PROJECT NO.: KE-WSTF-328819-CS-QCBS							
GRAND SUMMARY							
BILL	DESCRIPTION	AMOUNT					
No		Kshs					
1	PRELIMINARY AND GENERAL ITEMS						
2	KAMBOE MIDROCK						
3	KAMBOE FURMASAN SCHEME						
4	LOGLOGO SCHEME						
5	JALDESA SCHEME						
6	MANYATTA LENGIMA SCHEME						
7	LAISAMIS SCHEME						
	SUB TOTAL [A]						
	ADD 5% OF SUBTOTAL (A) FOR CONTINGENCIES [B]						
	TOTAL EXCLUDING DUTIES AND TAXES						
	ADD 16% OF SUBTOTAL (B) FOR TAXES AND DUTIES [C]						
		1					

**GRAND TOTAL INCLUDING DUTIES AND TAXES** 

LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOC			IANYATTA LEN	GIMA AND
	PROJECT NO.: KE-WSTF				
	BILL NO. 1 : PRELIMINARIES	AND GENE	ERAL ITE	1	
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
1.1	Contractors Camp				
1.1.1	Provide for establishment of the Contractor's camp. The				
	camp to include RE's office as per the specifications	Months	12		
1.2	Material testing				
1.2.1	Provide a provisional sum of Kshs. 500,000 for				
	Laboratory testing as and when required. The Contractor				
	to make available for independent testing of works	PS	1	500,000	500,0
	sample by the Resident Engineer as per the Contract			,	
	Specifications.				
1.3	Accommodation for RE's staff at the project area				
1.3.1	Provide accommodation for the use of the Resident				
1.5.1	Engineer for 12 months.	Months	6	50,000	300,0
1.3.2	Ditto but 1nr. Assistant Resident Engineer for 12				
1.3.2	months.	Months	12	30,000	360,0
1.3.3	Ditto but for each of the 1nr. Inspector of Works, 1Nr				
1.5.5	Environmentalist, 1Nr. Sociologist, 1 Nr.	Months	42	20,000	840,0
	Electromechanical Engineer and 1Nr. Surveyor	WOItins	72	20,000	040,0
1.4	Establishment of site office for the RE				
1.4.1	Provide and maintain the office furniture and IT				
1.4.1	equipment designated for the Resident Engineer (RE),				
	as detailed in Appendix A. All equipment must be				
	returned to the Employer after the contract. During the		1		
	initial three months of the contract, the contractor shall				
	furnish and establish a temporary prefabricated				
	container office for the engineer. Upon completing the	nem	1		
	project administration building, the contractor shall				
	relocate the RE's office to the new facility, which shall				
	be completed within the specified three-month				
	timeframe of the contract.				
1.4.2	Allow for a total of Kshs. 60,000.00 monthly for				
1.1.2	reimbursement to the contractor for payment of the RE's				
	office attendance and maintenance including provision				
	of photography, office courier services, office				
	communications, reports, printer catriges, water, tea and	Month	12	60,000	720,0
	other consumable maintenance of stationery and other				
	utilities for the RE's offices for the duration of the				
	Contract.				
1.4.3	Add a percentage to item above to cater for Contractor's				
	profits, duties, administration and overheads.	%			
1.5	Site Meetings				
1.5.1	Allow a Provisional sum of Kshs. 500,000/= to cater for	PC	1	500.000	500.0
	expenses for site meetings expenses.	FU	1	500,000	500,0

	TRUCTION, REHABILITATION AND EXPANSION				
LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOC PROJECT NO - KE WSTI			IANYATTA LEN	GIMA AND
	PROJECT NO.: KE-WSTF BILL NO. 1 : PRELIMINARIES			MS	
				RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY -	Kang Kang Kang Kang Kang Kang Kang Kang	Kshs.
1.5.2	Add a percentage to item 1.4.1 above to cater for			1101101	11,511,51
	Contractor's profits, duties, administration and	%			
	overheads.				
1.6	Attendance Upon Resident Engineer's Support Staff				
	Employ and provide the following support Staff for the				
	Resident Engineer's Office as per the Contract				
	Specifications. (Note: The Staff to be employed by the				
	Contractor but to be under the exclusive day to day				
	instruction of the Resident Engineer. The staff may be				
	engaged on need basis).				
1.6.1	3 Nr Survey Assistants @ Kes. 25,000 for 12 months.	month	36	25,000.00	900,000.00
1.6.2	1 Nr Office Administrator @ Kes 25,000 for 12 months.	month	12	25,000.00	300,000.00
1.6.3	1 Nr Drivers @ Kes 25,000 for 12 months.	month	12	25,000.00	300,000.00
1.6.4	Allow for a total of Kshs.200,000 for reimbursement to				
	the contractor for payment of the Resident Engineer's				
	staff overtime, allowances and RE's Junior Staff and	Item	1	200,000.00	200,000.00
	Payment of expenses on Duty Trips outside project area			,	,
	for Senior and Junior staffs per month to be				
1.6.5	administered as per the Contract Specifications. Allow a provisional sum of Kshs. 500,000 to cover cost				
1.0.3	for capacity building , training, attachment and				
	internship to be expended under direction of the	PS	1	500,000.00	500,000.00
	Employer.				
1.6.6	Add a percentage to items 1.6.1 to 1.6.5 above to cater				
	for Contractor's profits, administration, remission of	%			
	statutory duties and overheads.				
1.7	Publicity Sign Board				
1.7.1	Provide, erect and maintain throughout the Time for				
	Completion period publicity signs boards as directed by	No	3		
	the Engineer.				
1.0					
1.8	Vehicles				
1.8.1	Provide with driver, maintain and fuel two (2) new				
	4WD 4x4 offroad station wagon vehicle,3000 cc diesel for sole use and direction of the Resident Engineer.	VehMonth	24	400,000	9,600,000
	inclusive of the first 7000 km per vehicle per month.	v emvionui	24	400,000	9,000,000
	Ownership to revert to Contractor				
1.8.2	Extra over for mileage over 7,000 km per vehicle				
1.0.2	month.	km	10000	25	250,000
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			├		
		ION SHEET			

	TRUCTION, REHABILITATION AND EXPANSION				
	KAMBOE MIDROCK, KAMBOE FURMASAN, LOG PROJECT NO.: KE-WSTF			VIAN YAI TA LEN	GIMAAND
	BILL NO. 1 : PRELIMINARIES			MS	
				RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.
1.90	ESMP COST				
1.9.1	Provide a provisional sum of Kshs. 750,000 for	PS	1	750,000	750,00
	implementation of stakeholder engagement plan	15	1	750,000	750,00
1.9.2	Provide a provisional sum of Kshs. 750,000 to provide	PS	1	750,000	750,00
	for HIV&AIDS awareness training and sensitzation	15	•	, 20,000	, 50,00
1.9.3	Provide a provisional sum of Kshs. 750,000 for	-			
	operationalization of grievance redress mechanism and	PS	1	750,000	750,00
1.0.1	sexual exploitation awareness (SEA)				
1.9.4	Allow a percentage to items 1.9.1 to 1.9.3 above to cater	0 /			
	for Contractor's profits, duties administration and	%			
	overheads.				
			+		
	PAGE TOTAL CARRIED TO SECTION COLLECT	ION CHEF	T		

	TRUCTION, REHABILITATION AND EXPANS							
LOT I: I	KAMBOE MIDROCK, KAMBOE FURMASAN,			IANYATTA LE	NGIMA AND			
	PROJECT NO.: KE-W			MG				
BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS								
ITEM	DESCRIPTION	UNIT	QTY -	Kshs.	Kshs.			
	Page Total, Page 1 of 3							
	Page Total, Page 2 of 3							
	Page Total, Page 3 of 3							
	Dill Tatal Consider Course Summers		$\left  \right $					
	Bill Total Carried to Grand Summary							

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLC AND LAISAMIS IN MARSABI			SA, MANYAT	TA LENGIMA		
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT							
		UNIT	QTY	Kshs.	Kshs.		
2.1	BOREHOLE/WELL DEVELOPMENT						
	The Contractor shall, supply, install, test, commission and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer.						
2.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer	Prov. Sum	1.0	100,000.00	100,000.00		
2.1.2	Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.	Item	1.0	100,000.00	100,000.00		
2.1.3	Allow a provisional sum of Kes 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.	Prov. Sum	1.0	250,000.00	250,000.00		
2.1.4	Allow % for profits and overheads	%					
2.1.5	Supply, install, test and commission 15kW, 20Hp Submersible Pump SP 9-52 or approved equivalent with a discharge <b>7</b> <b>m3/hr</b> and head of 2 <b>91m</b> , complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No	1				
2.1.6	Supply, install, test and commission 2.5 mm <sup>2</sup> /4 core submersible pump flat cable	m	180				
2.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1				
2.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	360				

LOTI	: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO AND LAISAMIS IN MARSABI			A, MANYAT	TA LENGIMA
	PROJECT NO.: KE-WSTF-32881	19-CS-	QCBS		
BILL	NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEM	1E - B	OREHC	DLE/WELL I	DEVELOPMENT
TEM	DESCRIPTION		OTV	RATE	AMOUNT
		UNII	QTY	Kshs.	Kshs.
2.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real- time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.	No.	1		
	Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.				
2.1.10	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
2.1.11	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
2.1.12	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1		
2.1.16	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
	Supply, install, test and commission of an array of solar with the following specicifications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 64.35 kW on a bright sunny day at midday taking into account the system losses. <b>PAGE TOTAL CARRIED TO SECTION COLLECTION S</b>	No.	42.0		

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO AND LAISAMIS IN MARSABI	)GO, J	ALDES		TA LENGIMA
	PROJECT NO.: KE-WSTF-32881				
BILL	NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEM			DLE/WELL I	DEVELOPMENT
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		UNII	VII	Kshs.	Kshs.
2.1.18	Supply, installation and furnishing support structures with the following specifications: 60mm x 40mm (minimum) aluminium angle plates using stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 2.5 m above the ground for the low height side and a maximum of 3m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Set	1		
2.1.19	Supply, install, test and commission a 3-phase 125KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.		1		
2.1.20	Supply, install, test and commission a 55 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 55kW 105A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
2.1.21	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.1.22	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.1.23	Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B	Set	1		

# PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

	: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO AND LAISAMIS IN MARSABI			SA, MANYAT	TA LENGIMA
RII I	PROJECT NO.: KE-WSTF-32881 NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEM			NE/WELL F	EVELOPMEN'
	DESCRIPTION	1	QTY	RATE	AMOUNT
		01111	<b>V</b> 11	Kshs.	Kshs.
	Supply, install, test and commission Cabling complete with all				
	necessary accessories for connection of solar modules to				
1 2/1	inverter, to intelligent controller/manager and to agreed	Lot	1		
	connection point at the station through an energy meter and generator. This to also include cabling from the diesel				
	generator for integration with power from the solar plant.				
	Supply, install, test and commission Modem and router for				
1 76	remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
	Supply and install Aerial lightning arrestors at 6m height, fixed				
1 27/1	to concrete foundations	Set	1		
	Supply and install Earthing materials, including all inspection				
	chambers, rods, tape bonding straps etc. as necessary for the	Set	1		
	earthing requirements with the borehole		1		
	Supply, install, test and commission Motor ProtectionUnit				
, , ,,,,	MP204 or equivalent	No	1		
1 . 1 . 1	Allow for 12 months after sale service including training of	Ŧ	1		
2.1.31	operators and technicians.	Ls	1		
	Communication Infrastructure				
.1.33	Supply and installation of GSM/GPRS/4G communication	Na	2		
	modules for boreholes and booster stations	No.			
1 4/1	Supply and installation of Antennas and signal boosters for	No.	2		
	remote locations	INO.			
1 25	Supply and installation of Fiber Optic Cable (8-core, single-	m	500		
	mode)				
7 1 261	Supply and installation of Fiber Optic Termination Boxes,	Set	5		
	Wall-mounted, dustproof		-		
2.1.37	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
	Fire Fighting Equipment Supply, install, test and				
	commission 5 Kg Class ABC Powder steel cylinder fire				
	extinguisher, c/w pressure gauge wall mounting steel bracket,	No	1		
	operating instructions and accessories, fully charged.				
	Fencing				
	Excavate for post holes, provide all materials and construct				
	chain link fence on concrete posts at 3 m centres all as per				
	drawing details, including straining posts at every 10th post		100		
	and additional posts at corners and botton concrete cover to	m	120		
	ground level under the fence. Works to include provision and				
	installation of a Double Galvanized Razor Wire protection.				

	OE FURMASAN, LOGLO LAISAMIS IN MARSABIT			SA, MANYAT	TA LENGIMA		
Provide all materials and construct of an wide opening. Supply, deliver, install ,test and con- street light Dayliff/Philips/approved equivalent street lightsc/w 9meter long glavani and the power source is from the existin Rate to intergarting the street lights system Borehole pipeworks Borehole cover with extended 1m ff and Note the cover should also allow for instrumentation for the borehole. All Flanged 90 deg long elbow DN and Double Flanged Non-Return Valve and Double Flanged Gate Valve DN 50 and Supply and intsall multi-turn actuate paired with actuator controls, and and an an an and an and an	PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT						
2.1.40       gate all to detailed. The gate to have 1m wide opening.         2.1.41       Supply, deliver, install ,test and construct light         Dayliff/Philips/approved equivalent street lightsc/w 9meter long glavani         2.1.33       The power source is from the existin Rate to intergarting the street lights system         Borehole pipeworks         Borehole cover with extended 1m ft         2.1.34       Note the cover should also allow fo         instrumentation for the borehole.         2.1.35       All Flanged 90 deg long elbow DN         2.1.36       Double Flanged Non-Return Valve         2.1.37       Double Flanged Gate Valve DN 50         2.1.38       Supply and intsall multi-turn actuate paired with actuator controls, and         2.1.39       All flanged equal steel tee 50mmx5         2.1.40       DN50mm non-slam Double-orifice base, complete to detail as indicated         2.1.41       Double flanged pipe piece DN50 le         Provide, install, test and commissio       Provide, install, test and commissio         2.1.42       Double flanged reducing taper 50mmx6         2.1.43       Double flanged reducing taper 50mmx6         2.1.44       All flanged reducing taper 50mmx6         2.1.45       All flanged 50mmx50mm         2.1.46       Flanged HDPE Stub end DN63         2.1.48 </th <th></th> <th>UNIT</th> <th>QTY</th> <th>RATE Kshs.</th> <th>AMOUNT Kshs.</th>		UNIT	QTY	RATE Kshs.	AMOUNT Kshs.		
2.1.41       street light         Dayliff/Philips/approved equivalent street lightsc/w 9meter long glavani         2.1.33       The power source is from the existin Rate to intergarting the street lights system         Borehole pipeworks         Borehole cover with extended 1m ff         2.1.34       Note the cover should also allow fo instrumentation for the borehole.         2.1.35       All Flanged 90 deg long elbow DN         2.1.36       Double Flanged Non-Return Valve         2.1.37       Double Flanged Gate Valve DN 50         8.1.39       All flanged equal steel tee 50mmx5         9.1.30       Supply and intsall multi-turn actuate paired with actuator controls, and         2.1.39       All flanged equal steel tee 50mmx5         2.1.40       DN50mm non-slam Double-orifice base, complete to detail as indicated         2.1.41       Double flanged pipe piece DN50 le Provide, install, test and commissio         2.1.42       meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs         2.1.43       Double flanged reducing taper 50mmx6         2.1.44       Flanged HDPE Stub end DN63         2.1.45       All flanged 50mmx50mm 50mm to protection vessel PN16         All or provision of supply, install commissioning of appropriately size control valve with all manway acces connections and all other appurtena recommendations and in accordance	e a lockable pedestrian gate	Nr	1	1010			
street lightsc/w 9meter long glavani1.1.33The power source is from the existin Rate to intergarting the street lights systemBorehole pipeworksBorehole cover with extended 1m ft1.34Note the cover should also allow fo instrumentation for the borehole.1.35All Flanged 90 deg long elbow DN1.36Double Flanged Oate Valve DN 501.37Double Flanged Gate Valve DN 50I.38Supply and intsall multi-turn actuate paired with actuator controls, and1.39All flanged equal steel tee 50mmx5I.40DN50mm non-slam Double-orifice base, complete to detail as indicatedI.41Double flanged pipe piece DN50 le Provide, install, test and commissioI.42All flanged equal 1.8m long extend 50mmx50mmI.43Double flanged pipe piece DN50 le RR S232 and RS 485 port outputsI.44All flanged reducing taper 50mmx6I.44All flanged reducing taper 50mmx6I.44All flanged 50mmx50mm to protection vessel PN16All Flanged 50mmx50mmx50mm to protection vessel PN16Allow a provision of supply, install conmissioning of appropriately size connections and all other ap	nmision the following LED						
Borehole cover with extended 1m ft2.1.34Note the cover should also allow fo instrumentation for the borehole.2.1.35All Flanged 90 deg long elbow DN2.1.36Double Flanged Non-Return Valve2.1.37Double Flanged Gate Valve DN 502.1.38Supply and intsall multi-turn actuate paired with actuator controls, and2.1.39All flanged equal steel tee 50mmx52.1.40DN50mm non-slam Double-orifice base, complete to detail as indicated2.1.41Double flanged pipe piece DN50 le Provide, install, test and commissio2.1.42Double flanged pipe piece DN50 le All flanged equal 1.8m long extended 50mmx50mm2.1.44All flanged reducing taper 50mmx62.1.45All flanged Teducing taper 50mmx62.1.46Flanged HDPE Stub end DN632.1.47All Flanged 50mmx50mm to protection vessel PN16Allow a provision of supply, installa commissioning of appropriately size control valve with all manway acces connections and all other appurtena recommendations and in accordance	sed pole (Modular unit). ng installed solar panels.	Nr	6				
Borehole cover with extended 1m ft1.34Note the cover should also allow fo instrumentation for the borehole.1.35All Flanged 90 deg long elbow DN1.36Double Flanged Non-Return Valve1.37Double Flanged Gate Valve DN 501.38Supply and intsall multi-turn actuate paired with actuator controls, and1.39All flanged equal steel tee 50mmx51.40DN50mm non-slam Double-orifice base, complete to detail as indicated base, complete to detail as indicated (a.t.41)1.41Double flanged pipe piece DN50 le Provide, install, test and commissio1.42Meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs1.43Double flanged pipe piece DN50 le (a.t.43)1.44All flanged reducing taper 50mmx61.45All flanged reducing taper 50mmx61.46Flanged HDPE Stub end DN631.47Allow a provision of supply, install commissioning of appropriately size connections and all other appurtena recommendations and in accordance							
.1.36Double Flanged Non-Return Valve.1.37Double Flanged Gate Valve DN 50.1.38Supply and intsall multi-turn actuate paired with actuator controls, and.1.39All flanged equal steel tee 50mmx5.1.40DN50mm non-slam Double-orifice base, complete to detail as indicated.1.41Double flanged pipe piece DN50 le Provide, install, test and commissio.1.42meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs.1.43Double flanged pipe piece DN50 le Provide, install, test and commissio.1.44All flanged equal 1.8m long extended 50mmx50mmx50mm.1.45All flanged reducing taper 50mmx6.1.46Flanged HDPE Stub end DN63.1.47All Flanged 50mmx50mm to 	0 1 1 1	Nr	1				
<ul> <li>1.37 Double Flanged Gate Valve DN 50</li> <li>Supply and intsall multi-turn actuate paired with actuator controls, and</li> <li>1.38 Supply and intsall multi-turn actuate paired with actuator controls, and</li> <li>1.39 All flanged equal steel tee 50mmx5</li> <li>DN50mm non-slam Double-orifice base, complete to detail as indicated</li> <li>1.40 Double flanged pipe piece DN50 le</li> <li>Provide, install, test and commissio</li> <li>meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs</li> <li>1.43 Double flanged pipe piece DN50 le</li> <li>All flanged equal 1.8m long extends</li> <li>50mmx50mmx50mm</li> <li>All flanged reducing taper 50mmx6</li> <li>All Flanged 50mmx50mmx50mm to protection vessel PN16</li> <li>All Flanged 50mmx50mmx50mm to control valve with all manway access</li> <li>and all other appurtena recommendations and in accordance</li> </ul>		Nr	3				
.1.38Supply and intsall multi-turn actuate paired with actuator controls, and.1.39All flanged equal steel tee 50mmx5.1.40DN50mm non-slam Double-orifice base, complete to detail as indicated.1.41Double flanged pipe piece DN50 le Provide, install, test and commissio.1.42Provide, install, test and commissio.1.43Double flanged pipe piece DN50 le 68, RS232 and RS 485 port outputs.1.44All flanged equal 1.8m long extended 50mmx50mm.1.45All flanged reducing taper 50mmx6.1.46Flanged HDPE Stub end DN63.1.47Allow a provision of supply, install control valve with all manway acces connections and all other appurtena recommendations and in accordance		Nr	1				
paired with actuator controls, and1.39All flanged equal steel tee 50mmx51.40DN50mm non-slam Double-orifice base, complete to detail as indicated1.41Double flanged pipe piece DN50 leProvide, install, test and commissio1.42meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs1.43Double flanged pipe piece DN50 le1.44All flanged equal 1.8m long extends 50mmx50mm1.45All flanged reducing taper 50mmx61.46Flanged HDPE Stub end DN631.47Allow a provision of supply, install control valve with all manway acces connections and all other appurtena recommendations and in accordance	ors for open-close duty	Nr No.	4				
1.40DN50mm non-slam Double-orifice base, complete to detail as indicated.1.41Double flanged pipe piece DN50 le Provide, install, test and commissio.1.42meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs.1.43Double flanged pipe piece DN50 le 							
.1.41       Double flanged pipe piece DN50 le         Provide, install, test and commissio         .1.42       Provide, install, test and commissio         .1.43       Double flanged pipe piece DN50 le         68, RS232 and RS 485 port outputs         .1.43       Double flanged pipe piece DN50 le         .1.44       All flanged equal 1.8m long extended         .1.44       S0mmx50mm         .1.45       All flanged reducing taper 50mmx6         .1.46       Flanged HDPE Stub end DN63         .1.47       All Flanged 50mmx50mm to         protection vessel PN16       Allow a provision of supply, installate         .1.48       connections and all other appurtena         .1.48       recommendations and in accordance	Air Valve with flanged	Nr No.	1				
Provide, install, test and commissio.1.42meter DN 50 PN16. Rate to include 68, RS232 and RS 485 port outputs.1.43Double flanged pipe piece DN50 le.1.44All flanged equal 1.8m long extends 50mmx50mmx50mm.1.45All flanged reducing taper 50mmx6.1.46Flanged HDPE Stub end DN63.1.47All Flanged 50mmx50mm to protection vessel PN16.1.48Allow a provision of supply, installs 	-	Nr	1				
.1.43Double flanged pipe piece DN50 le.1.43All flanged equal 1.8m long extended 50mmx50mmx50mm.1.44All flanged reducing taper 50mmx6.1.45All flanged reducing taper 50mmx6.1.46Flanged HDPE Stub end DN63.1.47All Flanged 50mmx50mmx50mm to protection vessel PN16Allow a provision of supply, installa control valve with all manway access connections and all other appurtena recommendations and in accordance	n an electromagnetic flow e 2 battery power supply, IP	Nr	1				
.1.44       50mmx50mmx50mm         .1.45       All flanged reducing taper 50mmx6         .1.46       Flanged HDPE Stub end DN63         .1.47       All Flanged 50mmx50mmx50mm to protection vessel PN16         Allow a provision of supply, installate commissioning of appropriately size control valve with all manway access connections and all other appurtena recommendations and in accordance		Nr	2				
.1.46Flanged HDPE Stub end DN63.1.47All Flanged 50mmx50mmx50mm to protection vessel PN16.1.48Allow a provision of supply, installa commissioning of appropriately size control valve with all manway acces 	ed steel tee	Nr	2				
.1.47 All Flanged 50mmx50mmx50mm to protection vessel PN16 Allow a provision of supply, installa commissioning of appropriately size control valve with all manway access connections and all other appurtena recommendations and in accordance	3mm	Nr	1				
<ul> <li>.1.47 protection vessel PN16</li> <li>Allow a provision of supply, installa commissioning of appropriately size control valve with all manway access connections and all other appurtena recommendations and in accordance</li> </ul>		Nr	1				
.1.48 commissioning of appropriately size control valve with all manway access connections and all other appurtena recommendations and in accordance	-	Nr	1				
	ed surge vessels or surge sses, flange pipe nces as per manufacturers e with specification and a	Lump Sum	1				
PAGE TOTAL CARRIED TO SI							

	IDMASAN LOCIOCO I		A MANVAT	TALENCIMA
LOT I: KAMBOE MIDROCK, KAMBOE I	MIS IN MARSABIT COU		A, MANYAI	IA LENGINIA
	O.: KE-WSTF-328819-CS-			
BILL NO. 2.1: KAMBOE MIDROCK WAT		-	NE/WELL F	EVELODMENT
	EK SUITET SCHEWIE - D	JKEIK		
TEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		_	Kshs.	Kshs.
Page Total, Page 1				
Page Total, Page 2				
Page Total, Page 3				
Dage Total Dage 4				
Page Total, Page 4				
Page Total, Page 5				
Bill Total Carried to Bill Summary				

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	DESCRIPTION	UNIT	OTV	RATE	AMOUNT
ITEM	DESCRIPTION	UNII	QTY	Kshs.	Kshs.
	i. The Contactor to maintain uninterrupted continuity of				
	water supply in existing pipelines				
	ii. Pedestrian and vehicular Access to individual shops /				
	plots to be maintained at all times				
	iv. Keeping trenches free of excessive groundwater,				
	seepage or water from any source				
	PIPE AND PIPE FITTINGS				
	Pipe Work - Supply, lay, joint, pressure test,disinfect				
	Supply, handle, and install (rates shall include jointing				
	materials, bolts, gaskets packing jointing glue, welding etc.,				
	as applicable) to the following HDPE Pipes to KS ISO				
	4427 and Steel/ferrous Fittings (valves and pipe specials)				
	in trench as per the specifications. All pipe fittings and				
	valve diameters indicated are Nominal Diameters				
	Pipe trench excavation is to commence from ground level				
	to a minimum depth of 1.5m. Rate to include setting out,				
	general bush clearing, Pipe laying, Pressure				
	testing, disinfection, backfilling with imported bedding and				
	surrround material all as per specifications, drawings and as				
	directed by the engineer				
	RISING MAINS				
2.2.1	HDPE Pipe DN75mm PN16	m	2,320		
	Non return valves				
2.2.2	DN 75mm Non-return valves	Nr	1		
	Airvalves				
2.2.3	DN 50mm airvalve AVK or approved equivalent	Nr	3		
	MAIN PIPELINES AND DISTRIBUTION SYSTEM				
2.2.4	HDPE Pipe DN50mm PN16	m	2,085		
2.2.5	HDPE Pipe DN63mm PN16	m	1,641		
2.2.6	HDPE Pipe DN75mm PN16	m	1,608		
2.2.7	HDPE Pipe DN110mm PN16	m	225		
	Bends				
2.2.8	DN 110mm 90°	Nr.	2		
2.2.9	DN 110mm 45°	Nr.	2		
2.2.10	DN 75mm 90°	Nr.	2		
2.2.11	DN 63mm 90°	Nr.	2		
2.2.12	DN 50mm 90°	Nr.	2		
	Reducers				
2.2.13	DN 110/75 mm	Nr.	1		
2.2.14	DN 75/63 mm	Nr.	1		
2.2.15	DN 63/50 mm	Nr.	1		
	Page total carried to summary page				

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY ·	RATE Kshs.	AMOUNT Kshs.
	110mm offtake (JD 1)				
2.2.16	DN 110x110x75mm HDPE fabricated tee	Nr	1		
.2.17	DN 75mm stub end with MS flange ring	Nr	2		
2.2.18	DN 75mm flanged sluice valve	Nr	1		
	110mm offtake (JD 2)				
.2.19	DN 110x110x50mm HDPE tee	Nr	0		
	DN 50mm stub end with MS flange ring	Nr	0		
.2.21	DN 50mm flanged sluice valve	Nr	0		
	Cross Junction (JD 3)				
.2.22	DN 110x110x110x110mm HDPE cross tee	Nr	1		
.2.23	DN 110x75mm reducer	Nr	1		
.2.24	DN 75mm stub end with MS flange ring	Nr	2		
.2.25	DN 75mm flanged sluice valve	Nr	1		
	DN 110x63mm reducer	Nr	2		
.2.27	DN 63mm stub end with MS flange ring	Nr	4		
.2.28	DN 63mm flanged sluice valve	Nr	2		
	75mm offtake (JD 4,5)				
.2.29	DN 75x75x50mm HDPE tee	Nr	1		
.2.30	DN 50mm stub end with MS flange ring	Nr	2		
.2.31	DN 50mm flanged sluice valve	Nr	1		
	75mm offtake (JD 6,7,8,9)				
.2.32	DN 63x63x50mm HDPE tee	Nr	4		
.2.33	DN 50mm stub end with MS flange ring	Nr	8		
.2.34	DN 50mm flanged sluice valve	Nr	4		
	DN 50mm Terminal connection (with washout)				
.2.35	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	3		
.2.36	DN 50mm stub end with MS flange back ring	Nr	12		
.2.37	DN 50mm Flanged gate valve	Nr	3		
.2.38	DN 50mm HDPE flap valve	Nr	3		
.2.39	DN 50mm HDPE PN 16 pipe	m	180		
	Air Valve Chamber Fittings (DN110mm) -(1No)				
.2.55	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	1		
2.2.56	DN63 mm HDPE Stub End with MS Flange	Nr	1		
.2.57	DN 50mm double flanged sluice valve	Nr	1		
2.2.58	DN 50mm double orifice airvalve	Nr	1		
	Washout (DN 110mm) -(1No)				
.2.59	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1		
2.2.60	DN 110mm HDPE stub end with MS Flange	Nr	4		
.2.61	DN 90 mm HDPE stub end with MS Flange	Nr	2		
.2.62	DN 90mm sluice valve	Nr	1		
.2.63	DN 90mm HDPE pipe (PN 12.5)	m	24		
	Masonry headwall with base slab for Erosion protection at				
.2.64	discharge point	Ls	1		
	and and be point				
	Page total carried to summary page				

### LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Air Valve Chamber Fittings (DN75mm) -(1No)				
.2.65	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1		
.2.66	DN63 mm HDPE Stub End with MS Flange	Nr	1		
2.2.67	DN 50mm double flanged sluice valve	Nr	1		
2.2.68	DN 50mm double orifice airvalve	Nr	1		
	Washout (DN 75mm) -(1No)				
2.2.69	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1		
2.2.70	DN 75mm HDPE stub end with MS Flange	Nr	4		
2.2.71	DN 75 mm HDPE stub end with MS Flange	Nr	2		
2.2.72	DN 75 mm sluice valve	Nr	1		
2.2.73	DN 75mm HDPE pipe (PN 12.5)	m	24		
	Masonry headwall with base slab for Erosion protection at				
2.2.74	discharge point	Ls	1		
	Air Valve Chamber Fittings (DN 63mm) -(1No)				
	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be				
2.2.75	electrofussion)	Nr	1		
2.2.76	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1		
2.2.77	HDPE DN 32 mm PN 16 Male adapter	Nr	1		
2.2.78	HDPE DN 32 mm Pegler brass gate valve	Nr	1		
2.2.79	DN 32 mm Stainless Steel Hex Nipple	Nr	1		
2.2.80	DN 32 mm Threaded Air Valve	Nr	1		
	Washout (DN 63mm) -(1No)	111	1		
	HDPE DN 63 X 63 X 63 mm Equal Tee ( <b>NB: Must be</b>				
2.2.81	electrofussion)	Nr	1		
2.2.82	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	1		
	HDPE DN 63 mm PN 16 Flanged adapter	Nr	1		
2.2.84	HDPE DN 50 mmFlanged Sluice valve	Nr	1		
2.2.85	DN 63 mm HDPE pipe (PN 12.5)	m	24		
2.05	Masonry headwall with base slab for Erosion protection at	111	24		
2.2.86	discharge point	Ls	1		
2.2.80	Air Valve Chamber Fittings (DN 50mm) -(1No)				
	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be				
2.2.87	electrofussion)	Nr	1		
2.2.87	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1		
	HDPE DN 32 mm PN 16 Short piece pipe (400 mm tong) HDPE DN 32 mm PN 16 Male adapter	Nr	1		
2.2.89	HDPE DN 32 mm Pegler brass gate valve	Nr	1		
2.2.90			1		
2.2.91	DN 32 mm Stainless Steel Hex Nipple DN 32 mm Threaded Air Valve	Nr			
2.2.92		Nr	1		
	Washout (DN 50mm) -(1No)				
2 02	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be	Nr	1		
2.2.93	electrofussion)	NT	1		
2.2.94	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1		
.2.95	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1		
2.2.96	HDPE DN 50 mmFlanged Sluice valve	Nr	1		
.2.97	DN 50 mm HDPE pipe (PN 12.5)	m	24		
	Page total carried to summary page				

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
ITEM		UNII	QII	Kshs.	Kshs.
	Water Draw Off Facilities				
	Supply of materials and construct a water kiosk to drawing				
	and Specifications. Rate to include excavations, setting out,	Nr.	3		
	erection and all installations for the structure as per	111.	5		
2.2.98	Appendix C				
	Supply of materials and construct a cattle/Camel trough of				
	internal dimension 10mx1.1m. The 200mm wall shall be				
	RC reinforced with T10 and the 100mm base slab with				
	BRCA142. The height of the trough shall be 440mm. The				
	trough shall have a ditch slope for a distance of 2m around				
	it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50	Item	1		
	with float valve. Offtake with HDPE pipe piece DN50	nem	-		
	PN12.5, offtake isolating valve. An emergency Isolation				
	valve shall be secured in the chamber. The rate will				
	include excavations, setting out, erection, and all				
	installations/plumbing works for the structure. All details to				
2.2.99	drawing and Specifications.				
	Supply of materials and construct sheep/goat trough of				
	internal dimension 10mx1.1m. The 200mm wall shall be				
	RC reinforced with T10 and the 100mm base slab with				
	BRCA142. The height of the trough shall be 300mm. The				
	trough shall have a ditch slope for a distance of 2m around				
	it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50	Item	1		
	with float valve. Offtake with HDPE pipe piece DN50	nem	1		
	PN12.5, offtake isolating valve. An emergency Isolation				
	valve shall be secured in the chamber. The rate will				
	include excavations, setting out, erection, and all				
	installations/plumbing works for the structure. All details to				
2.2.100	drawing and Specifications.				
	Supply of materials and construct a sanitation facility as	Itam	1		
2.2.101	described to detail in Appendix E	Item	1		
	Supply of materials and construct a sanitation facility as	Itom	1		
2.2.102	described to detail in Appendix E1	Item	1		
	Page total carried to summary page				

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

## PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.2.103	Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.The Automated water dispensing ATM designed to offer a reliable and user- friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications - Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), - Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households.	Nr	1.00		
	Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	2.00		
	Chambers (Civil Works)				
	Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as shown on contract drawings.				
2.2.105	Washouts	Nr.	2		
	Air valves Valve chambers	Nr. Nr.	1 7		
	Page total carried to summary page				

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ANCILLARIES ITEMS Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications Allow for a total of Kshs. 1,500,000 for establishment and naintenance of for control survey points and beacons for the Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. Thrust Blocks Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	No Item %	42 1 10%	Kshs.	
Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications Allow for a total of Kshs. 1,500,000 for establishment and maintenance of for control survey points and beacons for he Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	No Item	1		
valve chambers. All in accordance with drawings and specifications Allow for a total of Kshs. 1,500,000 for establishment and maintenance of for control survey points and beacons for he Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	Item	1		
specifications Allow for a total of Kshs. 1,500,000 for establishment and maintenance of for control survey points and beacons for the Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	Item	1		
Allow for a total of Kshs. 1,500,000 for establishment and maintenance of for control survey points and beacons for the Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing				
naintenance of for control survey points and beacons for the Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing				
he Lot 3 project sites Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing				
Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	%	10%		
Contractor's profits, duties administration and overheads. <b>Thrust Blocks</b> Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	%	10%		Í.
Thrust Blocks Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	90	10%		
Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing				
price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing				
steel bar, the formwork and others as detailed on drawing				
steel bar, the formwork and others as detailed on drawing	Nr	10		
Road Crossing				
Allow for micro tunneling across tarmacked road for hdpe				
pipe of diameter 90mm - 150mm as detailed in the				
drawings and as per the design guidleines in the Kenya				
Roads Design manual. Rate inclusive of steel casing.				
Contractor to allow for provision of requisite diversion				
signage, controls and safety precaution and liaison and				
approval of the methodology with the relevant roads				
agencies	m	30		
0				
	m	50.00		
-				
-	m	30.00		
• • • • •				
rates, nominal bore not exceeding 200mm.				
Cullory/ Divor Crossings				
		60.00		
	m	00.00		
structural details (dwg Nr KE/ w S1F/KE/G w/S1D/030)				
DB m grac or sl li ::a	gencies bitto but for DN 32mm - 75mm breaking up, temporary and permanent reinstatement of hurram road with 300mm thick well graded stabilised ravel with 3% cement base compacted using an 8-10 onne roller to the satisfaction of the Engineer. Nominal ore n.e. 150mm.Rate to include steel casing leeve.Contractor to allow for provision of requisite iversion signage, controls and safety precaution in his ates, nominal bore not exceeding 200mm. <b>Gulley/ River Crossings</b> Illow for gulley crossing for HDPE pipe as detailed in the ook of drawings - Road and Seasonal river crossing rructural details (dwg Nr KE/WSTF/RE/GW/STD/030)	bitto but for DN 32mm - 75mm       m         bitto but for DN 32mm - 75mm       m         breaking up, temporary and permanent reinstatement of       m         burram road with 300mm thick well graded stabilised       m         ravel with 3% cement base compacted using an 8-10       m         onne roller to the satisfaction of the Engineer. Nominal       m         ore n.e. 150mm.Rate to include steel casing       m         leeve.Contractor to allow for provision of requisite       m         iversion signage, controls and safety precaution in his       m         ates, nominal bore not exceeding 200mm.       m         bulkey/ River Crossings       m         Llow for gulley crossing for HDPE pipe as detailed in the ook of drawings - Road and Seasonal river crossing       m	bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 32mm - 75mm       m       30.00         bitto but for DN 30mm thick well graded stabilised       m       30.00         butto avel with 3% cement base compacted using an 8-10       m       30.00         bonne roller to the satisfaction of the Engineer. Nominal       m       30.00         bore n.e. 150mm.Rate to include steel casing       m       30.00         beeve.Contractor to allow for provision of requisite       m       30.00         iversion signage, controls and safety precaution in his       m       50.00         battes, nominal bore not exceeding 200mm.       m       60.00         battes/ River Crossings       m       60.00	bitto but for DN 32mm - 75mm     m     30.00       bitto but for DN 32mm - 75mm     m     30.00       bitto but for DN 32mm - 75mm     m     30.00       bitto but for DN 32mm - 75mm     m     30.00       bitto but for DN 32mm - 75mm     m     30.00       bitto but for DN 30mm thick well graded stabilised     m     30.00       burram road with 300mm thick well graded stabilised     m     30.00       conne roller to the satisfaction of the Engineer. Nominal     m     30.00       born e roller to the satisfaction of the Engineer. Nominal     m     30.00       better contractor to allow for provision of requisite     m     30.00       bitto support to allow for provision of requisite     m     30.00       bitto support to allow for provision of requisite     m     30.00       bitto support to allow for provision of requisite     m     30.00       bitto support to allow for provision of requisite     m     30.00       bitto support to allow for provision of requisite     m     50.00       bitto support to allow for provision of the engineer.     m     50.00

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
ITEM	DESCRIPTION	UNII	QII	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 6				
	Bill Total Carried to Bill Summary				

LO	OT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO AN COUNTY	ND JAL	DESA SCH	IEMES IN M	IARSABIT			
	PROJECT NO.: KE-WSTF-328819-0	CS-QCI	BS					
BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK								
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT			
	CLASS E: EARTHWORKS			(Ksh)	(Ksh)			
	The sites for the proposed Water Reservoirs shall be within the Water							
	Supply Schemes.							
	General excavation							
2.3.1	Excavate in Topsoil for Storage tank Works							
	Maximum depth not exceeding1 m	m <sup>3</sup>	144.00					
	Maximum depth exceeding 1 m	m <sup>3</sup>	172.80					
	Reinstate, fill and level the tank site after construction as directed by the Engineer	Ls	1.00					
	Filling							
	Hardcore							
	Provide approved hardcore and compact in layers of 150mm, blinded with final material 25mm thick	m3	39.68					
2.3.6	Provide fill material to Storage tank Works structures							
	CLASS F: IN SITU CONCRETE Cement Grade 42.5 to Specifications.							
	Mass concrete Class 15/20							
2.3.7	Strength Grade 15/20 (1:3:6) blinding concrete 75 mm thick the tank, with sulphate resisting cement	m <sup>3</sup>	11.12					
	Reinforced concrete Class 30/20:							
2.3.8	Foundation, Base and ground slab concrete, Walls, Beams, Columns, Paparet Wall, Suspended Slab and Gutter	m <sup>3</sup>	136.01					
	Formwork							
	Provide and fix shuttering including propping, strutting and striking, all as specified and including boxing out							
2.3.9	(i) Vertical Formwork - Class F3 Finish	m2	622.32					
	Concrete Surface Finish							
2.3.10	Provide Class UF3 Finish for top of base slab of tank and top suspended slab	m2	276.50					
	Reinforcement							
	Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, lapping propping with spacers and tying as specified							
2.3.11	High yield tensile steel 16mm diameter	kg	6,000.00					
	High yield tensile steel 12mm diameter	kg	7,000.00					
	High yield tensile steel 10mm diameter	kg	2,000.00					
	PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET							

	COUNTY	~~ ~ ~~	~					
	PROJECT NO.: KE-WSTF-328819-0	CS-QCB	S					
BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK								
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT			
	CLASS L: ACCESS CHAMBERS			(Ksh)	(Ksh)			
2.3.14	CLASS L. ACCESS CHAMBERS							
2.3.14	Provide ,supply and install hot-dip galvanised mild steel 1000x1000x6mm thick lockable access chamber covers with 6mm thick angle frame, installation anchors, gaskets etc for a complete installation. CLASS H: PRECAST CONCRETE	nr	2.00					
2.3.15	Provide and lay with all leads and lifts etc. complete 600 x 600 x 50 mm							
	thick precast paving slabs on and including 50 mm thick sand bed as per the drawings	m <sup>2</sup>	80.00					
	CLASS N: MISCELLANEOUS METAL WORK							
	All steelwork to be completely cleaned by acid dipping prior to galvanising. All steel pipes shall be hot-dip galvanised steel pressure pipes rated PN16 or as per the system distribution whichever is higher.							
	Stainless Steel water level Indicator							
2.3.16	Provide, supply, install and commission a tank's stainless steel water level Indicator for O&M.	nr	1.00					
	Access Ladder with safety cage							
	Provide, supply and install internal/external access ladder not exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm diameter tubes. The rate includes flat vertical guard strips 40 x 3mm inlcuding, cleats 40 x 6mm bolted to distribution chamber walls, stringer 40 x 6mm all fillet welded for complete installation.	nr	3.00					
2.3.18	Provision for an 100mm air vent to standard drawing detail	No.	4.00					
	Overflow PIPEWORK DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end	Nr	1					
2.3.20	DN 150 All flanged 90deg short radius bend	Nr	1					
	DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm	Nr	1					
2.3.22	DN 150 Flanged spigot 90deg long radius bend	Nr	1					
	Scour Pipework							
2 2 22	DN 150 Flanged spigot 90 deg short radius bend	Nr	1					
	DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm	Nr	1					
2.3.25	DN 150 All flanged Globe Control valve PN10 with EPDM lining	Nr	1					
	Inlet Pipework							
2.3.26	DN 75 All flanged steel 90 deg long radius bend	Nr	2.00					
	DN 75 Steel double flanged pipe with puddle flange at 1500mm from one end, length 2000mm DN 75 Flanged ball valve	Nr	1.00					
	DN 75 HDPE Stub end Flange	Nr Nr	1.00					
	DN 75 Double flanged pipe piece, length 3000mm	Nr	1					
	Outlet Pipework							
	DN 100 Flanged special bell mouth	Nr	1					
2.3.32	DN 100 All Flanged 90 degree short radius bend	Nr	1					

#### LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO AND JALDESA SCHEMES IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				(Ksh)	(Ksh)
	DN 100 Steel double flanged pipe with double puddle flanges at 400mm	<b>N</b> T			
2.3.33	and 1200mm, length 2000mm	Nr	1		
2.3.34	DN 100 Steel flanged spigot pipe with puddle flange 775mm from spigot end, length 1200mm	Nr	1		
.3.35	DN 100 All flanged Sluice valve PN16 EPDM encapsulated	Nr	1		
2.3.36	DN 100 Electromagnetic meter complete with all accessories and installation sundry for operation	Nr	1.00		
2.3.37	DN 100 Double flanged steel pipe, length 1000mm	Nr	1		
2.3.38	DN 100 All flanged semi-motorised Globe Control valve PN16 EPDM encapsulated fitted with actuator	Nr	1		
2.3.39	DN 100 dismantling steel joint with central flange	Nr	1.00		
2.3.40	DN 100 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	Nr	1.00		
	DN 100 HDPE Stub end Flange	Nr	1		
2.3.42	DN150 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	nr	2.00		
	DN150 mm Bellmouth for Overflow	nr	1.00		
.3.44	DN150 mm x 90° Double flanged bend for overflow	nr	2.00		
	Expansion Joint				
	plastic or rubber waterstop width 400mm with centre bulb	m	60.00		
2.3.46	Formed surface joint with filler, width of depth not exceeding 0.5 m	m2	60.00		
2.3.47	Provide & lay 300mm wide (to suit drawing wall thickness as appropriate) x 12mm thick Ruberoid layer between wall & roof slab.	m	46.00		
	Fencing				
2.3.48	Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	200.00		
.3.49	Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.	Nr	1.00		
		$\vdash$			

