



CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT(ESIA)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR;

CONTRACT NO. KE-WSTF-332741-CS-QCBS

WAJIR COUNTY

FINAL DETAILED DESIGN

VOLUME III: BOOK OF DRAWINGS - LOT3

JUNE 2025

DRAWINGS SCHEDULE

DRAWING No. TITLE

	GENERAL
GW4R-WJR-LOT3-PP-00-01.	LIST OF DRAWINGS - SHEET 1
GW4R-WJR-LOT3-PP-00-02.	LIST OF DRAWINGS - SHEET 2
	1 - DADAJABULA RWSS
GW4R-WJR-LOT3-PP-01-01.	GENERAL LAYOUT - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-01-02.01	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-01-02.02	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-01-03.01	RISING MAIN (RM-02) - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-01-03.02	RISING MAIN (RM-02) - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-01-04.01	DL-01 - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-01-04.02	DL-01 - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-01-05.01	DL-02 - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-01-05.02	DL-02 - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-01-06.	DL-03 - PLAN AND PROFILE - SHEET OF
GW4R-WJR-LOT3-PP-01-07.	DL-05 - PLAN AND PROFILE - SHEET OF
GW4R-WJR-LOT3-PP-01-08.01	DL-06 - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-01-08.02	DL-06 - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-01-09.01	DL-07 - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-01-09.02	DL-07 - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-01-10.	DL-08 - PLAN AND PROFILE - SHEET OF
GW4R-WJR-LOT3-PP-01-11.	DL-09 - PLAN AND PROFILE - SHEET OF
GW4R-WJR-LOT3-PP-01-12.	DL-10 - PLAN AND PROFILE - SHEET OF
	2 - RIBA RWSS
GW4R-WJR-LOT3-PP-02-01.	GENERAL LAYOUT - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-02-02.	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-02-03.01	DL-02 - PLAN AND PROFILE - SHEET 1 OF 3
GW4R-WJR-LOT3-PP-02-03.02	DL-02 - PLAN AND PROFILE - SHEET 2 OF 3
GW4R-WJR-LOT3-PP-02-03.03	DL-02 - PLAN AND PROFILE - SHEET 3 OF 3
GW4R-WJR-LOT3-PP-02-04.01	DL-03 - PLAN AND PROFILE - SHEET 1 OF 3
GW4R-WJR-LOT3-PP-02-04.02	DL-03 - PLAN AND PROFILE - SHEET 2 OF 3
GW4R-WJR-LOT3-PP-02-04.03	DL-03 - PLAN AND PROFILE - SHEET 3 OF 3
GW4R-WJR-LOT3-PP-02-05.01	DL-04 - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-02-05.02	DL-04 - PLAN AND PROFILE - SHEET 2 OF 2
	3 - TESORAI RWSS
GW4R-WJR-LOT3-PP-03-01.	GENERAL LAYOUT - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-03-02.	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-03-03.	DL-01 - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-03-04.	DL-02 - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-03-05.	DL-03 - PLAN AND PROFILE - SHEET 1 OF 1
	4 - HARAGAL RWSS
GW4R-WJR-LOT3-PP-04-01.	GENERAL LAYOUT - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-04-02.01	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-04-01.02	DL-01 - PLAN AND PROFILE - SHEET 1 OF 2

DRAWING No. TITLE

GW4R-WJR-LOT3-PP-04-02.02	DL-01 - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-04-01.02	DL-02 - PLAN AND PROFILE - SHEET 1 OF 2
GW4R-WJR-LOT3-PP-04-02.02	DL-02 - PLAN AND PROFILE - SHEET 2 OF 2
GW4R-WJR-LOT3-PP-04-01.	DL-05 - PLAN AND PROFILE - SHEET 1 OF 1
	5 - MASALALE RWSS
GW4R-WJR-LOT3-PP-05-01.	GENERAL LAYOUT - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-05-02.01	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-05-02.02	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 6
GW4R-WJR-LOT3-PP-05-02.03	RISING MAIN (RM-01) - PLAN AND PROFILE - SHEET 1 OF 6
GW4R-WJR-LOT3-PP-05-04.01	DL-01 - PLAN AND PROFILE - SHEET 1 OF 6
GW4R-WJR-LOT3-PP-05-04.02	DL-01 - PLAN AND PROFILE - SHEET 2 OF 6
GW4R-WJR-LOT3-PP-05-04.03	DL-01 - PLAN AND PROFILE - SHEET 3 OF 6
GW4R-WJR-LOT3-PP-05-04.04	DL-01 - PLAN AND PROFILE - SHEET 4 OF 6
GW4R-WJR-LOT3-PP-05-04.05	DL-01 - PLAN AND PROFILE - SHEET 5 OF 6
GW4R-WJR-LOT3-PP-05-04.06	DL-01 - PLAN AND PROFILE - SHEET 6 OF 6
GW4R-WJR-LOT3-PP-05-05.	DL-03 - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-05-06.	DL-04 - PLAN AND PROFILE - SHEET 1 OF 1
GW4R-WJR-LOT3-PP-05-07.	DL-07 - PLAN AND PROFILE - SHEET 1 OF 1
	STANDARD DRAWINGS
GW4R-WJR-STD-01	TYPICAL SITE LAYOUT PLAN - SHEET 1 OF 1
GW4R-WJR-STD-02.01	ABLUTION BLOCK-FLOOR PLAN,ELEVATION & FOUNDATION DETAILS - SHEET 1 OF 2
GW4R-WJR-STD-02.01	ABLUTION BLOCK-SECTION VIEWS - SHEET 2 OF 2
GW4R-WJR-STD-03.01	OPERATOR'S HOUSE- FLOOR PLAN,ELEVATION & SECTION VIEWS - SHEET 1 OF 2
GW4R-WJR-STD-03.02	OPERATOR'S HOUSE- ROOF PLAN & FOUNDATION DETAILS - SHEET 2 OF 2
GW4R-WJR-STD-05.01	POWER HOUSE-FLOOR PLAN & ELEVATION VIEWS - SHEET 1 OF 2
GW4R-WJR-STD-05.02	POWER HOUSE-FOUNDATION,ROOF PLAN &SECTION VIEWS - SHEET 2 OF 2
GW4R-WJR-STD-06	CHLORINATION HOUSE-PLAN, ELEVATION AND SECTION VIEWS - SHEET 1 OF 1
GW4R-WJR-STD-07.01	GATES DETAILS-ELEVATION AND PLAN - SHEET 1 OF 2
GW4R-WJR-STD-07.02	GATES DETAILS-COLUMN AND HINGE DETAILS - SHEET 2 OF 2
GW4R-WJR-STD-08	CHAIN-LINK FENCE DETAILS-ELEVATION VIEWS&SECTIONS - SHEET 1 OF 1
GW4R-WJR-STD-09.01	WATER KIOSK TYPE 1-FOUNDATION,PLAN & SECTION VIEWS - SHEET 1 OF 2
GW4R-WJR-STD-09.02	WATER KIOSK TYPE 1-ROOF SLAB, REINFORCEMENT DETAILS & ELEVATION - SHEET 2 OF 2
GW4R-WJR-STD-10	WATER KIOSK TYPE 2-PLAN,ELEVATION & SECTION - SHEET 1 OF 1
GW4R-WJR-STD-11.01	THRUST BLOCKS AND ANCHOR BLOCKS-SECTION & ELEVATION - SHEET 1 OF 2
GW4R-WJR-STD-11.02	THRUST BLOCKS AND ANCHOR BLOCKS-PLAN & SECTIONS - SHEET 2 OF 2
GW4R-WJR-STD-12	GATE VALVES,AIR VALVES & WASHOUT VALVES DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-13	METRE CHAMBER DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-14.01	PLANT ROOM-PLAN & SECTIONS - SHEET 1 OF 2
GW4R-WJR-STD-14.02	PLANT ROOM - ELEVATIONS - SHEET 2 OF 2
GW4R-WJR-STD-15	MARKER POST DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-16	ELEVATED STEEL TANK-PLAN,SECTION & VIEWS - SHEET 1 OF 1
GW4R-WJR-STD-17.01	ELEVATED PLASTIC TANK-FRONT & SIDE VIEW - SHEET 1 OF 3
GW4R-WJR-STD-17.02	ELEVATED PLASTIC TANK-FOUNDATION LAYOUT & SECTION VIEWS - SHEET 2 OF 3
GW4R-WJR-STD-17.03	ELEVATED PLASTIC TANK-COLUMN BASE DETAILS - SHEET 3 OF 3
GW4R-WJR-STD-18	50M3 GROUND MASONRY TANK DETAILS - SHEET 1 OF 1

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd,</div> <div>Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India</div> <div>Telephone: +91-7966776800 / +254-714-198-805</div> <div>Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td colspan="2">DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN.. 2025</td><td rowspan="2">2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN.. 2025</td><td rowspan="2"></td><td></td><td>Checked</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN.. 2025</td><td rowspan="2"></td><td></td><td>Checked</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN.. 2025</td><td rowspan="2"></td><td></td><td>Checked</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>By</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN		By				Designed by:	M.J	JUN.. 2025	2	FINAL DETAILED DESIGN		Checked					By				Drawn by:	J.K	JUN.. 2025			Checked						By				Checked by:	W.O	JUN.. 2025			Checked						By				Approved by:	D.L	JUN.. 2025			Checked						By				<div>DRAWING TITLE:</div> <div>WAJIR COUNTY</div> <div>DRAWINGS SCHEDULE</div> <div>PLANS AND PROFILES</div> <div>SHEET 1</div>
			DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved																																																																									
			Action	Name	Date	1	DRAFT DETAILED DESIGN		By																																																																												
			Designed by:	M.J	JUN.. 2025	2	FINAL DETAILED DESIGN		Checked																																																																												
								By																																																																													
			Drawn by:	J.K	JUN.. 2025			Checked																																																																													
								By																																																																													
			Checked by:	W.O	JUN.. 2025			Checked																																																																													
								By																																																																													
			Approved by:	D.L	JUN.. 2025			Checked																																																																													
	By																																																																																				
<div>DRAWING SCALE:</div> <div>AS SHOWN</div>	<div>DRAWING No.:</div> <div>GW4R-WJR-LOT2-PP-01</div>																																																																																				

DRAWINGS SCHEDULE

DRAWING No.

TITLE

GW4R-WJR-STD-19.02	CAMEL AND CATTLE WATER TROUGHS-CROSS SECTIONAL ELEVATIONS - SHEET 2 OF 4
GW4R-WJR-STD-19.03	SHOATS WATER TROUGHS-PLAN - SHEET 3 OF 4
GW4R-WJR-STD-19.04	SHOATS WATER TROUGHS-CROSS SECTIONAL ELEATIONS - SHEET 4 OF 4
GW4R-WJR-STD-20	BOREHOLE HEAD, CHAMBER AND FITTING DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-22	PIPE TRENCHES DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-23	RIVER AND LAGHA CROSSINGS DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-24	SOLAR SUPPORT STRUCTURE - SHEET 1 OF 1
GW4R-WJR-STD-25	PROJECT SIGNBOARD - SHEET 1 OF 1
GW4R-WJR-STD-26	PUMP HOUSE-PLAN, SECTION, ELEVATION VIEWS & FOUNDATION DETAILS - SHEET 1 OF 1
GW4R-WJR-STD-27	DRAINAGE CHANNEL - SHEET 1 OF 1
GW4R-WJR-STD-28	RO SCHEMATIC DRAWING - SHEET 1 OF 1

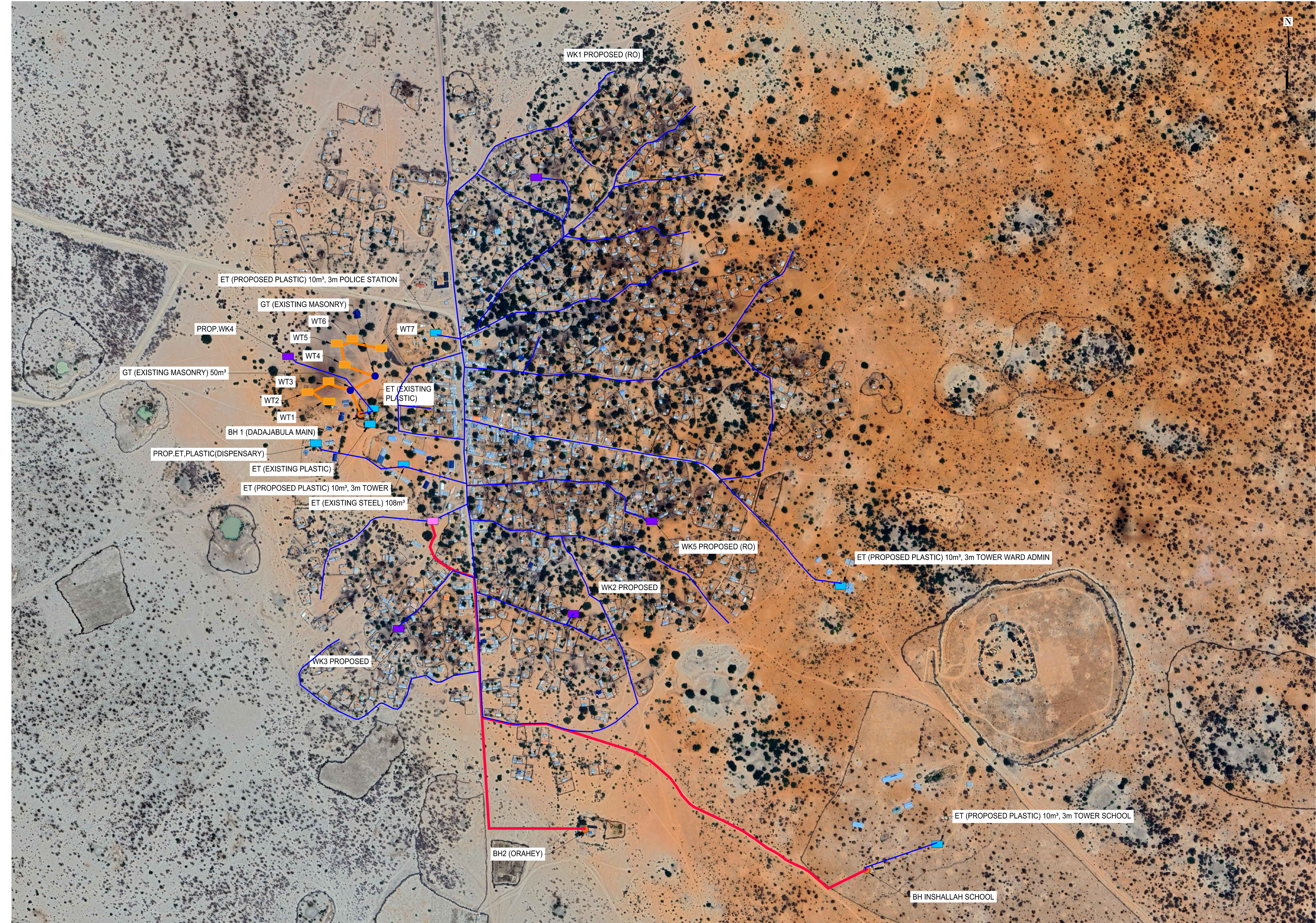
DRAWING No.

TITLE

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK</div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:						
		No.		Revision Details		Reviewed	initials	Date	Approved	DRAWINGS SCHEDULE PLANS AND PROFILES SHEET 2			
		Action		Name	Date	1	DRAFT DETAILED DESIGN	By	Checked				
		Designed by:		M.J	JUN.. 2025	2	FINAL DETAILED DESIGN	By	Checked				
		Drawn by:		J.K	JUN.. 2025			By	Checked				
		Checked by:		W.O	JUN.. 2025			By	Checked				
		Approved by:		D.L	JUN.. 2025			By	Checked				
		Contract No:		KE-WSTF-332741-CS-QCBS					DRAWING SCALE:		DRAWING No.:		
							AS SHOWN		GW4R-WJR-LOT2-PP-02				

PLANS AND PROFILES

DADAJA BULA RWSS - WAJIR



- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div><div><p>WATER SECTOR TRUST FUND</p><p>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div><div><p>THE WORLD BANK GROUP</p></div></div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div><div><p>aarvee associates architects engineers & consultants pvt. ltd.</p></div><div><p>ADVANCED ENGINEERING CONSULTANTS</p></div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:									
			Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	DADAJABULA RWSS - WAJIR		
							DRAFT DETAILED DESIGN								
			Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By					GENERAL LAYOUT PLAN - PROPOSED	
									Checked						
									By						
			Drawn by:	J.K	JUN. 2025				Checked						SHEET 1 OF 1
									By						
									Checked						
			Checked by:	W.O	JUN. 2025				By						
		Checked													
		By													
Approved by:	D.L	JUN. 2025				Checked				DRAWING No.: GW4R-WJR-LOT3-PP-01-01					
						By									
						Checked									

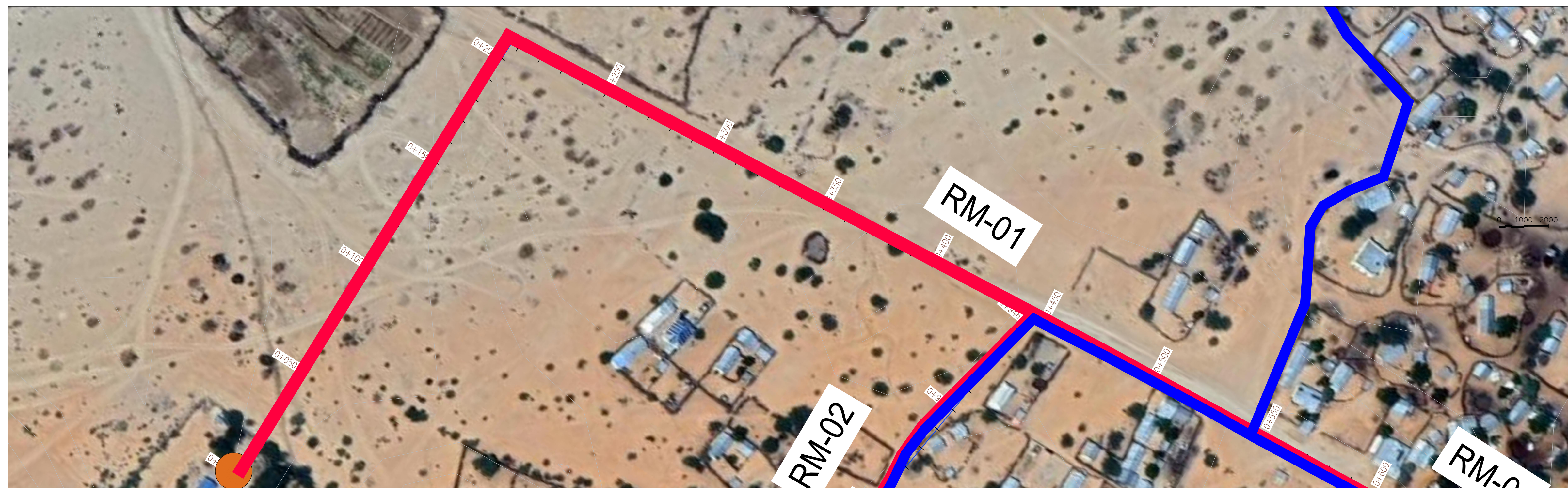


- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

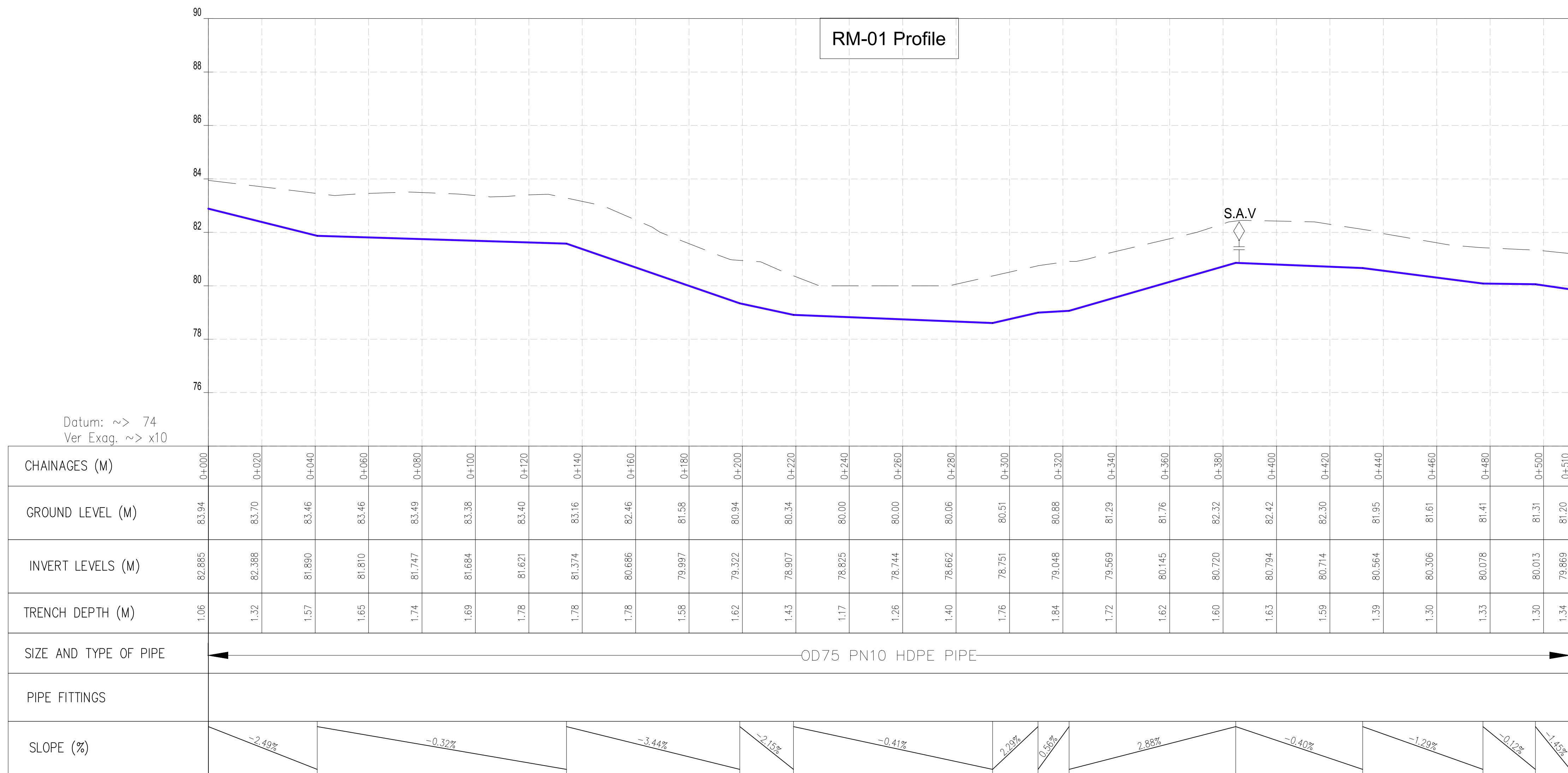
- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div><div></div><div>WATER SECTOR TRUST FUND</div><div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div></div>	<div><div></div><div>THE WORLD BANK GROUP</div></div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div><div></div><div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div></div>	DESIGN DETAILS			DRAWING TITLE:							
		Action		Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	DADAJABULA RWSS - WAJIR	
							DRAFT DETAILED DESIGN							
		Designed by:		M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By					GENERAL LAYOUT
									Checked					
									By					
		Drawn by:		J.K	JUN. 2025			Checked				SHEET 1 OF 1		
								By						
		Checked by:		W.O	JUN. 2025			Checked					DRAWING SCALE: AS SHOWN	
								By						
Approved by:	D.L	JUN. 2025			Checked									
					By									



PLAN
SCALE 1:1250



PROFILE

CLIENT:

**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No.

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with

Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

DESIGN DETAILS			No.	Revision Details	Reviewed	initials	Date	Approved
Action	Name	Date	1	DRAFT DETAILED DESIGN	By			
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By			
Drawn by:	J.K	JUN. 2025			Checked			
Checked by:	W.O	JUN. 2025			By			
Approved by:	D.L	JUN. 2025			Checked			

DRAWING TITLE:

DADAJABULA RWSS - WAJIR

RISING MAIN (RM-01) - PLAN AND PROFILE

CHAINAGE 0+000 - 0+660

SHEET 1 OF 2

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-01-02.01

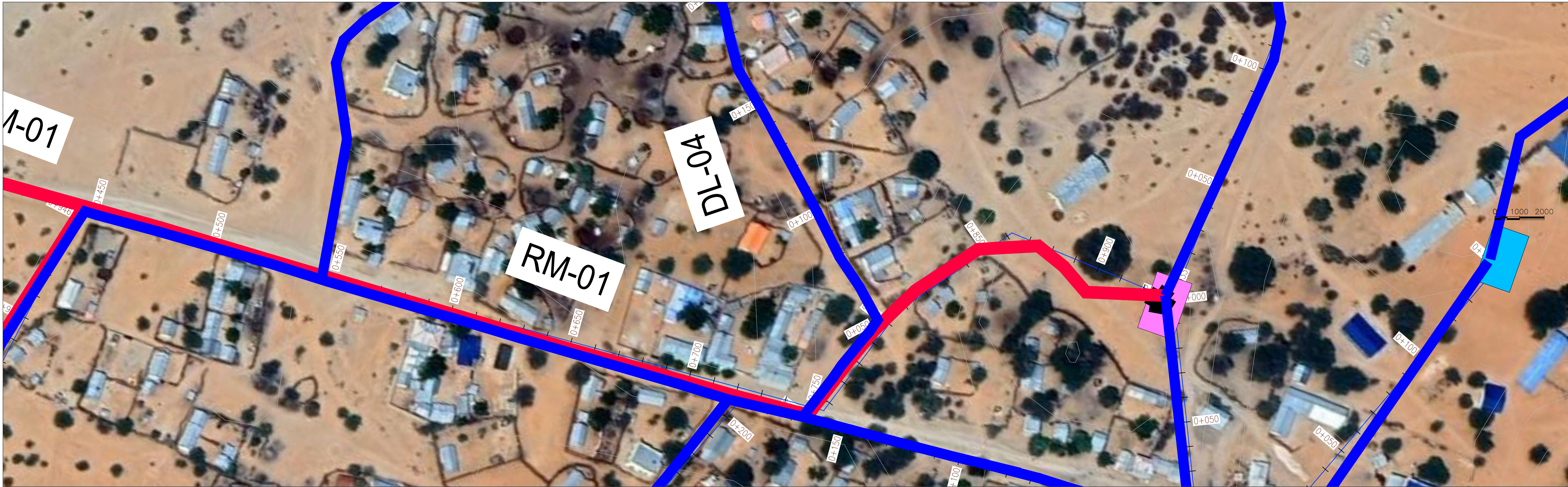
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m And 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE COMPETENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING NO. GIV4R-STD-11.

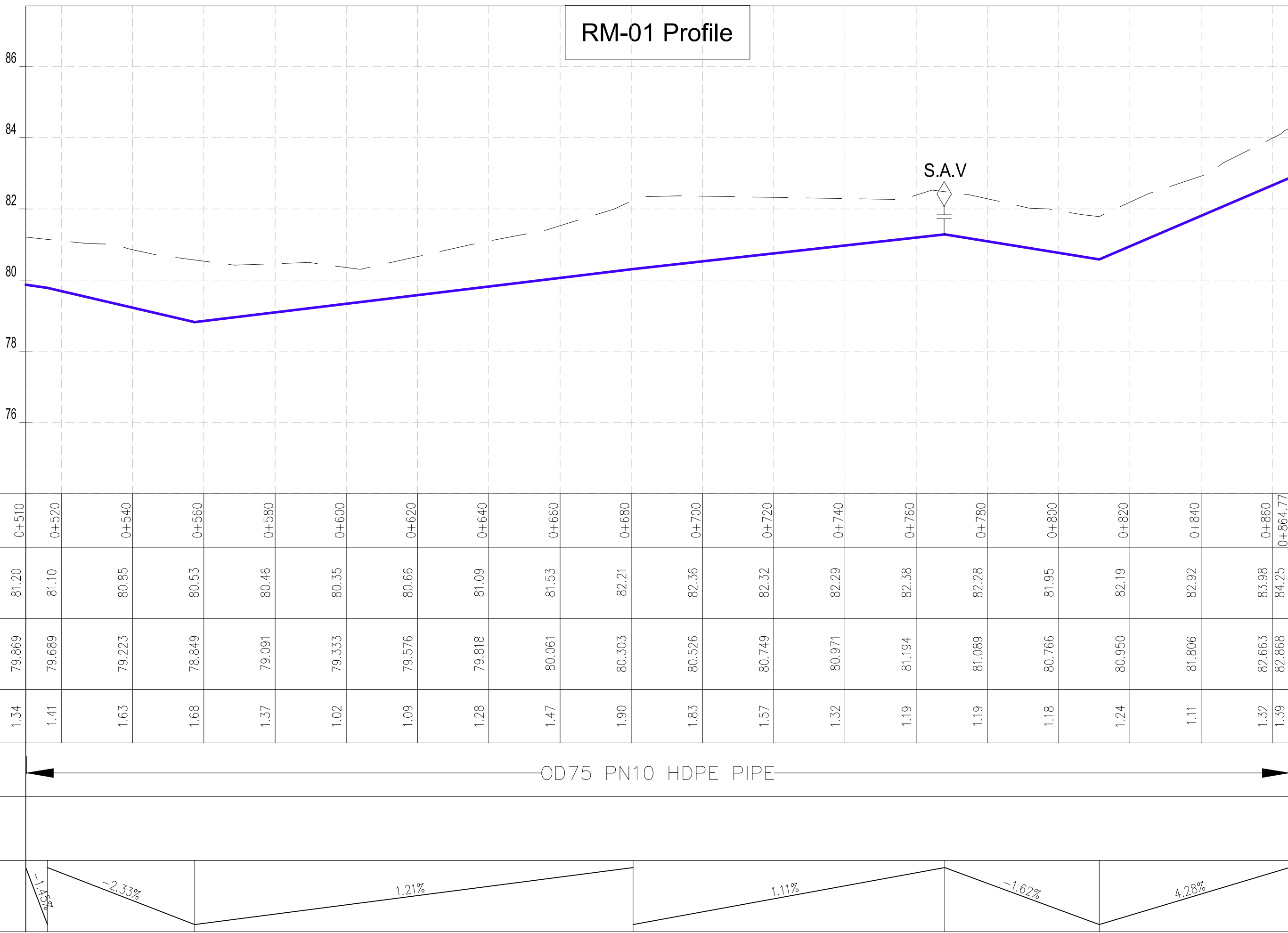
LEGEND:

SP		SOLAR PANEL	
GH		GENERATOR HOUSE	
BH		BOREHOLE	
UT		UNDERGROUND TANK	
GT		GROUND TANK	
ET		ELEVATED TANK, PLASTIC	
SET		STEEL ELEVATED TANK(SET)	
WK-PROP.		WATER KIOSK (PROPOSED)	
WK-EXIST.		WATER KIOSK (EXISTING)	
CH		CHAMBER	
WT-PROP.		WATER TROUGH-PROPOSED	
WT-EXIST.		WATER TROUGH-EXISTING	
			EXISTING PIPELINE
			RISING MAIN
			DISTRIBUTION LINE
			DISTRIBUTION LINE TO WATER TROUGH
			ORIGINAL GROUND LEVEL
			PIPE INVERT LEVEL
			PIPE
			212.50 MAJOR CONTOURS WITH ELEVATION
			212.30 MINOR CONTOURS WITH ELEVATION
OD		OUTSIDE DIAMETER	
	S.A.V.	SINGLE AIR VALVE	
	D.A.V.	DOUBLE AIR VALVE	
	W.O.	WASH OUT	

**COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA**



PLAN
SCALE 1:1250



Datum: ~> 74
Ver Exag. ~> x10

CHAINAGES (M)	0+510	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+864.77
GROUND LEVEL (M)	81.20	81.10	80.85	80.53	80.46	80.35	80.66	81.09	81.53	82.21	82.36	82.32	82.29	82.38	82.28	81.95	82.19	82.92	83.98	84.25
INVERT LEVELS (M)	79.869	79.689	79.223	78.849	79.091	79.333	79.576	79.818	80.061	80.303	80.526	80.749	80.971	81.194	81.089	80.766	80.950	81.806	82.663	82.868
TRENCH DEPTH (M)	1.34	1.41	1.63	1.68	1.37	1.02	1.09	1.28	1.47	1.90	1.83	1.57	1.32	1.19	1.19	1.18	1.24	1.11	1.32	1.39
SIZE AND TYPE OF PIPE	OD75 PN10 HDPE PIPE																			
PIPE FITTINGS																				
SLOPE (%)	-2.33% 1.21% 1.11% -1.62% 4.28%																			

PROFILE

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



WATER SECTOR
TRUST FUND

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



THE WORLD
BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with

Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com



DESIGN DETAILS

Action	Name	Date	No.	Revision Details				
				Reviewed	Initials	Date	Approved	
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	By			
				Checked	By			
Drawn by:	J.K	JUN. 2025	2	FINAL DETAILED DESIGN	By			
				Checked	By			
Checked by:	W.O	JUN. 2025			By			
				Checked	By			
Approved by:	D.L	JUN. 2025			By			
				Checked	By			

DRAWING TITLE:

DADAJABULA RWSS - WAJIR

RISING MAIN (RM-01) - PLAN AND PROFILE

CHAINAGE 0+000 - 0+660

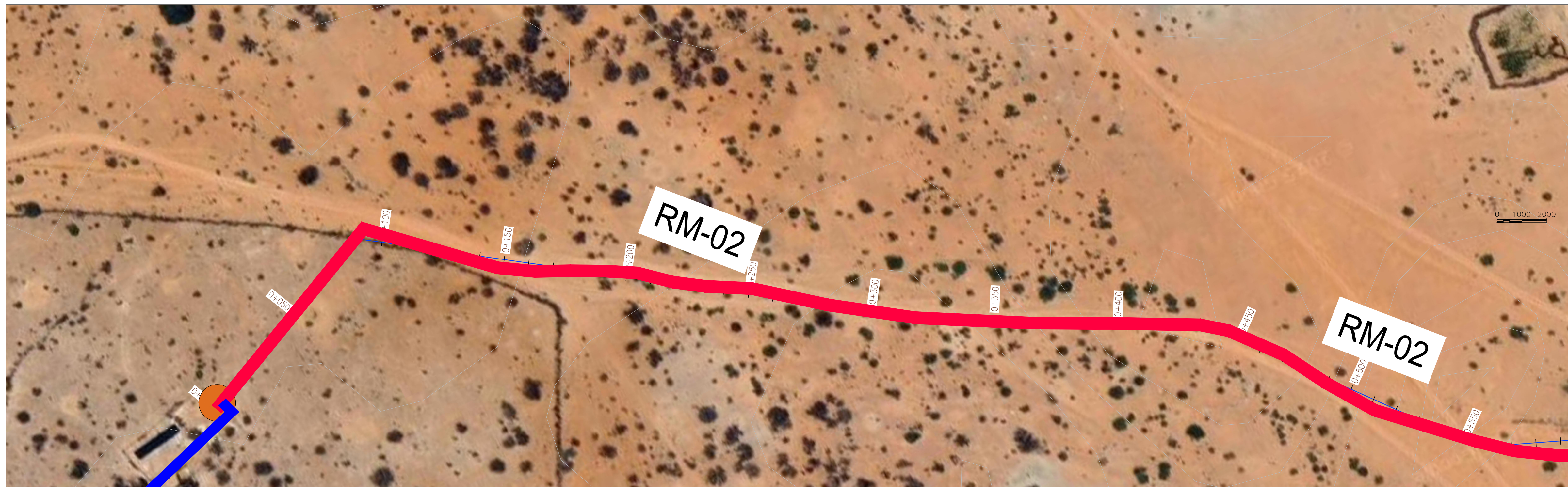
SHEET 2 OF 2

DRAWING SCALE:

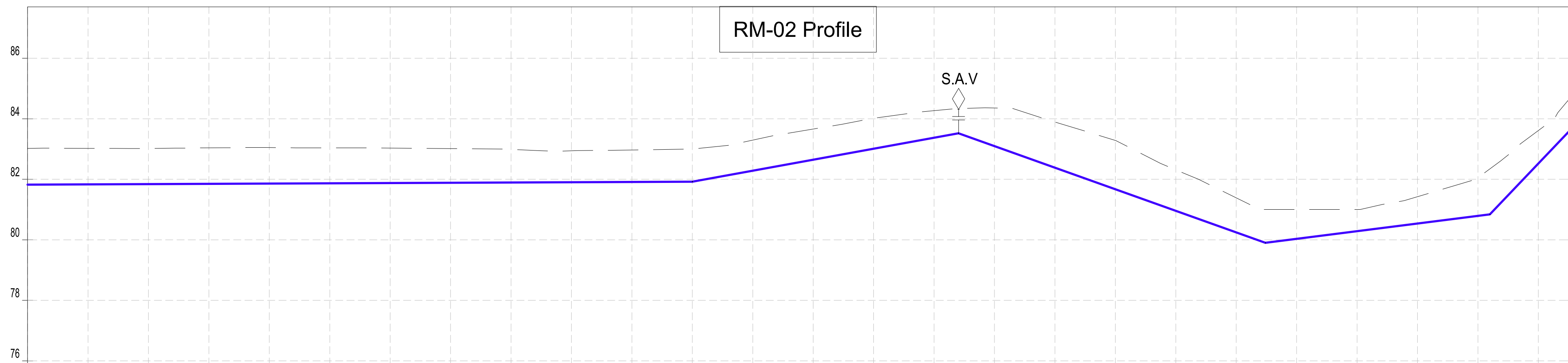
AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-01-02.01



PLAN
SCALE 1:1250



Datum: $\sim > 74$
Ver Exag. $\sim > x10$

[illegible]

PROFILE

CLIENT:

**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:

 THE WORLD BANK

**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with

Advanced Engineering Consultants Ltd,
 Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
 Telephone: +91-7966776800 / +254-714-198-805
 Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	REVISION DETAILS	REVIEWED	INITIALS	DATE	APPROVED
Designed by:	M.J	JUN. 2025	2	DRAFT DETAILED DESIGN	By			
					Checked			
				FINAL DETAILED DESIGN	By			
Drawn by:	J.K	JUN. 2025			By			
					Checked			
					By			
Checked by:	W.O	JUN. 2025			By			
					Checked			
					By			
Approved by:	D.L	JUN. 2025			By			
					Checked			
					By			

DRAWING TITLE:

DADAJABULA RWSS - WAJIR

RISING MAIN (RM-02) - PLAN AND PROFILE

CHAINAGE 0+000 - 0+510

SHEET 1 OF 2

DRAWING SCALE:

AS SHOWN

























DRAWING No.:

GW4R-WJR-LOT3-PP-01-03.01

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m and 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. THE SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ON SITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING NO. GW4R-STD-11.

LEGEND:

SP		SOLAR PANEL	
GH		GENERATOR HOUSE	
BH		BOREHOLE	
UT		UNDERGROUND TANK	
GT		GROUND TANK	
ET		ELEVATED TANK, PLASTIC	
SET		STEEL ELEVATED TANK(SET)	
WK-PROP.		WATER KIOSK (PROPOSED)	
WK-EXIST.		WATER KIOSK (EXISTING)	
CH		CHAMBER	
WT-PROP.		WATER TROUGH-PROPOSED	
WT-EXIST.		WATER TROUGH-EXISTING	
			EXISTING PIPELINE
			RIISING MAIN
			DISTRIBUTION LINE
			DISTRIBUTION LINE TO WATER TROUGH
			ORIGINAL GROUND LEVEL
			PIPE INVERT LEVEL
			PIPE
			MAJOR CONTOURS WITH ELEVATION
			MINOR CONTOURS WITH ELEVATION
OD		OUTSIDE DIAMETER	
	S.A.V.	SINGLE AIR VALVE	
	D.A.V.	DOUBLE AIR VALVE	
	W.O.	WASH OUT	

**COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA**



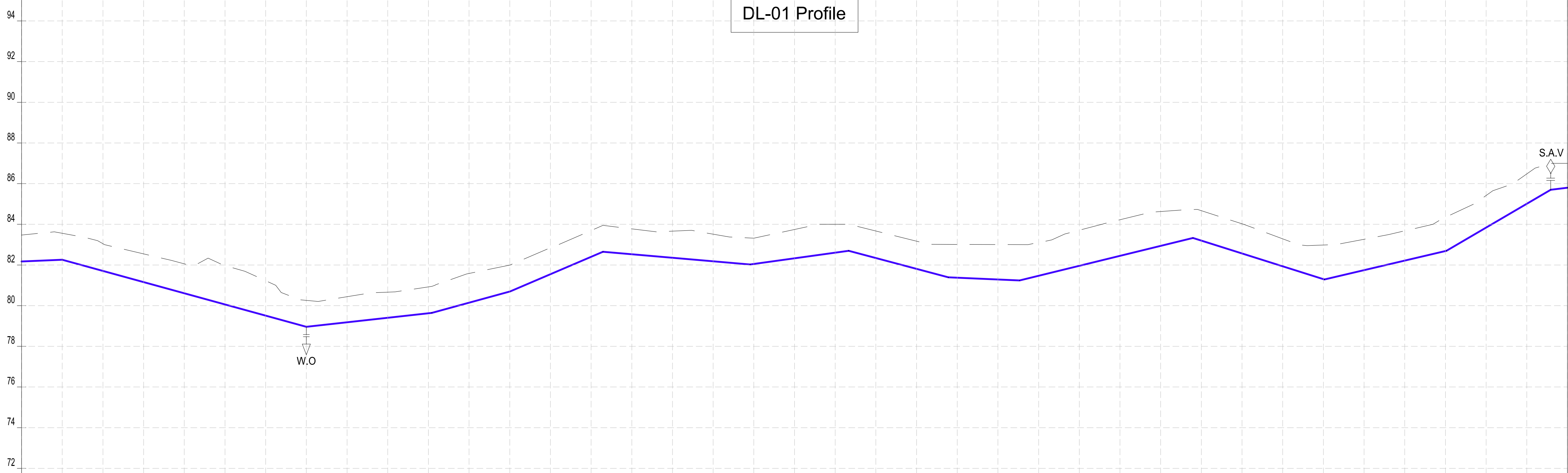
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--|--------------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | 212.50 MAJOR CONTOURS WITH ELEVATION |
| | | 212.30 MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |

DL-01 Profile



Datum: ~> 70
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760																							
GROUND LEVEL (M)	83.47	83.56	83.05	82.55	82.06	81.97	81.23	80.26	80.44	80.67	80.92	81.58	82.00	82.85	83.70	83.78	83.66	83.52	83.32	83.75	84.00	83.67	83.17	83.01	83.01	83.10	83.71	84.22	84.63	84.67	84.02	83.28	82.98	83.27	83.68	84.35	85.42	86.48	87.00																							
INVERT LEVELS (M)	82.171	82.259	81.709	81.160	80.610	80.061	79.511	78.962	79.184	79.406	79.628	80.148	80.696	81.547	82.400	82.526	82.354	82.182	82.053	82.330	82.608	82.342	81.808	81.373	81.287	81.470	81.960	82.449	82.939	83.196	82.566	81.935	81.305	81.748	82.219	82.689	83.842	85.012	85.800																							
TRENCH DEPTH (M)	1.30	1.30	1.34	1.39	1.45	1.91	1.71	1.30	1.26	1.26	1.29	1.43	1.30	1.30	1.30	1.25	1.31	1.34	1.26	1.42	1.39	1.33	1.36	1.64	1.72	1.63	1.75	1.78	1.69	1.47	1.46	1.35	1.68	1.52	1.46	1.66	1.58	1.47	1.20																							
SIZE AND TYPE OF PIPE	OD75 PN10 HDPE PIPE																																																													
PIPE FITTINGS																																																														
SLOPE (%)	0.44%	-2.75%					1.11%					2.74%					4.27%					-0.86%					1.39%					-2.67%					-0.43%					2.45%					-3.15%					2.35%					5.85%					7.71%

PROFILE

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div><div>CLIENT:</div><div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div></div>	<div><div>FINANCIER:</div><div> THE WORLD BANK GROUP</div></div>	<div><div>PROJECT:</div><div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div><div><div>Contract No:</div><div>KE-WSTF-332741-CS-QCBS</div></div></div>	<div><div>CONSULTANT:</div><div><div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div><div></div></div></div>	DESIGN DETAILS			DRAWING TITLE: DADAJABULA RWSS - WAJIR							
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	
								DRAFT DETAILED DESIGN						
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By	Checked			
				Drawn by:	J.K	JUN. 2025				By	Checked			
				Checked by:	W.O	JUN. 2025				By	Checked			
Approved by:	D.L	JUN. 2025				By	Checked							
DRAWING SCALE: AS SHOWN										DRAWING No.: GW4R-WJR-LOT3-PP-01-04.01				

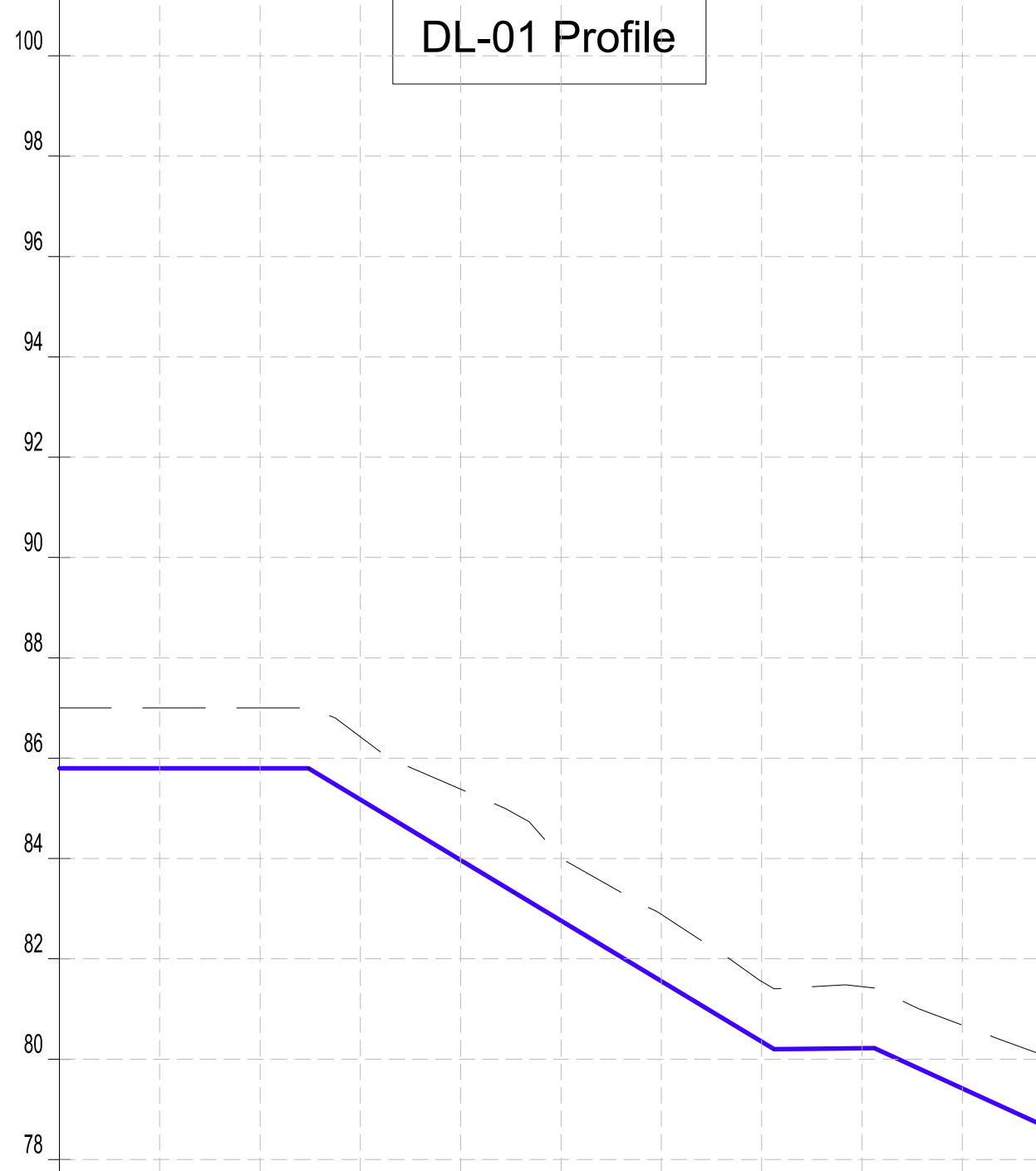


NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--|--------------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | 212.50 MAJOR CONTOURS WITH ELEVATION |
| | | 212.30 MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |

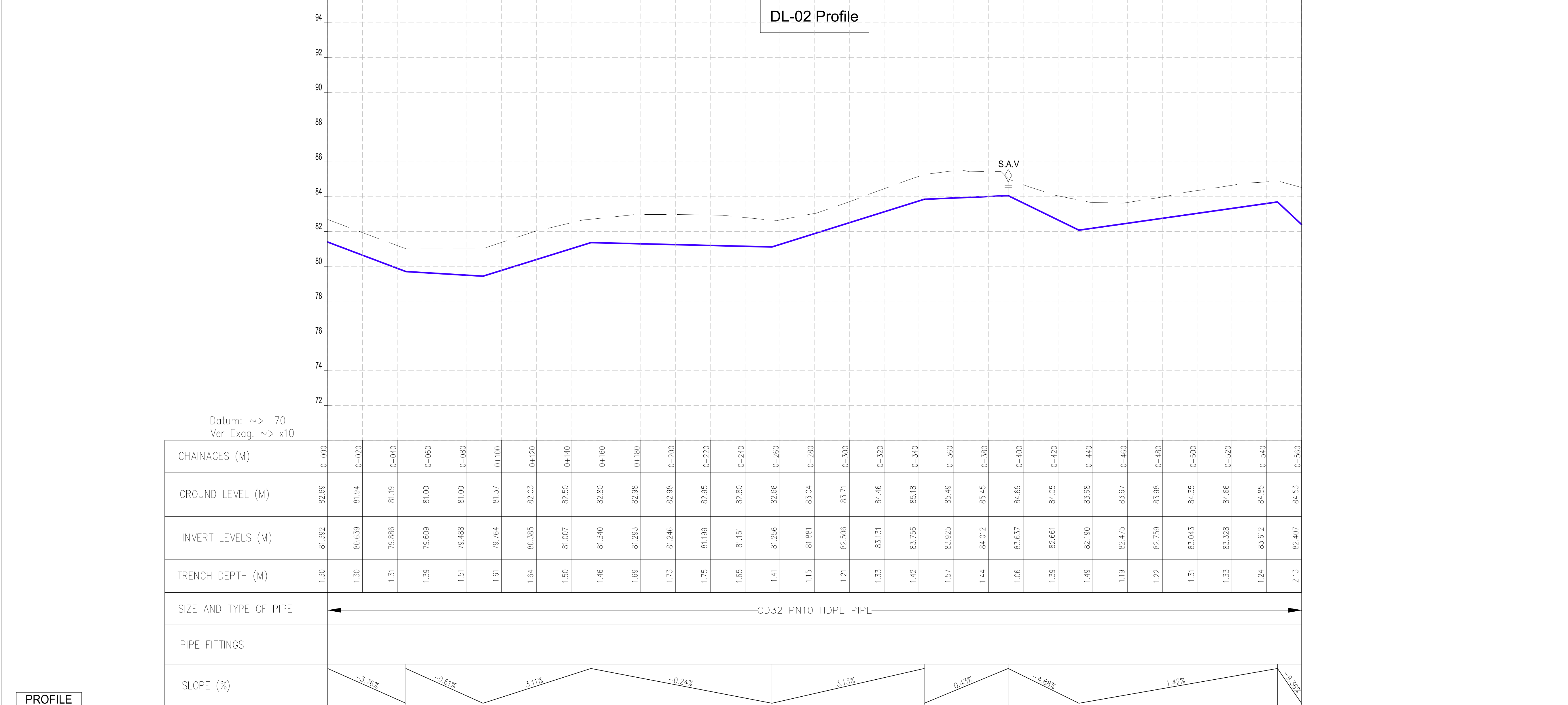


Datum: ~> 76
Ver Exag. ~> x10

CHAINAGES (M)	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+955.35
GROUND LEVEL (M)	87.00	87.00	87.00	86.43	85.38	84.01	82.89	81.55	81.45	80.68	80.11
INVERT LEVELS (M)	85.800	85.800	85.800	85.177	83.970	82.764	81.557	80.351	80.219	79.419	78.717
TRENCH DEPTH (M)	1.20	1.20	1.20	1.25	1.41	1.24	1.33	1.20	1.23	1.26	1.39
SIZE AND TYPE OF PIPE	←OD90 PN10 HDPE PIPE→										
PIPE FITTINGS											
SLOPE (%)	1.21%	-0.00%	-6.03%	-6.03%	0.10%	-4.57%					

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

PROFILE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
---------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



- NOTES:**
- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 - DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 - SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 - SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 - THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:

THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

CONSULTANT:

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			No.	Revision Details		Reviewed By	initials	Date	Approved
Action	Name	Date		1	DRAFT DETAILED DESIGN				
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked By				
Drawn by:	J.K	JUN. 2025			Checked By				
Checked by:	W.O	JUN. 2025			Checked By				
Approved by:	D.L	JUN. 2025			Checked By				

DRAWING TITLE:

DADAJABULA RWSS - WAJIR

DL-02
CHAINAGE 0+000 - 0+619
SHEET 1 OF 1

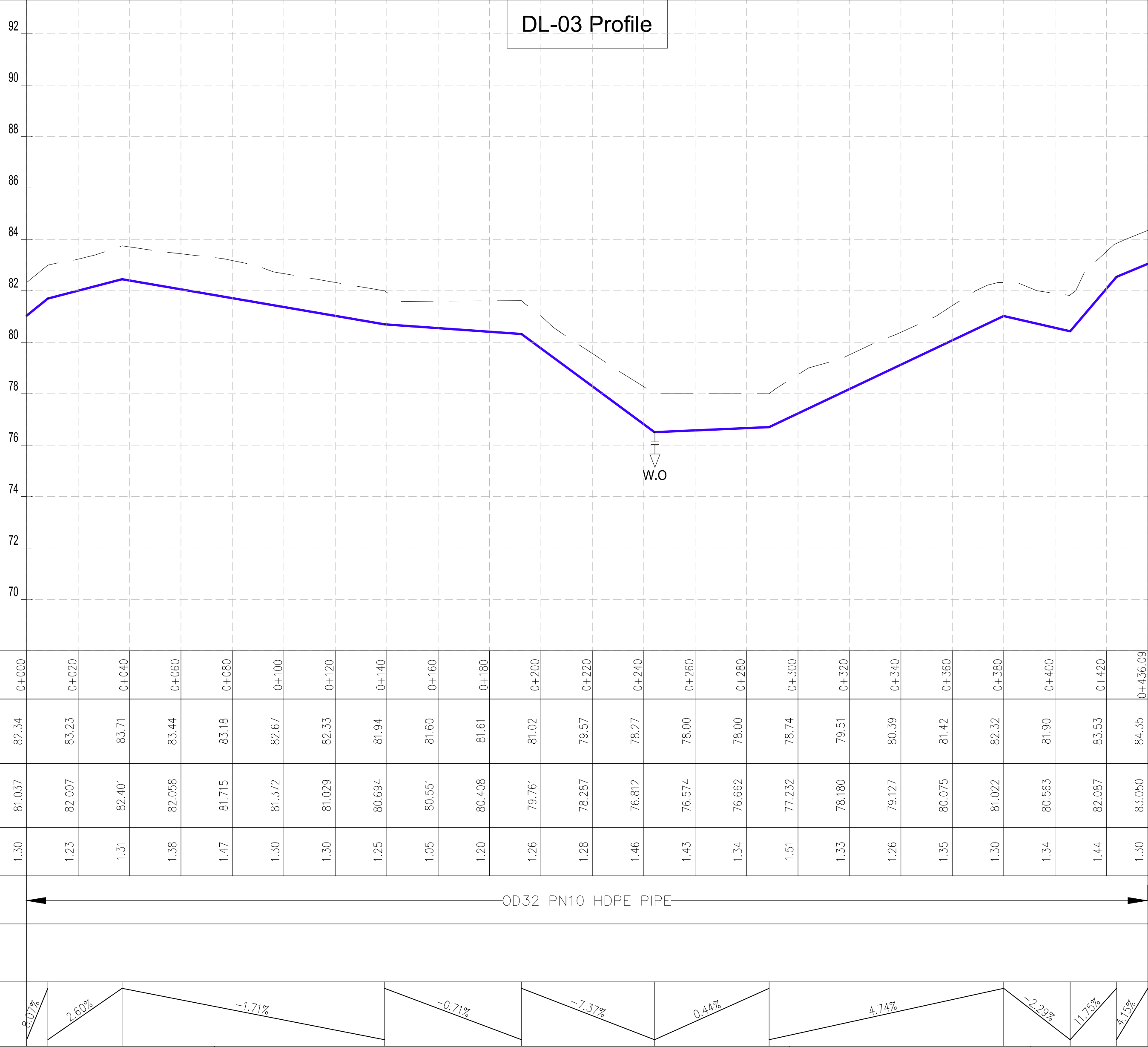
DRAWING SCALE: AS SHOWN

DRAWING No.: **GW4R-WJR-LOT3-PP-01-05**



- NOTES:**
- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 - DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 - SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 - SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 - THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT



COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:

 **THE WORLD BANK**

THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: **KE-WSTF-332741-CS-QCBS**

CONSULTANT:

 **AARVEE ASSOCIATES**
architects engineers & consultants pvt. ltd.



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved
Action	Name	Date	1	DRAFT DETAILED DESIGN		By			
						Checked			
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By			
						Checked			
Drawn by:	J.K	JUN. 2025				By			
						Checked			
Checked by:	W.O	JUN. 2025				By			
						Checked			
Approved by:	D.L	JUN. 2025				By			
						Checked			

DRAWING TITLE:

DADAJABULA RWSS - WAJIR

DL-03
CHAINAGE 0+000 - 0+436
SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-01-06



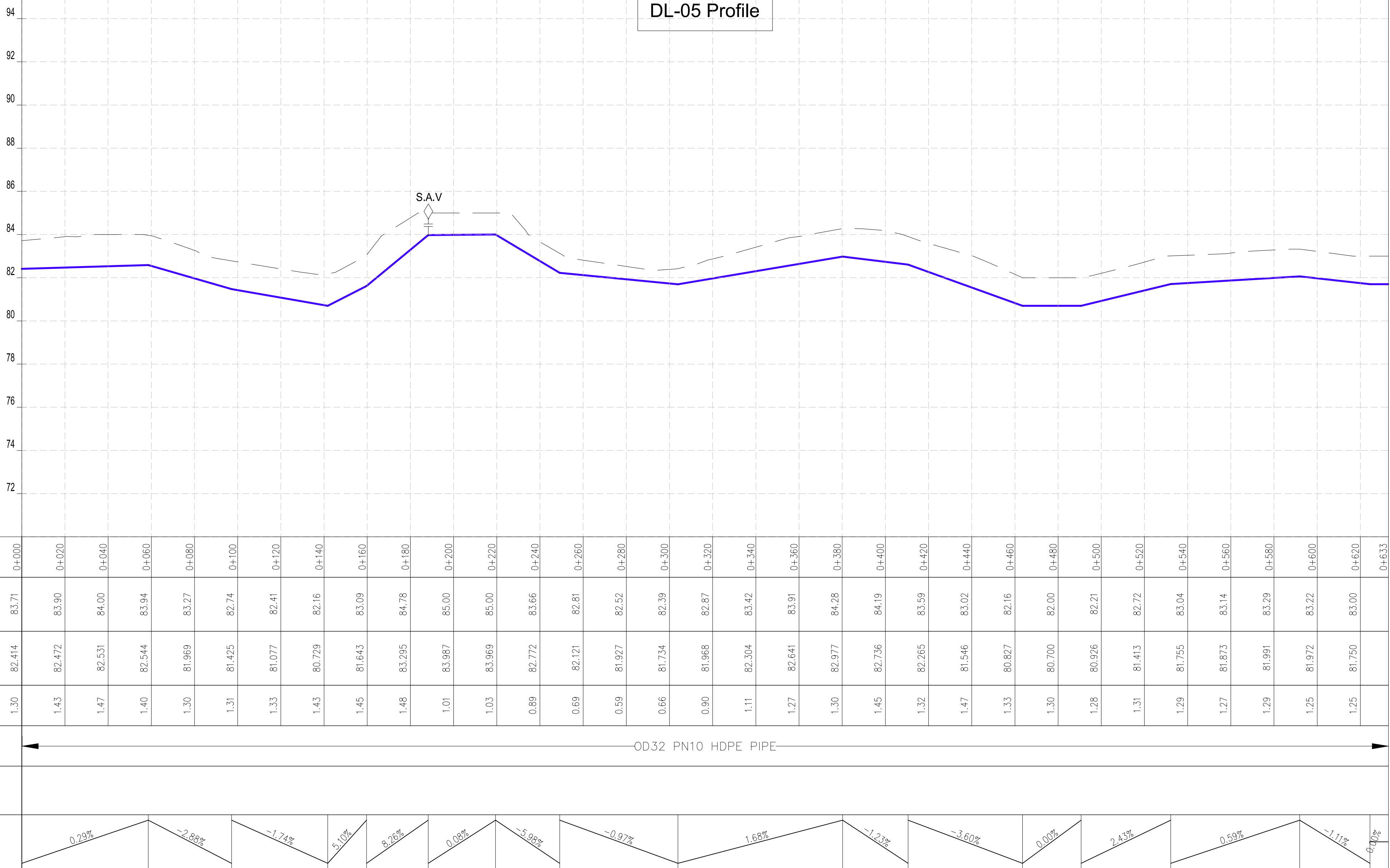
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | | |
|-----------|--|--------------------------|-----------------------------------|
| SP | | SOLAR PANEL | |
| GH | | GENERATOR HOUSE | |
| BH | | BOREHOLE | |
| UT | | UNDERGROUND TANK | |
| GT | | GROUND TANK | |
| ET | | ELEVATED TANK, PLASTIC | |
| SET | | STEEL ELEVATED TANK(SET) | |
| WK-PROP. | | WATER KIOSK (PROPOSED) | |
| WK-EXIST. | | WATER KIOSK (EXISTING) | |
| CH | | CHAMBER | |
| WT-PROP. | | WATER TROUGH-PROPOSED | |
| WT-EXIST. | | WATER TROUGH-EXISTING | |
| | | | EXISTING PIPELINE |
| | | | RISING MAIN |
| | | | DISTRIBUTION LINE |
| | | | DISTRIBUTION LINE TO WATER TROUGH |
| | | | ORIGINAL GROUND LEVEL |
| | | | PIPE INVERT LEVEL |
| | | | PIPE |
| | | | MAJOR CONTOURS WITH ELEVATION |
| | | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER | |
| | | S.A.V. | SINGLE AIR VALVE |
| | | D.A.V. | DOUBLE AIR VALVE |
| | | W.O. | WASH OUT |

DL-05 Profile



COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT: <div></div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER: <div></div> THE WORLD BANK THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR	CONSULTANT: <div>aarvee associates <small>architects engineers & consultants pvt. ltd.</small><div>ADVANCED <small>ENGINEERING CONSULTANTS</small></div></div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	DESIGN DETAILS							DRAWING TITLE:	
		Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	DADAJABULA RWSS - WAJIR DL-05 CHAINAGE 0+000 - 0+654 SHEET 1 OF 1
		Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN		By				
						FINAL DETAILED DESIGN		By				
		Drawn by:	J.K	JUN. 2025				By				
								By				
		Checked by:	W.O	JUN. 2025				By				
						By						
Approved by:	D.L	JUN. 2025				By						
						By						
Contract No: KE-WSTF-332741-CS-QCBS											DRAWING SCALE:	DRAWING No.:
											AS SHOWN	GW4R-WJR-LOT3-PP-01-07



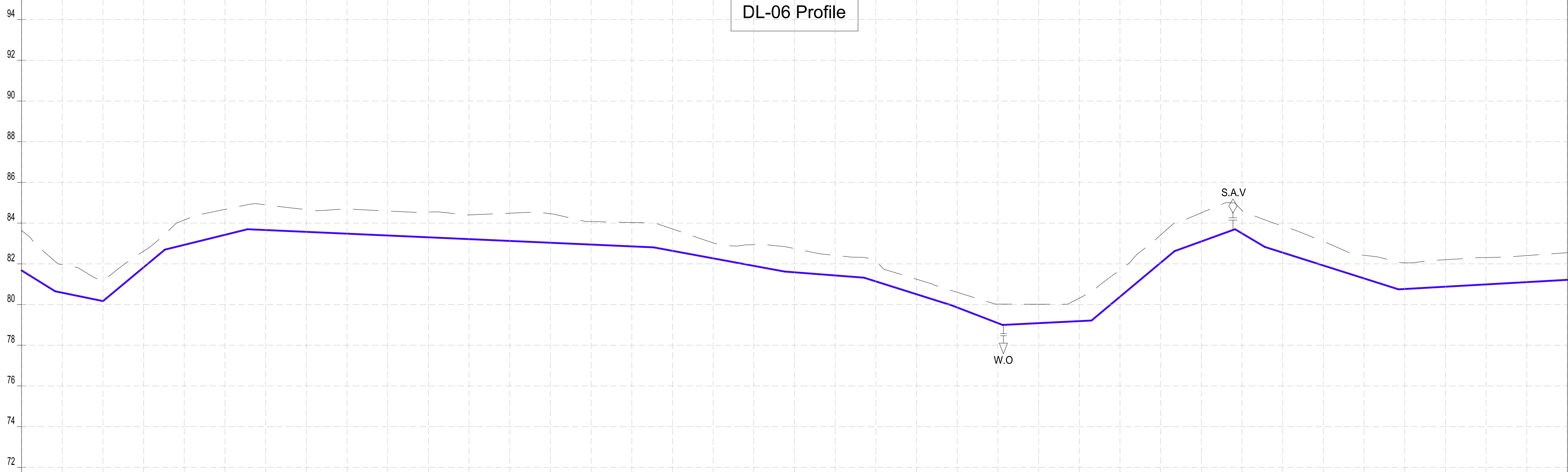
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |

DL-06 Profile



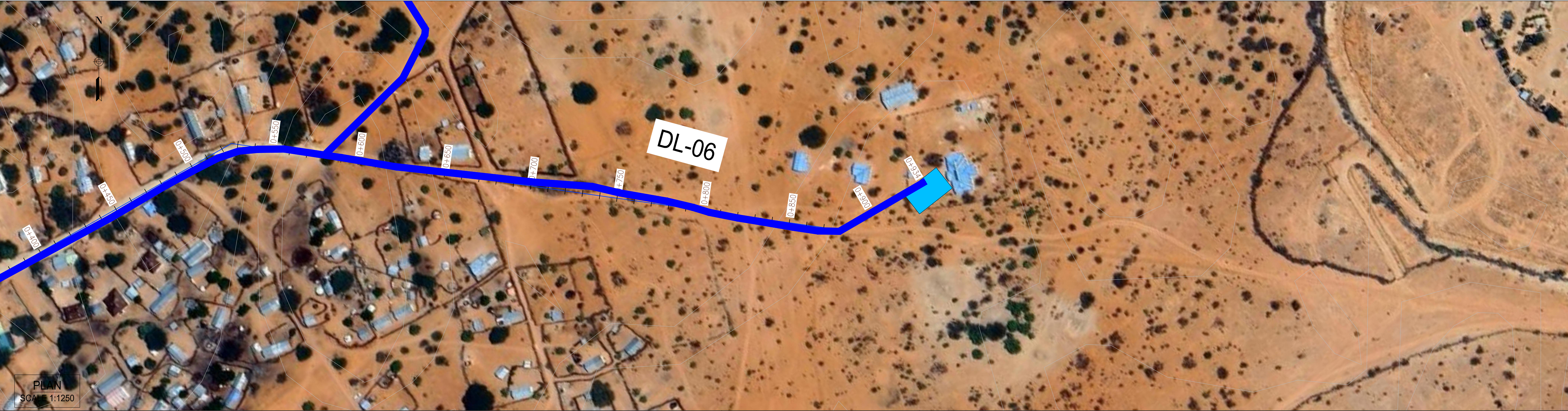
Datum: ~> 70
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	
GROUND LEVEL (M)	83.64	81.96	81.16	82.62	84.15	84.68	84.90	84.66	84.70	84.60	84.54	84.40	84.49	84.46	84.08	84.03	83.71	83.03	82.94	82.75	82.41	82.08	81.24	80.60	80.02	80.02	80.31	81.70	83.42	84.51	84.62	83.85	83.10	82.42	82.05	82.20	82.31	82.41	82.55	
INVERT LEVELS (M)	81.675	80.579	80.171	81.834	82.935	83.427	83.660	83.571	83.482	83.392	83.303	83.214	83.124	83.035	82.946	82.856	82.637	82.268	81.899	81.583	81.429	81.135	80.504	79.853	79.085	79.085	79.185	80.387	82.058	83.103	83.493	82.549	81.915	81.281	80.763	80.875	80.988	81.100	81.212	
TRENCH DEPTH (M)	1.97	1.38	0.99	0.79	1.22	1.25	1.24	1.09	1.22	1.20	1.24	1.19	1.36	1.43	1.13	1.17	1.08	0.76	1.04	1.16	0.98	0.95	0.74	0.75	0.94	0.93	1.13	1.31	1.36	1.40	1.13	1.31	1.18	1.14	1.29	1.33	1.32	1.31	1.33	
SIZE AND TYPE OF PIPE	OD40 PN10 HDPE PIPE																																							
PIPE FITTINGS																																								
SLOPE (%)	-5.21%	-2.04%	8.31%	2.46%	-0.45%										-1.85%	-0.77%	-3.16%	-3.84%	0.50%	8.56%	3.61%	-5.94%	-3.17%	0.56%																

PROFILE

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd,</div> <div>Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India</div> <div>Telephone: +91-7966776800 / +254-714-198-805</div> <div>Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:				
				No.	Revision Details		Reviewed By	initials	Date	Approved	DADAJABULA RWSS - WAJIR
					1 DRAFT DETAILED DESIGN		Checked By				
				2	FINAL DETAILED DESIGN		Checked By				
Designed by:	M.J	JUN. 2025					Checked By				
Drawn by:	J.K	JUN. 2025					Checked By				DRAWING SCALE: AS SHOWN
Checked by:	W.O	JUN. 2025					Checked By				
Approved by:	D.L	JUN. 2025					Checked By				DRAWING No.: GW4R-WJR-LOT3-PP-01-08-01
							Checked				



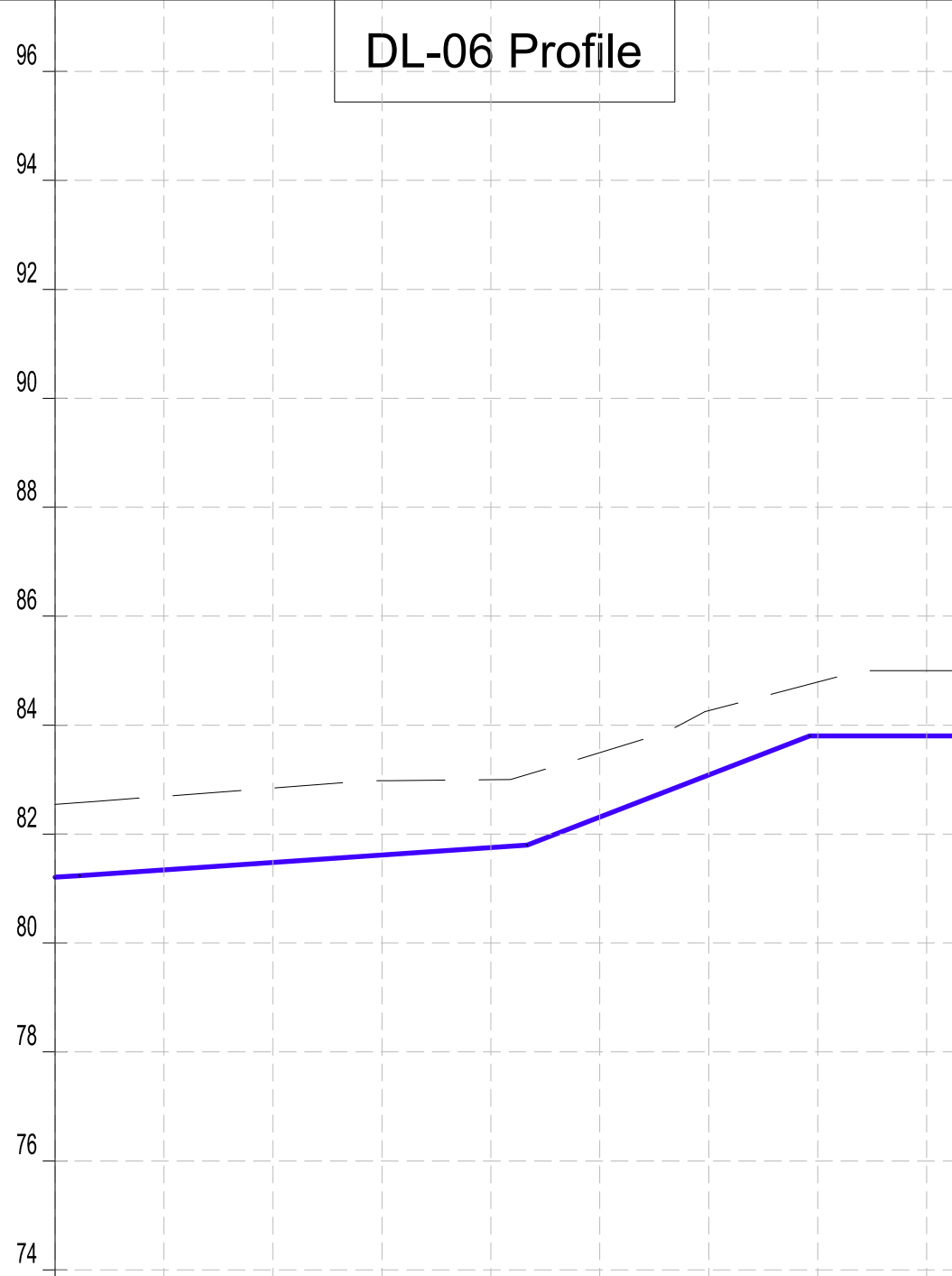
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--------|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | S.A.V. | SINGLE AIR VALVE |
| | D.A.V. | DOUBLE AIR VALVE |
| | W.O. | WASH OUT |

DL-06 Profile



Datum: ~> 72
Ver Exag. ~> x10

CHAINAGES (M)	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+925.07
GROUND LEVEL (M)	82.55	82.69	82.85	82.98	83.00	83.50	84.27	84.79	85.00	85.00
INVERT LEVELS (M)	81.212	81.344	81.481	81.617	81.754	82.314	83.085	83.800	83.800	83.800
TRENCH DEPTH (M)	1.33	1.35	1.37	1.36	1.24	1.18	1.18	0.99	1.20	1.20
SIZE AND TYPE OF PIPE	OD40 PN10 HDPE PIPE									
PIPE FITTINGS										
SLOPE (%)										

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

PROFILE

<div><p>WATER SECTOR TRUST FUND</p><p>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div>	<div><p>THE WORLD BANK GROUP</p></div>	<p>PROJECT:</p> <p>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</p> <p>Contract No: KE-WSTF-332741-CS-QCBS</p>	<div><div><p>aarvee associates architects engineers & consultants pvt. ltd.</p></div><div><p>ADVANCED ENGINEERING CONSULTANTS</p></div></div> <p>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</p>	DESIGN DETAILS			DRAWING TITLE:									
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	<div>DADAJABULA RWSS - WAJIR</div> <div>DL-06</div> <div>CHAINAGE 0+760 - 0+925</div> <div>SHEET 2 OF 2</div>		
								DRAFT DETAILED DESIGN								
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By	Checked					
				Drawn by:	J.K	JUN. 2025				By	Checked					
Checked by:	W.O	JUN. 2025				By	Checked									
Approved by:	D.L	JUN. 2025				By	Checked									
DRAWING SCALE:											DRAWING No.:					
AS SHOWN											GW4R-WJR-LOT3-PP-01-08.02					



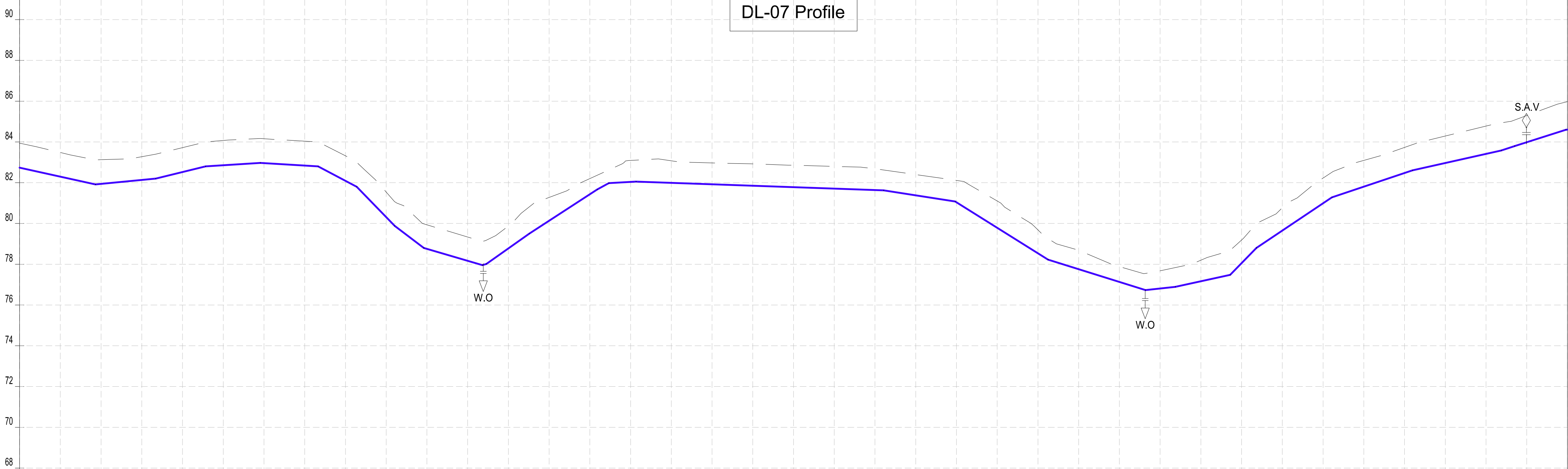
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | | |
|-----------|--------|--------------------------|-----------------------------------|
| SP | | SOLAR PANEL | |
| GH | | GENERATOR HOUSE | |
| BH | | BOREHOLE | |
| UT | | UNDERGROUND TANK | |
| GT | | GROUND TANK | |
| ET | | ELEVATED TANK, PLASTIC | |
| SET | | STEEL ELEVATED TANK(SET) | |
| WK-PROP. | | WATER KIOSK (PROPOSED) | |
| WK-EXIST. | | WATER KIOSK (EXISTING) | |
| CH | | CHAMBER | |
| WT-PROP. | | WATER TROUGH-PROPOSED | |
| WT-EXIST. | | WATER TROUGH-EXISTING | |
| | | | EXISTING PIPELINE |
| | | | RISING MAIN |
| | | | DISTRIBUTION LINE |
| | | | DISTRIBUTION LINE TO WATER TROUGH |
| | | | ORIGINAL GROUND LEVEL |
| | | | PIPE INVERT LEVEL |
| | | | PIPE |
| | | | MAJOR CONTOURS WITH ELEVATION |
| | | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER | |
| | S.A.V. | SINGLE AIR VALVE | |
| | D.A.V. | DOUBLE AIR VALVE | |
| | W.O. | WASH OUT | |

DL-07 Profile



Datum: ~> 66
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	
GROUND LEVEL (M)	83.94	83.48	83.13	83.28	83.72	84.07	84.16	84.04	83.32	81.54	79.93	79.34	79.87	81.28	82.20	83.10	83.07	82.97	82.92	82.86	82.80	82.68	82.40	82.11	81.10	79.68	78.69	77.89	77.68	78.20	79.19	80.78	82.23	83.10	83.73	84.29	84.78	85.30	85.98	
INVERT LEVELS (M)	82.736	82.297	81.944	82.134	82.522	82.855	82.959	82.839	82.093	80.312	78.754	78.169	78.776	80.133	81.433	82.040	81.993	81.922	81.851	81.781	81.710	81.639	81.381	81.042	79.789	78.537	77.757	77.131	76.811	77.166	78.056	79.653	80.991	81.806	82.476	82.967	83.415	83.967	84.605	
TRENCH DEPTH (M)	1.20	1.19	1.19	1.14	1.20	1.22	1.20	1.20	1.23	1.23	1.18	1.17	1.10	1.14	0.77	1.06	1.08	1.05	1.07	1.08	1.09	1.05	1.02	1.07	1.31	1.15	0.93	0.75	0.87	1.03	1.13	1.12	1.24	1.29	1.25	1.32	1.37	1.31	1.37	
SIZE AND TYPE OF PIPE	OD50 PN10 HDPE PIPE																																							
PIPE FITTINGS																																								
SLOPE (%)	-2.20%	0.95%	2.45%	0.63%	-0.60%	-5.27%	-10.30%	-2.50%	2.93%	7.06%	6.50%	5.52%	0.53%	-0.35%	-1.55%	-6.26%	-3.13%	1.10%	2.18%	10.27%	6.69%	3.35%	2.24%	3.28%	3.18%	0.93%														

PROFILE

CLIENT:

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:

THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

CONSULTANT:

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			Revision Details					
Action	Name	Date	No.	Revision Details	Reviewed By	initials	Date	Approved
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked By			
Drawn by:	J.K	JUN. 2025	2	FINAL DETAILED DESIGN	Checked By			
Checked by:	W.O	JUN. 2025			Checked By			
Approved by:	D.L	JUN. 2025			Checked By			

DRAWING TITLE:

DADAJABULA RWSS - WAJIR

DL-07
CHAINAGE 0+000 - 0+760
SHEET 1 OF 2

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-01-09.01



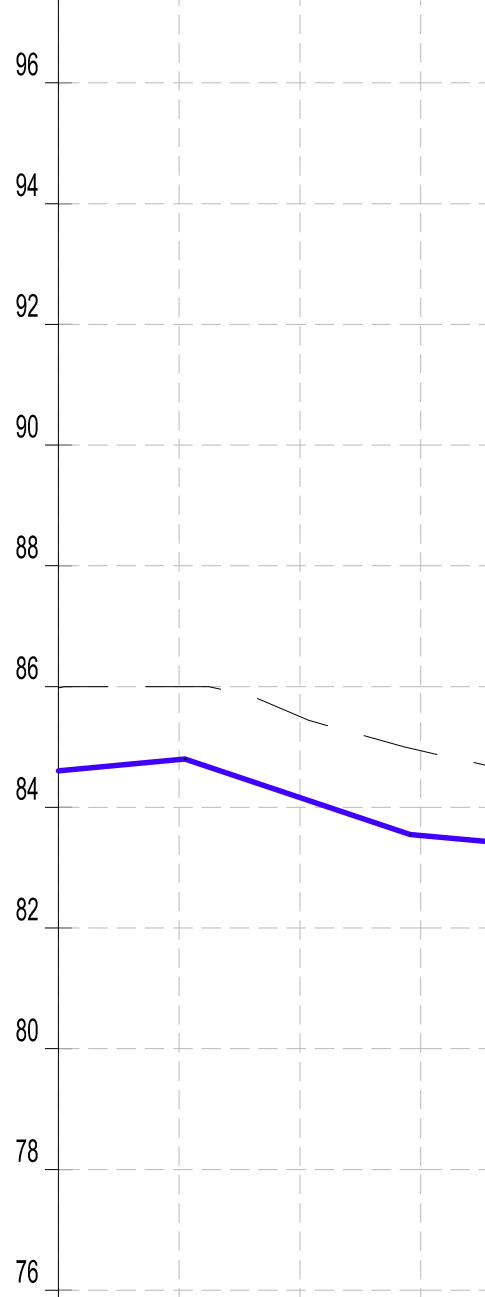
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--------|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | S.A.V. | SINGLE AIR VALVE |
| | D.A.V. | DOUBLE AIR VALVE |
| | W.O. | WASH OUT |

DL-07 Profile



Datum: ~> 74
Ver Exag. ~> x10

CHAINAGES (M)	0+760	0+770	0+800	0+820	0+837.76
GROUND LEVEL (M)	85.98	86.00	85.50	84.94	
INVERT LEVELS (M)	84.605	84.791	84.162	83.535	
TRENCH DEPTH (M)	1.37	1.21	1.34	1.40	
SIZE AND TYPE OF PIPE	OD50 PN10 HDPE PIPE				
PIPE FITTINGS					
SLOPE (%)					

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

PROFILE

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div><div>aarvee associates architects engineers & consultants pvt. ltd.</div><div>ADVANCED ENGINEERING CONSULTANTS</div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td colspan="2">DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="3">Designed by:</td><td rowspan="3">M.J</td><td rowspan="3">JUN. 2025</td><td rowspan="3">2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td>Checked by:</td><td>W.O</td><td>JUN. 2025</td><td></td><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN		By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By						Checked						By				Drawn by:	J.K	JUN. 2025				Checked						By				Checked by:	W.O	JUN. 2025				Checked				Approved by:	D.L	JUN. 2025				By						Checked				<div>DRAWING TITLE:</div> <div>DADAJABULA RWSS - WAJIR</div> <div>DL-07</div> <div>CHAINAGE 0+760 - 0+837</div> <div>SHEET 1 OF 2</div> <div><div>DRAWING SCALE:</div><div>AS SHOWN</div><div><div>DRAWING No.:</div><div>GW4R-WJR-LOT3-PP-01-09.02</div></div></div>
		DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved																																																																														
		Action	Name	Date	1	DRAFT DETAILED DESIGN		By																																																																																	
		Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By																																																																																	
								Checked																																																																																	
								By																																																																																	
		Drawn by:	J.K	JUN. 2025				Checked																																																																																	
						By																																																																																			
Checked by:	W.O	JUN. 2025				Checked																																																																																			
Approved by:	D.L	JUN. 2025				By																																																																																			
						Checked																																																																																			
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>																																																																																									



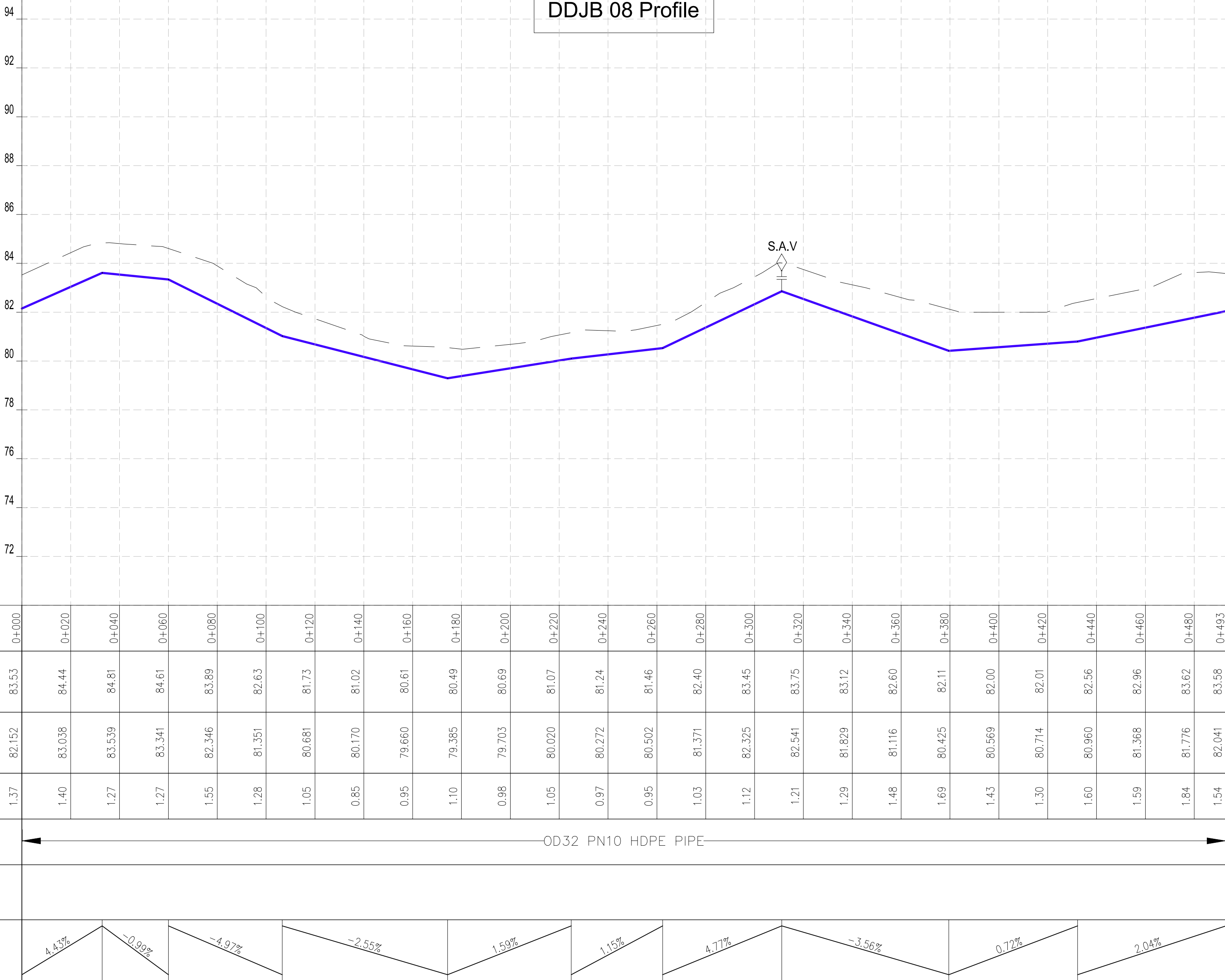
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | | |
|-----------|--------|--------------------------|-----------------------------------|
| SP | | SOLAR PANEL | |
| GH | | GENERATOR HOUSE | |
| BH | | BOREHOLE | |
| UT | | UNDERGROUND TANK | |
| GT | | GROUND TANK | |
| ET | | ELEVATED TANK, PLASTIC | |
| SET | | STEEL ELEVATED TANK(SET) | |
| WK-PROP. | | WATER KIOSK (PROPOSED) | |
| WK-EXIST. | | WATER KIOSK (EXISTING) | |
| CH | | CHAMBER | |
| WT-PROP. | | WATER TROUGH-PROPOSED | |
| WT-EXIST. | | WATER TROUGH-EXISTING | |
| | | | EXISTING PIPELINE |
| | | | RISING MAIN |
| | | | DISTRIBUTION LINE |
| | | | DISTRIBUTION LINE TO WATER TROUGH |
| | | | ORIGINAL GROUND LEVEL |
| | | | PIPE INVERT LEVEL |
| | | | PIPE |
| | | | MAJOR CONTOURS WITH ELEVATION |
| | | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER | |
| | S.A.V. | SINGLE AIR VALVE | |
| | D.A.V. | DOUBLE AIR VALVE | |
| | W.O. | WASH OUT | |

DDJB 08 Profile



Datum: ~> 70
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+493
GROUND LEVEL (M)	83.53	84.44	84.81	84.61	83.89	82.63	81.73	81.02	80.61	80.49	80.69	81.07	81.24	81.46	82.40	83.45	83.75	83.12	82.60	82.11	82.00	82.01	82.56	82.96	83.62	83.58
INVERT LEVELS (M)	82.152	83.038	83.639	83.341	82.346	81.351	80.681	80.170	79.660	79.385	79.703	80.020	80.272	80.502	81.371	82.325	82.541	81.829	81.116	80.425	80.569	80.714	80.960	81.368	81.776	82.041
TRENCH DEPTH (M)	1.37	1.40	1.27	1.27	1.55	1.28	1.05	0.85	0.95	1.10	0.98	1.05	0.97	0.95	1.03	1.12	1.21	1.29	1.48	1.69	1.43	1.30	1.60	1.59	1.84	1.54
SIZE AND TYPE OF PIPE	OD32 PN10 HDPE PIPE																									
PIPE FITTINGS																										
SLOPE (%)		4.43%	-0.90%	-4.97%		-2.55%	1.59%	1.15%	4.77%	-3.56%	0.72%	2.04%														

PROFILE

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<div>DESIGN DETAILS</div>			<div>DRAWING TITLE:</div> <div>DADAJABULA RWSS - WAJIR</div>						
		Action		Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	<div>DL-08</div> <div>CHAINAGE 0+000 - 0+569</div> <div>SHEET 1 OF 1</div>
		Designed by:		M.J	JUN. 2025	1	DRAFT DETAILED DESIGN		By				
							FINAL DETAILED DESIGN		By				
		Drawn by:		J.K	JUN. 2025				By				
									Checked				
		Checked by:		W.O	JUN. 2025				By				
			Checked										
Approved by:	D.L	JUN. 2025				By							
						Checked							
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>			<div>DRAWING SCALE:</div> <div>AS SHOWN</div>										
			<div>DRAWING No.:</div> <div>GW4R-WJR-LOT3-PP-01-10</div>										



NOTES:

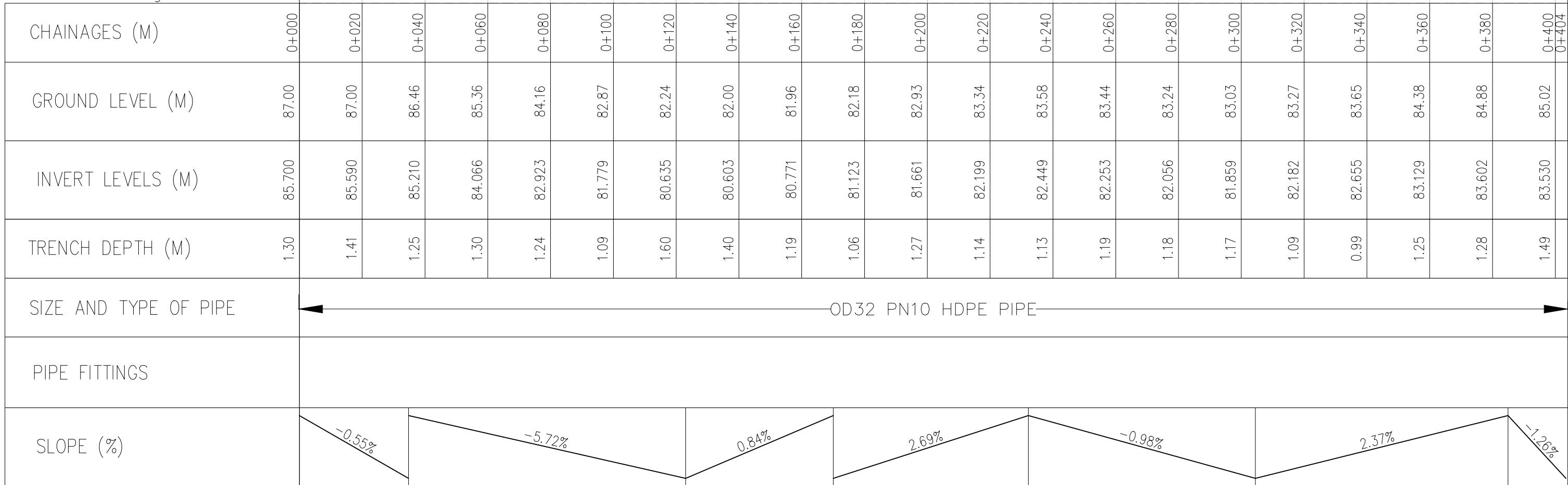
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |

DL-09 Profile

Datum: ~> 70
Ver. Exag. ~> x10



COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:						
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved
								DRAFT DETAILED DESIGN					
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By	Checked		
				Drawn by:	J.K	JUN. 2025				By	Checked		
				Checked by:	W.O	JUN. 2025				By	Checked		
				Approved by:	D.L	JUN. 2025				By	Checked		

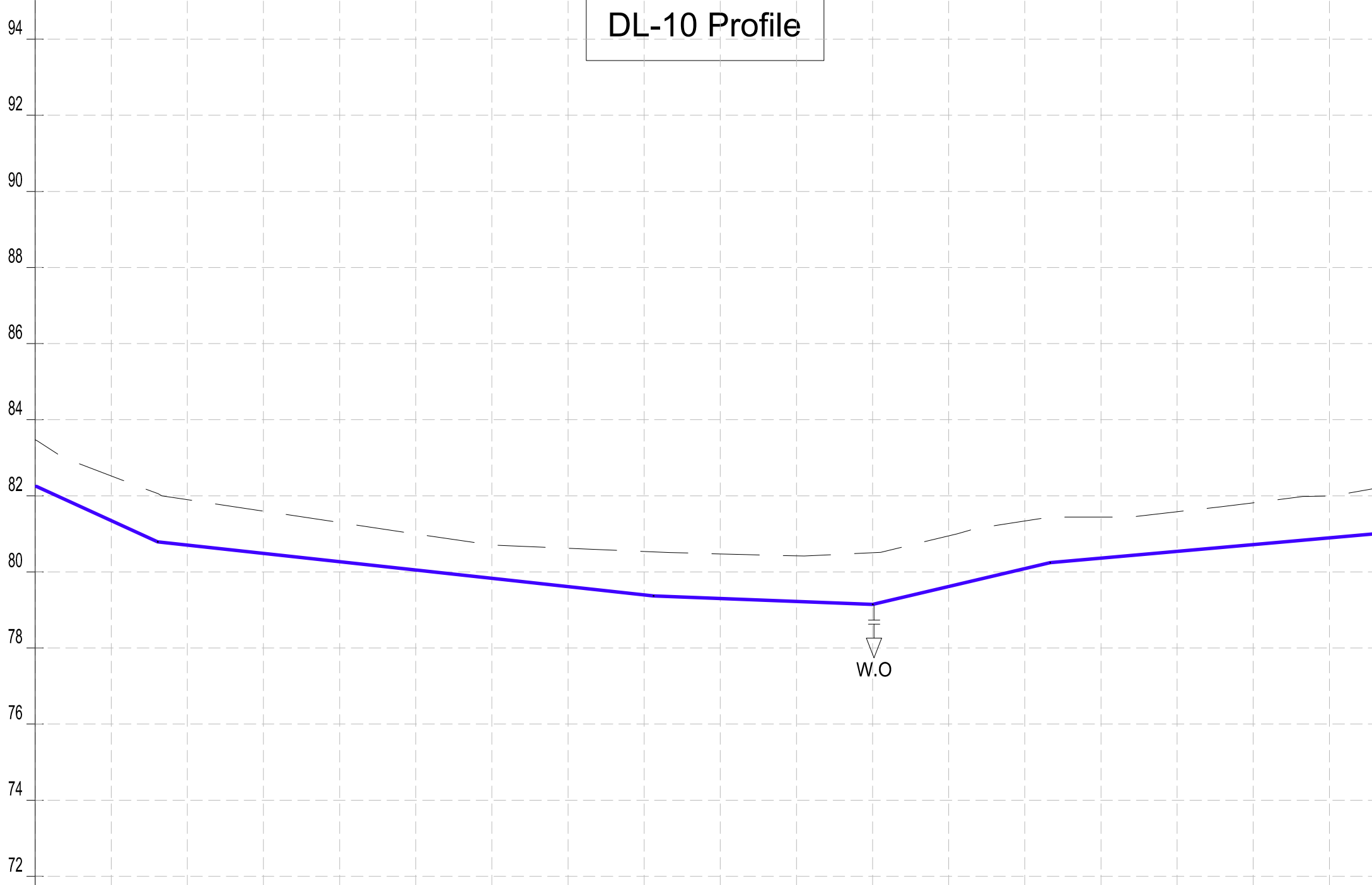


NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |



Datum: ~> 70
Ver Exag. ~> x10

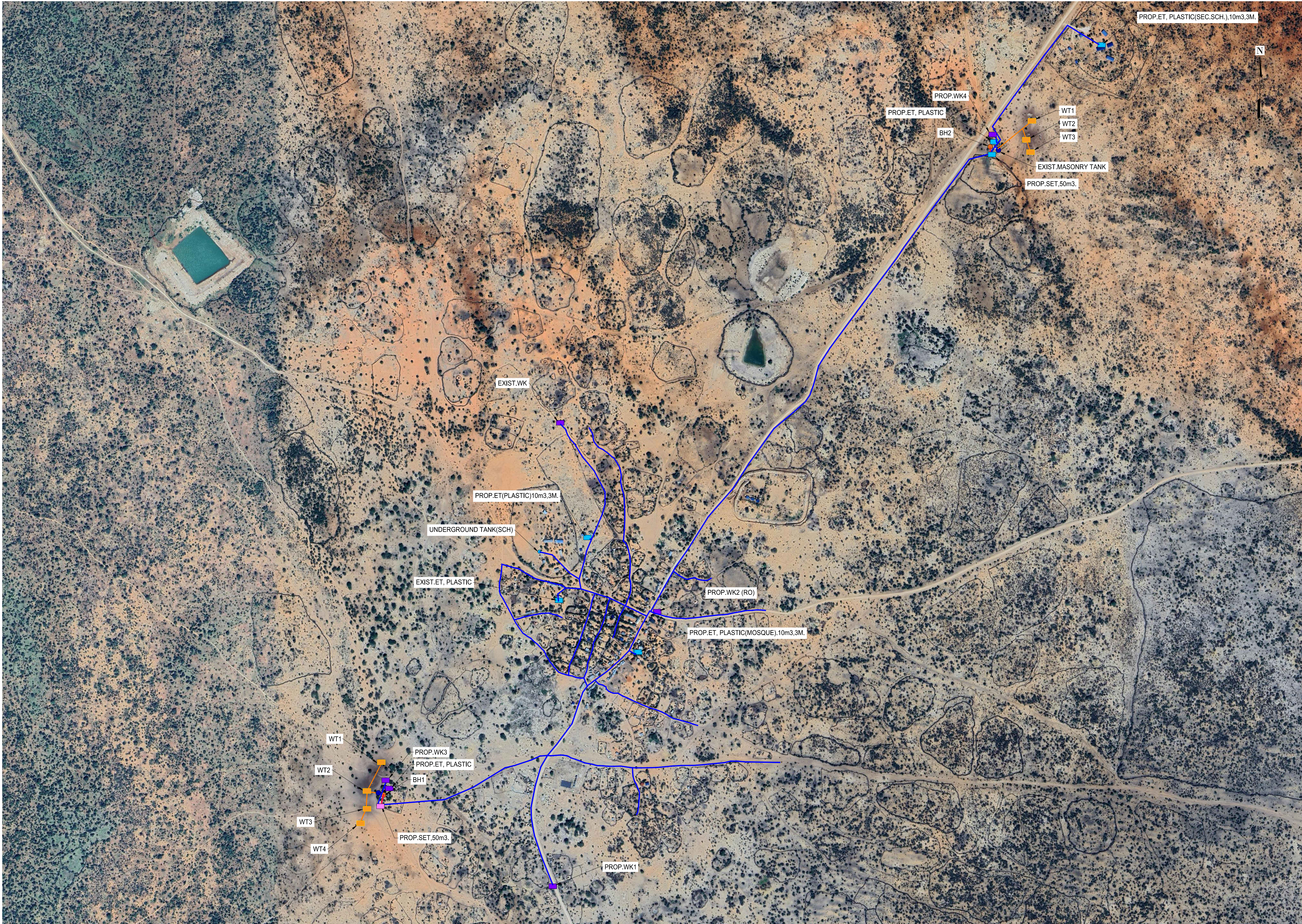
CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+352
GROUND LEVEL (M)	83.47	82.52	81.90	81.60	81.30	81.00	80.71	80.62	80.54	80.47	80.42	80.50	80.95	81.34	81.44	81.58	81.82	82.00	82.19
INVERT LEVELS (M)		81.349	80.706	80.488	80.270	80.051	79.833	79.615	79.396	79.302	79.226	79.149	79.618	80.088	80.362	80.540	80.717	80.894	81.000
TRENCH DEPTH (M)		1.17	1.19	1.11	1.03	0.95	0.88	1.01	1.14	1.17	1.20	1.36	1.33	1.25	1.08	1.04	1.10	1.10	1.19
SIZE AND TYPE OF PIPE	OD32 PN10 HDPE PIPE																		
PIPE FITTINGS																			
SLOPE (%)		-4.56%		-1.09%		-0.38%		2.35%		0.89%									

