

KITUASI WATER PROJECT - WOTE NZIU WARD BILL OF QUANTITIES

ALL PRICES ARE INCLUSIVE OF TRANSPORT, LABOUR COSTS, PROFITS, OVERHEADS & VAT

BILL OF QUANTITIES

Item	Description	Unit	Qty	Rate (Ksh)	Amount (Kshs)
Bill 1 GENERAL ITEMS / PRELIMINARIES					
1.1	Construct a masonry publicity sign board painted to hold 1.5m x 1.2m plaque as directed	No	1		
	Sub total carried for collection in the summary page				
BILL 2) INSTALLATION OF PUMPING SYSTEM					
NO.	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSHS.
	<i>Supply, transport, Install and Test materials to equip Kituasi water project under supervision of client's engineer. The rate is deemed to include the supply, installation and testing of all materail for equiping to supervising engineer satisfaction.</i>				
2.1	Fabricate a firm rust-free stand 300 mm height to hold pump and motor inside the tank	No	1		
2.2	Supply, Deliver and Install a Solar Submersible Multistage Centrifugal Pump and motor Set of Duty Point: - 20 m ³ /hr at a Total Head of 150 meters. The pump efficiency at duty point should not be less than 70%. The pump Impellers should be of Stainless Steel. Provide Copies of Pump Characteristic /Performance Curves (Brochures). Install Dayliff DS 17 -24 and motor 13 KW and 17.5 HP or as approved by the Supervising Engineer	Set	1		

2.3	Supply, Deliver & Install a AC/DC inverter for solar powering AC motor rated power 13 KW Incorporating: - Hybrid capability with the option of DC solar power, generator or mains grid power inputs with the following functions Settable minimum and maximum frequency and open circuit voltage, Display of operating parameters including frequency, voltage, amperage, input power and pump speed, Protection against over and under voltage, over current, system overload and module over temperature, Fault detection with error code display and Selectable hybrid modes that prioritise solar supply as well as maximise output through optimal blending of both power supplies . Install SV3/15T or equivalent as approved by supervising engineer	No.	1		
2.4	PVDISC1000/16A 2ST PV Circuit Disconnect Switch, 63Amps	No.	1		
2.5	Three phase submersible Cable, 6 mm ² X 4 core	LM	15		
2.6	Londex Sensor Cable, Twin, Double Insulated, 1.5mm ² X 2 core	LM	15		
2.7	UG armored Sensor Cable, 1.5mm ² X 2 core	M	85		
2.8	Allow for excavation of sand to tie cables along the G.I pipes from the sump	Item	1		
2.9	Splicing Kit, Medium Packet	No.	1		
2.1	Cable Ties, Large Packet, Manila	No.	1		
2.11	Insulating Tapes, Large	No.	5		
2.12	Adaptor Set, 3"Ø	Set	1		
2.13	Supply and Install Borehole Cable Termination Steel Box housing inverter	No.	1		
2.14	Armored Copper Cable, 2.5mm ² X 4 core	M	50		
2.15	Allow for installation sundries as Hg flex conduit, cable ties, MC4 Connectors, cable lugs cable clips and all necessary assortment	Lot	1		

2.16	Non return valve 4" flanged type	No.	1		
2.17	Cable Glands, 25mmL	No.	4		
2.18	Cable Glands, 20mmL	No.	2		
2.19	Sundries and wiring	Item	1		

Item 2.20 Non Vatable

2.20	Supply, Deliver and Install on the steel tower, Solar Array System of total output 17,760 Watts, including high-efficiency tier 1 modules As 555W panels in two strings of 16 panels each with maximum string voltage VOC 850 VDC as approved using 6mm sq dc cable and MC4 terminated on both sides to be mounted on the structure	W	17760		
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Vatable

2.21	Supply, deliver and erect firmly on Concrete Anchors, Fabricated Steel Tower, use square tubes, 4" x 4" x 4mm, for solar Array System, minimum height 5 meters, solar controller box 1000mm by 500mm by 300mm well ventilated to be included and tower inclination angle 10-15 degrees. To be installed as directed by the supervising Engineer	Lot	1		
2.22	Supply and install DC enclosure complete with inline 1100VDC fused isolator	NO	2		
2.23	Supply install, test and commission 6mm PV Cable Single Core 1000VDC Tinnd Copper ; Insulation: XLPO ; Insulation Color: Red and black	M	80		
2.24	Supply and lay Armored Cable, 6.0mm ² X 4 core	M	85		
2.25	Allow for system earthing, lightening arrestor and balance of system	Lot	1		
	Sub Total Carried for collection in summary page				

BILL 3) RISING MAIN					
NO.	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					KSHS.

	<p><i>The rate quoted is for site clearance and demolition along construction wayleave.</i></p> <p><i>Rate shall be deemed to include removal of the material, natural and artificial articles, objects and obstructions which are above the original surface and carting away to tips, identified by the contractor in liaison with the Local Authority, supply and transport to site storage, transport from site storage, excavate, lay and joint pipes complete with all jointing materials. The rate is deemed to include excavation, bed lining, installation and backfilling of the pipe trenches. keep trenches and their excavations free of water.</i></p>				
3.1	Clearing site and excavation to pipe invert level as per engineer's specifications (trench minimum depth 900 mm), lay, test pipeline and backfill to ground level for item 3.2 and 3.3	LM	4000		
3.2	Supply, deliver, install and test O/D 90 mm (3") HDPE pipes PN12.5 as per KS ISO 4427:2007. To be laid in the same trench as item 3.1 above	LM	3000		
3.3	Supply, deliver, install and test O/D 90 mm (3") HDPE pipes PN10 as per KS ISO 4427:2007. To be laid in the same trench as item 3.1 above	LM	1000		
3.4	Allow for butt fusion welding for joinery for item 3.2 and 3.3 above	Item	1		
3.5	Supply, deliver, install and test O/D 90 mm (3") G.I Class B 6 m lengths across streams, gullies and valleys adequately anchored with concrete c/w cutting, threading and joining with necessary fittings	LM	24		
3.6	Supply, install and test 63 mm (2") air valve fitted with a HDPE tee (not clamp)	No	3		
3.7	4" x 3" reducer	No	1		
3.8	Supply and install standard pre-cast reinforced concrete pipeline mark posts of 750mm height along the pipeline	No.	10		
	Sub Total Carried for collection in summary page				