	T I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOO COUNT		DESA SC	HEMES IN M	IARSABIT					
	PROJECT NO.: KE-WST	F-328819-CS-QCB	S							
	BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK									
ITEM	ITEM DESCRIPTION UNIT	QTY	RATE	AMOUNT						
				(Ksh)	(Ksh)					
	Page Total, Page 1				5,519,293.25					
	Page Total, Page 2				496,047.00					
	Page Total, Page 3				1,365,555.00					
	Bill Total Carried to Bill Summary									

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

# BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Administration Building Type I				
	CLASS E: EARTHWORKS				
2.4.1	Excavation of surfaces to reduce the level, depth not	m3	11.58		
2.4.1	exceeding 0.25m	mo	11.50		
2.4.2	Foundations and bases for depth not exceeding 1500 mm	m3	41.67		
2.4.2	for strip footing	IIIJ	41.07		
	Excavation Ancillaries				
2.4.3	Trimming of excavated surfaces to recieve blinding	m2	56.70		
	concrete	1112	50.70		
	Filling as Described:-				
	Hardcore				
2.4.4	300mm thick hand packed well compacted hardcore	m2	16.20		
2.4.4	including 75 mm thick blinding layer	m3	10.20		
	Anti-Termite treatment				
	Treat surface of hardcore with approved anti termite				
2.4.4b	solution applied strictly in accordance with the	m2	54.00		
	manufacturers instructions.				
	Damp-Proof Membrane				
	500 Gauge polythene sheeting, laid over hardcore in two	-	54.00		
2.4.5	layers	m2	54.00		
	CLASS F: INSITU CONCRETE:				
	Mass Concrete Class 15/20mm :-				
	75mm Thick blinding under strip footing	m3	4.05		
	Vibrated Reinforced Concrete Reinforced Concrete				
	Class 25/20mm:-				
	150mm thick ground slab with BRC A142 mesh laid 40				
	mm from the top finished with red oxide polish. BRC mesh	m3	8.10		
	rate shall be provided separately.				
	200 mm Thick Class 25/20 concrete for foundtion footiung				
	of dimension 600x600 mm complete with reinfoced column	m3	2.50		
	to of 300mm x 200mm to a depth not less than 1.5m	1115	2.30		
	to or soonini x 200nini to a deput not less than 1.5m				
2.4.9	200x300 Ring Beam concrete	m3	4.62		
	CLASS G: CONCRETE ANCILLARIES				
	Formwork				
	Formwork - Fair Finish:-				
2.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10		
2.4.11	Vertical Sides of the 150mm ground slab	m2	9.63		
	Soffit ring beam 200 mm wide	m2	15.40		

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

# BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	Reinforcement				
	Provide and Fix High Tensile Steel Reinforcement to				
	SRN 127 Including Cutting, Bending, Propping with				
	Spacers and Tying as Specified :-				
	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	High yield tensile steel 10mm diameter to strip footing	kg	300.60		
2.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	Fabric Reinforcement No. A142 Mesh Size 150 x				
	150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends,				
	Tying Wire and Distance Blocks:-				
110	Fabric reinforcement with minimum 200mm wide side and	2	54.00		
2.4.16	end laps, laid in bed- A142 mesh at 25mm from the top	m2	54.00		
	Walling.				
	Natural Stone Walling, Medium Chisel Dressed,				
	Reinforced with 20 swg Hoop Iron at Every Two				
	Course, and Bedded, Jointed and Pointed in Cement				
	Mortar (1:3):-				
2.4.17	200 mm thick masonry wall in substructure	m2	45.00		
	200 mm smooth dressed walling in superstructure	m2	114.00		
	150 mm smooth dressed walling in superstructure	m2	64.60		
	Damp-Proof Course: Bituminous Felt Damp-Proof				
	Course as Described:-				
2.4.20	200mm and 150mm Wide under walls	m	35.20		
	Finishes.				
2.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
	3 coats (one undercoat and two other coats) of silicon				
2.4.22	based emulsion paint to external wall surfaces as in Crown		105 (4		
2.4.22	Permacote ultra guard rain-proof silicone paint or approved	m2 105.64	105.04		
	equivalent.				
	3 coats (one undercoat and two other coats) of emulsion				
2.4.23	paint to interior wall surfaces as in Crown Vinyl Matt		161.88		
2.4.23	Emulsion	m2	101.00		
	with Teflon Surface protector or approved equivalent.				
	CLASS O: TIMBER				
	Roof				
2.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
2.4.25	50x 100 mm: timber beam (GMS posts)	m	10.00		
2.4.26	100 x 50 mm: Struts and ties	m	95.40		
4 27	200 X 25mm fascia and badge	m	36.00		

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING

TEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
2.4.28	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
	75 x 50mm purlins	m	80.00		
	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	Supply and Fix the Following Pressed Metal Louvre Doors				
	with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle				
	and Bottom Rails With Pressed Metal Infill Louvres and				
	100 x 50mm Pressed Metal Frames, Including Hinges, Pad				
	Bolts and Tower Bolts, All To Manufacturer's Details, With				
	Three Coats Gloss Paint Complete With Opening				
	Accessories Including Bedding and Pointing Around				
	Frames in Cement Mortar:-				
	Panel doors				
	Single steel door size 2100 x 900 mm high (D1),				
1431	complete with 50x50x3mm fixed angle frame, 3mm thick	Nr	-		
-	chekered plate build into the panel with union three (3)				
	lever steel door lock, 3x200mm lockable tower bolts				
	Single leaf flush door size 2100 x 900 mm high (D1),		2 00		
	complete with frame, with union three (3) lever door lock	nr	3.00		
	and any other ironmongery.				
	100mm furnished GMS Posts				
	Supply and install 3.5m GMS Posts complete with connectors and anchors for the concrete base and for the		6.00		
2.4.33	100mmx150mm timber beam	nr	0.00		
	Steel Casement Windows				
	Steel Casement windows				
	Supply and Fix the Following Standard Section Steel				
	Casement Windows, including 4mm Thick Clear Sheet				
	Glass glazed to Steel Casements with Putty, Complete				
	with Opening Accessories, including Building in Lugs to				
	Jambs and Head and Water-Proofing and Filling Around				
	Opening With Approved Compound; and Including				
	Burglar-Proofing Fabricated from 12 x 12mm Mild Steel				
	Square Bars at 150mm Centres Vertically and 150mm				
	Horizontally and Fixed Internally to Surrounding Wall				
	with 12mm Mild Steel Fish-Tailed Lugs at Maximum				
	600mm Centres; all Finished with Three Coats Oil Paint:-				
	Window size 1200x 1200mm high with 1 No. fixed and 2				
2 4 2 4	No. side hung opening bottom sashes and with 2 No. fixed	NT	5 00		
1/1 4/1	and 1 No. top-hung top ventilators 200mm high with	Nr	5.00		
	permanent ventilator hood over				
AGE	TOTAL CARRIED FORWARD TO COLLECTION SHI	EET			

LOT I	: KAMBOE MIDROCK, KAMBOE FURMASAN, LOG AND LAISAMIS IN MARSA	BIT COU	NTY	MANYATT	A LENGIMA			
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING								
ITEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.			
	Ceilling							
	12mm Thick Approved Chipboard to BS 2604, Part 2,							
	Density 480-640kgs, Per Square Meter in Sheets Size							
	2400 x 1200mm Fixed to and Including 50 x 50mm							
	Sawn Cypress Grade 2 Battens at 600mm Centres in							
	Both Directions Complete with Gauge Jointing							
	Material, painting & filler							
	Horizontal ceiling fixed to underside of trusses	m2	54.00					
	12mm Cornice 50mm high, plugged	m	47.00					
	ELECTRIFICATION FITTINGS							
	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated							
	copper cables drawn in HG high impact pvc conduits and							
	accessories all concealed in building fabric for one or two	L. Sum						
	way switching,13 Amps socket outlet points wired in							
/ 4 3/1	2.5mm <sup>2</sup> single pvc insulated cables enclosed in pvc		1.00					
	conduits, accessories and concealed in building fabric to		1.00					
	form ring main circuits, 15mmx16mm diameter pure							
	electroylite copper earth rods including 35mm <sup>2</sup> earth lead							
	cable, deep driven to permanent moisture level. Rate to							
	include supply of all necessary materials and installation.							
	FURNITURE							
	Curtains for office for all windows and doors	Set	1.00					
	Office tables 2.2x0.9 m	No	1.00					
	Standard office chairs	No	8.00					
	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00					
	SANITATION FACILITY							
	Provide all materials and construct a 1500mmx900mm pit							
	latrine with depth from floor level at 6m. Stone masonry							
	walling shall be 150mm, 125mm floor slab reinforced with	L. Sum	1.00					
	T10 @100mm c/c, Roofing corrugated iron sheets gauge 28 etc All details as per the drawing and as directed by							
	engineer.							
	engineer.							

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

# BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
				Kshs.	Kshs.	
	Page Total, Page 1					
	Page Total, Page 2					
	Page Total, Page 3					
	Page Total, Page 4					
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# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### BILL NO. 2: KAMBOE MIDROCK WATER SUPPLY SCHEME - COLLECTION SHEET

BILL	DESCRIPTION	AMOUNT
No		Kshs
2.1	BOREHOLES AND WELL DEVELOPMENT	
2.2	PIPELINE AND FITTINGS	
2.3	REINFORCED CONCRETE RESERVOIR	
2.4	PROJECT ADMINISTTAION BUILDING	
	Bill 2: Kamboe Midrock Water Supply Scheme	

## LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
3.1	BOREHOLE/WELL DEVELOPMENT				
	The Contractor shall, supply, install, test, commisssion and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer.				
3.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer	Prov. Sum	1.0	100,000.00	100,000.00
3.1.2	Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.	Prov. Sum	1.0	100,000.00	100,000.00
3.1.3	Allow a provisional sum of 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.	Prov. Sum	1.0	250,000.00	250,000.00
3.1.4	Allow % for overheads, administration, profits, etc	%			
3.1.5	Supply, install, test and commission 45kW, 61.18Hp Submersible Pump SP 30-25 or approved equivalent with a discharge (36m3/hr)and head (175m) pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40- 1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No	1		
3.1.6	Supply, install, test and commission 2.5 mm <sup>2</sup> /4 core submersible pump flat cable	m	180		
3.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
3.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	360		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	ON SH	ЕЕТ		

## LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

## PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM		UNIT	QTY	RATE	AMOUNT
			V11	Kshs.	Kshs.
3.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the	No.	1		
	Servers for Future Expansion. Supply, install, test and commission the following				
	Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data				
	logger.				
3.1A. 9.2	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors	LS	1.00		
3.1A. 9.3	PT100 or equivalent. Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or	No.	1.00		
3.1A. 9.4	equivalent) Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1		
9.7	Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJA530A or equivalent)	No.	1.00		
6.1A. 0.10	Power Consumption Sensor (tracks energy use, Model: Carlo Gavazzi EM24 or equivalent)	No.	1.00		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	ON SH	EET		

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

## PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			119	Kshs.	Kshs.
	pH Sensor (measures acidity/alkalinity, Model: Yokogawa	No.	1.00		
9.11	FLXA21 or equivanelt)	1.0.	1.00		
3.1A.	Supply, install, test and commission the TDS and EC		1 0 0		
9.12	Sensor (measures dissolved minerals, Model: Yokogawa	No.	1.00		
	SC72 or equivalent)				
	Supply, install, test and commission of an array of solar				
	with the following specicifications:				
	390W solar panels, Monocrystalline Silicon PV, with 25				
2 1 10	years warranty The power output of the modules should generate enough	Na	100.0		
5.1.10		No.	100.0		
	power such that the power output at the connection point to the distribution board is not less than 64.35 kW on a				
	bright sunny day at midday taking into account the system				
	losses.				
	Supply, installation and furnishing support structures with				
	the following specifications:				
	60mm x 40mm (minimum) aluminium angle plates using				
	stainless steel bolts of appropriate size and anchored				
	firmly to the ground on concrete fixtures so that the				
	modules are about 2.5 m above the ground for the low				
	height side and a maximum of 3m above the ground for				
3.1.11	the high height side in case of a 2m length solar panel or	Set	1		
-	any other height on the high height side as long the tilt				
	angle is not more than 150 from the horizontal. A layer of				
	ballast aggregate of 16mm to be laid below the solar PV				
	arrays.				
	The angle of inclination and orientation of the modules to				
	be determined by the site geographical coordinates for				
	maximum optimization of the power output.				
3.1.14	Allow a Provisional Sum of Kshs. 5,000,000/= for	P.S	1		
5.1.14	installation of KPLC 3 phase power.	1.5	1		
3.1.15	Add % for profit, administration, attendance upon,	%	10%		
	overheads, etc. for Item 3.1.13 and 3.1.14 above.				
	Supply, install, test and commission a 55 kW (minimum)				
	Hybrid Solar Pumping Inverter RSI 3x380-440V IP66				
3.1.16	55kW 105A or approved equivalent complete with	Set	1		
	accessories. The inverter to be installed indoors or under				
	the solar panels mounting with a small shed above and to				
	have protection of at least IP54.				
	PAGE TOTAL CARRIED TO SECTION COLLECTI	ON SH	EET		

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	DESCRIPTION	UNII	QII	Kshs.	Kshs.
	Supply, install, test and commission a TPN Automatic				
5.1.17	change over switch for the above components with	No	1		
	override switch, complete with the metal enclosure to				
	have a protection of atleast IP54.				
	Supply, install, test and commission Schneider Acti9				
5.1.18	Energy Meter 3p kWH 63Amps modibus or approved	No	1		
	equivalent for measuring energy generated by the solar				
	PV system complet with IP66 rated enclosure.				
	Supply of materials and construct a Genset/Control room				
3.1.19	building to drawing and Specifications. Rate to include	Set	1		
	excavations, setting out, erection and all installations for				
	the structure as per Appendix B				
	Supply, install, test and commission Cabling complete				
	with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and				
1 20	to agreed connection point at the station through an	T . 4	1		
0.1.20	energy meter and generator. This to also include cabling	Lot	1		
	from the diesel generator for integration with power from				
	the solar plant.				
	Supply, install, test and commission weather monitoring				
.1.21	system- Pyranometer	No	1		
	Supply, install, test and commission Modem and router				
1 22	for remote monitoring and control. Grundfos SqFlex or	Set	1		
0.1.22	equivalent	Set	1		
	Supply and install Aerial lightning arrestors at 6m height,				
3.1.23	fixed to concrete foundations	Set	1		
	Supply and install Earthing materials, including all				
1 24	inspection chambers, rods, tape bonding straps etc. as	Set	1		
.1.27	necessary for the earthing requirements with the borehole	Set	1		
	Supply install test and commission Motor Protection Unit				
3.1.28	MP204 or equivalent	No	1		
	Allow a PC sum for supply, installation, testing and	PC			
3.1.29	commissioning of Variable Speed Pump Controller CUE	Sum	1		
	Allow for 12 months after sale service including training	Bulli			
3.1.30	of operators and technicians.	Ls	1		
	HMI (15-inch touchscreen minimum) core i7 Gen 10,		1		
3.1.33	storage 256 SSD, 16GB RAM, Minimum screen	No.			
	resolution 1920x1080 pixels, 24bit colors				
	PAGE TOTAL CARRIED TO SECTION COLLECTION	ON CH	EFT		

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

TEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Communication Infrastructure				1101101
	Supply and installation of GSM/GPRS/4G		2		
	communication modules for boreholes and booster	No.	-		
.1.5 1	stations	110.			
	Supply and installation of Antennas and signal boosters		2		
1 25	for remote locations	No.	2		
	Supply and installation of Fiber Optic Cable (8-core,		500		
.1.36	single-mode)	m	300		
	Supply and installation of Fiber Optic Termination Boxes,		10		
3.1.37		Set	12		
	Wall-mounted, dustproof				
.1.38	Supply and installation of Fiber Optic Splicing and	Lot	1		
	Accessories				
	Fire Fighting Equipment				
	Supply, install, test and commission 5 Kg Class ABC				
.1.39	Powder steel cylinder fire extinguisher, c/w pressure	No	1		
.1.59	gauge wall mounting steel bracket, operating instructions	INU	1		
	and				
	accessories, fully charged.				
	Fencing				
	Excavate for post holes, provide all materials and				
	construct chain link fence on concrete posts at 3 m centres				
	all as per drawing details, including straining posts at				
	every 10th post and additional posts at corners and botton	m	120		
	concrete cover to ground level under the fence. Works to		120		
	include provision and installation of a Double Galvanized				
	Razor Wire protection.				
	Provide all materials and construct 6.0 m wide lockable				
	metal gate all to detailed. The gate to have a lockable	NL	1		
0.1.41		Nr	1		
	pedestrian gate 1m wide opening.				
	Borehole pipeworks				
	Borehole cover with extended 1m flanged pipe piece				
	DN50. Note the cover should also allow for any other	Nr	1		
	cabling and instrumentation for the borehole.				
	All Flanged 90 deg long elbow DN 50	Nr	3		
	Double Flanged Non-Return Valve 50	Nr	1		
.1.45	Double Flanged Gate Valve DN 50	Nr	4		
	Supply and intsall multi-turn actuators for open-close duty				
	paired with actuator controls, and variable speed	No.	4		
	models.				
.1.46	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
			-		

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### BILL NO. 3.1: KAMBOE FUMASAN WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT

ТЕМ	DESCRIPTION	UNIT	оту	RATE	AMOUNT	
			···	Kshs.	Kshs.	
1 47	DN50mm non-slam Double-orifice Air Valve with	NT	1			
.1.47	flanged base, complete to detail as indicated in the	No.	1			
1.40	Drawings.		1			
	Double flanged pipe piece DN50 length 1500mm	Nr	1			
	Provide, install, test and commission an electromagnetic	N	1			
	flow meter DN 50 PN16. Rate to include 2 battery power	Nr	1			
	supply, IP 68, RS232 and RS 485 port outputs.					
	Double flanged pipe piece DN50 length 1000mm	Nr	2			
	All flanged equal 1.8m long extended steel tee	Nr	2			
	50mmx50mmx50mm					
	All flanged reducing taper 50mmx63mm	Nr	1			
.1.53	Flanged HDPE Stub end DN63	Nr	1			
.1.54	All Flanged 50mmx50mmx50mm tee connection to a	Nr	1			
	surge protection vessel PN16					
	Allow a provision of supply, installation, testing and					
	commissioning of appropriately sized surge vessels or					
	surge control valve with all manway accesses, flange pipe	Lump				
	connections and all other appurtenances as per	Sum	1			
	manufacturers recommendations and in accordance with	2 4111				
	specification and a air buffer vessel to DN 50 rising main					
	PN20.					

PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			~	Kshs.	Kshs.
	Page Total, Page 1				
	Tage Total, Tage T				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 5				
  1	Bill Total Carried to Bill Summary				

LOT I	POINTS) BATCH I PROJECTS : KAMBOE MIDROCK, KAMBOE FURMASAN, L	OGLO	GO, JALDE		LENGIMA	
	AND LAISAMIS IN MAF PROJECT NO.: KE-WSTI					
]	BILL NO. 3.2: KAMBOE MIDROCK WATER SUP		_		TINGS	
ITEM	DESCRIPTION		QTY	RATE Kshs.	AMOUN Kshs	
	i. The Contactor to maintain uninterrupted continuity of water supply in existing pipelines					
	iv. Keeping trenches free of excessive groundwater,					
	seepage or water from any source					
	PIPE AND PIPE FITTINGS					
	Pipe Work - Supply, lay, joint, pressure test,disinfect					
	Supply, handle, and install (rates shall include jointing					
	materials, bolts, gaskets packing jointing glue, welding etc., as applicable) to the following HDPE Pipes to KS					
	ISO 4427 and Steel/ferrous Fittings (valves and pipe					
	specials) in trench as per the specifications. All pipe fittings and valve diameters indicated are Nominal					
	Diameters					
	Pipe trench excavation is to commence from ground					
	level to a minimum depth of 1.5m. Rate to include					
	setting out, general bush clearing, Pipe laying,					
	Pressure testing, disinfection, backfilling with imported					
	bedding and surrround material all as per					
	specifications, drawings and as directed by the					
	engineer					
	RISING MAINS					
3.2.1	HDPE Pipe DN140mm PN16	m	1,700			
222	Non return valves	N	1			
3.2.2	DN 140mm Non-return valves Airvalves	Nr	1			
3.2.3	DN 50mm airvalve AVK or approved equivalent	Nr	1			
0.2.0	MAIN PIPELINES AND DISTRIBUTION SYSTEM					
3.2.4	HDPE Pipe DN50mm PN16	m	1,568			
3.2.5	HDPE Pipe DN63mm PN16	m	730			
	Bends					
3.2.6	DN 63mm 90°	Nr.	2			
	Reducers					
	50mm offtake					
	DN 50x50x50mm HDPE tee	Nr	1			
	DN 50mm stub end with MS flange ring	Nr	2			
3.2.11	DN 50mm flanged sluice valve DN 140mm Terminal connection (with washout)	Nr	-			
3 2 1 2	DN 140x140x90mm HDPE (Reduced or Equal) tee	Nr	- 1			
	DN 90mm stub end with MS flange back ring	Nr	4			
	DN 90mm Flanged gate valve	Nr	2	<u> </u>		
	DN 90mm HDPE flap valve	Nr	1			
	DN 90mm HDPE PN 16 pipe	m	60			
	DN 63mm Terminal connection (with washout)		-			
3.2.17	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1			
	Page total carried to summary page					

LOT I	: KAMBOE MIDROCK, KAMBOE FURMASAN, L AND LAISAMIS IN MAR			CSA, MANYATTA I	LENGIMA					
1	PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS									
	DESCRIPTION	UNIT		RATE	AMOUNT					
3 2 18	DN 50mm stub end with MS flange back ring	Nr	4	Kshs.	Kshs					
	DN 50mm Flanged gate valve	Nr	2							
	DN 50mm HDPE flap valve	Nr	1							
	DN 50mm HDPE PN 16 pipe	m	60							
5.2.21	Air Valve Chamber Fittings (DN140mm) -(1No)		00							
3.2.27	HDPE Reducer Tee DN 140mm x 140mm x 63mm	Nr	1							
	DN63 mm HDPE Stub End with MS Flange									
	DN 50mm double flanged sluice valve									
	DN 50mm double orifice airvalve									
	Washout (DN 140mm) -(1No)	Nr     1       Nr     2								
	HDPE Reducer Tee DN 140mm x 140mm x 90mm	Nr	1							
	DN 140mm HDPE stub end with MS Flange									
	DN 90 mm HDPE stub end with MS Flange									
	DN 90mm sluice valve	Nr	1							
	DN 90mm HDPE pipe (PN 12.5)	m	24							
5.2.55	Masonry headwall with base slab for Erosion		24							
3.2.36	protection at discharge point	Ls	1							
	Air Valve Chamber Fittings (DN75mm) -(2No)									
	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	2							
	DN63 mm HDPE Stub End with MS Flange	Nr	2							
	DN 50mm double flanged sluice valve	Nr	2							
	DN 50mm double orifice airvalve	Nr	2							
	Washout (DN 75mm) -(2No)	INF	Z							
	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	2							
	DN 75mm HDPE stub end with MS Flange	Nr	8							
	DN 75 mm HDPE stub end with MS Flange	Nr	4							
	DN 75 mm HDPE studiend with MS Flange DN 75 mm sluice valve	Nr	2							
			48							
3.2.45	DN 75mm HDPE pipe (PN 12.5) Masonry headwall with base slab for Erosion	m	48							
3.2.46		Ls	2							
	protection at discharge point									
	Air Valve Chamber Fittings (DN 50mm) -(2No)									
	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must	Nr	2							
	be electrofussion)									
	HDPE DN 32 mm PN 16 short piece pipe (400 mm	Nr	2							
	long)	N	2							
	HDPE DN 32 mm PN 16 Male adapter	Nr	2							
	HDPE DN 32 mm Pegler brass gate valve	Nr	2							
	DN 32 mm Stainless Steel Hex Nipple	Nr	2							
3.2.52	DN 32 mm Threaded Air Valve	Nr	2							
	Washout (DN 50mm) -(2No)									
	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofussion)	Nr	2							
3.2.54	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	2							
	HDPE DN 50 mm PN 16 Flanged adapter	Nr	2							
3.2.56	HDPE DN 50 mmFlanged Sluice valve	Nr	2							
	Dage total earning to commence and									
	Page total carried to summary page									

LOT I	: KAMBOE MIDROCK, KAMBOE FURMASAN, L AND LAISAMIS IN MAR	OGLO	GO, JALDES		LENGIMA
-	PROJECT NO.: KE-WST				TDIGG
BILL NO. 3.2: KAMBOE MIDROCK WATER SUPP				ELINE AND FIT RATE	<u>TINGS</u> AMOUNT
	DESCRIPTION	UNIT	QTY -	Kshs.	Kshs
3.2.57	DN 50 mm HDPE pipe (PN 12.5)	m	48		
3.2.58	Masonry headwall with base slab for Erosion protection at discharge point	Ls	2		
	Water Draw Off Facilities				
3.2.58a	Supply of materials and construct a water tanker collection facility to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix F	Nr.	1		
3.2.59	Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C	Nr.	1		
	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2		
3.2.61	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2		
3.2.62	Supply of materials and construct a sanitation facility as described to detail in Appendix C and The drawings	Item	1		
	Page total carried to summary page				

LOT I	POINTS) BATCH 1 PROJECTS 1 : KAMBOE MIDROCK, KAMBOE FURMASAN, L AND LAISAMIS IN MAR	OGLO	GO, JALDES		LENGIMA				
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS									
	DESCRIPTION	UNIT		RATE	AMOUNT Kshs				
3.2.64	Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications -Keypad, - Screen (LCD), -Tag Pay Option (RFID/NFC), -Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households.	Nr	1.00	Kshs.					
3.2.65	Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	1.00						
	Chambers (Civil Works) Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as shown on contract drawings. Washouts Air valves Valve chambers	Nr. Nr. Nr.	5 5 2						

LOTI	POINTS) BATCH I PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY									
	PROJECT NO.: KE-WSTF-328819-CS-QCBS									
			-		TDICC					
	BILL NO. 3.2: KAMBOE MIDROCK WATER SUP	PLY SC	HEME - PL							
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUN' Ksh					
	ANCILLARIES ITEMS									
3.2.69	Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications	No	10							
	Thrust Blocks									
3.2.70	Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing	Nr	10							
0.0.1.(0)	Road Crossing									
2.2.103	Allow for micro tunneling across tarmacked road for hdpe pipe of diameter 90mm - 150mm as detailed in the drawings and as per the design guidleines in the Kenya Roads Design manual. Rate inclusive of steel casing. Contractor to allow for provision of requisite diversion signage, controls and safety precaution and liaison and approval of the methodology with the relevant roads agencies	m	30							
2 2 1 ( 4	Ditto but for DN 32mm - 75mm	m	30.00							
2.2.165	Breaking up, temporary and permanent reinstatement of murram road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm.Rate to include steel casing sleeve.Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm.	m	30.00							
2.2.166	Gulley/ River Crossings Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)	m	60.00							
	Page total carried to summary page									

LOT I	OT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA. AND LAISAMIS IN MARSABIT COUNTY								
	PROJECT NO.: BILL NO. 3.2: KAMBOE MIDROCK WA	: KE-WSTF-328819			TINGS				
	DESCRIPTION	UNIT	QTY	RATE	AMOUNT				
			-	Kshs.	Kshs.				
	Page Total, Page 1								
	Page Total, Page 2								
	Page Total, Page 3								
	Page Total, Page 4								
	Page Total, Page 5								
	Bill Total Carried to Grand Summary								

### LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM No.	ITEM DESCRIPTION	UNI T	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
	CLASS E: EARTHWORKS				
	The sites for the proposed Water Reservoirs shall be				
	within the Water Supply Schemes.				
	General excavation				
3.3.1	Excavate in Topsoil for Storage tank Works				
3.3.2	Maximum depth not exceeding1 m	m <sup>3</sup>	196		
3.3.3	Maximum depth exceeding 1 m	m <sup>3</sup>	235		
3.3.4	Reinstate, fill and level the tank site after construction as		1		
	directed by the Engineer	Ls	1		
	Filling				
	Hardcore				
3.3.5	Provide approved hardcore and compact in layers of				
2.2.0	150mm, blinded with final material 25mm thick	m <sup>3</sup>	51		
3.3.6	Provide fill material to Storage tank Works structures				
	CLASS F: IN SITU CONCRETE Cement Grade 42.5				
	to Specifications.				
	Mass concrete Class 15/20				
3.3.7	Strength Grade 15/20 (1:3:6) blinding concrete 75 mm	3	14		
	thick the tank, with sulphate resisting cement	m <sup>3</sup>	14		
	Reinforced concrete Class 30/20:				
3.3.8					
	Foundation, Base and ground slab concrete, Walls, Beams,	m <sup>3</sup>	164		
	Columns, Paparet Wall, Suspended Slab and Gutter				
	Formwork				
	Provide and fix shuttering including propping, strutting and				
	striking, all as specified and including boxing out				
3.3.9	(i) Vertical Formwork - Class F3 Finish	m <sup>2</sup>	600		
	Concrete Surface Finish				
3.3.10	Provide Class UF3 Finish for top of base slab of tank and	$m^2$	310		
	top suspended slab		510		
	Reinforcement				
	Provide and fix high tensile steel reinforcement to SRN				
	127 including cutting, bending, lapping propping with				
	spacers and tying as specified				
	High yield tensile steel 16mm diameter	kg	7,500		
	High yield tensile steel 12mm diameter	kg	9,500		
3.3.13	High yield tensile steel 10mm diameter	kg	4,500		
	PAGE TOTAL CARRIED FORWARD TO COLLECT	ION S	HEET		

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM No.	ITEM DESCRIPTION	UNI T	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
	CLASS L: ACCESS CHAMBERS				
3 3 14	Provide ,supply and install hot-dip galvanised mild steel				
5.5.14	1000x1000x6mm thick lockable access chamber covers				
	with 6mm thick angle frame, installation anchors, gaskets	nr	2		
	etc for a complete installation.				
	CLASS H: PRECAST CONCRETE				
3.3.15	Provide and lay with all leads and lifts etc. complete 600 x				
	600 x 50 mm thick precast paving slabs on and including	m <sup>2</sup>	60		
	50 mm thick sand bed as per the drawings				
	CLASS N: MISCELLANEOUS METAL WORK				
	All steelwork to be completely cleaned by acid dipping				
	prior to galvanising. All steel pipes shall be hot-dip				
	galvanised steel pressure pipes rated PN16 or as per the				
	system distribution whichever is higher.				
	Stainless Steel water level Indicator				
3.3.17	Provide, supply, install and commission a tank's stainless				
0.011	steel water level Indicator for O&M.	nr	1		
	Access Ladder with safety cage				
3.3.18					
0.0110	Provide, supply and install internal/external access ladder				
	not exceeding 4.5m high made of hot-dip galvanised mild				
	steel 50 mm diameter tubes. The rate includes flat vertical	nr	3		
	guard strips 40 x 3mm inleuding, cleats 40 x 6mm bolted		5		
	to distribution chamber walls, stringer 40 x 6mm all fillet				
	welded for complete installation.				
	·				
3.3.19	Provision for an 100mm air vent to standard drawing		0		
	detail	No.	9		
	Overflow PIPEWORK				
3.3.20	DN 150 Steel Flanged spigot pipe 2.2m with puddle flange	<b>N</b> T	1		
	75mm from spigot end	Nr	1		
3.3.21	DN 150 All flanged 90deg short radius bend	Nr	1		
3.3.22	DN 150 Double Flanged pipe piece with puddle flange at		1		
	600mm, length 1500mm	Nr	1		
3.3.23	DN 150 Flanged spigot 90deg long radius bend	Nr	1		
	Scour Pipework				
3.3.24	DN 150 Flanged spigot 90 deg short radius bend	Nr	1		
	DN 150 double flanged pipe with puddle flange @		,		
	1500mm from one end, length 2000mm	Nr	1		
3.3.26	DN 150 All flanged Globe Control valve PN10 with				
	EPDM lining	Nr	1		
	PAGE TOTAL CARRIED FORWARD TO COLLECT	ION S	HEET		

### LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM No.	ITEM DESCRIPTION	UNI T	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
	Inlet Pipework				
3.3.27	DN 150 All flanged steel 90 deg long radius bend	Nr	2.00		
3.3.28	DN 150 Steel double flanged pipe with puddle flange at		1.00		
	1500mm from one end, length 2000mm	Nr	1.00		
3.3.29	DN 150 Flanged ball valve	Nr	1.00		
3.3.30	DN 150 HDPE Stub end Flange	Nr	1		
3.3.31	DN 150 Double flanged pipe piece, length 3000mm	Nr	1		
	Outlet Pipework				
3.3.32	DN 150 Flanged special bell mouth	Nr	1		
3.3.33	DN 150 All Flanged 90 degree short radius bend	Nr	1		
	DN 150 Steel double flanged pipe with double puddle				
	flanges at 400mm and 1200mm, length 2000mm	Nr	1		
3.3.35	DN 150 Steel flanged spigot pipe with puddle flange				
	775mm from spigot end, length 1200mm	Nr	1		
3.3.36	DN 150 All flanged Sluice valve PN16 EPDM				
	encapsulated	Nr	1		
3.3.37	DN 150 Electromagnetic meter complete with all		1.00		
	accessories and installation sundry for operation	Nr	1.00		
3.3.38	DN 150 Double flanged steel pipe, length 1000mm	Nr	1		
	DN 150 All flanged semi-motorised Globe Control valve				
	PN16 EPDM encapsulated fitted with actuator	Nr	1		
3.3.40	DN 150 dismantling steel joint with central flange	Nr	1.00		
	DN 150 double flanged pipe with puddle flange at 400mm				
	from one end, length 1000mm	Nr	1.00		
3.3.42	DN 150 HDPE Stub end Flange	Nr	1		
	DN150 double flanged pipe with puddle flange at 400mm		• • •		
	from one end, length 1000mm	nr	2.00		
3.3.44	DN150 mm Bellmouth for Overflow	nr	1.00		
	DN150 mm x 90° Double flanged bend for overflow	nr	2.00		
	Diviso min x 30 Double nanged bend for overnow	111	2.00		
	Expansion Joint				
3.3.46					
5.5.40	plastic or rubber waterstop width 400mm with centre bulb	m	60		
3317	Formed surface joint with filler, width of depth not				
5.5.47	exceeding 0.5 m	m2	60.00		
2 2 18	Provide & lay 300mm wide (to suit drawing wall thickness	1112			
5.5.40	as appropriate) x 12mm thick Ruberoid layer between wall		55.60		
	& roof slab.	m	55.00		
2 2 40	Provide pumice aggregates and spread at 300mm to the	m			
5.5.49	roof of tank include rate for uPVC dropdown pipes to		57.963		
	drain roof.	m3	37.905		
		ms			
					<b> </b>
			1		1

#### CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK AMOUNT ITEM UNI RATE **ITEM DESCRIPTION** QUANTITY No.

Т (Ksh) PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

(Ksh)

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM No.	ITEM DESCRIPTION	UNI T	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
	Foncing				
	<b>Fencing</b> Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	1		
3.3.51	Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.	Nr	1		
		ļ			
	PAGE TOTAL CARRIED FORWARD TO COLLECT	ION S	HEET		

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

### PROJECT NO.: KE-WSTF-328819-CS-QCBS

ITEM No.	ITEM DESCRIPTION	UNI T	QUANTITY	RATE (Ksh)	AMOUNT (Ksh)
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Bill Total Carried to Bill Summary				

LOT I:	WATER POINTS) BATCH 1 PROJECT KAMBOE MIDROCK, KAMBOE FURMASAN, LO				A LENGIMA
	AND LAISAMIS IN MARS				
	PROJECT NO.: KE-WSTF-		-		
ITEM	BILL NO. 3.4: KAMBOE FURMASAN - A	DMINIS	I RATION		
HEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
	Administration Building Type I				
	CLASS E: EARTHWORKS				
3.4.1	Excavation of surfaces to reduce the level, depth not exceeding 0.25m	m3	11.58		
3.4.2	Foundations and bases for depth not exceeding 1500 mm for strip footing	m3	41.67		
	Excavation Ancillaries				
	Trimming of excavated surfaces to recieve blinding				
3.4.3	concrete	m2	56.70		
	Filling as Described:-				
	Hardcore				
3.4.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	Anti-Termite treatment				
3.4.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the	m2	54.00		
	manufacturers instructions.				
	Damp-Proof Membrane				
3.4.5	500 Gauge polythene sheeting, laid over hardcore in		54.00		
3.4.3	two layers	m2	54.00		
	CLASS F: INSITU CONCRETE:				
	Mass Concrete Class 15/20mm :-				
3.4.6	75mm Thick blinding under strip footing	m3	4.05		
	Vibrated Reinforced Concrete Reinforced Concrete				
	Class 25/20mm:-				
	150mm thick ground slab with BRC A142 mesh laid 40				
3.4.7	mm from the top finished with red oxide polish. BRC	m3	8.10		
	mesh rate shall be provided separately.				
	200 mm Thick Class 25/20 concrete for foundtion				
	footiung of dimension 600x600 mm complete with	m3	2.50		
5.7.0	reinfoced column to of 300mm x 200mm to a depth not	111.5	2.50		
	less than 1.5m				
3.4.9	200x300 Ring Beam concrete	m3	4.62		
	CLASS G: CONCRETE ANCILLARIES				
	Formwork				
	Formwork - Fair Finish:-				
	Formwork to sides of 300 mm deep ring beam	m2	23.10		
	Vertical Sides of the 150mm ground slab	m2	9.63		
3.4.12	Soffit ring beam 200 mm wide	m2	15.40		
	Reinforcement				
	Provide and Fix High Tensile Steel Reinforcement to				
	SRN 127 Including Cutting, Bending, Propping with				
	Spacers and Tying as Specified :-				
	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	High yield tensile steel 10mm diameter to strip footing	kg	300.60		

	KAMBOE MIDROCK, KAMBOE FURMASAN, LO AND LAISAMIS IN MARS			-,	
	PROJECT NO.: KE-WSTF-				
	<b>BILL NO. 3.4: KAMBOE FURMASAN - A</b>	DMINIS'	<b>TRATION</b>	<u>BUILDING</u>	
ITEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
3.4.15	High yield tensile steel 8mm diameter links to ring	kg	101.96	13115.	113115.
	beam	0			
	Fabric Reinforcement No. A142 Mesh Size 150 x				
	150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends,				
	Tying Wire and Distance Blocks:-				
	Fabric reinforcement with minimum 200mm wide side				
3.4.16	and end laps, laid in bed- A142 mesh at 25mm from the	m2	54.00		
	top				
	Walling.				
	Natural Stone Walling, Medium Chisel Dressed,				
	Reinforced with 20 swg Hoop Iron at Every Two				
	Course, and Bedded, Jointed and Pointed in Cement				
	Mortar (1:3):-				
3.4.17	200 mm thick masonry wall in substructure	m2	45.00		
	200 mm smooth dressed walling in superstructure	m2	114.00		
	150 mm smooth dressed walling in superstructure	m2	64.60		
	81				
	Damp-Proof Course: Bituminous Felt Damp-Proof				
	Course as Described:-				
3.4.20	200mm and 150mm Wide under walls	m	35.20		
	Finishes.				
3.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
	3 coats (one undercoat and two other coats) of silicon				
3.4.22	based emulsion paint to external wall surfaces as in	m2	105.64		
	Crown Permacote ultra guard rain-proof silicone paint				
	or approved equivalent.				
	3 coats (one undercoat and two other coats) of				
3.4.23	emulsion paint to interior wall surfaces as in Crown	m2	161.88		
	Vinyl Matt Emulsion				
	with Teflon Surface protector or approved equivalent. CLASS O: TIMBER				
	Roof				
	50x 100 mm Rafter, ridge piece and tie beams: in				
3.4.24	trusses	m	140.50		
	50x 100 mm: timber beam (GMS posts)	m	10.00		
3.4.26	100 x 50 mm: Struts and ties	m	95.40		
3.4.27	200 X 25mm fascia and badge	m	36.00		
3.4.28	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
	75 x 50mm purlins	m	80.00		

	PROJECT NO.: KE-WSTF-	328819-C	S-QCBS		
	BILL NO. 3.4: KAMBOE FURMASAN - A	DMINIS'	TRATION	BUILDING	
TEM DI	ESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
3.4.30 <sup>28</sup> ca	Gauge Blue prepainted roof sheets including ridge	m2	80.00		
Su Do 50 Iny Ind Co Be Ma Co Be Ma Sin co 3.4.31 thi thu bo Sin	ipply and Fix the Following Pressed Metal Louvre oors with 100 x 50mm Stiles and Top Rails, 150 x 0mm Middle and Bottom Rails With Pressed Metal fill Louvres and 100 x 50mm Pressed Metal Frames, cluding Hinges, Pad Bolts and Tower Bolts, All To fanufacturer's Details, With Three Coats Gloss Paint complete With Opening Accessories Including edding and Pointing Around Frames in Cement fortar:- anel doors ngle steel door size 2100 x 900 mm high (D1), omplete with 50x50x3mm fixed angle frame, 3mm ick chekered plate build into the panel with union ree (3) lever steel door lock, 3x200mm lockable tower olts ngle leaf flush door size 2100 x 900 mm high (D1),	Nr	-		
loc	omplete with frame, with union three (3) lever door ck and any other ironmongery. 00mm furnished GMS Posts	nr	3.00		
3.4.33 Su the	upply and install 3.5m GMS Posts complete with onnectors and anchors for the concrete base and for e 100mmx150mm timber beam eel Casement Windows	nr	6.00		
Ca Gl wi to Ar Inc 12 Ve Int Fi:	apply and Fix the Following Standard Section Steel asement Windows, including 4mm Thick Clear Sheet lass glazed to Steel Casements with Putty, Complete ith Opening Accessories, including Building in Lugs Jambs and Head and Water-Proofing and Filling round Opening With Approved Compound; and cluding Burglar-Proofing Fabricated from 12 x 2mm Mild Steel Square Bars at 150mm Centres vertically and 150mm Horizontally and Fixed ternally to Surrounding Wall with 12mm Mild Steel ish-Tailed Lugs at Maximum 600mm Centres; all inished with Three Coats Oil Paint:-				
	indow size 1200x 1200mm high with 1 No. fixed and No. side hung opening bottom sashes and with 2 No. ked and 1 No. top-hung top ventilators 200mm high	Nr	5.00		

	PROJECT NO.: KE-WSTF-	378010 0	S OCDS		
	BILL NO. 3.4: KAMBOE FURMASAN - A		-	BUILDING	
ITEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
	Ceilling			ix5ii5.	113113.
	12mm Thick Approved Chipboard to BS 2604, Part				
	2, Density 480-640kgs, Per Square Meter in Sheets				
	Size 2400 x 1200mm Fixed to and Including 50 x				
	50mm Sawn Cypress Grade 2 Battens at 600mm				
	Centres in Both Directions Complete with Gauge				
	Jointing Material, painting & filler				
	Horizontal ceiling fixed to underside of trusses	m2	54.00		
3.4.36	12mm Cornice 50mm high, plugged	m	47.00		
	ELECTRIFICATION FITTINGS				
	Lighting points wired in 1.5mm <sup>2</sup> single core pvc				
	insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building				
	fabric for one or two way switching,13 Amps socket				
	outlet points wired in 2.5mm <sup>2</sup> single pvc insulated				
3.4.37	cables enclosed in pvc conduits, accessories and	L. Sum	1.00		
5.4.57	concealed in building fabric to form ring main circuits,		1.00		
	15mmx16mm diameter pure electroylite copper earth				
	rods including 35mm <sup>2</sup> earth lead cable, deep driven to				
	permanent moisture level. Rate to include supply of all				
	necessary materials and installation.				
	FURNITURE				
3 4 38	Curtains for office for all windows and doors	Set	1.00		
	Office tables 2.2x0.9 m	No	1.00		
	Standard office chairs	No	8.00		
	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00		
	SANITATION FACILITY				
	Provide all materials and construct a 1500mmx900mm				
	pit latrine with depth from floor level at 6m. Stone				
3.4.42	masonry walling shall be 150mm, 125mm floor slab	L. Sum	1.00		
5.7.72	reinforced with T10 @100mm c/c, Roofing corrugated	L. Sum	1.00		
	iron sheets gauge 28 etc All details as per the drawing				
	and as directed by engineer.				

