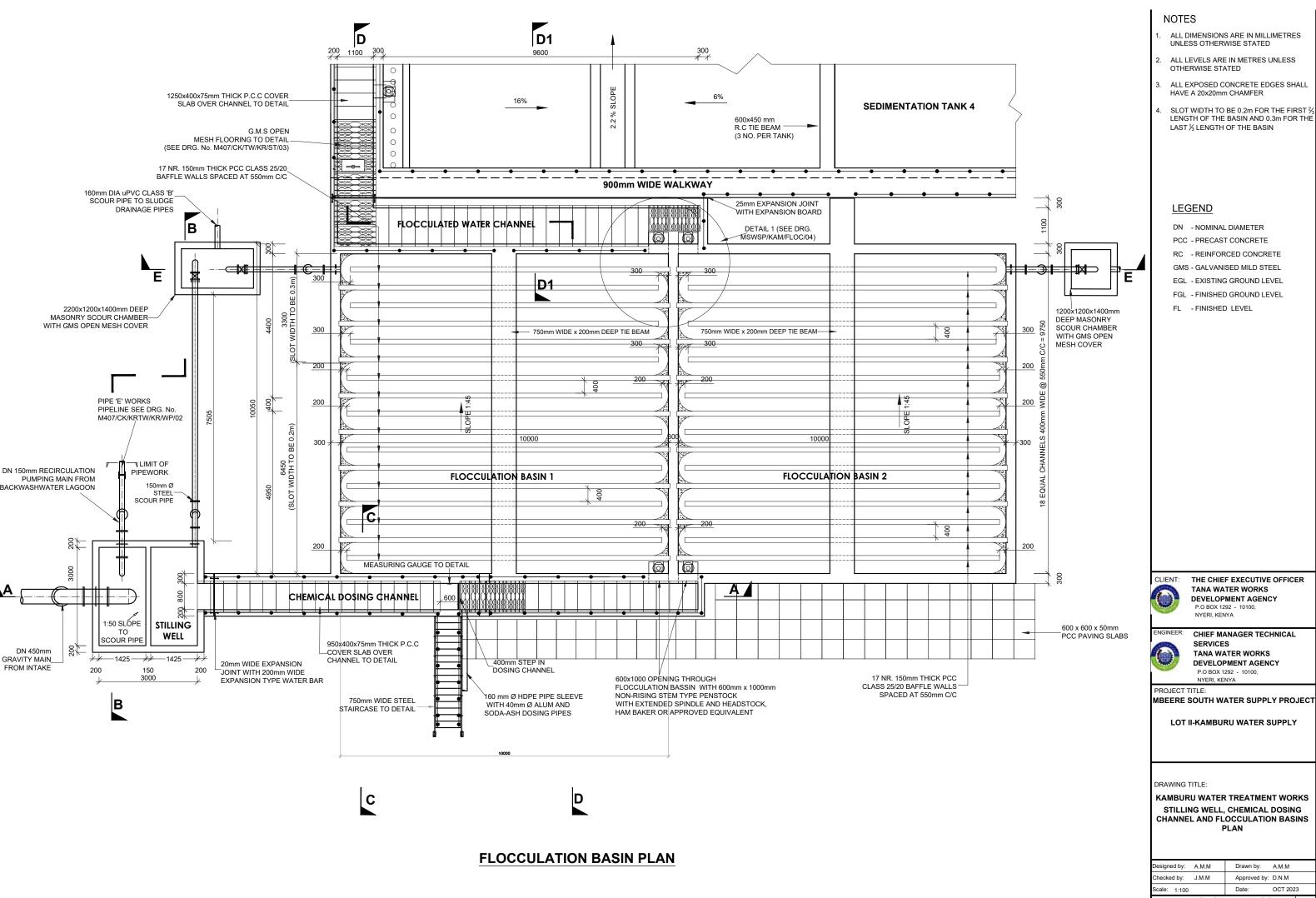
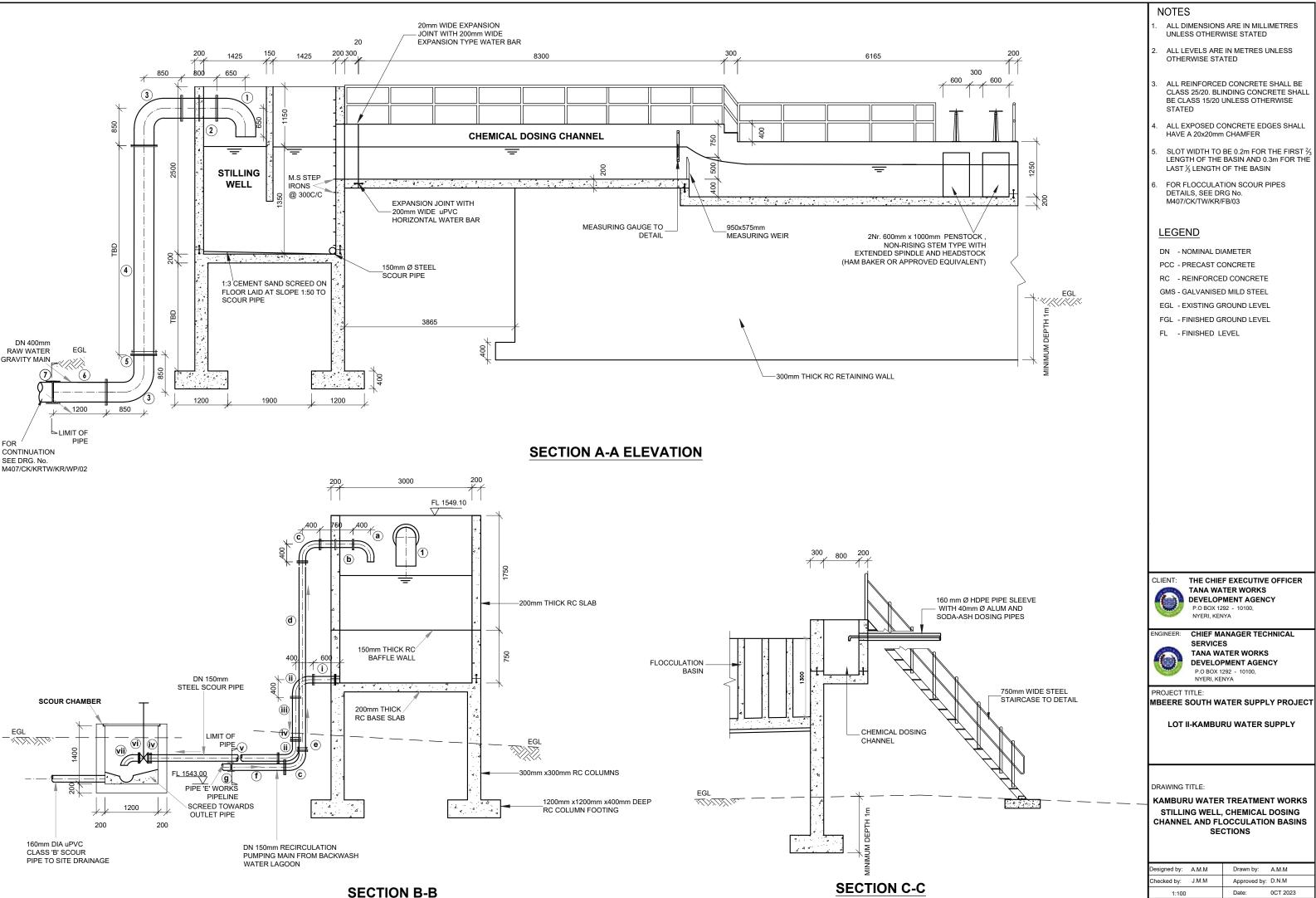


				S ARE BASED ON UTM ERS INTERVAL	
			IBUTION S	ORK, CHAMBERS AND DOM YSTEM SEE DRG No.	ESTIC
		LEGEND:			
		EXISTING FEA		G STRUCTURES	
				G EARTH ROAD	
			ELECTRI	IC FENCE IRS, AMSL 1m INTERVAL	
		0	POWER		
		PROPOSED FE	ATURES	<u>::</u>	
			GATE		
			STRUCT	URES	
			PRECAS	T CONCRETE PAVING SLAB	s
			CABRO F	PAVING ON ROAD	
		►	- RAW W	ATER GRAVITY MAIN	
		_·- > _··-	- TREATE	D WATER GRAVITY MAIN	
		│ - ►►	RECIRCU	JLATIONN WATER G MAIN	
			AIRWAS	H PIPEWORK	
		_►	SCOUR/I	DRAINAGE PIPES	
			EARTH /	IBD DRAINS	
		x	CHAINLI	NK FENCE / HEDGE	
			VALVE /	DRAINAGE CHAMBER	
			INSPECT	TION CHAMBER	
		R6	ROAD TU	JRNING RADIUS	
)(OGEE CO	ONCRETE CULVERT WITH	
		Ē	uPVC SE	PTIC TANK	
		Ϋ́.	SOAK PI	т	
				F EXECUTIVE OFFICE TER WORKS	R
				MENT AGENCY 2 - 10100,	
		NY NY	ERI, KENY	Ϋ́Α	
			CHIEF M		-
		T	ANA W	ATER WORKS	
				PMENT AGENCY 1292 - 10100,	
		PROJECT TITLE	NYERI, KE	ENYA	
(TH WA	TER SUPPLY PROJ	FCT
				U WATER SUPPLY	_0.
		DRAWING TITLE:			_
/			-		т
_/		CAP/		DRKS 10,000m³/day	
				OUT PLAN	
		-		ENT UNITS	
		Designed by: A.M		Drawn by: A.M.M	
		Checked by: J.M Scale: 1:400	1.M	Approved by: D.N.M Date: NOV 2023	3
	\int	DRG No.	ĸws	P/SLP/01	-
	1			- •	

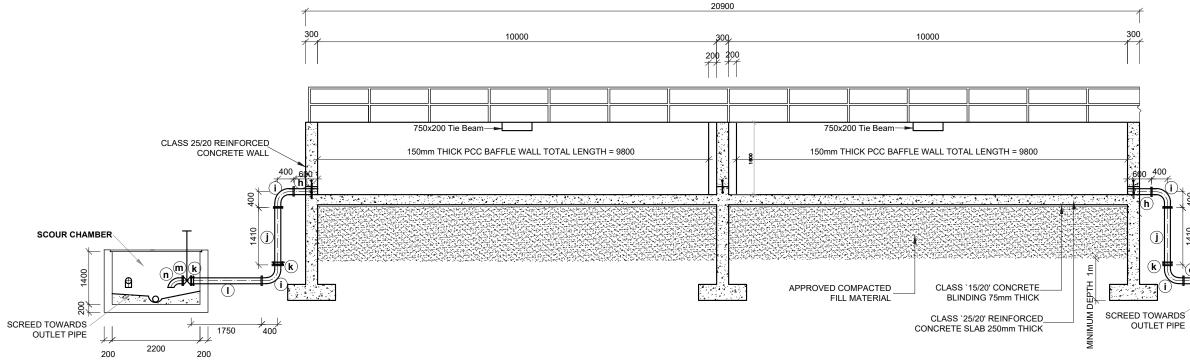


MSWSP/KAM/FLOC/01 DRG No.

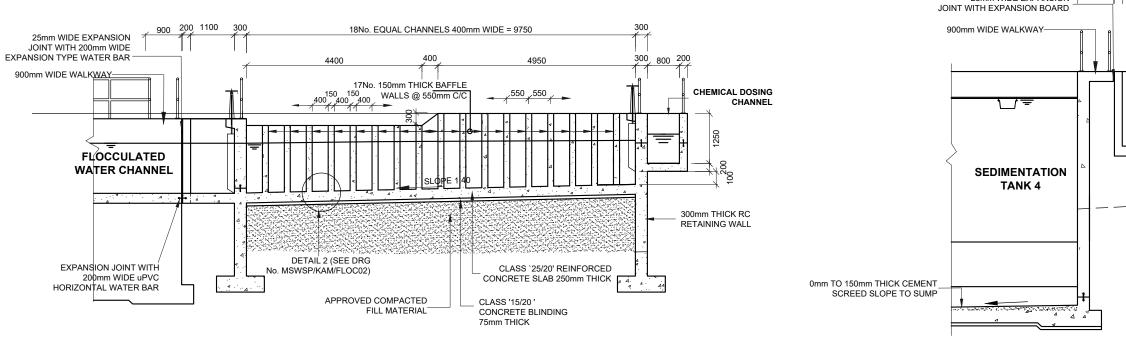


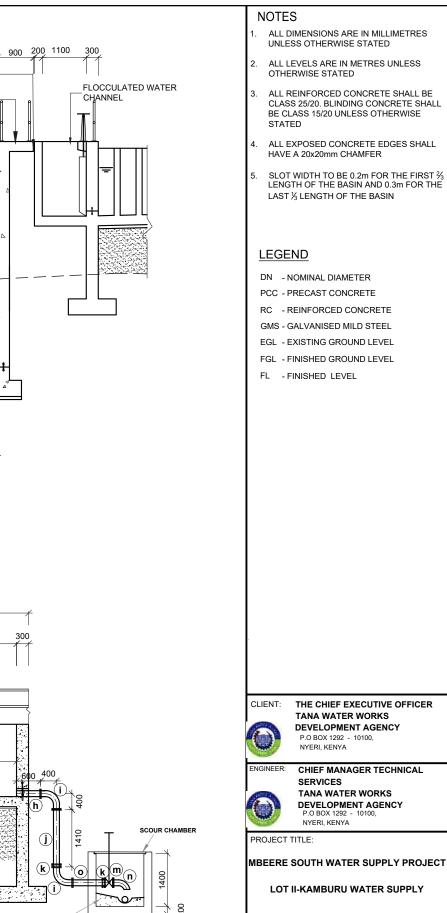
DRG No. MSWSP/KAM/FLOC/02

SECTION E-E



SECTION D-D





25mm WIDE EXPANSION

SECTION D1-D1

DRAWING TITLE:

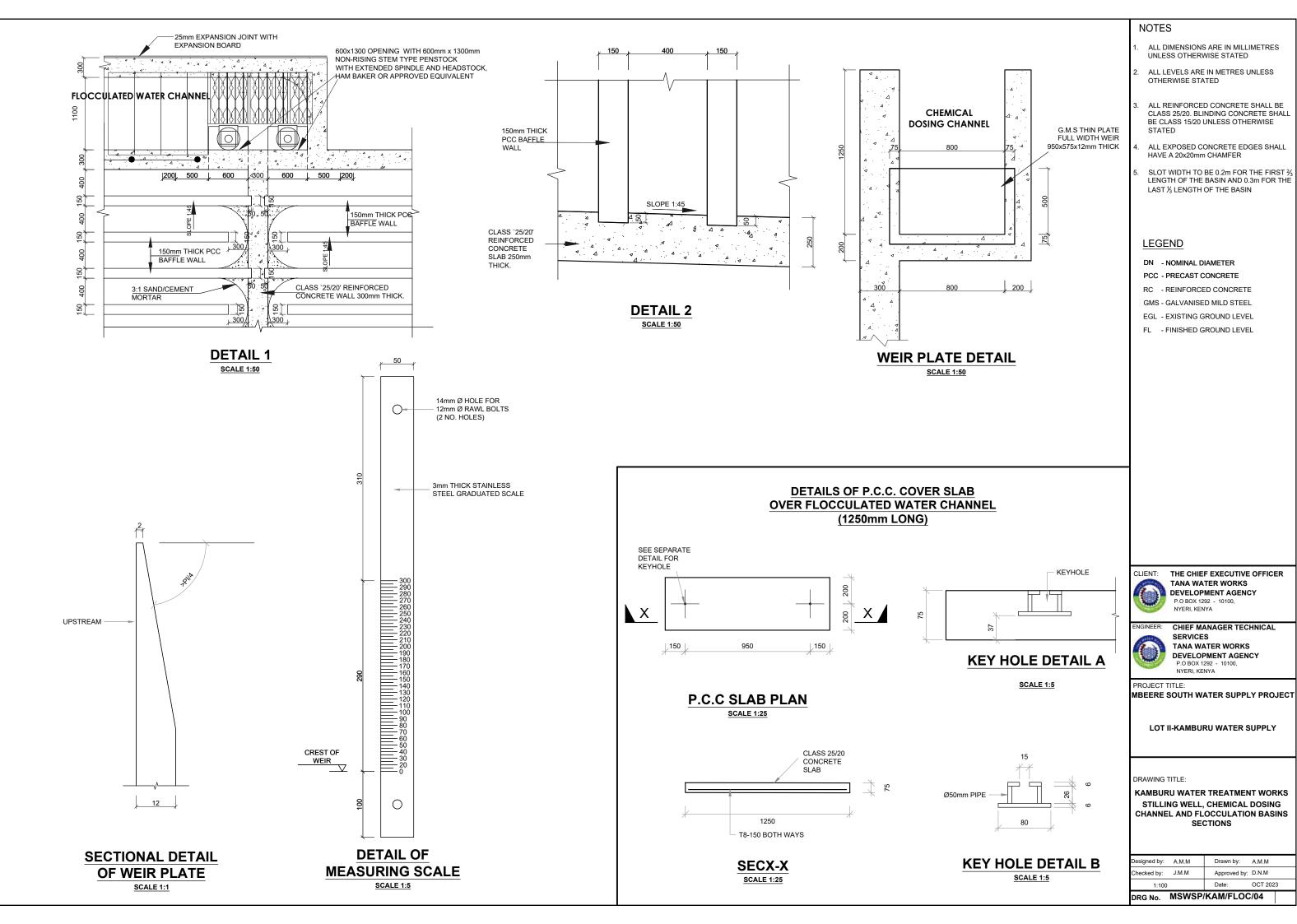
1200

200

200

KAMBURU WATER TREATMENT WORKS STILLING WELL, CHEMICAL DOSING CHANNEL AND FLOCCULATION BASINS PLAN

Designed by: A.M.M	Drawn by: A.M.M			
Checked by: J.M.M	Approved by: D.N.M			
1:100	Date: OCT 2023			
DRG No. MSWSP/KAM/FLOC/03				



RAW WATER GRAVITY MAIN PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES)

				<u></u>
ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (Nr.)
1	FLANGED SPIGOT 90° BEND	650 450Ø	650	1
2	DOUBLE FLANGED PIPE WITH PUDDLE FLANGE AT 400 FROM FLANGE END	450	800	1
3	ALL FLANGED 90° BEND	850 450Ø 450Ø	850 850	2
4	FLANGED SPIGOT PIPE (CUT TO SUIT ON SITE)	450	4500	1
5	FLANGE ADAPTOR	450	-	1
٢	FLANGE SPIGOT PIPE	450	1200	1
7	COUPLING	450	-	1

RECIRCULATION PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES)

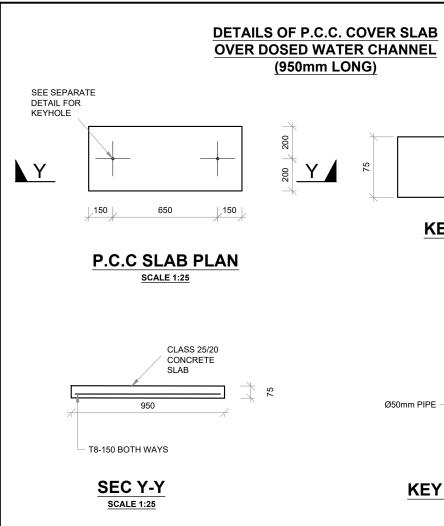
				/
ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (Nr.)
0	FLANGED SPIGOT 90° BEND	400 150Ø 150Ø	400 400	1
6	DOUBLE FLANGED PIPE WITH PUDDLE FLANGE AT 400 FROM FLANGE END	150	800	1
C	ALL FLANGED 90° BEND	400 150Ø	I ↓ 004 K	2
đ	FLANGED SPIGOT PIPE (CUT TO SUIT ON SITE)	150	4200	1
e	FLANGE ADAPTOR	150	-	1
ſ	FLANGED SPIGOT PIPE	150	1200	1
9	COUPLING	150	-	1

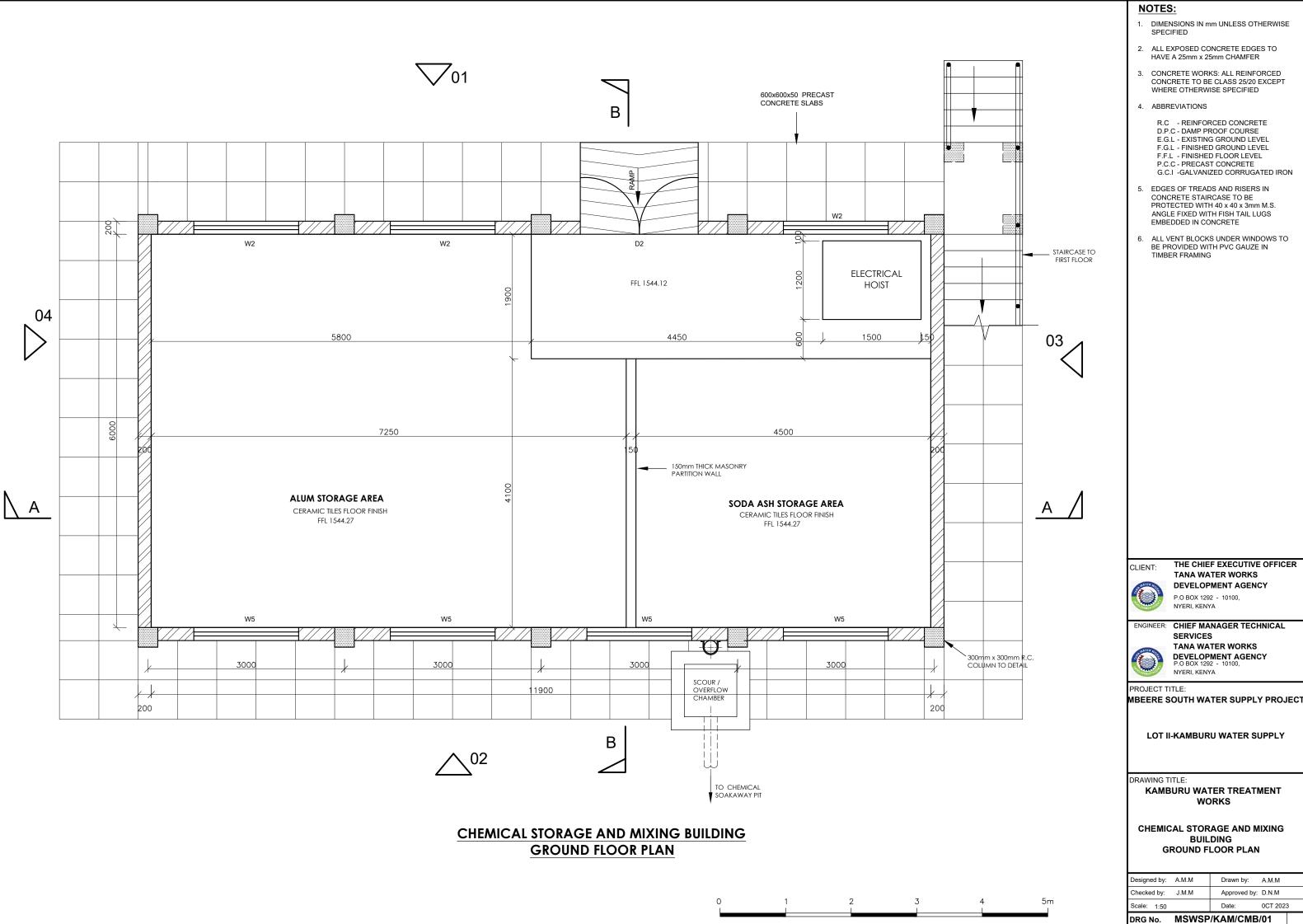
		NOTES					
5		1. ALL DIMENSIO UNLESS OTHE	NS ARE IN MILLIMETRES RWISE STATED				
SCHEDULE (APPROVED LINED FERROUS PIPES)						2. ALL LEVELS AF OTHERWISE S	RE IN METRES UNLESS TATED
и No.	DESCRIPTION		NGTH nm)	QUANTITY (Nr.)		3. ALL REINFORC	ED CONCRETE SHALL BE
i)	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 100m FROM SPIGOT END		600	1		BE CLASS 15/2 STATED	LINDING CONCRETE SHALL DUNLESS OTHERWISE
i)	ALL FLANGED 90° BEND	400 150Ø	400	2		4. ALL EXPOSED HAVE A 20x20n	CONCRETE EDGES SHALL Im CHAMFER
D	FLANGED SPIGOT PIPE (CUT TO SUIT)	150 9	950	1			
iv)	FLANGE ADAPTOR	150	-	2			
$\overline{\mathbb{V}}$	FLANGED SPIGOT PIPE (CUT TO SUIT)	150 6	745	1		<u>LEGEND</u>	
vi)	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, 1.2m LONG (SHORT FACE)		210	1	-	DN - NOMINAL PCC - PRECAST	
71)	SPECIAL FLANGED SPIGOT 90° BEND WITH PLAIN END BEVELED	300 1500 1500	002	1		RC - REINFOR	
R DC	ILS OF P.C.C. COVER SLAB 2 DOSED WATER CHANNEL (950mm LONG)						EF EXECUTIVE OFFICER
	12 12 500 500	37		<u>*</u>	~	TANA W DEVELO P.O BOX NYERI, KI	ATER WORKS PMENT AGENCY 1292 - 10100, ENYA
		<u>KEY HC</u>	DLE SCALE			PROJECT TITLE:	NATER WORKS OPMENT AGENCY X 1292 - 10100,
		1:	5			LOT II-KAMB	URU WATER SUPPLY
75	Ø50m		+	6 6		STILLING WEL	ER TREATMENT WORKS L, CHEMICAL DOSING FLOCCULATION BASINS ECTIONS
			E DE	ETAIL I	3	Designed by: A.M.M	Drawn by: A.M.M
			ALE 1:5		_	Checked by: J.M.M SCALE: 1:500	Approved by: D.N.M Date: OCT 2023
						DRG No. MSWS	P/KAM/FLOC/04

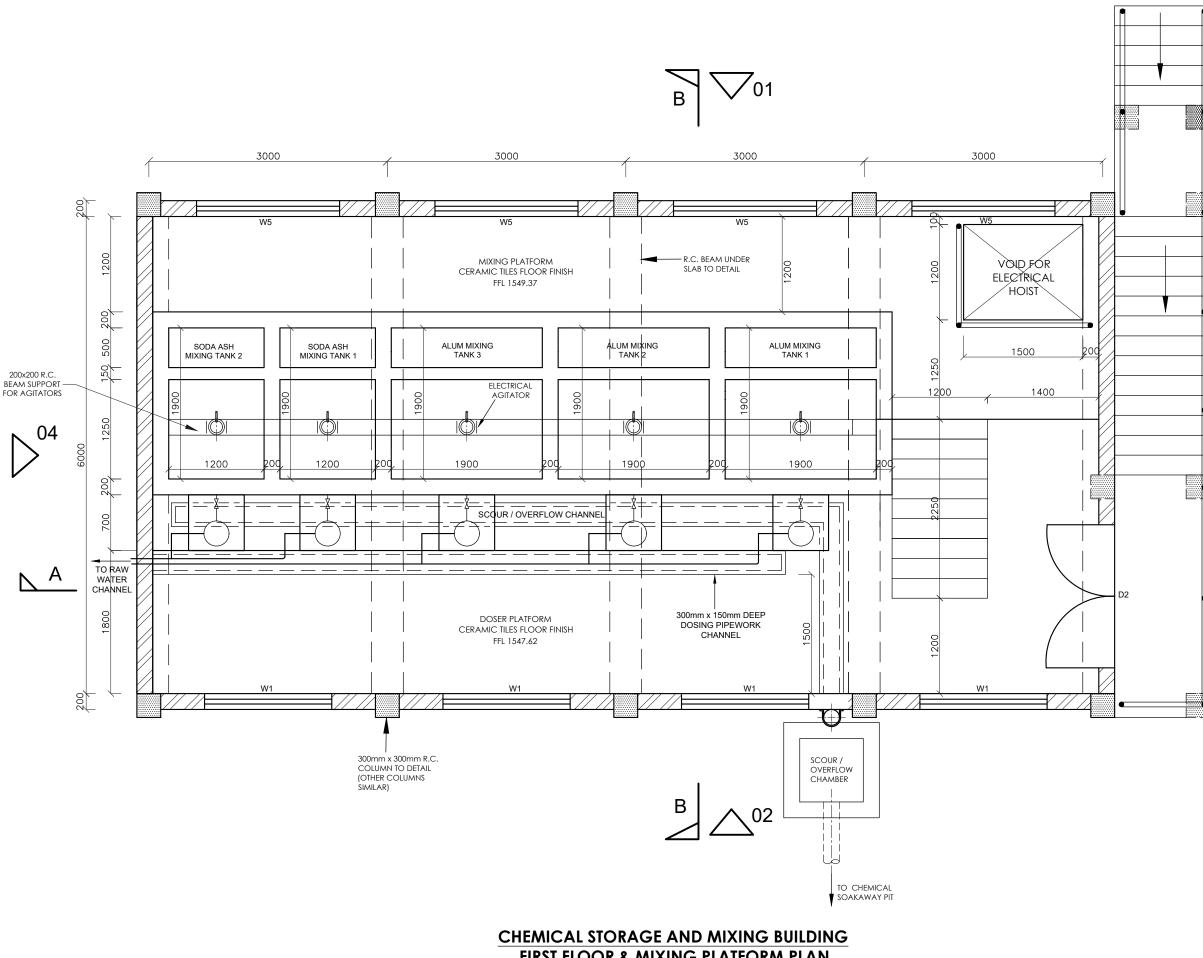
5	STILLING BASIN		EWORK	<u><</u>	1. ALL DIMENSIONS UNLESS OTHERV	S ARE IN MILLIMETRES VISE STATED
Ű	APPROVED LINE	EDULE D FERROU	2. ALL LEVELS ARE OTHERWISE STA			
EM No.	DESCRIPTION	DIA.	LENGTH	QUANTITY		
()	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE A 100m FROM SPIGOT END	(mm) T 150	(mm) 600	(Nr.) 1	CLASS 25/20. BLI	D CONCRETE SHALL BE NDING CONCRETE SHALI JNLESS OTHERWISE
(i)	ALL FLANGED 90° BEND	400 150Ø	* 8	2	4. ALL EXPOSED CO HAVE A 20x20mm	ONCRETE EDGES SHALL CHAMFER
(ii)	FLANGED SPIGOT PIPE (CUT TO SUIT)	150Ø - 150	<u>1</u> <u>→</u> ⁴ 950	1		
(iv)	FLANGE ADAPTOR	150	-	2		
\odot	FLANGED SPIGOT PIPE (CUT TO SUIT)	150	6745	1	LEGEND	
(vi)	ALL FLANGED GATE VALV WITH EXTENSION SPINDL 1.2m LONG (SHORT FACE	E, 150	210	1	DN - NOMINAL D PCC - PRECAST C	
(vii)	SPECIAL FLANGED SPIGC 90° BEND WITH PLAIN EN BEVELED		⊀ ┓╲╺	1	RC - REINFORCE	ED CONCRETE
R DC	OF P.C.C. COVE DSED WATER CH (950mm LONG)			- KEYHOLE		
R DC	DSED WATER CH			KEYHOLE	TANA WA	
R DC	OSED WATER CH (950mm LONG)			KEYHOLE	ENGINEER: CHIEF M.	TER WORKS MENT AGENCY 92 - 10100, YA ANAGER TECHNICAL
R DC	OSED WATER CH (950mm LONG)	IANNEL	HOLE	DETAIL	 ENGINEER: CHIEF M. SERVICE TANA WA DEVELOP P.0 BOX 12 NYERI, KEN SERVICE TANA WA DEVELOP	TER WORKS MENT AGENCY 32 - 10100, YA ANAGER TECHNICAL SS ATER WORKS PMENT AGENCY 1292 - 10100,
r dc	OSED WATER CH (950mm LONG)	IANNEL		DETAIL	 ENGINEER: POBOX 12 NYERI, KEN ENGINEER: CHIEF M. SERVICE TANA W. DEVELOD P.0 BOX 12 NYERI, KEN CHIEF M. SERVICE TANA W. DEVELOD P.0 BOX 12 NYERI, KEN	TER WORKS MENT AGENCY 92 - 10100, YA ANAGER TECHNICAL IS ATER WORKS PMENT AGENCY 292 - 10100, INYA
r dc	OSED WATER CH (950mm LONG)	IANNEL	<u>SCALE</u>	DETAIL	 ENGINEER: CHIEF M. SERVICE TANA WA DEVELOP P.0 BOX 12 NYERI, KEN SERVICE TANA WA SERVICE TANA WA DEVELOP P.0 BOX 12 NYERI, KEN SERVICE TANA WA SERVICE TANA WA	TER WORKS MENT AGENCY 92 - 10100, YA ANAGER TECHNICAL IS ATER WORKS PMENT AGENCY 292 - 10100, INYA
R DC	DSED WATER CH (950mm LONG)	IANNEL		DETAIL	 TANA WA DEVELOP P.O BOX 12 NYERI, KEN ENGINEER: CHIEF M. SERVICE TANA W. DEVELO P.O BOX 1 NYERI, KE PROJECT TITLE: MBEERE SOUTH W LOT II-KAMBU DRAWING TITLE: KAMBURU WATEF STILLING WELL CHANNEL AND FL	TER WORKS MENT AGENCY 32 - 10100, YA ANAGER TECHNICAL IS ATER WORKS PMENT AGENCY 292 - 10100, INYA ATER SUPPLY PROJE
	DSED WATER CH (950mm LONG)		15 *** 80	DETAIL 1:5	TANA WA DEVELOP P.O BOX 12 NYERI, KEN ENGINEER: CHIEF M. SERVICE TANA W. DEVELO P.O BOX 1 NYERI, KE PROJECT TITLE: MBEERE SOUTH W LOT II-KAMBU DRAWING TITLE: KAMBURU WATEF STILLING WELL CHANNEL AND FL	TER WORKS MENT AGENCY ³² - 10100, ³² ANAGER TECHNICAL ³⁵ ATER WORKS PMENT AGENCY ²²² - 10100, ³² ATER SUPPLY PROJE RU WATER SUPPLY RTREATMENT WORK , CHEMICAL DOSING OCCULATION BASIN

FLOCCULATION BASIN SCOUR PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES)

7				L
ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (Nr.)
h	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 150m FROM SPIGOT END	150	600	2
i	ALL FLANGED 90° BEND	400 1500 1500	¥ ¥	4
(j)	FLANGED SPIGOT PIPE (CUT TO SUIT)	150	1410	2
k	FLANGE ADAPTOR	150	-	4
1	FLANGED SPIGOT PIPE (CUT TO SUIT)	150	1750	1
m	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, 1.2m LONG (SHORT FACE)	150	210	2
n	SPECIAL FLANGED SPIGOT 90° BEND	300 1500	₭ • ★ •	2
0	FLANGED SPIGOT PIPE (CUT TO SUIT)	150	790	1

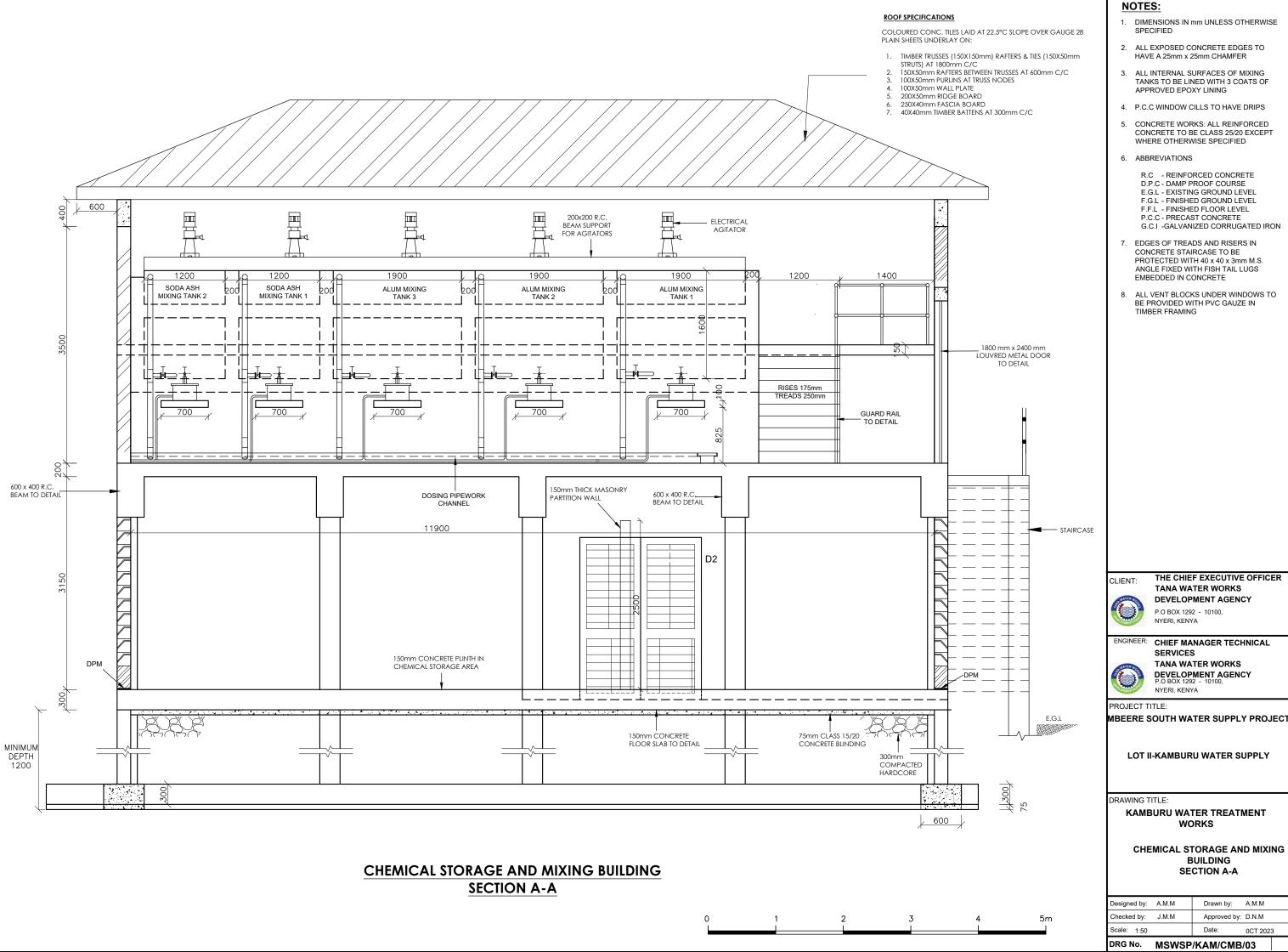






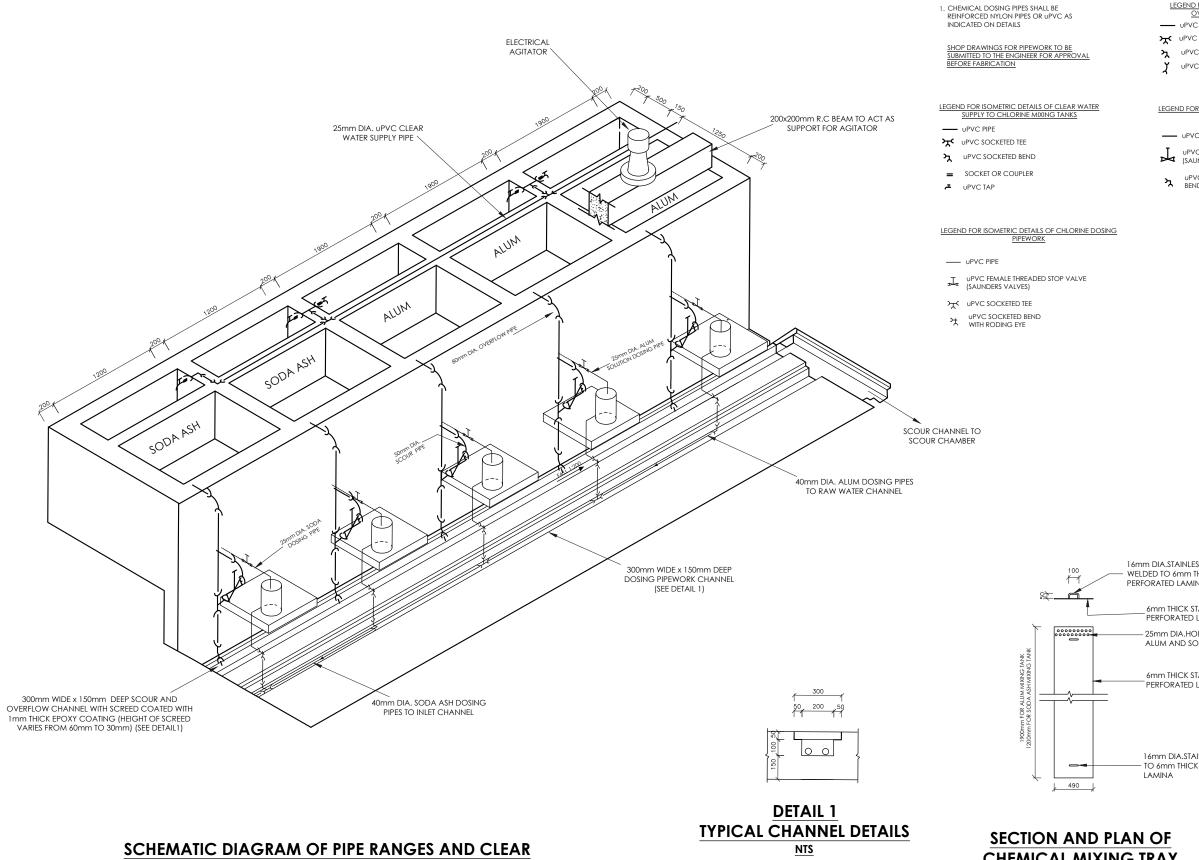
FIRST FLOOR & MIXING PLATFORM PLAN

	NOTES:	
	1. DIMENSIONS IN mm UNLES SPECIFIED	S OTHERWISE
	2. ALL EXPOSED CONCRETE HAVE A 25mm x 25mm CHA	
	3. ALL INTERNAL SURFACES TANKS TO BE LINED WITH APPROVED EPOXY LINING	3 COATS OF
	4. CONCRETE WORKS: ALL R CONCRETE TO BE CLASS 2 WHERE OTHERWISE SPEC	25/20 EXCEPT
	5. ABBREVIATIONS	
	R.C - REINFORCED CON D.P.C - DAMP PROOF COU E.G.L - EXISTING GROUN F.G.L - FINISHED GROUN F.F.L - FINISHED FLOOR P.C.C - PRECAST CONCR G.C.I -GALVANIZED CORF	JRSE D LEVEL D LEVEL LEVEL ETE
	 EDGES OF TREADS AND R CONCRETE STAIRCASE TO PROTECTED WITH 40 x 40 x ANGLE FIXED WITH FISH T EMBEDDED IN CONCRETE) BE (3mm M.S.
+		
STAIRCASE		
GUARD RAIL TO		
03.		
• 3		
A		
•		
	CLIENT: THE CHIEF EXECU TANA WATER WOR	
	DEVELOPMENT AG P.O BOX 1292 - 10100,	ENCY
	P.O BOX 1292 - 10100,	
	PROJECT TITLE:	
ME	EERE SOUTH WATER SUPPL	Y PROJECT
	LOT II-KAMBURU WATER S	UPPLY
	DRAWING TITLE:	
	KAMBURU WATER TREAT WORKS	MENT
	CHEMICAL STORAGE AN	D MIXING
	BUILDING FIRST FLOOR AND MIXING	PLATFORM
	Designed by: A.M.M Drawn b	y: A.M.M
4 5m	Checked by: J.M.M Approve	d by: D.N.M
	Scale: 1:50 Date: DRG No. MSWSP/KAM/CME	0CT 2023





NOTES:



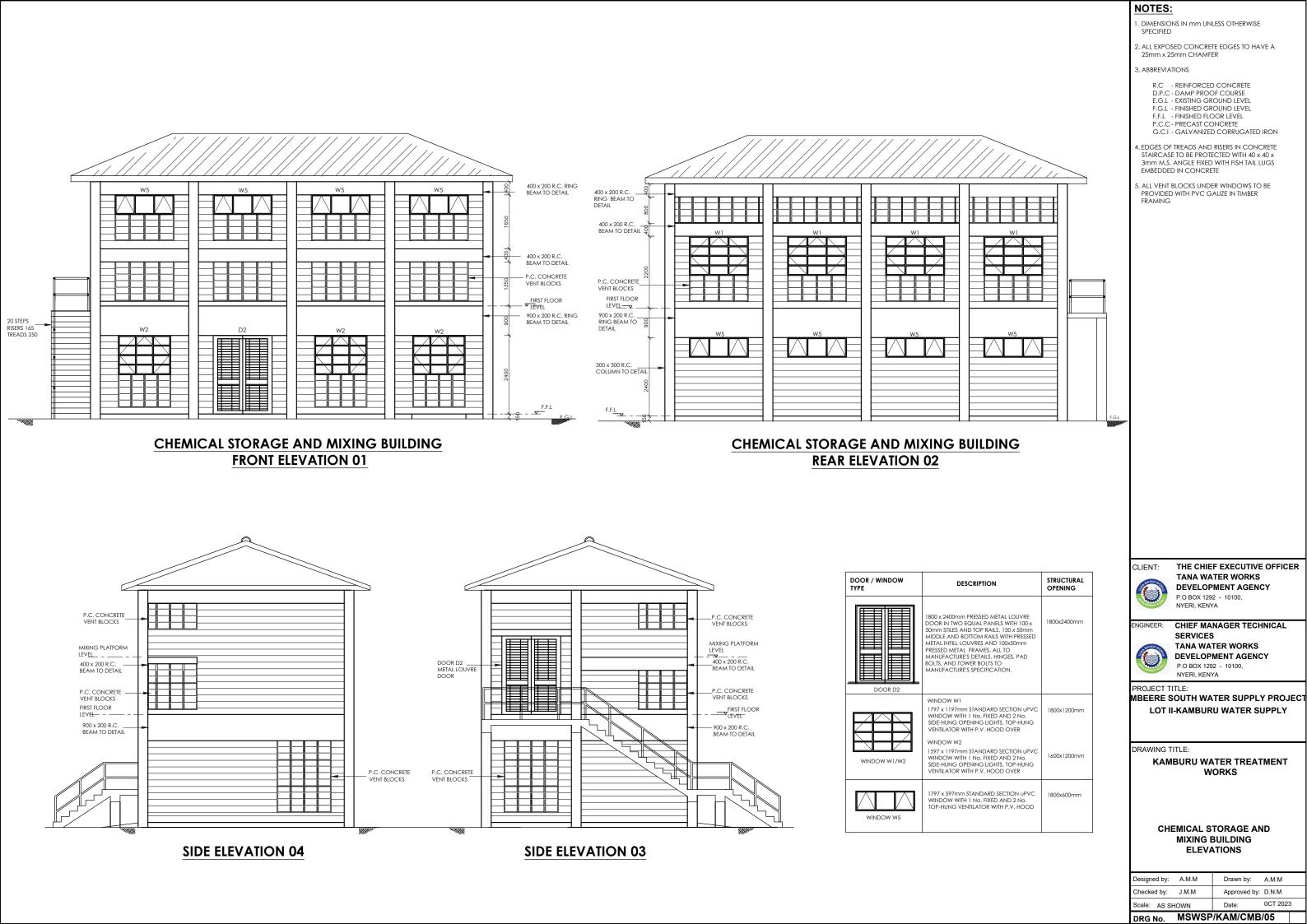
WATER SUPPLY TO MIXING TANKS

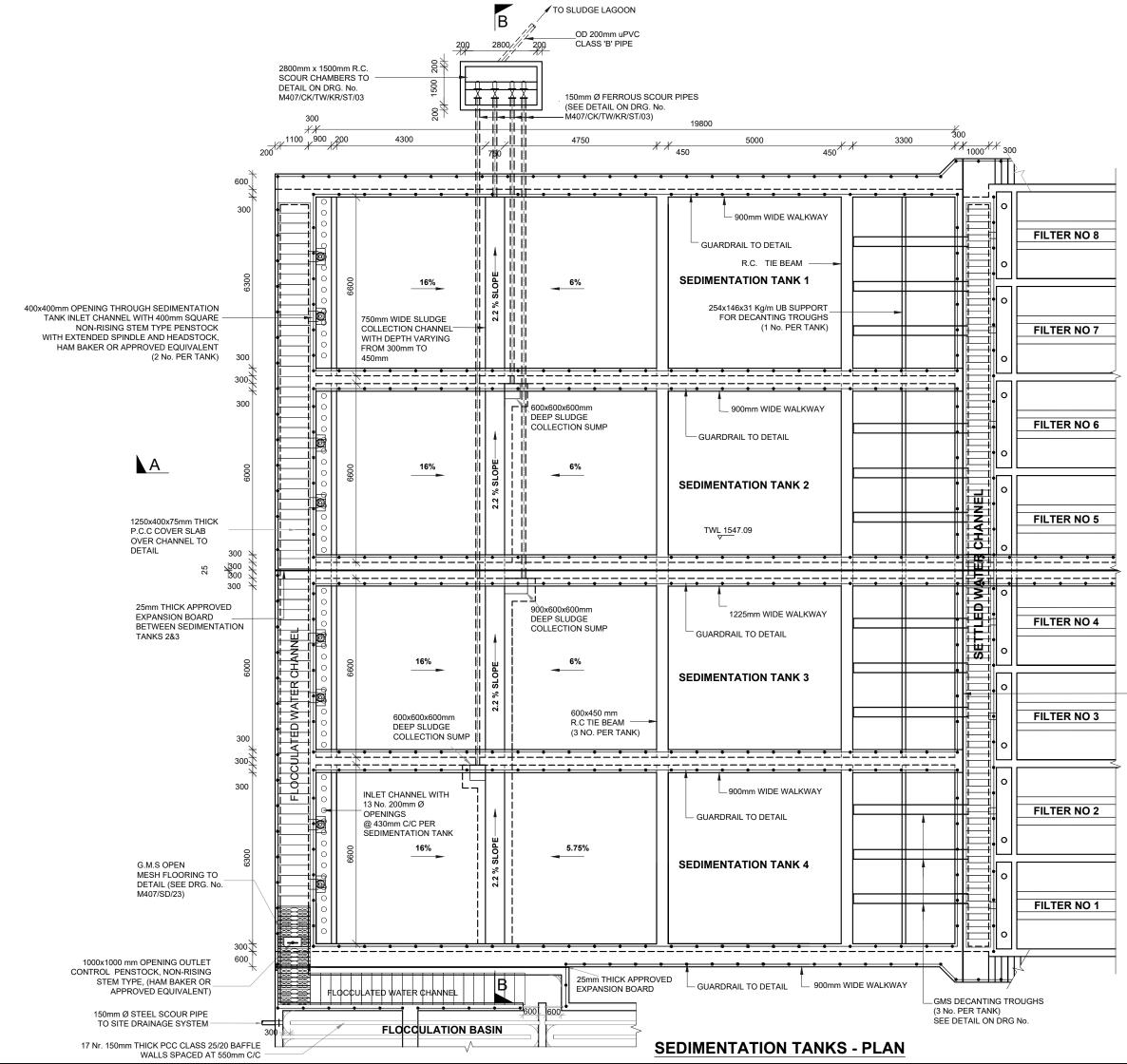
NTS

CHEMICAL MIXING TRAY

NTS

	NOTES:
	1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
	2. CHEMICAL DOSING PIPES SHALL BE REINFORCED NYLON PIPES OR uPVC AS INDICATED ON DETAILS
	3. SHOP DRAWINGS FOR PIPEWORK TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE FABRICATION
LEGEND FOR ISOMETRIC DETAILS OF OVERFLOW PIPEWORK UPVC PIPE VC SOCKETED TEE VPVC SOCKETED BEND (90°) UPVC SOCKETED BEND (22½°)	
LEGEND FOR ISOMETRIC DETAILS OF SCOUR PIPEWORK — UPVC PIPE UPVC FEMALE THREADED STOP VALVE (SAUNDERS VALVES)	
^{UPVC SOCKETED} BEND	
	CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
DIA.STAINLESS STEEL HANDLES ARC ED TO 6mm THICK STAINLESS STEEL RATED LAMINA	ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS
mm ThiCk Stainless Steel Erforated Lamina 5mm Dia.Holes For Lum and Soda Ash	DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
mm THICK STAINLESS STEEL ERFORATED LAMINA	PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT LOT II-KAMBURU WATER SUPPLY
mm DIA.STAINLESS STEEL HANDLES ARC WELDED D 6mm THICK STAINLESS STEEL PERFORATED JMINA	DRAWING TITLE: KAMBURU WATER TREATMENT WORKS
OF RAY	CHEMICAL STORAGE AND MIXING BUILDING MISCELLANEOUS DETAILS
	Designed by: A.M.M Drawn by: A.M.M
	Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
	Scale: AS SHOWN Date: 0CT 2023
	DRG No. MSWSP/KAM/CMB/05





NOTES: 1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED 2. ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER 3. ABBREVIATIONS P.C.C - PRECAST CONCRETE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL G.M.S - GALVANIZED MILD STEEL T.W.L - TOP WATER LEVEL 4. FOR DETAILS OF GUARD RAILS ,G.M.S LADDER, SEE DRG. No. M407/SD/17

5. FOR DETAILS OF G.M.S OPEN MESH FLOORING, SEE DRG. No. M407/SD/23



25mm THICK APPROVED EXPANSION BOARD BETWEEN SEDIMENTATION TANK AND SETTLED WATER CHANNEL





THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100 NYERI, KENYA



NGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100. NYERI, KENYA

PROJECT TITLE:

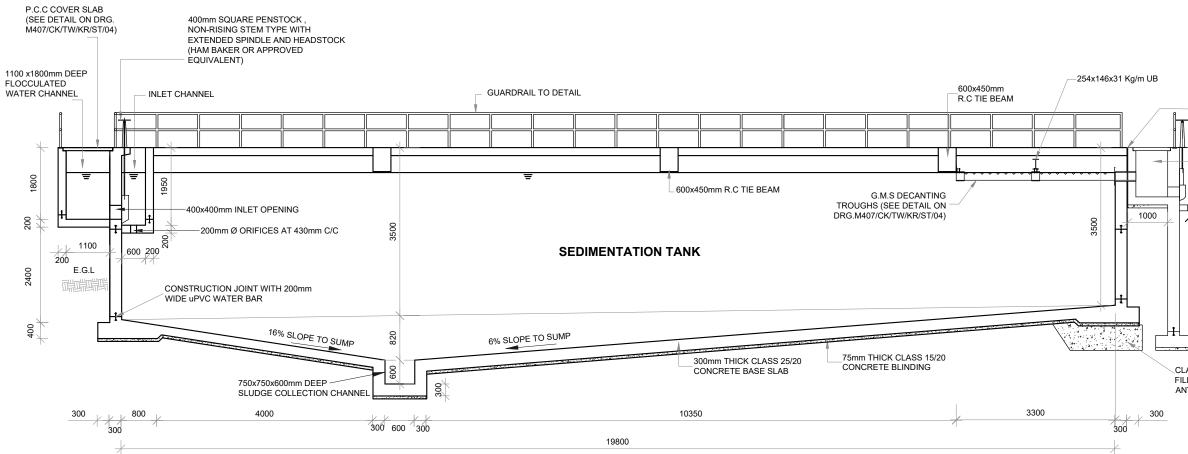
MBEERE SOUTH WATER SUPPLY PROJECT

LOT II-KAMBURU WATER SUPPLY

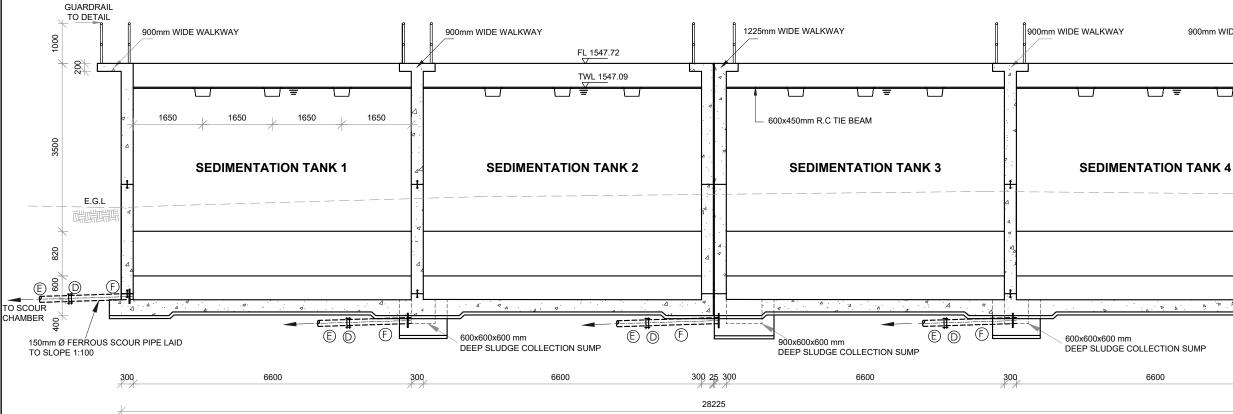
DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS SEDIMENTATION TANK PLAN

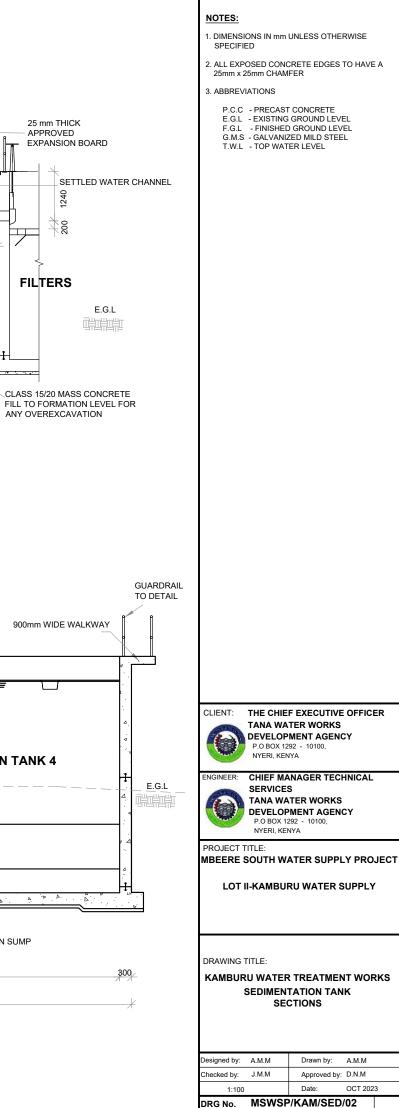
DRG No.	MSWSF	P/KAM/SED	/01
1:100		Date:	OCT 2023
Checked by:	J.M.M	Approved by:	D.N.M
Designed by:	A.M.M	Drawn by:	A.M.M

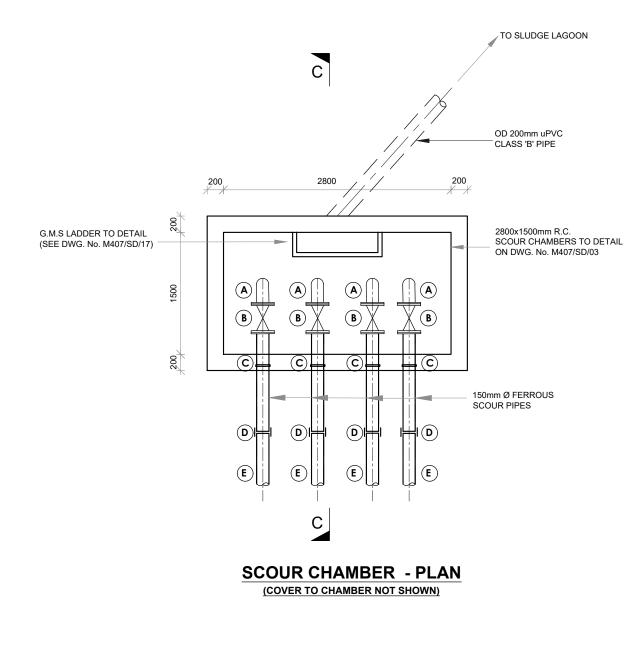


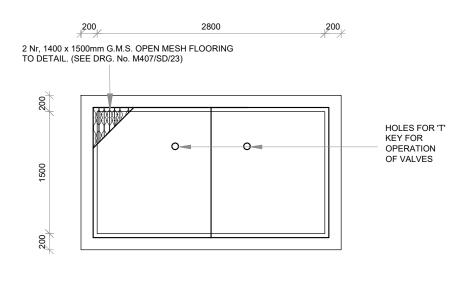
SECTION A-A



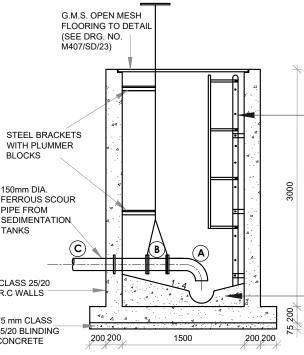
SECTION B-B



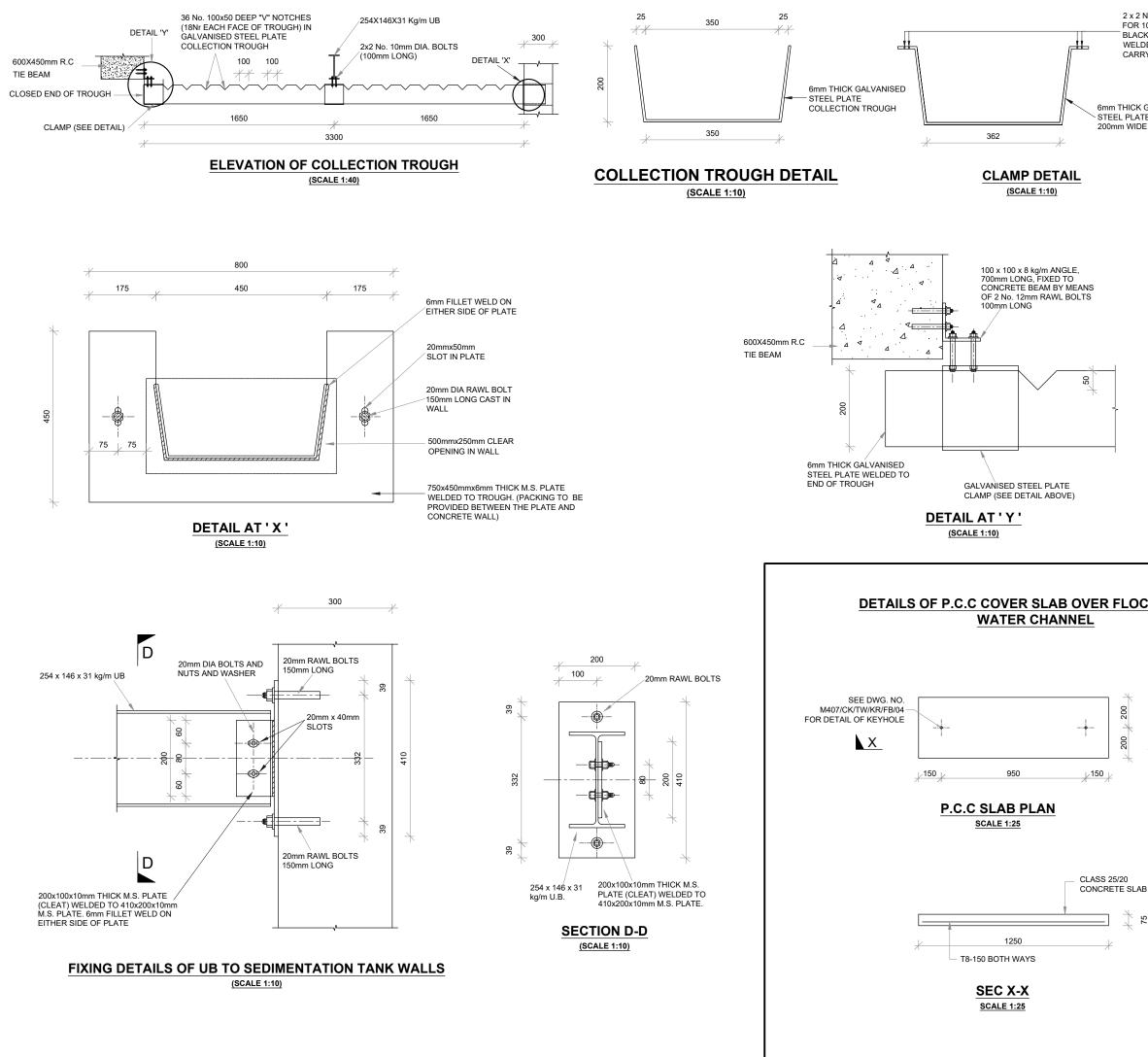




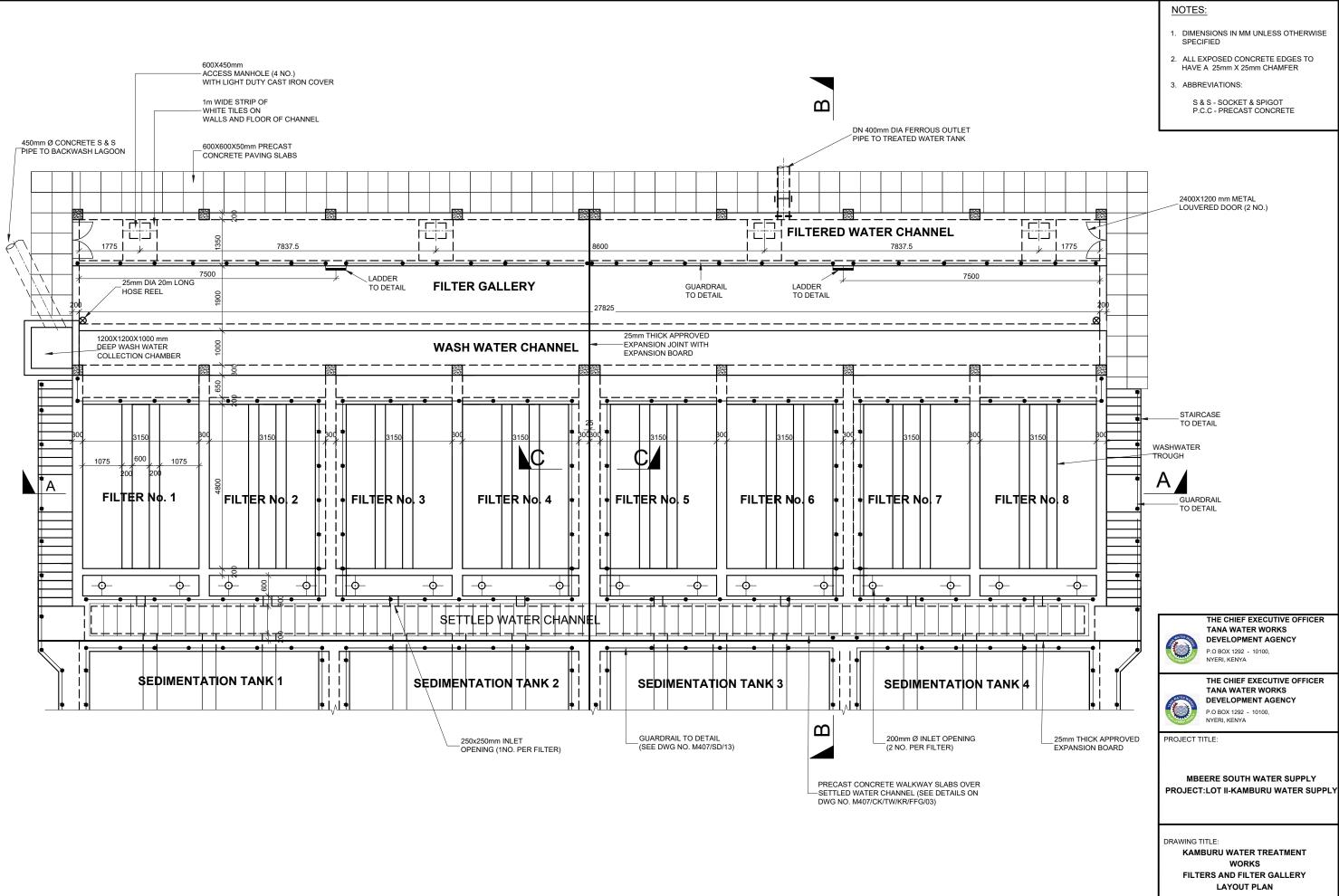
PLAN OF SCOUR CHAMBER SHOWING COVER



	CLASS 25/20 R.C WALLS 75 mm CLASS 15/20 BLINDING CONCRETE 200 200		_	(SEE DW	ADDER TO DETAIL /G No. M407/SD/17) /20 CONCRETE G	3. ABBREVIATIONS P.C.C - PRECA E.G.L - EXISTI F.G.L - FINISH	CIFIED NCRETE EDGES x 25mm CHAMFER ST CONCRETE NG GROUND LEVEL ED GROUND LEVEL NIZED MILD STEEL
<u>(</u> A	PPROVED LINED FER	ROUS	PIPES	5 <u>)</u>	1		
ITEM No.	DESCRIPTION	(mm)	LENGTH (mm)	QUANTITY (No.)		TANA WA	F EXECUTIVE OFFICER
Ś	SPECIAL 90° BEND, ONE END FLANGED	150Ø	<i>₭</i>	4		P.O BOX 1: NYERI, KE	292 - 10100,
B	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, LENGTH 4000mm AND HANDWHEEL	150	210	4		SERVICE TANA W	ATER WORKS
©	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 380mm FROM FLANGED END	150	1200	4			PMENT AGENCY 292 - 10100, NYA
D	COUPLING	150	-	8			ATER SUPPLY PROJECT
E	PLAIN ENDED PIPES WITH COUPLINGS	150 150 150 150	4000 12000 19000 27000	1 (SED TANK No. 1) 1 (SED TANK No. 2) 1 (SED TANK No. 3) 1 (SED TANK No. 4)		LOT II-KAMBU	RU WATER SUPPLY
(' /	PLAIN ENDED PIPES WITH PUDDLE FLANGE AT 155mm FROM ONE END	150	1200	4		SEDIMEN	R TREATMENT WORKS TATION TANK WORK SCHEDULE
						Designed by: A.M.M Checked by: J.M.M 1:100 DRG No. MSWSI	Drawn by: A.M.M Approved by: D.N.M Date: OCT 2023 P/KAM/SED/03



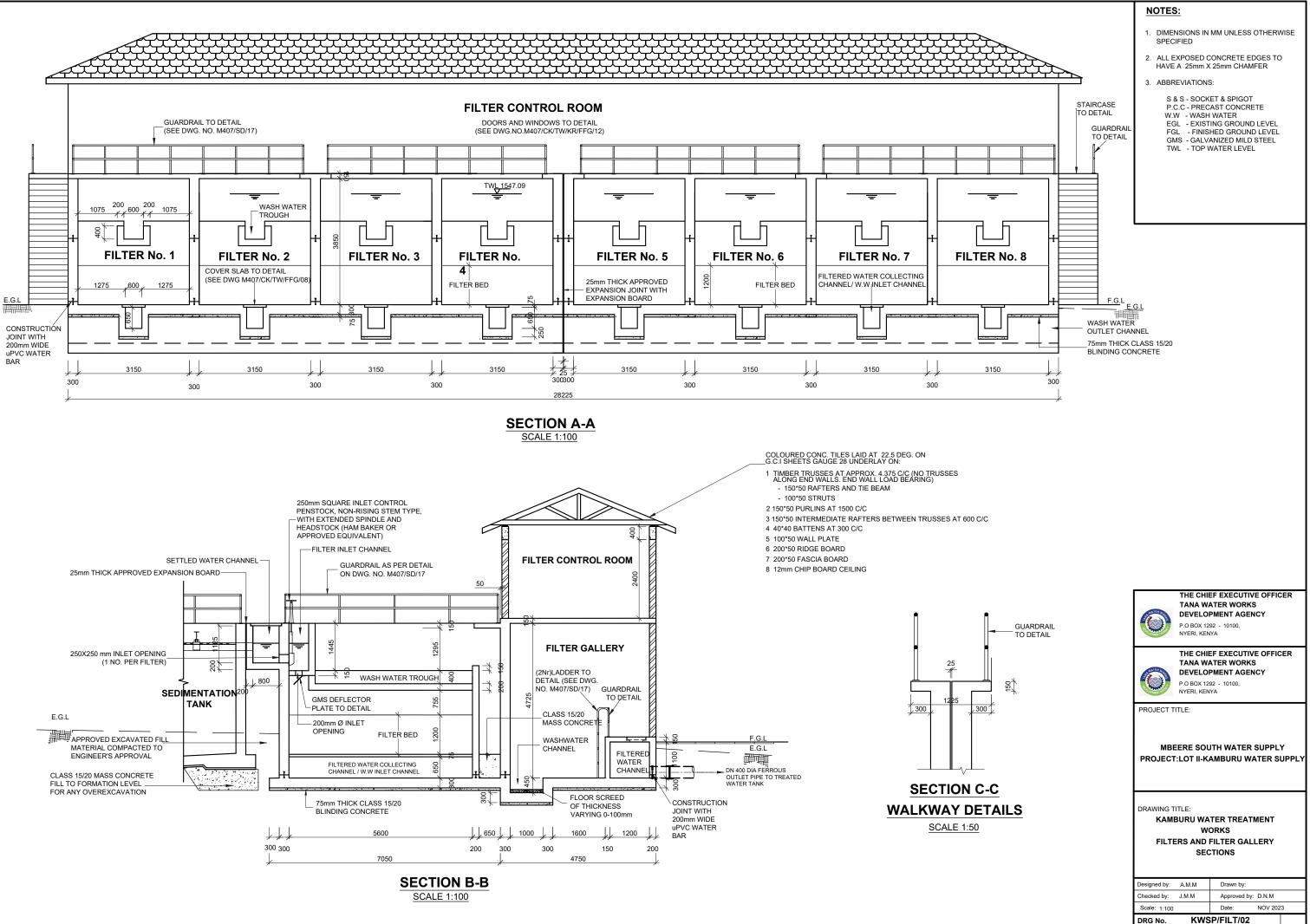
No. 12mm DIA GALVANISED 2K BOLTS 200mm LONG DED TO THE CLAMP RYING TROUGHS (GALVANISED TE CLAMP, DE	NOTES: 1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED 2. ALL EXPOSED CONCRETE EDGES TO HAVE A 2. ABBREVIATIONS P.C.C PRECAST CONCRETE E.G.L FINISHED GROUND LEVEL G.M.S GALVANIZED MILD STEEL T.W.L TOP WATER LEVEL
CCULATED	
_X	CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT LOT II-KAMBURU WATER SUPPLY
AB 22	DRAWING TITLE: KAMBURU WATER TREATMENT WORKS SEDIMENTATION TANK PCC DETAILS
	Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M 1:100 Date: OCT 2023 DRG No. MSWSP/KAM/SED/02



LAYOUT PLAN OF FILTERS & FILTER GALLERY

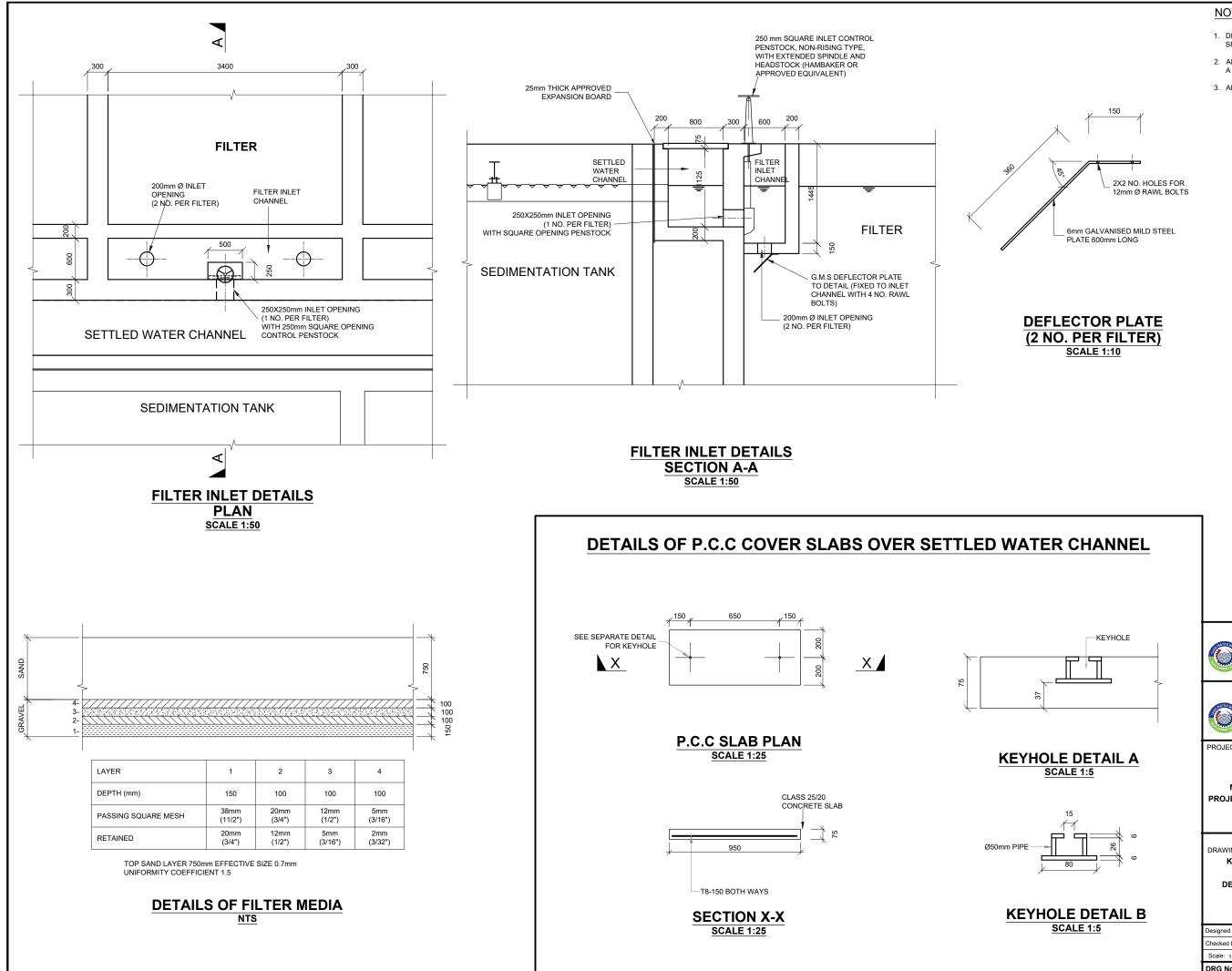


Designed by: A.M.M	Drawn by:		
Checked by: J.M.M	Approved by: D.N.M		
Scale: 1:100	Date: NOV 2023		
DRG No. KWSP/FILT/01			



SECTION B-B





NOTES:

- 1. DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED
- 2. ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm X 25mm CHAMFER
- 3. ABBREVIATIONS:

W.W - WASH WATER E.G.L - EXISTING GROUNLEVEL F.G.L - FINISHED GROUND LEVEL G.M.S- GALVANISED MILD STEEL P.C.C - PRECAST CONCRETE N.T.S - NOT TO SCALE



DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA THE CHIEF EXECUTIVE OFFICER

TANA WATER WORKS

THE CHIEF EXECUTIVE OFFICER



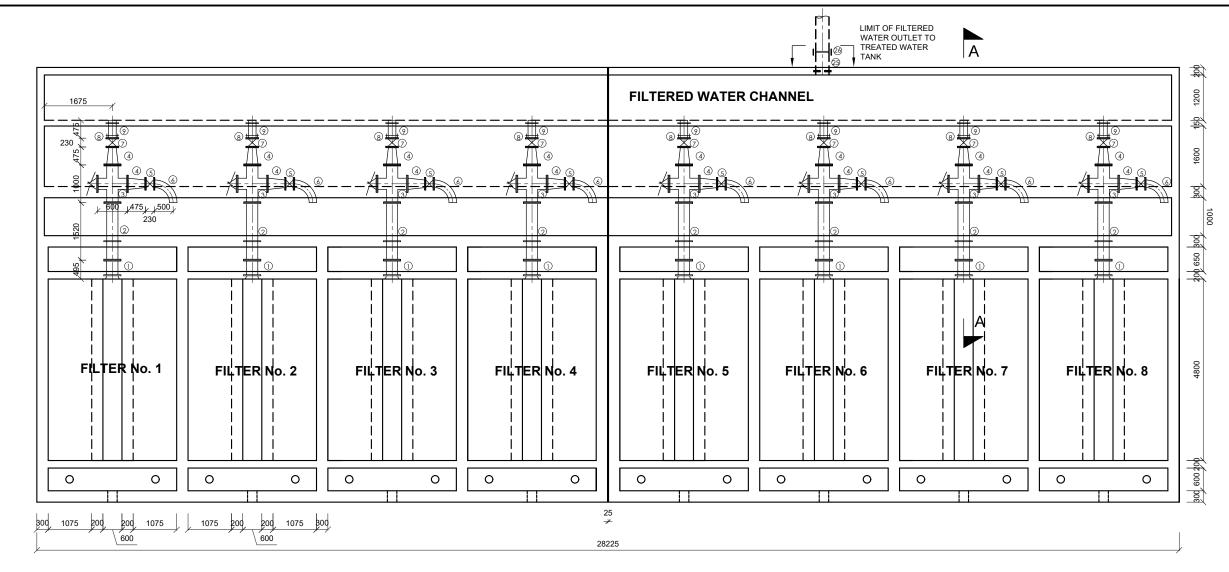
TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

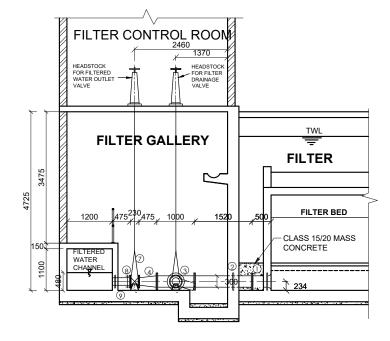
MBEERE SOUTH WATER SUPPLY PROJECT:LOT II-KAMBURU WATER SUPPLY

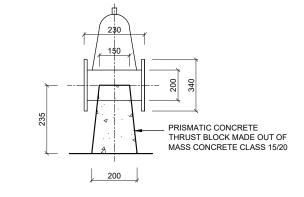
DRAWING TITLE: KAMBURU WATER TREATMENT WORKS DETAILS OF INLET CHANNEL AND FILTER MEDIA

Checked by: J.M.M	Approved by:	D.N.M	3		
Scale: 1:100	Date:	NOV 202			



LAYOUT PLAN OF FILTERED WATER OUTLET PIPEWORK





SUPPORT FOR 200mm Ø GATE VALVE

<u>(NTS)</u>

SECTION A-A

NOTES:

- 1. ALL PIPE, FITTINGS AND VALVE DIAMETERS ARE NOMINAL DIAMETERS
- 2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
- 3. ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,

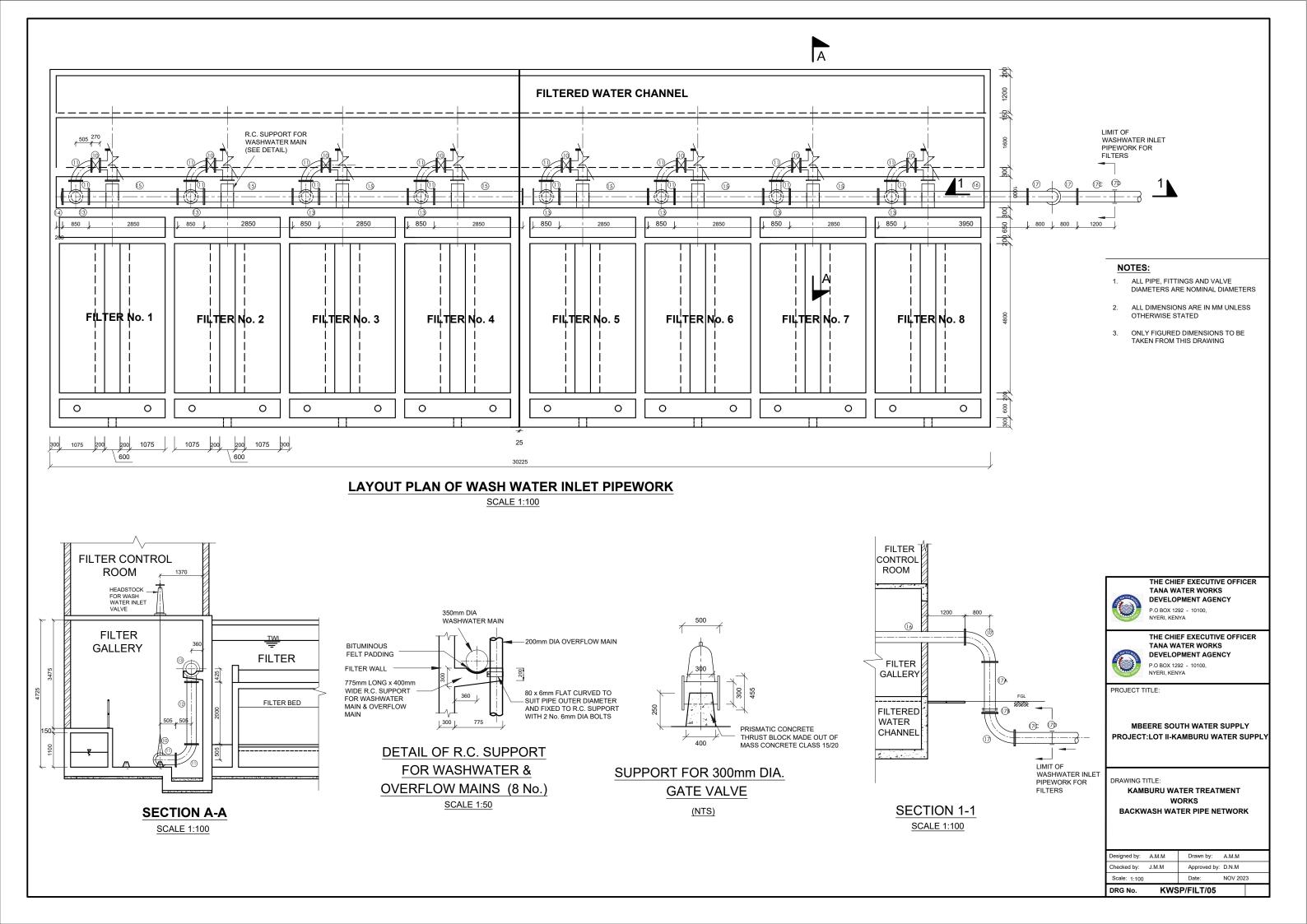
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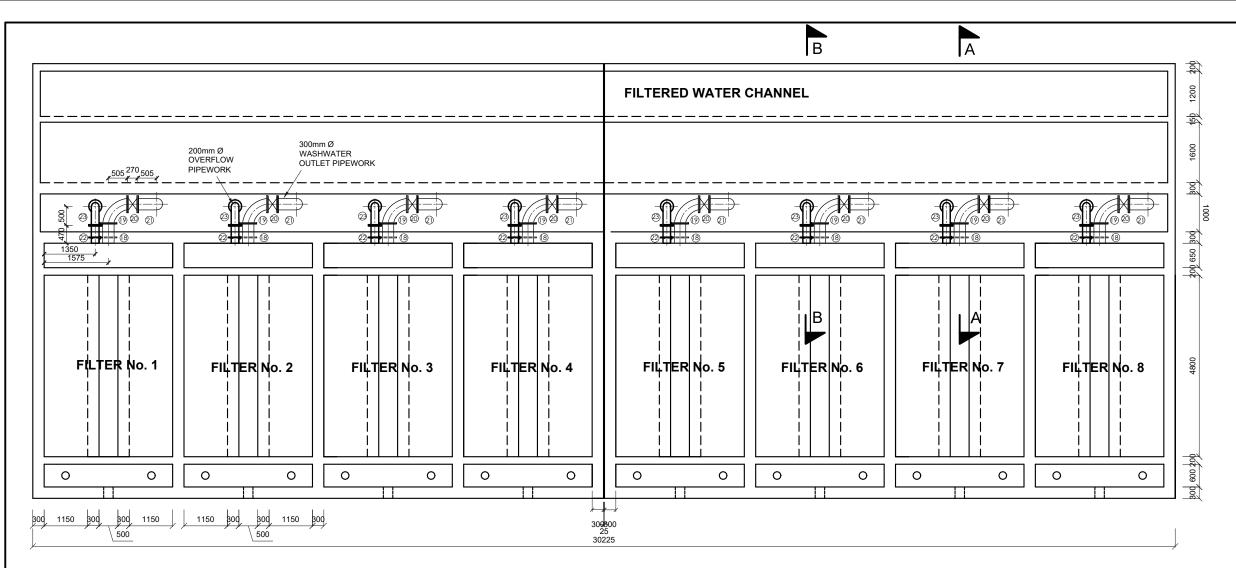
NYERI, KENYA

MBEERE SOUTH WATER SUPPLY PROJECT:LOT II-KAMBURU WATER SUPPLY

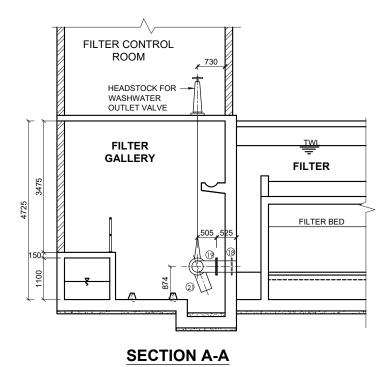
DRAWING TITLE: KAMBURU WATER TREATMENT WORKS FILTERS AND FILTER GALLERY DETAILS OF FILTERED WATER OUTLET PIPEWORK

Designed by: A.M.M	Drawn by: A.M.M			
Checked by: J.M.M	Approved by: D.N.M			
Scale: 1:100	Date: NOV 2023			
DRG No. KWSP/FILT/04				





LAYOUT PLAN OF WASH WATER OUTLET & OVERFLOW PIPEWORK



CONTROL ROOM FILTER GALLERY GALLERY GALLERY BECTION B-B

OVERFLOW PIPEWORK

FILTER

WASHWATER OUTLET PIPEWORK

NOTES:

- 1. ALL PIPE, FITTINGS AND VALVE DIAMETERS ARE NOMINAL DIAMETERS
- 2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
- 3. ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



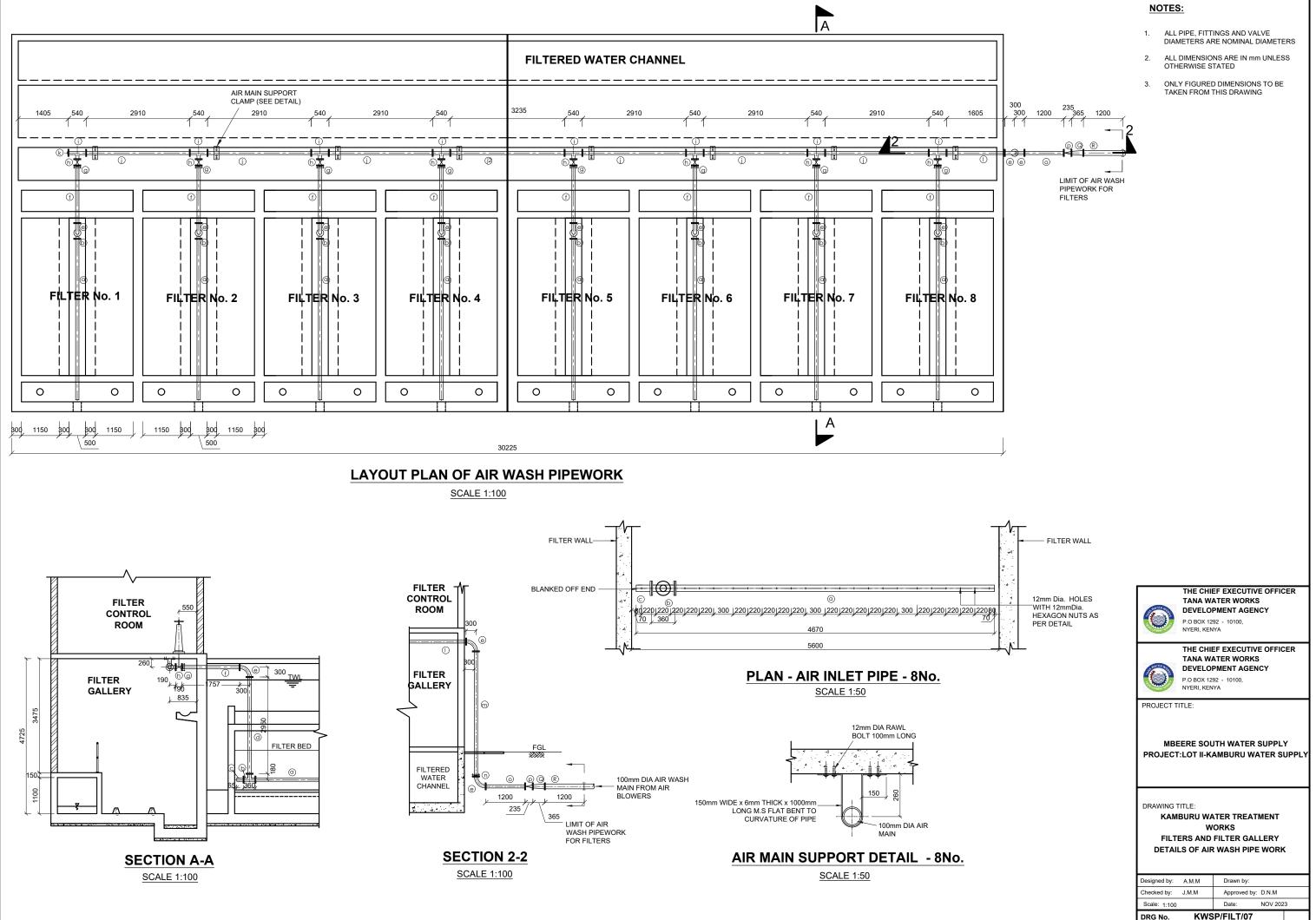
THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

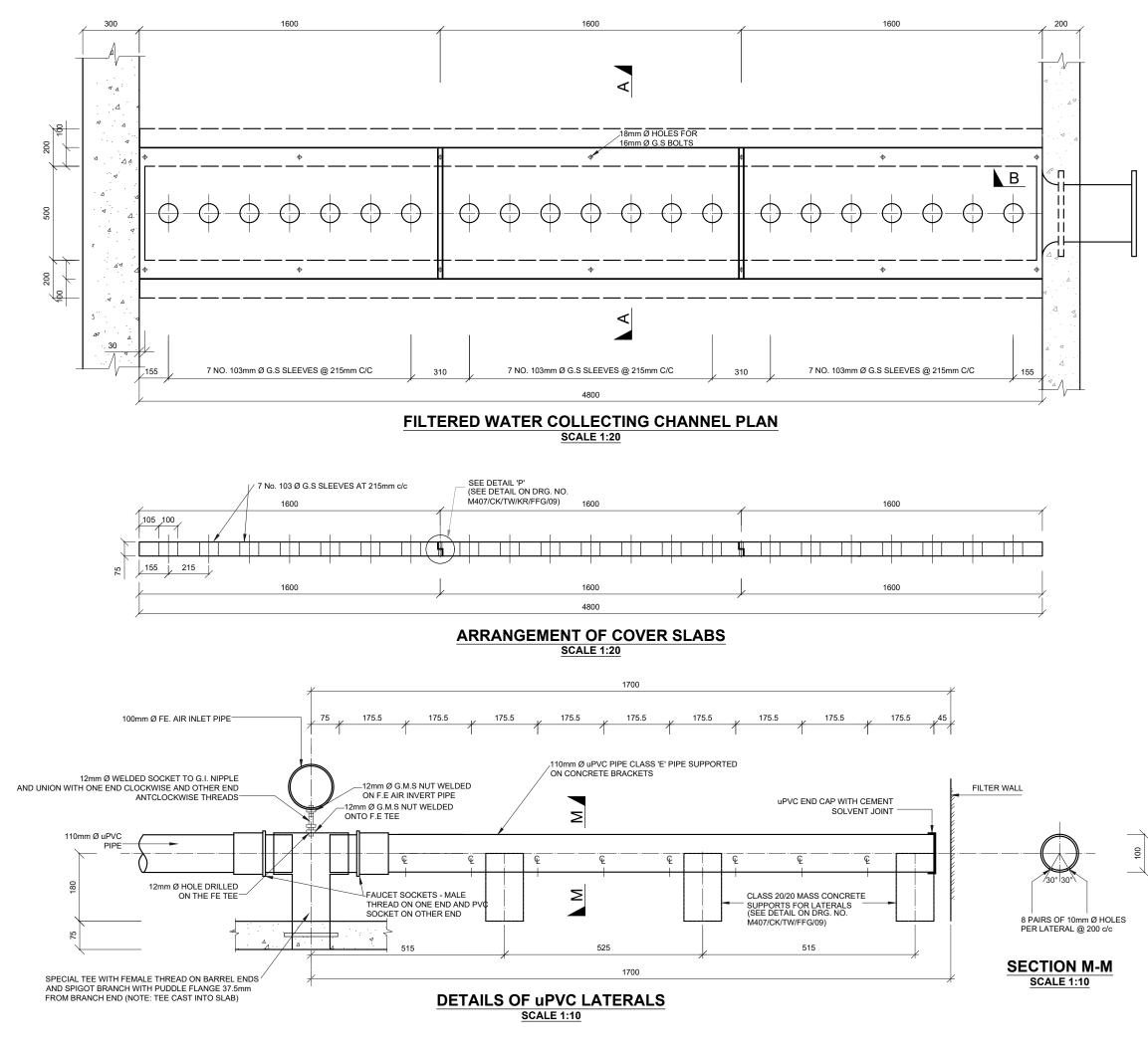
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT:LOT II-KAMBURU WATER SUPPLY

DRAWING TITLE: KAMBURU WATER TREATMENT WORKS DETAILS OF WASH WATER OUTLET AND OVERFLOW PIPE NETWORK

Designed by: A.M.M	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:100	Date: NOV 2023
DRG No. KWS	P/FILT/06





NOTES:

- 1. DIMENSIONS IN MM UNLESS OTHERWISE SPECIFIED
- 2. ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm X 25mm CHAMFER
- 3. ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING
- 4. SHOP DRAWING OF ALL PIPEWORK TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE FABRICATION





THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



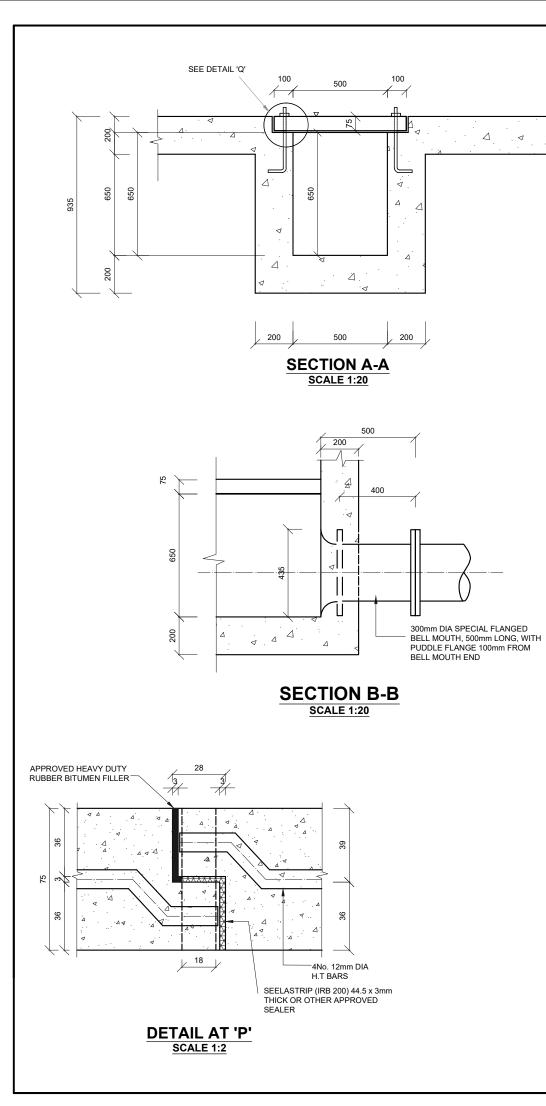
THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

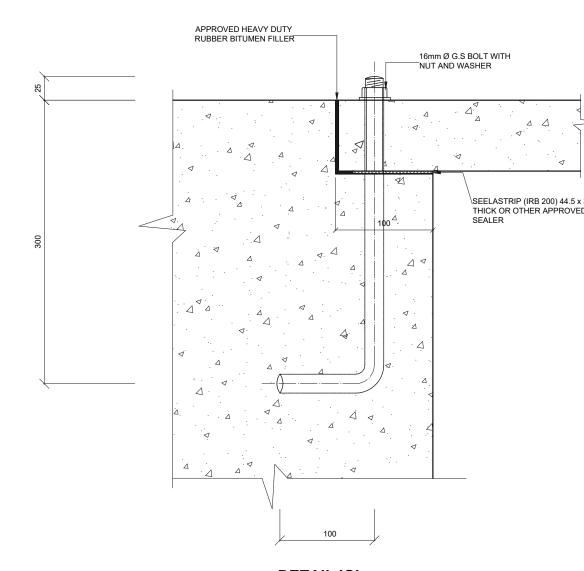
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT:LOT II-KAMBURU WATER SUPPLY

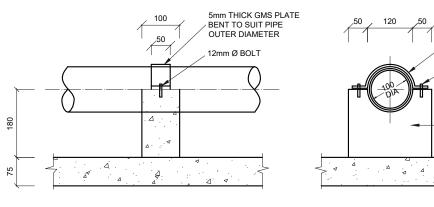
DRAWING TITLE: KAMBURU WATER TREATMENT WORKS UNDERDRAIN ARRANGEMENT SHEET 1 OF 2

Designed by: A.M.M	Drawn by: A.M.M				
Checked by: J.M.M	Approved by: D.N.M				
Scale: 1:100	Date: NOV 2023				
DRG No. KWSP/FILT/08					





DETAIL 'Q' SCALE 1:4



DETAIL OF SUPPORT BRACKET FOR uPVC LATE SCALE 1:10

-MIX

	1. DIMENS SPECIFI		I UNLESS OT	HERWISE
		OSED CON X 25mm C		ES TO HAVE
		URED DIM	ENSIONS TO NG	BE TAKEN
	4. SHOP DR SUBMIT	AWING OF FED TO TH	ALL PIPEWC E ENGINEER E FABRICATI	FOR
4				
) 44.5 x 3mm ROVED				
		TANA WA	F EXECUTIN	S
	\bigcirc	P.O BOX 129 NYERI, KEN		ICY
			FEXECUTIN	E OFFICER
5mm THICK GMS PLATE BENT TO SUIT PIPE OUTER DIAMETER		DEVELOF		
12mm Ø BOLT	A CONTRACTOR OF A CONTRACTOR A CONTRACT	P.O BOX 129 NYERI, KEN		
	PROJECT T	TLE:		
	MBEERE SC	OUTH WAT	ER SUPPL	Y PROJECT:
-MIX 1:2:4 CONC. SUPPORT BRACKET FOR uPVC LATERALS	LOT II-	KAMBURI	J WATER S	UPPLY
	DRAWING T KAMI	BURU WA	TER TREAT	MENT
TERALS	UND	ERDRAIN	ORKS ARRANGEI T 2 OF 2	MENT
	Designed by:	A.M.M	Drawn by:	A.M.M
	Checked by: Scale: 1:100	J.M.M	Approved by Date:	D.N.M NOV 2023

KWSP/FILT/09

Scale: 1:100 DRG No.

NOTES:

FILTERED WATER OUTLET PIPEWORK SCHEDULE: (APPROVED LINED FERROUS PIPES)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
D	SPECIAL FLANGED BELL MOUTH WITH PUDDLE FLANGE 100mm FROM BELL MOUTH END	300	500	8
2	DOUBLE FLANGED PIPE WITH PUDDLE FLANGE 500mm FROM ONE END	300	1520	8
3	SPECIAL ALL FLANGED CROSS 300 X 300 X 300 X 300mm	1 30 300Ø 🛏	00 00 3000 3000	8
4	300mmØ x 200mmØ DOUBLE FLANGED CONCENTRIC TAPER	3000	200Ø	16
6	DOUBLE FLANGED GATE VALVE WITH EXTENSION SPINDLE, LENGTH 4.8m, AND HEADSTOCK	200	230	8
6	90° FLANGED SPIGOT BEND	ہے 2000 ⊢ 2		8
\bigcirc	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, LENGTH 4.8m, AND HEADSTOCK	200	230	8
8	FLANGE ADAPTOR	200	-	8
9	PLAIN ENDED PIPE WITH PUDDLE FLANGE 75mm FROM ONE END	200	475	8

WASH WATER INLET PIPEWORK SCHEDULE: (APPROVED LINED FERROUS PIPES)

ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
0	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, LENGTH 4.8m, AND HEADSTOCK	300	270	8
	SPECIAL ALL FLANGED 90° SHORT RADIUS BEND	300Ø ⊢ 300	Ø	16
0	ALL FLANGED PIPE	300	2000	8
(3)	ALL FLANGED TEE - 350x350x300mm Ø	350Ø	d 350Ø425	8
(4)	BLANK FLANGE	350	-	1
(5)	ALL FLANGED PIPE	350	2850	7
6	ALL FLANGED PIPE	350	3950	1
Ø	ALL FLANGED 90° BEND	350Ø 🖡		2
Ø	FLANGED SPIGOT PIPE (CUT TO SUIT ON SITE)	350	2000	1
7	FLANGE ADAPTOR	350	-	1
0	FLANGED SPIGOT PIPE	350	1200	1
70	COUPLING	350	-	1

AIR WASH PIPEWORK SCHEDULE: (APPROVED EPOXY COATED STEEL PIPES)

ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
٥	FLANGED SPIGOT PIPE WITH SPIGOT END BLANKED OFF AND 21No. 12 mmØ HOLES AND HEXAGON NUTS WELDED AT 215mm and 310mm c/c ON UNDERSIDE AS PER DETAILS SHOWN	100	4105	8
6	SPECIAL ALL FLANGED TEE WITH 2No. 12 mmØ HOLES AND HEXAGON NUTS WELDED AT 215mm c/c ON UNDERSIDE AS PER DETAILS SHOWN	100Ø 🛏 100Ø		8
©	FLANGED SPIGOT PIPE WITH SPIGOT END BLANKED OFF AND 1No. 12 mmØ HOLES AND HEXAGON NUTS WELDED AT 90mm FROM SPIGOT END AS PER DETAILS SHOWN	100	205	8
Ø	ALL FLANGED PIPE	100	2950	8
e	ALL FLANGED 90° BEND	100Ø 101		10
ſ	FLANGED SPIGOT PIPE	100	1757	8
9	FLANGE ADAPTOR	100	-	8
6	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, LENGTH 410mm, AND HEADSTOCK	100	190	8
(j)	ALL FLANGED TEE	100Ø		8
(j)	ALL FLANGED PIPE	100	3160	6
Ø	ALL FLANGED PIPE	100	3485	1
k	BLANK FLANGE	100	-	1
0	ALL FLANGED PIPE	100	1774	1
m	FLANGED SPIGOT PIPE	100	4000	1
n	FLANGE ADAPTOR	100	-	1
0	ALL FLANGED PIPE	100	1200	1
ø	ALL FLANGED NON RETURN VALVE	100	235	1
0	150mm Ø x 100mm Ø DOUBLE FLANGED CONCENTRIC TAPER	1500Ø	1000	1
®	FLANGED SPIGOT PIPE	150	1200	1

WASH WATER OUTLET PIPEWORK SCHEDULE: (APPROVED LINED FERROUS PIPES)

ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
(8)	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE 150mm FROM SPIGOT END	300 525		8
0	SPECIAL ALL FLANGED 90° SHORT RADIUS BEND			8
20	ALL FLANGED GATE VALVE WITH EXTENSION SPINDLE, LENGTH 4.0m, AND HEADSTOCK	300	270	8
ଥ	SPECIAL FLANGED SPIGOT 90° SHORT RADIUS BEND	3000		8

OUTLET TO TREATED WATER TANK <u>PIPEWORK SCHEDULE:</u> (APPROVED LINED FERROUS PIPES)

ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
Ø	PLAIN ENDED PIPE WITH PUDDLE FLANGE AT 100mm FROM ONE END	400	600	1
09	COUPLING	400	-	1

OVERFLOW PIPEWORK SCHEDULE: (APPROVED LINED FERROUS PIPES)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
0	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 150mm FROM SPIGOT END	200	470	8
23	90° ALL FLANGED BEND			8
23	FLANGED SPIGOT PIPE	200	3675	8

NOTES:

- . ALL PIPE, FITTINGS AND VALVE DIAMETERS ARE NOMINAL DIAMETERS
- 2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



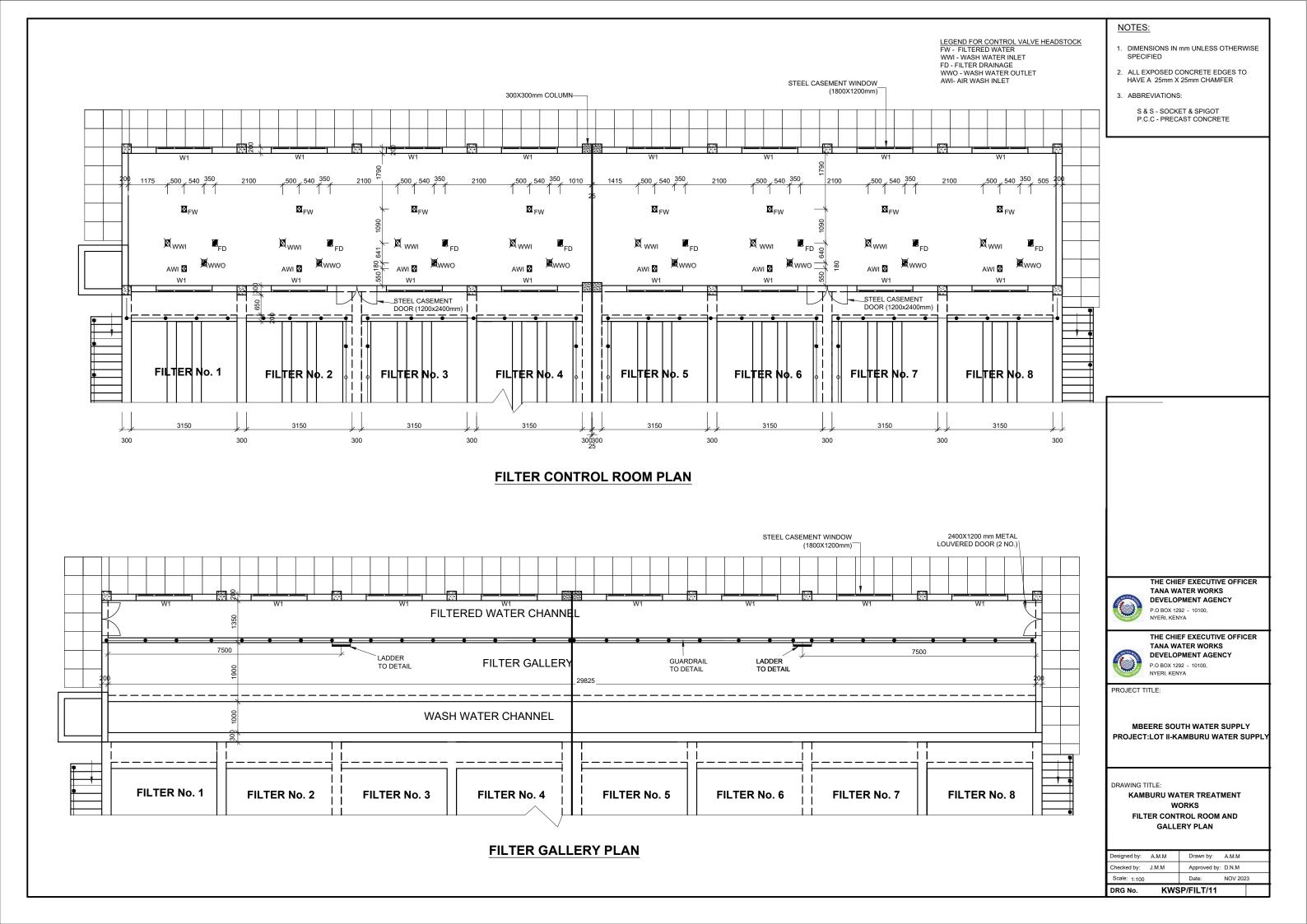
THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

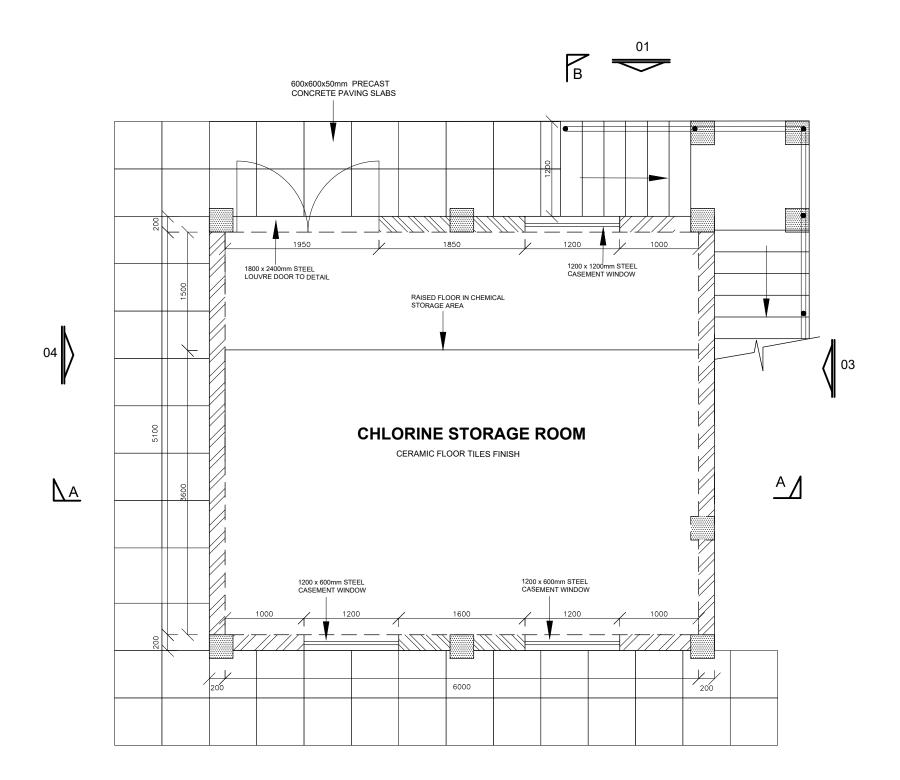
MBEERE SOUTH WATER SUPPLY PROJECT:LOT II-KAMBURU WATER SUPPLY

DRAWING TITLE: KAMBURU WATER TREATMENT WORKS FILTERS AND FILTER GALLERY PIPES AND FITTINGS SCHEDULE

Designed by: A.M.M	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:100	Date: NOV 2023
DRG No. KW	SP/FILT/10



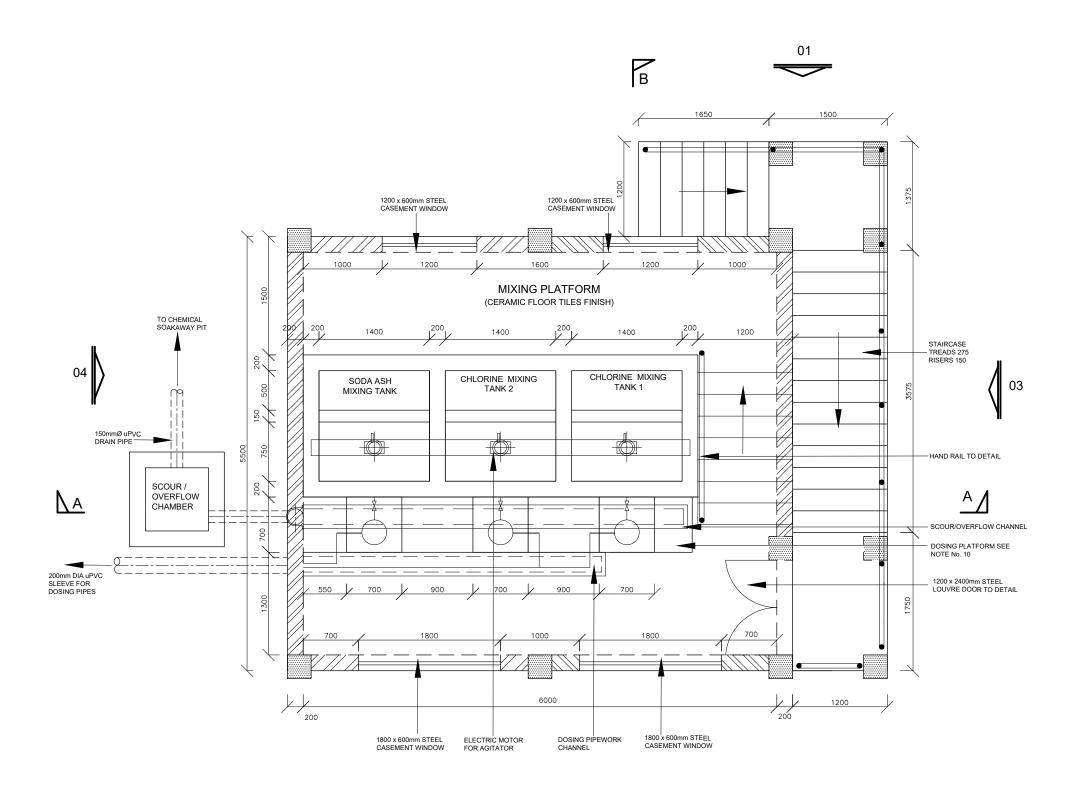






GROUND FLOOR PLAN (CHLORINE STORAGE ROOM)

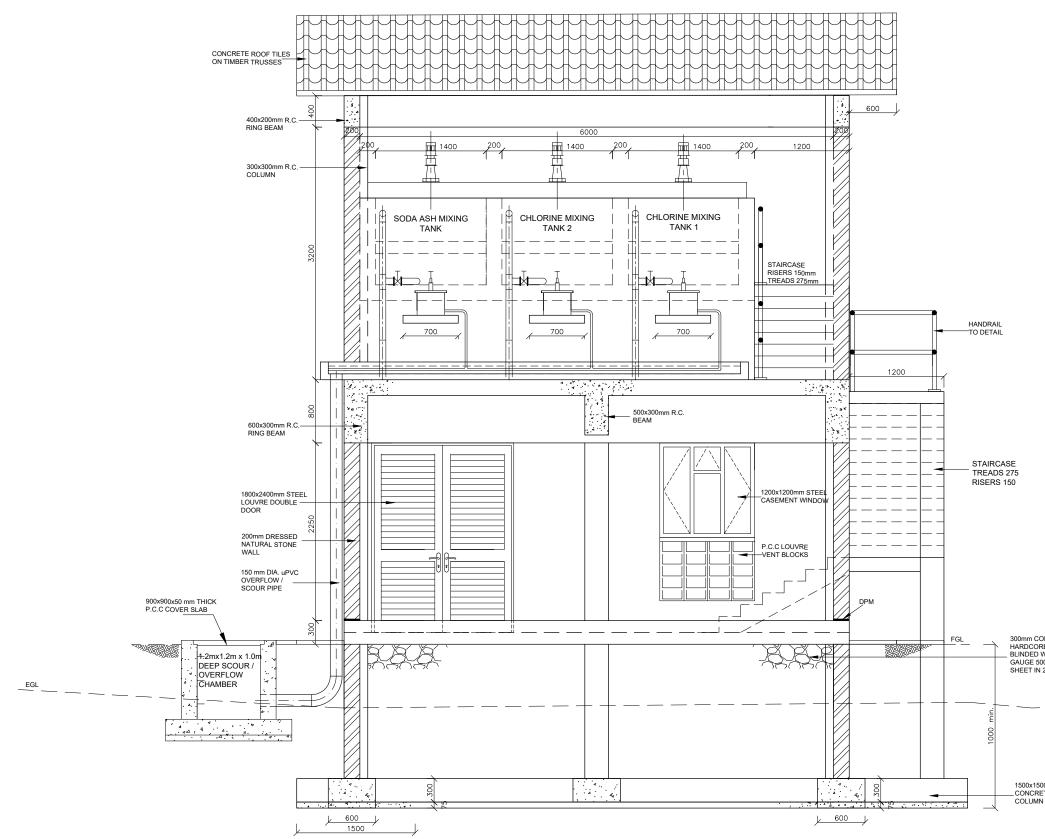
 DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED ABBREVIATIONS R.C REINFORCED CONCRETE D.P.C. DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED FROUND LEVEL F.G.L - FINISHED FROUND LEVEL P.C.C. PRECAST CONCRETE G.C.I - GALVANIZED CORRUGATED IRON EDGES OF TREADS AND RISERS IN CONCRETE STAIRCASE TO BE PROTECTED WITH 40 x 40 x 3mm M.S. ANGLE FIXED WITH FISH TAIL LUGS EMBEDDED IN CONCRETE FOR WINDOW SCHEDULE SEE DRG. NO. M407/SD/25 FOR DOOR SCHEDULE SEE DRG NO. M407/SD/26-27 ALL VENT BLOCKS UNDER WINDOWS TO BE PROVIDED WITH FIX GAUZE IN TIMBER FRAMING DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS. IF DIFFERENT TYPE OF DOSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS. IF DIFFERENT TYPE OF DOSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM (S) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS. DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM(S) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS. ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES MONTRIK, KENYA 	SPECIFIED ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED A ABBREVIATIONS R.C - REINFORCED CONCRETE D.P.C - DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL F.G.L - FINISHED FLOOR LEVEL P.C.C - PRECAST CONCRETE O.C.I - GALVANIZED CORRUGATED IRON EDGES OF TREADS AND RISERS IN CONCRETE STAIRCASE TO BE PROTECTED WITH 40 x 40 x 3mm M.S. ANGLE FIXED WITH FISH TAIL LUGS EMBEDDED IN CONCRETE FOR WINDOW SCHEDULE SEE DRG. NO. M407/SD/25 FOR DOOR SCHEDULE SEE DRG NO. M407/SD/26-27 ALL VENT BLOCKS UNDER WINDOWS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING CLIENT: THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,	CIFIED EXPOSED CONCRETE IN E A 25mm x 25mm CHAN CRETE WORKS: ALL RE CRETE TO BE CLASS 2 REVIATIONS C - DAMP PROOF COUL L - EINISHED FLOOR L C - DAMP PROOF COUL L - FINISHED FLOOR L C - PRECAST CONCRE L - FINISHED FLOOR L C - PRECAST CONCRE C - DALYANIZED CORF ES OF TREADS AND RE CRETE STAIRCASE TO TECTED WITH 40 x 40 x ANGLE FIXED WITH FIS EDDED IN CONCRETE WINDOW SCHEDULE SE 7/SD/25 DOOR SCHEDULE SEE 7/SD/26-27 VENT BLOCKS UNDER P ROVIDED WITH PVC G/ SET FRAMING INTERNAL SURFACES O CAST DE LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O CAST DE LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O CAST DE LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O CAST OB E LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O ABLE PLATFORM(S) BE RENT TYPE OF DOSE POSED, CONTRACTOR INTERNAL SURFACES O CAST OB E LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O CAST OB LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O CAST OB LINED WITH TO POSED, CONTRACTOR INTERNAL SURFACES O ABLE PLATFORM(S) BE RENT TYPE OF DOSE FANA WATER W DEVELOPMENT / P.O BOX 1292 - 1010 NYERI, KENYA TITLE: SOUTH WATER SU INTER: SOUTH WATER SU CHIEF MANAGEI SENTICES TANA WATER WATER CHIEF MANAGEI SENTICES TANA WATER SU P.O BOX 1292 - 1010 NYERI, KENYA TITLE: SOUTH WATER SU CHIEF MANAGEI SENTICES TANA WATER SU CHIEF MANAGEI SENTICES TANA WATER SU CHIEF MANAGEI SENTICES TANA WATER SU P.O BOX 1292 - 1010 NYERI, KENYA TITLE: SOUTH WATER SU CHIEF MANAGEI SENTICES TANA WATER SU CHIEF MANAGEI SENTICES TANA WATER SU CHIEF MANAGEI SENTICES TANA WATER SU CHIEF SU SU SU SU SU SU SU SU SU SU	
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BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING 9. ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING 10. DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE OD OSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM(S) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS. CLIENT: THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS Image: Complexity of the service of the se	BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING 9. ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING 10. DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS. IF DIFFERENT TYPE OF DOSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM(S) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS. CLIENT: THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA	ROVIDED WITH PVC G/ SER FRAMING INTERNAL SURFACES ((S TO BE LINED WITH T)PPROVED EPOXY LININ AIL OF DOSER PLATFOI OPADOS TYPE DOSER ERENT TYPE OF DOSE REENT TYPE OF DOSE POSED, CONTRACTOR INGINEER DETAILS OF ABLE PLATFORM(S) BE IMENCING CONSTRUCT NG TANK WALLS. TANA WATER WI DEVELOPMENT / P.O BOX 1292 - 1010 NYERI, KENYA CHIEF MANAGEI SERVICES TANA WATER WI DEVELOPMENT / P.O BOX 1292 - 1010 NYERI, KENYA TITLE: SOUTH WATER SU III-KAMBURU WAT TITLE: IBURU WATER TI WORKS CHLORINE STORAG MIXING BUILDIN	DRG NO.
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		TITLE: IBURU WATER TI WORKS CHLORINE STORAG MIXING BUILDI	JPPLY PROJE
MBEERE SOUTH WATER SUPPLY PROJE	MBEERE SOUTH WATER SUPPLY PROJE	IBURU WATER TI WORKS HLORINE STORAG MIXING BUILDII	
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		IBURU WATER TI WORKS HLORINE STORAG MIXING BUILDII	
		IBURU WATER TI WORKS HLORINE STORAG MIXING BUILDII	
		WORKS CHLORINE STORAG MIXING BUILDIN	
DRAWING TITLE:	LOT II-KAMBURU WATER SUPPLY	MIXING BUILDI	REATMENT
LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT	LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT		
LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND	LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND		
LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING GROUND FLOOR PLAN	LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING GROUND FLOOR PLAN		
LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING GROUND FLOOR PLAN Designed by: A.M.M Drawn by: A.M.M	LOT II-KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING GROUND FLOOR PLAN Designed by: A.M.M Drawn by: A.M.M		NOV 2023
LOT I RAWING T KAME CH	LOT I RAWING T KAME CH		J.M.M Appro



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FIRST FLOOR PLAN (CHLORINE MIXING AREA)

NO.	TES:
1.	DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
2.	ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER
3.	CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED
4.	ABBREVIATIONS
	R.C - REINFORCED CONCRETE D.P.C - DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL F.F.L - FINISHED FLOOR LEVEL P.C.C - PRECAST CONCRETE G.C.I - GALVANIZED CORRUGATED IRON
5.	EDGES OF TREADS AND RISERS IN CONCRETE STAIRCASE TO BE PROTECTED WITH 40 x 40 x 3mm M.S. ANGLE FIXED WITH FISH TAIL LUGS EMBEDDED IN CONCRETE
6.	ALL VENT BLOCKS UNDER WINDOWS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING
7.	ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING
8.	DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS. IF DIFFERENT TYPE OF DOSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM(S) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS.
CLIE	NT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY
O	P.O BOX 1292 - 10100,
ENGI	NYERI, KENYA NEER: CHIEF MANAGER TECHNICAL
_	SERVICES TANA WATER WORKS
0	P.O BOX 1292 - 10100,
PRO	JECT TITLE:
ИВE	ERE SOUTH WATER SUPPLY PROJEC LOT II-KAMBURU WATER SUPPLY
۲	(AMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING FIRST FLOOR PLAN
	ned by: A.M.M Drawn by: A.M.M
	ked by: J.M.M Approved by: D.N.M :: 1:50 Date: NOV 2023
	No. KWSP/CSMB/02



SECTION A-A

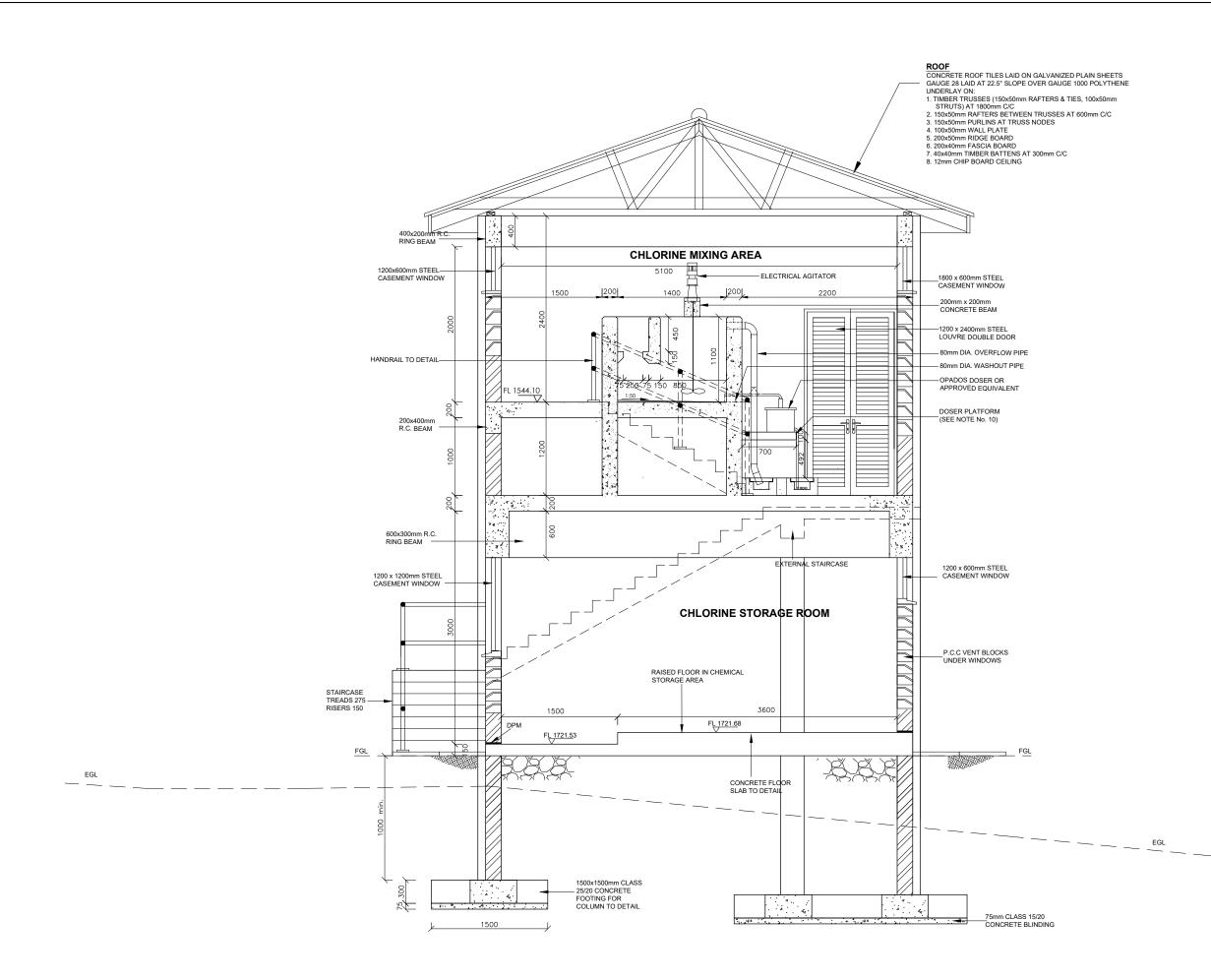
NO	
1.	DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
2.	ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER
3.	CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED
4.	ABBREVIATIONS
	R.C - REINFORCED CONCRETE D.P.C - DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL F.F.L - FINISHED FLOOR LEVEL P.C.C - PRECAST CONCRETE G.C.I - GALVANIZED CORRUGATED IRON
5.	EDGES OF TREADS AND RISERS IN CONCRETE STAIRCASE TO BE PROTECTED WITH 40 x 40 x 3mm M.S. ANGLE FIXED WITH FISH TAIL LUGS EMBEDDED IN CONCRETE
6.	FOR WINDOW SCHEDULE SEE DRG. NO. M407/SD/25
7.	FOR DOOR SCHEDULE SEE DRG NO. M407/SD/26-27
8.	ALL VENT BLOCKS UNDER WINDOWS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING
9.	ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING
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CLIE	INT: THE CHIEF EXECUTIVE OFFICE
CLIE	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS
	THE CHIEF EXECUTIVE OFFICE
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0	INEER: CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES
0	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL
0	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
ENGI	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY
ENGI	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
ENGI PRO	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
ENGI PRO	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE:
ENGI PRO	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE
ENGI PRO	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE
	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE LOT II-KAMBURU WATER SUPPLY
	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE LOT II-KAMBURU WATER SUPPLY WING TITLE: WING TITLE:
	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE LOT II-KAMBURU WATER SUPPLY WING TITLE: WING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING
	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE LOT II-KAMBURU WATER SUPPLY WING TITLE: WING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND
	THE CHIEF EXECUTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA INEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA JECT TITLE: ERE SOUTH WATER SUPPLY PROJE LOT II-KAMBURU WATER SUPPLY WING TITLE: WING TITLE: WING TITLE: KAMBURU WATER TREATMENT WORKS CHLORINE STORAGE AND MIXING BUILDING SECTION A-A

300mm COMPACTED HARDCORE TOP SURFACE _ BLINDED WITH SAND AND GAUGE 500 POLYTHENE SHEET IN 2 LAYERS

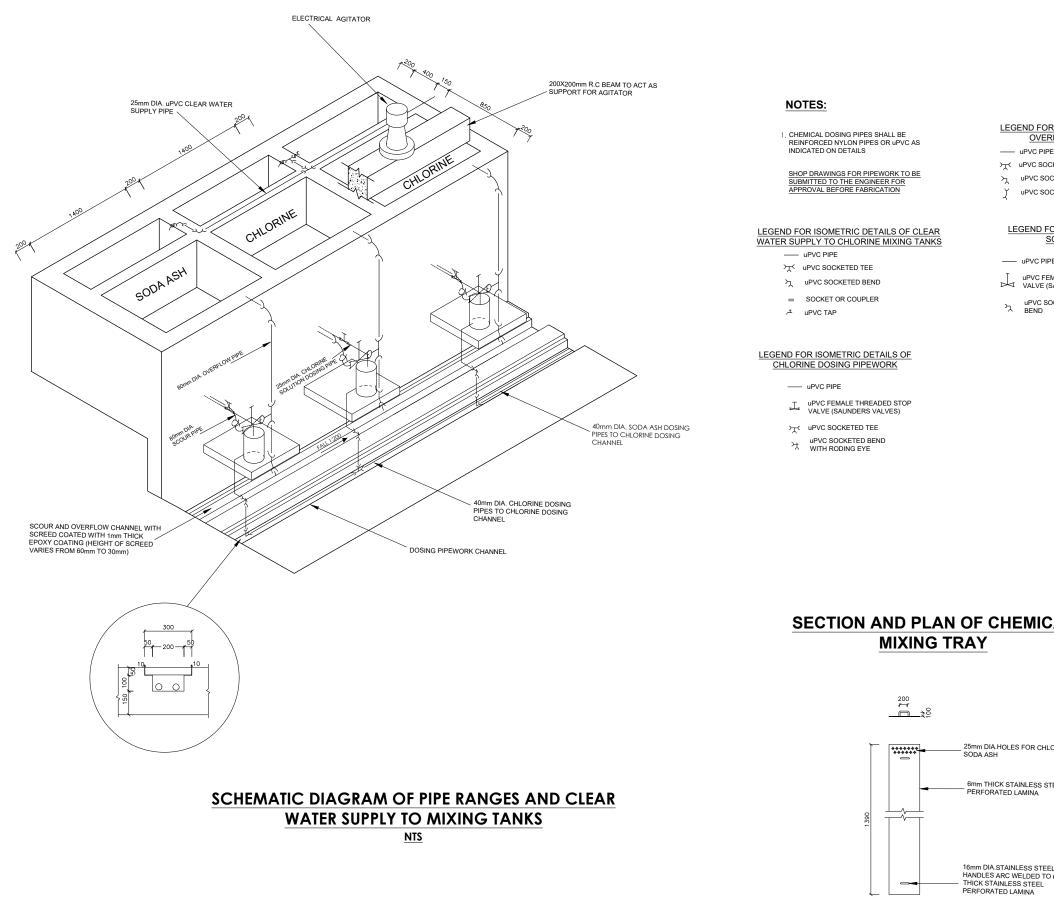
EGL

1500x1500mm CLASS 25/20 CONCRETE FOOTING FOR COLUMN TO DETAIL

SECTION B-B

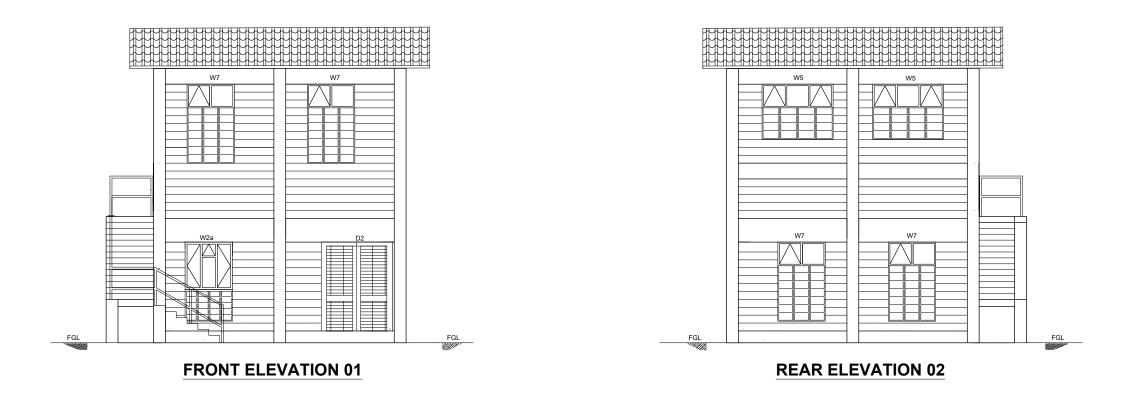


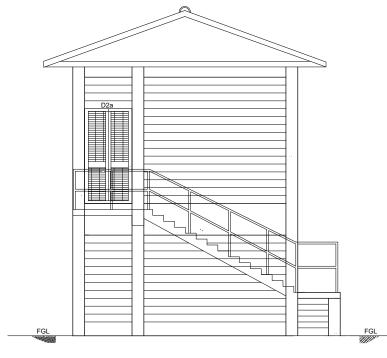
110	TES:	
1.	DIMENSIONS IN mm	UNLESS OTHERWISE
2.	ALL EXPOSED CON HAVE A 25mm x 25m	
3.		S: ALL REINFORCED CLASS 25/20 EXCEPT E SPECIFIED
4.	ABBREVIATIONS	
	D.P.C - DAMP PRC E.G.L - EXISTING (F.G.L - FINISHED (F.F.L - FINISHED (P.C.C - PRECAST (GROUND LEVEL GROUND LEVEL FLOOR LEVEL
5.	EDGES OF TREADS CONCRETE STAIRC PROTECTED WITH M.S. ANGLE FIXED EMBEDDED IN CON	CASE TO BE 40 x 40 x 3mm WITH FISH TAIL LUGS
6.	FOR WINDOW SCHE M407/SD/25	EDULE SEE DRG. NO.
7.	FOR DOOR SCHEDU M407/SD/26-27	ULE SEE DRG NO.
8.	ALL VENT BLOCKS BE PROVIDED WITH TIMBER FRAMING	UNDER WINDOWS TO I PVC GAUZE IN
9.	ALL INTERNAL SUR TANKS TO BE LINED OF APPROVED EPC	D WITH THREE COATS
10.	FOR OPADOS TYPE DIFFERENT TYPE O PROPOSED, CONTR	OF DOSER IS RACTOR TO SUBMIT AILS OF DOSER AND RM(S) BEFORE ISTRUCTION OF
	P.O BOX 129 NYERI, KENY	Ά
ENGI	NEER: CHIEF MA	NAGER TECHNICAL
		0
		TER WORKS
0	P.O BOX 12	PMENT AGENCY 92 - 10100,
PRO	DEVELOP	PMENT AGENCY 92 - 10100,
MBE	DEVELOP P.O BOX 12 NYERI, KEN JECT TITLE: ERE SOUTH WA	PMENT AGENCY 92 - 10100,
DRA	DEVELOP P.O BOX 12 NYERI, KEN JECT TITLE: ERE SOUTH WA LOT II-KAMBUR	PMENT AGENCY 92 - 10100, IYA TER SUPPLY PROJE U WATER SUPPLY
VBE	DEVELOP P.O BOX 12 NYERI, KEN JECT TITLE: ERE SOUTH WA' LOT II-KAMBUR WING TITLE: KAMBURU WAT CHLORINE S MIXING	PMENT AGENCY 92 - 10100, IYA TER SUPPLY PROJE U WATER SUPPLY
MBE DRA'	DEVELOP P.O BOX 12 NYERI, KEN JECT TITLE: ERE SOUTH WA' LOT II-KAMBUR WING TITLE: KAMBURU WAT CHLORINE S MIXING	PMENT AGENCY 92 - 10100, 1YA TER SUPPLY PROJE U WATER SUPPLY WATER SUPPLY
DRA DRA	DEVELOP P.O BOX 12 NYERI, KEN JECT TITLE: ERE SOUTH WA LOT II-KAMBUR WING TITLE: KAMBURU WAT WO CHLORINE S MIXING SECT	PMENT AGENCY 92 - 10100, 1YA TER SUPPLY PROJE U WATER SUPPLY WATER SUPPLY ER TREATMENT RKS STORAGE AND BUILDING TON B-B
//BE DRA [™] ₽	DEVELOP P.O BOX 12 NYERI, KEN JECT TITLE: ERE SOUTH WA LOT II-KAMBUR WING TITLE: KAMBURU WAT WING TITLE: KAMBURU WAT WO CHLORINE 3 MIXING SECT	PRENT AGENCY 92 - 10100, 1YA TER SUPPLY PROJE U WATER SUPPLY WATER SUPPLY ER TREATMENT RKS STORAGE AND BUILDING TION B-B Drawn by: A.M.M



	NOTES:
	1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
	2. ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER
	 CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED
	4. ABBREVIATIONS
	R.C - REINFORCED CONCRETE D.P.C - DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL F.F.L - FINISHED FLOOR LEVEL P.C.C - PRECAST CONCRETE G.C.I - GALVANIZED CORRUGATED IRON
R ISOMETRIC DETAILS OF RFLOW PIPEWORK PE Incketed tee	5. EDGES OF TREADS AND RISERS IN CONCRETE STAIRCASE TO BE PROTECTED WITH 40 x 40 x 3mm M.S. ANGLE FIXED WITH FISH TAIL LUGS EMBEDDED IN CONCRETE
DCKETED BEND (90°) DCKETED BEND (22½°)	 FOR WINDOW SCHEDULE SEE DRG. NO. M407/SD/25
	 FOR DOOR SCHEDULE SEE DRG NO. M407/SD/26-27
FOR ISOMETRIC DETAILS OF SCOUR PIPEWORK PE	8. ALL VENT BLOCKS UNDER WINDOWS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING
EMALE THREADED STOP (SAUNDERS VALVES) SOCKETED	9. ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING
	10. DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS. IF DIFFERENT TYPE OF DOSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM(s) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS.
CAL	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	ENGINEER: CHIEF MANAGER TECHNICAL SERVICES
	TANA WATER WORKS
LORINE AND	P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE:
STEEL	NBEERE SOUTH WATER SUPPLY PROJECT LOT 2-KAMBURU WATER SUPPLY
EL O 6mm	
	DRAWING TITLE: KAMBURU WATER TREATMENT WORKS
	MISCELLANEOUS DETAILS
	Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: NTS Date: NOV 2023
	DRG No. KWSP/CSMB/05

J 390 J



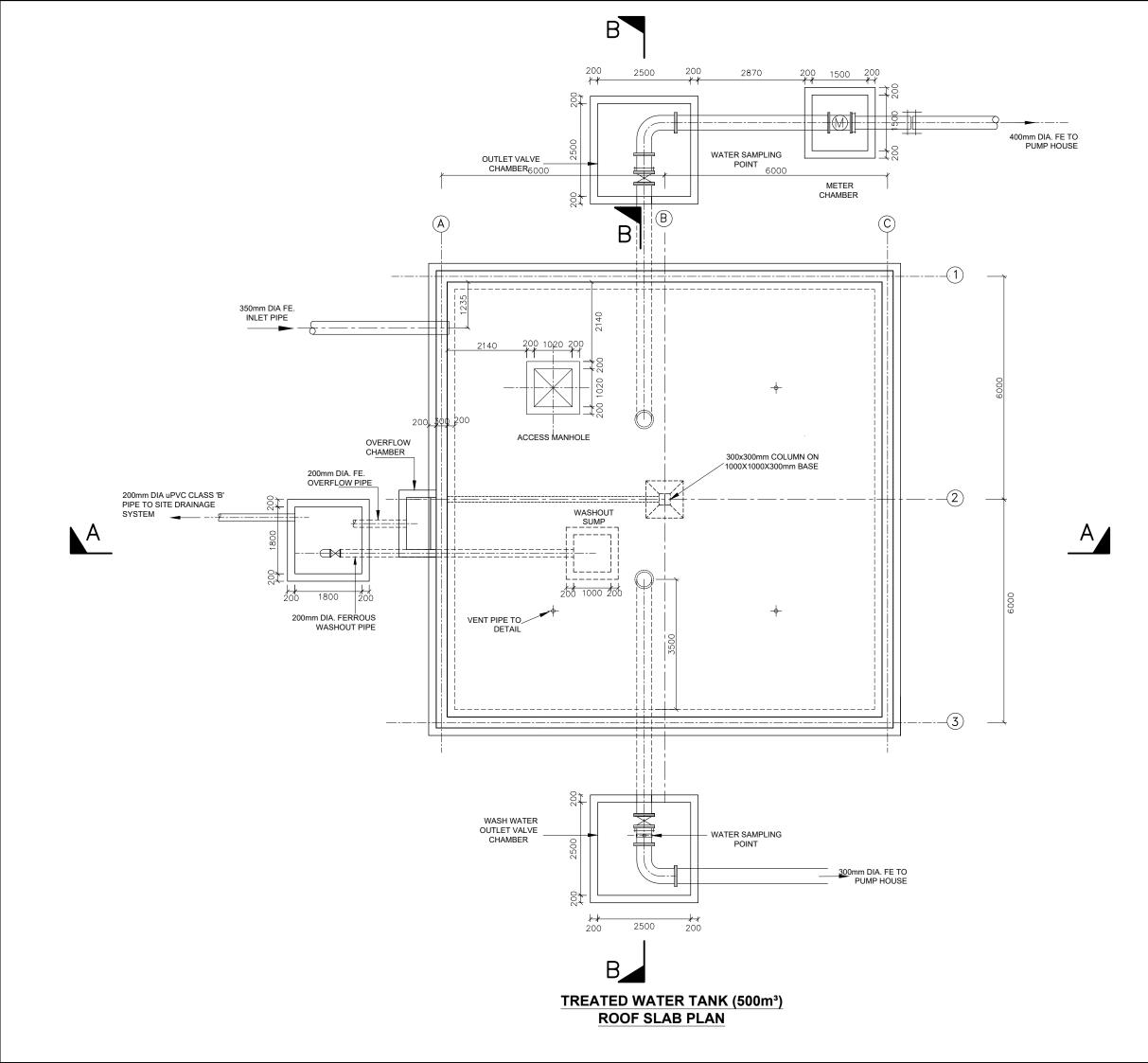


SIDE ELEVATION 03

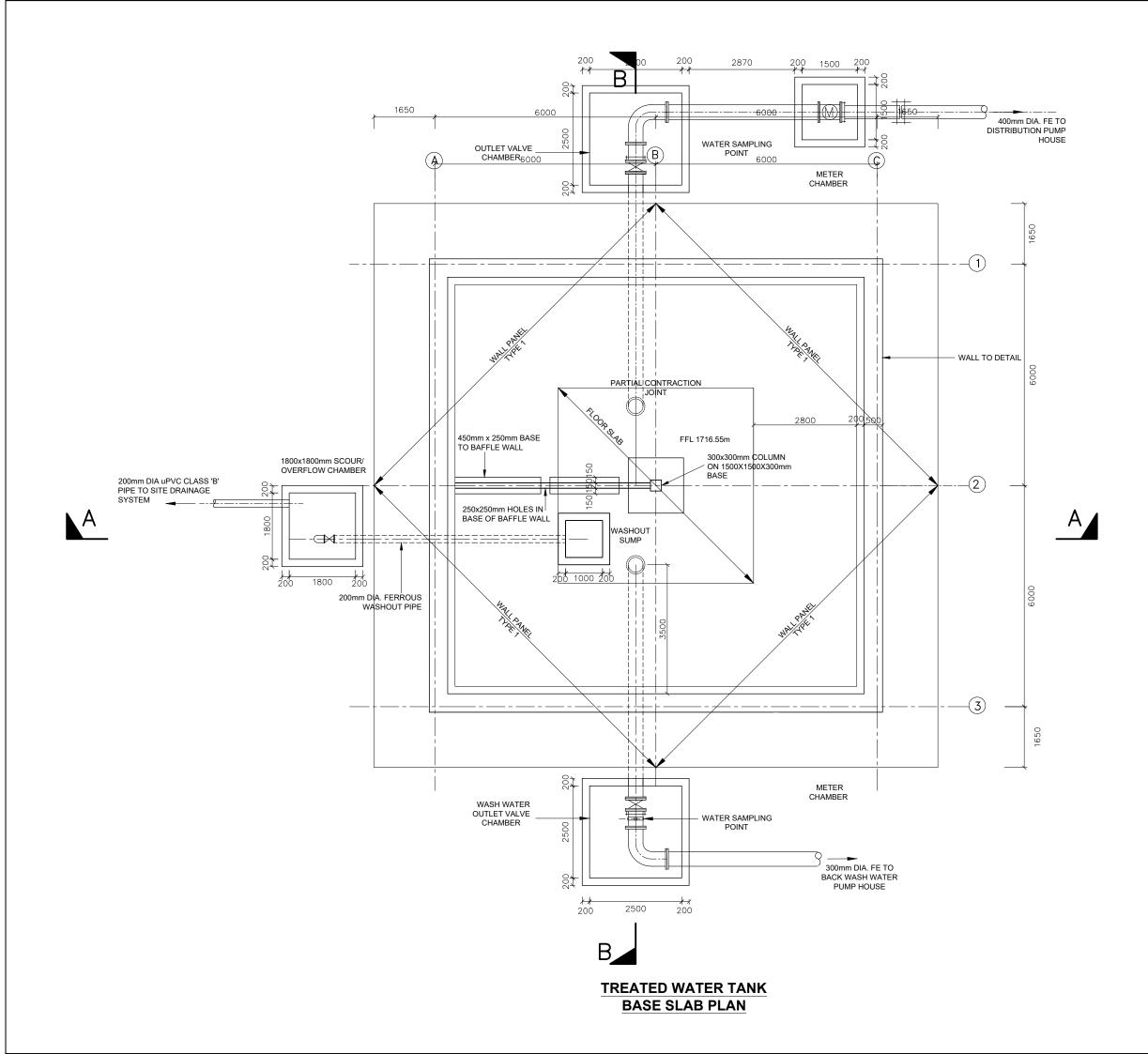


SIDE ELEVATION 04

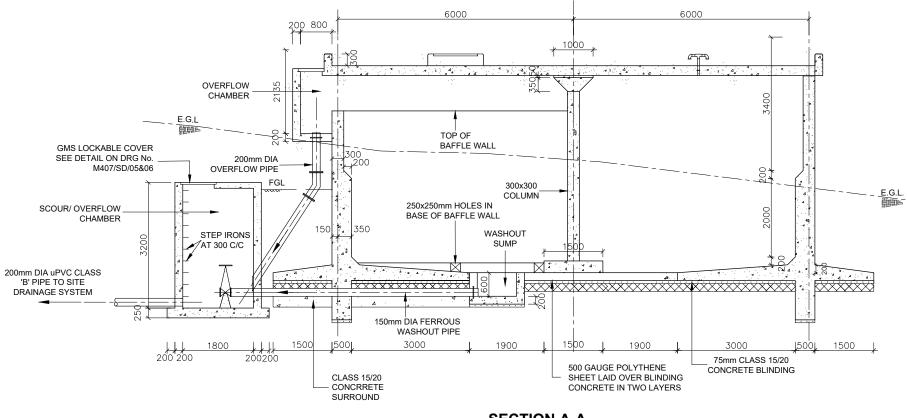
2. 3.	DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED
3.	HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT
	CONCRETE TO BE CLASS 25/20 EXCEPT
4.	
	ABBREVIATIONS
	R.C - REINFORCED CONCRETE D.P.C - DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL F.F.L - FINISHED FLOOR LEVEL P.C.C - PRECAST CONCRETE G.C.I - GALVANIZED CORRUGATED IRON
	EDGES OF TREADS AND RISERS IN CONCRETE STAIRCASE TO BE PROTECTED WITH 40 x 40 x 3mm M.S. ANGLE FIXED WITH FISH TAIL LUGS EMBEDDED IN CONCRETE
	FOR WINDOW SCHEDULE SEE DRG. NO. M407/SD/25
	FOR DOOR SCHEDULE SEE DRG NO. M407/SD/26-27
	ALL VENT BLOCKS UNDER WINDOWS TO BE PROVIDED WITH PVC GAUZE IN TIMBER FRAMING
	ALL INTERNAL SURFACES OF MIXING TANKS TO BE LINED WITH THREE COATS OF APPROVED EPOXY LINING
	DETAIL OF DOSER PLATFORM IS SHOWN FOR OPADOS TYPE DOSERS. IF DIFFERENT TYPE OF DOSER IS PROPOSED, CONTRACTOR TO SUBMIT TO ENGINEER DETAILS OF DOSER AND SUITABLE PLATFORM(S) BEFORE COMMENCING CONSTRUCTION OF MIXING TANK WALLS.
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	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA EER: CHIEF MANAGER TECHNICAI SERVICES
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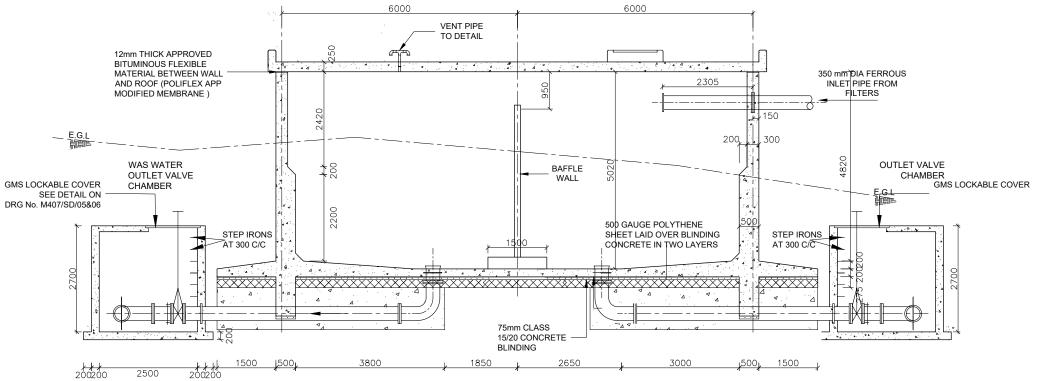
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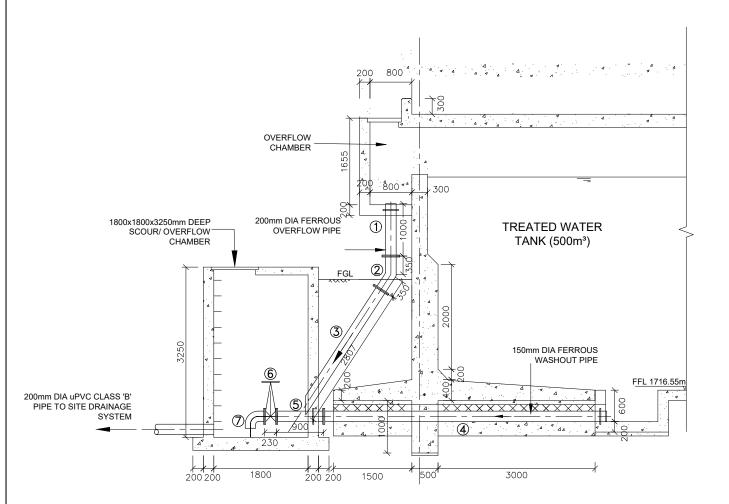




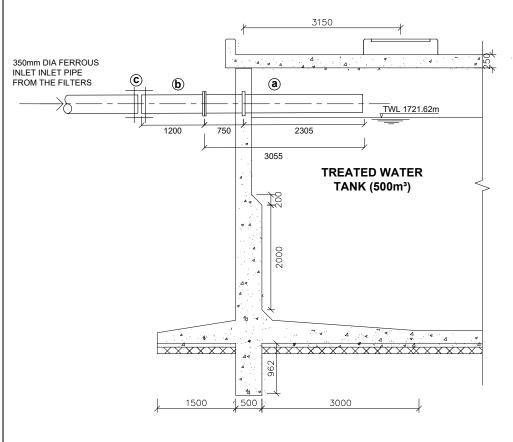


SECTION B-B

	<u>S:</u>			
			IS IN MILLIMETE RWISE INDICATE	
			CONCRETE EDG	
(CONC	RETE TO	ORKS: ALL REINF BE CLASS 25 /20 WISE SPECIFIED) EXCEPT
4. /	ABBRE	VIATION	S:	
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	r.			
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0		TANA V DEVEL(P.O BOX 1 NYERI, KE	ATER WORKS DPMENT AGEN 292 - 10100, NYA	S CY
0	ER:	TANA V DEVELO P.O BOX 1 NYERI, KE CHIEF M SERVIC TANA V DEVELO P.O BOX 1	VATER WORKS DPMENT AGEN 292 - 10100, NYA MANAGER TEC ES VATER WORKS DPMENT AGEN 292 - 10100,	S CY HNICAL
	ER:	TANA V DEVELC P.O BOX 1 NYERI, KE CHIEF N SERVIC TANA V DEVELC P.O BOX 1 NYERI, KE	VATER WORKS DPMENT AGEN 292 - 10100, NYA MANAGER TEC ES VATER WORKS DPMENT AGEN 292 - 10100,	S CY HNICAL
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OVERFLOW AND WASHOUT PIPE WORK DETAILS



INLET PIPE DETAILS

SCOUR AND OVERFLOW PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
1	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE 120mm FROM SPIGOT END	150	1000	1
2	ALL FLANGED 30° BEND	150	150Ø 350 350	1
3	FLANGED SPIGOT PIPE WITH END BEVELLED (LENGTH CUT TO SUIT ON SITE)	150	2650	1
4	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 120mm FROM PLAIN END	200	5400	1
5	ALL FLANGED PIPE WITH PUDDLE FLANGE AT 200mm FROM ONE END	200	900	1
6	ALL FLANGED GATE VALVE(EURO 20 SERIES, TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)	200	-	1
7	FLANGED SPIGOT 90° BEND (CUT TO SUIT ON SITE)	200	500 200Ø	1

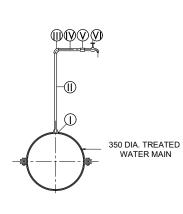
INLET PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
a	FLANGED SPIGOT PIPE WITH PUDDLE FLANG 750mm FROM FLANGED END	E 350	3055	1
Ь	FLANGED SPIGOT PIPE	350	1200	1
©	V.J COUPLING	350	-	1

WATER SAMPLING PIPES AND FITTINGS SCHEDULE

(APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
0	STEEL SADDLE CLAMP	350x25	-	1
(1)	G.I PIPE WITH MALE THREADED ENDS	25	1000	1
	G.I ELBOW (FEMALE THREADED)	25	-	1
\mathbb{N}	G.I PIPE WITH MALE THREADED ENDS	25	250	1
V	G.I UNION (FEMALE THREADED)	25	-	1
Ŵ	BRASS TAP	25	-	1



WATER SAMPLING PIPE DETAIL NTS

NOTES:

- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE INDICATED
- ALL EXPOSED CONCRETE EDGES TO 2. HAVE A 25mm x 25mm CHAMFER
- CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT WHERE OTHERWISE SPECIFIED
- ABBREVIATIONS: 4.

