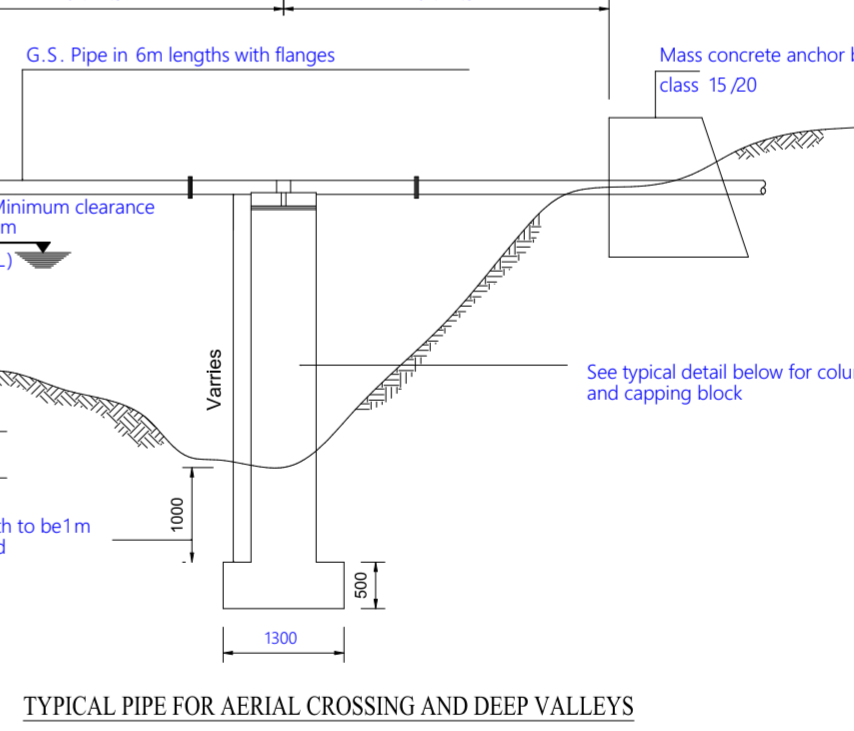
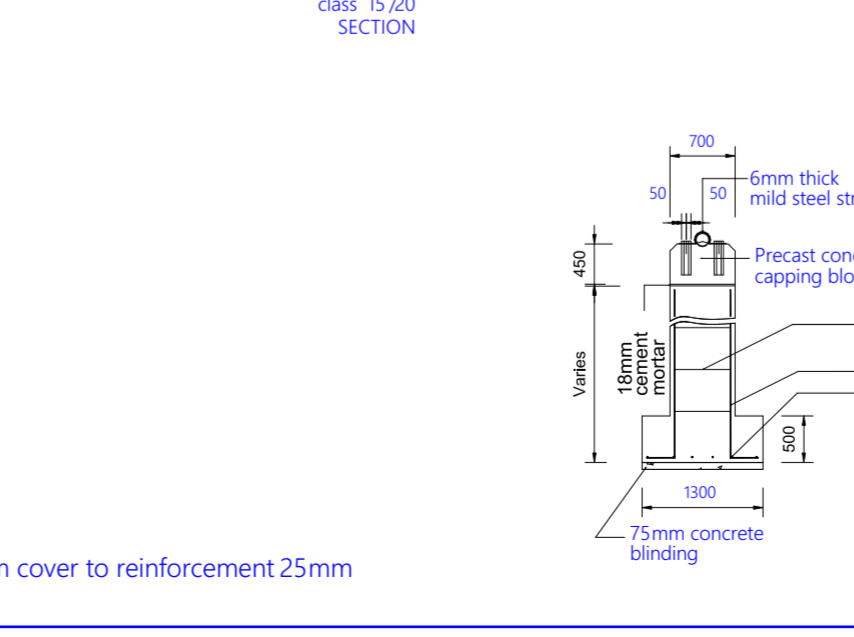
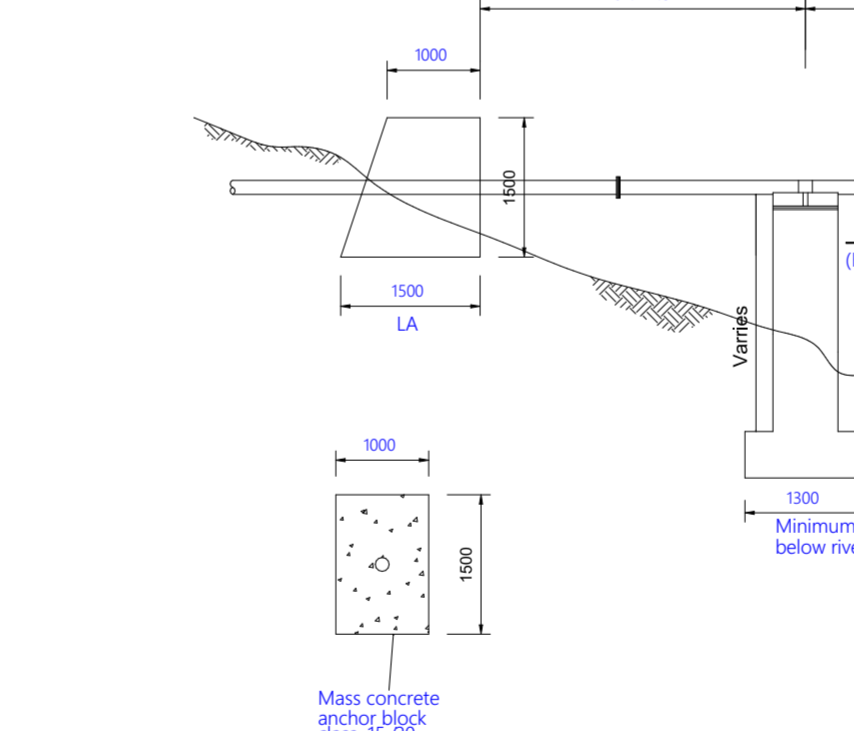
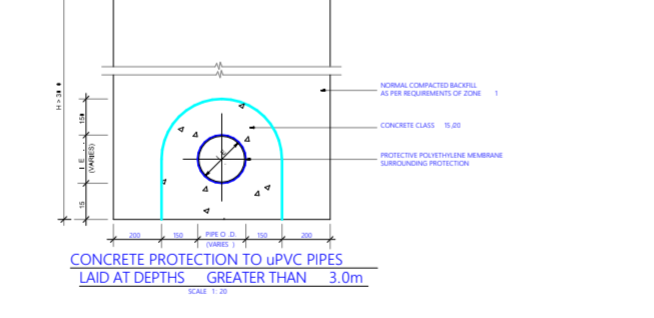
