

## LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

## GRAND SUMMARY

<b>BILL</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
<b>No</b>		<b>Kshs</b>
1	PRELIMINARY AND GENERAL ITEMS	
2	MALOBOT SCHEME	
3	ILLERET SCHEME	
4	MARIME SCHEME	
5	GOLOLE SCHEME	
6	GAMURA 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]	
	GRAND TOTAL INCLUDING DUTIES AND TAXES	

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
<b>1.1</b>	<b>Contractors Camp</b>				
1.1.1	Provide for establishment of the Contractor's camp. The camp to include RE's office as per the specifications	Months	12		
<b>1.2</b>	<b>Material testing</b>				
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 sample by the Resident Engineer as per the Contract Specifications.	PS	1	500,000	500,000
<b>1.3</b>	<b>Accommodation for RE's staff at the project area</b>				
1.3.1	Provide accommodation for the use of the Resident Engineer for 12 months.	Months	6	50,000	300,000
1.3.2	Ditto but 1nr. Assistant Resident Engineer for 12 months.	Months	12	30,000	360,000
1.3.3	Ditto but for each of the 1nr. Inspector of Works, 1Nr Environmentalist, 1Nr. Sociologist, 1 Nr. Electromechanical Engineer and 1Nr. Surveyor	Months	42	20,000	840,000
1.3.4	Add a percentage to item 1.2.1 to 1.3.3 above to cater for Contractor's profits, duties, administration and overheads.	%			
<b>1.4</b>	<b>Establishment of site office for the RE</b>				
1.4.1	Provide and maintain the office furniture and IT 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 initial three months of the contract, the contractor shall furnish and establish a temporary prefabricated container office for the engineer. Upon completing the 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.	Item	1		
1.4.2	Allow for a total of Kshs. 60,000.00 monthly for 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 other consumable maintenance of stationery and other utilities for the RE's offices for the duration of the Contract.	Month	12	60,000	720,000
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
<b>1.5</b>	<b>Site Meetings</b>				
1.5.1	Allow a Provisional sum of Kshs. 500,000/= to cater for expenses for site meetings expenses.	PC	1	500,000	500,000
1.5.2	Add a percentage to item 1.5.1 above to cater for Contractor's profits, duties, administration and overheads.	%			
<b>1.6</b>	<b>Attendance Upon Resident Engineer's Support Staff</b>				
	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 Payment of expenses on Duty Trips outside project area for Senior and Junior staffs per month to be administered as per the Contract Specifications.	Item	1	200,000.00	200,000.00
1.6.5	Allow a provisional sum of Kshs. 500,000 to cover cost for capacity building , training, attachment and internship to be expended under direction of the Employer.	PS	1	500,000.00	500,000.00
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.	%	0.10	2,200,000.00	220,000.00
<b>1.7</b>	<b>Publicity Sign Board</b>				
1.7.1	Provide, erect and maintain throughout the Time for Completion period publicity signs boards as directed by the Engineer.	No	3		
<b>1.8</b>	<b>Vehicles</b>				
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. inclusive of the first 7000 km per vehicle per month. Ownership to revert to Contractor	Vehicle Months	24		
1.8.2	Extra over for mileage over 7,000 km per vehicle month.	km	10000		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.

PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET									
--	--	--	--	--	--	--	--	--	--

BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS					
				UNIT	AMOUNT

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.1	<b>BOREHOLE/WELL DEVELOPMENT</b>				
	<i>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.</i>				
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. and conducting a laboratory water chemical analysis	Prov. Sum	1.0	100,000.00	100,000.00
2.1.3	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.	Item	1.0	250,000.00	250,000.00
2.1.4	Add a percentage to items 2.1.1 to 2.1.3 above to cater for Contractor's profits, administration, remission of statutory duties and overheads.	%			
2.1.5	Supply, install, test and commission 7.5kW, 10.19Hp Submersible Pump SP 18-13R or approved equivalent with a discharge <b>20m<sup>3</sup>/hr</b> and head <b>50m</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		
2.1.6	Supply, install, test and commission 2.5 mm <sup>2</sup> /4 core submersible pump flat cable	m	31		
2.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	No	1		
2.1.8	Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)	m	62		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix or 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 include: Integration 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		
	<b>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.</b>				
2.1.10	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	Prov Sum	1.00	75,000.00	75,000.00
2.1.11	Add a percentage to item 2.1.10 above to cater for Contractor's profits, administration, remission of statutory duties and overheads.	%			
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 range from 1-100 mH2Og, accuracy + 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		
2.1.17	Supply, install, test and commission of an array of solar with the following specifications: 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 10.92 kW on a bright sunny day at midday taking into account the system losses.	No	28.0		
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 15° 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		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.1.19	Supply, install, test and commission a 3-phase 20KVA 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		
2.1.20	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		
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 H	Item	1		
2.1.24	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 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		
2.1.25	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
2.1.26	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
2.1.27	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
2.1.28	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		
2.1.29	Supply, install, test and commission Motor Protection Unit MP204 or equivalent	No	1		
2.1.31	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>Communication Infrastructure</b>				
2.1.33	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
2.1.34	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
2.1.35	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	100		
2.1.36	Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof	Set	5		
2.1.37	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
2.1.38	<b>Fire Fighting Equipment</b> 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		
	<b>Fencing</b>				
2.1.39	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 bottom concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120		
2.1.40	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		
	<b>Borehole pipeworks</b>				
2.1.41	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		
2.1.42	All Flanged 90 deg long elbow DN 50	Nr	3		
2.1.43	Double Flanged Non-Return Valve 50	Nr	1		
2.1.44	Double Flanged Gate Valve DN 50	Nr	4		
2.1.45	Supply and install multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.	No	4		
2.1.46	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
2.1.47	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No.	1		
2.1.48	Double flanged pipe piece DN50 length 1500mm	Nr	1		
2.1.49	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		
2.1.50	Double flanged pipe piece DN50 length 1000mm	Nr	2		
2.1.51	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2		
2.1.52	All flanged reducing taper 50mmx63mm	Nr	1		
2.1.53	Flanged HDPE Stub end DN63	Nr	1		
2.1.54	All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16	Nr	1		
2.1.55	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		
	<b>WELL HEAD PROTECTION</b>				
2.1.56	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.	Item	1		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

<b>CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&amp;M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY</b>					
<b>LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY</b>					
<b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>					
<b>BILL 2.1 MALBOT WATER SCHEME BOREHOLE DEVELOPMENT</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE Kshs.</b>	<b>AMOUNT Kshs.</b>
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
<b>Bill Total Carried to Bill Summary</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				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				
	<b>PIPE AND PIPE FITTINGS</b>				
	<b>Pipe Work - Supply, lay, joint, pressure test, disinfect</b>				
	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 surround material all as per specifications, drawings and as directed by the				
2.2.1	HDPE Pipe DN40mm PN16		1,145.00		
2.2.2	HDPE Pipe DN50mm PN16	m	2,333.00		
2.2.3	HDPE Pipe DN63mm PN16		5,160.00		
2.2.4	HDPE Pipe DN75mm PN16	m	350.00		
2.2.5	HDPE Pipe DN90mm PN16	m	1,156.00		
2.2.6	HDPE Pipe DN110mm PN16	m	1,893.00		
	<b>Bends</b>				
2.2.7	DN 110mm 90°	Nr.	2.00		
2.2.8	DN 110mm 45°	Nr.	2.00		
2.2.9	DN 90mm 90°	Nr.	2.00		
2.2.10	DN 90mm 45°	Nr.	2.00		
2.2.11	DN 75mm 90°	Nr.	2.00		
2.2.12	DN 63mm 90°	Nr.	2.00		
2.2.13	DN 50mm 90°	Nr.	2.00		
	<b>Reducers</b>				
2.2.14	DN 50/40 mm	0	-		
2.2.15	DN 63 /50 mm	Nr.	-		
2.2.16	DN 75/50 mm	Nr.	1.00		
2.2.17	DN 90/75 mm	Nr.	1.00		
2.2.18	DN 110/63 mm	Nr.	1.00		
	<b>Offtake fittings Junction DN 110mm</b>				
2.2.19	DN 110 x110x50mm Reducing Tee	Nr	1.00		
2.2.20	DN 50mm stub end with MS flange back ring		2.00		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.2.21	DN 50mm Flanged gate valve	Nr	1.00		
	<b>Offtake fittings Junction DN 63mm</b>				
2.2.22	DN 63 x63x50mm reducing Tee	Nr	1.00		
2.2.23	DN 50mm stub end with MS flange back ring	Nr	2.00		
2.2.24	DN 50mm Flanged gate valve	Nr	1.00		
	<b>T-Junction 90mm</b>				
2.2.25	DN 110x110x90mm Reducing tee	Nr	1.00		
2.2.26	DN 90mm stub end with MS flange back ring	Nr	4.00		
2.2.27	DN 90mm Flanged gate valve	Nr	2.00		
	<b>Offtake fittings Junction DN 90mm</b>				
2.2.28	DN 90x90x50mm Reducing Tee	Nr	2.00		
2.2.29	DN 50mm stub end with MS flange back ring	Nr	4.00		
2.2.30	DN 50mm Flanged gate valve	Nr	2.00		
	<b>Offtake fittings Junction DN 75mm</b>				
2.2.31	DN 75 x75x50mm reducing Tee	Nr	1.00		
2.2.32	DN 50mm stub end with MS flange back ring	Nr	2.00		
2.2.33	DN 50mm Flanged gate valve	Nr	1.00		
	<b>Offtake fittings Junction DN 50mm</b>				
2.2.34	DN 50x50x50mm equal Tee	Nr	1.00		
2.2.35	DN 50mm stub end with MS flange back ring	Nr	2.00		
2.2.36	DN 50mm Flanged gate valve	Nr	1.00		
	<b>DN 50mm Terminal connection (with washout)</b>				
2.2.37	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	2.00		
2.2.38	DN 50mm stub end with MS flange back ring	Nr	8.00		
2.2.39	DN 50mm Flanged gate valve	Nr	4.00		
2.2.40	DN 50mm HDPE flap valve	Nr	2.00		
2.2.41	DN 50mm HDPE PN 16 pipe	m	120.00		
	<b>DN 63mm Terminal connection (with washout)</b>				
2.2.42	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
2.2.43	DN 50mm stub end with MS flange back ring	Nr	4.00		
2.2.44	DN 50mm Flanged gate valve	Nr	2.00		
2.2.45	DN 50mm HDPE flap valve	Nr	1.00		
2.2.46	DN 50mm HDPE PN 16 pipe	m	60.00		
	<b>Air Valve Chamber Fittings (DN110mm) -(2No)</b>				
2.2.47	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00		
2.2.48	DN63 mm HDPE Stub End with MS Flange	Nr	4.00		
2.2.49	DN 50mm double flanged sluice valve	Nr	2.00		
2.2.50	DN 50mm double orifice airvalve	Nr	2.00		
	<b>Washout (DN 110mm) -(1No)</b>				
2.2.51	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
2.2.52	DN 110mm HDPE stub end with MS Flange	Nr	4.00		
2.2.53	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
2.2.54	DN 90mm sluice valve	Nr	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.2.55	DN 90mm HDPE pipe (PN 12.5)	m	24.00		
2.2.56	Masonry headwall with base slab for Erosion	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN90mm) -(1No)</b>				
2.2.57	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	1.00		
2.2.58	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
2.2.59	DN 50mm double flanged sluice valve	Nr	1.00		
2.2.60	DN 50mm double orifice airvalve	Nr	1.00		
	<b>Washout (DN 90mm) -(1No)</b>				
2.2.61	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	1.00		
2.2.62	DN 90mm HDPE stub end with MS Flange	Nr	4.00		
2.2.63	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
2.2.64	DN 75 mm sluice valve	Nr	1.00		
2.2.65	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
2.2.66	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN75mm) -(1No)</b>				
2.2.67	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00		
2.2.68	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
2.2.69	DN 50mm double flanged sluice valve	Nr	1.00		
2.2.70	DN 50mm double orifice airvalve	Nr	1.00		
	<b>Washout (DN 75mm) -(1No)</b>				
2.2.71	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1.00		
2.2.72	DN 75mm HDPE stub end with MS Flange	Nr	4.00		
2.2.73	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
2.2.74	DN 75 mm sluice valve	Nr	1.00		
2.2.75	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
2.2.76	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN 63mm) -(3No)</b>				
2.2.77	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: <b>Must be electrofusion</b> )	Nr	3.00		
2.2.78	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	3.00		
2.2.79	HDPE DN 32 mm PN 16 Male adapter	Nr	3.00		
2.2.80	HDPE DN 32 mm Pegler brass gate valve	Nr	3.00		
2.2.81	DN 32 mm Stainless Steel Hex Nipple	Nr	3.00		
2.2.82	DN 32 mm Threaded Air Valve	Nr	3.00		
	<b>Washout (DN 63mm) -(3No)</b>		-		
2.2.83	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: <b>Must be electrofusion</b> )	Nr	3.00		
2.2.84	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	3.00		
2.2.85	HDPE DN 63 mm PN 16 Flanged adapter	Nr	3.00		
2.2.86	HDPE DN 50 mm Flanged Sluice valve	Nr	3.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
2.2.87	DN 63 mm HDPE pipe (PN 12.5)	m	72.00		
2.2.88	Masonry headwall with base slab for Erosion protection at discharge point	Ls	3.00		
	<b>Air Valve Chamber Fittings (DN 50mm) -(1No)</b>				
2.2.89	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofusion)	Nr	1.00		
2.2.90	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
2.2.91	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
2.2.92	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
2.2.93	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
2.2.94	DN 32 mm Threaded Air Valve	Nr	1.00		
	<b>Washout (DN 50mm) -(1No)</b>				
2.2.95	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)	Nr	1.00		
2.2.96	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
2.2.97	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00		
2.2.98	HDPE DN 50 mm Flanged Sluice valve	Nr	1.00		
2.2.99	DN 50 mm HDPE pipe (PN 12.5)	m	24.00		
2.2.100	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Water Draw Off Facilities</b>				
2.2.101	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		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
2.2.102	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		
2.2.103	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		
2.2.104	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	2.00		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.2.105	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		
2.2.106	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		
	<b>Chambers (Civil Works)</b>				
	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.				
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				



[illegible]

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

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

## **BILL NO. 2.2: MALOBOT WATER SUPPLY SCHEME PIPELINES AND FITTINGS**

[illegible]