R.C -	REINFORCED CONCRETE
F.G.L -	FINISHED GROUND LEVEL
E.G.L -	EXISTING GROUND LEVEL
DN -	NOMINAL DIAETER
uPVC -	UNPLASTICISED POLYVINYL
	CHLORIDE
G.I -	GALVANIZED IRON

5. THIS DRAWING IS TO BE USED FOR PIPEWORK DETAILS ONLY. OTHER TANK CONSTRUCTION DETAILS TO BE READ FROM DWG NO. M407/CG/TW/KB/TWT/01-03

> CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:

0

CLIENT:

CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS



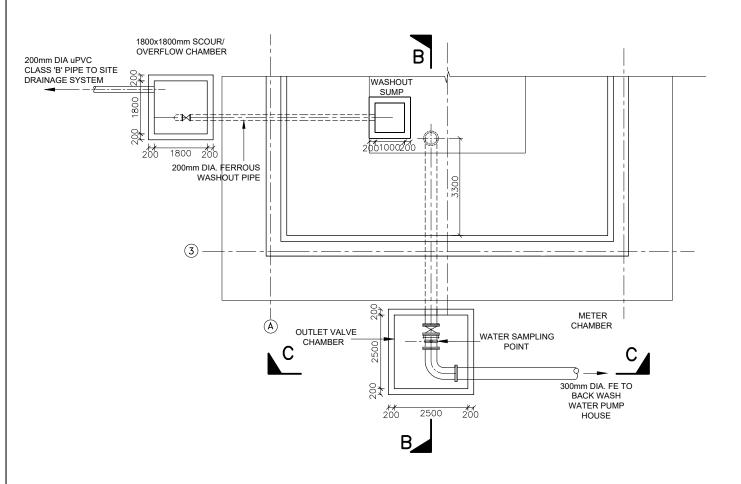
DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

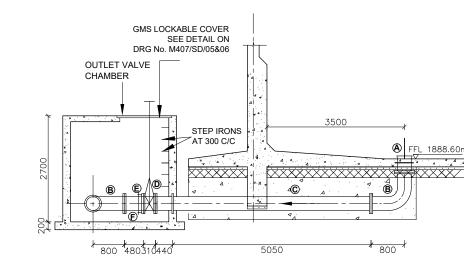
MBEERE SOUTH WATER SUPPLY PROJECT KAMBURU WATER SUPPLY

DRAWING TITLE

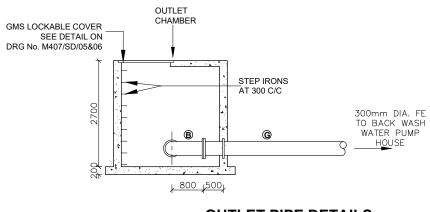
TREATED WATER TANK (500m ³)						
PIPES AND FITTIN	PIPES AND FITTINGS SCHEDULE					
Designed by: A.M.M	Drawn by: A.M.M					
Checked by: J.M.M	Approved by: D.N.M					
Checked by: J.M.M Scale: 1:100						



WASH WATER OUTLET **PIPE DETAILS** PLAN SCALE 1:75



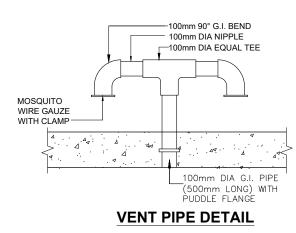
OUTLET PIPE DETAILS SECTION B-B



OUTLET PIPE DETAILS SECTION C-C

OUTLET PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
A	SPECIAL FLANGED BELLMOUTH WITH PUDDLE FLANGE 170mm FROM THE BELLMOUTH END	300	415	1
B	ALL FLANGED 90° BEND	300	800 © 350Ø	2
C	ALL FLANGED PIPE WITH PUDDLE FLANGE AT 5050mm FROM ONE END	300	5500	1
D	ALL FLANGED GATE VALVE(EURO 20 SERIES, TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)	300	310	1
E	FLANGE ADAPTOR	300	-	2
Ē	FLANGED SPIGOT PIPE	300	500	1
F	FLANGED SPIGOT PIPE	300	10000	1



NOTES:

A FFL 1888.60m

744

B,

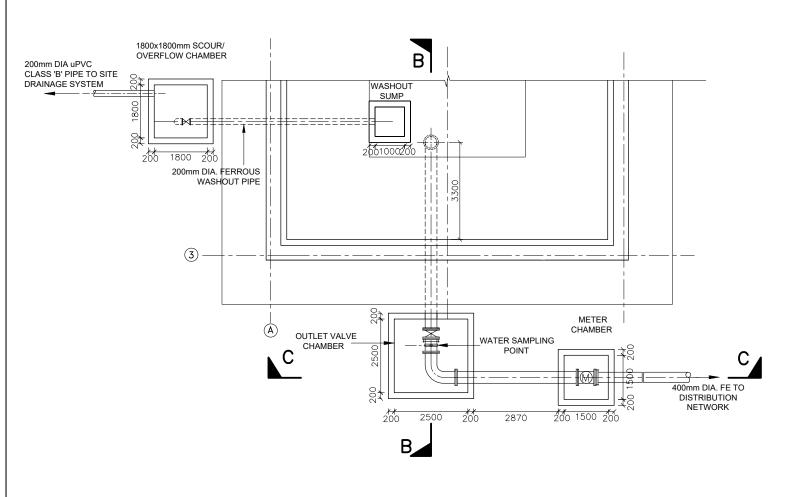
800

- ALL DIMENSIONS IN MILLIMETERS 1. UNLESS OTHERWISE INDICATED
- ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER 2.
- CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT 3 WHERE OTHERWISE SPECIFIED
- ABBREVIATIONS: 4.

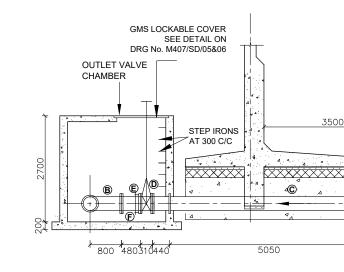
R.C	-	REINFORCED CONCRETE
F.G.L	-	FINISHED GROUND LEVEL
E.G.L	-	EXISTING GROUND LEVEL
DN	-	NOMINAL DIAETER
uPVC	-	UNPLASTICISED POLYVINYL
		CHLORIDE
G.I	-	GALVANIZED IRON

THIS DRAWING IS TO BE USED FOR 5. PIPEWORK DETAILS ONLY. OTHER TANK CONSTRUCTION DETAILS TO BE READ FROM DWG NO. M407/CG/TW/KB/TWT/01-03

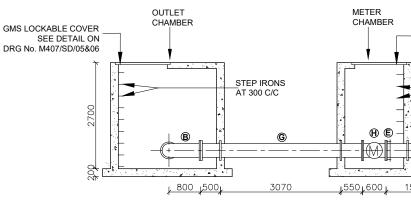
W(TREATED WATE OUTLET PIPE A SCHEI Designed by: A.M.M Checked by: J.M.M Scale: 1:100	AND FITTINGS				
KAMBURU WA W(TREATED WATEL OUTLET PIPE A SCHEI Designed by: A.M.M Checked by: J.M.M	DRKS R TANK (500m ³) ND FITTINGS DULE Drawn by: A.M.M				
KAMBURU WA W(TREATED WATE) OUTLET PIPE A SCHEI	ORKS R TANK (500m ³) AND FITTINGS DULE				
KAMBURU WA WO TREATED WATEI OUTLET PIPE A	ORKS R TANK (500m³) AND FITTINGS				
P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT KAMBURU WATER SUPPLY					
SERVICE TANA WA DEVELOI P.O BOX 120	ATER WORKS PMENT AGENCY 92 - 10100,				
CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA					
TANA WA					



OUTLET PIPE DETAILS PLAN SCALE 1:75



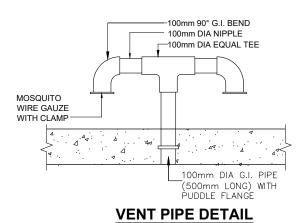
OUTLET PIPE DETAILS SECTION B-B



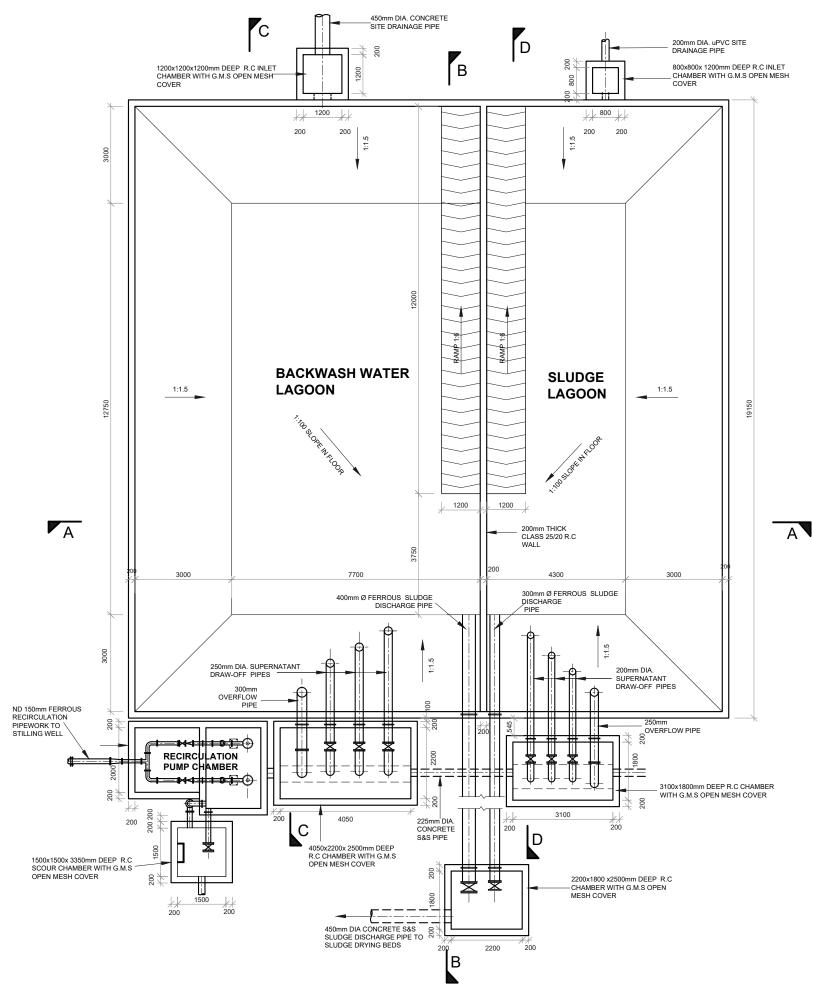
OUTLET PIPE DETAILS SECTION C-C

OUTLET PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

DESCRIPTION	DIA. (mm)	LENGTH (mm
SPECIAL FLANGED BELLMOUTH WITH PUDDLE FLANGE 170mm FROM THE BELLMOUTH END	400	415
ALL FLANGED 90° BEND	400	
ALL FLANGED PIPE WITH PUDDLE FLANGE AT 5050mm FROM ONE END	400	5500
ALL FLANGED GATE VALVE(EURO 20 SERIES, TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)	400	310
FLANGE ADAPTOR	400	-
FLANGED SPIGOT PIPE	400	500
ALL FLANGED PIPE WITH PUDDLE FLANGES AT 500mm AND AT 3470 FROM ONE END	400	5500
ALL FLANGED WATER METER (KENT OR APPROVED EQUIVALENT)	400	600
PLAIN ENDED PIPE WITH PUDDLE FLANGE AT 502mm FROM ONE END	400	20000
	SPECIAL FLANGED BELLMOUTH WITH PUDDLE FLANGE 170mm FROM THE BELLMOUTH END ALL FLANGED 90° BEND ALL FLANGED PIPE WITH PUDDLE FLANGE AT 5050mm FROM ONE END ALL FLANGED GATE VALVE(EURO 20 SERIES,TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT) FLANGE ADAPTOR FLANGED SPIGOT PIPE ALL FLANGED PIPE WITH PUDDLE FLANGES AT 500mm AND AT 3470 FROM ONE END ALL FLANGED WATER METER (KENT OR APPROVED EQUIVALENT) PLAIN ENDED PIPE WITH PUDDLE FLANGE	SPECIAL FLANGED BELLMOUTH WITH PUDDLE FLANGE 170mm FROM THE BELLMOUTH END400ALL FLANGED 90° BEND400ALL FLANGED PIPE WITH PUDDLE FLANGE AT 5050mm FROM ONE END400ALL FLANGED GATE VALVE(EURO 20 SERIES,TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)400FLANGE ADAPTOR400FLANGED SPIGOT PIPE400ALL FLANGED PIPE WITH PUDDLE FLANGES AT 500mm AND AT 3470 FROM ONE END400ALL FLANGED WATER METER (KENT OR APPROVED EQUIVALENT)400

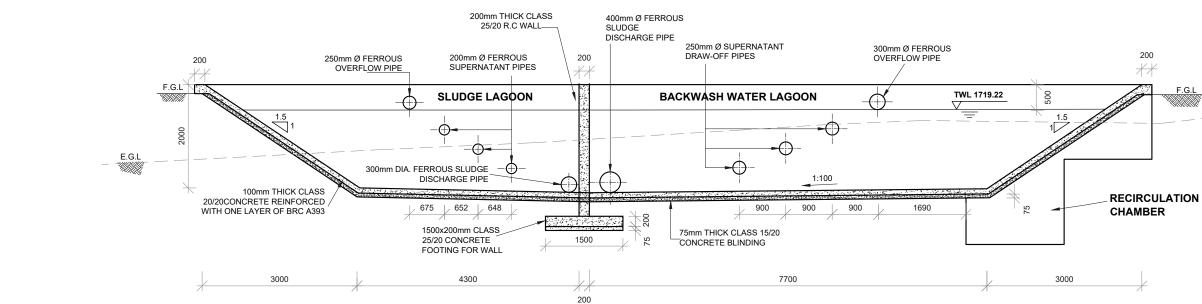


NOTES: ALL DIMENSIONS IN MILLIMETERS 1. UNLESS OTHERWISE INDICATED ALL EXPOSED CONCRETE EDGES TO 2 HAVE A 25mm x 25mm CHAMFER 3 CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT WHERE OTHERWISE SPECIFIED ABBREVIATIONS: 4. REINFORCED CONCRETE R.C -F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL E.G.L -B FFL 1888.60m NOMINAL DIAETER DN -4 4 4 uPVC -UNPLASTICISED POLYVINYL CHLORIDE G.I GALVANIZED IRON B, THIS DRAWING IS TO BE USED FOR 5. PIPEWORK DETAILS ONLY. OTHER TANK CONSTRUCTION DETAILS TO BE READ FROM DWG NO. M407/CG/TW/KB/TWT/01-03 800 ´ GMS LOCKABLE COVER SEE DETAIL ON DRG No. M407/SD/05&06 STEP IRONS AT 300 C/C 400mm DIA. FE TO DISTRIBUTION έlΩ NETWORK 1500 j CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100 0 NYERI, KENYA QUANTITY H (mm) (No.) ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS 1 DEVELOPMENT AGENCY \bigcirc P.O BOX 1292 - 10100, NYERI, KENYA 2 PROJECT TITLE: 1 MBEERE SOUTH WATER SUPPLY PROJECT 1 KAMBURU WATER SUPPLY 2 1 DRAWING TITLE: 1 KAMBURU WATER TREATMENT WORKS TREATED WATER TANK (500m³) OUTLET PIPE AND FITTINGS 1 SCHEDULE 1 Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Date: NOV 2023 Scale: 1:100 KWSP/TWT/06 DRG No.

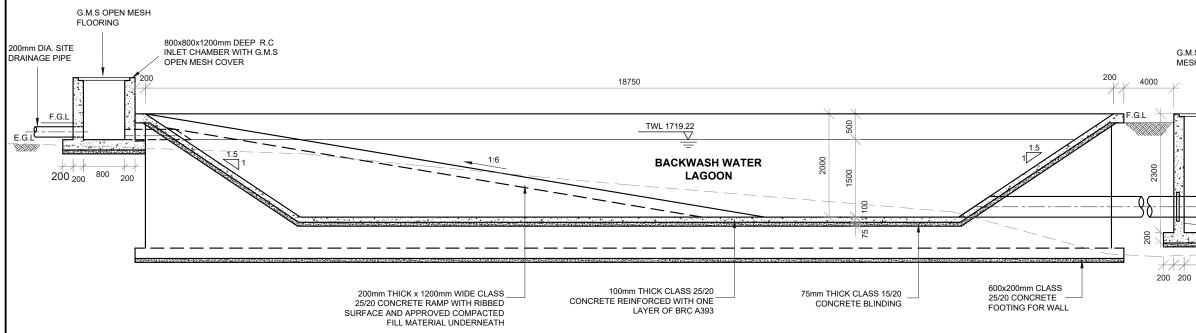


BACKWASH WATER LAGOON AND SLUDGE LAGOON PLAN

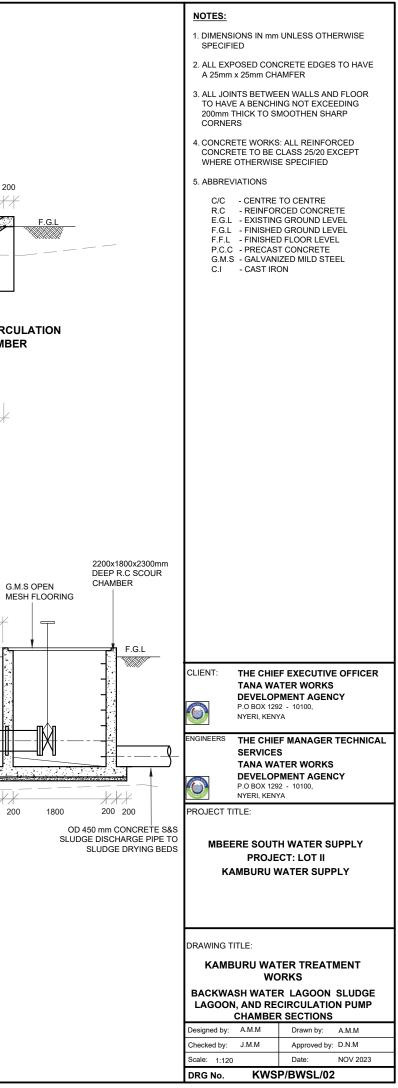
NOTES:	
1. DIMENSIONS IN mm SPECIFIED	UNLESS OTHERWISE
2. ALL EXPOSED CONC A 25mm x 25mm CHA	CRETE EDGES TO HAVE
3. ALL JOINTS BETWEE TO HAVE A BENCHIN 200mm THICK TO SM CORNERS	IG NOT EXCEEDING
4. CONCRETE WORKS: CONCRETE TO BE C WHERE OTHERWISE	LASS 25/20 EXCEPT
5. ABBREVIATIONS	
E.G.L - EXISTING F.G.L - FINISHED	CED CONCRETE GROUND LEVEL FLOOR LEVEL FLOOR LEVEL CONCRETE ZED MILD STEEL
CLIENT: THE CHIEF	EXECUTIVE OFFICER
TANA WAT	ER WORKS IENT AGENCY
NYERI, KENYA	
SERVICES	MANAGER TECHNICAL
DEVELOPN	ER WORKS IENT AGENCY
P.O BOX 1292 NYERI, KENYA	
PROJECT TITLE:	
MBEERE SOUTH	WATER SUPPLY
	T: LOT II ATER SUPPLY
DRAWING TITLE:	
KAMBURU WATI	
LAGOON, AND REC	RKS LAGOON SLUDGE IRCULATION PUMP ER PLAN
Designed by: A.M.M	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:120	Date: NOV 2023

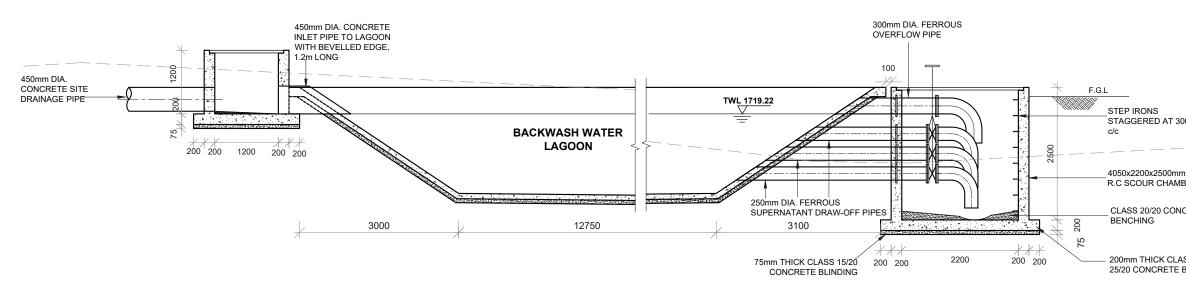


SECTION A-A

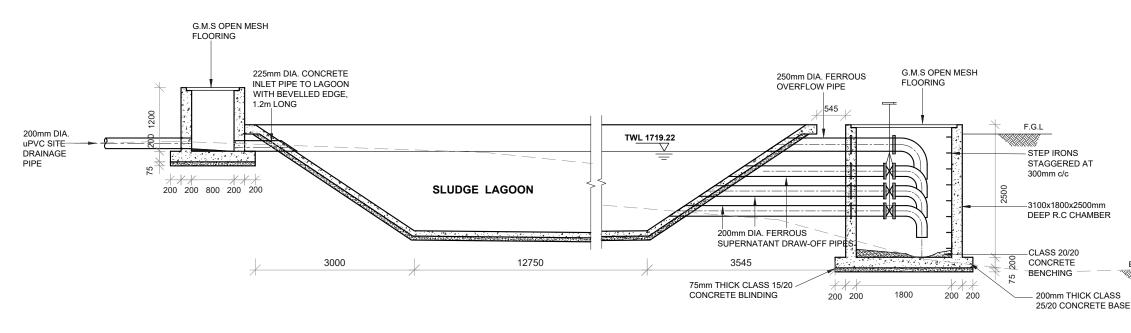


SECTION B - B



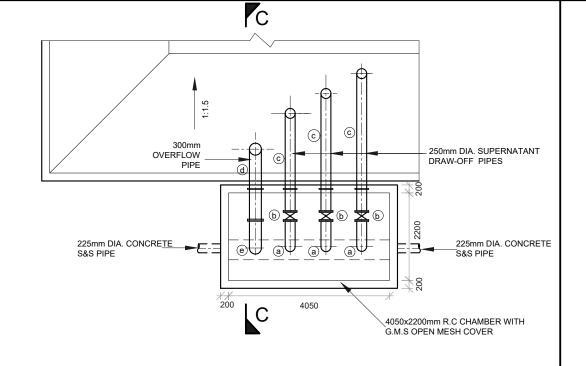


SECTION C-C BACKWASH WATER LAGOON INLET AND OUTLET PIPEWORK DETAILS SCALE 1:75

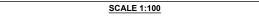


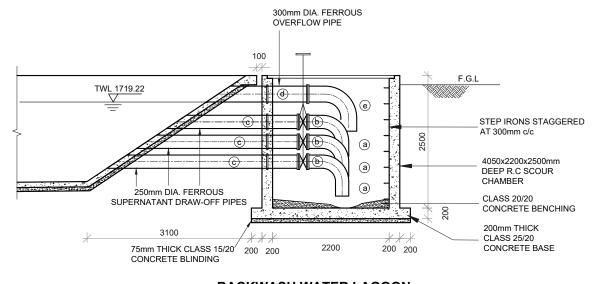
SECTION D-D SLUDGE LAGOON INLET AND OUTLET PIPEWORK DETAILS SCALE 1:75

■ DEEP IBER CLENT: THE CHIEF EXECUTIVE OFFICER C. I. = NUB-BE DOOR LEVEL F. C. = NUB-BE DOOR LEVEL F. E. MUB-BE DOOR LEVEL F. C. = NUB-BE DOOR LEVEL F. C		NOTES:			
00mm 9. ALL/OMMERE 00mm • CONCRETE VORUS ALL REINFORCED CONTRETE TO ECLASS 2020 EXCEPT WHERE CONTRETING THE WORKS ALL REINFORCED CONTRETE TO ECLASS 2020 EXCEPT WHERE CONTRENT OF ENDINE INCOMENTE TO ECLASS 2020 EXCEPT WHERE CONTRETING AND THE CONTRETE C.G. * ERINFORCED CONCRETE C.G. * ERINFORCED CONCRETE DEVELOPMENT AGENCY P.G. * ERINF DEVELOPMENT AGENCY P.G. * ERINF C.G. * ERINFORCED DEVELOPMENT AGENCY P.G. * ERINF C.G. * ERINFORCED DEVELOPMENT AGENCY P.G. * ERINF C.G. * ERINF C.		-		NLESS OTHER	WISE
000mm CONCRETE WORKS ALL REMFORCED CONCRETE TO BE CLASS STOR EXCEPT WHERE OTHERWISS SPECIFIED SABBREVATIONS CONCRETE TO BE CLASS STOR EXCEPT WHERE OTHERWISS SPECIFIED SABBREVATIONS CC - CENTRETE TO BE CLASS STOR EXCEPT WHERE OTHERWISS SPECIFIED SABBREVATIONS CC - CENTRETE TO BE CLASS STOR EXCEPT SABBREVATIONS CC - CENTRETE TO BE CLASS STOR EXCEPT SABBREVATIONS CC - CENTRETE TO BE CLASS STOR EXCEPT SABBREVATIONS CC - CENTRETE TO CONCRETE E CL - SERVICIONED EVEL F. F. L - FINISHED FLOOR LEVEL F. C. C - RECAST CONCRETE C. J - CAST INCO CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY PO BOX 122 - 10100. TOTAL WATER WORKS DEVELOPMENT AGENCY PO BOX 122 - 10100. EVALUATE WORKS DEVELOPMENT AGENCY PO BOX 122 - 10100. TANA WATER WORKS DEVELOPMENT AGENCY PROJECT ITTLE! MBEERE SOUTH WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DRAVING TITLE! MERCENS BACKWASH WATER LAGOON AND SULGE LAGOON NLET AND OUT LAGENCY PROJECT: LOT II DEWELOPMENT AGENCY PROJECT: LOT II MBEERE SOUTH WATER SUPPLY NET LEWATER DEWELOPMENT AGENCY PROJECT: LOT II MBEERE SOUTH WATER SUPPLY NET LEWATER TREATMENT WORKS DACKWASH WATER LAGOON AND SULGE LAGOON NLET AND OUT DOTALS DEWELOPMENT DETAILS					D HAVE A
000mm E.G.L ■ DEEP S. ABBREVIATIONS BER CC - CENTRE TO CENTRE P.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL P.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL BER F.G.L - EXISTING GROUND LEVEL S. ABBREVIATIONS C.C PRECAST CONCRETE C.G EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL G.G EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL G.G CASTINGON EXISTING GROUND LEVEL MAX F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F.G.L - EXISTING GROUND LEVEL F		HAVE A B	ENCHING NO	OT EXCEEDING	200mm
BOILING D/C CENTRE TO CENTRE IN DEEP PEGL FEL IN DEEP FEL PRINKER ORUND LEVEL F.C. PRINKER ORUND LEVEL FFL STATUSHED CONCRETE C. INSING FORUND LEVEL SS. RALVANIZED MILD STEEL C. I SS. RASE CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P. DAX 1920 - 10100. VP. DAX 1920 - 10100. P. DAX 1920 - 10100. P. DAX 1920 - 10100. EGL PROJECT TITLE: MBEERE SOUTH WATER SUPPLY P. DAX 1920 - 10100. EGL PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT TITLE: MEERE SOUTH WATER SUPPLY PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT TITLE: KAMBURU WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY PROJECT TITLE: MAMEURU WATER SUPPLY Devigned by: J.M.M. Drawn row in J.M.M. Sonie: 1:120 DAW MATER J. DAM DAM		CONCRET	E TO BE CL	ASS 25/20 EXCE	
EGL R.C. -REINFORCED CONCRETE Im DEEP INER F.G.L. ENSING GROUND LEVEL F.G.L. ENSING GROUND LEVEL F.G.L. NORFTE GALVANIZED MILD STEEL C.J. CAST IRON SEE CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.D BOX 1920 - 10100, WEEL KEWA SERVICES EGL FINCHERS THE CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.D BOX 1920 - 10100, WEEL KEWA WEEL COMMENT AGENCY P.D BOX 1920 - 10100, WEEL KEWA SERVICES FOOLECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY Designed by "AMM Trank TRAGOON INLET AND OUTLET DETAILS Designed by "AMM Trank TRAGOON SILET AND OUTLET DETAILS	300mm				
EGL EGL EGL EGL EGL EGL EGL EGL	E.G.L m DEEP IBER NCRETE	R.C E.G.L F.G.L F.F.L P.C.C G.M.S	- REINFORC - EXISTING (- FINISHED (- FINISHED F - PRECAST (- GALVANIZE	ED CONCRETE GROUND LEVEL GROUND LEVEL FLOOR LEVEL CONCRETE ED MILD STEEL	-
EST CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY PVER KENYA ENGINEERS THE CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DEVELOPMENTER LAGOON INLET AND OUTLET DETAILS Designed by AMM Drawn by: AMM Checked by: JMM Drawn by: DMM	ASS BASE				
EGL CONTRACTOR OF CONTRACT OF					
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E.G.L E.		CLIENT:			
E.G.L ENGINEERS THE CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. 0 BOX 1292 - 10100, NYER, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Scale: 1:120 Date: NOV 2023		\bigcirc	DEVELOP P.O BOX 129	MENT AGEN 2 - 10100,	
EGL EGL EGL EGL EGL EGL EGL EGL					TECHNICAL
E POBOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:120 Date: NOV 2023			TANA WA	TER WORKS	
E MBEERE SOUTH WATER SUPPLY PROJECT: LOT II KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Scale: 1:120	E.G.L	\bigcirc	P.O BOX 129	2 - 10100,	ыт
PROJECT: LOT II KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON AND SLUDGE LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Scale: 1:120	E	PROJECT TI	TLE:		
KAMBURU WATER SUPPLY DRAWING TITLE: KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON AND SLUDGE LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:120 Date: NOV 2023		MBEE			JPPLY
KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON AND SLUDGE LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Scale: 1:120		KA			νLY
KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON AND SLUDGE LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Scale: 1:120					
KAMBURU WATER TREATMENT WORKS BACKWASH WATER LAGOON AND SLUDGE LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Scale: 1:120		DRAWING T	TLE:		
BACKWASH WATER LAGOON AND SLUDGE LAGOON INLET AND OUTLET DETAILS Designed by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:120					MENT
Designed by:A.M.MDrawn by:A.M.MChecked by:J.M.MApproved by:D.N.MScale:1:120Date:NOV 2023			KWASH	WATER LAG	
Scale: 1:120 Date: NOV 2023					
		Checked by:	J.M.M	Approved by:	D.N.M
		Scale: 1:120 DRG No.			





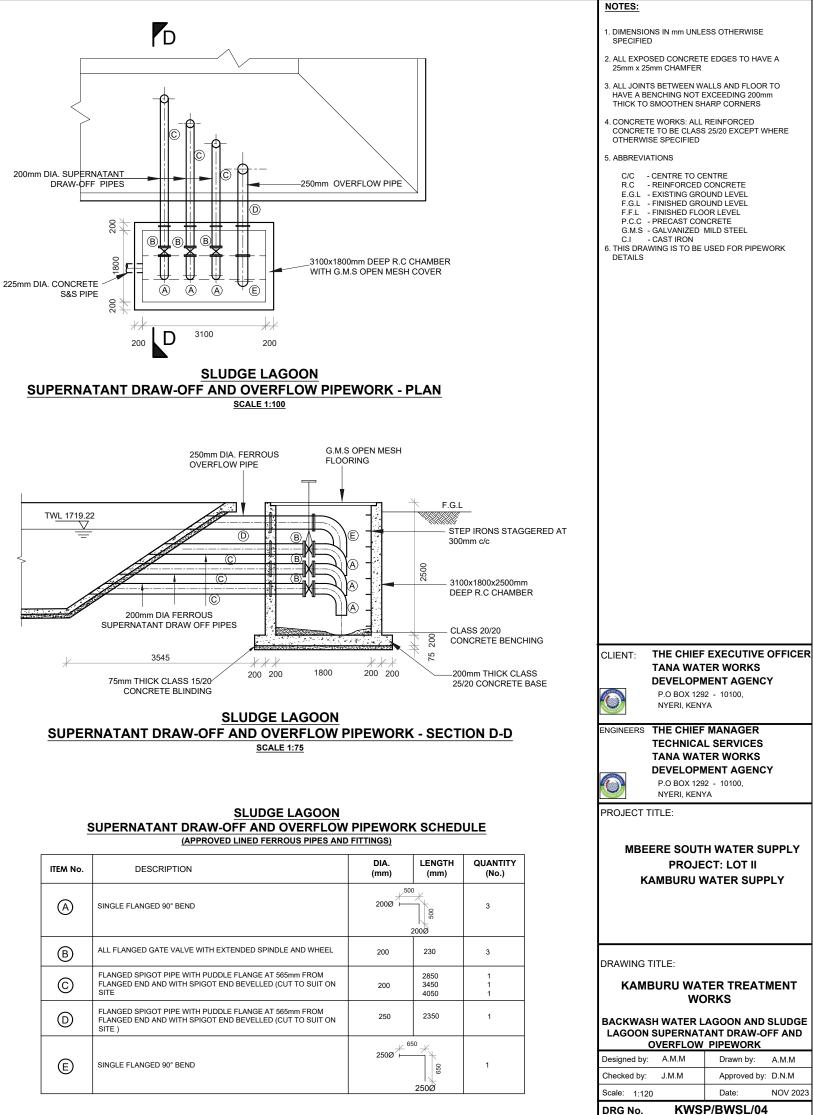




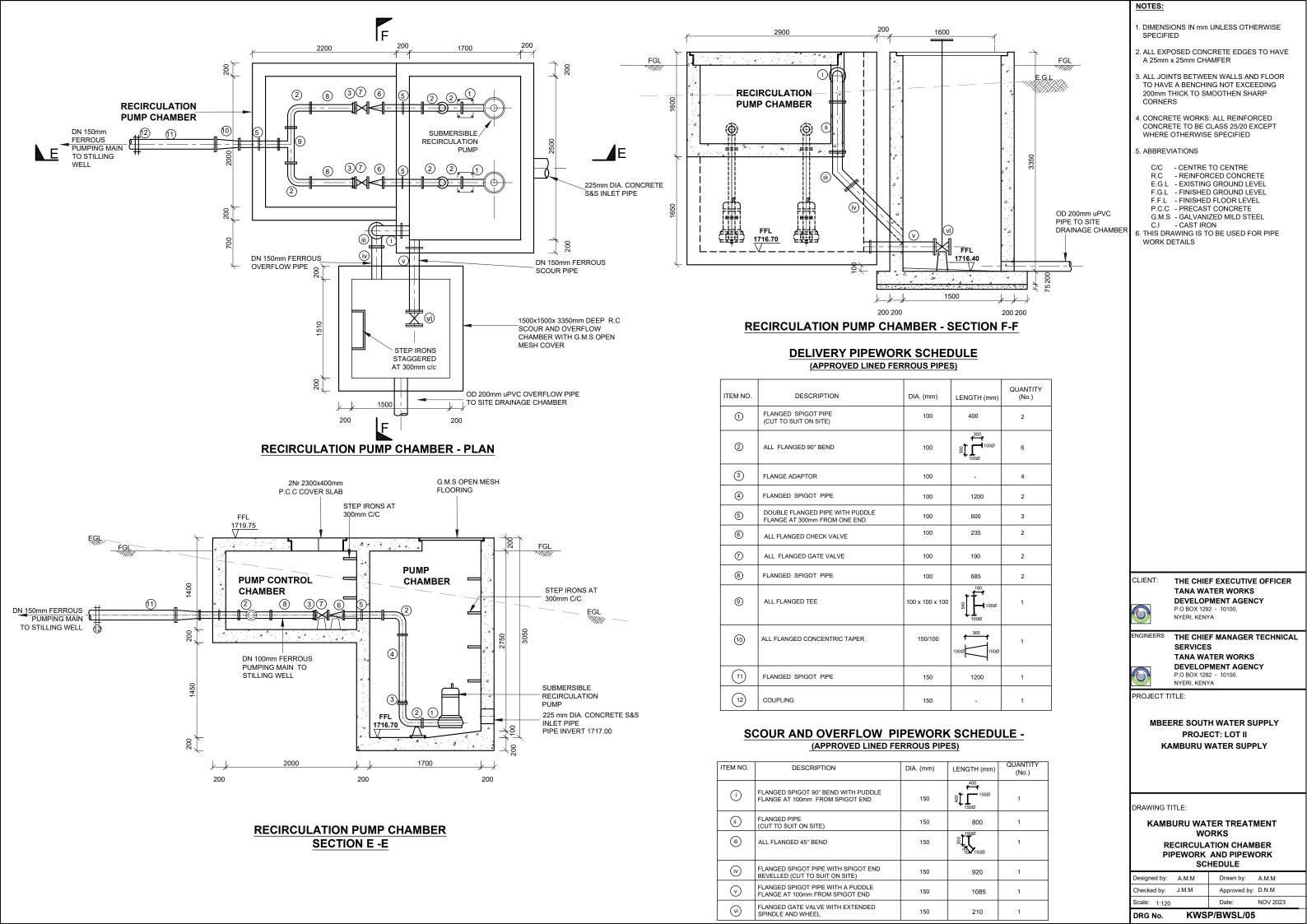
BACKWASH WATER LAGOON SUPERNATANT DRAW-OFF AND OVERFLOW PIPEWORK -SECTION C-C SCALE 1:75

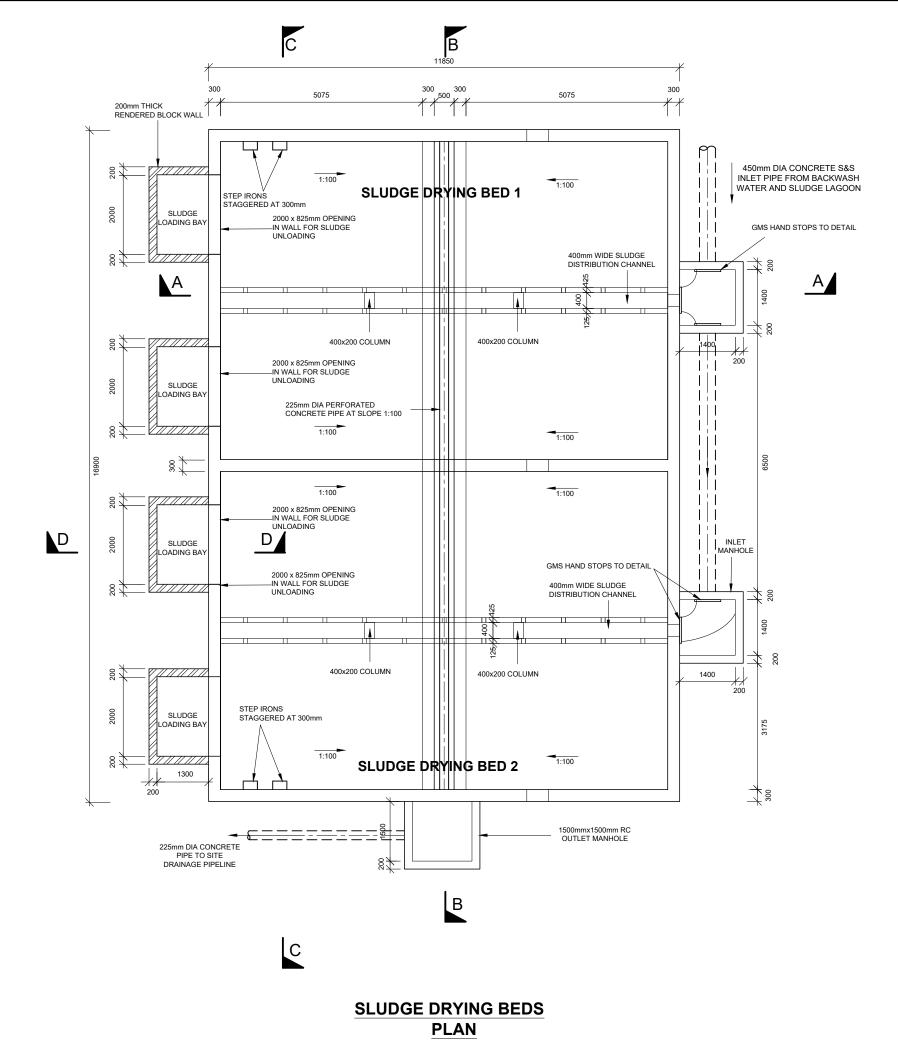
BACKWASH WATER LAGOON SUPERNATANT DRAW-OFF AND OVERFLOW PIPEWORK SCHEDULE (APPROVED LINED FERROUS PIPES AND FITTINGS)

ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
a	SINGLE FLANGED 90° BEND	250Ø ⊬ ⁶⁸	2500	3
b	ALL FLANGED GATE VALVE WITH EXTENDED SPINDLE AND WHEEL	250	250	3
©	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 750mm FROM FLANGED END AND WITH SPIGOT END BEVELLED (CUT TO SUIT ON SITE)	250	2400 2950 3550	1 1 1
d	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 750mm FROM FLANGED END AND WITH SPIGOT END BEVELLED (CUT TO SUIT ON SITE)	300	1750	1
e	SINGLE FLANGED 90° BEND	300Ø × 70	3000	1

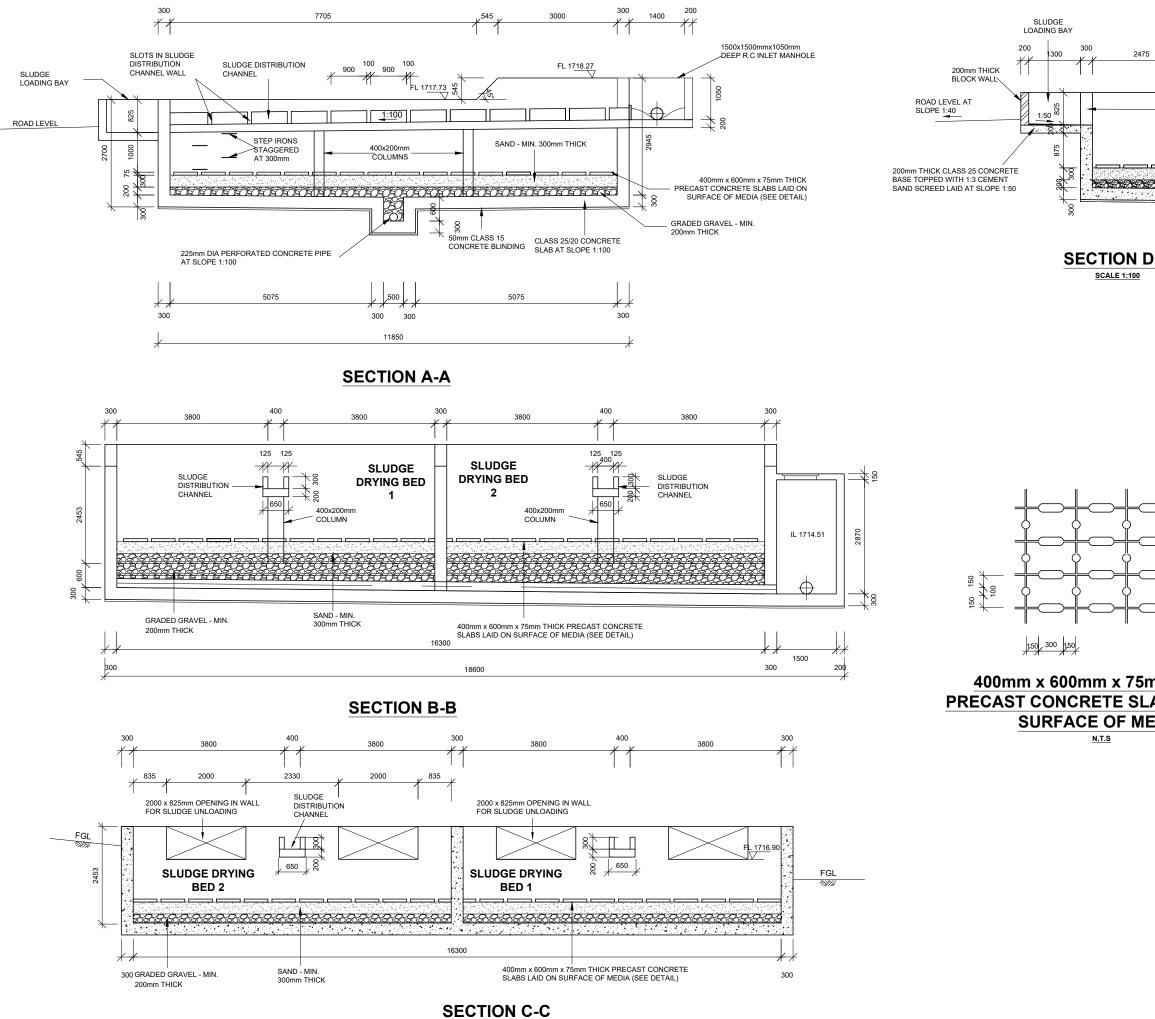


ITEM No.	DESCRIPTION	DIA. (mm)	L
A	SINGLE FLANGED 90° BEND	2000) 200
B	ALL FLANGED GATE VALVE WITH EXTENDED SPINDLE AND WHEEL	200	
©	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 565mm FROM FLANGED END AND WITH SPIGOT END BEVELLED (CUT TO SUIT ON SITE	200	
D	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 565mm FROM FLANGED END AND WITH SPIGOT END BEVELLED (CUT TO SUIT ON SITE)	250	
E	SINGLE FLANGED 90° BEND	2500 - 65	50
			25

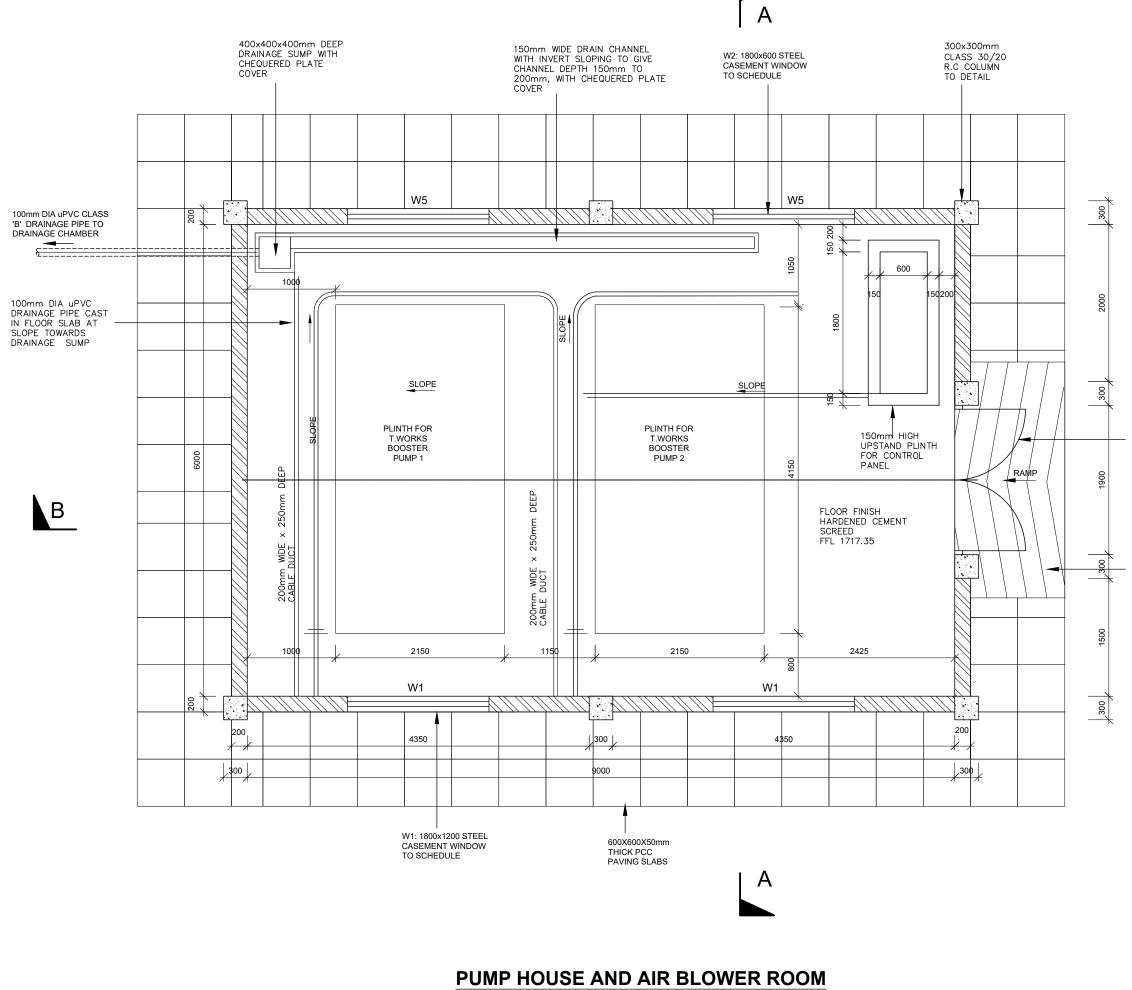




NOTES	_	
1. DIMENSIC SPECIFIE	NS IN mm UNLESS OTHER	WISE
	LS ARE IN METERS	
3. ALL EXPC	SED CONCRETE EDGES TO	O HAVE A
4. CONCRET	E WORKS: ALL REINFORCI E TO BE CLASS 25/20 EXC THERWISE SPECIFIED	
5. ABBREVIA		
D.P.C E.G.L F.G.L F.F.L F.R.L P.C.C G.C.I	REINFORCED CONCRETE DAMP PROOF COURSE EXISTING GROUND LEVEI FINISHED GROUND LEVEI FINISHED FLOOR LEVEL FINISHED ROAD LEVEL PRECAST CONCRETE GALVANISED MILD STEEL	L L ED IRON
AREA TO	LEVELS FOR VEHICLE LOA BE OBTAINED FROM DRG I TW/KB/SLP/01	
CLIENT:	CHIEF EXECUTIVE O	
	DEVELOPMENT AGE P.O BOX 1292 - 10100,	NCY
	NYERI, KENYA	
ENGINEER:	CHIEF MANAGER TECHNICAL SERVICE	-5
	TANA WATER WORK	S
	DEVELOPMENT AGE P.O BOX 1292 - 10100,	NCY
PROJECT T	NYERI, KENYA	
ME	EERE SOUTH WATE	
		R SUPPLY
	JECT: LOT II-KAMBI	
	JECT: LOT II-KAMBI SUPPLY	
DRAWING T	SUPPLY	JRU WATEF
	SUPPLY	JRU WATER
KAM	SUPPLY ITLE: BURU WATER TRE WORKS LUDGE DRYING BE	JRU WATER
KAM	SUPPLY	JRU WATER
KAM S Designed by:	SUPPLY ITLE: BURU WATER TRE/ WORKS LUDGE DRYING BE PLAN A.M.M Drawn by:	ATMENT DS
KAM S	SUPPLY ITLE: BURU WATER TREA WORKS LUDGE DRYING BE PLAN A.M.M Drawn by: J.M.M Approved b	ATMENT DS



	NOTES:
	1. DIMENSIONS IN mm UNLESS OTHERWISE
	SPECIFIED
	2. ALL LEVELS ARE IN METERS
	3. ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm X 25mm CHAMFER
2000 x 825mm OPENING	4. CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED
IN WALL FOR SLUDGE UNLOADING	5. ABBREVIATIONS
	R.C - REINFORCED CONCRETE D.P.C - DAMP PROOF COURSE E.G.L - EXISTING GROUND LEVEL F.G.L - FINISHED GROUND LEVEL F.F.L - FINISHED GROUND LEVEL F.R.L - FINISHED FLOOR LEVEL P.C.C - PRECAST CONCRETE G.C.I - GALVANIZED CORRUGATED IRON G.M.S - GALVANISED MILD STEEL
	 FINISHED LEVELS FOR VEHICLE LOADING AREA TO BE OBTAINED FROM DRG №. M407/CG/TW/KB/SLP/01
-D	
_ 4	
	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS
nm THICK	DEVELOPMENT AGENCY
ABS LAID ON	P.O BOX 1292 - 10100, NYERI, KENYA
DIA	ENGINEER: CHIEF MANAGER
	TECHNICAL SERVICES
	TANA WATER WORKS DEVELOPMENT AGENCY
	P.O BOX 1292 - 10100, NYERI, KENYA
	PROJECT TITLE:
	MBEERE SOUTH WATER SUPPLY
	PROJECT: LOT II-KAMBURU WATER
	SUPPLY
	DRAWING TITLE:
	KAMBURU WATER TREATMENT
	WORKS SLUDGE DRYING BEDS
	SECTIONS
	Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
	Scale: 1:100 Date: NOV 2023
	DRG No. KWSP/SDB/02



PLAN

1800x2400mm PRESSED METAL LOUVRE DOUBLE DOOR



100mm THICK CLASS 20/20 CONCRETE RAMP WITH RIBBED SURFACE FINISH

NOTES:

- 1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
- 2. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER
- 3. P.C.C WINDOW CILLS TO HAVE DRIPS
- 4. CONCRETE WORKS: ALL REINFORCED CONCRETE IS CLASS 30/20 EXCEPT WHERE OTHERWISE SPECIFIED
- 5. ABBREVIATIONS
 - R.C REINFORCED CONCRETE D.P.C- DAMP PROOF COURSE E.G.L – EXISTING GROUND LEVEL F.G.L – FINISHED GROUND LEVEL P.F.L – FINISHED FLOOR LEVEL P.C.C- PRECAST CONCRETE G.C.I – GALVANIZED CORRUGATED IRON
- FOR PUMPS, AIR BLOWERS AND PIPEWORK DETAILS SEE DRG. No. 407/CG/TW/KR/PH/04 & 05

ISSUED FOR CONSTRUCTION

				-
REVISIONS		SIGN	DATE	APPROVED
	BY			
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THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:



CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

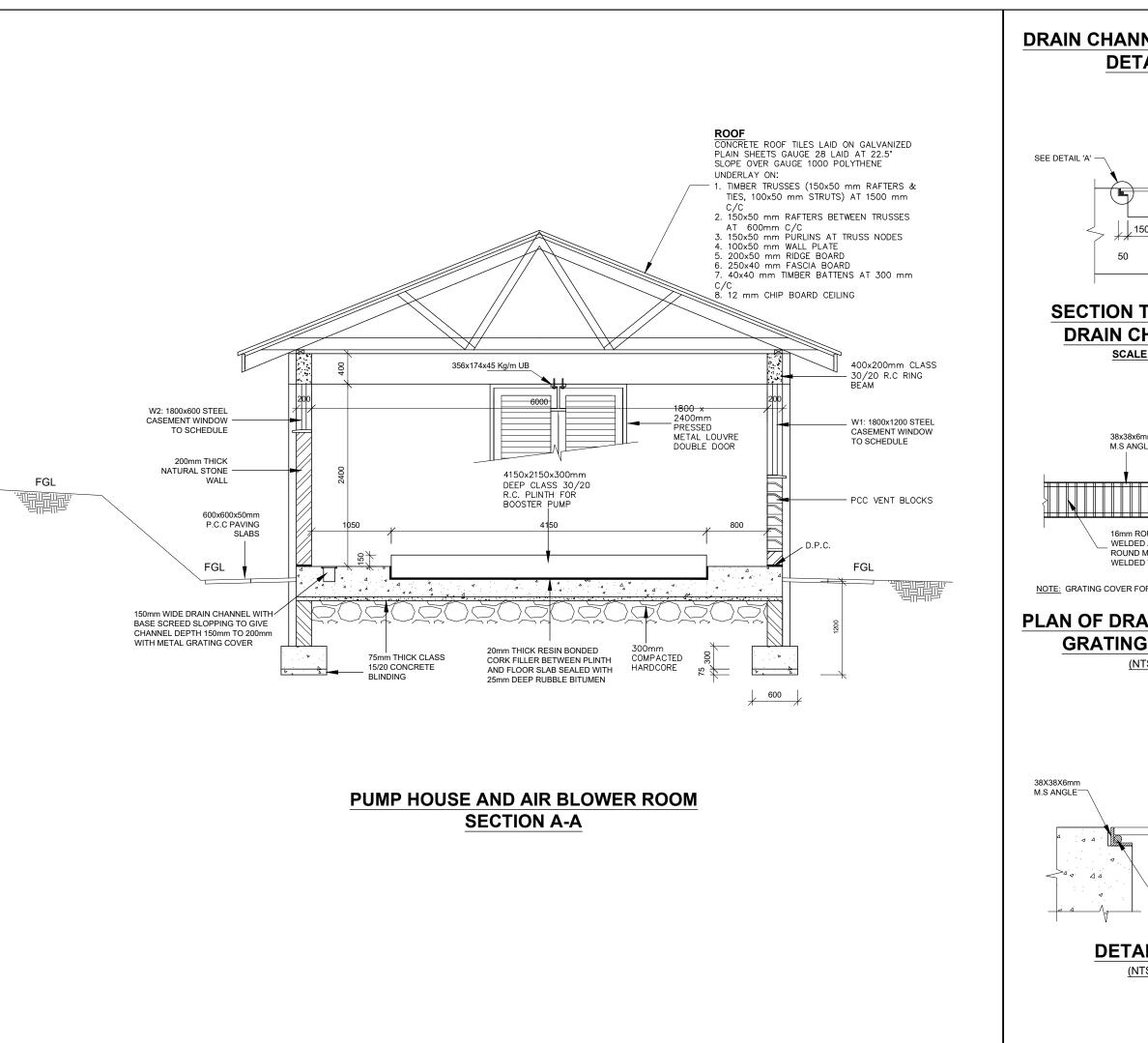
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

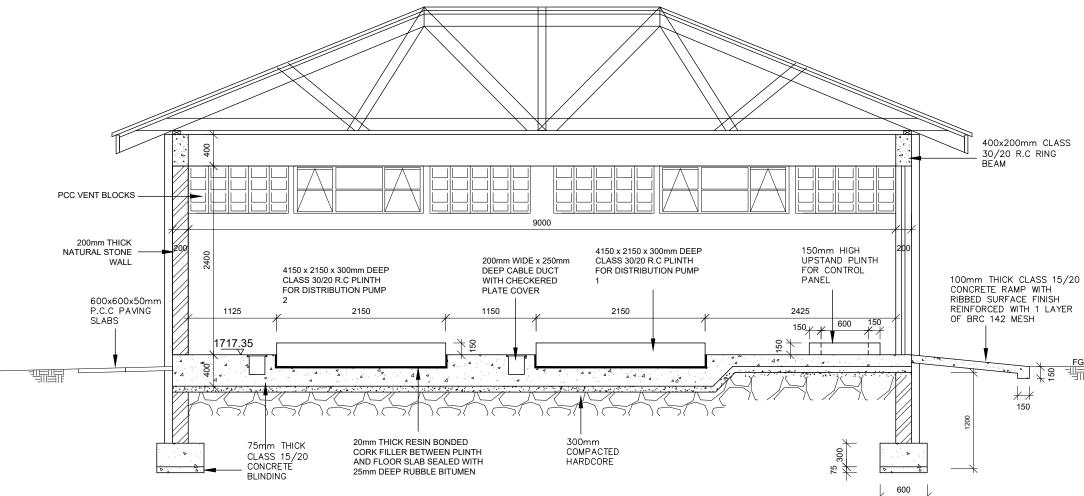
DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS BOOSTER PUMPS ROOM PLAN

DRG No.	KWS	P/BPH/01		
Scale:	1:50	Date:	NOV 20	023
Checked by:	J.M.M	Approved by:	D.N.M	
Designed by:	A.M.M.	Drawn by:	A.M.M.	



	NOTES:
<u>NEL & COVER</u> AILS	1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
	2. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER
	3. P.C.C WINDOW CILLS TO HAVE DRIPS
GRATING COVER	 CONCRETE WORKS: ALL REINFORCED CONCRETE IS CLASS 30/20 EXCEPT WHERE OTHERWISE SPECIFIED
8	5. ABBREVIATIONS
	R.C. – REINFORCED CONCRETE D.P.C– DAMP PROOF COURSE E.G.L – EXISTING GROUND LEVEL F.G.L – FINISHED GROUND LEVEL F.F.L – FINISHED FLOOR LEVEL P.C.C– PRECAST CONCRETE G.C.I – GALVANIZED CORRUGATED IRON
50	 FOR PUMPS, AIR BLOWERS AND PIPEWORK DETAILS SEE DRG. No. 407/CG/TW/KR/PH/04 & 05
THROUGH HANNEL E 1:20	
mm GLE	
240	
OUND M.S TRANSVERSE BARS D AT 20mm SPACING TO 16mm	ISSUED FOR CONSTRUCTION
M.S LONGITUDINAL BARS D TO M.S ANGLES	R E V I S I O N S SIGN DATE APPROVED
OR SUMP SIMILAR BUT SIZE 390x390	CHECKED
	CHECKED BY
AIN CHANNEL	CHECKED BY CHECKED
G COVER:	
<u>TS)</u>	CLIENT: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY
16mm ROUND M.S TRANSVERSE BARS AT 20mm SPACING	P.O BOX 1292 - 10100, NYERI, KENYA
	PROJECT TITLE:
16mm ROUND M.S BAR WELDED TO ANGLE	MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY
	DRAWING TITLE:
NIL 'A' TS)	KAMBURU WATER TREATMENT WORKS BOOSTER PUMPS ROOM SECTION A-A
	Designed by: A.M.M. Drawn by: A.M.M.
	Checked by: J.M.M Approved by: D.N.M
	Scale: 1:50 Date: NOV 2023
	DRG No. KWSP/BPH/02



PUMP HOUSE AND AIR BLOWER ROOM SECTION B - B

NOTES:

- 1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
- 2. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER
- 3. P.C.C WINDOW CILLS TO HAVE DRIPS
- 4. CONCRETE WORKS: ALL REINFORCED CONCRETE IS CLASS 30/20 EXCEPT WHERE OTHERWISE SPECIFIED
- 5. ABBREVIATIONS
 - R.C REINFORCED CONCRETE D.P.C– DAMP PROOF COURSE E.G.L – EXISTING GROUND LEVEL F.G.L – FINISHED GROUND LEVEL F.F.L – FINISHED FLOOR LEVEL P.C.C– PRECAST CONCRETE G.C.I – GALVANIZED CORRUGATED IRON
- FOR PUMPS, AIR BLOWERS AND PIPEWORK DETAILS SEE DRG. No. 407/CG/TW/KR/PH/04 & 05

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
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	BY			
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	BY			
	CHECKED			



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,

NYERI, KENYA



CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

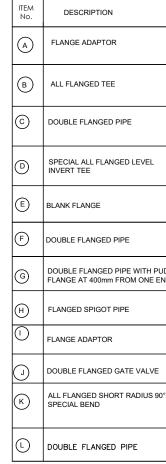
DRAWING TITLE:

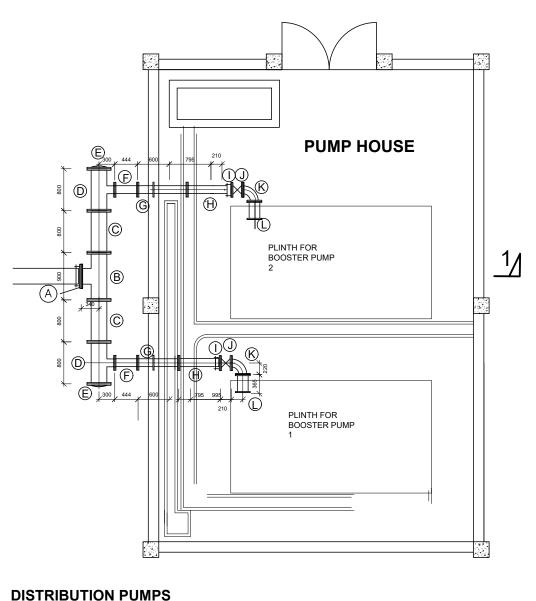
KAMBURU WATER TREATMENT WORKS BOOSTER PUMPS ROOM SECTION B-B

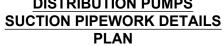
DRG No.	KWS	P/BPH/03		
Scale:	1:50	Date:	NOV 20)23
Checked by:	J.M.M	Approved by:	D.N.M	
Designed by:	A.M.M.	Drawn by:	A.M.M.	

FGL

DISTRIBUTION PUMPS SUCTION PIPEWORK SCHEDULE:







NOTES:

- ALL PIPE, FITTINGS AND VALVE 1. DIAMETERS ARE NOMINAL DIAMETERS
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED 2.
- ONLY FIGURED DIMENSIONS TO BE 3. TAKEN FROM THIS DRAWING

4. PIPE AND FITTINGS DETAILING AND SCHEDULES ARE BASED ON STEEL PIPES AND FITTINGS AS MADE BY ASP (K) LTD. DIMENSIONS ARE AS GIVEN GIVEN IN THE SCHEDULES.

5. VALVE DIMENSIONS ARE BASED ON: – GATE VALVES – EURO 20 SERIES, TYPE 23 (SHORT FACE TO FACE TYPE VALVES) AS MADE BY SAINT GOBAIN PAM.

NON RETURN VALVES – TYPE SERIES AS MADE BY _ 402 DANFOSS

6. THIS DRAWING TO BE READ FOR PIPEWORK DETAILS ONLY. FOR CLARITY, OTHER DETAILS OF THE PUMP HOUSE ARE NOT SHOWN HERE. SEE DRGS. No. M407/CG/TW/KR/PH/01-03 FOR OTHER DETAILS.

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
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THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:



CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

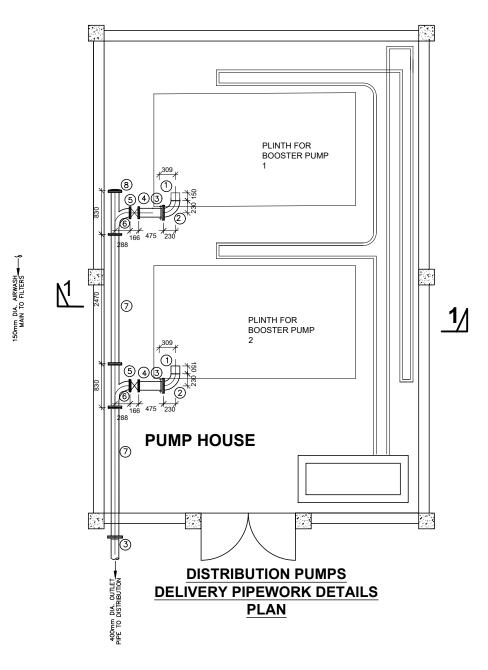
DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS BOOSTER PUMPS ROOM SUCTION PIPEWORK DETAILS

Designed by:	A.M.M.	Drawn by:	A.M.M.	
Checked by:	J.M.M	Approved by:	D.N.M	
Scale:	1:50	Date:	NOV 20	023
DRG No.	KWS	P/BPH/04		

(APPROVED LINED FERROUS PIPES)

	DIA. (mm)	LENGTH (mm)	QTY (No.)
	400	1400	1
	400¢	-1400¢	340
	400	800	2
	400¢		00E
	400	_	2
	200	444	2
DDLE 1D	200	600	2
	200	795	2
	200	-	2
	200	210	2
•	2000 2000 2000 2000		2
	200	200	2



DISTRIBUTION PUMPS DELIVERY PIPEWORK SCHEDULE: (APPROVED FEROUS PIPES & FITTINGS)

ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QU/ (
1	FLANGED SPIGOT PIPE (Cut to suit on site)	200		
2	FLANGED SPIGOT 90' BEND	200	200¢	
3	FLANGE ADAPTOR	200	-	
4	FLANGED SPIGOT PIPE	200	475	
5	FLANGED BUTTERFLY VALVE	200	166	
6	200mm x 400mm x 400mm FLANGED RADIAL TEE	400ø	 ↓00ø †≋	
7	DOUBLE FLANGED PIPE	400	-	
8	BLANK FLANGE	400	-	

NOTES:

- ALL PIPE, FITTINGS AND VALVE DIAMETERS ARE NOMINAL DIAMETERS 1.
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED 2.
- 3. ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING

4. PIPE AND FITTINGS DETAILING AND SCHEDULES ARE BASED ON STEEL PIPES AND FITTINGS AS MADE BY ASP (K) LTD. DIMENSIONS ARE AS GIVEN GIVEN IN THE SCHEDULES.

5. VALVE DIMENSIONS ARE BASED ON: – GATE VALVES – EURO 20 SERIES, TYPE 23 (SHORT FACE TO FACE TYPE VALVES) AS MADE BY SAINT GOBAIN PAM.

NON RETURN VALVES – TYPE SERIES AS MADE BY _ 402 DANFOSS

6. THIS DRAWING TO BE READ FOR PIPEWORK DETAILS ONLY. FOR CLARITY, OTHER DETAILS OF THE PUMP HOUSE ARE NOT SHOWN HERE. SEE DRGS. No. M407/CG/TW/KR/PH/01-03 FOR OTHER DETAILS.

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
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	CHECKED			



ENGINEER:

THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,

NYERI, KENYA

CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

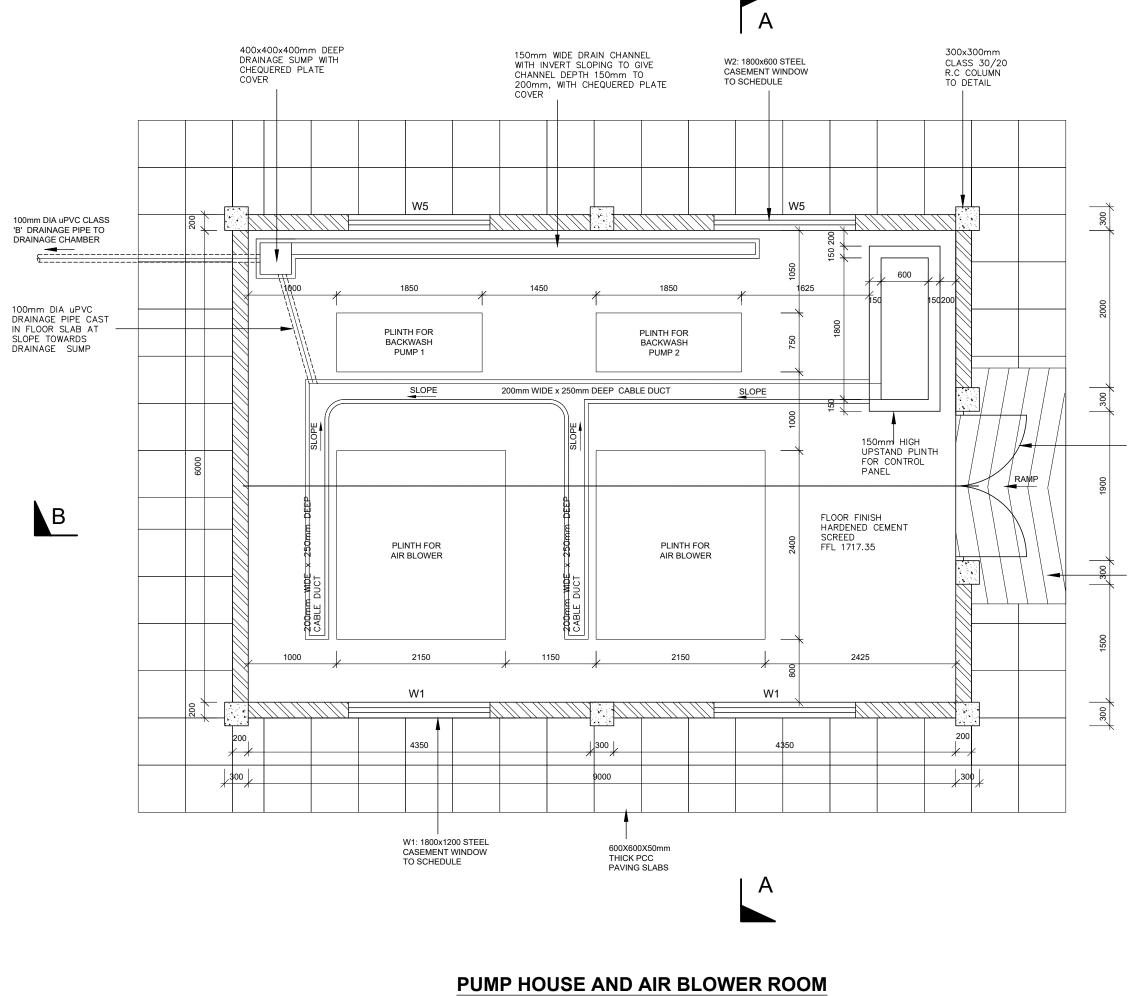
MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS BOOSTER PUMPS ROOM DELIVERY PIPEWORK DETAILS

Scale: 1:50	Date:	NOV 2023
Checked by: J.M.M	Approved	by: D.N.M
Designed by: A.M.I	M. Drawn by:	A.M.M.

UANTITY (No.)
2
2
2
2
4
3
1
1



PLAN

1800x2400mm PRESSED METAL LOUVRE DOUBLE DOOR



100mm THICK CLASS 20/20 CONCRETE RAMP WITH RIBBED SURFACE FINISH

NOTES:

- 1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
- 2. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER
- 3. P.C.C WINDOW CILLS TO HAVE DRIPS
- 4. CONCRETE WORKS: ALL REINFORCED CONCRETE IS CLASS 30/20 EXCEPT WHERE OTHERWISE SPECIFIED
- 5. ABBREVIATIONS
 - R.C REINFORCED CONCRETE D.P.C- DAMP PROOF COURSE E.G.L – EXISTING GROUND LEVEL F.G.L – FINISHED GROUND LEVEL P.F.L – FINISHED FLOOR LEVEL P.C.C- PRECAST CONCRETE G.C.I – GALVANIZED CORRUGATED IRON
- FOR PUMPS, AIR BLOWERS AND PIPEWORK DETAILS SEE DRG. No. 407/CG/TW/KR/PH/04 & 05

ISSUED FOR CONSTRUCTION

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THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:



CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

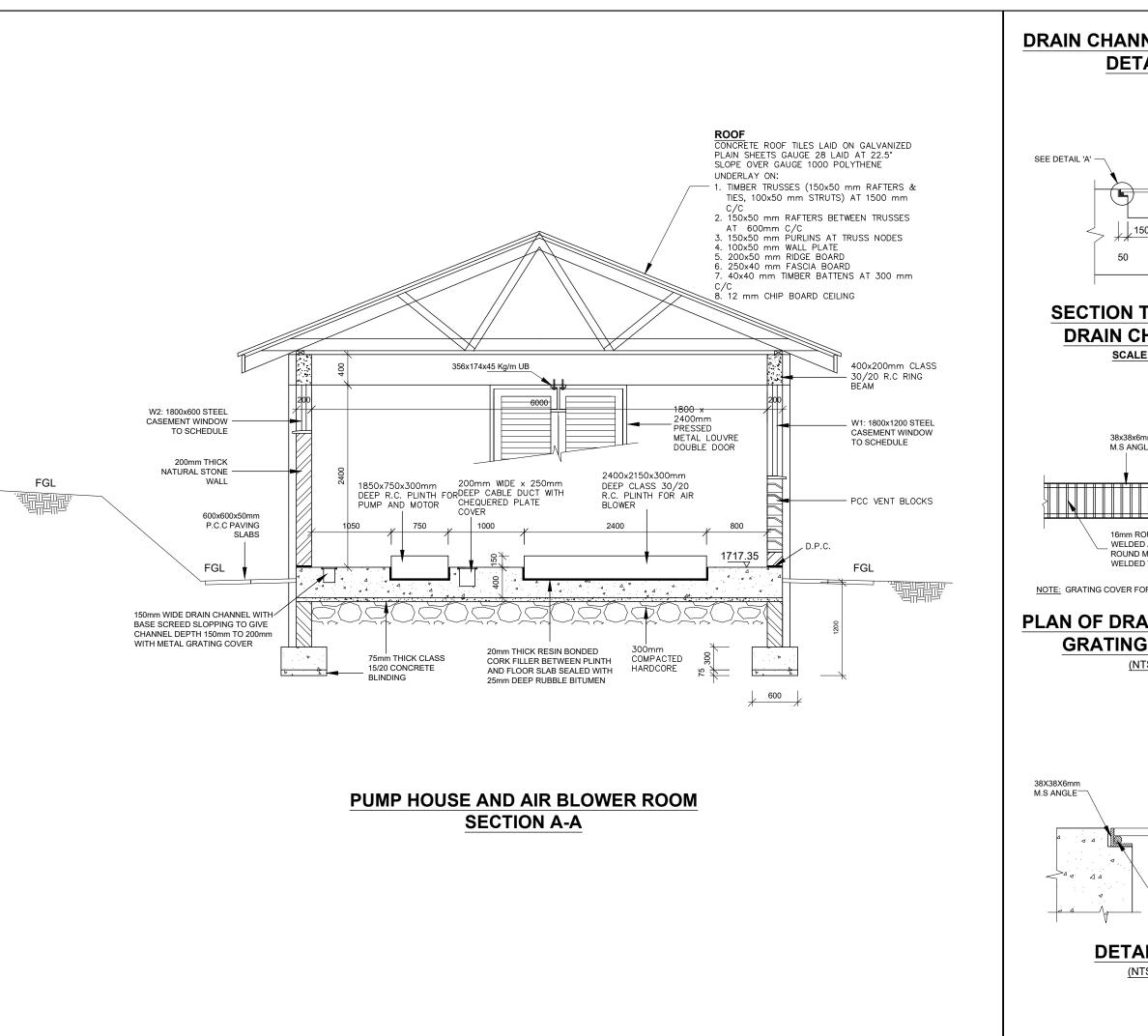
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

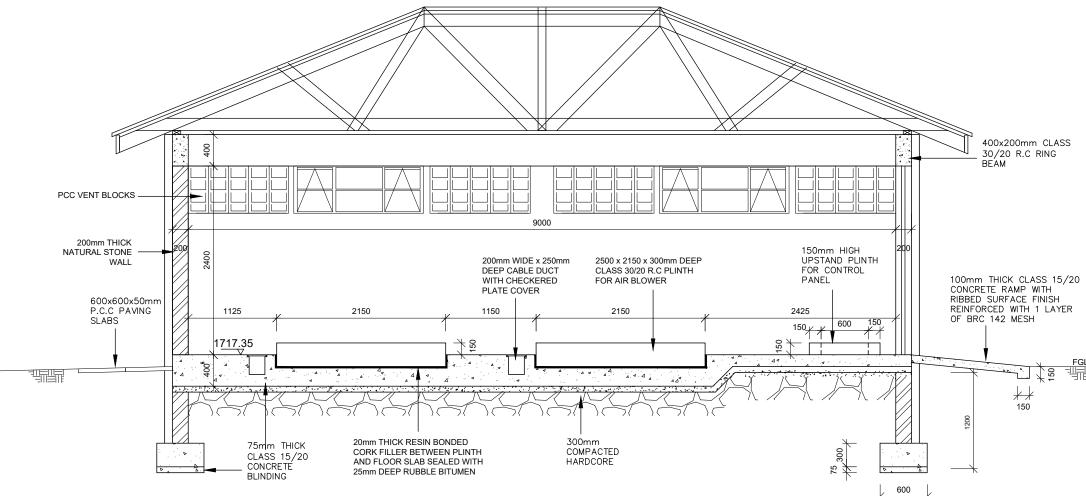
DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS BACKWASH PUMPS AND AIR BLOWER ROOM PLAN

Designed by:	A.M.M.	Drawn by:	A.M.M.	
Checked by:	J.M.M	Approved by:	D.N.M	
Scale:	1:50	Date:	NOV 20	023
DRG No. KWSP/BAPH/01				



	NOTES:
<u>NEL & COVER</u> AILS	1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
	 ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER
	3. P.C.C WINDOW CILLS TO HAVE DRIPS
GRATING COVER	 CONCRETE WORKS: ALL REINFORCED CONCRETE IS CLASS 30/20 EXCEPT WHERE OTHERWISE SPECIFIED
88	5. ABBREVIATIONS
	 R.C – REINFORCED CONCRETE D.P.C- DAMP PROOF COURSE E.G.L – EXISTING GROUND LEVEL F.G.L – FINISHED GROUND LEVEL F.F.L – FINISHED FLOOR LEVEL P.C.C – PRECAST CONCRETE G.C.I – GALVANIZED CORRUGATED IRON 6. FOR PUMPS, AIR BLOWERS AND PIPEWORK DETAILS SEE DRG. No.
	407/CG/TW/KR/PH/04 & 05
THROUGH HANNEL E 1:20	
mm GLE	
240	
D AT 20mm SPACING TO 16mm M.S LONGITUDINAL BARS D TO M.S ANGLES	ISSUED FOR CONSTRUCTION R E V I S I O N S SIGN DATE APPROVED
	CHECKED BY
OR SUMP SIMILAR BUT SIZE 390x390	CHECKED BY
AIN CHANNEL	CHECKED BY CHECKED CHECKED
G COVER:	
<u>TS)</u>	THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	ENGINEER: CHIEF MANAGER TECHNICAL
	SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY
16mm ROUND M.S ┌─ TRANSVERSE BARS AT	P.O BOX 1292 - 10100, NYERI, KENYA
20mm SPACING	
	PROJECT TITLE:
16mm ROUND M.S BAR WELDED TO ANGLE	MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY
	DRAWING TITLE:
AIL 'A'	KAMBURU WATER TREATMENT WORKS
<u>TS)</u>	BACKWASH PUMPS AND AIR BLOWER ROOM SECTION A-A
	Designed by: A.M.M. Drawn by: A.M.M.
	Checked by: J.M.M Approved by: D.N.M Scale: 1:50 Date: NOV 2023
	DRG No. KWSP/BAPH/02
	• • • • •



PUMP HOUSE AND AIR BLOWER ROOM SECTION B - B

NOTES:

- 1. DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED
- 2. ALL EXPOSED CONCRETE EDGES HAVE A 25mm X 25mm CHAMFER
- 3. P.C.C WINDOW CILLS TO HAVE DRIPS
- 4. CONCRETE WORKS: ALL REINFORCED CONCRETE IS CLASS 30/20 EXCEPT WHERE OTHERWISE SPECIFIED
- 5. ABBREVIATIONS
 - R.C REINFORCED CONCRETE D.P.C– DAMP PROOF COURSE E.G.L – EXISTING GROUND LEVEL F.G.L – FINISHED GROUND LEVEL F.F.L – FINISHED FLOOR LEVEL P.C.C– PRECAST CONCRETE G.C.I – GALVANIZED CORRUGATED IRON
- FOR PUMPS, AIR BLOWERS AND PIPEWORK DETAILS SEE DRG. No. 407/CG/TW/KR/PH/04 & 05

ISSUED FOR CONSTRUCTION

	REVISIONS		SIGN	DATE	APPROVED
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		BY			
		CHECKED			



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA



CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

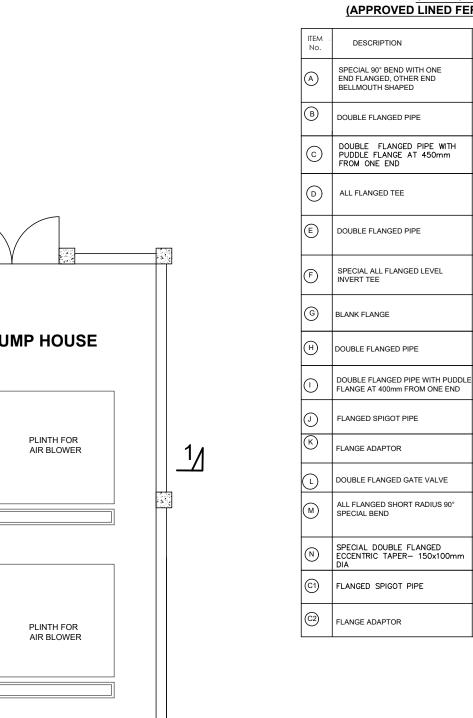
DRAWING TITLE:

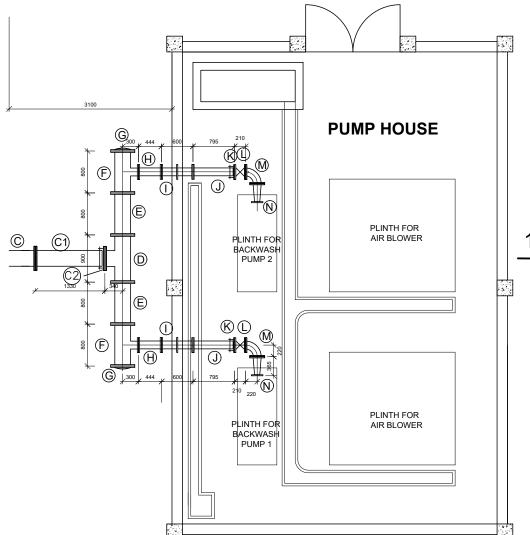
KAMBURU WATER TREATMENT WORKS BACKWASH PUMPS AND

AIR BLOWER ROOM SECTION B-B

DRG No. KWSP/BAPH/03				
Scale:	1:50	Date:	NOV 20)23
Checked by:	J.M.M	Approved by:	D.N.M	
Designed by:	A.M.M.	Drawn by:	A.M.M.	

FGI







NOTES:

- ALL PIPE FITTINGS AND VALVE 1. DIAMETERS ARE NOMINAL DIAMETERS
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED 2.
- ONLY FIGURED DIMENSIONS TO BE 3. TAKEN FROM THIS DRAWING

4. PIPE AND FITTINGS DETAILING AND SCHEDULES ARE BASED ON PIPES AND FITTINGS AS STEEL MADE BY ASP (K) LTD. DIMENSIONS ARE AS GIVEN IN THE SCHEDULES.

5. VALVE DIMENSIONS ARE BASED ON: – GATE VALVES – EURO 20 SERIES, TYPE 23 (SHORT FACE TO FACE TYPE VALVES) AS MADE BY SAINT GOBAIN PAM.

NON RETURN VALVES – TYPE SERIES AS MADE BY 402 DANFOSS

6. THIS DRAWING TO BE READ FOR FOR CLARITY, OTHER DETAILS OF THE PUMP HOUSE ARE NOT SHOWN HERE. SEE DRGS. No. M407/CG/TW/KR/PH/01-03 FOR OTHER DETAILS.

ISSUED FOR CONSTRUCTION

	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,

NYERI, KENYA

ENGINEER

CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS

BACKWASH PUMPS AND AIR BLOWER ROOM ----

SUCTION PIPEWORK DETAILS					
Designed by:	A.M.M.	Drawn by:	A.M.M.		
Checked by:	J.M.M	Approved by:	D.N.M		
Scale:	1:50	Date:	NOV 20	023	
DRG No.	KWS	SP/PH/04			

BACKWASH PUMPS SUCTION PIPEWORK SCHEDULE: (APPROVED LINED FERROUS PIPES)						
	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QTY (No.)		
	SPECIAL 90° BEND WITH ONE END FLANGED, OTHER END BELLMOUTH SHAPED	,≁ 300ø ⊨	00	1		
	DOUBLE FLANGED PIPE	300	2000	1		
	DOUBLE FLANGED PIPE WITH PUDDLE FLANGE AT 450mm FROM ONE END	300	1400	1		
	ALL FLANGED TEE	300¢		340		

300

300

150

150

150

150

150

300

300

1500

00ø **| | |**300ø `

2

2

2

2

2

2

2

2

2

2

800

444

600

795

-

210

1330

-

220

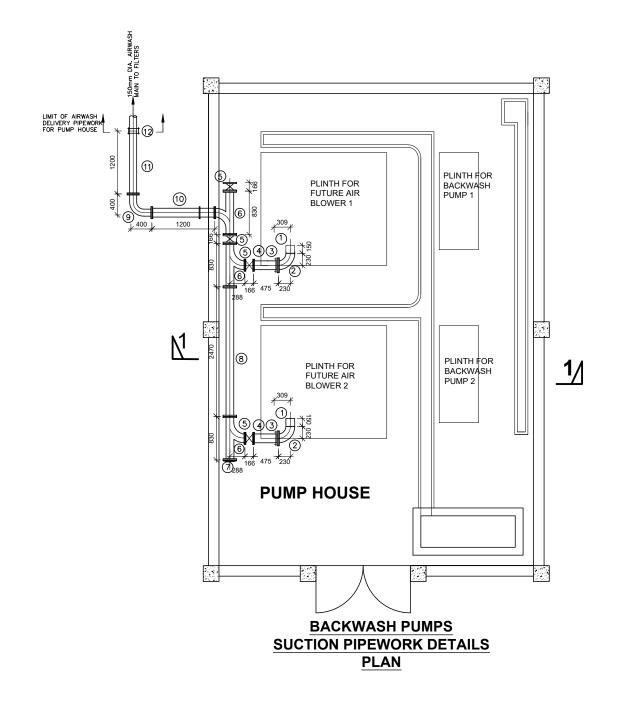
150¢

¥ 365

150ø 80ø

150ø

AIRWASH DELIVERY PIPEWORK SCHEDULE: (APPROVED FEROUS PIPES & FITTINGS)



ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)
1	PLAIN ENDED PIPE (Cut to suit on site)	150	200
2	FLANGED SPIGOT 90° BEND	150	150¢
3	FLANGE ADAPTOR	150	-
4	FLANGED SPIGOT PIPE	150	475
5	FLANGED BUTTERFLY VALVE	150	166
6	150mm x 150mm x 150mm FLANGED RADIAL TEE	150ø	
7	BLANK FLANGE	150	-
8	DOUBLE FLANGED PIPE	150	2470
9	DOUBLE FLANGED 90° BEND	150	150ø
(10)	DOUBLE FLANGED PIPE WITH PUDDLE FLANGE AT 290mm FROM ONE END	150	1200
(11)	FLANGED SPIGOT PIPE	150	1200
	1) 2 3 4 5 6 7 8 9 10	1 PLAIN ENDED PIPE (Cut to suit on site) 2 FLANGED SPIGOT 90' BEND 3 FLANGE ADAPTOR 4 FLANGED SPIGOT PIPE 5 FLANGED BUTTERFLY VALVE 6 150mm x 150mm x 150mm FLANGED RADIAL TEE 7 BLANK FLANGE 8 DOUBLE FLANGED PIPE 9 DOUBLE FLANGED 90' BEND 10 DOUBLE FLANGED AT 290mm FROM ONE END	ITEM No. DESCRIPTION (mm) ① PLAIN ENDED PIPE (Cut to suit on site) 150 ② FLANGED SPIGOT 90° BEND 150 ③ FLANGE ADAPTOR 150 ④ FLANGE ADAPTOR 150 ④ FLANGED SPIGOT PIPE 150 ⑤ FLANGED BUTTERFLY VALVE 150 ⑥ 150mm x 150mm x 150mm FLANGED RADIAL TEE 150# 150 ⑦ BLANK FLANGE 150 ⑧ DOUBLE FLANGED PIPE 150 ⑨ DOUBLE FLANGED PIPE WITH FROM ONE END 150

NOTES:

- ALL PIPE, FITTINGS AND VALVE 1. DIAMETERS ARE NOMINAL DIAMETERS
- ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED 2.
- ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING 3.

4. PIPE AND FITTINGS DETAILING AND SCHEDULES ARE BASED ON STEEL PIPES AND FITTINGS AS MADE BY ASP (K) LTD. DIMENSIONS ARE AS GIVEN IN THE SCHEDULES.

5. VALVE DIMENSIONS ARE BASED ON: – GATE VALVES – EURO 20 SERIES, TYPE 23 (SHORT FACE TO FACE TYPE VALVES) AS MADE BY SAINT GOBAIN PAM.

NON RETURN VALVES – TYPE SERIES AS MADE BY _ 402 DANFOSS

6. THIS DRAWING TO BE READ FOR PIPEWORK DETAILS ONLY. FOR CLARITY, OTHER DETAILS OF THE PUMP HOUSE ARE NOT SHOWN HERE. SEE DRGS. No. M407/CG/TW/KR/PH/01-03 FOR OTHER DETAILS.

ISSUED FOR CONSTRUCTION

	REVISIONS		SIGN	DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			



ENGINEER:

THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,

NYERI, KENYA

CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

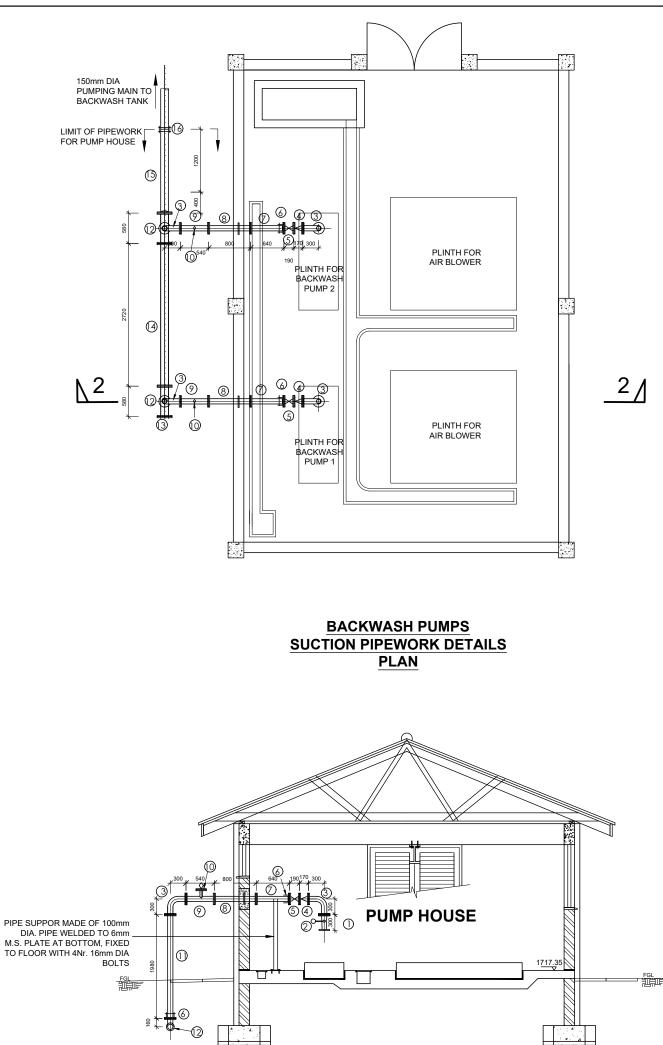
MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS BACKWASH PUMPS AND AIR BLOWER ROOM AIR DELIVERY PIPEWORK DETAILS

DRG No.	KWSF	P/BAPH/05		
Scale:	1:50	Date:	NOV 20	023
Checked by:	J.M.M	Approved by:	D.N.M	
Designed by:	A.M.M.	Drawn by:	A.M.M.	

QUANTITY (No.)
2
2
2
2
4
3
1
1
1
1
1
1



SECTION 2 - 2

BACKWASH PUMPS DELIVERY PIPEWORK SCHEDULE: (APPROVED LINED FERROUS PIPES)

	(APPROVED LINED FER	RROUS P	PIPES)	
ITEM No.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
1	SPECIAL 100 x 65mm DOUBLE FLANGED CONCENTRIC TAPER WITH 25mm DIA MALE THREADED TAPPING FOR PRESSURE GAUGE	1 100ø	00 1 80ø	2
2	25mm DIA PRESSURE GAUGE – (PRESSURE CLASS UPTO 10 BARS) – HUNTER OR APPROVED EQUIVALENT	25	-	2
3	DOUBLE FLANGED 90° BEND	30 √ 100ø⊢ 100	o الم	4
4	DOUBLE FLANGED FREE ACTING CHECK VALVE (NON RETURN VALVE)	100	170	2
5	DOUBLE FLANGED GATE VALVE	100	190	2
6	FLANGE ADAPTOR	100	_	4
7	FLANGED SPIGOT PIPE	100	640	2
8	DOUBLE FLANGED PIPE WITH PUDDLE FLANGE AT 250mm FROM ONE END	100	800	2
9	100X100X50mm ALL FLANGED TEE	100ø 50ø		2
10	SINGLE ORIFICE AIR VALVE WITH BUILT -IN- ISOLATING VALVE	50	-	2
(1)	FLANGED SPIGOT PIPE	100	1980	2
12	150X100mm ALL FLANGED RADIAL TEE	150¢ 100¢	-1150¢	2
(13)	BLANK FLANGE	150	-	1
(14)	DOUBLE FLANGED PIPE	150	2720	1
(15)	FLANGED SPIGOT PIPE	150	1200	1
(16)	COUPLING	150	_	1

NOTEO.	
NOTES:	

- 1. ALL PIPE, FITTINGS AND VALVE DIAMETERS ARE NOMINAL DIAMETERS
- 2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
- 3. ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING

4. PIPE AND FITTINGS DETAILING AND SCHEDULES ARE BASED ON STEEL PIPES AND FITTINGS AS MADE BY ASP (K) LTD. DIMENSIONS ARE AS GIVEN IN THE SCHEDULES.

5. VALVE DIMENSIONS ARE BASED ON: – GATE VALVES – EURO 20 SERIES, TYPE 23 (SHORT FACE TO FACE TYPE VALVES) AS MADE BY SAINT GOBAIN PAM.

NON RETURN VALVES – TYPE
 402 SERIES AS MADE BY
 DANFOSS

6. THIS DRAWING TO BE READ FOR PIPEWORK DETAILS ONLY. FOR CLARITY, OTHER DETAILS OF THE PUMP HOUSE ARE NOT SHOWN HERE. SEE DRGS. No. M407/CG/TW/KR/PH/01-03 FOR OTHER DETAILS.

ISSUED FOR CONSTRUCTION

	REVISIONS	REVISIONS		DATE	APPROVED
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			
		BY			
		CHECKED			



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:

CHIEF MANAGER TECHNICAL SERVICES, TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

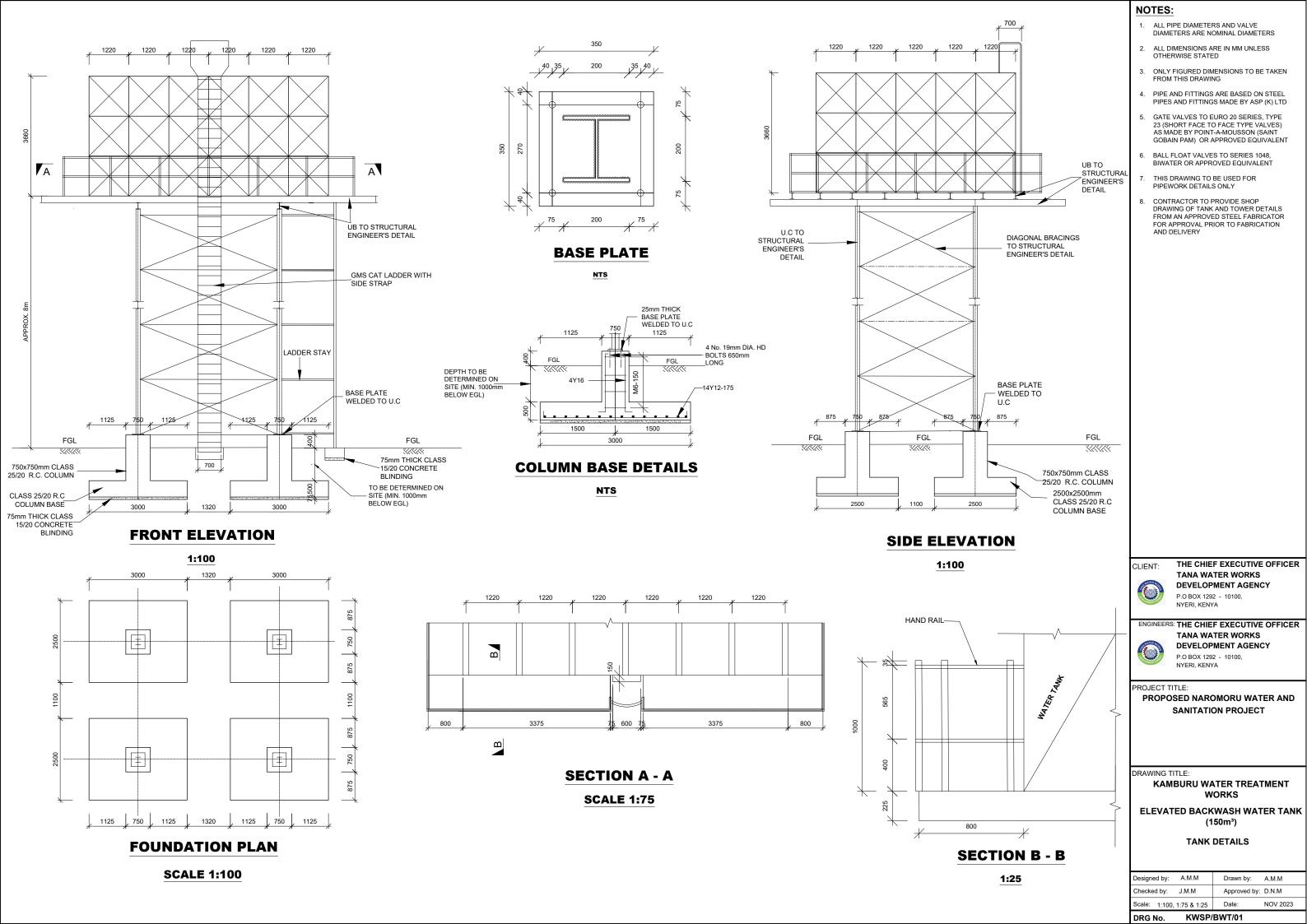
MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2-KAMBURU WATER SUPPLY

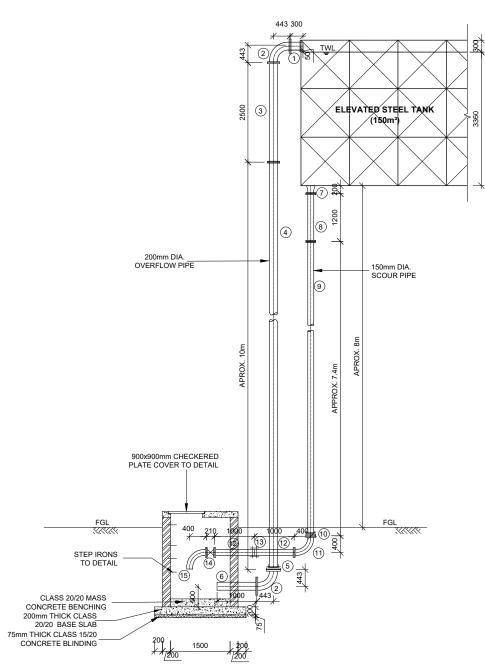
DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS

BACKWASH PUMPS AND AIR BLOWER ROOM DELIVERY PIPEWORK DETAILS

DRG No.		BAPH/06		
Scale:	1:50	Date:	NOV 20)23
Checked by:	J.M.M	Approved by:	D.N.M	
Designed by:	A.M.M.	Drawn by:	A.M.M.	

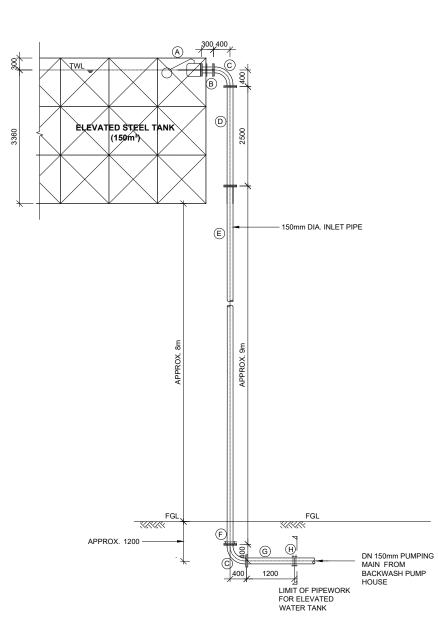




SCOUR & OVERFLOW PIPEWORK

SCOUR & OVERFLOW PIPEWORK SCHEDULE APPROVED LINED FERROUS PIPES AND FITTINGS

ITEM	DESCRIPTION	QTY
1 200mm DIA.	FLANGED SPIGOT PIPE, LENGTH 300mr	n WITH
PUDDLE FL	ANGE 60mm FROM SPIGOT END (PUDDL	E FLANGE
WELDED TO	D TANK PANEL)	1Nr
(2) 200mm DIA.	ALL FLANGED 90° BEND	2Nr
3 200mm DIA.	ALL FLANGED PIPE 2500mm LONG	1Nr
(4) 200mm DIA.	FLANGED SPIGOT PIPE 12m LONG	
(CUT TO SL	JIT ON SITE)	1Nr
5 200mm DIA.	FLANGE ADAPTOR	1Nr
6 200mm DIA.	FLANGED SPIGOT PIPE 1000mm LONG.	1Nr
7 150mm DIA.	FLANGED BELLMOUTH	
(WELDED T	O BASE OF TANK WITH WATER TIGHT J	OINT1Nr
8 150mm DIA.	ALL FLANGED PIPE 1200mm LONG	1Nr
9 150mm DIA.	FLANGED SPIGOT PIPE 10m LONG	
(CUT TO SU	IIT ON SITE)	1Nr
10 150mm DIA	. FLANGE ADAPTOR	1Nr
(1) 150mm DIA	A. ALL FLANGED 90° BEND	1Nr
(12) 150mm DIA	. FLANGED SPIGOT PIPE 1000mm LONG	2Nr
(13) 150mm DIA	. COUPLING	1Nr.
14) 150mm DIA	A. ALL FLANGED GATE VALVE	1Nr.
(15) 150mm DIA	A. SINGLE FLANGED 90° BEND	1Nr.

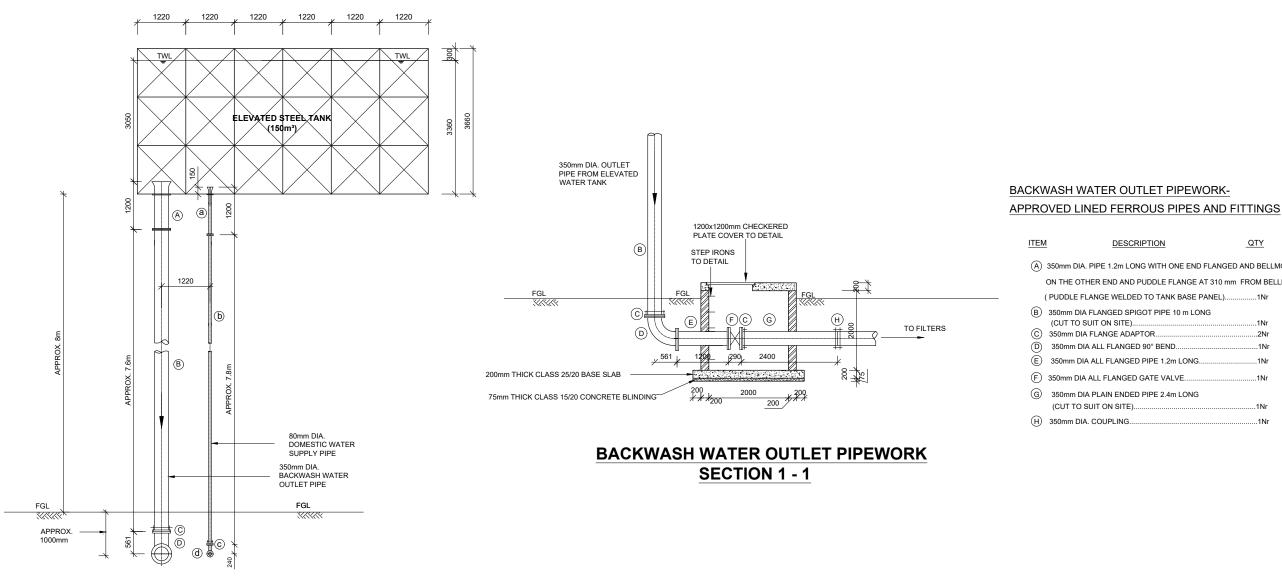


INLET PIPEWORK

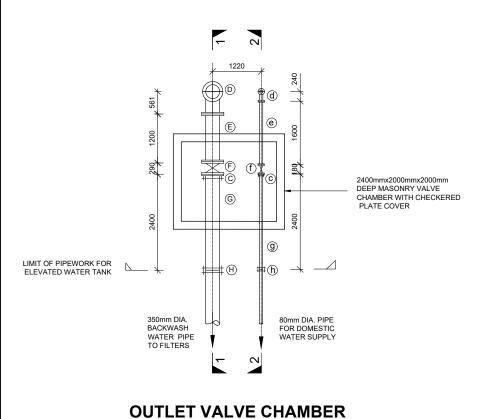
INLET PIPEWORK SCHEDULE APPROVED LINED FERROUS PIPES AND FITTINGS

ITEM	DESCRIPTION	QTY
A	150mm DIA. FLANGED BALL FLOAT VALVE	
(SERIES 1048 BIWATER OR APPROVED EQUIVALENT)	1Nr
B	150mm DIA. ALL FLANGED PIPE, 300mm LONG WITH PU FLANGE AT 125mm FROM ONE END (PUDDLE FLANGE WELDED TO TANK WALL PANEL)	
©	150mm DIA. ALL FLANGED 90° BEND	2Nr
D	150mm DIA. ALL FLANGED PIPE 2500mm LONG	1Nr
E	150mm DIA. FLANGED SPIGOT PIPE 12m LONG	1.1.
F	(CUT TO SUIT ON SITE) 150mm DIA. FLANGE ADAPTOR	
G	150mm DIA. FLANGED SPIGOT PIPE 1200mm LONG	1Nr
(H)	150mm DIA. COUPLING	1Nr

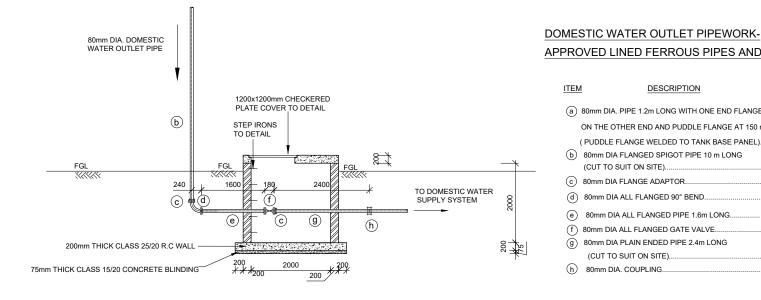
NO	TES:		
1.	ALL PIPE DIAMETE DIAMETERS ARE N		RS
2.	ALL DIMENSIONS A OTHERWISE STATE		3
3.	ONLY FIGURED DIN FROM THIS DRAWI		AKEN
4.	PIPE AND FITTINGS PIPES AND FITTING		
5.	GATE VALVES TO E 23 (SHORT FACE T AS MADE BY POINT GOBAIN PAM) OR A	O FACE TYPE VAL' I-A-MOUSSON (SA	VES) INT
6.	BALL FLOAT VALVE BIWATER OR APPR		
7.	THIS DRAWING TO PIPEWORK DETAIL		
8.	CONTRACTOR TO I DRAWING OF TANK FROM AN APPROVAL PF AND DELIVERY	AND TOWER DET	ATOR
CLIEI	TANA WA DEVELOF P.O BOX 129 NYERI, KENY	ΥA	(
		TER WORKS MENT AGENCY 12 - 10100,	
	JECT TITLE: ROPOSED NAR(SANITATI	OMORU WATE ON PROJECT	R AND
	EVATED BACK	ORKS	
-	ned by: A.M.M ked by: J.M.M	Drawn by: A Approved by: D	M.M .N.M
	1:100, 1:75 & 1:25	Date: N	OV 2023
DRG	No. KWSP	BW1/03	



OUTLET PIPEWORK DETAILS



PLAN



DOMESTIC WATER OUTLET PIPEWORK **SECTION 2 - 2**

QTY

(A) 350mm DIA. PIPE 1.2m LONG WITH ONE END FLANGED AND BELLMOUTH ON THE OTHER END AND PUDDLE FLANGE AT 310 mm FROM BELLMOUTH1Nr

	1Nr
)R	2Nr
)° BEND	1Nr
PE 1.2m LONG	1Nr
TE VALVE	1Nr
PE 2.4m LONG	
	1Nr
	1Nr

APPROVED LINED FERROUS PIPES AND FITTINGS

DESCRIPTION

QTY

(a) 80mm DIA. PIPE 1.2m LONG WITH ONE END FLANGED AND BELLMOUTH ON THE OTHER END AND PUDDLE FLANGE AT 150 mm FROM BELLMOUTH (PUDDLE FLANGE WELDED TO TANK BASE PANEL)1Nr

PIPE 10 m LONG	
	1Nr
	2Nr
BEND	.1Nr
E 1.6m LONG	.1Nr
E VALVE	.1Nr
E 2.4m LONG	
	.1Nr

1Nr

NOTES:

- ALL PIPE DIAMETERS AND VALVE DIAMETERS ARE NOMINAL DIAMETERS
- 2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE STATED
- 3. ONLY FIGURED DIMENSIONS TO BE TAKEN FROM THIS DRAWING
- 4. PIPE AND FITTINGS ARE BASED ON STEEL PIPES AND FITTINGS MADE BY ASP (K) LTD
- 5. GATE VALVES TO EURO 20 SERIES, TYPE 23 (SHORT FACE TO FACE TYPE VALVES) AS MADE BY POINT-A-MOUSSON (SAINT GOBAIN PAM) OR APPROVED EQUIVALENT
- 6. BALL FLOAT VALVES TO SERIES 1048, BIWATER OR APPROVED EQUIVALENT
- 7. THIS DRAWING TO BE USED FOR PIPEWORK DETAILS ONLY
- CONTRACTOR TO PROVIDE SHOP DRAWING OF TANK AND TOWER DETAILS FROM AN APPROVED STEEL FABRICATOR FOR APPROVAL PRIOR TO FABRICATION AND DELIVERY

CLIENT:



THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



ENGINEERS: THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100. NYERI, KENYA

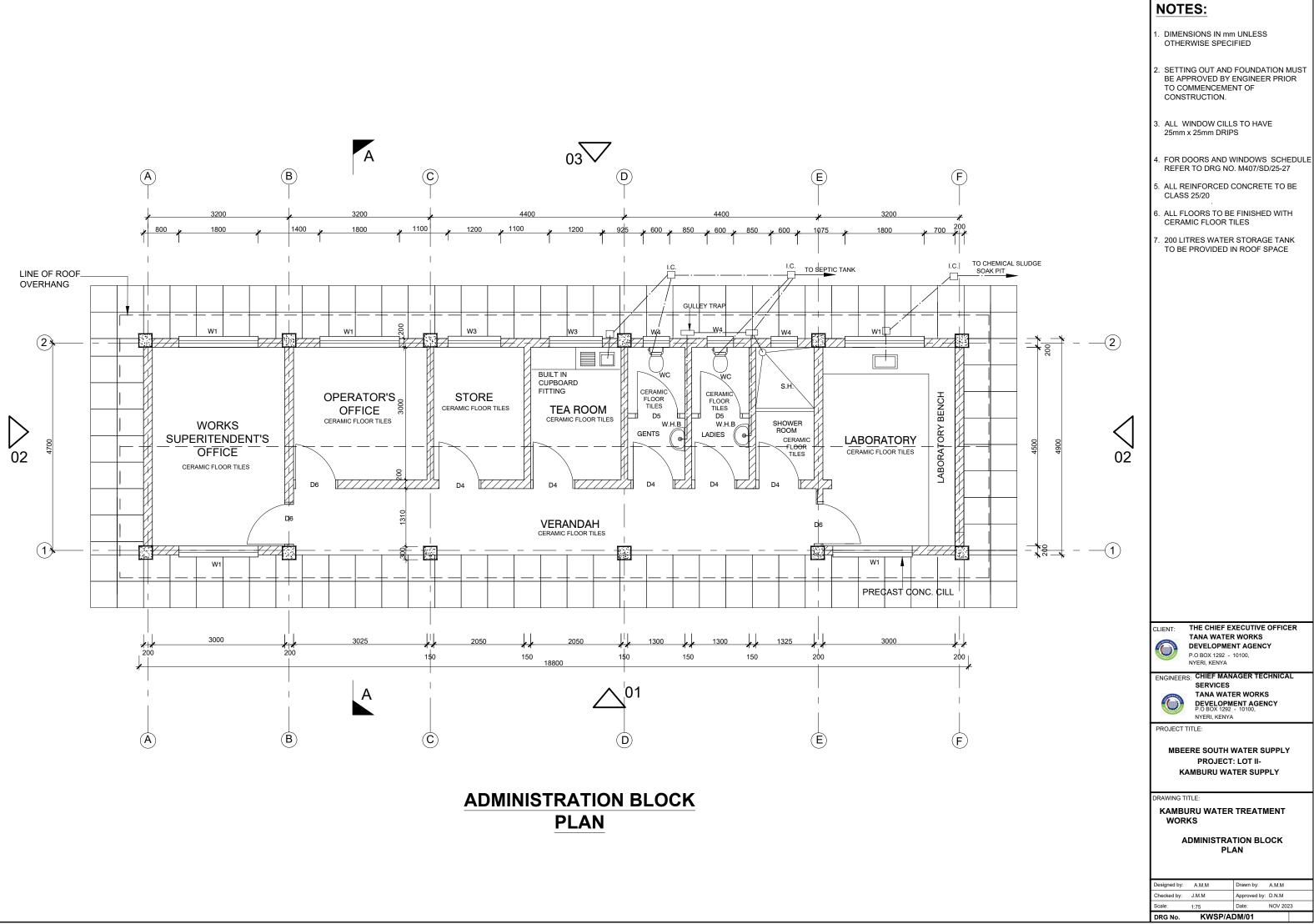
PROJECT TITLE: PROPOSED NAROMORU WATER AND SANITATION PROJECT

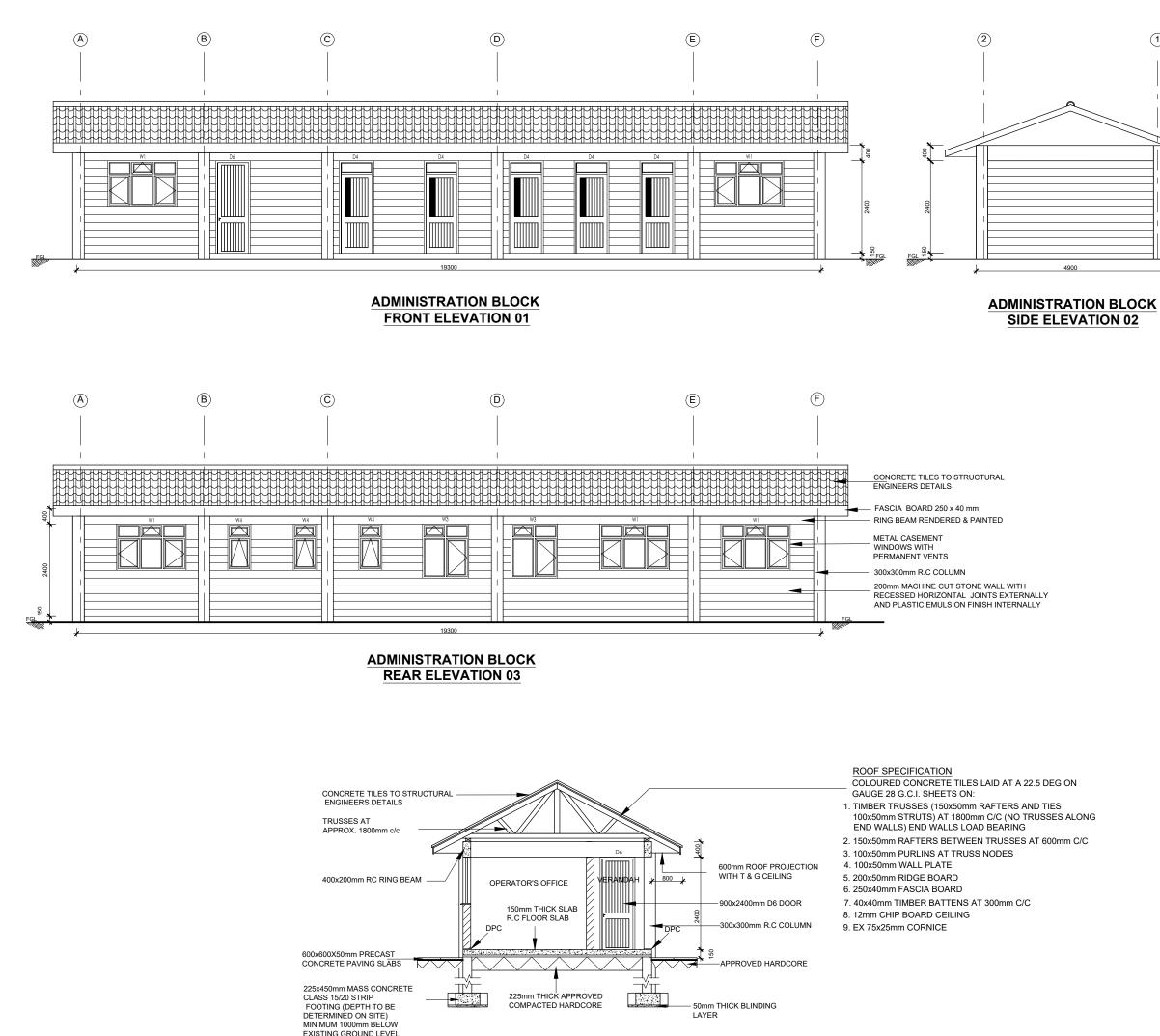
DRAWING TITLE KAMBURU WATER TREATMENT

WORKS ELEVATED BACKWASH WATER TANK (150m³)

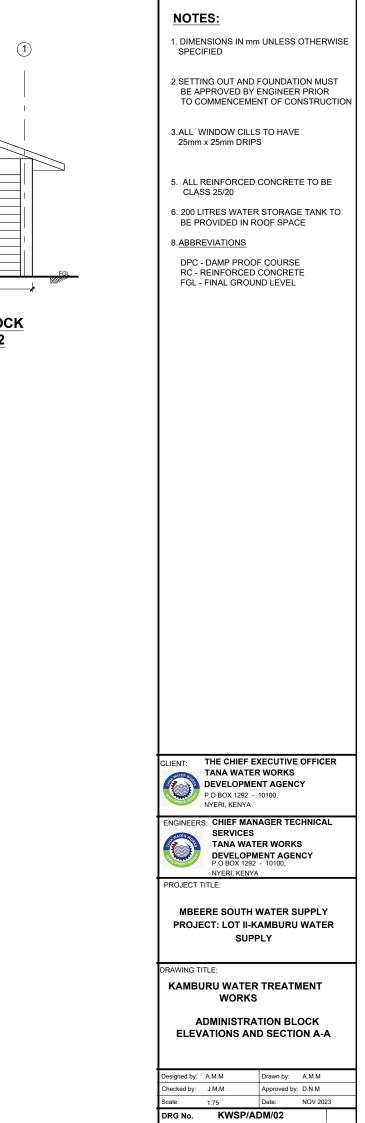
PIPEWORK DETAILS

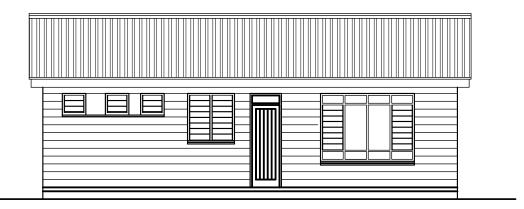
Designed by: A.M.M	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
1:100, 1:75 & 1:25	Date: NOV 2023
DRG No. KWSP/	BWT/03



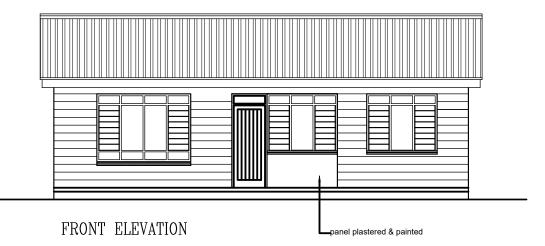


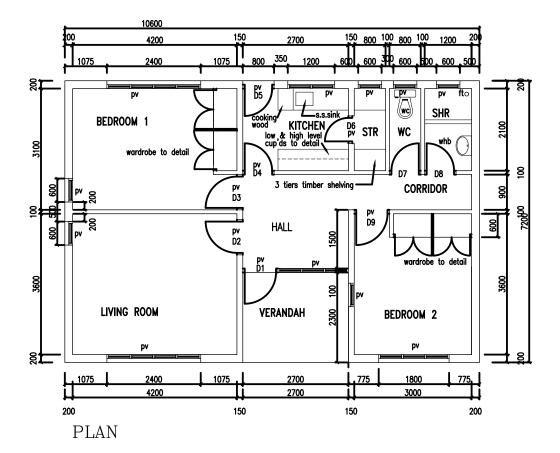
SECTION A-A

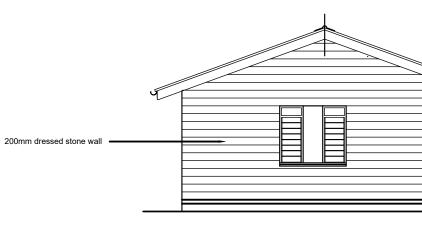




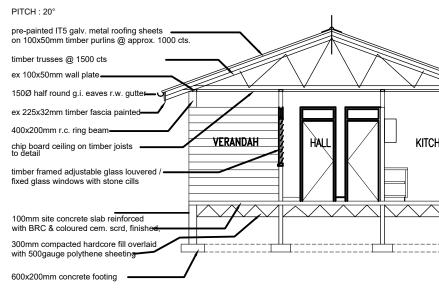
REAR ELEVATION





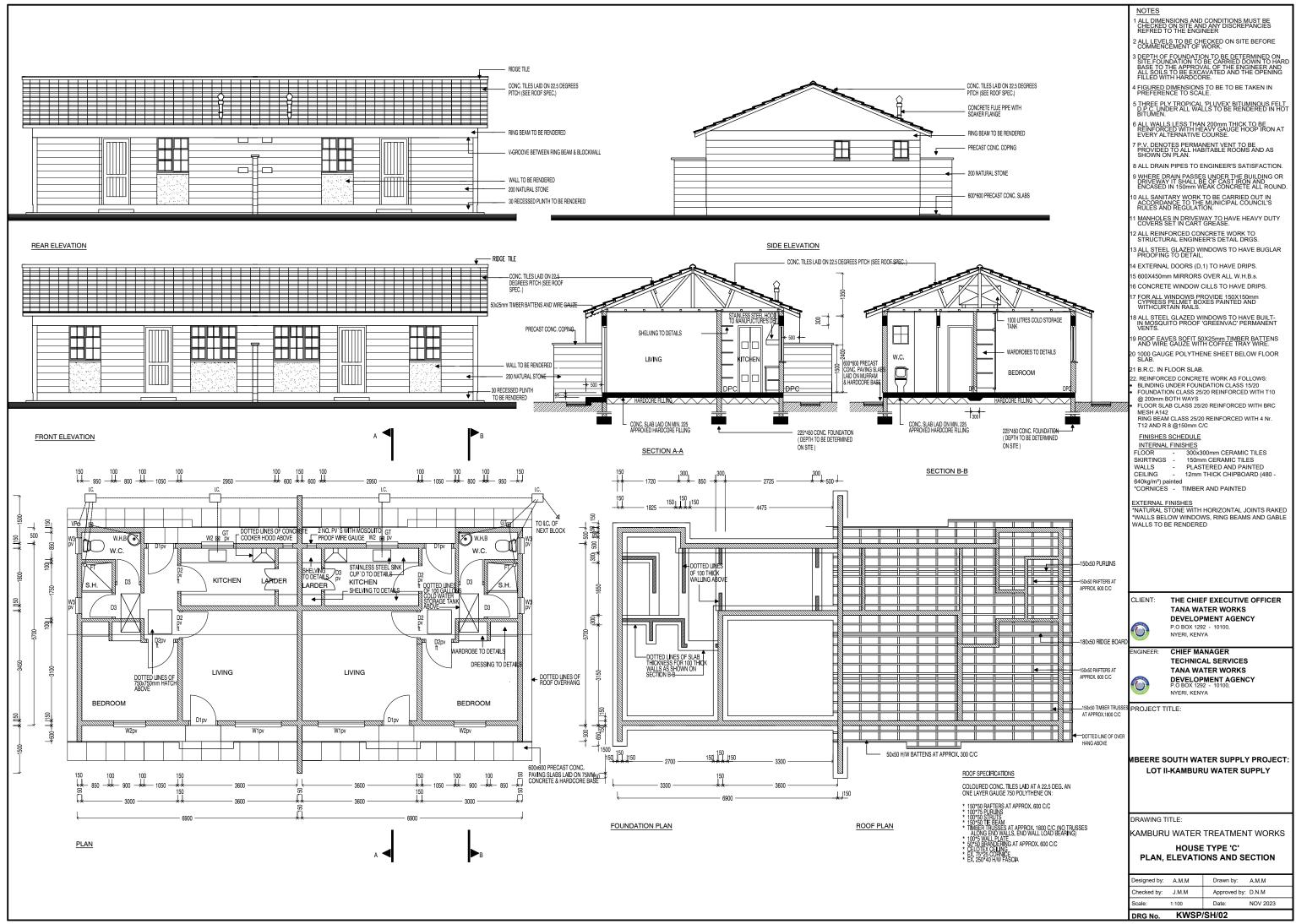


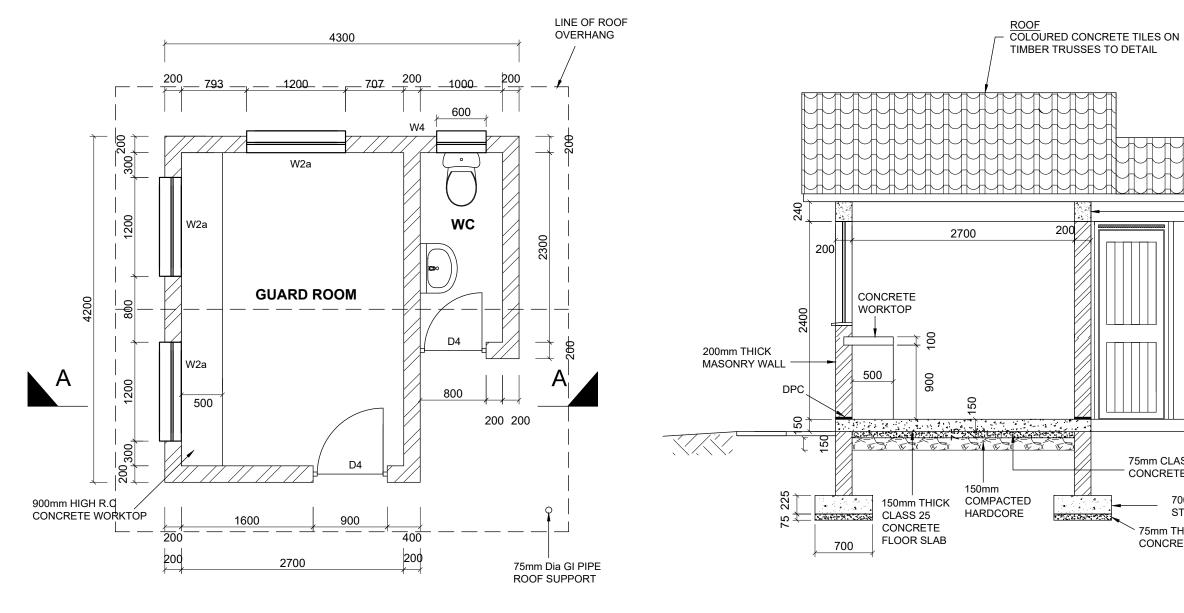
SIDE ELEVATION



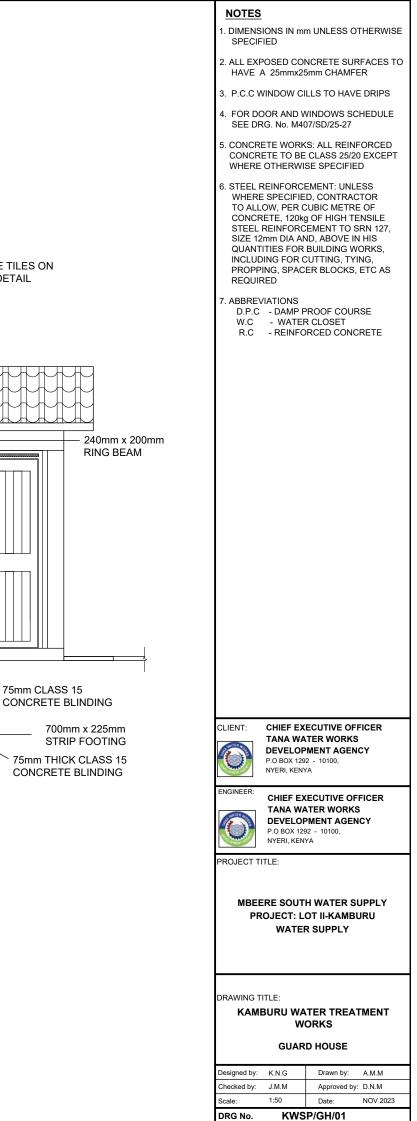
CROSS SECTION

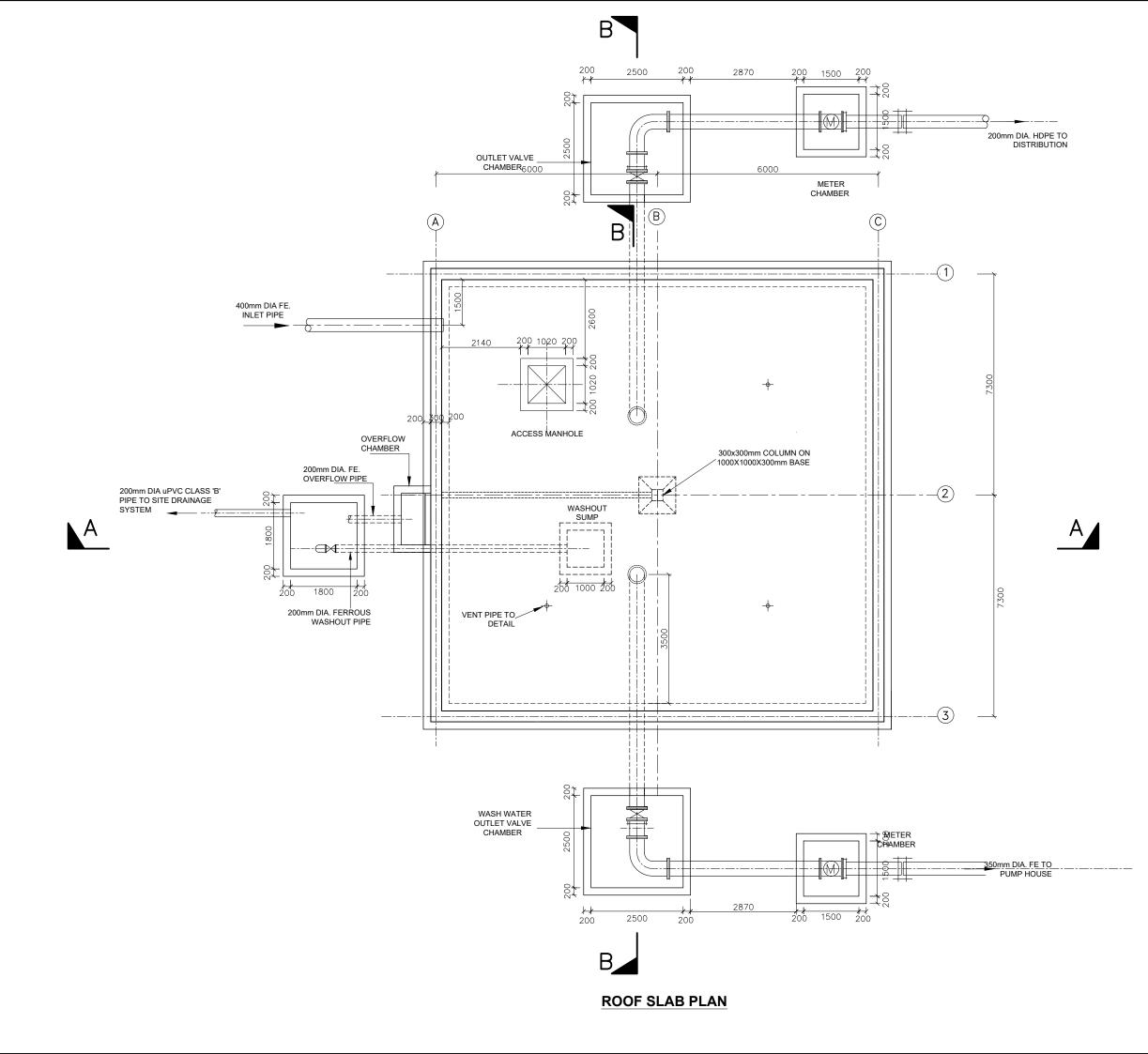
SANITARY FITTINGS	NOTES
WHITE VITEROUS HIGH LEVEL WASHDOWN W.C SUITE COMPLETE AS "TWYFORDS CLASSIC	1 ALL DIMENSIONS AND CONDITIONS MUST BE CHECKED ON SITE AND ANY DISCREPANCIES REFRED TO THE ENGINEER
10003" COMPRISING CLOSET WITH "S" TRAP, NO. 12030 CISTERN 9 LITRES CAPACITY, NO. 52120	2 ALL LEVELS TO BE CHECKED ON SITE BEFORE COMMENCEMENT OF WORK.
VALVELESS FITTINGS WITH PLASTIC SYPHON AND FLUSH BEND, CISTERN SUPPORTS, NO.	
50219 INLET CONNECTION AND NO. 50302 PLASTIC SEAT AND COVER; PAN PLUGGED AND	3 DEPTH OF FOUNDATION TO BE DETERMINED ON SITE FOUNDATION TO BE CARRIED DOWN TO HARD BASE TO THE APPROVAL OF THE ENGINEER AND ALL SOILS TO BE EXCAVATED AND THE OPENING FILLED WITH HARDCORE.
SCREWED TO FLOOR AND CISTERN TO WALL. • WHITE VITEROUS CHINA WASHBASIN COMPLETE	4 FIGURED DIMENSIONS TO BE TO BE TAKEN IN PREFERENCE TO SCALE.
AS "TWYFORDS CLASSIC 14003" WITH ONE NO. 54200 AZTEC TAP 15MM, NO. 54351 CHAIN	5 THREE PLY TROPICAL 'PLUVEX' BITUMINOUS FELT D.P.C. UNDER ALL WALLS TO BE RENDERED IN HOT
WASTE, NO. 56005 FIXING BRACKETS INCLUDING ALL NECESSARY FIXING.	6 ALL MASONRY WALLS 200mm THICK TO BE
	REINFORCED WITH HEAVY GAUGE HOOP IRON AT EVERY ALTERNATIVE COURSE
	AND JOINTED IN 1:3 CEMENT: SAND MORTAR. 7 P.V. DENOTES PERMANENT VENT TO BE
	PROVIDED TO ALL HABITABLE ROOMS AND AS SHOWN ON PLAN.
	8 ALL DRAIN PIPES TO ENGINEER'S SATISFACTION. 9 WHERE DRAIN PASSES UNDER THE BUILDING OR DRIVEWAY IT SHALL BE OF CAST IRON AND ENCASED IN 150mm WEAK CONCRETE ALL ROUND.
	ENCASED IN 150mm WEAK CONCRETE ALL ROUND. 10 ALL SANITARY WORK TO BE CARRIED OUT IN
	10 ALL SANITARY WORK TO BE CARRIED OUT IN ACCORDANCE TO THE MUNICIPAL COUNCIL'S RULES AND REGULATION.
	11 MANHOLES IN DRIVEWAY TO HAVE HEAVY DUTY COVERS SET IN CART GREASE.
	12 ALL REINFORCED CONCRETE WORK TO STRUCTURAL ENGINEER'S DETAIL DRGS.
	13 ALL STEEL GLAZED WINDOWS TO HAVE BUGLAR PROOFING TO DETAIL.
	14 EXTERNAL DOORS (D,1) TO HAVE DRIPS. 15 600X450mm MIRRORS OVER ALL W.H.B.s.
	16 CONCRETE WINDOW CILLS TO HAVE DRIPS.
	17 FOR ALL WINDOWS PROVIDE 150X150mm CYPRESS PELMET BOXES PAINTED AND WITH CURTAIN RAILS.
	18 ALL STEEL GLAZED WINDOWS TO HAVE BUILT- IN MOSQUITO PROOF 'GREENVAC' PERMANENT
	19 ROOF EAVES SOFIT 50X25mm TIMBER BATTENS AND WIRE GAUZE WITH COFFEE TRAY WIRE.
	20 1000 GAUGE POLYTHENE SHEET BELOW FLOOR
	21 B.R.C. IN FLOOR SLAB. 22. REINFORCED CONCRETE WORK AS FOLLOWS:
	BLINDING UNDER FOUNDATION CLASS 15/20 FOUNDATION CLASS 25/20 REINFORCED WITH T10 @ 200mm BOTH WAYS
~*	 @ 200mm BOTH WAYS FLOOR SLAB CLASS 25/20 REINFORCED WITH BRC MESH A142
	RING BEAM CLASS 25/20 REINFORCED WITH 4 Nr. T12 AND R 8 @150mm C/C
	FINISHES SCHEDULE
	INTERNAL FINISHES FLOOR - 300x300mm CERAMIC TILES SKIRTINGS - 150mm CERAMIC TILES
	SKIRTINGS - 150mm CERAMIC TILES WALLS - PLASTERED AND PAINTED CEILING - 12mm THICK CHIPBOARD (480 -
	640kg/m ²) painted *CORNICES - TIMBER AND PAINTED
	*NATURAL STONE WITH HORIZONTAL JOINTS RAKED *WALLS BELOW WINDOWS, RING BEAMS AND GABLE WALLS TO BE RENDERED
	CLIENT: THE CHIEF EXECUTIVE OFFICER
	TANA WATER WORKS DEVELOPMENT AGENCY
	P.O BOX 1292 - 10100, NYERI, KENYA
े ज	
	TECHNICAL SERVICES
	DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
KITCHEN	NYERI, KENYA
	PROJECT TITLE:
	MBEERE SOUTH WATER SUPPLY PROJECT LOT II-KAMBURU WATER SUPPLY
· ·	
	DRAWING TITLE:
	KAMBURU WATER TREATMENT WORKS HOUSE TYPE 'B'
	PLAN, ELEVATIONS AND SECTION
	Designed by: A.M.M Drawn by: A.M.M
	Checked by: J.M.M Approved by: D.N.M Scale: 1:100 Date: NOV 2023
	Date. 1907 2023



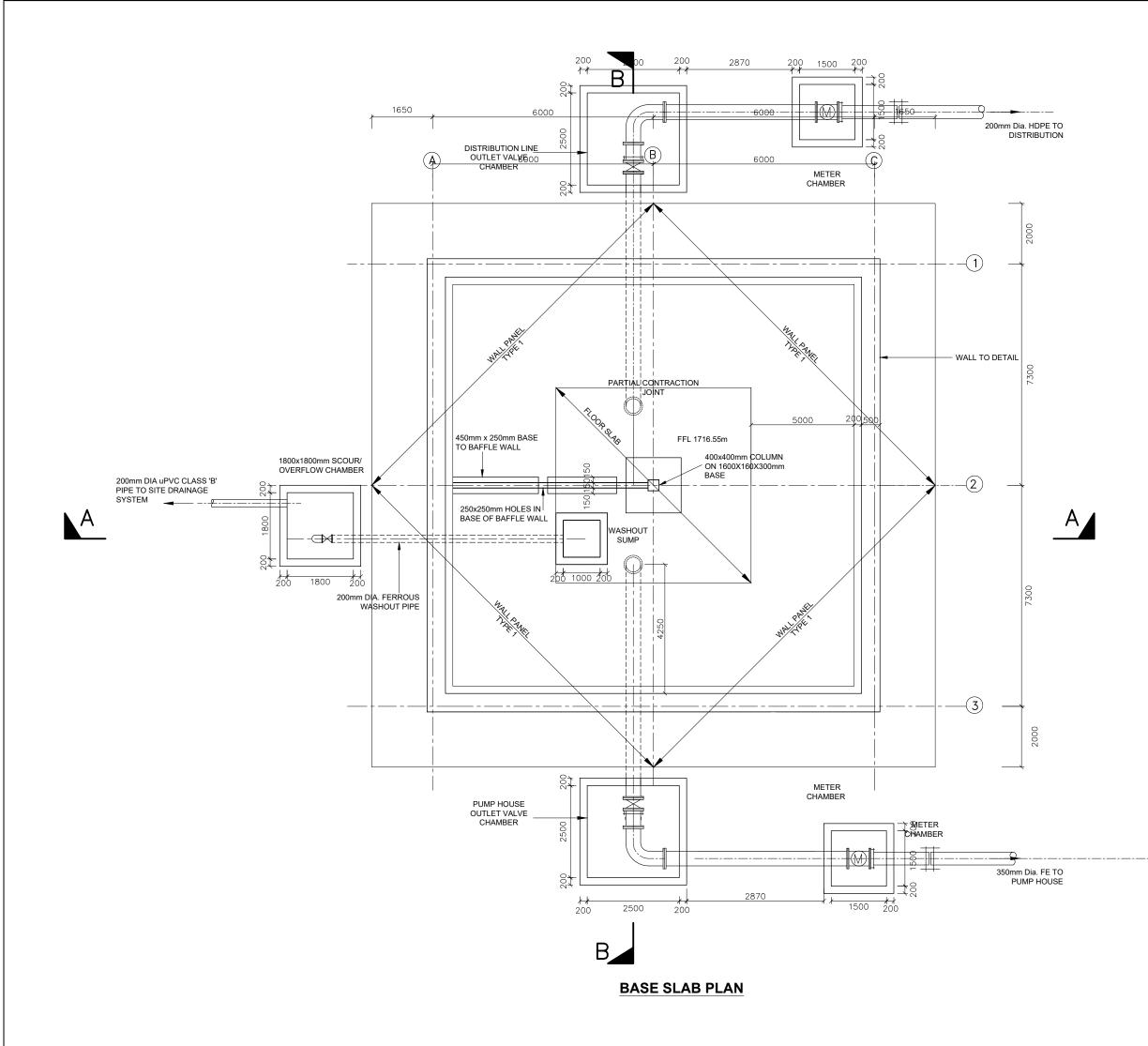


GATE HOUSE PLAN SECTION A-A

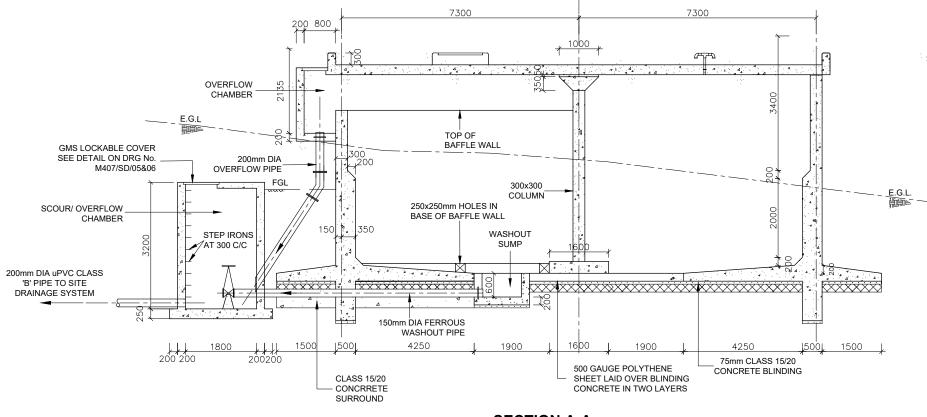




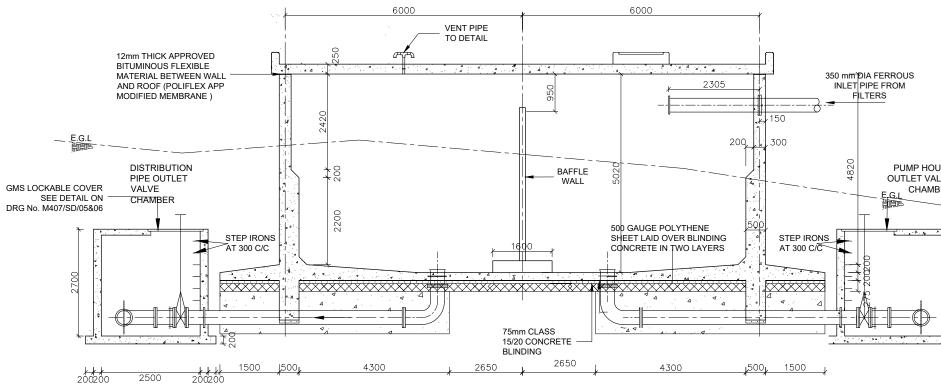
NOT				
1.			IN MILLIMET	
2.			ONCRETE ED 5mm CHAMF	
3.	CONC	RETE TO B	KS: ALL REIN E CLASS 25 / /ISE SPECIFI	20 EXCEPT
4.	ABBRE R.C F.G.L E.G.L	VIATIONS: - REIN - FINIS - EXIS - NOMI - UNPL CHLC	FORCED COI HED GROUN FING GROUN NAL DIAETEI ASTICISED F	NCRETE D LEVEL D LEVEL R POLYVINYL
		TANA WA		s
	EER:	TANA WA DEVELOF P.O BOX 129 NYERI, KENY CHIEF MA	TER WORK MENT AGE 2 - 10100, (A NAGER TE	(S INCY
	EER:	TANA WA DEVELOF P.O BOX 129 WYERI, KENY CHIEF MA SERVICE TANA WA DEVELOF P.O BOX 129	TER WORK MENT AGE 2 - 10100, (A NAGER TE S TER WORK MENT AGE 2 - 10100,	S NCY CHNICAL
		TANA WA DEVELOF 2.0 BOX 128 VYERI, KENY CHIEF MA SERVICE: TANA WA DEVELOF 2.0 BOX 128 VYERI, KENY LE:	TER WORK MENT AGE 2 - 10100, (A NAGER TE S TER WORK MENT AGE 2 - 10100, (A	S NCY CHNICAL S NCY
		TANA WA DEVELOP .0 BOX 122 .0 BOX 122 .0 BOX 122 TANA WA DEVELOP .0 BOX 123 .0 BOX 123 .0 BOX 123 .0 BOX 123 .0 BOX 125 .0 BOX 125	TER WORK PMENT AGE 2 - 10100, (A NAGER TE S TER WORK PMENT AGE 2 - 10100, (A TER SUPP	S NCY CHNICAL S NCY PLY PROJEC PPLY
		TANA WA DEVELOP .0 BOX 129 .0 BOX 129 .0 BOX 129 TANA WA DEVELOP .0 BOX 129 WYERI, KENY LE: DUTH WA MBURU V	TER WORK MENT AGE 2 - 10100, (A NAGER TE S TER WORK MENT AGE 2 - 10100, (A TER SUPP VATER SUI	S NCY CHNICAL S NCY PLY PROJEC PPLY
ENGIN PROJ DRAV	EER: C	TANA WA DEVELOF 2.0 BOX 128 VYERI, KENY CHIEF MA SERVICE: TANA WA DEVELOF 2.0 BOX 128 VYERI, KENY LE: DUTH WA IBURU V	TER WORK MENT AGE 2 - 10100, (A NAGER TE S TER WORK MENT AGE 2 - 10100, (A TER SUPP VATER SUPP VATER SUPP	CHNICAL CHNICAL SSINCY PLY PROJEC PPLY 000m ³



 ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE INDICATED ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT WHERE OTHERWISE SPECIFIED ABBREVIATIONS: R.C - REINFORCED CONCRETE F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAETER UPVC - UNPLASTICISED POLYVINYL CHLORIDE G.I - GALVANIZED IRON 							s	
 HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT WHERE OTHERWISE SPECIFIED ABBREVIATIONS: R.C - REINFORCED CONCRETE F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAETER uPVC - UNPLASTICISED POLYVINYL CHLORIDE 	1.							
CONCRETE TO BE CLASS 25 /20 EXCEPT WHERE OTHERWISE SPECIFIED 4. ABBREVIATIONS: R.C - REINFORCED CONCRETE F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAETER uPVC - UNPLASTICISED POLYVINYL CHLORIDE	2.							
4. ABBREVIATIONS: R.C - REINFORCED CONCRETE F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAETER uPVC - UNPLASTICED POLYVINYL CHLORIDE	3.	CONC	RETE	E TO BE	CLASS	6 25 /20	EXCE	
F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAETER uPVC - UNPLASTICED POLYVINYL CHLORIDE	4.	ABBR	EVIAT	IONS:				
		F.G.L E.G.L DN uPVC	- -	FINISH EXIST NOMINUNPL/ CHLOR	IED GR ING GR IAL DIA ASTICIS RIDE	ound I Ound I Eter Ed Poi	LEVEL LEVEL	'L
	CLIEN	T:	TAN DEV P.O B	A WA ELOP OX 1292		ORKS AGEN(
	0		TAN DEV P.O B NYER	A WA ELOP OX 1292	TER W MENT / - 10100	ORKS AGENC	CY	
ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA	0		TAN DEV P.O B NYER CHIE SER TAN DEV P.O B	A WA ELOP OX 1292 II, KENY EF MA VICES A WA ELOP OX 1292	IER W MENT J - 10100 A NAGEF FER W MENT J - 10100 - 10100 - 10100 - 10100 - 10100 - 10100	ORKS AGENO TECH ORKS AGENO		L
SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJEC KAMBURU WATER SUPPLY DRAWING TITLE:		ECT TI ECT TI RE SO KA	TAN DEV P.O B NYER CHIE SER TAN DEV P.O B NYER TLE:	A WA ELOPI OX 1292 1, KENY EF MA VICES A WA ELOPI OX 1292 1, KENY	FER W MENT A - 10100 NAGEF FER W MENT A - 10100 A	ORKS AGEN(), R TECH ORKS AGEN(), SUPPL SUPP	CY HNICA CY Y PRC	
SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJEC KAMBURU WATER SUPPLY		ECT TI ECT TI RE SO KA	TAN DEV P.O.B NYER TAN DEV P.O.B NYER TLE: OUTI MBU	A WA ELOPI OX 1292 II, KENY FF MA VICES A WA ELOPI OX 1292 II, KENY H WA IRU W		ORKS AGEN(), ORKS AGEN(SUPPL) SUPP	CY HNICA CY Y PRC	
SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJEC KAMBURU WATER SUPPLY DRAWING TITLE: MWANYARI A TANK (500m ³) BASE SLAB PLAN		ECT TI ECT TI RE SI KA	TAN DEV P.O B NYER CHIE SER TAN DEV P.O B NYER TLE: OUTI MBU	A WA ELOPI OX 1292 I, KENY VICES A WA ELOPI OX 1292 I, KENY H WA IRU W		ORKS AGENC ORKS AGENC SUPPL (500n AN	CY HNICA CY Y PRC PLY	
SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O. BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJEC KAMBURU WATER SUPPLY DRAWING TITLE: MWANYARI A TANK (500m ³)		ER: ECT TI RE SI KA	TAN DEV P.O.B NYER CHII SER TAN DEV P.O.B NYER TLE: OUTI MBU	A WA ELOPI OX 1293 I, KENY VICES A WA ELOPI OX 1293 I, KENY H WA IRU W		ORKS AGEN(), ORKS AGEN(SUPPL) SUPP (500n AN	CY HNICA CY Y PRC PLY	

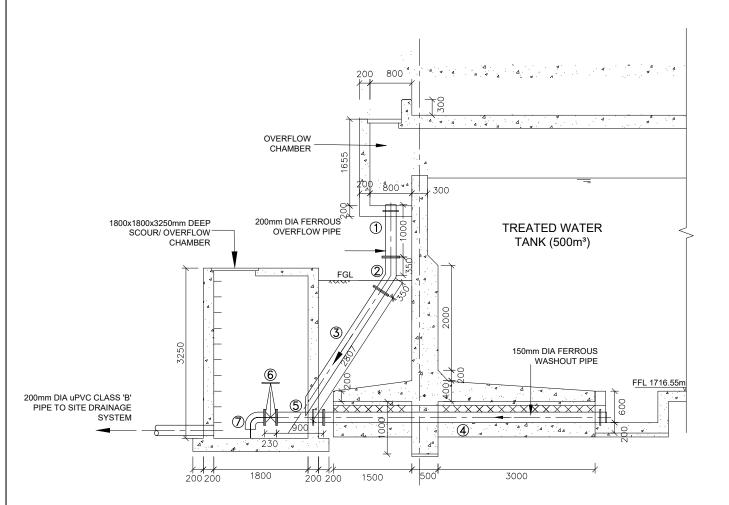




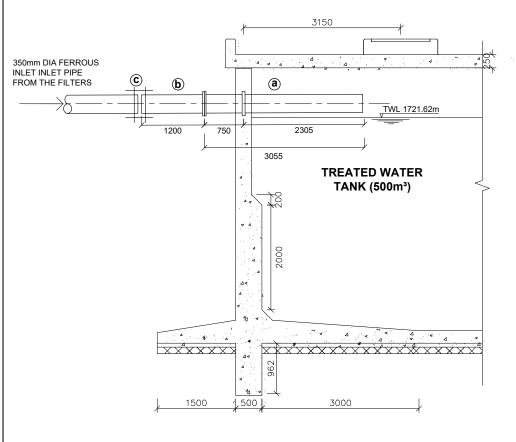


SECTION B-B

	NOTES:
	1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE INDICATED
	2. ALL EXPOSED CONCRETE EDGES TO HAVE A 25mm x 25mm CHAMFER
	3. CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25/20 EXCEPT WHERE OTHERWISE SPECIFIED
	4. ABBREVIATIONS:
	R.C - REINFORCED CONCRETE F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAMETER uPVC - UNPLASTICISED POLYVINYL CHLORIDE G.I - GALVANIZED IRON F.L - FINISHED LEVEL
_	
	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
	ENGINEER: CHIEF MANAGER TECHNICAL
	SERVICES TANA WATER WORKS DEVELOPMENT AGENCY
OUSE ALVE MBER	P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE:
GMS LOCKABLE COVER	
	MBEERE SOUTH WATER SUPPLY PROJEC KAMBURU WATER SUPPLY
2700	
	DRAWING TITLE:
	KAMBURU WATER TREATMENT
	WORKS MWANYARI A TANK (500m ³) SECTIONS A - A & B - B
	Designed by: A.M.M Drawn by: A.M.M
	Checked by: J.M.M Approved by: D.N.M Scale: 1:100 Date: NOV 2023



OVERFLOW AND WASHOUT PIPE WORK DETAILS



INLET PIPE DETAILS

SCOUR AND OVERFLOW PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
1	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE 120mm FROM SPIGOT END	150	1000	1
2	ALL FLANGED 30° BEND	150	150Ø 350 350	1
3	FLANGED SPIGOT PIPE WITH END BEVELLED (LENGTH CUT TO SUIT ON SITE)	150	2650	1
4	FLANGED SPIGOT PIPE WITH PUDDLE FLANGE AT 120mm FROM PLAIN END	200	5400	1
5	ALL FLANGED PIPE WITH PUDDLE FLANGE AT 200mm FROM ONE END	200	900	1
6	ALL FLANGED GATE VALVE(EURO 20 SERIES, TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)	200	-	1
7	FLANGED SPIGOT 90° BEND (CUT TO SUIT ON SITE)	200	500 200Ø	1

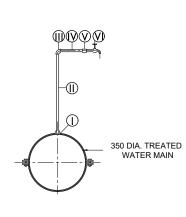
INLET PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
a	FLANGED SPIGOT PIPE WITH PUDDLE FLANG 750mm FROM FLANGED END	E 350	3055	1
Ь	FLANGED SPIGOT PIPE	350	1200	1
©	V.J COUPLING	350	-	1

WATER SAMPLING PIPES AND FITTINGS SCHEDULE

(APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm)	QUANTITY (No.)
0	STEEL SADDLE CLAMP	350x25	-	1
(1)	G.I PIPE WITH MALE THREADED ENDS	25	1000	1
	G.I ELBOW (FEMALE THREADED)	25	-	1
\mathbb{N}	G.I PIPE WITH MALE THREADED ENDS	25	250	1
Ŵ	G.I UNION (FEMALE THREADED)	25	-	1
Ŵ	BRASS TAP	25	-	1



WATER SAMPLING PIPE DETAIL NTS

NOTES:

- ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE INDICATED
- ALL EXPOSED CONCRETE EDGES TO 2. HAVE A 25mm x 25mm CHAMFER
- CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT WHERE OTHERWISE SPECIFIED
- ABBREVIATIONS: 4.

