BILL OF QUANTITIES FOR DRILLING, EQUIPPING AND CIVIL WORKS FOR KAITI IGWAMITI BOREHOLE(KITE PRIMARY SCHOOL) BOREHOLE WATER PROJECT WITHIN LAIKIPIA COUNTY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
1	PRELIMINARIES & GENERALS				
1.1	Provide and erect two (2No.) publicity signboard as shall be directed by the project supervisor	No.	2		
1.2	Allow sum to cater for processing of WRA,WRUA and other necesssary permits and licences	Item	LS	100,000	100,000.00
	TOTAL C/F SUMMARY				
2	BOREHOLE DRILLING				
2.1	Carry out confirmatory hydrogeological survey; submit three hydrogeological survey report-WRA Compliant, hardcopies and one softcopy. NB:1. The hydrogeological survey must involve the use of Vertical Electrical Sounding (VES) with a standard DC resistivity meter (such as an ABEM Terrameter, Campus Tigre or Syscal et al) together with passive profile scanner (such as PQWT) 2. The Hydrogeological survey study report to be submitted for review and approval for Drilling to be commenced(3No. Hard copies and 1No. soft copy)	No.	1		
2.2	Mobilization and Transportation of whole drilling unit to and from the site; rates include erecting and dismantling of the drilling rig unit at a site.	Item	L/S		
2.3	Drilling borehole of 204mm minimum diameter through all types of strata including disposal of excavated materials; taking any remedial measures to overcome caving- in , or over drilling to accommodate sloughed material and keeping drilling records as specified; taking and cataloging drill cuttings at 2m intervals NB: Hydrogeological report recommendation should be adhered to	m	270		
2.4	Supply and Install 152mm nominal internal diameter Plain Permanent Steel Casing include capping.As instructed by Geologist	m	180		
2.5	Supply and Install 152mm nominal internal diameter Slotted Permanent Steel Casings.As instructed by Geologist	m	90		
2.6	Supply and insert 6m each,254mm internal diameter Temporary Steel Surface Casings As instructed by Geologist. Kindly note this item require supervisor approval before installation	No	2		
2.7	Supply and insert filter gravel packing 2mm to 5mm size.	Ton	8		

2.8	Grout between the inner casing and the outer surface casing for top Six (6) metres.	m	6		
2.9	Flush to develop the well in steps from low discharge to high discharge rate for a specified period as directed by the Engineer/Geologist	Hrs	8		
2.10	Test pump the well for 24hrs and observe recovery using the method as directed by the Engineer/Geologist while recording and cataloging the measurements.	Item	1		
2.11	Carry out physical and chemical analysis of the borehole water in an approved lab and submit lab analysis report in three copies	Item	L/S		
2.12	Supply materials and construct 1*1*0.3m concrete sanitary seal around the borehole.	Item	L/S		
	TOTAL C/F SUMMARY				
3	**BOREHOLE EQUIPPING**				
3.1	**Borehole Equipping**				
3.1.1	Supply, install, test and commission a submersible pump capable of pumping 8m3/hr at head of 240m complete with a Motor	No	1		
3.1.2	Provide 11 kW solar inverter	No	1		
3.1.3	Provide, install and test polycrystalline Solar panels	w	11880		
3.1.4	Provide PV disconnect Switch 1000/AC/40A	No	1		
3.1.5	Install a well probe sensor	No	1		
3.1.6	**Include for all necessary Accessories(Cables)**				
3.1.7	Londex dual core cable	m	255		
3.1.8	Electrode sensor	No	1		
3.1.9	6mm2 4-core Submersible drop cable	m	255		
3.1.10	6mm2 4-core Armoured cable	m	30		
3.1.11	1.5mm2 2-core Armoured cable (Level sensor)	m	20		
3.1.12	Adaptor box	No	1		
3.1.13	Lightning arrestor complete with acessories	No	1		
3.1.14	Copper Earth Cable	m	10		
3.1.15	6mm2 Twin Flat Cable with Earth	m	60		
3.1.16	Earth Rod/C/W Clamp	No	1		
3.1.17	Enclosure Box 1000x500x350mm	No	1		
3.1.18	**Pipes & Pipe Fittings**				
3.1.19	2" UPVC Super Heavy Duty Pipes (3m length)	No	85		
3.1.20	2" S/S Pump Guard	No	1		
3.1.21	25mm uPVC Airline pipes (6m length)	No	43		
3.1.22	2" x 6" Borehole cover	No	1		
3.1.23	DN50mm Water meter(Quality type)	No	1		
3.1.24	Non-Return Valve	No	1		
3.1.25	**Solar Structure & accessories**				
3.1.26	Solar Module support structure 4m high to entail(75*75*2.5mm SHS Column,75*75*2.5mm SHS Main Beam, 50*50*2.5mm Secondary Beams and 50*50*3 RSA Battens) to hold solar panels	w	11880		
3.1.27	Installation Sundries	LS	1		
3.1.28	Borehole Chamber	No	1		
3.2	**Pipework**				

