



**The Republic Of Uganda**  
**MINISTRY OF WATER AND ENVIRONMENT**

**Bidding Document**  
**for the**  
**Procurement of Works**

**NATIONAL COMPETITIVE BIDDING**

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**Subject Of Procurement: Construction of Lot 2 - Yumbe Water Supply and sanitation systems**  
**for**  
**GOBORO RURAL GROWTH CENTRE**

**Procurement Reference No: .....**

**Volume 4 - 2: Book of Drawings**

**April 2024**

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PAGE NO	DRAWING DETAILS	DRAWING NO.		PAGE NO.	DRAWING DETAILS	DRAWING NO.
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# GOBORO RGC

Water Supply System Layout



## Legend

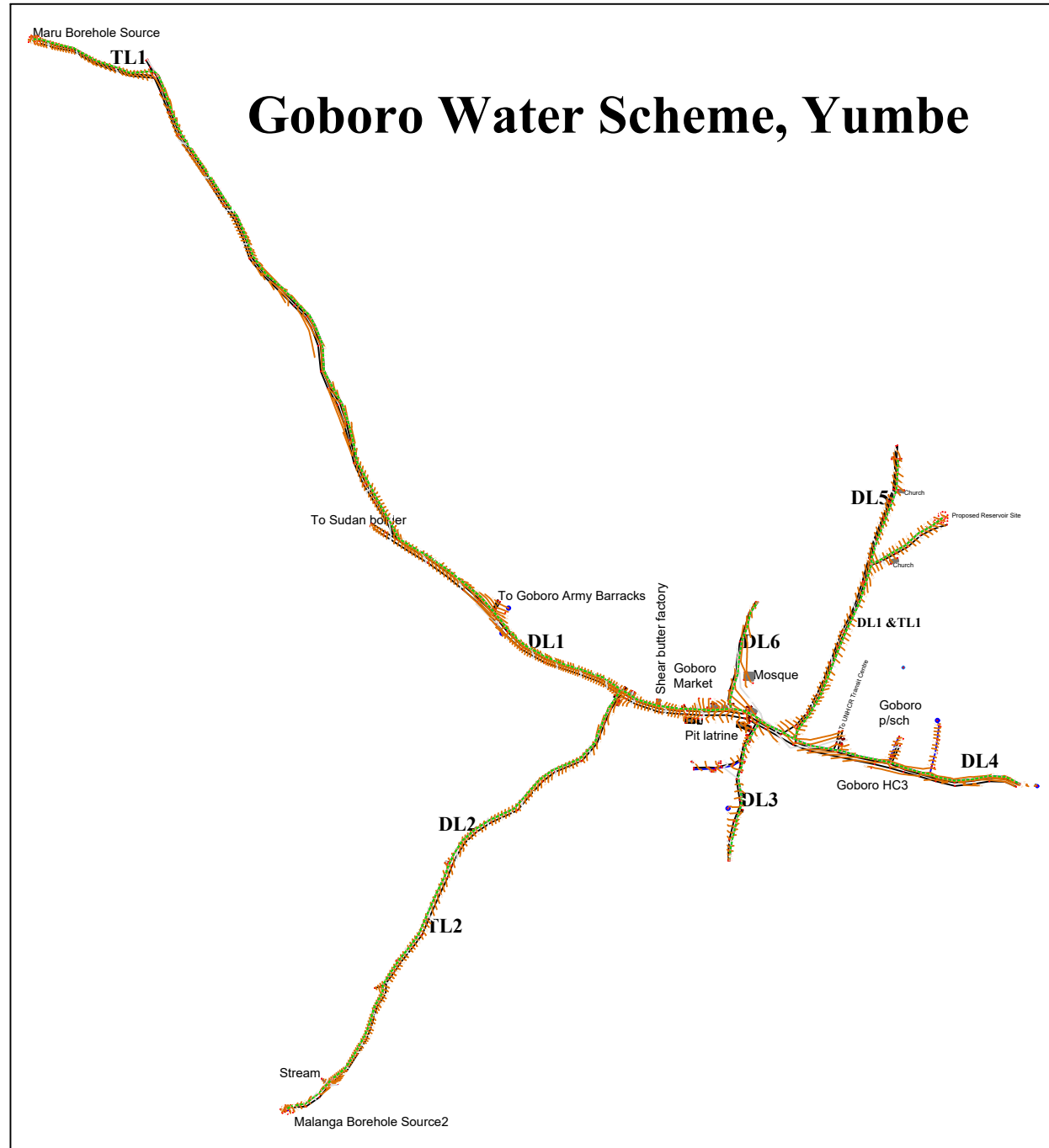
-  Church
-  Distribution Line
-  Mosque
-  plot
-  Primary School
-  Transmission Line
-  Water Resources



Google Earth

Image © 2023 Maxar Technologies  
Image © 2023 CNES / Airbus

<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b>  <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  <b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b>	<b>DATE:</b>	<b>SCALE:</b>	<b>SHEET NO:</b>	<b>STATUS</b>
							<b>GOBORO AREA MAP</b>	JULY 2023	AS SHOWN	<b>03</b>	CONCEPT DRG
							<b>DWG. No.</b> KP/WS/YUM/GOB/GEN - 03	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	



KEY

- Major Contours  
2.50m interval
- Minor Contours  
0.25m interval
- Road Edge
- Distribution pipeline
- Transmission pipeline
- Building

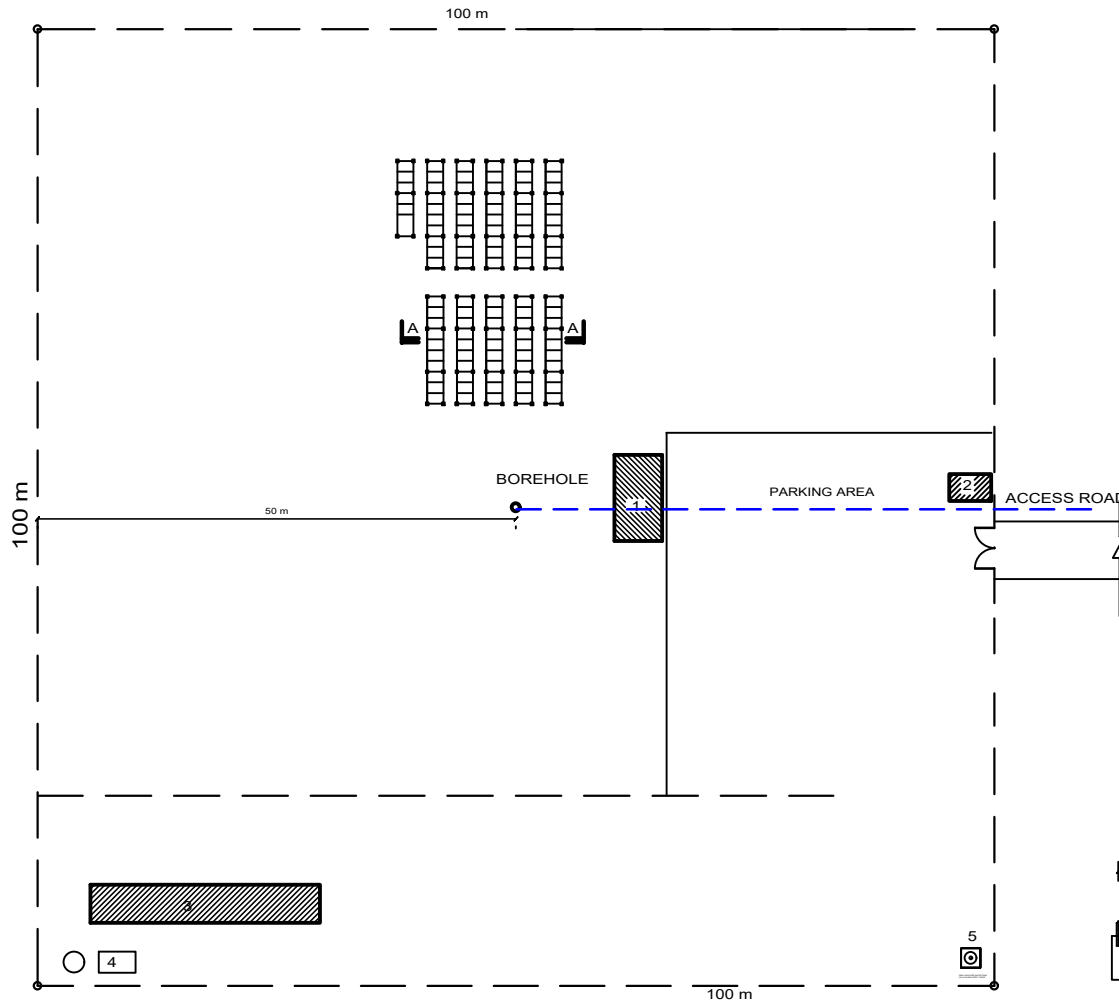
- Electric Pole
- Borehole
- Hut
- Control points
- Tap
- Foot path

Coordinate system: UTM Zone 36N Arc 1960

<b>CLIENT:</b> 	<b>CONSULTANT:</b> <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O. BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  <b>CONTRACT NO:</b> <b>MWE/CONS/19 - 20/00009/2</b>	NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET	STATUS	
							GOBORO PIPELINE LAYOUT	JULY 2023	AS SHOWN	NO:	CONCEPT DRG	
							DWG. No. KP/WS/YUM/GOB/GEN - 04	REV.No. 0	DRAWN BY: INITIALS _____ SIGN _____ DATE _____	CHECKED BY: INITIALS _____ SIGN _____ DATE _____		<input type="radio"/> TENDER DRG <input type="radio"/> APPROVED FOR CONSTRUCTION <input type="radio"/> AS BUILT DRG

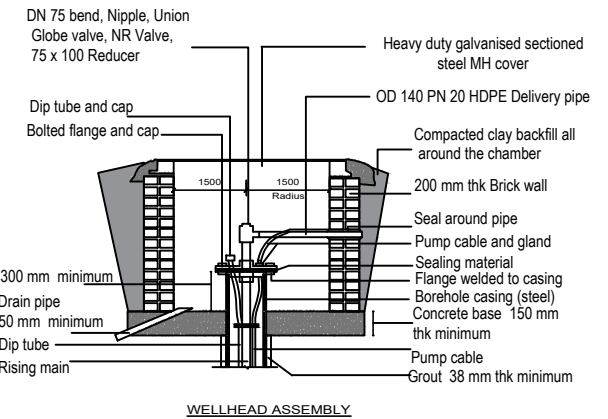
# BOREHOLE SITES



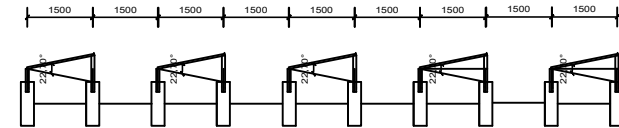


## NOTES

- 1 - PUMP HOUSE - TYPE 2
- 2 - GUARD ROOM
- 3 - STAFF HOUSE (OPTIONAL)
- 4 - SEPTIC TANK
- 5 - 2000 Ltr ELEVATED PVC WATER TANK
- — FENCE LINE



WELLHEAD ASSEMBLY



SECTION A - A

**MALANGA BOREHOLE SITE LAYOUT** SCALE; 1:500

CLIENT:



MINISTRY OF WATER  
AND ENVIRONMENT

CONSULTANT:



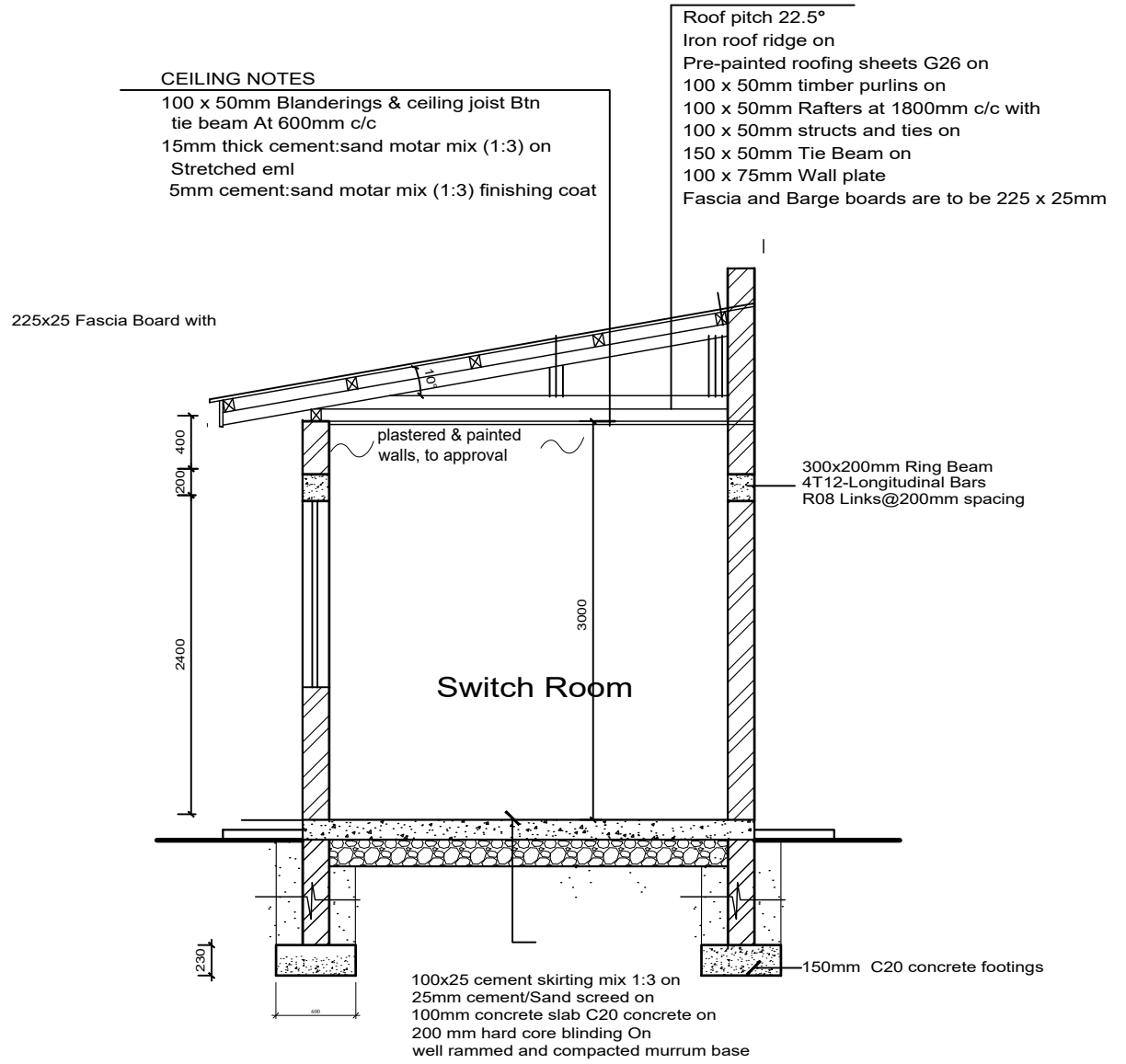
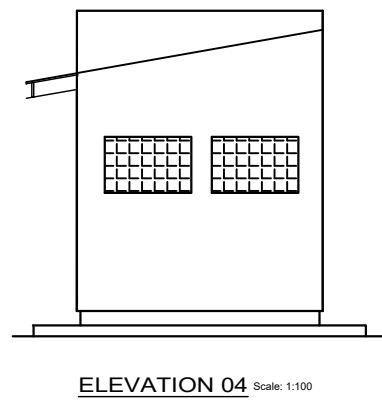
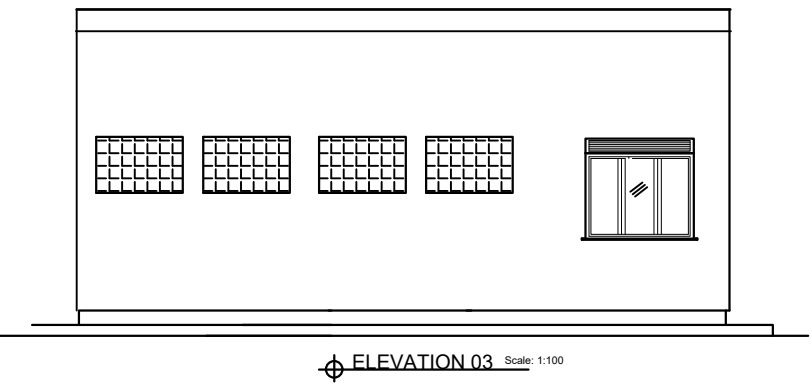
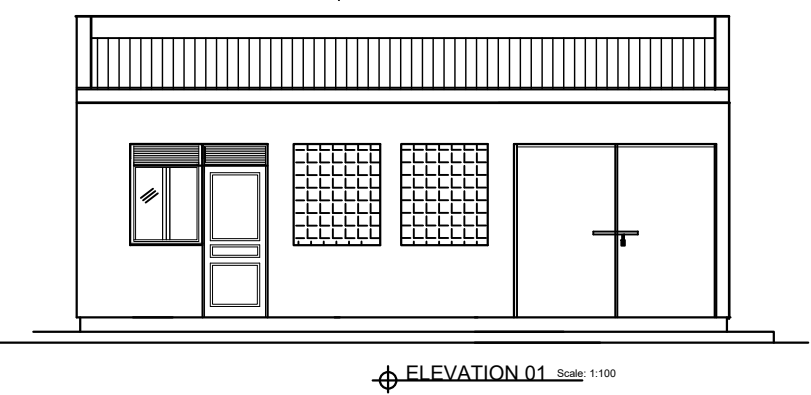
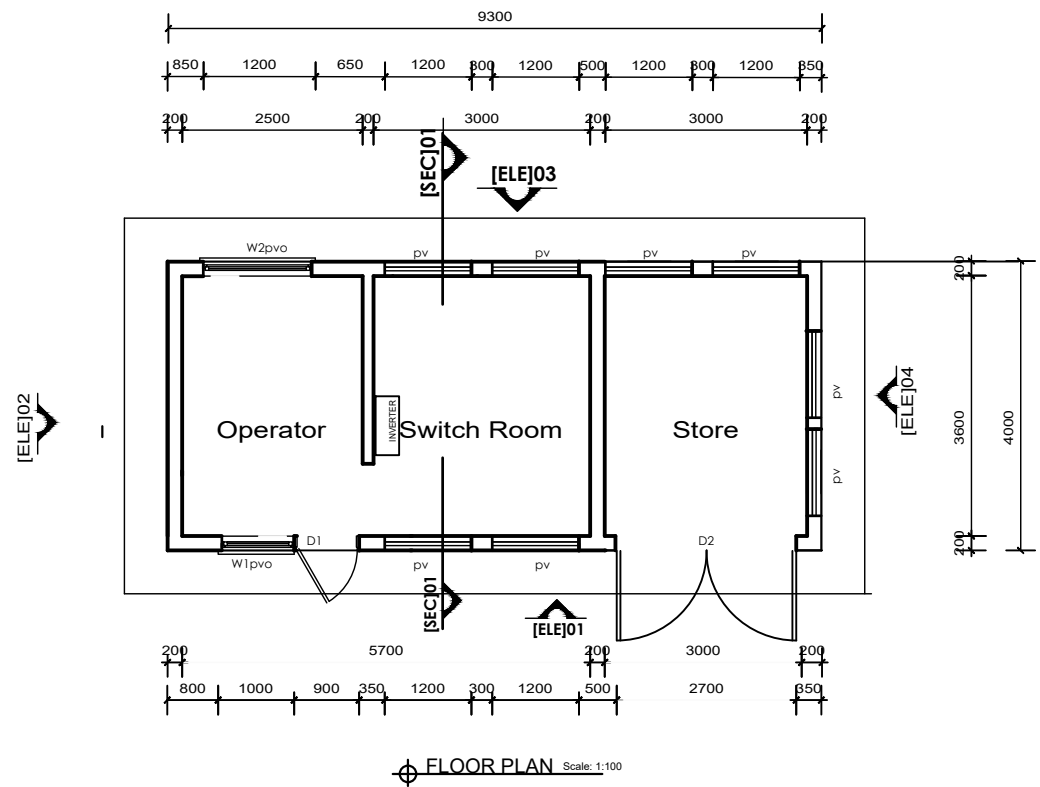
**KAGGA & PARTNERS**  
KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O. BOX 6583,  
KAMPALA, UGANDA

**PROJECT**  
CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
STUDY, DETAILED ENGINEERING DESIGN AND  
CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				<b>MALANGA BOREHOLE SITE LAYOUT</b>	JULY 2023	AS SHOWN	<b>05</b>	CONCEPT DRG
				<b>DWG. No.</b> KPWS/YUM/GOB/BS - 01	<b>REV. No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG





**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	900	2400	01	STEEL panel door with 300 mm vent
D2	2500	2400	01	Double swing steel door of metal sheet, 2mm thick with 300mm vent on door lintel and with clear
WINDOW SCHEDULE				
W1	1000	1400	01	Casement steel window, with 300mm vent on lintel and with frosted glass
W2	1200	1400	01	ditto
PV	1200	1400	08	Metal Grill Opening with insect proofing



**CONSULTANT:**  
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**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
 PUMP HOUSE TYPE 2 -  
 FLOOR PLAN  
 ELEVATIONS, SECTION  
 AND SCHEDULES

**DWG. No.**  
 KP/WS/YUM/PH 2 - 01

**DATE:**  
 JULY 2023

**SCALE:**  
 AS SHOWN

**SHEET NO:**  
**07**

**DRAWN BY:**  
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 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

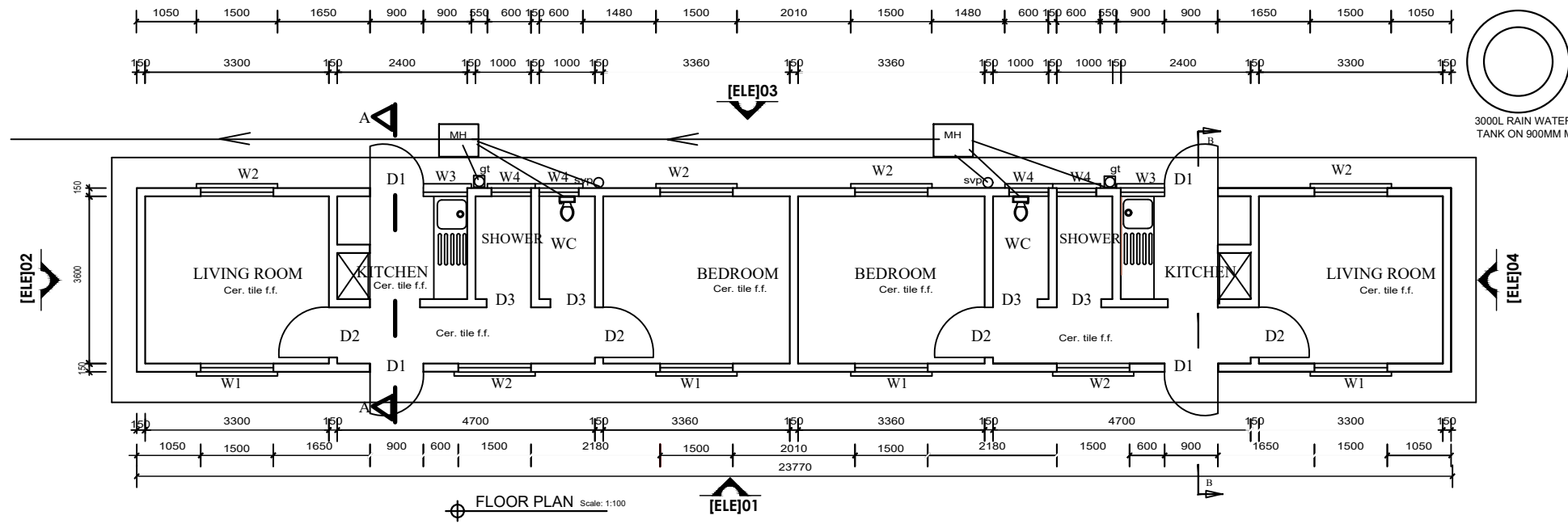
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STATUS
CONCEPT DRG
TENDER DRG
APPROVED FOR CONSTRUCTION
AS BUILT DRG







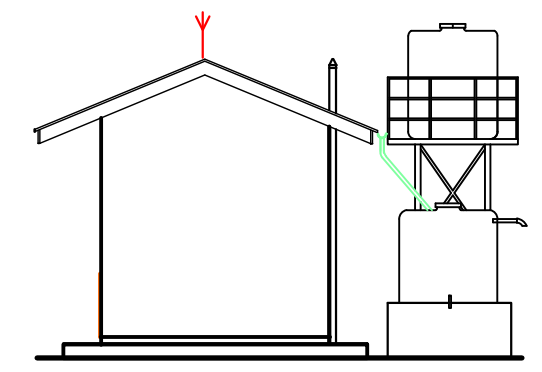
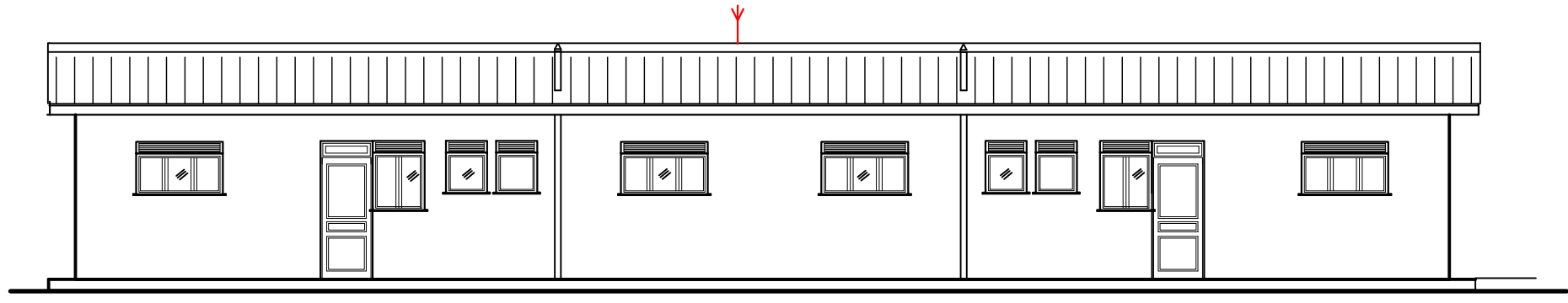
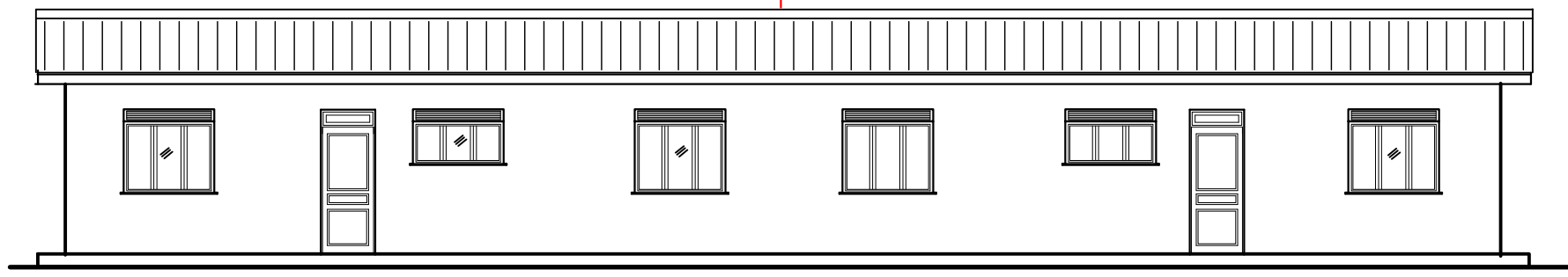


**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	900	2400	04	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D2	900	2400	04	Solid Core Flush Door
D3	800	2100	04	Ditto

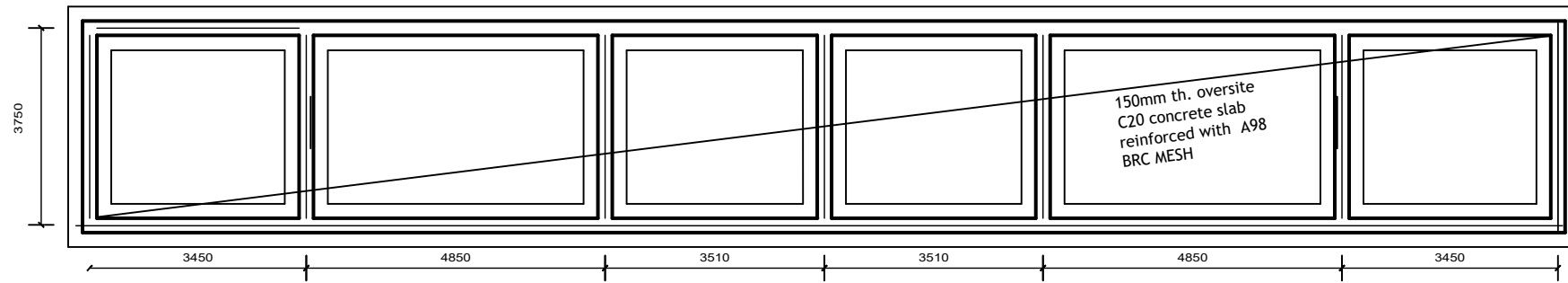
  

WINDOW SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
W1	1500	1400	04	Casement steel window, with 300mm vent on lintel and with clear glass
W2	1500	900	06	Ditto
W3	900	1200	02	Ditto
W4	600	900	04	Casement steel window, with 300mm vent on lintel and with frosted glass

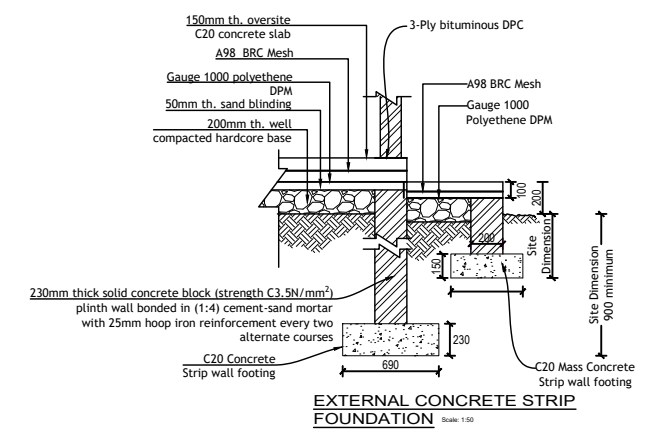


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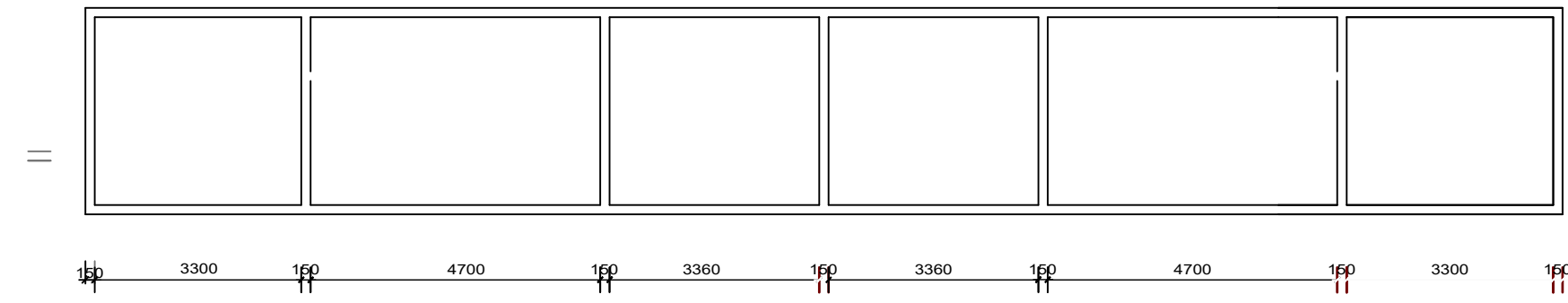
<p>MINISTRY OF WATER AND ENVIRONMENT</p>	<p><b>CONSULTANT:</b> <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O. BOX 6583, KAMPALA, UGANDA</p>	<p><b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE</p> <p><b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2</p>	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b> STAFF HOUSE - FLOOR PLAN ELEVATIONS, SECTION AND SCHEDULES	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b> <b>11</b>	<b>STATUS</b>
									<p><b>DWG. No.</b> KP/WS/YUM/SH - 01</p> <p><b>REV.No.</b> 0</p>	<p><b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____</p>	<p><b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____</p>



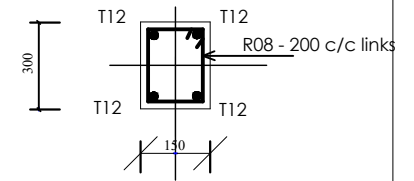
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EXTERNAL CONCRETE STRIP FOUNDATION Scale: 1:50



RING BEAM PLAN Scale: 1:100

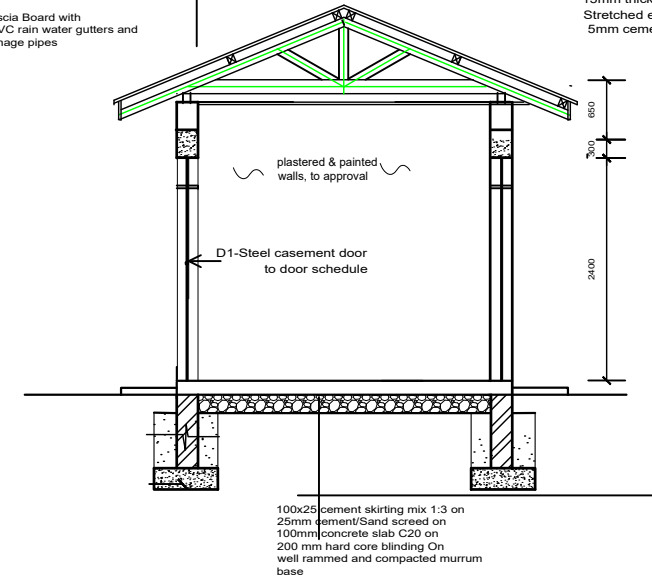


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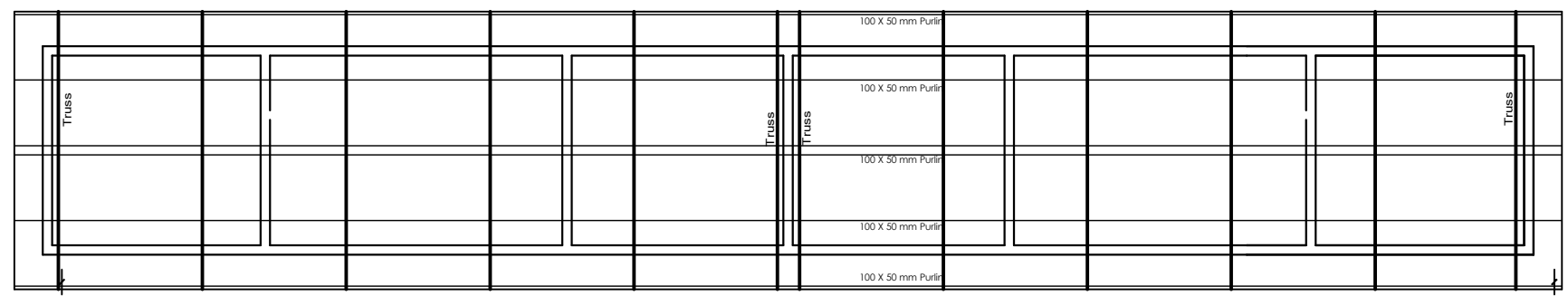
**ROOF NOTES**  
 Roof pitch 22.5°  
 Iron roof ridge on  
 Pre-painted roofing sheets G28 on  
 75 x 50mm timber purlins on  
 100 x 50mm Rafters at 1800mm c/c with  
 100 x 50mm struts and ties on  
 150 x 50mm Tie Beam on  
 100 x 75mm Wall plate  
 Fascia and Barge boards are to be 225 x 25mm

225x25 Fascia Board with  
 112mm uPVC rain water gutters and  
 DN 80 drainage pipes



**CEILING NOTES**  
 100 x 50mm Blanderings & ceiling joist Btr  
 tie beam At 600mm c/c  
 15mm thick cement:sand motar mix (1:3) on  
 Stretched emi  
 5mm cement:sand motar mix (1:3) finishing coat



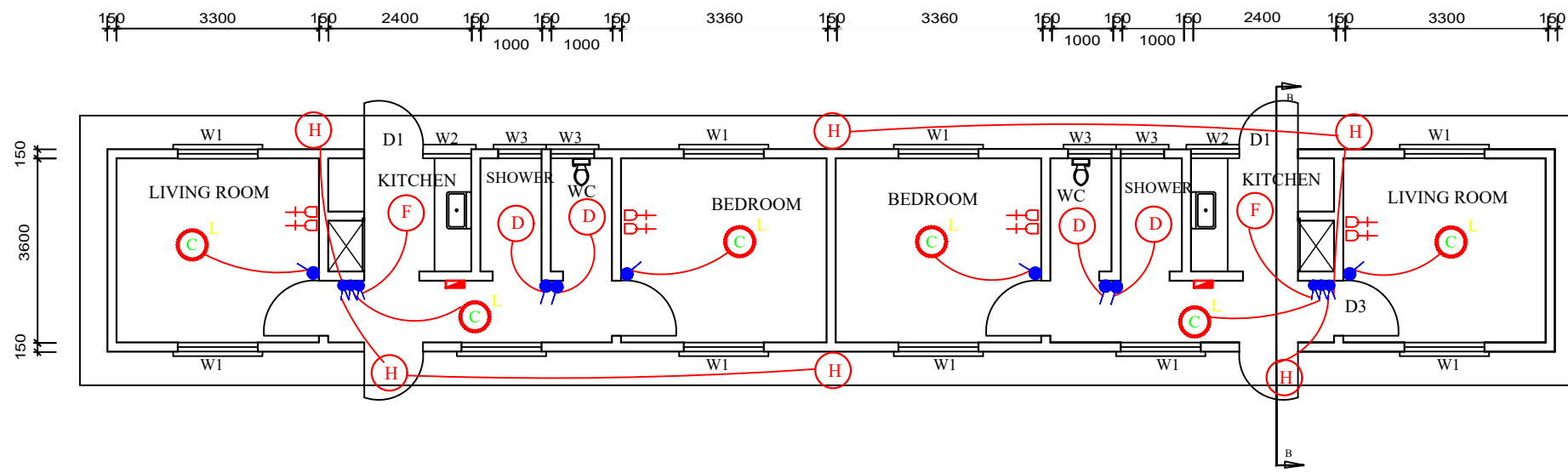
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ROOF PLAN Scale: 1:100

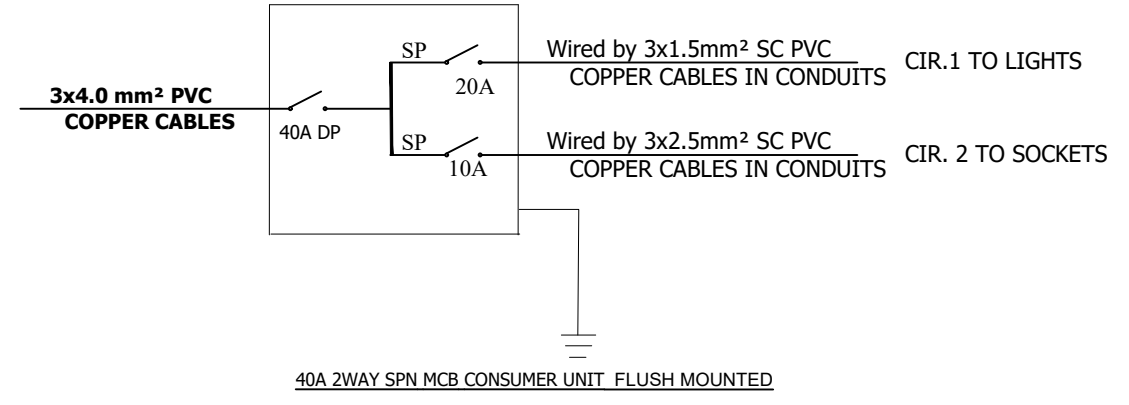
<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b>  <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O. BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE.	<b>NO.</b>    	<b>AMENDMENTS</b>    	<b>APPROVED:</b>    	<b>DATE:</b>    	<b>DRG TITLE:</b>  <b>STAFF HOUSE - STRUCTURAL DETAILS</b>	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b>  	<b>STATUS</b> CONCEPT DRG	<input type="radio"/>							
		<b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2											<b>DWG. No.</b> KP/WS/YUM/SH - 02	<b>REV. NO.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG	<input type="radio"/>	
																		APPROVED FOR CONSTRUCTION	<input type="radio"/>
																		AS BUILT DRG	<input type="radio"/>





GROUND PLAN

Symbol	Description
	1 Gang 1 Way Switch
	2 Gang 1 Way Switch
	1 Gang 2 Way Switch
	2 Gang 2 Way Switch
	3 Gang 1 Way Switch
	13A Double Socket Outlet
	IP20 Circular fitting c/w 1x18W LED Lighting as TYPE - C
	IP20 Circular fitting c/w 1x10W LED Lighting as TYPE - D
	IP20 Circular fitting c/w 10W LED Lighting as TYPE - F
	IP65 External wall fitting c/w 30W LED Lighting as TYPE - H
	IP20 48W (60x60) LED Surface Mounted square Panel fitting.
	SP Consumer Unit c/w MCBs, Neutral & Earth terminal block,
	Air Terminal
	25 x 3mm Copper Tape
	Earth pit containing Earth rod



NOTE  
 4 SOLAR PANELS TO BE MOUNTED ON THE ROOF AND 1 INVERTER  
 WILL BE REQUIRED FOR EACH UNIT

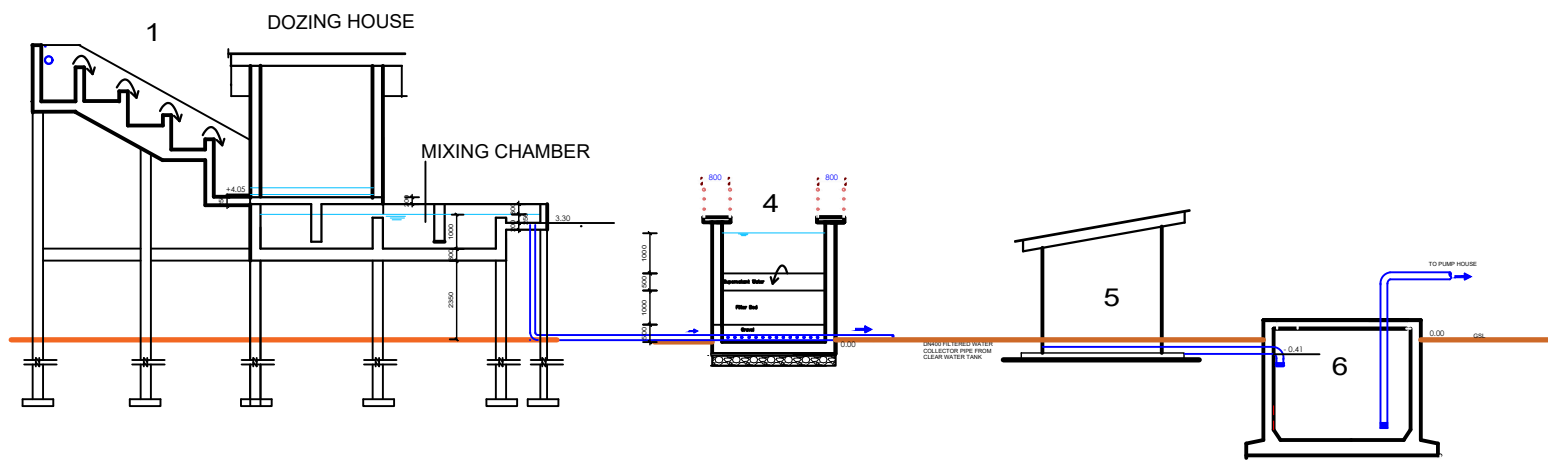
<b>CLIENT:</b>  MINISTRY OF WATER AND ENVIRONMENT	<b>CONSULTANT:</b>  KAGGA & PARTNERS KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE	<b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b>	<b>DATE:</b>	<b>SCALE:</b>	<b>SHEET NO:</b>	<b>STATUS</b>
								STAFF HOUSE - ELECTRICAL DETAILS	JULY 2023	AS SHOWN	<b>13</b>	CONCEPT DRG
						<b>DWG. No.</b> KP/WS/YUM/SH - 03	<b>REV.No.</b> ○	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____			TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG





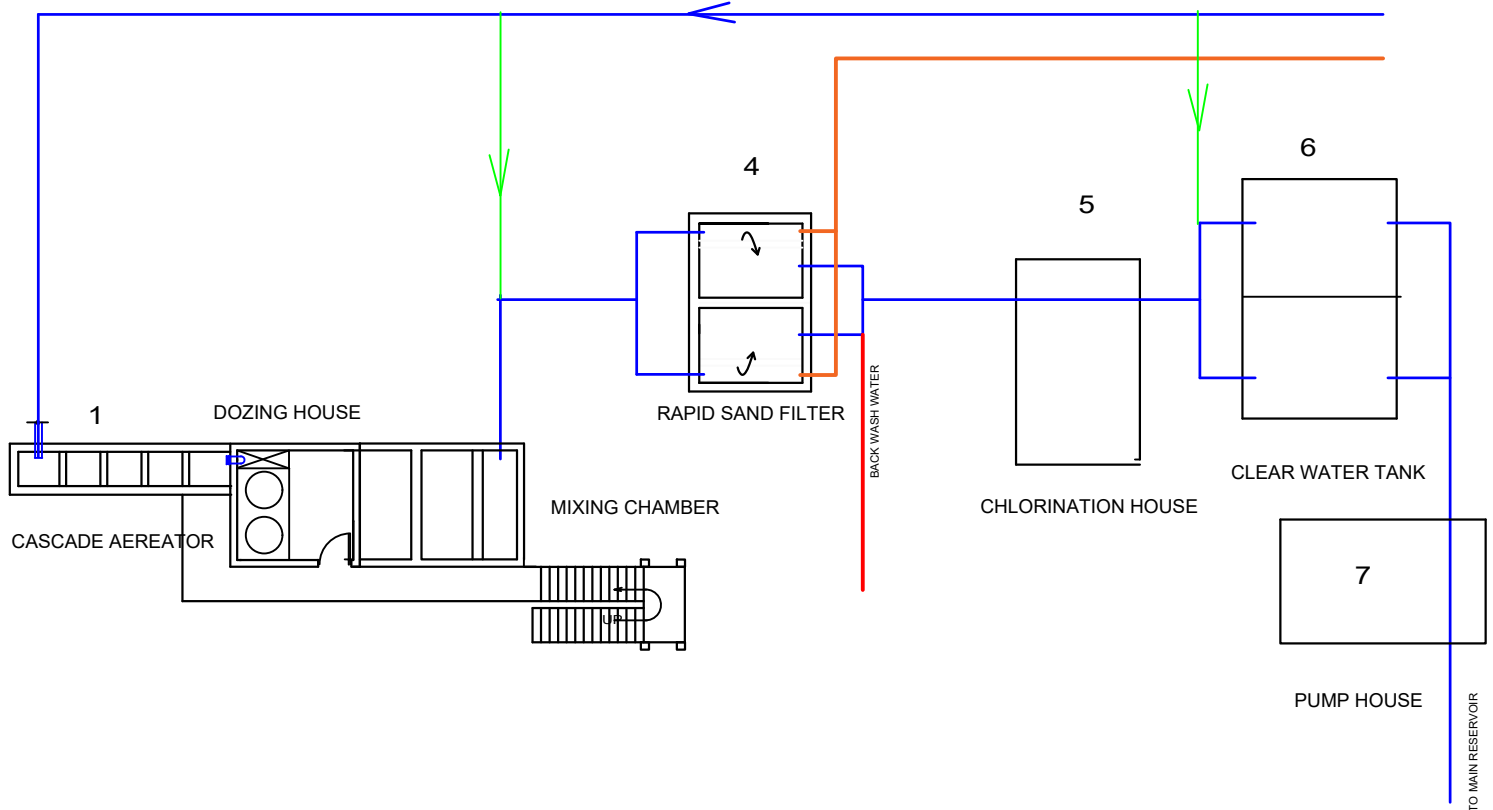
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# NOTES

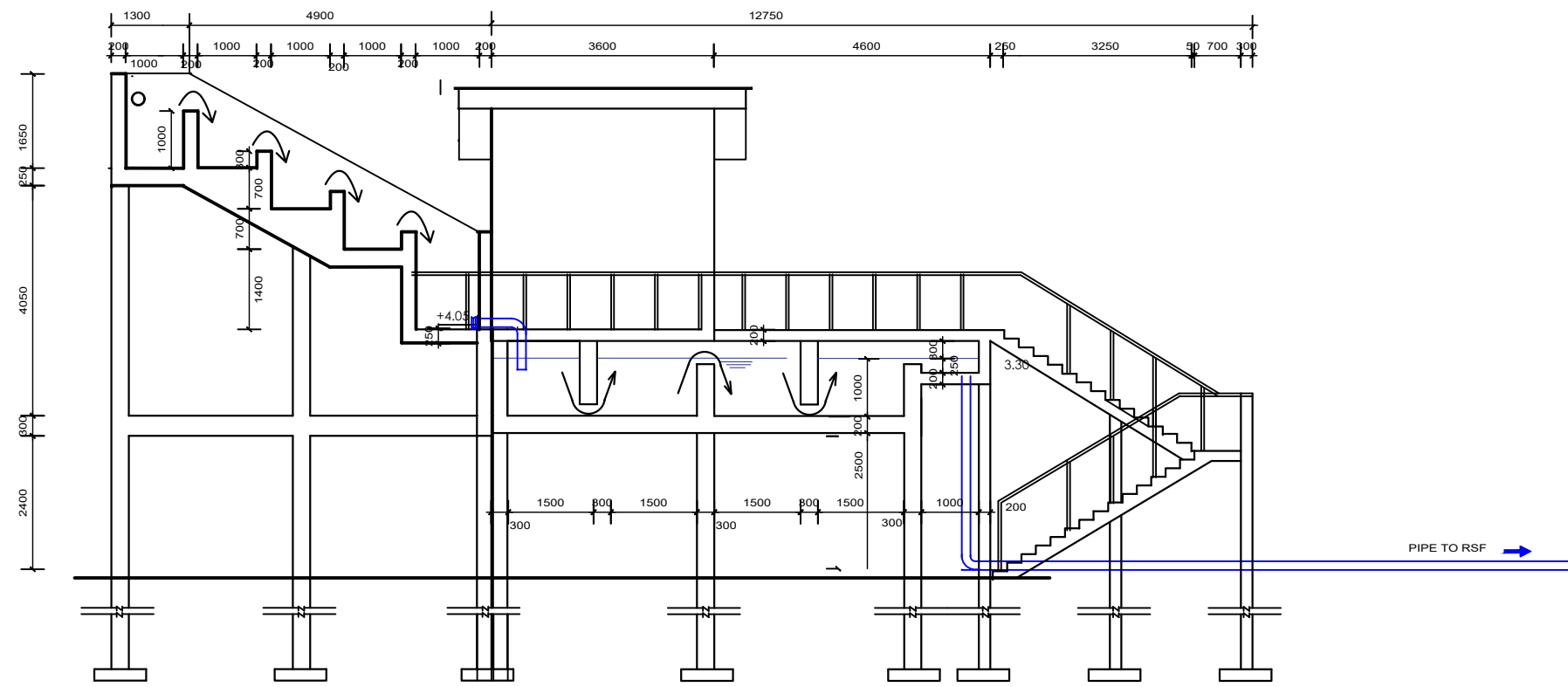
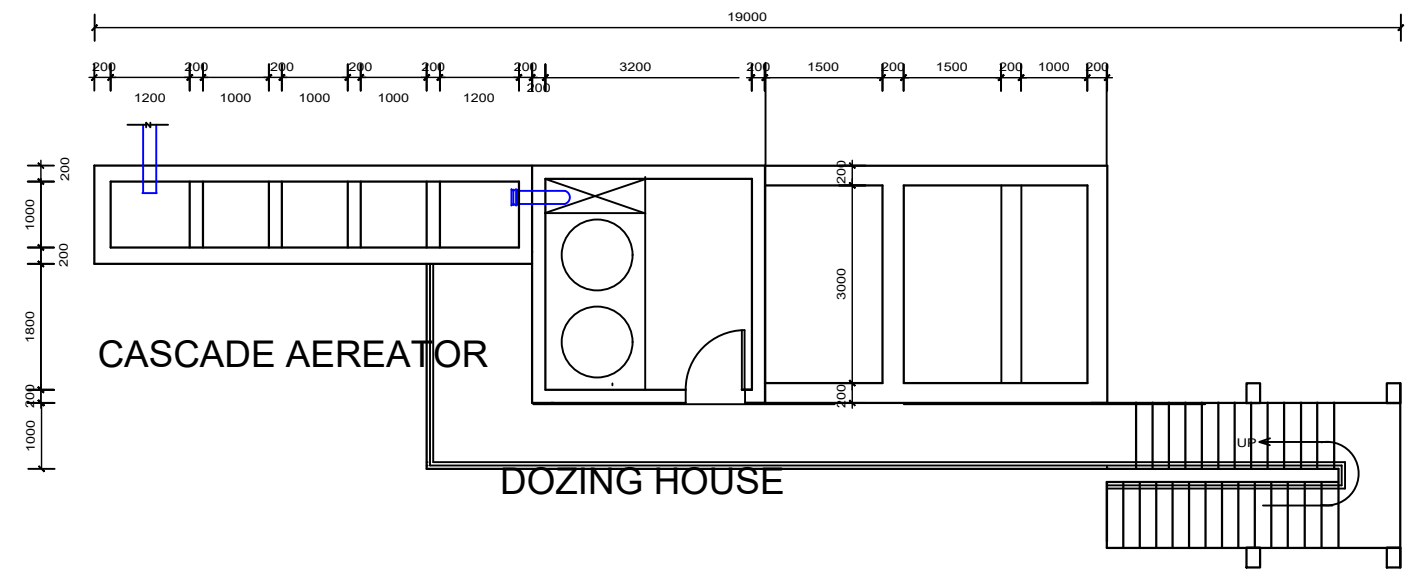
- 1 - AERATOR
- 4 - FILTERS
- 5 - CHLORINE DOZING HOUSE
- 6 - RC CLEAR WATER TANK
- 7 - PUMP HOUSE - TYPE 1
- 8 - 120 m2 ELEVATED WATER TANK
- 9 - SLUDGE DRYING BED
- 10 - GUARD ROOM




- — FENCE LINE
- RAW WATER PIPE
- BY - PASS WATER PIPE
- TREATED WATER PIPE
- WASTE WATER PIPE
- BACK WASH WATER PIPE

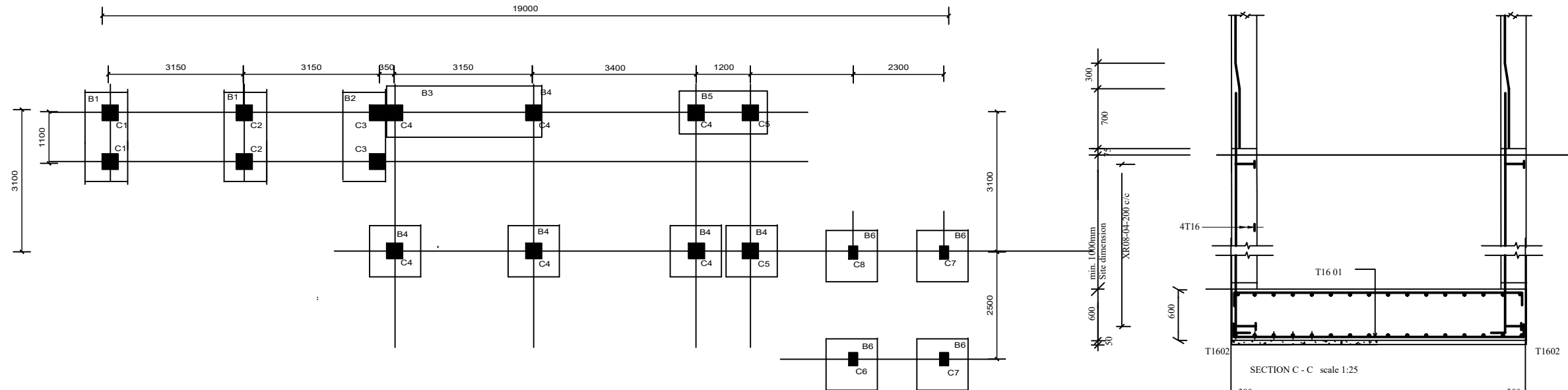
<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b> <b>KAGGA &amp; PARTNERS</b>  KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  <b>CONTRACT NO:</b> <b>MWE/CONS/19 - 20/00009/2</b>	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b>	<b>DATE:</b>	<b>SCALE:</b>	<b>SHEET</b>	<b>STATUS</b>	
									<b>TREATMENT FACILITIES SECTION AND PLAN</b>	JULY 2023	AS SHOWN	<b>NO:</b> <b>17</b>
							<b>DWG. No.</b> KP/WS/YUM/GOB/RS - 02	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	APPROVED FOR CONSTRUCTION	AS BUILT DRG