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

PROFILE

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:						
		Action		Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	<div>DADAJABULA RWSS - WAJIR</div> <div>DL-10</div> <div>CHAINAGE 0+000 - 0+352</div> <div>SHEET 1 OF 1</div>
						1	DRAFT DETAILED DESIGN		By				
		Designed by:		M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By				
									Checked				
		Drawn by:		J.K	JUN. 2025				By				
									Checked				
Checked by:	W.O	JUN. 2025				By							
						Checked							
Approved by:	D.L	JUN. 2025				By							
						Checked							
Contract No: KE-WSTF-332741-CS-QCBS							DRAWING SCALE:		DRAWING No.:				
							AS SHOWN		GW4R-WJR-LOT3-PP-01-12				

RIBA RWSS- WAJIR



- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

**COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA**

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



**Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,**

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved
					By			
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked			
			2	FINAL DETAILED DESIGN	By			
Drawn by:	J.K	JUN. 2025			Checked			
					By			
Checked by:	W.O	JUN. 2025			Checked			
					By			
Approved by:	D.L	JUN. 2025			Checked			
					By			

DRAWING TITLE:

RIBA RWSS - WAJIR

GENERAL LAYOUT

SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-02-01



- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed By	initials	Date	Approved
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked			
			2	FINAL DETAILED DESIGN	Checked			
Drawn by:	J.K	JUN. 2025			Checked			
Checked by:	W.O	JUN. 2025			Checked			
Approved by:	D.L	JUN. 2025			Checked			

DRAWING TITLE:

RIBA RWSS - WAJIR

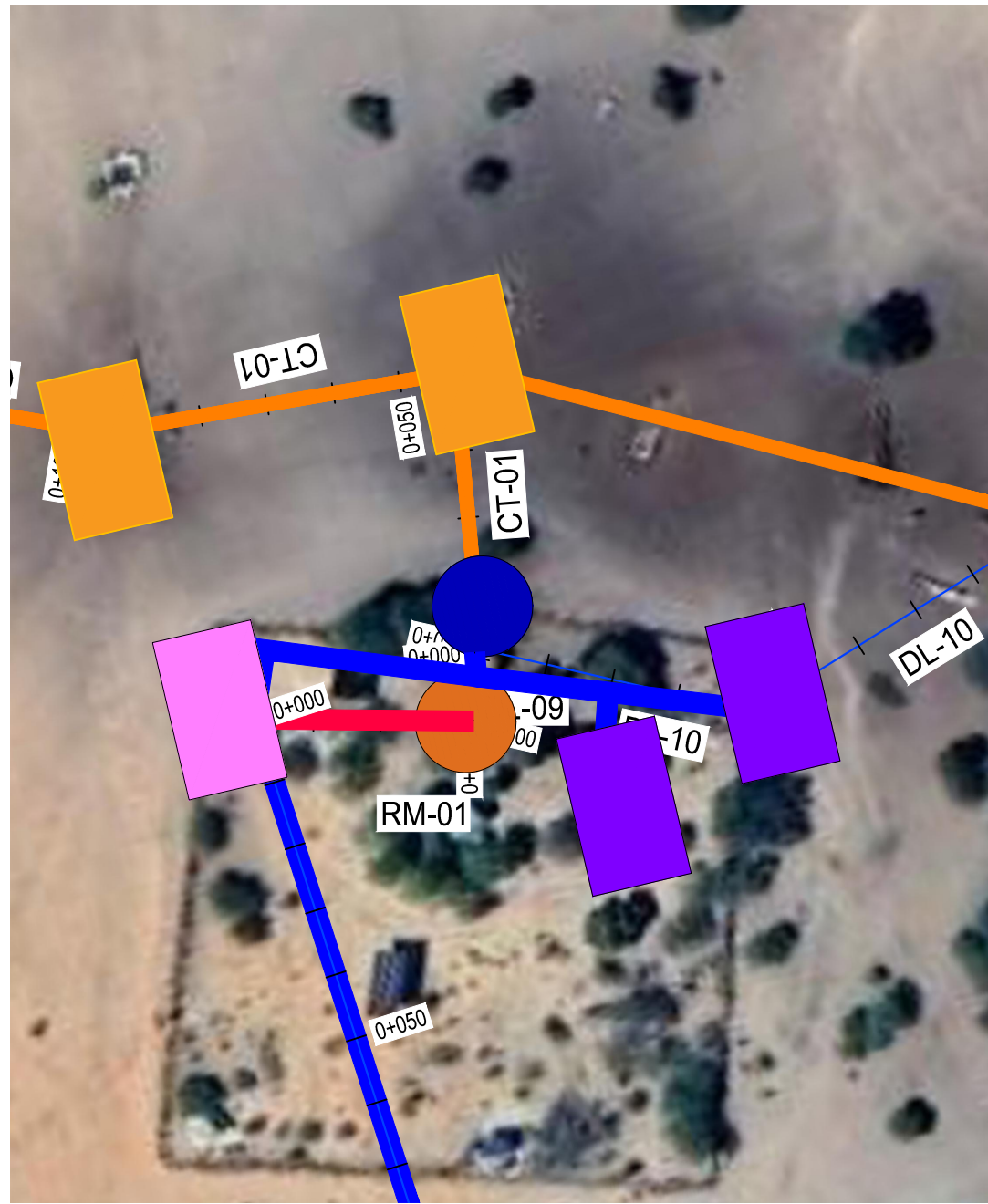
GENERAL LAYOUT

DRAWING SCALE:

AS SHOWN

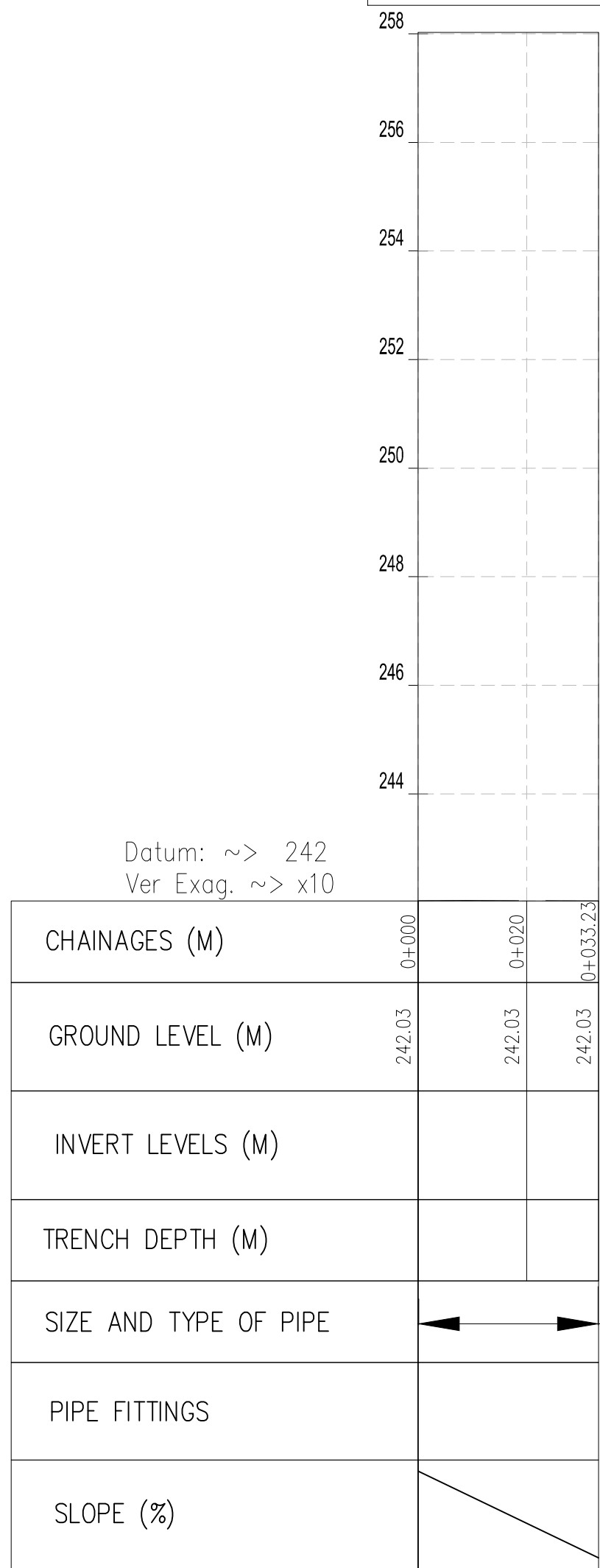
DRAWING No.:

GW4R-WJR-LOT1-PP-16-01



PLAN
SCALE 1:1250

RM-01 Profile



Datum: ~> 242
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+033.23
GROUND LEVEL (M)	242.03	242.03	242.03
INVERT LEVELS (M)			
TRENCH DEPTH (M)			
SIZE AND TYPE OF PIPE	←→ OD63 PN10 HDPE PIPE		
PIPE FITTINGS			
SLOPE (%)			

PROFILE

CLIENT: <div>WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	FINANCIER: <div>THE WORLD BANK GROUP</div>	PROJECT: <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	CONSULTANT: <div><div>aarvee associates architects engineers & consultants pvt. ltd.</div><div>ADVANCED ENGINEERING CONSULTANTS</div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS							DRAWING TITLE:			
				Action	Name	Date	No.	Revision Details		Reviewed	Initials	Date	Approved	RIBA RWSS - WAJIR RISING MAIN (RM-01) PLAN AND PROFILE CHAINAGE 0+000 - 0+033 SHEET 1 OF 1
							1	DRAFT DETAILED DESIGN		By				
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By				
				Drawn by:	J.K	JUN. 2025				By				
				Checked by:	W.O	JUN. 2025				By				
				Approved by:	D.L	JUN. 2025				By				
DRAWING SCALE:											DRAWING No.:			
AS SHOWN											GW4R-WJR-LOT3-PP-02-02			

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

SP	SOLAR PANEL
GH	GENERATOR HOUSE
BH	BOREHOLE
UT	UNDERGROUND TANK
GT	GROUND TANK
ET	ELEVATED TANK, PLASTIC
SET	STEEL ELEVATED TANK(SET)
WK-PROP.	WATER KIOSK (PROPOSED)
WK-EXIST.	WATER KIOSK (EXISTING)
CH	CHAMBER
WT-PROP.	WATER TROUGH-PROPOSED
WT-EXIST.	WATER TROUGH-EXISTING
—	EXISTING PIPELINE
—	RISING MAIN
—	DISTRIBUTION LINE
—	DISTRIBUTION LINE TO WATER TROUGH
- - -	ORIGINAL GROUND LEVEL
—	PIPE INVERT LEVEL
- - -	PIPE
— 212.50 —	MAJOR CONTOURS WITH ELEVATION
— 212.30 —	MINOR CONTOURS WITH ELEVATION
OD	OUTSIDE DIAMETER
⚡ S.A.V.	SINGLE AIR VALVE
⚡ D.A.V.	DOUBLE AIR VALVE
⚡ W.O.	WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA



PLAN
SCALE 1:1250

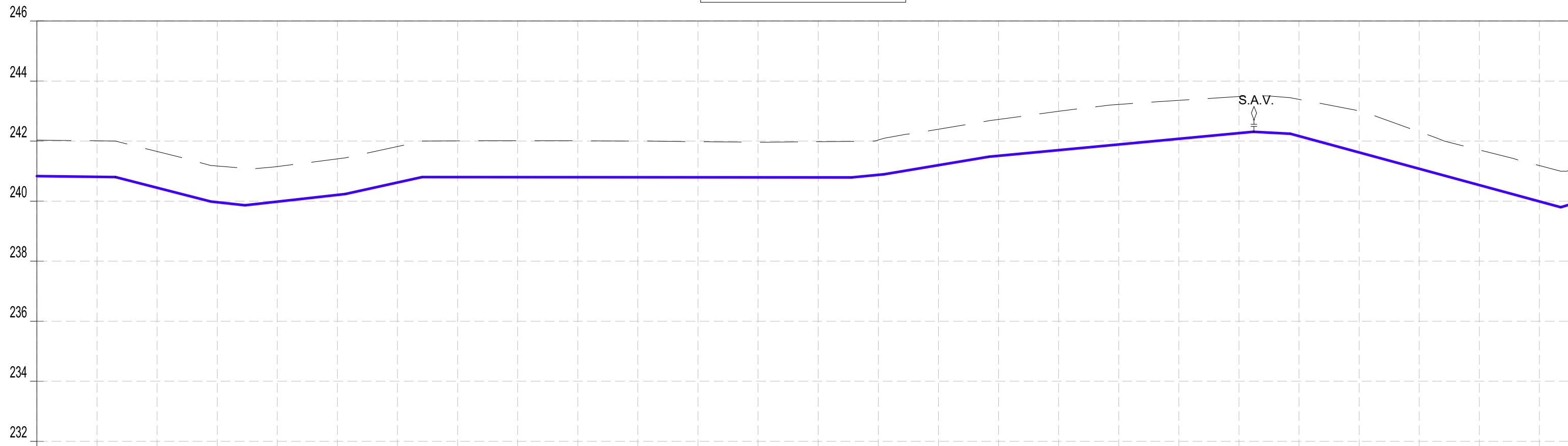
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

DL-02A Profile



Datum: ~> 230
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+500
GROUND LEVEL (M)	242.03	242.01	241.66	241.17	241.15	241.41	241.82	242.01	242.01	242.01	242.00	241.98	241.96	241.98	242.04	242.40	242.72	242.99	243.22	243.36	243.48	243.39	243.01	242.31	241.71	241.19	241.03
INVERT LEVELS (M)	240.834	240.808	240.445	239.965	239.986	240.211	240.621	240.799	240.798	240.797	240.796	240.795	240.793	240.792	240.878	241.198	241.509	241.699	241.889	242.079	242.268	242.168	241.625	241.081	240.537	239.993	239.886
TRENCH DEPTH (M)	1.20	1.20	1.21	1.21	1.17	1.20	1.20	1.21	1.21	1.21	1.21	1.19	1.17	1.19	1.16	1.20	1.21	1.29	1.33	1.28	1.21	1.22	1.39	1.23	1.17	1.19	1.14
SIZE AND TYPE OF PIPE	OD32 PN10 HDPE PIPE																										
PIPE FITTINGS																											

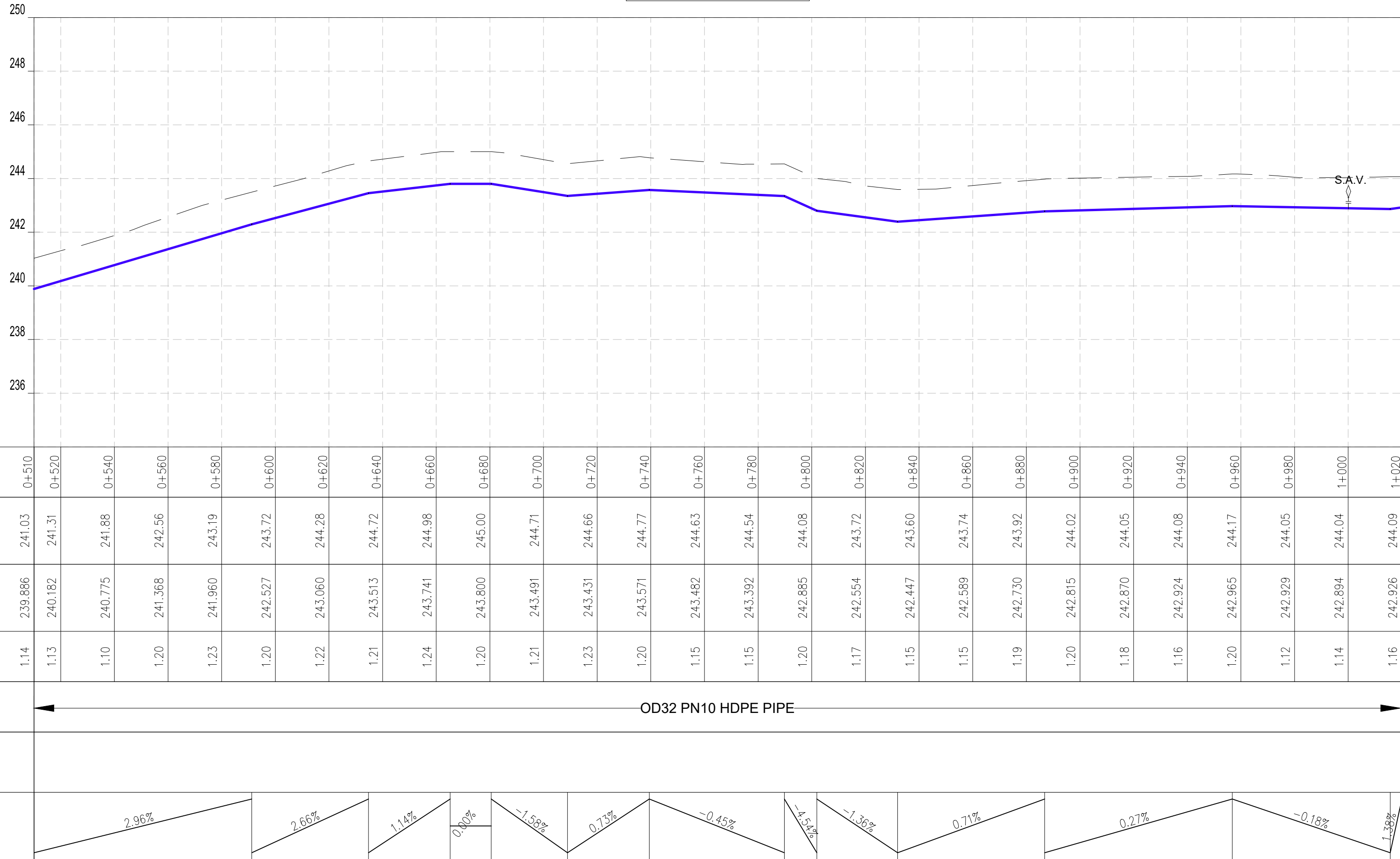
PROFILE

CLIENT: <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	FINANCIER: <div> THE WORLD BANK GROUP</div>	PROJECT: <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	CONSULTANT: <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with  Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	DRAWING TITLE: <div>RIBA RWSS - WAJIR DL-02 PLAN AND PROFILE SHEET 1 OF 3</div>
				Action	Name	Date		1	DRAFT DETAILED DESIGN					
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked	By				
				Drawn by:	J.K	JUN. 2025			Checked	By				
				Checked by:	W.O	JUN. 2025			Checked	By				
				Approved by:	D.L	JUN. 2025			Checked	By				
									Checked					
									Checked					
									Checked					
									Checked					
DRAWING SCALE: AS SHOWN												DRAWING No.: GW4R-WJR-LOT3-PP-02-03		

PLAN
SCALE 1:1250



DL-02A Profile



Datum: ~> 234
Ver Exag. ~> x10

PROFILE

CLIENT:



WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

CONSULTANT:





Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date
Designed by:	M.J	JUN. 2025
Drawn by:	J.K	JUN. 2025
Checked by:	W.O	JUN. 2025
Approved by:	D.L	JUN. 2025

No.	Revision Details	Reviewed	initials	Date	Approved
1	DRAFT DETAILED DESIGN	By			
		Checked			
2	FINAL DETAILED DESIGN	By			
		Checked			
		By			
		Checked			
		By			
		Checked			
		By			
		Checked			

DRAWING TITLE:

RIBA RWSS - WAJIR
DL-02
PLAN AND PROFILE

SHEET 2 OF 3

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-02-03.02

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

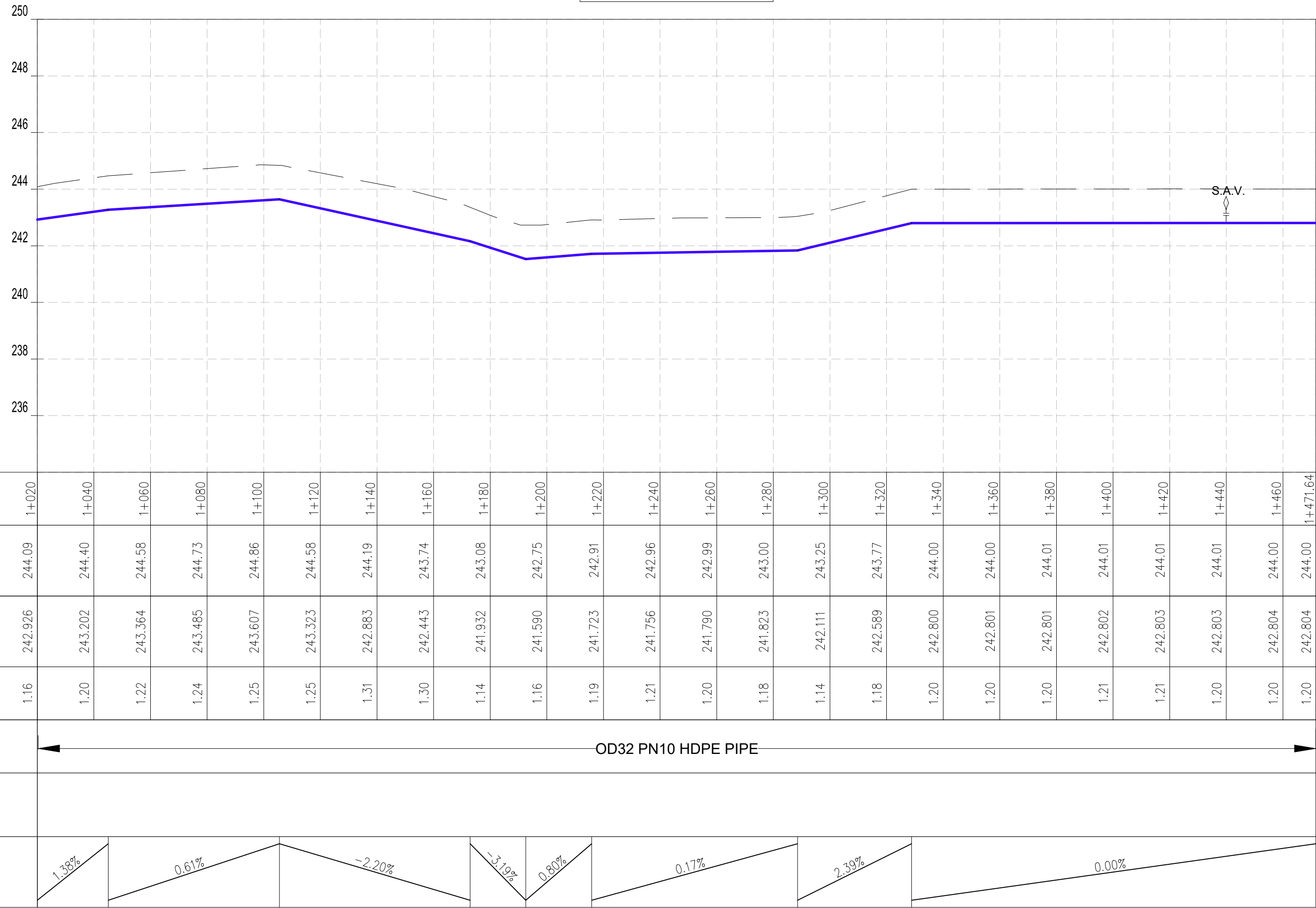
LEGEND:

- | | |
|-----------|-----------------------------------|
| SP | SOLAR PANEL |
| GH | GENERATOR HOUSE |
| BH | BOREHOLE |
| UT | UNDERGROUND TANK |
| GT | GROUND TANK |
| ET | ELEVATED TANK, PLASTIC |
| SET | STEEL ELEVATED TANK(SET) |
| WK-PROP. | WATER KIOSK (PROPOSED) |
| WK-EXIST. | WATER KIOSK (EXISTING) |
| CH | CHAMBER |
| WT-PROP. | WATER TROUGH-PROPOSED |
| WT-EXIST. | WATER TROUGH-EXISTING |
| | EXISTING PIPELINE |
| | RISING MAIN |
| | DISTRIBUTION LINE |
| | DISTRIBUTION LINE TO WATER TROUGH |
| | ORIGINAL GROUND LEVEL |
| | PIPE INVERT LEVEL |
| | PIPE |
| | MAJOR CONTOURS WITH ELEVATION |
| | MINOR CONTOURS WITH ELEVATION |
| OD | OUTSIDE DIAMETER |
| | S.A.V. SINGLE AIR VALVE |
| | D.A.V. DOUBLE AIR VALVE |
| | W.O. WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA



DL-02A Profile



Datum: ~> 234
Ver Exag. ~> x10

CHAINAGES (M)	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+471.64
GROUND LEVEL (M)	244.09	244.40	244.58	244.73	244.86	244.58	244.19	243.74	243.08	242.75	242.91	242.96	242.99	243.00	243.25	243.77	244.00	244.00	244.01	244.01	244.01	244.01	244.00	244.00
INVERT LEVELS (M)	242.926	243.202	243.364	243.485	243.607	243.323	242.863	242.443	241.932	241.590	241.723	241.756	241.790	241.823	242.111	242.589	242.800	242.801	242.801	242.802	242.803	242.803	242.804	242.804
TRENCH DEPTH (M)	1.16	1.20	1.22	1.24	1.25	1.25	1.31	1.30	1.14	1.16	1.19	1.21	1.20	1.18	1.14	1.18	1.20	1.20	1.20	1.21	1.21	1.20	1.20	1.20
SIZE AND TYPE OF PIPE	OD32 PN10 HDPE PIPE																							
PIPE FITTINGS																								
SLOPE (%)	1.38%	0.61%				-2.20%	-1.19%	0.80%		0.17%	2.39%									0.00%				

PROFILE

<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with  Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<div>DESIGN DETAILS</div>						DRAWING TITLE:				
		Action		Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved	RIBA RWSS - WAJIR DL-02 PLAN AND PROFILE SHEET 3 OF 3		
						1	DRAFT DETAILED DESIGN	By						
		Designed by:		M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked					DRAWING SCALE: AS SHOWN	
								By						
		Drawn by:		J.K	JUN. 2025			By						DRAWING No.: GW4R-WJR-LOT3-PP-02-02.03
								Checked						
Checked by:	W.O	JUN. 2025			By									
					Checked									
Approved by:	D.L	JUN. 2025			By									
					Checked									

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

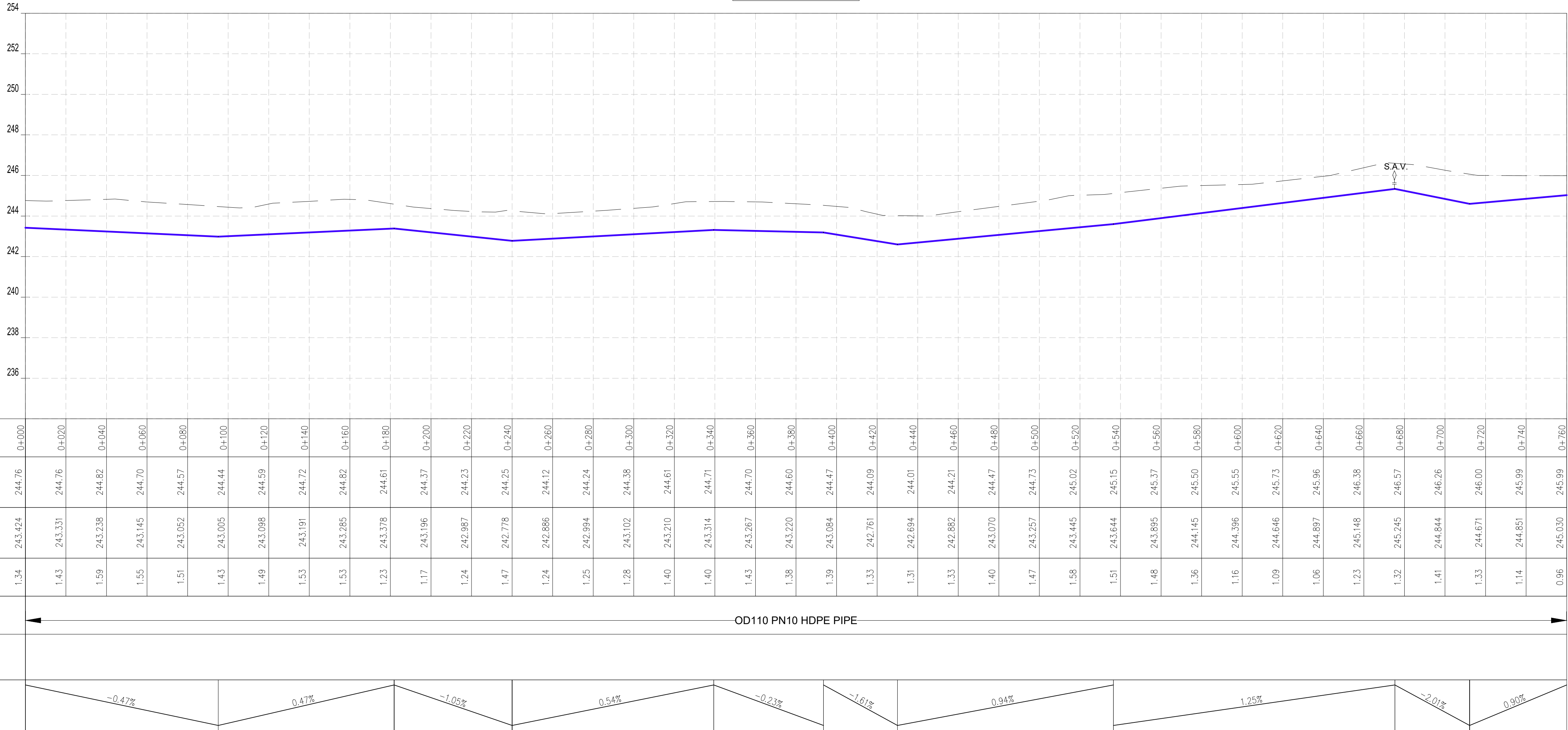
- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

PLAN
SCALE 1:1250



DL-03 Profile



Datum: ~> 234
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	
GROUND LEVEL (M)	244.76	244.76	244.82	244.70	244.57	244.44	244.59	244.72	244.82	244.61	244.37	244.23	244.25	244.12	244.24	244.38	244.61	244.71	244.70	244.60	244.47	244.09	244.01	244.21	244.47	244.73	245.02	245.15	245.37	245.50	245.55	245.73	245.96	246.38	246.57	246.26	246.00	245.99	245.99	
INVERT LEVELS (M)	243.424	243.331	243.238	243.145	243.052	243.005	243.098	243.191	243.285	243.378	243.196	242.987	242.778	242.886	242.994	243.102	243.210	243.314	243.267	243.220	243.084	242.761	242.694	242.882	243.070	243.257	243.445	243.644	243.895	244.145	244.396	244.646	244.897	245.148	245.245	244.844	244.671	244.851	245.030	
TRENCH DEPTH (M)	1.34	1.43	1.59	1.55	1.51	1.43	1.49	1.53	1.53	1.23	1.17	1.24	1.47	1.24	1.25	1.28	1.40	1.40	1.43	1.38	1.39	1.33	1.31	1.33	1.40	1.47	1.58	1.51	1.48	1.36	1.16	1.09	1.06	1.23	1.32	1.41	1.33	1.14	0.96	
SIZE AND TYPE OF PIPE	OD110 PN10 HDPE PIPE																																							
PIPE FITTINGS																																								
SLOPE (%)	<div><div></div><div>-0.47%</div><div>0.47%</div><div>-1.05%</div><div>0.54%</div><div>-0.23%</div><div>-1.61%</div><div>0.94%</div><div>1.25%</div><div>-2.01%</div><div>0.90%</div></div>																																							

PROFILE

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK GROUP

CLIENT:

FINANCIER:

PROJECT:

CONSULTANT:

DESIGN DETAILS

No.	Revision Details	Reviewed By	Initials	Date	Approved
1	DRAFT DETAILED DESIGN	Checked			
2	FINAL DETAILED DESIGN	Checked			
		Checked			
		Checked			
		Checked			
		Checked			
		Checked			

Action	Name	Date
Designed by:	M.J	JUN. 2025
Drawn by:	J.K	JUN. 2025
Checked by:	W.O	JUN. 2025
Approved by:	D.L	JUN. 2025

Contract No:

KE-WSTF-332741-CS-QCBS

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

DRAWING TITLE:

RIBA RWSS - WAJIR
DL-03
PLAN AND PROFILE
SHEET 1 OF 3

DRAWING SCALE:

AS SHOWN

DRAWING No.:

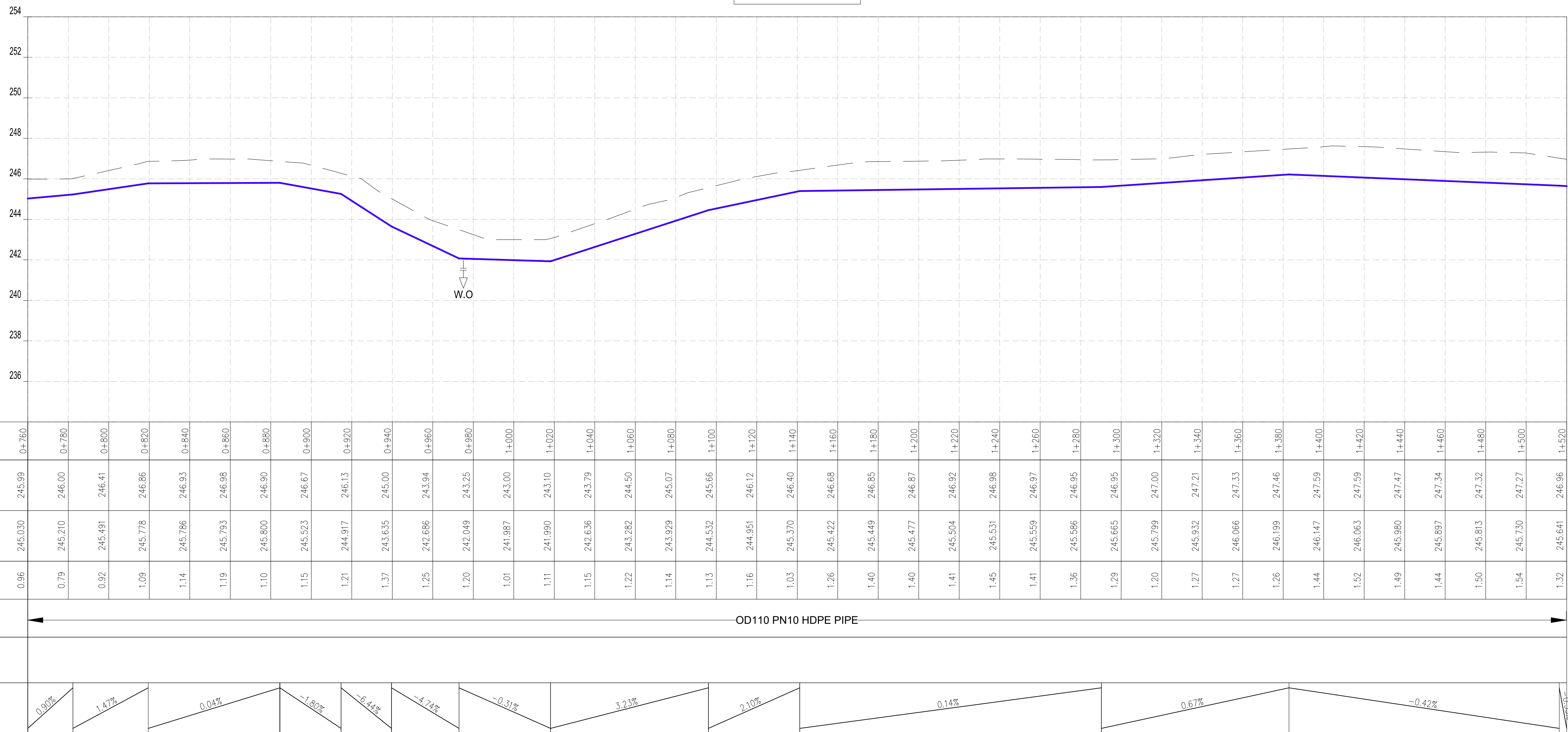
GW4R-WJR-LOT3-PP-02-04.01

- NOTES:**
- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 - DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 - SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 - SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 - THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT



DL-03 Profile



PROFILE

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:

 THE WORLD BANK

**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with

Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082

Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			REVISIONS					
			No.	Revision Details	Reviewed	initials	Date	Approved
Action	Name	Date	1	DRAFT DETAILED DESIGN	By			
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By			
Drawn by:	J.K	JUN. 2025			Checked			
Checked by:	W.O	JUN. 2025			By			
Approved by:	D.L	JUN. 2025			Checked			

DRAWING TITLE:

RIBA RWSS - WAJIR

DL-03

PLAN AND PROFILE

SHEET 2 OF 3

DRAWING SCALE:

AS SHOWN











DRAWING No.:














GW4R-WJR-LOT3-PP-02-04.02

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m and 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SIGNED BY THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING NO. G4WR-STD-11.

LEGEND:

SP		SOLAR PANEL
GH		GENERATOR HOUSE
BH		BOREHOLE
UT		UNDERGROUND TANK
GT		GROUND TANK
ET		ELEVATED TANK, PLASTIC
SET		STEEL ELEVATED TANK(SET)
WK-PROP.		WATER KIOSK (PROPOSED)
WK-EXIST.		WATER KIOSK (EXISTING)
CH		CHAMBER
WT-PROP.		WATER TROUGH-PROPOSED
WT-EXIST.		WATER TROUGH-EXISTING

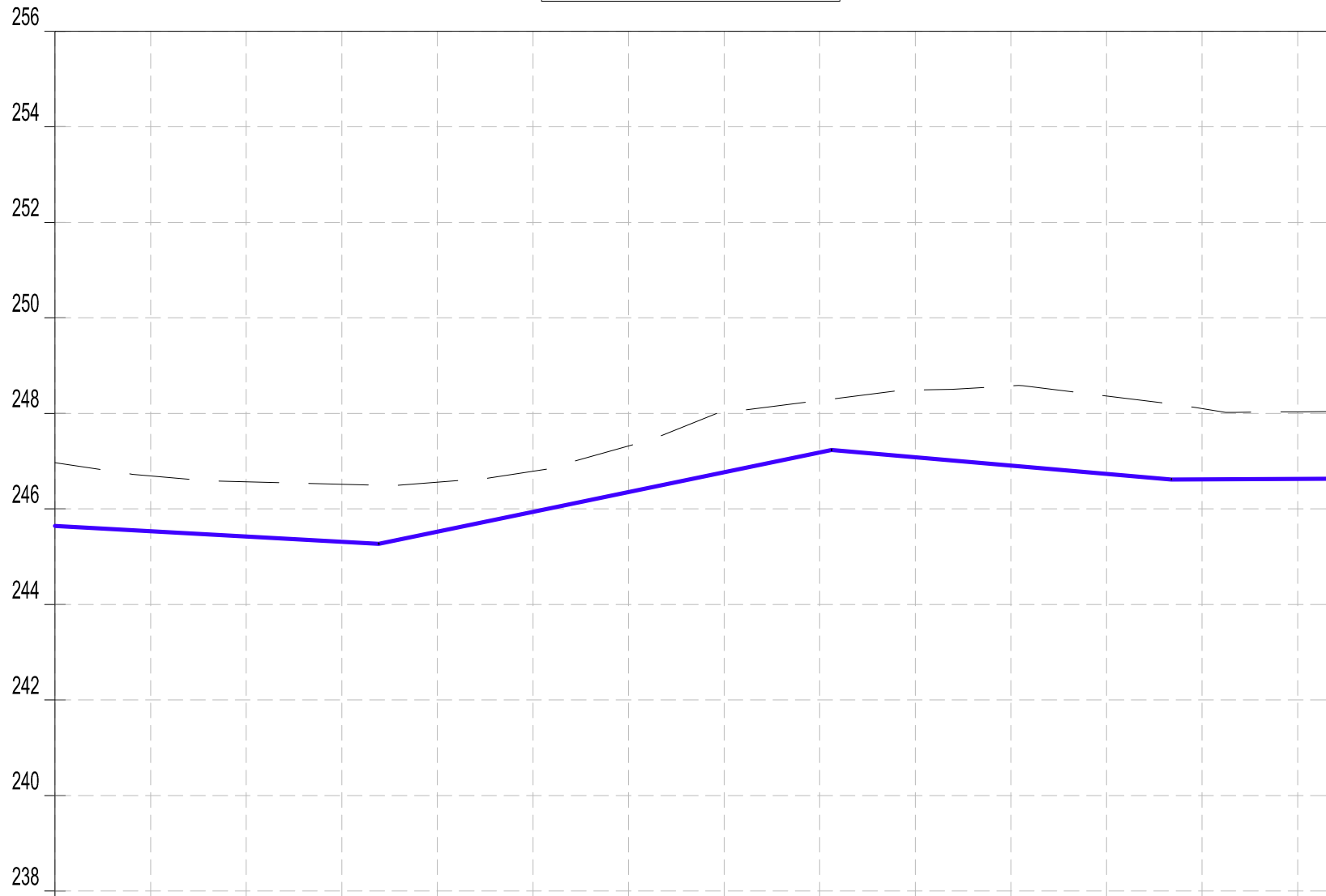
- | | |
|---|-----------------------------------|
|  | EXISTING PIPELINE |
|  | RIISING MAIN |
|  | DISTRIBUTION LINE |
|  | DISTRIBUTION LINE TO WATER TROUGH |
|  | ORIGINAL GROUND LEVEL |
|  | PIPE INVERT LEVEL |
|  | PIPE |
|  | MAJOR CONTOURS WITH ELEVATION |
|  | MINOR CONTOURS WITH ELEVATION |
|  | OUTSIDE DIAMETER |
|  | S.A.V. SINGLE AIR VALVE |
|  | D.A.V. DOUBLE AIR VALVE |
|  | W.O. WASH OUT |

**COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA**

PLAN
SCALE 1:1250




DL-03 Profile



Datum: ~> 236
Ver Exag. ~> x10

CHAINAGES (M)	1+520	1+540	1+560	1+580	1+600	1+620	1+640	1+660	1+680	1+700	1+720	1+740	1+760	1+780	1+786.02
GROUND LEVEL (M)	246.96	246.69	246.57	246.51	246.56	246.79	247.32	248.02	248.27	248.49	248.57	248.36	248.10	248.03	248.03
INVERT LEVELS (M)	245.641	245.531	245.421	245.311	245.522	245.936	246.350	246.764	247.178	247.078	246.905	246.731	246.616	246.627	246.630
TRENCH DEPTH (M)	1.32	1.16	1.15	1.20	1.04	0.85	0.97	1.25	1.09	1.41	1.67	1.63	1.48	1.41	1.40
SIZE AND TYPE OF PIPE	OD110 PN10 HDPE PIPE														
PIPE FITTINGS															
SLOPE (%)	-0.55%			2.07%				-0.87%			0.05%				

PROFILE

CLIENT:  WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER:  THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR Contract No: KE-WSTF-332741-CS-QCBS
--	--	---

CONSULTANT:  Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	
---	---

DESIGN DETAILS			Revision Details				
Action	Name	Date	No.	By	Initials	Date	Approved
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN			
				Checked			
Drawn by:	J.K	JUN. 2025	2	FINAL DETAILED DESIGN			
				Checked			
Checked by:	W.O	JUN. 2025		By			
				Checked			
Approved by:	D.L	JUN. 2025		By			
				Checked			

DRAWING TITLE: RIBA RWSS - WAJIR DL-03 PLAN AND PROFILE SHEET 3 OF 3	
DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-LOT3-PP-02-04.03

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

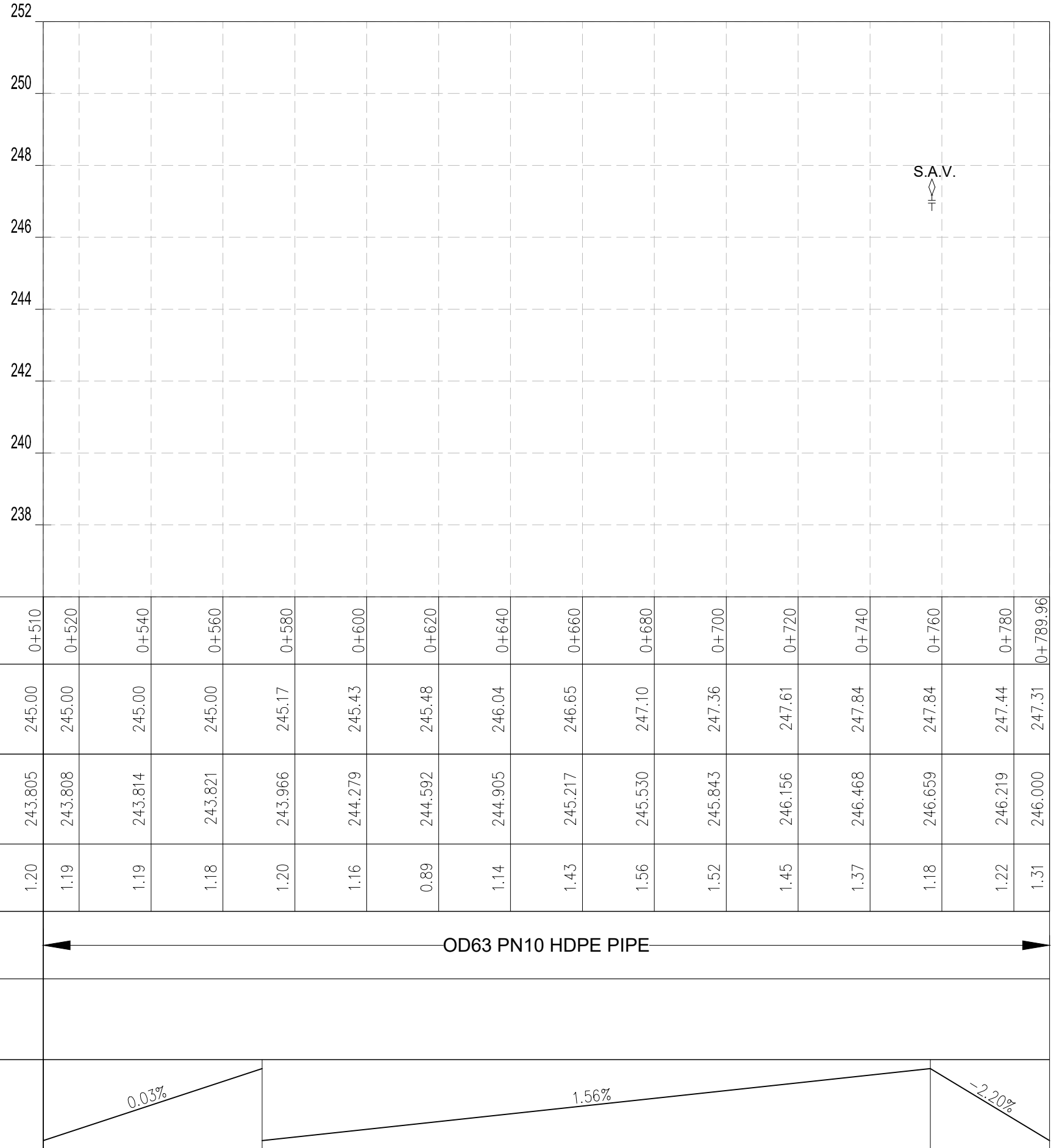
- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA



PLAN
SCALE 1:1250

DL-04A Profile



Datum: ~> 236
Ver Exag. ~> x10

CHAINAGES (M)	0+510	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+789.96
GROUND LEVEL (M)	245.00	245.00	245.00	245.00	245.17	245.43	245.48	246.04	246.65	247.10	247.36	247.61	247.84	247.84	247.44	247.31
INVERT LEVELS (M)	243.805	243.808	243.814	243.821	243.966	244.279	244.592	244.905	245.217	245.530	245.843	246.156	246.468	246.659	246.219	246.000
TRENCH DEPTH (M)	1.20	1.19	1.19	1.18	1.20	1.16	0.89	1.14	1.43	1.56	1.52	1.45	1.37	1.18	1.22	1.31
SIZE AND TYPE OF PIPE	OD63 PN10 HDPE PIPE															
PIPE FITTINGS																
SLOPE (%)	0.03%				1.56%								-2.20%			

PROFILE

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT: <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	FINANCIER: <div> THE WORLD BANK GROUP</div>	PROJECT: <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	CONSULTANT: <div><div>aarvee associates architects engineers & consultants pvt. ltd.</div><div>ADVANCED ENGINEERING CONSULTANTS</div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td colspan="2">DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN. 2025</td><td rowspan="2">2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN		By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		Checked						By				Drawn by:	J.K	JUN. 2025				Checked						By				Checked by:	W.O	JUN. 2025				Checked						By				Approved by:	D.L	JUN. 2025				Checked						By				<div>DRAWING TITLE: RIBA RWSS - WAJIR DL-04 PLAN AND PROFILE SHEET 2 OF 2</div> <div><div>DRAWING SCALE: AS SHOWN</div><div>DRAWING No.: GW4R-WJR-LOT3-PP-02-05.02</div></div>
		DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved																																																																														
		Action	Name	Date	1	DRAFT DETAILED DESIGN		By																																																																																	
		Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		Checked																																																																																	
								By																																																																																	
		Drawn by:	J.K	JUN. 2025				Checked																																																																																	
								By																																																																																	
Checked by:	W.O	JUN. 2025				Checked																																																																																			
						By																																																																																			
Approved by:	D.L	JUN. 2025				Checked																																																																																			
						By																																																																																			

TESORAI RWSS - WAJIR

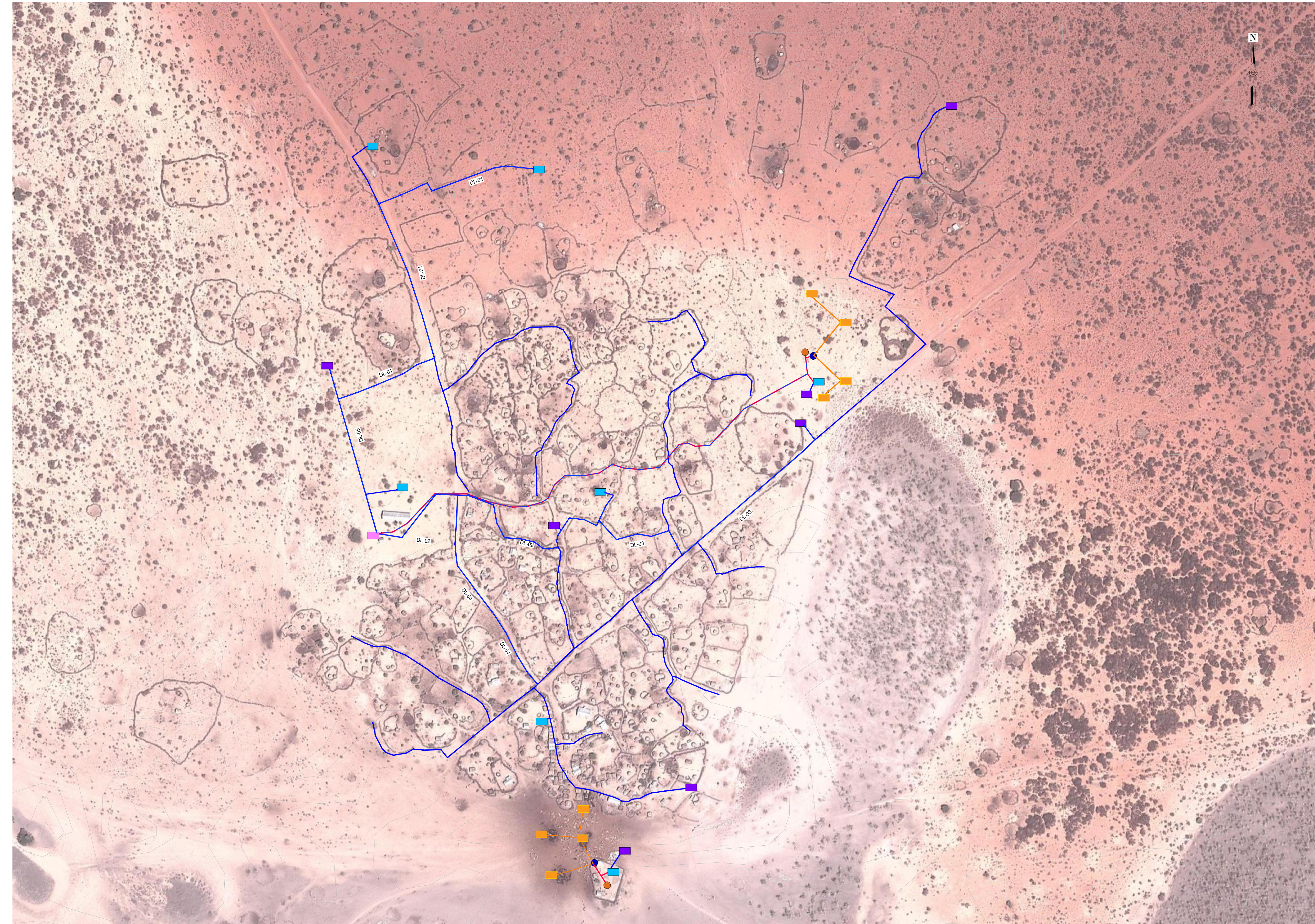


- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:  WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER:  THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR Contract No: KE-WSTF-332741-CS-QCBS	CONSULTANT:  Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	DESIGN DETAILS						DRAWING TITLE: TESORAI RWSS - WAJIR GENERAL LAYOUT PLAN SHEET 1 OF 1	DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-LOT3-PP-03-01
				Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved
				Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	By			
				Drawn by:	J.K	JUN. 2025	2	FINAL DETAILED DESIGN	Checked			
				Checked by:	W.O	JUN. 2025			By			
				Approved by:	D.L	JUN. 2025			Checked			



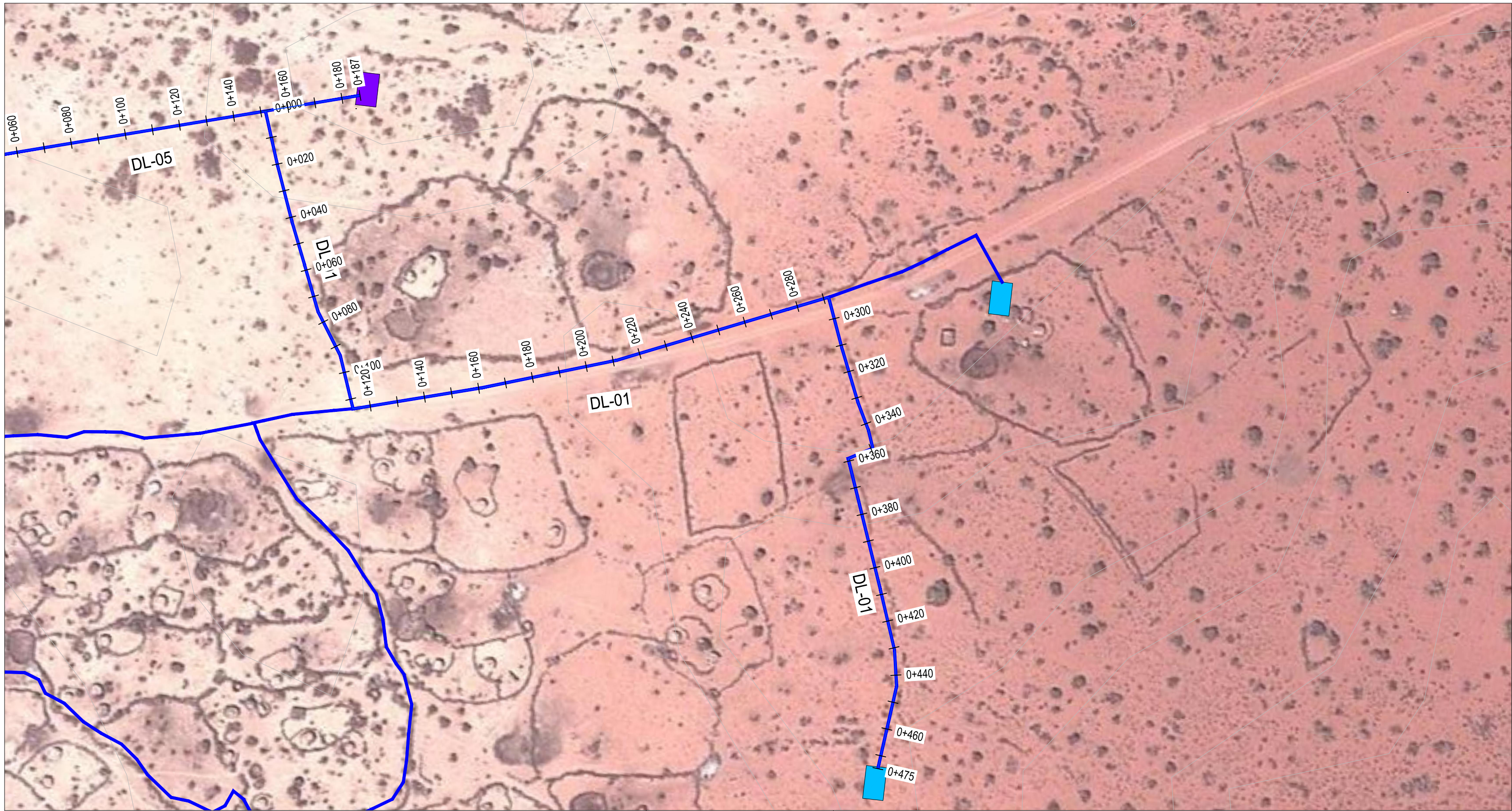
- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

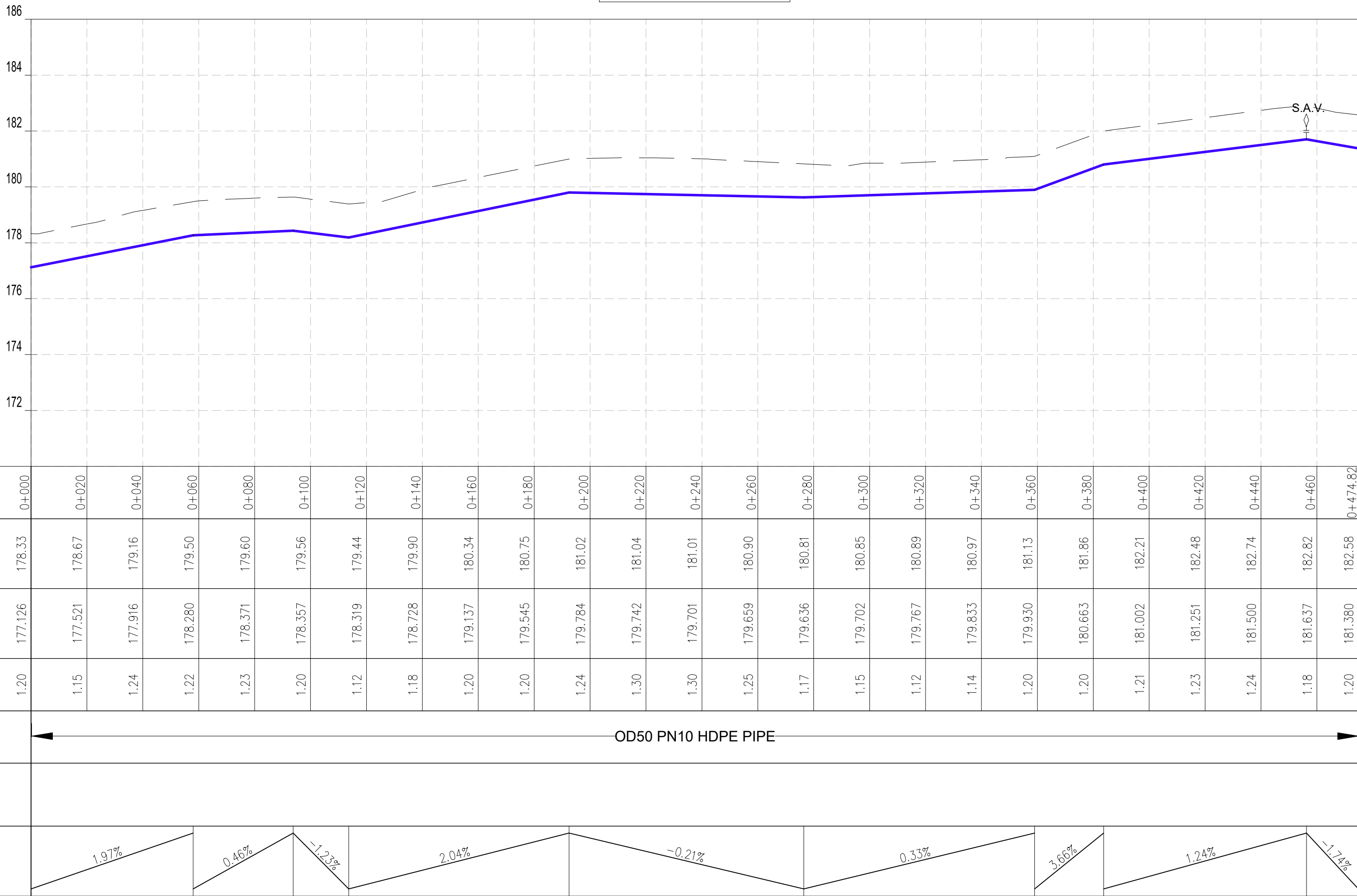
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:  WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER:  THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR Contract No: KE-WSTF-332741-CS-QCBS	CONSULTANT:  Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	DESIGN DETAILS							DRAWING TITLE: TESORAI RWSS - WAJIR GENERAL LAYOUT PLAN SHEET 1 OF 1	DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-LOT3-PP-03-01
				Action	Name	Date	No.	Revision Details	Reviewed	By	Initials	Date	Approved
				Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked	By			
				Drawn by:	J.K	JUN. 2025	2	FINAL DETAILED DESIGN	Checked	By			
				Checked by:	W.O	JUN. 2025			Checked	By			
				Approved by:	D.L	JUN. 2025			Checked	By			

PLAN
SCALE 1:1250



DL-01A Profile



CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+474.82
GROUND LEVEL (M)	178.33	178.67	179.16	179.50	179.60	179.56	179.44	179.90	180.34	180.75	181.02	181.04	181.01	180.90	180.81	180.85	180.89	180.97	181.13	181.86	182.21	182.48	182.74	182.82	182.58
INVERT LEVELS (M)	177.126	177.521	177.916	178.280	178.371	178.357	178.319	178.728	179.137	179.545	179.784	179.742	179.701	179.659	179.636	179.702	179.767	179.833	179.930	180.663	181.002	181.251	181.500	181.637	181.380
TRENCH DEPTH (M)	1.20	1.15	1.24	1.22	1.23	1.20	1.12	1.18	1.20	1.20	1.24	1.30	1.30	1.25	1.17	1.15	1.12	1.14	1.20	1.20	1.21	1.23	1.24	1.18	1.20
SIZE AND TYPE OF PIPE	OD50 PN10 HDPE PIPE																								
PIPE FITTINGS																									
SLOPE (%)	1.97% 0.66% -1.23% 2.04% -0.21% 0.33% 3.66% 1.24% -1.73%																								

PROFILE

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK GROUP

CLIENT:

FINANCIER:

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

CONSULTANT:

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS		
Action	Name	Date
Designed by:	M.J	JUN. 2025
Drawn by:	J.K	JUN. 2025
Checked by:	W.O	JUN. 2025
Approved by:	D.L	JUN. 2025

No.	Revision Details	Reviewed By	initials	Date	Approved
1	DRAFT DETAILED DESIGN	Checked			
2	FINAL DETAILED DESIGN	Checked			
		Checked			
		Checked			
		Checked			
		Checked			
		Checked			

DRAWING TITLE:

TESORAI RWSS - WAJIR
DL-01
PLAN AND PROFILE

SHEET 1 OF 1

DRAWING SCALE:

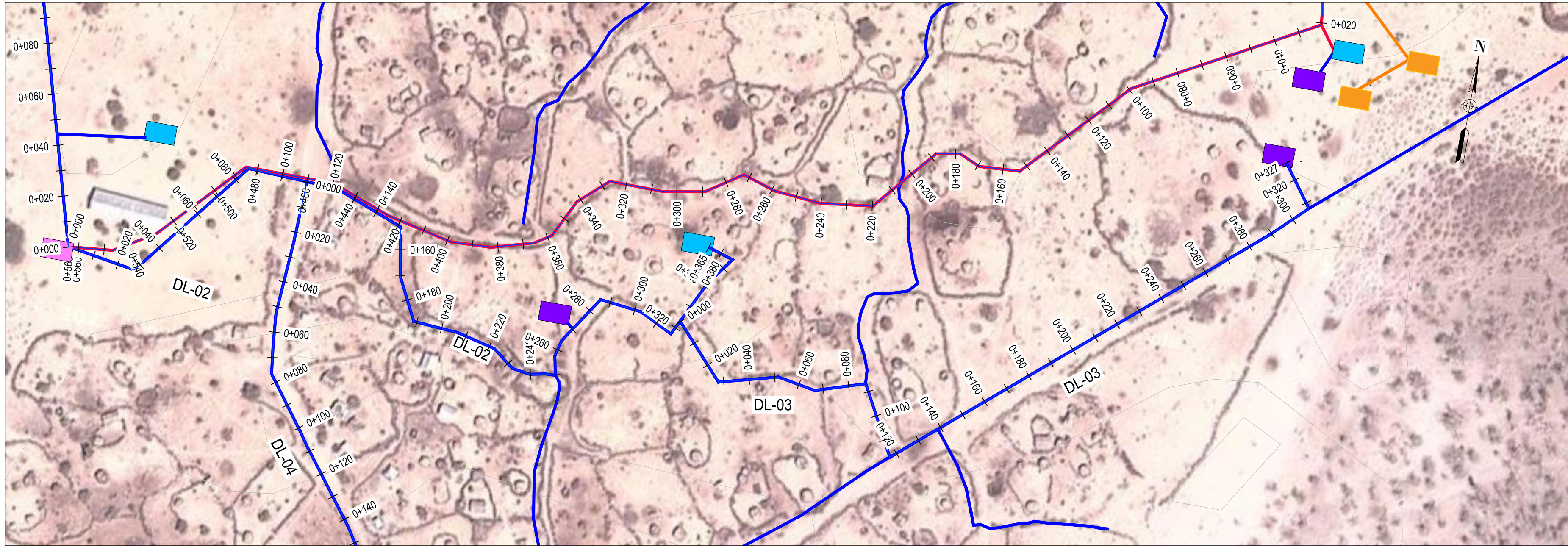
AS SHOWN

DRAWING No.:

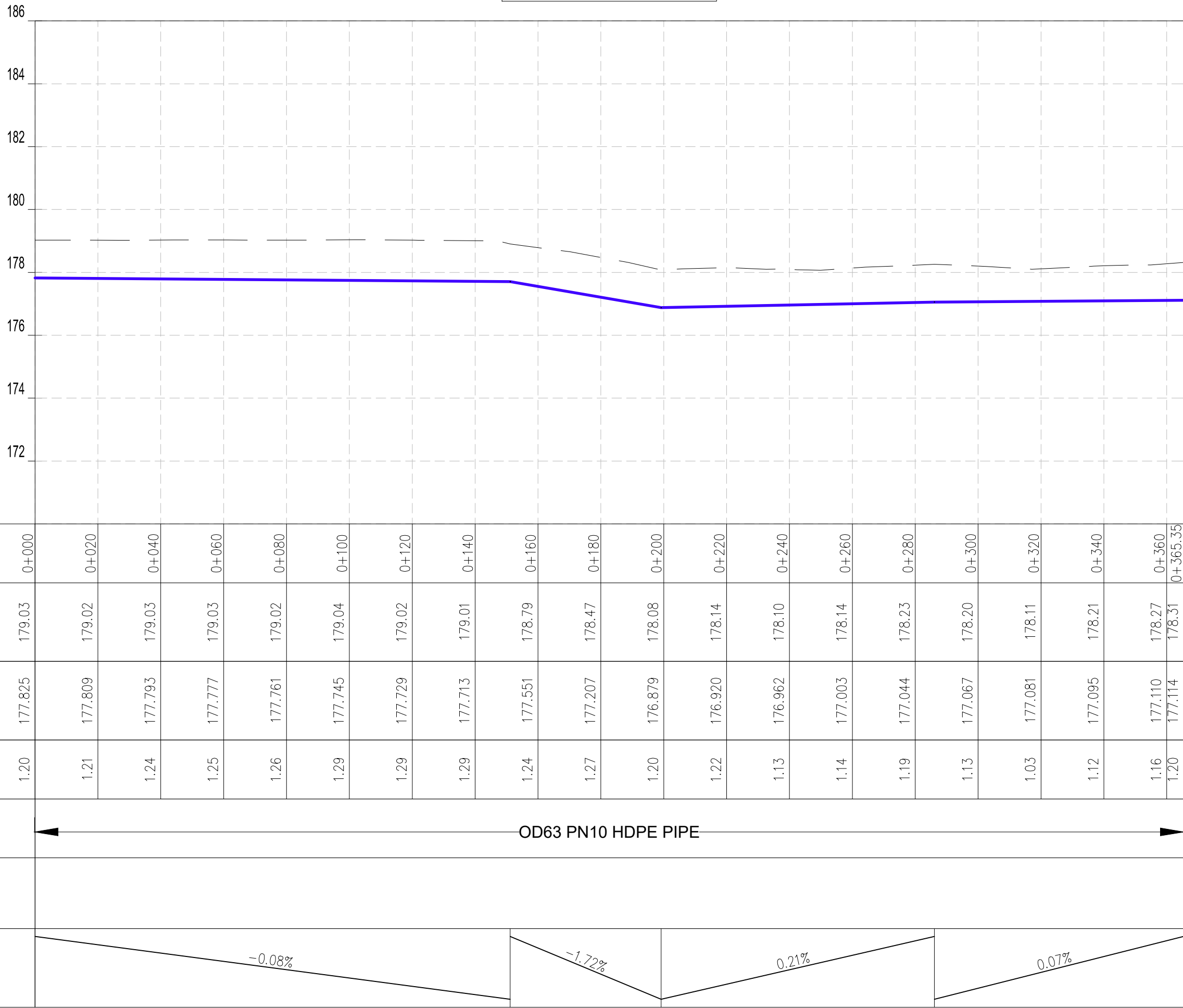
GW4R-WJR-LOT3-PP-03-03

Jul 19, 2025 - 1:20pm

PLAN
SCALE 1:1250



DL-02A Profile



Datum: ~> 170
Ver Exag. ~> x10

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | |
|-----------|--------------------------|
| SP | SOLAR PANEL |
| GH | GENERATOR HOUSE |
| BH | BOREHOLE |
| UT | UNDERGROUND TANK |
| GT | GROUND TANK |
| ET | ELEVATED TANK, PLASTIC |
| SET | STEEL ELEVATED TANK(SET) |
| WK-PROP. | WATER KIOSK (PROPOSED) |
| WK-EXIST. | WATER KIOSK (EXISTING) |
| CH | CHAMBER |
| WT-PROP. | WATER TROUGH-PROPOSED |
| WT-EXIST. | WATER TROUGH-EXISTING |
-
- | | |
|--|-----------------------------------|
| | EXISTING PIPELINE |
| | RISING MAIN |
| | DISTRIBUTION LINE |
| | DISTRIBUTION LINE TO WATER TROUGH |
| | ORIGINAL GROUND LEVEL |
| | PIPE INVERT LEVEL |
| | PIPE |
| | MAJOR CONTOURS WITH ELEVATION |
| | MINOR CONTOURS WITH ELEVATION |
-
- | | |
|----|-------------------------|
| OD | OUTSIDE DIAMETER |
| | S.A.V. SINGLE AIR VALVE |
| | D.A.V. DOUBLE AIR VALVE |
| | W.O. WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



**WATER SECTOR
TRUST FUND**
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com



DESIGN DETAILS			Revision Details					
Action	Name	Date	No.	Revision Details	Reviewed By	Initials	Date	Approved
			1	DRAFT DETAILED DESIGN	Checked			
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked			
Drawn by:	J.K	JUN. 2025			Checked			
Checked by:	W.O	JUN. 2025			Checked			
Approved by:	D.L	JUN. 2025			Checked			

DRAWING TITLE:

TESORAI RWSS - WAJIR
DL-02
PLAN AND PROFILE

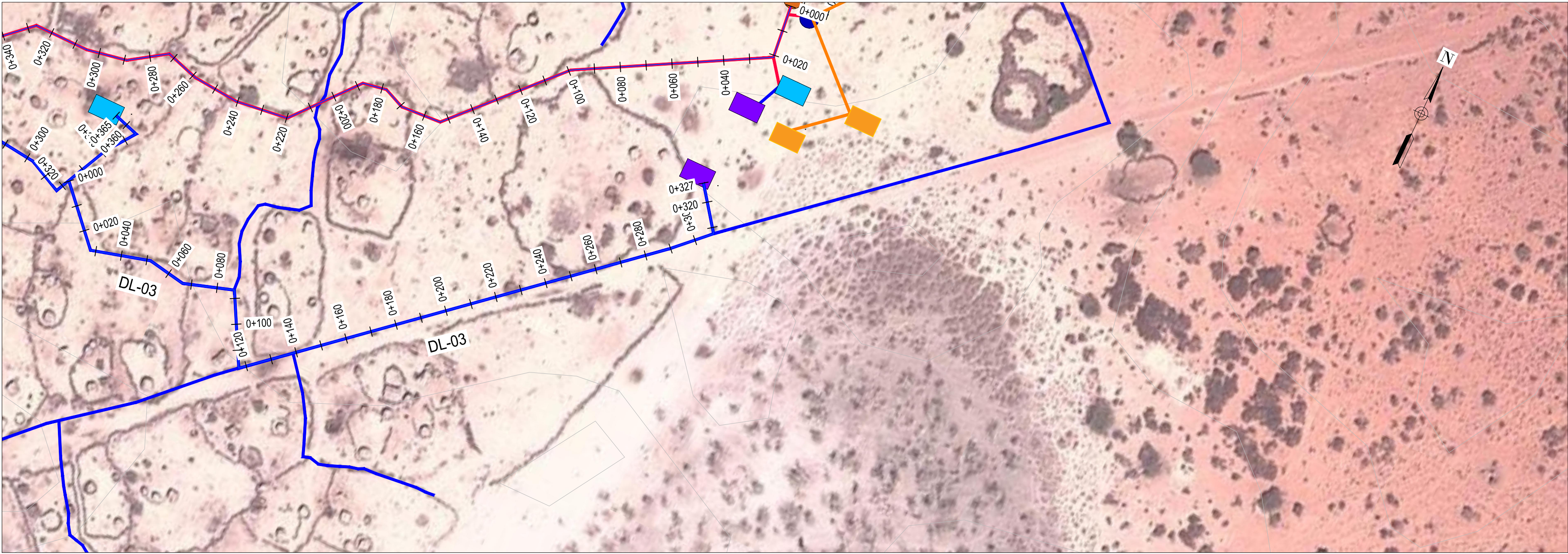
SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

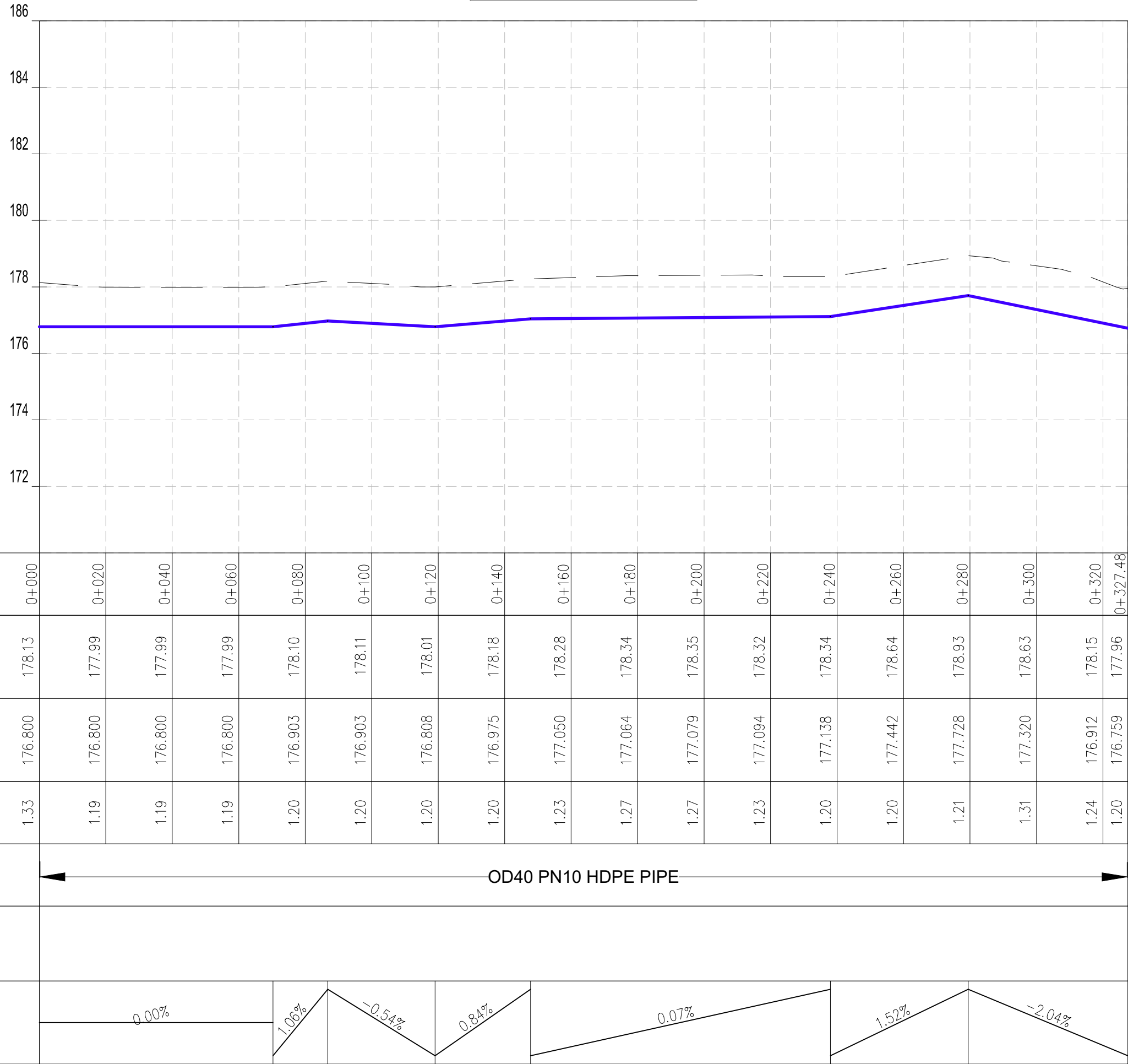
DRAWING No.:

GW4R-WJR-LOT3-PP-03-04



PLAN
SCALE 1:1250

DL-03A Profile



PROFILE

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | | |
|-----------|--------|--------------------------|-----------------------------------|
| SP | | SOLAR PANEL | |
| GH | | GENERATOR HOUSE | |
| BH | | BOREHOLE | |
| UT | | UNDERGROUND TANK | |
| GT | | GROUND TANK | |
| ET | | ELEVATED TANK, PLASTIC | |
| SET | | STEEL ELEVATED TANK(SET) | |
| WK-PROP. | | WATER KIOSK (PROPOSED) | |
| WK-EXIST. | | WATER KIOSK (EXISTING) | |
| CH | | CHAMBER | |
| WT-PROP. | | WATER TROUGH-PROPOSED | |
| WT-EXIST. | | WATER TROUGH-EXISTING | |
| | | | EXISTING PIPELINE |
| | | | RISING MAIN |
| | | | DISTRIBUTION LINE |
| | | | DISTRIBUTION LINE TO WATER TROUGH |
| | | | ORIGINAL GROUND LEVEL |
| | | | PIPE INVERT LEVEL |
| | | | PIPE |
| | | | MAJOR CONTOURS WITH ELEVATION |
| | | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER | |
| | S.A.V. | SINGLE AIR VALVE | |
| | D.A.V. | DOUBLE AIR VALVE | |
| | W.O. | WASH OUT | |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



aarvee associates
architects engineers & consultants pvt. ltd.



ADVANCED
ENGINEERING CONSULTANTS

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			DRAWING TITLE:						
Action	Name	Date	No.	Revision Details		Reviewed By	initials	Date	Approved
Designed by:	M.J	JUN. 2025	2		DRAFT DETAILED DESIGN	By			
					Checked				
Drawn by:	J.K	JUN. 2025			FINAL DETAILED DESIGN	By			
					Checked				
Checked by:	W.O	JUN. 2025				By			
					Checked				
Approved by:	D.L	JUN. 2025				By			
					Checked				

TESORAI RWSS - WAJIR

DL-03

PLAN AND PROFILE

SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

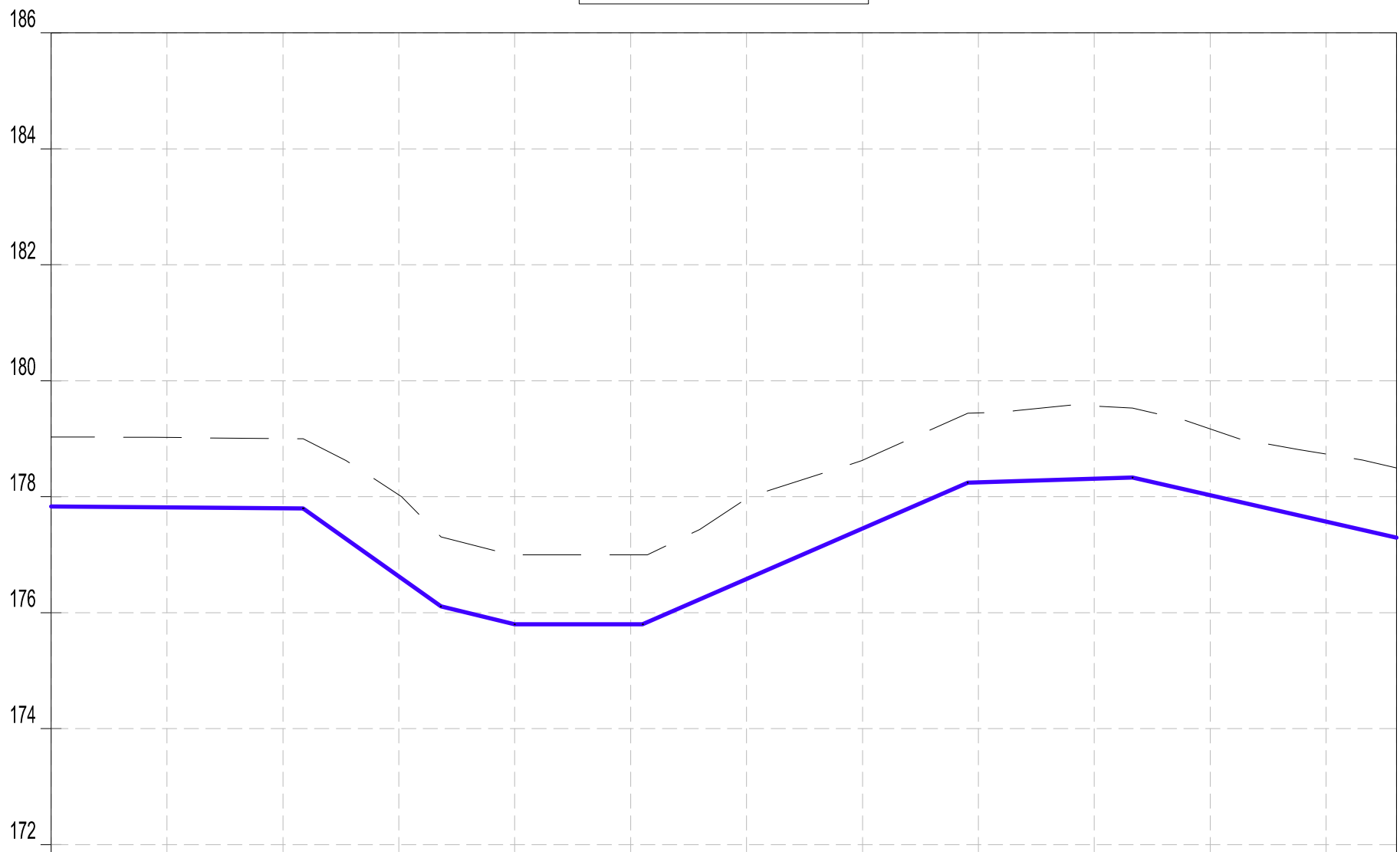
DRAWING No.:

GW4R-WJR-LOT3-PP-03-05



PLAN
SCALE 1:1250

DL-04 Profile



Datum: ~> 170
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+232.16
GROUND LEVEL (M)	179.03	179.02	179.00	178.03	177.00	177.00	177.97	178.63	179.45	179.56	179.17	178.73	178.49
INVERT LEVELS (M)	177.831	177.817	177.802	176.625	175.800	175.800	176.581	177.451	178.247	178.310	178.026	177.571	177.295
TRENCH DEPTH (M)	1.20	1.21	1.20	1.41	1.20	1.20	1.39	1.18	1.20	1.25	1.14	1.16	1.20
SIZE AND TYPE OF PIPE	OD50 PN10 HDPE PIPE												
PIPE FITTINGS													
SLOPE (%)	<div><div></div><div>-0.07%</div><div>-7.11%</div><div>-2.42%</div><div>-0.00%</div><div>4.35%</div><div>0.32%</div><div>-2.28%</div></div>												

PROFILE

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

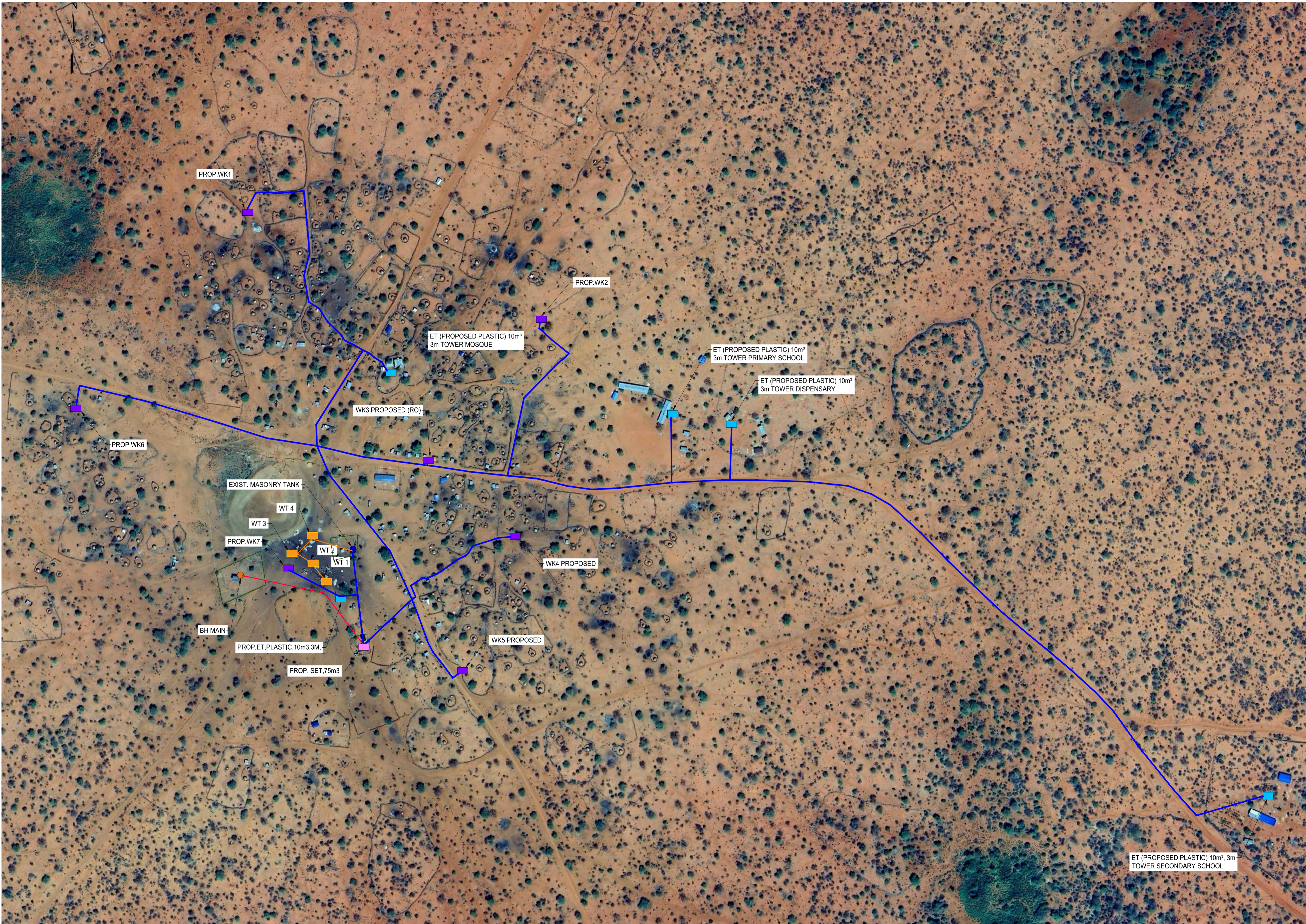
LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div><div><p>WATER SECTOR TRUST FUND</p><p>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div><div><p>THE WORLD BANK GROUP</p></div></div>	<div><div><p>PROJECT:</p><p>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</p><p>Contract No: KE-WSTF-332741-CS-QCBS</p></div></div>	<div><div></div><p>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</p></div>	DESIGN DETAILS			DRAWING TITLE:										
			Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	TESORAI RWSS - WAJIR DL-04 PLAN AND PROFILE SHEET 1 OF 1			
							DRAFT DETAILED DESIGN	By								
			Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By							DRAWING SCALE:	DRAWING No.: GW4R-WJR-LOT3-PP-03-06
								Checked								
			Drawn by:	J.K	JUN. 2025			By					AS SHOWN			
	Checked															
Checked by:	W.O	JUN. 2025			By											
					Checked											
Approved by:	D.L	JUN. 2025			By											
					Checked											

HARAGAL RWSS - WAJIR



- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:						
				No.	Revision Details		Reviewed	initials	Date	Approved	<div>HARAGAL RWSS - WAJIR</div> <div>GENERAL LAYOUT PLAN</div> <div>SHEET 1 OF 1</div>		
				Action	Name	Date	1	DRAFT DETAILED DESIGN	By				
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked				
				Drawn by:	J.K	JUN. 2025			By				
				Checked by:	W.O	JUN. 2025			Checked				
				Approved by:	D.L	JUN. 2025			By				
									Checked				
									By				
DRAWING SCALE:		DRAWING No.:		<div>AS SHOWN</div> <div>GW4R-WJR-LOT3-PP-04-01</div>									

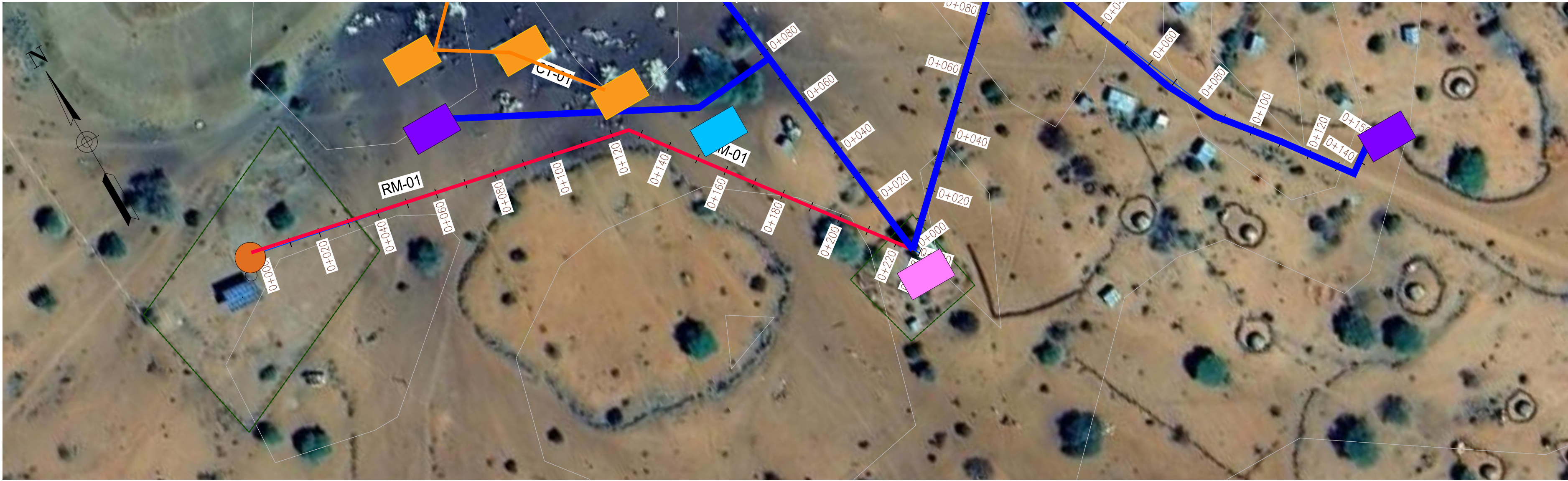


- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

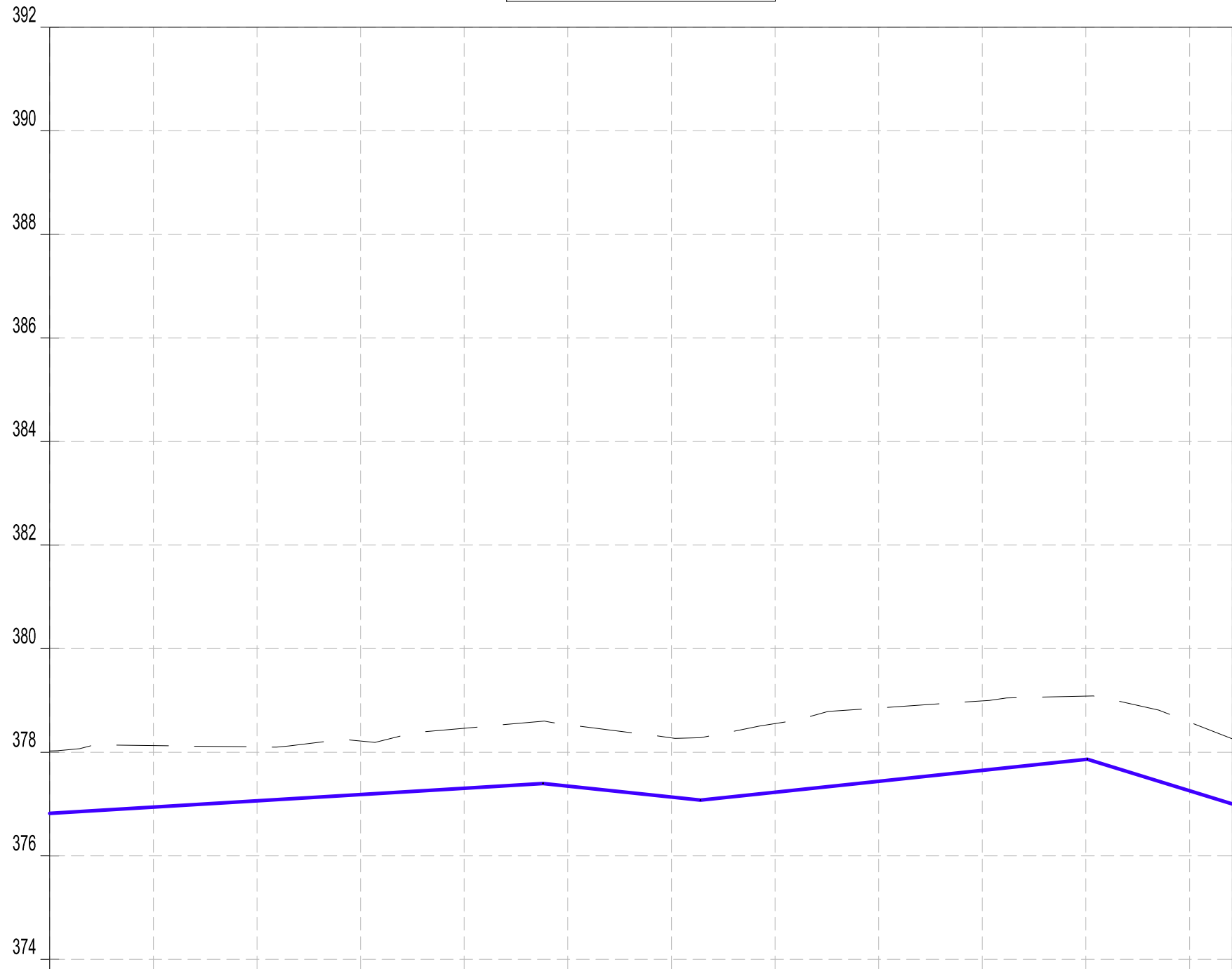
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div><p>WATER SECTOR TRUST FUND</p><p>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div>	<div><p>THE WORLD BANK GROUP</p></div>	<div><p>PROJECT:</p><p>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER- BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</p><p>Contract No: KE-WSTF-332741-CS-QCBS</p></div>	<div><div></div><p>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</p></div>	<div>DESIGN DETAILS</div> <table><tr><td rowspan="2">Action</td><td rowspan="2">Name</td><td rowspan="2">Date</td><td>No.</td><td>Revision Details</td><td>Reviewed</td><td>initials</td><td>Date</td><td>Approved</td></tr><tr><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN. 2025</td><td rowspan="2">2</td><td rowspan="2">FINAL DETAILED DESIGN</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td rowspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td rowspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td rowspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>By</td><td></td><td></td><td></td></tr></table>							Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved	1	DRAFT DETAILED DESIGN	By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked				By				Drawn by:	J.K	JUN. 2025			Checked				By				Checked by:	W.O	JUN. 2025			Checked				By				Approved by:	D.L	JUN. 2025			Checked				By				<div>DRAWING TITLE:</div> <div>HARAGAL RWSS - WAJIR</div> <div>GENERAL LAYOUT PLAN</div> <div>SHEET 1 OF 1</div>	
				Action	Name	Date	No.	Revision Details	Reviewed	initials				Date	Approved																																																																
							1	DRAFT DETAILED DESIGN	By																																																																						
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked																																																																						
									By																																																																						
				Drawn by:	J.K	JUN. 2025			Checked																																																																						
									By																																																																						
Checked by:	W.O	JUN. 2025			Checked																																																																										
					By																																																																										
Approved by:	D.L	JUN. 2025			Checked																																																																										
					By																																																																										
<div>DRAWING SCALE:</div> <div>AS SHOWN</div>					<div>DRAWING No.:</div> <div>GW4R-WJR-LOT3-PP-04-01</div>																																																																										



PLAN
SCALE 1:1250

RM-01 Profile



Datum: ~> 372
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+228.78
GROUND LEVEL (M)	378.02	378.13	378.10	378.22	378.46	378.53	378.28	378.55	378.85	378.99	379.08	378.58	378.26
INVERT LEVELS (M)	376.820	376.941	377.063	377.184	377.305	377.346	377.134	377.227	377.439	377.651	377.863	377.257	377.001
TRENCH DEPTH (M)	1.20	1.19	1.04	1.03	1.16	1.19	1.14	1.32	1.41	1.34	1.22	1.32	1.26
SIZE AND TYPE OF PIPE	OD63 PN10 HDPE PIPE												
PIPE FITTINGS													
SLOPE (%)	0.61% -1.06% 1.06% -3.09%												

PROFILE

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



WATER SECTOR
TRUST FUND

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



THE WORLD
BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com



DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved
					By			
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked			
			2	FINAL DETAILED DESIGN	By			
Drawn by:	J.K	JUN. 2025			By			
					Checked			
Checked by:	W.O	JUN. 2025			By			
					Checked			
Approved by:	D.L	JUN. 2025			By			
					Checked			

DRAWING TITLE:

HARAGAL RWSS - WAJIR
RISING MAIN RM-01
PLAN AND PROFILE

SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-04-02



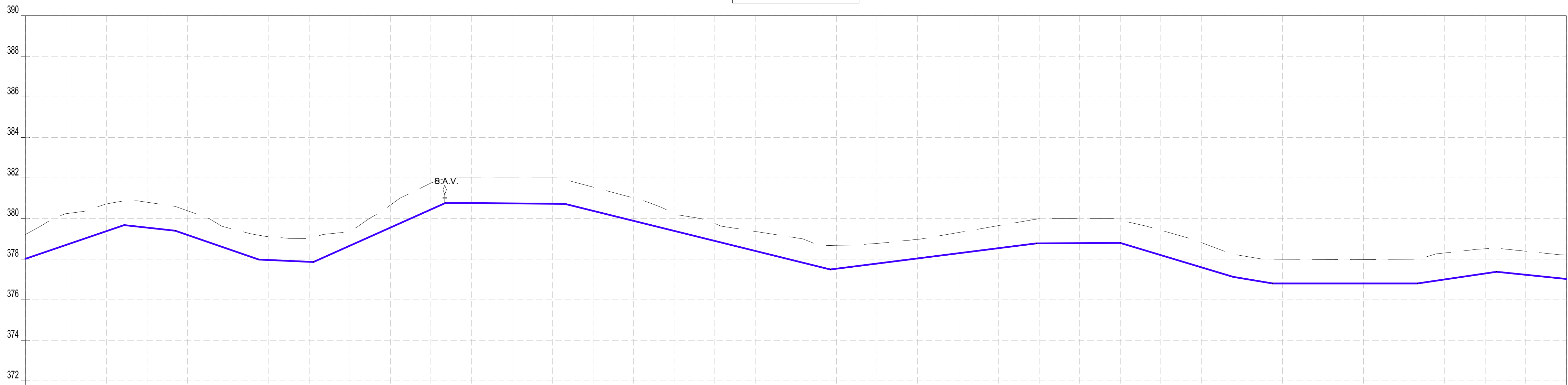
NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
GH GENERATOR HOUSE
BH BOREHOLE
UT UNDERGROUND TANK
GT GROUND TANK
ET ELEVATED TANK, PLASTIC
SET STEEL ELEVATED TANK(SET)
WK-PROP. WATER KIOSK (PROPOSED)
WK-EXIST. WATER KIOSK (EXISTING)
CH CHAMBER
WT-PROP. WATER TROUGH-PROPOSED
WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
RISING MAIN
DISTRIBUTION LINE
DISTRIBUTION LINE TO WATER TROUGH
ORIGINAL GROUND LEVEL
PIPE INVERT LEVEL
PIPE
MAJOR CONTOURS WITH ELEVATION
MINOR CONTOURS WITH ELEVATION
OD OUTSIDE DIAMETER
S.A.V. SINGLE AIR VALVE
D.A.V. DOUBLE AIR VALVE
W.O. WASH OUT

