

MURANG'A UNIVERSITY SOLAR POWERED BOREHOLE EQUIPING INSTALATION - NEW BILLS PART					
NOTE: ALL PRICES QUOTED SHOULD BE VALUE ADDED TAX (V.A.T) AND ALL OTHER GOVERNMENT TAXES INCLUSIVE WHERE APPLICABLE					
SECTION A-SPECIFIC PRELIMINARIES					
Item	Description	Qty	Unit	Rate (Kshs)	Cost (Kshs)
A	<p><b>Preamble:</b></p> <p>The Contractor's attention is drawn to various Standard Specifications as drawn by the Ministry of Lands, Public Works, Housing and Urban Development in regards to :</p> <ol style="list-style-type: none"> <li>1. Electrical Works</li> <li>2. Mechanical Plumbing and Drainage Works</li> <li>3. Borehole Drilling and Equiping</li> <li>4. Solar power installation</li> </ol> <p>Copies of these Specifications are available for inspection at the Project Manager's office</p>	1	item		
B	Samples and Materials Generally clause	1	item		
C	Setting to work and Regulating system clause	1	item		
D	Working Drawings clause	1	item		
E	Record Drawings (As Installed) and Instructions clause	1	item		
F	Maintenance Manual clause	1	item		
G	Allow a Provisional Sum of KShs. 300,000.00 for Project and tender documentation; Supervision by Project Engineer and Project Manager and / or their nominated representatives	1	item		300,000.00
H	Testing and Inspection – manufactured plant clause	1	item		
J	Testing and Inspection – Installation clauses	1	item		
<b>Total for preliminaries c/f to sumary page</b>					

**SECTION B- SOLAR SYSTEM INSTALLATION**

ITEM	DESCRIPTION	QTY	UNIT	RATE	KSH
	Supply, install, test and commission the following complete as specified. All cables shall be copper and shall be complete with cable glands and necessary termination kits				
	<b>SOLAR PANEL</b>				
A	340 watts, 24 volts with high capacity Solar panel with all necessary accessories included as "Felicity" or approved equivalent	25	No		
B	11KW, 48 volts 3Ph hybrid SUNverter and charger as Vitron Energy Easysolar or approved equivalent. Also the price to include an appropriate inverter enclosure.	1	No		
C	<b>Power supply and Distribution</b>				
	i) 63A TPN Automatic bypass switch & isolator switch for above AVS wall mounted in the control room	1	No		
	ii) 63A TPN Automatic changeover switch & isolator switch for wall mounted in the control room and other necessary accessories as ABB/schneider or approved equivalent	1	No		
	iii) 4-way TPN distribution board complete with 125A TP MCB (D-Curve) as cat No.A9N13389	1	No		
D	4 core 10mm sq. armoured copper cable from the solar Panels to the Inverter via a Solar PV Combiner Box to switch over switch above drawn in PVC Heavy guage duct concealed inside	90	LM		
E	3 core 6mm sq. armoured PVC copper cable concealed in 25mm dia HG conduit from the DB to the submersible water pump in the borehole complete with cable glands and all required accessories	500	LM		
F	"Tronics" or equal and approved programmable hard ABS model EM DT25 digital timer	1	No		
G	3 phase 45amp contactor relay 120v coil as "Schneider" or approved equivalent	1	No		
H	"MIDNITE" SOLAR PV 6 string Combiner Box complete with all necessary accessories or equal and approved equivalent.	1	No		
I	MC4 Solar cable connectors as Standard "Suntree" or equal and approved equivalent	10	No		
J	Provide roof support for panels to Engineers approval	1	item		
K	Lighting Surge Protection installation with all accessories	1	item		
L	Trenching, laying of cables, back filling and placement of HATARI tiles	150	LM		
M	Testing and commissioning of solar power System to Engineer's satisfaction	1	item		
<b>Total Amount for solar system installation works c/f to summary page</b>					

**SECTION C- PUMP AND ACCESSORIES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	KSH
	Supply, Install, test and commission the following complete as specified.				
	<b><u>BOREHOLE PUMP INSTALLATION and ACCESSORIES</u></b>				
A	Supply and install a centrifugal multistage borehole pump, continuously rated and capable of pumping 5m <sup>3</sup> /hr of water against a total head of 380m. The entire pump-set body, impellers, shaft etc shall be made of heavy duty stainless steel material. The pump shall have inbuilt non-return valve, tail strainer and cable guard. The pump capacity will be 7.5kw, 3phase submotor, solar powered. The pump shall be as "Pedrollo" or equal and approved equivalent	1	No.		
B	Supply and install 40mm diameter galvanised steel water pipe (observation pipe), Class C.	250	Lm		
C	Supply and install high quality pressure gauge as "Kent" or equivalent range 0-7kgf/cm <sup>2</sup> complete with accessories for mounting on galvanised pipe.	1	No		
D	Supply and install single orifice air valve, complete with pipe mounting accessories.	1	Item		
E	Supply and install 100mm dia GMS water pipe, Class C	30	Lm		
F	Supply and install 100mm diameter gate valve as 'pegler' or approved equivalent	5	No		
G	Supply and install 100mm dia non-return valve as pegler or approved equivalent.	2	No		
H	Supply and install 100mm diameter galvanised steel bend	4	No		
I	Supply and install 100mm diameter water meter as 'Kent' or approved equivalent	1	No		
J	Supply and install 100mm dia HDPE pipe	50	Lm		
K	Excavate trench for 100mm pipe not exceeding 1500mm deep and average 250mm deep, part return in, fill & surplus cut away.	50	Lm		
L	Allow for necessary accessories for Water connection from the inlet gate valve of the bore to the water storage tank	1	Item		
M	<b>Sluice Valve Chamber</b> Construct inspection chamber size 900 x 450mm and averaging 450mm deep constructed in 100mm thick concrete base (1:3:6), approved 150mm block sides rendered all around in cement and sand (1:4). It shall have an approved heavy duty cast iron cover and frame as manufactured by E.A Foundry works. Include all necessary excavations, disposal and form work.	5	No.		
N	Allow for demoiotion of exsting worn out sluice valve chambers	5	No.		
O	Allow for associated builders work to make the entire installation usable; including but not limited to construction of a secure borehole protection structure approx. 1.5 x 1.5 x 1.5 m high; and the like	1	Item		
p	Allow for equipment mobilization and demobilization	1	Item		
Q	Allow for removal of cabros in the parking area, pass cables, and return the cabros to its original appearance	1	Item		
R	<b>Pipe Sleeves</b> 100mm diameter heavy duty PVC pipe sleeves for crossing over the parking area.	40	Lm		
S	Testing and commissioning of solar power System to Engineer's satisfaction	1	item		
<b>Total Amont for borehole pump and accessories c/f to summary page</b>					

**SUMMARY PAGE**

Item	Description	Amount (Ksh)
1	Total for Preliminaries b/f from page mech-1	
2	Total Amount for solar system installation works b/f from page Mech-2	
3	Total Amount for borehole pump and accessories b/f from page Mech-3	
<b>Subtotal</b>		
4	Add a Contingency sum of Kenya Shillings Three Hundred Thousand Shillings to be expended at the Project Manager's discretion	300,000.00
<b>Total Amount for Borehole Equipping carried forward to form of tender.</b>		

Amount in Words: .....

Tenderer's Name and Stamp.....

Postal Address: .....

Sub Contract Period.....

Signature: ..... Date: .....

Tel No: ..... Mobile No: .....

Pin No..... VAT Certificate: .....

Witness: ..... Date: .....

Signature: ..... Address: .....