# TREATMENT PLANT UNITS

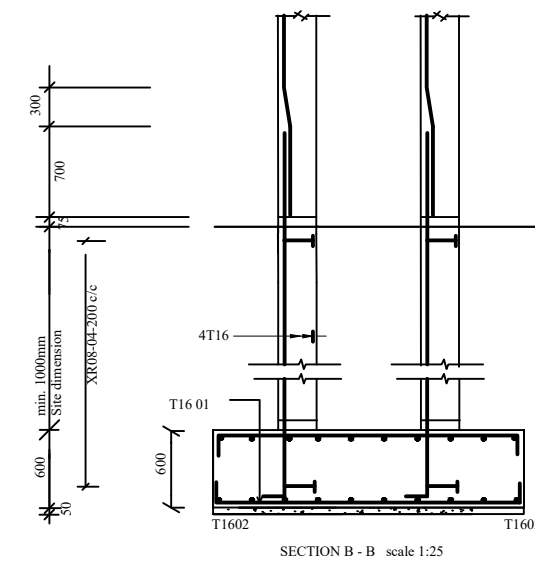
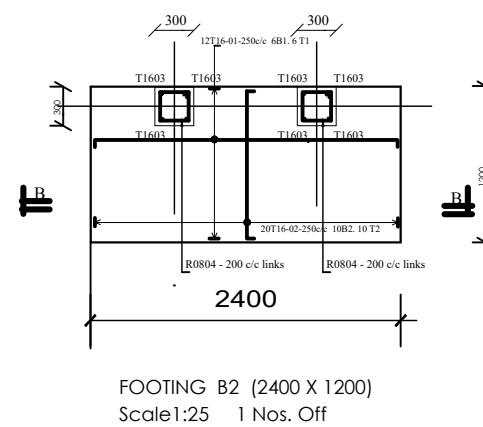
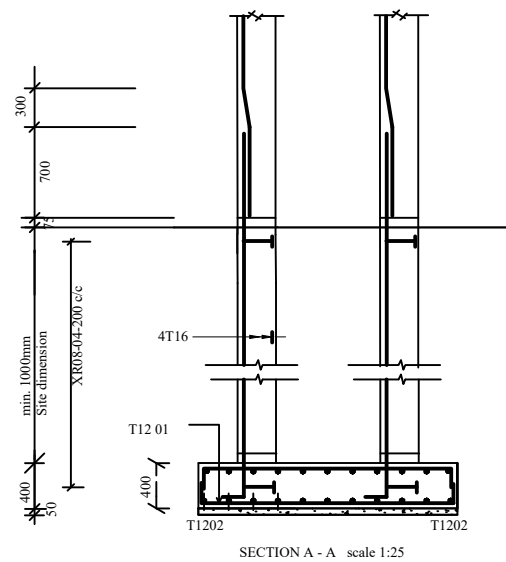
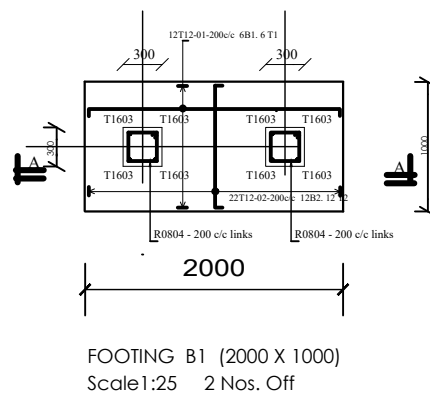
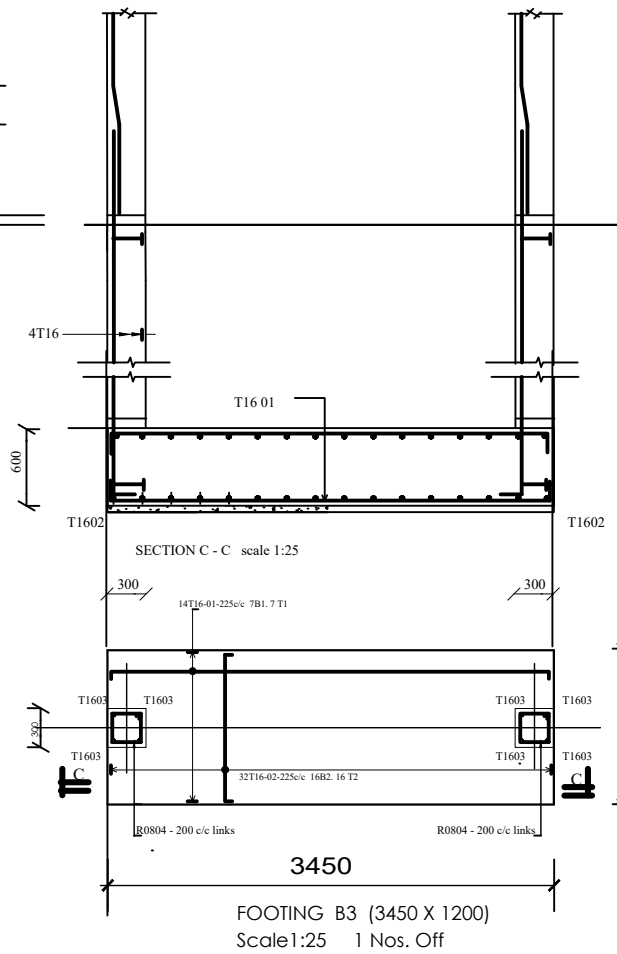


<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b> <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI, P.O. BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE	<b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b> <b>CASCADE AERATOR, DOZING HOUSE, MIXING TANK PLAN AND SECTION</b>	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b>	<b>STATUS</b>
												<b>18</b>
								<b>DWG. No.</b> KP/WS/YUM/AER2 - 01	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG





FOUNDATION PLAN SCALE 1:100



CLIENT:



MINISTRY OF WATER AND ENVIRONMENT

CONSULTANT:

**KAGGA & PARTNERS**  
KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O. BOX 6583,  
KAMPALA, UGANDA



PROJECT

CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

CONTRACT NO:

MWE/CONS/19 - 20/00009/2

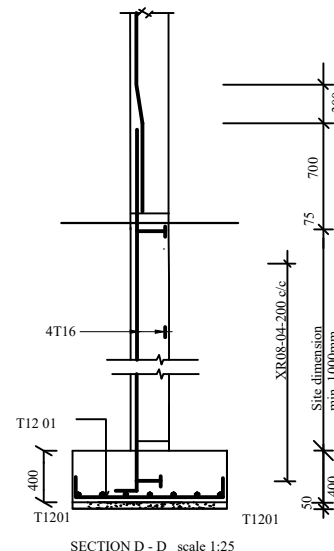
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					JULY 2023			CONCEPT DRG
								TENDER DRG
								APPROVED FOR CONSTRUCTION
								AS BUILT DRG

DWG. No.  
KP/WS/YUM/AER2 - 02

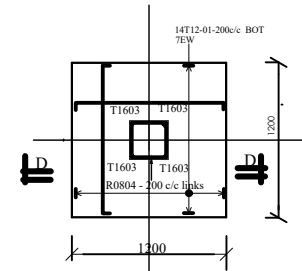
REV.No.  
O

DRAWN BY:  
INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

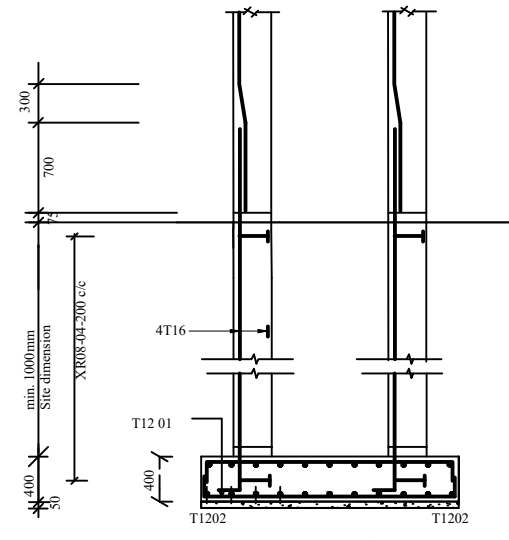
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DATE \_\_\_\_\_



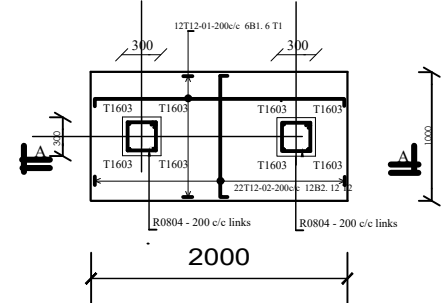
SECTION D - D scale 1:25



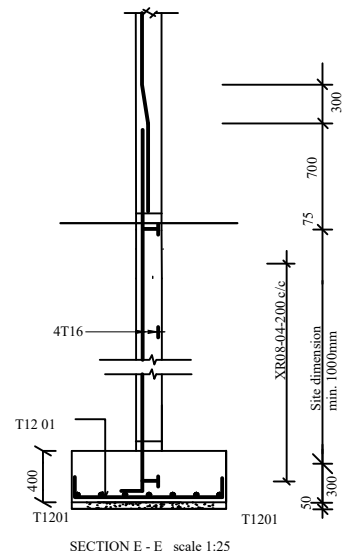
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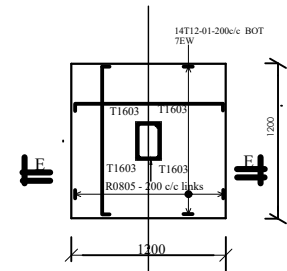
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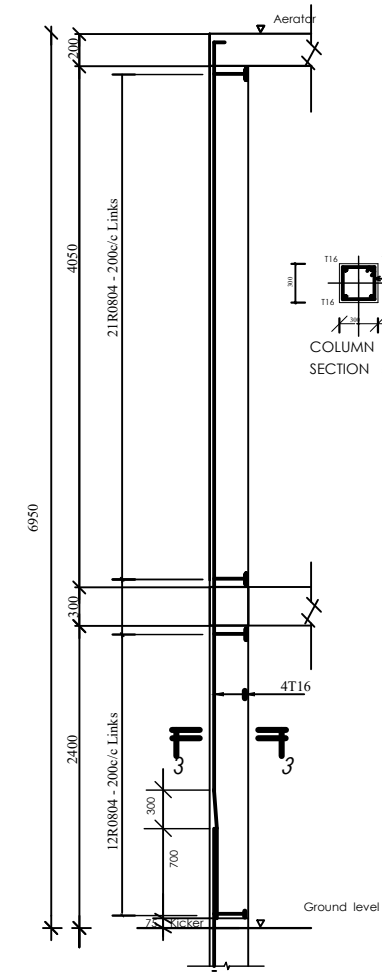
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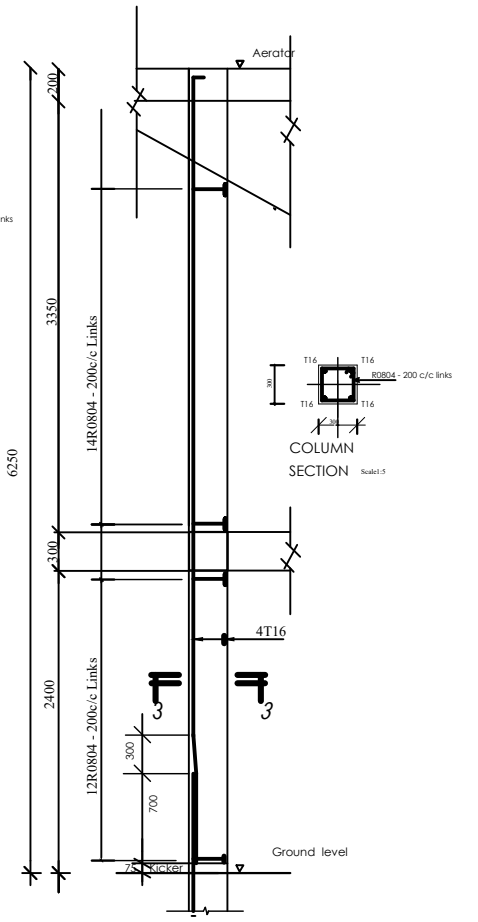
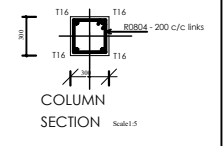
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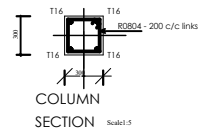
FOOTING B6 (1200 X 1200)  
Scale 1:25 4 Nos. Off




COLUMN C1  
2 Nos OFF scale 1:25



COLUMN C2  
2 Nos OFF scale 1:25



**CLIENT:**  
  
**MINISTRY OF WATER AND ENVIRONMENT**

**CONSULTANT:**  
  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA

CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  
**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

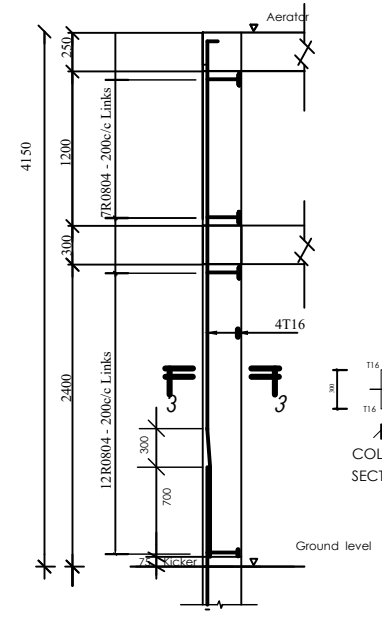
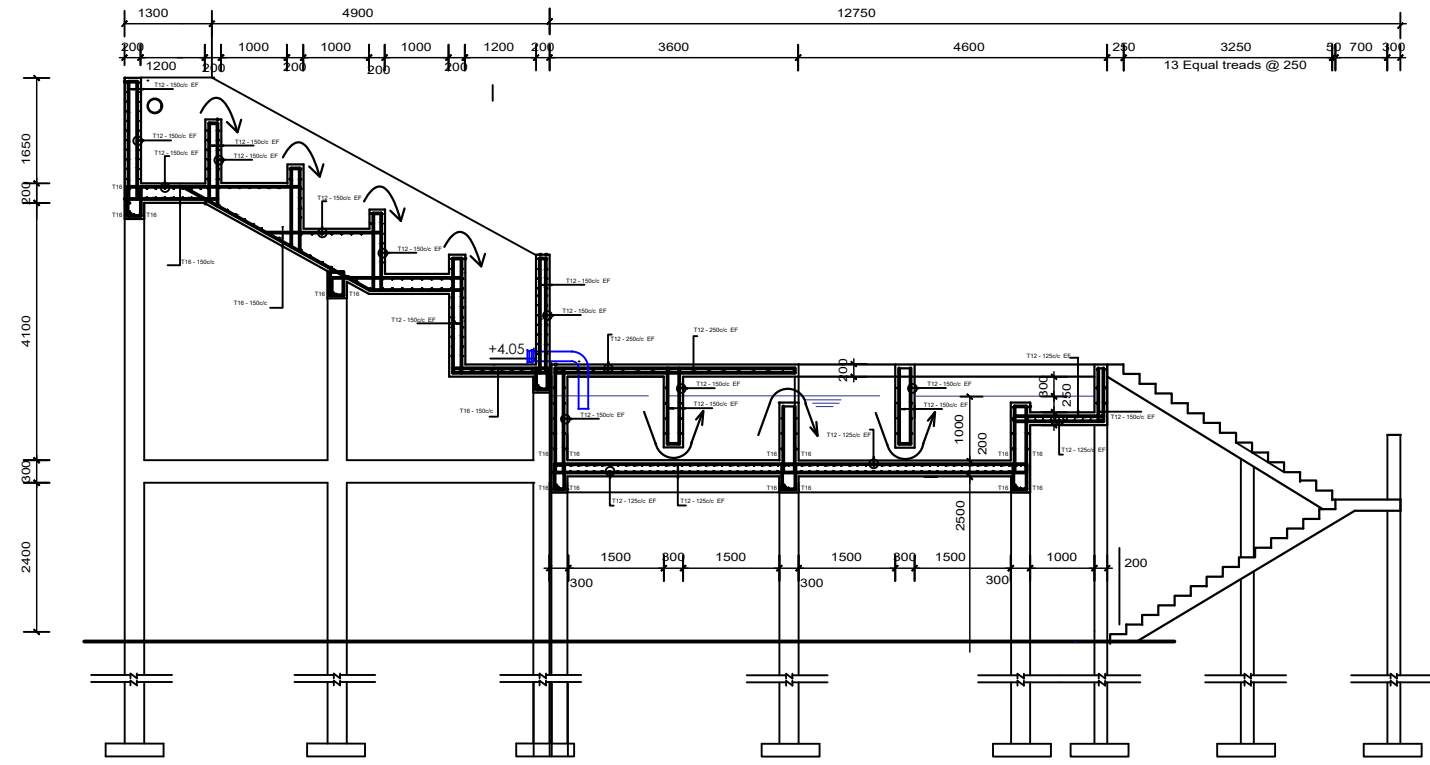
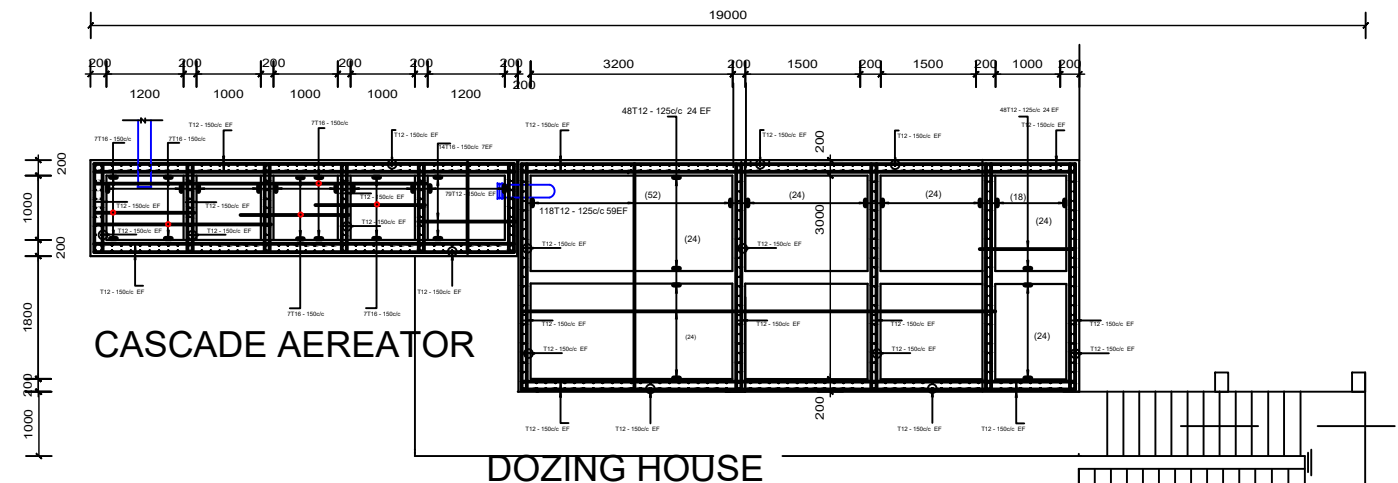
NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
 CASCADE AERATOR, DOZING HOUSE, MIXING TANK - STRUCTURAL DETAILS  
**DWG. No.**  
 KPWS/YUM/AER2 - 03

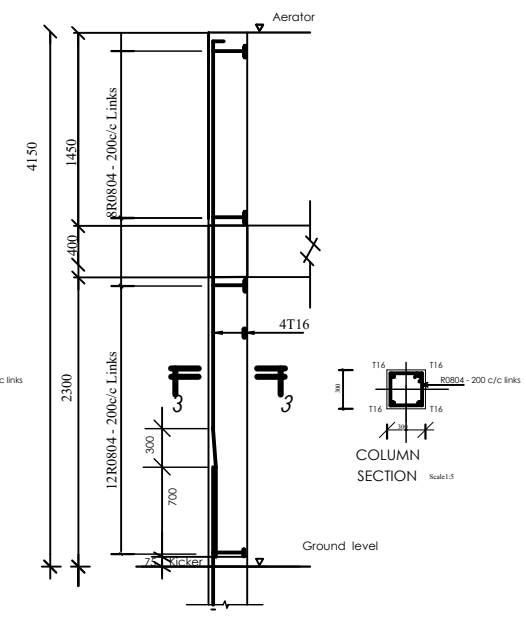
**DATE:**  
 JULY 2023  
**DRAWN BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

**SCALE:**  
 AS SHOWN  
**CHECKED BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

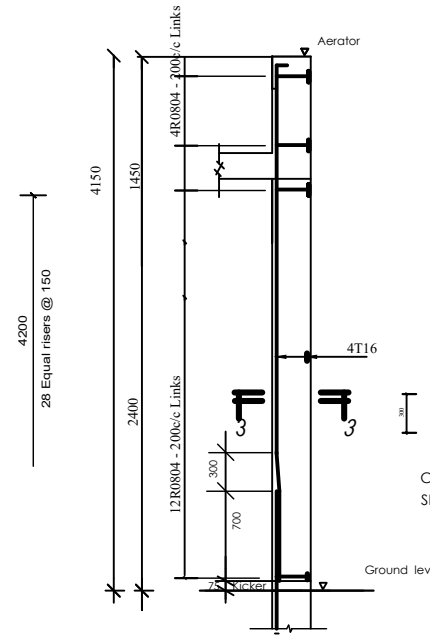
SHEET NO:	STATUS
	CONCEPT DRG
	TENDER DRG
	APPROVED FOR CONSTRUCTION
	AS BUILT DRG



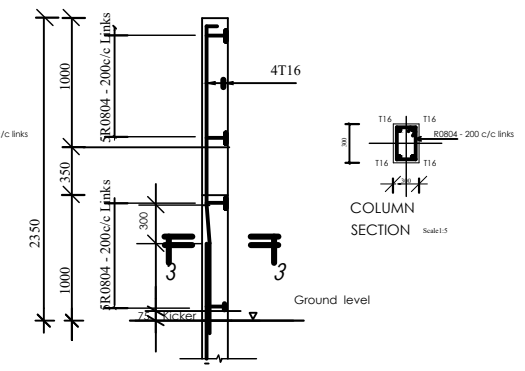
COLUMN C 3  
2Nos OFF scale 1:25



COLUMN C 4  
6 Nos OFF scale 1:25



COLUMN C 5  
2 Nos OFF scale 1:25



COLUMN C 6  
1 Nos OFF scale 1:25

**CLIENT:**  
  
**MINISTRY OF WATER AND ENVIRONMENT**

**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA

**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
**CASCADE AERATOR, DOZING HOUSE, MIXING TANK - STRUCTURAL DETAILS**

**DWG. No.**  
 KP/WS/YUMAER2 - 04

**DATE:**  
 JULY 2023

**SCALE:**  
 AS SHOWN

**DRAWN BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

**CHECKED BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

**SHEET NO:**  
**18**

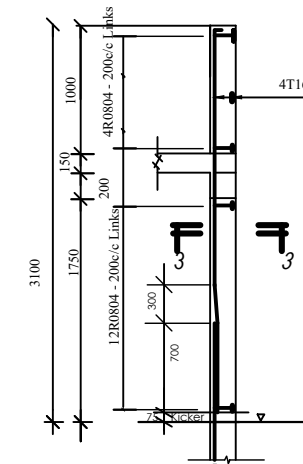
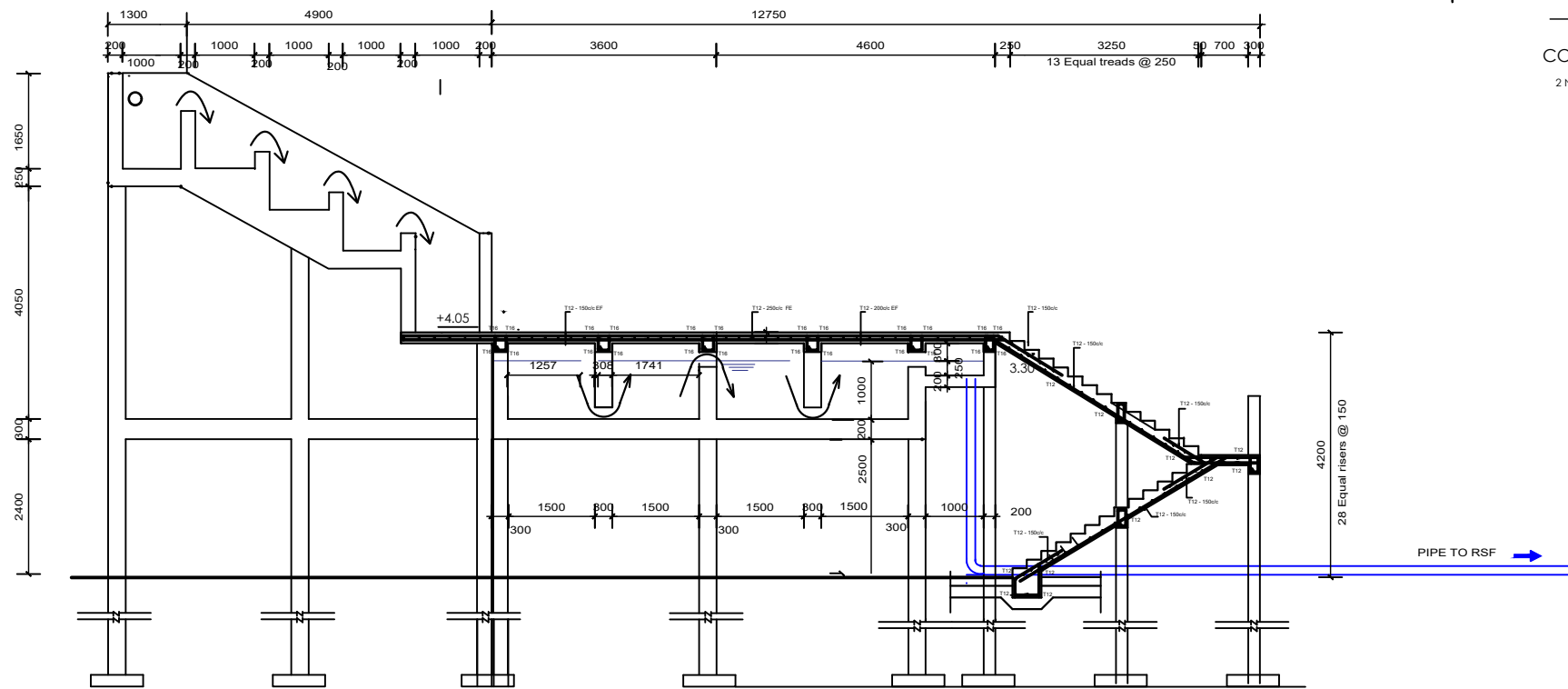
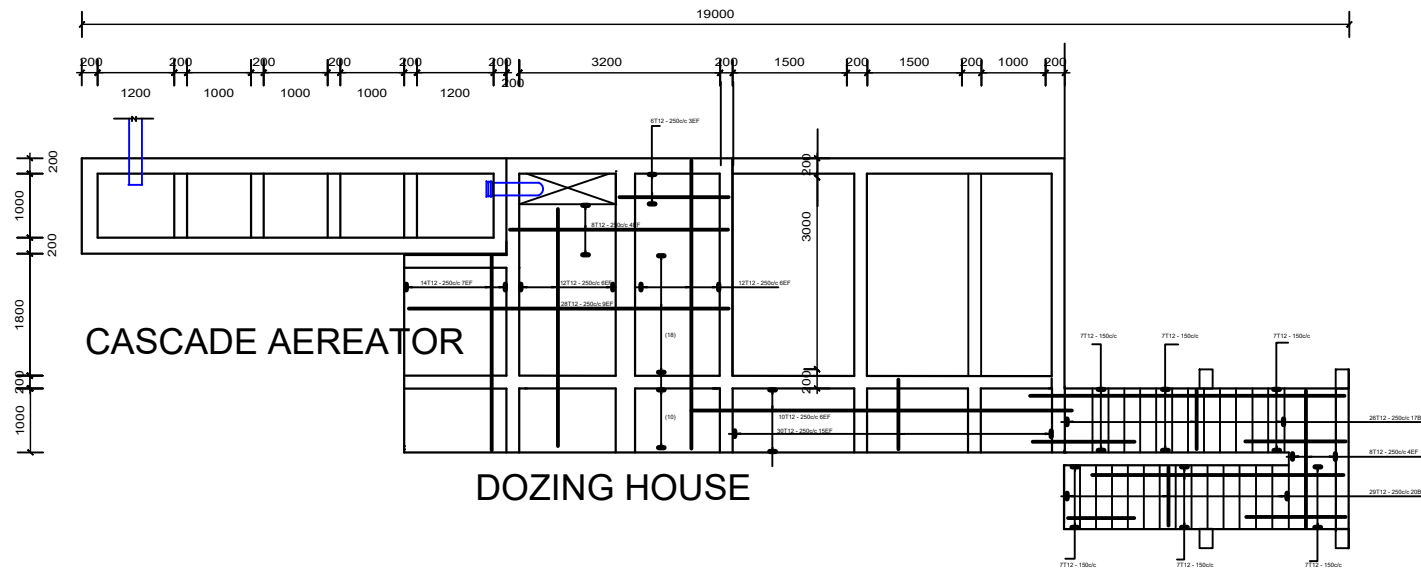
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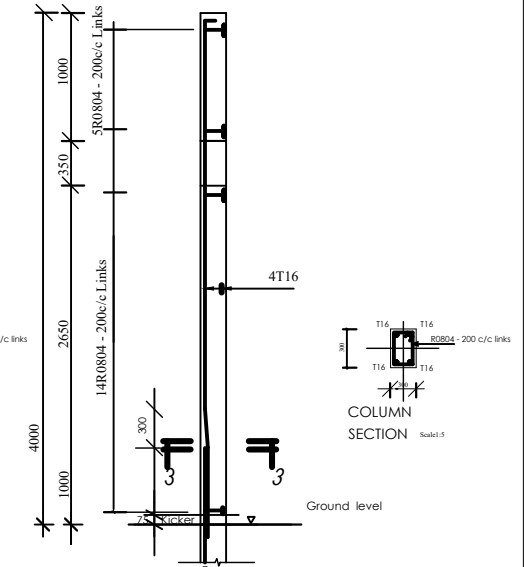
TENDER DRG

APPROVED FOR CONSTRUCTION

AS BUILT DRG



COLUMN C 7  
2 Nos OFF scale 1:25



COLUMN C 8  
1 Nos OFF scale 1:25

CLIENT:



MINISTRY OF WATER  
AND ENVIRONMENT

CONSULTANT:

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KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O. BOX 6583,  
KAMPALA, UGANDA



PROJECT

CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
STUDY, DETAILED ENGINEERING DESIGN AND  
CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
AND NORTHERN UGANDA YUMBE

CONTRACT NO:  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET	STATUS
				CASCADE AERATOR, DOZING HOUSE, MIXING TANK - STRUCTURAL DETAILS	JULY 2023	AS SHOWN	NO:	CONCEPT DRG
							18	TENDER DRG
								APPROVED FOR CONSTRUCTION
								AS BUILT DRG

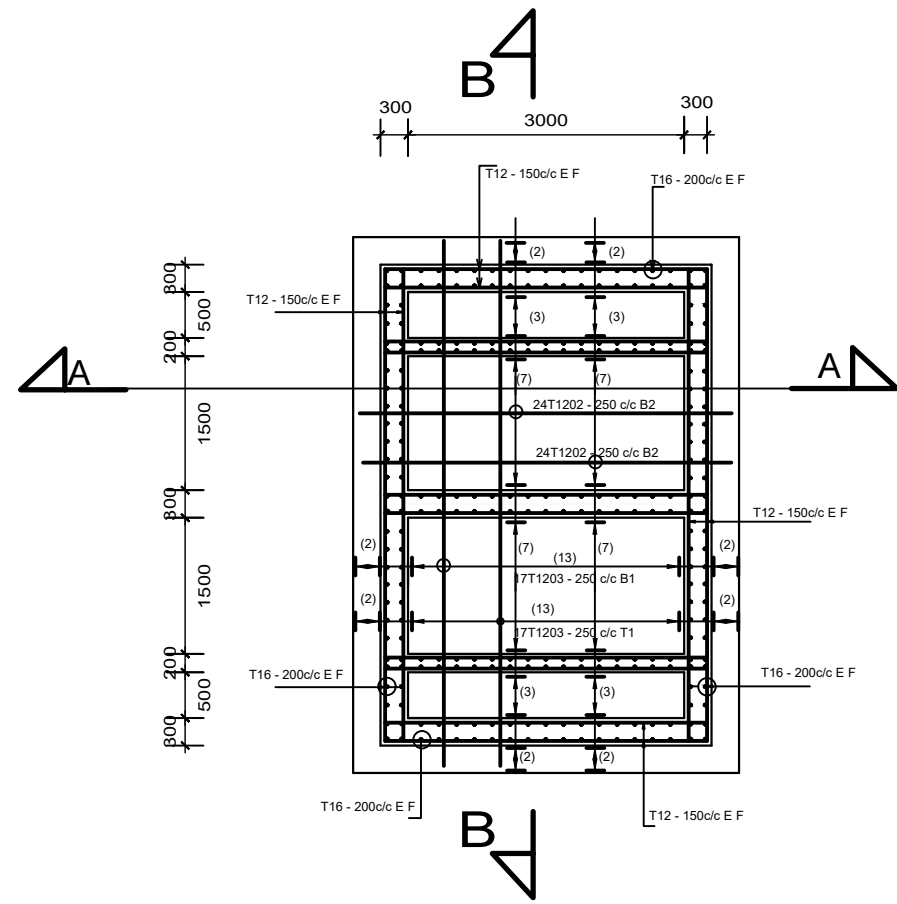
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KPWS/YUM/AER2 - 05

REV.No.  
O

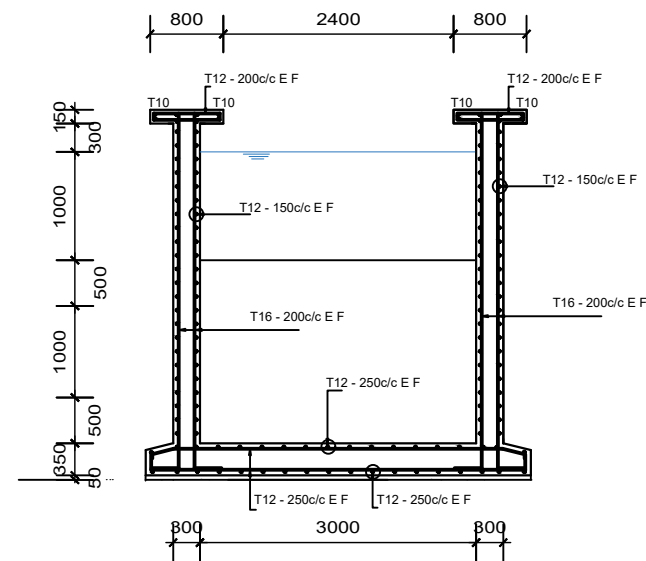
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CHECKED BY:  
INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

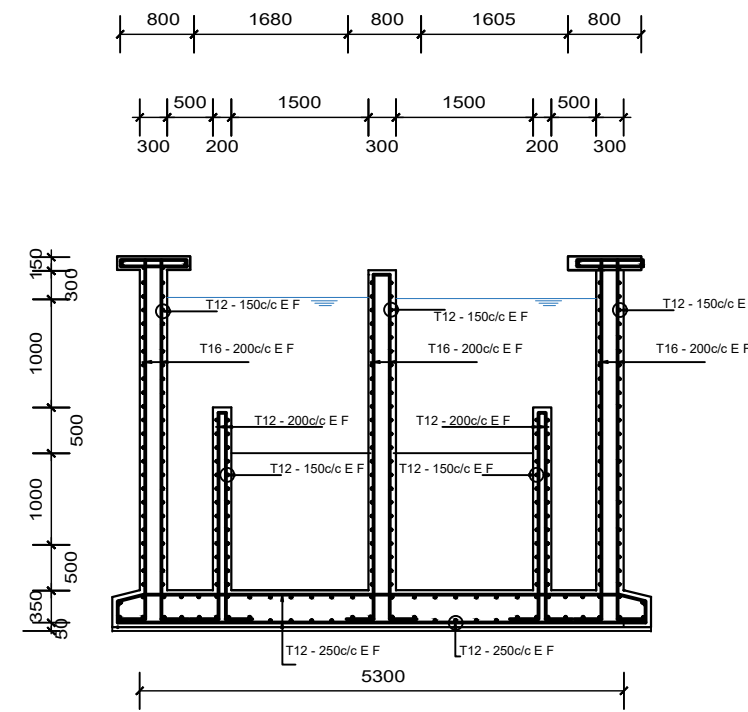




**RAPID SAND FILTER - PLAN SCALE; 1:75**



**SECTION A - A SCALE; 1:75**



**SECTION B - B SCALE; 1:75**



**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

**CONSULTANT:**  
**KAGGA & PARTNERS**  
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**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
RAPID SAND FILTER PLAN AND SECTION DETAILS

**DRG. No.**  
KP/WS/YUM/RSF2 - 01

**DATE:**  
JULY 2023

**SCALE:**  
AS SHOWN

**SHEET NO:**

**DRAWN BY:**  
INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

**CHECKED BY:**  
INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

**STATUS**

CONCEPT DRG

TENDER DRG

APPROVED FOR CONSTRUCTION

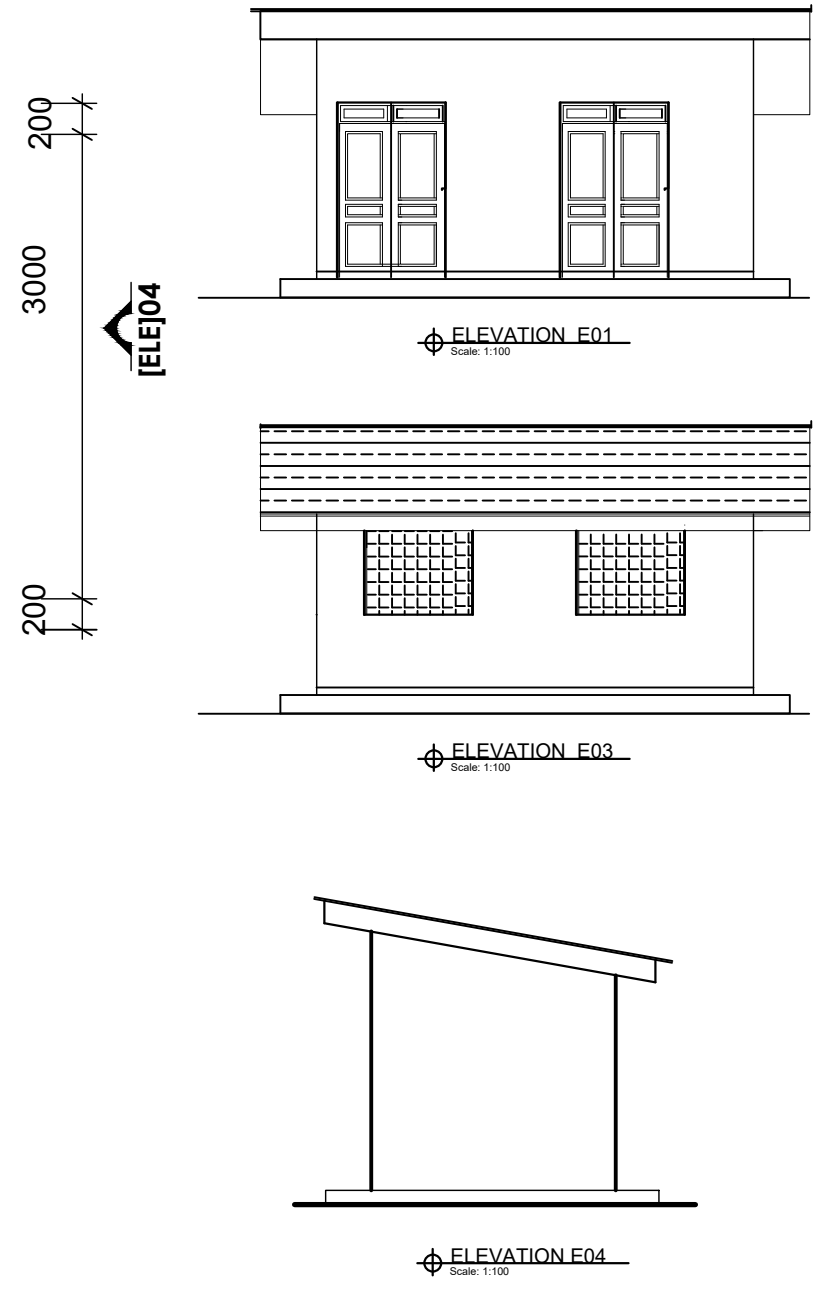
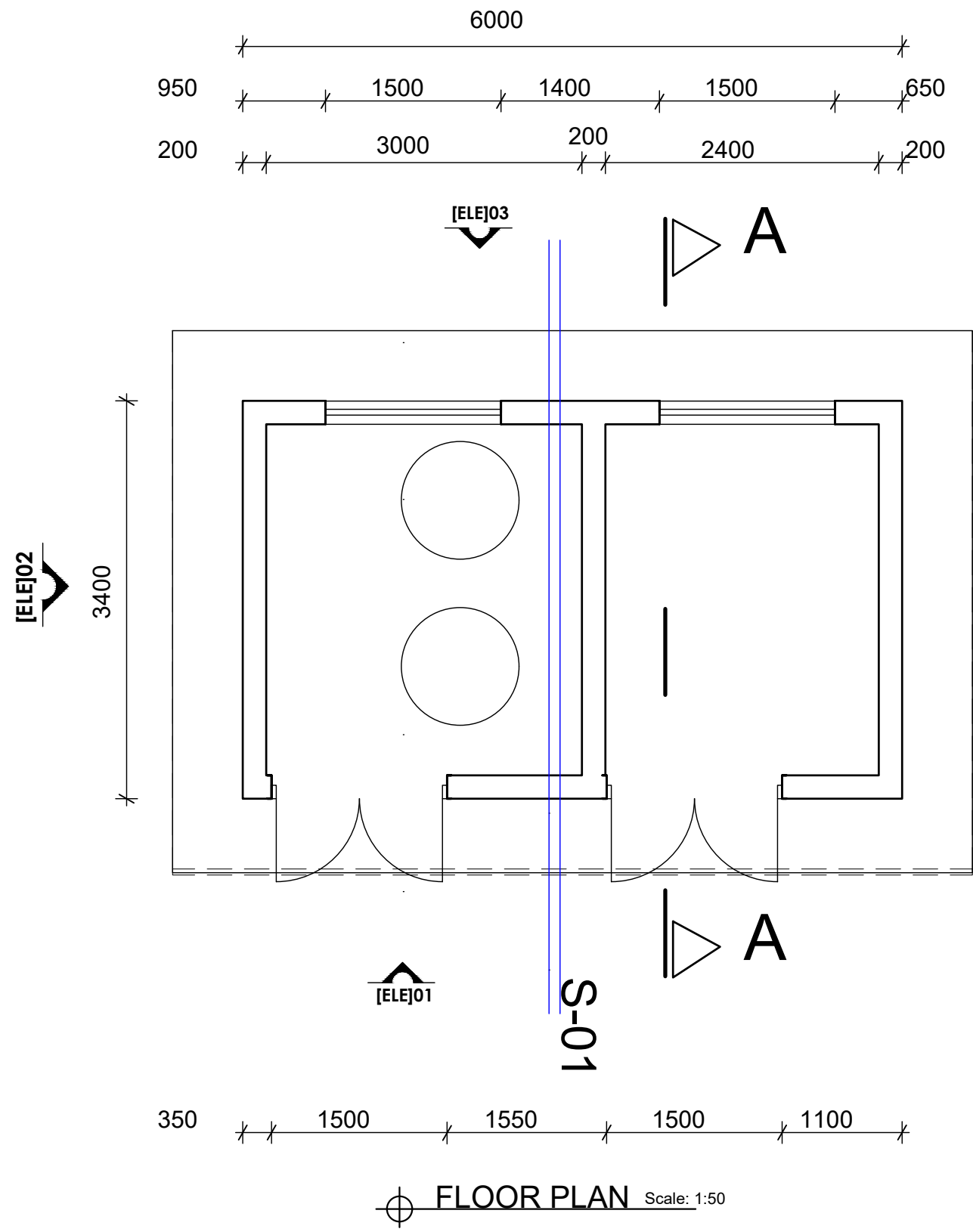
AS BUILT DRG

**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	1500	2400	02	Double opening Hard wood battened door

WINDOW SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
W1	1500	1400	02	Metal Grill Opening with insect proofing



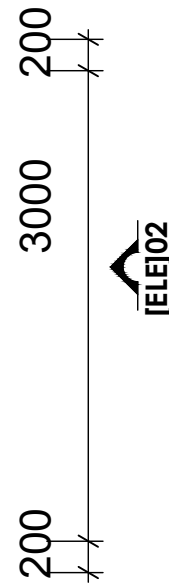
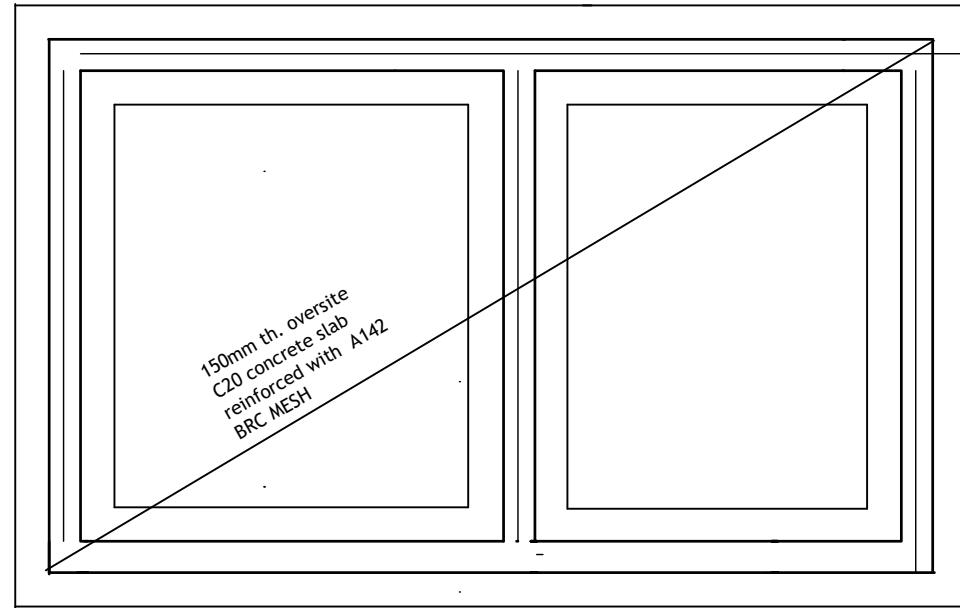
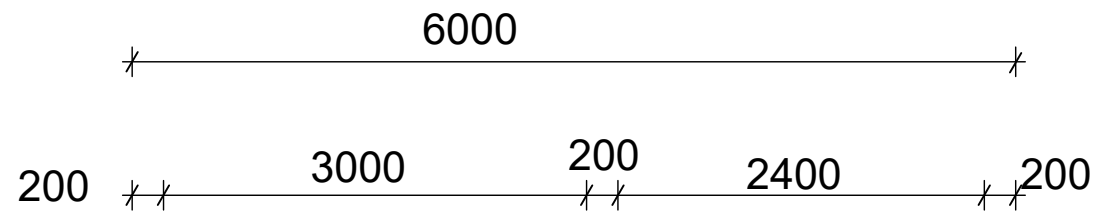
**CLIENT:**  
  
**MINISTRY OF WATER AND ENVIRONMENT**

**CONSULTANT:**  
  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O.BOX 6583,  
 KAMPALA, UGANDA

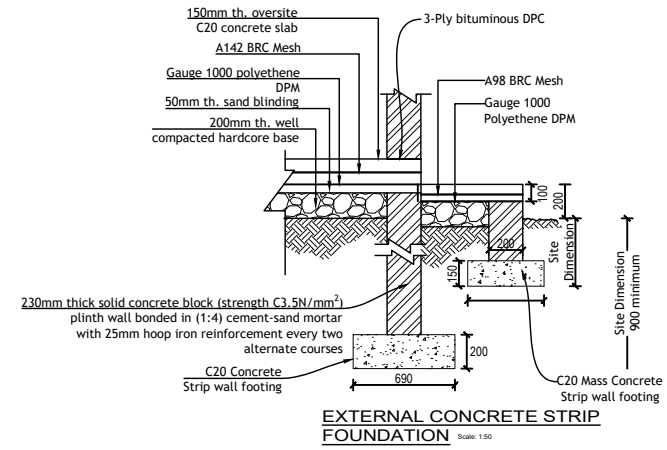
**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

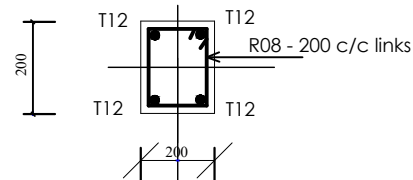
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				DWG. No. KP/WS/YUM/DH2 - 01				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
				DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE			AS BUILT DRG



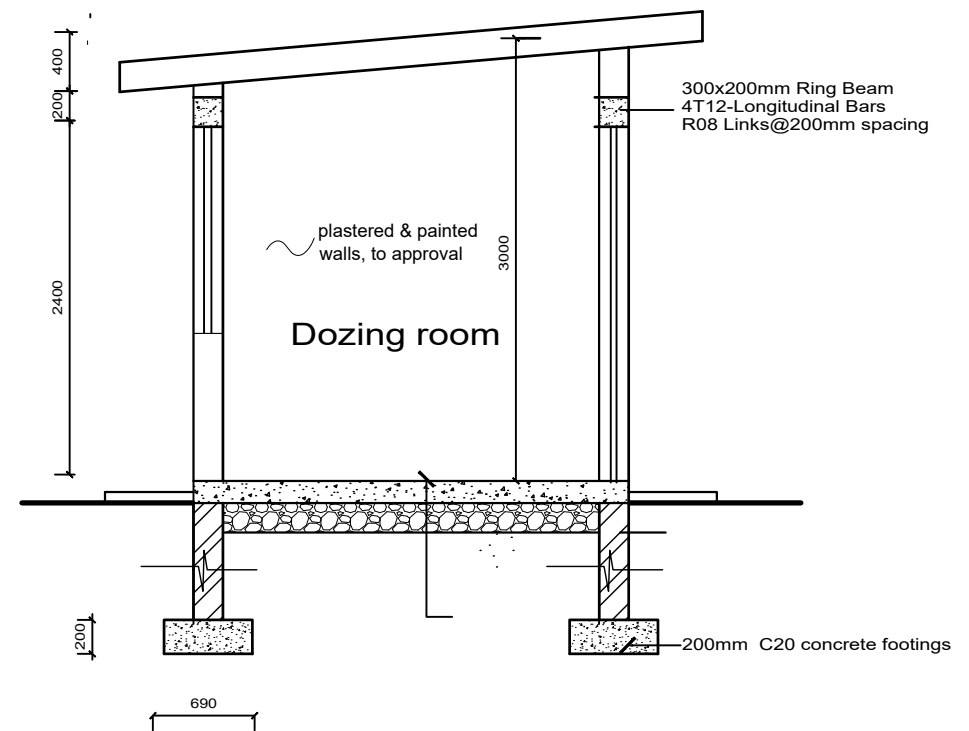
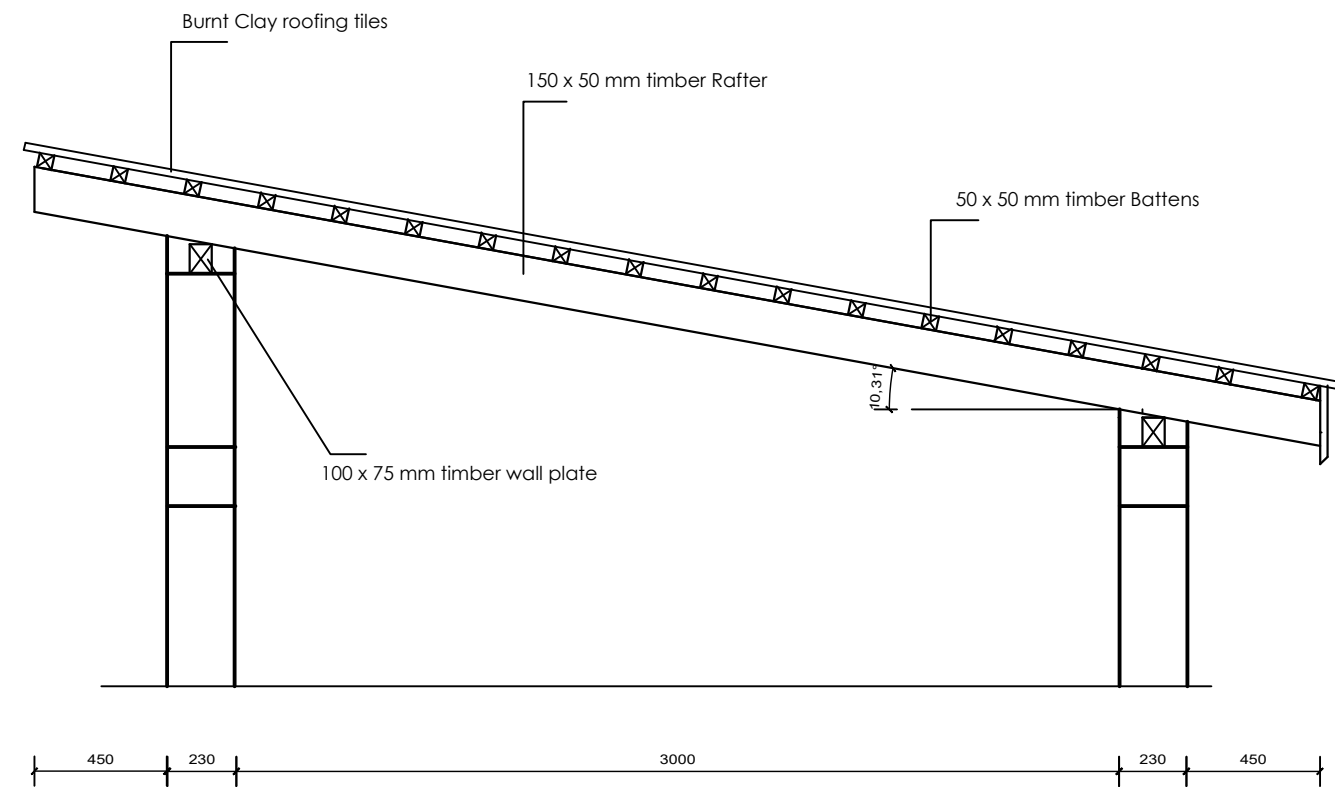
1/ELE/02