DL-01 Profile



Datum: ~> 370
Ver Exog. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	
GROUND LEVEL (M)	379.21	380.24	380.72	380.80	380.38	379.54	379.11	379.02	379.42	380.66	381.75	382.00	382.00	382.00	381.55	381.02	380.26	379.75	379.37	379.05	378.68	378.78	378.97	379.31	379.65	380.00	380.00	379.92	379.42	378.82	378.17	377.99	377.98	377.98	377.99	378.31	378.51	378.39	378.20	
INVERT LEVELS (M)	378.015	378.698	379.380	379.554	379.191	378.502	377.958	377.869	378.661	379.554	380.448	380.763	380.746	380.730	380.380	379.886	379.391	378.897	378.403	377.908	377.526	377.780	378.034	378.288	378.541	378.778	378.789	378.800	378.199	377.599	377.055	376.800	376.800	376.800	376.999	377.296	377.231	377.027		
TRENCH DEPTH (M)	1.20	1.54	1.34	1.25	1.19	1.04	1.15	1.15	0.76	1.11	1.30	1.24	1.25	1.27	1.17	1.13	0.87	0.86	0.96	1.15	1.16	1.00	0.94	1.02	1.11	1.22	1.21	1.12	1.22	1.22	1.11	1.19	1.18	1.18	1.19	1.31	1.22	1.16	1.17	
SIZE AND TYPE OF PIPE	OD40 PN10 HDPE PIPE																																							
PIPE FITTINGS																																								
SLOPE (%)	3.41% -1.09% -3.45% -0.45% 4.47% -0.08% -2.47% 1.27% 0.06% -3.00% -1.68% 0.00% 1.48% -1.02%																																							
PROFILE																																								

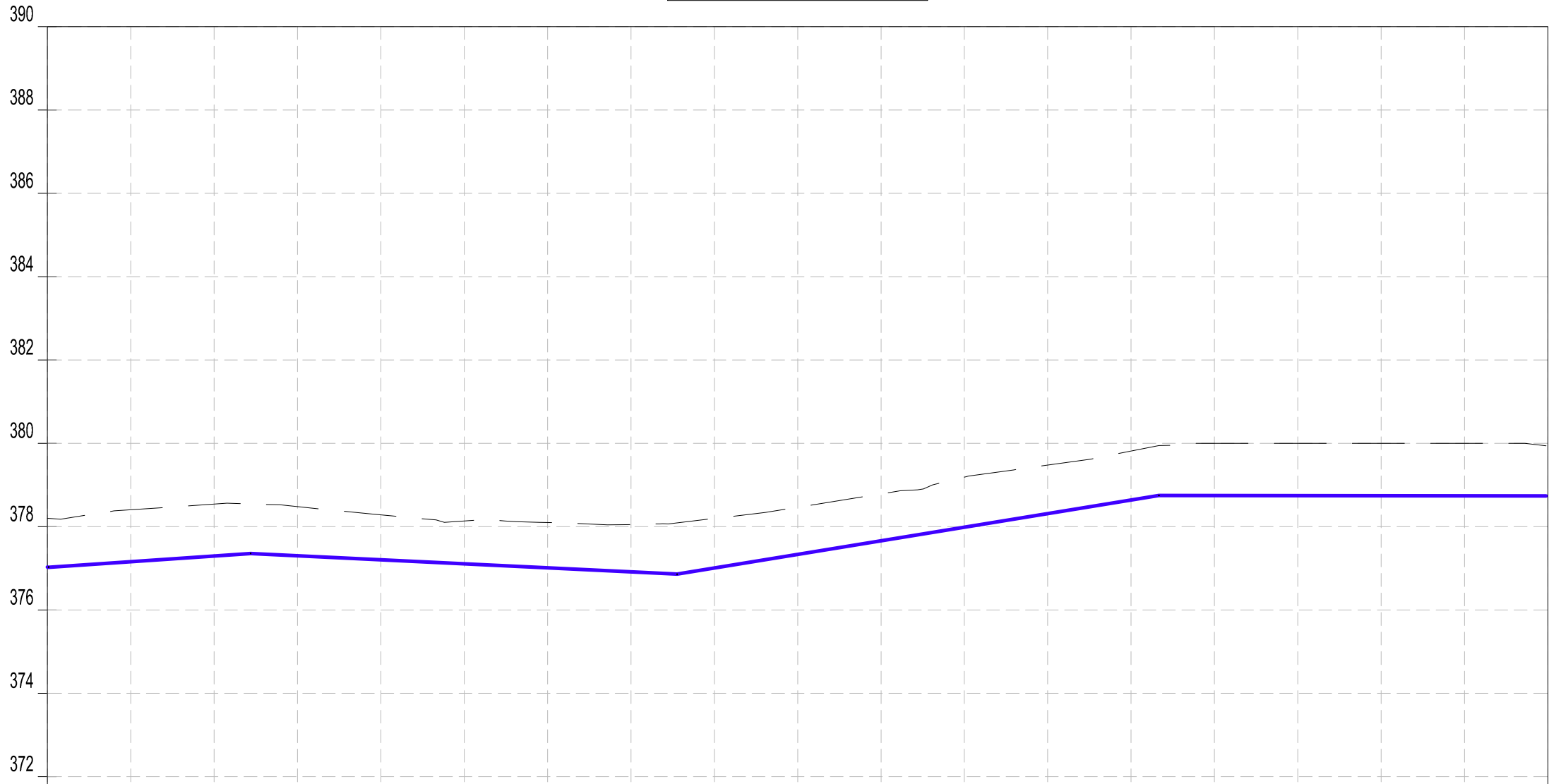
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT: WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER: THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR Contract No: KE-WSTF-332741-CS-QCBS	CONSULTANT: Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	DESIGN DETAILS			Revision Details						DRAWING TITLE:		
				Action	Name	Date	No.	1	DRAFT DETAILED DESIGN	Reviewed By	Initials	Date	Approved	HARAGAL RWSS - WAJIR	
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked By									DL-01	
														PLAN AND PROFILE	
														SHEET 1 OF 2	
Drawn by:	J.K	JUN. 2025			Checked By									DRAWING SCALE:	
														AS SHOWN	
Checked by:	W.O	JUN. 2025			Checked By									DRAWING No.:	
														GW4R-WJR-LOT3-PP-04-03.01	
Approved by:	D.L	JUN. 2025			Checked By										

PLAN
SCALE 1:1250



DL-01 Profile



Datum: ~> 370
Ver Exag. ~> x10

CHAINAGES (M)	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020	1+040	1+060	1+080	1+100	1+120
GROUND LEVEL (M)	378.20	378.40	378.54	378.48	378.28	378.13	378.10	378.05	378.19	378.46	378.78	379.19	379.47	379.81	380.00	380.00	380.00	380.00	
INVERT LEVELS (M)	377.027	377.158	377.295	377.301	377.204	377.106	377.009	376.912	377.003	377.330	377.657	377.984	378.311	378.638	378.745	378.743	378.741	378.739	
TRENCH DEPTH (M)	1.17	1.25	1.25	1.18	1.08	1.03	1.09	1.13	1.19	1.13	1.13	1.20	1.16	1.17	1.26	1.26	1.26	1.26	
SIZE AND TYPE OF PIPE	OD40 PN10 HDPE PIPE																		
PIPE FITTINGS																			
SLOPE (%)	-1.20%	0.68%				-0.49%				1.63%							-0.01%		

PROFILE

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com



DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved
					By			
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked			
			2	FINAL DETAILED DESIGN	By			
Drawn by:	J.K	JUN. 2025			Checked			
					By			
Checked by:	W.O	JUN. 2025			Checked			
					By			
Approved by:	D.L	JUN. 2025			Checked			
					By			

DRAWING TITLE:

HARAGAL RWSS - WAJIR
DL-01
PLAN AND PROFILE

SHEET 2 OF 2

DRAWING SCALE:

AS SHOWN

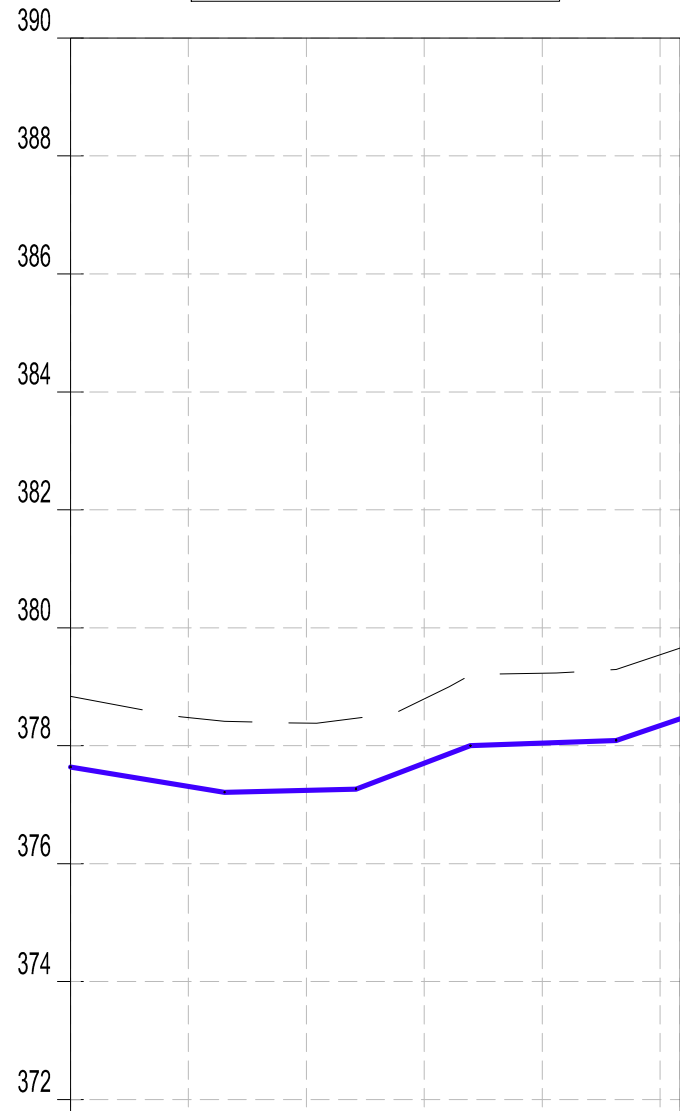
DRAWING No.:

GW4R-WJR-LOT3-PP-04-03.02

PLAN
SCALE 1:1250



DL-02 Profile



Datum: ~> 370
Ver Exag. ~> x10

CHAINAGES (M)	0+760	0+780	0+800	0+820	0+840	0+860	0+880
GROUND LEVEL (M)	378.84	378.47	378.38	378.79	379.23	379.54	379.66
INVERT LEVELS (M)	377.635	377.311	377.245	377.704	378.045	378.343	378.458
TRENCH DEPTH (M)	1.20	1.16	1.14	1.09	1.18	1.20	1.20
SIZE AND TYPE OF PIPE	OD75 PN10 HDPE PIPE						
PIPE FITTINGS							
SLOPE (%)	-0.17%	-1.67%	0.24%	1.78%	0.37%	3.56%	

PROFILE

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK GROUP

CLIENT:

FINANCIER:

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

ADVANCED ENGINEERING CONSULTANTS

CONSULTANT:

DESIGN DETAILS			No.	Revision Details		Reviewed	Initials	Date	Approved
Action	Name	Date	1	DRAFT DETAILED DESIGN		By			
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By			
Drawn by:	J.K	JUN. 2025				By			
Checked by:	W.O	JUN. 2025				By			
Approved by:	D.L	JUN. 2025				By			

DRAWING TITLE:

HARAGAL RWSS - WAJIR
DL-02
PLAN AND PROFILE

SHEET 2 OF 2

DRAWING SCALE: AS SHOWN

DRAWING No.: GW4R-WJR-LOT3-PP-04-04.02

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS. WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

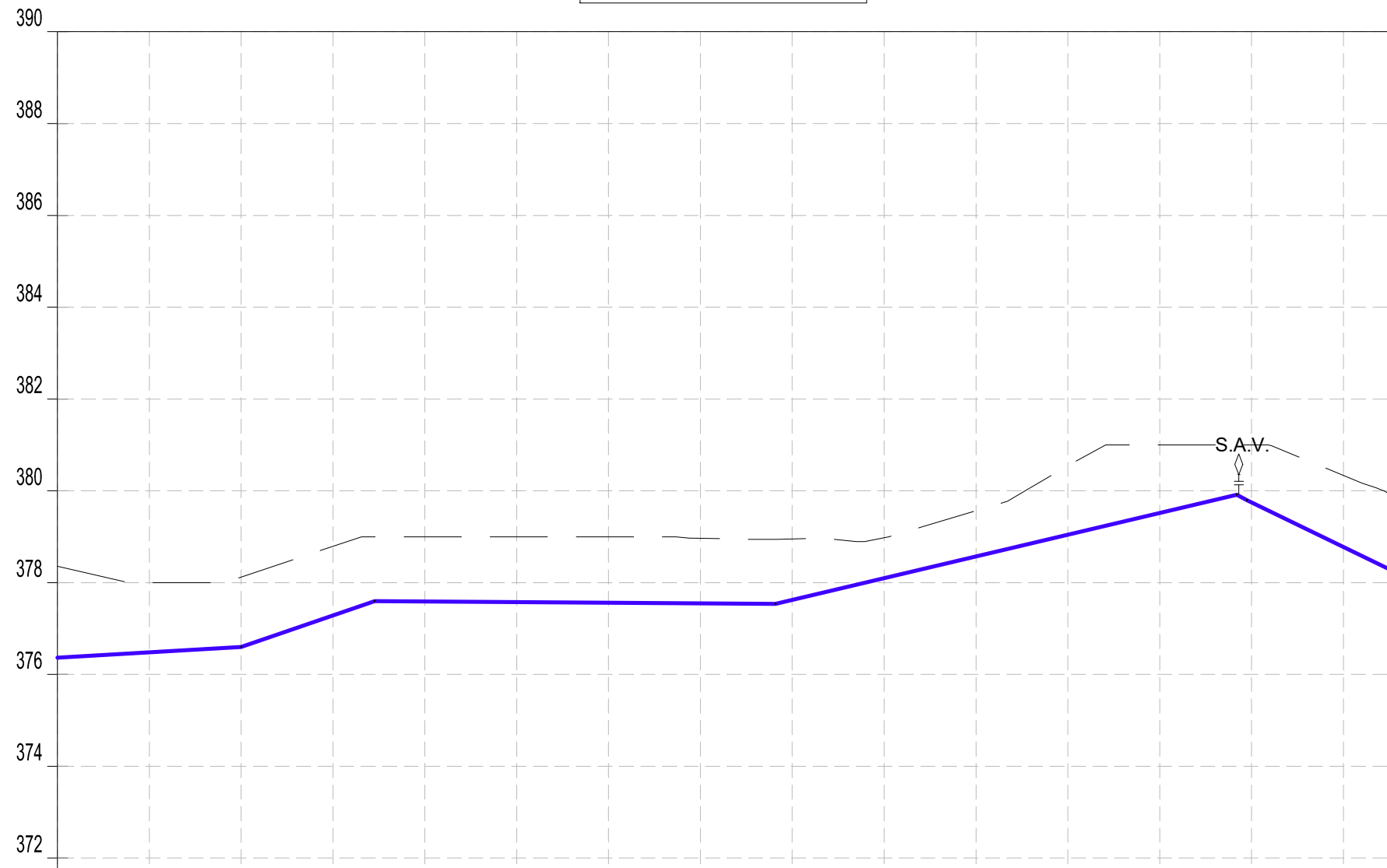
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

Jul 19, 2025 - 1:25pm



PLAN
SCALE 1:1250

DL-05 Profile



Datum: ~> 370
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+289.94
GROUND LEVEL (M)	376.36	378.00	378.12	378.79	379.00	379.00	379.00	378.97	378.95	378.98	379.57	380.55	381.00	381.00	380.33	379.94
INVERT LEVELS (M)	376.365	376.483	376.600	377.288	377.592	377.578	377.564	377.550	377.626	378.099	378.573	379.046	379.519	379.747	378.777	378.292
TRENCH DEPTH (M)	1.99	1.52	1.52	1.50	1.41	1.42	1.44	1.42	1.32	0.88	1.00	1.50	1.48	1.25	1.56	1.64
SIZE AND TYPE OF PIPE	OD110 PN10 HDPE PIPE															
PIPE FITTINGS																
SLOPE (%)	0.59%		3.44%		-0.07%				2.37%				-4.85%		20.07%	

PROFILE

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK GROUP

CLIENT:

FINANCIER:

PROJECT:

CONSULTANT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS		
Action	Name	Date
Designed by:	M.J	JUN. 2025
Drawn by:	J.K	JUN. 2025
Checked by:	W.O	JUN. 2025
Approved by:	D.L	JUN. 2025

No.	Revision Details	Reviewed By	Initials	Date	Approved
1	DRAFT DETAILED DESIGN	Checked			
2	FINAL DETAILED DESIGN	Checked			

DRAWING TITLE:

HARAGAL RWSS - WAJIR
DL-05
PLAN AND PROFILE

SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-04-05.01

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

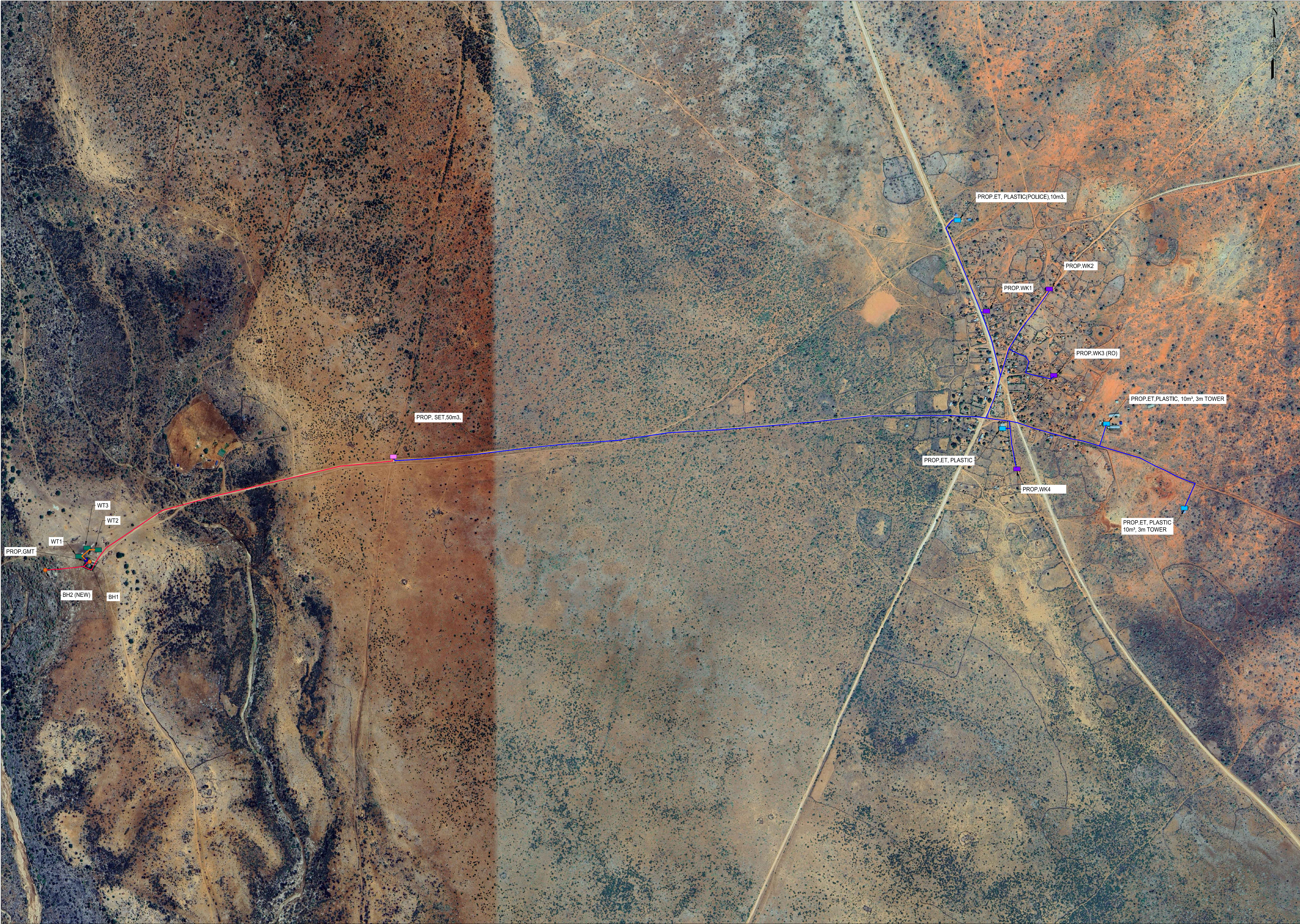
LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

Jul 19, 2025 - 1:25pm

MASALALE RWSS - WAJIR



- NOTES:**
1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
 2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
 4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
 5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
 6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
 7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

- LEGEND:**
- SP SOLAR PANEL
 - GH GENERATOR HOUSE
 - BH BOREHOLE
 - UT UNDERGROUND TANK
 - GT GROUND TANK
 - ET ELEVATED TANK, PLASTIC
 - SET STEEL ELEVATED TANK(SET)
 - WK-PROP. WATER KIOSK (PROPOSED)
 - WK-EXIST. WATER KIOSK (EXISTING)
 - CH CHAMBER
 - WT-PROP. WATER TROUGH-PROPOSED
 - WT-EXIST. WATER TROUGH-EXISTING
 - EXISTING PIPELINE
 - RISING MAIN
 - DISTRIBUTION LINE
 - DISTRIBUTION LINE TO WATER TROUGH
 - ORIGINAL GROUND LEVEL
 - PIPE INVERT LEVEL
 - PIPE
 - MAJOR CONTOURS WITH ELEVATION
 - MINOR CONTOURS WITH ELEVATION
 - OD OUTSIDE DIAMETER
 - S.A.V. SINGLE AIR VALVE
 - D.A.V. DOUBLE AIR VALVE
 - W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div><div></div><div>WATER SECTOR TRUST FUND</div><div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div></div>	<div><div></div><div>THE WORLD BANK GROUP</div></div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div><div></div><div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div></div>	DESIGN DETAILS			DRAWING TITLE:								
		Action		Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	GENERAL LAYOUT PLAN		
							DRAFT DETAILED DESIGN								
		Designed by:		M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By	Checked				SHEET 1 OF 1	
		Drawn by:		J.K	JUN. 2025				By	Checked					DRAWING SCALE: AS SHOWN
Checked by:	W.O	JUN. 2025				By	Checked			DRAWING No.: GW4R-WJR-LOT3-PP-05-01					
Approved by:	D.L	JUN. 2025				By	Checked								



NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

SP		SOLAR PANEL
GH		GENERATOR HOUSE
BH		BOREHOLE
UT		UNDERGROUND TANK
GT		GROUND TANK
ET		ELEVATED TANK, PLASTIC
SET		STEEL ELEVATED TANK(SET)
WK-PROP.		WATER KIOSK (PROPOSED)
WK-EXIST.		WATER KIOSK (EXISTING)
CH		CHAMBER
WT-PROP.		WATER TROUGH-PROPOSED
WT-EXIST.		WATER TROUGH-EXISTING
		EXISTING PIPELINE
		RISING MAIN
		DISTRIBUTION LINE
		DISTRIBUTION LINE TO WATER TROUGH
		ORIGINAL GROUND LEVEL
		PIPE INVERT LEVEL
		PIPE
		MAJOR CONTOURS WITH ELEVATION
		MINOR CONTOURS WITH ELEVATION
		OD
		S.A.V. SINGLE AIR VALVE
		D.A.V. DOUBLE AIR VALVE
		W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:



WATER SECTOR TRUST FUND

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with

Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			Revision Details					
Action	Name	Date	No.	Revision Details	Reviewed By	Initials	Date	Approved
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked			
			2	FINAL DETAILED DESIGN	Checked			
Drawn by:	J.K	JUN. 2025			Checked			
					Checked			
Checked by:	W.O	JUN. 2025			Checked			
					Checked			
Approved by:	D.L	JUN. 2025			Checked			
					Checked			

DRAWING TITLE:

MASALAL RWSS - WAJIR

GENERAL LAYOUT PLAN

SHEET 1 OF 1

DRAWING SCALE:

AS SHOWN

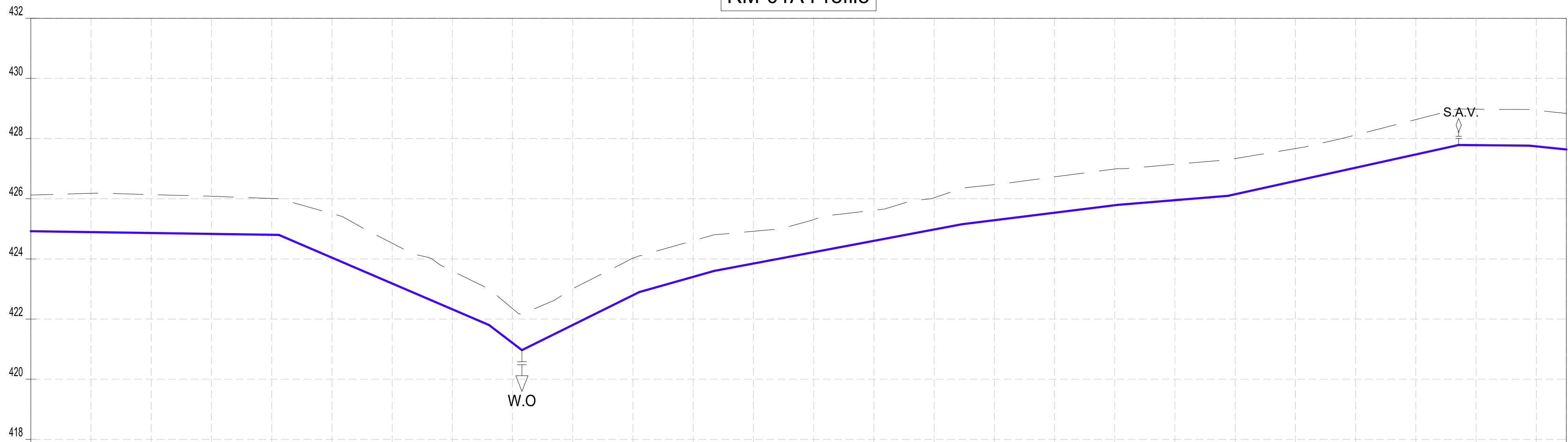
DRAWING No.:

GW4R-WJR-LOT3-PP-05-01



PLAN
SCALE 1:1250

RM-01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)	0+000	0+020	0+040	0+060	0+080	0+100	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+440	0+460	0+480	0+500	0+510
GROUND LEVEL (M)	426.12	426.18	426.14	426.08	426.01	425.51	424.52	423.60	422.35	423.01	424.03	424.60	424.92	425.31	425.62	426.03	426.47	426.73	426.99	427.14	427.34	427.67	428.12	428.63	428.98	428.94	428.84
INVERT LEVELS (M)	424.921	424.892	424.862	424.833	424.804	424.043	423.183	422.324	421.204	421.802	422.793	423.404	423.847	424.224	424.600	424.977	425.286	425.535	425.784	425.952	426.149	426.591	427.032	427.474	427.783	427.741	427.637
TRENCH DEPTH (M)	1.20	1.29	1.28	1.25	1.21	1.46	1.34	1.27	1.14	1.21	1.23	1.20	1.07	1.08	1.02	1.06	1.18	1.19	1.21	1.19	1.19	1.08	1.09	1.16	1.20	1.20	1.20
SIZE AND TYPE OF PIPE	OD90 PN16 HDPE PIPE																										
PIPE FITTINGS																											
SLOPE (%)	<div><div></div><div>-0.15%</div><div></div><div>-4.30%</div><div></div><div>-1.63%</div><div></div><div>4.95%</div><div></div><div>2.83%</div><div></div><div>1.88%</div><div></div><div>1.25%</div><div></div><div>0.82%</div><div></div><div>2.21%</div><div></div><div>-0.10%</div><div></div><div>-1.04%</div></div>																										

























PROFILE

<div><div><p>WATER FUND Water for People</p></div><div><p>WATER SECTOR TRUST FUND</p><p>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div></div>		<div><div><p>THE WORLD BANK</p></div><div><p>THE WORLD BANK GROUP</p></div></div>		<div><p>PROJECT:</p><p>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</p><p>Contract No: KE-WSTF-332741-CS-QCBS</p></div>		<div><div><p>aarvee associates architects engineers & consultants pvt. ltd.</p></div><div><p>ADVANCED ENGINEERING CONSULTANTS</p></div><div><p>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</p></div></div>		<div><div>DESIGN DETAILS</div><table><tr><td rowspan="2">Action</td><td rowspan="2">Name</td><td rowspan="2">Date</td><td>No.</td><td>Revision Details</td><td>Reviewed</td><td>Initials</td><td>Date</td><td>Approved</td></tr><tr><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN. 2025</td><td rowspan="2">2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr></table></div>							Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved	1	DRAFT DETAILED DESIGN	By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By					Checked				Drawn by:	J.K	JUN. 2025			By					Checked				Checked by:	W.O	JUN. 2025			By					Checked				Approved by:	D.L	JUN. 2025			By					Checked				<div><div>DRAWING TITLE:</div><div>MASALAL RWSS - WAJIR RM-01 PLAN AND PROFILE SHEET 1 OF 3</div></div>	
								Action	Name	Date	No.	Revision Details	Reviewed	Initials				Date	Approved																																																																				
											1	DRAFT DETAILED DESIGN	By																																																																										
								Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By																																																																										
													Checked																																																																										
								Drawn by:	J.K	JUN. 2025			By																																																																										
												Checked																																																																											
Checked by:	W.O	JUN. 2025			By																																																																																		
				Checked																																																																																			
Approved by:	D.L	JUN. 2025			By																																																																																		
				Checked																																																																																			
<div><div>DRAWING SCALE:</div><div>AS SHOWN</div></div>		<div><div>DRAWING No.:</div><div>GW4R-WJR-LOT3-PP-05-02.01</div></div>																																																																																					

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

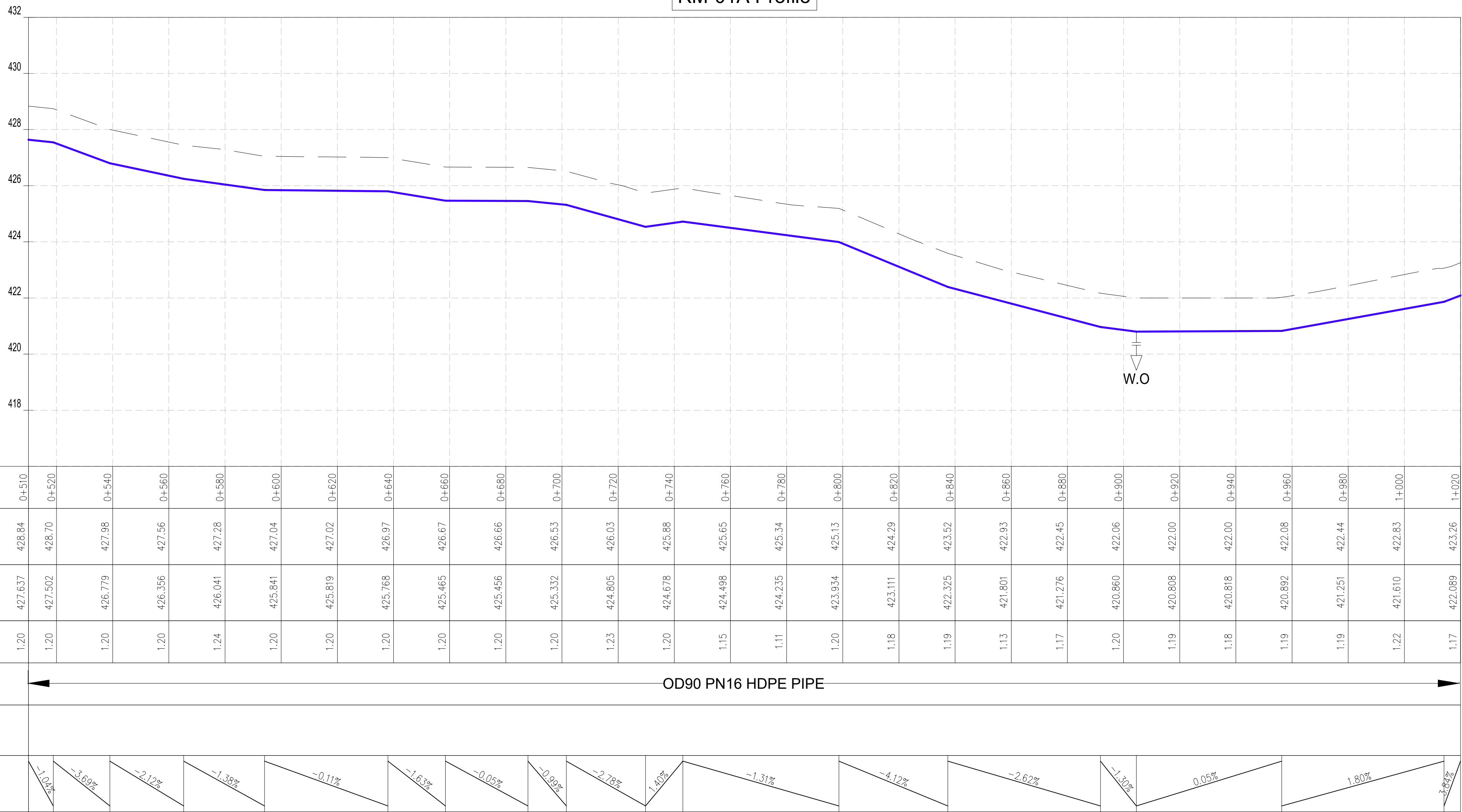
- | | | |
|-----------|---|--------------------------|
| SP |  | SOLAR PANEL |
| GH |  | GENERATOR HOUSE |
| BH |  | BOREHOLE |
| UT |  | UNDERGROUND TANK |
| GT |  | GROUND TANK |
| ET |  | ELEVATED TANK, PLASTIC |
| SET |  | STEEL ELEVATED TANK(SET) |
| WK-PROP. |  | WATER KIOSK (PROPOSED) |
| WK-EXIST. |  | WATER KIOSK (EXISTING) |
| CH |  | CHAMBER |
| WT-PROP. |  | WATER TROUGH-PROPOSED |
| WT-EXIST. |  | WATER TROUGH-EXISTING |
-
- | | |
|---|--------------------------------------|
|  | EXISTING PIPELINE |
|  | RIISING MAIN |
|  | DISTRIBUTION LINE |
|  | DISTRIBUTION LINE TO WATER TROUGH |
|  | ORIGINAL GROUND LEVEL |
|  | PIPE INVERT LEVEL |
|  | PIPE |
|  | 212.50 MAJOR CONTOURS WITH ELEVATION |
|  | 212.30 MINOR CONTOURS WITH ELEVATION |
| OD | OUTSIDE DIAMETER |
|  | S.A.V. SINGLE AIR VALVE |
|  | D.A.V. DOUBLE AIR VALVE |
|  | WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA



PLAN
SCALE 1:1250

RM-01A Profile



Datum: ~> 416
Ver Exog. ~> x10

CHAINAGES (M)	0+510	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020
GROUND LEVEL (M)	428.84	428.70	427.98	427.56	427.28	427.04	427.02	426.97	426.67	426.66	426.53	426.03	425.88	425.65	425.34	425.13	424.29	423.52	422.93	422.45	422.06	422.00	422.00	422.08	422.44	422.83	423.26
INVERT LEVELS (M)	427.637	427.502	426.779	426.356	426.041	425.841	425.819	425.768	425.465	425.456	425.332	424.805	424.678	424.498	424.235	423.934	423.111	422.325	421.801	421.276	420.860	420.808	420.818	420.892	421.251	421.610	422.089
TRENCH DEPTH (M)	1.20	1.20	1.20	1.20	1.24	1.20	1.20	1.20	1.20	1.20	1.20	1.23	1.20	1.15	1.11	1.20	1.18	1.19	1.13	1.17	1.20	1.19	1.18	1.19	1.19	1.22	1.17
SIZE AND TYPE OF PIPE	OD90 PN16 HDPE PIPE																										
PIPE FITTINGS																											
SLOPE (%)	-1.04%	-1.69%	-2.12%	-1.38%	-0.11%	-1.63%	-0.05%	-0.99%	-2.78%	1.40%	-1.31%	-4.12%	-2.62%	-1.30%	0.05%	1.80%	-2.84%										

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

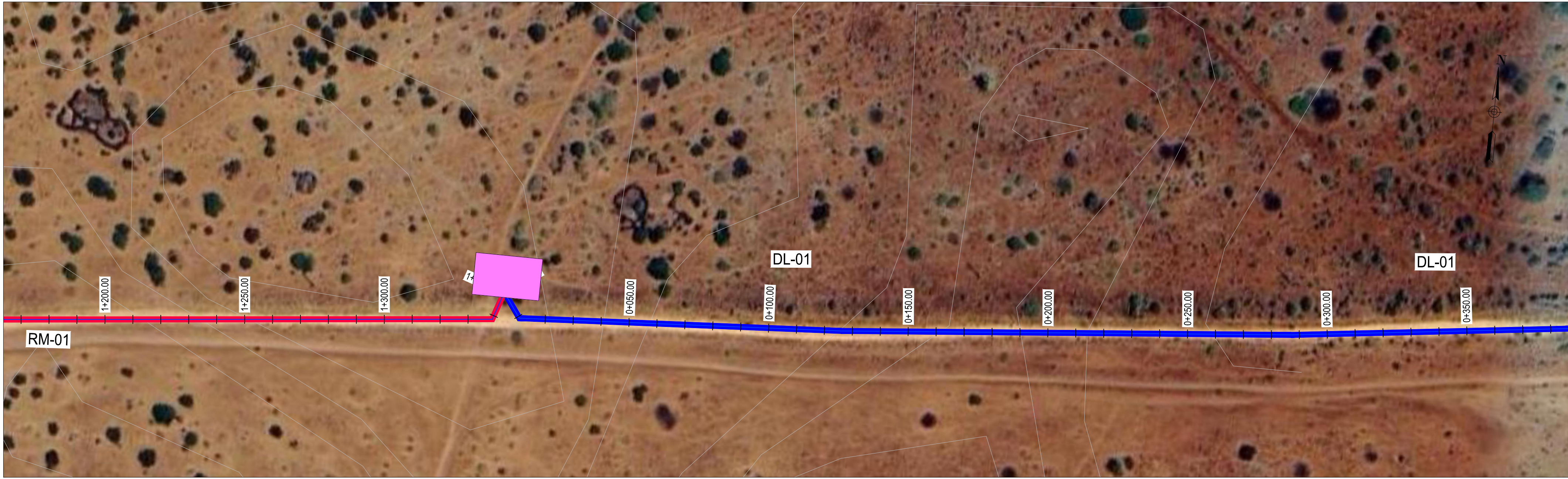
LEGEND:

- | | | |
|-----------|--------|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | S.A.V. | SINGLE AIR VALVE |
| | D.A.V. | DOUBLE AIR VALVE |
| | W.O. | WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

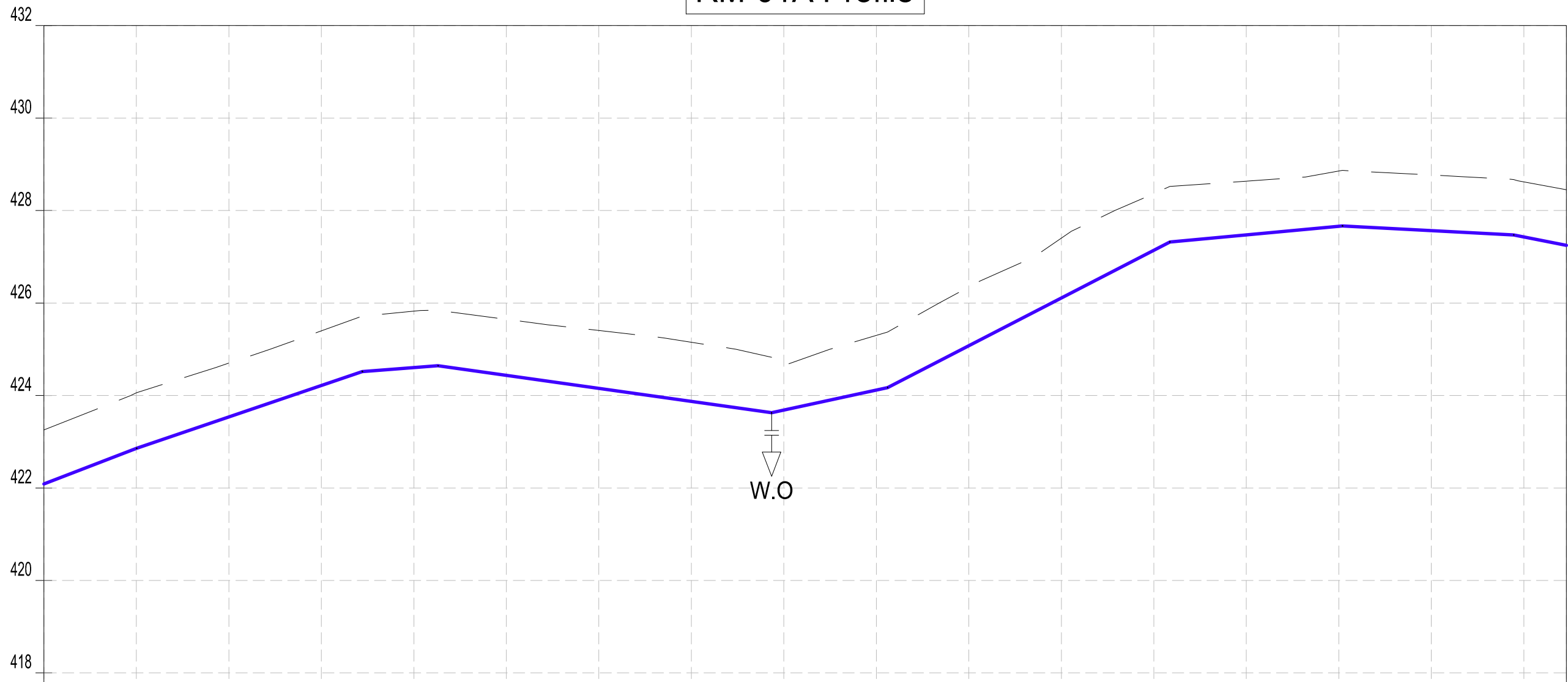
PROFILE

<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:									
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	MASALAL RWSS - WAJIR RM-01 PLAN AND PROFILE SHEET 2 OF 3		
								DRAFT DETAILED DESIGN	By							
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By						DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-LOT3-PP-05-02.02
									Checked							
				Drawn by:	J.K	JUN. 2025			By							
									Checked							
Checked by:	W.O	JUN. 2025			By											
					Checked											
Approved by:	D.L	JUN. 2025			By											
					Checked											



PLAN
SCALE 1:1250

RM-01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+349.22
GROUND LEVEL (M)	423.26	424.06	424.70	425.40	425.82	425.65	425.40	425.15	424.65	425.30	426.34	427.40	428.37	428.64	428.85	428.77	428.62	428.45
INVERT LEVELS (M)	422.089	422.857	423.538	424.218	424.604	424.435	424.153	423.871	423.684	424.119	425.077	426.109	427.141	427.474	427.660	427.566	427.429	427.249
TRENCH DEPTH (M)	1.17	1.20	1.16	1.18	1.22	1.21	1.25	1.28	0.96	1.18	1.27	1.29	1.23	1.16	1.19	1.20	1.19	1.20
SIZE AND TYPE OF PIPE	OD90 PN10 HDPE PIPE										OD63 PN16 HDPE PIPE							
PIPE FITTINGS																		
SLOPE (%)	3.84%		3.40%		0.76%		-1.41%			2.17%		5.16%		0.93%		-0.53%		-1.95%

PROFILE

WATER SECTOR TRUST FUND
1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd.
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS			Revision Details					
Action	Name	Date	No.	Revision Details	Reviewed By	Initials	Date	Approved
Designed by:	M.J	JUN. 2025	1	DRAFT DETAILED DESIGN	Checked			
Drawn by:	J.K	JUN. 2025	2	FINAL DETAILED DESIGN	By			
Checked by:	W.O	JUN. 2025			Checked			
Approved by:	D.L	JUN. 2025			By			

DRAWING TITLE:

MASALAL RWSS - WAJIR
RM-01
PLAN AND PROFILE

SHEET 3 OF 3

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-LOT3-PP-05-02.03

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP

SOLAR PANEL
- GH

GENERATOR HOUSE
- BH

BOREHOLE
- UT

UNDERGROUND TANK
- GT

GROUND TANK
- ET

ELEVATED TANK, PLASTIC
- SET

STEEL ELEVATED TANK(SET)
- WK-PROP.

WATER KIOSK (PROPOSED)
- WK-EXIST.

WATER KIOSK (EXISTING)
- CH

CHAMBER
- WT-PROP.

WATER TROUGH-PROPOSED
- WT-EXIST.

WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- 212.50

MAJOR CONTOURS WITH ELEVATION
- 212.30

MINOR CONTOURS WITH ELEVATION
- OD

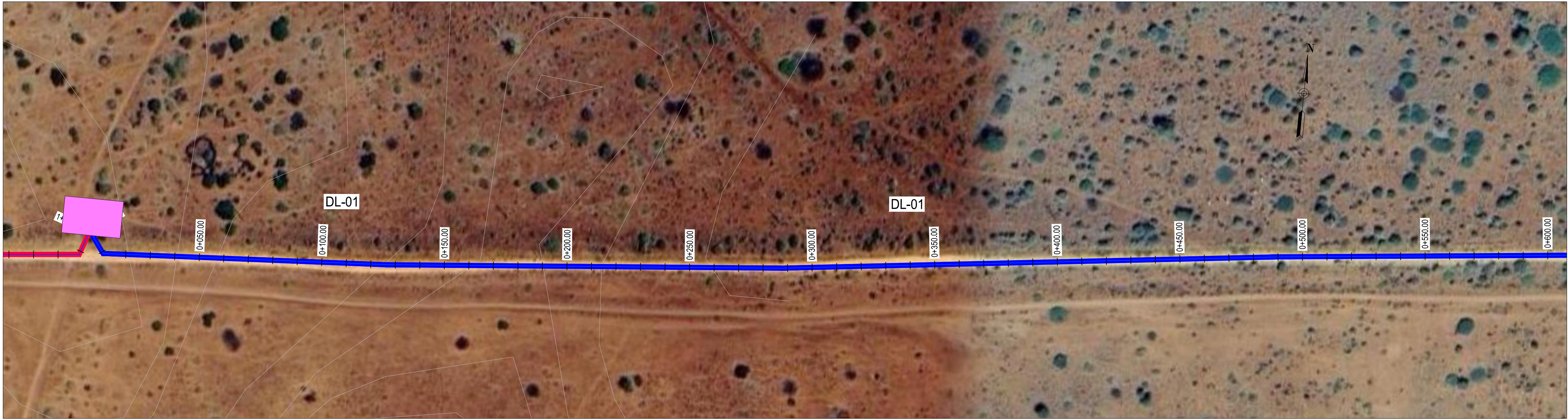
OUTSIDE DIAMETER
- S.A.V.

SINGLE AIR VALVE
- D.A.V.

DOUBLE AIR VALVE
- W.O.

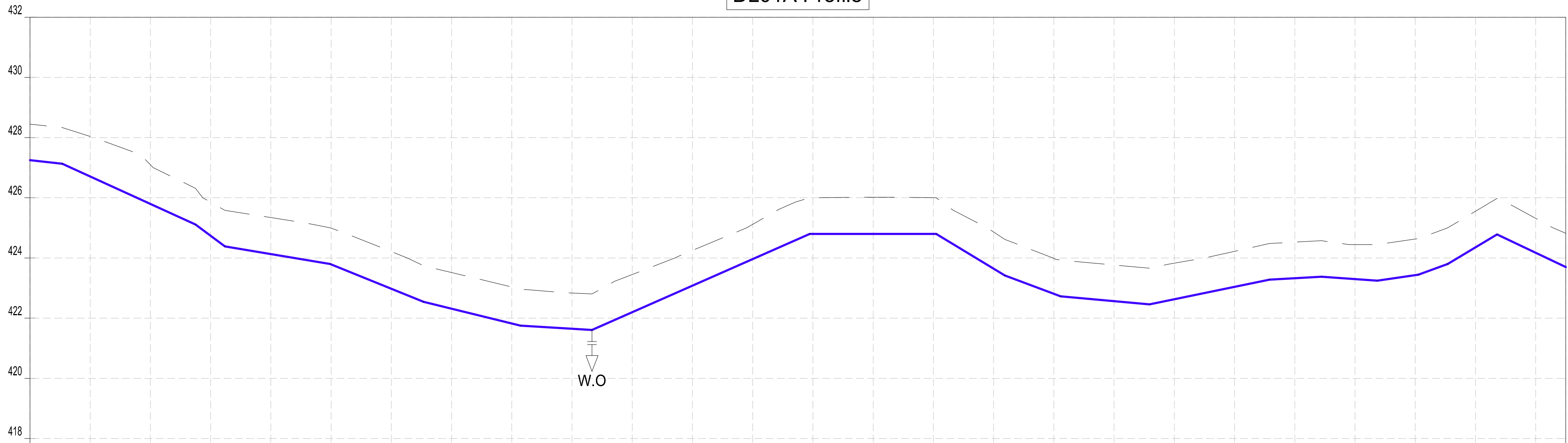
WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA



PLAN
SCALE 1:1250

DL01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					</
---------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	----

PROFILE

<div><div><p>WATER FUND Water for Sustainable Development</p></div><div><p>WATER SECTOR TRUST FUND</p><p>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div></div>	<div><div><p>THE WORLD BANK</p></div><div><p>THE WORLD BANK GROUP</p></div></div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div><div><p>aarvee associates architects engineers & consultants pvt. ltd.</p></div><div><p>ADVANCED ENGINEERING CONSULTANTS</p></div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th colspan="5">DRAWING TITLE:</th></tr><tr><th rowspan="2">Action</th><th rowspan="2">Name</th><th rowspan="2">Date</th><th>No.</th><th>Revision Details</th><th>Reviewed</th><th>Initials</th><th>Date</th><th>Approved</th></tr><tr><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN. 2025</td><td rowspan="2">2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			DRAWING TITLE:					Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved	1	DRAFT DETAILED DESIGN	By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By					Checked				Drawn by:	J.K	JUN. 2025			By					Checked				Checked by:	W.O	JUN. 2025			By					Checked				Approved by:	D.L	JUN. 2025			By					Checked				<div>DRAWING SCALE:</div> <div>AS SHOWN</div>	<div>DRAWING No.:</div> <div>GW4R-WJR-LOT3-PP-05-04.01</div>
		DESIGN DETAILS			DRAWING TITLE:																																																																																
		Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved																																																																											
					1	DRAFT DETAILED DESIGN	By																																																																														
		Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By																																																																														
							Checked																																																																														
		Drawn by:	J.K	JUN. 2025			By																																																																														
	Checked																																																																																				
Checked by:	W.O	JUN. 2025			By																																																																																
					Checked																																																																																
Approved by:	D.L	JUN. 2025			By																																																																																
					Checked																																																																																
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>																																																																																					

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

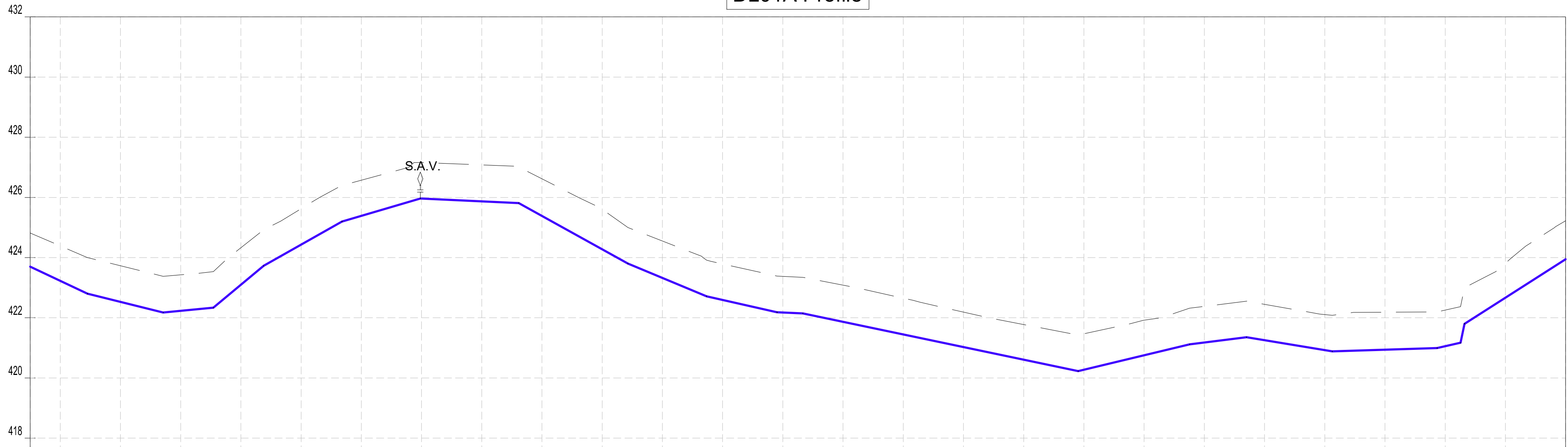
- | | | |
|-----------|--|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | |
| | | EXISTING PIPELINE |
| | | RIISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA



PLAN
SCALE 1:1250

DL01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)	0+510	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+940	0+960	0+980	1+000	1+020
GROUND LEVEL (M)	424.82	424.39	423.73	423.43	424.33	425.63	426.57	427.16	427.08	426.62	425.60	424.55	423.79	423.38	423.08	422.65	422.19	421.78	421.47	421.92	422.38	422.45	422.11	422.18	422.25	423.82	425.22
INVERT LEVELS (M)	423.699	423.226	422.528	422.232	423.097	424.432	425.388	425.961	425.869	425.385	424.275	423.324	422.593	422.176	421.864	421.445	421.026	420.606	420.272	420.754	421.179	421.254	420.925	420.939	421.055	422.669	423.945
TRENCH DEPTH (M)	1.12	1.16	1.20	1.19	1.23	1.19	1.18	1.20	1.21	1.23	1.33	1.23	1.19	1.20	1.22	1.21	1.16	1.17	1.20	1.17	1.20	1.19	1.18	1.25	1.20	1.15	1.28
SIZE AND TYPE OF PIPE	OD110 PN10 HDPE PIPE																										
PIPE FITTINGS																											
SLOPE (%)	-4.73%	-2.47%	0.94%	8.34%	5.66%	2.91%	-0.46%	-5.55%	-4.16%	-2.25%	-0.63%	-2.10%	2.41%	1.24%	-1.65%	0.32%	2.23%	49.13%	6.38%								

PROFILE

WaterFund

Water for People

WATER SECTOR

TRUST FUND

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK

THE WORLD

BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No: KE-WSTF-332741-CS-QCBS

aarvee associates

architects engineers & consultants pvt. ltd.

ADVANCED

ENGINEERING CONSULTANTS

Aarvee Associates Architects Engineers and Associates Pvt Ltd

in Association with

Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India

Telephone: +91-7966776800 / +254-714-198-805

Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved
				1	DRAFT DETAILED DESIGN	By		
Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked	By		
Drawn by:	J.K	JUN. 2025			Checked	By		
					Checked	By		
Checked by:	W.O	JUN. 2025			Checked	By		
					Checked	By		
Approved by:	D.L	JUN. 2025			Checked	By		
					Checked			

DRAWING TITLE:

MASALAL RWSS - WAJIR

DL-01

PLAN AND PROFILE

SHEET 2 OF 6

DRAWING SCALE:

AS SHOWN

























DRAWING No.:

GW4R-WJR-LOT3-PP-05-04.02

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

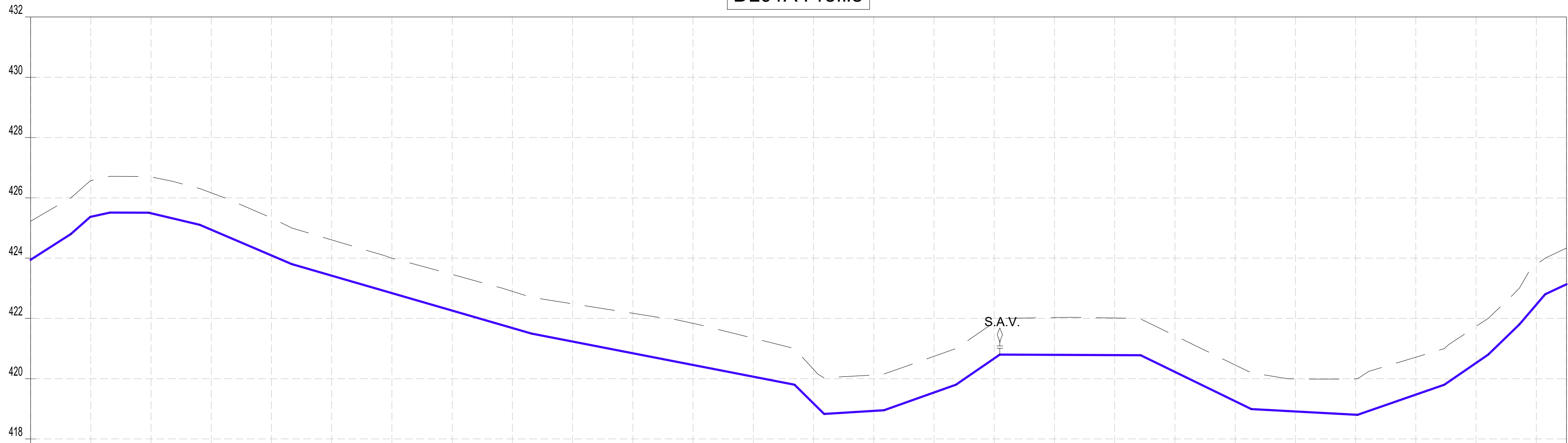
- | | | |
|-----------|---|--------------------------|
| SP |  | SOLAR PANEL |
| GH |  | GENERATOR HOUSE |
| BH |  | BOREHOLE |
| UT |  | UNDERGROUND TANK |
| GT |  | GROUND TANK |
| ET |  | ELEVATED TANK, PLASTIC |
| SET |  | STEEL ELEVATED TANK(SET) |
| WK-PROP. |  | WATER KIOSK (PROPOSED) |
| WK-EXIST. |  | WATER KIOSK (EXISTING) |
| CH |  | CHAMBER |
| WT-PROP. |  | WATER TROUGH-PROPOSED |
| WT-EXIST. |  | WATER TROUGH-EXISTING |
-
- | | |
|---|--------------------------------------|
|  | EXISTING PIPELINE |
|  | RIISING MAIN |
|  | DISTRIBUTION LINE |
|  | DISTRIBUTION LINE TO WATER TROUGH |
|  | ORIGINAL GROUND LEVEL |
|  | PIPE INVERT LEVEL |
|  | PIPE |
|  | 212.50 MAJOR CONTOURS WITH ELEVATION |
|  | 212.30 MINOR CONTOURS WITH ELEVATION |
| OD | OUTSIDE DIAMETER |
|  | S.A.V. SINGLE AIR VALVE |
|  | D.A.V. DOUBLE AIR VALVE |
|  | WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

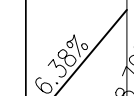



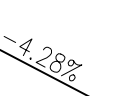

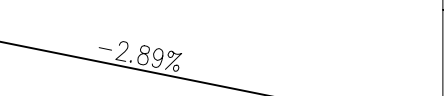
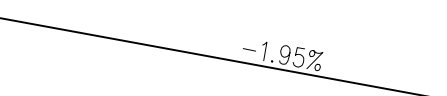


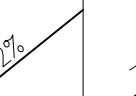
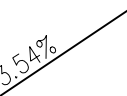
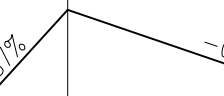



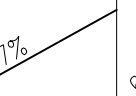





PLAN
SCALE 1:1250

DL01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)	1+020	1+040	1+060	1+080	1+100	1+120	1+140	1+160	1+180	1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460	1+480	1+500	1+520	1+530					
GROUND LEVEL (M)	425.22	426.57	426.69	426.17	425.33	424.61	424.00	423.46	422.90	422.48	422.17	421.84	421.34	420.31	420.12	420.74	421.87	422.03	422.01	421.43	420.45	419.99	420.00	420.71	421.73	423.79	424.33					
INVERT LEVELS (M)	423.945	425.370	425.490	424.944	424.089	423.417	422.839	422.261	421.682	421.234	420.845	420.455	420.066	419.175	418.933	419.542	420.672	420.792	420.784	420.227	419.255	418.914	418.804	419.471	420.524	422.456	423.133					
TRENCH DEPTH (M)	1.28	1.20	1.20	1.22	1.24	1.19	1.16	1.20	1.22	1.25	1.33	1.38	1.28	1.13	1.19	1.20	1.20	1.24	1.23	1.20	1.20	1.08	1.19	1.24	1.21	1.33	1.20					
SIZE AND TYPE OF PIPE	OD110 PN10 HDPE PIPE																															
PIPE FITTINGS																																
SLOPE (%)																																

PROFILE

NOTES:

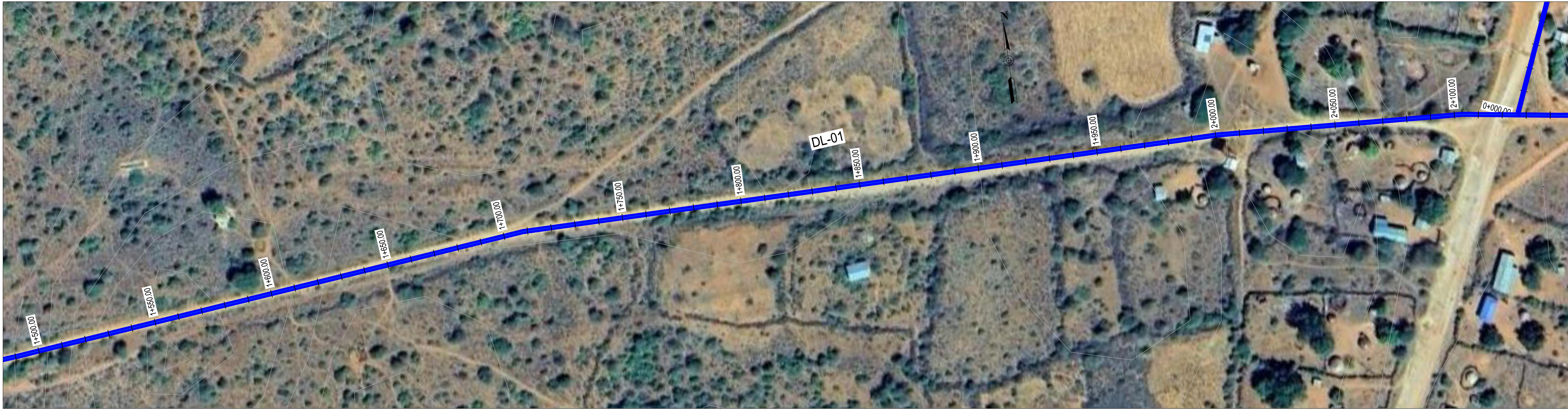
- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | |
| | | EXISTING PIPELINE |
| | | RIISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | | S.A.V. SINGLE AIR VALVE |
| | | D.A.V. DOUBLE AIR VALVE |
| | | W.O. WASH OUT |

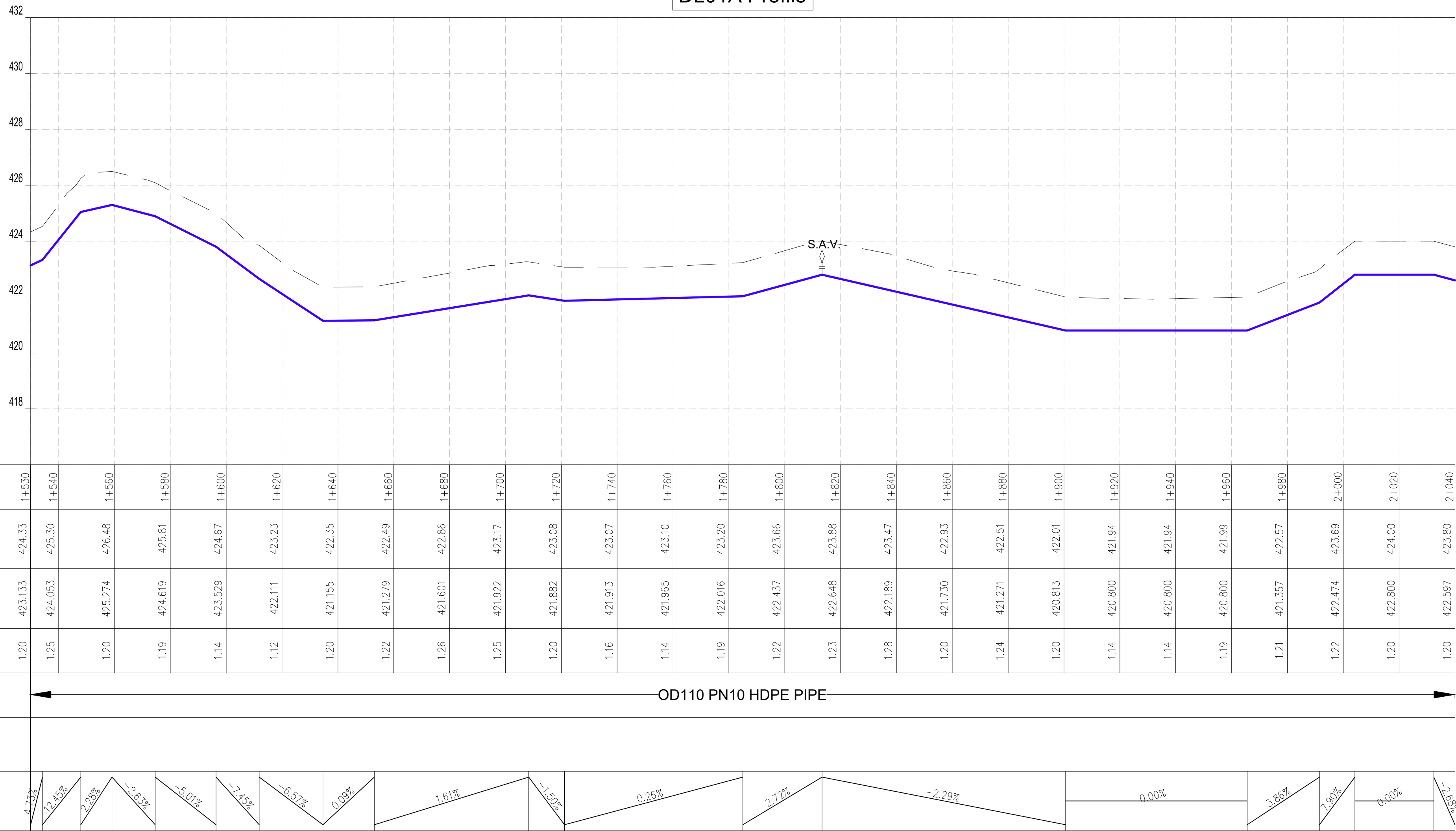
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:									
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	MASALAL RWSS - WAJIR DL-01 PLAN AND PROFILE SHEET 3 OF 6		
								DRAFT DETAILED DESIGN	By							
				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By					DRAWING SCALE: AS SHOWN		DRAWING No.: GW4R-WJR-LOT3-PP-05-04.03
									Checked							
				Drawn by:	J.K	JUN. 2025			By							
									Checked							
				Checked by:	W.O	JUN. 2025			By							
	Checked															
Approved by:	D.L	JUN. 2025			By											
					Checked											



PLAN
SCALE 1:1250

DL01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)	1+530	1+540		1+560	1+580	1+600	1+620	1+640	1+660	1+680	1+700	1+720	1+740	1+760	1+780	1+800	1+820	1+840	1+860	1+880	1+900	1+920	1+940	1+960	1+980	2+000	2+020	2+040
GROUND LEVEL (M)	424.33	425.30		426.48	425.81	424.67	423.23	422.35	422.49	422.86	423.17	423.08	423.07	423.10	423.20	423.66	423.88	423.47	422.93	422.51	422.01	421.94	421.94	421.99	422.57	423.69	424.00	423.80
INVERT LEVELS (M)	423.133	424.053		425.274	424.619	423.529	422.111	421.155	421.279	421.601	421.922	421.882	421.913	421.965	422.016	422.437	422.648	422.189	421.730	421.271	420.813	420.800	420.800	420.800	421.357	422.474	422.800	422.597
TRENCH DEPTH (M)	1.20	1.25		1.20	1.19	1.14	1.12	1.20	1.22	1.26	1.25	1.20	1.16	1.14	1.19	1.22	1.23	1.28	1.20	1.24	1.20	1.14	1.14	1.19	1.21	1.22	1.20	1.20
SIZE AND TYPE OF PIPE	OD110 PN10 HDPE PIPE																											
PIPE FITTINGS																												
SLOPE (%)	4.72%	12.43%	2.08%	-2.63%	-5.01%	-2.45%	-6.57%	0.00%	1.61%	-1.50%	0.26%	2.72%	-2.29%	0.00%				3.80%	7.90%	0.00%	-2.80%							

PROFILE

NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

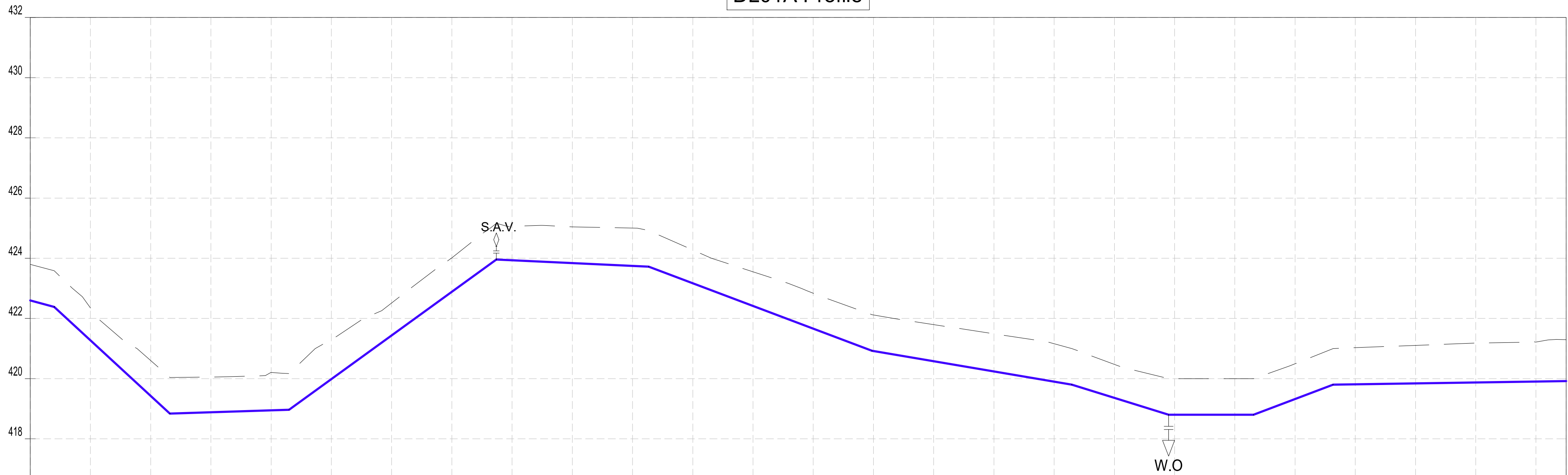
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div> <div> ADVANCED ENGINEERING CONSULTANTS</div>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved
				Action	Name	Date		1	DRAFT DETAILED DESIGN				
				Designed by:	M.J	JUN. 2025	2		FINAL DETAILED DESIGN	By			
									Checked				
				Drawn by:	J.K	JUN. 2025			By				
								Checked					
				Checked by:	W.O	JUN. 2025			By				
								Checked					
				Approved by:	D.L	JUN. 2025			By				
								Checked					
DRAWING TITLE:						MASALAL RWSS - WAJIR DL-01 PLAN AND PROFILE SHEET 4 OF 6							
DRAWING SCALE:						DRAWING No.:							
AS SHOWN						GW4R-WJR-LOT3-PP-05-04.04							



PLAN
SCALE 1:1250

DL01A Profile



Datum: ~> 416
Ver Exag. ~> x10

CHAINAGES (M)	2+040	2+060	2+080	2+100	2+120	2+140	2+160	2+180	2+200	2+220	2+240	2+260	2+280	2+300	2+320	2+340	2+360	2+380	2+400	2+420	2+440	2+460	2+480	2+500	2+520	2+540	2+550	
GROUND LEVEL (M)	423.80	422.35	420.60	420.05	420.21	421.30	422.51	424.01	425.06	425.04	425.00	424.27	423.55	422.84	422.12	421.80	421.49	421.16	420.47	420.00	420.00	420.50	421.03	421.11	421.18	421.21	421.29	
INVERT LEVELS (M)	422.597	421.272	419.428	418.883	418.948	419.987	421.437	422.888	423.934	423.839	423.744	423.167	422.414	421.660	420.917	420.578	420.239	419.899	419.360	418.800	418.800	419.323	419.811	419.842	419.873	419.904	419.919	
TRENCH DEPTH (M)	1.20	1.08	1.17	1.17	1.26	1.32	1.08	1.13	1.13	1.20	1.26	1.11	1.14	1.18	1.20	1.22	1.25	1.26	1.11	1.20	1.20	1.17	1.22	1.26	1.31	1.31	1.38	
SIZE AND TYPE OF PIPE	◀ OD110 PN10 HDPE PIPE ▶◀ OD 63 PN10 HDPE PIPE ▶◀ OD 50 PN10 HDPE PIPE ▶																											
PIPE FITTINGS																												
SLOPE (%)	-0.63%	-9.22%	0.32%		7.25%	-0.47%		-3.77%	-1.70%		-3.11%	0.00%	3.73%		0.15%													

PROFILE

<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div><div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div><div></div></div>	<div>DESIGN DETAILS</div> <table><tr><td rowspan="2">Action</td><td rowspan="2">Name</td><td rowspan="2">Date</td><td>No.</td><td>Revision Details</td><td>Reviewed</td><td>Initials</td><td>Date</td><td>Approved</td></tr><tr><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN. 2025</td><td rowspan="2">2</td><td rowspan="2">FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td rowspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td rowspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td rowspan="2"></td><td rowspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td>Checked</td><td></td><td></td><td></td></tr></table>							Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved	1	DRAFT DETAILED DESIGN	By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By				Checked				Drawn by:	J.K	JUN. 2025			By				Checked				Checked by:	W.O	JUN. 2025			By				Checked				Approved by:	D.L	JUN. 2025			By				Checked				<div>DRAWING TITLE:</div> <div>MASALAL RWSS - WAJIR DL-01 PLAN AND PROFILE SHEET 5 OF 6</div>	
		Action		Name	Date	No.	Revision Details	Reviewed	Initials	Date				Approved																																																																	
						1	DRAFT DETAILED DESIGN	By																																																																							
		Designed by:		M.J	JUN. 2025	2	FINAL DETAILED DESIGN	By																																																																							
								Checked																																																																							
		Drawn by:		J.K	JUN. 2025			By																																																																							
								Checked																																																																							
		Checked by:		W.O	JUN. 2025			By																																																																							
								Checked																																																																							
		Approved by:		D.L	JUN. 2025			By																																																																							
Checked																																																																															
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>	<div>DRAWING SCALE:</div> <div>AS SHOWN</div>	<div>DRAWING No.:</div> <div>GW4R-WJR-LOT3-PP-05-04.05</div>																																																																													

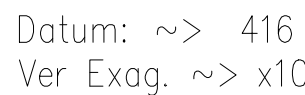
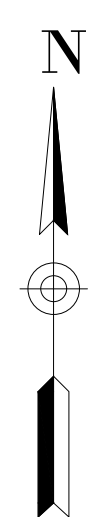
NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

- | | | |
|-----------|--------|-----------------------------------|
| SP | | SOLAR PANEL |
| GH | | GENERATOR HOUSE |
| BH | | BOREHOLE |
| UT | | UNDERGROUND TANK |
| GT | | GROUND TANK |
| ET | | ELEVATED TANK, PLASTIC |
| SET | | STEEL ELEVATED TANK(SET) |
| WK-PROP. | | WATER KIOSK (PROPOSED) |
| WK-EXIST. | | WATER KIOSK (EXISTING) |
| CH | | CHAMBER |
| WT-PROP. | | WATER TROUGH-PROPOSED |
| WT-EXIST. | | WATER TROUGH-EXISTING |
| | | |
| | | EXISTING PIPELINE |
| | | RISING MAIN |
| | | DISTRIBUTION LINE |
| | | DISTRIBUTION LINE TO WATER TROUGH |
| | | ORIGINAL GROUND LEVEL |
| | | PIPE INVERT LEVEL |
| | | PIPE |
| | | MAJOR CONTOURS WITH ELEVATION |
| | | MINOR CONTOURS WITH ELEVATION |
| OD | | OUTSIDE DIAMETER |
| | S.A.V. | SINGLE AIR VALVE |
| | D.A.V. | DOUBLE AIR VALVE |
| | W.O. | WASH OUT |

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

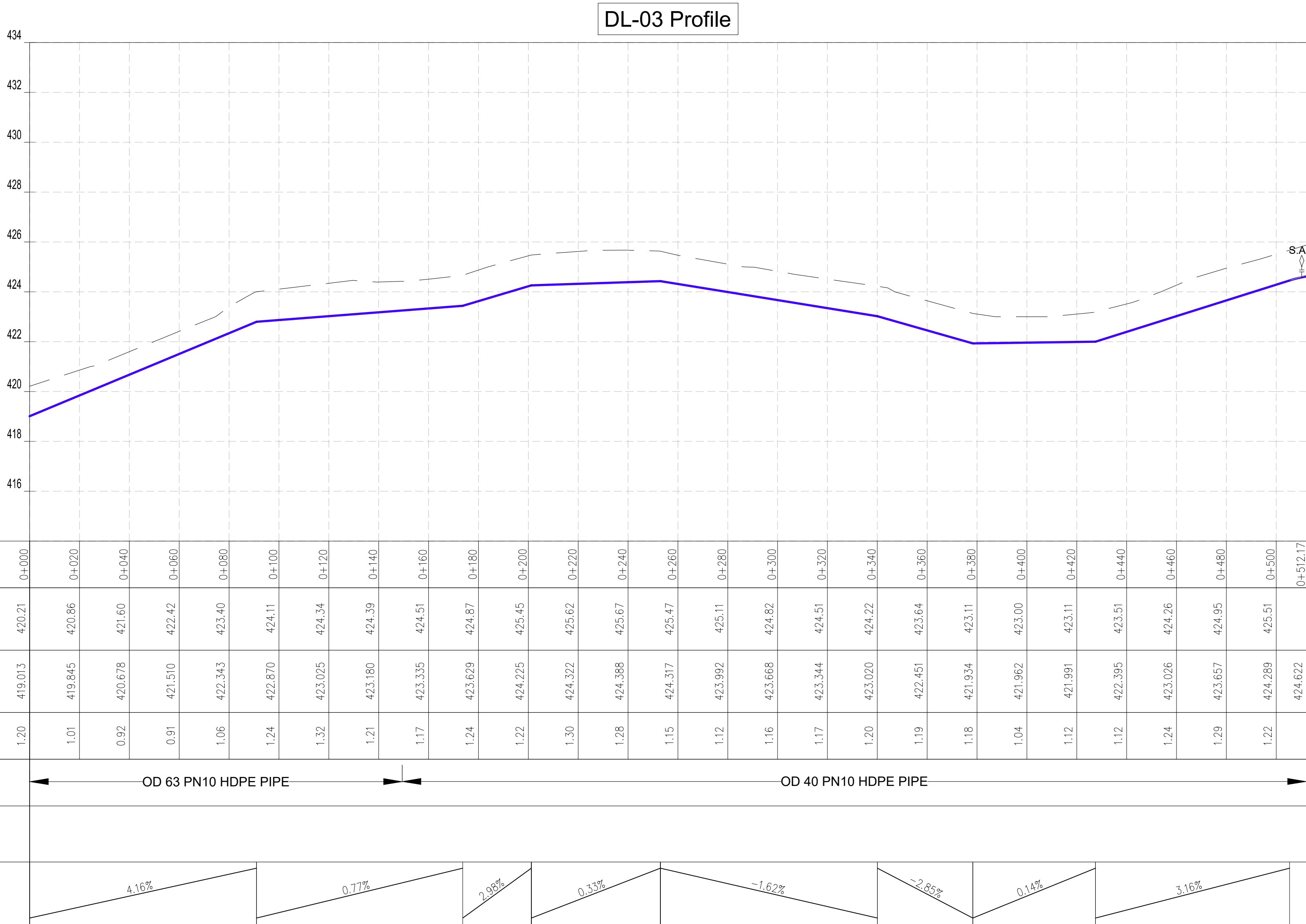
[illegible]

GW4R-WJR-LOT3-PP-05-04.06

**COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA**



PLAN
SCALE 1:1250



NOTES:

- ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
- PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
- DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
- SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
- THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

LEGEND:

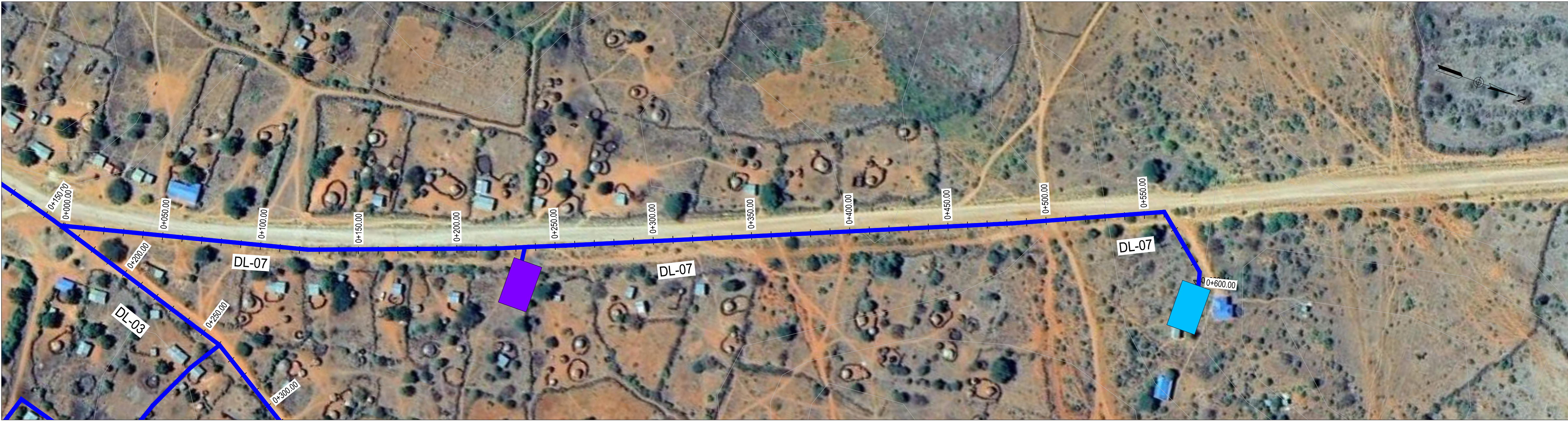
- SP SOLAR PANEL
GH GENERATOR HOUSE
BH BOREHOLE
UT UNDERGROUND TANK
GT GROUND TANK
ET ELEVATED TANK, PLASTIC
SET STEEL ELEVATED TANK(SET)
WK-PROP. WATER KIOSK (PROPOSED)
WK-EXIST. WATER KIOSK (EXISTING)
CH CHAMBER
WT-PROP. WATER TROUGH-PROPOSED
WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
RISING MAIN
DISTRIBUTION LINE
DISTRIBUTION LINE TO WATER TROUGH
ORIGINAL GROUND LEVEL
PIPE INVERT LEVEL
PIPE
MAJOR CONTOURS WITH ELEVATION
MINOR CONTOURS WITH ELEVATION
OD OUTSIDE DIAMETER
S.A.V. SINGLE AIR VALVE
D.A.V. DOUBLE AIR VALVE
W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

PROFILE

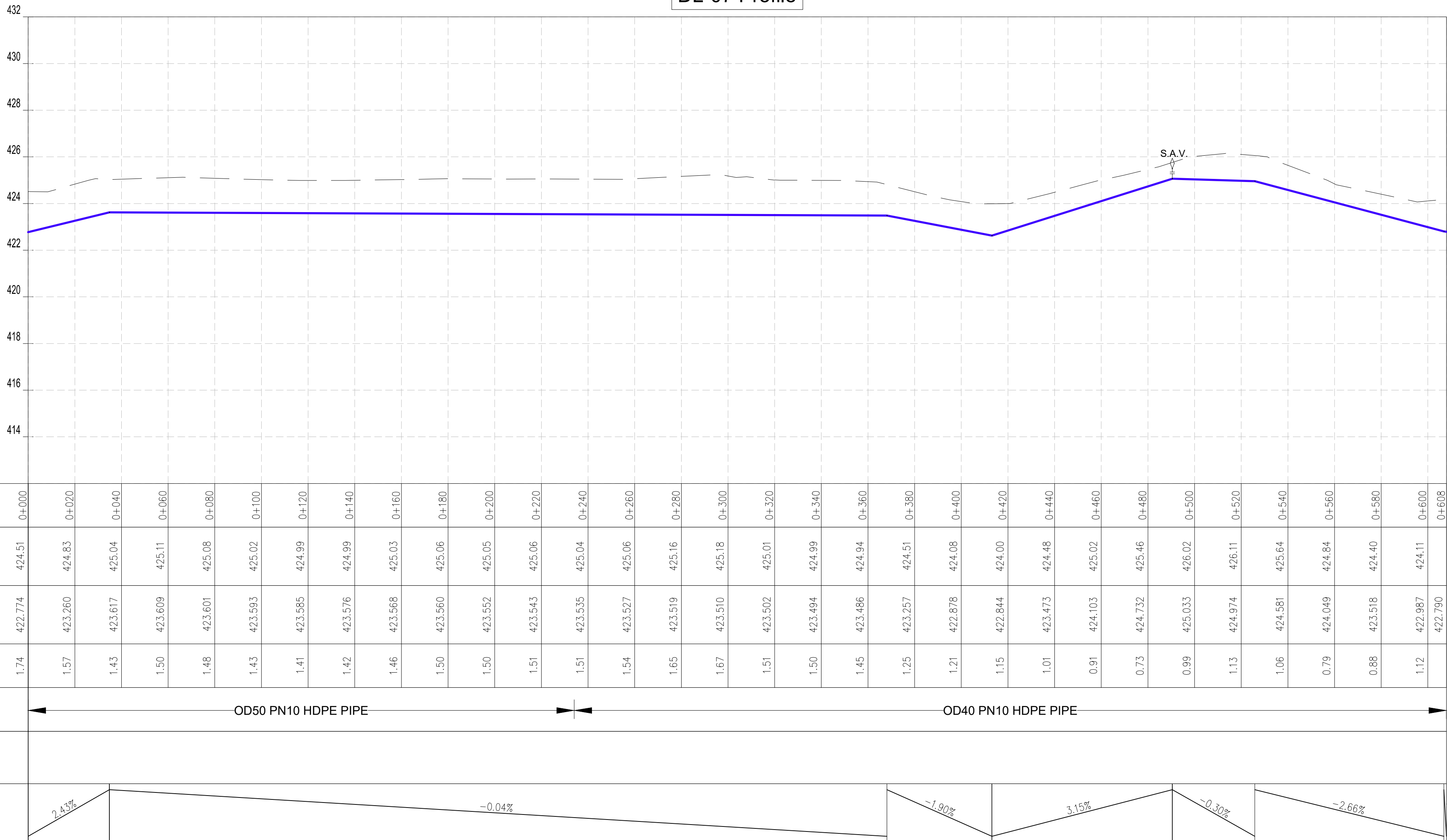
<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>		<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td colspan="2">DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">M.J</td><td rowspan="2">JUN. 2025</td><td rowspan="2">2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr></table>			DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN		By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By						Checked				Drawn by:	J.K	JUN. 2025				By						Checked				Checked by:	W.O	JUN. 2025				By						Checked				Approved by:	D.L	JUN. 2025				By						Checked				DRAWING TITLE:		MASALAL RWSS - WAJIR	
			DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved																																																																																			
			Action	Name	Date	1	DRAFT DETAILED DESIGN		By																																																																																						
			Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN		By																																																																																						
									Checked																																																																																						
			Drawn by:	J.K	JUN. 2025				By																																																																																						
								Checked																																																																																							
			Checked by:	W.O	JUN. 2025				By																																																																																						
								Checked																																																																																							
			Approved by:	D.L	JUN. 2025				By																																																																																						
		Checked																																																																																													
								DL-03																																																																																							
								PLAN AND PROFILE																																																																																							
								SHEET 1 OF 1																																																																																							





PLAN
SCALE 1:1250

DL-07 Profile



PROFILE

NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.
2. PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM OF 0.9m AND 1.0m FOR TRAFFICKED AREAS, WHERE COVER IS LESS THAN 0.9m, THE PIPE IS TO BE SURROUNDED WITH CONCRETE.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH OTHER RELATED DRAWINGS.
4. DRAWINGS ARE TO BE READ AND NOT SCALED, ANY DISCREPANCIES TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER ON SITE IMMEDIATELY.
5. SURVEY OF THE PIPELINE ROUTES SHALL BE CARRIED OUT TO CONFIRM CONSTRUCTION DETAILS ISSUED AND SUBMITTED TO THE RESIDENT ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF CONSTRUCTION.
6. SECTIONS HAVING A SLOPE HIGHER THAN 16% WILL REQUIRE CONCRETE SUPPORT AS DIRECTED BY THE ENGINEER ON SITE.
7. THE TYPE OF WASHOUT WILL BE AS DIRECTED BY THE ENGINEER ONSITE AS PER THE DETAILS PROVIDED IN THE STANDARD DRAWING No. GW4R-STD-11.