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.3: MALOBOT WATER SUPPLY SCHEME 100 M3 ELEVATED					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>20m High, Elevated Steel Tank of 100m<sup>3</sup></b>				
	<i>The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme</i>				
2.3.1	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 100mm 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 detailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer		1.00		
	<b>INLET PIPE FITTINGS</b>				
2.3.2	100 HDPE Stab End Flange		2.00		
2.3.3	100mm All flanged pipe piece 1m long	No	3.00		
2.3.4	100mm flanged spigot pipe piece 1m long		1.00		
2.3.5	100mm All flanged sluice valve	No	1.00		
2.3.6	100mm All flanged G.S 90° bend		2.00		
2.3.7	100mm All flanged pipe piece 6m long	No	3.00		
2.3.8	100mm All flanged pipe piece 1.2m long	No	1.00		
2.3.9	100mm All flanged Float switch	No	1.00		
2.3.10	<b>OVERFLOW AND SCOUR</b>				
2.3.11	100mm All flanged pipe piece 1.8m long	No	1.00		
2.3.12	100mm Flanged bell mouth	No	2.00		
2.3.13	100mm All flanged pipe piece 2.2m long	No	1.00		
2.3.14	100mm All flanged slice valve	No	2.00		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 2.3: MALOBOT WATER SUPPLY SCHEME 100 M3 ELEVATED					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
2.3.15	100mm flanged adaptor	No	1.00		
2.3.16	100mm flanged spigot pipe piece 1m long	No	1.00		
2.3.17	100mm All flanged equal Tee	No	1.00		
2.3.18	100mm All flanged pipe piece 3.5m long	0	2.00		
2.3.19	100mm All flanged pipe 6m long	No	2.00		
2.3.20	100mm All flanged G.S 90° bend	No	1.00		
2.3.21	100 HDPE Stab End Flange	No	2.00		
	<b>OUTLET</b>				
2.3.21	100mm flanged pipe 6m long	No	3.00		
2.3.22	100mm Flanged bell mouth	No	1.00		
2.3.23	100mm All flanged G.S 90° bend		1.00		
2.3.24	100mm All flanged Slice valve	No	2.00		
2.3.25	100 HDPE Stab End Flange	No	2.00		
2.3.26	Supply, install and test diameter 100mm Electromagnetic Water	No	1.00		
	<b>Testing</b>				
2.3.27	Supply and apply recommended disinfectant and test the tanks.	Nr.	1.00		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

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

<b>BILL NO. 2.3: MALOBOT WATER SUPPLY SCHEME 100 M3 ELEVATED</b>
--

[illegible]

[illegible]

<b>CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&amp;M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY</b>					
<b>LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY</b>					
<b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>					
<b>CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN,</b>					
<b>BILL NO. 2.4: MALOBOT WATER SCHEME ADMINSTRATION BUILDING</b>					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
2.4.14	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:-				
2.4.16	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):-				
2.4.17	200 mm thick masonry wall in substructure	m2	45.00		
2.4.18	200 mm smooth dressed walling in superstructure	m2	114.00		
2.4.19	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		
2.4.22	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	105.64		
2.4.23	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	161.88		
	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		
2.4.27	200 X 25mm fascia and badge	m	36.00		
2.4.28	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
2.4.29	75 x 50mm purlins	m	80.00		
2.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET				

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN,  
BUI NO. 24: MALBOT WATER SCHEME ADMINISTRATION BUILDING**

[illegible]

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN,					
BILL NO. 2.4: MALOBOT WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<i>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:-</i>				
	<b>Panel doors</b>				
2.4.32	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		
	<b>100mm furnished GMS Posts</b>				
2.4.33	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		
	<b>Steel Casement Windows</b>				
	<i>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:-</i>				
2.4.34	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		
	<b>Ceiling</b>				
	12mm Thick Approved Chipboard to BS 2604, Part 2,				
2.4.35	Horizontal ceiling fixed to underside of trusses	m2	54.00		
2.4.36	12mm Cornice 50mm high, plugged	m	47.00		
<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>					





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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
CONSULTANCY SERVICES TO UNDERTAKE FEASIBILITY STUDIES, DETAILED DESIGN,					
BILL NO. 2.4: MALOBOT WATER SCHEME ADMINISTRATION 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				
	<b>Bill Total Carried to Bill Summary</b>				

--

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

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

BILL NO. 2: COLLECTION MALBOT WATER SUPPLY SCHEME-150M3 TANK		

BILL	DESCRIPTION	AMOUNT (Kshs)
------	-------------	---------------

---

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
<b>3.1</b>	<b>BOREHOLE/WELL DEVELOPMENT</b>				
	<i>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.</i>				
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		1.0		
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. Borehole Test pumping for 24 hours of constant flow and conducting a laboratory water chemical analysis	Prov. Sum	1.0		
3.1.3	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.		1.0		
3.1.4	Allow % for overheads, administration, profits, etc	%	10%		
3.1.5	Supply, install, test and commission 13kW, 17.67Hp Submersible Pump SPE 18-19 or approved equivalent with a discharge <b>20.3m<sup>3</sup>/hr</b> and head <b>135m</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.		1		
3.1.6	Supply, install, test and commission 6 mm <sup>2</sup> /4 core submersible pump flat cable	m	102		
3.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.		1		
3.1.10	Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)	m	204		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
3.1.11	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix or 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 include integration 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		
	<b>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.</b>				
3.1.12	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
3.1.13	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
3.1.14	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated range from 1-100 mH <sub>2</sub> Og, accuracy + 0.175% FS BSL NLHR > 4mH <sub>2</sub> O, +0.25% < 4mH <sub>2</sub> O.	No	1		
	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
3.1.15	Supply, install, test and commission of an array of solar with the following specifications: 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 21.84 kW on a bright sunny day at midday taking into account the system losses.	0	56.0		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
3.1.16	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 2.5m 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 15° 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		
3.1.17	Supply, install, test and commission a 3-phase 40KVA 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		
3.1.20	Supply, install, test and commission a 15 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A 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		
3.1.21	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 at least IP54.	No	1		
3.1.22	Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWh 63Amps modbus or approved equivalent for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
3.1.23	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 H		1		
3.1.24	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 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		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.1: ILLERET SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
3.1.25	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
3.1.28	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
3.1.29	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
3.1.30	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		
3.1.34	Supply, install, test and commission Motor Protection Unit MP204 or equivalent	No	1		
3.1.36	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
3.1.40	Communication Infrastructure				
3.1.41	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
3.1.42	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
3.1.43	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	500		
3.1.44	Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof	Set	5		
3.1.45	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
	<b>Fire Fighting Equipment</b>				
3.1.46	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		
	<b>Fencing</b>				
3.1.47	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 bottom concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120		
3.1.48	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		
	<b>Borehole pipeworks</b>				
3.1.49	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		
3.1.50	All Flanged 90 deg long elbow DN 50	Nr	3		
3.1.51	Double Flanged Non-Return Valve 50	Nr	1		
3.1.52	Double Flanged Gate Valve DN 50	Nr	4		
3.1.53	Supply and install multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.	No.	4		
3.1.63	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
3.1.64	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No.	1		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					







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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	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				
	iv. Keeping trenches free of excessive groundwater, seepage or water from any source				
	<b>PIPE AND PIPE FITTINGS</b>				
	<b>Pipe Work - Supply, lay, joint, pressure test, disinfect</b>				
	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				
	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 surround material all as per specifications, drawings and as directed by the engineer				
	<b>RISING MAINS</b>				
3.2.1	HDPE Pipe DN110mm PN16		3,730.00		
	<b>Non return valves</b>				
3.2.2	DN 110mm Non-return valves	Nr	1.00		
	<b>Airvalves</b>				
3.2.3	DN 50mm airvalve AVK or approved equivalent	Nr	1.00		
	<b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>				
3.2.4	HDPE Pipe DN50mm PN16	m	5,032.00		
3.2.5	HDPE Pipe DN63mm PN16	m	666.00		
3.2.6	HDPE Pipe DN75mm PN16	m	291.00		
3.2.7	HDPE Pipe DN90mm PN16	m	2,218.00		
3.2.7a	HDPE Pipe DN110mm PN16	m	975.00		
	<b>Bends</b>				
3.2.8	DN 110mm 90°	Nr.	2.00		
3.2.9	DN 110mm 45°	0	2.00		
3.2.10	DN 90mm 90°	Nr.	2.00		
3.2.11	DN 75mm 90°	Nr.	2.00		
3.2.12	DN 63mm 90°	Nr.	2.00		
3.2.13	DN 50mm 90°	Nr.	2.00		
	<b>Reducers</b>				
3.2.14	DN 90/75 mm	Nr.	1.00		
3.2.15	DN 75/50 mm		1.00		
3.2.16	DN 63/50 mm	Nr.	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>50mm offtake (JD 1,7,9,10)</b>				
3.2.17	DN 50x50x50mm HDPE tee	Nr	3.00		
3.2.18	DN 50mm stub end with MS flange ring	Nr	6.00		
3.2.19	DN 50mm flanged sluice valve	Nr	3.00		
	<b>75mm offtake (JD 2)</b>				
3.2.20	DN 63x63x50mm HDPE tee	Nr	1.00		
3.2.21	DN 63x50mm Reducer	Nr	1.00		
3.2.22	DN 50mm stub end with MS flange ring	Nr	2.00		
3.2.23	DN 50mm flanged sluice valve	Nr	1.00		
	<b>90mm offtake (JD 3,4,5)</b>				
3.2.24	DN 90x90x50mm HDPE butt fusion tee	Nr	3.00		
3.2.25	DN 50mm stub end with MS flange ring	Nr	6.00		
3.2.26	DN 50mm flanged sluice valve	Nr	3.00		
	<b>90mm offtake (JD 6)</b>				
3.2.27	DN 90x90x63mm HDPE tee	Nr	1.00		
3.2.28	DN 90x75mm Reducer	Nr	1.00		
3.2.29	DN 50mm stub end with MS flange ring	Nr	2.00		
3.2.30	DN 50mm flanged sluice valve	Nr	1.00		
	<b>75mm offtake (JD 4,5)</b>				
3.2.31	DN 75x75x50mm HDPE tee	Nr	1.00		
3.2.32	DN 50mm stub end with MS flange ring	Nr	2.00		
3.2.33	DN 50mm flanged sluice valve	Nr	1.00		
	<b>50mm offtake (JD 7,9,10)</b>				
3.2.34	DN 50x50x50mm HDPE tee	Nr	3.00		
3.2.35	DN 50mm stub end with MS flange ring	Nr	6.00		
3.2.36	DN 50mm flanged sluice valve	Nr	3.00		
	<b>DN 50mm Terminal connection (with washout)</b>				
3.2.37	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	4.00		
3.2.38	DN 50mm stub end with MS flange back ring	Nr	16.00		
3.2.39	DN 50mm Flanged gate valve	Nr	8.00		
3.2.40	DN 50mm HDPE flap valve	Nr	4.00		
3.2.41	DN 50mm HDPE PN 16 pipe	m	240.00		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>DN 90mm Terminal connection (with washout)</b>		-		
3.2.42	DN 90x90x90mm HDPE (Reduced or Equal) tee	Nr	4.00		
3.2.43	DN 90mm stub end with MS flange back ring	Nr	16.00		
3.2.44	DN 90mm Flanged gate valve	Nr	8.00		
3.2.45	DN 90mm HDPE flap valve	Nr	4.00		
3.2.46	DN 90mm HDPE PN 16 pipe	m	240.00		
	<b>Air Valve Chamber Fittings (DN110mm) -(1No)</b>				
3.2.47	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	3.00		
3.2.48	DN63 mm HDPE Stub End with MS Flange	Nr	3.00		
3.2.49	DN 50mm double flanged sluice valve	Nr	3.00		
3.2.50	DN 50mm double orifice airvalve	Nr	3.00		
	<b>Washout (DN 110mm) -(2No)</b>				
3.2.51	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
3.2.52	DN 110mm HDPE stub end with MS Flange	Nr	4.00		
3.2.53	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
3.2.54	DN 90mm sluice valve	Nr	1.00		
3.2.55	DN 90mm HDPE pipe (PN 12.5)	m	24.00		
3.2.56	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN90mm) -(2No)</b>				
3.2.57	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	2.00		
3.2.58	DN63 mm HDPE Stub End with MS Flange	Nr	2.00		
3.2.59	DN 50mm double flanged sluice valve	Nr	2.00		
3.2.60	DN 50mm double orifice airvalve	Nr	2.00		
	<b>Washout (DN 90mm) -(1No)</b>				
3.2.61	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	1.00		
3.2.62	DN 90mm HDPE stub end with MS Flange	Nr	4.00		
3.2.63	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
3.2.64	DN 75 mm sluice valve	Nr	1.00		
3.2.65	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
3.2.66	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>Air Valve Chamber Fittings (DN75mm) -(1No)</b>				
3.2.67	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00		
3.2.68	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
3.2.69	DN 50mm double flanged sluice valve	Nr	1.00		
3.2.70	DN 50mm double orifice airvalve	Nr	1.00		
	<b>Washout (DN 75mm) -(1No)</b>				
3.2.71	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1.00		
3.2.72	DN 75mm HDPE stub end with MS Flange	Nr	4.00		
3.2.73	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
3.2.74	DN 75 mm sluice valve	Nr	1.00		
3.2.75	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
3.2.76	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN 63mm) -(1No)</b>				
3.2.77	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be electrofusion)	Nr	1.00		
3.2.78	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
3.2.79	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
3.2.80	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
3.2.81	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
3.2.82	DN 32 mm Threaded Air Valve	Nr	1.00		
	<b>Washout (DN 63mm) -(1No)</b>				
3.2.83	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofusion)	Nr	1.00		
3.2.84	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
3.2.85	HDPE DN 63 mm PN 16 Flanged adapter	Nr	1.00		
3.2.86	HDPE DN 50 mm Flanged Sluice valve	Nr	1.00		
3.2.87	DN 63 mm HDPE pipe (PN 12.5)	m	24.00		
3.2.88	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN 50mm)</b>				
3.2.89	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofusion)	Nr	1.00		
3.2.90	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
3.2.91	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
3.2.92	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
3.2.93	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
3.2.94	DN 32 mm Threaded Air Valve	Nr	1.00		
	<b>Washout (DN 50mm) -(2No)</b>				
3.2.95	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)	Nr	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
3.2.96	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
3.2.97	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00		
3.2.98	HDPE DN 50 mm Flanged Sluice valve	Nr	1.00		
3.2.99	DN 50 mm HDPE pipe (PN 12.5)	m	24.00		
3.2.100	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Water Draw Off Facilities</b>				
3.2.101	Provide materials and construct a water kiosk according to the specified drawings and standards. Additionally, supply and install a containerized solar-powered Reverse Osmosis Water Treatment System (or an approved equivalent) at the water draw-off points. The system must achieve a reduction of over 95% in total dissolved solids, in compliance with WHO standards. The feed water capacity should be 2.5 m³/hr. Water Quality Analysis Summary -Iron(0.6/0.3) and Sodium(319/200) _Comprehensive water quality analysis available; Bidders to submit the proposed system with tender Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C1	Nr.	6.00		
3.2.102	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		
3.2.103	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		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.2: ILLERET WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
3.2.104	Provide all materials, 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		
3.2.105	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		
	<b>Chambers (Civil Works)</b>				
	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.				
3.2.106	Washouts	Nr.	7.00		
3.2.107	Air valves	Nr.	10.00		
3.2.108	Valve chambers	Nr.	14.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				







