

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |                |
|---|--|----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |                |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |
| <u>GRAND SUMMARY</u>  |  |                |
| BILL<br>No  | DESCRIPTION                                      | AMOUNT<br>Kshs |
| 1   | PRELIMINARY AND GENERAL ITEMS                    |                |
|   |  |                |
| 2   | KAMBOE MIDROCK                                   |                |
|   |  |                |
| 3   | KAMBOE FURMASAN SCHEME                           |                |
|   |  |                |
| 4   | LOGLOGO SCHEME                                   |                |
|   |  |                |
| 5   | JALDESA SCHEME                                   |                |
|   |  |                |
| 6   | MANYATTA LENGIMA SCHEME                          |                |
|   |  |                |
| 7   | LAISAMIS SCHEME                                  |                |
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|   |  |                |
|   | 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 |   |        |     |               |                 |
|--|---|--------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND |   |        |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |   |        |     |               |                 |
| BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS                                   |   |        |     |               |                 |
| ITEM   | DESCRIPTION   | UNIT   | QTY | RATE<br>Kshs. | AMOUNT<br>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>   |        |     |               |                 |
| <b>1.2.1</b>   | 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         |
| <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 cartridges, 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         |
| 1.4.3  | Add a percentage to item above to cater for Contractor's profits, duties, administration and overheads.   | %      |     |               |                 |
| <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         |
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| <b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>                          |   |        |     |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER |  |          |       |            |            |
|--|--|----------|-------|------------|------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND |  |          |       |            |            |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |  |          |       |            |            |
| BILL NO. 1 : PRELIMINARIES AND GENERAL ITEMS                                   |  |          |       |            |            |
| ITEM   | DESCRIPTION  | UNIT     | QTY   | RATE       | AMOUNT     |
|  |  |          |       | Kshs.      | Kshs.      |
| 1.5.2  | Add a percentage to item 1.4.1 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.   | %        |       |            |            |
| <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  | VehMonth | 24    | 400,000    | 9,600,000  |
| 1.8.2  | Extra over for mileage over 7,000 km per vehicle month.  | km       | 10000 | 25         | 250,000    |
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| 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 |   |           |     |               |                 |
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| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |           |     |               |                 |
| BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |   |           |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT      | QTY | RATE<br>Kshs. | AMOUNT<br>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.  | Item      | 1.0 | 100,000.00    | 100,000.00      |
| 2.1.3   | Allow a provisional sum of Kes 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.  | Prov. Sum | 1.0 | 250,000.00    | 250,000.00      |
| 2.1.4   | Allow % for profits and overheads   | %         |     |               |                 |
| 2.1.5   | Supply, install, test and commission 15kW, 20Hp Submersible Pump SP 9-52 or approved equivalent with a discharge 7 m <sup>3</sup> /hr and head of 291m, complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes. .   | No        | 1   |               |                 |
| 2.1.6   | Supply, install, test and commission 2.5 mm <sup>2</sup> /4 core submersible pump flat cable  | m         | 180 |               |                 |
| 2.1.7   | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.   | Pair      | 1   |               |                 |
| 2.1.8   | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)   | m         | 360 |               |                 |
|   | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>   |           |     |               |                 |

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| BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>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.   | LS   | 1.00 |               |                 |
| 2.1.11  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  | No.  | 1.00 |               |                 |
| 2.1.12  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH <sub>2</sub> Og, accuracy + 0.175% FS BSL NLHR>4mH <sub>2</sub> O, +o.25%<4mH <sub>2</sub> O.  | 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 64.35 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 42.0 |               |                 |
|   | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>   |      |      |               |                 |

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| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 2.1.18  | Supply, installation and furnishing support structures with the following specifications: 60mm x 40mm (minimum) aluminium angle plates using stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 2.5 m above the ground for the low height side and a maximum of 3m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long the tilt angle is not more than 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 power output. | Set  | 1   |               |                 |
| 2.1.19  | Supply, install, test and commission a 3-phase 125KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.  | Set  | 1   |               |                 |
| 2.1.20  | Supply, install, test and commission a 55 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 55kW 105A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.   | Set  | 1   |               |                 |
| 2.1.21  | Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.  | No   | 1   |               |                 |
| 2.1.22  | Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWh 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complete with IP66 rated enclosure.  | No   | 1   |               |                 |
| 2.1.23  | Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B  | Set  | 1   |               |                 |
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| BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |  |      |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 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   |               |                 |
| 2.1.26  | 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   |               |                 |
|   | <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    | 500 |               |                 |
| 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 |               |                 |
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**BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT**

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| BILL NO. 2.1: KAMBOE MIDROCK WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |   |      |     |               |                 |
| ITEM  | DESCRIPTION                               | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
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| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 2.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>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 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>RISING MAINS</b>   |      |       |               |                 |
| 2.2.1   | HDPE Pipe DN75mm PN16   | m    | 2,320 |               |                 |
|   | <b>Non return valves</b>  |      |       |               |                 |
| 2.2.2   | DN 75mm Non-return valves   | Nr   | 1     |               |                 |
|   | <b>Airvalves</b>  |      |       |               |                 |
| 2.2.3   | DN 50mm airvalve AVK or approved equivalent   | Nr   | 3     |               |                 |
|   | <b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>   |      |       |               |                 |
| 2.2.4   | HDPE Pipe DN50mm PN16   | m    | 2,085 |               |                 |
| 2.2.5   | HDPE Pipe DN63mm PN16   | m    | 1,641 |               |                 |
| 2.2.6   | HDPE Pipe DN75mm PN16   | m    | 1,608 |               |                 |
| 2.2.7   | HDPE Pipe DN110mm PN16  | m    | 225   |               |                 |
|   | <b>Bends</b>  |      |       |               |                 |
| 2.2.8   | DN 110mm 90°  | Nr.  | 2     |               |                 |
| 2.2.9   | DN 110mm 45°  | Nr.  | 2     |               |                 |
| 2.2.10  | DN 75mm 90°   | Nr.  | 2     |               |                 |
| 2.2.11  | DN 63mm 90°   | Nr.  | 2     |               |                 |
| 2.2.12  | DN 50mm 90°   | Nr.  | 2     |               |                 |
|   | <b>Reducers</b>   |      |       |               |                 |
| 2.2.13  | DN 110/75 mm  | Nr.  | 1     |               |                 |
| 2.2.14  | DN 75/63 mm   | Nr.  | 1     |               |                 |
| 2.2.15  | DN 63/50 mm   | Nr.  | 1     |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |     |               |                 |
|---|---|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 2.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>110mm offtake (JD 1)</b>   |      |     |               |                 |
| 2.2.16  | DN 110x110x75mm HDPE fabricated tee                                       | Nr   | 1   |               |                 |
| 2.2.17  | DN 75mm stub end with MS flange ring                                      | Nr   | 2   |               |                 |
| 2.2.18  | DN 75mm flanged sluice valve  | Nr   | 1   |               |                 |
|   | <b>110mm offtake (JD 2)</b>   |      |     |               |                 |
| 2.2.19  | DN 110x110x50mm HDPE tee  | Nr   | 0   |               |                 |
| 2.2.20  | DN 50mm stub end with MS flange ring                                      | Nr   | 0   |               |                 |
| 2.2.21  | DN 50mm flanged sluice valve  | Nr   | 0   |               |                 |
|   | <b>Cross Junction (JD 3)</b>  |      |     |               |                 |
| 2.2.22  | DN 110x110x110x110mm HDPE cross tee                                       | Nr   | 1   |               |                 |
| 2.2.23  | DN 110x75mm reducer   | Nr   | 1   |               |                 |
| 2.2.24  | DN 75mm stub end with MS flange ring                                      | Nr   | 2   |               |                 |
| 2.2.25  | DN 75mm flanged sluice valve  | Nr   | 1   |               |                 |
| 2.2.26  | DN 110x63mm reducer   | Nr   | 2   |               |                 |
| 2.2.27  | DN 63mm stub end with MS flange ring                                      | Nr   | 4   |               |                 |
| 2.2.28  | DN 63mm flanged sluice valve  | Nr   | 2   |               |                 |
|   | <b>75mm offtake (JD 4,5)</b>  |      |     |               |                 |
| 2.2.29  | DN 75x75x50mm HDPE tee  | Nr   | 1   |               |                 |
| 2.2.30  | DN 50mm stub end with MS flange ring                                      | Nr   | 2   |               |                 |
| 2.2.31  | DN 50mm flanged sluice valve  | Nr   | 1   |               |                 |
|   | <b>75mm offtake (JD 6,7,8,9)</b>  |      |     |               |                 |
| 2.2.32  | DN 63x63x50mm HDPE tee  | Nr   | 4   |               |                 |
| 2.2.33  | DN 50mm stub end with MS flange ring                                      | Nr   | 8   |               |                 |
| 2.2.34  | DN 50mm flanged sluice valve  | Nr   | 4   |               |                 |
|   | <b>DN 50mm Terminal connection (with washout)</b>                         |      |     |               |                 |
| 2.2.35  | DN 50x50x50mm HDPE (Reduced or Equal) tee                                 | Nr   | 3   |               |                 |
| 2.2.36  | DN 50mm stub end with MS flange back ring                                 | Nr   | 12  |               |                 |
| 2.2.37  | DN 50mm Flanged gate valve  | Nr   | 3   |               |                 |
| 2.2.38  | DN 50mm HDPE flap valve   | Nr   | 3   |               |                 |
| 2.2.39  | DN 50mm HDPE PN 16 pipe   | m    | 180 |               |                 |
|   | <b>Air Valve Chamber Fittings (DN110mm) -(1No)</b>                        |      |     |               |                 |
| 2.2.55  | HDPE Reducer Tee DN 110mm x 110mm x 63mm                                  | Nr   | 1   |               |                 |
| 2.2.56  | DN63 mm HDPE Stub End with MS Flange                                      | Nr   | 1   |               |                 |
| 2.2.57  | DN 50mm double flanged sluice valve                                       | Nr   | 1   |               |                 |
| 2.2.58  | DN 50mm double orifice airvalve   | Nr   | 1   |               |                 |
|   | <b>Washout (DN 110mm) -(1No)</b>  |      |     |               |                 |
| 2.2.59  | HDPE Reducer Tee DN 110mm x 110mm x 90mm                                  | Nr   | 1   |               |                 |
| 2.2.60  | DN 110mm HDPE stub end with MS Flange                                     | Nr   | 4   |               |                 |
| 2.2.61  | DN 90 mm HDPE stub end with MS Flange                                     | Nr   | 2   |               |                 |
| 2.2.62  | DN 90mm sluice valve  | Nr   | 1   |               |                 |
| 2.2.63  | DN 90mm HDPE pipe (PN 12.5)   | m    | 24  |               |                 |
| 2.2.64  | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 1   |               |                 |
|   |   |      |     |               |                 |
|   |   |      |     |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |     |               |                 |
|---|---|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 2.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Air Valve Chamber Fittings (DN75mm) -(1No)</b>                         |      |     |               |                 |
| 2.2.65  | HDPE Reducer Tee DN 75mm x 75mm x 63mm                                    | Nr   | 1   |               |                 |
| 2.2.66  | DN63 mm HDPE Stub End with MS Flange                                      | Nr   | 1   |               |                 |
| 2.2.67  | DN 50mm double flanged sluice valve                                       | Nr   | 1   |               |                 |
| 2.2.68  | DN 50mm double orifice airvalve   | Nr   | 1   |               |                 |
|   | <b>Washout (DN 75mm) -(1No)</b>   |      |     |               |                 |
| 2.2.69  | HDPE Equal Tee DN 75mm x 75mm x 75mm                                      | Nr   | 1   |               |                 |
| 2.2.70  | DN 75mm HDPE stub end with MS Flange                                      | Nr   | 4   |               |                 |
| 2.2.71  | DN 75 mm HDPE stub end with MS Flange                                     | Nr   | 2   |               |                 |
| 2.2.72  | DN 75 mm sluice valve   | Nr   | 1   |               |                 |
| 2.2.73  | DN 75mm HDPE pipe (PN 12.5)   | m    | 24  |               |                 |
| 2.2.74  | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 1   |               |                 |
|   | <b>Air Valve Chamber Fittings (DN 63mm) -(1No)</b>                        |      |     |               |                 |
| 2.2.75  | HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be electrofusion)           | Nr   | 1   |               |                 |
| 2.2.76  | HDPE DN 32 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 1   |               |                 |
| 2.2.77  | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 1   |               |                 |
| 2.2.78  | HDPE DN 32 mm Pegler brass gate valve                                     | Nr   | 1   |               |                 |
| 2.2.79  | DN 32 mm Stainless Steel Hex Nipple                                       | Nr   | 1   |               |                 |
| 2.2.80  | DN 32 mm Threaded Air Valve   | Nr   | 1   |               |                 |
|   | <b>Washout (DN 63mm) -(1No)</b>   |      |     |               |                 |
| 2.2.81  | HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofusion)             | Nr   | 1   |               |                 |
| 2.2.82  | HDPE DN 63 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 1   |               |                 |
| 2.2.83  | HDPE DN 63 mm PN 16 Flanged adapter                                       | Nr   | 1   |               |                 |
| 2.2.84  | HDPE DN 50 mm Flanged Sluice valve  | Nr   | 1   |               |                 |
| 2.2.85  | DN 63 mm HDPE pipe (PN 12.5)  | m    | 24  |               |                 |
| 2.2.86  | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 1   |               |                 |
|   | <b>Air Valve Chamber Fittings (DN 50mm) -(1No)</b>                        |      |     |               |                 |
| 2.2.87  | HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofusion)           | Nr   | 1   |               |                 |
| 2.2.88  | HDPE DN 32 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 1   |               |                 |
| 2.2.89  | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 1   |               |                 |
| 2.2.90  | HDPE DN 32 mm Pegler brass gate valve                                     | Nr   | 1   |               |                 |
| 2.2.91  | DN 32 mm Stainless Steel Hex Nipple                                       | Nr   | 1   |               |                 |
| 2.2.92  | DN 32 mm Threaded Air Valve   | Nr   | 1   |               |                 |
|   | <b>Washout (DN 50mm) -(1No)</b>   |      |     |               |                 |
| 2.2.93  | HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)             | Nr   | 1   |               |                 |
| 2.2.94  | HDPE DN 50 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 1   |               |                 |
| 2.2.95  | HDPE DN 50 mm PN 16 Flanged adapter                                       | Nr   | 1   |               |                 |
| 2.2.96  | HDPE DN 50 mm Flanged Sluice valve  | Nr   | 1   |               |                 |
| 2.2.97  | DN 50 mm HDPE pipe (PN 12.5)  | m    | 24  |               |                 |
|   |   |      |     |               |                 |
|   | <b>Page total carried to summary 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 |   |      |     |       |        |
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| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |       |        |
| BILL NO. 2.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |     |       |        |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE  | AMOUNT |
|   |   |      |     | Kshs. | Kshs.  |
|   | <b>Water Draw Off Facilities</b>  |      |     |       |        |
| 2.2.98  | 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   |       |        |
| 2.2.99  | 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   |       |        |
| 2.2.100   | 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   |       |        |
| 2.2.101   | Supply of materials and construct a sanitation facility as described to detail in Appendix E  | Item | 1   |       |        |
| 2.2.102   | Supply of materials and construct a sanitation facility as described to detail in Appendix E1   | Item | 1   |       |        |
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| 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 |  |      |      |               |                 |
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| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| BILL NO. 2.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 2.2.103   | Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications - Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), - Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households. | Nr   | 1.00 |               |                 |
| 2.2.104   | Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.  | Nr   | 2.00 |               |                 |
|   | <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.  |      |      |               |                 |
| 2.2.105   | Washouts   | Nr.  | 2    |               |                 |
| 2.2.106   | Air valves   | Nr.  | 1    |               |                 |
| 2.2.107   | Valve chambers   | Nr.  | 7    |               |                 |
|   |  |      |      |               |                 |
|   |  |      |      |               |                 |
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| 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 |   |      |       |               |                 |
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| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 2.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>ANCILLARIES ITEMS</b>  |      |       |               |                 |
| 2.2.108   | Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications  | No   | 42    |               |                 |
| 2.2.109   | Allow for a total of Kshs. 1,500,000 for establishment and maintenance of for control survey points and beacons for the Lot 3 project sites   | Item | 1     |               |                 |
| 2.2.110   | Allow a percentage to items 2.2.109 above to cater for Contractor's profits, duties administration and overheads.   | %    | 10%   |               |                 |
|   | <b>Thrust Blocks</b>  |      |       |               |                 |
| 2.2.111   | Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing  | Nr   | 10    |               |                 |
|   | <b>Road Crossing</b>  |      |       |               |                 |
| 2.2.112   | Allow for micro tunneling across tarmacked road for hdpe pipe of diameter 90mm - 150mm as detailed in the drawings and as per the design guidelines in the Kenya Roads Design manual. Rate inclusive of steel casing. Contractor to allow for provision of requisite diversion signage, controls and safety precaution and liaison and approval of the methodology with the relevant roads agencies                           | m    | 30    |               |                 |
| 2.2.113   | Ditto but for DN 32mm - 75mm  | m    | 30.00 |               |                 |
| 2.2.114   | Breaking up, temporary and permanent reinstatement of murram road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm. Rate to include steel casing sleeve. Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm. | m    | 30.00 |               |                 |
|   |   |      |       |               |                 |
|   | <b>Gulley/ River Crossings</b>  |      |       |               |                 |
| 2.2.115   | Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)  | m    | 60.00 |               |                 |
|   |   |      |       |               |                 |
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**BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK**