BILL 4) 1NO X 100 M3 HOT DIP GALVANIZED STEEL TANK ELEVATED 12M TOWER

No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				KShs.	KShs.
	Construct on a 12 m high steel Tower a 100 M3 hot dipped galvanized steel pressed water tank. Comprising of foundation, columns, bracings, hopped cat ladder, top walkways , safety hand railing etc. as per provided drawings.				
	<i>Outside Tower Painting should be as follows</i>				
	· One coat of ZINC PHOSPHATE PRIMER				
	· One coat of SILVER ALUMINIUM				
	MATERIAL SPECIFICATION				
	Design Codes:				
	· Hot rolled sections to BS 4360 Grade 43A or equivalent.				
	· Cold formed sections to BS 5950. Part 5 1997 or equivalent.				
	· Bolts and Nuts to BS 3692 and BS 4190 or equivalent.				
	· Welding Specification to BS 5135 or equivalent.				
	· Welding Electrodes to BS 639 or equivalent.				
4.1	Design, fabricate and instal a 12M tank structure Tower supporting 100 m3 tank Comprising of firm reinforced concrete foundation / concrete base, steel plate and holding down bolts, columns (minimum 125 x 125 x 6 mm SHS), UB horizontal top supports, horizontal and diagonal bracings, hopped cat ladder, top walkways top walkways with 2.1 mm thick chequered plates, safety hand railings, and seating plate	No	1		

4.2	Design, fabricate and instal at 12 m height 100 M3 (100,000 ltrs) galvanized steel pressed panels. Inclusive of inlet and outlet flanges, sealing belt / rubber, glue, screws, plugging angle iron, Auxiliary Angle iron, plain cushion, External and internal Ladder with ladder clmap, internal bracings, High quality HDG washer, high strength HDG bolt nut and gasket, c-channel, lockable manhole, airvent, water gauge / level indicator, vertical support, tie rod plate, top angle bar, and other accessories. Painting a. Inside: One coat of non-toxic Zinc Phosphate primer followed by Black Bituminous and b. Outside: Silver aluminium. Ensure adherence to relevent standards	No	1		
4.3	Test for water tightness, cleaning and sterilization of the tank	Item	1		
	piping and plumbing				
4.4	3" G.I Class B inlet pipe 6 m lengths c/w fittings, cutting and welding	LM	18		
4.5	4" G.I Class B G.I washout and outlet pipe 6 m lengths c/w fittings, cutting and welding	LM	18		
4.6	2" G.I Class B G.I overflow pipe 6 m lengths c/w fittings, cutting and welding	LM	18		
4.7	Supply, deliver, install and test cast iron metallic sluice valve 4" (DN100mm) metal PN16; stainless steel spindle double flanged with gaskets, bolts and nuts	No	1		
4.8	Allow for publicity branding c/w logos,	Item	1		
4.9	Construct a standard water point c/w G.I fittings, water meter, gate valves and 2 No G.I water taps 3/4" as instructed	No	1		
	Sub total carried for collection in the summary page				

BILL	E) VALVE CHAMBERS				
No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				KShs.	KShs.

	Supply materials and provide personnel to construct valve chambers (as in the attached drawing) for 3 No air valve				
5.1	Cut the spoil upto 300mm below g.l. over the borehole chamber area and remove all vegetable soil to temporary spoil heap.	CM	1		
5.2	Excavate foundation from stripped level over the borehole chamber site to depth n.e. 0.6m deep 300 mm wide and dispose soil as directed	CM	1		
5.3	Mass concrete mix 1:4:8: in 50mm concrete slab	CM	0.5		
5.4	225mm thick dressed quarry stone walling	SM	5		
5.5	Provide and instal a 1m by 1 m by 200 mm reinforced concrete manhole cover or a lockable steel cover with locking devices	No.	1		
5.6	EXTERNAL PLASTER - 20mm thick 1:2 cement sand to exterior face of the valve chamber wall	SM	3		
	Sub total for 1 No valve chamber				
	Sub total for 3 No valve chamber carried for collection in the summary page		3		

BILL F)	CONTINGENCY	UNIT	QTY	RATE	AMOUNT
				KSHS.	KSHS.
6.1	Allow a Provisional sum of Kshs 50,000 for Contingency to be expended by project manager				50,000.00
	Sub Total carried for collection in the summary page				<u>50,000.00</u>

BILL	<u>GRAND SUMMARY</u>	UNIT	QTY	RATE	AMOUNT
					Kshs
1	GENERAL ITEMS/PRELIMINARIES				
2	INSTALLATION OF PUMPING SYSTEM				
3	RISING MAIN				

4	1NO X 100 M3 HOT DIP GALVANIZED STEEL TANK ELEVATED 12M TOWER				
5	VALVE CHAMBER				
6	CONTINGENCY				
	SUB TOTAL				
	Public Procurement Capacity Building Levy order 2023 which is 0.03% of the total cost before tax (Pursuant to PPRA Circular No. 1 of 2024)				
	Add 16% of Sub-Total 2 for Value Added Tax				
	TOTAL TAKEN TO FORM TENDER				