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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
3.3: ILLIRET SCHEME 100 M3 ELEVATED TANK					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>Elevated Steel Tank of 100m<sup>3</sup></b>				
	<i>The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme</i>				
3.3.1	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 100mm 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 detailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer		1.00		
	<b>INLET PIPE FITTINGS</b>				
3.3.2	100 HDPE Stab End Flange		2.00		
3.3.3	100mm All flanged pipe piece 1m long	No	3.00		
3.3.4	100mm flanged spigot pipe piece 1m long		1.00		
3.3.5	100mm All flanged sluice valve	No	1.00		
3.3.6	100mm All flanged G.S 90° bend		2.00		
3.3.7	100mm All flanged pipe piece 6m long	No	3.00		
3.3.8	100mm All flanged pipe piece 1.2m long	No	1.00		
3.3.9	100mm All flanged Float switch	No	1.00		
	<b>OVERFLOW AND SCOUR</b>				
3.3.10	100mm All flanged pipe piece 1.8m long	No	1.00		
3.3.11	100mm Flanged bell mouth	No	2.00		
3.3.12	100mm All flanged pipe piece 2.2m long	No	1.00		
3.3.13	100mm All flanged slice valve	No	2.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

### 3.3: ILLIRET SCHEME 100 M3 ELEVATED TANK

REVISED Vol III BoO - Marsabit Lot II-BoO Bill 3.3-100 m3 E.Tank 43 of 138

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.4: ILLERET WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>CLASS E: EARTHWORKS</b>				
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		41.67		
	<b>Excavation Ancillaries</b>				
3.4.3	Trimming of excavated surfaces to receive blinding concrete		56.70		
	<b>Filling as Described:-</b>				
	<b>Hardcore</b>				
3.4.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	<b>Anti-Termite treatment</b>				
3.4.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	54.00		
	<b>Damp-Proof Membrane</b>				
3.4.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	54.00		
	<b>CLASS F: INSITU CONCRETE:</b>				
	<b>Mass Concrete Class 15/20mm :-</b>				
3.4.6	75mm Thick blinding under strip footing	m3	4.05		
	<b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>				
3.4.7	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		
3.4.8	200 mm Thick Class 25/20 concrete for foundation footing of dimension 600x600 mm complete with reinforced column to of 300mm x 200mm to a depth not less than 1.5m	m3	2.50		
3.4.9	200x300 Ring Beam concrete	m3	4.62		
	<b>CLASS G: CONCRETE ANCILLARIES</b>				
	<b>Formwork</b>				
	<b>Formwork - Fair Finish:-</b>	-			
3.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10		
3.4.11	Vertical Sides of the 150mm ground slab	m2	9.63		
3.4.12	Soffit ring beam 200 mm wide	m2	15.40		
	<b>Reinforcement</b>				
	<b>Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-</b>				
3.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.4: ILLERET WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
3.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60		
3.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	<b>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>				
3.4.16	Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top	m2	54.00		
	<b>Walling.</b>				
	<b>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>				
3.4.17	200 mm thick masonry wall in substructure	m2	45.00		
3.4.18	200 mm smooth dressed walling in superstructure	m2	114.00		
3.4.19	150 mm smooth dressed walling in superstructure	m2	64.60		
	<b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>				
3.4.20	200mm and 150mm Wide under walls	m	35.20		
	<b>Finishes.</b>				
3.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
3.4.22	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	105.64		
3.4.23	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	161.88		
	<b>CLASS O: TIMBER</b>				
	<b>Roof</b>				
3.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
3.4.25	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		
3.4.29	75 x 50mm purlins	m	80.00		
3.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.4: ILLERET WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<i>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</i>				
	<b>Panel doors</b>				
3.4.32	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		
	<b>100mm furnished GMS Posts</b>				
3.4.33	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		
	<b>Steel Casement Windows</b>				
	<i>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:-</i>				
3.4.34	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		
	<b>Ceiling</b>				
	12mm Thick Approved Chipboard to BS 2604, Part 2,				
3.4.35	Horizontal ceiling fixed to underside of trusses	m2	54.00		
3.4.36	12mm Cornice 50mm high, plugged	m	47.00		
<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 3.4: ILLERET WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>ELECTRIFICATION FITTINGS</b>				
3.4.37	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 electrolyte 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		
	<b>FURNITURE</b>				
3.4.38	Curtains for office for all windows and doors	Set	1.00		
3.4.39	Office tables 2.2x0.9 m	No	1.00		
3.4.40	Standard office chairs	No	8.00		
3.4.41	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00		
	<b>SANITATION FACILITY</b>				
3.4.42	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 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		
<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>					

<b>CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&amp;M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY</b>					
<b>LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY</b>					
<b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>					
<b>BILL NO. 3.4: ILLERET WATER SCHEME ADMINISTRATION BUILDING</b>					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
<b>Bill Total Carried to Bill Summary</b>					





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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.1: MARIME WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1	<b>BOREHOLE/WELL DEVELOPMENT</b>				
	<i>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.</i>				
4.1.1	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
4.1.2	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. Borehole Test pumping for 24 hours of constant flow and conducting a laboratory water chemical analysis	Prov. Sum	1.0	100,000.00	100,000.00
4.1.3	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
4.1.4	Allow % for overheads, administration, profits, etc	%			
4.1.5	Supply, install, test and commission 13kW, 16.9Hp Submersible Pump SP 18-23 or approved equivalent with a discharge <b>12.25 m<sup>3</sup>/hr</b> and head <b>220m</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		
4.1.6	Supply, install, test and commission 10 mm <sup>2</sup> /4 core submersible pump flat cable		329		
4.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
4.1.8	Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)	m	658		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**PROJECT NO.: KE-WSTF-328819-CS-OCBS**

## BILL NO. 4.1: MARIME WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT

PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.1: MARIME WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1.23	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		
4.1.24	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
4.1.24	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
4.1.25	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
4.1.26	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		
4.1.27	Supply, install, test and commission Motor Protection Unit MP204 or equivalent	No	1		
4.1.28	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
	<b>Communication Infrastructure</b>				
4.1.29	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
4.1.30	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
4.1.31	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	332		
4.1.32	Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof	Set	5		
4.1.33	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
	<b>Fencing</b>				
4.1.34	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 bottom concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.1: MARIME WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
4.1.35	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		
4.1.36	<b>Borehole pipeworks</b>				
4.1.37	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		
4.1.38	All Flanged 90 deg long elbow DN 50	Nr	3		
4.1.39	Double Flanged Non-Return Valve 50	Nr	1		
4.1.40	Double Flanged Gate Valve DN 50	Nr	4		
4.1.41	Supply and intsaill multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.	No.	4		
4.1.42	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
4.1.43	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No.	1		
4.1.44	Double flanged pipe piece DN50 length 1500mm	Nr	1		
4.1.45	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		
4.1.46	Double flanged pipe piece DN50 length 1000mm	Nr	2		
4.1.47	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2		
4.1.48	All flanged reducing taper 50mmx63mm	Nr	1		
4.1.49	Flanged HDPE Stub end DN63	Nr	1		
4.1.50	All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16	Nr	1		
4.1.51	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		
	<b>WELL HEAD PROTECTION</b>				
4.1.52	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.	Item	1		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.2: MARIMEE WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	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				
	<b>PIPE AND PIPE FITTINGS</b>				
	<b>Pipe Work - Supply, lay, joint, pressure test, disinfect</b>				
	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 surround material all as per specifications, drawings and as directed by the engineer				
	<b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>				
4.2.1	HDPE Pipe DN75mm PN16	m	680.00		
4.2.2	HDPE Pipe DN63mm PN16		773.00		
4.2.3	HDPE Pipe DN50mm PN16	m	535.00		
	<b>Bends</b>				
4.2.4	DN 63mm 90°	Nr.	2.00		
4.2.5	DN 50mm 90°	Nr.	2.00		
	<b>Reducers</b>				
4.2.6	DN 63/50 mm	Nr.	1.00		
	<b>63mm offtake (JD 1,2,3&amp;4)</b>				
4.2.7	DN 63x63x50mm HDPE tee	Nr	4.00		
4.2.8	DN 50mm stub end with MS flange ring	Nr	8.00		
4.2.9	DN 50mm flanged sluice valve	Nr	4.00		
	<b>DN 50mm Terminal connection (with washout)</b>				
4.2.10	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
4.2.11	DN 50mm stub end with MS flange back ring	0	4.00		
4.2.12	DN 50mm Flanged gate valve	Nr	1.00		
4.2.13	DN 50mm HDPE flap valve	Nr	1.00		
4.2.14	DN 50mm HDPE PN 16 pipe	m	30.00		
	<b>DN 63mm Terminal connection (with washout)</b>		-		
4.2.15	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
4.2.16	DN 50mm stub end with MS flange back ring	Nr	4.00		
4.2.17	DN 50mm Flanged gate valve		1.00		
4.2.18	DN 50mm HDPE flap valve	Nr	1.00		
4.2.19	DN 50mm HDPE PN 16 pipe	m	30.00		
	<b>Air Valve Fittings (DN 63mm) -(4No)</b>				
4.2.20	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be electrofusion)	Nr	3.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				



[illegible]

[illegible]

<b>CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&amp;M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY</b>					
<b>LOT II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY</b>					
<b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>					
<b>BILL NO. 4.2: MARIMEE WATER SUPPLY SCHEME PIPELINES AND FITTINGS</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE Kshs.</b>	<b>AMOUNT Kshs.</b>
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
<b>Bill Total Carried to Grand Summary</b>					

**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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

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

### 4.3: MARIME SCHEME 50 M3 ELEVATED TANK

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>Elevated Steel Tank of 50m<sup>3</sup></b>				
	<i>The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme</i>				
4.3.1	Supply all materials, tools and equipment, erect, and commission a galvanised 50m <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 100mm 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		1.00		
	<b>INLET PIPE FITTINGS</b>				
4.3.2	100 HDPE Stab End Flange		2.00		
4.3.3	100mm All flanged pipe piece 1m long	No	3.00		
4.3.4	100mm flanged spigot pipe piece 1m long		1.00		
4.3.5	100mm All flanged sluice valve	No	1.00		
4.3.6	100mm All flanged G.S 90° bend		2.00		
4.3.7	100mm All flanged pipe piece 6m long	No	3.00		
4.3.8	100mm All flanged pipe piece 1.2m long	No	1.00		
4.3.9	100mm All flanged Float switch	No	1.00		
	<b>OVERFLOW AND SCOUR</b>				
4.3.10	100mm All flanged pipe piece 1.8m long	No	1.00		
4.3.11	100mm Flanged bell mouth	No	2.00		
4.3.12	100mm All flanged pipe piece 2.2m long	No	1.00		
4.3.13	100mm All flanged slice valve	No	2.00		
4.3.14	100mm flanged adaptor	No	1.00		
4.3.15	100mm flanged spigot pipe piece 1m long	No	1.00		
4.3.16	100mm All flanged equal Tee	No	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

**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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

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

### 4.3: MARIME SCHEME 50 M3 ELEVATED TANK

[illegible]

**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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY

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

### 4.3: MARIME SCHEME 50 M3 ELEVATED TANK

[illegible]

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: MARIME WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>CLASS E: EARTHWORKS</b>				
4.4.1	Excavation of surfaces to reduce the level, depth not exceeding 0.25m	m3	11.58		
4.4.2	Foundations and bases for depth not exceeding 1500 mm for strip footing		41.67		
	<b>Excavation Ancillaries</b>				
4.4.3	Trimming of excavated surfaces to receive blinding concrete		56.70		
	<b>Filling as Described:-</b>				
	<b>Hardcore</b>				
4.4.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	<b>Anti-Termite treatment</b>				
4.4.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	54.00		
	<b>Damp-Proof Membrane</b>				
4.4.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	54.00		
	<b>CLASS F: INSITU CONCRETE:</b>				
	<b>Mass Concrete Class 15/20mm :-</b>				
4.4.6	75mm Thick blinding under strip footing	m3	4.05		
	<b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>				
4.4.7	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		
4.4.8	200 mm Thick Class 25/20 concrete for foundation footing of dimension 600x600 mm complete with reinforced column to of 300mm x 200mm to a depth not less than 1.5m	m3	2.50		
4.4.9	200x300 Ring Beam concrete	m3	4.62		
	<b>CLASS G: CONCRETE ANCILLARIES</b>				
	<b>Formwork</b>				
	<b>Formwork - Fair Finish:-</b>	-			
4.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10		
4.4.11	Vertical Sides of the 150mm ground slab	m2	9.63		
4.4.12	Soffit ring beam 200 mm wide	m2	15.40		
	<b>Reinforcement</b>				
	<b>Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-</b>				
4.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: MARIME WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>CLASS E: EARTHWORKS</b>				
4.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60		
4.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	<b>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>				
4.4.16	Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top	m2	54.00		
	<b>Walling.</b>				
	<b>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>				
4.4.17	200 mm thick masonry wall in substructure	m2	45.00		
4.4.18	200 mm smooth dressed walling in superstructure	m2	114.00		
4.4.19	150 mm smooth dressed walling in superstructure	m2	64.60		
	<b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>				
4.4.20	200mm and 150mm Wide under walls	m	35.20		
	<b>Finishes.</b>				
4.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
4.4.22	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	105.64		
4.4.23	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	161.88		
	<b>CLASS O: TIMBER</b>				
	<b>Roof</b>				
4.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
4.4.25	50x 100 mm: timber beam (GMS posts)	m	10.00		
4.4.26	100 x 50 mm: Struts and ties	m	95.40		
4.4.27	200 X 25mm fascia and badge	m	36.00		
4.4.28	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
4.4.29	75 x 50mm purlins	m	80.00		
4.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: MARIME WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>CLASS E: EARTHWORKS</b>				
	<i>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:-</i>				
	<b>Panel doors</b>				
4.4.32	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		
	<b>100mm furnished GMS Posts</b>				
4.4.33	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		
	<b>Steel Casement Windows</b>				
	<i>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:-</i>				
4.4.34	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		
	<b>Ceiling</b>				
	12mm Thick Approved Chipboard to BS 2604, Part 2,				
4.4.35	Horizontal ceiling fixed to underside of trusses	m2	54.00		
4.4.36	12mm Cornice 50mm high, plugged	m	47.00		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: MARIME WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	CLASS E: EARTHWORKS				
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	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**

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

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

## COLLECTION BILL NO. 4: MARIME SCHEME ADMINISTRATION BUILDING

[illegible]