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| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY |   |      |       |       |        |
|--|---|------|-------|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO AND JALDESA SCHEMES IN MARSABIT COUNTY                     |   |      |       |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |   |      |       |       |        |
| BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK   |   |      |       |       |        |
| ITEM   | ITEM DESCRIPTION  | UNIT | QTY   | RATE  | AMOUNT |
|  |   |      |       | (Ksh) | (Ksh)  |
|  | <b>CLASS L: ACCESS CHAMBERS</b>   |      |       |       |        |
| 2.3.14   | Provide ,supply and install hot-dip galvanised mild steel 1000x1000x6mm thick lockable access chamber covers with 6mm thick angle frame, installation anchors, gaskets etc.. for a complete installation.   | nr   | 2.00  |       |        |
|  | <b>CLASS H: PRECAST CONCRETE</b>  |      |       |       |        |
| 2.3.15   | Provide and lay with all leads and lifts etc. complete 600 x 600 x 50 mm thick precast paving slabs on and including 50 mm thick sand bed as per the drawings   | m²   | 80.00 |       |        |
|  | <b>CLASS N: MISCELLANEOUS METAL WORK</b>  |      |       |       |        |
|  | All steelwork to be completely cleaned by acid dipping prior to galvanising. All steel pipes shall be hot-dip galvanised steel pressure pipes rated PN16 or as per the system distribution whichever is higher.   |      |       |       |        |
|  | <b>Stainless Steel water level Indicator</b>  |      |       |       |        |
| 2.3.16   | Provide, supply, install and commission a tank's stainless steel water level Indicator for O&M.   | nr   | 1.00  |       |        |
|  | <b>Access Ladder with safety cage</b>   |      |       |       |        |
| 2.3.17   | Provide, supply and install internal/external access ladder not exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm diameter tubes. The rate includes flat vertical guard strips 40 x 3mm including, cleats 40 x 6mm bolted to distribution chamber walls, stringer 40 x 6mm all fillet welded for complete installation. | nr   | 3.00  |       |        |
| 2.3.18   | Provision for an 100mm air vent to standard drawing detail  | No.  | 4.00  |       |        |
|  | <b>Overflow PIPEWORK</b>  |      |       |       |        |
| 2.3.19   | DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end   | Nr   | 1     |       |        |
| 2.3.20   | DN 150 All flanged 90deg short radius bend  | Nr   | 1     |       |        |
| 2.3.21   | DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm   | Nr   | 1     |       |        |
| 2.3.22   | DN 150 Flanged spigot 90deg long radius bend  | Nr   | 1     |       |        |
|  | <b>Scour Pipework</b>   |      |       |       |        |
| 2.3.23   | DN 150 Flanged spigot 90 deg short radius bend  | Nr   | 1     |       |        |
| 2.3.24   | DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm  | Nr   | 1     |       |        |
| 2.3.25   | DN 150 All flanged Globe Control valve PN10 with EPDM lining  | Nr   | 1     |       |        |
|  | <b>Inlet Pipework</b>   |      |       |       |        |
| 2.3.26   | DN 75 All flanged steel 90 deg long radius bend   | Nr   | 2.00  |       |        |
| 2.3.27   | DN 75 Steel double flanged pipe with puddle flange at 1500mm from one end, length 2000mm  | Nr   | 1.00  |       |        |
| 2.3.28   | DN 75 Flanged ball valve  | Nr   | 1.00  |       |        |
| 2.3.29   | DN 75 HDPE Stub end Flange  | Nr   | 1     |       |        |
| 2.3.30   | DN 75 Double flanged pipe piece, length 3000mm  | Nr   | 1     |       |        |
|  | <b>Outlet Pipework</b>  |      |       |       |        |
| 2.3.31   | DN 100 Flanged special bell mouth   | Nr   | 1     |       |        |
| 2.3.32   | DN 100 All Flanged 90 degree short radius bend  | Nr   | 1     |       |        |
|  | <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>   |      |       |       |        |

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

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| <p align="center"><b>LOT 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY</b></p> |                    |      |     |              |              |
|---|--------------------|------|-----|--------------|--------------|
| <p align="center"><b>LOT 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO AND JALDESA SCHEMES IN MARSABIT COUNTY</b></p>                     |                    |      |     |              |              |
| <p align="center"><b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b></p>  |                    |      |     |              |              |
| <p align="center"><b>BILL NO. 2.3: KAMBOE MIDROCK WATER SUPPLY SCHEME - 200M3 RC TANK</b></p>   |                    |      |     |              |              |
| ITEM  | ITEM DESCRIPTION   | UNIT | QTY | RATE         | AMOUNT       |
|   |                    |      |     | <b>(Ksh)</b> | <b>(Ksh)</b> |
|   | Page Total, Page 1 |      |     |              | 5,519,293.25 |
|   | Page Total, Page 2 |      |     |              | 496,047.00   |
|   | Page Total, Page 3 |      |     |              | 1,365,555.00 |
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| <b>Bill Total Carried to Bill Summary</b>   |                    |      |     |              |              |

**LOT 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO AND JALDESA SCHEMES IN MARSABIT COUNTY**

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

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

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |       |               |                 |
|---|--|------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING  |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   |  |      |       |               |                 |
|   | <b>Administration Building Type I</b>  |      |       |               |                 |
|   | <b>CLASS E: EARTHWORKS</b>   |      |       |               |                 |
| 2.4.1   | Excavation of surfaces to reduce the level, depth not exceeding 0.25m  | m3   | 11.58 |               |                 |
| 2.4.2   | Foundations and bases for depth not exceeding 1500 mm for strip footing  | m3   | 41.67 |               |                 |
|   | <b>Excavation Ancillaries</b>  |      |       |               |                 |
| 2.4.3   | Trimming of excavated surfaces to receive blinding concrete  | m2   | 56.70 |               |                 |
|   | <b>Filling as Described:-</b>  |      |       |               |                 |
|   | <b>Hardcore</b>  |      |       |               |                 |
| 2.4.4   | 300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer   | m3   | 16.20 |               |                 |
|   | <b>Anti-Termite treatment</b>  |      |       |               |                 |
| 2.4.4b  | 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>   |      |       |               |                 |
| 2.4.5   | 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>  |      |       |               |                 |
| 2.4.6   | 75mm Thick blinding under strip footing  | m3   | 4.05  |               |                 |
|   | <b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>  |      |       |               |                 |
| 2.4.7   | 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  |               |                 |
| 2.4.8   | 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  |               |                 |
| 2.4.9   | 200x300 Ring Beam concrete   | m3   | 4.62  |               |                 |
|   | <b>CLASS G: CONCRETE ANCILLARIES</b>   |      |       |               |                 |
|   | <b>Formwork</b>  |      |       |               |                 |
|   | <b>Formwork - Fair Finish:-</b>  |      |       |               |                 |
| 2.4.10  | Formwork to sides of 300 mm deep ring beam   | m2   | 23.10 |               |                 |
| 2.4.11  | Vertical Sides of the 150mm ground slab  | m2   | 9.63  |               |                 |
| 2.4.12  | Soffit ring beam 200 mm wide   | m2   | 15.40 |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING  |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <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>  |      |        |               |                 |
| 2.4.13  | High yield tensile steel 12mm diameter to ring beam   | kg   | 64.72  |               |                 |
| 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 |               |                 |
|   | <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>  |      |        |               |                 |
| 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  |               |                 |
|   | <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>                       |      |        |               |                 |
| 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  |               |                 |
|   | <b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>  |      |        |               |                 |
| 2.4.20  | 200mm and 150mm Wide under walls  | m    | 35.20  |               |                 |
|   | <b>Finishes.</b>  |      |        |               |                 |
| 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 |               |                 |
|   | <b>CLASS O: TIMBER</b>  |      |        |               |                 |
|   | <b>Roof</b>   |      |        |               |                 |
| 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  |               |                 |
| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING  |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 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 |               |                 |
|   | <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>   |      |       |               |                 |
| 2.4.31  | 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   | -     |               |                 |
| 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  |               |                 |
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| <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>   |  |      |       |               |                 |

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |                    |      |     |               |                 |
|---|--------------------|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |                    |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                    |      |     |               |                 |
| BILL NO. 2.4: KAMBOE MIDROCK WATER SUPPLY SCHEME - ADMINISTRATION BUILDING  |                    |      |     |               |                 |
| ITEM  | DESCRIPTION        | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
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| Bill Total Carried to Grand Summary   |                    |      |     |               |                 |



| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |           |     |               |                 |
|---|---|-----------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |           |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |           |     |               |                 |
| BILL NO. 3.1: KAMBOE FUMASAN WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |   |           |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT      | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 3.1   | <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> |           |     |               |                 |
| 3.1.1   | Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc... Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer   | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 3.1.2   | Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.  | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 3.1.3   | Allow a provisional sum of 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.  | Prov. Sum | 1.0 | 250,000.00    | 250,000.00      |
| 3.1.4   | Allow % for overheads, administration, profits, etc   | %         |     |               |                 |
| 3.1.5   | Supply, install, test and commission 45kW, 61.18Hp Submersible Pump SP 30-25 or approved equivalent with a discharge <b>(36m3/hr)</b> and head <b>(175m)</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   |               |                 |
| 3.1.6   | Supply, install, test and commission 2.5 mm <sup>2</sup> /4 core submersible pump flat cable  | m         | 180 |               |                 |
| 3.1.7   | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.   | Pair      | 1   |               |                 |
| 3.1.8   | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)   | m         | 360 |               |                 |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| BILL NO. 3.1: KAMBOE FUMASAN WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 3.1.9   | 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>   |      |      |               |                 |
| 3.1A. 9.2   | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.  | LS   | 1.00 |               |                 |
| 3.1A. 9.3   | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)   | No.  | 1.00 |               |                 |
| 3.1A. 9.4   | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.  | No   | 1    |               |                 |
| 3.1A. 9.7   | Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJA530A or equivalent)   | No.  | 1.00 |               |                 |
| 3.1A. 9.10  | Power Consumption Sensor (tracks energy use, Model: Carlo Gavazzi EM24 or equivalent)  | No.  | 1.00 |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 3.1: KAMBOE FUMASAN WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 3.1A. 9.11  | pH Sensor (measures acidity/alkalinity, Model: Yokogawa FLXA21 or equivalent)   | No.  | 1.00  |               |                 |
| 3.1A. 9.12  | Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  | No.  | 1.00  |               |                 |
| 3.1.10  | Supply, install, test and commission of an array of solar with the following specifications:<br>390W solar panels, Monocrystalline Silicon PV, with 25 years warranty<br>The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 64.35 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 100.0 |               |                 |
| 3.1.11  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>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     |               |                 |
| 3.1.14  | Allow a Provisional Sum of Kshs. 5,000,000/= for installation of KPLC 3 phase power.  | P.S  | 1     |               |                 |
| 3.1.15  | Add % for profit, administration, attendance upon, overheads, etc. for Item 3.1.13 and 3.1.14 above.  | %    | 10%   |               |                 |
| 3.1.16  | Supply, install, test and commission a 55 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 55kW 105A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.   | Set  | 1     |               |                 |
|   |   |      |       |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |     |               |                 |
|---|--|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |     |               |                 |
| BILL NO. 3.1: KAMBOE FUMASAN WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT  |  |      |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Communication Infrastructure</b>  |      |     |               |                 |
| 3.1.34  | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.  | 2   |               |                 |
| 3.1.35  | Supply and installation of Antennas and signal boosters for remote locations   | No.  | 2   |               |                 |
| 3.1.36  | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m    | 500 |               |                 |
| 3.1.37  | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set  | 12  |               |                 |
| 3.1.38  | Supply and installation of Fiber Optic Splicing and Accessories  | Lot  | 1   |               |                 |
| 3.1.39  | <b>Fire Fighting Equipment</b><br>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>   |      |     |               |                 |
| 3.1.40  | 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 |               |                 |
| 3.1.41  | 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>  |      |     |               |                 |
| 3.1.42  | 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   |               |                 |
| 3.1.43  | All Flanged 90 deg long elbow DN 50  | Nr   | 3   |               |                 |
| 3.1.44  | Double Flanged Non-Return Valve 50   | Nr   | 1   |               |                 |
| 3.1.45  | Double Flanged Gate Valve DN 50  | Nr   | 4   |               |                 |
|   | Supply and intsall multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.  | No.  | 4   |               |                 |
| 3.1.46  | All flanged equal steel tee 50mmx50mmx50mm   | Nr   | 1   |               |                 |
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**BILL NO. 3.1: KAMBOE FUMASAN WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT**

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |       |       |        |
|---|---|------|-------|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |       |        |
| BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |   |      |       |       |        |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE  | AMOUNT |
|   |   |      |       | Kshs. | Kshs.  |
|   | i. The Contactor to maintain uninterrupted continuity of water supply in existing pipelines   |      |       |       |        |
|   | iv. Keeping trenches free of excessive groundwater, seepage or water from any source  |      |       |       |        |
|   | <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>RISING MAINS</b>   |      |       |       |        |
| 3.2.1   | HDPE Pipe DN140mm PN16  | m    | 1,700 |       |        |
|   | <b>Non return valves</b>  |      |       |       |        |
| 3.2.2   | DN 140mm Non-return valves  | Nr   | 1     |       |        |
|   | <b>Airvalves</b>  |      |       |       |        |
| 3.2.3   | DN 50mm airvalve AVK or approved equivalent   | Nr   | 1     |       |        |
|   | <b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>   |      |       |       |        |
| 3.2.4   | HDPE Pipe DN50mm PN16   | m    | 1,568 |       |        |
| 3.2.5   | HDPE Pipe DN63mm PN16   | m    | 730   |       |        |
|   | <b>Bends</b>  |      |       |       |        |
| 3.2.6   | DN 63mm 90°   | Nr.  | 2     |       |        |
|   | <b>Reducers</b>   |      |       |       |        |
|   | <b>50mm offtake</b>   |      |       |       |        |
| 3.2.9   | DN 50x50x50mm HDPE tee  | Nr   | 1     |       |        |
| 3.2.10  | DN 50mm stub end with MS flange ring  | Nr   | 2     |       |        |
| 3.2.11  | DN 50mm flanged sluice valve  | Nr   | 1     |       |        |
|   | <b>DN 140mm Terminal connection (with washout)</b>  |      | -     |       |        |
| 3.2.12  | DN 140x140x90mm HDPE (Reduced or Equal) tee   | Nr   | 1     |       |        |
| 3.2.13  | DN 90mm stub end with MS flange back ring   | Nr   | 4     |       |        |
| 3.2.14  | DN 90mm Flanged gate valve  | Nr   | 2     |       |        |
| 3.2.15  | DN 90mm HDPE flap valve   | Nr   | 1     |       |        |
| 3.2.16  | DN 90mm HDPE PN 16 pipe   | m    | 60    |       |        |
|   | <b>DN 63mm Terminal connection (with washout)</b>   |      | -     |       |        |
| 3.2.17  | DN 63x63x50mm HDPE (Reduced or Equal) tee   | Nr   | 1     |       |        |
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**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  
AND LAISAMIS IN MARSABIT COUNTY**

**BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS**

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |     |               |                 |
|---|---|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 3.2.57  | DN 50 mm HDPE pipe (PN 12.5)  | m    | 48  |               |                 |
| 3.2.58  | Masonry headwall with base slab for Erosion protection at discharge point   | Ls   | 2   |               |                 |
|   | <b>Water Draw Off Facilities</b>  |      |     |               |                 |
| 3.2.58a   | Supply of materials and construct a water tanker collection facility to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix F  | Nr.  | 1   |               |                 |
| 3.2.59  | Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C   | Nr.  | 1   |               |                 |
| 3.2.60  | Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications. | Item | 2   |               |                 |
| 3.2.61  | Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.     | Item | 2   |               |                 |
| 3.2.62  | Supply of materials and construct a sanitation facility as described to detail in Appendix C and The drawings   | Item | 1   |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |      |       |        |
|---|--|------|------|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |      |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |       |        |
| BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |  |      |      |       |        |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE  | AMOUNT |
|   |  |      |      | Kshs. | Kshs.  |
| 3.2.64  | Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications -Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), -Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households. | Nr   | 1.00 |       |        |
| 3.2.65  | Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.  | Nr   | 1.00 |       |        |
|   | <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.  |      |      |       |        |
| 3.2.66  | Washouts   | Nr.  | 5    |       |        |
| 3.2.67  | Air valves   | Nr.  | 5    |       |        |
| 3.2.68  | Valve chambers   | Nr.  | 2    |       |        |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |       |               |                 |
|---|---|------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>ANCILLARIES ITEMS</b>  |      |       |               |                 |
| 3.2.69  | Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications  | No   | 10    |               |                 |
|   | <b>Thrust Blocks</b>  |      |       |               |                 |
| 3.2.70  | Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing  | Nr   | 10    |               |                 |
|   | <b>Road Crossing</b>  |      |       |               |                 |
| 2.2.163   | Allow for micro tunneling across tarmacked road for hdpe pipe of diameter 90mm - 150mm as detailed in the drawings and as per the design guidelines in the Kenya Roads Design manual. Rate inclusive of steel casing. Contractor to allow for provision of requisite diversion signage, controls and safety precaution and liaison and approval of the methodology with the relevant roads agencies                           | m    | 30    |               |                 |
| 2.2.164   | Ditto but for DN 32mm - 75mm  | m    | 30.00 |               |                 |
| 2.2.165   | Breaking up, temporary and permanent reinstatement of murram road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm. Rate to include steel casing sleeve. Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm. | m    | 30.00 |               |                 |
|   | <b>Gulley/ River Crossings</b>  |      |       |               |                 |
| 2.2.166   | Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)  | m    | 60.00 |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |                    |      |     |               |                 |
|---|--------------------|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |                    |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                    |      |     |               |                 |
| BILL NO. 3.2: KAMBOE MIDROCK WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |                    |      |     |               |                 |
| ITEM  | DESCRIPTION        | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
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**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  
AND LAISAMIS IN MARSABIT COUNTY**

**BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK**

PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |          |            |              |
|---|---|------|----------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |          |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |          |            |              |
| BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK  |   |      |          |            |              |
| ITEM No.  | ITEM DESCRIPTION  | UNIT | QUANTITY | RATE (Ksh) | AMOUNT (Ksh) |
|   | <b>CLASS L: ACCESS CHAMBERS</b>   |      |          |            |              |
| 3.3.14  | Provide ,supply and install hot-dip galvanised mild steel 1000x1000x6mm thick lockable access chamber covers with 6mm thick angle frame, installation anchors, gaskets etc.. for a complete installation.   | nr   | 2        |            |              |
|   | <b>CLASS H: PRECAST CONCRETE</b>  |      |          |            |              |
| 3.3.15  | Provide and lay with all leads and lifts etc. complete 600 x 600 x 50 mm thick precast paving slabs on and including 50 mm thick sand bed as per the drawings   | m²   | 60       |            |              |
|   | <b>CLASS N: MISCELLANEOUS METAL WORK</b>  |      |          |            |              |
|   | All steelwork to be completely cleaned by acid dipping prior to galvanising. All steel pipes shall be hot-dip galvanised steel pressure pipes rated PN16 or as per the system distribution whichever is higher.   |      |          |            |              |
|   | <b>Stainless Steel water level Indicator</b>  |      |          |            |              |
| 3.3.17  | Provide, supply, install and commission a tank's stainless steel water level Indicator for O&M.   | nr   | 1        |            |              |
|   | <b>Access Ladder with safety cage</b>   |      |          |            |              |
| 3.3.18  | Provide, supply and install internal/external access ladder not exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm diameter tubes. The rate includes flat vertical guard strips 40 x 3mm including, cleats 40 x 6mm bolted to distribution chamber walls, stringer 40 x 6mm all fillet welded for complete installation. | nr   | 3        |            |              |
|   |   |      |          |            |              |
| 3.3.19  | Provision for an 100mm air vent to standard drawing detail  | No.  | 9        |            |              |
|   | <b>Overflow PIPEWORK</b>  |      |          |            |              |
| 3.3.20  | DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end   | Nr   | 1        |            |              |
| 3.3.21  | DN 150 All flanged 90deg short radius bend  | Nr   | 1        |            |              |
| 3.3.22  | DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm   | Nr   | 1        |            |              |
| 3.3.23  | DN 150 Flanged spigot 90deg long radius bend  | Nr   | 1        |            |              |
|   | <b>Scour Pipework</b>   |      |          |            |              |
| 3.3.24  | DN 150 Flanged spigot 90 deg short radius bend  | Nr   | 1        |            |              |
| 3.3.25  | DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm  | Nr   | 1        |            |              |
| 3.3.26  | DN 150 All flanged Globe Control valve PN10 with EPDM lining  | Nr   | 1        |            |              |
|   |   |      |          |            |              |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |          |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |          |            |              |
| BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK  |  |      |          |            |              |
| ITEM No.  | ITEM DESCRIPTION   | UNIT | QUANTITY | RATE (Ksh) | AMOUNT (Ksh) |
|   | <b>Inlet Pipework</b>  |      |          |            |              |
| 3.3.27  | DN 150 All flanged steel 90 deg long radius bend   | Nr   | 2.00     |            |              |
| 3.3.28  | DN 150 Steel double flanged pipe with puddle flange at 1500mm from one end, length 2000mm                                      | Nr   | 1.00     |            |              |
| 3.3.29  | DN 150 Flanged ball valve  | Nr   | 1.00     |            |              |
| 3.3.30  | DN 150 HDPE Stub end Flange  | Nr   | 1        |            |              |
| 3.3.31  | DN 150 Double flanged pipe piece, length 3000mm  | Nr   | 1        |            |              |
|   | <b>Outlet Pipework</b>   |      |          |            |              |
| 3.3.32  | DN 150 Flanged special bell mouth  | Nr   | 1        |            |              |
| 3.3.33  | DN 150 All Flanged 90 degree short radius bend   | Nr   | 1        |            |              |
| 3.3.34  | DN 150 Steel double flanged pipe with double puddle flanges at 400mm and 1200mm, length 2000mm                                 | Nr   | 1        |            |              |
| 3.3.35  | DN 150 Steel flanged spigot pipe with puddle flange 775mm from spigot end, length 1200mm                                       | Nr   | 1        |            |              |
| 3.3.36  | DN 150 All flanged Sluice valve PN16 EPDM encapsulated   | Nr   | 1        |            |              |
| 3.3.37  | DN 150 Electromagnetic meter complete with all accessories and installation sundry for operation                               | Nr   | 1.00     |            |              |
| 3.3.38  | DN 150 Double flanged steel pipe, length 1000mm  | Nr   | 1        |            |              |
| 3.3.39  | DN 150 All flanged semi-motorised Globe Control valve PN16 EPDM encapsulated fitted with actuator                              | Nr   | 1        |            |              |
| 3.3.40  | DN 150 dismantling steel joint with central flange   | Nr   | 1.00     |            |              |
| 3.3.41  | DN 150 double flanged pipe with puddle flange at 400mm from one end, length 1000mm   | Nr   | 1.00     |            |              |
| 3.3.42  | DN 150 HDPE Stub end Flange  | Nr   | 1        |            |              |
| 3.3.43  | DN150 double flanged pipe with puddle flange at 400mm from one end, length 1000mm  | nr   | 2.00     |            |              |
| 3.3.44  | DN150 mm Bellmouth for Overflow  | nr   | 1.00     |            |              |
| 3.3.45  | DN150 mm x 90° Double flanged bend for overflow  | nr   | 2.00     |            |              |
|   |  |      |          |            |              |
|   | <b>Expansion Joint</b>   |      |          |            |              |
| 3.3.46  | plastic or rubber waterstop width 400mm with centre bulb   | m    | 60       |            |              |
| 3.3.47  | Formed surface joint with filler, width of depth not exceeding 0.5 m   | m2   | 60.00    |            |              |
| 3.3.48  | Provide & lay 300mm wide (to suit drawing wall thickness as appropriate) x 12mm thick Ruberoid layer between wall & roof slab. | m    | 55.60    |            |              |
| 3.3.49  | Provide pumice aggregates and spread at 300mm to the roof of tank include rate for uPVC dropdown pipes to drain roof.          | m3   | 57.963   |            |              |
|   |  |      |          |            |              |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY</b>  |   |             |                 |                   |                     |
| <b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>   |   |             |                 |                   |                     |
| <b>BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK</b>  |   |             |                 |                   |                     |
| <b>ITEM No.</b>  | <b>ITEM DESCRIPTION</b>                               | <b>UNIT</b> | <b>QUANTITY</b> | <b>RATE (Ksh)</b> | <b>AMOUNT (Ksh)</b> |
|  | <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b> |             |                 |                   |                     |

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

**BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK**

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

**BILL NO. 3.3: KAMBOE FURMASAN - 300 M3 RC TANK**

| ITEM No. | ITEM DESCRIPTION                   | UNIT | QUANTITY | RATE (Ksh) | AMOUNT (Ksh) |
|----------|------------------------------------|------|----------|------------|--------------|
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|          | Page Total, Page 1                 |      |          |            |              |
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|          | Bill Total Carried to Bill Summary |      |          |            |              |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |        |               |                 |
|---|---|------|--------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 3.4: KAMBOE FURMASAN - ADMINISTRATION BUILDING   |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Administration Building Type I</b>   |      |        |               |                 |
|   | <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   | m3   | 41.67  |               |                 |
|   | <b>Excavation Ancillaries</b>   |      |        |               |                 |
| 3.4.3   | Trimming of excavated surfaces to recieve blinding concrete   | m2   | 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 foundtion footiung of dimension 600x600 mm complete with reinfoced 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  |               |                 |
| 3.4.14  | High yield tensile steel 10mm diameter to strip footing   | kg   | 300.60 |               |                 |
|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 3.4: KAMBOE FURMASAN - ADMINISTRATION BUILDING   |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 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  |               |                 |
|   |   |      |        |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 3.4: KAMBOE FURMASAN - ADMINISTRATION BUILDING   |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 3.4.30  | 28 Gauge Blue prepainted roof sheets including ridge caps  | m2   | 80.00 |               |                 |
|   | <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>   |      |       |               |                 |
| 3.4.31  | 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   | -     |               |                 |
| 3.4.32  | 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  |               |                 |
|   |  |      |       |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |                |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |       |               |                 |
| BILL NO. 3.4: KAMBOE FURMASAN - ADMINISTRATION BUILDING   |  |                |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT           | QTY   | RATE<br>Kshs. | AMOUNT<br>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>  |                |       |               |                 |
| 3.4.35  | Horizontal ceiling fixed to underside of trusses   | m <sup>2</sup> | 54.00 |               |                 |
| 3.4.36  | 12mm Cornice 50mm high, plugged  | m              | 47.00 |               |                 |
|   |  |                |       |               |                 |
|   | <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  |               |                 |
|   |  |                |       |               |                 |
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| <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>   |  |                |       |               |                 |

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**LOT 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  
AND LAISAMIS IN MARSABIT COUNTY**

**BILL NO. 3: KAMBOE FURMASAN WATER SUPPLY SCHEME-COLLECTION SHEET**

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |           |     |               |                 |
|---|---|-----------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |           |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |           |     |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |   |           |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT      | QTY | RATE<br>Kshs. | AMOUNT<br>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.  | 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   | %         |     |               |                 |
|   | <b>LESITIMA BOREHOLE</b>  |           |     |               |                 |
| 4.1.5   | Supply, install, test and commission 30kW, 40.78Hp Submersible Pump SP 30-21 or approved equivalent with a discharge (27m <sup>3</sup> /hr) and head (172m) 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 4 mm <sup>2</sup> /4 core submersible pump flat cable  | m         | 224 |               |                 |
| 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         | 449 |               |                 |
|   |   |           |     |               |                 |
|   |   |           |     |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 4.1.9   | 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>  |      |      |               |                 |
| 4.1.10  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.   | LS   | 1.00 |               |                 |
| 4.1.11  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  | No.  | 1.00 |               |                 |
| 4.1.12  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +o.25%<4mH2O.   | No   | 1    |               |                 |
| 4.1.16  | Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  | No.  | 1.00 |               |                 |
| 4.1.17  | 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 49.14 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 84.0 |               |                 |
|   |   |      |      |               |                 |
|   |   |      |      |               |                 |
|   |   |      |      |               |                 |
| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 4.1.18  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output. | Set  | 1   |               |                 |
| 4.1.19  | Supply, install, test and commission a 3-phase 100KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.  | Set  | 1   |               |                 |
| 4.1.20  | Allow a PC Sum of Kes. 200,000 for servicing of the existing Generator  | P.S  | 1   | 200,000       | 200,000.00      |
| 4.1.21  | Add % for profit, administration, attendance upon, overheads, etc. for Item 4.1.13 above.   | %    |     |               |                 |
| 4.1.22  | Supply, install, test and commission a 45 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 45kW 87A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.  | Set  | 1   |               |                 |
| 4.1.23  | Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.  | No   | 1   |               |                 |
| 4.1.24  | Supply, install, test and commission Schneider Acti9 Energy Meter 3p kWh 63Amps modibus or approved equivalent for measuring energy generated by the solar PV system complte with IP66 rated enclosure.   | No   | 1   |               |                 |
| 4.1.25  | Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B  | Set  | 1   |               |                 |
| PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET  |   |      |     |               |                 |





| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |     |               |                 |
|---|---|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Fencing</b>  |      |     |               |                 |
| 4.1.41  | Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and bottom concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.  | m    | 120 |               |                 |
| 4.1.42  | Provide all materials and construct 6.0 m wide lockable metal gate all to detailed. The gate to have a lockable pedestrian gate 1m wide opening.  | Nr   | 1   |               |                 |
|   | <b>MANYATTA ILGOS BOREHOLE</b>  |      |     |               |                 |
| 4.1.43  | Supply, install, test and commission 7.5kW, 40.78Hp Submersible Pump SP 7-51 or approved equivalent with a discharge (7m <sup>3</sup> /hr) and head (214m) pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.   | No   | 1   |               |                 |
| 4.1.44  | Supply, install, test and commission 35 mm <sup>2</sup> /4 core submersible pump flat cable   | m    | 224 |               |                 |
| 4.1.45  | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.   | Pair | 1   |               |                 |
| 4.1.46  | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)   | m    | 449 |               |                 |
| 4.1.47  | Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix 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>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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <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>  |      |      |               |                 |
| 4.1.48  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.   | LS   | 1.00 |               |                 |
| 4.1.49  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  | No.  | 1.00 |               |                 |
| 4.1.50  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +o.25%<4mH2O.   | No   | 1    |               |                 |
| 4.1.54  | Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  | No.  | 1.00 |               |                 |
| 4.1.55  | 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 49.14 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 28.0 |               |                 |
| 4.1.56  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output. | Set  | 1    |               |                 |
| 4.1.57  | Allow a Provisional Sum of Kshs. 2,500,000/= for installation of KPLC 3 phase power.  | P.S  | 1    | 2,500,000     | 2,500,000.00    |
| 4.1.58  | Add % for profit, administration, attendance upon, overheads, etc. for Item 4.1.14 above.   | %    | 0.01 | 2,500,000     | 25,000.00       |
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|   |   |      |      |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY</b>  |  |             |            |                       |                         |
| <b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>   |  |             |            |                       |                         |
| <b><u>BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT</u></b>  |  |             |            |                       |                         |
| <b>ITEM</b>  | <b>DESCRIPTION</b>   | <b>UNIT</b> | <b>QTY</b> | <b>RATE<br/>Kshs.</b> | <b>AMOUNT<br/>Kshs.</b> |
|  | <b>Communication Infrastructure</b>  |             |            |                       |                         |
| 4.1.72   | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.         | 2          |                       |                         |
| 4.1.73   | Supply and installation of Antennas and signal boosters for remote locations   | No.         | 2          |                       |                         |
| 4.1.74   | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m           | 500        |                       |                         |
| 4.1.75   | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set         | 12         |                       |                         |
| 4.1.76   | Supply and installation of Fiber Optic Splicing and Accessories  | Lot         | 1          |                       |                         |
|  | <b>Fire Fighting Equipment</b>   |             |            |                       |                         |
| 4.1.77   | 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>   |             |            |                       |                         |
| 4.1.78   | 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        |                       |                         |
| 4.1.79   | 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: LENGISORO</b>   |             |            |                       |                         |
|  | (Specifications as per The Contract Specifications: Bidder to offer equal or better)   |             |            |                       |                         |
| 4.1.80   | Allow Kes 50,000 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        | 50,000.00             | 50,000.00               |
| 4.1.81   | Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.   | Prov. Sum   | 1.0        | 100,000.00            | 100,000.00              |
| 4.1.82   | 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              |
|  |  |             |            |                       |                         |
|  |  |             |            |                       |                         |
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|  | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>  |             |            |                       |                         |

