



**MANDERA COUNTY GOVERNMENT  
DEPARTMENT OF WATER SERVICES**

**PROPOSED DRILLING, EQUIPPING AND CIVIL WORKS**

**AT**

**LAFEY GIRLS SECONDARY SCHOOL**

**LAFEY CONSTITUENCY**

**TENDER NO:.....**

**Prepared: -**

County Director  
Department of Water Services  
Mandera county  
P.O Box 45-70300,

**MANDERA**

**Issued:-**

Fund Account Manager  
Lafey NG-CDF  
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P.O Box 12-70300,

**MANDERA**

**BILL OF QUANTITIES OF PROPOSED DRILLING, EQUIPPING AND CIVIL WORKS OF LAFEY GIRLS  
SECONDARY SCHOOL BOREHOLE**

**BILL OF QUANTITIES No. 1: PRELIMINARIES AND GENERAL ITEMS**

<b>NO</b>	<b>ITEM DESCRIPTION</b>	<b>QTY</b>	<b>UNITS</b>	<b>RATE</b>	<b>AMOUNT</b>
<b>1.0</b>	<b>PRELIMINARIES &amp; GENERAL ITEMS</b>				
1.1	Mobilization of materials & equipment to site	1,050	Kms	600	630,000
1.2	Fabrication, printing, erection & maintenance of project Sign Board	1	Item	60,000	60,000
1.3	(transport + per diems) including 20% contractor's cost	1	Item	400,000	400,000
	<b>TOTAL FOR BOQ NO. 1:PRELIMINARIES &amp; GENERAL ITEMS</b>			<b>KSHS</b>	<b>1,090,000</b>

**BILL OF QUANTITIES. No. 2: DRILLING AND PUMP-TESTING OF A BOREHOLE IN THE VICINITY OF THE SCHOOL**

<b>2.0.</b>	<b>BOREHOLE DRILLING</b>				
2.1	Engage a Registered Hydro-Geologist to conduct a comprehensive Hydro-geological survey to site a suitable Borehole drilling site within the vicinity of the school (i.e, within school compound or a site not more than 300m of the existing underground water storage tank)	s	Item	180,000	180,000
2.2	Apply for and acquire a Borehole drilling permit from WRA on behalf of the client; including payment of all fees payable to WRA for acquisition of the Borehole drilling permit	1	Item	70,000	70,000
2.3	Erection of Camps, sanitary facilities on site and ensure continuous supply of water to site for drilling and other site uses	1	Item	350,000	350,000
2.4	Erection and dismantling of the drilling equipment and allied machinery at the site	1	Item	100,000	100,000
2.5	Drilling of Borehole with minimum diameter of 205mm through all type of strata including disposal of excavated materials taking any remedial measures to overcome caving in or over drilling to accommodate sloughed materials and keeping drilling records as specified between ground level and 100m b.g.l.	100	m	4,000	400,000
2.5a	Ditto item A.1.5 but between 100 & 200m b.g.l	100	m	4,500	450,000
2.5b	Ditto item A.1.5 but between 200 & 280m b.g.l	40	m	5,400	216,000
2.6	Supply and install 152mm dia. Plain steel casings	204	m	4,500	918,000

2.7	Supply and install 152mm dia. Slotted steel casings	36	m	5,000	180,000
2.8	Allow for taking of drilling cutting samples at 2m intervals	1	Item	15,000	15,000
2.9	Supply & install gravel pack (rounded 2-4mm diameter)	15	Tons	10,000	150,000
2.10.	Grout between casings and the Borehole for the top 10m	1	Item	20,000	20,000
2.11	<b>Physical and chemical development of the Borehole including inserting &amp; removal of development equipment</b>				
2.11a	Physical Development of Borehole	24	hours	10,000	240,000
2.11b	Chemical Development of Borehole	8	hours	10,000	80,000
2.12	Undertake constant discharge test as specified	32	hours	5,000	160,000
2.13	Undertake water level observation & record recovery	10	hours	10,000	100,000
2.14	Carry out Borehole Sterilization	1	Item	10,000	10,000
2.15	Install Well head, Well Cap, Serial Number & cement with slab of dimensions 1x1x1m around well head	1	Item	10,000	10,000
2.16	Supply of Water & drilling fluids for drilling operations and field camp uses	1	Item	100,000	100,000
2.17	Undertake laboratory analysis (1 sample for Bacteriological analysis & another for chemical analysis)	1	Item	25,000	25,000
2.18	Supply and install approved Borehole Gantry	1	Item	274,000	274,000
2.19	Allow for making good and surface reinstatement at the Borehole site to project Managers satisfaction	1	Item	61,280	61,280
<b>TOTAL FOR BILL OF QUANTITIES No. 2: DRILLING, DEVELOPMENT &amp; PUMP-TESTING OF BOREHOLE</b>					<b>4,109,280</b>