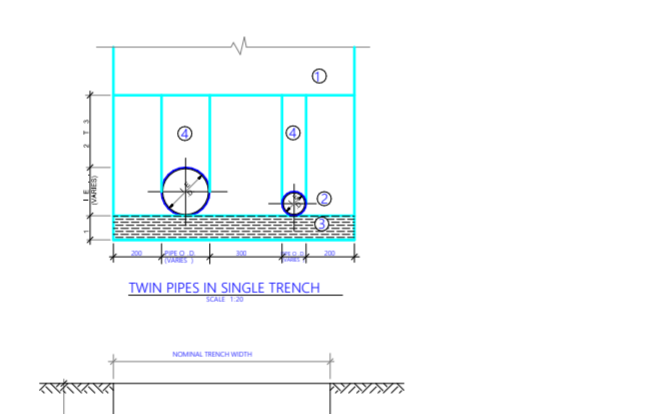
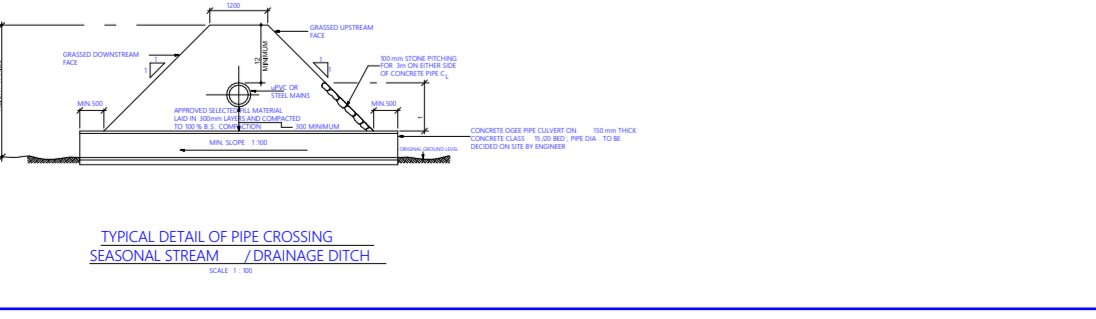
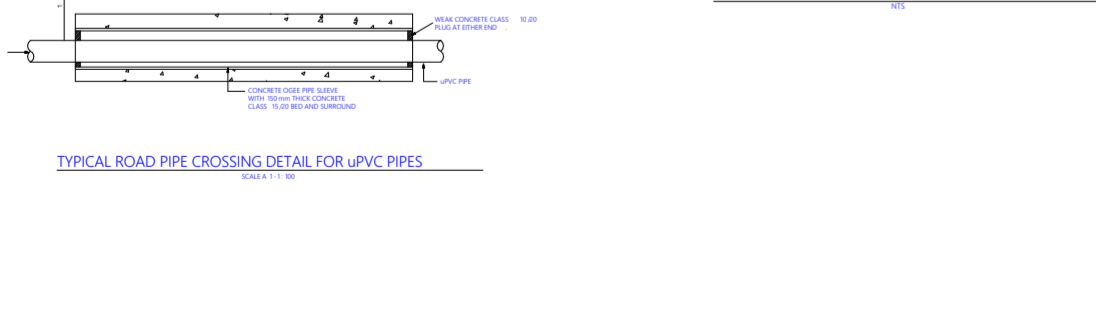
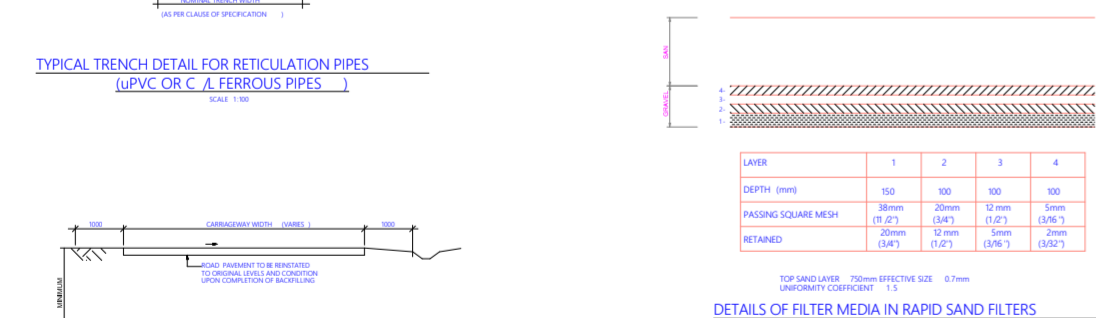