R.C -	REINFORCED CONCRETE
F.G.L -	FINISHED GROUND LEVEL
E.G.L -	EXISTING GROUND LEVEL
DN -	NOMINAL DIAETER
uPVC -	UNPLASTICISED POLYVINYL
	CHLORIDE
G.I -	GALVANIZED IRON

5. THIS DRAWING IS TO BE USED FOR PIPEWORK DETAILS ONLY. OTHER TANK CONSTRUCTION DETAILS TO BE READ FROM DWG NO. M407/CG/TW/KB/TWT/01-03

> CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:

CLIENT:

0

CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS



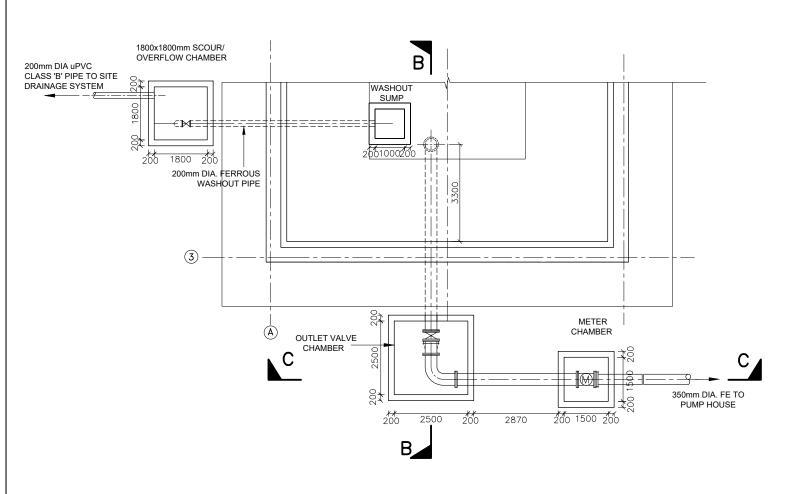
DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT KAMBURU WATER SUPPLY

DRAWING TITLE:

KAMBURU WATER TREATMENT WORKS					
MWANYARI A T PIPES AND FITTIN	· · · ·				
Designed by: A.M.M	Drawn by: A.M.M				
Checked by: J.M.M	Approved by: D.N.M				
Scale: 1:100	Date: NOV 2023				
DRG No. KWSF	P/MWNA/04				

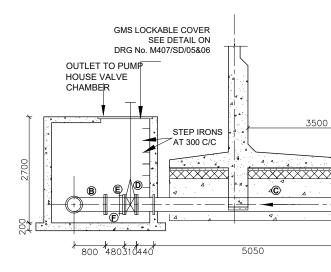


OUTLET TO PUMP HOUSE

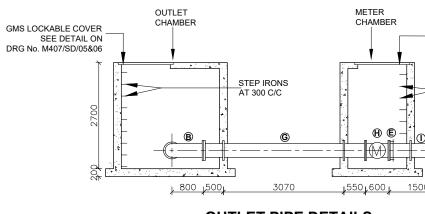
PIPE DETAILS

PLAN

SCALE 1:75



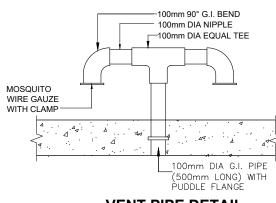
OUTLET TO PUMP HOUSE PIPE DETAI



OUTLET PIPE DETAILS SECTION C-C

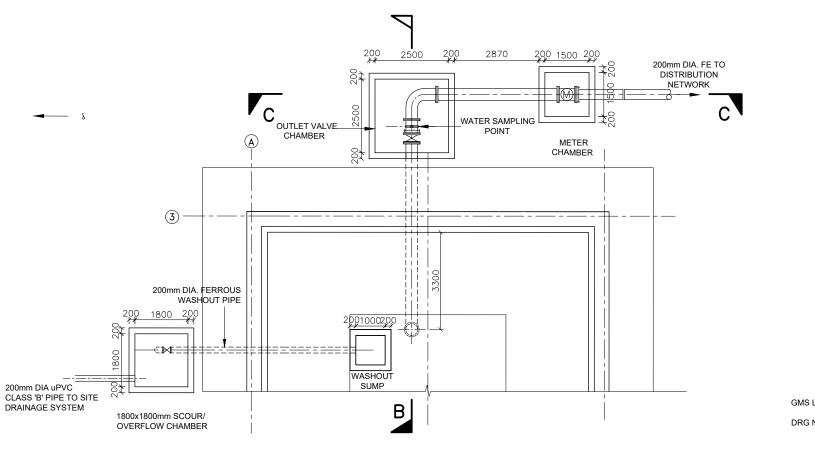
OUTLET PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm
A	SPECIAL FLANGED BELLMOUTH WITH PUDDLE FLANGE 170mm FROM THE BELLMOUTH END	350	415
B	ALL FLANGED 90° BEND	350	
C	ALL FLANGED PIPE WITH PUDDLE FLANGE AT 5050mm FROM ONE END	350	5500
D	ALL FLANGED GATE VALVE(EURO 20 SERIES, TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)	350	310
E	FLANGE ADAPTOR	350	-
Ē	FLANGED SPIGOT PIPE	350	500
G	ALL FLANGED PIPE WITH PUDDLE FLANGES AT 500mm AND AT 3470 FROM ONE END	350	5500
H	ALL FLANGED WATER METER (KENT OR APPROVED EQUIVALENT)	350	600
0	PLAIN ENDED PIPE WITH PUDDLE FLANGE AT 502mm FROM ONE END	350	20000

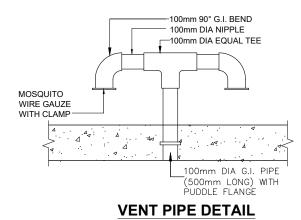


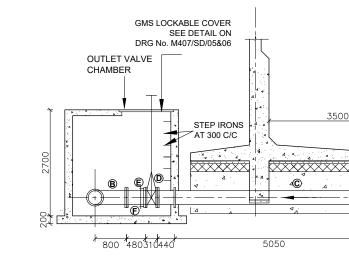
VENT PIPE DETAIL

			NOTES	<u>:</u>		
					ONS IN MILLIMETERS IERWISE INDICATED	
					D CONCRETE EDGES TO m x 25mm CHAMFER	
			C	ONCRETE	WORKS: ALL REINFORCED TO BE CLASS 25 /20 EXCEP ERWISE SPECIFIED	т
				BBREVIATI		
00			F E D u	.G.L - F .G.L - E IN - N PVC - L	REINFORCED CONCRETE INISHED GROUND LEVEL EXISTING GROUND LEVEL IOMINAL DIAETER JNPLASTICISED POLYVINYL SHLORIDE GALVANIZED IRON	-
A			PIPE\ CONS	NORK DETA	S TO BE USED FOR AILS ONLY. OTHER TANK DETAILS TO BE READ M407/CG/TW/KB/TWT/01-03	
	* 800 *					
TAIL	S					
	GMS LOCKABLE COVI SEE DETAIL ON	ER				
	DRG No. M407/SD/05&	06				
	STEP IRONS					
	AT 300 C/C					
	TO DIST	n DIA. FE IRIBUTION				
		NETWORK				
نے 1500						
1300						
LE			CLIENT:		XECUTIVE OFFICER	
				DEVELO	PMENT AGENCY	
	QUANTITY		\bigcirc	NYERI, KEN	,	
(mm)	(No.)		ENGINEER:	CHIEF M SERVICE	ANAGER TECHNICAL	
	1				ATER WORKS PMENT AGENCY	
0 7 1	2		\odot	P.O BOX 12 NYERI, KEN	92 - 10100, IYA	
i	-		PROJECT T	ITLE:		
0	1					
)	1	1			ATER SUPPLY PROJEC	7
			к/ 	NUBURU	WATER SUPPLY	
	2					
	1					
00	1		DRAWING T KAME	BURU WA	TER TREATMENT	
)	1	1		YARI A WA	ORKS ATER TANK (500m ³)	
00	1		OU		EAND FITTINGS	
]	Designed by: Checked by:	A.M.M J.M.M	Drawn by: A.M.M Approved by: D.N.M	1
			Scale: 1:100		Date: NOV 2023	-
			DRG No.	KWS	P/MWNA/05	1

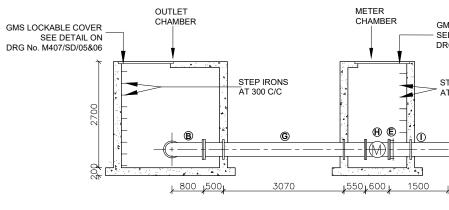


OUTLET PIPE DETAILS PLAN SCALE 1:75





OUTLET PIPE DETAILS SECTION B-B

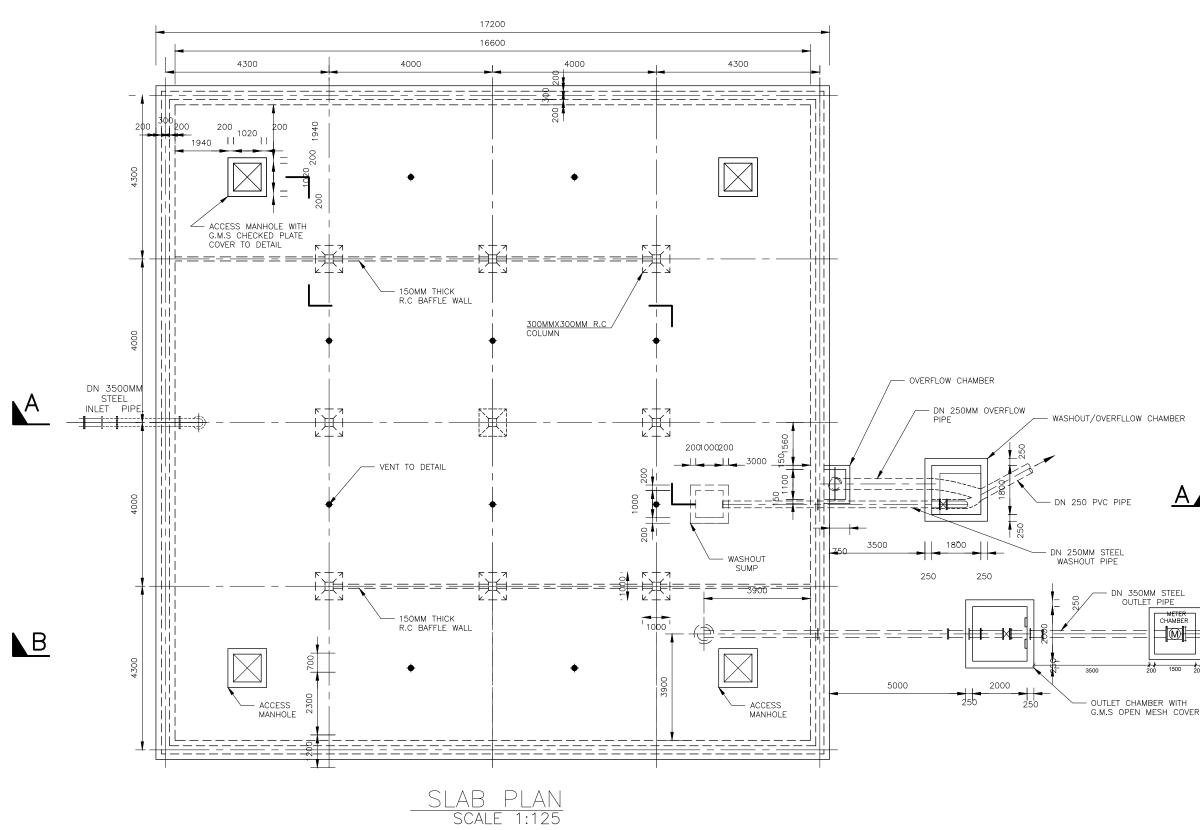


OUTLET PIPE DETAILS SECTION C-C

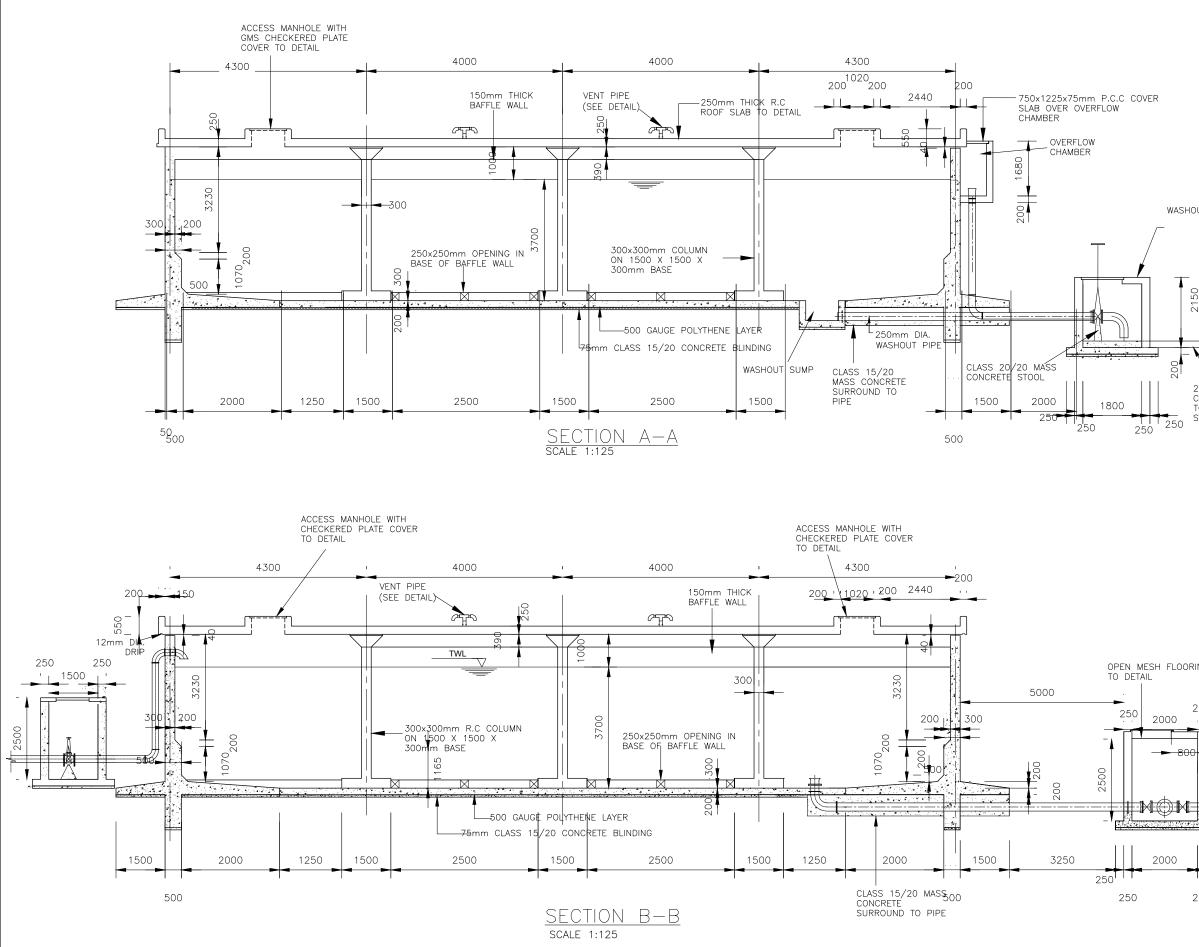
OUTLET PIPES AND FITTINGS SCHEDULE (APPROVED LINED FERROUS PIPES & FITTINGS)

ITEM NO.	DESCRIPTION	DIA. (mm)	LENGTH (mm
A	SPECIAL FLANGED BELLMOUTH WITH PUDDLE FLANGE 170mm FROM THE BELLMOUTH END	200	415
B	ALL FLANGED 90° BEND	200	800 00 00 350Ø
C	ALL FLANGED PIPE WITH PUDDLE FLANGE AT 5050mm FROM ONE END	200	5500
D	ALL FLANGED GATE VALVE(EURO 20 SERIES, TYPE 23, SAINT GOBAIN PAM OR APPROVED EQUIVALENT)	200	310
Ē	FLANGE ADAPTOR	200	-
Ē	FLANGED SPIGOT PIPE	200	500
G	ALL FLANGED PIPE WITH PUDDLE FLANGES AT 500mm AND AT 3470 FROM ONE END	200	5500
H	ALL FLANGED WATER METER (KENT OR APPROVED EQUIVALENT)	200	600
	PLAIN ENDED PIPE WITH PUDDLE FLANGE AT 502mm FROM ONE END	200	20000

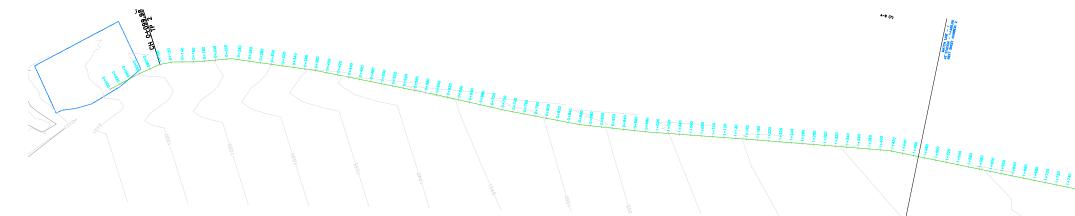
NOTES: ALL DIMENSIONS IN MILLIMETERS 1. UNLESS OTHERWISE INDICATED ALL EXPOSED CONCRETE EDGES TO 2 HAVE A 25mm x 25mm CHAMFER CONCRETE WORKS: ALL REINFORCED CONCRETE TO BE CLASS 25 /20 EXCEPT 3 WHERE OTHERWISE SPECIFIED ABBREVIATIONS: 4 REINFORCED CONCRETE R.C -F.G.L - FINISHED GROUND LEVEL E.G.L - EXISTING GROUND LEVEL DN - NOMINAL DIAETER E.G.L -B FFL 1888.60m DN -4 4 4 uPVC -UNPLASTICISED POLYVINYL CHLORIDE G.I GALVANIZED IRON -B, THIS DRAWING IS TO BE USED FOR 5. PIPEWORK DETAILS ONLY. OTHER TANK CONSTRUCTION DETAILS TO BE READ FROM DWG NO. M407/CG/TW/KB/TWT/01-03 800 ´ GMS LOCKABLE COVER SEE DETAIL ON DRG No. M407/SD/05&06 STEP IRONS AT 300 C/C 400mm DIA. FE TO DISTRIBUTION l:IM NETWORK CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100 0 NYERI, KENYA QUANTITY CHIEF MANAGER TECHNICAL H (mm) (No.) ENGINEER: SERVICES TANA WATER WORKS 1 DEVELOPMENT AGENCY \bigcirc P.O BOX 1292 - 10100, NYERI, KENYA 2 PROJECT TITLE: 1 MBEERE SOUTH WATER SUPPLY PROJECT 1 KAMBURU WATER SUPPLY 2 1 DRAWING TITLE: 1 KAMBURU WATER TREATMENT WORKS MWANYARI A TANK (500m³) 1 OUTLET PIPE AND FITTINGS SCHEDULE 1 Designed by: A.M.M Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Date: NOV 2023 Scale: 1:100 KWSP/MWNA/06 DRG No.

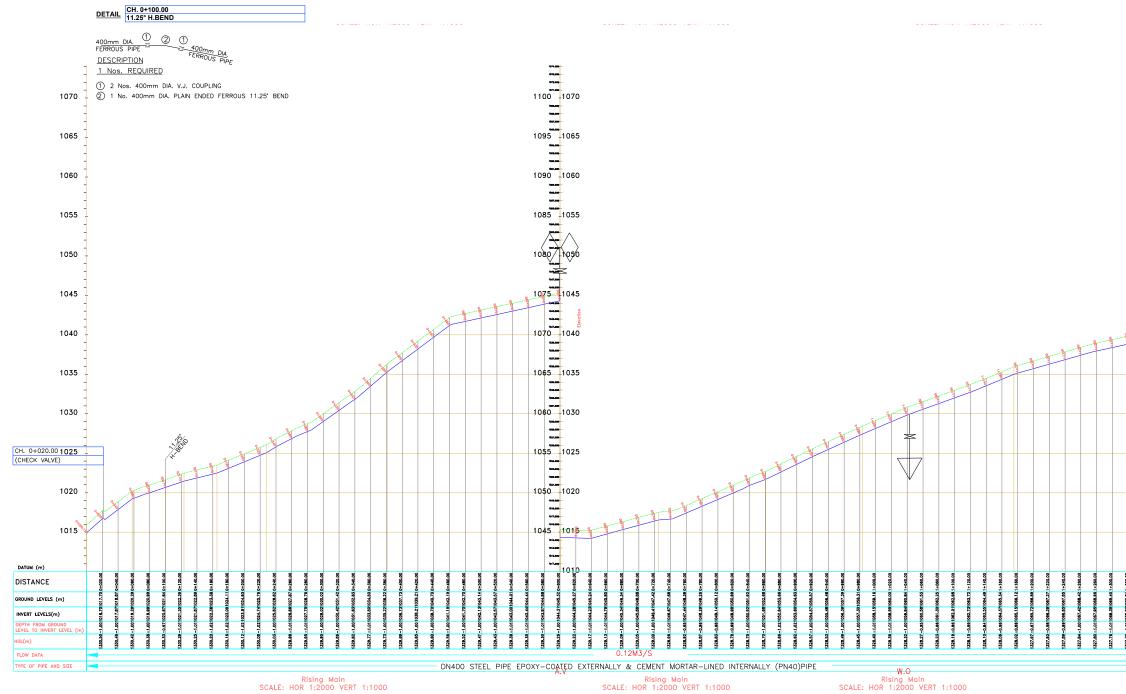


	NOTES:			
		UNLESS	S IN MILLIMET S OTHERWISE	INDICATED
			ETE EDGES T 5mm CHAMFE	
	CONCRE	ΤΕ ΤΟ ΒΕ	: ALL REINFO CLASS 25 / SPECIFIED	
		ABBREVIA		
	E.G.L DN uPVC –	– EXIS NOM UNPI	FORCED CONG SHED GROUND TING GROUND INAL DIAETER LASTICISED PC CH 'ANIZED IRON	LEVEL
	CLIENT:	CHIEF EX		ICER
_		TANA WA	ATER WORKS	
		NYERI, KEN	YA	
	ENGINEER:	SERVICE	ANAGER TECH S ATER WORKS	MICAL
	\bigcirc	DEVELOF P.O BOX 129 NYERI, KEN		CY
	PROJECT TI			
		0.11711.111		/ DDO /=
2			ATER SUPPLY	
	DRAWING T	TLE:		
	KAMBURU WATER TREATMENT WORKS MWANYARI B TANK(1000m ³) PLAN			
	Designed by: Checked by:	A.M.M J.M.M	Drawn by: Approved by:	A.M.M D.N.M
	Scale: 1:100	KWSI	Date:	NOV 2023
	DIG NU.	11110	· · · · · · · · · · · · · · · · · · ·	•

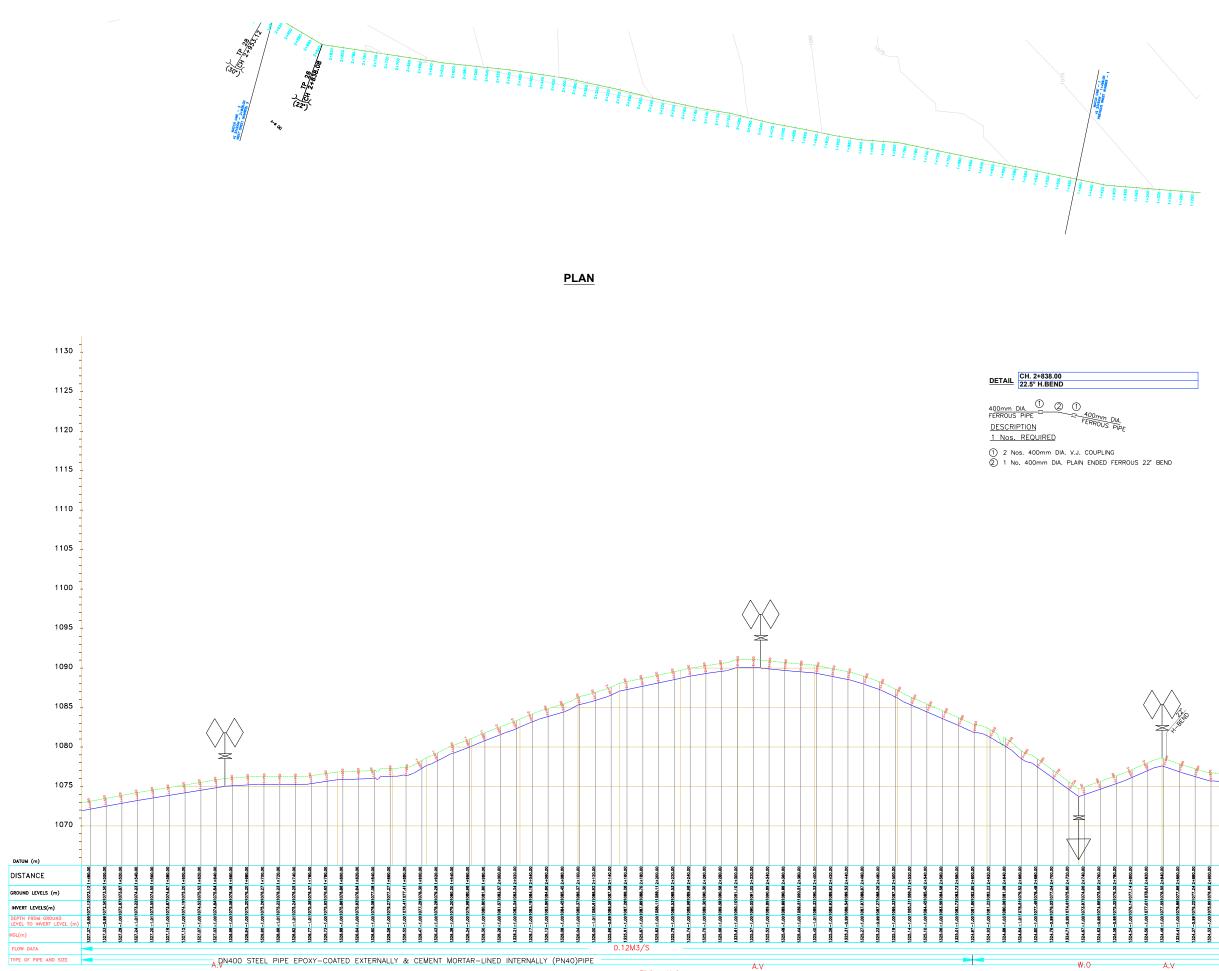


	NOTES:			
	1. ALL		S IN MILLIMETE S OTHERWISE I	
			ETE EDGES TO 5mm CHAMFEF	
	CONCRE	ΕΤΕ ΤΟ ΒΕ	: ALL REINFOR CLASS 25 /2 SPECIFIED	CED 20 EXCEPT
		ABBREVIA		
			FORCED CONC SHED GROUND TING GROUND INAL DIAETER LASTICISED PO CH ANIZED IRON	RETE LEVEL LEVEL LYVINYL LORIDE
UT/ OVERFLOW				
)) -				
•				
200mm DIA CONCRETE S&S PIPE				
SONCRETE SAS FIFE TO SITE DRAINAGED SYSTEM				
	CLIENT:			CER
		TANA WA	TER WORKS	
	\bigcirc	P.O BOX 129 NYERI, KEN		
	ENGINEER:	SERVICE		NICAL
NG			TER WORKS MENT AGENC 2 - 10100.	Y
250	PROJECT T	NYERI, KEN		
OUTLET CHAMBER				
DN 350MM STEEL	MBEERE S	SOUTH WA	TER SUPPLY	PROJECT
	K/	AMBURU V	VATER SUPP	LY
	DRAWING T	ITI F.		
+ + <u>-</u>		BURU WA		ENT
250	M	WANYARI I	DRKS B TANK(1000m	1 ³)
	Designed by:	SEC A.M.M	Drawn by:	A.M.M
	Checked by: Scale: 1:100	J.M.M	Approved by: Date:	D.N.M NOV 2023
	DRG No.		P/MWN-B/02	



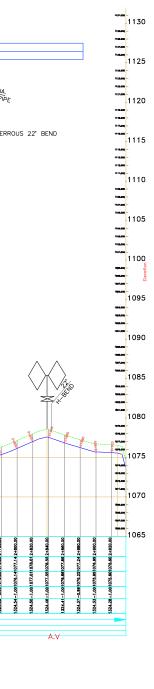


	1
	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	 PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	OTHERWISE STATED. 7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND:
	PROPOSED PIPELINE - EXISTING GROUND PROFILE
	- PIPE INVERT PROFILE
	- AIR VALVE
	DAV – DOUBLE AIR VALVE
	│ WASHOUT
_1100 •••••	
	WO2 – WASHOUT TYPE 2 DN – NOMINAL DIAMETER
_1095 •••••	PN - NOMINAL PRESSURE
*#5300 - *#2200 - *#1200 -	
- 1090 	HB – HORIZONTAL BEND – EXISTING STRUCTURE
1000 -	ER – EARTH ROAD
	GR – GRAVEL ROAD
407200 1075	FOR CONSTRUCTION
1070	REV R E V I S I O N S SIGN DATE APPROVED REV-4 BY
	CHECKED BY
1065	CHECKED BY
- enclose - encl	CHECKED CHECKED
	CHECKED
- analysis - consider - consider - consider - consider	OFFICER
1055	TANA WATER WORKS DEVELOPMENT AGENCY
- antijeter - antijeter - manufater	P. O. BOX 1292-10100 NYERI
1050	PROJECT
- analysis - analysis - analysis	DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT;
1045	LOT 2-KAMBURU WATER SUPPLY
	Civil/Structural Engineers
<u> </u>	CHIEF MANAGER TECHNICAL SERVICES
8.44 1-520.00 0.28 1-540.00 0.23 1-540.00 1.16 1-540.00 1.26 1-540.00 2.41 1-60.00 2.41 1-60.00 2.41 1-60.00	TANA WATER WORKS DEVELOPMENT AGENCY
27.77 21 20 20 20 20 20 20 20 20 20 20 20 20 20	P. O. BOX 1292-10100 NYERI
227.22 - 1.011 227.45 - 0.911 227.46 - 0.981 227.46 - 0.981 227.46 - 0.981	Drawing Title
	KAMBURU T.WORKS TO MWANYARI A TANK RISING WATER MAIN FROM
	CH.0+000.00 - 1+460.00 SHEET 1 OF 9
	PLAN AND PROFILE DRAWINGS
	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M Scale 1:3750 Date NOV-2023
	Job No. 1.0 ACAD File: ACADFILENAME
	PD DRAWING No. TW/WDA /MS/WD /L2 REV
	STATUS DRAWING NO. TWWDA/WISWF/LZ REV



Rising Main SCALE: HOR 1:2000 VERT 1:1000





NOTES

- 2. COORDINATES ARE BASED ON UTM.
- LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
- GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
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- ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

LEGEND:

- PROPOSED PIPELINE
- EXISTING GROUND PROFILE
- PIPE INVERT PROFILE
- AIR VALVE

DAV

DN

ΡN

ER

GR

- DOUBLE AIR VALVE
- WASHOUT
- WASHOUT TYPE 2 W02
 - NOMINAL DIAMETER
 - NOMINAL PRESSURE
- HORIZONTAL BEND ΗВ **
 - EXISTING STRUCTURE
 - EARTH ROAD
 - GRAVEL ROAD

	signed CMTS				
REV	REVISIONS		SIGN	DATE	APPROVED
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KEV-		CHECKED			
REV-	<i>.</i>	BY			
REV-	, ,	CHECKED			
REV-1		BY			
REV-	<u>.</u>	CHECKED			
REV-	ISSUED FOR CONSTRUCTION	BY			
KCV-		CHECKED			
CLIE	NT				
	THE INC	CHIEF	EXE		IVE
	OFFIC	ER			

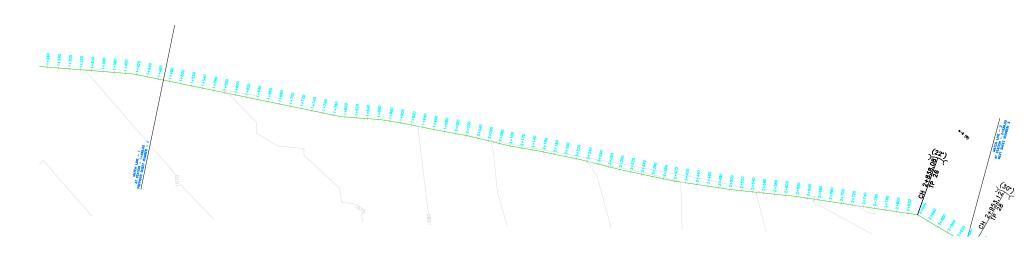


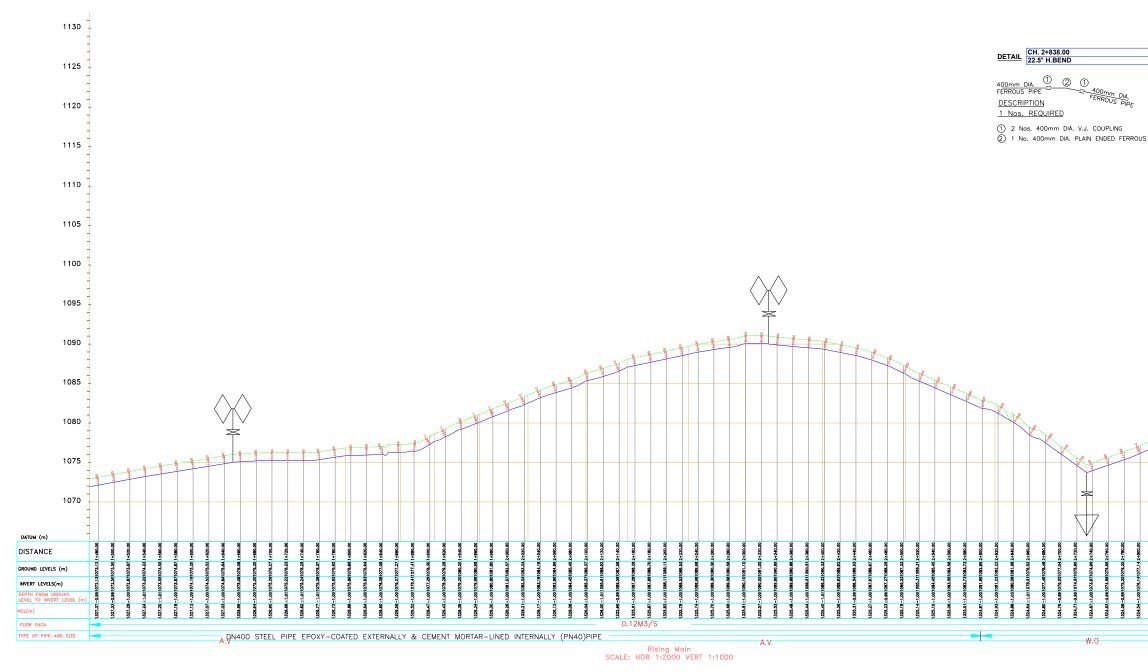
PROJECT DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY

TANA WATER WORKS DEVELOPMENT AGENCY

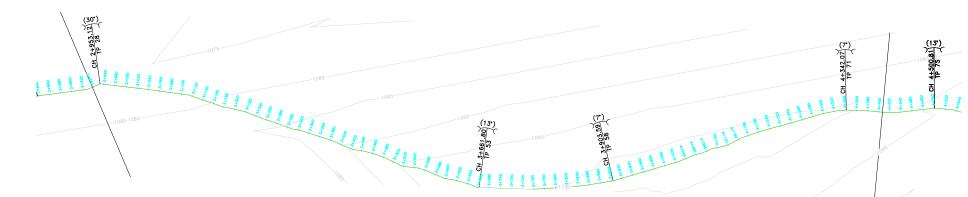


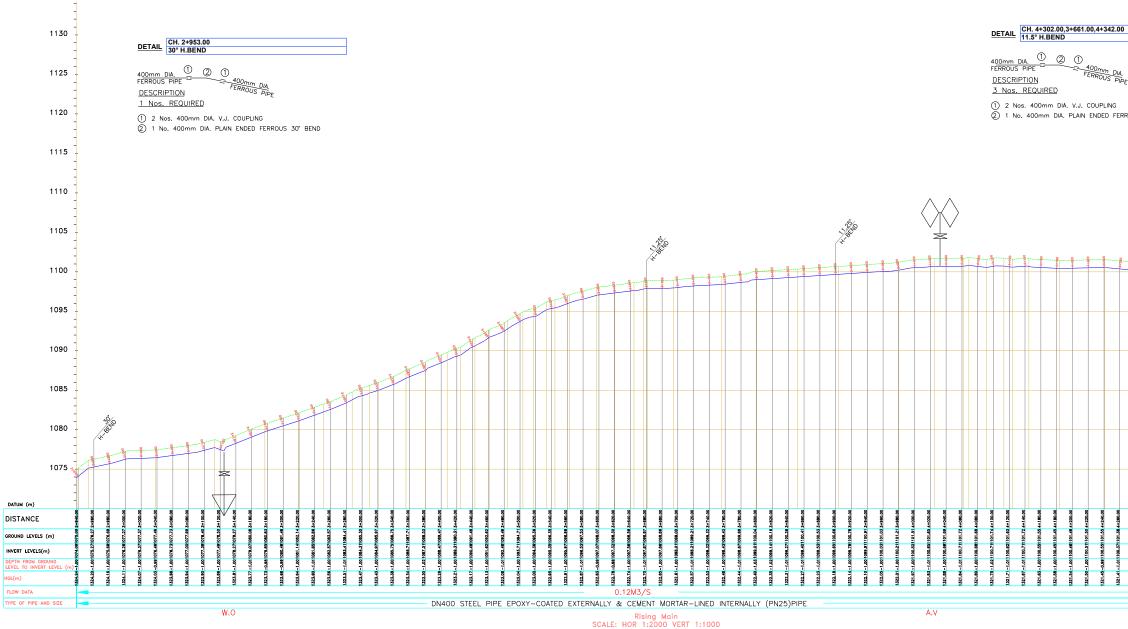
PLAN A	١NL	PROFILE DR	AWINGS
Desigr	nec	l by A.M.M	Drawn by G.M.G
Check	ed	by J.M.M	Approved by D.N.M
Scale	1:	:3750	Date NOV-2023
Job N	lo.	1.0	ACAD File: ACADFILENAME
PD STATUS	DF	RAWING No.	TWWDA/MSWP/L2





	NOTES	
	1. ALL LEVELS ARE LEVEL,	IN METERS ABOVE SEA
		e based on utM.
	3. LOCATION OF AIR	VALVES. WASHOUTS.
	BENDS AND OTH UNLESS OTHERWI ENGINEER ON SI	ER FITTINGS AS SHOWN ISE DIRECTED BY THE
	4. GROUND AND IN AS SHOWN ON E OTHERWISE INDIC ENGINEER.	VERT LEVEL SHOWN ARE DRAWING UNLESS ATED ON SITE BY THE
	1.0M. WHERE CO PIPE TO BE SUR	E LAID TO EVEN A MINIMUM COVER OF VER IS LESS THAN THIS, ROUNDED WITH
	CONCRETE.	HORIZONTAL UNLESS
	 IN WATER LOGGE BEDDED WITH SI AGGREGATES AS 216 OF TECHNIC AND/OR ANCHOR DIRECTED ON SIT 	D AREAS, PIPES TO BE NGLE SIZED OR GRADED PER CLAUSE 430.1 AND AL SPECIFICATIONS BLOCKS AS MAY BE TE BUTHE ENGINEER.
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		STING GROUND PROFILE
	PIPE	E INVERT PROFILE
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1125	– WAS	HOUT
112.000	WO2 - WAS	HOUT TYPE 2
-1120 "****		INAL DIAMETER
11500 - 11500 -	PN - NOW	INAL PRESSURE
S 22" BEND ""4400 - -1115		
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1186.000		VEL ROAD
4487,000 - 1984,000 -		
-1105 *******		
""#### "##### - 1100		,
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(196600)	REV-3	CHECKED BY
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1085	REV-	DN BY CHECKED
	CLIENT THE	CHIEF EXECUTIVE
1080		ICER A WATER WORKS
1000	DEV	ELOPMENT AGENCY
	P. O NYE	0. BOX 1292-10100 RI
1075	PROJECT	
(19 <mark>1.600</mark> - 10 12506 -		BEERE SOUTH WATER
1070	SUPPLY PROJE	ECT; 2U WATER SUPPLY
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	KAMBURU T.WORKS TO	
A.V	RISING WATER MAIN F CH.1+460.00-2+94	
	SHEET 2 OF 9	1
	PLAN AND PROFILE DR Designed by A.M.M	AWINGS Drawn by G.M.G
	Designed by A.M.M	Drawn by G.M.G
	Checked by J.M.M.	Approved by DNM
	Checked by J.M.M Scale 1:3750	Approved by D.N.M Date NOV-2023
	,	
	Scale 1:3750 Job No. 1.0	Date NOV-2023





			NOTES
			1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
			2. COORDINATES ARE BASED ON UTM.
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			OTHERWISE STATED. 7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER. LEGEND:
			PROPOSED PIPELINE
			- PIPE INVERT PROFILE
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		1130	
		1520.000 1520.000 1622.000	- WASHOUT
5		1125	WO2 - WASHOUT TYPE 2
		(124.000	DN – NOMINAL DIAMETER
OUS 11.5" BEN	١D	1120	PN – NOMINAL PRESSURE
_		11 (auto)	
		""""""""""""""""""""""""""""""""""""""	HB – HORIZONTAL BEND — EXISTING STRUCTURE
		1116000 - 1115000 -	ER – EARTH ROAD
			GR – GRAVEL ROAD
	11/200	10224 - 1105 10444 - 10224	FOR CONSTRUCTION
			REV REVISIONS SIGN DATE APPROVED
		4007.000	REV-4 CHECKED
		1095 ••••••	REV-3 CHECKED
		1983,000 1992,000	REV-2 CHECKED
		1090	REV. ISSUED FOR CONSTRUCTION BY
		1920)000	
		1085	OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100
		1080	NYERI
		1877,000 1879,000	PROJECT DESIGN FOR MBEERE SOUTH WATER
		1075 ********	SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
		4872,000	Civil/Structural Engineers
8 8 8	8 8 8	1070	
18 4+280.00 24 4+500.00 13 4+520.00	38 4+340.00 85 4+360.00	22 44400.00	
2.161.101.16.4+280.00 1.041.101.04.4+280.00 1.241.100.73.4+520.00	2.59/100.38 4+340.00 255/098.85 4+360.00 257/1088.14 4:500.00	22 44400.00	SERVICES TANA WATER WORKS
1.001100.141101.19.4+200.00 1.001100.041101.14.4+200.00 1.001089.741100.13.4+320.00	00.052+1 82.001 162.690 100.1 00.055+1 25.901 100.1 00.051 1001 1001 1001 1001 1001 1001 100	22 44400.00	SERVICES
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131, 37 - 1,001 to . 1 at . 2 42 320,00 131, 34 - 1,00 1100, 40 1101 to . 4 42 320,00 131, 34 - 1,00 100, 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 100 100 - 50 1	1.221.28 - 1.00 (Onto 36) (OL 20 - 1.04 - 0.00 (OL 20 - 1.04 - 0.00 OL 20 - 1.04 - 0.00 OL 20 - 1.04 - 0.00 OL 20 - 1.04 - 0.04 OL 20 - 0.04 - 0.04 OL 20 - 0.04 - 0.04 OL 20	-1.0.1682,566100	SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI Drawing Title KAMBURU T.WORKS TO MWANYARI A TANK RISING WATER MAIN FROM
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0000000 + PD 101 101 7001 1001 - LET 1871	1521.26 - 1.00 (100.36 4 + 5.40.00) 1521.26 - 1.00 (100.36 4 + 5.40.00) 1521.26 - 1.00 (100.36 5 4 + 5.40.00)	-1.0.1682,568(068,57,444100,00	TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI Drawing Title KAMBURU T.WORKS TO MWANYARI A TANK RISING WATER MAIN FROM CH.2+940.00-4+420 SHEET 3 OF 9 PLAN AND PROFILE DRAWINGS
1221.28 - 120 (162.16) 26 - 250.00 1221.28 - 120 (165.24) 120 - 240.00 1221.28 - 120 (165.24) 120 - 240.00 1221.28 - 120 (165.24) 120 - 240.00	0000045-12 (0000048-000) (0000-000010000000000000000000000000000	-1.0.1682,568(068,57,444100,00	SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI Drawing Title KAMBURU T.WORKS TO MWANYARI A TANK RISING WATER MAIN FROM CH.2+940.00-4+420 SHEET 3 OF 9 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G
00012-100110012-0011001-0011001-0011001-0011001-0011001-0011001-0011001-0011001-0011001-0011001-0011001-0011001	121.1.24 -1.400 (1988.129 (1988.124 (1989.124	-1.0.1682,568(068,57,444100,00	SERVICES TANA WATER WORKS DevelopMent Agency Drawing Title KAMBURU T.WORKS TO MWANYARI A TANK RISING WATER MAIN FROM CH.2+940.00-4+420 SHEET 3 OF 9 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M

PLAN

365

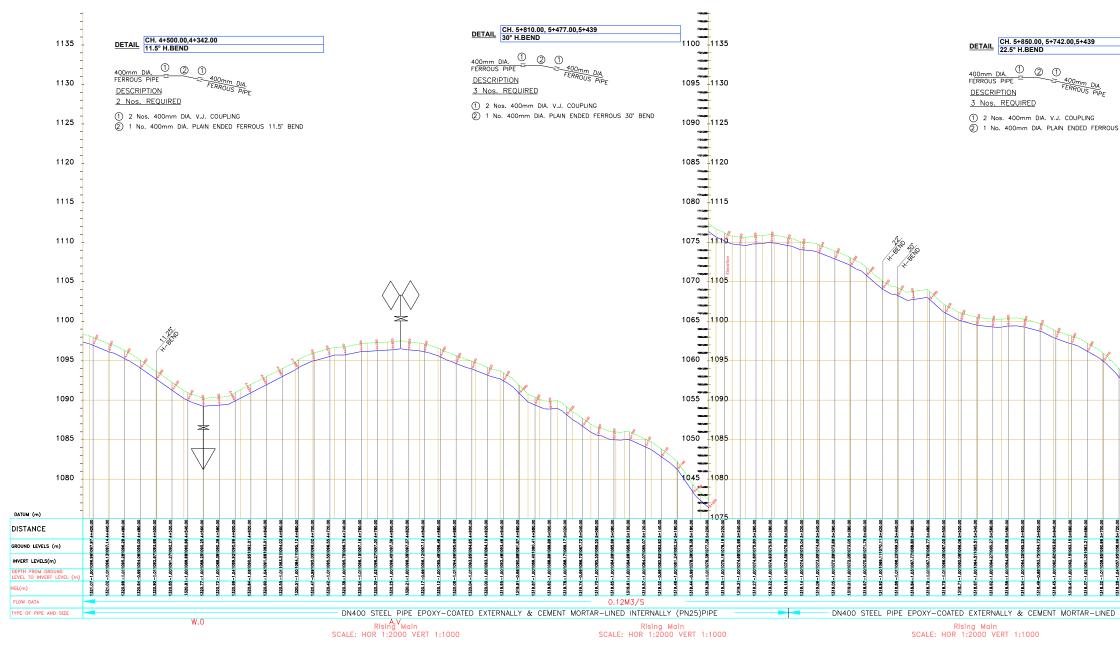
Elastration to

DETAIL CH. 5+759.00 45° H.BEND

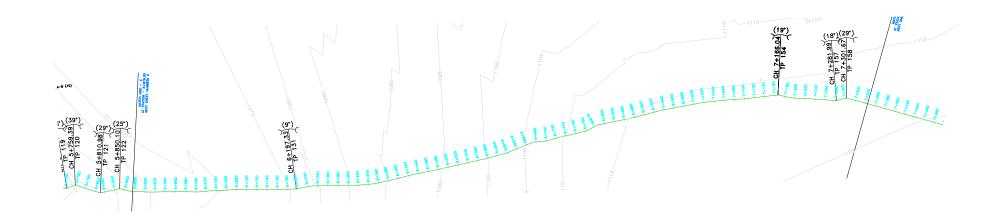
STATIO

400mm DIA. ① ② ① FERROUS PIPE <u>400mm DIA</u> DESCRIPTION <u>1 Nos. REQUIRED</u> ① 2 Nos. 400mm DIA. V.J. COUPLING

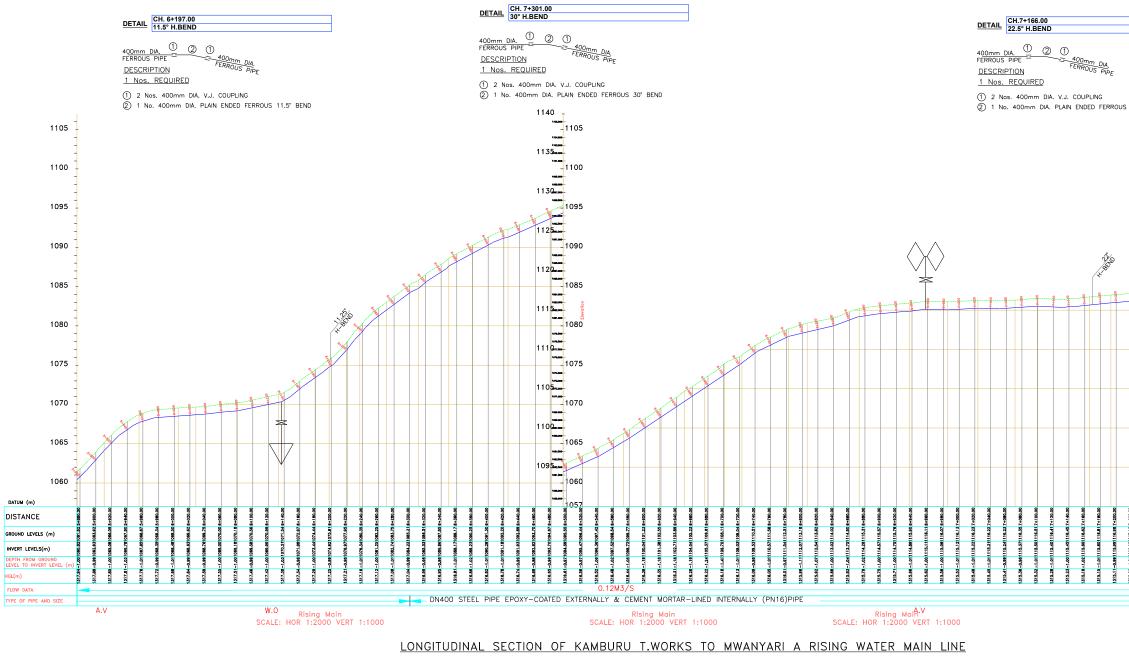
2 1 No. 400mm DIA. PLAIN ENDED FERROUS 45" BEND



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COORE DENDS UNLES ENGINE GROUN OTHER ENGINE PIPES GRADIE 1. OM PIPE 1 CONCE	DINATES AF ION OF AIB S AND OTH S OTHERW EER ON SI IOD AND IN IOWN ON I WINSE INDIG EER. ARE TO E ENTS WITH WHERE CO O BE SUF	E VALVES ER FITTI ISE DIRE TE. VERT LE DRAWING ATED OI E LAID A MININ	S, WAS NGS A ICTED VEL S UNLE N SITE	SHOU AS SI BY HOWI	ITS, HOWN THE
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AS SH OTHER ENGINE GRADIE 1.0M. PIPE T CONCF	IOWN ON I WISE INDICEER. ARE TO E NTS WITH WHERE CO	E LAID	UNLE N SITE	ESS	N ARF
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•	DAV WO2 DN PN HB ZZZZ ER GR GR	LEGE - PRC - EXIS - PIPE - AIR DAV - DOL - WAS WO2 - WAS DN - NOM PN - NOM HB - HOR ZZZ - EXIS ER - EAR GR - GRA FOR CONSTR signed CMTS 	LEGEND: - PROPOSED - EXISTING GF - PIPE INVERT - AIR VALVE DAV - DOUBLE AIR - WASHOUT WO2 - WASHOUT T DN - NOMINAL DI PN - NOMINAL DI PN - NOMINAL DI RB - HORIZONTAL ER - EARTH ROAI GR - GRAVEL ROA GR - GRAVEL ROA GR - GRAVEL ROA GR - GRAVEL ROA GR - GRAVEL ROA - STOR - CHECKEL - SP - CHECKEL - SP - CHECKEL	LEGEND: - PROPOSED PIPEL - EXISTING GROUND - PIPE INVERT PRO - AIR VALVE DAV - - AIR VALVE DAV - - WASHOUT WO2 - WASHOUT YME WO2 - N NOMINAL DIAMETE PN - NOMINAL PRESSU HB - HB - NOMINAL PRESSU HB - ER EXISTING STRUCTION ER - GR - GR - GR - GR - BY - CHECKED -	

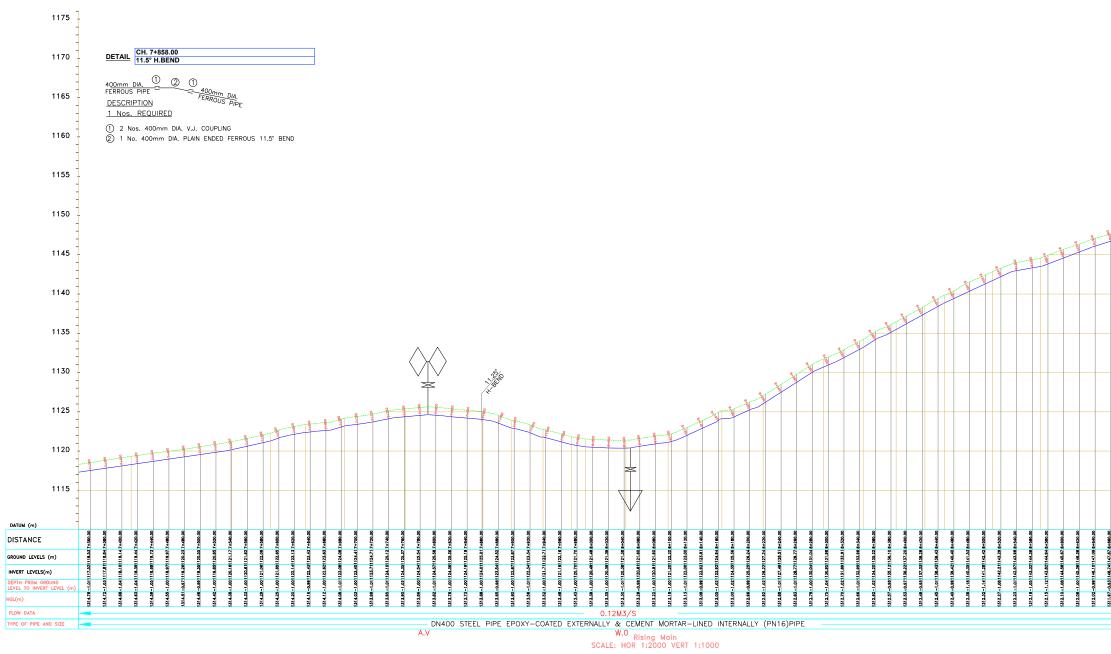




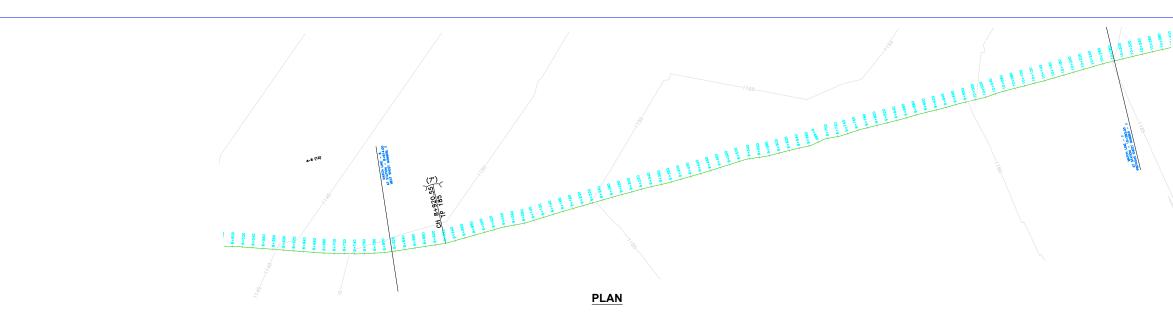


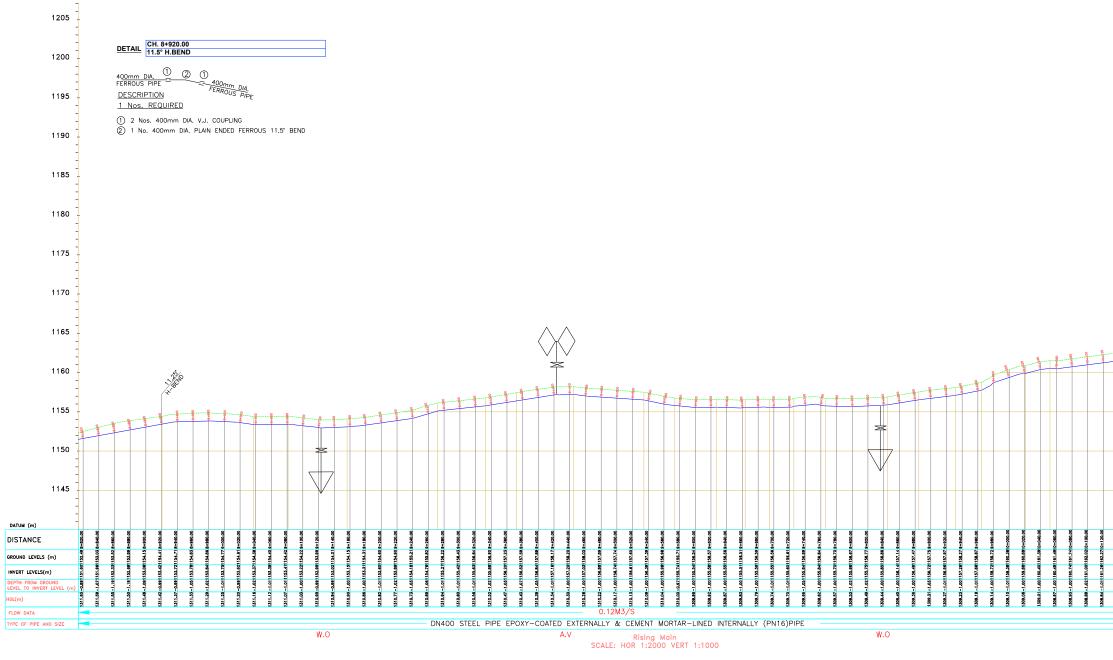
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	<u>LEGEND:</u> — PROPOSED PIPELINE – EXISTING GROUND PROFILE
	PIPE INVERT PROFILE
	– AIR VALVE
	DAV – DOUBLE AIR VALVE
	U - WASHOUT
	WO2 – WASHOUT TYPE 2 DN – NOMINAL DIAMETER
	PN – NOMINAL PRESSURE
	HB – HORIZONTAL BEND EXISTING STRUCTURE
	ER – EARTH ROAD
22" BEND	GR – GRAVEL ROAD
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CH <u>8+920.55</u>3

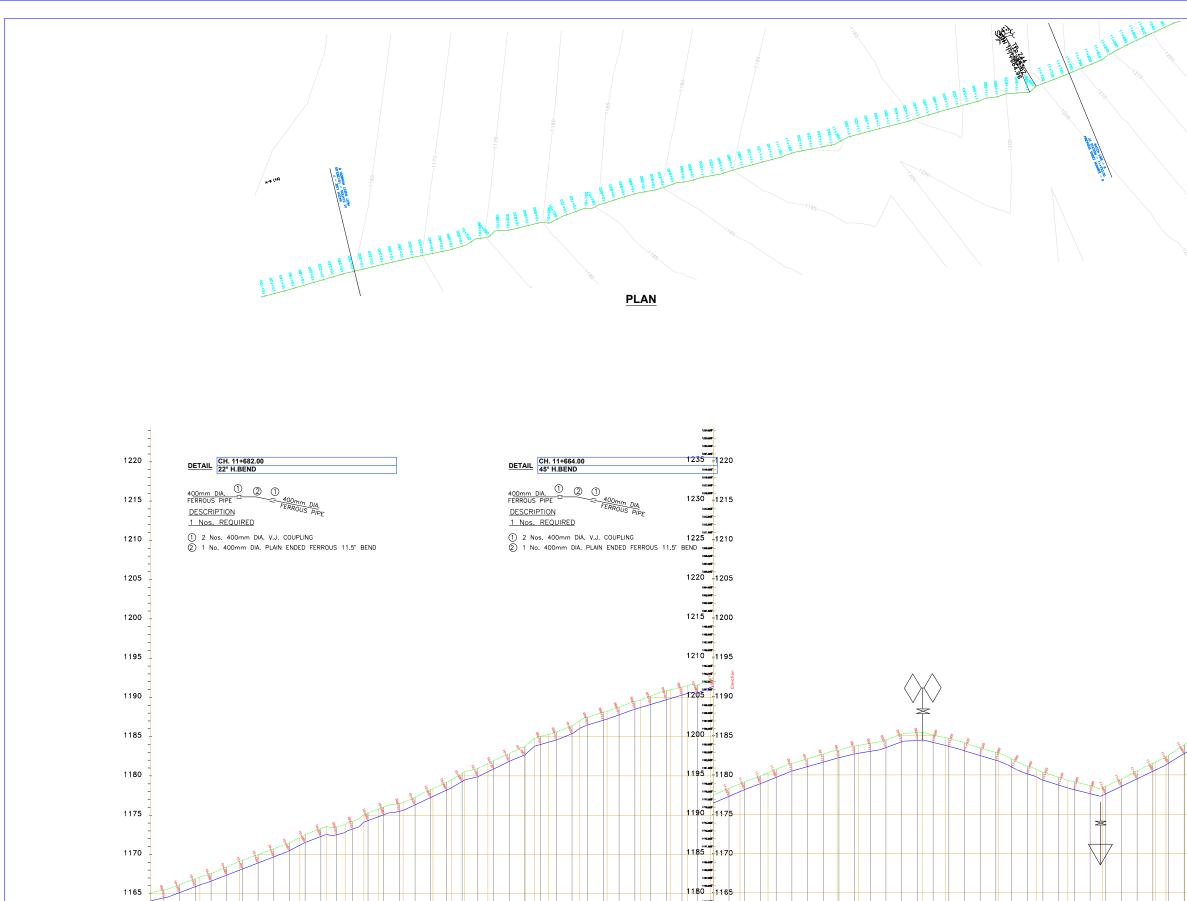


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	LEGEND:
	- EXISTING GROUND PROFILE - PIPE INVERT PROFILE
	– AIR VALVE
	DAV – DOUBLE AIR VALVE
******	- WASHOUT
-1175 	WO2 – WASHOUT TYPE 2
	DN – NOMINAL DIAMETER
1170	PN – NOMINAL PRESSURE
(16230)	
" *** - 1165	HB - HORIZONTAL BEND
*186389	- EXISTING STRUCTURE
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	PROPOSED PIPELINE - EXISTING GROUND PROFILE
	- PIPE INVERT PROFILE
	- AIR VALVE
	DAV – DOUBLE AIR VALVE
	, – WASHOUT
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1205 *****	WO2 - WASHOUT TYPE 2
	DN – NOMINAL DIAMETER
1200	PN – NOMINAL PRESSURE
	HB – HORIZONTAL BEND
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1155	DESIGN FOR MBEERE SOUTH WATER
	SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
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	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
	Scale1:3750DateNOV-2023JobNo.1.0ACADFile:ACADFILENAME
	PD DRAWING No. TWWDA /MSWD /L 2 REV
	STATUS DRAWING NO. TWWDA/WSWF/LZREV





1165

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DATUM (m) DISTANCE GROUND LEVELS (m) INVERT LEVELS(m) LEVEL TO INVERT

HGL(m) FLOW DATA

TYPE OF PIPE AND SIZE

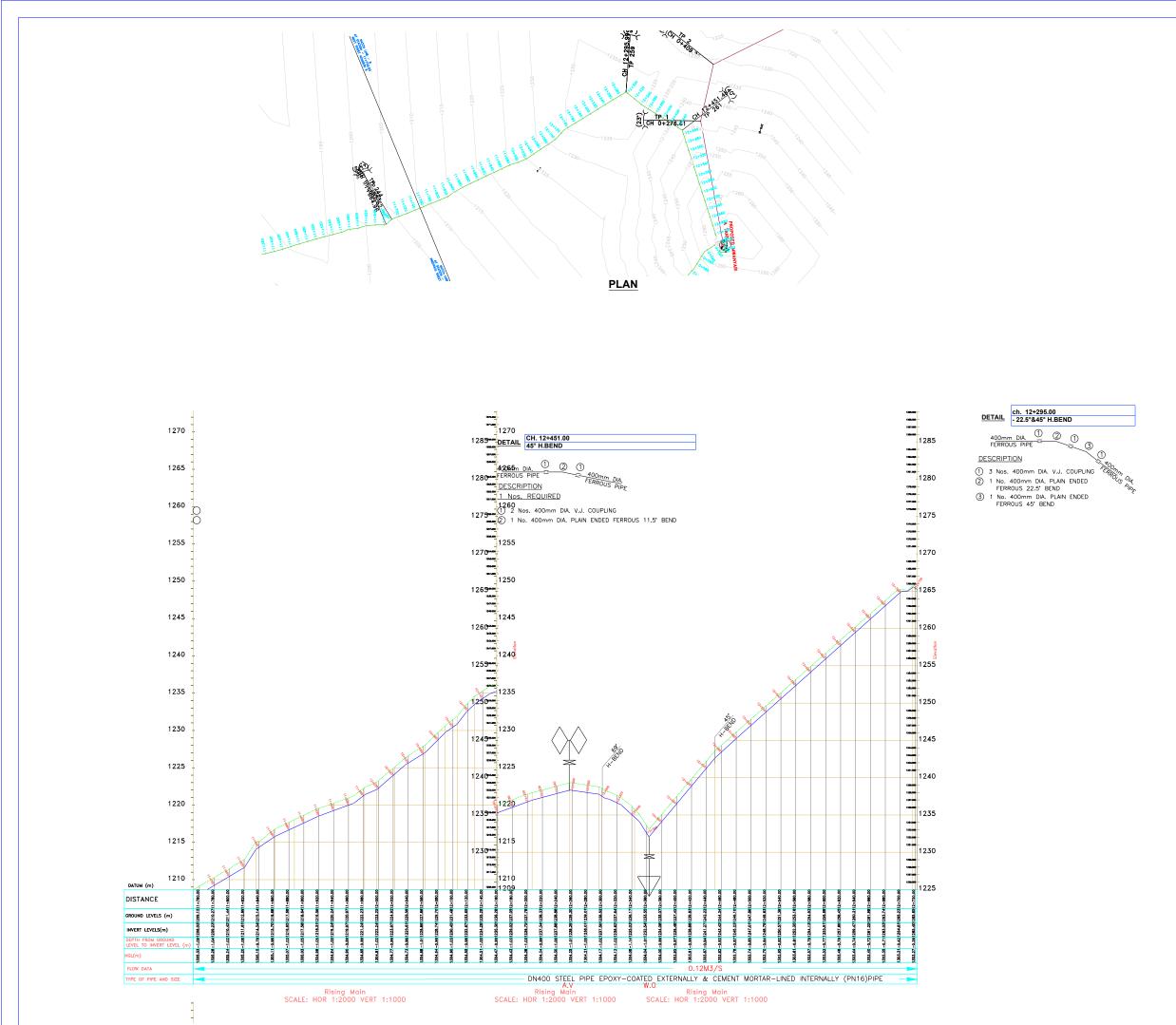
A.V Rising Main SCALE: HOR 1:2000 VERT 1:1000

W.0

LONGITUDINAL SECTION OF KAMBURU T.WORKS TO MWANYARI A RISING WATER MAIN LINE

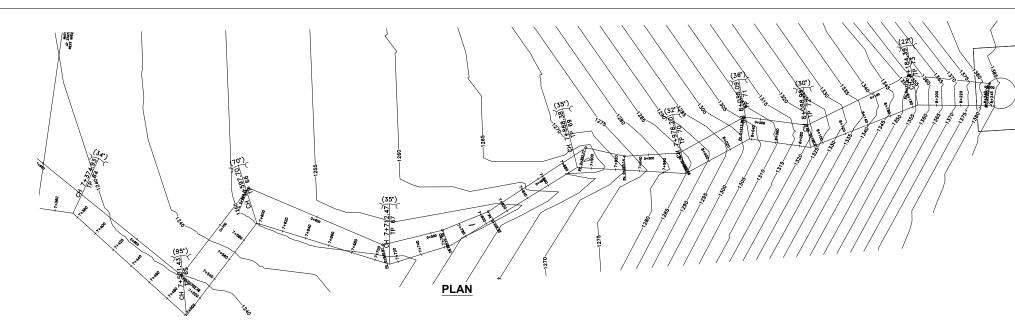
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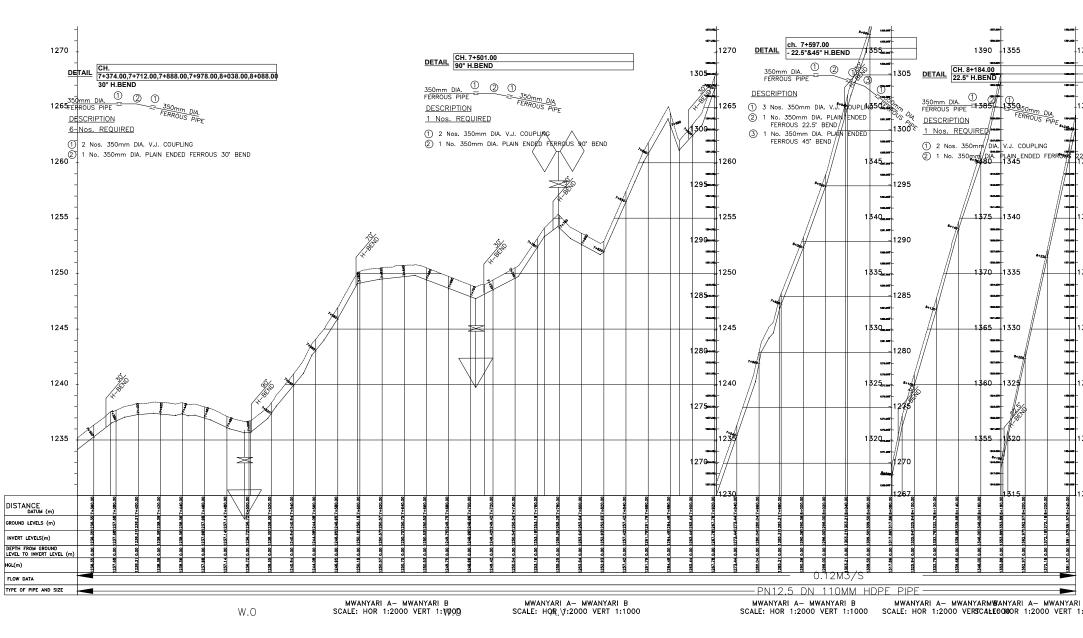
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	- PIPE INVERT PROFILE
	– AIR VALVE
	DAV – DOUBLE AIR VALVE
	- WASHOUT
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	PN – NOMINAL PRESSURE
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LONGITUDINAL SECTION OF KAMBURU T.WORKS TO MWANYARI A RISING WATER MAIN LINE

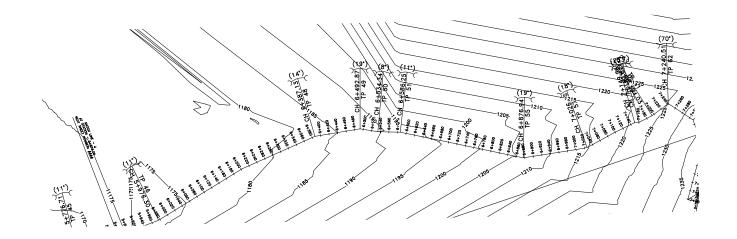
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	RE BASED ON UTM.
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	BE LAID TO EVEN H A MINIMUM COVER OF OVER IS LESS THAN THIS, IRROUNDED WITH
	E HORIZONTAL UNLESS TED.
7. IN WATER LOGG BEDDED WITH S AGGREGATES AS 216 OF TECHN AND/OR ANCH DIRECTED ON S LEG - PR - EX	
	R VALVE
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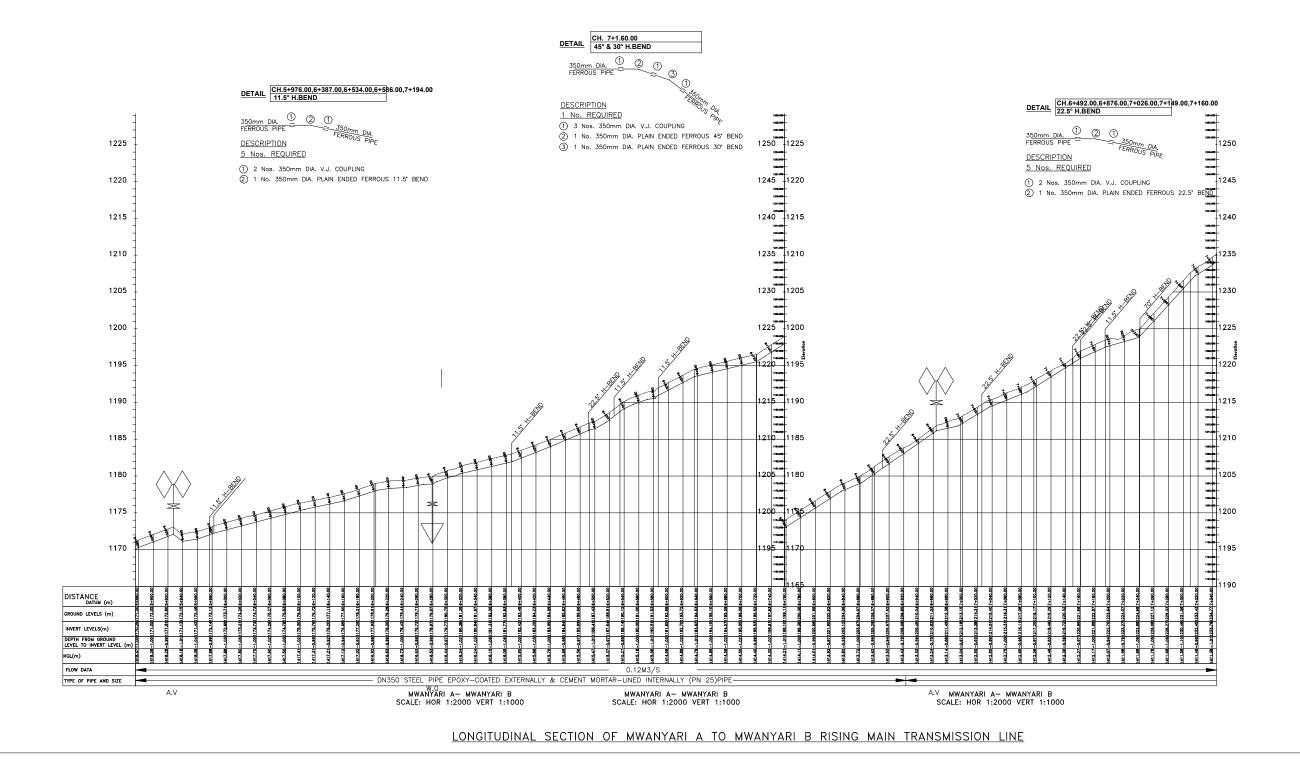




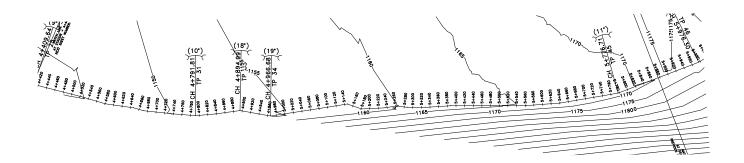
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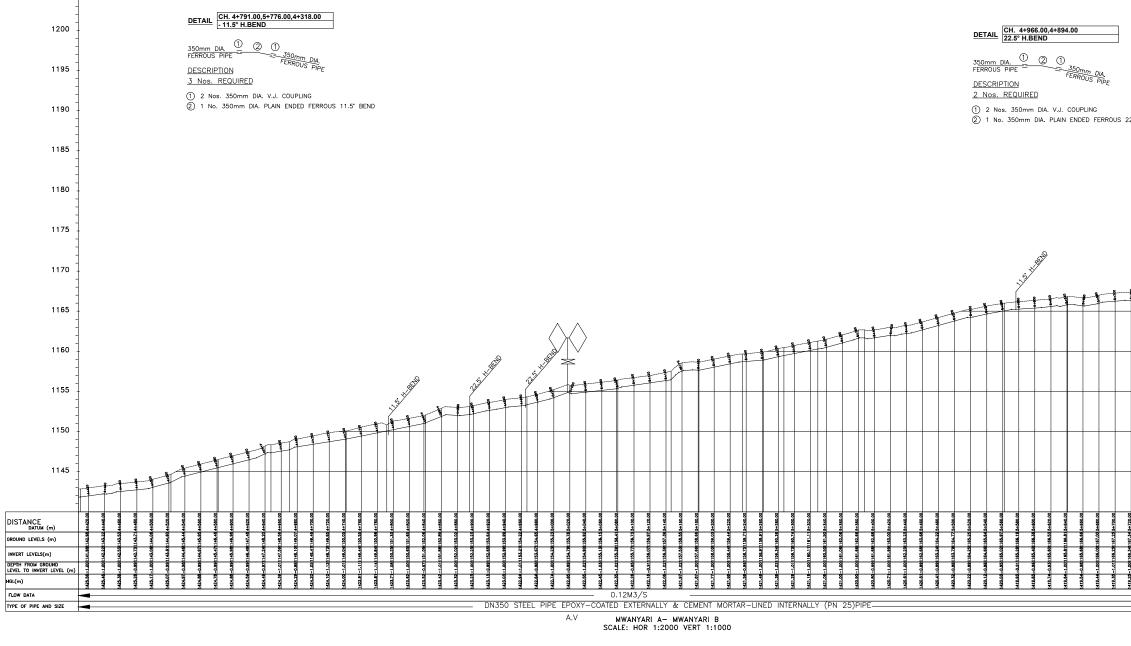
	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA
	LEVEL. 2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	CONCRETE. 6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND:
	- AIR VALVE
	DAV – DOUBLE AIR VALVE
	- WASHOUT
90	WO2 – WASHOUT TYPE 2
	DN – NOMINAL DIAMETER
	PN – NOMINAL PRESSURE
35	HB – HORIZONTAL BEND
	EVICTING STRUCTURE
	- EXISTING STRUCTURE
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BEND 80	
Bend 75	ER – EARTH ROAD GR – GRAVEL ROAD FOR CONSTRUCTION signed CMTS REV R E V I S I O N S SIGN DATE APPROVED
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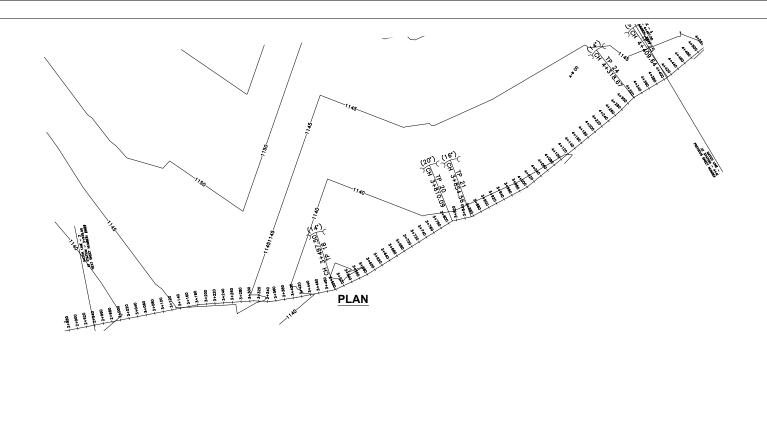
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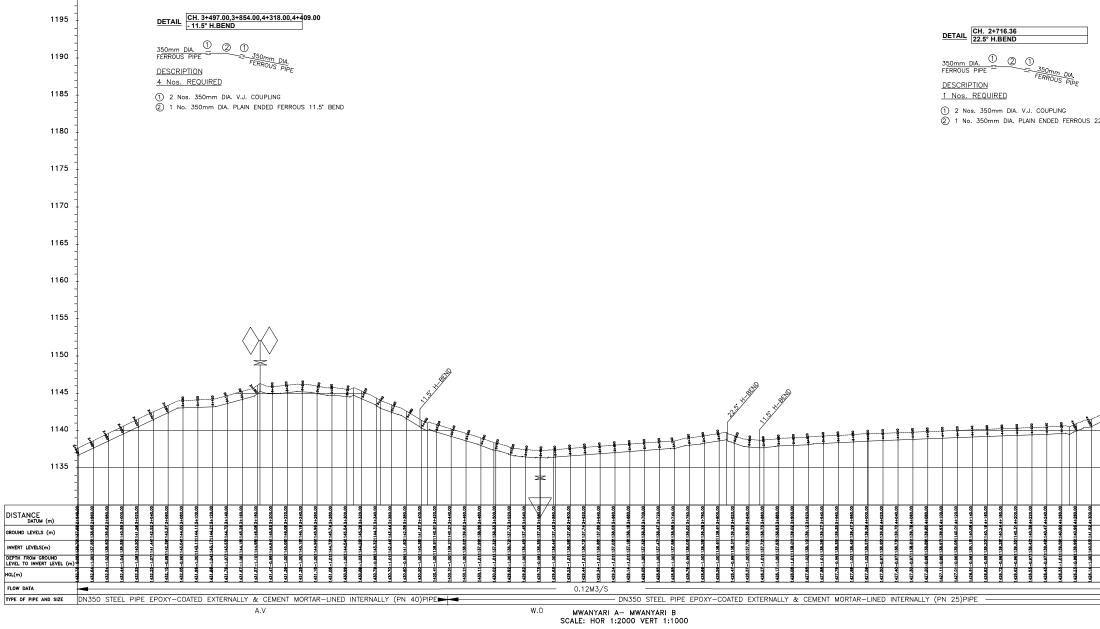




LONGITUDINAL SECTION OF MWANYARI A TO MWANYARI B RISING MAIN TRANSMISSION LINE

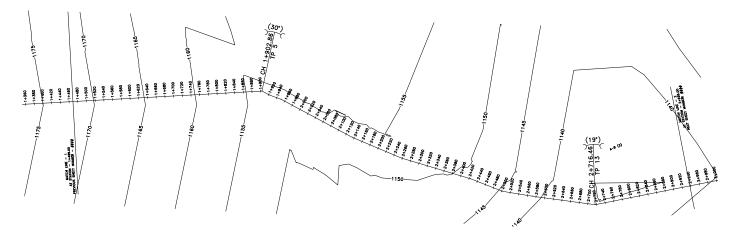
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ELSO NON INCLUSION BUCKSR AS MAN ER. LECEND: - PROPOSED PIPELNE - PIPE INVERT PROFILE - PIPE INVERT PROFILE - AR VALVE DAV ON MAR ADDATER PN - NOMINAL DIAMETER PN - NOMINAL PRESSURE EXISTING STRUCTURE ER - CARTH ROAD ER - CARTH ROAD ER - CARTH ROAD ENT - ROAD <		OTHERWISE STATED.
PROPOSED PIPELINE EXISTING GROUND PROFILE I AIR VALVE AIR VALVE DAV DOUBLE AIR VALVE WASHOUT TYPE 2 DN NOMINAL DIAMETER PN NOMINAL		BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS
PIPE INVERT PROFILE - AIR VALVE DAV - DOUBLE AIR VALVE U - WASHOUT TYPE 2 DN - WASHOUT TYPE 2 DN - WASHOUT TYPE 2 DN - NOMINAL DAMETER PN - RATH ROAD CR - CRAVEL ROAD 22.5' BEND - FOR CONSTRUCTION		
22.5° BEND Image: Structure in the image: Structure in		
- WASHOUT WO2 - WASHOUT TYPE 2 DN - NOMINAL DIAMETER PN - NOMINAL DIAMETER PN - NOMINAL PRESSURE HB - HORIZONTAL BEND CONTRUCTION CONTRUTION CONTRUCTION CONTRUCTION CONTRUCTI		– AIR VALVE
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HB - HORIZONTAL BEND 22.5' BEND HB - HORIZONTAL BEND W - EXISTING STRUCTURE ER - CRAVEL ROAD FOR CONSTRUCTION Signed CMS EV IS IO N S SIGN DATE APPROVE REV - BURCHOOD REV - BURCHOOD	1186.000 - 1186.000 - 1187.000 -	PN – NOMINAL PRESSURE
22.5' BEND	1186.000	
22.5' BEND		EVICTING CTRUCTURE
GR - GRAVEL ROAD	1181.000	
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DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY Civil/Structural Engineers CHIEF MANAGER TECHNICA SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI A TO MWANYARI B RISING MAIN WATER LINE FROM CH.4+460.00-5+860.00 SHEET 4 OF 6 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by C.M.G Checked by J.M.M Approved by D.N.M Scale 1:3750 Date NOV-2023 Job No. 1.0 ACAD File: ACADFILENAW	11	PROJECT
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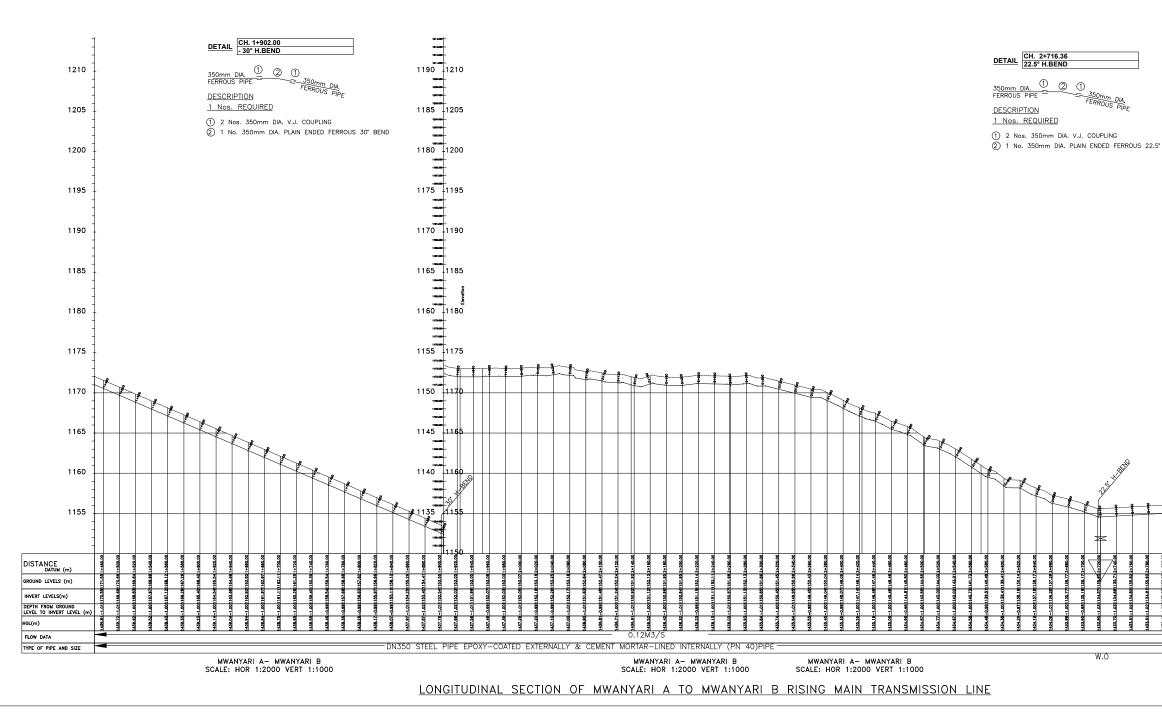




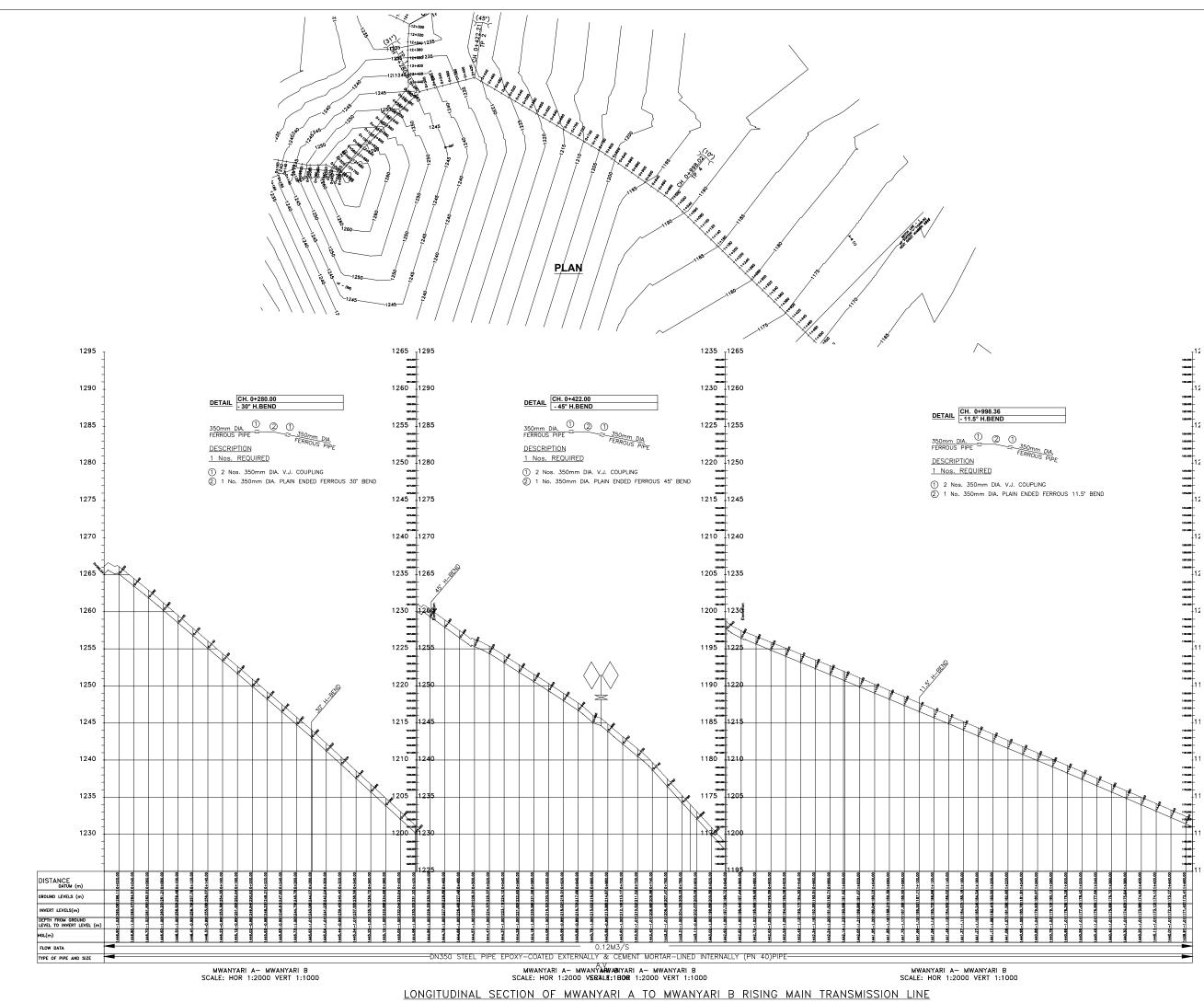
LONGITUDINAL SECTION OF MWANYARI A TO MWANYARI B RISING MAIN TRANSMISSION LINE

		NOTES
		1. ALL LEVELS ARE IN METERS ABOVE SEA
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		2. COORDINATES ARE BASED ON UTM.
		3. LOCATION OF AIR VALVES, WASHOUTS,
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		ENGINEER. 5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH
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		 ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED. IN WATER LOGGED AREAS, PIPES TO BE
		BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
		<u>LEGEND:</u> proposed pipeline
		- EXISTING GROUND PROFILE
		- AIR VALVE
		dav – DOUBLE AIR VALVE
	1985.000	- WASHOUT
	1197,000 -	
	-1195	WO2 – WASHOUT TYPE 2
	1933.000	DN - NOMINAL DIAMETER
	1982.000 1997.000 -1190	PN – NOMINAL PRESSURE
	1130	
	1188.000	HB – HORIZONTAL BEND
	1185	- EXISTING STRUCTURE
	1184000	ER – EARTH ROAD
.5" BEND	1182.000	GR – GRAVEL ROAD
.5' BEND	-1180	GRAVEL ROAD
	177400	
	1178.000	
	1175	
	1174.000 -	
	1173.000	FOR CONSTRUCTION
	1172000 - 1172000 - 1177000 - 	FOR CONSTRUCTION
	1171,000	signed CMTS
	1171,000	REV R E V I S I O N S SIGN DATE APPROVED
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	11700 -1170 19800 - 19800 - 19800 -	signed CMTS REV R E V I S I O N S SIGN DATE APPROVED REV BY
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	1170	signed CMTS REV R E V I S I O N S SIGN DATE APPROVED REV- BY - - - REV-3 CHECKED - - REV-4 BY - - REV-5 CHECKED - - REV-6 CHECKED - - REV-7 CHECKED - - CHECKED CHECKED - - REV-1 CHECKED - - CHECKED - - - CUENT THE CHIEF EXECUTIVE OFFICER
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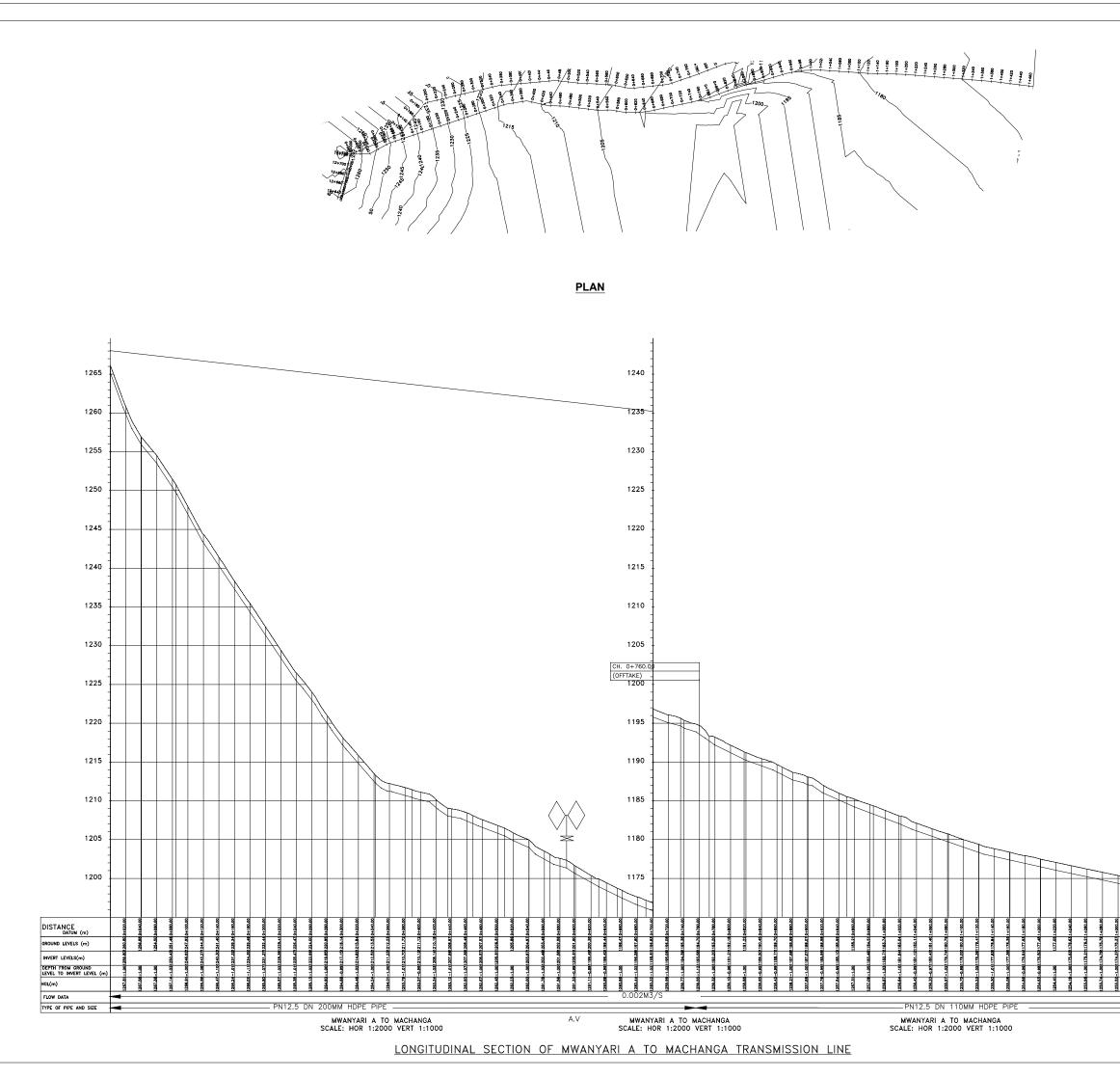




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	LEGEND: - PROPOSED PIPELINE - EXISTING GROUND PROFILE
	PIPE INVERT PROFILE
	- AIR VALVE
	DAV - DOUBLE AIR VALVE
	 WASHOUT
	WO2 – WASHOUT TYPE 2 DN – NOMINAL DIAMETER
-11	PN – NOMINAL PRESSURE
1 186.000 - 1 186.000 -	
11802000 - 11802000 - +111	HB – HORIZONTAL BEND
- 1 - 198.000 - 1980.000 -	- EXISTING STRUCTURE
BEND	ER – EARTH ROAD GR – GRAVEL ROAD
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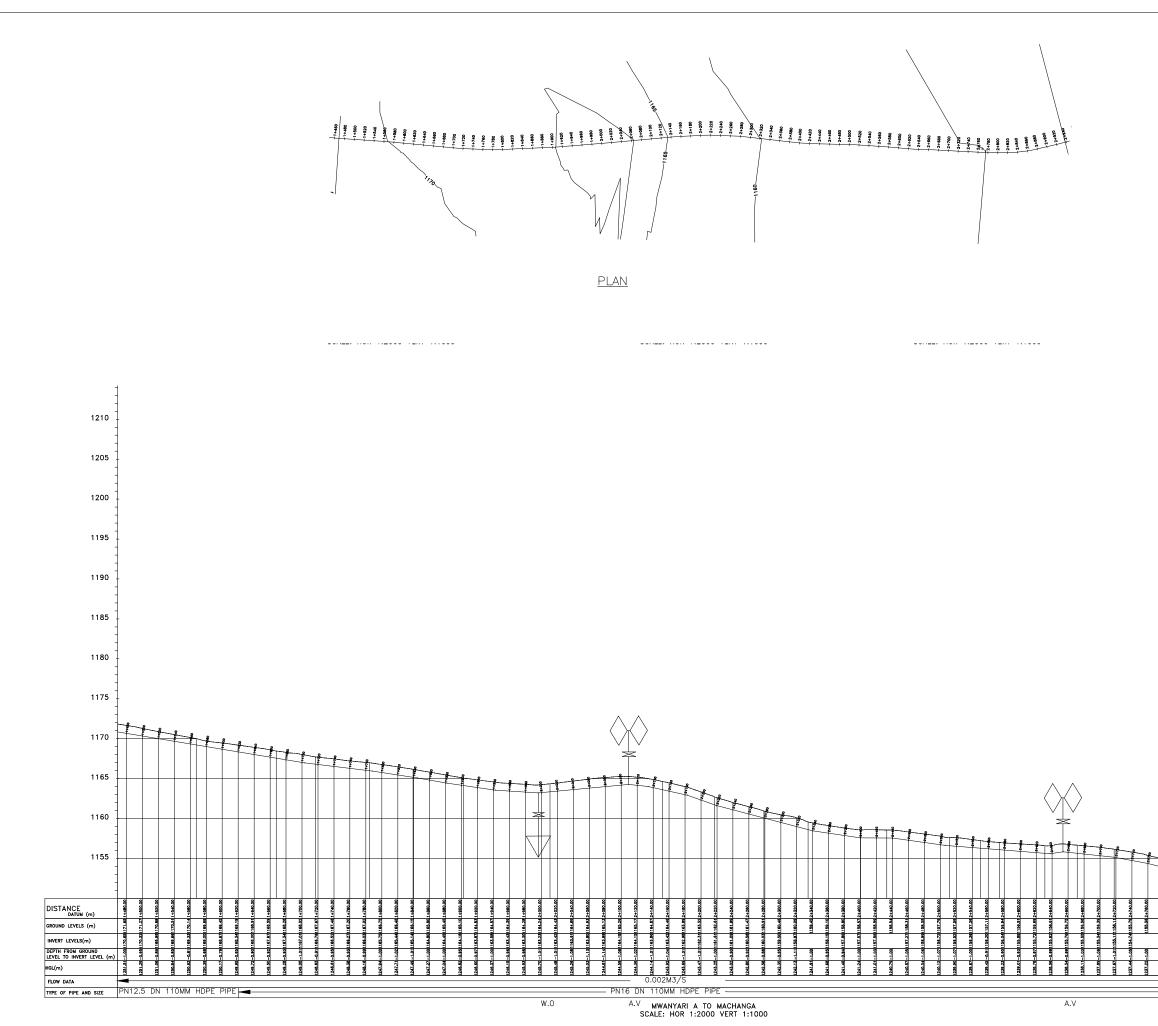


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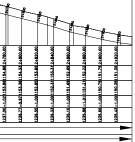


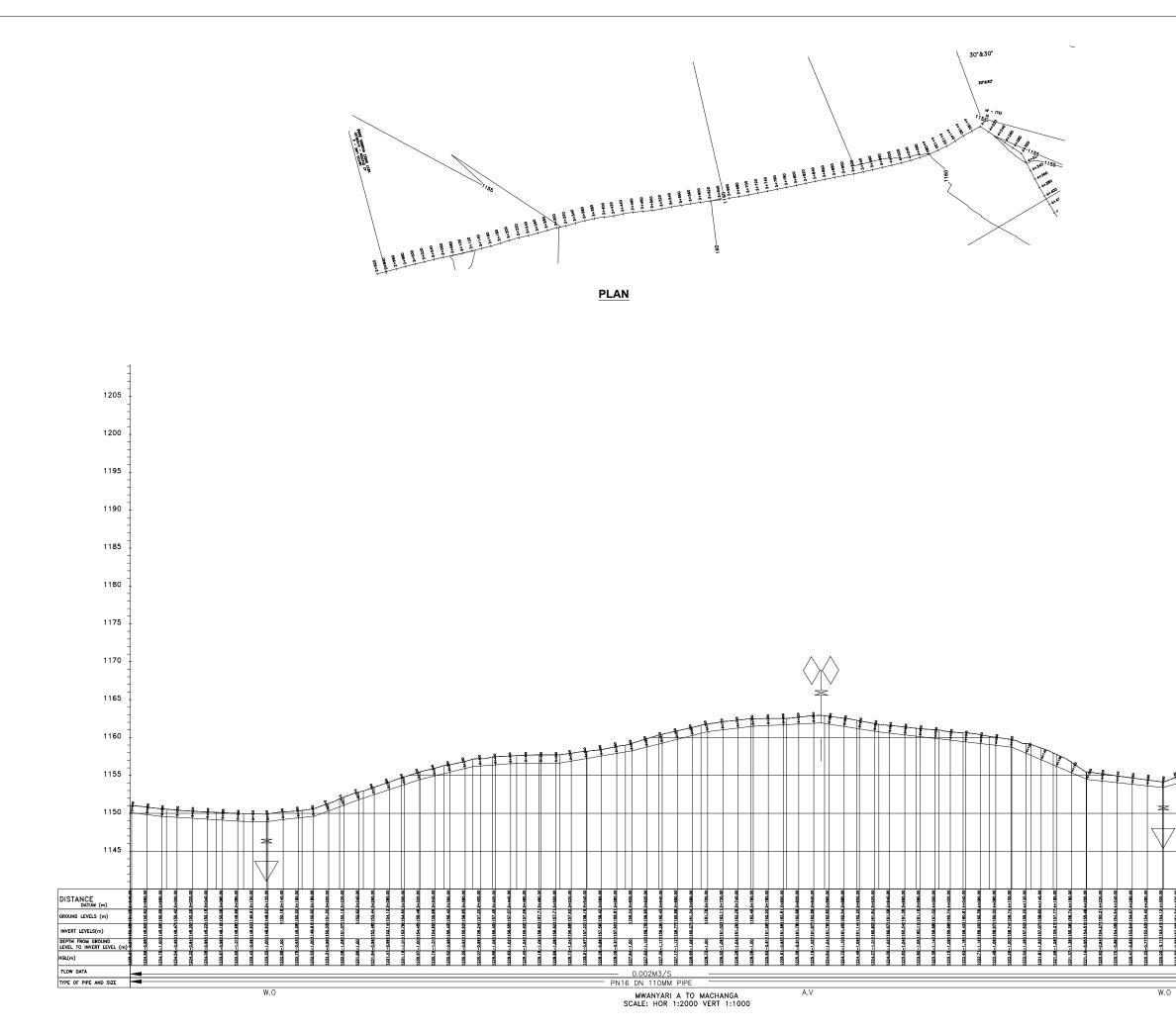
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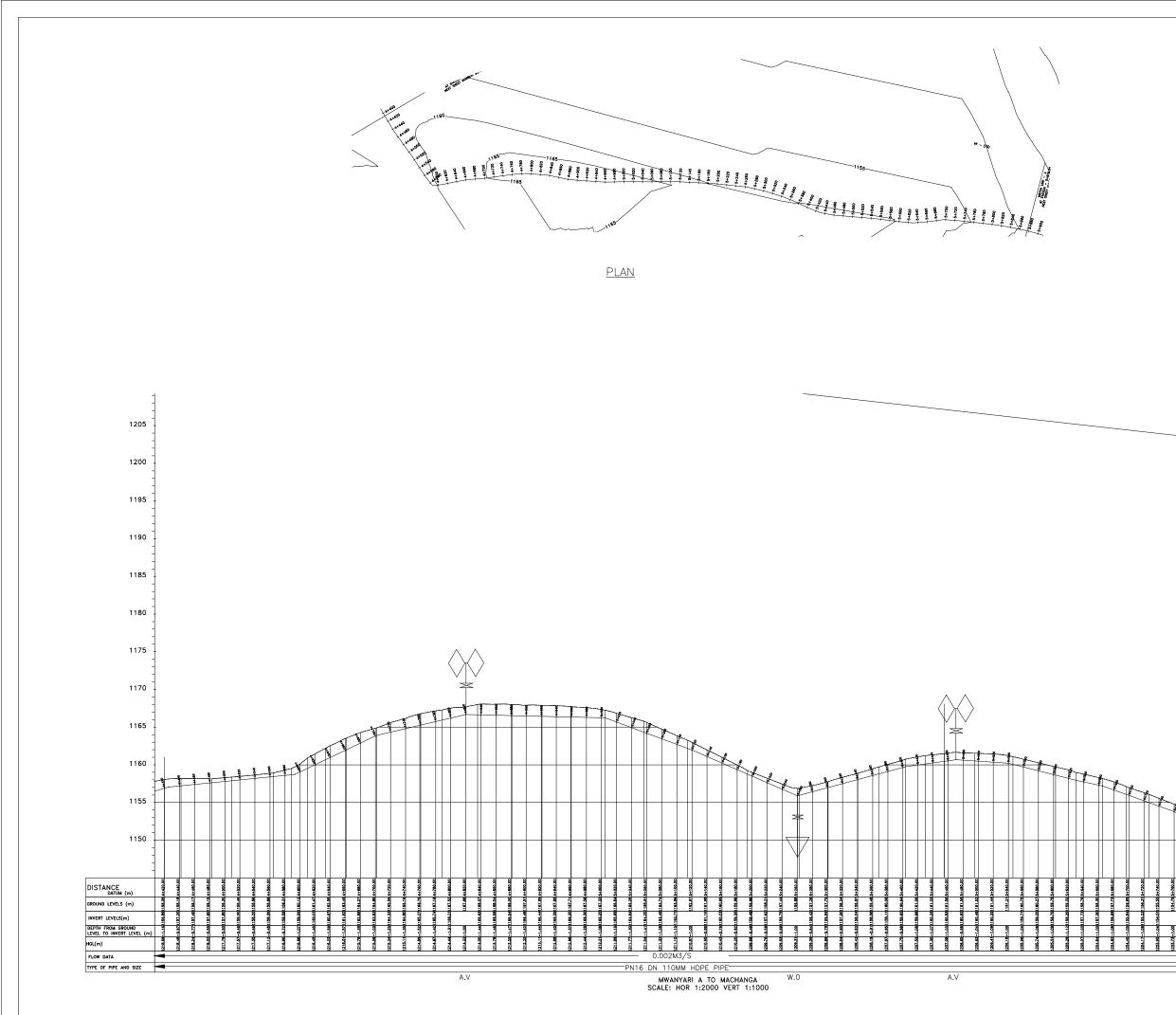


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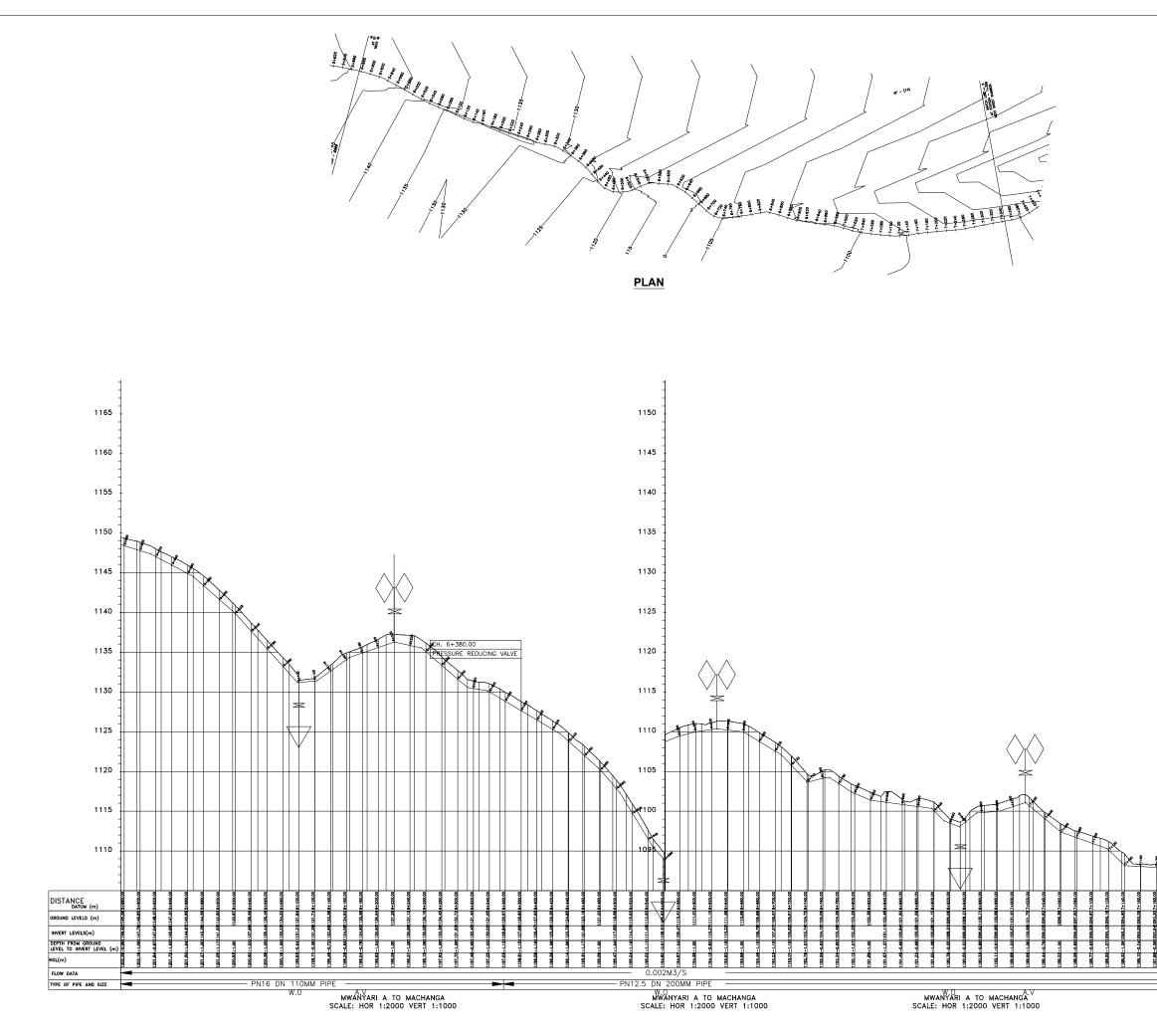




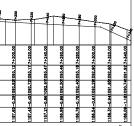
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	PN – NOMINAL PRESSURE
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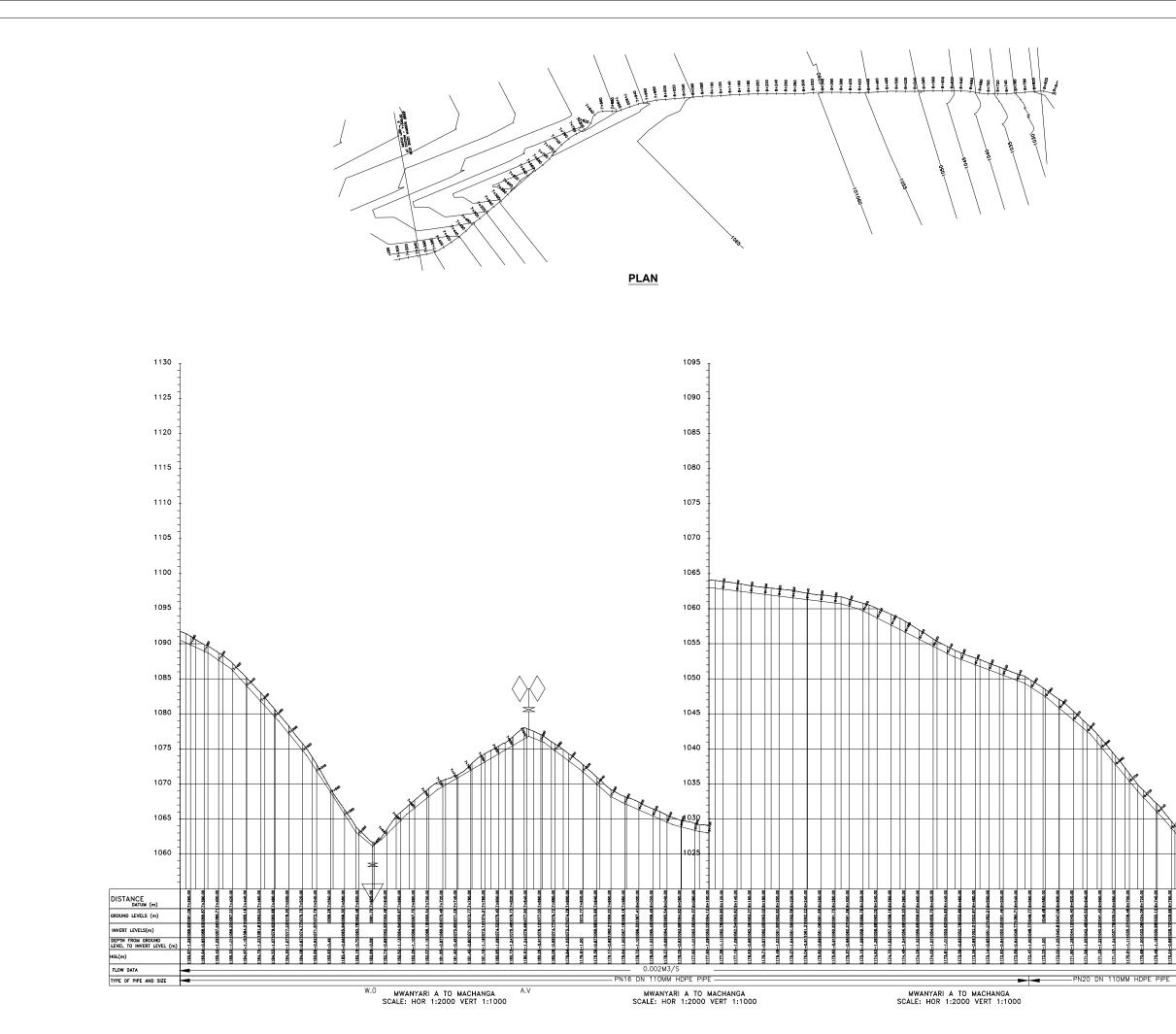


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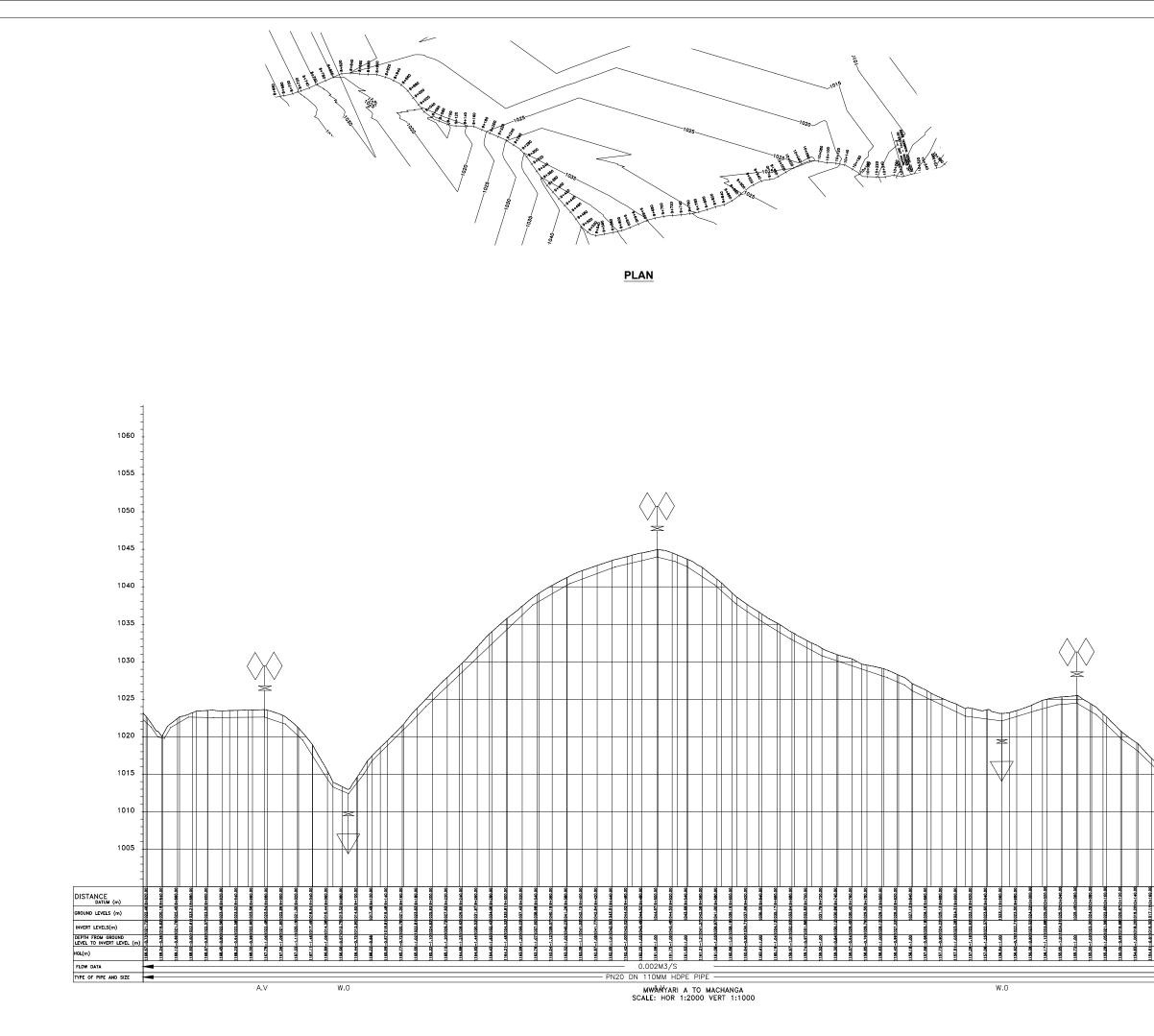
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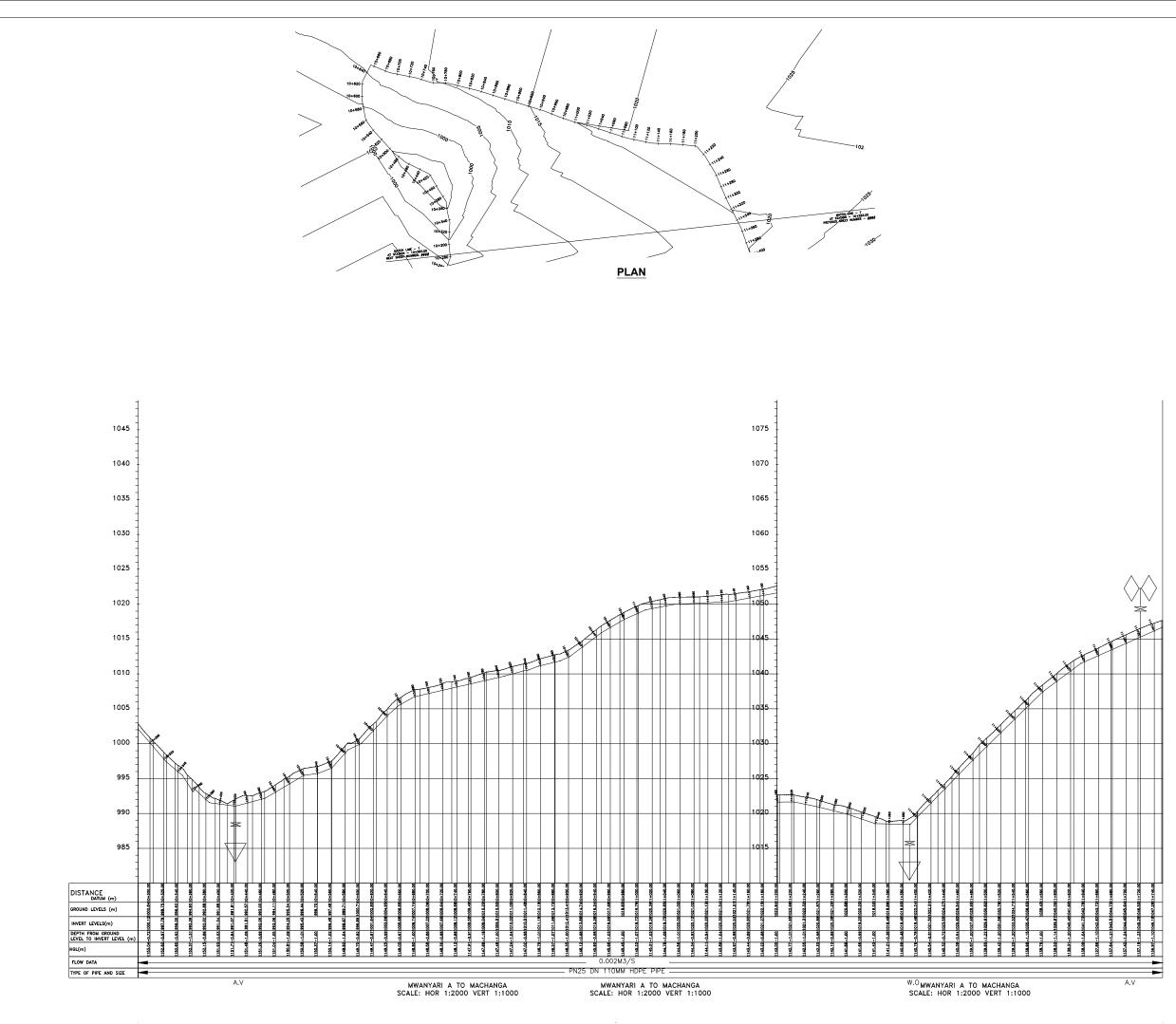


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Designed by A.M.M Checked by J.M.M	Drawn by G.M.G Approved by D.N.M
Scale 1:3750	Date NOV-2023
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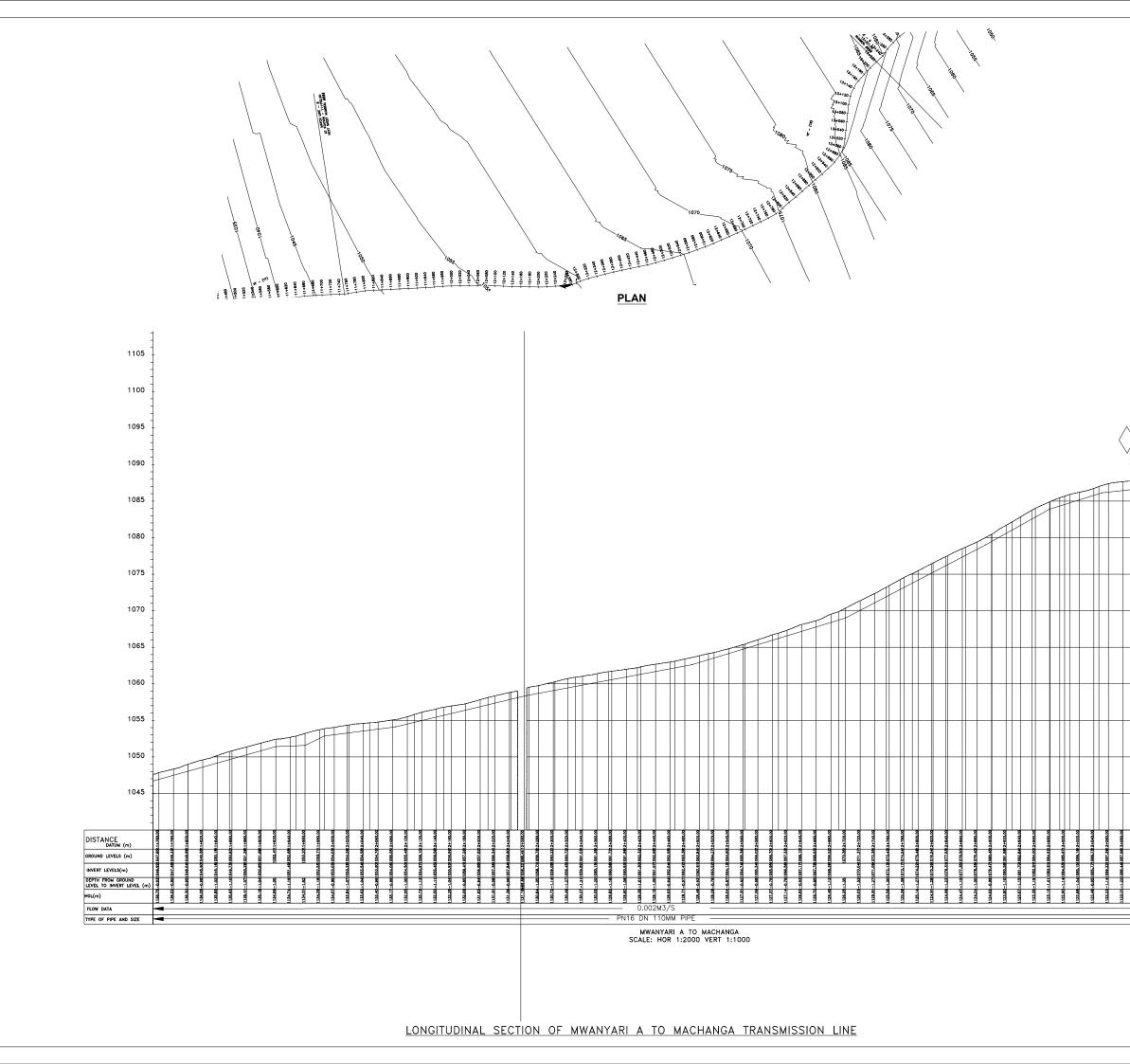




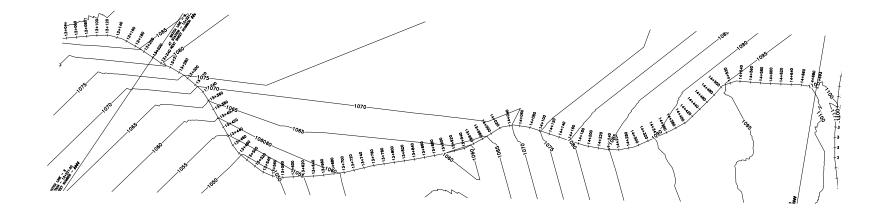
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	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
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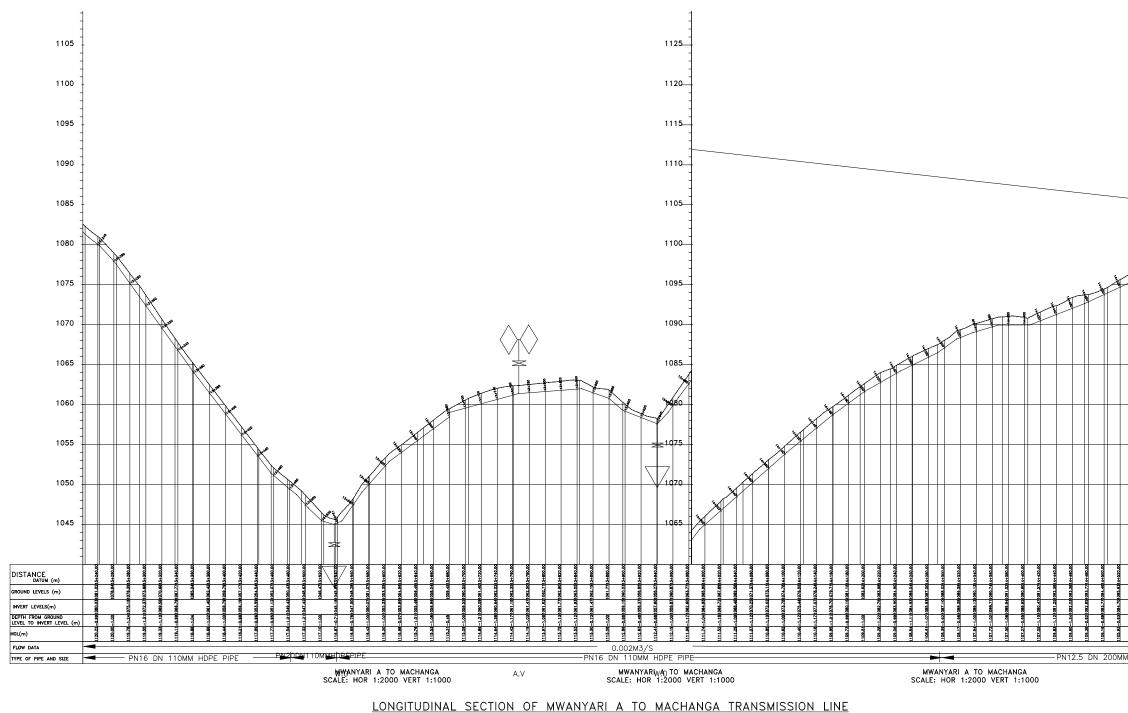