EC IS IN MA	INSADIT V	COUNTY	
· · · · · · · · · · · · · · · · · · ·	·	A, MANYATI	A LENGIMA
		BUILDING	
			AMOUNT
UNIT	QTY	Kshs.	Kshs.
	I, LOGLOGO IARSABIT CO STF-328819-C	I, LOGLOGO, JALDES. ARSABIT COUNTY STF-328819-CS-QCBS N - ADMINISTRATION	STF-328819-CS-QCBS N - ADMINISTRATION BUILDING UNIT OTY RATE

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY					
	PROJECT NO.: KE-WSTF-328819-CS-Q				
	BILL NO. 3: KAMBOE FURMASAN WATER SUPPLY SCHEM				
BILL	DESCRIPTION	AMOUNT			
No		Kshs			
3.1	BOREHOLES AND WELL DEVELOPMENT				
3.2	PIPELINE AND FITTINGS				
3.3	500 M3 RCC RESERVOIRS				
3.4	BUILDINGS				
	Bill 3: Kamboe Furmasan Water Supply Scheme				

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT	COUN	TY		
	PROJECT NO.: KE-WSTF-328 BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -			VELL DEVELOI	PMENT
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
				<b>I L</b> OHS	115115
4.1	BOREHOLE/WELL DEVELOPMENT				
	The Contractor shall, supply, install, test, commisssion and				
	provide warranties, spares, training of the operators and				
	technicians, 12 months after sale-service for photovoltaic				
	pumping (PVP) systems, without batteries, with diesel				
	generator/national grid interface and remote monitoring to				
	Specifications and proper working order for identified rural				
	community boreholes. The Contractor is required to remove				
	existing water pump systems in each case and undertake				
	borehole service including but not limited to borehole				
	redevelopment, flushing and replacement of sieves. All to the				
	Specifications and as directed by the Engineer.				
	Allow Kes 100,000 for demolitions, relocations and				
	demobilization of existing infrastructure in the borehole site	Prov.			
.1.1	including pumps, solar panels, tanks, steel structures, cables,	Sum	1.0	100,000.00	100,000.00
	buildings, etc Rate to include transportation for safekeeping	Sum			
	as directed by the Water Service Provider/Employer				
	Allow Kes 100,000 for mobilization of borehole camera,				
.1.2	conducting a borehole camera investigation. Borehole flushing	Prov.	1.0	100,000.00	100,000.00
	with drilling foam, chemical cleaning, airlifting and water	Sum	110	100,000.00	100,000100
	jetting at high pressure.				
	Allow a Kes 250,000 provisional sum for redevelopment of				
.1.3	boreholes. The rates shall be used from existing rates elsewhere		1.0	250,000.00	250,000.00
	in the BoQ or as provided in the dayworks or as determined by	Sum			)
1.4	the Engineer.	0.(			
.1.4	Allow % for overheads, administration, profits, etc	%			
	LESITIMA BOREHOLE				
	Supply, install, test and commission 30kW, 40.78Hp				
	Submersible Pump SP 30-21 or approved equivalent with a				
	discharge (27m3/hr) and head (172m) pipe complete with				
.1.5	Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp;	No	1		
	Switch box / control unit: OVR PV 40-1000 P, Variable Speed				
	Pump Controller CUE, Surge Protection; and Sine-wave filter.				
	The rate to include appropriately sized PVC riser pipes.				
	Supply, install, test and commission 4 $\text{mm}^2/4$ core submersible				
.1.6	pump flat cable	m	224		
	Supply, install, test and commission DN6x120 mmL stainless				
.1.7	steel water level sensor complete with microcontroller and alert	Pair	1		
.1./	system.	1 411	1		
	Supply, install, test and commission 0.75mm2 sc pvc sheathed				
.1.8	copper control cable( brown and black)	m	449		
	PAGE TOTAL CARRIED TO SECTION COLLECTION S	HEET		i i	

	S-QCBS HOLE/WE QTY 1	ELL DEVELO RATE Kshs.	<u>PMENT</u> AMOUNT Kshs.
UNIT	QTY -	RATE	AMOUNT
		Kshs.	Kshs.
No.	1		
	I	I	
LS	1.00		
No.	1.00		
No	1		
No.	1.00		
No.	84.0		
	No. No	No.         1.00           No         1           No.         1.00           No.         1.00	No.         1.00           No         1           No.         1.00           No.         1.00

LOT	POINTS) BATCH I PROJECTS IN M I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT	GO, JA	LDESA, 1		NGIMA AND
	PROJECT NO.: KE-WSTF-328				
	BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -	BORE	EHOLE/W		PMENT
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1.18	Supply, installation and furnishing support structures with the following specifications: 60mm x 40mm (minimum) aluminium angle plates using stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 1.2 m above the ground for the low height side and a maximum of 1.5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Set	1		
4.1.19	Supply, install, test and commission a 3-phase 100KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.	Set	1		
4.1.20	Allow a PC Sum of Kes. 200,000 for servicing of the existing Generator	P.S	1	200,000	200,000.00
4.1.21	Add % for profit, administration, attendance upon, overheads, etc. for Item 4.1.13 above.	%			
4.1.22	Supply, install, test and commission a 45 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 45kW 87A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
4.1.23	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
4.1.24	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complte with IP66 rated enclosure.	No	1		
4.1.25	Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B	Set	1		
	PAGE TOTAL CARRIED TO SECTION COLLECTION S	HEET			

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT	GO, JA	LDESA, I		NGIMA AND
	PROJECT NO.: KE-WSTF-328				
	BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME	- BORE	HOLE/W	ELL DEVELO	<u>PMENT</u>
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1.26	Supply, install, test and commission Cabling complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lot	1		
4.1.28	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
4.1.29	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
4.1.30	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
4.1.31	Supply, install, test and commission Motor ProtectionUnit MP204 or equivalent	No	1		
4.1.33	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
4.1.35	Communication Infrastructure Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
4.1.36	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
4.1.37	Supply and installation of Fiber Optic Cable (8-core, single- mode)	m	500		
4.1.38	Supply and installation of Fiber Optic Termination Boxes, Wall mounted, dustproof	Set	5		
4.1.39	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
4.1.40	Fire Fighting Equipment Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	1		
	PAGE TOTAL CARRIED TO SECTION COLLECTION S	HEET			

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT			MANYAI TA LE	INGIMA AND
	PROJECT NO.: KE-WSTF-328 BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -			FII DEVELO	PMFNT
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Fencing			IX5115.	Kins.
4.1.41	Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120		
4.1.42	Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.	Nr	1		
4.1.43	MANYATTA ILGOS BOREHOLE Supply, install, test and commission 7.5kW, 40.78Hp Submersible Pump SP 7-51 or approved equivalent with a discharge (7m3/hr) and head (214m) pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No	1		
4.1.44	Supply, install, test and commission 35 mm <sup>2</sup> /4 core submersible pump flat cable	m	224		
4.1.45	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
4.1.46	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	449		
4.1.47	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real- time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.	No	1		
	PAGE TOTAL CARRIED TO SECTION COLLECTION S	HEFT			

		012-0.3	-UUD3		
	PROJECT NO.: KE-WSTF-328 BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -			LL DEVELOP	MENT
ITEM	DESCRIPTION			RATE	AMOUNT
11 12101		UNIT	QTY -	Kshs.	Kshs.
	Supply, install, test and commission the following Sensors				
	for Monitoring System. The cost shall include cabling and				
	integration of the sensors into the data logger.				
	Supply, install, test and commission the Solar Radiation				
.1.48	Apogee SP 230 or equivalent & Temperature Sensors PT100 or	LS	1.00		
	equivalent.				
.1.49	Supply, install, test and commission the Float Switch Sensor	No.	1.00		
.1.49	(tank high/low levels, Model: Omron D4MC or equivalent)	INO.	1.00		
	Supply, installation, testing and commissioning of Hydrostatic				
	Level Transmitter with integrated Pt 100 temperature sensor 0-				
.1.50	700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL	No	1		
	NLHR>4mH2O,				
	+o.25%<4mH2O.				
	Supply, install, test and commission the TDS and EC Sensor				
.1.54	(measures dissolved minerals, Model: Yokogawa SC72 or	No.	1.00		
	equivalent)				
	Supply, install, test and commission of an array of solar with				
	the following specicifications: 390W solar panels,				
	Monocrystalline Silicon PV, with 25 years warranty The power				
	output of the modules should generate enough power such that	No.	28.0		
	the power output at the connection point to the distribution				
	board is not less than 49.14 kW on a bright sunny day at				
	midday taking into account the system losses.				
	Supply, installation and furnishing support structures with the				
	following specifications:				
	60mm x 40mm (minimum) aluminium angle plates using				
	stainless steel bolts of appropriate size and anchored firmly to				
	the ground on concrete fixtures so that the modules are about				
	1.2 m above the ground for the low height side and a maximum				
156 1	of 1.5m above the ground for the high height side in case of a	Set	1		
	2m length solar panel or any other height on the high height				
	side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid				
	below the solar PV arrays.				
	The angle of inclination and orientation of the modules to be				
	determined by the site geographical coordinates for maximum				
	optimization of the power output.				
	Allow a Provisional Sum of Kshs. 2.500,000/= for installation				
157	of KPLC 3 phase power.	P.S	1	2,500,000	2,500,000.00
	Add % for profit, administration, attendance upon, overheads,				
	etc. for Item 4.1.14 above.	%	0.01	2,500,000	25,000.00

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT	,		MANYATTA LE	NGIMA AND
	PROJECT NO.: KE-WSTF-328 BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME			ELL DEVELO	PMENT
ITEM	DESCRIPTION		QTY	RATE Kshs.	AMOUNT Kshs.
4.1.59	Supply, install, test and commission a 11 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 11kW 23A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
4.1.60	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
4.1.61	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complte with IP66 rated enclosure.	No	1		
4.1.62	Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B	Set	1		
4.1.63	Supply, install, test and commission Cabling complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lot	1		
4.1.65	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
4.1.66	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
4.1.67	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
4.1.68	Supply, install, test and commission Motor ProtectionUnit MP204 or equivalent	No	1		
4.1.70	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
	PAGE TOTAL CARRIED TO SECTION COLLECTION S	L SHEET			

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY						
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT						
ITEM	BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -			RATE	AMOUNT	
		UNIT	QTY	Kshs.	Kshs.	
	Communication Infrastructure		2			
4.1.72	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2			
	Supply and installation of Antennas and signal boosters for		2			
4.1.73	remote locations	No.	2			
1.1.74	Supply and installation of Fiber Optic Cable (8-core, single-		500			
1.1.74	mode)	m	500			
4.1.75	Supply and installation of Fiber Optic Termination Boxes, Wall-	Set	12			
T.1.75	mounted, dustproof	501				
4.1.76		Lot	1			
	Supply and installation of Fiber Optic Splicing and Accessories					
	Fire Fighting Equipment					
4 1 77	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure	Na	1			
4.1.77	gauge wall mounting steel bracket, operating instructions and	No		1		
	accessories, fully charged.					
	Fencing					
	Excavate for post holes, provide all materials and construct					
	chain link fence on concrete posts at 3 m centres all as per	m	m 120			
4.1.78	drawing details, including straining posts at every 10th post					
	and additional posts at corners and botton concrete cover to					
	ground level under the fence. Works to include provision and					
	installation of a Double Galvanized Razor Wire protection.					
	Provide all materials and construct 6.0 m wide lockable metal					
4.1.79	gate all to detailed. The gate to have a lockable pedestrian gate	Nr	1			
	1m wide opening.					
	Borehole: LENGISORO					
	(Specifications as per The Contract Specifications: Bidder to					
	offer equal or better)					
	Allow Kes 50,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site					
4.1.80	including pumps, solar panels, tanks, steel structures, cables,	Prov.	1.0	50,000.00	50,000.00	
+.1.60	buildings, etc Rate to include transportation for safekeeping	Sum	1.0	30,000.00	50,000.00	
	as directed by the Water Service Provider/Employer					
	Allow Kes 100,000 for mobilization of borehole camera,					
	conducting a borehole camera investigation. Borehole flushing	Prov.				
4.1.81	with drilling foam, chemical cleaning, airlifting and water	Sum	1.0	100,000.00	100,000.00	
	jetting at high pressure.					
	Allow a Kes 250,000 provisional sum for redevelopment of					
4 1 0 2	boreholes. The rates shall be used from existing rates elsewhere	Prov.	1.0	250,000,00	250 000 00	
4.1.82	in the BoQ or as provided in the dayworks or as determined by	Sum	1.0	250,000.00	250,000.00	
	the Engineer.					
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	PAGE TOTAL CARRIED TO SECTION COLLECTION S					

	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT	COUN	TY		
	PROJECT NO.: KE-WSTF-328 BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -			ELL DEVELO	PMENT
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1.83	Allow % for overheads, administration, profits, etc	%		ikini.	13115.
4.1.84	Supply, install, test and commission 2.2kW, 2.95Hp Submersible Pump SP 30-32 or approved equivalent with a discharge <b>30.8m3/hr)</b> and head <b>(273m)</b> pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No	1		
4.1.85	Supply, install, test and commission 1.5 mm <sup>2</sup> /4 core submersible pump flat cable	m	68		
4.1.86	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
4.1.87	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	137		
4.1.88	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real- time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.		1		
	Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger. Supply, install, test and commission the Solar Radiation				
4.1.89	Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
4.1.90	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
4.1.91	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1		

	LAISAMIS IN MARSABIT							
	PROJECT NO.: KE-WSTF-328							
BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT								
ITEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUNT			
		Unii	Q11	Kshs.	Kshs.			
	Supply, install, test and commission the TDS and EC Sensor		1 0 0					
4.1.95	(measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00					
	Supply, install, test and commission of an array of solar with							
	the following specicifications:							
	390W solar panels, Monocrystalline Silicon PV, with 25 years							
1100	warranty	NT.	112.0					
4.1.96	The power output of the modules should generate enough	No.	112.0					
	power such that the power output at the connection point to the							
	distribution board is not less than 5.46 kW on a bright sunny							
	day at midday taking into account the system losses.							
	Supply, installation and furnishing support structures with the							
	following specifications:							
	60mm x 40mm (minimum) aluminium angle plates using	n Set						
	stainless steel bolts of appropriate size and anchored firmly to							
	the ground on concrete fixtures so that the modules are about							
	2.5 m above the ground for the low height side and a maximum							
4.1.97	of 3m above the ground for the high height side in case of a 2m		1					
+.1.9/	length solar panel or any other height on the high height side as		1					
	long the tilt angle is not more than 150 from the horizontal. A							
	layer of ballast aggregate of 16mm to be laid below the solar							
	PV arrays.							
	The angle of inclination and orientation of the modules to be							
	determined by the site geographical coordinates for maximum							
	optimization of the power output.							
	Supply, install, test and commission a 2.2 kW (minimum)							
	Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 2.2kW							
4.1.98	5.6A or approved equivalent complete with accessories. The	Set	1					
	inverter to be installed indoors or under the solar panels		1					
	mounting with a small shed above and to have protection of at							
	least IP54.							
	Supply, install, test and commission a 16A TPN Automatic							
4.1.99	change over switch with override switch, complete with the	No	1					
	metal enclosure to have a protection of atleast IP54.							
	Supply, install, test and commission Schneider Acti9 Energy							
4.1.100	Meter 3p kWH 63Amps modibus or approved equivalent for	No	1					
	measuring energy generated by the solar PV system complte		•					
	with IP66 rated enclosure.							

LOT I	: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABIT			MANYATTA LE	NGIMA AND
	PROJECT NO.: KE-WSTF-328				
	BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -	- BORE	CHOLE/W	ELL DEVELO	
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Design, Supply and install a structures to house all the				
	equipment and tested having a protective painting of 2 coat				
	RAL9001 epoxy and polyurethane, with two lockable doors,				
	fire suppressing Unit and other accessories and shall house the				
.1.101	inverters, intelligent controller and other associated equipment.	Set	1		
	The structure to be shielded from lighting by provision of a				
	shed made of steel hollow sections and IT4 sheets with enough				
	air circulation space between shed and structure. All this to be				
	done to engineer's approval.				
	Supply, install, test and commission Cabling complete with all				
	necessary accessories for connection of solar modules to				
.1.102	inverter, to intelligent controller/manager and to agreed	Lot	1		
	connection point at the station through an energy meter and	Lot	1		
	generator. This to also include cabling from the diesel				
	generator for integration with power from the solar plant.				
.1.104	Supply, install, test and commission Modem and router for	Set	1		
	remote monitoring and control. Grundfos SqFlex or equivalent		1		
.1.105	Supply and install Aerial lightning arrestors at 6m height, fixed	Set	1		
	to concrete foundations				
	Supply and install Earthing materials, including all inspection				
.1.106	chambers, rods, tape bonding straps etc. as necessary for the	Set	1		
	earthing requirements with the borehole				
.1.107	Supply, install, test and commission Motor ProtectionUnit	No	1		
	MP204 or equivalent				
.1.109	· · · · · ·	No	1		
	Communication Infrastructure				
.1.111	Supply and installation of GSM/GPRS/4G communication	No.	2		
	modules for boreholes and booster stations				
1.1.112	Supply and installation of Antennas and signal boosters for	No.	2		
	remote locations				
.1.113	Supply and installation of Fiber Optic Cable (8-core, single-	m	1,500		
	mode)				
.1.114	Supply and installation of Fiber Optic Termination Boxes, Wall	Set	5		
	mounted, dustproof	<b>T</b> .	-		
.1.115	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
	Fire Fighting Equipment				
	Supply, install, test and commission 5 Kg Class ABC Powder				
.1.116	steel cylinder fire extinguisher, c/w pressure	No	1		
	gauge wall mounting steel bracket, operating instructions and				
	accessories, fully charged.				
		I			

	PROJECT NO.: KE-WSTF-328	8819-CS	-QCBS		
	BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME -	- BORE	HOLE/W	ELL DEVELO	PMENT
ITEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUNT
		UNIT	UI1	Kshs.	Kshs.
	Fencing				
	Excavate for post holes, provide all materials and construct				
	chain link fence on concrete posts at 3 m centres all as per				
1.117	drawing details, including straining posts at every 10th post		120		
1.11/	and additional posts at corners and botton concrete cover to	m	120		
	ground level under the fence. Works to include provision and				
	installation of a Double Galvanized Razor Wire protection.				
	Provide all materials and construct 6.0 m wide lockable metal				
1.118	gate all to detailed. The gate to have a lockable pedestrian gate	Nr	1		
	1m wide opening.				
	Borehole pipeworks				
	Borehole cover with extended 1m flanged pipe piece DN50.				
.1.119	Note the cover should also allow for any other cabling and	Nr	1		
.1.11)	instrumentation for the borehole.	111	1		
1 1 2 0	All Flanged 90 deg long elbow DN 50	Nr	3		
	Double Flanged Non-Return Valve 50	Nr	1		
1.121		Nr	4		
.1.122	Supply and intsall multi-turn actuators for open-close duty		4		
.1.123		No.	4		
1 1 2 4	paired with actuator controls, and variable speed models.	NT	1		
.1.124	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
.1.125	DN50mm non-slam Double-orifice Air Valve with flanged	No.	1		
1.100	base, complete to detail as indicated in the Drawings.		1		
.1.126		Nr	1		
	Provide, install, test and commission an electromagnetic flow				
.1.127	meter DN 50 PN16. Rate to include 2 battery power supply, IP	Nr	1		
	68, RS232 and RS 485 port outputs.				
.1.128	Double flanged pipe piece DN50 length 1000mm	Nr	2		
.1.129	All flanged equal 1.8m long extended steel tee	Nr	2		
	50mmx50mmx50mm	111	2		
	All flanged reducing taper 50mmx63mm	Nr	1		
.1.131	Flanged HDPE Stub end DN63	Nr	1		
.1.132	All Flanged 50mmx50mmx50mm tee connection to a surge	Nr	1		
.1.132	protection vessel PN16	INI	1		
	Allow a provision of supply, installation, testing and				
	commissioning of appropriately sized surge vessels or surge				
1 1 2 2	control valve with all manway accesses, flange pipe	Lump	.		
1.133	connections and all other appurtenances as per manufacturers	Sum	1		
	recommendations and in accordance with specification and a				
	air buffer vessel to DN 50 rising main PN20.				

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY								
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT								
ITEM DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.				
Page Total, Page 1								
Page Total, Page 2								
Page Total, Page 3								
Page Total, Page 4								
Page Total, Page 5								
Page Total, Page 6								
Page Total, Page 7 Page Total, Page 8								
Page Total, Page 9								
Page Total, Page 10								
Page Total, Page 11								
Page Total, Page 12								
Bill Total Carried to Bill Summary								

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND	
LAISAMIS IN MARSABIT COUNTY	

#### PROJECT NO.: KE-WSTF-328819-CS-QCBS

### BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS

ITEM	DESCRIPTION	UNIT	QTY	RATE (KES)	AMOUNT (KES)
	i. The Contactor to maintain uninterrupted continuity				
	of water supply in existing pipelines				
	ii. Pedestrian and vehicular Access to individual				
	shops / plots to be maintained at all times				
	PIPE AND PIPE FITTINGS				
	Pipe Work - Supply, lay, joint, pressure test, disinfect				
	Supply, handle, and install (rates shall include				
	jointing materials, bolts, gaskets packing jointing				
	glue, welding etc., as applicable) to the following HDPE Pipes to KS ISO 4427 and Steel/ferrous				
	Fittings (valves and pipe specials) in trench as per the				
	specifications. All pipe fittings and valve diameters				
	indicated are Nominal Diameters				
	RISING MAINS				
4.2.1	HDPE Pipe DN125mm PN16	m	2,215.00		
	HDPE Pipe DN 90mm PN16	m	580.00		
	Non return valves				
4.2.2	DN 125mm Non-return valves	Nr	1.00		
4.2.3	DN 90mm Non-return valves	Nr	1.00		
	Airvalves				
4.2.4	DN 50 mm airvalve AVK or approved equivalent	Nr	4.00		
	MAIN PIPELINES AND DISTRIBUTION				
	SYSTEM				
	HDPE Pipe DN50mm PN16	m	13,703.00		
	HDPE Pipe DN63mm PN16	m	2,402.00		
	HDPE Pipe DN75mm PN16	m	9,898.00		
	HDPE Pipe DN 90mm PN16	m	1,030.00		
	HDPE Pipe DN110mm PN16	m	4,977.00		
	HDPE Pipe DN125mm PN16	m	570.00		
4.2.11	HDPE Pipe DN160mm PN16 Bends	m	4,884.00		
4 2 1 2	DN 160mm 90°	Nr.	2.00		
	DN 160mm 45°	Nr.	2.00		
	DN 125mm 90°	Nr.	2.00		
	DN 125mm 45°	Nr.	2.00		
	DN 110mm 90°	Nr.	2.00		
	DN 110mm 45°	Nr.	2.00		
	DN 90mm 90°	Nr.	2.00		
	DN 75mm 90°	Nr.	2.00		
	DN 63mm 90°	Nr.	2.00		
	DN 50mm 90°	Nr.	2.00		
	Reducers				
4.2.22	DN 160/125 mm	Nr.	1.00		
	DN 125/110 mm	Nr.	1.00		
	DN 110/90 mm	Nr.	1.00		
			1.00		
	Page total carried to summary page				

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY										
LOTI	LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY									
	PROJECT NO.: KE-WSTF-328819-CS-QCBS									
BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS										
ТЕМ	DESCRIPTION			RATE (KES)	AMOUNT (KES					
	DN 90/75 mm	Nr.	1.00	KATE (KES)	AMOUNT (KES					
	DN 75/63 mm	Nr.	1.00							
	DN 63/50 mm	Nr.	1.00							
1.2.27	160mm offtake (JD 2)	111	1.00							
4.2.31	DN 160x160x75mm HDPE tee	Nr	1.00							
	DN 75mm stub end with MS flange ring	Nr	2.00							
	DN 75mm flanged sluice valve	Nr	1.00							
1.2.00	110mm offtake (JD 3)	1.1	1.00							
4.2.39	DN 160x160x125mm HDPE tee	Nr	1.00							
	DN 160x110mm HDPE Reducer	Nr	1.00							
	DN 125mm stub end with MS flange ring	Nr	2.00							
	DN 125mm flanged sluice valve	Nr	1.00							
	110mm offtake (JD 4,28(a)&28(b))									
4.2.46	DN 110x110x63mm HDPE tee	Nr	2.00							
4.2.47	DN 63mm stub end with MS flange ring	Nr	4.00							
	DN 63mm flanged sluice valve	Nr	2.00							
	110mm offtake (JD 5,8,9,10,11,23,25,26,32,33,)									
4.2.49	DN 110x110x50mm HDPE tee	Nr	9.00							
	DN 50mm stub end with MS flange ring	Nr	18.00							
	DN 50mm flanged sluice valve	Nr	9.00							
	110mm offtake (JD 7,22,31)									
4.2.52	DN 110x110x75mm HDPE tee	Nr	3.00							
4.2.53	DN 75mm stub end with MS flange ring	Nr	6.00							
4.2.54	DN 75mm flanged sluice valve	Nr	3.00							
	63mm offtake (JD 12)									
4.2.55	DN 63x63x50mm HDPE tee	Nr	1.00							
4.2.56	DN 50mm stub end with MS flange ring	Nr	2.00							
4.2.57	DN 50mm flanged sluice valve	Nr	1.00							
	63mm offtake (JD 16,29,39,40,41,48)									
	DN 63x63x50mm HDPE tee	Nr	6.00							
4.2.59	DN 63x50mm HDPE reducer	Nr	6.00							
4.2.60	DN 50mm stub end with MS flange ring	Nr	12.00							
4.2.61	DN 50mm flanged sluice valve	Nr	6.00							
	75mm offtake (JD 15,18,21a,21b,47)									
	DN 75x75x50mm HDPE tee	Nr	1.00							
	DN 75x50mm HDPE reducer	Nr	1.00							
	DN 50mm stub end with MS flange ring	Nr	2.00							
4.2.65	DN 50mm flanged sluice valve	Nr	1.00							
	75mm offtake (JD 13,14,19,20,34,35,36,37,38)									
	DN 75x75x50mm HDPE tee	Nr	11.00							
	DN 50mm stub end with MS flange ring	Nr	22.00							
4.2.68	DN 50mm flanged sluice valve	Nr	11.00							
	50mm offtake (JD 17,24,30,42,43,44,45,46,49)	+								
	DN 50x50x50mm HDPE tee	Nr	4.00							
	DN 50mm stub end with MS flange ring	Nr	8.00							
4.2.71	DN 50mm flanged sluice valve	Nr	4.00							
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LOT I	: KAMBOE MIDROCK, KAMBOE FURMASAN, LAISAMIS IN MA	LOGLO	GO, JALDES		LENGIMA AND					
				25						
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS										
ITEM	DESCRIPTION		QTY	RATE (KES)	AMOUNT (KES)					
	DN 50mm Terminal connection (with washout)		<u>VII</u>	KATE (KES)	AMOUNT (KES)					
	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	2.00							
	DN 50mm stub end with MS flange back ring	Nr	8.00							
	DN 50mm Flanged gate valve	Nr	4.00							
	DN 50mm HDPE flap valve	Nr	2.00							
	DN 50mm HDPE PN 16 pipe	m	120.00							
	DN 63mm Terminal connection (with washout)		-							
	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00							
	DN 50mm stub end with MS flange back ring	Nr	4.00							
	DN 50mm Flanged gate valve	Nr	2.00							
	DN 50mm HDPE flap valve	Nr	1.00							
	DN 50mm HDPE PN 16 pipe	m	120.00							
	DN 75mm Terminal connection (with washout)									
	DN 75x75x50mm HDPE (Reduced or Equal) tee	Nr	1.00							
4.2.83	DN 50mm stub end with MS flange back ring	Nr	4.00							
4.2.84	DN 50mm Flanged gate valve	Nr	2.00							
4.2.85	DN 50mm HDPE flap valve	Nr	1.00							
4.2.86	DN 50mm HDPE PN 16 pipe	m	120.00							
	DN 110mm Terminal connection (with washout)									
4.2.87	DN 110x110x90mm HDPE (Reduced or Equal) tee	Nr	2.00							
	DN 90mm stub end with MS flange back ring	Nr	8.00							
	DN 90mm Flanged gate valve	Nr	4.00							
	DN 90mm HDPE flap valve	Nr	2.00							
	DN 90mm HDPE PN 16 pipe	m	120.00							
	DN 125mm Terminal connection (with washout)									
	DN 125x125x90mm HDPE (Reduced or Equal) tee	Nr	1.00							
	DN 90mm stub end with MS flange back ring	Nr	4.00							
	DN 90mm Flanged gate valve	Nr	2.00							
	DN 90mm HDPE flap valve	Nr	1.00							
	DN 90mm HDPE PN 16 pipe	m	120.00							
	DN 160mm Terminal connection (with washout)		-							
	DN 160x160x90mm HDPE (Reduced or Equal) tee	Nr	1.00							
	DN 90mm stub end with MS flange back ring	Nr	4.00							
	DN 90mm Flanged gate valve	Nr	2.00							
	DN 90mm HDPE flap valve	Nr	1.00							
4.2.106	DN 90mm HDPE PN 16 pipe	m	120.00							
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LOT	POINTS) BATCH TPROJEC REAMBOR MIDROCK, KAMBOE FURMASAN,				LENGIMA AND				
	LAISAMIS IN MA								
	PROJECT NO.: KE-V	WSTF-32	8819-CS-QCE	S					
BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS									
ITEM		UNIT	QTY	RATE (KES)	AMOUNT (KES)				
	Air Valve Chamber Fittings (DN160mm) -(9No)								
	HDPE Reducer Tee DN 160mm x 160mm x 63mm	Nr	9.00						
	DN63 mm HDPE Stub End with MS Flange	Nr	9.00						
	DN 50mm double flanged sluice valve	Nr	9.00						
.2.110	DN 50mm double orifice airvalve	Nr	9.00						
	Washout (DN 160mm) -(4No)								
	HDPE Reducer Tee DN 160mm x 160mm x 90mm	Nr	4.00						
	DN 160mm HDPE stub end with MS Flange	Nr	16.00						
1.2.113	DN 90 mm HDPE stub end with MS Flange	Nr	8.00						
	DN 90mm sluice valve	Nr	4.00						
1.2.115	DN 90mm HDPE pipe (PN 12.5)	m	96.00						
1 2 1 1 6	Masonry headwall with base slab for Erosion	Ls	4.00						
1.2.110	protection at discharge point	LS	4.00						
	Air Valve Chamber Fittings (DN125mm) -(4No)								
1.2.117	HDPE Reducer Tee DN 125mm x 125mm x 63mm	Nr	4.00						
1.2.118	DN63 mm HDPE Stub End with MS Flange	Nr	4.00						
1.2.119	DN 50mm double flanged sluice valve	Nr	4.00						
	DN 50mm double orifice airvalve	Nr	4.00						
	Washout (DN 125mm) -(1No)								
.2.121	HDPE Reducer Tee DN 125mm x 125mm x 90mm	Nr	1.00						
	DN 125mm HDPE stub end with MS Flange	Nr	4.00						
	DN 90 mm HDPE stub end with MS Flange	Nr	2.00						
	DN 90mm sluice valve	Nr	1.00						
1 2 1 2 5	DN 90mm HDPE nine (PN 12.5)	m	24.00						
r.2.12J	Masonry headwall with base slab for Erosion	- 111	24.00						
4.2.126	protection at discharge point	Ls	1.00						
	Air Valve Chamber Fittings (DN110mm) -(7No)								
1 2 1 2 7	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	7.00						
		Nr							
	DN63 mm HDPE Stub End with MS Flange		7.00						
	DN 50mm double flanged sluice valve	Nr	7.00						
	DN 50mm double orifice airvalve	Nr	7.00						
	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	4.00						
	DN 110mm HDPE stub end with MS Flange	Nr	16.00						
	DN 90 mm HDPE stub end with MS Flange	Nr	8.00						
	DN 90mm sluice valve	Nr	4.00						
1.2.135	DN 90mm HDPE pipe (PN 12.5)	m	96.00						
4 2 1 3 6	Masonry headwall with base slab for Erosion	Ls	4.00						
	protection at discharge point								
	Air Valve Chamber Fittings (DN75mm) -(11No)								
	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	11.00						
	DN63 mm HDPE Stub End with MS Flange	Nr	11.00						
1.2.139	DN 50mm double flanged sluice valve	Nr	11.00						
1.2.140	DN 50mm double orifice airvalve	Nr	11.00						
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LOT I: KAMBO	E MIDROCK, KAMBOE FURMASAN,			SA, MANYATTA	LENGIMA AND				
	LAISAMIS IN MA								
	PROJECT NO.: KE-V								
BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS									
ТЕМ	DESCRIPTION	UNIT	QTY	RATE (KES)	AMOUNT (KES				
	DN 75mm) -(5No)								
	al Tee DN 75mm x 75mm x 75mm	Nr	5.00						
	HDPE stub end with MS Flange	Nr	20.00						
2.143 DN 75 mm	HDPE stub end with MS Flange	Nr	10.00						
2.144 DN 75 mm	sluice valve	Nr	5.00						
2.145 DN 75mm	HDPE pipe (PN 12.5)	m	120.00						
Masonry h	eadwall with base slab for Erosion	Ls	5.00						
protection :	at discharge point	LS	5.00						
Air Valve	Chamber Fittings (DN 63mm) -(7No)								
HDPE DN	63 X 63 X 32 mm Reducer Tee (NB:	NL.	11.00						
2.147 Must be el	ectrofussion)	Nr	11.00						
HDPE DN	32 mm PN 16 short piece pipe (0.4m mm	N	11.00						
2.148 long)		Nr	11.00						
2.149 HDPE DN	32 mm PN 16 Male adapter	Nr	11.00						
	32 mm Pegler brass gate valve	Nr	11.00						
	Stainless Steel Hex Nipple	Nr	11.00						
	Threaded Air Valve	Nr	11.00						
	DN 63mm) -(4No)								
HDPE DN	63 X 63 X 63 mm Equal Tee (NB: Must								
2.153 be electrof	÷ ,	Nr	4.00						
HDPE DN	63 mm PN 16 short piece pipe (400 mm								
2.154 long)		Nr	4.00						
	63 mm PN 16 Flanged adapter	Nr	4.00						
	50 mmFlanged Sluice valve	Nr	4.00						
2 157 DN 63 mm	HDPE nine (PN 12.5)	m	96.00						
Masonry h	eadwall with base slab for Erosion		70.00						
2.158 protection	at discharge point	Ls	4.00						
^	Chamber Fittings (DN 50mm) -(5No)								
HDDE DN	50 X 50 X 32 mm Reducer Tee (NB:								
/ 1501	ectrofussion)	Nr	5.00						
LIDDE DN	32 mm PN 16 short piece pipe (400 mm								
2.160 HDPE DN long)	32 min i N 10 short piece pipe (400 min	Nr	5.00						
	32 mm PN 16 Male adapter	Nr	5.00						
	32 mm Pegler brass gate valve	Nr	5.00						
	Stainless Steel Hex Nipple	Nr	5.00						
	Threaded Air Valve	Nr	5.00						
	DN 50mm) -(9No)	111	5.00						
	50 X 50 X 50 mm Equal Tee (NB: Must								
2.165 be electrofi	<b>1</b> \	Nr	9.00						
	50 mm PN 16 short piece pipe (400 mm								
2.1001	30 mm PN 16 short piece pipe (400 mm	Nr	9.00						
long)	50 DN 16 F1 1 1 4	N	0.00						
	50 mm PN 16 Flanged adapter	Nr	9.00						
	50 mmFlanged Sluice valve	Nr	9.00						
	HDPE pipe (PN 12.5)	m	216.00						
	eadwall with base slab for Erosion	Ls	9.00						
protection	at discharge point								
Page total	carried to summary page								

	STRUCTION, REHABILITATION AND EXPANS PLY SYSTEMS (CIVIL WORKS, PIPE LAYING, POINTS) BATCH 1 PROJEC	E&M S	SUPPLY AND	INSTALLATIO	
LOTI	: KAMBOE MIDROCK, KAMBOE FURMASAN, LAISAMIS IN MA	LOGL	)GO, JALDES		LENGIMA AND
	PROJECT NO.: KE-W	/STF-32	8819-CS-QCB	S	
	BILL NO. 4.2 LOGOLOGO WATER SUPP	PLY SCI	HEME - PIPE	LINE AND FITT	TINGS
ITEM	DESCRIPTION	UNIT	QTY	RATE (KES)	AMOUNT (KES)
	Water Draw Off Facilities				
4.2.171	Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C	Nr.	12.00		
ł.2.172	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00		
4.2.173	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00		
	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	1.00		
1 2 1 7 5	Supply of materials and construct a sanitation facility as described to detail in Appendix E1	Item	1.00		

ITEM Prr rei dis sta co co by fit the de ac prr -S ba dis tap ch to ho 4.2.177 co	KAMBOE MIDROCK, KAMBOE FURMASAN, LAISAMIS IN MA PROJECT NO.: KE-V BILL NO. 4.2 LOGOLOGO WATER SUPI DESCRIPTION rovide all materilas, construct and install a 1m high einforced concrete yardtap which include a water ispensing ATM ,lockable valve chamber,offtake tee, teel standpipe with tap, average of 100m long DN25 onnection pipe and 1.2m 20mm diameter HDPE onnection pipes as per the drawings and as directed y the Engineer. Rate to include cost of all necessary ittings, setting out, excavation and installation as per ne drawing.The Automated water dispensing ATM esigned to offer a reliable and user-friendly way to ccess and pay for water using a keypad, screen, tag ay option, and integration with MPesa for payment rocessing with the following specifications -Keypad, Screen (LCD), -Tag Pay Option (RFID/NFC), -Web ased dashboard subscription for 10 year , -Hybrid ispensing, -MPesa Integration for Payment upto 3 aps max, -water Flow Sensor, -Solar power - harger, controller, battery and solar panel. The rate	RSABI /STF-32 LY SC UNIT	T COUNTY 28819-CS-QCB	S	
All starster b.2.177 ba ba dis tap ch to ho ba dis tap ch to ho co by fit tha ac pa pr ba dis tap ch to ho co by fit tha ac pa pr co ba dis tap co co by fit tha ac pa ba dis tap co co by fit tha ac pa co by fit tha ac pa co by fit tha ac pa co by fit tha ac pa co ba fit tha ac co co by fit tha ac co co by fit tha ac co co ba fit tha ac co co ba fit tap co co co ba co co co ba fit tap co co co co ba fit tap co co co co co co co co co co co co co	BILL NO. 4.2 LOGOLOGO WATER SUPP DESCRIPTION rovide all materilas, construct and install a 1m high einforced concrete yardtap which include a water ispensing ATM ,lockable valve chamber,offtake tee, teel standpipe with tap, average of 100m long DN25 onnection pipe and 1.2m 20mm diameter HDPE onnection pipes as per the drawings and as directed y the Engineer. Rate to include cost of all necessary ittings, setting out, excavation and installation as per ne drawing.The Automated water dispensing ATM esigned to offer a reliable and user-friendly way to ccess and pay for water using a keypad, screen, tag ay option, and integration with MPesa for payment rocessing with the following specifications -Keypad, Screen (LCD), -Tag Pay Option (RFID/NFC), -Web ased dashboard subscription for 10 year , -Hybrid ispensing, -MPesa Integration for Payment upto 3 aps max, -water Flow Sensor, -Solar power - harger, controller, battery and solar panel. The rate	LY SCI UNIT	HEME - PIPEI QTY	LINE AND FITT	
All starster b.2.177 ba ba dis tap ch to ho ba dis tap ch to ho co by fit tha ac pa pr ba dis tap ch to ho co by fit tha ac pa pr co ba dis tap co co by fit tha ac pa ba dis tap co co by fit tha ac pa co by fit tha ac pa co by fit tha ac pa co by fit tha ac pa co ba fit tha ac co co by fit tha ac co co by fit tha ac co co ba fit tha ac co co ba fit tap co co co ba co co co ba fit tap co co co co ba fit tap co co co co co co co co co co co co co	<b>DESCRIPTION</b> rovide all materilas, construct and install a 1m high einforced concrete yardtap which include a water ispensing ATM ,lockable valve chamber,offtake tee, teel standpipe with tap, average of 100m long DN25 onnection pipe and 1.2m 20mm diameter HDPE onnection pipes as per the drawings and as directed y the Engineer. Rate to include cost of all necessary ittings, setting out, excavation and installation as per ne drawing.The Automated water dispensing ATM esigned to offer a reliable and user-friendly way to ccess and pay for water using a keypad, screen, tag ay option, and integration with MPesa for payment rocessing with the following specifications -Keypad, Screen (LCD), -Tag Pay Option (RFID/NFC), -Web ased dashboard subscription for 10 year , -Hybrid ispensing, -MPesa Integration for Payment upto 3 aps max, -water Flow Sensor, -Solar power - harger, controller, battery and solar panel. The rate	<u>UNIT</u> Nr	QTY		
All starster b.2.177 ba ba dis tap ch to ho ba dis tap ch to ho co by fit tha ac pa pr ba dis tap ch to ho co by fit tha ac pa pr co ba dis tap co co by fit tha ac pa ba dis tap co co by fit tha ac pa co by fit tha ac pa co by fit tha ac pa co by fit tha ac pa co ba fit tha ac co co by fit tha ac co co by fit tha ac co co ba fit tha ac co co ba fit tap co co co ba co co co ba fit tap co co co co ba fit tap co co co co co co co co co co co co co	rovide all materilas, construct and install a 1m high einforced concrete yardtap which include a water ispensing ATM ,lockable valve chamber,offtake tee, teel standpipe with tap, average of 100m long DN25 onnection pipe and 1.2m 20mm diameter HDPE onnection pipes as per the drawings and as directed y the Engineer. Rate to include cost of all necessary ittings, setting out, excavation and installation as per ne drawing.The Automated water dispensing ATM esigned to offer a reliable and user-friendly way to ccess and pay for water using a keypad, screen, tag ay option, and integration with MPesa for payment rocessing with the following specifications -Keypad, Screen (LCD), -Tag Pay Option (RFID/NFC), -Web ased dashboard subscription for 10 year , -Hybrid ispensing, -MPesa Integration for Payment upto 3 aps max, -water Flow Sensor, -Solar power - harger, controller, battery and solar panel. The rate	Nr		RATE (KES)	AMOUNT (KES)
4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 4.2.177 5 5 5 5 5 5 5 5 5 5 5 5 5	rovide all materilas, construct and install a 1m high einforced concrete yardtap which include a water ispensing ATM ,lockable valve chamber,offtake tee, teel standpipe with tap, average of 100m long DN25 onnection pipe and 1.2m 20mm diameter HDPE onnection pipes as per the drawings and as directed y the Engineer. Rate to include cost of all necessary ittings, setting out, excavation and installation as per ne drawing.The Automated water dispensing ATM esigned to offer a reliable and user-friendly way to ccess and pay for water using a keypad, screen, tag ay option, and integration with MPesa for payment rocessing with the following specifications -Keypad, Screen (LCD), -Tag Pay Option (RFID/NFC), -Web ased dashboard subscription for 10 year , -Hybrid ispensing, -MPesa Integration for Payment upto 3 aps max, -water Flow Sensor, -Solar power - harger, controller, battery and solar panel. The rate	Nr			
Al sta sm ste 4.2.177 co	o include the first 20 token chips for 20nr. ouseholds.				
by fit the	Allow for supply and installation of institutional tand point connection kits, which include a Prepaid mart metering, lockable meter chamber, offtake tee, teel standpipe with tap, average of 100m long DN25 onnection pipe and 1.2m 20mm diameter HDPE onnection pipes as per the drawings and as directed y the Engineer. Rate to include cost of all necessary ittings, setting out, excavation and installation as per ne drawing.	Nr	5.00		
	Chambers (Civil Works)				
ex de of for tar 40 co ch ch lif the ch sh	neludes setting up of each type of chamber, xcavation in any type of soil including rock, ewatering, shoring, formwork, in situ construction f reinforced concrete chambers, sump, removal of orm work, protecting externally with water proofing anking membrane and internally with two coats each 00 microns coaltar epoxy or equivalent, backfilling, ompacting, providing surface box openings and hamber access openings, providing surface boxes, hamber access covers and frames, ladders, slab fting hooks, vent pipe with insect screen, reinstating ne site to its original condition etc. to make each hamber civil works complete in all respects as hown on contract drawings.				
4.2.177 W		Nr.	26.00		
4.2.178 Ai 4.2.179 Va	.ir valves Valve chambers	Nr. Nr.	45.00 45.00		

	POINTS) BATCH 1 PROJEC	CTS IN I	MARSABIT C	OUNTY	
LOT I	: KAMBOE MIDROCK, KAMBOE FURMASAN, LAISAMIS IN MA			SA, MANYATTA	LENGIMA AND
	PROJECT NO.: KE-W	VSTF-32	28819-CS-QCE	BS	
	BILL NO. 4.2 LOGOLOGO WATER SUPP				TINGS
ITEM	DESCRIPTION	UNIT	QTY	RATE (KES)	AMOUNT (KES)
	ANCILLARIES ITEMS				
	Supply and fix marker posts along water Main Route,				
4.2.180	Road Crossings, change of direction, Air valves,	No	209.00		
	Washouts and valve chambers. All in accordance	110			
	with drawings and specifications				
	Thrust Blocks				
	Construction of thrust block at bends and Tee				
4.2.181	junctions price includes all cost such as excavation,	Nr	10.00		
	concrete, Re-steel bar, the formwork and others as				
	detailed on drawing				
	Road Crossing				
	Allow for micro tunneling across tarmacked road for				
	hdpe pipe of diameter 90mm - 150mm as detailed in				
	the drawings and as per the design guidleines in the				
2.2.163	Kenya Roads Design manual. Rate inclusive of steel	m	30		
	casing. Contractor to allow for provision of requisite				
	diversion signage, controls and safety precaution and				
	liaison and approval of the methodology with the				
0.0.1.(4	relevant roads agencies		20.00		
2.2.164	Ditto but for DN 32mm - 75mm	m	30.00		
	Breaking up, temporary and permanent reinstatement				
	of murram road with 300mm thick well graded				
	stabilised gravel with 3% cement base compacted				
2 2 1 (5	using an 8-10 tonne roller to the satisfaction of the		30.00		
2.2.103	Engineer. Nominal bore n.e. 150mm.Rate to include	m	30.00		
	steel casing sleeve.Contractor to allow for provision				
	of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding				
	200mm.				
	Gulley/ River Crossings				
	Allow for gulley crossing for HDPE pipe as detailed				
	in the book of drawings - Road and Seasonal river				
2.2.166	crossing structural details (dwg Nr	m	1,200.00		
	KE/WSTF/RE/GW/STD/030)				
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	STRUCTION, REHABILITATION AND PPLY SYSTEMS (CIVIL WORKS, PIPE POINTS) BATCH 1	LAYING, E&M S	UPPLY AN	D INSTALLATIO		
LOT		IS IN MARSABI	<b>COUNTY</b>		LENGIMA AND	
	PROJECT N BILL NO. 4.2 LOGOLOGO WAT	O.: KE-WSTF-32 TFR SUPPLV SCE			INGS	
ITEM         DESCRIPTION         UNIT         QTY         RATE (KES)         AMO						
	Page Total, Page 1					
	Page Total, Page 2					
	Page Total, Page 3					
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	Page Total, Page 8					
	Bill Total Carried to Grand Summary					