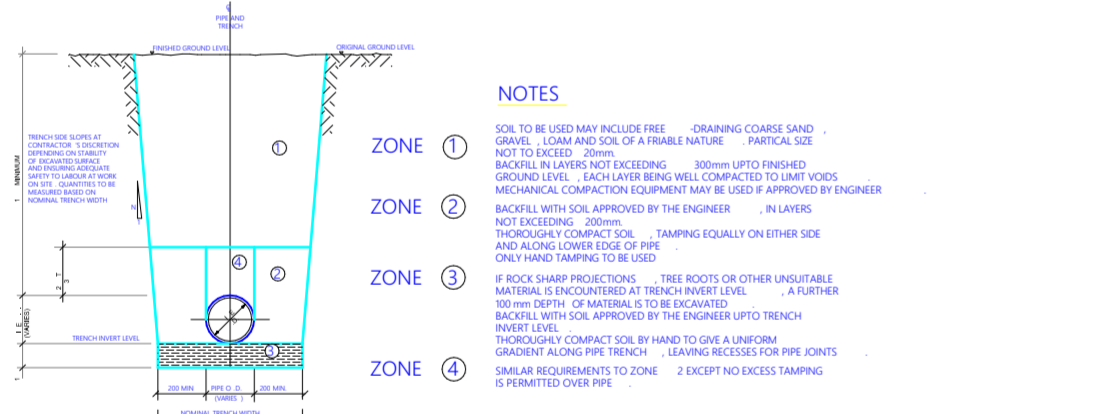
NOTE: THE ABOVE VALUES APPLY FOR SOCKETTED UPVC AND FLANGED OR COUPLED UNSTEEL PIPES SUBJECT TO WORKING PRESSURE HEAD OF 12 BAR.



