

When replying please quote: AWWDA/GOK/B/MLMWP/W-08/2023-2024.Vol I (11) PE-emmm  
31<sup>st</sup> October, 2023.

To All Bidders;

**PROCUREMENT CONSTRUCTION OF WATER PROJECTS WITHIN AWWDA AREA OF JURISDICTION. DRILLING AND EQUIPPING OF BOREHOLES, SOLARIZATION, CONSTRUCTION OF ELEVATED STEEL WATER TANKS WITH ASSOCIATED DISTRIBUTION NETWORKS. IFB No: AWWDA/GOK/B/MLMWP/W-08/2023-2024.**

**CLARIFICATIONS TO ISSUED BIDDING DOCUMENT AND BID SUBMISSION FOR PROCUREMENT OF WORKS FOR COMPONENT 3.**

Reference is made to the ongoing procurement of Works for Drilling and Equipping of Boreholes, Solarization, Construction of Elevated Steel Water Tanks with Associated Distribution Networks. IFB No: AWWDA/GOK/B/MLMWP/W-08/2023-2024.

Pursuant to clause No. 7 of the instructions to bidders, please find hereby attached responses to clarifications as received by 31<sup>st</sup> October, 2023.

Please note that the bid submission date remains as **9<sup>th</sup> November, 2023** at 12.00 p.m. East African Time.



**ENG. JOSEPH KAMAU,**  
**Ag. CHIEF EXECUTIVE OFFICER.**

**Encl;**

1. Response to bidding document Clarifications



MINISTRY OF WATER, SANITATION AND IRRIGATION



PROCUREMENT CONSTRUCTION OF WATER PROJECTS WITHIN AWWDA AREA OF JURISDICTION. Component 3: DRILLING AND EQUIPPING OF BOREHOLES, SOLARIZATION, CONSTRUCTION OF ELEVATED STEEL WATER TANKS WITH ASSOCIATED DISTRIBUTION NETWORKS. IFB No: AWWDA/GOK/B/MLMWP/W-08/2023-2024.

Response to clarification requested by Bidders

NO.	Reference Section/ Volume	Bidder's Question	AWWDA Response
1	BOQ, bill no 203A and 204	In the BOQ, bill no 203A is reading as "Ditto exceeding 300 but n.e 360m Unit M Qty 1 Rate only", whereas bill no 204 is reading as "Ditto exceeding 300 but n.e 360m Unit M Qty 60" Please clarify & advise us on the way forward	This is noted to be a repetitive item. Correction has been made please see attached revised BOQ for these works.
2	Bill no. 3 item 324 to 332 and Bill No 6.	Bill no 3 - from bill no 324 to 332 requested for solar items as well as Bill no 6 also requesting to quote solarization of the borehole, does that mean should we quote solarization of the borehole twice? Please clarify & advise us on the way forward	This is noted to be a repetitive item. Correction has been made please see attached revised BOQ for these works.
3	Bill 3 and Bill 6	We are seeking clarification as follows: <ul style="list-style-type: none"><li>Item 324-332 under BoQ Bill 3 - Equipping of Boreholes (Solar Works)</li><li>Item 601-610 under BoQ Bill 6 – Solarization of Boreholes.</li></ul> Kindly and very urgently advise if there is a repetition of the same work.	This is noted to be a repetitive item. Correction has been made please see attached revised BOQ for these works.