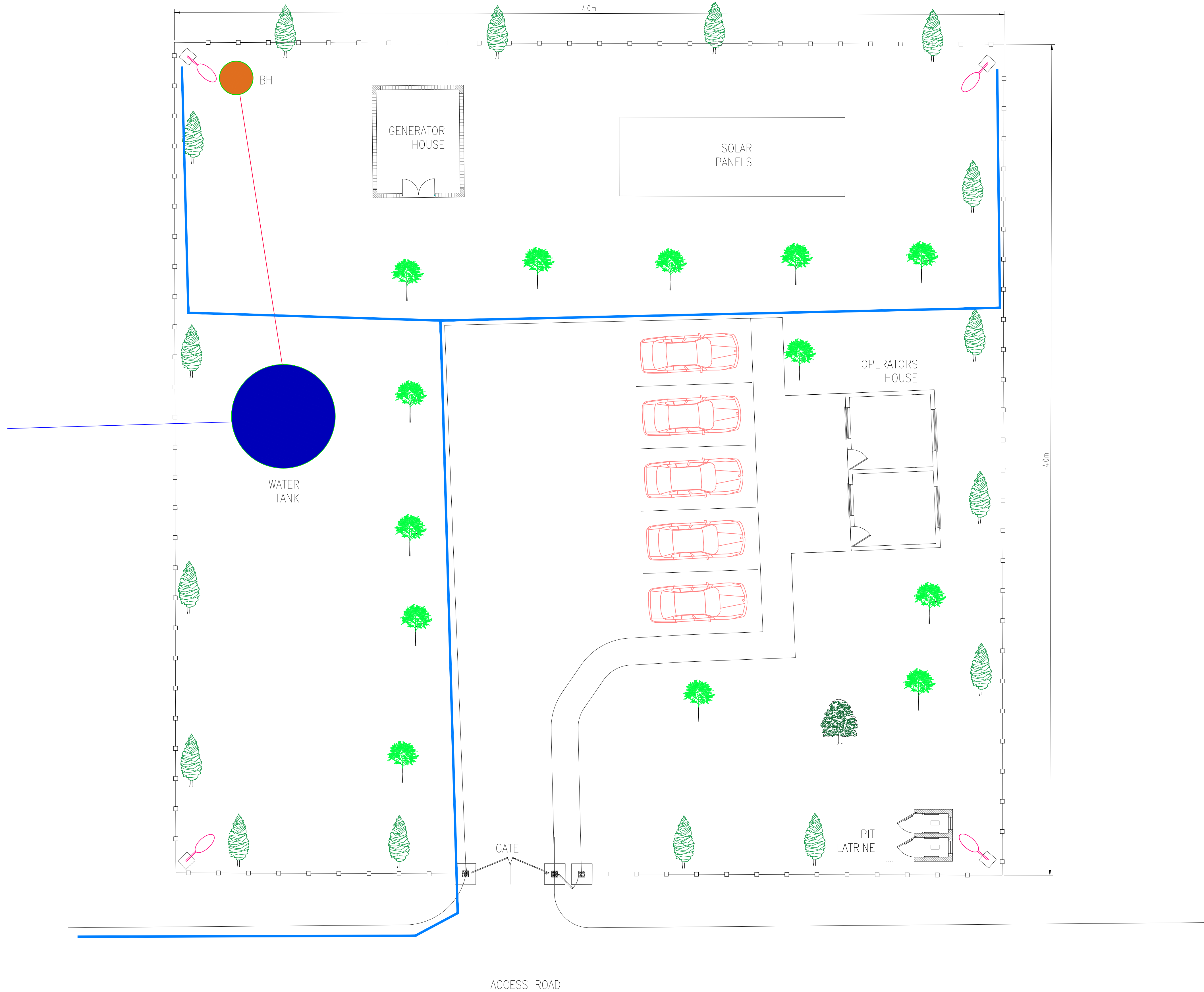
LEGEND:

- SP SOLAR PANEL
- GH GENERATOR HOUSE
- BH BOREHOLE
- UT UNDERGROUND TANK
- GT GROUND TANK
- ET ELEVATED TANK, PLASTIC
- SET STEEL ELEVATED TANK(SET)
- WK-PROP. WATER KIOSK (PROPOSED)
- WK-EXIST. WATER KIOSK (EXISTING)
- CH CHAMBER
- WT-PROP. WATER TROUGH-PROPOSED
- WT-EXIST. WATER TROUGH-EXISTING
- EXISTING PIPELINE
- RISING MAIN
- DISTRIBUTION LINE
- DISTRIBUTION LINE TO WATER TROUGH
- ORIGINAL GROUND LEVEL
- PIPE INVERT LEVEL
- PIPE
- MAJOR CONTOURS WITH ELEVATION
- MINOR CONTOURS WITH ELEVATION
- OD OUTSIDE DIAMETER
- S.A.V. SINGLE AIR VALVE
- D.A.V. DOUBLE AIR VALVE
- W.O. WASH OUT

COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT:		FINANCIER:		PROJECT:		CONSULTANT:		DESIGN DETAILS						DRAWING TITLE:						
<div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div> <div> THE WORLD BANK GROUP</div>		<div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>		<div> ADVANCED ENGINEERING CONSULTANTS</div>		No.		Revision Details		Reviewed	initials	Date	Approved	MASALAL RWSS - WAJIR DL-07 PLAN AND PROFILE						
								DRAFT DETAILED DESIGN		By										
						Designed by:		M.J		JUN. 2025		2		FINAL DETAILED DESIGN		By				SHEET 1 OF 6
														Checked						
						Drawn by:		J.K		JUN. 2025				By						
														Checked						
						Checked by:		W.O		JUN. 2025				By						
Checked																				
Approved by:		D.L		JUN. 2025				By					DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-LOT3-PP-05-07						
								Checked												
				Contract No: KE-WSTF-332741-CS-QCBS																

STANDARD DRAWINGS



NOTES:

1. ALL DIMENSIONS AND LEVELS ARE IN METERS UNLESS NOTED OTHERWISE.

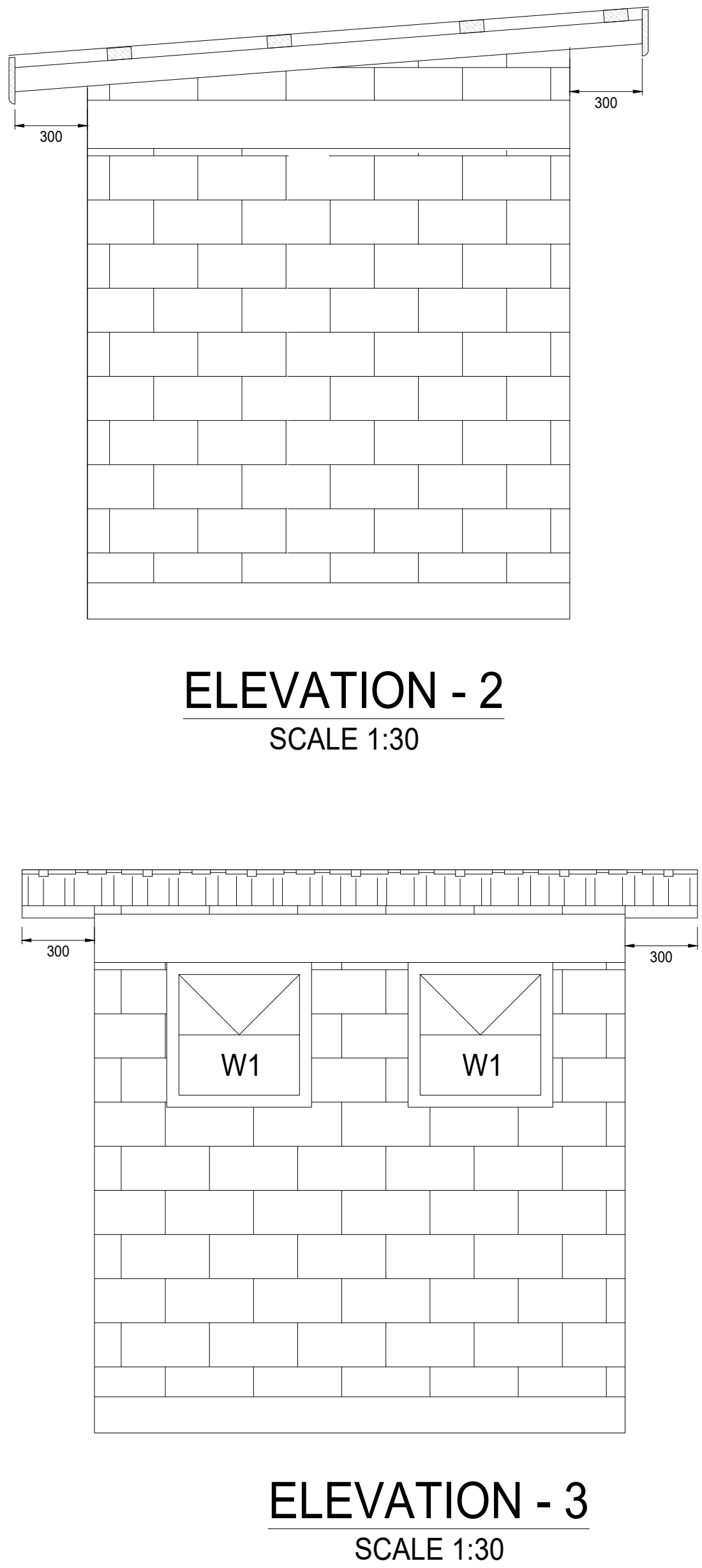
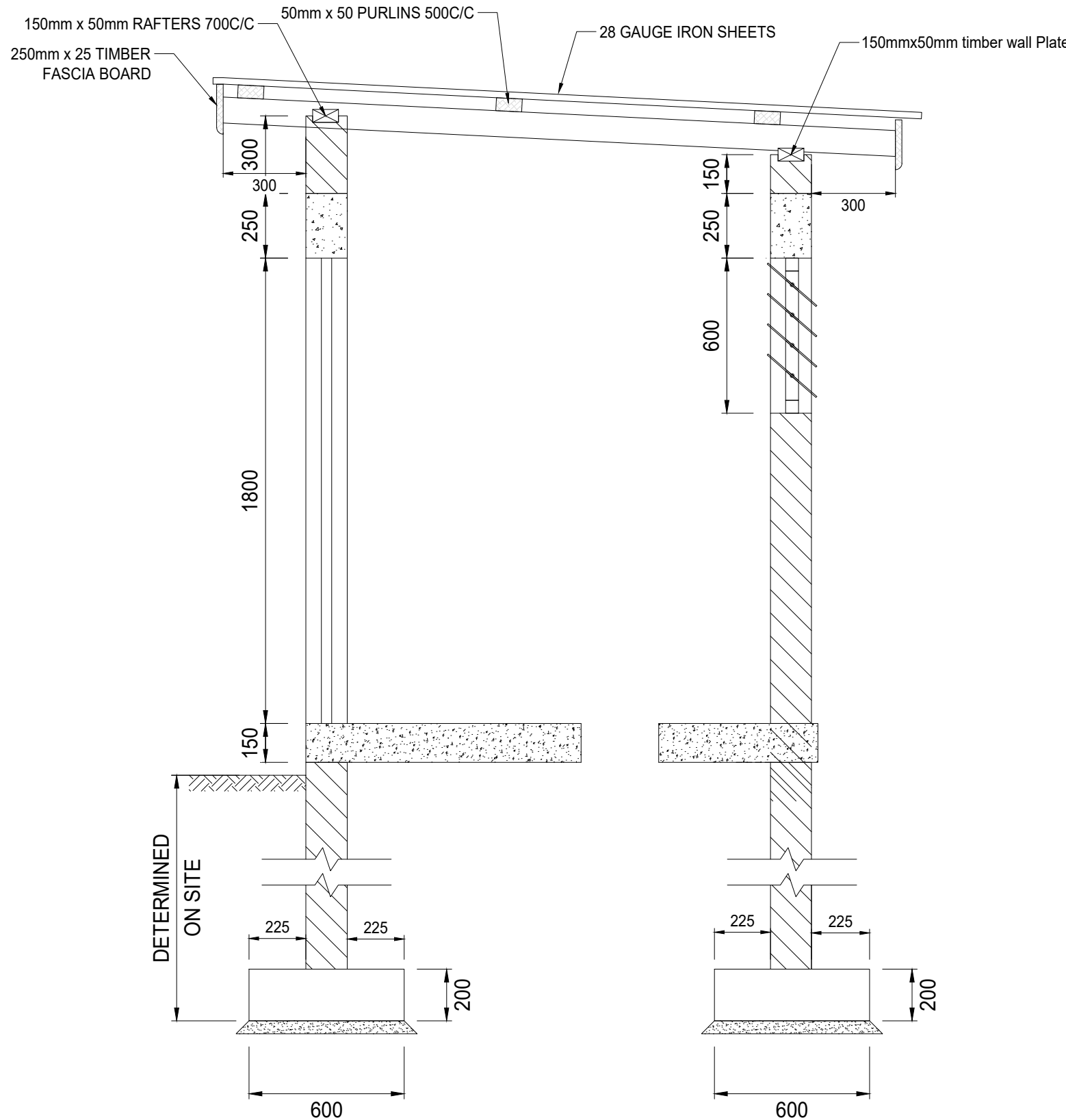
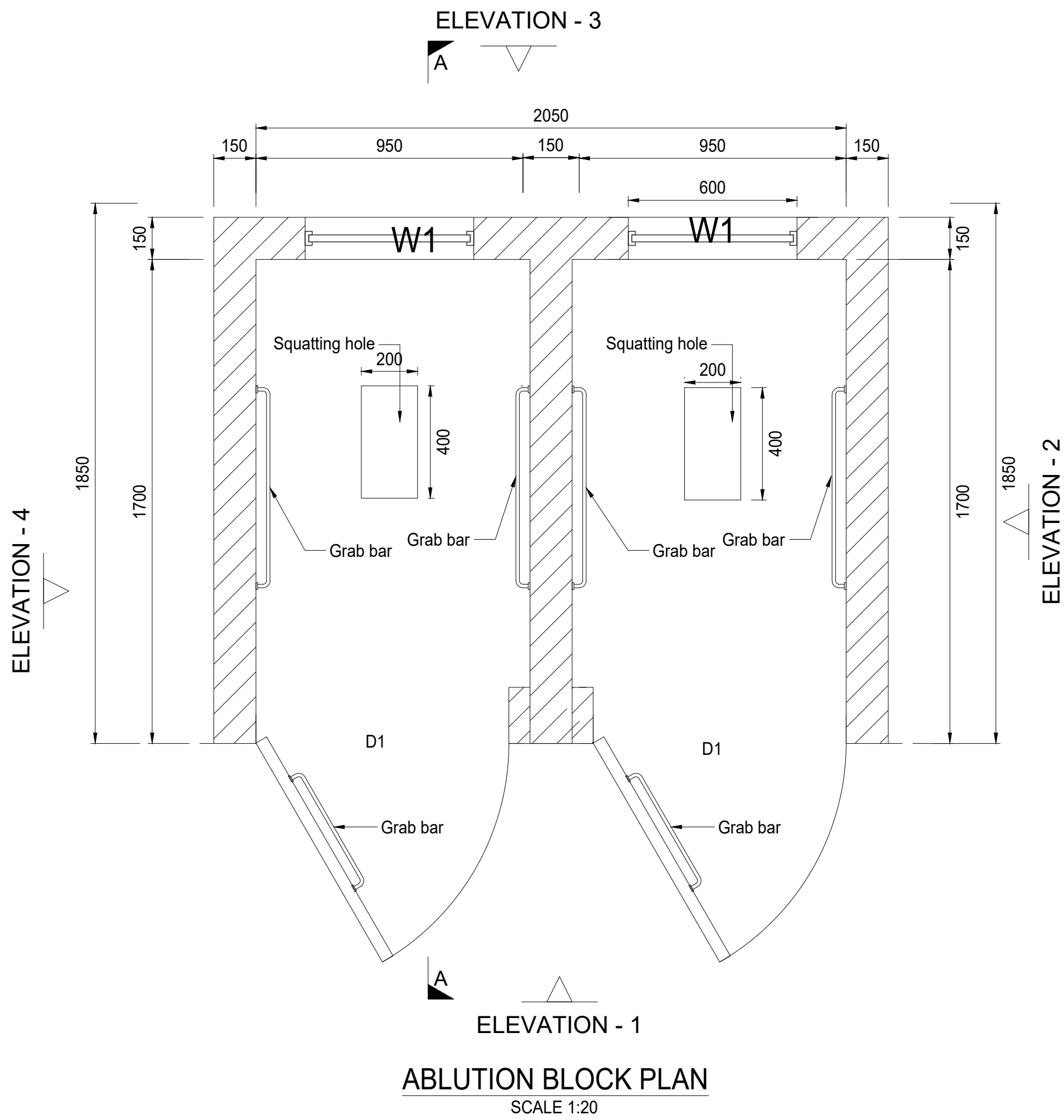
LEGEND:

- RISING MAIN
- DISTRIBUTION LINE
- FENCE
- FLOOD LIGHT
- STORM WATER DRAINAGE



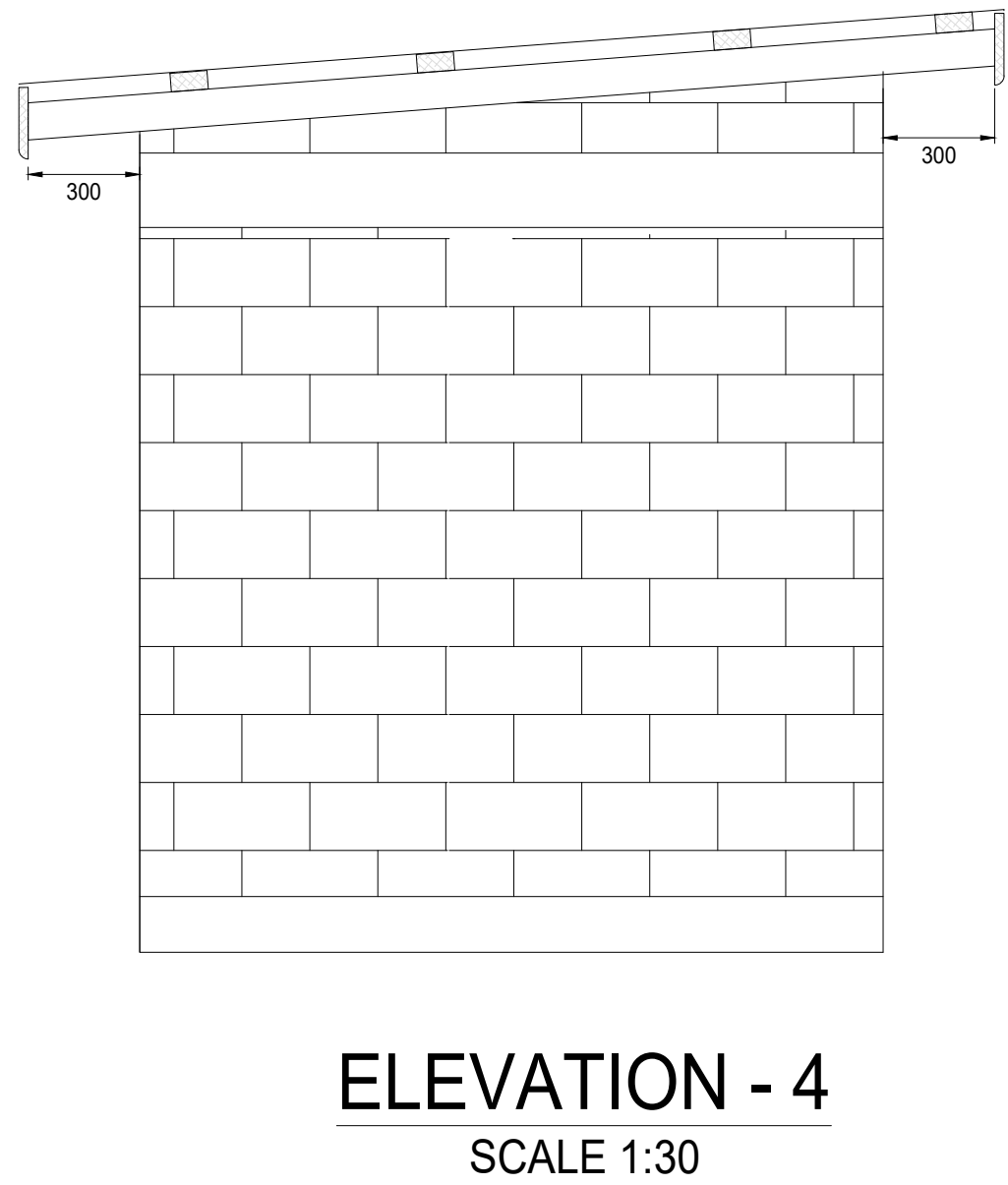
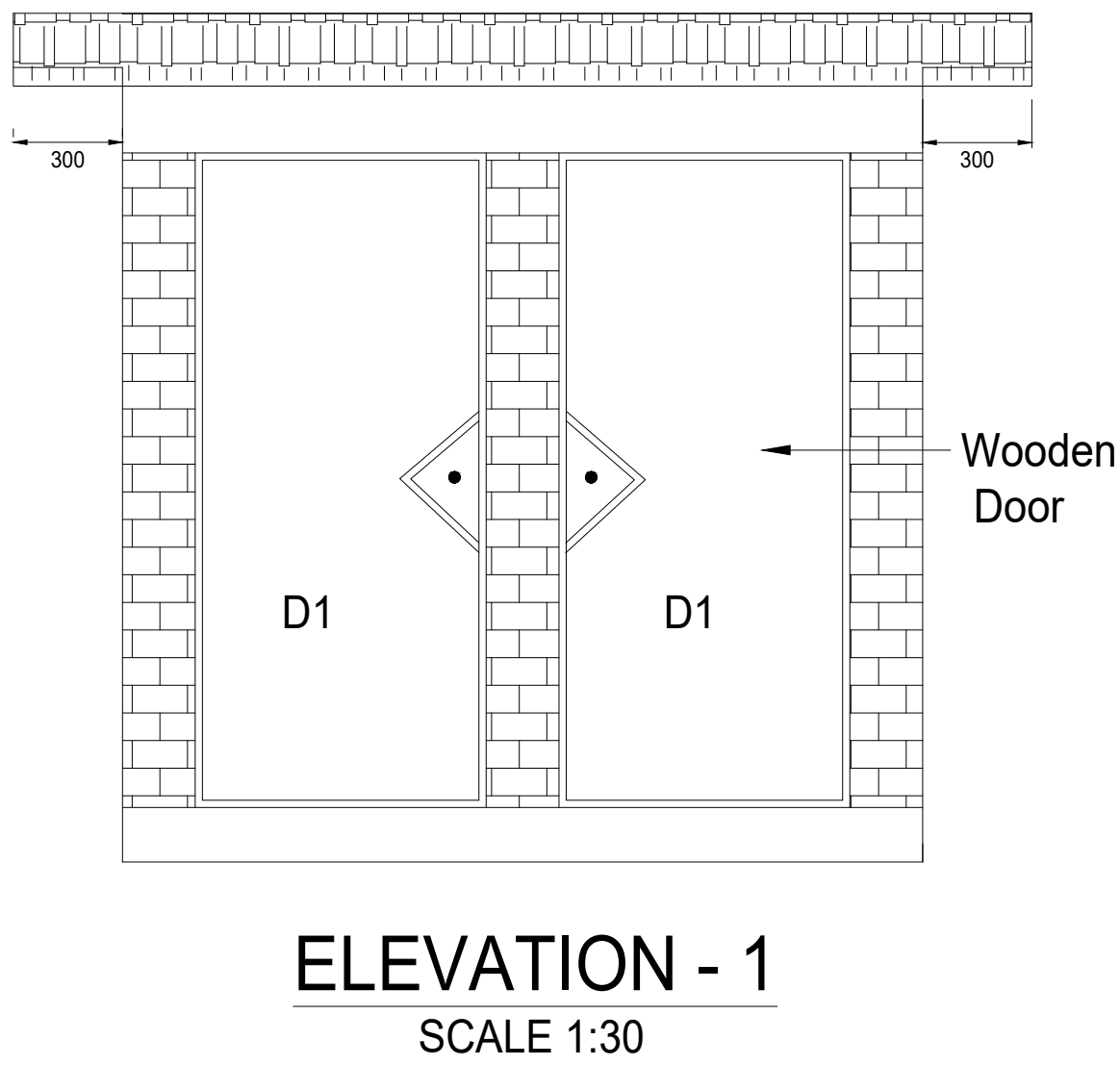
COORDINATES SYSTEM
ARC 1960
UTM ZONE 37 NORTH.
KENYA

CLIENT: <div><p>WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div>	FINANCIER: <div><p>THE WORLD BANK GROUP</p></div>	PROJECT: <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	CONSULTANT: <div><div></div><p>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</p></div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th>Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td>Designed by:</td><td>M.J</td><td>JUN. 2025</td><td>2</td><td>FINAL DETAILED DESIGN</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">J.K</td><td rowspan="2">JUN. 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">W.O</td><td rowspan="2">JUN. 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUN. 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details	Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN	By				Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked				Drawn by:	J.K	JUN. 2025			By						Checked				Checked by:	W.O	JUN. 2025			By						Checked				Approved by:	D.L	JUN. 2025			By						Checked				<div>DRAWING TITLE:<div>STANDARD DRAWINGS</div><div>TYPICAL SITE PLAN</div><div>SHEET 1 OF 1</div></div> <div><div>DRAWING SCALE: 1:100</div><div>DRAWING No.: GW4R-WJR-STD-01</div></div>
		DESIGN DETAILS			No.	Revision Details	Reviewed	initials	Date	Approved																																																																			
		Action	Name	Date	1	DRAFT DETAILED DESIGN	By																																																																						
		Designed by:	M.J	JUN. 2025	2	FINAL DETAILED DESIGN	Checked																																																																						
		Drawn by:	J.K	JUN. 2025			By																																																																						
							Checked																																																																						
		Checked by:	W.O	JUN. 2025			By																																																																						
							Checked																																																																						
		Approved by:	D.L	JUN. 2025			By																																																																						
							Checked																																																																						

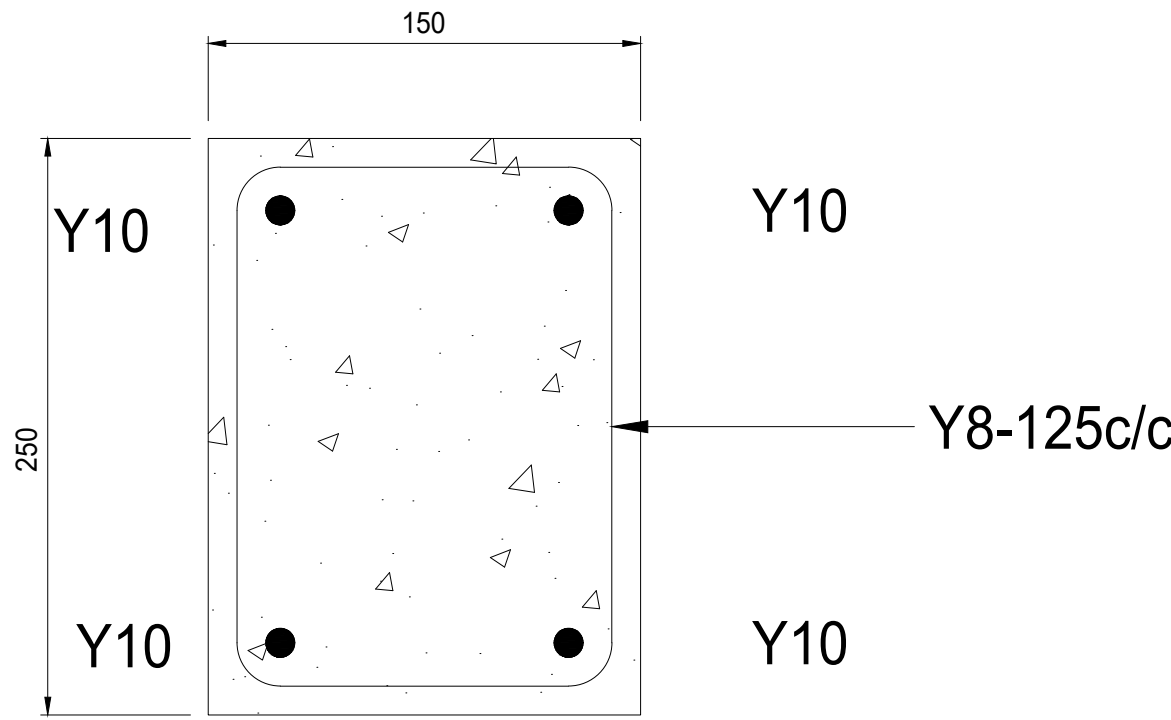
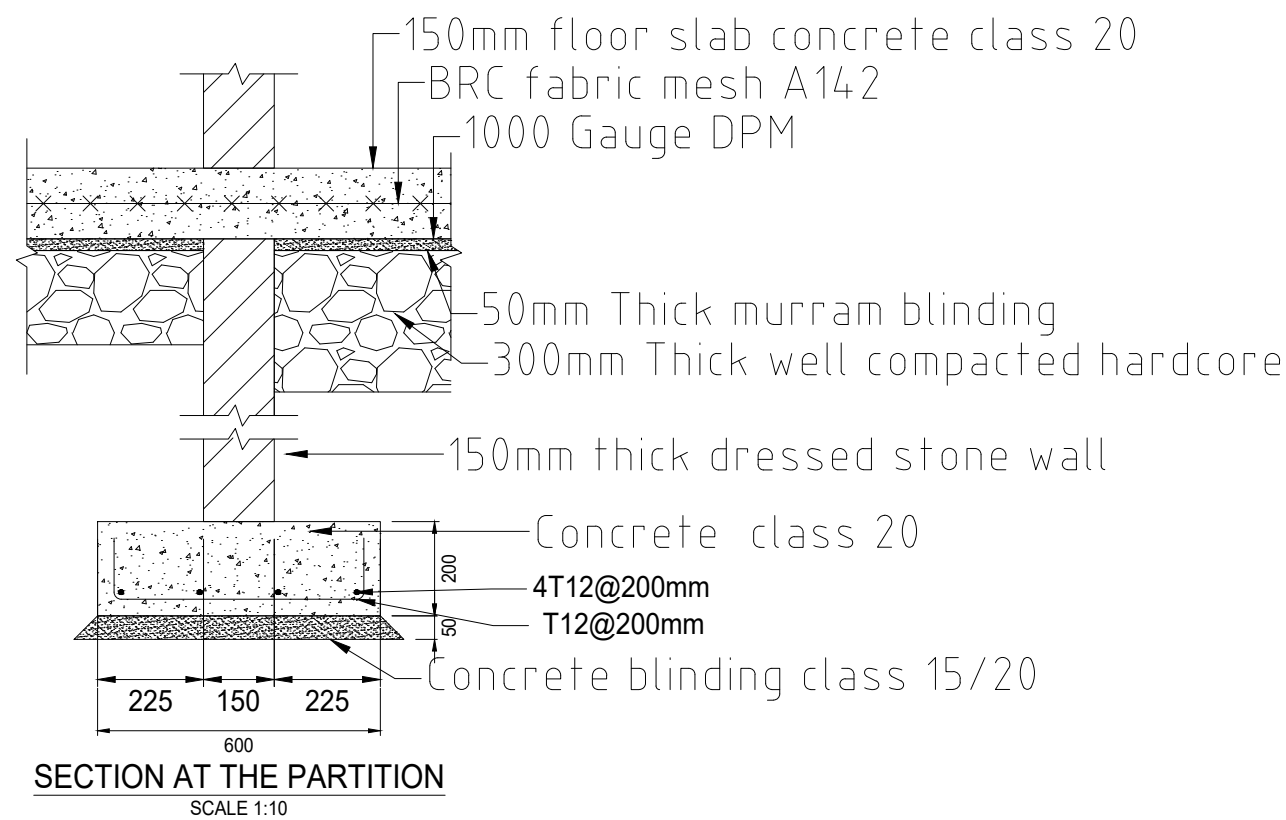
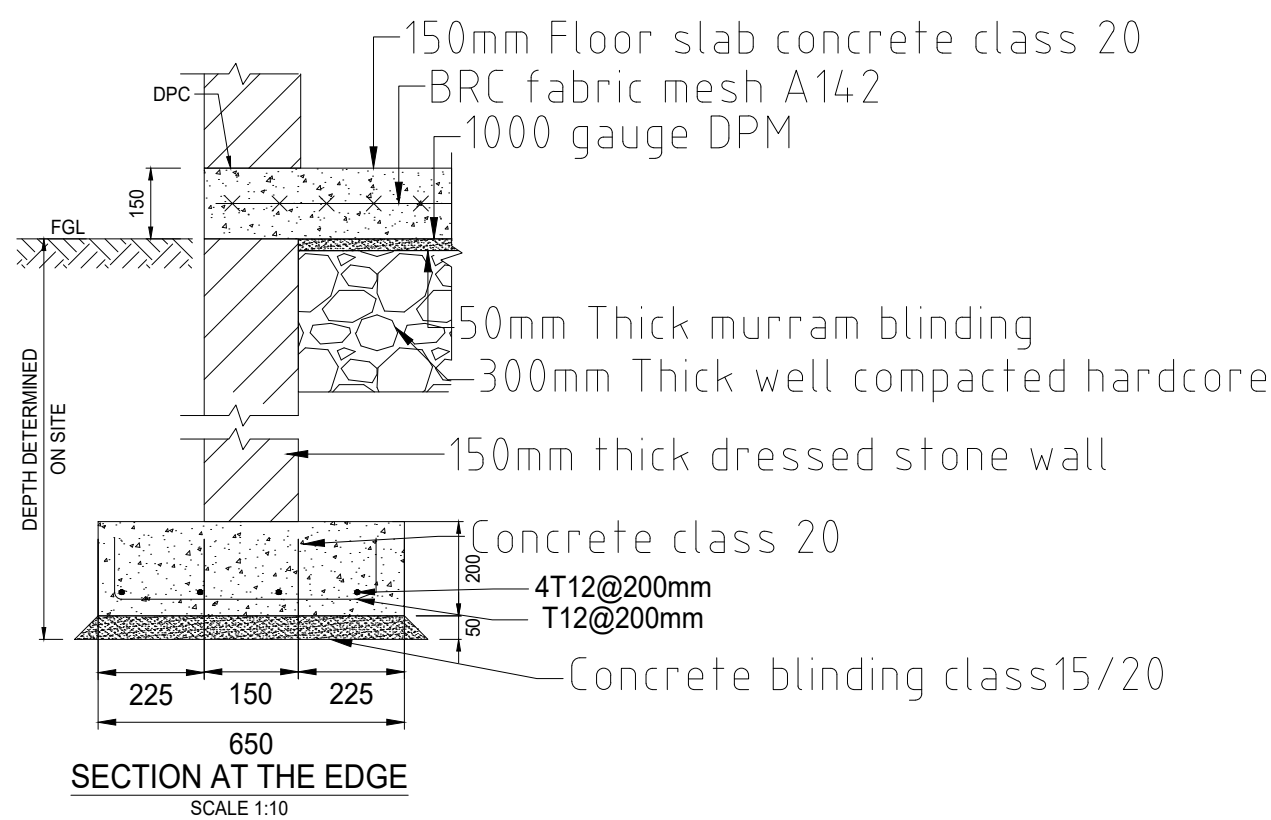
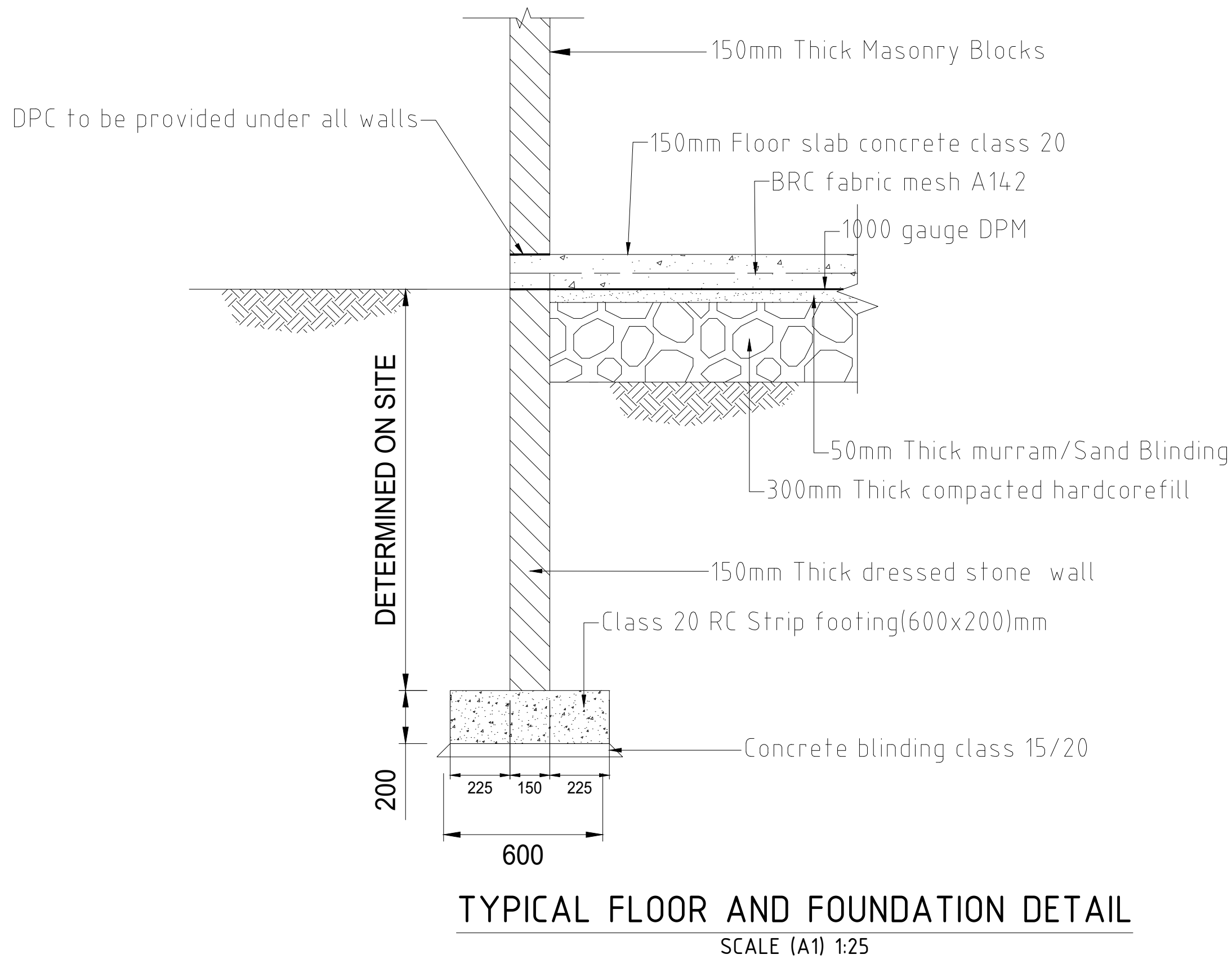


WINDOWS AND DOOR SCHEDULE			
WINDOW	SIZE (HxW) mm		NO
W1	600	600	2

DOOR	SIZE (HxW) mm		NO
D1	1800	900	2



<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:						
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved
								DRAFT DETAILED DESIGN		By			
				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By			
										Checked			
				Drawn by:	V.K	JUNE 2025				By			
										Checked			
Checked by:	M.J	JUNE 2025				By							
						Checked							
Approved by:	D.L	JUNE 2025				By							
						Checked							
						DRAWING SCALE:		DRAWING No.:					
						AS SHOWN		GW4R-WJR-STD-02.01					



**TYPICAL CROSS SECTION
THROUGH RING BEAM**

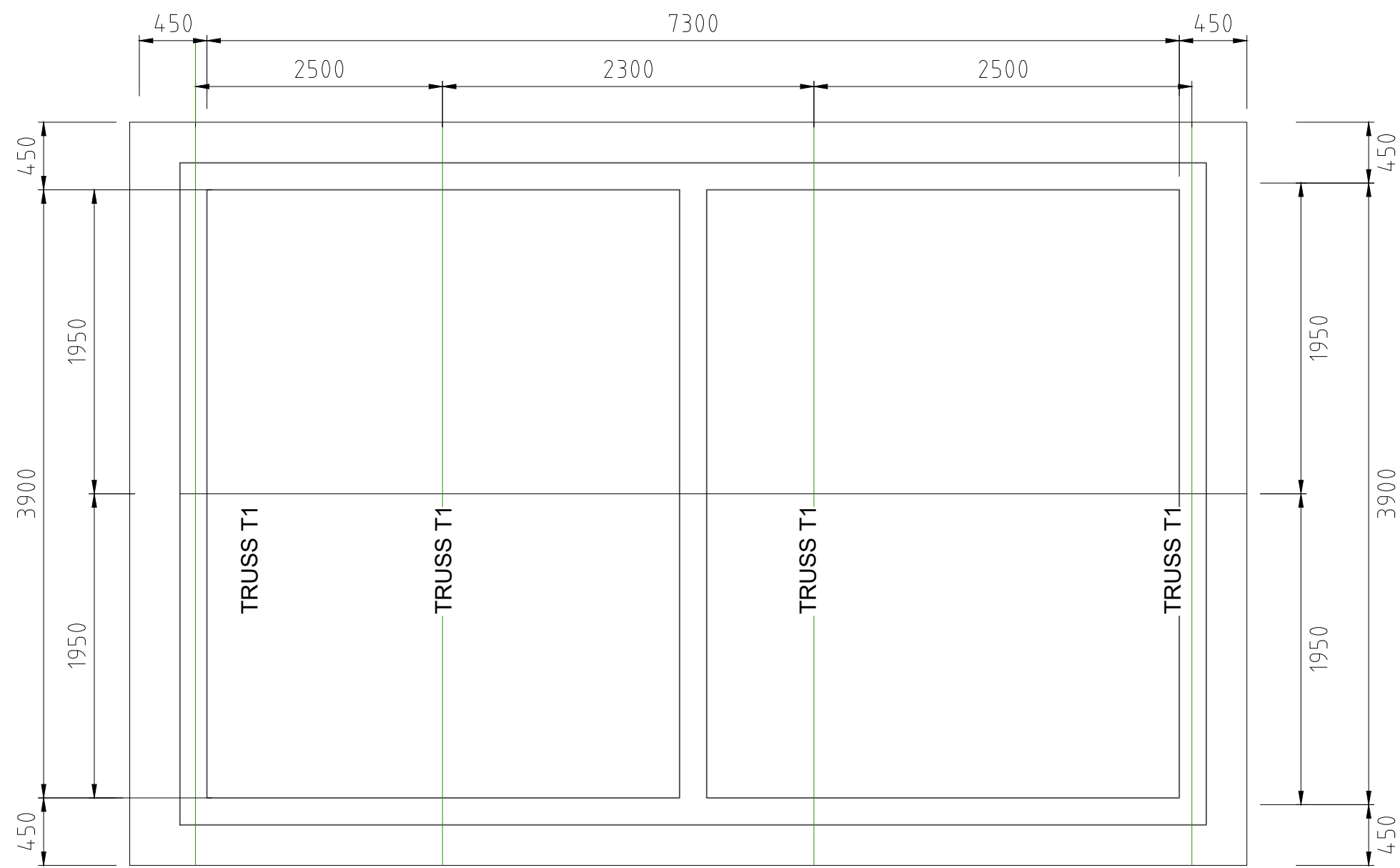
SCALE 1:5



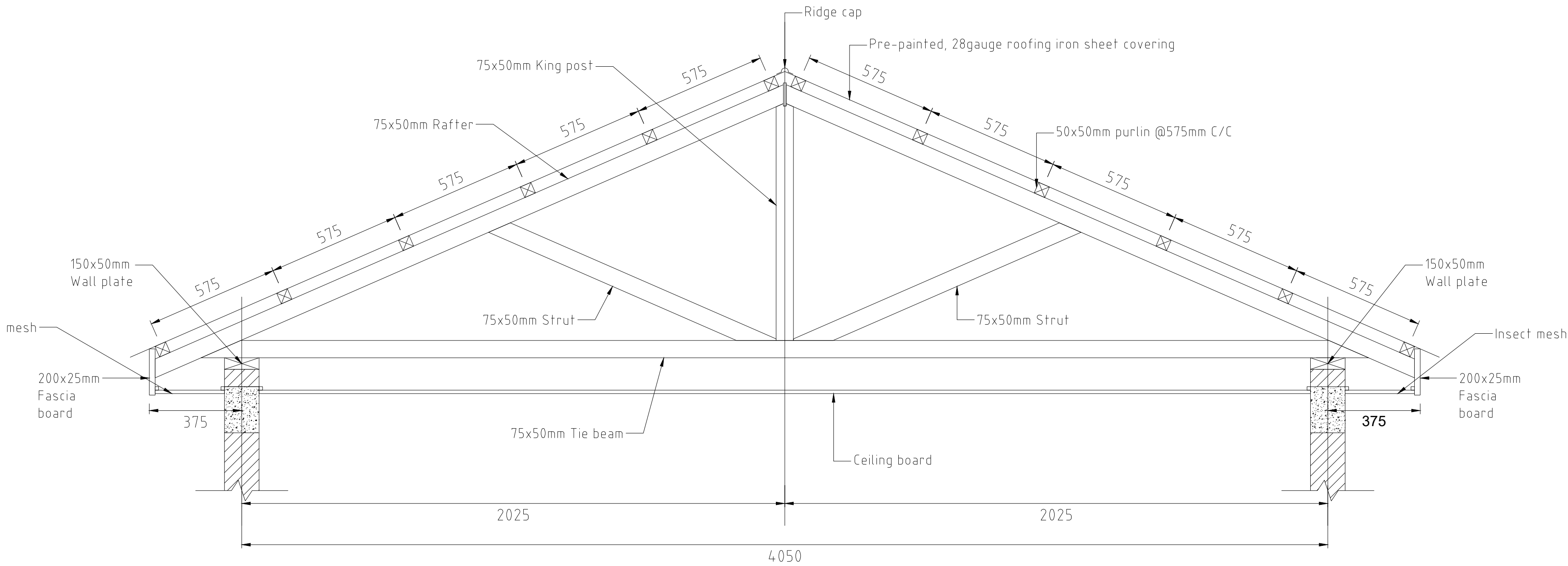
D1	2200	1000	2
----	------	------	---

DESIGN DETAILS			REVISIONS					
			No.	Revision Details	Reviewed	initials	Date	Approved
Action	Name	Date	1	DRAFT DETAILED DESIGN	By			
Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By			
					Checked			
Drawn by:	V.K	JUNE 2025			By			
					Checked			
Checked by:	M.J	JUNE 2025			By			
					Checked			
Approved by:	D.L	JUNE 2025			By			
					Checked			

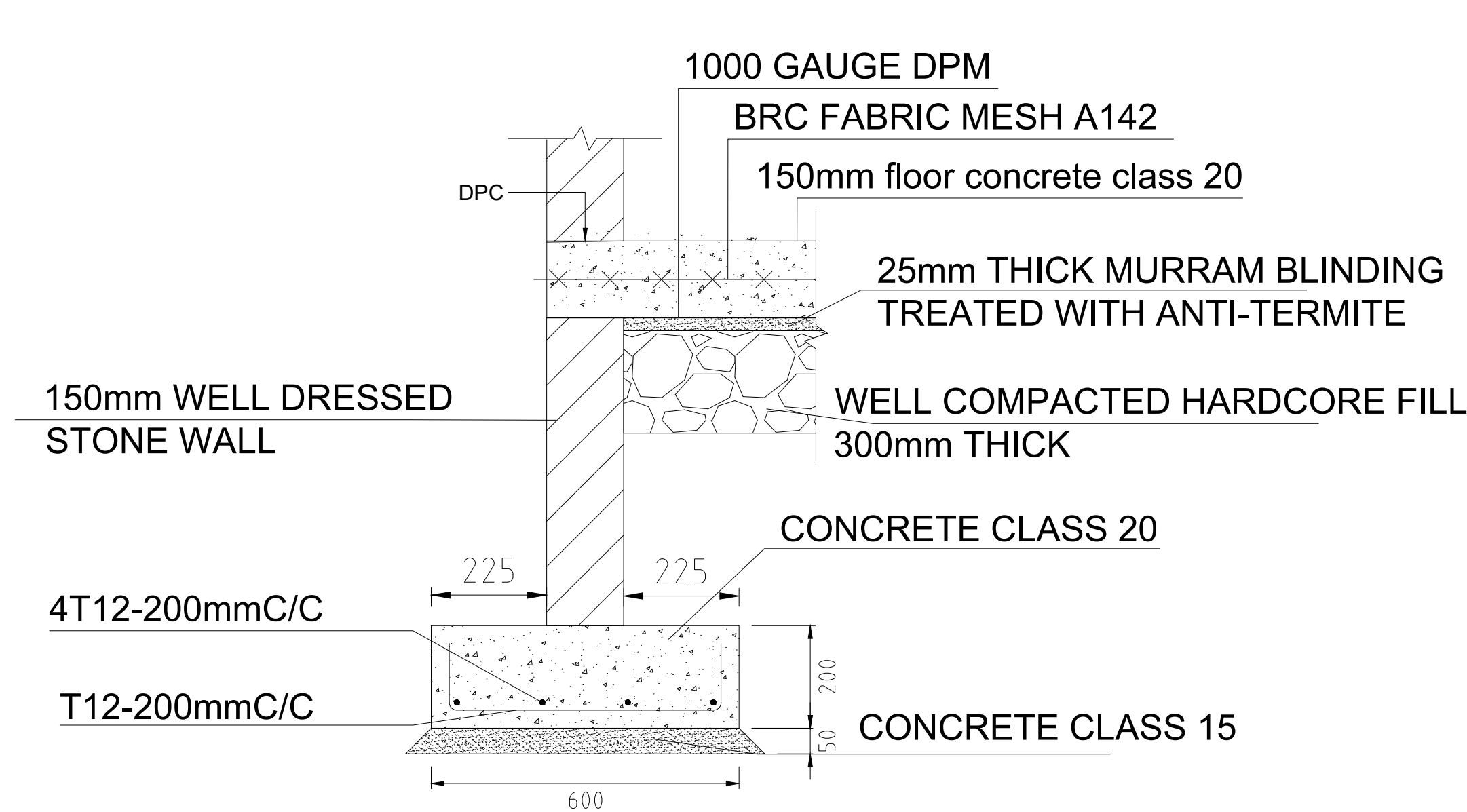
DRAWING TITLE:	
STANDARD DRAWINGS	
3. OPERATOR'S HOUSE	
PLAN AND ELEVATION VIEWS	
SHEET 1 OF 2	
DRAWING SCALE:	DRAWING No.:
AS SHOWN	GW4R-WJR-STD-03.01



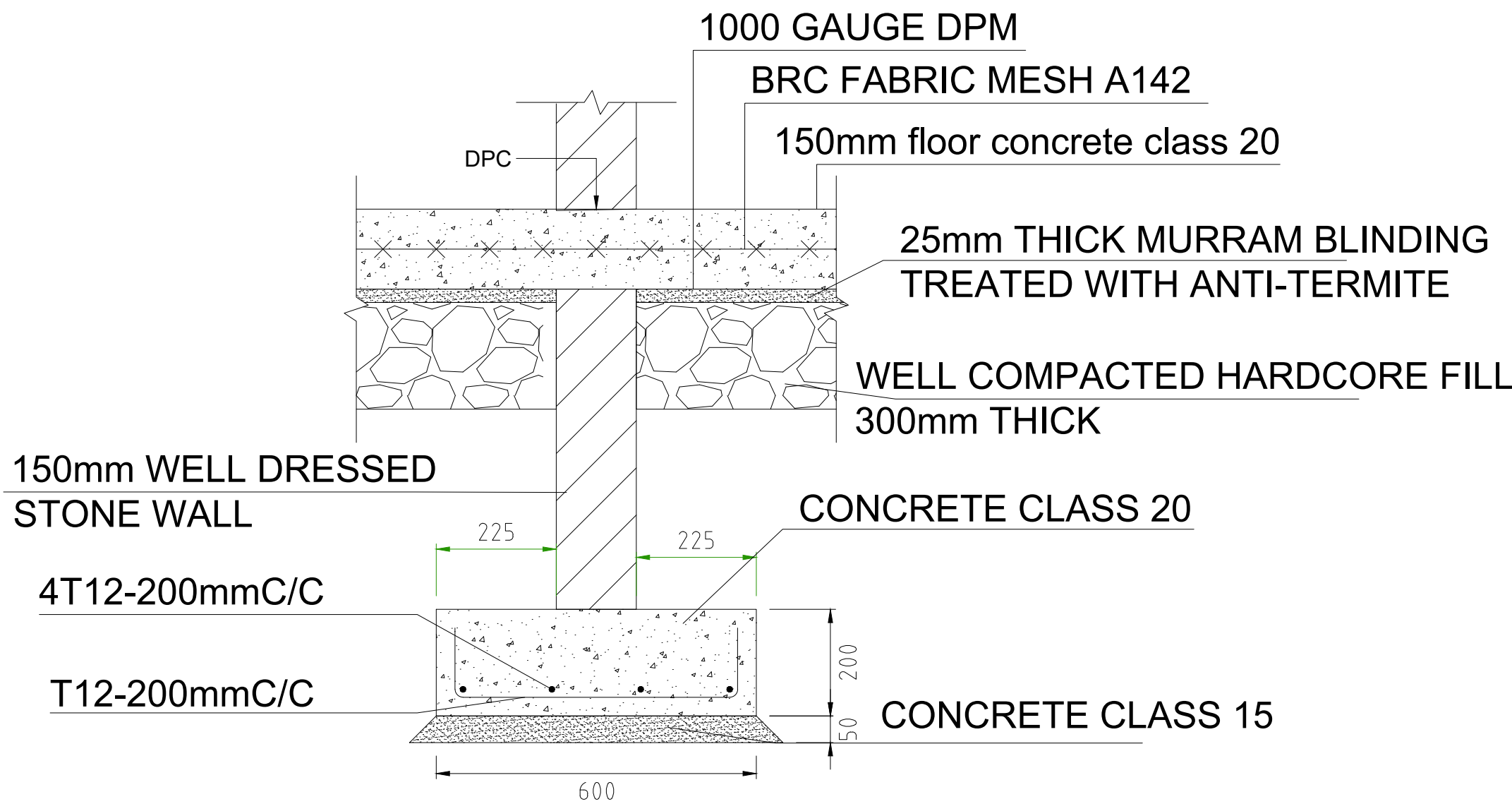
ROOF PLAN
SCALE 1:40



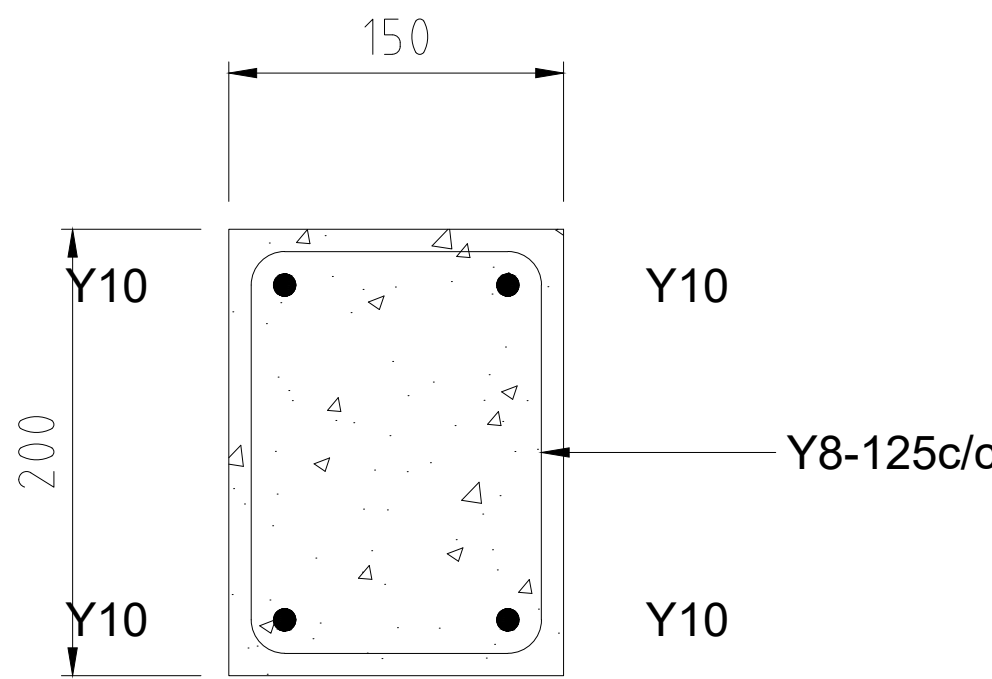
CROSS SECTION A - A
SCALE 1:15



SECTION AT THE EDGE
SCALE 1:10

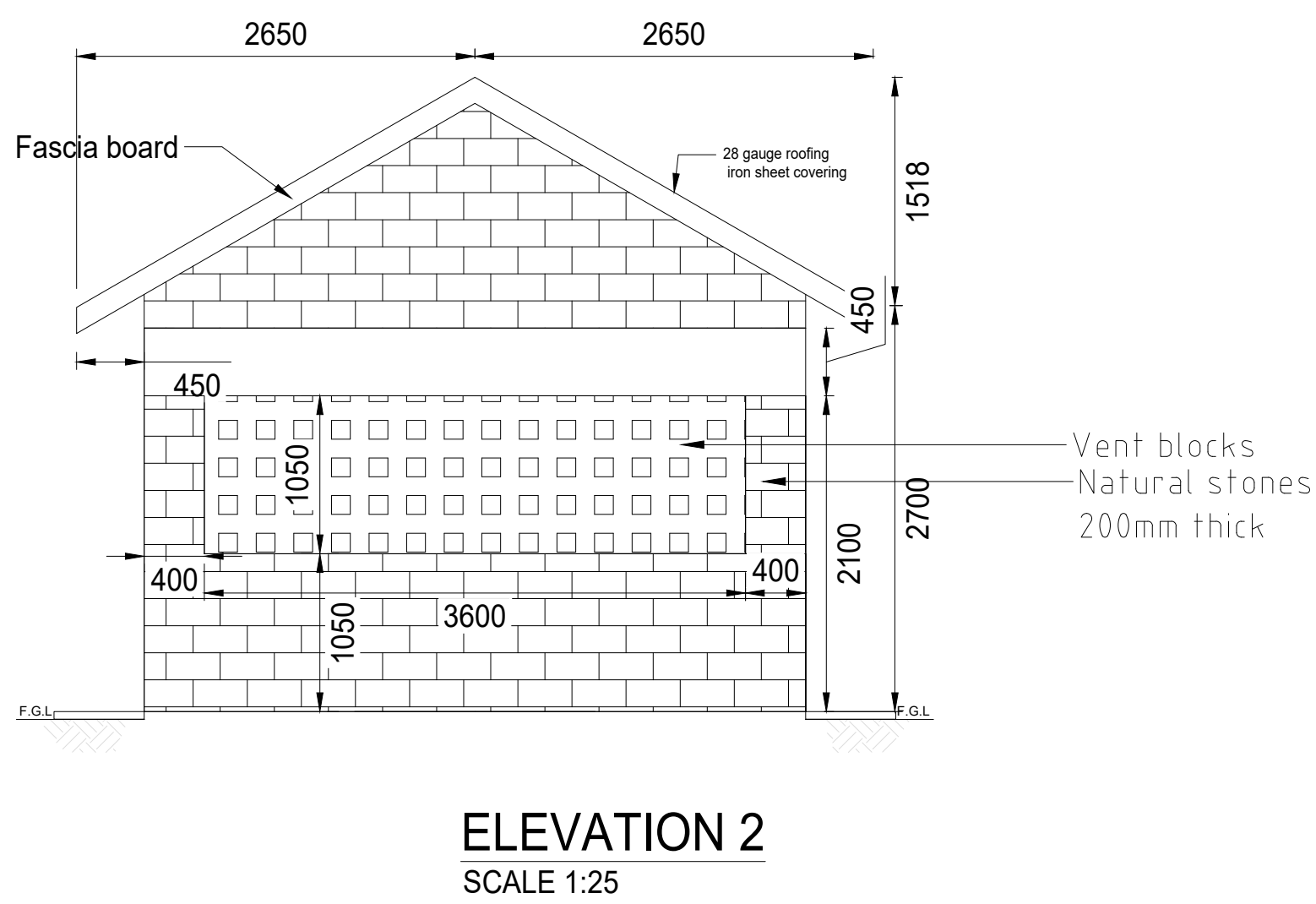
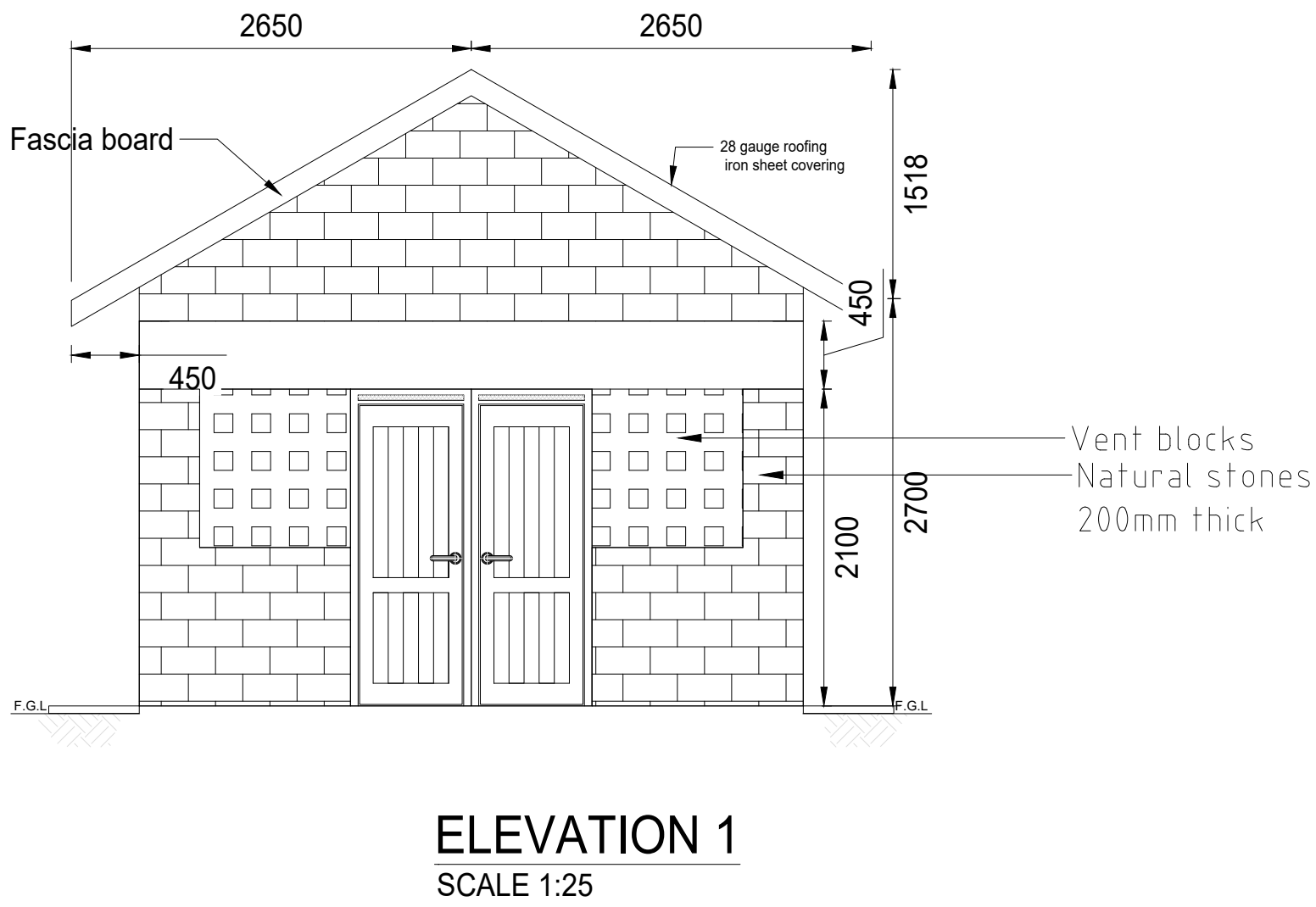
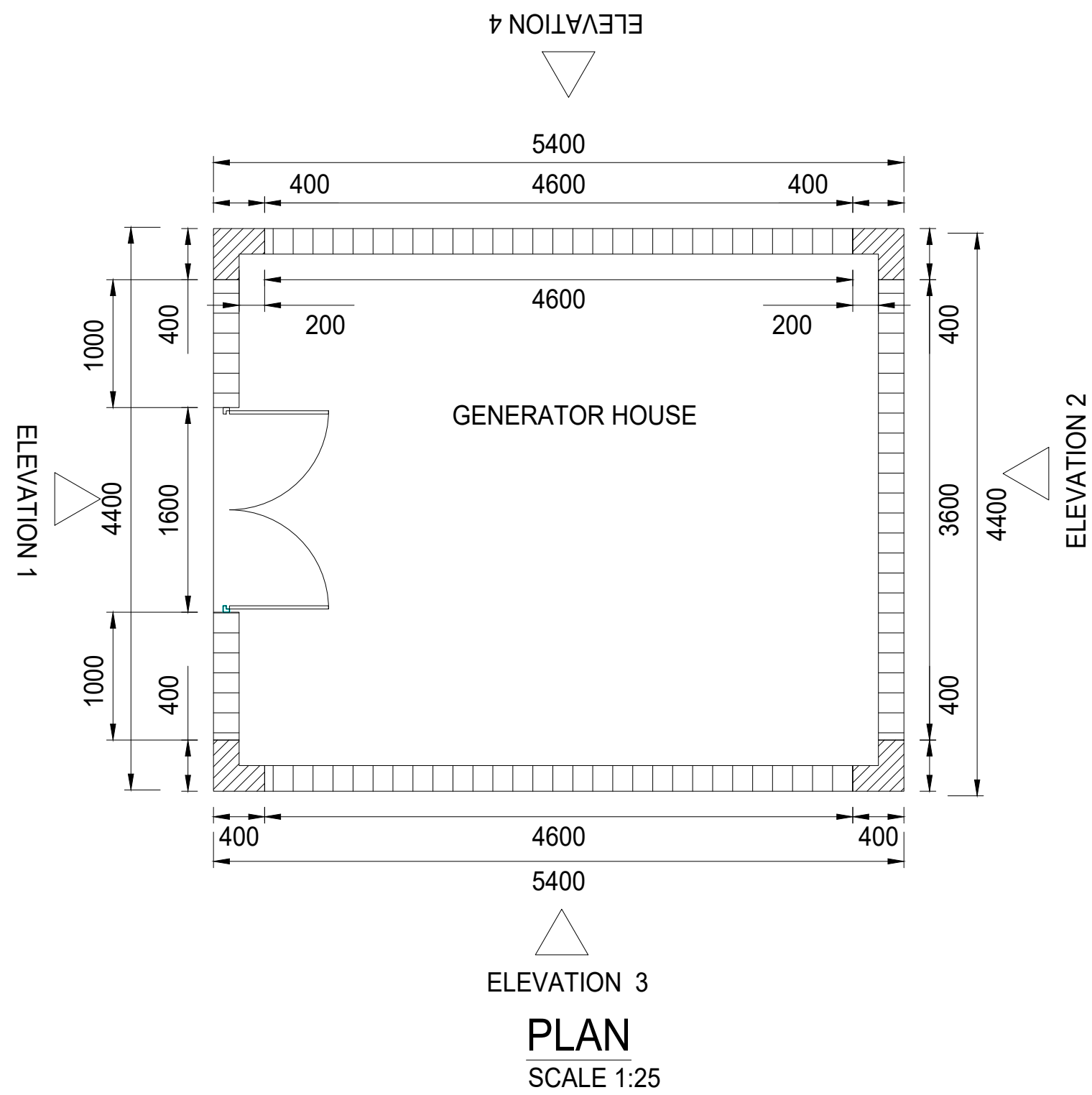


SECTION AT THE PARTITION
SCALE 1:10



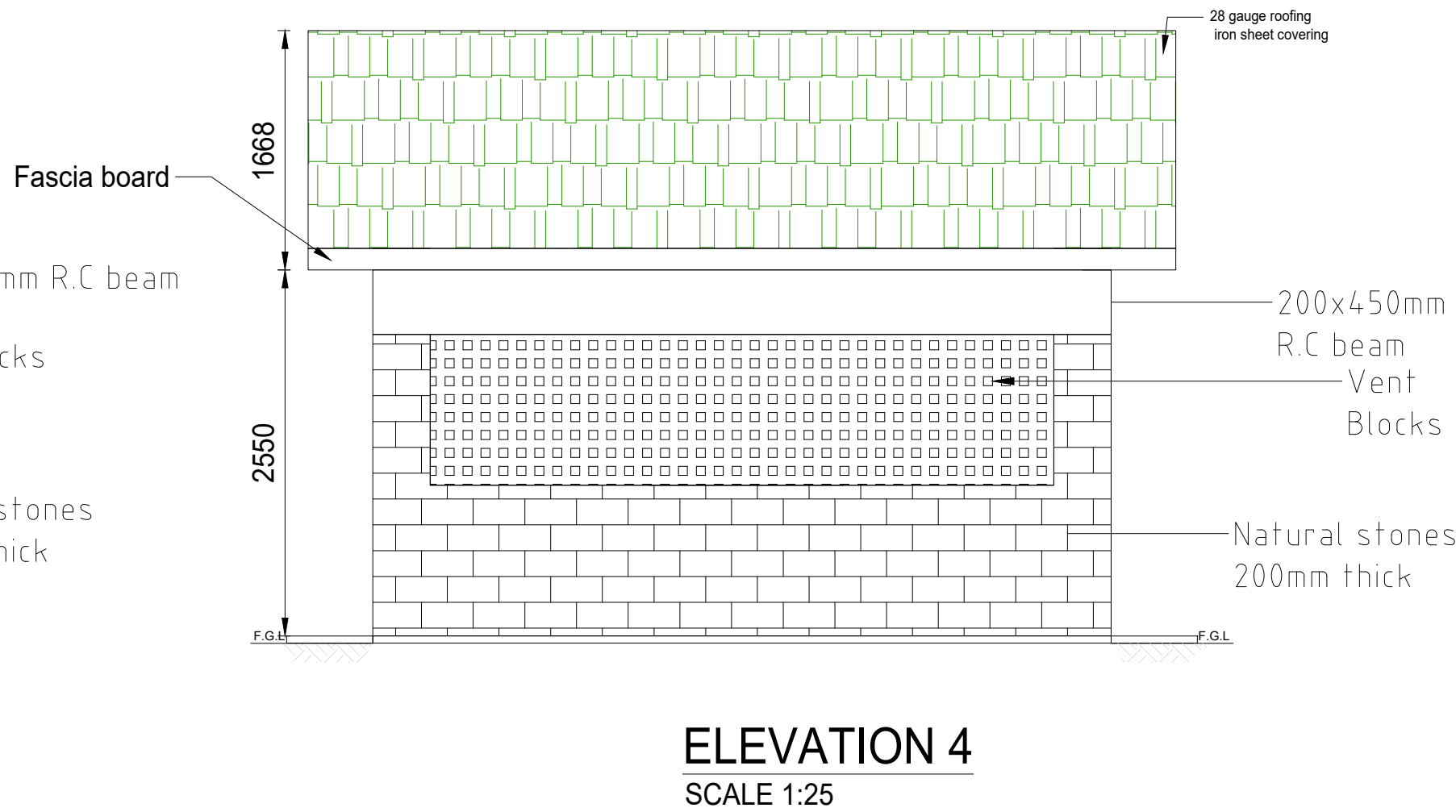
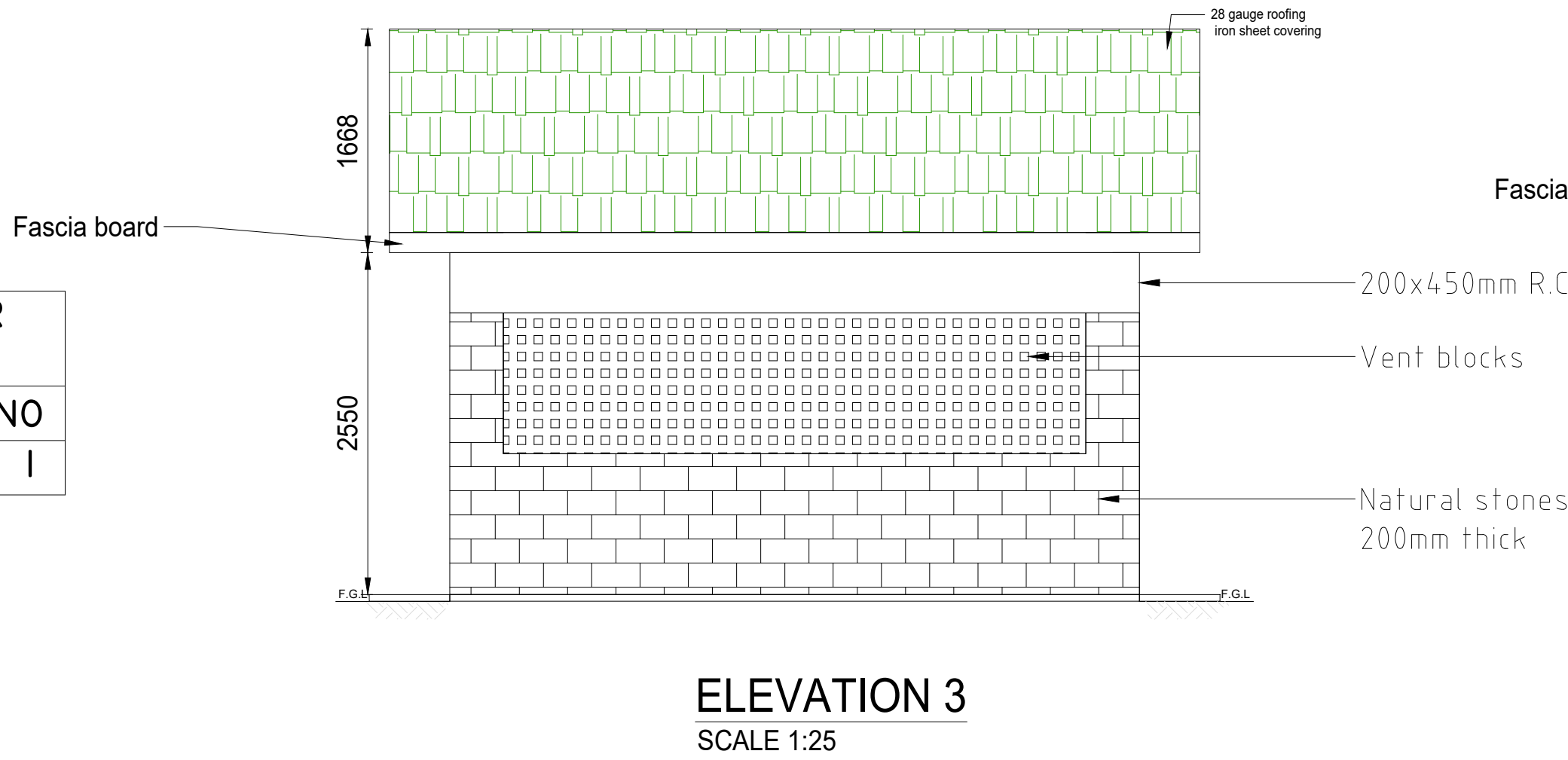
TYPICAL CROSS SECTION
THROUGH RING BEAM
SCALE 1:5

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:										
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	3.OPERATOR'S HOUSE ROOF PLAN, TRUSS DETAILS AND FOUNDATION DETAILS SHEET 2 OF 2			
								DRAFT DETAILED DESIGN									
				Designed by:	W.O	JUNE 2025	1	FINAL DETAILED DESIGN		By	Checked				DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-STD-03.02	
		Drawn by:		V.K	JUNE 2025				By	Checked							
Checked by:	M.J	JUNE 2025				By	Checked										
Approved by:	D.L	JUNE 2025				By	Checked										

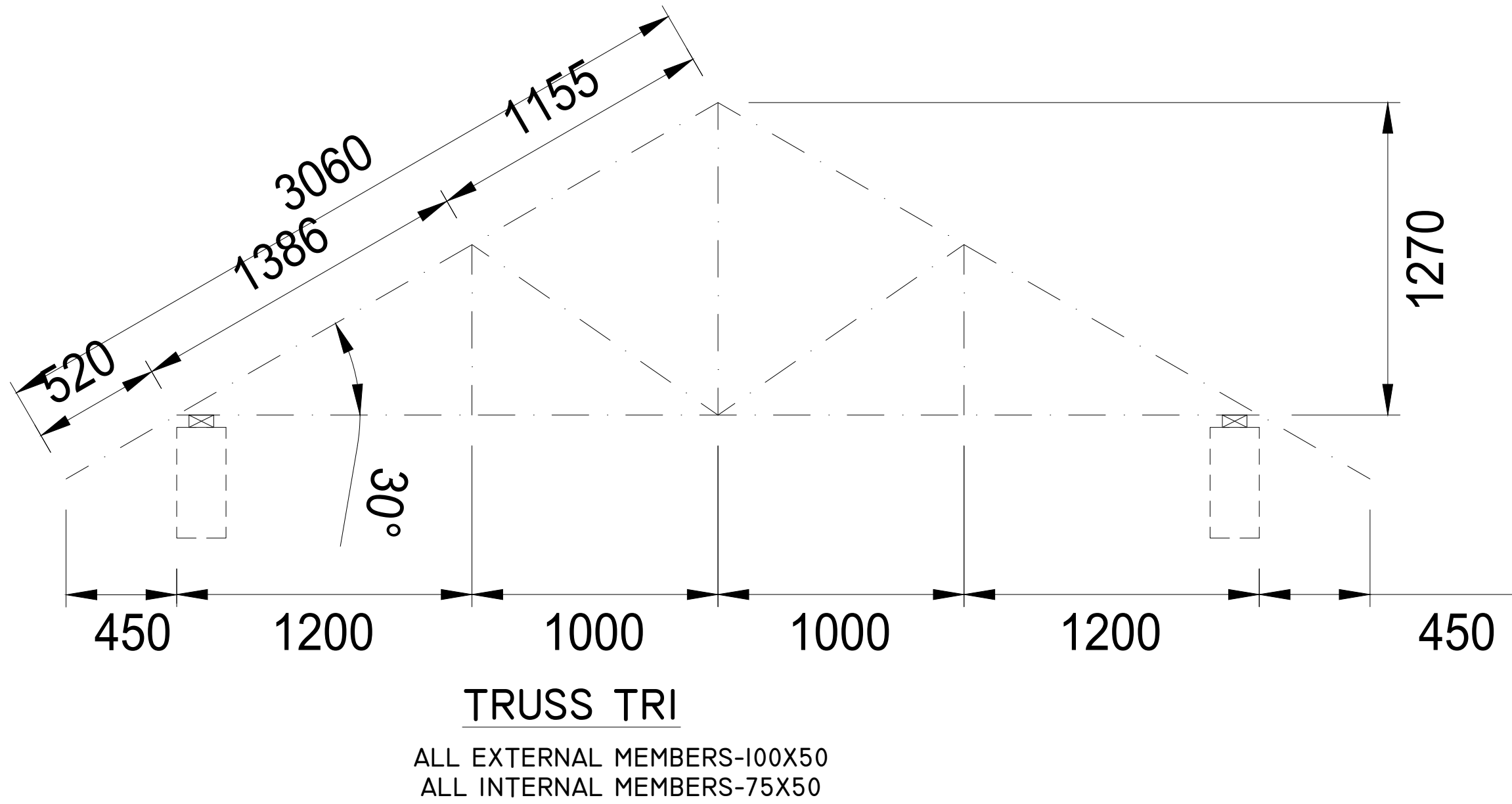
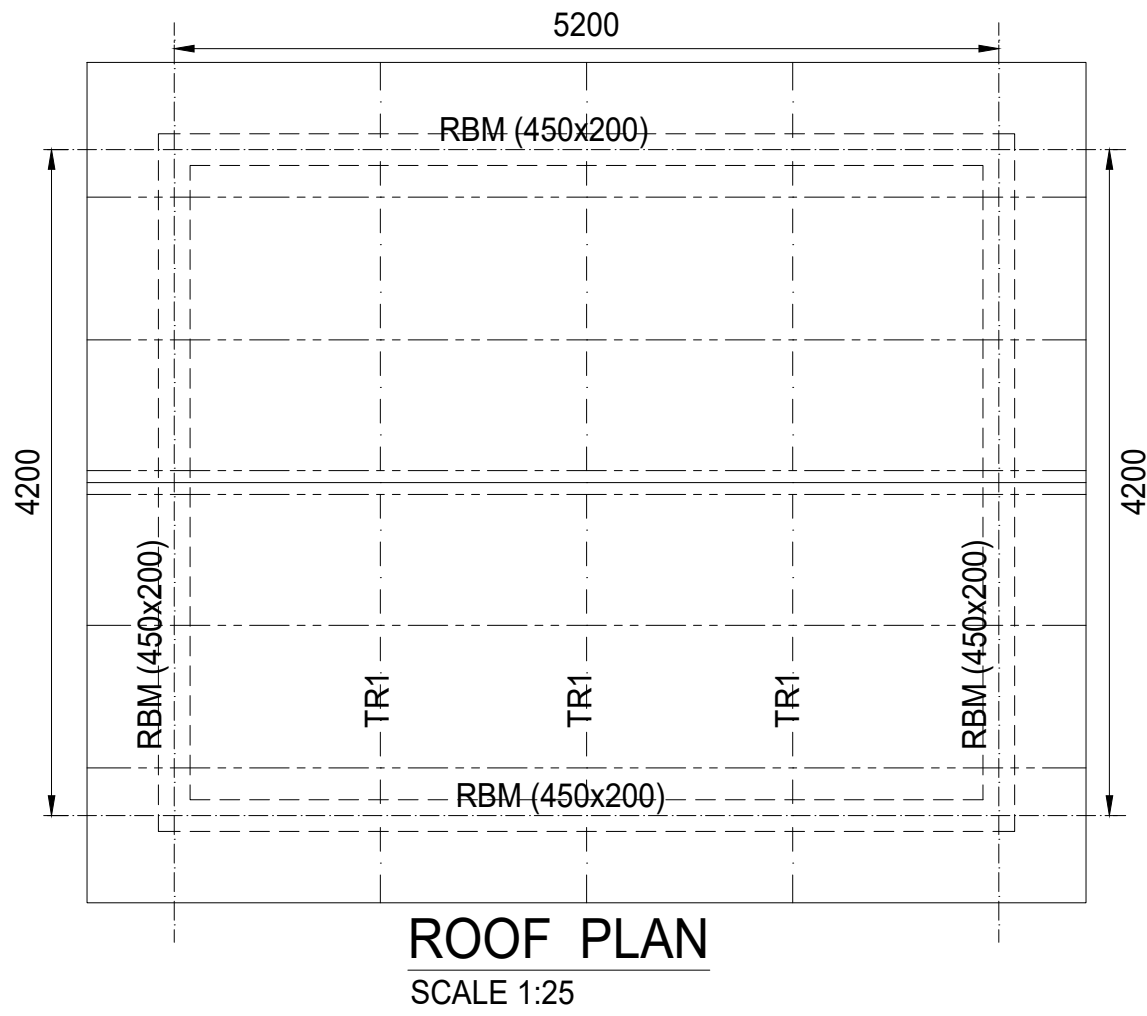
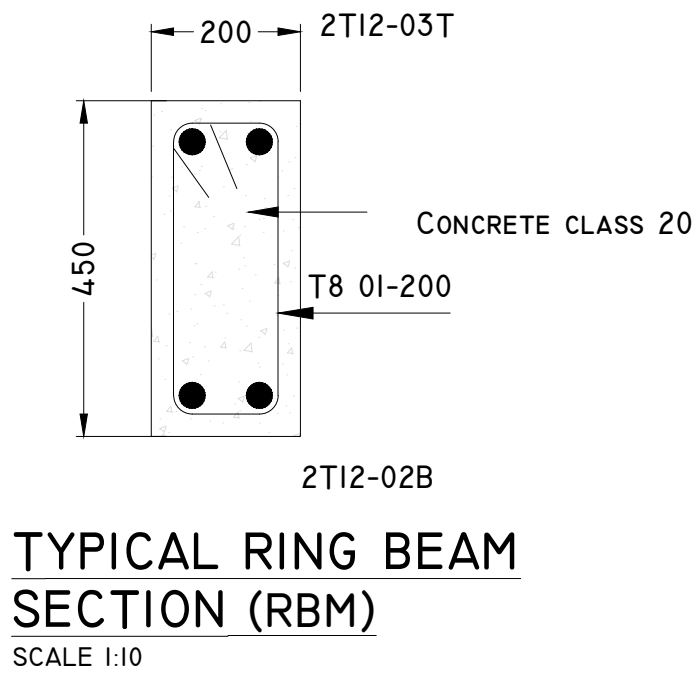
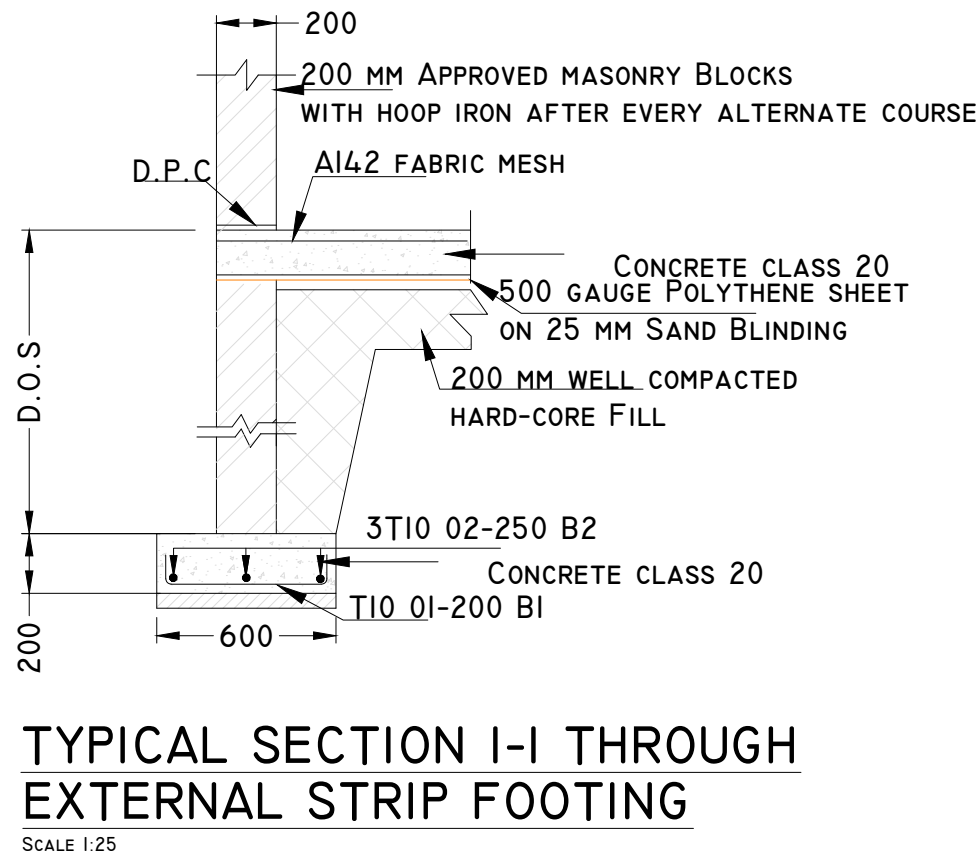
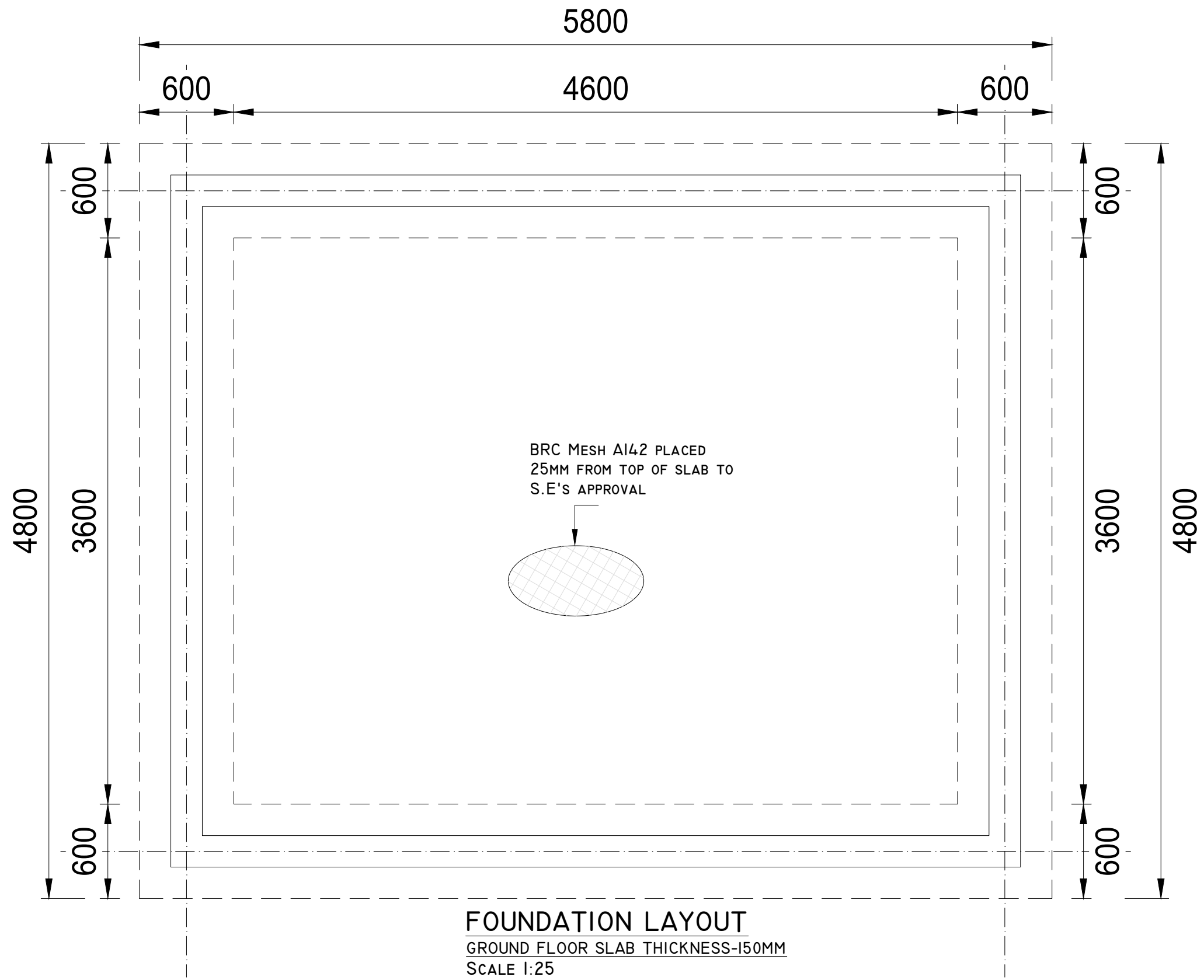


SPECIFIC NOTES:
1. The work top to be 100mm thick concrete slab.
2. The slab to be reinforced with Y8-200 c/c.
3. The work top to be carried by 200mm thick wall at the edges and as may be directed by the Engineer.

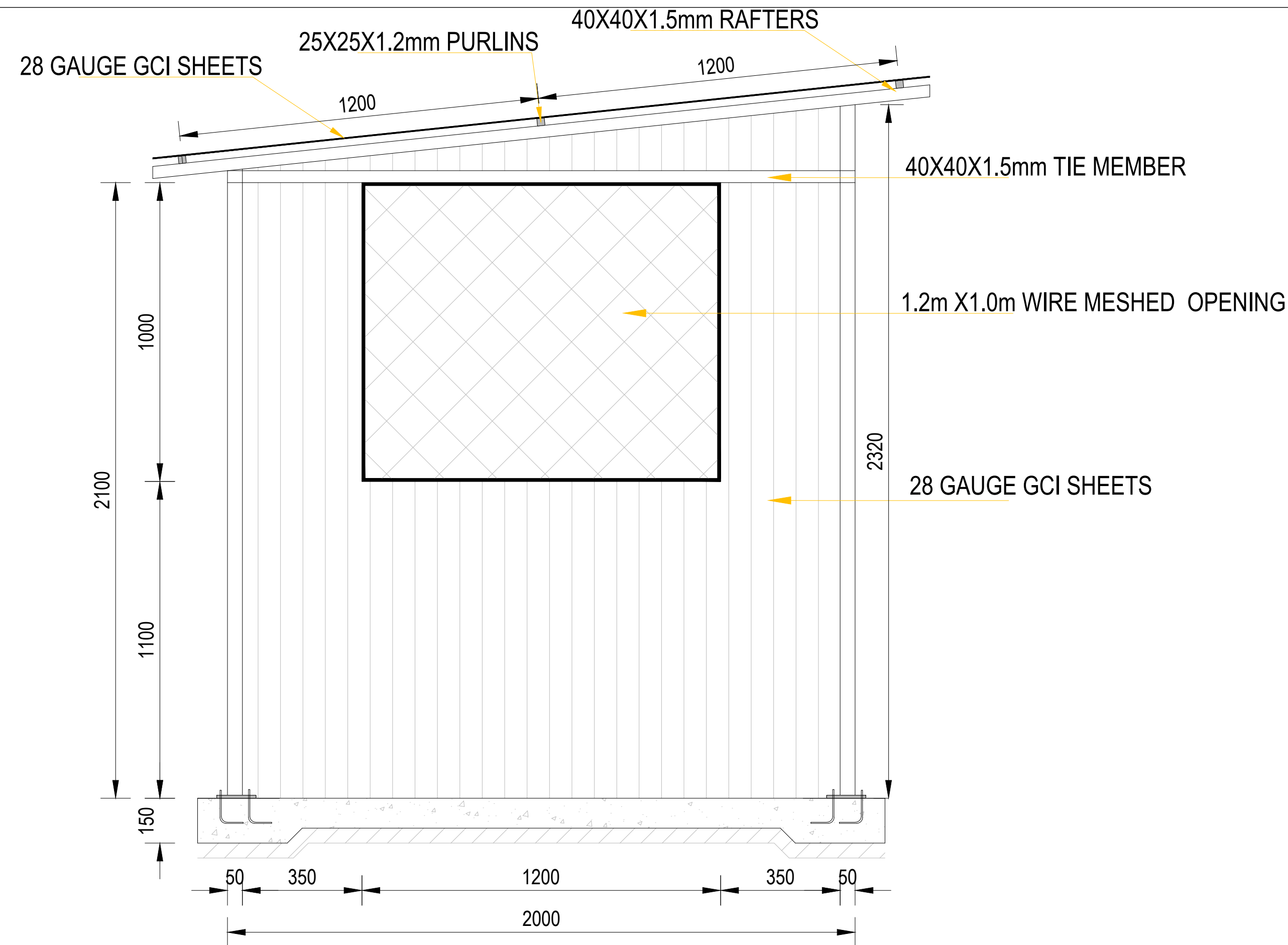
WINDOW AND DOOR SCHEDULE		
ITEM	SIZE(MM)	NO
D	1600X2100	1



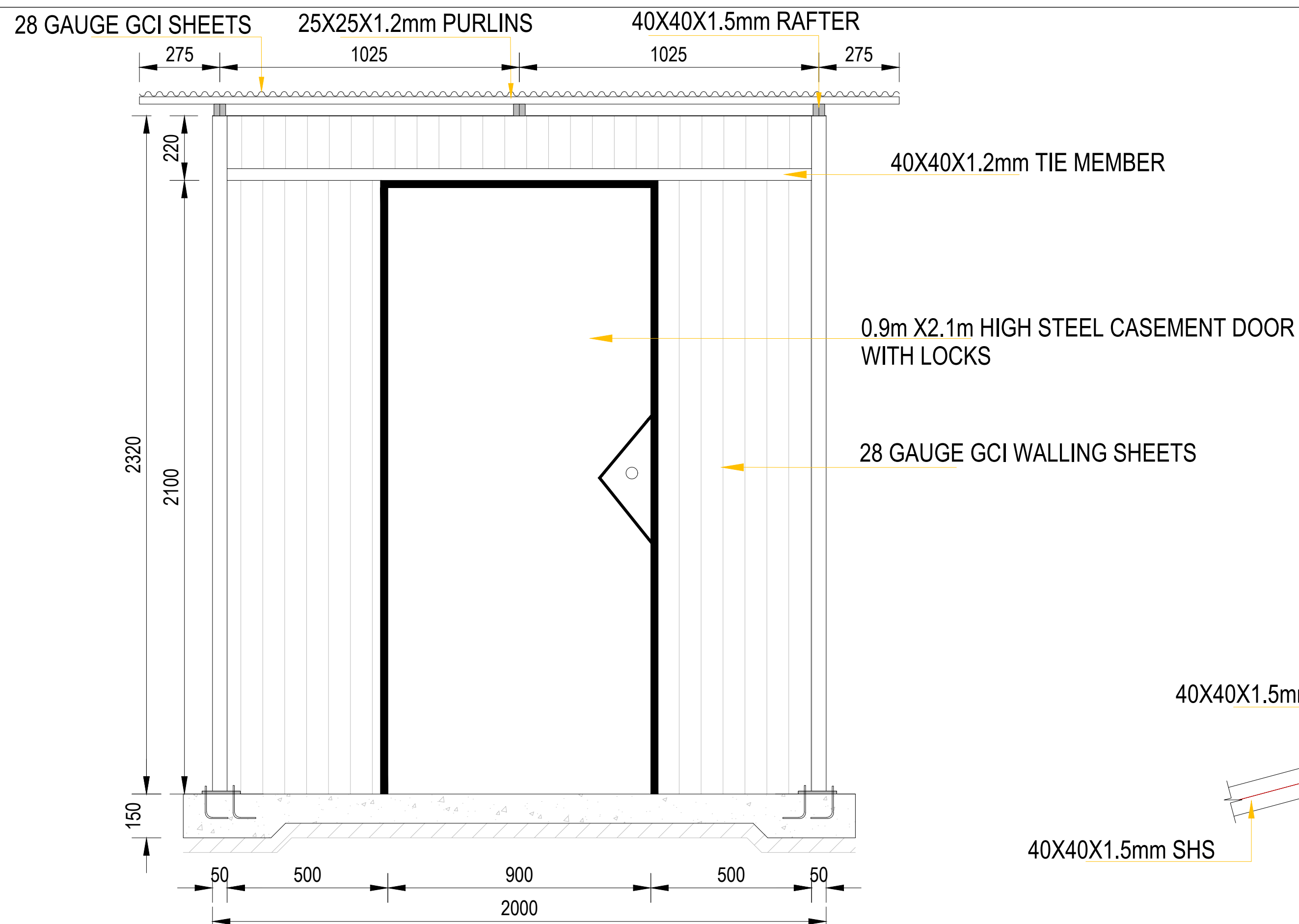
<div><div></div><div>WATER SECTOR TRUST FUND</div><div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div></div>	<div><div></div><div>THE WORLD BANK GROUP</div></div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div><div></div><div></div><div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div></div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th colspan="5">DRAWING TITLE:</th></tr><tr><th rowspan="2">Action</th><th rowspan="2">Name</th><th rowspan="2">Date</th><th>No.</th><th>Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><th>1</th><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><th rowspan="2">Designed by:</th><th rowspan="2">W.O</th><th rowspan="2">JUNE 2025</th><th rowspan="2">2</th><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><th rowspan="2">Drawn by:</th><th rowspan="2">V.K</th><th rowspan="2">JUNE 2025</th><th rowspan="2"></th><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><th rowspan="2">Checked by:</th><th rowspan="2">M.J</th><th rowspan="2">JUNE 2025</th><th rowspan="2"></th><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><th rowspan="2">Approved by:</th><th rowspan="2">D.L</th><th rowspan="2">JUNE 2025</th><th rowspan="2"></th><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			DRAWING TITLE:					Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved	1	DRAFT DETAILED DESIGN	By				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By					Checked				Drawn by:	V.K	JUNE 2025			By					Checked				Checked by:	M.J	JUNE 2025			By					Checked				Approved by:	D.L	JUNE 2025			By					Checked				<div>5.GENERATOR HOUSE</div> <div>ROOF, RING BEAM,FOUNDATION LAYOUT PLANS AND DETAILS</div> <div>SHEET 1 OF 2</div> <div><div>DRAWING SCALE:</div><div>AS SHOWN</div></div> <div><div>DRAWING No.:</div><div>GW4R-WJR-STD-05.01</div></div>
		DESIGN DETAILS			DRAWING TITLE:																																																																															
		Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved																																																																										
					1	DRAFT DETAILED DESIGN	By																																																																													
		Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By																																																																													
							Checked																																																																													
		Drawn by:	V.K	JUNE 2025			By																																																																													
	Checked																																																																																			
Checked by:	M.J	JUNE 2025			By																																																																															
					Checked																																																																															
Approved by:	D.L	JUNE 2025			By																																																																															
					Checked																																																																															



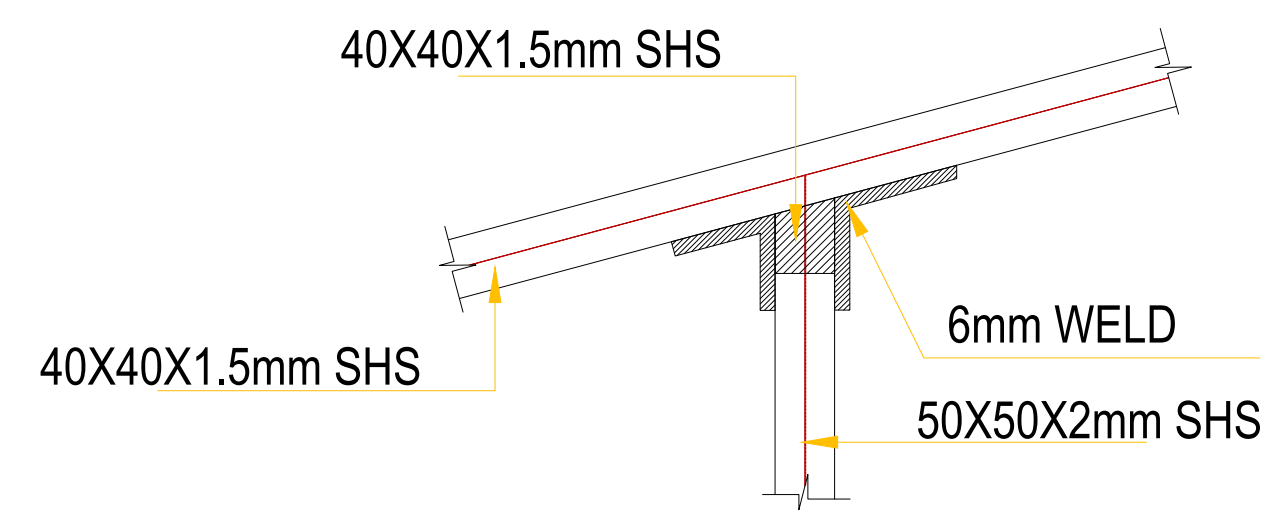
<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved
			Action	Name	Date	1	DRAFT DETAILED DESIGN	By					
			Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By					
								Checked					
			Drawn by:	V.K	JUNE 2025			By					
								Checked					
			Checked by:	M.J	JUNE 2025			By					
								Checked					
Approved by:	D.L	JUNE 2025			By								
					Checked								
DRAWING TITLE:												STANDARD DRAWINGS	
												5.GENERATOR HOUSE	
												ROOF, RING BEAM,FOUNDATION LAYOUT PLANS AND DETAILS	
												SHEET 2 OF 2	
DRAWING SCALE:												DRAWING No.:	
AS SHOWN												GW4R-WJR-STD-05.02	



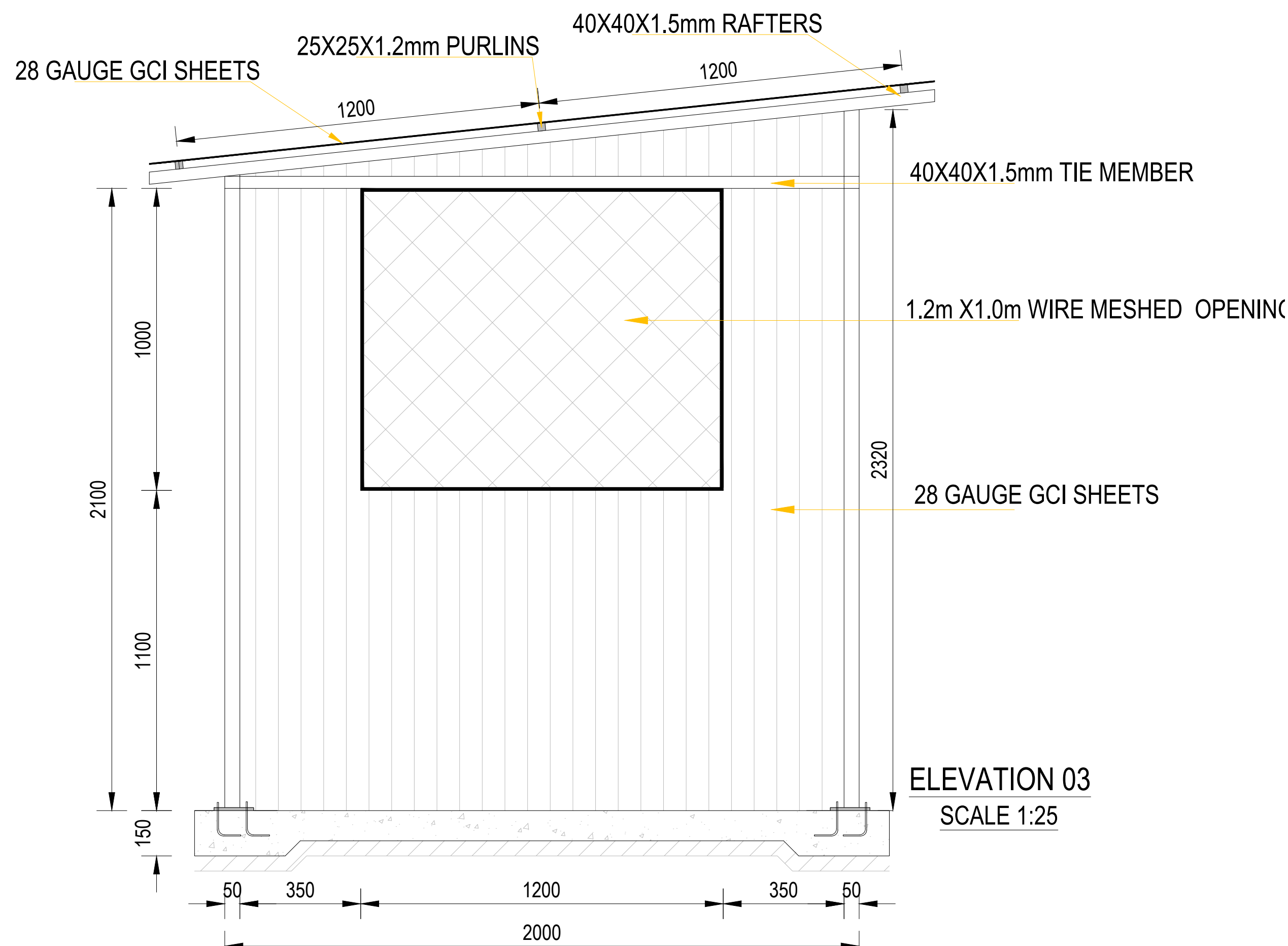
ELEVATION 01 SCALE 1:25



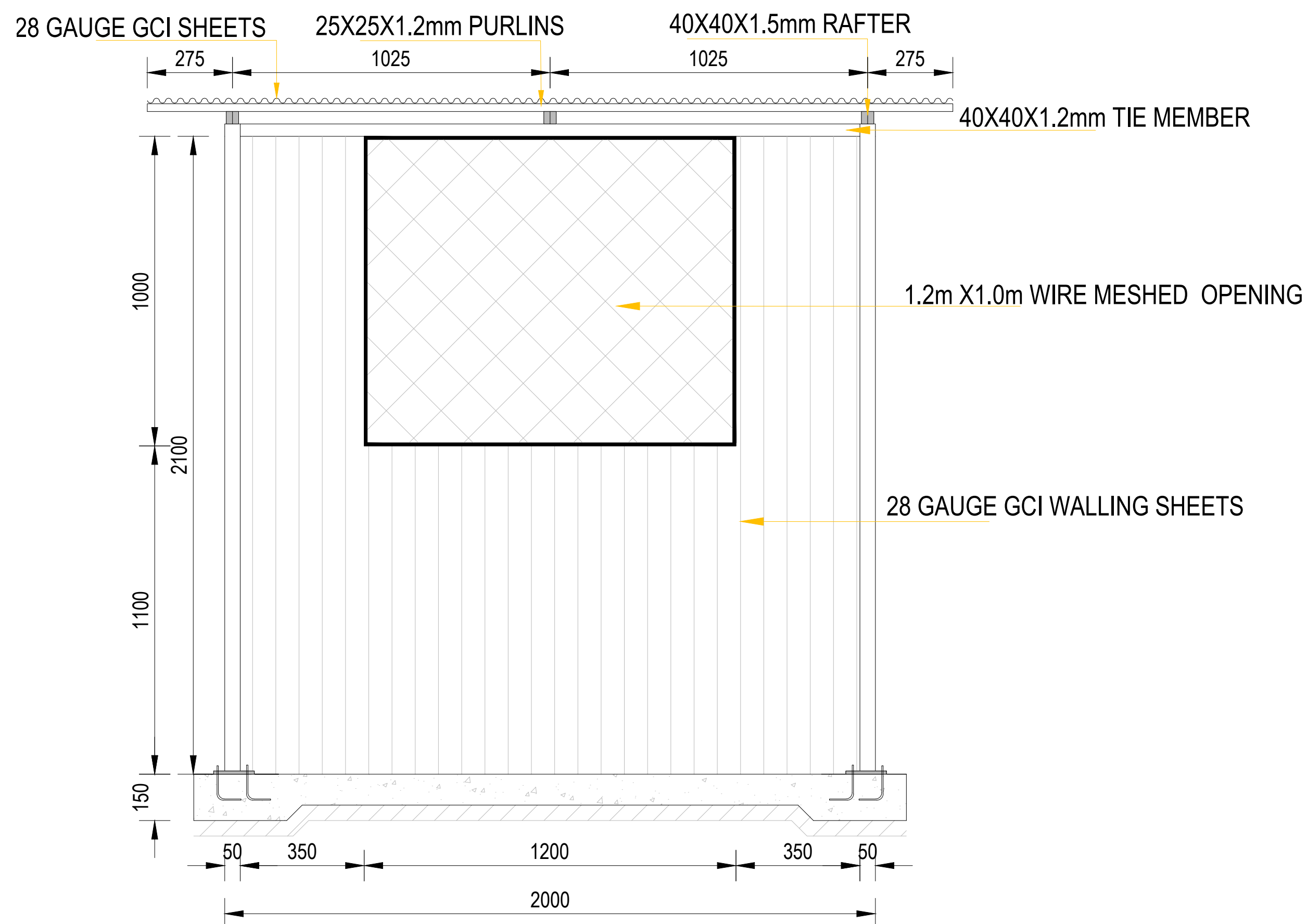
ELEVATION 02 SCALE 1:25



COLUMN TO RAFTER CONNECTION SCALE 1:25

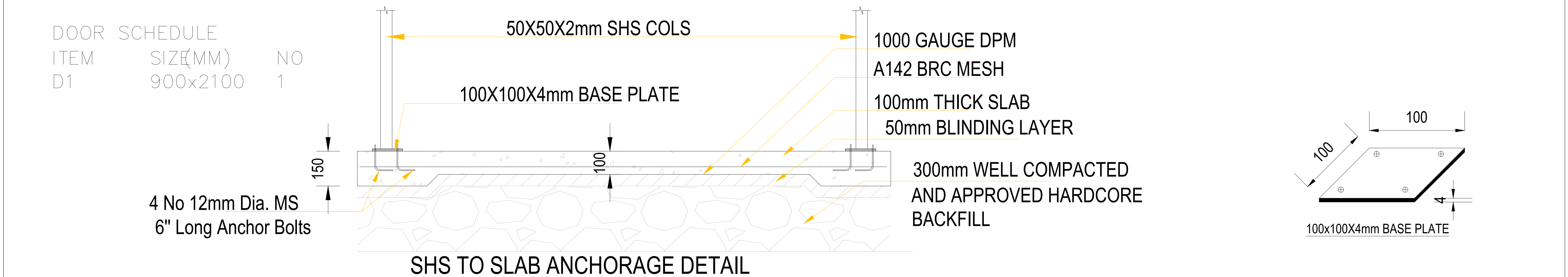
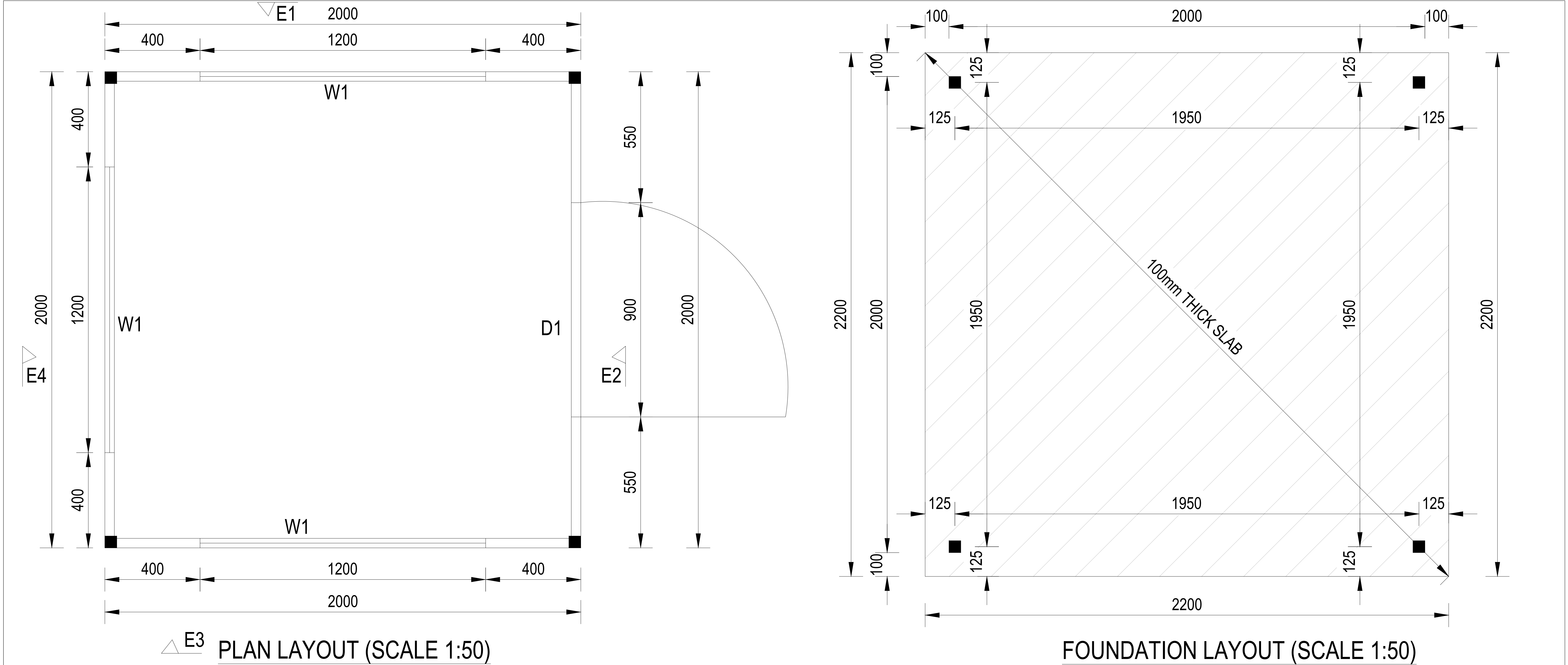