TEST HEAD (m)	BEND	DIMENSIONS (D)m x (L)m x V(m)										
		800	700	600	500	450	400	350	300	250	200	150/100
100 SEE NOTE 6	1 1/2	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	2 1/2	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	3'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	4'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	6'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	8'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	10'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	12'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	14'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
	16'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030
18'	1.800x0.800	1.600x0.600	1.400x0.400	1.200x0.300	1.100x0.250	1.000x0.200	0.900x0.150	0.800x0.100	0.700x0.075	0.500x0.050	0.500x0.030	



TEST HEAD (m)	MAIN SIZE (mm)	DIMENSIONS (D)m x (L)m x V (m)										
		800	700	600	500	450	400	350	300	250	200	150/100
100 SEE NOTE 6	800	2.0x3.5x3.5	1.8x3.2x2.7	1.6x2.7x1.9	1.4x2.0x1.4	1.2x1.6x1.1	1.0x1.4x0.9	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2
	700	1.8x3.2x2.7	1.6x2.7x1.9	1.4x2.0x1.4	1.2x1.6x1.1	1.0x1.4x0.9	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1
	600	1.6x2.7x1.9	1.4x2.0x1.4	1.2x1.6x1.1	1.0x1.4x0.9	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1
	500	1.4x2.0x1.4	1.2x1.6x1.1	1.0x1.4x0.9	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0
	450	1.2x1.6x1.1	1.0x1.4x0.9	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0
	400	1.0x1.4x0.9	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0
	350	0.8x1.0x0.6	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0
	300	0.6x0.8x0.5	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0
	250	0.5x0.6x0.4	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0
	200	0.4x0.5x0.3	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0
150	0.3x0.4x0.2	0.2x0.3x0.1	0.1x0.2x0.1	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	0.0x0.0x0.0	