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>BOREHOLE/WELL DEVELOPMENT</b>				
5.1	<i>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.</i>				
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. Borehole Test pumping for 24 hours of constant flow and conducting a laboratory water chemical analysis	Prov. Sum	1.0	100,000.00	100,000.00
5.1.3	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
5.1.4	Allow % for overheads, administration, profits, etc	%			
5.1.5	Supply, install, test and commission <b>7.5kW, 9.75Hp</b> Submersible Pump <b>SP 9-40</b> or approved equivalent with a discharge <b>14 m<sup>3</sup>/hr</b> and head <b>219m</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.		1		
5.1.6	Supply, install, test and commission 0.75 mm <sup>2</sup> /4 core submersible pump flat cable	m	104		
5.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.		1		
5.1.8	Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)	m	209		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
5.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix or 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 include: Integration 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		
	<b>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.</b>				
5.1.9.1	Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.	LS	1.00		
5.1.9.2	Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
5.1.9.3	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated range from 1-100 mH <sub>2</sub> O, accuracy + 0.175% FS BSL NLHR > 4mH <sub>2</sub> O, +0.25% < 4mH <sub>2</sub> O.	No	1		
5.1.9.7	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
5.1.10	Supply, install, test and commission of an array of solar with the following specifications: 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 16.38 kW on a bright sunny day at midday taking into account the system losses.	No	42.0		
5.1.11	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 2.5m 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 15o 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	Set	1		
5.1.14	Supply, install, test and commission a 3-phase 50KVA 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		
5.1.18	Supply, install, test and commission a 11kW (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 IP68.	Set	1		
5.1.19	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		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
5.1.20	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		
5.1.21	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	No	1		
5.1.22	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		
5.1.23	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
5.1.26	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
5.1.27	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
5.1.28	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		
5.1.32	Supply, install, test and commission Motor Protection Unit MP204 or equivalent	No	1		
5.1.34	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
	<b>Communication Infrastructure</b>				
5.1.39	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
5.1.40	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
5.1.41	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	100		
5.1.42	Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof	Set	5		
5.1.43	Supply and installation of Fiber Optic Splicing and	Lot	5		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 11.2: GOLOLE SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>Borehole pipeworks</b>				
5.1.45	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		
5.1.46	All Flanged 90 deg long elbow DN 50	Nr	3		
5.1.47	Double Flanged Non-Return Valve 50	Nr	1		
5.1.48	Double Flanged Gate Valve DN 50	Nr	4		
	Supply and install multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.	No.	4		
5.1.49	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
5.1.50	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No.	1		
5.1.51	Double flanged pipe piece DN50 length 1500mm	Nr	1		
5.1.52	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		
5.1.53	Double flanged pipe piece DN50 length 1000mm	Nr	2		
5.1.54	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2		
5.1.55	All flanged reducing taper 50mmx63mm	Nr	1		
5.1.56	Flanged HDPE Stub end DN63	Nr	1		
5.1.57	All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16	Nr	1		
5.1.58	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		
5.1.59	<b>Fire Fighting Equipment</b> 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		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

[illegible]

[illegible]

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 5.2: GALOLE WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				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				
	<b>Pipe Work - Supply, lay, joint, pressure test,disinfect</b>				
	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 below				
	<b>PIPE AND PIPE FITTINGS</b>				
	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 surround material all as per specifications, drawings and as directed by the engineer				
	<b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>				
5.2.1	HDPE Pipe DN40mm PN16		1,890.00		
5.2.2	HDPE Pipe DN50mm PN16	m	10,410.00		
5.2.3	HDPE Pipe DN63mm PN16		350.00		
5.2.4	HDPE Pipe DN75mm PN16	m	7,085.00		
5.2.5	HDPE Pipe DN90mm PN16	m	200.00		
5.2.6	HDPE Pipe DN110mm PN16	m	1,290.00		
	<b>Bends</b>				
5.2.7	DN 110mm 90°	Nr.	2.00		
5.2.8	DN 110mm 45°	Nr.	2.00		
5.2.9	DN 90mm 90°	Nr.	2.00		
5.2.10	DN 75mm 90°	Nr.	2.00		
5.2.11	DN 63mm 90°	Nr.	2.00		
5.2.12	DN 50mm 90°	Nr.	2.00		
	<b>Reducers</b>	0			
5.2.13	DN 110/90 mm	Nr.	1.00		
5.2.14	DN 90/75 mm	Nr.	1.00		
5.2.15	DN 75/63 mm	Nr.	1.00		
5.2.16	DN 63/50 mm	Nr.	1.00		
	<b>110mm offtake (JD 1)</b>				
5.2.17	DN 110x110x110mm HDPE tee	Nr	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 5.2: GALOLE WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
5.2.18	DN 110x50mm Reducer	Nr	1.00		
5.2.19	DN 50mm stub end with MS flange ring	Nr	2.00		
5.2.20	DN 50mm flanged sluice valve	Nr	1.00		
	<b>110mm offtake (JD 2,3)</b>				
5.2.21	DN 110x110x50mm HDPE tee	Nr	2.00		
5.2.22	DN 50mm stub end with MS flange ring	Nr	4.00		
5.2.23	DN 50mm flanged sluice valve	Nr	2.00		
	<b>110-90 mm offtake (JD 4)</b>				
5.2.24	DN 110x110x50mm HDPE tee	Nr	1.00		
5.2.25	DN 110x90mm Reducer	Nr	1.00		
5.2.26	DN 90 mm 45 degree bend	Nr	1.00		
5.2.27	DN 50mm stub end with MS flange ring	Nr	2.00		
5.2.28	DN 50mm flanged sluice valve	Nr	1.00		
	<b>90mm offtake (JD 5)</b>				
5.2.29	DN 90x90x50mm HDPE tee	Nr	2.00		
5.2.30	DN 50mm stub end with MS flange ring	Nr	4.00		
5.2.31	DN 50mm flanged sluice valve	Nr	2.00		
	<b>90mm offtake (JD 6)</b>				
5.2.32	DN 90x90x50mm HDPE tee	Nr	1.00		
5.2.33	DN 90x75mm Reducer	Nr	1.00		
5.2.34	DN 50mm stub end with MS flange ring	Nr	2.00		
5.2.35	DN 50mm flanged sluice valve	Nr	1.00		
	<b>50mm offtake (JD 7,8,10,13,14)</b>				
5.2.36	DN 50x50x50mm HDPE tee	Nr	5.00		
5.2.37	DN 50mm stub end with MS flange ring	Nr	10.00		
5.2.38	DN 50mm flanged sluice valve	Nr	5.00		
	<b>75mm offtake (JD 9,11)</b>				
5.2.39	DN 75x75x50mm HDPE tee	Nr	2.00		
5.2.40	DN 50mm stub end with MS flange ring	Nr	4.00		
5.2.41	DN 50mm flanged sluice valve	Nr	2.00		
	<b>75mm offtake (JD 12)</b>				
5.2.42	DN 75x75x75mm HDPE tee	Nr	1.00		
5.2.43	DN 75x50mm Reducer	Nr	1.00		
5.2.44	DN 50mm stub end with MS flange ring	Nr	2.00		
5.2.45	DN 50mm flanged sluice valve	Nr	1.00		
	<b>63mm offtake (JD 15)</b>				
5.2.46	DN 63x63x50mm HDPE tee	Nr	1.00		
5.2.47	DN 50mm stub end with MS flange ring	Nr	2.00		
5.2.48	DN 50mm flanged sluice valve	Nr	1.00		
	<b>DN 50mm Terminal connection (with washout)</b>				
5.2.49	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
5.2.50	DN 50mm stub end with MS flange back ring	Nr	4.00		
5.2.51	DN 50mm Flanged gate valve	Nr	2.00		
5.2.52	DN 50mm HDPE flap valve	Nr	1.00		
5.2.53	DN 50mm HDPE PN 16 pipe	m	60.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 5.2: GALOLE WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>DN 63mm Terminal connection (with washout)</b>		-		
5.2.54	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
5.2.55	DN 50mm stub end with MS flange back ring	Nr	4.00		
5.2.56	DN 50mm Flanged gate valve	Nr	2.00		
5.2.57	DN 50mm HDPE flap valve	Nr	1.00		
5.2.58	DN 50mm HDPE PN 16 pipe	m	60.00		
	<b>DN 75mm Terminal connection (with washout)</b>		-		
5.2.59	DN 75x75x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
5.2.60	DN 50mm stub end with MS flange back ring	Nr	4.00		
5.2.61	DN 50mm Flanged gate valve	Nr	2.00		
5.2.62	DN 50mm HDPE flap valve	Nr	1.00		
5.2.63	DN 50mm HDPE PN 16 pipe	m	60.00		
	<b>DN 90mm Terminal connection (with washout)</b>		-		
5.2.64	DN 90x90x90mm HDPE (Reduced or Equal) tee	Nr	1.00		
5.2.65	DN 90mm stub end with MS flange back ring	Nr	4.00		
5.2.66	DN 90mm Flanged gate valve	Nr	2.00		
5.2.67	DN 90mm HDPE flap valve	Nr	1.00		
5.2.68	DN 90mm HDPE PN 16 pipe	m	60.00		
	<b>DN 110mm Terminal connection (with washout)</b>		-		
5.2.69	DN 110x110x90mm HDPE (Reduced or Equal) tee	Nr	1.00		
5.2.70	DN 90mm stub end with MS flange back ring	Nr	4.00		
5.2.71	DN 90mm Flanged gate valve	Nr	2.00		
5.2.72	DN 90mm HDPE flap valve	Nr	1.00		
5.2.73	DN 90mm HDPE PN 16 pipe	m	60.00		
	<b>Air Valve Chamber Fittings (DN110mm) -(1No)</b>				
5.2.74	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00		
5.2.75	DN63 mm HDPE Stub End with MS Flange	Nr	2.00		
5.2.76	DN 50mm double flanged sluice valve	Nr	2.00		
5.2.77	DN 50mm double orifice airvalve	Nr	2.00		
	<b>Washout (DN 110mm) -(2No)</b>				
5.2.78	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	1.00		
5.2.79	DN 110mm HDPE stub end with MS Flange	Nr	4.00		
5.2.80	DN 90 mm HDPE stub end with MS Flange	Nr	2.00		
5.2.81	DN 90mm sluice valve	Nr	1.00		
5.2.82	DN 90mm HDPE pipe (PN 12.5)	m	24.00		
5.2.83	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN90mm) -(1No)</b>				
5.2.84	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	1.00		
5.2.85	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
5.2.86	DN 50mm double flanged sluice valve	Nr	1.00		
5.2.87	DN 50mm double orifice airvalve	Nr	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 5.2: GALOLE WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>Washout (DN 90mm) -(1No)</b>				
5.2.88	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	1.00		
5.2.89	DN 90mm HDPE stub end with MS Flange	Nr	4.00		
5.2.90	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
5.2.91	DN 75 mm sluice valve	Nr	1.00		
5.2.92	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
5.2.93	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN75mm) -(10No)</b>				
5.2.94	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	10.00		
5.2.95	DN63 mm HDPE Stub End with MS Flange	Nr	10.00		
5.2.96	DN 50mm double flanged sluice valve	Nr	10.00		
5.2.97	DN 50mm double orifice airvalve	Nr	10.00		
	<b>Washout (DN 75mm) -(4No)</b>				
5.2.98	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	4.00		
5.2.99	DN 75mm HDPE stub end with MS Flange	Nr	16.00		
5.2.100	DN 75 mm HDPE stub end with MS Flange	Nr	8.00		
5.2.101	DN 75 mm sluice valve	Nr	4.00		
5.2.102	DN 75mm HDPE pipe (PN 12.5)	m	96.00		
5.2.103	Masonry headwall with base slab for Erosion protection at discharge point	Ls	4.00		
	<b>Air Valve Chamber Fittings (DN 63mm) -(10No)</b>				
5.2.104	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: <b>Must be electrofusion</b> )	Nr	10.00		
5.2.105	HDPE DN 32 mm PN 16 short piece pipe (400 mm	Nr	10.00		
5.2.106	HDPE DN 32 mm PN 16 Male adapter	Nr	10.00		
5.2.107	HDPE DN 32 mm Pegler brass gate valve	Nr	10.00		
5.2.108	DN 32 mm Stainless Steel Hex Nipple	Nr	10.00		
5.2.109	DN 32 mm Threaded Air Valve	Nr	10.00		
	<b>Washout (DN 63mm) -(6No)</b>		10.00		
5.2.110	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: <b>Must be electrofusion</b> )	Nr	6.00		
5.2.111	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	6.00		
5.2.112	HDPE DN 63 mm PN 16 Flanged adapter	Nr	6.00		
5.2.113	HDPE DN 50 mm Flanged Sluice valve	Nr	6.00		
5.2.114	DN 63 mm HDPE pipe (PN 12.5)	m	144.00		
5.2.115	Masonry headwall with base slab for Erosion protection at discharge point	Ls	6.00		
	<b>Air Valve Chamber Fittings (DN 50mm) -(5No)</b>				
5.2.116	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: <b>Must be electrofusion</b> )	Nr	5.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 5.2: GALOLE WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
5.2.117	HDPE DN 32 mm PN 16 short piece pipe (400 mm)	Nr	5.00		
5.2.118	HDPE DN 32 mm PN 16 Male adapter	Nr	5.00		
5.2.119	HDPE DN 32 mm Pegler brass gate valve	Nr	5.00		
5.2.120	DN 32 mm Stainless Steel Hex Nipple	Nr	5.00		
5.2.121	DN 32 mm Threaded Air Valve	Nr	5.00		
	<b>Washout (DN 50mm) -(2No)</b>				
5.2.122	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)	Nr	2.00		
5.2.123	HDPE DN 50 mm PN 16 short piece pipe (400 mm)	Nr	2.00		
5.2.124	HDPE DN 50 mm PN 16 Flanged adapter	Nr	2.00		
5.2.125	HDPE DN 50 mm Flanged Sluice valve	Nr	2.00		
5.2.126	DN 50 mm HDPE pipe (PN 12.5)	m	48.00		
5.2.127	Masonry headwall with base slab for Erosion protection at discharge point	Ls	2.00		
	<b>Water Draw Off Facilities</b>				
5.2.128	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.	5.00		
5.2.129	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		
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					



**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

## BILL NO. 5.2: GALOLE WATER SUPPLY SCHEME PIPELINES AND FITTINGS

REVISED Vol III BoO - Marsabit Lot II-BoO Bill 5.2-Golole Pipeline 81 of 138





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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 5.3: GOLOLE SCHEME 100 M3 ELEVATED TANK					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>20m High, Elevated Steel Tank of 100m<sup>3</sup></b>				
	<i>The sites for the proposed Water Reservoirs shall be within the Water Supply Scheme</i>				
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 100mm 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 detailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer		1.00		
	<b>INLET PIPE FITTINGS</b>				
5.3.2	75 HDPE Stab End Flange		2.00		
5.3.3	75mm All flanged pipe piece 1m long	No	3.00		
5.3.4	75mm flanged spigot pipe piece 1m long		1.00		
5.3.5	75mm All flanged sluice valve	No	1.00		
5.3.6	75mm All flanged G.S 90° bend		2.00		
5.3.7	75mm All flanged pipe piece 6m long	No	3.00		
5.3.8	75mm All flanged pipe piece 1.2m long	No	1.00		
5.3.9	75mm All flanged Float switch	No	1.00		
	<b>OVERFLOW AND SCOUR</b>				
5.3.10	100mm All flanged pipe piece 1.8m long	No	1.00		
5.3.11	100mm Flanged bell mouth	No	2.00		
5.3.12	100mm All flanged pipe piece 2.2m long	No	1.00		
5.3.13	100mm All flanged slice valve	No	2.00		
5.3.14	100mm flanged adaptor	No	1.00		
5.3.15	100mm flanged spigot pipe piece 1m long	No	1.00		
5.3.16	100mm All flanged equal Tee	No	1.00		
5.3.17	100mm All flanged pipe piece 3.5m long	No	2.00		
5.3.18	100mm All flanged pipe 6m long	0	2.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**  
**PROJECT NO.: KE-WSTF-328819-CS-QCBS**  
**BILL NO. 5.3: GOLOLE SCHEME 100 M3 ELEVATED TANK**