EXTERNAL CONCRETE STRIP FOUNDATION Scale 1:50



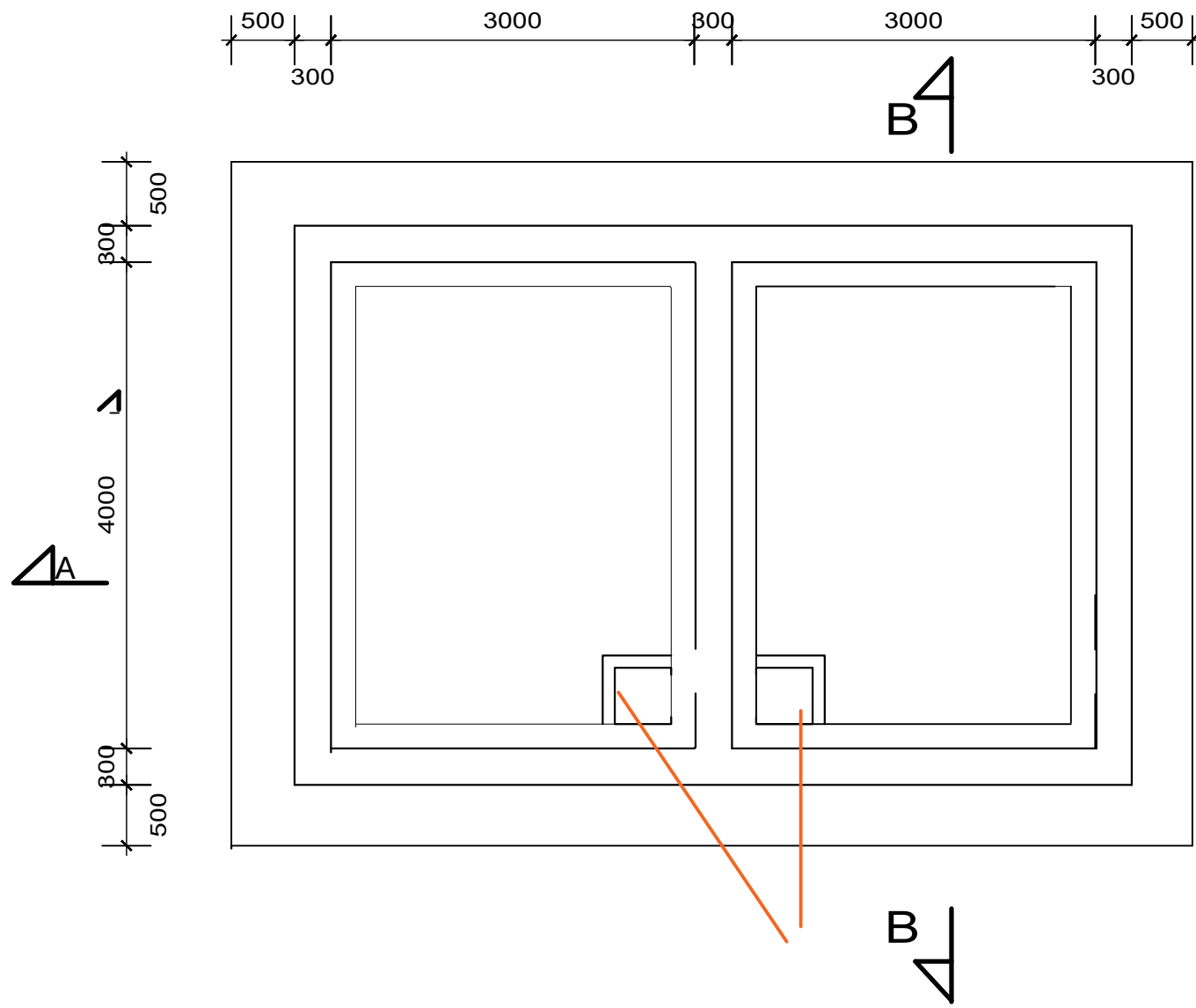
RING BEAM SECTION Scale 1:5



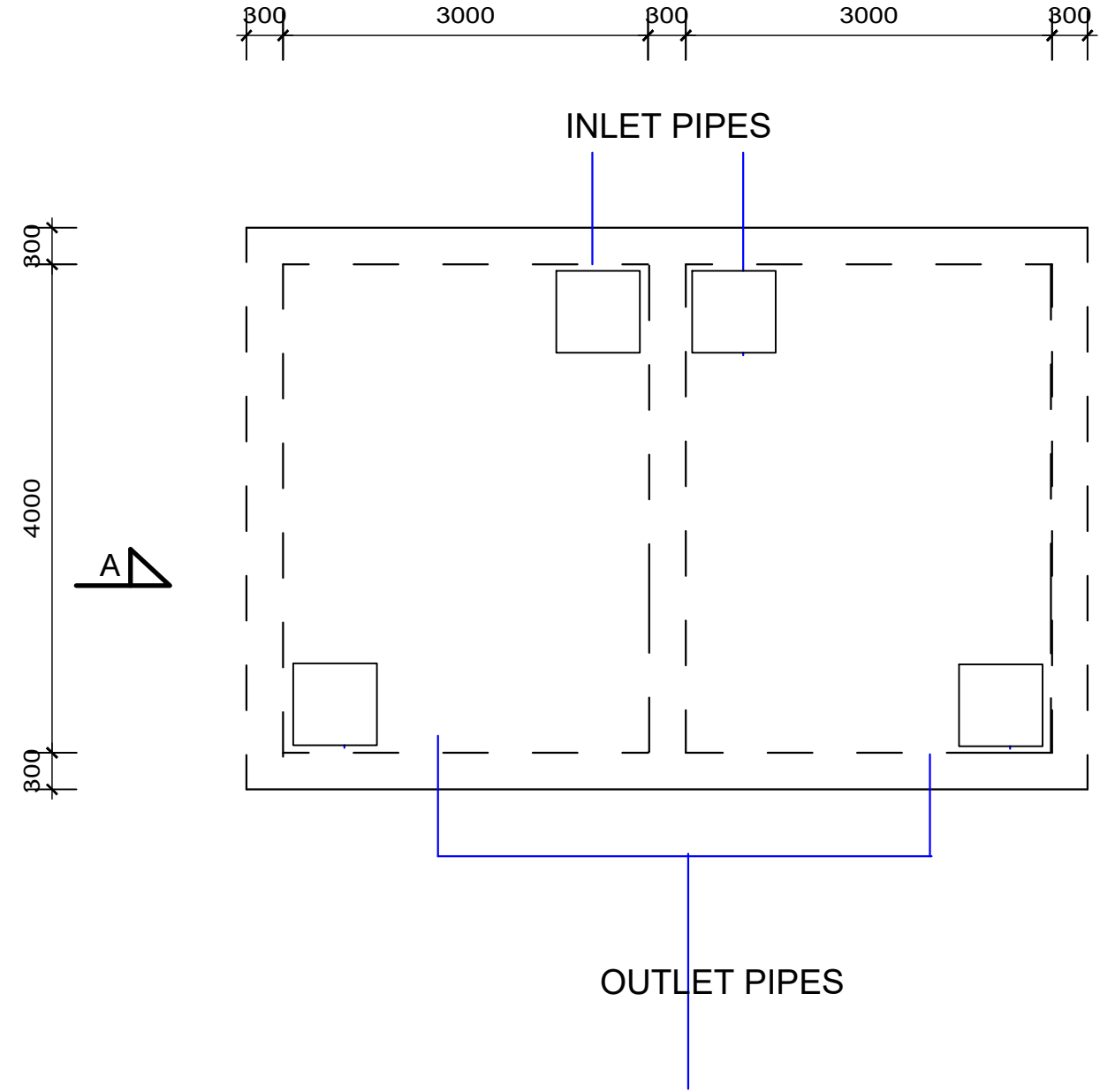
100x25 cement skirting mix 1:3 on 25mm cement/Sand screed on 150mm concrete slab C20 concrete on 200 mm hard core blinding On well rammed and compacted murrum base

<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b>  <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O. BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b> DOZING HOUSE - STRUCTURAL DETAILS	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b>	<b>STATUS</b> CONCEPT DRG	
		<b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2						<b>DWG. No.</b> KP/WS/YUM/DH2 - 02	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION
											AS BUILT DRG	





CLEAR WATER - TANK PLAN SCALE; 1:50



CLEAR WATER - ROOF PLAN SCALE; 1:50

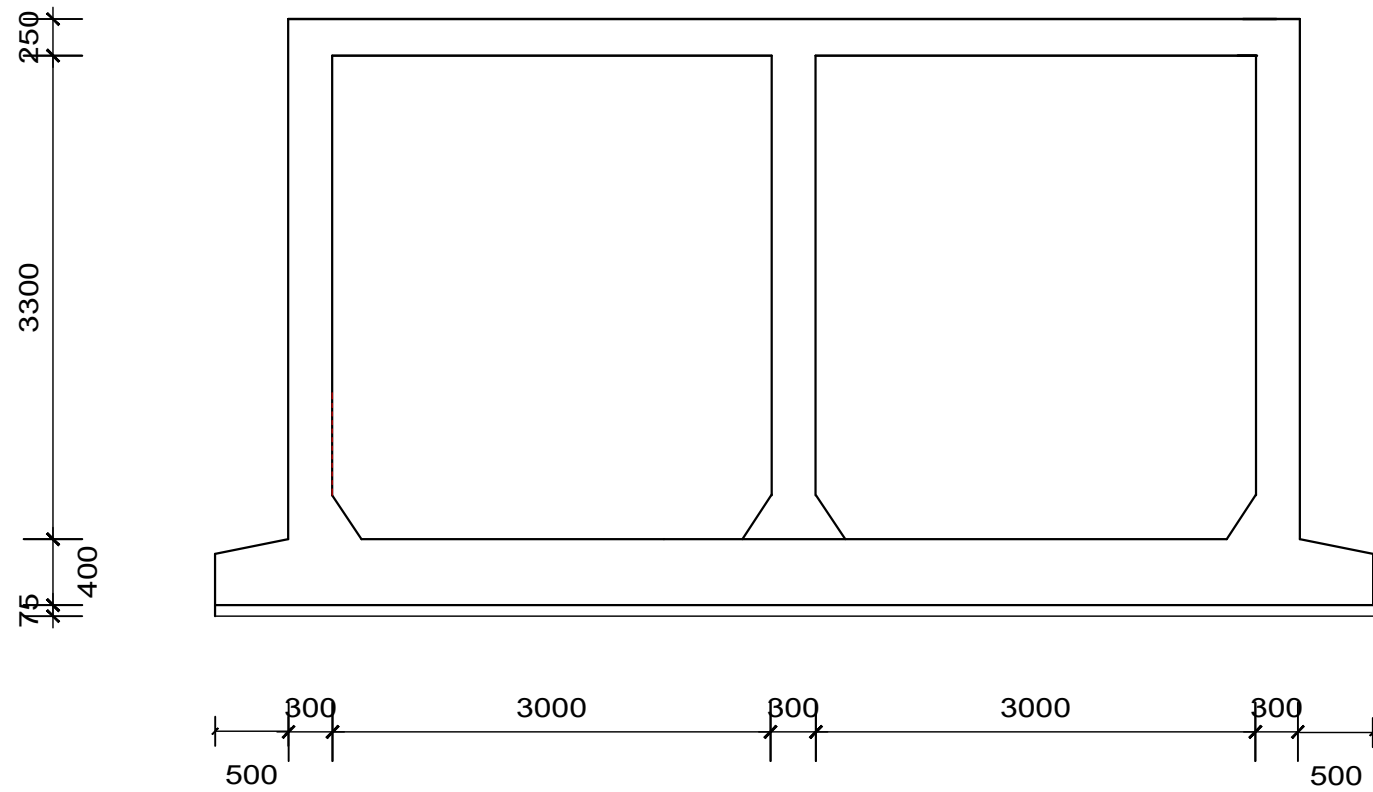
**CLIENT:**  
  
**MINISTRY OF WATER AND ENVIRONMENT**

**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O.BOX 6583,  
 KAMPALA, UGANDA

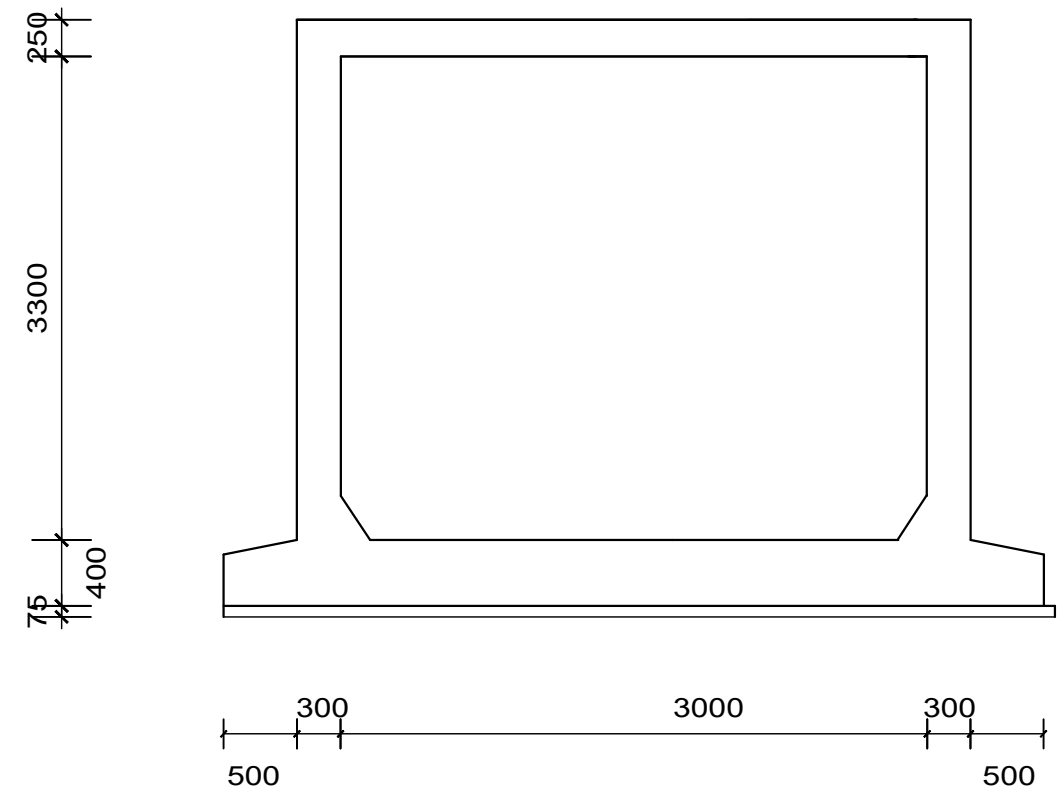
**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				CLEAR WATER TANK PLAN	JULY 2023	AS SHOWN		CONCEPT DRG
				DWG. No. KP/WS/YUM/CWT2-01				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
				DRAWN BY: INITIALS _____ SIGN _____ DATE _____	CHECKED BY: INITIALS _____ SIGN _____ DATE _____			AS BUILT DRG



CLEAR WATER - SECTION A - A SCALE; 1:50



CLEAR WATER - SECTION B - B SCALE; 1:50



**CONSULTANT:**  
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 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O. BOX 6583,  
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**PROJECT**  
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**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

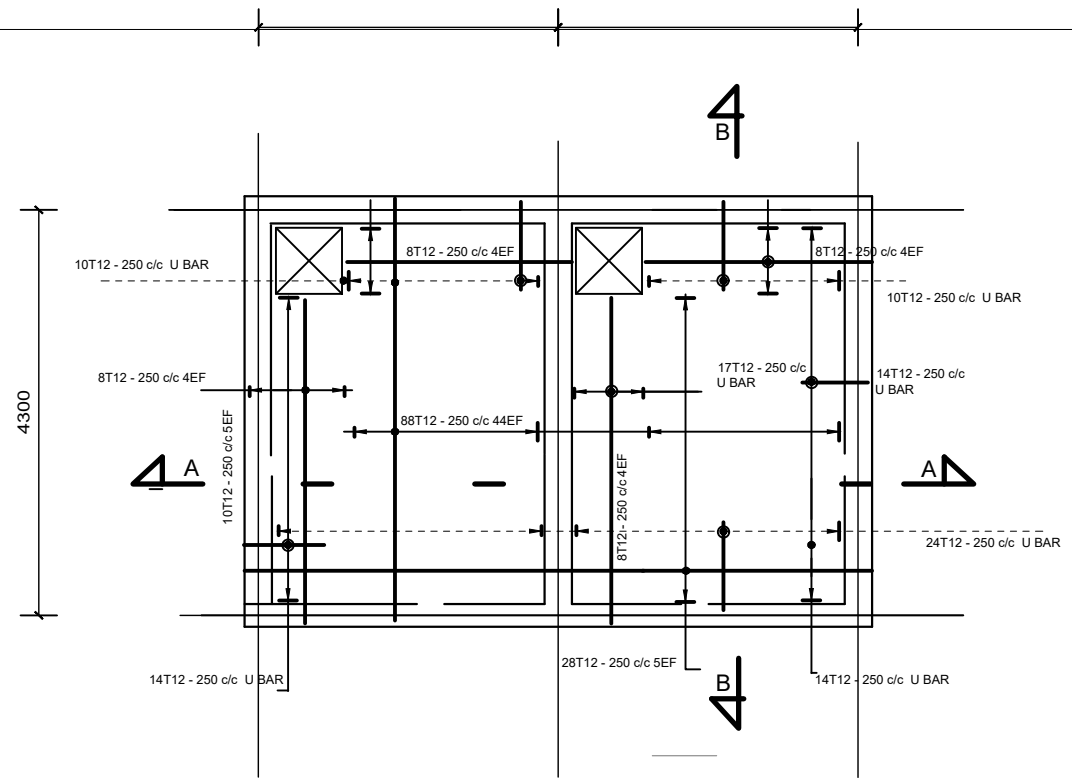
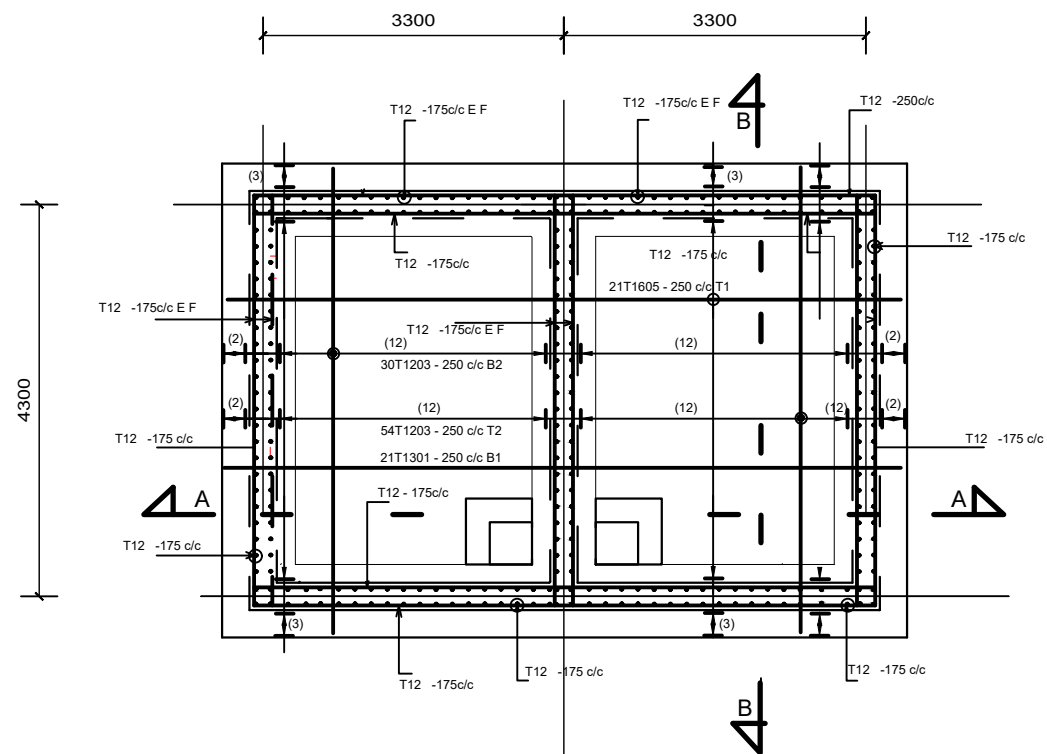
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				CLEAR WATER TANK SECTION	JULY 2023	AS SHOWN		CONCEPT DRG
								TENDER DRG
								APPROVED FOR CONSTRUCTION
								AS BUILT DRG

**DWG. No.**  
 KP/WS/YUM/CWT2 - 02

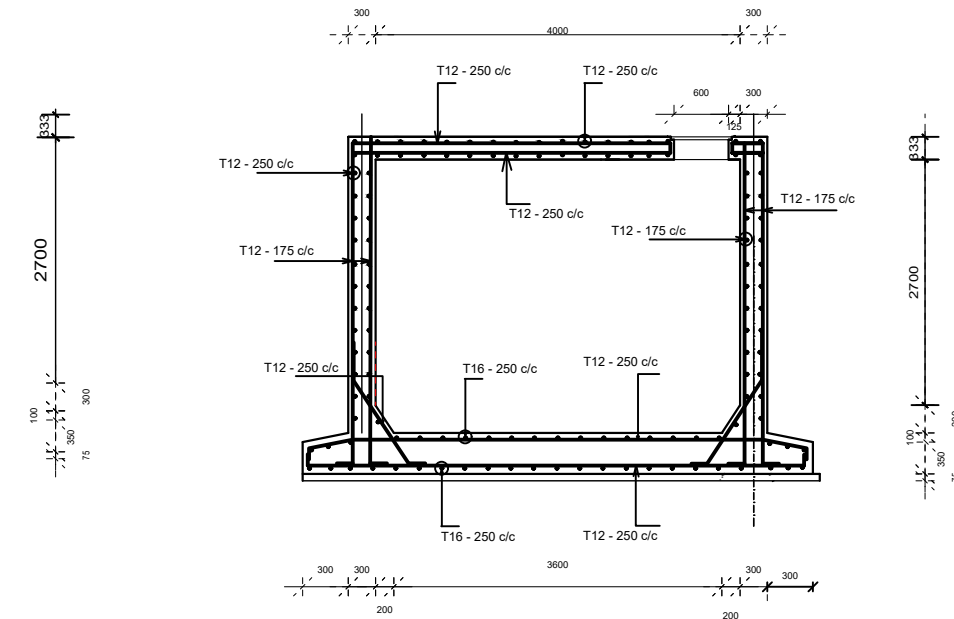
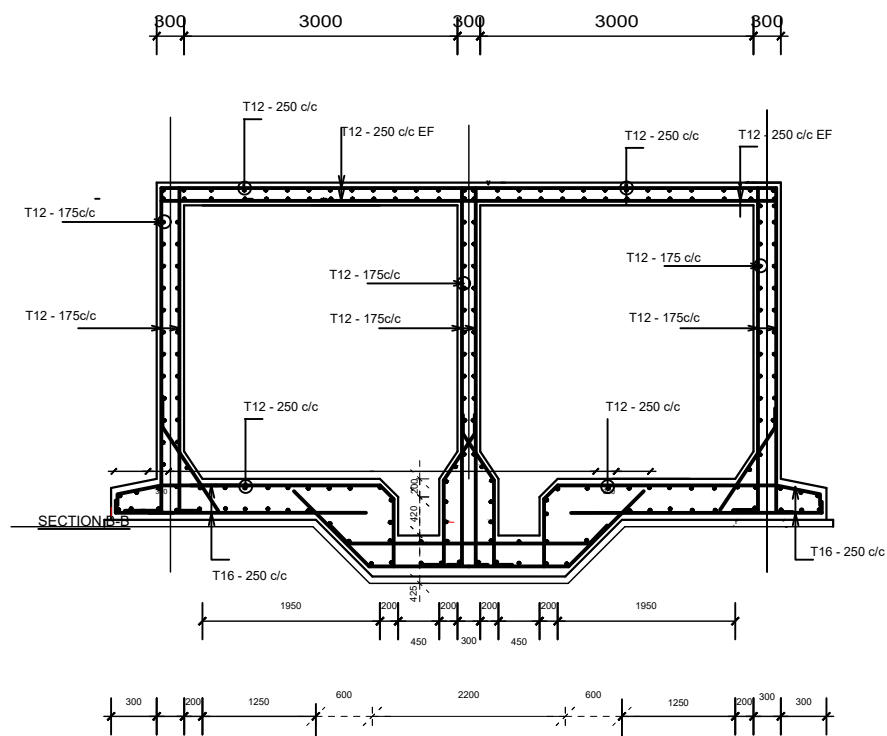
**REV.No.**  
 0

**DRAWN BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

**CHECKED BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_



## CLEAR WATER TANK BOTTOM SLAB



CLIENT:



MINISTRY OF WATER  
AND ENVIRONMENT

CONSULTANT:



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P.O. BOX 6583,  
KAMPALA, UGANDA

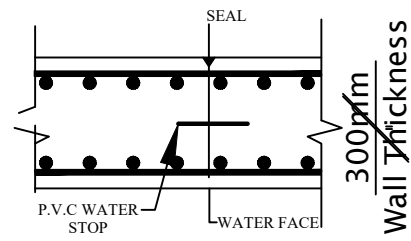
PROJECT

CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
STUDY, DETAILED ENGINEERING DESIGN AND  
CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
AND NORTHERN UGANDA YUMBE

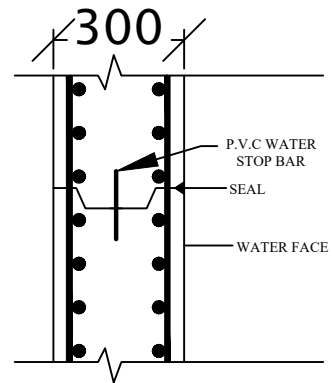
CONTRACT NO:

MWE/CONS/19 - 20/00009/2

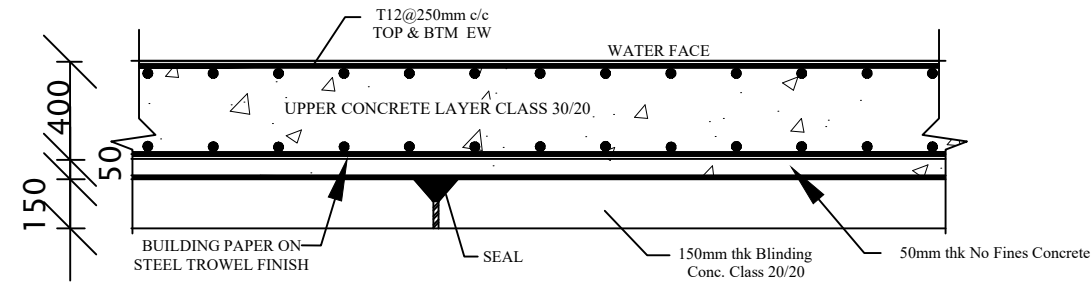
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				CLEAR WATER TANK - STRUCTURAL DETAILS	JULY 2023	AS SHOWN	25	CONCEPT DRG
				DWG. No. KP/WS/YUM/CWT2 - 03	REV.No. 0	DRAWN BY: INITIALS _____ SIGN _____ DATE _____	CHECKED BY: INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG



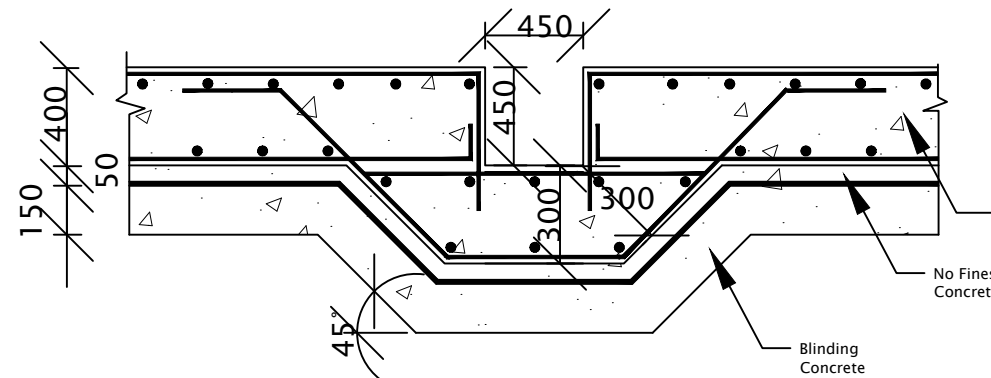
**VERTICAL CONSTRUCTION JOINT OF A WALL**



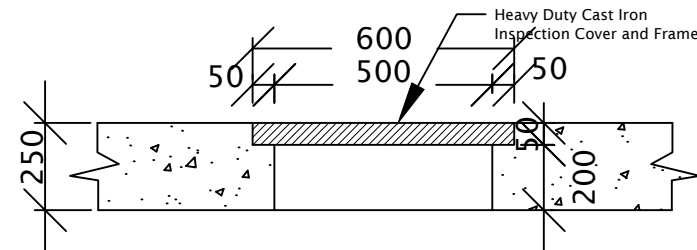
**HORIZONTAL CONSTRUCTION JOINT OF A WALL**



**TANK FLOOR JOINT**



**SECTION THROUGH SUMP**



**SECTION THROUGH OPENING AT TOP DECK**

**NOTES**

1. ALL SLEEVED PIPES MUST BE INSERTED BEFORE CONCRETING. NO CUTTING OF CONCRETE SHALL BE ALLOWED AT LATER STAGE.
2. ALL LEVELS MUST BE ASCERTAINED AND APPROVED ON SITE BEFORE COMMENCING WORKS.
3. FOUNDATIONS INDICATED ON DRAWINGS MAY BE CHANGED DEPENDING UPON THE SITE CONDITIONS AT THE TIME OF EXCAVATION.
4. FOUNDATION BASES MUST BE COMPACTED TO THE ENTIRE SATISFACTION OF THE ENGINEER USING APPROVED MATERIALS.
5. HORIZONTAL BAR LAP TO BE STAGGERED (NOT IN SAME VERTICAL PLANE)
6. CONCRETE TO BE CLASS 30(20) UNLESS OTHERWISE INDICATED.
7. MATERIALS AND WORKMANSHIP TO CONFIRM TO BS 5337:1976 OR LATER VERSION.
8. MAXIMUM WATER/CEMENT RATIO 0.5.

SECTION B-B



**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

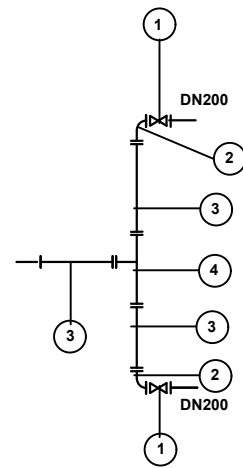
**CONSULTANT:**  
**KAGGA & PARTNERS**  
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**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

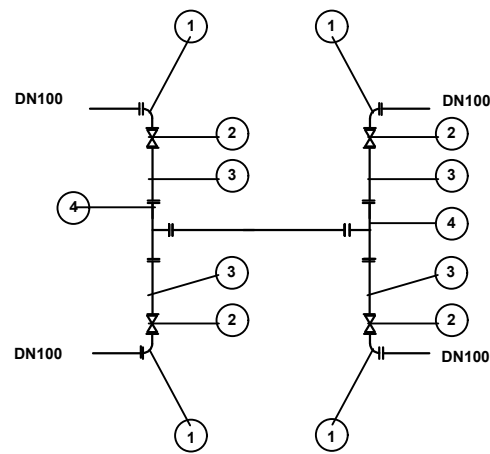
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				<b>TYPE 1 WATER SUMP - STRUCTURAL DETAILS</b>	JULY 2023	AS SHOWN		CONCEPT DRG
				<b>DWG. No.</b> KP/WS/YUM/CWT2 - 04	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG





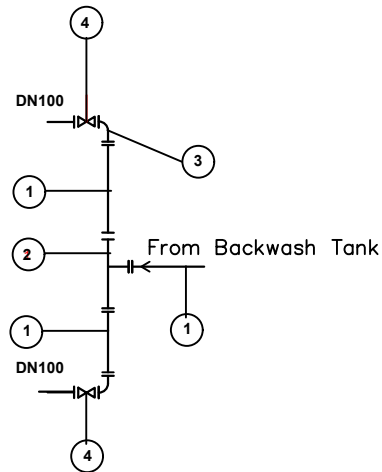
- 1 - 2 No. DN200 Valves
- 2 - 2 No. DN 200 90 Degrees Bends
- 3 - 3 No. DN 200 Pipe pieces
- 4 - 1 No. DN 200x200 Tee

CONTACT TANK-FILTER PIPE WORK DETAIL



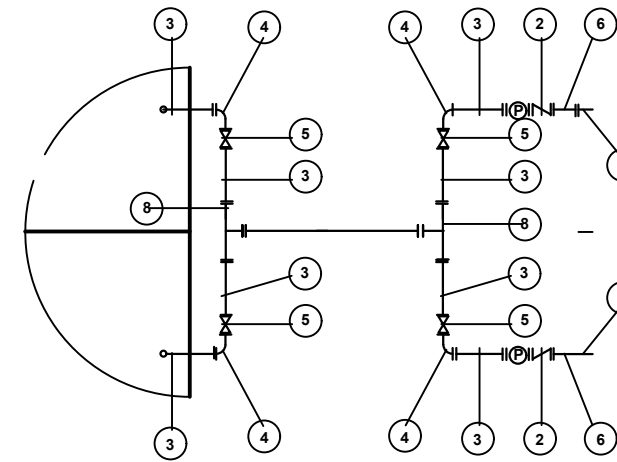
- 1 - 90 Degrees Bends DN 200
- 2 - 200mm Gate Valve
- 3 - DN 200 Straight Specials
- 4 - 200x200mm Tee

FILTER - CWT PIPE WORK DETAIL



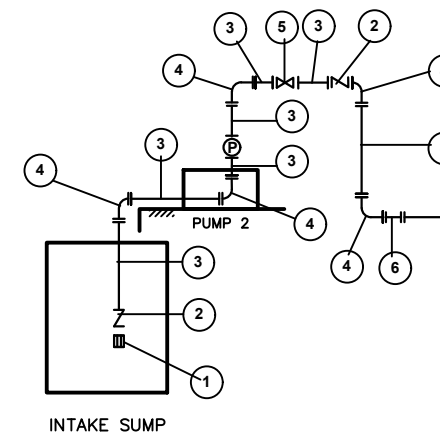
- 1 - 3 No. DN 100 Pipe pieces
- 2 - 1 No. 100x100mm Tee
- 3 - 2 No. 90 Degrees Bends DN 100
- 4 - 2 No. 100mm Valves

FILTER-BACKWASH TANK PIPE WORK DETAIL



- 1 - 150mm Foot Valve
- 2 - 150mm NRV
- 3 - DN 150 Straight Specials
- 4 - 90 Degrees Bends DN 150
- 5 - 150mm Gate Valve
- 6 - DN 150 flange Adapter
- 7 - 150 HDPE pipe PN 16
- 8 - 150x150mm Tee

CLEAR WATERTANK TO PUMPHOUSE DETAILS - PLAN



CLEAR WATERTANK TO PUMPHOUSE DETAILS - ELEVATION



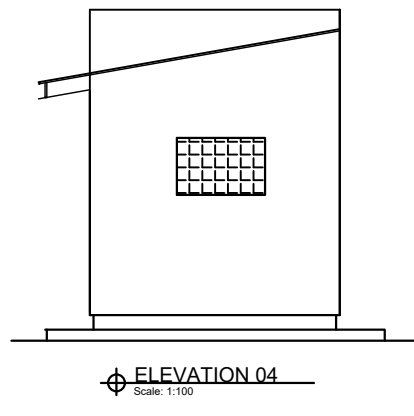
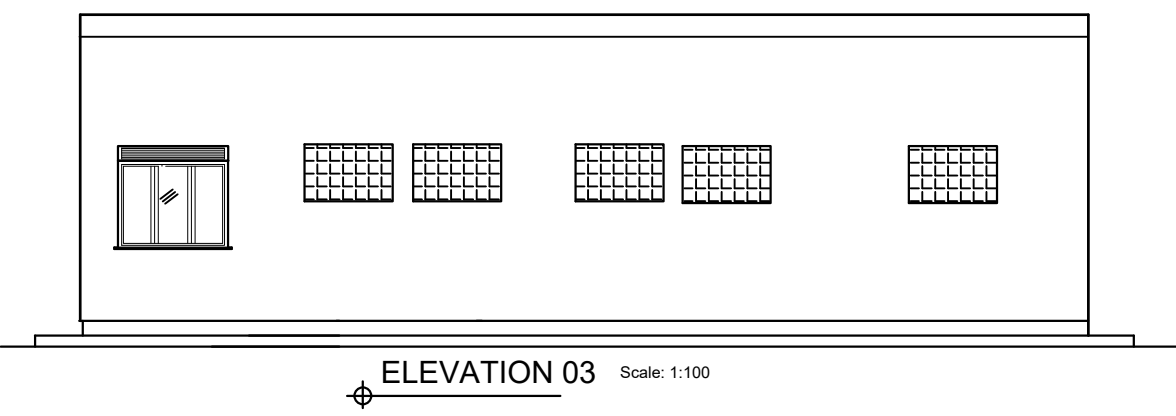
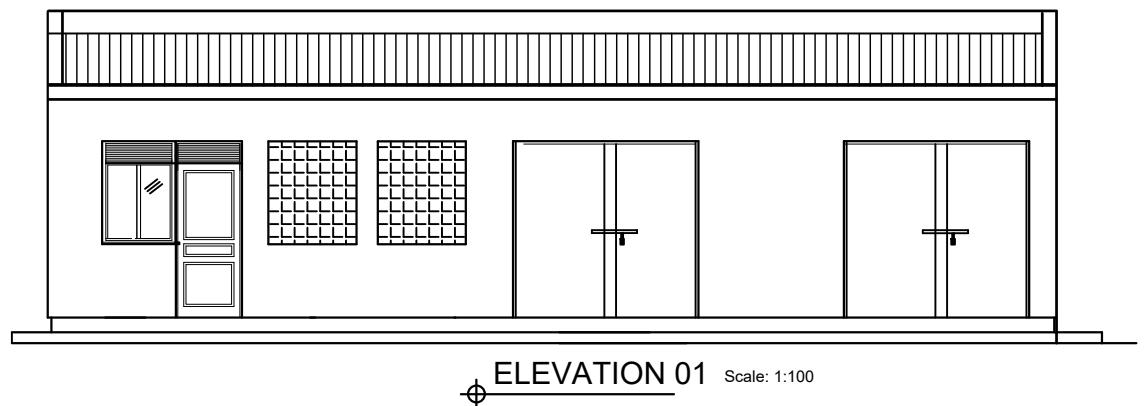
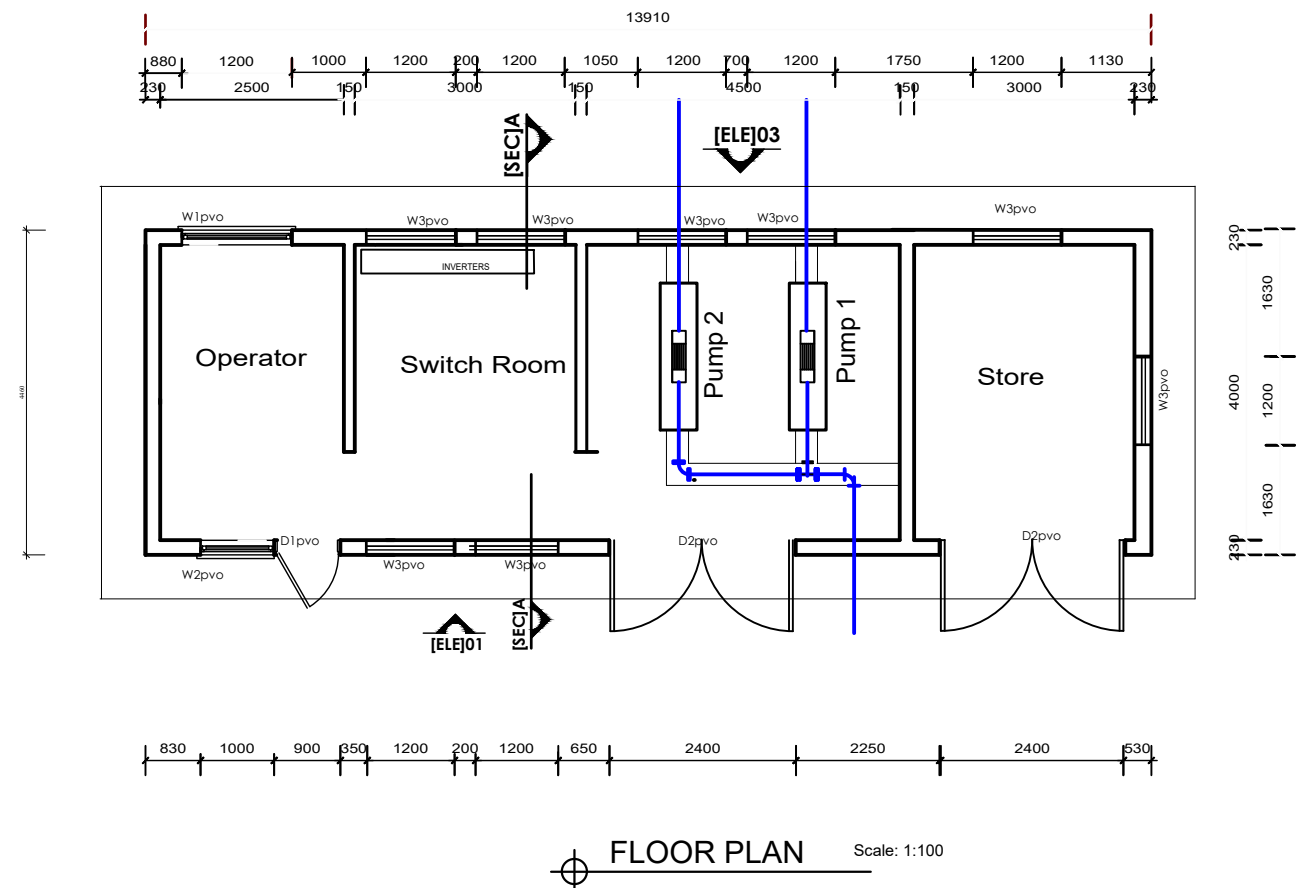
**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

**CONSULTANT:**  
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KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O.BOX 6583,  
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**PROJECT**  
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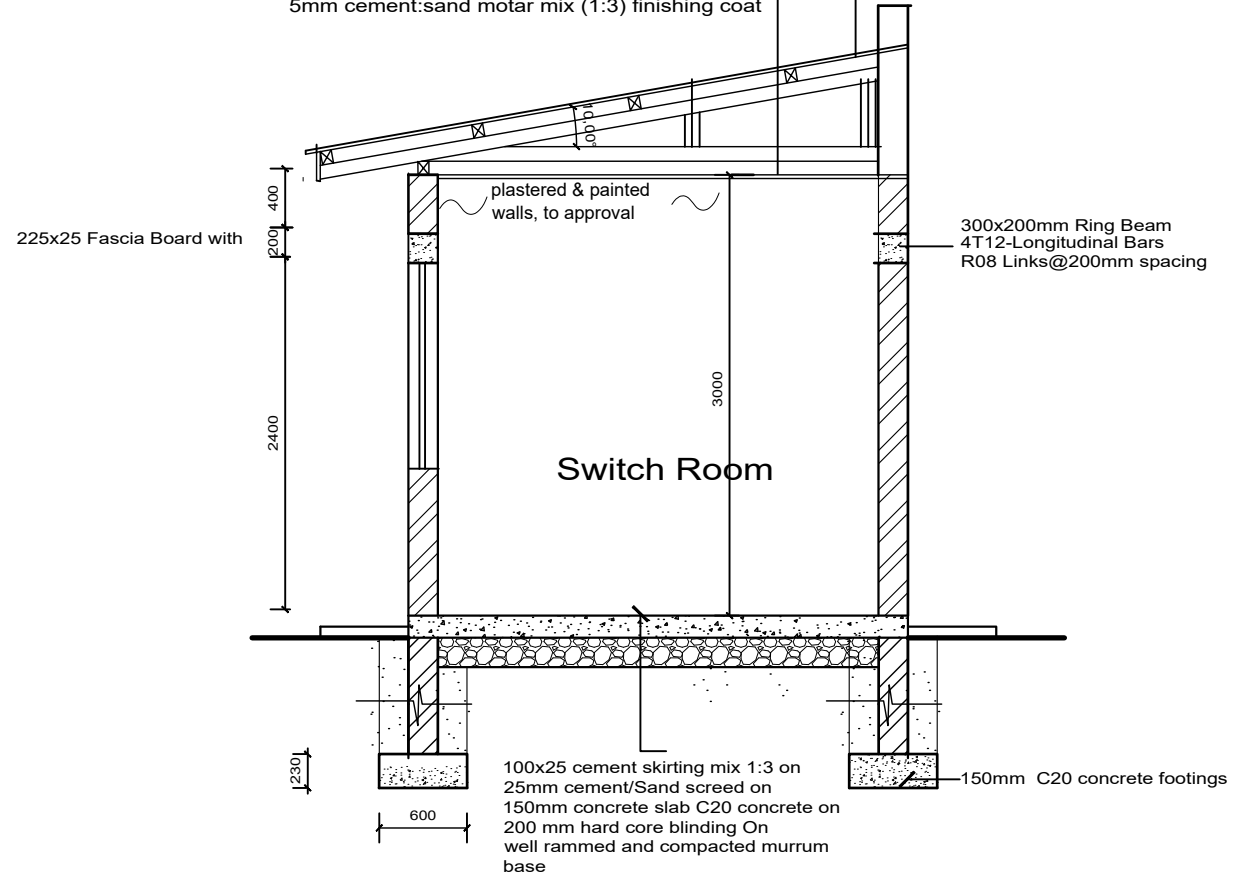
**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
			TREATMENT AREA FITTINGS	JULY 2023	AS SHOWN	28	CONCEPT DRG
			DWG. No. KP/WS/YUM/TAF2 - 01				TENDER DRG
			REV.No. 0				APPROVED FOR CONSTRUCTION
			DRAWN BY: INITIALS _____				AS BUILT DRG
			SIGN _____				
			DATE _____				
			CHECKED BY: INITIALS _____				
			SIGN _____				
			DATE _____				



**CEILING NOTES**  
 100 x 50mm Blanderings & ceiling joist Btn tie beam At 600mm c/c  
 15mm thick cement:sand motar mix (1:3) on Stretched eml  
 5mm cement:sand motar mix (1:3) finishing coat

**ROOF NOTES**  
 Roof pitch 22.5°  
 Iron roof ridge on  
 Pre-painted roofing sheets G26 on  
 100 x 50mm timber purlins on  
 100 x 50mm Rafters at 1800mm c/c with  
 100 x 50mm struts and ties on  
 150 x 50mm Tie Beam on  
 100 x 75mm Wall plate  
 Fascia and Barge boards are to be 225 x 25mm



**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	900	2100	05	STEEL panel door
D2	2400	2400	02	Double swing steel door of metal sheet, 2mm thick with 300mm vent on door lintel and with clear
WINDOW SCHEDULE				
W1	1600	1400	01	Casement steel window, with 300mm vent on lintel and with clear glass
W2	1200	1400	01	Casement steel window, with 300mm vent on lintel and with clear glass
W3	1200	1400	08	Metal Grill Opening with insect proofing



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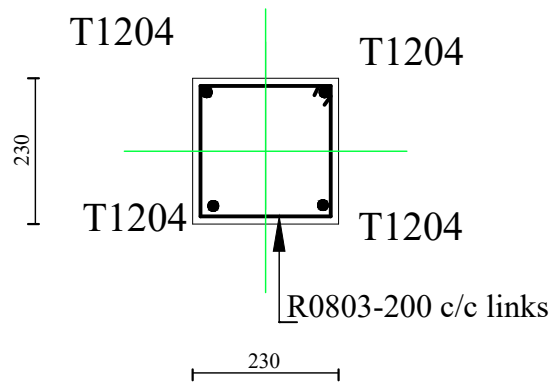
**CONTRACT NO:**  
**MWE/CONS/19 - 20/00009/2**

NO.	AMENDMENTS	APPROVED:	DATE:

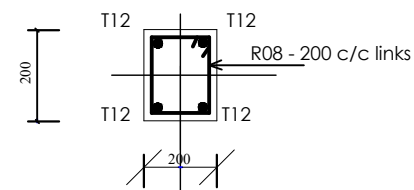
<b>DRG TITLE:</b> PUMP HOUSE FLOOR PLAN ELEVATIONS, SECTION AND SCHEDULES	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b> <b>29</b>	<b>STATUS</b> CONCEPT DRG
<b>DRG No.</b> KP/MS/YUM/PH 1 - 01	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG
				APPROVED FOR CONSTRUCTION
				AS BUILT DRG



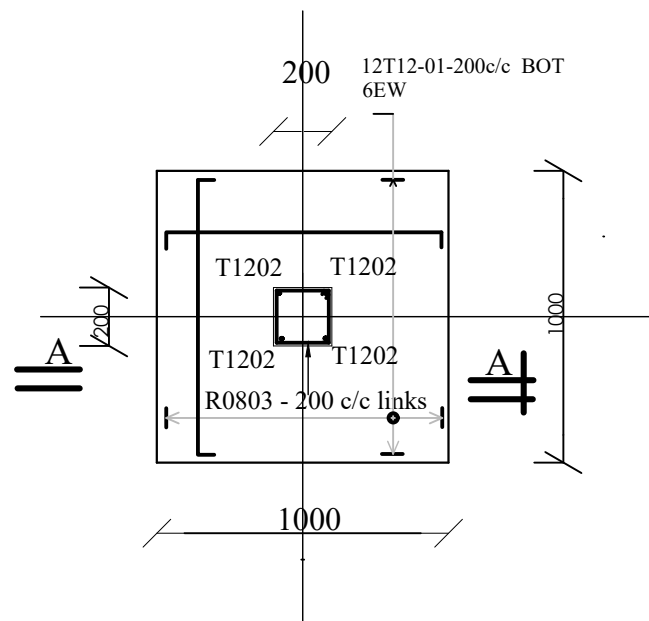




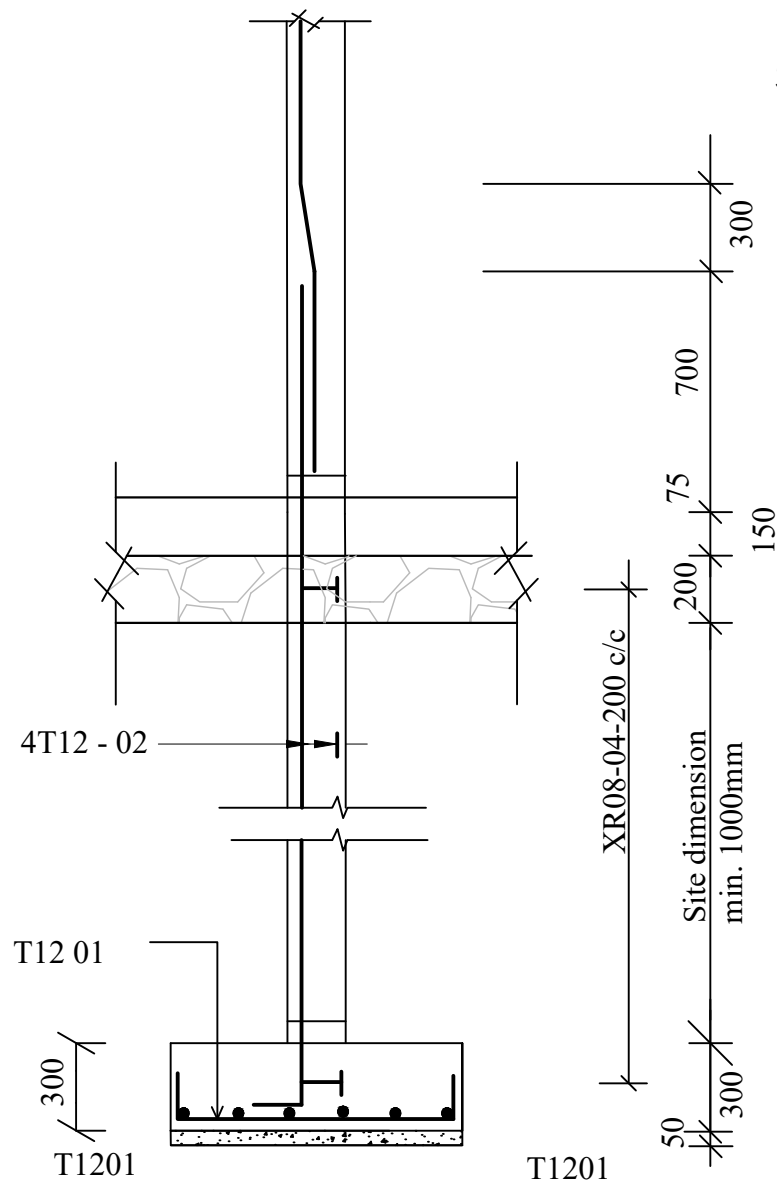
3 - 3 Scale 1:10



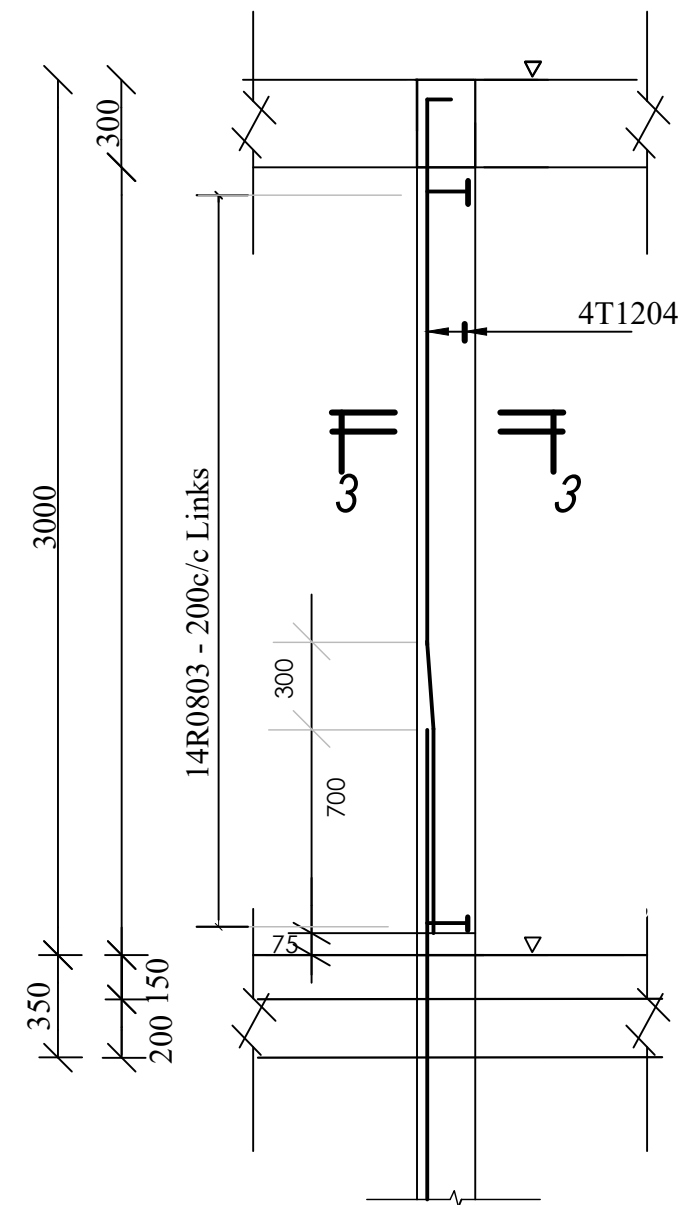
RING BEAM SECTION Scale 1:5



FOOTING F1 (1000 X 1000)  
Scale 1:25 10 Nos. Off



SECTION A - A scale 1:25



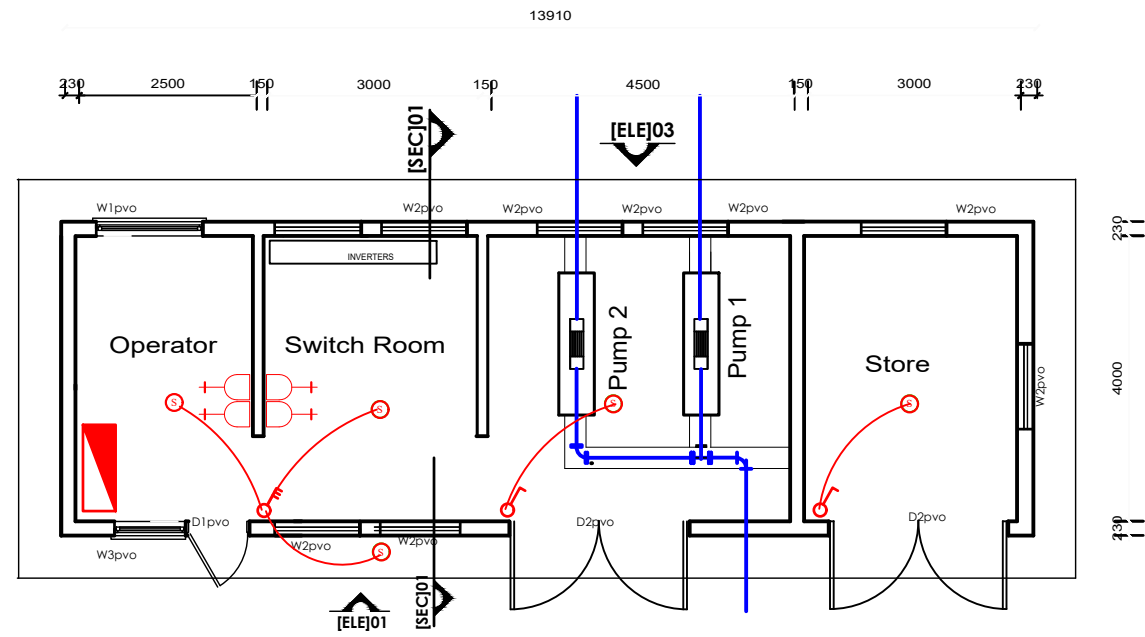
**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

**CONSULTANT:**  
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CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

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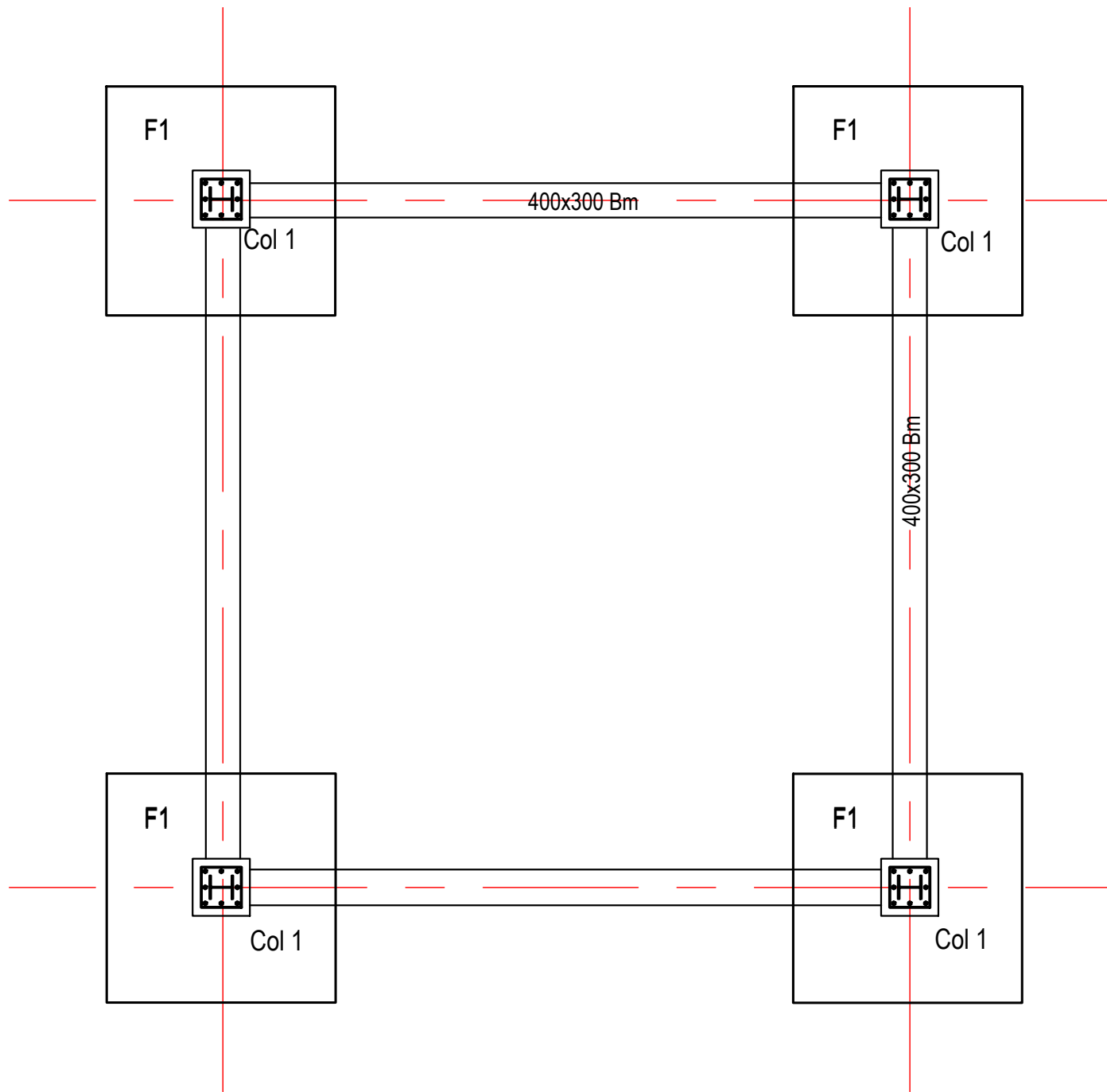
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				<b>PUMP HOUSE TYPE 1- STRUCTURAL DETAILS</b>	JULY 2023	AS SHOWN		CONCEPT DRG
				<b>DWG. No.</b> KP/WS/YUM/PH 1 - 03	REV.No. O	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG



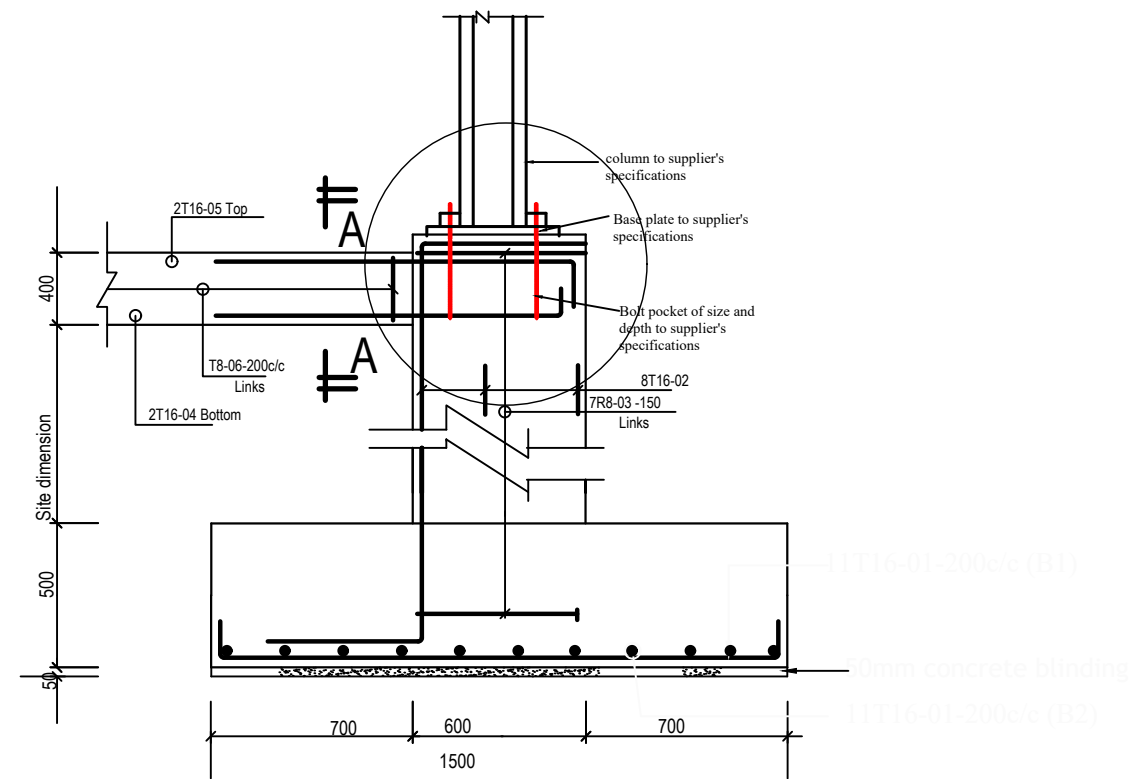
- 48W( 60x60) Slim Led Panel Amature Lamp as Makel LED series Cat.No PC48.0W-02008 type "S" or equal approved to BS/ Euro standards.
- 1and 2 gang way 6A molded switches (flush mounted)
- Single Phase Consumer Units (CU) c/w earth terminal blocks, neutral terminal blocks, MCBs see SLD for details and sizes
- 13A two-gang standard sockets

<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b>  <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O. BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  <b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b>	<b>DATE:</b>	<b>SCALE:</b>	<b>SHEET NO:</b>	<b>STATUS</b>
						<b>PUMP HOUSE TYPE 1 - ELECTRICAL DETAILS</b>	JULY 2023	AS SHOWN	<b>32</b>	CONCEPT DRG	
						<b>DWG. No.</b> KP/WS/YUM/PH 1- 04	<b>REV.No.</b> O	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG	
										APPROVED FOR CONSTRUCTION	AS BUILT DRG

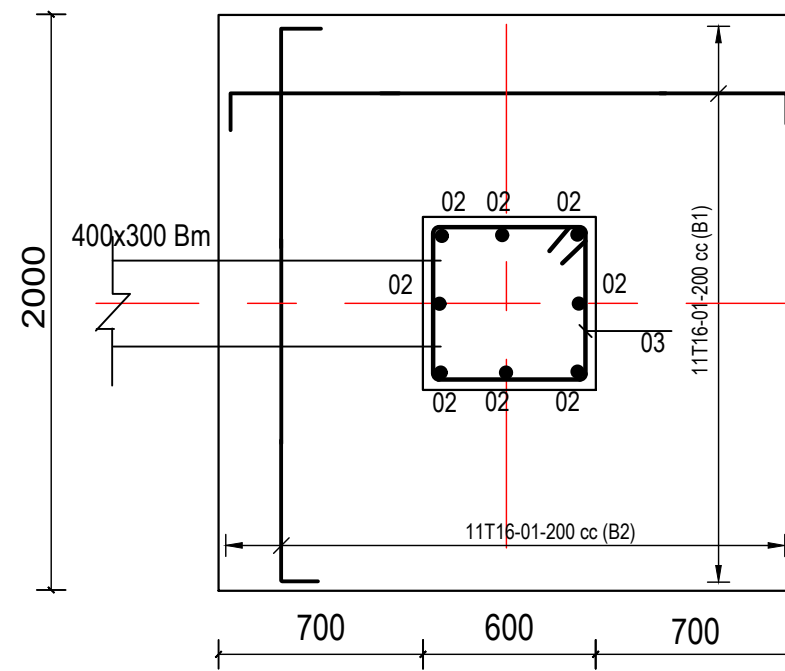




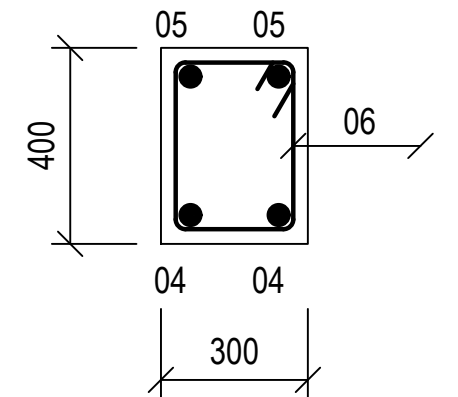
FOUNDATION PLAN Scale 1:50



SECTION B-B THROUGH FOOTING F1



FOOTING F1 2000 x 2000, 4 Nos, scale 1:20



Section A-A through ground beam



**CLIENT:**  
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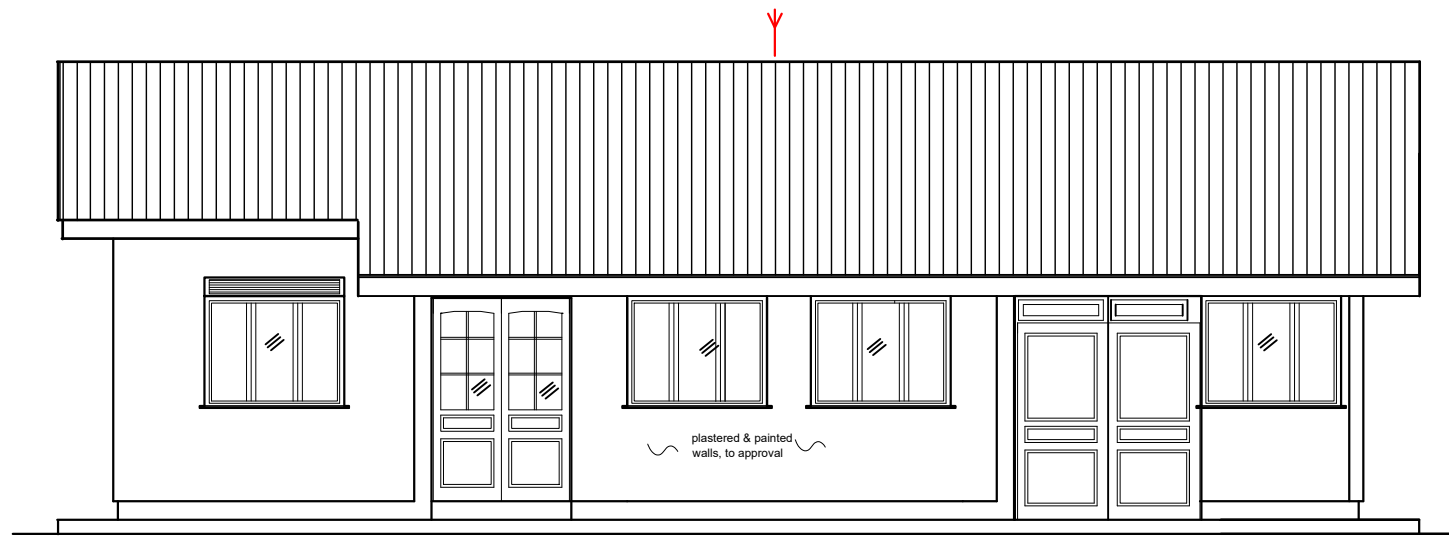
**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				<b>120m3 ELEVATED RESERVOIR - FOUNDATIONS</b>	JULY 2023	AS SHOWN	<b>34</b>	CONCEPT DRG
				<b>DWG. No.</b> KPWS/YUM/GOB/WR - 02	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG

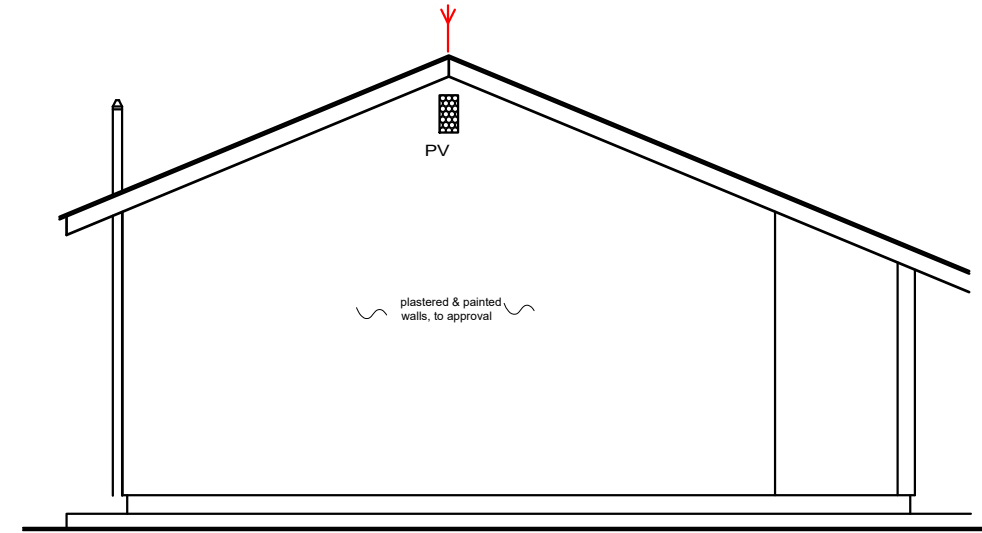
# OFFICE & TOILET BLOCKS



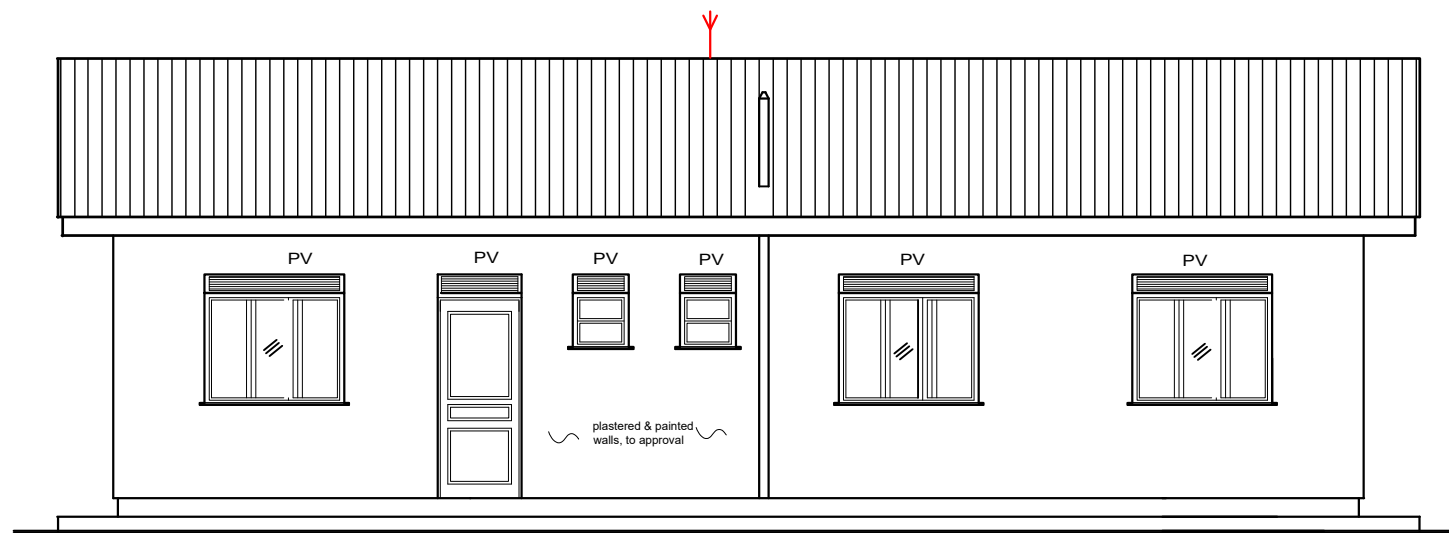




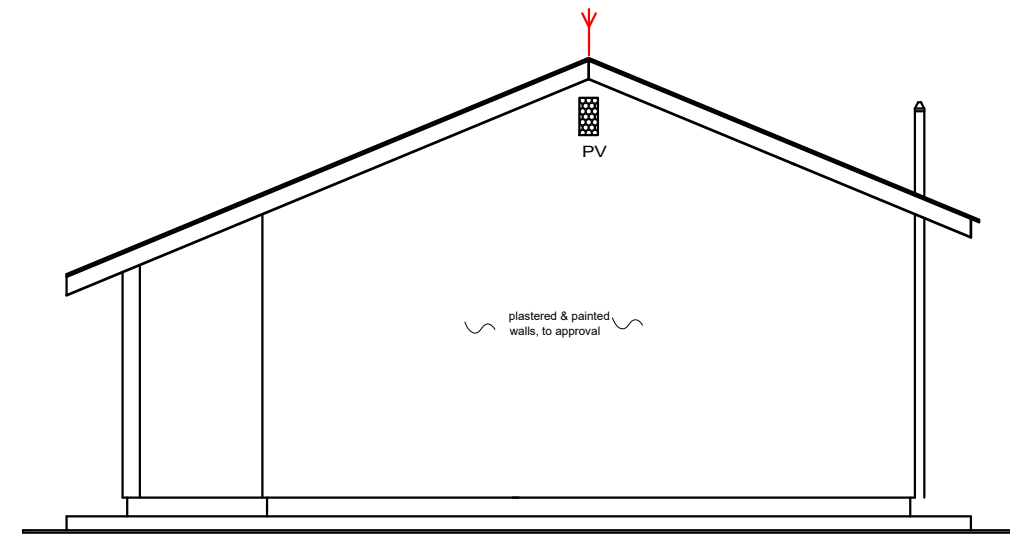
⊕ ELEVATION 01  
Scale: 1:75





⊕ ELEVATION 02  
Scale: 1:75



⊕ ELEVATION 03  
Scale: 1:75



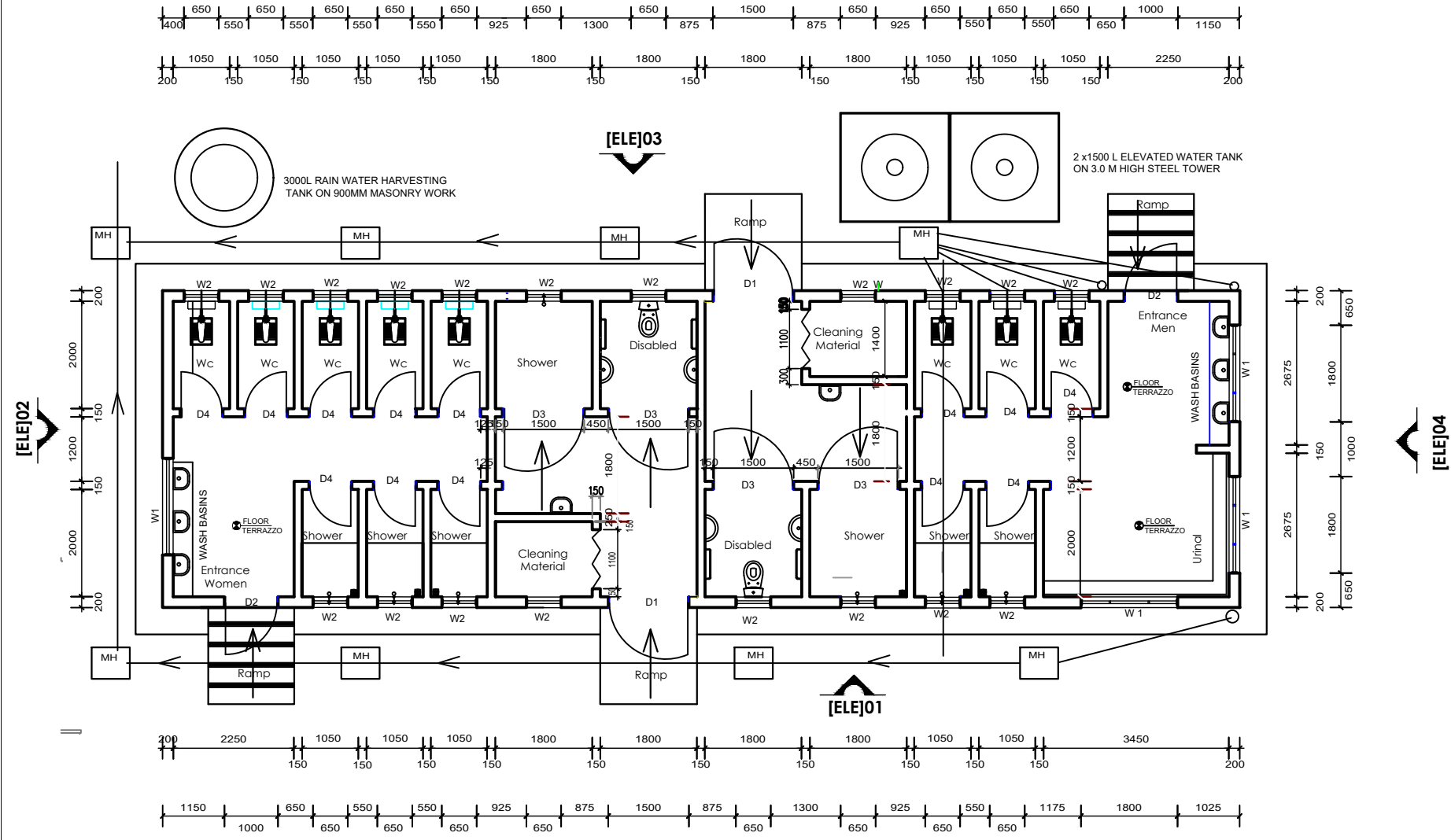
⊕ ELEVATION 04  
Scale: 1:75

<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b> <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA 	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE <b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b>	<b>DATE:</b>	<b>SCALE:</b>	<b>SHEET NO:</b>	<b>STATUS</b>
							<b>OFFICE BLOCK - ELEVATIONS</b>  <b>DWG. No.</b> KP/WS/YUM/OB - 03 <b>REV.No.</b> 0	JULY 2023  <b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	AS SHOWN  <b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	CONCEPT DRG  TENDER DRG APPROVED FOR CONSTRUCTION  AS BUILT DRG	





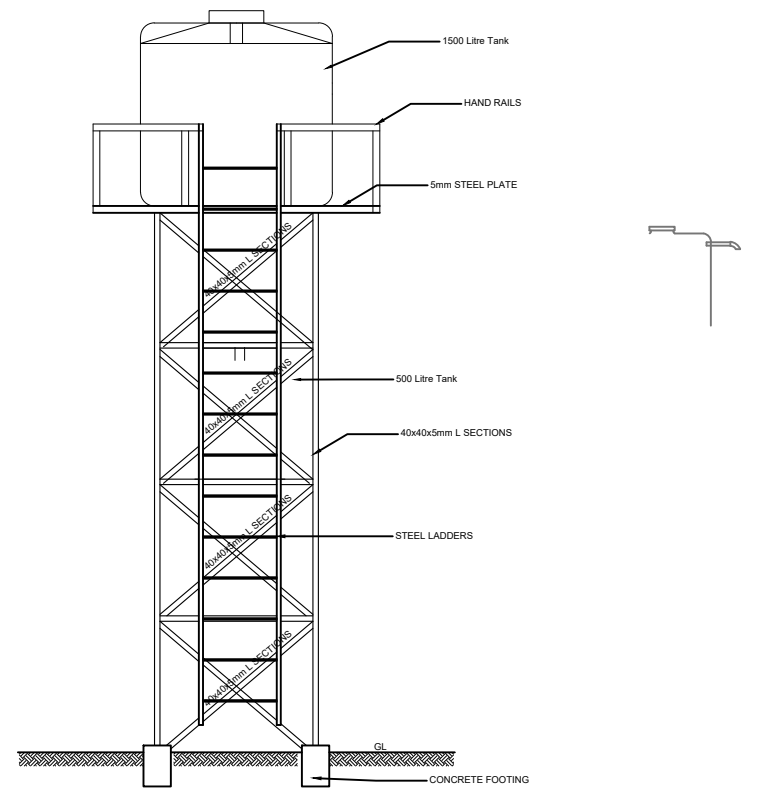




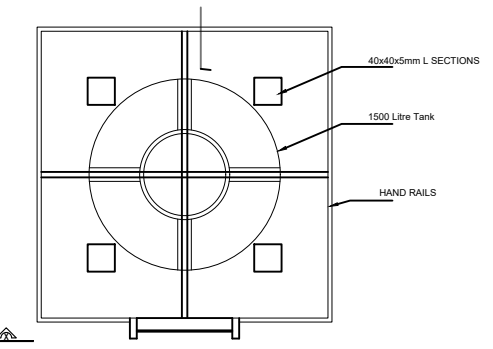
**TYPE 1 TOILET - FLOOR PLAN** Scale: 1:100

**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	1500	2400	02	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D2	1000	2400	02	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D3	1500	2100	04	Solid core flush door
D4	900	2100	13	Ditto
WINDOW SCHEDULE				
W1	1800	900	03	Casement steel window, with 300mm vent on lintel and with frosted glass
W2	600	900	19	Ditto



**Elevation X - X** Scale: 1:50



**Water tank plan** Scale: 1:50



**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O. BOX 6583,  
 KAMPALA, UGANDA

**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
 STUDY, DETAILED ENGINEERING DESIGN AND  
 CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
 WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
 REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST Nile  
 AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
 TOILET BLOCK TYPE 1  
 (COMBINED) - FLOOR  
 PLAN ELEVATIONS,  
 SECTION AND  
 SCHEDULES

**DWG. No.**  
 KP/WS/YUM/TB 1 - 01

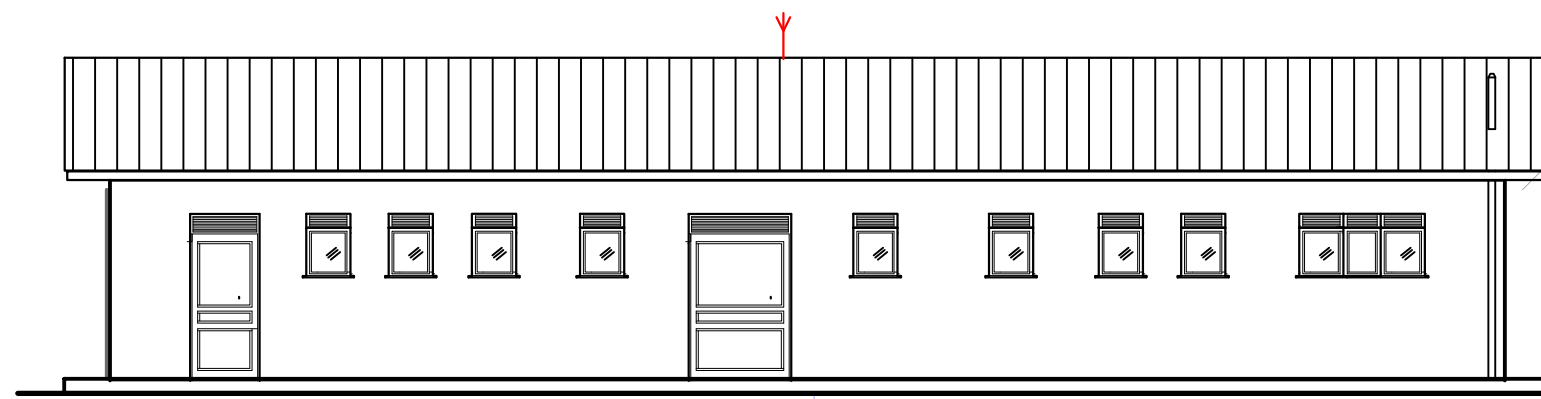
**DATE:**  
 JULY 2023

**SCALE:**  
 AS SHOWN

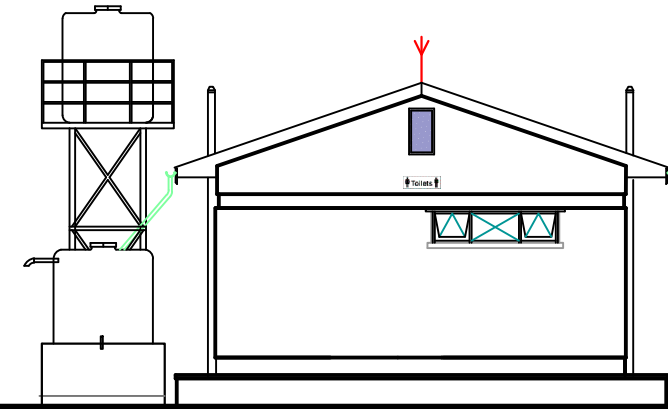
**DRAWN BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

**CHECKED BY:**  
 INITIALS \_\_\_\_\_  
 SIGN \_\_\_\_\_  
 DATE \_\_\_\_\_

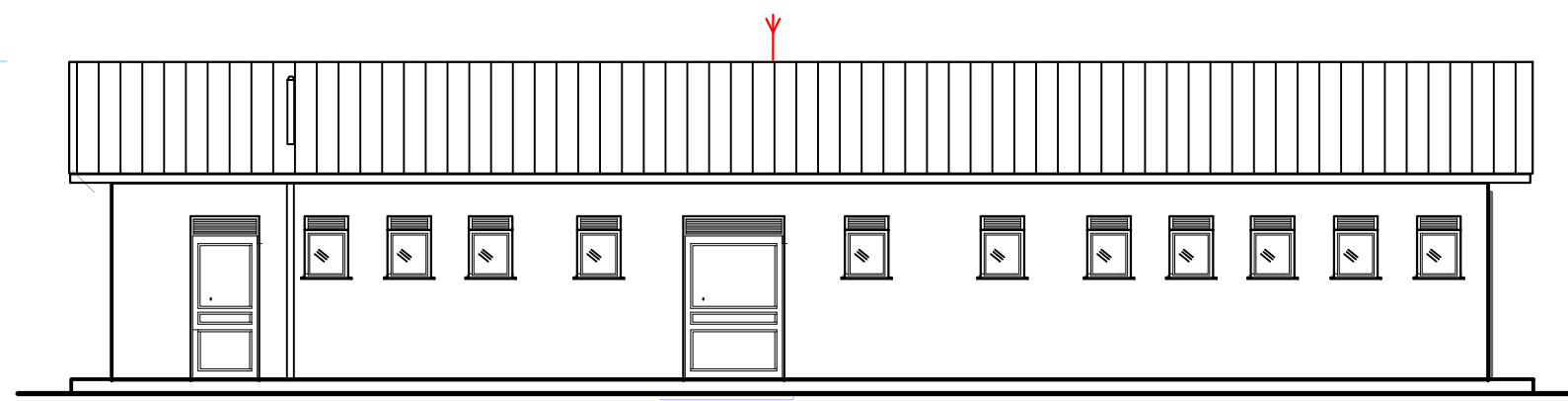
SHEET NO:	STATUS
40	CONCEPT DRG
	TENDER DRG
	APPROVED FOR CONSTRUCTION
	AS BUILT DRG



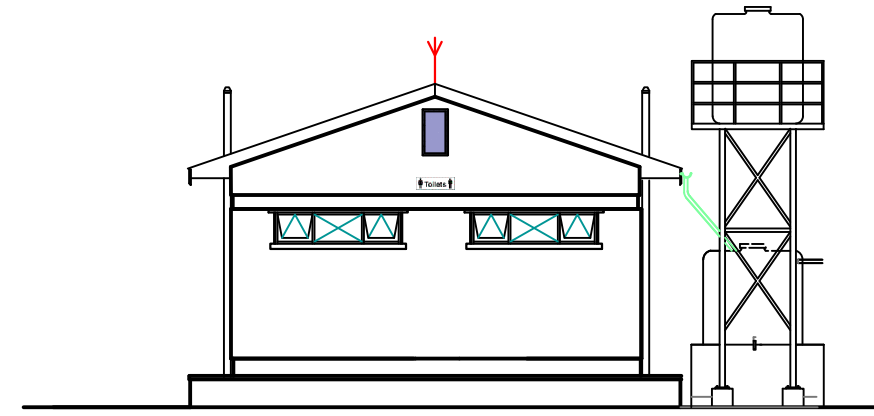
**ELEVATION 01** Scale 1 :100





**ELEVATION 02** Scale 1 :100

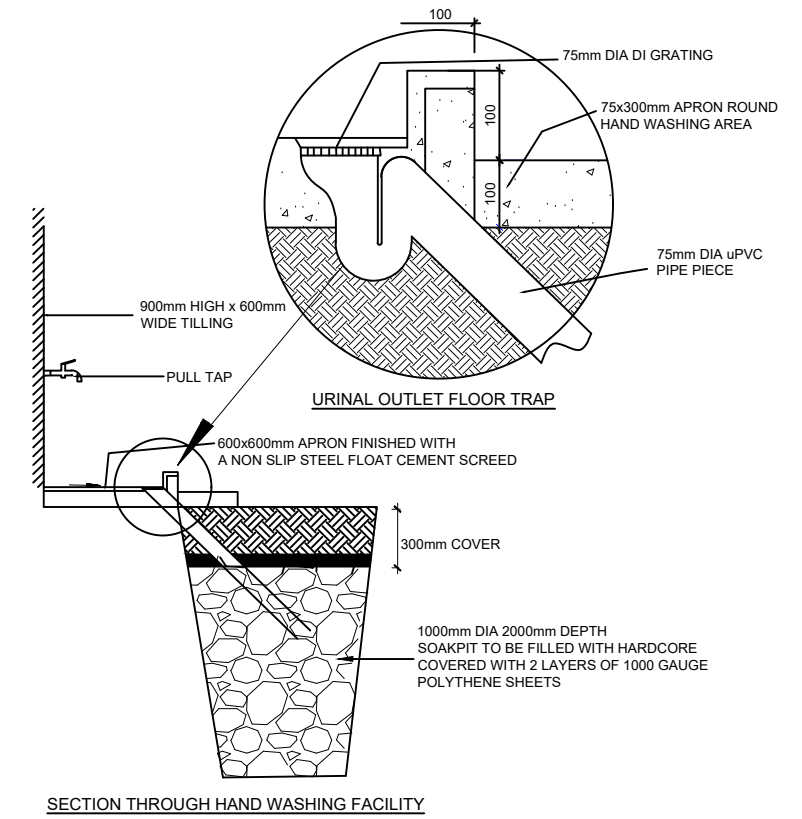
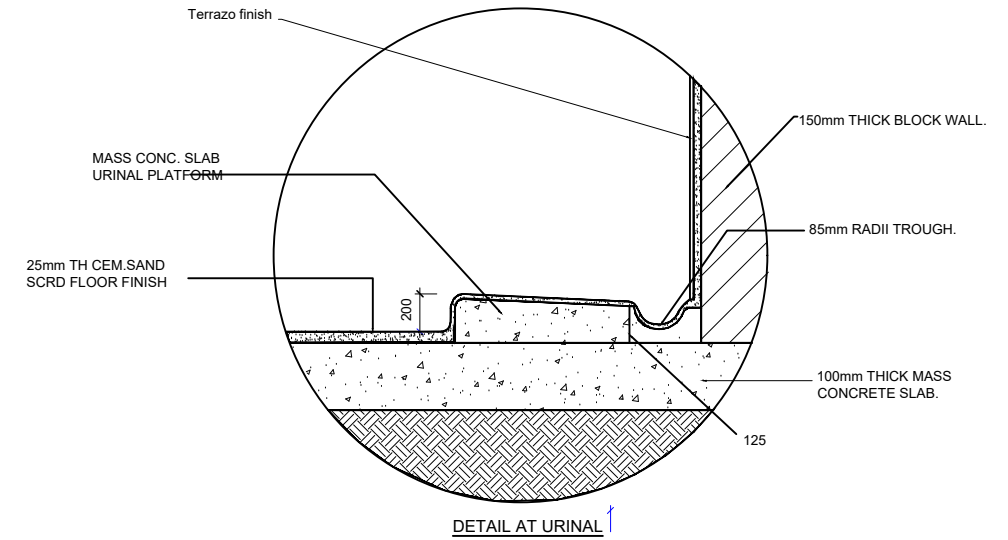
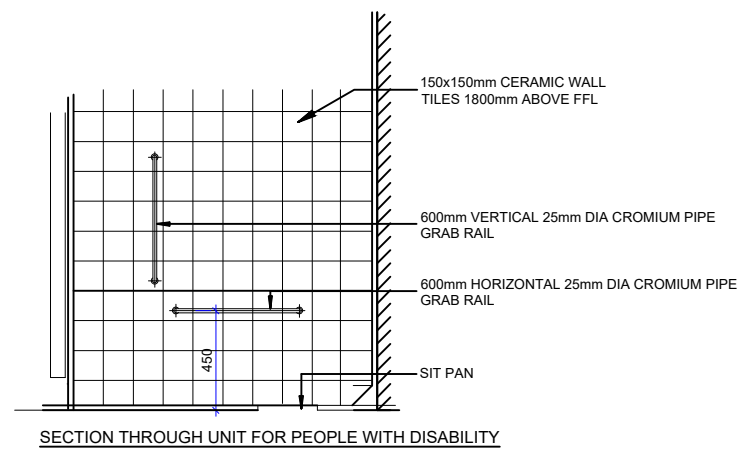
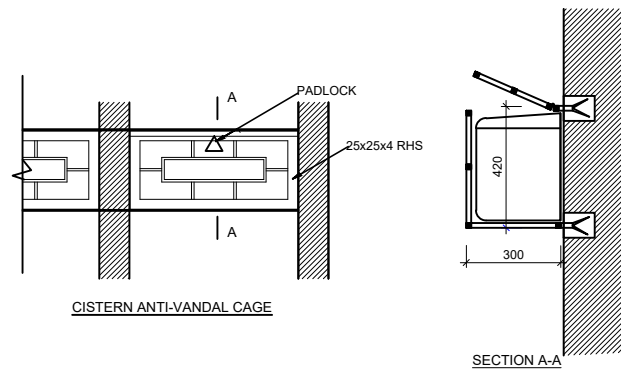
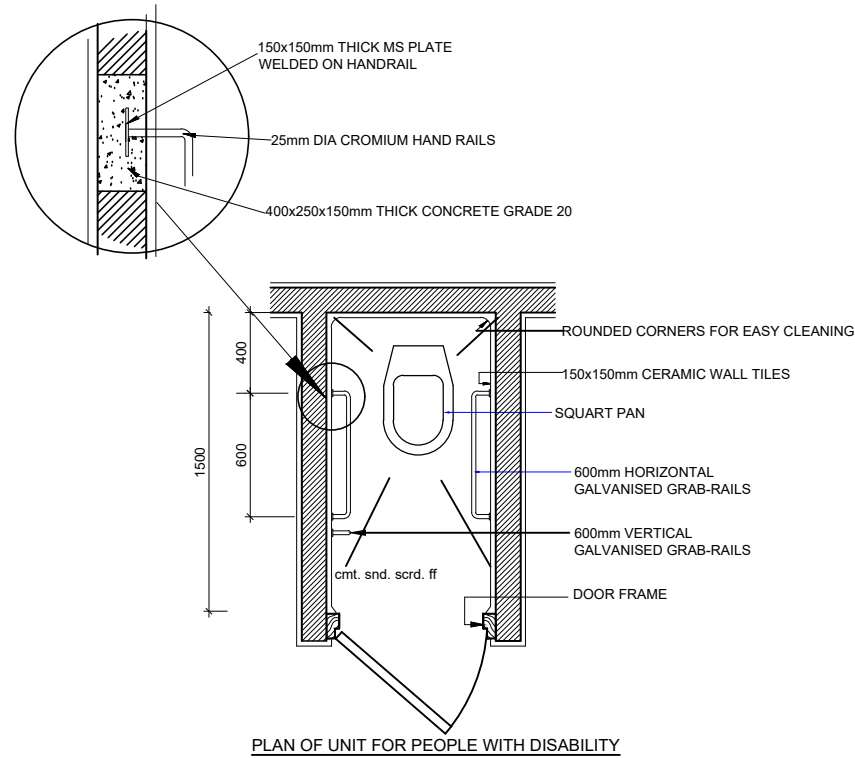


**ELEVATION 03** Scale 1 :100



**ELEVATION 04** Scale 1 :100

<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b>  <b>KAGGA &amp; PARTNERS</b> KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  <b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2	<b>NO.</b>	<b>AMENDMENTS</b>	<b>APPROVED:</b>	<b>DATE:</b>	<b>DRG TITLE:</b>	<b>DATE:</b>	<b>SCALE:</b>	<b>SHEET NO:</b>	<b>STATUS</b>
							TOILET BLOCK TYPE 1 (COMBINED) - FLOOR PLAN ELEVATIONS  <b>DWG. No.</b> KP/WS/YUM/TB 1 - 02	JULY 2023  AS SHOWN		<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____

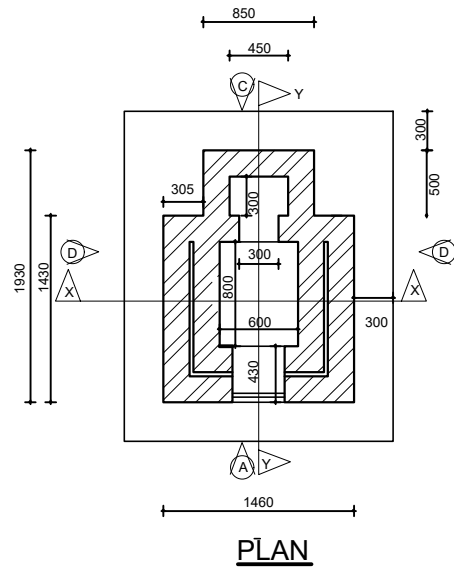


**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA

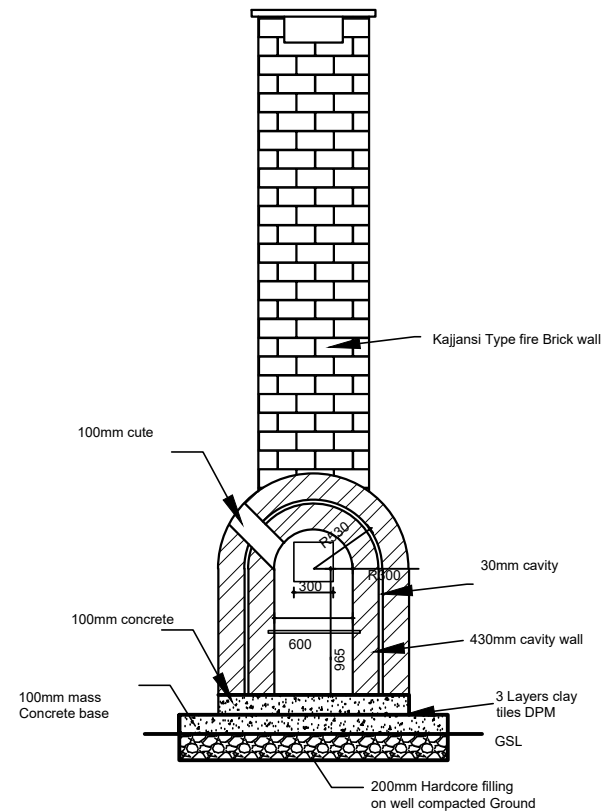
**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

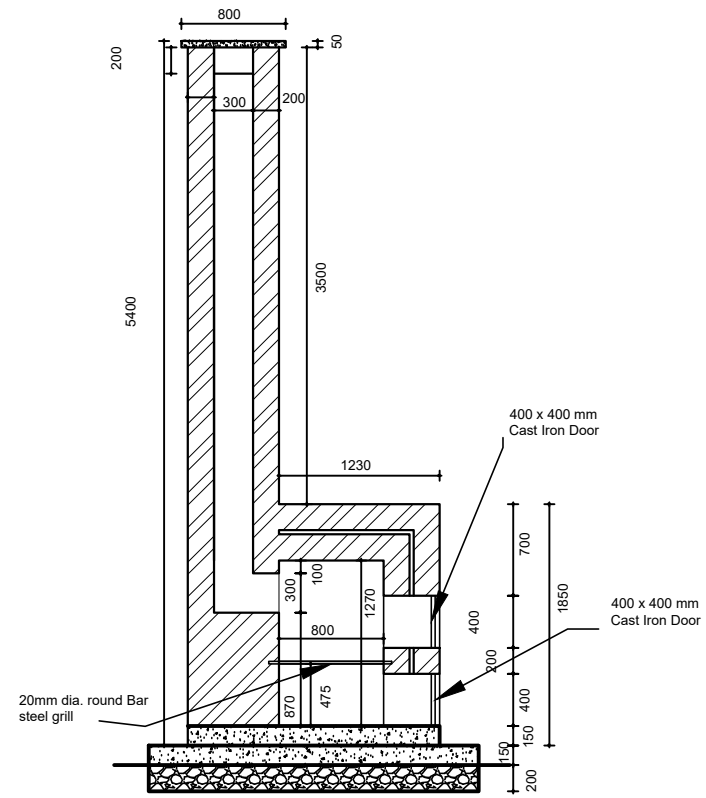
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				TOILET BLOCK TYPE 1 DETAILS	JULY 2023	AS SHOWN		CONCEPT DRG
				DWG. No. KPWS/YUM/TB 1 - 04				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
				DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE			AS BUILT DRG



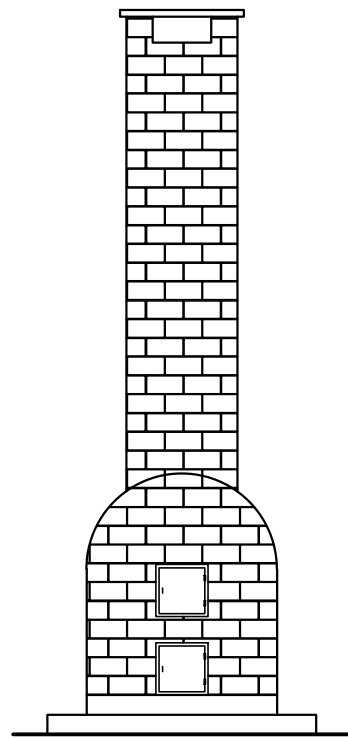
PLAN



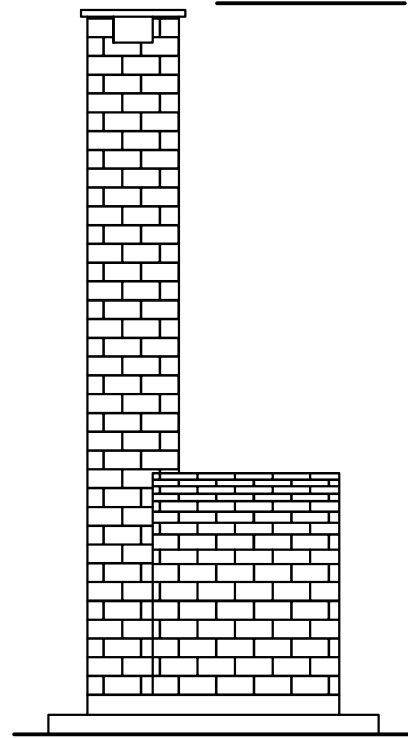
SECTION X - X



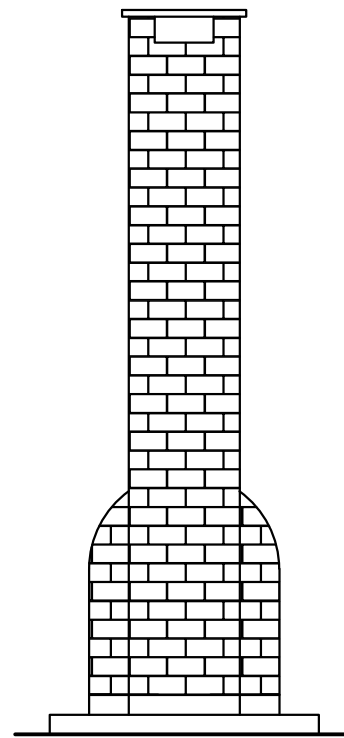
SECTION Y - Y



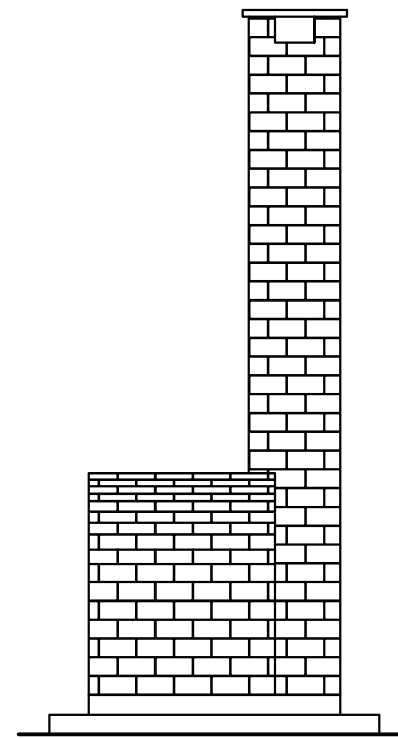
ELEVATION A



ELEVATION B



ELEVATION C



ELEVATION D

CLIENT:



MINISTRY OF WATER AND ENVIRONMENT

CONSULTANT:



**KAGGA & PARTNERS**  
KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O. BOX 6583,  
KAMPALA, UGANDA

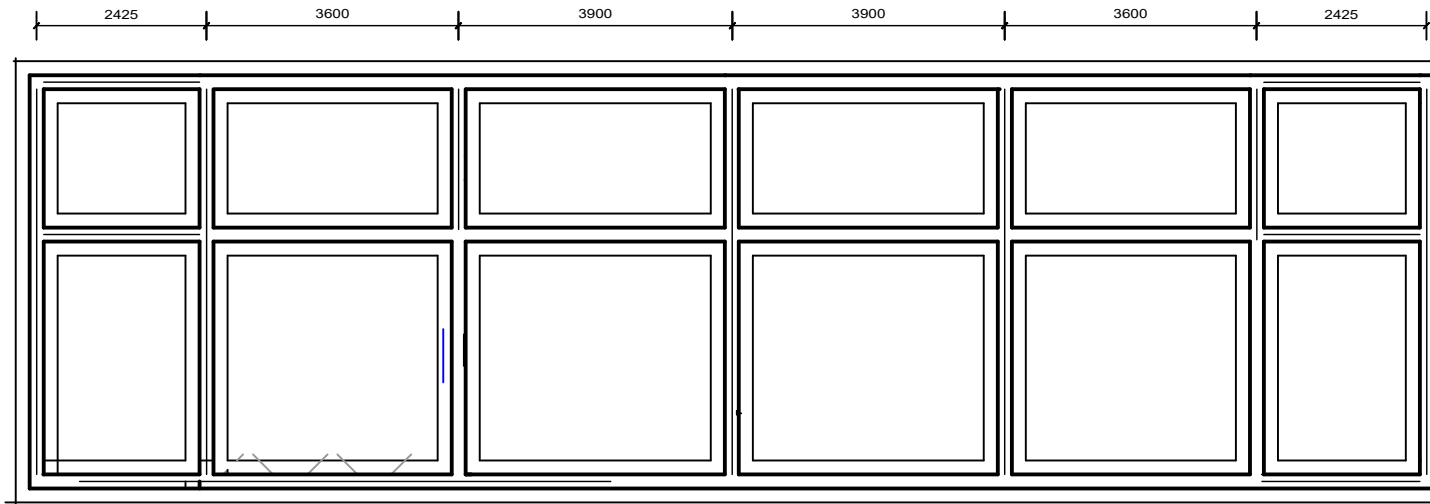
PROJECT

CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

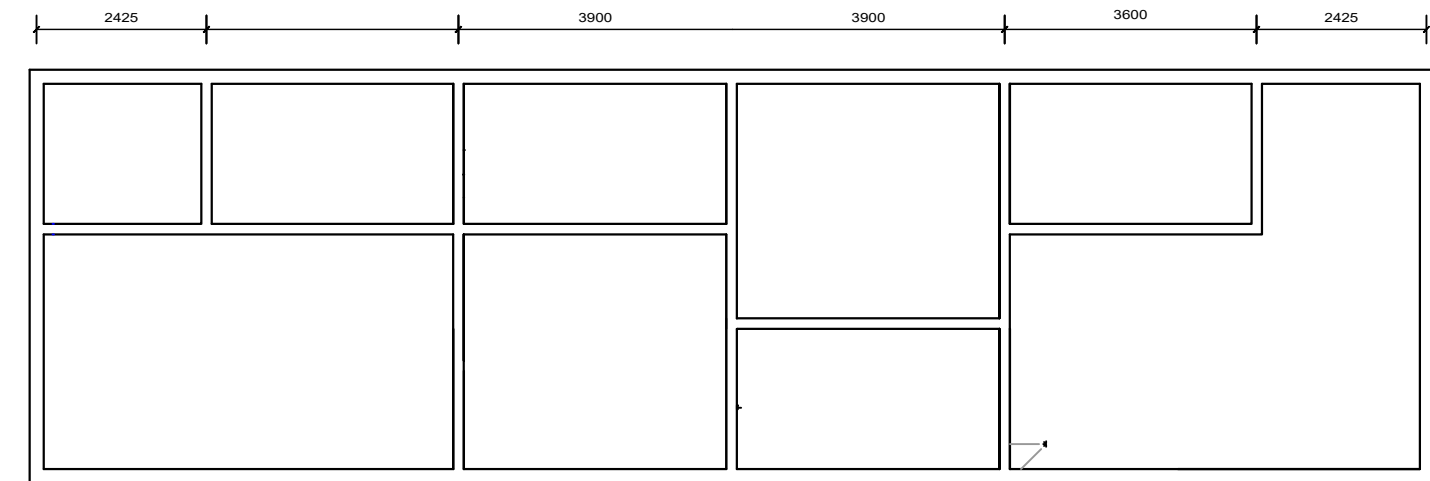
CONTRACT NO:

MWE/CONS/19 - 20/00009/2

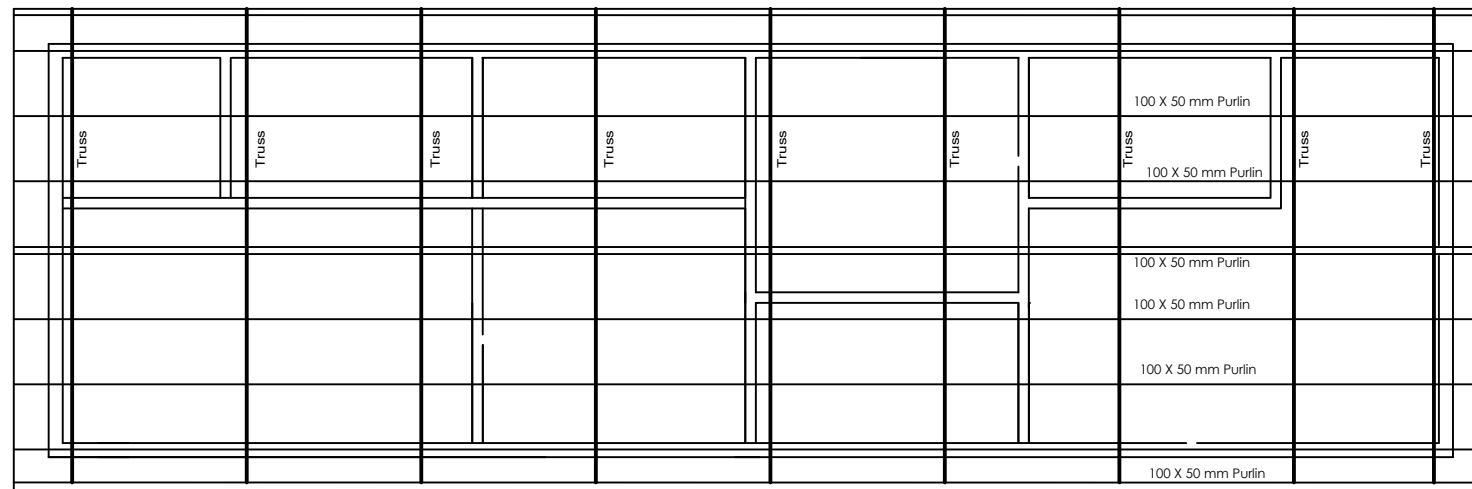
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				TOILET BLOCK TYPE 1 INCINERATOR DETAILS	JULY 2023	AS SHOWN		CONCEPT DRG
				DWG. No. KP/WS/YUM/TB1 - 05				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
				DRAWN BY: INITIALS _____ SIGN _____ DATE _____				AS BUILT DRG
				CHECKED BY: INITIALS _____ SIGN _____ DATE _____				



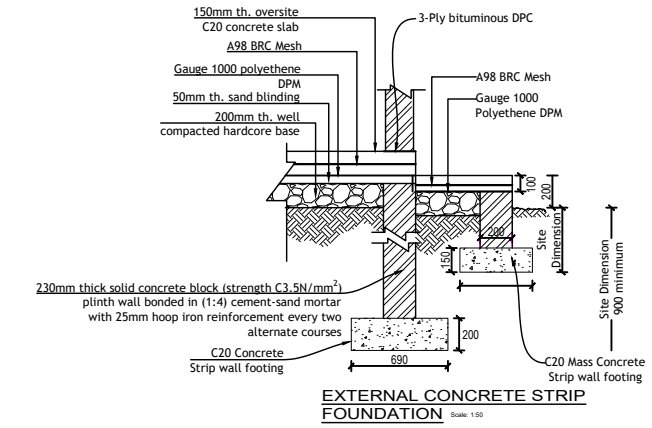
FOUNDATION PLAN Scale 1:100



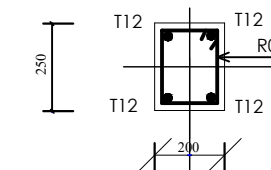
RING BEAM PLAN scale 1:100



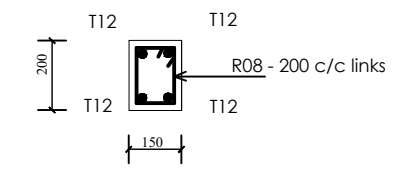
ROOF PLAN Scale 1:100



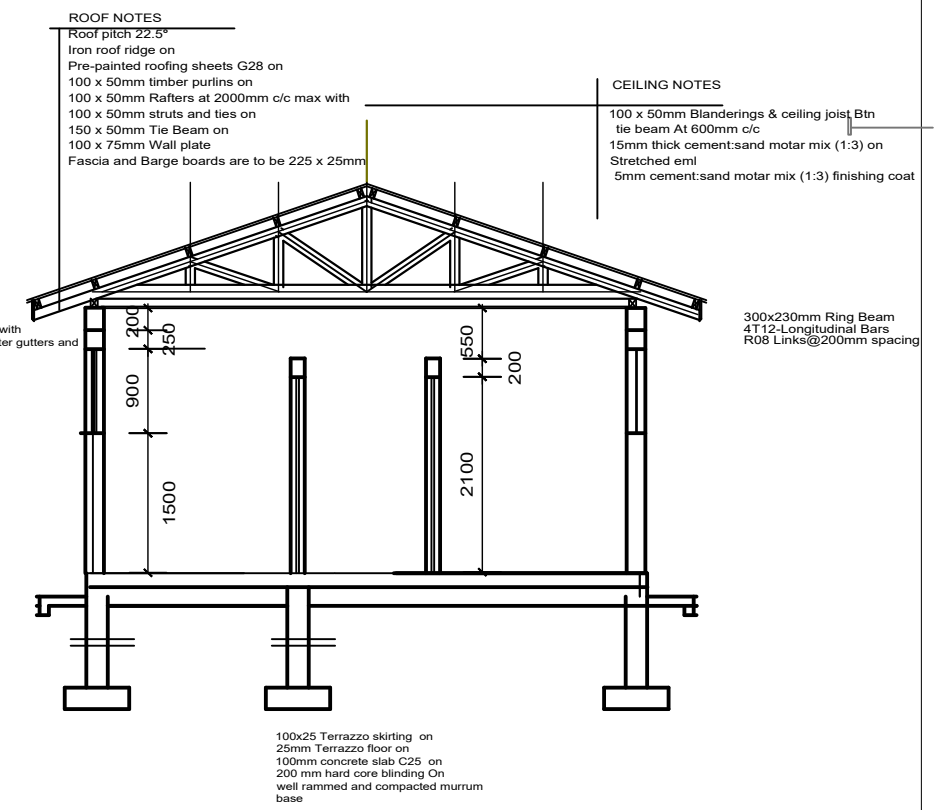
EXTERNAL CONCRETE STRIP FOUNDATION Scale 1:50