**General Notes**

**NOTE**  
ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

**ABBREVIATIONS**

- uPVC UnPlasticised Polyvinyl Chloride
- DIA Diameter
- HDPE HIGH Density Polythene Pipes
- GV Gave Valve

No.	Revision	Date

**Firm Name and Address**

**NAIVASHA WATER, SEWERAGE & SANITATION COMPANY LTD.**

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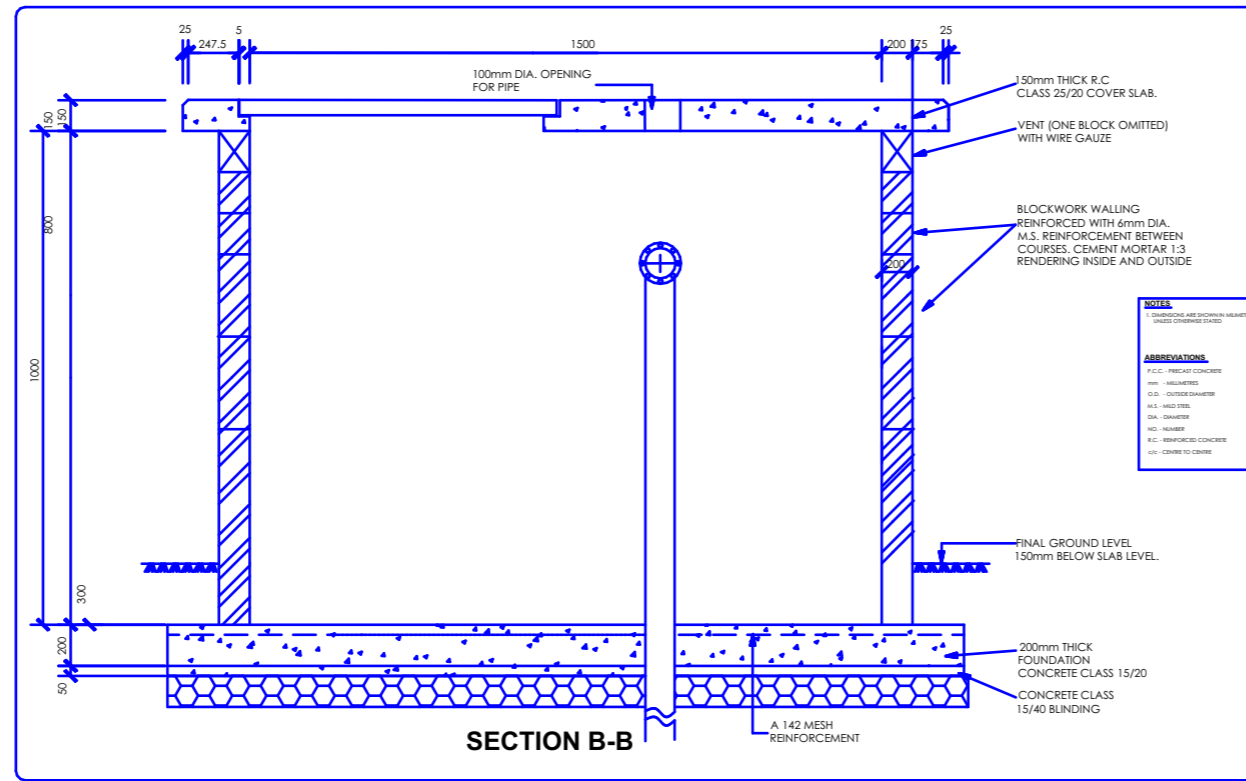
**Project Name and Address**

PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT

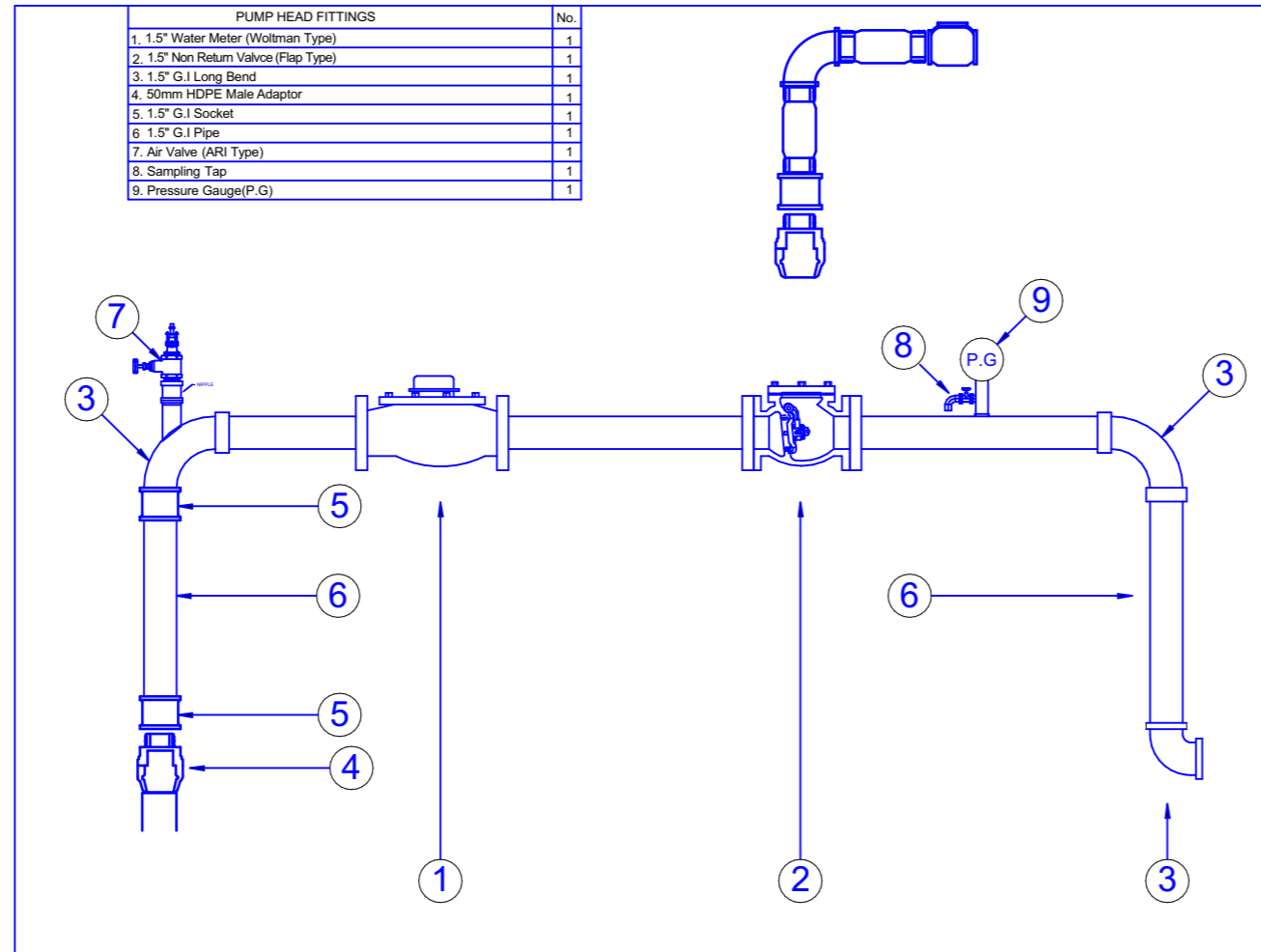
DWG/07/2023	Sheet : 07 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA

**NOTE**  
Minimum cover to reinforcement 25mm





BOREHOLE CHAMBER



General Notes

**NOTE**

ALL DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED

**ABBREVIATIONS**

- uPVC UnPlasticised Polyvinyl Chloride
- DIA Diameter
- HDPE HIGH Density Polythene Pipes
- GV Gate Valve

No.	Revision	Date

Firm Name and Address



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PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT

DWG/08/2023	Sheet : 08 of 09
PROJECT :	Drawn By : SAMSON
DATE : Jan, 2024	Checked By : F.MWAREMA
SCALE : 1:20	Revised By : F.MWAREMA



**NAIVAWASCO  
IHINDU-KINUNGI WATER SUPPLY PROJECT**

**75mm Line AIRVALVE CORDINATES**

Sn	Description	Co-ordinates in DD	
		X- Coordinates	Y- Coordinates
1	AV 1	-0.845960°	36.556540°
2	AV 2	-0.853431°	36.552884°

**63mm Line AIRVALVE CORDINATES**

Sn	Description	Co-ordinates in DD	
		X- Coordinates	Y- Coordinates
1	AV 1	-0.842158°	36.552529°
2	AV 2	-0.834954°	36.548784°

**Project Name and Address**

PROPOSED IHINDU KINUNGI WATER SUPPLY PROJECT

DWG/09/2023

Sheet : 09 of 09

PROJECT :

Drawn By : SAMSON

DATE : Jan, 2024

Checked By : F.MWAREMA

SCALE : 1:20

Revised By : F.MWAREMA