<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>			
---	--	--	--

### BILL NO. 5.3: GOLOLE SCHEME 100 M3 ELEVATED TANK

86 of 138

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: GOLOLE WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>CLASS E: EARTHWORKS</b>				
4.4.1	Excavation of surfaces to reduce the level, depth not exceeding 0.25m	m3	11.58		
4.4.2	Foundations and bases for depth not exceeding 1500 mm for strip footing		41.67		
	<b>Excavation Ancillaries</b>				
4.4.3	Trimming of excavated surfaces to receive blinding concrete		56.70		
	<b>Filling as Described:-</b>				
	<b>Hardcore</b>				
4.4.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	<b>Anti-Termite treatment</b>				
4.4.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	54.00		
	<b>Damp-Proof Membrane</b>				
4.4.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	54.00		
	<b>CLASS F: INSITU CONCRETE:</b>				
	<b>Mass Concrete Class 15/20mm :-</b>				
4.4.6	75mm Thick blinding under strip footing	m3	4.05		
	<b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>				
4.4.7	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		
4.4.8	200 mm Thick Class 25/20 concrete for foundation footing of dimension 600x600 mm complete with reinforced column to of 300mm x 200mm to a depth not less than 1.5m	m3	2.50		
4.4.9	200x300 Ring Beam concrete	m3	4.62		
	<b>CLASS G: CONCRETE ANCILLARIES</b>				
	<b>Formwork</b>				
	<b>Formwork - Fair Finish:-</b>	-			
4.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10		
4.4.11	Vertical Sides of the 150mm ground slab	m2	9.63		
4.4.12	Soffit ring beam 200 mm wide	m2	15.40		
	<b>Reinforcement</b>				
	<b>Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-</b>				
4.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: GOLOLE WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60		
4.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	<b>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>				
4.4.16	Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top	m <sup>2</sup>	54.00		
	<b>Walling.</b>				
	<b>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>				
4.4.17	200 mm thick masonry wall in substructure	m <sup>2</sup>	45.00		
4.4.18	200 mm smooth dressed walling in superstructure	m <sup>2</sup>	114.00		
4.4.19	150 mm smooth dressed walling in superstructure	m <sup>2</sup>	64.60		
	<b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>				
4.4.20	200mm and 150mm Wide under walls	m	35.20		
	<b>Finishes.</b>				
4.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m <sup>2</sup>	133.76		
4.4.22	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.	m <sup>2</sup>	105.64		
4.4.23	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.	m <sup>2</sup>	161.88		
	<b>CLASS O: TIMBER</b>				
	<b>Roof</b>				
4.4.24	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	140.50		
4.4.25	50x 100 mm: timber beam (GMS posts)	m	10.00		
4.4.26	100 x 50 mm: Struts and ties	m	95.40		
4.4.27	200 X 25mm fascia and badge	m	36.00		
4.4.28	100 x 50 mm Wall plate: fixed to concrete	m	54.00		
4.4.29	75 x 50mm purlins	m	80.00		
4.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m <sup>2</sup>	80.00		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 4.4: GOLOLE WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>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:-</i>				
	<b>Panel doors</b>				
4.4.32	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		
	<b>100mm furnished GMS Posts</b>				
4.4.33	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		
	<b>Steel Casement Windows</b>				
	<i>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:-</i>				
4.4.34	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		
	<b>Ceiling</b>				
	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				
4.4.35	Horizontal ceiling fixed to underside of trusses	m2	54.00		
4.4.36	12mm Cornice 50mm high, plugged	m	47.00		
<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>					

## BILL NO. 4.4: GOLOLE WATER SCHEME ADMINISTRATION BUILDING

PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

**BILL NO. 4.4: GOLOLE WATER SCHEME ADMINISTRATION BUILDING**

<b>Bill Total</b>	<b>Carried to Bill Summary</b>
-------------------	--------------------------------

**LOT II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**BILL NO. 5: GOLOLE WATER SUPPLY SCHEME -COLLECTION SHEET**[illegible]

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.1	BOREHOLE/WELL DEVELOPMENT				
	<i>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.</i>				
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. Borehole Test pumping for 24 hours of constant flow and conducting a laboratory water chemical analysis	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 13kW, 17.67Hp Submersible Pump SP 30-15 or approved equivalent with a discharge <b>39m<sup>3</sup>/hr</b> and <b>70m</b> head 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		
6.1.6	Supply, install, test and commission 6 mm <sup>2</sup> /4 core submersible pump flat cable		68		
6.1.7	Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.	Pair	1		
6.1.8	Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)	m	137		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.1.9	Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix or 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 include integration 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		
	<b>Supply and install the following Sensors for Monitoring System</b>				
6.1.10	Solar Radiation & Temperature Sensors (Model: Yokogawa MET-100, Hukseflux SR20 or equivalent)	LS	1.00		
6.1.11	Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)	No.	1.00		
6.1.12	Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH <sub>2</sub> O, accuracy + 0.175% FS BSL NLHR>4mH <sub>2</sub> O, +0.25%<4mH <sub>2</sub> O.	No	1		
6.1.16	Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)	No.	1.00		
6.1.17	Supply, install, test and commission of an array of solar with the following specifications: 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 29.25 kW on a bright sunny day at midday taking into account the system losses.	No.	56.0		
6.1.18	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 15° 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		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>	<b>0</b>			

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.1.19	Supply, install, test and commission a 3-phase 50KVA 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		
6.1.20	Supply, install, test and commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 15kW 31A 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		
6.1.21	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		
6.1.22	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		
6.1.23	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 H	Item	1		
6.1.24	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 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		
6.1.25	Supply, install, test and commission Pressure Gauge - 0-25bar	No	2		
6.1.26	Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent	Set	1		
6.1.27	Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations	Set	1		
6.1.28	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		
6.1.29	Supply, install, test and commission Motor Protection Unit MP204 or equivalent	No	1		
6.1.31	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.1.33	Communication Infrastructure				
6.1.34	Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations	No.	2		
6.1.35	Supply and installation of Antennas and signal boosters for remote locations	No.	2		
6.1.36	Supply and installation of Fiber Optic Cable (8-core, single-mode)	m	200		
6.1.37	Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof	Set	5		
6.1.38	Supply and installation of Fiber Optic Splicing and Accessories	Lot	5		
6.1.39	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		
	<b>Fencing</b>				
6.1.40	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 bottom concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.	m	120		
6.1.41	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		
	<b>Borehole pipeworks</b>				
6.1.42	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		
6.1.43	All Flanged 90 deg long elbow DN 50	Nr	3		
6.1.44	Double Flanged Non-Return Valve 50	Nr	1		
6.1.45	Double Flanged Gate Valve DN 50	Nr	4		
6.1.46	Supply and install multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.	No.	4		
6.1.47	All flanged equal steel tee 50mmx50mmx50mm	Nr	1		
6.1.48	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No.	1		
6.1.49	Double flanged pipe piece DN50 length 1500mm	Nr	1		
6.1.50	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		
6.1.51	Double flanged pipe piece DN50 length 1000mm	Nr	2		
6.1.52	All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm	Nr	2		
6.1.53	All flanged reducing taper 50mmx63mm	Nr	1		
PAGE TOTAL CARRIED TO SECTION 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.1: GAMURA WATER SUPPLY SCHEME BOREHOLE DEVELOPMENT					
ITEM	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				
	<b>Bill Total Carried to Bill Summary</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	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				
	<b>PIPE AND PIPE FITTINGS</b>				
	<b>Pipe Work - Supply, lay, joint, pressure test, disinfect</b>				
	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 surround material all as per specifications, drawings and as directed by the engineer				
6.2.1	HDPE Pipe DN50mm PN16	m	3,880.00		
6.2.2	HDPE Pipe DN63mm PN16	m	1,046.00		
6.2.3	HDPE Pipe DN75mm PN16	m	690.00		
6.2.4	HDPE Pipe DN90mm PN16	m	495.00		
6.2.5	HDPE Pipe DN110mm PN16	m	6,457.00		
6.2.6	HDPE Pipe DN160mm PN16	m	1,050.00		
	<b>Bends</b>				
6.2.7	DN 110mm 90°	Nr.	2.00		
6.2.8	DN 110mm 45°	Nr.	2.00		
6.2.9	DN 90mm 90°	Nr.	2.00		
6.2.10	DN 63mm 90°	Nr.	2.00		
6.2.11	DN 50mm 90°	Nr.	2.00		
	<b>Reducers</b>				
6.2.12	DN 110/90 mm	Nr.	1.00		
6.2.13	DN 90/75 mm	Nr.	-		
6.2.14	DN 75/63 mm	0	-		
6.2.15	DN 63/50 mm	Nr.	1.00		
	<b>Junction from tank (JD 1)</b>				
6.2.16	DN 110mm stub end with MS flange back ring	Nr	1.00		
6.2.17	DN 110x110x110mm equal tee	Nr	1.00		
6.2.18	DN 100mm flanged sluice valve	Nr	2.00		
6.2.19	DN 110x50mm Reducer	Nr	1.00		
	<b>50mm offtake (JD 2,7)</b>				
6.2.20	DN 50x50x50mm HDPE fabricated tee	Nr	7.00		
6.2.21	DN 50mm stub end with MS flange ring	Nr	14.00		
6.2.22	DN 50mm flanged sluice valve	Nr	7.00		
	<b>110mm offtake (JD 3,4)</b>				
<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.2.23	DN 110x110x50mm HDPE tee	Nr	2.00		
6.2.24	DN 50mm stub end with MS flange ring	Nr	4.00		
6.2.25	DN 50mm flanged sluice valve	Nr	2.00		
	<b>110mm offtake (Junction 5)</b>				
6.2.26	DN 90x90x90mm HDPE equal tee	Nr	1.00		
6.2.27	DN90mm stub end with MS flange ring	Nr	2.00		
6.2.28	DN 63mm flanged sluice valve	Nr	2.00		
6.2.29	DN 90x63mm reducer	Nr	1.00		
6.2.30	DN 63mm stub end with MS flange ring	Nr	2.00		
6.2.31	DN 63mm flanged sluice valve	Nr	-		
	<b>63mm offtake (Junction 6)</b>				
6.2.32	DN 63x63x50mm HDPE fabricated reducing tee	Nr	1.00		
6.2.33	DN50mm stub end with MS flange ring	Nr	4.00		
6.2.34	DN 50mm flanged sluice valve	Nr	2.00		
6.2.35	DN 63x50mm reducer	Nr	-		
	<b>90mm offtake (JD 8)</b>				
6.2.36	DN 90x90x50mm HDPE reducing tee	Nr	1.00		
6.2.37	DN 50mm stub end with MS flange ring	Nr	2.00		
6.2.38	DN 50mm flanged sluice valve	Nr	1.00		
	<b>90mm offtake (JD 9)</b>				
6.2.39	DN 90x90x63mm HDPE reducing tee	Nr	1.00		
6.2.40	DN 63mm stub end with MS flange ring	Nr	2.00		
6.2.41	DN 63mm flanged sluice valve	Nr	1.00		
	<b>DN 50mm Terminal connection (with washout)</b>				
6.2.42	DN 50x50x50mm HDPE (Reduced or Equal) tee	Nr	2.00		
6.2.43	DN 50mm stub end with MS flange back ring	Nr	8.00		
6.2.44	DN 50mm Flanged gate valve	Nr	4.00		
6.2.45	DN 50mm HDPE flap valve	Nr	2.00		
6.2.46	DN 50mm HDPE PN 16 pipe	m	120.00		
	<b>DN 63mm Terminal connection (with washout)</b>		-		
6.2.47	DN 63x63x50mm HDPE (Reduced or Equal) tee	Nr	1.00		
6.2.48	DN 50mm stub end with MS flange back ring	Nr	4.00		
6.2.49	DN 50mm Flanged gate valve	Nr	2.00		
6.2.50	DN 50mm HDPE flap valve	Nr	1.00		
6.2.51	DN 50mm HDPE PN 16 pipe	m	60.00		
	<b>DN 110mm Terminal connection (with washout)</b>		-		
6.2.52	DN 110x110x90mm HDPE (Reduced or Equal) tee	Nr	3.00		
6.2.53	DN 90mm stub end with MS flange back ring	Nr	8.00		
6.2.54	DN 90mm Flanged gate valve	Nr	6.00		
6.2.55	DN 90mm HDPE flap valve	Nr	3.00		
6.2.56	DN 90mm HDPE PN 16 pipe	m	180.00		
	<b>DN 160mm Terminal connection (with washout)</b>		-		
6.2.57	DN 160x160x90mm HDPE (Reduced or Equal) tee	Nr	1.00		
6.2.58	DN 90mm stub end with MS flange back ring	Nr	4.00		
6.2.59	DN 90mm Flanged gate valve	Nr	2.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.2.60	DN 90mm HDPE flap valve	Nr	1.00		
6.2.61	DN 90mm HDPE PN 16 pipe	m	60.00		
	<b>Air Valve Chamber Fittings (DN110mm) -(1No)</b>				
6.2.62	HDPE Reducer Tee DN 110mm x 110mm x 63mm	Nr	2.00		
6.2.63	DN63 mm HDPE Stub End with MS Flange	Nr	2.00		
6.2.64	DN 50mm double flanged sluice valve	Nr	2.00		
6.2.65	DN 50mm double orifice airvalve	Nr	2.00		
	<b>Washout (DN 110mm) -(1No)</b>		-		
6.2.66	HDPE Reducer Tee DN 110mm x 110mm x 90mm	Nr	2.00		
6.2.67	DN 110mm HDPE stub end with MS Flange	Nr	8.00		
6.2.68	DN 90 mm HDPE stub end with MS Flange	Nr	4.00		
6.2.69	DN 90mm sluice valve	Nr	2.00		
6.2.70	DN 90mm HDPE pipe (PN 12.5)	m	48.00		
6.2.71	Masonry headwall with base slab for Erosion protection at discharge point	Ls	2.00		
	<b>Air Valve Chamber Fittings (DN90mm) -(3No)</b>				
6.2.72	HDPE Reducer Tee DN 90mm x 90mm x 63mm	Nr	3.00		
6.2.73	DN63 mm HDPE Stub End with MS Flange	Nr	3.00		
6.2.74	DN 50mm double flanged sluice valve	Nr	3.00		
6.2.75	DN 50mm double orifice airvalve	Nr	3.00		
	<b>Washout (DN 90mm) -(3No)</b>		-		
6.2.76	HDPE Reducer Tee DN 90mm x 90mm x 75mm	Nr	3.00		
6.2.77	DN 90mm HDPE stub end with MS Flange	Nr	12.00		
6.2.78	DN 75 mm HDPE stub end with MS Flange	Nr	6.00		
6.2.79	DN 75 mm sluice valve	Nr	3.00		
6.2.80	DN 75mm HDPE pipe (PN 12.5)	m	72.00		
6.2.81	Masonry headwall with base slab for Erosion protection at discharge point	Ls	3.00		
	<b>Air Valve Chamber Fittings (DN75mm) -(1No)</b>				
6.2.82	HDPE Reducer Tee DN 75mm x 75mm x 63mm	Nr	1.00		
6.2.83	DN63 mm HDPE Stub End with MS Flange	Nr	1.00		
6.2.84	DN 50mm double flanged sluice valve	Nr	1.00		
6.2.85	DN 50mm double orifice airvalve	Nr	1.00		
	<b>Washout (DN 75mm) -(1No)</b>				
6.2.86	HDPE Equal Tee DN 75mm x 75mm x 75mm	Nr	1.00		
6.2.87	DN 75mm HDPE stub end with MS Flange	Nr	4.00		
6.2.88	DN 75 mm HDPE stub end with MS Flange	Nr	2.00		
6.2.89	DN 75 mm sluice valve	Nr	1.00		
6.2.90	DN 75mm HDPE pipe (PN 12.5)	m	24.00		
6.2.91	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Air Valve Chamber Fittings (DN 63mm) -(1No)</b>				
6.2.92	HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be electrofusion)	Nr	1.00		
6.2.93	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.2.94	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
6.2.95	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
6.2.96	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
6.2.97	DN 32 mm Threaded Air Valve	Nr	1.00		
	<b>Washout (DN 63mm) -(2No)</b>				
6.2.98	HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofusion)	Nr	2.00		
6.2.99	HDPE DN 63 mm PN 16 short piece pipe (400 mm long)	Nr	2.00		
6.2.100	HDPE DN 63 mm PN 16 Flanged adapter	Nr	2.00		
6.2.101	HDPE DN 50 mm Flanged Sluice valve	Nr	2.00		
6.2.102	DN 63 mm HDPE pipe (PN 12.5)	m	48.00		
6.2.103	Masonry headwall with base slab for Erosion protection at discharge point	Ls	2.00		
	<b>Air Valve Chamber Fittings (DN 50mm) -(1No)</b>				
6.2.104	HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofusion)	Nr	1.00		
6.2.105	HDPE DN 32 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
6.2.106	HDPE DN 32 mm PN 16 Male adapter	Nr	1.00		
6.2.107	HDPE DN 32 mm Pegler brass gate valve	Nr	1.00		
6.2.108	DN 32 mm Stainless Steel Hex Nipple	Nr	1.00		
6.2.109	DN 32 mm Threaded Air Valve	Nr	1.00		
	<b>Washout (DN 50mm) -(1No)</b>				
6.2.110	HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)	Nr	1.00		
6.2.111	HDPE DN 50 mm PN 16 short piece pipe (400 mm long)	Nr	1.00		
6.2.112	HDPE DN 50 mm PN 16 Flanged adapter	Nr	1.00		
6.2.113	HDPE DN 50 mm Flanged Sluice valve	Nr	1.00		
6.2.114	DN 50 mm HDPE pipe (PN 12.5)	m	24.00		
6.2.115	Masonry headwall with base slab for Erosion protection at discharge point	Ls	1.00		
	<b>Water Draw Off Facilities</b>				
6.2.116	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.	5.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.2.117	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		
6.2.118	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		
6.2.119	Supply of materials and construct a sanitation facility as described to detail in Appendix E	Item	1.00		
6.2.120	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	5.00		
	<b>Chambers (Civil Works)</b>				
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

**BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS**

	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>		
--	---	--	--



**BILL NO. 6.2: GAMURA WATER SUPPLY SCHEME PIPELINES AND FITTINGS**

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.3: GAMURA SCHEME 6m high 150M3 and 20m high 150m3 Steel elevated Tanks					
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
	<b>6m high Elevated Steel Tank of 150m<sup>3</sup></b>				
	Supply all materials, tools and equipment, erect, and commission a galvanised 150m <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 6 & 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 100mm 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. All to the approval of the Engineer	No	1.00		
	<b>Provide and install Elevated Steel Tank Fittings to Specifications upto 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.</b>				
	<b>Overflow PIPEWORK</b>				
6.3.1	DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end	Nr	1		
6.3.2	DN 150 All flanged 90deg short radius bend		1		
6.3.3	DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm	Nr	1		
6.3.4	DN 150 Flanged spigot 90deg long radius bend	Nr	1		
	<b>Scour Pipework</b>				
6.3.5	DN 150 Flanged spigot 90 deg short radius bend	Nr	1		
6.3.6	DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm	Nr	1		
6.3.7	DN 150 All flanged Globe Control valve PN10 with EPDM lining	Nr	1		
	<b>Inlet Pipework</b>				
6.3.8	DN 100 All flanged steel 90 deg long radius bend	Nr	2.00		
6.3.9	DN 100 Steel double flanged pipe with puddle flange at 1500mm from one end, length 2000mm	Nr	1.00		
6.3.10	DN 100 Flanged ball valve	Nr	1.00		
6.3.11	DN 100 HDPE Stub end Flange	Nr	1		
6.3.12	DN 100 Double flanged pipe piece, length 3000mm	Nr	1		
	<b>Outlet Pipework</b>	-			
6.3.13	DN 150 Flanged special bell mouth	Nr	1		
6.3.14	DN 150 All Flanged 90 degree short radius bend	Nr	1		
6.3.15	DN 150 Steel double flanged pipe with double puddle flanges at 400mm and 1200mm, length 2000mm	Nr	1		
6.3.16	DN 150 Steel flanged spigot pipe with puddle flange 775mm from spigot end, length 1200mm	Nr	1		
6.3.17	DN 150 All flanged Sluice valve PN16 EPDM encapsulated	Nr	1		
6.3.18	DN 150 Electromagnetic meter complete with all accessories and installation sundry for operation	Nr	1.00		
6.3.19	DN 150 Double flanged steel pipe, length 1000mm		1		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.3: GAMURA SCHEME 6m high 150M3 and 20m high 150m3 Steel elevated Tanks					
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
6.3.20	DN 100 All flanged semi-motorised Globe Control valve PN16 EPDM encapsulated fitted with actuator	Nr	1		
6.3.21	DN 100 dismantling steel joint with central flange	Nr	1.00		
6.3.22	DN 100 double flanged pipe with puddle flange at 400mm from one end, length 1000mm	Nr	1.00		
6.3.23	DN 100 HDPE Stub end Flange	Nr	1		
6.3.24	DN150 mm Bellmouth for Overflow	nr	1.00		
6.3.25	DN150 mm x 90° Double flanged bend for overflow	nr	2.00		
	<b>Expansion Joint</b>				
6.3.26	Supply and Intall plastic or rubber waterstop width 400mm with centre bulb	m	60.00		
6.3.27	m	m2	60.00		
6.3.28	Provide & lay 300mm x 12mm thick Ruberoid layer between wall & roof slab.	m	46.00		
	<b>20m high Elevated Steel Tank of 150m<sup>3</sup></b>				
6.3.29	Supply all materials, tools and equipment, erect, and commission a galvanised 150m <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 100mm 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. All to the approval of the Engineer	No.	1.00		
	<b>Provide and install Elevated Steel Tank Fittings to Specifications upto 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.</b>				
	<b>INLET PIPE FITTINGS</b>				
6.3.30	100 HDPE Stab End Flange	No	2.00		
6.3.31	100mm All flanged pipe piece 1m long	No	3.00		
6.3.32	100mm flanged spigot pipe piece 1m long	No	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>				

[illegible]

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.4: GAMURA WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<b>CLASS E: EARTHWORKS</b>				
6.4.1	Excavation of surfaces to reduce the level, depth not exceeding 0.25m	m3	11.58		
6.4.2	Foundations and bases for depth not exceeding 1500 mm for strip footing	m3	41.67		
	<b>Excavation Ancillaries</b>				
6.4.3	Trimming of excavated surfaces to receive blinding concrete	m2	56.70		
	<b>Filling as Described:-</b>				
	<b>Hardcore</b>				
6.4.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.20		
	<b>Anti-Termite treatment</b>				
6.4.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	54.00		
	<b>Damp-Proof Membrane</b>				
6.4.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	54.00		
	<b>CLASS F: INSITU CONCRETE:</b>				
	<b>Mass Concrete Class 15/20mm :-</b>				
6.4.6	75mm Thick blinding under strip footing	m3	4.05		
	<b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>				
6.4.7	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		
6.4.8	200 mm Thick Class 25/20 concrete for foundation footing of dimension 600x600 mm complete with reinforced column to of 300mm x 200mm to a depth not less than 1.5m	m3	2.50		
6.4.9	200x300 Ring Beam concrete	m3	4.62		
	<b>CLASS G: CONCRETE ANCILLARIES</b>				
	<b>Formwork</b>				
	<b>Formwork - Fair Finish:-</b>	-			
6.4.10	Formwork to sides of 300 mm deep ring beam	m2	23.10		
6.4.11	Vertical Sides of the 150mm ground slab	m2	9.63		
6.4.12	Soffit ring beam 200 mm wide	m2	15.40		
	<b>Reinforcement</b>				
	<b>Provide and Fix High Tensile Steel Reinforcement to SRN 127 Including Cutting, Bending, Propping with Spacers and Tying as Specified :-</b>				
6.4.13	High yield tensile steel 12mm diameter to ring beam	kg	64.72		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.4: GAMURA WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
6.4.14	High yield tensile steel 10mm diameter to strip footing	kg	300.60		
6.4.15	High yield tensile steel 8mm diameter links to ring beam	kg	101.96		
	<b>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>				
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		
	<b>Walling.</b>				
	<b>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>				
6.4.17	200 mm thick masonry wall in substructure	m2	45.00		
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		
	<b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>				
6.4.20	200mm and 150mm Wide under walls	m	35.20		
	<b>Finishes.</b>				
6.4.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	133.76		
6.4.22	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	105.64		
6.4.23	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	161.88		
	<b>CLASS O: TIMBER</b>				
	<b>Roof</b>				
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		
6.4.30	28 Gauge Blue prepainted roof sheets including ridge caps	m2	80.00		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.4: GAMURA WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	<i>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:-</i>				
	<b>Panel doors</b>				
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		
	<b>100mm furnished GMS Posts</b>				
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		
	<b>Steel Casement Windows</b>				
	<i>Supply and Fix the Following Standard Section Steel Casement</i>				
6.4.33	Window size 1200x 1200mm high with 1 No. fixed and 2 No.	Nr	5.00		
	<b>Ceiling</b>				
	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				
6.4.34	Horizontal ceiling fixed to underside of trusses	m2	54.00		
6.4.35	12mm Cornice 50mm high, plugged	m	47.00		
	<b>ELECTRIFICATION FITTINGS</b>				
6.4.36	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 electrolyte 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		
	<b>FURNITURE</b>				
6.4.37	Curtains for office for all windows and doors	Set	1.00		
6.4.38	Office tables 2.2x0.9 m	No	1.00		
6.4.39	Standard office chairs	No	8.00		
6.4.40	Desk 2.2x0.9 m with chair and three lockup drawers	No	2.00		
	<b>SANITATION FACILITY</b>				
6.4.41	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 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		
<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL NO. 6.4: GAMURA WATER SCHEME ADMINISTRATION BUILDING					
ITEM	DESCRIPTION	UNIT	QTY	RATE Kshs.	AMOUNT Kshs.
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	<b>Bill Total Carried to Bill Summary</b>				





**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 II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**LOT III:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal Quantity</b>	<b>Unit Rate (Ksh)</b>	<b>Amount (Ksh)</b>
8.1.1	labour - unskilled	hr.	1		
8.1.2	labour - semi-skilled	hr.	1		
8.1.3	drillers - jackhammers		1		
8.1.4	drillers – air tracks	hr.	1		
8.1.5	drillers - rotary crawler over 150 mm		1		
8.1.6	powder-men	hr.	1		
8.1.7	carpenters		1		
8.1.8	reinforcing steel fixers	hr.	1		
8.1.9	concrete workers		1		
8.1.10	masons, concreters, bricklayers	hr.	1		
8.1.11	plasterers		1		
8.1.12	painters	hr.	1		
8.1.13	plumbers	hr.	1		
8.1.14	electricians	hr.	1		
8.1.15	welders	hr.	1		
8.1.16	fitters	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	0	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		

**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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**LOT III: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal Quantity</b>	<b>Unit Rate (Ksh)</b>	<b>Amount (Ksh)</b>
8.1.29	compressor & pump attendants	hr.	1		
8.1.30	crusher / screening plant operator	hr.	1		
8.1.31	batch mixer		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		
8.2.1	ordinary Portland cement - bagged	t	1		
8.2.2	ordinary Portland cement - bulk	t	1		
8.2.3	fine aggregate	m <sup>3</sup>	1		
8.2.4	coarse aggregate	m <sup>3</sup>	1		
8.2.5	concrete mix at central batch plant characteristic strength 20 MPa, slump 80mm and maximum aggregate size 20mm	m <sup>3</sup>	1		
8.2.6	reinforcing steel	t	1		
8.2.7	reinforcing fabric	t	1		
8.2.8	structural steel	t	1		
8.2.9	explosive - gelatine	kg	1		
8.2.10	explosive - ammonium nitrate	kg	1		
8.2.11	timber - primary hardwood	m <sup>3</sup>	1		
8.2.12	timber - secondary hardwood	m <sup>3</sup>	1		
8.2.13	waterproof plywood - 7.5 mm	m <sup>3</sup>	1		
8.2.14	waterproof plywood - 15 mm	m <sup>3</sup>	1		
8.2.15	waterproof plywood - 20 mm	m <sup>3</sup>	1		
8.2.16	Supply and Installation of Borehole casing 160mm to 200mm	m	1		
8.2.17	Supply and Installation of Gravel pack	m	1		
8.3.1	excavator, up to and including 1 m <sup>3</sup>	hr.	1		
8.3.2	excavator, 1 m <sup>3</sup> to 2 m <sup>3</sup>	hr.	1		
8.3.3	excavator, over 2 m <sup>3</sup>	hr.	1		
8.3.4	face shovel, over 2 m <sup>3</sup>	hr.	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 II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**LOT III:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal Quantity</b>	<b>Unit Rate (Ksh)</b>	<b>Amount (Ksh)</b>
8.3.5	dragline, over 2 m <sup>3</sup>	hr.	1		
8.3.6	tractor, up to and including 150 kW	hr.	1		
8.3.7	tractor, 200 kW	hr.	1		
8.3.8	tractor, 250 kW	hr.	1		
8.3.9	wheel loader, up to 2 m <sup>3</sup>	hr.	1		
8.3.10	wheel loader, 2 m <sup>3</sup> to 5 m <sup>3</sup>	hr.	1		
8.3.11	grader, up to 3.7 m blade	hr.	1		
8.3.12	grader, over 3.7 m blade	hr.	1		
8.3.13	rear dump truck, 5 to 10 t	hr.	1		
8.3.14	smooth vibratory roller, 10 t	hr.	1		
8.3.15	rear dump truck, 10 to 15 t	hr.	1		
8.3.16	rear dump truck, 15 to 25 t	hr.	1		
8.3.17	rear dump truck, 10 to 15 t	hr.	1		
8.3.18	lorry - ordinary, up to and including 6 t	hr.	1		
8.3.19	lorry - ordinary, 6 to 10 t	hr.	1		
8.3.20	lorry - tipper, up to and including 6 t	hr.	1		
8.3.21	lorry - tipper, 6 to 10 t	hr.	1		
8.3.22	mobile crane, up to and including 5 t	hr.	1		
8.3.23	mobile crane, 5 to 10 t	hr.	1		
8.3.24	mobile crane, 10 to 15 t	hr.	1		
8.3.25	mobile crane, 15 to 25 t	hr.	1		
8.3.26	mobile crane, over 25 t	hr.	1		
8.3.27	derrick crane w. jib, up to and incl. 5 t	hr.	1		
8.3.28	grout pump, piston type	hr.	1		
8.3.29	grout pump, diaphragm type	hr.	1		
8.3.30	concrete pump, including supply pipeline, 15 m <sup>3</sup> / h to 20 m <sup>3</sup> / h	hr.	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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