ELEVATION 03 SCALE 1:25

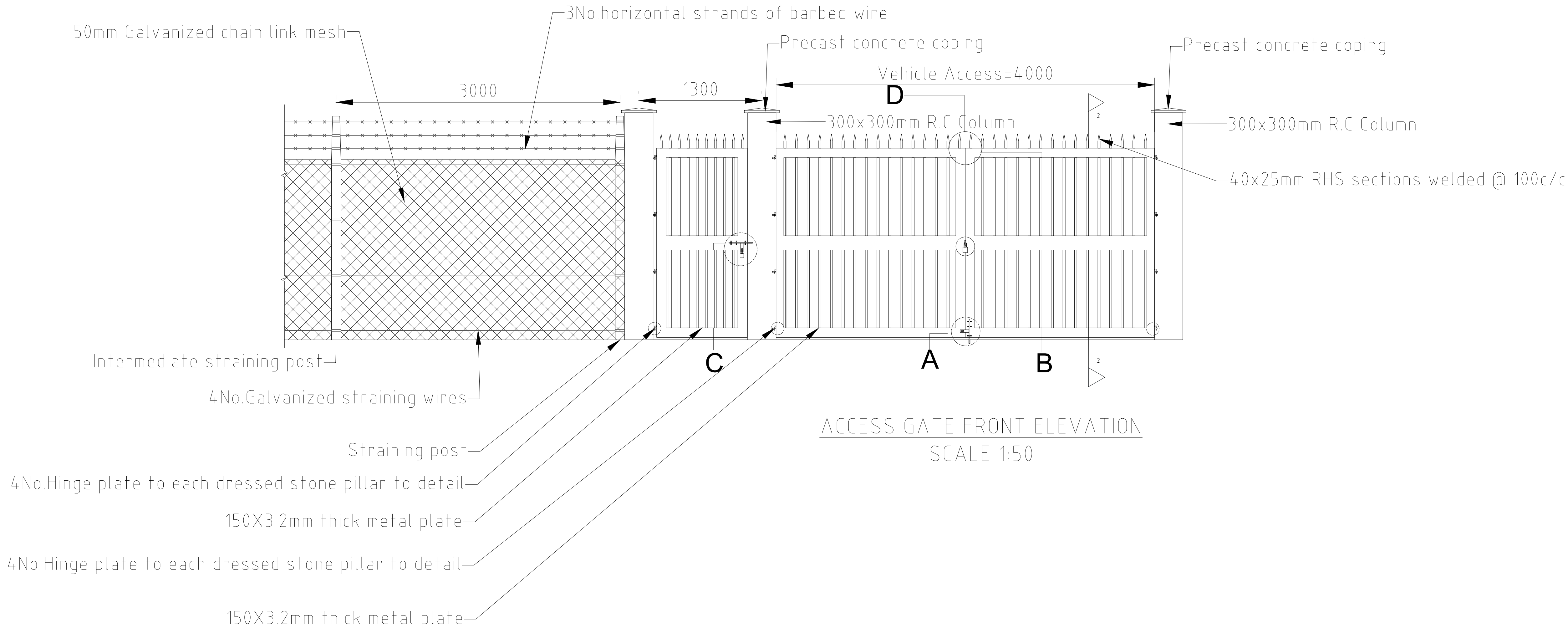
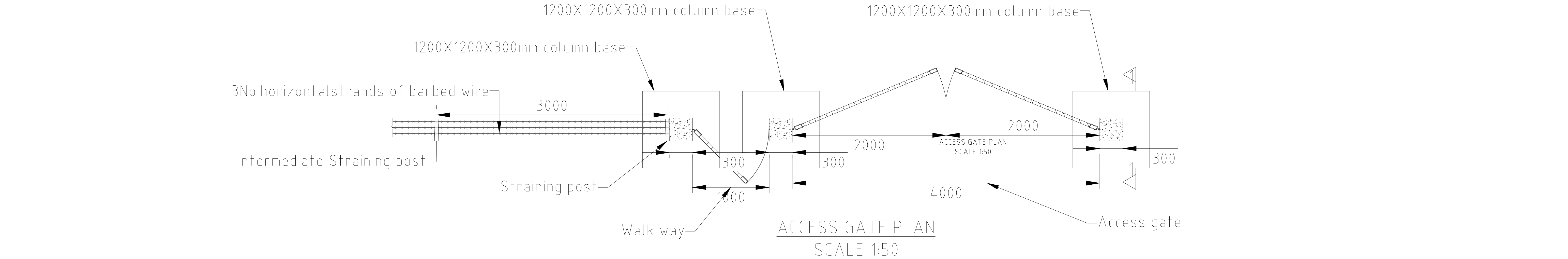


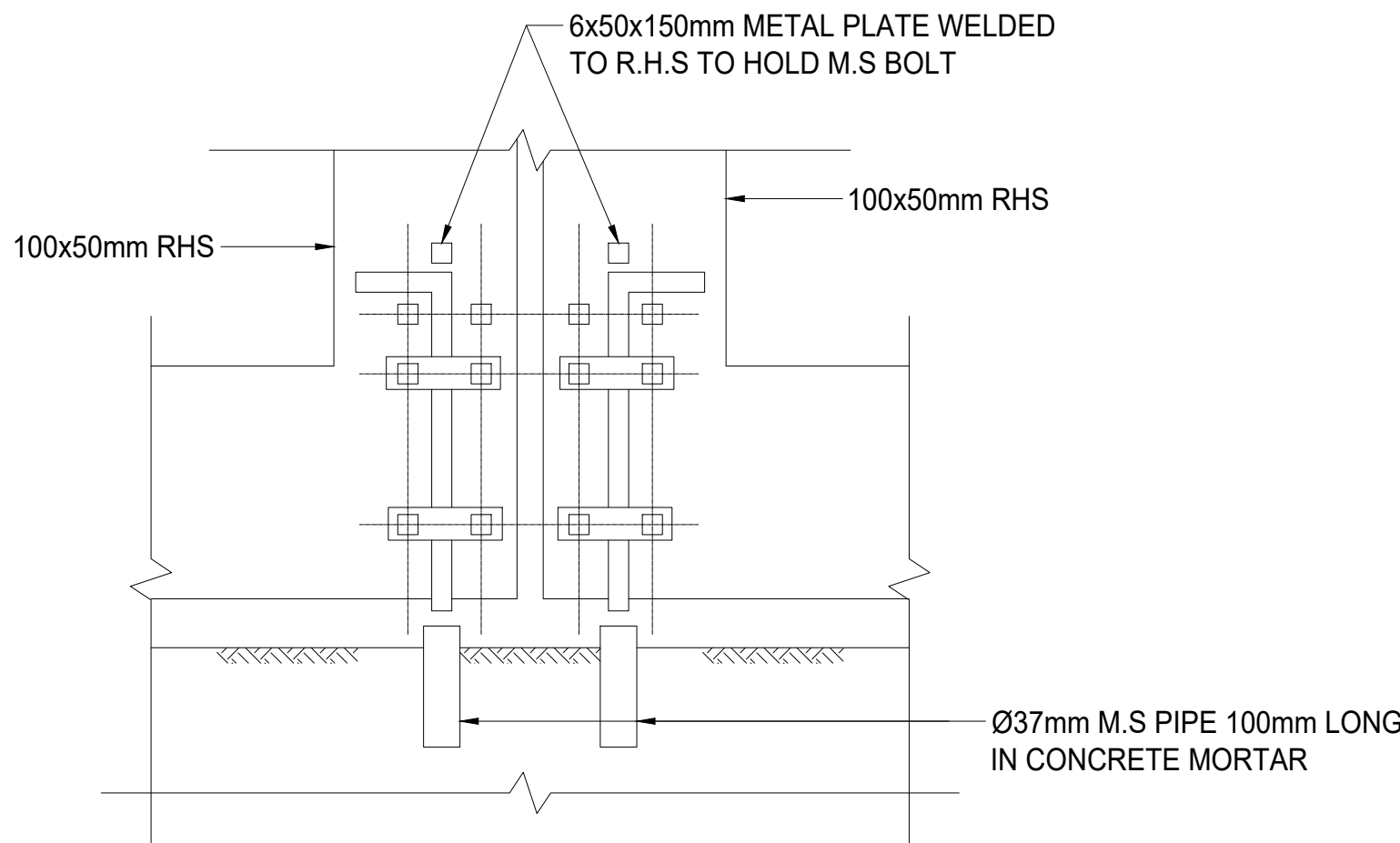
ELEVATION 04 SCALE 1:25

CLIENT: <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	FINANCIER: <div>THE WORLD BANK GROUP</div>	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR	CONSULTANT: <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS							DRAWING TITLE: STANDARD DRAWINGS						
		Contract No: KE-WSTF-332741-CS-QCBS		Action	Name	Date	No.	Revision Details		Reviewed By	initials	Date	Approved	6 CHROLINATION HOUSE			
				Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN		Checked					SHEET 2 OF 2		
								FINAL DETAILED DESIGN		Checked							
				Drawn by:	V.K	JUNE 2025				By						DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-STD-06
										Checked							
				Checked by:	M.J	JUNE 2025				By							
		Checked															
Approved by:	D.L	JUNE 2025				By											
						Checked											

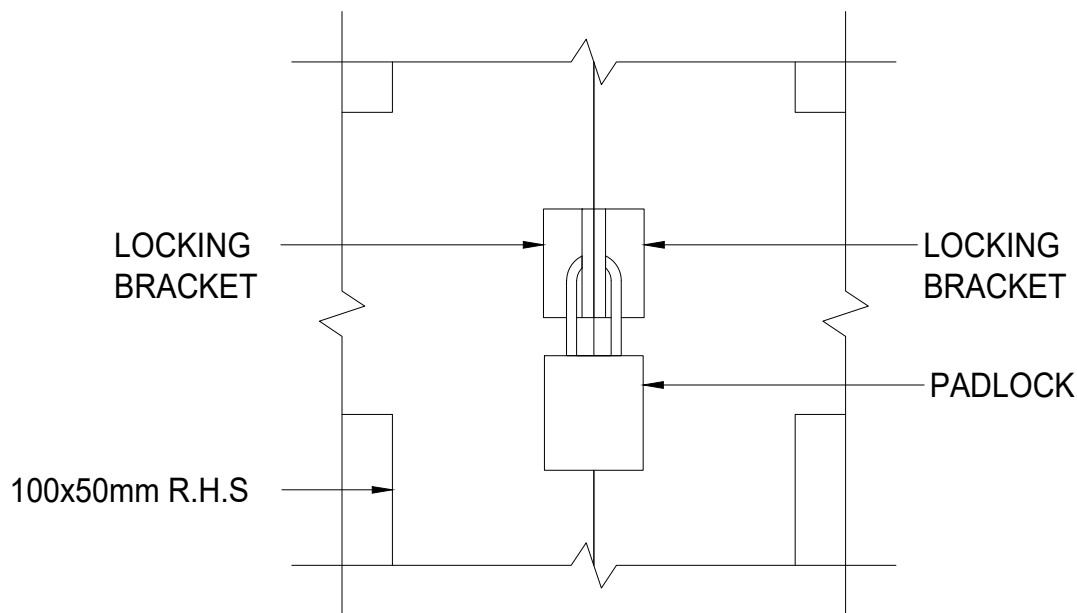


CLIENT: WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER: THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR	CONSULTANT: Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	DESIGN DETAILS			DRAWING TITLE:					
				No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS 6 CHROLINATION HOUSE SHEET 1 OF 2	
		Action		Name	Date	1	DRAFT DETAILED DESIGN		By			
		Designed by:		W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By			
		Drawn by:		V.K	JUNE 2025			By				
		Checked by:		M.J	JUNE 2025			By				
		Approved by:		D.L	JUNE 2025			By				
Contract No: KE-WSTF-332741-CS-QCBS										DRAWING SCALE:	DRAWING No.:	
									AS SHOWN	GW4R-WJR-STD-06		

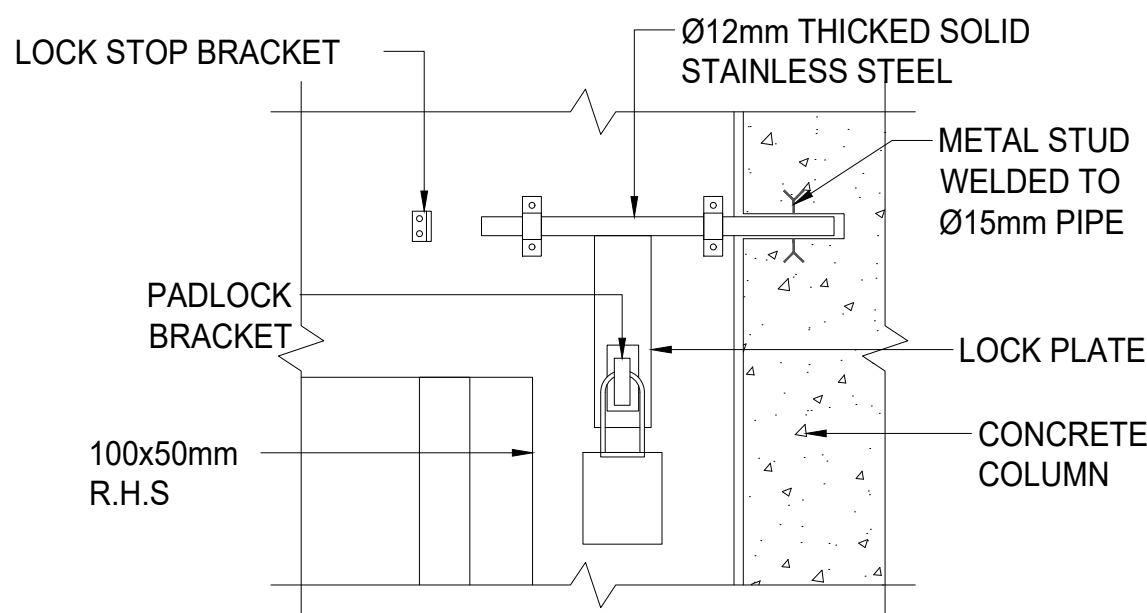




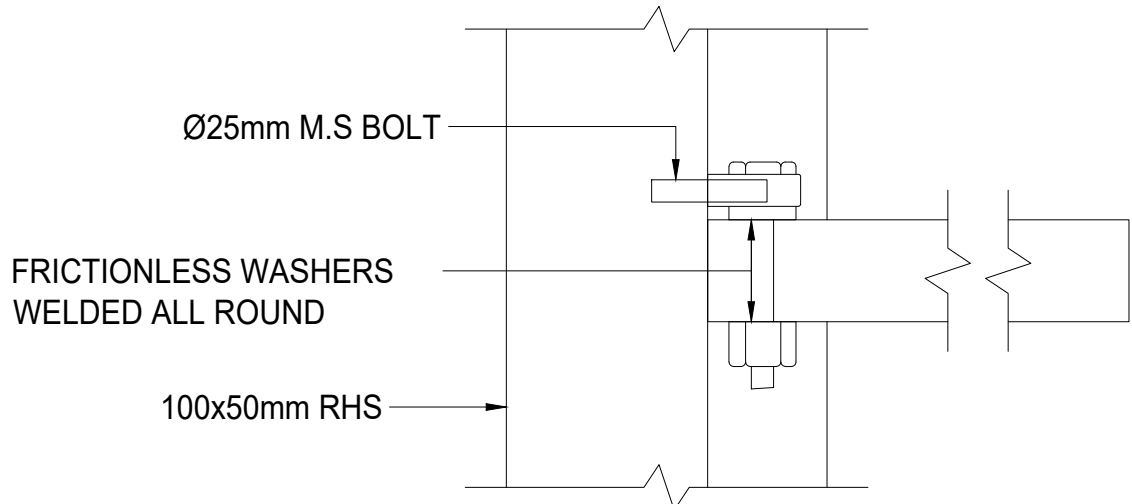
DETAIL A
SCALE 1:4



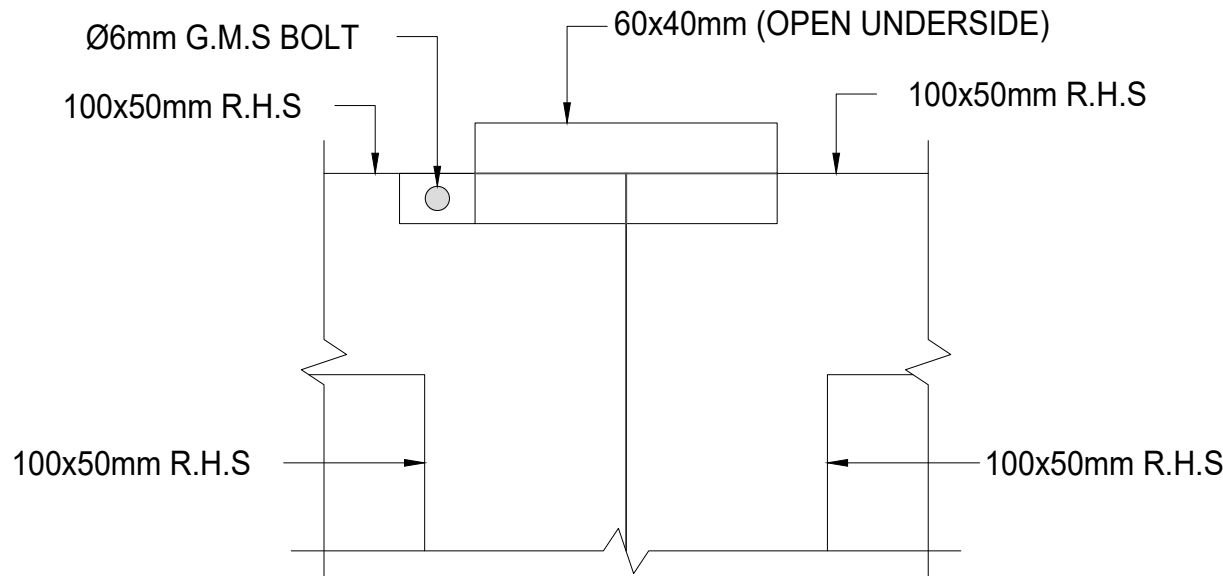
DETAIL B
SCALE 1:4



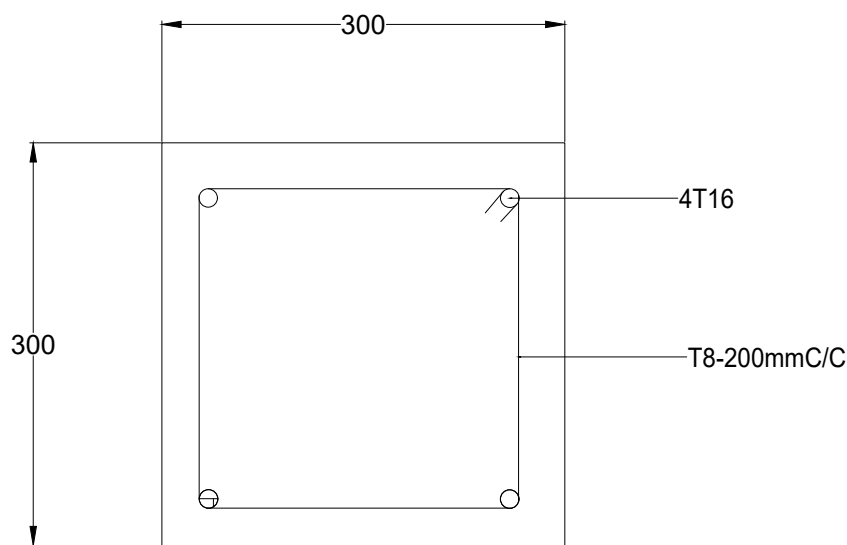
DETAIL C
SCALE 1:4



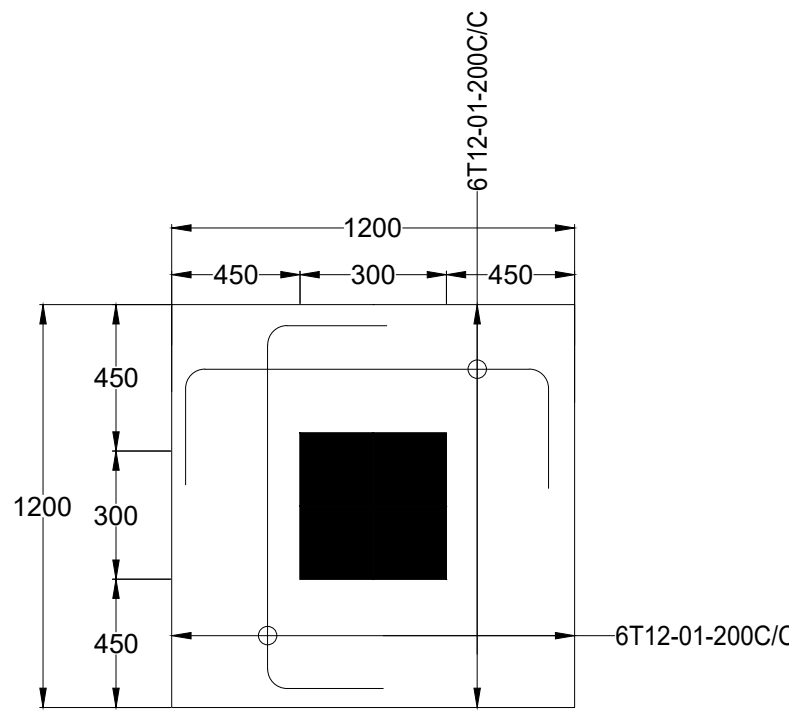
HINGE DETAIL
SCALE 1:4



DETAIL D
SCALE 1:4



300X300 COLUMN REINFORCEMENT DETAILS
SCALE 1:25



1200X1200X300mm COL BASE
SCALE 1:25

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY
STUDIES, DETAILED DESIGN, ENVIRONMENTAL &
SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND
CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON
THE REHABILITATION AND EXPANSION OF GROUNDWATER -
BASED RURAL WATER SUPPLY SYSTEMS IN THE
COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



**Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with**

Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	Revision	Checked	By	Initials	Date	Approved
Designed by:	W.O	JUNE 2025	2	DRAFT DETAILED DESIGN	Checked	By			
				FINAL DETAILED DESIGN	Checked	By			
Drawn by:	V.K	JUNE 2025			Checked	By			
					Checked	By			
Checked by:	M.J	JUNE 2025			Checked	By			
					Checked	By			
Approved by:	D.L	JUNE 2025			Checked	By			
					Checked	By			

DRAWING TITLE:

STANDARD DRAWINGS

7.GATE DETAILS

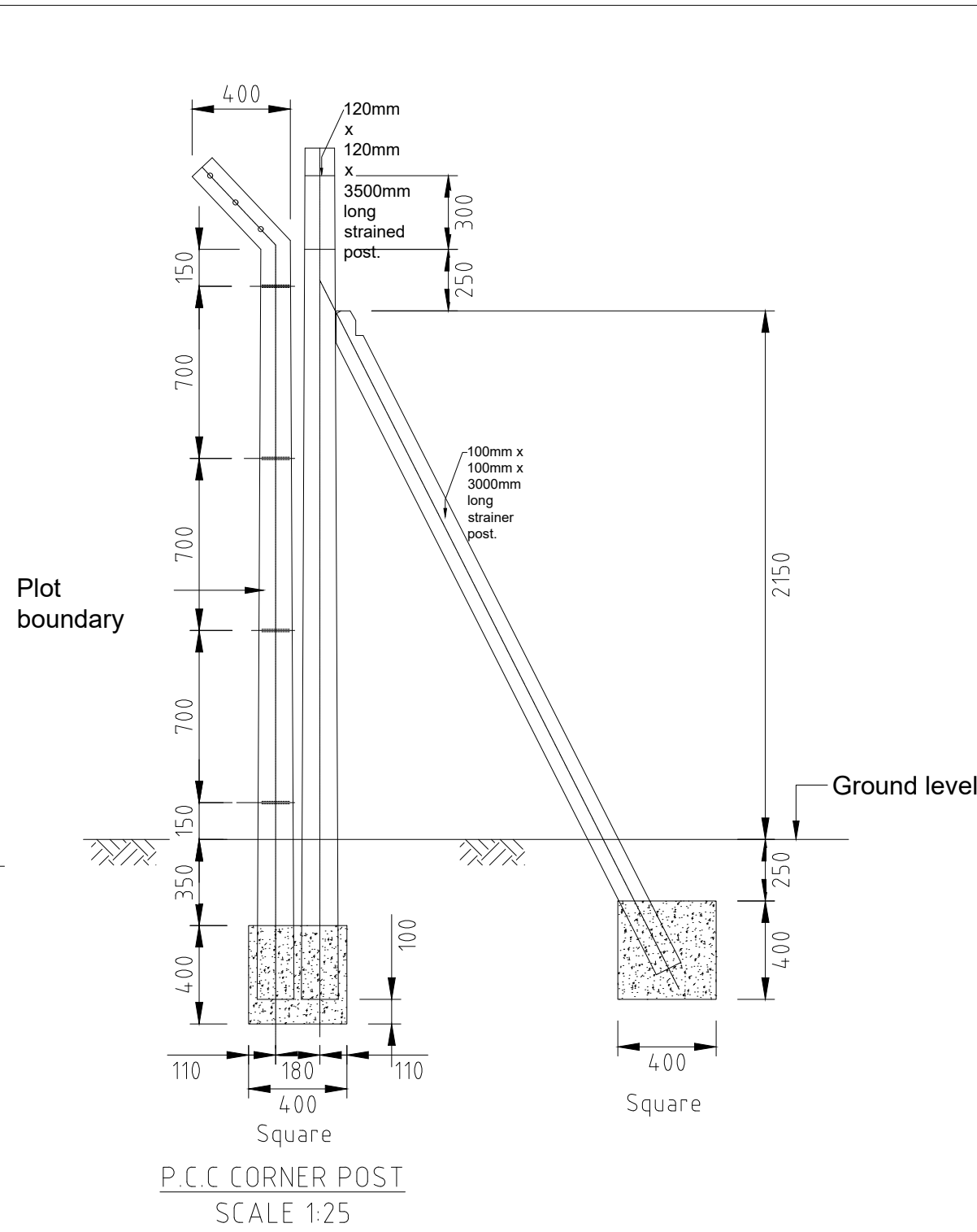
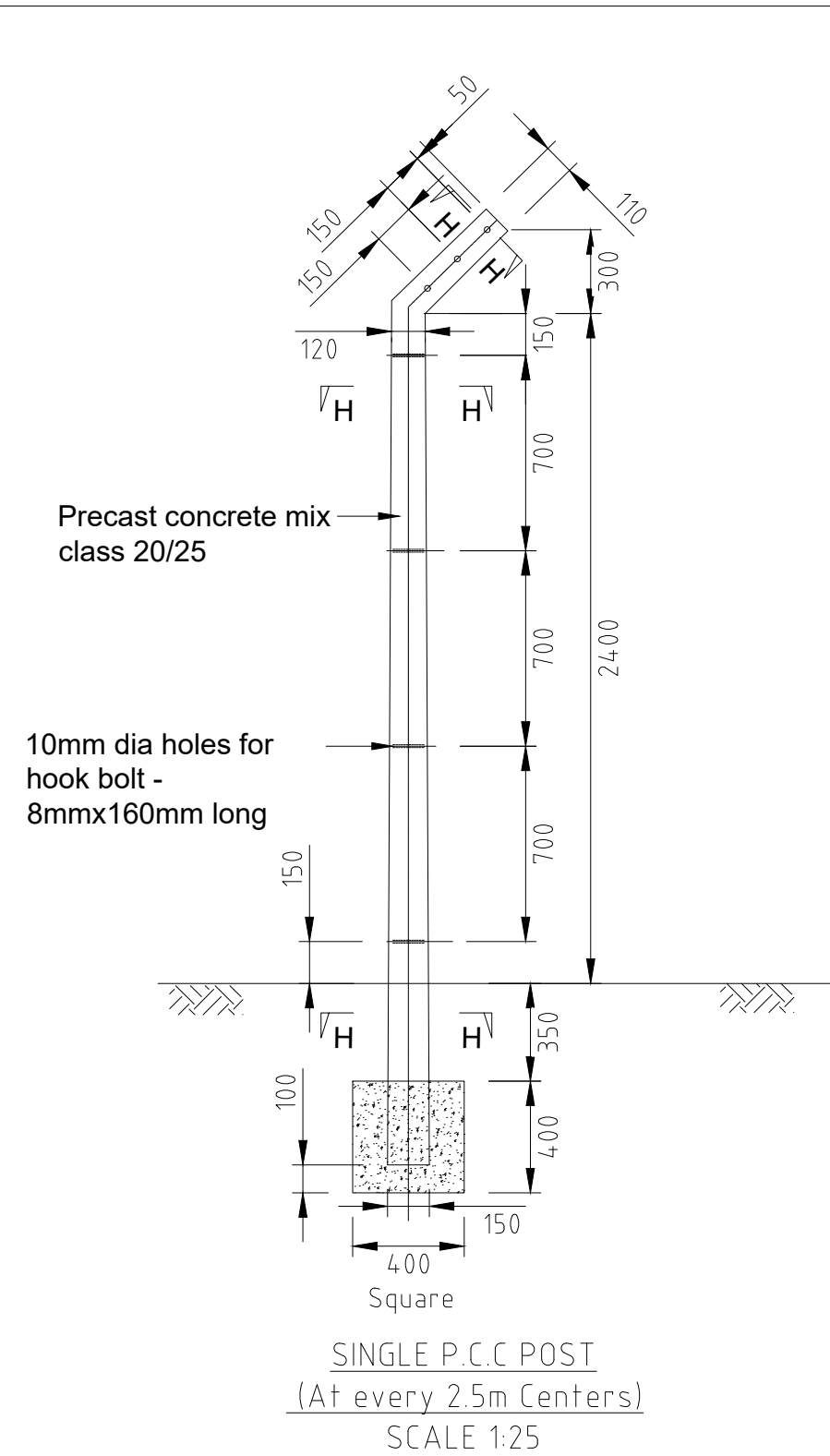
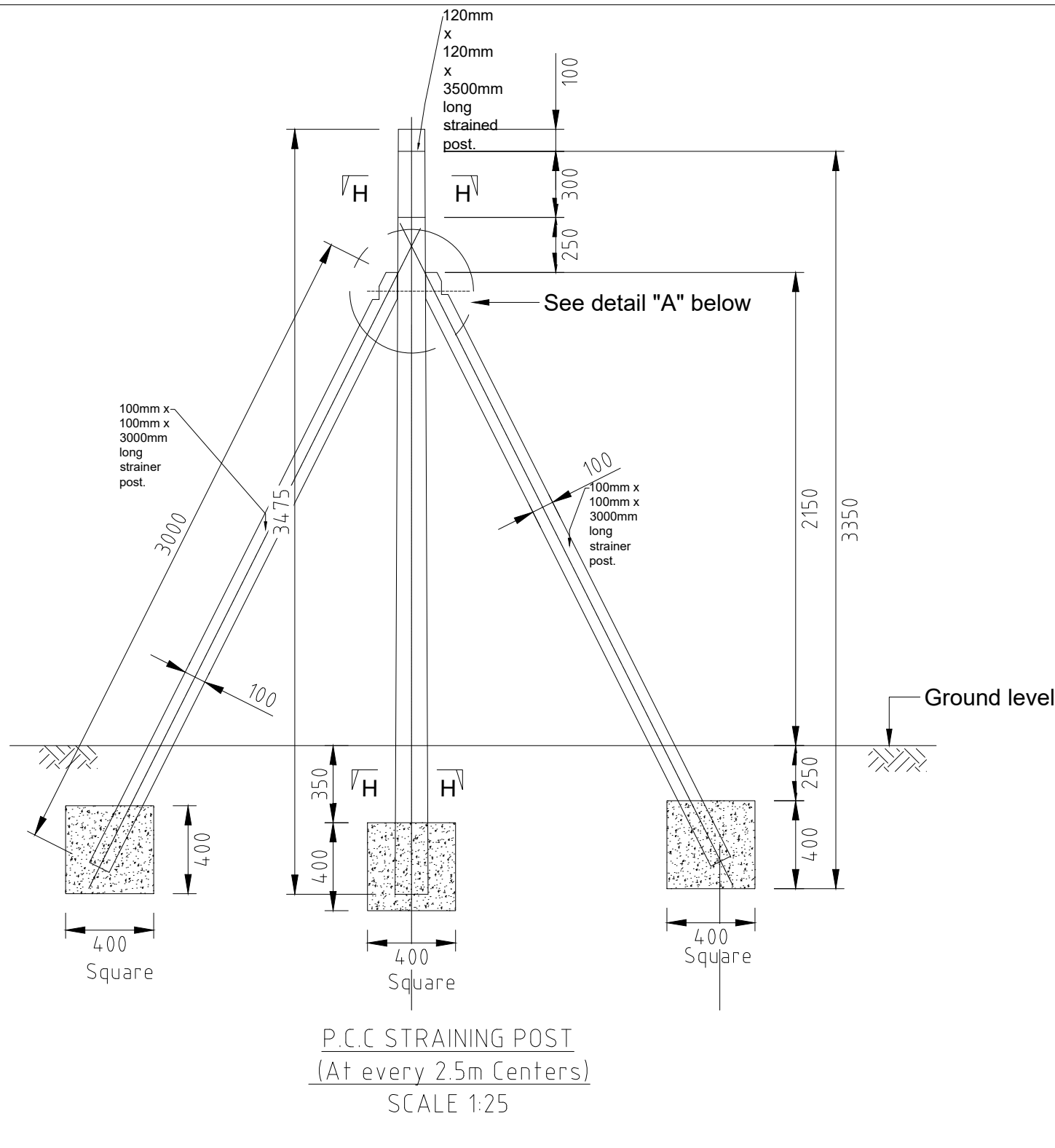
SHEET 2 OF 2

DRAWING SCALE:

AS SHOWN

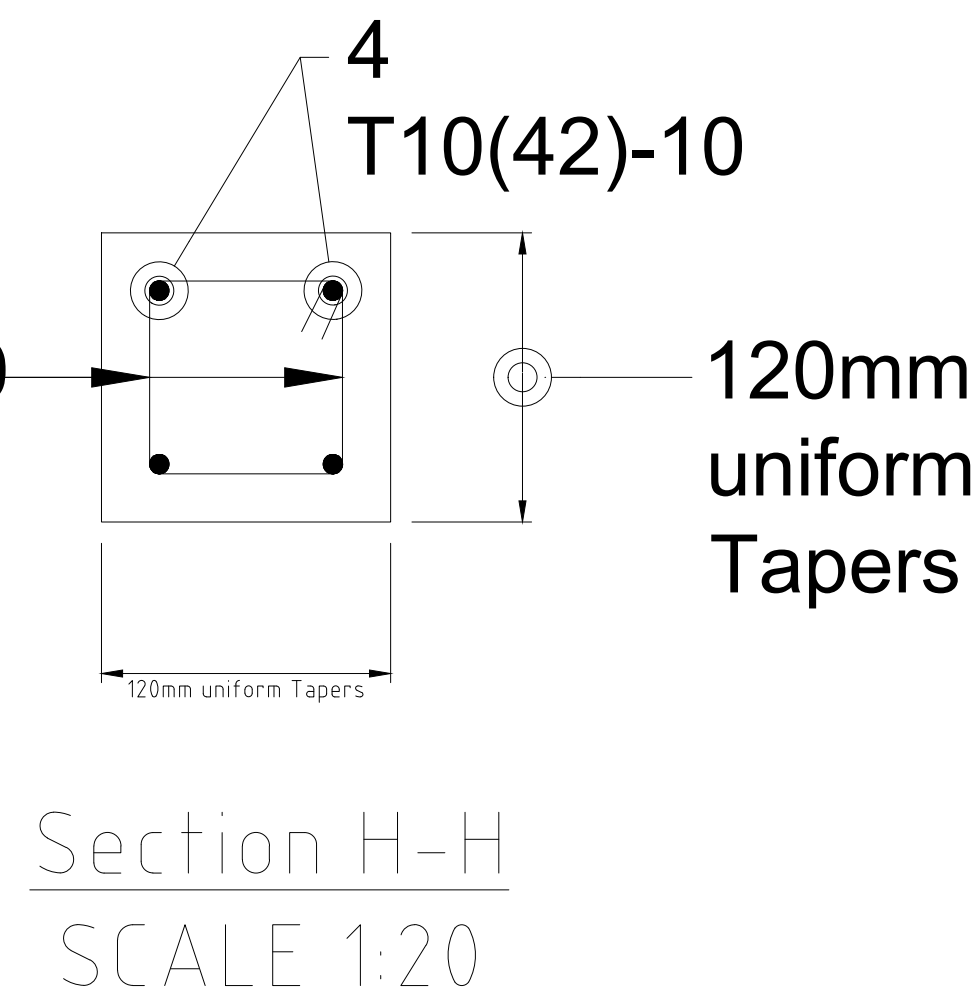
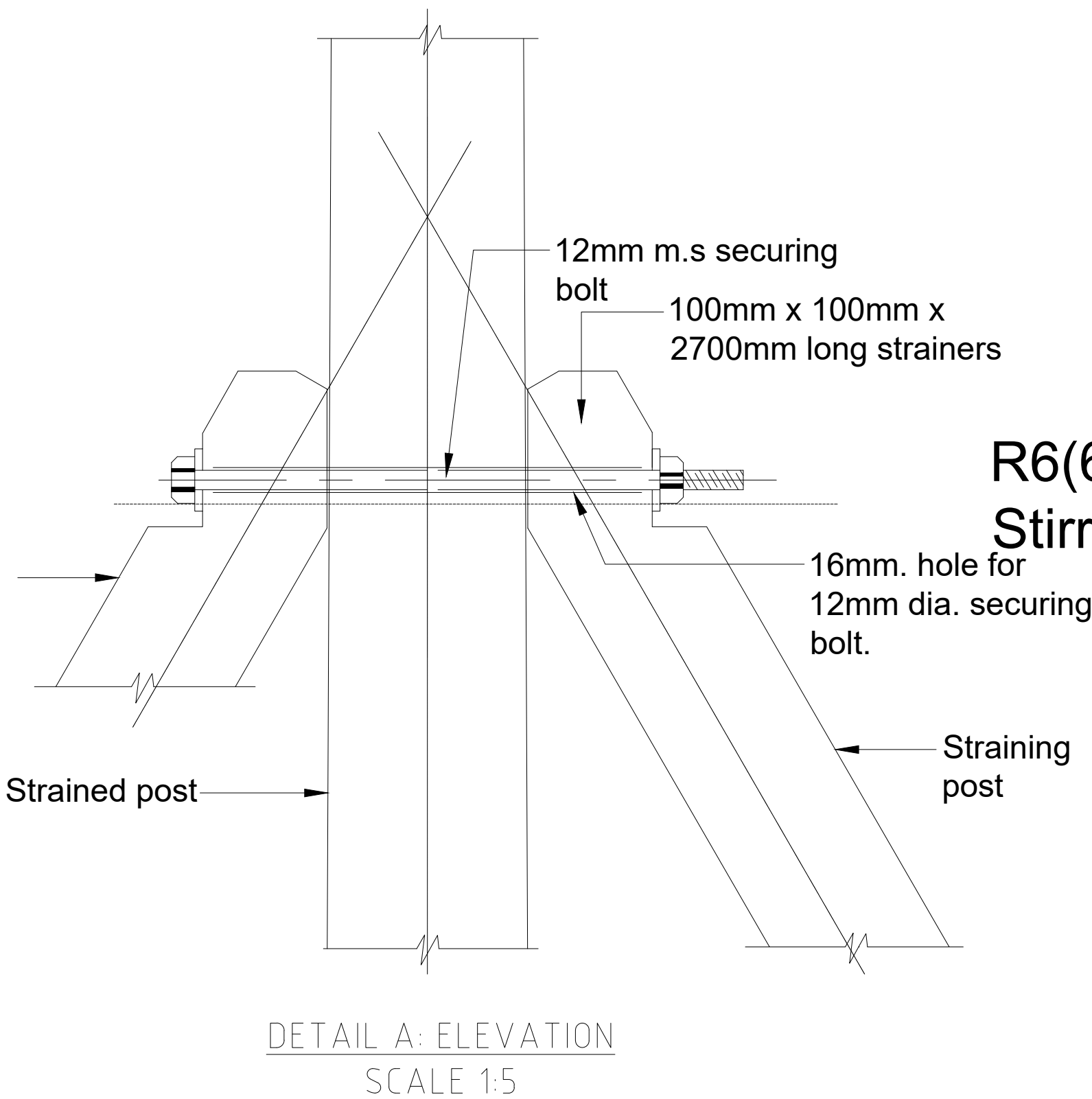
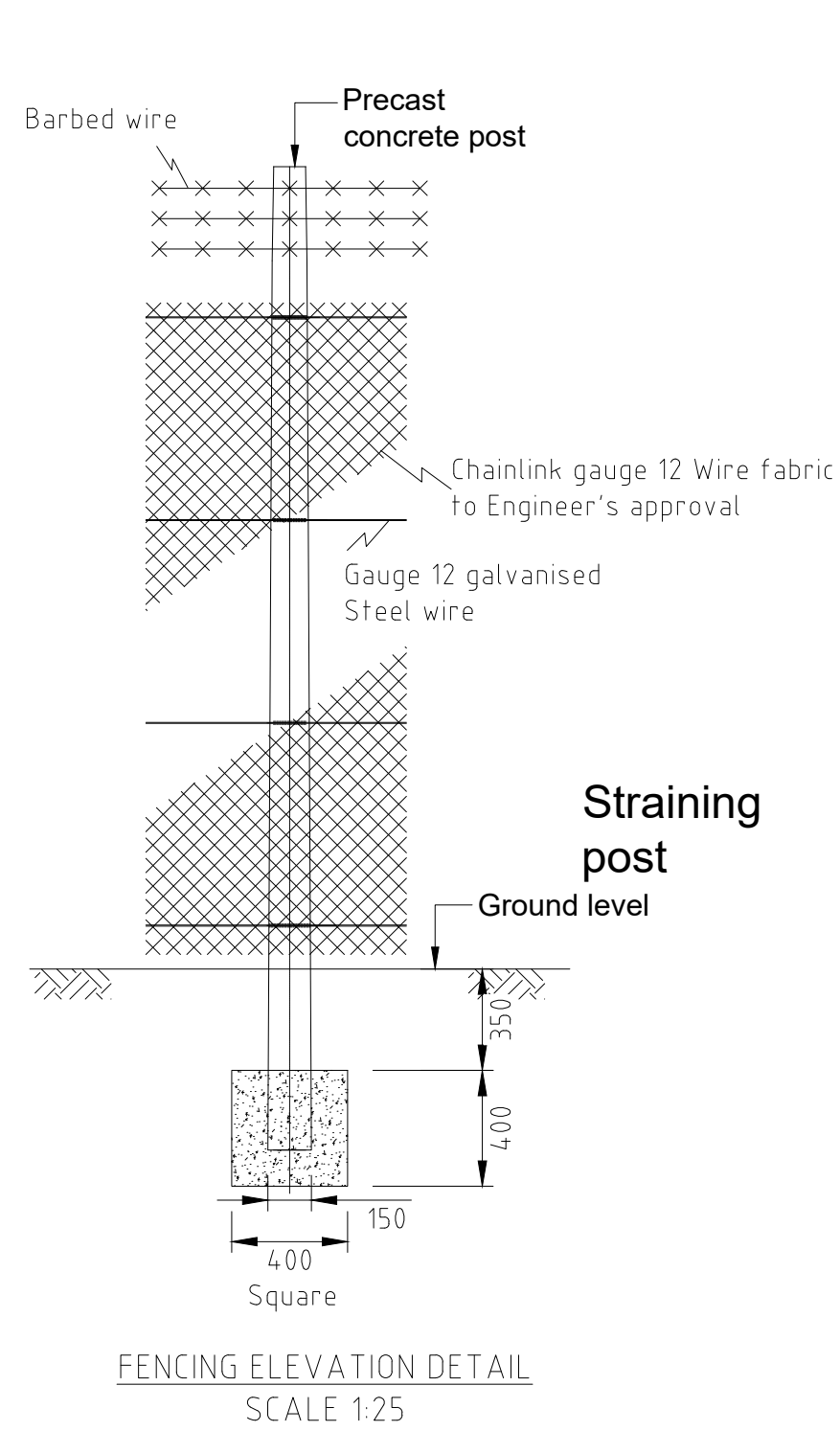
DRAWING No.:

GW4R-WJR-STD-07.02

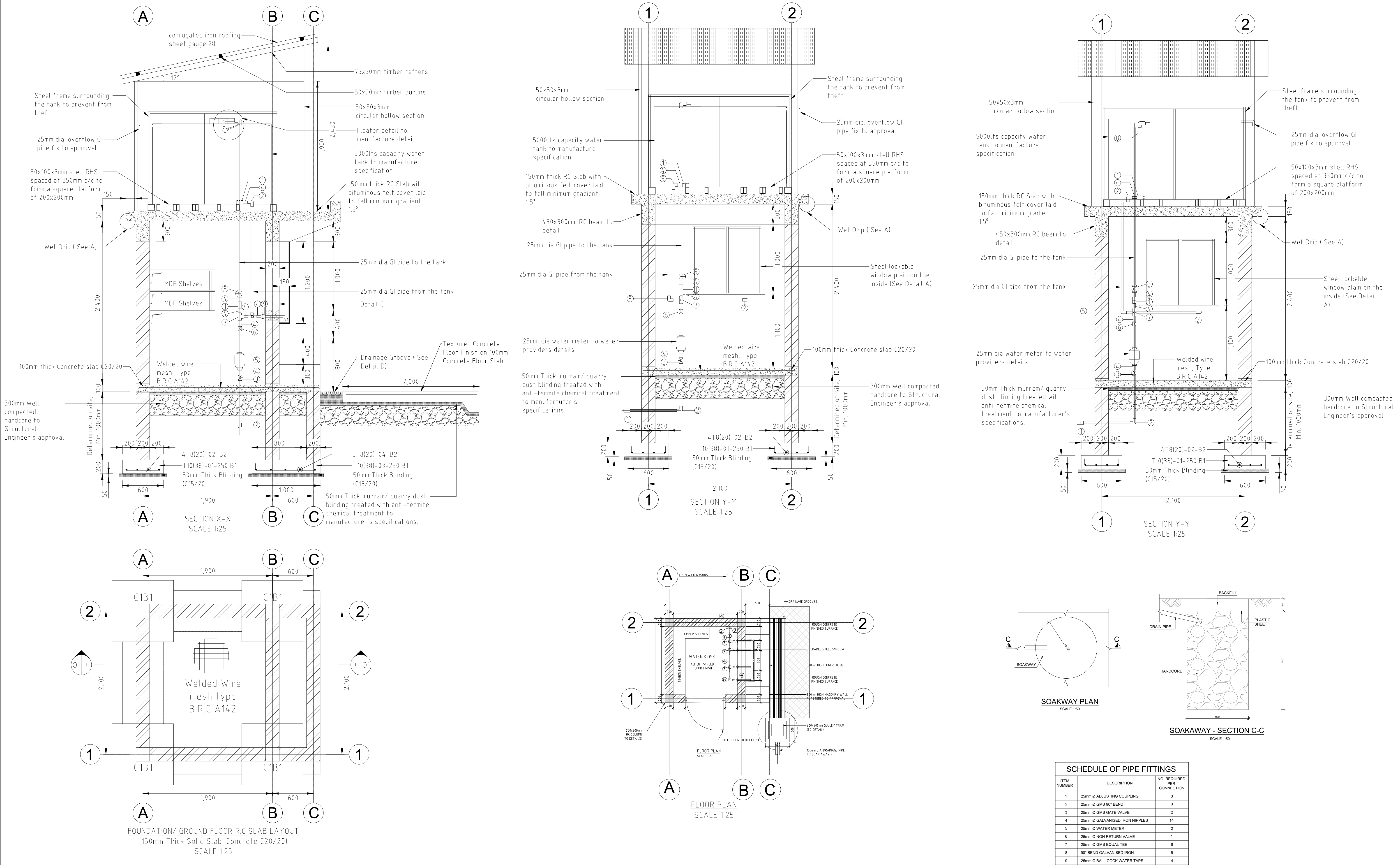


NOTES:

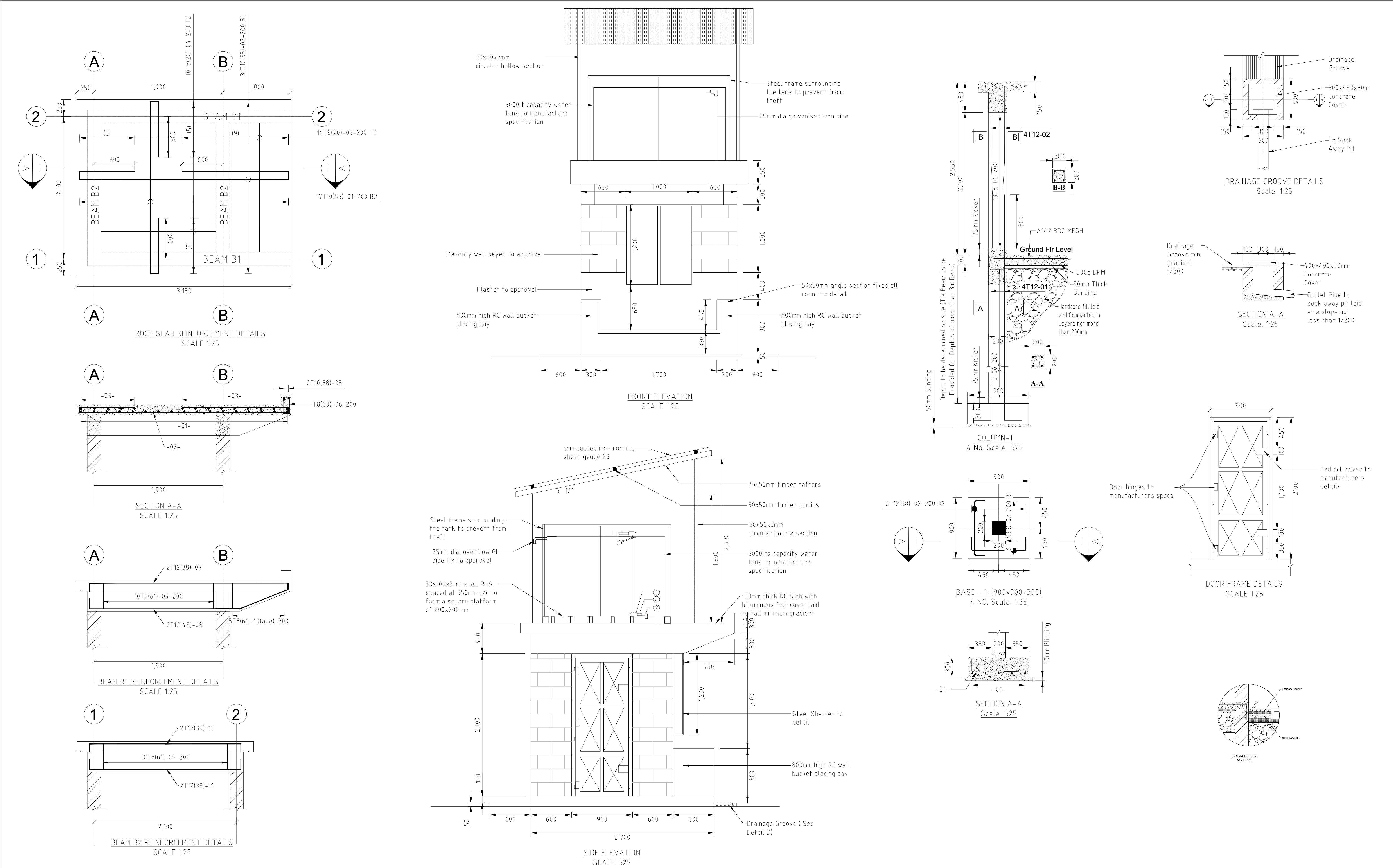
- Every 10th post to be strained.
- Post to be at 2500mm centers.
- Top of all posts to be kept in uniform line.
- Concrete mixes for
 - Posts: Class 20/20
 - Strainer posts: Class 20/20
 - Foundation concrete: Class 20/20
- Chain link to be gauge 12 galvanized steel wire.
- Straining wires to be 12 gauge galvanized steel plain wires.
- Wires on crank to be 12 gauge galvanized steel barbed wire.
- All structural opening dimensions to be confirmed by the Engineer on site before commencing any fabrication.
- Straining wires to be fixed to post with galvanized hook bolts 8mm dia. x 60mm long.
- Where the posts encroach on private land, the fence should be erected with crank pointing towards the site.
- All dimensions are in mm unless otherwise stated.
- C/C = Center to center.
- CTS = Centers
- M.S = Mild steel.
- P.C.C = Precast Concrete.



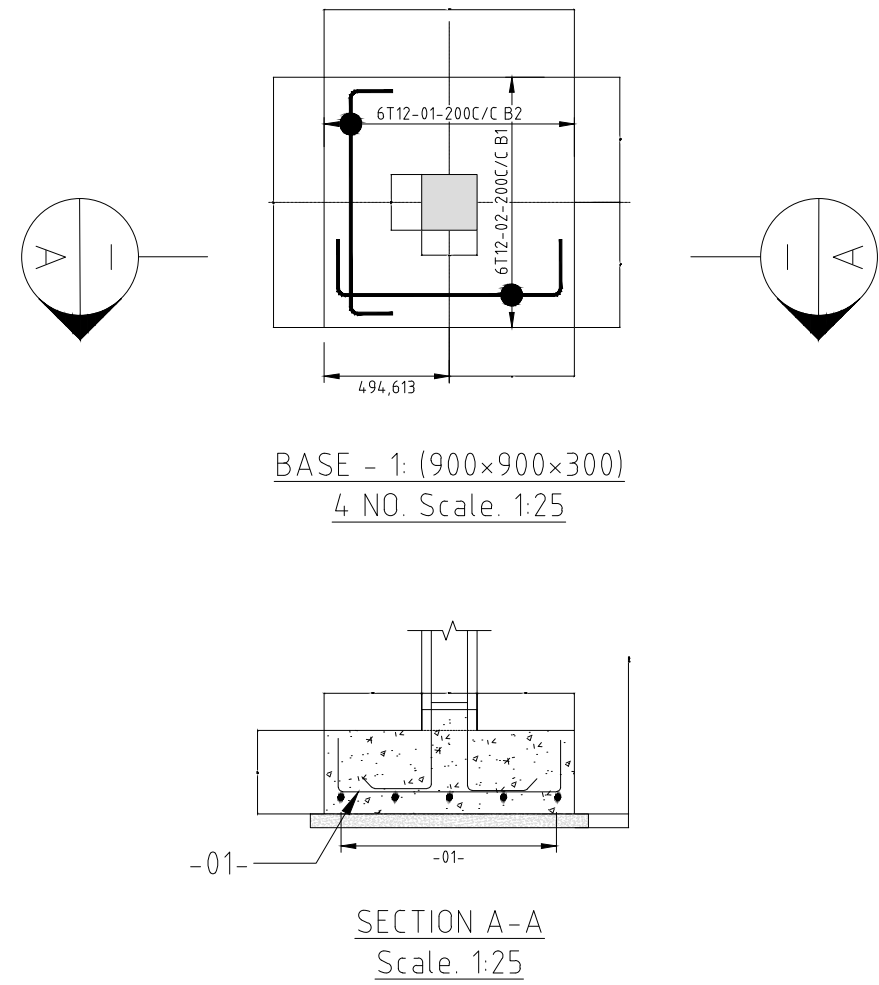
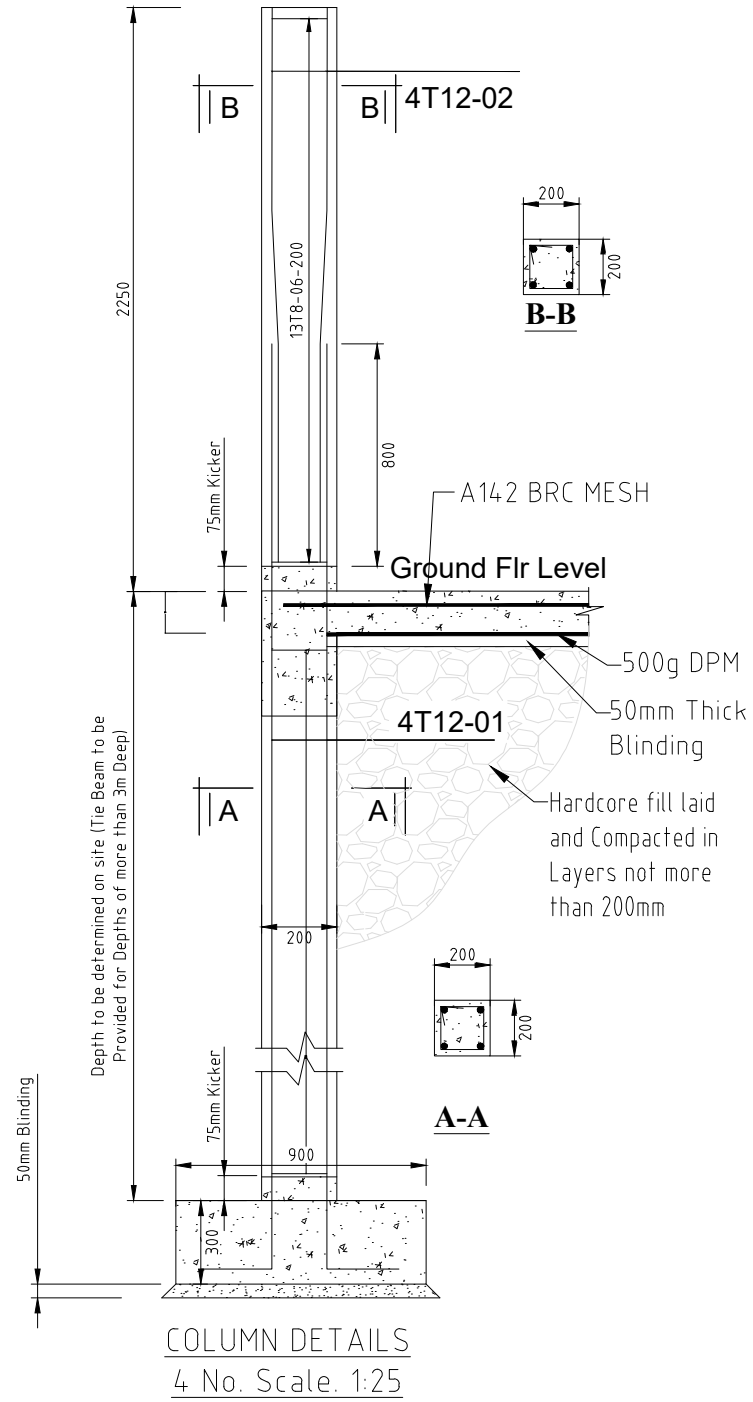
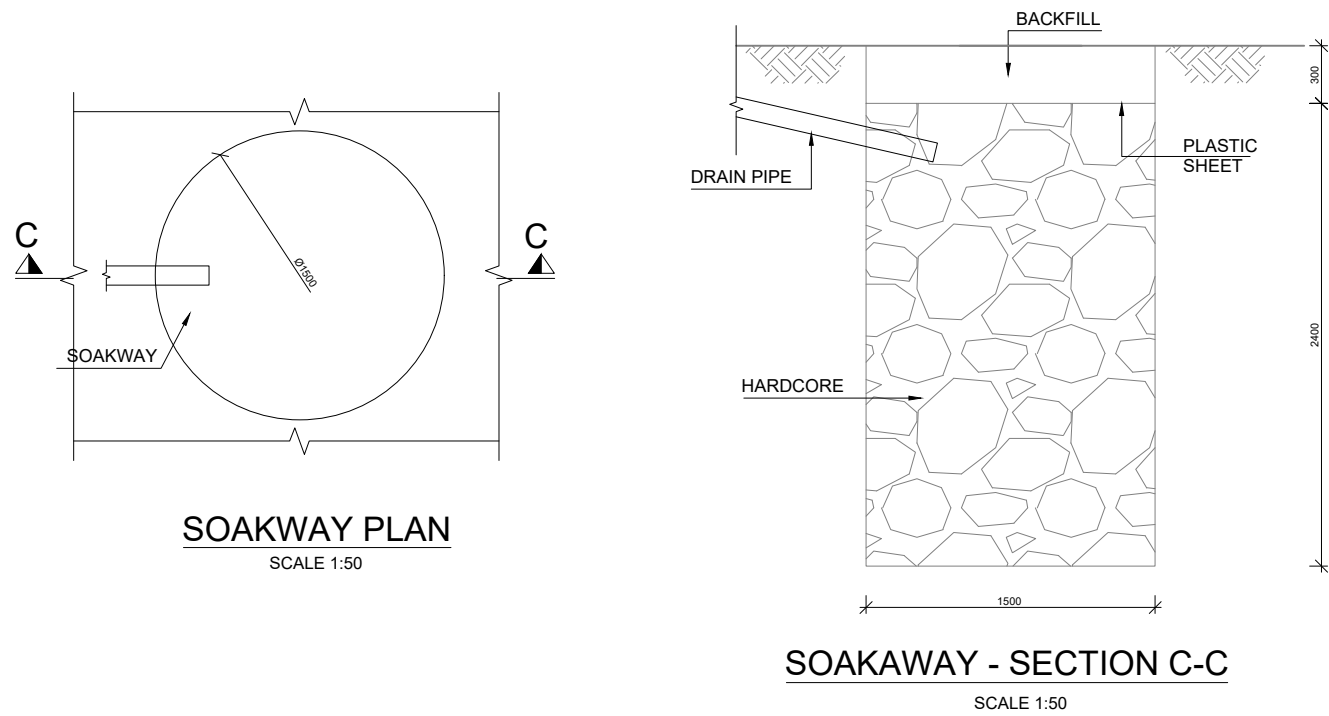
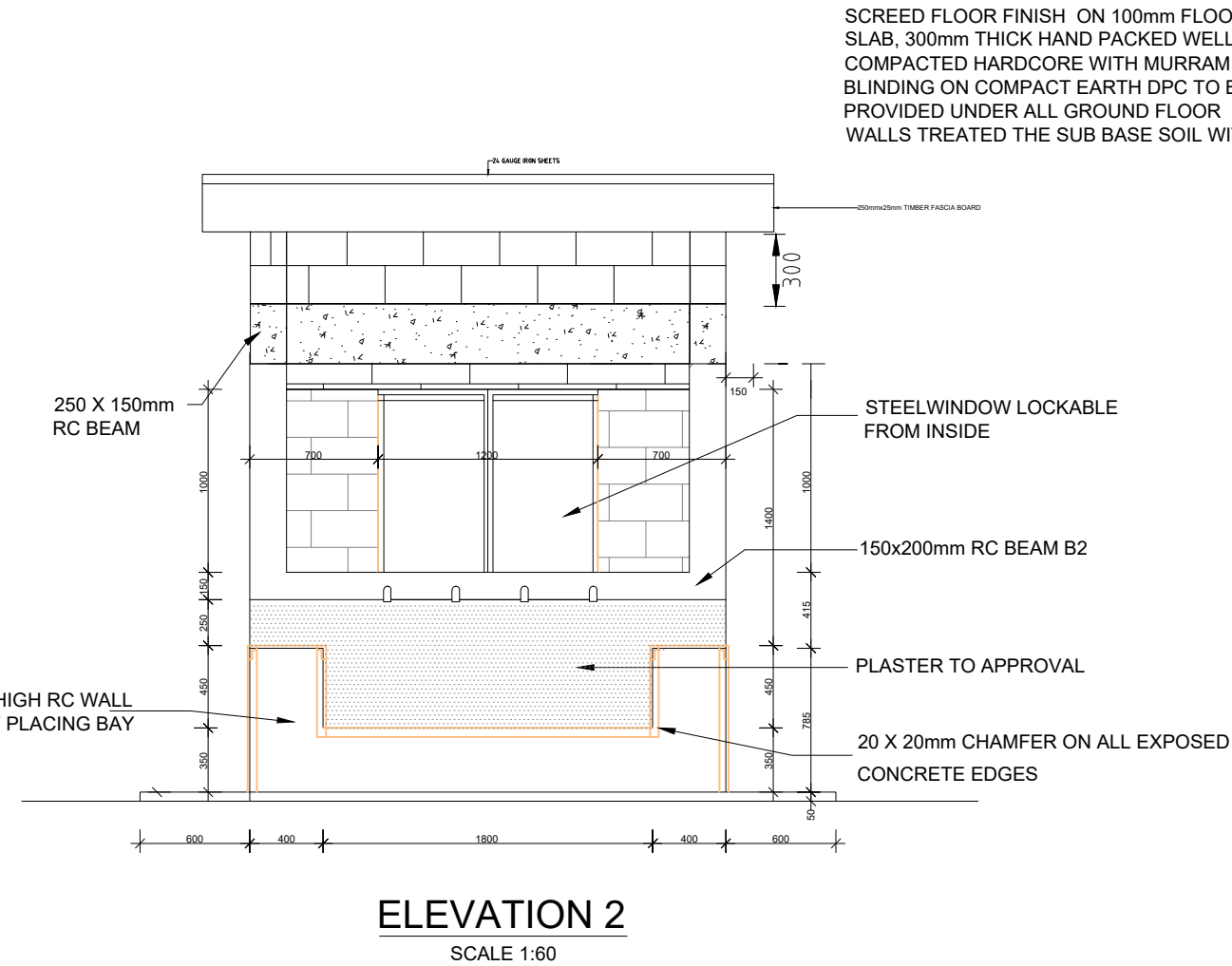
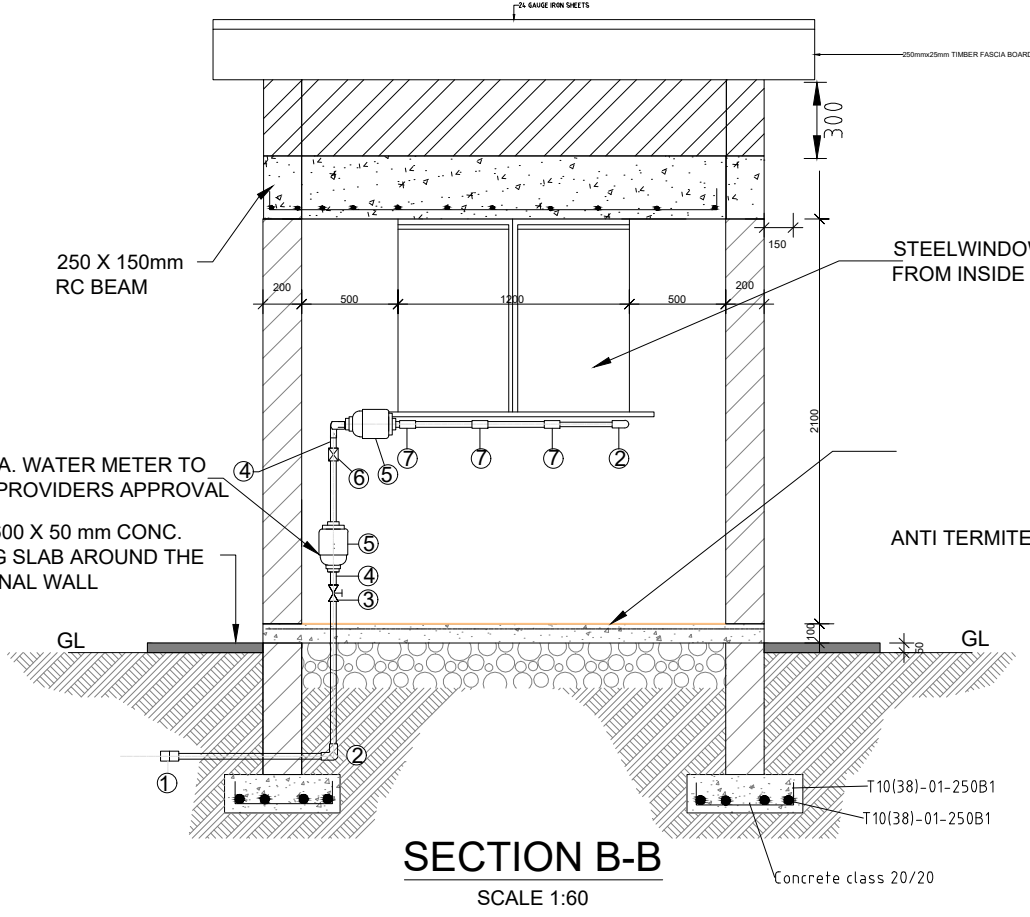
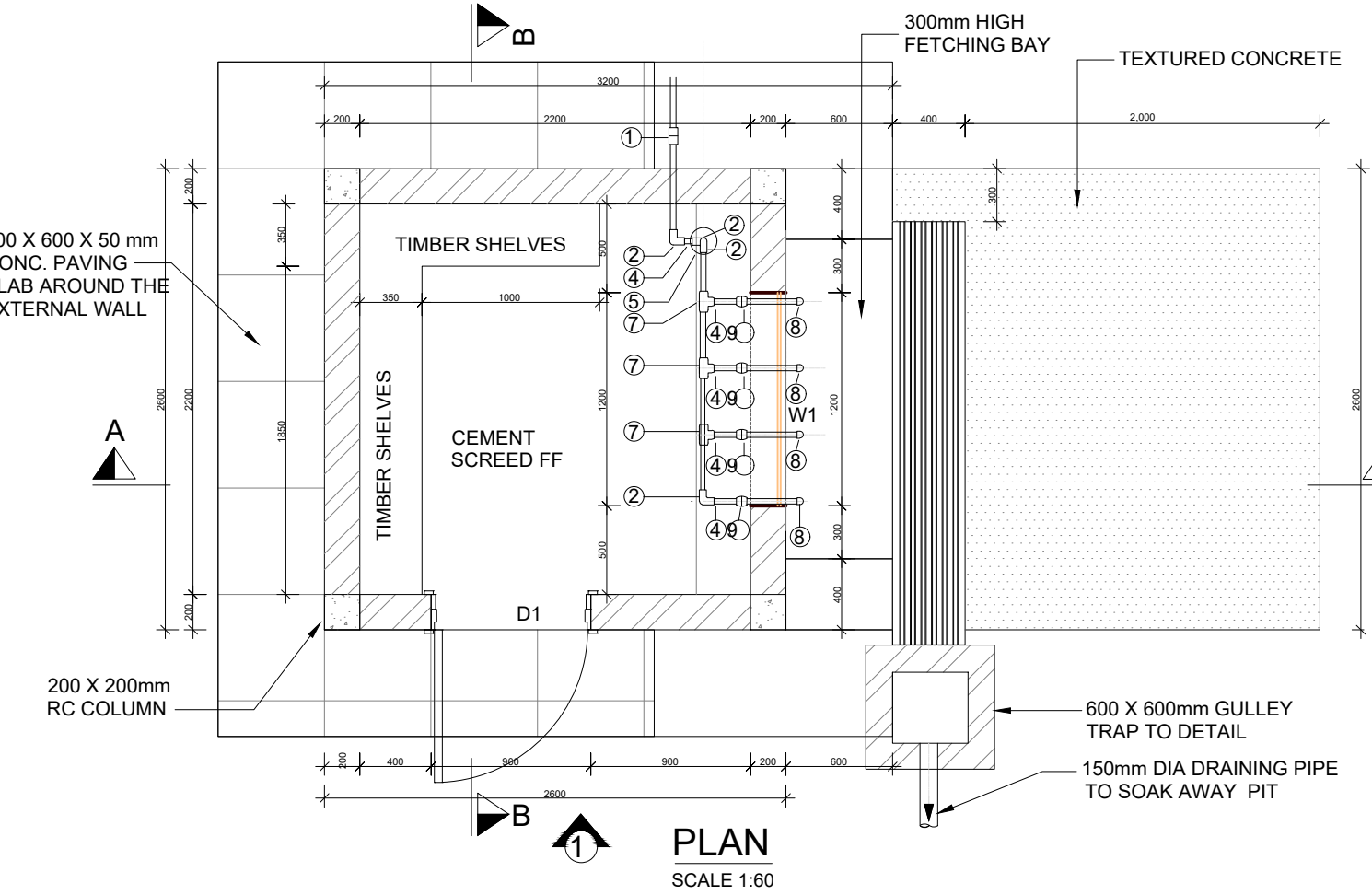
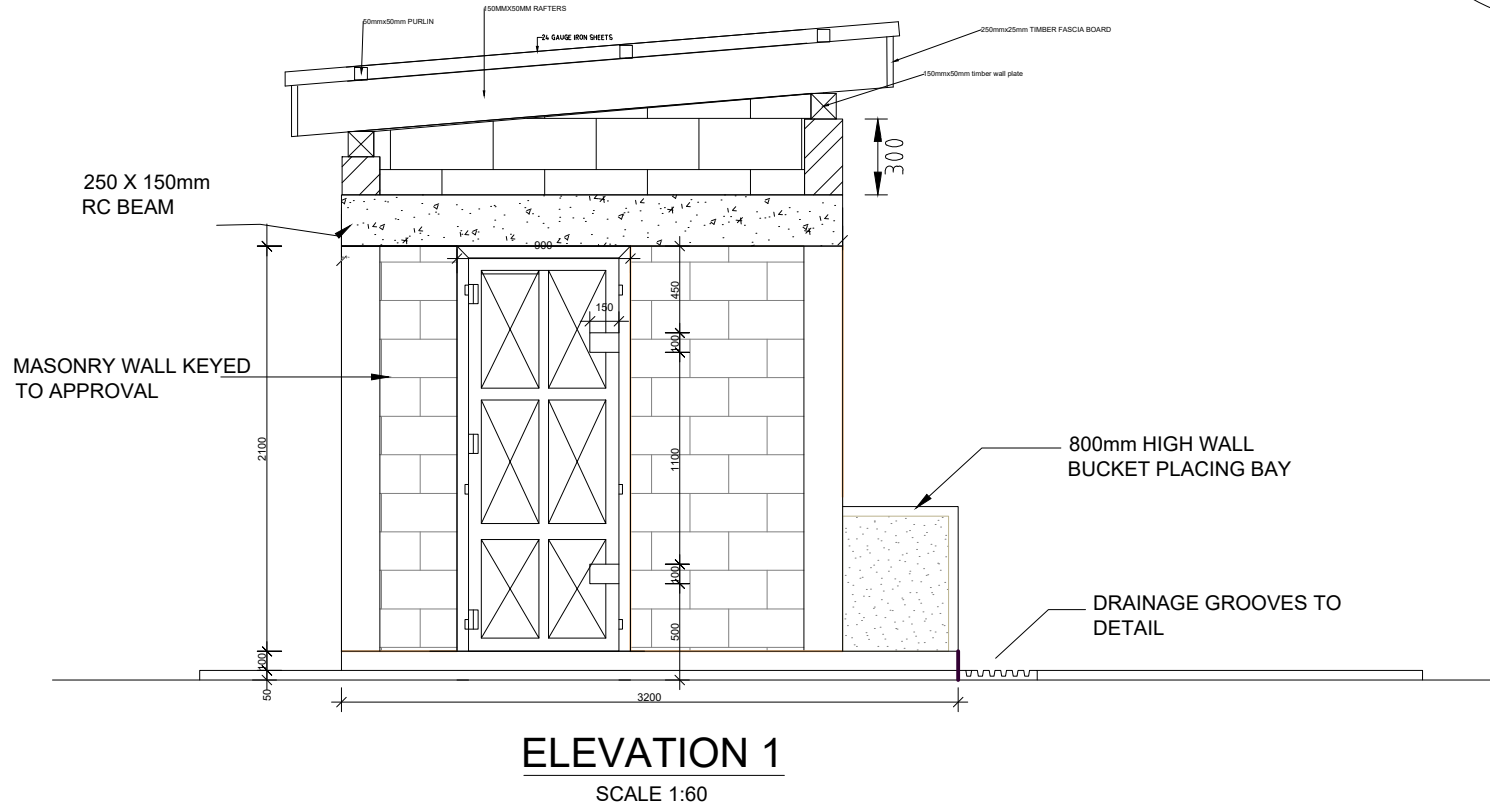
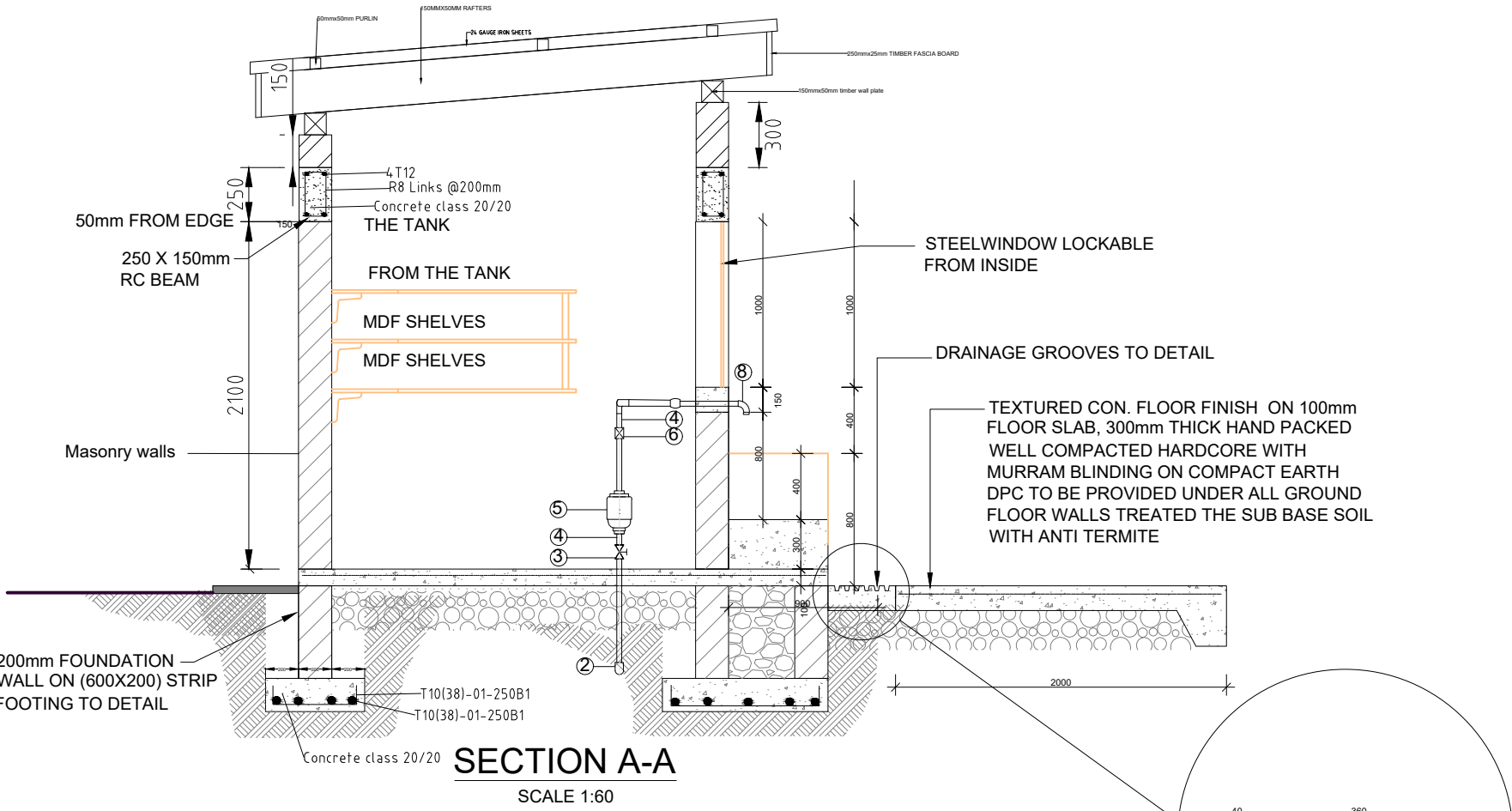
<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK</div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div> aarvee associates architects engineers & consultants pvt. ltd.</div> <div> ADVANCED ENGINEERING CONSULTANTS</div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<div>DESIGN DETAILS</div> <table><tr><td rowspan="2">Action</td><td rowspan="2">Name</td><td rowspan="2">Date</td><td>No.</td><td colspan="2">Revision Details</td><td>Reviewed</td><td>initials</td><td>Date</td><td>Approved</td></tr><tr><td>1</td><td colspan="2">DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">W.O</td><td rowspan="2">JUNE 2025</td><td>2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">M.J</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr></table>							Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	1	DRAFT DETAILED DESIGN		By				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By						Checked				Drawn by:	V.K	JUNE 2025				By						Checked				Checked by:	M.J	JUNE 2025				By						Checked				Approved by:	D.L	JUNE 2025				By						Checked			
		Action		Name	Date	No.	Revision Details		Reviewed	initials				Date	Approved																																																																												
						1	DRAFT DETAILED DESIGN		By																																																																																		
		Designed by:		W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By																																																																																		
								Checked																																																																																			
		Drawn by:		V.K	JUNE 2025				By																																																																																		
								Checked																																																																																			
Checked by:	M.J	JUNE 2025				By																																																																																					
					Checked																																																																																						
Approved by:	D.L	JUNE 2025				By																																																																																					
					Checked																																																																																						
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>	<div>DRAWING TITLE:</div> <div>STANDARD DRAWINGS</div> <div>8.CHAIN-LINK FENCE DETAILS</div> <div>SHEET 1 OF 1</div>		<div>DRAWING SCALE:</div> <div>AS SHOWN</div>	<div>DRAWING No.:</div> <div>GW4R-WJR-STD-08</div>																																																																																							



<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th rowspan="2">No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><th>Action</th><th>Name</th><th>Date</th><th></th><th>By</th><th></th><th></th><th></th></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">W.O</td><td rowspan="2">JUNE 2025</td><td rowspan="2">1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td><td></td></tr><tr><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">M.J</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date		By				Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By					FINAL DETAILED DESIGN	By					Drawn by:	V.K	JUNE 2025			By						Checked					Checked by:	M.J	JUNE 2025			By						Checked					Approved by:	D.L	JUNE 2025			By						Checked					<div>DRAWING TITLE:</div> <div>STANDARD DRAWINGS</div> <div>9.WATER KIOSK TYPE 1</div> <div>SHEET 1 OF 2</div>	<div>DRAWING SCALE:</div> <div>AS SHOWN</div>	<div>DRAWING No.:</div> <div>GW4R-WJR-STD-9.01</div>
		DESIGN DETAILS			No.	Revision Details			Reviewed	initials	Date	Approved																																																																													
		Action	Name	Date			By																																																																																		
		Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By																																																																																		
						FINAL DETAILED DESIGN	By																																																																																		
		Drawn by:	V.K	JUNE 2025			By																																																																																		
							Checked																																																																																		
		Checked by:	M.J	JUNE 2025			By																																																																																		
							Checked																																																																																		
		Approved by:	D.L	JUNE 2025			By																																																																																		
	Checked																																																																																								



<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>Designed by:</td><td>W.O</td><td>JUNE 2025</td><td>2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>Drawn by:</td><td>V.K</td><td>JUNE 2025</td><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>Checked by:</td><td>M.J</td><td>JUNE 2025</td><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td><td></td></tr><tr><td>Approved by:</td><td>D.L</td><td>JUNE 2025</td><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN	By	Checked				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By	Checked				Drawn by:	V.K	JUNE 2025			By	Checked				Checked by:	M.J	JUNE 2025			By	Checked				Approved by:	D.L	JUNE 2025			By	Checked				<div>DRAWING TITLE:</div> <div>STANDARD DRAWINGS</div> <div>9.WATER KIOSK TYPE 1</div> <div>SHEET 2 OF 2</div> <div><div>DRAWING SCALE:</div><div>AS SHOWN</div></div> <div><div>DRAWING No.:</div><div>GW4R-WJR-STD-9.02</div></div>
		DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved																																																						
		Action	Name	Date	1	DRAFT DETAILED DESIGN	By	Checked																																																									
		Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By	Checked																																																									
		Drawn by:	V.K	JUNE 2025			By	Checked																																																									
		Checked by:	M.J	JUNE 2025			By	Checked																																																									
		Approved by:	D.L	JUNE 2025			By	Checked																																																									
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>																																																																	

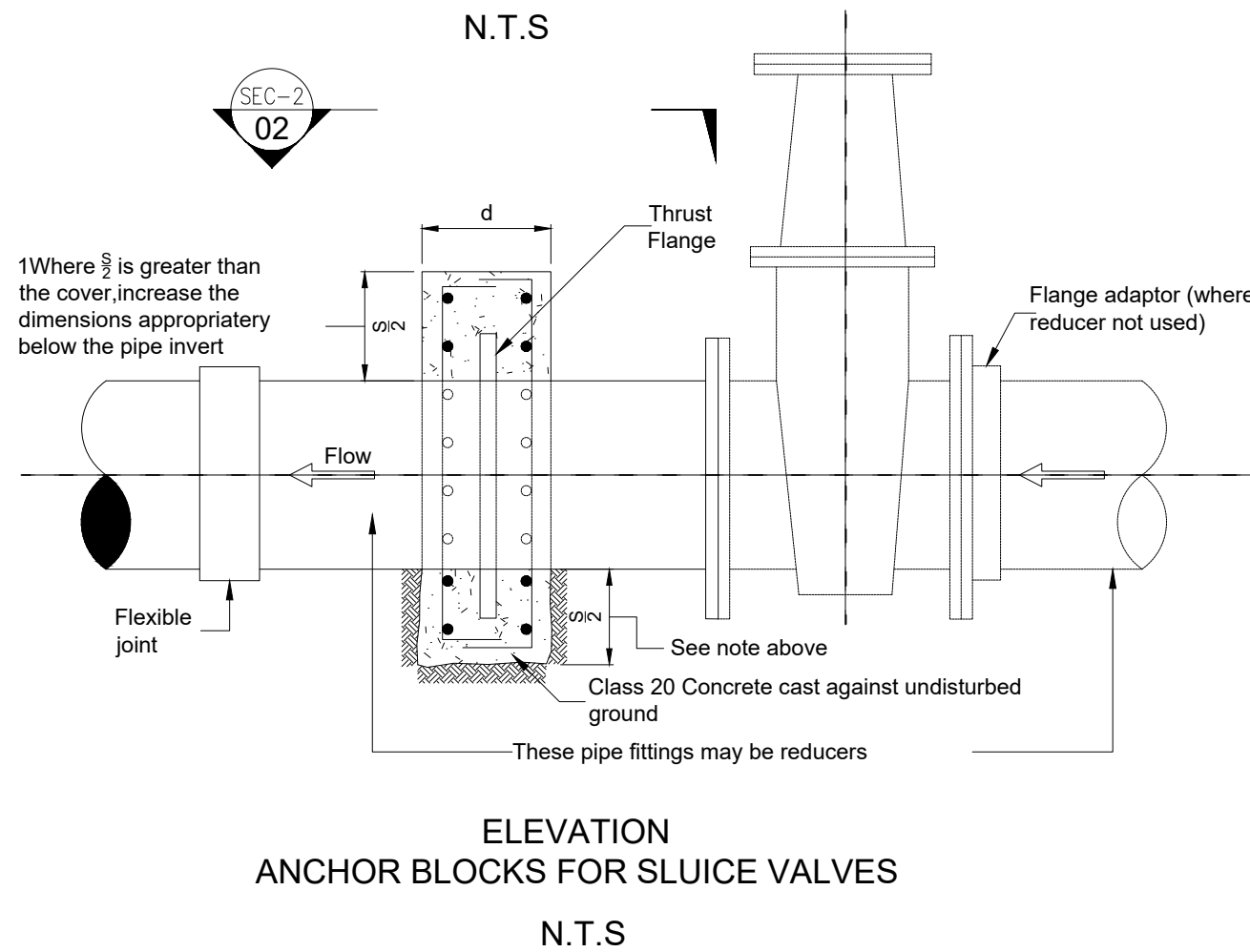
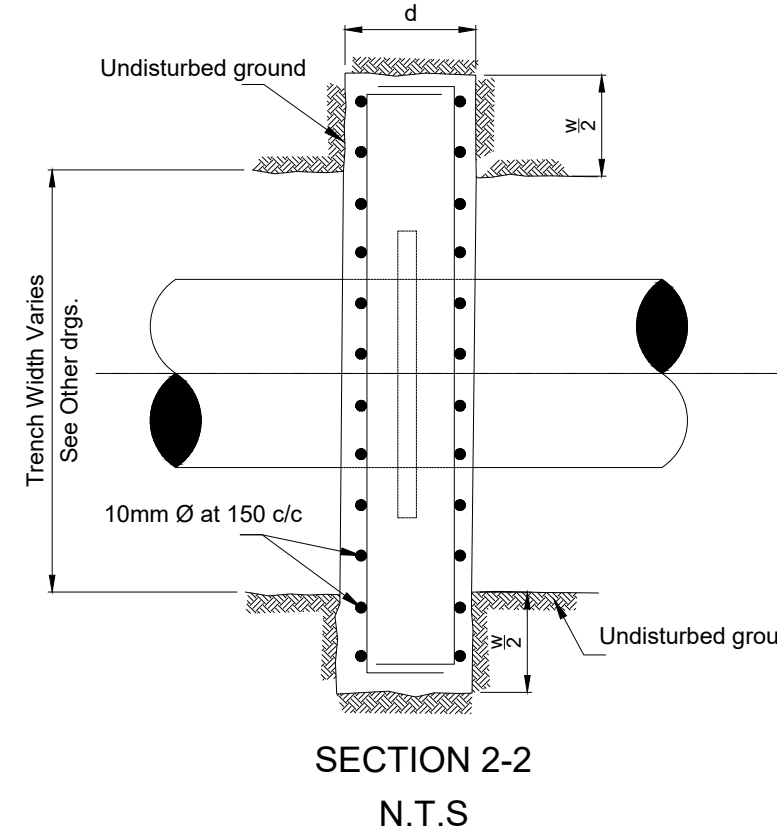
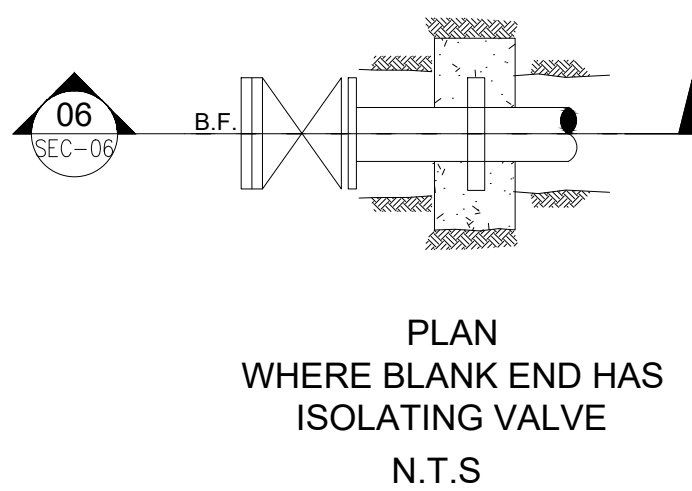
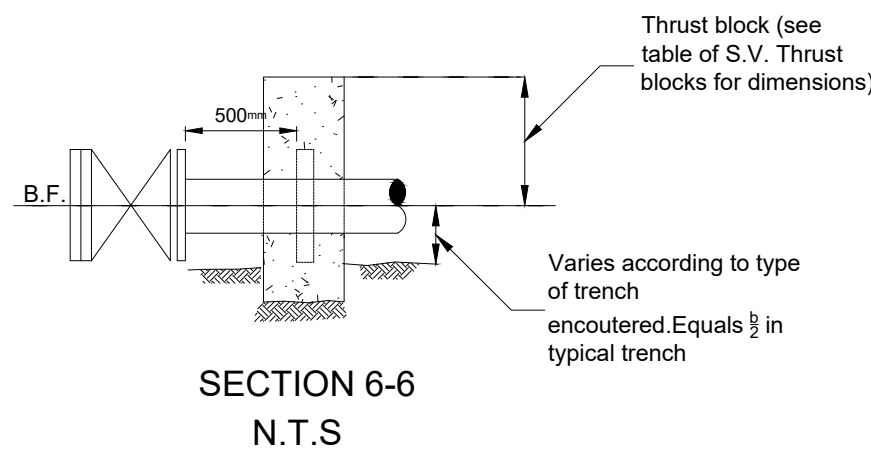
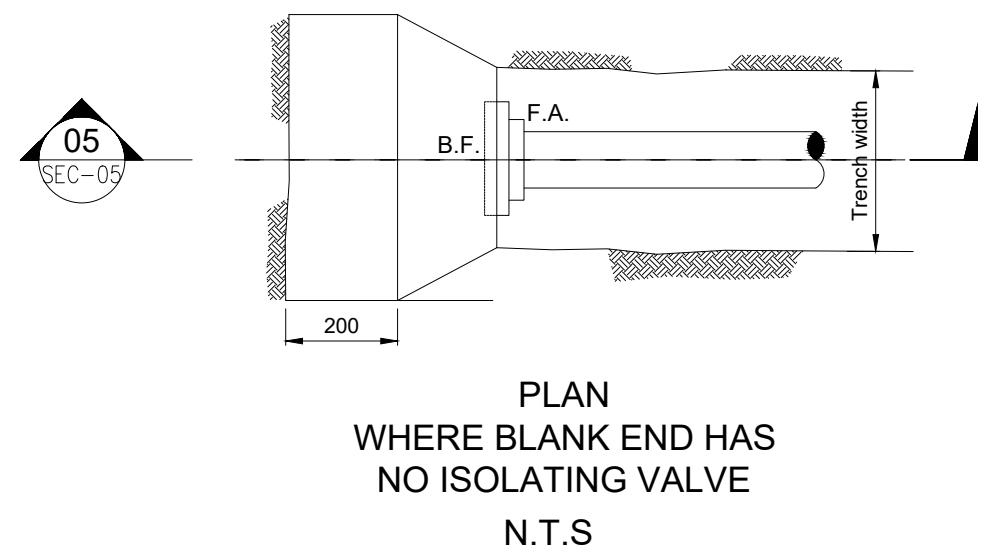
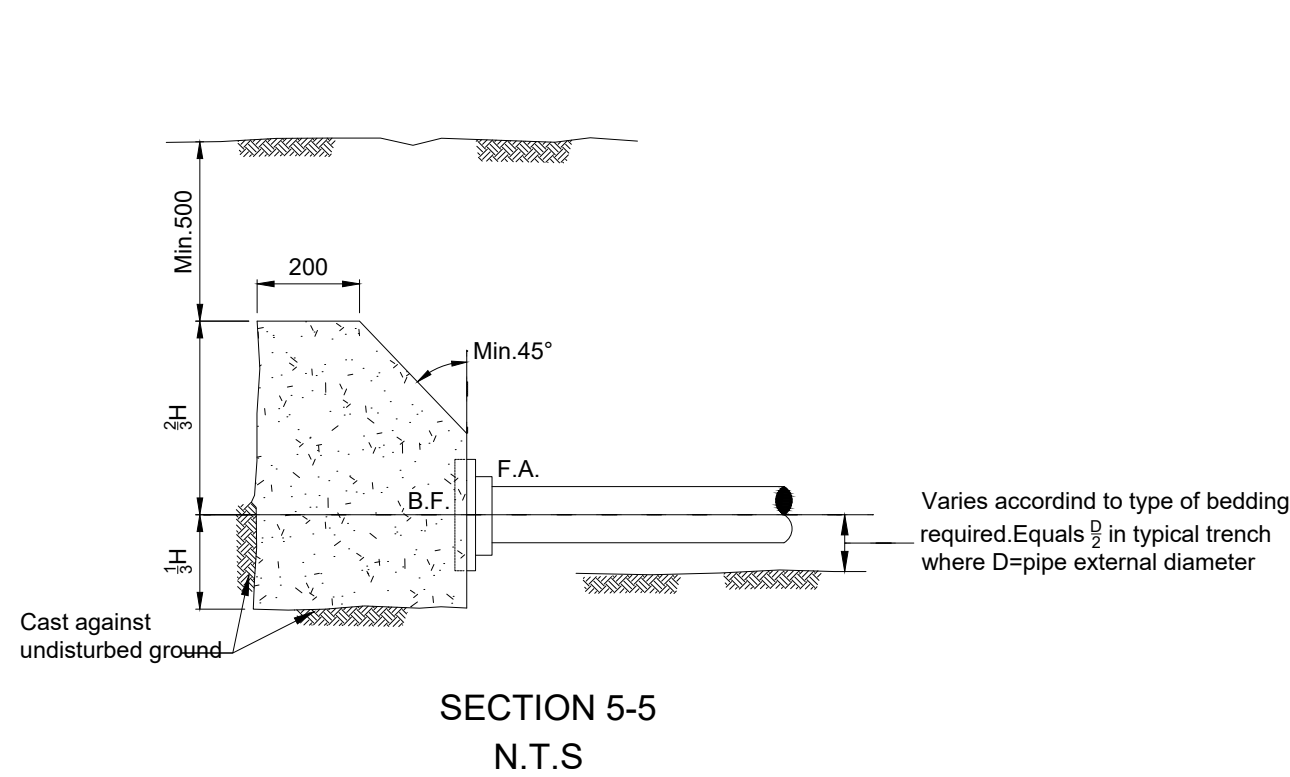


TYPE	D1
SKETCH	
QUANTITY	1
DESCRIPTION	SINGLE LEAF, STEEL DOOR 25mm THICK
FIXING	WITH LUGS
IRON MONGERY	HINGES 1 1/2 PAIRS STANDARD STEEL BUTT HINGES
ACCESS.	1x UNION AL8730AS DOOR STOP

TYPE	W1
SKETCH	
QUANTITY	1
DESCRIPTION	1200x1000mm STEEL WINDOW WITH 25mm THICK FLAT STEEL SHEET ON THE INSIDE PAINTED TO APPROVAL WITH HEAVY DUTY HINGES OPENING 180°
OPENING	2 OPENABLE SIDE HUNG PANELS
GLAZING	NONE

ITEM NUMBER	DESCRIPTION	NO. REQUIRED PER CONNECTION
1	25mm Ø ADJUSTING COUPLING	3
2	25mm Ø GMS 90° BEND	3
3	25mm Ø GMS GATE VALVE	2
4	25mm Ø GALVANISED IRON NIPPLES	14
5	25mm Ø WATER METER	2
6	25mm Ø NON RETURN VALVE	1
7	25mm Ø GMS EQUAL TEE	6
8	90° BEND GALVANISED IRON	5
9	25mm Ø BALL COCK WATER TAPS	4

CLIENT:	FINANCIER:	PROJECT:	CONSULTANT:	DESIGN DETAILS	DRAWING TITLE:																		
WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	THE WORLD BANK GROUP	CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER-BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR	Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	<table><tr><th>No.</th><th>Revision Details</th><th>Reviewed</th><th>Initials</th><th>Date</th><th>Approved</th></tr><tr><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td>2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr></table>	No.	Revision Details	Reviewed	Initials	Date	Approved	1	DRAFT DETAILED DESIGN	By				2	FINAL DETAILED DESIGN	By				STANDARD DRAWINGS 10.WATER KIOSK TYPE 2 SHEET 1 OF 1
No.	Revision Details	Reviewed	Initials	Date	Approved																		
1	DRAFT DETAILED DESIGN	By																					
2	FINAL DETAILED DESIGN	By																					
		Contract No: KE-WSTF-332741-CS-QCBS			DRAWING SCALE: AS SHOWN DRAWING No.: GW4R-WJR-STD-10																		

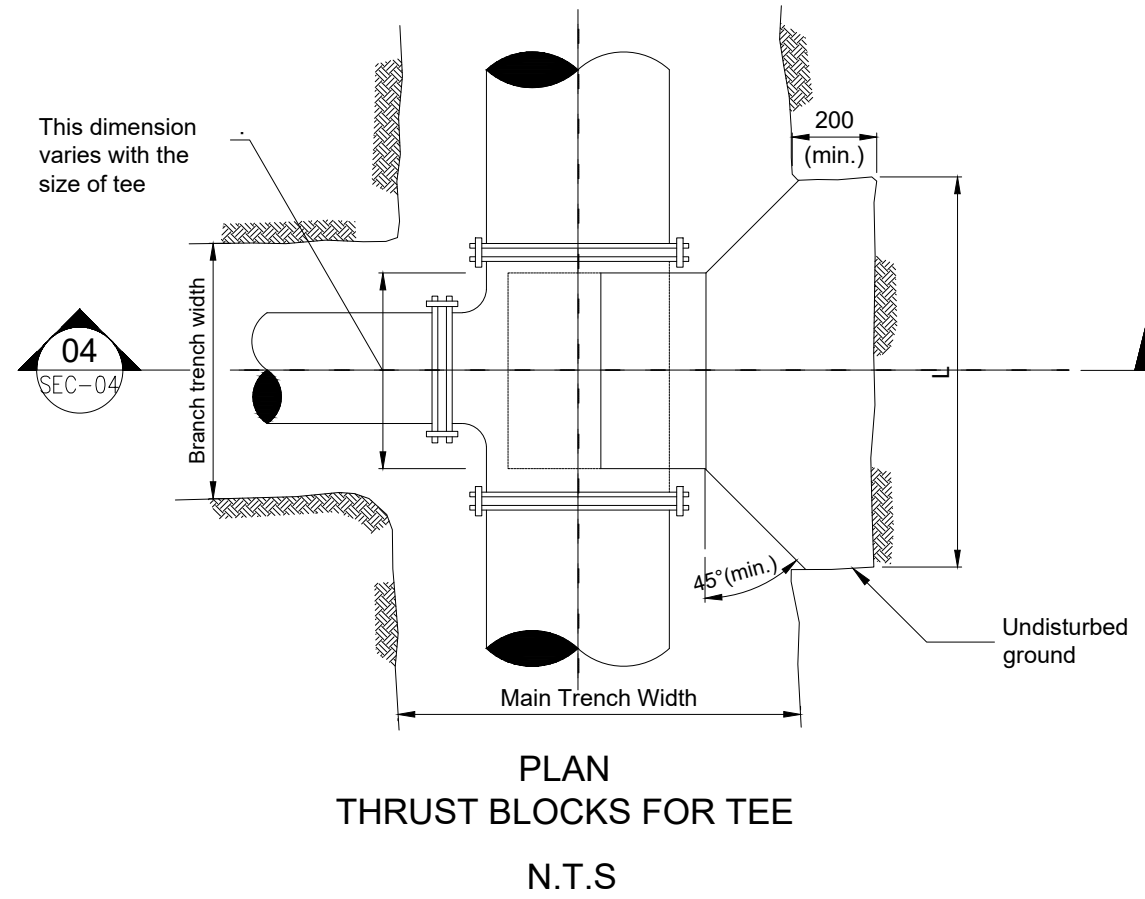
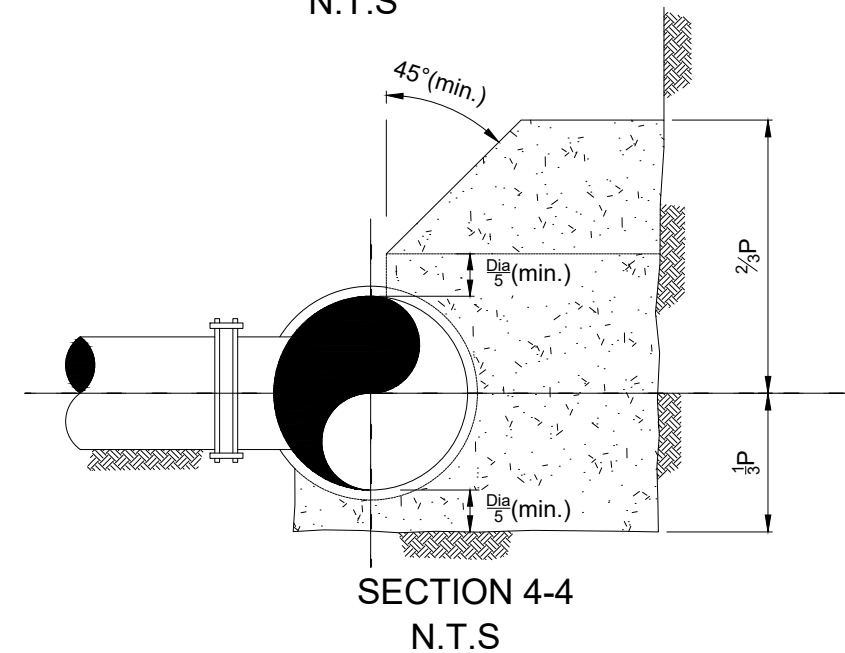
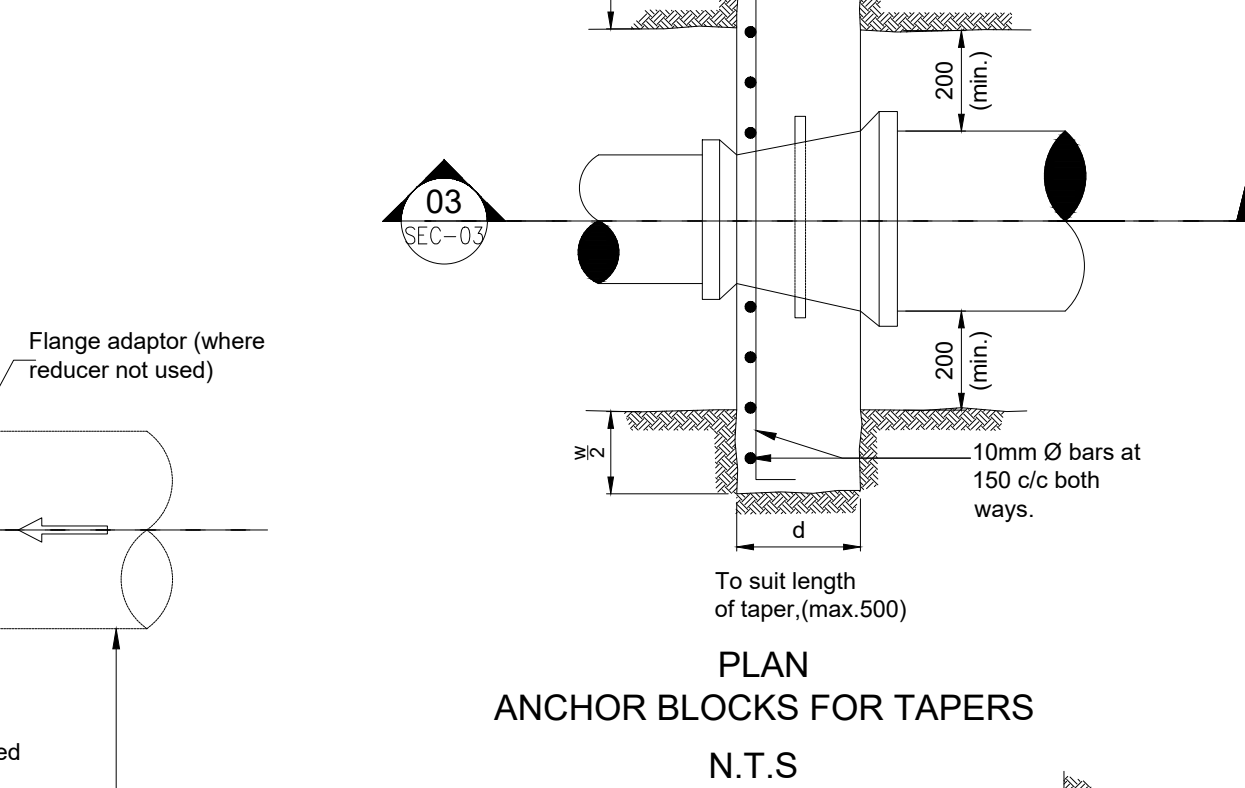
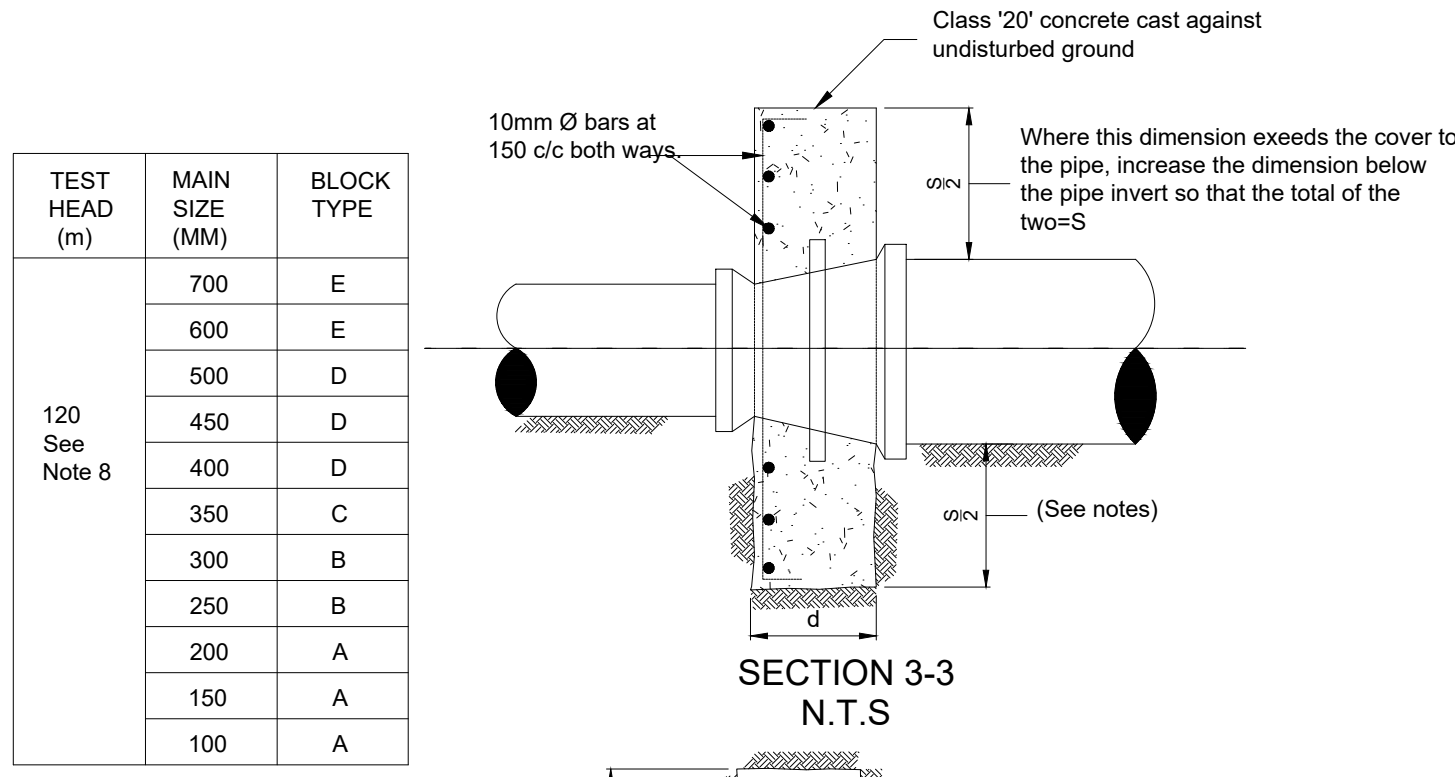


TEST HEAD (m)	MAIN SIZE (MM)	DIMENSIONS (S)mx(W)m											
		TAPER (SMALLER SIZE)mm											
		800	700	600	500	450	400	350	300	250	200	150	100
120 See Note 8	1000	D	—	—	—	—	—	—	—	—	—	—	—
	900	C	D	—	—	—	—	—	—	—	—	—	—
	800	—	C	D	—	—	—	—	—	—	—	—	—
	700	—	—	C	D	—	—	—	—	—	—	—	—
	600	—	—	—	C	C	D	—	—	—	—	—	—
	500	—	—	—	—	A	B	C	—	—	—	—	—
	450	—	—	—	—	—	A	B	C	—	—	—	—
	400	—	—	—	—	—	—	A	B	B	—	—	—
	350	—	—	—	—	—	—	—	A	B	B	—	—
	300	—	—	—	—	—	—	—	—	A	A	B	B
	250	—	—	—	—	—	—	—	—	—	A	A	B
	200	—	—	—	—	—	—	—	—	—	—	A	A

TABLE OF ANCHOR BLOCKS FOR TAPERS
(CLASS "20" CONCRETE)
N.T.S.