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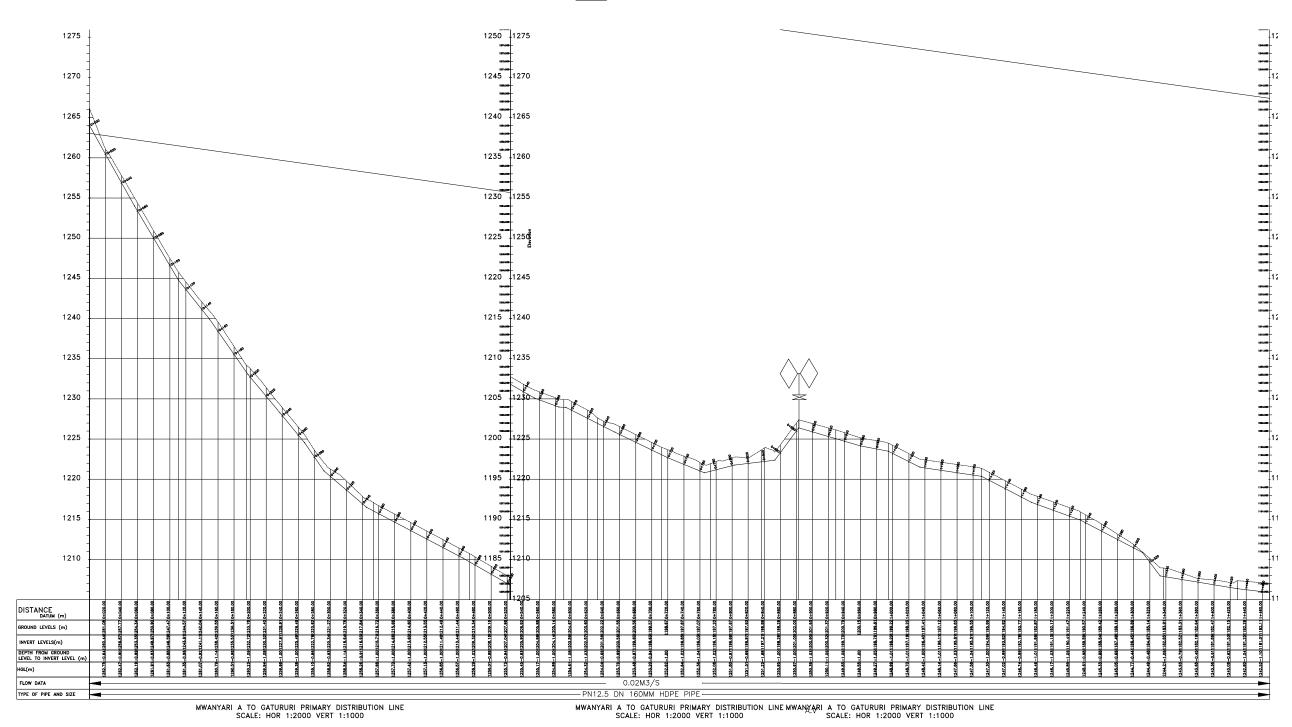
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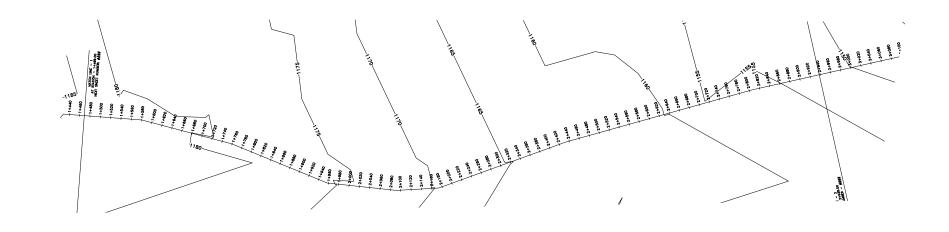


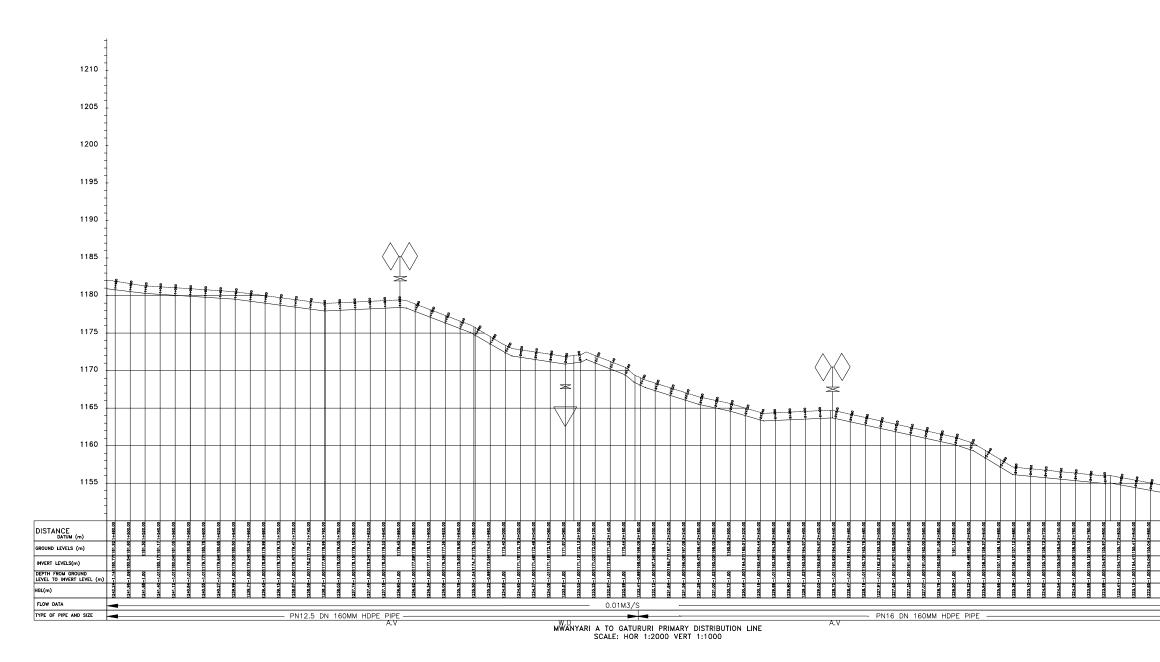
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2012 2012	Drawing Title MWANYARI A TO MACHANGA TRANSMISSION WATER LINE FROM
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	Designed by A.M.M Drawn by G.M.G
	Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M
	Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M Scale 1:3750 Date NOV-2023
	Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M

ELAN

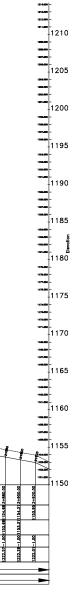


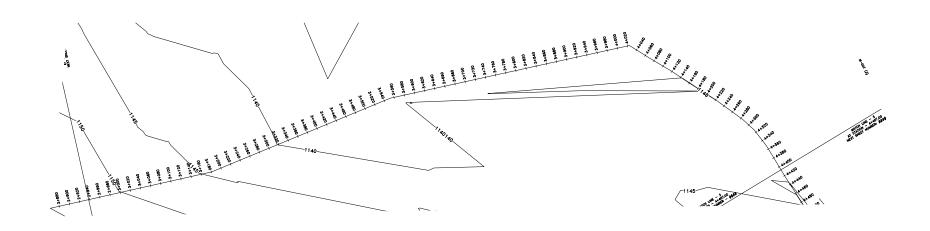
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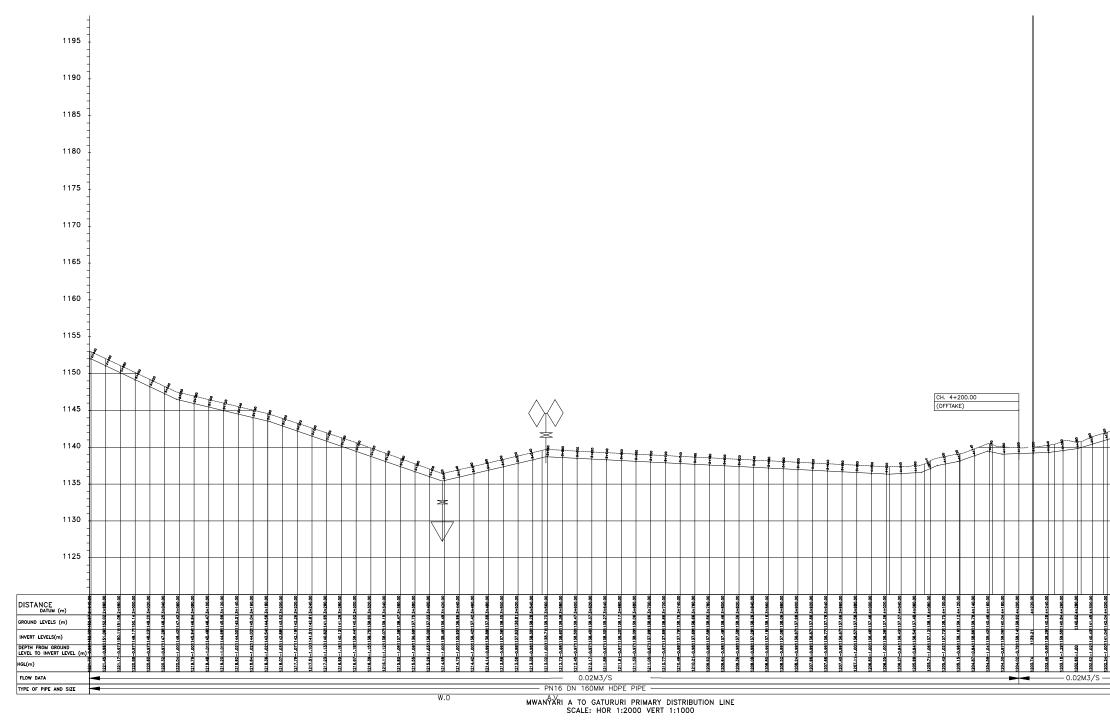




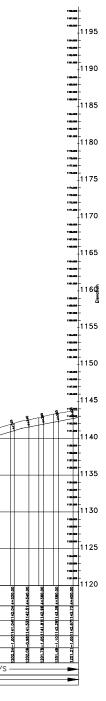
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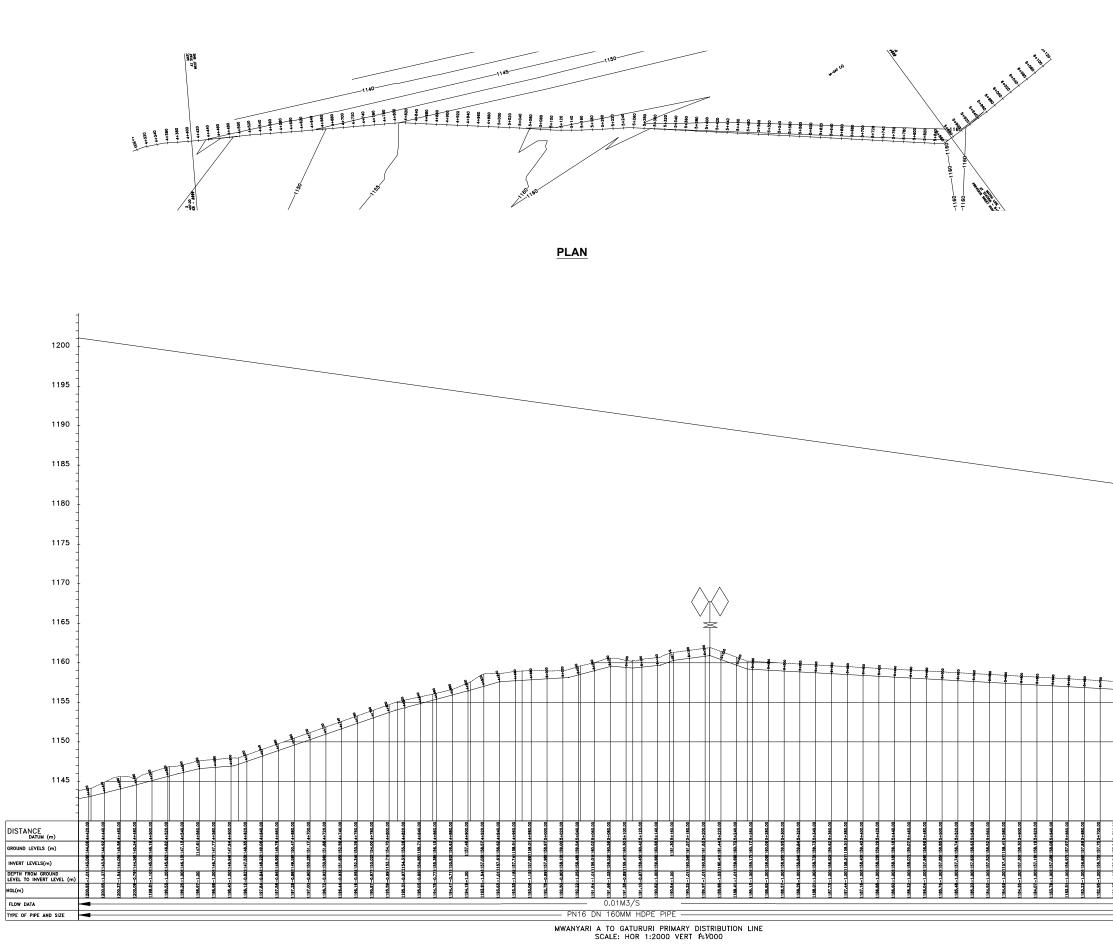




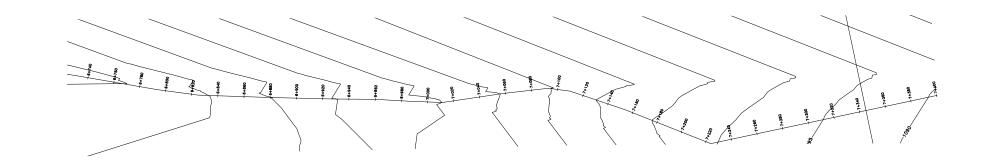


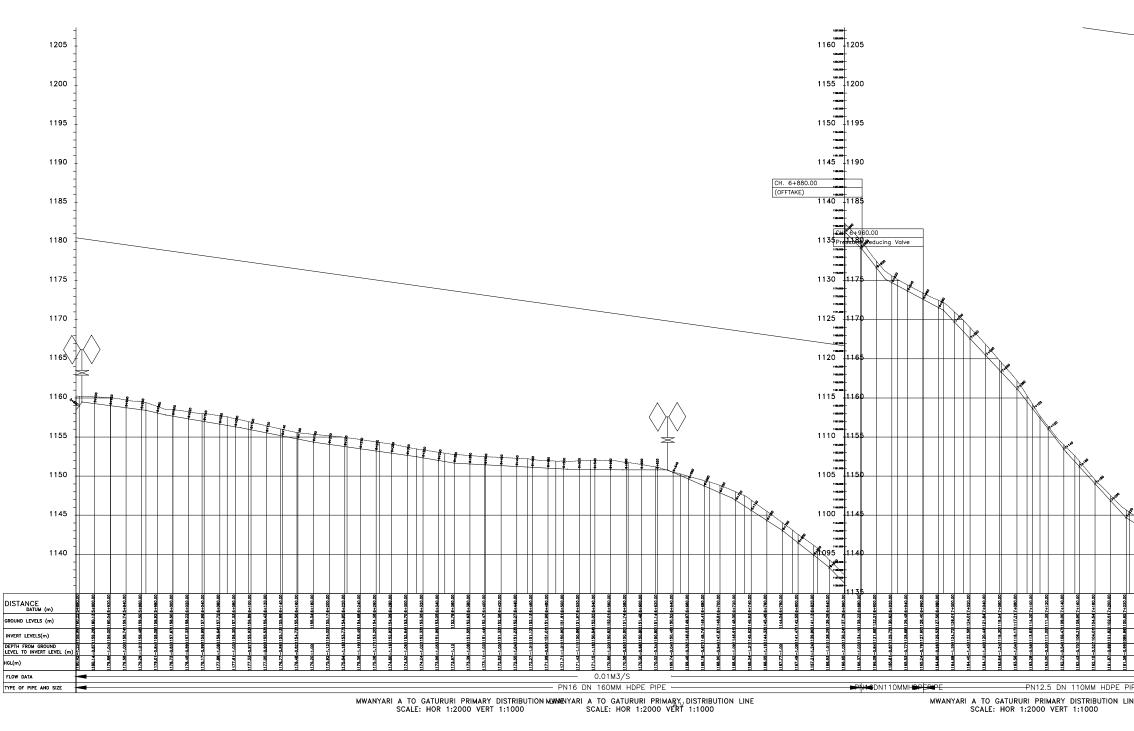
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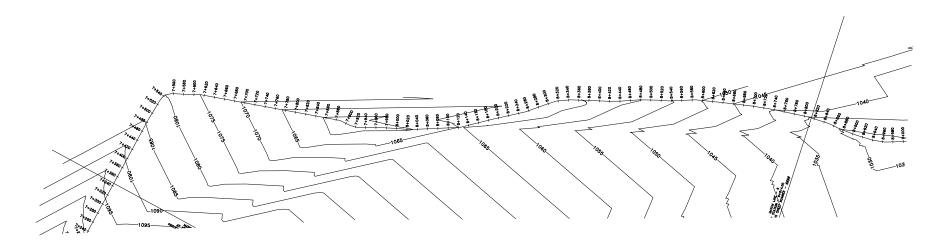


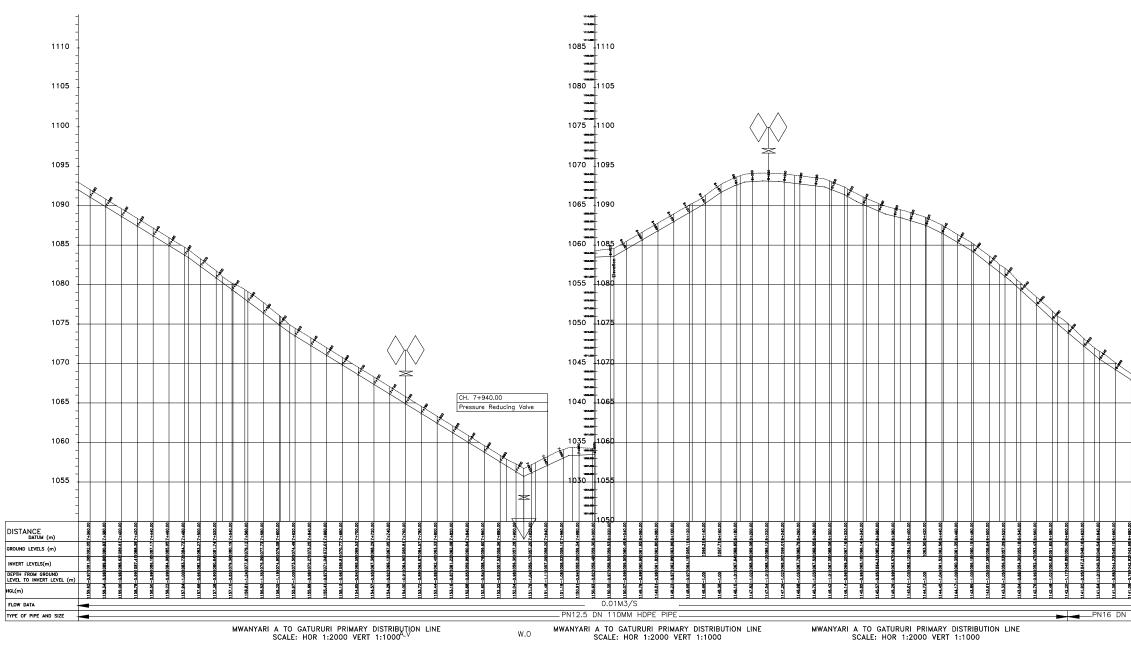
	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA
	2. COORDINATES ARE BASED ON UTM.
	3 LOCATION OF AIR VALVES WASHOUTS
	BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCEPTE
	CONCRETE. 6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	 IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND: - proposed pipeline
	- EXISTING GROUND PROFILE
	– AIR VALVE
186.600 - 186.000 - 186.000 -	DAV – DOUBLE AIR VALVE
-1200	- WASHOUT
"""" """" 1195	WO2 - WASHOUT TYPE 2
-11790 	DN – NOMINAL DIAMETER
1182,500	PN – NOMINAL PRESSURE
_1190 *****	
1 186.000	HB – HORIZONTAL BEND — EXISTING STRUCTURE
-1185	ER – EARTH ROAD
- 46440 	GR – GRAVEL ROAD
-1180	
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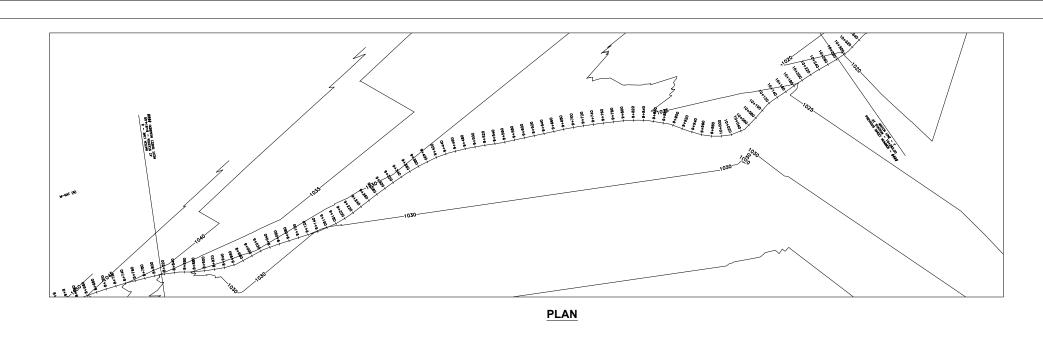


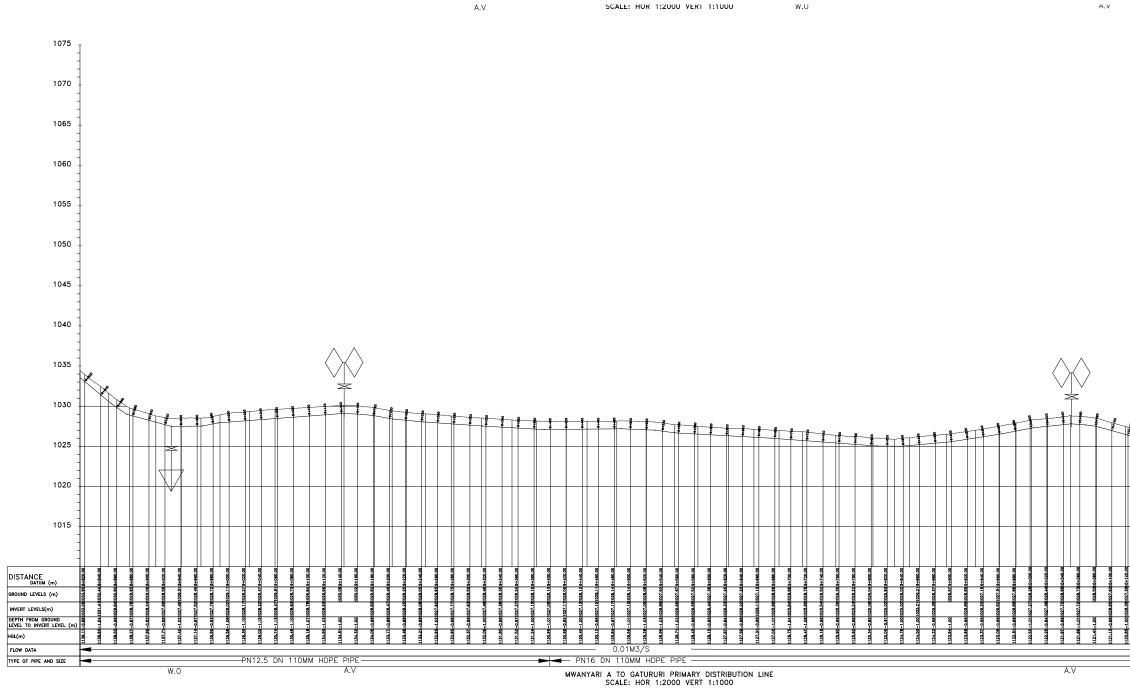
	NOTES	
	1. ALL LEVELS ARE IN METERS ABOVE SEA	
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	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.	
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	AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS	
	AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.	
	LEGEND:	
	- PROPOSED PIPELINE	
	- EXISTING GROUND PROFILE	
	PIPE INVERT PROFILE	
1184.000		
1160	- AIR VALVE	
11964000	DAV – DOUBLE AIR VALVE	
1157.000 -		
-1155	VASHOUT	
1188.000		
118,400 -	WO2 - WASHOUT TYPE 2	
-1150 ******		
11 dL000	DN – NOMINAL DIAMETER	
1147.000	PN – NOMINAL PRESSURE	
1145		
1144300	HB – HORIZONTAL BEND	
1142.000	- EXISTING STRUCTURE	
1140	ER – EARTH ROAD	
1158.000	GR – GRAVEL ROAD	
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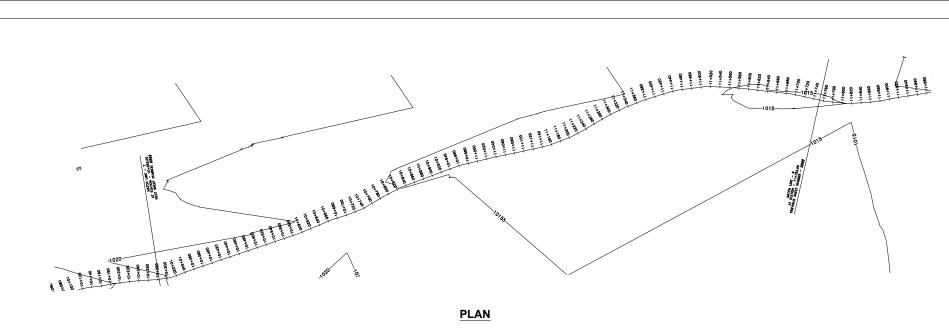
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	3.	LOCATION OF A BENDS AND OT UNLESS OTHER ENGINEER ON	AIR VALVES, WASHOUTS, THER FITTINGS AS SHOWN WISE DIRECTED BY THE SITE.
	4.	GROUND AND	INVERT LEVEL SHOWN ARE DRAWING UNLESS DICATED ON SITE BY THE
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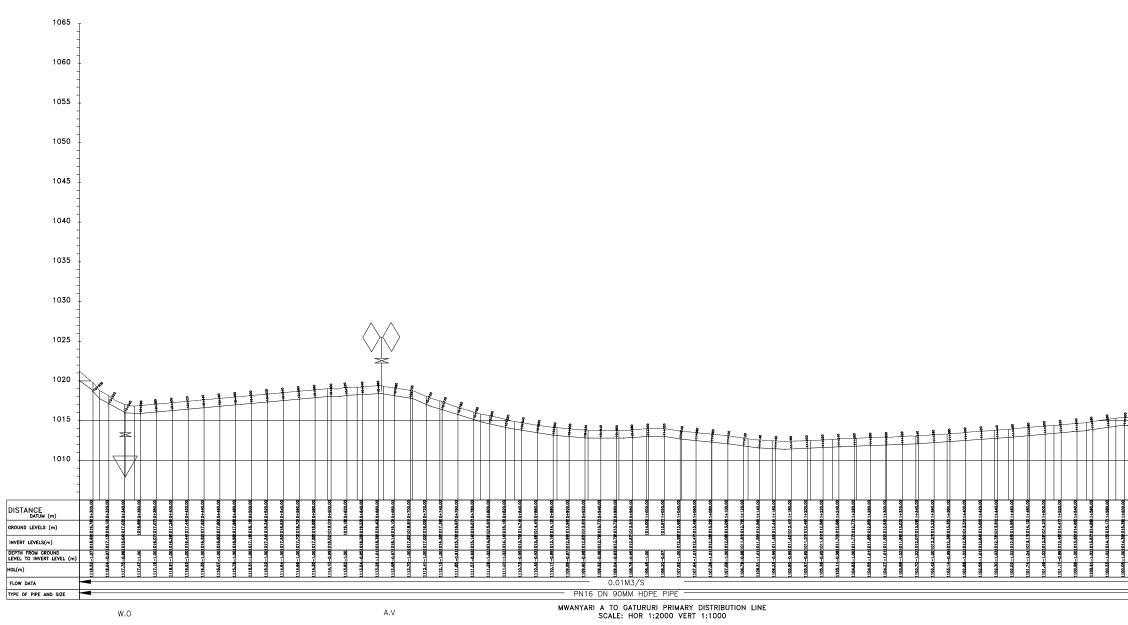




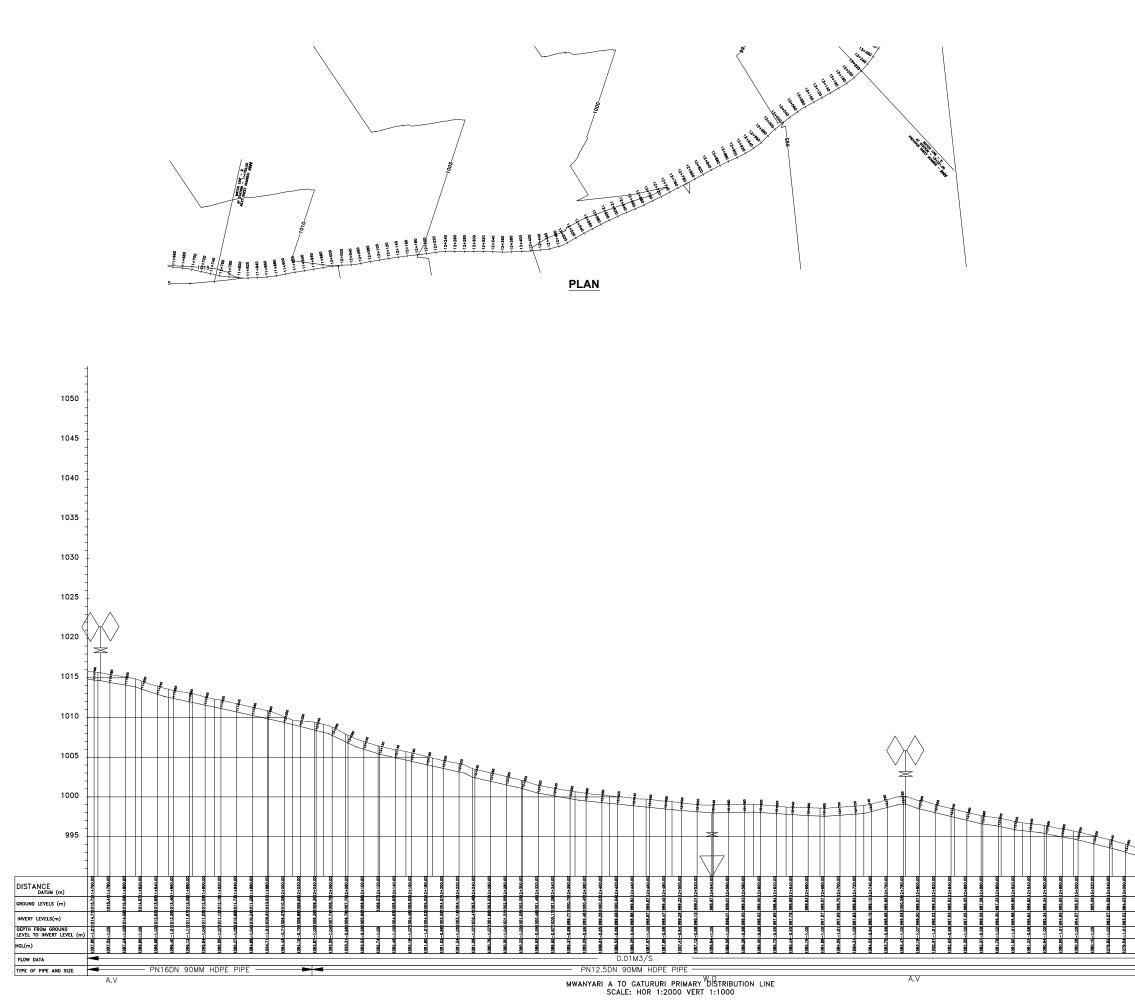
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	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA
	2. COORDINATES ARE BASED ON UTM.
	3 LOCATION OF AIR VALVES WASHOUTS
	BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE
	ENGINEER. 5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS,
	PIPE TO BE SURROUNDED WITH CONCRETE.
	OTHERWISE STATED.
	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER. <u>LEGEND:</u> ————————————————————————————————————
	- EXISTING GROUND PROFILE - PIPE INVERT PROFILE
	- AIR VALVE
	DAV – DOUBLE AIR VALVE
1946 - 1946 - 1946 - 1946 -	- WASHOUT
-10 ⁻ 	WO2 – WASHOUT TYPE 2
1966.00 - 1967.20 - 1968.20 -	DN – NOMINAL DIAMETER
-10i ••••••	PN – NOMINAL PRESSURE
1860.000 1860.000	
10 i 10 i	HB – HORIZONTAL BEND – EXISTING STRUCTURE
	ER – EARTH ROAD
10;	GR – GRAVEL ROAD
1944.000	
••••==== ••••=== • 104	FOR CONSTRUCTION signed CMTS
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20	TANA WATER WORKS DEVELOPMENT AGENCY
	P. O. BOX 1292-10100
	PROJECT
10:	DESIGN FOR MBEERE SOUTH WATER
	SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
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	Civil/Structural Engineers CHIEF MANAGER TECHNICAL
	SERVICES TANA WATER WORKS
	DEVELOPMENT AGENCY
	P. 0. BOX 1292-10100 NYERI
	Drawing Title
20 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2 0 2	MWANYARI A TO GISHISHE DISTRIBUTION
	WATER LINE FROM CH.8+820.00 - 10+280.00
	SHEET 7 OF 11 PLAN AND PROFILE DRAWINGS
	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
	Scale 1:3750 Date NOV-2023
1964.005	Job No. 1.0 ACAD File: ACADFILENAME
	$\begin{array}{c} PD \\ STATUS \end{array} DRAWING No. TWWDA/MSWP/L2_REV^REV \end{array}$

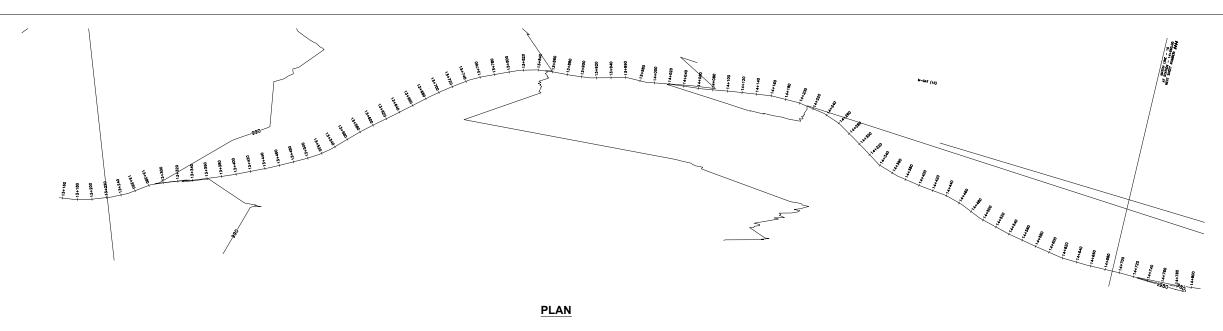


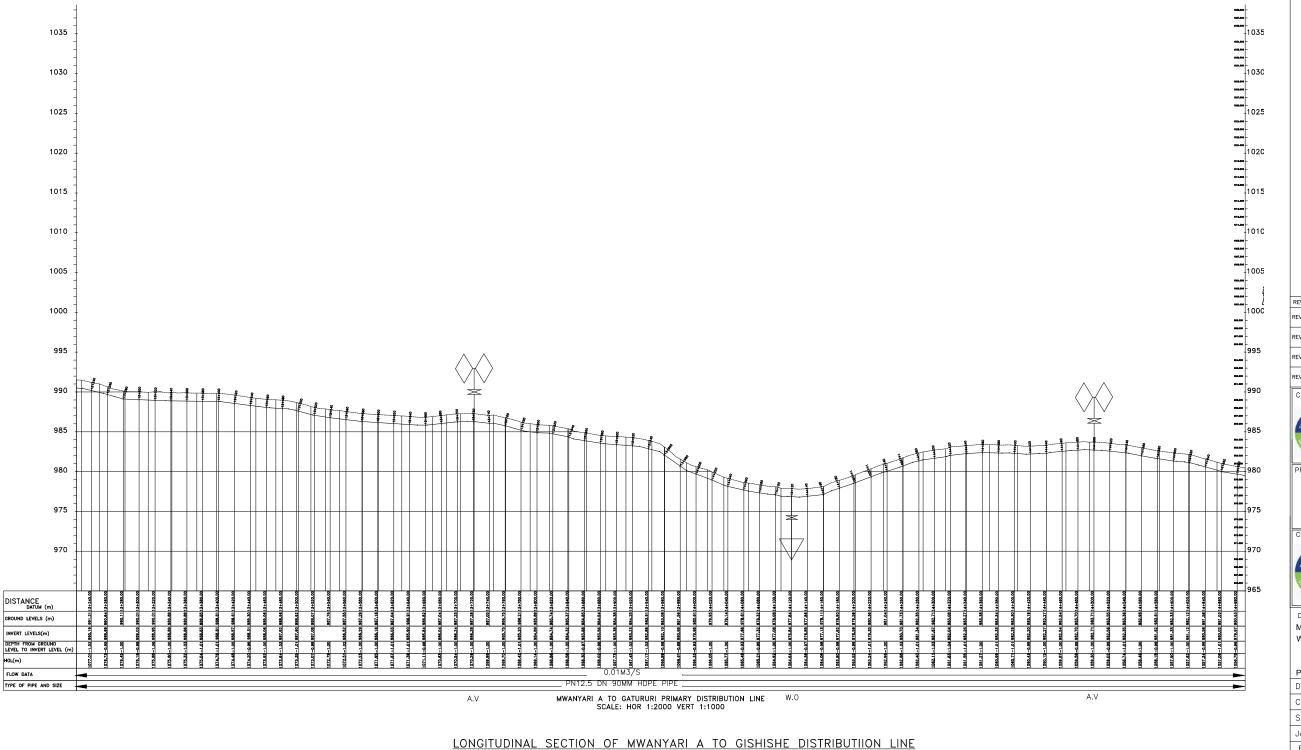


	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH
	CONCRETE. 6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND: - proposed pipeline
	- EXISTING GROUND PROFILE - PIPE INVERT PROFILE
	– AIR VALVE
	dav – Double air valve
1065	- WASHOUT
1966.099 1966.099 1989.099	WO2 - WASHOUT TYPE 2
-1060	DN - NOMINAL DIAMETER
	PN – NOMINAL PRESSURE
1055	HB – HORIZONTAL BEND
NEL.00 -	- EXISTING STRUCTURE
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1015	
1010	DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
	Civil/Structural Engineers CHIEF MANAGER TECHNICAL
1+520.0	SERVICES TANA WATER WORKS
	DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI
	Drawing Title MWANYARI A TO GISHISHE DISTRIBUTION
►	WATER LINE FROM CH.10+280 - 11+740.00 SHEET 8 OF 11
	PLAN AND PROFILE DRAWINGS
	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M Scale 1:3750 Date NOV-2023
	Job No. 1.0 ACAD File: ACADFILENAME
	PD PD PLANNING No. TWWDA/MSWP/L2 REV
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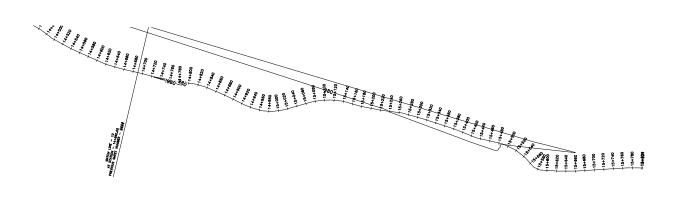
	NOTES
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	CONCRETE.
	OTHERWISE STATED. 7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS
	AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER. <u>LEGEND:</u> - PROPOSED PIPELINE
	- EXISTING GROUND PROFILE - PIPE INVERT PROFILE
	- AIR VALVE
	DAV – DOUBLE AIR VALVE
16.600 - 165.600 - 166.600 -	- WASHOUT
-105(
1642.000 - 1847.000 -	WO2 – WASHOUT TYPE 2 DN – NOMINAL DIAMETER
-1045	PN – NOMINAL PRESSURE
1964.000 - 1964.000 -	
-104(-104(HB – HORIZONTAL BEND – EXISTING STRUCTURE
	ER – EARTH ROAD
-1035	GR – GRAVEL ROAD
	FOR CONSTRUCTION
-1025 	signed CMTS
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1988.000 - 1987.000 -	TANA WATER WORKS DEVELOPMENT AGENCY
-1005 -1005	P. O. BOX 1292-10100
	PROJECT NYERI
	DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
	Civil/Structural Engineers CHIEF MANAGER TECHNICAL
	SERVICES TANA WATER WORKS
91 - 17 - 17 - 17 - 17 - 17 - 17 - 17 -	DEVELOPMENT AGENCY P. O. BOX 1292-10100
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	Drawing Title MWANYARI A TO GISHISHE DISTRIBUTION
	WATER LINE FROM CH.11+760 - 13+220.00
	SHEET 9 OF 11
	PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
	Scale 1:3750 Date NOV-2023
	Scale 1:3750 Date NOV-2023 Job No. 1.0 ACAD File: ACADFILENAME
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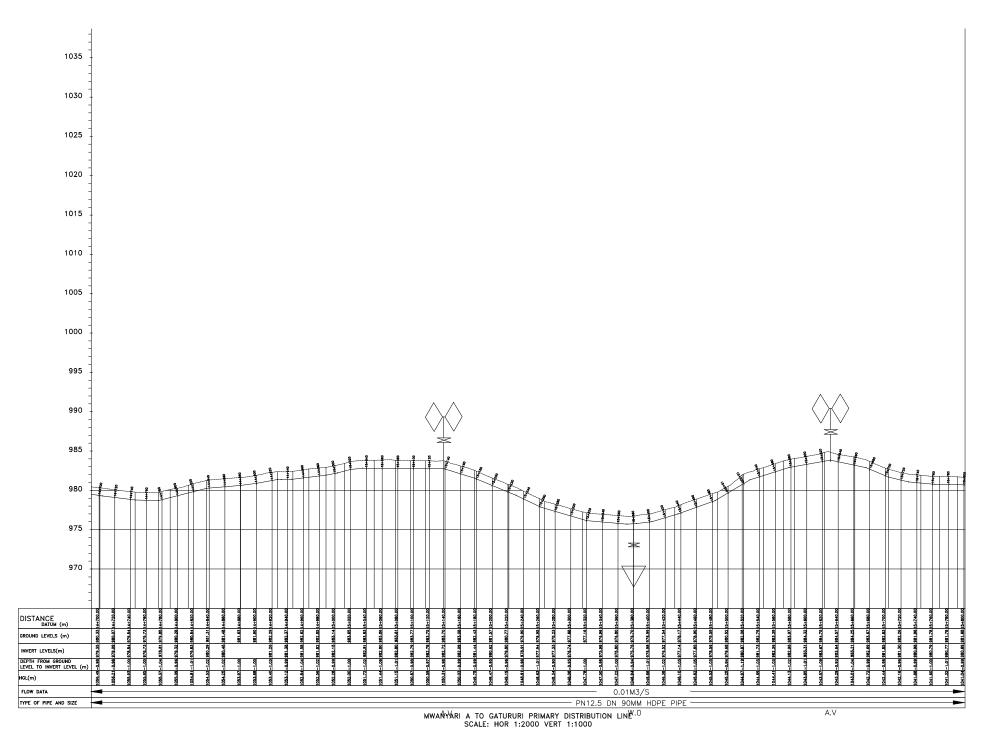


1.	NOTES					
	ALL LEVE	ELS ARE	IN MET	ERS #	ABOVI	E SEA
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6.	ALL BEN	DS ARE	HORIZO ED.	NTAL	UNLE	SS
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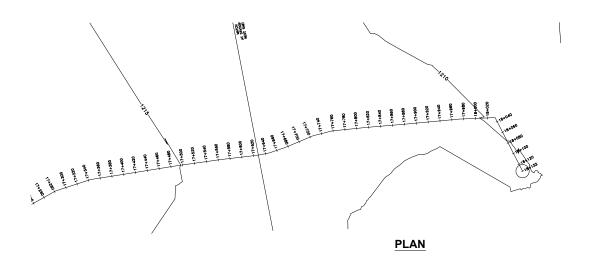


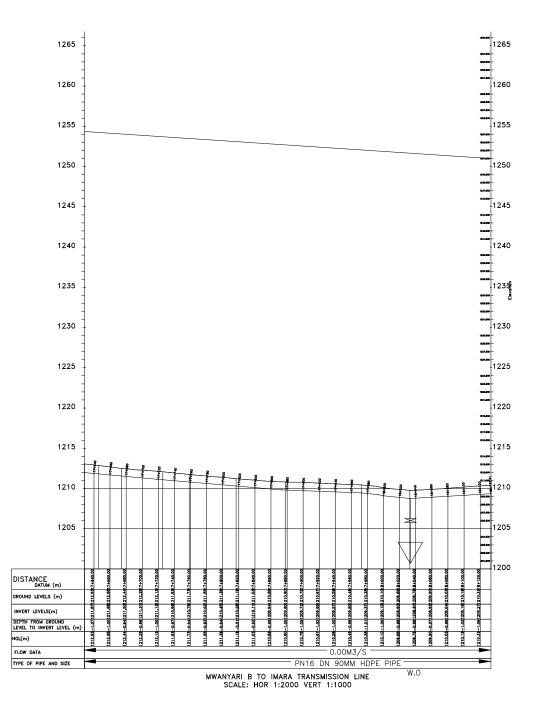




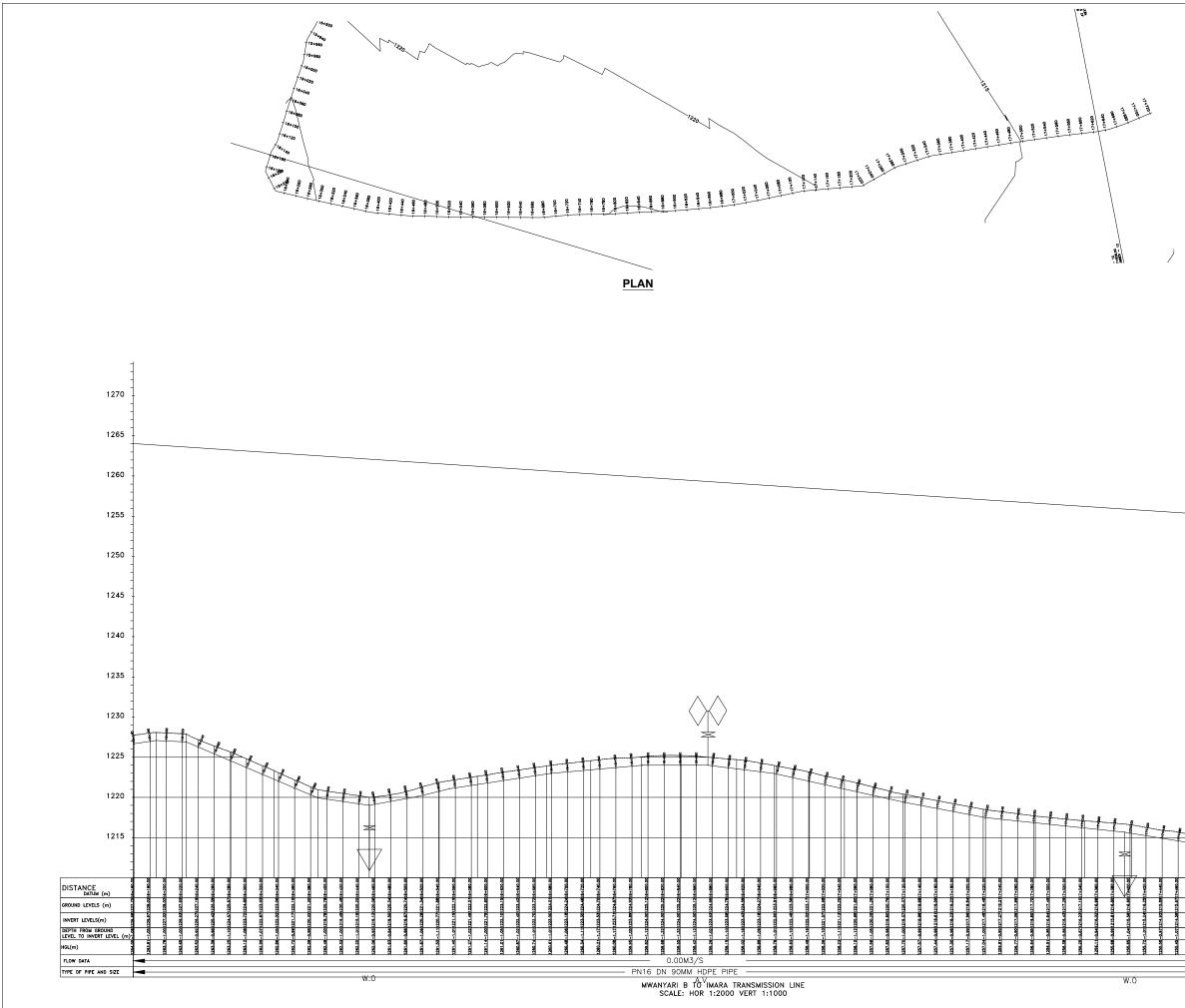
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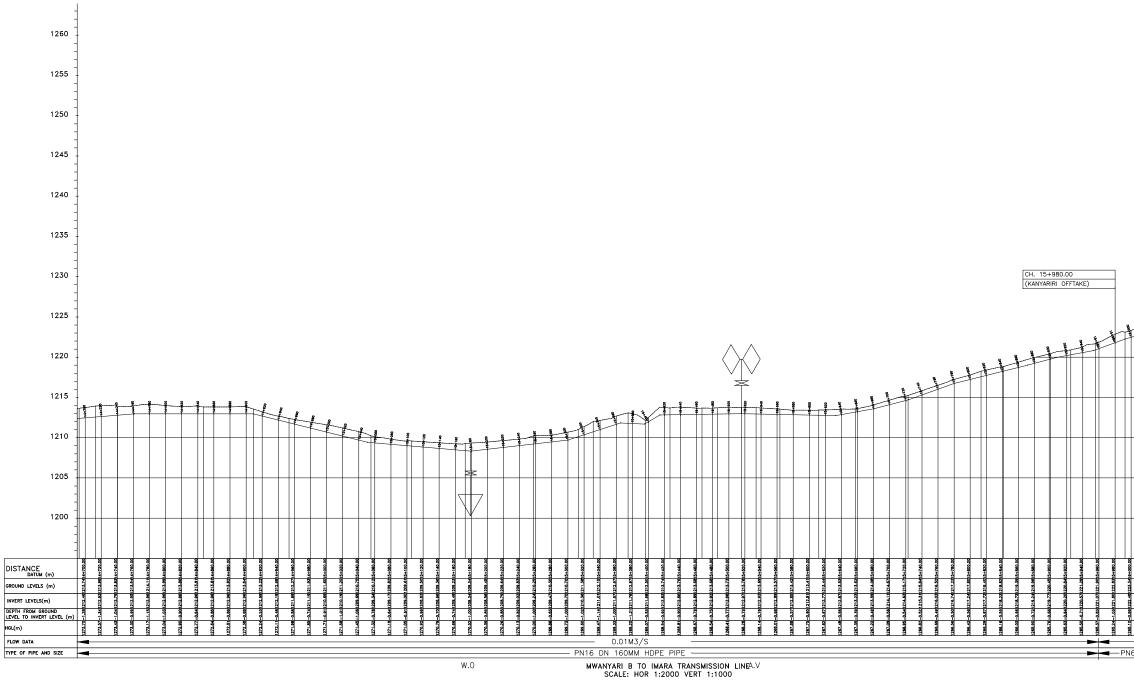




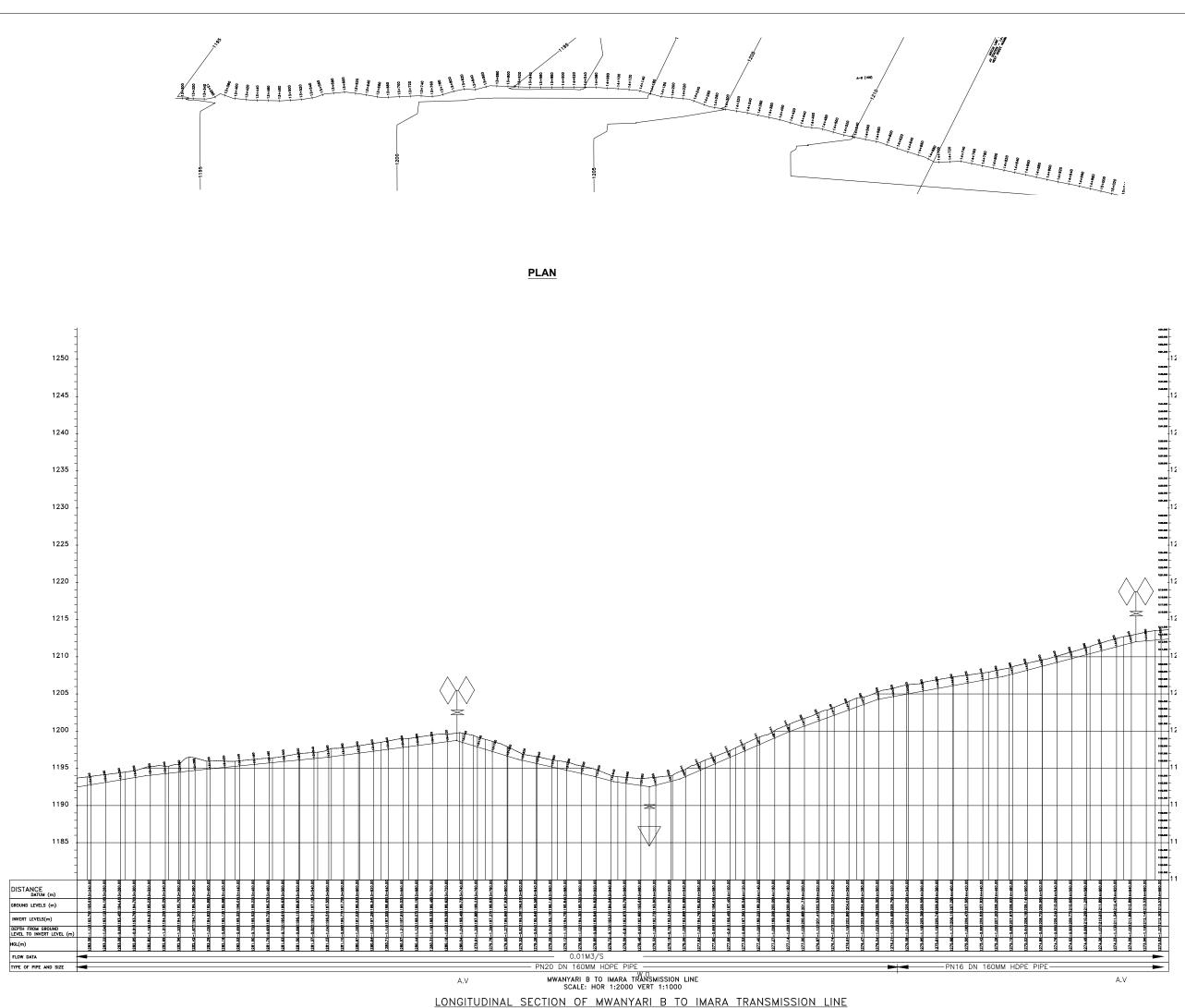
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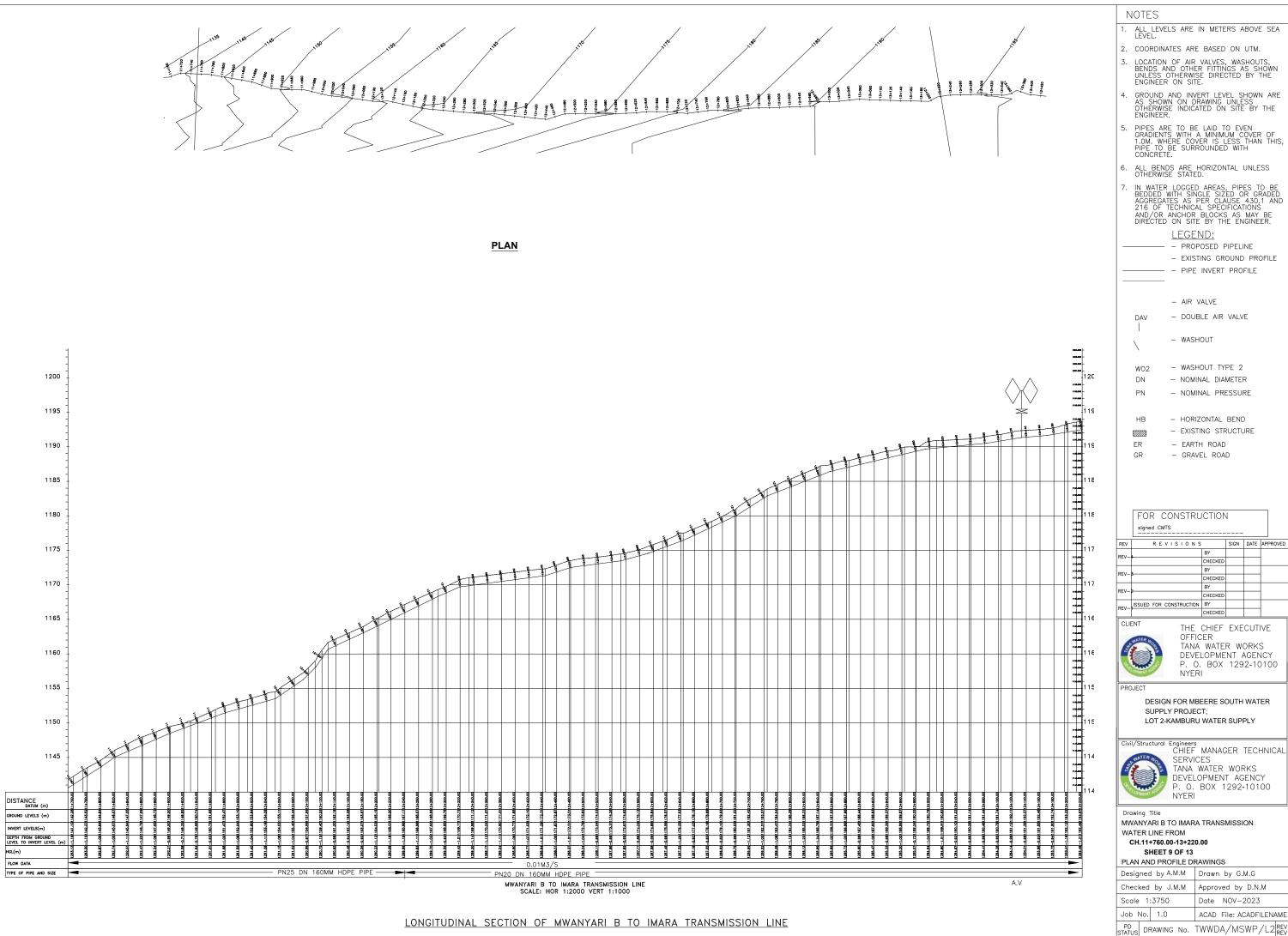
	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	 PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH
	CONCRETE. 6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	OTHERWISE STATED. 7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND:
	- EXISTING GROUND PROFILE
	– AIR VALVE
137460	DAV – DOUBLE AIR VALVE
	- WASHOUT
1980,000 - 1980,000 - 1980,000 - 12	WO2 – WASHOUT TYPE 2
+ Z 194000 - 198000 - 198000 -	DN – NOMINAL DIAMETER PN – NOMINAL PRESSURE
1998/2007 1997/2007 +12	
	HB – HORIZONTAL BEND ZZZZ – EXISTING STRUCTURE
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	NYERI PROJECT DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY Civil/Structural Engineers CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O, BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION
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	NYERI PROJECT DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY Civil/Structural Engineers CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.16+140.00-17+620.00 SHEET 12 OF 13 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M



	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
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	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	CONCRETE. 6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	 IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	<u>LEGEND:</u> - proposed pipeline
	- EXISTING GROUND PROFILE
	- AIR VALVE
126 	DAV – DOUBLE AIR VALVE
	- WASHOUT
136.460 - - 136.660 -	WO2 - WASHOUT TYPE 2
-125 	DN – NOMINAL DIAMETER PN – NOMINAL PRESSURE
	HB – HORIZONTAL BEND
121-120	- EXISTING STRUCTURE
104.00 - 104.00 -	ER – EARTH ROAD
-124 	GR – GRAVEL ROAD
	FOR CONSTRUCTION signed CMTS
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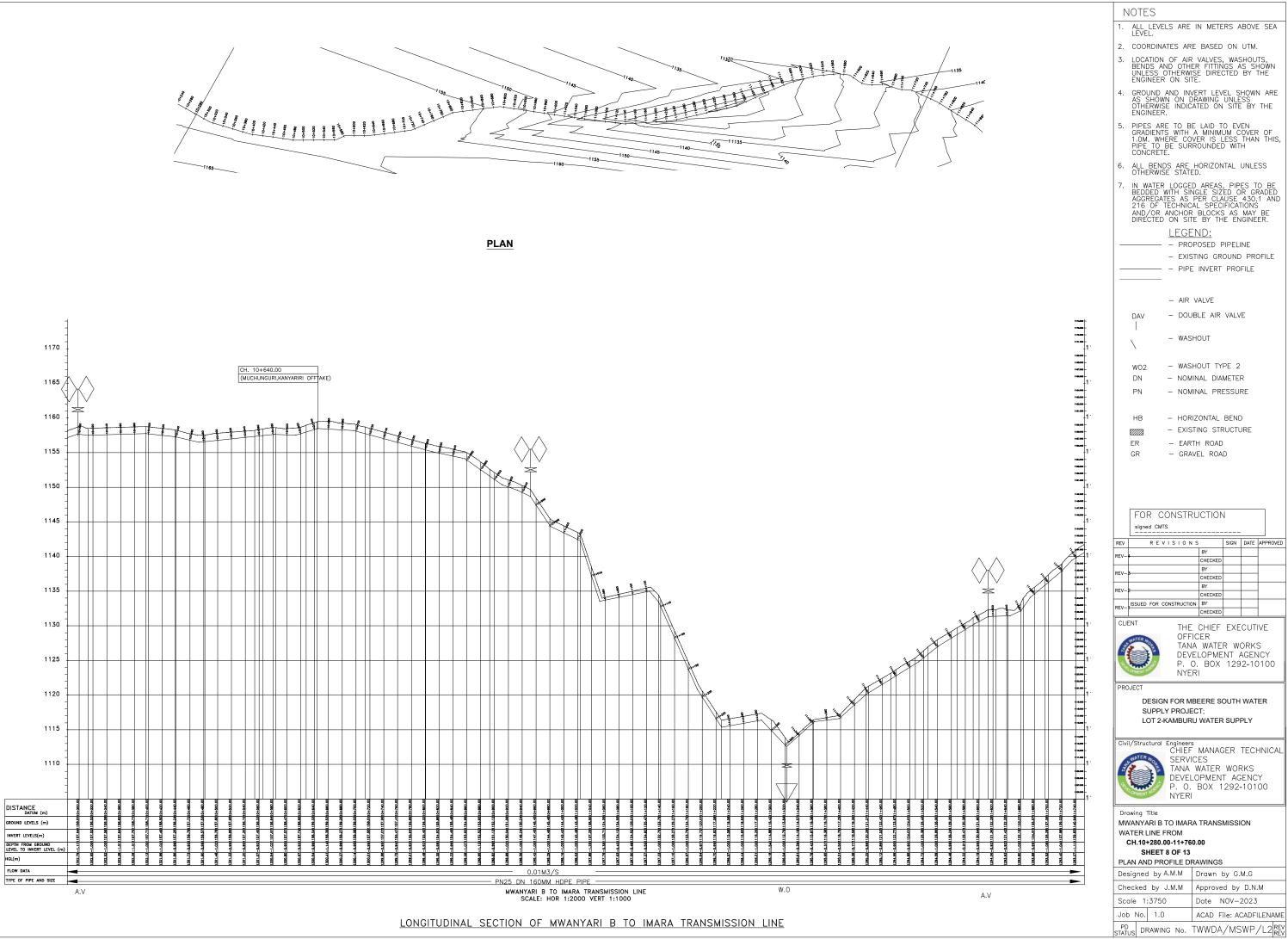


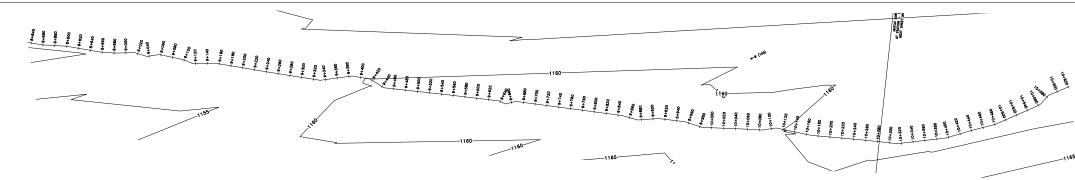
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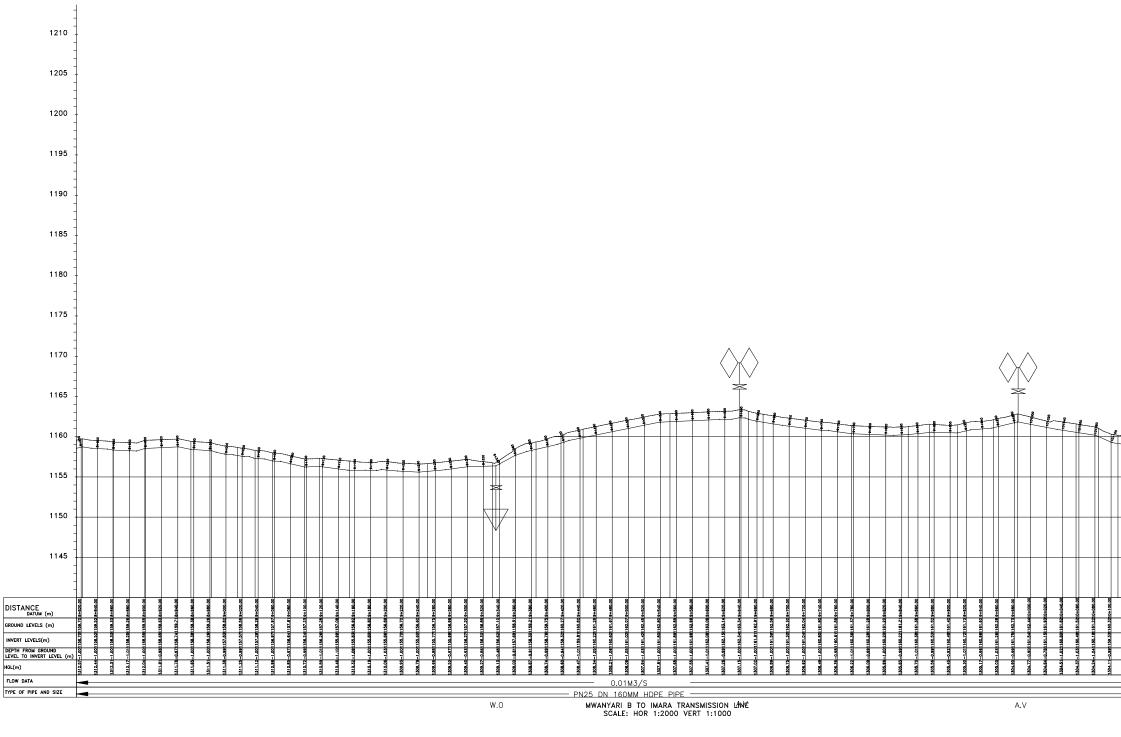
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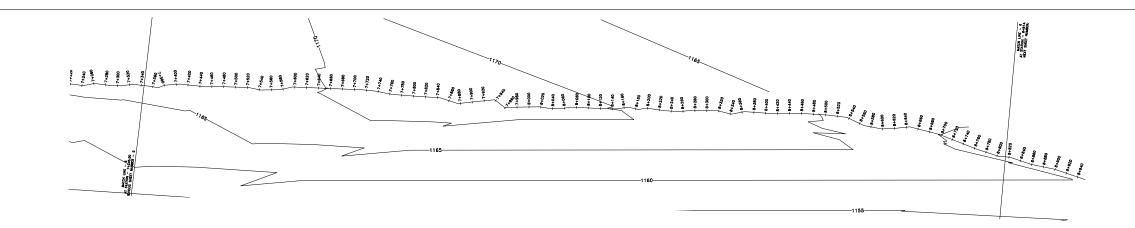


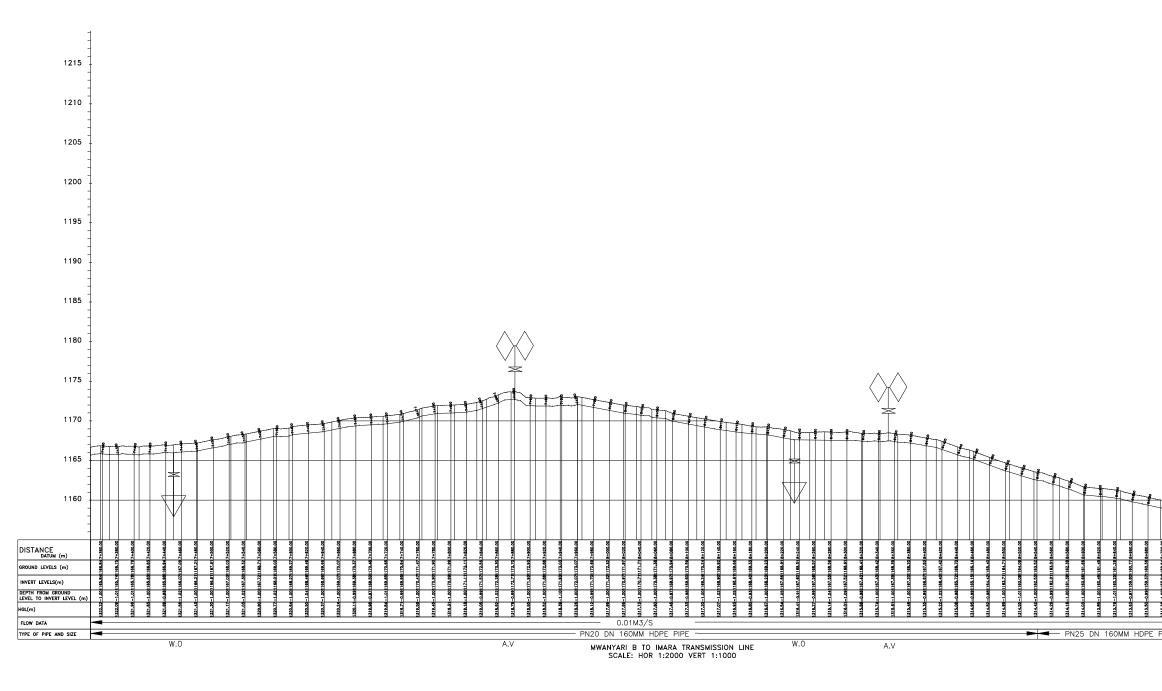




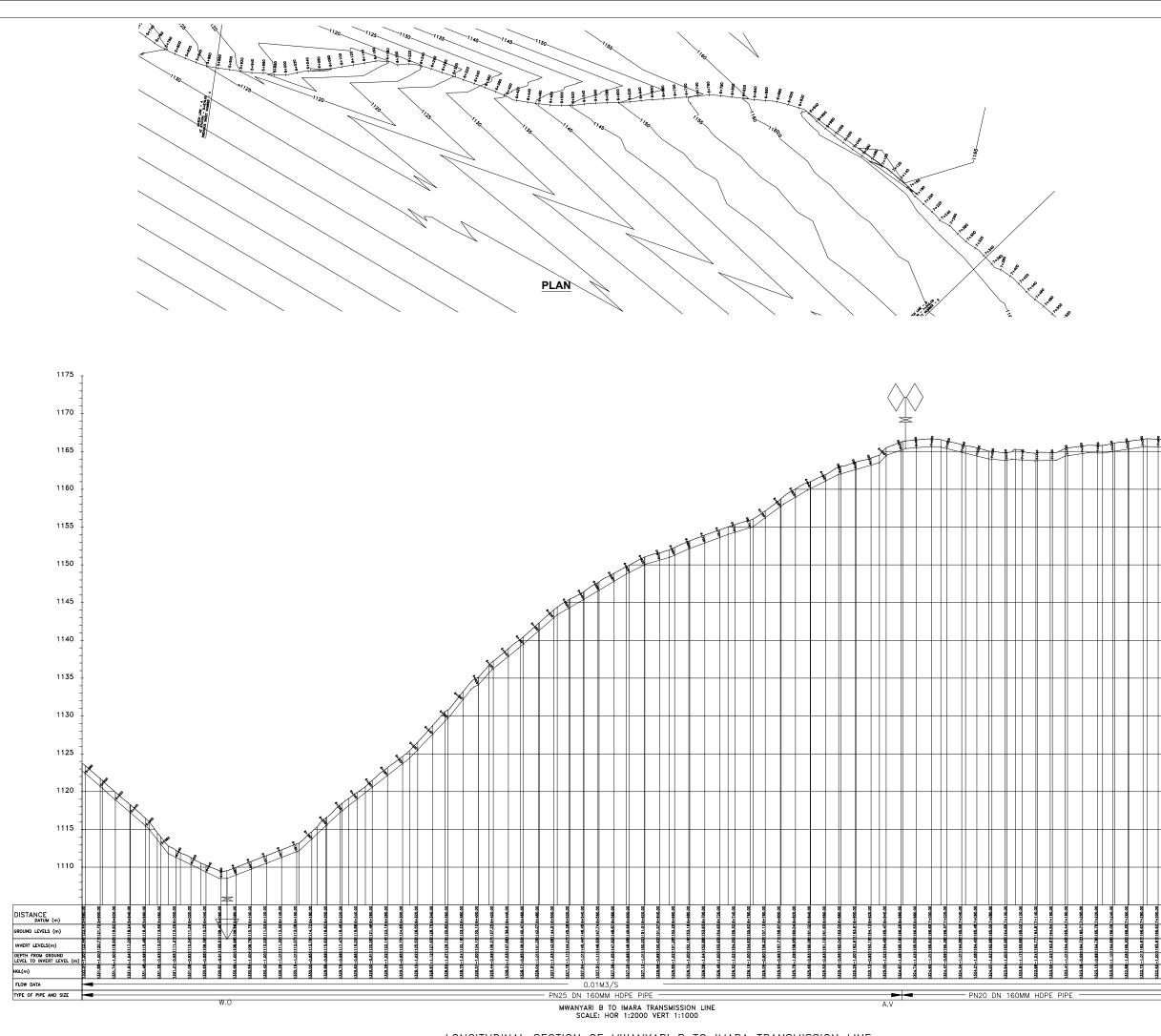


	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA
	LEVEL.
	2. COORDINATES ARE BASED ON UTM.
4	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
_	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
165-	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	6. ALL BENDS ARE HORIZONTAL UNLESS
	OTHERWISE STATED.
	 IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND:
	- EXISTING GROUND PROFILE
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	CLIENT THE CHIEF EXECUTIVE
196300	OFFICER
™‱ ™™™- -11	TANA WATER WORKS DEVELOPMENT AGENCY
	P. O. BOX 1292-10100 NYERI
	PROJECT
11	DESIGN FOR MBEERE SOUTH WATER
19226	SUPPLY PROJECT;
111 111	LOT 2-KAMBURU WATER SUPPLY
	Civil/Structural Engineers
110200- 111	CHIEF MANAGER TECHNICAL SERVICES
	TANA WATER WORKS DEVELOPMENT AGENCY
1142200 - 1141200 -	P. O. BOX 1292-10100
	NYERI
148.72 148.22 148.22 15.488 15.488 15.488 15.488 15.488 15.488 15.488 15.488 15.488	Drawing Title MWANYARI B TO IMARA TRANSMISSION
158.21 158.21 156.28 157.48 15	WATER LINE FROM
	CH.8+820.00-10+280.00 SHEET 7 OF 13
120251 120251 120251 120251 120251 120251 120251 120251	PLAN AND PROFILE DRAWINGS
	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
	Scale 1:3750 Date NOV-2023
	Job No. 1.0 ACAD File: ACADFILENAME PD THANDA (MOMDA) THANDA (MOMDA)
	STATUS DRAWING No. TWWDA/MSWP/L2



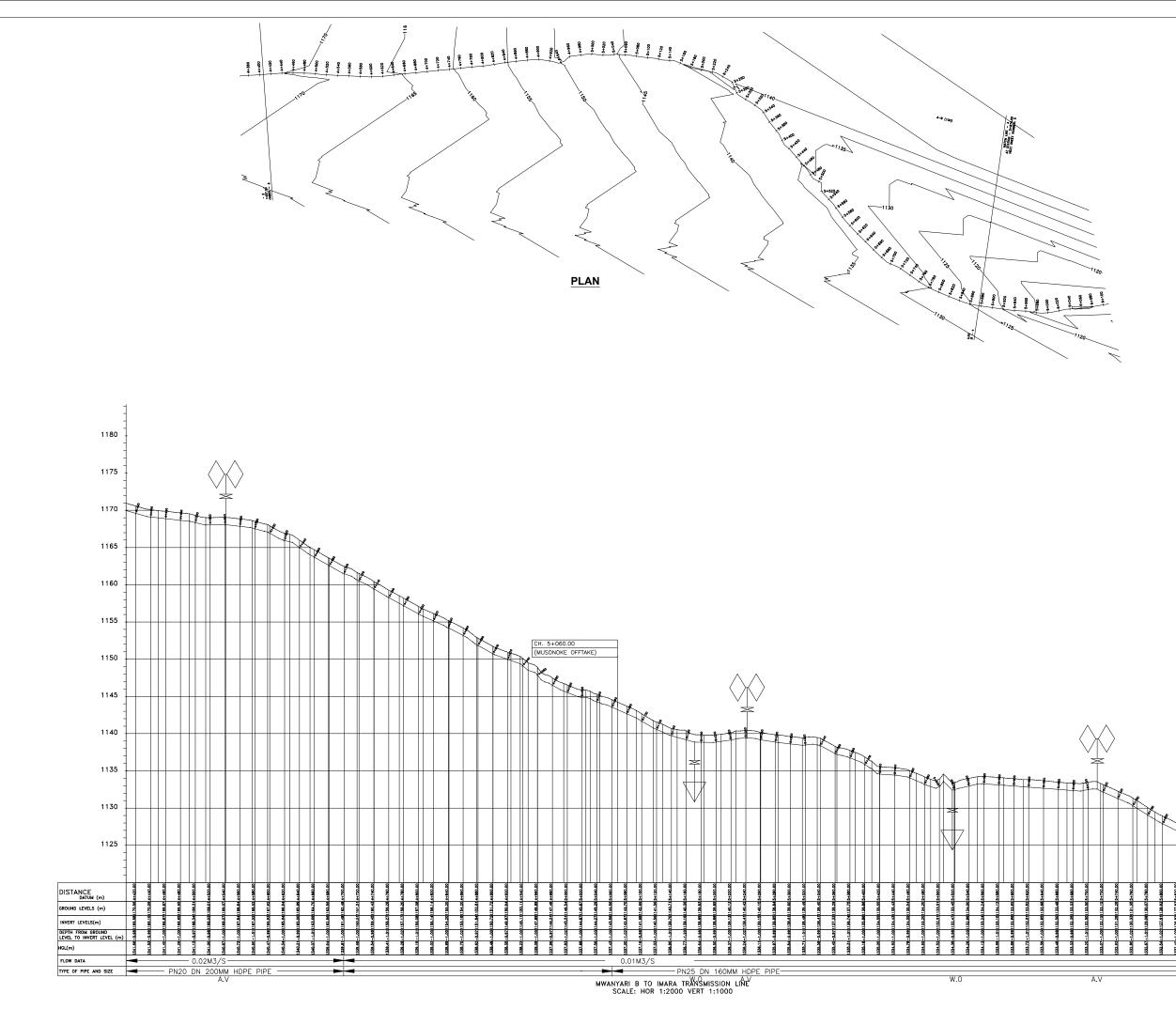


	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	 PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND: - proposed pipeline - existing ground profile
	- PIPE INVERT PROFILE
	– AIR VALVE
	dav – double air valve
19145) - 19125 -	\ - WASHOUT
1315.000 1317.000 1316.000	WO2 - WASHOUT TYPE 2
-1215 ******	DN – NOMINAL DIAMETER
	PN – NOMINAL PRESSURE
1210	
1226-000 1226-000 1207-000	HB – HORIZONTAL BEND – EXISTING STRUCTURE
1205	ER – EARTH ROAD
125.400	GR – GRAVEL ROAD
1200	
" "*** _1195	FOR CONSTRUCTION
1164.000 1164.000	signed CMTS
118400- 118400- 11990	REV REVISIONS SIGN DATE APPROVED
na	REV-4 BY CHECKED
196400 - 5 196400 - 5 196400 - 5 196400 - 5	REV-3
1185	CHECKED
196409 198409 198409	REV-2 CHECKED
1180	REV-USSUED FOR CONSTRUCTION BY CHECKED
1178.00 - 1178.00 -	CLIENT THE CHIEF EXECUTIVE
1177.600	OFFICER TANA WATER WORKS
-1175 "74400-	DEVELOPMENT AGENCY
1173.000	P. O. BOX 1292-10100 NYERI
1170	PROJECT
1188400 1188400	DESIGN FOR MBEERE SOUTH WATER
"#### "##### 	SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
116600 - 116600 - 116600 -	Civil/Structural Engineers
1160	CHIEF MANAGER TECHNICAL SERVICES
	TANA WATER WORKS
1155	DEVELOPMENT AGENCY P. O. BOX 1292-10100
8+720.00 8+720.00 8+740.00 8+740.00 8+740.00 8+740.00	NYERI
1159.04	Drawing Title
01158.94	MWANYARI B TO IMARA TRANSMISSION
1001-381 101-101 101-102 100 100-102 100 100-102 100 100-102 100 100-102 100 100-102 100 100-102 100 100 100 100 100 100 100 100 100	WATER LINE FROM CH.7+340.00-8+820.00
	SHEET 6 OF 13
PIPE	PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
	Scale 1:3750 Date NOV-2023
	Job No. 1.0 ACAD File: ACADFILENAME
	PD DRAWING No. TW/W/DA /MS/W/D /L 2 REV
	STATUS DRAWING NO. TWWDA/ MISWE/ L2 REV

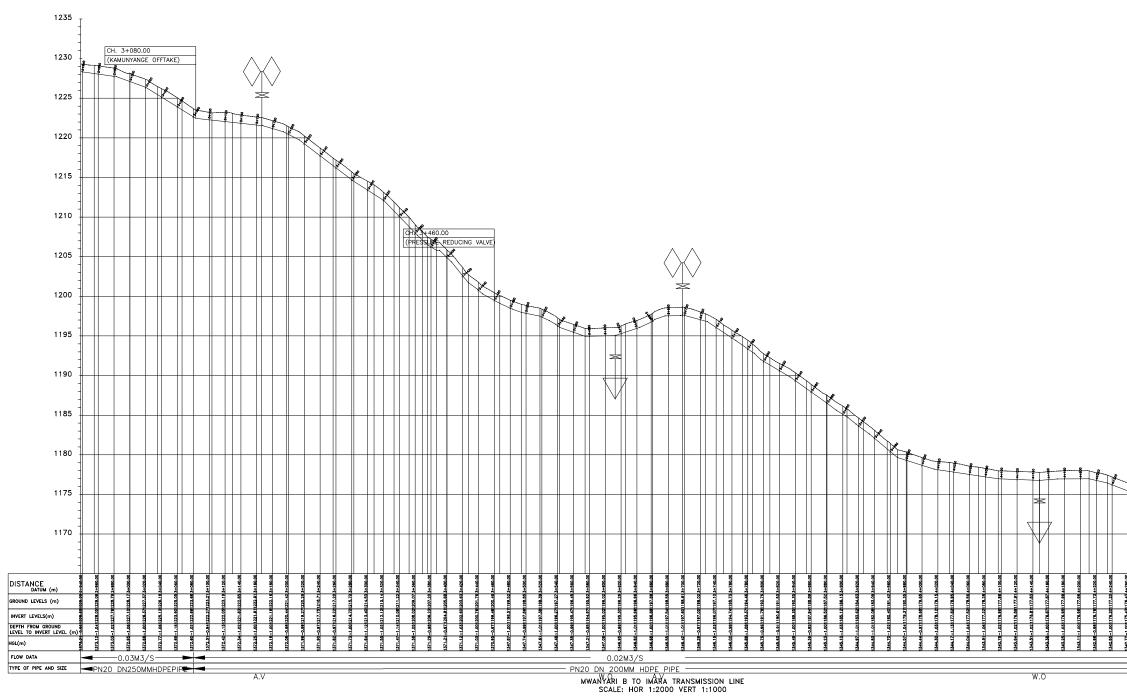


LONGITUDINAL SECTION OF MWANYARI B TO IMARA TRANSMISSION LINE

	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	 PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH
	CONCRETE.
	 ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED. IN WATER LOGGED AREAS. PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS
	AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER. LEGEND:
	- PROPOSED PIPELINE - EXISTING GROUND PROFILE - PIPE INVERT PROFILE
	- AIR VALVE
₁ 1175	DAV – DOUBLE AIR VALVE
	- WASHOUT
**************************************	WO2 - WASHOUT TYPE 2
	DN – NOMINAL DIAMETER PN – NOMINAL PRESSURE
11103 1940- 1940-	
	HB – HORIZONTAL BEND
1160	- EXISTING STRUCTURE
	ER – EARTH ROAD GR – GRAVEL ROAD
1155	
	FOR CONSTRUCTION
1145	signed CMTS
	REV R E V I S I O N S SIGN DATE APPROVED
1140g	REV-4 CHECKED
1199409- Č	REV-3 CHECKED
	REV-2 BY CHECKED
	REV-
	CLIENT THE CHIEF EXECUTIVE
1130	OFFICER
	TANA WATER WORKS DEVELOPMENT AGENCY
1125	P. O. BOX 1292-10100 NYERI
	PROJECT
1120	DESIGN FOR MBEERE SOUTH WATER
1116400 1118400 1112400	SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
1115	
- тафа – тафа –	Civil/Structural Engineers CHIEF MANAGER TECHNICAL
	SERVICES
	TANA WATER WORKS
	DEVELOPMENT AGENCY
	P. O. BOX 1292-10100 NYERI
	P. 0. BOX 1292-10100 NYERI
	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION
	P. O. BOX 1292-10100 NYERI Drawing Title
0.0001164.711165.712.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.0012.2000.00 0.0011164.0012.2000.00 0.0000.0000.00000000000000	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.5+880.00-7+340.00 SHEET 5 OF 13
20005.52 (1.51) (1.51) 2005.52 (1.51) 2005.52 (1.51	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.5+880.00-7+340.00 SHEET 5 OF 13 PLAN AND PROFILE DRAWINGS
0.081/14.7/11/16.7/2.2000	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.5+880.00-7+340.00 SHEET 5 OF 13 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G
0.0001164.711165.712.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.0012.2000.00 0.0011164.0012.2000.00 0.0000.0000.00000000000000	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.5+880.00-7+340.00 SHEET 5 OF 13 PLAN AND PROFILE DAT
0.0001164.711165.712.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.0012.2000.00 0.0011164.0012.2000.00 0.0000.0000.00000000000000	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.5+880.00-7+340.00 SHEET 5 OF 13 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M
0.0001164.711165.712.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.001164.0012.2000.00 0.001164.001164.0012.2000.00 0.0011164.0012.2000.00 0.0000.0000.00000000000000	P. O. BOX 1292-10100 NYERI Drawing Title MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM CH.5+880.00-7+340.00 SHEET 5 OF 13 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M Scale 1:3750 Date NOV-2023

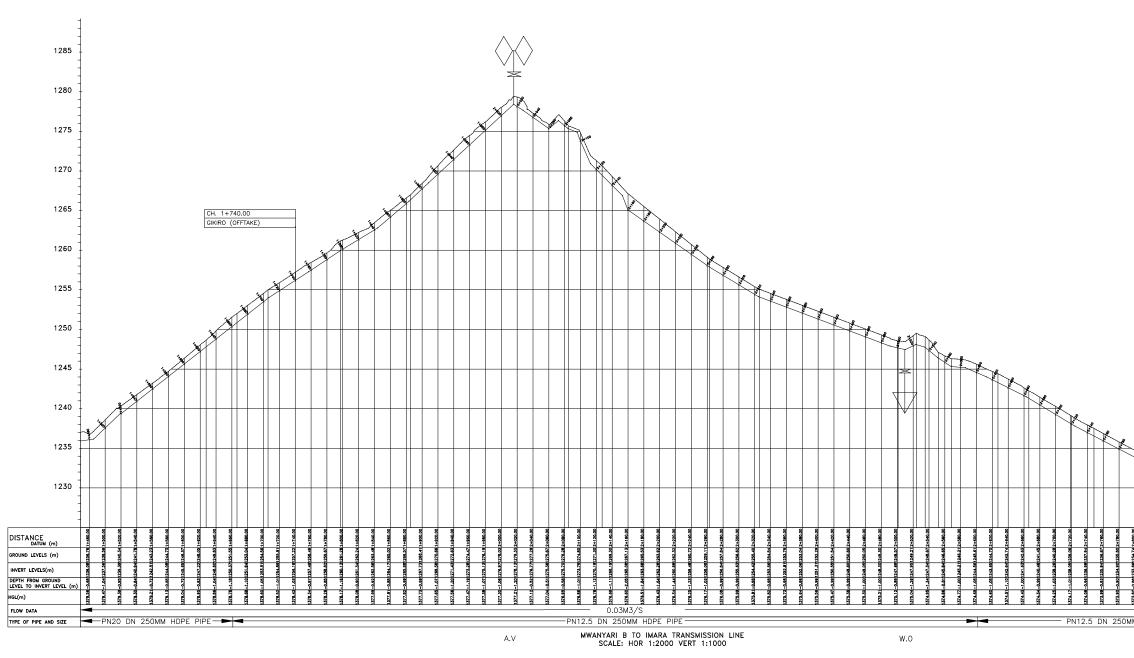


	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- -	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
1120.	LEGEND:
 3 8	- PROPOSED PIPELINE - EXISTING GROUND PROFILE
	- PIPE INVERT PROFILE
	- AIR VALVE
N N N N N N N N N N N N N N N N N N N	DAV – DOUBLE AIR VALVE
	- WASHOUT
194400	
191200 - 191200 - 191200 -	WO2 – WASHOUT TYPE 2 DN – NOMINAL DIAMETER
11 1 {	PN – NOMINAL PRESSURE
1178.000 — 1177.000 —	
111	HB – HORIZONTAL BEND
1174.000 - 1172.000 - 1172.000 -	- EXISTING STRUCTURE
177.000 -111	GR – EARTH ROAD
1188.000	
1192###- 1198### -111	
1982.000 - 1987.000 -	FOR CONSTRUCTION
-111 	signed CMTS
1188780 - 118780 - 118880 -	REV R E V I S I O N S SIGN DATE APPROVED
-11! 	REV-
1182.000 - 1182.000 -	REV-3 CHECKED
******** -11!	REV-2 BY CHECKED
1142.000	REV- ISSUED FOR CONSTRUCTION BY
"******- "******- +11/	
1144200 - 1142200 - 1142200 -	OFFICER
112.000- 11.1	TANA WATER WORKS DEVELOPMENT AGENCY
	P. O. BOX 1292-10100
	NYERI
11.	
	DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT;
11:	LOT 2-KAMBURU WATER SUPPLY
	Civil/Structural Engineers
	CHIEF MANAGER TECHNICAL SERVICES
	TANA WATER WORKS
	DEVELOPMENT AGENCY P. O. BOX 1292-10100
	NYERI
132.132.132.132.132.132.132.132.132.132.	Drawing Title
132.151 131.28113 128.08113 128.09113 128.692112 128.692112 128.692112 128.692112	MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM
	CH.4+420.00-5+880.00
	SHEET 4 OF 13 PLAN AND PROFILE DRAWINGS
	Designed by A.M.M Drawn by G.M.G
A.V	Checked by J.M.M Approved by D.N.M
	Scale 1:3750 Date NOV-2023
	Job No. 1.0 ACAD File: ACADFILENAME
	PD status drawing n₀. TWWDA/MSWP/L2

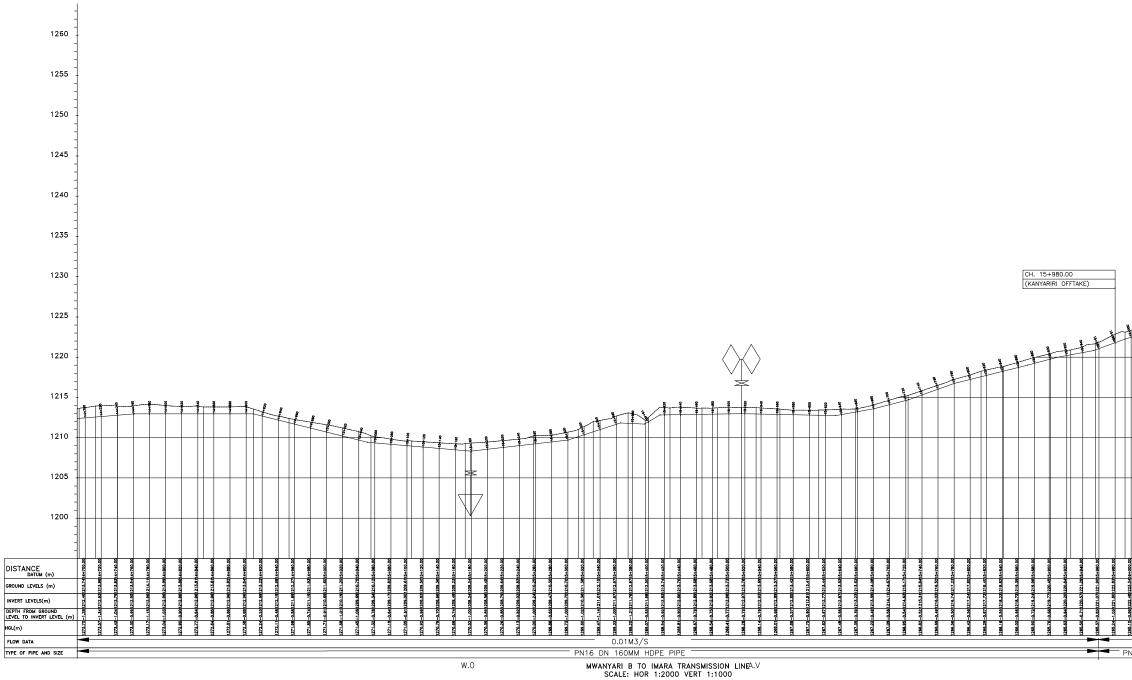


	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA
	LEVEL.
	2. COORDINATES ARE BASED ON UTM.
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
14480	 GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
1170	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH
	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	 IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND:
	– PROPOSED PIPELINE – EXISTING GROUND PROFILE
	- PIPE INVERT PROFILE
¹²³⁵	- AIR VALVE
19469 - 19469 - 19469 - 19469 -	DAV – DOUBLE AIR VALVE
-1230	- WASHOUT
1225	WO2 - WASHOUT TYPE 2
151400	DN – NOMINAL DIAMETER
122.000	PN – NOMINAL PRESSURE
-1220 	
+358.000 1977.000	HB - HORIZONTAL BEND
1215	- EXISTING STRUCTURE
155400 161400	ER – EARTH ROAD GR – GRAVEL ROAD
1210	
1 Z I U 	
1205	FOR CONSTRUCTION
	signed CMTS
-1200	REV R E V I S I O N S SIGN DATE APPROVED
1198.00 - 🖬 198.000 -	BY BY
11748 - 111468 -	CHECKED
-1195	REV-5 CHECKED
1786.000 - 1786.000 -	REV-2 BY CHECKED
-1190	REV-
1188.000 1188.000	
118400 - 118400 - 1 1 O E	OFFICER
-1185 	TANA WATER WORKS DEVELOPMENT AGENCY
++EL60 +12000	P. O. BOX 1292-10100
1180	NYERI
176400	PROJECT
1175	DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY
	Civil/Structural Engineers
	CHIEF MANAGER TECHNICAL SERVICES
	TANA WATER WORKS
	DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI
1991 1992 1997 1997 1997 1997 1997 1997	Drawing Title
	MWANYARI B TO IMARA TRANSMISSION WATER LINE FROM
	CH.2+940.00-4+420.00 SHEET 3 OF 13
	PLAN AND PROFILE DRAWINGS
	Designed by A.M.M Drawn by G.M.G
	Checked by J.M.M Approved by D.N.M
	Scale 1:3750 Date NOV-2023 Job No. 1.0 ACAD File: ACADFILENAME
	PD DDWWWD N TWWDA (MCWD (LOBEV
	STATUS DRAWING No. TWWDA/MSWP/L2

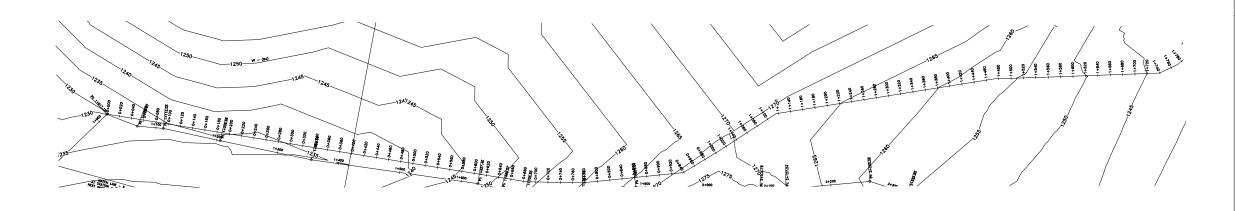
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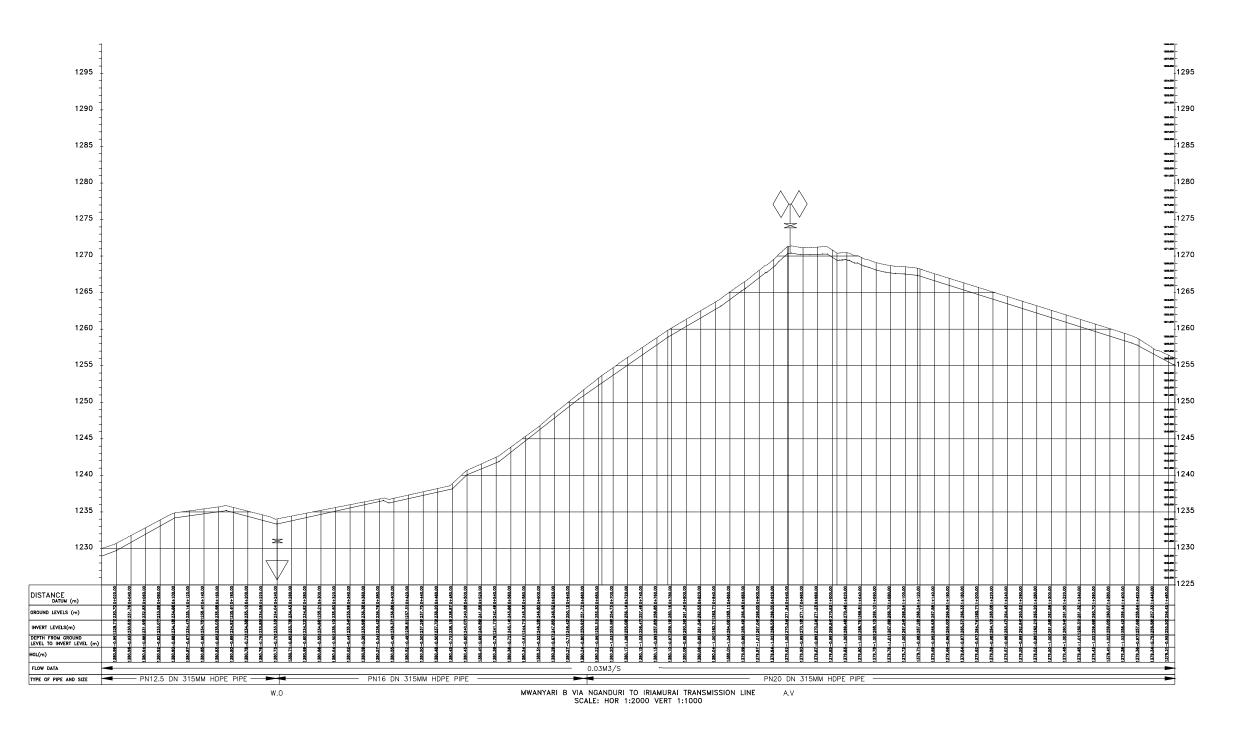


LEVEL 2. COORDINATES ARE BASED ON UTW. 3. BOOMMATE SARE BASED ON UTW. 3. BOOMMATES AND OTHER THINDS AS USED AND INVERTINGE DIRECTED BY THE ENVINCER ON SITE OF THE ENVINCER ON UTWER LODGED AREAS, POPE THE ENVINCENCES STATE. 4. CARTHER OR OR THE STATE AND THE CONCERTE SURPOUNDED WITH CONCENTS STATE. 5. PROPOSED PIPELINE 4. CONCENTS 4. CARTHER OF THE SURPOUNDED WITH CONCENTS 5. PROPOSED PIPELINE 4. CONCENTS 5. PROPOSED PIPELINE 5. ARE DATE OF THE SURPOUNDED 5. CONCENTS 5. PROPOSED PIPELINE 5. ARE DATE OF THE SURPOUNDED 5. CONCENTS 5. PROPOSED PIPELINE 5. ARE DATE OF THE SURPOUNDED 5. CONCENTS 5. PROPOSED PIPELINE 5. ARE DATE		
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		1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH
AMPORT BLOY THE A MAYBER LEGEND: LEGEND: LEGEND: - PROPOSED PIPELINE </th <th></th> <th>6. ALL BENDS ARE HORIZONTAL UNLESS</th>		6. ALL BENDS ARE HORIZONTAL UNLESS
PROPOSED PIPELINE EXISTING GROUND PROFILE PIPE INVERT PROFILE AIR VALVE DAV - DOUBLE AIR VALVE Vashout TYPE 2 DN - NOMINAL DIAMETER PN - ORAVEL ROAD EXISTING STRUCTURE ER - EARTH ROAD CR - GRAVEL ROAD EXISTING STRUCTURE ER - EARTH ROAD CR - GRAVEL ROAD EVIDENCIAL DIAMETER PN - NOMINAL PRESSURE HB - HORIZONTAL BEND ENTITIE ENTITIE ENTITIE PN - NOMINAL DIAMETER PN - OR DOX 1292-10100 PN - OR DOX 1292-10100 PN - OR DOX 1292-10100 PN - NOMINAL PRESSURE PN - NOMINAL DIAMETER SUPPLY CHI//Structure Ender CHI//Structure Ender MINDER		BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS
PIPE INVERT PROFILE AR VALVE DAV DUBLE AR VALVE DAV DUBLE AR VALVE DAV DUBLE AR VALVE DAV DUBLE AR VALVE DAV DUBLE AR VALVE DAV DUBLE AR VALVE DAV DUBLE AR VALVE DUBLE AR VALVE <		PROPOSED PIPELINE
DAV - DOUBLE AR VALVE - WASHOUT - WASHOUT TYPE 2 DN - NOMINAL DIAMETER PN - NOMINAL PRESSURE HB - HORIZONTAL BEND BE - GRAVEL ROAD IZ250 - EXISTING STRUCTUON IZ250 - EXISTING STRUCTURE IZ250 - EXISTING STRUCTURE IZ250 - EXISTING STRUCTURE IZ250 - EXISTING STRUCTURE IZ250		
- WASHOUT WO2 - WASHOUT TYPE 2 DN - NOMINAL DIAMETER PN - EXISTING STRUCTURE ER - EARTH ROAD GR - GRAVEL ROAD T255 T25 T255 T255 T25 T		- AIR VALVE
W02 - WASHOUT TYPE 2 DN - NOMINAL DIAMETER PN - NOMINAL PRESSURE HB - HORIZONTAL BEND 1270		DAV – DOUBLE AIR VALVE
1285 W02 - WASHOUT TYPE 2 1280 N - NOMINAL DAMETER 1280 HB - HORIZONTAL BEND 1270 EXISTING STRUCTURE 1270 ER - EXISTING STRUCTURE 1270 ER - CARTH ROAD 1270 RV - CARTH ROAD 1260 RV - CARTH ROAD 1250 Image: CARTH ROAD RV - 1250 Image: CARTH ROAD RV - 1250 Image: CARTH ROAD RV - 1250 Image: CARTH ROAD - - 1250 Image: CARTH ROAD - <t< th=""><th>••••†</th><th>\ - WASHOUT</th></t<>	• •• •†	\ - WASHOUT
1280 PN - NOMINAL PRESSURE 1280 HB - HORIZONTAL BEND 1275 ER - EARTH ROAD 1270 FOR CONSTRUCTION - ER 1260 FOR CONSTRUCTION - 1260 FOR CONSTRUCTION - 1260 FOR CONSTRUCTION - 1250 FOR CONSTRUCTION - 1260 FOR CONSTRUCTION - 1270 FOR CONSTRUCTION - 1280 FOR CONSTRUCTION - 1280 FOR CONSTRUCTION - 1280 FOR CONSTRUCTION - 1280		
1280 HB - HORIZONTAL BEND 1275 - EXISTING STRUCTURE 1270 - ER - 1270 - - EARTH ROAD 1270 - - ER - 1270 - - ER - 1270 - - - ER - 1280 FOR CONSTRUCTION - - - 1250 - - - - - 1250 - - - - - 1250 - - - - - - 1250 - - - - - - - 1250 - <th>1384.000</th> <th></th>	1384.000	
HB - HORIZONTAL BEND - HB - HORIZONTAL BEND - EXISTING STRUCTURE ER - EARTH ROAD GR - GRAVEL ROAD - GRAVEL		
- EXISING SIRUCIONE ER - EARTH ROAD GR - GRAVEL ROAD	1278.000	
GR – GRAVEL ROAD GR – GRAVEL	1177aa - 1770aa -	
1270 1260 1260 1250 1240 1250 1240 1250 1240 1250 1240 1250 1240 1250 1240 1240 1250 1240 1251 1240 1251 1252 1253 1254 1255 126 1270 <tr< th=""><th>1374000 -</th><th></th></tr<>	1374000 -	
1255 BY REV BY 1250 CHECKED 1250 CHECKED 1245 CHECKED 1245 CHECKED 1245 CHECKED 1246 CHECKED 1247 CHECKED 1248 CHECKED 1249 CHECKED 1240 CHECKED 1250 CHECKED 1250 CHECKED 1251 CHECKED 1252 CHECKED 1253 CHECKED 1254 CHECKED	uaan - - 1265 uuaa - uuaa - uuaa - 1260 uuaa -	signed CMTS REV R. E. V. I. S. I. O. N. S. SIGN DATE APPROVED REV- BY CHECKED BY BY
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1250 1245 1245 1246 1247 1248 1249 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1240 1250 <t< th=""><th>1986.000 - 1986.000 - 1986.000 -</th><th>CHECKED</th></t<>	1986.000 - 1986.000 - 1986.000 -	CHECKED
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	NOTES	
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.	
	2. COORDINATES ARE BASED ON UTM.	
	 LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE. 	
	4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.	
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.	
	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.	
	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.	
	LEGEND: - proposed pipeline	
	- EXISTING GROUND PROFILE	
	PIPE INVERT PROFILE	
	- AIR VALVE	
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-125 	WO2 – WASHOUT TYPE 2	
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-124 *****	HB - HORIZONTAL BEND	
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LONGITUDINAL SECTION OF MWANYARI B VIA NGANDURI TO IRIAMURAI TRANSMISSION LINE

NOTES

- 1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
- 2. COORDINATES ARE BASED ON UTM.
- LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
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- ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

LEGEND:

- PROPOSED PIPELINE
- ----- EXISTING GROUND PROFILE
 - PIPE INVERT PROFILE
- – EXISTING ROAD $\langle \! \! \rangle$
 - AIR VALVE

DAV

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WO1

WO2

DN

ΡN

VB

ΗВ

ER

GR

- DOUBLE AIR VALVE
- WASHOUT
- WASHOUT TYPE 1
- WASHOUT TYPE 2
- NOMINAL DIAMETER
- NOMINAL PRESSURE
- VERTICAL BEND
- HORIZONTAL BEND
- EXISTING STRUCTURE
- EARTH ROAD
- GRAVEL ROAD
- CUT

FOR CONSTRUCTION signed CMTS

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THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI

PROJECT

DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY

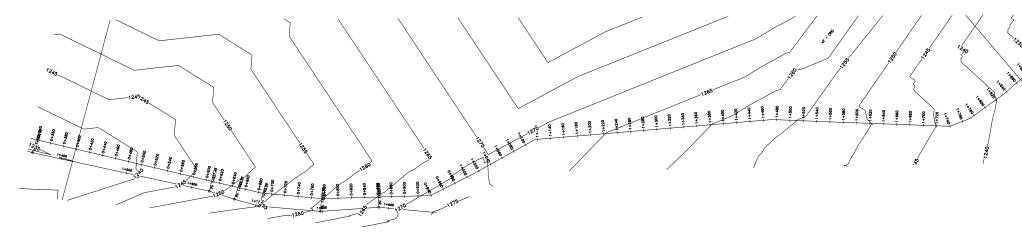


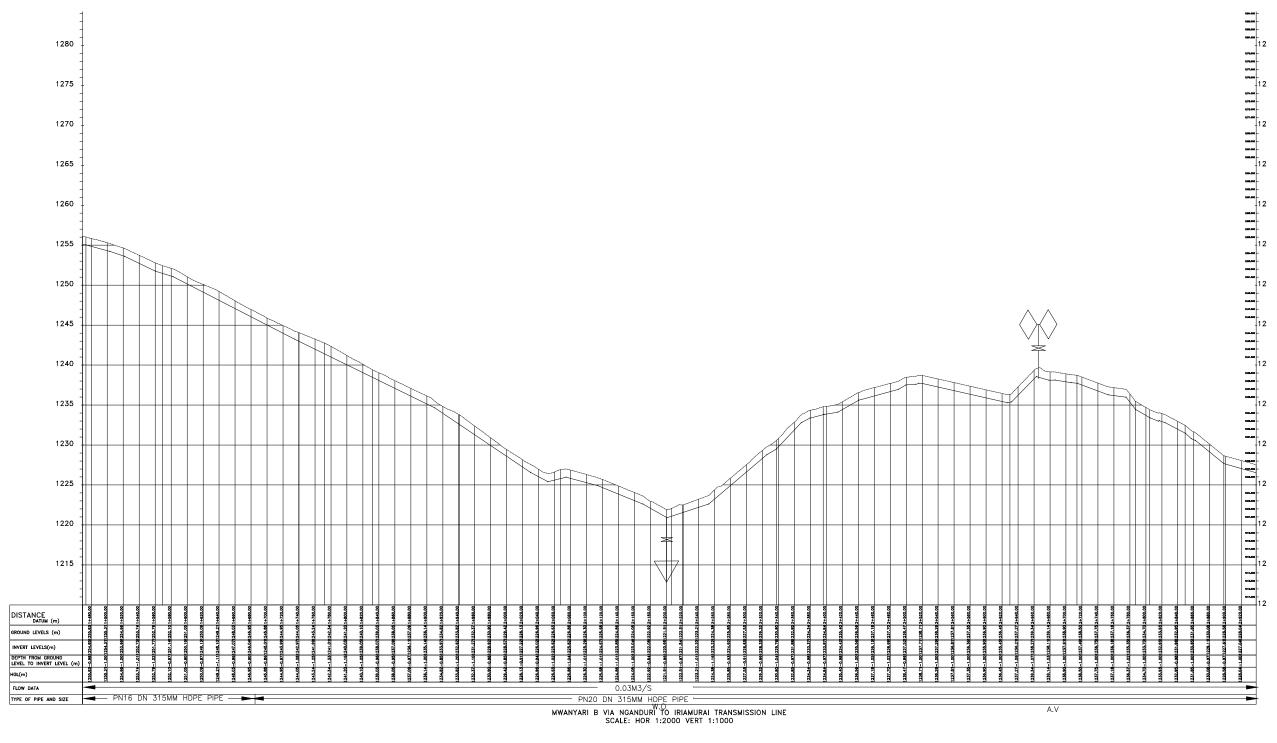
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Drawina Title MWANYARI B VIA NGANDURI TO IRIAMURAI TRANSMISSION WATER LINE FROM CH. O+000.00 - 1+460.00 SHEET 1 OF 12

PLAN AND PROFILE DRAWINGS

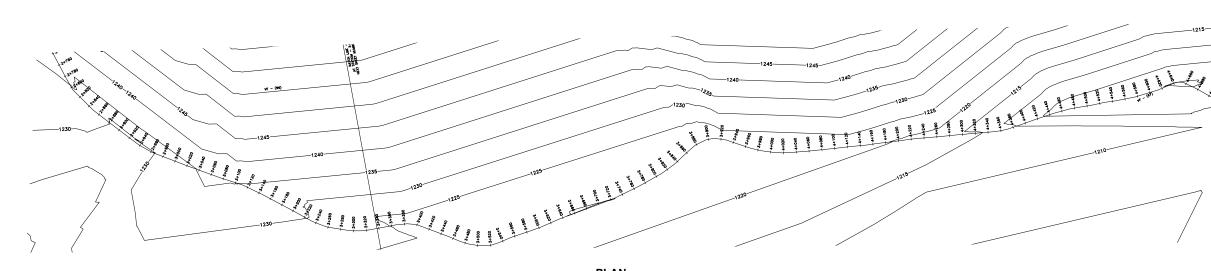
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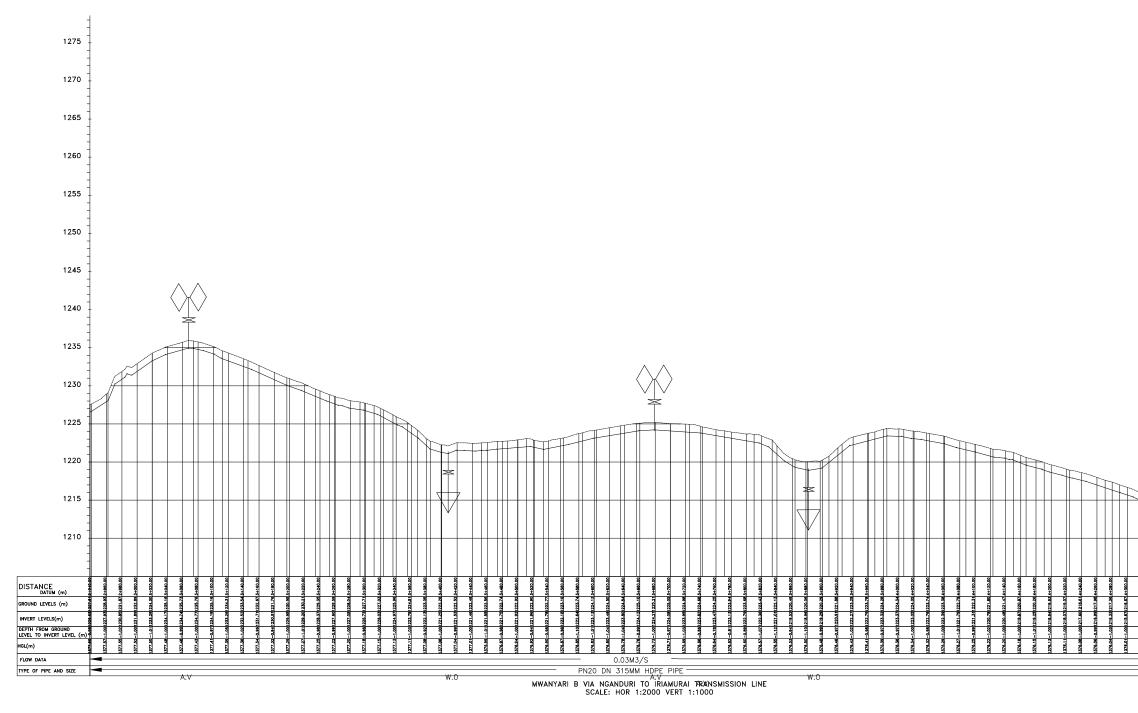




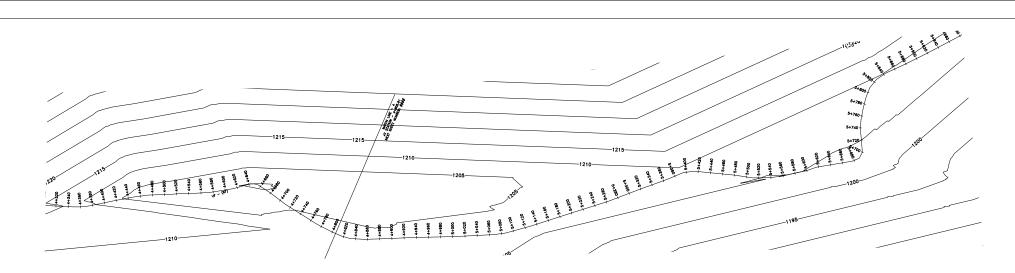


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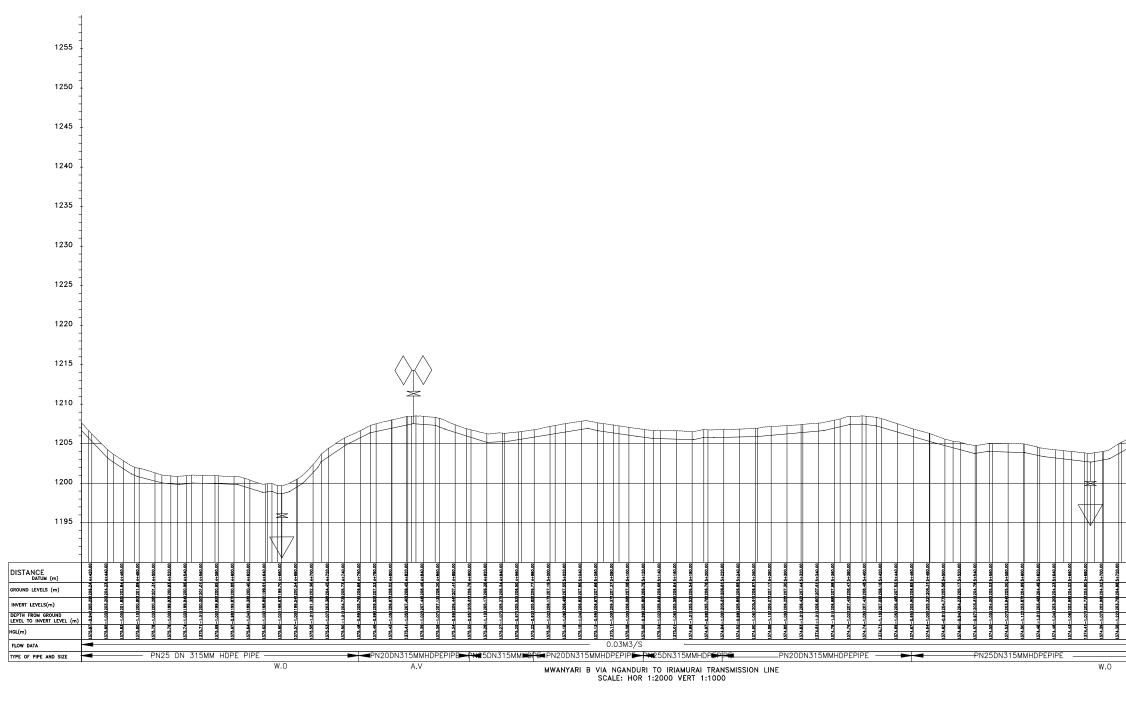




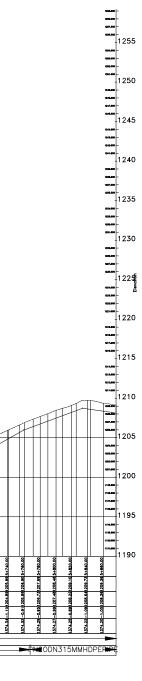
	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
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	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND:
	- EXISTING GROUND PROFILE
1574.600	- EXISTING ROAD
1275	DAV – AIR VALVE
1274400 - 1272400 - 1272400 -	↓
1270 	- WASHOUT
	W01 – WASHOUT TYPE 1 W02 – WASHOUT TYPE 2
1265	DN – NOMINAL DIAMETER
1321.000 1321.000	PN – NOMINAL PRESSURE
1260	VB - VERTICAL BEND
1334.000 - 1537.400 -	HB – HORIZONTAL BEND - EXISTING STRUCTURE
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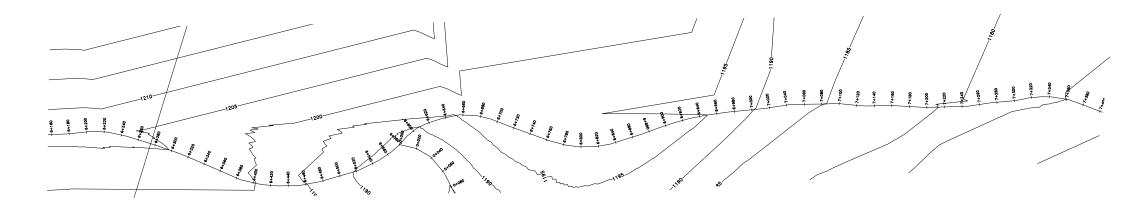


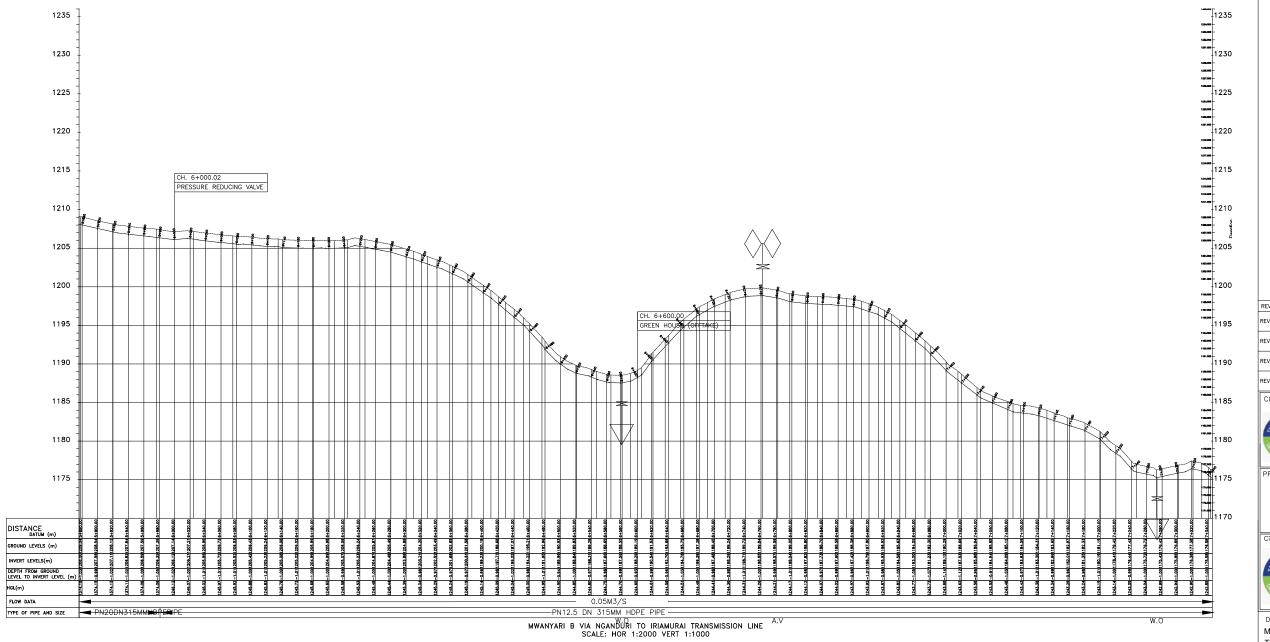
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	EXISTING GROUND PROFI	LE	
	- PIPE INVERT PROFILE		
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1284.000 - 1284.000 - 1284.000 -	↓ ↓ – WASHOUT		
-1255 			
1384.000	WO1 - WASHOUT TYPE 1 WO2 - WASHOUT TYPE 2		
1250	DN – NOMINAL DIAMETER		
1241.000	PN – NOMINAL PRESSURE		
1344.000 - 1344.000 - 1.07.4 E	VB – VERTICAL BEND		
-1245	HB – HORIZONTAL BEND		
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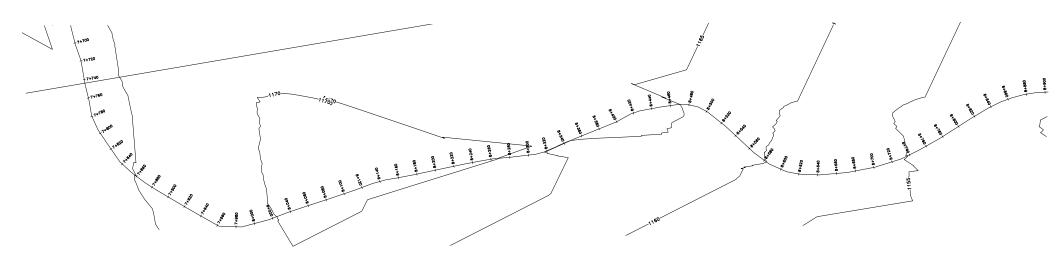


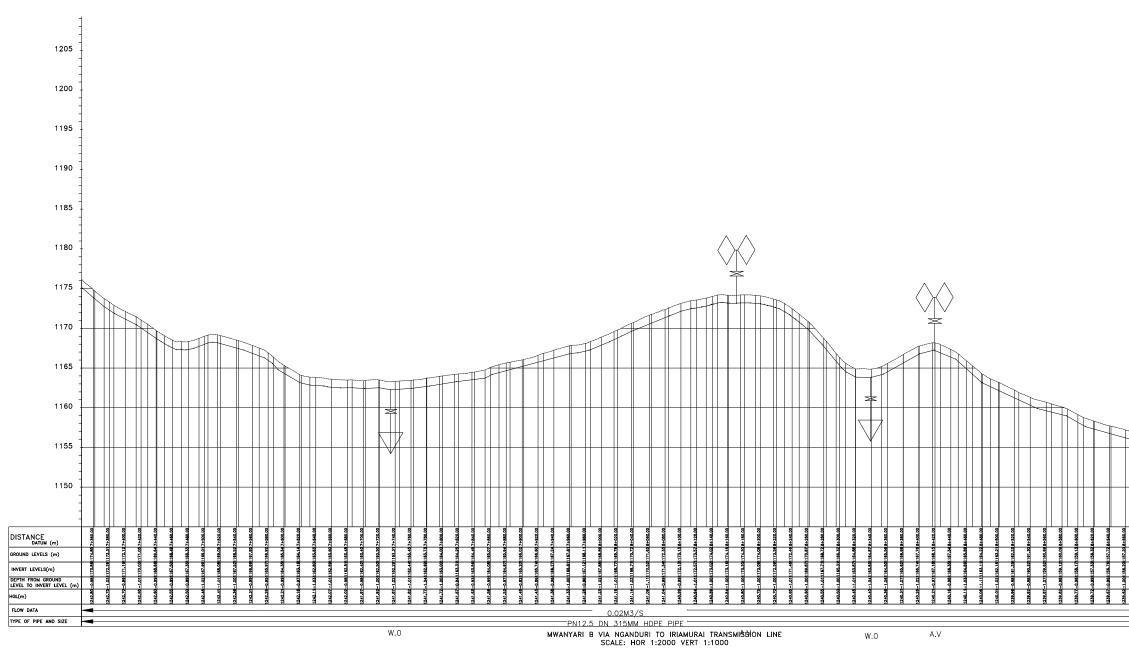




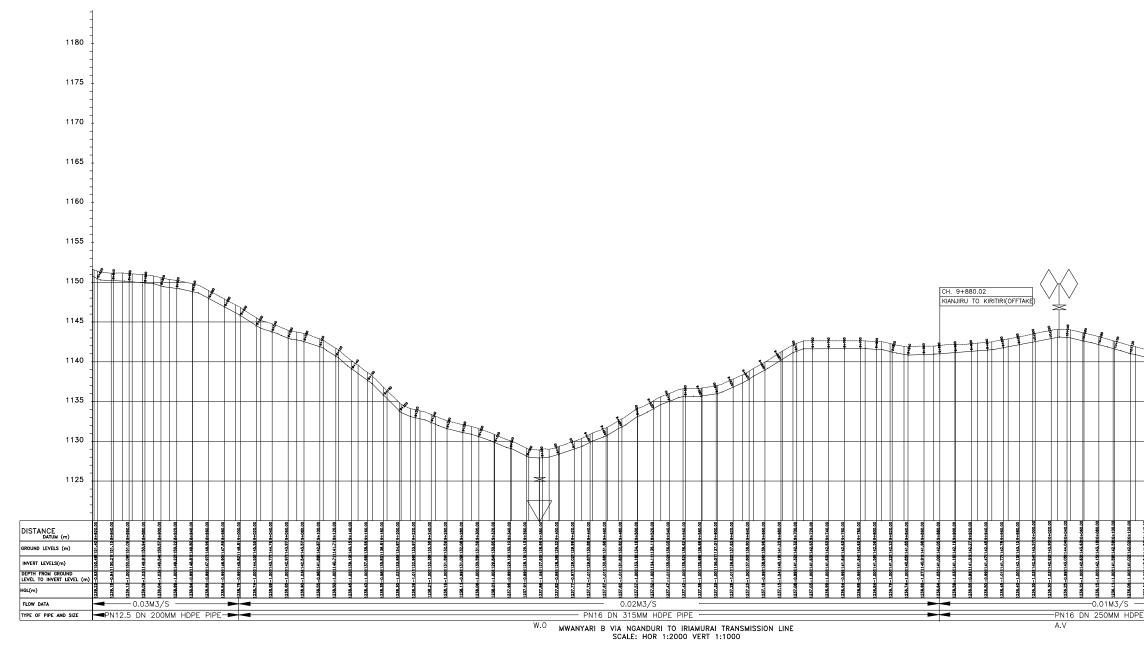
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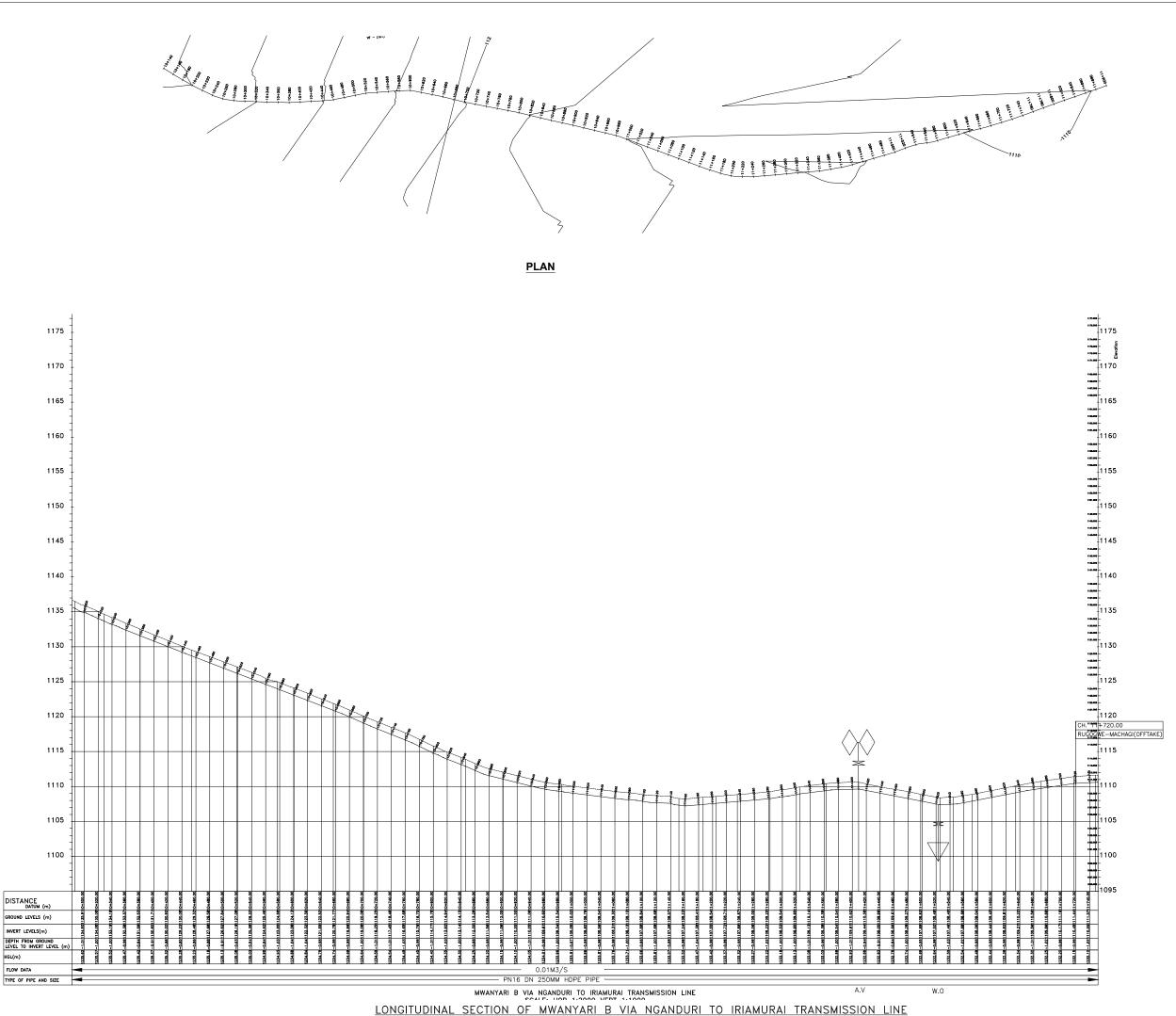




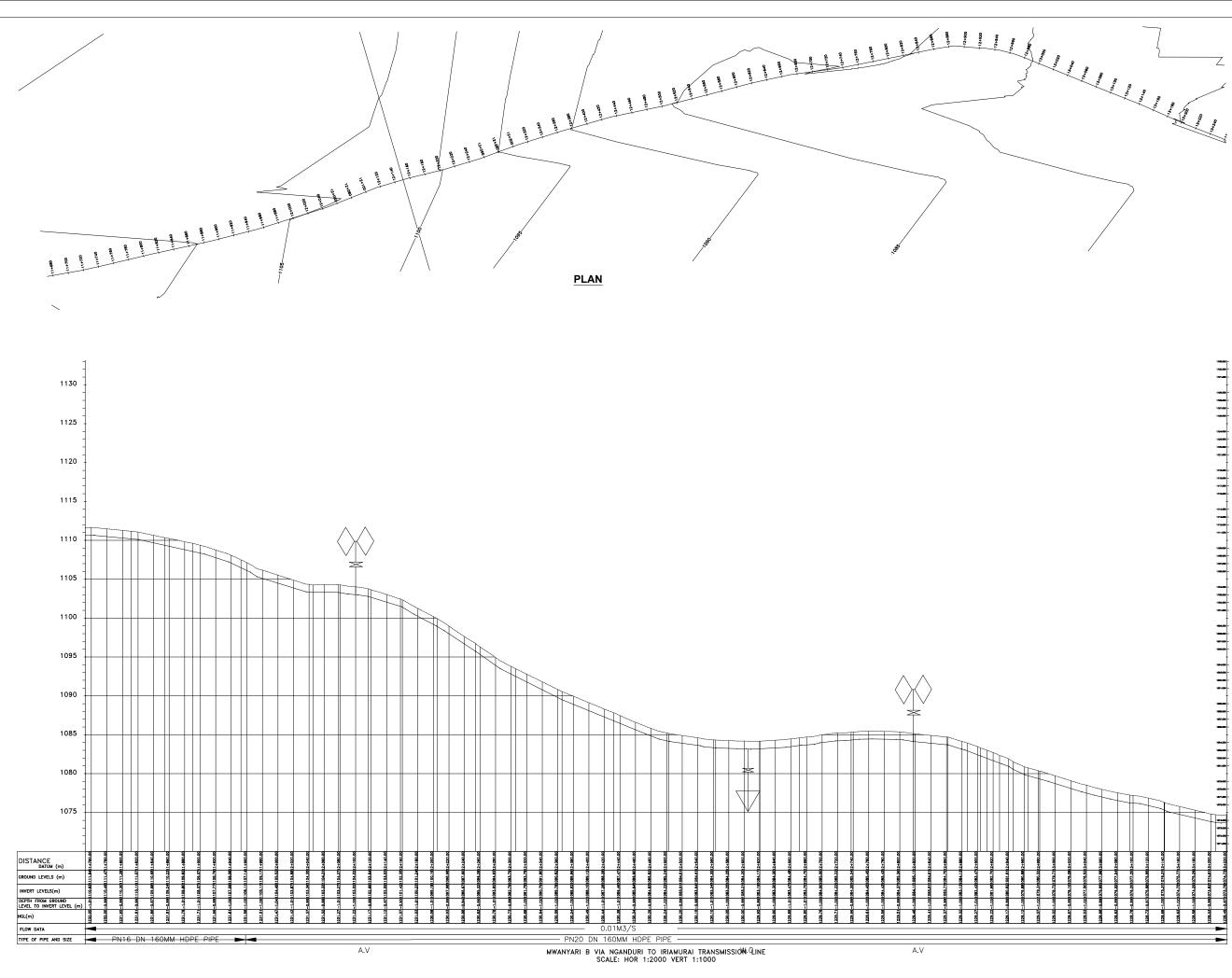
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	- PROPOSED PIPELINE
	- EXISTING GROUND PROFILE
	- PIPE INVERT PROFILE
	– AIR VALVE DAV – DOUBLE AIR VALVE
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135.65	- WASHOUT
132740 - 132740 - 138740 -	WO2 - WASHOUT TYPE 2
-1205 *****	DN – NOMINAL DIAMETER
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	- AIR VALVE
	DAV – DOUBLE AIR VALVE
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NOTES

- 1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
- 2. COORDINATES ARE BASED ON UTM.
- LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
- GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
- ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
- IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
 - LEGEND:
 - PROPOSED PIPELINE
 - EXISTING GROUND PROFILE
 - PIPE INVERT PROFILE
 - AIR VALVE
 - DOUBLE AIR VALVE
 - WASHOUT

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- WASHOUT TYPE 2 WO2
 - NOMINAL DIAMETER
 - NOMINAL PRESSURE
- HORIZONTAL BEND ΗB
 - EXISTING STRUCTURE
 - EARTH ROAD
 - GRAVEL ROAD

FOR CONSTRUCTION

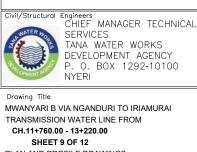
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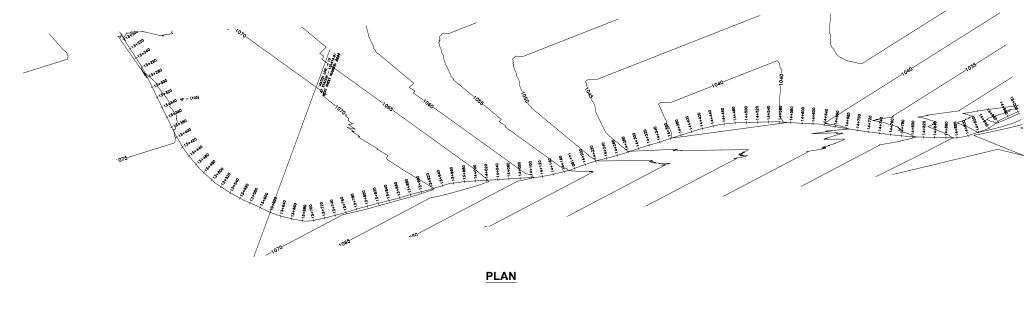
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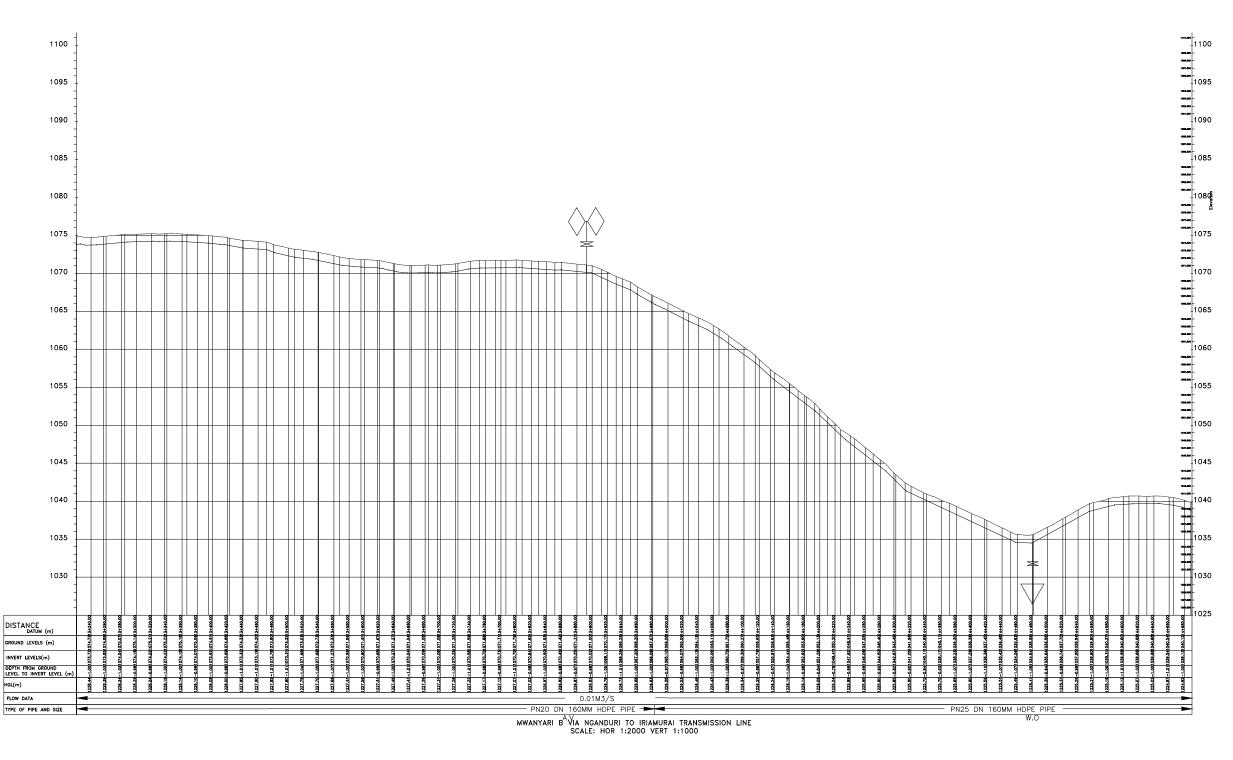
THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI

DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY

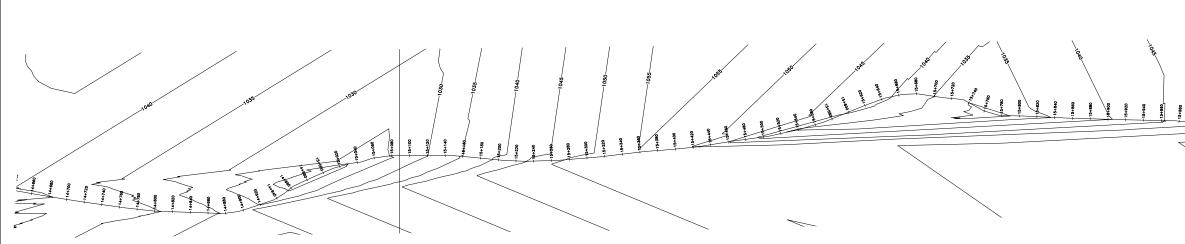


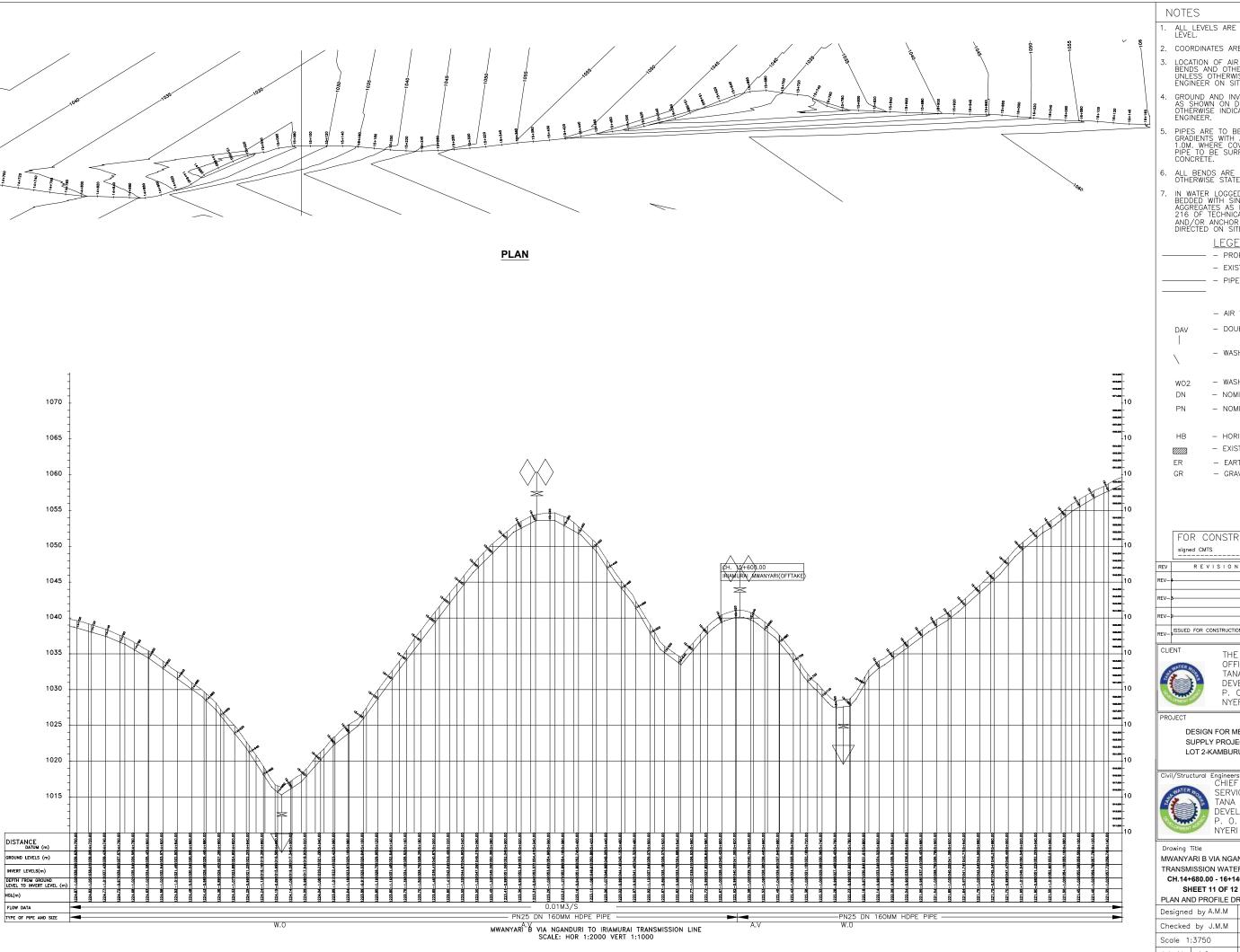
PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G Checked by J.M.M Approved by D.N.M Date NOV-2023 Scale 1:3750 Job No. 1.0 ACAD File: ACADFILENAME PD STATUS DRAWING No. TWWDA/MSWP/L2





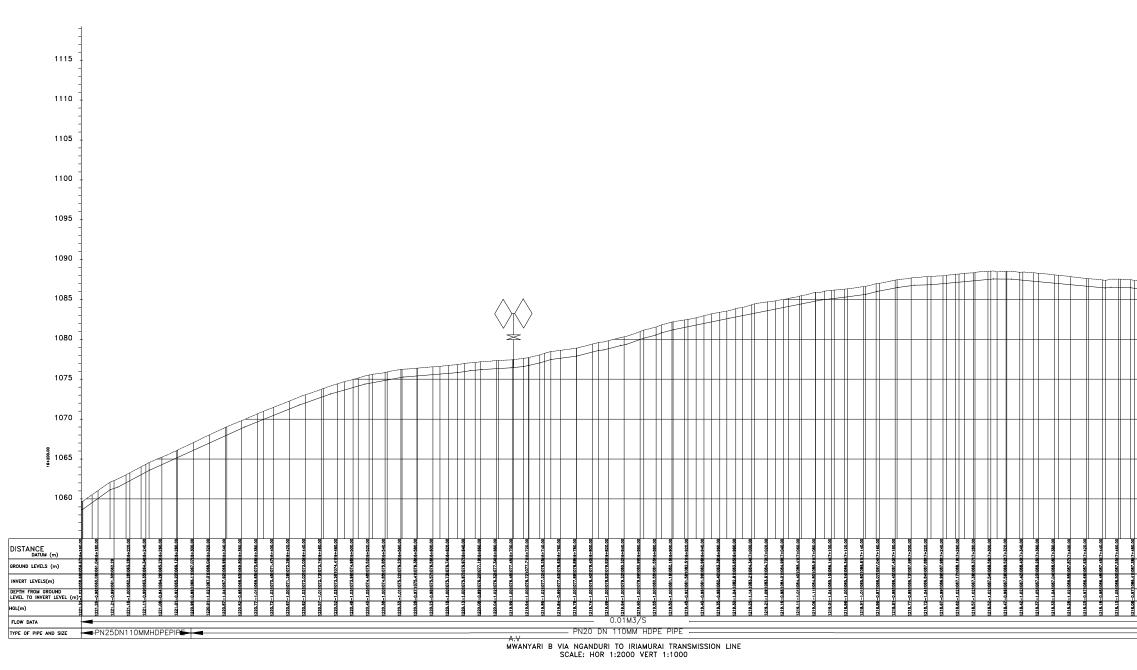
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1. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL. 2. COORDINATES ARE BASED ON UTM. LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER. LEGEND: - PROPOSED PIPELINE - EXISTING GROUND PROFILE - PIPE INVERT PROFILE - AIR VALVE - DOUBLE AIR VALVE - WASHOUT - WASHOUT TYPE 2 - NOMINAL DIAMETER - NOMINAL PRESSURE - HORIZONTAL BEND - EXISTING STRUCTURE - EARTH ROAD - GRAVEL ROAD FOR CONSTRUCTION REVISIONS SIGN DATE APPROVED CHECKED BY CHECKED BY СНЕСКЕ REV-ISSUED FOR CONSTRUCTION BY CHECKED THE CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI DESIGN FOR MBEERE SOUTH WATER SUPPLY PROJECT; LOT 2-KAMBURU WATER SUPPLY Civil/Structural Engineers CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O. BOX 1292-10100 NYERI MWANYARI B VIA NGANDURI TO IRIAMURAI TRANSMISSION WATER LINE FROM CH.14+680.00 - 16+140.00 SHEET 11 OF 12 PLAN AND PROFILE DRAWINGS Designed by A.M.M Drawn by G.M.G Approved by D.N.M