RING BEAM SECTION Scale 1:5

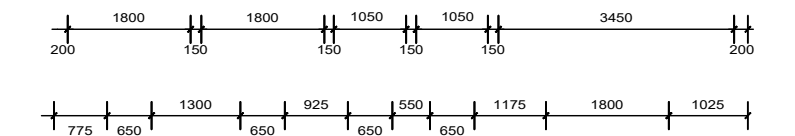
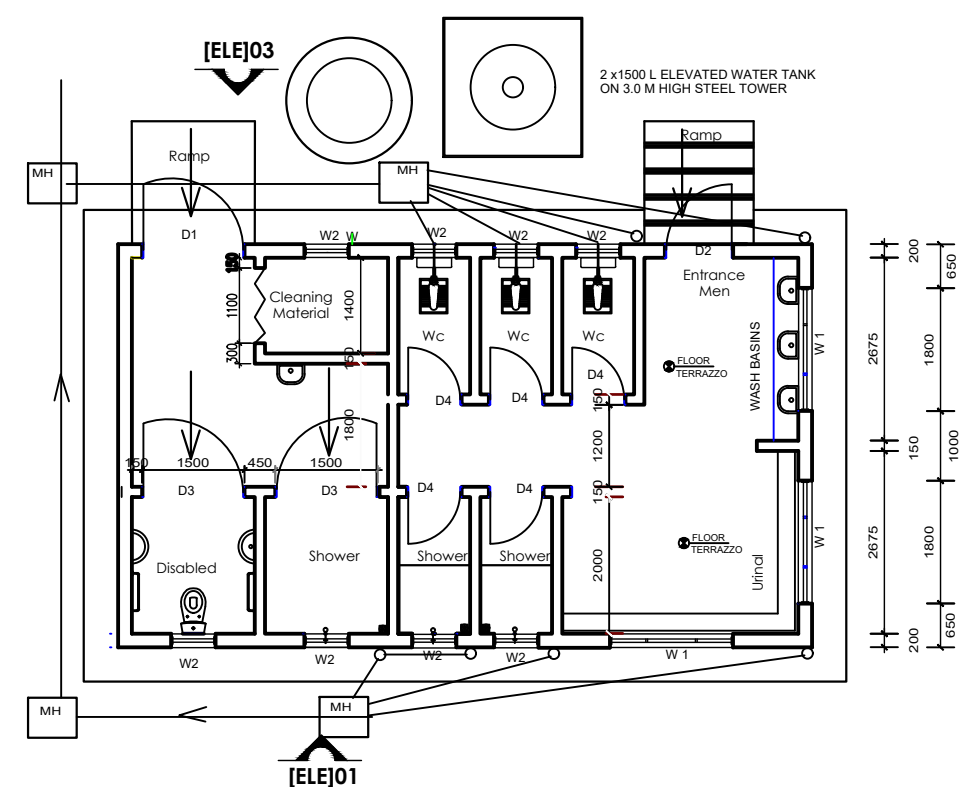
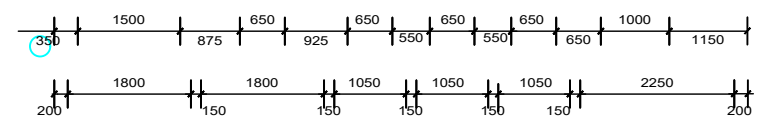


LINTEL SECTION Scale 1:5

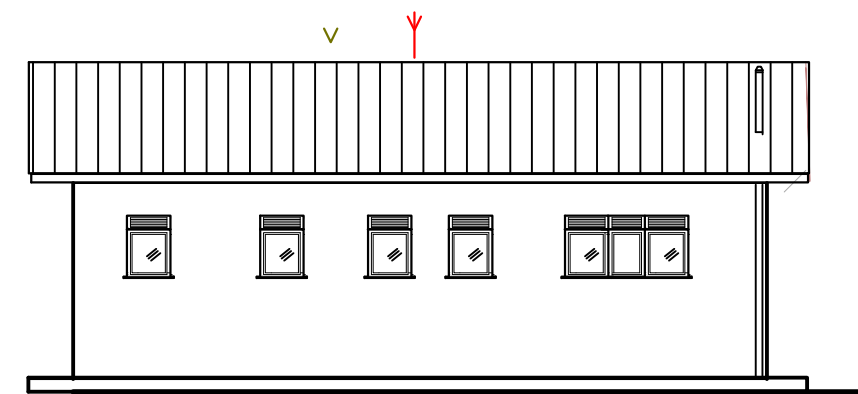


SECTION A - A Scale 1:75

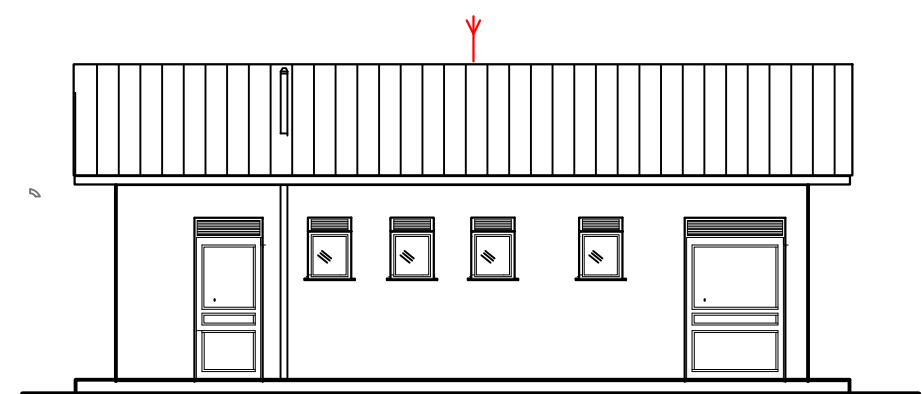
<b>CLIENT:</b>  <b>MINISTRY OF WATER AND ENVIRONMENT</b>	<b>CONSULTANT:</b> <b>KAGGA &amp; PARTNERS</b>  KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI, P.O.BOX 6583, KAMPALA, UGANDA	<b>PROJECT</b> CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE	<b>NO.</b>    	<b>AMENDMENTS</b>    	<b>APPROVED:</b>    	<b>DATE:</b>    	<b>DRG TITLE:</b>  TOILET BLOCK TYPE 1 - STRUCTURAL DETAILS	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b>	<b>STATUS</b> CONCEPT DRG
		<b>CONTRACT NO:</b> MWE/CONS/19 - 20/00009/2									
							<b>DWG. No.</b> KP/WS/YUM/TB 1 - 03	<b>REV.No.</b> 0	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG



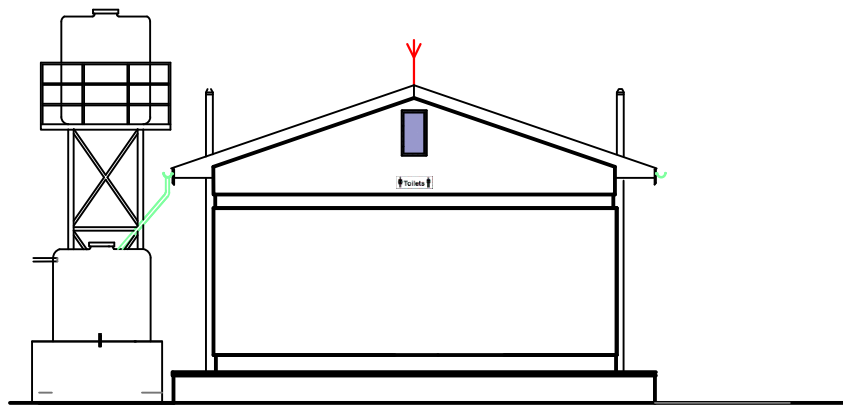
**TYPE 2 TOILET - FLOOR PLAN** Scale: 1:100



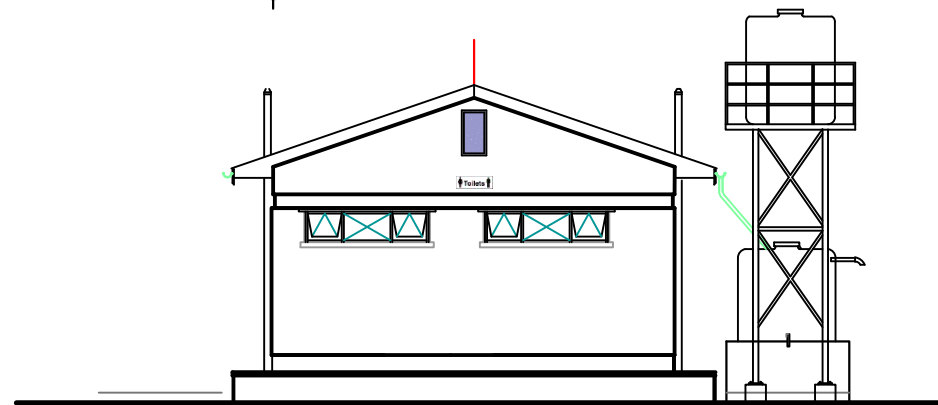
**ELEVATION 01** Scale 1:100



**ELEVATION 03** Scale 1:100



**SIDE - ELEVATION 02**



**SIDE - ELEVATION 04**

**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	1500	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D2	1000	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D3	1500	2100	02	Solid core flush door
D4	900	2100	13	Ditto

WINDOW SCHEDULE				
W1	WIDTH	HEIGHT	No.	DESCRIPTION
W1	1800	900	03	Casement steel window, with 300mm vent on lintel and with frosted glass
W2	600	900	5	Ditto



**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

**CONSULTANT:**  
**KAGGA & PARTNERS**  
KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P. O. BOX 6583, KAMPALA, UGANDA

**PROJECT:**  
CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
TOILET BLOCK TYPE 2 (MALES) - FLOOR PLAN ELEVATIONS, SECTION AND SCHEDULES

**DWG. No.**  
KP/WS/YUM/TB 2 - 01

**DATE:**  
JULY 2023

**SCALE:**  
AS SHOWN

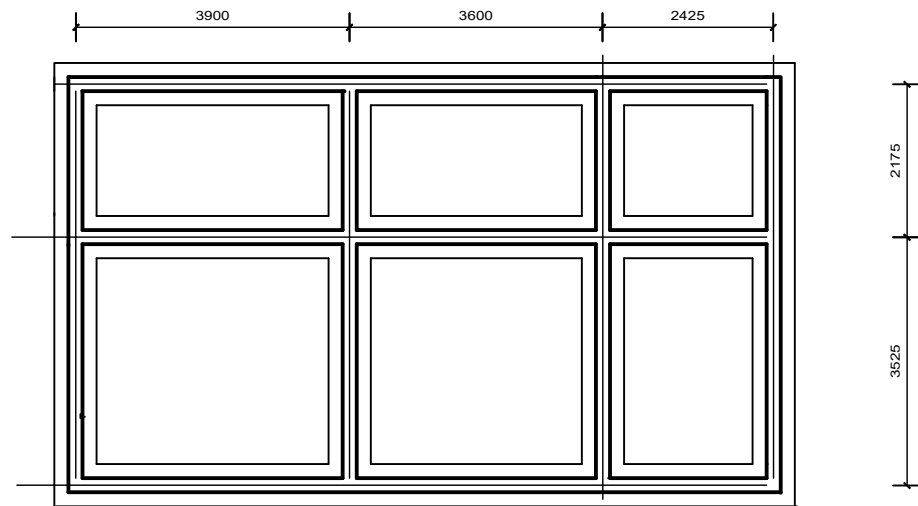
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**43**

**STATUS:**  
CONCEPT DRG  
TENDER DRG  
APPROVED FOR CONSTRUCTION  
AS BUILT DRG

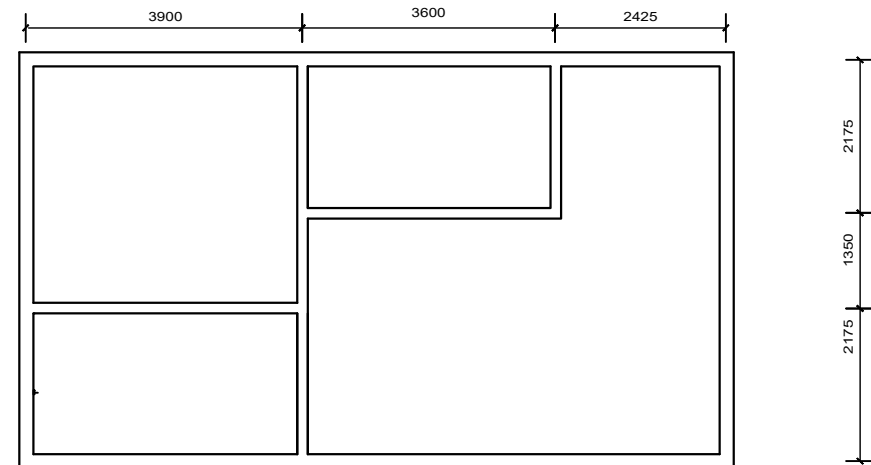
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INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

**CHECKED BY:**  
INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

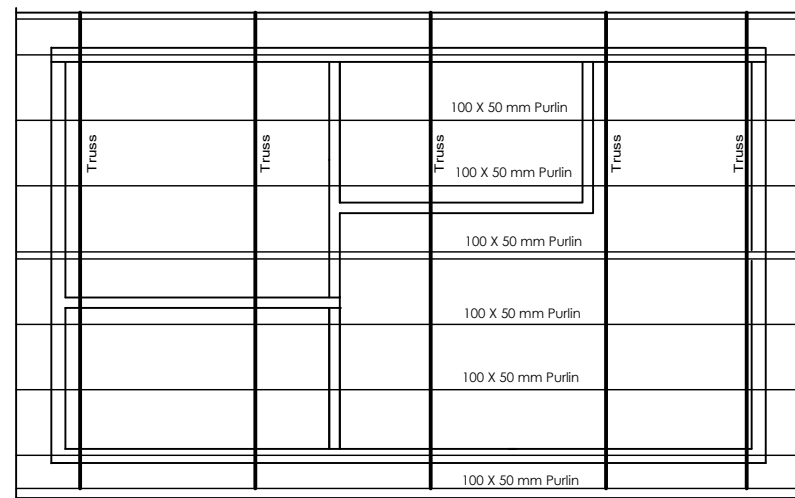




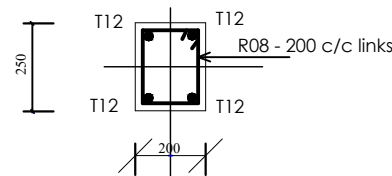
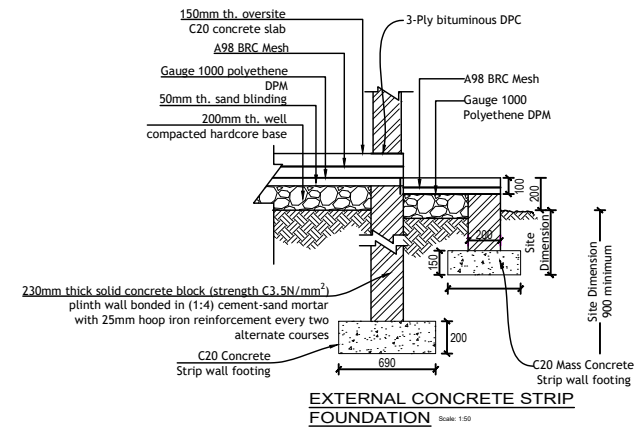
TYPE 2 TOILET - FOUNDATION PLAN Scale: 1:100



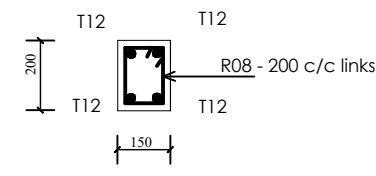
RING BEAM PLAN Scale: 1:100



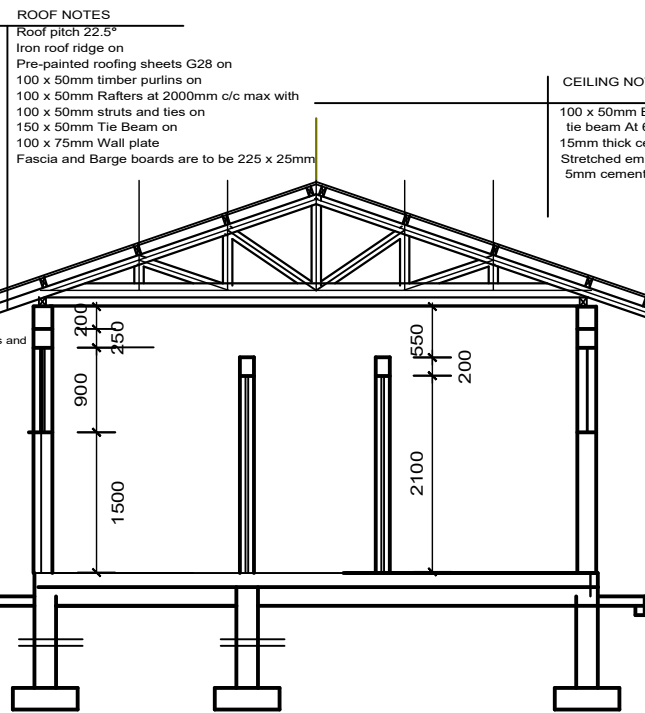
ROOF PLAN Scale: 1:100



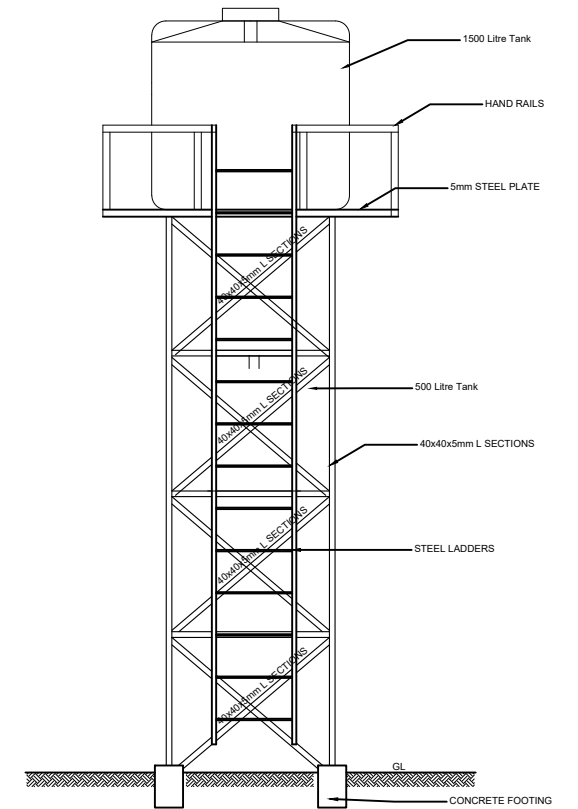
RING BEAM SECTION Scale: 1:5



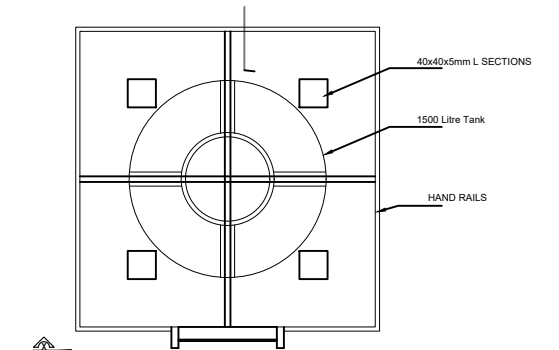
LINTEL SECTION Scale: 1:5



SECTION A - A Scale: 1:75



Elevation X - X Scale: 1:50



Water tank plan Scale: 1:50

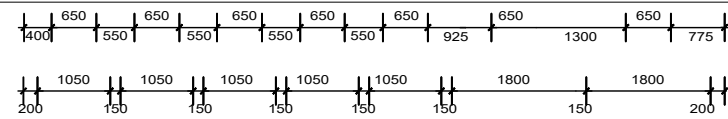


**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O. BOX 6583,  
 KAMPALA, UGANDA

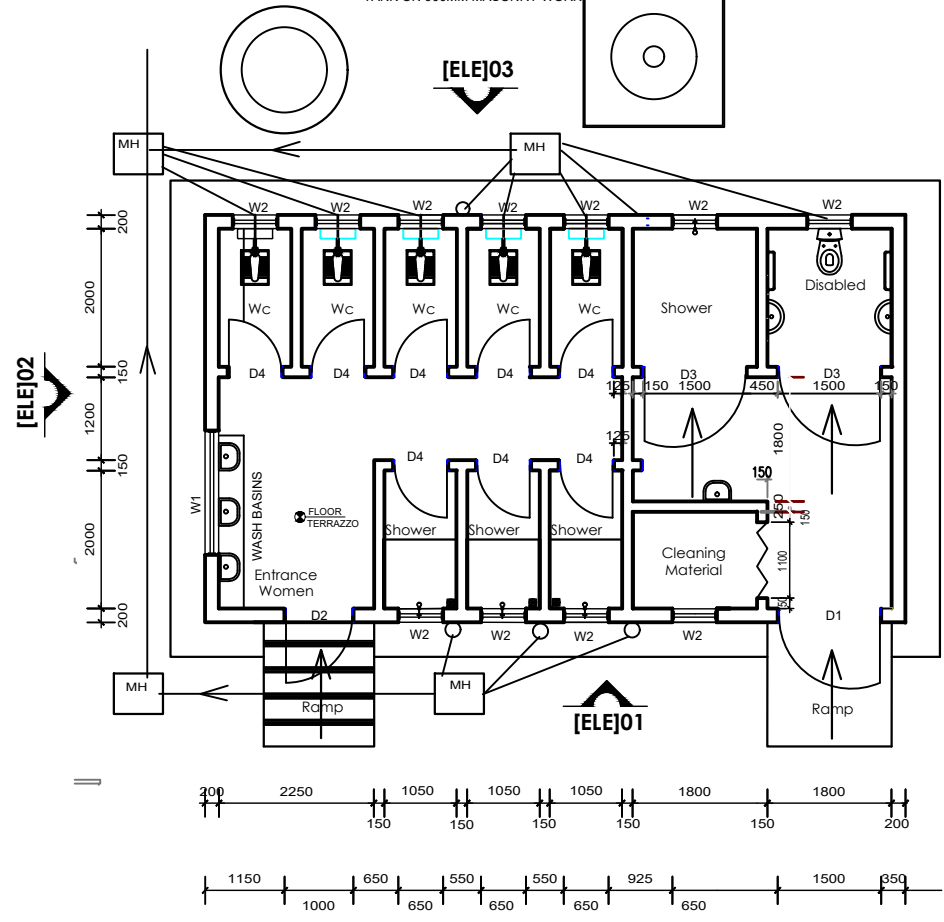
**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
 STUDY, DETAILED ENGINEERING DESIGN AND  
 CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
 WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
 REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
 AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

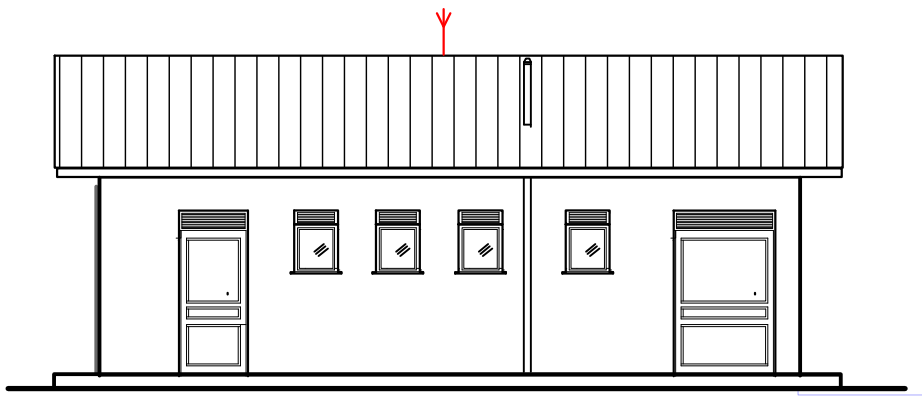
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				TOILET BLOCK TYPE 2 (MALES) - STRUCTURAL DETAILS	JULY 2023	AS SHOWN		CONCEPT DRG
				DWG. No. KPWS/YUM/TB 2 - 02				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
				DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE			AS BUILT DRG



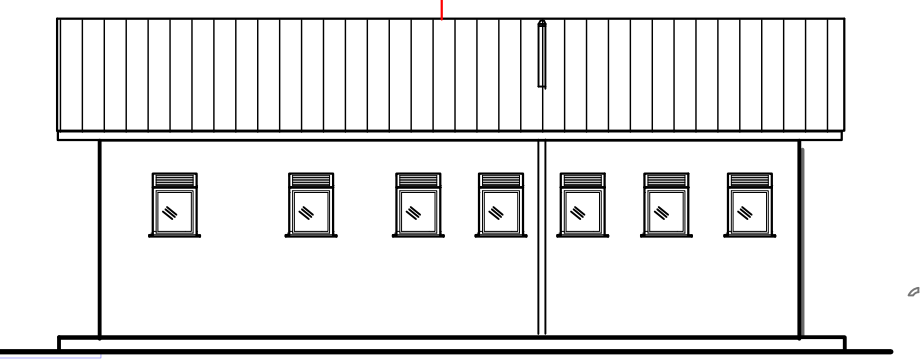
3000L RAIN WATER HARVESTING TANK ON 900MM MASONRY WORK



**TYPE 3 TOILET - FLOOR PLAN** Scale: 1:100



**ELEVATION 01** Scale 1:100



**ELEVATION 03** Scale 1:100

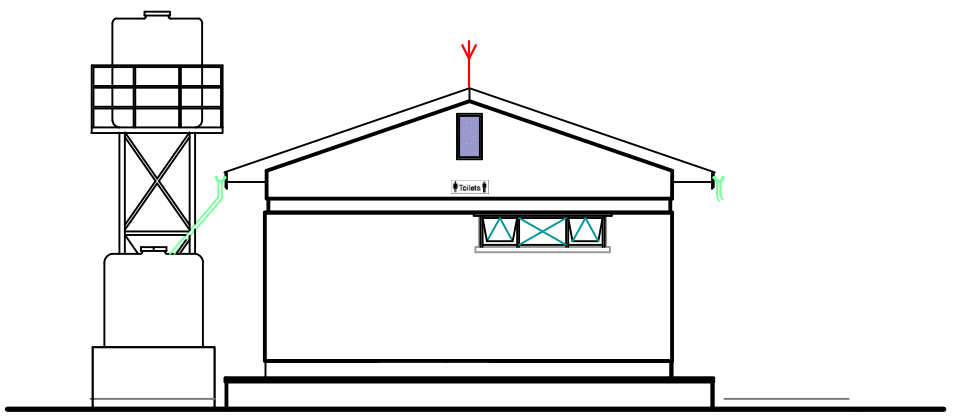
**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	1500	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D2	1000	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D3	1500	2100	02	Solid core flush door
D4	900	2100	08	Ditto

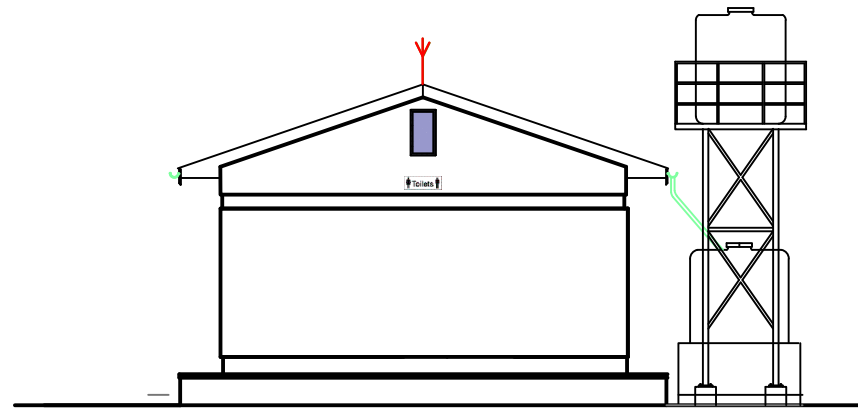
  

WINDOW SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
W1	1800	900	01	Casement steel window, with 300mm vent on lintel and with frosted glass
W2	600	900	11	Ditto

ROOF NOTES



**SIDE - ELEVATION 02**



**SIDE - ELEVATION 04**



**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

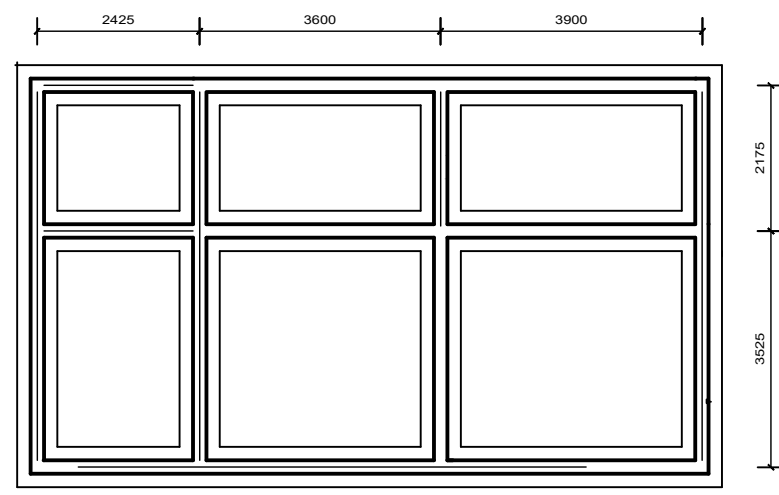
**CONSULTANT:**  
**KAGGA & PARTNERS**  
KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA

**PROJECT**  
CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

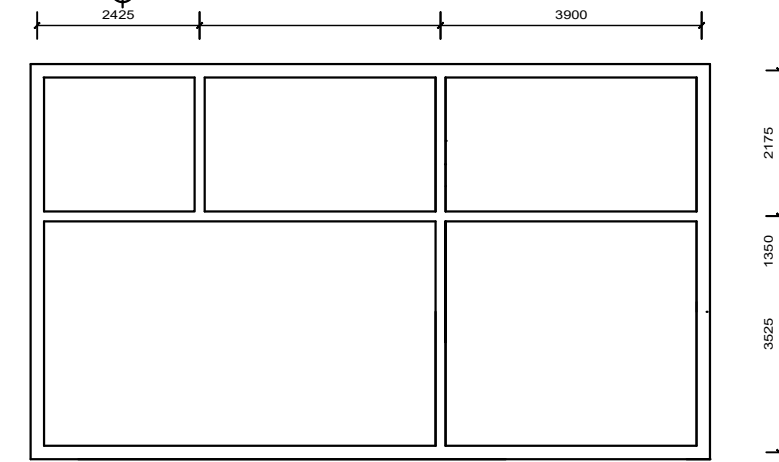
**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

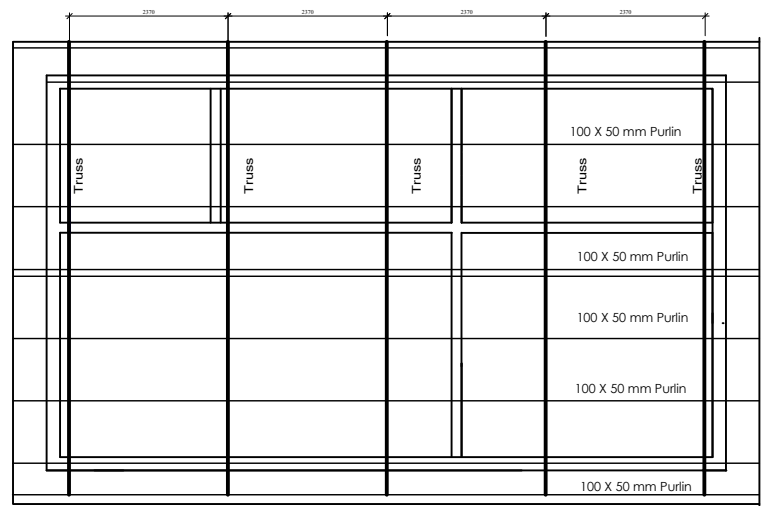
<b>DRG TITLE:</b> TOILET BLOCK TYPE 3 (FEMALES) - FLOOR PLAN ELEVATIONS, SECTION AND SCHEDULES	<b>DATE:</b> JULY 2023	<b>SCALE:</b> AS SHOWN	<b>SHEET NO:</b> <b>45</b>	<b>STATUS</b> CONCEPT DRG
<b>DWG. No.</b> KP/WS/YUM/TB 3 - 01	<b>REV.No.</b> O	<b>DRAWN BY:</b> INITIALS _____ SIGN _____ DATE _____	<b>CHECKED BY:</b> INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG



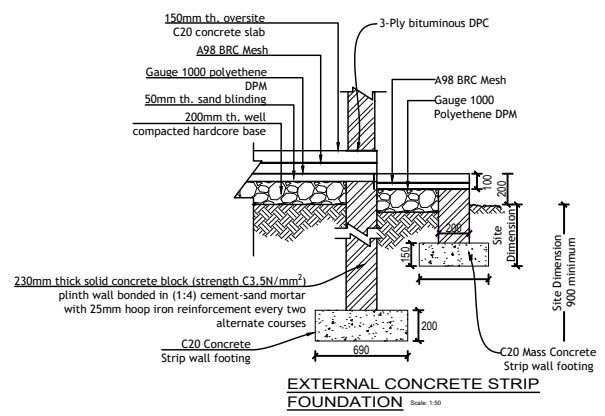
TYPE 3 TOILET - FOUNDATION PLAN Scale: 1:100



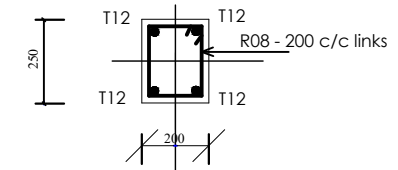
RING BEAM PLAN Scale: 1:100



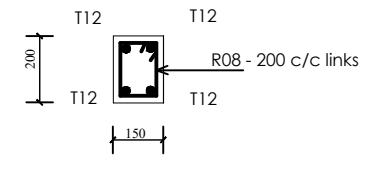
ROOF STRUCTURE PLAN Scale: 1:100



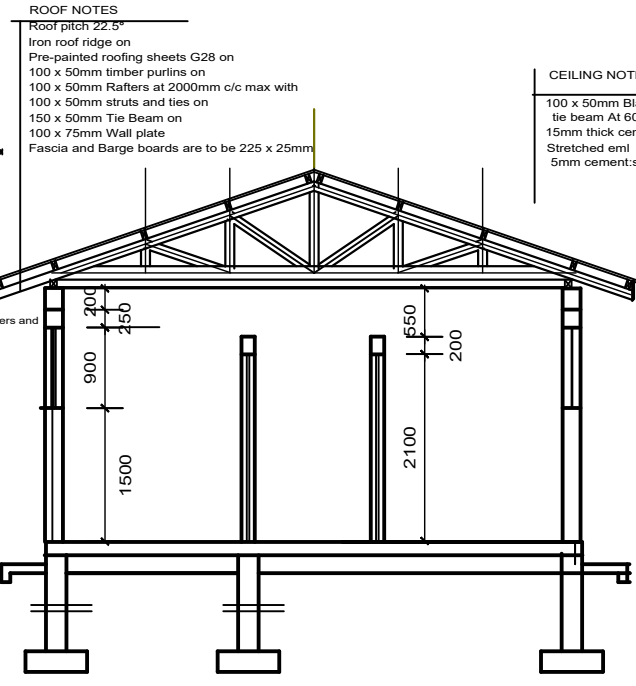
EXTERNAL CONCRETE STRIP FOUNDATION Scale: 1:50



RING BEAM SECTION Scale: 1:5



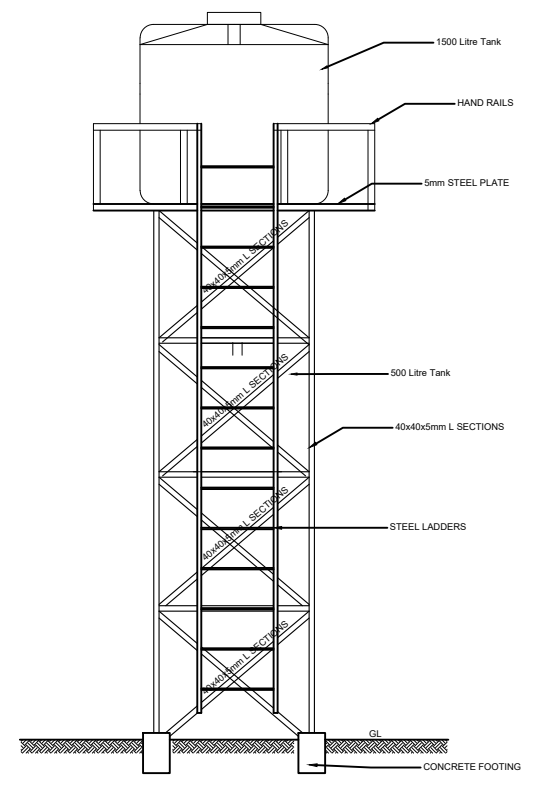
LINTEL SECTION Scale: 1:5



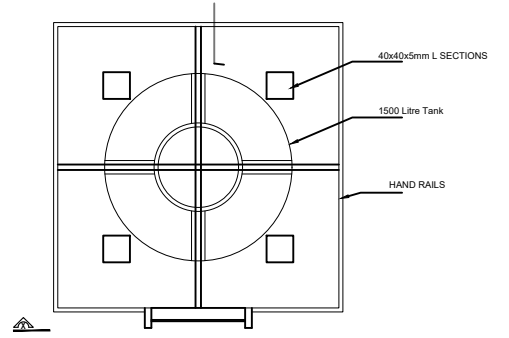
SECTION A - A Scale: 1:75

**ROOF NOTES**  
 Roof pitch 22.5°  
 Iron roof ridge on  
 Pre-painted roofing sheets G28 on  
 100 x 50mm timber purlins on  
 100 x 50mm Rafters at 2000mm c/c max with  
 100 x 50mm struts and ties on  
 150 x 50mm Tie Beam on  
 100 x 75mm Wall plate  
 Fascia and Barge boards are to be 225 x 25mm

**CEILING NOTES**  
 100 x 50mm Blanderings & ceiling joist Btn  
 tie beam At 600mm c/c  
 15mm thick cement:sand motar mix (1:3) on  
 Stretched eml  
 5mm cement:sand motar mix (1:3) finishing coat



Elevation X - X Scale: 1:50



Water tank plan Scale: 1:50



**CLIENT:**  
 MINISTRY OF WATER AND ENVIRONMENT

**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA

**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
 TOILET BLOCK TYPE 3 (FEMALES)- STRUCTURAL DETAILS

**DWG. No.**  
 KP/WS/YUM/TB 3 - 02

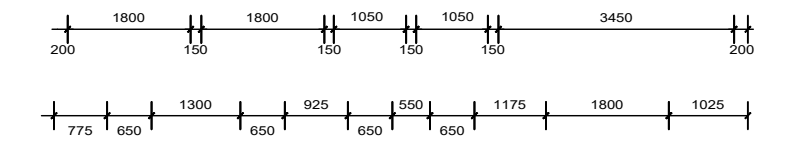
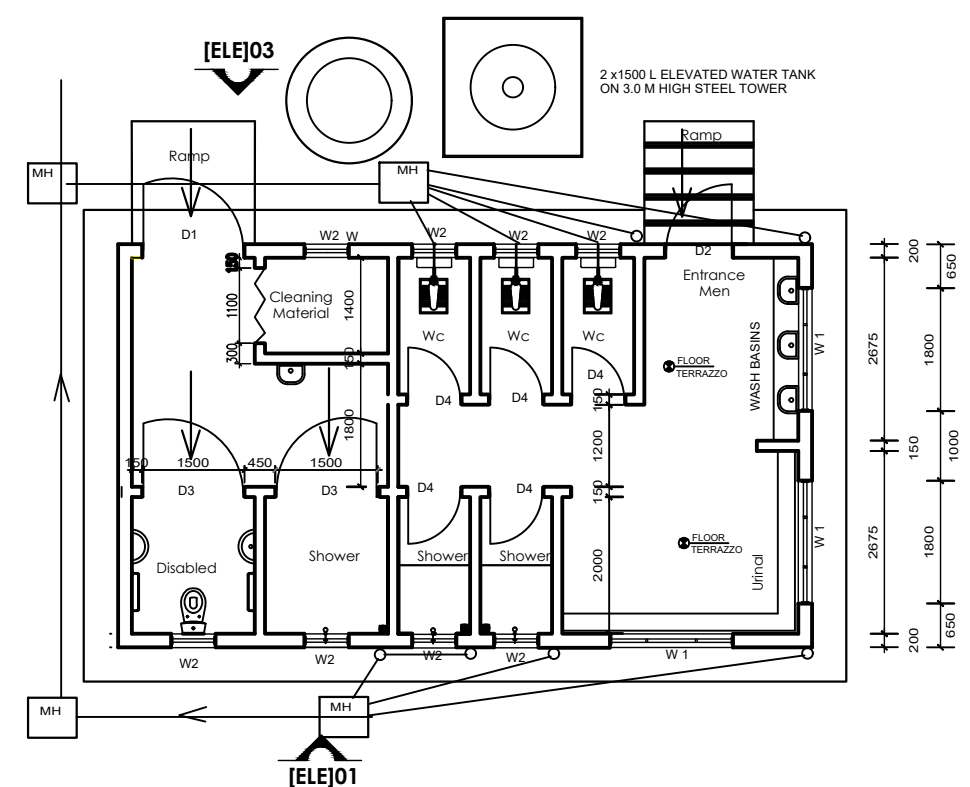
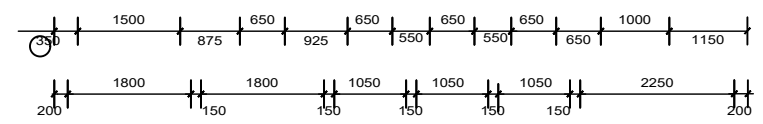
**DATE:**  
 JULY 2023

**SCALE:**  
 AS SHOWN

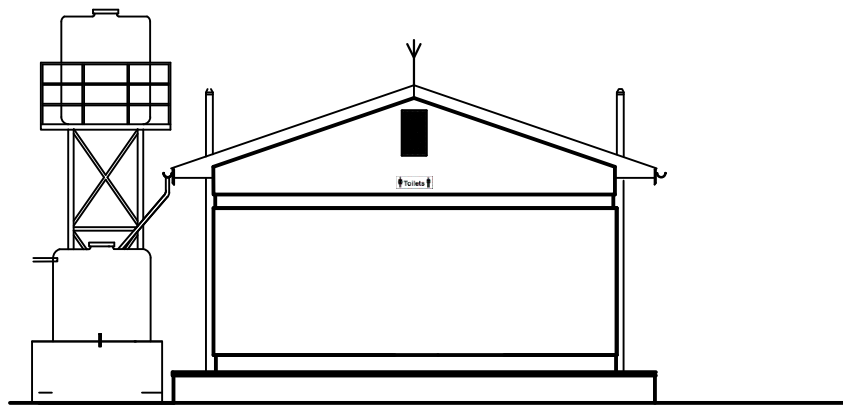
**DATE:**  
 \_\_\_\_\_

**SCALE:**  
 \_\_\_\_\_

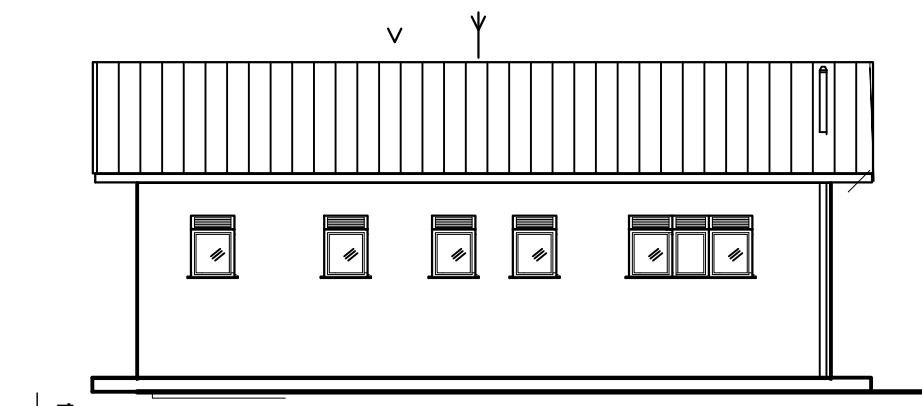
SHEET NO:	STATUS
	CONCEPT DRG
	TENDER DRG
	APPROVED FOR CONSTRUCTION
	AS BUILT DRG



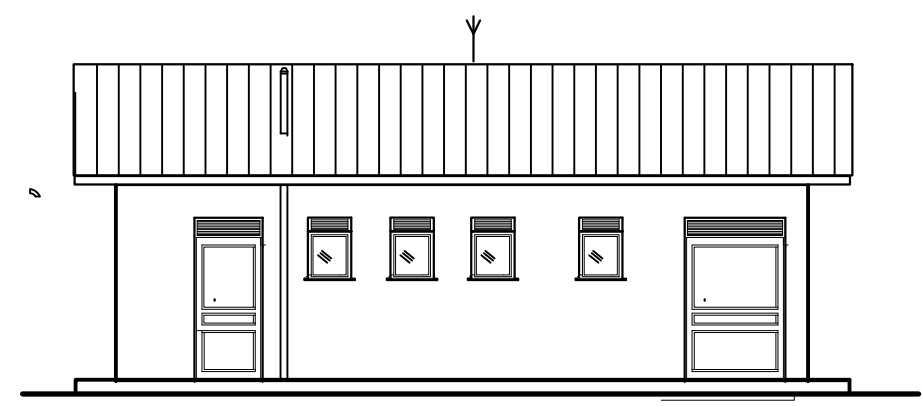
**TYPE 2 TOILET - FLOOR PLAN** Scale: 1:100



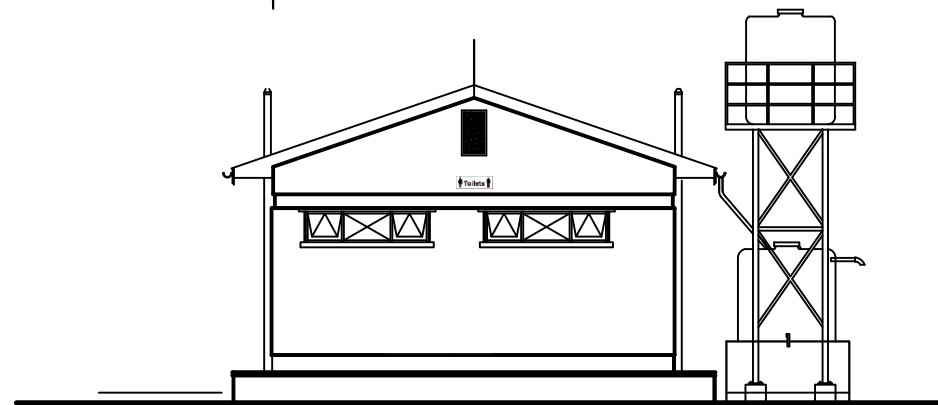
**SIDE - ELEVATION 02**



**ELEVATION 01** Scale 1:100



**ELEVATION 03** Scale 1:100



**SIDE - ELEVATION 04**

**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	1500	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D2	1000	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D3	1500	2100	02	Solid core flush door
D4	900	2100	13	Ditto

WINDOW SCHEDULE				
W1	1800	900	03	Casement steel window, with 300mm vent on lintel and with frosted glass
W2	600	900	5	Ditto



**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

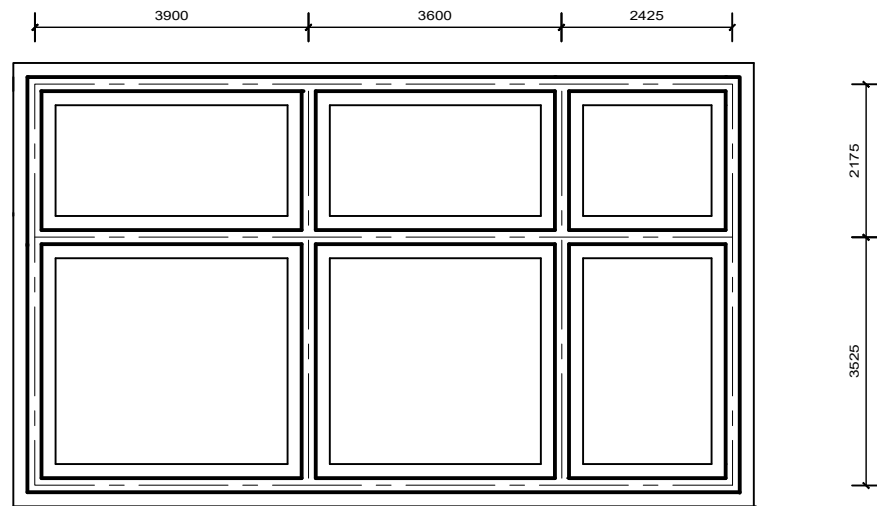
**CONSULTANT:**  
**KAGGA & PARTNERS**  
KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P. O. BOX 6583, KAMPALA, UGANDA

**PROJECT:**  
CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

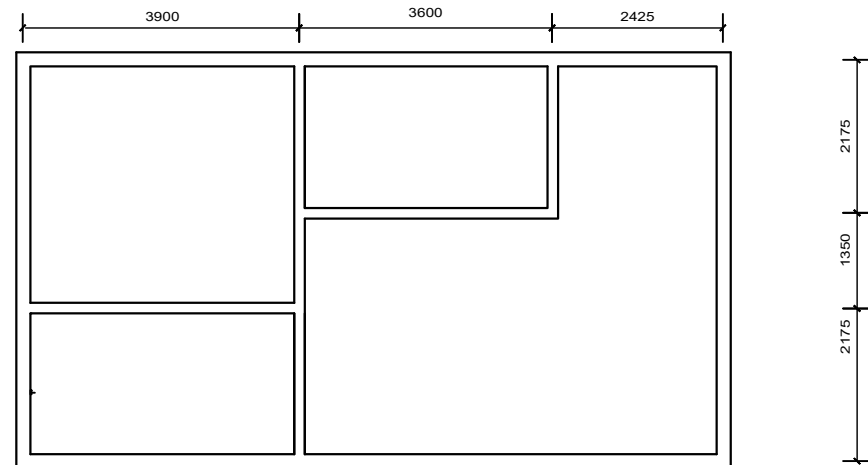
**CONTRACT NO:**  
MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

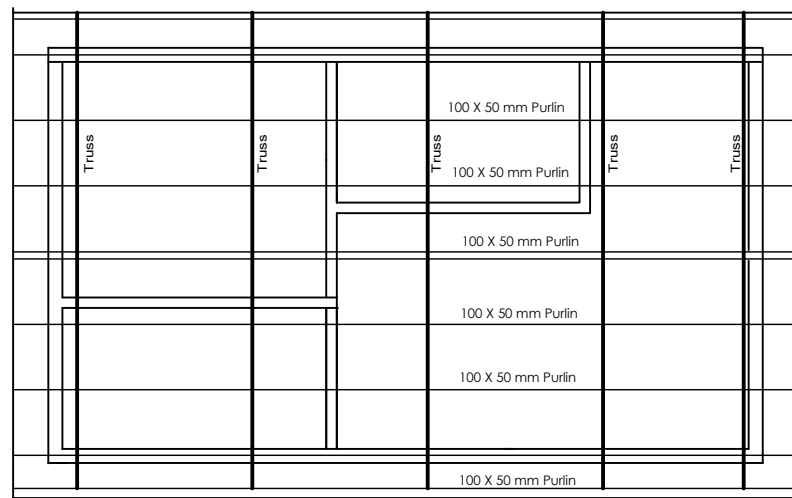
DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
TOILET BLOCK TYPE 2 (MALES) - FLOOR PLAN ELEVATIONS, SECTION AND SCHEDULES	JULY 2023	AS SHOWN	43	CONCEPT DRG
DWG. No. KP/WS/YUM/TB 2 - 01	REV.No. 0	DRAWN BY: INITIALS _____ SIGN _____ DATE _____	CHECKED BY: INITIALS _____ SIGN _____ DATE _____	TENDER DRG
				APPROVED FOR CONSTRUCTION
				AS BUILT DRG



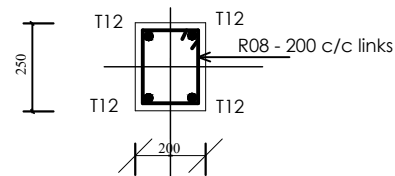
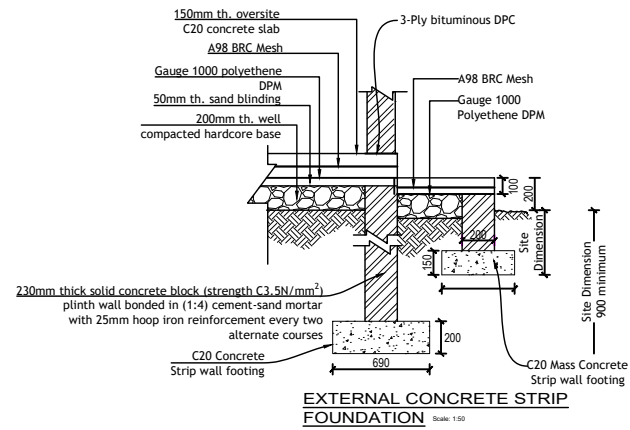
TYPE 2 TOILET - FOUNDATION PLAN Scale: 1:100



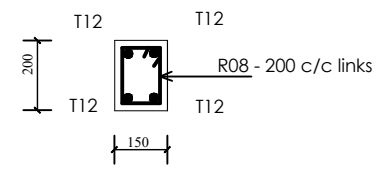
RING BEAM PLAN Scale: 1:100



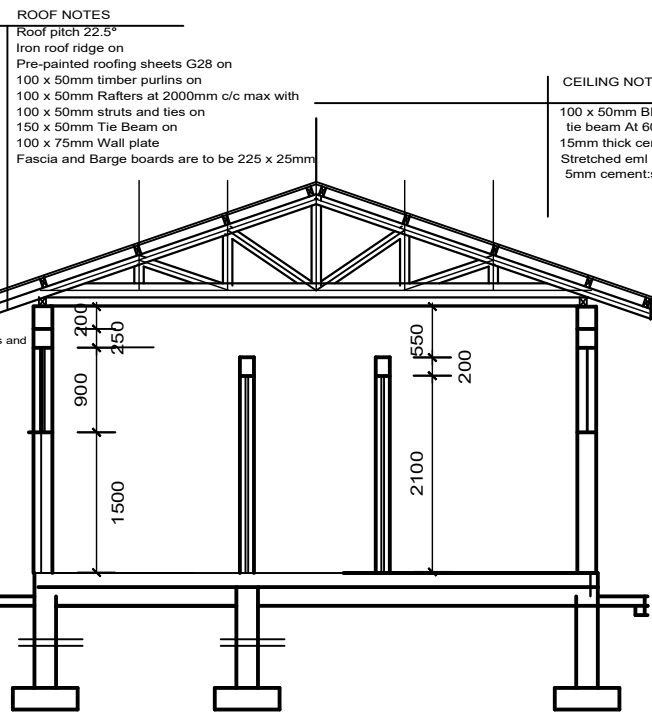
ROOF PLAN Scale: 1:100



RING BEAM SECTION Scale: 1:5



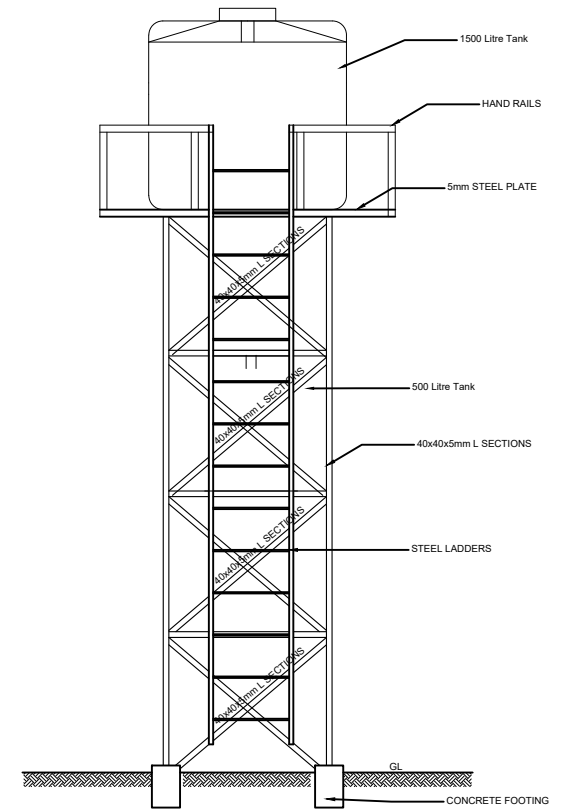
LINTEL SECTION Scale: 1:5



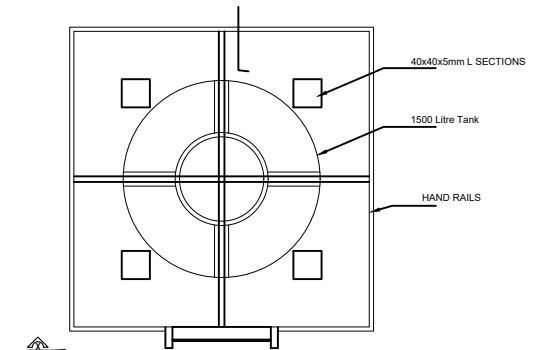
SECTION A - A Scale: 1:75

**ROOF NOTES**  
 Roof pitch 22.5°  
 Iron roof ridge on  
 Pre-painted roofing sheets G28 on  
 100 x 50mm timber purlins on  
 100 x 50mm Rafters at 2000mm c/c max with  
 100 x 50mm struts and lies on  
 150 x 50mm Tie Beam on  
 100 x 75mm Wall plate  
 Fascia and Barge boards are to be 225 x 25mm