TEST HEAD (m)	MAIN SIZE (MM)	DIMENSIONS (L)mx(P)m											
		BRANCH SIZE (mm)											
		800	700	600	500	450	400	350	300	250	200	150/100	
120 See Note 8	1000	2.4x2.1	1.8x2.1	1.4x2.1	1.9x2.1	0.8x2.1	0.6x2.1	0.5x2.1	0.4x2.1	0.3x2.1	0.3x2.1	0.3x2.1	
	900	2.6x1.9	2.0x1.9	1.5x1.9	1.0x1.9	0.9x1.9	0.7x1.9	0.5x1.9	0.4x1.9	0.3x1.9	0.3x1.9	0.3x1.9	
	800	2.9x1.7	2.3x1.7	1.7x1.7	1.1x1.7	0.9x1.7	0.8x1.7	0.6x1.7	0.4x1.7	0.3x1.7	0.3x1.7	0.3x1.7	
	700	—	2.5x1.5	1.9x1.5	1.3x1.5	1.0x1.5	0.9x1.5	0.7x1.5	0.5x1.5	0.4x1.5	0.3x1.5	0.3x1.5	
	600	—	—	2.2x1.3	1.5x1.3	1.2x1.3	1.0x1.3	0.8x1.3	0.6x1.3	0.4x1.3	0.3x1.3	0.3x1.3	
	500	—	—	—	1.8x1.1	1.4x1.1	1.2x1.1	0.9x1.1	0.7x1.1	0.5x1.1	0.3x1.1	0.3x1.1	
	450	—	—	—	—	1.6x1.0	1.3x1.0	1.0x1.0	0.7x1.0	0.5x1.0	0.3x1.0	0.3x1.0	
	400	—	—	—	—	—	1.4x0.9	1.0x0.9	0.8x0.9	0.6x0.9	0.4x0.9	0.3x0.9	
	350	—	—	—	—	—	—	1.2x0.8	0.9x0.8	0.6x0.8	0.4x0.8	0.3x0.8	
	300	—	—	—	—	—	—	—	1.0x0.7	0.7x0.7	0.5x0.7	0.3x0.7	
	250	—	—	—	—	—	—	—	—	0.8x0.6	0.5x0.6	0.3x0.6	
	200	—	—	—	—	—	—	—	—	—	0.6x0.5	0.4x0.5	

TABLE OF THRUST BLOCKS FOR TEES
(CLASS "20" CONCRETE)
N.T.S.



BLOCK TYPE	S (m)	W (m)	d (mm)	MAIN STEEL	DISTRIBUTION STEEL
A	0.5	0.5	300	Y10-150	Y10-150
B	0.5	0.9	300	Y10-150	Y10-150
C	0.5	1.2	400	Y12-150	Y10-150
D	0.6	1.8	500	Y16-150	Y12-150
E	1.0	2.2	500	Y20-150	Y12-150

DETAILS OF ANCHOR BLOCKS FOR TAPER & SLUICE VALVES
N.T.S.

NOTES.

- All concrete thrust blocks shall be constructed on and against firm ground directly. The thrust or Anchor blocks shall not be cast against black cotton soil and reference shall be made to the Engineers Representative for further instructions.
- The concrete thrust blocks are designed to bear on the original earth surface with safe bearing pressure of 120 KN/m²
- Concrete to be class '15' unless otherwise stated.
- Concrete in thrust and anchor blocks must be cast clear of joints.
- Dimension 'W' for thrust blocks on horizontal bends to suit the size of bend and clearance required for joints.
- For table of thrust blocks for horizontal bends refer to other Drawings.
- For thrust blocks to vertical bends refer to other Drawings.
- The thrust blocks dimensions in the tables given hereon are for a test pressure of 12 bars .For special test pressures thrust blocks sizes are to be reduced or increased proportionately, or as directed by the Engineers Representative.
- For sluice valves on mains of diameters greater than 700mm, thrust blocks will be individually designed to suit the actual test pressure at each location.

WaterFund

WATER FUND

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

THE WORLD BANK

THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

aarvee associates

architects engineers & consultants pvt. ltd.

ADVANCED

ENGINEERING CONSULTANTS

Aarvee Associates Architects Engineers and Associates Pvt Ltd

in Association with

Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India

Telephone: +91-7966776800 / +254-714-198-805

Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved
				DRAFT DETAILED DESIGN	By			
Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By			
					Checked			
Drawn by:	V.K	JUNE 2025			By			
					Checked			
Checked by:	M.J	JUNE 2025			By			
					Checked			
Approved by:	D.L	JUNE 2025			By			
					Checked			

DRAWING TITLE:

STANDARD DRAWINGS

11.THRUST BLOCKS AND ANCHOR BLOCKS

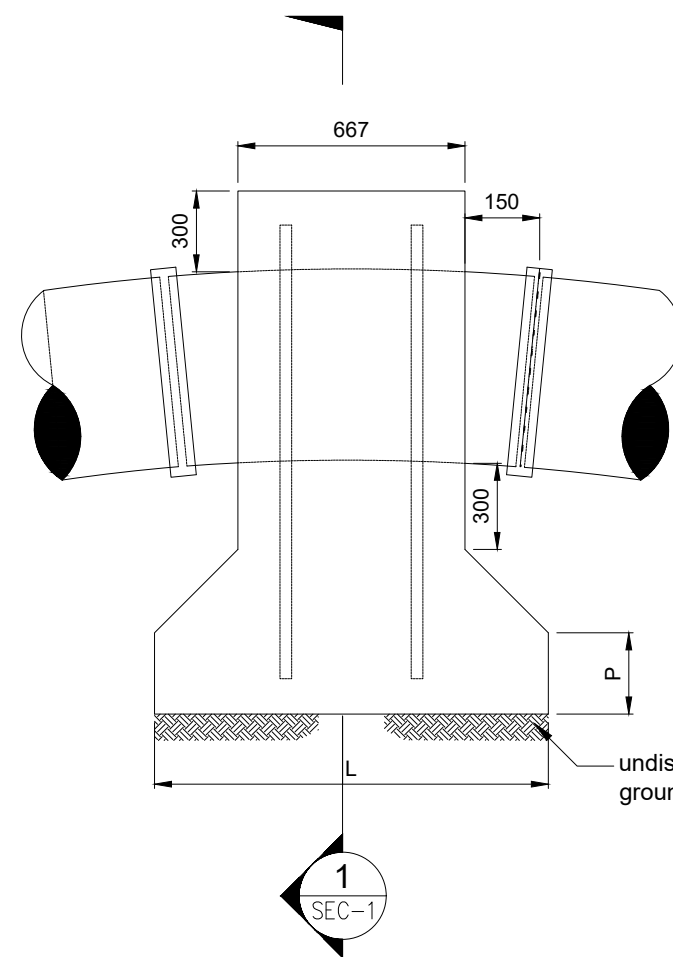
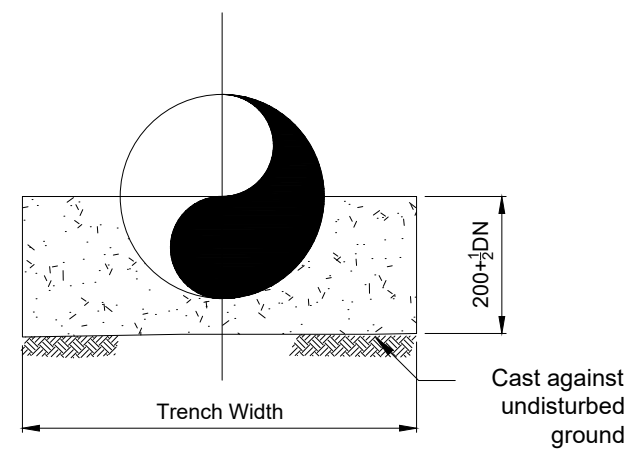
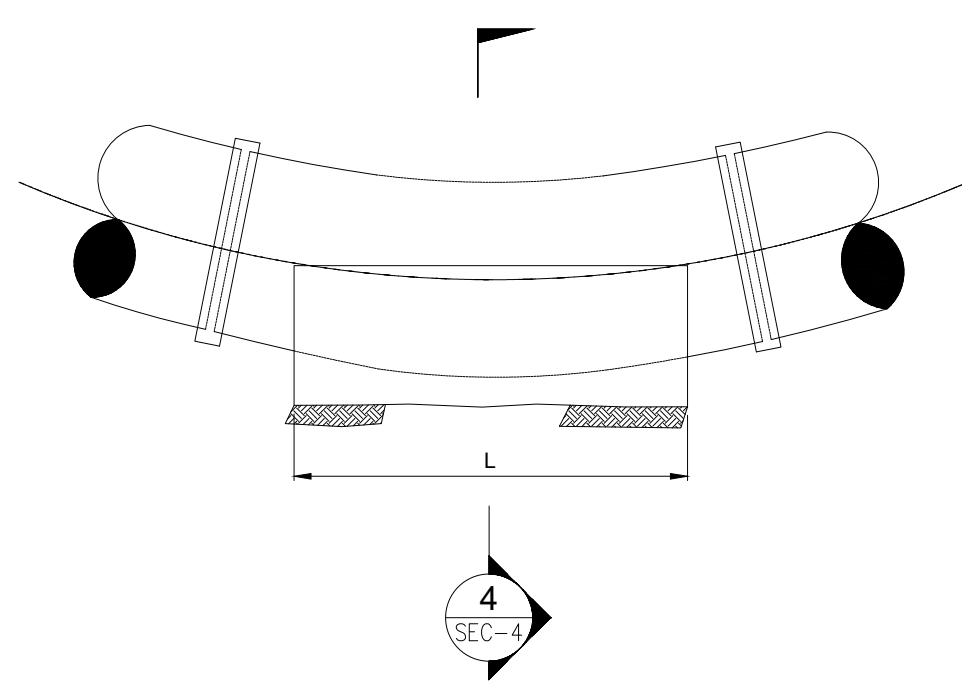
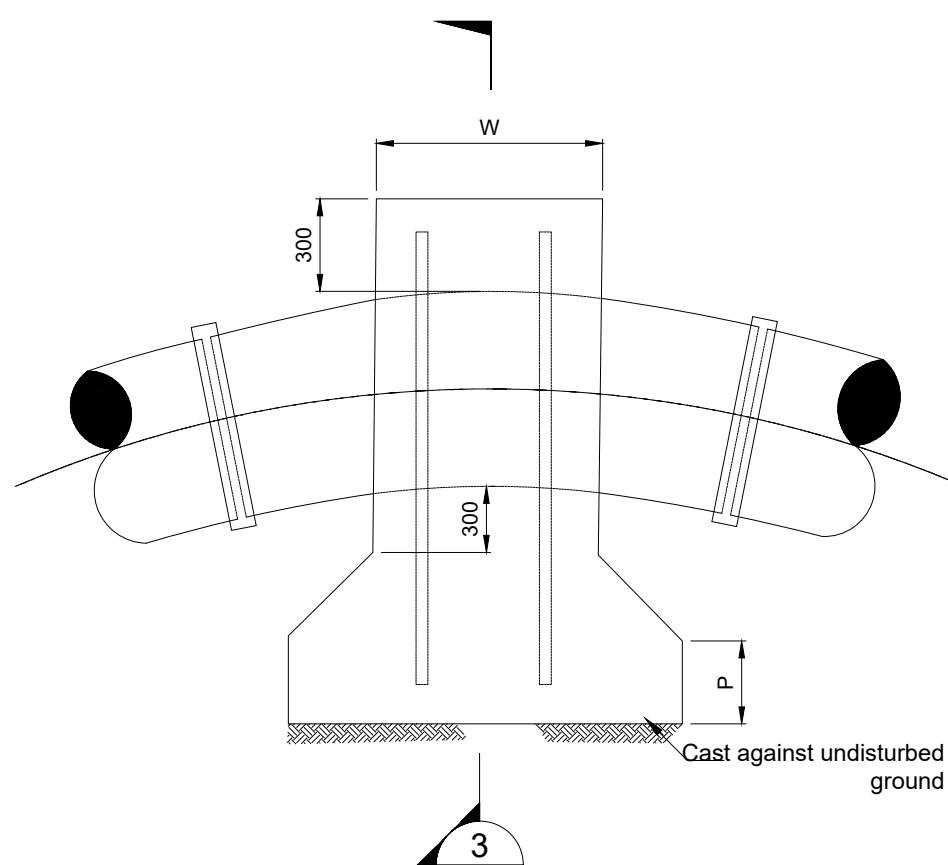
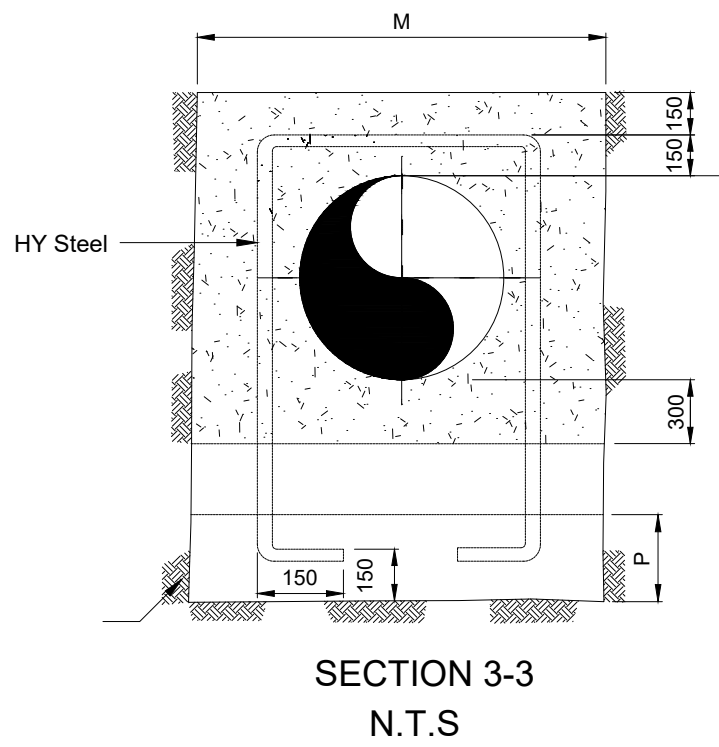
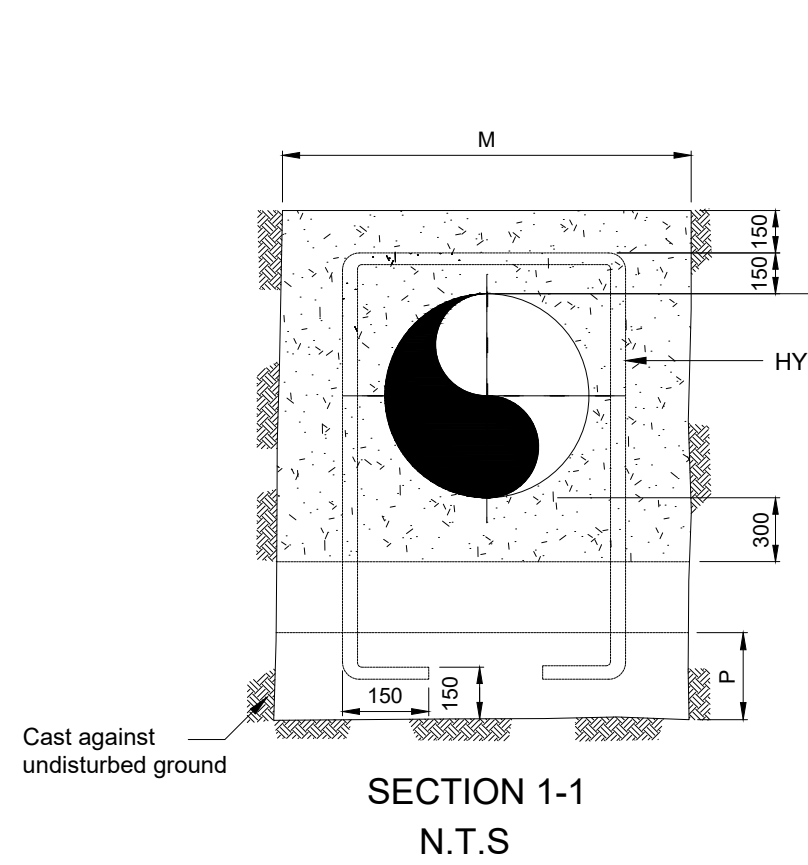
SHEET 1 OF 2

DRAWING SCALE:

AS SHOWN

DRAWING No.:

GW4R-WJR-STD-11.01



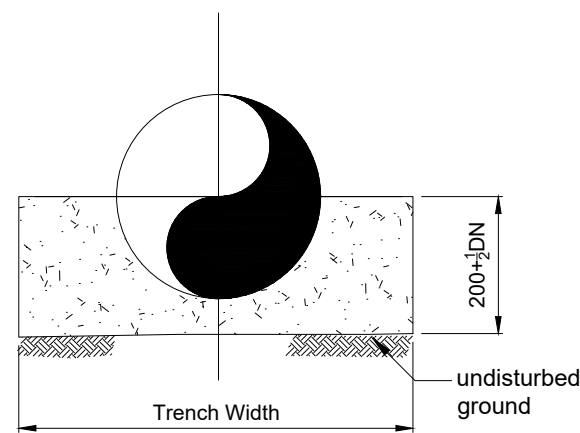
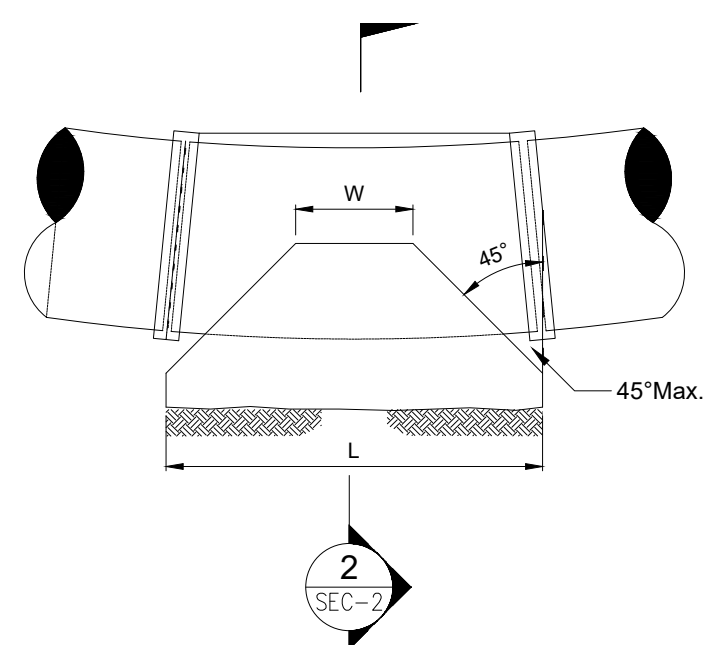
11.25° VERTICAL BENDS - TYPICAL
(SEE NOTE 7)
N.T.S

TEST HEAD (m)	BEND	DIMENSIONS (L)mx(P)m											
		SIZE OF BEND DN(mm)											
		1000	900	800	700	600	500	450	400	350	300	250	200 OR LESS
120	11½°	0.8x2.0	0.7x1.8	0.6x1.7	0.5x1.5	0.4x1.4	0.3x1.2	0.3x1.1	0.3x1.1	0.3x1.0	0.3x0.9	0.3x0.8	0.3x0.8
	22½°	1.5x2.0	1.4x1.8	1.2x1.7	1.0x1.5	0.8x1.4	0.7x1.2	0.6x1.1	0.5x1.1	0.4x1.0	0.3x0.9	0.3x0.8	0.3x0.8
	45°	3.0x2.0	2.7x1.8	2.3x1.7	2.0x1.5	1.5x1.4	1.3x1.2	1.1x1.1	0.9x1.1	0.8x1.0	0.6x0.9	0.5x0.8	0.3x0.8
	90°	5.5x2.0	4.9x1.8	4.1x1.7	3.6x1.5	2.8x1.4	2.3x1.2	2.0x1.1	1.6x1.1	1.4x1.0	1.1x0.9	0.9x0.8	0.6x0.8
	11½°	1.0x2.0	0.9x1.8	0.7x1.7	0.6x1.5	0.5x1.4	0.4x1.2	0.4x1.1	0.3x1.1	0.3x1.0	0.3x0.9	0.3x0.8	0.3x0.8
150	22½°	1.9x2.0	1.7x1.8	1.4x1.7	1.3x1.5	1.0x1.4	0.8x1.2	0.7x1.1	0.6x1.1	0.5x1.0	0.4x0.9	0.3x0.8	0.3x0.8
	45°	3.7x2.0	3.3x1.8	2.8x1.7	2.4x1.5	1.9x1.4	1.6x1.2	1.4x1.1	1.1x1.1	0.9x1.0	0.8x0.9	0.6x0.8	0.4x0.8
	90°	6.8x2.0	6.2x1.8	5.1x1.7	4.5x1.5	3.5x1.4	2.9x1.2	2.5x1.1	2.0x1.1	1.7x1.0	1.4x0.9	1.1x0.8	0.7x0.8

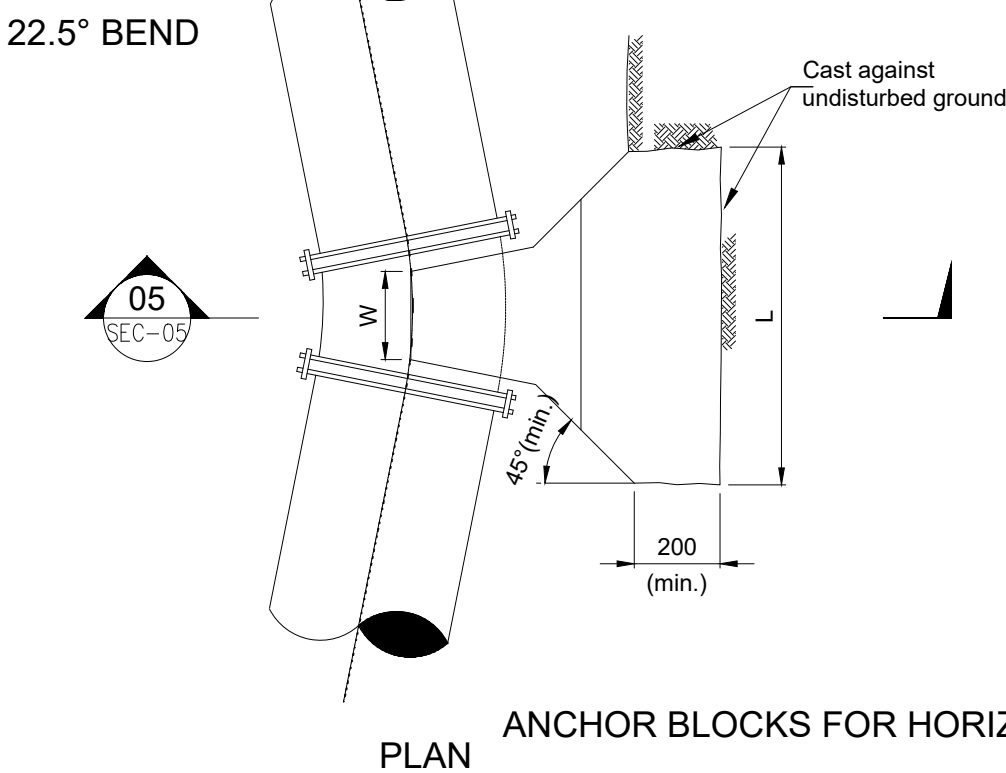
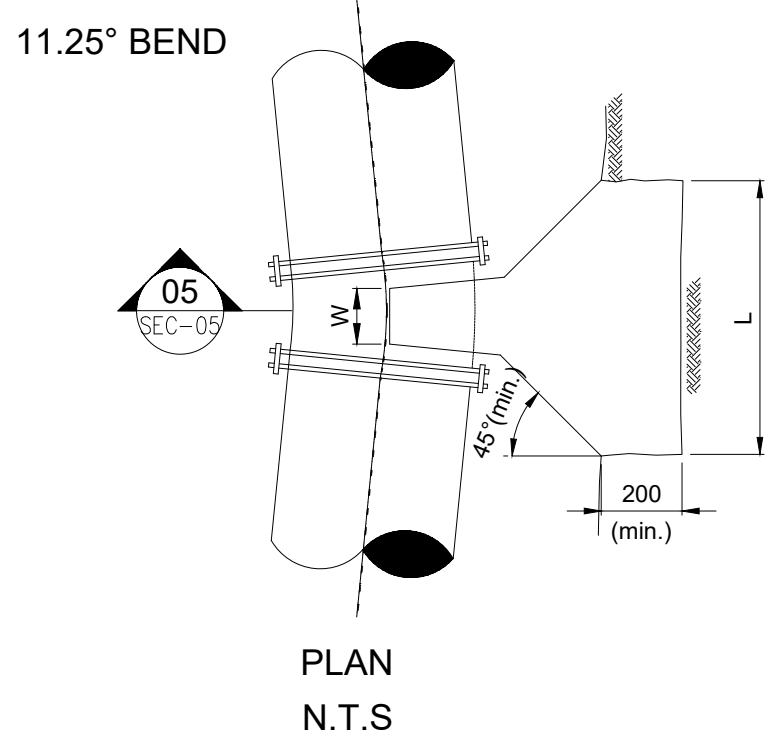
TABLE OF THRUST BLOCKS FOR HORIZONTAL BENDS

TEST HEAD (m)	DIMENSIONS (L)mx(P)m							
	SIZE OF BEND DN(mm)							
	600	500	450	400	300	300	250	200
	1.4x0.6	1.4x0.5	1.4x0.5	1.2x0.5	1.2x0.5	1.0x0.5	0.8x0.5	0.6x0.5

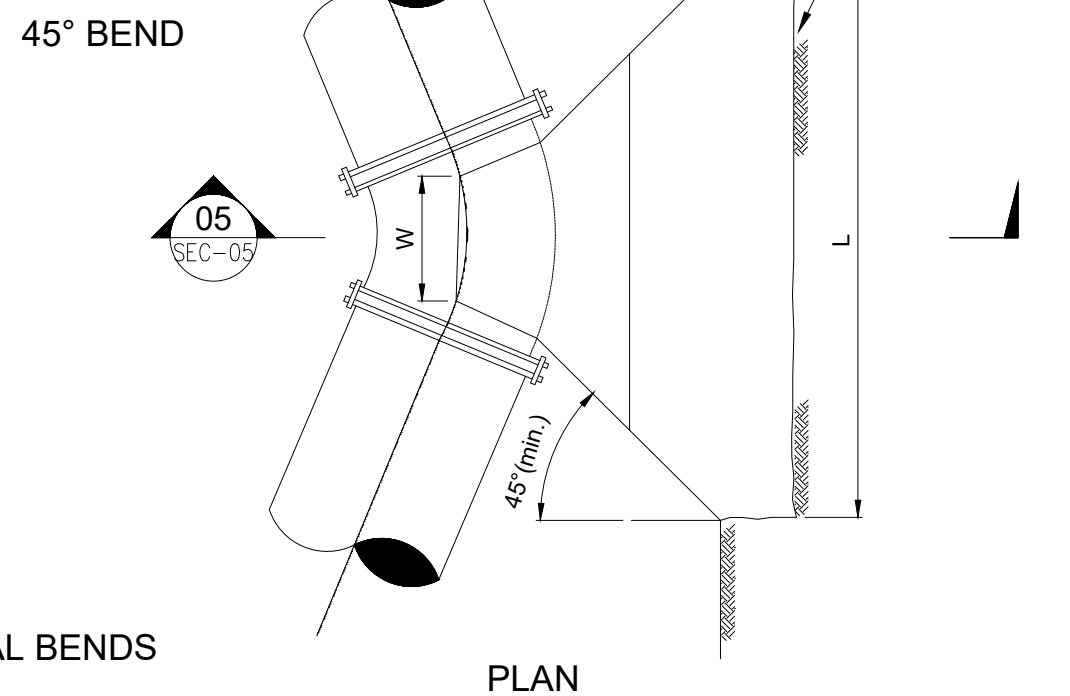
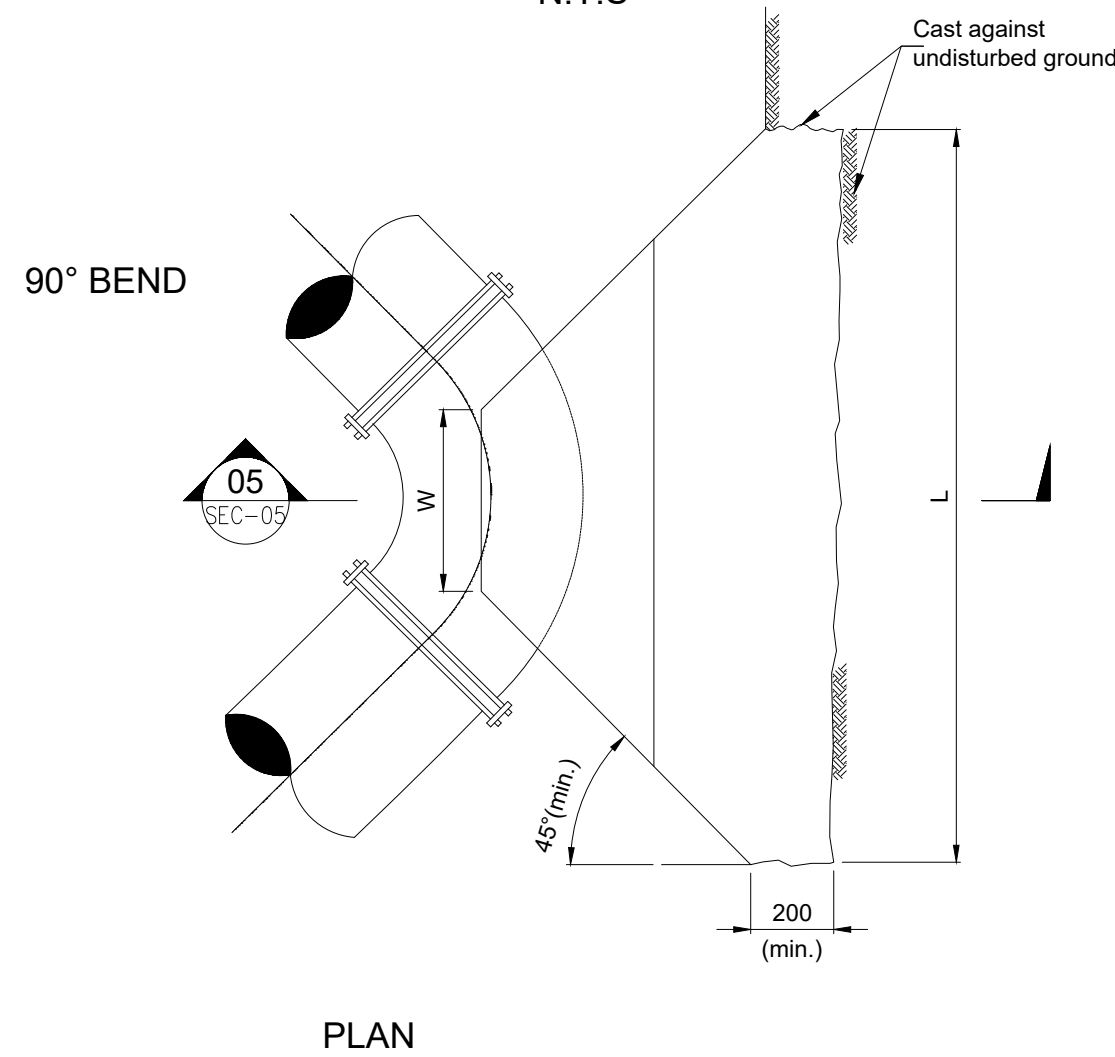
TABLE OF THRUST BLOCKS FOR BLANK ENDS



SECTION 2-2
N.T.S



ANCHOR BLOCKS FOR HORIZONTAL BENDS



NOTES.

1. All concrete thrust blocks shall be constructed on and against firm ground directly. The thrust or Anchor blocks shall not be cast against black cotton soil and reference shall be made to the Engineers Representative for further instructions.
2. The concrete thrust blocks are designed to bear on the original earth surface with safe bearing pressure of 120 KN/m²
3. Concrete to be class '15' unless otherwise stated.
4. Concrete in thrust and anchor blocks must be cast clear of joints.
5. Dimension 'W' for thrust blocks on horizontal bends to suit the size of bend and clearance required for joints.
6. For table of thrust blocks for horizontal bends refer to other Drawings.
7. For thrust blocks to horizontal bends refer to other Drawings.
8. The steel anchoring reinforcement and the dimensions L,P and M are to be decided by the Engineers representative to suit each individual bend.

LEGEND

DN-Nominal diameter
BF-Blank flange

CLIENT:



WATER SECTOR TRUST FUND

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



THE WORLD BANK GROUP

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd.

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date
Designed by:	W.O	JUNE 2025
Drawn by:	V.K	JUNE 2025
Checked by:	M.J	JUNE 2025
Approved by:	D.L	JUNE 2025

No.	Revision Details	Reviewed By	Initials	Date	Approved
1	DRAFT DETAILED DESIGN	Checked			
2	FINAL DETAILED DESIGN	Checked			
		By			
		Checked			
		By			
		Checked			
		By			
		Checked			
		By			
		Checked			

DRAWING TITLE:

STANDARD DRAWINGS

11.THRUST BLOCKS AND ANCHOR BLOCKS

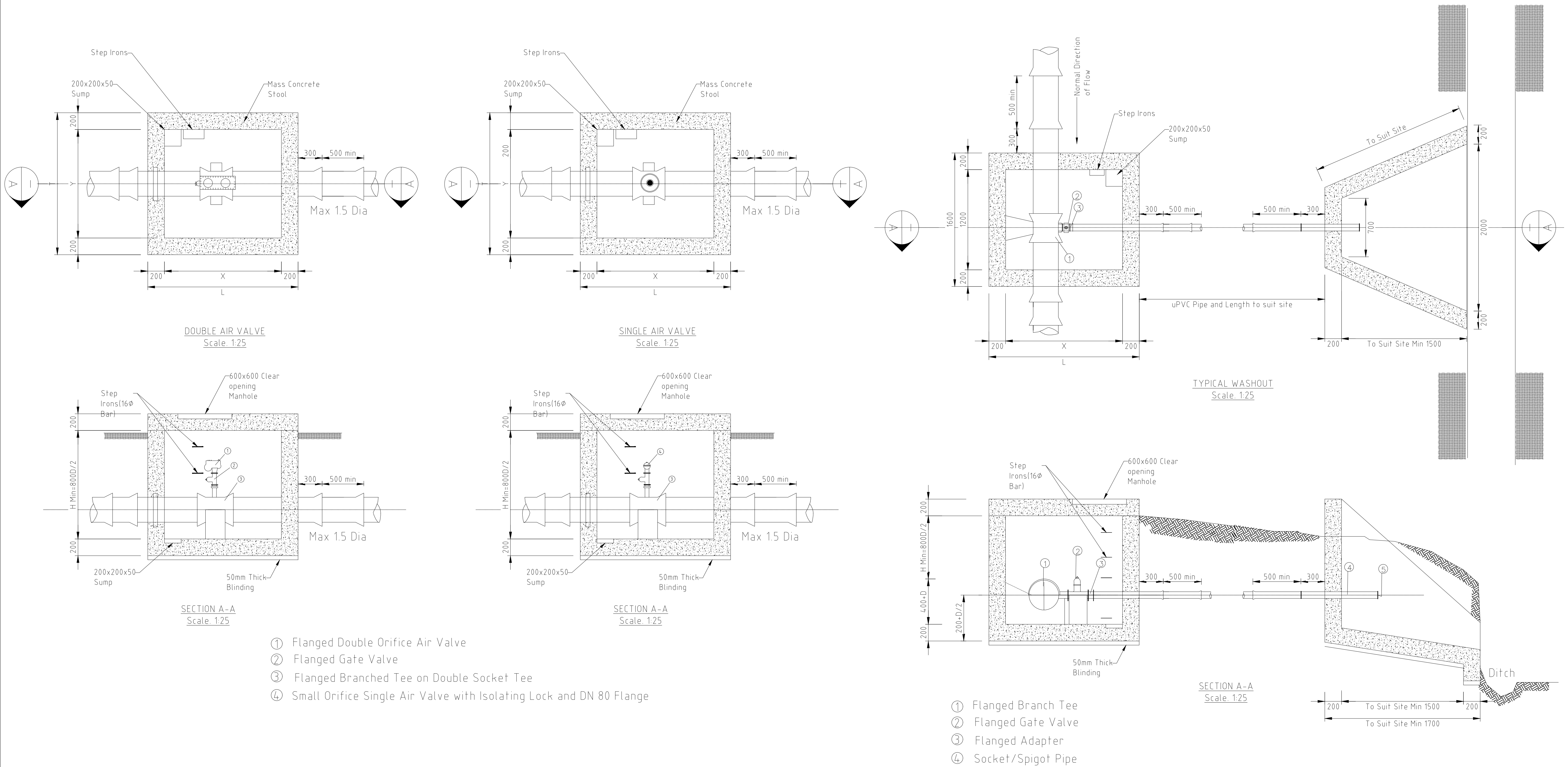
SHEET 2 OF 2

DRAWING SCALE:

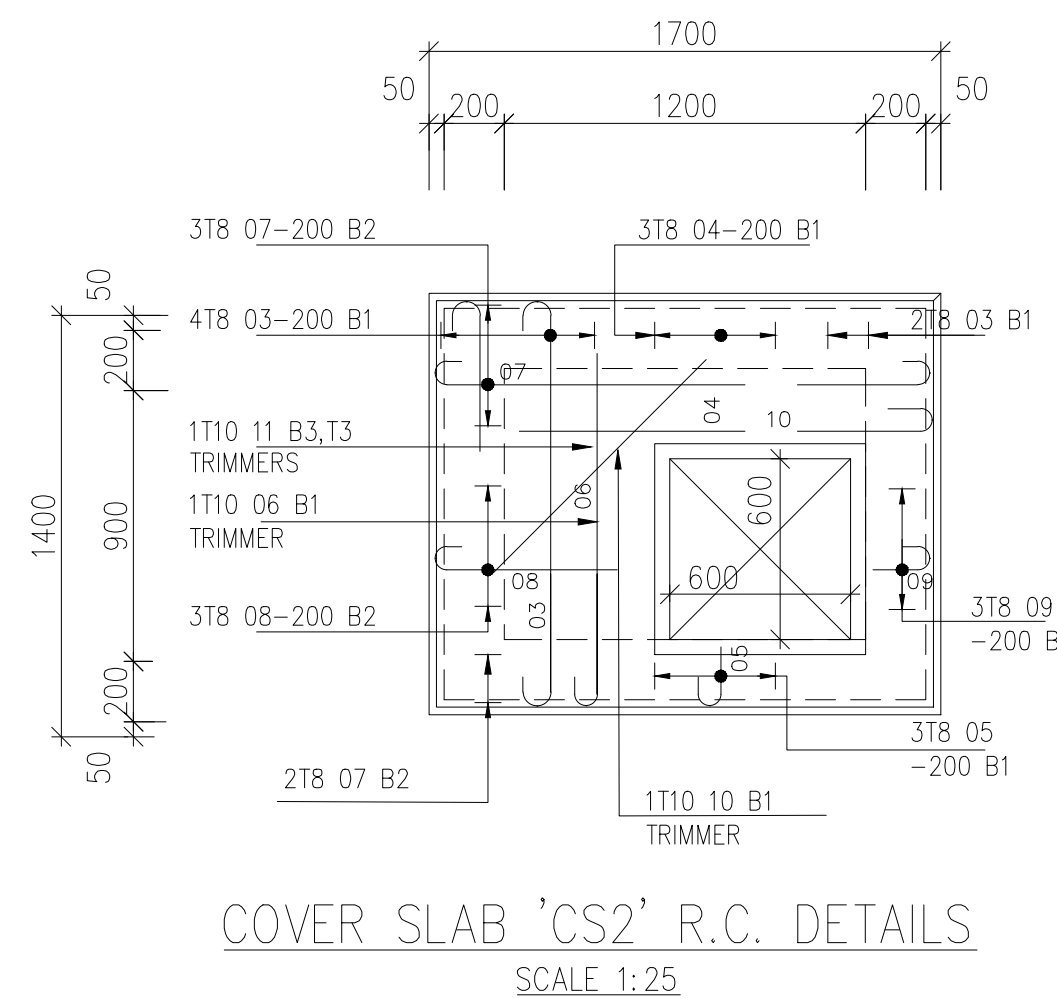
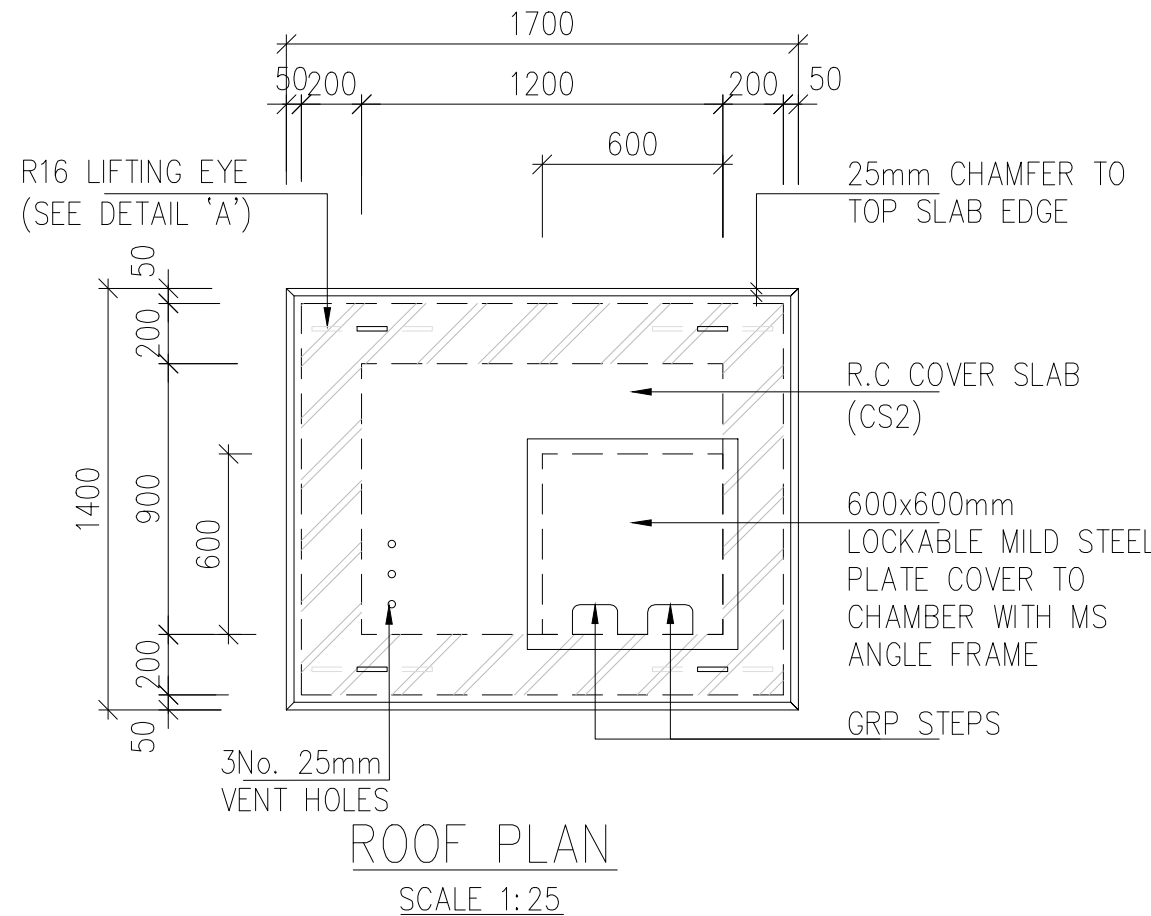
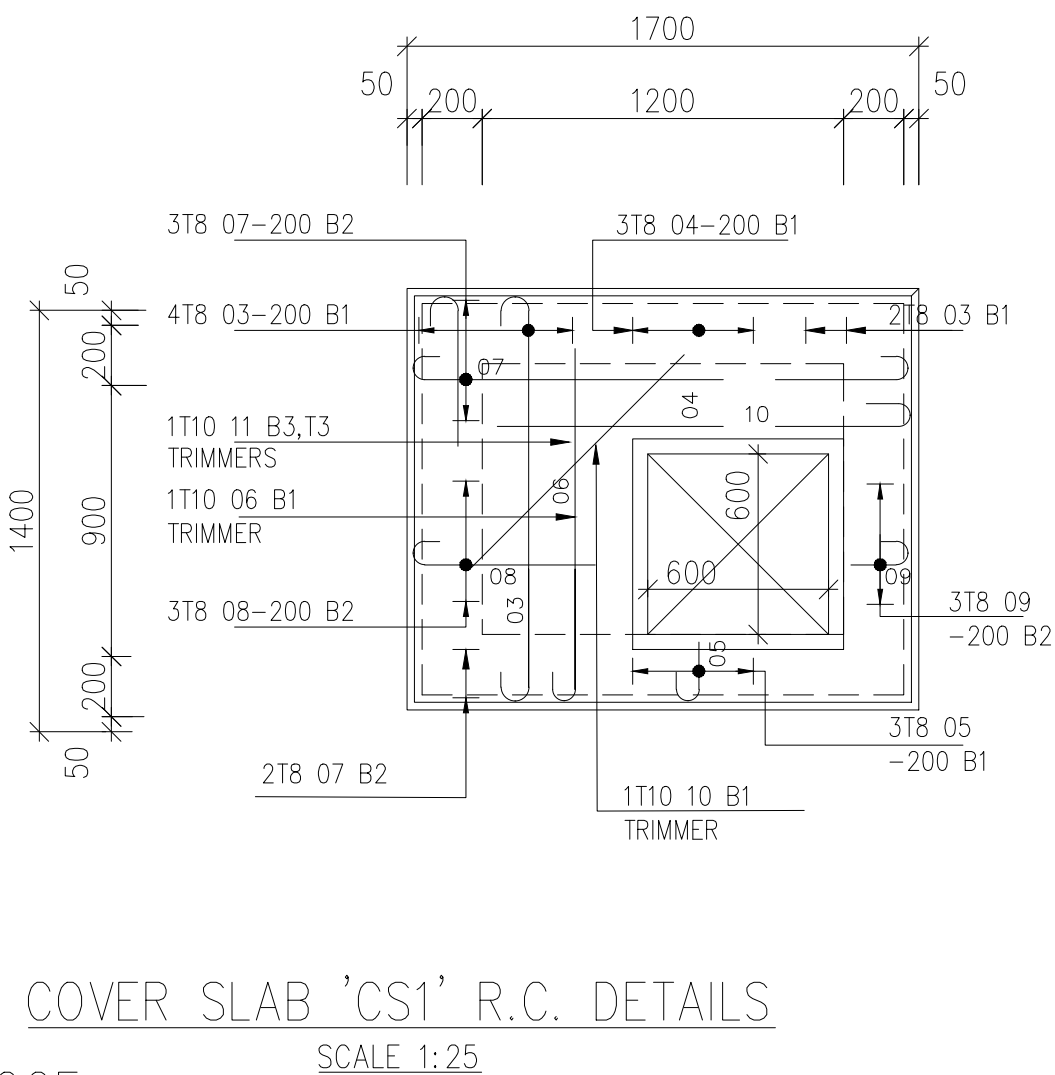
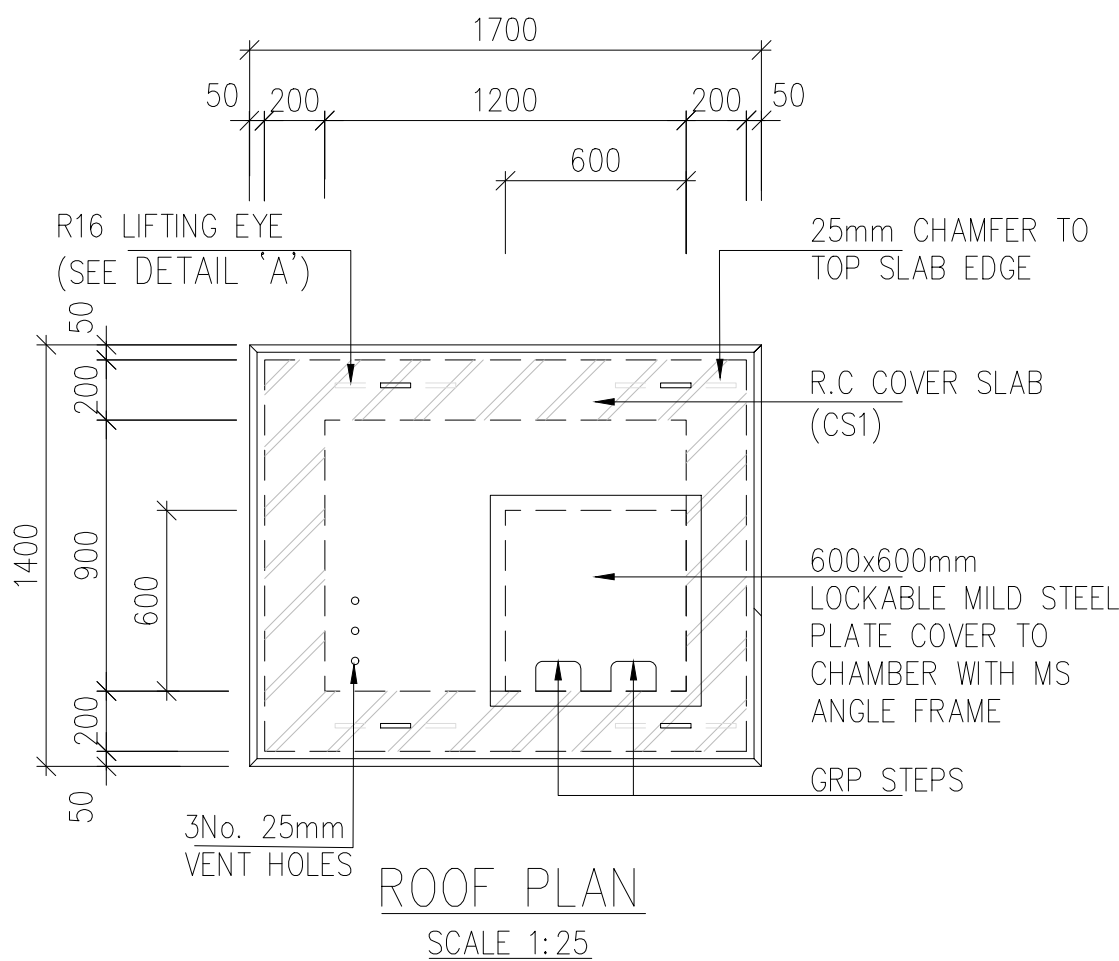
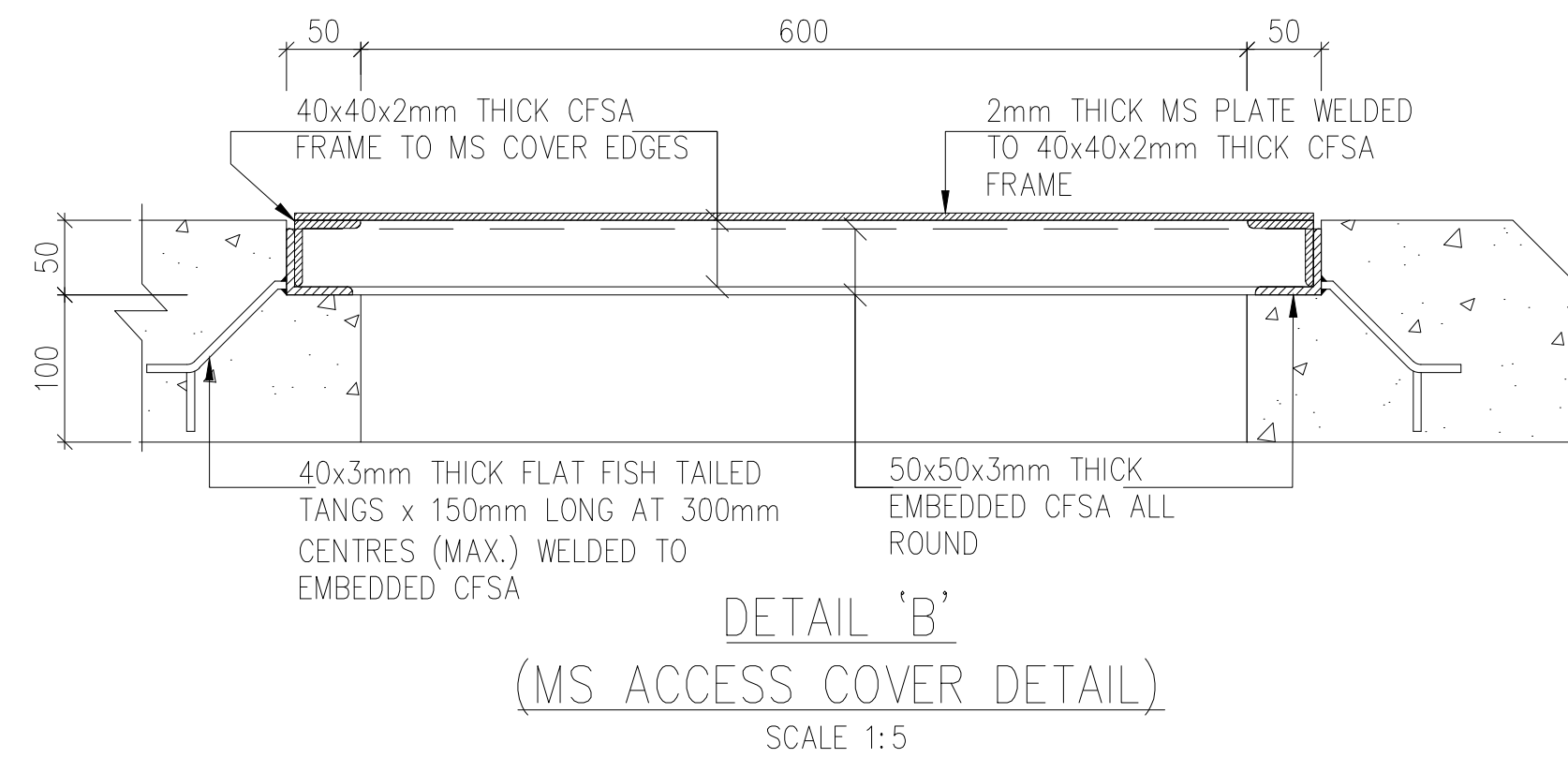
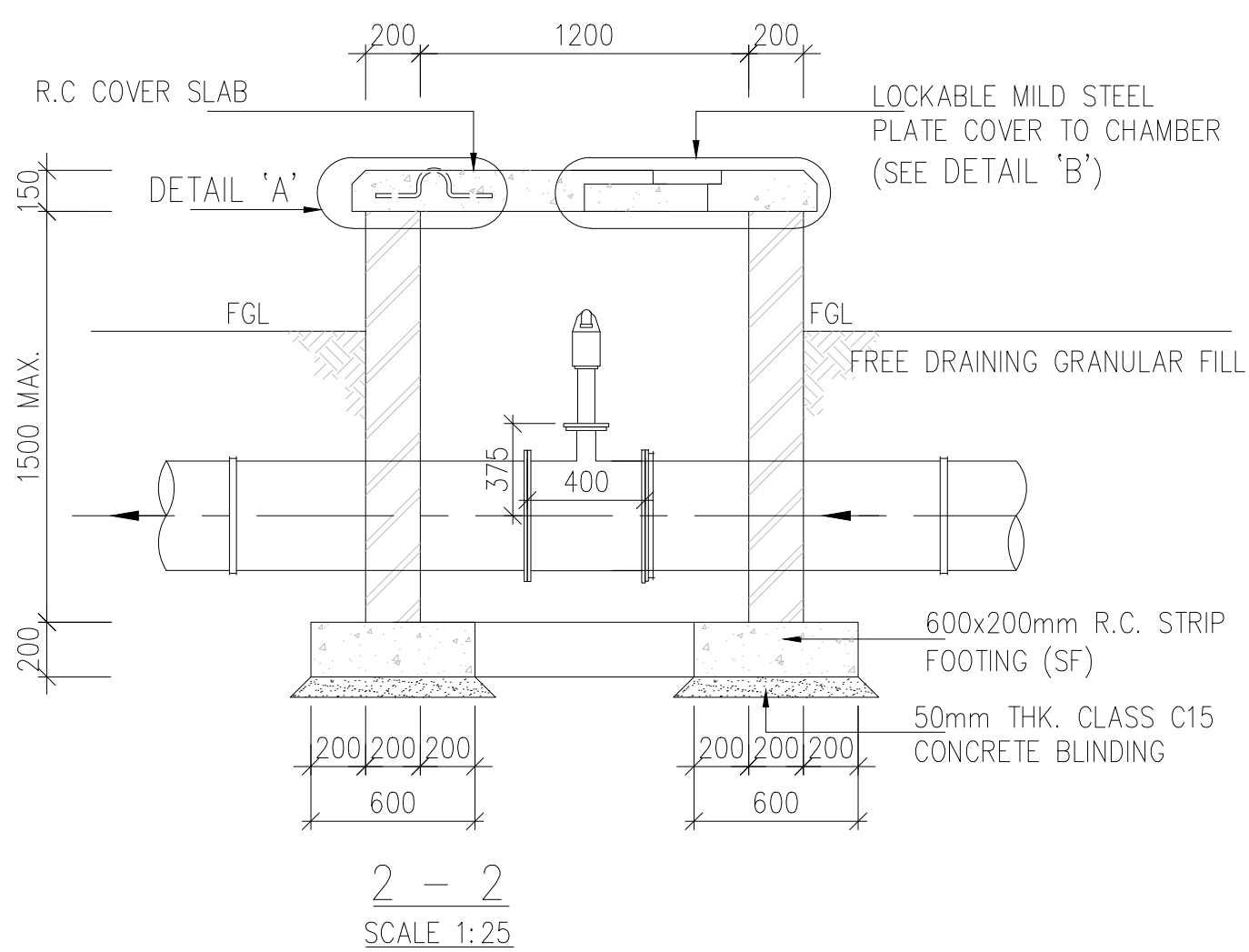
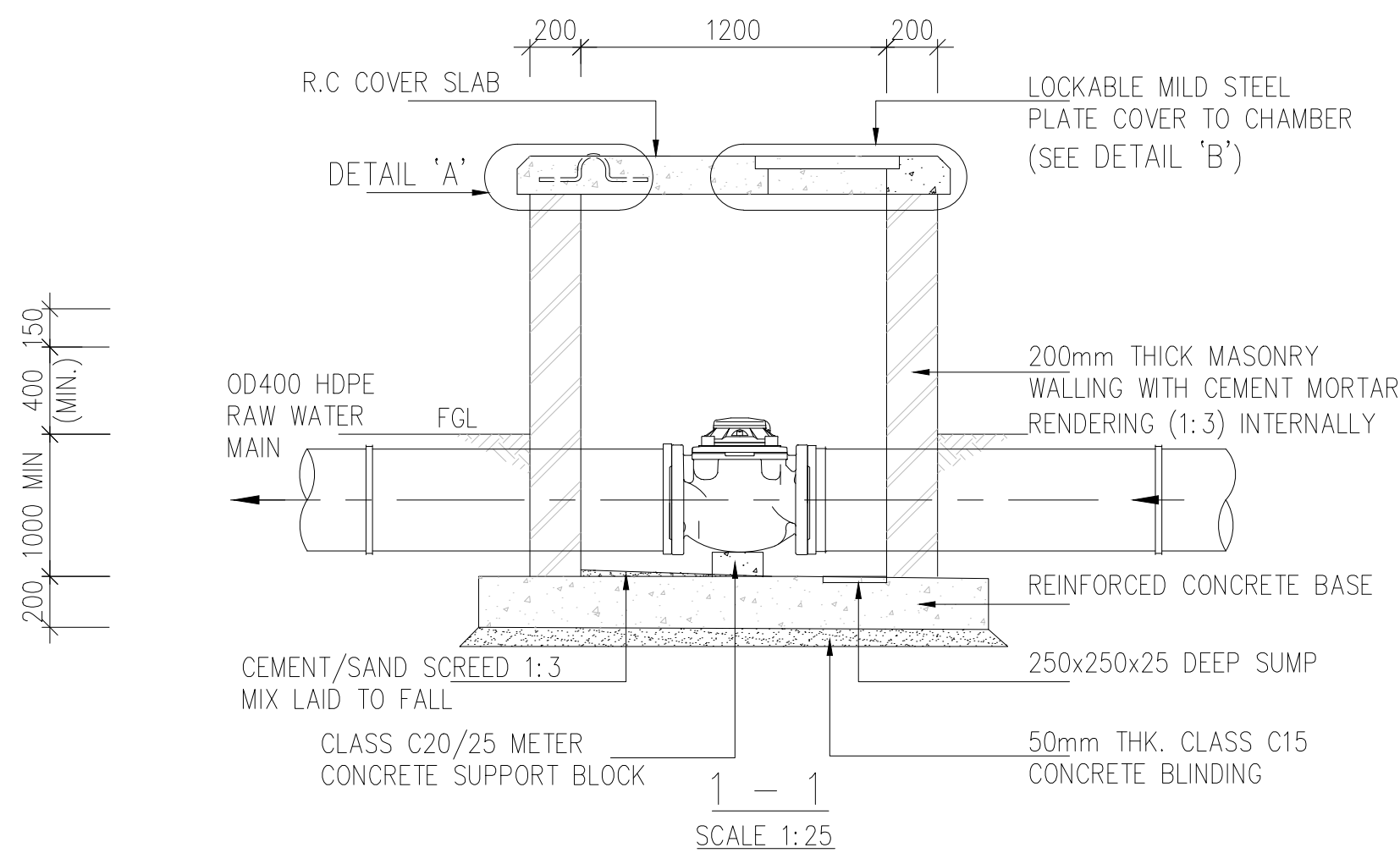
AS SHOWN

DRAWING No.:

GW4R-WJR-STD-11.02

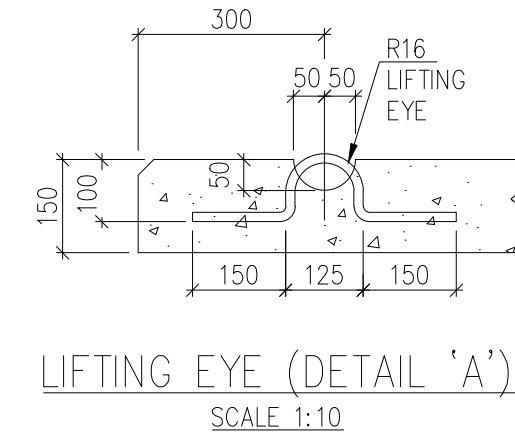
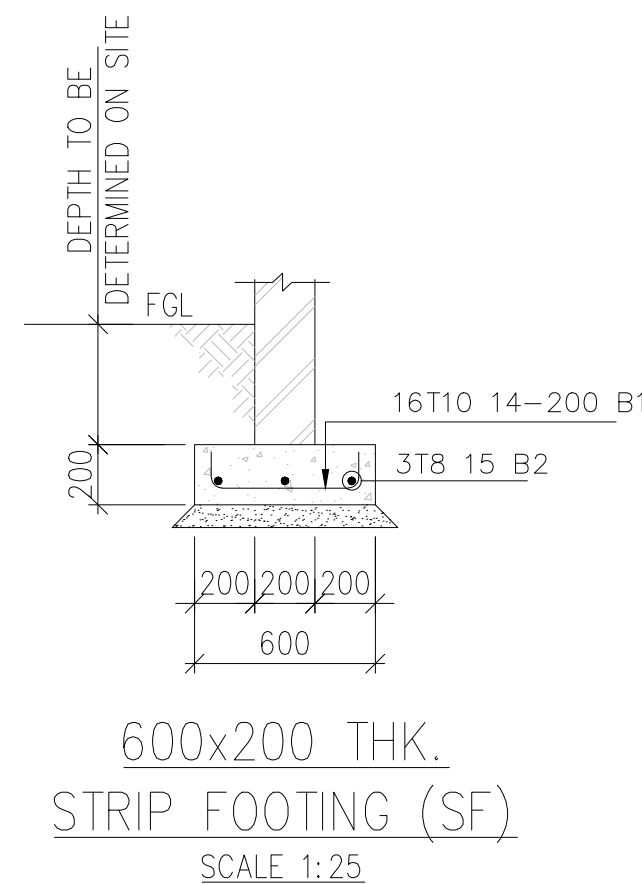
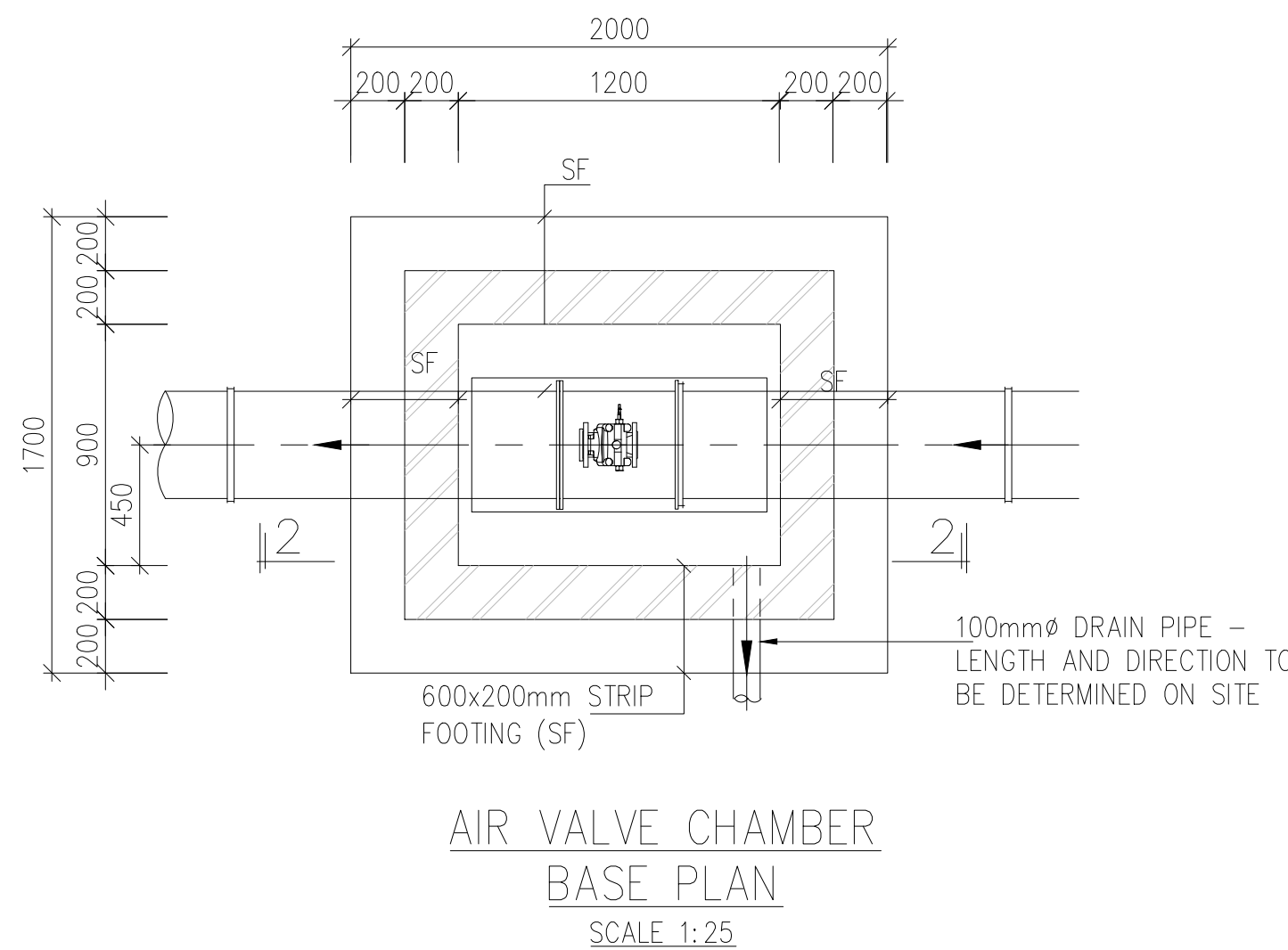
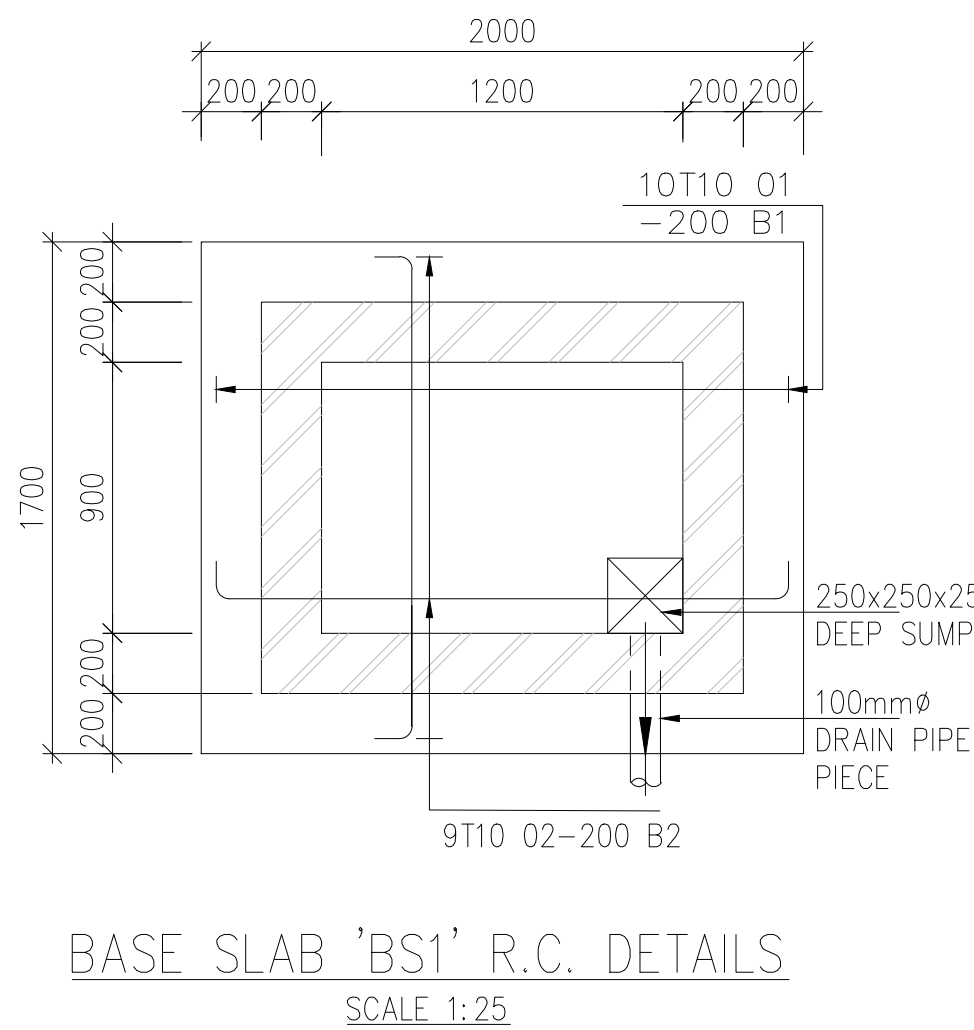
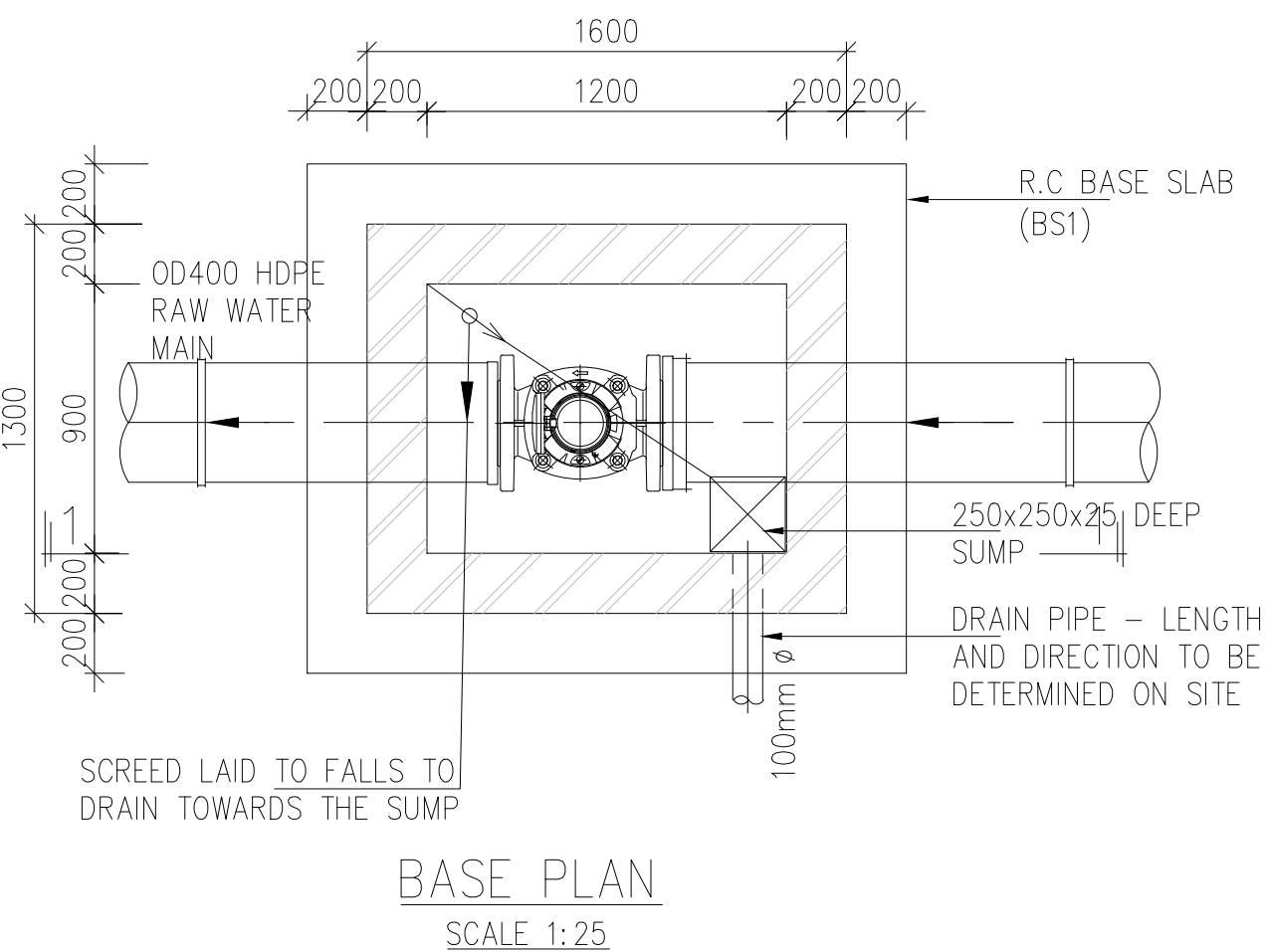


<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th colspan="6">Revision Details</th></tr><tr><th>Action</th><th>Name</th><th>Date</th><th>No.</th><th>Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">W.O</td><td rowspan="2">JUNE 2025</td><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td>2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">M.J</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td></td><td>Checked</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			Revision Details						Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved	Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By						Checked				Drawn by:	V.K	JUNE 2025	2	FINAL DETAILED DESIGN	By						Checked				Checked by:	M.J	JUNE 2025			By						Checked				Approved by:	D.L	JUNE 2025			By						Checked				<div>DRAWING TITLE:</div> <div>STANDARD DRAWINGS</div> <div>12.GATE VALVES,AIR VALVES,WASH OUT VALVES DETAILS</div> <div>SHEET 1 OF 1</div> <div><div>DRAWING SCALE:</div><div>AS SHOWN</div><div><div>DRAWING No.:</div><div>GW4R-WJR-STD-12</div></div></div>
			DESIGN DETAILS			Revision Details																																																																													
			Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved																																																																								
			Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By																																																																											
								Checked																																																																											
			Drawn by:	V.K	JUNE 2025	2	FINAL DETAILED DESIGN	By																																																																											
								Checked																																																																											
Checked by:	M.J	JUNE 2025			By																																																																														
					Checked																																																																														
Approved by:	D.L	JUNE 2025			By																																																																														
					Checked																																																																														



FLOWMETER CHAMBER ROOF




AIR VALVE CHAMBER ROOF

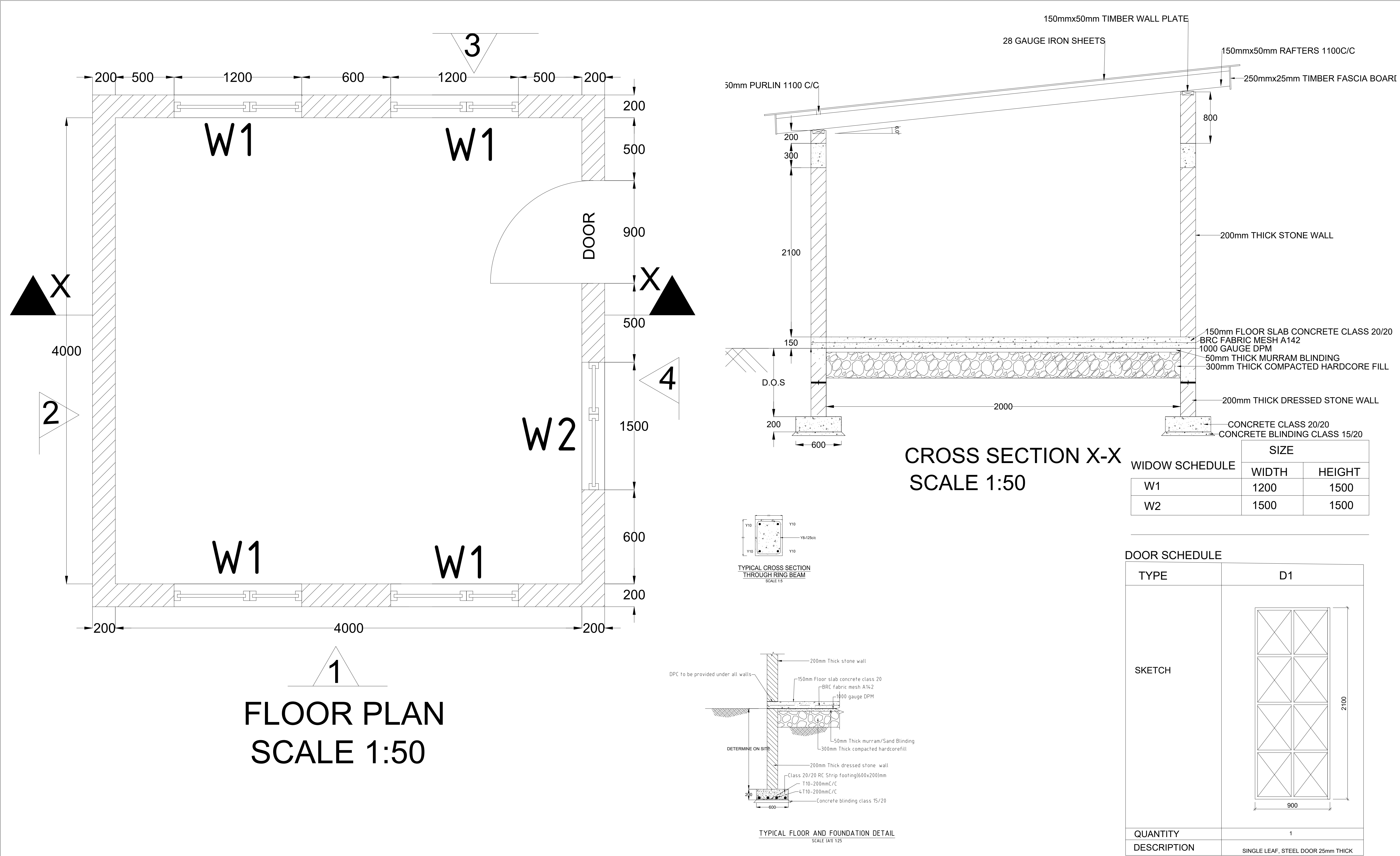


FLOWMETER CHAMBER BASE

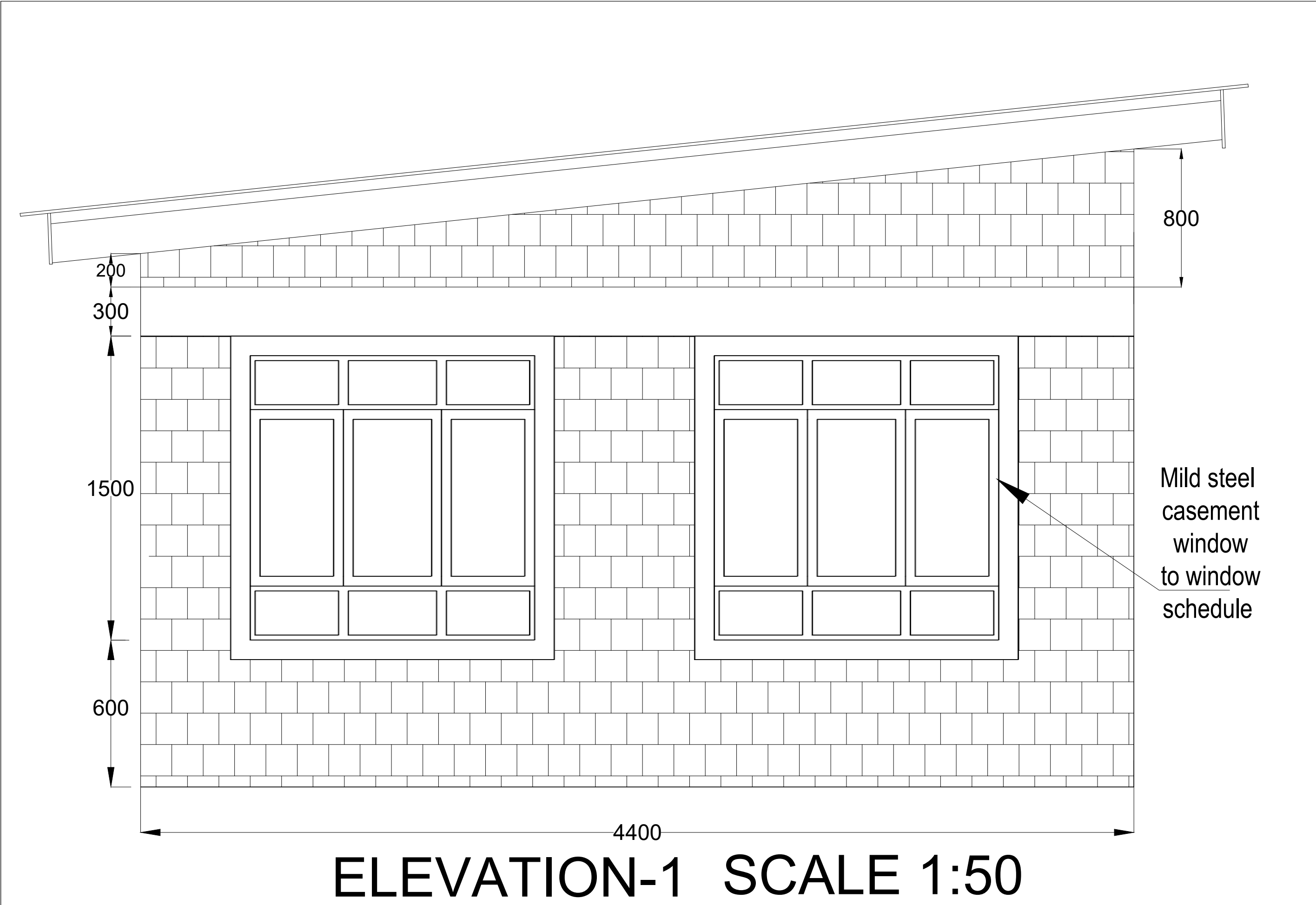
AIR VALVE CHAMBER
BASE PLAN

BASE SLAB 'BS1' R.C. DETAILS

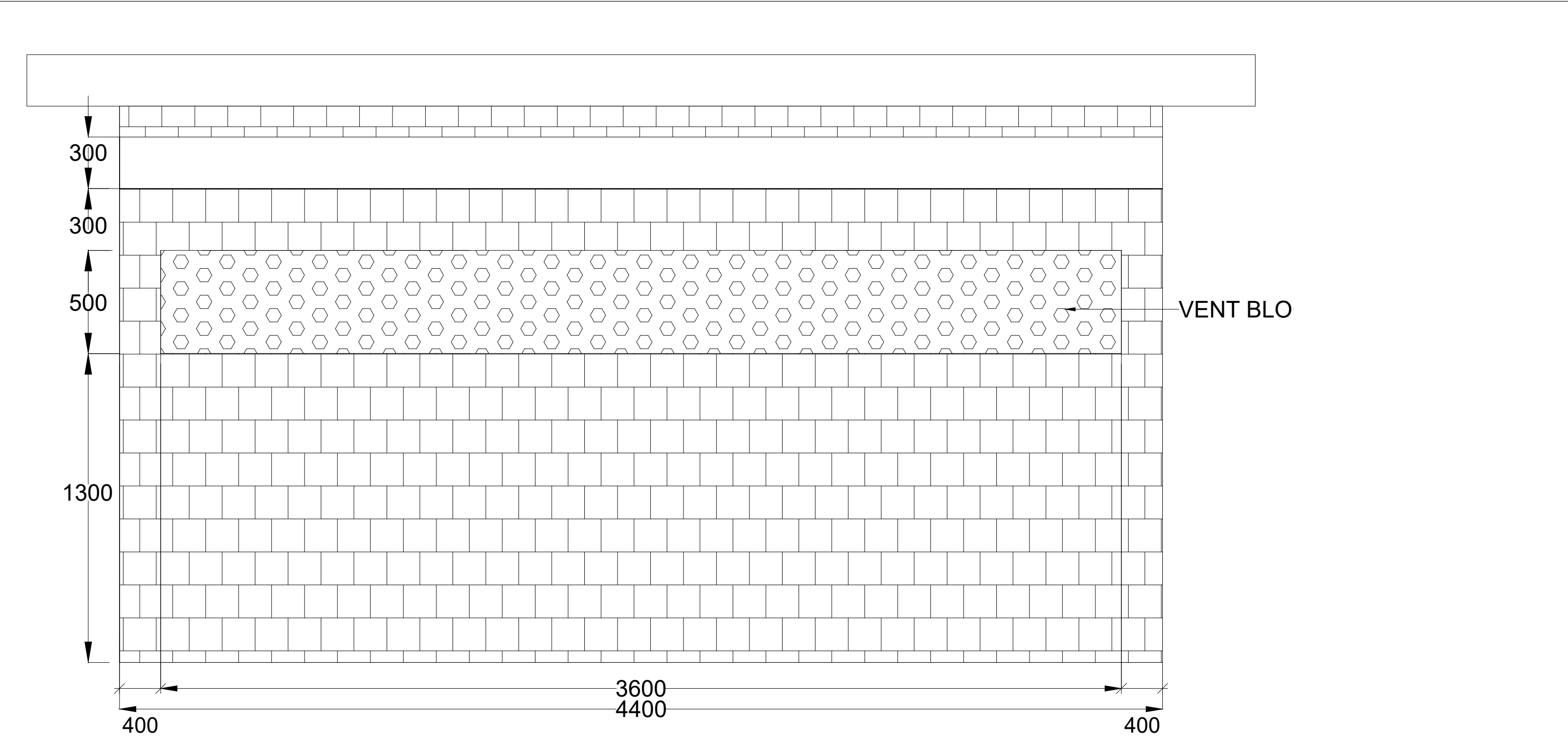
<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>13.METER CHAMBER BASE</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE: STANDARD DRAWINGS										
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	13.METER CHAMBER DETAILS			
							1	DRAFT DETAILED DESIGN		By							
				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By					SHEET 1 OF 1		
										Checked							
				Drawn by:	V.K	JUNE 2025				By						DRAWING SCALE: AS SHOWN	
										Checked							
				Checked by:	M.J	JUNE 2025				By							DRAWING No.: GW4R-WJR-STD-13
										Checked							
				Approved by:	D.L	JUNE 2025				By							
		Checked															



<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th colspan="5"></th></tr><tr><th rowspan="2">Action</th><th rowspan="2">Name</th><th rowspan="2">Date</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><th>1</th><th colspan="2">DRAFT DETAILED DESIGN</th><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">W.O</td><td rowspan="2">JUNE 2025</td><td rowspan="2">2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td colspan="2"></td><td>Checked</td><td></td><td></td><td></td></tr></table>							DESIGN DETAILS								Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	1	DRAFT DETAILED DESIGN		By				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By						Checked				Drawn by:	V.K	JUNE 2025				By						Checked				Checked by:	V.K	JUNE 2025				By						Checked				Approved by:	D.L	JUNE 2025				By						Checked			
			DESIGN DETAILS																																																																																																
			Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved																																																																																							
						1	DRAFT DETAILED DESIGN		By																																																																																										
			Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By																																																																																										
									Checked																																																																																										
			Drawn by:	V.K	JUNE 2025				By																																																																																										
									Checked																																																																																										
			Checked by:	V.K	JUNE 2025				By																																																																																										
									Checked																																																																																										
Approved by:	D.L	JUNE 2025				By																																																																																													
						Checked																																																																																													
<div>DRAWING TITLE:</div> <div>STANDARD DRAWINGS</div> <div>14.PLANT ROOM</div> <div>PLAN, SECTION, ELEVATION VIEWS</div> <div>AND FOUNDATION DETAILS</div> <div>SHEET 1 OF 1</div>																																																																																																			
<div>DRAWING SCALE:</div> <div>AS SHOWN</div>		<div>DRAWING No.:</div> <div>GW4R-WJR-STD-14.01</div>																																																																																																	



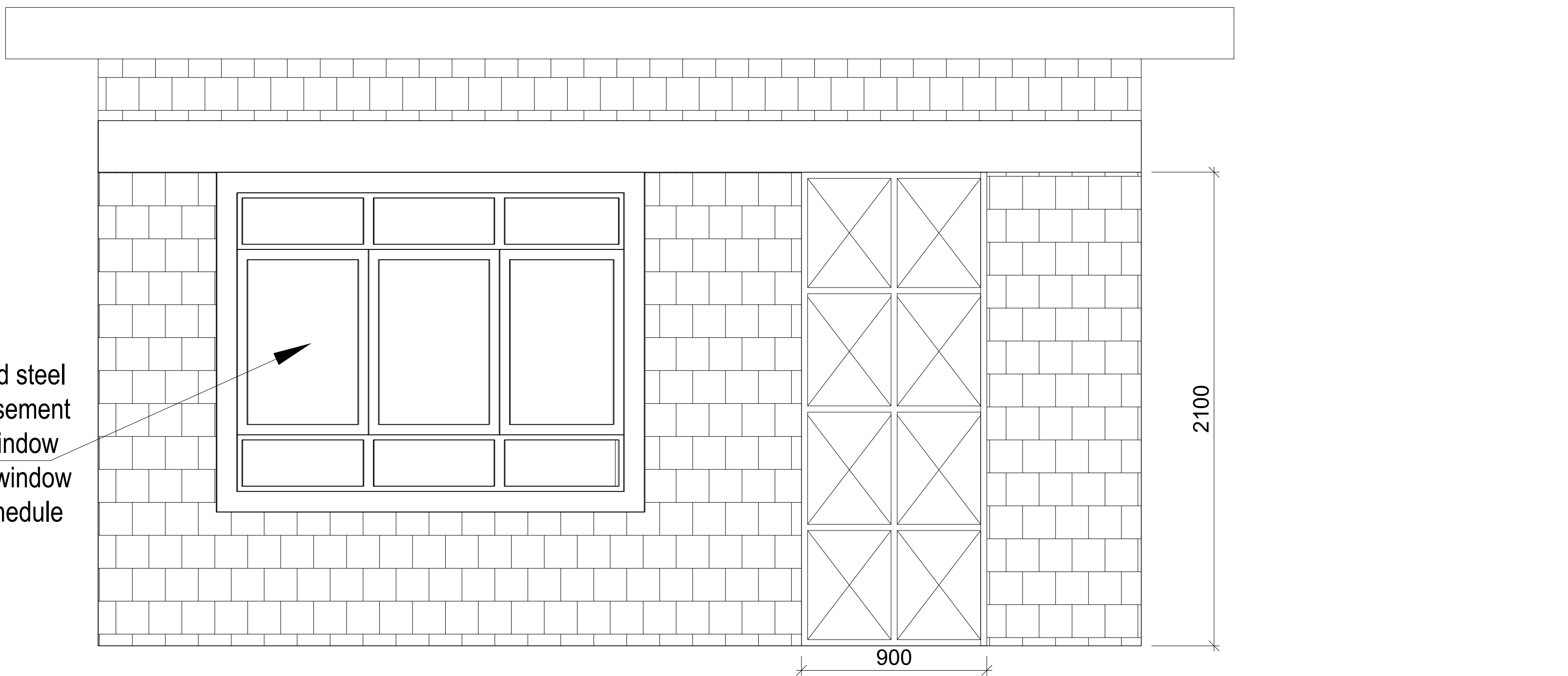
ELEVATION-1 SCALE 1:50



ELEVATION-2 SCALE 1:50

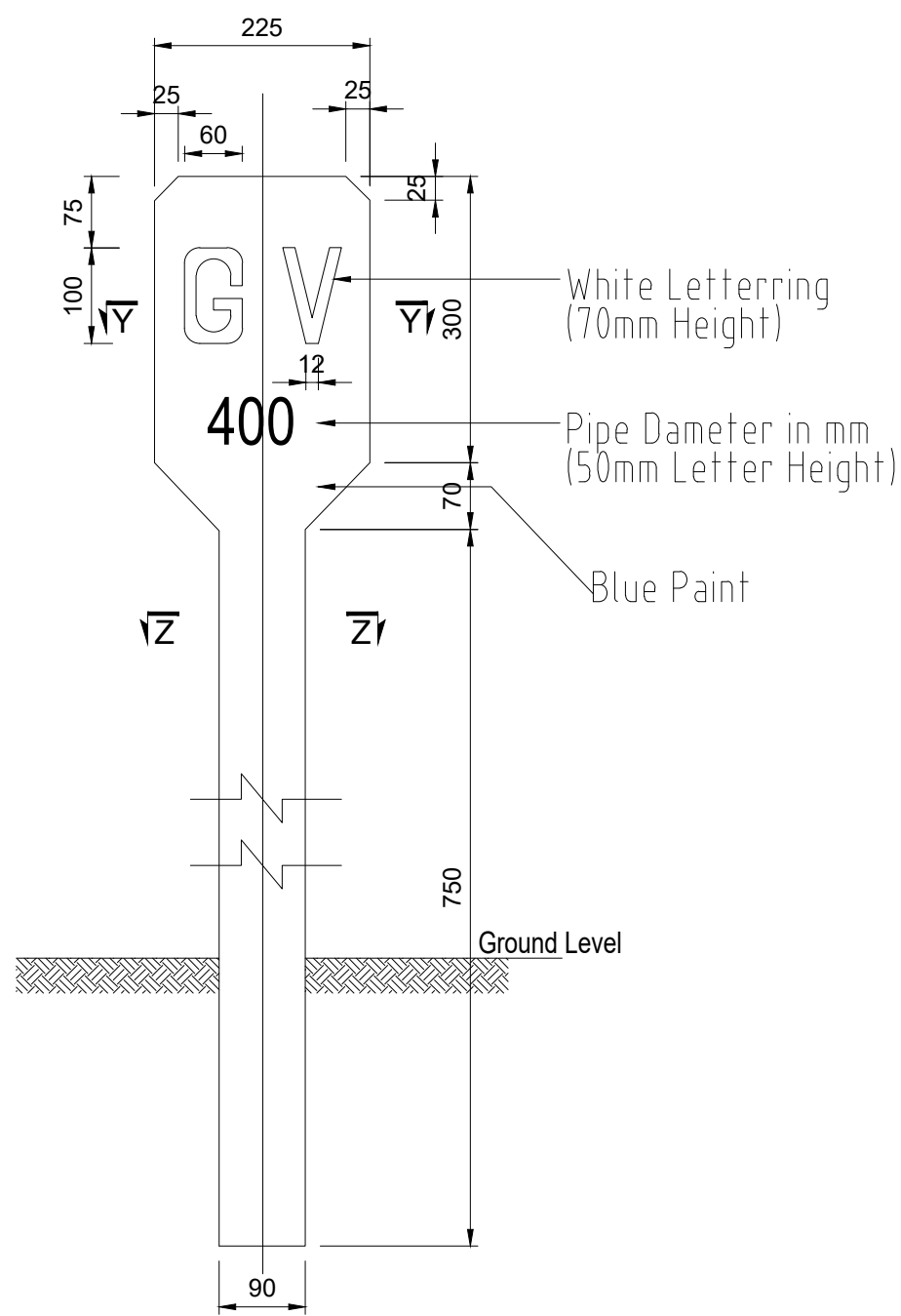


ELEVATION-3 SCALE 1:50

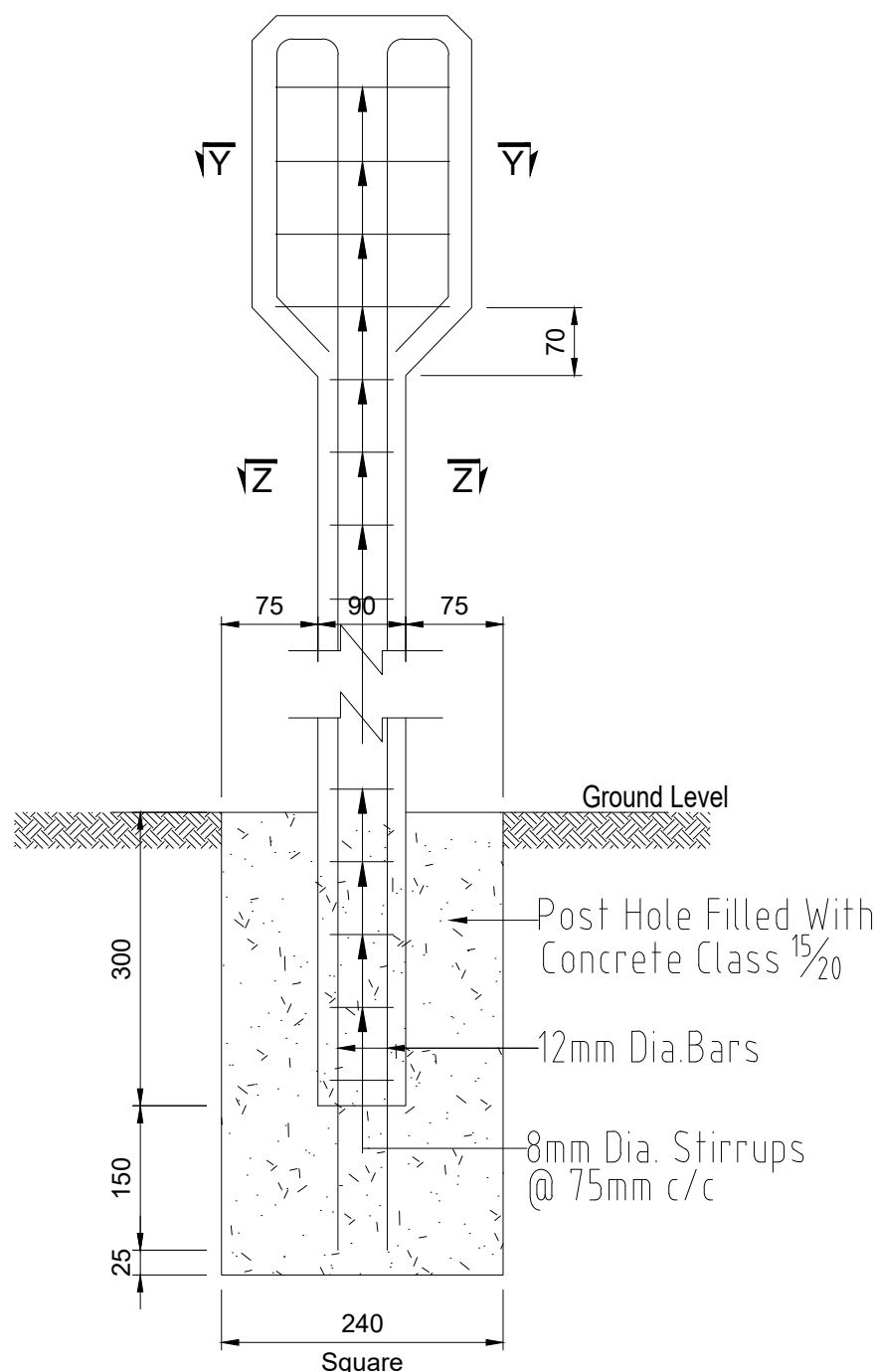


ELEVATION-4 SCALE 1:50

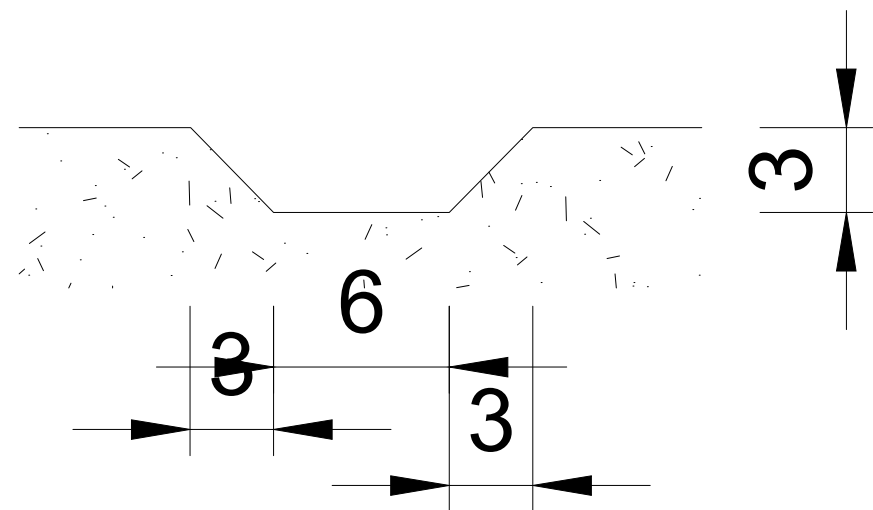
<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:								
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS 14.PLANT ROOM PLAN, SECTION, ELEVATION VIEWS AND FOUNDATION DETAILS SHEET 2 OF 2	
								DRAFT DETAILED DESIGN							
				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		Checked	By				
				Drawn by:	V.K	JUNE 2025				Checked	By				
				Checked by:	M.J	JUNE 2025				Checked	By				
				Approved by:	D.L	JUNE 2025				Checked	By				
DRAWING SCALE: AS SHOWN											DRAWING No.: GW4R-WJR-STD-14.02				



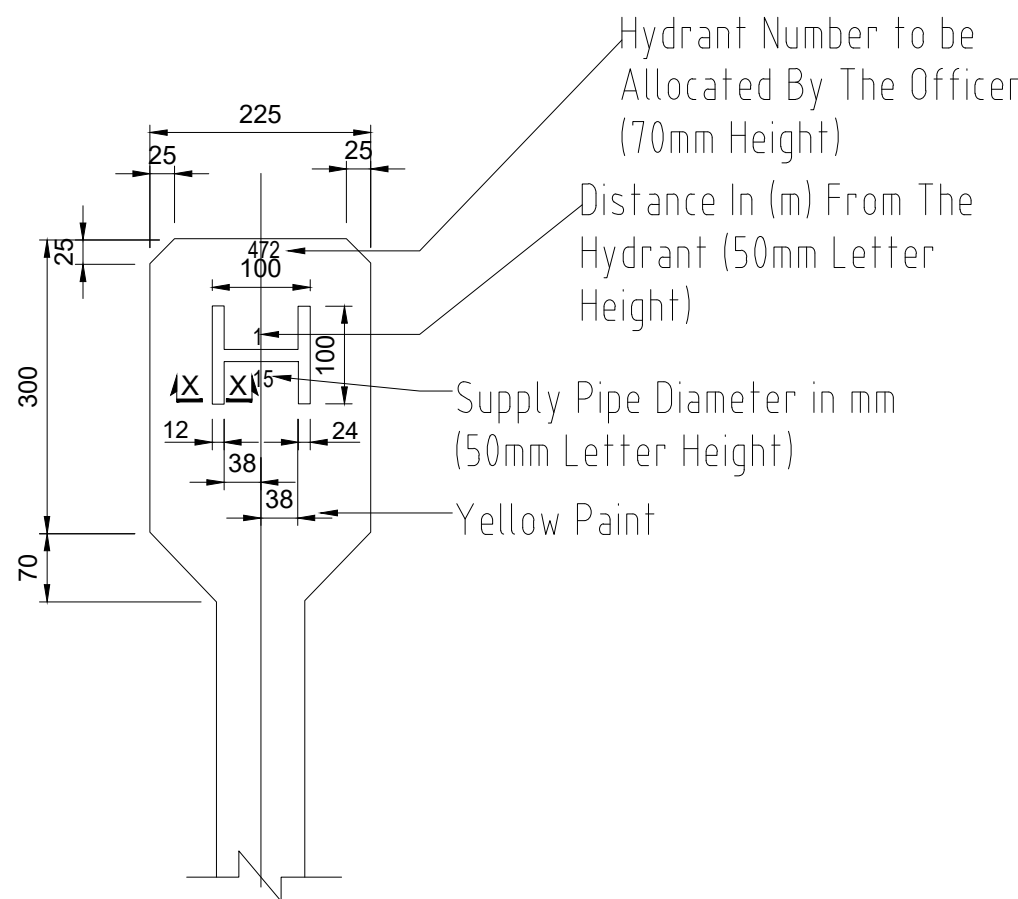
MARKER POST FOR GATE VALVE
(DISTRIBUTION NETWORK)
N.T.S



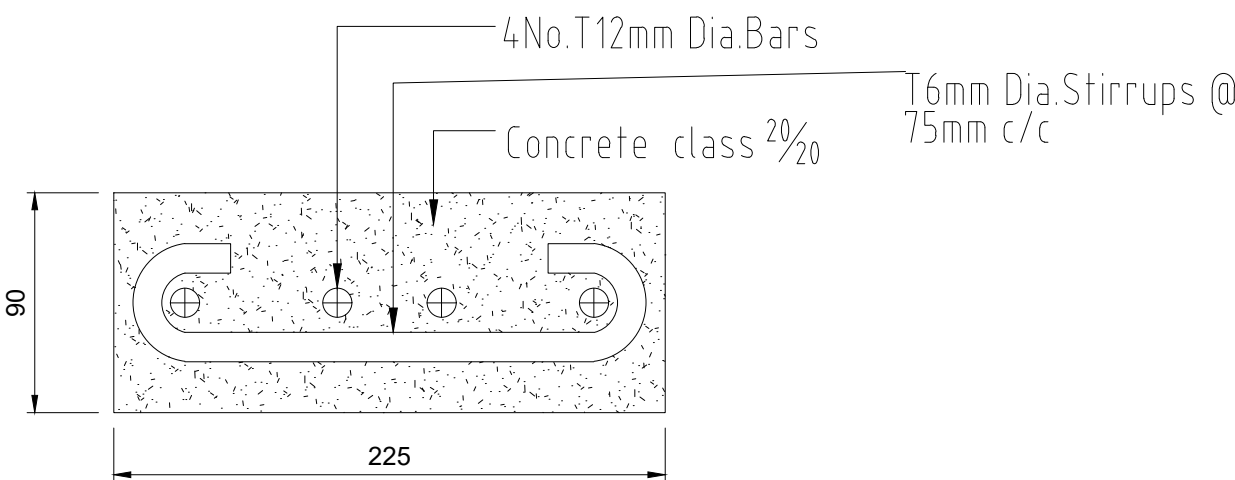
MARKER POST
REINFORCEMENT DETAILS
(DISTRIBUTION NETWORK)
N.T.S



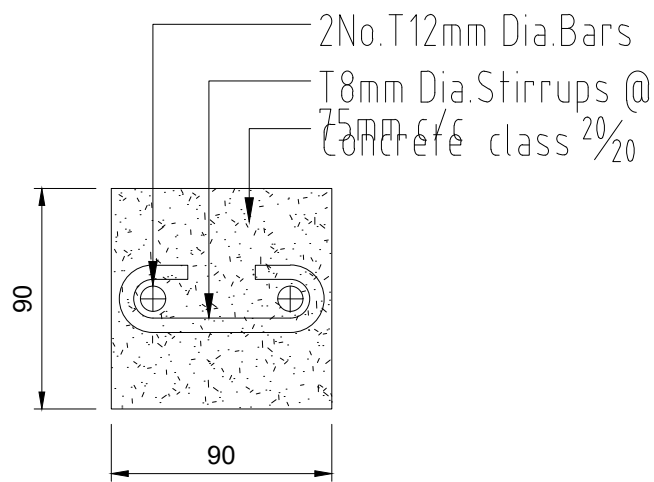
SECTION X-X
N.T.S



FIREHYDRANT POST
N.T.S



SECTION Y-Y
N.T.S



SECTION Z-Z
N.T.S

NOTE

- Details For Indicator Posts to be as Follows:

For	Use
Gate Valve	GV
Air Valve	AV
Washout	WO
Fire Hydrant	FH
Water Main	WM
Bulk Meter	M

- All Indicator Posts Except Fire Hydrant Posts to be Painted With 2 Coats of Blue Oil Based Paint And Lettering to Engineer's Approval.
- Maker Posts to be Positioned in Safe Locations Where Possible Against Boundary of Road Reserve.