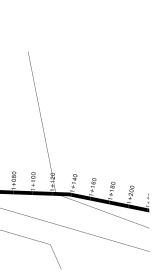
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	- PIPE INVERT PROFILE
	- AIR VALVE
	DAV – DOUBLE AIR VALVE
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-1115	DN – NOMINAL DIAMETER
1114000 - 1112000 -	PN – NOMINAL PRESSURE
1112.000	
-1110 ·······	HB – HORIZONTAL BEND
1988.000 - 1987.000 -	- EXISTING STRUCTURE
1105	ER – EARTH ROAD
1964280 -	GR – GRAVEL ROAD
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EXISTING GROUND LEVEL	(m) (m)		1029.90 0 1029.73 0				-	1028.84 0 1028.66 0		1028.31 0 1028.13 0			1027.30 0 1076 99 0					0 1025.41 0 0 1025.10 0	-			1023.84 0 1023.53 0				1021.95 0	1021.64 0	_		1020.69 0 1020.22 0		1019.25 0		1018.28 0 1017.80 0				1015.86 0 1015.39 0		_	1014.25 1 1013.89 1		
INVERT LEVELS (m)	1028.76		1028.40 1028.23	1028.05	1027.87			1027.34 1027.16	1026.99	1026.81 1026.63	1026.43	1026.12	1025.80		1024.86	1024.54	1023.91	1023.91		1022.97	-	1022.34 1022.03		1021.40	-	1020.45	1020.14	1019.82	-	1019.05 1018.59		1017.68		1016.77 1016.31		1015.40		1014.48 1014.02		1013.11	1012.75 1012.39		
DEPTH OF NVERT (m)	0.5 0.5		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.64 1.62	1.60	1.57		1.51	1.46	1.43	1.40	1.38 1.36	1.41	1.50		1.49	_
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION																							- RE	D LO	AM SC	DIL —																	
						-1:112	2.83													-1:63.5														-1:	43.77								_
SLOPE OF PIPE (H/V)							2.00													1.00.0	5													1									-1



NOTES: . CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS

- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE

CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:

 \bigcirc



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

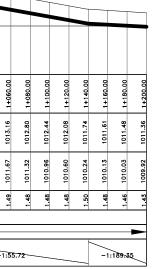
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

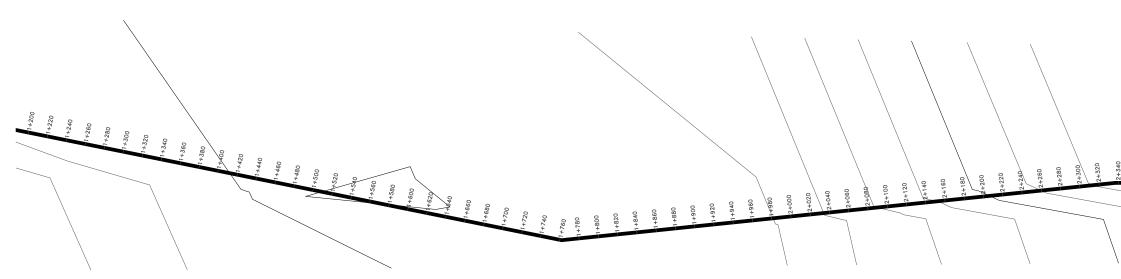
DRAWING TITLE: KABUGURI-RURII DISTRIBUTION LINE

CH. 0+000.00 - 1+200.00 SHEET 1 OF 5

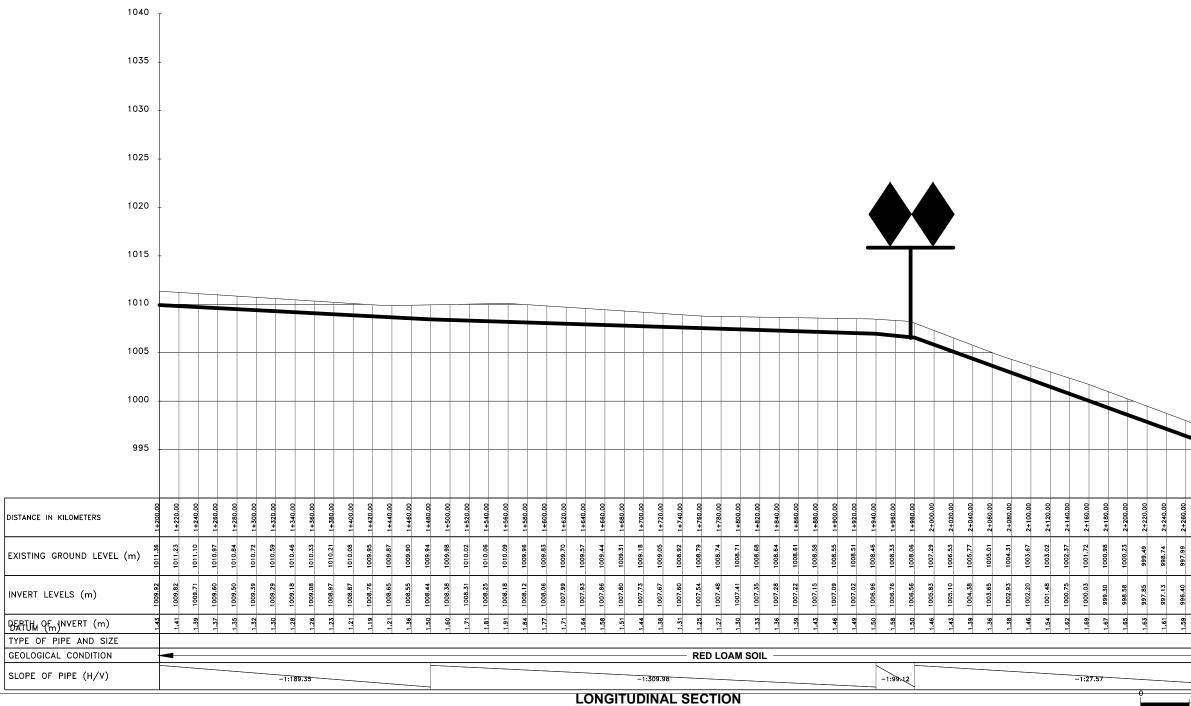
	Designed by: K.N.G	Drawn by: A.M.M	
-	Checked by: J.M.M	Approved by: D.N.M	
	Scale: 1:1000	Date: DEC 2023	
 200m	DRG No. KWSP/	KB-RRDL/01	
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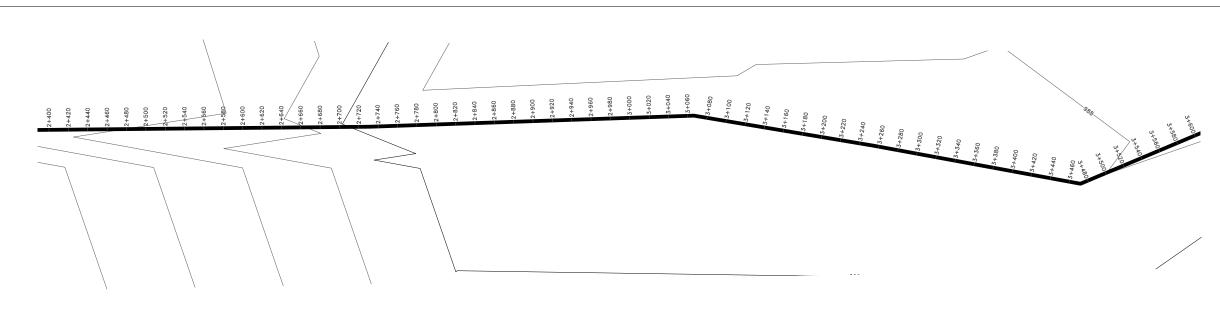
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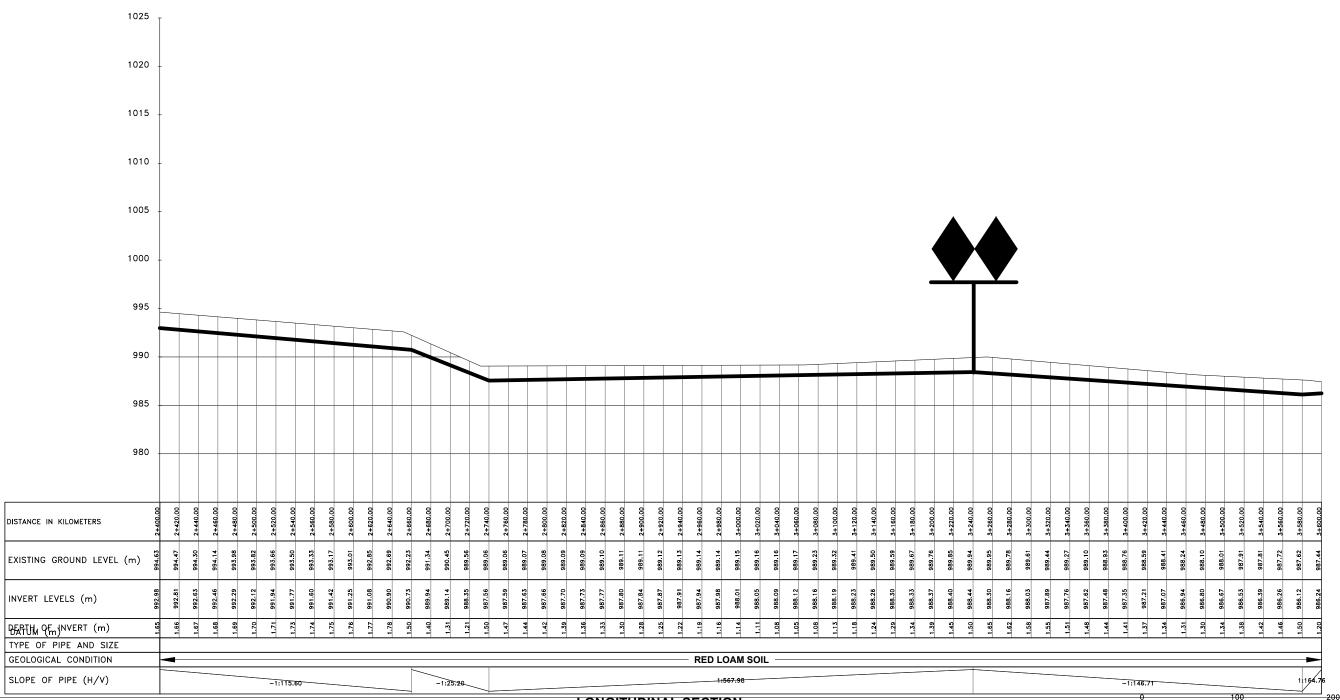
PLAN SECTION



2+360	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETALS SEE DRG. NO. MWSP/TWKUJ07
57 995.68 997.25 2+280.00 155 994.55 2+300.00 153 994.23 995.76 2+320.00 161 993.50 995.11 2+360.00 163 993.55 2+360.00 163 993.15 2+360.00 164 993.15 2+360.00 164 993.15 2+380.00 164 993.15 2+380.00	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P. 0 BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. 0 BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: KABUGURI-RURII DISTRIBUTION LINE CH. 1+200.00 - 2+400.00 SHEET 2 OF 5
-1:115:60	Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:1000 Date: DEC 2023 DRG No. KWSP/KB-RRDL/02 Image: Compare 1000 Compare 1000
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PLAN SECTION



LONGITUDINAL SECTION

NOTES:

- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE

CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA \bigcirc ENGINEER CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY \bigcirc P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: KABUGURI-RURII DISTRIBUTION LINE CH. 2+400.00 - 3+600.00

SHEET 3 OF 5

Designed by: K.N.G	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023
DRG No. KWSP/	KB-RRDL/03

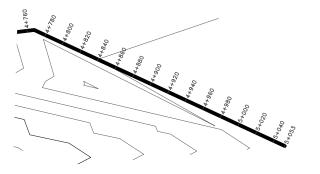
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EXISTING GROUND LEVEL (m)	987.44 987.43	987.62	987.80	987.98 988.16	988.35	988.53	988.71	988.79	988.65 988.52	988.38	988.24	988.10	988.10	988.18	988.27	988.36	988.45	988.54	988.91	989.48	990.04	990.61	991.17	991.74	991.79	991.41	991.03	990.66	930.20 989.59	988.12	986.65	985.18	983.71	982.25	981.60	980.32	979.68	979.04	978.35	977.59	976.82	976.06	975.30	974.54	973.77	973.33	972.97	972.61	972.06	970.65
INVERT LEVELS (m)	986.24 986.36	986.48	986.61	986.73 986.85	986.97	987.09	987.21	987.20	987.18 987.17	987.16	987.14	987.13	987.11	987.10	987.08	987.07	987.06	987.04	987.57	988.11	988.64	989.17	989.70	990.24	990.07	989.91	989.53	989.16	987.44	986.11	984.78	983.44	982.11	980.89	980.17	978.74	978.02	977.30	976.58	975.86	975.15	974.43	973.71	972.99	972.27	971.85	971.42	970.99	970.56	
DEPTH OF PIPE AND SIZE	1.20	1.13	1.19	1.25	1.38	1.44	1.50	1.59	1.47 1.35	1 22	1.10	0.98	0.98	1.09	1.19	1.29	1.40	1.50	1.34	1.37	1.40	1.44	1.47	1.50	1.71	1.50	1.50	1.50	06.1	2.01	1.87	1.74	1.61	1.36	1.43	1.59	1.66	1.74	1.77	1.72	1.68	1.63	1.59	1.54	1.50	1.49	1.55	1.62	202	1.50
GEOLOGICAL CONDITION	-						_											1						-		RED	LOA	MSC	DIL -														=	<u> </u>	F		=	_	<u> </u>	
SLOPE OF PIPE (H/V)			1;	164.7 6								-1:141	2.31								:37:57				1:122	۲.	-1:53				-1:14.9	99							-1:27	7.84			_			_	-1:4	6.75	<u> </u>	
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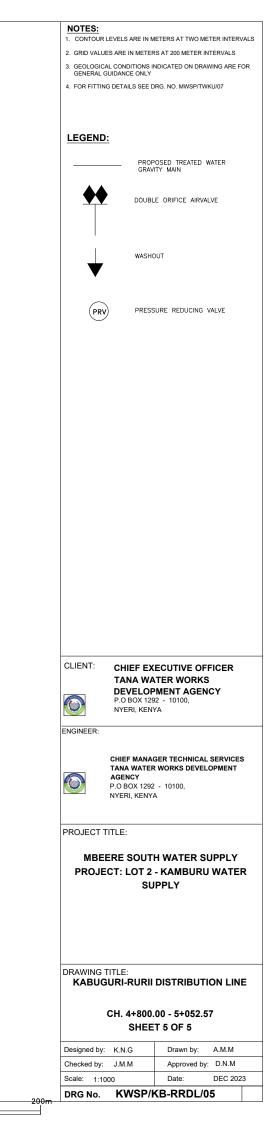
	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
	2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
	3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
	4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
	LEGEND:
	PROPOSED TREATED WATER
	GRAVITY MAIN
	DOUBLE ORIFICE AIRVALVE
A.	
	WASHOUT
	▼
	PRESSURE REDUCING VALVE
	CLIENT: CHIEF EXECUTIVE OFFICER
	TANA WATER WORKS
	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER:
	CHIEF MANAGER TECHNICAL SERVICES CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY
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	OTHER EXECTION OF THE COLLECT TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
	OTHER EXECTION OF THE OTHER OTHER OF THE
	OTHER EXECTION OF THE CONTENT AGENCY F.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	GINEL EXECTIONENT OF INCLY TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
	OTHER EXECTIONER TANE WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY
	GINEL EXECTIONENT OF INCLY TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
4+565.00 4+720.00 4+720.00 4+740.00 4+780.00 4+780.00 4+800.00	GINEL EXECTIONENT OF THEIR TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
	GINEL EXECTIONENT OF THEIR TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
972.06 4+660.00 970.65 4+860.00 965.31 4+700.00 966.40 4+740.00 964.35 4+780.00 964.35 4+800.00	GINEL EXECTIONENT OF THEIR TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
972.06 970.65 967.81 967.81 964.98 964.37 964.35	Image: State of the state
	Image: Construction of the second
970.56 972.06 969.15 970.65 969.15 970.65 965.31 969.23 966.31 969.24 965.31 964.40 965.34 964.40 965.31 964.40 965.31 964.40 965.34 964.40 963.54 964.37 963.54 964.37	CHIEF MANAGER TECHNICAL SERVICES ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: POIL POIL POIL POIL POIL POIL PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE:
970.56 972.06 963.15 970.65 965.31 969.23 966.31 967.81 966.31 964.92 963.50 966.40 963.54 964.37 963.18 964.35	Image: Construction of the second
970.56 970.56 969.15 970.65 969.15 970.65 967.73 969.23 966.31 969.24 965.35 964.40 964.40 966.40 963.50 966.40 963.51 964.37 963.54 964.37 963.54 964.37	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: Image: Chief Manager Technical Services Tana Water WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: KABUGURI-RURII DISTRIBUTION LINE CH. 3+600.00 - 4+800.00 SHEET 4 OF 5
970.56 970.56 969.15 970.65 969.15 970.65 967.73 969.23 966.31 969.24 965.35 964.40 964.40 966.40 963.50 966.40 963.51 964.37 963.54 964.37 963.54 964.37	TANE VALER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: Image: Chief Manager Technical Services Tana Water WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: KABUGURI-RURII DISTRIBUTION LINE CH. 3+600.00 - 4+800.00 SHEET 4 OF 5 Designed by: K.N.G Drawn by:

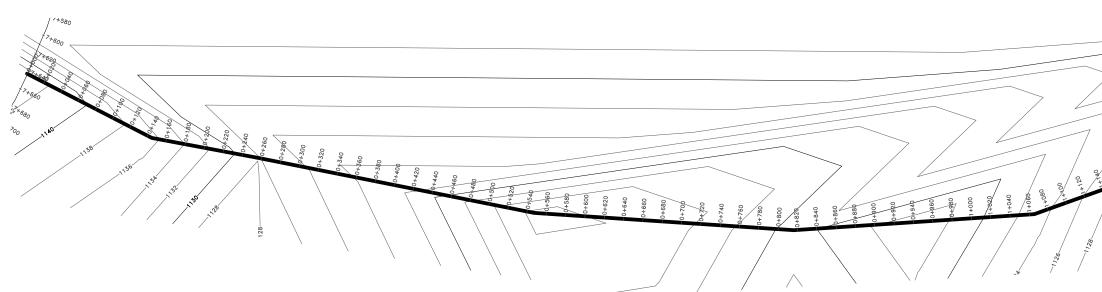
LONGITUDINAL SECTION

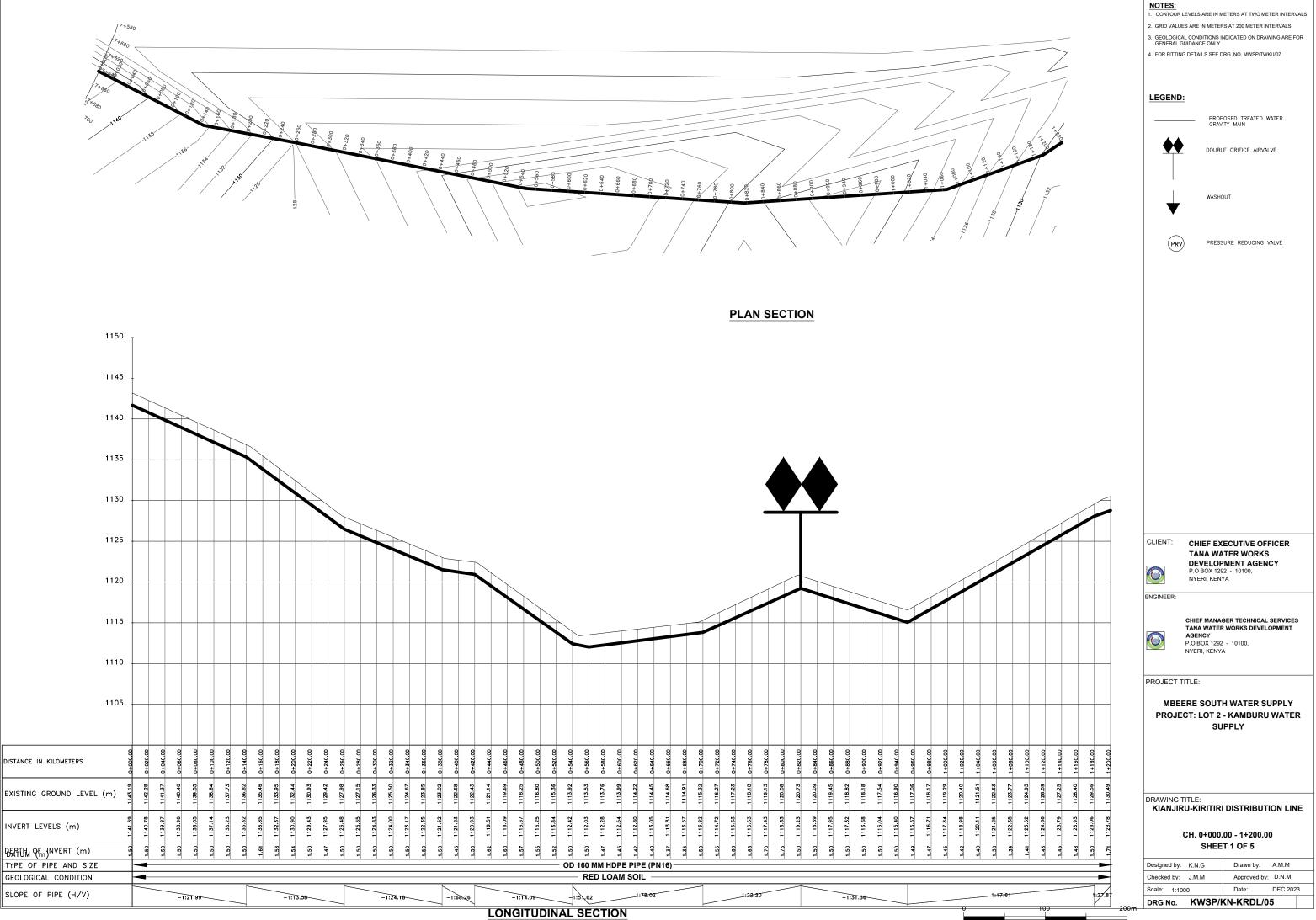
975	5 -	-												
970	, _													
965	;													
960	,													
955	; _													
DISTANCE IN KILOMETERS	4+800.00	4+820.00	4+840.00	4+860.00	4+880.00	4+900.00	4+920.00	4+940.00	4+960.00	4+980,00	5+000.00	5+020.00	5+040.00	5+052.57
EXISTING GROUND LEVEL (m)	964.25	964.12	964.00	963.87	963.75	963.63	963.50	963.38	963.25	963.13	963.00	962.88	962.76	962.68
INVERT LEVELS (m)	963.18	963.02	962.86	962.70	962.55	962.39	962.23	962.07	961.91	961.75	961.59	961.44	961.28	961.18
BATTIN OF INVERT (m)	1.07	1.10	1.14	1.17	1.20	1.24	1.27	1.31	1.34	1.38	1.41	1.44	1.48	1.50
TYPE OF PIPE AND SIZE		_						~						
GEOLOGICAL CONDITION						RED L	OAM S	OIL —						
SLOPE OF PIPE (H/V)					אוכ			126.08						

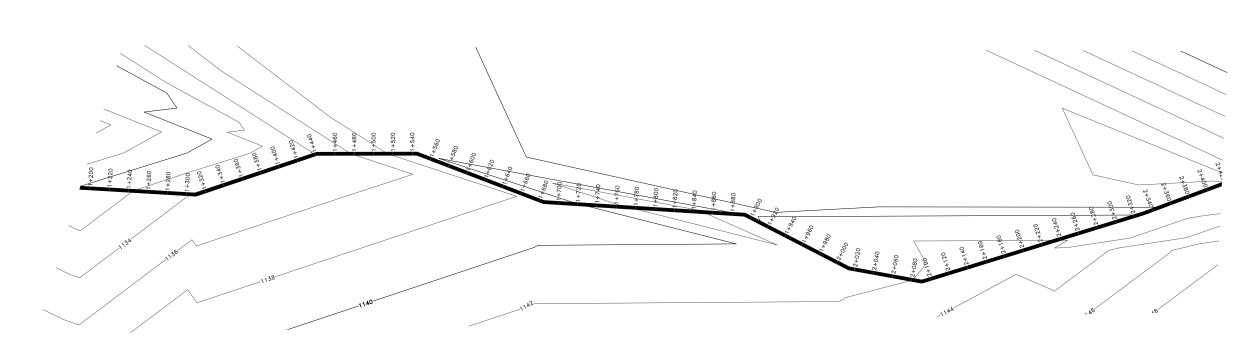
PLAN SECTION



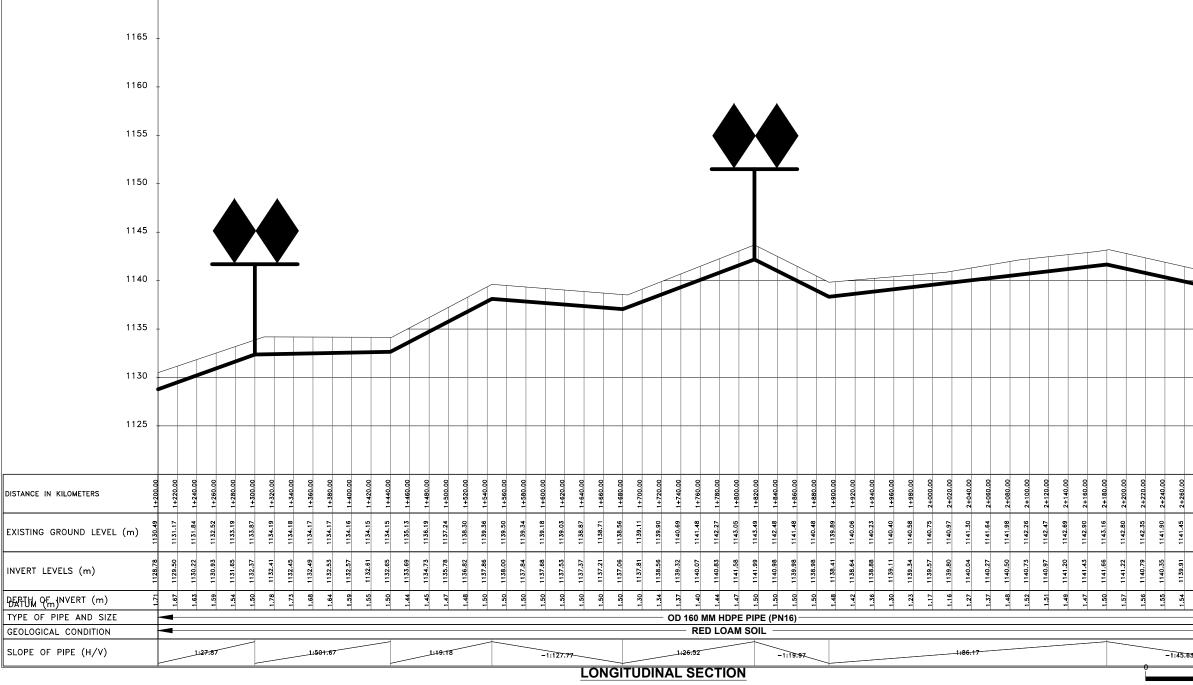








PLAN SECTION



1170

Ν	OTES:	
	CONTOUR	RLEVELS

- ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE

8	8	8	8	8	8	8	
2+280.	2+300.	2+320.	2+340.	2+360.00	2+380.	2+400.00	
00 2+280.	55 2+300.0	10 2+320.00	.01 2+340.	30 2+360.			
1141.00 2+280.	1140.55 2+300.0	1140.10 2+320.	1140.01 2+340.	1140.30 2+360.	1140.58 2+380.		
17 1141.00 2+280.00			1140.01		1140.58	1140.59	
_					1140.58	1140.59	
1139.47	1139.03	1138.59			1138.89 1140.58	1139.09 1140.59	
_	1139.03	1138.59	1.54 1138.47 1140.01 2+340.		1140.58	1139.09 1140.59	
1139.47	1139.03	1138.59			1138.89 1140.58	1139.09 1140.59	
1139.47	1139.03	1138.59		1.62 1138.68	1.69 1138.89 1140.58	V V 1.50 1139.09 1140.59	
1139.47	1139.03	1138.59	1.54 1138.47	1.62 1138.68	1138.89 1140.58	1139.09 1140.59	



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

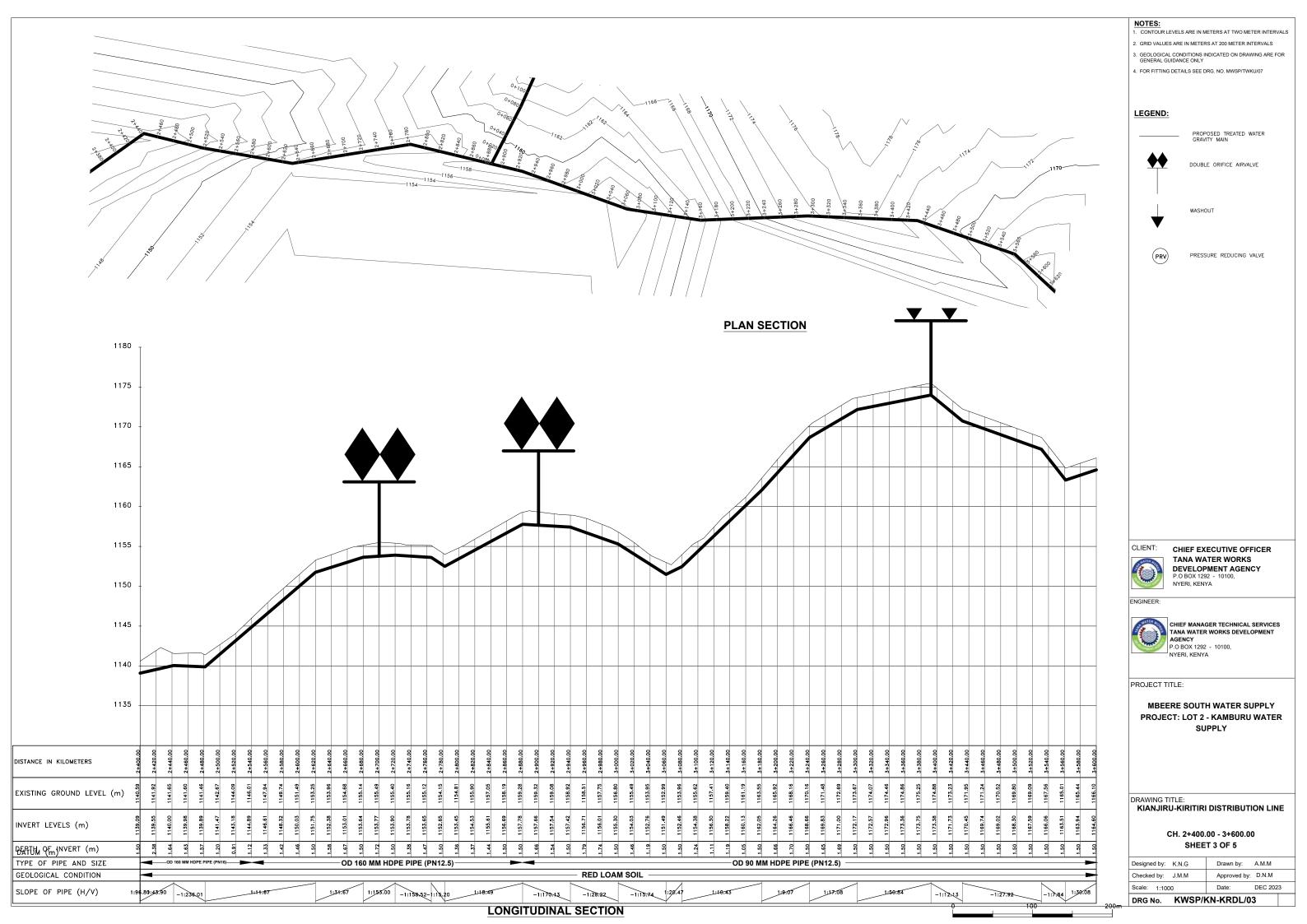
PROJECT TITLE:

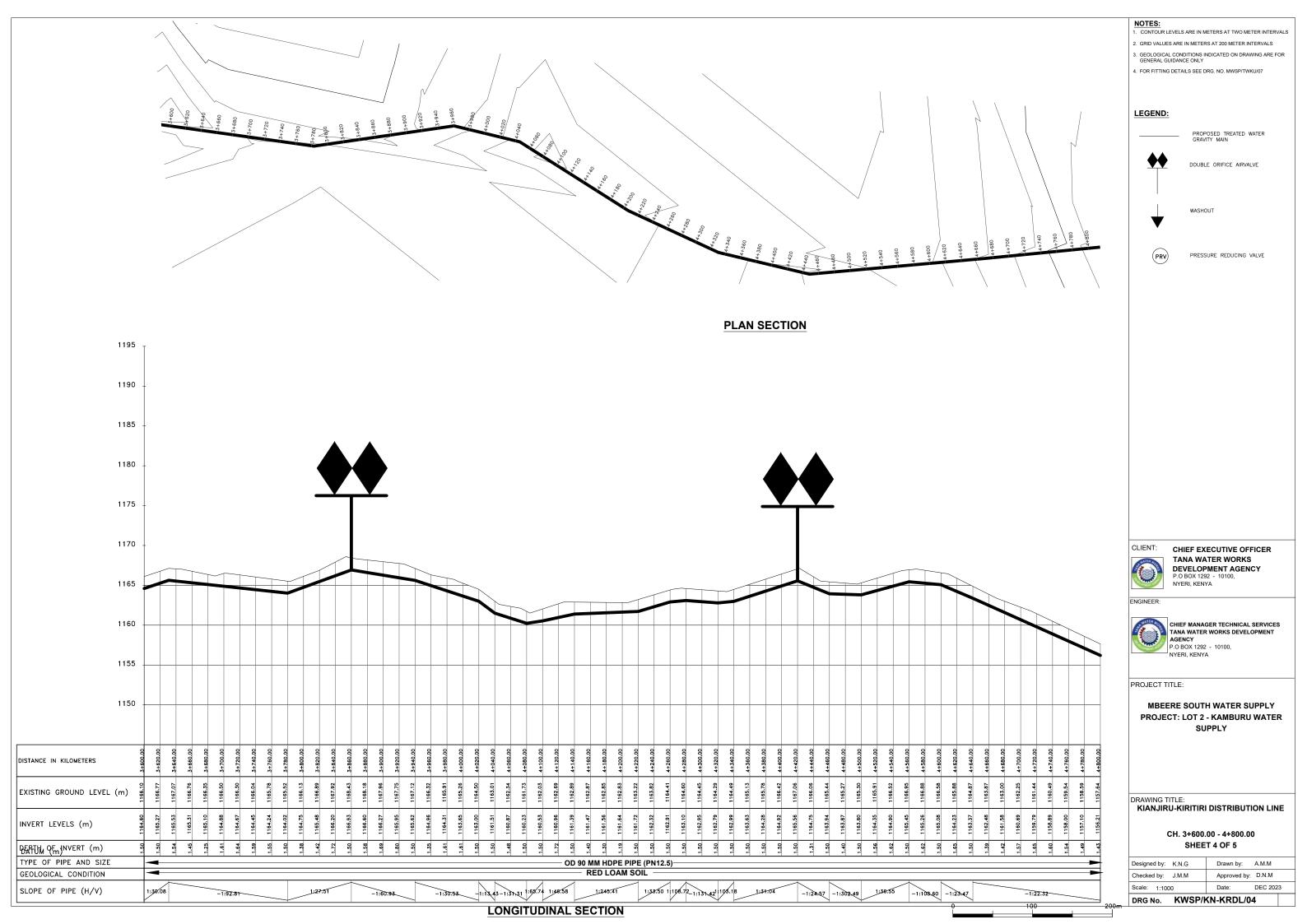
MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

DRAWING TITLE: KIANJIRU-KIRITIRI DISTRIBUTION LINE CH. 1+200.00 - 2+400.00

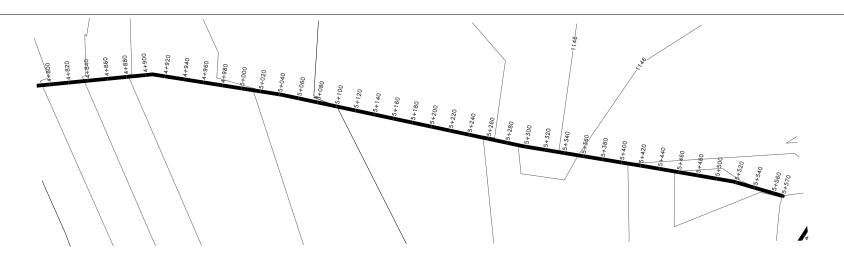
SHEET 2 OF 5

Designed by: K.N.G	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023
DRG No. KWSP/	KN-KRDL/02

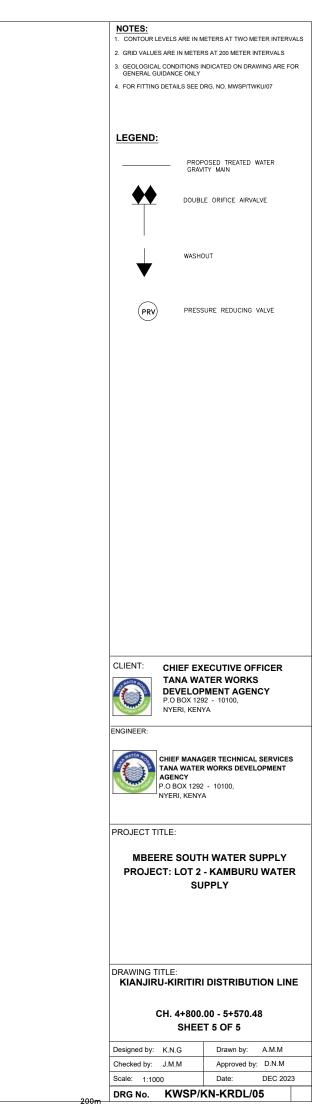




1180	Ţ																																						
1175	+																																						
1170	-																																						
1165	-																																						
1160	-																																						
1155																															V								
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DISTANCE IN KILOMETERS	4 4		-		-	-	-	-			+		5+040.00	5+060.00	5+080.00	5+100.00	5+120.00	5+140.00	5+160.00	5+180.00	5+200.00	5+220.00	5+240.00	5+260.00	5+280.00	5+300.00	5+320.00	5+340.00	5+360.00	5+380.00	5+400.00		5+440.00	5+460.00	5+480.00	5+500.00	5+520.00	5+540.00	5+560.00 5+570.48
EXISTING GROUND LEVEL (m)	1156.70	1155.83	1154.06	1124.96	50.4cl 1	1153.23	1152.84	1152.71	1152.58	1152.46	cc.2c11	c9.1c11	1150.75	1150.45	1150.23	1150.00	1149.78	1149.55	1149.33	1149.19	1149.06	1148.94	1148.80	1147.72	1146.64	1145.69	1145.70	1145.70	1146.16	1146.74	1146.27	1145.50	1144.68	1143.83	1143.25	1143.56	1143.84	1143.97	1144.00 1143.98
INVERT LEVELS (m)	1156.21	1154.41	1162 60	26.6611	70.2011	1151.73	1151.55	1151.37	1151.19	10.1611	co.nc11	12.0611	1149.58	1148.95	1148.77	1148.59	1148.40	1148.22	1148.04	1147.85	1147.67	1147.49	1147.30	1146.27	1145.23	1144.19	1144.35	1144.50	1144.66	1145.07	1144.53	1144.00	1143.25	1142.50	1141.75	1141.99	1142.23	1142.47	1142.47 1142.48
PERTUR OF INVERT (m)	1.39	1 12	¥ .	1.45	1.4/	1.50	1.29	1.34	1.40	1.45	0 <u>2</u> -	1.44	1.17	1.50	1.46	1.42	1.37	1.33	1.29	1.33	1.39	1.45	1.50	1.45	1.41	1.50	1.35	1.20	1.50	1.67	1.74	1.50	1.43	1.33	1.50	1.57	1.61	1.50	1.52
TYPE OF PIPE AND SIZE	-	·	·	·	·								<u> </u>	D 90			PEP	IPE	(PN1	2.5)					<u> </u>			<u>N</u>					PE (P						
GEOLOGICAL CONDITION														_				REI	LO	AM	SOIL	. —																	
SLOPE OF PIPE (H/V)		<u> </u>	-1:22.	.32	_		_	-1:111	.77	_		-1:31	-98			_	_	-1:	108.94					-1:	19:31	\downarrow	1:1	30.26	1:3	54.14	-1:37	44	-1	:26.70	\checkmark	1:8	34.08	1:2	2890.48

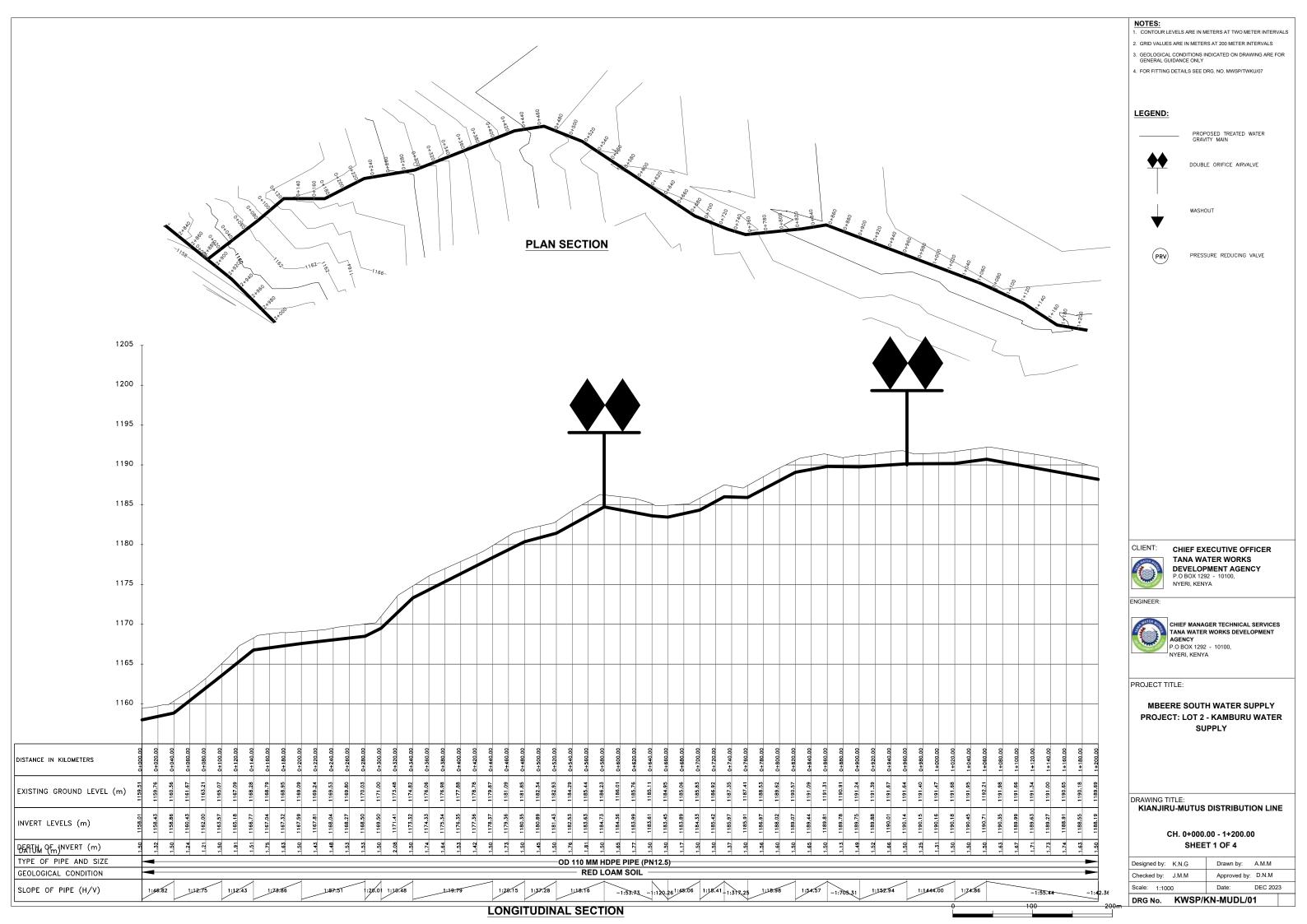


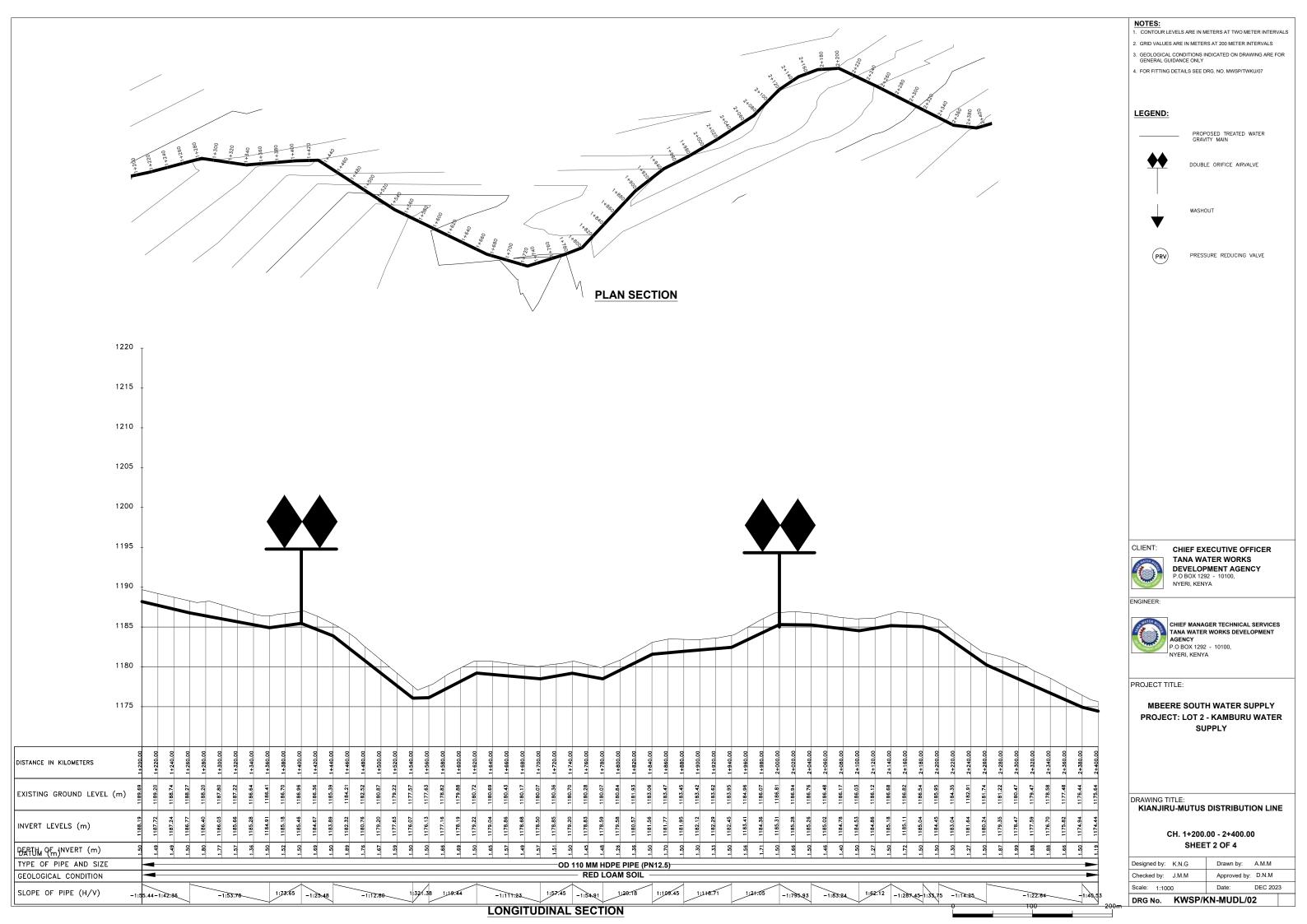
PLAN SECTION

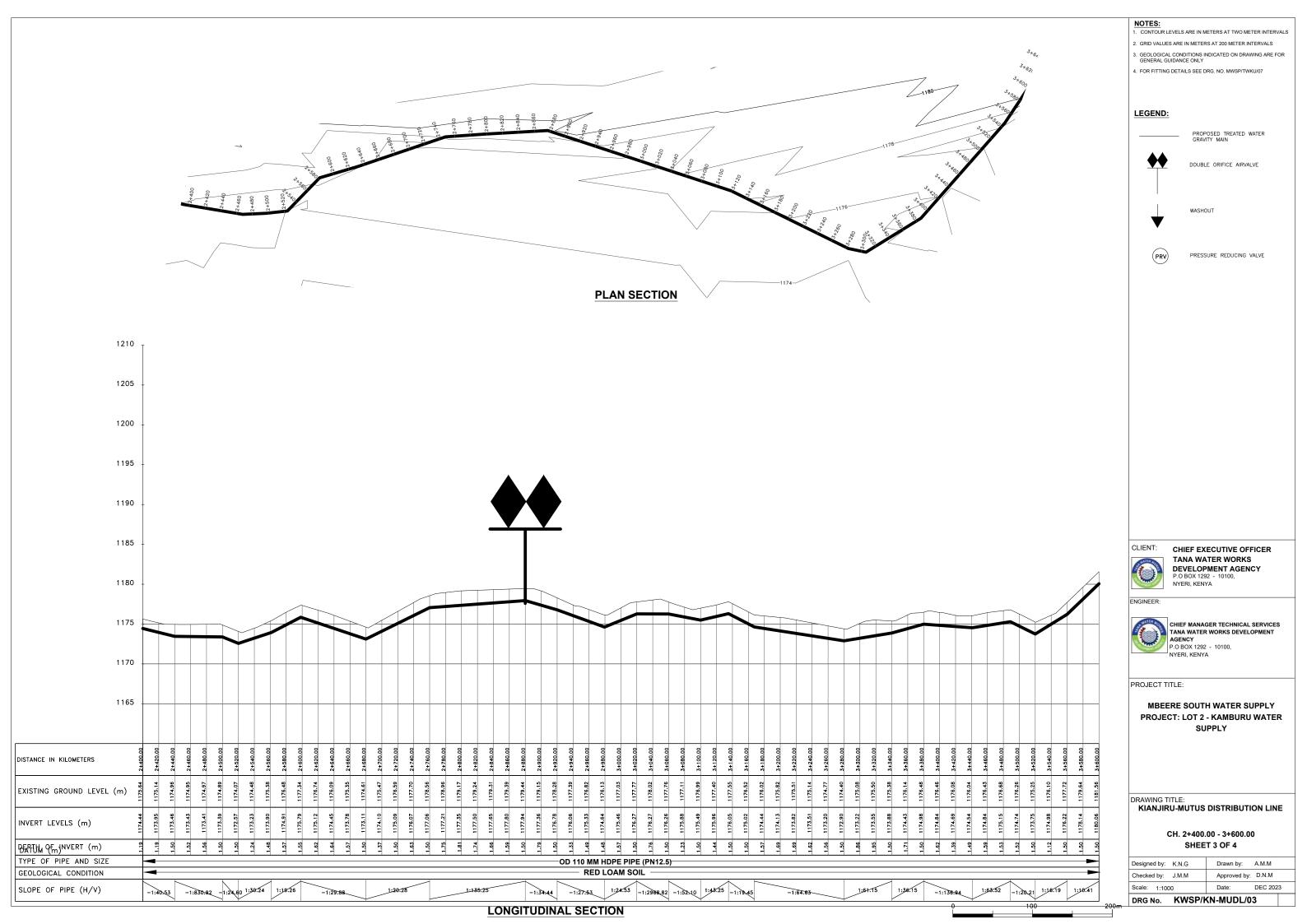


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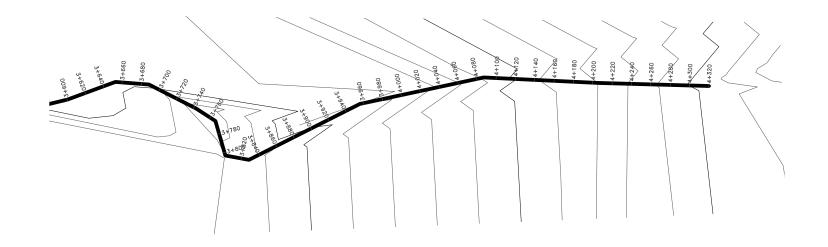


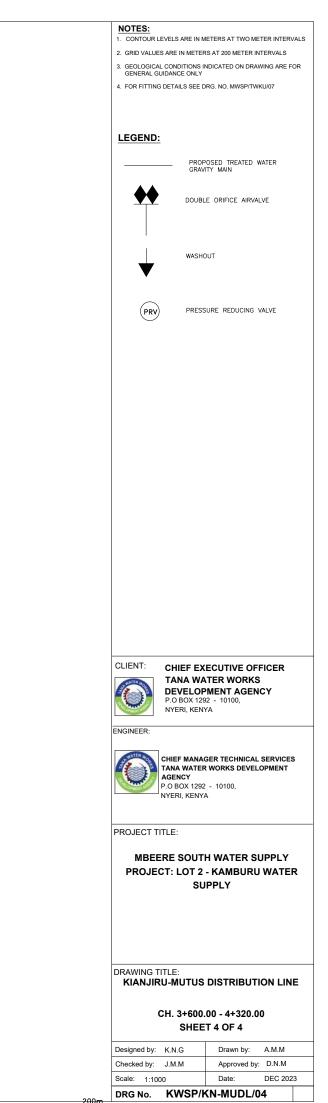


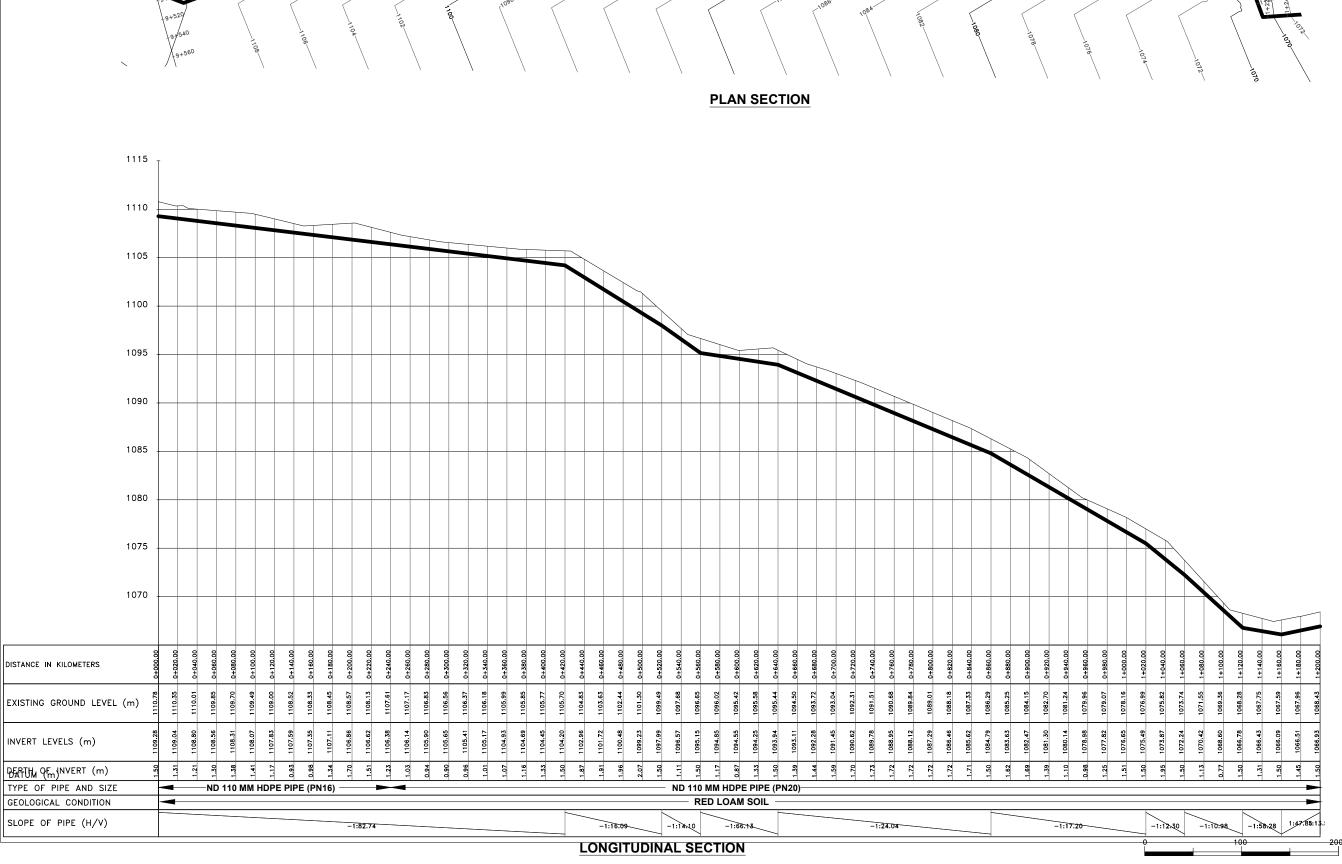
1205 1200 1195 1190 1185 1180 1175 1170 1165 DISTANCE IN KILOMETERS 1181.47 1181.28 1179.66 1174.92 1176.82 1178.40 1181.39 1182.20 1193.17 1193.83 1194.95 1196.25 1177.23 1174.81 1177.65 1179.14 1182.03 182.38 183.34 184.44 1187.69 1191.62 1192.51 1198.84 1175.65 176.04 179.89 1186.00 189.06 1190.26 197.54 200.05 180.64 EXISTING GROUND LEVEL (m) 81.5 181. 181. 1178.16 176.15 1186.13 1193.45 1179.89 179.78 179.67 175.73 173.31 1173.54 174.19 174.84 1175.50 176.88 177.61 178.34 179.07 179.80 180.53 180.97 181.40 181.84 183.27 184.70 187.56 188.84 190.12 1190.86 1191.60 1192.33 1194.56 195.67 196.78 197.89 180.00 INVERT LEVELS (m) BEATTIN OF INVERT (m) .47 .39 1.37 .46 .50 .50 -20 38 .46 -20 .32 .50 1.52 1.55 1.57 1.59 1.24 0.97 .17 156 1.50 1.50 1.50 1.50 1.50 1.51 ...69 .06 .16 OD 110 MM HDPE PIPE (PN12.5) TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION RED LOAM SOIL SLOPE OF PIPE (H/V) 1:15.66 1:27.08 1:10.41 1:13.97 -1:181.02 -1:8:25 1:30.67 1:27.38 1:45.83 LONGITUDINAL SECTION

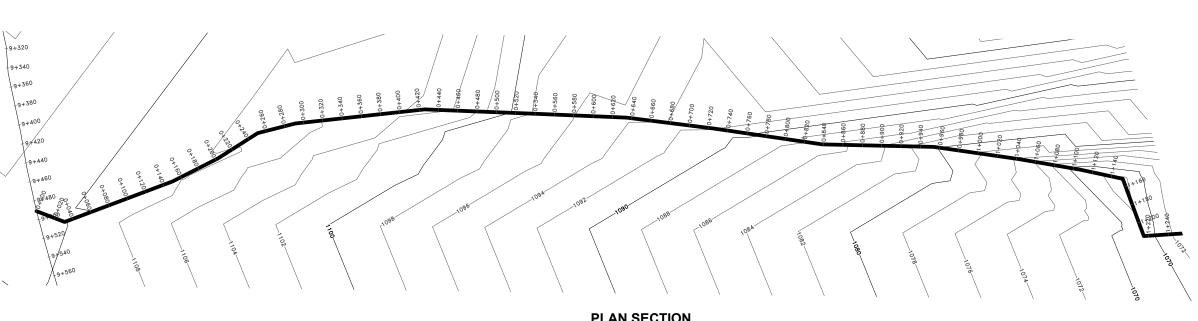
1210

PLAN SECTION







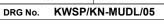


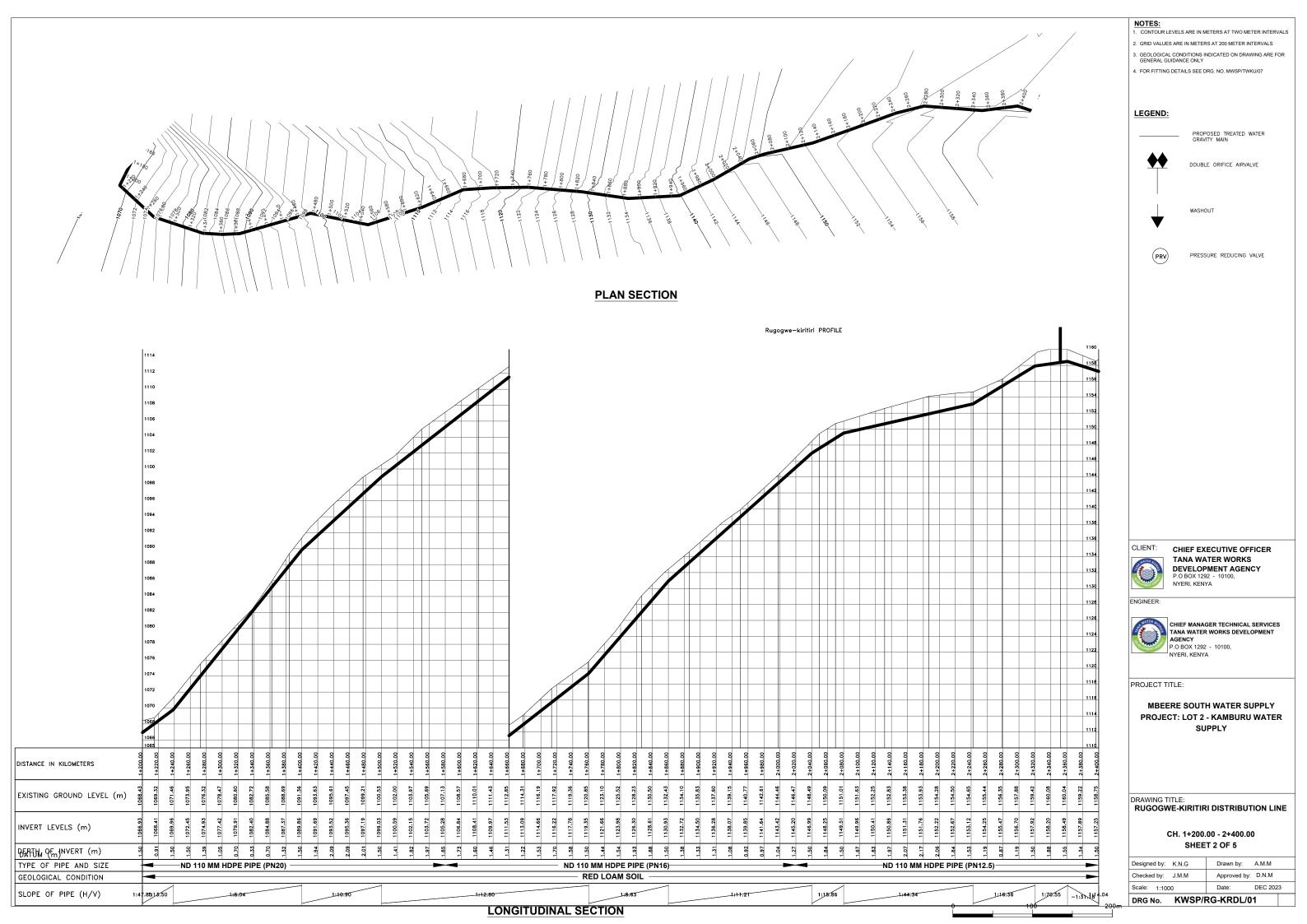
	EVELS ARE IN METERS AT TWO METER INTERVALS S ARE IN METERS AT 200 METER INTERVALS
	L CONDITIONS INDICATED ON DRAWING ARE FOR UIDANCE ONLY
	DETAILS SEE DRG. NO. MWSP/TWKU/07
LEGEND:	
	PROPOSED TREATED WATER GRAVITY MAIN
	DOUBLE ORIFICE AIRVALVE
I	
	WASHOUT
	PRESSURE REDUCING VALVE
\bigcirc	
LIENT:	CHIEF EXECUTIVE OFFICER
AD WATER AND	TANA WATER WORKS
	DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
Consert P	NYERI, KENYA
NGINEER:	
HATER	CHIEF MANAGER TECHNICAL SERVICES

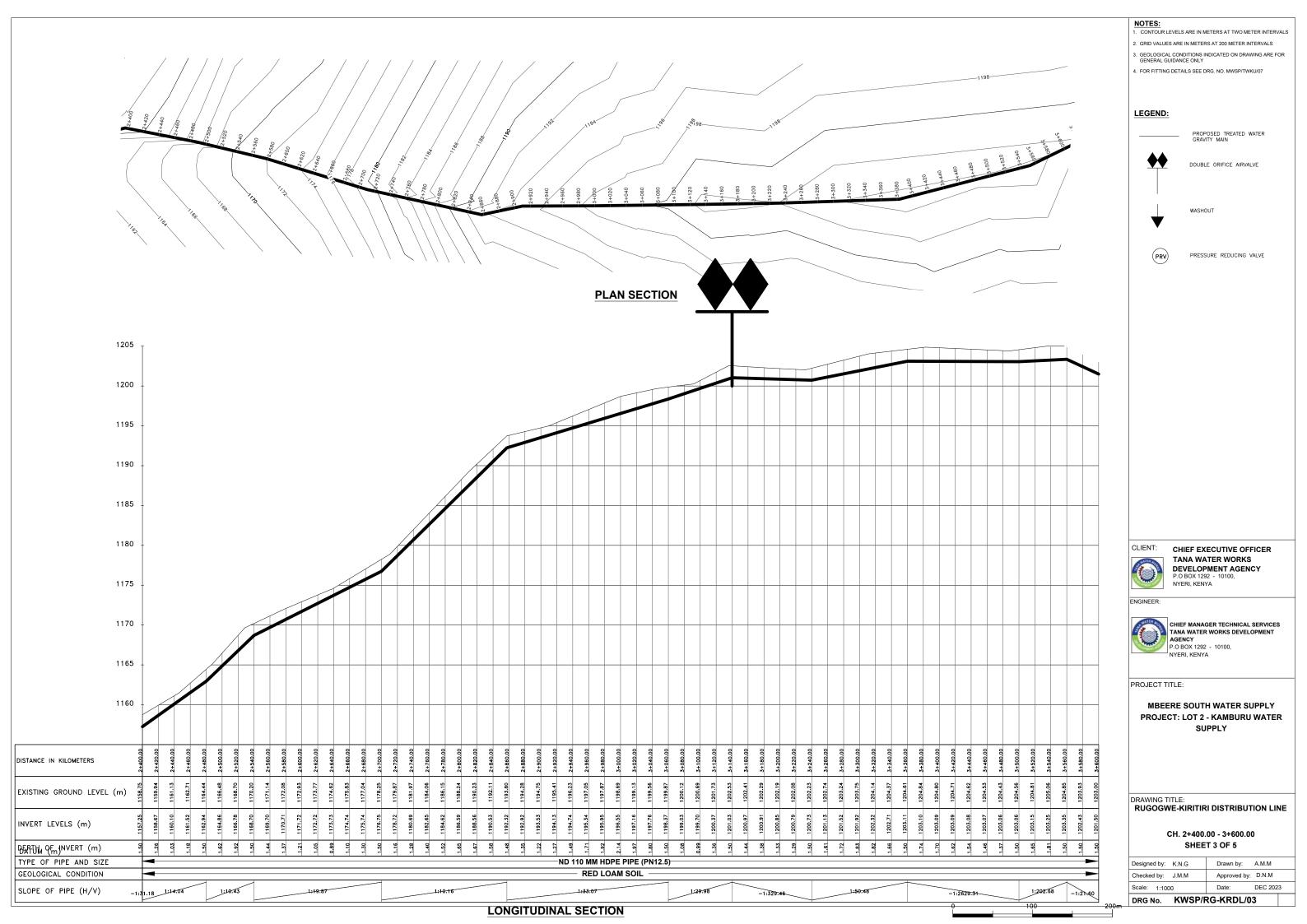
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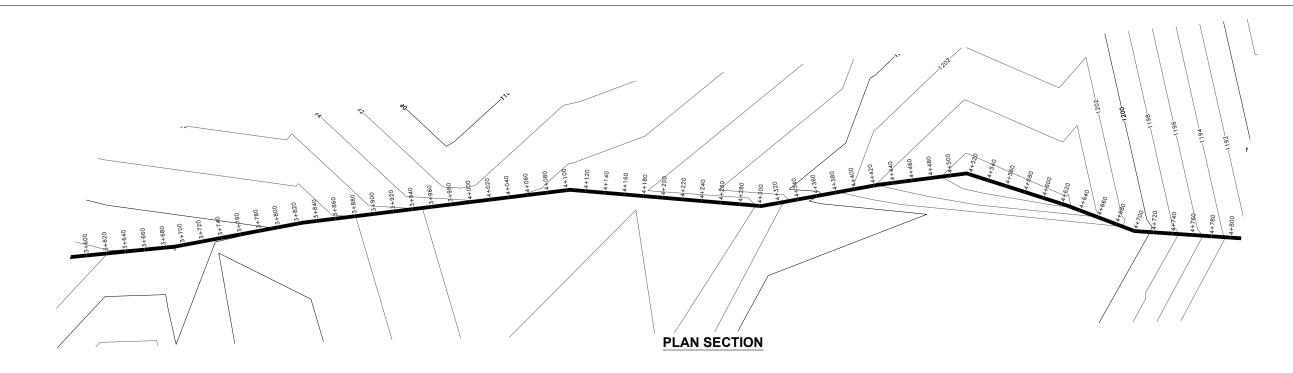
MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

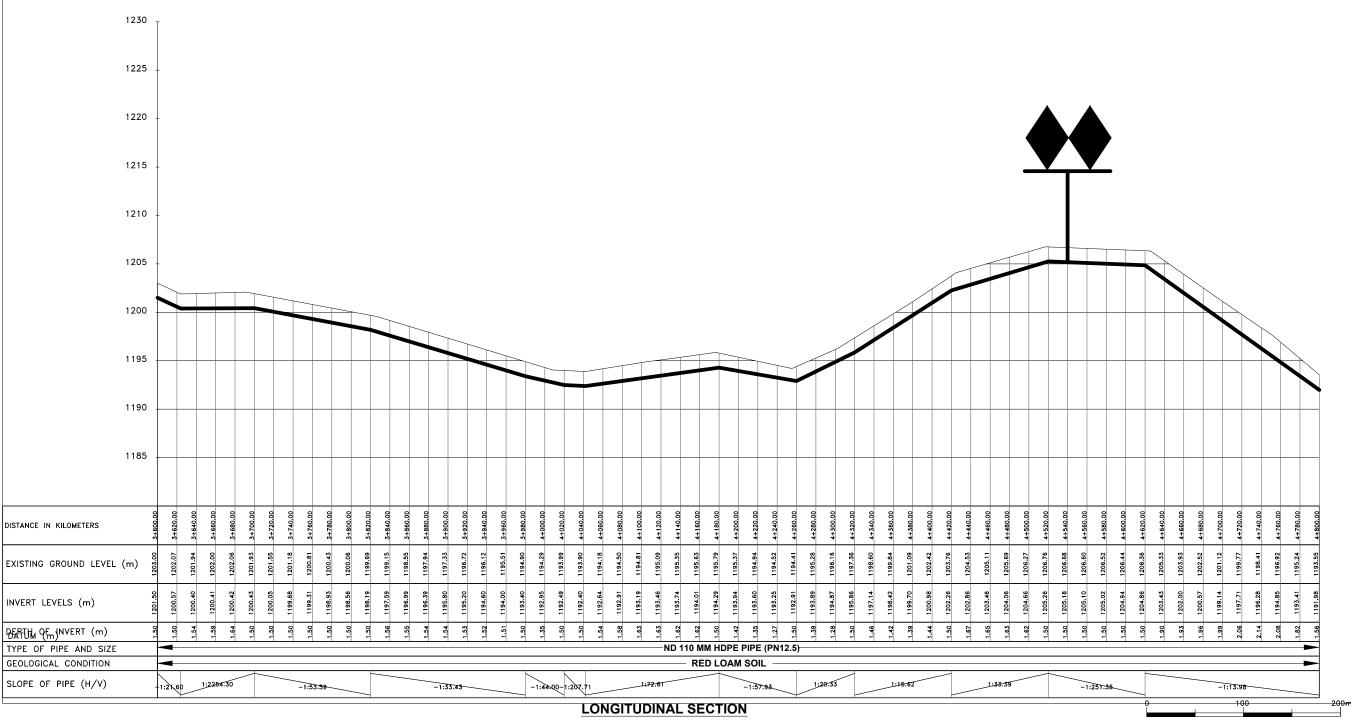
DRAWING TITLE: RUGOGWE-KIRITIRI DISTRIBUTION LINE CH. 0+000.00 - 1+200.00 SHEET 1 OF 5 Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:1000 Date: DEC 2023











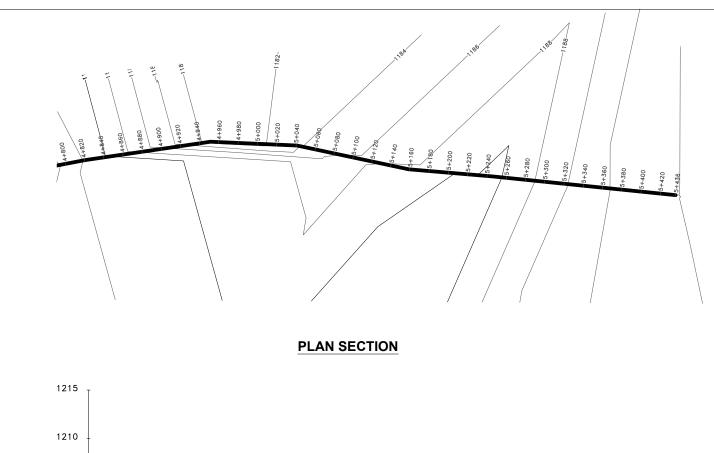
NOTES: CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 LEGEND: PROPOSED TREATED WATER GRAVITY MAIN **9**9 DOUBLE ORIFICE AIRVALVE WASHOUT PRV PRESSURE REDUCING VALVE CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100 NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

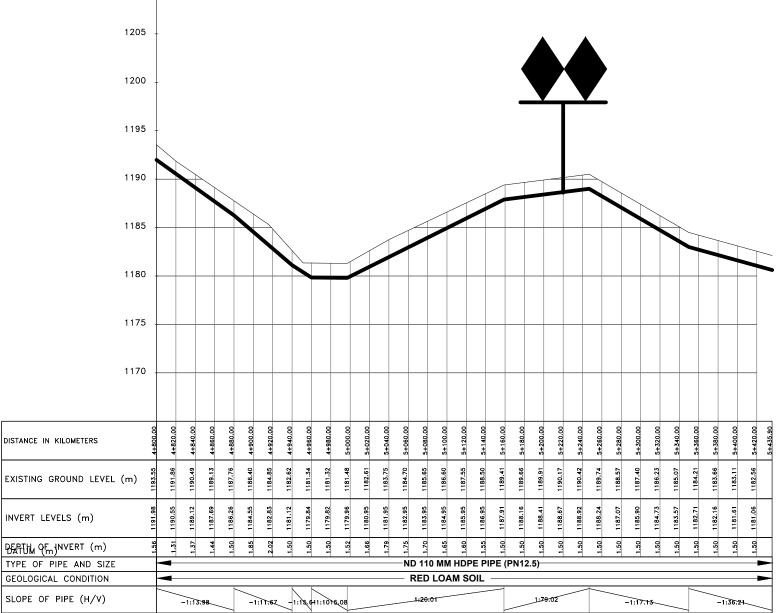
DRAWING TITLE: RUGOGWE-KIRITIRI DISTRIBUTION LINE

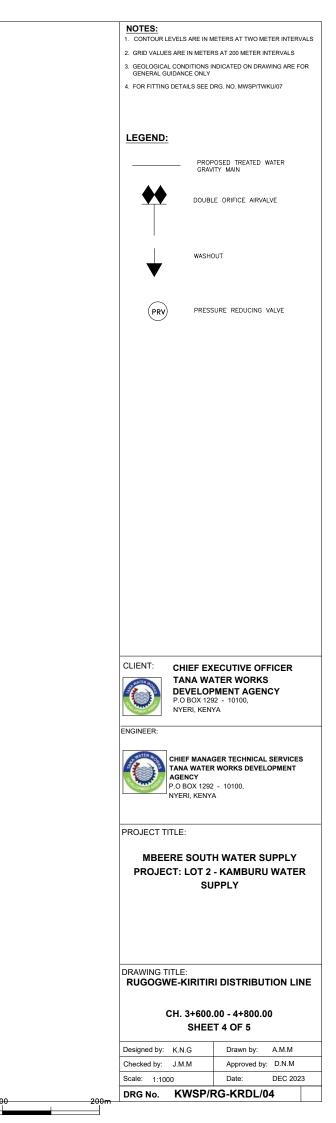
CH. 3+600.00 - 4+800.00 SHEET 4 OF 5

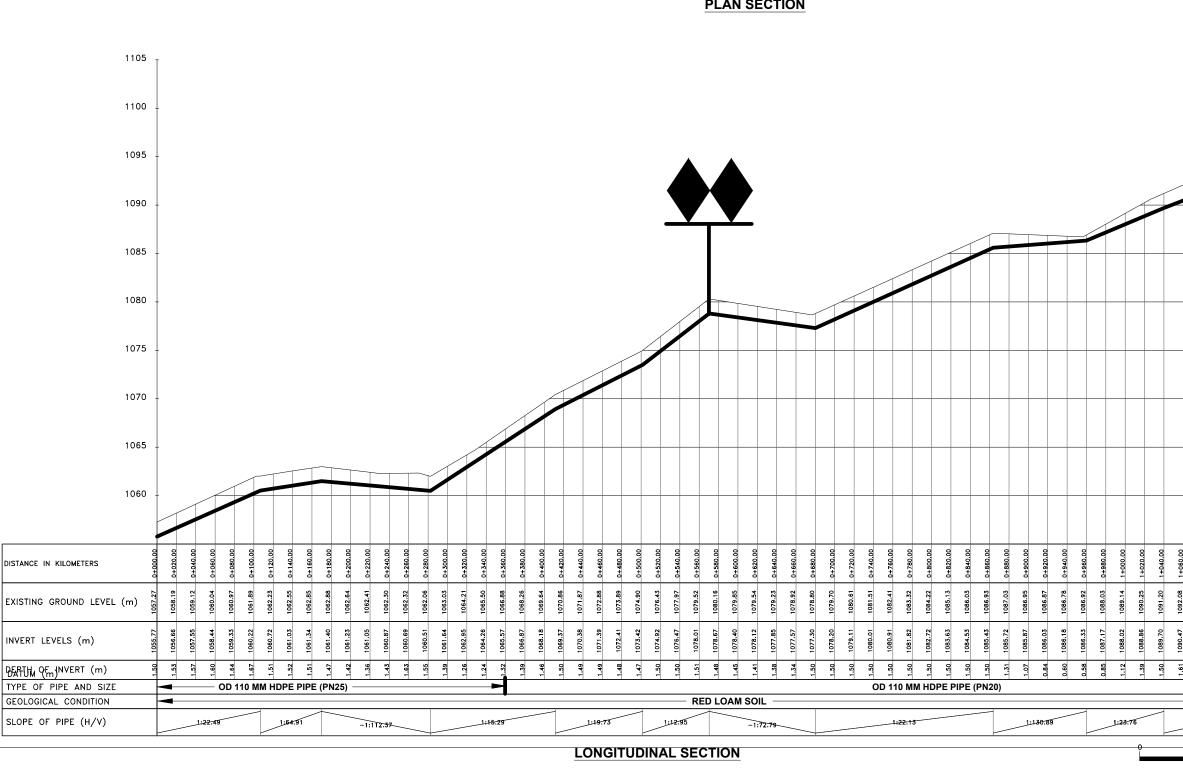
Designed by: K.N.G	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023

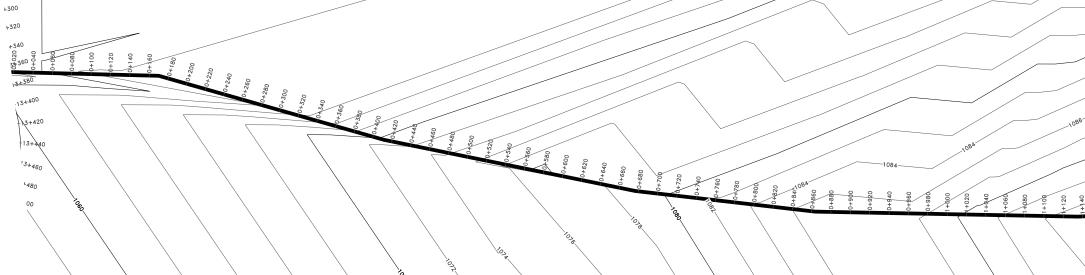
DRG No. KWSP/RG-KRDL/04







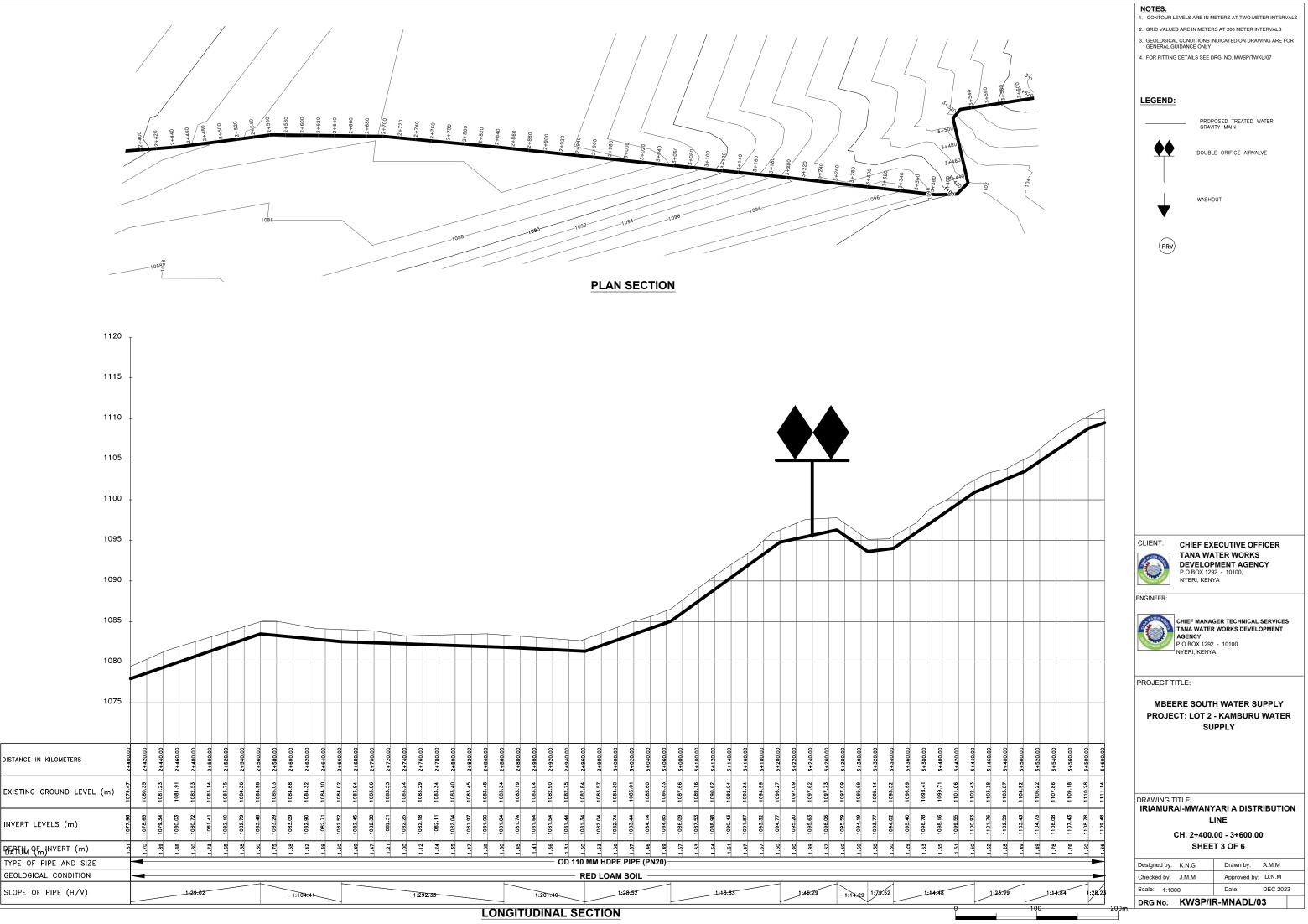


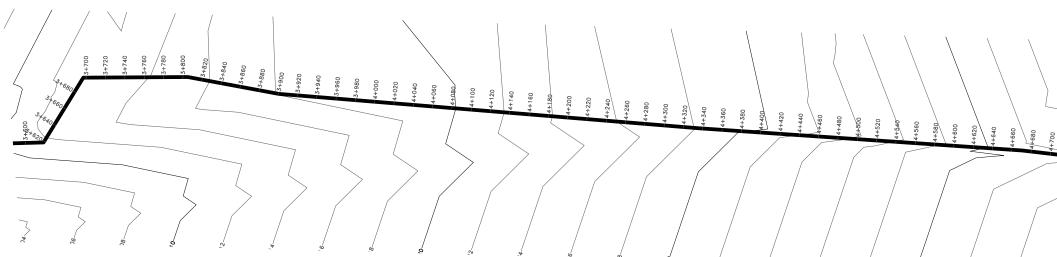


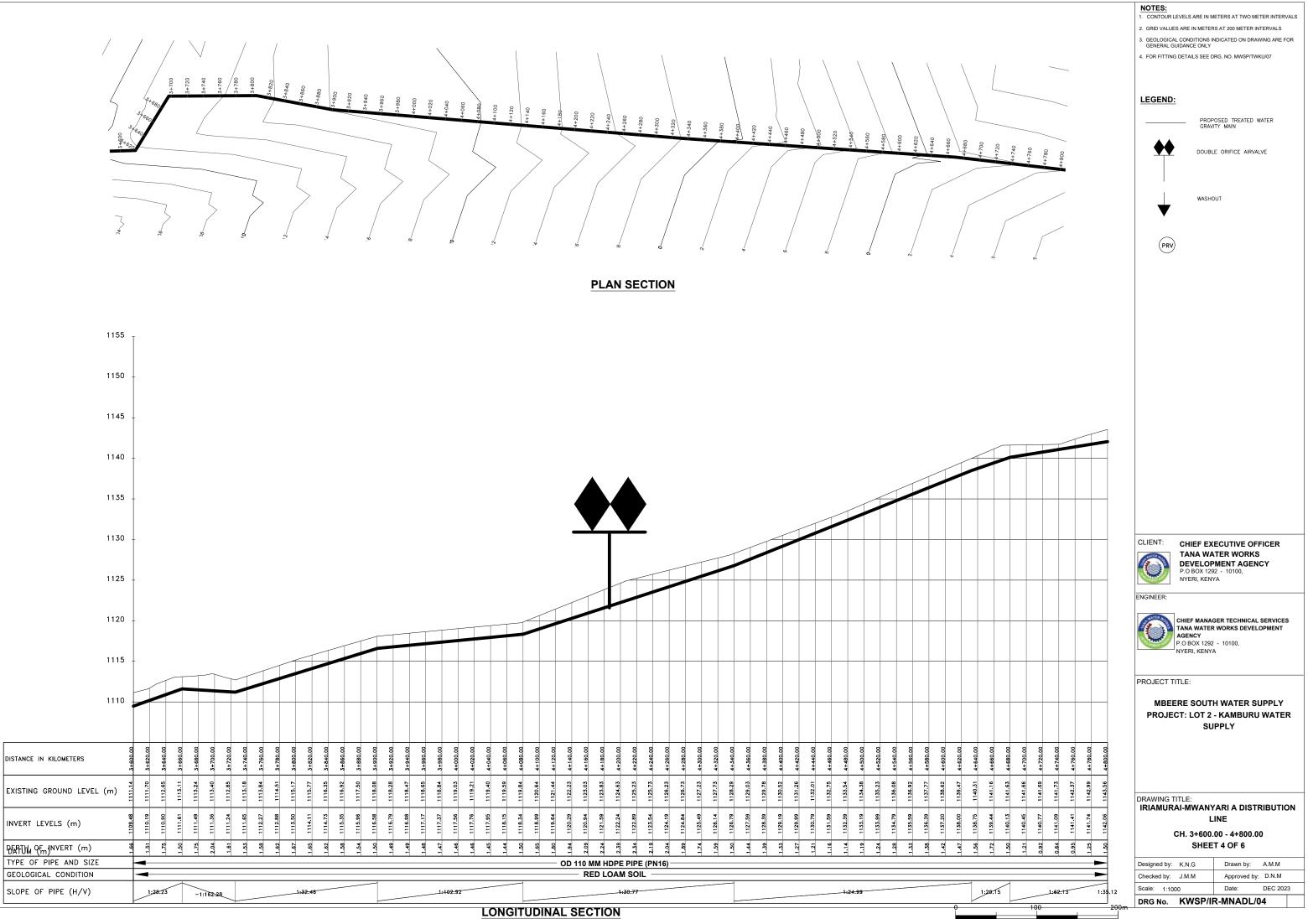
PLAN SECTION

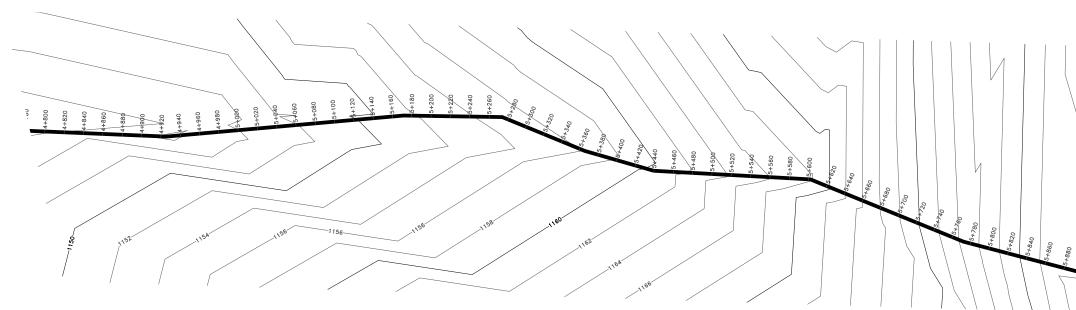
Image: Strategy of the strategy	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 LEGEND: PROPOSED TREATED WATER GRAVITY MAIN DUBLE ORIFICE AIRVALVE WASHOUT (PRV)
Image: State of the state	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
Image: Section of the sectio	CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O BOX 1292 - 10100, NYERI, KENYA
Image: Second	MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
Image: Second	
Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:112:42 DEC 2023 DRG No. KWSP/IR-MNADL/01	IRIAMURAI-MWANYARI A DISTRIBUTION LINE CH. 0+000.00 - 1+200.00
	Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1;1000 Date: DEC 2023

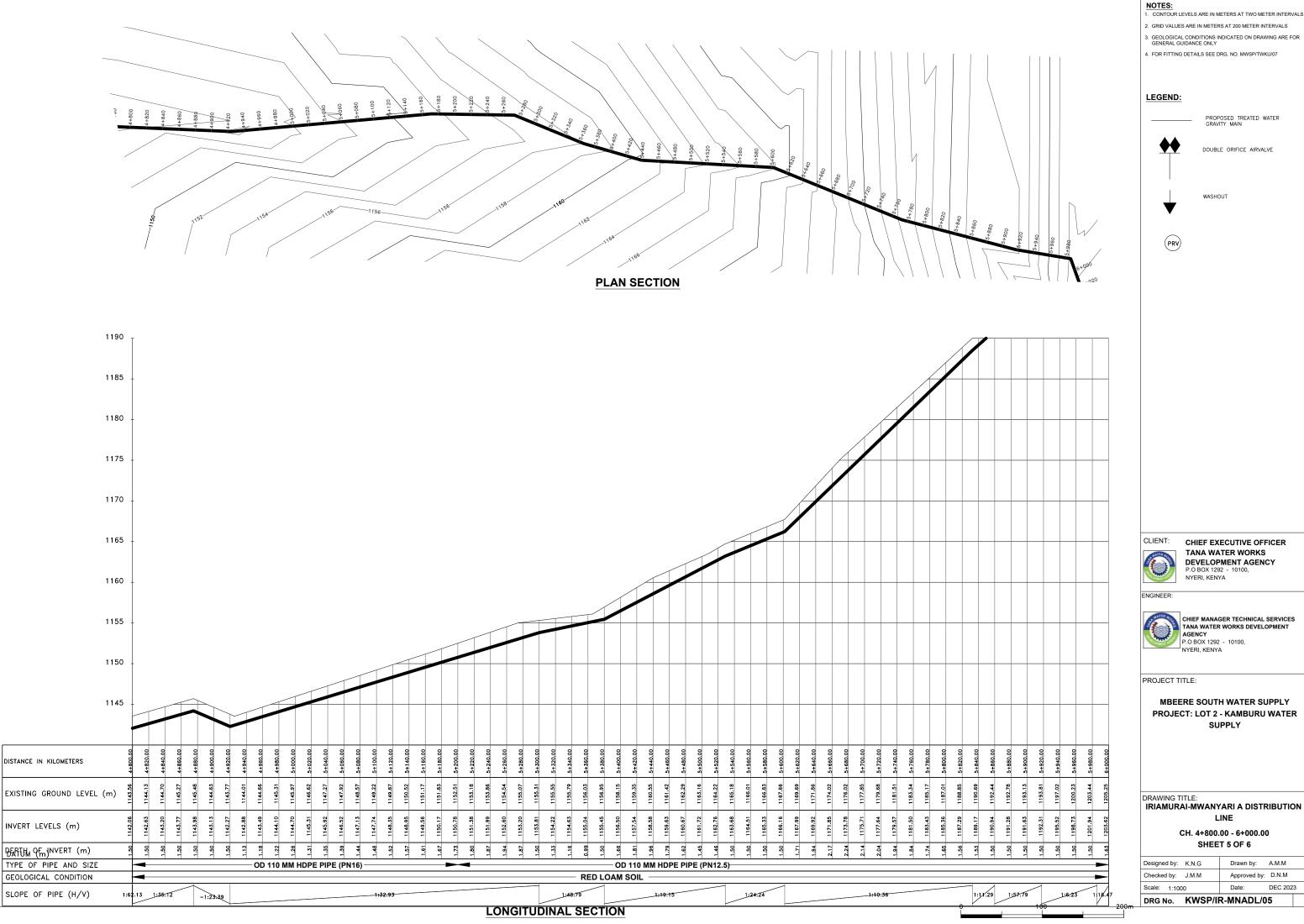
1100 1095 1085 1080					1.200 × 200	100 100 100 100 100 100 100 100 100 100	100		1+4 1+580 1+520 300		1 +720 1+720 	1+820			ор н N SE(2+100 2+140 2+140 2+160 2+160 2+160 2+160 2+100 2+100 2+100	- rad or and of the second of													 NOTESE 1. ONTOUL LUELS ARE IN METERS AT TWO METER INTERVALS 1. OR UTALUES ARE IN METERS AT 200 METER INTERVALS 1. OR UTTING DETAILS SEE DRG. NO. MWSPITWKUMT DECENDE PROPOSED TREATED WATER GRAVITY MAIN DUBLE ORIFICE AIRVALYE ↓ WASHOUT (PR)
1075																																_	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
1065																																	ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
1060																			Y													_	PROJECT TITLE:
1055																																_	MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
DISTANCE IN KILOMETERS	1+200.00 1+220.00 1+240.00	1+260.00 1+280.00 1+300.00	1+320.00 1+340.00	1+360.00 1+380.00	1+400.00	1+440.00	1+480.00 1+500.00	1+540.00	1+560.00 1+580.00	1+600.00	1+660.00	1+680.00	1+720.00	1+760.00 1+780.00	1+800.00 1+820.00	1+840.00	1+880.00	1+900.00	1+940.00	1+980.00	2+000.00	2+040.00 2+060.00	2+080.00 2+100.00	2+120.00 2+140.00	2+160.00	2+180.00	2+220.00 2+240.00	2+260.00 2+280.00	2+300.00 2+320.00	2+340.00	2+380.00	2+400.00	
EXISTING GROUND LEVEL (m)	1095.81 1095.95 1096.09	1096.23 1096.37 1096.51	1096.66	1096.44 1095.91	1095.37 1094.32	1092.71 1091.38	1090.05 1088.94 1087.93	1086.92	1085.53 1083.86	1082.20 1080.29 1078 38		1075.28		1069.01 1067.64	1066.27 1065.04	1063.82 1062.87	1062.24	1061.77 1061.49	1061.22 1061.75	1062.79	1063.98	1066.15 1067.23	1069.38	1072.16 1073.02	1073.63	1074.36	1075.04	1076.95	1078.58 1078.76	1078.85	1078.77		
INVERT LEVELS (m)	1094.09 1094.27 1094.44	1094.62 1094.80 1094.98	1095.16	1094.66 1094.41	1093.61 1092.82	1091.55	1089.00 1087.73 1086.45	1085.18	1083.91 1082.29	1080.53 1078.76	1075.22	1073.70	1071.87	1067.53	1064.95 1063.66	1062.37 1061.45	1061.02	1060.58 1060.15	1059.72	1061.69	1062.68	1064.65	1067.96	1070.45 1071.29	1072.13	1072.83	1073.54	1075.30	1077.06 1077.20	1077.23	1077.25	- 1	IRIAMURAI-MWANYARI A DISTRIBUTION LINE CH. 1+200.00 - 2+400.00
DEPTH QFmJNVERT (m) TYPE OF PIPE AND SIZE	1.68	1.61 1.57 1.54	1.50	1.78	1.76	1.16	1.05	1.46	1.57	1.67 1.53	1.50	1.58		0 MM HD	0F PIPI			1.19 1.34	1.50	1.10	1.30	1.50	1.42	1.71	1.50	1.53	1.49	1.64	1.51 1.56	1.62	1.50		SHEET 2 OF 6
GEOLOGICAL CONDITION	-	112:42	-17	:79:95	-1:25:24		-1:15.70			-1:17.54 LC	1			RED LO	AM SOI	L —		1:46.19		1:20.	28	1:12	08	1:23.88	8 1:	57:07	1::	2.74	100	1:807.76	1:29.02		Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M Scale: 1:1000 Date: DEC 2023 DRG No.









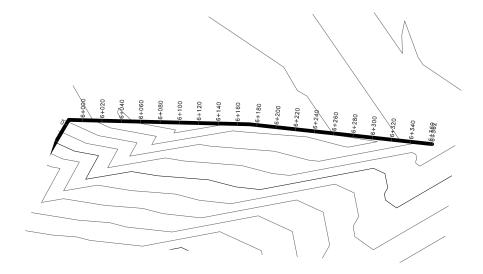


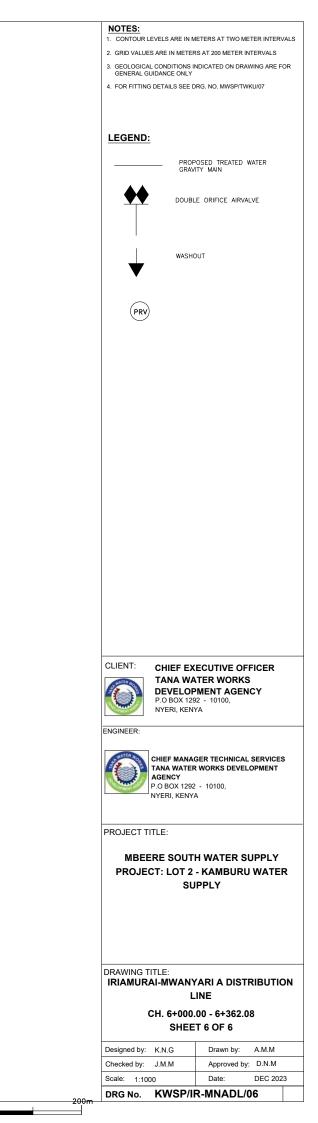
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 PROPOSED TREATED WATER GRAVITY MAIN DOUBLE ORIFICE AIRVALVE WASHOUT CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100 NYERI, KENYA MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: IRIAMURAI-MWANYARI A DISTRIBUTION LINE CH. 4+800.00 - 6+000.00 SHEET 5 OF 6 Drawn by: A.M.M Approved by: D.N.M Date: DEC 2023

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1240) _	-																	
1235		-																	
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1205																			
DISTANCE IN KILOMETERS	6+000.00	6+020.00	6+040.00	6+060.00	6+080.00	6+100.00	6+120.00	6+140.00	6+160.00	6+180.00	6+200.00	6+220.00	6+240.00	6+260.00	6+280.00	6+300.00	6+320.00	6+340.00	6+362.88
EXISTING GROUND LEVEL (m)	1205.25	1206.51	1207.75	1208.37	1208.17	1207.90	1207.64	1207.38	1207.12	1206.91	1206.78	1206.65	1206.52	1205.96	1205.39	1204.82	1204.25	1203.68	1203.11
INVERT LEVELS (m)	1203.62	1204.70	1205.79	1206.87	1206.66	1206.46	1206.25	1206.05	1205.84	1205.64	1205.43	1205.22	1205.02	1204.45	1203.88	1203.32	1202.75	1202.18	1201.61
PERTUM OF INVERT (m)	1.63	1.81	1.96	1.50	1.50	1.45	1.39	1.33	1.28	1.27	1.35	1.42	1.50	1.51	1.51	1.51	1.51	1.50	1.50
TYPE OF PIPE AND SIZE							OD 1					(PN1	2.5)						
GEOLOGICAL CONDITION		-						— R	EDI	LOA	M SC	DIL -							
SLOPE OF PIPE (H/V)			18.47			_		-1	:97.20	0						-1:35	.23	_	
		~ • • •	<u></u>				~ = /		~ • •										

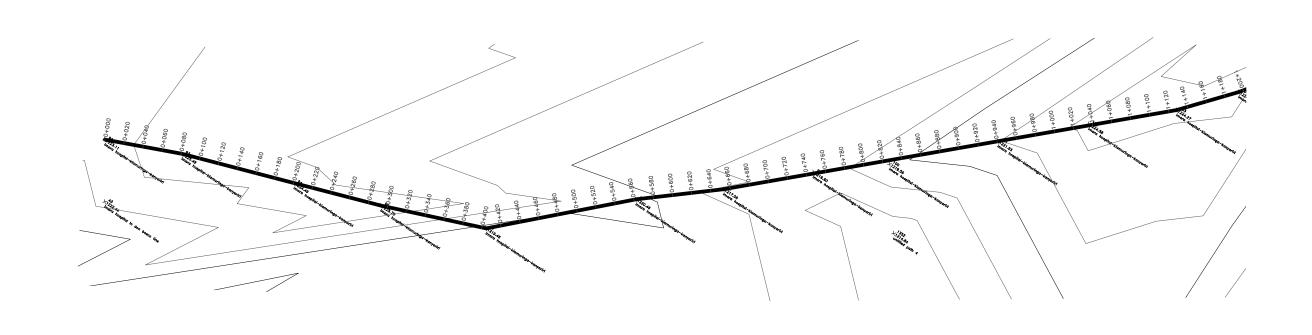
1250 _T

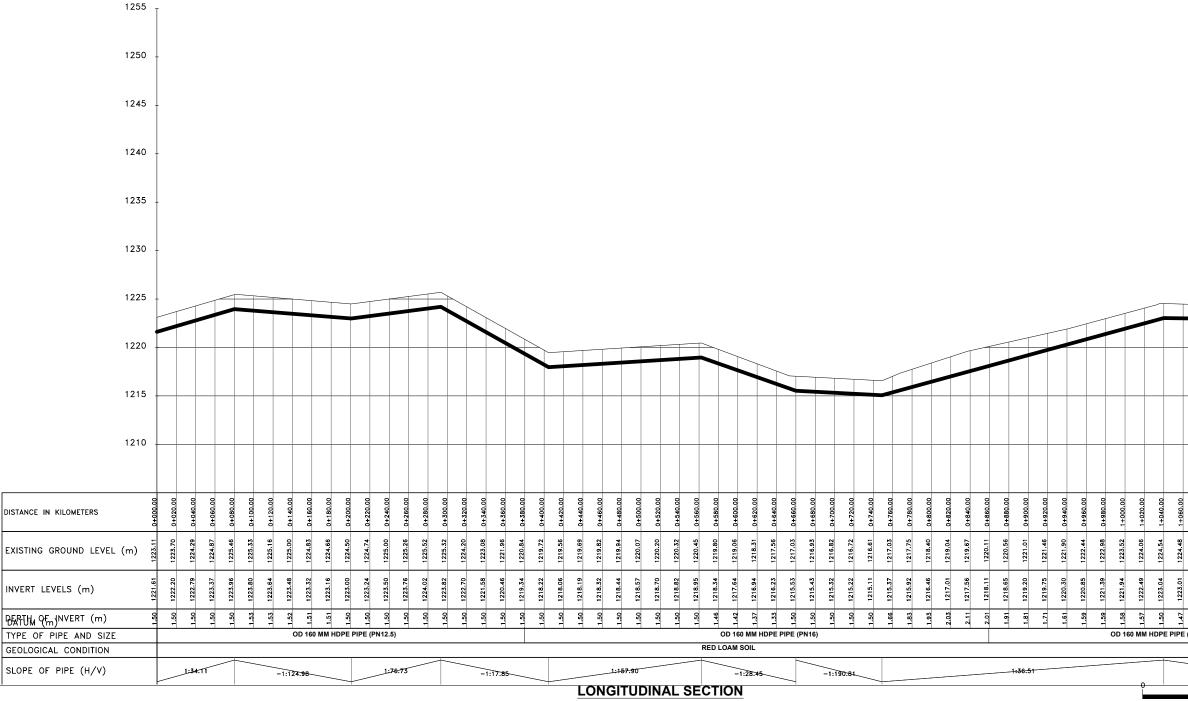
PLAN SECTION





100





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- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

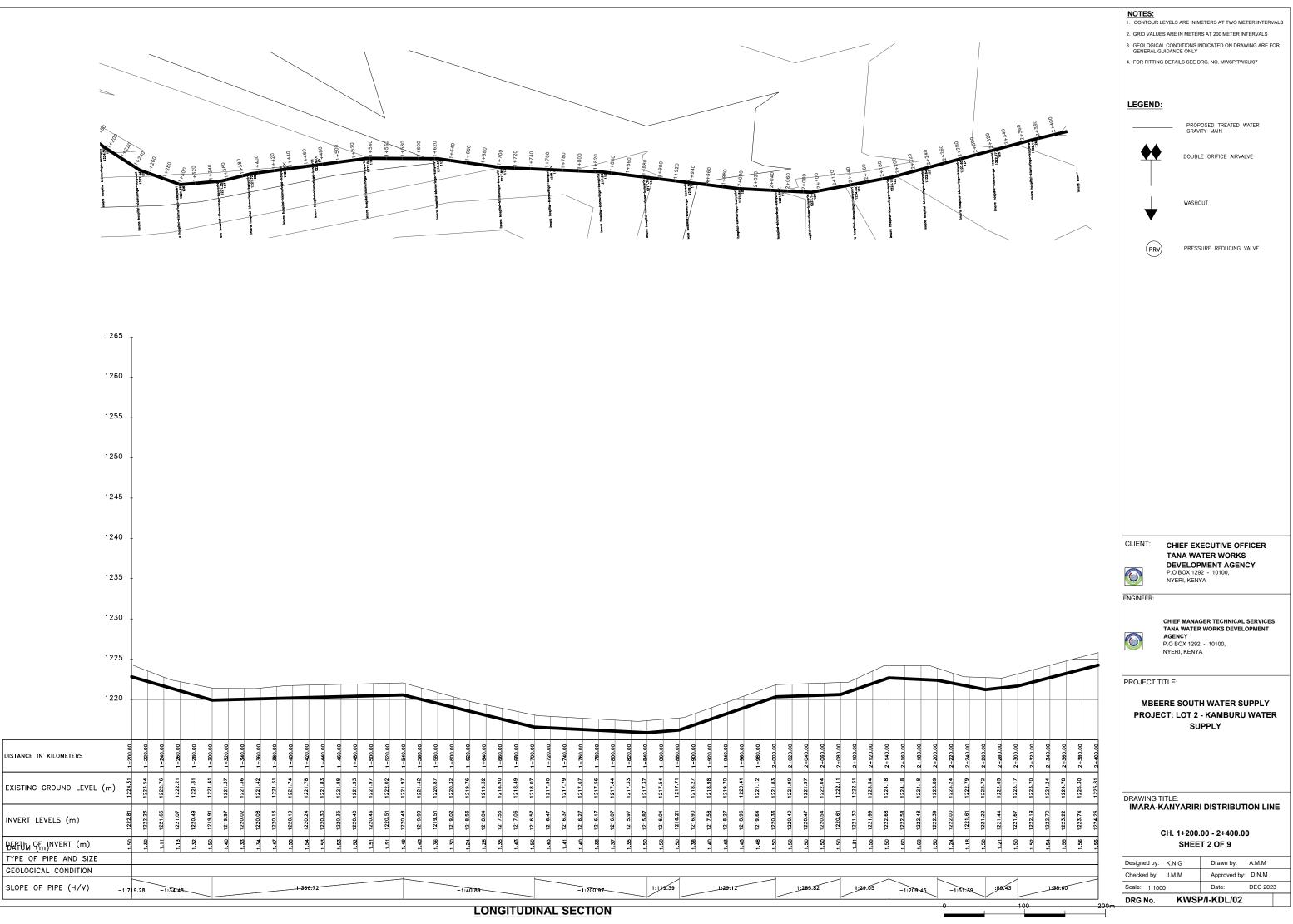
WASHOUT

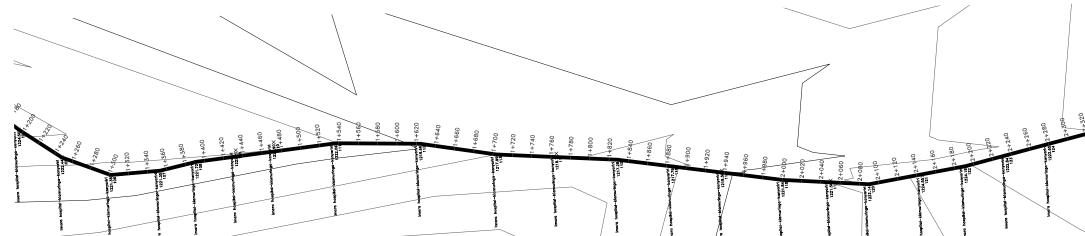


PRESSURE REDUCING VALVE

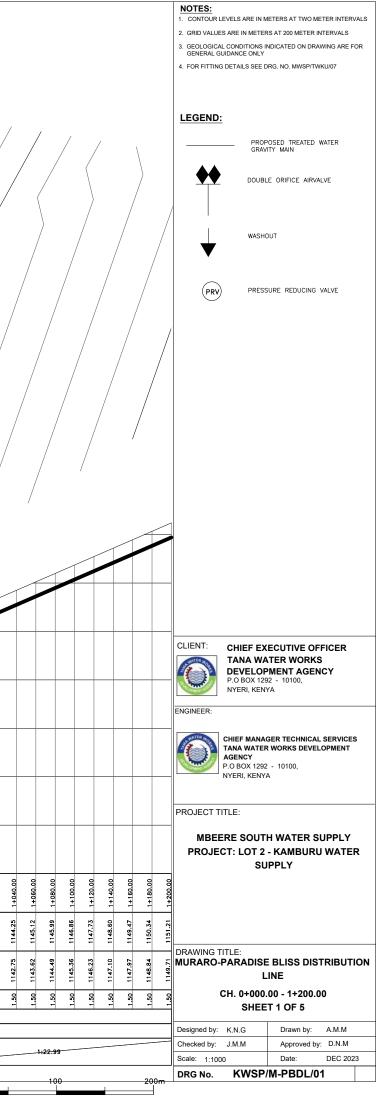
1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+180.00	200.00		
+	÷	÷	÷	÷	÷	÷		
1224.42	1224.36	1224.30	1224.31	1224.38	1224.45	1224.31 1+200.00		
1222.98	1222.95	1222.93	1222.90	1222.87	1222.84	1222.81		
					_	-		
1.44		1.3	1.42	1.51	1.61	1.50		
(PN1	2.5)							
		-1:7	9.28			-1:3	4.48	
		-10	0				20	0 n

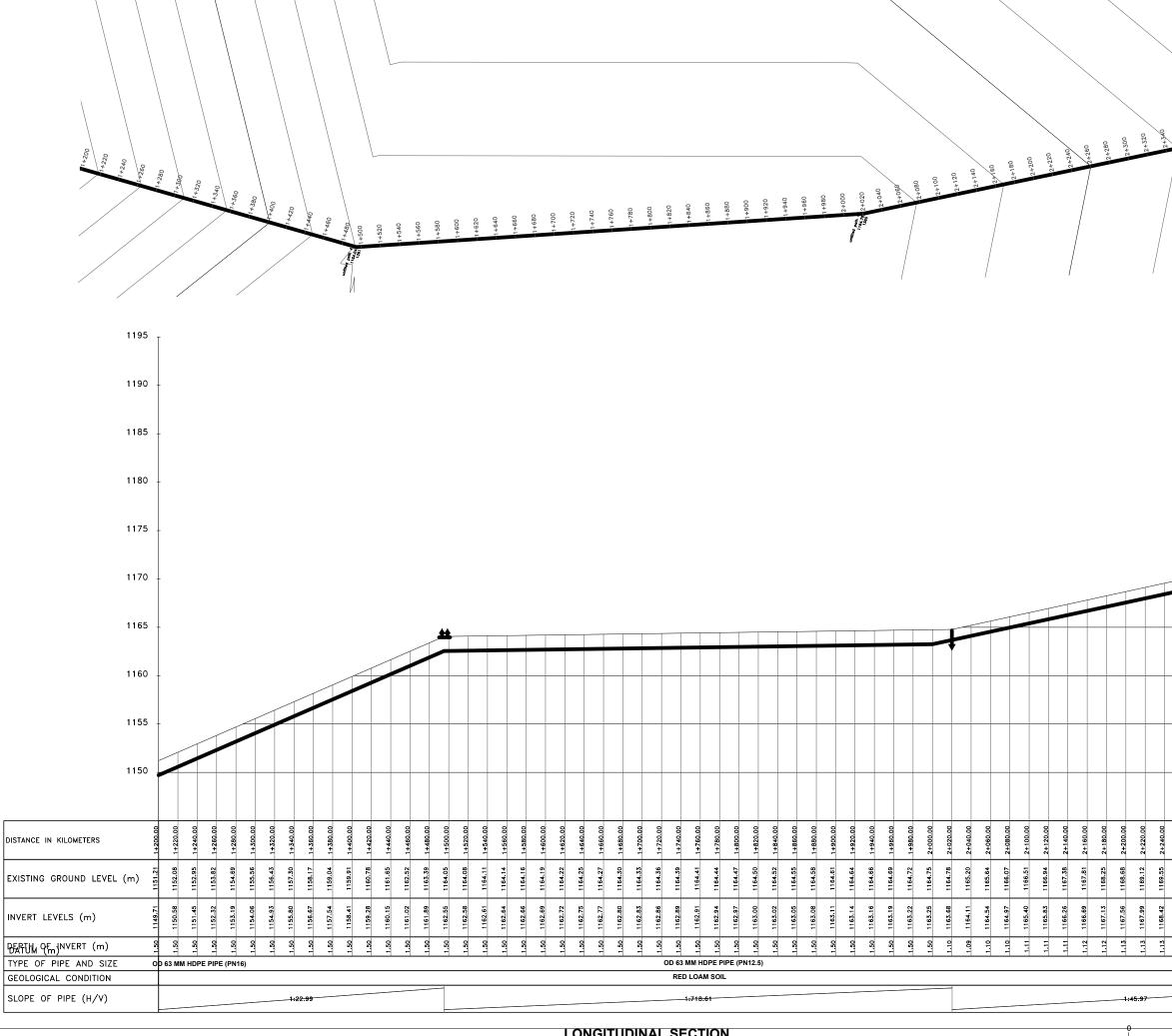




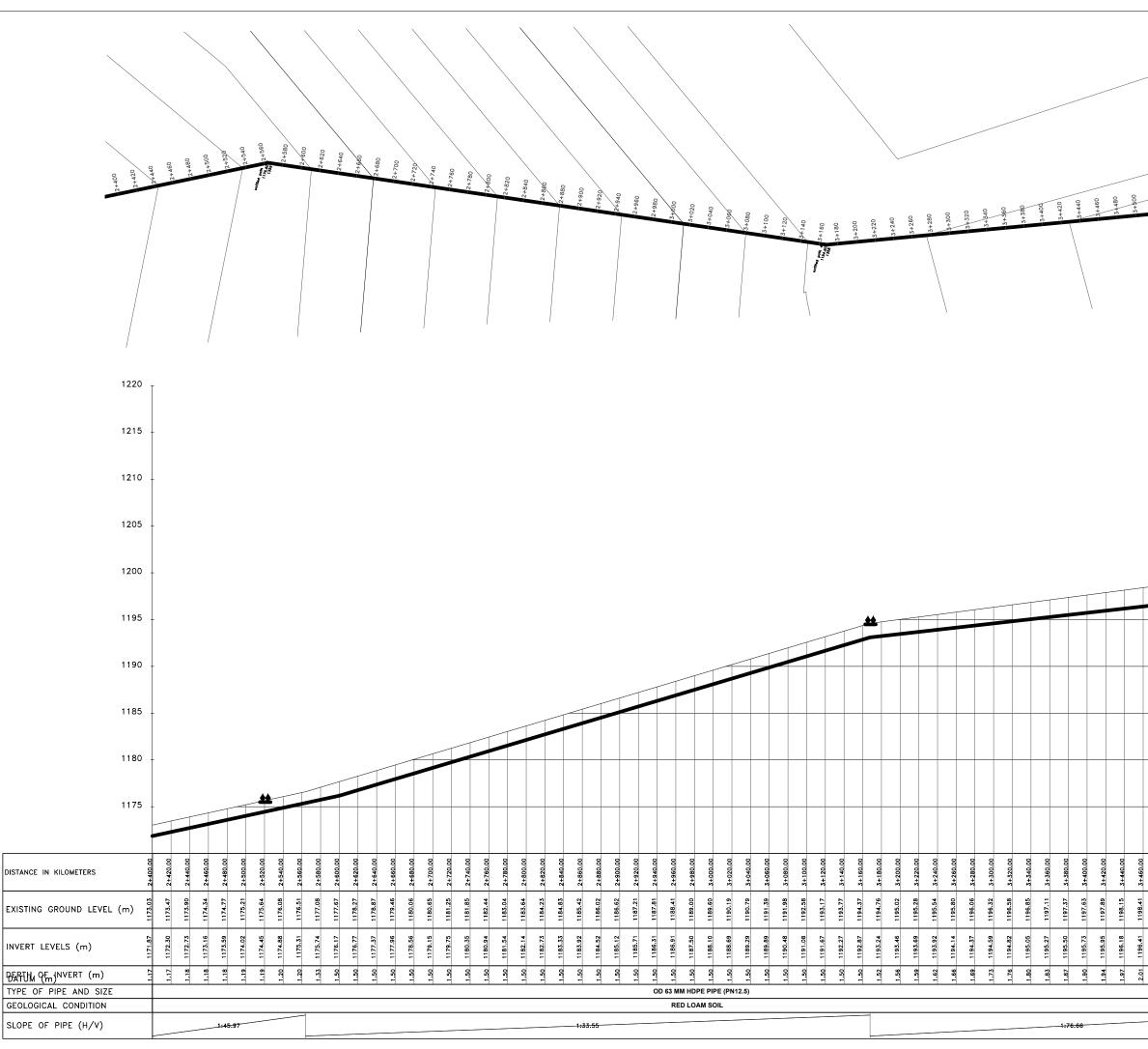


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DISTANCE IN KILOMETERS	00 ^{.000}	0+020.00	0+040.00 0+060.00	0+080.00	0+100.00	0+120.00	0+140.00 0+160.00	0+180.00	0+200.00	0+220.00	0+260.00	0+280.00	0+300.00	0+320.00	0+360.00	0+380.00	0+400.00	0+420.00 0+440.00	0+460.00	0+480.00	0+500.00	0+520.00 0+540.00	0+560.00	0+580.00	0+620.00	0+640.00	0+660.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00 0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00 0+940.00	0+960.00	0+980.00	1+000.00 1+020.00
EXISTING GROUND LEVEL	- (m) - 100		1161.46 1159.36				1150.97			1142.06			_	1129.74				1121.66 1121.32				1120.07		1119.67 1119.54			1122.39	+ +				1129.84		1133.56	1134.80	_		1138.55			1142.51 1143.38
INVERT LEVELS (m)	1163.86	1162.04	1159.91 1157.79	1155.67	1153.55	1151.43	1149.30 1147.18	1145.06	1142.94	1140.56 1138.10	1135.63	1133.17	1130.71	1128.24	1123.31	1120.86	1120.51	1120.16 1119.82	1119.47	1119.13	1118.78	1118.57	1118.30	1118.17 1118.04	1118.41	1119.65	1120.89	1123.37	1124.61	1125.86	1127.10	1128.34	1130.82	1132.06	1133.30	1134.54	1135.79	1137.03	1139.27	1140.14	1141.01
DEATTH OF INVERT (m) TYPE OF PIPE AND SIZE	1		1.55 1.57		1.62	1.64	1.69	1.72	1.59	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50 1.50	1.50	1.50	1.50	1.50		1.50			1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50
GEOLOGICAL CONDITION	c I	DD 63 MM	HDPE P															_				_	_	LOAMS		5)													1		
SLOPE OF PIPE (H/V)	-1:31	3.58			1:9.53							-1:8	.12					-1:	57.78				-1:151.6	6							1:1	16.11									

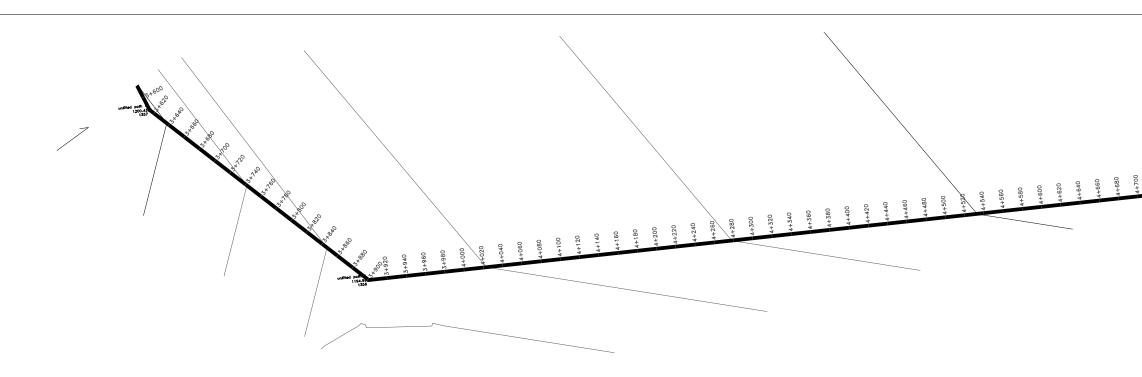


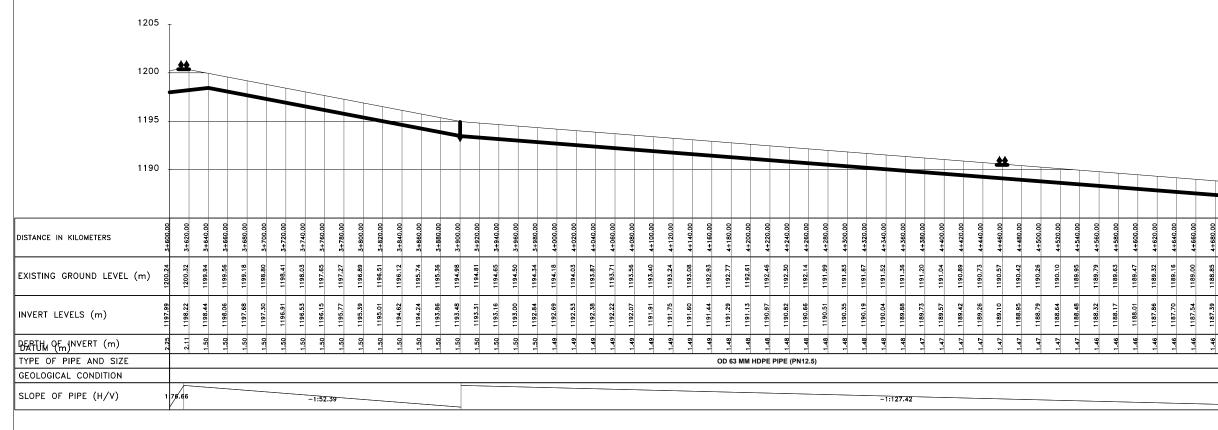


								NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
								LEGEND: PROPOSED TREATED WATER GRAVITY MAIN
2+360	2+380	2+400						DOUBLE ORIFICE AIRVALVE
								WASHOUT
								PRESSURE REDUCING VALVE
								CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS
								DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
								CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
								PROJECT TITLE: MBEERE SOUTH WATER SUPPLY
								PROJECT: LOT 2 - KAMBURU WATER SUPPLY
2+260.00	2+280.00	2+300.00	2+320.00	2+340.00	2+360.00	2+380.00	2+400.00	
1169.99	1170.42	1170.86	1171.29	1171.73	1172.16	1172.60	1173.03	DRAWING TITLE:
1168.85	1169.28	1169.71	1170.14	1170.57	1171.00	1171.43	1171.87	MURARO-PARADISE BLISS DISTRIBUTION LINE
1.14	1.14	1.15	1.15	1.16	1.16	1.16	1.17	CH. 0+000.00 - 1+200.00 SHEET 2 OF 5
								Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
								Scale: 1:1000 Date: DEC 2023
		100)				-20	m DRG No. KWSP/M-PBDL/02



3+250	34-540	3+560	3+580	1 009+H			NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
	3+500.00	3+520.00	3+540.00	3+560.00	3+580.00	3+600.00	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
1106 67	1196.86 1198.93	2.11 1197.08 1199.19 3+5	2.14 1197.31 1199.45 3+5	2.18 1197.54 1199.72 3+56	2.21 1197.76 1199.98 3+56	1 2.25 1197.39 1200.24 3+60	DRAWING TITLE: MURARO-PARADISE BLISS DISTRIBUTION LINE CH. 2+400.00 - 3+600.00 SHEET 3 OF 5 Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
		100					Scale: 1:1000 Date: DEC 2023 DRG No. KWSP/M-PBDL/03



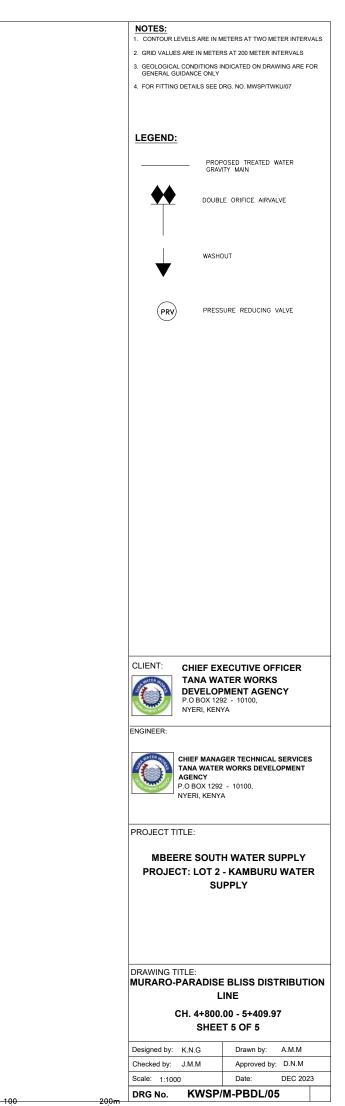


RED LOAM SOIL

	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
	LEGEND:
4+720 4+740 4+760 4+760 4+80	GRAVITY MAIN COUBLE ORIFICE AIRVALVE
	WASHOUT
	(PRV) PRESSURE REDUCING VALVE
	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
-700.00 -720.00 -740.00 -760.00 -760.00	Children Exect of the off ficer TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
1188.65 4+700.00 1188.53 4+720.00 1188.56 4+740.00 1188.36 4+740.00 1188.26 4+740.00 1188.06 4+780.00 1187.90 4+800.00	CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY
	Chief Execting Officer TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: Chief Manager Technical services TANA WATER WORKS DEVELOPMENT Agency P.O BOX 1292 - 10100, NYERI, KENYA
1187.23 1188.69 1187.08 1188.69 1186.92 1188.36 1186.42 1188.36 1186.45 1188.06 1186.45 1188.06 1186.45 1187.00	CHIEF EXECUTIVEER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
1187.2.3 1188.69 1187.08 1188.69 1186.92 1188.36 1186.45 1188.36 1186.45 1188.06 1186.45 1187.90	CHIEF EXECUTIVEER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: MURARO-PARADISE BLISS DISTRIBUTION
1187.23 1188.69 1187.08 1188.69 1186.92 1188.36 1186.42 1188.36 1186.45 1188.06 1186.45 1188.06 1186.45 1187.00	CHIEF EXECUTIVE Image: Chief Manager Technical Services DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: Image: Chief Manager Technical Services TANA WATER WORKS DEVELOPMENT P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: MURARO-PARADISE BLISS DISTRIBUTION LINE CH. 3+600.00 - 4+800.00 SHEET 4 OF 5 Designed by: K.N.G Drawn by: A.M.M
1187.23 1188.69 1187.08 1188.53 1186.92 1188.36 1186.92 1188.36 1186.45 1188.36 1186.45 1188.06 1186.45 1187.90	CHIEF EXECUTIVE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY DRAWING TITLE: MURARO-PARADISE BLISS DISTRIBUTION LINE CH. 3+600.00 - 4+800.00 SHEET 4 OF 5

RED LOAM SOIL

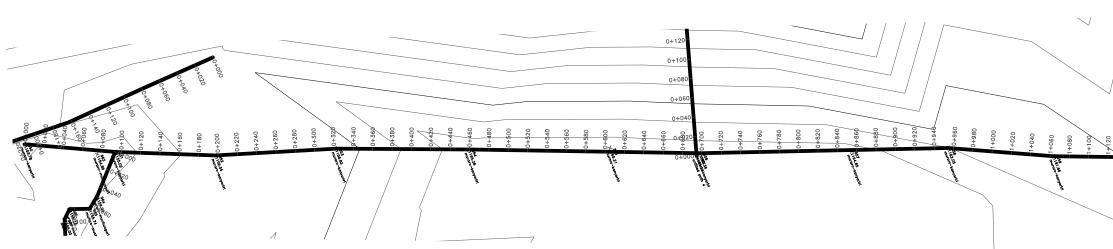
4+80	4+820 4+840		4+880	050 070 070 070 070 070 070 070 070 070	09647	4+980	2+000	5+020	5+040	090+5	2+080	-5+100	5+140	54-1-40 54-150	5+180	5+200	5+220	096740	5+260	2+300	5+320	5+340	5+360	380	001-1-100-1- 1001-1001-1001-1001-1001-1001-1001-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100- 1001-1001-1001-1001-1001-1001-1001-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1-100-1 1001-1001-1001-1001-1001-1001-100-100	014408	
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1195	+									/																	
1190	+					_									_												
1185																											
DISTANCE IN KILOMETERS	4+800.00 4+820.00	4+840.00	4+860.00 4+880.00	4+900.00	4+940.00	4+960.00	4+980.00	5+000.00	5+020.00	5+040.00	5+060.00 5+080.00	5+100.00	5+120.00	5+140.00	5+160.00	5+180.00	5+200.00 5+220.00	5+240.00	5+260.00	5+280.00	5+300.00	5+320.00	5+340.00	5+360.00	5+380.00	5+400.00 5+409.97	
EXISTING GROUND LEVEL (m)	1187.90 1187.75		1187.43	1187.12	1188.08		1190.20				1194.46 1195.52		1197.65	1198.71	1199.77	1200.84	1201.90		1205.09	1206.15	1207.22		1209.34	1210.41	1211.47	1212.53 1213.06	
INVERT LEVELS (m)	1186.45 1186.30	1186.14	1185.99 1185.83	1185.67	1186.58	1187.64	1188.71	1189.77	1190.83	1191.90	1192.96 1194.02	1195.09	1196.15	1197.21	1198.28	1199.34	1200.40 1201.46	1202.53	1203.59	1204.65	1205.72	1206.78	1207.84	1208.91	1209.97	1211.03 1211.56	
DEPTH OF NVERT (m)	1.45	1.45	1.45	1.45	1.50	1.50	1.50	1.50			1.50	_			1.50	1.50	1.50 1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	
TYPE OF PIPE AND SIZE									C	OD 63 M		PE PIPE	(PN12	2.5)													
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V)	\vdash	_			1.0											0.04 -											
		-1:	127.42	-1:2	33 . 990										;	18.81											

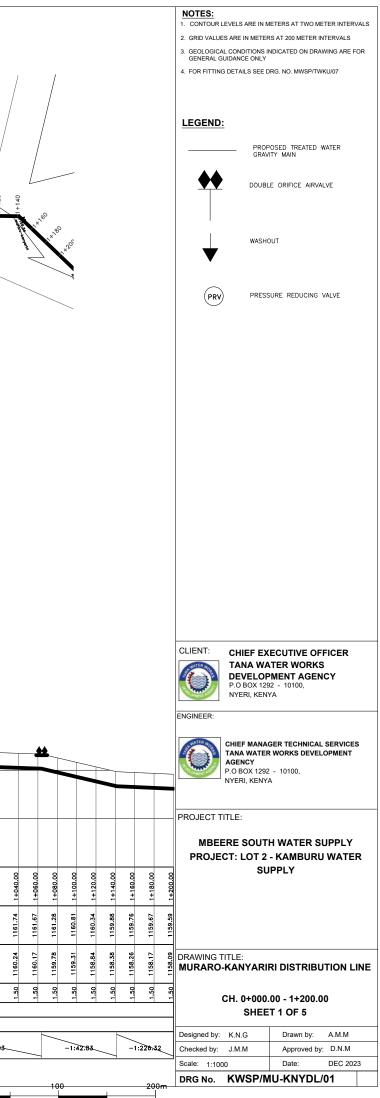


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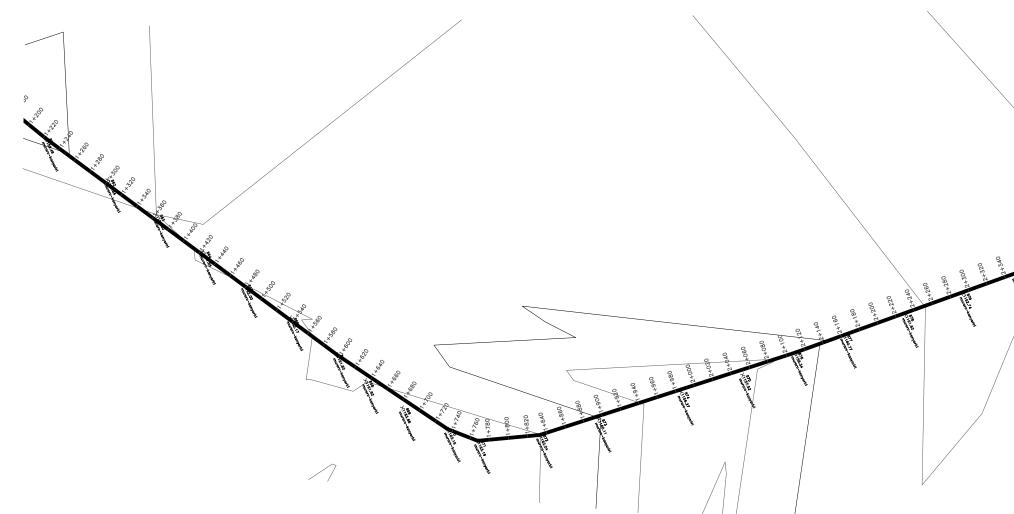
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1165 .	-																	_																						_					
1160	-																																									-		_	
1155																																										_		+	
DISTANCE IN KILOMETERS	0+020.00	0+040.00		0+080.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+240.00	0+260.00	0+280.00	0+300.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+560.00	0+580.00	0+600.00	0+620.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	01-180-00	0+800.00	0+840.00	0+860.00	0+880.00	00.000+0	0+920.00	0+940.00	0+960.00	0+980.00	+000.00 +020.00	00.0201
EXISTING GROUND LEVEL (m)	1154.21		_	1155.29	1156.16	1157.04 (1157.91 (1158.78 (1159.42	31	1159.19 (_	1158.96 (1158.84		1160.62	1161.56 (1162.50 (1163.44 (1164.38 (1165.28 (1165.26 (1165.23 (1165.19	1165.18		1165.22 (1165.33 (1165.35 (1165.27 (1165.18 (1165.10	20.0011	1164.85	+ +			1163.48 (1162.96		1162.03 (1161.96	1161.89 1161.82	1161.74
INVERT LEVELS (m)	1152.54	1152.81	1153.07	1153.82	1154.69	1155.56	1156.42	1157.29	1157.92	1157.81	1157.69	1157.58	1157.46 1157.34	1158.27	1159.19	1160.12	1161.04	1161.97	1162.89	1163.78	1163.78	1163.79	1163.80 1163.80	1163.81	1163.81	1163.82	1163.83	1163.84	1163.85	1163.85	1163.77	1163.68	1163.60	20.0011	1163.35	1163.26	1163.03	1162.50	1161.98	1161.46	1160.93	1160.53	1160.46	1160.39 1160.32	1160.24
DEATHM OF INVERT (m)	1.67	1.83	2.00	1.47	1.47	1.48	1.49	1.49	1.50 1.50	1.50	1.50	1.50	1.50	1.42	1.43	1.44	1.46	1.47	1.49	1.50	1.48	1.45	1.43	1.38	1.36	1.34	1.39	1.46	1.49	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50 1.50	1.50
TYPE OF PIPE AND SIZE	00	110 MM HDPE	PIPE (PN12.5)																						HDPE PI		12.5)																		
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V)		: 46.6 5	-1	:76.73	_	1:22	.90			_	-1:173	62	_			1;	:21.3 1				_		-1:1197				7 1:452.	06	1:654.0	53			-1:23	57.42		_		_	-1:38	8.19	_			-1:277.0	03

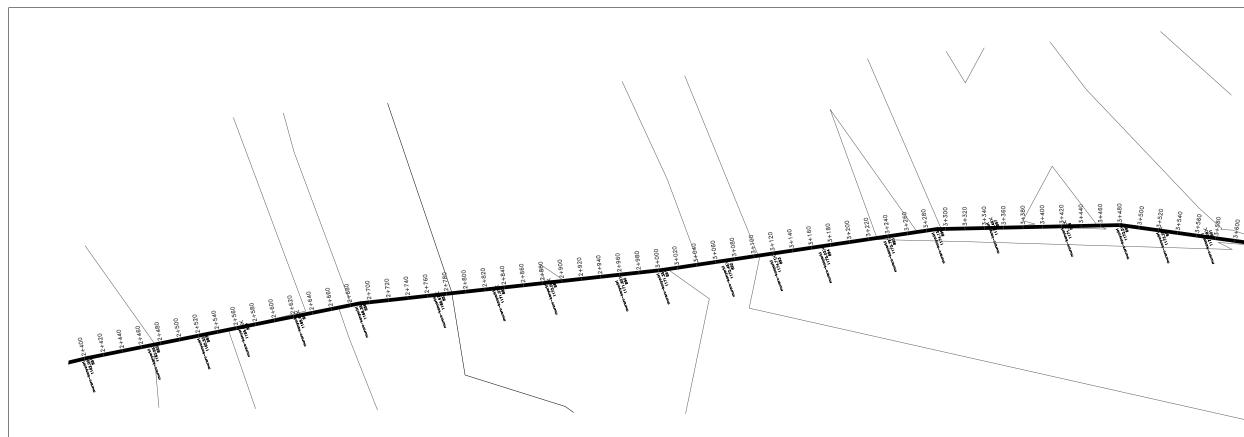


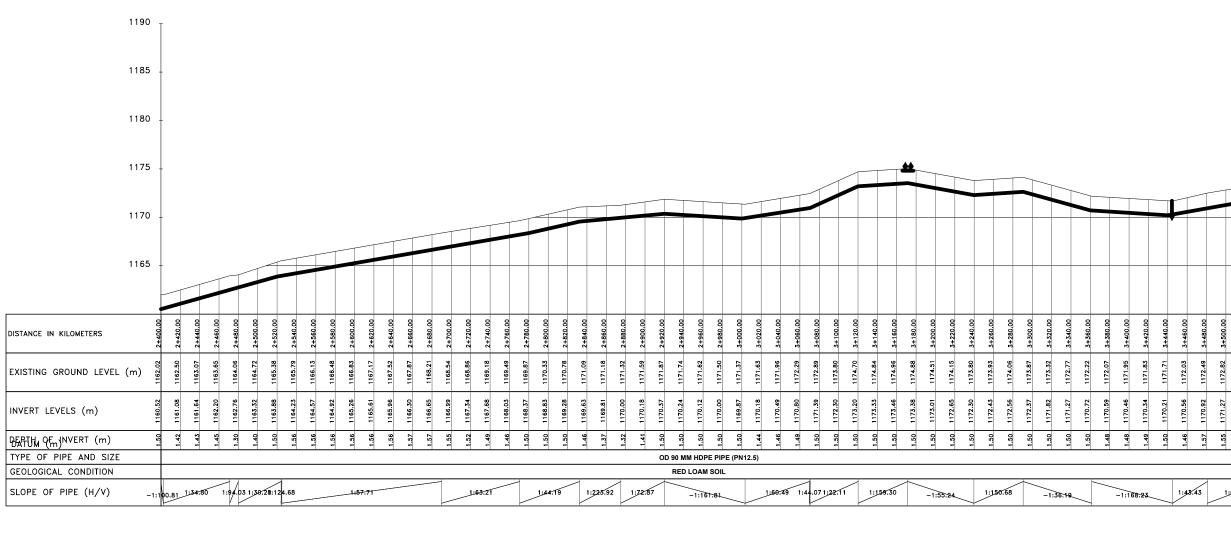


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DISTANCE IN KILOMETERS	1+200.	1+220.00	1+240.00	1+260.00 1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00	1+420.00	1+440.00	1+460.00	1+480.00	1+500.00	1+540.00	1+560.00	1+580.00	1+600.00	1+620.00	1+660.00	1+680.00	1+700.00	1+720.00	1+740.00	1+780.00	1+800.00	1+820.00	1+840.00	1+880.00	1+900.00	1+920.00	1+940.00	1+960.00	2+000.00	2+020.00	2+040.00	2+060.00	2+080.00	2+120.00	2+140.00	2+160.00	2+180.00	2+200.00	2+220.00 2+240.00	2+260
EXISTING GROUND LEVEI	. (m) . 1 ^{59.59}	1159.50	1159.86	1160.28	1161.10	1161.50	1161.90	1162.06	1162.04	1161.97	1161.98	1161.99	1162.02	1162.07	1162.15	1162.03	1161.92	1161.82	1161.82 1161.82	1162.07	1162.71	1163.36	1163.29	1163.17	1162.98	1162.62	1162.26	1161.79	1160.47	1159.73	1158.88	1158.03	1157.18	1156.66	1156.96	1157.27	1157.58	1157.88 1158.19	1158.82	1159.73	1160.64	1160.99	1161.24	1161.49 1161.79	1162.15
INVERT LEVELS (m)	1158.09	1158.00	1158.35	1159.16	1159.57	1159.98	1160.39	1160.57	1160.55	1160.54	1160.54	1160.53	1160.52	1160.56 1160.61	1160.65	1160.54	1160.43	1160.32	1160.32 1160.32	1160.65	1161.25	1161.86	1161.81	1161.76	1161.48	1161.12	1160.76	1160.28 1159 60	1158.92	1158.23	1157.38	1156.53	1155.68	1155.19	1155.49	1155.79	1156.09	1156.39	1157.32	1158.23	1159.14	1159.45	1159.77	1160.08 1160.40	1160.71
DEPTH OF INVERT (m)	1.50	1.50	1.51	1.52 1.53	1.53	1.52	1.51	1.49	1.48	1.43	1.44	1.47	1.50	1.51	1.50	1.49	1.49	1.50	1.50	1.42	1.46	1.50	1.48	1.41	1.50	1.50	1.50	1.51	1.55	1.50	1.50	1.50	1.50	1.47	1.47	1.48	1.48	1.49	1.50	1.50	1.50	1.53	1.47	1.41	1.44
TYPE OF PIPE AND SIZE																								OD 90	ммн	DPE PIPI	E (PN12	5)																	
GEOLOGICAL CONDITION																								F	RED LO	AM SOIL	-																		
SLOPE OF PIPE (H/V)		1:226.32		/	1	1:50.2				N	0.671:11		1.	1:350.3	2	<u> </u>	71:03	1:	35407.7	71:58	2 1:31	00		211:1184	.39	-1:55:			×	1:71.00		:23.51		0.51		1:65.0	-		7	1:21.9		4.5	70.00		



				NOTES:
				1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
				LEGEND:
				PROPOSED TREATED WATER GRAVITY MAIN
				DOUBLE ORIFICE AIRVALVE
,360 2+380	2+400			WASHOUT
+ Z generati				PRESSURE REDUCING VALVE
\bigwedge				
			_	
			_	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
*			ŀ	ENGINEER:
			_	PROJECT TITLE:
				MBEERE SOUTH WATER SUPPLY
2+260.00 2+280.00	2+300.00 2+320.00 2+340.00	2+360.00 2+380.00 2+400.00		PROJECT: LOT 2 - KAMBURU WATER SUPPLY
	1162.63 1162.63 1162.55	1162.42 1162.22 1162.02		
	1161.20 1161.06	1160.79 1160.66 1160.52		DRAWING TITLE: MURARO-KANYARIRI DISTRIBUTION LINE
1.47	1.52 1.57 1.63	1.56 1.56		CH. 1+200.00 - 2+400.00
1:56:52	-1:250-84	-1:106-81	H	SHEET 2 OF 5 Designed by: K.N.G Drawn by: A.M.M
		7		Checked by: J.M.M Approved by: D.N.M Scale: 1:1000 Date: DEC 2023
	100		200m	DRG No. KWSP/MU-KNYDL/02

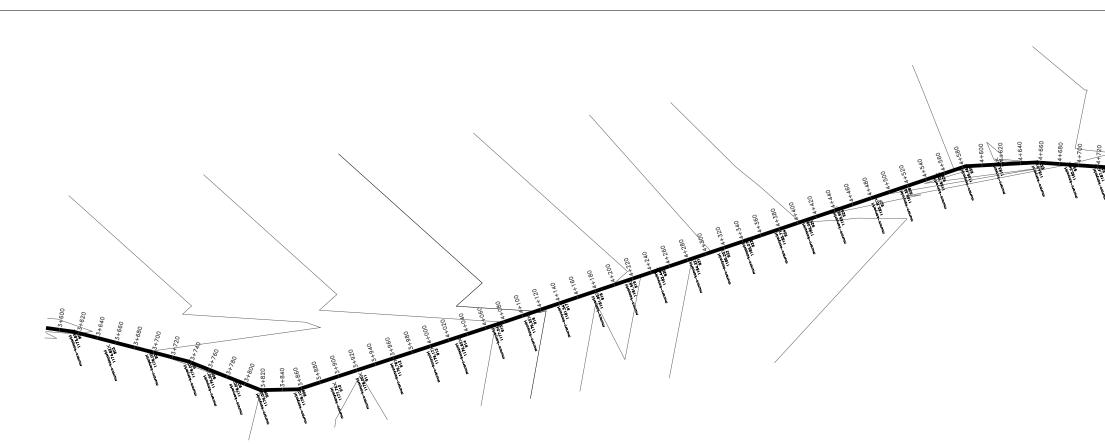


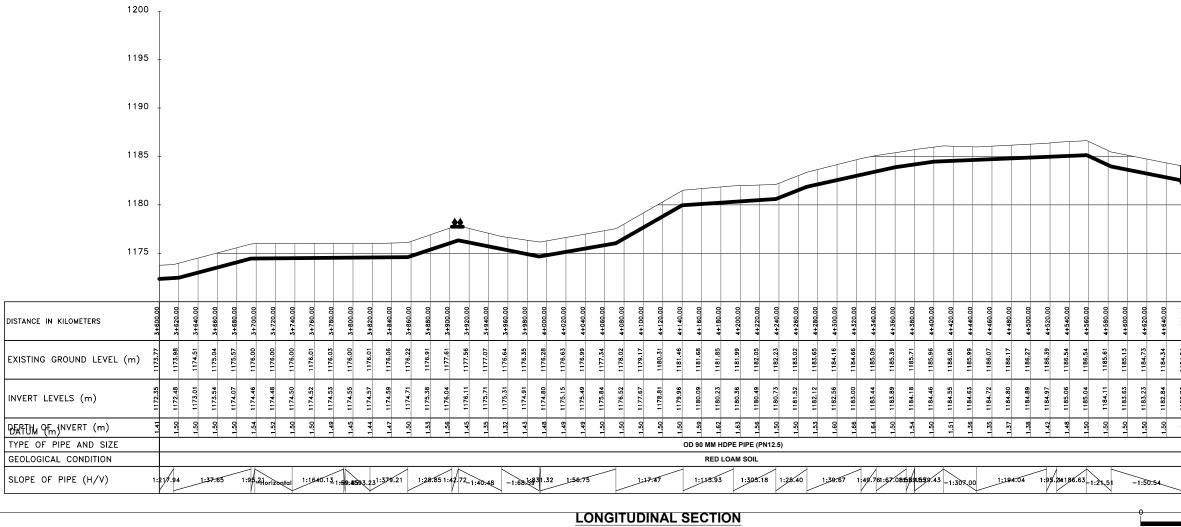


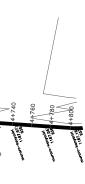
	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
	LEGEND:
	PROPOSED TREATED WATER GRAVITY MAIN
	DOUBLE ORIFICE AIRVALVE
1 3 500	WASHOUT
	PRESSURE REDUCING VALVE
	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	ENGINEER:
	CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	PROJECT TITLE:
3+500.00 3+520.00 3+520.00 3+560.00 3+560.00 3+600.00	MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
27 1172.82 63 1173.15 .98 1173.49 .11 1173.58 .23 1173.58 .23 1173.57 .25 1173.57	
1171 1171 1172 1172 1172 1172 1172 1172	DRAWING TITLE: MURARO-KANYARIRI DISTRIBUTION LINE
1.55 1.50 1.50 1.47 1.41	CH. 2+400.00 - 3+600.00 SHEET 3 OF 5
1:60:57 1:217.94	Designed by: K.N.G Drawn by: A.M.M
r	Checked by: J.M.M Approved by: D.N.M Scale: 1:1000 Date: DEC 2023
	DRG No. KWSP/MU-KNYDL/03

