Technical Specifications / Bill of Quantities

ELEVATED WATER TANK 9 METER HIGH

Boq of elevated water tank 9.00 meter high-in Galkacyo district.

Sr. No	Description	Unit	Quantity	Unit cost	Total amount
1	**Elevated Water Tank (3m x 3m x 2.23mHt) 20m3 capacity**				
2	Excavate for footing foundation wide 1.20 x 1.20 length x 1.5m deep commencing from ground level	M_3	2.16		
3	Excavate foundation trench 0.5m wide x length12m x1.58 depth commencing from ground below level	M_3	9.3		
4	Lean concrete in 0.10m thick blinding layer (1:4:8 mix) under the foundation wall & footing (12*0.4*.0.10)	M_3	0.24		
5	Construction of RCC footing columns (1.2m wide x1.2m length x1.58m depth)4 with 4Y16 & 2Y14 rebars both way links with R8 @ 200mm c/c	M_3	10.37		
6	Compacted hardcore and well blinded with approved blinding layer (3mx3mx0.30m thick)	M_2	2.7		
7	0.3m base slab (1:2:4) reinforced with Y12 & Y12 rebars both way links with R8 @ 200mm c/c (3X3 0.30	M_3	2.7		
8	Construction of RCC columns (0.4x0.40x9.0 Ht) 4 at ratio (1:2:4) reinforced with Y16 & Y16 rebars both ways links with R8 @200mm c/c	M_3	5.76		
9	Construction of RCC interim ring beam (1:2:4) reinforced with Y12 & Y12 rebars both ways links with R8 @200mm c/c (12*0.40*20) X4	M_3	2.7		
10	Construction of RCC ring beam below bottom slab (1:2:4) reinforced with Y12 & Y12 rebars both ways links with R8 @200mm c/c	M_3	3.84		

11	0.2m bottom slab (1:2:4) with Y12 & Y12 rebars both ways links with R8 @200mm c/c inclusive of 600 x 500mm manhole cover and sleeves for inlet and outlet water pipes	M_3	1.8		
12	Construction of RCC walls of water tank (1:2:4) reinforced with Y12 & Y12 rebars both ways links with R8 @200mm c/c (12m* 0.20* 2.23)	M_3	5.35		
13	Prepare and lay 20mm thick cement flooring with screed finished smooth cement slurry (3*3*.20)	M_3	1.8		
14	0.12m top slab (1:2:4) reinforced with Y10 rebars both ways links with R8 @200mm c/c inclusive of 600 x 500mm manhole cover and sleeves for inlet and outlet water pipes	M_3	1.08		
15	25mm thick plaster and paint with two coats of whitewash to all beams and columns & water tank	M_2	62.41		
16	Paint two coats of emulsion paint to the internal and external walls, beams, and columns	M2	62.41		
17	G.I pipe Ø1 2" inches	PCS	4		
18	Elbow Ø 1 2" Inches	PCS	4		
19	Union Ø2½	Pcs	3		
20	ValveØ2½	Pcs	2		
21	Nipples Ø2 inch	Pcs	4		
22	Socket Ø 2" Inches	Pcs	5		
23	Tee Ø1 2" Inches	Pcs	4		
24	Reducer Ø2 1/2inches	Pcs	5		
25	Inlet & outlet water Taps with gate valves	Pcs	2		
26	visibility	Pcs	1		
27	Install a ladder to the walkway platform up to the tank roof	L.S	1		
	Total of one elevated water tank				

Construction of Water trough Goat/Sheep (4m × 2m × 0.5m)
BILL OF QUANTITY & COST ESTIMATION OF ANIMAL WATER TROUGH FOR GOATS

SN	Description of work	Unit	Quantity	U. Pr.$	Total Amount
1	Clearing and preparation of the site 3m X 2.0m including cutting down and removal of topsoil up to a depth of 150mm and dispose as directed	M^2	6		
2	Excavation of foundation (6 L.m X 0.40 m X 0.60m)	M^3	0.7		
3	Backfill excavated materials	M^3	0.3		
4	Remove surplus excavated materials from site as directed by the site engineer	M^3	0.4		
5	Stone	M^3	3.68		
6	Concrete hollow blocks	pcs	15		
7	Cement	bags	14		
8	Sand	M^3	2		
9	Whitewash	M^3	0.3		
10	Paint (Muraline) 2 hands	Tin	1.5		
11	Water for construction	M^3	2		
12	Excavation of foundation trenches 50 m x 0.20m x 0.50m deep	cum	5		
13	Provide and insert 2'' steel pipe & 1'' pipe with all necessary fittings (joints, reducers, elbows etc.), and backfill with the excavated materials	L.m	70		
14	Connection of the pipe with all required fittings to the water through	Item	1		
15	Painter	M. days	1		
16	Skilled & Unskilled laborers	M. days	7		
17	Labelling and drawing of animal visibility pics, logos, and numbering	No	1		
	Total				

Construction of Water trough for Camel/Cow/donkeys (6m × 2m × 0.8m)