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with
Advanced Engineering Consultants Ltd,
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com

DESIGN DETAILS

Action	Name	Date	No.	Revision Details		Reviewed	By	Initials	Date	Approved
				1	DRAFT DETAILED DESIGN					
Designed by:	W.O	JUNE 2025	2	2	FINAL DETAILED DESIGN	Checked	By			
Drawn by:	V.K	JUNE 2025				Checked	By			
Checked by:	M.J	JUNE 2025				Checked	By			
Approved by:	D.L	JUNE 2025				Checked	By			

DRAWING TITLE:

STANDARD DRAWINGS

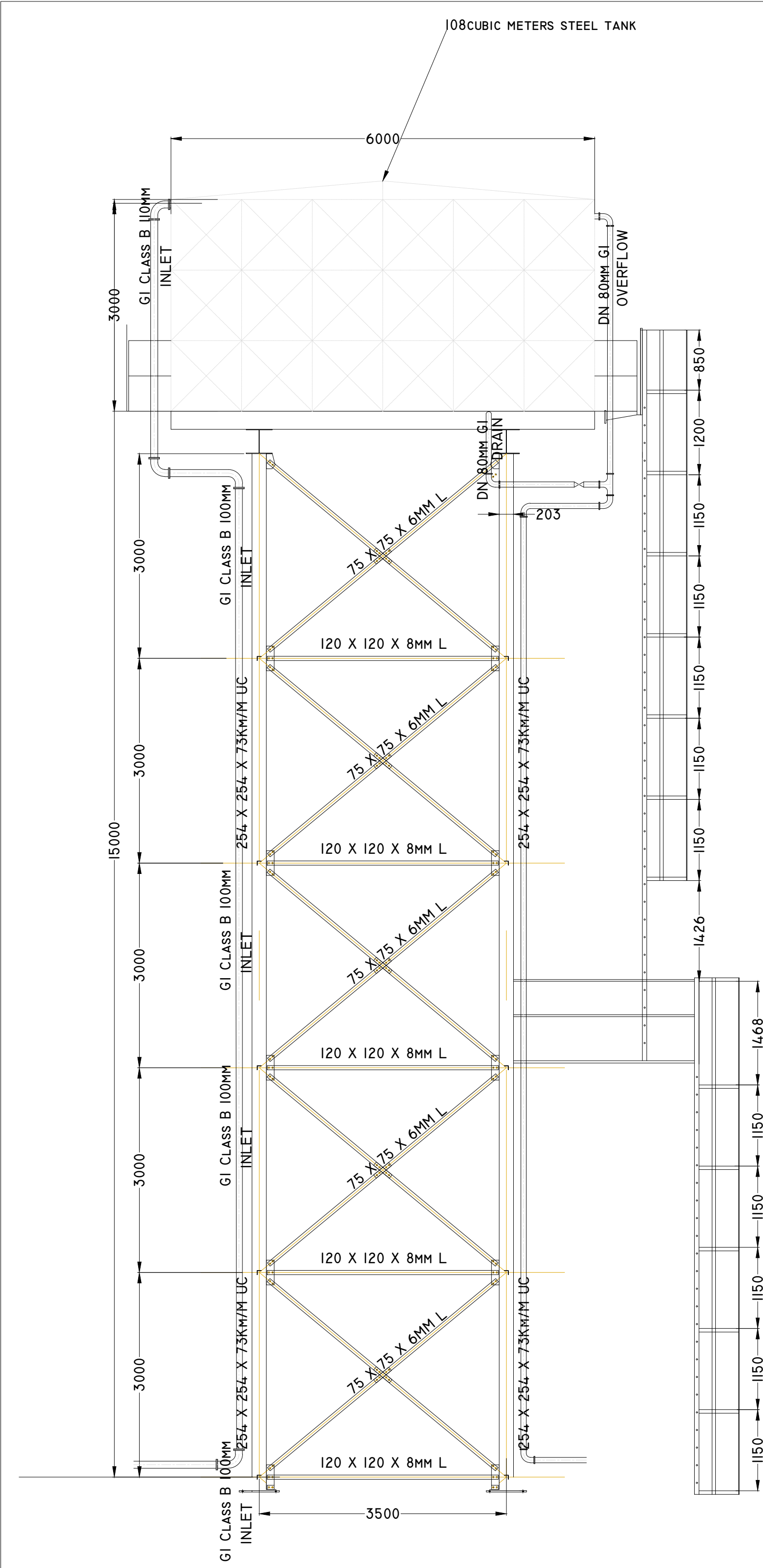
15.MARKER POST DETAILS

DRAWING SCALE:

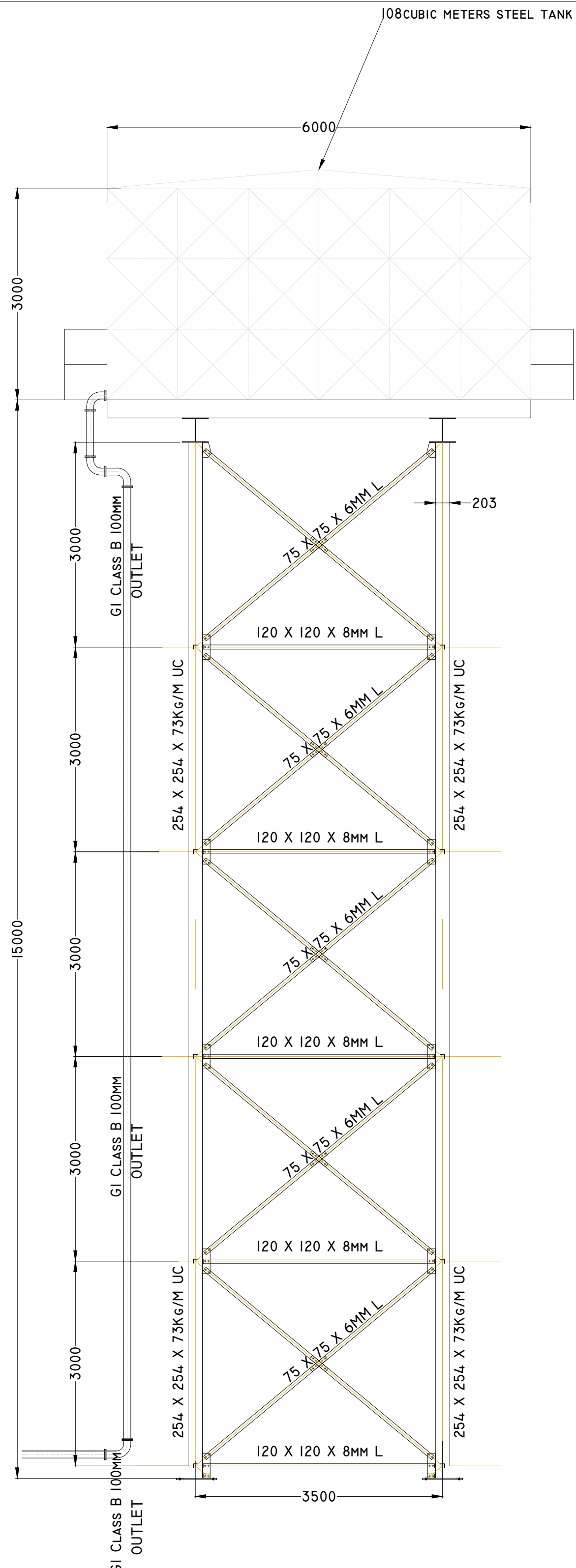
AS SHOWN

DRAWING No.:

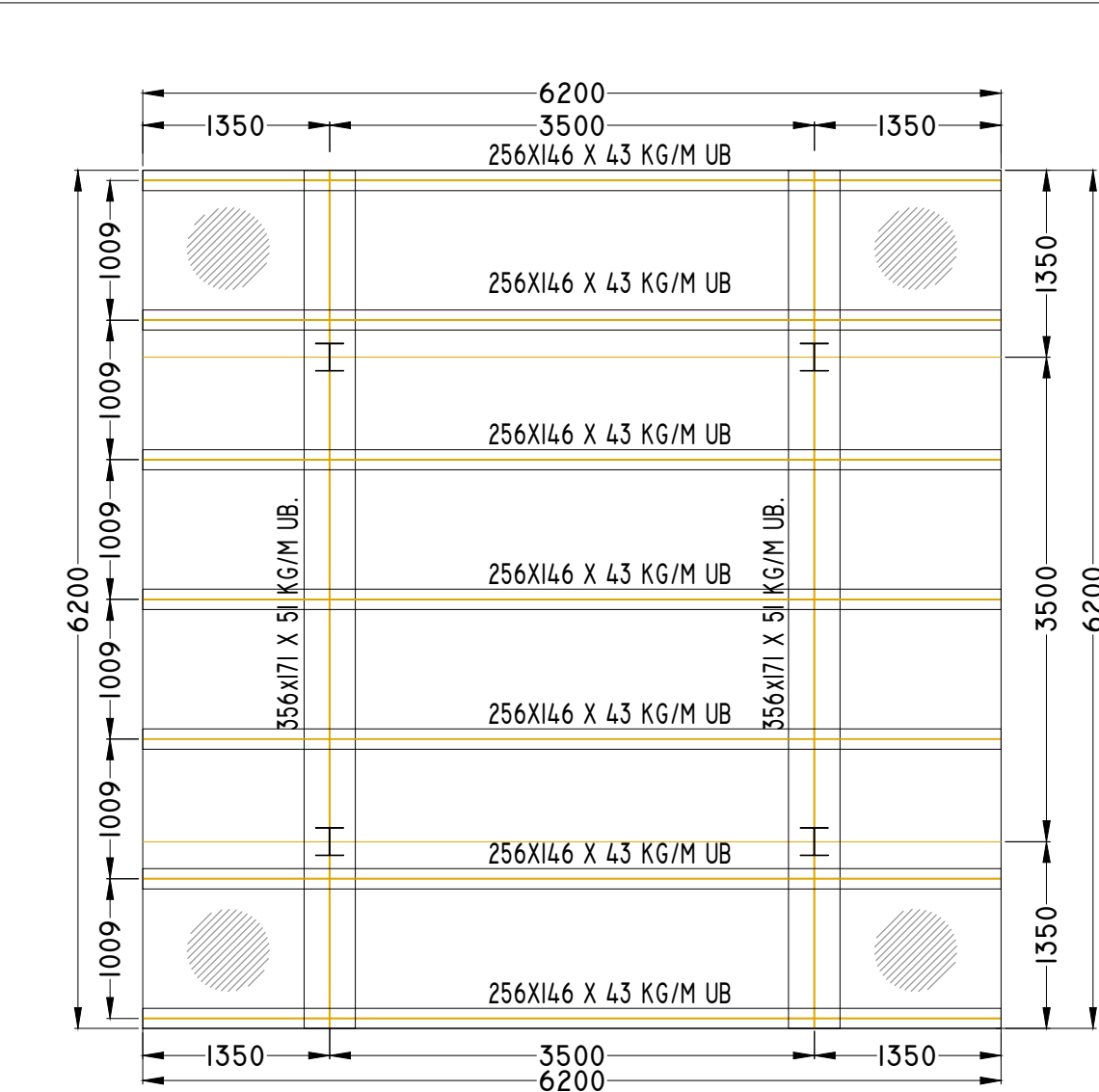
GW4R-WJR-STD-15



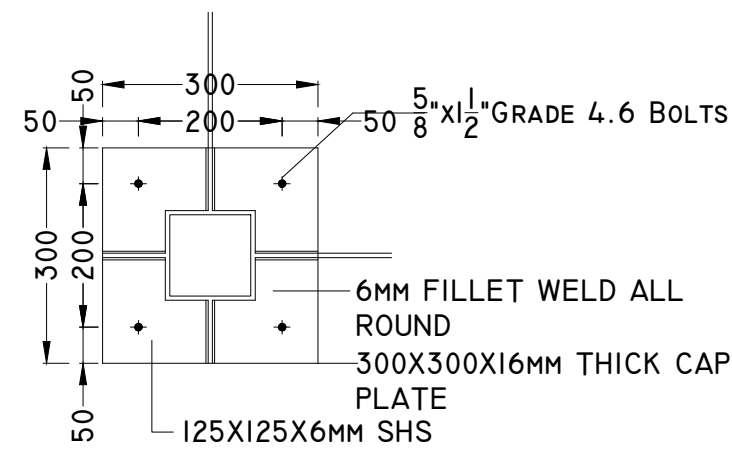
GENERAL ARRANGEMENT: FRONT VIEW
1:50



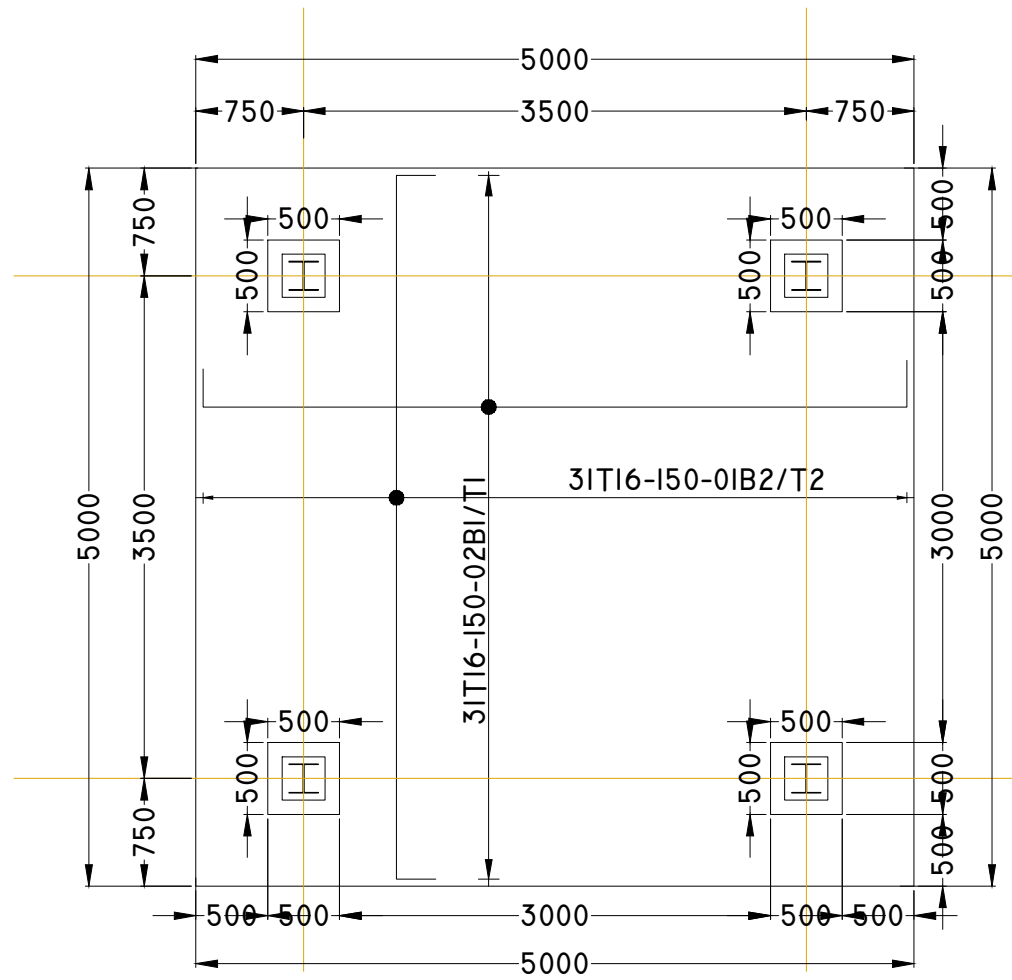
GENERAL ARRANGEMENT: SIDE VIEW
1:50



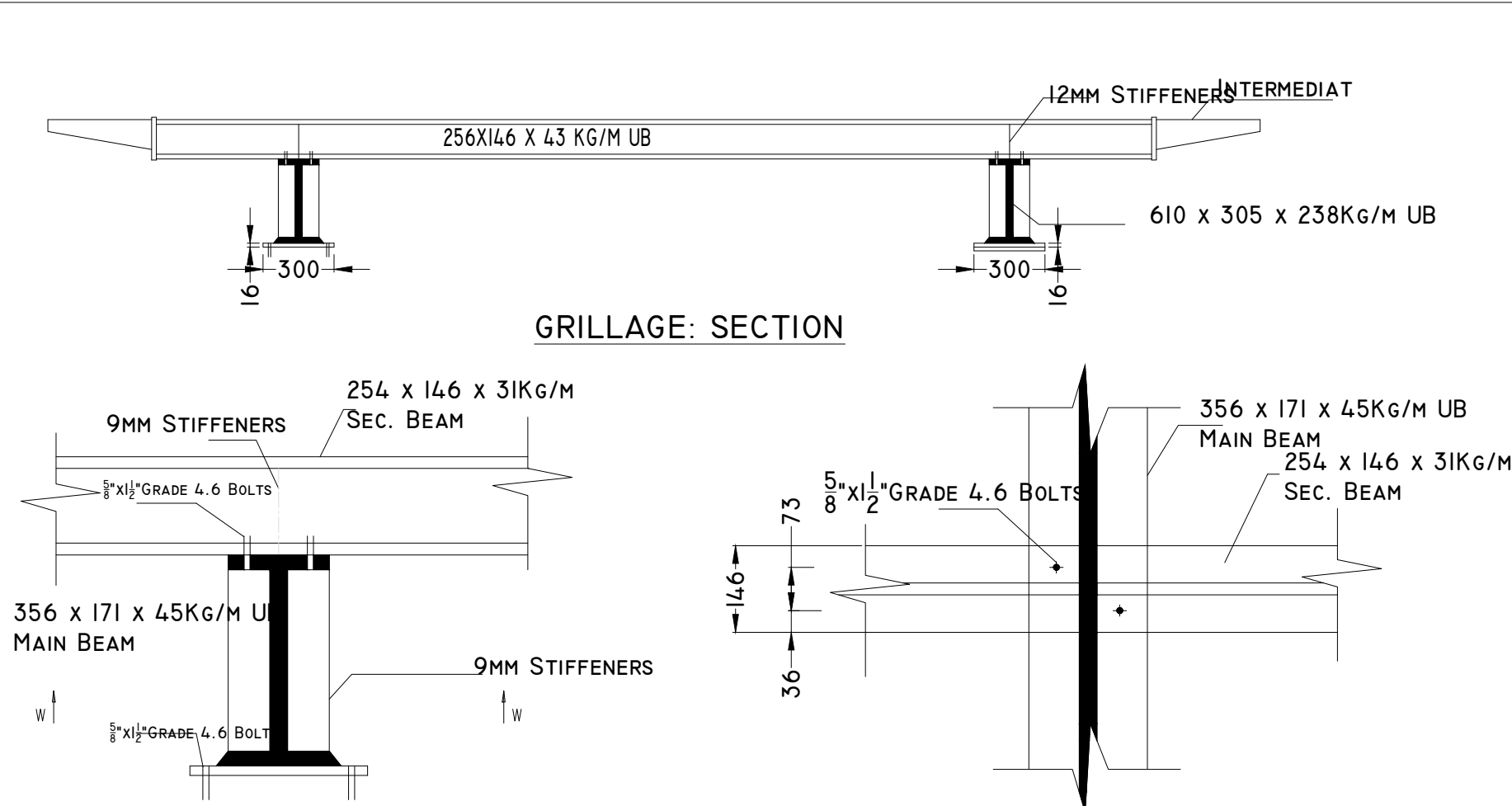
GRILLAGE: PLAN VIEW



VIEW 'XX'
CAP GUSSET DETAILS: PLAN

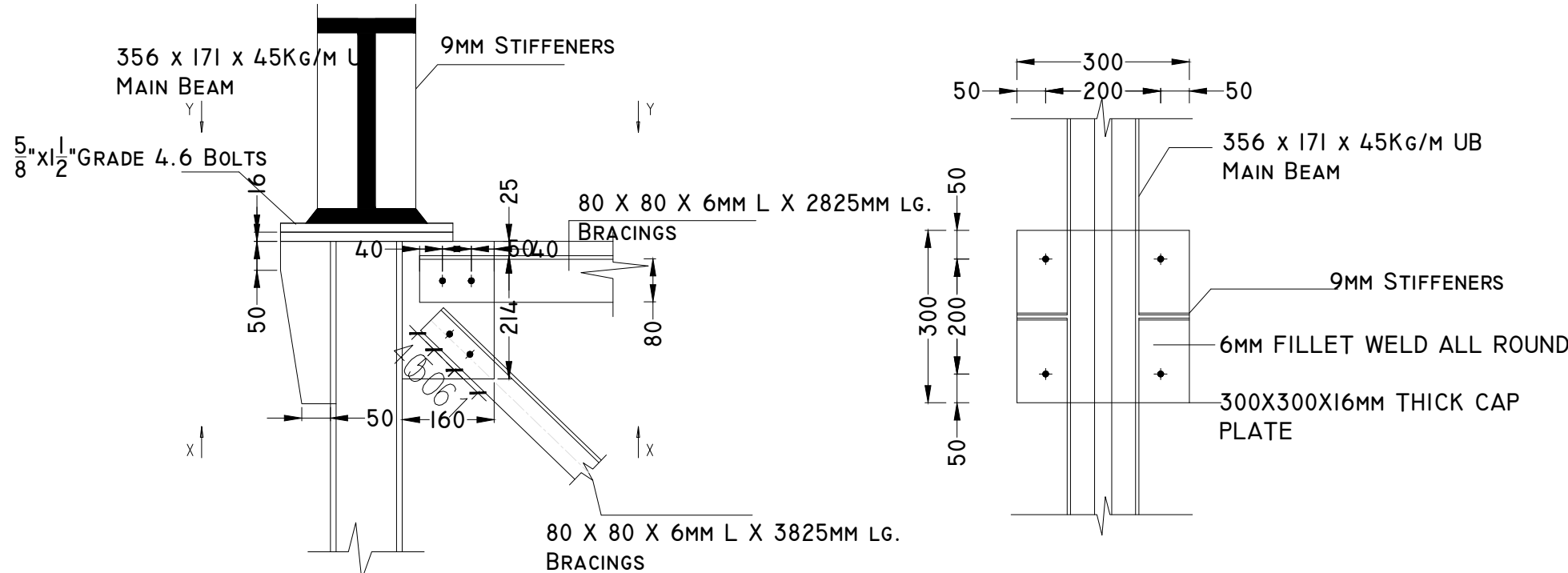


TANK TOWER FOUNDATION LAYOUT
(SCALE 1:25)

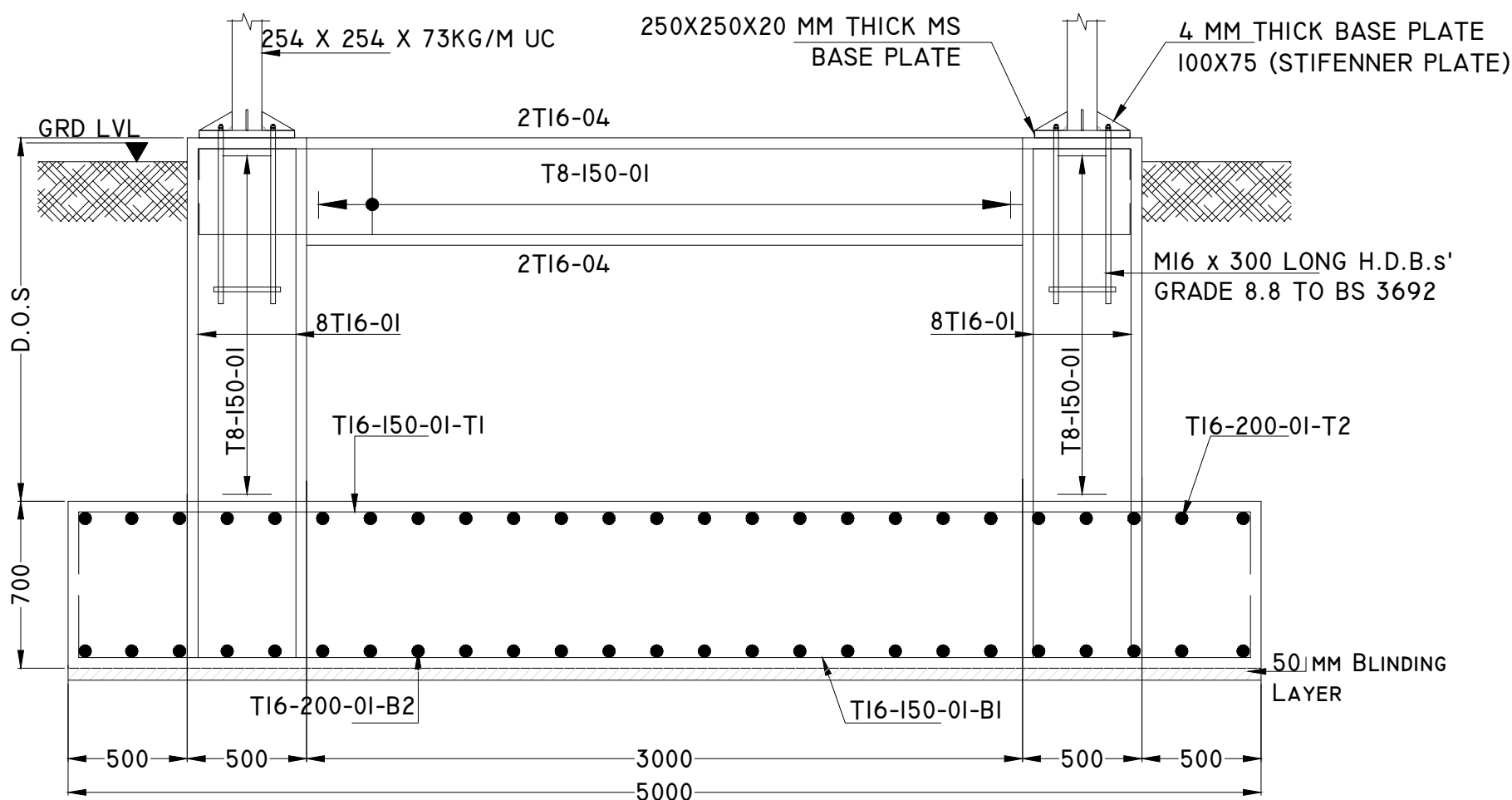


SEC.BEAM TO MAIN BEAM CONNECTION

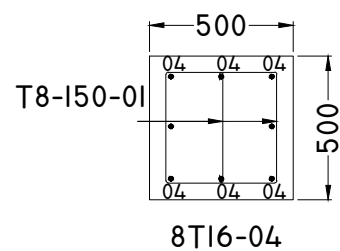
SEC.BEAM TO MAIN BEAM CONNECTION



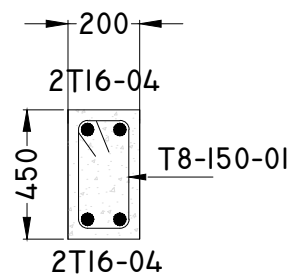
STANCHION TOP DETAILS
CAP GUSSET DETAILS: SECTION



SECTION B-B THROUGH BASE CB2

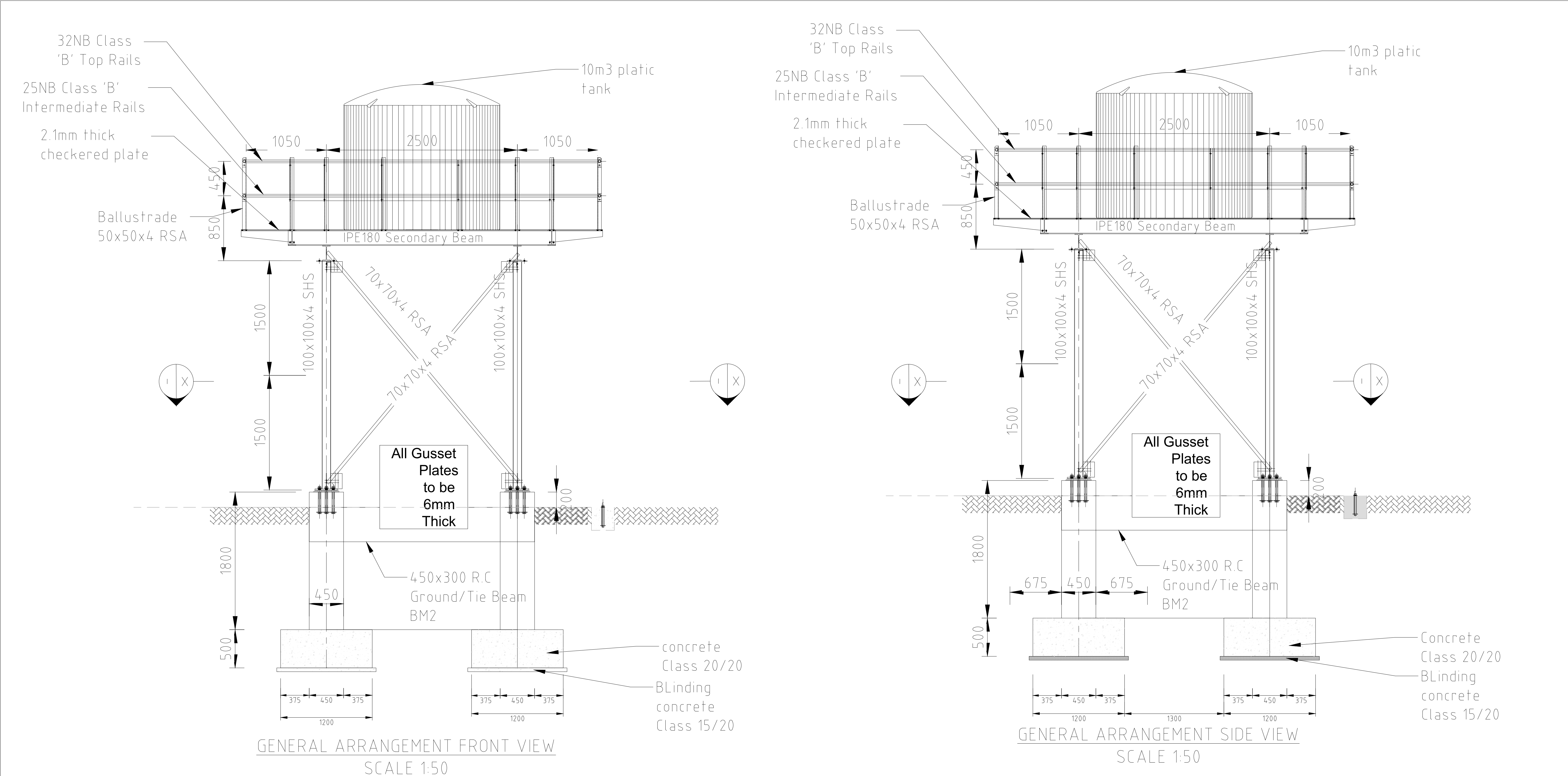


TYPICAL SECTION THROUGH
STUB COLUMN

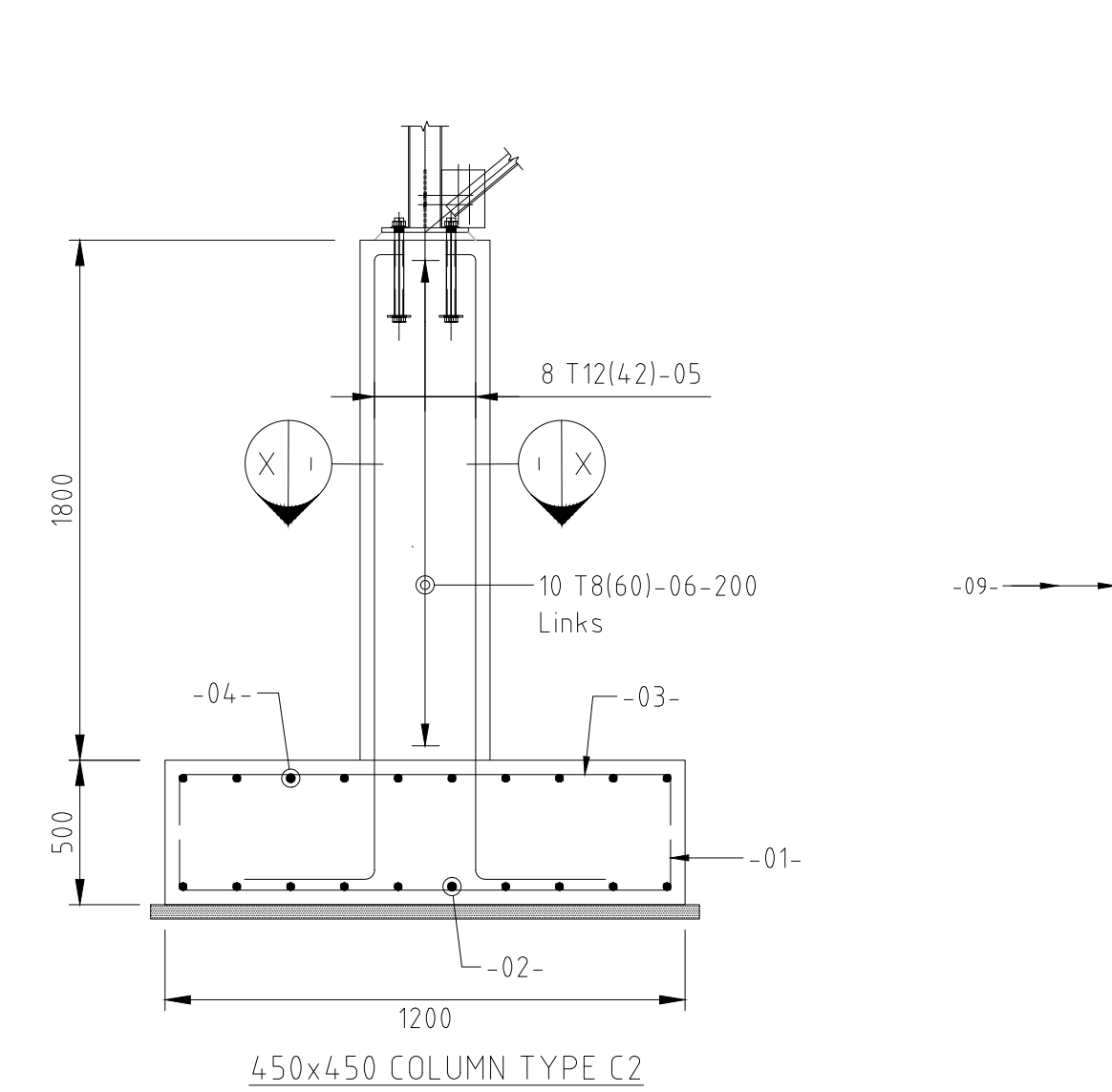


GROUND BEAM 450X200

CLIENT:  WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCIER:  THE WORLD BANK GROUP	PROJECT: CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR	CONSULTANT:   Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com	DESIGN DETAILS			DRAWING TITLE:						
		Action		Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS 16.ELEVATED STEEL TANK SHEET 1 OF 1
							DRAFT DETAILED DESIGN		By				
		Designed by:		W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By				
									Checked				
		Drawn by:		V.K	JUNE 2025				By				
									Checked				
		Checked by:		M.J	JUNE 2025				By				
									Checked				
		Approved by:		D.L	JUNE 2025				By				
			Checked										
Contract No: KE-WSTF-332741-CS-QCBS						DRAWING SCALE:		DRAWING No.:		AS SHOWN	GW4R-WJR-STD-16		

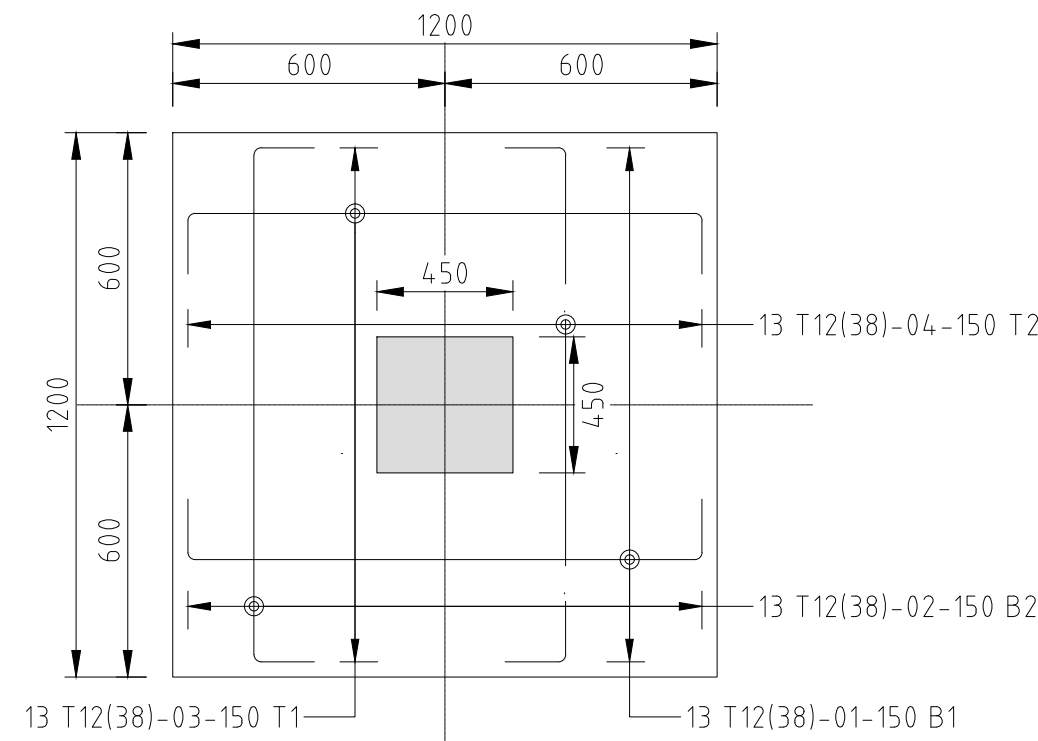


<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:							
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS 17.ELEVATED PLASTIC TANK SHEET 1 OF 3
							1	DRAFT DETAILED DESIGN		By				
				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By				
										Checked				
				Drawn by:	V.K	JUNE 2025				By				
										Checked				
				Checked by:	M.J	JUNE 2025				By				
										Checked				
				Approved by:	D.L	JUNE 2025				By				
		Checked												
						DRAWING SCALE:			DRAWING No.:	AS SHOWN GW4R-WJR-STD-17.01				



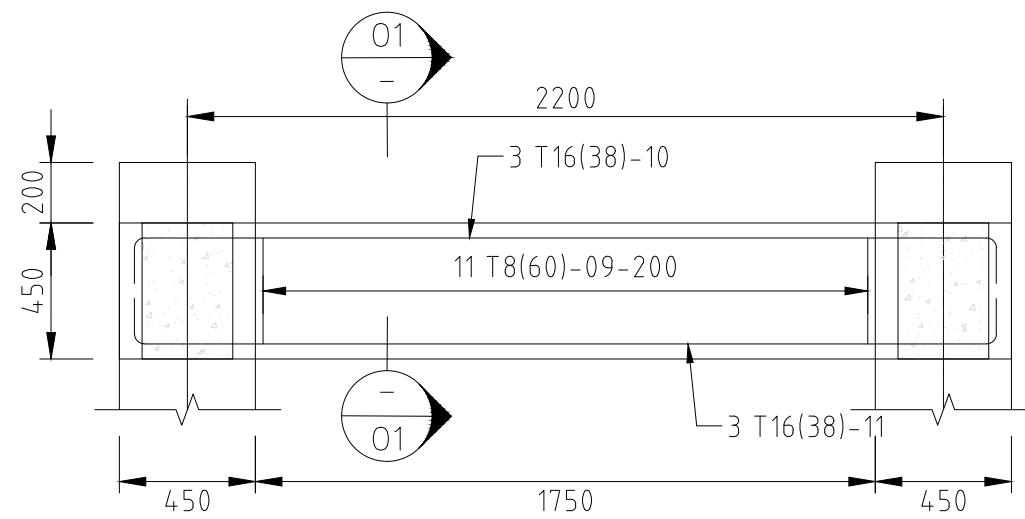
450x450 COLUMN TYPE C2

SCALE 1:25



1200x1200x500 COLUMN BASE TYPE C2 B2

SCALE 1:25

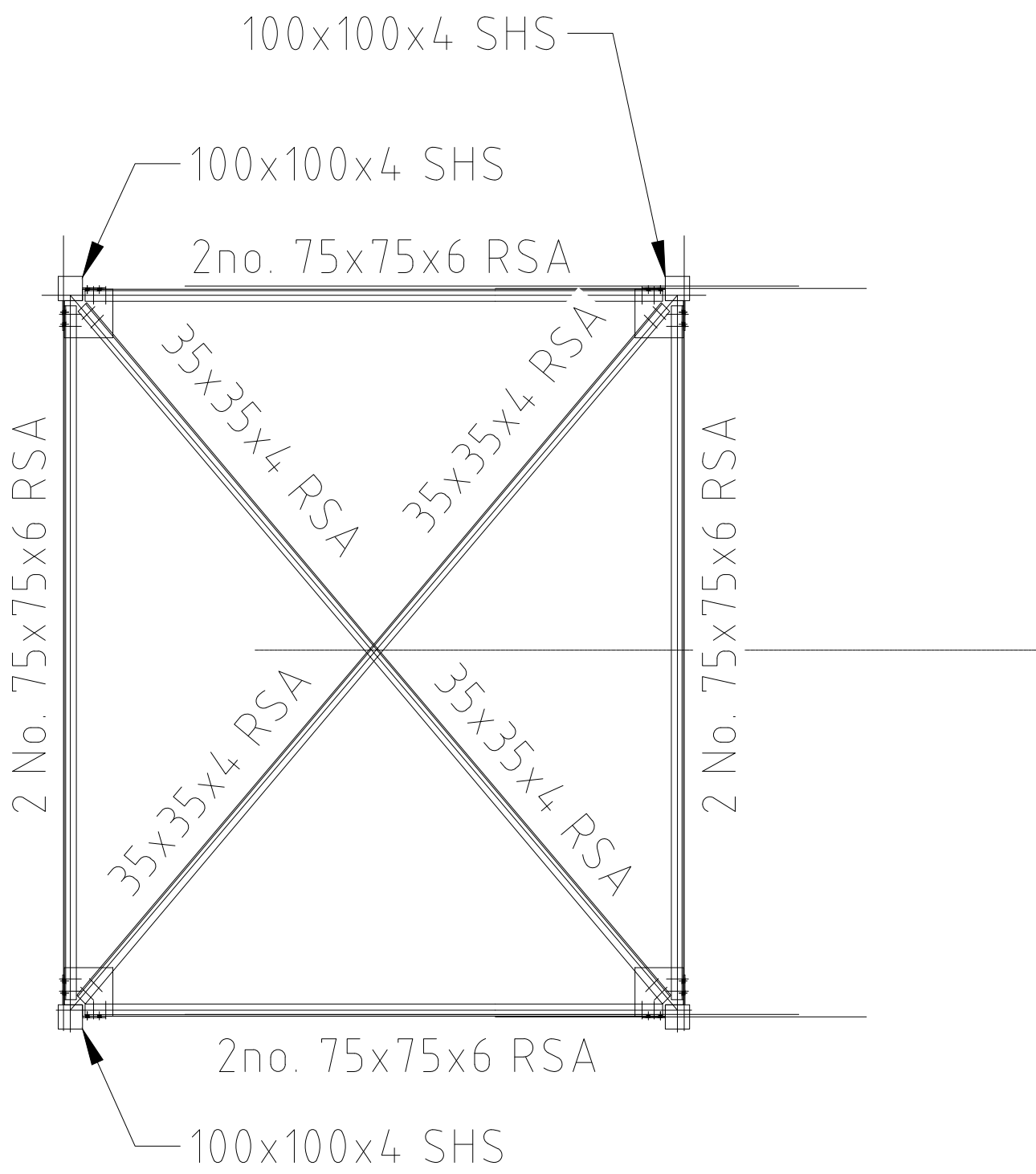


450x300 GROUND/ TIE BEAM TYPE

BM1

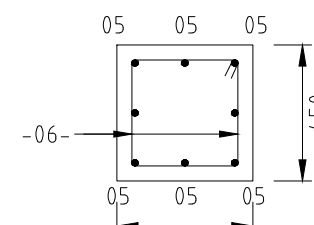
(4 No. THUS)

SCALE 1:25



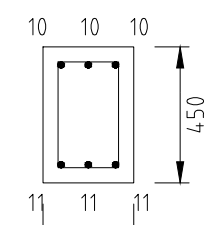
PLAN VIEW X-X

SCALE 1:50



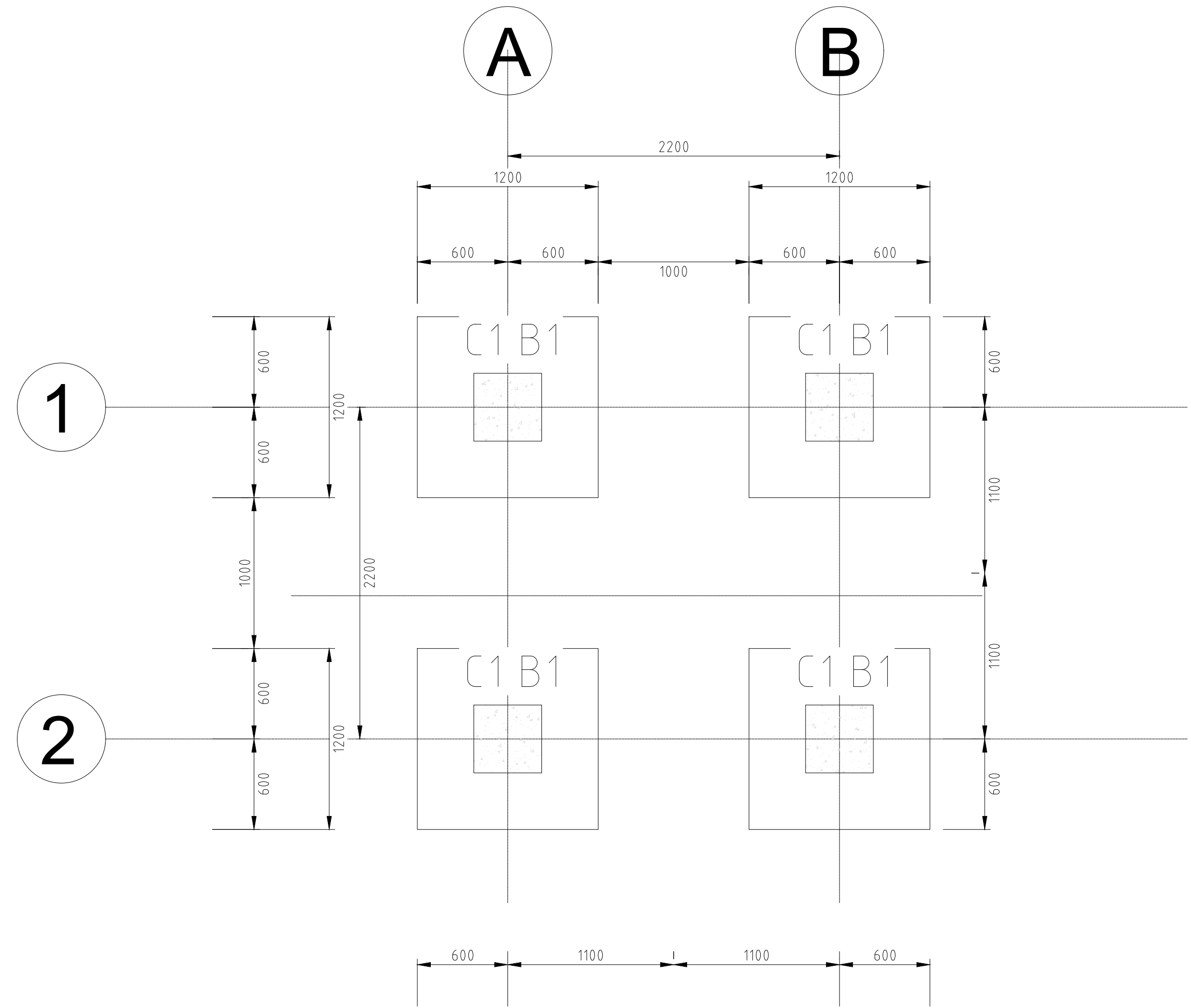
Section X-X

SCALE 1:20



Section 01-01

SCALE 1:20



ELEVATED WATER TANK TOWER (1 No.): FOUNDATION LAYOUT

SCALE 1:50

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY
STUDIES, DETAILED DESIGN, ENVIRONMENTAL &
SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND
CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON
THE REHABILITATION AND EXPANSION OF GROUNDWATER -
BASED RURAL WATER SUPPLY SYSTEMS IN THE
COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with

Advanced Engineering Consultants Ltd,

Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India

Telephone: +91-7966776800 / +254-714-198-805

Email: abhik@aarvee.net / info@aecglobal-ltd.com



DESIGN DETAILS

Action	Name	Date	No.	Revision Details		Reviewed	By	Checked	Initials	Date	Approved
				1	DRAFT DETAILED DESIGN						
Designed by:	W.O	JUNE 2025	2		FINAL DETAILED DESIGN						
Drawn by:	V.K	JUNE 2025									
Checked by:	M.J	JUNE 2025									
Approved by:	D.L	JUNE 2025									

DRAWING TITLE:

STANDARD DRAWINGS

17.Elevated Plastic Tank

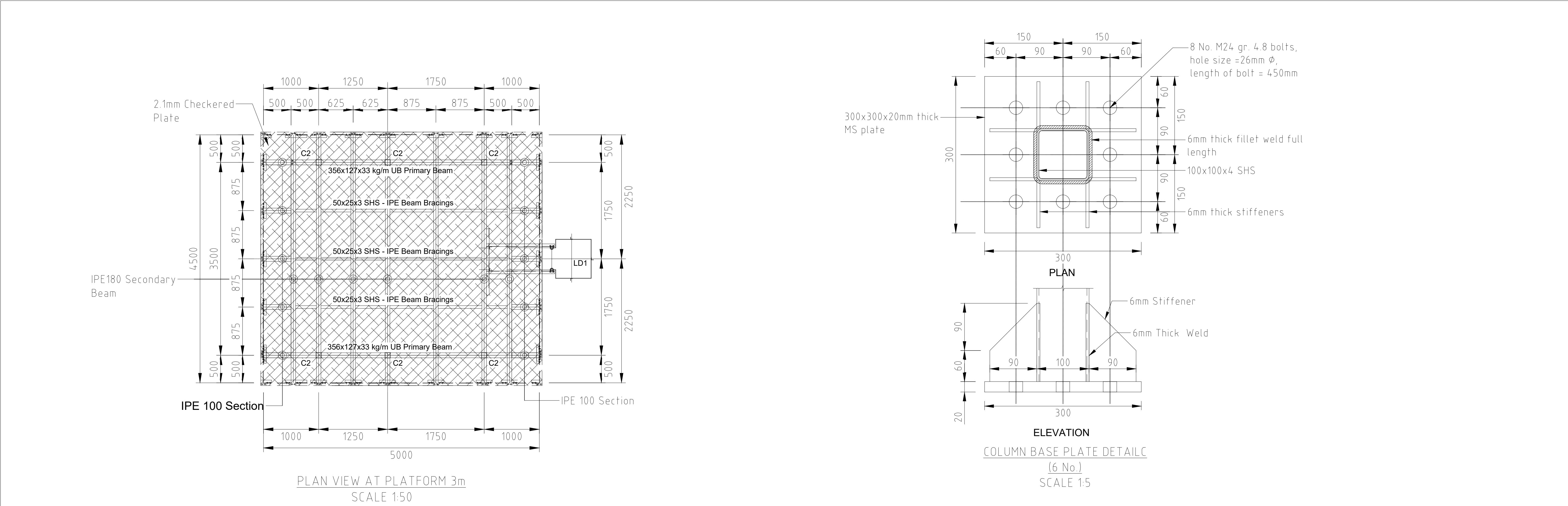
SHEET 2 of 3

DRAWING SCALE:

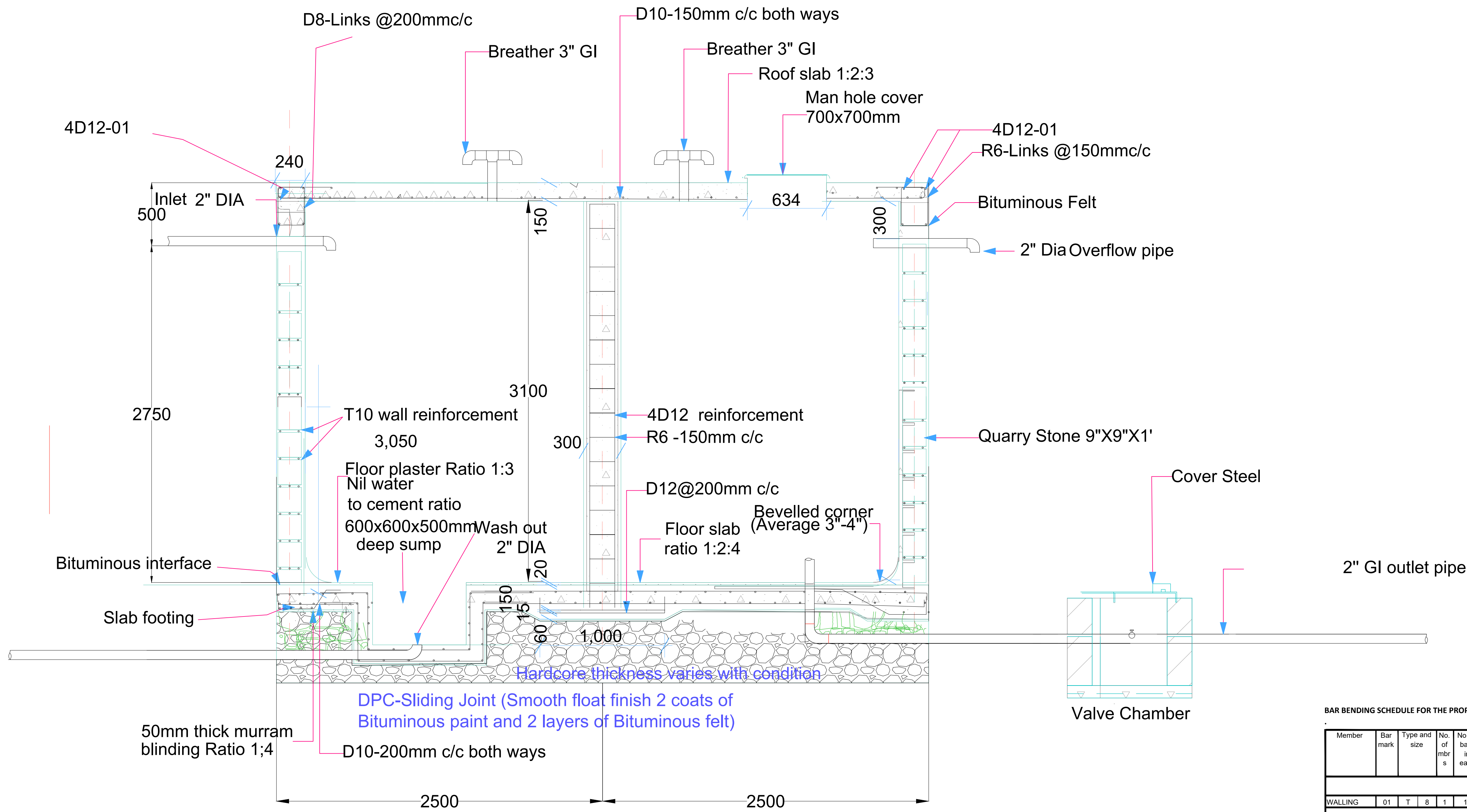
AS SHOWN

DRAWING No.:

GW4R-WJR-STD-17.02



<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:									
				No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS					
				Action	Name	Date	1	DRAFT DETAILED DESIGN		By						
							2	FINAL DETAILED DESIGN		By						
				Designed by:	W.O	JUNE 2025			Checked	By						
									Checked	By						
				Drawn by:	V.K	JUNE 2025			Checked	By						
									Checked	By						
				Checked by:	M.J	JUNE 2025			Checked	By				DRAWING SCALE: AS SHOWN	DRAWING No.: GW4R-WJR-STD-17.03	
									Checked	By						
Approved by:	D.L	JUNE 2025			Checked	By										
					Checked	By										

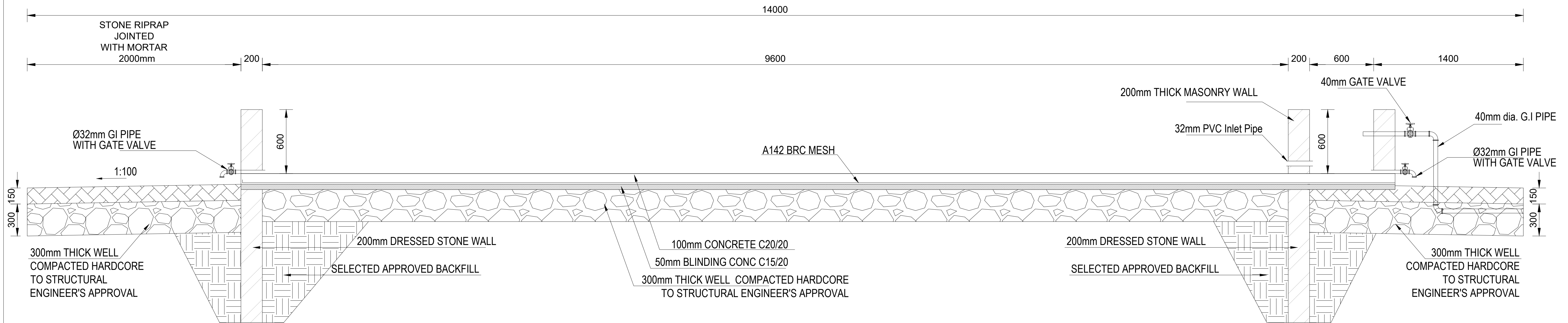


50M3 MASONRY TANK

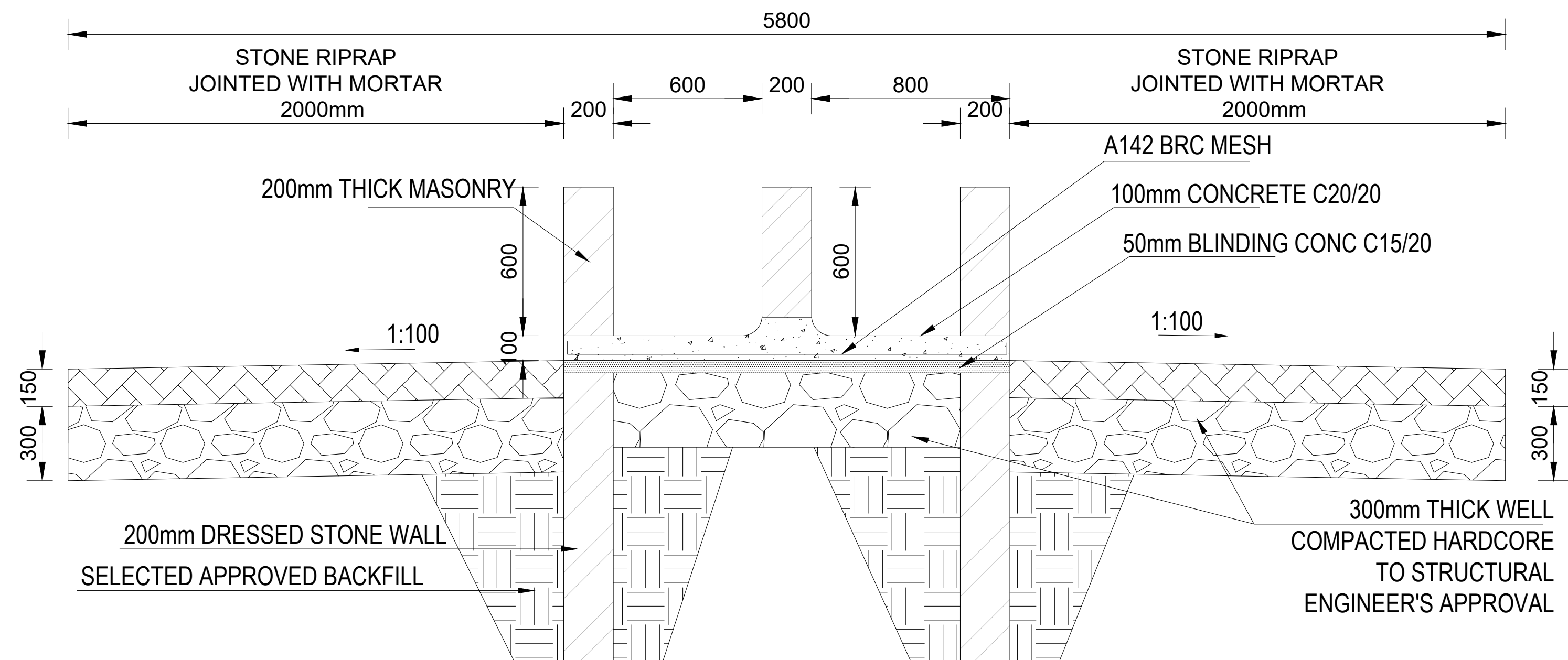
BAR BENDING SCHEDULE FOR THE PROPOSED 50M3 MASONRY TANK

Member	Bar mark	Type and size	No. of mbrs	No. of bars in each	Total no.	Length of each bar (mm)	Shape code	A* (mm)	B* (mm)	C* (mm)	D* (mm)	E/R*	TOTAL BAR LENGTH (M)
TANK WALLING													
WALLING	01	T	8	1	19	22000	20	12000					418
COLUMN BASE													
BASE,B1	02	T	12	6	6	12	1150	38	150	500	150		13.8
COLUMN													
CENTRE COLUMN,C1	01	T	12	2	2	8	3600	37	390	2100			28.8
COLUMN,C1 LINKS	02	R	6	1	11	11	900	61	410	160			9.90
BEAM													
BEAM,B1	01	T	12	1	4	6	24000	20	12000				144
BEAM,B1 LINKS	02	R	6	1	142	284	1000	61	410	160			284.00
FLOOR SLABS													
FLOOR SLAB	01	T	10	1	12	49	9300	55	800	250	9420	250	341.78
FLOOR SLAB	02	T	10	1	12	49	9300	55	800	250	9420	250	341.78
ROOF SLAB	03	T	10	1	8	50	9300	55	800	250	7070	250	348.75
SUMMARY													
SIZE	TOTAL LENGTH(M)		TOTAL BARS 12M EACH										
R6	294		24										
T8	418		35										
T10	1032		86										
T12	187		16										

<div>CLIENT:</div> <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No:</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:							
				Action	Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS 18.50M3 GROUND MASONRY TANK SHEET 1 OF 1
										By				
				Designed by:	W.O	JUNE 2025				Checked	By			
										By				
				Drawn by:	V.K	JUNE 2025				Checked	By			
										By				
Checked by:	M.J	JUNE 2025				Checked	By							
						By								
Approved by:	D.L	JUNE 2025				Checked	By							
						By								
						DRAWING SCALE:		DRAWING No.:						
						AS SHOWN		GW4R-WJR-STD-18						

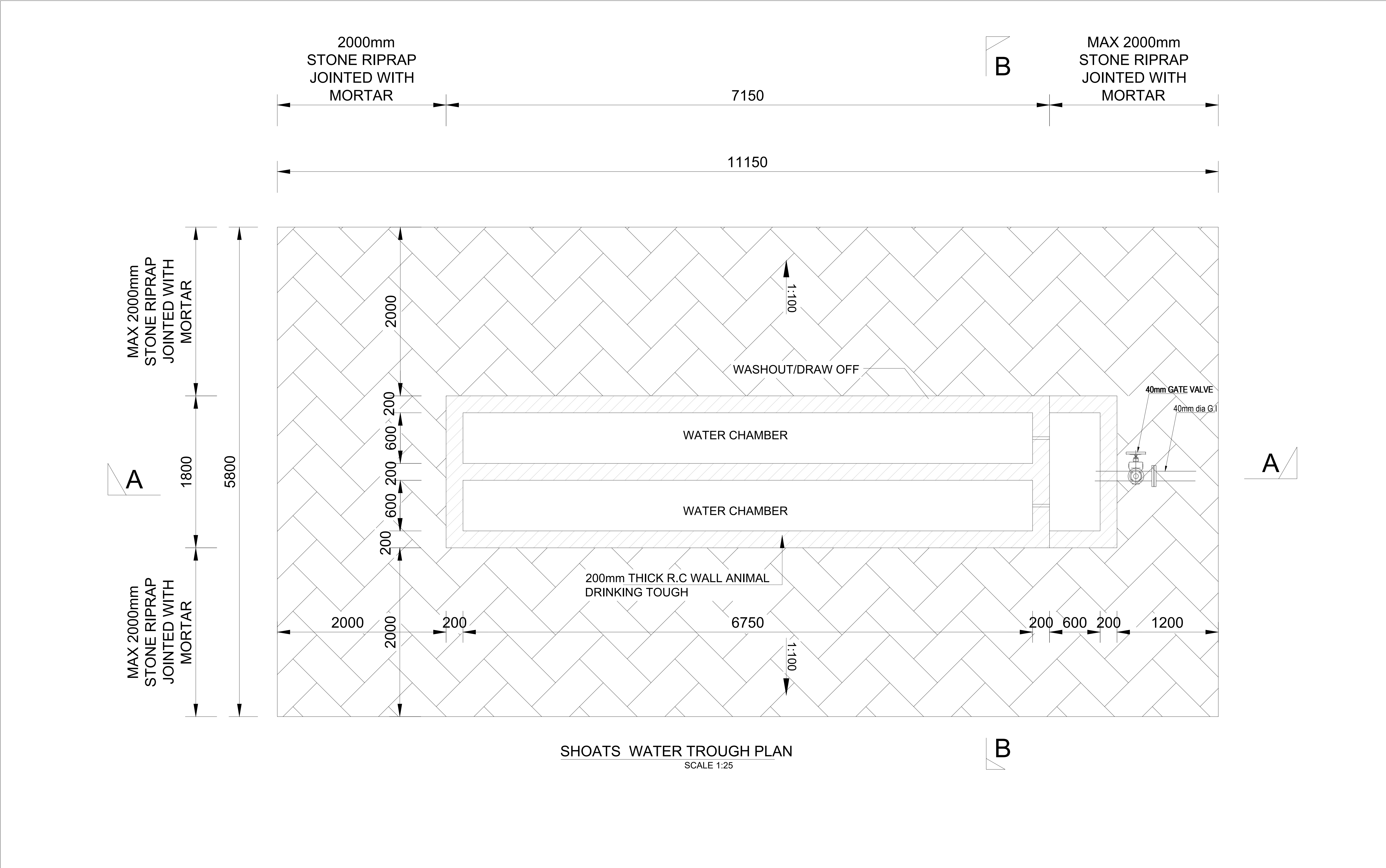


CATTLE AND CAMEL WATER TROUGH
SECTION A - A
SCALE 1:25

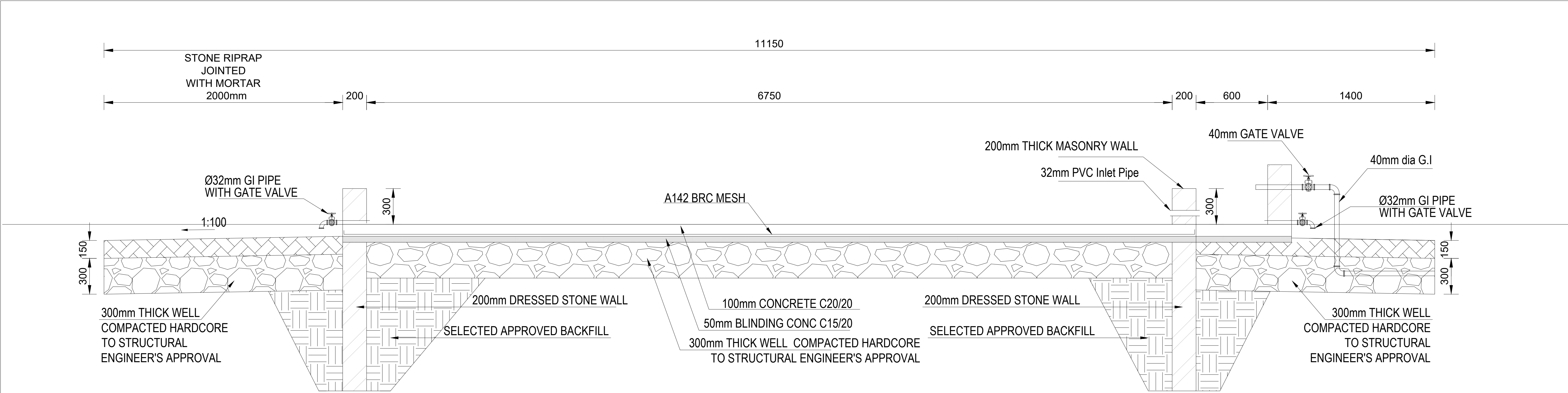


CATTLE AND CAMEL WATER TROUGH
SECTION B - B
SCALE 1:25

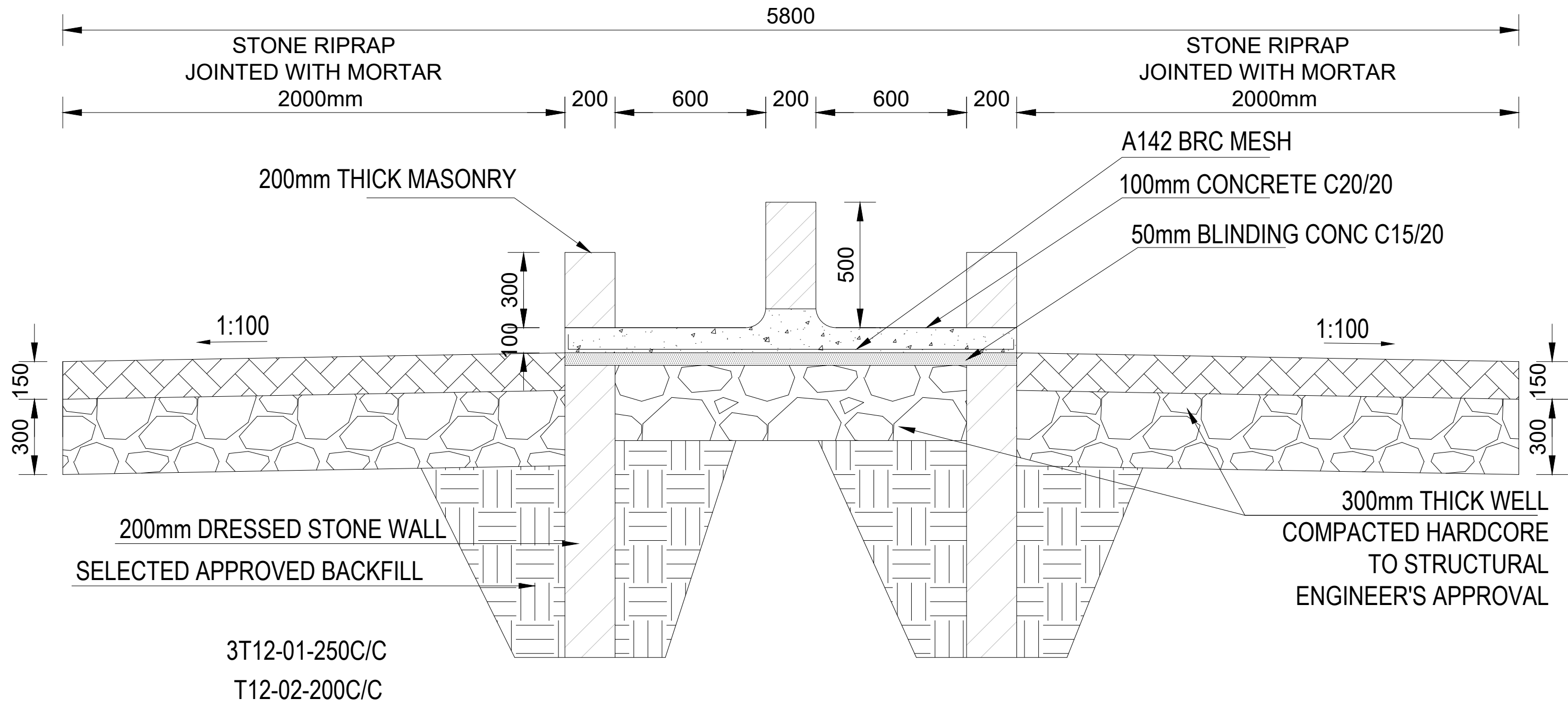
CLIENT:  WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.	FINANCER:  THE WORLD BANK GROUP	PROJECT:	CONSULTANT:	DESIGN DETAILS							DRAWING TITLE:					
		CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR	 Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com		No.			Revision Details		Reviewed	Initials	Date	Approved	STANDARD DRAWINGS 19.WATER TROUGHS CAMEL AND CATTLE CROSS SECTIONAL ELEVATIONS SHEET 2 OF 4		
					Action	Name	Date	1	DRAFT DETAILED DESIGN		By					
					Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By					
					Drawn by:	V.K	JUNE 2025			By						
					Checked by:	M.J	JUNE 2025			By						
					Approved by:	D.L	JUNE 2025			By						
Contract No:	KE-WSTF-332741-CS-QCBS											DRAWING SCALE:	DRAWING NO.:			
												AS SHOWN	GW4R-WJR-STD-19.02			



<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:								
				Action	Name	Date	No.	Revision Details		Reviewed	By	initials	Date	Approved	
								DRAFT DETAILED DESIGN							
				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		Checked	By				
				Drawn by:	V.K	JUNE 2025				Checked	By				
				Checked by:	M.J	JUNE 2025				Checked	By				
				Approved by:	D.L	JUNE 2025				Checked	By				
DRAWING SCALE:												DRAWING No.:			
AS SHOWN												GW4R-WJR-STD-19.03			

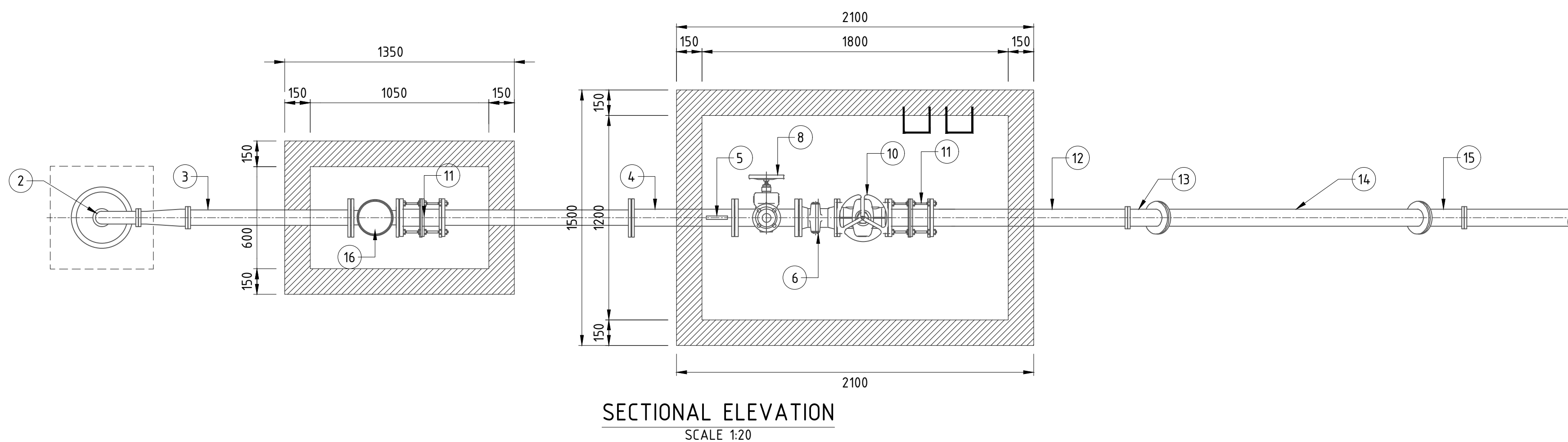


SHOATS WATER TROUGH
SECTION A - A
SCALE 1:25

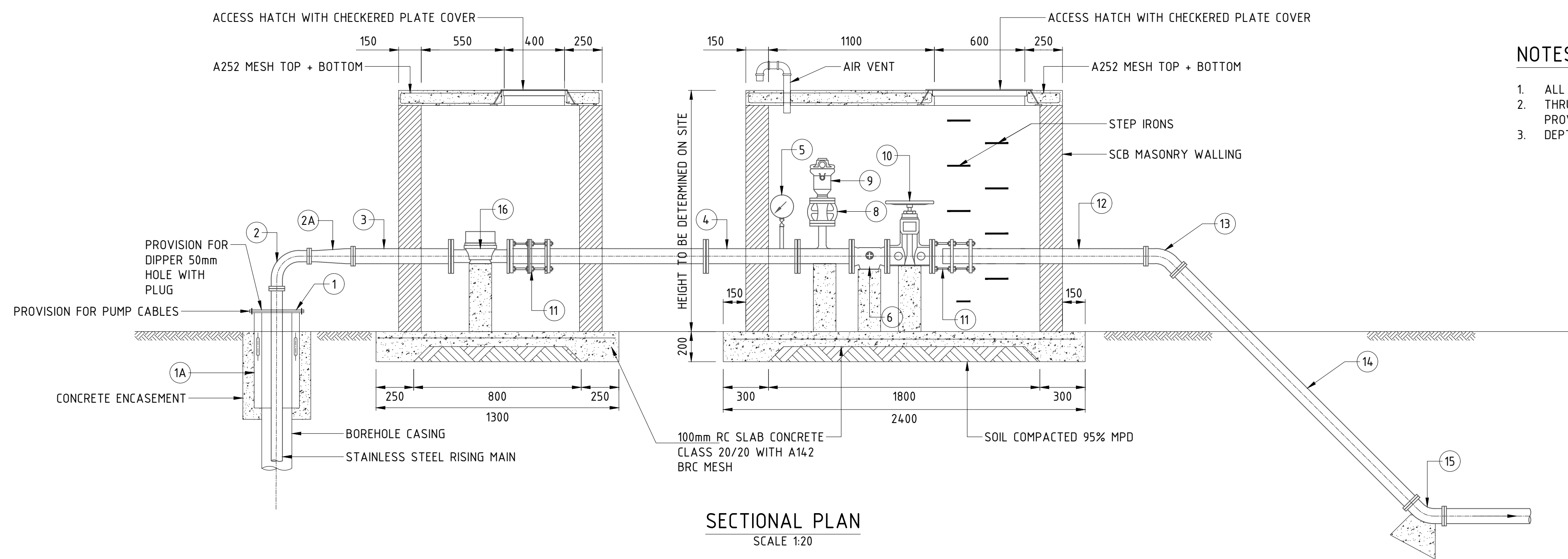


SHOATS WATER TROUGH
SECTION B - B
SCALE 1:25

<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div></div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd. Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS							DRAWING TITLE:						
		Action		Name	Date	No.	Revision Details		Reviewed	initials	Date	Approved	STANDARD DRAWINGS				
							DRAFT DETAILED DESIGN										
		Designed by:		W.O	JUNE 2025	2	FINAL DETAILED DESIGN		Checked	By					19.WATER TROUGHS SHOATS CROSS SECTIONAL ELEVATIONS SHEET 4 OF 4		
		Drawn by:		V.K	JUNE 2025				Checked	By			DRAWING SCALE: AS SHOWN				DRAWING No.: GW4R-WJR-STD-19.04
		Checked by:		M.J	JUNE 2025				Checked	By							
		Approved by:		D.L	JUNE 2025				Checked	By							
Contract No:		KE-WSTF-332741-CS-QCBS															



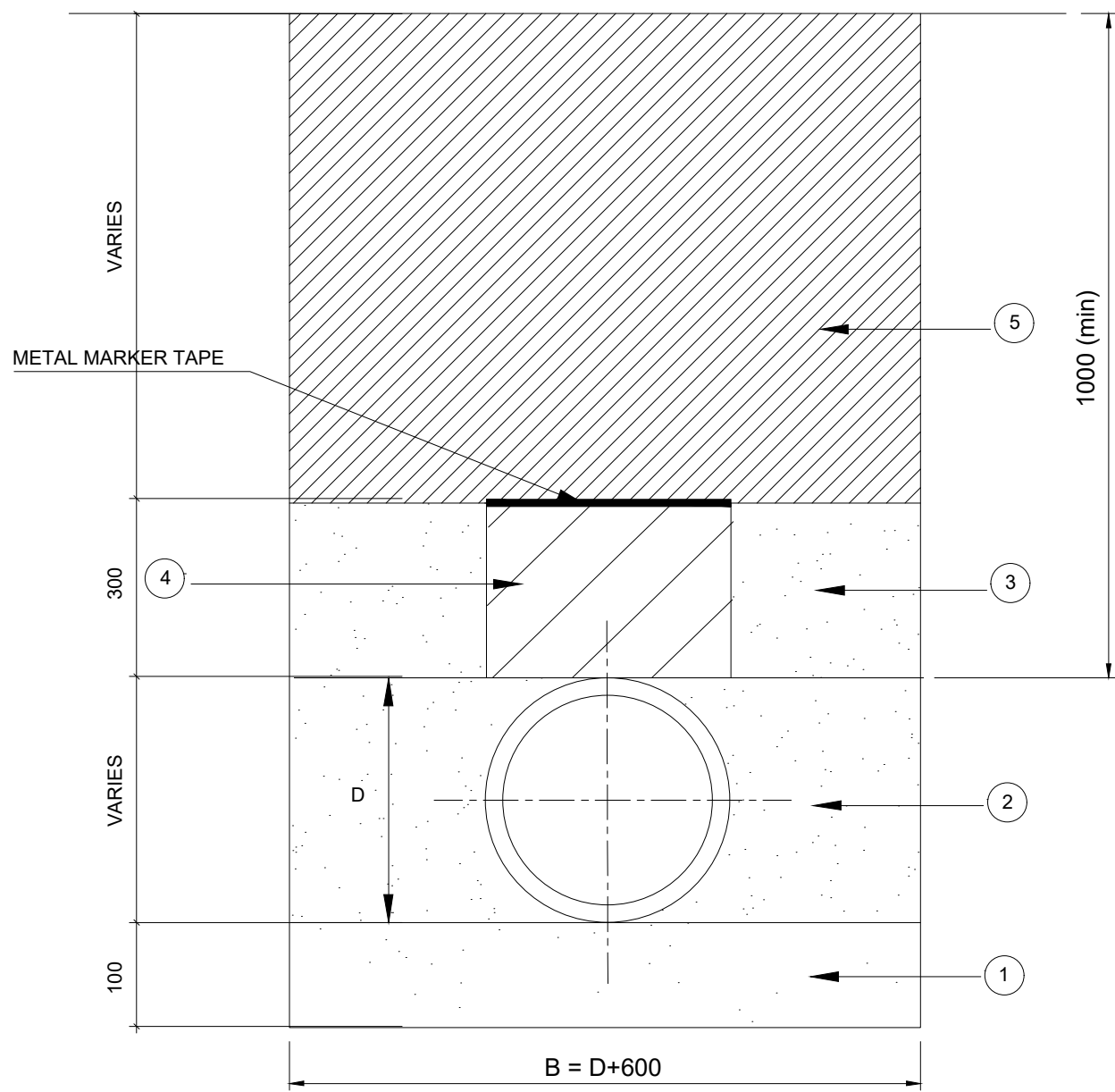
ITEM No.	DESCRIPTION	No.
1	10 mm THICK WELL HEAD PLATE BOLTED TO CASING FLANGE	1
1A	MILD STEEL CASING CAST INTO CONCRETE WITH FLANGE FOR WELLHEAD PLATE	1
2	DOUBLE FLANGED 90° BEND (GI)	1
2A	DOUBLE FLANGED REDUCER (GI)	1
3	DOUBLE FLANGED PIPE PIECE, 2000 mm LONG	1
4	DOUBLE FLANGED PIPE PIECE, 800 mm LONG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



- NOTES:**
1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS STATED OTHERWISE.
 2. THRUST BLOCKS AT BENDS ARE OMITTED FOR CLARITY BUT SHALL BE PROVIDED AS DIRECTED BY ENGINEER.
 3. DEPTH TO BE DETERMINED ON SITE.