1172.49

1170.92



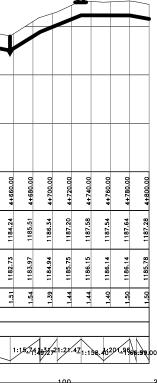




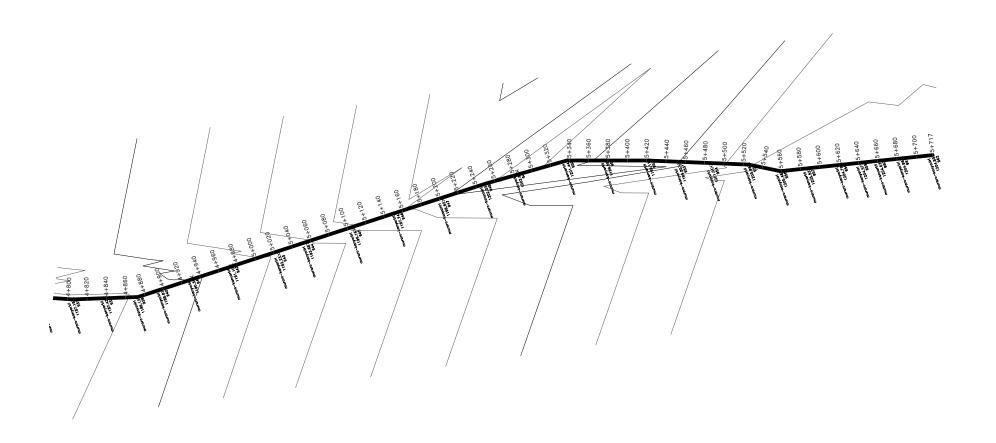
NOTES:

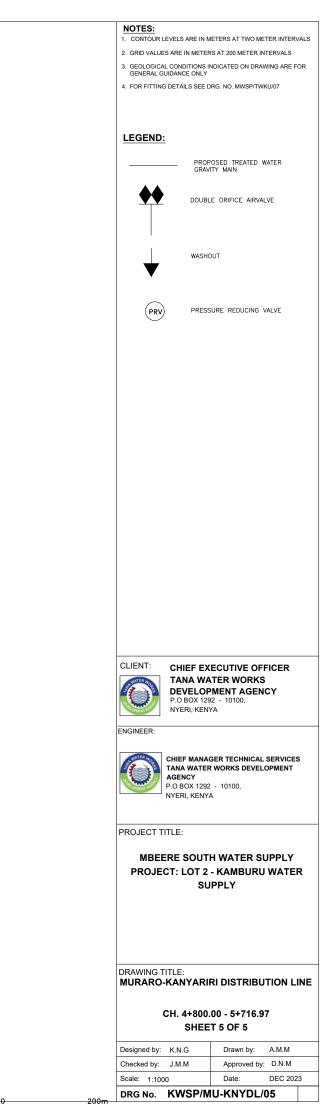
CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 GRID VALUES ARE IN METERS AT 200 METER INTERVALS

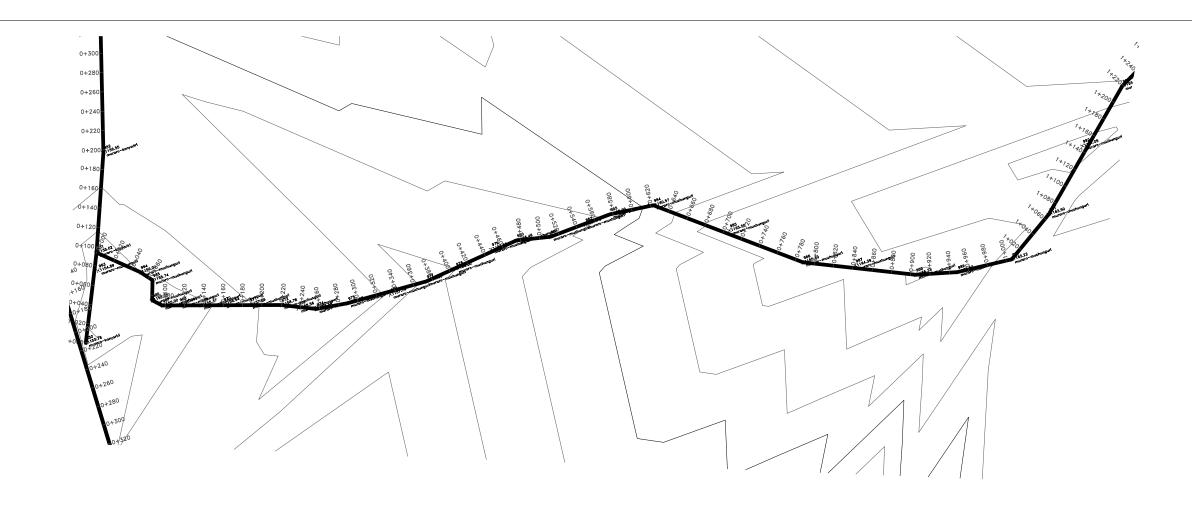
	DRG. NO. MWSP/TWKU/07
LEGEND:	
	POSED TREATED WATER
GR4	VITY MAIN
	BLE ORIFICE AIRVALVE
WASH	HOUT
V	
(PRV) PRES	SURE REDUCING VALVE
Ŭ	
TANA W DEVELO	XECUTIVE OFFICER ATER WORKS PMENT AGENCY 292 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI	ATER WORKS PMENT AGENCY 292 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI	ATER WORKS PMENT AGENCY 292 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN, TANA WATE	ATER WORKS PMENT AGENCY 292 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER:	ATER WORKS PMENT AGENCY 192 - 10100, NYA AGER TECHNICAL SERVICES R WORKS DEVELOPMENT 12 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MANJ TANA WATE AGENCY P.O BOX 125	ATER WORKS PMENT AGENCY 192 - 10100, NYA AGER TECHNICAL SERVICES R WORKS DEVELOPMENT 12 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI	ATER WORKS PMENT AGENCY 192 - 10100, NYA AGER TECHNICAL SERVICES R WORKS DEVELOPMENT 12 - 10100,
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN. TANA WATE AGENCY P.O BOX 122 NYERI, KEN PROJECT TITLE: MBEERE SOU	ATER WORKS PMENT AGENCY 292 - 10100, 197A AGER TECHNICAL SERVICES R WORKS DEVELOPMENT 122 - 10100, YA TH WATER SUPPLY
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN, TANA WATE AGENCY P.O BOX 122 NYERI, KEN PROJECT TITLE: MBEERE SOU PROJECT: LOT 2	ATER WORKS PMENT AGENCY 292 - 10100, 1YA AGER TECHNICAL SERVICES RWORKS DEVELOPMENT 12 - 10100, YA
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN, TANA WATE AGENCY P.O BOX 122 NYERI, KEN PROJECT TITLE: MBEERE SOU PROJECT: LOT 2	ATER WORKS PMENT AGENCY 292 - 10100, 1974 AGER TECHNICAL SERVICES R: WORKS DEVELOPMENT 102 - 10100, 174 TH WATER SUPPLY 2 - KAMBURU WATER
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN, TANA WATE AGENCY P.O BOX 122 NYERI, KEN PROJECT TITLE: MBEERE SOU PROJECT: LOT 2	ATER WORKS PMENT AGENCY 292 - 10100, 1974 AGER TECHNICAL SERVICES R: WORKS DEVELOPMENT 12 - 10100, 74 TH WATER SUPPLY 2 - KAMBURU WATER
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN, TANA WATE AGENCY P.O BOX 122 NYERI, KEN PROJECT TITLE: MBEERE SOU PROJECT: LOT 2	ATER WORKS PMENT AGENCY 292 - 10100, 1974 AGER TECHNICAL SERVICES R: WORKS DEVELOPMENT 102 - 10100, 174 TH WATER SUPPLY 2 - KAMBURU WATER
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER: CHIEF MAN, TANA WATE PROJECT TITLE: MBEERE SOU PROJECT LOT 2 S DRAWING TITLE:	ATER WORKS PMENT AGENCY 292 - 10100, 1974 AGER TECHNICAL SERVICES ER WORKS DEVELOPMENT 192 - 10100, 192 - 10100, 194 TH WATER SUPPLY 2 - KAMBURU WATER UPPLY
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER:	ATER WORKS PMENT AGENCY 192 - 10100, 197A AGER TECHNICAL SERVICES IR WORKS DEVELOPMENT 192 - 10100, 174 TH WATER SUPPLY 2 - KAMBURU WATER UPPLY IRI DISTRIBUTION LINE
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER:	ATER WORKS PMENT AGENCY 292 - 10100, 1974 AGER TECHNICAL SERVICES R: WORKS DEVELOPMENT 102 - 10100, 174 TH WATER SUPPLY 2 - KAMBURU WATER
TANA W DEVELO P.O BOX 12 NYERI, KEI ENGINEER:	ATER WORKS PMENT AGENCY 192 - 10100, 197A AGER TECHNICAL SERVICES IR WORKS DEVELOPMENT 192 - 10100, 104 105 107 107 107 107 107 107 107 107
TANA W DEVELO P.O BOX 12 NYERI, KEI CHIEF MAN, TANA WATE CHIEF MAN, TANA WATE PROJECT TITLE: MBEERE SOU PROJECT LOT 2 S DRAWING TITLE: MURARO-KANYAR CH. 3+600 SHE	ATER WORKS PMENT AGENCY 292 - 10100, 1974 AGER TECHNICAL SERVICES ER WORKS DEVELOPMENT 192 - 10100, 174 FH WATER SUPPLY 2 - KAMBURU WATER UPPLY IRI DISTRIBUTION LINE 0.00 - 4+800.00 ET 4 OF 5

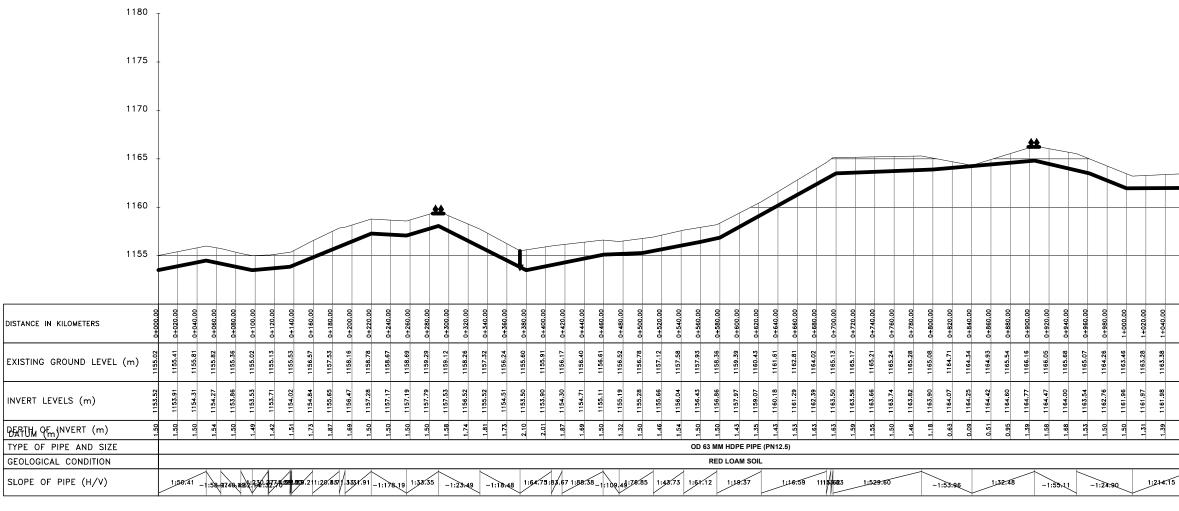


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1210	-																																							
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1200	-																										T							_						
1195	-								_																									_						
1190																																								
DISTANCE IN KILOMETERS	4+800.00	4+840.00	4+880.00	4+900.00	4+920.00	4+940.00	4+960.00 4+980.00	5+000.00	5+020.00	5+040.00	5+060.00	5+080.00	5+100.00	5+120.00 5+140.00	5+160 00	5+180.00	5+200.00	5+220.00	5+240.00	5+260.00	5+280.00	5+300.00	5+320.00	5+340.00 5+360.00	5+380.00	5+400.00	5+420.00	5+440.00	5+480.00	5+500.00	5+520.00	5+540.00	5+560.00	5+580.00	5+600.00	5+620.00	5+640.00	5+680.00	5+700.00	5+716.97
EXISTING GROUND LEVEL (m)	1187.28 1187.39	1187.67 1187.96	1188.33	1188.88	1189.45	1190.03	1190.61 1191.19	1191.88	1192.56	1193.23	1193.95	1194.75	1195.56	1196.36 1197.17	1198.00	1198.90	1199.80	1200.71	1201.61	1202.00	1201.93	1201.87	1201.68	1201.31 1200.22	1199.46	1199.34	1199.12	1199.62	1200.73	1201.84	1203.51	1204.62	1205.48	1205.48	1205.25	1204.89	1204.66 1204.67	1204.91	1204.90	
INVERT LEVELS (m)	1185.78	1186.25	1186.85	1187.42	1187.98	1188.55	1189.12 1189.69	1190.38	1191.10	1191.82	1192.54	1193.25	1194.11	1194.97 1195.83	1196.69	1197.55	1198.41	1199.27	1200.13	1200.46	1200.32	1200.19	1200.05	1199.83 1198.89	1197.96	1197.79	1197.62	1198.12	1199.23	1200.62	1202.01	1202.99	1203.98	1203.87	1203.75	1203.45	1203.16	1203.24	1203.29	
DEPTH OF NVERT (m)	1.50	1.43	1.48	1.46	1.46	1.47	1.49	1.50	1.46	1.41	1.41	1.50	1.45	1.39	121	1.35	1.39		1.48 1.48	HDPE	19 F	89 	1.62	1.48 1.33	1.50	1.55	1.50	1.50	1.50	1.22	1.50	1.62	1.50	1.61	1.50	1.43	1.50	1.4/ 1.66	1.61	
GEOLOGICAL CONDITION	+																																							\neg
SLOPE OF PIPE (H/V) -1	1:51.00 1	:20:77	1:2	3.8102371	š 2	1:34:44	<u></u>	1:27.7	1 1:29	791 ₁₂	8.984		:24.86	_			1:22	2.17	_	-	-1:308	.77	-1:72	1-1:18	3811566	6.78:93	3.45	1:36	.10	1:	17.99	1:22	.09_1:	5623.2	464.97 1	1:55.13	1:3221.3	3 ¹ 588-30	0Z-8924:	2.65









- 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI. KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

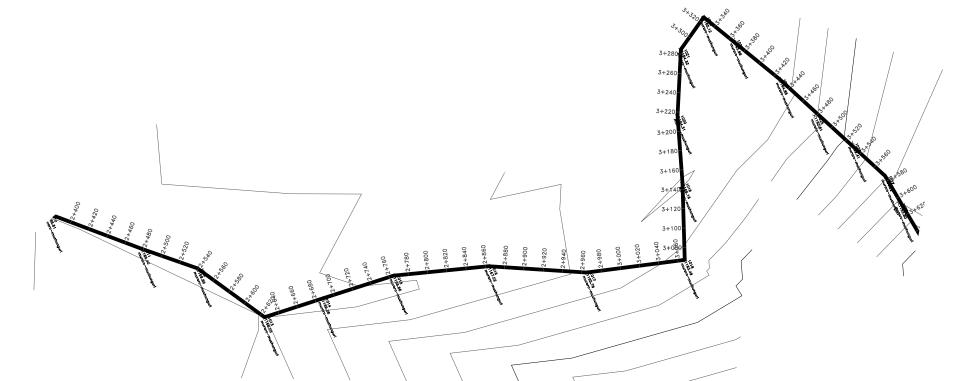
DRAWING TITLE: MURARO-MUCHUNGURI DISTRIBUTION LINE

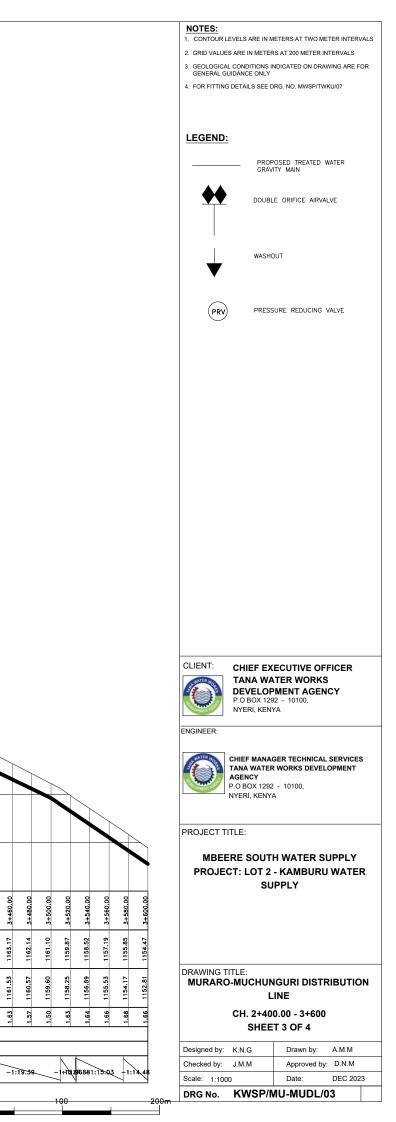
CH. 0+000.00 - 1+200 SHEET 1 OF 4

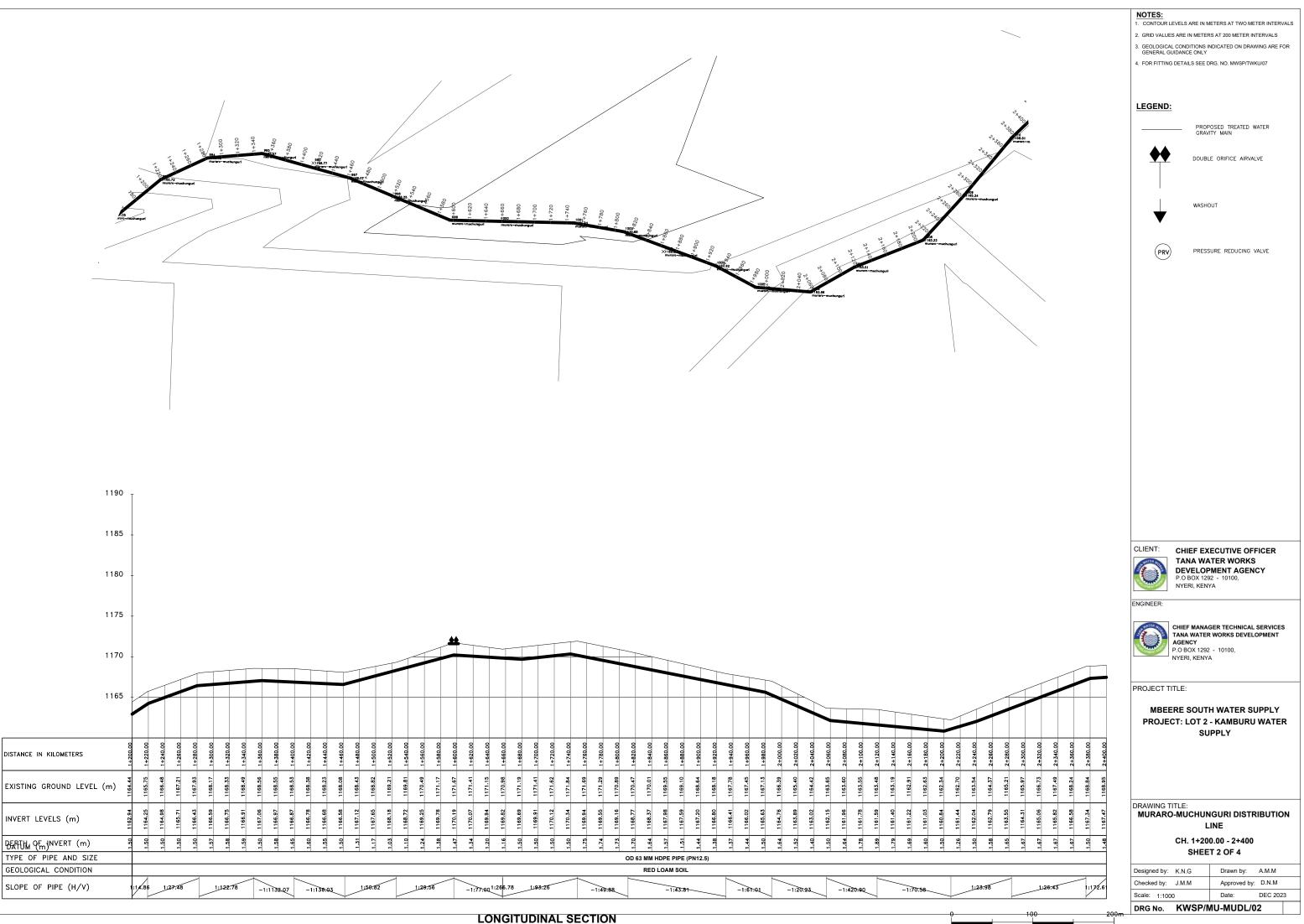
	MU-MUDL/01
Scale: 1:1000	Date: DEC 2023
Checked by: J.M.M	Approved by: D.N.M
Designed by: K.N.G	Drawn by: A.M.M

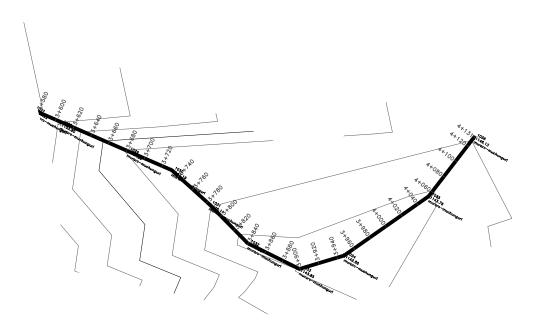


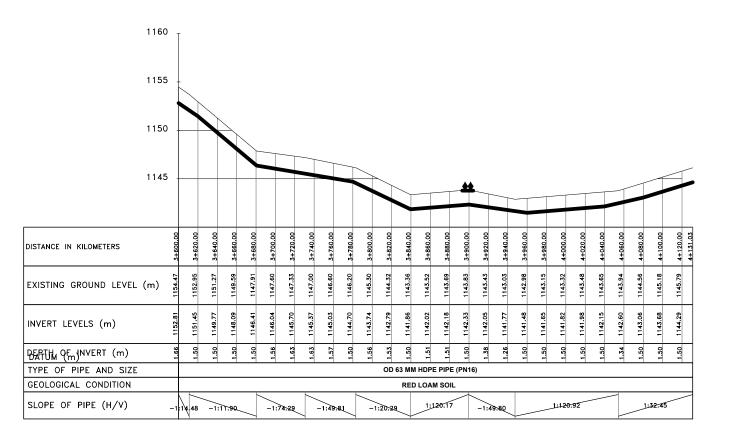
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DISTANCE IN KILOMETERS	2+400.00 2+420.00	2+440.00	2+460.00	2+480.00	2+520.00 2+520.00	2+540.00	2+560.00	2+580.00	2+600.00	2+620.0	2+640.00	2+680.00	2+700.00	2+720.00	2+740.00	2+760.00	2+780.00	2+800.00	2+820.00	2+840.00	2+860.00	2+880.00	2+900.00	2+920.00	2+940.00 2+960.00	2+980.00	3+000.00	3+020.00	3+040.00	3+060.0	3+080.00 3+100.00	3+120.00	3+140.00	3+160.00	3+180.00	3+200.0	3+220.00	3+240.00	3+260.00	3+280.00	3+300.0	3+320.00	3+340.00	3+360.00	3+380.00	3+400.00 3+420.00		
EXISTING GROUND LEVEL (m)	1168.95 1169.07				1169.58 1169.74				_		1168.35 1168.75			1168.26	1167.63	1167.00	1166.88	1166.91	1166.95		_		_	_	1166.09 1165.85					_	1164.60						1164.31				1164.62					1165.21 1164.96		
INVERT LEVELS (m)	1167.47 1167.60	1167.73	1167.87	1168.00	1168.13 1168.27	1168.37	1167.94	1167.51	1167.08	1166.65	1166.98	1167.64	1167.11	1166.57	1166.04	1165.50	1165.51	1165.51	1165.51	1165.51	1165.52	1165.28	1165.05	1164.82	1164.58 1164.35	1163.91	1163.47	1163.03	1162.59	1162.15	1162.65	1163.50	1163.90	1164.30	1163.93	1163.56	1163.19	1162.82	1162.92	1163.02	1163.12	1163.44	1163.75	1164.07	1163.87 1163.67	1163.67 1163.46		
DEATTH OF INVERT (m)	1.48	1.45	1.43	1.42	1.45	1.50	1.50	1.50	1.50	1.50	1.37	1.50	1.78	1.69	1.59	1.50	1.37	1.41	1.44	1.47	1.50	1.54	1.53	1.52	1.51	1.54	1.53	1.52	1.51	1.50	1.50	1.78	2.05	1.50	1.35	1.19	1.13	1.50	1.40	1.30	1.50	1.58	1.56	1.50	1.58	1.54 1.50		
TYPE OF PIPE AND SIZE																									OPE PIP		2.5)																					
GEOLOGICAL CONDITION																							F	RED L	OAM SC																							_
SLOPE OF PIPE (H/V)		1:172.6	1		1:124.9	96	_	-1:46	.55		1:50	.69		-1:	31.89			1:5	93.6 8				-1:8	2.58	_			-1:44.7	\$			29.6 6			-1:3	8:11	\downarrow	1:22	2764.4	.3	1:50	62	1:78.7	m:50.0	7 -1:82	2:44		
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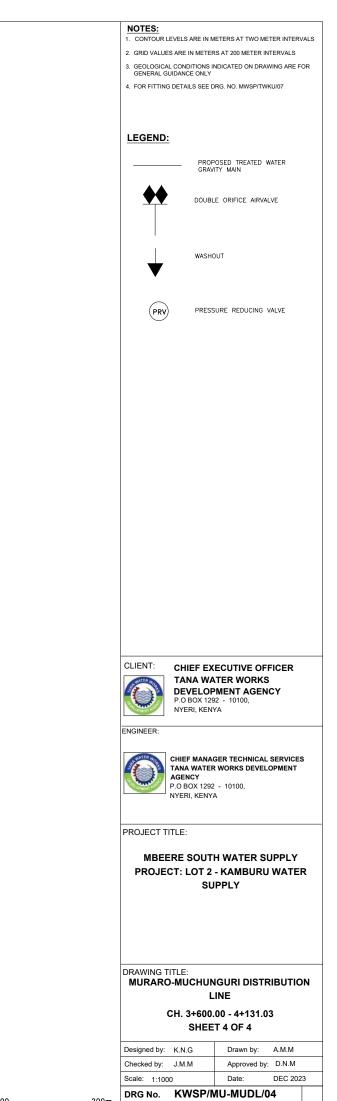




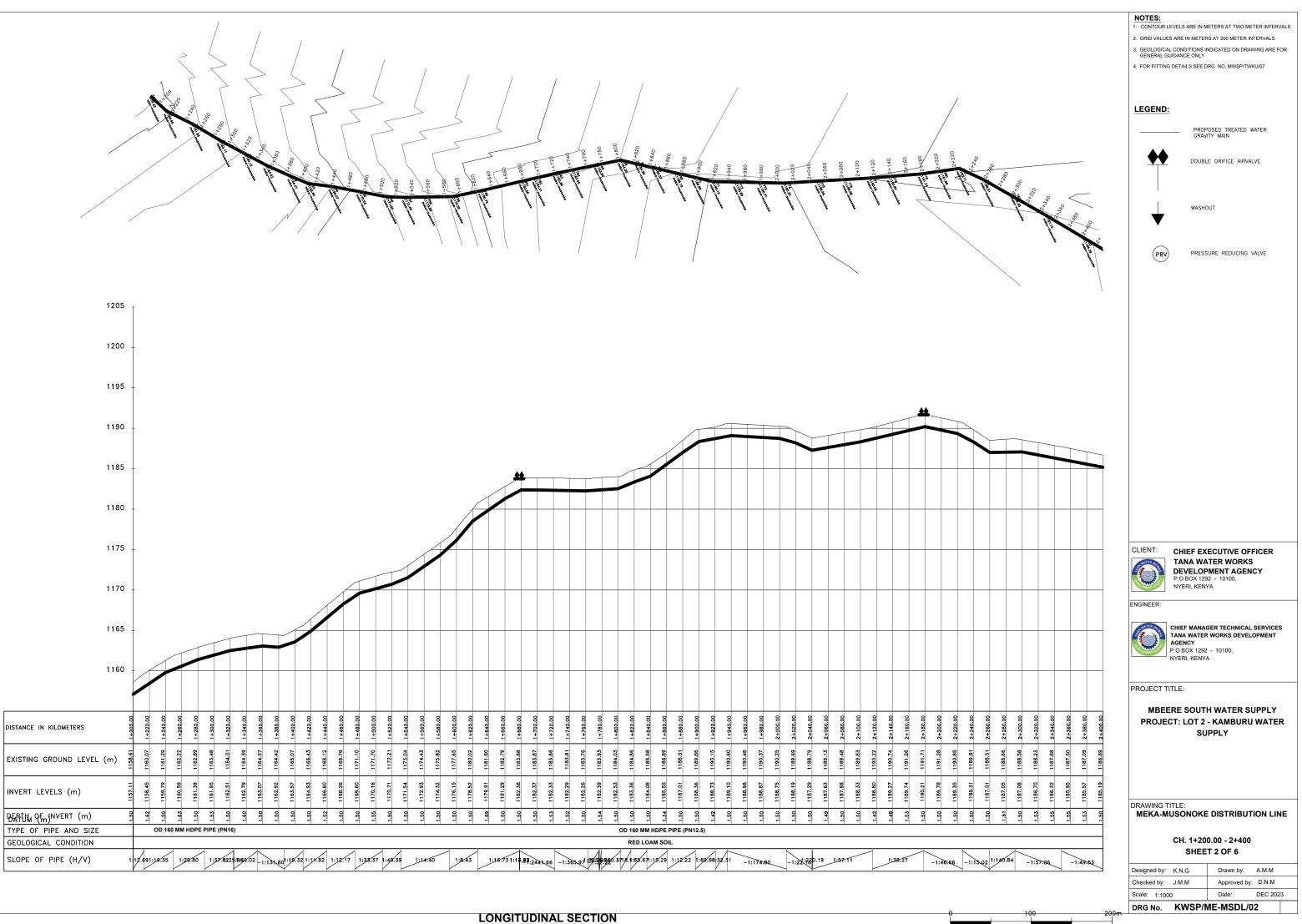


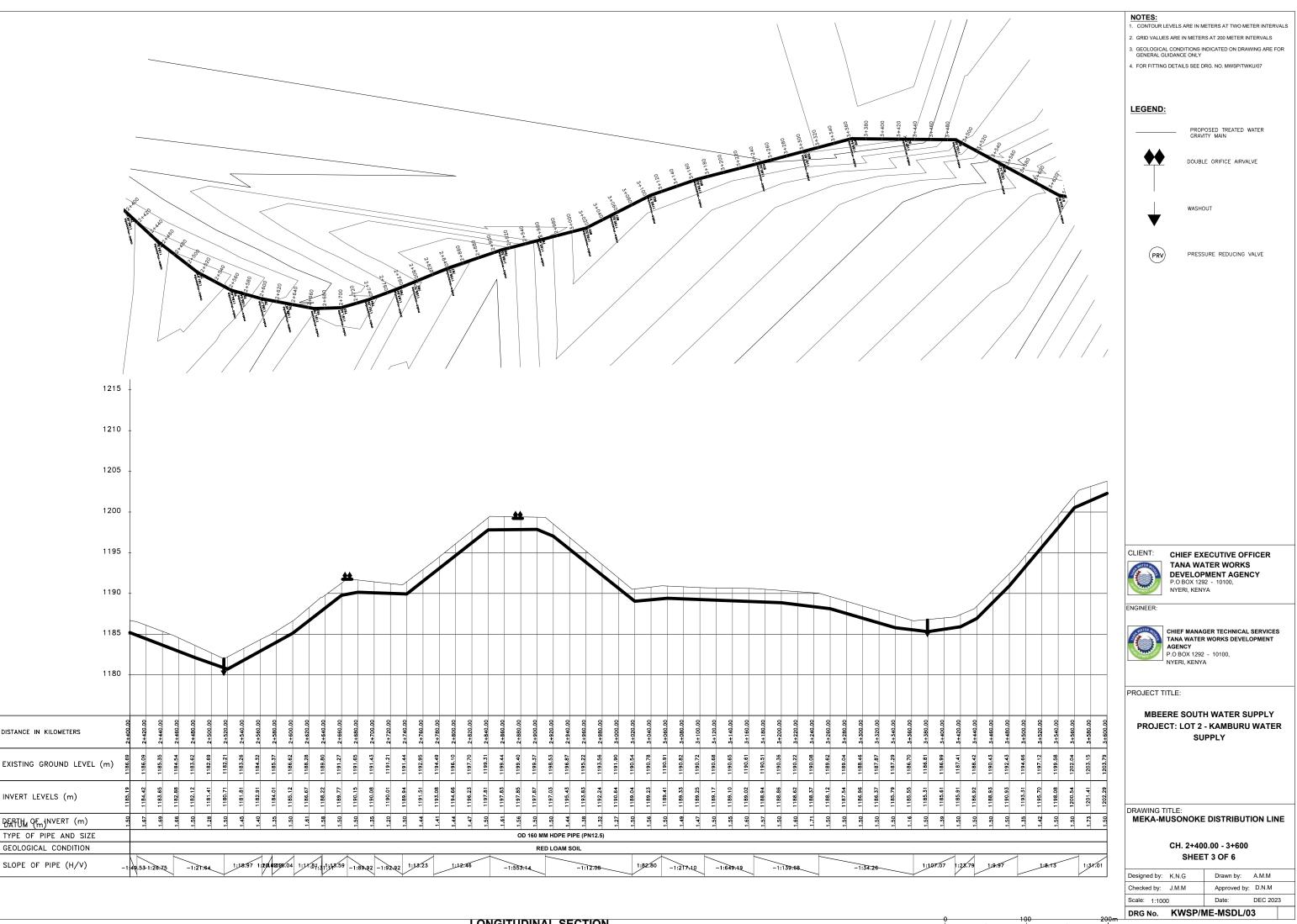




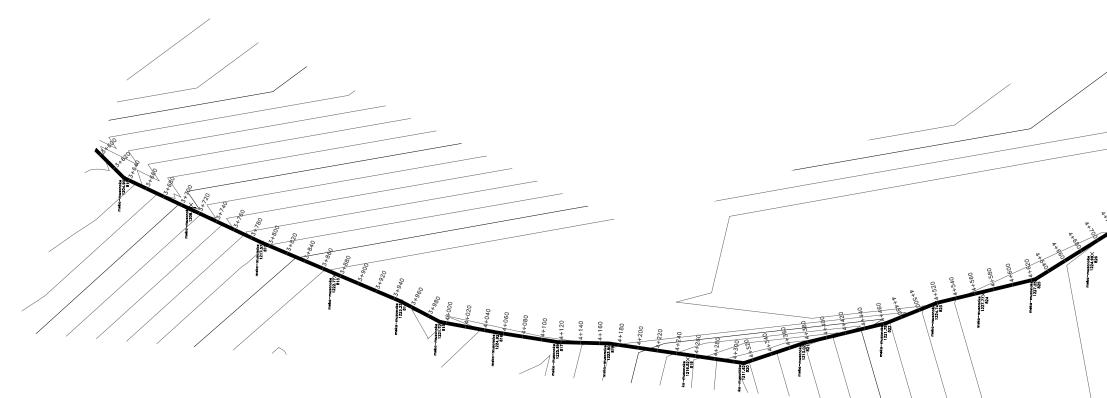


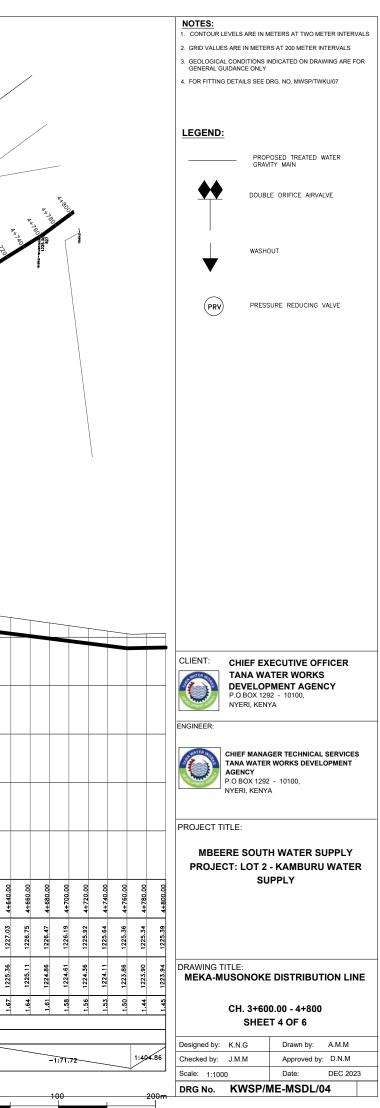
1160 1155 1150 1145 1140			Correction and Correc							OB3+C	04700	09240 T										7				NOTES: 1. CONTOUR LEVELS ARE IN METERS AT 200 METER INTERVALS 3. GROLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY . FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
1135																										CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY
1130						~																				DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER:
1125 1120																										CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O BOX 1292 - 10100, NYERI, KENYA
DISTANCE IN KILOMETERS	0+020.00 0+020.00 0+060.00 0+060.00	0+080.00 0+100.00 0+120.00	0+140.00 D+160.00 D+180.00	0+200.00 D+220.00 D+240.00	0+260.00 0+280.00 1+300.00	0+320.00 0+340.00 1+360.00	0+380.00	0+440.00 D+460.00)+480.00	0+500.00 0+520.00)+540.00	0+560.00 0+580.00)+600.00	0+620.00)+640.00	0+660.00	0+680.00	0+720.00	0+780.00)+800.00	0+820.00	0+860.00)+880.00	0+900.00	0+940.00	0+980.00	1+020.00	1+060.00	1+100.00	1+140.00	1+180.00	MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
EXISTING GROUND LEVEL (m)	1144.40 0 1144.40 0 1144.40 0 0 1144.40 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1142.17 0		1138.09 0 1136.52 0 1136.52 0 1134.94 0	1132.71 C	1126.98 0 1125.95 0 1124.94 0	1123.95 0	1122.52 C	1121.22 0 1121.87 0 1122.92 0	1123.96 0 1126.58 0 1129.93 0	1133.25 C	1138.42	1141.15	1141.93 0	1144.98 (1149.73 0	1151.90 C	1153.23 (1153.69 C	1156.21 C	1157.19 1	1157.38 1 1157.18 1	1157.20 1 1157.22 1	1157.04 1	1157.28 1 1158.61 1	
INVERT LEVELS (m)		5 88 44 2 88 44		1136.59 1 1135.02 1 1133.44 1	1131.21 1 1131.21 1 1128.92 1 1126.63 1			1121.15 1 1121.01 1 1120.36 1	57 42	1122.46 1 1125.08 1 1128.42 1					1143.92 1 1145.85 1	38 5	1150.40 1 1151.41 1		1152.19 1 1153.47 1	1154.71 1			1155.75 1 1155.69 1			
OD 160 MM HDPE PIPE (PN25)	1.72 1.		1.49	1.50 1.50 1.50	1.50 1.50 1.50		1.51 1.52 1.06	1.37 1.50 1.50	1.50	1.50 1 1.50 1 1.51 1					1.06 1.50 1.50 1.50	2.11 1	1.50	1.55	1.50 1		1.50 1.			1.42 1.		DRAWING TITLE: MEKA-MUSONOKE DISTRIBUTION LINE
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION		k	OD 160 MM	HDPE PIPE (PN1	6)			D 160 MM HDP	E PIPE (PN20)	RED LOAM SO	DIL					OD 160 MM	A HDPE PIP	E (PN16)		7		<u>к</u> п				CH. 0+000.00 - 1+200 SHEET 1 OF 6
SLOPE OF PIPE (H/V)	-1:98,02-1:28,24 -1:	47:14 -1:62.5	2 -1:19:30	-1:12:69	-1:8.74	-1:19:27 -1	:20:15 -1:31.8012	25.80 -1:3	1:19:13	1:5.94 1:	:6:02:4.76 1	1;8,14	1	:25:71	1:8:4		19:68	1:86:56	1:14.5	51 1:40	73 1:210.0	1:88.55.97	.:834.50 _	1:102.97.992	3.33 1:1 <u>7</u> .69	Designed by: K.N.G Drawn by: A.M.M
							LC	ONGITU	IDINAL SE	CTION										(-100		200	Scale: 1:1000 Date: DEC 2023 DRG No. KWSP/ME-MSDL/01

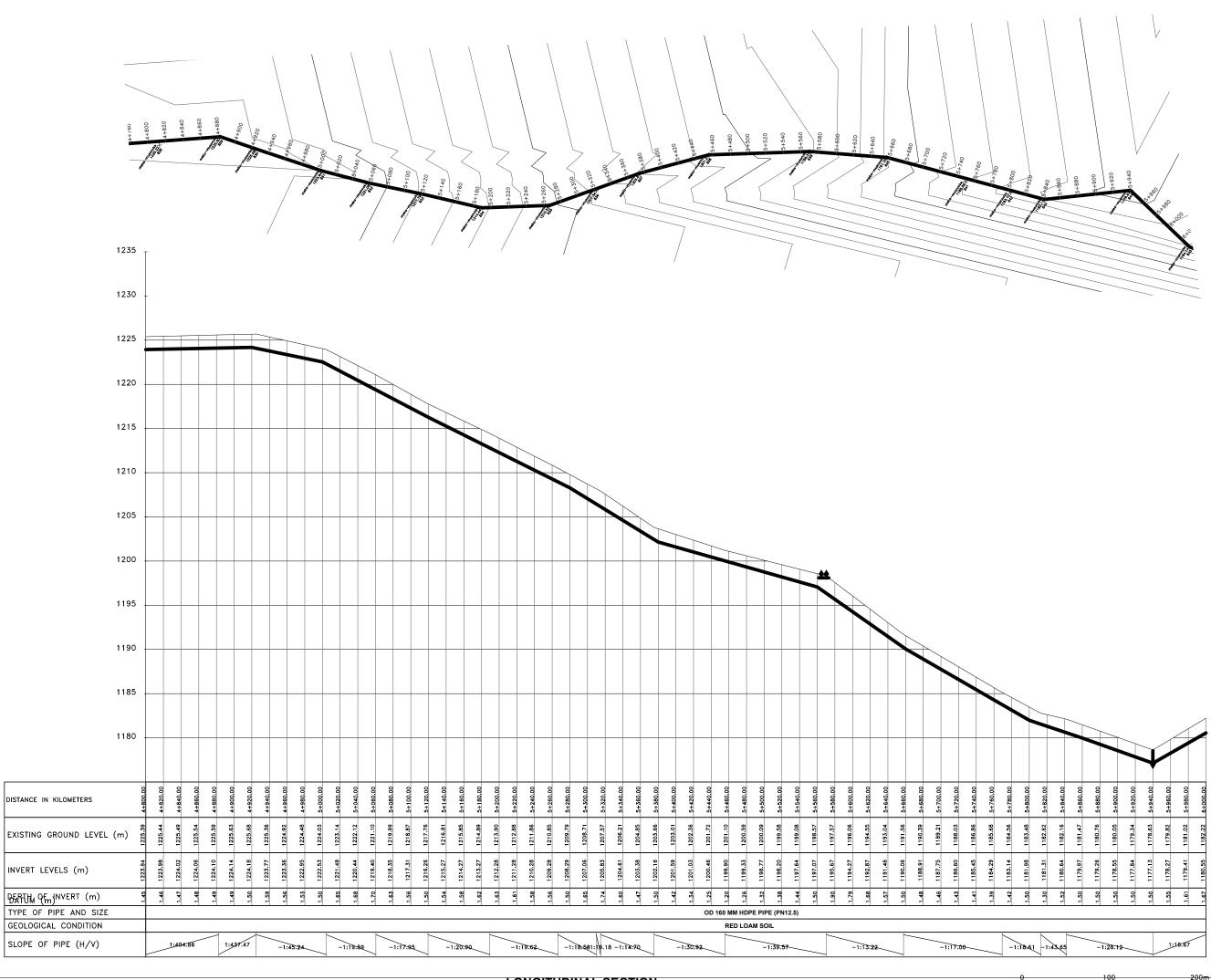




1235 - 1230 -																																							
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1215 -																																				_		-	-
1210 -		,																									F						_			_	_		+
1205																																							
DISTANCE IN KILOMETERS	3+620.00 3+640.00	3+660.00	3+680.00 3+700.00	3+720.00	3+740.00	3+760.00 3+780.00	3+800.00	3+820.00 3+840.00	3+860.00	3+880.00	3+900.00	3+920.00 3+940.00	3+960.00	3+980.00	4+000.00	4+020.00	4+040.00 4+060.00	4+080.00	4+100.00	4+120.00	4+160.00	4+180.00 4+200.00	4+220.00	4+240.00	4+280.00	4+300.00	4+320.00	4+340.00 4+360.00	4+360.00 4+380.00	4+380.00 4+400.00	4+420.00	4+440.00	4+460.00	4+480.00 4+500.00	4+520.00	4+540.00	4+560.00	4+580.00	4+600.00 4+620.00
	1204.44		1208.58			1215.04 1216.66		1219.29		1222.79	1222.92	1223.05		1222.15	_		1224.20	1225.24	-	1224.42		1222.09	1219.34	1217.96	1214.77	1212.69	-		1212.68	1215.45	1217.46	-	_	1222.65			_		1227.29
INVERT LEVELS (m)	1202.94 1203.85	1205.47	1207.08 1208.70	1210.31	1211.93	1213.48 1215.04	1216.59	1217.75 1218.92	1220.08	1221.24	1221.42	1221.55 1221.68	1221.31	1220.95	1220.59	1221.56	1222.53 1223.50	1223.67	1223.84	1222.74	1221.46	1220.19 1218.91	1217.64	1216.36	1213.14	1211.19	1210.33	1210.86 1211.40	1211.40 1211.93	1211.93 1213.94	1215.96	1217.97	1219.98	1221.00 1222.02	1223.05	1224.07	1225.09	1226.12	1225.87 1225.62
PERTUM QFm JNVERT (m)	1.50 1.50	1.50	1.50 1.50	1.50	1.50	1.56 1.62	1.50	1.54 1.58	1.61	1.55	1.50	1.50 1.50	1.50	1.20	1.50	1.59	1.67 1.50	1.57	1.65	1.68	1.86	1.90 1.80	1.70	1.60	 1.63	1.50	1.50	1.39	1.29	1.50	1.50	1.50	1.50	1.65 1.68	1.70	1.66	1.61	1.50	1.59
TYPE OF PIPE AND SIZE																							-	M HDPE						1	·				<u> </u>				
GEOLOGICAL CONDITION							_			-			*		-		J					_	R	ED LOAI															
SLOPE OF PIPE (H/V)	31.01			1:12.38				1:16.0	65	1:316.00	0 1:15	4.52	-	1:30.41		1:18.93	3	1:84	:55	-1:18	.29		-1:14.5	5	-	1:9:62		1:46:83	-		1:9.9	94		1:19:1	1	1:2	0.42	-1:	:120-88







NOTES:

- 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN



WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI. KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

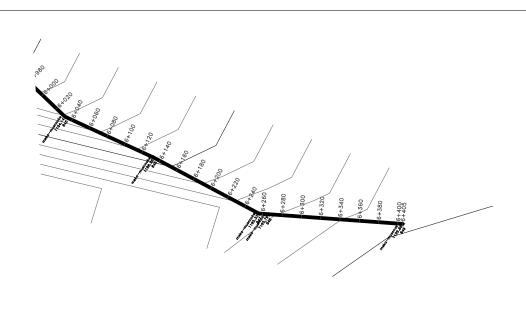


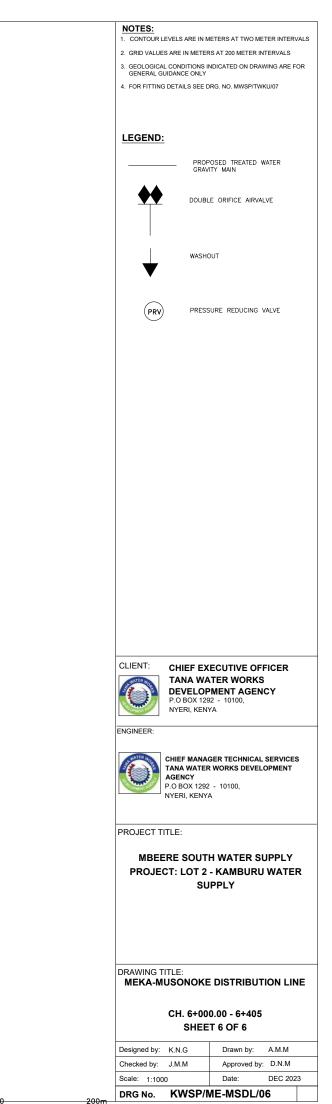
CH. 4+800.00 - 6+000 SHEET 5 OF 6

DRG No. KWSP/	/IE-MSDL/05
Scale: 1:1000	Date: DEC 2023
Checked by: J.M.M	Approved by: D.N.M
Designed by: K.N.G	Drawn by: A.M.M



	1205	ł																			
	1200	-																			
	1195	-										1									
	1190	+					1														
	1185		/																_	_	
DISTANCE IN KILOMETERS		00 000 10	6+040 00	6+060.00	6+080.00	6+100.00	6+120.00	6+140.00	6+160.00	6+180.00	6+200.00	6+220.00	6+240.00	6+260.00	6+280.00	6+300.00	6+320.00	6+340.00	6+360.00	6+380.00	6+400.00
EXISTING GROUND LEVEL	(m)	1183.42	1184.52	1185.48	1186.43	1187.38	1188.34	1189.32	1190.36	1191.40	1192.43	1193.47	1194.51	1195.51	1196.18	1196.77	1197.36	1197.95	1198.54	1199.13	1199.72
INVERT LEVELS (m)		1181 60	1182.84	1183.98	1184.98	1185.98	1186.98	1187.97	1188.97	1189.97	1190.97	1191.97	1192.80	1193.62	1194.44	1195.27	1195.86	1196.45	1197.04	1197.63	1198.22
DATUM OF INVERT (m)		/9.1	5 U	1.50	1.45	1.41	1.36	1.35	1.38	1.42	1.46	1.50	1.71	1.89	1.73	1.50	1.50	1.50	1.50	1.50	1.50
TYPE OF PIPE AND SIZE									O	D 160 I	NM HE	PE PI	PE (PN	112.5)							
GEOLOGICAL CONDITION											RED I	.OAM	SOIL								
SLOPE OF PIPE (H/V)		1:16	.67		_1:20	.97					1 :19.2	7		1:23	.02			1:33.8	8		

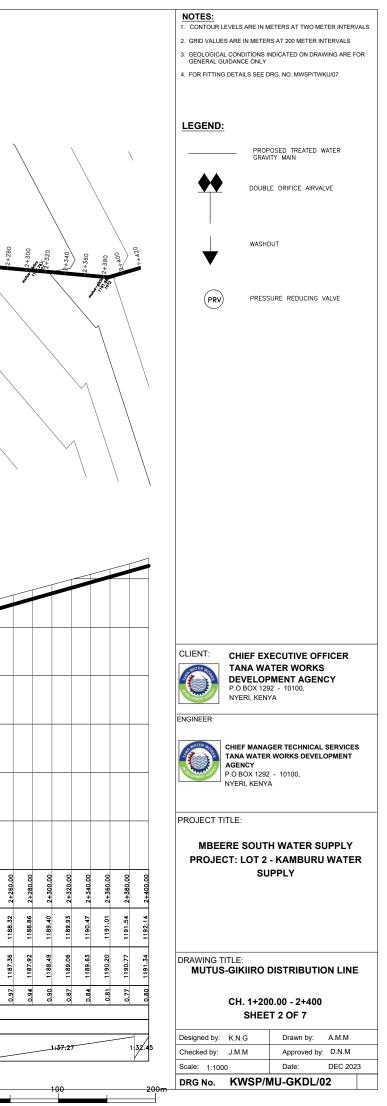




1180 .		
1175 .		
1170 -		
1165 -	CLIENT: CHIEF EXECUTIVE OFFICER	
1160 -	TALA WATER	
1155 .	ENGINEER:	
1150 .	CHIEF MANAGER TECHNICAL SERVICI TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA	3
1145	PROJECT TITLE:	
	Image: Source of the second state o	
DISTANCE IN KILOMETERS	 0+020200 0+020200 0+020200 0+020200 0+120200 0+12000 0+12000<	
EXISTING GROUND LEVEL (m)	1147.06 1147.05 1146.91 1146.91 1146.91 1146.92 1146.00 1150.01 1150.02	
INVERT LEVELS (m)	1145.61 1145.61 1145.61 1145.61 1145.62 114	E
DEATH OF NIVERT (m)	<u>8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 </u>	
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V)	RED LOAM SOIL Interview of the state of the st	
	LONGITUDINAL SECTION	

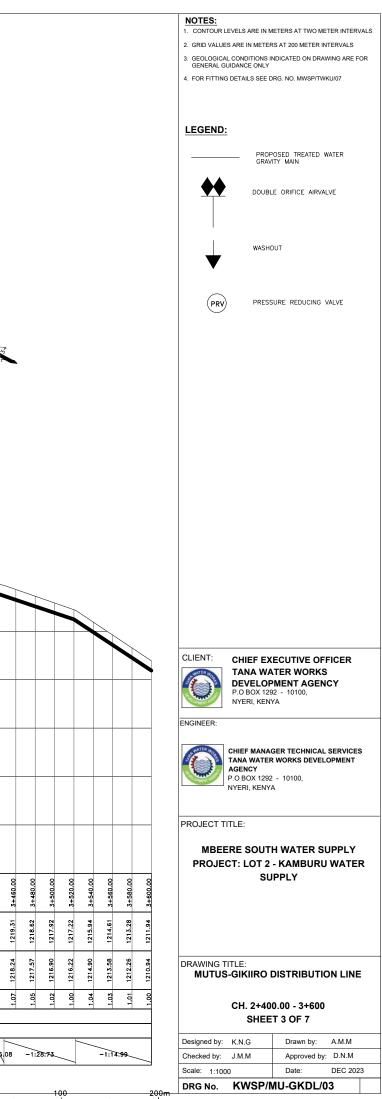
			1+820 1+840 1+840 1+840 1+950 1+950 1+950 2+000 2+000 2+000	2+060 2+060 2+100 2+120 2+140 2+140 2+140 2+140 2+200 2+200 2+200 2+200 2+200
1200				
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1165		20.00 40.00 60.00 80.00 20.00 80.00 80.00 20.00 40.00 80.00 80.00 80.00 80.00 80.00 80.00	00.00 20.00 60.00 80.00 20.00 20.00 80.00 80.00 20.000	143.00 183.00 183.00 20.00 20.00 80.00 20.00 20.00 20.00
1165 DISTANCE IN KILOMETERS	1+220.00 1+240.00 1+260.00 1+280.000 1+320.000 1+320.000 1+360.000 1+360.000 1+440.000 1+440.000 1+440.000 1+440.000 1+440.000 1+460.000 1+460.000		73 1+800.00 :12 1+820.00 :67 1+820.00 :57 1+860.00 :47 1+860.00 :56 1+920.00 :26 1+920.00 :26 1+920.00 :37 1+980.00 :38 1+990.00 :47 1+980.00 :38 1+990.00 :48 1+990.00 :48 1+990.00 :41 1+990.00 :43 1+990.00 :43 1+990.00	
1165 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m)	1167.35 1+220.00 1187.04 1+240.00 1187.04 1+260.00 1166.47 1+280.00 1166.21 1+320.00 1166.23 1+320.00 1166.23 1+340.00 1166.23 1+340.00 1166.23 1+340.00 1166.16 1+420.00 1165.60 1+380.00 1166.15 1+340.00 1165.41 1+440.00 1166.15 1+440.00 1166.16 1+420.00 1166.25 1+440.00 1166.16 1+420.00 1166.25 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00	1168.60 1168.60 1168.72 1168.84 1168.88 1168.96 1169.28 1169.45 1169.45 1169.45 1169.63 1170.24 1170.24	1171.79 1172.12 1172.57 1173.57 1175.56 1175.56 1175.26 1175.26 1178.44 1178.44 1178.44 1178.41 1178.57 1178.57 1178.57	1182.85 1183.87 1183.87 1184.55 1184.55 1184.55 1184.55 1184.55 1184.55 1185.29 1186.14 1186.98
1165 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m)	1166.06 1167.35 1+220.00 11166.61 11167.61 1+240.00 11166.03 11166.45 11280.00 11165.15 1156.47 1+280.00 11165.15 1166.47 1+280.00 11165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1164.57 1166.10 1+380.00 1165.15 1166.20 1+380.00 1165.51 1166.00 1+440.00 1165.52 1+440.00 1166.52 1166.52 1+440.00 1166.52 1166.52 1+440.00 1166.52 1166.55 11440.00 1167.67 1166.55 11440.00 1167.52 1166.55 11440.00 1167.52 1166.55 11440.00 1167.52 1166.55 11440.00 1167.52 1166.55	1167.45 1168.46 1167.56 1168.46 1167.66 1168.72 1167.76 1168.72 1167.97 1168.94 1167.97 1168.92 1167.97 1168.92 1165.18 1168.92 1165.28 1168.92 1165.18 1168.92 1165.28 1168.92 1168.28 1168.92 1168.28 1169.45 1168.92 1199.45 1168.92 1199.45 1168.92 1199.45 1168.92 1199.45 1169.23 1199.45 1169.24 1170.24 1169.73 1170.87 1169.73 1170.87	1170.70 1171.79 1171.18 1172.12 1171.67 1172.67 1172.69 1173.57 1175.72 1173.57 1175.72 1173.56 1175.72 1173.57 1175.72 1174.74 1175.73 1175.36 1175.74 1175.36 1175.75 1175.36 1175.82 1175.36 1176.93 1175.36 1178.84 1178.66 1178.84 1178.67 1180.69 1180.69 1180.69 1181.81	1181.85 1182.85 1182.20 1183.19 1182.55 1183.53 1182.55 1183.53 1182.55 1183.53 1183.59 1184.21 1183.59 1184.55 1183.59 1184.55 1183.59 1184.55 1185.94 1184.55 1185.95 1186.99 1185.95 1186.79 1185.95 1186.99 1185.95 1186.98 1185.95 1187.79
1165 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m) DERTUM QFm INVERT (m)	1167.35 1+220.00 1187.04 1+240.00 1187.04 1+260.00 1166.47 1+280.00 1166.21 1+320.00 1166.23 1+320.00 1166.23 1+340.00 1166.23 1+340.00 1166.23 1+340.00 1166.16 1+420.00 1165.47 1+440.00 1166.16 1+420.00 1166.25 1+440.00 1166.16 1+420.00 1166.25 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00 1166.35 1+440.00	1.03 1167.45 1168.46 1.105 1167.56 1168.40 1.106 1167.56 1168.72 1.08 1167.76 1168.72 1.08 1167.76 1168.72 1.08 1167.76 1168.44 1.02 1167.97 1168.92 0.95 1167.97 1168.92 0.33 1168.16 1169.10 1.00 1168.28 1169.10 0.33 1168.07 1169.28 0.33 1168.28 1169.28 0.35 1168.28 1169.45 0.31 1168.28 1169.45 0.31 1168.28 1170.24 1.100 1169.73 1170.87 1.15 1170.21 1171.47	1.10 1170.70 1171.79 0.33 1171.67 1172.67 1.00 1171.67 1172.67 1.00 1171.67 1172.67 0.487 1172.69 1173.57 0.487 1173.67 1174.47 0.52 1174.74 1175.36 0.49 1175.77 1176.26 0.49 1175.77 1176.26 0.53 1175.77 1175.37 0.53 1175.82 1177.32 0.53 1177.82 1178.44 0.72 1179.87 1178.44 0.72 1179.87 1180.69 0.82 1179.87 1180.69 0.32 1179.87 1180.69	1181.85 1182.85 1182.20 1183.19 1182.55 1183.53 1182.55 1183.53 1182.55 1183.53 1183.59 1184.21 1183.59 1184.55 1183.59 1184.55 1183.59 1184.55 1183.59 1184.55 1185.59 1186.14 1185.59 1186.29 1185.59 1186.99 1185.59 1185.79 1185.59 1185.79
1165 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m)	1166.06 1167.35 1+220.00 11166.61 11167.61 1+240.00 11166.03 11166.45 11280.00 11165.15 1156.47 1+280.00 11165.15 1166.47 1+280.00 11165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1164.57 1166.10 1+380.00 1165.15 1166.20 1+380.00 1165.51 1166.00 1+440.00 1165.52 1440.00 1166.12 1165.52 11440.00 1166.55 1166.55 1440.00 1166.55 1166.55 11440.00 1167.67 1165.55 11440.00 1167.57 1166.55 1440.00 1167.57 1166.55 1440.00 1167.57 1166.55 1440.00 1167.57 1166.55 1	1.03 1167.45 1168.46 1.05 1167.56 1168.60 1.06 1167.66 1168.61 1.08 1167.76 1168.42 1.08 1167.76 1168.42 1.08 1167.76 1168.44 1.03 1167.77 1168.42 1.03 1167.97 1168.92 0.35 1168.07 1168.92 0.35 1168.18 1169.10 1.00 1168.28 1169.45 0.45 1168.28 1169.45 1.00 1168.28 1169.45 1.00 1168.28 1169.45 1.100 1168.23 1170.24 1.15 1169.73 1170.87 1.15 1169.73 1170.87	1170.70 1171.79 1171.18 1172.12 1171.67 1172.67 1172.69 1173.57 1175.72 1173.57 1175.72 1173.56 1175.72 1173.57 1175.72 1174.74 1175.73 1175.36 1175.74 1175.36 1175.75 1175.36 1175.82 1175.36 1176.93 1175.36 1178.84 1178.66 1178.84 1178.67 1180.69 1180.69 1180.69 1181.81	1181.85 1182.85 1182.20 1183.19 1182.55 1183.53 1182.55 1183.53 1182.55 1183.53 1183.59 1184.21 1183.59 1184.55 1183.59 1184.55 1183.59 1184.55 1185.94 1184.55 1185.95 1186.99 1185.95 1186.79 1185.95 1186.99 1185.95 1186.98 1185.95 1187.79
1165 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m) DEATLIM QF_JNVERT (m) TYPE OF PIPE AND SIZE	1166.06 1167.35 1+220.00 11166.61 11167.61 1+240.00 11166.03 11166.45 11280.00 11165.15 1156.47 1+280.00 11165.15 1166.47 1+280.00 11165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1165.15 1166.23 1+320.00 1164.57 1166.10 1+380.00 1165.15 1166.20 1+380.00 1165.51 1166.00 1+440.00 1165.52 1440.00 1166.12 1165.52 11440.00 1166.55 1166.55 1440.00 1166.55 1166.55 11440.00 1167.67 1165.55 11440.00 1167.57 1166.55 1440.00 1167.57 1166.55 1440.00 1167.57 1166.55 1440.00 1167.57 1166.55 1	1.03 1167.45 1168.46 1.05 1167.56 1168.60 1.06 1167.66 1168.61 1.08 1167.76 1168.42 1.08 1167.76 1168.42 1.08 1167.76 1168.44 1.03 1167.77 1168.42 1.03 1167.97 1168.92 0.35 1168.07 1168.92 0.35 1168.18 1169.10 1.00 1168.28 1169.45 0.45 1168.28 1169.45 1.00 1168.28 1169.45 1.00 1168.28 1169.45 1.100 1168.23 1170.24 1.15 1169.73 1170.87 1.15 1169.73 1170.87	MW HILE 117.19 1.10 1170.70 1171.79 1.21 1172.67 1.22 1171.16 1.22 1172.67 1.22 1174.74 0.49 1175.72 0.49 1175.77 1174.74 0.49 1175.77 1174.74 0.49 1175.77 1174.74 0.52 1174.74 0.52 1174.74 0.52 1175.77 1176.79 1175.55 0.53 1176.79 1177.32 0.53 1176.79 1177.32 0.53 1176.79 1177.32 0.53 1176.79 1177.32 0.53 1176.79 1177.32 0.53 1176.79 1177.32 0.53 1177.93 1177.32 0.53 1177.93 1177.93 1177.93 1177.93 1176.95 1177.93 1177.93 1176.95 1177.93 1176.95 1177.95 1177.95 1177.95 1177.95 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.95 1177.55 1176.55 1177.55 1176.55 1177.55 1176.55 1177.55 1176.55 1177.	1181.85 1182.85 1182.50 1183.19 1182.55 1183.19 1182.55 1183.53 1182.55 1183.53 1183.55 1183.53 1183.55 1184.21 1183.59 1184.21 1183.59 1184.55 1183.59 1184.55 1183.94 1184.55 1185.95 1184.59 1185.95 1186.14 1185.95 1186.79 1185.95 1186.79 1185.95 1186.74 1185.95 1186.79

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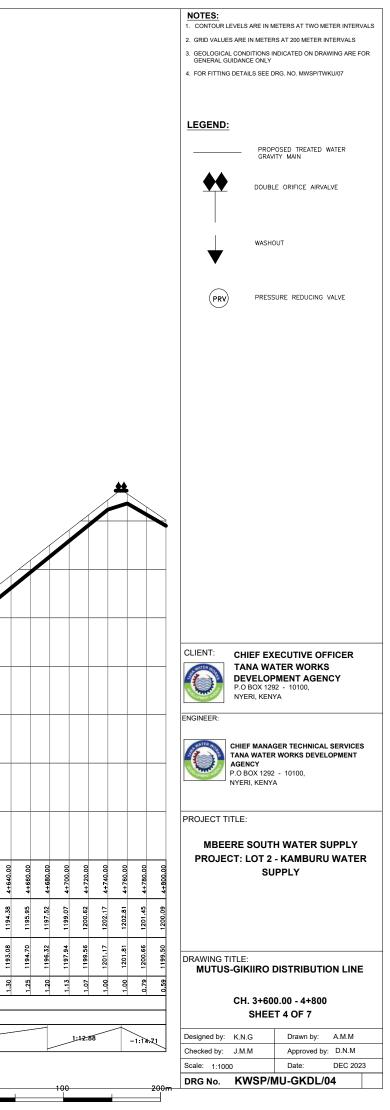


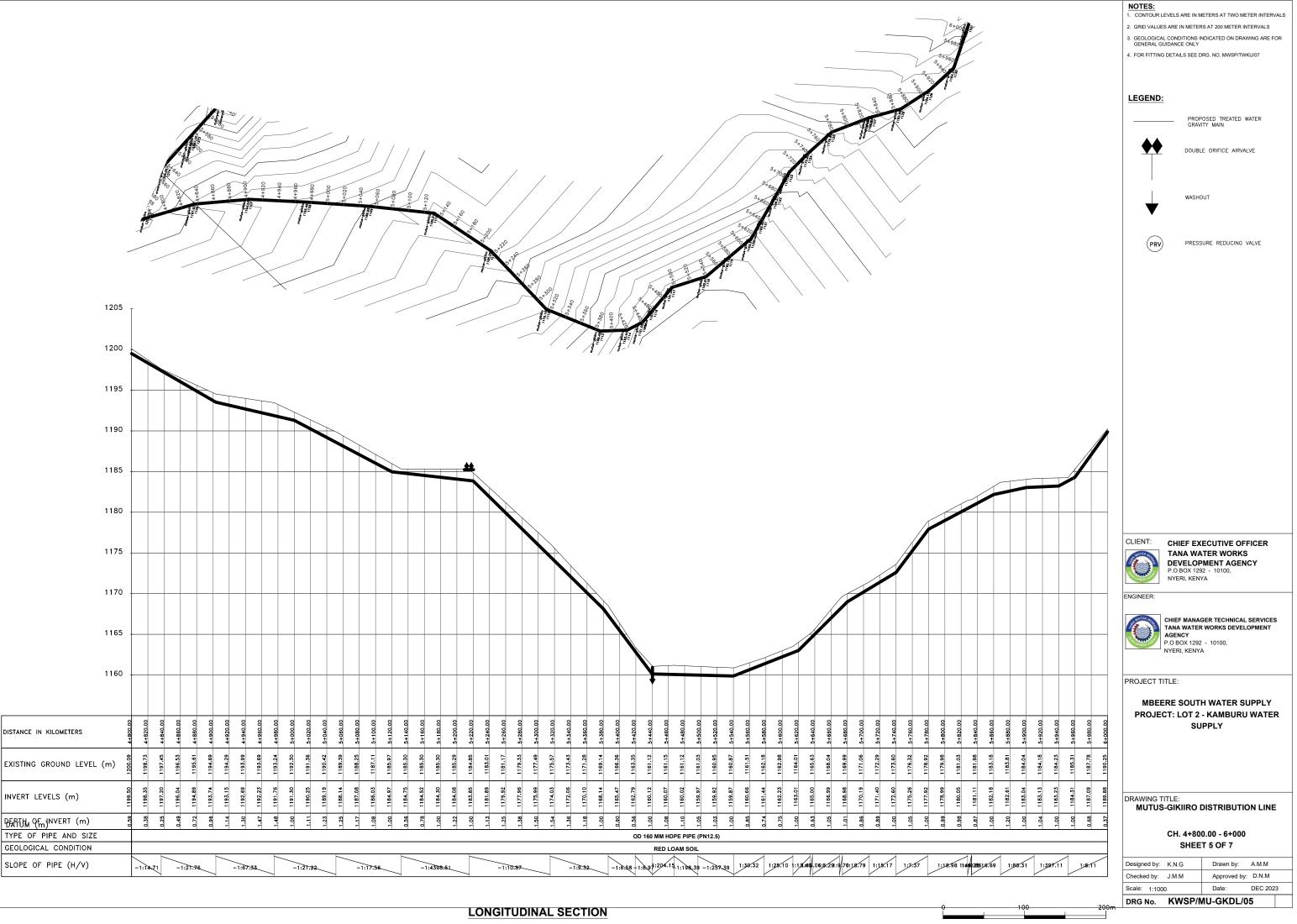
DISTANCE IN KILOMETERS	0.89 1192.48 1193.37 0.94 1193.05 1193.99 0.99 1193.05 1193.99	1193.05 1193.05 1193.62 1194.60 1194.94 1195.97 1196.03 1197.56 1198.03 1199.14	1.1.5 1199.57 1200.75 1.00 1201.12 1202.12 1.00 1201.12 1202.12 1.00 1201.12 1203.12 1.00 1201.26 1203.20 1.00 1202.74 1203.74 1.00 1202.74 1203.74 1.00 1202.74 1203.74 1.00 1202.74 1203.74	1204.80 1206.32 1207.84 1207.84 1209.36 1209.36	1.08 1212.44 1215.52 1.06 1215.96 1215.04 1.05 1215.52 1216.56 1.03 1217.06 1218.09 1.02 1218.60 1219.61 1.02 1218.60 1219.61 1.02 1218.60 1219.61 1.02 1218.60 1219.61	1.28 1221.36 1222.66 1.00 1222.63 1223.63 1.01 122.44 1224.45 1.02 1223.44 1224.45 1.02 1225.08 1226.28 1.03 1225.08 1226.11 1.03 1225.08 1226.90 1.00 1225.90 1226.90 1.01 1225.91 1226.90	1.02 1225.99 1.03 1226.03 1.03 1226.08 1.03 1226.08 1.03 1226.12 1.02 1226.17	1226.25 1226.30 1225.36 1224.42 1223.49 1223.55	1.00 1221.61 1222.61 1.03 1220.96 1221.99 1.05 1220.31 1221.36 1.06 1219.65 1220.73 1.10 1219.00 1220.10 1.10 1219.00 1220.10 0.91 1219.00 1220.10 0.91 1219.00 1220.10	1218.96 1218.93
EXISTING GROUND LEVEL (m)	1193.37 1193.99 1194.60	1193.99 1194.60 1195.97 1197.56 1199.14								
			1200.73 1202.12 1202.66 1203.20 1203.74 1204.28	1205.59 1207.18 1208.77 1208.77 1210.36 1211.95	1213.52 1215.04 1216.56 1218.09 1219.61 1219.61 1221.13	1222.66 1223.63 1224.45 1224.45 1225.28 1226.90 1226.90	1227.0 1227.0 1227.1 1227.1 1227.1	1227.2 1226.4 1226.4 1225.4 1223.4	1222.6 1221.9 1221.3 1220.7 1220.7 1220.1 1220.1	1219.9
STANCE IN KILOMETERS	2+44C 2+46C 2+46C 2+48C	6 6 6 6					5 6 2 7 6 7	8 9 7 90 0	0 0 M 0 6	Μα
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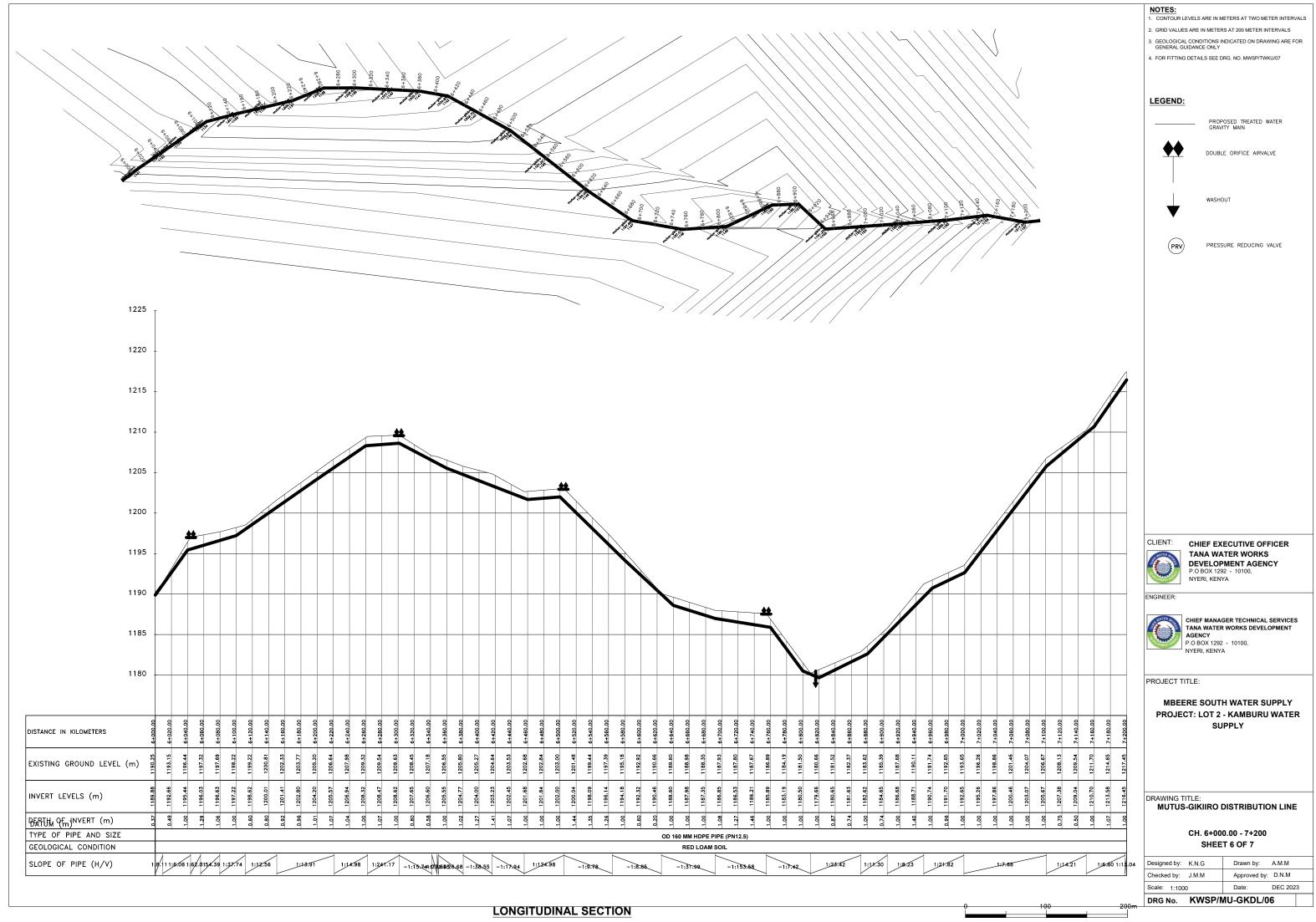
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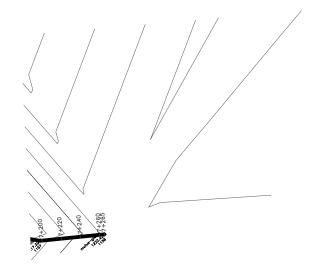


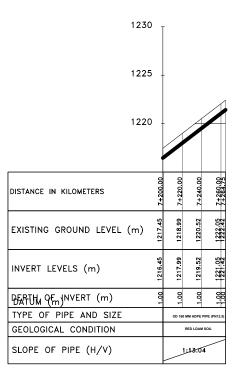
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DISTANCE IN KILOMETERS	3+620.00	3+640.00	3+660.00	3+680.00	3+700.00	3+720.00	3+740.00	3+780.00	3+800.00	3+820.00	3+840.00	3+860.00 3+880.00	3+900.00	3+920.00	3+940.00	3+960.00	3+980.00	4+000.00	4+020.00	4+040.00	4+060.00	4+080.00	4+100.00	4+120.00 4+140 00	4+160.00	4+180.00	4+200.00	4+220.00	4+260.00	4+280.00	4+300.00	4+320.00	4+340.00	4+380.00	4+400.00	4+420.00	4+440.00	4+460.00	4+480.00	4+500.00	4+520.00	4+540.00 4+560.00	4+580.00	4+600.00	4+620.00	4+640.00
EXISTING GROUND LEVEL (m)	1210.62	1209.30	1207.98	1206.66	1204.25	1201.72	1199.19 1199.94	1201.30	1202.67	1202.85	1201.98	1201.12	1199.23	1197.61	1195.99	1194.37	1192.75	1191.13	1189.51	1187.89	1186.27	1185.15	1184.69	1184.22 1183.76	1182.58	1180.34	1178.10	1175.87	1173.43	1172.21	1170.87	1170.48	1171.44	1173.37	1174.66	1176.20	1177.74	1179.44	1181.29	1183.14	1184.98	1186.55 1188.12	1189.68	1191.25	1192.82	1194.38
INVERT LEVELS (m)	1209.62	1208.30	1206.98	1205.66	1203.17	1200.68	1198.19 1199 35	1200.51	1201.67	1201.85	1200.95	1200.04 1199.13	1198.23	1196.61	1194.99	1193.37	1191.75	1190.13	1188.51	1186.89	1185.27	1184.15	1183.51	1182.87	1181.58	1179.58	1177.59	1175.59	1172.34	1171.08	1169.82	1169.51	1170.55	1172.63	1173.66	1175.28	1176.90	1178.52	1180.14	1181.76	1183.37	1184.99 1186.61	1188.23	1189.85	1191.47	1193.08
DEATTH OF INVERT (m)	0D 160	MM HDPE	PIPE (PN	0. 1 120)	1.08	1.04	1.00	0.80	1.00	1.00	1.04	1.11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.18	1.36		50 MM H		87.0 0 PE (PN12		1.13	1.05	0.97	0.90	0.75	1.00	0.92	0.84	0.92	1.15	1.38	1.61	1.56	1.45	1.40	1.35	1.30
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V) _1	14.99	-1:1	15:15		-1:	7.91		1:14.6	59	<u> </u>	-1:22	2.99					-1:12	2.35					-1:4	3.15		/	LOAM S		1:17:21	-	1:17:97		1:20.7	71		1:12:	99		1:10:	81			_	1 :12.7 6		-

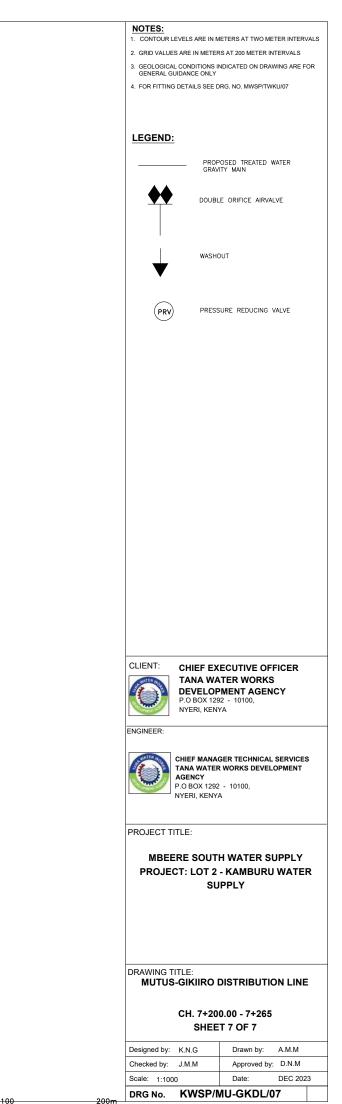












0984+1 340 00 1194.4 1230 1225 1220 1215 1210 1205 1200 1195 ***** 1190 1185 1180 1175 8 0+020.0 DISTANCE IN KILOMETERS 1223.91 1223.82 223.55 223.16 218.96 195.43 176.52 176.13 176.33 223.64 223.44 221.25 213.15 199.90 197.67 193.63 193.80 193.48 176.84 176.68 223.73 217.34 202.14 193.48 193.14 192.97 194.44 194.12 176.36 EXISTING GROUND LEVEL (m) 193.9 222 221 176 214 é 1211.23 198.43 1193.94 1192.06 1192.53 1192.11 1188.92 1175.34 1175.20 1175.06 1174.91 1174.63 1174.83 1222.36 1222.22 1221.80 1221.66 1221.52 1221.38 1220.23 1219.65 1219.07 1217.50 1215.94 1212.80 1209.66 1207.41 205.17 1196.19 1191.98 1191.64 1191.47 1191.77 1192.35 192.65 1192.94 1191.70 191.29 190.10 186.44 1183.96 1181.48 1176.52 1174.77 46 8 1214.37 92 68 191.81 179.00 INVERT LEVELS (m) 221. 52 OD 110 MM HDPE PIPE (PN25) DEATTIN OF INVERT (m) .55 .65 .75 1.79 .50 .26 1.39 1.60 1.50 1.59 1.59 1.50 1.50 1.50 .53 .46 .47 .48 .49 20 1.57 1.61 -20 .59 .68 ..78 50 42 .33 .25 .50 .50 1.48 1.45 1.50 1.50 2 50 33 1.53 .65 50 .37 TYPE OF PIPE AND SIZE OD 110 MM HDPE PIPE (PN12.5) OD 110 MM HDPE PIPE (PN16) GEOLOGICAL CONDITION RED LOAM SOIL SLOPE OF PIPE (H/V) 1:49.12 -1:70:58 -1:22,98 -1:54.921:24.261:12:327:24.54-1:14.60 -1:10,64:3-0122.00 -1:8:48-1:00.66 -1:8:95 -1:8:50-+:1.208.11 -1:220.15 -1:118.38 1:60.12 -1:62.39 -1:23-01 -1:7.81 -1:124.87 LONGITUDINAL SECTION



NOTES: CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS

- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER



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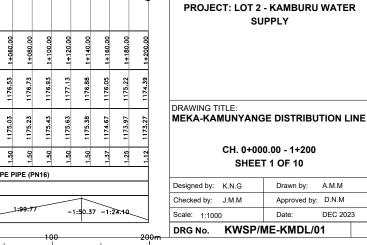
176.53

1175.03

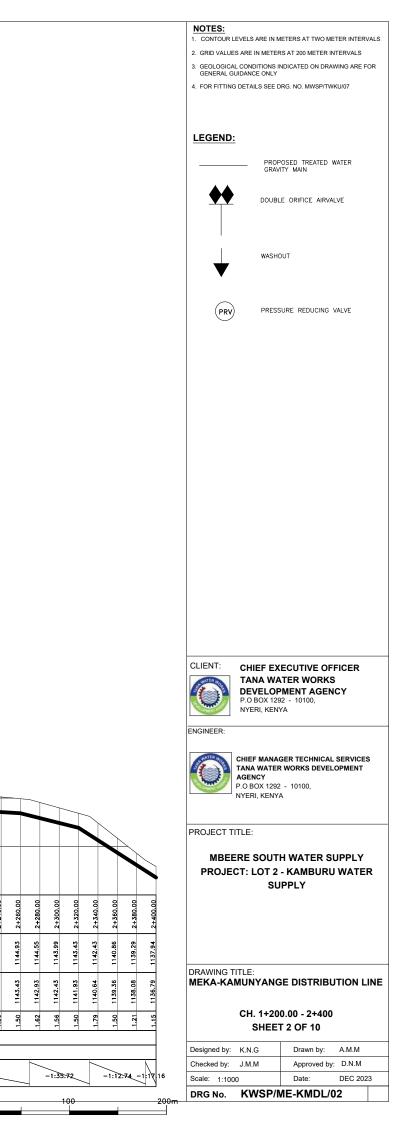
CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

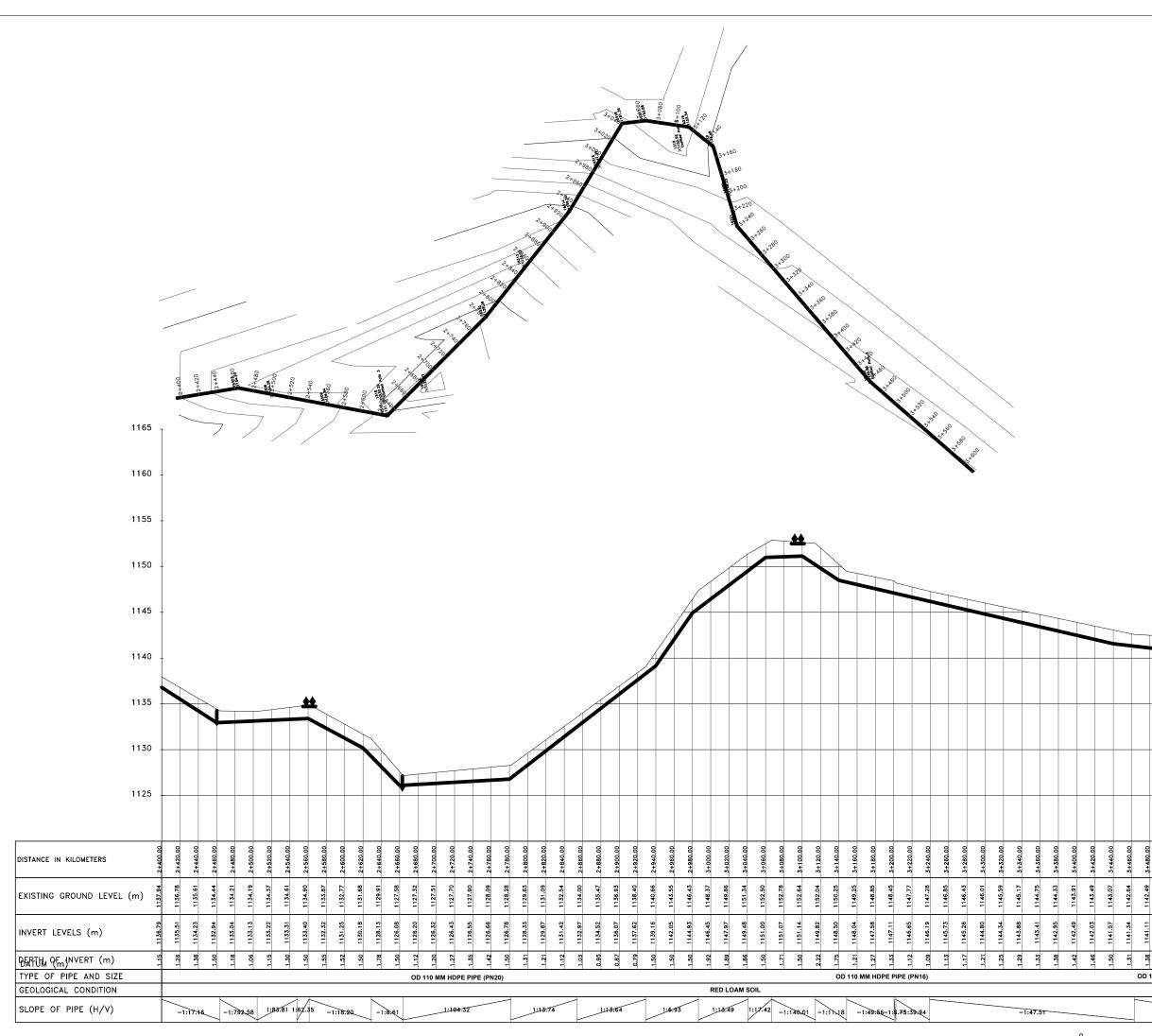
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY SUPPLY



1185		0ZZ+1-	1,1-240 1,2-260	11+280		1+520	1+340	1+360	OB2		1+420	1445	08++1 -	1+1200 1212		0rs+1	1997 14600 1981 14600	1+380	1460-	020-	099++		002++	02.4+1	Ortest	14760			1+840	1+860	006+1 mate	006++ 14000 1411111111111111111111111111111	0000 0+000 0+020	1,4960		2400	24-020 24-0-20 24-0-20			2- 2+ 2+	300 + 280 1144 ac 1630 + 260 + 240 + 220 - + 220					/	
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DISTANCE IN KILOMETERS	1+200.0	1+240.00	1+260.00	1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00 1+400.00	1+420.00	1+440.00	1+460.00	1+480.00	1+500.00	1+520.00	1+540.00	1+200.0	1+580.00	1+620.00	1+640.00	1+660.00	1+680.00	1+700.00	1+720.00	1+740.00	1+760.00 1+780.00	1+800.00	1+820.00	1+840.00	1+860.00	1+880.00 1+900.00	1+920.00	1+940.00	1+960.00	1+980.00	2+000.00	2+020.00	2+040.00	2+060.00 2±080.00	2+100.00	2+120.00	2+140.00	2+160.00	2+180.00	2+200.00	2+220.00 2+240.00	2+240.00
EXISTING GROUND LEVEL (m)	1174.39 1177 56	1172.73	1172.14	1171.56	1170.99	1170.41	1169.84	1169.99	1170.42	1170.59	1170.72	1170.84	1170.97	1171.09	1170.15	1169.16	01.0011	1165.84	1164.50	1163.16	1162.00	1161.39	1160.77	1159.57	1157.96	1156.35	1153.12	1151.79	1150.66	1149.53	1148.41 1147.28	1146.15	1145.69	1145.38	1145.07	1144.88	1145.24	1145.61	1145.05	1146.00	1145.98	1145.95	1145.86	1145.67	1145.49	1145.30 1145.12	
INVERT LEVELS (m)	1173.27		1171.15	1170.45	1169.74	1169.04	1168.34	1168.49 1168.65	1168.81	1168.96	1169.12	1169.28	1169.44	1169.59	1168.58	1167.52	1100.40	1164.34	1163.06	1161.78	1160.50	1159.89	1159.27	1157.92	1156.57	1155.22 1153.87	1152.52	1151.18	1149.83	1148.48	1147.15	1144.99	1144.19	1143.92	1143.65	1143.38	1143.67	1143.96	1144.24 1144.55	1144.41	1144.29	1144.16	1144.04	1143.92	-	1143.68 1143.55	_
DERTHA QFmJNVERT (m)		0.87		F		_		1.50				1.57	1.53		_		_	1.50				1.50	1.50		_		0.60				1.28				_		_		1.61				1.82			1.63 1.56	
TYPE OF PIPE AND SIZE					1		1			<u> </u>			1		1				1	<u> </u>	I					IPE (PN			.1		1	<u> </u>				1	1			<u> </u>							
																											-																				—
GEOLOGICAL CONDITION	॑	24.10	_	_	34. 75			1:92	~	1		160.14			/				-1:14			-1:32:3	ľ	_	/	RE	D LOA		_	-1:17.7			/			7	5 1 60	1:8	120	/	1:779:			_	-1:107		





	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 LEGEND: PROPOSED TREATED WATER GRAVITY MAIN DOUBLE ORIFICE AIRVALVE WASHOUT PRESSURE REDUCING VALVE
	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA ENGINEER:
	CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
1142.49 3+480.00 1142.36 3+50.00 1142.37 3+520.00 1142.37 3+540.00 1142.35 3+540.00 1142.04 3+580.00 1142.04 3+580.00 1142.04 3+580.00 1142.04 3+580.00 1142.04 3+580.00 1141.92 3+580.00 1141.82 3+580.00	
1141.11 1142 1140.88 1142 1140.85 1142 1140.65 1142 1140.65 1142 1140.45 1141 1140.45 1141	DRAWING TITLE: MEKA-KAMUNYANGE DISTRIBUTION LINE
Image: Constraint of the second sec	CH. 2+400.00 - 3+600 SHEET 3 OF 10
	Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
-1:180.06	Scale: 1:1000 Date: DEC 2023 DRG No. KWSP/ME-KMDL/03
100 200m	

1142.64

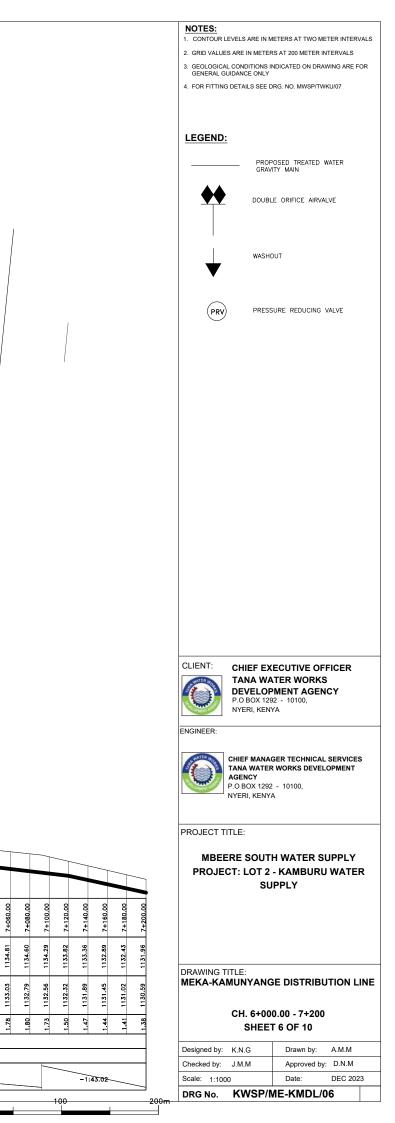
1141.34 1141.11

34640	3460 34700 34700 34700 34700 34700 34700 34700 34700 34700 34700 34700 44000 44000		1. CO 2. GR 3. GE GE 4. FOI 0.04 + 4 0.04 + 4 + 72 0.04 + 4 + 72 0.04 + 4 + 72 0.05 + 4 + 72 0.04 + 4 + 72 0.05 + 4 + 72 0.05 + 4 + 72 0.06 + 74 + 72 0.07 + 74 + 74 + 72 0.07 + 74 + 74 + 72 0.07 + 74 + 74 + 74 + 74 + 74 + 74 + 74 +	TES: ONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS EOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR EMERAL GUIDANCE ONLY DR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 GEND: PROPOSED TREATED WATER GRAVITY MAIN WASHOUT WASHOUT PRESSURE REDUCING VALVE
1160 1155 1150 1145				
DISTANCE IN KILOMETERS	71 3+620,00 60 3+660,00 35 3+660,00 35 3+660,00 36 3+660,00 36 3+700,000 37 3+700,000 38 3+740,000 39 3+740,000 31 3+740,000 32 3+740,000 33 3+740,000 34 3+740,000 35 3+740,000 35 3+940,000 40 3+860,000 40 3+860,000 41 3+860,000 42 3+9400,000 43 3+9400,000 44 3+9400,000 44 3+9400,000 44 3+9400,000 44 3+9400,000 44 3+9400,000 44 3+9400,000 45 3+9400,000 46 3+9400,000 47 3+9400,000	41 4+200.00 70 4+040.00 93 4+060.00 28 4+100.00 85 4+120.00 85 4+120.00 85 4+120.00 85 4+120.00 85 4+120.00 85 4+120.00 85 4+120.00 91 4+180.00 71 4+180.00 73 4+280.00 86 4+280.00 87 4+360.00 88 4+420.00 89 4+430.00 81 4+430.00 82 4+440.00 83 4+480.00 73 4+480.00 84 4+480.00 73 4+450.00 84 4+480.00 73 4+450.00 84 4+480.00 73 4+450.00 84 4+480.00 84 4+480.00 84 4+480.00 84	H+540.00 H+560.	NEER:
EXISTING GROUND LEVEL (m)		RED FORW MILLING IL145 IL	46.13 46.07 46.04 46.04 45.95 45.95 45.86 45.86 45.86 45.86 45.86 45.86 45.86 45.86 45.86 45.73 45.73 45.75	DJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
SLOPE OF PIPE (H/V)	-1:180.0 6		Design Check Scale:	WING TITLE: KA-KAMUNYANGE DISTRIBUTION LINE CH. 3+600.00 - 4+800 SHEET 4 OF 10 gned by: K.N.G Drawn by: A.M.M gned by: J.M.M Approved by: D.N.M e: 1:1000 Date: DEC 2023 G No. KWSP/ME-KMDL/04

008+4	4+860	4+920	4+980	5+020	5+040	5+080	5+120	5+160		5+220 5+240	5+260	.5+300 15+320	0+5+3	5+360	9+400 9		029×+5	015:45			5 ⁵ +620	⁵⁺⁶⁴⁰ ⁵⁺⁶⁶⁰	5+680 5+700	02/+20	09-+5 	5+780	5+820	5+860	5+880	5+920	5+940 5+960	5+980	6+000 6+1000			2. GRID V 3. GEOLC GENER 4. FOR FI LEGE	OUR LEVEL VALUES ARI DIGICAL COI ARL GUIDAT TTING DET ND:	NLS SEE DRG. PROPOSE GRAVITY DOUBLE O WASHOUT	T 200 METER IN	ITERVALS WING ARE FOR KU/07 WATER LVE	
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DISTANCE IN KILOMETERS	4+820. 4+840. 4+860.	4+880	4+920 4+940.	4+960	5+000	5+040 5+060	5+080 5+100.	5+120	5+160	5+180 5+200,	5+220 5+240.	5+260. 5+280.	5+300.	5+320 5+340.	5+360	5+380 5+400,	5+420 5+440,	5+460 5+480	5+500	5+520 5+540.	5+560 5+580.	5+600	5+640	5+660 5+680.	5+700	5+720 5+740,	5+760 5+780.	5+800	5+820 5+840.	5+860	5+880 5+900.	5+920	5+940. 5+960.	5+980	6+000		P.O NYE	A WATER WO NCY BOX 1292 - 1 RI, KENYA	10100,		
EXISTING GROUND LEVEL (m)	1147.20 1146.97 1146.70			1145.34	144.80 144.53	1144.26 1143.99	143.72 143.44	143.17	1142.63	142.36	1141.86 1141.72	1141.58 1141.44	141.30	1141.16 1141.02	140.88	1140./4	140.46 1140.31	1140.14	139.81	139.64 139.48	1139.31 1139.14	1138.97	138.64	1138.47 1138.31	1138.14	137.97 1137.81	1137.64 1137.61	1137.61	1137.60	1137.59	1137.58 1137.57	1137.57	1137.56 1137.55	1137.55	1137.54						_
		44.57 1 44.33 1		_	- 14 	66 42	. 18	50 1						48 63		+ +			26 1					-		42 1	_			07	02 7 7	03	01 02			PROJEC					
INVERT LEVELS (m)	2 1145.29 2 1145.05 2 1145.05 3 1144.81	= =				7 1142.	1142.15				5 1140.61 4 1140.39	2 1140.16 1139.94		5 1139. 4 1139.			9 1138.87 9 1138.72				1 1137.80 1137.64			4 1137.03 5 1136.88) 1136. 9 1136.	1136.27 1136.11		1 1136.09 2 1136.08		5 1136. 5 1136.		4 1136. 5 1136.		3 1135.98			SOUTH V LOT 2 - K	AMBURU		
DEPTH QF INVERT (m)	1.92		6 <u>7.1</u> 110 MM HDPE	7 7	0 1.66 1.63	1.60	1.53	1.45	1.35	1.26	1.25	1.50	1.51	1.53 1.54	1.55	1.56	1.59		10 MM HDPI		1:20 1:20	1.48	1.4/	1.43	1.42	1.40	1.50	1.51	1.51	1.52	1.53	1.54	1.54	1.55	1.56			SUPP	'LY		
GEOLOGICAL CONDITION		00			~,											REI	D LOAM SC			(FN2											<u> </u>										
SLOPE OF PIPE (H/V)	1:649.70				-1:73.69	9								1:142.60								-1:119.92								-1:	3011.43										
																																				Designed	-KAMUI CH i by: K.N by: J.M	NYANGE I. 4+800.0 SHEET 5 .G .M	0 - 6+000 OF 10 Drawn by: Approved by:	A.M.M	
											10	NGIT		<u> </u>	ЕСТІ	ON												C		1		100		1		DRG N		NSP/ME			
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DISTANCE IN KILOMETERS	00,000	6+020.00	6+040.00	6+060.00	6+080.00 6+100.00	6+120.00	6+140.00	6+160.00	6+180.00 6±200.00	6+200.00 6+220.00	6+240.00	6+260.00	6+280.00	6+300.00	6+320.00	6+340.00 6+360.00	6+380.00	6+400.00	6+420.00	6+440.00	6+460.00	6+480.00	6+500.00	6+520.00	6+540.00	6+580.00	6+600.00	6+620.00	6+640.00	0+000.00 6+680.00	6+700.00	6+720.00	6+740.00	6+760.00	6+780.00	6+800.00	6+820.00	6+840.00	6+860.00	6+880.00 6+80.00	6+900.00 6+920.00	6+940.00	6+940.00 6+960.00	6+960.00 6+980.00	6+980.00 7+000.00	7+020.00	7+040.00
EXISTING GROUND LEVEL	(m) 1137.54	1137.53	1137.53	1137.52	1137.51	1137.50	1137.49	1137.49	1137.48 1137.47	1137.47	1137.34	1137.17	1136.99	1136.81	1136.64	11.36.28	1136.11	1136.03	1136.08	1136.13	1136.19	1136.24	1136.29	1136.35	1136.45	1136.51	1136.56	1136.61	1136.67	1136.77	1136.83	1136.88	1136.93	1136.99	1137.04	1137.09	1137.15	1137.12	1136.91	1136.70	11.36.28	1136.07	11.35.86	1135.65	1135.44	1135.23	1135.02
INVERT LEVELS (m)	1135.98	1135.97	1135.96	1135.95	1135.94	1135.91	1135.90	1135.89	1135.88 1135.87	11.35.86	1135.84	1135.68	1135.51	1135.35	1135.19	1134.86	1134.69	1134.53	1134.58	1134.63	1134.68	1134.73	1134.78	1134.83	1134.00	1134.97	1135.02	1135.07	1135.12	1135.22	1135.27	1135.32	1135.37	1135.42	1135.47	1135.52	1135.57	1135.62	1135.39 1135.15	1135.15	1134.92	1134.44	1134.44	1133.97	1133.74	1133.50	1133.26
PERTHA OF INVERT (m)	1.56	1.56	1.57	1.57	1.58 1.58	1.59	1.59	1.60	1.60	1.61 1.61	1.50	1.49	1.48	1.46	1.45	1.44	.4.	1.50	1.50	1.51	1.51	1.51	1.52	1.52	1.53	1.53	1.53	1.54	1.54	1.55	1.55	1.56	1.56	1.56	1.57	1.57	1.57	1.50	1.53	1.55	1.58	1.63	1.65 1.65	1.65	1.70	1.73	1.75
TYPE OF PIPE AND SIZE				1				1							1									1	OD	110 M	M HDPE	PIPE (PN20)												-			_	-	·	
GEOLOGICAL CONDITION																										RED	LOAM	SOIL																			
SLOPE OF PIPE (H/V)				_	_	1:3011.	.43							-1:11:	3.05													75.51													_	_	-1	:94.99	,		
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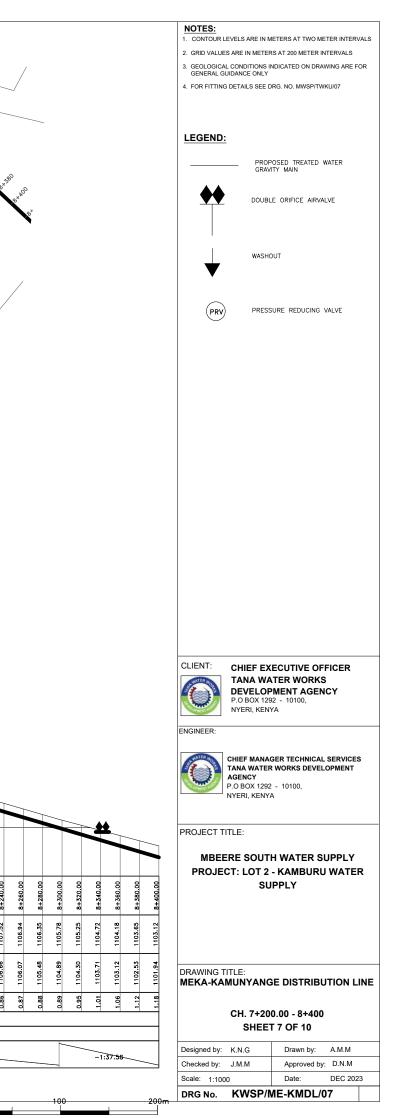
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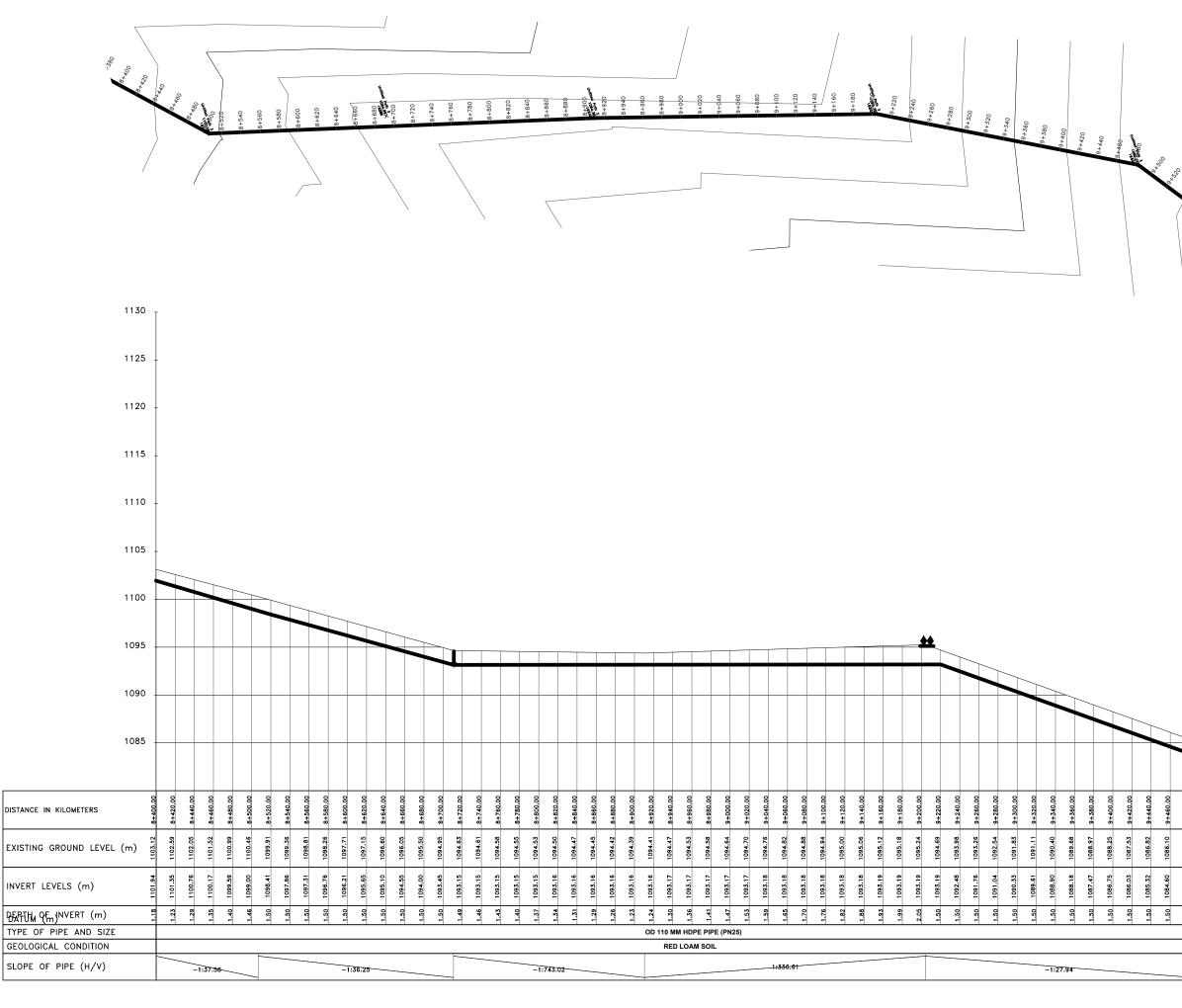


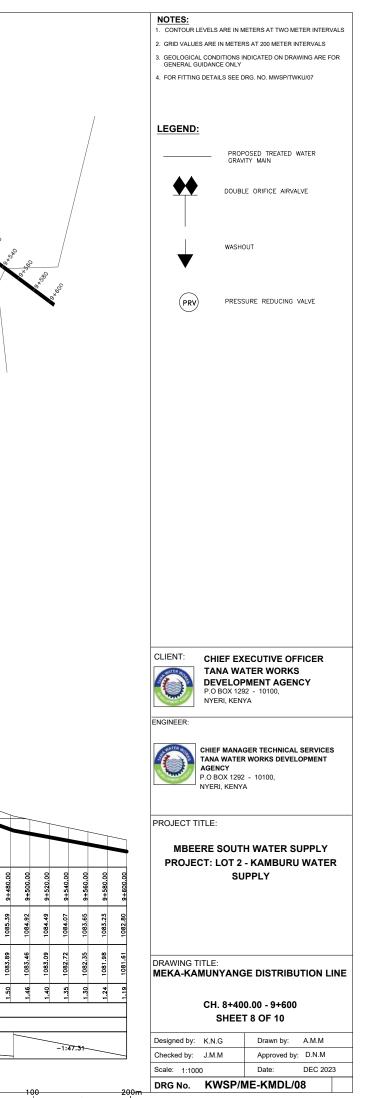
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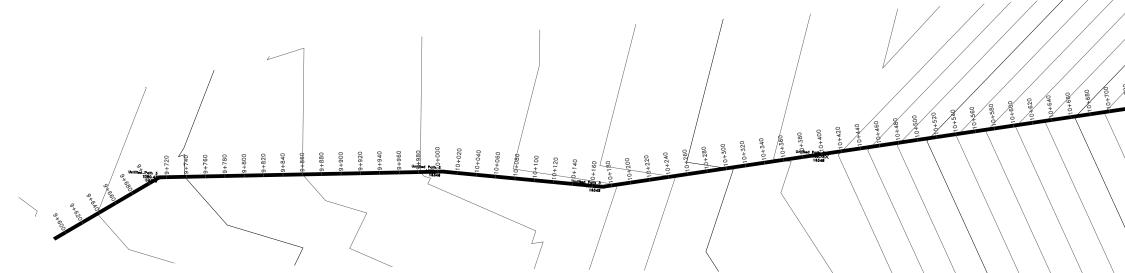
	and a second sec	177540	Line and Lin	7+380	-7+400	=7+440	7 460	7+480	7+500 Million Penn 3 7+520	7+540	-7+560	74580	7+600	7+640	7+660	-7+680	7+700	7 +720	7+740	7+760	Calific Care of	7+800	7+820	7+840	7+860	7+900	026+1-	7+940	7+980	000+8	8+020	8+040	345/060 10000000000000000000000000000000000	8+100	8+120	8+140	8+160	8+180 	0+4-	8+240	8+260	8+280	A manufacture of the set of the s	and a set		Sec. Sec. Sec. Sec. Sec. Sec. Sec. Sec.
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DISTANCE IN KILOMETERS	7+200.00	7+220.00	7+240.00	7+260.00	7+300.00	7+320.00	7+340.00	7+360.00	7+380.00 7+400.00	7+420.00	7+440.00	7+460.00	7+500.00	7+520.00	7+540.00	7+560.00	7+580.00	7+600.00	7+620.00	7+640.00	7+660.00	7+680.00	7+700.00	7+720.00	7+760.00	7+780.00	7+800.00	7+820.00 7+840.00	7+860.00	7+880.00	7+900.00	7+920.00	7+940.00	7+980.00	8+000.00	8+020.00	8+040.00	8+060.00	8+080.00 8+100.00	8+120.00	8+140.00	8+160.00	8+180.00	8+200.00		8+240.00
EXISTING GROUND LEVEL	(m) [131.96	1131.50	1131.03	1130.57 1130.14	1129.72	1129.30	1128.87	1128.45	1127.54	1127.09	1126.64	1126.19	1125.34	1125.08	1124.83	1124.57	1124.32	1124.06	1123.81	1123.55	1123.30	1123.04	1122.79	1122.53	1122.02	1121.71	1121.07	1120.45	1119.15	1118.52	1117.88	1117.24	1116.60 1115 96	1115.33	1114.69	1114.05	1113.41	1112.77	1112.17 1111.59	1111.01	1110.43	1109.84	1109.26	1108.68		1107.52
INVERT LEVELS (m)	8 1130.59	5 1130.15			0 1128.42				1 1126.68 0 1126.25				6 1124.08			1 1123.07	1 1122.81	2 1122.55	2 1122.29	3 1122.03				5 1120.99 5 1120.39		0 1120.21		0 1119.05 5 1118.44	0 1117.85					1114.32					0 1111.37 11 110.78							6 1106.66
GEATTIN OF PIPE AND SIZE GEOLOGICAL CONDITION	13	1.35	1.31	1.28	1.30	1.31	1.32	1.33	1.31	1.28	1.26	1.24	1.25	1.44	1.50	1.51	1.51	1.52	1.52	1.53	1.53		OD 1	10 MM	HDPE PI			1.40	1.30	1.26	1.21	1.16	1.11	1.01	0.96	0.91	0.86	0.82	0.80	0.82	0.82	0.83	0.84	0.85	0.85	0.86
SLOPE OF PIPE (H/V)		-1:	43:02			1:47.29	_			-1:4	44.31								-1	1:78.45	5											-1:31.3	4						_				-1:34.	 39	_	_

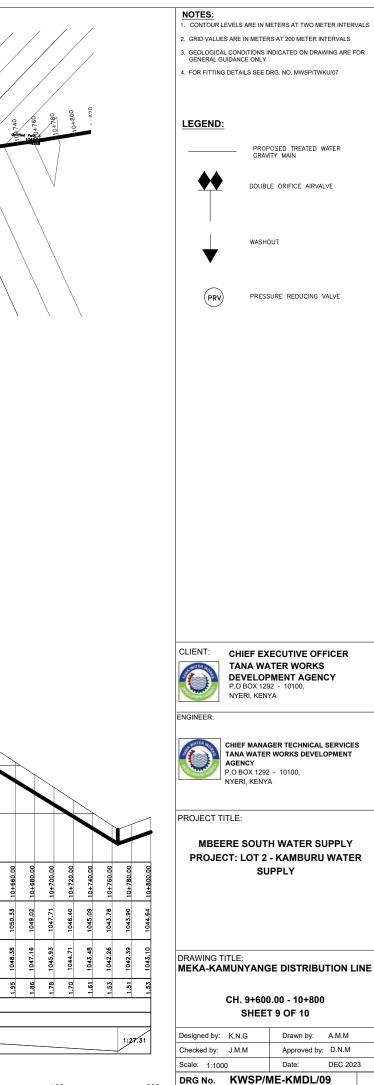






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CE IN KILOMETERS	9+600.00 9+620.00	9+640.00 9+660.00	9+680.00	9+700.00	9+720.00	9+740.00	9+780.00	9+800.00	9+820.00	9+860.00	9+880.00	9+900.00	9+920.00	9+940.00 9+960.00	9+980.00	10+000.00	10+020.00	10+040.00	10+060.00	10+080.00	10+100.00	10+140.00	10+160.00	10+200.00	10+220.00	10+240.00 10+260.00	10+280.00	10+300.00	10+320.00	10+360.00	10+380.00	10+400.00	10+420.00	10+440.00 10+460.00	10+480.00	10+500.0	10+520.00	10+540.00 10+560.00	10+580.00	10+600.00	
ING GROUND LEVEL (m)	1082.38	1081.96 1081.53	1081.11	1080.69	1080.30	1079.97 1079.64	1079.32	1078.99	1078.66 1078.33	1078.00	1077.67	1077.35	1077.02	1076.36	1076.03	1075.70	1075.52	1075.39	1075.25	1075.12	1074.85	1074.72	1074.59	1073.50	1072.81	1072.11 1071.41	1070.71	1070.02	1069.32 1068.62	1067.93	1067.33	1066.90	1066.05	1064.74 1063.43	1062.12	1060.81	1059.50	1058.19 1056.88	1055.57	1054.26	
	+	1080.87 1080.50		1079.76		1079.02 1078.65			1077.17				_	1074.95				1073.84	_	-	1073.19	1073.02	1072.86			1070.55 1069.83			1067.68 1066 97					1061.86 1060.63				1055.73 1054.51			
T LEVELS (m)	기 이 (1.03	1.08		1.20	1.24 1			1.41						_	1.64	1.70 1	1.73 1			1.56 1 1.58 1			1.64 1 1.64 1					2.88 1 2.80 1				2.46 1 2.37 1			
RT LEVELS (m) $\frac{1}{M} QE_{m} NVERT (m)$		1.03	0.98	0.93	0.91	o o	치 ન	-			-	-	–																									<u> </u>	· · ·	~	

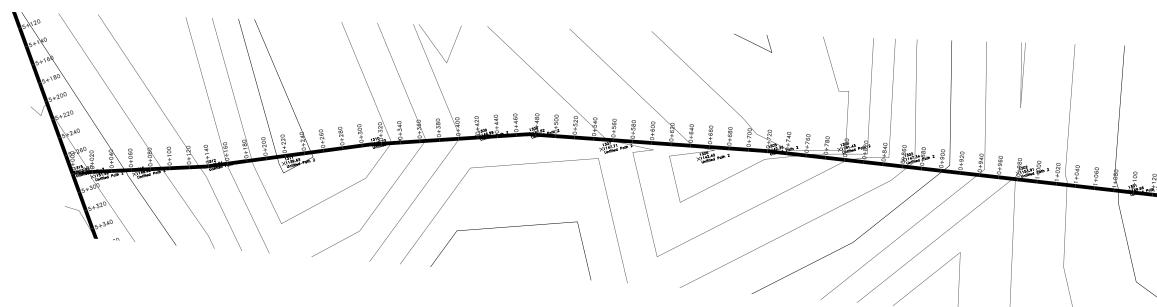


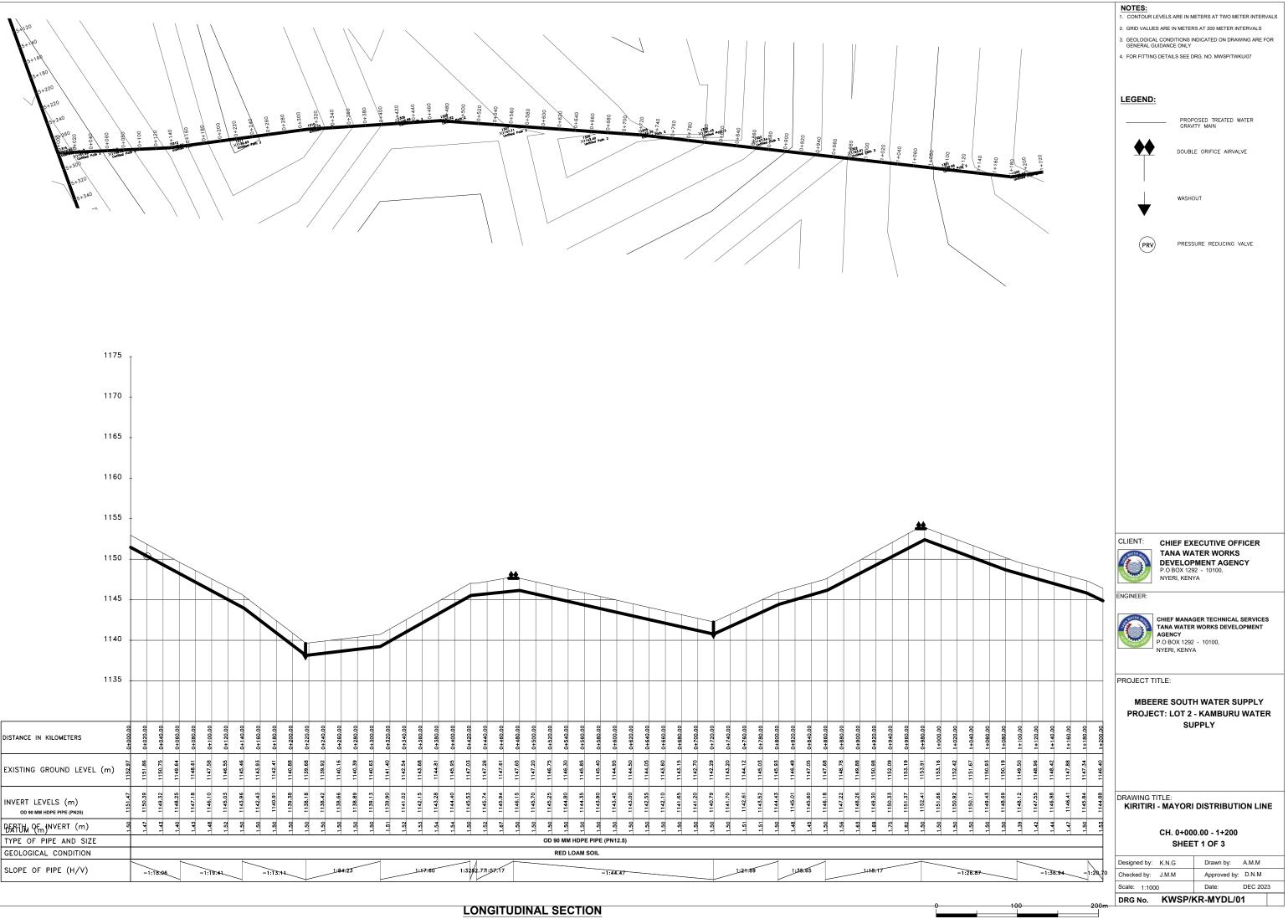


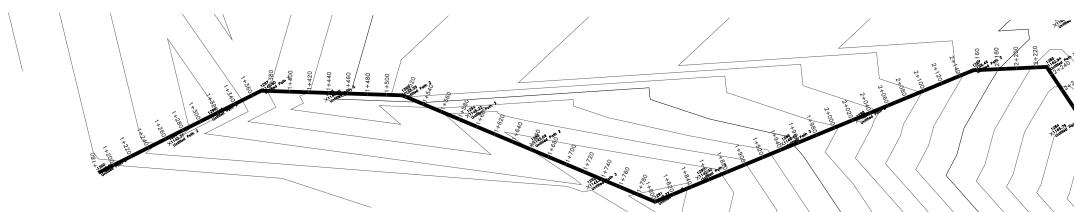
200m

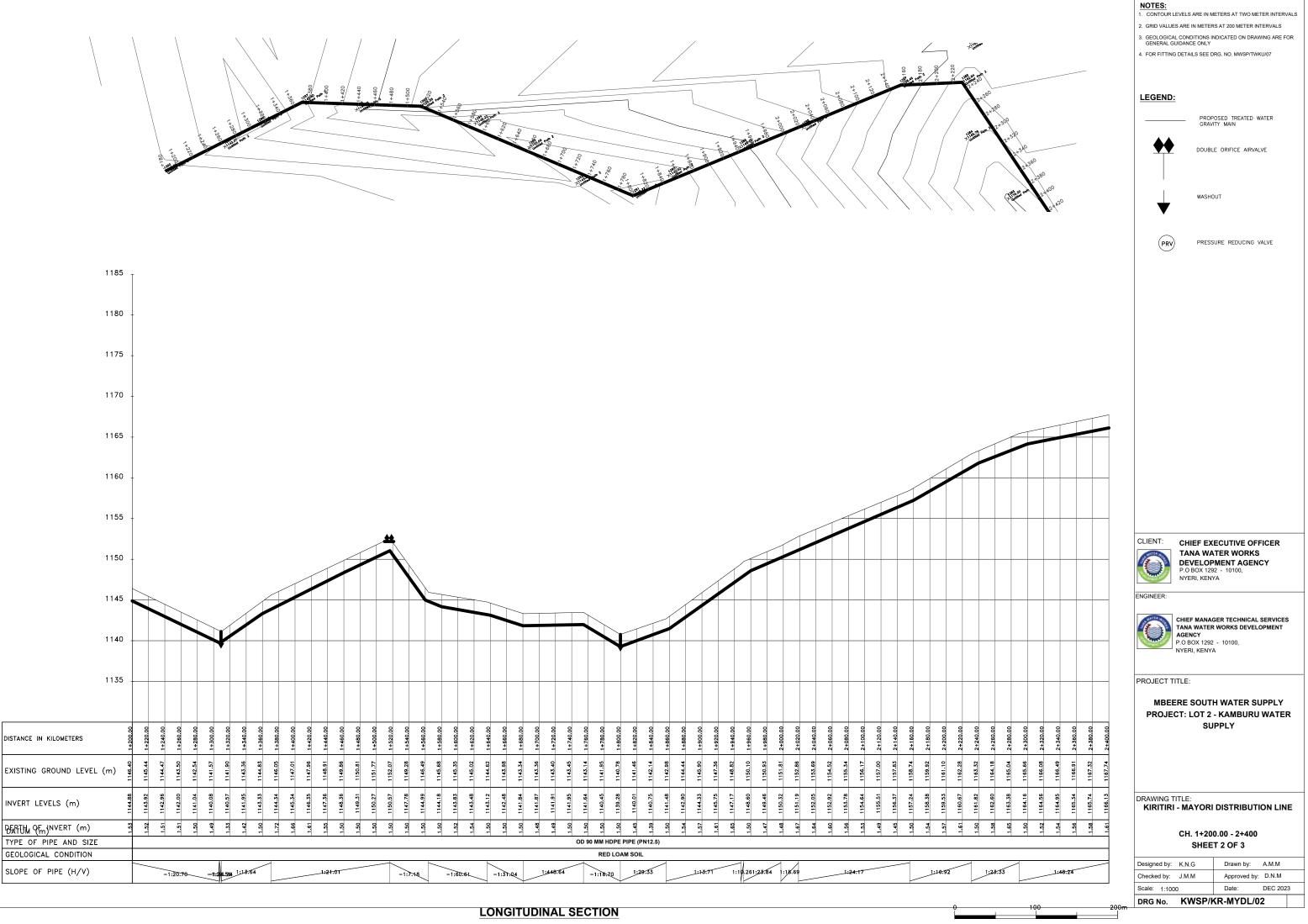
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009+01	073+01	10+880	10+920	10+940	080 Gallate: Penh. 3 Horizona Horizona	11+020	1,44040	11+660	11+130	11+140 11+160	11+200	11+220		of Path 3 1957 83 V 1858 0000 + 11	11+340	11+360	00+11	11+420	11+460	11+480	11+520	Unitied Part 777	11+580 11+580	11+620	011+660	11+700	-11+740	00+4, 1+200 11+280	11+800 1+800 1+800 11+820 11+820 11+820	241 1549200 154920 1540	880- 3+280- 13+820- 13+820- 13+820- 13+820- 13- 13- 13- 13- 13- 13- 13- 13- 13- 13	616+1-1 1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	60 - 40		 2. GRID VALUES ARE I 3. GEOLOGICAL COND GENERAL GUIDANC 	ARE IN METERS AT TWO METER INTERVALS N METERS AT 200 METER INTERVALS INTONS INDICATED ON DRAWING ARE FOR E ONLY LS SEE DRG. NO. MWSP/TWKU/07 PROPOSED TREATED WATER GRAVITY MAIN DOUBLE ORIFICE AIRVALYE WASHOUT PRESSURE REDUCING VALVE
	1085 -																																			
	1085																													_						
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	1050											<u></u>																							CLIENT: CHI	EF EXECUTIVE OFFICER
	1060 -																																	-	NYEI	/ELOPMENT AGENCY 30X 1292 - 10100, RI, KENYA
	1055 -						_																											-		MANAGER TECHNICAL SERVICES WATER WORKS DEVELOPMENT
	1050 -																																	_	TANA AGEN P.O BO NYER	WATER WORKS DEVELOPMENT ICY DX 1292 - 10100, I, KENYA
	1045																																	-	PROJECT TITLE:	
																																				SOUTH WATER SUPPLY OT 2 - KAMBURU WATER
DISTANCE IN KILOMETERS	10+800.00	10+820.00 10+840.00	10+860.00 10+880.00	10+900.00	10+940.00	10+960.00 10+980.00	11+000.00	11+040.00	11+080.00	11+100.00 11+120.00	11+160.00	11+180.00	11+220.00	11+260.00	11+280.00 11+300.00	11+320.00	11+340.00	11+380.00	11+400.00	11+440.00 11+460.00	11+480.00	11+500.00 11+520.00	11+540.00 11+560.00	11+580.00	11+600.00	11+640.00	11+680.00	11+720.00 11+740.00	11+760.00	11+800.00	11+840.00	11+860.00 11+880.00	11+900.00 11+919.05			SUPPLY
EXISTING GROUND LEVEL	(m) 1044.64	1045.37 1046.10	1046.83 1047.57	1048.30	1049.76		1051.98 1052.82	1053.67 1054.51	1055.36	1056.20	1058.73	1059.58 1060.42		1062.96	1063.80 1064.65	1065.49 1066 34	1067.18	1068.03 1068.87	1069.71	1070.56 1071.40	1072.16	1072.67	1073.68 1074.19	1074.69	1075.70	10/6.21	10/7.22	1078.26 1078.88	1079.50 1080.12	1080.74 1081.36	1081.98	1082.60 1083.22	1083.84 1084.43			
INVERT LEVELS (m)	1043.10	1043.81 1044.53	1045.24 1045.95	1046.66	1048.08	1048.80	1050.22	1051.64 1052.36	1053.07	1053.78	1055.91	1056.63 1057.34	1058.05 1058.76	1059.47	1060.19 1060.90	1061.61	1063.03	1063.74 1064.46	1065.17	1065.88 1066.59	1067.30	1068.02	1069.44 1070.15	1070.86	1072.29	1073.71	10/4.42 1075.13	1075.85 1076.56	1077.27	1078.69 1079.40	1080.12	1080.83 1081.54	1082.25 1082.93		drawing title: Meka-kamun	YANGE DISTRIBUTION LINE
DEPTH OF INVERT (m) TYPE OF PIPE AND SIZE	1.53	1.56 1.58	1.60 1.62	1.64	1.68	1.70	1.76	2.02	2.29	2.42	2.82	2.95 3.08	3.22	3.48	3.62 3.75	88 5 M 110 MM H		1		4.68 4.81	4.86	4.65 4.45	4.24 4.03	3.83	3.62 3.42	3.21	2.59	2.41	2.23 2.14	2.05	1.86	1.77 1.68	1.59)+800.00 - 11+919.05 HEET 10 OF 10
GEOLOGICAL CONDITION							-								UL		OAM SOIL											_						-	Designed by: K.N.C	
SLOPE OF PIPE (H/V)	_			_ 1;27.31									1:23 .	68										1:39	.53					1:32	26				Checked by: J.M.M	
													LONG	TUD	NAL	SEC	TION	<u> </u>												0		10	0	200m	Scale: 1:1000 DRG No. KW	/SP/ME-KMDL/10









		020	2440	034460	OBP+22	X 1000 000 24200	2420	2+540	2+560	2+580		Attended to the series 2	2+640	2+560	2+680	2+700	2+720	2+740	24780 24780		2-820	2+840	2+860	2+880	2+900	2+940	2+960	086342	3+000	020+0	34060	090 7+090	3+100	3+120	- 5 + 1 40 21171202 even 2	Dent the	3+180 3+200	3+200 3+220	3+240	-3+260	3+280
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ISTANCE IN KILOMETERS	2+400.00	2+420.00	2+440.00	2+460.00	2+480.00	2+500.00	2+520.00	2+540.00	2+560.00	2+600.00	2+620.00	2+640.00	2+660.00	2+680.00	2+700.00	2+720.00	2+740.00	2+760.00	2+780.00	2+800.00	2+820.00	2+840.00 2+860.00	2+880.00	2+900.00	2+920.00	2+940.00	2+960.00 2+980.00	3+000.00	3+020.00	3+040.00	3+060.00	3+080.00	3+100.00 3+120.00	3+140.00	3+160.00	3+180.00	3+200.00	3+220.00	3+240.00	3+280.00 3+280.00	3+300.00
XISTING GROUND LEVEL (m)	-		-			-	-	-	1167.78					_	1167.29	1167.47	1167.64	1167.81		1168.14	-	1168.27		1168.31			1168.59		1170.72	1171.79		11/5.92				1178.56			1180.30		
NVERT LEVELS (m)	1166.13	1166.52	1166.92	1167.31	1167.10	1166.89	1166.68	1166.48	1166.27	1165.85	1165.56	1165.27	1165.44	1165.61	1165.78	1165.95	1166.13	1166.30	1166.47	1166.64	1166.69	1166.79	1166.84	1166.89	1166.94	1166.99	1167.09	1168.13	1169.18	1170.22	1171.26	11/2.51	1174.39	1175.43	1176.48	1177.06	1177.64	1178.22	1178.80	1179.97	
FATUM (Fm)NVERT (m)		_	_	_	_		_		_	1 c.1					1.51	1.51	1.51	1.52		1.50	_	1.1.1	1.45	1.42		1.36	1.50	1.52	1.55	1.57		1.61	1.66			1.50	1.50		1.50		
																									PIPE (P	N12.5)															
YPE OF PIPE AND SIZE SEOLOGICAL CONDITION																						I	RED LO	AM SO																	



NOTES:

- . CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.0 BOX 1292 - 10100, NYERI, KENYA

ENGINEER:



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

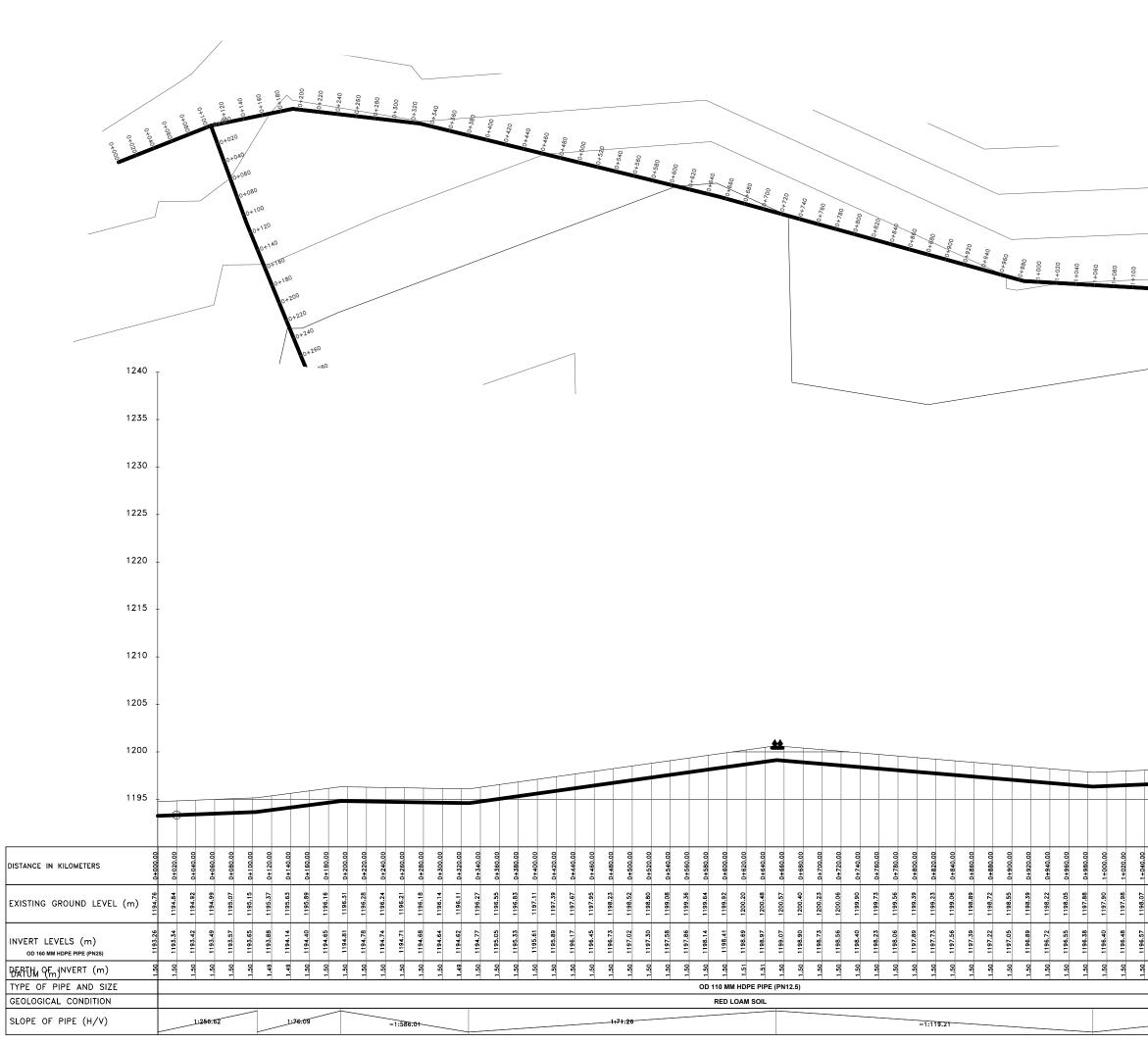
DRAWING TITLE: KIRITIRI - MAYORI DISTRIBUTION LINE

CH. 2+400.00 - 3+313.46 SHEET 3 OF 3

Designed by: K.N.G	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023

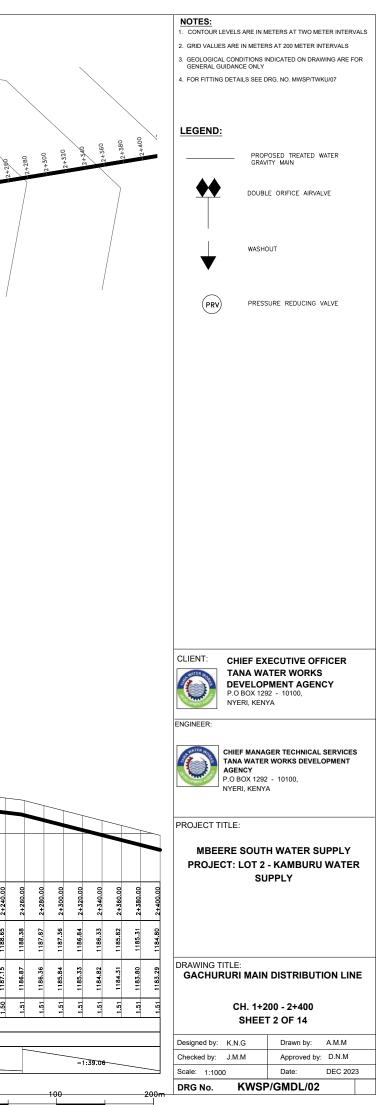
DRG No. KWSP/KR-MYDL/03

-200m

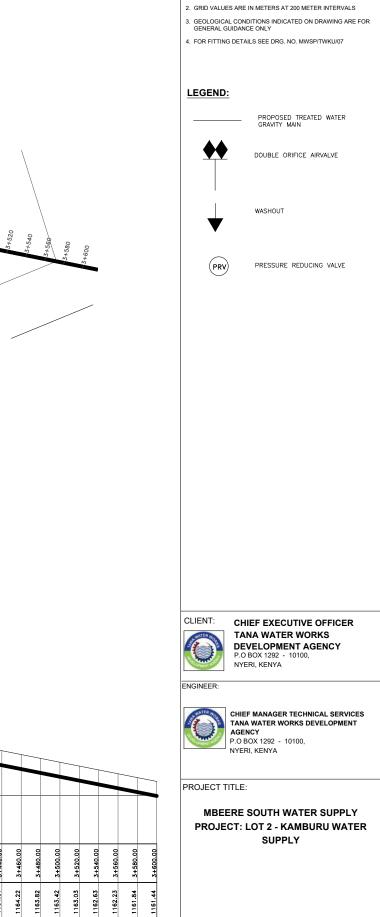


	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
	CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS GRID VALUES ARE IN METERS AT 200 METER INTERVALS
	3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
	4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
	LEGEND:
	PROPOSED TREATED WATER GRAVITY MAIN
	DOUBLE ORIFICE AIRVALVE
	WASHOUT
° 0 c	▼
-1 + 120 1 + 140 1 + 160 1 + 180 1 + 200	PRESSURE REDUCING VALVE
	CLIENT: CHIEF EXECUTIVE OFFICER
	TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
	ENGINEER:
	CHIEF MANAGER TECHNICAL SERVICES
	TANA WATER WORKS DEVELOPMENT AGENCY
	P.O BOX 1292 - 10100, NYERI, KENYA
	PROJECT TITLE:
	MBEERE SOUTH WATER SUPPLY
	PROJECT: LOT 2 - KAMBURU WATER SUPPLY
1+060.00 1+080.00 1+120.00 1+120.00 1+140.00 1+180.00	
1198.15 1198.23 1198.40 1198.48 1198.56 1198.56 1198.56	
1196.65 1196.81 1196.81 1196.39 1195.38 1197.06 1197.14 1197.23	DRAWING TITLE: GACHURURI MAIN DISTRIBUTION LINE
1.50 11 1.50 11 1.50 11 1.50 11 1.50 11 1.50 11 1.50 11 1.50 11	CH. 0+000.00 - 1+200
	SHEET 1 OF 14
1:241:65	Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
1:241:63	

																					_/		/	/	<u> </u>															_					00	-220	240
-												04		400 +500	+520	1+540	1+560	1+580	+600	1+620	1+640	1+660	1+680	1+700	1+720	1+740	1+780	1+800	1+820	1+840	1+880	006+1	1+920	046+1	080.	0001	2+000	2+040	2+060	2+080	2+190	\$4.120	2+140	2+160	2+20	5+2	2+
-	1+200	1+220	1+240	1+260	1+280	1+320	1+340	1+360	1+580	1+400	1+42	1+4									(/						/							/	/					1
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DISTANCE IN KILOMETERS	1+200.00	1+220.00	1+240.00	1+260.00	1+280.00	1+300.00	1+340.00		1+380.00	1+400.00	1+420.00	1+440.00	1+460.00	1+480.00	1+500.00	1+520.00	1+540.00	1+560.00	1+580.00	1+600.00	1+620.00 1+640.00	1+640.00 1+660.00	1+660.00 1+680.00	1+700.00	1+720.00	1+740.00	1+760.00	1+780.00		1+840.00	1+860.00	1+880.00	1+900.00	1+940.00	1+960.00	1+980.00	2+000.00	2+020.00	2+040.00	2+060.00	2+080.00	2+100.00	2+140.00	2+160.00	2+180.00	2+200.00	2+220.00 2+240.00
EXISTING GROUND LEVEL (m)	1198.73	1198.81	_		1199.06	1133.14	1198.92			1198.29	1198.08	_	_	1197.45	1197.24	_			1196.40 1196.19	1195.98	1195.77	1195.56	1195.56	1195.14		1194.68	1194.44	1194.20 1193 96		1193.47		_	1192.75	1192.27	1192.03	1191.79	1191.55	1191.31	1191.06	1190.82	1190.58	1190.34	1189.86	1189.62		_	1188.90
INVERT LEVELS (m)	1197.23	1197.31	1197.39	1197.48	1197.56	1197.63	1197.42	1197.21	1197.00	1196.79	1196.58	1196.37	1196.16	1195.95	1195.74	1195.53	26.0811	1195.11	1194.90	1194.09	1194.40	1194.06	1194.06 1193.84	1193.60	1193.36	1193.13	1192.89	1192.65	1192.18	1191.94	1191.70	1191.46	1191.23	1190.75	1190.52	1190.28	1190.04	1189.80	1189.56	1189.32	1189.08	1188.84	1188.36	1188.12	1187.88		1187.15
DEATTH OF INVERT (m)	1.50	1.50	1.50	1.50	1.50	1.51	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1 50	1.50	1.50	1.50 1.51	1.54	1.56	1.55		1.55		1.54		1.53	1.52	1.52	1.51	1.51	1.51	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION	+																											10 MM H		PE (PN1	12.5)																
SLOPE OF PIPE (H/V)		_	1:2	41.65		\square									-1:9	5.21																_				-1:8	2.98										
	F																																														



2,4400	2+440	2+460		1,2000 2,4520	2+540	2+260	246580	2+600	2+640	54.660	2+680	24700	2+740	242.42	34780	2+800	2+820	2+880	2+890	24900	2+920	2+940	2+960	2+980	3+000	34020	3+060	13+080	3+120 3+120	3+140	6+1E0	081 × 00 24200	3+220	3+240 3+2er		3+300	34.320	3+340	3+38n		3+420	3+440	31460	00+1-1 13+500	3+520
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DISTANCE IN KILOMETERS	2+400.00	5	2+440.00	2+460.00	2+480.00	2+500.00 2+520.00			2+580.00	2+600.00 2+620.00	2+640.00	2+660.00	2+680.00	2+700.00	2+740.00	2+760.00	2+780.00	2+800.00	2+820.00	2+840.00	2+860.00	2+880.00	2+900.00	2+920.00	2+940.00 2+960.00	2+980.00	3+000.00	3+020.00	3+040.00 3+060.00	3+080.00	3+100.00	3+120.00 3+140.00	3+160.00	3+180.00	3+200.00 3+220.00	3+240.00	3+260.00	3+280.00	3+300.00	3+320.00	3+340.00 3+360.00	3+380.00	3+400.00	_	3+440.00 3+460.00
EXISTING GROUND LEVEL (n	n) 184.80		1183.77	1183.26	1182.75	1182.24 1181.72	1181.21	1180.70	1180.19	1179.68	1178.65	1178.16	1177.84	1177.52	1176.87	1176.54	1176.22	1175.90	1175.57	1175.25	1174.93	1174.60	1174.28	1173.95	11/5.65	1172.98	1172.66	1172.33	1172.01	1171.36	1171.04	1170.72	1170.07	1169.74	1169.38 1168.98	1168.58	1168.19	1167.79	1167.39	1167.00	1166.20	1165.81	1165.41	1165.01	1164.61 1164.22
INVERT LEVELS (m)	1183.29		1182.27	1181.76		1180.74 1180.24	1179.73			1178.22	1177.21	1176.71		1176.02	1175.37	1175.04								1172.45			1171.16		1170.51			1169.22 1168.89			1167.79 1167.41		1166.65				1164.70				1163.11 1162.72
DEPTH OF INVERT (m)	1.51	1.50	1.50	1.50	1.50	1.50 1.49	1.48	1.47	1.47	1.45	 44.	1.46	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50				1.50		1.50	1.50	1.52	1.58	1.59 1.57	1.55	1.54	1.52	1.51	1.50	1.50	1.50	1.50	1.50	1.50 1.50
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION												,														OD		I HDPE I OAM SC	PIPE (PN	12.5)												<u> </u>			
SLOPE OF PIPE (H/V)							1:39.06																	1:61.77	,																		1:50.41		
																																											0		



NOTES:

CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS

DRAWING TITLE: GACHURURI MAIN DISTRIBUTION LINE

1162.32 1161.92 1161.53 1161.13 1160.73 1160.73 1160.34

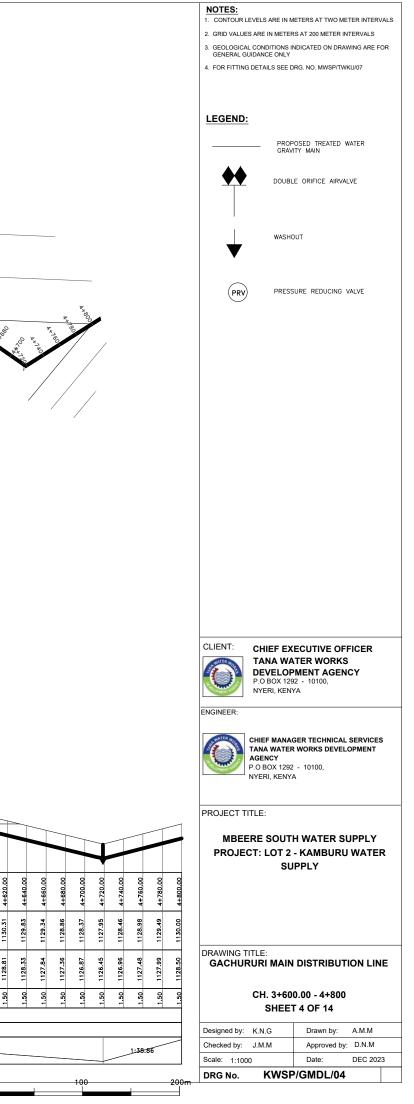
1.50 1.50 1.50 1.50 1.50

-100-----

CH. 2+400 - 3+600 SHEET 3 OF 14

Scale: 1:1000	Date: P/GMDL/03	DEC 2023
Checked by: J.M.M	Approved b	
Designed by: K.N.G	Drawn by:	A.M.M

				\																																						
+600 4+620	3+640	3+660	3+700	3+720	3+740	3+760 3+780	3+800	3+820	34840	3+860 3+880	3+900	3+920	+940	-960	-980	020	140	60	30	Q	8						/	/	/													
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DISTANCE IN KILOMETERS	3+620.00	3+640.00 3+660.00	3+680.00	3+700.00	3+720.00 3+740.00	3+760.00	3+780.00	3+800.00	3+820.00 3+840.00	3+860.00	3+880.00	3+900.00	3+920.00	3+940.00 3+060.00	3+980.00	4+000.00	4+020.00	4+040.00	4+060.00	4+080.00	4+100.00 4+120.00	4+140.00	4+160.00	4+180.00 4+200.00	4+220.00	4+240.00	4+260.00	4+280.00 4+300.00	4+320.00	4+340.00	4+360.00	4+380.00	4+420.00	4+440.00	4+460.00	4+480.00	4+500.00 4+520.00	4+540.00	4+560.00	4+580.00	4+600.00	4+640.00
EXISTING GROUND LEVEL (m)		1160.65 1160.25			1158.93 1158.45				1156.55 1156.07			1154.64	1154.17	1153.69	1152.74	1152.26		1151.31	1150.83	1150.36	1149.66 1149.41	1148.93	1148.45	1147.98 1147.27	1146.17	1145.07	1143.98	1141.78	1140.68	1139.58	1138.48	1136.28	1135.18	1134.68	1134.19	1133.71	1133.22 1132.74		1131.77	1131.28	_	1129.83
INVERT LEVELS (m)	1159.53	1159.12 1158.70	1158.28	1157.87	1157.43 1156.95	1156.48	1156.00	1155.52	1155.05 1154.57	1154.10	1153.62	1153.14	1152.67	1152.19	1151.24	1150.76	1150.29	1149.81	1149.33	1148.86	1146.35	1147.43	1146.95	1146.48 1145.71	1144.62	1143.52	1142.43	1141.34	1139.15	1138.05	1136.96	1134.77	1133.68	1133.19	1132.70	1132.22	1131.73 1131.24	1130.76	1130.27	_	1129.30	
PEATTHM OF INVERT (m)	1.51	1.53 1.55	1.57	1.53	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50 1.56				1.53	1.53	1.52	1.52	1.51	1.50	1.49	1.49	1.49	1.49 1.49	1.50	1.50	1.50	1.50	1.50
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION																											(PN12.5	5)														
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4+800	4+840	14+860	4+880	4+920	4 + 5 40	4+960 44000		5+020 2.40	090+2 2+080	080+5	5+100	002+140	5+160	5+180	5+220	0+5+5	5+260	5+280 4+300	072+5	045+340	5+360	2+380	007+5	2+470	5+440	5+480	5+500	5+520	5+560	-5+580	5+600	5 +620 5 +640	099+6	5+680	2+700	5+720	· * 0 2+760	5+780	5+800	5+820 5+840	5+860	000 2+900
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DISTANCE IN KILOMETERS	4+800.00			4+880.00	4+900.00			4+980.00	5+020	5+040.00	-	5+100.00			5+160.00		5+220.00		5+260.00	5+280.00			5+340.00 5+360.00		5+400.00		5+460.00			5+520.00 5+540.00		5+580.00		-	5+660.00			5+720.00 5+740.00			5+800.00 5+820.00	
EXISTING GROUND LEVEL (m)	1130.00			1132.06	1132.58	+ +		1134.64	1135.67	1135.94	1135.76	1135.40	1135.22	1135.04	1134.86		1134.32	1134.15	1133.97	1133.79			1133.25		1132.71		1132.50			1132.51		1132.52	1132.52	1132.52	+ +		1132.53	1132.54	1132.41	1132.31	1132.21 1132.10	
INVERT LEVELS (m)	1128.50	1129.53	1130.05	1130.56	1131.08	1132.11	1132.62	1133.13	1134.15	1134.44	1134.26	1133.90	1133.72	1133.54	1133.36 1133.18	1133.00	1132.82	1132.65	1132.47	1132.29	1132.11	1131.93	1131.75	1131.39	1131.21	1131.03	1131.00	1131.00	1131.01	1131.01	1131.01	1131.02	1131.02	1131.02	1131.01	1131.00	1130.99	1130.98 1130.97	1130.91	1130.81	1130.71 1130.60	1130.50
DEATTH OF JNVERT (m) TYPE OF PIPE AND SIZE	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.51	1.51	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50		1.50		02- 		1.50	1.50	1.50	1.50	1.50	1.50	1.52 1.52	1.53	1.54	1.56 1.54	1.50	1.50	1.50	1.50
GEOLOGICAL CONDITION											_													UD		HDPE PI		2.3)														
SLOPE OF PIPE (H/V)					1:38	.86											-1:	111.45														1 ;7255	.99									
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NOTES:

. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS

2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS

	00000 1160 1155 1150 1145 1140		G4040	09040		6+120		04+100	64.960	64,200	6+240	6+280 6+280	6+-200 6 = - 300	6+320	6+540 6-1-7-0	6+360 6+380	64400	6+420	6+44D	6+480 8+48n	6+500	6+520	6+540		6+580 6+689.	6+620	6+640 50			08(++)	6+7400 1-7560	64-780 64-780	0,98,90	018419	6+860 9		erter erter							***************************************							NOTES: 1. CONTOUR LEVEI 2. GRID VALUES AR 3. GEOLOGICAL CO GENERAL GUIDA 4. FOR FITTING DET LEGEND:
1125 1126																																																			
1115 Intervent Intervent																																																		٦	CHI TAI AG P.O NYE
EXISTING GROUND LEVEL (m) 9<	8	20.00	40.00	60.00	80.00	00.00	20.00	40.00	60.00	80.00	20.00	40.00	60.00	00.08	20.00	40.00	60.00	00.00	20.00	40.00	60.00	80.00	20.00	40.00	60.00	80.00	20.00	40.00	60.00	80.00	20.00	40.00	60.00	00.00	20.00	40.00	60.00 30.00	00.00	20.00	40.00 50.00		00.00	20.00	40.00 \$0.00	80.00		40.00	60.00	80.00	00.00	MBEERE PROJECT
DRAWING TI INVERT LEVELS (m) 99 91 10 1		31.06 6+02	30.96 6+04	30.85 6+0(30.75 6+0	-	-						٥	29.52 6+2 29.17 6+30		-	<u> </u>		6+	6+4	6+	+ + 9	5 5	24.89 6+54	24.53 6+5	24.18 6+5	6 6	ف	Ğ	_				20.05 6+7. 19.62 6+8(19.20 6+8	9	0 +9 0 +9	9	6+9	6+9 6+9	6+3 9	4+	17.60 7+0:	17.49 7+0	17.44 7+08					7+/ 11:/1	
TYPE OF PIPE AND SIZE OD 110 MM HDPE PIPE (PN12.5)		-						-		_						_	_				_				_	_				_	-								_	-			_	00 E8	98			1115.59	1115.52	0+-0	DRAWING TITL GACHURUI
	DEATTH OF INVERT (m)	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.54	1.51	1.52	1.53	1.54	1.56	1.56	1.57	1.58	1.59	1.61						1.53	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50 1.43	1.45	1.46	1.47	1.50	1.52	1.53	1.55 1.56	1.58	1.59	1.60 1.62	1.63	1.65	9 9 .	с
		-																										12.5)																						-	Designed by: K.I
SLOPE OF PIPE (H/V)		╞					-1	:192.27						_						-1:56	.11						_					-1:4	46.79										-1	:364.03						1	Checked by: J.M
LONGITUDINAL SECTION	L	I																										-															<u> </u>			100				-200~	Scale: 1:1000 DRG No.