LOT I: J	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL LAISAMIS IN MARSABI		,	MANYAT'TA L	ENGIMA AND
	PROJECT NO.: KE-WSTF-3	28819-	CS-QCBS		
	BILL NO. 4.3 LOGLOGO SCHEME			TED	
ТЕМ	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		01111	QII	Kshs.	Kshs.
	Elevated Steel Tank of 150 m <sup>3</sup>				
	The sites for the proposed Water Reservoirs shall be				
	within the Water Supply Scheme				
	Supply all materials, tools and equipment, erect, and				
	commission a galvanised 150m <sup>3</sup> steel with liner sectional				
	tank of the Braithwaite type/ Alumzine tank with liner or				
	equal approved standard to include a tank tower of 20				
	meters, ladder with ladder guard inside ladder, walkway				
	with walkway guard, water level gauge and tank cover,				
	provision of air vent, support rails, overflows, scour, inlets and outlet for 150mm pipes etc., for complete installation.				
	Foundation of tank pads to be 2.3mx2.3m and depth not				
	less than 2.6m. RC works to Specifications. Rebars to be				
	T16 @ 150mm c/c and distribution of T12 @150mm c/c				
	top and bottom mesh. 4Nr Column stud size				
	500mmx500mm with 8Nr T16 and T8 stirrups each with				
4.3.1	HFSG bolts galvanised 4nr. 25 dia bolts and nuts with	No.	1.00		
	washers @600mm long. 4Nr Beam size 400mmx300mm				
	with 8Nr T12 and T8 stirrups each. Concrete Class to be				
	C30/20 using OPC Cement CEM I Grade 42.5. Base plate				
	10mm, including grouting base plate interface with column				
	stud. Panel plate thickness 3mm all galvanised. Coat tank				
	inside with approved bituminous paint. All tank				
	components to be Hot-dip galvanized to EN ISO 1461.				
	Tank manufacturer to be KEBS certified and ISO certified.				
	The rate to include deailed structural analysis, shop				
	drawings, complete tank and tower installation,				
	mobilization, demobilization, delivery to site and testing.				
	All to the approval of the Engineer				
	Provide and install Elevated Steel Tank Fittings to				
	Specifications up to the chambers. All fittings shall have				
	minimum rating of PN16 and flanged. Pipes shall be				
	epoxy coated outside and cement lined inside. Valves shall have a wedge which is fully vulcanized with				
	EPDM rubber compound or approved equivalent.				
	INLET PIPE FITTINGS				
432	150 HDPE Stab End Flange	No	2		
	150mm All flanged pipe piece 1m long	No	3		
	150mm flanged spigot pipe piece 1m long	No	1		
	150mm All flanged sluice valve	No	1		
	150mm All flanged G.S 90° bend	No	2		
	150mm All flanged pipe piece 6m long	No	3		
4.3.8	150mm All flanged pipe piece 1.2m long	No	1		
4.3.9	150mm All flanged Float switch	No	1		
-					ļ
	Page total carried to summary page				<u> </u>

LOT I: I	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABI			MANYATTA L	ENGIMA AND
	PROJECT NO.: KE-WSTF-32				
	BILL NO. 4.3 LOGLOGO SCHEME			TED	
ТЕМ		UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	OVERFLOW AND SCOUR			KSIIS.	
4310	150mm All flanged pipe piece 1.8m long	No	1		
	150mm Flanged bell mouth	No	2		
	150mm All flanged pipe piece 2.2m long	No	1		
	150mm All flanged slice valve	No	2		
	150mm flanged adaptor	No	1		
	150mm flanged spigot pipe piece 1m long	No	1		
	150mm All flanged equal Tee	No	1		
	150mm All flanged pipe piece 3.5m long	No	2		
	150mm All flanged pipe 6m long	No	2		
	150mm All flanged G.S 90° bend	No	1		
	150 HDPE Stab End Flange	No	2		
<del>ч.</del> 3.20	OUTLET	110	2		
1 3 21	150mm flanged pipe 6m long	No	3		
	150mm Flanged bell mouth	No	1		
	150mm All flanged G.S 90° bend	No	1		
	150mm All flanged Slice valve	No	2		
	150 HDPE Stab End Flange	No	2		
4.3.25			Z		
1220	Supply, install and test diameter 150mm Electromagnetic				
4.3.26	Water Meter complete with all gasket bolts etc. Rate to		1		
	include for all associated fittings	No	1		
	Testing				
4.3.27	Supply and apply recommended disinfectant and test the		1.00		
	tanks.	Nr.	1.00		
	100 m3 RCC tank				
	CLASS E: EARTHWORKS				
	General excavation				
	Excavate in Topsoil for Storage tank Works				
4.3.28	Maximum depth not exceeding1 m	m <sup>3</sup>	100.00		
4.3.29	Maximum depth exceeding 1 m	m <sup>3</sup>	120.00		
	Reinstate, fill and level the tank site after construction	-	1.00		
4.3.30	as directed by the Engineer	Ls	1.00		
	Filling				
	Hardcore				
	Provide approved hardcore and compact in layers of				
4.3.31	150mm, blinded with final material 25mm thick	m <sup>3</sup>	24.30		
	130mm, binded with matchar 25mm thek				
	Provide fill material to Storage tank Works structures				
	CLASS F: IN SITU CONCRETE Cement Grade 42.5				
	to Specifications.				
4 2 22	1				
4.3.32	Mass concrete Class 15/20 Strongth Credo 15 (20 (1-2-6) blinding concrete 75				
4.3.33	Strength Grade 15/20 (1:3:6) blinding concrete 75	m <sup>3</sup>	7.28		
	mm thick the tank, with sulphate resisting cement				
	Page total carried to summary page				

LOT I: I	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL LAISAMIS IN MARSABI	T CO	UNTY	IANYATTA L	ENGIMA AND
	PROJECT NO.: KE-WSTF-3				
	BILL NO. 4.3 LOGLOGO SCHEME	- 150			AMOUNT
ITEM	DESCRIPTION	UNIT QTY	QTY -	RATE Kshs.	AMOUNT Kshs.
	Reinforced concrete Class 30/20:			K3113.	<u>K3115.</u>
	Foundation, Base and ground slab concrete, Walls,				
1331	Beams, Columns, Paparet Wall, Suspended Slab and	m <sup>3</sup>	97.62		
4.5.54	Gutter	111	97.02		
	Guiler				
	Formwork		-		
	Provide and fix shuttering including propping,				
	strutting and striking, all as specified and including				
	boxing out		-		
1225		m <sup>2</sup>	521.86		
4.3.33	(i) Vertical Formwork - Class F3 Finish	m	321.80		
	Concrete Surface Finish		-		
4.3.36	Provide Class UF3 Finish for top of base slab of tank	m <sup>2</sup>	181.28		
	and top suspended slab	m			
	Reinforcement		-		
	Provide and fix high tensile steel reinforcement to				
	SRN 127 including cutting, bending, lapping		-		
	propping with spacers and tying as specified				
4227		1.0	4 500 00		
	High yield tensile steel 16mm diameter	kg	4,500.00		
	High yield tensile steel 12mm diameter	kg	5,000.00		
4.3.39	High yield tensile steel 10mm diameter	kg	1,500.00		
	CLASS L: ACCESS CHAMBERS				
	Duovido, sumply and install hat die calvanics desild				
	Provide ,supply and install hot-dip galvanised mild		• • • •		
4.3.40	steel 1000x1000x6mm thick lockable access chamber	nr	2.00		
	covers with 6mm thick angle frame, installation				
	anchors, gaskets etc for a complete installation.				
	CLASS H: PRECAST CONCRETE				
4.3.41	Provide and lay with all leads and lifts etc. complete	m <sup>2</sup>	80.00		
	600 x 600 x 50 mm thick precast paving slabs on and				
	including 50 mm thick sand bed as per the drawings				
	CLASS N: MISCELLANEOUS METAL WORK		-		
	All steelwork to be completely cleaned by acid				
	dipping prior to galvanising. All steel pipes shall be		-		
	hot-dip galvanised steel pressure pipes rated PN16 or				
	as per the system distribution whichever is higher.				
	Stainless Steel water level Indicator		-		
4 2 42	Provide, supply, install and commission a tank's		1.00		
4.3.42	stainless steel water level Indicator for O&M.	nr	1.00		
	Page total carried to summary page				

LOT I: I	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO LAISAMIS IN MARSABI			IANYAI TA L	ENGIMA AND
	PROJECT NO.: KE-WSTF-3 BILL NO. 4.3 LOGLOGO SCHEME			ſED	
TEM	DESCRIPTION	UNIT QTY		RATE	AMOUNT
	Access Ladder with safety cage			Kshs.	Kshs.
	Provide, supply and install internal/external access				
	ladder not exceeding 4.5m high made of hot-dip				
	galvanised mild steel 50 mm diameter tubes. The rate				
4343	includes flat vertical guard strips 40 x 3mm	nr	3.00		
4.5.45	inlcuding, cleats 40 x 6mm bolted to distribution	m	5.00		
	chamber walls, stringer 40 x 6mm all fillet welded for				
	complete installation.				
	Provision for an 100mm air vent to standard				
4.3.44	drawing detail	No.	4.00		
	Overflow PIPEWORK		-		
	DN 150 Steel Flanged spigot pipe 2.2m with puddle				
4.3.45	flange 75mm from spigot end	Nr	1.00		
4.3.46	DN 150 All flanged 90deg short radius bend	Nr	1.00		
	DN 150 Double Flanged pipe piece with puddle				
4.3.47	flange at 600mm, length 1500mm	Nr	1.00		
4.3.48	DN 150 Flanged spigot 90deg long radius bend	Nr	1.00		
	Scour Pipework				
4.3.49	DN 150 Flanged spigot 90 deg short radius bend	Nr	1.00		
	DN 150 double flanged pipe with puddle flange $\emptyset$	1.1			
4.3.50	1500mm from one end, length 2000mm	Nr	1.00		
	DN 150 All flanged Globe Control valve PN10 with				
4.3.51	EPDM lining	Nr	1.00		
	Inlet Pipework				
4.3.52	DN 90 All flanged steel 90 deg long radius bend	Nr	2.00		
	DN 90 Steel double flanged pipe with puddle flange				
4.3.53	at 150mm from one end, length 2000mm	Nr	1.00		
4.3.54	DN 90 Flanged ball valve	Nr	1.00		
	DN 90 HDPE Stub end Flange	Nr	1.00		
	DN 90 Double flanged pipe piece, length 3000mm	Nr	1.00		
1.5.50	Outlet Pipework	1.1	1.00		
4 3 57	DN 150 Flanged special bell mouth	Nr	1.00		
	DN 150 All Flanged 90 degree short radius bend	Nr	1.00		
ч.5.50	DN 150 Steel double flanged pipe with double	111	1.00		
4 3 59	puddle flanges at 400mm and 1200mm, length	Nr	1.00		
1.5.59	2000mm	111	1.00		
	200011111				
		$\vdash$			
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LOT I: I	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL LAISAMIS IN MARSAB			IANYATTA L	ENGIMA AND
	PROJECT NO.: KE-WSTF-3		-	ED	
ITEM	BILL NO. 4.3 LOGLOGO SCHEME DESCRIPTION		QTY	ED RATE Kshs.	AMOUNT Kshs.
4.3.60	DN 150 Steel flanged spigot pipe with puddle flange 775mm from spigot end, length 1200mm	Nr	1.00		
4.3.61	DN 150 All flanged Sluice valve PN16 EPDM encapsulated	Nr	1.00		
4.3.62	DN 150 Electromagnetic meter complete with all accessories and installation sundry for operation	Nr	1.00		
4.3.63	DN 150 Double flanged steel pipe, length 1000mm	Nr	1.00		
4.3.64	DN 150 All flanged semi-motorised Globe Control valve PN16 EPDM encapsulated fitted with actuator	Nr	1.00		
	DN 150 dismantling steel joint with central flange	Nr	1.00		
4.3.66	DN 150 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	Nr	1.00		
4.3.67	DN 150 HDPE Stub end Flange	Nr	1.00		
4.3.68	DN150 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	nr	2.00		
4.3.69	DN150 mm Bellmouth for Overflow	nr	1.00		
4.3.70	DN150 mm x 90° Double flanged bend for overflow	nr	2.00		

	Expansion Joint		_	
	plastic or rubber waterstop width 400mm with centre bulb	m	60.00	
	exceeding 0.5 m	m2	60.00	
4.3.73	Provide & lay 300mm wide (to suit drawing wall thickness as appropriate) x 12mm thick Ruberoid layer between wall & roof slab.	m	46.00	
			-	
	Page total carried to summary page			

LOT I:	KAMBOE MIDROCK, KAMBOE FUR LAISAN	RMASAN, LOGLOGO, J IIS IN MARSABIT COU	· · · · ·	MANYATTA L	ENGIMA AND	
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED						
ITEM	DESCRIPTION		QTY	RATE Kshs.	AMOUNT Kshs.	
	Page Total, Page 1					
	Page Total, Page 2					
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	Page Total, Page 5					
	Bill Total Carried to Bill Summary					

## LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

## BILL NO. 4: COLLECTION LOGLOGO WATER SUPPLY SCHEME - COLLECTION SHHET

BILL	DESCRIPTION	AMOUNT
No		Kshs
4.1	BOREHOLES AND WELL DEVELOPMENT	
4.2	PIPELINE AND FITTINGS	
4.3	TANKS	
	Bill 4: Loglogo Water Supply Scheme	

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER
SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER
POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY

LOT I:	POINTS) BATCH 1 PROJECTS IN MAE KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO AND LAISAMIS IN MARSABIT	GO, JA	LDES		A LENGIMA
	PROJECT NO.: KE-WSTF-328819 BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME		-	T DEVELODM	TNT
TTEL					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	BOREHOLE/WELL DEVELOPMENT				
	The Contractor shall, supply, install, test, commisssion and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer.				
5.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer	Prov. Sum	1.0	100,000.00	100,000.00
5.1.2	Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.	Prov. Sum	1.0	100,000.00	100,000.00
5.1.3	Allow a provisional sum of 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.	Prov. Sum	1.0	250,000.00	250,000.00
5.1.4	Allow % for overheads, administration, profits, etc	%			
5.1.5	Supply, install, test and commission 26kW, 35.35Hp Submersible Pump SP 18-19 or approved equivalent with a discharge- <b>15m3/hr)</b> and head <b>169m</b> .pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No	1		
5.1.6	Supply, install, test and commission 10 mm <sup>2</sup> /4 core submersible pump flat cable	m	216		
5.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
5.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m	432		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHEET	r I		

LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO	GO, JA	LDESA		A LENGIMA
	AND LAISAMIS IN MARSABIT				
	PROJECT NO.: KE-WSTF-32881				
	BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
5.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.	No.	1		
	<u>^</u>				
	Supply, install, test and commission the following Sensors				
	for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.				
5.1A.9.2	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
5.1A.9.3	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
5.1A.9.4	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.		1		
5.1A.9.12	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
5.1.10	Supply, install, test and commission of an array of solar with the following specicifications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 38.22 kW on a bright sunny day at midday taking into account the system losses.	No.	70.0		

BILL NO. 5.1 : JALDI           ITEM         DESCRIPTION           5.1.11         Supply, installation and furfollowing specifications: 60mm x 40mm (minimum stainless steel bolts of app the ground on concrete fix 2.5 m above the ground for maximum of 3m above the case of a 2m length solar p height side as long the tilt horizontal. A layer of balla below the solar PV arrays. The angle of inclination ard determined by the site geo optimization of the power           5.1.12         Supply, install, test and co output diesel generator with a highly corrosion resistan monitoring, fuel tank and d diesel generator shall be sta installation and shall perfor inverter and the system det work in a fully automatic r component. A concrete plit generator placement plus a IT 4 sheets to engineer's a           5.1.13         Supply, install, test and co output disolar Pumping Inv 61A or approved equivale inverter to be installed ind mounting with a small she least IP54.           5.1.14         Supply, install, test and co over switch for the above of complete with the metal er atleast IP54.           5.1.15         Supply, install, test and co prover synth for the above of complete with the metal er atleast IP54.	INTS) BATCH 1 PROJECTS IN MAI K, KAMBOE FURMASAN, LOGLO				
BILL NO. 5.1 : JALDIITEMDESCRIPTION5.1.11Supply, installation and fu following specifications: 60mm x 40mm (minimum stainless steel bolts of app the ground on concrete fix 2.5 m above the ground fo maximum of 3m above the case of a 2m length solar p height side as long the tilt horizontal. A layer of balla below the solar PV arrays. The angle of inclination ar determined by the site geo optimization of the power5.1.12Supply, install, test and co output diesel generator wit a highly corrosion resistan monitoring, fuel tank and o diesel generator shall be si installation and shall perfo inverter and the system de work in a fully automatic r component. A concrete pli generator placement plus a IT 4 sheets to engineer's a5.1.13Supply, install, test and co output disolar Pumping Inv 61A or approved equivale inverter to be installed ind mounting with a small she least IP54.5.1.15Supply, install, test and co over switch for the above o complete with the metal er atleast IP54.5.1.15Supply, install, test and co Neter 3p kWH 63Amps r	AND LAISAMIS IN MARSABIT	,		, MANYATT	A LENGINA
BILL NO. 5.1 : JALDIITEMDESCRIPTION5.1.11Supply, installation and fu following specifications: 60mm x 40mm (minimum stainless steel bolts of app the ground on concrete fix 2.5 m above the ground fo maximum of 3m above the 	PROJECT NO.: KE-WSTF-32881				
<ul> <li>5.1.11 Supply, installation and furfollowing specifications: 60mm x 40mm (minimum stainless steel bolts of app the ground on concrete fix 2.5 m above the ground for maximum of 3m above the case of a 2m length solar p height side as long the tilt horizontal. A layer of balla below the solar PV arrays. The angle of inclination and determined by the site geo optimization of the power</li> <li>5.1.12 Supply, install, test and co output diesel generator with a highly corrosion resistan monitoring, fuel tank and of diesel generator shall be su installation and shall perfor inverter and the system de work in a fully automatic r component. A concrete pli generator placement plus a IT 4 sheets to engineer's a</li> <li>5.1.13 Supply, install, test and co Hybrid Solar Pumping Inv 61A or approved equivale inverter to be installed ind mounting with a small she least IP54.</li> <li>5.1.14 Supply, install, test and co over switch for the above of complete with the metal er atleast IP54.</li> <li>5.1.15 Supply, install, test and co Meter 3p kWH 63Amps m</li> </ul>	LDESA WATER SUPPLY SCHEME			DEVELOPN	<u>1ENT</u>
following specifications:60mm x 40mm (minimum stainless steel bolts of app the ground on concrete fix 2.5 m above the ground fo maximum of 3m above the case of a 2m length solar p height side as long the tilt horizontal. A layer of balla below the solar PV arrays. The angle of inclination ar determined by the site geo optimization of the power5.1.12Supply, install, test and co output diesel generator wit a highly corrosion resistan monitoring, fuel tank and o diesel generator shall be su installation and shall perfor inverter and the system de work in a fully automatic r component. A concrete pli generator placement plus a IT 4 sheets to engineer's a5.1.13Supply, install, test and co output diselar Pumping Inv 61A or approved equivales inverter to be installed ind mounting with a small she least IP54.5.1.14Supply, install, test and co over switch for the above o complete with the metal er atleast IP54.5.1.15Supply, install, test and co Meter 3p kWH 63Amps r		UNIT	NIT QTY	RATE AMOUN	
following specifications:60mm x 40mm (minimum stainless steel bolts of app the ground on concrete fix 2.5 m above the ground fo 				Kshs.	Kshs.
<ul> <li>output diesel generator with a highly corrosion resistant monitoring, fuel tank and of diesel generator shall be su installation and shall perfor inverter and the system de work in a fully automatic r component. A concrete pli generator placement plus a IT 4 sheets to engineer's a</li> <li>5.1.13 Supply, install, test and co Hybrid Solar Pumping Inv 61A or approved equivaler inverter to be installed ind mounting with a small she least IP54.</li> <li>5.1.14 Supply, install, test and co over switch for the above of complete with the metal er atleast IP54.</li> <li>5.1.15 Supply, install, test and co Meter 3p kWH 63Amps m</li> </ul>	num) aluminium angle plates using appropriate size and anchored firmly to e fixtures so that the modules are about ad for the low height side and a e the ground for the high height side in lar panel or any other height on the high e tilt angle is not more than 150 from the ballast aggregate of 16mm to be laid rays. on and orientation of the modules to be geographical coordinates for maximum		1		
<ul> <li>5.1.13 Supply, install, test and co Hybrid Solar Pumping Inv 61A or approved equivale inverter to be installed ind mounting with a small she least IP54.</li> <li>5.1.14 Supply, install, test and co over switch for the above of complete with the metal en atleast IP54.</li> <li>5.1.15 Supply, install, test and co Meter 3p kWH 63Amps m</li> </ul>	d commission a 3-phase 75KVA power r with 415 V at 50 Hz. It should include istant enclosure, control panel and and circuit breaker protection. The be suitable for indoor or outdoor perform accordingly with the battery n design. The diesel generator shall atic manner with the above stated e plinth to be constructed for the lus a shed of steel hollow sections and r's approval to house the generator	Set	1		
over switch for the above of complete with the metal er atleast IP54.5.1.15Supply, install, test and co Meter 3p kWH 63Amps m	d commission a 30 kW (minimum) g Inverter RSI 3x380-440V IP66 30kW valent complete with accessories. The l indoors or under the solar panels shed above and to have protection of at d commission a TPN Automatic change	Set	1		
Meter 3p kWH 63Amps m	ove components with override switch, al enclosure to have a protection of		1		
with IP66 rated enclosure.	d commission Schneider Acti9 Energy ps modibus or approved equivalent for erated by the solar PV system complte sure.	No	1		
building to drawing and Sp excavations, setting out, en structure as per Appendix	nd construct a Genset/Control room nd Specifications. Rate to include ut, erection and all installations for the ndix B RIED TO SECTION COLLECTION	Set	1		

LOTI	: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO AND LAISAMIS IN MARSABIT			., MANYATT	A LENGIMA
	PROJECT NO.: KE-WSTF-328819				
	BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME-			DEVELOPN	<u>IENT</u>
ITEN	1 DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
5.1.17	Supply, install, test and commission Cabling complete with all	Lot	1		
	necessary accessories for connection of solar modules to				
	inverter, to intelligent controller/manager and to agreed				
	connection point at the station through an energy meter and				
	generator. This to also include cabling from the diesel				
	generator for integration with power from the solar plant.				
5.1.19	Supply, install, test and commission Modem and router for	Set	1		
	remote monitoring and control. Grundfos SqFlex or equivalent				
5.1.20	Supply and install Aerial lightning arrestors at 6m height,	Set	1		
	fixed to concrete foundations				
5.1.21	Supply and install Earthing materials, including all inspection	Set	1		
	chambers, rods, tape bonding straps etc. as necessary for the				
	earthing requirements with the borehole				
5.1.25	Supply, install, test and commission Motor ProtectionUnit	No	1		
	MP204 or equivalent				
5.1.27	Allow for 12 months after sale service including training of	Ls	1		
	operators and technicians.				
	Communication Infrastructure				
	Supply and installation of GSM/GPRS/4G communication	No.	2		
	modules for boreholes and booster stations				
5.1.31	Supply and installation of Antennas and signal boosters for	No.	2		
5 1 20	remote locations		200		
5.1.32	Supply and installation of Fiber Optic Cable (8-core, single- mode)	m	200		
5.1.33	Supply and installation of Fiber Optic Termination Boxes,	Set	12		
0.1.33	Wall-mounted, dustproof	Sei	12		
5.1.34	Supply and installation of Fiber Optic Splicing and	Lot	5		
.1.34	Accessories	LOU	5		
5.1.35	Fire Fighting Equipment	No	5		
	Supply, install, test and commission 5 Kg Class ABC Powder	110	5		
	steel cylinder fire extinguisher, c/w pressure				
	gauge wall mounting steel bracket, operating instructions and				
	accessories, fully charged.				
	Fencing				
5.1.36	Excavate for post holes, provide all materials and construct	m	120		
	chain link fence on concrete posts at 3 m centres all as per				
	drawing details, including straining posts at every 10th post				
	and additional posts at corners and botton concrete cover to				
	ground level under the fence. Works to include provision and				
	installation of a Double Galvanized Razor Wire protection.				
	1				
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LOTI	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO AND LAISAMIS IN MARSABIT			, MANYATT	A LENGIMA			
	PROJECT NO.: KE-WSTF-32881							
BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT								
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT			
.1.37	Provide all materials and construct 6.0 m wide lockable metal	Nr	1	Kshs.	Kshs.			
.1.37	gate all to detailed. The gate to have a lockable pedestrian	INI	1					
	gate 1m wide opening.							
1A.41	Borehole pipeworks	Nr	1					
1A.41	Borehole cover with extended 1m flanged pipe piece DN50.	INF	1					
	Note the cover should also allow for any other cabling and instrumentation for the borehole.							
.1A.42		Na	2					
	All Flanged 90 deg long elbow DN 50	Nr	3					
1A.43	Double Flanged Non-Return Valve 50	Nr	1					
.1A.44	Double Flanged Gate Valve DN 50	Nr	4					
	Supply and intsall multi-turn actuators for open-close duty	No.	4					
1 4 4 7	paired with actuator controls, and variable speed models.		1					
.1A.45	All flanged equal steel tee 50mmx50mmx50mm	Nr	1					
.1A.46	DN50mm non-slam Double-orifice Air Valve with flanged	No.	1					
	base, complete to detail as indicated in the Drawings.							
.1A.47	Double flanged pipe piece DN50 length 1500mm	Nr	1					
1A.48	Provide, install, test and commission an electromagnetic flow	Nr	1					
	meter DN 50 PN16. Rate to include 2 battery power supply,							
	IP 68, RS232 and RS 485 port outputs.							
1A.49	Double flanged pipe piece DN50 length 1000mm	Nr	2					
.1A.50	All flanged equal 1.8m long extended steel tee	Nr	2					
	50mmx50mmx50mm							
.1A.51	All flanged reducing taper 50mmx63mm	Nr	1					
.1A.52	Flanged HDPE Stub end DN63	Nr	1					
.1A.53	All Flanged 50mmx50mmx50mm tee connection to a surge	Nr	1					
	protection vessel PN16							
.1A.54	Allow a provision of supply, installation, testing and	Lump	1					
	commissioning of appropriately sized surge vessels or surge	Sum						
	control valve with all manway accesses, flange pipe							
	connections and all other appurtenances as per manufacturers							
	recommendations and in accordance with specification and a							
	air buffer vessel to DN 50 rising main PN20.							
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LOT I: KAMBOE MIDROCK, KAMBOE FURMAS	· · · ·		A, MANYATT	A LENGIMA
AND LAISAMIS IN	MARSABIT COUN	TY		
PROJECT NO.: KE-	WSTF-328819-CS-Q	CBS		
<b>BILL NO. 5.1 : JALDESA WATER SUPPI</b>	Y SCHEME- BORE	EHOLE	DEVELOPN	<u>IENT</u>
ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			Kshs.	Kshs.
Page Total, Page 1				
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Page Total, Page 4				
Page Total, Page 5				
Bill Total Carried to Bill Summary				

LOT	BATCH 1 PROJECTS IN M T I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO				LENGIMA AND				
	LAISAMIS IN MARS/								
	PROJECT NO.: KE-WST		-		100				
BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS TEM DESCRIPTION RATE AMOUNT									
IIEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.				
	i. The Contactor to maintain uninterrupted continuity of								
	water supply in existing pipelines								
	ii. Pedestrian and vehicular Access to individual shops / plots to be maintained at all times								
	MAIN PIPELINES AND DISTRIBUTION SYSTEM								
	PIPE AND PIPE FITTINGS								
	Supply, handle, and install (rates shall include jointing								
	materials, bolts, gaskets packing jointing glue, welding etc.,								
	as applicable) to the following HDPE Pipes to KS ISO 4427								
	and Steel/ferrous Fittings (valves and pipe specials) in								
	trench as per the specifications. All pipe fittings and valve								
	diameters indicated are Nominal Diameters								
	Pipe trench excavation is to commence from ground level to								
	a minimum depth of 1.5m. Rate to include setting out,								
	general bush clearing, Pipe laying, Pressure								
	testing, disinfection, backfilling with imported bedding and								
5.2.1	HDPE Pipe DN50mm PN16	m	1,998.00						
	HDPE Pipe DN63mm PN16	m	1,951.00						
	HDPE Pipe DN75mm PN16	m	501.00						
	HDPE Pipe DN110mm PN16	m	459.00						
	Bends								
	DN 110mm 90°	Nr.	2.00						
	DN 110mm 45°	Nr.	2.00						
	DN 75mm 90°	Nr.	2.00						
	DN 63mm 90°	Nr.	2.00						
	DN 50mm 90°	Nr.	2.00						
	Reducers								
5.2.10	DN 110/75 mm	Nr.	1.00						
	DN 75/63 mm	Nr.	1.00						
	DN 63/50 mm	Nr.	1.00						
	Junction from tank								
5.2.13	DN 110mm stub end with MS flange back ring	Nr	5.00						
5.2.14	DN 110x110x110mm equal tee	Nr	1.00						
5.2.15	DN 100mm flanged sluice valve	Nr	1.00						
	110mm Cross tee (Junction 1)								
	DN 110x50x50x50 HDPE fabricated cross tee	Nr	1.00						
	DN 50mm stub end with MS flange ring	Nr	6.00						
5.2.18	DN 50mm flanged sluice valve	Nr	3.00						
	Offtake fittings Junction DN 110mm (JD 2)								
	DN 110x63x75mm HDPE fabricated cross tee	Nr	1.00						
	DN 75mm stub end with MS flange ring	Nr	2.00						
	DN 63mm stub end with MS flange ring	Nr	2.00						
	Dn 75mm flanged sluice valve	Nr	1.00						
5.2.23	DN 63mm flanged sluice valve	Nr	1.00						
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LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO LAISAMIS IN MARS			, MANYATTA I	LENGIMA AND
PROJECT NO.: KE-WST BILL NO. 5.2: JALDESA WATER SUPPLY S			E AND FITTIN	IGS
ITEM DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
Offtake fittings Junction DN 63mm (JD 3,5)				
5.2.24 DN 63 x63x50mm reducing Tee	Nr	4.00		
5.2.25 DN 50mm stub end with MS flange back ring	Nr	8.00		
5.2.26 DN 50mm Flanged gate valve	Nr	4.00		
Offtake fittings Junction DN 75mm (JD 4)				
5.2.27 DN 75 x63x50mm reducing Tee	Nr	1.00		
5.2.28 DN 50mm stub end with MS flange back ring	Nr	2.00		
5.2.29 DN 50mm Flanged gate valve	Nr	1.00		
DN 50mm Terminal connection (with washout)				
5.2.30 DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
5.2.31 DN 50mm stub end with MS flange back ring	Nr	4.00		
5.2.32 DN 50mm Flanged gate valve	Nr	2.00		
5.2.33 DN 50mm HDPE flap valve	Nr	1.00		
5.2.34 DN 50mm HDPE PN 16 pipe	m	60.00		
DN 63mm Terminal connection (with washout)		-		
5.2.35 DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	2.00		
5.2.36 DN 50mm stub end with MS flange back ring	Nr	8.00		
5.2.37 DN 50mm Flanged gate valve	Nr	4.00		
5.2.38 DN 50mm HDPE flap valve	Nr	2.00		
5.2.39 DN 50mm HDPE PN 16 pipe	m	120.00		
Air Valve Chamber Fittings (DN110mm) -(1No)				
5.2.55 HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	1.00		
5.2.56 DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
5.2.57 DN 50mm double flanged sluice valve	Nr	1.00		
5.2.58 DN 50mm double orifice airvalve	Nr	1.00		
Washout (DN 110mm) -(1No)				
5.2.59 HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
5.2.60 DN 110mm HDPE stub end with MS Flange	Nr	4.00		
5.2.61 DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
5.2.62 DN 90mm sluice valve	Nr	1.00		
5.2.63 DN 90mm HDPE pipe (PN 12.5)	m	24.00		
5.2.64 Masonry headwall with base slab for Erosion protection at	Ls	1.00		
discharge point	LS	1.00		
Air Valve Chamber Fittings (DN75mm) -(1No)				
5.2.65 HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00		
5.2.66 DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
5.2.67 DN 50mm double flanged sluice valve	Nr	1.00		
5.2.68 DN 50mm double orifice airvalve	Nr	1.00		
Washout (DN 75mm) -(1No)				
5.2.69 HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1.00		
5.2.70 DN 75mm HDPE stub end with MS Flange	Nr	4.00		
5.2.71 DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
5.2.72 DN 75 mm sluice valve	Nr	1.00		
5.2.73 DN 75mm HDPE pipe (PN 12.5)	m	24.00		
5.2.74 Masonry headwall with base slab for Erosion protection at	Ls	1.00		
discharge point	LS	1.00		
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LUI	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO LAISAMIS IN MARS			, WANYAI IA I	LENGIMA AND
	PROJECT NO.: KE-WST	F-3288	19-CS-QCBS		
	BILL NO. 5.2: JALDESA WATER SUPPLY S	SCHEN	IE - PIPELIN	E AND FITTIN	iGS
TEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.
	Air Valve Chamber Fittings (DN 63mm) -(1No)				
5.2.75	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be	N	1.00		
	electrofussion)	Nr	1.00		
5.2.76	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
5.2.77	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
5.2.78	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
5.2.80	DN 32 mm Threaded Air Valve	Nr	1.00		
	Washout (DN 63mm) -(1No)				
	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be	Nr	1.00		
	electrofussion)		1.00		
	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	HDPE DN 63 mm PN 16 Flanged adapter	Nr	1.00		
	HDPE DN 50 mmFlanged Sluice valve	Nr	1.00		
	DN 63 mm HDPE pipe (PN 12.5)	m	24.00		
	Masonry headwall with base slab for Erosion protection at	Ls	1.00		
	discharge point	125	1.00		
	Air Valve Chamber Fittings (DN 50mm) -(1No)				
	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be	Nr	1.00		
	electrofussion)				
	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
5.2.92	DN 32 mm Threaded Air Valve	Nr	1.00		
	Washout (DN 50mm) -(1No)				
	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofussion)	Nr	1.00		
	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00		
	HDPE DN 50 mmFlanged Sluice valve	Nr	1.00		
	DN 50 mm HDPE pipe (PN 12.5)	m	24.00		
5.2.98	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	Water Draw Off Facilities				
5.2.99	Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C	Nr.	3.00		
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LOT	BATCH 1 PROJECTS IN M I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO				LENGIMA AND			
LUI	LAISAMIS IN MARSA			<i>A</i> , <b>MAN</b> <i>I A</i>				
	PROJECT NO.: KE-WST							
BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS								
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.			
	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00					
5.2.101	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00					
	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	1.00					
	Supply of materials and construct a sanitation facility as described to detail in Appendix E1	Item	1.00					
	Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing. The Automated water dispensing ATM designed to offer a reliable and user- friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications - Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), - Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households.	Nr	1.00					
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LOT	Γ I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO LAISAMIS IN MARS.			A, MANYATTA I	LENGIMA AND				
	PROJECT NO.: KE-WST				JCS				
BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS									
ITEM	DESCRIPTION	UNIT	QTY -	RATE Kshs.	AMOUNT Kshs.				
5.2.105	Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	1.00	KSII5.	K3113.				
	Chambers (Civil Works)								
	Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as shown on contract drawings.								
2 105	drawings. Washouts								
.2.105	washouts	Nr.	4.00						
5.2.106	Air valves	Nr.	4.00						
5.2.107	Valve chambers	Nr.	7.00						
	ANCILLARIES ITEMS								
5.2.108	Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications	No	27.00						
2 100	Thrust Blocks Construction of thrust block at bends and Tee junctions								
5.2.109	price includes all cost such as excavation, concrete, Re- steel bar, the formwork and others as detailed on drawing	Nr	10.00						
.2.110	Breaking up, temporary and permanent reinstatement of murram road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm.Rate to include steel casing sleeve.Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm.	m	30.00						

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LO	T I: KAMBOE MIDROCK, KAMBOE FUR			A, MANYATTA I	LENGIMA AND
	LAISAM	IS IN MARSABIT (	COUNTY		
	PROJECT N	O.: KE-WSTF-3288	19-CS-QCB	S	
	BILL NO. 5.2: JALDESA WATE	R SUPPLY SCHEM	1E - PIPELI	INE AND FITTIN	IGS
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		UNIT	ΥΠ	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Bill Total Carried to Grand Summary				

LOT	F I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOO AND LAISAMIS IN MARSABIT			A, MANYATTA	LENGIMA
	PROJECT NO.: KE-WSTF-328819				
	BILL NO. 5.3: JALDESA SCHEME 100 M3 20 H		-	FED TANK	
TEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	20m High Elevated Steel Tank of 100m <sup>3</sup>				
	The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme				
5.3.1	Supply all materials, tools and equipment, erect, and commission a galvanised 100m <sup>3</sup> steel with liner sectional tank of the Braithwaite type/ Alumzinc tank with liner or equal approved standard to include a tank tower of 20 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, overflows, scour, inlets and outlet for 150mm pipes etc., for complete installation. Foundation of tank pads to be 2.3mx2.3m and depth not less than 2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c and distribution of T12 @150mm c/c top and bottom mesh. 4Nr Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups each with HFSG bolts galvanised 4nr. 25 dia bolts and nuts with washers @600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC Cement CEM I Grade 42.5. Base plate 10mm, including grouting base plate interface with column stud. Panel plate thickness 3mm all galvanised. Coat tank inside with approved bituminous paint. All tank components to be Hot- dip galvanized to EN ISO 1461. Tank manufacturer to be KEBS certified and ISO certified. The rate to include deailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer	No.	1.00		
	INLET PIPE FITTINGS				
	100 HDPE Stab End Flange	No	2		
5.3.3	100mm All flanged pipe piece 1m long	No	3		
	100mm flanged spigot pipe piece 1m long	No	1		
	100mm All flanged sluice valve	No	1		
	100mm All flanged G.S 90° bend	No	2		
	100mm All flanged pipe piece 6m long	No	3		
	100mm All flanged pipe piece 1.2m long	No	1		
5.3.9	100mm All flanged Float switch	No	1		
	OVERFLOW AND SCOUR				
	100mm All flanged pipe piece 1.8m long	No	1		
	100mm Flanged bell mouth	No	2		
	100mm All flanged pipe piece 2.2m long	No	1		
	100mm All flanged slice valve	No	2		
	100mm flanged adaptor	No	1		
	100mm flanged spigot pipe piece 1m long	No	1		
.3.16	100mm All flanged equal Tee	No	1		
	100mm All flanged pipe piece 3.5m long	No	2		
	100mm All flanged pipe 6m long	No	2		
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LOT I: KAMBOE M	POINTS) BATCH 1 PROJECTS IN MA IDROCK, KAMBOE FURMASAN, LOGLA				ALENGIMA
	AND LAISAMIS IN MARSABI			<b>x</b> , 1 <b>11 x</b> 1 <b>x</b> 1 <b>x</b> 1 <b>x</b> 1	
	PROJECT NO.: KE-WSTF-3288				
BIL	L NO. 5.3: JALDESA SCHEME 100 M3 20			TED TANK	
.3.19 100mm All flange		No	1		
.3.20 100 HDPE Stab E	End Flange	No	2		
OUTLET					
.3.21 100mm flanged p	ipe 6m long	No	3		
.3.22 100mm Flanged b		No	1		
.3.23 100mm All flange	ed G.S 90° bend	No	1		
.3.24 100mm All flange	ed Slice valve	No	2		
.3.25 100 HDPE Stab E	Ind Flange	No	2		
	d test diameter 100mm Electromagnetic Wat	er			
	vith all gasket bolts etc. Rate to include for a		1		
associated fittings		No			
Testing					
	recommended disinfectant and test the tanks.	Nr.	1.00		
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CONSTRUCTION, REHABILITATION AND EXPANSION	OF GROUND	WATER – BA	SED RURAL WATER
SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&			
POINTS) BATCH 1 PROJECTS			
LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, I			YATTA LENGIMA
AND LAISAMIS IN MAR			
PROJECT NO.: KE-WST	-		
BILL NO. 5.3: JALDESA SCHEME 100	<u>M3 20 HIGH E</u>	LEVATED TA	<u>NK</u>
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Bill Total Carried to Bill Summary			

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL
WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION,
AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY

PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 5.4: JALDESA SCHEME - ADMINISTRATION BUILDING						
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.	
	Administration Building Type I			183115.	13113.	
	CLASS E: EARTHWORKS					
	Excavation of surfaces to reduce the level, depth not					
5.4.1	exceeding 0.25m	m3	11.58			
	Foundations and bases for depth not exceeding 1500					
5.4.2	mm for strip footing	m3	41.67			
	Excavation Ancillaries					
	Trimming of excavated surfaces to recieve blinding					
5.4.3	concrete	m2	56.70			
	Filling as Described:-					
	Hardcore					
	300mm thick hand packed well compacted hardcore					
5.4.4	including 75 mm thick blinding layer	m3	16.20			
	Anti-Termite treatment					
	Treat surface of hardcore with approved anti termite					
5 1 1h			54.00			
5.4.4b	solution applied strictly in accordance with the manufacturers instructions.	m2	54.00			
	Damp-Proof Membrane					
5.4.5	500 Gauge polythene sheeting, laid over hardcore in	m2	54.00			
	two layers					
	CLASS F: INSITU CONCRETE:					
	Mass Concrete Class 15/20mm :-		1.0.7			
5.4.6	75mm Thick blinding under strip footing	m3	4.05			
	Vibrated Reinforced Concrete Reinforced Concrete					
	Class 25/20mm:-					
	150mm thick ground slab with BRC A142 mesh laid 40					
5.4.7	mm from the top finished with red oxide polish. BRC	m3	8.10			
	mesh rate shall be provided separately.					
	200 mm Thick Class 25/20 concrete for foundtion					
5.4.8	footiung of dimension 600x600 mm complete with	m3	2.50			
5.4.6 re	reinfoced column to of 300mm x 200mm to a depth not	111.5	2.50			
	less than 1.5m					
5.4.9	200x300 Ring Beam concrete	m3	4.62			
	CLASS G: CONCRETE ANCILLARIES					
	Formwork					
	Formwork - Fair Finish:-					
5.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10			
5.4.11	Vertical Sides of the 150mm ground slab	m2	9.63			
5.4.12	Soffit ring beam 200 mm wide	m2	15.40			
	Reinforcement					
	Provide and Fix High Tensile Steel Reinforcement to					
	SRN 127 Including Cutting, Bending, Propping with					
	Spacers and Tying as Specified :-					
5.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72			
5.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60			

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL
WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION,
AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY

LO	OT I: KAMBOE MIDROCK, KAMBOE FURMASAN LENGIMA AND LAISAMIS IN M	,	,	,	YATTA
	PROJECT NO.: KE-WSTF-3	28819-CS	S-QCBS		
	BILL NO. 5.4: JALDESA SCHEME - ADI	MINISTR	RATION B	UILDING	
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
5.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	Fabric Reinforcement No. A142 Mesh Size 150 x				
	150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends,				
	Tying Wire and Distance Blocks:-				
	Fabric reinforcement with minimum 200mm wide side				
5.4.16	and end laps, laid in bed- A142 mesh at 25mm from the	m2	54.00		
	top				
	Walling.				
	Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement				
_	Mortar (1:3):-				
	200 mm thick masonry wall in substructure	m2	45.00		
	200 mm smooth dressed walling in superstructure	m2	114.00		
5.4.19	150 mm smooth dressed walling in superstructure	m2	64.60		
	Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-				
5.4.20	200mm and 150mm Wide under walls	m	35.20		
	Finishes.				
5.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
	3 coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in				
5.4.22	Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.	m2	105.64		
5.4.23	3 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	161.88		
	with Teflon Surface protector or approved equivalent.				
	CLASS O: TIMBER				
	Roof				
5.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
	50x 100 mm: timber beam (GMS posts)	m	10.00		
	100 x 50 mm: Struts and ties	m	95.40		
	200 X 25mm fascia and badge	m	36.00		
	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
5.4.29	75 x 50mm purlins	m	80.00		
5.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		

	STRUCTION, REHABILITATION AND EXPANSION ER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAY AND WATER POINTS) BATCH 1 PROJEC	ING, E&	M SUPPI	LY AND INS			
LO	DT I: KAMBOE MIDROCK, KAMBOE FURMASAN LENGIMA AND LAISAMIS IN M	IARSABI	T COUN		IYATTA		
	PROJECT NO.: KE-WSTF-3						
ITEM	BILL NO. 5.4: JALDESA SCHEME - ADMINISTRATION BUILDIN           TEM         DESCRIPTION         UNIT         QTY         RAT						
	Supply and Fix the Following Pressed Metal Louvre		<b>Q</b> 11	Kshs.	Kshs.		
	Doors with 100 x 50mm Stiles and Top Rails, 150 x						
	50mm Middle and Bottom Rails With Pressed Metal						
	Infill Louvres and 100 x 50mm Pressed Metal Frames,						
	Including Hinges, Pad Bolts and Tower Bolts, All To						
	Manufacturer's Details, With Three Coats Gloss Paint						
	Complete With Opening Accessories Including						
	Bedding and Pointing Around Frames in Cement Mortar:-						
	Panel doors						
	Single leaf flush door size 2100 x 900 mm high (D1),						
5.4.32	complete with frame, with union three (3) lever door	nr	3.00				
	lock and any other ironmongery.						
	100mm furnished GMS Posts						
5.4.33	Supply and install 3.5m GMS Posts complete with connectors and anchors for the concrete base and for	nr	6.00				
5.4.55	the 100mmx150mm timber beam	nr	0.00				
	Steel Casement Windows						
	Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet						
	Glass glazed to Steel Casements with Putty, Complete						
	with Opening Accessories, including Building in Lugs						
	to Jambs and Head and Water-Proofing and Filling						
	Around Opening With Approved Compound; and						
	Including Burglar-Proofing Fabricated from 12 x						
	12mm Mild Steel Square Bars at 150mm Centres						
	Vertically and 150mm Horizontally and Fixed						
	Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all						
	Fish-Tailed Lugs at Maximum 600mm Centres, all Finished with Three Coats Oil Paint:-						
	Window size 1200x 1200mm high with 1 No. fixed and 2 No. side hung opening bottom sashes and with 2 No.						
5.4.34	fixed and 1 No. top-hung top ventilators 200mm high	Nr	5.00				
	with permanent ventilator hood over						
	Ceilling						
	12mm Thick Approved Chipboard to BS 2604, Part						
	2, Density 480-640kgs, Per Square Meter in Sheets						
	Size 2400 x 1200mm Fixed to and Including 50 x						
	50mm Sawn Cypress Grade 2 Battens at 600mm						
	Centres in Both Directions Complete with Gauge Jointing Material, painting & filler						
5.4.35	Horizontal ceiling fixed to underside of trusses	m2	54.00				
	12mm Cornice 50mm high, plugged	m	47.00				
	PAGE TOTAL CARRIED FORWARD TO COLLEG	CTION S	HEET				