**BILL OF QUANTITIES No. 3: BOREHOLE EQUIPPING**

NO	ITEM DESCRIPTION	QTY	UNITS	RATE	AMOUNT
<b>3.1.</b>	<b>Preliminary items</b>				
3.1.1	Extend 3 phase power supply to Borehole Site	300	M	1,500	450,000
3.1.2	152mm Borehole cap with 50mm diameter pipe threaded on or welded to it	1	Set	7,000	7,000
3.1.3	Borehole draw pipes assembly clamp	1	Item	4,000	4,000
3.1.4	Provide all other electrical, mechanical and plumbing tools and accessories (e.g. Insulation tapes, thread tapes, bitumen, welding rods, bolts and nuts, e.t.c) required for fabrication & erection of Borehole Gantry and the equipping of the Borehole)	1	Item	4,000	4,000
	<b>Sub-Total for Element No. 3.1</b>			<b>Kshs</b>	<b>465,000</b>
<b>3.2</b>	<b>Electro-mechanical works</b>				
3.2.1	Submersible pump-set complete with 3-phase AC motor to fit a 152mm diameter Borehole (Q= 15,000lts/Hr, H=300m)	1	Set	600,000	600,000
3.2.2	Motor Control Panel	1	Set	120,000	120,000
3.2.3	30A TPN Switch Fuse	1	No	18,000	18,000
3.2.4	At least 6-8mm <sup>2</sup> 3-phase dual core Submersible Cable	240	m	600	144,000
3.2.5	2.5mm <sup>2</sup> twin insulated water level relay cables	240	m	50	12,000
3.2.6	Water level control electrodes	2	No	4,000	8,000
<b>NO</b>	<b>ITEM DESCRIPTION</b>	<b>QTY</b>	<b>UNITS</b>	<b>RATE</b>	<b>AMOUNT</b>
3.2.7	Water proof jointing/ Splicing Kit	1	Kit	6,000	6,000
3.2.8	Dual core armoured cable	20	m	1,200	24,000
	<b>Sub-Total for Element No. 3.2</b>			<b>Kshs</b>	<b>932,000</b>
<b>3.3</b>	<b>Plumbing/ Pipefitting Works</b>				
3.1	50mm diameter standard 6m each GS class "C" draw pipes with <b>STEAM Sockets</b> )	36	Lengths	12,000	432,000
	<b>Sub-Total for Element No. 3.3</b>			<b>Kshs</b>	<b>432,000</b>
<b>TOTAL FOR BOQ No. 3: BOREHOLE EQUIPPING</b>				<b>KSHS</b>	<b>1,829,000</b>

**B.O.Q No.4: SUPPLY, ERECTION & CONSTRUCTION OF 12M<sup>3</sup> ELEVATED STEEL TANK ON A 12M HIGH STEEL TOWER**

NO	ITEM DESCRIPTION	QTY	UNITS	RATE	AMOUNT
4.1	"VIKING" METRIC COLD 8mm thick pressed steel sectional water storage tank to BS 1564 Part II complete with 2mm pitched roof , internal & external ladders, water level indicator, vent cleats, stays, manhole with lockable cover, glasticord joining compound, galvanized nuts, bolts & washers.	26	No	35,000	910,000
4.2	12M high tower to BS 449 complete with walkway, hand rail, and ladder painted with 1 coat of aluminium paint.	1	Item	330,000	330,000
4.3	Transportation of materials to site-1100km from Nairobi to Mandera	1	Item	220,000	220,000
4.4	Labour for erection on site	1	Item	300,000	300,000
	<b>PIPE WORK</b>				
4.5	Supply, cut, join and install 75mm steel inlet, outlet, overflow and scour pipes for 12m <sup>3</sup> elevated steel tank up to ground level	1	Item	180,000	180,000
4.6	Reinforced concrete foundations of size 1.5mx1.5mx1.5m deep. Please note that it will be charged extra in case where the foundation has to be done deeper than the above size.	14	M3	15,000	210,000
	TOTAL WEIGHT (APPROX.) 7,832 KG			Sub-total	
<b>TOTAL FOR BOQ No. 4: 12M3 ELEVATED STEEL WATER STORAGE TANK</b>				<b>KSHS</b>	<b>2,150,000</b>