Signed By: Greg Kipnusu not Date: 21/10/2023

**BILL NO.1: PRELIMINARY AND GENERAL ITEMS**

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
101	<b>Contractor's Mobilization</b> Mobilization and demobilization of contractor's plant and equipment including but not limited to drilling units, tank erection equipment, test pumping equipment, borehole development equipment, materials, personnel and other required supplies	LS	1		-
	<b>Temporary Works</b>				-
	<b>Contractor's Camp and Plant</b>				-
102	Establish, maintain and remove Contractor's camps, offices, facilities, etc at the end of the contract.	LS	1		-
	<b>Project Sign Boards</b>				-
103	Provide, erect and maintain project sign boards at borehole sites as directed by the Project Manager. The rate include installation, removal and storage as directed by Project Manager.	Nr	7		-
	<b>Provisional Sums</b>				
104	Allow Provisional Sum of Kshs 500,000.00 for maintaining, fuelling, lubricating and servicing of the transport vehicles assigned to the project for supervision of the works to be expended as directed by the Project Manager.	PC	1	500,000.00	500,000.00
105	Allow Provisional Sum of Kshs 500,000.00 to cover supervision costs of Engineers assigned on the project from the Employer's head office to cover expenses for communication, transport, allowances etc, to be expended as directed by the Project Manager.	PC	1	500,000.00	500,000.00
106	Allow Provisional Sum of Kshs 500,000.00 to cover the costs for branding, communication and visibility of project components to be expended as directed by the Project Manager.	PC	1	500,000.00	500,000.00
107	Allow Provisional Sum of Kshs 1,000,000.00 to cover the costs of Hydrogeological Survey, Environmental Impact Assessment, preparation and submission of survey and EIA reports, application of authorization to drill and abstraction permits from Water Resources Authority and EIA permits from NEMA including payments for road crossing application fees to be expended as directed by the Project Manager.	PC	1	1,000,000.00	1,000,000.00
108	Add a percentage of items 104, 105, 106 and 107 for contractor's overhead profit.	%			-
<b>BILL TOTAL CARRIED TO SUMMARY SHEET</b>					

BILL NO. 2: DRILLING OF BOREHOLES					
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
201	Drilling of 200mm (8") diameter borehole from 0 - n.e 100m below surface.	M	100		-
202	Ditto but 100 - n.e 200m depth	M	100		-
203	Ditto but 200 - n.e 300m depth	M	100		-
203A	Ditto exceeding 300 but n.e 360m	M	1	Rate Only	
205	Supply and installation of n.i.d 152.4mm (6") diameter plain steel casing heavy duty 4.85mm/152 and 5mm/203 to KS 06-259 and BS 1387.	M	260		-
206	Supply and installation of n.i.d 152.4mm (6") diameter steel casing (M/s Plasma cut well screens provision) heavy duty 4.85mm/152 and 5mm/203 to KS 06-259 and BS 1387.	M	100		-
207	Supply and installation of filter gravel pack (2-4mm)	Ton	25		-
208	Development of the boreholes	Hr	12		-
209	Test pumping and recovery measurements to ascertain borehole yield. (Test pumping for 24hr and recovery measurements for 12hr for the borehole)	Hr	36		-
210	Construction of borehole head-works around well head by constructing a concrete plinth and a chamber measuring 1mx1mx1m with class 20/20 mass concrete floor slab and walls.	No.	1		-
211	Supply and fix 6" borehole steel cap.	No.	1		-
212	Supply and fix 10" surface casing	M	10		-
213	Place a bentonite sanitary seal 3m deep.	LS	1		-
214	Clay Disaggregate calgonTM injection as sodium hexametaphosphate to accelerate removal of clay matter /improve on water turbidity ; includes cost of injection.	kg	30		-
215	Allow costs for providing water for all requirements of the contract, field camp, drilling works e.t.c.	Sum	1		-
216	Collect water samples and carry out water quality analysis (chemical and bacteriological analysis) in a reputable laboratory acceptable to the Project Manager and submit water quality test report.	No.	2		-
217	Allow costs for collecting formation samples and prepare Geological logging charts.	No.	1		-
218	Complete the prescribed WRMA Borehole drilling completion report and submit to WRMA	No.	1		-
Total for Drilling 1No. Borehole					-
BILL TOTAL FOR DRILLING 7NO. BOREHOLES CARRIED TO SUMMARY SHEET					-