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

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

**BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT**

| ITEM  | DESCRIPTION  | UNIT      | QTY | RATE       | AMOUNT     |
|---|--|-----------|-----|------------|------------|
|   |  |           |     | Kshs.      | Kshs.      |
|   | <b>Communication Infrastructure</b>  |           |     |            |            |
| 4.1.72  | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.       | 2   |            |            |
| 4.1.73  | Supply and installation of Antennas and signal boosters for remote locations   | No.       | 2   |            |            |
| 4.1.74  | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m         | 500 |            |            |
| 4.1.75  | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set       | 12  |            |            |
| 4.1.76  | Supply and installation of Fiber Optic Splicing and Accessories  | Lot       | 1   |            |            |
| 4.1.77  | <b>Fire Fighting Equipment</b><br>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>   |           |     |            |            |
| 4.1.78  | Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and botton concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection. | m         | 120 |            |            |
| 4.1.79  | 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: LENGISORO</b>   |           |     |            |            |
|   | <i>(Specifications as per The Contract Specifications: Bidder to offer equal or better)</i>  |           |     |            |            |
| 4.1.80  | Allow Kes 50,000 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 | 50,000.00  | 50,000.00  |
| 4.1.81  | Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.   | Prov. Sum | 1.0 | 100,000.00 | 100,000.00 |
| 4.1.82  | 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 |
|   |  |           |     |            |            |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 4.1.83  | Allow % for overheads, administration, profits, etc  | %    |      |               |                 |
| 4.1.84  | Supply, install, test and commission 2.2kW, 2.95Hp Submersible Pump SP 30-32 or approved equivalent with a discharge <b>30.8m<sup>3</sup>/hr</b> and head <b>(273m)</b> pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.   | No   | 1    |               |                 |
| 4.1.85  | Supply, install, test and commission 1.5 mm <sup>2</sup> /4 core submersible pump flat cable   | m    | 68   |               |                 |
| 4.1.86  | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.  | Pair | 1    |               |                 |
| 4.1.87  | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)  | m    | 137  |               |                 |
| 4.1.88  | Supply and installation of a PLC (Siemens S7-1500, Allen Bradley CompactLogix 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>   |      |      |               |                 |
| 4.1.89  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.  | LS   | 1.00 |               |                 |
| 4.1.90  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)   | No.  | 1.00 |               |                 |
| 4.1.91  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH <sub>2</sub> Og, accuracy + 0.175% FS BSL NLHR>4mH <sub>2</sub> O, +o.25%<4mH <sub>2</sub> O.   | No   | 1    |               |                 |
|   |  |      |      |               |                 |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 4.1.95  | Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  | No.  | 1.00  |               |                 |
| 4.1.96  | Supply, install, test and commission of an array of solar with the following specifications:<br>390W solar panels, Monocrystalline Silicon PV, with 25 years warranty<br>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 5.46 kW on a bright sunny day at midday taking into account the system losses.  | No.  | 112.0 |               |                 |
| 4.1.97  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output. | Set  | 1     |               |                 |
| 4.1.98  | Supply, install, test and commission a 2.2 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 2.2kW 5.6A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.   | Set  | 1     |               |                 |
| 4.1.99  | Supply, install, test and commission a 16A TPN Automatic change over switch with override switch, complete with the metal enclosure to have a protection of atleast IP54.   | No   | 1     |               |                 |
| 4.1.100   | 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     |               |                 |
|   |   |      |       |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |       |               |                 |
|---|--|------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 4.1.101   | Design, Supply and install a structures to house all the equipment and tested having a protective painting of 2 coat RAL9001 epoxy and polyurethane, with two lockable doors, fire suppressing Unit and other accessories and shall house the inverters, intelligent controller and other associated equipment. The structure to be shielded from lighting by provision of a shed made of steel hollow sections and IT4 sheets with enough air circulation space between shed and structure. All this to be done to engineer’s approval. | Set  | 1     |               |                 |
| 4.1.102   | 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     |               |                 |
| 4.1.104   | Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent   | Set  | 1     |               |                 |
| 4.1.105   | Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations  | Set  | 1     |               |                 |
| 4.1.106   | 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     |               |                 |
| 4.1.107   | Supply, install, test and commission Motor Protection Unit MP204 or equivalent   | No   | 1     |               |                 |
| 4.1.109   | 12 Months maintenance plus training of maintenance staff.  | No   | 1     |               |                 |
|   | <b>Communication Infrastructure</b>  |      |       |               |                 |
| 4.1.111   | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.  | 2     |               |                 |
| 4.1.112   | Supply and installation of Antennas and signal boosters for remote locations   | No.  | 2     |               |                 |
| 4.1.113   | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m    | 1,500 |               |                 |
| 4.1.114   | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set  | 5     |               |                 |
| 4.1.115   | Supply and installation of Fiber Optic Splicing and Accessories  | Lot  | 5     |               |                 |
| 4.1.116   | <b>Fire Fighting Equipment</b><br>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     |               |                 |
|   |  |      |       |               |                 |
|   |  |      |       |               |                 |
|   |  |      |       |               |                 |
|   |  |      |       |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |          |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |          |     |               |                 |
| BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT   |  |          |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT     | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   |  |          |     |               |                 |
|   | <b>Fencing</b>   |          |     |               |                 |
| 4.1.117   | 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 |               |                 |
| 4.1.118   | 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>  |          |     |               |                 |
| 4.1.119   | 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   |               |                 |
| 4.1.120   | All Flanged 90 deg long elbow DN 50  | Nr       | 3   |               |                 |
| 4.1.121   | Double Flanged Non-Return Valve 50   | Nr       | 1   |               |                 |
| 4.1.122   | Double Flanged Gate Valve DN 50  | Nr       | 4   |               |                 |
| 4.1.123   | Supply and install multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.  | No.      | 4   |               |                 |
| 4.1.124   | All flanged equal steel tee 50mmx50mmx50mm   | Nr       | 1   |               |                 |
| 4.1.125   | DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.   | No.      | 1   |               |                 |
| 4.1.126   | Double flanged pipe piece DN50 length 1500mm   | Nr       | 1   |               |                 |
| 4.1.127   | 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   |               |                 |
| 4.1.128   | Double flanged pipe piece DN50 length 1000mm   | Nr       | 2   |               |                 |
| 4.1.129   | All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm  | Nr       | 2   |               |                 |
| 4.1.130   | All flanged reducing taper 50mmx63mm   | Nr       | 1   |               |                 |
| 4.1.131   | Flanged HDPE Stub end DN63   | Nr       | 1   |               |                 |
| 4.1.132   | All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16  | Nr       | 1   |               |                 |
| 4.1.133   | Allow a provision of supply, installation, testing and commissioning of appropriately sized surge vessels or surge control valve with all manway accesses, flange pipe connections and all other appurtenances as per manufacturers recommendations and in accordance with specification and a air buffer vessel to DN 50 rising main PN20.                                  | Lump Sum | 1   |               |                 |
|   |  |          |     |               |                 |
|   |  |          |     |               |                 |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| <u>BILL NO. 4.1: LOGLOGO WATER SUPPLY SCHEME - BOREHOLE/WELL DEVELOPMENT</u>  |   |      |     |               |                 |
| ITEM  | DESCRIPTION                               | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
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|   | Page Total, Page 12                       |      |     |               |                 |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |           |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |           |            |              |
| BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |           |            |              |
| ITEM  | DESCRIPTION   | UNIT | QTY       | RATE (KES) | AMOUNT (KES) |
|   | i. The Contactor to maintain uninterrupted continuity of water supply in existing pipelines   |      |           |            |              |
|   | ii. Pedestrian and vehicular Access to individual shops / plots to be maintained at all times   |      |           |            |              |
|   | <b>PIPE AND PIPE FITTINGS</b>   |      |           |            |              |
|   | Pipe Work - Supply, lay, joint, pressure test,disinfect   |      |           |            |              |
|   | Supply, handle, and install (rates shall include jointing materials, bolts, gaskets packing jointing glue, welding etc., as applicable) to the following HDPE Pipes to KS ISO 4427 and Steel/ferrous Fittings (valves and pipe specials) in trench as per the specifications. All pipe fittings and valve diameters indicated are Nominal Diameters |      |           |            |              |
|   | <b>RISING MAINS</b>   |      |           |            |              |
| 4.2.1   | HDPE Pipe DN125mm PN16  | m    | 2,215.00  |            |              |
|   | HDPE Pipe DN 90mm PN16  | m    | 580.00    |            |              |
|   | <b>Non return valves</b>  |      |           |            |              |
| 4.2.2   | DN 125mm Non-return valves  | Nr   | 1.00      |            |              |
| 4.2.3   | DN 90mm Non-return valves   | Nr   | 1.00      |            |              |
|   | <b>Airvalves</b>  |      |           |            |              |
| 4.2.4   | DN 50 mm airvalve AVK or approved equivalent  | Nr   | 4.00      |            |              |
|   | <b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>   |      |           |            |              |
| 4.2.5   | HDPE Pipe DN50mm PN16   | m    | 13,703.00 |            |              |
| 4.2.6   | HDPE Pipe DN63mm PN16   | m    | 2,402.00  |            |              |
| 4.2.7   | HDPE Pipe DN75mm PN16   | m    | 9,898.00  |            |              |
| 4.2.8   | HDPE Pipe DN 90mm PN16  | m    | 1,030.00  |            |              |
| 4.2.9   | HDPE Pipe DN110mm PN16  | m    | 4,977.00  |            |              |
| 4.2.10  | HDPE Pipe DN125mm PN16  | m    | 570.00    |            |              |
| 4.2.11  | HDPE Pipe DN160mm PN16  | m    | 4,884.00  |            |              |
|   | <b>Bends</b>  |      |           |            |              |
| 4.2.12  | DN 160mm 90°  | Nr.  | 2.00      |            |              |
| 4.2.13  | DN 160mm 45°  | Nr.  | 2.00      |            |              |
| 4.2.14  | DN 125mm 90°  | Nr.  | 2.00      |            |              |
| 4.2.15  | DN 125mm 45°  | Nr.  | 2.00      |            |              |
| 4.2.16  | DN 110mm 90°  | Nr.  | 2.00      |            |              |
| 4.2.17  | DN 110mm 45°  | Nr.  | 2.00      |            |              |
| 4.2.18  | DN 90mm 90°   | Nr.  | 2.00      |            |              |
| 4.2.19  | DN 75mm 90°   | Nr.  | 2.00      |            |              |
| 4.2.20  | DN 63mm 90°   | Nr.  | 2.00      |            |              |
| 4.2.21  | DN 50mm 90°   | Nr.  | 2.00      |            |              |
|   | <b>Reducers</b>   |      |           |            |              |
| 4.2.22  | DN 160/125 mm   | Nr.  | 1.00      |            |              |
| 4.2.23  | DN 125/110 mm   | Nr.  | 1.00      |            |              |
| 4.2.24  | DN 110/90 mm  | Nr.  | 1.00      |            |              |
|   |   |      |           |            |              |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |       |            |              |
|---|---|------|-------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |            |              |
| BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |       |            |              |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE (KES) | AMOUNT (KES) |
| 4.2.25  | DN 90/75 mm   | Nr.  | 1.00  |            |              |
| 4.2.26  | DN 75/63 mm   | Nr.  | 1.00  |            |              |
| 4.2.27  | DN 63/50 mm   | Nr.  | 1.00  |            |              |
|   | <b>160mm offtake (JD 2)</b>                           |      |       |            |              |
| 4.2.31  | DN 160x160x75mm HDPE tee                              | Nr   | 1.00  |            |              |
| 4.2.32  | DN 75mm stub end with MS flange ring                  | Nr   | 2.00  |            |              |
| 4.2.33  | DN 75mm flanged sluice valve                          | Nr   | 1.00  |            |              |
|   | <b>110mm offtake (JD 3)</b>                           |      |       |            |              |
| 4.2.39  | DN 160x160x125mm HDPE tee                             | Nr   | 1.00  |            |              |
| 4.2.40  | DN 160x110mm HDPE Reducer                             | Nr   | 1.00  |            |              |
| 4.2.41  | DN 125mm stub end with MS flange ring                 | Nr   | 2.00  |            |              |
| 4.2.42  | DN 125mm flanged sluice valve                         | Nr   | 1.00  |            |              |
|   | <b>110mm offtake (JD 4,28(a)&amp;28(b))</b>           |      |       |            |              |
| 4.2.46  | DN 110x110x63mm HDPE tee                              | Nr   | 2.00  |            |              |
| 4.2.47  | DN 63mm stub end with MS flange ring                  | Nr   | 4.00  |            |              |
| 4.2.48  | DN 63mm flanged sluice valve                          | Nr   | 2.00  |            |              |
|   | <b>110mm offtake (JD 5,8,9,10,11,23,25,26,32,33,)</b> |      |       |            |              |
| 4.2.49  | DN 110x110x50mm HDPE tee                              | Nr   | 9.00  |            |              |
| 4.2.50  | DN 50mm stub end with MS flange ring                  | Nr   | 18.00 |            |              |
| 4.2.51  | DN 50mm flanged sluice valve                          | Nr   | 9.00  |            |              |
|   | <b>110mm offtake (JD 7,22,31)</b>                     |      |       |            |              |
| 4.2.52  | DN 110x110x75mm HDPE tee                              | Nr   | 3.00  |            |              |
| 4.2.53  | DN 75mm stub end with MS flange ring                  | Nr   | 6.00  |            |              |
| 4.2.54  | DN 75mm flanged sluice valve                          | Nr   | 3.00  |            |              |
|   | <b>63mm offtake (JD 12)</b>                           |      |       |            |              |
| 4.2.55  | DN 63x63x50mm HDPE tee                                | Nr   | 1.00  |            |              |
| 4.2.56  | DN 50mm stub end with MS flange ring                  | Nr   | 2.00  |            |              |
| 4.2.57  | DN 50mm flanged sluice valve                          | Nr   | 1.00  |            |              |
|   | <b>63mm offtake (JD 16,29,39,40,41,48)</b>            |      |       |            |              |
| 4.2.58  | DN 63x63x50mm HDPE tee                                | Nr   | 6.00  |            |              |
| 4.2.59  | DN 63x50mm HDPE reducer                               | Nr   | 6.00  |            |              |
| 4.2.60  | DN 50mm stub end with MS flange ring                  | Nr   | 12.00 |            |              |
| 4.2.61  | DN 50mm flanged sluice valve                          | Nr   | 6.00  |            |              |
|   | <b>75mm offtake (JD 15,18,21a,21b,47)</b>             |      |       |            |              |
| 4.2.62  | DN 75x75x50mm HDPE tee                                | Nr   | 1.00  |            |              |
| 4.2.63  | DN 75x50mm HDPE reducer                               | Nr   | 1.00  |            |              |
| 4.2.64  | DN 50mm stub end with MS flange ring                  | Nr   | 2.00  |            |              |
| 4.2.65  | DN 50mm flanged sluice valve                          | Nr   | 1.00  |            |              |
|   | <b>75mm offtake (JD 13,14,19,20,34,35,36,37,38)</b>   |      |       |            |              |
| 4.2.66  | DN 75x75x50mm HDPE tee                                | Nr   | 11.00 |            |              |
| 4.2.67  | DN 50mm stub end with MS flange ring                  | Nr   | 22.00 |            |              |
| 4.2.68  | DN 50mm flanged sluice valve                          | Nr   | 11.00 |            |              |
|   | <b>50mm offtake (JD 17,24,30,42,43,44,45,46,49)</b>   |      |       |            |              |
| 4.2.69  | DN 50x50x50mm HDPE tee                                | Nr   | 4.00  |            |              |
| 4.2.70  | DN 50mm stub end with MS flange ring                  | Nr   | 8.00  |            |              |
| 4.2.71  | DN 50mm flanged sluice valve                          | Nr   | 4.00  |            |              |
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**CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY**

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

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

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

| ITEM    | DESCRIPTION  | UNIT | QTY    | RATE (KES) | AMOUNT (KES) |
|---------|--|------|--------|------------|--------------|
|         | <b>DN 50mm Terminal connection (with washout)</b>  |      | -      |            |              |
| 4.2.72  | DN 50x50x50mm HDPE (Reduced or Equal) tee          | Nr   | 2.00   |            |              |
| 4.2.73  | DN 50mm stub end with MS flange back ring          | Nr   | 8.00   |            |              |
| 4.2.74  | DN 50mm Flanged gate valve                         | Nr   | 4.00   |            |              |
| 4.2.75  | DN 50mm HDPE flap valve                            | Nr   | 2.00   |            |              |
| 4.2.76  | DN 50mm HDPE PN 16 pipe                            | m    | 120.00 |            |              |
|         | <b>DN 63mm Terminal connection (with washout)</b>  |      | -      |            |              |
| 4.2.77  | DN 63x63x50mm HDPE (Reduced or Equal) tee          | Nr   | 1.00   |            |              |
| 4.2.78  | DN 50mm stub end with MS flange back ring          | Nr   | 4.00   |            |              |
| 4.2.79  | DN 50mm Flanged gate valve                         | Nr   | 2.00   |            |              |
| 4.2.80  | DN 50mm HDPE flap valve                            | Nr   | 1.00   |            |              |
| 4.2.81  | DN 50mm HDPE PN 16 pipe                            | m    | 120.00 |            |              |
|         | <b>DN 75mm Terminal connection (with washout)</b>  |      | -      |            |              |
| 4.2.82  | DN 75x75x50mm HDPE (Reduced or Equal) tee          | Nr   | 1.00   |            |              |
| 4.2.83  | DN 50mm stub end with MS flange back ring          | Nr   | 4.00   |            |              |
| 4.2.84  | DN 50mm Flanged gate valve                         | Nr   | 2.00   |            |              |
| 4.2.85  | DN 50mm HDPE flap valve                            | Nr   | 1.00   |            |              |
| 4.2.86  | DN 50mm HDPE PN 16 pipe                            | m    | 120.00 |            |              |
|         | <b>DN 110mm Terminal connection (with washout)</b> |      | -      |            |              |
| 4.2.87  | DN 110x110x90mm HDPE (Reduced or Equal) tee        | Nr   | 2.00   |            |              |
| 4.2.88  | DN 90mm stub end with MS flange back ring          | Nr   | 8.00   |            |              |
| 4.2.89  | DN 90mm Flanged gate valve                         | Nr   | 4.00   |            |              |
| 4.2.90  | DN 90mm HDPE flap valve                            | Nr   | 2.00   |            |              |
| 4.2.91  | DN 90mm HDPE PN 16 pipe                            | m    | 120.00 |            |              |
|         | <b>DN 125mm Terminal connection (with washout)</b> |      | -      |            |              |
| 4.2.92  | DN 125x125x90mm HDPE (Reduced or Equal) tee        | Nr   | 1.00   |            |              |
| 4.2.93  | DN 90mm stub end with MS flange back ring          | Nr   | 4.00   |            |              |
| 4.2.94  | DN 90mm Flanged gate valve                         | Nr   | 2.00   |            |              |
| 4.2.95  | DN 90mm HDPE flap valve                            | Nr   | 1.00   |            |              |
| 4.2.96  | DN 90mm HDPE PN 16 pipe                            | m    | 120.00 |            |              |
|         | <b>DN 160mm Terminal connection (with washout)</b> |      | -      |            |              |
| 4.2.102 | DN 160x160x90mm HDPE (Reduced or Equal) tee        | Nr   | 1.00   |            |              |
| 4.2.103 | DN 90mm stub end with MS flange back ring          | Nr   | 4.00   |            |              |
| 4.2.104 | DN 90mm Flanged gate valve                         | Nr   | 2.00   |            |              |
| 4.2.105 | DN 90mm HDPE flap valve                            | Nr   | 1.00   |            |              |
| 4.2.106 | DN 90mm HDPE PN 16 pipe                            | m    | 120.00 |            |              |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |        |            |              |
|---|---|------|--------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |            |              |
| BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |        |            |              |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE (KES) | AMOUNT (KES) |
|   | <b>Washout (DN 75mm) -(5No)</b>   |      |        |            |              |
| 4.2.141   | HDPE Equal Tee DN 75mm x 75mm x 75mm                                      | Nr   | 5.00   |            |              |
| 4.2.142   | DN 75mm HDPE stub end with MS Flange                                      | Nr   | 20.00  |            |              |
| 4.2.143   | DN 75 mm HDPE stub end with MS Flange                                     | Nr   | 10.00  |            |              |
| 4.2.144   | DN 75 mm sluice valve   | Nr   | 5.00   |            |              |
| 4.2.145   | DN 75mm HDPE pipe (PN 12.5)   | m    | 120.00 |            |              |
| 4.2.146   | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 5.00   |            |              |
|   | <b>Air Valve Chamber Fittings (DN 63mm) -(7No)</b>                        |      |        |            |              |
| 4.2.147   | HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: <b>Must be electrofusion</b> )   | Nr   | 11.00  |            |              |
| 4.2.148   | HDPE DN 32 mm PN 16 short piece pipe (0.4m mm long)                       | Nr   | 11.00  |            |              |
| 4.2.149   | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 11.00  |            |              |
| 4.2.150   | HDPE DN 32 mm Pegler brass gate valve                                     | Nr   | 11.00  |            |              |
| 4.2.151   | DN 32 mm Stainless Steel Hex Nipple                                       | Nr   | 11.00  |            |              |
| 4.2.152   | DN 32 mm Threaded Air Valve   | Nr   | 11.00  |            |              |
|   | <b>Washout (DN 63mm) -(4No)</b>   |      |        |            |              |
| 4.2.153   | HDPE DN 63 X 63 X 63 mm Equal Tee (NB: <b>Must be electrofusion</b> )     | Nr   | 4.00   |            |              |
| 4.2.154   | HDPE DN 63 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 4.00   |            |              |
| 4.2.155   | HDPE DN 63 mm PN 16 Flanged adapter                                       | Nr   | 4.00   |            |              |
| 4.2.156   | HDPE DN 50 mm Flanged Sluice valve  | Nr   | 4.00   |            |              |
| 4.2.157   | DN 63 mm HDPE pipe (PN 12.5)  | m    | 96.00  |            |              |
| 4.2.158   | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 4.00   |            |              |
|   | <b>Air Valve Chamber Fittings (DN 50mm) -(5No)</b>                        |      |        |            |              |
| 4.2.159   | HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: <b>Must be electrofusion</b> )   | Nr   | 5.00   |            |              |
| 4.2.160   | HDPE DN 32 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 5.00   |            |              |
| 4.2.161   | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 5.00   |            |              |
| 4.2.162   | HDPE DN 32 mm Pegler brass gate valve                                     | Nr   | 5.00   |            |              |
| 4.2.163   | DN 32 mm Stainless Steel Hex Nipple                                       | Nr   | 5.00   |            |              |
| 4.2.164   | DN 32 mm Threaded Air Valve   | Nr   | 5.00   |            |              |
|   | <b>Washout (DN 50mm) -(9No)</b>   |      |        |            |              |
| 4.2.165   | HDPE DN 50 X 50 X 50 mm Equal Tee (NB: <b>Must be electrofusion</b> )     | Nr   | 9.00   |            |              |
| 4.2.166   | HDPE DN 50 mm PN 16 short piece pipe (400 mm long)                        | Nr   | 9.00   |            |              |
| 4.2.167   | HDPE DN 50 mm PN 16 Flanged adapter                                       | Nr   | 9.00   |            |              |
| 4.2.168   | HDPE DN 50 mm Flanged Sluice valve  | Nr   | 9.00   |            |              |
| 4.2.169   | DN 50 mm HDPE pipe (PN 12.5)  | m    | 216.00 |            |              |
| 4.2.170   | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 9.00   |            |              |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |       |            |              |
|---|---|------|-------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |            |              |
| BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |       |            |              |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE (KES) | AMOUNT (KES) |
|   | <b>Water Draw Off Facilities</b>  |      |       |            |              |
| 4.2.171   | Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C   | Nr.  | 12.00 |            |              |
| 4.2.172   | Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications. | Item | 2.00  |            |              |
| 4.2.173   | Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.     | Item | 2.00  |            |              |
| 4.2.174   | Supply of materials and construct a sanitation facility as described to detail in Appendix E  | Item | 1.00  |            |              |
| 4.2.175   | Supply of materials and construct a sanitation facility as described to detail in Appendix E1   | Item | 1.00  |            |              |
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| 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 |   |      |       |            |              |
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| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |            |              |
| BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |       |            |              |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE (KES) | AMOUNT (KES) |
| 4.2.176   | 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   | 2.00  |            |              |
| 4.2.177   | Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.   | Nr   | 5.00  |            |              |
|   | <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.   |      |       |            |              |
| 4.2.177   | Washouts  | Nr.  | 26.00 |            |              |
| 4.2.178   | Air valves  | Nr.  | 45.00 |            |              |
| 4.2.179   | Valve chambers  | Nr.  | 45.00 |            |              |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |          |            |              |
|---|---|------|----------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |          |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |          |            |              |
| BILL NO. 4.2 LOGOLOGO WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |          |            |              |
| ITEM  | DESCRIPTION   | UNIT | QTY      | RATE (KES) | AMOUNT (KES) |
|   | <b>ANCILLARIES ITEMS</b>  |      |          |            |              |
| 4.2.180   | Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications  | No   | 209.00   |            |              |
|   | <b>Thrust Blocks</b>  |      |          |            |              |
| 4.2.181   | Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing  | Nr   | 10.00    |            |              |
|   | <b>Road Crossing</b>  |      |          |            |              |
| 2.2.163   | Allow for micro tunneling across tarmacked road for hdpe pipe of diameter 90mm - 150mm as detailed in the drawings and as per the design guidelines in the Kenya Roads Design manual. Rate inclusive of steel casing. Contractor to allow for provision of requisite diversion signage, controls and safety precaution and liaison and approval of the methodology with the relevant roads agencies                           | m    | 30       |            |              |
| 2.2.164   | Ditto but for DN 32mm - 75mm  | m    | 30.00    |            |              |
| 2.2.165   | Breaking up, temporary and permanent reinstatement of murrum road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm. Rate to include steel casing sleeve. Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm. | m    | 30.00    |            |              |
|   | <b>Gulley/ River Crossings</b>  |      |          |            |              |
| 2.2.166   | Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)  | m    | 1,200.00 |            |              |
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**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY**