**B.O.Q No.5: 90MM DIAMETER & 300M LONG HDPE RISING MAIN**

<b>NO</b>	<b>ITEM DESCRIPTION</b>	<b>QTY</b>	<b>UNITS</b>	<b>RATE</b>	<b>AMOUNT</b>
	<b><i>Preparation, Excavation, Pipe laying, joining and fittings</i></b>				
5.1	Carry out bush clearing along rising main route 500mm wide	150	SM	100	15,000
5.2	Excavate and backfill pipeline trench (after laying of pipe) 450mm wide and between 0.6m and 1.5m deep (50% in very rocky ground)	300	M	200	60,000
5.3	Lay 90mm diameter HDPE 6 Bar (Class B) pipes	300	M	900	270,000
5.4	Provide the following fittings for joining of the pipes				
	i) Master meter 75mm diameter	1	No	48,000	48,000
	ii) 75mm Valve Sockets	4	No	1,200	4,800
	iii) 75mm GI Nipple (Provisional)	8	No	600	4,800
	iv) 75mm GI 90 degrees Tees	5	No	4,500	22,500
	v) 75mm GI Non return Valve	1	No	36,000	36,000
	vii) 75 x 20mm GI Reducing Bushes	3	No	2,200	6,600
	viii) 75mm GI Gate Valves	2	No	7,000	14,000
	ix) 75mm GI Sockets	6	No	1,500	9,000
5.5	Provide & fit 75mm dia GI Elbows	3	No	2,200	6,600
5.6	Provide & fit 20mm Air Valves	1	No	17,700	17,700
5.7	Provide & fit 20mm dia GI Gate Valves	1	No	2,000	2,000
5.8	Provide & fit 20mm dia GI Barrel Nipples	2	No	500	1,000
5.9	Provide & fit 20mm dia GI Sockets	4	No	400	1,600
5.10.	Provide & fit 20mm dia pieces of class A pipes 300mm long each and threaded on both ends to hold Air Valves	2	No	1,240	2,480
5.11	Construct Valve Chambers for Air Valves and Wash-outs as shown drawings No NWSB 2010/09/005-006	3	No	10,000	30,000
	<b>TOTAL FOR BOQ NO. 4: PRIMARY SERVICE LINE</b>			<b>KSHS</b>	<b>552,080</b>

**BILL OF QUANTITIES No.6: INTERNAL WATER DISTRIBUTION SYSTEM**

NO	ITEM DESCRIPTION	UNIT	QNTY	RATE	AMOUNT
	<i>Preparation, Excavation, Pipe laying, joining and fittings</i>				
6.1	Carry out bush clearing along rising main route 500mm wide	160	SM	100	16,000
6.2	Excavate and backfill pipeline trench (after laying of pipe) 450mm wide and between 0.6m and 1.5m deep (50% in very rocky ground)	320	M	200	64,000
6.3	Provide, lay and join 50mm Main Distribution using HDPE 6 Bar (Class C) pipes	200	M	600	120,000
6.4	Provide and lay 20mm Tertiary Distribution using uPVC 6 Bar (Class B) pipes	120	M	200	24,000
6.5	Provide Provisional sum for fittings, appurtenances and contingencies	1	Item	68,000	68,000
	<b>TOTAL FOR INTERNAL WATER DISTRIBUTION PIPELINES</b>			<b>KSHS</b>	<b>292,000</b>

**GRAND SUMMARY**

NO	ITEM DESCRIPTION	UNIT	QNTY	RATE	AMOUNT
1	B.O.Q. No. 1: PRELIMINARIES AND GENERAL ITEMS			KSHS	1,090,000
2	B.O.Q. No. 2: DRILLING AND PUMP-TESTING OF A BOREHOLE IN THE VICINITY OF THE SCHOOL			KSHS	4,109,280
3	B.O.Q No. 3: BOREHOLE EQUIPPING			KSHS	1,829,000
4	B.O.Q No.4: SUPPLY, ERECTION & CONSTRUCTION OF 12M3 ELEVATED STEEL TANK ON A 12M HIGH STEEL TOWER			KSHS	2,150,000
5	B.O.Q No.5: 90MM DIAMETER & 300M LONG HDPE RISING MAIN			KSHS	552,080
6	B.O.Q No.6: INTERNAL WATER DISTRIBUTION SYSTEM			KSHS	292,000
	<b>GRAND TOTAL FOR LAFEY LEVEL 4 HOSPITAL WATER SYSTEM</b>			<b>KSHS</b>	<b>10,022,360</b>

Prepared by:


**A.A.Abdille****For. County Director of Water Services**