**BILL NO. 3: EQUIPPING OF BOREHOLES**

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
301	Allow Provisional Sum of Kshs 450,000.00 to provide, install and commission a submersible pump capable of delivering 20m <sup>3</sup> /hr against a head of 250m or as directed by the Project Manager NB: Indicate the make of the pump and motor. Size of casing is 152mm. Pump Make : ..... Country of Origin: ..... Make of Motor: .....	PC	1	450,000.00	450,000.00
302	Provide, install and commission a 3 phase, 415Vac, DOL control panel for the above pump comprising of the following:- Provisional b) Appropriate rating contactor b) Appropriate rating thermal overload relay c) Over/under voltage phase failure protection relay d) Voltmeter e) Voltmeter selection switch f) Water level relay g) Appropriate Ammeter h) Appropriate MCCB for the mains i) Appropriate MCCB for the control circuit i) Start, Stop/reset push button (Green marked "START", and Black/Red Marked "STOP/RESET") k) Pilot indicator lights (green marked "PUMP RUN", red marked "OVER LOAD TRIPPED", yellow marked "BOREHOLE LOW, while marked "TANK HIGH" etc l) Hours run counter range 0 - 99999 hours m) Cable looping box of appropriate rating	LS	1		-
303	Enhanced MP204 Blackbox unit to integral circuit NB: A schematic and control wiring diagram MUST be supplied with the starter.	No	1		-
304	3" class B G.I rising main pipe c/w pipe locking clamp including connecting to the existing tank and connecting for both water offices and Main House boreholes.	M	300		-
305	Supply of 3" crane sockets to the rising main	No.	50		-
306	Provide and install one 3" bulk flow meter class B (type and make to be approved by the Project Manager) c/w Non Return Valve at the well head. Rate to include all pipe and fittings at the well head.	No.	1		-
307	Electrode cable(pair)	M	440		-
308	Electrode pencils (pair)	No.	1		-
309	25mm Dipper tube complete	M	240		-
310	1.5mm <sup>2</sup> Flat cable for float switch	M	100		-
311	2"6" borehole cover c/w sundries	No.	1		-
312	1.5mm <sup>2</sup> 2-CORE underground armoured cable – Electrodes	M	100		-
313	63A switch fuse "MEM" or equivalent	No.	1		-
314	Allow a P.C. Sum for electricity supply and connection to the borehole sites. Contractor is responsible for the application of electricity connection; follow up and for prompt supply and connection of electricity by KPLC. Electricity account to be held in the name of the Employer .	PC	1	500,000.00	500,000.00
315	Add a percentage of items 315 for contractor's overheads and profit.	%			-
316	Allow a sum for testing and commissioning of the borehole equipping works.	LS	1		-
319	Provide for float switch to elevated tank and connect to the control panel and pump	sum	1		-
320	4 FT Copper earth rod complete with clamp	Set	1		-
321	Lead cable 10.0m <sup>2</sup> single core (for earthing)	M	10		-
322	Submersible cable rubber sheathed 25mm <sup>2</sup> 3 core submersible armored cable	M	240		-
323	Underground armored cable 25mm <sup>2</sup> 3 core	M	95		-
	<b>Solar Works</b>				
324	Supply and installation of polycrystalline solar modules of 345W capacity capable to power the above submersible pumps or as directed by the Project Manager	Nr.	60		-
325	Solar Inverter/Controller for 18.5kw (Hybrid) or as directed by the project manager	Nr.	1		-
326	Combiner PV Disconnect 1000-40-4	Nr.	1		-
327	Enclosure for PV Disconnect and Controller measuring 1000*500*350mm	Nr.	1		-
328	Lightening Arrestor	Nr.	1		-
329	Earthrod c/w clamp	Nr.	1		-
330	10MM2X2 SOLAR PV cable	M	100		-
331	6MM2X2 SOLAR PV cable	M	100		-
332	Solar Module steel support structure 3m above the ground surface with members of the following specifications: Angle line 40x40x3mm frame; SHS 50X50X3mm - horizontal and vertical beams; SHS 75x75x3mm stands; SHS 40x40x3mm bracings and MS plate 6mm thick	LS	1		-
	<b>Pump Control House</b>				
333	Construction of a well ventilated pump house 3mx2m internal dimension and 2.2m clear height with concrete roof slab reinforced with Y12 at 150 c/c both directions. Rate to include provision of steel door of gauge 16 (1.5mm thick) metal plates complete with two anti-theft and weather resistant padlocks all to the approval of the project manager. the walls shall be constructed with 225*225mm stone masonry fine dressed. Place hoop iron 3/4" on every course.	LS	1		-
	<b>Fencing Works</b>				
334	Construction of borehole area perimeter fence approximately 100m long using 2.1m high chainlink G14 and 65 x 65 x 5mm thick steel angle lines at 2m centre to centre embedded in mass concrete 0.6m deep and diameter strutted at all corners of straight lines	M	100		-
335	Provide 6No. Strands of wire G12 and secure the chainlink using blinding wire G16	M	100		-
336	Provide and fix hinged and lockable steel grilled gate 2m wide with frame of 75mm class B pipes embedded in concrete as shall be directed.	Nr.	1		-
<b>Total for Equipping 1No. Borehole</b>					
<b>BILL TOTAL FOR EQUIPPING 7 NO. BOREHOLES CARRIED TO SUMMARY SHEET</b>					