**LOT III: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Nominal Quantity</b>	<b>Unit Rate (Ksh)</b>	<b>Amount (Ksh)</b>
8.3.31	portable pump including hoses, strainer, etc., 50 mm delivery	hr.	1		
8.3.32	portable pump including hoses, strainer, etc., 100 mm delivery	hr.	1		
8.3.33	portable pump including hoses, strainer, etc., 150 mm delivery	hr.	1		
8.3.34	pump, portable, including hoses, strainer, etc., over 150 mm delivery	hr.	1		
8.3.35	shotcrete machine, up to and including 0.5 m3	hr.	1		
8.3.36	shotcrete machine, over 0.5 m3	hr.	1		
8.3.37	concrete vibrators, immersion type, up to and including 75 mm	hr.	1		
8.3.38	concrete vibrators, immersion type, over 75 mm	hr.	1		
8.3.39	concrete mixer, up to 1 m3	hr.	1		
8.3.40	transit mixer 5 to 6 m3	hr.	1		
8.3.41	portable compressor, up to and including 7 m3/min	hr.	1		
8.3.42	portable compressor, over 7 m3/min	hr.	1		
8.3.43	jack hammer	hr.	1		
8.3.44	track drill, 35 to 89 mm	hr.	1		
8.3.45	track drill, 64 to 115 mm	hr.	1		
8.3.46	welding and cutting set, oxy-acetylene	hr.	1		
8.3.47	welding and cutting set - electric	hr.	1		
8.3.48	generator set, up to 5 kVA	hr.	1		
8.3.49	generator set, 5 to 20 kVA	hr.	1		
8.3.50	generator set, over 20 kVA	hr.	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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
BILL: LOTURTUR WATER SUPPLY SCHEME					
APPENDIX A : PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>1. ENGINEER'S MAIN OFFICE AND FURNITURE</b>				
A01	Executive desk 2.2x0.9 m with six lockup drawers		1		
A02	Desk 2.2x0.9 m with chair and three lockup drawers	No	3		
A03	Office tables 2.2x0.9 m		2		
A04	Executive Swivel orthopedic chair adjustable height	No	1		
A05	Standard office chairs		5		
A06	Typist's desk	No	1		
A07	Typist's chair		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		
A13	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, Borderless Printing up to A4 size, Spill-free ink refilling	No	1		
A14	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 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	0	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		
	<b>Appendix A Bill Item Collection Page to office equipment</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
<b>B.1</b>	<b>PROPOSED PUMP HOUSE &amp; CONTROL ROOM</b>				
	<b>EARTHWORKS</b>				
	<b>GENERAL EXCAVATION</b>				
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		15.0		
	<b>FILLING AND COMPACTION</b>				
B.1.3	300 mm thick hardcore bed, handpacked, well watered and well compacted in 100 mm layers.		30.0		
	<b>IN-SITU CONCRETE</b>				
B.1.4	Provide and place Concrete Grade: 15/20		1.0		
B.1.5	Provide and place Concrete Grade: 25/20	m3	4.0		
	<b>CONCRETE ANCILLARIES</b>				
	<b>FORMWORK: FAIR FINISH</b>				
B.1.6	Fair finish to vertical sides of floor slab, plinth and ring beam	m <sup>2</sup>	5.4		
	<b>REINFORCEMENT</b>				
	High yield steel bars to SSRN 126 or 127				
B.1.7	Diameter: 10 mm	kg	217.0		
B.1.8	Diameter: 12 mm and above	kg	192.0		
B.1.9	Fabric Fabric Reinforcement BRC A-142	m2	37.3		
	<b>TIMBER</b>				
	<b>Fittings and fastenings</b>				
B.1.10	Bolts	nr	50.0		
	<b>Roofing with cypress</b>	0			
B.1.11	50x 100 mm Rafter, ridge piece and tie beams: in trusses	m	54.6		
B.1.12	100 x 50 mm: Struts and ties; Wall plate fixed to concrete	m	39.0		
B.1.13	200 X 25mm fascia and badge	m	25.2		
B.1.14	75 x 50mm purlins	m	64.0		
	<b>BRICKWORK, BLOCKWORK &amp; MASONRY</b>				
	<b>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>				
B.1.16	200 mm thick masonry wall in substructure		24.0		
B.1.17	200 mm smooth dressed walling in superstructure	m2	90.0		
B.1.18	150 mm smooth dressed walling in superstructure	m2	-		
	<b>Blockwork ancillaries</b>				
B.1.19	Damp proof course.	m	21.0		
B.1.20	Single layer of 500 gauge polythene sheeting laid on blinded hardcore with 150mm side laps to receive concrete	m2	19.0		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>Anti-Termite treatment</b>				
B.1.21	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	19.0		
	<b>PAINTING</b>				
B.1.22	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	72.0		
B.1.23	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	54.0		
	<b>Rendering with proprietary mix mortar</b>				
B.1.24	Internal 20mm mortar rendering, cement/sand 1:4 painted 'soft white" to Ks 10 B 15 or similar	m2	54.0		
	<b>MISCELLANEOUS WORK</b>				
	<b>Drainage to structures above ground</b>				
B.1.25	Gutters inclusive of all the fittings	m	5.0		
B.1.26	Downpipes inclusive of all the fittings	m	4.0		
	<b>Windows</b>				
	<i>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:-</i>				
B.1.27	Provide and install 1200x900 Window as specified in the drawing	nr	1.0		
B.1.28	Provide and install 1800x900 window as specified in the drawing	nr	1.0		
	<b>Doors</b>				
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		
	<b>Other</b>				
B.1.31	Louvered Precast concrete vent blocks of approved type by Engineer	m2	20.0		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				



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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>CEILING</b>				
	<b>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 &amp; filler</b>				
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>B.2</b>	<b>GUARD HOUSE</b>				
	<b>CLASS E: EARTHWORKS</b>				
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		
	<b>Excavation Ancillaries</b>				
B.2.3	Trimming of excavated surfaces to receive blinding concrete	m2	16.0		
	<b>Filling as Described:-</b>				
	<b>Hardcore</b>				
B.2.4	300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer	m3	16.0		
	<b>Anti-Termite treatment</b>				
B.2.4b	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions.	m2	16.0		
	<b>Damp-Proof Membrane</b>				
B.2.5	500 Gauge polythene sheeting, laid over hardcore in two layers	m2	16.0		
	<b>CLASS F: INSITU CONCRETE:</b>				
	<b>Mass Concrete Class 15/20mm :-</b>				
B.2.6	75mm Thick blinding for floor and strip footing	m3	1.0		
	<b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>				
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 provided separately.	m3	2.5		
B.2.8	200 mm Thick Class 25/20 concrete for foundation footing of dimension 600x600 mm complete with reinforced column to of 300mm x 200mm to a depth not less than 1.5m	m3	2.4		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS					
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°.	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		
	<b>CLASS G: CONCRETE ANCILLARIES</b>				
	<b>Formwork</b>				
	<b>Formwork - Fair Finish:-</b>				
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	m2	16.0		
	<b>Reinforcement</b>				
	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		
	<b>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>				
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		
	<b>Walling.</b>				
	<b>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>				
B.2.17	200 mm thick masonry wall in substructure	m2	19.0		
B.2.18	200 mm smooth dressed walling in superstructure	m2	76.0		
	<b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>				
B.2.20	200mm and 150mm Wide under walls	m	19.0		
	<b>Finishes.</b>				
B.2.21	20 mm 1:4 Cement/sand plaster to internal of walls	m2	76.0		
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		
B.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		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>Panel doors</b>				
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		
	<b>Steel Casement Windows</b>				
	<i>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:-</i>				
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		
	<b>FURNITURE</b>				
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	Ls	1.0		
	<b>ELECTRIFICATION FITTINGS</b>				
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 electrolyte 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	1.0		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				Kshs.	Kshs.
	<b>Water and Sanitation Facilities</b>				
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		
	<b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>				
	Page Total, Page 1				
	Page Total, Page 2				
	Page Total, Page 3				
	Page Total, Page 4				
	Page Total, Page 5				
	Page Total, Page 6				
	<b>Bill Total Carried to Grand Summary</b>				

## APPENDIX C WATER KIOSK

Page Total carried to the 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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX C WATER KIOSK					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	<b><u>CLASS G: CONCRETE ANCILLARIES</u></b>				
	<b><u>REINFORCEMENTS</u></b>				
	<i>Rates to include for binding wire</i>				
	<i>High yield steel bars to BS 4449</i>				
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		
	<b><u>Steel fabric mesh reinforcement to B.S. 4483</u></b>				
C1.16	BRC mesh fabric reinforcement ref A142 (weighing 2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance made for laps)	m <sup>2</sup>	18.0		
	<b><u>FORMWORK</u></b>				
	<i>Sawn formwork (fair finish) to: -</i>				
C1.17	Vertical and soffits of slabs	m <sup>2</sup>	11.8		
C1.18	Vertical sides and soffit of beams, columns and fetching bay	m <sup>2</sup>	44.2		
	<b><u>CONCRETE ACCESSORIES</u></b>				
C1.19	40mm x 30mm drainage groves in concrete to detail drawings	m	13.8		
C1.20	Cement screed on the top surface of roof slab to minimum fall gradient of 1.50	m <sup>2</sup>	11.8		
C1.21	Bituminous felt cover on the surface of the cement screed on the roof slab.Allow for 300mm lapping.	m <sup>2</sup>	11.8		
C1.22	Allow for 25mm nominal core bore class B G1 pipe through inserts in floor slab, roof slab and window sill	m	4.0		
	<b><u>CLASS I: PIPEWORK - PIPES</u></b>				
	<b><u>Drainage system</u></b>				
C1.23	110mm OD HDPE pipe class PN 10 in trench, depth n.e 1.5m	m	10.0		
	<b><u>Piped Building Services</u></b>				
	<b><u>Portable water supply installation to detail drawings for Water Kiosk</u></b>				
C1.24	Provide, test and commission pipework fittings to connect to the existing system with the kiosk as shown in the drawing including the plastic tank, 3 dispensing outlets and integration with the water dispensing ATM and as directed by the Engineer.	Ls	1.0		
C1.25	Supply and installed 5,000 litres plastic water tank as manufactured by KENTANK (K) LTD or equally approved by the Engineer . The tank shall be coated with epoxy coating outside prior enclosing in a masonry walling.	Nr	1.0		
C1.26	Provide, install, test and commission PN25 Floater valve for the plastic tank complete with all installation sundry	Nr	1.0		
C1.27	Foldable ladder 4m high	Nr	1.0		
	<b>Page Total carried to the Collection Sheet</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX C WATER KIOSK					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	<b>Soak Away Pit</b>				
C1.28	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 and backfill and disposal. Gulley trap chamber internal 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	Ls	1.0		
	<b><u>CLASS U: MASONRY NATURAL STONE</u></b>				
	<u>Approved stone walling of minimum compressive strength of 10N/mm<sup>2</sup> 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</u>				
C1.29.1	225mm thick solid masonry block walling in cement/sand for substructure, reinforced with hoop iron at each course	m <sup>2</sup>	14.4		
C1.29.2	200mm thick solid masonry block wall in cement/sand (1:3 ) mortar reinforced with hoop iron at every alternate courses for superstructure	m <sup>2</sup>	23.0		
C1.29.3	150mm thick solid masonry block wall in cement/sand (1:3 ) mortar reinforced with hoop iron at every alternate courses to enclose plastic tank on the kiosk	m <sup>2</sup>	33.8		
C1.31	Provide (32x32x3)mm RSA bars and cast into concrete to all edges of the walls as specified in drawings.	m	6.0		
	<b><u>SHELVES, WINDOWS AND DOORS</u></b>				
C1.32	Provide and fix 350mm wide x 25mm thick timber cypress shelves, length 2m (to detail drawings.)	Nr	3.0		
	<u>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.</u>				
C1.33	Window size 1200 x 900 mm high overall	Nr	1.0		
C1.34	Single swing door overall size 900 x 2100mm high	Nr	1.0		
C1.35	Heavy-Duty Alarm Lock Siren Padlock (Large). To be approved by the Engineer	Nr	2.0		
	<b><u>INTERNAL WALL FINISHES</u></b>				
	<u>15mm thick lime plaster (1:2:9) as described to:-</u>				
C1.36	Interior surfaces of walls	m <sup>2</sup>	56.8		
C1.37	On roof slab soffit	m <sup>2</sup>	11.8		
C1.38	Exposed front areas of fetching bay. Rate to include instalation of angle sections as per the drawings	m <sup>2</sup>	2.0		
	<b>Page Total carried to the Collection Sheet</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX C WATER KIOSK					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	<b>CLASS V: PAINTING</b>				
	<i>Prepare and apply</i>				
C1.39	Plastered Internal surfaces of walls 2-coats of emulsion undercoat paint and 3-coats of first grade oil paint	m <sup>2</sup>	20.8		
C1.40	2-coats of primer paint and 3-coats of first grade oil paint to vertical surfaces of metal doors and windows.	Ls	1.0		
	<b>WATER KIOSK ATM</b>				
C1.41	Supply 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		
	<b>Steel Frame Structure</b>				
	<b>Supply and joint/weld</b>				
C1.42	50x50x3mm vertical stanchions	m	12.0		
C1.43	M10 bolts & nuts complete with Ø25mm washers; to be anchored into concrete slab to drawing detail OR Ø10mm, 100mm long expanding Rawl Plugs or similar approved by the Engineer, for already existing concrete slabs (rate to include for drilling through concrete slab section )	Ls	1.0		
C1.44	3mm thick base plates welded to stanchion end	nr	4.0		
C1.45	50x50x3mm RHS Horizontal Rafters	m	28.0		
	<b>Roof Cladding</b>				
	<b>Supply and fix</b>				
C1.46	Supply and Install Roofing Sheets, Prepainted (Blue colour) Gauge 26 Industrial Tough 5 (IT 5). Include for all the installation accessories. Rate to include bolting to the steel section support framing. (Type specifications attached)	m <sup>2</sup>	9.0		
C1.47	Supply and Install polynium sheeting underneath the iron sheet roofing. Specification as attached.	m <sup>2</sup>	9.0		
	<b>Class V: Painting</b>				
	<b>Prepare and apply</b>				
C1.48	One coat red oxide, one coat primer and one coat first grade oil paint to all metal surfaces; all applied per	LS	1.0		
	<b>Branding</b>				
C1.49	Allow a lumpsum for branding of the facility as directed by the Engineer	Ls	1.00		
	<b>Page Total carried to the Collection Sheet</b>				