NOTES: . CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS

- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

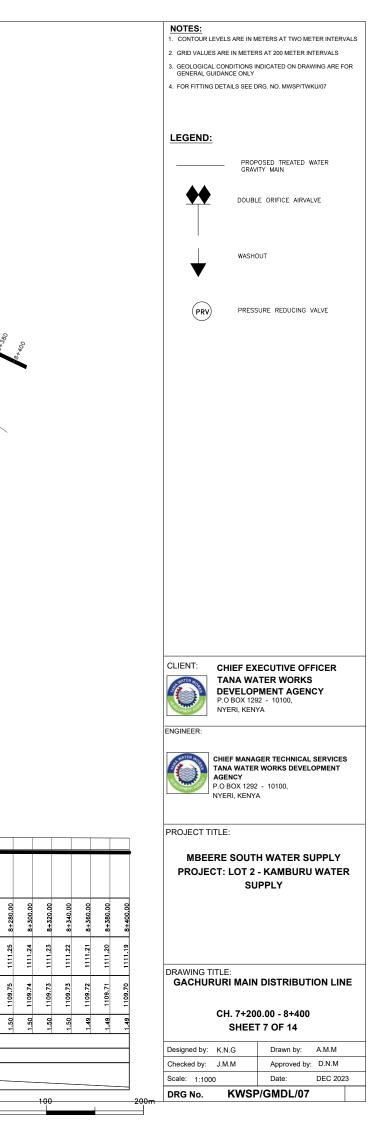
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

DRAWING TITLE: GACHURURI MAIN DISTRIBUTION LINE												
	0.00 - 7+200 Γ 6 OF 14											
Designed by: K.N.G	Drawn by: A.M.M											
Checked by: J.M.M	Approved by: D.N.M											
Scale: 1:1000	Date: DEC 2023											

KWSP/GMDL/06

7+220 7+220	7+260	7+280	7 + 300	040	7+360 7+360	7+380		7+400	7.1.1	7+440	7+460	7+480	7+500	74500		7+540	7+560	7+580	7+600	1 + 600 749 × L	7+07-	 7+660	7+680	7+7007		74/20	7+740	7+760	7+780	7+800	7+820	7+840	7+860	7+880	0000+1	0000+7	04642	×280	8×000	8*050	× 23+040	24.000	080*0	84.	24120	0*1*0 8.		/ 8+180	8+200	8+220	0×2	0*5*0 0	8+280	3+280	18+300 18+300	550 1520			
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1130 1125 1120 1115 1110		46,00	60.00	180.00	100.00	20.00	40.00	66.00	180,00	100.00	20.00	40.00		ie0.00	80.00	00.00	20.00		40.00	ie0.00	80.00		20.00	140.00		160.00	180.00	00.00	20.30	40.00								00.00	20.00	40.00	66.00		00.00	20.00	40.00	66.00	80.00	00.00		20.30	40.00		60.00	80.00	00.00	220.00	40.00	(ec. 00	
1130 1125 1120 1115 1110 DISTANCE IN KILOMETERS	7+220.00	7.00 7+240.00					6.61 7+340.00	6.33 7+360.00	6.45 7+380.00	6.37 7+400.00	6.28 7+420.00			6.12 7+460.00	6.04 7+480.00	5.95 7+500.00		-	5.79 7+540.00	5.71 7+560.00	5.62 7+580.00	7+600.00	5.41 7+620.00	5.17 7+640.00	<u> </u>	4.93 7+660.00	4.69 7+680.00	4.45 7+700.00				1	+	000 000 000 000 000 000 000 000 000 00					_	-	1.40 7+960.00		-		1.36 8+040.00	1.35 8+060.00	1.34 8+080.00		<u> </u>	1.32 8+120.00	1.31 8+140.00		—	1.30 8+180.00					
1130 1125 1120 1110 1115 1110 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m)	1117.11 7+200.00 1117.05 7+220.00	1117.00	1116.94	1116.86	1116.78	1116.70	1116.61	1116.53	1116.45	1116.37	1116.28	1116.20		1116.12	1116.04	1115.95	1115.87		1115.79	1115.71	1115.62	115:34 7+600.00	1115.41	1115.17		1114.93	1114.69	1114.45	1114.21	1113.97	1113.73		64-0111	10 2111	1112 77	1112.53	00 0111	1112.05	1111.81	1111.57	1111.40		1111.38	1111.37	1111.36	1111.35	1111.34	1111.33		1111.32	1111.31		1111.30	1111.30	1111.29	1111.28	1111.27	1111.26	
1130 1125 1120 1110 1115 1110 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m)	1115.45 1117.11 7+200.00 1115.38 1117.05 7+220.00	1115.31 1117.00	1115.24 1116.94	1115.17 1116.86	1115.10 1116.78	1115.03 1116.70	1114.96 1116.61	1114.89 1116.53	1114.82 1116.45	1114.75 1116.37	1114.69 1116.28	1114.62 1116.20		1114.55 1116.12	1114.48 1116.04	1114.41 1115.95	1114.34 1115.87		1114.27 1115.79	1114.20 1115.71	1114.12 1115.62	1114.04	1113.91 1115.41	1113.67 1115.17		1113.43 1114.93	1113.19 1114.69	1112.95 1114.45	1112.71 1114.21	1112.47 1113.97	1112 25 1115 75		nt.0	10 2111 12 1111	1111 27	1111-03 1112.53	110 20	1110.55 1112.05	1110.31 1111.81	1110.07 1111.57	1109.91 1111.40		1109.89 1111.38	1109.88 1111.37	1109.87 1111.36	1109.86 1111.35	1109.85 1111.34	1109.84 1111.33		1109.83 1111.32	1109.82 1111.31		1109.81 1111.30	1109.80 1111.30	1109.79 1111.29	1109.78 1111.28	1109.77 1111.27	1109.76 1111.26	
1130 1125 1120 1110 1115 1110 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m)	1115.45 1117.11 7+200.00 1115.38 1117.05 7+220.00	1117.00	1115.24 1116.94	1115.17 1116.86	1115.10 1116.78	1115.03 1116.70	1116.61	1116.53	1114.82 1116.45	1116.37	1114.69 1116.28	1114.62 1116.20		1114.55 1116.12	1116.04	1115.95	1114.34 1115.87		1114.27 1115.79	1115.71	1115.62	1114.04	1115.41	1113.67 1115.17		1113.43 1114.93	1114.69	1112.95 1114.45	1112.71 1114.21	1.50 1112.47 1113.97			6+'0111 0C'1	10 2111		1112.53	110 20	1110.55 1112.05	1110.31 1111.81	1110.07 1111.57	1111.40		1109.89 1111.38	1109.88 1111.37	1111.36	1111.35	1111.34	1109.84 1111.33		1109.83 1111.32	1111.31		1109.81 1111.30	1111.30	1109.79 1111.29	1109.78 1111.28	1109.77 1111.27	1109.76 1111.26	
1130 1125 1120 1110 1115 1110 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m) PERTUM QE_NNVERT (m)	1.66 1115.45 1117.11 7+200.00 1.68 1115.38 1117.05 7+220.00	1115.31 1117.00	1.70 1115.24 1116.94	1115.17 1116.86	1115.10 1116.78	1115.03 1116.70	1114.96 1116.61	1114.89 1116.53	1114.82 1116.45	1114.75 1116.37	1.60 1114.69 1116.28	1.59 1114.62 1116.20		1.57 1114.55 1116.12	1114.48 1116.04	1114.41 1115.95	1114.34 1115.87		1114.27 1115.79	1114.20 1115.71	1114.12 1115.62	1114.04	1113.91 1115.41	1113.67 1115.17		1113.43 1114.93	1113.19 1114.69	1112.95 1114.45	1112.71 1114.21	1.50 1112.47 1113.97		C		0210 2111 1 2111 021 PIPE (P	N16)	1.50 1111.03 1112.53	110 20	1110.55 1112.05	1110.31 1111.81	1110.07 1111.57	1109.91 1111.40		1109.89 1111.38	1109.88 1111.37	1109.87 1111.36	1109.86 1111.35	1109.85 1111.34	1109.84 1111.33		1109.83 1111.32	1109.82 1111.31		1.50 1109.81 1111.30	1109.80 1111.30	1.50 1109.79 1111.29	1.50 1109.78 1111.28	1109.77 1111.27	1109.76 1111.26	

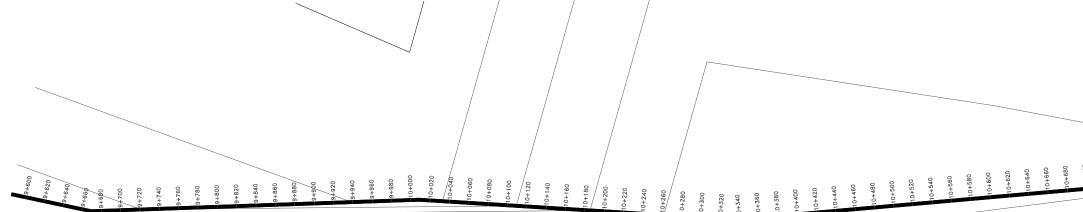


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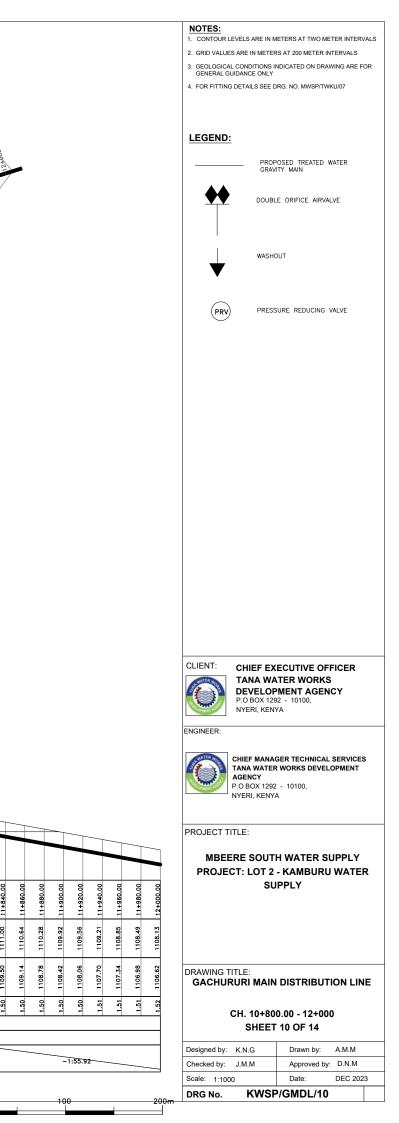
8+280.

8-4-00 8-4-00 9-4-8- 9-4-8-8- 00-9-4-8-8	8+660 8+700 8+7100 8+7000 8+7000 8+70000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 EEGEND: PROPOSED TREATED WATER GRAVITY MAIN DOUBLE ORIFICE ARVALVE Image: Colspan="2">Image: Colspan="2" Image: Colspan= 2"
1155 _T			
1150 -			
1145 -			
1140 -			
1135 -			
1130 -			
1125 _			CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.0 BOX 1292 - 10100, NYERI, KENYA
1120 -			ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P. O BOX 1292 - 10100, NYERI, KENYA
			PROJECT TITLE:
1110			MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
DISTANCE IN KILOMETERS	8+560.00 8+560.00 8+580.000 8+600.00 8+640.00 8+640.00 8+640.00 8+560.00 8+760.00 8+780.00 8+780.00 8+780.00 8+800.00	8+820.00 8+840.00 8+860.00 8+880.00 8+880.00 8+920.00 8+920.00 8+920.00 8+920.00 8+920.00 8+920.00 8+920.00 8+920.00 8+920.00 8+920.00 9+020.00 9+020.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+140.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+120.00 9+240.00 9+240.00 9+240.00 9+320.00 9+320.00 9+320.00 9+320.00 9+320.00 9+320.00 9+320.00 9+320.00 9+320.00	9+380.00 9+420.00 9+420.00 9+440.00 9+460.00 9+560.00 9+560.00 9+560.00 9+560.00 9+560.00
EXISTING GROUND LEVEL (m)	1111.80 1111.90 1112.09 1112.09 1112.19 1112.18 1112.18 1112.18 1112.18 1112.18	1113.00 1112.48 1112.48 1112.48 1112.51 1112.51 1112.51 1112.51 1112.51 1112.51 1112.51 1112.51 1112.51 1112.51 1112.51 1112.55 1112.55 1112.55 1112.55 1112.55 1112.55 1113.55	25 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
INVERT LEVELS (m)	1110.30 1110.50 1110.59 1110.59 1110.69 1110.89 11110.89 1111.88 1111.18 1111.18	1111.37 1111.37 1111.37 1111.37 1111.31 1111.35 1111.35 1111.35 1111.35 1111.35 1111.35 1111.07 1111.07 1111.07 1111.08 1110.86 1110.86 1110.85 1110.85 1110.85 1111.26 1111.26 1111.21 1111.26 1111.26 1112.33 1112.46 1112.46 1112.86 1112.86 1112.86	03 11 04 08 06 07 <th07< th=""> 07 07 07<!--</td--></th07<>
DEATTH QFm INVERT (m) 역 역 역 역 역 역 역 역 역 역 역 역 역 역 역 역 역 역 역	1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50	X8 X9 X9<	CH. 8+400.00 - 9+600 G S
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V)	1:205.37	RED LOAM SOIL	Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M -1:1887.28 Scale: 1:1000 Date: DEC 2023
		LONGITUDINAL SECTION	0 100 200m DRG No. KWSP/GMDL/08

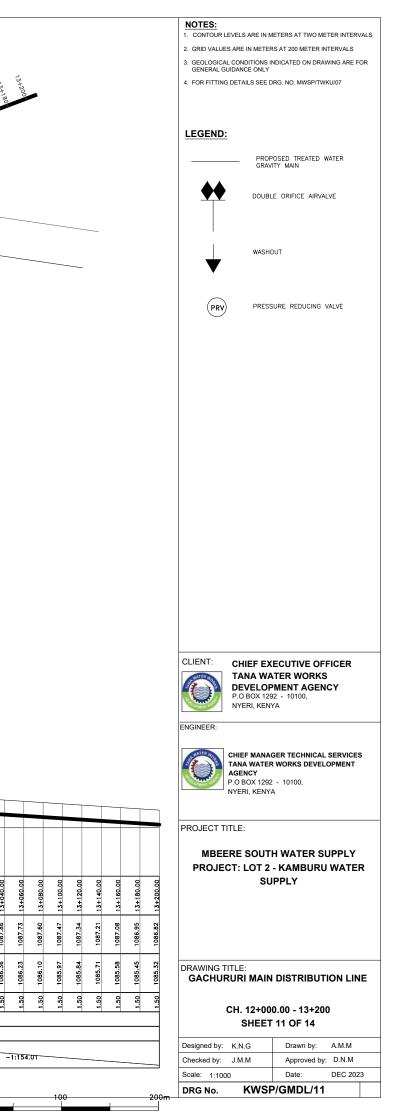
9+620	079946 94666 07000		9+720	0+760	008+6	9+820	09+60	00(c+6)	-94920 -94940	096+6	10+000	10+040	-10+080	10+100 10+120	-10+140 -101-140	10+180	-10+200 -10+220	-10+240 	10+280	10+320	10+340	-10+580 -10+400	-10+420 -10+440		-10+500	-10+520 -10+540	-10+560	00+00	10+520		10+660	_10+720 _10+740	10+750 	-10+780		:	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07 LEGEND: PROPOSED TREATED WATER GRAVITY MAIN DOUBLE ORIFICE AIRVALVE WASHOUT PRY PRESSURE REDUCING VALVE
1155	Ţ																																				
1150	-																																				
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1130																																					CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, WFEN WERE
																																					NYERI, KENYA ENGINEER:
1120	+																																				CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
																																					PROJECT TITLE:
1110												+																									MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
DISTANCE IN KILOMETERS	9+600.00 9+620.00 9+640.00	9+660.00	9+680.00 9+700.00	9+720.00 9+740.00	9+760.00	9+780.00 9+800.00	9+820.00 9+840.00	9+860.00	9+900.00	9+920.00 9+940.00	9+960.00	10+000.00 10+020.00	10+040.00	10+080.00	10+100.00 10+120.00	10+140.00	10+160.00 10+180.00	10+200.00 10+220.00	10+240.00	10+260.00 10+280.00	10+300.00 10+320.00	10+340.00 10+360.00	10+380.00	10+420.00	10+440.00	10+480.00 10+500.00	10+520.00	10+560.00	10+580.00 10+600.00	10+620.00	10+640.00	10+680.00 10+700.00	10+720.00	10+740.00	10+780.00 10+800.00		
EXISTING GROUND LEVEL (m)	1114.50	1114.48	1114.38 1114.19	1114.01 1113.83	1113.64	1113.46 1113.28	1113.09	1112.73	1112.36	1112.18	1111.81	1111.44 1111.66	1112.19	1113.24	1113.76 1114.29	1114.81	1115.33	1116.38	1117.43	1117.95	1119.00	1119.97	1119.84	1119.71	1119.58	1119.51	1119.38	1119.25	1119.19	1119.06	1119.00	1118.87 1118.80	1118.74	1118.67	1118.54		DRAWING TITLE:
INVERT LEVELS (m)	1113.00	-	1112.87 1112.69	1112.50		1111.95 1111.77					1110.31 1110.12	1109.94 1110.17	1110.69	1111.74	1112.26 1112.79	1113.31	1113.83 1114.36	1114.88 1115.41	1115.93	1116.45			1118.34 1118.27			1118.01 1117.95	1117.88		1117.69	1117.56		1117.36 1117.30		1117.17	1117.03		GACHURURI MAIN DISTRIBUTION LINE CH. 9+600.00 - 10+800
DEATUM OF NVERT (m) TYPE OF PIPE AND SIZE	1.50	1.50	1.51	1.51	1.51	1.51 1.51	1.51	1.50	1.50	1.50	1.50	1.50 1.50	1.50	1.50	1.50		02-1 1-20 110 MM	1 HDPE PIP	÷		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.51 1.51	1.51		SHEET 9 OF 14
GEOLOGICAL CONDITION		F										1							DAM SOIL			+															Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
SLOPE OF PIPE (H/V)	-1:188	7.28					-1:108	8.94									1:38.16											-1:30	08.37							5	Scale: 1:1000 Date: DEC 2023
													LON	GITL	DINA	L SE	СТІС	<u>DN</u>												0		1	100		20		DRG No. KWSP/GMDL/09



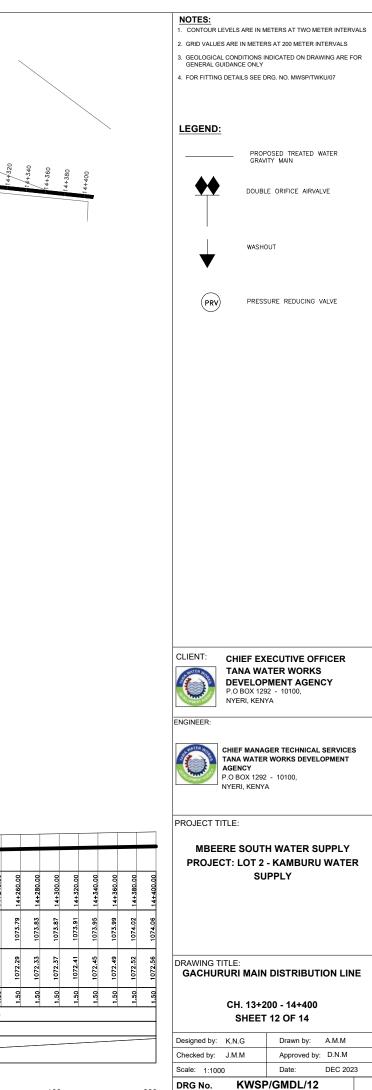
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DISTANCE IN KILOMETERS	10+820.00	10+840.00	10+860.00	10+880.00	10+900.00	10+920.00	10+940.00	10+960.00	10+980.00	11+000.00	11+040.00	11+060.00	11+080.00	11+100.00	11+140.00	11+160.00	11+180.00	11+200.00	11+220.00	11+240.00	11+260.00	11+280.00 11+300.00	11+320.00	11+340.00	11+360.00	11+380.00	11+420.00	11+440.00	11+460.00	11+480.00	11+520.00	11+540.00	11+560.00	11+580.00 11+600 00	11+620.00	11+640.00	11+660.00	11+680.00	11+700.00	11+720.00	11+/40.00 11+760.00	11+780.00	11+800.00	11+820.00	11+840.00
EXISTING GROUND LEVEL (m)						1117.45 1	1117.12 1	1116.78 1		1116.10 1 1115.76 1					1113.73			1112.71				1112.03 1 1112.06 1	1			1112.17 1				1112.34				1112.17	1 1		1111.86				1111.00				1111.00 1
INVERT LEVELS (m)	1116.90	1116.84	1116.77	1116.63	1116.30	1115.97	1115.63	1115.30	1114.96	1114.65	1113.96	1113.63	1113.30	1112.96	1112.30	1111.96	1111.63	1111.29	1110.96	1110.63	1110.50	1110.53 1110.56	1110.59	1110.61	1110.64	1110.67	1110.72	1110.75	1110.78	1110.84	1110.86	1110.83	1110.75	1110.67	1110.52	1110.44	1110.36	1110.29	1110.21	1110.13	1109.98	1109.90			1109.50
면타UM QFmJNVERT (m) 전 TYPE OF PIPE AND SIZE	1.51	1.51	1.51	1.50	1.49	1.49	1.48	1.48	1.47	1.47	1.46	1.45	1.45	1.44	1.43	1.43	1.42	1.42	1.41	1.41	1.50	1.50		93 1- 0D 110 I	NM HDF	S PE PIPE			1.50	1.50	1.51	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50			1.50
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V)	/	-1:308	3.3 7_									-1:59.0	16													REI 1 :721.2 8		SOIL									-1	1:259.9	1						_
	L			7																																									



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						0 0	40	260	280	2+320	2+340	+360	80 00	6								1,12+6k	12+76-60	12+100	1,22×11,20	12-71600	12×12×180																
11+980 112+800 112+020	-12+060 	12+100	12+120	12+140	12+180	12420	12+2	12+.	12+	-12+	12+	12+3		12+42	12+44	12+460	12+480	-12+520	2+540	12+560	12+589v	1610				7						-											
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DISTANCE IN KILOMETERS				1106.59 12+080.00 1106.17 12+100.00			4.92 12+160.00 4.50 12+180.00		5.67 12+220.00 5.25 12±240.00		2.42 12+280.00		1.73 12+320.00 1.73 12+340.00					0.82 12+460.00				1100.21 12+540.00 1100.06 12+560.00	1099.91 12+580.00		3.67 12+620.00 7.99 12+640.00		3.63 12+680.00		3.20 12+720.00 4.60 12+740.00			2.57 12+800.00	1.89 12+820.00		1.54 12+860.00							108/.99 13+020.00 1087.86 13+040.00	
INVERT LEVELS (m)	1106.62 1108.	1105.89 1107.42		1105.09 1106.59 1104.67 1106.17			1103.42 1104.92 1103.00 1104.50		1102.17 1103.67 1101.75 1103.25		1100.92 1102.42	1100.53 1102.03	1100.23 1101.73			_	1099.47 1100.97				_	1098.71 1100.21 1098.55 1100.06	1098.40 1099		1097.17 1098.67 1096.49 1097.99		1095.13 1096.63	_	1093.10 1094.60			1091.07 1092.57		_		1088.36 1089.86 1087.68 1089.18					_	+	-
BEATING OF INVERT (m)		1.52 110		1.50 110			1.50 110		1.50 110		1.50 1100		1.50 1100				1.50 109			1.50 109		1.50 109	1.51 1098		1.50 109		1.50 109		1.50 105.				1.50 1090			1.50 108						1.50 1086.49 1.50 1086.36	
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION																							OD 1	10 MM H RED	DPE PIP		5)																_
SLOPE OF PIPE (H/V)	-1	55.92					-1:47.92										-1:1	31.69											_	1:29.53	3								_				-1:



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	7.5 	3+280	13+300	13+340	13+360	13+380	13+400	13+440	13+460	13+480	13+500		13+560	13+580	13+600	-13+620	13+640	13+660	13+680	13+720	13+740	13/+760	1/3+780	13+800	13+820	7, 13+840	00° 13+880	13400084 13400084 13400084	13+920	13+940	13+960	14+000	14+020	14+040	14+060	14+080	14+100	14+120	14+140	14+180	14+200	14+220	14+240	14+260	4+280	++300
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DISTANCE IN KILOMETERS	13+200.00	13+220.00		13+280.00	13+300.00	13+320.00	13+340.00	13+360.00	13+380.00 13+400.00	13+420.00	13+440.00	13+460.00	13+480.00	13+500.00	0.020101	13+560.00	13+580.00	13+600.00	13+620.00	13+640.00	13+660.00	13+680.00	13+700.00 13+720.00	13+740.00	13+760.00	13+780.00	13+800.00	13+820.00 13+840.00	13+860.00	13+880.00	13+900.00	13+920.00	13+940.00	13+960.00	14+000.00	14+020.00	14+040.00	14+060.00	14+080.00	14+100.00	14+120.00	14+140.00	14+180.00	14+200.00	14+220.00	14+240.00
EXISTING GROUND LEVEL	(m) ^{1086.82}	1086.69	1086.56	1086.41	1086.38	1086.35	1086.32	1086.30	1086.27	1086.21	1086.19	1086.16	1086.13	1086.11	1005.00	1085.85	1085.69	1085.54	1085.39	1085.24	1085.09	1084.94	1084.63	1084.48	1084.33	1084.18	1084.03	1083.8/ 1083.72	1083.57	1082.80	1081.35	1079.91	1078.47	1077.58	1074.14	1073.33	1073.37	1073.41	1073.45	1073.48	1073.52	1073.56 1073.60	1073.64	1073.68	1073.72	1073.75
INVERT LEVELS (m)	1085.32	1085.19	1085.06	1084.94	1084.91	1084.88	1084.85	1084.82	1084.79 1084.76	1084.73	1084.70	1084.66	1084.63	1084.60	104-001	1064.30	1084.18	1084.03	1083.87	1083.72	1083.56	1083.40 1083.75	1083.09	1082.93	1082.78	1082.62	1082.47	1082.31	1082.00	1081.30	1079.85	1078.41	1076.97	1075.52	1072.64	1071.86	1071.87	1071.91	1071.95	1071.98	1072.02	1072.06	1072.14	1072.18	1072.22	1072.25
DEATH OF JNVERT (m)	1.50	1.50	1.50	1.47	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.50	1.50		1.51		1.52		1.52	1.53	1.53	46.1 1.54	1.55	1.55	1.56	1.56	1.57	1.57	1.50	1.50	1.50	1.50	1.50	1.50	1.47	1.50	1.50	1.50	1.50	1.50	1.50				1.50
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION															OD 1	10 MM	HDPE I	PIPE (F	²N16)									RED LO	DAM SO	NL												OD 11	10 MM	HDPE F	PIPE (PN	20)
SLOPE OF PIPE (H/V)		-1:1	54.01						-1:73	2.97												-1:	131.90								<u> </u>		1:13.86											1:5	18.85	
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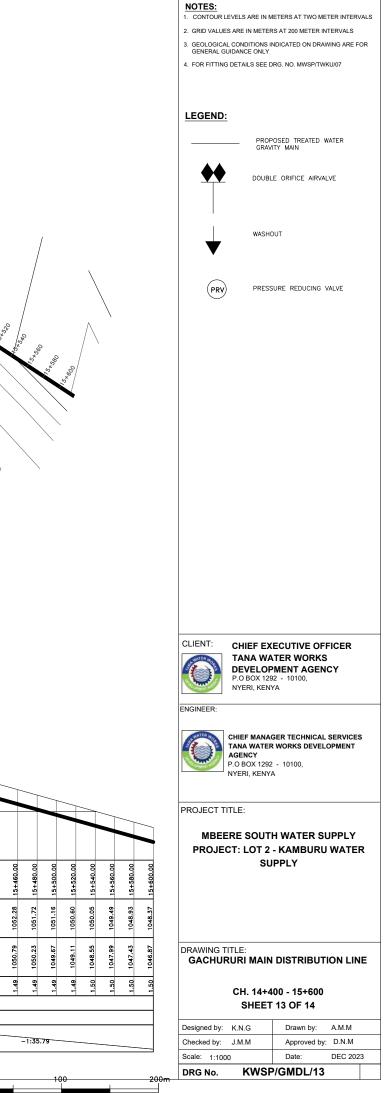
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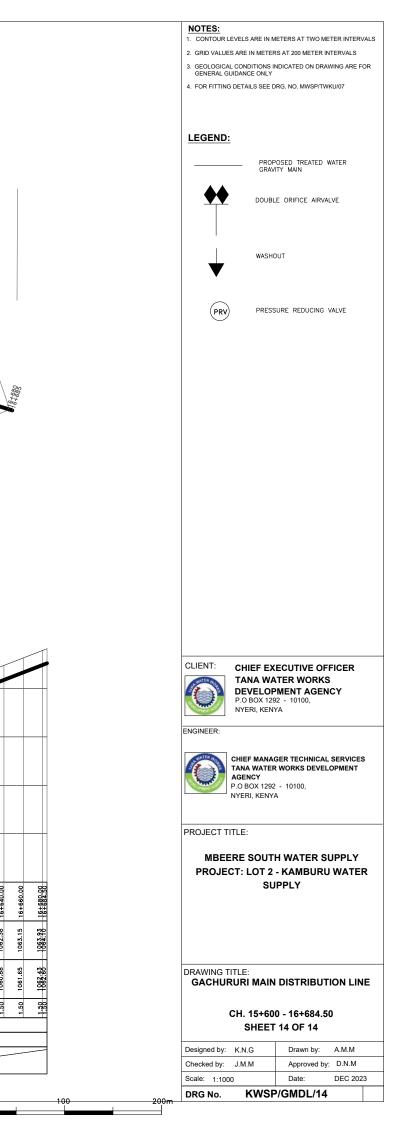
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KWSP/GMDL/12

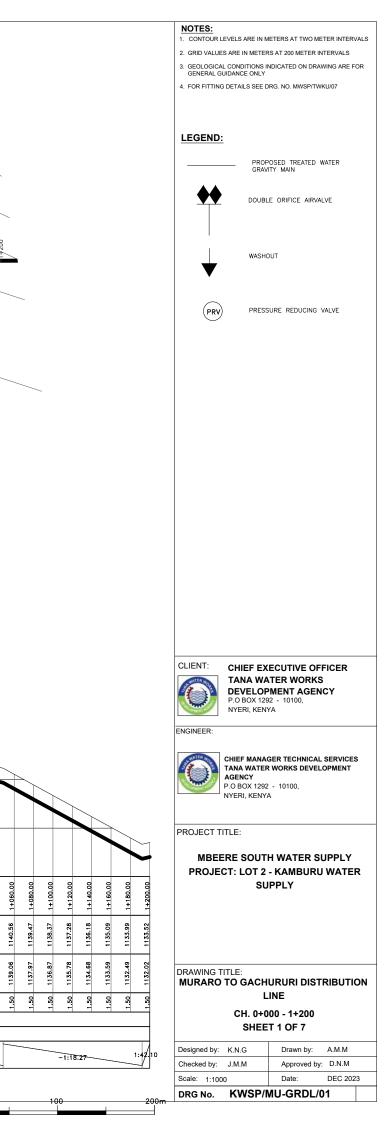
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1070 1065 1060 1055 1050		10/4.1.4 14+140.00 1074.18 14+460.00				1073.39 14+580.00		1072.81 14+620.00 1072.51 14+640.00			1071.54 14+700.00 1071.35 14+720.00			1070.47 14+780.00 1070.18 14+800.00			1069.01 14+880.00 1069.01 14+880.00	_	1065.43 14+920.00 1063.14 14+940.00		1067.46 14+980.00 1066.81 15+000.00	1068.15 15+020.00 1065.50 15+040.00		1064.19 15+080.00 1063.54 15+100.00		1062.24 15+140.00 1061.58 15+160.00			1059.63 15+220.00 1058.97 15+240.00				1056.35 15+320.00 1055 71 15+24.00			1053.96 15+400.00 1053.40 15+420.00 1053.40 15+420.00	
1070 1065 1060 1055 1050 TANCE IN KILOMETERS	10/2.55 10/4.10	10/2.64 10/4.14 1072.68 1074.18	1072.72 1074.22	1072.77 1074.27	1072.47 1073.97	1071.89 1073.39	1071.60 1073.10	1071.31 1072.81 1071.01 1072.51	1070.72 1072.22	1070.43 1071.93	1070.14 1071.64 1069.85 1071.35	1069.56 1071.06	1069.26 1070.76	1068.97 1070.47 1068.68 1070.18	1068.39 1069.89	1068.10 1069.60	1067.51 1069.01	1067.22 1068.72	1066.93 1068.43 1066.64 1068.14	1066.34 1067.84	1065.95 1067.46 1065.30 1066.81	1064.65 1066.15 1064.00 1065.50	1063.35 1064.85	1062.69 1064.19 1062.04 1063.54	1061.39 1062.89	1060.74 1062.24 1060.08 1061.58	1059.43 1060.93	1058.78 1060.28	1058.13 1059.63 1057.47 1058.97	1056.82 1058.32	1056.17 1057.67	1055.52 1057.02	1054.86 1056.36 1054.21 1055.71	1053.59 1055.08	1053.03 1054.52	1052.47 1053.96 1051.91 1053.40	
1070 1065 1060 1055 1050 TANCE IN KILOMETERS	10/2.55 10/4.10	1074.18	1072.72 1074.22	1072.77 1074.27	1072.47 1073.97	1073.39	1071.60 1073.10	1072.81 1072.51	1070.72 1072.22	1070.43 1071.93	1071.64 1071.35	1069.56 1071.06	1069.26 1070.76	1.50 1068.97 1070.47 1.50 1068.68 1070.18	1.50 1068.39 1069.89	1.50 1068.10 1069.60	1069.01	1.50 1067.22 1068.72	1068.43 1068.14	1066.34 1067.84	1067.46 1066.81	1066.15 1065.50	1063.35 1064.85	1064.19 1063.54	1061.39 1062.89	1062.24 1061.58	1059.43 1060.93	1058.78 1060.28	1059.63 1058.97	1056.82 1058.32	1056.17 1057.67	1055.52 1057.02	1054.86 1056.36 1054.21 1055.71	1055.08	1053.03 1054.52	1053.96 1053.40	



	$\begin{array}{c} 15 + 600 \\ 15 + 600 \\ 15 + 700 \\ 15 + 700 \\ 15 + 700 \\ 15 + 700 \\ 15 + 700 \\ 15 + 700 \\ 15 + 800 \\ 15 +$	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0	000 000 000 000 000 000 000 000
1090		16+520 16+520 16+520 16+640 16+640 16+640 16+640
1085	-	
1080	-	
1075	_	
1070		
1065		
1060		
1055		
1050		
1045		
DISTANCE IN KILOMETERS	15+620.00 15+620.00 15+620.00 15+720.00 15+720.00 15+720.00 15+720.00 15+720.00 15+720.00 15+720.00 15+820.00 15+820.00 15+820.00 15+820.00 15+820.00 15+920.00 15+920.00 15+920.00 15+920.00 16+120.00	16+360.00 16+360.00 16+420.00 16+420.00 16+420.00 16+420.00 16+520.00 16+520.00 16+520.00 16+520.00 16+520.00 16+620.00
EXISTING GROUND LEVEL (m)		
INVERT LEVELS (m)	1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.75 1045.74 1045.74 1047.41 1048.42 1048.42 1048.42 1048.44 1048.45 1048.45 1048.45 1048.45 1048.45 1048.45 1048.45 1048.45 1050.44 1050.41 1051.58 1051.45 1051.58 1051.45 1051.58 1052.35 1052.45 1052.35 1053.45 1053.46 1053.48 1053.58 1053.58 1053.58 1053.58 1053.58 1053.58 <td></td>	
現在 の の の の の の の の の の の の の の の の の の	0 0	1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50
GEOLOGICAL CONDITION	RED LOAM SOIL	
SLOPE OF PIPE (H/V)	-1:35:79 1:58.92 1:88.64	1:25:84



0+260 0+260 0+200 0+200 0+200 0+200 0+200 0+200 0+200 0+200 0+200 0+200 0+200	0+060 0+190 0+080 0+140	021+0 001+0	04/120 04/10/ 2000 04/00/ 2000 2000 2000 2000 2000			00-40 0-40 0-40	0 to 10000	0+240	-0+280	dos +0;	0+3+0	0+360	-0-380		000 mg mg	0°3*4°0	Orter Contraction	000 000 000 000 000 000 000 000 000 00	answo onsee	0.490 0.490		0+500 0+200	04/120	0+740	04-180 2600	078+0	04-840 04-840	089+00	006+0	0+9+6-	096+0	0+980	1+620	1+040	1+060	1+100	1+120	1+160		
	1180 - 1175 - 1170 -																			, ,					Δ.															
	1165 - 1160 - 1155 -																																							
	1150 1145 1140																																							
	1135		0+040.00	0+080.00	0+100,00	0+120.00	0+140.00	0+160.00 0+180.00	0+200.00	0+220.00	0+260.00	0+280.00	0+300.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+460.00	0+500.00	0+520.00	0+540.00	0+580.00	0+600.00 0+620.00	0+640.00	0+660.00	0+700.00	0+720.00	0+760.00	0+780.00	0+800.00 0+820.00	0+840.00	0+860.00	0+880.00 0+900.00	0+920.00	0+940.00	0+380.00	1+000.00	1+040.00	
DISTANCE IN KILOMETERS	0+000.00	0+020.00	0+0	- ·					79	~ *			.59 78	5.04	1155.98	1155.92		1155.69 1154.78	1153.87	1153.09 1152.40	1151.72	1151.13 1151.14	1151.15	1151.17 1151.76	1152.34	1152.43 1152.52	1152.62	1152.57	1150.62		1148.66 1147.69	1146.72	1146.12	1145.52 1144.92	1144.32	1143.80	1142.84	1142.36		_
DISTANCE IN KILOMETERS EXISTING GROUND LEVEL INVERT LEVELS (m) OD 110 MM HDPE PIPE (PN20) DEATING OF JNVERT (m) TYPE OF PIPE AND SIZE	ن ہ	1157.50 1159.00	1.50 1157.54 1159.04 0+0 1.50 1157.58 1159.08 0+0	1157.55 1159.06	1157.33	1157.10	1.50 1156.88 1158.38 1.4e 1156.67 1158.15		1156.30	1.50 1156.12 1157.62 1.50 1155.94 1157.44	1155.68	1155.38	1.51 1155.08 1156.59	1154.54	1154.48		1154.36	1.50 1154.18 1.50 1153.28	1152.37	1.50 1151.59 1.50 1150.90		1.50 1149.63 1.50 1149.64		1.50	1.50	1.50 1150.93 1.50 1151.02		1.50	1.50 1149.12	1148.14	1.50 1147.16 1.50 1146.19	1145.22	1144.62	1.50 1144.02 11 1.50 1143.42 11	1142.86	1.47 1142.33 1. 1.50 1141.82 1.	1141.34	1140.86	1.50 1139.89 1141.39	



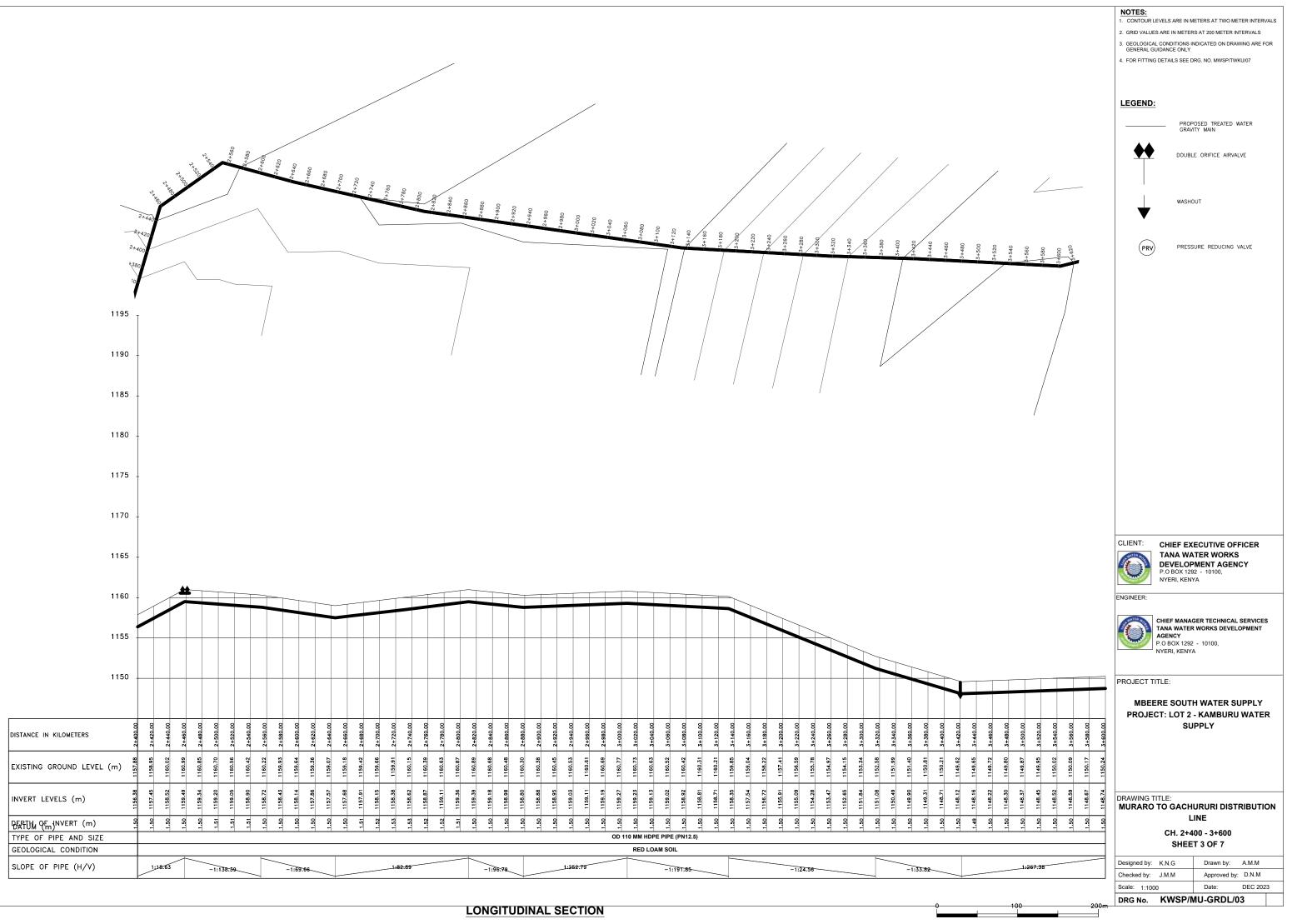
¥200 +300 +740 160 -180 120 220 +260 280 1155 1150 1145 1140 1135 1130 1125 1120 1115 1110 1105 +300.00 +420.00 +540.00 +560.00 +680.00 +720.00 +840.00 +900,00 +940.00 2+120.00 +220.00 +240.00 +320.00 +360.00 +440.00 +580.00 F620.00 +640.00 +700.00 +740.00 +800.00 -880.00 2+140.00 +660.00 +760.00 +780.00 8 2+180.00 +480.00 +820.00 +960.00 DISTANCE IN KILOMETERS 1129.85 1106.33 1124.67 1130.37 1137.02 1143.78 1145.13 1145.61 1146.09 1133.99 1134.47 1135.89 1136.37 1136.84 1136.20 1133.35 1131.22 1125.74 1112.82 1110.62 1108.41 109.42 1110.97 1112.52 1114.07 1115.62 1117.17 1118.97 1120.87 1122.77 1126.57 1132.52 1134.77 1146.57 1147.05 1134.94 135.42 1135.25 1134.30 1132.40 1128.48 127.11 1123.85 1121.64 119.44 1117.23 115.03 1107.88 128.47 1139.28 1141.53 33.5 EXISTING GROUND LEVEL (m) 109.12 1114.12 1144.11 1132.49 1132.97 1133.44 133.92 1134.39 1134.87 1135.34 1134.67 1133.73 1131.84 1130.88 129.72 1128.35 126.98 1124.24 122.30 120.11 1117.92 1115.72 1113.53 1111.32 106.91 104.86 07.93 109.47 1111.02 1112.57 1115.67 1117.51 1119.39 1121.28 1123.17 125.07 1128.89 1131.02 1133.27 1135.52 1137.77 140.02 1142.28 1143.63 1144.59 1145.07 1145.55 132.78 25.61 .39 126.98 INVERT LEVELS (m) 1.50 1.50 1.50 1.53 1.52 1.51 1.52 1.50 1.50 1.50 1.54 1.53 1.52 1.51 1.50 1.50 1.47 1.48 1.49 1.50 1.50 1.48 1.49 1.50 1.50 1.48 1.50 1.50 1.51 1.51 1.50 1.50 1.50 1.50 1.50 1.50 50 .50 1.50 1.50 1.50 1.50 1.50 1.46 1.49 .50 1.51 DEATTIN OF INVERT (m) TYPE OF PIPE AND SIZE OD 110 MM HDPE PIPE (PN12.5) GEOLOGICAL CONDITION RED LOAM SOIL SLOPE OF PIPE (H/V) -1:21.03 -1:14.61 -1:9.07 1:12 97 1:10-50 1:41:53

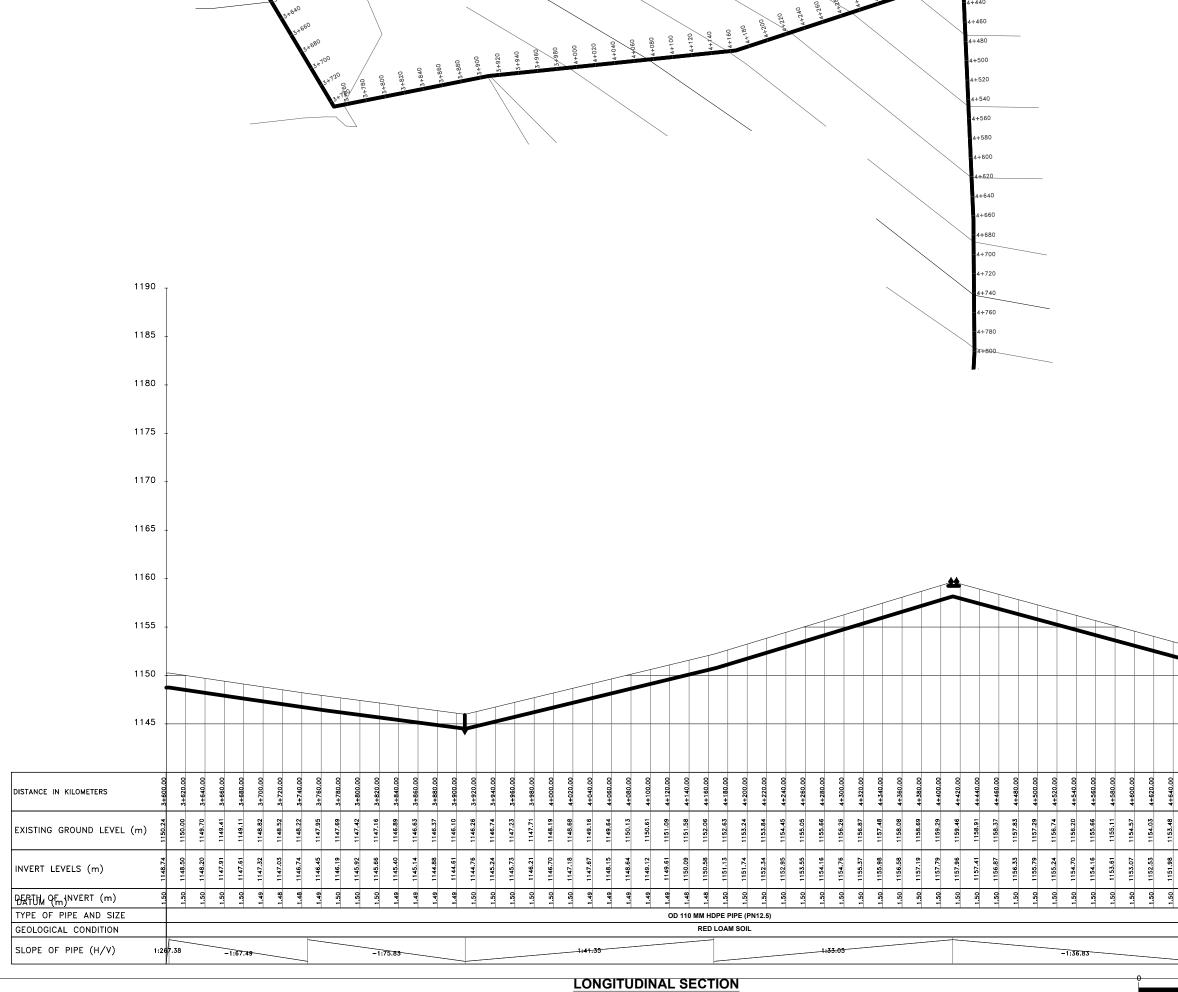
LONGITUDINAL SECTION

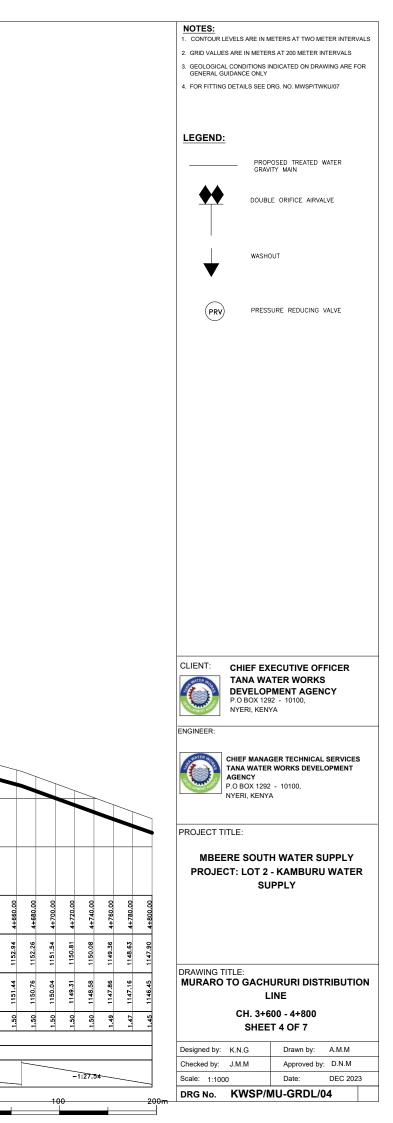
1147.94

1146.44

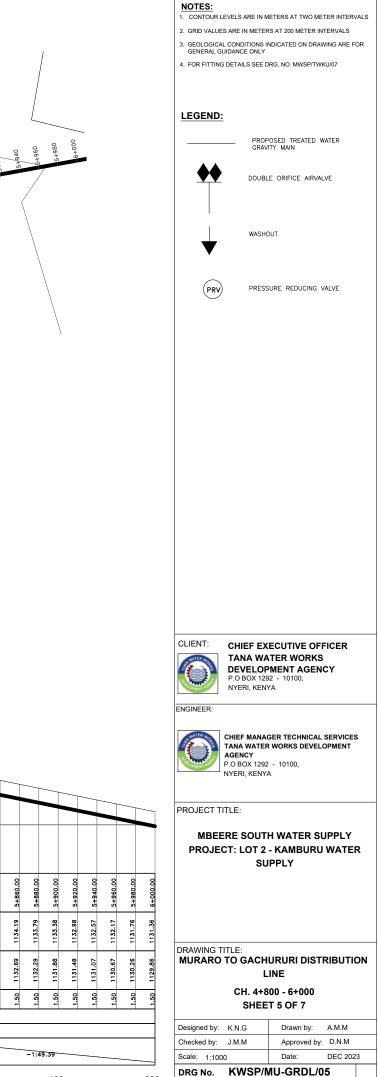
								NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
								2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
								3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
								4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
								LEGEND:
$\overline{\ }$								LEGEND.
								PROPOSED TREATED WATER GRAVITY MAIN
			÷					DOUBLE ORIFICE AIRVALVE
	-	z,	PX #Pi					
		2	°0)					WICHOUT
0	2×36							WASHOUT
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								CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS
								DEVELOPMENT AGENCY
								P.O BOX 1292 - 10100, NYERI, KENYA
								ENGINEER:
								CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT
								AGENCY P.O BOX 1292 - 10100,
								NYERI, KENYA
		_						PROJECT TITLE:
								MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER
0	8	8	8	8	8	8	8	SUPPLY
2+260.00	2+280.00	2+300.00	2+320.00	2+340.00	2+360.00	2+380.00	2+400.00	
	-						_	
1149.29	1150.64	1151.98	1153.33	1154.66	1155.73	1156.81	1157.88	
79	4	48	83	16	23	31	38	
1147.79	1149.14	1150.48	1151.83	1153.16	1154.23	1155.31	1156.38	DRAWING TITLE: MURARO TO GACHURURI DISTRIBUTION
1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	LINE
- -			- 	-	-	<u>٦</u>		CH. 1+200 - 2+400 SHEET 2 OF 7
		4.86				18.63		Designed by: K.N.G Drawn by: A.M.M Checked by: J.M.M Approved by: D.N.M
								Scale: 1:1000 Date: DEC 2023
		-100)				-200	DRG No. KWSP/MU-GRDL/02







	520 .840	4+860	4+880	006+*	4+920	4+940	++380	+000	20	0						l						/							5	545	+520	5+550	5+580	5+600	5+620	12+640	+ 66g	80									0	00	040
	8+4						7		2 2 4 4 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4	15+065	5+p80	5+/100	5/+120	5+140	5+160	5+180	5+200	5+220		0,024,280	5+300	5+320	5+\$40	5+360	54380	s+AQd	54200	54+460	1+ A80							7	292	22+60	22.200	5×740	5+760	5+780	5+800		5+860	5+880	06+5	26+95	
	1175	Ţ																																															
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DISTANCE IN KILOMETERS		4+800.00 4+820.00	4+840.00	4+860.00	4+880.00	4+900.00	4+920.00 4+940.00	4+960.00	4+980.00	5+000.00	5+020.00	5+040.00	5+060.00	5+100.00	5+120.00	5+140.00	5+160.00	5+180.00	5+200.00	5+220.00	5+240.00	5+260.00	5+280.00	5+300.00	5+320.00	5+340.00	5+360.00	5+380.00 5+400.00	5+420.00	5+440.00	5+460.00	5+480.00	5+500.00	5+540.00	5+560.00	5+580.00	5+600.00	5+620.00	5+640.00	5+660.00	5+680.00	5+700.00	5+740.00	5+760.00	5+780.00	5+800.00	5+820.00	5+840.00	5+860.00
EXISTING GROUND LEVEL	(m)	1147.90	1146.78	1146.22	1145.67	1145.11	1144.56 1144.16	1144.27	1144.38	_	_	1144.72	1144.65	1144.79	1144.66	1144.53	1144.40	1144.27	1144.14	1144.01	1143.88	1143.75	1143.62	1143.49	1143.36	1143.23	1142.47	1141.4/	1139.48	1138.49	1137.49	1136.50	1135.50	1134.96	1134.87	1134.79	1134.71	1134.79	1134.97	1135.16	1135.35	1135.54	1135.91	1136.10	1135.81	1135.41		1134.60	1134.19
INVERT LEVELS (m)		1146.45	1145.28	1144.73		_	1143.07					_	_	1143.40					1142.64		1142.38		1142.12	1141.99			_	11.59.96				_	1134.00					1133.29			_	1134.04						1133.	1132.69
DEATTH OF PIPE AND SIZE		1.45	1.50	1.50	1.49	1.49	1.49	1.50	1.50	1.50	1.50	1.50	1.50	1.52	1.51	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50							1.50	1.50	1.50	1.49	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
GEOLOGICAL CONDITION														-											U	UTU N							,					1							-				_
SLOPE OF PIPE (H/V)	-1	:27.54		-1:3	6.01					_1:179.	.39								-1:	:154.10									-1	:20.09				<u> </u>	-1:241	1.29					1 :106. 4	19							_
																				LC	ONC	GITI	UD	IN/	AL S	SEC	TIO	N																					

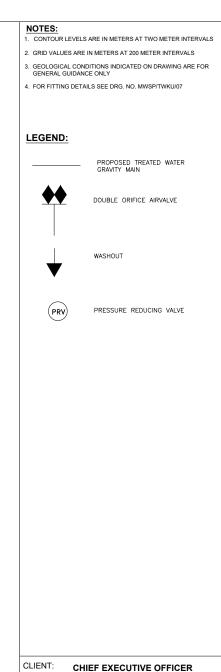


-200r

100

6+060 6+050	5+080 6+100	6+120 6+140	6+160		16+200	6+220 6+240	6+260	6+280	6+300 6+320	6+340	092+9.	0000	-6+400 -6+420	0,6+440	54.460 	64-480 	0.4-5-00 6-4-5-0	6+540	6+560	6+550 	6+600 6+620	6+640	099+9: 6+660	002-49	.6+720	6+740 760	6+780 6+780	6+800	6+820	5+840 	6+500 6+880	000+9	6+920	6+940	6+960	6+980 7 + 000	7+020	7+040	7+060	7+080	7+120
1155																																									
1150 1145	-																																								
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																										T	_														
1120																																				_					
1115																																									
1110																																									
DISTANCE IN KILOMETERS	6+020.00	6+040.00 6+060.00	6+080.00	6+100.00	6+120.00 6+140.00	6+160.00	6+180.00	6+200.00 6+220.00	6+240.00	6+260.00	6+280.00 6 : 700.00	6+320.00	6+340.00	6+360.00	6+380.00 6+400.00	6+420.00	6+440.00	6+460.00	6+480.00 6+500 00	00 06549	6+540.00	6+560.00	6+580.00 6+600.00	6+620.00	6+640.00	6+660.00 6+680.00	6+700.00	6+720.00	6+740.00	6+760.00 6+780.00	6+800.00	6+820.00	6+840.00	6+860.00	6+880.00	6+900.00 6+920.00	6+940.00	6+960.00	6+980.00	7+000.00 7+020.00	7+040.00
EXISTING GROUND LEVEL (m)	1130.95	1130.49	1129.54	1129.06	1128.58 1128.11	1127.63	1127.16	1126.69	1126.66	1126.65	1126.63	1126.60	1126.59	1126.57	1126.56 1126.54	1126.39	1125.93	1125.47	1125.01	1124.09	1123.63	1123.17	1122.71 1122.25	1121.78	1121.32	1120.40	1119.94	1119.51	1119.12	1118.73	1117.95	1117.56	1117.18	1116.79	1116.40	1115.01	1114.86	1114.27	1113.69	1113.11	
INVERT LEVELS (m)		1128.98	1128.04		1127.08			1125.19			1125.13				1125.06				1123.51				1121.21			1118.90				1117.23		1116.06	1115.68		_	1114.51				1111.61	
DEATUR OF PIPE AND SIZE	57 	02-1 02-1 M HDPE P	0 <u>9</u> -1		1.50	1.50	1.49	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	05.1	1.50	1.50	1.50 1.50	1.50		1.50 1.50		₽E (PN1:		1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
GEOLOGICAL CONDITION			ιr Ε (Ρ					T								-								RED LO	DAM SOI		J'E Pit									-					
SLOPE OF PIPE (H/V)	1:49.39			-1:42	.03						-1	:1372.9	9									-1:43.4	12								-1:	51.38								-1:3	4.28
																																								0	







CHILF EACOTIVE OFFICE TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER:



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

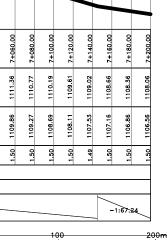
PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

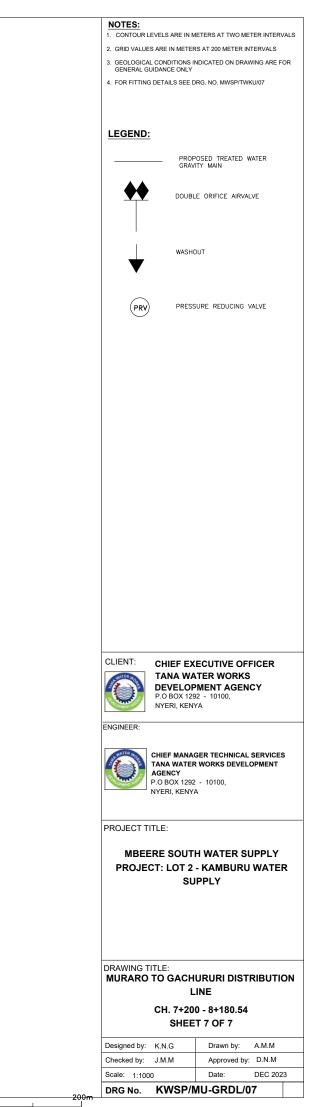
DRAWING TITLE: MURARO TO GACHURURI DISTRIBUTION LINE

CH. 6+000 - 7+200 SHEET 6 OF 7

DRG No. KWSP/M	/IU-GRDL/06
Scale: 1:1000	Date: DEC 2023
Checked by: J.M.M	Approved by: D.N.M
Designed by: K.N.G	Drawn by: A.M.M

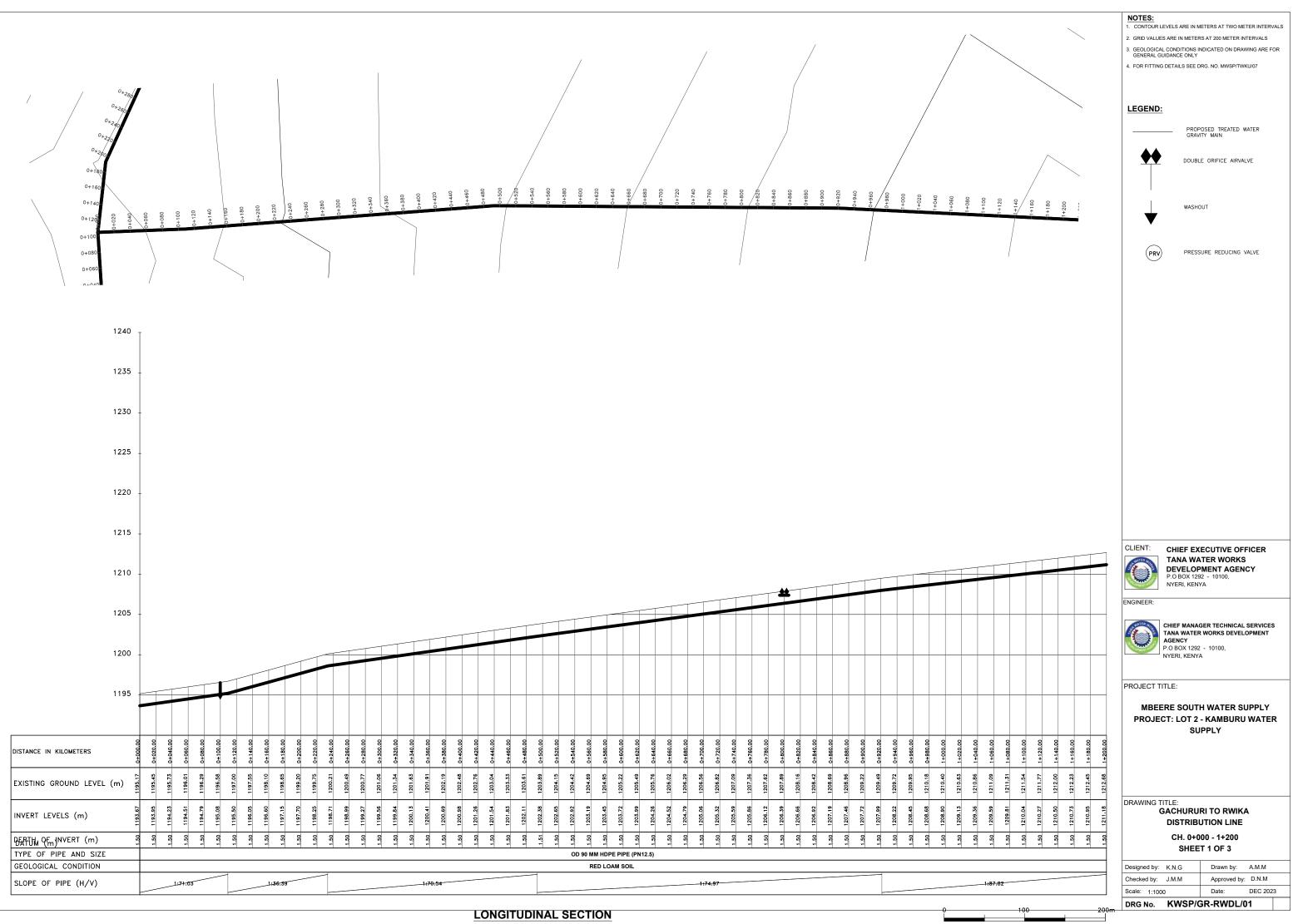


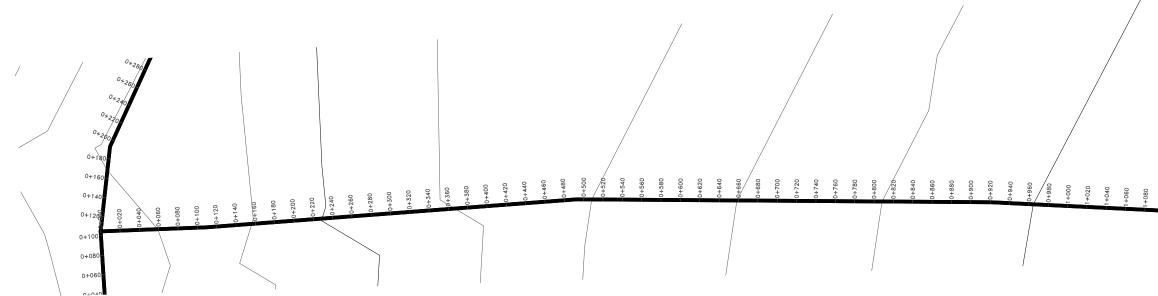
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1. +200 1. +200 1. +220	2+260	+280	200																											X	870000 880	6×040											
		Î	14 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	24-320	7+340	7+360	7+380	00- + 4 × V	2440	460	.0											>		>		\rangle	/	> > >	×++ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	7360													
		\									2+48	V2+200	7+520	7+540	1000	080+/	7699+7	7+620	7+640	7+660	7+680	/+700	7+740	7+760	**780	7+8,00	7×6 7×84 20	7 490															
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DISTANCE IN KILOMETERS								7+360.00	7+380.00	7+400.00	7+420.00	_	7+460.00	7+480.00	7+500.00	7+520.00	7+540.00	7+560.00	7+580.00	7+600.00	7+620.00	7+640.00		-		7+740.00			_			7+880.00			7+940.00	7+960.00	7+980.00	8+000.00		8+040.00	_		8+100.00 8+120.00
EXISTING GROUND LEVEL (m)	1107.76	1107.47	1107.17	1106.87	1106.57	1106.28	1105.98	1105.68	1105.35	1105.03	1104.70	1104.38	1104.05	1103.73	1103.40	1103.08	1102.75	1101.77	1100.69	1099.61	1098.52	1097.44	1096.36	1095.28	1094.19	1092.03	1090.95	1089.86	1088.78	1087.83	1087.67	1087.36	1087.21	1087.05	1086.90	1086.74	1086.58	1086.43	1085.68	1084.92	1084.16	1083.40	1082.65
INVERT LEVELS (m)	1106.26	1105.97	1105.67	1105.37	1105.07	1104.78	1104.48	1104.17	1103.85	1103.53	1103.20	1102.88	1102.55	1102.23	1101.90	1101.58	1101.25	1100.25	1099.18	1098.11	1097.02	1095.94	1094.86	1093.78	1092.69	1091.01	1089.45	1088.36	1087.28	1086.34	1086.17 1086.02	1085.86	1085.71	1085.55	1085.40	1085.24	1085.08	1084.93	1084.17	1083.42	1082.66	1081.90	1080.39
DEATUM OF JNVERT (m)	1 1 1 20 2 1 1 1 20	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.52	1.51	2 <u>2</u> -	105 102	99 97 97	9 <u>7</u> 1 E (PN16		1.50		1.50	1.50	1.50	1.49	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
GEOLOGICAL CONDITION								-									F				AM SC		- (- 1410	,						-									_				
SLOPE OF PIPE (H/V)		_		-1:67	7.24							-1:6	1.53										-1	:18.4									-1:	128.40)							-1:26	.41

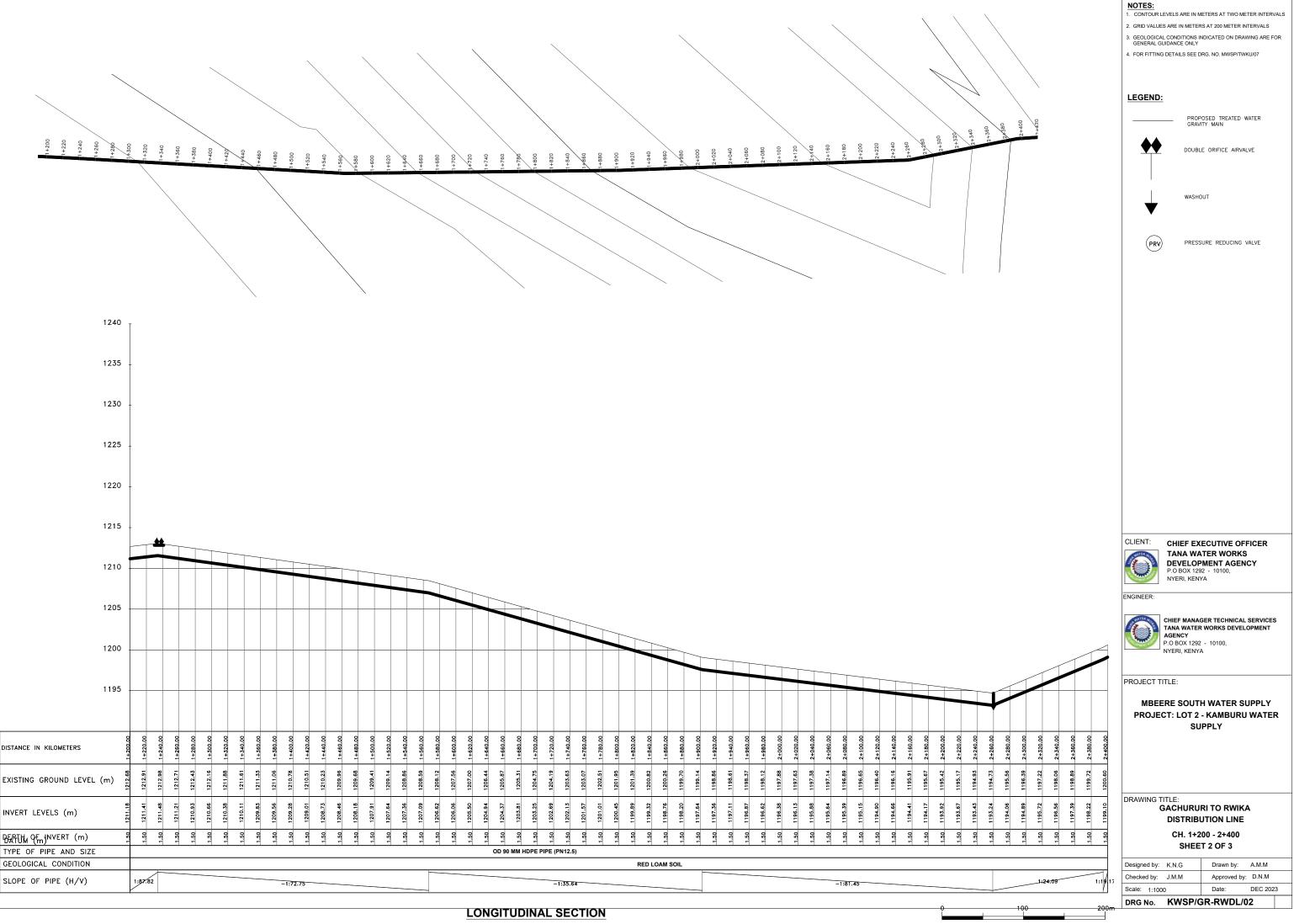




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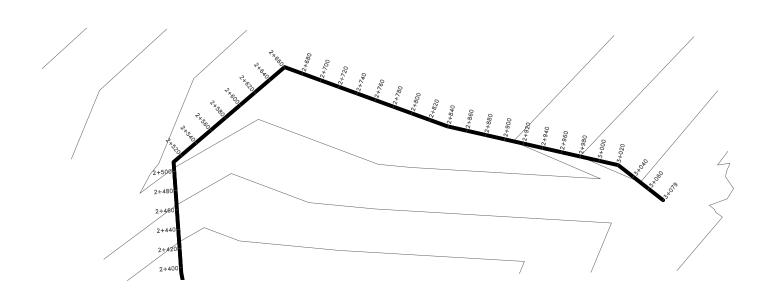


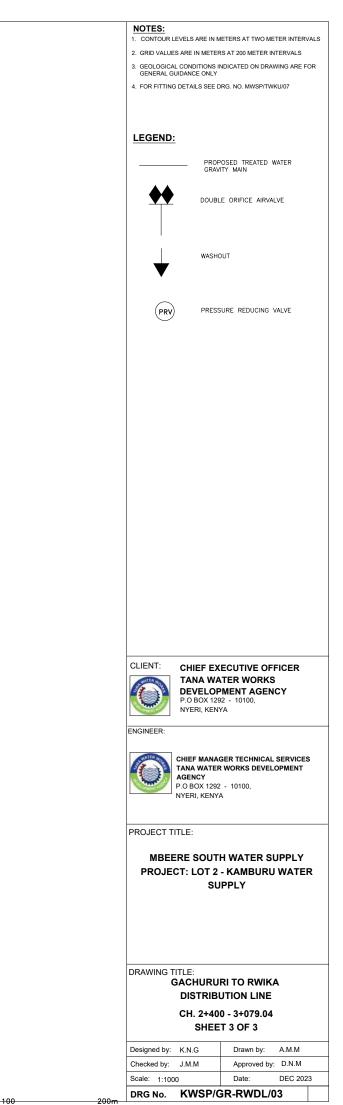


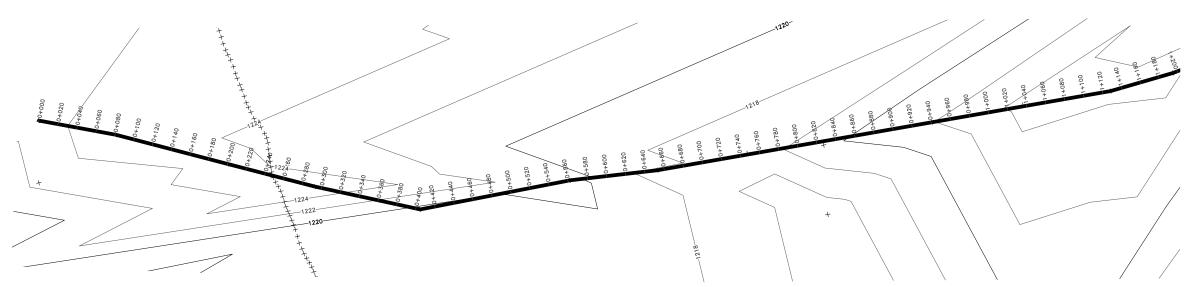


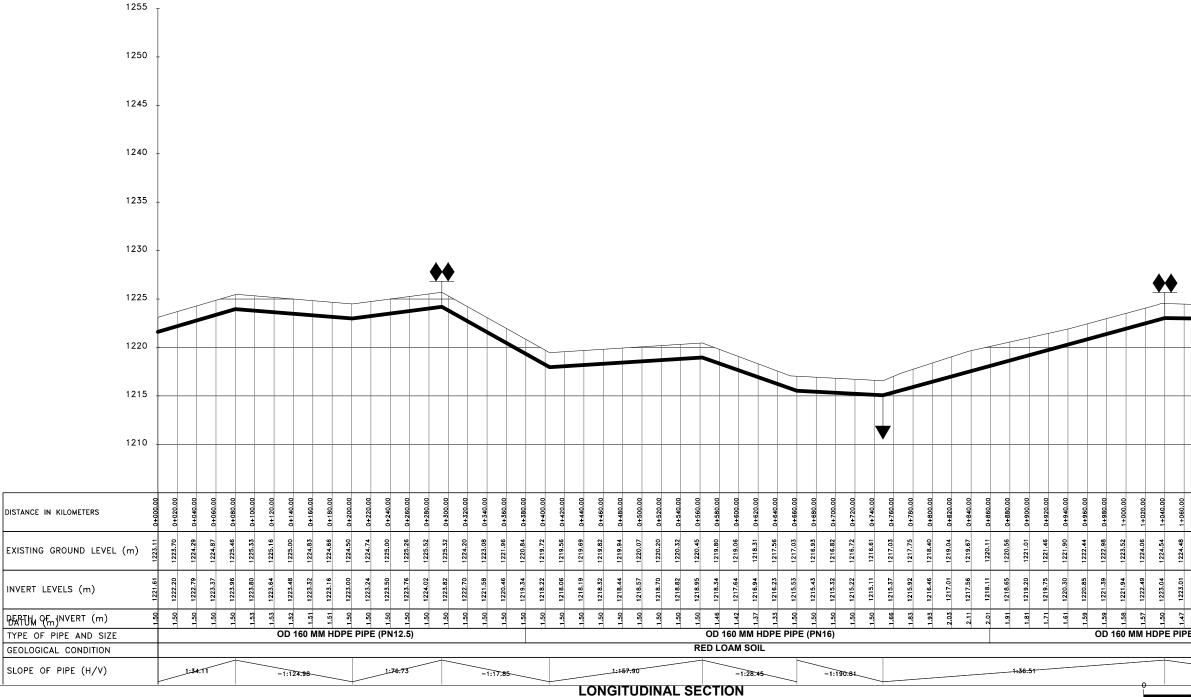


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1205 1200	400.00	440.00	460.00	480.00			540.00	560.00	580.00	600.00	620.00	640.00	860.00	680.00	700.00	720.00	740.00	760.00	780.00	800.00			880.00	800.00	320.00	340.00	360.00	380.00	000.00	020.00	040.00	060.00
1205 1200 DISTANCE IN KILOMETERS	2+400.00	2+440.00	2+460.00	2+480.00	2+500.00	2+520.00	2+540.00	2+560.00	2+580.00	2+600.00	2+620.00	2+640.00	2+660.00	2+680.00	2+700.00	2+720.00	2+740.00	2+760.00	2+780.00	2+800.00	2+820.00	2+840.00			2+920.00	2+940.00						3+060.00
1205 1200 DISTANCE IN KILOMETERS					2+500.00	2+520.00						-				-	-				2+820.00	2+840.00			-	-						
1205 1200 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m)	1200.60 1201.65	1202.69	1203.73	1204.78	1205.82 2+500.00	1206.43 2+520.00	1206.64	1206.86	1207.07	1207.28	1207.50	1207.71	1207.92	1207.93	1207.94	1207.95	1207.95	1207.96	1207.97	1207.97	1207.98 2+820.00	1207.40 2+840.00 1207.40 2+860.00	1206.83	1206.26	1205.69	1205.13	1204.56	1203.99	1203.42	1202.86	1203.63	1204.43
1205 1200 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m)					1205.82 2+500.00	1206.43 2+520.00	1206.64		1207.07			-				-	-			1207.97	1207.98 2+820.00	2+840.00	1206.83	1206.26	-	-	1204.56	1203.99	1203.42	1202.86	1203.63	1204.43
1205 1200 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m)	1199.10 1200.60 1200.15 1201.65	1201.19 1202.69	1202.23 1203.73	1203.28 1204.78	1204.32 1205.82 2+500.00	1204.93 1206.43 2+520.00	1205.14 1206.64	1205.36 1206.86	1205.57 1207.07	1205.78 1207.28	1206.00 1207.50	1206.21 1207.71	1206.41 1207.92	1207.93	1207.94	1207.95	1207.95	1207.96	1207.97	1207.97	1206.48 1207.98 2+820.00	1206.46 1207.96 2+840.00 1205.90 1207.40 2+860.00	1205.33 1206.83	1204.76 1206.26	1204.19 1205.69	1203.63 1205.13	1203.06 1204.56	1202.49 1203.99	1201.92 1203.42	1201.36 1202.86	1202.14 1203.63	1202.93 1204.43
1205 1200 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m)	1199.10 1200.60 1200.15 1201.65	1202.69	1203.73	1204.78	1205.82 2+500.00	1204.93 1206.43 2+520.00	1206.64	1206.86	1207.07	1207.28	1207.50	1207.71	1207.92	1206.43 1207.93	1.50 1206.44 1207.94	1.50 1206.45 1207.95	1206.45 1207.95	1.50 1206.46 1207.96	1.50 1206.47 1207.97	1.50 1206.47 1207.97	1206.48 1207.98 2+820.00	1207.40 2+840.00 1207.40 2+860.00	1205.33 1206.83	1204.76 1206.26	1204.19 1205.69	1203.63 1205.13	1203.06 1204.56	1202.49 1203.99	1201.92 1203.42	1201.36 1202.86	1202.14 1203.63	1204.43
1205 1200 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m) DEATUM QFmJNVERT (m) TYPE OF PIPE AND SIZE	1199.10 1200.60 1200.15 1201.65	1201.19 1202.69	1202.23 1203.73	1203.28 1204.78	1204.32 1205.82 2+500.00	1204.93 1206.43 2+520.00	1205.14 1206.64	1205.36 1206.86	1205.57 1207.07	1205.78 1207.28	1206.00 1207.50	1206.21 1207.71	1206.41 1207.92	1206.43 1207.93	1.50 1206.44 1207.94	W 1.50 1206.45 1207.95	1.50 1206.45 1207.95	번 1.50 1206.46 1207.96	(9) 1.50 1206.47 1207.97	1.50 1206.47 1207.97	1206.48 1207.98 2+820.00	1206.46 1207.96 2+840.00 1205.90 1207.40 2+860.00	1205.33 1206.83	1204.76 1206.26	1204.19 1205.69	1203.63 1205.13	1203.06 1204.56	1202.49 1203.99	1201.92 1203.42	1201.36 1202.86	1202.14 1203.63	1202.93 1204.43
1205 1200 DISTANCE IN KILOMETERS EXISTING GROUND LEVEL (m) INVERT LEVELS (m)	1199.10 1200.60 1200.15 1201.65	1.50 1201.19 1202.69	1202.23 1203.73	1.50 1203.28 1204.78	1204.32 1205.82 2+500.00	1204.93 1206.43 2+520.00	1205.14 1206.64	1205.36 1206.86	1205.57 1207.07	1.50 1205.78 1207.28	1206.00 1207.50	1206.21 1207.71	1206.41 1207.92	1206.43 1207.93	1.50 1206.44 1207.94	W 1.50 1206.45 1207.95	POT DI 1.50 1206.45 1207.95	번 1.50 1206.46 1207.96	(9) 1.50 1206.47 1207.97	1.50 1206.47 1207.97	1206.48 1207.98 2+820.00	1206.46 1207.96 2+840.00 1205.90 1207.40 2+860.00	1205.33 1206.83	1204.76 1206.26	1.50 1204.19 1205.69	1203.63 1205.13	1.50 1203.06 1204.56	1202.49 1203.99	1201.92 1203.42	1201.36 1202.86	1.50 1202.14 1203.63	1202.93 1204.43









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- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

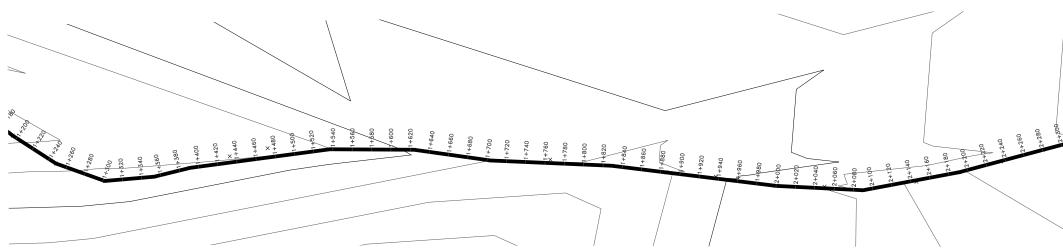
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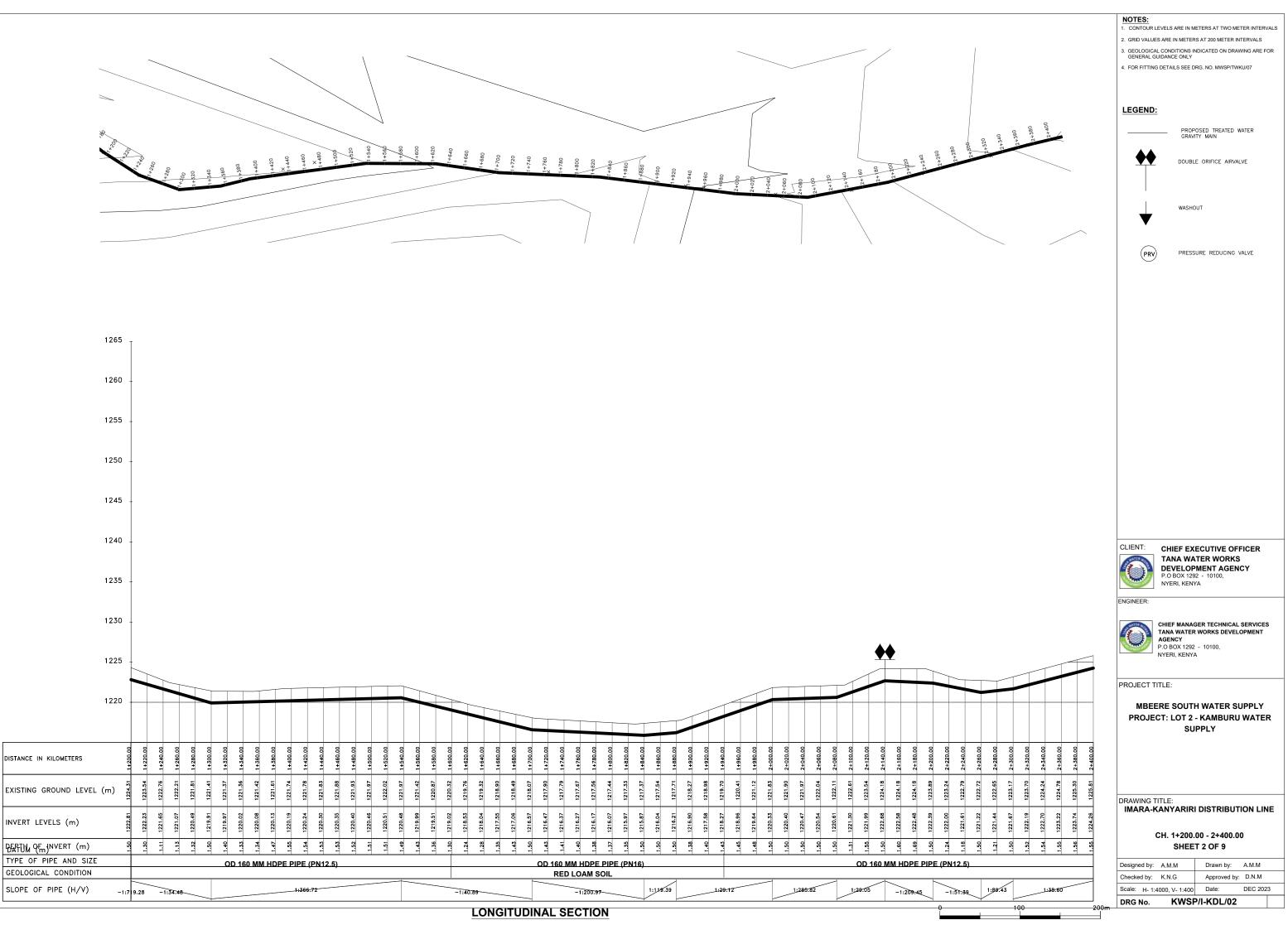
DRAWING TITLE: IMARA-KANYARIRI DISTRIBUTION LINE CH. 0+000.00 - 1+200.00

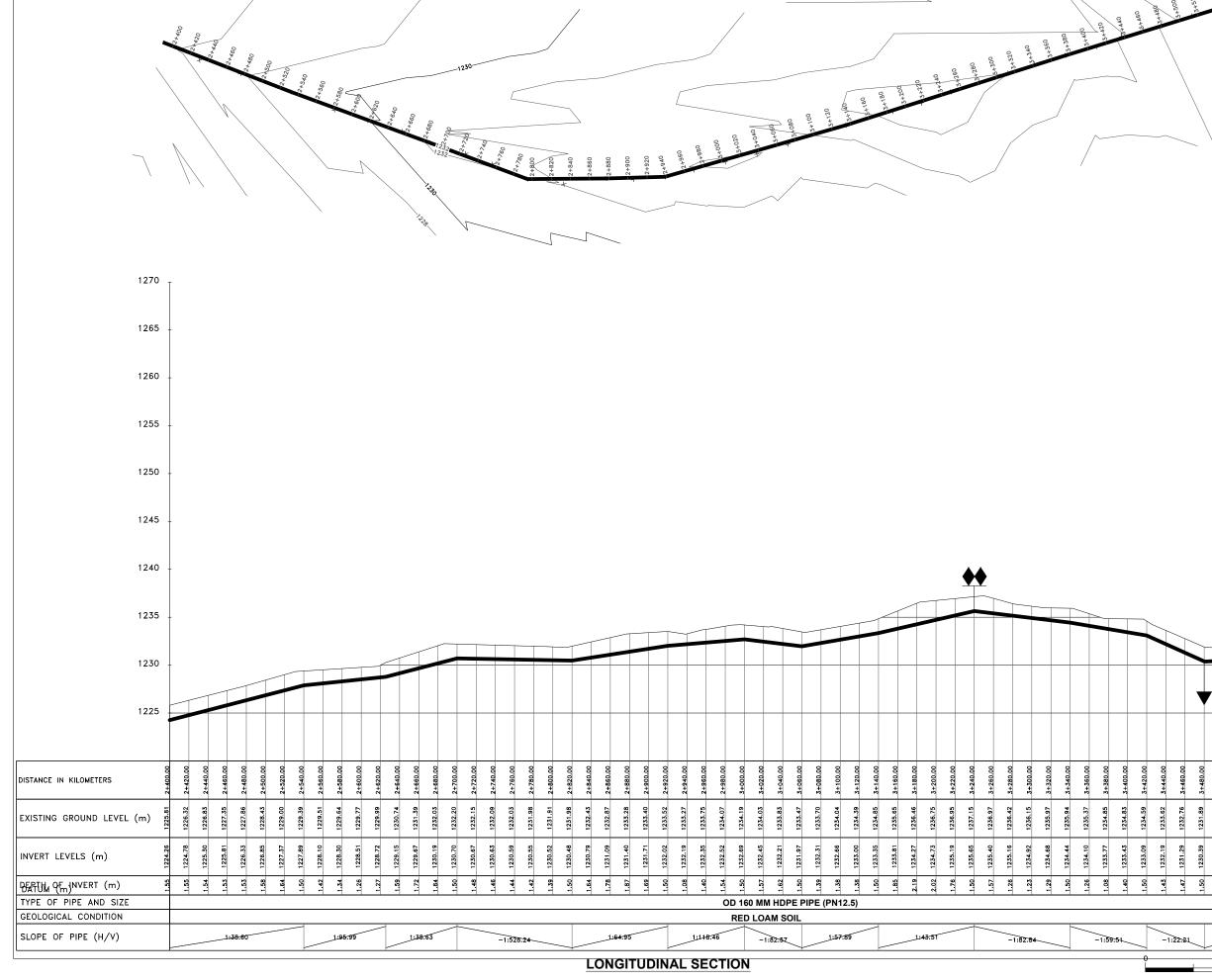
SHEET 1 OF 9

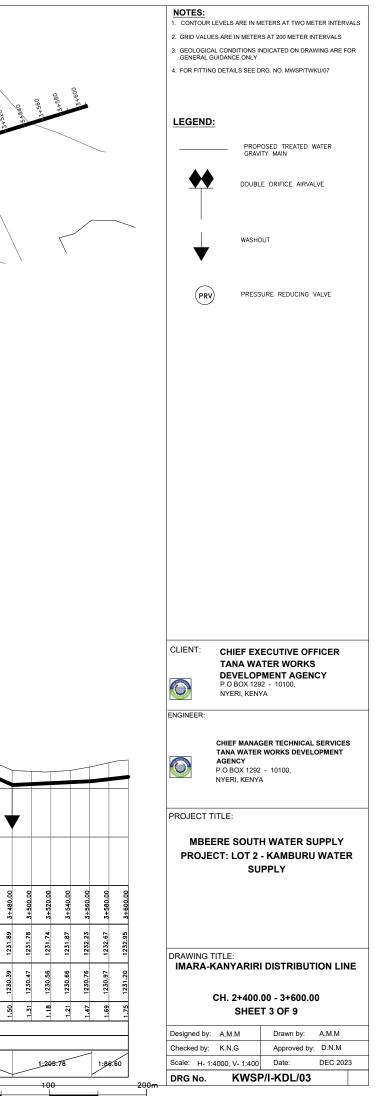
	P/I-KDL/01	
Scale: H- 1:4000, V- 1:400	Date: DEC 202	3
Checked by: K.N.G	Approved by: D.N.M	
Designed by: A.M.M	Drawn by: A.M.M	

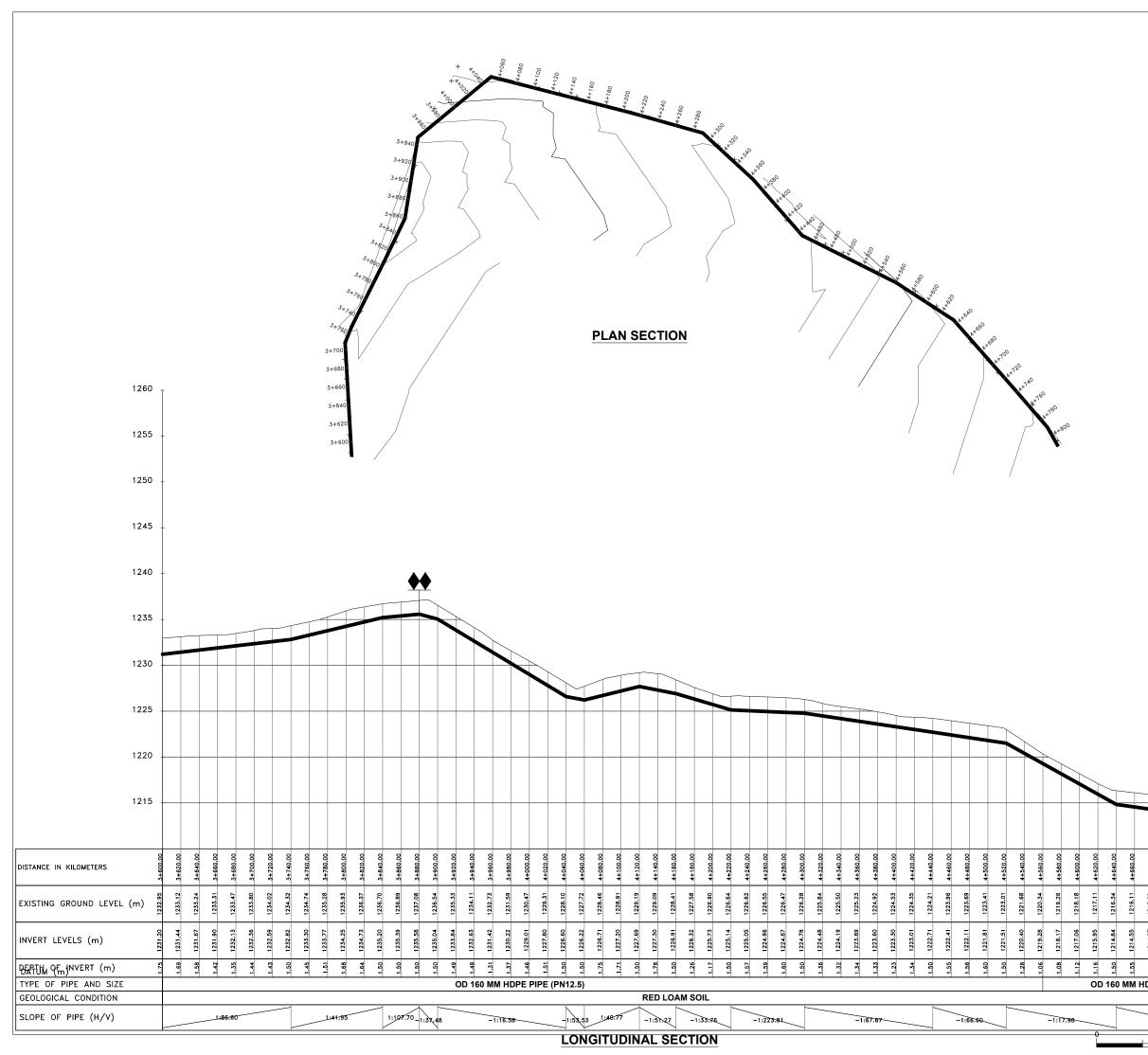
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00000-	1+080.00	1+100.00	1+120.00	1+140.00	1+160.00	1+180.00	1+200.00		
	1224.42		1224.30			1224.45	1224.31 1+200.00		
	1222.98	2LV 1.41 1222.95	1222.93	1.42 1222.90	1222.87	1222.84	1.50 1222.81		
	1.44	1.41	1.37	1.42	1.51		1.50		
P	PE (P	N12	.5)						
	_	_							
				9.28			-1:3	4.48	
-			-10	0				20	0m

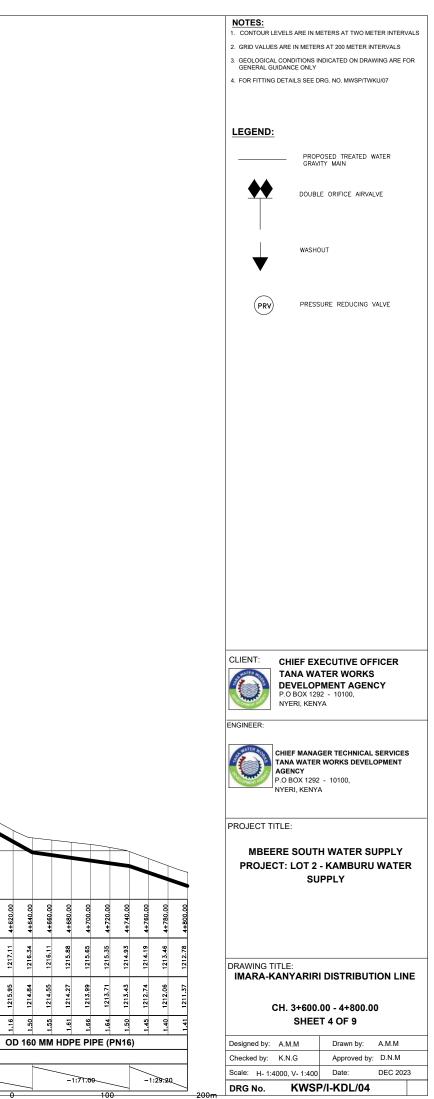


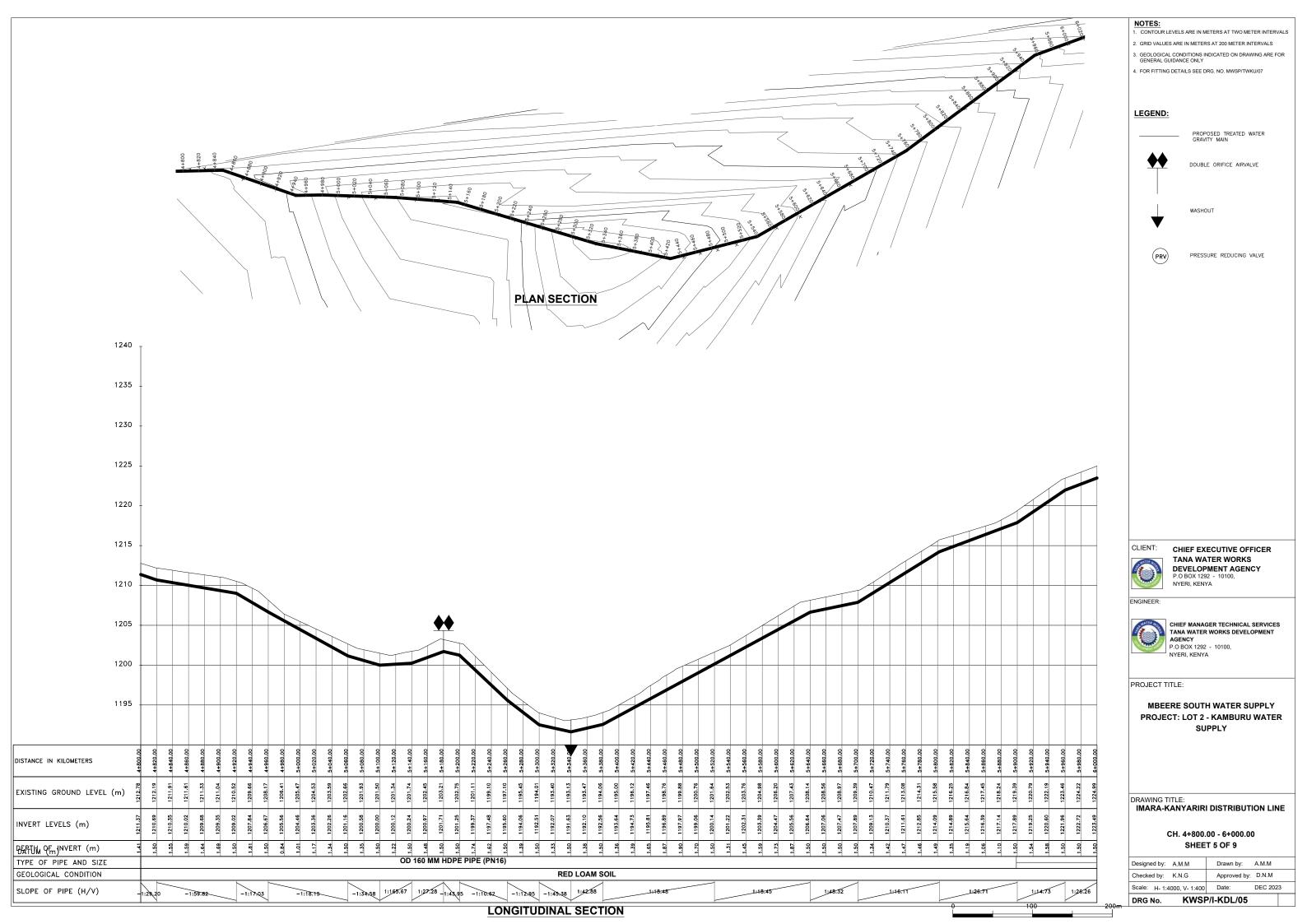


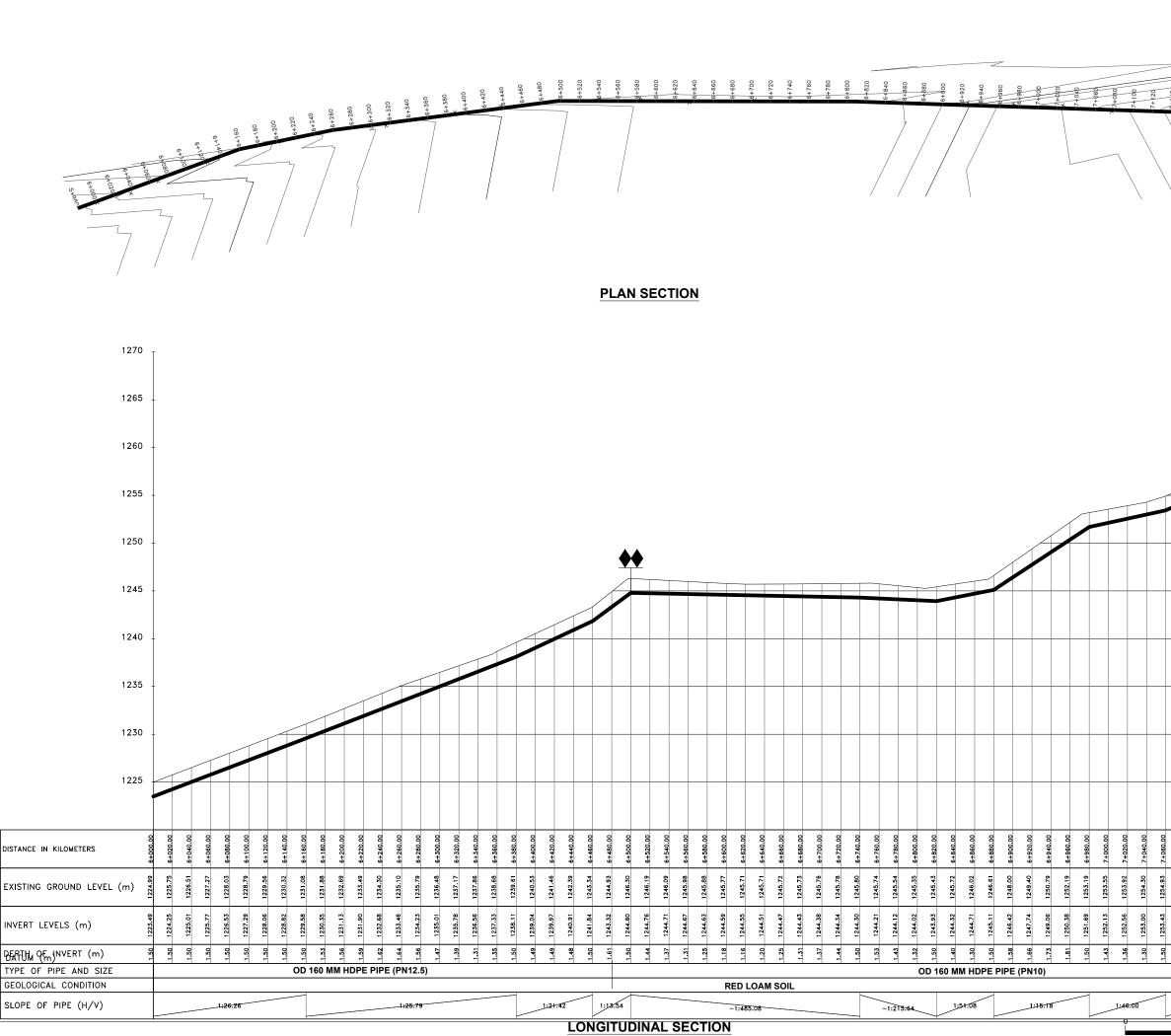






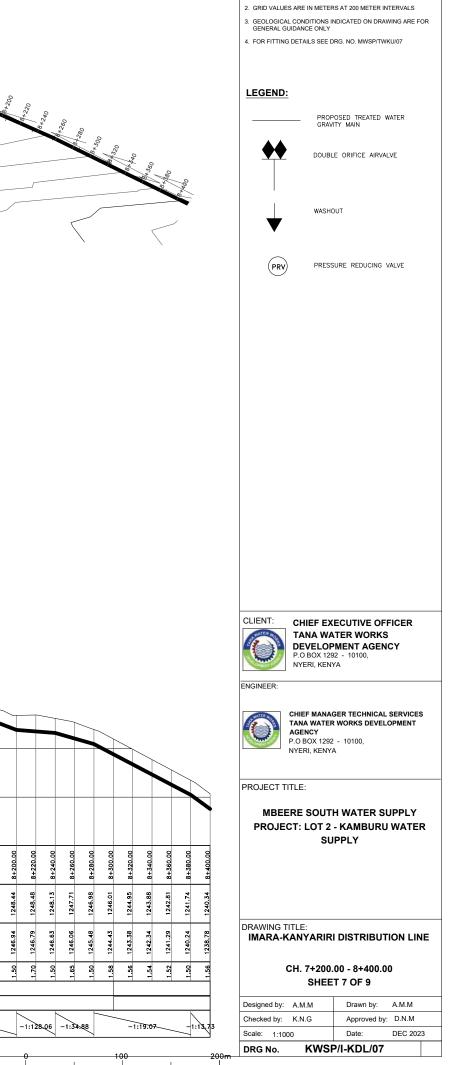






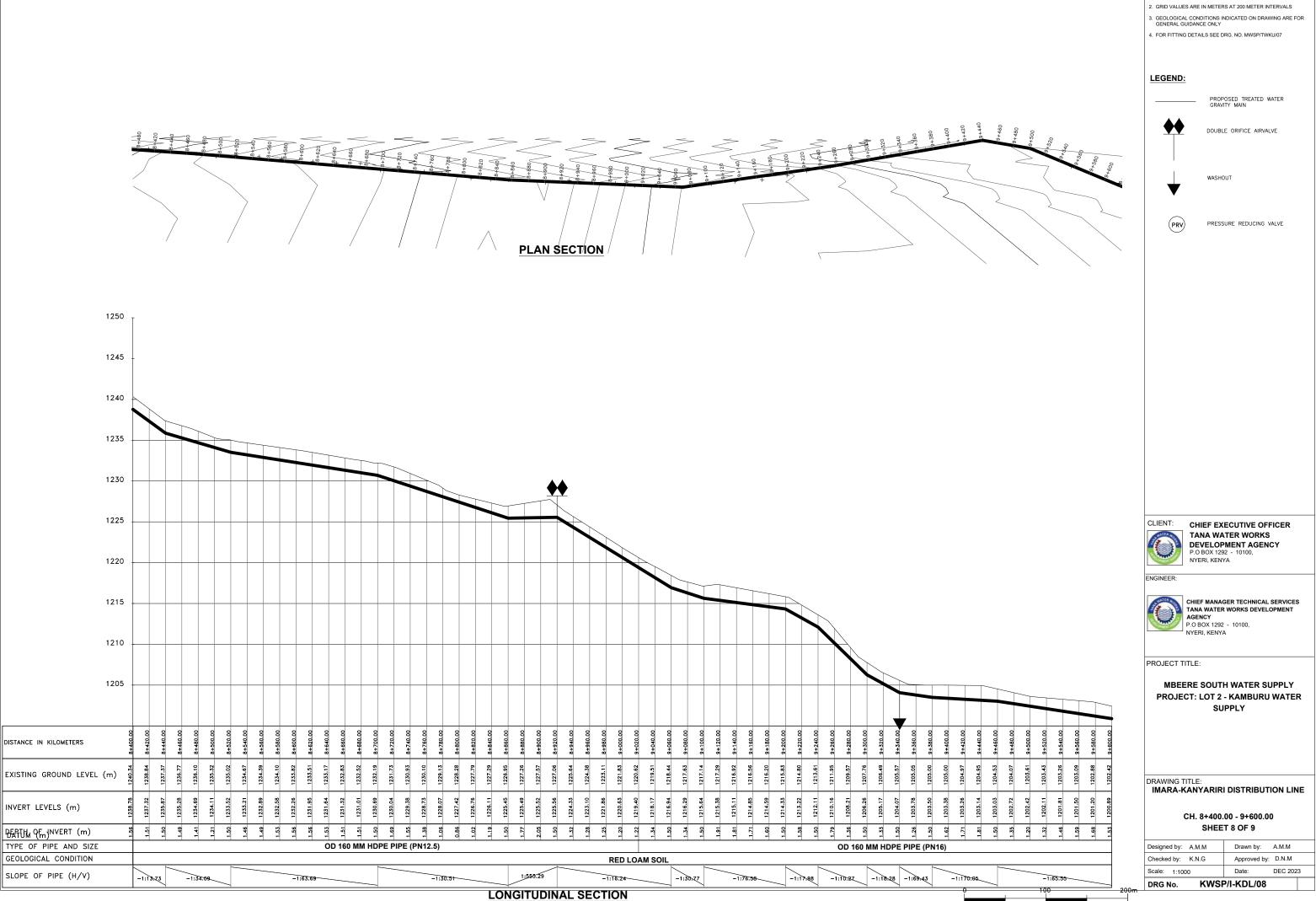
NOTES: 1. CONTOUR LEVELS ARE IN METERS AT 2. GRID VALUES ARE IN METERS AT 200 I 3. GEOLOGICAL CONDITIONS INDICATED GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG: NO. N	METER INTERVALS
-	//WSP/TWKU/07
	REATED WATER
GRAVITY MAIN	
WASHOUT	
PRV PRESSURE REE	DUCING VALVE
CLIENT: CHIEF EXECUTIV TANA WATER W DEVELOPMENT P.O BOX 1292 - 1010 NYERI, KENYA	
ENGINEER: CHIEF MANAGER TEC TANA WATER WORKS AGENCY P. 0 BOX 1292 - 10100 NYERI, KENYA	S DEVELOPMENT
PROJECT TITLE: MBEERE SOUTH WAT	
PROJECT: LOT 2 - KAM SUPPLY	IBURU WATER
1 7+100.00 3 7+120.00 4 7+140.00 3 7+180.00 2 7+180.00	
18 19 19 19 19 19 19 19 19 19 19 19 19 19	
CH. 6+000.00 - 74 CH. 6+000.00 - 74 SHEET 6 OF SHEET 6 OF	F 9
	vn by: A.M.M roved by: D.N.M
1:22:55 1:369:40 Checked by: K.N.G Appr DRG No. KWSP/I-KD	

	7+200				/	_													-					-	+	5						_						- 40	18	0	
	×+200																	*0	3+1	7+680	7+720	7+740	+760	1-7800 AL				5	_						\leq	_				A+20	8+240
		7+220	7+240	7+260	7+300	-7+320	7+340	7+380	7+400	=7+420 7+440	1+460	7+480	7+520	7+540	X 7+560	7+580	7+600	7+67	350			٢		/					~				_								
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1240																																									
ANCE IN KILOMETERS	7+220.00	7+240.00	/+260.00 7+280.00	7+300.00	7+320.00	7+340.00 7+360.00	7+380.00	7+400.00	7+420.00 7+440.00	7+460.00	7+480.00	7+520.00 7+520.00	7+540.00	7+560.00	7+580.00	7+600.00	7+620.00	7+640.00 7+660.00	7+680.00	7+700.00	7+720.00	7+740.00 7+760.00	7+780.00	7+800.00	7+820.00 7+840.00	7+860.00	7+880.00	7+900.00	7+920.00 7+940.00	7+960.00	7+980.00	8+000.00	8+020.00 8+040.00	8+060.00	8+080.00	8+100.00	8+120.00	8+140.00 8+160.00	8+180.00	8+200.00	8+220.00 8+240.00
STING GROUND LEVEL (m)		1258.80				1258.88 1258.84			1259.34			1257.70		1256.46	_	_	1255.17			1253.53		1253.13 1253.19		1253.39	1253.51 1253.51				1253.63 1253.69				1253.13 1253.15					1250.28			1248.48 1248.13
/ERT LEVELS (m)		1257.18	1257.26	1257.31	1257.35	1257.39 1257.43	1257.48	1257.52	1257.58 1257.64	1257.17	1256.69	1256.22 1255.74	1255.27	1254.79	1254.32	1253.85	1253.37	1252.90	1252.23	1252.03	1251.83	1251.63 1251.68	1251.73	1251.79	1251.85 1251.90	1251.96	1252.02	1252.08	1252.13 1252.19	1252.25	1252.15	1252.06	1251.96	1251.76	1251.17	1250.59	1250.00	1249.23 1248.47	1247.71	_	1246.79 1246.63
ትርጉ ምሳለ የምሳለ እስከ ይ		1.62	1.62	1.62		1.49	1.33		1.76			1. 49 1.57				_		1.50		1.50		1.50		1.60	1.67 1.61		1.50		1.50				1.16 1.28			1.61	_	1.04	1.39		1.50
PE OF PIPE AND SIZE																				HDPE			0)																		
DLOGICAL CONDITION				1:4 69. 4	40			1	:328.91				-1	:42.18					<u> </u>							1 :349.7 ()					-1:210	.29		-1	:34:04		-1:2	26.17	-1	128.06
																	14		ידוב	JDIN	ΔI	SEC	ידי)NI																	



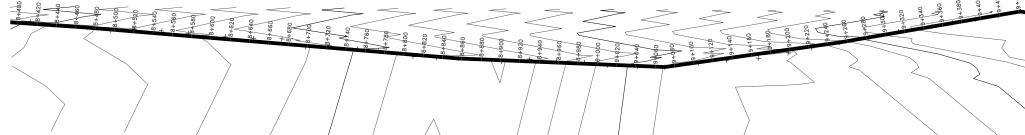
NOTES:

CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS

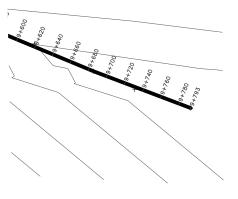


NOTES:

CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS

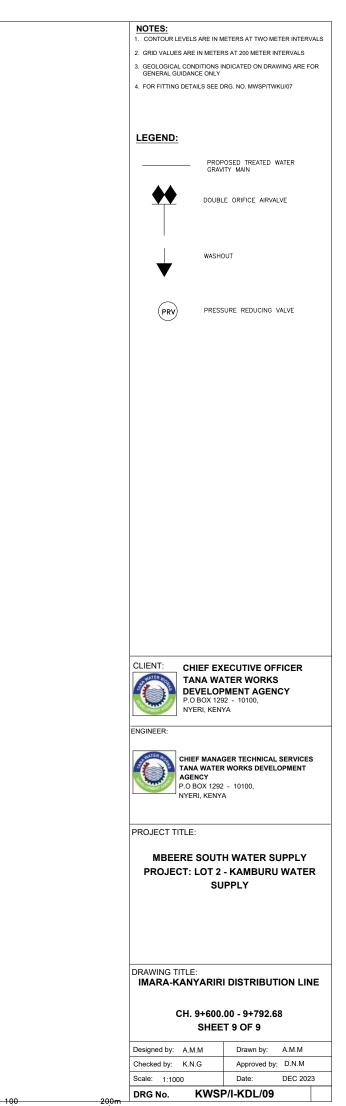


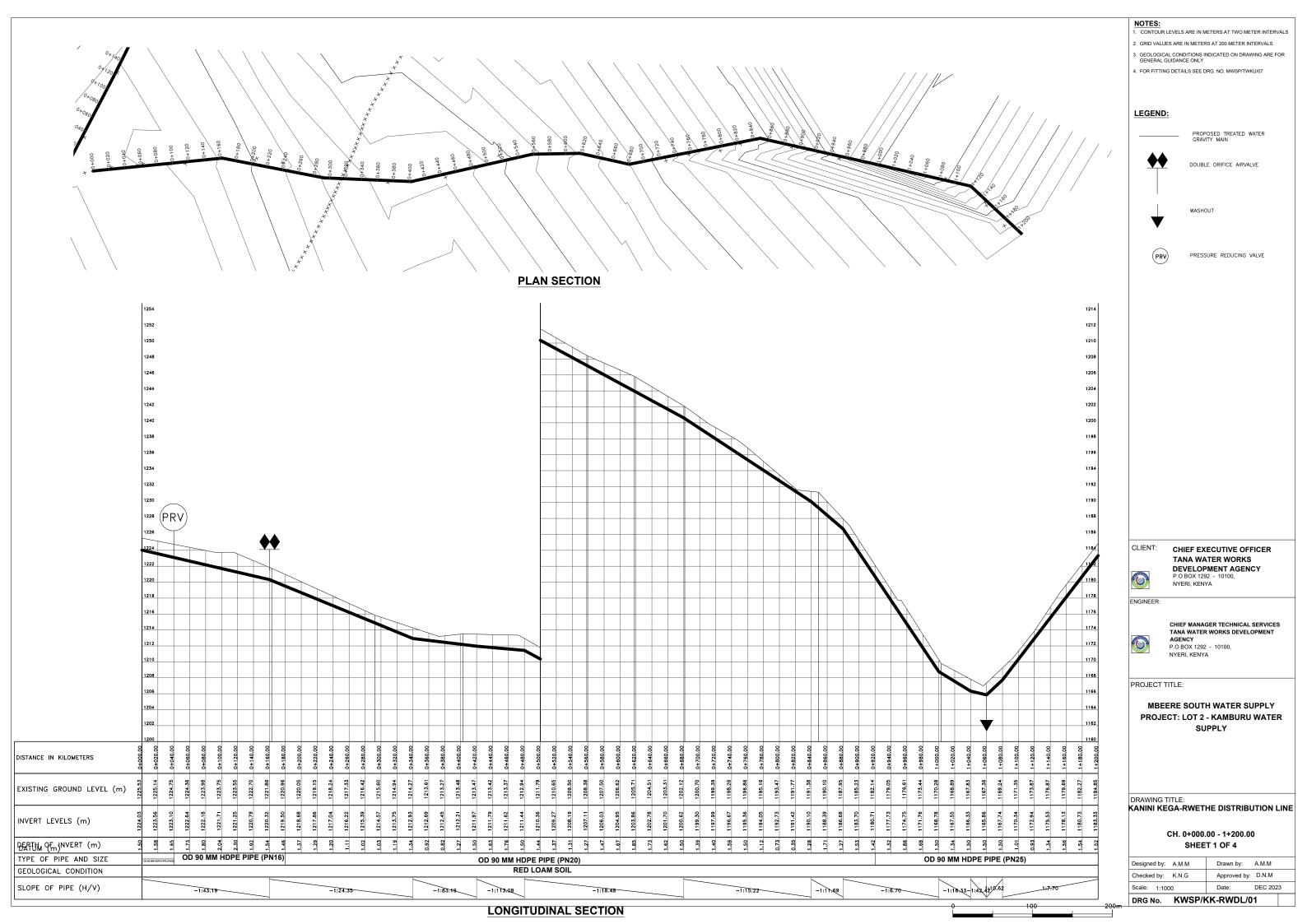
	1240	-	-									
	1235	-	-									
	1230	-	-									
	1225	-	-									
	1220	-	-									
	1215	-	-									
	1210	_	-									
	1205	-	-									
	1200	•										
DISTANCE IN KILOMETERS		9+600.00	9+620.00	9+640.00	9+660.00	9+680.00	9+700.00	9+720.00	9+740.00	9+760.00	9+780.00	9+792.68
EXISTING GROUND LEVEL	(m)	1202.42 9+	1202.05 9+	1201.78 9+	1201.51 9+	1201.23 9+		1200.46 9+	1200.12 9+	1200.15 9+	1200.17 9+	1200.19 9+
INVERT LEVELS (m)		1200.89	1200.59	1200.28	1199.95	1199.62	1199.28	1198.95	1198.62	1198.65	1198.67	1198.69
DEATUM OF INVERT (m)		1.53	1.47	1.50	1.56	1.62	1.58	1.51	1.50	1.50	1.50	1.50
TYPE OF PIPE AND SIZE												
EOLOGICAL CONDITION												
SLOPE OF PIPE (H/V)	-1:65.55 RED LOAM SOIL 1:703.81											

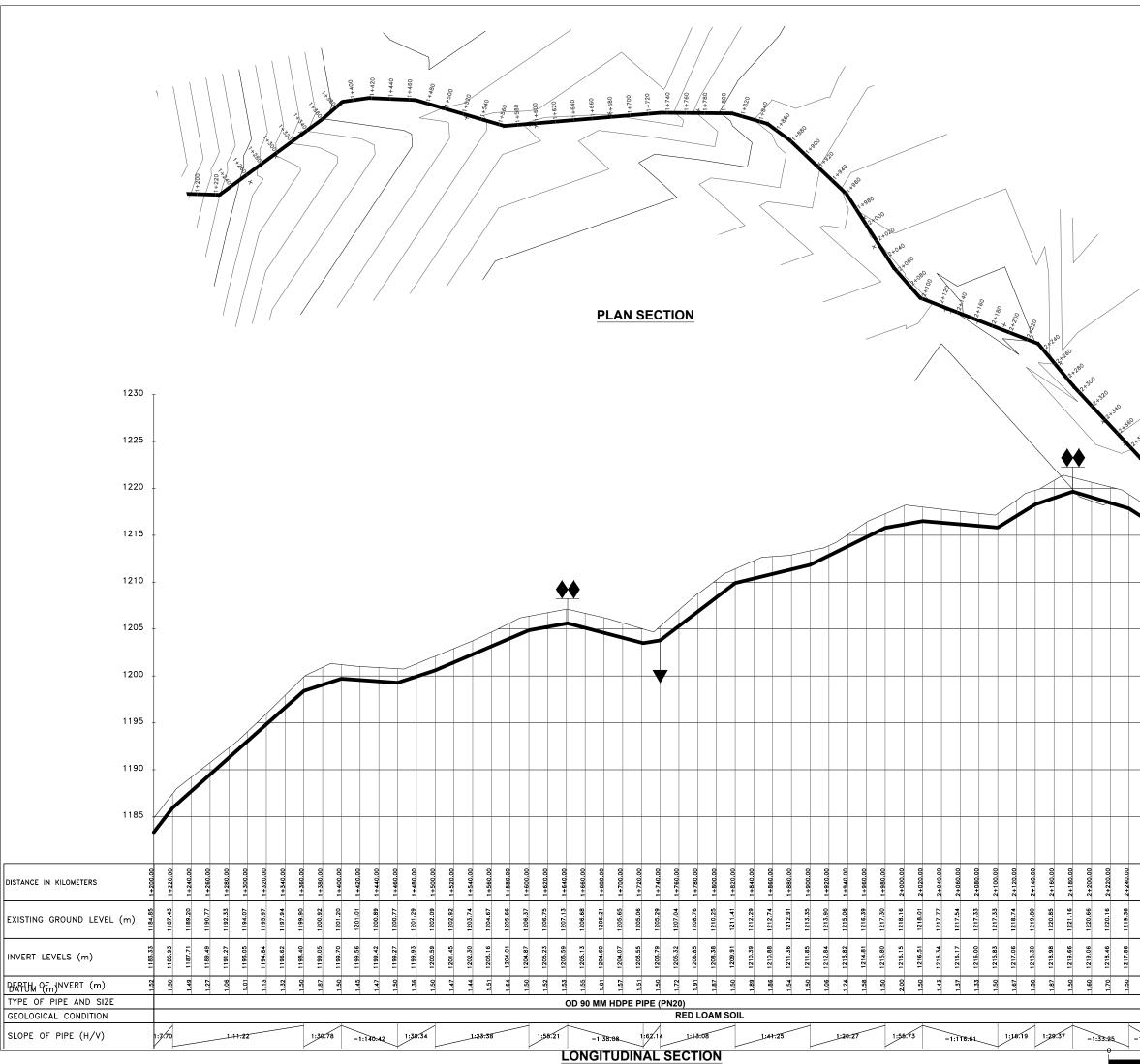


PLAN SECTION

1245

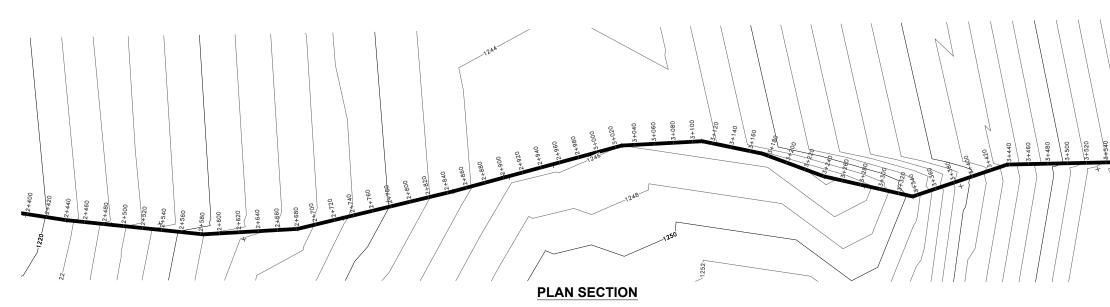


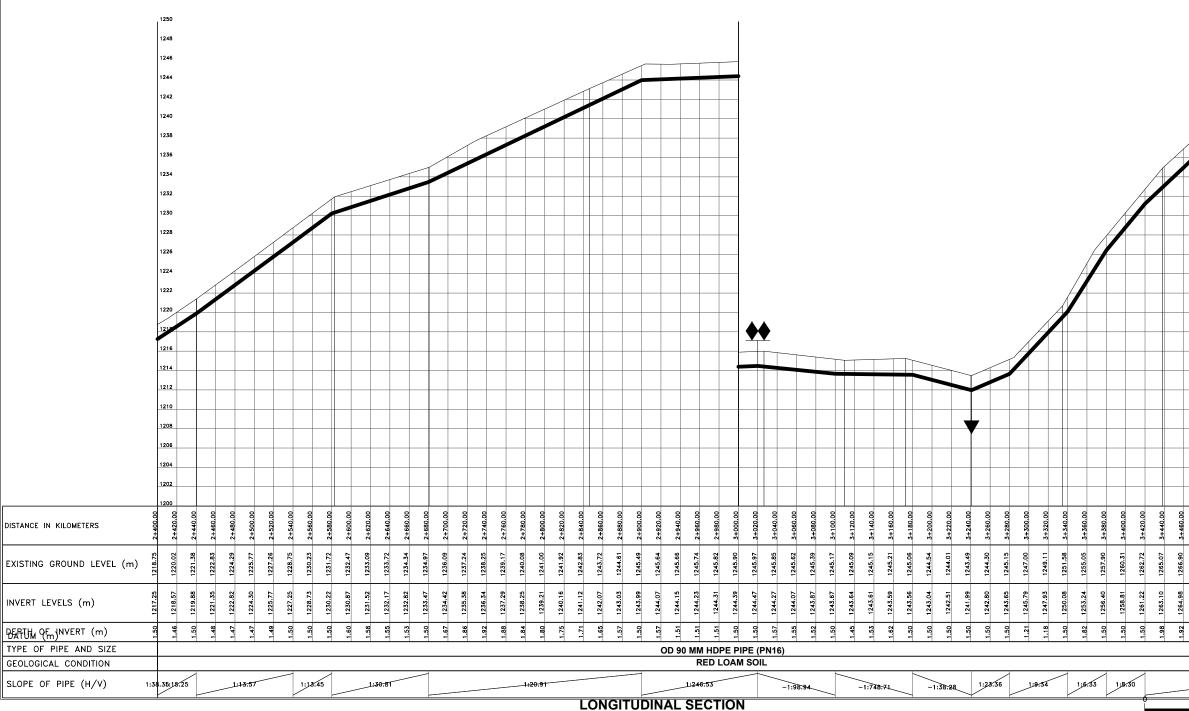


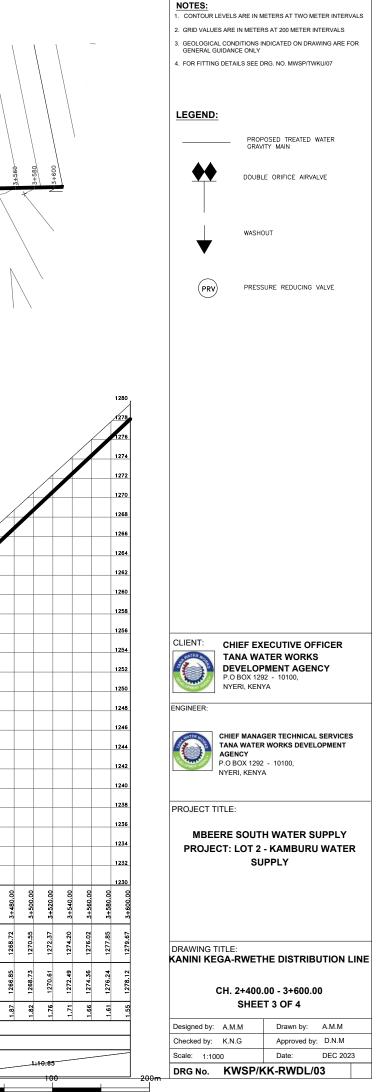


	NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07
	LEGEND: PROPOSED TREATED WATER GRAVITY MAIN DOUBLE ORIFICE AIRVALVE
	WASHOUT
19.8	PRY PRESSURE REDUCING VALVE
2360 0-100	
	CLIENT: CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
	ENGINEER: CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA
000 000 000 000 000	PROJECT TITLE: MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY
1 1218.07 2+260.00 3 1216.78 2+280.00 7 1216.27 2+320.00 5 1216.67 2+340.00 6 1216.30 2+340.00 9 1217.19 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1217.16 2+340.00 1 1218.32 2+340.00 1 1218.35 2+400.00	DRAWING TITLE: KANINI KEGA-RWETHE DISTRIBUTION LINI
1.50 1216.57 1.50 1216.28 1.50 1215.28 1.51 1215.23 1.50 1215.23 1.50 1215.23 1.51 1215.23 1.50 1215.23 1.51 1215.23 1.53 1215.23 1.54 1215.23 1.55 1215.23 1.54 1215.23 1.58 1216.51 1.58 1216.51 1.58 1216.73 1.50 1217.25	CH. 1+200.00 - 2+400.00 SHEET 2 OF 4 Designed by: A.M.M Drawn by: A.M.M
-1:13:55-1:39.20 1:48:56 1:38:35 1:15.	Checked by: K.N.G Approved by: D.N.M Scale: 1:1000 Date: DEC 2023 DRG No. KWSP/KK-RWDL/02

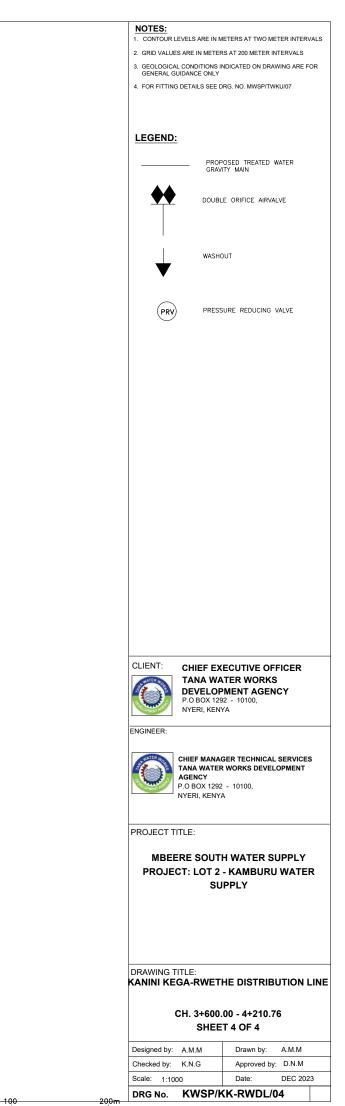
TERS AT 200 METER INTERVALS NS INDICATED ON DRAWING ARE FOR E DRG. NO. MWSP/TWKU/07 ROPOSED TREATED WATER RAVITY MAIN UBLE ORIFICE AIRVALVE SHOUT ESSURE REDUCING VALVE EXECUTIVE OFFICER WATER WORKS LOPMENT AGENCY (1292 - 10100, KENYA NAGER TECHNICAL SERVICES TER WORKS DEVELOPMENT 292 - 10100, NYA JTH WATER SUPPLY 2 - KAMBURU WATER SUPPLY ETHE DISTRIBUTION LINE 00.00 - 2+400.00 EET 2 OF 4 Drawn by: A.M.M

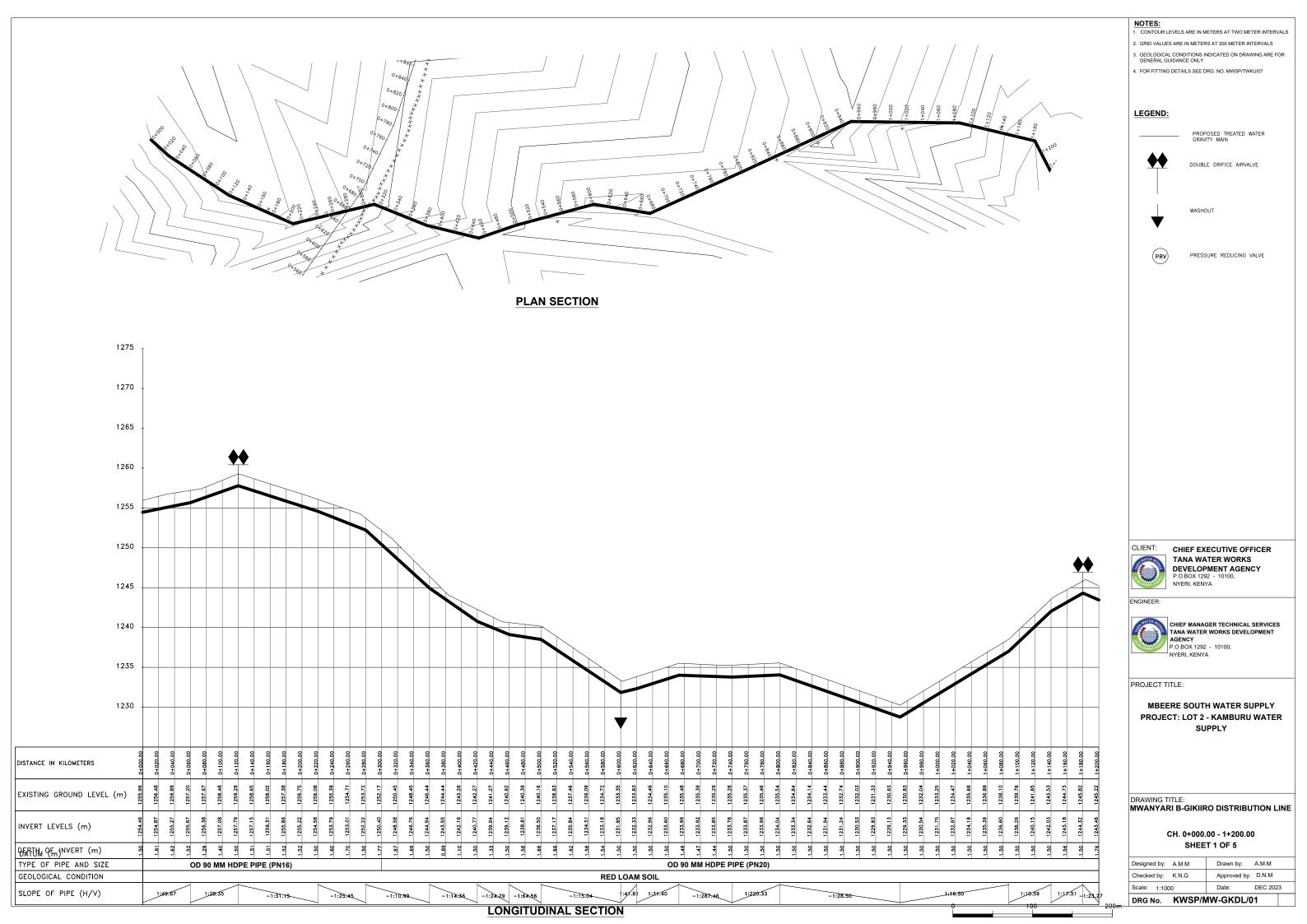


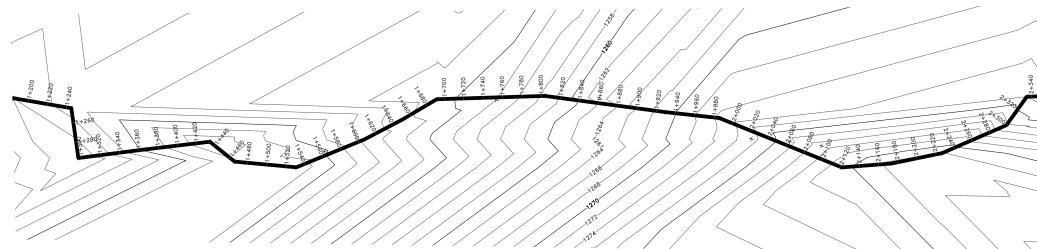


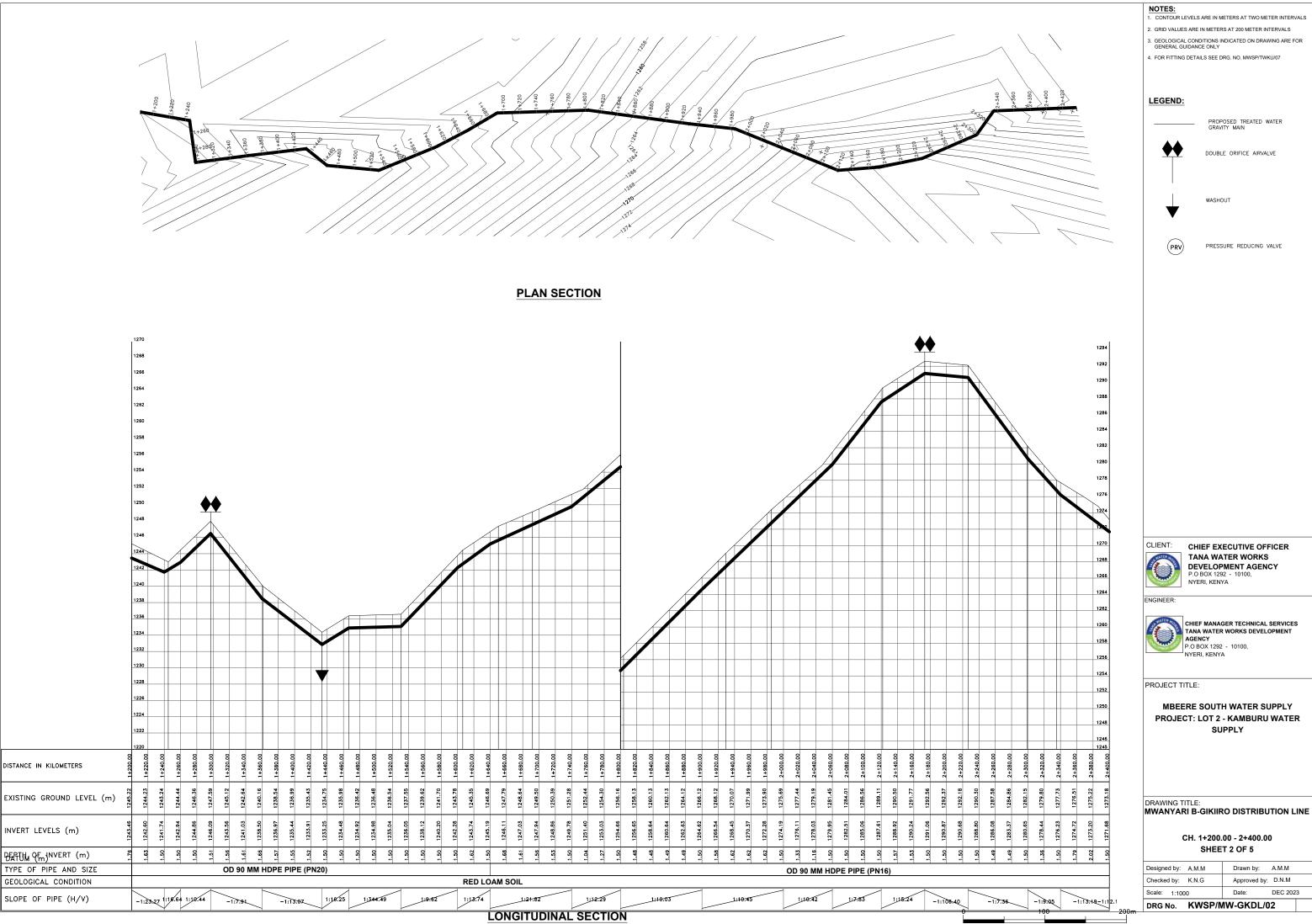


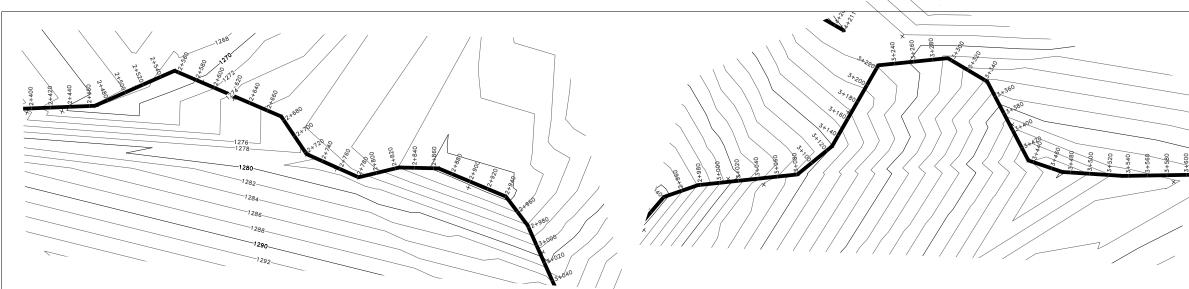
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EXISTING GROUND LEVEL (m)		1283.32		1285.91	1287.93	1290.14	1292.37	1292.95	1293.08	1292.84	1292.23	1291.61	1291.00	1290.43	1289.98	1289.53	1289.24	1289.37		1294.48	1297.31				1299.11	1299.13	1299.58	1299.84	1299.83	-
INVERT LEVELS (m)	· ·	5 1281.47	1 1282.94	1284.41	7 1286.56	2 1288.72	1290.87	5 1291.03	1291.18	0 1291.34	5 1290.77	2 1290.19	1289.62	3 1289.05	1288.49	2 1288.11	0 1287.74	1287.87							4 1297.67	0 1297.63	9 1297.99	0 1298.34	1298.33	
DEATTH OF INVERT (m)	1.50	1.86	1.51	1.50	1.37	1.42	1.50	1.93	1.90	1.50	1.46	1.42	1.38	1.38	1.50	1.42	1.50	1.50	р. ч	1.57	1.50	1.50	1.50	1.50	1.44	1.50	1.59	1.50	1.50	1
TYPE OF PIPE AND SIZE GEOLOGICAL CONDITION	-									0				E PIP		N12.5)													1
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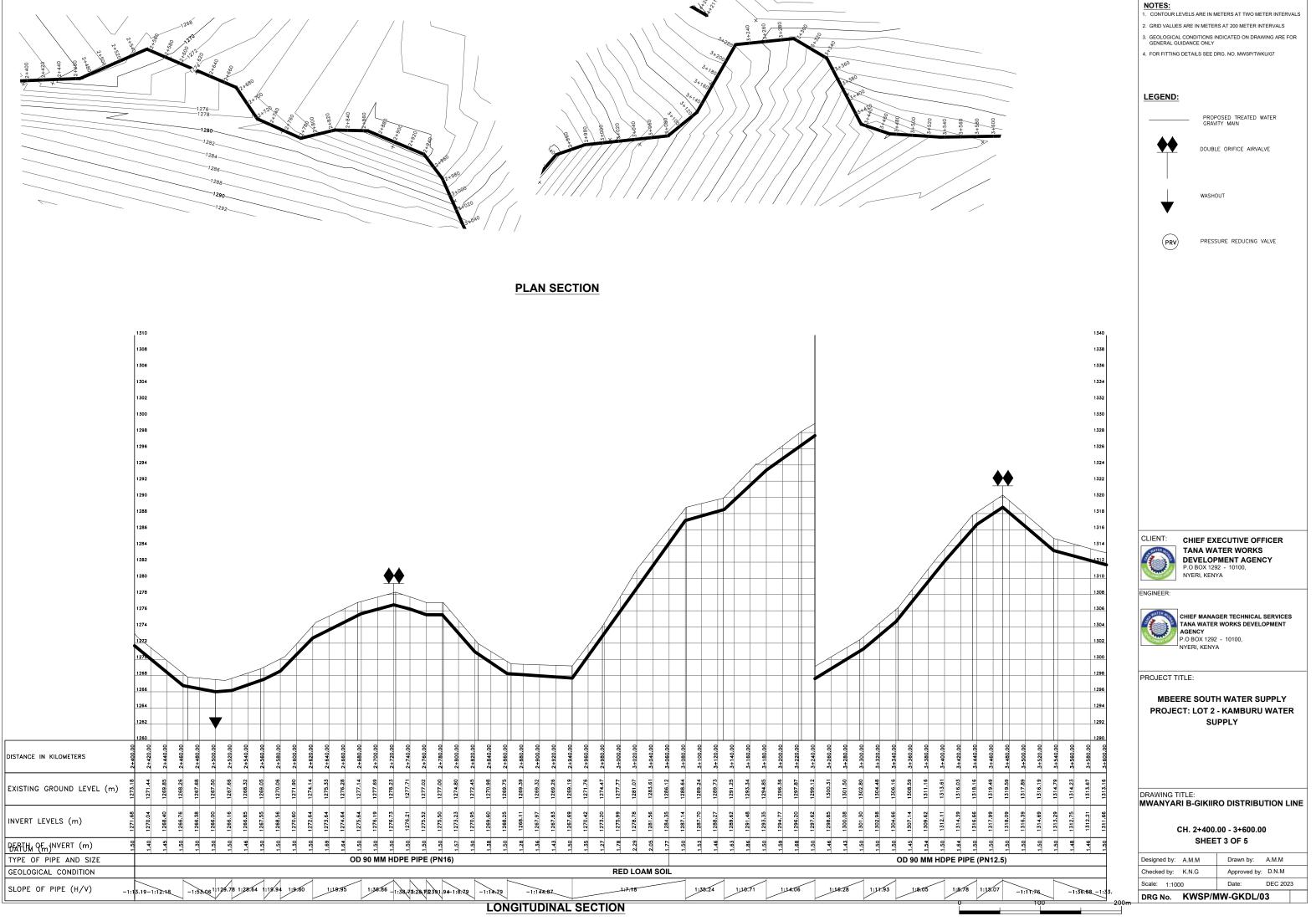