**CEILING NOTES**  
 100 x 50mm Blanderings & ceiling joist Bln  
 tie beam At 600mm c/c  
 15mm thick cement:sand mortar mix (1:3) on  
 Stretched eml  
 5mm cement:sand mortar mix (1:3) finishing coat



Elevation X - X Scale: 1:50



Water tank plan Scale: 1:50



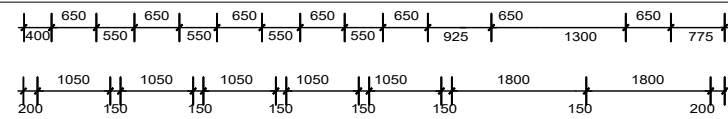
**CLIENT:**  
 MINISTRY OF WATER  
 AND ENVIRONMENT

**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O. BOX 6583,  
 KAMPALA, UGANDA

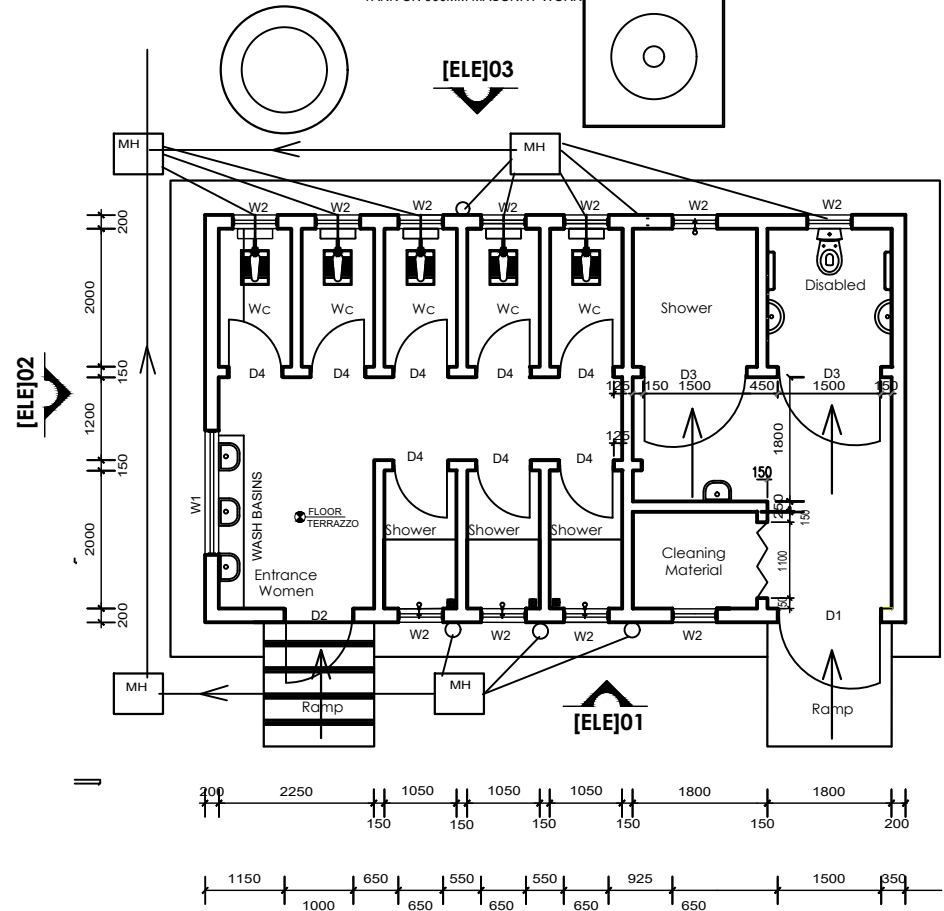
**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
 STUDY, DETAILED ENGINEERING DESIGN AND  
 CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
 WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
 REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
 AND NORTHERN UGANDA YUMBE

**CONTRACT NO.:**  
 MWE/CONS/19 - 20/00009/2

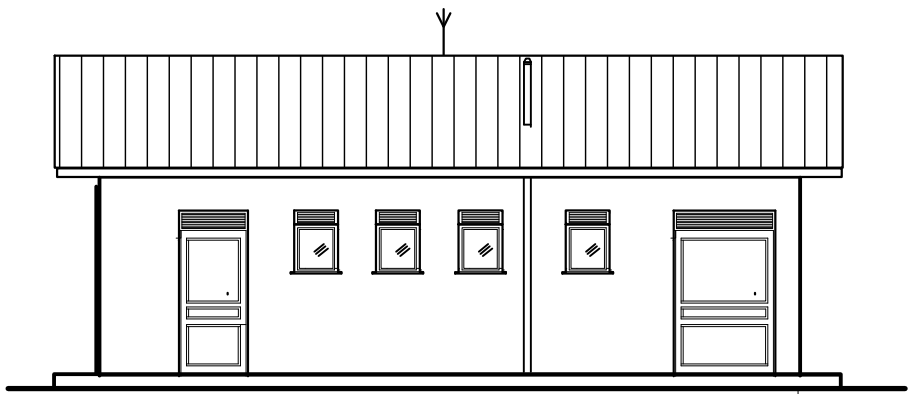
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				TOILET BLOCK TYPE 2 (MALES) - STRUCTURAL DETAILS	JULY 2023	AS SHOWN		CONCEPT DRG
				DWG. No. KPWS/YUM/TB 2 - 02				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
				DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE			AS BUILT DRG



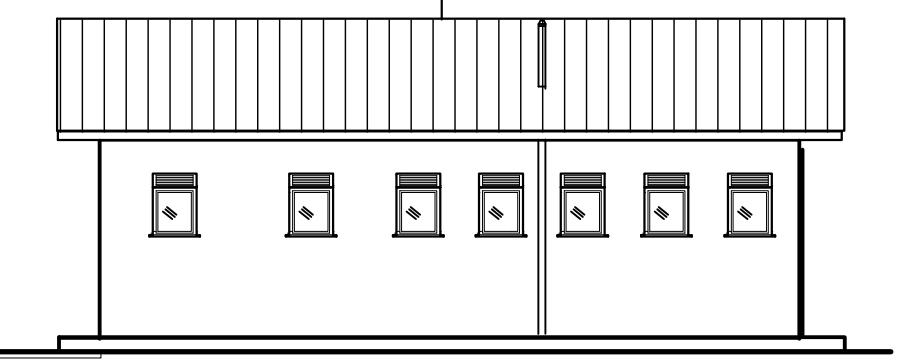
3000L RAIN WATER HARVESTING TANK ON 900MM MASONRY WORK



TYPE 3 TOILET - FLOOR PLAN Scale: 1:100



ELEVATION 01 Scale 1:100



ELEVATION 03 Scale 1:100

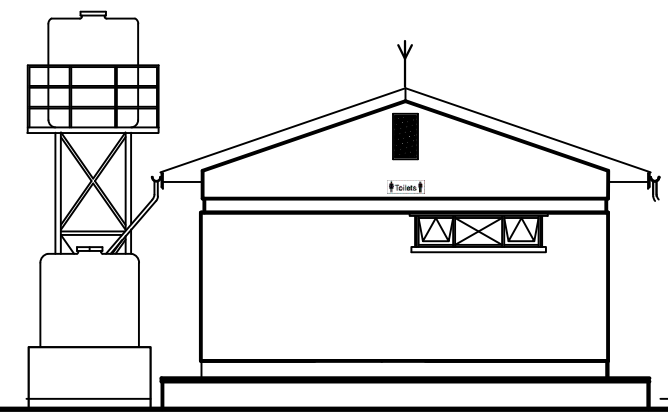
**DOOR AND WINDOW SCHEDULES**

DOOR SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
D1	1500	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D2	1000	2400	01	Fabricated louvered steel door of metal sheet, 2mm thick with 300mm vent on door lintel
D3	1500	2100	02	Solid core flush door
D4	900	2100	08	Ditto

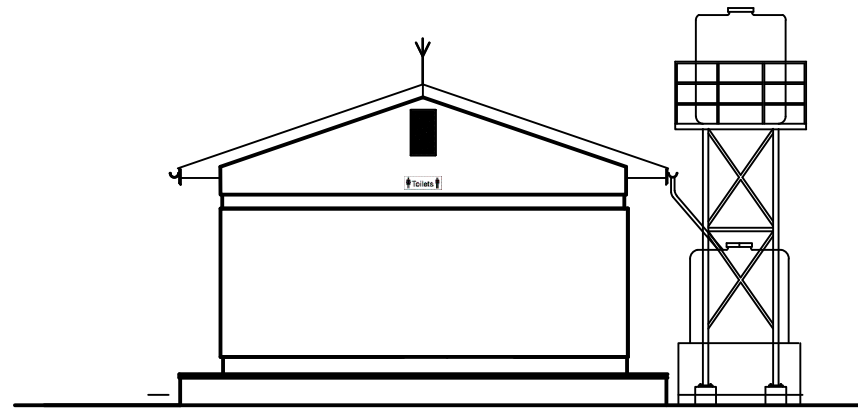
  

WINDOW SCHEDULE				
MARK	WIDTH	HEIGHT	No.	DESCRIPTION
W1	1800	900	01	Casement steel window with 300mm vent on lintel and with frosted glass
W2	600	900	11	Ditto

ROOF NOTES



SIDE - ELEVATION 02



SIDE - ELEVATION 04

**CLIENT:**  
  
**MINISTRY OF WATER AND ENVIRONMENT**

**CONSULTANT:**  
  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O.BOX 6583,  
 KAMPALA, UGANDA

**PROJECT**  
 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
 TOILET BLOCK TYPE 3 (FEMALES) - FLOOR PLAN ELEVATIONS, SECTION AND SCHEDULES

**DWG. No.**  
 KP/WS/YUM/TB 3 - 01

**DATE:**  
 JULY 2023

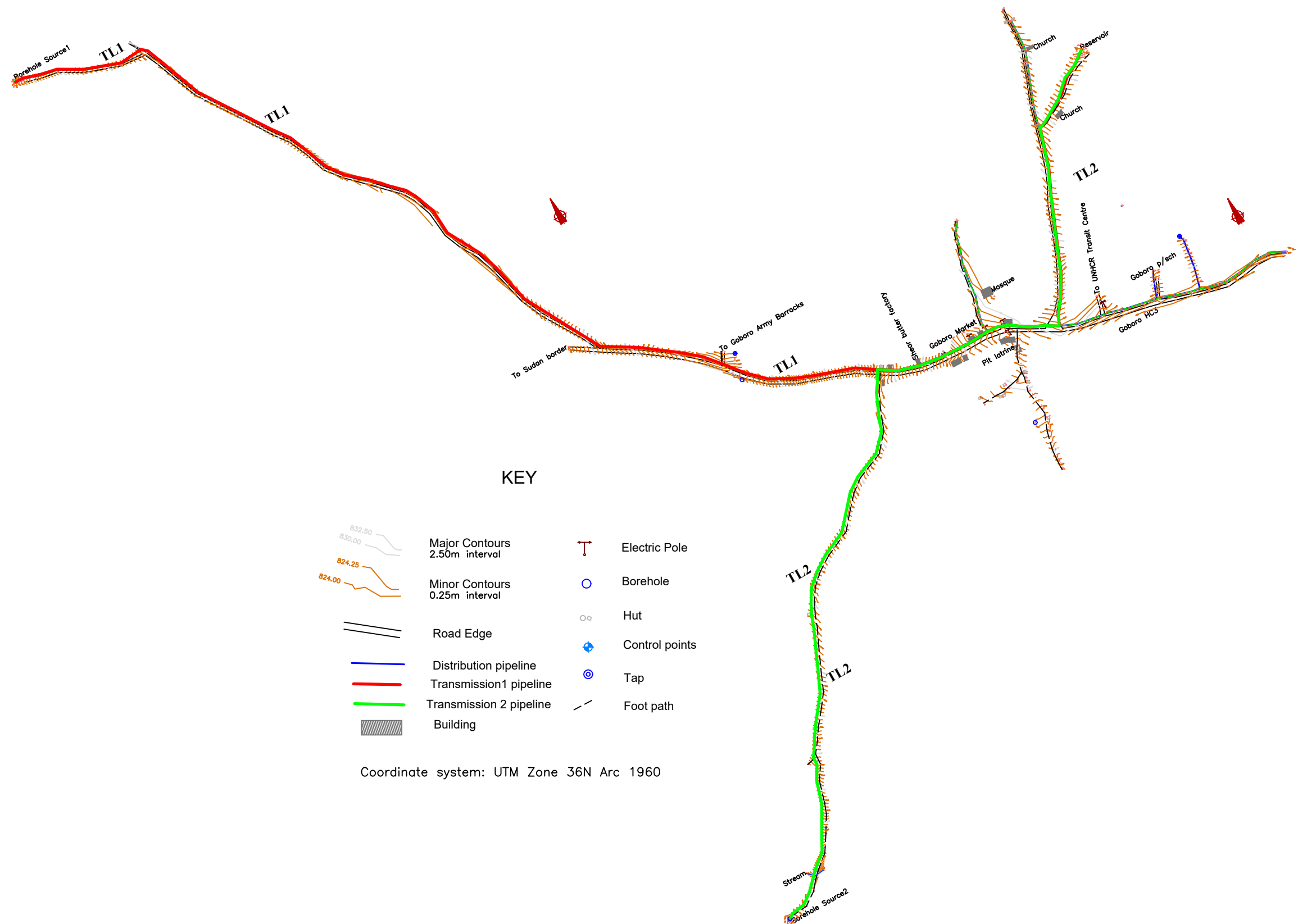
**SCALE:**  
 AS SHOWN

SHEET NO:	STATUS
45	CONCEPT DRG
	TENDER DRG
	APPROVED FOR CONSTRUCTION
	AS BUILT DRG



**GOBORO RGC WSS  
TRANSMISSION LINES  
(PAGES 47 - 55)**





**KEY**

- Major Contours 2.50m interval
- Minor Contours 0.25m interval
- Road Edge
- Distribution pipeline
- Transmission 1 pipeline
- Transmission 2 pipeline
- Building
- Electric Pole
- Borehole
- Hut
- Control points
- Tap
- Foot path

Coordinate system: UTM Zone 36N Arc 1960



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
  
 PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
 TEL: 256 41 220279,  
 FAX: 256 41 220208,  
 P.O. BOX 6583,  
 KAMPALA, UGANDA.

<b>PROJECT:</b>	<b>GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT</b>
<b>DWG. TITTLE</b>	<b>TRANSMISSION PIPES LAYOUT</b>

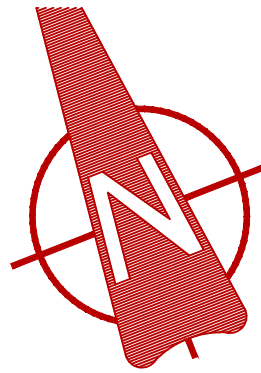
<b>REVISIONS</b>	<b>DATE:</b> Nov. 2022
	<b>DRAWN BY:</b> A.L.O
	<b>CHECKED BY:</b> DS
	<b>APPROVED BY:</b> PJM

<b>SCALE:</b>	<b>DATUM</b>
AS DRAWN	Vertical: New Khartoum
	Horizontal: UTM ZONE 36N ARC 60

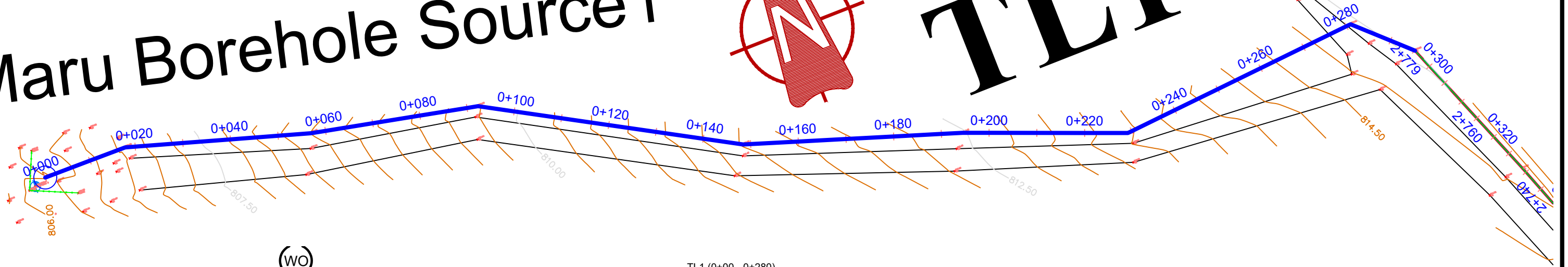
<b>DWG. No.</b>	KP/WS/YUM/GOB/TL

**SHEET**

# Maru Borehole Source 1

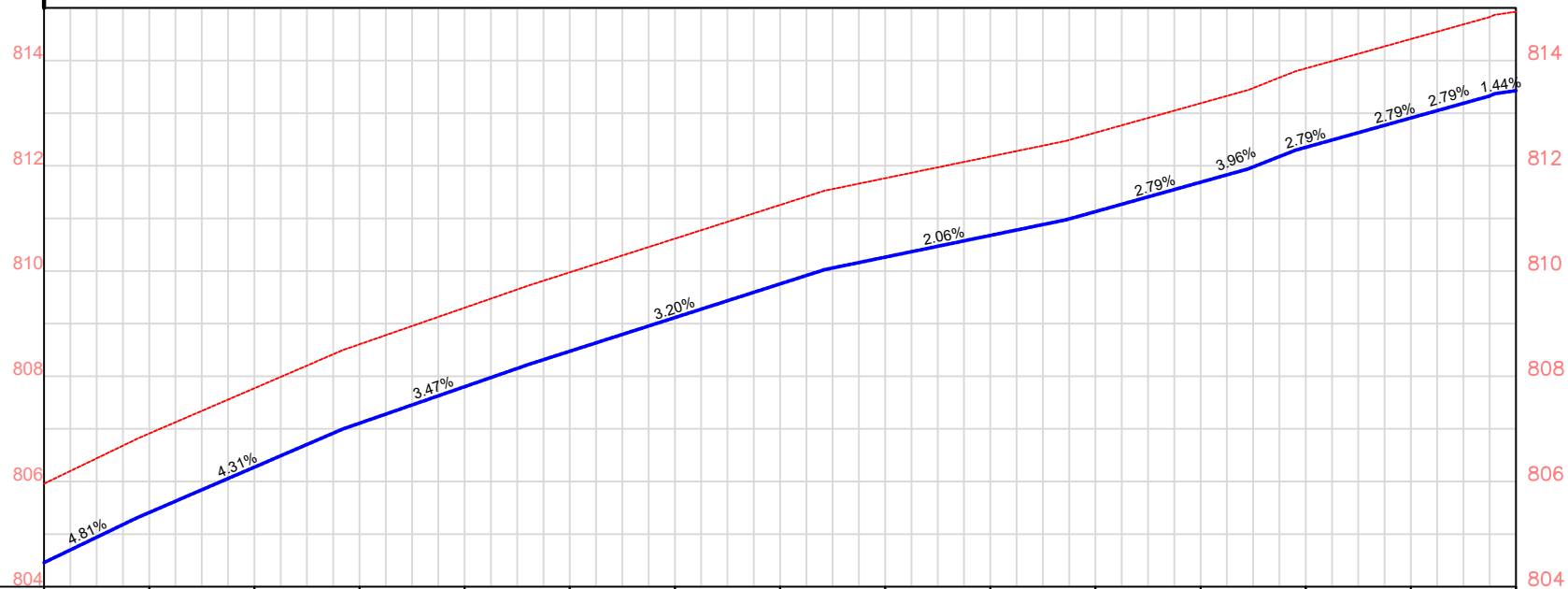


# TL1



(WO)

TL1 (0+00 - 0+280)



Ground Elevations	805.96	806.91	807.77	808.61	809.30	809.98	810.62	811.26	811.76	812.18	812.63	813.19	813.85	814.41	814.93
Chainage	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
Depth	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Bottom elevation	804.46	805.41	806.27	807.11	807.80	808.48	809.12	809.76	810.26	810.68	811.13	811.69	812.35	812.91	813.43
Slope	4.81%		4.31%		3.47%		3.20%			2.06%		2.79%		1.44%	
Pipe Data	OD110mm DN85 PN20 HDPE PIPE														



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

PROJECT:

**GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**

DWG. TITTLE

**PLAN & PROFILE FOR TRANSMISSION LINE 1**

REVISIONS

DATE:

Nov. 2022

SCALE:

DATUM

DWG. No.

SHEET

DRAWN BY:

A.L.O

CHECKED BY:

DS

APPROVED BY:

PJM

AS DRAWN

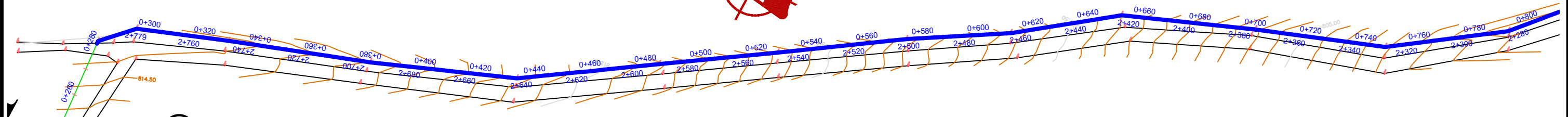
Vertical: New Khartoum

Horizontal: UTM

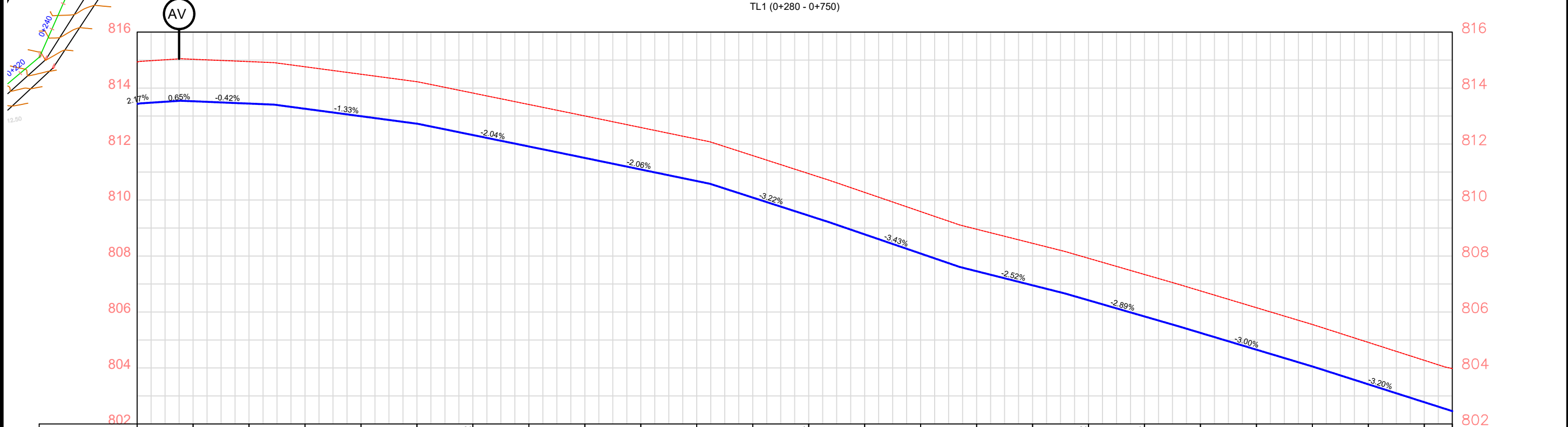
ZONE 36N ARC 60

KP/WS/YUM/GOB/TL1-01

○



TL1 (0+280 - 0+750)



Ground Elevations	814.93	815.03	814.95	814.76	814.49	814.23	813.82	813.41	813.00	812.59	812.18	811.59	810.94	810.27	809.59	808.96	808.45	807.92	807.34	806.75	806.15	805.55	804.91	804.27	803.98		
Chainage	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+750		
Depth	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Bottom elevation	813.43	813.53	813.45	813.26	812.99	812.73	812.32	811.91	811.50	811.09	810.68	810.09	809.44	808.77	808.09	807.46	806.95	806.42	805.84	805.25	804.65	804.05	803.41	802.77	802.48		
Slope	2.17%	0.65%	-0.42%	-1.33%	-2.04%	-2.06%	-3.22%	-3.43%	-2.52%	-2.89%	-3.00%	-3.20%	2.17%														
Pipe Data	OD110mm DN85 PN20 HDPE PIPE																										



**GOVERNMENT OF UGANDA**  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

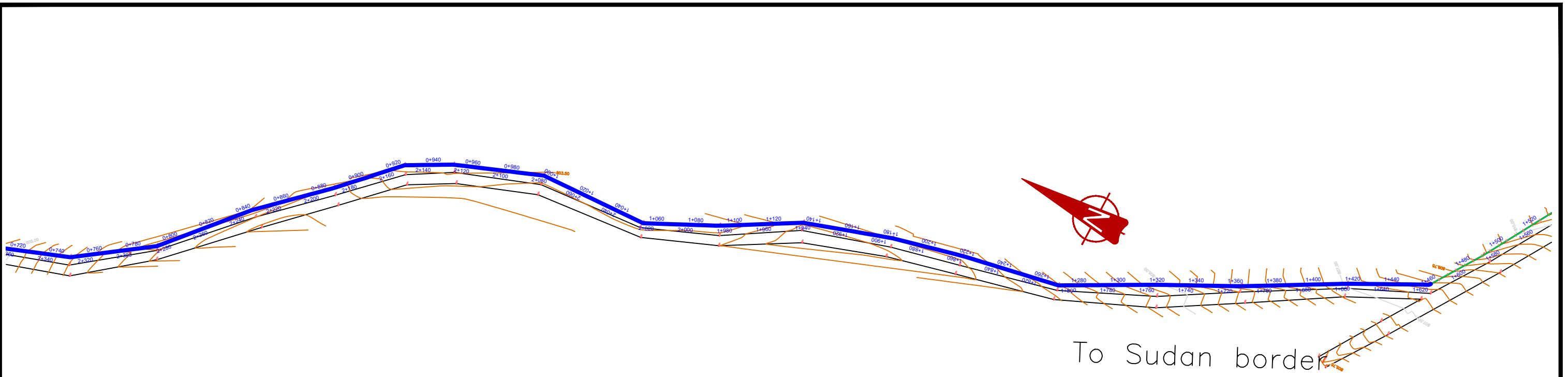
**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT  
**DWG. TITTLE:** PLAN & PROFILE FOR TRANSMISSION LINE 1

**REVISIONS:**  
**DATE:** Nov. 2022  
**DRAWN BY:** A.L.O  
**CHECKED BY:** DS  
**APPROVED BY:** PJM

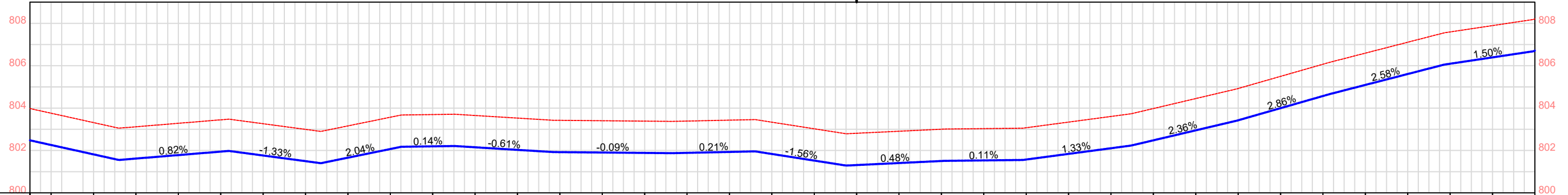
**SCALE:** AS DRAWN  
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

**DWG. No.** KP/WS/YUM//GOB/TL1-02

**SHEET**



TL1 (0+750 - 1+460)



Ground Elevation	803.98	803.76	803.32	803.12	803.28	803.45	803.26	803.00	803.16	803.57	803.70	803.65	803.53	803.42	803.40	803.39	803.39	803.43	803.34	803.02	802.81	802.91	803.00	803.03	803.07	803.34	803.61	803.98	804.45	804.93	805.50	806.07	806.59	807.11	807.59	807.89	808.21			
Chainage	0+750	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	1+140	1+160	1+180	1+200	1+220	1+240	1+260	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460				
Depth	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Bottom elevation	802.48	802.26	801.82	801.62	801.78	801.95	801.76	801.50	801.98	803.57	802.20	802.15	802.03	801.92	801.90	801.89	801.89	801.93	801.84	801.52	801.31	801.41	801.50	801.53	801.57	801.84	802.11	802.48	802.95	803.43	804.00	804.57	805.09	805.61	806.09	806.39	806.71			
Slope		-2.21%		0.82%		-1.33%		2.04%		0.14%		-0.61%		-0.09%		0.21%		-1.56%		0.48%		0.11%		1.33%		2.36%		2.86%		2.58%		1.50%		4.03%						
Pipe Data	OD110mm DN85 PN20 HDPE PIPE																																							



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

PROJECT:

**GOBORO RURAL GROWTH CENTER SOLAR POWERED PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**

DWG. TITTLE

**PLAN & PROFILE FOR TRANSMISSION LINE 1**

REVISIONS

DATE:

Nov. 2022

SCALE:

DATUM

DWG. No.

SHEET

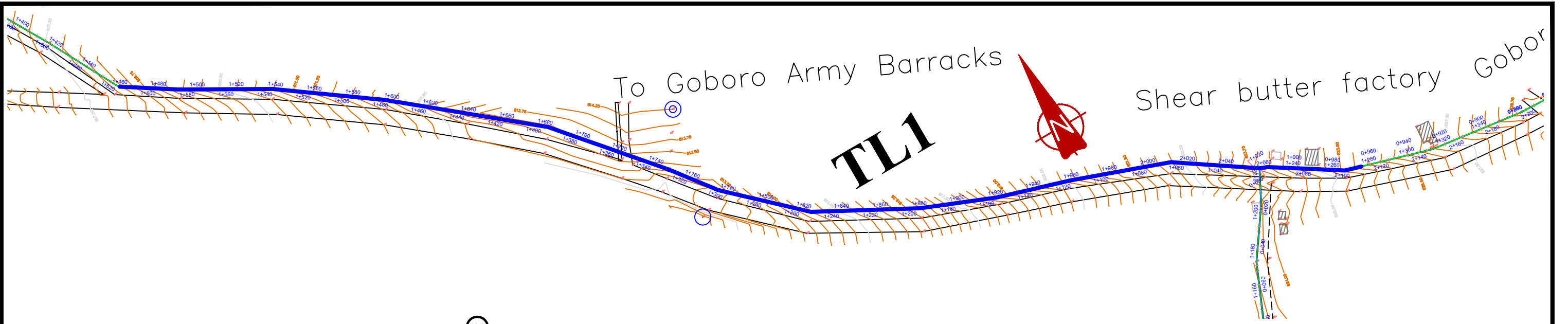
DRAWN BY: A.L.O  
CHECKED BY: DS  
APPROVED BY: PJM

AS DRAWN

Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

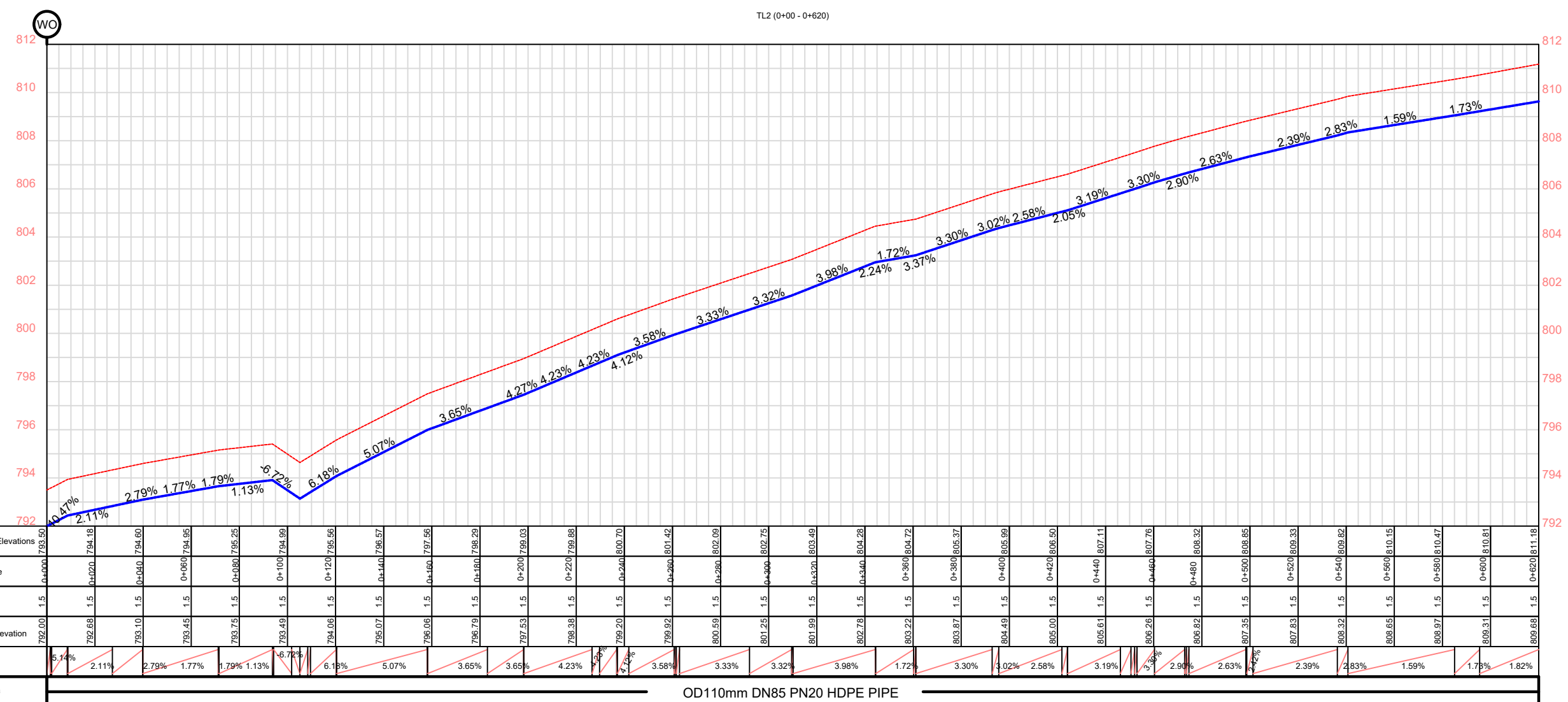
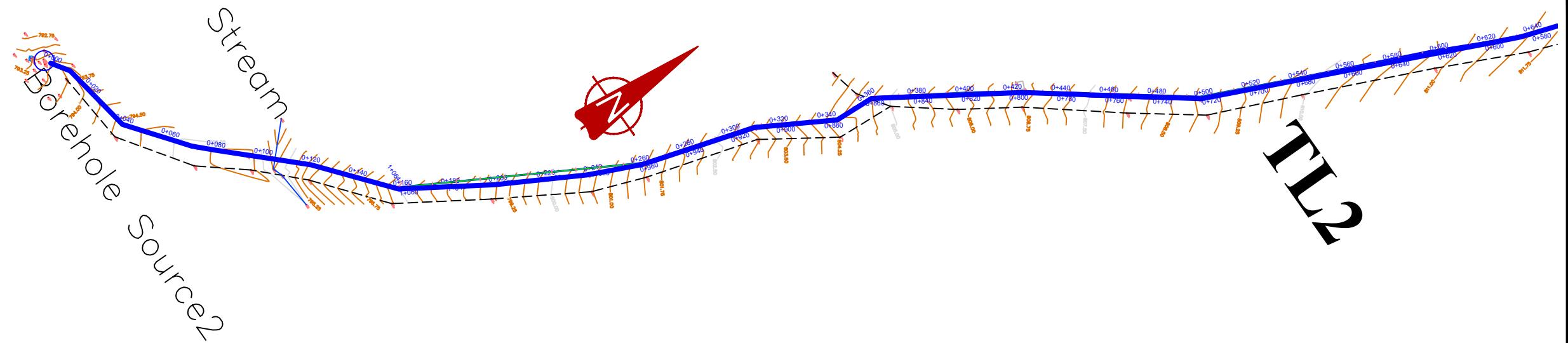
KP/WS/YUM/GOB/TL1-03





Ground Elevations	808.21	809.02	809.70	810.24	810.77	811.26	811.75	812.26	812.84	813.41	813.44	813.45	813.47	813.49	813.20	812.98	812.97	813.66	814.36	815.06	815.77	816.47	817.60	818.75	819.60	820.44	821.13	821.82	822.57	823.40	824.18	
Chainage	1+460	1+480	1+500	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+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	2+060	
Depth	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Bottom elevation	806.71	807.52	808.20	808.74	809.27	809.76	810.25	810.76	811.34	811.91	811.94	811.95	811.97	811.99	811.70	811.48	811.47	812.16	812.96	813.56	814.27	814.97	816.10	817.25	818.10	818.94	819.63	820.32	821.07	821.90	822.68	
Slope		4.03%	2.70%		2.45%		2.89%		0.07%	0.09%	0.08%	-1.72%	-1.08%	-1.12%		3.46%		3.53%		5.71%		4.25%		3.45%		4.13%		2.59%				
Pipe Data	OD110mm DN85 PN20 HDPE PIPE																															

<p>GOVERNMENT OF UGANDA MINISTRY OF WATER AND ENVIRONMENT</p>	<p><b>KAGGA &amp; PARTNERS</b> PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD), TEL: 256 41 220279, FAX: 256 41 220208, P.O. BOX 6583, KAMPALA, UGANDA.</p>	PROJECT:	<p><b>GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT</b></p>	REVISIONS	DATE:	Nov. 2022	SCALE:	DATUM	<p>DWG. No. KP/WS/YUM/GOB/TL1-04</p>	<p>SHEET</p>
		DWG. TITTLE		<p>PLAN &amp; PROFILE FOR TRANSMISSION LINE 1</p>			<p>DRAWN BY: A.L.O CHECKED BY: DS APPROVED BY: PJM</p>	<p>Vertical: New Khartoum Horizontal: UTM ZONE 36N ARC 60</p>		



**GOVERNMENT OF UGANDA**  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
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P.O. BOX 6583,  
KAMPALA, UGANDA.

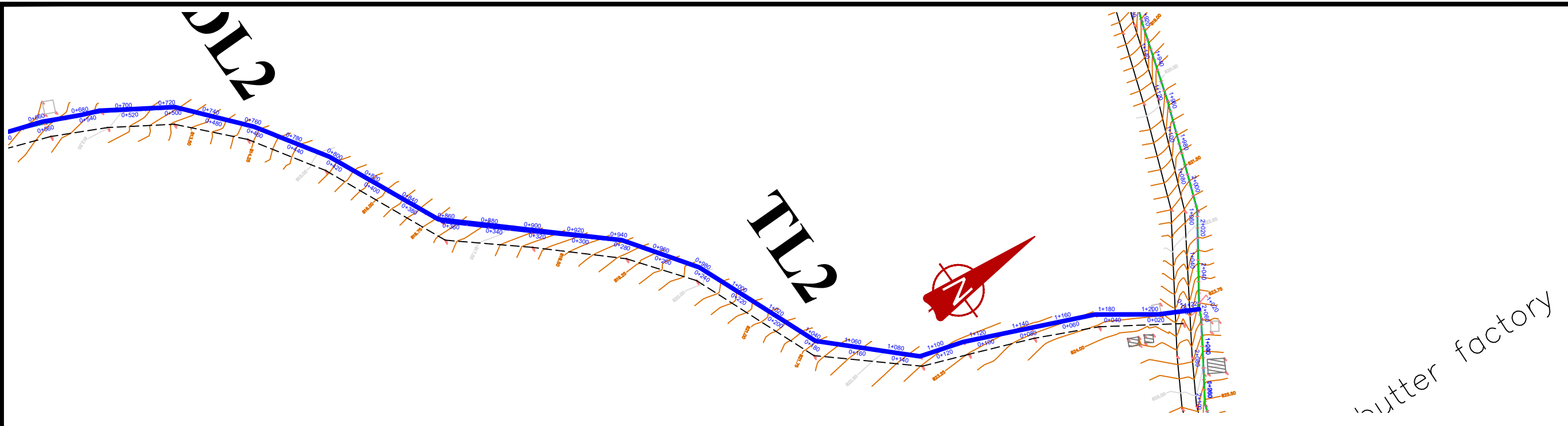
**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT  
**DWG. TITTLE:** PLAN & PROFILE FOR TRANSMISSION LINE 2

**REVISIONS:** [Table with 2 columns: No., Description]  
**DATE:** Nov. 2022  
**DRAWN BY:** A.L.O.  
**CHECKED BY:** DS  
**APPROVED BY:** PJM

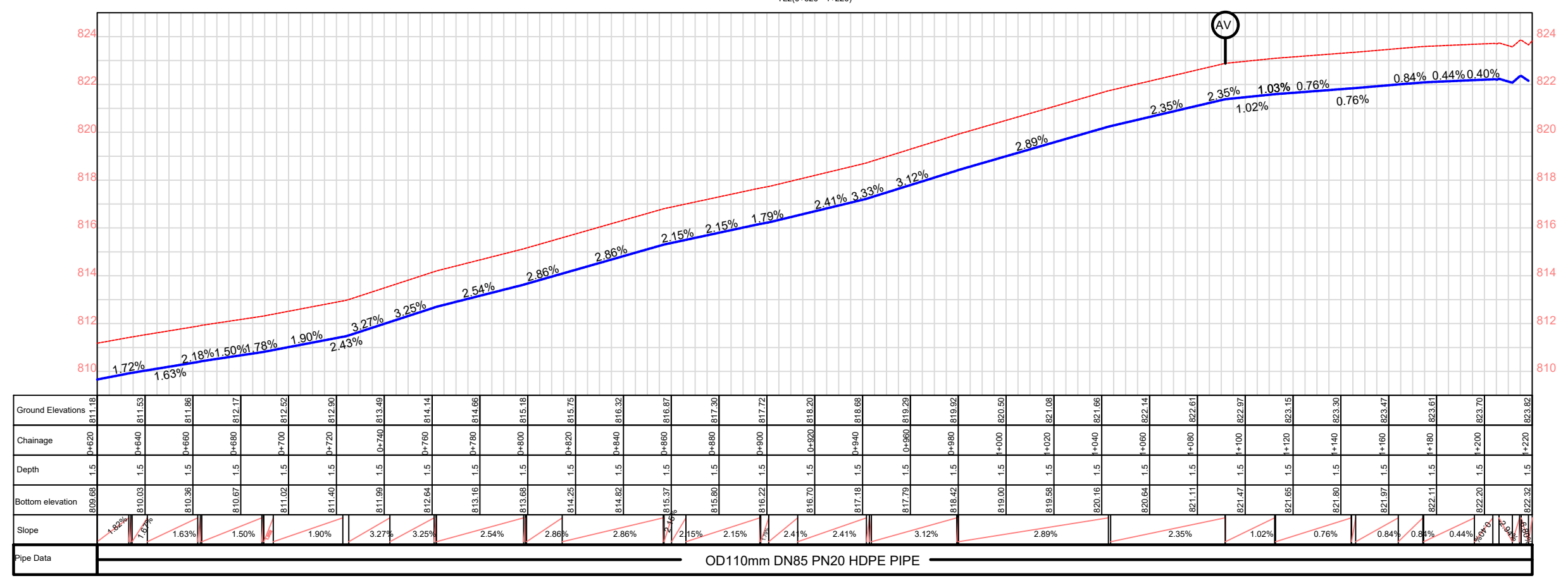
**SCALE:** AS DRAWN  
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

**DWG. No.:** KP/WS/YUM/GOB/TL2-01

**SHEET:** [Circle with number]



TL2(0+620 - 1+220)



**GOVERNMENT OF UGANDA**  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

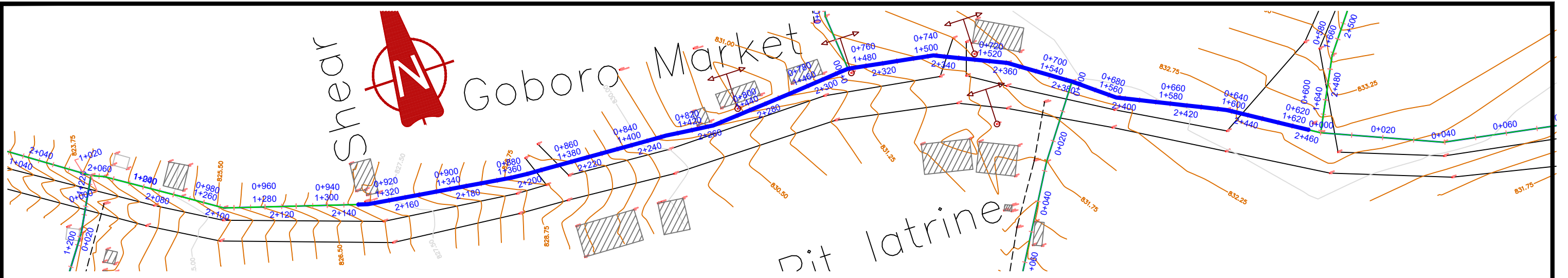
**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT  
**DWG. TITTLE:** PLAN & PROFILE FOR TRANSMISSION LINE 2

**REVISIONS:** [Table with 2 columns: No., Description]  
**DATE:** Nov. 2022  
**DRAWN BY:** A.L.O  
**CHECKED BY:** DS  
**APPROVED BY:** PJM

**SCALE:** AS DRAWN  
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

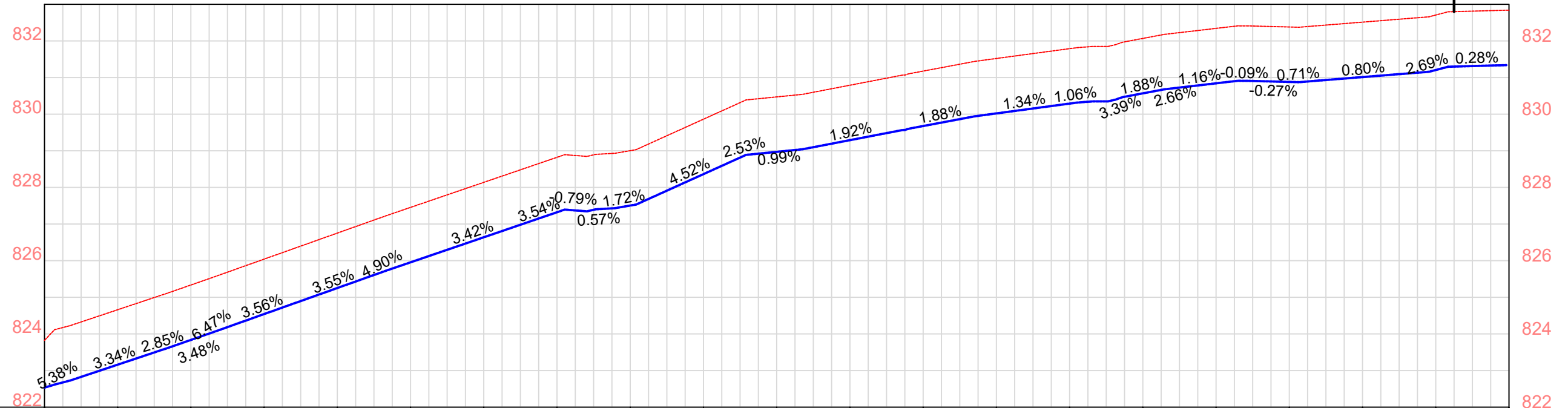
**DWG. No.:** KP/WS/YUM/GOB/TL2-02

**SHEET:** [Circle with number]



TL2 (1+220 - 1+620)

AV



Ground Elevations	823.82	824.66	825.34	826.04	826.75	827.45	828.14	828.82	829.00	829.86	830.47	830.79	831.18	831.52	831.79	832.07	832.34	832.38	832.51	832.71	832.84		
Chainage	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+540	1+560	1+580	1+600	1+620		
Depth	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		
Bottom elevation	822.32	823.16	823.84	824.54	825.25	825.95	826.64	827.32	827.5	828.36	828.97	829.29	829.68	830.02	830.29	830.57	830.84	830.88	831.01	831.21	831.34		
Slope	5.38%	3.34%	2.85%	3.48%	3.56%	3.55%	4.90%	3.42%	0.79%	1.72%	4.52%	0.99%	1.92%	1.88%	1.34%	1.06%	1.88%	1.16%	-0.09%	0.71%	0.80%	2.69%	0.28%
Pipe Data	OD110mm DN85 PN20 HDPE PIPE																						



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

PROJECT: **GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**  
DWG. TITTLE: **PLAN & PROFILE FOR TRANSMISSION LINE 2**

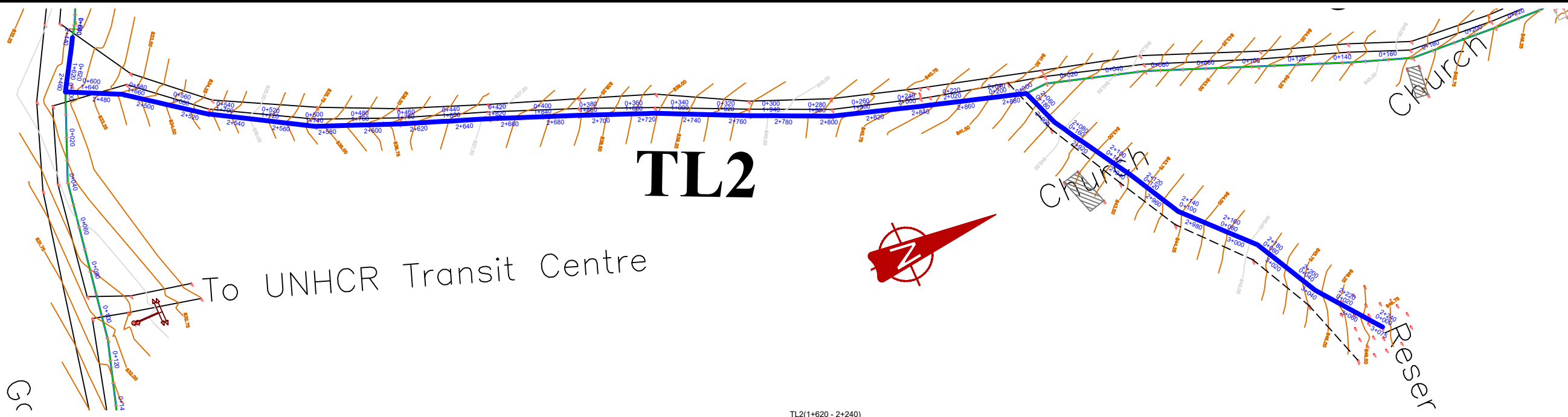
REVISIONS  
DATE: Nov. 2022  
DRAWN BY: A.L.O.  
CHECKED BY: DS  
APPROVED BY: PJM

SCALE: AS DRAWN  
DATUM: Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

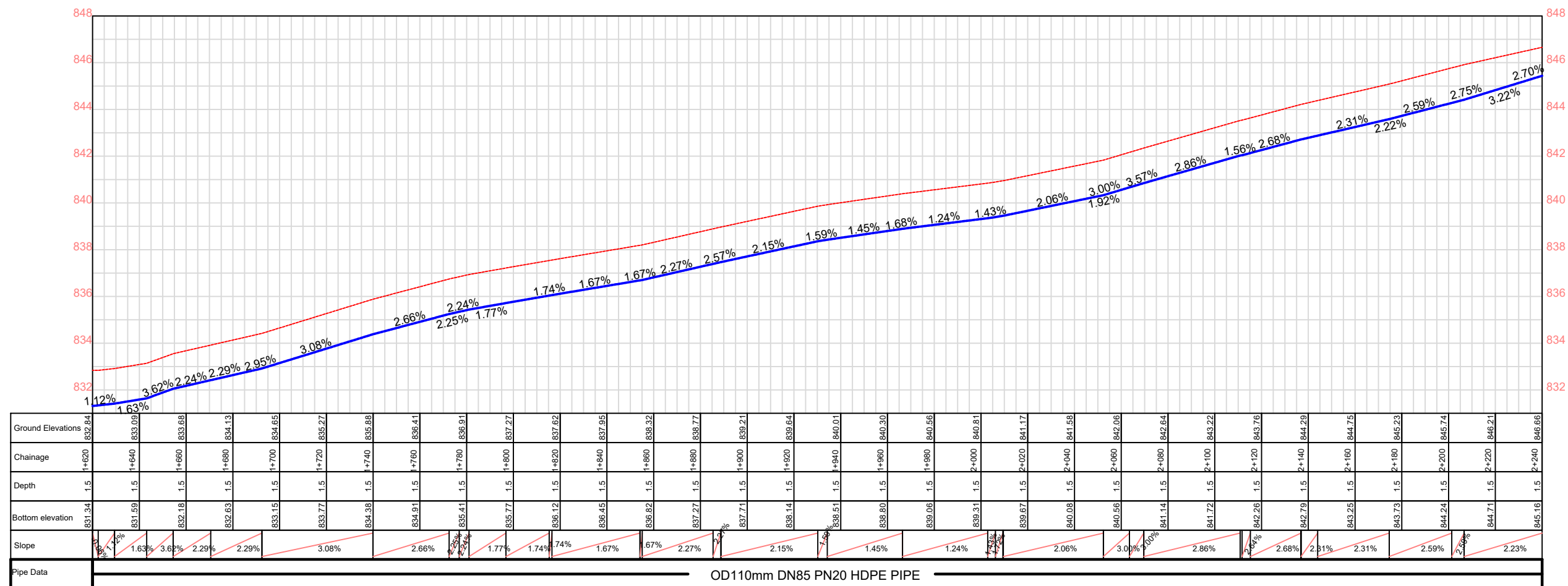
DWG. No. KP/WS/YUM/GOB/TL2-03

SHEET





TL2(1+620 - 2+240)



**GOVERNMENT OF UGANDA**  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT  
**DWG. TITLE:** PLAN & PROFILE FOR TRANSMISSION LINE 2

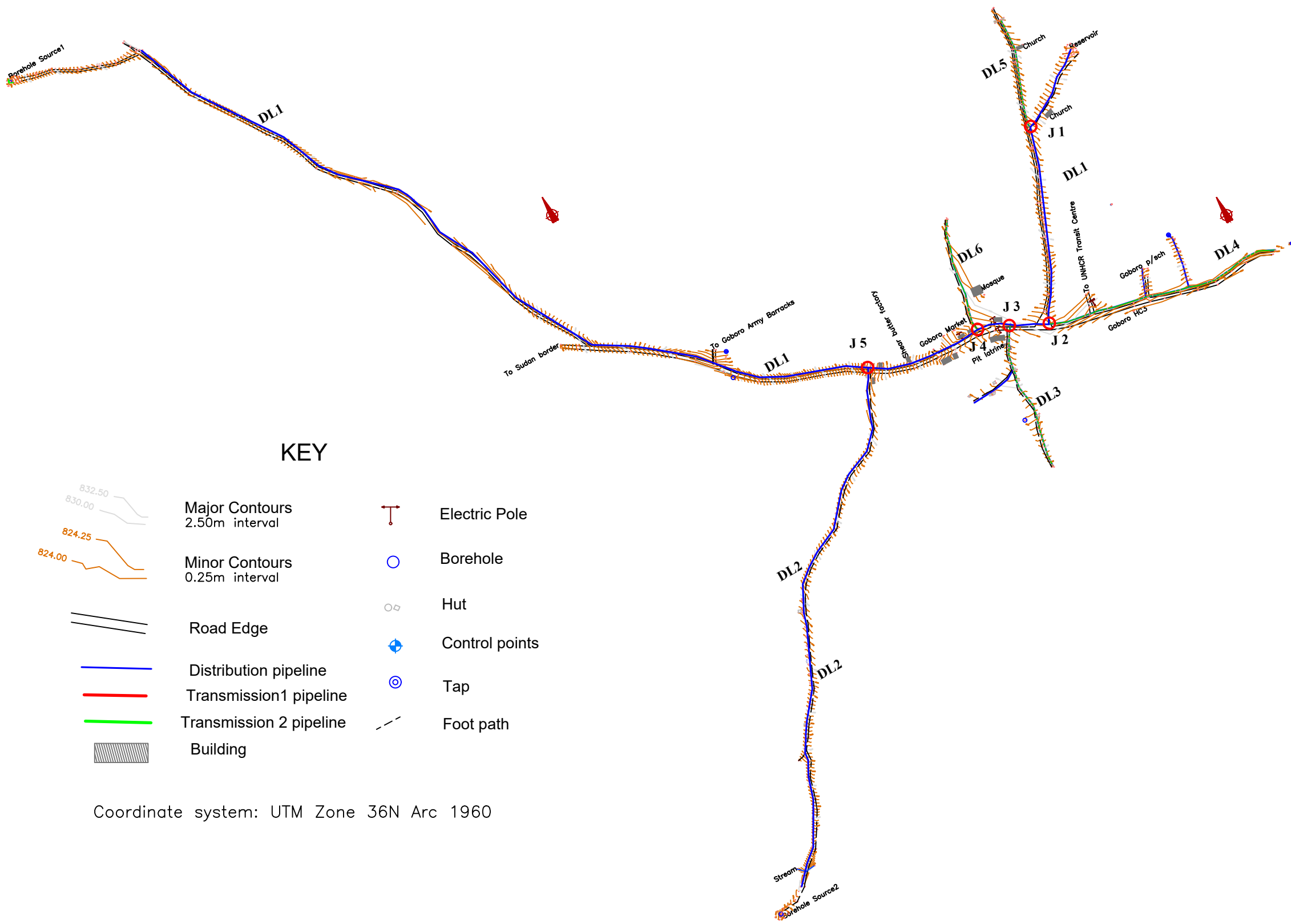
**REVISIONS:**  
**DATE:** Nov. 2022  
**DRAWN BY:** A.L.O  
**CHECKED BY:** DS  
**APPROVED BY:** PJM

**SCALE:** AS DRAWN  
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60





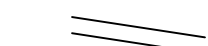








**DWG. No.** KP/WS/YUM/GOB/TL2-04

**SHEET** 55

**GOBORO RGC WSS  
DISTRIBUTION MAINS  
(PAGES 56 - 71)**



**KEY**

-  Major Contours 2.50m interval
-  Minor Contours 0.25m interval
-  Road Edge
-  Distribution pipeline
-  Transmission 1 pipeline
-  Transmission 2 pipeline
-  Building
-  Electric Pole
-  Borehole
-  Hut
-  Control points
-  Tap
-  Foot path

Coordinate system: UTM Zone 36N Arc 1960



**GOVERNMENT OF UGANDA**  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
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P.O. BOX 6583,  
KAMPALA, UGANDA.