	Trenching				
3.2.1	Excavate trench in common soil with loose rocks for DN50,63, GI/HDPE pipes minimum depth 1m. Include for joint holes, trimming sides and trench bottom and backfill with approved excavated material and compact in 200mm thin layers to the original ground levels. Rate to include excavation in hard material and road crossings	m	300		
	Pipework				
	Supply, deliver to site, store, handle, lay and perform hydraulic tests, flush and sterilize the following. Include for all the necessary fittings				
3.2.2	OD63 HDPE-PN12.5 Complete with couplings-Rising main	m	300		
3.2.3	Socketed 50mm dia.GI c/B	m	24		
	Fittings & Accessories				
3.2.4	Supply and install 63mm dia. PE Adaptor	No	6		
3.2.5	DN50mm Sluice Valve with all necessary couplings	No	2		
	Wash out				
3.2.6	Supply materials and construct a standard masonry chamber1.5m by 1.5m complete with Manhole cover,painted with 3 coats of gloss paint blue in colour	No	2		
	TOTAL C/F SUMMARY				
4	**6M HIGH STEEL TOWER WITH 10m3 PLASTIC TANK**				
4.1	Supply, erect, test and commission a 6m high steel tower to carry 10,000lts plastic tank.The tower comprising of 4 No. 100mm * 100mm * 3mm thick prestressed SHS sitting on reinforced concrete pad footings,100mm * 100mm * 4mm thick primary beams, Horizontal bracings and 75mm *75mm*4mm thick SHS secondary beams, 4mm thick chequer plate and 900mm high MS Railling and Catladder to Engineers Detail.Rate to include supply and installation of the 10,000 lts plastic tank NB:As per the specifications provided	Item	L/S		
4.2	Supply and Install 10m3 Capacity Plastic Tank	Item	L/S		
	TOTAL C/F SUMMARY				
5	**WATER KIOSK (with 10m3 plastic tank)** **NB:As per the specification provided**				
5.1	Supply and install 1No 10,000 litres plastic tank(UV resistant)	Item	1		
5.2	Light bush clearing	m2	100		
5.3	Excavate top soil Average 150mm depth and cart away 5 meters for re-use.	m2	9		
5.4	Excavate pit for 4No. 900 X 900 mm VRC columns starting at 150mm below ground level but not exceeding 1m depth.	m3	4		