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

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

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| 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 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED   |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Elevated Steel Tank of 150 m<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 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 150mm pipes etc., for complete installation. Foundation of tank pads to be 2.3mx2.3m and depth not less than 2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c and distribution of T12 @150mm c/c top and bottom mesh. 4Nr Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups each with HFSG bolts galvanised 4nr. 25 dia bolts and nuts with washers @600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC Cement CEM I Grade 42.5. Base plate 10mm, including grouting base plate interface with column stud. Panel plate thickness 3mm all galvanised. Coat tank inside with approved bituminous paint. All tank components to be Hot-dip galvanized to EN ISO 1461. Tank manufacturer to be KEBS certified and ISO certified. The rate to include deailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer | No.  | 1.00 |               |                 |
|   | <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>   |      |      |               |                 |
| 4.3.2   | 150 HDPE Stab End Flange   | No   | 2    |               |                 |
| 4.3.3   | 150mm All flanged pipe piece 1m long   | No   | 3    |               |                 |
| 4.3.4   | 150mm flanged spigot pipe piece 1m long  | No   | 1    |               |                 |
| 4.3.5   | 150mm All flanged sluice valve   | No   | 1    |               |                 |
| 4.3.6   | 150mm All flanged G.S 90° bend   | No   | 2    |               |                 |
| 4.3.7   | 150mm All flanged pipe piece 6m long   | No   | 3    |               |                 |
| 4.3.8   | 150mm All flanged pipe piece 1.2m long   | No   | 1    |               |                 |
| 4.3.9   | 150mm All flanged Float switch   | No   | 1    |               |                 |
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| 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 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED   |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>OVERFLOW AND SCOUR</b>   |      |        |               |                 |
| 4.3.10  | 150mm All flanged pipe piece 1.8m long  | No   | 1      |               |                 |
| 4.3.11  | 150mm Flanged bell mouth  | No   | 2      |               |                 |
| 4.3.12  | 150mm All flanged pipe piece 2.2m long  | No   | 1      |               |                 |
| 4.3.13  | 150mm All flanged slice valve   | No   | 2      |               |                 |
| 4.3.14  | 150mm flanged adaptor   | No   | 1      |               |                 |
| 4.3.15  | 150mm flanged spigot pipe piece 1m long   | No   | 1      |               |                 |
| 4.3.16  | 150mm All flanged equal Tee   | No   | 1      |               |                 |
| 4.3.17  | 150mm All flanged pipe piece 3.5m long  | No   | 2      |               |                 |
| 4.3.18  | 150mm All flanged pipe 6m long  | No   | 2      |               |                 |
| 4.3.19  | 150mm All flanged G.S 90° bend  | No   | 1      |               |                 |
| 4.3.20  | 150 HDPE Stab End Flange  | No   | 2      |               |                 |
|   | <b>OUTLET</b>   |      |        |               |                 |
| 4.3.21  | 150mm flanged pipe 6m long  | No   | 3      |               |                 |
| 4.3.22  | 150mm Flanged bell mouth  | No   | 1      |               |                 |
| 4.3.23  | 150mm All flanged G.S 90° bend  | No   | 1      |               |                 |
| 4.3.24  | 150mm All flanged Slice valve   | No   | 2      |               |                 |
| 4.3.25  | 150 HDPE Stab End Flange  | No   | 2      |               |                 |
| 4.3.26  | Supply, install and test diameter 150mm Electromagnetic Water Meter complete with all gasket bolts etc. Rate to include for all associated fittings | No   | 1      |               |                 |
|   | <b>Testing</b>  |      |        |               |                 |
| 4.3.27  | Supply and apply recommended disinfectant and test the tanks.   | Nr.  | 1.00   |               |                 |
|   | <b>100 m3 RCC tank</b>  |      |        |               |                 |
|   | <b>CLASS E: EARTHWORKS</b>  |      |        |               |                 |
|   | <b>General excavation</b>   |      |        |               |                 |
|   | <b>Excavate in Topsoil for Storage tank Works</b>   |      |        |               |                 |
| 4.3.28  | Maximum depth not exceeding 1 m   | m³   | 100.00 |               |                 |
| 4.3.29  | Maximum depth exceeding 1 m   | m³   | 120.00 |               |                 |
| 4.3.30  | Reinstate, fill and level the tank site after construction as directed by the Engineer  | Ls   | 1.00   |               |                 |
|   | <b>Filling</b>  |      |        |               |                 |
|   | <b>Hardcore</b>   |      |        |               |                 |
| 4.3.31  | Provide approved hardcore and compact in layers of 150mm, blinded with final material 25mm thick  | m³   | 24.30  |               |                 |
|   | Provide fill material to Storage tank Works structures  |      |        |               |                 |
|   | <b>CLASS F: IN SITU CONCRETE Cement Grade 42.5 to Specifications.</b>   |      |        |               |                 |
| 4.3.32  | Mass concrete Class 15/20   |      |        |               |                 |
| 4.3.33  | Strength Grade 15/20 (1:3:6) blinding concrete 75 mm thick the tank, with sulphate resisting cement   | m³   | 7.28   |               |                 |
|   |   |      |        |               |                 |
|   |   |      |        |               |                 |
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**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY**

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

**BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED**

| ITEM   | DESCRIPTION   | UNIT | QTY    | RATE  | AMOUNT |
|--------|---|------|--------|-------|--------|
|        |   |      |        | Kshs. | Kshs.  |
|        | <b>OVERFLOW AND SCOUR</b>   |      |        |       |        |
| 4.3.10 | 150mm All flanged pipe piece 1.8m long  | No   | 1      |       |        |
| 4.3.11 | 150mm Flanged bell mouth  | No   | 2      |       |        |
| 4.3.12 | 150mm All flanged pipe piece 2.2m long  | No   | 1      |       |        |
| 4.3.13 | 150mm All flanged slice valve   | No   | 2      |       |        |
| 4.3.14 | 150mm flanged adaptor   | No   | 1      |       |        |
| 4.3.15 | 150mm flanged spigot pipe piece 1m long   | No   | 1      |       |        |
| 4.3.16 | 150mm All flanged equal Tee   | No   | 1      |       |        |
| 4.3.17 | 150mm All flanged pipe piece 3.5m long  | No   | 2      |       |        |
| 4.3.18 | 150mm All flanged pipe 6m long  | No   | 2      |       |        |
| 4.3.19 | 150mm All flanged G.S 90° bend  | No   | 1      |       |        |
| 4.3.20 | 150 HDPE Stab End Flange  | No   | 2      |       |        |
|        | <b>OUTLET</b>   |      |        |       |        |
| 4.3.21 | 150mm flanged pipe 6m long  | No   | 3      |       |        |
| 4.3.22 | 150mm Flanged bell mouth  | No   | 1      |       |        |
| 4.3.23 | 150mm All flanged G.S 90° bend  | No   | 1      |       |        |
| 4.3.24 | 150mm All flanged Slice valve   | No   | 2      |       |        |
| 4.3.25 | 150 HDPE Stab End Flange  | No   | 2      |       |        |
| 4.3.26 | Supply, install and test diameter 150mm Electromagnetic Water Meter complete with all gasket bolts etc. Rate to include for all associated fittings | No   | 1      |       |        |
|        | <b>Testing</b>  |      |        |       |        |
| 4.3.27 | Supply and apply recommended disinfectant and test the tanks.   | Nr.  | 1.00   |       |        |
|        | <b>100 m3 RCC tank</b>  |      |        |       |        |
|        | <b>CLASS E: EARTHWORKS</b>  |      |        |       |        |
|        | <b>General excavation</b>   |      |        |       |        |
|        | <b>Excavate in Topsoil for Storage tank Works</b>   |      |        |       |        |
| 4.3.28 | Maximum depth not exceeding 1 m   | m³   | 100.00 |       |        |
| 4.3.29 | Maximum depth exceeding 1 m   | m³   | 120.00 |       |        |
| 4.3.30 | Reinstate, fill and level the tank site after construction as directed by the Engineer  | Ls   | 1.00   |       |        |
|        | <b>Filling</b>  |      |        |       |        |
|        | <b>Hardcore</b>   |      |        |       |        |
| 4.3.31 | Provide approved hardcore and compact in layers of 150mm, blinded with final material 25mm thick  | m³   | 24.30  |       |        |
|        | Provide fill material to Storage tank Works structures  |      |        |       |        |
|        | <b>CLASS F: IN SITU CONCRETE Cement Grade 42.5 to Specifications.</b>   |      |        |       |        |
| 4.3.32 | Mass concrete Class 15/20   |      |        |       |        |
| 4.3.33 | Strength Grade 15/20 (1:3:6) blinding concrete 75 mm thick the tank, with sulphate resisting cement   | m³   | 7.28   |       |        |
|        |   |      |        |       |        |
|        |   |      |        |       |        |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |          |               |                 |
|---|---|------|----------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |          |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |          |               |                 |
| BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED   |   |      |          |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY      | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | Reinforced concrete Class 30/20:  |      | -        |               |                 |
| 4.3.34  | Foundation, Base and ground slab concrete, Walls, Beams, Columns, Paparet Wall, Suspended Slab and Gutter   | m³   | 97.62    |               |                 |
|   |   |      | -        |               |                 |
|   | <b>Formwork</b>   |      | -        |               |                 |
|   | Provide and fix shuttering including propping, strutting and striking, all as specified and including boxing out  |      | -        |               |                 |
| 4.3.35  | (i) Vertical Formwork - Class F3 Finish   | m²   | 521.86   |               |                 |
|   | Concrete Surface Finish   |      | -        |               |                 |
| 4.3.36  | Provide Class UF3 Finish for top of base slab of tank and top suspended slab  | m²   | 181.28   |               |                 |
|   | Reinforcement   |      | -        |               |                 |
|   | Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, lapping propping with spacers and tying as specified  |      | -        |               |                 |
| 4.3.37  | High yield tensile steel 16mm diameter  | kg   | 4,500.00 |               |                 |
| 4.3.38  | High yield tensile steel 12mm diameter  | kg   | 5,000.00 |               |                 |
| 4.3.39  | High yield tensile steel 10mm diameter  | kg   | 1,500.00 |               |                 |
|   | <b>CLASS L: ACCESS CHAMBERS</b>   |      |          |               |                 |
| 4.3.40  | Provide ,supply and install hot-dip galvanised mild steel 1000x1000x6mm thick lockable access chamber covers with 6mm thick angle frame, installation anchors, gaskets etc.. for a complete installation.       | nr   | 2.00     |               |                 |
|   | <b>CLASS H: PRECAST CONCRETE</b>  |      |          |               |                 |
| 4.3.41  | Provide and lay with all leads and lifts etc. complete 600 x 600 x 50 mm thick precast paving slabs on and including 50 mm thick sand bed as per the drawings   | m²   | 80.00    |               |                 |
|   | <b>CLASS N: MISCELLANEOUS METAL WORK</b>  |      | -        |               |                 |
|   | All steelwork to be completely cleaned by acid dipping prior to galvanising. All steel pipes shall be hot-dip galvanised steel pressure pipes rated PN16 or as per the system distribution whichever is higher. |      | -        |               |                 |
|   | <b>Stainless Steel water level Indicator</b>  |      | -        |               |                 |
| 4.3.42  | Provide, supply, install and commission a tank's stainless steel water level Indicator for O&M.   | nr   | 1.00     |               |                 |
|   |   |      |          |               |                 |
|   |   |      |          |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |      |               |                 |
|---|---|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED   |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Access Ladder with safety cage</b>   |      | -    |               |                 |
| 4.3.43  | Provide, supply and install internal/external access ladder not exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm diameter tubes. The rate includes flat vertical guard strips 40 x 3mm including, cleats 40 x 6mm bolted to distribution chamber walls, stringer 40 x 6mm all fillet welded for complete installation. | nr   | 3.00 |               |                 |
| 4.3.44  | Provision for an 100mm air vent to standard drawing detail  | No.  | 4.00 |               |                 |
|   | <b>Overflow PIPEWORK</b>  |      | -    |               |                 |
| 4.3.45  | DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end   | Nr   | 1.00 |               |                 |
| 4.3.46  | DN 150 All flanged 90deg short radius bend  | Nr   | 1.00 |               |                 |
| 4.3.47  | DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm   | Nr   | 1.00 |               |                 |
| 4.3.48  | DN 150 Flanged spigot 90deg long radius bend  | Nr   | 1.00 |               |                 |
|   | <b>Scour Pipework</b>   |      |      |               |                 |
| 4.3.49  | DN 150 Flanged spigot 90 deg short radius bend  | Nr   | 1.00 |               |                 |
| 4.3.50  | DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm  | Nr   | 1.00 |               |                 |
| 4.3.51  | DN 150 All flanged Globe Control valve PN10 with EPDM lining  | Nr   | 1.00 |               |                 |
|   | <b>Inlet Pipework</b>   |      |      |               |                 |
| 4.3.52  | DN 90 All flanged steel 90 deg long radius bend   | Nr   | 2.00 |               |                 |
| 4.3.53  | DN 90 Steel double flanged pipe with puddle flange at 150mm from one end, length 2000mm   | Nr   | 1.00 |               |                 |
| 4.3.54  | DN 90 Flanged ball valve  | Nr   | 1.00 |               |                 |
| 4.3.55  | DN 90 HDPE Stub end Flange  | Nr   | 1.00 |               |                 |
| 4.3.56  | DN 90 Double flanged pipe piece, length 3000mm  | Nr   | 1.00 |               |                 |
|   | <b>Outlet Pipework</b>  |      |      |               |                 |
| 4.3.57  | DN 150 Flanged special bell mouth   | Nr   | 1.00 |               |                 |
| 4.3.58  | DN 150 All Flanged 90 degree short radius bend  | Nr   | 1.00 |               |                 |
| 4.3.59  | DN 150 Steel double flanged pipe with double puddle flanges at 400mm and 1200mm, length 2000mm  | Nr   | 1.00 |               |                 |
|   |   |      |      |               |                 |
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| 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 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |                                    |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                                    |      |     |               |                 |
| BILL NO. 4.3 LOGLOGO SCHEME - 150 M3 ELEVATED   |                                    |      |     |               |                 |
| ITEM  | DESCRIPTION                        | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   |                                    |      |     |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |           |     |               |                 |
|---|---|-----------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |           |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |           |     |               |                 |
| BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT  |   |           |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT      | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <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> |           |     |               |                 |
| 5.1.1   | Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc... Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer   | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 5.1.2   | Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.  | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 5.1.3   | Allow a provisional sum of 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.  | Prov. Sum | 1.0 | 250,000.00    | 250,000.00      |
| 5.1.4   | Allow % for overheads, administration, profits, etc   | %         |     |               |                 |
| 5.1.5   | Supply, install, test and commission 26kW, 35.35Hp Submersible Pump SP 18-19 or approved equivalent with a discharge- <b>15m<sup>3</sup>/hr</b> and head <b>169m</b> . pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.   | No        | 1   |               |                 |
| 5.1.6   | Supply, install, test and commission 10 mm <sup>2</sup> /4 core submersible pump flat cable   | m         | 216 |               |                 |
| 5.1.7   | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.   | Pair      | 1   |               |                 |
| 5.1.8   | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)   | m         | 432 |               |                 |
| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT  |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>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>  |      |      |               |                 |
| 5.1A.9.2  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.   | LS   | 1.00 |               |                 |
| 5.1A.9.3  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  | No.  | 1.00 |               |                 |
| 5.1A.9.4  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +o.25%<4mH2O.   | No   | 1    |               |                 |
| 5.1A.9.12   | Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)  | No.  | 1.00 |               |                 |
| 5.1.10  | Supply, install, test and commission of an array of solar with the following specifications:<br>390W solar panels, Monocrystalline Silicon PV, with 25 years warranty<br>The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 38.22 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 70.0 |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |     |       |        |
|---|---|------|-----|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |       |        |
| BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT  |   |      |     |       |        |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE  | AMOUNT |
|   |   |      |     | Kshs. | Kshs.  |
| 5.1.11  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>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   |       |        |
| 5.1.12  | Supply, install, test and commission a 3-phase 75KVA 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   |       |        |
| 5.1.13  | Supply, install, test and commission a 30 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 30kW 61A 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   |       |        |
| 5.1.14  | 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   |       |        |
| 5.1.15  | 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   |       |        |
| 5.1.16  | Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B  | Set  | 1   |       |        |
| PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET  |   |      |     |       |        |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |     |               |                 |
|---|--|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |     |               |                 |
| BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT  |  |      |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 5.1.17  | 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   |               |                 |
| 5.1.19  | Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent   | Set  | 1   |               |                 |
| 5.1.20  | Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations  | Set  | 1   |               |                 |
| 5.1.21  | 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   |               |                 |
| 5.1.25  | Supply, install, test and commission Motor Protection Unit MP204 or equivalent   | No   | 1   |               |                 |
| 5.1.27  | Allow for 12 months after sale service including training of operators and technicians.  | Ls   | 1   |               |                 |
|   | <b>Communication Infrastructure</b>  |      |     |               |                 |
|   | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.  | 2   |               |                 |
| 5.1.31  | Supply and installation of Antennas and signal boosters for remote locations   | No.  | 2   |               |                 |
| 5.1.32  | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m    | 200 |               |                 |
| 5.1.33  | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set  | 12  |               |                 |
| 5.1.34  | Supply and installation of Fiber Optic Splicing and Accessories  | Lot  | 5   |               |                 |
| 5.1.35  | <b>Fire Fighting Equipment</b><br>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   | 5   |               |                 |
|   | <b>Fencing</b>   |      |     |               |                 |
| 5.1.36  | 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 |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |             |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |             |     |               |                 |
| BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT  |   |             |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT        | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 5.1.37  | 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>   |             |     |               |                 |
| 5.1A.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   |               |                 |
| 5.1A.42   | All Flanged 90 deg long elbow DN 50   | Nr          | 3   |               |                 |
| 5.1A.43   | Double Flanged Non-Return Valve 50  | Nr          | 1   |               |                 |
| 5.1A.44   | Double Flanged Gate Valve DN 50   | Nr          | 4   |               |                 |
|   | Supply and intsall multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.   | No.         | 4   |               |                 |
| 5.1A.45   | All flanged equal steel tee 50mmx50mmx50mm  | Nr          | 1   |               |                 |
| 5.1A.46   | DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.  | No.         | 1   |               |                 |
| 5.1A.47   | Double flanged pipe piece DN50 length 1500mm  | Nr          | 1   |               |                 |
| 5.1A.48   | 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   |               |                 |
| 5.1A.49   | Double flanged pipe piece DN50 length 1000mm  | Nr          | 2   |               |                 |
| 5.1A.50   | All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm   | Nr          | 2   |               |                 |
| 5.1A.51   | All flanged reducing taper 50mmx63mm  | Nr          | 1   |               |                 |
| 5.1A.52   | Flanged HDPE Stub end DN63  | Nr          | 1   |               |                 |
| 5.1A.53   | All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16   | Nr          | 1   |               |                 |
| 5.1A.54   | 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<br>Sum | 1   |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |                    |      |     |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                    |      |     |       |        |
| <b>BILL NO. 5.1 : JALDESA WATER SUPPLY SCHEME- BOREHOLE DEVELOPMENT</b>   |                    |      |     |       |        |
| ITEM  | DESCRIPTION        | UNIT | QTY | RATE  | AMOUNT |
|   |                    |      |     | Kshs. | Kshs.  |
|   |                    |      |     |       |        |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |          |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |          |               |                 |
| BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |          |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY      | RATE<br>Kshs. | AMOUNT<br>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>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>   |      |          |               |                 |
|   | <b>PIPE AND PIPE FITTINGS</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  |      |          |               |                 |
| 5.2.1   | HDPE Pipe DN50mm PN16   | m    | 1,998.00 |               |                 |
| 5.2.2   | HDPE Pipe DN63mm PN16   | m    | 1,951.00 |               |                 |
| 5.2.3   | HDPE Pipe DN75mm PN16   | m    | 501.00   |               |                 |
| 5.2.4   | HDPE Pipe DN110mm PN16  | m    | 459.00   |               |                 |
|   | <b>Bends</b>  |      |          |               |                 |
| 5.2.5   | DN 110mm 90°  | Nr.  | 2.00     |               |                 |
| 5.2.6   | DN 110mm 45°  | Nr.  | 2.00     |               |                 |
| 5.2.7   | DN 75mm 90°   | Nr.  | 2.00     |               |                 |
| 5.2.8   | DN 63mm 90°   | Nr.  | 2.00     |               |                 |
| 5.2.9   | DN 50mm 90°   | Nr.  | 2.00     |               |                 |
|   | <b>Reducers</b>   |      |          |               |                 |
| 5.2.10  | DN 110/75 mm  | Nr.  | 1.00     |               |                 |
| 5.2.11  | DN 75/63 mm   | Nr.  | 1.00     |               |                 |
| 5.2.12  | DN 63/50 mm   | Nr.  | 1.00     |               |                 |
|   | <b>Junction from tank</b>   |      |          |               |                 |
| 5.2.13  | DN 110mm stub end with MS flange back ring  | Nr   | 5.00     |               |                 |
| 5.2.14  | DN 110x110x110mm equal tee  | Nr   | 1.00     |               |                 |
| 5.2.15  | DN 100mm flanged sluice valve   | Nr   | 1.00     |               |                 |
|   | <b>110mm Cross tee (Junction 1)</b>   |      |          |               |                 |
| 5.2.16  | DN 110x50x50x50 HDPE fabricated cross tee   | Nr   | 1.00     |               |                 |
| 5.2.17  | DN 50mm stub end with MS flange ring  | Nr   | 6.00     |               |                 |
| 5.2.18  | DN 50mm flanged sluice valve  | Nr   | 3.00     |               |                 |
|   | <b>Offtake fittings Junction DN 110mm (JD 2)</b>  |      |          |               |                 |
| 5.2.19  | DN 110x63x75mm HDPE fabricated cross tee  | Nr   | 1.00     |               |                 |
| 5.2.20  | DN 75mm stub end with MS flange ring  | Nr   | 2.00     |               |                 |
| 5.2.21  | DN 63mm stub end with MS flange ring  | Nr   | 2.00     |               |                 |
| 5.2.22  | Dn 75mm flanged sluice valve  | Nr   | 1.00     |               |                 |
| 5.2.23  | DN 63mm flanged sluice valve  | Nr   | 1.00     |               |                 |
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**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 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY**