BILL NO. 4: CONSTRUCTION OF 24M3 ELEVATED PRESSED STEEL TANKS ON 18M STEEL TOWER					
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Excavation</b>				
	Excavation shall include strutting,shuttering,stabilizing excavated surface and keeping excavations free of water bailing out, pumping or other means				
401	Excavate to reduced levels in top soil for depth not exceeding 0.25m	M3	2		-
402	Excavate for tank foundation 0.25-0.5m	M3	10		-
403	Ditto but in material other than top soil,rock or hard material depth 0.5-1m	M3	10		-
404	Ditto but in material other than top soil,rock or artificially hard material depth 1-2m	M3	10		-
405	Ditto but in rock depth 1-2m	M3	2		-
	<b>Filling</b>				
	Filling to completed structure including compaction as specified				
406	Fill and compact selected excavated material other than top soil,rock or artificially hard material	M3	20		-
	<b>Disposal of Excavated Materials</b>				
407	Dispose excavated materials other than rock as directed by the Engineer	M3	12		-
408	Dispose excavated material rock or artificially hard materials on site as directed by the Engineer	M3	2		-
	<b>In situ Concrete:Provision and placing, Rate to include for shuttering</b>				
	Mass concrete Class 15/20				-
409	Blinding layer 50mm thick	M3	2		-
	Reinforced Vibrated Concrete Class 25/20				-
410	Footling and stub columns for steel columns	M3	12		-
	<b>Reinforcement</b>				
	High yield hot rolled ribbed bars BS4449,Rate to include for Supply,delivering,cutting,bending,supporting and securing in concrete.				
411	High Yield bars	Ton	2		-
	<b>Presses Steel Tank</b>				
412	Supply and install pressed steel tank 24m <sup>3</sup> capacity complete with roof access hatch,access ladder,float level indicator,piework and 18m steel Tower frame as per the drawings and specifications.Plate thickness to be 6.0mm for the tank bottom and first level side panels, 4.5mm thick plates for the second and third levels side panels and 2mm for roof. Include for all bolts,joining material, protection paint and any other necessary materials. Tank panels to be wire brushed and painted externally with one coat of grey primer and two coats of silver aluminium paint. Internally the panels are painted with two coats of non-toxic black bituminous paint. Touch up paint to be applied at site after erection to cover any marks	Nr	1		-
	<b>Pipework</b>				
	<b>These are pipes in the vicinity of the tank,including connecting the inlet pipe to the pumping main</b>				
413	Supply and fix 38mm diameter GI Class "B" Tank inlet pipe	M	15		-
414	Supply and fix 63mm diameter GI Class B Tank	M	24		-
415	Supply and fix 63mm diameter GI Class B Tank	M	6		-
416	Supply and fix 63mm diameter GI Class B Tank	M	15		-
	<b>Valves and fittings</b>				
417	Supply and install DN50 PN10 sluice valve for scour	Nr	1		-
418	Supply and install DN38 PN10 Sluice valve for the outlet	Nr	1		-
419	Supply and fix double flanged DN32 90° Short radius bend	Nr	3		-
420	Supply and fix double flanged DN50 -90° Short radius bend	Nr	8		-
421	Supply and fix all flanged DN50X50 Tee	Nr	1		-
422	Supply and fix all flanged DN38X38 Tee	Nr	2		-
423	DN50 Double flange piece, length 1000mm	Nr	2		-
424	DN50 Double flange piece, length 300mm	Nr	2		-
425	DN50 Double flange piece, length 500mm	Nr	2		-
426	Supply and apply recommended disinfectant and test the tank	Sum	1		-
Total for Construction of 1No. Elevated Tank					-
BILL TOTAL FOR CONSTRUCTION OF 7 NO. ELEVATED TANKS CARRIED TO SUMMARY SHEET					-