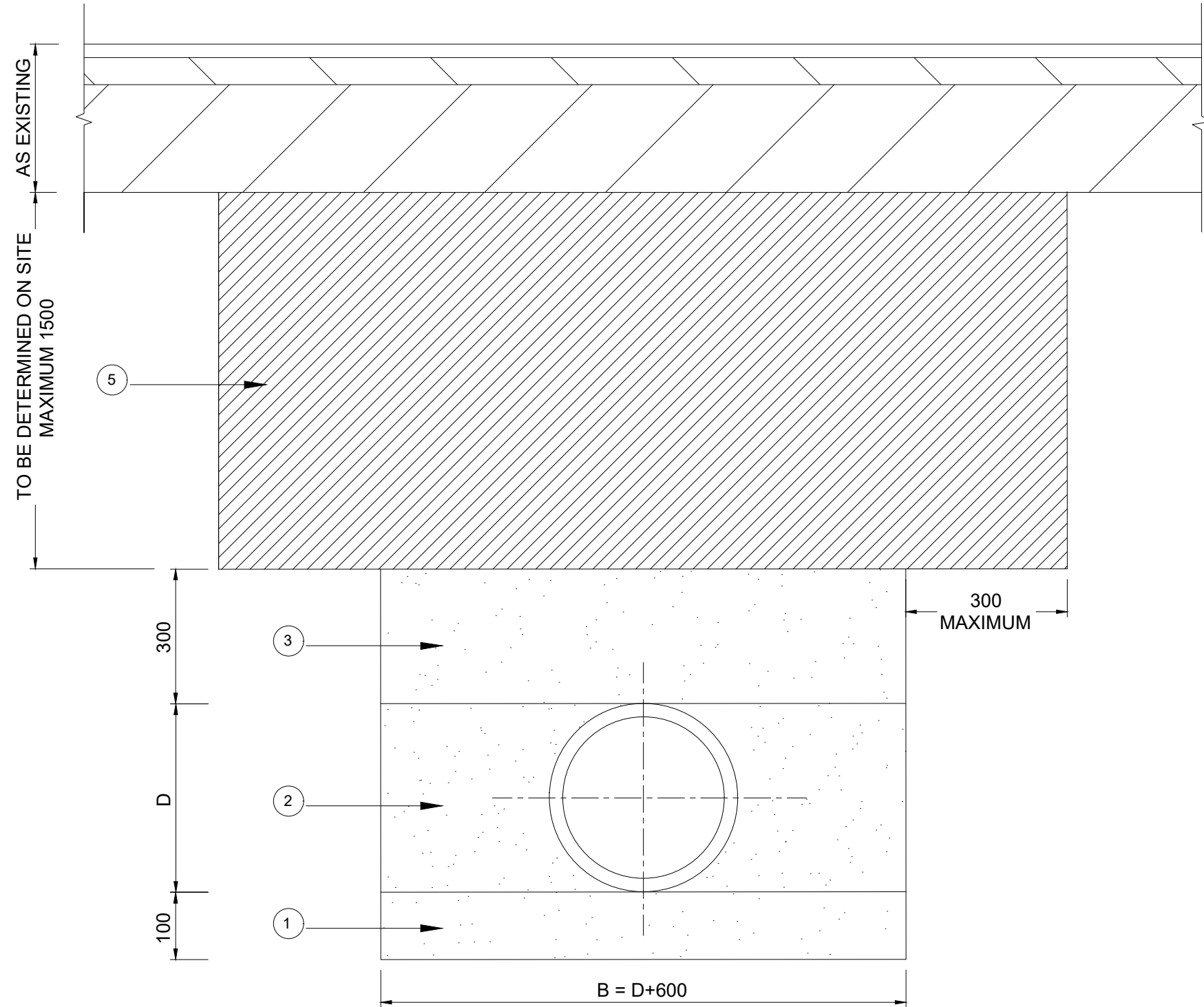
TYPICAL TRENCH EXCAVATION AND BACKFILLING

FOR HDPE AND STEEL PIPES

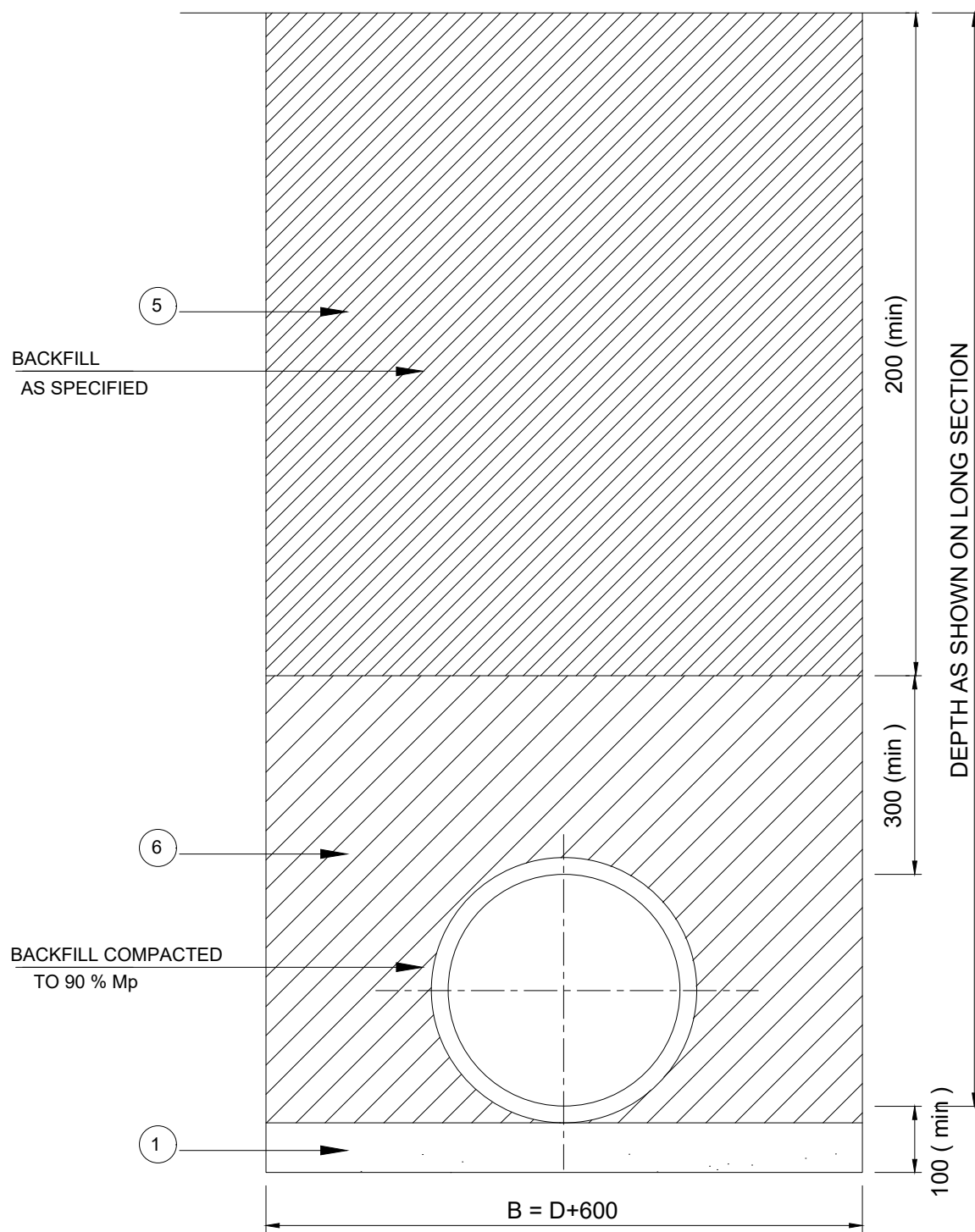


PIPE PROTECTION

AT ROAD CROSSING



BEDDING FOR STEEL PIPES



TRENCH WIDTHS FOR uPVC/PE PIPES

NOMINAL DIAMETER D (mm)	50	75	100	125	150
WIDTH OF TRENCH B (m)	1.15	1.2	1.25	1.4	1.45

$\approx B - D + 1.0 \text{ m}$

TABLE 1 : MATERIAL DESCRIPTION CHART

SOIL TYPE	DESCRIPTION	GROUP SYMBOL
A	ANGULAR, CRUSHED ROCK NEGLECTIBLE FINES	-
B	WELL GRADED GRAVEL - SAND MIXTURES FEW FINES	GW
C	FINE GRAVEL, NO FINES	GP
D	GRAVEL - SAND MIX, UPTO 50 % FINES	GF

TYPICAL X-SECTION OF CONCRETE BED/
SURROUND FOR 800 DIA. PIPE

TABLE 2 : COMPACTION CHART

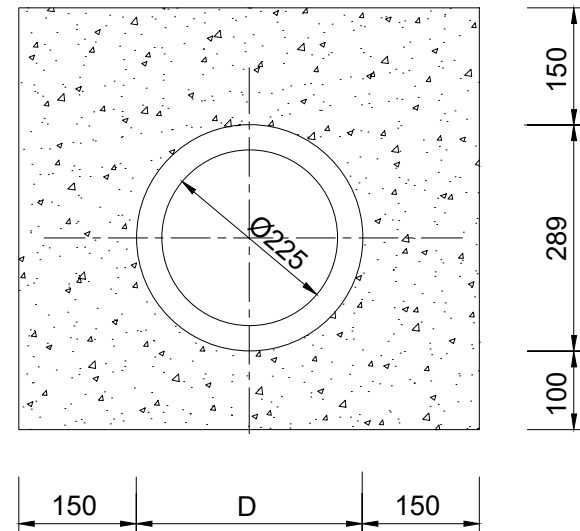
% Mp	SOIL TYPE	COMPACTION METHOD	
		THICKNESS OF LAYER (mm).	No. OF PASSES
90	A AND B CD	300 300 150	1 2 3

- Minimum and normal trench width are defined as normal pipe diameter plus 1000 mm.
- The backfill around the pipe from the trench bottom to the crown of the pipe carried out in layers whose depths do not exceed the maximum thickness of the layer as defined for each class of bedding and soil type nor half the normal pipe diameter whichever is the lesser.
- The bedding used is 150 mm in all cases.
- The embedment specifies the degree of compaction required in order to fulfill. Design requirements.
- In general, the method of attaining the required compaction is ascertained as follows :
 - The engineer's representative identifies, classifies and agrees the soil type of embedment material available from the trench.
 - The site soil type is compared with those on the material description chart [see table 1]
 - The compaction method required is then selected from the compaction chart for the appropriate soil type and class of embedment [see table 2]
- Not all soils are given in table 1. it should be noted that :
 - Fine grained soil with high plasticity shall not be used as backfill.
 - Fine grained soil with low plasticity shall not be used as backfill.
- Where site material is condemned, imported material shall be used. well graded soil from fines upto 30 mm gravel or as is approved by the engineer's representative.
- Where some doubt existed as to the compactibility of the soil as defined above, recourse shall be made to the modified proctor density test. the site and laboratory tests shall be carried out to tests 14 b and 12 respectively to ssrn 601 the contractor shall included in his rates for backfilling with available soil.
- Where stones or rock are present, imported selected bedding as approved by the engineer's representative shall be used under the pipe.
- The backfill shall be placed in layers as defined above, each layer shall be compacted with a small vibratory rammer. the required number of passes of the rammer is given in table
- Only when there is 300 mm cover over the pipe is a heavier compacting equipment used. the remainder of the backfill is then suitably compacted in keeping with the reinstatement of the ground to be carried out. this shall be agreed upon with the engineer's representative.
- Steel pipe shall be wrapped in polyethylene sleeving as corrosion protection when and as when directed by the engineer's representative. soil tests shall be carried out in advance of pipe laying to ascertain requirements.
- Pipes laid in embankment shall be surrounded as shown in the drawing. the material immediately around the pipe shall be compacted in accordance with the equivalent trench bedding as directed by the engineer's representative.
- All dimensions are in millimetres unless stated otherwise.

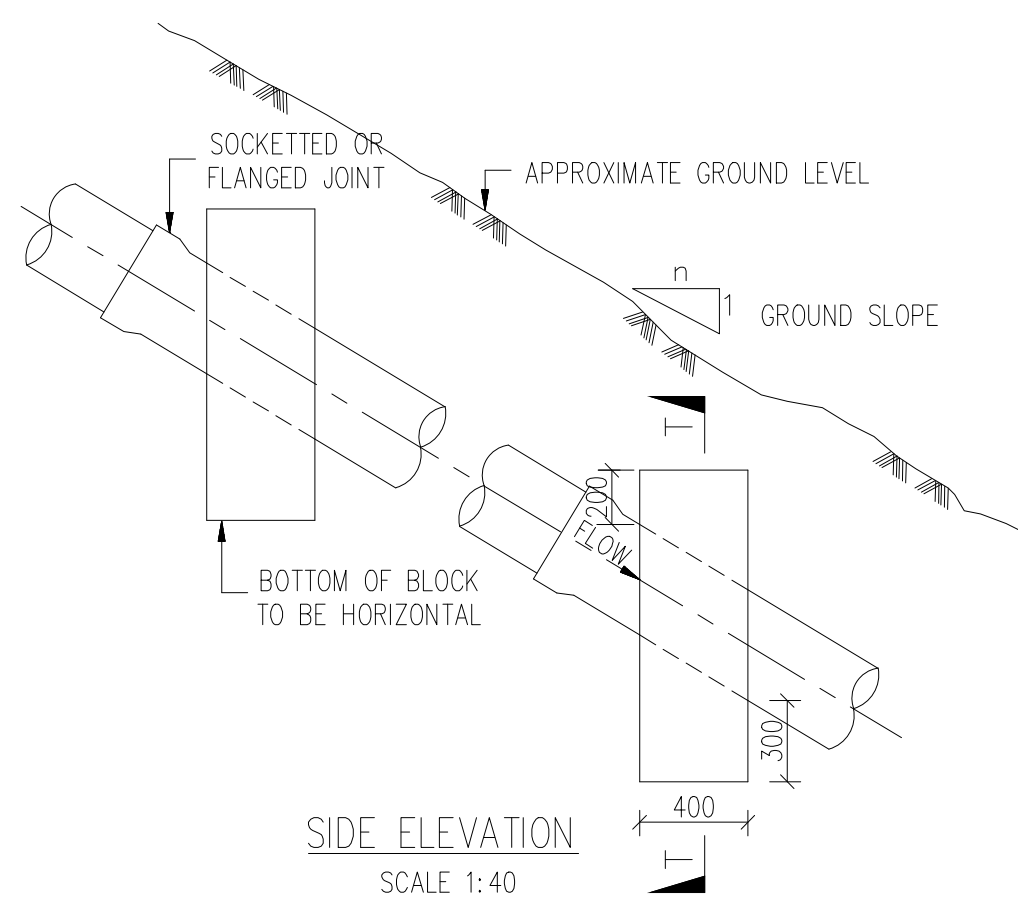
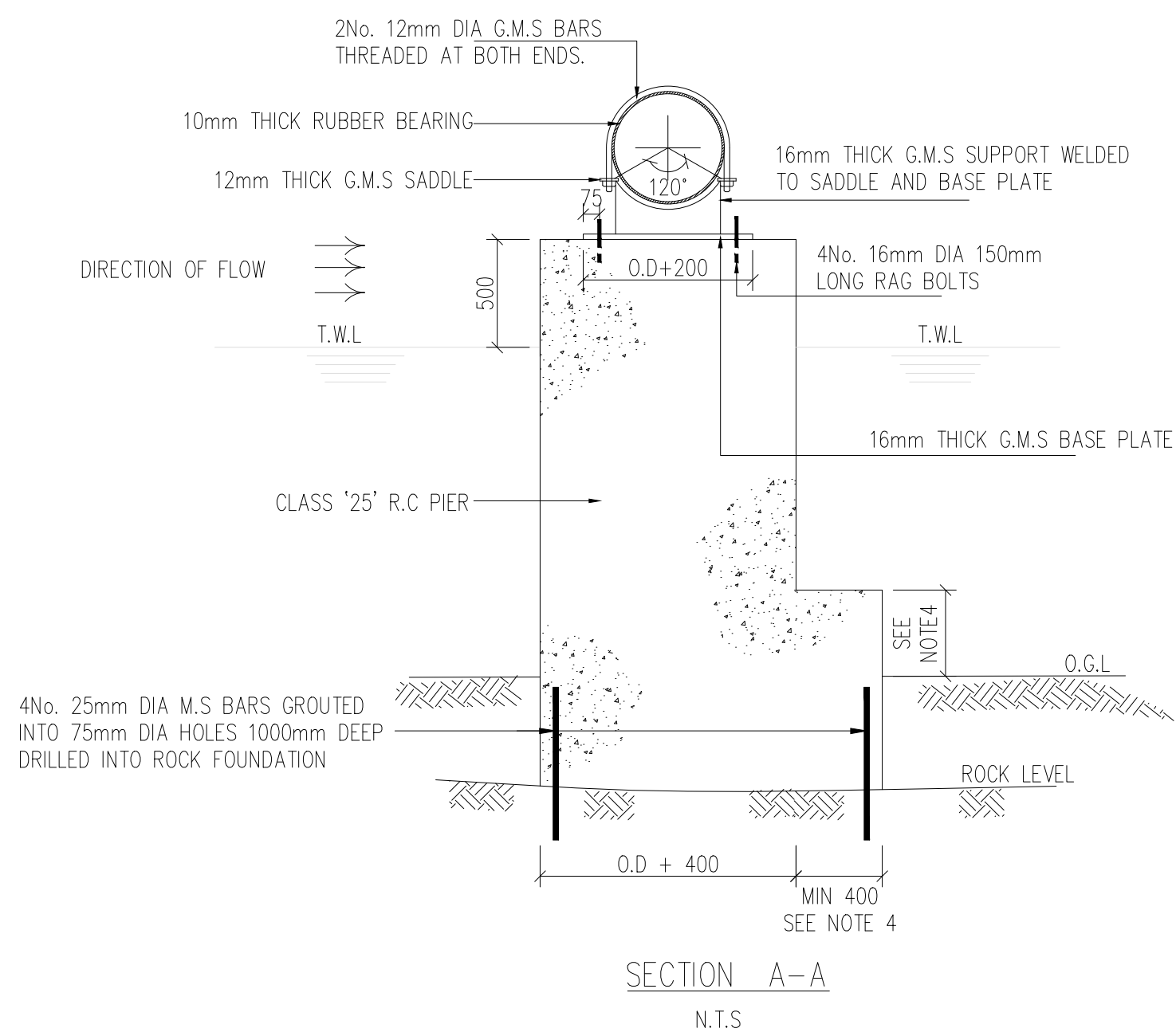
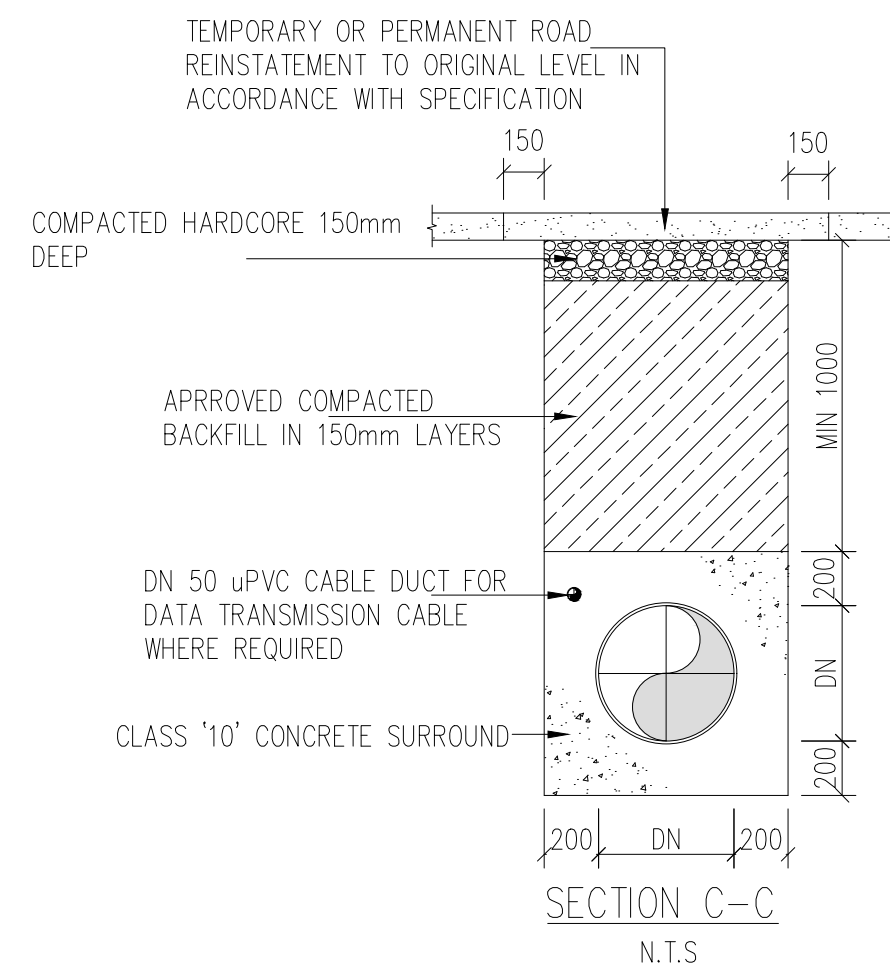
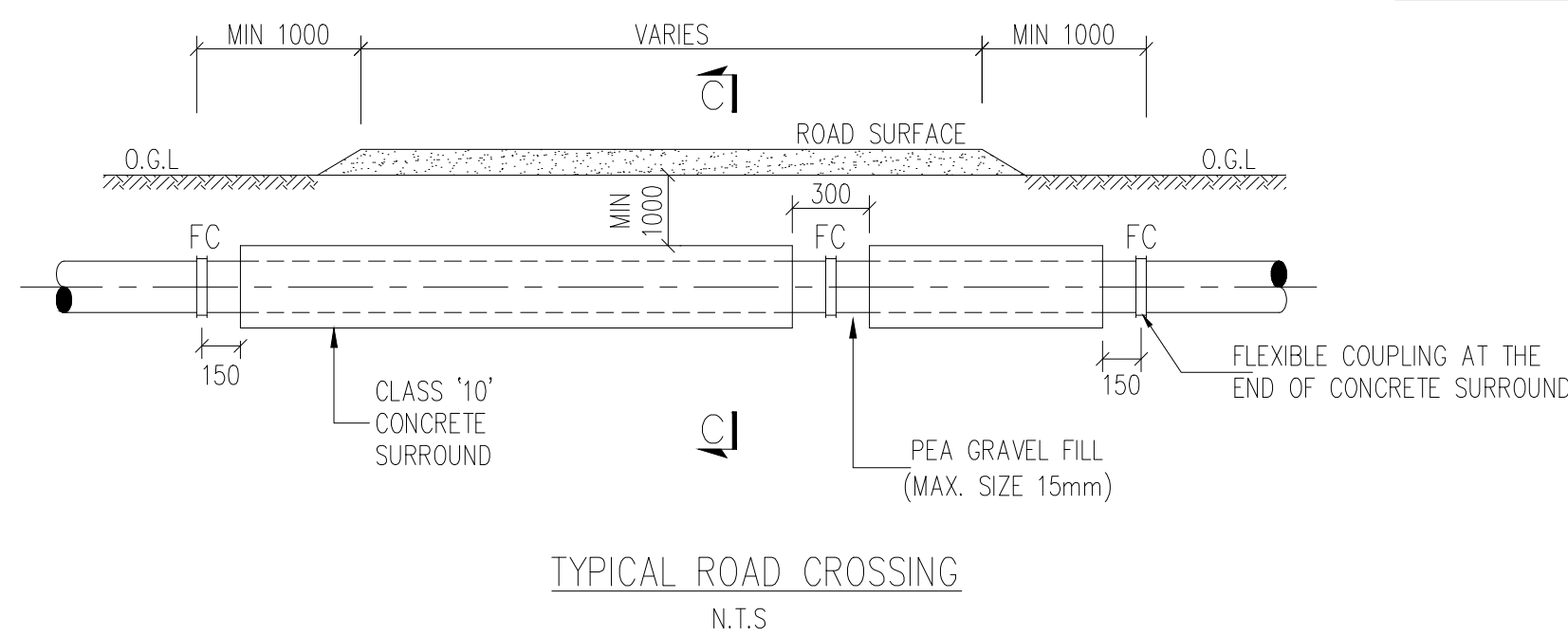
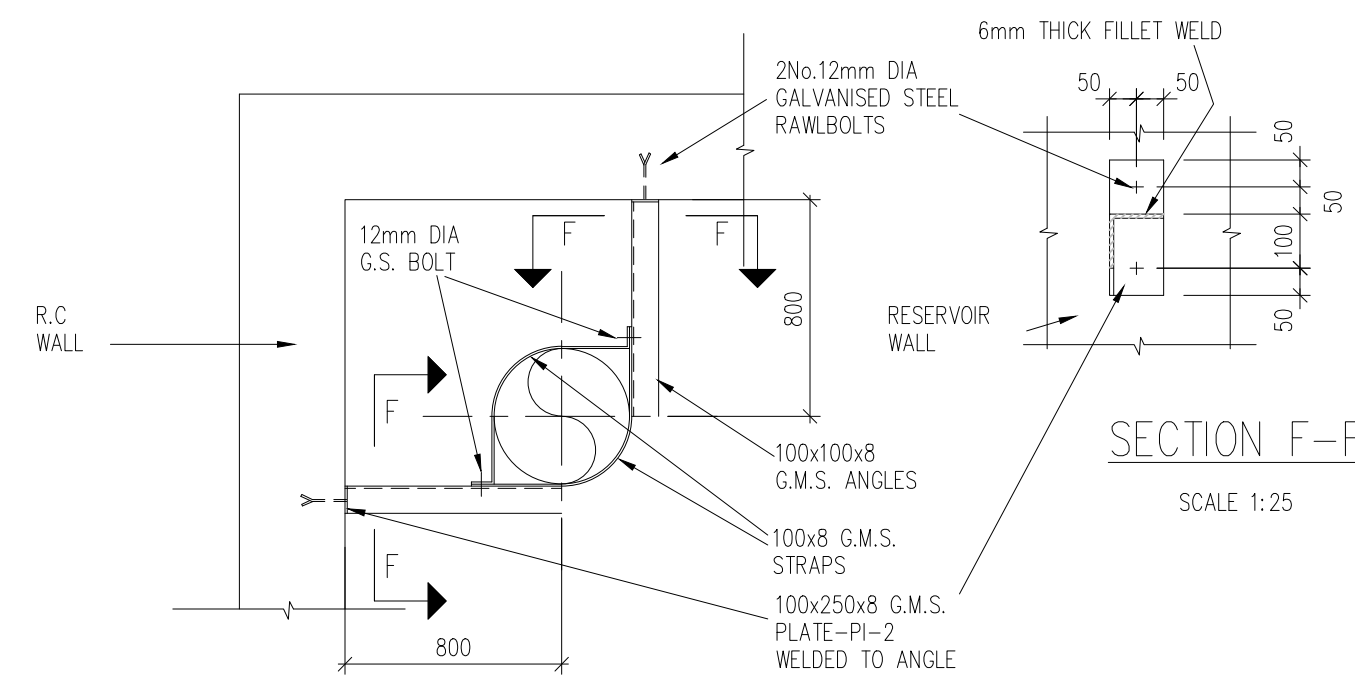
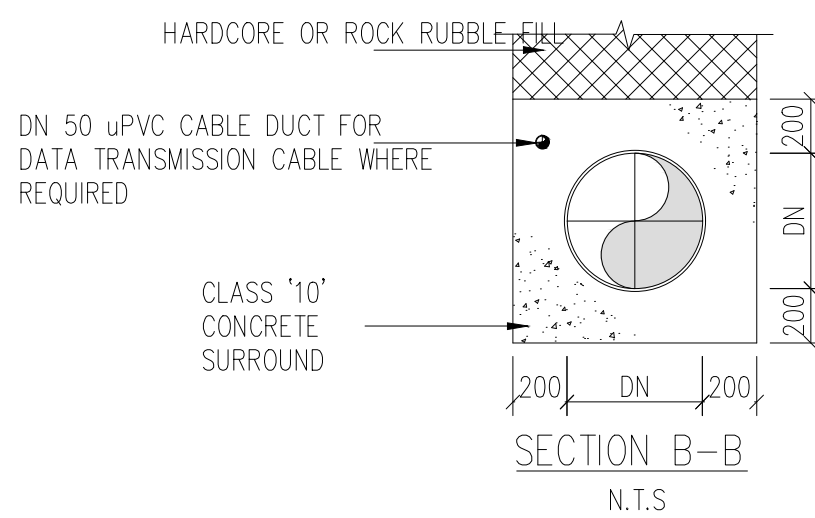
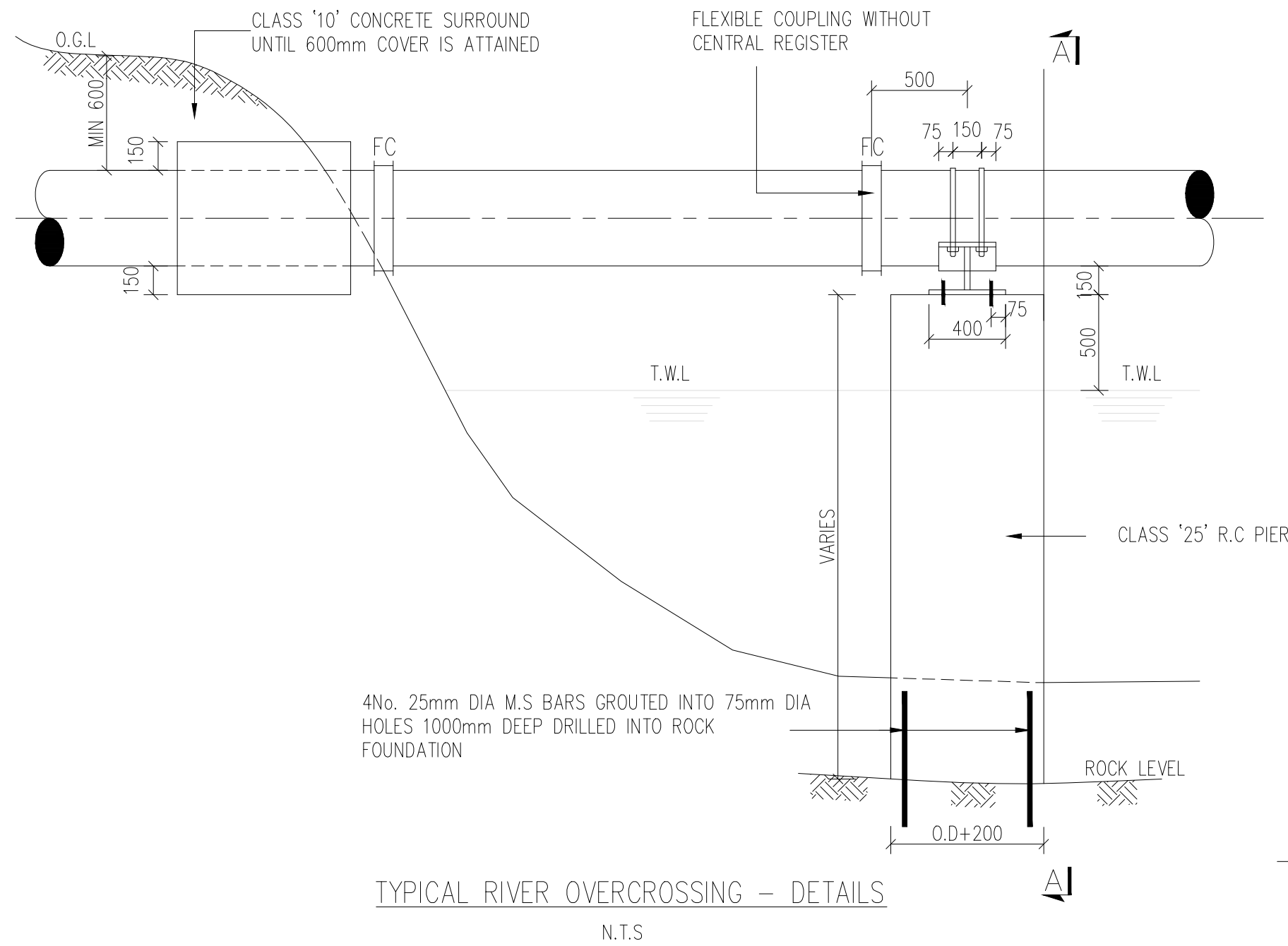
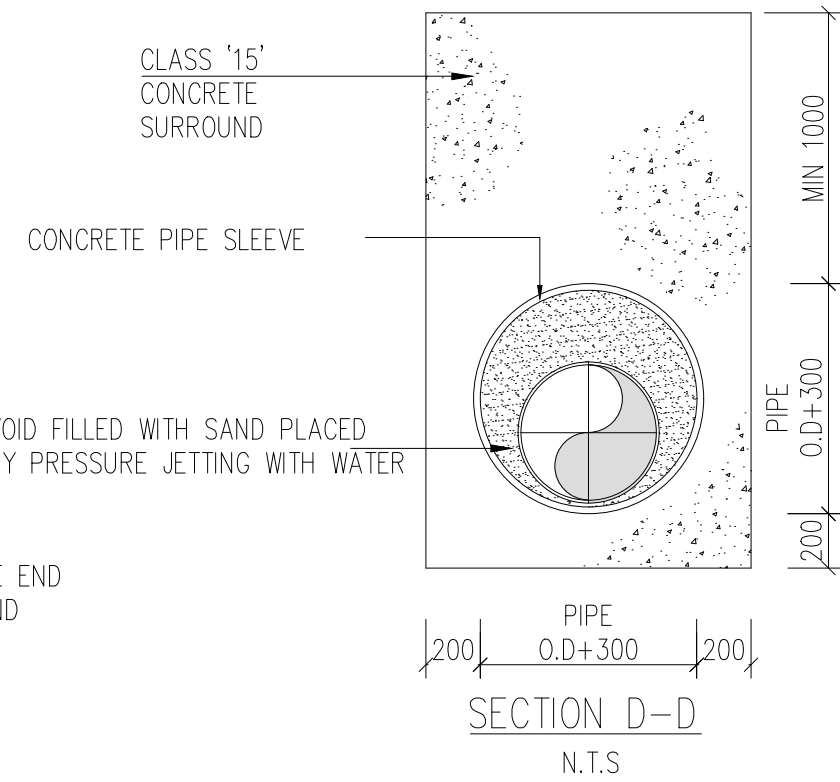
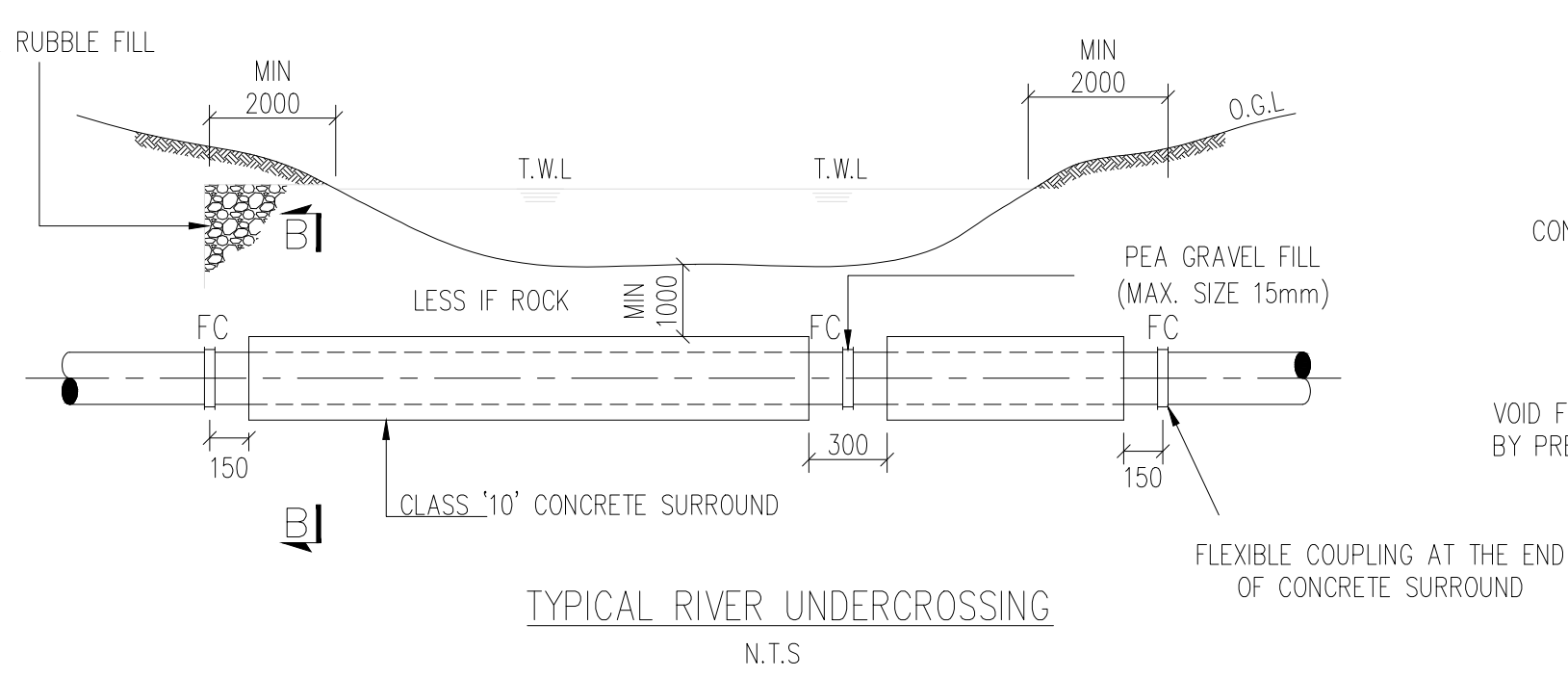
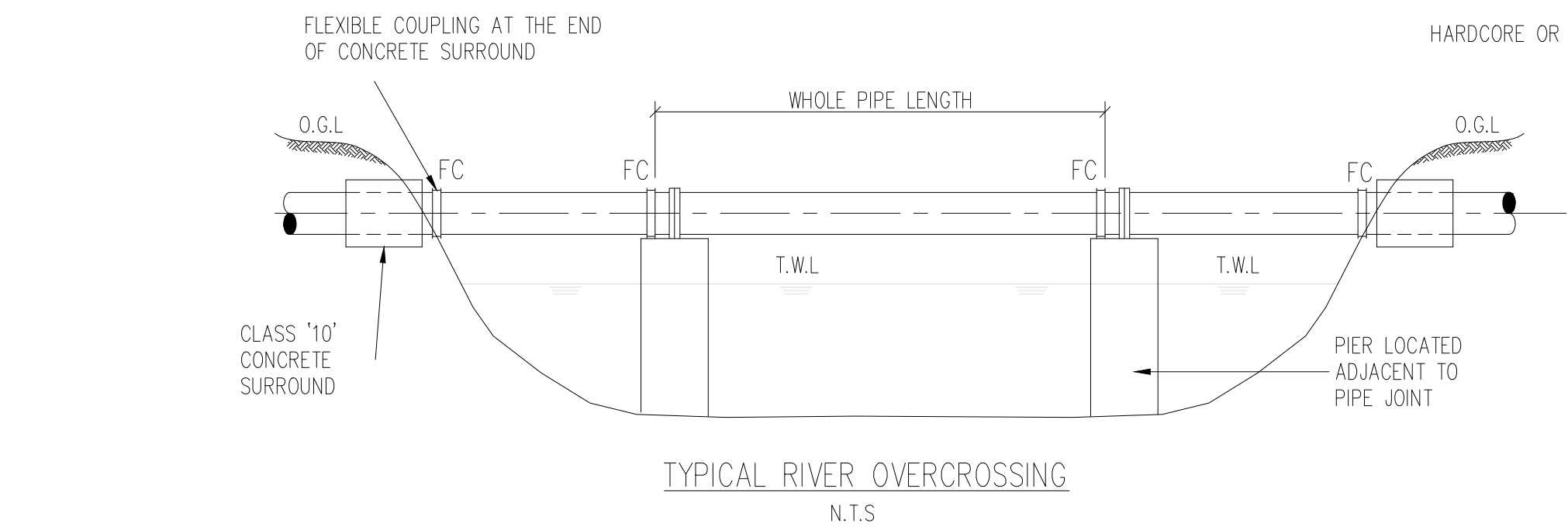
LEGEND :

- D PIPE OUTSIDE DIAMETER
- B TRENCH WIDTH (SEE TABLE)
- APPROVED GRANULAR BEDDING MATERIAL (10 - 20 mm) COMPACTED IN 50 mm LAYERS TO A THICKNESS OF 100 mm OR AS DIRECTED BY THE ENGINEER'S REPRESENTATIVE.
 - APPROVED GRANULAR BEDDING MATERIAL COMPACTED IN LAYERS OF 75 mm THICK. CAREFUL TAMPING ON EITHER SIDE OF THE PIPE SHOULD BE MAINTAINED TO ENSURE EQUAL PRESSURE ON BOTH SIDES OF THE BEDDING.
 - APPROVED GRANULAR BEDDING MATERIAL COMPACTED IN SHALLOW LAYERS TO A MAXIMUM OF 150 mm THICK.
 - AS IN ABOVE, BUT EXCESSIVE TAMPING TO BE AVOIDED.
 - NORMAL BACKFILL MATERIAL PROPERLY RAMMED IN LAYERS. NOT EXCEEDING 100 mm THICK.
 - APPROVED GRANULAR BACKFILL MATERIAL COMPACTED TO 90% MDD IN LAYERS NOT EXCEEDING 300 mm THICK

TYPICAL X-SECTION OF CONCRETE BED/
SURROUND FOR 150 DIA. PIPE

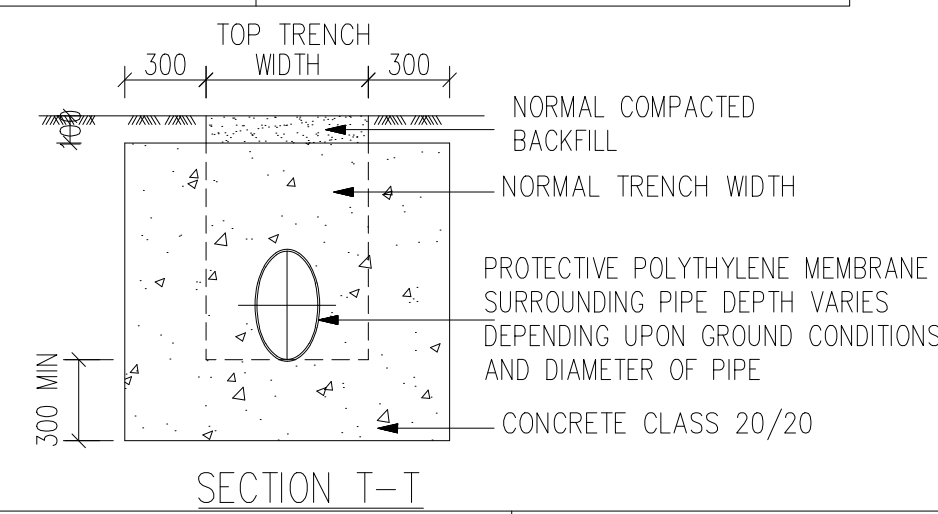


CLIENT: <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	FINANCIER: <div> THE WORLD BANK GROUP</div>	PROJECT: <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	CONSULTANT: <div><div>aarvee associates architects engineers & consultants pvt. ltd.</div><div>ADVANCED ENGINEERING CONSULTANTS</div></div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<table><tr><th colspan="3">DESIGN DETAILS</th><th>No.</th><th colspan="2">Revision Details</th><th>Reviewed</th><th>initials</th><th>Date</th><th>Approved</th></tr><tr><td>Action</td><td>Name</td><td>Date</td><td>1</td><td colspan="2">DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td>Designed by:</td><td>W.O</td><td>JUNE 2025</td><td>2</td><td colspan="2">FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td>Drawn by:</td><td>V.K</td><td>JUNE 2025</td><td></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td>Checked by:</td><td>M.J</td><td>JUNE 2025</td><td></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr><tr><td>Approved by:</td><td>D.L</td><td>JUNE 2025</td><td></td><td colspan="2"></td><td>By</td><td></td><td></td><td></td></tr></table>	DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved	Action	Name	Date	1	DRAFT DETAILED DESIGN		By				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By				Drawn by:	V.K	JUNE 2025				By				Checked by:	M.J	JUNE 2025				By				Approved by:	D.L	JUNE 2025				By				DRAWING TITLE: <div>STANDARD DRAWINGS</div> <div>22.PIPE TRENCHES DETAILS</div> <div>SHEET 1 OF1</div> <div>DRAWING SCALE: AS SHOWN</div> <div>DRAWING No.: GW4R-WJR-STD-22</div>
		DESIGN DETAILS			No.	Revision Details		Reviewed	initials	Date	Approved																																																						
		Action	Name	Date	1	DRAFT DETAILED DESIGN		By																																																									
		Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By																																																									
		Drawn by:	V.K	JUNE 2025				By																																																									
		Checked by:	M.J	JUNE 2025				By																																																									
		Approved by:	D.L	JUNE 2025				By																																																									

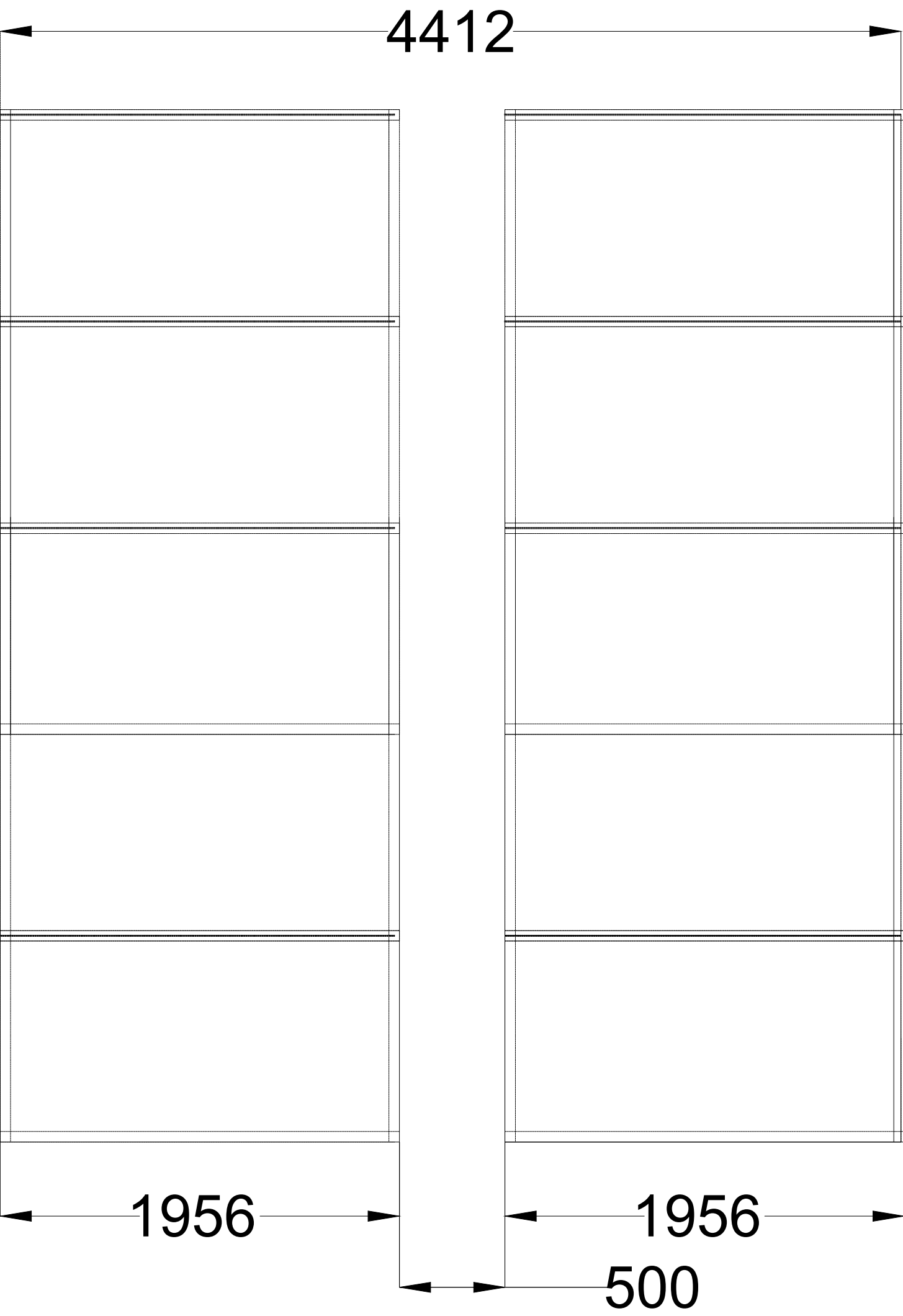


- NOTES**
1. SAME ARRANGEMENT CAN BE USED AS SUPPORTS FOR PIPES LAID IN VERY SOFT GROUND BUT BLOCKS TO BE CAST ON SOUND ROCK OR HARD STRATUM.
 2. SOCKETTED JOINT TO BE LAID WITH SOCKET FACING UPSTREAM OF GRADE.
 3. ANCHOR BLOCK TO BE CONSTRUCTED ON LOWER SIDE OF JOINT.

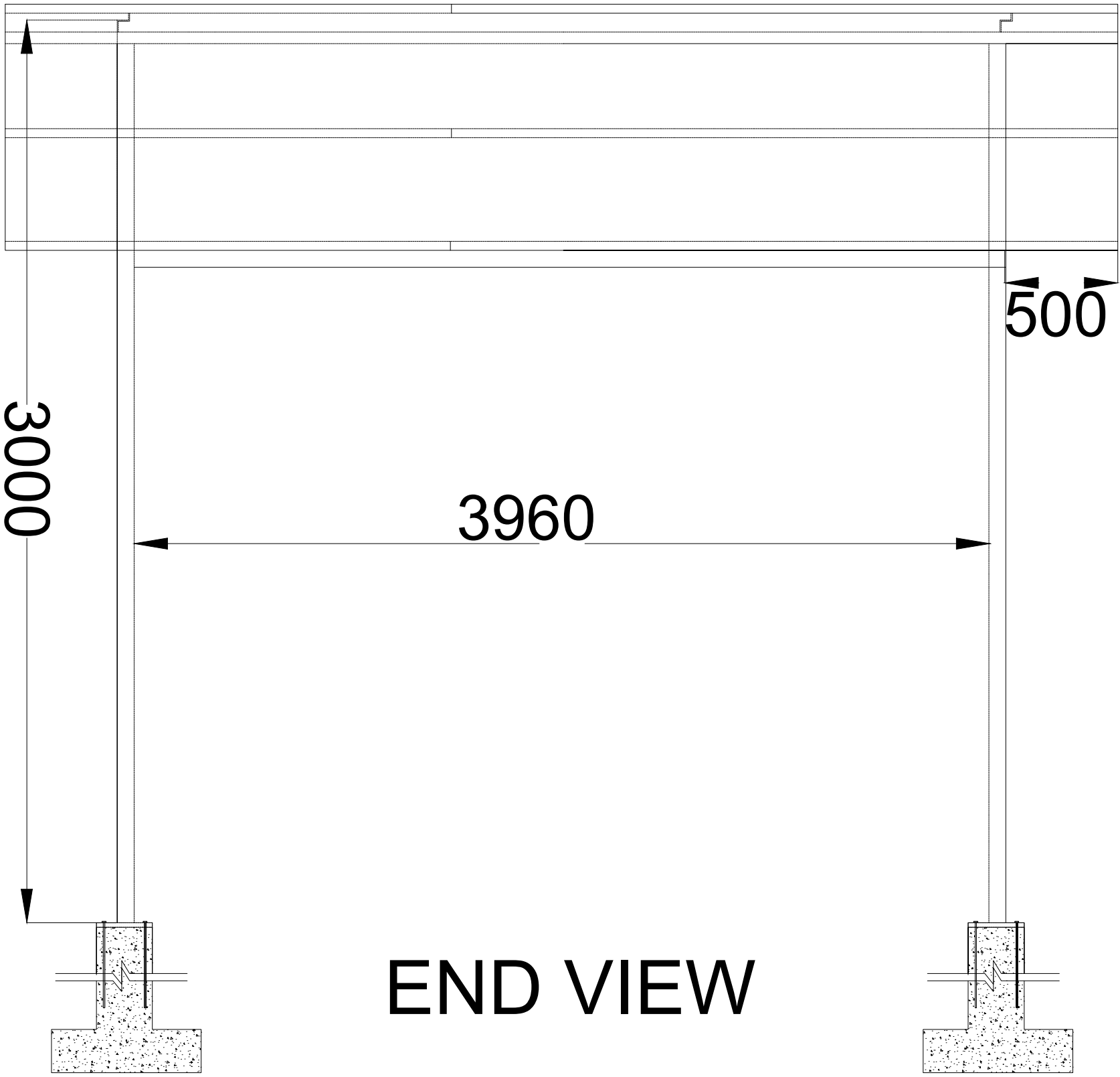
RANGE OF GROUND SLOPE (1:n)	MAXIMUM DISTANCE BETWEEN ANCHOR BLOCKS (m)
1:6 - 1:5	24
1:5 - 1:4	18
1:4 - 1:2	12
>1:2	EVERY PIPE LENGTH TO BE ANCHORED (BASED ON PIPE LENGTH OF 6m)



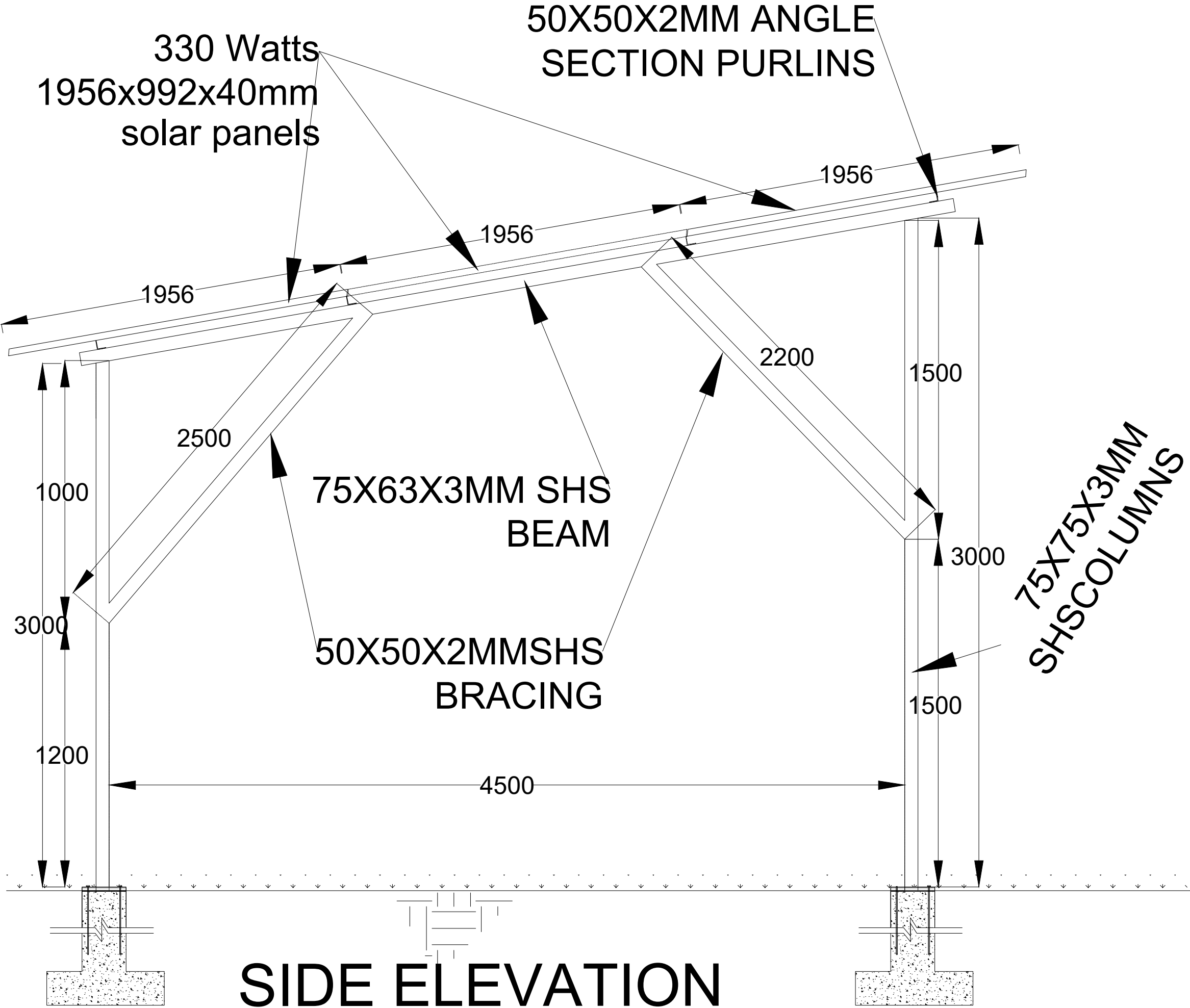
<div>CLIENT:</div> <div><p>WATER SECTOR TRUST FUND</p><p>1st floor, C/C Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</p></div>	<div>FINANCIER:</div> <div><p>THE WORLD BANK GROUP</p></div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	<div>CONSULTANT:</div> <div><p>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</p></div>	<div>ANCHOR BLOCK FOR STEEP GRADIENTS (SLOPES>1:6)</div> <table><tr><th colspan="3">DESIGN DETAILS</th><th colspan="3">Revision Details</th><th colspan="3">SCALE 1:40</th></tr><tr><th>Action</th><th>Name</th><th>Date</th><th>No.</th><th>By</th><th>Checked</th><th>Reviewed</th><th>initials</th><th>Approved</th></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">W.O</td><td rowspan="2">JUNE 2025</td><td>1</td><td>DRAFT DETAILED DESIGN</td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td>2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">M.J</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUNE 2025</td><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td></tr><tr><td></td><td></td><td>By</td><td>Checked</td><td></td><td></td></tr></table>							DESIGN DETAILS			Revision Details			SCALE 1:40			Action	Name	Date	No.	By	Checked	Reviewed	initials	Approved	Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By	Checked			2	FINAL DETAILED DESIGN	By	Checked			Drawn by:	V.K	JUNE 2025			By	Checked					By	Checked			Checked by:	M.J	JUNE 2025			By	Checked					By	Checked			Approved by:	D.L	JUNE 2025			By	Checked					By	Checked			<div>DRAWING TITLE:</div> <div>CROSSING DETAILS</div> <div>23.RIVER AND LAGHA CROSSING DETAILS</div> <div>SHEET 1 OF 1</div> <div>DRAWING SCALE: AS SHOWN</div> <div>DRAWING No.: GW4R-WJR-STD-23</div>	
				DESIGN DETAILS			Revision Details			SCALE 1:40																																																																																
				Action	Name	Date	No.	By	Checked	Reviewed	initials	Approved																																																																														
				Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By	Checked																																																																																
							2	FINAL DETAILED DESIGN	By	Checked																																																																																
				Drawn by:	V.K	JUNE 2025			By	Checked																																																																																
									By	Checked																																																																																
				Checked by:	M.J	JUNE 2025			By	Checked																																																																																
									By	Checked																																																																																
				Approved by:	D.L	JUNE 2025			By	Checked																																																																																
		By	Checked																																																																																							



PLAN VIEW (10 PANELS)

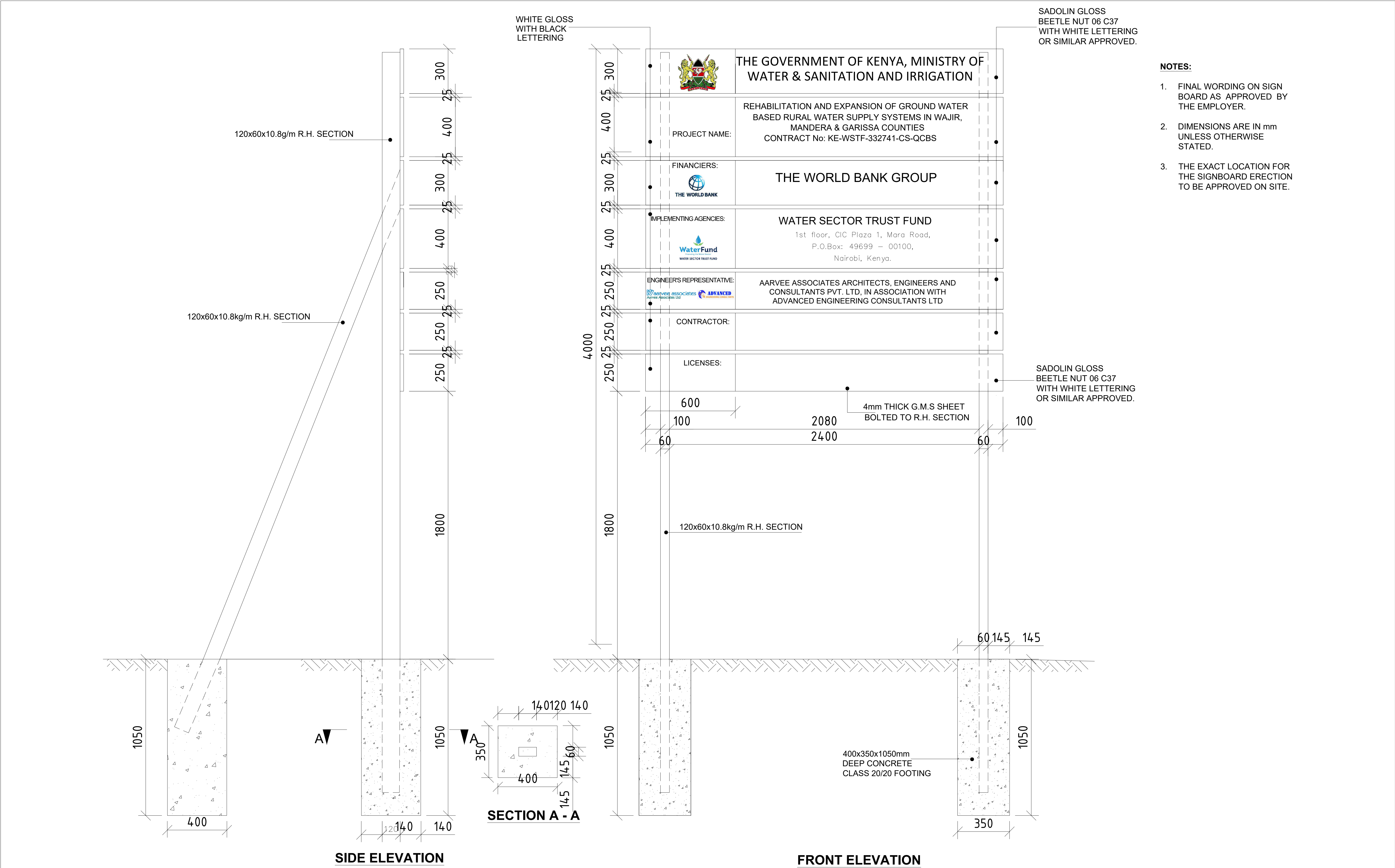


END VIEW

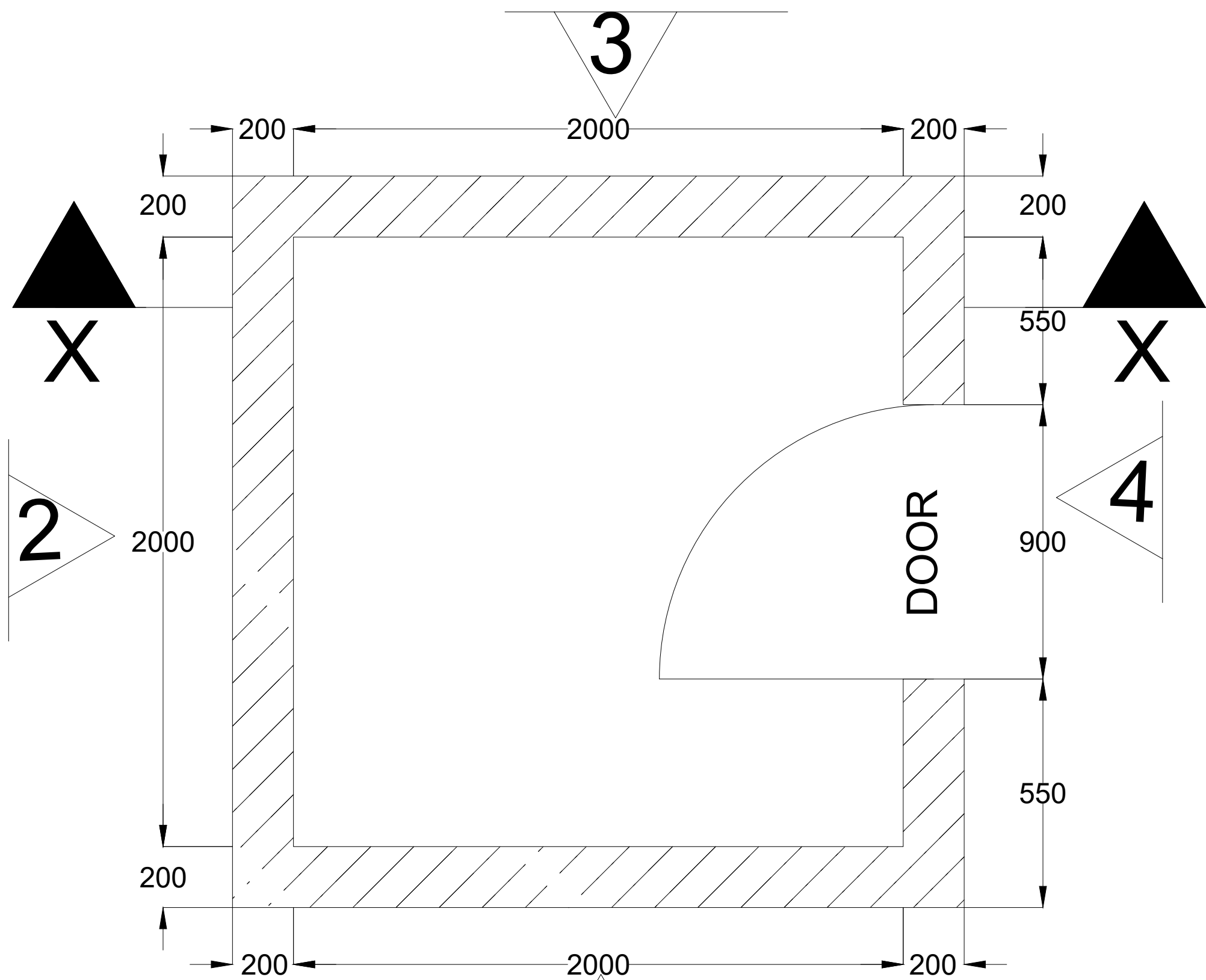


SIDE ELEVATION

Jun 03, 2025 – 11:49am



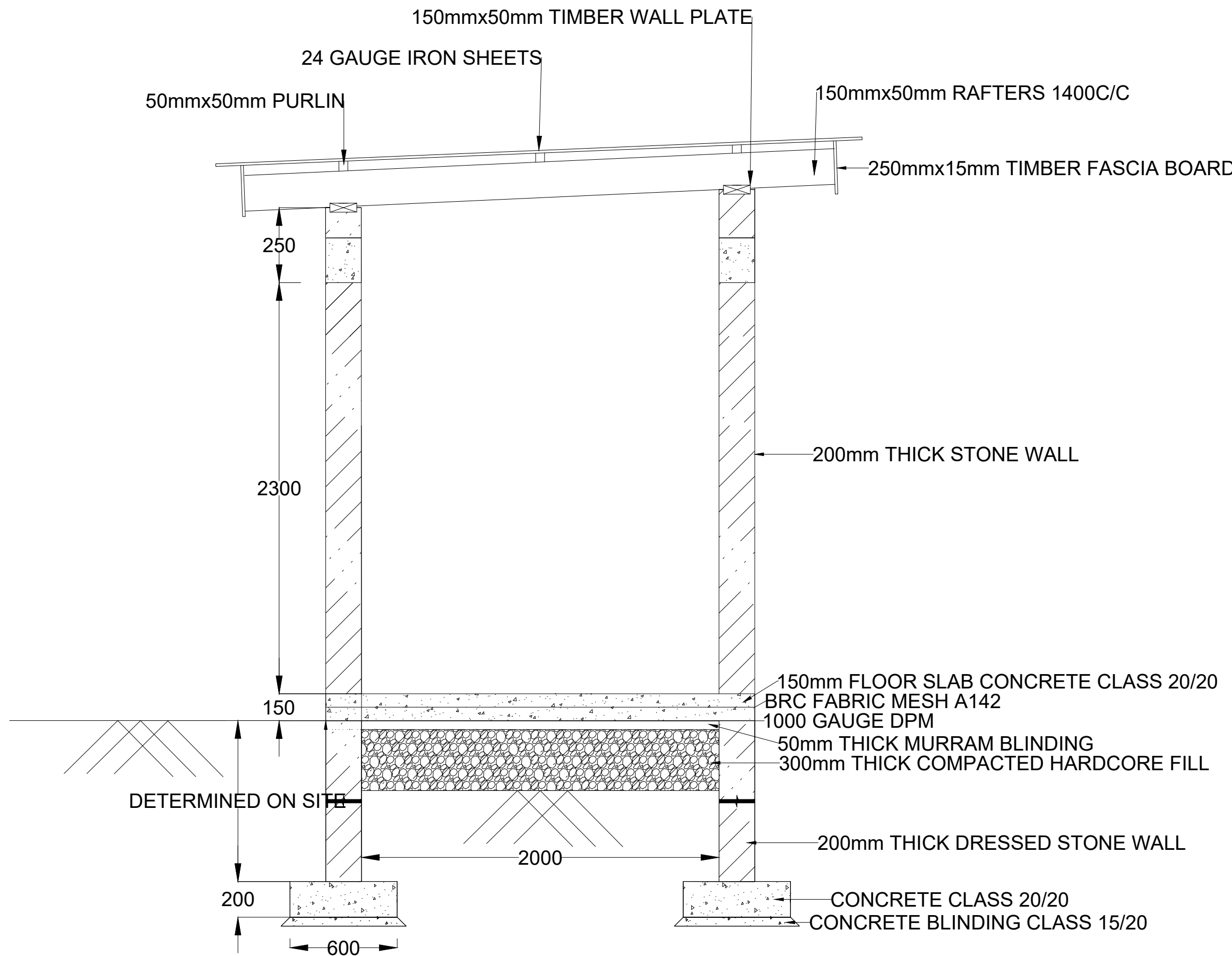
<div>CLIENT:</div> <div></div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div> THE WORLD BANK</div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with  Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	<div>DESIGN DETAILS</div> <table><tr><td rowspan="2">Action</td><td rowspan="2">Name</td><td rowspan="2">Date</td><td rowspan="2">No.</td><td>Revision Details</td><td>Reviewed</td><td>initials</td><td>Date</td><td>Approved</td></tr><tr><td>DRAFT DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Designed by:</td><td rowspan="2">W.O</td><td rowspan="2">JUNE 2025</td><td rowspan="2">2</td><td>FINAL DETAILED DESIGN</td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Drawn by:</td><td rowspan="2">V.K</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Checked by:</td><td rowspan="2">M.J</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr><tr><td rowspan="2">Approved by:</td><td rowspan="2">D.L</td><td rowspan="2">JUNE 2025</td><td rowspan="2"></td><td></td><td>By</td><td></td><td></td><td></td></tr><tr><td></td><td>Checked</td><td></td><td></td><td></td></tr></table>							Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved	DRAFT DETAILED DESIGN	By				Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By					Checked				Drawn by:	V.K	JUNE 2025			By					Checked				Checked by:	M.J	JUNE 2025			By					Checked				Approved by:	D.L	JUNE 2025			By					Checked				<div>DRAWING TITLE:</div> <div>STANDARD DRAWINGS</div> <div>25.PROJECT SIGN BOARD</div> <div>SHEET 1 OF 1</div>	
		Action	Name	Date	No.	Revision Details	Reviewed	initials	Date	Approved																																																																								
						DRAFT DETAILED DESIGN	By																																																																											
		Designed by:	W.O	JUNE 2025	2	FINAL DETAILED DESIGN	By																																																																											
							Checked																																																																											
		Drawn by:	V.K	JUNE 2025			By																																																																											
							Checked																																																																											
		Checked by:	M.J	JUNE 2025			By																																																																											
							Checked																																																																											
		Approved by:	D.L	JUNE 2025			By																																																																											
	Checked																																																																																	
<div>Contract No:</div> <div>KE-WSTF-332741-CS-QCBS</div>	<div>DRAWING SCALE:</div> <div>AS SHOWN</div>	<div>DRAWING No.:</div> <div>GW4R-WJR-STD-25</div>																																																																																



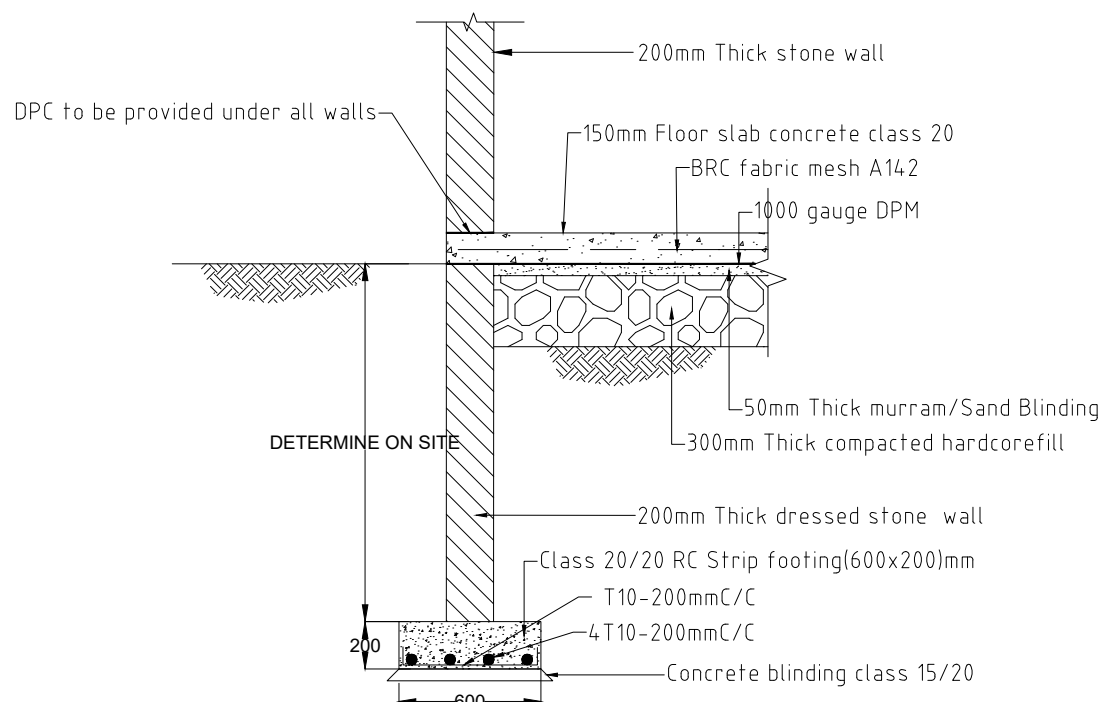
1
FLOOR PLAN
SCALE 1:50

DOOR SCHEDULE

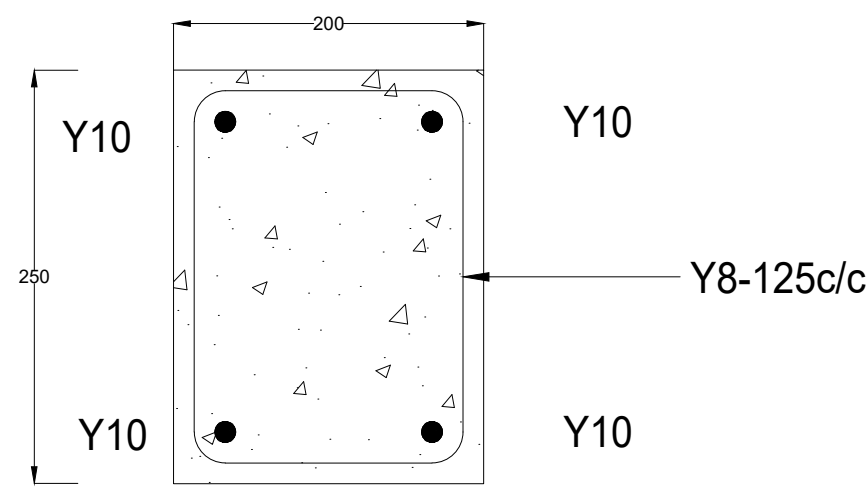
TYPE	D1
SKETCH	
QUANTITY	1
DESCRIPTION	SINGLE LEAF, STEEL DOOR 25mm THICK



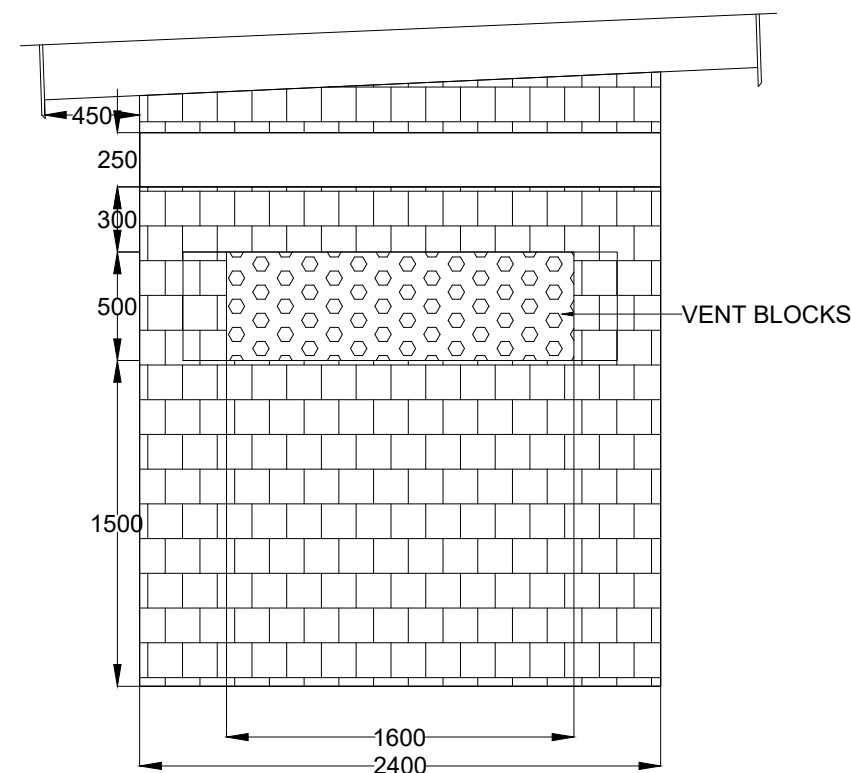
CROSS SECTION X-X
SCALE 1:50



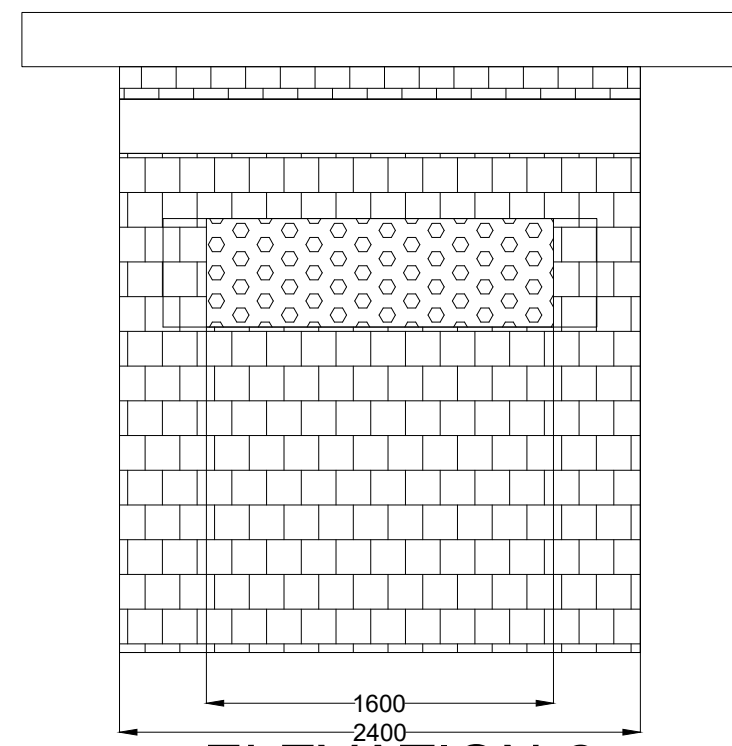
TYPICAL FLOOR AND FOUNDATION DETAIL
SCALE (A1) 1:25



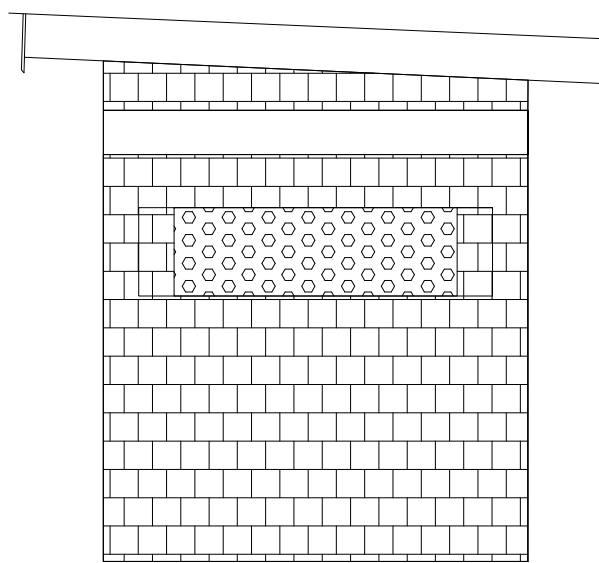
TYPICAL CROSS SECTION
THROUGH RING BEAM
SCALE 1:5



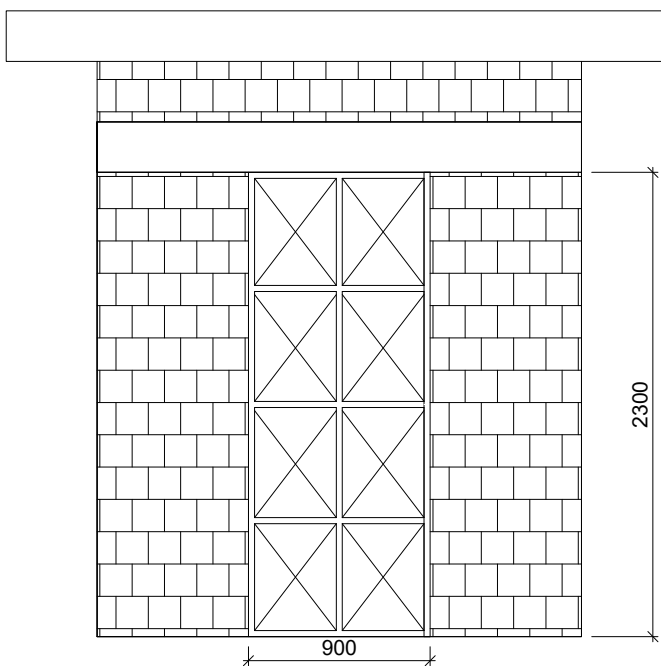
ELEVATION-1



ELEVATION-2
SCALE 1:50



ELEVATION-3
SCALE 1:50



ELEVATION-4
SCALE 1:50

CLIENT:



**WATER SECTOR
TRUST FUND**

1st floor, CIC Plaza 1, Mara Road,
P.O.Box: 49699 - 00100,
Nairobi, Kenya.

FINANCIER:



**THE WORLD
BANK GROUP**

PROJECT:

CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY
STUDIES, DETAILED DESIGN, ENVIRONMENTAL &
SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND
CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON
THE REHABILITATION AND EXPANSION OF GROUNDWATER -
BASED RURAL WATER SUPPLY SYSTEMS IN THE
COUNTIES OF GARISSA, MANDERA AND WAJIR

Contract No:

KE-WSTF-332741-CS-QCBS

CONSULTANT:



Aarvee Associates Architects Engineers and Associates Pvt Ltd
in Association with

Advanced Engineering Consultants Ltd.
Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India
Telephone: +91-7966776800 / +254-714-198-805
Email: abhik@aarvee.net / info@aecglobal-ltd.com



DESIGN DETAILS

Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved
Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By			
Drawn by:	R.K	JUNE 2025	2	FINAL DETAILED DESIGN	Checked			
Checked by:	M.J	JUNE 2025			By			
Approved by:	D.L	JUNE 2025			Checked			

DRAWING TITLE:

STANDARD DRAWINGS

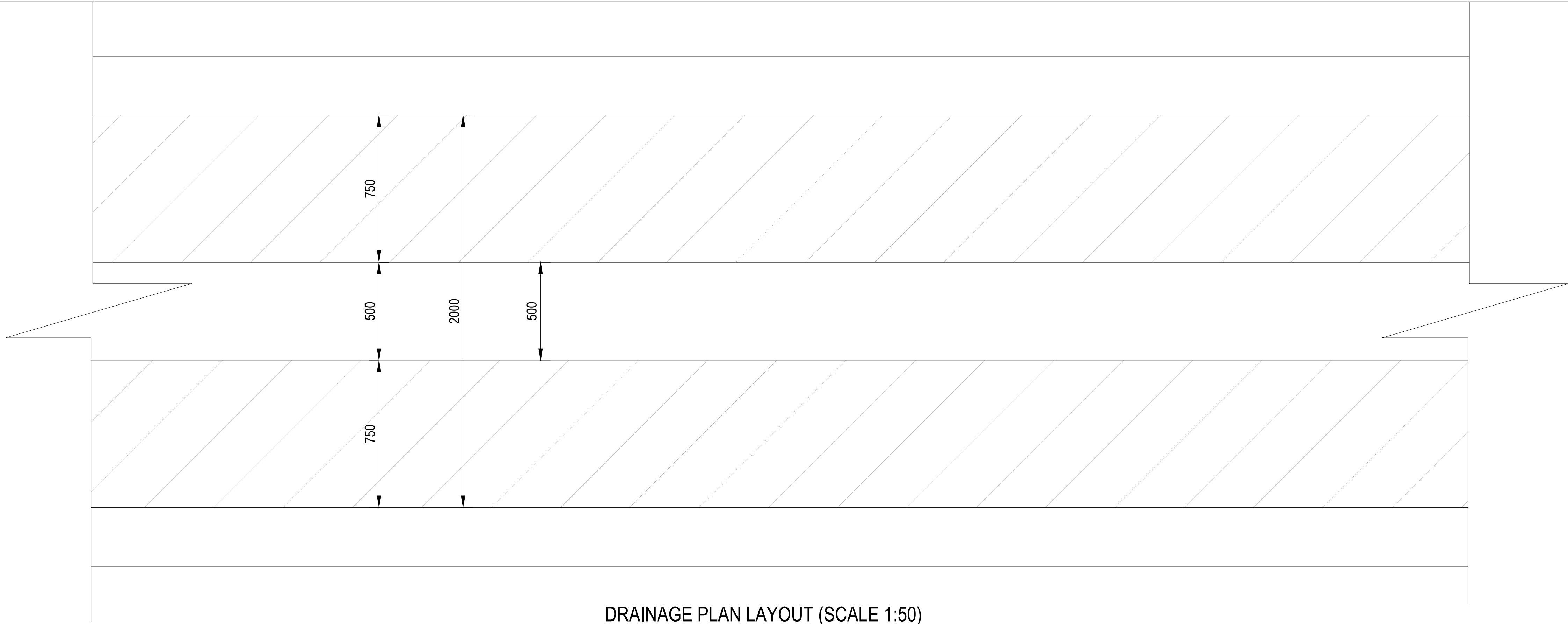
26. PUMP HOUSE
PLAN, SECTION, ELEVATION VIEWS
AND FOUNDATION DETAILS
SHEET 1 OF 1

DRAWING SCALE:

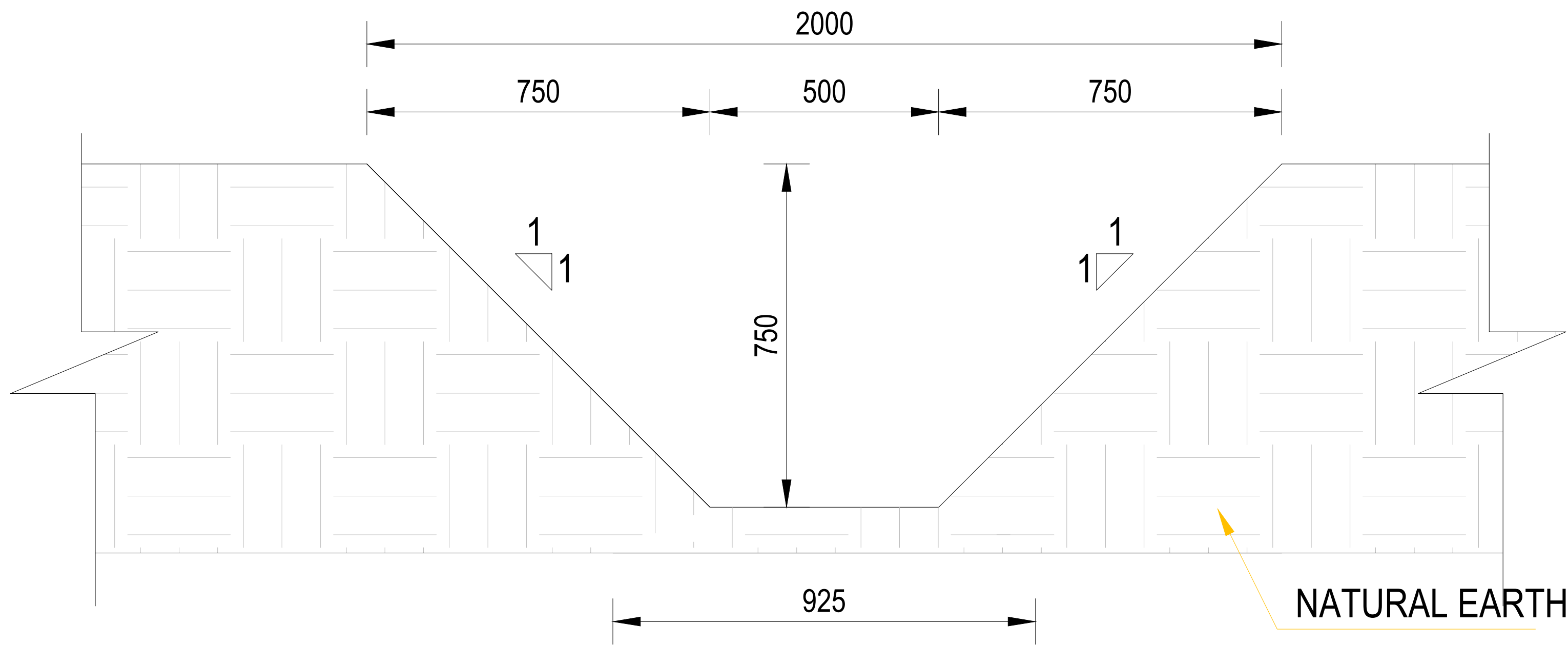
AS SHOWN

DRAWING No.:

GW4R-WJR-STD-26

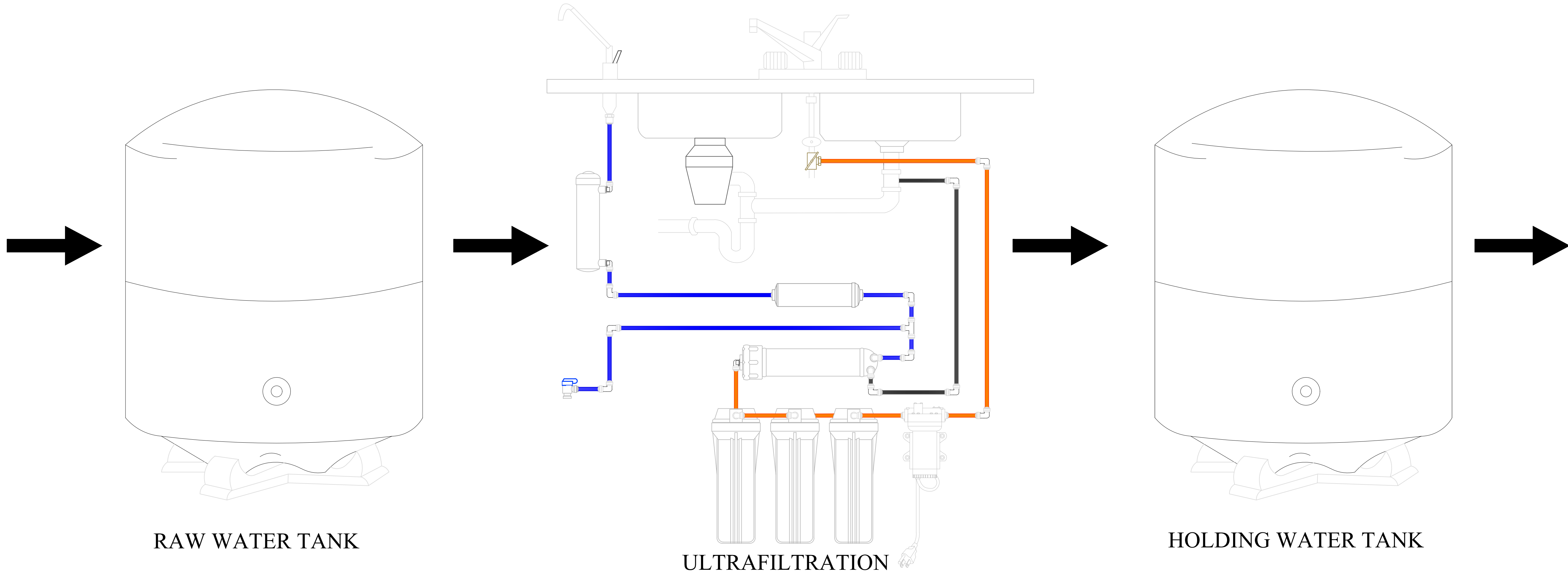


DRAINAGE PLAN LAYOUT (SCALE 1:50)



TYPICAL DRAINAGE SECTION DETAIL

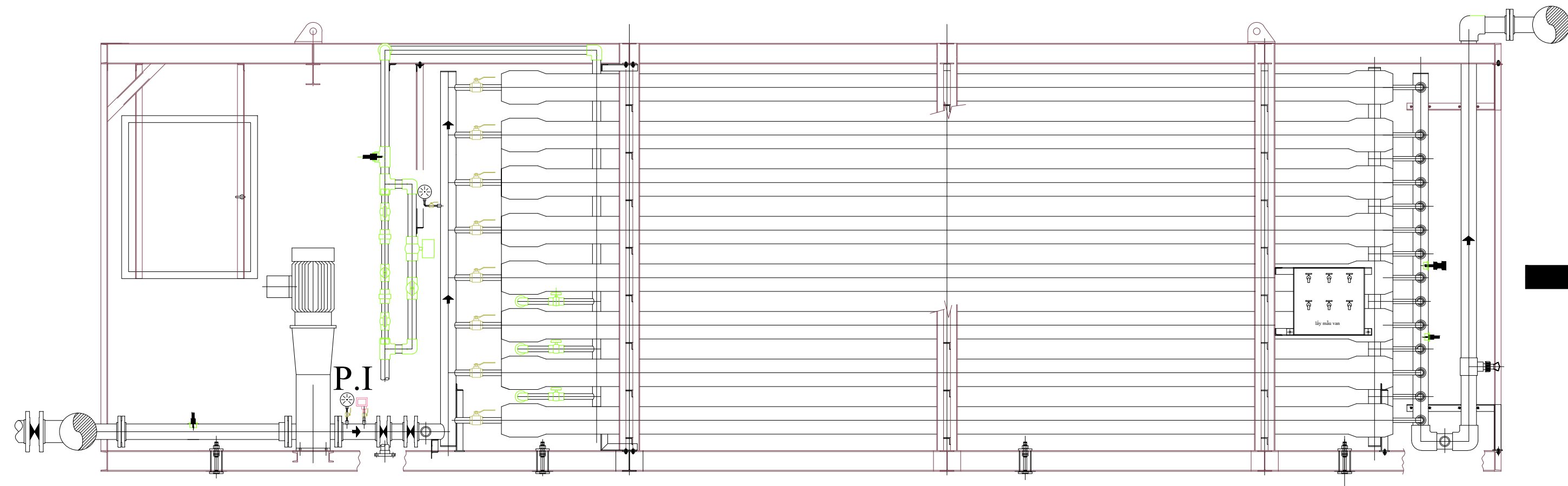
<div>CLIENT:</div> <div>WATER SECTOR TRUST FUND</div> <div>1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	<div>FINANCIER:</div> <div>THE WORLD BANK GROUP</div>	<div>PROJECT:</div> <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div>	<div>CONSULTANT:</div> <div>Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div>	DESIGN DETAILS			DRAWING TITLE:							
		No.		Revision Details		Reviewed	Initials	Date	Approved	STANDARD DRAWINGS 27. CHANNEL DRAINAGE SHEET 1 OF 1				
		Action		Name	Date	1	DRAFT DETAILED DESIGN		By					
		Designed by:		W.O	JUNE 2025	2	FINAL DETAILED DESIGN		By					
		Drawn by:		V.K	JUNE 2025			By						
								By						
		Checked by:		W.O	JUNE 2025			By						
								By						
		Approved by:		D.L	JUNE 2025			By						
								Checked						
Contract No: KE-WSTF-332741-CS-QCBS			DRAWING SCALE: AS SHOWN			DRAWING No.: GW4R-WJR-STD-27								



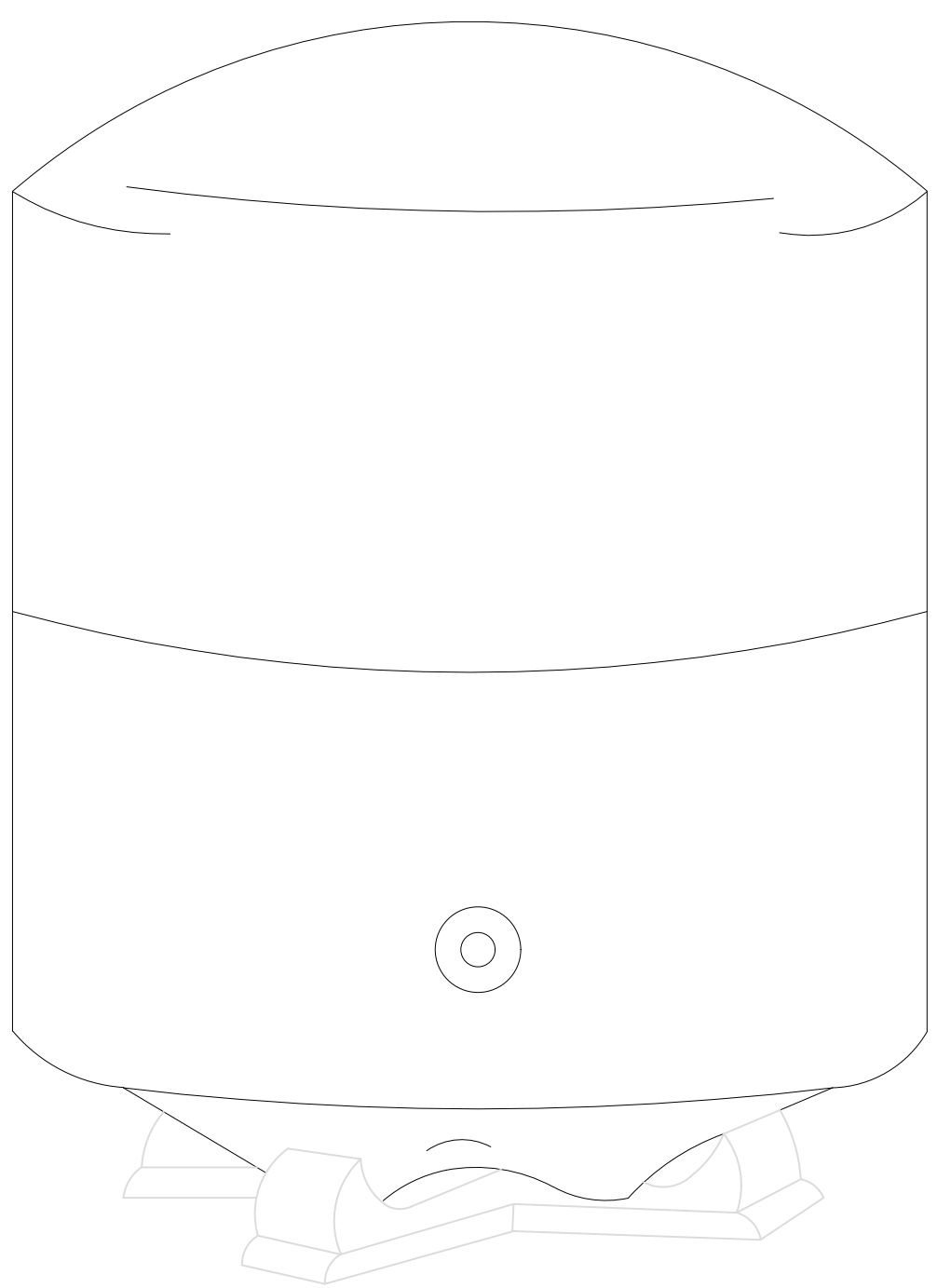
RAW WATER TANK

ULTRAFILTRATION

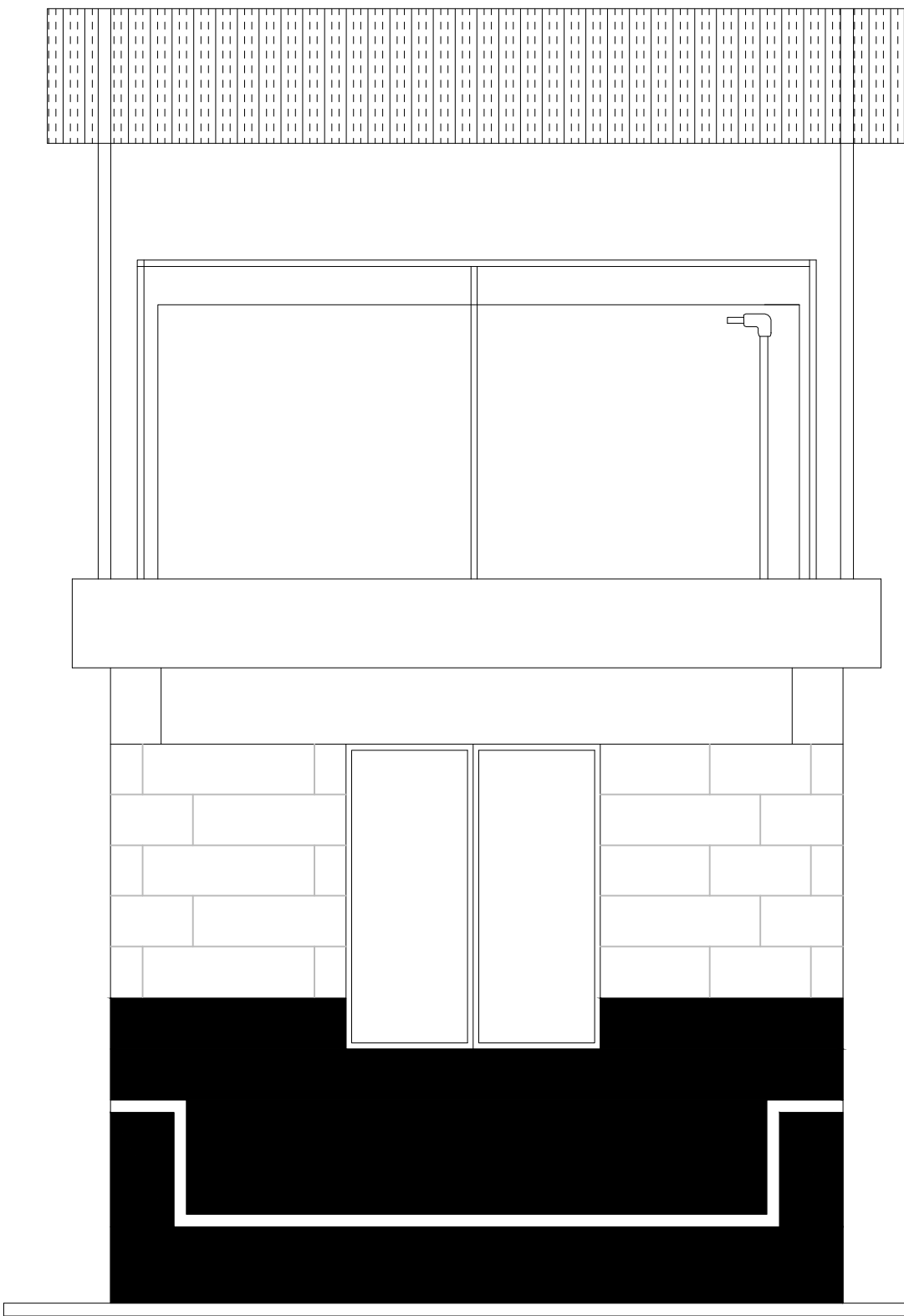
HOLDING WATER TANK






REVERSE OSMOSIS



TREATED WATER TANK



WATER KIOSK

CLIENT: <div> WATER SECTOR TRUST FUND 1st floor, CIC Plaza 1, Mara Road, P.O.Box: 49699 - 00100, Nairobi, Kenya.</div>	FINANCIER: <div> THE WORLD BANK GROUP</div>	PROJECT: <div>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN, ENVIRONMENTAL & SOCIAL IMPACTS ASSESSMENTS (ESIAs)(PHASE 1) AND CONSTRUCTION SUPERVISION OF WORKS (PHASE 2) ON THE REHABILITATION AND EXPANSION OF GROUNDWATER - BASED RURAL WATER SUPPLY SYSTEMS IN THE COUNTIES OF GARISSA, MANDERA AND WAJIR</div> <div>Contract No: KE-WSTF-332741-CS-QCBS</div>	CONSULTANT: <div> Aarvee Associates Architects Engineers and Associates Pvt Ltd in Association with Advanced Engineering Consultants Ltd, Ravula Residency, Srinagar Colony Main Road, Hyderabad-500082 Telangana, India Telephone: +91-7966776800 / +254-714-198-805 Email: abhik@aarvee.net / info@aecglobal-ltd.com</div> <div></div>	DESIGN DETAILS							DRAWING TITLE:			
				Action	Name	Date	No.	Revision Details	Reviewed	Initials	Date	Approved	STANDARD DRAWINGS	
				Designed by:	W.O	JUNE 2025	1	DRAFT DETAILED DESIGN	By					28. RO SCHEMATIC DRAWING
								FINAL DETAILED DESIGN	By					
				Drawn by:	V.K	JUNE 2025			Checked					
									By					
				Checked by:	M.J	JUNE 2025			Checked					
	By													
Approved by:	D.L	JUNE 2025			By									
					Checked									
DRAWING SCALE:									DRAWING No.: SHEET 1 OF 1					
AS SHOWN									GW4R-WJR-STD-28					