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

**BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS**

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

**BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS**

| ITEM   | DESCRIPTION   | UNIT | QTY   | RATE  | AMOUNT |
|--------|---|------|-------|-------|--------|
|        |   |      |       | Kshs. | Kshs.  |
|        | Air Valve Chamber Fittings (DN 63mm) -(1No)   |      |       |       |        |
| 5.2.75 | HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be electrofusion)   | Nr   | 1.00  |       |        |
| 5.2.76 | HDPE DN 32 mm PN 16 short piece pipe (400 mm long)  | Nr   | 1.00  |       |        |
| 5.2.77 | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 1.00  |       |        |
| 5.2.78 | HDPE DN 32 mm Pegler brass gate valve   | Nr   | 1.00  |       |        |
| 5.2.79 | DN 32 mm Stainless Steel Hex Nipple   | Nr   | 1.00  |       |        |
| 5.2.80 | DN 32 mm Threaded Air Valve   | Nr   | 1.00  |       |        |
|        | Washout (DN 63mm) -(1No)  |      |       |       |        |
| 5.2.81 | HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofusion)   | Nr   | 1.00  |       |        |
| 5.2.82 | HDPE DN 63 mm PN 16 short piece pipe (400 mm long)  | Nr   | 1.00  |       |        |
| 5.2.83 | HDPE DN 63 mm PN 16 Flanged adapter   | Nr   | 1.00  |       |        |
| 5.2.84 | HDPE DN 50 mmFlanged Sluice valve   | Nr   | 1.00  |       |        |
| 5.2.85 | DN 63 mm HDPE pipe (PN 12.5)  | m    | 24.00 |       |        |
| 5.2.86 | Masonry headwall with base slab for Erosion protection at discharge point   | Ls   | 1.00  |       |        |
|        | Air Valve Chamber Fittings (DN 50mm) -(1No)   |      |       |       |        |
| 5.2.87 | HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofusion)   | Nr   | 1.00  |       |        |
| 5.2.88 | HDPE DN 32 mm PN 16 short piece pipe (400 mm long)  | Nr   | 1.00  |       |        |
| 5.2.89 | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 1.00  |       |        |
| 5.2.90 | HDPE DN 32 mm Pegler brass gate valve   | Nr   | 1.00  |       |        |
| 5.2.91 | DN 32 mm Stainless Steel Hex Nipple   | Nr   | 1.00  |       |        |
| 5.2.92 | DN 32 mm Threaded Air Valve   | Nr   | 1.00  |       |        |
|        | Washout (DN 50mm) -(1No)  |      |       |       |        |
| 5.2.93 | HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)   | Nr   | 1.00  |       |        |
| 5.2.94 | HDPE DN 50 mm PN 16 short piece pipe (400 mm long)  | Nr   | 1.00  |       |        |
| 5.2.95 | HDPE DN 50 mm PN 16 Flanged adapter   | Nr   | 1.00  |       |        |
| 5.2.96 | HDPE DN 50 mmFlanged Sluice valve   | Nr   | 1.00  |       |        |
| 5.2.97 | DN 50 mm HDPE pipe (PN 12.5)  | m    | 24.00 |       |        |
| 5.2.98 | Masonry headwall with base slab for Erosion protection at discharge point   | Ls   | 1.00  |       |        |
|        | Water Draw Off Facilities   |      |       |       |        |
| 5.2.99 | Supply of materials and construct a water kiosk to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix C | Nr.  | 3.00  |       |        |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS)<br>BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |      |               |                 |
|--|--|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY   |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |  |      |      |               |                 |
| BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |  |      |      |               |                 |
| ITEM   | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 5.2.100  | Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.  | Item | 2.00 |               |                 |
| 5.2.101  | Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.  | Item | 2.00 |               |                 |
| 5.2.102  | Supply of materials and construct a sanitation facility as described to detail in Appendix E   | Item | 1.00 |               |                 |
| 5.2.103  | Supply of materials and construct a sanitation facility as described to detail in Appendix E1  | Item | 1.00 |               |                 |
| 5.2.104  | Provide all materilas, construct and install a 1m high reinforced concrete yardtap which include a water dispensing ATM ,lockable valve chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.The Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications - Keypad, -Screen (LCD), -Tag Pay Option (RFID/NFC), - Web based dashboard subscription for 10 year , -Hybrid dispensing, -MPesa Integration for Payment upto 3 taps max, -water Flow Sensor, -Solar power - charger, controller, battery and solar panel. The rate to include the first 20 token chips for 20nr. households. | Nr   | 1.00 |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) |   |      |       |               |                 |
|---|---|------|-------|---------------|-----------------|
| BATCH 1 PROJECTS IN MARSABIT COUNTY   |   |      |       |               |                 |
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 5.2.105   | Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.   | Nr   | 1.00  |               |                 |
|   | <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. |      |       |               |                 |
| 5.2.105   | Washouts  | Nr.  | 4.00  |               |                 |
| 5.2.106   | Air valves  | Nr.  | 4.00  |               |                 |
| 5.2.107   | Valve chambers  | Nr.  | 7.00  |               |                 |
|   | <b>ANCILLARIES ITEMS</b>  |      |       |               |                 |
| 5.2.108   | Supply and fix marker posts along water Main Route, Road Crossings,change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications   | No   | 27.00 |               |                 |
|   | <b>Thrust Blocks</b>  |      |       |               |                 |
| 5.2.109   | Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing  | Nr   | 10.00 |               |                 |
| 5.2.110   | Breaking up, temporary and permanent reinstatement of murrum road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm.Rate to include steel casing sleeve.Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm.   | m    | 30.00 |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS)<br>BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |     |               |                 |
|--|--|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY   |  |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |  |      |     |               |                 |
| BILL NO. 5.2: JALDESA WATER SUPPLY SCHEME - PIPELINE AND FITTINGS  |  |      |     |               |                 |
| ITEM   | DESCRIPTION                                | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |      |               |                 |
|---|---|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 5.3: JALDESA SCHEME 100 M3 20 HIGH ELEVATED TANK   |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>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 150mm pipes etc., for complete installation. Foundation of tank pads to be 2.3mx2.3m and depth not less than 2.6m. RC works to Specifications. Rebars to be T16 @ 150mm c/c and distribution of T12 @150mm c/c top and bottom mesh. 4Nr Column stud size 500mmx500mm with 8Nr T16 and T8 stirrups each with HFSG bolts galvanised 4nr. 25 dia bolts and nuts with washers @600mm long. 4Nr Beam size 400mmx300mm with 8Nr T12 and T8 stirrups each. Concrete Class to be C30/20 using OPC Cement CEM I Grade 42.5. Base plate 10mm, including grouting base plate interface with column stud. Panel plate thickness 3mm all galvanised. Coat tank inside with approved bituminous paint. All tank components to be Hot-dip galvanized to EN ISO 1461. Tank manufacturer to be KEBS certified and ISO certified. The rate to include detailed structural analysis, shop drawings, complete tank and tower installation, mobilization, demobilization, delivery to site and testing. All to the approval of the Engineer | No.  | 1.00 |               |                 |
|   | <b>INLET PIPE FITTINGS</b>  |      |      |               |                 |
| 5.3.2   | 100 HDPE Stab End Flange  | No   | 2    |               |                 |
| 5.3.3   | 100mm All flanged pipe piece 1m long  | No   | 3    |               |                 |
| 5.3.4   | 100mm flanged spigot pipe piece 1m long   | No   | 1    |               |                 |
| 5.3.5   | 100mm All flanged sluice valve  | No   | 1    |               |                 |
| 5.3.6   | 100mm All flanged G.S 90° bend  | No   | 2    |               |                 |
| 5.3.7   | 100mm All flanged pipe piece 6m long  | No   | 3    |               |                 |
| 5.3.8   | 100mm All flanged pipe piece 1.2m long  | No   | 1    |               |                 |
| 5.3.9   | 100mm All flanged Float switch  | No   | 1    |               |                 |
|   | <b>OVERFLOW AND SCOUR</b>   |      |      |               |                 |
| 5.3.10  | 100mm All flanged pipe piece 1.8m long  | No   | 1    |               |                 |
| 5.3.11  | 100mm Flanged bell mouth  | No   | 2    |               |                 |
| 5.3.12  | 100mm All flanged pipe piece 2.2m long  | No   | 1    |               |                 |
| 5.3.13  | 100mm All flanged slice valve   | No   | 2    |               |                 |
| 5.3.14  | 100mm flanged adaptor   | No   | 1    |               |                 |
| 5.3.15  | 100mm flanged spigot pipe piece 1m long   | No   | 1    |               |                 |
| 5.3.16  | 100mm All flanged equal Tee   | No   | 1    |               |                 |
| 5.3.17  | 100mm All flanged pipe piece 3.5m long  | No   | 2    |               |                 |
| 5.3.18  | 100mm All flanged pipe piece 6m long  | No   | 2    |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |        |               |                 |
|---|---|------|--------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 5.4: JALDESA SCHEME - ADMINISTRATION BUILDING  |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 5.4.15  | 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>   |      |        |               |                 |
| 5.4.16  | 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>                       |      |        |               |                 |
| 5.4.17  | 200 mm thick masonry wall in substructure   | m2   | 45.00  |               |                 |
| 5.4.18  | 200 mm smooth dressed walling in superstructure   | m2   | 114.00 |               |                 |
| 5.4.19  | 150 mm smooth dressed walling in superstructure   | m2   | 64.60  |               |                 |
|   |   |      |        |               |                 |
|   | <b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>  |      |        |               |                 |
| 5.4.20  | 200mm and 150mm Wide under walls  | m    | 35.20  |               |                 |
|   | <b>Finishes.</b>  |      |        |               |                 |
| 5.4.21  | 20 mm 1:4 Cement/sand plaster to internal of walls  | m2   | 133.76 |               |                 |
| 5.4.22  | 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 |               |                 |
| 5.4.23  | 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>   |      |        |               |                 |
| 5.4.24  | 50x 100 mm Rafter, ridge piece and tie beams: in trusses  | m    | 140.50 |               |                 |
| 5.4.25  | 50x 100 mm: timber beam (GMS posts)   | m    | 10.00  |               |                 |
| 5.4.26  | 100 x 50 mm: Struts and ties  | m    | 95.40  |               |                 |
| 5.4.27  | 200 X 25mm fascia and badge   | m    | 36.00  |               |                 |
| 5.4.28  | 100 x 50 mm Wall plate: fixed to concrete   | m    | 54.00  |               |                 |
| 5.4.29  | 75 x 50mm purlins   | m    | 80.00  |               |                 |
| 5.4.30  | 28 Gauge Blue prepainted roof sheets including ridge caps   | m2   | 80.00  |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |       |               |                 |
|---|--|------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| <b><u>BILL NO. 5.4: JALDESA SCHEME - ADMINISTRATION BUILDING</u></b>  |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>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>   |      |       |               |                 |
| 5.4.32  | 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>   |      |       |               |                 |
| 5.4.33  | 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> |      |       |               |                 |
| 5.4.34  | 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>   |      |       |               |                 |
|   | <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>  |      |       |               |                 |
| 5.4.35  | Horizontal ceiling fixed to underside of trusses   | m2   | 54.00 |               |                 |
| 5.4.36  | 12mm Cornice 50mm high, plugged  | m    | 47.00 |               |                 |
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| <b>CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL<br/>WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&amp;M SUPPLY AND INSTALLATION,<br/>AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY</b> |  |             |            |                       |                         |
|--|--|-------------|------------|-----------------------|-------------------------|
| <b>LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA<br/>LENGIMA AND LAISAMIS IN MARSABIT COUNTY</b>  |  |             |            |                       |                         |
| <b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>   |  |             |            |                       |                         |
| <b><u>BILL NO. 5.4: JALDESA SCHEME - ADMINISTRATION BUILDING</u></b>   |  |             |            |                       |                         |
| <b>ITEM</b>  | <b>DESCRIPTION</b>                         | <b>UNIT</b> | <b>QTY</b> | <b>RATE<br/>Kshs.</b> | <b>AMOUNT<br/>Kshs.</b> |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |           |     |               |                 |
|---|--|-----------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |           |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |           |     |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |  |           |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT      | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <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> |           |     |               |                 |
| 6.1.1   | Allow Kes 100,000 for demolitions, relocations and demobilization of existing infrastructure in the borehole site including pumps, solar panels, tanks, steel structures, cables, buildings, etc... Rate to include transportation for safekeeping as directed by the Water Service Provider/Employer  | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 6.1.2   | Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.   | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 6.1.3   | Allow a Kes 250,000 provisional sum for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.  | Prov. Sum | 1.0 | 250,000.00    | 250,000.00      |
| 6.1.4   | Allow % for overheads, administration, profits, etc  | %         |     |               |                 |
| 6.1.5   | Supply, install, test and commission 22kW, 29.91Hp Submersible Pump SP 18-17 or approved equivalent with a discharge <b>22m<sup>3</sup>/hr</b> and head <b>96m</b> pipe complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter. The rate to include appropriately sized PVC riser pipes.  | No        |     |               |                 |
| 6.1.6   | Supply, install, test and commission 10 mm <sup>2</sup> /4 core submersible pump flat cable  | m         |     |               |                 |
| 6.1.7   | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.  | Pair      |     |               |                 |
| 6.1.8   | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)  | m         |     |               |                 |
| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND**