## APPENDIX C WATER KIOSK

## Appendix C Bill Item Collection Page to Water Kiosk Bill Item

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount
------	------------------	------	----------	-------------	--------

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX C1 WATER KIOSK WITH REVERSE OSMOSIS SYSTEM					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	<b><u>CLASS G: CONCRETE ANCILLARIES</u></b>				
	<b><u>REINFORCEMENTS</u></b>				
	<i>Rates to include for binding wire</i>				
	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		
	<b><u>Steel fabric mesh reinforcement to B.S. 4483</u></b>				
C1.16	BRC mesh fabric reinforcement ref A142 (weighing 2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance made for laps)	m <sup>2</sup>	18.0		
	<b><u>FORMWORK</u></b>				
	<i>Sawn formwork (fair finish) to: -</i>				
C1.17	Vertical and soffits of slabs	m <sup>2</sup>	11.8		
C1.18	Vertical sides and soffit of beams, columns and fetching bay	m <sup>2</sup>	44.2		
	<b><u>CONCRETE ACCESSORIES</u></b>				
C1.19	40mm x 30mm drainage groves in concrete to detail drawings	m	13.8		
C1.20	Cement screed on the top surface of roof slab to minimum fall gradient of 1.50	m <sup>2</sup>	11.8		
C1.21	Bituminous felt cover on the surface of the cement screed on the roof slab.Allow for 300mm lapping.	m <sup>2</sup>	11.8		
C1.22	Allow for 25mm nominal core bore class B G1 pipe through inserts in floor slab, roof slab and window sill	m	4.0		
	<b><u>CLASS I: PIPEWORK - PIPES</u></b>				
	<b><u>Drainage system</u></b>				
C1.23	110mm OD HDPE pipe class PN 10 in trench, depth n.e 1.5m	m	10.0		
	<b><u>Piped Building Services</u></b>				
	<b><u>Portable water supply installation to detail drawings for Water Kiosk</u></b>				
C1.24	Provide, test and commission pipework fittings to connect to the existing system with the kiosk as shown in the drawing including the plastic tank, 3 dispensing outlets and integration with the water dispensing ATMs and as directed by the Engineer.	Ls	1.0		
C1.25	Supply and installed 5,000 litres plastic water tank as manufactured by KENTANK (K) LTD or equally approved by the Engineer . The tank shall be coated with epoxy coating outside prior enclosing in a masonry walling.	Nr	1.0		
C1.26	Provide, install, test and commission PN25 Floater valve for the plastic tank complete with all installation sundry	Nr	1.0		
C1.27	Foldable ladder 4m high	Nr	1.0		
	<b>Page Total carried to the Collection Sheet</b>				

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX C1 WATER KIOSK WITH REVERSE OSMOSIS SYSTEM					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	<b>Soak Away Pit</b>				
C1.28	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 and backfill and disposal. Gulley trap chamber internal 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	Ls	1.0		
	<b><u>CLASS U: MASONRY NATURAL STONE</u></b>				
	<u>Approved stone walling of minimum compressive strength of 10N/mm<sup>2</sup> 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</u>				
C1.29.1	225mm thick solid masonry block walling in cement/sand for substructure, reinforced with hoop iron at each course	m <sup>2</sup>	14.4		
C1.29.2	200mm thick solid masonry block wall in cement/sand (1:3 ) mortar reinforced with hoop iron at every alternate courses for superstructure	m <sup>2</sup>	23.0		
C1.29.3	150mm thick solid masonry block wall in cement/sand (1:3 ) mortar reinforced with hoop iron at every alternate courses to enclose plastic tank on the kiosk	m <sup>2</sup>	33.8		
C1.31	Provide (32x32x3)mm RSA bars and cast into concrete to all edges of the walls as specified in drawings.	m	6.0		
	<b><u>SHELVES, WINDOWS AND DOORS</u></b>				
C1.32	Provide and fix 350mm wide x 25mm thick timber cypress shelves, length 2m (to detail drawings.) <u>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.</u>	Nr	3.0		
C1.33	Window size 1200 x 900 mm high overall	Nr	1.0		
C1.34	Single swing door overall size 900 x 2100mm high	Nr	1.0		
C1.35	Heavy-Duty Alarm Lock Siren Padlock (Large). To be approved by the Engineer	Nr	2.0		
	<b><u>INTERNAL WALL FINISHES</u></b>				
	<u>15mm thick lime plaster (1:2:9) as described to:-</u>				
C1.36	Interior surfaces of walls	m <sup>2</sup>	56.8		
C1.37	On roof slab soffit	m <sup>2</sup>	11.8		
C1.38	Exposed front areas of fetching bay. Rate to include instalation of angle sections as per the drawings	m <sup>2</sup>	2.0		
<b>Page Total carried to the Collection Sheet</b>					

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX C1 WATER KIOSK WITH REVERSE OSMOSIS SYSTEM					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount (Kshs)
	<b>CLASS V: PAINTING</b>				
	<i>Prepare and apply</i>				
C1.39	Plastered Internal surfaces of walls 2-coats of emulsion undercoat paint and 3-coats of first grade oil paint	m <sup>2</sup>	20.8		
C1.40	2-coats of primer paint and 3-coats of first grade oil paint to vertical surfaces of metal doors and windows.	Ls	1.0		
	<b>WATER KIOSK ATM</b>				
C1.41	Supply 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	2.0		
	<b>Steel Frame Structure</b>				
	<b>Supply and joint/weld</b>				
C1.42	50x50x3mm vertical stanchions	m	12.0		
C1.43	M10 bolts & nuts complete with Ø25mm washers; to be anchored into concrete slab to drawing detail OR Ø10mm, 100mm long expanding Rawl Plugs or similar approved by the Engineer, for already existing concrete slabs (rate to include for drilling through concrete slab section )	Ls	1.0		
C1.44	3mm thick base plates welded to stanchion end	nr	4.0		
C1.45	50x50x3mm RHS Horizontal Rafters	m	28.0		
	<b>Roof Cladding</b>				
	<b>Supply and fix</b>				
C1.46	Supply and Install Roofing Sheets, Prepainted (Blue colour) Gauge 26 Industrial Tough 5 (IT 5). Include for all the installation accessories. Rate to include bolting to the steel section support framing. (Type specifications attached)	m <sup>2</sup>	9.0		
C1.47	Supply and Install polynium sheeting underneath the iron sheet roofing. Specification as attached.	m <sup>2</sup>	9.0		
	<b>Class V: Painting</b>				
	<b>Prepare and apply</b>				
C1.48	One coat red oxide, one coat primer and one coat first grade oil paint to all metal surfaces; all applied per	LS	1.0		
	<b>Page Total carried to the Collection Sheet</b>				

ITEM	ITEM DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	Amount
------	------------------	------	----------	-------------	--------

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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX D TROUGH					
ITEM NO.	ITEM DESCRIPTION	UNIT	QTY	RATE (Kshs)	Amount
<b>D</b>	<b>ANIMALS TROUGH</b>				
	Clearance of trough area and removal of trees and stumps		66		
D1.1	Excavate over site soil material to reduce levels not exceeding 225mm deep and cart away	m2	66		
D1.2	Excavation for raft foundation not exceeding 1.0 metres deep starting from reduced levels.		22		
D1.3	225 mm thick approved hard-core filling, levelled and compacted in 150mm layers.	m2	22		
D1.4	Level and blind surface of hard-core with 50mm thick 1:4:8 concrete mix blinding		1.1		
D1.5	Formwork to sides of floor slab 150mm thick	m	26		
D1.6	Reinforcement bars D8. include for tying to floor slab		102		
D1.7	Insitu reinforced concrete:(mix 1:2:4) grade 20(20 mm aggregate):vibrated in foundation strip 150mm thick	m3	2.7		
D1.8	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		13		
D1.9	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.	No	1		
D1.14	<b>Fittings from tank to trough</b>				
D1.15	2" Ø GI pipes "B"	No	2		
D1.16	2" Ø GI long nipple	No	4		
D1.17	2" Ø GI elbow	No	4		
D1.18	2" Ø GI backnut	No	4		
D1.19	2" diameter union	No	1		
D1.20	2" diameter gate valve	No	1		
D1.21	2"x1½" Ø reducing socket	0	1		
D1.22	1½" Ø plain socket	No	1		
D1.23	1½" Ø ball valve Pegler	No	1		
	<b>Total for Cattle trough summary</b>				

**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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT  
COUNTY**

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

**APPENDIX E-LATRINE**

<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate</b>	<b>Kshs</b>
	<b>Element No.1: Excavation &amp; Earth Works</b>				
E.1	General excavation to remove top soil to an average depth of 250mm		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.6	Excavation for wall footing, 450mm wide by 100mm thick		0.42		
E.7	Cart away surplus excavated material & deposit at designated area for dumping construction wastes	m3	30.00		
E.8	Approved hard-core, well compacted under the entrance apron.		1.26		
	<b>Element No.2: Masonry Work</b>				
E.9	Provide and construct with natural 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		40.00		
E.10	10mm thick DPM under walls or approved equivalent	M	12.00		
E.11	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.		48.00		
	<b>Element No.3: Concrete Work</b>				
E.13	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.15	Ditto 150mm thick and 450mm wide reinforced concrete class 25 (1:2:4) in foundation footing.	m3	0.37		
E.16	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.17	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 solution and apply 1 litre per 8 m2.</i>	m3	5.00		
E.18	200mm X 150mm Concrete Grade 25 (1:2:4) in ring beam	m3	1.00		
	<b>Element No. 4: Concrete Ancillaries and openings</b>				
	<b>Formwork</b>				
	Provide cut and fix in position sawn timber formwork or equivalent.				
E.21	side of foundation footing 150mm wide	m2	13.20		
E.22	edges floor slab 150mm wide	m2	14.00		
E.23	Under floor slab	m2	12.00		
E.24	Side of ring beam 300mm deep	0	4.98		
E.25	support props and floor slab	Item	1.00		
E.26	on substructure columns and beams	m2	27.90		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE</b>				



**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 II: MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY**

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

**APPENDIX E-LATRINE**

Item	Description	Unit	Qty	Rate	Kshs
	<b>Reinforcement</b>				
	<i>Steel reinforcement cut, bend &amp; placed in position, unit price to include cutting, bending &amp; placing in position with binding wire and concrete seats</i>				
	<b>In Foundation Footing</b>				
E.27	10mm diameter high tensile steel (0.89kg/m) (in strip footing as 2 No. main reinforcement at 150mm )		16.82		
E.28	8mm diameter mild steel (0.39kg/m) in substructure strip footing as distrubution steel at 200mm C/C	Kg	6.76		
	<b>Substructure columns</b>				
E.29	12mm diameter high tensile steel (0.89kg/m) (in columns as 4 No. main reinforcement )	Kg	64.08		
E.30	8mm diameter mild steel (0.39kg/m) in columns as distrubution steel at 200mm C/C	Kg	126.36		
	<b>Substructure and ground beams</b>				
E.31	8mm diameter mild steel (0.39kg/m) in substructure beams and columns as distrubution steel	Kg	29.00		
E.32	12mm diameter high tensile steel (0.89kg/m) (as 4No. In substructure and ground beams)	Kg	45.57		
E.33	<i>BRC A 142 in the floor slab</i>	m2	12.00		
	<b>Superstructure Lintel/ Ring beam</b>				
E.34	8mm diameter mild steel (0.39kg/m)as distribution steel in ring beam	Kg	41.00		
E.35	8mm diameter mild steel (0.39kg/m) as main reinforcement in ring beam	Kg	21.00		
	<b>Openings</b>				
E.36	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 as shall be guided by the supervising engineer	No.	2.00		
	<b>Element No.5: Roofing</b>				
E.37	Roof cover in Gauge 28 CIS Nailed to 50 X 75mm purlins. Use pre painted Box Profile iron sheets	m2	12.00		
	<b>Timber Work</b>				
	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.				
E.38	a) 100 X 50mm wall plate	M	14.00		
E.39	b) 50X 100mm rafter	M	22.40		
E.41	c)225 X 50mm Fascia Board	M	14.00		
E.42	e) 50x75mm roof purlin	M	24.00		
	<b>Element No.6: Fixtures and Fittings</b>				
	<b>Doors</b>				
	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				
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE</b>				

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 II:MALOBOT, ILLERET, MARIME, GOLOLE AND GAMURA SCHEMES IN MARSABIT COUNTY					
PROJECT NO.: KE-WSTF-328819-CS-QCBS					
APPENDIX E-LATRINE					
Item	Description	Unit	Qty	Rate	Kshs
E.43	Wooden shutter butend door 750 X 2100mm to normal latrine. Provide internal and external locks/latches	No	3.00		
	<b>Element No.7: Finishes</b>				
E.45	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		
E.46	Apply one priming coat and two finishing coats of 1st grade paint ton beam surface internally and externally and to . Use either dura coat , crown or sadolin paint	m <sup>2</sup>	10.00		
E.47	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.49	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		
	<b>Vent Pipe</b>				
E.50	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		
	<b>Element No.8: Drainage and Water Supply</b>				
E.54	Provide and install urinal bowl to height 0.5m above ground surface	No	2.00		
	<b>Branding</b>				
E.55	Allow a lumpsum for branding of the facility as directed by the Engineer	Ls	1.00		
	<b>PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE</b>				
	<b>Appendix D Bill Item Collection Page</b>				
	Page 1 Total				
	Page 2 Total				
	Page 3 Total				
	<b>Appendix D Bill Item Collection Page to Sanitation Bill Item</b>				