BILL NO. 5: LAYING OF WATER PIPELINES AND CONSTRUCTION OF 7NO. WATER KIOSKS					
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Excavation and backfilling				
501	Excavate pipe trench commencing from ground level to a minimum depth of 1.0 meter. Rate to include general bush clearing, laying the pipe and backfilling	M3	2,800		-
	Pipe Work - Supply, lay, joint, pressure test				-
	Pipes				-
503	63mm Dia. HDPE PN 12.5 pipes	M	5,500		-
505	50mm Dia. HDPE PN 12.5 pipes	M	3,500		-
	Pipe fittings				
	Couplings				
506	90mm HDPE coupler	No	10		-
507	63mm HDPE coupler	No	40		-
508	90mm HDPE male adapter coupler	No	30		-
509	63mm HDPE male adapter couple	No	10		-
510	90mmx63mm HDPE reduced Tee	No	40		-
511	63mm Peglar gate valve	No	10		-
512	90mm Sluice valve	No	10		-
513	90mm G.I. Threaded flange	No	6		-
514	63mm HDPE end caps	No	6		-
515	90mm HDPE end caps	No	6		-
516	22x2.5 Bolts and Nuts	No	24		-
517	32mm Air valve double office with isolating gate valve	No	5		-
518	32mm Gate valve peglar	No	6		-
519	32mm nipple G.I.	No	10		-
520	1/2" consumer meters	No	10		-
	Chambers				
521	Masonry chambers for air valves, sluice valves	No	10		-
	Road Crossings				
522	Road Crossing 3-10m wide (provisional)	No	10		-
523	Provision for assorted fittings installed as directed by the project manager	sum	1		-
524	Construction of a standard water kiosk 3mx2m internal dimension and 2.2m clear height with concrete roof slab reinforced with Y12 at 150 c/c both directions. Rate to include provision of steel door of gauge 16 (1.5mm thick) metal plates complete with two anti-theft and weather resistant padlocks all to the approval of the project manager, the walls shall be constructed with 225*225mm natural stone masonry fine dressed. Place hoop iron 3/4" on every course. The cost to include installation of 5,000 litres PVC tank and associated fittings and plumbing works	No	7		-
BILL TOTAL FOR LAYING WATER PIPELINES AND CONSTRUCTION OF 7 NO. WATER KIOSKS CARRIED TO SUMMARY					-

CONSTRUCTION OF WATER PROJECTS WITHIN AWWDA AREA OF JURISDICTION: DRILLING AND EQUIPPING OF BOREHOLES, SOLARIZATION, CONSTRUCTION OF ELEVATED STEEL WATER TANKS WITH ASSOCIATED DISTRIBUTION		
SUMMARY SHEET		
BILL NO.	DESCRIPTION	AMOUNT (KSHS)
1	PRELIMINARY AND GENERAL ITEMS	-
2	DRILLING OF 7 NO. BOREHOLES	-
3	EQUIPPING OF 7 NO. BOREHOLES	-
4	CONSTRUCTION OF 7 NO. 24M3 ELEVATED PREESSED STEEL WATER TANK ON 18M	-
5	LAYING OF WATER PIPELINE AND CONSTRUCTION OF 7 NO. WATER KIOSKS	-
	<b>SUB-TOTAL 1</b>	-
	ADD 5% CONTIGENCIES AMOUNT	-
	<b>SUB TOTAL 2</b>	-
	ADD 16% VAT	-
	<b>GRAND TOTAL</b>	-