28819-CS MINISTR UNIT L. Sum	ATION B QTY 1.00 1.00 1.00 8.00 2.00	UILDING RATE Kshs.	AMOUNT Kshs.
UNIT L. Sum Set No No No	QTY 1.00 1.00 1.00 1.00 8.00 2.00	RATE	
L. Sum Set No No No	1.00 1.00 1.00 8.00 2.00		
Set No No No	1.00 1.00 8.00 2.00		
Set No No No	1.00 1.00 8.00 2.00		
No No No	1.00 8.00 2.00		
No No No	1.00 8.00 2.00		
No No No	1.00 8.00 2.00		
No	2.00		
L. Sum	1.00		

WAT		KS, PIPE LAYING, E& YCH 1 PROJECTS IN M	EM SUPP IARSABI OGO, JA IT COUN	LY AND INST T COUNTY LDESA, MAN	FALLATION,
	BILL NO. 5.4: JALDESA S		<u> </u>	BUILDING	
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Bill Total Carried to Grand Summary				

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL
WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION,
AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY

L	OT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, LENGIMA AND LAISAMIS IN MARSABIT CO						
	PROJECT NO.: KE-WSTF-328819-CS-QCE						
	BILL NO. 5: COLLECTION JALDESA WATER SUPPLY SCHEME-COLLECTION SHEET						
BILL	DESCRIPTION	AMOUNT Kshs					
<u>No</u> 5.1	BOREHOLES AND WELL DEVELOPMENT						
5.1							
5.2	PIPELINE AND FITTINGS						
5.3	100 M3 20 M HIGH ELEVATED STEEL TANK						
5.4	BUILDINGS						
	Bill 6 -Jaldesa Water Supply Scheme						
	ibin o -januesa water suppry scheme						

POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND					
	PROJECT NO.: KE-WSTF-32881				
BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT					
TEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			<b>`</b>	Kshs.	Kshs.
	BOREHOLE/WELL DEVELOPMENT				
	The Contractor shall supply, install, test, commisssion and provide warranties, spares, training of the operators and technicians, 12 months after sale-service for photovoltaic pumping (PVP) systems, without batteries, with diesel generator/national grid interface and remote monitoring to Specifications and proper working order for identified rural community boreholes. The Contractor is required to remove existing water pump systems in each case and undertake borehole service including but not limited to borehole redevelopment, flushing and replacement of sieves. All to the Specifications and as directed by the Engineer.				
6.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer	Prov. Sum	1.0	100,000.00	100,000.00
6.1.2	Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.	Prov. Sum	1.0	100,000.00	100,000.00
6.1.3	Allow a Kes 250,000 provisional sum for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.	Prov. Sum	1.0	250,000.00	250,000.00
6.1.4	Allow % for overheads, administration, profits, etc	%			
6.1.5	Supply, install, test and commission 22kW, 29.91Hp Submersible Pump SP 18-17 or approved equivalent with a discharge <b>22m3/hr</b> and head <b>96m</b> pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.	No			
	Supply, install, test and commission 10 mm <sup>2</sup> /4 core submersible pump flat cable	m			
	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair			
6.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed copper control cable( brown and black)	m			

POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND						
PROJECT NO.: KE-WSTF-328819-CS-QCBS						
	BILL NO. 6.1: MANYATTA LENGIMA SCHEME-F	BOREHO.	LE DEV			
TEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.	
	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.	No.	1			
	Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.					
6.1.10	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00			
6.1.11	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00			
	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1			
	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1			
			$\left  \right $			

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAVING, F&M SUPPLY AND INSTALLATION, AND WATER					
SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY					
LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND					
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT					
			<b>~</b>	Kshs.	Kshs.
foll Sili mou at th 43.4	opply, install, test and commission of an array of solar with the lowing specicifications: 390W solar panels, Monocrystalline icon PV, with 25 years warranty The power output of the dules should generate enough power such that the power output he connection point to the distribution board is not less than 68 kW on a bright sunny day at midday taking into account the tem losses.	No.	42.0		
foll 60r stee con gro gro any moi 16r The dete	pply, installation and furnishing support structures with the lowing specifications: mm x 40mm (minimum) aluminium angle plates using stainless el bolts of appropriate size and anchored firmly to the ground on acrete fixtures so that the modules are about 1.2 m above the und for the low height side and a maximum of 1.5m above the und for the high height side in case of a 2m length solar panel or v other height on the high height side as long the tilt angle is not re than $15^{\circ}$ from the horizontal. A layer of ballast aggregate of nm to be laid below the solar PV arrays. e angle of inclination and orientation of the modules to be ermined by the site geographical coordinates for maximum imization of the power output.	Set	1		
out hig fue be acc dies abo gen	pply, install, test and commission a 3-phase 100KVA power put diesel generator with 415 V at 50 Hz. It should include a hly corrosion resistant enclosure, control panel and monitoring, l tank and circuit breaker protection. The diesel generator shall suitable for indoor or outdoor installation and shall perform ordingly with the battery inverter and the system design. The sel generator shall work in a fully automatic manner with the ove stated component. A concrete plinth to be constructed for the nerator placement plus a shed of steel hollow sections and IT 4 wers to engineer's approval to house the generator.	Set	1		
Sol app inst she	pply, install, test and commission a 30 kW (minimum) Hybrid ar Pumping Inverter RSI 3x380-440V IP66 30kW 61A or proved equivalent complete with accessories. The inverter to be talled indoors or under the solar panels mounting with a small above and to have protection of at least IP54.	Set	1		
swi wit	pply, install, test and commission a TPN Automatic change over itch for the above components with override switch, complete h the metal enclosure to have a protection of atleast IP54.	No	1		
3p ] ene	oply, install, test and commission Schneider Acti9 Energy Meter kWH 63Amps modibus or approved equivalent for measuring ergy generated by the solar PV system complte with IP66 rated closure.	No	1		
	closure. GE TOTAL CARRIED TO SECTION COLLECTION SHE	ЕТ			

POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND							
LOT				NYATTA LEN	NGIMAAND		
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT							
TEM	DESCRIPTION	OKEHU					
IIENI	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.		
6.1.23				183113.	KSII5.		
0.1.25	Supply of materials and construct a Genset/Control room building						
	to drawing and Specifications. Rate to include excavations, setting	Item	1				
	out, erection and all installations for the structure as per Appendix B						
	Supply, install, test and commission Cabling complete with all						
	necessary accessories for connection of solar modules to inverter, to						
	intelligent controller/manager and to agreed connection point at the						
	station through an energy meter and generator. This to also include	Lot	1				
	cabling from the diesel generator for integration with power from						
	the solar plant.						
6.1.26	Supply, install, test and commission Modem and router for remote						
	monitoring and control. Grundfos SqFlex or equivalent	Set	1				
	Supply and install Aerial lightning arrestors at 6m height, fixed to						
	concrete foundations	Set	1				
	Supply and install Earthing materials, including all inspection						
	chambers, rods, tape bonding straps etc. as necessary for the	Set	1				
	earthing requirements with the borehole						
	Supply, install, test and commission Motor ProtectionUnit MP204						
	or equivalent	No	1				
6.1.30	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2				
	Allow for 12 months after sale service including training of	_					
	operators and technicians.	Ls	1				
	-						
	Communication Infrastructure						
6.1.33	Supply and installation of GSM/GPRS/4G communication modules	No.	2				
	for boreholes and booster stations	INU.	2				
6.1.34	Supply and installation of Antennas and signal boosters for remote	No.	2				
	locations	110.	2				
	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	500				
	Supply and installation of Fiber Optic Termination Boxes, Wall-	Set	5				
	mounted, dustproof	361	5				
	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5				
	Fire Fighting Equipment Supply, install, test and commission 5						
	Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure	No	No 1				
	gauge wall mounting steel bracket, operating instructions and						
	accessories, fully charged.		1				

BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOF           TTEM         DESCRIPTION         UNIT         QTY         R/L           61.39         Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corrers and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.         m         120           6.1.40         Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.         Nr         1           Borehole:         SURFACE PUMP         -         -           6.1.41         Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge 22m3/hr and head 224m complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDCP16, Urit Breaker, 16Amp; Switch box / control unit: OTDC	LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND PROJECT NO.: KE-WSTF-328819-CS-QCBS					
DESCRIPTION       UNIT       QTY       R/ K         6.1.39       Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and boton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.       m       120         6.1.40       Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.       Nr       1         Borehole:       SURFACE PUMP						
Fencing       Image: Construct of the second state of the second s	TY RATI	FE AMOUNT				
6.1.39       Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.       m       120         6.1.40       Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.       Nr       1         Borehole:       SURFACE PUMP	Kshs	ıs. Kshs.				
link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.m1205.1.40Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.Nr15.1.41Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge <b>22m3/hr</b> and head <b>224m</b> complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OTNCP19, yinstall, test and commission 2.5 mm²/4 corem205.1.43Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system. Sol.42m405.1.44Supply, install, test and commission 0.75mm² sc pvc sheathed copper control cable (brown and black)m406.1.45Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oc equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall including energy optimization and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based D						
including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.m1205.1.40Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.Nr1Borehole:SURFACE PUMP						
corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.m1201.1.40Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.Nr1Borehole: SURFACE PUMP						
Works to include provision and installation of a Double Galvanized Razor Wire protection.Image: Construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.Nr1Borehole: SURFACE PUMPImage: Construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.Nr1Borehole: SURFACE PUMPImage: Construct 6.0 m wide lockable pedestrian gate 1m wide opening.Nr1Borehole: SURFACE PUMPImage: Construct 6.0 m wide lockable pedestrian gate 1m wide opening.Nr1CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge 22m3/hr and head 224m complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter.No20-1.42Supply, install, test and commission 0.5 mm²/4 corem200-1.43Supply, install, test and commission 0.75mm² sc pvc sheathed copper control cable (brown and black)m400-1.44Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall including energy optimization, and fault detection. The cost shall including energy optimization and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monit	120					
Razor Wire protection.       Image: Construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.       Nr       1         Borehole: SURFACE PUMP       Image: Construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.       Nr       1         5.1.41       Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge 22m3/hr and head 224m complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter.       No       2         5.1.42       Supply, install, test and commission 2.5 mm²/4 core       m       20         5.1.43       Supply, install, test and commission 0N6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.       Pair       1         5.1.44       Supply, install, test and commission 0.75mm² sc pvc sheathed copper control cable (brown and black)       m       40         5.1.45       Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface						
5.1.40       Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.       Nr       1         Borchole: SURFACE PUMP						
all to detailed. The gate to have a lockable pedestrian gate 1 m wide opening.Nr1Borehole: SURFACE PUMP						
opening.Borehole: SURFACE PUMP5.1.41Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge 22m3/hr and head 224m complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter.No25.1.42Supply, install, test and commission 2.5 mm²/4 corem205.1.43Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.Pair15.1.44Supply, install, test and commission 0.75mm² sc pvc sheathed copper control cable (brown and black)m405.1.45Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition ad system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface,No.1	1					
Borehole:       SURFACE PUMP         5.1.41       Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge 22m3/hr and head 224m complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter.       No       2         5.1.42       Supply, install, test and commission 2.5 mm²/4 core       m       20         5.1.43       Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.       Pair       1         5.1.44       Supply, install, test and commission 0.75mm² sc pvc sheathed copper control cable (brown and black)       m       40         5.1.45       Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeilntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface,       No.       1	1					
5.1.41       Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge <b>22m3/hr</b> and head <b>224m</b> complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter.       No       2         5.1.42       Supply, install, test and commission 2.5 mm²/4 core       m       20         5.1.43       Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.       Pair       1         5.1.44       Supply, install, test and commission 0.75mm² sc pvc sheathed copper control cable (brown and black)       m       40         5.1.45       Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oc equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface,       No.       1						
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Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface,						
Software & Hardware, GSM-based Data Communication Interface,						
Data Logger Unit with Multiple Interface Support (D\$222 D\$485 L						
Data Logger Unit with Multiple Interface Support (RS232, RS485, etc.) and Integration with the Servers for Future Expansion.						
etc.) and integration with the Servers for 1 thut Expansion.						

POINTS DATCH 1 PROJECTS IN MARSABIT COUNTY           I.OT I: KAMBOC MIDROCK, KAMBOE PURMASAN, LOGLGGO, JALDESA, MANVATTA LENGIMA AND PROJECT NO.: KE-WSTF-328819-CS-QCBS           BILL NO. 6.1: MANVATTA LENGIMA SCHEME-HORRHOLE DEVELOPMENT           UNIT         QTY         RATE         AMOUN'           Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.         UNIT         QTY         RATE         AMOUN'           6.1.46         Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.         LS         1.00           6.1.47         Supply, install, test and commission the Folet Switch Sensor (tank high/ow levels, Model: Ornon D4MC or equivalent)         No.         1.00           6.1.48         Supply, install, test and commission the Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJA50A or (monitors pipe pressure, Model: Carlo Gavazzi EM24 or equivalent)         No.         1.00           6.1.49         Supply, install, test and commission the Conductivity Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)         No.         1.00           6.1.53         Supply, install, test and commission of an array of solar with the following specifications: 300W solar panels, Monocrystalline Silicon PV, with 25 years warranty         No.         1.00           6.1.53		CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER								
PROJECT NO: KE-WSTF-328819-CS-OCBS           TEM DESCRIPTION         UNIT         QTV         RATE         AMOUNT           Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.         UNIT         QTV         RATE         AMOUNT           Supply, install, test and commission the Solar Radiation Apoge SP         LS         1.00           1.46         Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)         No.         1.00           SILE VIEWS TO COLSPAN										
TEM     DESCRIPTION     UNIT     QTY     RATE     AMOUNT       Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.     1.00     1.00       51.146     Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.     No.     1.00       51.47     Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)     No.     1.00       51.48     Supply, install, test and commission of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL     No     1       91.49     Supply, install, test and commission the Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJA530A or equivalent)     No.     1.00       51.50     Supply, install, test and commission the Power Consumption Sensor (tracks energy use, Model: Yokogawa SC72 or equivalent)     No.     1.00       51.51.5     Supply, install, test and commission of an array of solar with the following speciefications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty     No.     84       7     The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 4.6.8 kW on a bright sumy day at midday taking into account the system losses.     No.       51.54     Supply, installation and furnishing s										
UNIT         UNIT         UNIT         UNIT         UNIT         Kshs.         Kshs.           Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.         1		BILL NO. 6.1: MANYATTA LENGIMA SCHEME-E			ELOPMENT					
Supply, install, test and commission the following Sensors for Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.         LS         1.00           6.1.46         Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.         No.         1.00           5.1.47         Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)         No.         1.00           5.1.48         Supply, install, test and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR-4mH2O,         No         1           6.1.49         Supply, install, test and commission the Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJA530A or equivalent)         No.         1.00           6.1.50         Supply, install, test and commission the Conductivity Sensor (measures disolved minerals, Model: Yokogawa SC72 or equivalent)         No.         1.00           6.1.53         Supply, install, test and commission of an array of solar with the following specieficatons: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 46.8 W on a bright sumy day at midday taking into account the system losses.         Set         1           61.54         Supply, installition and furnishing support structures with the f	ITEM	DESCRIPTION	UNIT	QTY		AMOUNT				
Monitoring System. The cost shall include cabling and integration of the sensors into the data logger.       1.46         51.46       Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.       No.       1.00         51.47       Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)       No.       1.00         51.48       Supply, install, test and commissioning of Hydrostatic Level Transmitter with integrated P1100 temperature sensor 0-700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL. No       No       1         NULHR-AmH2O, -0.25%       -0.25%       No       1         51.49       Supply, install, test and commission the Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJAS30A or equivalent)       No.       1.00         51.50       Supply, install, test and commission the Power Consumption Sensor (measures disolved minerals, Model: Yokogawa SC72 or equivalent)       No.       1.00         51.51       Supply, install, test and commission of an array of solar with the following specifications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty       No.       84         51.54       Supply, install, test and commission of an array of solar with the following specifications: 60mm x 40mm (minimum) aluminium angle plates using stainless is test bolis of appropriate size and anchored firmly to the ground on concrete fixtures so that the condeced firmly to the ground on concrete fixtures so that the conder		Sumply, install test and commission the following Sangara for		-	Kshs.	Kshs.				
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steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 2.5 m above the ground for the low height side and a maximum of 3m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.Set1The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output Contractor to give shopSet1										
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ground for the low height side and a maximum of 3m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output Contractor to give shop										
ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output Contractor to give shopSet1										
any other height on the high height side as long the tilt angle is not       Set       1         more than 150 from the horizontal. A layer of ballast aggregate of       16mm to be laid below the solar PV arrays.       1         The angle of inclination and orientation of the modules to be       1       1       1         determined by the site geographical coordinates for maximum       1       1       1         optimization of the power output.       - Contractor to give shop       1       1			_							
more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output Contractor to give shop			Set	1						
16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output Contractor to give shop										
determined by the site geographical coordinates for maximum optimization of the power output Contractor to give shop										
optimization of the power output Contractor to give shop		The angle of inclination and orientation of the modules to be								
drawings										
PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET										

POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND							
-	PROJECT NO.: KE-WSTF-32881				· - ·		
	BILL NO. 6.1: MANYATTA LENGIMA SCHEME-E			ELOPMENT			
TEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
		UNII	QII	Kshs.	Kshs.		
6.1.55	Supply, install, test and commission a 3-phase 100KVA power						
	output diesel generator with 415 V at 50 Hz. It should include a						
	highly corrosion resistant enclosure, control panel and monitoring,						
	fuel tank and circuit breaker protection. The diesel generator shall						
	be suitable for indoor or outdoor installation and shall perform	Set	1				
	accordingly with the battery inverter and the system design. The	Sei	1				
	diesel generator shall work in a fully automatic manner with the						
	above stated component. A concrete plinth to be constructed for the						
	generator placement plus a shed of steel hollow sections and IT 4						
	sheets to engineer's approval to house the generator.						
5.1.56	Supply, install, test and commission a 30 kW (minimum) Hybrid	Set					
	Solar Pumping Inverter RSI 3x380-440V IP66 30kW 61A or						
	approved equivalent complete with accessories. The inverter to be		1				
	installed indoors or under the solar panels mounting with a small						
	shed above and to have protection of at least IP54.						
	Supply, install, test and commission a 16A TPN Automatic change	No					
	over switch with override switch, complete with the metal enclosure		1				
	to have a protection of atleast IP54.						
	Supply, install, test and commission Schneider Acti9 Energy Meter	No					
	3p kWH 63Amps modibus or approved equivalent for measuring		1				
	energy generated by the solar PV system complte with IP66 rated						
	enclosure.						
	Supply of materials and construct a Genset/Control room building						
	to drawing and Specifications. Rate to include excavations, setting	Item	1				
	out, erection and all installations for the structure as per Appendix	nem	1				
	Н						
	Supply, install, test and commission Cabling complete with all						
	necessary accessories for connection of solar modules to inverter, to						
	intelligent controller/manager and to agreed connection point at the	Lot	1				
	station through an energy meter and generator. This to also include	200	-				
	cabling from the diesel generator for integration with power from						
	the solar plant.						
	Supply, install, test and commission Modem and router for remote	Set	1				
	monitoring and control. Grundfos SqFlex or equivalent		-				
	Supply and install Aerial lightning arrestors at 6m height, fixed to	Set	1				
	concrete foundations						
	Supply and install Earthing materials, including all inspection						
	chambers, rods, tape bonding straps etc. as necessary for the	Set	1				
	earthing requirements with the borehole Supply, install, test and commission Pressure Gauge - 0-25bar				1		

	NSTRUCTION, REHABILITATION AND EXPANSION OF GI							
SU	SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER							
LOT	POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY							
LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND								
	PROJECT NO.: KE-WSTF-32881 BILL NO. 6.1: MANYATTA LENGIMA SCHEME-E			TEL ODMENT				
ITEM	DESCRIPTION	DOKENU		RATE	AMOUNT			
	DESCRIPTION	UNIT	T QTY	KATE Kshs.	Kshs.			
6.1.66	12 Months maintenance plus training of maintenance staff.	No	1	1101101				
	Supply, install, test and commission Motor ProtectionUnit MP204	N.						
	or equivalent	No	1					
	Communication Infrastructure							
6.1.68	Supply and installation of GSM/GPRS/4G communication modules	No.	2					
	for boreholes and booster stations	INO.	2					
6.1.69	Supply and installation of Antennas and signal boosters for remote	No.	2					
	locations	NO.						
	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	50					
	Supply and installation of Fiber Optic Termination Boxes, Wall-	Set	5					
	mounted, dustproof							
	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5					
	Fencing							
	Excavate for post holes, provide all materials and construct chain	m						
	link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at		m 120					
	corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized							
	Razor Wire protection.							
	Provide all materials and construct 6.0 m wide lockable metal gate							
	all to detailed. The gate to have a lockable pedestrian gate 1m wide	Nr	1					
	opening.	141	1					
	WELL HEAD PROTECTION							
	Provide materials and construct a 1.2mx0.9m with height not							
	exceeding 2m wellhead protection for Borehole to details as per the							
	drawing and as directed by the Engineer. The rate includes a							
	lockable 5mm thick mild steel access cover, mild steel step irons,	Nr	1					
	provision for conduits and pipeworks, vent provision and base slab							
	150mm C25/20 reinforced with A142 BRC mesh per borehole. All							
	as per the drawings and as directed by the engineer							
	Borehole pipeworks							
	Borehole cover with extended 1m flanged pipe piece DN50. Note							
	the cover should also allow for any other cabling and	Nr	1					
	instrumentation for the borehole.							
	All Flanged 90 deg long elbow DN 50	Nr	3					
	Double Flanged Non-Return Valve 50	Nr	1					
	Double Flanged Gate Valve DN 50	Nr	4					
	Supply and intsall multi-turn actuators for open-close duty paired	No.	4					
	with actuator controls, and variable speed models.							
	All flanged equal steel tee 50mmx50mmx50mm	Nr	1					
	DN50mm non-slam Double-orifice Air Valve with flanged base,	No.	1					
	complete to detail as indicated in the Drawings.	ЕТ						

	NSTRUCTION, REHABILITATION AND EXPANSION OF G							
SU	JPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUP POINTS) BATCH 1 PROJECTS IN MAI				ND WATER			
LOT	LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND							
	PROJECT NO.: KE-WSTF-32881 BILL NO. 6.1: MANYATTA LENGIMA SCHEME-F			/ELOPMENT				
ITEM	DESCRIPTION	UNIT		RATE	AMOUNT			
		UNII			_	T QTY KATE Kshs.	Kshs.	Kshs.
6.1.83	Double flanged pipe piece DN50 length 1500mm	Nr	1					
6.1.84	Provide, install, test and commission an electromagnetic flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS 485 port outputs.	Nr	1					
6.1.85	Double flanged pipe piece DN50 length 1000mm	Nr	2					
	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2					
	All flanged reducing taper 50mmx63mm	Nr	1					
	Flanged HDPE Stub end DN63	Nr	1					
	All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16	Nr	1					
6.1.90	Allow a provision of supply, installation, testing and commissioning of appropriately sized surge vessels or surge control valve with all manway accesses, flange pipe connections and all other appurtenances as per manufacturers recommendations and in accordance with specification and a air buffer vessel to DN 50 rising main PN20.	Lump Sum	1					
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	PAGE TOTAL CARRIED TO SECTION COLLECTION SHE	ET						

CONSTRUCTION, REHABILITATION AND EXPA	ANSION OF GROUND V	VATER	- BASED RU	RAL WATER
SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYI				ND WATER
POINTS) BATCH 1 PRO				
LOT I: KAMBOE MIDROCK, KAMBOE FURMASA		-	NYATTA LEN	GIMAAND
PROJECT NO.: KI BILL NO. 6.1: MANYATTA LENGIN	E-WSTF-328819-CS-QC	BS LE DEVI	FLODMENT	
ITEM DESCRIPTION		г	RATE	AMOUNT
	UNIT	QTY	Kare Kshs.	Kshs.
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Page Total, Page 2				
Page Total, Page 3				
Page Total, Page 4				
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Page Total, Page 6				
Page Total, Page 7				
Page Total, Page 8				
Page Total, Page 9				
Bill Total Carried to Bill Summary				

SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATEF POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY								
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO				ENGIMA AND			
	PROJECT NO.: KE-WSTF-328819							
	BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SC	CHEM	E PIPELIN	NES AND F	ITTINGS			
ТЕМ	DESCRIPTION	UNIT	QTY	RATE	AMOUNT			
			<b>x</b>	Kshs.	Kshs.			
	i. The Contactor to maintain uninterrupted continuity of water							
	supply in existing pipelines							
	PIPE AND PIPE FITTINGS							
	Pipe Work - Supply, lay, joint, pressure test, disinfect							
	Supply, handle, and install (rates shall include jointing materials,							
	bolts, gaskets packing jointing glue, welding etc., as applicable) to the following HDPE Pipes to KS ISO 4427 and Steel/ferrous							
	Fittings (valves and pipe specials) in trench as per the specifications.							
	All pipe fittings and valve diameters indicated are Nominal							
	Diameters							
	Pipe trench excavation is to commence from ground level to a							
	minimum depth of 1.5m. Rate to include setting out, general bush							
	clearing, Pipe laying, Pressure testing, disinfection, backfilling with							
	imported bedding and surrround material all as per specifications,							
	drawings and as directed by the engineer							
	RISING MAINS							
6.2.1	HDPE Pipe DN110mm PN16	m	340.00					
	Non return valves							
6.2.2	DN 110mm Non-return valves	Nr	1.00					
	Airvalves							
6.2.3	DN 50mm airvalve AVK or approved equivalent	Nr	2.00					
	MAIN PIPELINES AND DISTRIBUTION SYSTEM							
	HDPE Pipe DN50mm PN16	m	1,160.00					
	HDPE Pipe DN90mm PN16	m	2,100.00					
6.2.7	HDPE Pipe DN110mm PN16	m	1,270.00					
	Bends							
	DN 110mm 90°	Nr.	1.00					
	DN 110mm 45°	Nr.	1.00					
	DN 90mm 90°	Nr.	1.00					
5.2.12	DN 50mm 90°	Nr.	1.00					
	Reducers							
	DN 110/90 mm	Nr.	1.00					
5.2.14	DN 90/50 mm	Nr.	1.00					
	PAGE TOTAL CARRIED FORWARD TO COLLECTION SH	EET						

	STRUCTION, REHABILITATION AND EXPANSION OF GR								
SU	SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY								
LOT	LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND								
LUI	PROJECT NO.: KE-WSTF-328819-CS-QCBS								
	BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SC			ES AND F	ITTINGS				
ITEM	DESCRIPTION		OTV	RATE	AMOUNT				
пем	DESCRIPTION	UNII	QTY	Kshs.	Kshs.				
	110mm offtake (JD 1)								
6.2.15	DN 110x110x50mm HDPE tee	Nr	1.00						
	DN 50mm stub end with MS flange ring	Nr	2.00						
	DN 50mm flanged sluice valve	Nr	1.00						
	90mm offtake (Junction 2)								
	DN 90x90x50mm HDPE tee	Nr	1.00						
6.2.19	DN 50mm stub end with MS flange ring	Nr	2.00						
6.2.20	DN 50mm flanged sluice valve	Nr	1.00						
	DN 50mm Terminal connection (with washout)								
	DN 50x50x50mm HDPE tee	Nr	3.00						
6.2.22	DN 50mm stub end with MS flange back ring	Nr	12.00						
6.2.23	DN 50mm Flanged gate valve	Nr	6.00						
6.2.24	DN 50mm HDPE flap valve	Nr	3.00						
6.2.25	DN 50mm HDPE PN 16 pipe	m	200.00						
6.2.26	Masonry headwall with base slab for Erosion protection at	т.	3.00						
	discharge point	Ls	3.00						
	Air Valve Chamber Fittings (DN110mm)								
6.2.27	HDPE Reducer Tee DN 110mm x 110mm x 50mm	Nr	1.00						
6.2.28	DN50 mm HDPE Stub End with MS Flange	Nr	1.00						
6.2.29	DN 50mm double flanged sluice valve	Nr	1.00						
6.2.30	DN 50mm double orifice airvalve	Nr	1.00						
	Air Valve Chamber Fittings (DN90mm)								
	HDPE Reducer Tee DN 90mm x 90mm x 50mm	Nr	2.00						
6.2.32	DN50 mm HDPE Stub End with MS Flange	Nr	2.00						
6.2.33	DN 50mm double flanged sluice valve	Nr	2.00						
6.2.34	DN 50mm double orifice airvalve	Nr	2.00						
	Water Draw Off Facilities								
6.2.35	Supply of materials and construct a water kiosk to drawing and								
	Specifications. Rate to include excavations, setting out, erection and	Nr.	2.00						
	all installations for the structure as per Appendix C								
	PAGE TOTAL CARRIED FORWARD TO COLLECTION SH	EET							

CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATE SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER						
SU	PPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPP POINTS) BATCH 1 PROJECTS IN MAR				AND WATER	
LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND						
PROJECT NO.: KE-WSTF-328819-CS-QCBS						
	BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SC			ES AND FIT	TINGS	
ТЕМ				RATE	AMOUNT	
	DESCRIPTION	UNII	QTY	Kshs.	Kshs.	
6.2.36	Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	1.00			
5.2.37	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	1.00			
6.2.38	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	1.00			
6.2.39	Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	1.00			
	Chambers (Civil Works)					
	Includes setting up of each type of chamber, excavation in any type of soil including rock, dewatering, shoring, formwork, in situ construction of reinforced concrete chambers, sump, removal of form work, protecting externally with water proofing tanking membrane and internally with two coats each 400 microns coaltar epoxy or equivalent, backfilling, compacting, providing surface box openings and chamber access openings, providing surface boxes, chamber access covers and frames, ladders, slab lifting hooks, vent pipe with insect screen, reinstating the site to its original condition etc. to make each chamber civil works complete in all respects as shown on contract drawings.					
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POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AN							
	PROJECT NO.: KE-WSTF-32881						
	BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SO	CHEM	E PIPELIN				
ТЕМ	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
C 2 40	W 1	N	- 5.00	Kshs.	Kshs.		
	Washouts Air valves	Nr. Nr.	5.00				
	Valve chambers	Nr.	4.00				
J.2.72	ANCILLARIES ITEMS	111.	+.00				
5.2.43	Supply and fix marker posts along water Main Route, Road						
	Crossings, change of direction, Air valves, Washouts and valve	No	49.00				
	chambers. All in accordance with drawings and specifications		.,				
	Thrust Blocks						
5.2.44	Construction of thrust block at bends and Tee junctions price						
	includes all cost such as excavation, concrete, Re-bar steel, the	Nr	10.00				
	formwork and others as detailed on drawing						
	Gulley/ River Crossings						
5.2.45	Allow for gulley crossing for HDPE pipe as detailed in the book of						
	drawings - Road and Seasonal river crossing structural details (dwg	m	120.00				
	Nr KE/WSTF/RE/GW/STD/030)						
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CON	STRUCTION, REHABILITATION AND EXPANSION O	F CROUNI	) WATEE	- BASED B	URAL WATER
	PPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M				
501				· · · · · · · · · · · · · · · · · · ·	AND WATEK
	POINTS) BATCH 1 PROJECTS IN				
LOTI	: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL	OGO, JALI	DESA, MA	ANYATTA LE	ENGIMA AND
	PROJECT NO.: KE-WSTF-3	28819-CS-Q	CBS		
	BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPL	Y SCHEM	E PIPELI	NES AND FI	ITINGS
ITEM	DECODIDITION	UNIT	OTV	RATE	AMOUNT
ITEM	DESCRIPTION	UNII	QTY	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Bill Total Carried to Grand Summary				

IOT	POINTS) BATCH 1 PROJECTS IN MA						
LOI	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO			INYAI IA LE	NGIMA AND		
	PROJECT NO.: KE-WSTF-32881			TANK			
BILL NO. 6.3: MANYATTA LENGIMA SCHEME 100 M3 RCC TANK							
ITE M	<b>ITEM DESCRIPTION</b>	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)		
	CLASS E: EARTHWORKS						
	General excavation						
	Excavate in Topsoil for Storage tank Works						
	Maximum depth not exceeding1 m	m <sup>3</sup>	100.00				
	Maximum depth hot exceeding 1 m	m <sup>3</sup>	120.00				
	the Engineer	Ls	1.00				
	Filling	125	1.00				
	Hardcore						
	blinded with final material 25mm thick	m3	24.30				
	Provide fill material to Storage tank Works structures		21.50				
	Specifications.						
	Mass concrete Class 15/20						
	tank, with sulphate resisting cement	m <sup>3</sup>	7.28				
	Reinforced concrete Class 30/20:		7.20				
	Foundation, Base and ground slab concrete, Walls, Beams,						
6481	Columns, Paparet Wall, Suspended Slab and Gutter	m <sup>3</sup>	97.62				
	Formwork						
	striking, all as specified and including boxing out						
	(i) Vertical Formwork - Class F3 Finish	m2	521.86				
	Concrete Surface Finish						
5.3.10	suspended slab	m2	181.28				
	Reinforcement						
	including cutting, bending, lapping propping with spacers and tying						
	High yield tensile steel 16mm diameter	kg	4,500.00				
	High yield tensile steel 12mm diameter	kg	5,000.00				
5.3.13	High yield tensile steel 10mm diameter	kg	1,500.00				
	CLASS L: ACCESS CHAMBERS						
5.3.14	1000x1000x6mm thick lockable access chamber covers with 6mm	nr	2.00				
	CLASS H: PRECAST CONCRETE						
5.3.15	mm thick precast paving slabs on and including 50 mm thick sand	m <sup>2</sup>	80.00				
	- · · · · · ·						

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND								
	PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	BILL NO. 6.3: MANYATTA LENGIMA SCHI	EME 100	) M3 RCC					
ITE M	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)			
	CLASS N: MISCELLANEOUS METAL WORK			(11011)	(11011)			
	galvanising. All steel pipes shall be hot-dip galvanised steel							
	Stainless Steel water level Indicator							
6.3.16	level Indicator for O&M.	nr	1.00					
	Access Ladder with safety cage							
6.3.17	exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm	nr	3.00					
6.3.18	Provision for an 100mm air vent to standard drawing detail	No.	4.00					
	Overflow PIPEWORK							
6.3.19	from spigot end	Nr	1.00					
6.3.20	DN 150 All flanged 90deg short radius bend	Nr	1.00					
6.3.21	length 1500mm	Nr	1.00					
6.3.22	DN 150 Flanged spigot 90deg long radius bend	Nr	1.00					
	Scour Pipework							
6.3.23	DN 150 Flanged spigot 90 deg short radius bend	Nr	1.00					
6.3.24	one end, length 2000mm	Nr	1.00					
6.3.25	DN 150 All flanged Globe Control valve PN10 with EPDM lining	Nr	1.00					
	Inlet Pipework							
6.3.26	DN 150 All flanged steel 90 deg long radius bend	Nr	2.00					
	from one end, length 2000mm	Nr	1.00					
	DN 150 Flanged ball valve	Nr	1.00					
6.3.29	DN 150 HDPE Stub end Flange	Nr	1.00					
	DN 150 Double flanged pipe piece, length 3000mm	Nr	1.00					
	Outlet Pipework							
	DN 150 Flanged special bell mouth	Nr	1.00					
	DN 150 All Flanged 90 degree short radius bend	Nr	1.00					
	400mm and 1200mm, length 2000mm	Nr	1.00					
$6\overline{334}$	spigot end, length 1200mm	Nr	1.00					

	NSTRUCTION, REHABILITATION AND EXPANSION OF G UPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUP	PLY A	ND INSTA	ALLATION, A						
	POINTS) BATCH 1 PROJECTS IN MA I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO									
	PROJECT NO.: KE-WSTF-328819-CS-QCBS									
	BILL NO. 6.3: MANYATTA LENGIMA SCH			CTANK						
ITE				RATE	AMOUNT					
М	ITEM DESCRIPTION	UNIT	QTY	(Ksh)	(Ksh)					
	DN 150 All flanged Sluice valve PN16 EPDM encapsulated	Nr	1.00							
	installation sundry for operation	Nr	1.00							
	DN 150 Double flanged steel pipe, length 1000mm	Nr	1.00							
	EPDM encapsulated fitted with actuator	Nr	1.00							
	DN 150 dismantling steel joint with central flange	Nr	1.00							
	one end, length 1000mm	Nr	1.00							
	DN 150 HDPE Stub end Flange	Nr	1.00							
	end, length 1000mm	nr	2.00							
	DN150 mm Bellmouth for Overflow	nr	1.00							
	DN150 mm x 90° Double flanged bend for overflow	nr	2.00							
	Expansion Joint									
	plastic or rubber waterstop width 400mm with centre bulb	m	60.00							
	Formed surface joint with filler, width of depth not exceeding 0.5 m	m2	60.00							
6.3.47	appropriate) x 12mm thick Ruberoid layer between wall & roof	m	46.00							
	Alumzinc tank									
6.3.48	Alumzine tank From SBS or equiavlent approved supplier. Rate to	Nr	1.00							
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CC	DNSTRUCTION, REHABILITATION AND EXPANSION O	F GROUNI	) WATEF	R – BASED RU	JRAL WATER						
S	UPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M				AND WATER						
	POINTS) BATCH 1 PROJECTS IN										
LOI	TI: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL			ANYATTA LE	NGIMA AND						
	PROJECT NO.: KE-WSTF-328819-CS-QCBS										
	BILL NO. 6.3: MANYATTA LENGIMA S	CHEME 10	0 M3 RC	C TANK							
ITE	ITEM DESCRIPTION		QTY	RATE	AMOUNT						
М		UNIT	Q11	(Ksh)	(Ksh)						
	Page Total, Page 1										
	Page Total, Page 2										
	Page Total, Page 3										
	Total taken to collection page										

CONS	STRUCTION, REHABILITATION AND EXPANSION OF GRO	UND WA	ATER – B	ASED RUI	RAL WATER
	PLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPI				
	POINTS) BATCH 1 PROJECTS IN MARS	SABIT CO	DUNTY		
LOI	TI: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG	O, JALDI	ESA, MAI	NYATTA LI	ENGIMA
	PROJECT NO.: KE-WSTF-328819-				
	BILL NO. 6.4: MANYATTA LENGIMA SCHEME - AD	MINSITI	RATION		
ITE M	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
	Administration Building Type I			(11511)	(1131)
	CLASS E: EARTHWORKS				
641	Excavation of surfaces to reduce the level, depth not exceeding 0.25m	m3	11.58		
64/1	Foundations and bases for depth not exceeding 1500 mm for strip footing	m3	41.67		
	Excavation Ancillaries				
	Trimming of excavated surfaces to recieve blinding concrete	m2	56.70		
	Filling as Described:-				
	Hardcore				
	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	Anti-Termite treatment				
6.4.4b	Treat surface of hardcore with approved anti termite solution	2	54.00		
5.4.40	applied strictly in accordance with the manufacturers instructions.	m2	54.00		
	Damp-Proof Membrane				
6.4.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	54.00		
	CLASS F: INSITU CONCRETE:				
	Mass Concrete Class 15/20mm :-				
6.4.6	75mm Thick blinding under strip footing	m3	4.05		
	Vibrated Reinforced Concrete Reinforced Concrete Class				
	25/20mm:-				
	150mm thick ground slab with BRC A142 mesh laid 40 mm from				
6.4.7	the top finished with red oxide polish. BRC mesh rate shall be	m3	8.10		
	provided separately.				
	200 mm Thick Class 25/20 concrete for foundtion footiung of				
	dimension 600x600 mm complete with reinfoced column to of	m3	2.50		
	300mm x 200mm to a depth not less than 1.5m				
	200x300 Ring Beam concrete	m3	4.62		
	CLASS G: CONCRETE ANCILLARIES				
	Formwork				
	Formwork - Fair Finish:-				
	Formwork to sides of 300 mm deep ring beam	m2	23.10		
	Vertical Sides of the 150mm ground slab	m2	9.63		
	Soffit ring beam 200 mm wide	m2	15.40		
	Reinforcement				
	Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying				
	as Specified :-	<u> </u>	(1 = 2		
	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	High yield tensile steel 10mm diameter to strip footing	kg	300.60		ļ
5.4.15	High yield tensile steel 8mm diameter	kg	101.96		
		1	I		1