Construction of Water trough 6m × 2m × 0.8m The walls are made of concrete hollow block					
	Clearing and preparation of the site 4m X 2.0m including cutting down and removal of topsoil up to a depth of 150mm and dispose as directed	M^2	8		
	Excavation of foundation (8 L.m X 0.40 m X 0.60m)	M^3	1.9		
	Backfill excavated materials	M^3	0.6		
	Remove surplus excavated materials from site	M^3	0.8		
	Stone	M^3	7.36		
	Concrete hollow blocks	pcs	98		
	Cement	bags	28		
	Sand	M^3	4		
	Whitewash	M^3	0.6		
	Paint (Muraline)	Tin	2		
	Water for construction	M^3	2		
	Excavation of foundation trenches 60 m x 0.20m x 0.50m deep	cum	5		
	Provide and insert 2'' steel pipe & 1'' pipe with all necessary fittings (joints, reducers, elbows etc.), and backfill with the excavated materials	L.m	70		
	Connection of the pipes with all required fittings to the water through	Item	1		
	Painter for walls of through.	M. days	1		
	Skilled & Unskilled laborers	M. days	8		
	Labelling and drawing of animal visibility pics, logos, and numbering	No	1		
	Total				
	Grand total for animal water troughs (cows, donkeys & camels & goats)				

Galkacyo district- Construction of Water control room (Caretaker room)

ITEM	DESCRIPTION	UNIT	Quantity	Un. Price $	Amount $
	Construction of water control room (caretaker room) 3.00 m X 3.00 m				
1	Clearing & preparation of site & removal of the site 3X 3 meter including cutting down & removal of topsoil up to a depth of 150mm & disposal of rubbish out of the site as directed by the engineer	M_2	9		
2	Excavation of foundation trench 12 m* 0.40* 0.80 m	M_3	3.84		
3	Construction of foundation wall 12 m * 1.10 * 0.40 m	M_3	5.76		
4	Construction of 20 cm thick lintel over the foundation wall	M_3	0.96		
5	Concrete hollow blocks: Standard size 400 mm × 200 mm × 150 mm, with minimum compressive strength of 7–10 N/mm².	M_2	38.4		
6	Construction of 15 cm thick lintels in the middle & top	M_3	0.96		
7	Plastering of internal/external walls of the building.	M_2	76.8		
8	Construction of corrugated iron sheet with rafters, purlins & nails	M_2	18		
9	Fixture 1.0 × 1.2 m steel windows with fabricated strong steel frames and exterior burglar grilles, anchored to concrete with corrosion-resistant fasteners, finished with anti-rust primer and enamel paint	Pcs	3		
10	Supply & fixture of steel door with inside & outside locks	Pcs	1		
11	Whitewash	M2	15		
12	Plastic emulsion paint	M2	76.8		
16	Fixture of facia board	L.m	12		
17	Construction of concrete table and chair for the caretaker	l.s	2		
18	Supply & fix water taps with connection of vertical and Horizontal GI pipes with (Crosses, joints & other necessary fittings	Pcs	5		
19	Writing visibility logo	Item	1		
	Sub-Total of one room				

Pipeline extension meter long from the elevated water tank to the connect two animal throughs and caretaker room.					
No	**Description of work**	**Unit**	**Qty**	**Rate ($)**	**Amount($)**
1	Excavation of foundation trenches 300m x 0.20m x 0.50m deep	cum	23		
2	Provide and insert 2'' steel pipe & 1'' pipe with all necessary fittings (joints, reducers, elbows etc.), and backfill excavated materials	m	220		
3	Connection of the pipe with all required fittings to the water kiosk (water taps)	Item	1		
4	**Sub-Total**				

Rehabilitation of Mahad Alle Borehole with Solar Pannel system with submersible pump and all accessories,					
BOREHOLE SOLAR WATER PUMPING SYSTEM WITH SUBMERSIBLE PUMP					
S/N	**Item description**	**Unit**	**Quantity**	**Unit price**	**Total**
1	Solar Pump Inverter 18.5kw input 250-800VDC,380-440VAC,output 0-380/440vdc,,25A)	Item	1		
2	High-efficiency 450KW solar panel with monocrystalline cells, corrosion-resistant frame, low temperature coefficient, and optimized for maximum power output in varied sunlight conditions.	Nr	60		
3	Surge Protector	Unit	1		
4	PV Disconnect disconnect switch 1000VDC/40A, max. 5 strings, plastic box, IP54	Unit	1		
5	PV Protect 1000V	Unit	1		
6	PV Combiner 1000V	Unit	1		
7	Water meter 3"	Unit	1		

8	Mounting Structure (Supply and construction of Mild Steel Structure/Tower, Module Support Structure and Concrete Foundation for Solar Panels of required high (according to the site requirements and supervisor Engineer instructions) for mounting the solar panels required to power the submersible pumps. The structure will be made of square hollow galvanized steel with vandal proofing. The structure steel for the support of the PV module will be made of galvanized medium gauge square hollow sections and angle iron anchored to the RC base in 800 mm deep hole 500 mm diameter).	Unit	1		
9	Accessories and Installation, Testing and Commissioning of solar system including existing pump retrievals from the boreholes.	Lot	1		
10	Purchase a new 11 kW (15 HP) submersible pump, European standard, operating at 400 V, 50 Hz, with a maximum head of 300 m and a minimum flow rate of 8 m^3/h. The supply should include a 250 m, 16 mm^2, 3-core submersible pump cable, suitable for continuous operation in water-lifting applications.	1	PC		
	TOTAL BOREHOLE SOLAR WATER PUMPING SYSTEM WITH SUBMERSIBLE PUMP				
	Grand total for all component including water tank, animal water troughs, pipeline extension, caretaker room and Solar system with submersible pump				