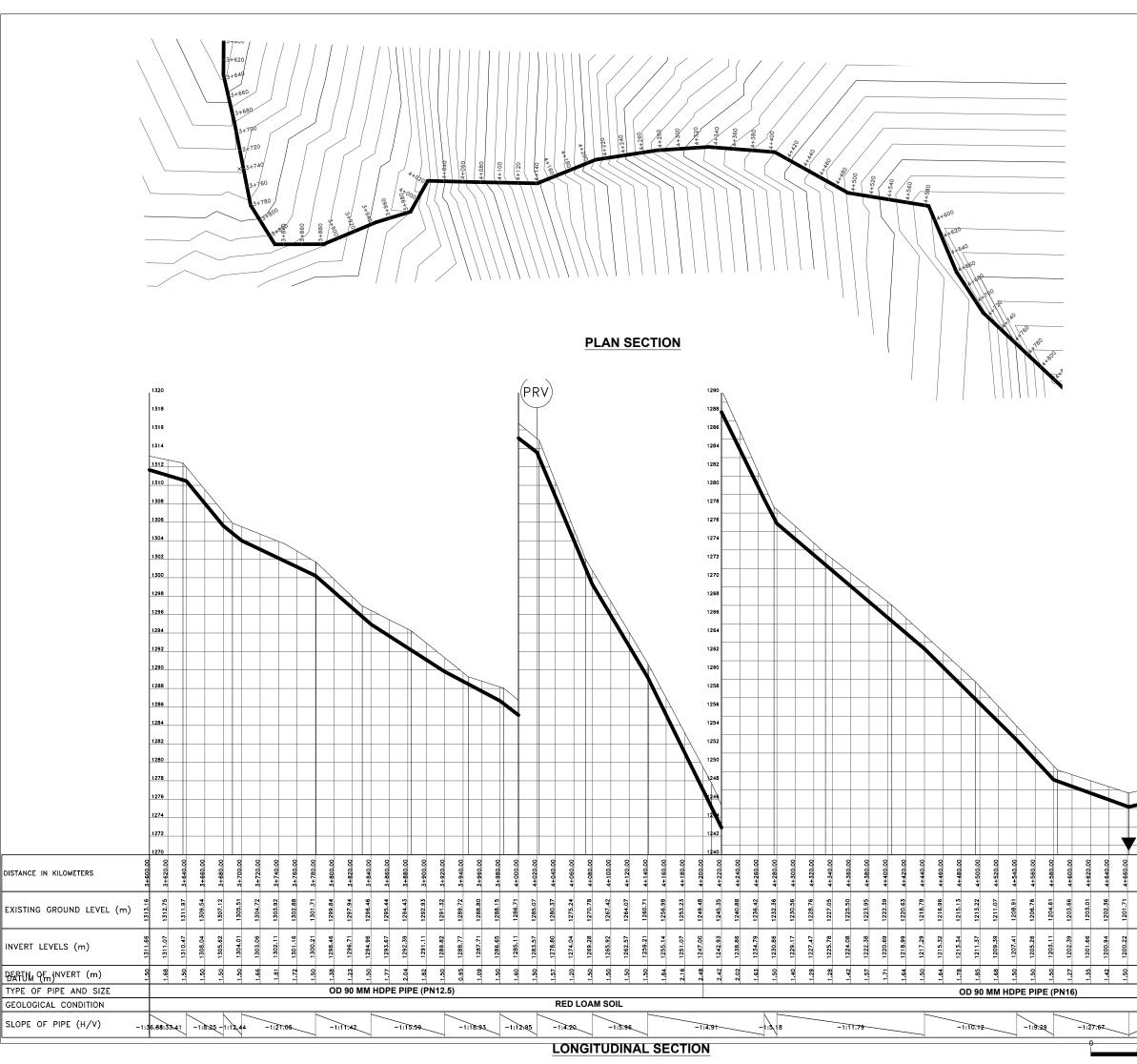


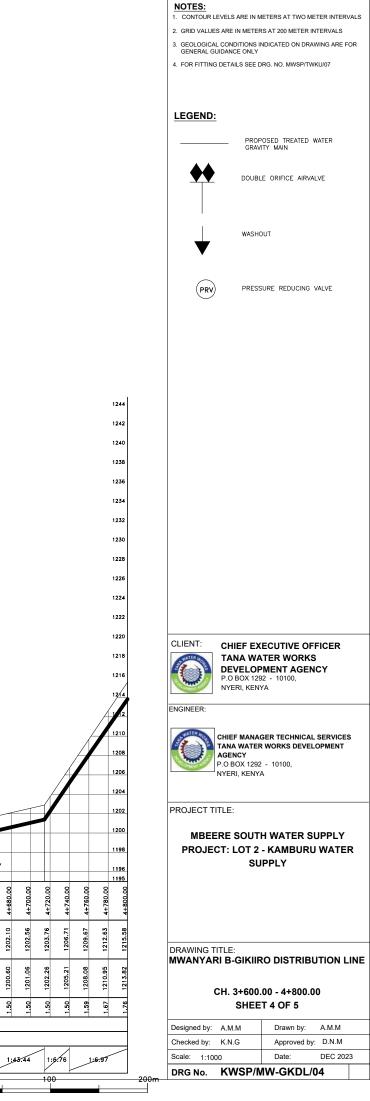


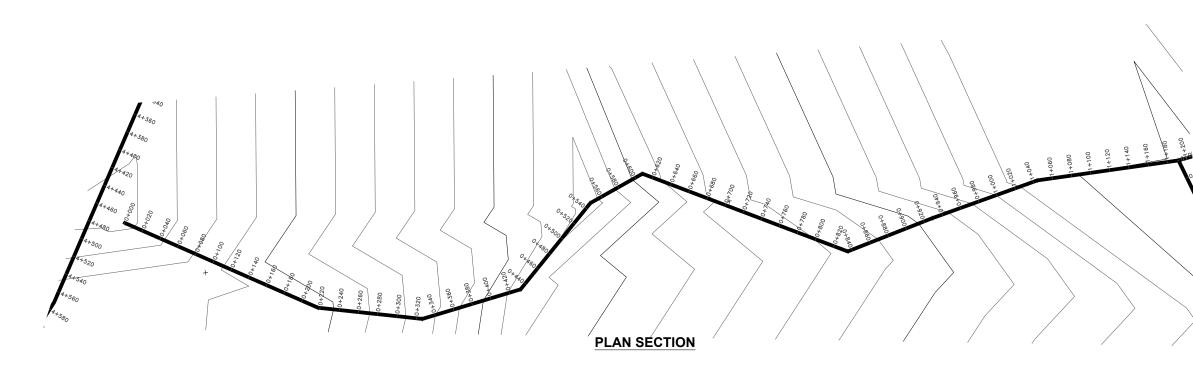


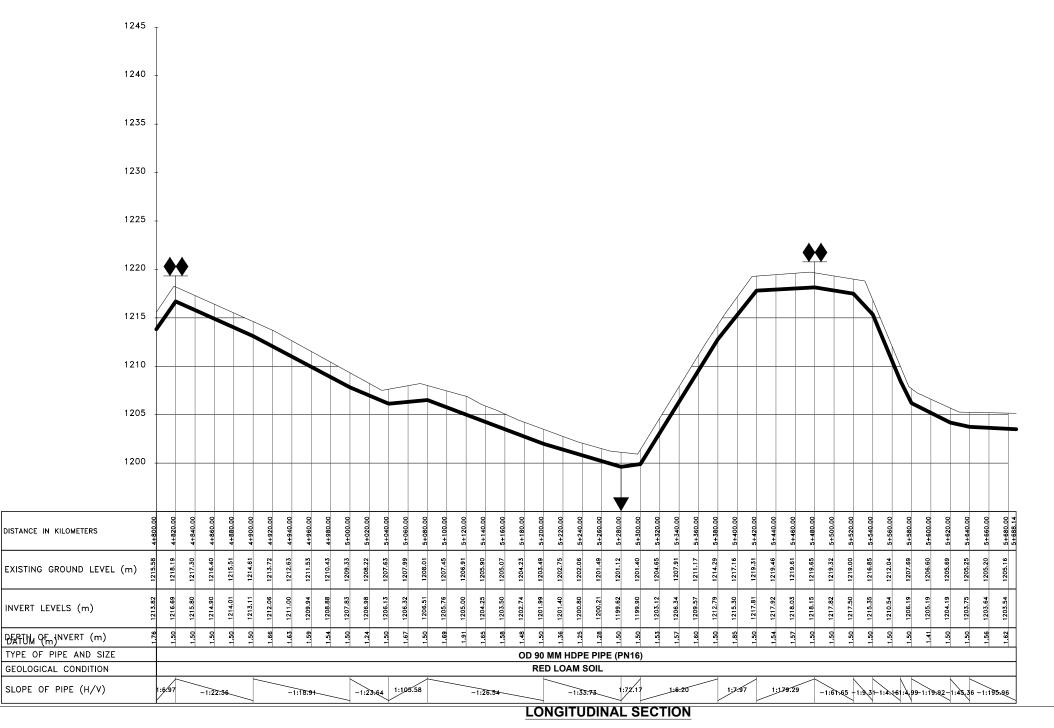


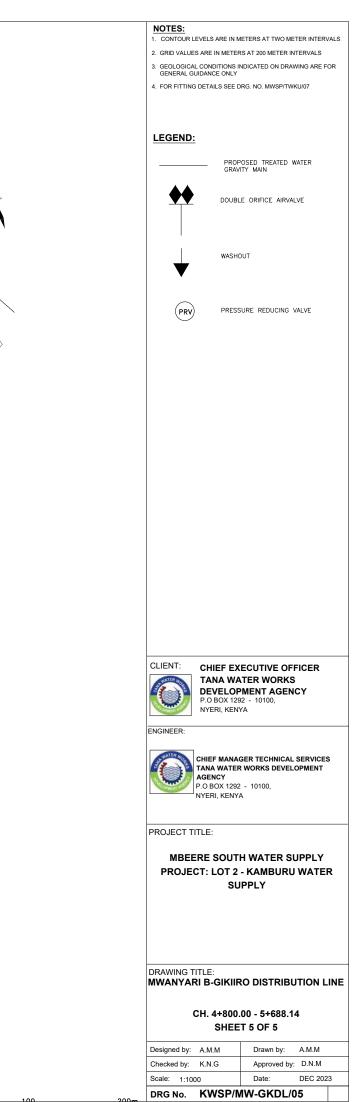


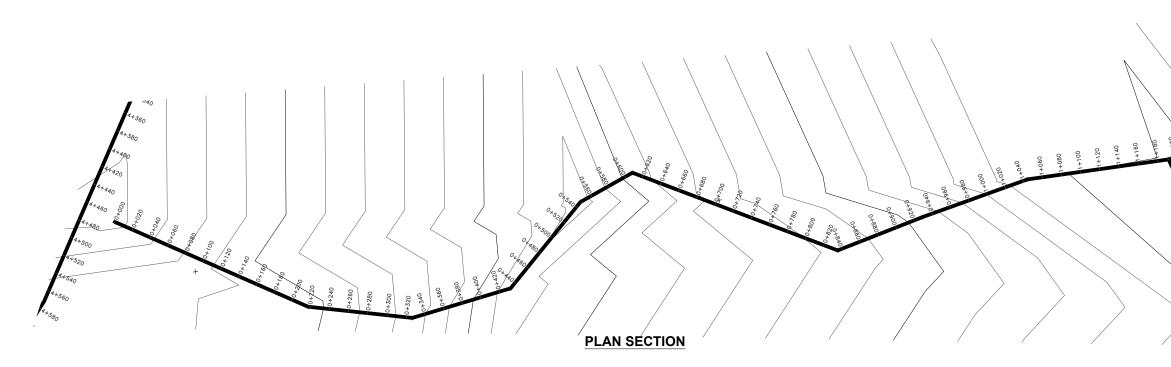


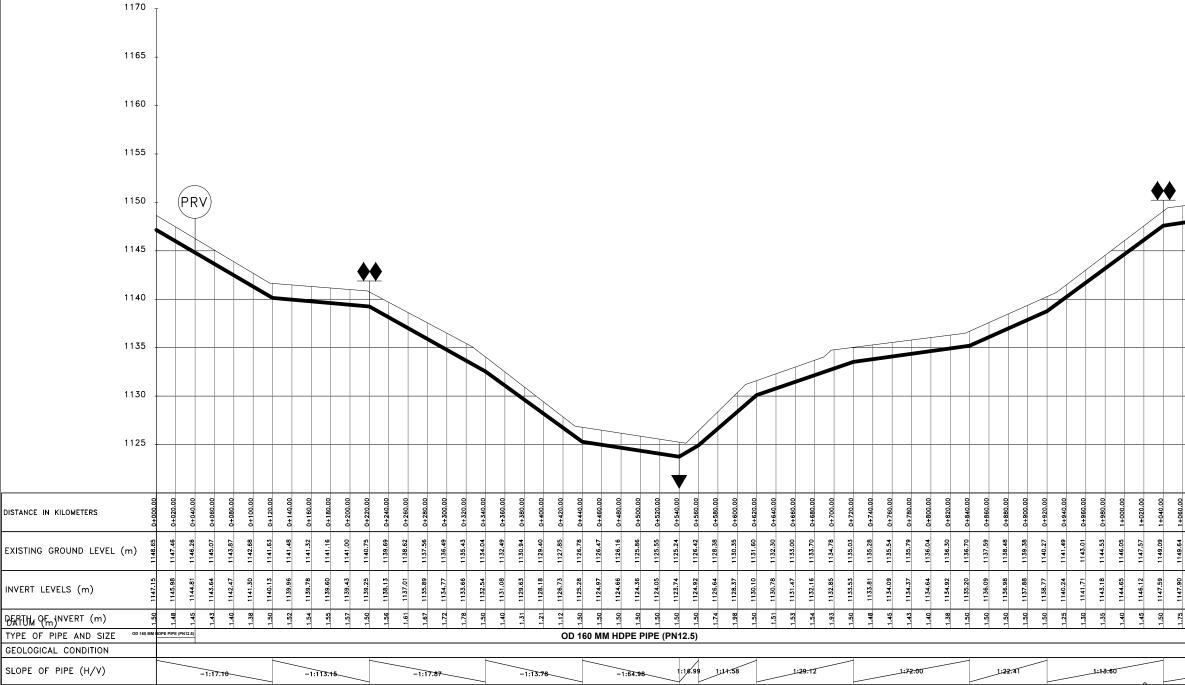


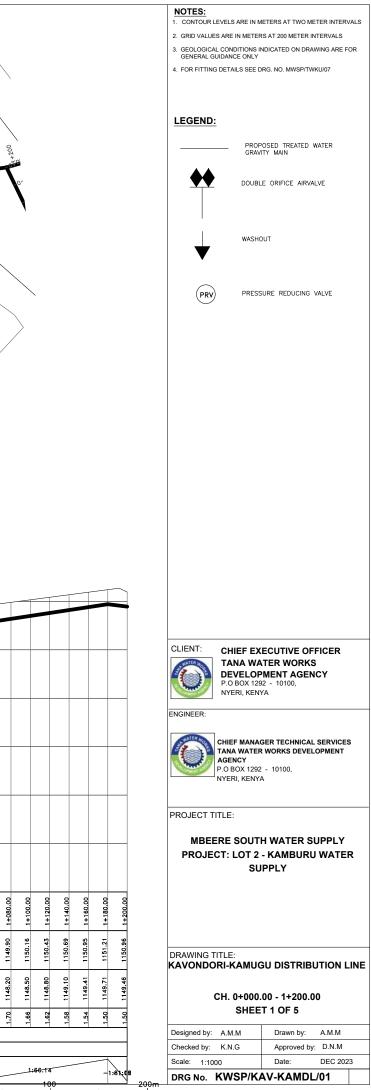


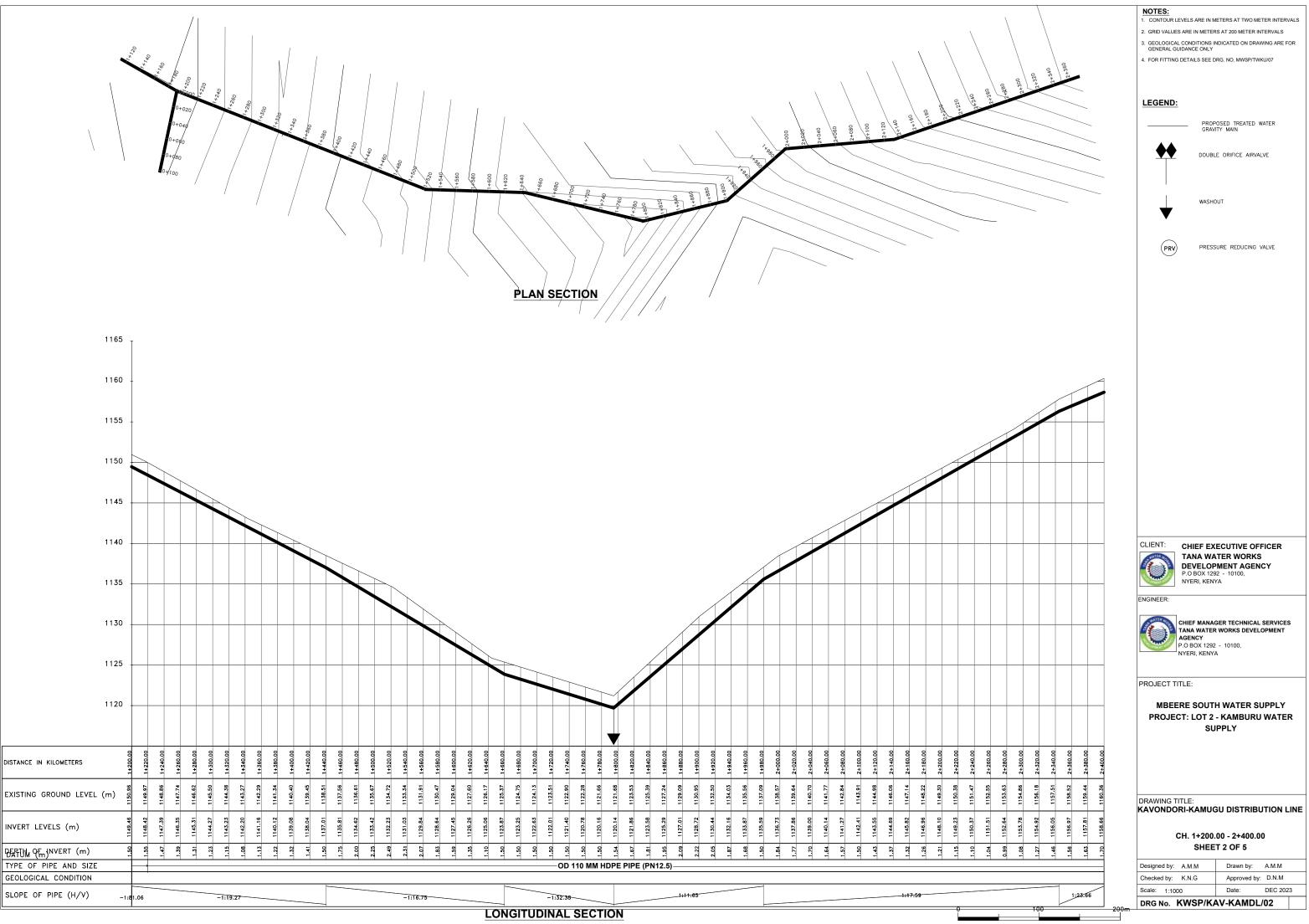


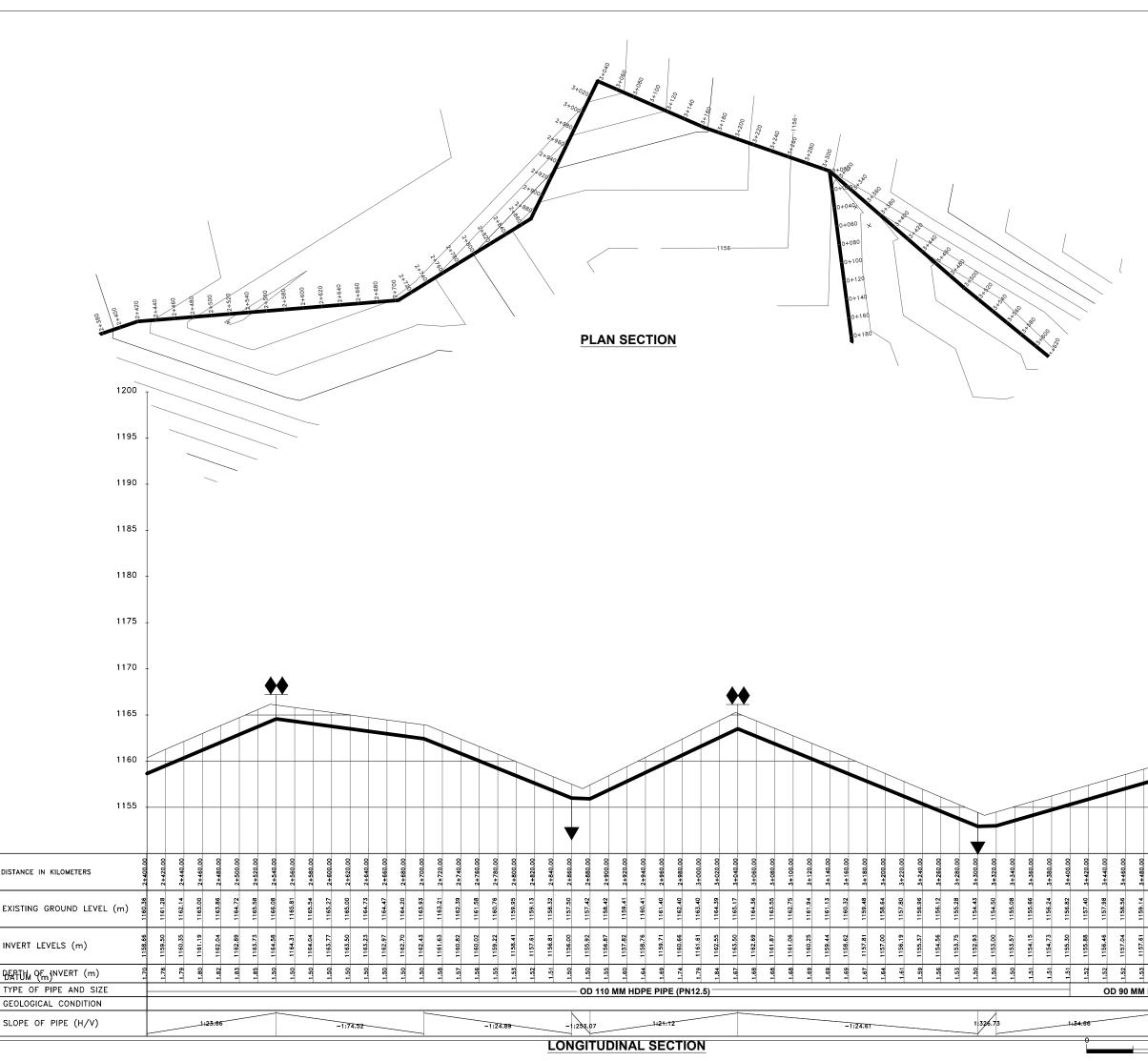






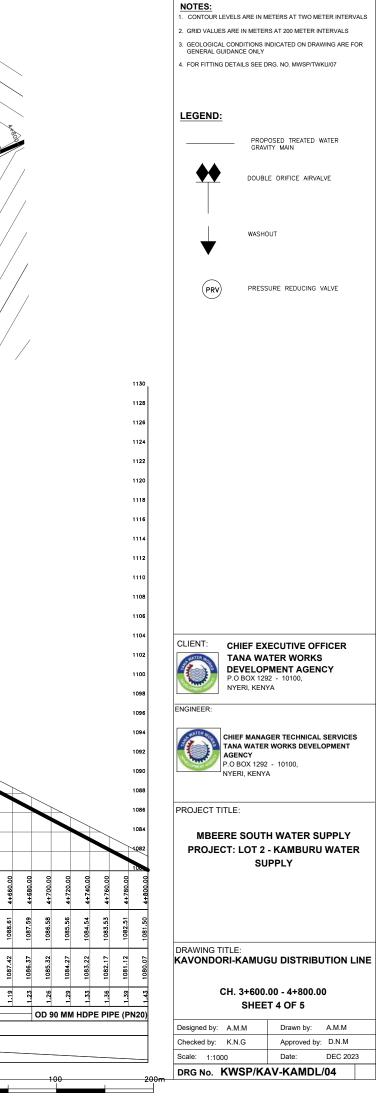


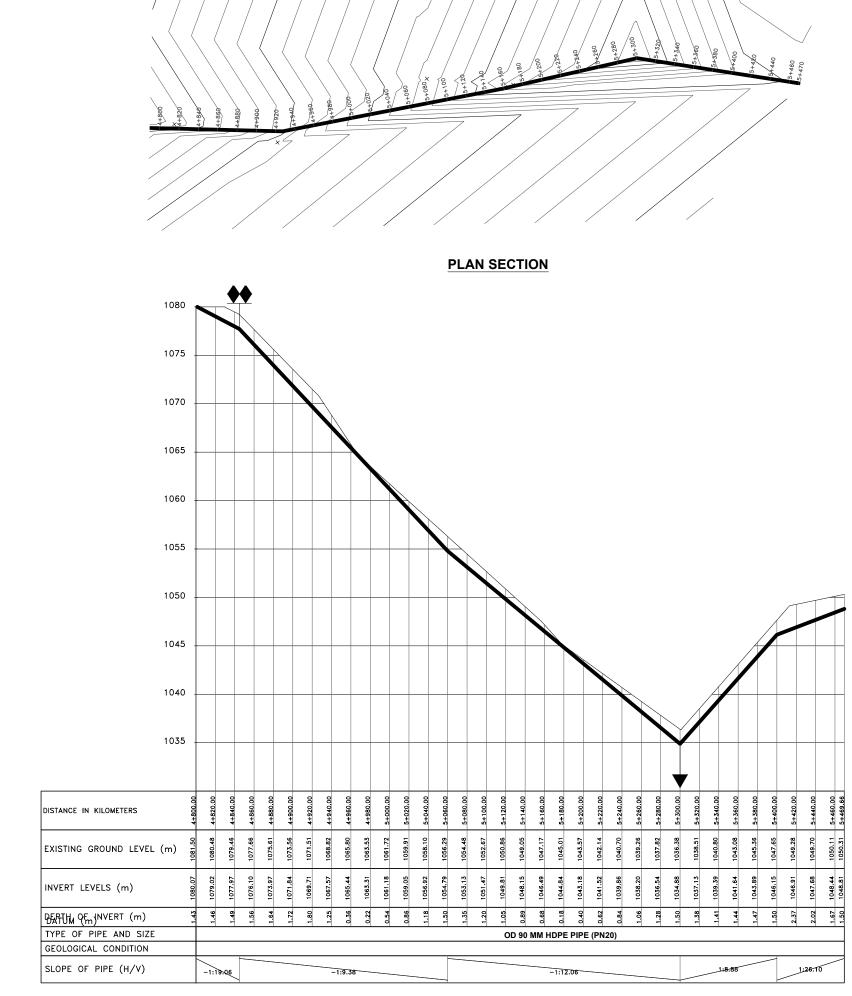


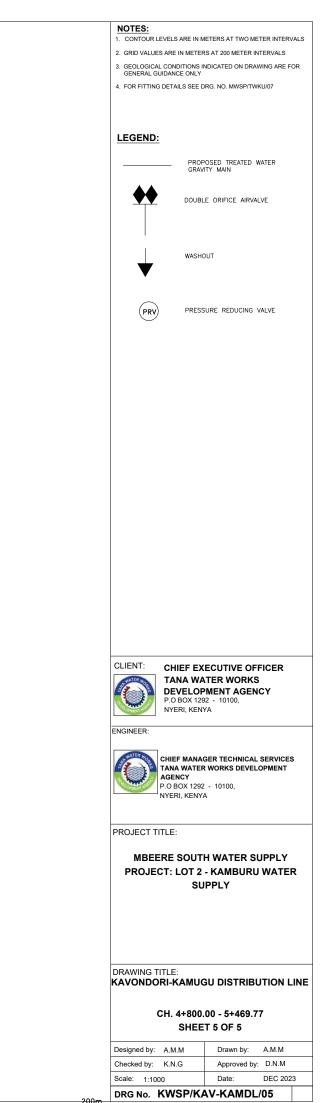


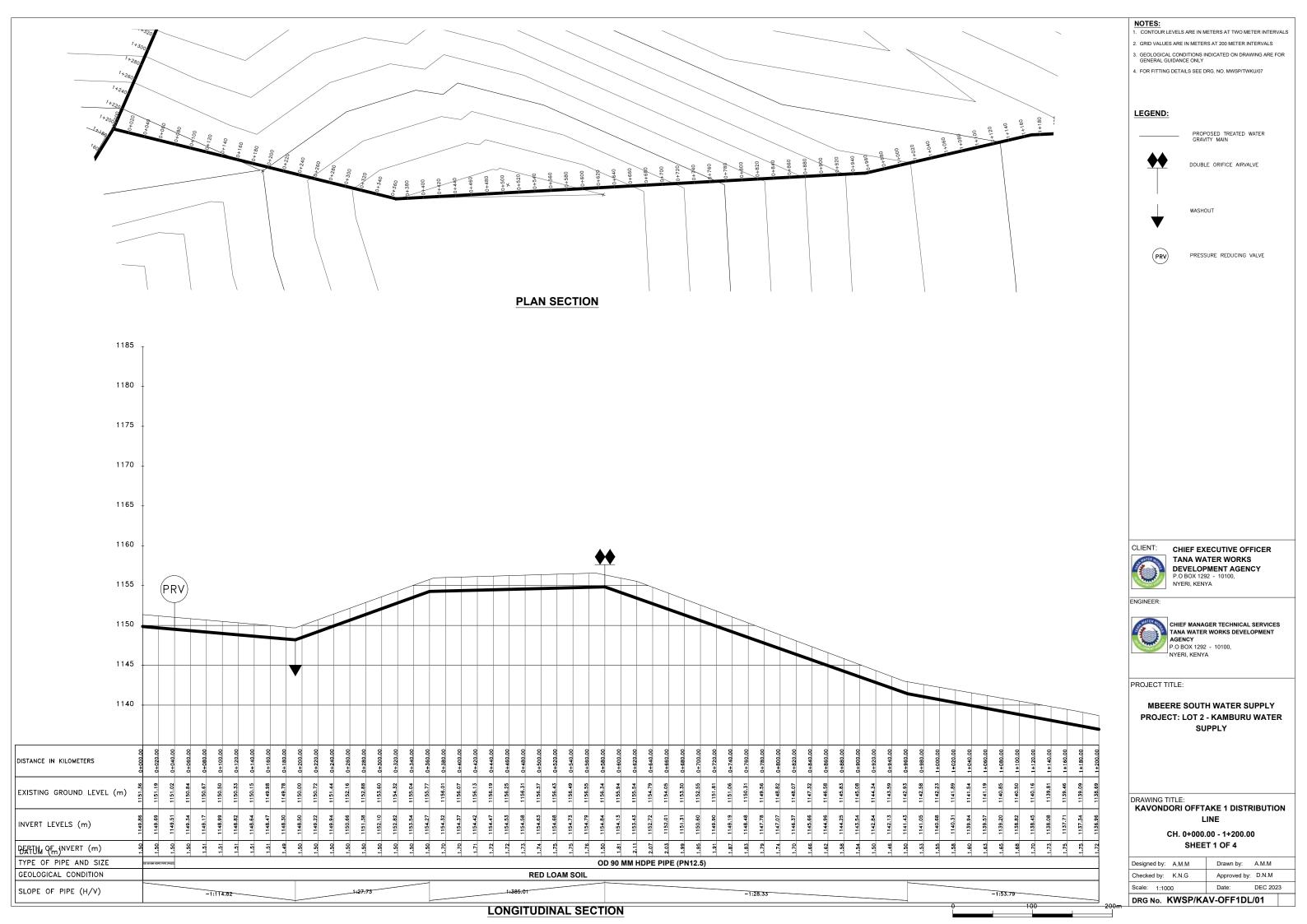


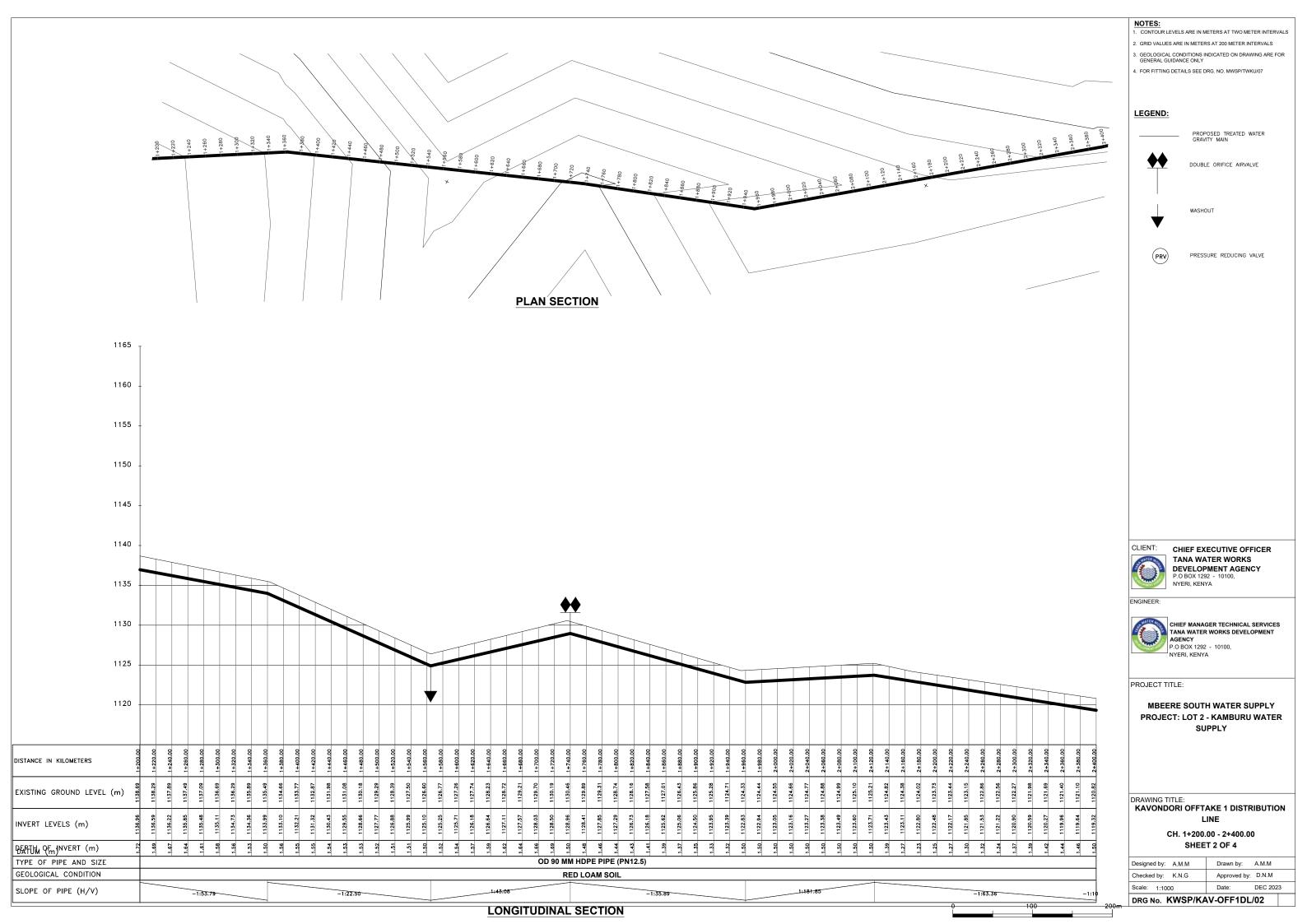
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DISTANCE IN KILOMETERS	<u>3+600.00</u> 3+620.00	_	3+660.00	3+680.00	3+700.00 3+720.00	3+740.00	3+760.00	3+780.00	3+800.00 3+820.00	3+840.00	3+860.00	3+900.00	3+920.00	3+940.00	3+960.00	3+980.00	4+000.00	4+020.00	4+040.00 4+060.00	4+080.00	4+100.00	4+120.00	4+140.00	4+180.00	4+200.00	4+220.00 4+240.00	4+260.00	4+280.00	4+300.00	4+320.00 4+340.00	4+360.00	4+380.00	4+400.00	4+420.00 4+440.00	4+460.00	4+480.00	4+500.00	4+520.00 4+540.00	4+560.00	4+580.00	4+600.00 4+620.00	4+640.00	
EXISTING GROUND LEVEL (m)	1159.00 1158.81	1157.69	1156.58	1155.46	1154.34 1153.23	1152.15	1151.10	1150.05	1149.00 1147.95	1146.90	1145.84	1144.79 1143.75	1142.68	1141.38	1140.09	1138.79	1137.50	1136.20	1134.91	1132.31	1130.78	1128.82	1124.89	1122.93	1120.97	1119.00 1116.27	1114.39	1112.52	1110.64	1106.89	1105.01	1103.57	1102.45	1101.33	1099.08	1097.96	1096.84	1095.75	1093.71	1092.69	1091.67	1089.63	1.2 0001
INVERT LEVELS (m)	1157.46 1157.31				1152.95 1151.86				1147.51 1146.42			1143.15 1142.06			1138.59	_			1133.41			_	1123.34	1121.36		1117.41 1115.43		1111.47		1105.54				1100.01 1098.96		1096.86		1094.76			1090.57		CT 1901
DEATING OF PIPE AND SIZE GEOLOGICAL CONDITION	1.54	1.47	1.45	1.42	1.39	1.38			64 1 HDPE	E PIPE		¹⁹ 2.5)	1.71	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.51	1.52	1.55	1.57	1.58	1.60	0.94	1.04		8 90 M	IM HDF	99 97 PE PI		1 <u>51</u> N16)	1.17	1.10	1.03	0.99 0.1	1.04	1.07	1.13	1.16	1 10
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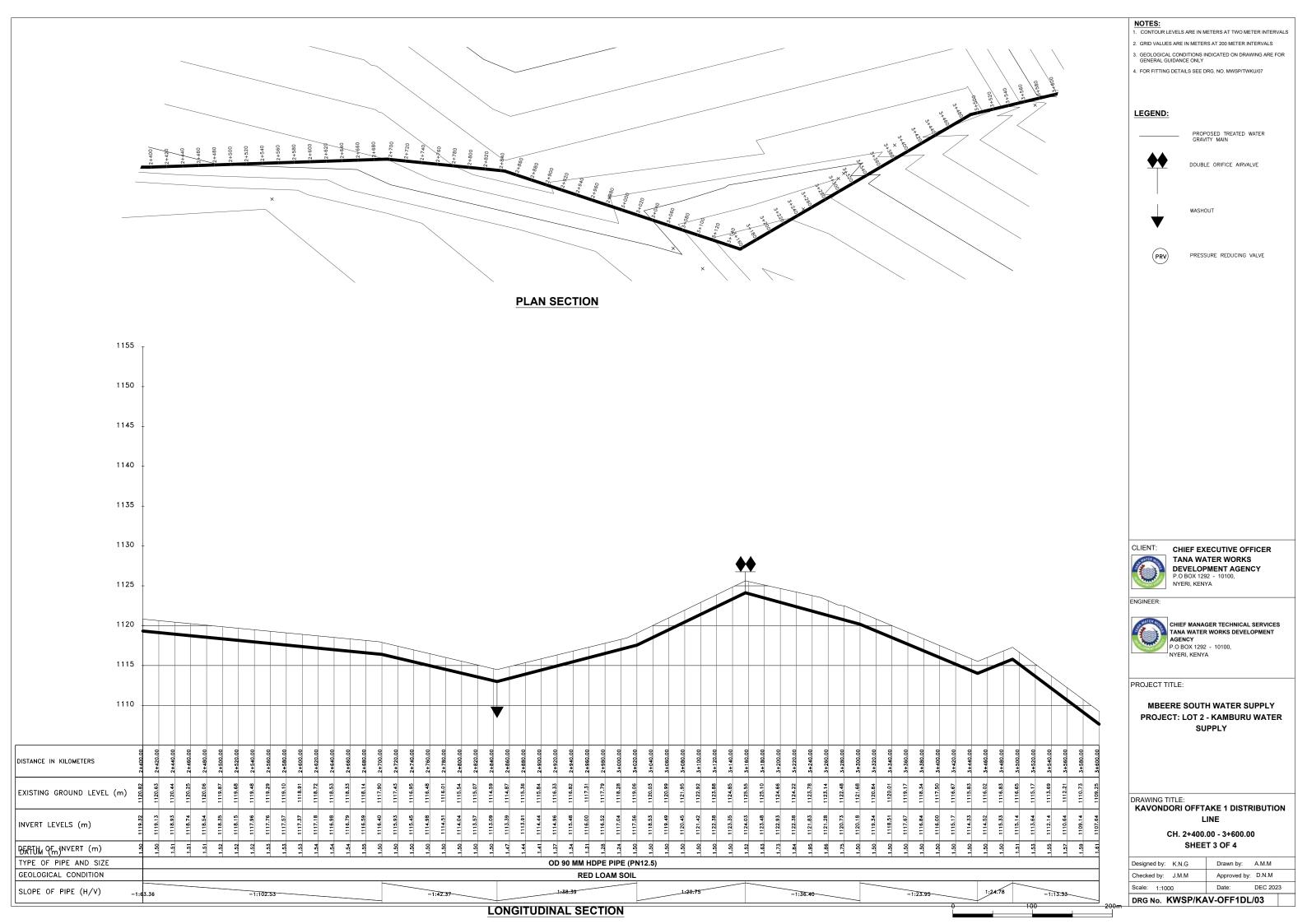




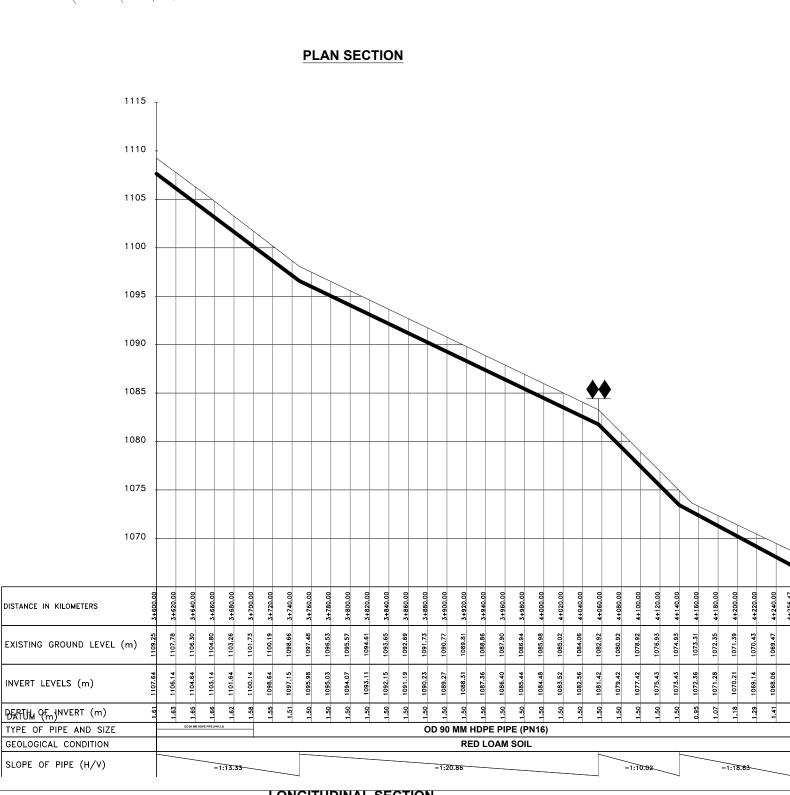


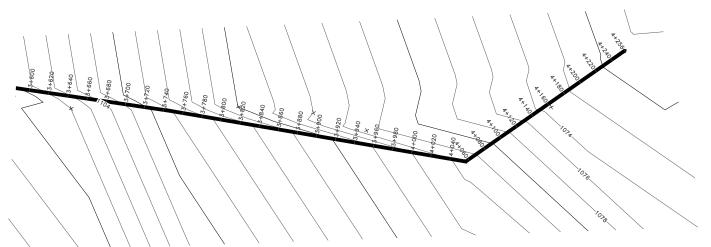


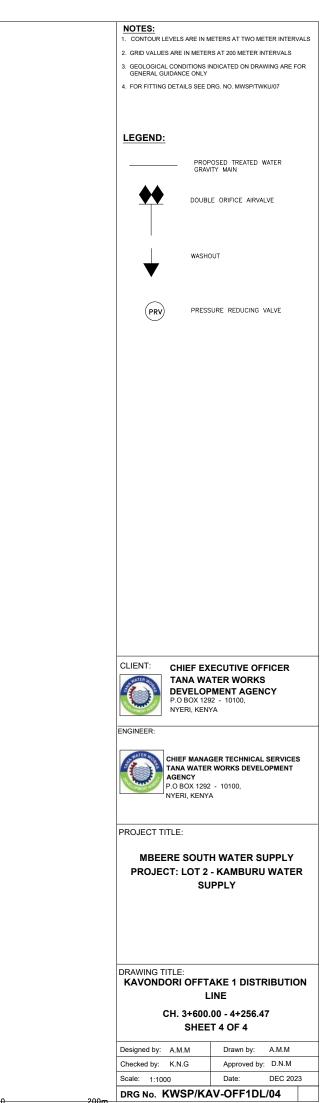


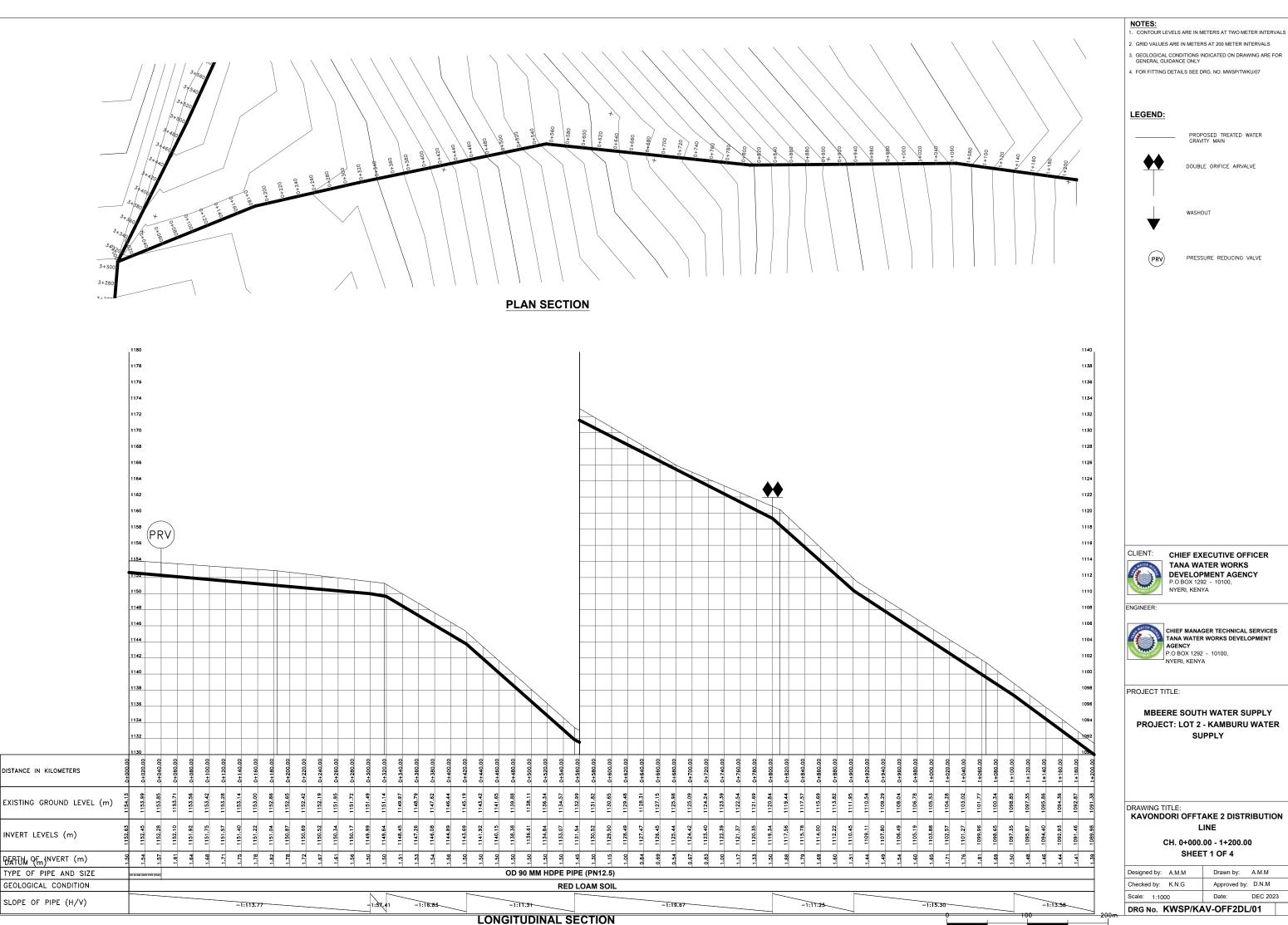




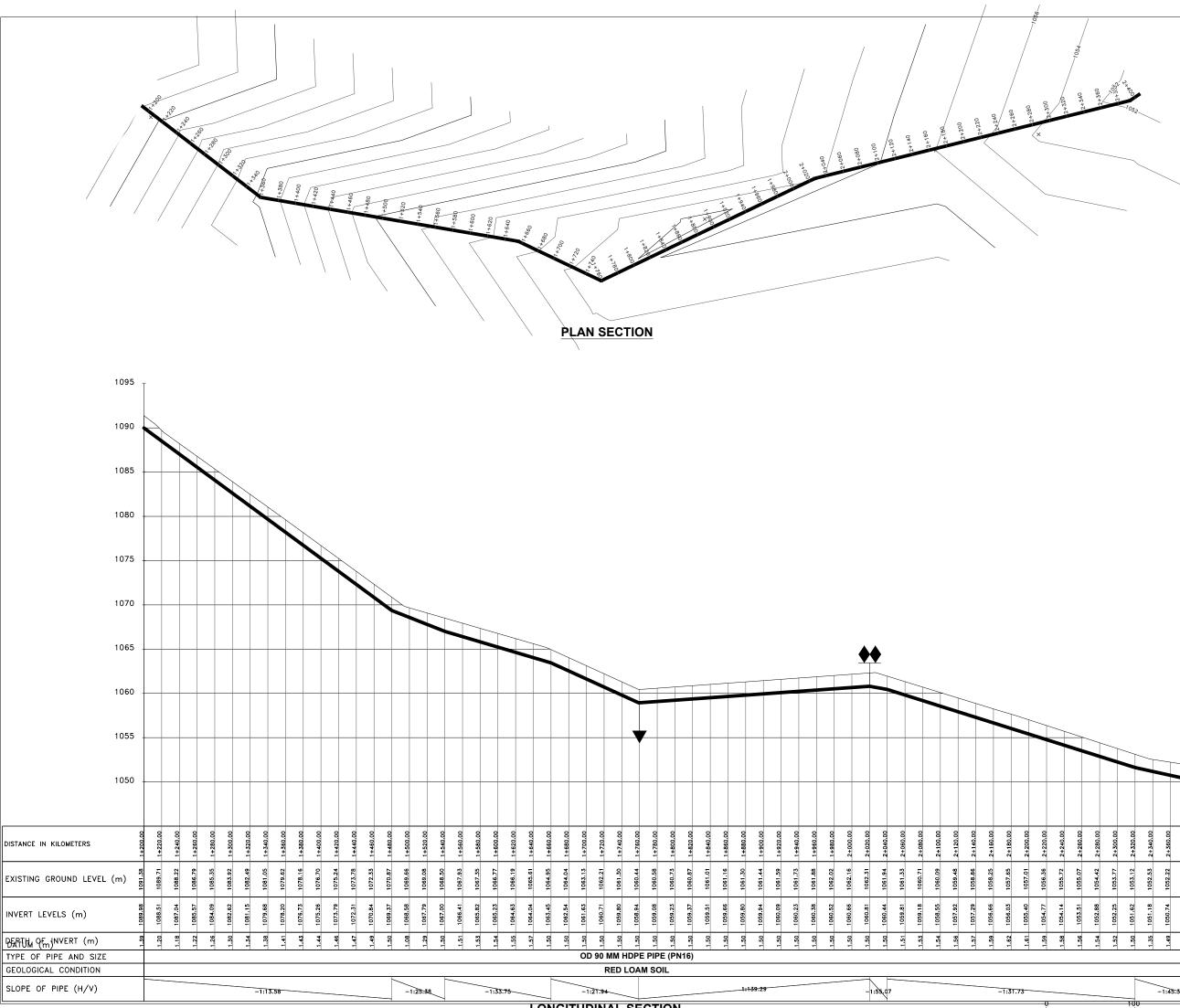








GENERAL GUIDANCE ONLY 4. FOR FITTING DETAILS SEE D	DRG. NO. MWSP/TWKU/07
LEGEND:	
PROF GRAV	POSED TREATED WATER ITY MAIN
	e orifice airvalve
WASHO	TUC
(PRV) PRESS	SURE REDUCING VALVE
TANA WA	
ENGINEER:	
PROJECT TITLE:	
PROJECT: LOT 2	H WATER SUPPLY - KAMBURU WATER IPPLY
CH. 0+000	INE 00 - 1+200.00 T 1 OF 4
Designed by: A.M.M Checked by: K.N.G	Drawn by: A.M.M Approved by: D.N.M
Scale: 1:1000 DRG No. KWSP/KA	Date: DEC 2023



NOTES:

- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN



WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

PROJECT TITLE:

MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

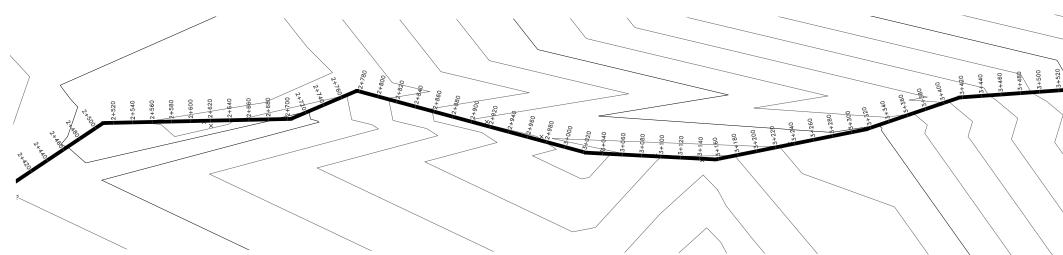
DRAWING TITLE: KAVONDORI OFFTAKE 2 DISTRIBUTION LINE CH. 1+200.00 - 2+400.00

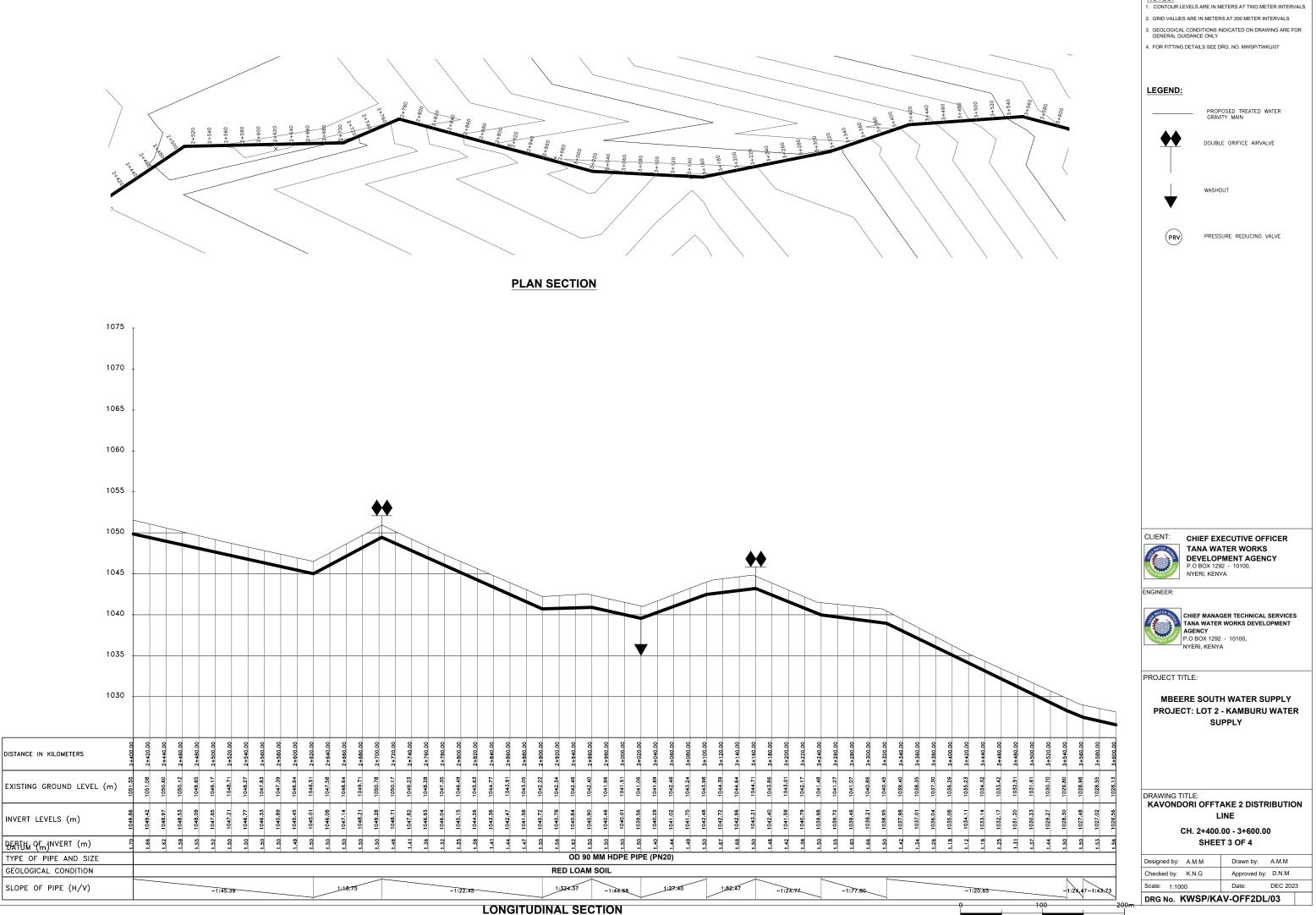
SHEET 2 OF 4

Designed by: A.M.M	Drawn by: A.M.M
Checked by: K.N.G	Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023
DRG No. KWSP/KA	V-OFF2DL/02

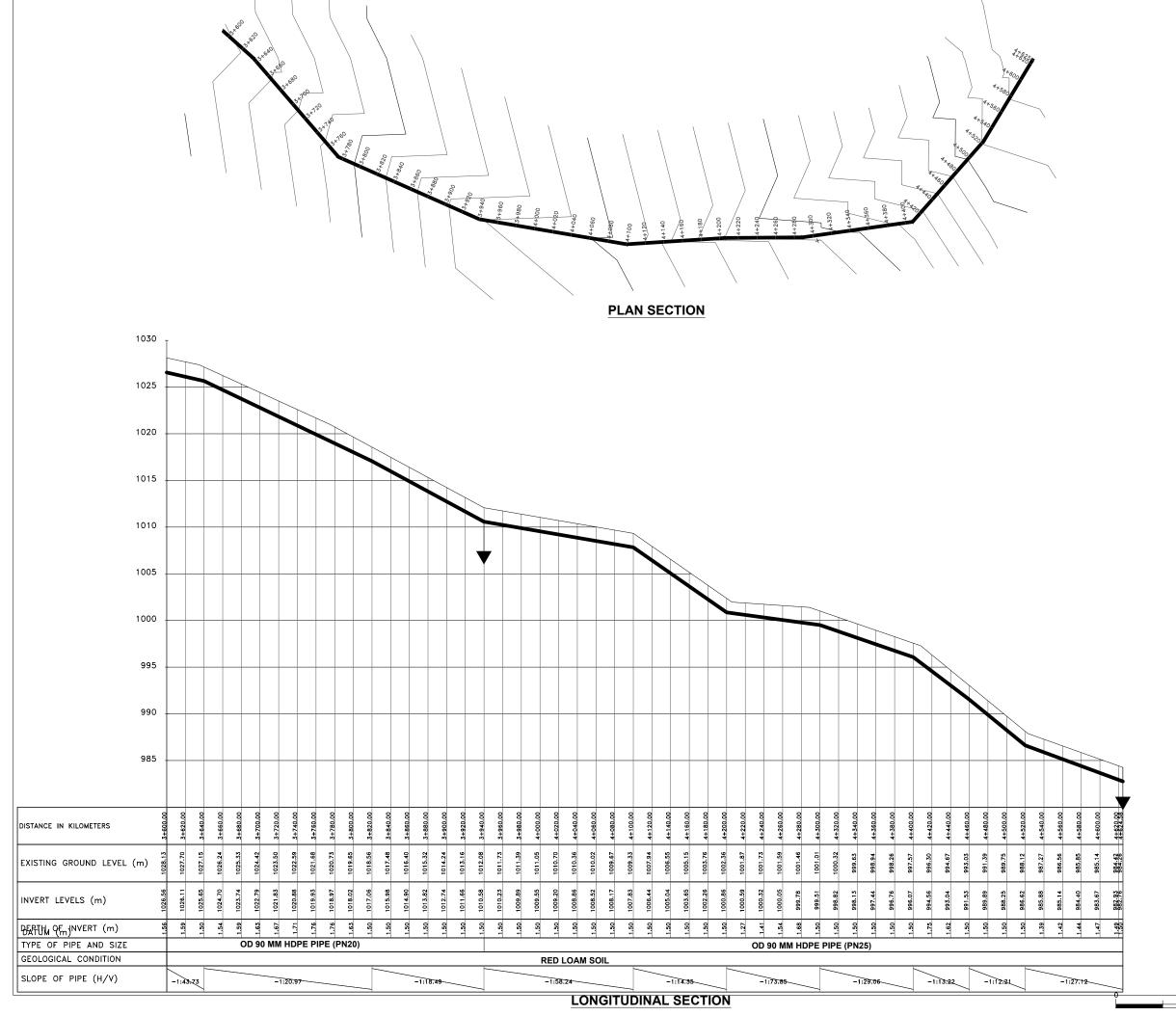
1051.92 051.55 50.30 49.86 .35 .49 .62 -1:45:39

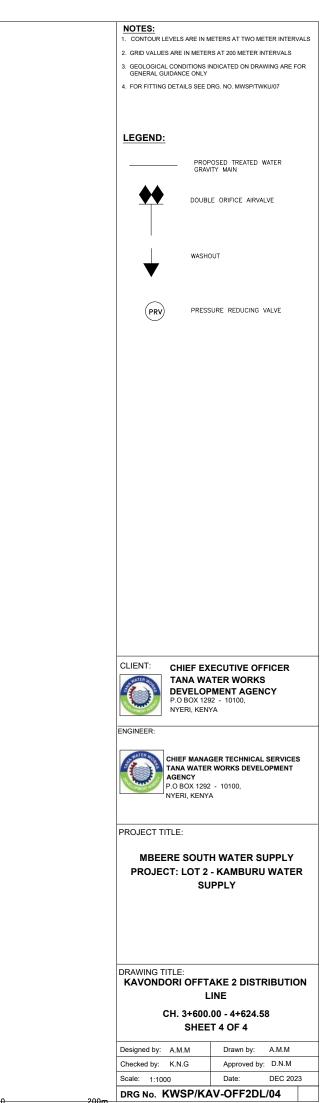


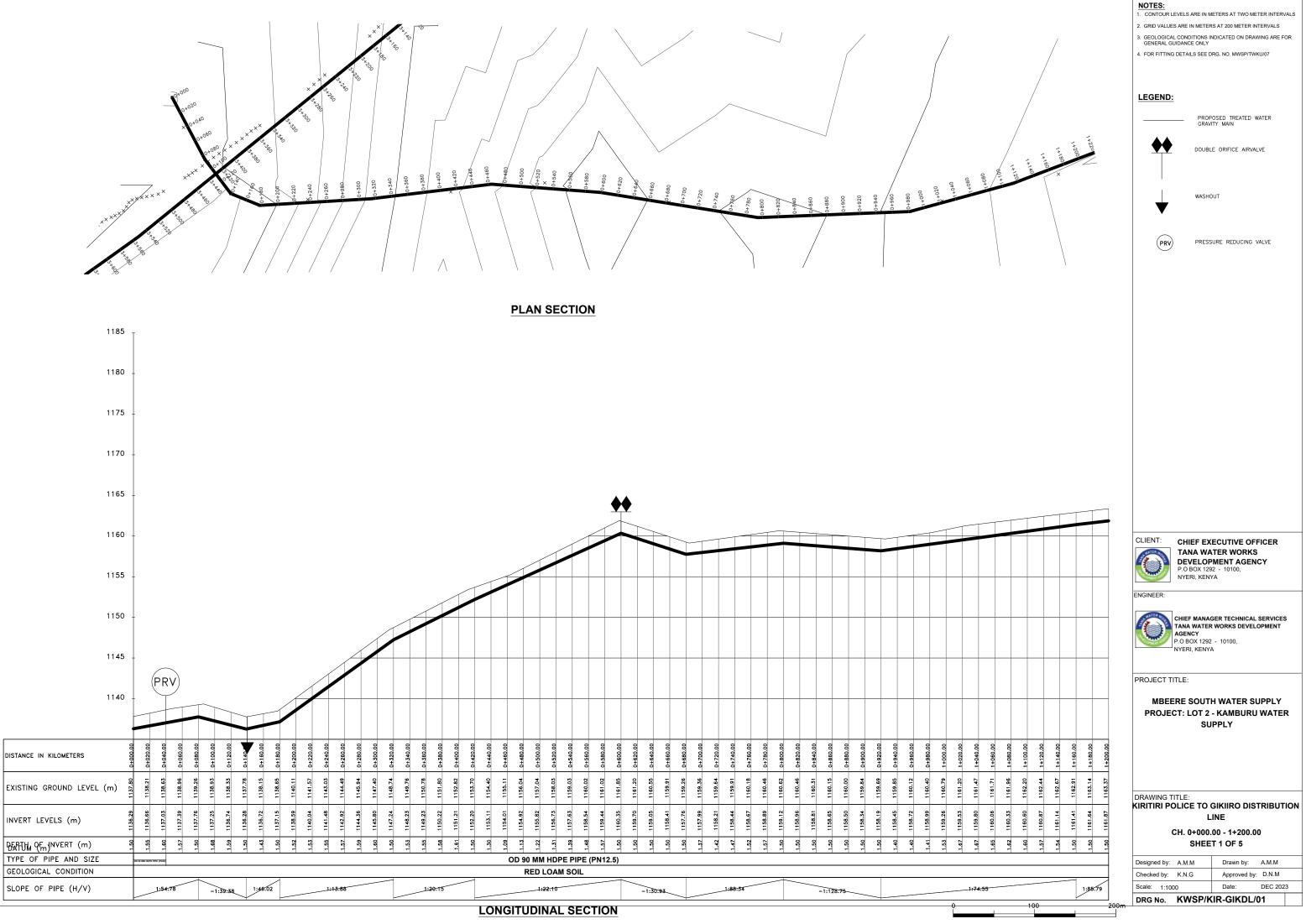


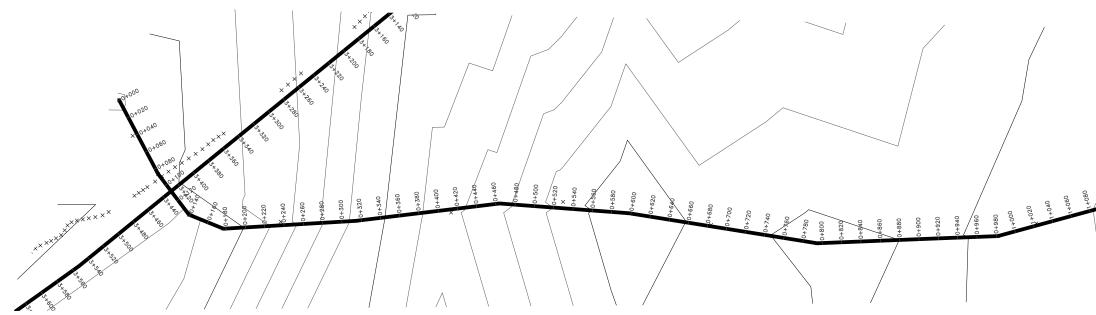


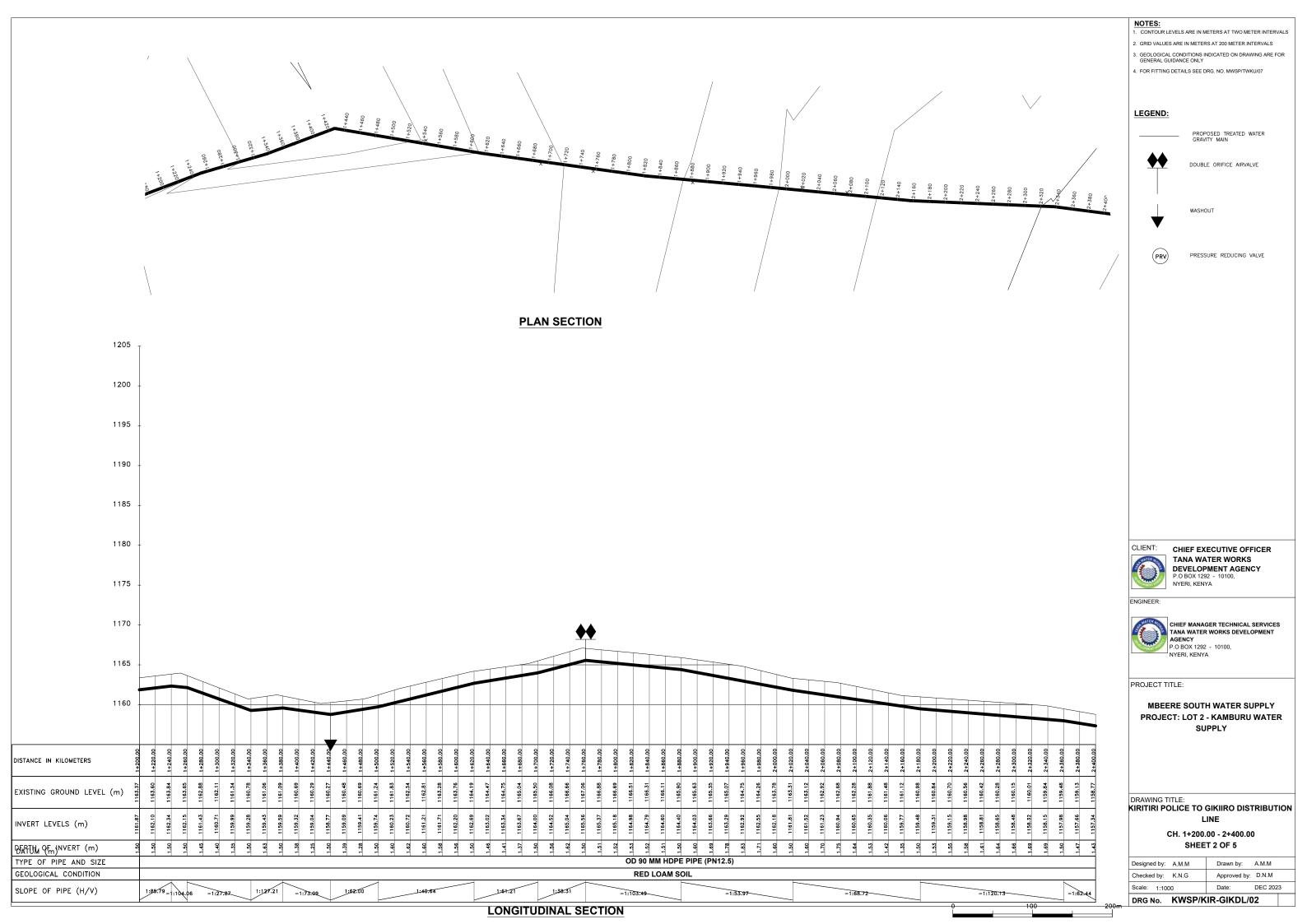
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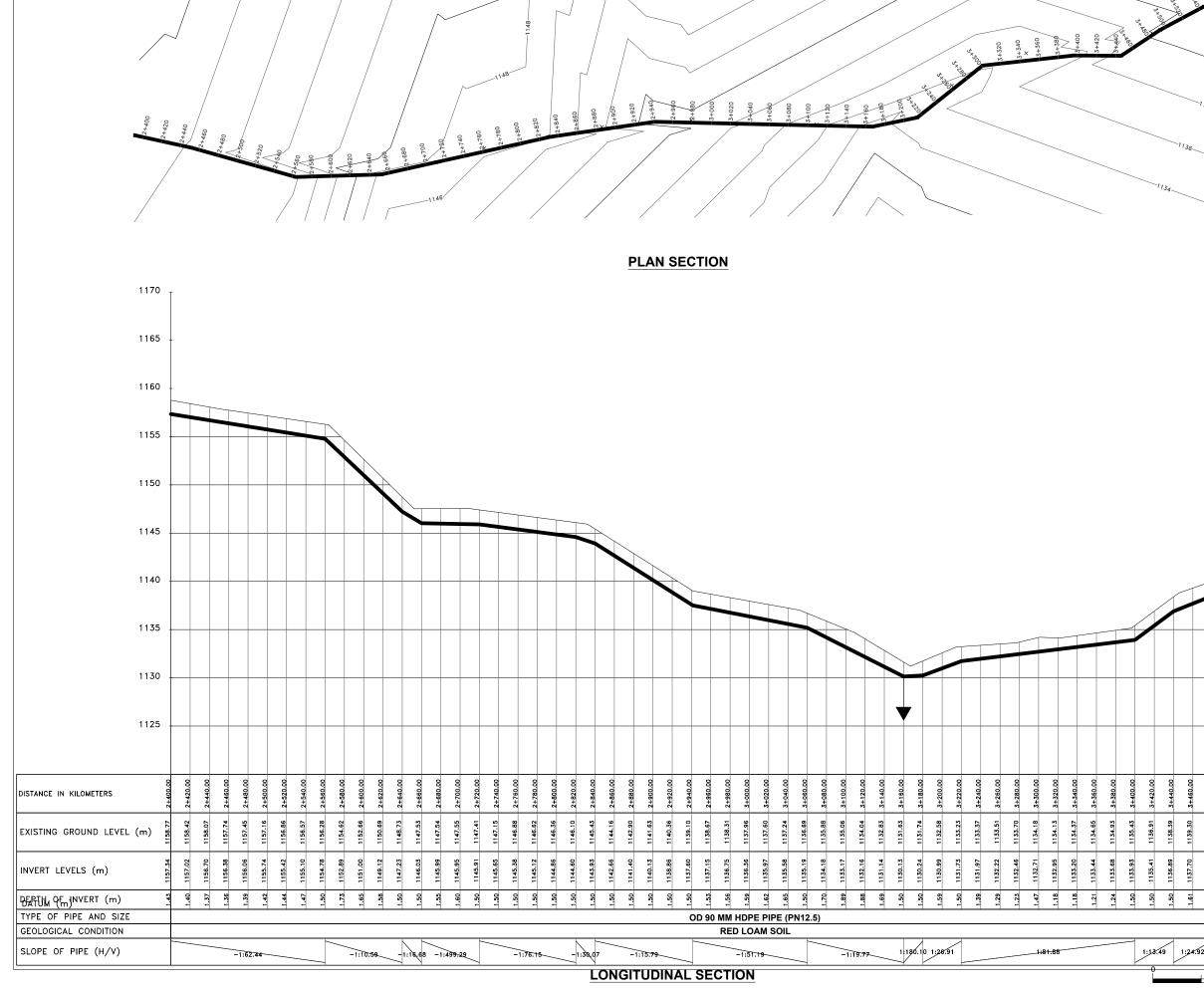




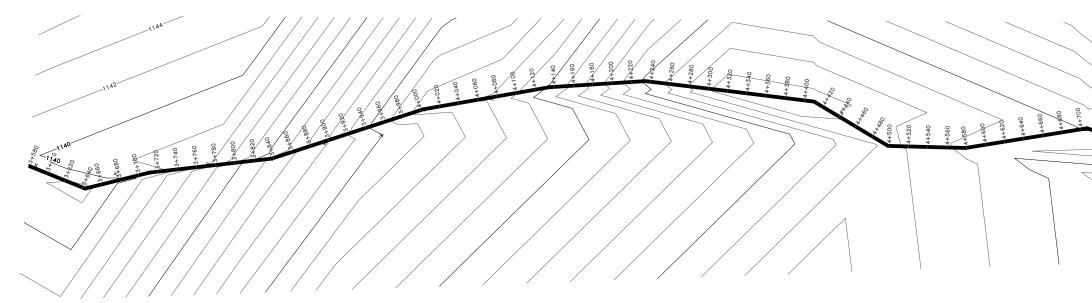




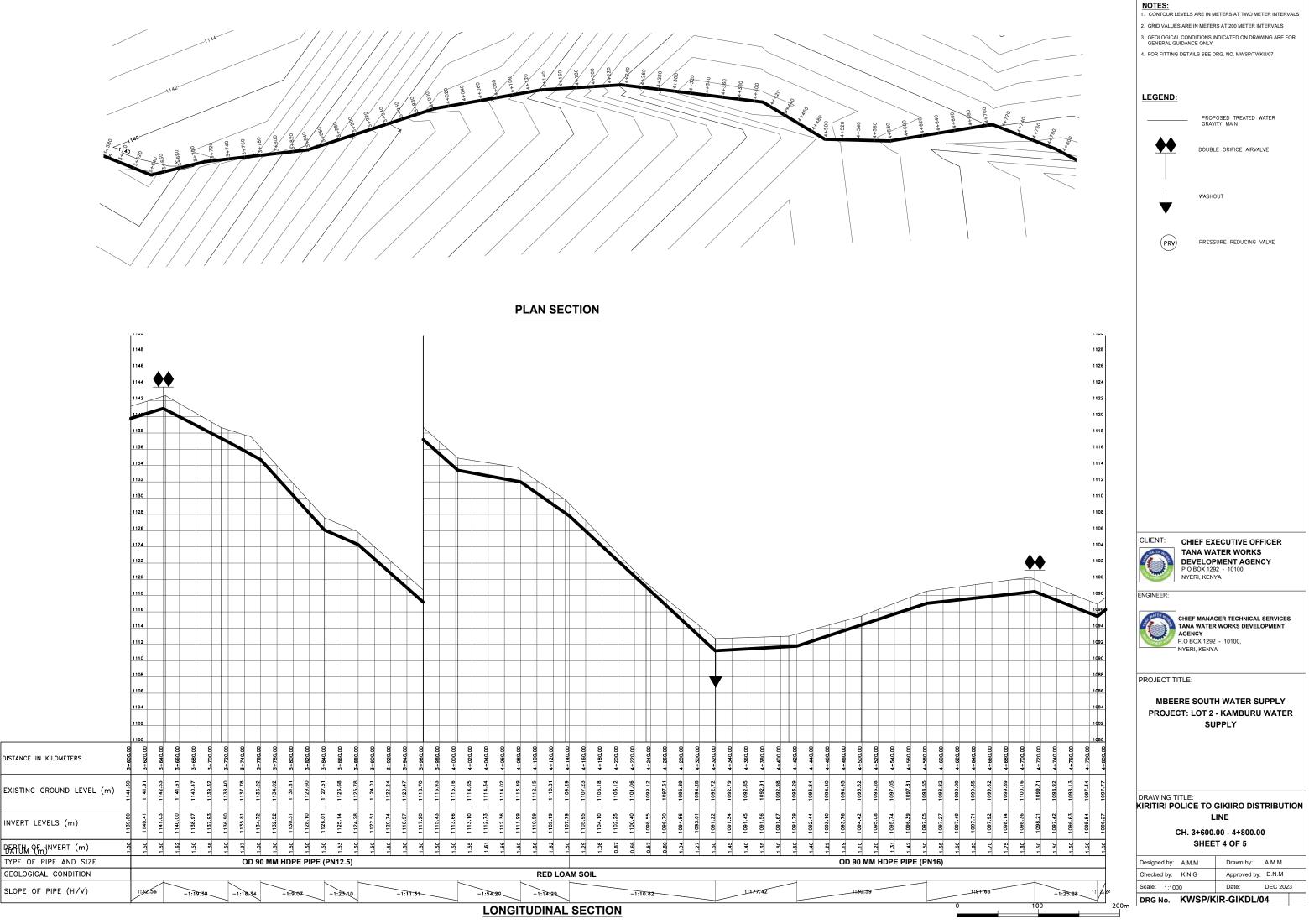




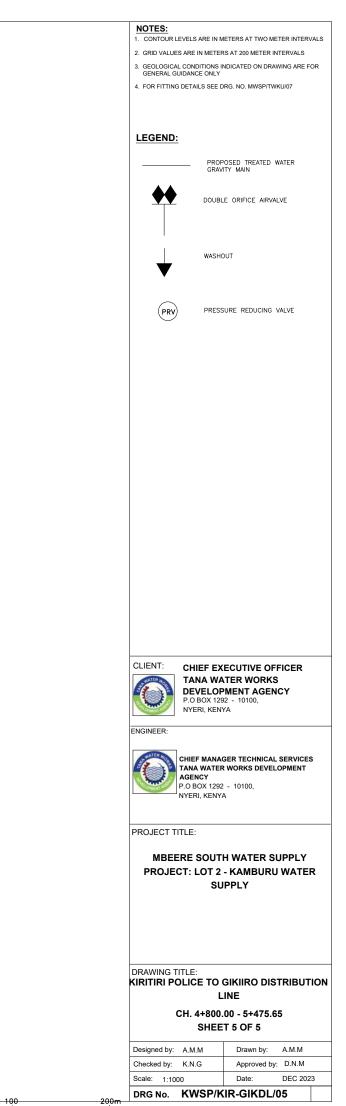
			NOTES:
			CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS GRID VALUES ARE IN METERS AT 200 METER INTERVALS GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
	3+560 3+580 3+150		
			PROPOSED TREATED WATER
	1140		DOUBLE ORIFICE AIRVALVE
	-1138		
			WASHOUT
Image: Second			PRV PRESSURE REDUCING VALVE
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0 0			TANA WATER WORKS DEVELOPMENT AGENCY P.0 BOX 1292 - 10100,
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MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY 00<			TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100,
O O			PROJECT TITLE:
00 15 00 00 01 11<			PROJECT: LOT 2 - KAMBURU WATER
00 15 00 00 01 11<	3+480.00 3+500.00 3+520.00 3+560.00 3+560.00 3+580.00	3+600.00	
S S		-	
String String<			
Checked by: K.N.G Approved by: D.N.M Scale: 1:1000 Date: DEC 2023			SHEET 3 OF 5
92 1;69:08 -1:219.561:32.56			Checked by: K.N.G Approved by: D.N.M
100 200m DRG NO. KW3P/KIK-GIKDL/03			DRG No. KWSP/KIR-GIKDL/03



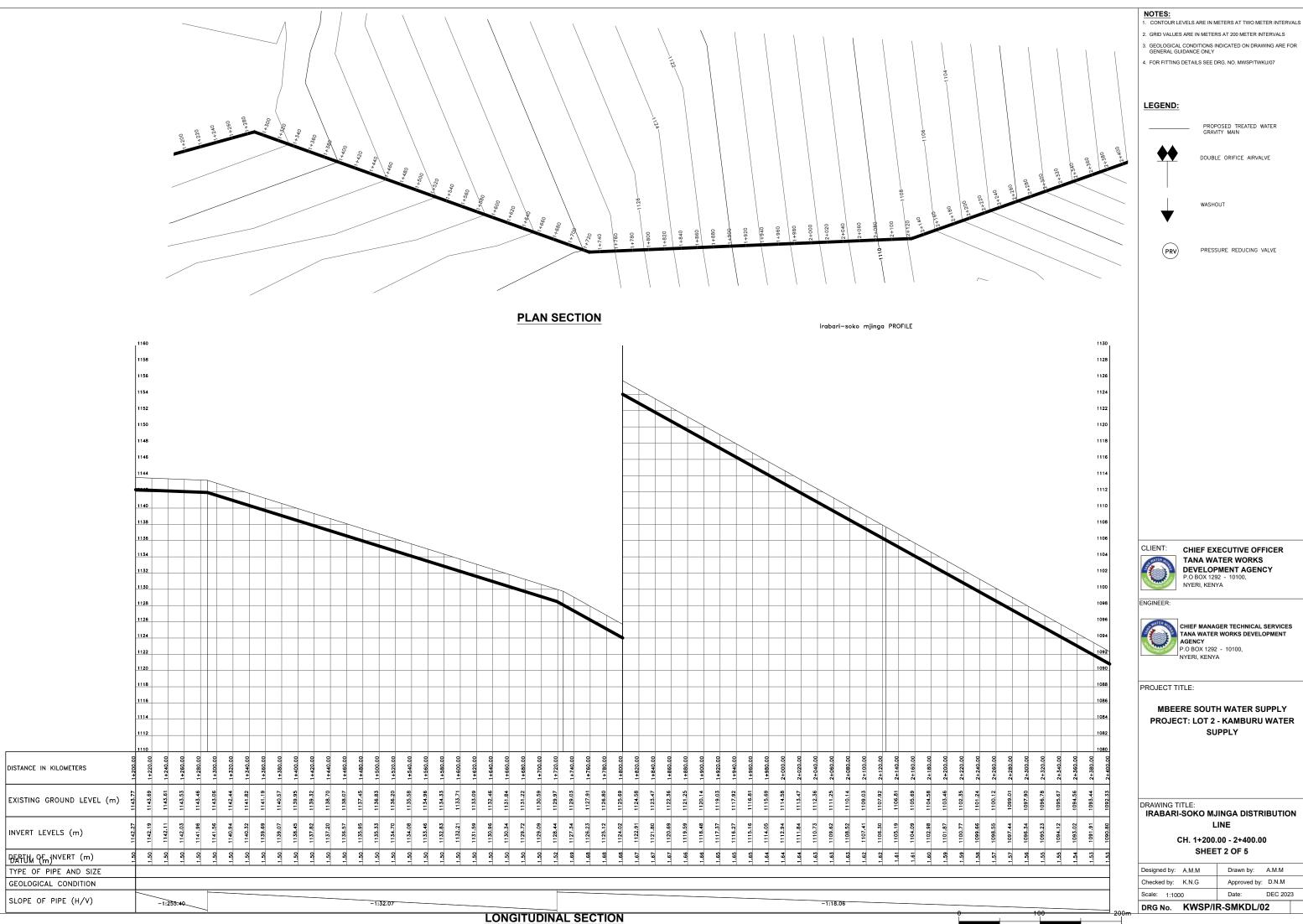
PLAN SECTION



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DISTANCE IN KILOMETERS	4+800.00 4+820.00 4+820.00 4+820.00 4+820.00 4+820.00 4+820.00 4+920.00 4+920.00 5+120.00 5+120.00 5+120.00 5+120.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+130.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00 5+140.00	
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	1.50 1036.27 1.50 1097.31 1.50 1097.31 1.50 1101.17 1.75 1101.13 1.75 1102.30 1.75 1102.31 1.75 1102.33 1.45 1102.24 1.45 1105.24 1.45 1105.24 1.46 1103.34 1.47 1102.30 1.48 1103.34 1.49 1103.34 1.46 1097.05 1.45 1095.70 1.46 1095.70 1.47 1098.66 1.48 1099.70 1.41 1097.67 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.46 1.45 1098.45 <td></td>	
TYPE OF PIPE AND SIZE	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
GEOLOGICAL CONDITION	RED LOAM SOIL	
SLOPE OF PIPE (H/V)	1:12:24 1:28:59 -1:19.31 -1:14:56 -1:26:91 1:128:29 -1:51:57 1:157.21	



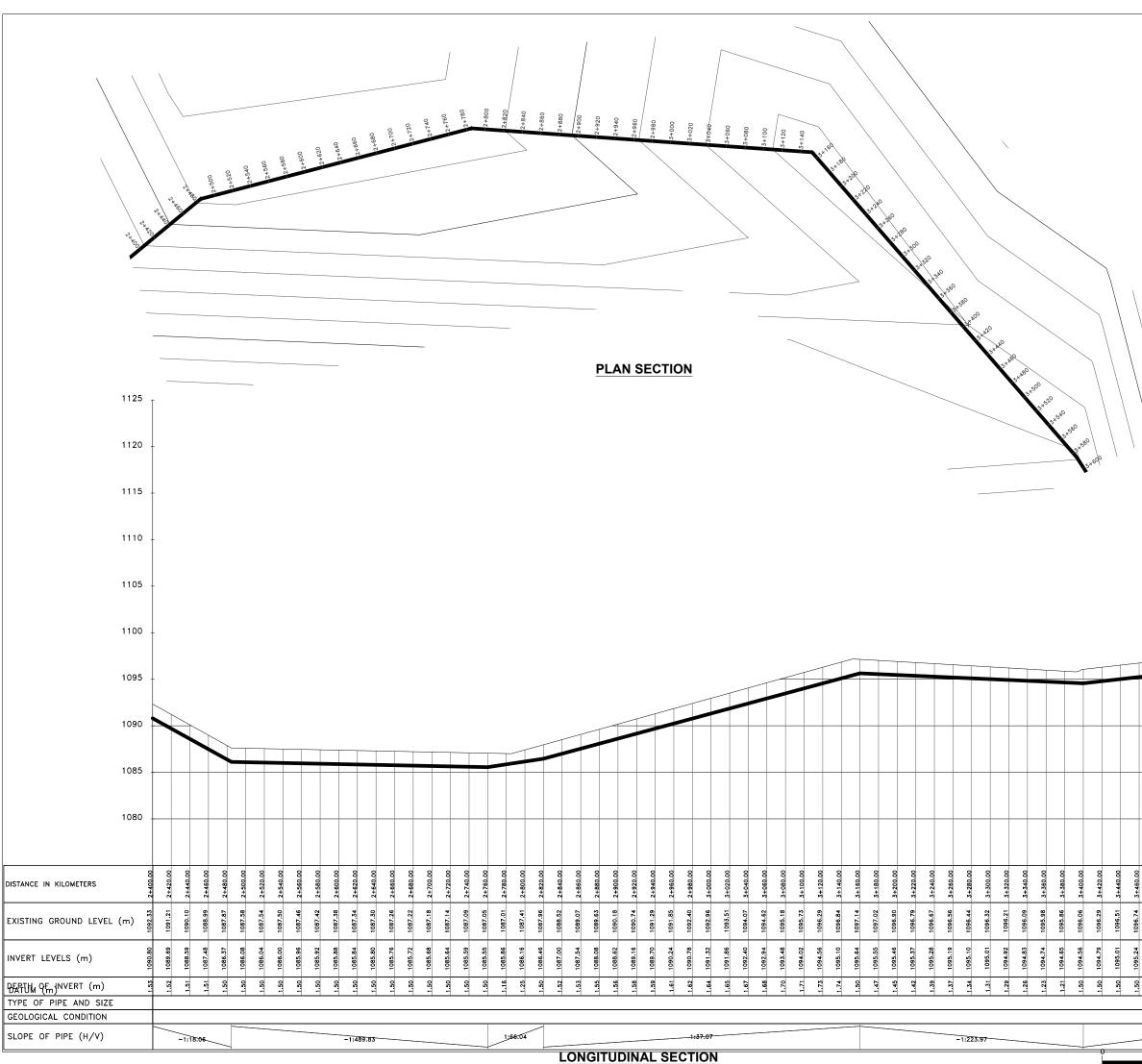
1158 1175 1170 1160 1155 1160 1155 1150 1140 1135					PLAN SECTION			<section-header><section-header><section-header><section-header><section-header><section-header><section-header><section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header></section-header>
DISTANCE IN KILOMETERS	200.00 220.00 540.00	140.00	(60.00 (80.00 (20.00 (40.00	280.00 280.00 500.00 140.00 180.00 20.00 20.00	440.00 460.00 500.00 500.00 16	20.00 (60.00 (60.00 (20.00 (20.00 (20.00 (20.00 (20.00 (20.00 (20.00 (20.00)	220.00 140.00 280.00 200.00 200.00 140.00 180.00 180.00 180.00 20.00 20.00 20.00	PROJECT: LOT 2 - KAMBURU WATER SUPPLY
		56.12 0+11 54.95 0+1 53.78 0+1	2.61 0+1 1.44 0+1 3.28 0+2 3.11 0+2 94 0+2	5.77 042 5.87 043 5.87 043 5.87 043 5.87 043 5.87 043 5.87 043 5.87 043 5.83 043 5.83 043 5.83 043 5.83 043 5.83 044 5.83 043 5.83 044 5.83 044 5.83 044 5.83 044	44.73 0+4 44.56 0+4 44.56 0+5 44.43 0+5 44.13 0+5 44.13 0+5 43.58 0+5 43.58 0+5 43.53 0+5 43.53 0+5 43.53 0+5 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6 43.53 0+6	143.72 04.73 143.82 04.74 143.91 04.7 144.10 04.7 144.19 04.8 144.19 04.8 144.19 04.8 144.19 04.8 144.19 04.8 144.19 04.8 144.13 04.8 144.56 04.8 144.57 04.8 144.57 04.8 144.56 04.9 144.56 04.9	1.76 0.49 1.71 0.49 1.71 0.49 1.71 0.49 1.65 1.40 1.65 1.40 1.65 1.40 1.65 1.40 1.65 1.40 1.65 1.40 1.61 1.40 1.62 1.40 1.63 1.40 1.64 1.41 1.64 1.41 1.64 1.41 1.65 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.66 1.41 1.67 1.42	
EXISTING GROUND LEVEL (m)	47 1161.97 30 1160.80 13 1159.63 96 1158.46 79 1157.29			27 1146.77 12 1145.92 27 1145.92 27 1145.62 37 1145.62 37 1145.63 38 1145.13 38 1145.13 33 1145.13 33 1145.13 38 1145.13 38 1145.14 33 1145.13 34 1145.14 35 1145.13			26 1144.76 29 1144.71 21 1144.65 35 1144.65 90 1144.40 90 1144.40 90 1144.40 91 1144.40 92 1144.40 93 1144.20 94 1144.20 95 1144.20 56 1144.20 58 1144.00 53 1145.93 54 1145.93 55 1145.93 57 1145.83	DRAWING TITLE: IRABARI-SOKO MJINGA DISTRIBUTION LINE
INVERT LEVELS (m)	1159. 1158. 1156.			0 1145.27 0 1144.42 0 1144.12 0 1144.12 0 1145.97 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.83 0 1145.53	0 1143.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 0 1142.03 1 1142.03 7 1142.04		1145 1145 1145 1145 1145 1145 1142 1142	LINE CH. 0+000.00 - 1+200.00 SHEET 1 OF 5
DEPTH OF NVERT (m) TYPE OF PIPE AND SIZE	1.50	1.50	1.50 1.50 1.50 1.50	1.50 1.50 1.50 1.50 1.50 1.50 1.50 1.50	1150 1150 1150 1150 1150 1150 1150 1150	1.47 1.48 1.48 1.48 1.48 1.48 1.48 1.49 1.49 1.49 1.49 1.49 1.49 1.49 1.49	150 150 150 150 150 150 150 150 150 150	Designed by: A.M.M Drawn by: A.M.M
GEOLOGICAL CONDITION SLOPE OF PIPE (H/V)		-1:17.1			-1:133.90	1:218:20	-1:255.40	Checked by: K.N.G Approved by: D.N.M Scale: 1:1000 Date: DEC 2023
		-1:17.1			LONGITUDINAL SECTION			DRG No. KWSP/IR-SMKDL/01









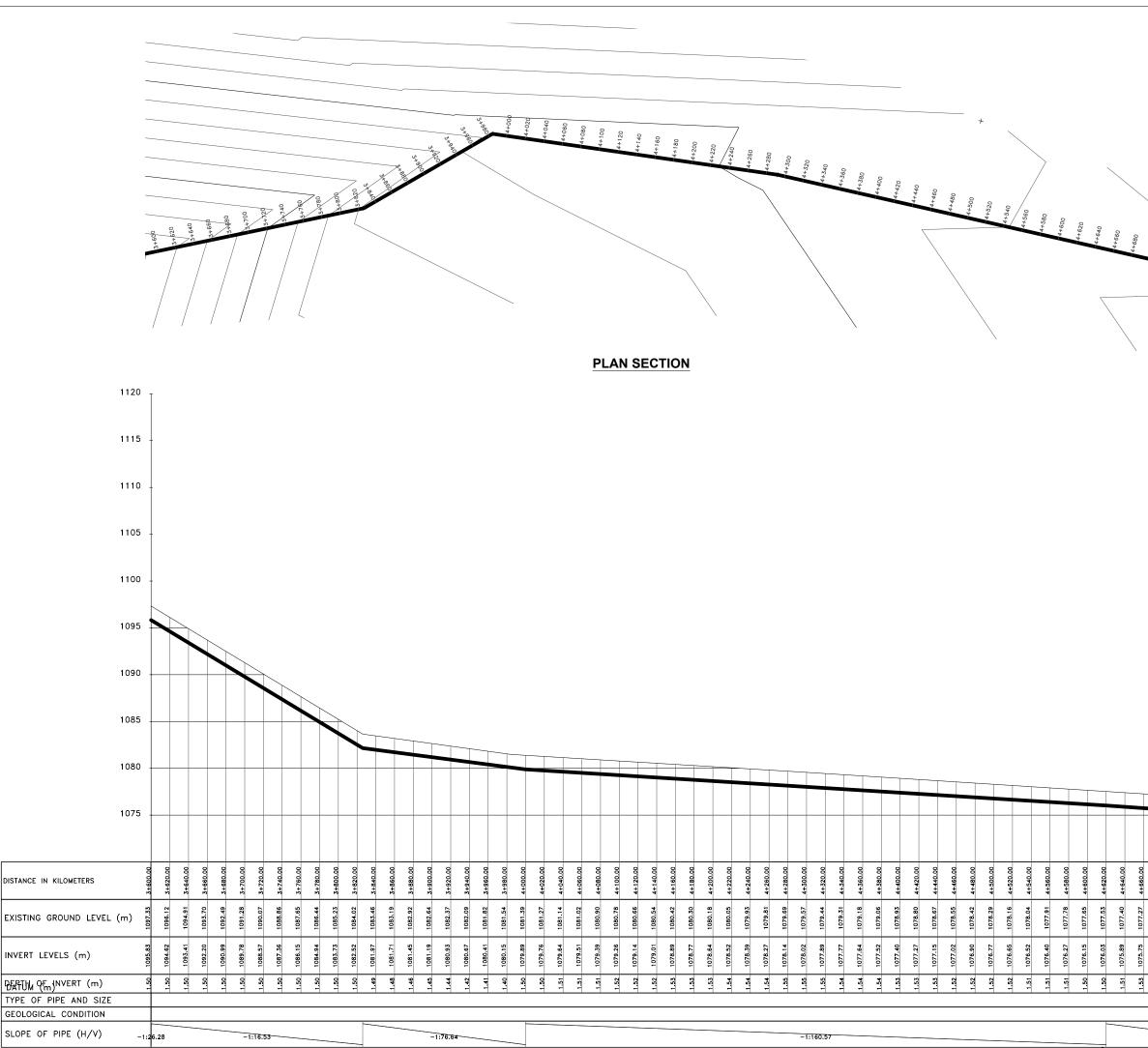


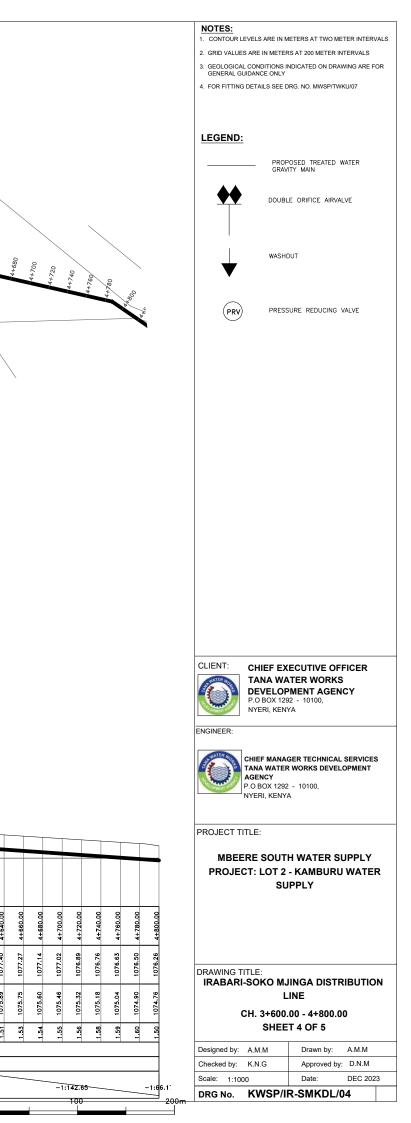
									DO	UBLE ORIFICE AIRVALVE
								•	WA	SHOUT
								PRV) PR	ESSURE REDUCING VALVE
$\langle \rangle$	$\langle \rangle$	/ /	\	\						
	/	1								
								CLIENT:	TANA V DEVEL	EXECUTIVE OFFICER WATER WORKS OPMENT AGENCY 1292 - 10100, ENYA
								ENGINEER:	1	
									TANA WA AGENCY	NAGER TECHNICAL SERVICES TER WORKS DEVELOPMENT 292 - 10100, NYA
								PROJECT T	ITLE:	
									CT: LOT	JTH WATER SUPPLY 2 - KAMBURU WATER SUPPLY
3+480.00	3+500.00	3+520.00	00.01	00.00	3+580.00	00.00				
			54 3+540.00	3+560.00		33 3+600.00				
1096.96	9 1097.19	1 1097.41	4 1097.64	7 1097.87	1098.09	3 1097.33		DRAWING T		MJINGA DISTRIBUTION
1095.46	1095.69	1095.91	1096.14	1096.37	1096.59	1095.83				LINE 00.00 - 3+600.00 EET 3 OF 5
1.50	1.50	1.50	1.50	1.50	1.50	1.50		Designed by:		Drawn by: A.M.M
1	88.80					:26:2		Checked by: Scale: 1:10	00	Approved by: D.N.M Date: DEC 2023
	100.00					·===		DRG No.	1/14/OF	
		100					200m	DRG NO.	KWSF	P/IR-SMKDL/03

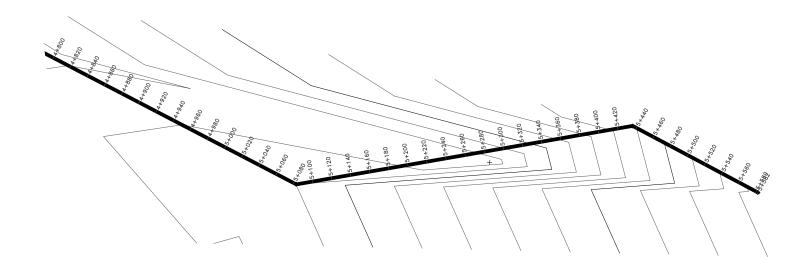
- NOTES: 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:

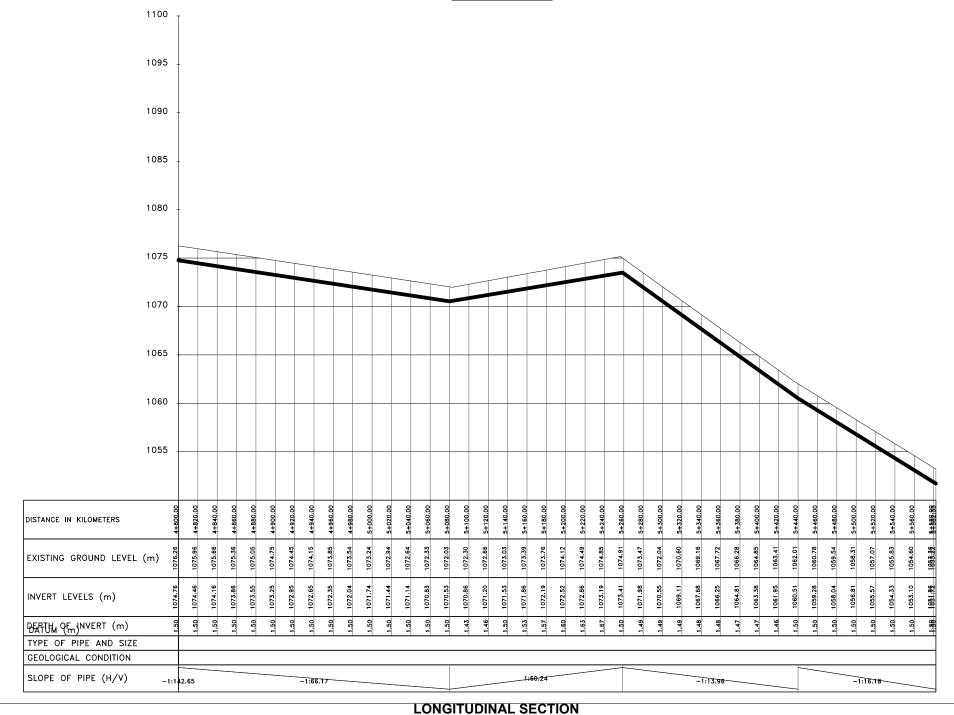
PROPOSED TREATED WATER GRAVITY MAIN

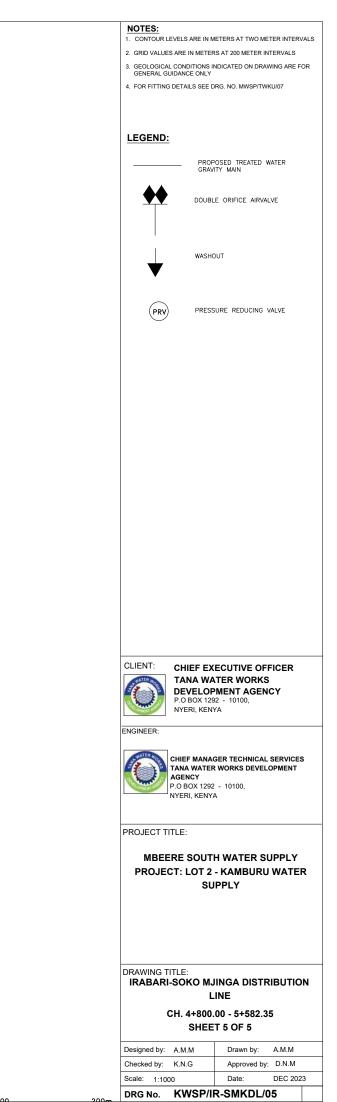


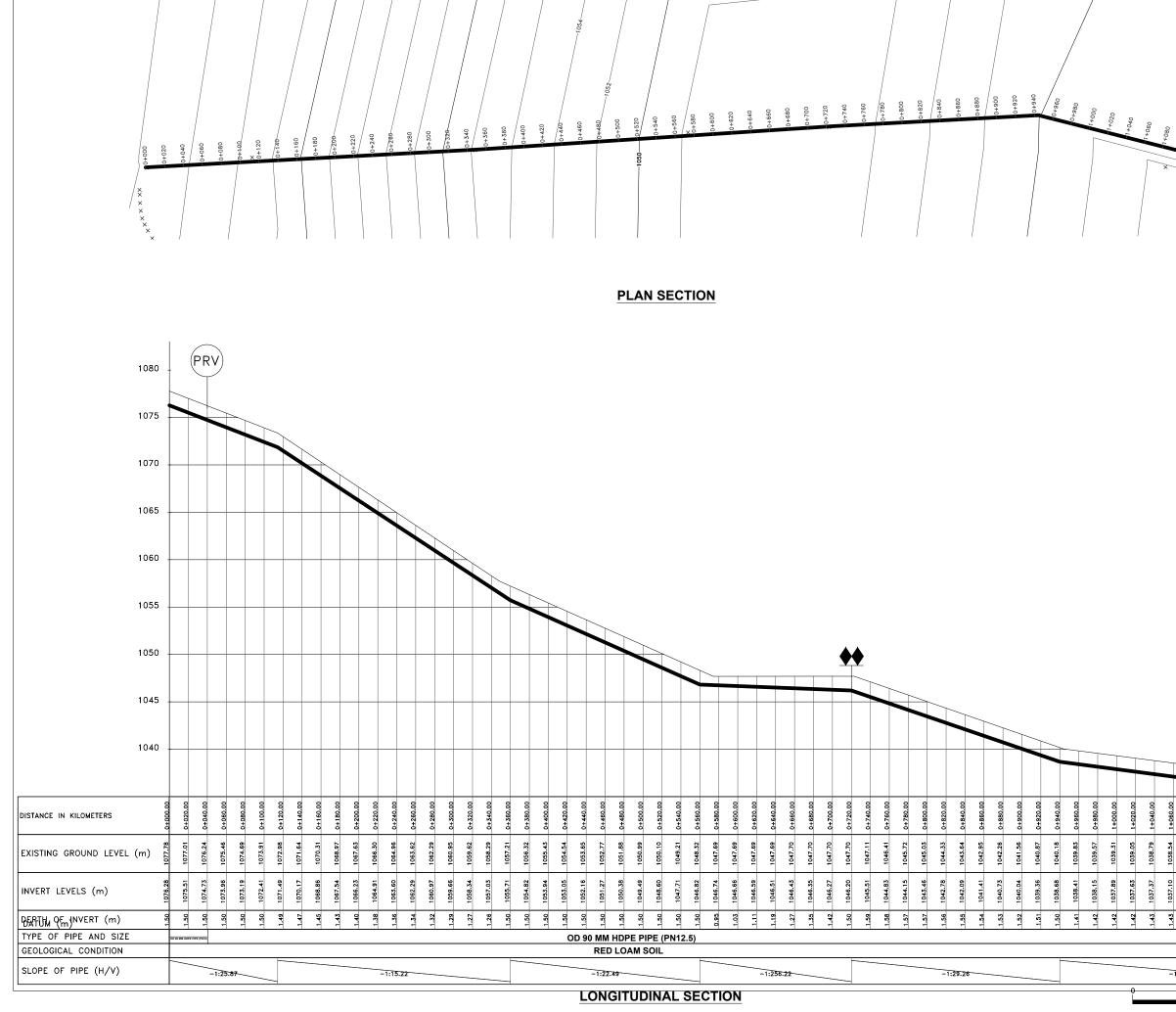


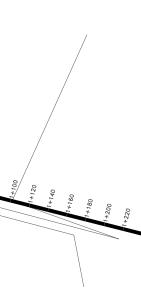


PLAN SECTION









- 1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

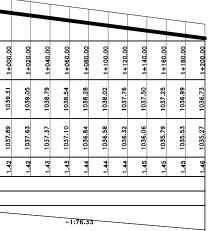
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MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

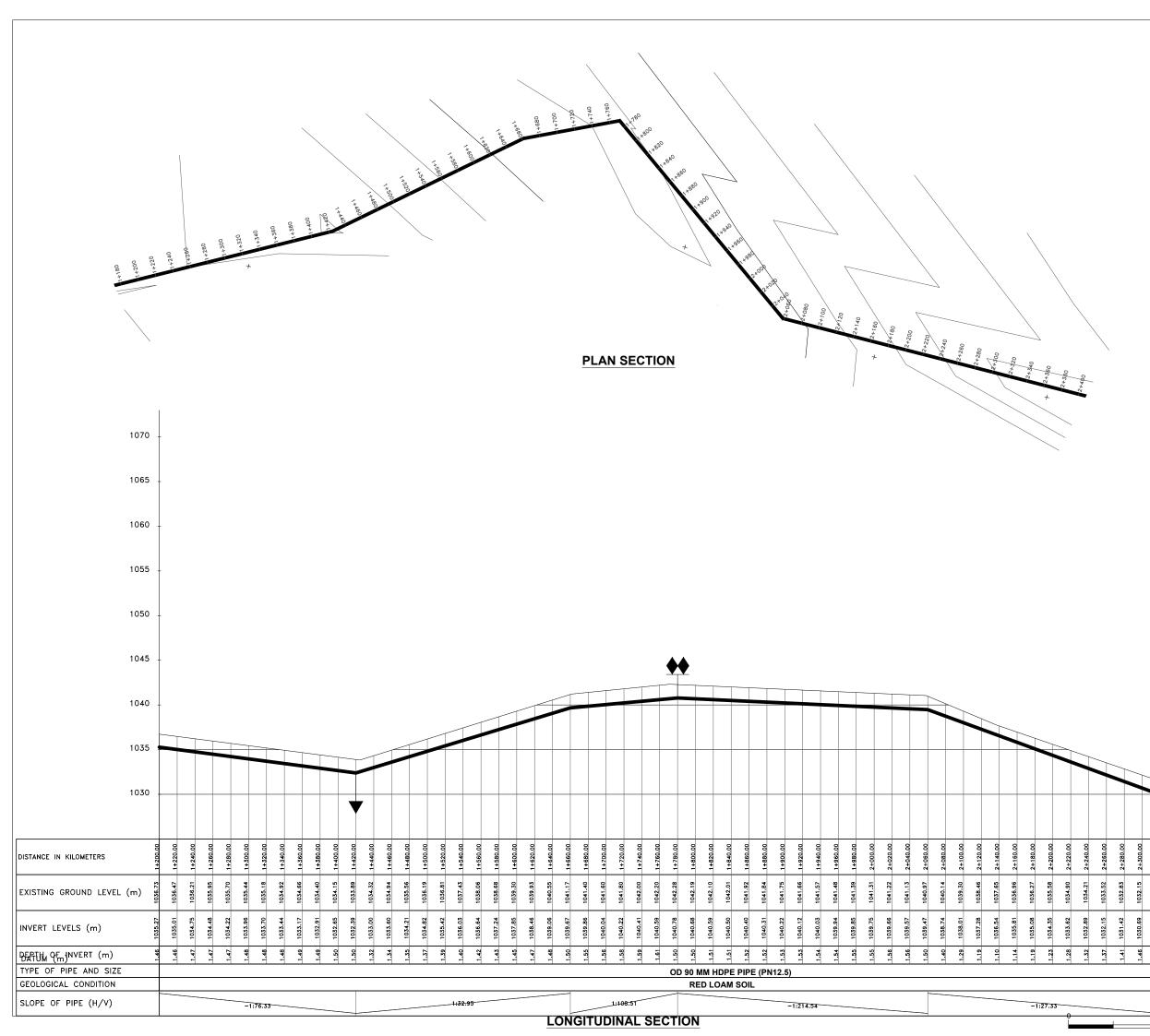
DRAWING TITLE: IGUMORI-MATHIGIRA KENDA DISTRIBUTION LINE

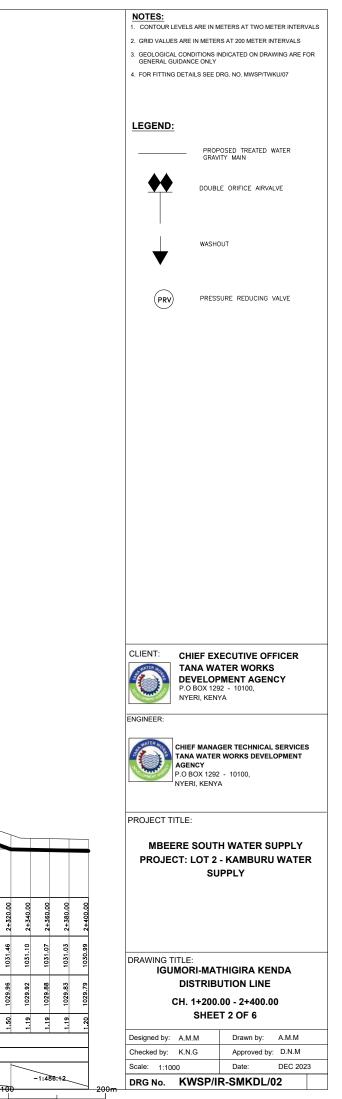
CH. 0+000.00 - 1+200.00 SHEET 1 OF 6

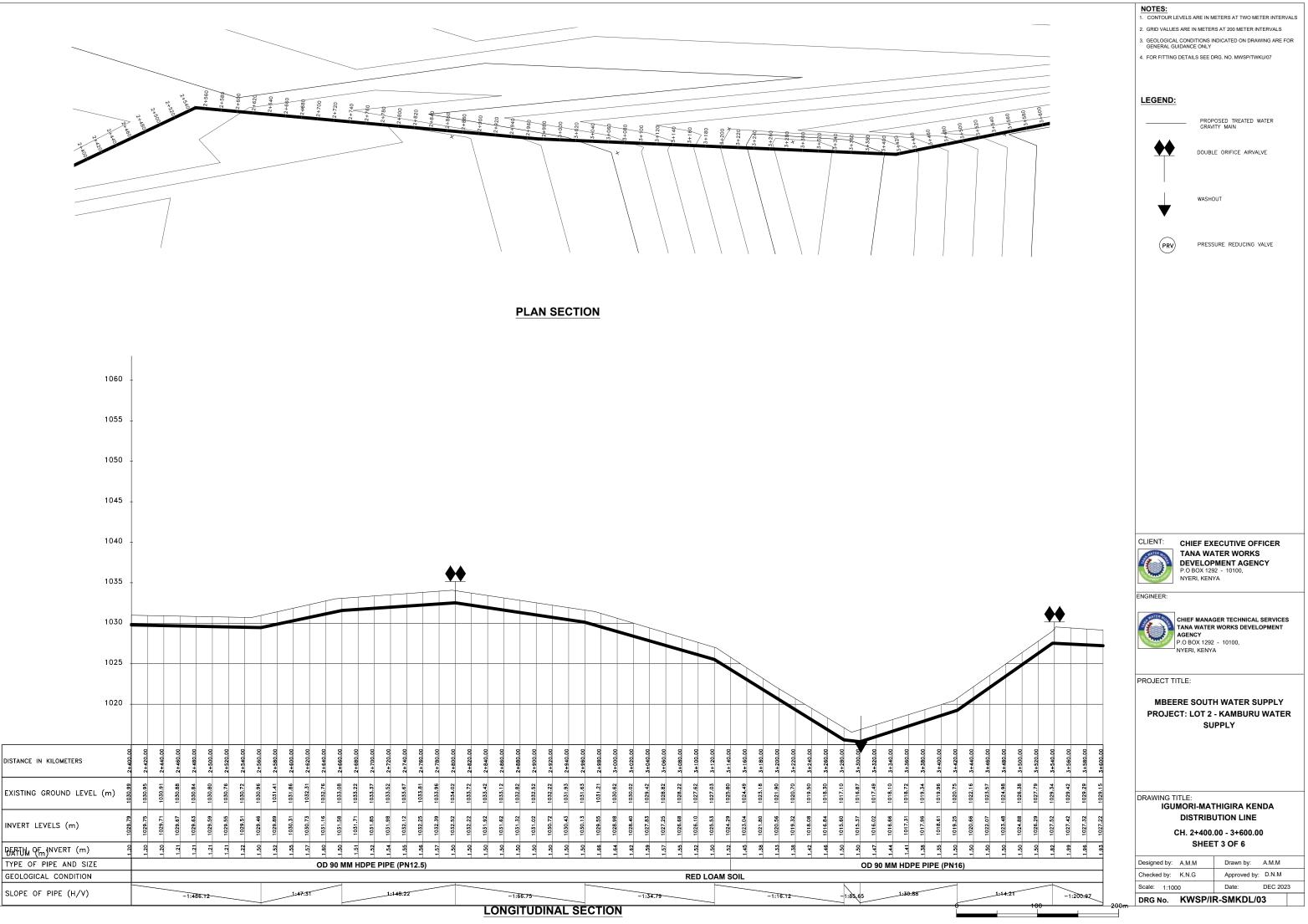
Designed by: A.M.M Checked by: K.N.G	Drawn by: A.M.M Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023
DRG No. KWSP/I	R-SMKDL/01

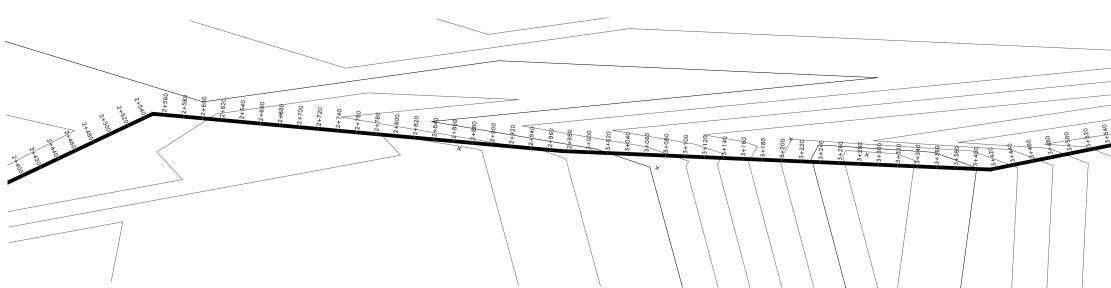


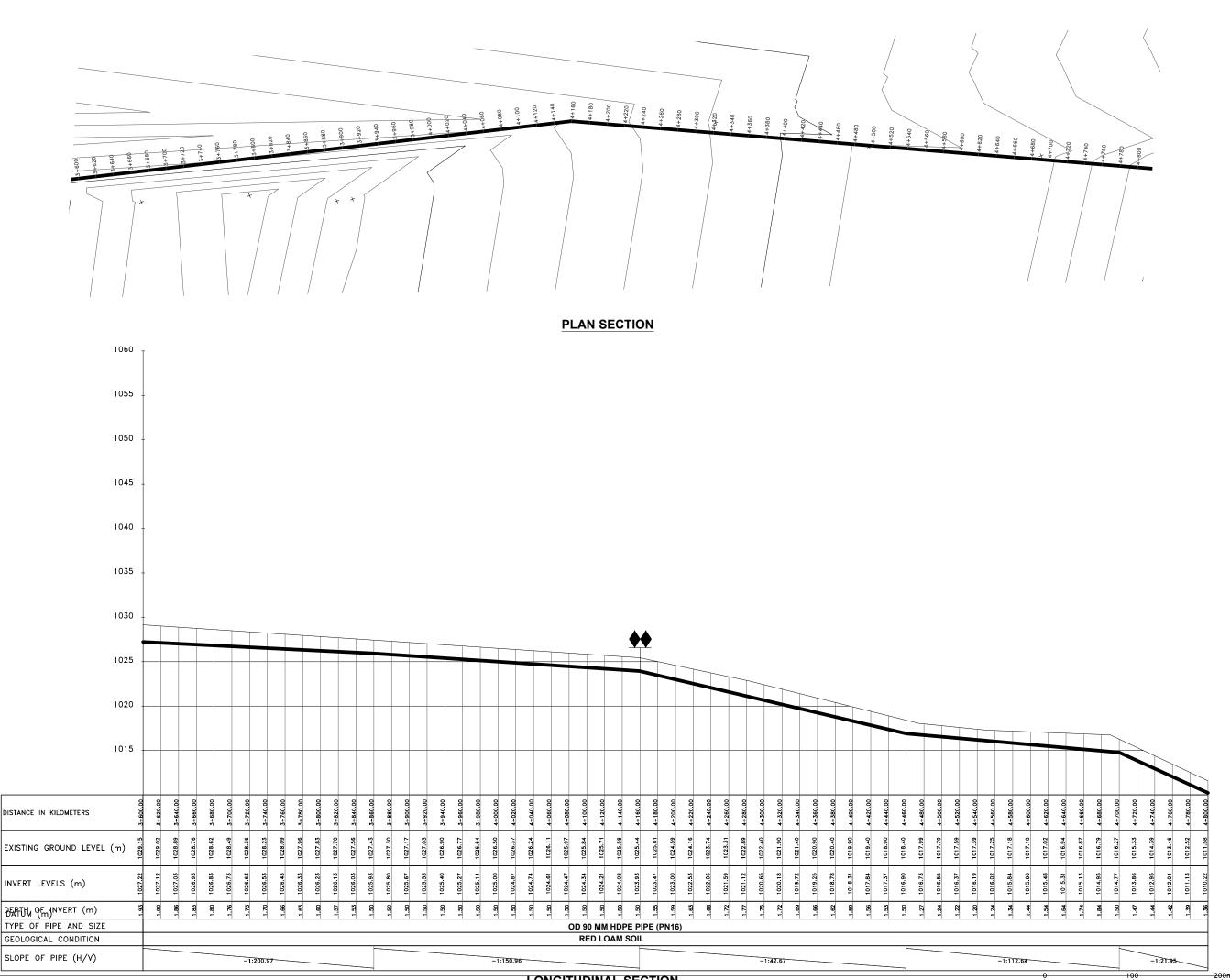
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- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:



PROPOSED TREATED WATER GRAVITY MAIN

DOUBLE ORIFICE AIRVALVE

WASHOUT



PRESSURE REDUCING VALVE



CHIEF EXECUTIVE OFFICER TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

ENGINEER



CHIEF MANAGER TECHNICAL SERVICES TANA WATER WORKS DEVELOPMENT AGENCY P.O BOX 1292 - 10100, NYERI, KENYA

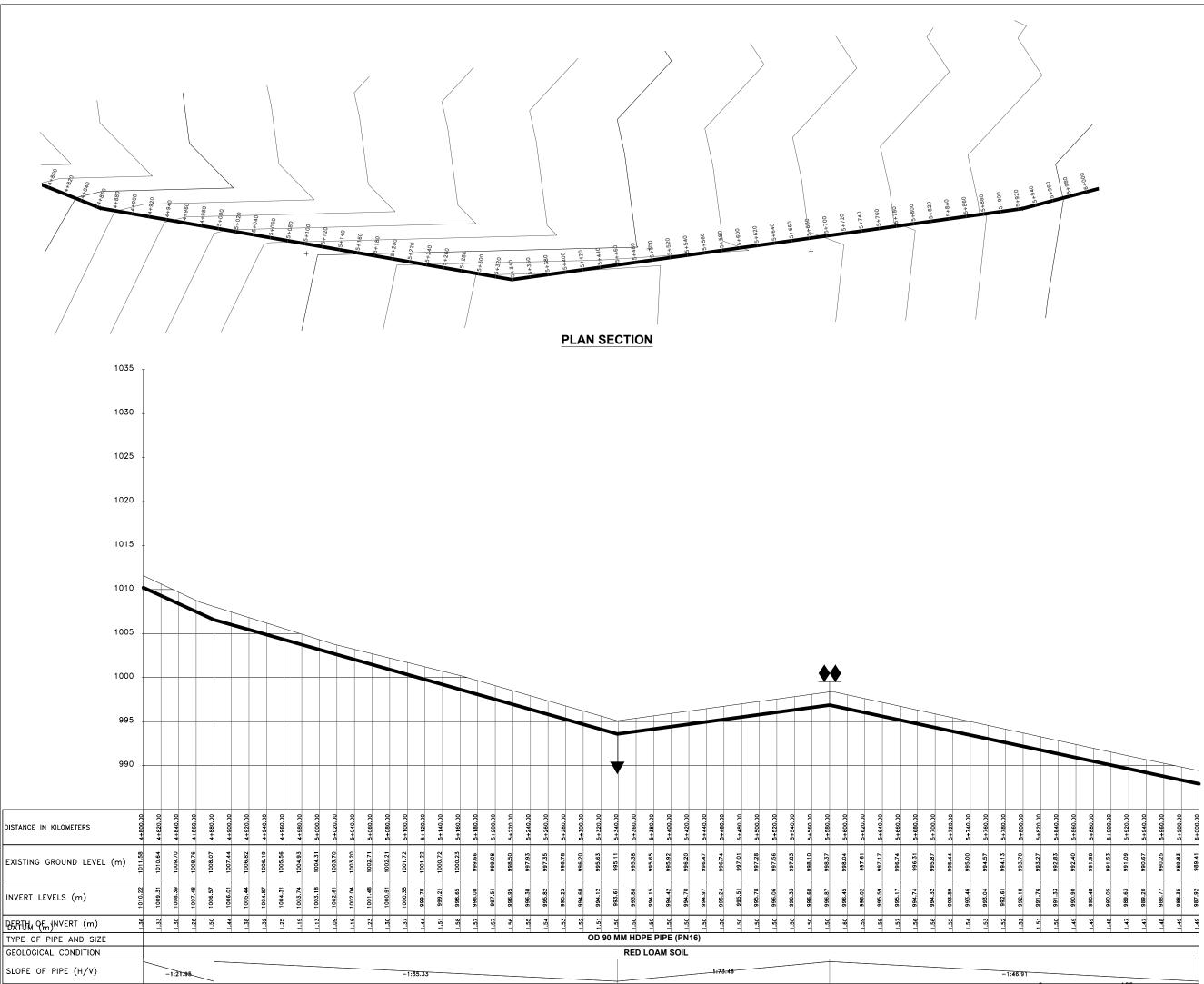
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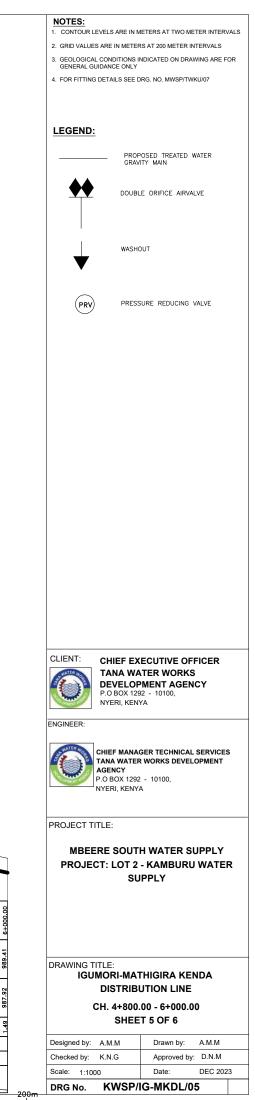
MBEERE SOUTH WATER SUPPLY PROJECT: LOT 2 - KAMBURU WATER SUPPLY

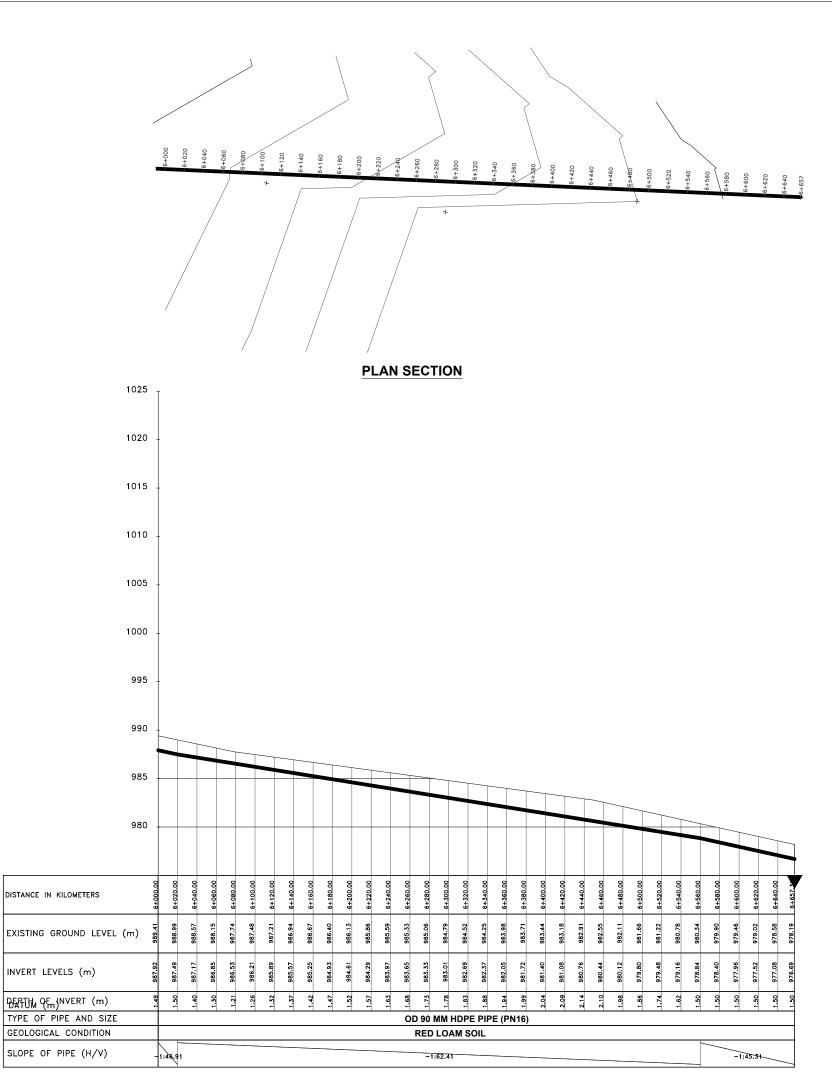
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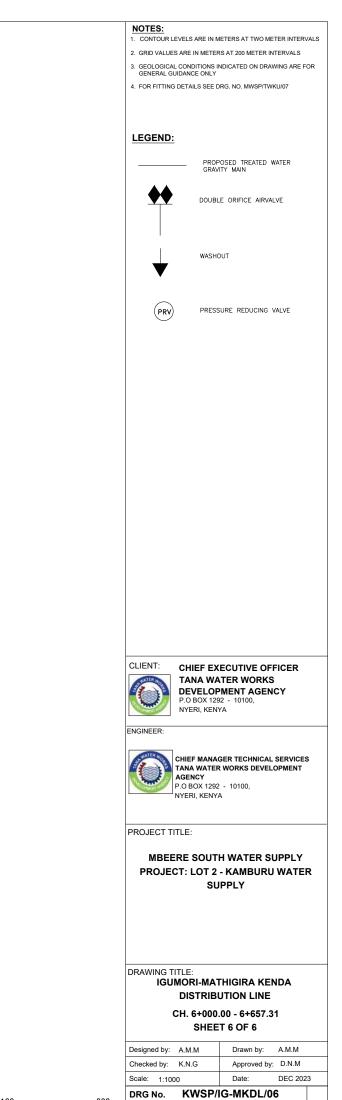
CH. 3+600.00 - 4+800.00 SHEET 4 OF 6

Checked by: K.N.G	Approved by: D.N.M
Scale: 1:1000	Date: DEC 2023 G-MKDL/04









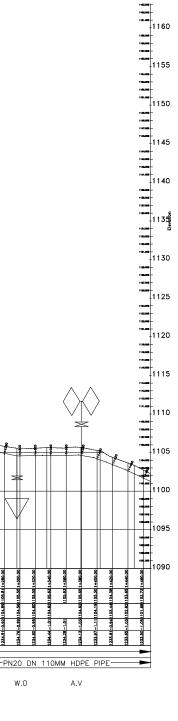
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1160 1210 1210 1205 1200 1195 1190 CH. 0+320.00 1185 1180 1130 1180 1175 1120 1170 1120 1170 1988 1988 1988 1987 1987 1170 1165 1115 1165 1968.000-1968.000-1968.000-1110 1160 1160 1128.000 1105 115 1105 115 1155 ¥ 1100 1150 1150 1148.000 1148.000 1147.000 .17 1145 1095 11 ****** ***** DISTANCE DATUM (m) GROUND LEVELS (m) 38.5 INVERT LEVELS(m) 186.27 DEPTH FROM GROUND LEVEL TO INVERT LEVEL (m) 0.991 0.82 HGL(m) FLOW DATA TYPE OF PIPE AND SIZE 211.6 1239.48 -0.00M3/S PN12.5 DN 110MM HDPE PIPE PN16 DN 110MM HDPE PIPE NGANDURE TO GREEN HOUSE SCALE: HOR 1:2000 VERT 1:1000 NGANDURE TO GREEN HOUSE SCALE: HOR 1:2000 VERT 1:1000 NGANDURE TO GREEN HOUSE SCALE: HOR 1:2000 VERT 1:1000 A.V W.0

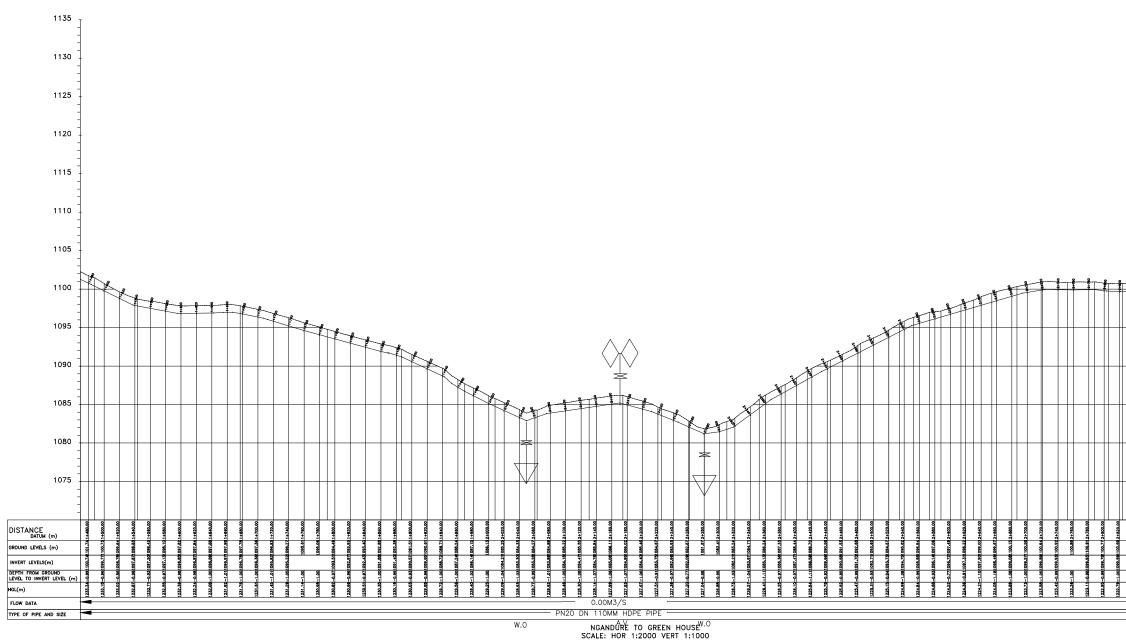
PLAN

LONGITUDINAL SECTION OF NGANDURI TO GREEN HOUSE DISTRIBUTION LINE

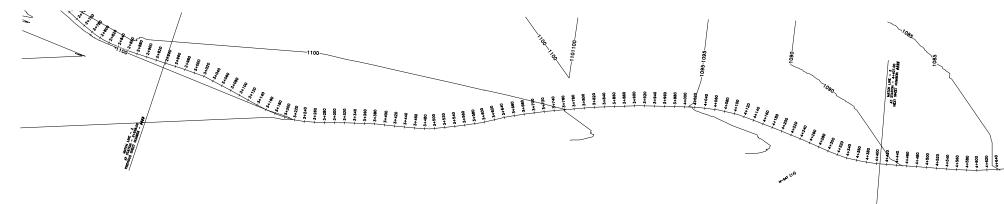
	NOTES					
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6.	CUNCRET					
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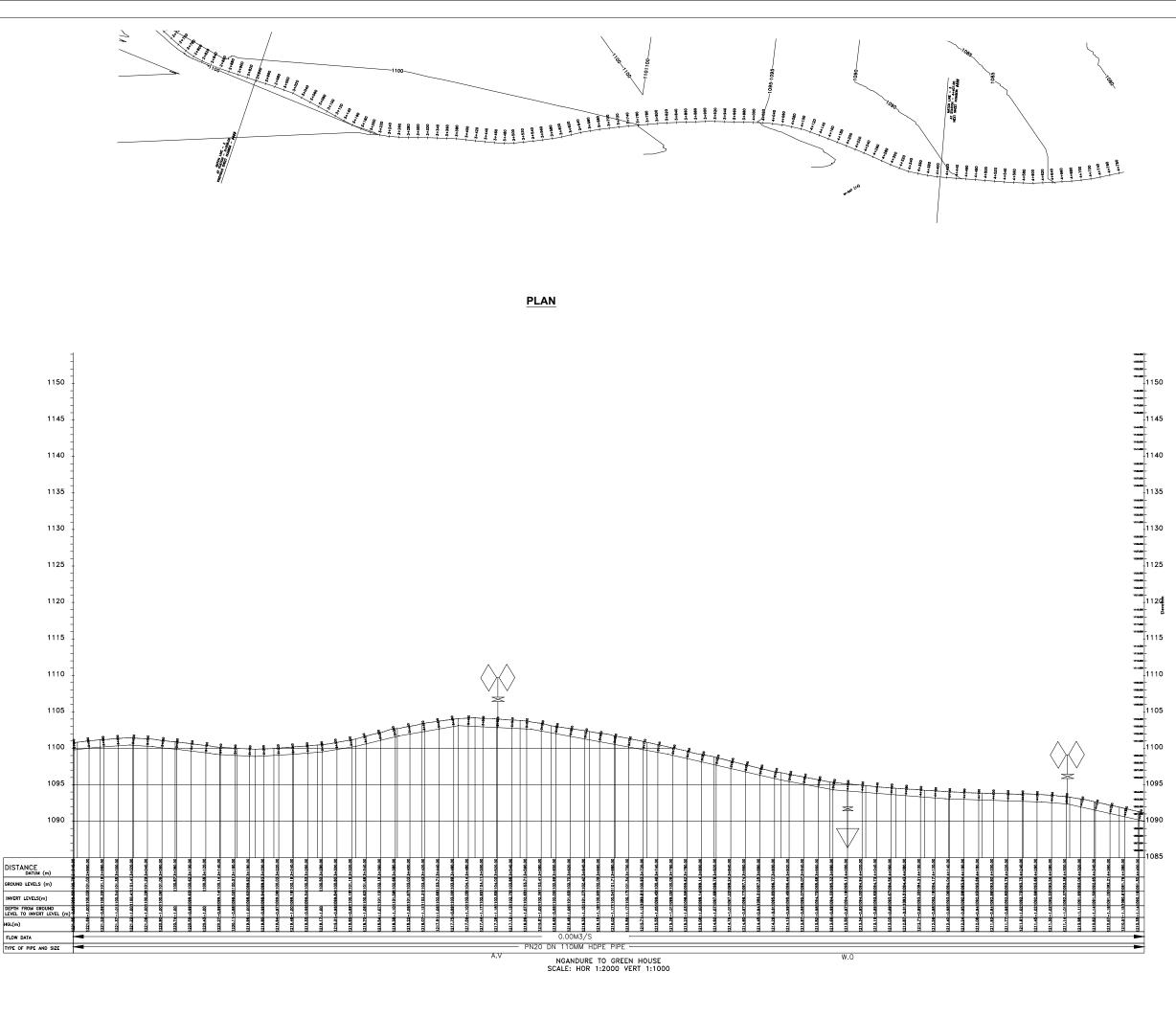


PLAN



	NOTES
	1. ALL LEVELS ARE IN METERS ABOVE SEA
	2. COORDINATES ARE BASED ON UTM.
	3. LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
	4. GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
	5. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
	6. ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
	7. IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.
	LEGEND: - proposed pipeline
	- EXISTING GROUND PROFILE
_1135	- AIR VALVE
113456 - 113556 - 113556 -	DAV – DOUBLE AIR VALVE
19800 - 11130	U VASHOUT
112700 - 11125	WO2 - WASHOUT TYPE 2
- 1123 	DN – NOMINAL DIAMETER
	PN – NOMINAL PRESSURE
-1120	
11800 - 117300 -	HB – HORIZONTAL BEND
-1115	- EXISTING STRUCTURE
1114400	ER – EARTH ROAD GR – GRAVEL ROAD
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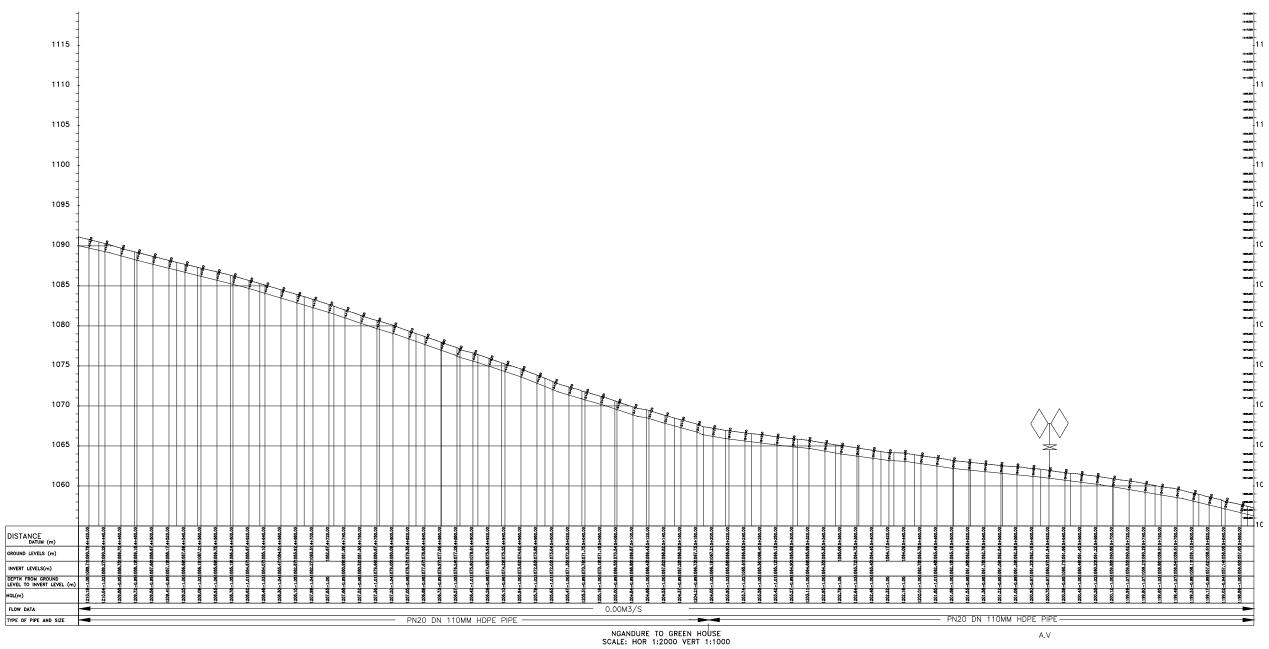


LONGITUDINAL SECTION OF NGANDURI TO GREEN HOUSE DISTRIBUTION LINE

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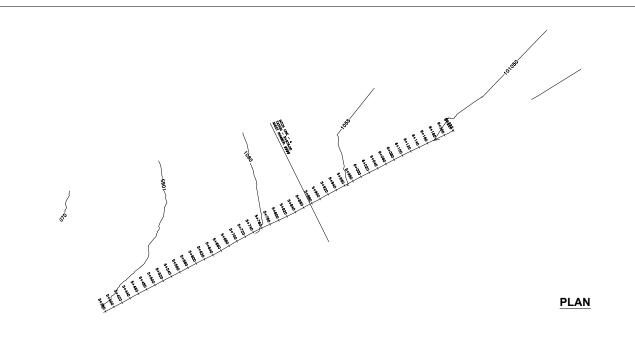
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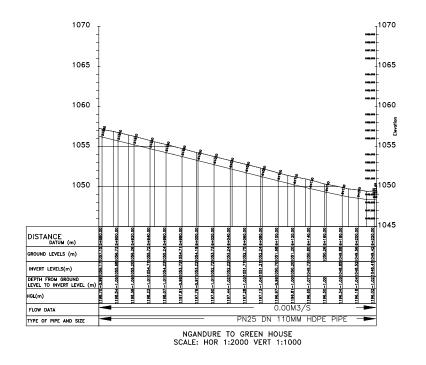
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LONGITUDINAL SECTION OF NGANDURI TO GREEN HOUSE DISTRIBUTION LINE

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LONGITUDINAL SECTION OF NGANDURI TO GREEN HOUSE DISTRIBUTION LINE

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