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

**BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT**

| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE  | AMOUNT |
|---|---|------|------|-------|--------|
|   |   |      |      | Kshs. | 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, 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>  |      |      |       |        |
| 6.1.10  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.   | LS   | 1.00 |       |        |
| 6.1.11  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)  | No.  | 1.00 |       |        |
| 6.1.12  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +0.25%<4mH2O.   | 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    |       |        |
|   |   |      |      |       |        |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |      |               |                 |
|---|---|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 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 43.68 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 42.0 |               |                 |
| 6.1.18  | Supply, installation and furnishing support structures with the following specifications:<br>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.<br>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    |               |                 |
| 6.1.19  | Supply, install, test and commission a 3-phase 100KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.  | Set  | 1    |               |                 |
| 6.1.20  | Supply, install, test and commission a 30 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 30kW 61A 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    |               |                 |
| 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |     |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |  |      |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 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 B   | 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   |               |                 |
|   |  |      |     |               |                 |
| 6.1.26  | 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   |               |                 |
| 6.1.30  | Supply, install, test and commission Pressure Gauge - 0-25bar  | No   | 2   |               |                 |
| 6.1.31  | Allow for 12 months after sale service including training of operators and technicians.  | Ls   | 1   |               |                 |
|   |  |      |     |               |                 |
|   | <b>Communication Infrastructure</b>  |      |     |               |                 |
| 6.1.33  | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.  | 2   |               |                 |
| 6.1.34  | Supply and installation of Antennas and signal boosters for remote locations   | No.  | 2   |               |                 |
| 6.1.35  | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m    | 500 |               |                 |
| 6.1.36  | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set  | 5   |               |                 |
| 6.1.37  | Supply and installation of Fiber Optic Splicing and Accessories  | Lot  | 5   |               |                 |
| 6.1.38  | <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>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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Fencing</b>  |      |     |               |                 |
| 6.1.39  | Excavate for post holes, provide all materials and construct chain link fence on concrete posts at 3 m centres all as per drawing details, including straining posts at every 10th post and additional posts at corners and bottom concrete cover to ground level under the fence. Works to include provision and installation of a Double Galvanized Razor Wire protection.  | m    | 120 |               |                 |
| 6.1.40  | 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: SURFACE PUMP</b>   |      |     |               |                 |
| 6.1.41  | Supply, install, test and commission 30kW, 40.78Hp Surface Pump CR 32-14 A-F-A-E-HQQE or approved equivalent with a discharge <b>22m<sup>3</sup>/hr</b> and head <b>224m</b> complete with Switch box / control unit: OTDCP16, Circuit Breaker, 16Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, Surge Protection; and Sine-wave filter.   | No   | 2   |               |                 |
| 6.1.42  | Supply, install, test and commission 2.5 mm <sup>2</sup> /4 core  | m    | 20  |               |                 |
| 6.1.43  | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.   | Pair | 1   |               |                 |
| 6.1.44  | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable (brown and black)   | m    | 40  |               |                 |
| 6.1.45  | 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>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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <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>   |      |      |               |                 |
| 6.1.46  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.  | LS   | 1.00 |               |                 |
| 6.1.47  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)   | No.  | 1.00 |               |                 |
| 6.1.48  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +o.25%<4mH2O.  | No   | 1    |               |                 |
| 6.1.49  | Supply, install, test and commission the Pipeline Pressure Sensor (monitors pipe pressure, Model: Yokogawa EJA530A or equivalent)  | No.  | 1.00 |               |                 |
| 6.1.50  | Supply, install, test and commission the Power Consumption Sensor (tracks energy use, Model: Carlo Gavazzi EM24 or equivalent)   | No.  | 1.00 |               |                 |
|   |  |      |      |               |                 |
| 6.1.52  | Supply, install, test and commission the Conductivity Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)   | No.  | 1.00 |               |                 |
| 6.1.53  | Supply, install, test and commission of an array of solar with the following specifications:<br>390W solar panels, Monocrystalline Silicon PV, with 25 years warranty<br>The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 46.8 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 84   |               |                 |
| 6.1.54  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output. - Contractor to give shop drawings | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |     |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |  |      |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 6.1.55  | Supply, install, test and commission a 3-phase 100KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform 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   |               |                 |
| 6.1.56  | Supply, install, test and commission a 30 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 30kW 61A 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   |               |                 |
| 6.1.57  | Supply, install, test and commission a 16A TPN Automatic change over switch with override switch, complete with the metal enclosure to have a protection of atleast IP54.  | No   | 1   |               |                 |
| 6.1.58  | 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   |               |                 |
| 6.1.59  | 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   |               |                 |
| 6.1.60  | 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   |               |                 |
| 6.1.62  | Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent   | Set  | 1   |               |                 |
| 6.1.63  | Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations  | Set  | 1   |               |                 |
| 6.1.64  | 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   |               |                 |
| 6.1.65  | Supply, install, test and commission Pressure Gauge - 0-25bar  | No   | 2   |               |                 |
| 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |   |      |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 6.1.66  | 12 Months maintenance plus training of maintenance staff.   | No   | 1   |               |                 |
| 6.1.67  | Supply, install, test and commission Motor Protection Unit MP204 or equivalent  | No   | 1   |               |                 |
|   | <b>Communication Infrastructure</b>   |      |     |               |                 |
| 6.1.68  | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations   | No.  | 2   |               |                 |
| 6.1.69  | Supply and installation of Antennas and signal boosters for remote locations  | No.  | 2   |               |                 |
| 6.1.70  | Supply and installation of Fiber Optic Cable (8-core, single-mode)  | m    | 50  |               |                 |
| 6.1.71  | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof   | Set  | 5   |               |                 |
| 6.1.72  | Supply and installation of Fiber Optic Splicing and Accessories   | Lot  | 5   |               |                 |
|   | <b>Fencing</b>  |      |     |               |                 |
| 6.1.73  | 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 |               |                 |
| 6.1.74  | 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>WELL HEAD PROTECTION</b>   |      |     |               |                 |
| 6.1.75  | Provide materials and construct a 1.2mx0.9m with height not exceeding 2m wellhead protection for Borehole to details as per the drawing and as directed by the Engineer. The rate includes a lockable 5mm thick mild steel access cover, mild steel step irons, provision for conduits and pipeworks, vent provision and base slab 150mm C25/20 reinforced with A142 BRC mesh per borehole. All as per the drawings and as directed by the engineer | Nr   | 1   |               |                 |
|   | <b>Borehole pipeworks</b>   |      |     |               |                 |
| 6.1.76  | 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   |               |                 |
| 6.1.77  | All Flanged 90 deg long elbow DN 50   | Nr   | 3   |               |                 |
| 6.1.78  | Double Flanged Non-Return Valve 50  | Nr   | 1   |               |                 |
| 6.1.79  | Double Flanged Gate Valve DN 50   | Nr   | 4   |               |                 |
| 6.1.80  | Supply and install multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.   | No.  | 4   |               |                 |
| 6.1.81  | All flanged equal steel tee 50mmx50mmx50mm  | Nr   | 1   |               |                 |
| 6.1.82  | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND**

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

**BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT**

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |                                    |      |     |               |                 |
|---|------------------------------------|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |                                    |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                                    |      |     |               |                 |
| BILL NO. 6.1: MANYATTA LENGIMA SCHEME-BOREHOLE DEVELOPMENT  |                                    |      |     |               |                 |
| ITEM  | DESCRIPTION                        | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   |                                    |      |     |               |                 |
|   | Page Total, Page 1                 |      |     |               |                 |
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|   | Page Total, Page 9                 |      |     |               |                 |
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|   |                                    |      |     |               |                 |
|   | Bill Total Carried to Bill Summary |      |     |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |          |               |                 |
|---|---|------|----------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |          |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |          |               |                 |
| BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SCHEME PIPELINES AND FITTINGS  |   |      |          |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY      | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | i. The Contactor to maintain uninterrupted continuity of water supply in existing pipelines   |      |          |               |                 |
|   | <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>RISING MAINS</b>   |      |          |               |                 |
| 6.2.1   | HDPE Pipe DN110mm PN16  | m    | 340.00   |               |                 |
|   | <b>Non return valves</b>  |      |          |               |                 |
| 6.2.2   | DN 110mm Non-return valves  | Nr   | 1.00     |               |                 |
|   | <b>Airvalves</b>  |      |          |               |                 |
| 6.2.3   | DN 50mm airvalve AVK or approved equivalent   | Nr   | 2.00     |               |                 |
|   | <b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>   |      |          |               |                 |
| 6.2.4   | HDPE Pipe DN50mm PN16   | m    | 1,160.00 |               |                 |
| 6.2.6   | HDPE Pipe DN90mm PN16   | m    | 2,100.00 |               |                 |
| 6.2.7   | HDPE Pipe DN110mm PN16  | m    | 1,270.00 |               |                 |
|   | <b>Bends</b>  |      |          |               |                 |
| 6.2.8   | DN 110mm 90°  | Nr.  | 1.00     |               |                 |
| 6.2.9   | DN 110mm 45°  | Nr.  | 1.00     |               |                 |
| 6.2.10  | DN 90mm 90°   | Nr.  | 1.00     |               |                 |
| 6.2.12  | DN 50mm 90°   | Nr.  | 1.00     |               |                 |
|   | <b>Reducers</b>   |      |          |               |                 |
| 6.2.13  | DN 110/90 mm  | Nr.  | 1.00     |               |                 |
| 6.2.14  | DN 90/50 mm   | Nr.  | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SCHEME PIPELINES AND FITTINGS  |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>110mm offtake (JD 1)</b>   |      |        |               |                 |
| 6.2.15  | DN 110x110x50mm HDPE tee  | Nr   | 1.00   |               |                 |
| 6.2.16  | DN 50mm stub end with MS flange ring  | Nr   | 2.00   |               |                 |
| 6.2.17  | DN 50mm flanged sluice valve  | Nr   | 1.00   |               |                 |
|   | <b>90mm offtake (Junction 2)</b>  |      |        |               |                 |
| 6.2.18  | DN 90x90x50mm HDPE tee  | Nr   | 1.00   |               |                 |
| 6.2.19  | DN 50mm stub end with MS flange ring  | Nr   | 2.00   |               |                 |
| 6.2.20  | DN 50mm flanged sluice valve  | Nr   | 1.00   |               |                 |
|   | <b>DN 50mm Terminal connection (with washout)</b>   |      |        |               |                 |
| 6.2.21  | DN 50x50x50mm HDPE tee  | Nr   | 3.00   |               |                 |
| 6.2.22  | DN 50mm stub end with MS flange back ring   | Nr   | 12.00  |               |                 |
| 6.2.23  | DN 50mm Flanged gate valve  | Nr   | 6.00   |               |                 |
| 6.2.24  | DN 50mm HDPE flap valve   | Nr   | 3.00   |               |                 |
| 6.2.25  | DN 50mm HDPE PN 16 pipe   | m    | 200.00 |               |                 |
| 6.2.26  | Masonry headwall with base slab for Erosion protection at discharge point   | Ls   | 3.00   |               |                 |
|   | <b>Air Valve Chamber Fittings (DN110mm)</b>   |      |        |               |                 |
| 6.2.27  | HDPE Reducer Tee DN 110mm x 110mm x 50mm  | Nr   | 1.00   |               |                 |
| 6.2.28  | DN50 mm HDPE Stub End with MS Flange  | Nr   | 1.00   |               |                 |
| 6.2.29  | DN 50mm double flanged sluice valve   | Nr   | 1.00   |               |                 |
| 6.2.30  | DN 50mm double orifice airvalve   | Nr   | 1.00   |               |                 |
|   | <b>Air Valve Chamber Fittings (DN90mm)</b>  |      |        |               |                 |
| 6.2.31  | HDPE Reducer Tee DN 90mm x 90mm x 50mm  | Nr   | 2.00   |               |                 |
| 6.2.32  | DN50 mm HDPE Stub End with MS Flange  | Nr   | 2.00   |               |                 |
| 6.2.33  | DN 50mm double flanged sluice valve   | Nr   | 2.00   |               |                 |
| 6.2.34  | DN 50mm double orifice airvalve   | Nr   | 2.00   |               |                 |
|   | <b>Water Draw Off Facilities</b>  |      |        |               |                 |
| 6.2.35  | 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.  | 2.00   |               |                 |
|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SCHEME PIPELINES AND FITTINGS  |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 6.2.36  | Supply of materials and construct a cattle/Camel trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 440mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.   | Item | 1.00 |               |                 |
| 6.2.37  | Supply of materials and construct sheep/goat trough of internal dimension 10mx1.1m. The 200mm wall shall be RC reinforced with T10 and the 100mm base slab with BRCA142. The height of the trough shall be 300mm. The trough shall have a ditch slope for a distance of 2m around it. Inlet chamber 1.1x1.1x0.7m shall include GI pipe DN50 with float valve. Offtake with HDPE pipe piece DN50 PN12.5, offtake isolating valve. An emergency Isolation valve shall be secured in the chamber. The rate will include excavations, setting out, erection, and all installations/plumbing works for the structure. All details to drawing and Specifications.   | Item | 1.00 |               |                 |
| 6.2.38  | Supply of materials and construct a sanitation facility as described to detail in Appendix E  | Item | 1.00 |               |                 |
| 6.2.39  | Allow for supply and installation of institutional/water kiosk/animal watering points connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.  | Nr   | 1.00 |               |                 |
| <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 FORWARD TO COLLECTION SHEET</b>   |   |      |      |               |                 |