**PROJECT:**  
**DWG. TITTLE**

**GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**  
**DISTRIBUTION PIPES LAYOUT**

REVISIONS	DATE:	Nov. 2022		SCALE:	DATUM
	DRAWN BY:	A.L.O	AS DRAWN	Vertical: New Khartoum	
	CHECKED BY:	DS		Horizontal: UTM ZONE 36N ARC 60	
	APPROVED BY:	PJM			

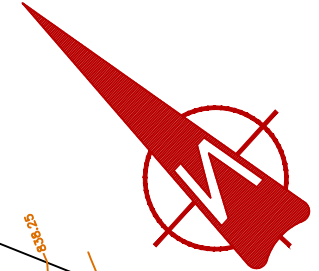
**DWG. No.**  
KP/WS/YUM/GOB/DL

**SHEET**  
56

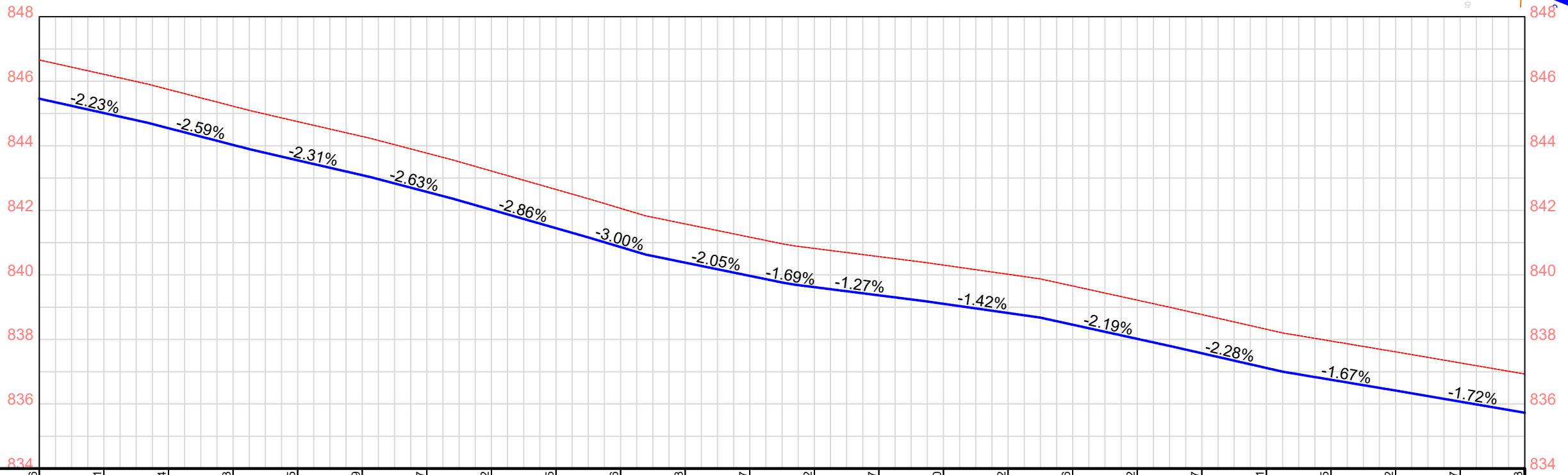
Reservoir

Church

DL1



DL1 (0+00 - 0+460)



Ground Elevations	846.66	846.21	845.74	845.23	844.75	844.29	843.77	843.22	842.65	842.06	841.58	841.17	840.82	840.57	840.30	840.02	839.66	839.22	838.77	838.31	837.95	837.62	837.27	836.93
Chainage	0+00	0+02	0+04	0+06	0+08	0+10	0+12	0+14	0+16	0+18	0+20	0+22	0+24	0+26	0+28	0+30	0+32	0+34	0+36	0+38	0+40	0+42	0+44	0+46
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Bottom elevation	845.46	845.01	844.54	844.03	843.55	843.09	842.57	842.02	841.45	840.86	840.38	839.97	839.62	839.37	839.10	838.82	838.46	838.02	837.57	837.11	836.75	836.42	836.07	835.73
Slope		-2.23%	-2.59%	-2.31%	-2.63%	-2.86%	-3.00%	-2.05%	-1.69%	-1.27%	-1.42%	-2.19%	-2.28%	-1.67%	-1.72%									
Pipe Data	OD110mm DN97 PN10 HDPE PIPE												OD110mm DN97 PN10 HDPE PIPE											



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

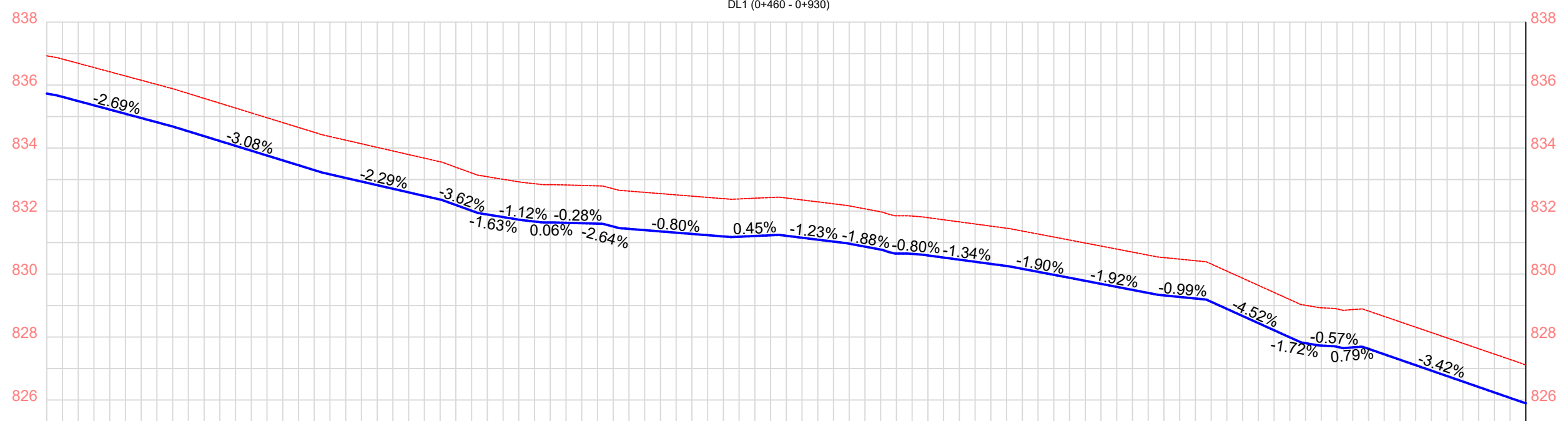
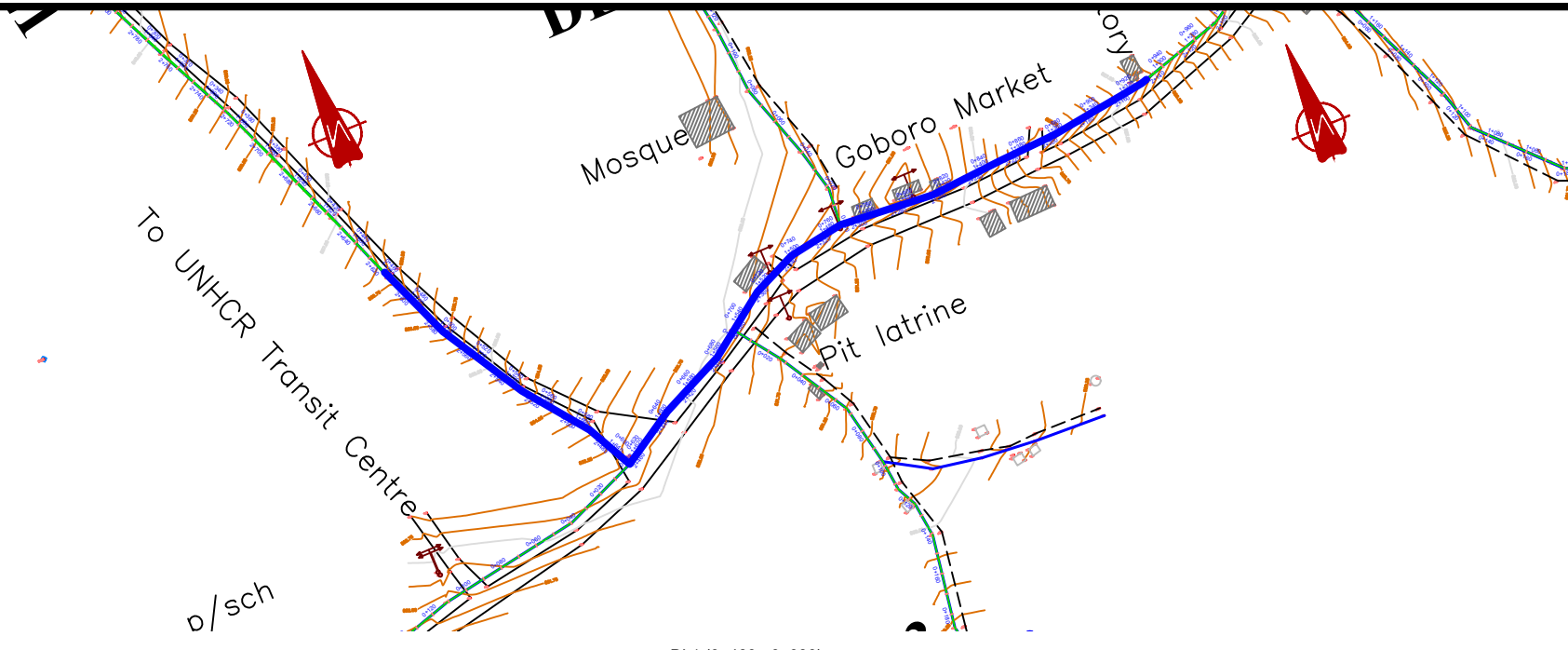
PROJECT: **GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**  
DWG. TITTLE: **PLAN & PROFILE FOR DISTRIBUTION MAIN 1**

REVISIONS  
DATE: Nov. 2022  
DRAWN BY: A.L.O.  
CHECKED BY: DS  
APPROVED BY: PJM

SCALE: AS DRAWN  
DATUM: Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

DWG. No. KP/WS/YUM/GOB/DL1-01

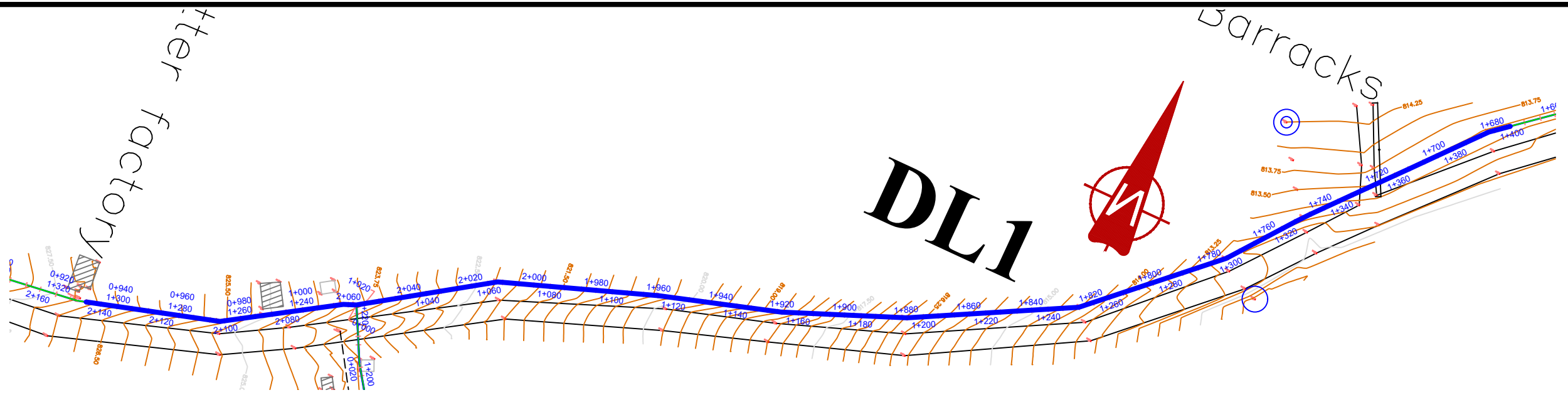
SHEET



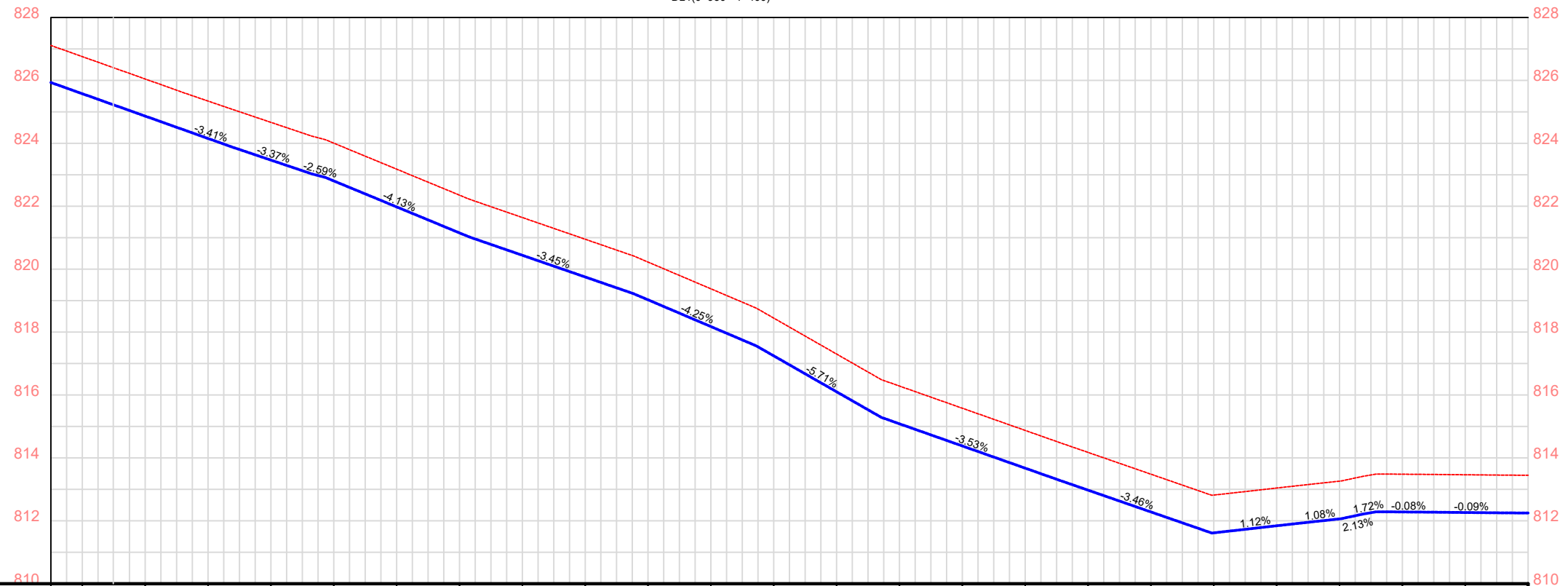
Ground Elevations	835.73	835.22	834.68	834.07	833.45	832.94	832.48	831.89	831.64	831.51	831.31	831.18	831.15	830.87	830.59	830.32	829.98	829.59	829.27	828.67	827.81	827.63	826.94	826.26	825.91
Chainage	0+460	0+480	0+500	0+520	0+540	0+560	0+580	0+600	0+620	0+640	0+660	0+680	0+700	0+720	0+740	0+760	0+780	0+800	0+820	0+840	0+860	0+880	0+900	0+920	0+930
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Bottom elevation	835.73	835.22	834.68	834.07	833.45	832.94	832.48	831.89	831.64	831.51	831.31	831.18	831.15	830.87	830.59	830.32	829.98	829.59	829.27	828.67	827.81	827.63	826.94	826.26	825.91
Slope		-2.69%	-3.08%	-2.29%	-3.62%	-1.63%	0.06%	-2.64%	-0.80%	0.45%	-1.23%	-1.88%	-0.80%	-1.34%	-1.90%	-1.92%	-0.99%	-4.52%	-1.72%	0.79%	-3.42%	3.56%			
Pipe Data	OD110mm DN97 PN10 HDPE PIPE					OD90mm DN79 PN10 HDPE PIPE			OD90mm DN79 PN10 HDPE PIPE			OD75mm DN66 PN10 HDPE PIPE		OD75mm DN66 PN10 HDPE PIPE											



<b>GOVERNMENT OF UGANDA</b> MINISTRY OF WATER AND ENVIRONMENT	<b>KAGGA &amp; PARTNERS</b> PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD), TEL: 256 41 220279, FAX: 256 41 220208, P.O. BOX 6583, KAMPALA, UGANDA.	<b>PROJECT:</b> GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT	<b>REVISIONS</b>	<b>DATE:</b> Nov. 2022	<b>DRAWN BY:</b> A.L.O	<b>SCALE:</b> AS DRAWN	<b>DATUM</b> Vertical: New Khartoum Horizontal: UTM ZONE 36N ARC 60	<b>DWG. No.</b> KP/WS/YUM/GOB/DL1-02	<b>SHEET</b> 
		<b>DWG. TITTLE</b> PLAN & PROFILE FOR DISTRIBUTION MAIN 1	<b>CHECKED BY:</b> DS	<b>APPROVED BY:</b> PJM					



DL1(0+930 - 1+400)



Ground Elevations	827.11	826.76	826.05	825.34	824.67	824.01	823.18	822.35	821.64	820.95	820.22	819.37	818.44	817.30	816.28	815.58	814.87	814.17	813.48	812.82	813.04	813.26	813.48	813.46	813.45
Chainage	0+930	0+940	0+960	0+980	1+000	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
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Bottom elevation	825.91	825.56	824.85	824.14	823.47	822.81	821.98	821.15	820.44	819.75	819.02	818.17	817.24	816.10	815.08	814.38	813.67	812.97	812.28	811.62	811.84	812.06	812.28	812.26	812.25
Slope		-3.56%	-3.41%	-3.37%	-2.59%	-4.13%		-3.45%	-4.25%	-5.71%	-3.53%		-3.46%	1.12%	1.08%	2.13%	1.72%	-0.08%	-0.09%						
Pipe Data	OD75mm DN66 PN10 HDPE PIPE					OD63mm DN55 PN10 HDPE PIPE										OD25mm DN20 PN10 HDPE PIPE									



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
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FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

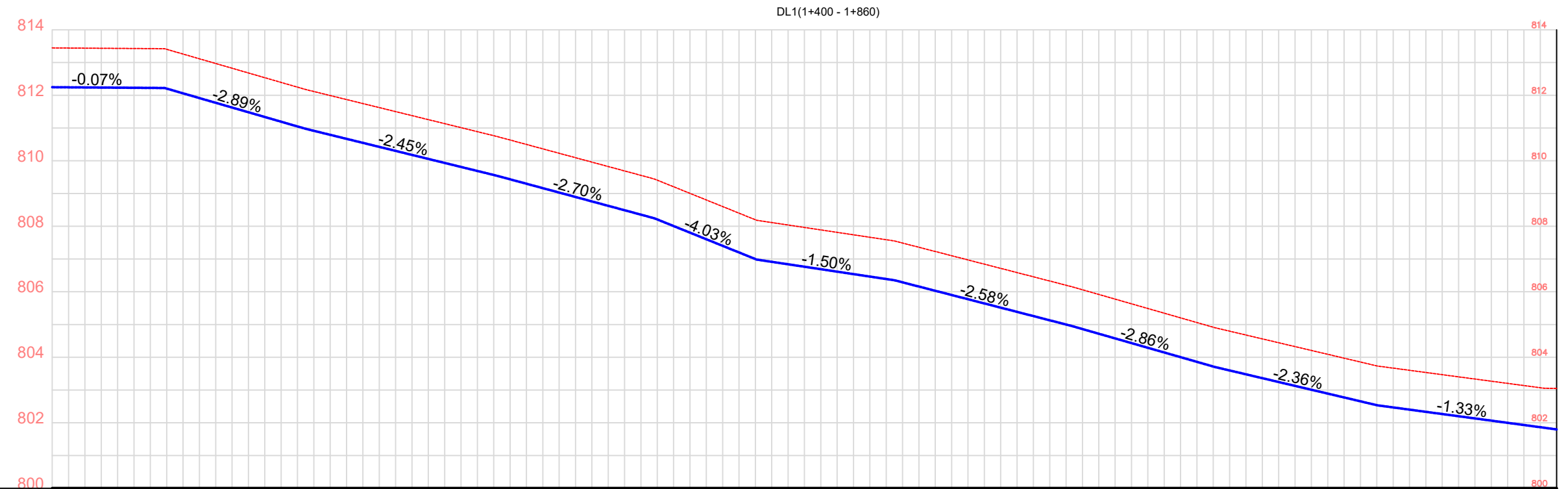
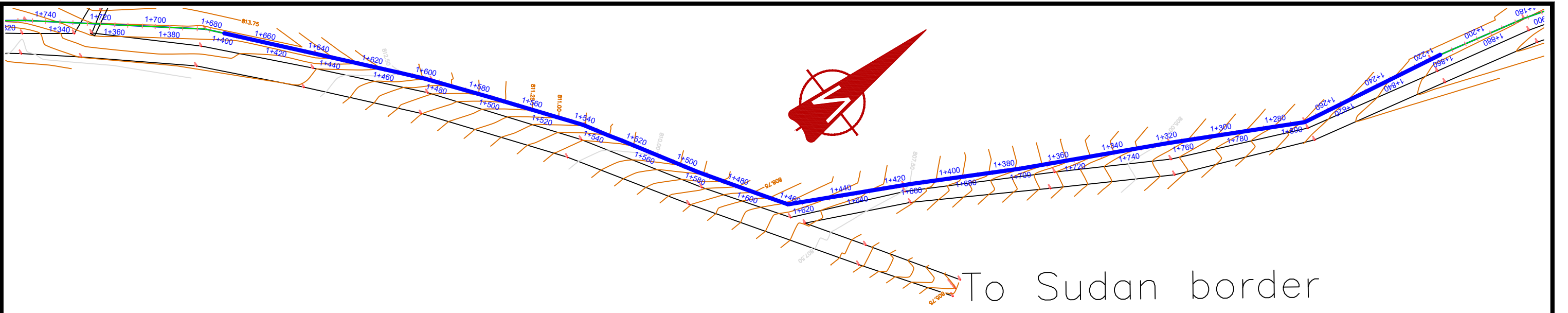
PROJECT: **GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**  
DWG. TITTLE: **PLAN & PROFILE FOR DISTRIBUTION MAIN 1**

REVISIONS  
DATE: Nov. 2022  
DRAWN BY: A.L.O  
CHECKED BY: DS  
APPROVED BY: PJM

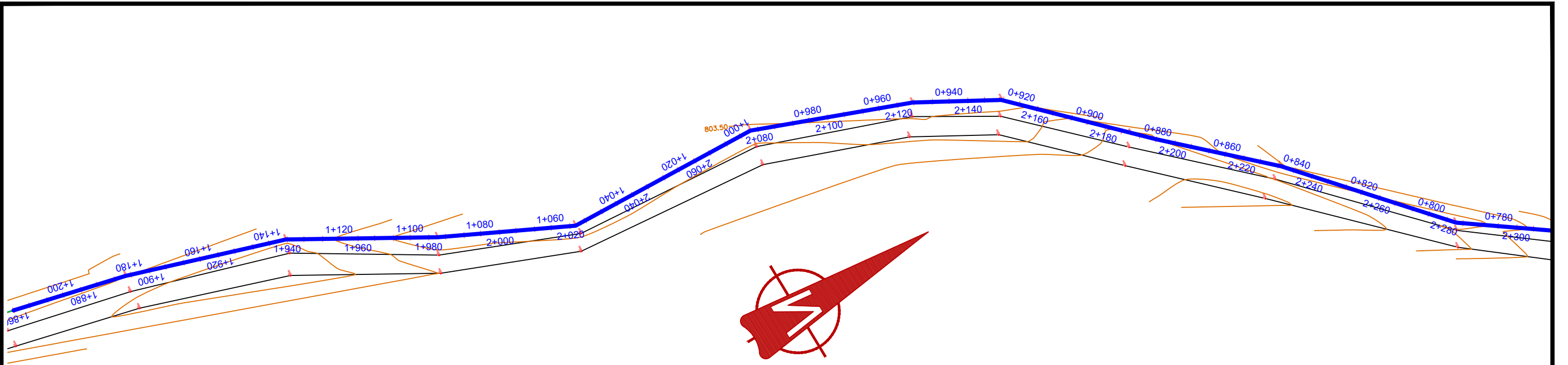
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DATUM: Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

DWG. No. KP/WS/YUM/GOB/DL1-03

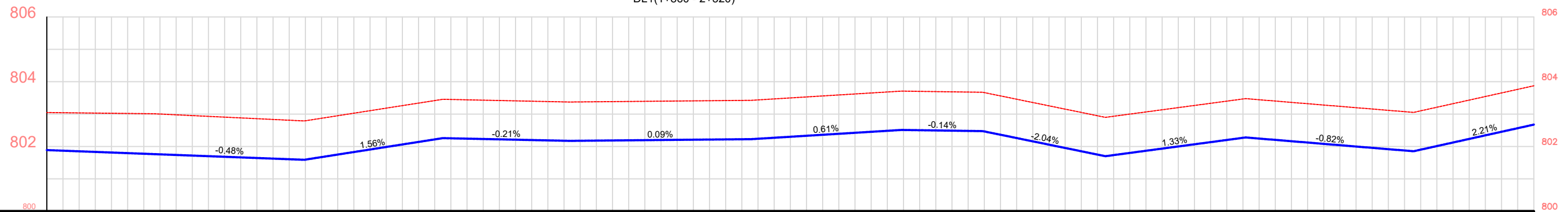
SHEET



Ground Elevations	813.45	813.43	813.26	812.68	812.12	811.63	811.13	810.63	810.09	809.56	808.80	808.11	807.81	807.49	806.97	806.46	805.92	805.35	804.80	804.33	803.85	803.53	803.27	803.05	
Chainage	1+400	1+420	1+440	1+460	1+480	1+500	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+800	1+820	1+840	1+860	
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Bottom elevation	812.25	812.23	812.06	811.48	810.92	810.43	809.93	809.43	808.89	808.36	807.60	806.91	806.61	806.29	805.77	805.26	804.72	804.15	803.60	803.13	802.65	802.33	802.07	801.85	
Slope	-0.07%	-2.89%	-2.45%	-2.70%	-4.03%	-1.50%	-2.58%	-2.86%	-2.36%	-1.33%	0.11%														
Pipe Data	OD25mm DN20 PN10 HDPE PIPE																								



DL1(1+860 - 2+320)



Ground Elevations	803.05	803.03	802.98	802.88	802.79	803.11	803.42	803.42	803.38	803.39	803.41	803.44	803.56	803.68	803.69	803.46	803.05	803.07	803.33	803.40	803.24	803.07	803.43	803.87	
Chainage	1+860	1+880	1+900	1+920	1+940	1+960	1+980	2+000	2+020	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	
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Bottom elevation	801.85	801.83	801.78	801.68	801.59	801.91	802.22	802.22	802.18	802.19	802.21	802.24	802.36	802.48	802.49	802.26	801.85	801.87	802.13	802.20	802.04	801.87	802.23	802.67	
Slope		-0.11%	-0.48%	1.56%	-0.21%	0.09%	0.61%	-0.14%	-2.04%	1.33%	-0.82%	2.21%													
Pipe Data	OD25mm DN20 PN10 HDPE PIPE																								



**GOVERNMENT OF UGANDA**  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
PLOT 2, BANDALI CLOSE (OLD PORT BELL ROAD),  
TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT  
**DWG. TITTLE:** PLAN & PROFILE FOR DISTRIBUTION MAIN 1

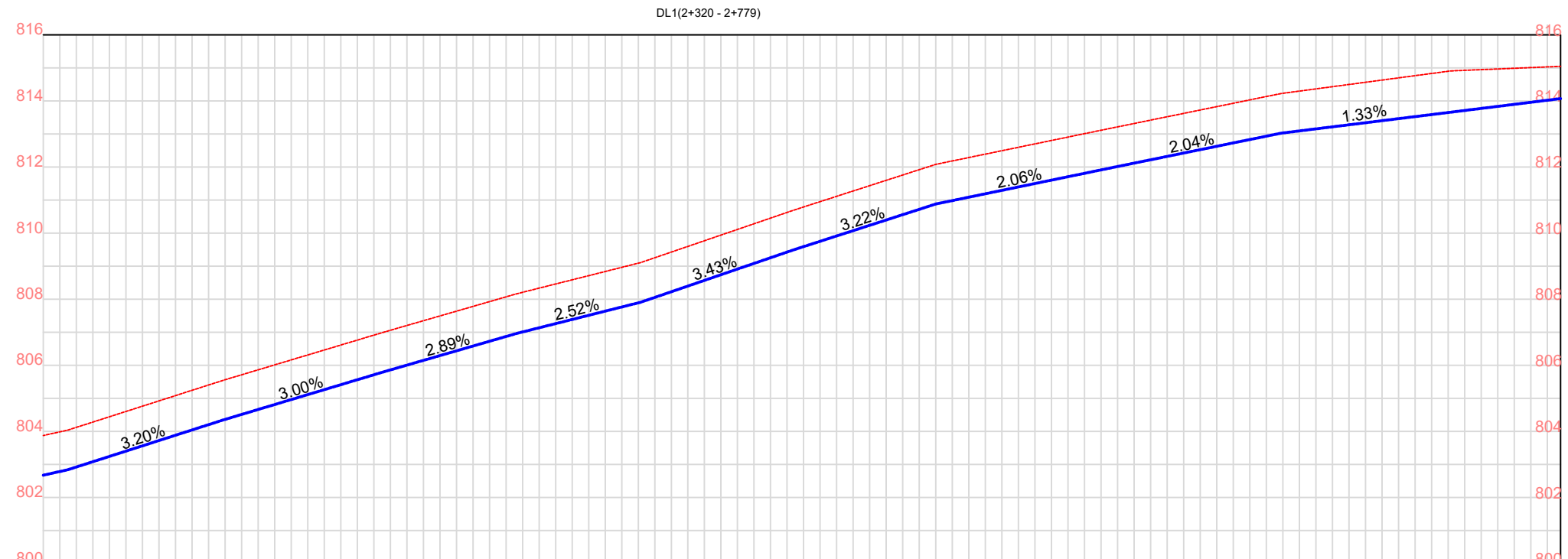
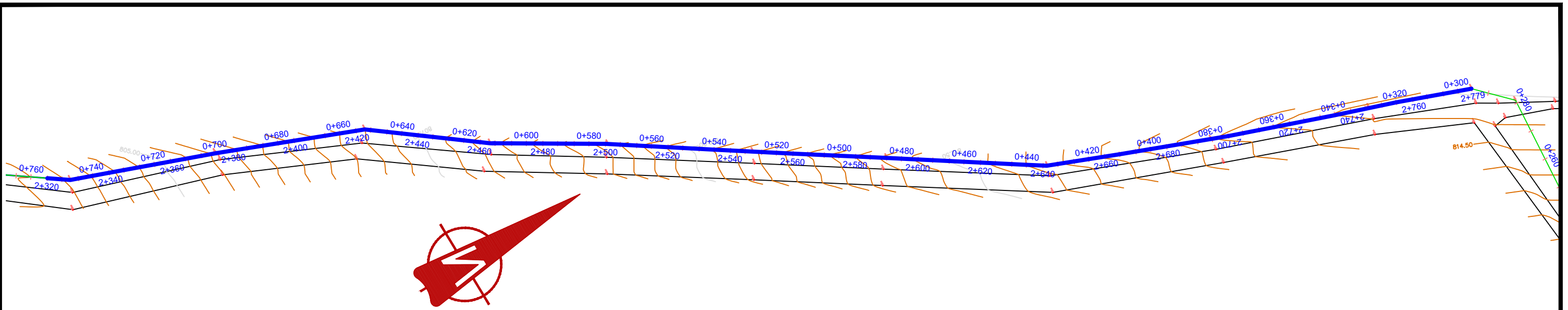
**REVISIONS:**  
**DATE:** Nov. 2022  
**DRAWN BY:** A.L.O  
**CHECKED BY:** DS  
**APPROVED BY:** PJM

**SCALE:** AS DRAWN  
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

**DWG. No.** KP/WS/YUM/GOB/DL1-05

**SHEET**





Ground Elevations	803.87	804.44	805.08	805.71	806.31	806.91	807.49	808.07	808.59	809.09	809.77	810.45	811.11	811.76	812.29	812.70	813.11	813.52	813.93	814.30	814.56	814.83	814.97	815.05
Chainage	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+560	2+580	2+600	2+620	2+640	2+660	2+680	2+700	2+720	2+740	2+760	2+779
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Bottom elevation	802.67	803.24	803.88	804.51	805.11	805.71	806.29	806.87	807.39	807.89	808.57	809.25	809.91	810.56	811.09	811.50	811.91	812.32	812.73	813.10	813.36	813.63	813.77	813.85
Slope		3.20%	3.00%	2.89%	2.52%	3.43%	3.22%	2.06%	2.04%	1.33%	0.4281%													
Pipe Data	OD25mm DN20 PN10 HDPE PIPE																							



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

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KAMPALA, UGANDA.

PROJECT:

**GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**

DWG. TITTLE

**PLAN & PROFILE FOR DISTRIBUTION MAIN 1**

REVISIONS

DATE:

Nov. 2022

SCALE:

DATUM

DWG. No.

SHEET

DRAWN BY:

A.L.O

CHECKED BY:

DS

APPROVED BY:

PJM

AS DRAWN

Vertical: New Khartoum

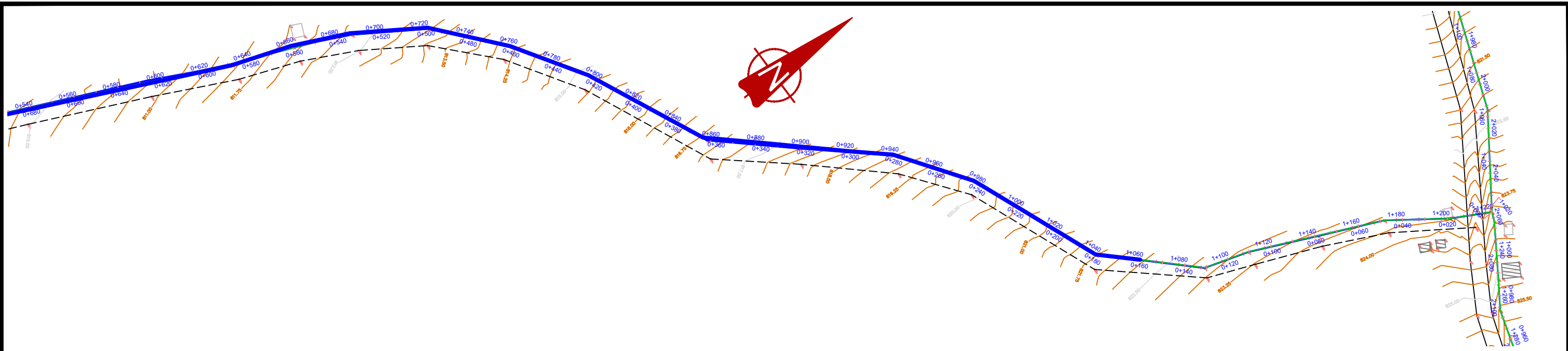
Horizontal: UTM

ZONE 36N ARC 60

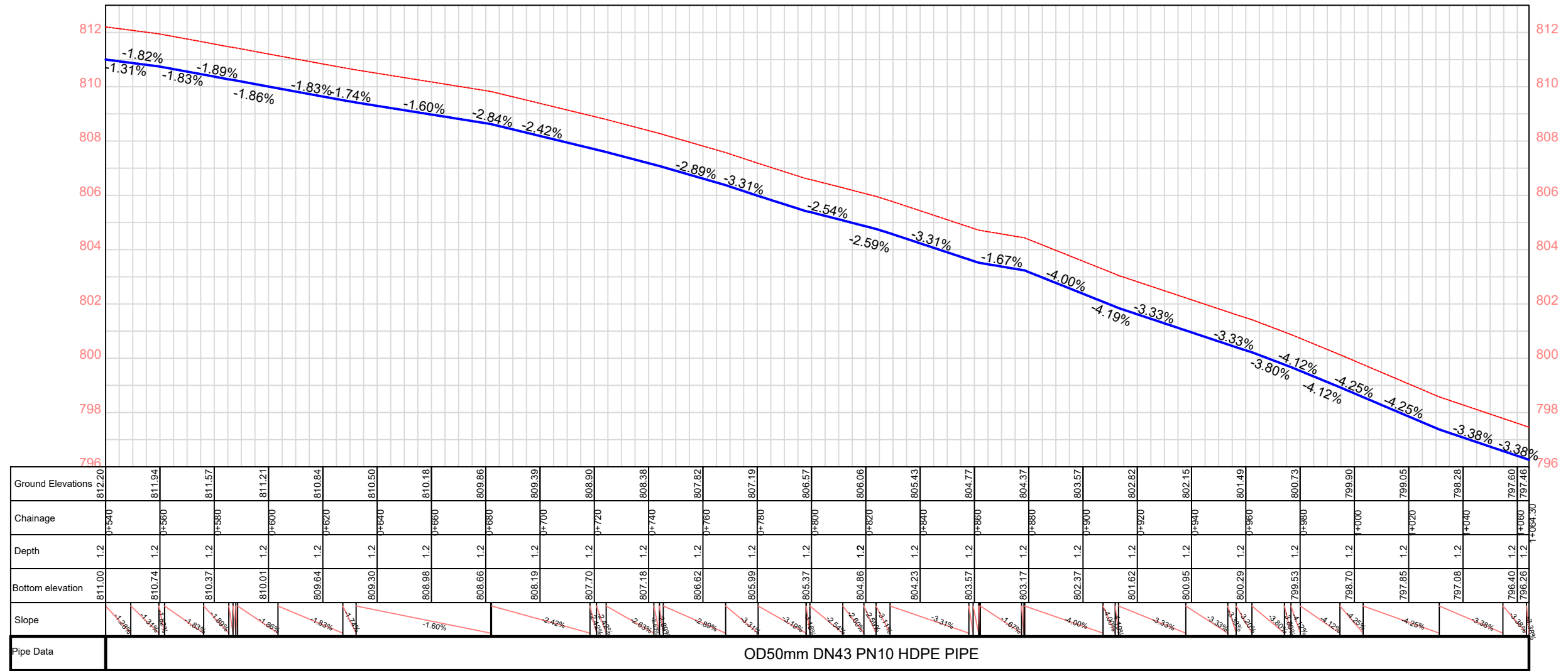
KP/WS/YUM/GOB/DL1-06







DL2 (0+540 - 1+064.30)



**GOVERNMENT OF UGANDA**  
 MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
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 TEL: 256 41 220279,  
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 P.O. BOX 6583,  
 KAMPALA, UGANDA.

**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT

**DWG. TITTLE:** PLAN & PROFILE FOR DISTRIBUTION MAIN 2

**REVISIONS:**

**DATE:** Nov. 2022

**DRAWN BY:** A.L.O

**CHECKED BY:** DS

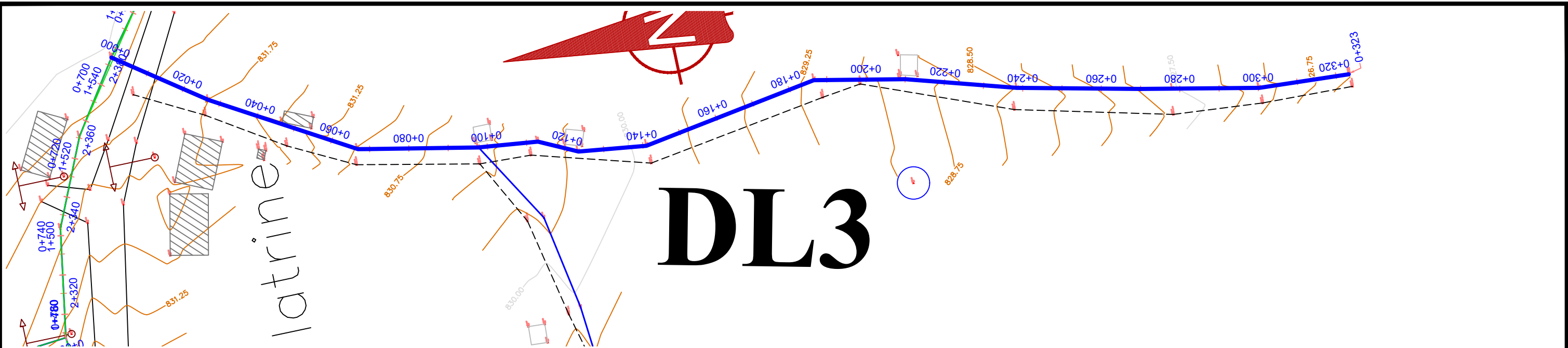
**APPROVED BY:** PJM

**SCALE:** AS DRAWN

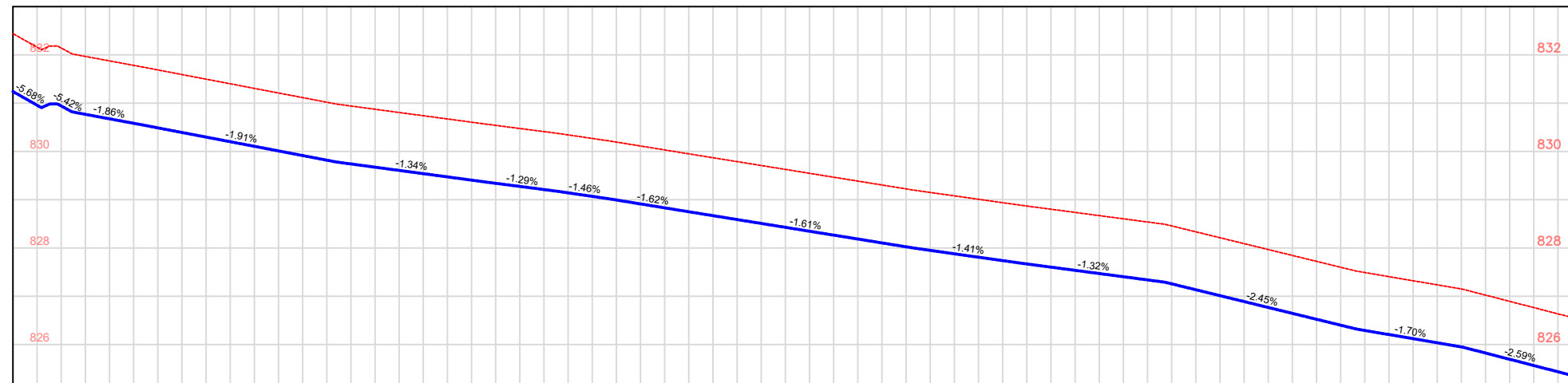
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

**DWG. No.:** KP/WS/YUM/GOB/DL2-02

**SHEET**



DL3 (0+00 - 0+323.44)



Ground Elevations	832.44	831.88	831.50	831.12	830.81	830.54	830.27	829.95	829.63	829.31	829.01	828.74	828.46	827.97	827.49	827.15	826.64	826.55
Chainage	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+323.44
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Bottom elevation	831.24	830.68	830.30	829.92	829.61	829.34	829.07	828.75	828.43	828.11	827.81	827.54	827.26	826.77	826.29	825.95	825.44	825.35
Slope	-5.68%	-5.42%	-1.86%	-1.91%	-1.34%	-1.29%	-1.46%	-1.62%	-1.61%	-1.41%	-1.32%	-2.45%	-1.70%	-2.59%				
Pipe Data	OD25mm DN20 PN10 HDPE PIPE																	



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

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FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

PROJECT:

GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT

DWG. TITTLE

PLAN & PROFILE FOR DISTRIBUTION MAIN 3

REVISIONS

DATE:

Nov. 2022

SCALE:

DATUM

DWG. No.

SHEET

DRAWN BY:

A.L.O

CHECKED BY:

DS

APPROVED BY:

PJM

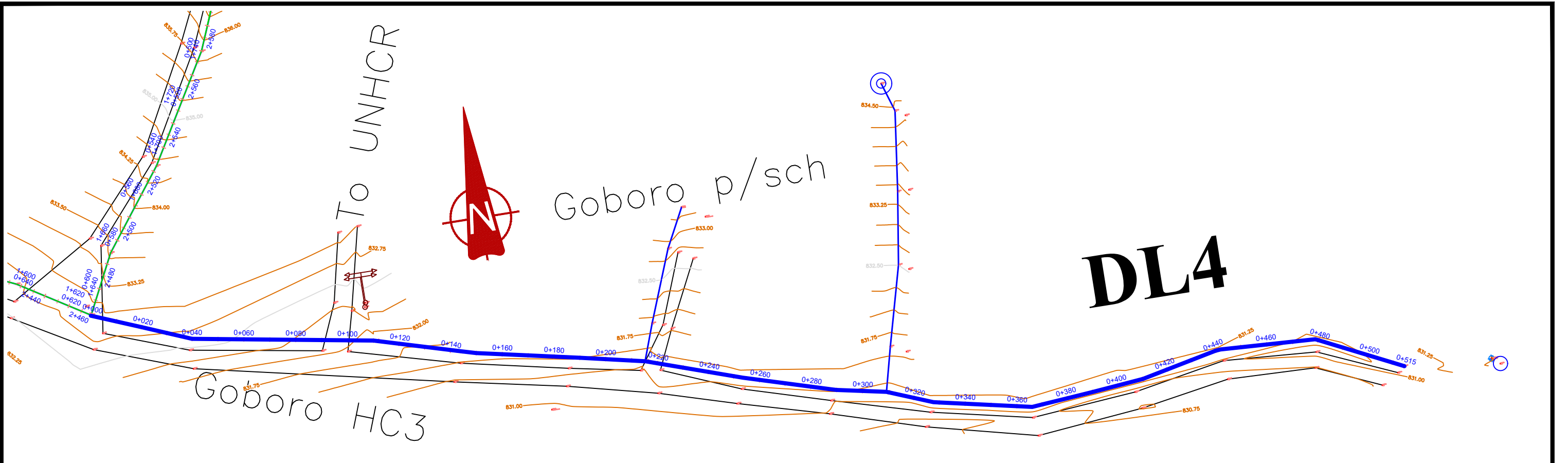
AS DRAWN

Vertical: New Khartoum

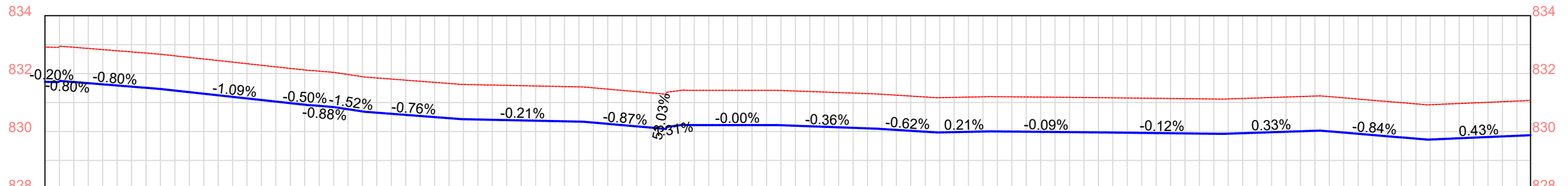
Horizontal: UTM ZONE 36N ARC 60

KP/WS/YUM/GOB/DL3-01

○

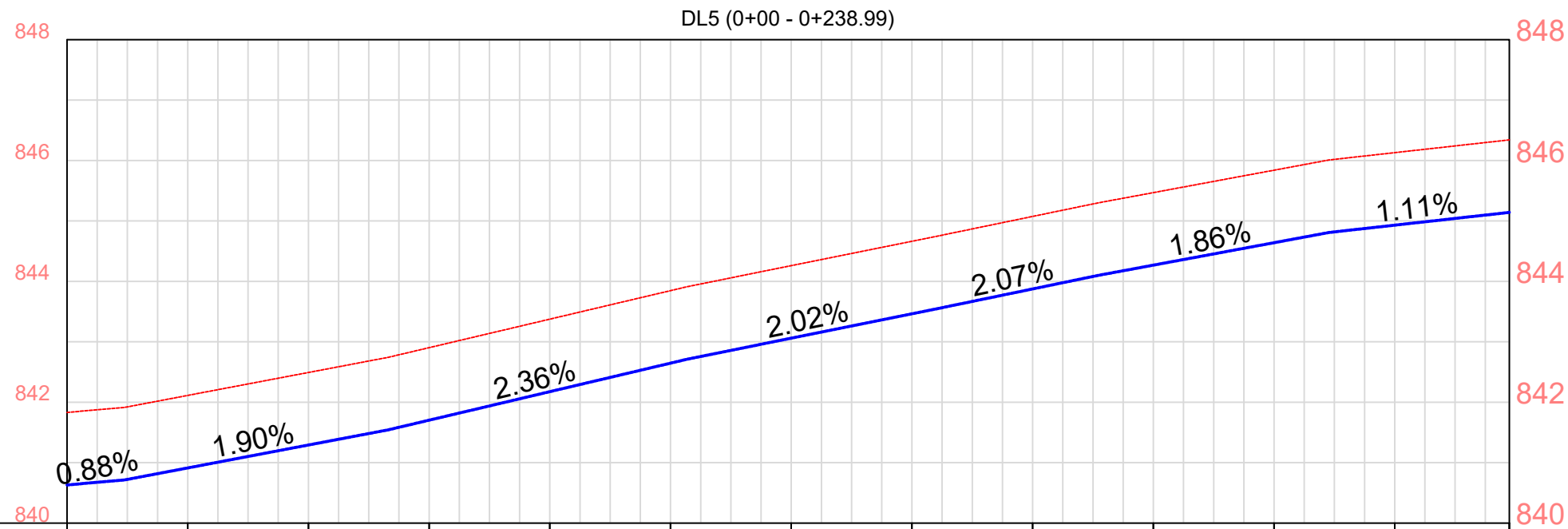
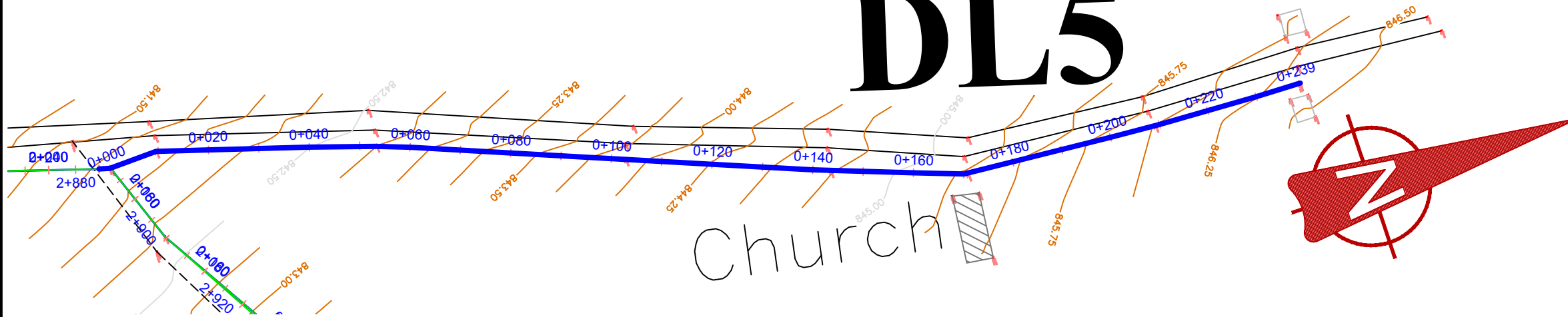


DL4(0+00 - 0+514.72)



Ground Elevations	832.92	832.83	832.67	832.45	832.23	832.04	831.81	831.66	831.59	831.55	831.42	831.42	831.42	831.40	831.33	831.22	831.19	831.19	831.17	831.15	831.13	831.16	831.22	831.08	830.92	831.01	831.07
Chainage	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+514.72
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Bottom elevation	831.72	831.63	831.47	831.25	831.03	830.84	830.61	830.46	830.39	830.35	830.22	830.22	830.22	830.20	830.13	830.02	829.99	829.99	829.97	829.95	829.93	829.96	830.02	829.88	829.72	829.81	829.87
Slope		-0.80%	-1.09%	-0.50%	-1.52%	-0.88%	-0.76%	-0.21%	-0.87%	0.31%	-0.00%	-0.36%	-0.62%	0.21%	-0.09%	-0.12%	0.33%	-0.84%	0.43%								
Pipe Data	OD75mm DN66 PN10 HDPE PIPE					OD63mm DN55 PN10 HDPE PIPE					OD50mm DN43 PN10 HDPE PIPE					OD40mm DN35 PN10 HDPE PIPE											

# DL5



DL5 (0+00 - 0+238.99)	
Ground Elevations	841.83, 842.11, 842.49, 842.90, 843.37, 843.85, 844.26, 844.66, 845.07, 845.47, 845.84, 846.13, 846.34
Chainage	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+238.99
Depth	1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2, 1.2
Bottom elevation	840.63, 840.91, 841.29, 841.70, 842.17, 842.65, 843.06, 843.46, 843.87, 844.27, 844.64, 844.93, 845.14
Slope	0.88%, 1.90%, 2.36%, 2.02%, 2.07%, 1.86%, 1.11%
Pipe Data	OD20mm DN16 PN10 HDPE PIPE



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
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TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

**PROJECT:** GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT  
**DWG. TITTLE:** PLAN & PROFILE FOR DISTRIBUTION MAIN 5

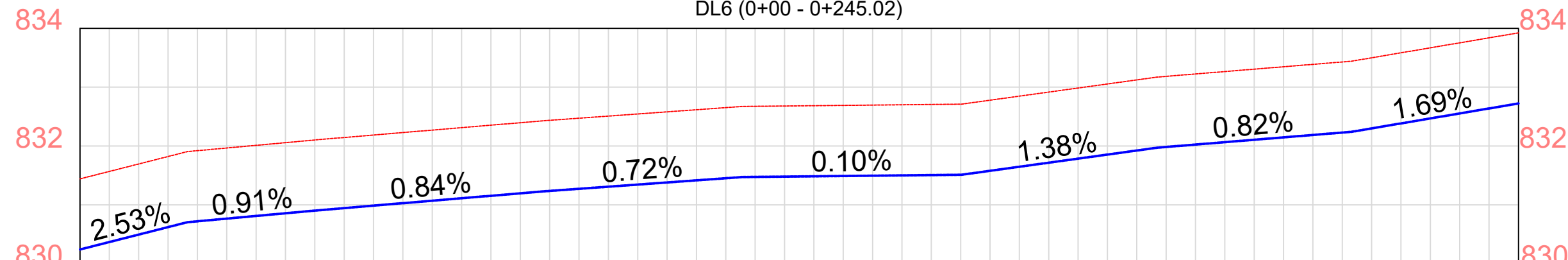
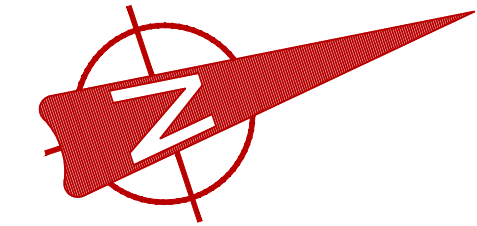
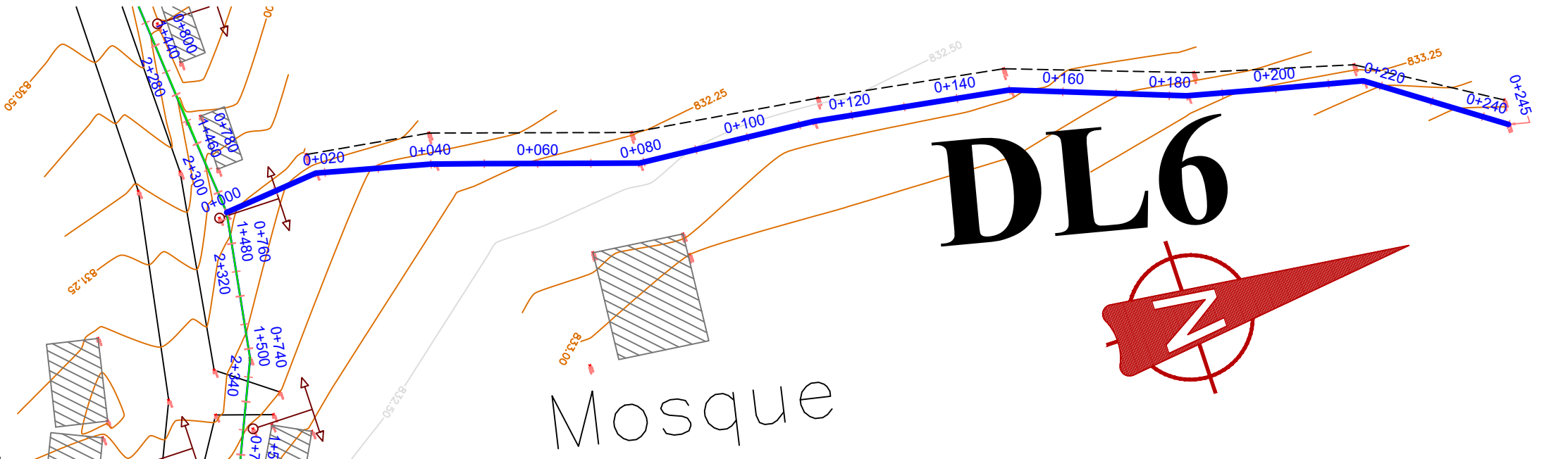
REVISIONS	DATE:	Nov. 2022
	DRAWN BY:	A.L.O
	CHECKED BY:	DS
	APPROVED BY:	PJM

**SCALE:** AS DRAWN  
**DATUM:** Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

**DWG. No.** KP/WS/YUM/GOB/DL5-01

**SHEET**

Pit latrine



Ground Elevations	831.44	831.92	832.10	832.27	832.44	832.58	832.68	832.70	832.85	833.12	833.31	833.50	833.84	833.92		
Chainage	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+245.02		
Depth	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2		
Bottom elevation	830.24	830.72	830.90	831.07	831.24	831.38	831.48	831.50	831.65	831.92	832.11	832.30	832.64	832.72		
Slope	2.53%		0.91%		0.84%			0.72%		0.10%		1.38%		0.82%		1.69%
Pipe Data	OD32mm DN27 PN10 HDPE PIPE															



GOVERNMENT OF UGANDA  
MINISTRY OF WATER AND ENVIRONMENT

**KAGGA & PARTNERS**  
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TEL: 256 41 220279,  
FAX: 256 41 220208,  
P.O. BOX 6583,  
KAMPALA, UGANDA.