BILL NO. 6.4: MANYATTA LENGIMA SCHEME - ADMINSITRATION BUILDING           ITE M         ITEM DESCRIPTION         UNIT         QTY         RATE         AMOUNT (Ksh)           M         Fabric Reinforcement No. A142 Mesh Size 150 x 150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends, Tying Wire and Distance Blocks:-         UNIT         QTY         RATE         AMOUNT (Ksh)         (Ksh)           6.4.16         Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top         m2         54.00         54.00           Walling.         Matural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-         m2         45.00	LOI	I I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG PROJECT NO.: KE-WSTF-328819-0			NYAI TA LI	ENGIMA
M     ITEM DESCRIPTION     UNIT     QTY     Distance       Fabric Reinforcement No. A142 Mesh Size 150 x 150mm     (Ksh)     (Ksh)     (Ksh)       Weighing 2.32 kgs Per m <sup>2</sup> , Including Bends, Tying Wire and Distance Blocks:-     m2     54.00       6.4.16     Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top     m2     54.00       Walling.     m2     54.00					BUILDING	r
Weighing 2.22 kgs Per m², Including Bends, Tying Wire and Distance Blocks:-m254.006.4.16Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the topm254.00Walling.m254.00Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-m245.006.4.17200 mm thick masonry wall in substructurem245.0064.1146.4.19150 mm smooth dressed walling in superstructurem2114.006.4.19150 mm smooth dressed walling in superstructurem264.60Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-m35.206.4.20200mm and 150mm Wide under wallsm35.20Finishes.m35.206.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.763 coats (one undercoat and two other coats) of silicon based64.22105.64ultra guard rain-proof silicone paint or approved equivalent.m2161.883 coats (one undercoat and two other coats) of emulsion paint to 64.23m161.88with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBERm10.0064.2250x 100 mm Rafter, ridge piece and tie beams: in trussesm140.5064.23100 x 50 mm: Struts and fiesm95.4064.2450x 100 mm: timber beam (GMS posts)m10.0064.25100 x 50		ITEM DESCRIPTION	UNIT	QTY		AMOUNT (Ksh)
Distance Blocks:-       m2       54.00         Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top       m2       54.00         Walling.       m4       54.00       m4         Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-       m2       45.00         54.17 200 mm thick masonry wall in substructure       m2       45.00       54.18         5.4.18 200 mm smooth dressed walling in superstructure       m2       64.60         Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-       m35.20       64.20         6.4.21 20 mm and 150mm Wide under walls       m2       133.76       105.64         Jultra guard rain-proof silicone paint or other coats) of silicon based       m2       105.64       105.64         Jultra guard rain-proof silicone paint or approved equivalent.       m2       161.88       161.88         with Teflon Surface protector or approved equivalent.       m2       161.88       64.20         64.24 50x 100 mm Rafter, ridge piece and tie beams: in trusses       m       140.00       140.50         64.24 50x 100 mm Rafter, ridge piece and tie beams: in trusses       m       140.50       141.82         64.24 50x 100 mm Rafter, ridge piece and tie beams: in trusses		Fabric Reinforcement No. A142 Mesh Size 150 x 150mm				
b.4.16       laid in bed- A142 mesh at 25mm from the top       m2       54.00         Walling.       m2       54.00         Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-       m2       45.00         6.4.17       200 mm thick masonry wall in substructure       m2       45.00         6.4.18       200 mm smooth dressed walling in superstructure       m2       64.60         Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-       m2       64.60         5.4.20       200mm and 150mm Wide under walls       m       35.20         Finishes.       m       35.20       133.76         6.4.21       20 mm 1:4 Cement/sand plaster to internal of walls       m2       105.64         3 coats (one undercoat and two other coats) of silicon based       m2       105.64         6.4.21       20 mm and 1sufaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.       m2       105.64         3 coats (one undercoat and two other coats) of emulsion paint to external wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.       m2       161.88         CLASS O: TIMBER       E       E       E       E         6.4.24       50x 100 mm: timber beam (GMS posts)		Distance Blocks:-				
Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-m264.17200 mm thick masonry wall in substructurem2145.005.4.18200 mm smooth dressed walling in superstructurem2114.005.4.19150 mm smooth dressed walling in superstructurem264.60Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-m35.205.4.20200mm and 150mm Wide under wallsm35.20Finishes.internal of wallsm2133.763< coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.m2105.643coats (one undercoat and two other coats) of emulsion paint to with Teflon Surface protector or approved equivalent.m2161.886.4.23fox 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.24fox 100 mm: timber beam (GMS posts)m100.006.4.25fox 100 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm: Wall plate: fixed to concretem54.006.4.2975 x 50mm purlinsm80.00		laid in bed- A142 mesh at 25mm from the top	m2	54.00		
with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-m6.4.17200 mm thick masonry wall in substructurem245.006.4.18200 mm smooth dressed walling in superstructurem2114.006.4.19150 mm smooth dressed walling in superstructurem264.60Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-m35.201006.4.20200mm and 150mm Wide under wallsm35.20Finishes.m2133.76133.766.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2105.64a coats (one undercoat and two other coats) of silicon basedm2105.64a scoats (one undercoat and two other coats) of silicon basedm2105.64a scoats (one undercoat and two other coats) of silicon basedm2161.886.4.21So ats (one undercoat and two other coats) of emulsion paint to with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBERm2161.8864.23Roofm3.0064.2450x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.2350x 100 mm: timber beam (GMS posts)m10.0064.2564.27200 X 25mm fascia and badgem36.0064.2275 x 50mm purlinsm80.00						
Jointed and Pointed in Cement Mortar (1:3):-m245.006.4.17200 mm smooth dressed walling in superstructurem2114.006.4.18200 mm smooth dressed walling in superstructurem264.60Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-m264.60Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-m35.206.4.20200mm and 150mm Wide under wallsm35.20Finishes.m35.206.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.763 coats (one undercoat and two other coats) of silicon based ultra guard rain-proof silicone paint or approved equivalent.m2105.643 coats (one undercoat and two other coats) of emulsion paint to 						
6.4.18       200 mm smooth dressed walling in superstructure       m2       114.00         6.4.19       150 mm smooth dressed walling in superstructure       m2       64.60         Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-       m       35.20         6.4.20       200mm and 150mm Wide under walls       m       35.20         Finishes.            6.4.21       20 mm 1:4 Cement/sand plaster to internal of walls       m2       133.76         3 coats (one undercoat and two other coats) of silicon based       m2       105.64         ultra guard rain-proof silicone paint or approved equivalent.       m2       161.88         3 coats (one undercoat and two other coats) of emulsion paint to       m2       161.88         6.4.23       interior wall surfaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.       m2       161.88         6.4.24       50x 100 mm Rafter, ridge piece and the beams: in trusses       m       140.50         6.4.24       50x 100 mm: timber beam (GMS posts)       m       10.00         6.4.25       50x 100 mm: timber beam (GMS posts)       m       95.40         6.4.24       100 x 50 mm: Struts and ties       m       95.40         6.4.28       100 x 50 mm Wall plate: fixed to concrete		Jointed and Pointed in Cement Mortar (1:3):-				
6.4.19       150 mm smooth dressed walling in superstructure       m2       64.60         Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-       m       35.20         6.4.20       200mm and 150mm Wide under walls       m       35.20         Finishes.       m       35.20         6.4.21       20 mm 1:4 Cement/sand plaster to internal of walls       m2       133.76         3 coats (one undercoat and two other coats) of silicon based       m2       105.64         ultra guard rain-proof silicone paint or approved equivalent.       m2       105.64         3 coats (one undercoat and two other coats) of emulsion paint to       m2       161.88         6.4.23       interior wall surfaces as in Crown Vinyl Matt Emulsion       m2       161.88         with Teflon Surface protector or approved equivalent.       m140.50       64.425       100 nm Rafter, ridge piece and tie beams: in trusses       m       140.50         6.4.24       50x 100 mm: timber beam (GMS posts)       m       10.00       64.23       100 x 50 mm: Struts and ties       m       95.40         6.4.24       100 x 50 mm Wall plate: fixed to concrete       m       54.00       64.29       75 x 50mm purlins       m						
Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-n5.4.20200mm and 150mm Wide under wallsm35.20Finishes.n35.205.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.765.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.763 coats (one undercoat and two other coats) of silicon based ultra guard rain-proof silicone paint or approved equivalent.m2105.643 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBER Roof161.88140.50161.886.4.2550x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.26100 x 50 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm Wall plate: fixed to concretem\$4.00			m2	114.00		
Described:-m35.205.4.20200mm and 150mm Wide under wallsm35.20Finishes.133.765.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.763 coats (one undercoat and two other coats) of silicon basedm2105.646.4.22emulsion paint to external wall surfaces as in Crown Permacotem2105.64ultra guard rain-proof silicone paint or approved equivalent.m2161.883 coats (one undercoat and two other coats) of emulsion paint tom2161.886.4.23interior wall surfaces as in Crown Vinyl Matt Emulsionm2161.88with Teflon Surface protector or approved equivalent.m2161.886.4.2450x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.2550x 100 mm: timber beam (GMS posts)m10.006.4.26100 x 50 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm Wall plate: fixed to concretem54.00	5.4.19		m2	64.60		
6.4.20       200mm and 150mm Wide under walls       m       35.20         Finishes.		Damp-Proof Course: Bituminous Felt Damp-Proof Course as				
Finishes.m2133.766.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.763 coats (one undercoat and two other coats) of silicon basedm2105.646.4.22emulsion paint to external wall surfaces as in Crown Permacotem2105.64ultra guard rain-proof silicone paint or approved equivalent.m2105.643 coats (one undercoat and two other coats) of emulsion paint tom2161.886.4.23interior wall surfaces as in Crown Vinyl Matt Emulsionm2161.88with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBERRoof6.4.2550x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.26100 x 50 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm Wall plate: fixed to concretem54.006.4.2975 x 50mm purlinsm80.00						
6.4.2120 mm 1:4 Cement/sand plaster to internal of wallsm2133.763 coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.m2105.643 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBER6.4.2550x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.26100 x 50 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm Wall plate: fixed to concretem80.00	6.4.20	200mm and 150mm Wide under walls	m	35.20		
3 coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.m2105.643 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBER Roofm2161.886.4.25 50x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.26 100 x 50 mm: Struts and tiesm95.406.4.27 200 X 25mm fascia and badgem36.006.4.28 100 x 50 mm Wall plate: fixed to concretem54.006.4.29 75 x 50mm purlinsm80.00		Finishes.				
6.4.22 ultra guard rain-proof silicone paint or approved equivalent.m2105.643 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBERm2161.88Roofm2105.646.4.2450x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.2550x 100 mm: timber beam (GMS posts)m100.006.4.26100 x 50 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm Wall plate: fixed to concretem54.006.4.2975 x 50mm purlinsm80.00	6.4.21		m2	133.76		
ultra guard rain-proof silicone paint or approved equivalent.m23 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.m2CLASS O: TIMBER161.88Roof140.506.4.24 50x 100 mm Rafter, ridge piece and tie beams: in trussesm140.50140.506.4.25 50x 100 mm: timber beam (GMS posts)m6.4.26 100 x 50 mm: Struts and tiesm6.4.27 200 X 25mm fascia and badgem6.4.28 100 x 50 mm Wall plate: fixed to concretem6.4.29 75 x 50mm purlinsm		3 coats (one undercoat and two other coats) of silicon based				
3 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsionm2161.886.4.23interior wall surface protector or approved equivalent.m2161.88CLASS O: TIMBER6.4.246.4.2450x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.2550x 100 mm: timber beam (GMS posts)m10.006.4.266.4.276.4.26100 x 50 mm: Struts and tiesm95.406.4.276.4.28100 x 50 mm Wall plate: fixed to concretem54.006.4.296.4.2975 x 50mm purlinsm80.006.4.29	6.4.22	emulsion paint to external wall surfaces as in Crown Permacote	m2	105.64		
6.4.23interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.m2161.88CLASS O: TIMBERRoof6.4.2450x 100 mm Rafter, ridge piece and tie beams: in trussesm140.506.4.2550x 100 mm: timber beam (GMS posts)m10.006.4.26100 x 50 mm: Struts and tiesm95.406.4.27200 X 25mm fascia and badgem36.006.4.28100 x 50 mm Wall plate: fixed to concretem54.006.4.2975 x 50mm purlinsm80.00		ultra guard rain-proof silicone paint or approved equivalent.				
with Teflon Surface protector or approved equivalent.Image: classical systemCLASS O: TIMBERImage: classical systemRoofImage: classical system6.4.2450x 100 mm Rafter, ridge piece and tie beams: in trussesm6.4.2550x 100 mm: timber beam (GMS posts)m6.4.26100 x 50 mm: Struts and tiesm6.4.27200 X 25mm fascia and badgem6.4.28100 x 50 mm Wall plate: fixed to concretem6.4.2975 x 50mm purlinsm						
CLASS O: TIMBER         Image: Constraint of the second secon	6.4.23	interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	161.88		
Roof         m         140.50           6.4.24         50x 100 mm Rafter, ridge piece and tie beams: in trusses         m         140.50           6.4.25         50x 100 mm: timber beam (GMS posts)         m         10.00           6.4.26         100 x 50 mm: Struts and ties         m         95.40           6.4.27         200 X 25mm fascia and badge         m         36.00           6.4.28         100 x 50 mm Wall plate: fixed to concrete         m         54.00           6.4.29         75 x 50mm purlins         m         80.00		with Teflon Surface protector or approved equivalent.				
6.4.24       50x 100 mm Rafter, ridge piece and tie beams: in trusses       m       140.50         6.4.25       50x 100 mm: timber beam (GMS posts)       m       10.00         6.4.26       100 x 50 mm: Struts and ties       m       95.40         6.4.27       200 X 25mm fascia and badge       m       36.00         6.4.28       100 x 50 mm Wall plate: fixed to concrete       m       54.00         6.4.29       75 x 50mm purlins       m       80.00		CLASS O: TIMBER				
6.4.25       50x 100 mm: timber beam (GMS posts)       m       10.00         6.4.26       100 x 50 mm: Struts and ties       m       95.40         6.4.27       200 X 25mm fascia and badge       m       36.00         6.4.28       100 x 50 mm Wall plate: fixed to concrete       m       54.00         6.4.29       75 x 50mm purlins       m       80.00						
6.4.26       100 x 50 mm: Struts and ties       m       95.40         6.4.27       200 X 25mm fascia and badge       m       36.00         6.4.28       100 x 50 mm Wall plate: fixed to concrete       m       54.00         6.4.29       75 x 50mm purlins       m       80.00	6.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
6.4.27       200 X 25mm fascia and badge       m       36.00         6.4.28       100 x 50 mm Wall plate: fixed to concrete       m       54.00         6.4.29       75 x 50mm purlins       m       80.00	6.4.25	50x 100 mm: timber beam (GMS posts)	m	10.00		
6.4.28         100 x 50 mm Wall plate: fixed to concrete         m         54.00           6.4.29         75 x 50mm purlins         m         80.00			m	95.40		
6.4.29 75 x 50mm purlins m 80.00	6.4.27	200 X 25mm fascia and badge	m	36.00		
			m	54.00		
6.4.30     28 Gauge Blue prepainted roof sheets including ridge caps     m2     80.00	6.4.29	75 x 50mm purlins	m	80.00		
	6.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		

LO	Г I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO	), JALDI	ESA, MAI	NYATTA LI	ENGIMA
	PROJECT NO.: KE-WSTF-328819-0				
	BILL NO. 6.4: MANYATTA LENGIMA SCHEME - AD	MINSITI	RATION		
ITE M	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
	Supply and Fix the Following Pressed Metal Louvre Doors with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle and Bottom Rails With Pressed Metal Infill Louvres and 100 x 50mm Pressed Metal Frames, Including Hinges, Pad Bolts and Tower Bolts, All To Manufacturer's Details, With Three Coats Gloss Paint Complete With Opening Accessories Including Bedding and Pointing Around Frames in Cement Mortar:-			(100)	(100)
	Panel doors				
6.4.31	Single leaf flush door size 2100 x 900 mm high (D1), complete with frame, with union three (3) lever door lock and any other ironmongery.	nr	3.00		
	100mm furnished GMS Posts				
6.4.32	Supply and install 3.5m GMS Posts complete with connectors and anchors for the concrete base and for the 100mmx150mm timber beam	nr	6.00		
	Steel Casement Windows				
	Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with Putty, Complete with Opening Accessories, including Building in Lugs to Jambs and Head and Water-Proofing and Filling Around Opening With Approved Compound; and Including Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with Three Coats Oil Paint:-				
6.4.33	Window size 1200x 1200mm high with 1 No. fixed and 2 No. side hung opening bottom sashes and with 2 No. fixed and 1 No. top- hung top ventilators 200mm high with permanent ventilator hood over	Nr	5.00		
	Ceilling				
	12mm Thick Approved Chipboard to BS 2604, Part 2, Density 480- 640kgs, Per Square Meter in Sheets Size 2400 x 1200mm Fixed to and Including 50 x 50mm Sawn Cypress Grade 2 Battens at 600mm Centres in Both Directions Complete with Gauge Jointing Material, painting & filler				
	Horizontal ceiling fixed to underside of trusses	m2	54.00		
6.4.35	12mm Cornice 50mm high, plugged	m	47.00		

LUI	<u>F I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG</u> PROJECT NO.: KE-WSTF-328819-0			NYATTAL	ENGIMA			
	BILL NO. 6.4: MANYATTA LENGIMA SCHEME - ADMINSITRATION BUILDING							
ITE M	ITEM DESCRIPTION	UNIT	QTY ·	RATE (Ksh)	AMOUNT (Ksh)			
	ELECTRIFICATION FITTINGS							
5.4.36	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric for one or two way switching,13 Amps socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables enclosed in pvc conduits, accessories and concealed in building fabric to form ring main circuits, 15mmx16mm diameter pure electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable, deep driven to permanent moisture level. Rate to include supply of all necessary materials and installation.	L. Sum	1.00					
	FURNITURE							
	Curtains for office for all windows and doors	Set	1.00					
	Office tables 2.2x0.9 m	No	1.00					
	Standard office chairs	No	8.00					
5.4.40	Desk 2.2x0.9 m with chair and three lockup drawers SANITATION FACILITY	No	2.00					
5.4.41	with depth from floor level at 6m. Stone masonry walling shall be 150mm, 125mm floor slab reinforced with T10 @100mm c/c, Roofing corrugated iron sheets gauge 28 etc All details as per the drawing and as directed by engineer.	L. Sum	1.00					

SUI	STRUCTION, REHABILITATION AND EXPANSION OF GR PLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPF POINTS) BATCH 1 PROJECTS IN MAR F I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOO	PLY AND E SABIT CO	INSTALI DUNTY	LATION, A	ND WATER
	PROJECT NO.: KE-WSTF-328819 BILL NO. 6.4: MANYATTA LENGIMA SCHEME - A			BUILDING	٦
ITE M	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
IVI				(KSII)	
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Bill Total Carried to Bill Summary				

	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, PROJECT NO.: KE-WSTF-328819-	-CS-QCE	BS		GIMA AND
ITEM	BILL NO. 6.5: MANYATTA LENGIMA SCHE DESCRIPTION	EME - PU UNIT		RATE	AMOUN
	PROPOSED NUMB HOUSE & CONTROL ROOM		Q. I	Kshs.	Kshs.
6.5	PROPOSED PUMP HOUSE & CONTROL ROOM				
	EARTHWORKS GENERAL EXCAVATION				
6.5.1	Excavate 200mm top soil and dispose	m2	40		
6.5.2	Excavate all materials max. depth 0.2 - 3 m for disposal	m3	119		
6.5.3	FILLING AND COMPACTION 300 mm thick hardcore bed, handpacked, well watered and well comapcted in 100 mm layers.	m <sup>3</sup>	11.87		
	IN-SITU CONCRETE				
	DESIGNED MIX FOR ORDINARY STRUCTURAL				
	CONCRETE FOR CLASS B EXPOSURE USING				
	<b>ORDINARY PORTLAND CEMENT Grade 42.5 to</b>				
	Specifications.				
	Provide and placeConcrete Grade: 15				
6.5.4	20 mm aggregate	m3	5.35		
	Provide and place Concrete Grade: 25				
6.5.5	20 mm aggregate	m3	16.16		
	CONCRETE ANCILLARIES FORMWORK: FAIR FINISH				
6.5.6	Fair finish to vertical sides of floor slab, plinth and ring beam	m <sup>2</sup>	59		
	REINFORCEMENT				
	High yield steel bars to SSRN 126 or 127				
6.5.7	Diameter: 10 mm and below	kg	367		
6.5.8	Diameter: 12 mm and above	kg	335		
6.5.9	Wire weld fabric BS Ref. A252	m2	46		
	TIMBER				
	Fittings and fastenings				
6.5.10	Bolts	nr	170		
	Roofing with cypress		05.01		
6.5.11	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	97.90		
6.5.12	100 x 50 mm: Struts and ties; Wall plate fixed to concrete	m	63.80		
	200 X 25mm fascia and badge 75 x 50mm purlins	m	29.40 66.40		
0.0.14	75 x 30mm purins	m	00.40		

	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, J. PROJECT NO.: KE-WSTF-328819-0			YAI IA LEN	GIMA AND
	BILL NO. 6.5: MANYATTA LENGIMA SCHEM			USE	
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUN Kshs.
	Cladding				
6.5.15	24 gauge GCI sheeting including ridge caps	m2	54		
	BRICKWORK, BLOCKWORK & MASONRY				
	Natural Stone Walling, Medium Chisel Dressed, Reinforced				
	with 20 swg Hoop Iron at Every Two Course, and Bedded,				
	Jointed and Pointed in Cement Mortar (1:3):-				
6.5.16	200 mm thick masonry wall in substructure	m2	42.60		
6.5.17	200 mm smooth dressed walling in superstructure	m2	76.16		
6.5.18	150 mm smooth dressed walling in superstructure	m2	6.90		
	Blockwork ancillaries				
6.5.19	Damp proof course.	m	28		
	Damp proof membrane				
6.5.20	Single layer of 500 gauge polythene sheeting laid on blinded	m2	40		
	hardcore with 150mm side laps to receive concrete	1112	40		
	Anti-Termite treatment				
6.5.21	Treat surface of hardcore with approved anti termite solution	m2	40		
	applied strictly in accordance with the manufacturers instructions.	1112	-10		
	PAINTING				
6.5.22	3 coats (one undercoat and two other coats) of silicon based				
	emulsion paint to external wall surfaces as in Crown Permacote ultra	m2	47.60		
	guard rain-proof silicone paint or approved equivalent.				
6.5.23	3 coats (one undercoat and two other coats) of emulsion paint to				
	interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	105.60		
	with Teflon Surface protector or approved equivalent.				
	WATERPROOFING				
	DAMP PROOFING				
	Rendering with proprietary mix mortar				
6.5.24	Internal 20mm mortar rendering, cement/sand 1:4 painted 'soft	m2	105.60		
	white" to Ks 10 B 15 or similar				
	MISCELLANEOUS WORK				
	Drainage to structures above ground		1.7		
6.5.25	Gutters inclusive of all the fittings	m	17		
6.5.26	Downpipes inclusive of all the fittings	m	20		

LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JA PROJECT NO.: KE-WSTF-328819-C			YATTA LEN	GIMA AND
	BILL NO. 6.5: MANYATTA LENGIMA SCHEM			USE	
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Windows				
	Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with Putty, Complete with Opening Accessories, including Building in Lugs to Jambs and Head and Water-Proofing and Filling Around Opening With Approved Compound; and Including Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with				
	Three Coats Oil Paint:-				
6.5.27	Provide and install 1200x900 Window as specified in the drawing	nr	1		
6.5.28	Provide and install 1800x900 window as specified in the drawing	nr	1		
	Doors				
6.5.29	Mild steel, external Single leaf, standard, 900mm wide	nr	1		
6.5.30	Ditto, 2000mm wide double leaf door. Other	nr	1		
6.5.31	Louvered Precast concrete vent blocks of approved type by Engineer	m2	10		
	CEILING				
	12mm Thick Approved Chipboard to BS 2604, Part 2, Density 480-640kgs, Per Square Meter in Sheets Size 2400 x 1200mm Fixed to and Including 50 x 50mm Sawn Cypress Grade 2 Battens at 600mm Centres in Both Directions Complete with Gauge Jointing Material, painting & filler				
	Horizontal ceiling fixed to underside of trusses	m2	49.30		
6.5.33 6.5.34	12mm Cornice 50mm high, plugged Provide for supply and installation of all electrical fittings in the house as directed by the Engineer. Include for complete wiring, installation of consumer meters, power sockets, lighting systems and installation of solar powered grid of 1kW.	m Ls	47.00		

UNIT         OTX         Kshs.         Kshs.           PIPE WORK FITTINGS		KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JA PROJECT NO.: KE-WSTF-328819-C			YAI TA LEN	GIMA AND
UNIL         UNIL         UNIL         UNIL         Kshs.         Kshs.           PIPE WORK FITTINGS			IE - PU	JMP HOU		
Provide install, test and commission the following fittings to Specifications. All fittings shall have minimum rating of PN16 and flanged. Pipes shall be galvanised steel or approved equivalent. Valves shall have a wedge which is fully vulcanized with EPDM 	ITEM	DESCRIPTION	UNIT	QTY		AMOUNT Kshs.
Specifications. All fittings shall have minimum rating of PN16 and flanged. Pipes shall be galvanised steel or approved equivalent. Valves shall have a wedge which is fully vulcanized with EPDM rubber compound or approved equivalent. <ul> <li>Inlet Pipework</li> <li>Inlet Pipework</li> <li>South End Flange DN110</li> <li>nr.</li> <li>1.00</li> </ul> 6.5.35         Double flanged jop ioce DN100 length 3m         nr.         1.00           6.5.37         Double flanged pipe piece With puddle flange at 0.5m DN100 length 		PIPE WORK FITTINGS				
fanged. Pipes shall be galvanised steel or approved equivalent.       Valves shall have a wedge which is fully vulcanized with EPDM rubber compound or approved equivalent.         Intet Pipework       nr.         6.5.35       HDPE Stub End Flange DN110       nr.         6.5.36       Double flanged 90° long radius bend DN100       nr.         6.5.37       Double flanged pipe piece With Dulo length 3m       nr.         1.5m       nr.       1.00         6.5.38       Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m       nr.         6.5.39       Flanged Ball valve DN100       nr.       1.00         6.5.40       Double flanged pipe piece DN200       nr.       1.00         6.5.41       Double flanged pipe with puddle flange DN200 length 1.5 m       nr.       1.00         6.5.42       Double flanged pipe with puddle flange DN200 length 1.5 m       nr.       1.00         6.5.43       All flanged 200x200x200 tee       nr.       1.00         6.5.44       Double flanged pipe piece DN200 length 0.5m       nr.       1.00         6.5.45       Double flanged pipe piece DN200 length 0.5m       nr.       2.00         6.5.46       Flanged spigot pipe piece DN200 length 0.5m       nr.       2.00         6.5.47       Flanged adaptor DN200       nr.       <		Provide install, test and commission the following fittings to				
Valves shall have a wedge which is fully vulcanized with EPDM rubber compound or approved equivalent.       Intel Pipework         Inlet Pipework       Intel Pipework         6.5.35       HDPE Stub End Flange DN110       nr.         6.5.36       Double flanged 90° long radius bend DN100       nr.         6.5.37       Double flanged pipe piece DN100 length 3m       nr.         1.57       nr.       1.00         6.5.38       Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m       nr.         6.5.39       Flanged Ball valve DN100       nr.         6.5.40       Flanged Bell mouth DN200       nr.         6.5.41       Double flanged 90° long radius bend DN200       nr.         6.5.42       Double flanged opipe with puddle flange DN200 length 1.5 m       nr.         6.5.43       Double flanged opipe piece DN200 length 0.8m       nr.       1.00         6.5.44       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.45       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.46       Flanged spipe piece DN200 length 0.8m       nr.       1.00         6.5.47       Double flanged 90° long radius bend DN200       nr.       2.00         6.5.48       Dismantling joint with centre flange DN200		Specifications. All fittings shall have minimum rating of PN16 and				
rubber compound or approved equivalent.         Intel Pipework         Image: Compound or approved equivalent.           Intel Pipework         Image: Compound or approved equivalent.         Image: Compound or approved equivalent.           6.5.35         HDPE Stub End Flange DN110         nr.         1.00           6.5.36         Double flanged 90° long radius bend DN100         nr.         1.00           6.5.37         Double flanged pipe piece DN100 length 3m         nr.         1.00           6.5.38         Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m         nr.         1.00           6.5.39         Flanged Ball valve DN100         nr.         1.00         1.00           6.5.40         Planged Boll mouth DN200         nr.         1.00         1.00           6.5.42         Double flanged pipe with puddle flange DN200 length 1.5 m         nr.         1.00           6.5.42         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.43         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.42         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.42         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.44         Double flanged 90° long radius ben						
Inlet Pipework         nr.         1.00           6.5.35         HDPE Stub End Flange DN110         nr.         1.00           6.5.36         Double flanged 90° long radius bend DN100         nr.         2.00           6.5.37         Double flanged pipe piece DN100 length 3m         nr.         1.00           6.5.38         Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m         nr.         1.00           6.5.39         Flanged Ball valve DN100         nr.         1.00         1.00           6.5.40         Flanged Bell mouth DN200         nr.         1.00         1.00           6.5.41         Double flanged 90° long radius bend DN200         nr.         1.00         1.00           6.5.42         Double flanged pipe with puddle flange DN200 length 1.5 m         nr.         1.00         1.00           6.5.43         All flanged 200×200x200 tee         nr.         1.00         1.00         1.00           6.5.44         Double flanged 90° long radius bend DN200         nr.         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.5         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.5         1.00						
6.5.35       HDPE Stub End Flange DN110       nr.       1.00         6.5.36       Double flanged 90° long radius bend DN100       nr.       2.00         6.5.37       Double flanged pipe piece DN100 length 3m       nr.       1.00         6.5.38       Double flanged pipe piece With puddle flange at 0.5m DN100 length nr.       1.00         6.5.39       Flanged Ball valve DN100       nr.       1.00         6.5.39       Flanged Bell mouth DN200       nr.       1.00         6.5.40       Flanged Bell mouth DN200       nr.       1.00         6.5.41       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.42       Double flanged pipe with puddle flange DN200 length 1.5 m       nr.       1.00         6.5.43       All flanged 200x200x200 tee       nr.       1.00         6.5.44       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.45       Double flanged spipe piece DN200 length 0.5m       nr.       1.00         6.5.46       Flanged spigot pipe piece DN200 length 0.5m       nr.       2.00         6.5.47       Flanged adaptor DN200       nr.       2.00         6.5.48       Dismantling joint with centre flange DN200       nr.       2.00         6.5.50       Double		rubber compound or approved equivalent.				
6.5.36       Double flanged 90° long radius bend DN100       nr.       2.00         6.5.37       Double flanged pipe piece DN100 length 3m       nr.       1.00         6.5.38       Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m       nr.       1.00         6.5.39       Flanged Ball valve DN100       nr.       1.00         6.5.39       Flanged Ball valve DN100       nr.       1.00         6.5.40       Flanged Bell mouth DN200       nr.       1.00         6.5.41       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.42       Double flanged pipe with puddle flange DN200 length 1.5 m       nr.       1.00         6.5.43       All flanged 200x200x200 tee       nr.       1.00         6.5.44       Double flanged pipe piece DN200 length 0.8m       nr.       1.00         6.5.45       Double flanged 90° long radius bend DN200       nr.       2.00         6.5.46       Flanged spigot pipe piece DN200 length 0.5m       nr.       1.00         6.5.47       Flanged spigot pipe piece DN200 length 0.5m       nr.       2.00         6.5.48       Dismantling joint with centre flange DN200       nr.       2.00         6.5.49       Flanged adaptor DN200       nr.       2.00						
6.5.37       Double flanged pipe piece DN100 length 3m       nr.       1.00         6.5.38       Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m       nr.       1.00         6.5.39       Flanged Ball valve DN100       nr.       1.00         Suction fittings       nr.       1.00         6.5.40       Flanged Bell mouth DN200       nr.       1.00         6.5.41       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.42       Double flanged pipe with puddle flange DN200 length 1.5 m       nr.       1.00         6.5.43       All flanged 200x200x200 tee       nr.       1.00         6.5.44       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.45       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.45       Double flanged pipe piece DN200 length 0.8m       nr.       1.00         6.5.46       Flanged spigot pipe piece DN200 length 0.5m       nr.       2.00         6.5.47       Flanged adaptor DN200       nr.       2.00         6.5.48       Dismantling joint with centre flange DN200       nr.       2.00         6.5.49       Flanged adaptor DN200       nr.       2.00         6.5.50       Double flanged 200x75x2		e	nr.			
6.5.38       Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m       nr.       1.00         6.5.39       Flanged Ball valve DN100       nr.       1.00         Suction fittings       nr.       1.00         6.5.40       Flanged Bell mouth DN200       nr.       1.00         6.5.41       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.42       Double flanged pipe with puddle flange DN200 length 1.5 m       nr.       1.00         6.5.43       All flanged 200x200x200 tee       nr.       1.00         6.5.44       Double flanged pipe piece DN200 length 0.8m       nr.       1.00         6.5.45       Double flanged 90° long radius bend DN200       nr.       1.00         6.5.46       Flanged spigot pipe piece DN200 length 0.5m       nr.       1.00         6.5.47       Flanged spigot pipe piece DN200 length 0.5m       nr.       2.00         6.5.48       Dismantling joint with centre flange DN200       nr.       2.00         6.5.49       Flanged adaptor DN200       nr.       2.00         6.5.50       Double flanged actuated butterfly valve DN200 semi-motorised       nr.       2.00         6.5.51       All flanged 200x75x200x75 cross tee       nr.       1.00       6.5.55 <tr< td=""><td></td><td></td><td>nr.</td><td></td><td></td><td></td></tr<>			nr.			
1.5m1.5m1.006.5.39Flanged Ball valve DN100nr.1.00Suction fittingsnr.1.006.5.40Flanged Bell mouth DN200nr.1.006.5.41Double flanged 90° long radius bend DN200nr.1.006.5.42Double flanged pipe with puddle flange DN200 length 1.5 mnr.1.006.5.43All flanged 200x200x200 teenr.1.006.5.44Double flanged pipe piece DN200 length 0.8mnr.1.006.5.45Double flanged 90° long radius bend DN200nr.1.006.5.46Flanged spigot pipe piece DN200 length 1.5mnr.2.006.5.47Flanged spigot pipe piece DN200 length 0.5mnr.2.006.5.48Dismantling joint with centre flange DN200nr.2.006.5.49Flanged adaptor DN200nr.2.006.5.50Double flanged actuated butterfly valve DN200 semi-motorisednr.2.006.5.51All flanged 200x75x200x75 cross teenr.1.006.5.53Double flanged jipe piece DN200 length 0.5mnr.2.006.5.54Double flanged sluice valve DN75nr.2.006.5.55HDPE Stub End Flange DN75nr.2.006.5.56Flanged sluice valve DN75nr.2.006.5.57Check Valve valve all to be PN25nr.2.006.5.58Double flanged actuated butterfly valve valve dDN25G.I pipe with complete with gate valve all to PN256.5.57Check Valve valve DN100nr.2.00<			nr.	1.00		
Suction fittings         nr.         1.00           6.5.40         Flanged Bell mouth DN200         nr.         1.00           6.5.41         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.42         Double flanged 90° long radius bend DN200 length 1.5 m         nr.         1.00           6.5.43         All flanged 200x200x200 tee         nr.         1.00           6.5.44         Double flanged pipe with puddle flange DN200 length 1.5 m         nr.         1.00           6.5.45         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.45         Double flanged 90° long radius bend DN200         nr.         1.00           6.5.46         Flanged spigot pipe piece DN200 length 0.5m         nr.         2.00           6.5.47         Flanged spigot pipe piece DN200 length 0.5m         nr.         2.00           6.5.47         Flanged adaptor DN200         nr.         2.00           6.5.48         Dismantling joint with centre flange DN200         nr.         2.00           6.5.49         Flanged adaptor DN200         nr.         2.00           6.5.50         Double flanged actuated butterfly valve DN200 semi-motorised         nr.         2.00           6.5.51         All flanged 200x75x200x75 cross tee<	6.5.38		nr.	1.00		
6.5.40Flanged Bell mouth DN200nr.1.006.5.41Double flanged 90° long radius bend DN200nr.1.006.5.42Double flanged pipe with puddle flange DN200 length 1.5 mnr.1.006.5.43All flanged 200x200x200 teenr.1.006.5.44Double flanged pipe piece DN200 length 0.8mnr.1.006.5.45Double flanged 90° long radius bend DN200nr.1.006.5.46Flanged spigot pipe piece DN200 length 1.5mnr.2.006.5.47Flanged spigot pipe piece DN200 length 0.5mnr.2.006.5.48Dismantling joint with centre flange DN200nr.2.006.5.49Flanged adaptor DN200nr.2.006.5.50Double flanged actuated butterfly valve DN200 semi-motorisednr.2.006.5.51All flanged eccentric taper 200/40nr.2.006.5.53Double flanged pipe piece DN200 length 0.5mnr.1.006.5.54Double flanged pipe piece DN200 length 0.5mnr.2.006.5.55All flanged sluice valve DN75nr.2.006.5.54Double flanged pipe piece DN200 length 0.5mnr.2.006.5.55HDPE Stub End Flange DN75nr.2.006.5.56Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25nr.6.5.57Check Valve valve DN100nr.2.006.5.58Double flanged actuated butterfly valve valve DN100 semi-nr.6.5.58Double flanged actuated butterfly valve v	6.5.39	Flanged Ball valve DN100	nr.	1.00		
6.5.41Double flanged 90° long radius bend DN200nr.1.006.5.42Double flanged pipe with puddle flange DN200 length 1.5 mnr.1.006.5.43All flanged 200x200x200 teenr.1.006.5.44Double flanged pipe piece DN200 length 0.8mnr.1.006.5.45Double flanged 90° long radius bend DN200nr.1.006.5.46Flanged spigot pipe piece DN200 length 1.5mnr.2.006.5.47Flanged spigot pipe piece DN200 length 0.5mnr.2.006.5.48Dismantling joint with centre flange DN200nr.2.006.5.49Flanged adaptor DN200nr.2.006.5.40Flanged actuated butterfly valve DN200 semi-motorisednr.2.006.5.51All flanged eccentric taper 200/40nr.2.006.5.52All flanged pipe piece DN200 length 0.5mnr.2.006.5.53Double flanged pipe piece DN200 length 0.5mnr.2.006.5.54Hingned actuated butterfly valve DN200 semi-motorisednr.2.006.5.53All flanged constrict aper 200/40nr.2.006.5.54Double flanged pipe piece DN200 length 0.5mnr.2.006.5.55HDPE Stub End Flange DN75nr.2.006.5.56Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25nr.2.006.5.57Check Valve valve DN100nr.2.006.5.58Double flanged actuated butterfly valve valve DN100 semi- nr.2.00 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
6.5.42Double flanged pipe with puddle flange DN200 length 1.5 mnr.1.006.5.43All flanged 200x200x200 teenr.1.006.5.44Double flanged pipe piece DN200 length 0.8mnr.1.006.5.45Double flanged 90° long radius bend DN200nr.1.006.5.46Flanged spigot pipe piece DN200 length 1.5mnr.2.006.5.47Flanged spigot pipe piece DN200 length 0.5mnr.2.006.5.48Dismantling joint with centre flange DN200nr.2.006.5.49Flanged adaptor DN200nr.2.006.5.50Double flanged actuated butterfly valve DN200 semi-motorisednr.2.006.5.51All flanged 200x75x200x75 cross teenr.1.006.5.53Double flanged sluice valve DN75nr.2.006.5.54Double flanged sluice valve DN75nr.2.006.5.55HDPE Stub End Flange DN75nr.2.006.5.56Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN252.006.5.57Check Valve valve DN100nr.2.00			nr.			
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6.5.52       All flanged 200x75x200x75 cross tee       nr.       1.00         6.5.53       Double flanged pipe piece DN200 length 0.5m       nr.       1.00         6.5.54       Double flanged sluice valve DN75       nr.       2.00         6.5.55       HDPE Stub End Flange DN75       nr.       2.00         Delivery Fittings all to be PN25           6.5.56       Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25       nr.       2.00         6.5.57       Check Valve valve DN100       nr.       2.00         6.5.58       Double flanged actuated butterfly valve valve DN100 semi-       nr.       2.00			nr.			
6.5.53       Double flanged pipe piece DN200 length 0.5m       nr.       1.00         6.5.54       Double flanged sluice valve DN75       nr.       2.00         6.5.55       HDPE Stub End Flange DN75       nr.       2.00         Delivery Fittings all to be PN25         6.5.56       Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25       nr.       2.00         6.5.57       Check Valve valve DN100       nr.       2.00         6.5.58       Double flanged actuated butterfly valve valve DN100 semi-       nr.       2.00			nr.			
6.5.54       Double flanged sluice valve DN75       nr.       2.00         6.5.55       HDPE Stub End Flange DN75       nr.       2.00         Delivery Fittings all to be PN25           6.5.56       Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25       nr.       2.00         6.5.57       Check Valve valve DN100       nr.       2.00         6.5.58       Double flanged actuated butterfly valve valve DN100 semi-       nr.       2.00			nr.			
6.5.55       HDPE Stub End Flange DN75       nr.       2.00         Delivery Fittings all to be PN25       Image: Concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25       Image: Concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25         6.5.57       Check Valve valve DN100       nr.       2.00         6.5.58       Double flanged actuated butterfly valve valve DN100 semi-       nr.       2.00			nr.			
Delivery Fittings all to be PN25       Image: Concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25       Image: Concentric taper DN100/40 with welded DN25 G.I pipe with nr.       2.00         6.5.57       Check Valve valve DN100       nr.       2.00       Image: Concentric taper DN100/40 with welded DN25 G.I pipe with nr.       2.00         6.5.58       Double flanged actuated butterfly valve valve DN100 semi-       nr.       2.00			nr.			
6.5.56Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25nr.2.006.5.57Check Valve valve DN100nr.2.006.5.58Double flanged actuated butterfly valve valve DN100 semi- nrnr.2.00	6.5.55	HDPE Stub End Flange DN75	nr.	2.00		
complete with gate valve all to PN25     nr.     2.00       6.5.57     Check Valve valve DN100     nr.     2.00       6.5.58     Double flanged actuated butterfly valve valve DN100 semi-     nr.     2.00	· <b></b> ·					
6.5.58 Double flanged actuated butterfly valve valve DN100 semi-		complete with gate valve all to PN25	nr.	2.00		
r $r$ $r$			nr.	2.00		
motorised	6.5.58	Double flanged actuated butterfly valve valve DN100 semi- motorised	nr.	2.00		

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	PROJECT NO.: KE-WSTF-328819-C BILL NO. 6.5: MANYATTA LENGIMA SCHEM			USE			
ITEM	DESCRIPTION	UNIT		RATE Kshs.	AMOUNT Kshs.		
	Double flanged pipe piece DN100 length 300mm	nr.	2.00				
	Double flanged 90° long adius bend DN100	nr.	4.00				
	Double flanged pipe piece DN100 length 1.0m	nr.	2.00				
	All flanged equal tee DN100	nr.	2.00				
	Double flanged pipe piece DN100 0.5m	nr.	2.00				
	HDPE Stub End Flange DN110	nr.	1.00				
	All flanged equal tee DN100	nr.	2.00				
6.5.66	Double flanged sluice valve DN100	nr.	2.00				
	SURGE VESSELS						
6.5.67	Allow a provision of supply, installation, testing and commissioning of appropriately sized surge vessels or surge control valve with all manway accesses, flange pipe connections and all other appurtenances as per manufacturers recommendations and in accordance with specification and a air buffer vessel rising main DN110 PN20. Rate to include spare parts as recommended by manufacturer for one year operation	Lump Sum	1				
	CONVEYING SYSTEMS						
	The Contractor is referred to the specifications and drawings for all details related to this section of the works and he is to include for complying with all the requirements contained therein, whether or not they are specifically mentioned within the item descriptions. Provide single Girder Overhead Traveling Crane with adjustable height including supply, installation, testing and commissioning of overhead traveling crane manual operated not electric operated.						
6.5.68	Rubber tyre portable gantry crane complete with girders, trolley, hoist, controls and guide rails in Pumping Station as described in specifications and shown in the drawings. Crane bridge made of rolled sections (Compliant with EN 13001, DIN 15018), for rails. Spare parts as recommended by manufacturer of the item above for one year operation	Lump Sum	1				

PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

## CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND PROJECT NO.: KE-WSTF-328819-CS-QCBS

TEM DESCRIPTION	UNIT	OTV	RATE	AMOUNT
	UNIT	QTY -	Kshs.	Kshs.
Page Total, Page 1				
Page Total, Page 2				
Page Total, Page 3				
Page Total, Page 4				
Page Total, Page 5				
Bill Total Carried to Grand Summary				

CO	NSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER	– BASED RURAL						
	WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION,							
	AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY							
I	LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA							
	PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	BILL NO. 6: COLLECTION MANYATTA LENGIMA SCHEME-COLLECT							
BILL	DESCRIPTION	AMOUNT						
No		Kshs						
( 1								
6.1	BOREHOLES AND WELL DEVELOPMENT							
6.2	PIPELINE AND FITTINGS							
6.3	100M3 RCC TANK							
6.4	BUILDINGS							
6.5	PUMP HOUSE							
	Bill 7 -Manyatta Lengima Water Supply Scheme							

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT														
								TEM	DELENO.7.1. LAISAMIS WATER SOTTER SCHEM	UNIT		RATE	AMOUNT	
			~	Kshs.	Kshs.									
7.1	BOREHOLE/WELL DEVELOPMENT													
	The Contractor shall, supply, install, test, commisssion and													
	provide warranties, spares, training of the operators and													
	technicians, 12 months after sale-service for photovoltaic													
	pumping (PVP) systems, without batteries, with diesel													
	generator/national grid interface and remote monitoring to													
	Specifications and proper working order for identified rural													
	community boreholes. The Contractor is required to remove													
	existing water pump systems in each case and undertake borehole													
	service including but not limited to borehole redevelopment,													
	flushing and replacement of sieves. All to the Specifications and													
	as directed by the Engineer.													
7.1.1	Allow Kes 100,000 for demolitions, relocations and demobilization													
	of existing infrastructure in the borehole site including pumps,	р												
	solar panels, tanks, steel structures, cables, buildings, etc Rate to	Prov. Sum	1.0	100,000.00	100,000.00									
	include transportation for safekeeping as directed by the Water	Sum												
	Service Provider/Employer													
7.1.2	Allow Kes 100,000 fo mobilization of borehole camera, conducting	Prov.												
	a borehole camera investigation. Borehole flushing with drilling		Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov. 1.0	1.0	100 000 00	100,000.00
	foam, chemical cleaning, airlifting and water jetting at high	Sum	1.0	1.0 100,000.00	100,000.00									
	pressure.													
7.1.3	Allow a provisional sum 250,000 for redevelopment of boreholes.													
	The rates shall be used from existing rates elsewhere in the BoQ or	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	Prov.	1.0	250,000.00	250 000 00
	as provided in the dayworks or as determined by the Engineer.	Sum	1.0	230,000.00	250,000.00									
714		0/												
	Allow % for overheads, administration, profits, etc Supply, install, test and commission 30kW, 40.78Hp Submersible	%												
/.1.5	Pump SP 18-22N or approved equivalent with a discharge <b>19</b>													
	<b>m3/hr</b> and head <b>145m</b> pipe complete with Switch box / control													
	unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control	No	1											
	unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE,	110	, i											
	Surge Protection; and Sine-wave filter. The rate to include													
	appropriately sized PVC riser pipes.													
7.1.6	Supply, install, test and commission $3.5 \text{ mm}^2/4$ core submersible													
	pump flat cable	m	214											
717	Supply, install, test and commission DN6x120 mmL stainless steel													
/.1./	water level sensor complete with microcontroller and alert system.	Pair	1											
	water rever sensor comprete with interocontroller and aleft system.	rair												
7.1.8	Supply, install, test and commission 0.75mm2 sc pvc sheathed		407											
	copper control cable( brown and black)	m	427											

LOT	POINTS) BATCH 1 PROJECTS IN MA TI: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG				IGIMAAND
	PROJECT NO.: KE-WSTF-3288	19-CS-QC	BS		
	BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEM	E-BOREH	IOLE D		
TEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
7.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix oe equivalent), programmed for control of pumps, solar panels, inverters, generators, charge controllers, and monitoring of sensors (flow, pressure, tank level, etc.). The PLC shall be Programmed and configured for optimal system operation, including energy optimization, and fault detection. The cost shall includeiIntegration of PLC with system sensors (pressure, flow, level) for data acquisition and system feedback and Installation of user interface and graphical display for PLC, with 320 x 240 color display showing real-time monitoring of system parameters. The Data Monitoring & Acquisition System (Subsidiary of PLC Monitoring System) shall include: Remote Monitoring System Software & Hardware, GSM-based Data Communication Interface, Data Logger Unit with Multiple Interface Support (RS232, RS485,	No.	1		
.1.10	etc.) and Integration with the Servers for Future Expansion. <b>Supply, install, test and commission the following Sensors for</b> <b>Monitoring System. The cost shall include cabling and</b> <b>integration of the sensors into the data logger.</b> Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
.1.11	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
1.12	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0- 700C, range from 1-100 mH2Og, acuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.	No	1		
.1.16	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG			NYATTA LEN	IGIMAAND	
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT						
тем	DESCRIPTION	UNIT		RATE	AMOUNT	
			-	Kshs.	Kshs.	
/.1.17	Supply, install, test and commission of an array of solar with the following specicifications: 390W solar panels, Monocrystalline Silicon PV, with 25 years warranty The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 43.68 kW on a bright sunny day at midday taking into account the system losses.	No.	56.0			
.1.18	Supply, installation and furnishing support structures with the following specifications: 60mm x 40mm (minimum) aluminium angle plates using stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 2.5 m above the ground for the low height side and a maximum of 3m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 150 from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Set	1			
	Supply, install, test and commission a 3-phase 100KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.	Set	1			
	Supply, install, test and commission a 45 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 45kW 87A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1			
.1.21	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1			
.1.22	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWH 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complet with IP66 rated enclosure.	No	1			

	POINTS) BATCH 1 PROJECTS IN MA						
LOI	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG			NYATTA LEN	GIMAAND		
PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEM	E-BOREI	IOLE D				
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.		
7.1.23	Supply of materials and construct a Genset/Control room building						
	to drawing and Specifications. Rate to include excavations, setting	Item	1				
	out, erection and all installations for the structure as per Appendix	nem	1				
	B						
7.1.24	Supply, install, test and commission Cabling complete with all						
	necessary accessories for connection of solar modules to inverter,						
	to intelligent controller/manager and to agreed connection point at	Lot	1				
	the station through an energy meter and generator. This to also						
	include cabling from the diesel generator for integration with						
7 1 25	power from the solar plant. Supply, install, test and commission Pressure Gauge - 0-25bar	No	2				
	Supply, install, test and commission Pressure Gauge - 0-230ar Supply, install, test and commission Modem and router for remote	INO	2				
/.1.20	monitoring and control. Grundfos SqFlex or equivalent	Set	1				
7 1 27	Supply and install Aerial lightning arrestors at 6m height, fixed to						
,.1.2,	concrete foundations	Set	1				
7.1.28	Supply and install Earthing materials, including all inspection						
	chambers, rods, tape bonding straps etc. as necessary for the	Set	1				
	earthing requirements with the borehole		-				
7.1.29	Supply, install, test and commission Motor Protection Unit MP204						
	or equivalent	No	1				
7 1 2 1	Allow for 12 months after sale service including training of						
/.1.31	operators and technicians.	Ls	1				
	Communication Infrastructure						
7.1.33	Supply and installation of GSM/GPRS/4G communication	N					
	modules for boreholes and booster stations	No.	2				
7.1.34	Supply and installation of Antennas and signal boosters for remote	N					
	locations	No.	2				
7.1.35	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	500				
			500				
7.1.36	Supply and installation of Fiber Optic Termination Boxes, Wall-	Set	5				
	mounted, dustproof		-				
	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5				
/.1.38	Fire Fighting Equipment						
	Supply, install, test and commission 5 Kg Class ABC Powder steel	<b>N</b> 7					
	cylinder fire extinguisher, c/w pressure	No	1				
	gauge wall mounting steel bracket, operating instructions and						
	accessories, fully charged.						

POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND PROJECT NO.: KE-WSTF-328819-CS-QCBS							
ГЕМ	DESCRIPTION	UNIT	QTY	KAIL Kshs.	Kshs.		
	Fencing						
.1.39	Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120				
.1.40	Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening. WELL HEAD PROTECTION	Nr	1				
.1.41	Provide materials and construct a 1.2mx0.9m with height not exceeding 2m wellhead protection for Borehole to details as per the drawing and as directed by the Engineer. The rate includes a lockable 5mm thick mild steel access cover, mild steel step irons, provision for conduits and pipeworks, vent provision and base slab 150mm C25/20 reinforced with A142 BRC mesh per borehole. All as per the drawings and as directed by the engineer	Nr	1				
	Borehole pipeworks						
.1.42	Borehole cover with extended 1m flanged pipe piece DN50. Note the cover should also allow for any other cabling and instrumentation for the borehole.	Nr	1				
.1.43	All Flanged 90 deg long elbow DN 50	Nr	3				
.1.44	Double Flanged Non-Return Valve 50	Nr	1				
.1.45	Double Flanged Gate Valve DN 50	Nr	4				
	Supply and intsall multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.	No.	4				
	All flanged equal steel tee 50mmx50mmx50mm	Nr	1				
	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No.	1				
	Double flanged pipe piece DN50 length 1500mm	Nr	1				
.1.49	Provide, install, test and commission an electromagnetic flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS 485 port outputs.	Nr	1				
.1.50	Double flanged pipe piece DN50 length 1000mm	Nr	2				
	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2				
	All flanged reducing taper 50mmx63mm	Nr	1				
	Flanged HDPE Stub end DN63	Nr	1				
	All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16 Allow a provision of supply, installation, testing and	Nr	1				
1.55	Allow a provision of supply, installation, testing and commissioning of appropriately sized surge vessels or surge control valve with all manway accesses, flange pipe connections and all other appurtenances as per manufacturers recommendations and in accordance with specification and a air buffer vessel to DN 50 rising main PN20.	Lump Sum	1				

<u> </u>	NSTRUCTION, REHABILITATION AND EXPANSIO	N OF CROUND	WATED	DASED DI	DAL WATED
	JPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&				
50	POINTS) BATCH 1 PROJECTS				ND WATEK
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO				
LUI	PROJECT NO.: KE-WST			IN TAL IA LEI	GIMAAND
	BILL NO.7.1: LAISAMIS WATER SUPPLY S	-			T
	BILL NO.7.1: LAISAMIS WATER SUFFLY S	CHENIE-BUKEI		RATE	AMOUNT
ITEM	DESCRIPTION	UNIT	QTY	KATE Kshs.	Kshs.
				KSIIS.	<u>NSIIS.</u>
	Page Total, Page 1				
	1 age 10tal, f age 1				
	Page Total, Page 2				
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	Page Total, Page 3				
	1 450 10441, 1 450 5				
	Page Total, Page 4				
	1450 1044, 1450				
	Page Total, Page 5				
	Bill Total Carried to Bill Summary				

	NSTRUCTION, REHABILITATION AND EXPANSION OF C JY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY	Y AND	INSTALLA		
LOT	BATCH 1 PROJECTS IN MARSA I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG			NYATTA LEN	IGIMA AND
	PROJECT NO.: KE-WSTF-3288				
	BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEM	<u>/IE - Pl</u>	PELINES A		
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	i. The Contactor to maintain uninterrupted continuity of water				
	supply in existing pipelines PIPE AND PIPE FITTINGS				
	Pipe Work - Supply, lay, joint, pressure test, disinfect				
	Supply, handle, and install (rates shall include jointing materials,				
	bolts, gaskets packing jointing glue, welding etc., as applicable) to				
	the following HDPE Pipes to KS ISO 4427 and Steel/ferrous				
	Fittings (valves and pipe specials) in trench as per the				
	specifications. All pipe fittings and valve diameters indicated are				
	Nominal Diameters				
	Pipe trench excavation is to commence from ground level to a				
	minimum depth of 1.5m. Rate to include setting out, general bush				
	clearing, Pipe laying, Pressure testing, disinfection, backfilling with				
	imported bedding and surrround material all as per specifications,				
	drawings and as directed by the engineer				
	RISING MAINS				
7.2.1	HDPE Pipe DN110mm PN16	m	3,850.00		
	Non return valves				
7.2.2	DN 110mm Non-return valves	Nr	1.00		
	Airvalves				
7.2.3	DN 50 mm airvalve AVK or approved equivalent	Nr	5.00		
704	MAIN PIPELINES AND DISTRIBUTION SYSTEM		0.445.00		
	HDPE Pipe DN50mm PN16 HDPE Pipe DN63mm PN16	m	9,445.00		
	HDPE Pipe DN05mm PN16 HDPE Pipe DN75mm PN16	m	7,434.00		
	HDPE Pipe DN/3min PN16 HDPE Pipe DN90mm PN16	m m	1,933.00 140.00		
	HDPE Pipe DN10mm PN16	m	226.00		
	HDPE Pipe DN125mm PN16	m	640.00		
1.2.9	Bends		010.00		
7.2.10	DN 125mm 90°	Nr.	2.00		
	DN 125mm 45°	Nr.	2.00		
7 2 1 2	DN 125mm 45 DN 110mm 90°	Nr.	2.00		
	DN 110mm 45°	Nr.	2.00		
	DN 90mm 90°	Nr.	2.00		
7.2.15	DN 75mm 90°	Nr.	2.00		
7.2.16	DN 63mm 90°	Nr.	2.00		
7.2.17	DN 50mm 90°	Nr.	2.00		
	Reducers				
7.2.18	DN 125/110 mm	Nr.	1.00		
	DN 110/90 mm	Nr.	1.00		
7.2.20	DN 90/75 mm	Nr.	1.00		
7.2.21	DN 75/63 mm	Nr.	1.00		
7.2.22	DN 63/50 mm	Nr.	1.00		

CO	NSTRUCTION, REHABILITATION AND EXPAN	SION OF GROUN	D WATER -	- BASED RU	RAL WATER			
	Y SYSTEMS (CIVIL WORKS, PIPE LAYING, E&							
	BATCH 1 PROJECTS							
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN			NYATTA LEN	GIMAAND			
_	PROJECT NO.: KE-			·				
BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS								
ITEM	DESCRIPTION			RATE	AMOUNT			
		UNIT	QTY	Kshs.	Kshs.			
	125mm offtake (JD 6)							
7.2.23	DN 125x125x63mm HDPE tee	Nr	1.00					
7.2.24	DN 125x125x110mm HDPE Reducer	Nr	1.00					
7.2.25	DN 63mm stub end with MS flange ring	Nr	2.00					
7.2.26	DN 63mm flanged sluice valve	Nr	1.00					
	125mm offtake (JD 7&8)							
7.2.27	DN 125x125x50mm HDPE tee	Nr	1.00					
	DN 50mm stub end with MS flange ring	Nr	2.00					
7.2.29	DN 50mm flanged sluice valve	Nr	1.00					
	125mm offtake (JD 9)-2							
	DN 125x125x75mm HDPE tee	Nr	2.00					
	DN 75mm stub end with MS flange ring	Nr	4.00					
7.2.32	DN 75mm flanged sluice valve	Nr	2.00					
	110mm offtake (JD 4)							
	DN 110x110x50mm HDPE tee	Nr	1.00					
	DN 110X75 mm reducer	Nr	1.00					
	DN 75mm stub end with MS flange ring	Nr	2.00					
	DN 75mm flanged sluice valve	Nr	1.00					
	DN 50mm stub end with MS flange ring	Nr	2.00					
7.2.38	DN 50mm flanged sluice valve	Nr	1.00					
	110mm offtake (JD 5)							
	DN 110x110x75mm HDPE tee	Nr	1.00					
	DN 75mm stub end with MS flange ring	Nr	2.00					
7.2.41	DN 75mm flanged sluice valve	Nr	1.00					
	75mm offtake (JD 2)							
	DN 75x75x50mm HDPE tee	Nr	1.00					
	DN 75x63mm HDPE reducer	Nr	1.00					
	DN 50mm stub end with MS flange ring	Nr	2.00					
7.2.45	DN 50mm flanged sluice valve	Nr	1.00					
7.0.46	75mm offtake (JD 3,14,15)		2.00					
	DN 75x75x50mm HDPE tee	Nr	3.00					
	DN 50mm stub end with MS flange ring	Nr	6.00					
1.2.48	DN 50mm flanged sluice valve	Nr	3.00					
7 2 40	75mm offtake (JD 16)	<u>х</u> т	1.00					
	DN 75x75x63mm HDPE tee	Nr	1.00					
	DN 63mm stub end with MS flange ring	Nr	2.00					
1.2.31	DN 63mm flanged sluice valve	Nr	1.00					
7 2 5 2	<b>63mm offtake (JD 1,11,12,17&amp;18)</b> DN 63x63x50mm HDPE tee	NL.	6.00					
	DN 63x50mm HDPE tee DN 63x50mm HDPE reducer	Nr Nr	6.00					
	DN 65x50mm HDPE reducer DN 50mm stub end with MS flange ring	Nr Nr	6.00 12.00					
	DN 50mm flanged sluice valve	Nr	6.00					
1.2.33	50mm offtake (JD 19,20,21,22)		0.00					
7 2 56	DN 63x63x50mm HDPE tee	Nr	5.00					
	DN 05x05x50mm HDFE tee DN 50mm stub end with MS flange ring	Nr Nr	10.00					
	DN 50mm flanged sluice valve	Nr	5.00					
,.2.50	PAGE TOTAL CARRIED TO SECTION COLLEG		5.00					

CO	NSTRUCTION, REHABILITATION AND EXPANSION	OF GROUN	D WATER -	BASED RU	RAL WATER
	Y SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SU				
	BATCH 1 PROJECTS IN MA				,
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOG	LOGO, JAL	DESA, MAN	IYATTA LEN	IGIMA AND
	PROJECT NO.: KE-WSTF-	328819-CS-	QCBS		
	BILL NO. 7.2: LAISAMIS WATER SUPPLY SC	HEME - PI	PELINES AN	ND FITTING	S
ITEM	DESCRIPTION	UNIT	QTY -	RATE	AMOUNT
		UNII	QII	Kshs.	Kshs.
	DN 50mm Terminal connection (with washout)				
	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
	DN 50mm stub end with MS flange back ring	Nr	4.00		
7.2.61	DN 50mm Flanged gate valve	Nr	2.00		
	DN 50mm HDPE flap valve	Nr	1.00		
7.2.63	DN 50mm HDPE PN 16 pipe	m	60.00		
	DN 63mm Terminal connection (with washout)		-		
7.2.64	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
7.2.65	DN 50mm stub end with MS flange back ring	Nr	4.00		
7.2.66	DN 50mm Flanged gate valve	Nr	2.00		
7.2.67	DN 50mm HDPE flap valve	Nr	1.00		
7.2.68	DN 50mm HDPE PN 16 pipe	m	60.00		
	DN 75mm Terminal connection (with washout)		-		
7.2.69	DN 75x75x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
7.2.70	DN 50mm stub end with MS flange back ring	Nr	4.00		
7.2.71	DN 50mm Flanged gate valve	Nr	2.00		
7.2.72	DN 50mm HDPE flap valve	Nr	1.00		
7.2.73	DN 50mm HDPE PN 16 pipe	m	60.00		
	Air Valve Chamber Fittings (DN125mm) -(1No)				
7.2.74	HDPE Reducer Tee DN 125mm x 125mm x 63mm	Nr	1.00		
7.2.75	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
7.2.76	DN 50mm double flanged sluice valve	Nr	1.00		
7.2.77	DN 50mm double orifice airvalve	Nr	1.00		
	Washout (DN 125mm) -(1No)				
7.2.78	HDPE Reducer Tee DN 125mm x 125mm x 90mm	Nr	1.00		
7.2.79	DN 125mm HDPE stub end with MS Flange	Nr	4.00		
7.2.80	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
7.2.81	DN 90mm sluice valve	Nr	1.00		
	PAGE TOTAL CARRIED TO SECTION COLLECTION	SHEET			

CO	NSTRUCTION, REHABILITATION AND EXPANSION O	F GROUN	D WATER -	- BASED RU	RAL WATER
	LY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUP				
	BATCH 1 PROJECTS IN MAR				
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL			NYATTA LEN	IGIMA AND
	PROJECT NO.: KE-WSTF-3				
	BILL NO. 7.2: LAISAMIS WATER SUPPLY SCH			ND FITTING	s
ITEM	DESCRIPTION			RATE	AMOUNT
112.01		UNIT	QTY -	Kshs.	Kshs.
7.2.82	DN 90mm HDPE pipe (PN 12.5)	m	24.00	1151151	i konst
	Masonry headwall with base slab for Erosion protection at				
7.2.05	discharge point	Ls	1.00		
	Air Valve Chamber Fittings (DN110mm) -(5No)				
7.2.84	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00		
	DN63 mm HDPE Stub End with MS Flange	Nr	2.00		
	DN 50mm double flanged sluice valve	Nr	2.00		
	DN 50mm double orifice airvalve	Nr	2.00		
,.2.07	Washout (DN 110mm) -(1No)	1.1	2.00		
7.2.88	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
	DN 110mm HDPE stub end with MS Flange	Nr	4.00		
	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
	DN 90mm sluice valve	Nr	1.00		
	DN 90mm HDPE pipe (PN 12.5)	m	24.00		
	Masonry headwall with base slab for Erosion protection at				
,,.	discharge point	Ls	1.00		
	Air Valve Chamber Fittings (DN90mm) -(1No)				
7 2 94	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	1.00		
	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
	DN 50mm double flanged sluice valve	Nr	1.00		
	DN 50mm double orifice airvalve	Nr	1.00		
1.2.97	Washout (DN 90mm) -(1No)	111	1.00		
7 2 98	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	1.00		
	DN 90mm HDPE stub end with MS Flange	Nr	4.00		
	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
	DN 75 mm sluice valve	Nr	1.00		
	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
	Masonry headwall with base slab for Erosion protection at				
/	discharge point	Ls	1.00		
	Air Valve Chamber Fittings (DN75mm) -(1No)				
7.2.104	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00		
	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
	DN 50mm double flanged sluice valve	Nr	1.00		
	DN 50mm double orifice airvalve	Nr	1.00		
	Washout (DN 75mm) -(3No)				
7.2.108	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	3.00		
	DN 75mm HDPE stub end with MS Flange	Nr	12.00		
	DN 75 mm HDPE stub end with MS Flange	Nr	6.00		
	DN 75 mm sluice valve	Nr	3.00		
	DN 75mm HDPE pipe (PN 12.5)	m	72.00		
	Masonry headwall with base slab for Erosion protection at				
	discharge point	Ls	3.00		
	Air Valve Chamber Fittings (DN 63mm) -(8No)				
7.2.114	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be				
	electrofussion)	Nr	1.00		
7.2.115	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	PAGE TOTAL CARRIED TO SECTION COLLECTION S				

CO	NSTRUCTION, REHABILITATION AND EXPANSION OF O	GROUN	ND WATER -	- BASED RU	RAL WATER				
	Y SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY								
	BATCH 1 PROJECTS IN MARSA			,					
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG			NYATTA LEI	NGIMA AND				
_	PROJECT NO.: KE-WSTF-3288								
BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS									
ITEM	DESCRIPTION		OTV	RATE	AMOUNT				
		UNIT	QTY	Kshs.	Kshs.				
7.2.116	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00						
7.2.117	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00						
7.2.118	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00						
7.2.119	DN 32 mm Threaded Air Valve	Nr	1.00						
	Washout (DN 63mm) -(2No)								
7.2.120	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be	N	1.00						
	electrofussion)	Nr	1.00						
	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	1.00						
7.2.122	HDPE DN 63 mm PN 16 Flanged adapter	Nr	1.00						
7.2.123	HDPE DN 50 mmFlanged Sluice valve	Nr	1.00						
7.2.124	DN 63 mm HDPE pipe (PN 12.5)	m	24.00						
7.2.125	Masonry headwall with base slab for Erosion protection at	Ls	1.00						
	discharge point	LS	1.00						
	Air Valve Chamber Fittings (DN 50mm) -(10 No)								
7.2.126	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be	Nr	2.00						
	electrofussion)	INF	2.00						
7.2.127	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	2.00						
	HDPE DN 32 mm PN 16 Male adapter	Nr	2.00						
7.2.129	HDPE DN 32 mm Pegler brass gate valve	Nr	2.00						
	DN 32 mm Stainless Steel Hex Nipple	Nr	2.00						
7.2.131	DN 32 mm Threaded Air Valve	Nr	2.00						
	Washout (DN 50mm) -(3No)								
7.2.132	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be	Nr	1.00						
	electrofussion)		1.00						
	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00						
	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00						
	HDPE DN 50 mmFlanged Sluice valve	Nr	1.00						
	DN 50 mm HDPE pipe (PN 12.5)	m	24.00						
	Masonry headwall with base slab for at discharge point	Ls	1.00						
	Water Draw Off Facilities								
	Supply of materials and construct a water kiosk to drawing and								
	Specifications. Rate to include excavations, setting out, erection	Nr.	3.00						
	and all installations for the structure as per Appendix C								
	Supply of materials and construct a cattle/Camel trough of internal								
	dimension 10mx1.1m. The 200mm wall shall be RC reinforced								
	with T10 and the 100mm base slab with BRCA142. The height of								
	the trough shall be 440mm. The trough shall have a ditch slope for								
	a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall								
	include GI pipe DN50 with float valve. Offtake with HDPE pipe	Item	2.00						
	piece DN50 PN12.5, offtake isolating valve. An emergency								
	Isolation valve shall be secured in the chamber. The rate will								
	include excavations, setting out, erection, and all								
	installations/plumbing works for the structure. All details to								
	drawing and Specifications.								
	PAGE TOTAL CARRIED TO SECTION COLLECTION SHI	EET							

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG			NYATTA LEN	IGIMA AND				
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS									
ТЕМ	DESCRIPTION	UNIT	QTY	RATE	AMOUNT				
		UNII	Q11	Kshs.	Kshs.				
	Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.	Item	2.00						
.2.141	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	1.00						
	Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing. The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications -Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), -Web based dashboard subscription for 10 year, -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households.		2.00						
.2.143	Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.	Nr	5.00						

	NSTRUCTION, REHABILITATION AND EXPANSION OF C Y SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY				
	BATCH 1 PROJECTS IN MARSA	BIT C	OUNTY		
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG			NYATTA LEN	IGIMA AND
	PROJECT NO.: KE-WSTF-3288				
T	BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEM	1E - PI	PELINES A		
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			-	Kshs.	Kshs.
	Chambers (Civil Works)				
	Includes setting up of each type of chamber, excavation in any				
	type of soil including rock, dewatering, shoring, formwork, in situ				
	construction of reinforced concrete chambers, sump, removal of				
	form work, protecting externally with water proofing tanking				
	membrane and internally with two coats each 400 microns coaltar				
	epoxy or equivalent, backfilling, compacting, providing surface				
	box openings and chamber access openings, providing surface				
	boxes, chamber access covers and frames, ladders, slab lifting				
	hooks, vent pipe with insect screen, reinstating the site to its				
	original condition etc. to make each chamber civil works complete				
	in all respects as shown on contract drawings.	NT	26.00		
	Washouts	Nr.	26.00		
	Air valves	Nr.	58.00		
	Valve chambers	Nr.	32.00		
	ANCILLARIES ITEMS				
	Supply and fix marker posts along water Main Route, Road	N	00.00		
	Crossings, change of direction, Air valves, Washouts and valve	No	99.00		
	chambers. All in accordance with drawings and specifications				
	Thrust Blocks				
	Construction of thrust block at bends and Tee junctions price	Nu	20.00		
	includes all cost such as excavation, concrete, Re-steel bar, the	Nr	30.00		
	formwork and others as detailed on drawing				
	Allow for micro tunneling across tarmacked road for hdpe pipe of				
	diameter 90mm - 150mm as detailed in the drawings and as per				
	the design guidleines in the Kenya Roads Design manual. Rate				
	inclusive of steel casing. Contractor to allow for provision of				
	requisite diversion signage, controls and safety precaution and				
	liaison and approval of the methodology with the relevant roads agencies				
	agencies	m	30		
7.2.150	Ditto but for DN 32mm - 75mm	m	30.00		
7.2.151	Breaking up, temporary and permanent reinstatement of murram				
	road with 300mm thick well graded stabilised gravel with 3%				
	cement base compacted using an 8-10 tonne roller to the				
	satisfaction of the Engineer. Nominal bore n.e. 150mm.Rate to	m	30.00		
	include steel casing sleeve.Contractor to allow for provision of				
	requisite diversion signage, controls and safety precaution in his				
	rates, nominal bore not exceeding 200mm.				
	Gulley/ River Crossings				
	Allow for gulley crossing for HDPE pipe as detailed in the book				
	of drawings - Road and Seasonal river crossing structural details	m	300.00		
	(dwg Nr KE/WSTF/RE/GW/STD/030)				
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	NOTDICTION DELL'ENTETION AND ENDAN	CLON OF CROUN		DAGED DI	
	INSTRUCTION, REHABILITATION AND EXPAN				
SUPPI	LY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&			ATION, AND V	VATER POINTS)
	BATCH 1 PROJECTS	IN MARSABIT C	OUNTY		
LOT	Г I: KAMBOE MIDROCK, KAMBOE FURMASAN	, LOGLOGO, JAI	LDESA, MA	ANYATTA LEN	IGIMA AND
	PROJECT NO.: KE-V	WSTF-328819-CS-	-QCBS		
	BILL NO. 7.2: LAISAMIS WATER SUPP	LY SCHEME - PI	PELINES A	AND FITTING	S
ITEM DESCRIPTION RATE					AMOUNT
		UNII	QTY	Kshs.	Kshs.
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	Page Total, Page 3				
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	Page Total, Page 7				
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LO	T I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOO PROJECT NO : KE WSTE 329910			AN YATTA	LÉNGIMA			
PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m3 TANK								
ITE M No.	ITEM DESCRIPTION		QUANT ITY	RATE (Ksh)	AMOUNT (Ksh)			
	CLASS E: EARTHWORKS				1			
	The sites for the proposed Water Reservoirs shall be within the							
	Water Supply Schemes.							
	300m3 RC Storage Tank							
	General excavation							
7.3.1	Excavate in Topsoil for Storage tank Works							
	Maximum depth not exceeding1 m	m <sup>3</sup>	196					
7.3.3	Maximum depth exceeding 1 m	m <sup>3</sup>	235					
7.3.4	Reinstate, fill and level the tank site after construction as directed	-	1					
	by the Engineer	Ls	1					
	Filling							
	Hardcore				1			
7.3.5	Provide approved hardcore and compact in layers of 150mm,	3			1			
	blinded with final material 25mm thick	m <sup>3</sup>	51					
7.3.6	Provide fill material to Storage tank Works structures							
	CLASS F: IN SITU CONCRETE Cement Grade 42.5 to							
	Specifications.							
	blinding concrete				1			
737	Strength Grade 15/20 (1:3:6) blinding concrete 75 mm thick the				<u> </u>			
1.5.1	tank, with sulphate resisting cement	m <sup>3</sup>	14					
	Reinforced concrete Class 30/20:				<u> </u>			
738	Foundation, Base and ground slab concrete, Walls, Beams,							
.5.0	Columns, Paparet Wall, Suspended Slab and Gutter	m <sup>3</sup>	164					
	Formwork				+			
	Provide and fix shuttering including propping, strutting and							
	striking, all as specified and including boxing out							
720	(i) Vertical Formwork - Class F3 Finish	2	(00		<u> </u>			
1.3.9		m <sup>2</sup>	600					
	Concrete Surface Finish							
.3.10	Provide Class UF3 Finish for top of base slab of tank and top	0.00	310					
	suspended slab							
	Reinforcement	0.00						
	Provide and fix high tensile steel reinforcement to SRN 127							
	including cutting, bending, lapping propping with spacers and	0.00						
	tying as specified							
.3.11	High yield tensile steel 16mm diameter	0.00	7,500					
.3.12	High yield tensile steel 12mm diameter	0.00	9,500		<u> </u>			
2 1 2	High yield tensile steel 10mm diameter							
.3.13		kg	4,500					
	CLASS L: ACCESS CHAMBERS				ļ			
.3.14	Provide ,supply and install hot-dip galvanised mild steel							
	1000x1000x6mm thick lockable access chamber covers with 6mm	nr	2					
	thick angle frame, installation anchors, gaskets etc for a complete	nr	<u> </u>					
	installation.							
					1			

CON	STRUCTION, REHABILITATION AND EXPANSION OF GR	OUNI	) WATER	– BASED R	URAL WATER
LO	T I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOO			MANYATTA	LENGIMA
	PROJECT NO.: KE-WSTF-328819		-		
	BILL NO. 7.3: LAISAMIS WATER SUPPLY S	CHEM	IE - 300m3	3 TANK	1
ITE M No.	ITEM DESCRIPTION	UNI T	QUANT ITY	RATE (Ksh)	AMOUNT (Ksh)
	CLASS H: PRECAST CONCRETE				
7.3.15	Provide and lay with all leads and lifts etc. complete 600 x 600 x 50 mm thick precast paving slabs on and including 50 mm thick sand bed as per the drawings	m²	60		
	CLASS N: MISCELLANEOUS METAL WORK				
	All steelwork to be completely cleaned by acid dipping prior to galvanising. All steel pipes shall be hot-dip galvanised steel pressure pipes rated PN16 or as per the system distribution whichever is higher. Stainless Steel water level Indicator				
7217	Provide, supply, install and commission a tank's stainless steel				
/.3.1/	water level Indicator for O&M.	nr	1		
	Access Ladder with safety cage				
7.3.18	Provide, supply and install internal/external access ladder not exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm diameter tubes. The rate includes flat vertical guard strips 40 x 3mm inlcuding, cleats 40 x 6mm bolted to distribution chamber walls, stringer 40 x 6mm all fillet welded for complete installation.	nr	3		
7.3.19	Provision for an 100mm air vent to standard drawing detail	No.	9		
	Overflow PIPEWORK				
7.3.20	DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end	Nr	1		
7.3.21	DN 150 All flanged 90deg short radius bend	Nr	1		
7.3.22	DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm	Nr	1		
7.3.23	DN 150 Flanged spigot 90deg long radius bend	Nr	1		
	Scour Pipework				
7.3.24	DN 150 Flanged spigot 90 deg short radius bend	Nr	1		
7.3.25	DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm	Nr	1		
7.3.26	DN 150 All flanged Globe Control valve PN10 with EPDM lining	Nr	1		
	Inlet Pipework				
7.3.27	DN 100 All flanged steel 90 deg long radius bend	Nr	2.00		
7.3.28	DN 100 Steel double flanged pipe with puddle flange at 1500mm from one end, length 2000mm	Nr	1.00		
7.3.29	DN 100 Flanged ball valve	Nr	1.00		
7.3.30	DN 110 HDPE Stub end Flange	Nr	1		
	DN 100 Double flanged pipe piece, length 3000mm	Nr	1		
	Outlet Pipework				
	DN 125 Flanged special bell mouth	Nr	1		
7.3.33	DN 125 All Flanged 90 degree short radius bend	Nr	1		
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CON	STRUCTION, REHABILITATION AND EXPANSION OF GR	ROUNI	) WATER	– BASED R	URAL WATER
LO	T I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOO PROJECT NO : KE WSTE 328910			MANYATTA	LENGIMA
	PROJECT NO.: KE-WSTF-328819 BILL NO. 7.3: LAISAMIS WATER SUPPLY S			3 TANK	
ITE M No.	ITEM DESCRIPTION		QUANT ITY	RATE (Ksh)	AMOUNT (Ksh)
7.3.34	DN 125 Steel double flanged pipe with double puddle flanges at 400mm and 1200mm, length 2000mm	Nr	1		
7.3.35	DN 125 Steel flanged spigot pipe with puddle flange 775mm from spigot end, length 1200mm	Nr	1		
7.3.36	DN 125 All flanged Sluice valve PN16 EPDM encapsulated	Nr	1		
7.3.37	DN 125 Electromagnetic meter complete with all accessories and installation sundry for operation	Nr	1.00		
7.3.38	DN 125 Double flanged steel pipe, length 1000mm	Nr	1		
7.3.39	DN 125 All flanged semi-motorised Globe Control valve PN16 EPDM encapsulated fitted with actuator	Nr	1		
7.3.40	DN 125 dismantling steel joint with central flange	Nr	1.00		
7.3.41	DN 125 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	Nr	1.00		
7.3.42	DN 125 HDPE Stub end Flange	Nr	1		
7.3.43	DN125 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	nr	2.00		
7.3.44	DN150 mm Bellmouth for Overflow	nr	1.00		
7.3.45	DN150 mm x $90^{\circ}$ Double flanged bend for overflow	nr	2.00		
	Expansion Joint				
7.3.46	plastic or rubber waterstop width 400mm with centre bulb	m	50		
7.3.47	Formed surface joint with filler, width of depth not exceeding 0.5 m	m2	25.00		
7.3.48	Provide & lay 300mm wide (to suit drawing wall thickness as appropriate) x 12mm thick Ruberoid layer between wall & roof slab.	m	44.00		
7.3.49	Provide pumice aggregates and spread at 300mm to the roof of tank include rate for uPVC dropdown pipes to drain roof.	m3	36.3		
			]		
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CON	STRUCTION, REHABILITATION AND EXPANSION	OF GROUNI	D WATER	- BASED R	URAL WATER		
LO	T I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO	,	,	MANYATTA	LENGIMA		
	PROJECT NO.: KE-WSTF-328819-CS-QCBS BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m3 TANK						
	BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m3 TANK						
ITE M No.	ITEM DESCRIPTION	UNI T	QUANT ITY	RATE (Ksh)	AMOUNT (Ksh)		
	Page Total, Page 1						
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	Page Total, Page 3						
	Bill Total Carried to Bill Summary						

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND PROJECT NO.: KE-WSTF-328819-CS-QCBS

# BILL NO. 7.4: LAISAMIS SCHEME - ADMINSITRATION BUILDING

	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		UNII	UT1	Kshs.	Kshs.
	Administration Building Type I				
	CLASS E: EARTHWORKS				
	Excavation of surfaces to reduce the level, depth not exceeding 0.25m	m3	11.58		
	Foundations and bases for depth not exceeding 1500 mm for strip footing	m3	41.67		
	Excavation Ancillaries				
7.4.3	Trimming of excavated surfaces to recieve blinding concrete	m2	56.70		
	Filling as Described:-				
	Hardcore				
144	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	Anti-Termite treatment				
7 <i>1 1</i> h	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	54.00		
	Damp-Proof Membrane				
7.4.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	54.00		
	CLASS F: INSITU CONCRETE:				
	Mass Concrete Class 15/20mm :-				
7.4.6	75mm Thick blinding under strip footing	m3	4.05		
	Vibrated Reinforced Concrete Reinforced Concrete Class				
	25/20mm:-				
7.4.7	150mm thick ground slab with BRC A142 mesh laid 40 mm from the top finished with red oxide polish. BRC mesh rate shall be provided separately.	m3	8.10		
7.4.8	200 mm Thick Class 25/20 concrete for foundtion footiung of dimension 600x600 mm complete with reinfoced column to of	m3	2.50		
	300mm x 200mm to a depth not less than 1.5m				
	200x300 Ring Beam concrete	m3	4.62		
	CLASS G: CONCRETE ANCILLARIES	-			
	Formwork	-			
	Formwork - Fair Finish:-	-			
	Formwork to sides of 300 mm deep ring beam	-	23.10		
	Vertical Sides of the 150mm ground slab	-	9.63		
	Soffit ring beam 200 mm wide	m2	15.40		
	Reinforcement				
•	Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-				
		1	64.72		
	High yield tensile steel 12mm diameter to ring beam	kg	04 //		

	NSTRUCTION, REHABILITATION AND EXPANSION OF GR				
50	PPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPP POINTS) BATCH 1 PROJECTS IN MAR			LATION, A	ND WATEK
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO,			YATTA LEN	GIMA AND
	PROJECT NO.: KE-WSTF-328819				
	BILL NO. 7.4: LAISAMIS SCHEME - ADMINS			DING	
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		UNII	_	Kshs.	Kshs.
7.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60		
7.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	Fabric Reinforcement No. A142 Mesh Size 150 x 150mm				
	Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends, Tying Wire and Distance Blocks:-				
7.4.16	Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top	m2	54.00		
	Walling.				
	Natural Stone Walling, Medium Chisel Dressed, Reinforced				
	with 20 swg Hoop Iron at Every Two Course, and Bedded,				
	Jointed and Pointed in Cement Mortar (1:3):-				
7417	200 mm thick masonry wall in substructure	m2	45.00		
	200 mm smooth dressed walling in superstructure	m2	114.00		
	150 mm smooth dressed walling in superstructure	m2	64.60		
,,	Damp-Proof Course: Bituminous Felt Damp-Proof Course as		000		
	Described:-				
7.4.20	200mm and 150mm Wide under walls	m	35.20		
	Finishes.				
7.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
	3 coats (one undercoat and two other coats) of silicon based				
7.4.22	emulsion paint to external wall surfaces as in Crown Permacote	m2	105.64		
	ultra guard rain-proof silicone paint or approved equivalent.				
	3 coats (one undercoat and two other coats) of emulsion paint to				
7.4.23	interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	161.88		
	with Teflon Surface protector or approved equivalent.				
	CLASS O: TIMBER				
	Roof				
	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
7.4.25	50x 100 mm: timber beam (GMS posts)	m	10.00		
7.4.26	100 x 50 mm: Struts and ties	m	95.40		
	200 X 25mm fascia and badge	m	36.00		
7.4.28	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
7.4.29	75 x 50mm purlins	m	80.00		
7.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
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LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO,	SABIT C		VATTA LEN	GIMA AND			
PROJECT NO.: KE-WSTF-328819-CS-QCBS								
	BILL NO. 7.4: LAISAMIS SCHEME - ADMINSITRATION BUILDING							
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.			
	Supply and Fix the Following Pressed Metal Louvre Doors with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle and Bottom Rails With Pressed Metal Infill Louvres and 100 x 50mm Pressed Metal Frames, Including Hinges, Pad Bolts and Tower Bolts, All To Manufacturer's Details, With Three Coats Gloss Paint Complete With Opening Accessories Including Bedding and Pointing Around Frames in Cement Mortar:-							
	Panel doors							
	Single leaf flush door size 2100 x 900 mm high (D1), complete with frame, with union three (3) lever door lock and any other ironmongery.	nr	3.00					
	100mm furnished GMS Posts							
	Supply and install 3.5m GMS Posts complete with connectors and anchors for the concrete base and for the 100mmx150mm timber beam	nr	6.00					
	Steel Casement Windows							
	Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with Putty, Complete with Opening Accessories, including Building in Lugs to Jambs and Head and Water-Proofing and Filling Around Opening With Approved Compound; and Including Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with Three Coats Oil Paint:-							
7.4.33	Window size 1200x 1200mm high with 1 No. fixed and 2 No. side hung opening bottom sashes and with 2 No. fixed and 1 No. top- hung top ventilators 200mm high with permanent ventilator hood over	Nr	5.00					
	Ceilling							
	12mm Thick Approved Chipboard to BS 2604, Part 2, Density 480- 640kgs, Per Square Meter in Sheets Size 2400 x 1200mm Fixed to and Including 50 x 50mm Sawn Cypress Grade 2 Battens at 600mm Centres in Both Directions Complete with Gauge Jointing Material, painting & filler							
7.4.34	Horizontal ceiling fixed to underside of trusses	m2	54.00					
	12mm Cornice 50mm high, plugged	m	47.00					

	NSTRUCTION, REHABILITATION AND EXPANSION OF GR PPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPP	PLY AND	INSTAL		
	POINTS) BATCH 1 PROJECTS IN MAR I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO,			VATTA I EN	
LUI	PROJECT NO.: KE-WSTF-328819			IAI IA LEN	GINAAND
	BILL NO. 7.4: LAISAMIS SCHEME - ADMINS			DING	
TEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	ELECTRIFICATION FITTINGS		<b>V</b> 11	Kshs.	Kshs.
	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper				
	cables drawn in HG high impact pvc conduits and accessories all				
	concealed in building fabric for one or two way switching,13 Amps				
	socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables	T G	1 00		
	enclosed in pvc conduits, accessories and concealed in building	L. Sum	1.00		
	fabric to form ring main circuits, 15mmx16mm diameter pure				
	electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable,				
	deep driven to permanent moisture level. Rate to include supply of				
	all necessary materials and installation.				
	FURNITURE				
.4.37	Curtains for office for all windows and doors	Set	1.00		
.4.38	Office tables 2.2x0.9 m	No	1.00		
.4.39	Standard office chairs	No	8.00		
.4.40	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00		
	SANITATION FACILITY				
	Provide all materials and construct a 1500mmx900mm pit latrine				
	with depth from floor level at 6m. Stone masonry walling shall be				
.4.41	150mm, 125mm floor slab reinforced with T10 @100mm c/c,	L. Sum	1.00		
	Roofing corrugated iron sheets gauge 28 etc All details as per the				
	drawing and as directed by engineer.				

CO	NSTRUCTION, REHABILITATION AND EXPANSION OF G	ROUND W	ATER -	BASED RU	RAL WATER
	PPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUP				
	POINTS) BATCH 1 PROJECTS IN MA			,	
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO	), JALDES	SA, MAN	YATTA LEN	IGIMA AND
	PROJECT NO.: KE-WSTF-32881				
	BILL NO. 7.4: LAISAMIS SCHEME - ADMIN	SITRATI	ON BUIL	DING	
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		UIII	VII	Kshs.	Kshs.
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<u> </u>	NSTRUCTION, REHABILITATION AND EXPANSIO	N OF CROUND WATER - BASED
	RAL WATER SUPPLY SYSTEMS (CIVIL WORKS, F	
	STALLATION, AND WATER POINTS) BATCH 1 PR	
	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LO	
	PROJECT NO.: KE-WSTF-32881	9-CS-QCBS
BIL	L NO. 7: COLLECTION LAISAMIS WATER SUPPL	<b>Y SCHEME-COLLECTION SHEET</b>
BILL	DESCRIPTION	AMOUNT
No		Kshs
7.1	BOREHOLES AND WELL DEVELOPMENT	
7.0		
7.2	PIPELINE AND FITTINGS	
7.3	300 M3 RC TANK	
7.4	BUILDINGS	
	Bill 2 -Laisamis Water Supply Scheme	
	join 2 -Laisanns water Supply Scheme	

PROJECT NO.: KE-WSTF-328819-CS-QCBS

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

	PROJECT NO.: KE-WS BILL NO. 8: D				
Item No.	Description	Uni t	Nominal Quantity	Unit Rate (Ksh)	Amount (Ksh)
8.1.1	labour - unskilled	hr.	1		
	labour - semi-skilled	hr.	1		
	drillers - jackhammers	hr.	1		
	drillers – air tracks	hr.	1		
	drillers - rotary crawler over 150 mm	hr.	1		
	powder-men	hr.	1		
	carpenters reinforcing steel fixers	hr.	1		
	concrete workers	hr.	1		
	masons, concreters, bricklayers	hr.	1		
	plasterers	hr.	1		
8.1.12	painters	hr.	1		
8.1.13	plumbers	hr.	1		
	electricians	hr.	1		
	welders	hr.	1		
8.1.16		hr.	1		
8.1.17	riggers	hr.	1		
8.1.18	truck drivers - 3 t to 6 t	hr.	1		
8.1.19	truck drivers - 15 t	hr.	1		
8.1.20	truck drivers - 50 t	hr.	1		
8.1.21	tractors operators - heavy (above 200 kw)	hr.	1		
8.1.22	tractors operators - light (under 200 kw)	hr.	1		
8.1.23	front-end loader operators - 2 m3 to 3 m3	hr.	1		
8.1.24	front-end loader operators - 5 m3 to 10m3	hr.	1		
8.1.25	shovel operator - 2 m3	hr.	1		
8.1.26	shovel operator - 5 m3	hr.	1		
8.1.27	roller drivers	hr.	1		
8.1.28	mobile crane operators	hr.	1		
8.1.29	compressor & pump attendants	hr.	1		
8.1.30	crusher / screening plant operator	hr.	1		

L	OT I: KAMBOE MIDROCK, KAMBOE FURMASAN, L LENGIMA AND LAISAMIS IN MAR				NYATTA
	PROJECT NO.: KE-WSTF-3288		S-QCBS		
	BILL NO. 8: DAYWOR	KS			
Item No.	Description	Uni t	Nominal Quantity	Unit Rate (Ksh)	Amount (Ksh)
8.1.31	batch mixer	hr.	1		
8.1.32	plant operator	hr.	1		
8.1.33	oiler, greasers	hr.	1		
8.1.34	mechanics - up to 10 years experience	hr.	1		
8.1.35	mechanics - over 10 years experience	hr.	1		
8.1.36	foreman and gangers working with gang	hr.	1		
	ordinary Portland cement - bagged	t	1		
6.2.2	ordinary Portland cement - bulk	t	1		
6.2.3	fine aggregate	m <sup>3</sup>	1		
6.2.4	coarse aggregate	$m^3$	1		
6.2.5	concrete mix at central batch plant characteristic strength 20 MPa, slump 80mm and maximum aggregate size 20mm	m <sup>3</sup>	1		
6.2.6	reinforcing steel	t	1		
	reinforcing fabric	t	1		
	structural steel	t	1		
6.2.9	explosive - gelatine	kg	1		
6.2.10	explosive - ammonium nitrate	kg	1		
6.2.11	timber - primary hardwood	m <sup>3</sup>	1		
6.2.12	timber - secondary hardwood	m <sup>3</sup>	1		
6.2.13	waterproof plywood - 7.5 mm	m <sup>3</sup>	1		
6.2.14	waterproof plywood - 15 mm	m <sup>3</sup>	1		
6.2.15	waterproof plywood - 20 mm	m <sup>3</sup>	1		
6.2.16	Supply and Installation of Borehole casing 160mm to 200mm	m	1		
6.2.17	Supply and Installation of Gravel pack	m	1		
6.3.1	excavator, up to and including 1 m <sup>3</sup>	hr.	1		
-	excavator, 1 m <sup>3</sup> to 2 m <sup>3</sup>	hr.	1		
	excavator, over 2 m <sup>3</sup>	hr.	1		
	face shovel, over 2 m <sup>3</sup>	hr.	1		
_	dragline, over 2 m <sup>3</sup>	hr.	1		
	tractor, up to and including 150 kW	hr.	1		
	tractor, 200 kW	hr.	1		
	tractor, 250 kW	hr.	1		

L	LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS						
Item No.	BILL NO. 8: DAYWOR Description		Nominal Quantity	Unit Rate (Ksh)	Amount (Ksh)		
6.3.9	wheel loader, up to 2 m <sup>3</sup>	hr.	1				
6.3.10	wheel loader, 2 $m^3$ to 5 $m^3$	hr.	1				
6.3.11	grader, up to 3.7 m blade	hr.	1				
6.3.12	grader, over 3.7 m blade	hr.	1				
6.3.13	rear dump truck, 5 to 10 t	hr.	1				
6.3.14	smooth vibratory roller, 10 t	hr.	1				
6.3.15	rear dump truck, 10 to 15 t	hr.	1				
6.3.16	rear dump truck, 15 to 25 t	hr.	1				
6.3.17	rear dump truck, 10 to 15 t	hr.	1				
6.3.18	lorry - ordinary, up to and including 6 t	hr.	1				
6.3.19	lorry - ordinary, 6 to 10 t	hr.	1				
6.3.20	lorry - tipper, up to and including 6 t	hr.	1				
6.3.21	lorry - tipper, 6 to 10 t	hr.	1				
6.3.22	mobile crane, up to and including 5 t	hr.	1				
6.3.23	mobile crane, 5 to 10 t	hr.	1				
6.3.24	mobile crane, 10 to 15 t	hr.	1				
6.3.25	mobile crane, 15 to 25 t	hr.	1				
6.3.26	mobile crane, over 25 t	hr.	1				
6.3.27	derrick crane w. jib, up to and incl. 5 t	hr.	1				
6.3.28	grout pump, piston type	hr.	1				
6.3.29	grout pump, diaphragm type	hr.	1				
6.3.30	concrete pump, including supply pipeline, 15 $m^3/h$ to 20 $m^3/h$	hr.	1				
6.3.31	portable pump including hoses, strainer, etc., 50 mm delivery	hr.	1				

#### LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY PROJECT NO.: KF-WSTF-328819-CS-OCBS

	BILL NO. 8: DAYWOR	KS	1		
Item No.	Description	Uni t	Nominal Quantity	Unit Rate (Ksh)	Amount (Ksh)
6.3.32	portable pump including hoses, strainer, etc., 100 mm delivery	hr.	1		
6.3.33	portable pump including hoses, strainer, etc., 150 mm delivery	hr.	1		
6.3.34	pump, portable, including hoses, strainer, etc., over 150 mm delivery	hr.	1		
6.3.35	shotcrete machine, up to and including 0.5 m3	hr.	1		
6.3.36	shotcrete machine, over 0.5 m3	hr.	1		
6.3.37	concrete vibrators, immersion type, up to and including 75 mm	hr.	1		
6.3.38	concrete vibrators, immersion type, over 75 mm	hr.	1		
6.3.39	concrete mixer, up to 1 m3	hr.	1		
6.3.40	transit mixer 5 to 6 m3	hr.	1		
6.3.41	portable compressor, up to and including 7 m3/min	hr.	1		
6.3.42	portable compressor, over 7 m3/min	hr.	1		
6.3.43	jack hammer	hr.	1		
6.3.44	track drill, 35 to 89 mm	hr.	1		
6.3.45	track drill, 64 to 115 mm	hr.	1		
6.3.46	welding and cutting set, oxy-acetylene	hr.	1		
6.3.47	welding and cutting set - electric	hr.	1		
6.3.48	generator set, up to 5 kVA	hr.	1		
6.3.49	generator set, 5 to 20 kVA	hr.	1		
6.3.50	generator set, over 20 kVA	hr.	1		

# LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY

# PROJECT NO.: KE-WSTF-328819-CS-QCBS

#### APPENDIX A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				(KSHS)	(KSHS)
	1. ENGINEER'S MAIN OFFICE AND FURNITURE				
A01	Executive desk 2.2x0.9 m with six lockup drawers	No	1		
A02	Desk 2.2x0.9 m with chair and three lockup drawers	No	3		
A03	Office tables 2.2x0.9 m	No	2		
A04	Executive Swivel orthopedic chair adjustable height	No	1		
A05	Standard office chairs	No	5		
A06	Typist's desk	No	1		
A07	Typist's chair	No.	1		
A08	Medium size steel filing cabinet, 2 lockable drawers	No.	2		
A09	Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No.	1		
A10	Conference table with 10 chairs	No.	1		
A11	Ordinary 2 hole paper punch	No	1		
A12	Heavy duty 2 hole paper punch	No	1		
	A4 Wi-Fi Duplex All-in-One Colour Printer with ADF, Print, Scan,				
	Copy, Compact integrated tank design, Print speeds up to 15.5ipm for				
	black and 8.5ipm for colour, Auto-Duplex printing, ADF capability,				
	Ethernet & Wi-Fi Direct, Seamless setup with Epson Smart Panel,				
A13	Borderless Printing up to A4 size, Spill-free ink refilling	No	1		
	A3/A4 Wi-Fi Duplex All-in-One Ink Printer, print speed of up to 25.0				
	ipm, prints up to A3+ (for simplex), Automatic duplex printing, Ultra-				
	high page yield of 7,500 pages (black) and 6,000 pages (colour), Wi-Fi,				
	Wi-Fi Direct, Ethernet, Connect (iPrint, Email Print and Remote Print				
	Driver, Scan to Cloud) preferably Epson EcoTank L15150 or approved				
A14	equivalent.	No	1		
A15	Filing Tray - set of 3no.	set	3		
A16	Drinking water dispenser, hot/cold	No	5		
A17	Table - 0.8 m <sup>2</sup> surface area	No	1		
A18	Cupboard, 0.15 m <sup>3</sup> , lockable	No	1		
A19	Reams of A4 photocopying paper	No	70		
A20	Reams of A3 photocopying paper	No	50		
A21	Stapling machine Offrex size 50 or similar with 5000 staples	No	3		
A22	Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2		
	Appendix A Bill Item Collection Page to office equipment				

	AND LAISAMIS IN MARSABIT	COUNT	I				
PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	APPENDIX B: BOREBOLE PUMP AND GUAR	SE BUIL	1				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
<b>D</b> 4				Kshs.	Kshs.		
<b>B.1</b>	PROPOSED PUMP HOUSE & CONTROL ROOM						
	EARTHWORKS		-				
D 1 1	GENERAL EXCAVATION		15.0				
B.1.1	Excavate 200mm top soil and dispose	m2	15.0				
B.1.2	Excavate all materials max. depth 0.2 - 3 m for disposal	m3	15.0				
	FILLING AND COMPACTION		_				
B.1.3	300 mm thick hardcore bed, handpacked, well watered and well	m <sup>3</sup>	30.0				
	comapcted in 100 mm layers.						
D14	IN-SITU CONCRETE Provide and place Congrete Grade: 15/20	m2	1.0				
B.1.4 B.1.5	Provide and place Concrete Grade: 15/20 Provide and place Concrete Grade: 25/20	m3 m3	1.0				
<i>Б</i> .1.3	CONCRETE ANCILLARIES	mo	4.0				
D 1 6	FORMWORK: FAIR FINISH		5.4				
B.1.6	Fair finish to vertical sides of floor slab, plinth and ring beam <b>REINFORCEMENT</b>	m <sup>2</sup>	5.4				
	High yield steel bars to SSRN 126 or 127		-				
B.1.7	Diameter: 10 mm	lra	217.0				
B.1.7 B.1.8	Diameter: 10 mm Diameter: 12 mm and above	kg	-				
	Fabric Fabric Reinfrocement BRC A-142	kg	192.0				
B.1.9		m2	37.3				
	TIMBER						
D 1 10	Fittings and fastenings		50.0				
B.1.10	Bolts	nr	50.0				
D 1 11	Roofing with cypress		51.6				
	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	54.6				
	100 x 50 mm: Struts and ties; Wall plate fixed to concrete	m	39.0				
	200 X 25mm fascia and badge	m	25.2				
B.1.14	75 x 50mm purlins	m	64.0				
	BRICKWORK, BLOCKWORK & MASONRY						
	Natural Stone Walling, Medium Chisel Dressed, Reinforced						
	with 20 swg Hoop Iron at Every Two Course, and Bedded,						
D 1 1/	Jointed and Pointed in Cement Mortar (1:3):-		210				
	200 mm thick masonry wall in substructure	m2	24.0				
	200 mm smooth dressed walling in superstructure	m2	90.0				
B.1.18	150 mm smooth dressed walling in superstructure	m2	-				
	Blockwork ancillaries						
B.1.19	Damp proof course.	m	21.0				
B.1.20	Single layer of 500 gauge polythene sheeting laid on blinded	m2	19.0				
	hardcore with 150mm side laps to receive concrete PAGE TOTAL CARRIED FORWARD TO COLLECTION S						

PROJECT NO.: KE-WSTF-328819-CS-QCBS APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS							
	APPENDIX B: BOREBOLE PUMP AND GUAR	D HOUS	SE BUIL	DINGS RATE	AMOUNT		
TEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.		
	Anti-Termite treatment						
	Treat surface of hardcore with approved anti termite solution						
B.1.21	applied strictly in accordance with the manufacturers	m2	19.0				
	instructions.						
	PAINTING						
	3 coats (one undercoat and two other coats) of silicon based						
B.1.22	emulsion paint to external wall surfaces as in Crown Permacote	m2	72.0				
	ultra guard rain-proof silicone paint or approved equivalent.						
	3 coats (one undercoat and two other coats) of emulsion paint to						
B.1.23	interior wall surfaces as in Crown Vinyl Matt Emulsion	m2	m2	54.0			
	with Teflon Surface protector or approved equivalent.						
	Rendering with proprietary mix mortar				_		
B.1.24	Internal 20mm mortar rendering, cement/sand 1:4 painted 'soft	m2	54.0				
	white" to Ks 10 B 15 or similar						
	MISCELLANEOUS WORK						
	Drainage to structures above ground						
B.1.25	Gutters inclusive of all the fittings	m	5.0				
B.1.26	Downpipes inclusive of all the fittings	m	4.0				
	Windows						
	Supply and Fix the Following Standard Section Steel Casement						
	Windows, including 4mm Thick Clear Sheet Glass glazed to						
	Steel Casements with Putty, Complete with Opening						
	Accessories, including Building in Lugs to Jambs and Head and						
	Water-Proofing and Filling Around Opening With Approved						
	Compound; and Including Burglar-Proofing Fabricated from 12						
	x 12mm Mild Steel Square Bars at 150mm Centres Vertically						
	and 150mm Horizontally and Fixed Internally to Surrounding						
	Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with Three Coats Oil Paint:-						
	Provide and install 1200x900 window as specified in the						
B.1.27	drawing	nr	1.0				
B.1.28	Provide and install 1800x900 window as specified in the	nr	1.0				
2.120	drawing						
	Doors						
B.1.29	Mild steel, external Single leaf, standard, 900mm wide	nr	1.0				
B.1.30	Ditto, 2000mm wide double leaf door.	nr	1.0				
	Other						
B.1.31	Louvered Precast concrete vent blocks of approved type by	m2	20.0				
J. I.J I	Engineer	1112	20.0				

	AND LAISAMIS IN MARSABIT	COUNT	Y				
	PROJECT NO.: KE-WSTF-328819	-CS-QC	BS				
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS							
	DESCRIPTION			RATE	AMOUNT		
ITEM	DESCRIPTION	UNIT	QTY	Kshs.	Kshs.		
	CEILING						
	12mm Thick Approved Chipboard to BS 2604, Part 2, Density 480-640kgs, Per Square Meter in Sheets Size 2400 x 1200mm Fixed to and Including 50 x 50mm Sawn Cypress Grade 2 Battens at 600mm Centres in Both Directions Complete with Gauge Jointing Material, painting & filler						
B.1.32	Horizontal ceiling fixed to underside of trusses	m2	18.0				
B.1.33	12mm Cornice 50mm high, plugged	m	-				
B.1.33	Provide for supply and installation of all electrical fittings in the house as directed by the Engineer. Include for complete wiring, installation of consumer meters, power sockets, lighting systems and installation of solar powered grid of 1kW.	Ls	1.0				
B.2	GUARD HOUSE						
	CLASS E: EARTHWORKS						
B.2.1	Excavation of surfaces to reduce the level, depth not exceeding 1m	m3	16.0				
B.2.2	Foundations and bases for depth not exceeding 1500 mm for strip footing	m3	8.0				
	Excavation Ancillaries						
B.2.3	Trimming of excavated surfaces to recieve blinding concrete	m2	16.0				
	Filling as Described:-						
	Hardcore						
B.2.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.0				
	Anti-Termite treatment						
B.2.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	16.0				
	Damp-Proof Membrane						
B.2.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	16.0				
	CLASS F: INSITU CONCRETE:						
	Mass Concrete Class 15/20mm :-						
B.2.6	75mm Thick blinding for floor and strip footing	m3	1.0				
	Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-						
B.2.7	150mm thick ground with BRC A142 mesh laid 40 mm from the top finished with red oxide polish. BRC mesh rate shall be	m3	2.5				
5.2.1	provided separately. 200 mm Thick Class 25/20 concrete for foundtion footiung of		2.5				
B.2.8	dimension 600x600 mm complete with reinfoced column to of 300mm x 200mm to a depth not less than 1.5m	m3	2.4				
	PAGE TOTAL CARRIED FORWARD TO COLLECTION S	HEET	1				

	AND LAISAMIS IN MARSABIT	count	1				
PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	APPENDIX B: BOREBOLE PUMP AND GUAR	D HOUS	SE BUIL	DINGS			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
				Kshs.	Kshs.		
B.2.9	200x400 Ring Beam concrete	m3	1.4				
B.2.10	150mm thick RC roof slab slanted at $22.5^{\circ}$ .	m3	3.2				
B.2.45	Allow for connection to the rising main from the generator room to the staff house. The fittings shall be DN20mm includes a float valve to the plastic tank, GI pipes, elbows, unions, tees, nipples, pegler isolating gate valves etc all to PN25.	Ls	1.0				
	CLASS G: CONCRETE ANCILLARIES						
	Formwork		_				
<b>D A</b> 10	Formwork - Fair Finish:-		100				
B.2.10	Formwork to sides of 300 mm deep ring beam	m2	12.0		_		
B.2.11	Vertical Sides of the 150mm ground and roof slab	m2	3.0		_		
B.2.12	Soffit ring beam 200 mm wide and roof slab Reinforcement	m2	16.0		_		
	Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-						
B.2.13	High yield tensile steel 12mm diameter to ring beam	kg	91.0				
B.2.14	High yield tensile steel 10mm diameter to strip footing	kg	425.0				
	Fabric Reinforcement No. A142 Mesh Size 150 x 150mm Weighing 2.22 kgs Per m <sup>2</sup> , Including Bends, Tying Wire and Distance Blocks:-						
B.2.16	Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top	m2	9.0				
	Walling.						
	Natural Stone Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at Every Two Course, and Bedded, Jointed and Pointed in Cement Mortar (1:3):-						
B.2.17	200 mm thick masonry wall in substructure	m2	19.0				
B.2.18	200 mm smooth dressed walling in superstructure Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-	m2	76.0				
B.2.20	200mm and 150mm Wide under walls	m	19.0				
	Finishes.						
B.2.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	76.0		1		
B.2.22	3 coats (one undercoat and two other coats) of silicon based emulsion paint to external wall surfaces as in Crown Permacote ultra guard rain-proof silicone paint or approved equivalent.	m2	76.0				
3.2.23	3 coats (one undercoat and two other coats) of emulsion paint to interior wall surfaces as in Crown Vinyl Matt Emulsion with Teflon Surface protector or approved equivalent.	m2	76.0				

PROJECT NO.: KE-WSTF-328819-CS-QCBS APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS							
ITEM		D HOUS	E BUIL QTY	DINGS RATE	AMOUNT		
		0101	×	Kshs.	Kshs.		
	Panel doors						
B.2.31	Single steel door size 2100 x 900 mm high (D1), complete with 50x50x3mm fixed angle frame, 3mm thick chekered plate build into the panel with union three (3) lever steel door lock, 3x200mm lockable tower bolts	Nr	3.0				
	Steel Casement Windows						
	Supply and Fix the Following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with Putty, Complete with Opening Accessories, including Building in Lugs to Jambs and Head and Water-Proofing and Filling Around Opening With Approved Compound; and Including Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres; all Finished with Three Coats Oil Paint:-						
B.2.33	Window size 1000x 1200mm high with 2 No. side hung opening bottom sashes and with 2 No. fixed and 1 No. top-hung top ventilators 200mm high with permanent ventilator hood over	Nr	3.0				
	FURNITURE						
B.2.37	Curtains for guard house for all windows and doors	Set	1.0				
B.2.38	Office tables 0.9x0.6 m	No	1.0				
B.2.39	Vinyl padded seat with a powder-coated square tube frame	No	1.0				
B.2.40	Beds single 4x6 with inner spring mattresses and 2 pairs of beddings ELECTRIFICATION FITTINGS	Ls	1.0				
B.2.36	Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric for one or two way switching,13 Amps socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables enclosed in pvc conduits, accessories and concealed in building fabric to form ring main circuits, 15mmx16mm diameter pure electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable, deep driven to permanent moisture level. Rate to include supply of all necessary materials and installation.	I Sum	1.0				

LUI	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOG AND LAISAMIS IN MARSABIT	COUNT	Y		ALENGIMA
	PROJECT NO.: KE-WSTF-328819 APPENDIX B: BOREBOLE PUMP AND GUAR			DINCS	
ІТЕМ	DESCRIPTION			RATE	AMOUNT
		•••••	~~~	Kshs.	Kshs.
	Water and Sanitation Facilities				
B.2.41	Wastewater system to include internal plumbing services, fittings and fixtures within the building, inspection chambers and associated pipework as directed by the engineer. Rate to include 5 m3 septic tank and connection.	Sum	1.0		
B.2.42	Sanitary appliances and fittings include: Twyfords equivalent glazed W.C suit complete, wash hand basin complete, bowl urinal complete with automatic cistern (1 Person), recessed toilet paper roll holder, Recessed soap dish, Soap dispenser	nr	1.0		
B.2.43	Supply and installed 5,000 litres plastic water container as manufactured by KENTANK (K) LTD or equally approved by the Engineer .	Nr	1.0		

	PROJECT NO.: KE- APPENDIX B: BOREBOLE PUM	WSTF-328819-CS-QC		DINCS	
ТЕМ	DESCRIPTION			RATE	AMOUNT
			~~~	Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 6				
	Bill Total Carried to Grand Summary				

LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL PROJECT NO.: KE-WSTF-3288	,		ANYATTA	LENGIMA
	APPENDIX C WATER K				
ITEM	ITEM DESCRIPTION	UNIT			
NO.		UI III	QUANTITY		
1101					
C1	CLASS E: EARTHWORKS				
	Excavations				
	Rates for excavation to include for disposal				
C1.1	Excavations to reduced levels and cart away	m <sup>3</sup>	9.0		
C1 2	Excavate foundation trenches n.e 1500mm deep from	m <sup>3</sup>	18.0		
C1.2	stripped level	m	18.0		
	Filling				
	Filling to completed structures including compaction as				
	specified.				
	300 mm thick hardcore bed, handpacked, well watered and				
C1.3	well comapcted in 100 mm layers with 50mm thick quarry	m <sup>3</sup>	5.4		
	dust/murram binding on a hardcore bed.				
C1.4	Return fill and ram - make up level	m <sup>3</sup>	3.6		
	Supply and application of Termidor 96 S pesticide				
	treatment for the control of termites to the soil beneath the				
C1.5	foundations, executed by a Pesticides Control Products	m <sup>2</sup>	18.0		
	Board licenced professional pest control operator, with a				
	ten year guarantee to surfaces of excavations				
	Approved damp proof course (bituminous)				
	500g polyethylene damp proof membrane laid with 300				
C1.6	end laps under the floor slab, on hardcore to engineers	m	12.0		
	approval				
C1.7	Single layer of 100 gauge polythene sheeting on blinded	m <sup>2</sup>	18.0		
	hardcore with 150 mm side laps to receive concrete				_
	CLASS F: CONCRETE WORK				
G1 0	Provide and Place Mass concrete Class 15	3	1.4		
C1.8	75mm Concrete 1:4:8 Blinding	m <sup>3</sup>	1.4		
	Provide and Place structural concrete Class 25	2			
C1.9	Strip foundation	m <sup>3</sup>	2.3		
C1.10	Floor and roof slab	m <sup>3</sup>	8.8		
C1.11	Bases, Column and Beams	m <sup>3</sup>	5.6		
	Provide and place paving slab around the water kiosk. Rate				
	to include levelling and compacting the surface.				
C1 12	Provide and place 600 x 600 x 50 mm thick grey precast		10.4		
C1.12	concrete paving slabs on 75 mm thick sand bed.	m <sup>2</sup>	10.4		

LUTI	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO PROJECT NO.: KE-WSTF-3288	,		ANYATTA	LENGIMA
	APPENDIX C WATER K				
TEM	ITEM DESCRIPTION	UNIT	1		
NO.		01111	QUANTITY		
1.0.	CLASS G: CONCRETE ANCILLARIES				
	REINFORCEMENTS				
	Rates to include for binding wire				
	High yield steel bars to BS 4449				
C1.13	High yield bars (to BS4449) Diameter: 8mm	kg	85.0		
C1.14	High yield bars( to BS4449) Diameter 10mm	kg	228.3		
C1.15	High yield bars(to BS4449) Diameter 12mm	kg	218.1		
01.15	Steel fabric mesh reinforcement to B.S. 4483	кg	210.1		
	BRC mesh fabric reinforcement ref A142 (weighing				
C1 1(		$m^2$	19.0		
C1.16	2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance	m	18.0		
	made for lamps)				_
	FORMWORK				
	<u>Sawn formwork (fair finish) to: -</u>				
C1.17	Vertical and soffits of slabs	$m^2$	11.8		
C1.18	Vertical sides and soffit of beams, columns and fetching	$m^2$	44.2		
C1.18	bay	m	44.2		
	CONCRETE ACCESSORIES				
C1 10	40mm x 30mm drainage groves in concrete to detail		12.0		
C1.19	drawings	m	13.8		
G1 00	Cement screed on the top surface of roof slab to minimum	2	11.0		
C1.20	fall gradient of 1.50	$m^2$	11.8		
C1.21	Bituminous felt cover on the surface of the cement screed	2	11.0		
C1.21	on the roof slab.Allow for 300mm lapping.	$m^2$	11.8		
~	Allow for 25mm nominal core bore class B G1 pipe		1.0		
C1.22	through inserts in floor slab, roof slab and window sill	m	4.0		
	CLASS I: PIPEWORK - PIPES				
	Drainage system				
	110mm OD HDPE pipe class PN 10 in trench, depth n.e				
C1.23	1.5m	m	10.0		
	Piped Building Services				
	Portable water supply installation to detail drawings				
	for Water Kiosk				
	Provide, test and commission pipework fittings to connect				
	to the existing system with the kiosk as shown in the				
C1.24	drawing including the plastic tank, 3 dispensing outlets	Ls	1.0		
C1.24	and integration with the water dispensing ATM and as	Lo	1.0		
	directed by the Engineer.				
	directied by the Engineer.				
	Supply and installed 5,000 litres plastic water tank as				
a1 <b>65</b>	manufactured by KENTANK (K) LTD or equally approved		1.0		
C1.25	by the Engineer. The tank shall be coated with epoxy	Nr	1.0		
	coating outside prior enclosing in a masonry walling.				
C1.26	Provide, install, test and commission PN25 Floater valve	Nr	1.0		
	for the plastic tank complete with all installation sundry				
C1.27	Foldable ladder 4m high	Nr	1.0		

LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL PROJECT NO.: KE-WSTF-3288			ANYATTA L	ENGIMA
	APPENDIX C WATER K				
ITEM	ITEM DESCRIPTION	UNIT			
NO.			QUANTITY		
	Soak Away Pit				
	Construct soak pit to details as provided in the drawings				
	complete with associated drainage details and as directed				
	by the Engineer. Hardcore filled soak pit size 1500 mm				
	internal dia and 2400 mm deep c/w 100 mm diameter				
	HDPE drain pipe and plastic sheet including excavation				
C1.28	and backfill and disposal. Gulley trap chamber internal	Ls	1.0		
	size 300 x 300 x 300 mm high with 150 mm thick sides				
	and rebated to edge for and including 500 x 400 x 50 mm				
	thick precast concrete cover including bedding UPVC				
	gulley, dishing base of gulley, all necessary formwork,				
	excavation and disposal				
	CLASS U: MASONRY NATURAL STONE				
	Approved stone walling of minimum compressive strength				
	of 10N/mm2 bedded in cement sand (1:3) mortar				
	reinforced with and including gauge 12 hoop soft wire				
	gauge hoop iron at every alternate course. Keying to be				
	done on exterior wall surfaces for the superstructure				
	225mm thick solid masonry block walling in cement/sand				
C1.29.1	for substructure, reinforced with hoop iron at each course	m <sup>2</sup>	14.4		
	200mm thick solid masonry block wall in cement/sand (1:3				
C1.29.2	) mortar reinforced with hoop iron at every alternate	$m^2$	23.0		
	courses for superstructure	111	23.0		
	150mm thick solid masonry block wall in cement/sand (1:3				
C1.29.3	) mortar reinforced with hoop iron at every alternate	m <sup>2</sup>	33.8		
	courses to enclose plastic tank on the kiosk				
C1.31	Provide (32x32x3)mm RSA bars and cast into concrete to		6.0		
C1.51	all edges of the walls as specified in drawings.	m	6.0		
	SHELVES, WINDOWS AND DOORS				
C1.32	Provide and fix 350mm wide x 25mm thick timber cypress	Nr	3.0		
01.52	shelves, length 2m (to detail drawings.)	1.1	5.0		
	Supply and Fix the following purpose made steel windows				
	and door as per detail manufactured from heavy duty				
	standard sections primed with one coat of red oxide				
	primer and fixing to masonry or concrete head and jambs				
	complete with closing mechanism and other fittings.				
C1.33	Window size 1200 x 900 mm high overall	Nr	1.0		
C1.33	Single swing door overall size 900 x 2100mm high	Nr	1.0		
01.54			1.0		
C1.35	Heavy-Duty Alarm Lock Siren Padlock (Large). To be	Nr	2.0		
	approved by the Engineer				
	Page Total carried to the Collection Sheet				

LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLO PROJECT NO : KE WSTE 2295			ANYATTA I	LENGIMA
	PROJECT NO.: KE-WSTF-3288 APPENDIX C WATER K				
ITEM	ITEM DESCRIPTION	UNIT			
NO.	HEW DESCRIPTION	UNII	QUANTITY		
110.	INTERNAL WALL FINISHES				
	15mm thick lime plaster (1:2:9) as described to:-				
C1.36	Interior surfaces of walls	m <sup>2</sup>	56.8		
C1.37	On roof slab soffit	m <sup>2</sup>	11.8		
01.57	Exposed front areas of fetching bay. Rate to include		11.0		
C1.38	instalation of angle sections as per the drawings	$m^2$	2.0		
	CLASS V: PAINTING				
	Prepare and apply				
	Plastered Internal surfaces of walls 2-coats of emulsion	2			
C1.39	undercoat paint and 3-coats of first grade oil paint	$m^2$	20.8		
	2-coats of primer paint and 3-coats of first grade oil paint				
C1.40	to vertical surfaces of metal doors and windows.	Ls	1.0		
	WATER KIOSK ATM				
	Suply and install Automated water dispensing ATM				
	designed to offer a reliable and user-friendly way to access				
	and pay for water using a keypad, screen, tag pay option,				
	and integration with MPesa for payment processing with				
	the following specifications				
C1.41	-Keypad, Screen (LCD), Tag Pay Option (RFID/NFC), -	Nr	1.0		
	Web based dashboard subscription for 10 year, Hybrid				
	dispensing, MPesa Integration for Payment upto 3 taps				
	max, water Flow Sensor, Solar power - charger, controller,				
	battery and solar panel. The rate to include the first 50				
	token chips for 50nr. households.				
	Steel Frame Structure				
~	Supply and joint/weld		10.0		
C1.42	50x50x3mm vertical stanchions	m	12.0		
	M10 bolts & nuts complete with Ø25mm washers; to be	Ls			
	anchored into concrete slab to drawing detail OR Ø10mm,				
C1.43	100mm long expanding Rawl Plugs or similar approved by		1.0		
	the Engineer, for already existing concrete slabs (rate to				
	include for drilling through concrete slab section )				
C1.44	3mm thick base plates welded to stanchion end	nr	4.0		
C1.45	50x50x3mm RHS Horizontal Rafters	m	28.0		
21.10	Roof Cladding		_0.0		
	Supply and fix				
	Supply and Install Roofing Sheets, Prepainted (Blue				
	colour) Gauge 26 Industrial Tough 5 (IT 5). Include for all				
C1.46	the installation acessories. Rate to include bolting to the	m <sup>2</sup>	9.0		
	steel section support framing. (Type specifications				
	attached)				
C1.47	Supply and Install polynium sheeting underneath the iron	m <sup>2</sup>	9.0		
U1.4/	sheet roofing. Specification as attached.	111~	9.0		
	Page Total carried to the Collection Sheet				

LUII:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGI PROJECT NO.: KE-WSTF-328			ANYATTA L	ENGIMA
	APPENDIX C WATER				
ITEM	ITEM DESCRIPTION				
NO.	TTEM DESCRIPTION		QUANTITY		
1101	Class V: Painting				
	Prepare and apply				
	One coat red oxide, one coat primer and one coat first				
C1.48	grade oil paint to all metal surfaces; all applied per	LS	1.0		
	specifications				
	Branding				
C1.49	Allow a lumpsum for branding of the facility as directed	I.a.	1.00		
C1.49	by the Engineer	Ls	1.00		
		<u> </u>			
		+			
		+			
	Page Total carried to the Collection Sheet				

	POINTS) BATCH I PROJECTS IN MA	ANSA			
LOT I:	KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL			ANYATTA L	ENGIMA
	PROJECT NO.: KE-WSTF-3288	819-CS	S-QCBS		
	APPENDIX C WATER F				
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY		
	Appendix C Bill Item Collection Page				
	Page 1 Total				
	Page 2 Total				
	D 2 T 1				
	Page 3 Total				
	Page 4 Total				
	Page 5 Total				
A	opendix C Bill Item Collection Page to Water Kiosk Bill I	tem			

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGL AND LAISAMIS IN MARSAB			NYATTA L	ENGIMA				
	PROJECT NO.: KE-WSTF-3288								
	APPENDIX D: TROUGH								
ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	RATE (Kshs)	Amount (Kshs)				
	ANIMALS TROUGH			( ~ ~)					
	Clearance of trough area and removal of trees and stumps	m2	66						
D1.1	Excavate over site soil material to reduce levels not exceeding 225mm deep and cart away	m2	66						
	Excavation for raft foundation not exceeding 1.0 metres deep starting from reduced levels.	m3	22						
111 3 1	225 mm thick approved hard-core filling, levelled and compacted in 150mm layers.	m2	22						
	Level and blind surface of hard-core with 50mm thick 1:4:8 concrete mix blinding	m2	1.1						
	Formwork to sides of floor slab 150mm thick	m	26						
	Reinforcement bars D8. include for tying to floor slab	Kg	102						
111 / 1	Insitu reinforced concrete:(mix 1:2:4) grade 20(20 mm aggregate):vibrated in foundation strip 150mm thick	m3	2.7						
	6"x9" approved local/bush stone; squared; and rough chisel dressed one side, bedding and jointing in cement mortar (1:3) in Walls 150mm Thick	m2	13						
	Reinforcement bars D8. include for tying to walling	Kg	32						
D1.10	Plaster; 9mm first coat of cement: sand (1:3) steel trowelled in 25 mm thick 2 No. Coat work to sides of cattle trough internally. Include for water proofing	m2	13						
D1.11	Plaster; 9mm first coat of cement: sand (1:3) steel trowelled in 25 mm thick 2 No. Coat work to sides of cattle trough externally	m2	18						
D1.12	Supply, deliver to site approved hard- core, place and join with 1:3 cement mortar to form grouted riprap as directed. Include for levelling.	m2	48						
D1.13	Fabricate and install a 700mmx1000mm lockable 16g steel plate manhole hole cover framed and cross reinforced with 16g, 25mm hollow section steel cover.		1						
	Fittings from tank to trough								
D1.14	2" Ø GI pipes "B'	No	2						
	2" Ø GI long nipple 2" Ø GI elbow	No	4						
	2" Ø GI backnut	No No	4						
	2" diameter union	No	4						
	2" diameter union 2" diameter gate valve	No	1						
	2 diameter gate valve 2"x1½" Ø reducing socket	No	1						
	1½" Ø plain socket	No	1						
	1½" Ø ball valve Pegler	No	1						
	Total for Cattle trough summary	110							

AND LAISAMIS IN MARSABIT COUNTY PROJECT NO.: KE-WSTF-328819-CS-QCBS APPENDIX E: LATRINE														
									tem	Description	Unit	Qty	Rate (kshs)	Amount (kshs)
										Element No.1: Excavation & Earth Works				
E.1	General excavation to remove top soil to an average depth of 250mm	m2	10.77											
E.2	Bulk excavation for latrine pit of plan dimension 1.5m m by 3.2m length to a maximum depth of 6m from the striped level 0-6m depth	m3	28.80											
E.3	Excavation for wall footing, 450mm wide by 100mm thick	m3	0.42											
E.4	Cart away surplus excavated material & deposit at designated area for dumping constrution wastes	m3	30.00											
E.5	Approved hard-core, well compacted under the entrance apron.	m3	1.26											
	Element No.2: Masonry Work													
E.6	Provide and construct with natural stone as pit linning and sub- structure walling bedded in cement sand mortar 1:3. Rate to included mild steel reinforcement of 6mm diameter after every two consecutive courses. Avoid use of quarry rejected stones	m2	40.00											
E.7	10mm thick DPM under walls or approved equivalent	m	12.00											
E.8	Supply and place 150mmx225mmx400mm Machine cut stone as pit lining and sub-structure walling bedded in cement sand mortar 1:3. Rate to include mild steel reinforcement of 6mm diameter after every two consecutive courses. Avoid use of quarry rejected stones.	m2	48.00											
	Element No.3: Concrete Work													
E.9	Supply materials, transport, place and compact reinforced concrete class 25/20 in 6No. 300x200mm reinforced columns and beams in Latrine Allowing for water proofing using sikacim water proofing mixture	m3	1.08											
E.10	Ditto 150mm thick and 450mm wide reiforced concrete class 25 (1:2:4) in foundation footing.	m3	0.37											
E.11	Ditto 150mm concrete class 25 (1:2:4) in latrine slab (to cover pit, urinal, handwashing and general area as one unit). Offset the slab 2 feet beyond wall base to form a pavement around the latrine. Provide expansion joints to slab as instructed on site	m3	2.00											
E.12	Backfill around masonry foundation footing with selected granular material well rammed in layers not exceeding 150mm thick to completely cover any substructure reveals and create a region around the block that drains/slightly slopes away from the latrine block. <i>Include cost of Anti-termite Gladiator or any other approved</i> <i>solution and apply 1 litre per 8 m2.</i>	m3	5.00											
E.13	200mm X 150mm Concrete Grade 25 (1:2:4) in ring beam	m3	1.00											
-														

LOT	WATER POINTS) BATCB 1 PROJECTS IN MAI I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, AND LAISAMIS IN MARSABIT CO	JALI UNTY	DESA, N Y		LENGIMA
	PROJECT NO.: KE-WSTF-328819-CS	5-QCI	BS		
Item	APPENDIX E: LATRINE Description	Unit	Qty	Rate (kshs)	Amount (kshs)
	Element No. 4: Concrete Ancillaries and openings			(KSH3)	(KSH3)
	Formwork				
	Provide cut and fix in position sawn timber formwork or equivalent.				
	side of foundation footing 150mm wide	m2	13.20		
	edges floor slab 150mm wide	m2	14.00		
	Under floor slab	m2	12.00		
	Side of ring beam 300mm deep	m2	4.98		
	support props and floor slab	Item			
	on substructure columns and beams	m2	27.90		
G	Reinforcement				
	Steel reinforcement cut, bend & placed in position, unit price to				
	include cutting, bending & placing in position with binding wire and concrete seats				
	In Foundation Footing				
	10mm diameter high tensile steel (0.89kg/m) (in strip footing as 2				
E.20	No. main reinforcement at 150mm )	Kg	16.82		
	8mm diameter mild steel (0.39kg/m) in substructure strip footing as				
E.21	distrubution steel at 200mm C/C	Kg	6.76		
	Substructure columns				
E 00	12mm diameter high tensile steel (0.89kg/m) (in columns as 4 No.	17	(1.00		
E.22	main reinforcement )	Kg	64.08		
E.23	8mm diameter mild steel (0.39kg/m) in columns as distrubution steel	V.	126.26		
E.23	at 200mm C/C	Kg	126.36		
	Substructure and ground beams				
E.24	8mm diameter mild steel (0.39kg/m) in substructure beams and	Kg	29.00		
L.27	columns as distrubition steel	кg	29.00		
E.25	12mm diameter high tensile steel (0.89kg/m) (as 4No. In	Kg	45.57		
<b>D.2</b> 0	substructure and ground beams)	115	10.07		
E.26	BRC A 142 in the floor slab	m2	12.00		
	Superstructure Lintel/ Ring beam				
E 27	9	V	41.00		
	8mm diameter mild steel (0.39kg/m)as distribution steel in ring beam	Kg	41.00		
E.28	8mm diameter mild steel (0.39kg/m) as main reinforcement in ring	Kg	21.00		
L.20	beam	кg	21.00		
	Openings				
	Allow for forming of pit hole and construction of foot rest to details				
	for all pits ensuring that a self cleansing finish with smooth steel float	No.	2.00		
	as shall be guided by the supervising engineer				
	Element No.5: Roofing				
E.30	Roof cover in Gauge 28 CIS Nailed to 50 X 75mm purlins. Use pre	m2	12.00		
	painted Box Profile iron sheets Timber Work				
	All structure truss members shall be in seasoned cypress wood or most				
	preferably eucalyptus wood and painted two coats of anti termite				
	solution and shall be tight fixed with top tie beam with 6mm diameter				
	plain bar.				
	a) 100 X 50mm wall plate	М	14.00		
	b) 50X 100mm rafter	M	22.40		
	c)225 X 50mm Fascia Board	M	14.00		
	e) 50x75mm roof purlin	М	24.00		
	Element No.6: Fixtures and Fittings				
	Doors				
	Provide and install the following purpose made doors complete with				
	fittings and locks. Consider the cost of installing ventilation or Louvre				
	block at the back of the latrine block and above the latrine door				
	covered with a net screen or a gauze				
	PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE		<u> </u>		

	WATER POINTS) BATCB 1 PROJECTS IN MAI				
LUI	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, AND LAISAMIS IN MARSABIT CO			IAN YAI IA	LENGIMA
	PROJECT NO.: KE-WSTF-328819-CS	-QCI	BS		
	APPENDIX E: LATRINE			Rate	Amount
tem	Description	Unit	Qty	(kshs)	(kshs)
E.35	Wooden shutter butend door 750 X 2100mm to normal latrine. Provide internal and external locks/latches	No	3.00		
	Element No.7: Finishes				
E.36	Apply plater in ratio 1:3 of cement : sand clean river sand to beam surface internally and externally and to all wall surfaces to achieve a smooth steel float finnis	m <sup>2</sup>	10.00		
	Apply one priming coat and two finishing coats of 1st grade paint ton	m²	10.00		
E.38	Cement sand screed with 0.1 aggregate mix, price to urinal platform, cost to includes chiselling of floor in all latrines to ensure a selg draining gradient that directs flow into the pit latrine with smooth steel finish	m2	25.00		
E.39	Branding: Provide labour and inscribe on concrete (or printed on durable and weatherproof material eg vinyl) with World Vision Logo and with visible wording as directed by the site engineer on a surface prepared on the wall by plaster	Item	1.00		
E.40	Vent Pipe Provide a PVC vent pipe 150 mm diameter complete with fly screen and cap to 200mm above the roof pitch , installed external to the latrine wall	No	2.00		
E.41	Element No.8: Drainage and Water Supply Provide and install urinal bowl to height 0.5m above ground surface	No	2.00		
2.71	Branding	110	2.00		
E.42	Allow a lumpsum for branding of the facility as directed by the Engineer	Ls	1.00		
		1	1		

G					D D L D L T
	ONSTRUCTION, REBABILITATION AND EXPANSION OF O				
WAT	ER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&N				ATION, AND
	WATER POINTS) BATCB 1 PROJECTS IN MA	RSAB	ΙΤ COI	JNTY	
LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO	, JALE	DESA, N	<b>IANYATTA</b>	LENGIMA
	AND LAISAMIS IN MARSABIT CO	JUNTY	7		
	PROJECT NO.: KE-WSTF-328819-C	CS-OCE	BS		
	APPENDIX E: LATRINE				
Item	Description	Unit	Qty	Rate (kshs)	Amount (kshs)
				(1010)	(1010)
	Appendix D Bill Item Collection Page				
	Page 1 Total				
	Page 2 Total				
	Page 3 Total				
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	Appendix D Bill Item Collection Page to Sanitation Bill Item				

LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA						
PROJECT NO.: KE-WSTF-328819-CS-QCBS						
ITE M NO.			QUANTITY	T RATE (Kshs)	Amount (Kshs)	
F1	CLASS E: EARTHWORKS					
11	Excavations					
	Rates for excavation to include for disposal					
F1.1	Excavations to reduced levels and cart away	m <sup>3</sup>	1.0			
F1.2	Excavate foundation trenches n.e 1500mm deep from stripped level	m <sup>3</sup>	3.6			
	Filling					
	Filling to completed structures including compaction as specified.					
F1.4	300 mm thick hardcore bed, handpacked, well watered and well comapcted in 100 mm layers.	m <sup>3</sup>	0.4			
F1.5	Return fill and ram - make up level with selected murram	m <sup>3</sup>	0.4			
	Approved damp proof course (bituminous)					
F1.7	500g polyethylene damp proof membrane laid with 300 end laps under the floor slab, on hardcore to engineers approval	m	2.0			
F1.8	Single layer of 100 gauge polythene sheeting on blinded hardcore with 150 mm side laps to receive concrete	m <sup>2</sup>	2.0			
F2	CLASS F: CONCRETE WORK					
	Provide and Place Mass concrete Class 15					
F2.1	75mm Concrete 1:4:8 Blinding	m <sup>3</sup>	0.6			
	Provide and Place structural concrete Class 25					
F2.2	Strip foundation	m <sup>3</sup>	0.4			
F2.3	100mm Thick floor and roof slab	m <sup>3</sup>	0.2			
	Provide and place paving slab around the water kiosk. Rate					
F2.5	to include levelling and compacting the surface. Provide and place 600 x 600 x 50 mm thick grey precast	m <sup>2</sup>	2.2			
	concrete paving slabs on 75 mm thick sand bed.					
	PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE					

LOT	I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOG				LENGIMA		
	PROJECT NO.: KE-WSTF-32						
APPENDIX F: WATER TANKER COLLECTION POINT							
ITE M NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)		
	CLASS G: CONCRETE ANCILLARIES						
	REINFORCEMENTS						
	Rates to include for binding wire						
	High yield steel bars to BS 4449						
	High yield bars( to BS4449) Diameter 10mm	kg	40.0				
F2.8	High yield bars(to BS4449) Diameter 12mm	kg	20.0				
	Steel fabric mesh reinforcement to B.S. 4483						
	BRC mesh fabric reinforcement ref A142 (weighing						
F2.9	2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance	m <sup>2</sup>	2.0				
	made for lamps)						
	FORMWORK						
	300mm Sawn formwork (fair finish) to: -						
2.11	Vertical sides and soffit of beams and fetching bay	m	20.0				
F3	CLASS I: PIPEWORK - PIPES						
	Allow for supply installation including all the necessary						
	support structures as detailed in the drawings						
53.1.1	75 HDPE Stab End Flange	No	2.00				
53.1.2	75mm All flanged pipe piece 1m long	No	4.00				
3.1.3	75mm All flanged sluice valve	No	2.00				
53.1.4	75mm All flanged G.S 90° bend	No	4.00				
3.1.5	75mm All flanged pipe piece 4m long	No	3.00				
3.1.6	75mm All flanged pipe piece 2m long	No	1.00				
	Piped Building Services						
	Portable water supply installation to detail drawings for Water Kiosk						
	PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE						

	CONSTRUCTION, REBABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA							
LOT								
	PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	APPENDIX F: WATER TANKER COLLECTION POINT							
ITE	ITEM DESCRIPTION	UNIT		RATE	Amount			
Μ			QUANTITY	(Kshs)	(Kshs)			
NO.								
F3.2	WATER KIOSK ATM							
	Suply and install Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications -Keypad -Screen (LCD) -Tag Pay Option (RFID/NFC) -Web based dashboard subscription for 10 year -Hybrid dispensing -MPesa Integration for Payment upto 3 taps max -water Flow Sensor -Solar power - charger, controller, battery and solar panel. The rate to include the first 50 token chips for 50nr. households.	Nr	1.0					
F3.3	Provide, test and commission pipework fittings to the kiosk as shown in the drawing including 4 outlets and integration with the water dispensing ATM and as direccted by the Engineer.	Ls	1.0					
	PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE							

LOT	WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA						
PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	APPENDIX F: WATER TANKER C			Т			
ITE	ITEM DESCRIPTION	UNIT	,	RATE	Amount		
Μ			QUANTITY	(Kshs)	(Kshs)		
NO.							
E4							
F4	CLASS U: MASONRY						
	Approved stone walling of minimum compressive strength						
	of 10N/mm2 bedded in cement sand (1:3) mortar reinforced						
	with and including gauge 12 hoop soft wire gauge hoop iron						
	at every alternate course. Keying to be done on exterior wall						
	surfaces for the superstructure						
F4.1	150mm thick solid masonry block walling in cement/sand	m <sup>2</sup>	9.0				
	150mm thick solid machine cut masonry block wall in						
F4.2	cement/sand (1:3 ) mortar reinforced with hoop iron at every	$m^2$	18.0				
	alternate courses						
F5	WINDOWS AND DOORS						
	Supply and Fix the following purpose made steel windows						
	and door as per detail manufactured from heavy duty						
	standard sections primed with one coat of red oxide primer						
	and fixing to masonry or concrete head and jambs complete						
E5 2	<i>with closing mechanism and other fittings.</i> Window size 1500 x 900 mm high overall	Nr	1.0				
F5.3	Single swing door size 900 x 2100mm high	Nr	1.0				
F6	Painting						
	Prepare, touch up primer and apply three coats gloss paint	2					
F6.1	externally on surface of metal window and door	m <sup>2</sup>	25.2				
	INTERNAL WALL FINISHES						
	15mm thick lime plaster (1:2:9) as described to:-						
F6.2	Interior and Exterior surfaces of walls	m <sup>2</sup>	25.2				
<b>F( )</b>	Exposed front areas of fetching bay. Rate to include	2	1.0				
F6.3	instalation of angle sections as per the drawings	m <sup>2</sup>	1.0				
	CLASS V: PAINTING						
	Prepare and apply						
F6.5	Plastered Internal surfaces of walls 2-coats of emulsion	m <sup>2</sup>	0.0				
-	undercoat paint and 3-coats of first grade oil paint						
F6.6	2-coats of primer paint and 3-coats of first grade oil paint to	m <sup>2</sup>	3.4				
	vertical surfaces of metal doors and windows.	<u> </u>					
	PAGE TOTAL CARRIED TO SECTION						
	COLLECTION PAGE						

WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA							
PROJECT NO.: KE-WSTF-328819-CS-QCBS							
	APPENDIX F: WATER TANKER C			Т			
ITE M	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)		
NO.							
	Roof Cladding						
	Supply and fix						
F7.7	Supply and Install Roofing Sheets, Prepainted (Blue colour)	m²	4.5				
	Timber Work						
	All structure truss members shall be in seasoned cypress wood or most preferably eucalyptus wood and painted two coats of anti termite solution and shall be tight fixed with						
	top tie beam with 6mm diameter plain bar.						
F7.9	a) 250 X 25mm Fascia board	М	6.00				
F7.10	c) 100 X 50mm Rafters	М	12.00				
	d) 100 X 50mm Wall Plate	М	6.00				
F7.12	e) 50x50mm roof purlin	M	8.00				
	Branding						
F7.14	Allow provisional sum for branding as directed by the Engineer.	Prov. Sum					
F7.15	Allow % for profits and overheads	%					
	Soak Away Pit						
F7.16	Construct soak pit to details as provided in the drawings complete with associated drainage details and as directed by the Engineer.	Ls	1.0				
	PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE						

WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA								
PROJECT NO.: KE-WSTF-328819-CS-QCBS								
APPENDIX F: WATER TANKER COLLECTION POINT								
ITE M NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)			
	Appendix C Bill Item Collection Page							
	Page 1 Total							
	Page 2 Total							
	Page 3 Total							
	Page 4 Total							
	Page 5 Total							