5.5	Excavate trench for strip foundation starting at 150mm below ground level but not exceeding 1m depth.	m3	7.4		
5.6	Provide and lay approved hardcore 300mm thick layer on the strip foundation	m2	9		
5.7	Provide and construct 200mm thick by 450mm wide strip foundation (1:3:6)	m3	1		
5.8	Provide and construct foundation walling using dressed stones (9" X 9'), bedded in mortar (1:4)	m2	6		
5.9	Provide and place 300mm approved hardcore and properly rammed.	m2	12		
5.10	Provide and place 50mm blinding concrete(1:3:6)	m2	12		
5.11	Provide and place damp proof membrane on the blinded surface	m2	12		
5.12	Provide and place reinforced concrete floor (1:2:4) 100mm thick	M3	1.2		
5.13	Construct 200mm thick walling with mortar (1:4) jointing. The external side of the walling is keyed to Engineer approval	m2	23		
5.14	Provide and cast reinforced column 200mm by 200mm and 2640mm high .Rate inclusive of reinforcement bars-D12	m3	1		
5.15	Provide and cast reinforced ring beam measuring 12m x 450m x 200mm (1:2:4). Rate inclusive of reinforcement bars-D12	m3	1		
5.16	Provide and construct a reinforced 150mm thick roof slab using high yield reinforcement bars of 10mm diameter to be spaced at 150mm C/C both ways and be in the mix of 1:2:4 (VRC). The parapet of 150mm high and 150mm wide round must also be reinforced.	m3	3		
5.17	Provide 100mm dia.semi circular drainage groove covered with removable steel grill casement draining into 600 x 600mm catch pit	Item	1		
5.18	Allow sum for construction of soak pit complete with steel casement and drainage pipe from the catch pit	Item	1		
5.19	Provide and apply 20mm thick plaster to Roof, floor and walls (1:4) mortar	m2	40		
5.20	Provide, fabricate and fix steel casement door (2100mm x 900mm)	No	1		
5.21	Provide, fabricate and fix grilled steel casement window(1300mm x 1200mm high)	No	1		
5.22	Provide and apply three coats of paints on the internal walls and roof slab.The rate include branding the kiosk with Central Rift Valley Water Works Development Agency colour code, Logo and Court of Arms as per the Engineer's approval	m2	40		
5.23	Provide and install 25mm diameter Consumer meter	No	1		
5.24	Provide and fix 20mm diameter back nuts	No	4		
5.25	Provide and fix 25mm diameter Elbows	No	6		
5.26	Provide and fix 20mm diameter Equal Tee	No	2		
5.27	Provide and fix 20mm diameter Ball Cocks	No	3		
5.28	Provide and fix 20mm diameter Union Sockets	No	2		

5.29	Socketed 25mm dia.GI from plastic tank to kiosk taps	m	6		
	TOTAL C/F SUMMARY				
6	**SCHOOL COLLECTION POINT**				
6.1	Provide materials and construct a standard school water collection point complete with masonry wall, drainage groove, soak pit 20m away from the collection point and 8 taps fixed in series and one tap- pipeline extension to the kitchen area. Rate to include 200mm-32mm dia. HDPE pipeline from the water point to the desired location, and any other fittings with the engineer's approval. NOTE: As per specifications provided	Item	LS		
	TOTAL C/F SUMMARY				
7	**FENCE AND GATE**				
7.1	***Provide, dig holes, install and fasten:***				
7.1.1	Excavate for, provide and erect chain link fence comprising concrete posts set 0.6m below ground, 1.8m Straight end, 0.6m Top Crank with concrete class 15 (1:4:8)surround, concrete posts at 3.0m centres. 12½ gauge(6 feet) chain link , 4 No. plain wire strands threaded through holes in posts, 4 No. strands 12½ gauge barbed wire tied to cranked top and weave to form mesh, concrete strutting posts at corners and intervals as appropriate and as shall be directed by the Engineer. The rate to include for all the necessary excavation and disposal. NB:As per the specifications provided	m	100		
7.2	***Gate***				
7.2.	Provide and install double gate of 4m wide X 2.0m high fabricated from dia. 50mm SHS (gauge 16) cut and welded to form 1.0m x 1.0m and 25mm x 25mm SHS cut and welded to form a mesh 150mm X 150mm Rate to include for 2No. 75mm x 75mm gauge 16 rectangular hollow section M.S. Gate posts and also to include for painting the gate with oxide primer and two coats of blue gloss paint NB:As per the specifications provided	Item	1		
	TOTAL C/F SUMMARY				

NOTE: Equipping and civil works for the Mentioned borehole is depended on the success of the borehole, a dry borehole implies that the client cannot proceed on with the subsequent works. All prices are inclusive of VAT.

SR/No	SUMMARY	AMOUNT (Ksh)
1	Preliminaries and Generals	
2	Borehole Drilling	

3	Borehole Equipping	
4	6m High Steel Tower with 10m3 Pastic Tank	
5	Construction of Water Kiosk	
6	School Collection Point	
7	Installation of Fence and Gate	
	Sub-Total	
	Add 0.03% Capacity Building Levy to Sub-Total	
	Add 5% Contingency	
	GRAND TOTAL C/F FORM OF TENDER	