PROJECT: **GOBORO RURAL GROWTH CENTER PIPED WATER SUPPLY SYSTEMS IN YUMBE DISTRICT**

DWG. TITTLE: **PLAN & PROFILE FOR DISTRIBUTION MAIN 6**

REVISIONS

DATE: Nov. 2022

DRAWN BY: A.L.O

CHECKED BY: DS

APPROVED BY: PJM

SCALE: AS DRAWN

DATUM: Vertical: New Khartoum  
Horizontal: UTM ZONE 36N ARC 60

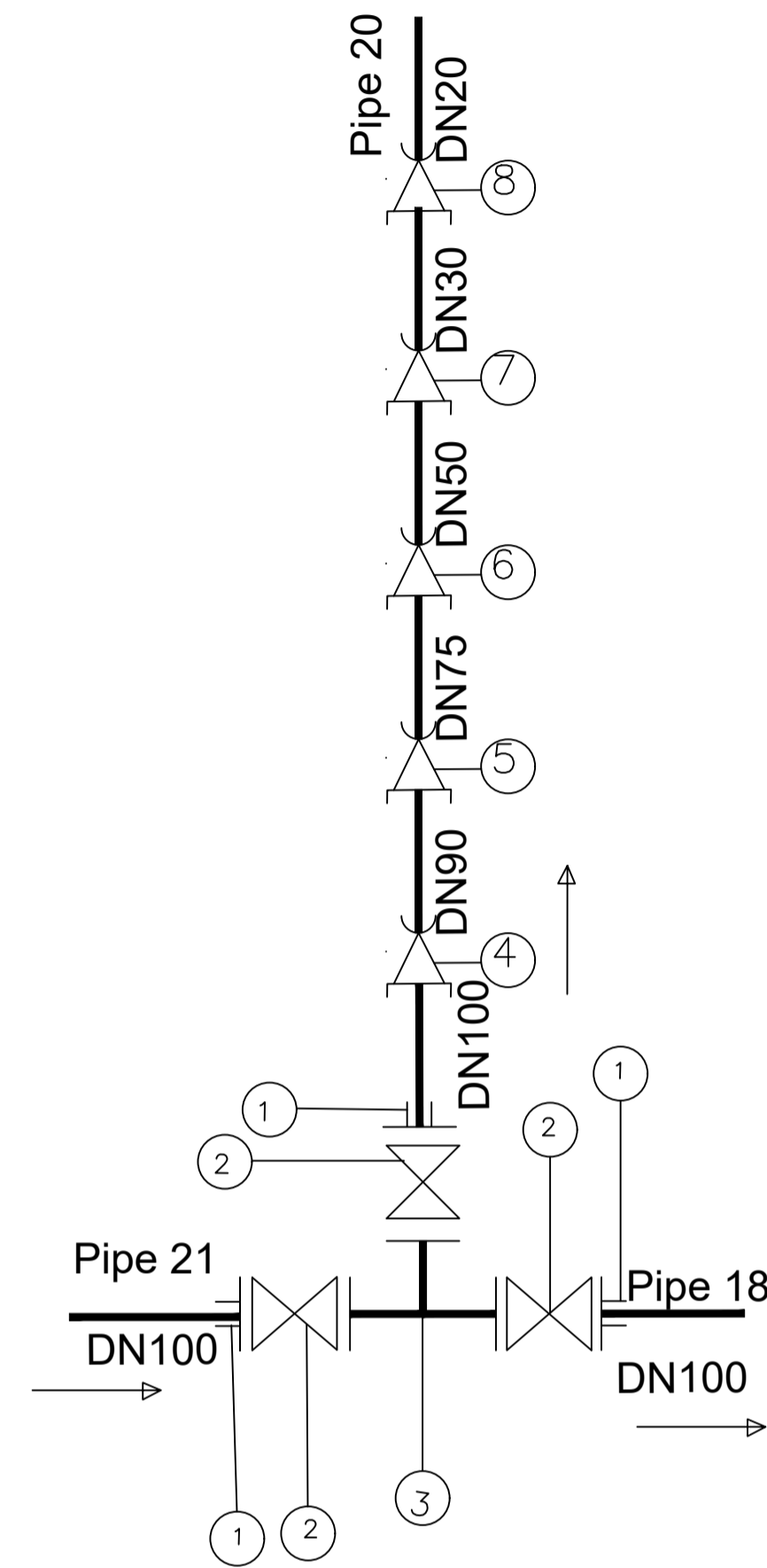
DWG. No. KP/WS/YUM/GOB/DL6-01

SHEET

# PIPELINE FITTINGS

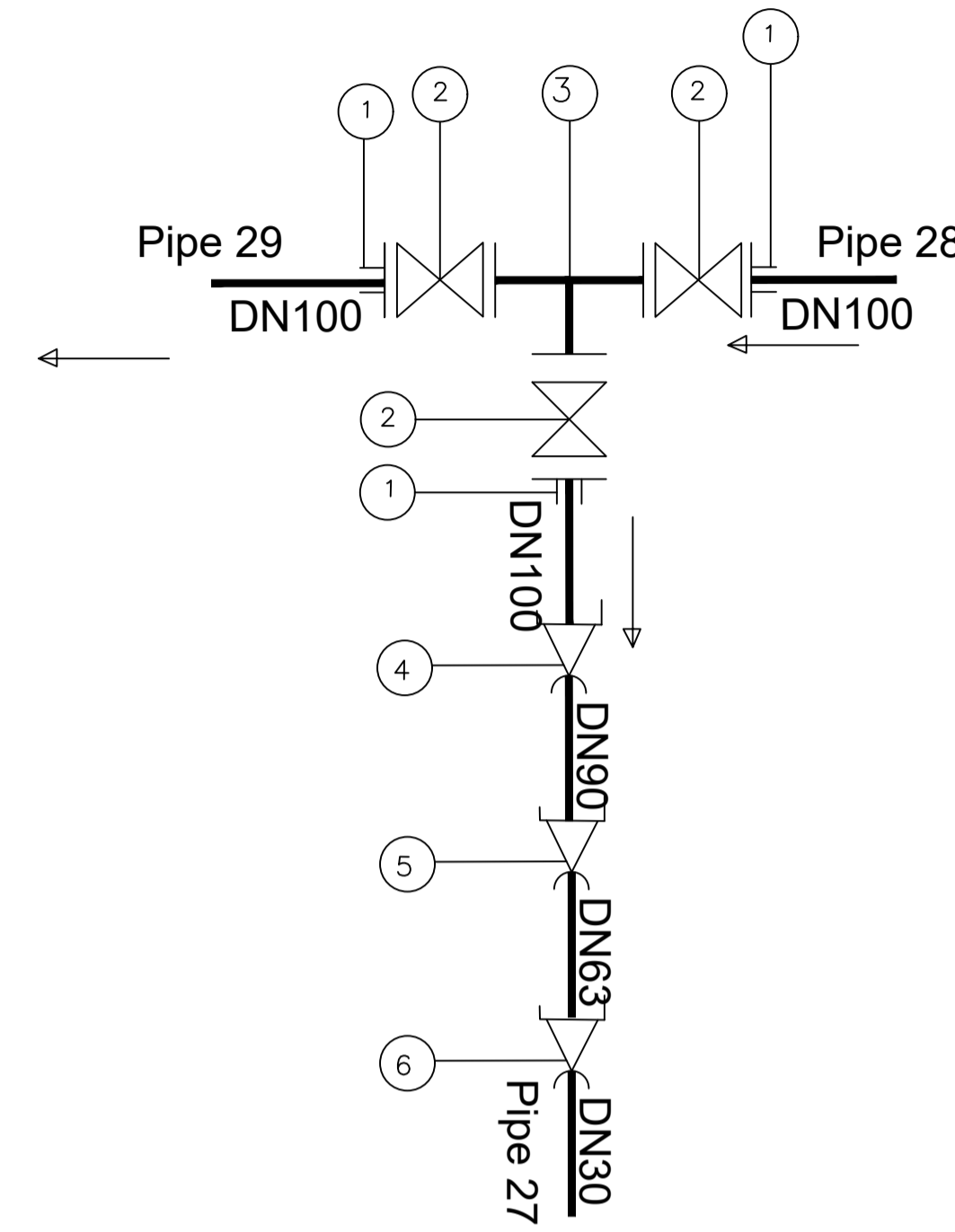


## JUNCTION 1



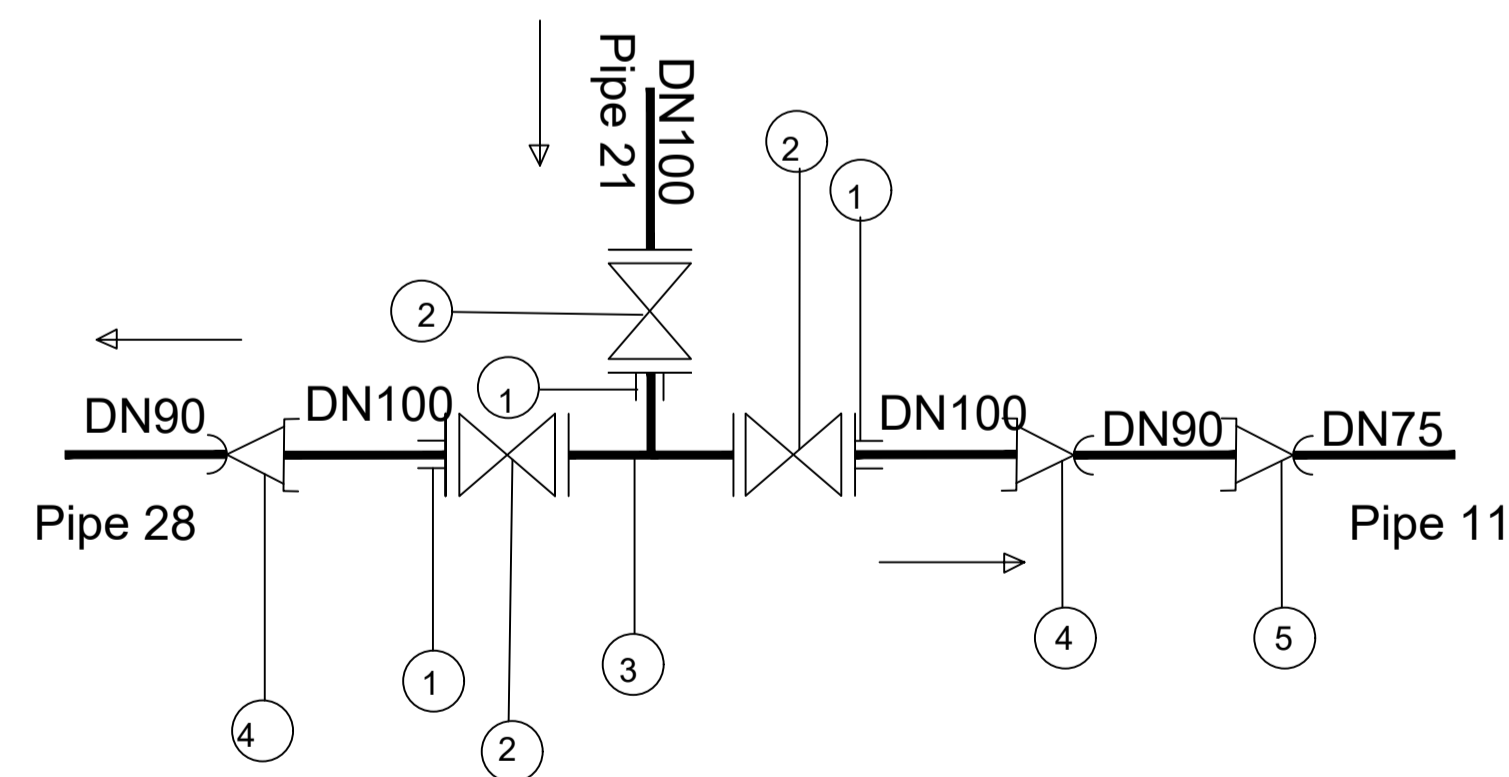
Fitting Details at Junction	
Label	Description
1	3No. DN100mm Flanged Adaptors
2	3No. DN100mm Flanged Gate Valves
3	1No. DN100 Flanged Equal Tee
4	1No. DN100 x DN90mm HDPE Butt-weld Reducer
5	1No. DN90 x DN75mm Reducing Coupler
6	1No. DN75 x DN50mm Reducing Coupler
7	1No. DN50 x DN30mm Reducing Coupler
8	1No. DN30 x DN20mm Reducing Coupler

## JUNCTION 3



Fitting Details at Junction	
Label	Description
1	3No. DN100mm Flanged Adaptors
2	3No. DN100mm Flanged Gate Valves
3	1No. DN100 Flanged Equal Tee
4	1No. DN100 x DN90mm Reducing coupler
5	1No. DN90 x DN63mm Reducing coupler
6	1No. DN63 x DN30mm Reducing coupler

## JUNCTION 2



Fitting Details at Junction	
Label	Description
1	3No. DN100mm Flanged Adaptors
2	3No. DN100mm Flanged Gate Valves
3	1No. DN100 Flanged Equal Tee
4	2No. DN100 x DN90mm HDPE Reducing Coupler
5	1No. DN90 x OD75mm HDPE Reducing Coupler

CLIENT:



MINISTRY OF WATER  
AND ENVIRONMENT

CONSULTANT:



**KAGGA & PARTNERS**  
KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O.BOX 6583,  
KAMPALA, UGANDA

**LEGEND**

	Benchmark		Major Contour
	Elevated Tank		Minor Contour
	Structure		Boundary
	Farm Blocks		Foot Path
	Lake		Pumping Main
	Proposed Road		Supply Main
	Existing Road		Sub Main
	Road Centerline		Ant hill
			Tree

PROJECT:

NYORI WATER SUPPLY

CONTRACT NO:

MWE/CONS/19 - 20/00009/2

NO.

AMENDMENTS

APPROVED: DATE:

DRG TITLE:

JUNCTION DETAILS

DATE:

JULY 23

SCALE:

AS SHOWN

DWG. No.

KP/WS/YUM/GOB/JUNC - 01

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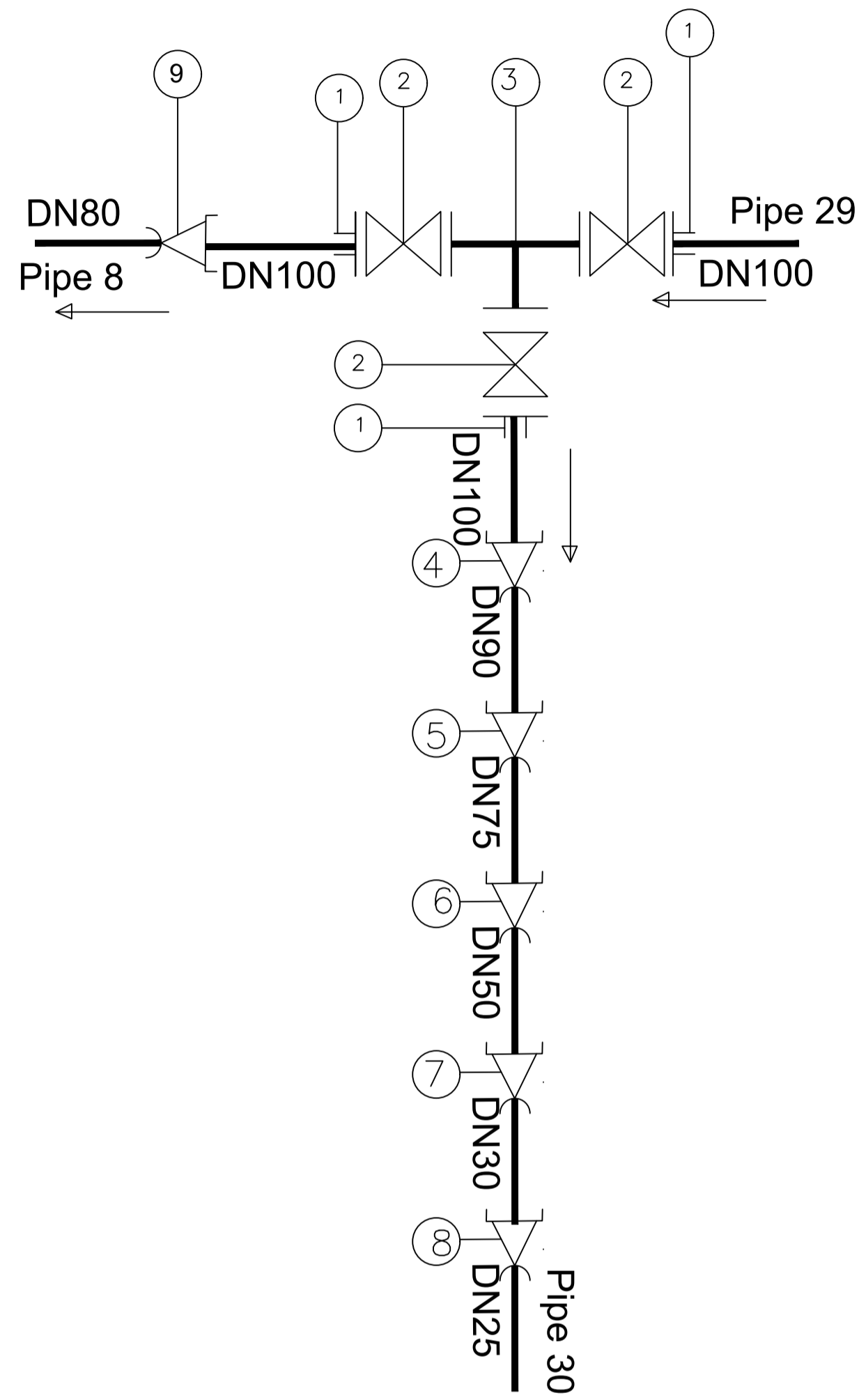
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PJM

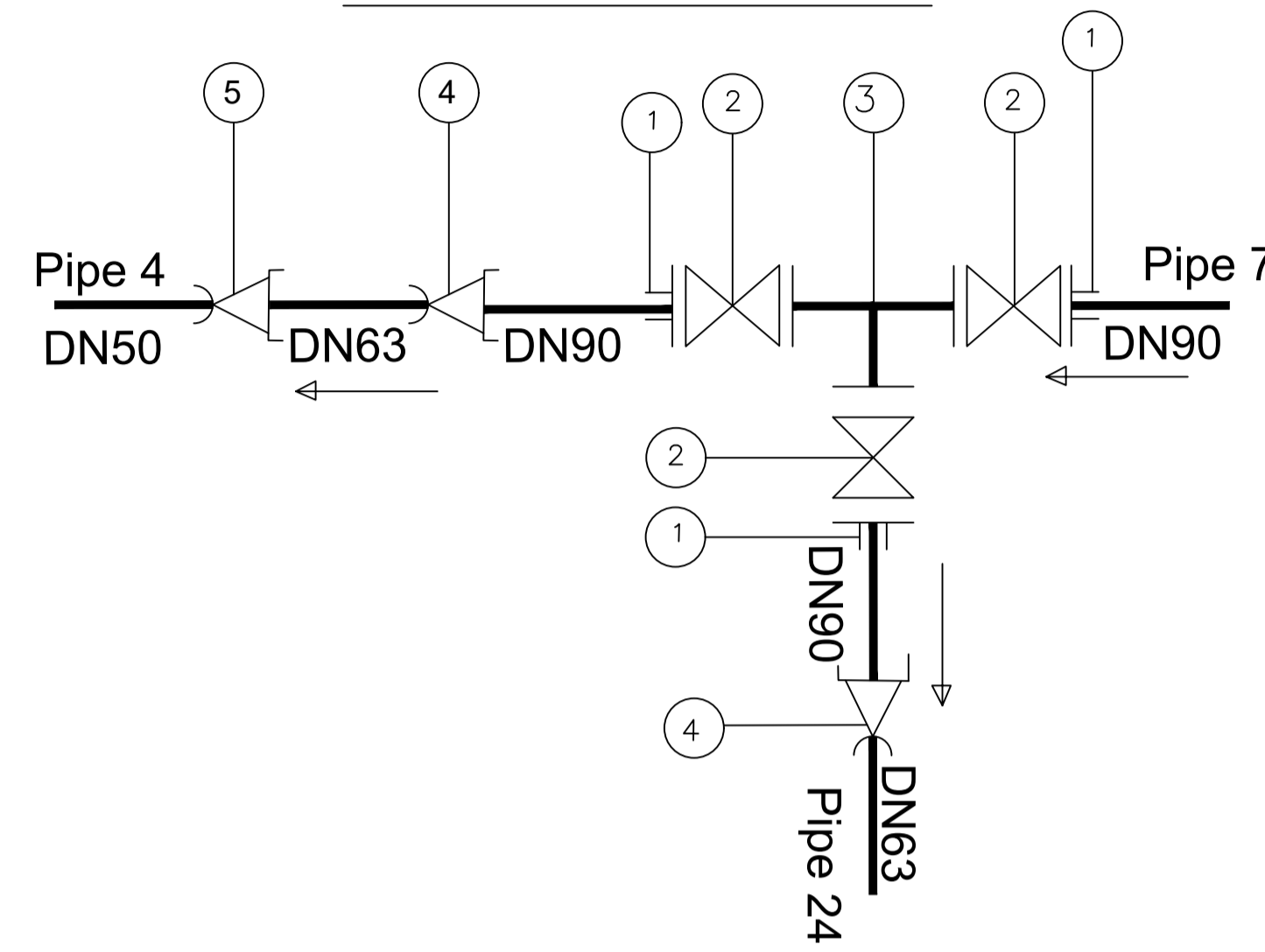
PAGE NO.

# JUNCTION 4



Fitting Details at Junction	
Label	Description
1	3No. DN100mm Flanged Adaptors
2	3No. DN100mm Flanged Gate Valves
3	1No. DN100 Flanged Equal Tee
4	1No. DN100 x DN90mm Reducing coupler
5	1No. DN90 x DN75mm Reducing coupler
6	1No. DN75 x DN50mm Reducing coupler
7	1No. DN50 x DN30mm Reducing coupler
8	1No. DN30 x DN25mm Reducing coupler
7	1No. DN100 x DN80mm Reducing coupler

# JUNCTION 5



Fitting Details at Junction	
Label	Description
1	3No. DN90mm Flanged Adaptors
2	3No. DN90mm Flanged Gate Valves
3	1No. DN90 Flanged Equal Tee
4	2No. DN90 x DN63mm Reducing coupler
5	1No. DN63 x DN50mm Reducing coupler

**CLIENT:**  

**MINISTRY OF WATER AND ENVIRONMENT**

**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O.BOX 6583,  
 KAMPALA, UGANDA

**LEGEND**

	Benchmark		Major Contour
	Elevated Tank		Minor Contour
	Structure		Boundary
	Farm Blocks		Foot Path
	Lake		Pumping Main
	Proposed Road		Supply Main
	Existing Road		Sub Main
	Road Centerline		Ant hill
			Tree

**PROJECT:**  
 NYORI WATER SUPPLY

**CONTRACT NO:**  
 MWE/CONS/19 - 20/00009/2

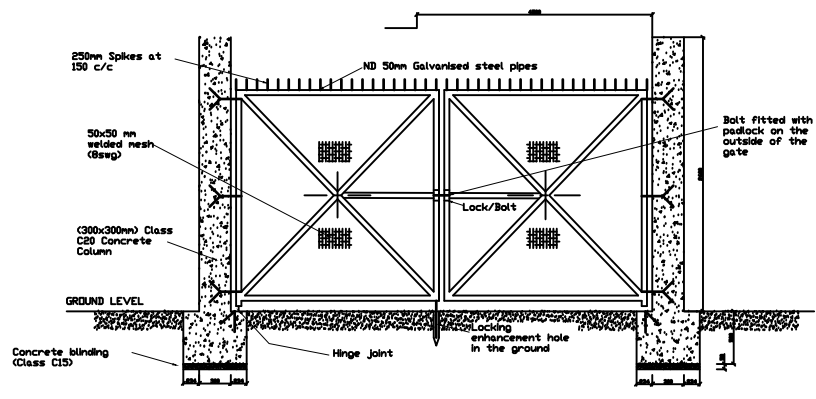
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JUNCTION DETAILS	JULY 23	AS SHOWN	KP/WS/YUM/GOB/JUNC - 02	DS	PJM	

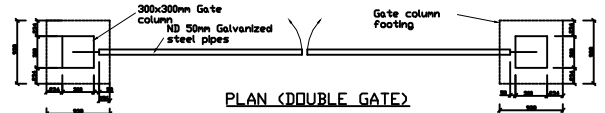
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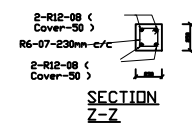




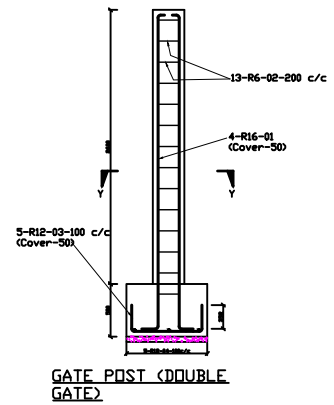
ELEVATION (DOUBLE GATE)



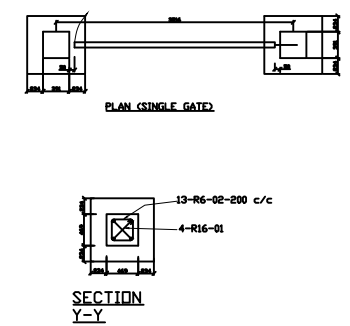
PLAN (DOUBLE GATE)



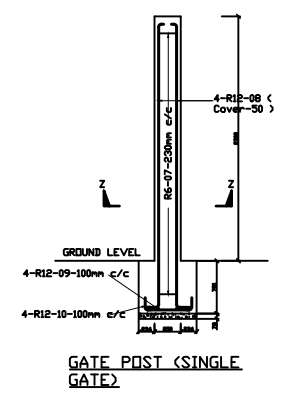
SECTION Z-Z



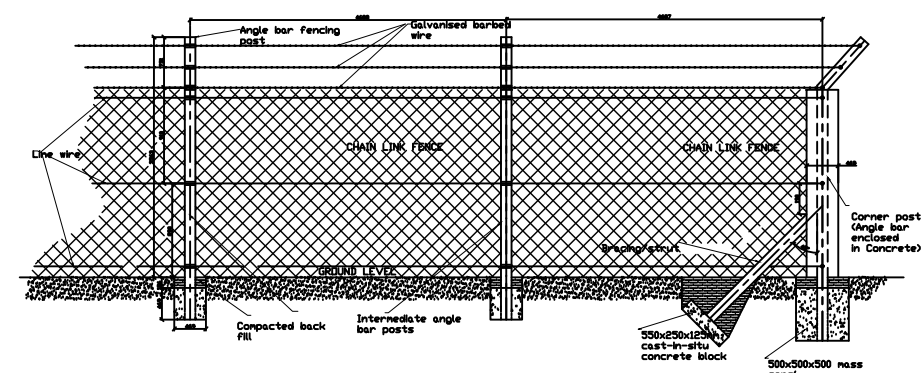
GATE POST (DOUBLE GATE)



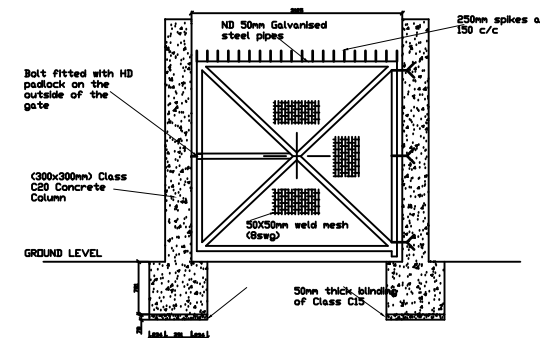
SECTION Y-Y



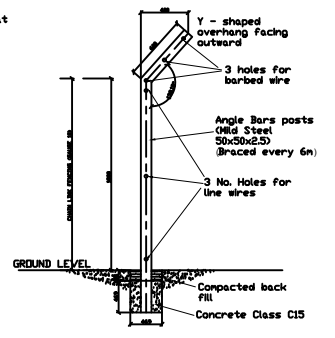
GATE POST (SINGLE GATE)



LONGITUDINAL DETAIL CHAINLINK FENCE



ELEVATION (SINGLE GATE)



CHAIN LINK FENCING POST

- NOTES
1. FENCE POSTS SHALL NOT BE MORE THAN 3m c/c
  2. 3 WAYS OF GALVANIZED BARBED WIRE SHALL BE USED AT THE TOP OF THE FENCE. SMALL LINK TYPE (G.C. 160 & 175) VERTICALLY FOR THE REMAINDER WITH 3 No. LINE WIRES
  3. R-BOLTERS HOLD STEEL TO BE 4464
  4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE STATED
  5. WELDS NOT OTHERWISE SPECIFICALLY NOTICED THE RECOMMENDATIONS CONTAINED IN BS1782 PART 1 1978 SHALL BE APPLIED TO
  6. GATE DETAILS ARE TYPICAL ONLY ACTUAL WIDTH OF OPENING MAY VARY
  7. AT CORNERS OR AT DISTANCES MORE THAN 30m c/c FENCE POSTS SHALL BE ADDITIONALLY SUPPORTED WITH STRUTS ALONG THE LINE OF FENCING TO THE POSTS. THE STRUTS ARE TO BE OF THE SAME SECTION AS THE FENCE POSTS, JOINED AT AN ANGLE OF 45° AND POSITIONED TO CONTACT WITH THE POSTS 50mm ABOVE THE GROUND. THE OTHER END OF THE STRUT TO BE ENCASED IN 500x500mm MASS CONCRETE CLASS IS

MATERIAL	SPECIFICATION
POST	7x7x50mm
GUIDING WIRE	Galvanized plain wire 6mm dia
CHAIN LINK	G10 1800mmht 50x50mm
BARBED WIRE	G16
BRINDING WIRE	Galvanized
CONCRETE	Grade 10 mix 1:3:6

LOCATION	BAR MARK	TYPE AND SIZE	NO. IN EACH	TOTAL NO.	CU. LENGTH IN METERS	TOTAL LENGTH IN METERS	SHAPE CODE	A	B	C	D	WEIGHT KG
ENTRANCE GATE 4m WIDE	1601	R16	4	8	3.050	24.400	17	0.050	3.000			18.527
	402	R6	13	26	1.050	21.300	60	0.200	0.200			6.000
	1203	R12	8	8	1.400	11.200	18	0.250	0.900			9.945
	1204	R12	8	8	1.400	11.200	18	0.250	0.900			9.945
CHAIN LINK FENCING POST	405	R6	12	12	0.450	14.400	60	0.600	0.600			3.197
	406	R6	4	4	3.100	12.400	42	0.500	0.355	2.500		4.993
ENTRANCE GATE 5m WIDE	407	R6	-	-	0.050	-	40	0.150	-			-
	1208	R12	4	4	-	-	17	0.200	-			-
	1209	R12	5	5	1.000	5.000	15	0.770	-			4.440
	12010	R12	5	5	1.000	5.000	15	0.770	-			4.440

1. ALL BENDING DIMENSIONS ARE IN ACCORDANCE WITH BS 4466 G969

BAR BENDING SCHEDULE



**CLIENT:**  
MINISTRY OF WATER AND ENVIRONMENT

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**KAGGA & PARTNERS**  
KAGGA HOUSE, 2 BANDALI CLOSE (OLD PORTBELL ROAD), BUGOLOBI P.O.BOX 6583, KAMPALA, UGANDA

**PROJECT:**  
CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE

**CONTRACT NO:**  
MWE/CONS/19-20/00009/2

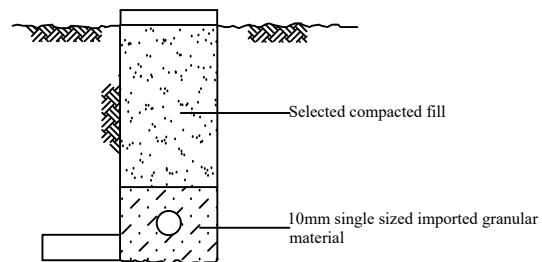
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				DWG. No. KP/WS/YUM/GEN-03				TENDER DRG
				REV.No. 0				APPROVED FOR CONSTRUCTION
					DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE		AS BUILT DRG



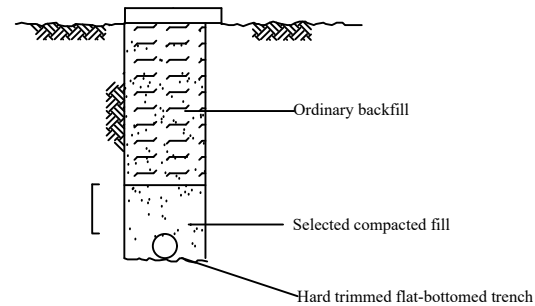




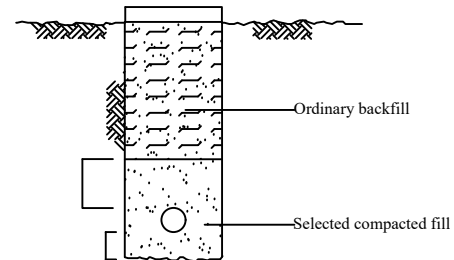




**uPVC PIPEWORK**  
TYPICAL TRENCH DETAILS



(1): NORMAL SOIL CONDITIONS.



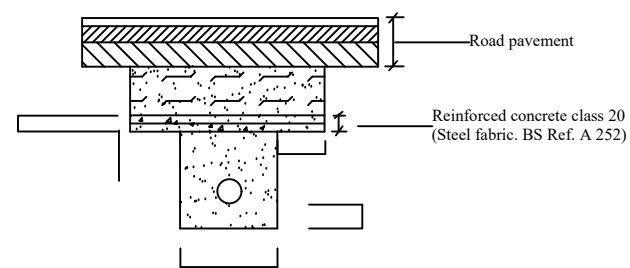
(2): ABNORMAL SOIL CONDITIONS SUCH AS  
IN ROCK, STONES, OR SOILS WITH  
SUBNORMAL BEARING CAPACITY.

**DUCTILE IRON PIPEWORK**  
TYPICAL TRENCH DETAILS

TRENCH WIDTHS FOR uPVC PIPES

NOMINAL DIAMETER (mm)	TRENCH WIDTH, B (mm)
50	600
80	600
100	700
150	800

$B = D + 600\text{mm}$  (minimum  $B = 600\text{mm}$ )  
Where D is the outside diameter of the pipe

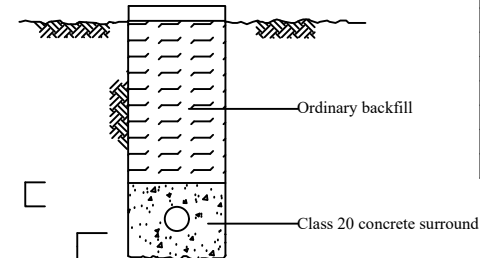


PIPE PROTECTION AT  
ROAD CROSSING

TRENCH WIDTHS FOR DUCTILE IRON PIPES

NOMINAL DIAMETER (mm)	TRENCH WIDTH, B (mm)
80	480
100	500
150	550
200	622
250	670
300	725
400	830
500	900
600	1000

$B = D + 400\text{mm}$   
Where D is the outside diameter of the pipe



**CONCRETE SURROUND**  
At locations where depth of cover is  
less than 600 mm and as directed by  
the Engineer



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BUGOLOBI  
P.O. BOX 6583,  
KAMPALA, UGANDA

**PROJECT:**  
CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
STUDY, DETAILED ENGINEERING DESIGN AND  
CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
AND NORTHERN UGANDA YUMBE

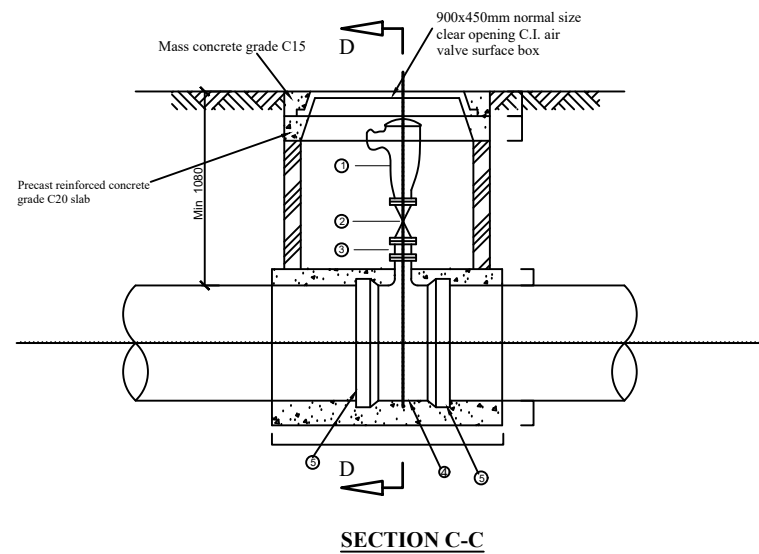
**CONTRACT NO:**  
MWE/CONS/19-20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
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				DWG. No. KP/WS/YUM/GEN-05B	REV.No. 0	DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG

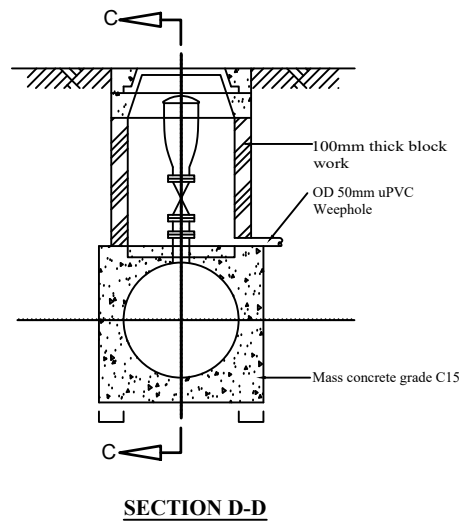








AIR VALVE	FITTINGS
d' DAV Where d' = 25, 50, 80mm	① 1 No. DN d' Screwed Double Air Valve. ② 1 No. DN d' Female Screw Gate Valve. ③ 1 No. DN d' Flanged Screw. ④ 1 No. DN Dx100 DI Flanged Tee. ⑤ 2 No. DN D Flange Adaptors.
d' DAV Where d' is greater or equal to 100mm	① 1 No. DN d' Flanged Double Air Valve. ② 1 No. DN d' Flanged Gate Valve. ③ N/A ④ 1 No. DN Dx d' DI Flanged Tee. ⑤ 2 No. DN D Flanged Adaptors.



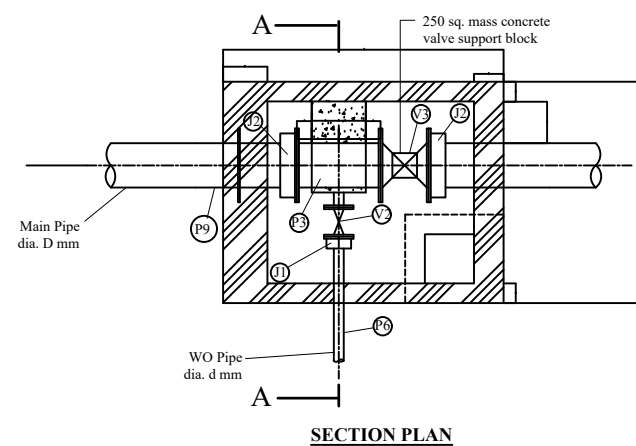
**AIR VALVE CHAMBER**



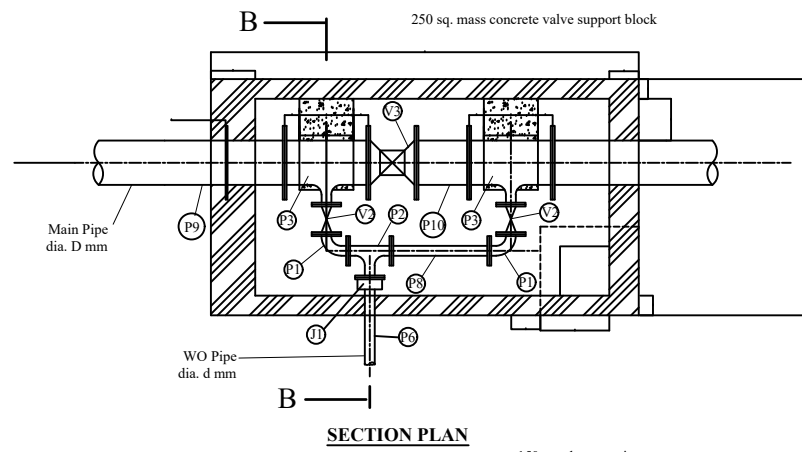
**CONSULTANT:**  
**KAGGA & PARTNERS**  
 KAGGA HOUSE, 2  
 BANDALI CLOSE  
 (OLD PORTBELL ROAD),  
 BUGOLOBI  
 P.O. BOX 6583,  
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 CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY STUDY, DETAILED ENGINEERING DESIGN AND CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE AND NORTHERN UGANDA YUMBE  
**CONTRACT NO:**  
 MWE/CONS/19-20/00009/2

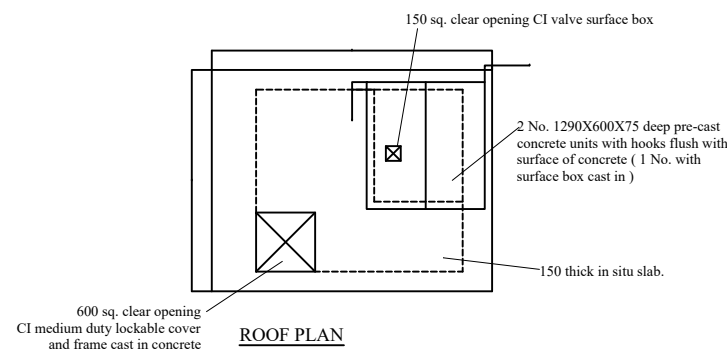
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				DWG. No. KP/WS/YUM/GEN-09	REV.No. 0	DRAWN BY: INITIALS _____ SIGN _____ DATE _____	CHECKED BY: INITIALS _____ SIGN _____ DATE _____	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG



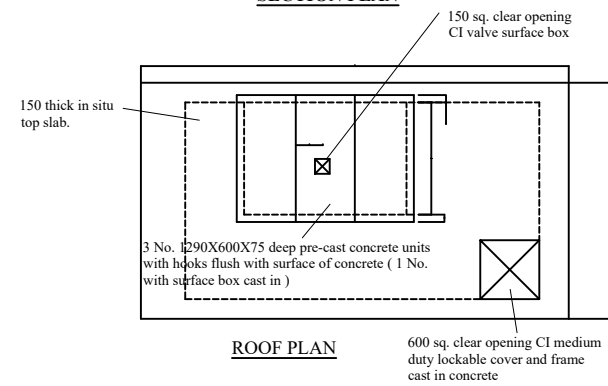
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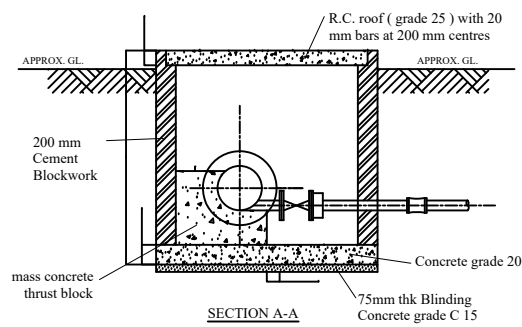
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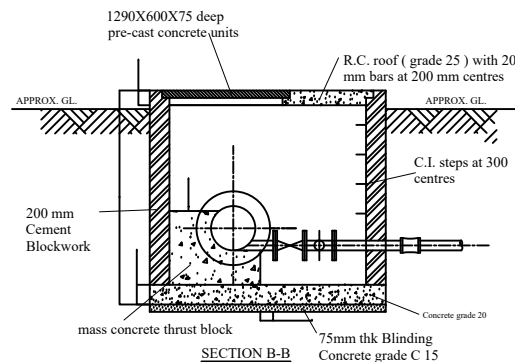
ROOF PLAN



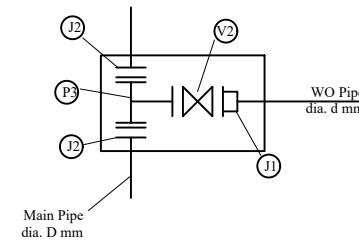
ROOF PLAN



SECTION A-A  
CHAMBER FOR SINGLE IN-LINE VALVE WITH SINGLE WASHOUT-TYPE 1



SECTION B-B  
CHAMBER FOR SINGLE IN-LINE VALVE WITH DOUBLE WASHOUT-TYPE 2



WASHOUT TYPE 3

TYPE OF CHAMBER	DIMENSIONS OF WASHOUT CHAMBERS (mm)						
	DIAMETER (mm)	A	B	C	L	H	T
SINGLE IN-LINE VALVE WITH DOUBLE WASHOUT-TYPE 2	450	650	2400	450	4350	2175	550
	400	650	2350	400	4200	2050	450
	300	550	2250	300	3900	1900	400
	250	550	2200	300	3700	1850	400
	200	500	2100	300	3250	1700	350
	150	500	2050	300	3000	1650	300
SINGLE IN-LINE VALVE WITH SINGLE WASHOUT-TYPE 1 & 3	450	650	2250	450	2850	2175	550
	400	650	2200	400	2800	2050	450
	300	550	1900	300	2700	1900	400
	250	550	1800	300	2600	1850	400
	200	500	1750	300	2300	1700	350
	150	500	1700	300	2200	1650	300
100	450	1650	300	2050	1600	200	
80	400	1550	300	2000	1600	150	

SCHEDULE OF PIPEWORK		
ITEM No.	Dia (mm)	DESCRIPTION
P1	d	DI Flanged 90 Deg. Bend
P2	d x d	DI Flanged Tee
P3	D x d	DI Flanged Level Invert Tee
P6	d	DI Washout Pipe, length to suit
P8	d	DI Double Flanged Pipe Piece, length not exceeding 1m
P9	D	1m long DI straight pipe with puddle flange
P10	D	DI Double Flanged Pipe Piece, length not exceeding 1m
J1	d	DI Flanged Adaptor
J2	D	DI Flanged Adaptor
V2	d	Flanged Gate Valve
V3	D	Flanged Gate Valve, for D less or equal to 300mm dia
V3	D	Flanged Butterfly Valve, for D over 300mm dia

	SIZES OF WASHOUT PIPES	
	MAIN PIPE SIZE, D (mm)	WO PIPE SIZE, d (mm)
Washout Type 1 and 2	DN 500	DN 200
	DN 300	DN 150
	DN 200	DN 80
	OD 110	OD 50/ DN 40
Washout Type 3	OD 50	OD 50/ DN 40
	DN 500	DN 300
	DN 300	DN 200
	DN 200	DN 125
	OD 110	OD 75/ DN 65
	OD 50	OD 50/ DN 40

In general,  
For Washout Type 1 & 2, d = 0.4D  
For Washout Type 3, d = 0.6D



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**CONTRACT NO:**  
MWE/CONS/19-20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:

**DRG TITLE:**  
WASH OUT CHAMBER

**DATE:**  
JULY 2023

**SCALE:**  
AS SHOWN

**DRG. No.:**  
KP/WS/YUM/GEN-10

**DATE:**  
JULY 2023

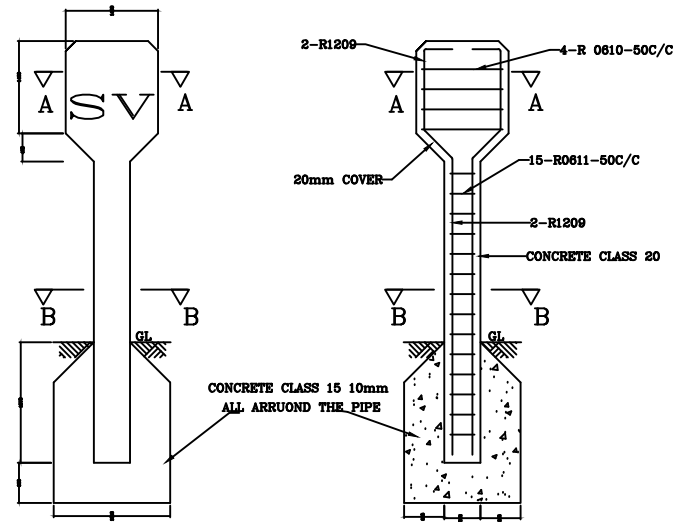
**SCALE:**  
AS SHOWN

**DRAWN BY:**  
INITIALS \_\_\_\_\_  
SIGN \_\_\_\_\_  
DATE \_\_\_\_\_

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DATE \_\_\_\_\_

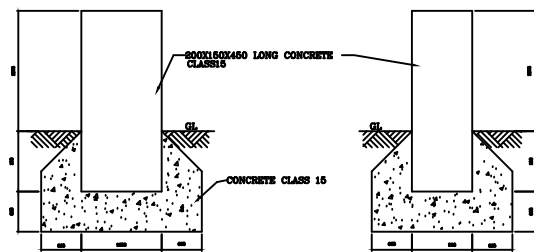
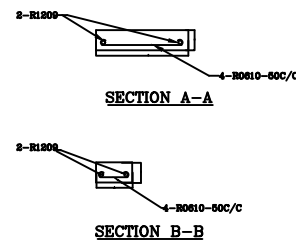
**SHEET NO.:**

**STATUS:**  
CONCEPT DRG  
TENDER DRG  
APPROVED FOR CONSTRUCTION  
AS BUILT DRG



**PIPE MARKER POST DETAILS**

**Notes**  
 LETTERS CARVED ON INDICATOR PLATE SHOULD BE AS FOLLOWS:  
 S.V. FOR SLIUCE VALVE  
 S.A.V. FOR SINGLE AIR VALVE  
 D.A.V. FOR DOUBLE AIR VALVE  
 P.H. FOR FIRE HYDRANTS  
 W.O. FOR WASHOUT



**PIPE MARKER BLOCK DETAILS**

**BAR BENDING SCHEDULE**

MEMBER	BAR MARK	TYPE & SIZE	No. IN EACH	TOTAL No.	LENGTH OF BAR (mm)	TOTAL LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)	WEIGHT
INDICATOR POLE	1209	R12	2	—	1200	2400	42	750	100	210	70	
	0610	R06	4	—	250	1000	33	190	—	—	—	
	0611	R06	15	—	100	1500	33	50	—	—	—	

**NOTE**  
 ALL BENDING DIMENSIONS ARE IN ACCORDANCE WITH BS 4466 (1969)  
 R-MILD STEEL BARS TO BS 4449



**CLIENT:**  
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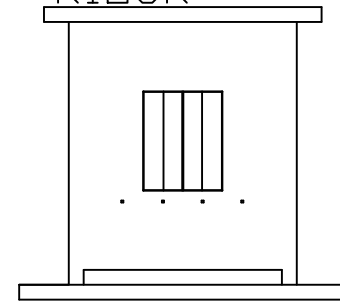
**PROJECT:**  
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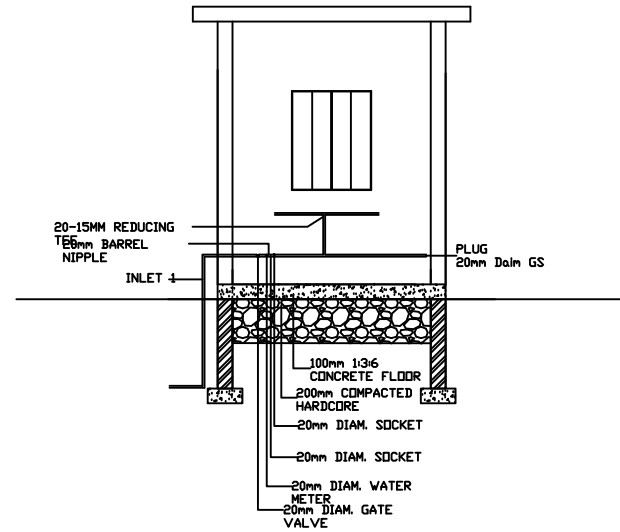
NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				MARKER POST	JULY 2023	AS SHOWN		CONCEPT DRG
				DWG. No. KP/WS/YUMGEN-11	REV. No. 0	DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG



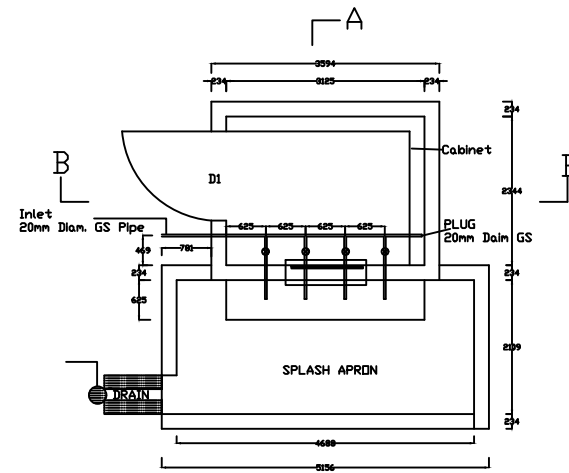
TYPICAL  
PUBLIC WATER  
KIOSK



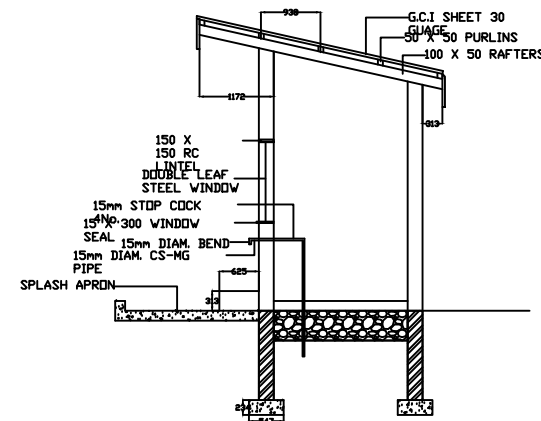
FRONT  
ELEVATION



SECTION  
B-B



PLAN



SECTION  
A-A

CLIENT:



MINISTRY OF WATER  
AND ENVIRONMENT

CONSULTANT:



**KAGGA & PARTNERS**  
KAGGA HOUSE, 2  
BANDALI CLOSE  
(OLD PORTBELL ROAD),  
BUGOLOBI  
P.O. BOX 6583,  
KAMPALA, UGANDA

PROJECT:

CONTRACT FOR CONSULTANCY SERVICES FOR FEASIBILITY  
STUDY, DETAILED ENGINEERING DESIGN AND  
CONSTRUCTION SUPERVISION OF SOLAR POWERED PIPED  
WATER SUPPLY SYSTEMS AND SANITATION FACILITIES IN  
REFUGEE SETTLEMENTS AND HOST DISTRICTS IN WEST NILE  
AND NORTHERN UGANDA YUMBE

CONTRACT NO:

MWE/CONS/19-20/00009/2

NO.	AMENDMENTS	APPROVED:	DATE:	DRG TITLE:	DATE:	SCALE:	SHEET NO:	STATUS
				PUBLIC WATER KIOSK	JULY 2023	AS SHOWN	113	CONCEPT DRG
				DWG. No. KPWS/YUM/GEN-12	REV.No. O	DRAWN BY: INITIALS SIGN DATE	CHECKED BY: INITIALS SIGN DATE	TENDER DRG APPROVED FOR CONSTRUCTION AS BUILT DRG