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| 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 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |                                     |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                                     |      |     |               |                 |
| BILL NO. 6.2: MANYATTA LEGIMA WATER SUPPLY SCHEME PIPELINES AND FITTINGS  |                                     |      |     |               |                 |
| ITEM  | DESCRIPTION                         | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   |                                     |      |     |               |                 |
|   | Page Total, Page 1                  |      |     |               |                 |
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|   | Bill Total Carried to Grand Summary |      |     |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |                |          |               |                 |
|---|---|----------------|----------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |                |          |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |                |          |               |                 |
| BILL NO. 6.3: MANYATTA LENGIMA SCHEME 100 M3 RCC TANK   |   |                |          |               |                 |
| ITEM  | ITEM DESCRIPTION  | UNIT           | QTY      | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|   | <b>CLASS E: EARTHWORKS</b>  |                |          |               |                 |
|   | <b>General excavation</b>   |                |          |               |                 |
|   | <b>Excavate in Topsoil for Storage tank Works</b>   |                |          |               |                 |
| 6.3.1   | Maximum depth not exceeding 1 m   | m <sup>3</sup> | 100.00   |               |                 |
| 6.3.2   | Maximum depth exceeding 1 m   | m <sup>3</sup> | 120.00   |               |                 |
| 6.3.3   | the Engineer  | Ls             | 1.00     |               |                 |
|   | <b>Filling</b>  |                |          |               |                 |
|   | <b>Hardcore</b>   |                |          |               |                 |
| 6.3.4   | blinded with final material 25mm thick  | m3             | 24.30    |               |                 |
|   | Provide fill material to Storage tank Works structures  |                |          |               |                 |
|   | <b>Specifications.</b>  |                |          |               |                 |
|   | Mass concrete Class 15/20   |                |          |               |                 |
| 6.3.7   | tank, with sulphate resisting cement  | m <sup>3</sup> | 7.28     |               |                 |
|   | Reinforced concrete Class 30/20:  |                |          |               |                 |
| 6.3.8   | Foundation, Base and ground slab concrete, Walls, Beams, Columns, Paparet Wall, Suspended Slab and Gutter | m <sup>3</sup> | 97.62    |               |                 |
|   | <b>Formwork</b>   |                |          |               |                 |
|   | striking, all as specified and including boxing out   |                |          |               |                 |
| 6.3.9   | (i) Vertical Formwork - Class F3 Finish   | m2             | 521.86   |               |                 |
|   | <b>Concrete Surface Finish</b>  |                |          |               |                 |
| 6.3.10  | suspended slab  | m2             | 181.28   |               |                 |
|   | <b>Reinforcement</b>  |                |          |               |                 |
|   | including cutting, bending, lapping propping with spacers and tying                                       |                |          |               |                 |
| 6.3.11  | High yield tensile steel 16mm diameter  | kg             | 4,500.00 |               |                 |
| 6.3.12  | High yield tensile steel 12mm diameter  | kg             | 5,000.00 |               |                 |
| 6.3.13  | High yield tensile steel 10mm diameter  | kg             | 1,500.00 |               |                 |
|   | <b>CLASS L: ACCESS CHAMBERS</b>   |                |          |               |                 |
| 6.3.14  | 1000x1000x6mm thick lockable access chamber covers with 6mm   | nr             | 2.00     |               |                 |
|   | <b>CLASS H: PRECAST CONCRETE</b>  |                |          |               |                 |
| 6.3.15  | mm thick precast paving slabs on and including 50 mm thick sand   | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 6.3: MANYATTA LENGIMA SCHEME 100 M3 RCC TANK   |   |      |      |               |                 |
| ITEM  | ITEM DESCRIPTION  | UNIT | QTY  | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|   | <b>CLASS N: MISCELLANEOUS METAL WORK</b>                        |      |      |               |                 |
|   | galvanising. All steel pipes shall be hot-dip galvanised steel  |      |      |               |                 |
|   | <b>Stainless Steel water level Indicator</b>                    |      |      |               |                 |
| 6.3.16  | level Indicator for O&M.  | nr   | 1.00 |               |                 |
|   | <b>Access Ladder with safety cage</b>                           |      |      |               |                 |
| 6.3.17  | exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm | nr   | 3.00 |               |                 |
| 6.3.18  | Provision for an 100mm air vent to standard drawing detail      | No.  | 4.00 |               |                 |
|   | <b>Overflow PIPEWORK</b>  |      |      |               |                 |
| 6.3.19  | from spigot end   | Nr   | 1.00 |               |                 |
| 6.3.20  | DN 150 All flanged 90deg short radius bend                      | Nr   | 1.00 |               |                 |
| 6.3.21  | length 1500mm   | Nr   | 1.00 |               |                 |
| 6.3.22  | DN 150 Flanged spigot 90deg long radius bend                    | Nr   | 1.00 |               |                 |
|   | <b>Scour Pipework</b>   |      |      |               |                 |
| 6.3.23  | DN 150 Flanged spigot 90 deg short radius bend                  | Nr   | 1.00 |               |                 |
| 6.3.24  | one end, length 2000mm  | Nr   | 1.00 |               |                 |
| 6.3.25  | DN 150 All flanged Globe Control valve PN10 with EPDM lining    | Nr   | 1.00 |               |                 |
|   | <b>Inlet Pipework</b>   |      |      |               |                 |
| 6.3.26  | DN 150 All flanged steel 90 deg long radius bend                | Nr   | 2.00 |               |                 |
| 6.3.27  | from one end, length 2000mm                                     | Nr   | 1.00 |               |                 |
| 6.3.28  | DN 150 Flanged ball valve                                       | Nr   | 1.00 |               |                 |
| 6.3.29  | DN 150 HDPE Stub end Flange                                     | Nr   | 1.00 |               |                 |
| 6.3.30  | DN 150 Double flanged pipe piece, length 3000mm                 | Nr   | 1.00 |               |                 |
|   | <b>Outlet Pipework</b>  |      |      |               |                 |
| 6.3.31  | DN 150 Flanged special bell mouth                               | Nr   | 1.00 |               |                 |
| 6.3.32  | DN 150 All Flanged 90 degree short radius bend                  | Nr   | 1.00 |               |                 |
| 6.3.33  | 400mm and 1200mm, length 2000mm                                 | Nr   | 1.00 |               |                 |
| 6.3.34  | spigot end, length 1200mm                                       | Nr   | 1.00 |               |                 |
|   |   |      |      |               |                 |
|   |   |      |      |               |                 |
| <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>   |   |      |      |               |                 |



**BILL NO. 6.3: MANYATTA LENGIMA SCHEME 100 M3 RCC TANK**PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |                                |      |     |       |        |
|---|--------------------------------|------|-----|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |                                |      |     |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                                |      |     |       |        |
| BILL NO. 6.3: MANYATTA LENGIMA SCHEME 100 M3 RCC TANK   |                                |      |     |       |        |
| ITEM  | ITEM DESCRIPTION               | UNIT | QTY | RATE  | AMOUNT |
|   |                                |      |     | (Ksh) | (Ksh)  |
|   |                                |      |     |       |        |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |        |               |                 |
|---|--|------|--------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |  |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |        |               |                 |
| BILL NO. 6.4: MANYATTA LENGIMA SCHEME - ADMINISTRATION BUILDING   |  |      |        |               |                 |
| ITEM  | ITEM DESCRIPTION   | UNIT | QTY    | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|   | <b>Administration Building Type I</b>  |      |        |               |                 |
|   | <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  |               |                 |
| 6.4.14  | High yield tensile steel 10mm diameter to strip footing  | kg   | 300.60 |               |                 |
| 6.4.15  | High yield tensile steel 8mm diameter  | kg   | 101.96 |               |                 |
|   |  |      |        |               |                 |
|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 6.4: MANYATTA LENGIMA SCHEME - ADMINISTRATION BUILDING   |   |      |        |               |                 |
| ITEM  | ITEM DESCRIPTION  | UNIT | QTY    | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|   | <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  |               |                 |
|   |   |      |        |               |                 |
|   |   |      |        |               |                 |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 6.4: MANYATTA LENGIMA SCHEME - ADMINISTRATION BUILDING   |  |      |       |               |                 |
| ITEM  | ITEM DESCRIPTION   | UNIT | QTY   | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|   | <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 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> |      |       |               |                 |
| 6.4.33  | Window size 1200x 1200mm high with 1 No. fixed and 2 No. side hung opening bottom sashes and with 2 No. fixed and 1 No. top-hung top ventilators 200mm high with permanent ventilator hood over  | Nr   | 5.00  |               |                 |
|   | <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 |               |                 |
|   |  |      |       |               |                 |
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| <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>   |  |      |       |               |                 |

| ITEM<br>M | ITEM DESCRIPTION | UNIT | QTY | RATE  | AMOUNT |
|-----------|------------------|------|-----|-------|--------|
|           |                  |      |     | (Ksh) | (Ksh)  |

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |                    |      |     |               |                 |
|---|--------------------|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |                    |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                    |      |     |               |                 |
| BILL NO. 6.4: MANYATTA LENGIMA SCHEME - ADMINISTRATION BUILDING   |                    |      |     |               |                 |
| ITEM  | ITEM DESCRIPTION   | UNIT | QTY | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
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| Bill Total Carried to Bill Summary  |                    |      |     |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |                |       |               |                 |
|---|--|----------------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |                |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |       |               |                 |
| BILL NO. 6.5: MANYATTA LENGIMA SCHEME - PUMP HOUSE  |  |                |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT           | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| <b>6.5</b>  | <b>PROPOSED PUMP HOUSE &amp; CONTROL ROOM</b>  |                |       |               |                 |
|   | <b><u>EARTHWORKS</u></b>   |                |       |               |                 |
|   | <b>GENERAL EXCAVATION</b>  |                |       |               |                 |
| 6.5.1   | Excavate 200mm top soil and dispose  | m2             | 40    |               |                 |
| 6.5.2   | Excavate all materials max. depth 0.2 - 3 m for disposal   | m3             | 119   |               |                 |
|   | <b>FILLING AND COMPACTION</b>  |                |       |               |                 |
| 6.5.3   | 300 mm thick hardcore bed, handpacked, well watered and well compacted in 100 mm layers.   | m <sup>3</sup> | 11.87 |               |                 |
|   | <b><u>IN-SITU CONCRETE</u></b>   |                |       |               |                 |
|   | <b>DESIGNED MIX FOR ORDINARY STRUCTURAL CONCRETE FOR CLASS B EXPOSURE USING ORDINARY PORTLAND CEMENT Grade 42.5 to Specifications.</b> |                |       |               |                 |
|   | Provide and place Concrete Grade: 15   |                |       |               |                 |
| 6.5.4   | 20 mm aggregate  | m3             | 5.35  |               |                 |
|   | Provide and place Concrete Grade: 25   |                |       |               |                 |
| 6.5.5   | 20 mm aggregate  | m3             | 16.16 |               |                 |
|   | <b>CONCRETE ANCILLARIES</b>  |                |       |               |                 |
|   | <b>FORMWORK: FAIR FINISH</b>   |                |       |               |                 |
| 6.5.6   | Fair finish to vertical sides of floor slab, plinth and ring beam  | m <sup>2</sup> | 59    |               |                 |
|   | <b>REINFORCEMENT</b>   |                |       |               |                 |
|   | High yield steel bars to SSRN 126 or 127   |                |       |               |                 |
| 6.5.7   | Diameter: 10 mm and below  | kg             | 367   |               |                 |
| 6.5.8   | Diameter: 12 mm and above  | kg             | 335   |               |                 |
| 6.5.9   | Wire weld fabric BS Ref. A252  | m2             | 46    |               |                 |
|   | <b><u>TIMBER</u></b>   |                |       |               |                 |
|   | <b><u>Fittings and fastenings</u></b>  |                |       |               |                 |
| 6.5.10  | Bolts  | nr             | 170   |               |                 |
|   | <b>Roofing with cypress</b>  |                |       |               |                 |
| 6.5.11  | 50x 100 mm Rafter, ridge piece and tie beams: in trusses   | m              | 97.90 |               |                 |
| 6.5.12  | 100 x 50 mm: Struts and ties; Wall plate fixed to concrete   | m              | 63.80 |               |                 |
| 6.5.13  | 200 X 25mm fascia and badge  | m              | 29.40 |               |                 |
| 6.5.14  | 75 x 50mm purlins  | m              | 66.40 |               |                 |
|   |  |                |       |               |                 |
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**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  
PROJECT NO.: KE-WSTF-328819-CS-QCBS**

**BILL NO. 6.5: MANYATTA LENGIMA SCHEME - PUMP HOUSE**

| ITEM | DESCRIPTION | UNIT | QTY | RATE  | AMOUNT |
|------|-------------|------|-----|-------|--------|
|      |             |      |     | Kshs. | Kshs.  |
|      |             |      |     |       |        |

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| <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b> |  |  |  |  |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |      |       |        |
|---|--|------|------|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |      |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |       |        |
| BILL NO. 6.5: MANYATTA LENGIMA SCHEME - PUMP HOUSE  |  |      |      |       |        |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE  | AMOUNT |
|   |  |      |      | Kshs. | Kshs.  |
|   | <b>PIPE WORK FITTINGS</b>  |      |      |       |        |
|   | Provide install, test and commission the following fittings to Specifications. All fittings shall have minimum rating of PN16 and flanged. Pipes shall be galvanised steel or approved equivalent. Valves shall have a wedge which is fully vulcanized with EPDM rubber compound or approved equivalent. |      |      |       |        |
|   | <b>Inlet Pipework</b>  |      |      |       |        |
| 6.5.35  | HDPE Stub End Flange DN110   | nr.  | 1.00 |       |        |
| 6.5.36  | Double flanged 90° long radius bend DN100  | nr.  | 2.00 |       |        |
| 6.5.37  | Double flanged pipe piece DN100 length 3m  | nr.  | 1.00 |       |        |
| 6.5.38  | Double flanged pipe piece With puddle flange at 0.5m DN100 length 1.5m   | nr.  | 1.00 |       |        |
| 6.5.39  | Flanged Ball valve DN100   | nr.  | 1.00 |       |        |
|   | <b>Suction fittings</b>  |      |      |       |        |
| 6.5.40  | Flanged Bell mouth DN200   | nr.  | 1.00 |       |        |
| 6.5.41  | Double flanged 90° long radius bend DN200  | nr.  | 1.00 |       |        |
| 6.5.42  | Double flanged pipe with puddle flange DN200 length 1.5 m  | nr.  | 1.00 |       |        |
| 6.5.43  | All flanged 200x200x200 tee  | nr.  | 1.00 |       |        |
| 6.5.44  | Double flanged pipe piece DN200 length 0.8m  | nr.  | 1.00 |       |        |
| 6.5.45  | Double flanged 90° long radius bend DN200  | nr.  | 1.00 |       |        |
| 6.5.46  | Flanged spigot pipe piece DN200 length 1.5m  | nr.  | 2.00 |       |        |
| 6.5.47  | Flanged spigot pipe piece DN200 length 0.5m  | nr.  | 2.00 |       |        |
| 6.5.48  | Dismantling joint with centre flange DN200   | nr.  | 2.00 |       |        |
| 6.5.49  | Flanged adaptor DN200  | nr.  | 2.00 |       |        |
| 6.5.50  | Double flanged actuated butterfly valve DN200 semi-motorised   | nr.  | 2.00 |       |        |
| 6.5.51  | All flanged eccentric taper 200/40   | nr.  | 2.00 |       |        |
| 6.5.52  | All flanged 200x75x200x75 cross tee  | nr.  | 1.00 |       |        |
| 6.5.53  | Double flanged pipe piece DN200 length 0.5m  | nr.  | 1.00 |       |        |
| 6.5.54  | Double flanged sluice valve DN75   | nr.  | 2.00 |       |        |
| 6.5.55  | HDPE Stub End Flange DN75  | nr.  | 2.00 |       |        |
|   | <b>Delivery Fittings all to be PN25</b>  |      |      |       |        |
| 6.5.56  | Flanged concentric taper DN100/40 with welded DN25 G.I pipe with complete with gate valve all to PN25  | nr.  | 2.00 |       |        |
| 6.5.57  | Check Valve valve DN100  | nr.  | 2.00 |       |        |
| 6.5.58  | Double flanged actuated butterfly valve valve DN100 semi-motorised   | nr.  | 2.00 |       |        |
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| <b>PAGE TOTAL CARRIED FORWARD TO COLLECTION SHEET</b>   |  |      |      |       |        |

**BILL NO. 6.5: MANYATTA LENGIMA SCHEME - PUMP HOUSE**

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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND</b>  |             |            |                       |                         |  |
| <b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b>   |             |            |                       |                         |  |
| <b>BILL NO. 6.5: MANYATTA LENGIMA SCHEME - PUMP HOUSE</b>  |             |            |                       |                         |  |
| <b>ITEM DESCRIPTION</b>  | <b>UNIT</b> | <b>QTY</b> | <b>RATE<br/>Kshs.</b> | <b>AMOUNT<br/>Kshs.</b> |  |
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| <b>Bill Total Carried to Grand Summary</b>   |             |            |                       |                         |  |

**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND**

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

**BILL NO. 6.5: MANYATTA LENGIMA SCHEME - PUMP HOUSE**

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

**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA**

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

**BILL NO. 6: COLLECTION MANYATTA LENGIMA SCHEME-COLLECTION SHEET**

| BILL | DESCRIPTION   | AMOUNT |
|------|---|--------|
| No   |   | Kshs   |
| 6.1  | BOREHOLES AND WELL DEVELOPMENT                      |        |
| 6.2  | PIPELINE AND FITTINGS                               |        |
| 6.3  | 100M3 RCC TANK                                      |        |
| 6.4  | BUILDINGS   |        |
| 6.5  | PUMP HOUSE  |        |
|      |   |        |
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|      |   |        |
|      | <b>Bill 7 -Manyatta Lengima Water Supply Scheme</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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |           |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |           |     |               |                 |
| BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT  |   |           |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT      | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.1   | <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> |           |     |               |                 |
| 7.1.1   | 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      |
| 7.1.2   | Allow Kes 100,000 for mobilization of borehole camera, conducting a borehole camera investigation. Borehole flushing with drilling foam, chemical cleaning, airlifting and water jetting at high pressure.  | Prov. Sum | 1.0 | 100,000.00    | 100,000.00      |
| 7.1.3   | Allow a provisional sum 250,000 for redevelopment of boreholes. The rates shall be used from existing rates elsewhere in the BoQ or as provided in the dayworks or as determined by the Engineer.   | Prov. Sum | 1.0 | 250,000.00    | 250,000.00      |
| 7.1.4   | Allow % for overheads, administration, profits, etc   | %         |     |               |                 |
| 7.1.5   | Supply, install, test and commission 30kW, 40.78Hp Submersible Pump SP 18-22N or approved equivalent with a discharge <b>19 m<sup>3</sup>/hr</b> and head <b>145m</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   |               |                 |
| 7.1.6   | Supply, install, test and commission 3.5 mm <sup>2</sup> /4 core submersible pump flat cable  | m         | 214 |               |                 |
| 7.1.7   | Supply, install, test and commission DN6x120 mmL stainless steel water level sensor complete with microcontroller and alert system.   | Pair      | 1   |               |                 |
| 7.1.8   | Supply, install, test and commission 0.75mm <sup>2</sup> sc pvc sheathed copper control cable( brown and black)   | m         | 427 |               |                 |
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|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT  |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.1.9   | 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>   |      |      |               |                 |
| 7.1.10  | Supply, install, test and commission the Solar Radiation Apogee SP 230 or equivalent & Temperature Sensors PT100 or equivalent.  | LS   | 1.00 |               |                 |
| 7.1.11  | Supply, install, test and commission the Float Switch Sensor (tank high/low levels, Model: Omron D4MC or equivalent)   | No.  | 1.00 |               |                 |
| 7.1.12  | Supply, installation, testing and commissioning of Hydrostatic Level Transmitter with integrated Pt 100 temperature sensor 0-700C, range from 1-100 mH2Og, accuracy + 0.175% FS BSL NLHR>4mH2O, +o.25%<4mH2O.  | No   | 1    |               |                 |
| 7.1.16  | Supply, install, test and commission the TDS and EC Sensor (measures dissolved minerals, Model: Yokogawa SC72 or equivalent)   | No.  | 1.00 |               |                 |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |      |               |                 |
|---|---|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT  |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.1.17  | 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 43.68 kW on a bright sunny day at midday taking into account the system losses.   | No.  | 56.0 |               |                 |
| 7.1.18  | Supply, installation and furnishing support structures with the following specifications:<br>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 15o from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays.<br>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    |               |                 |
| 7.1.19  | Supply, install, test and commission a 3-phase 100KVA power output diesel generator with 415 V at 50 Hz. It should include a highly corrosion resistant enclosure, control panel and monitoring, fuel tank and circuit breaker protection. The diesel generator shall be suitable for indoor or outdoor installation and shall perform accordingly with the battery inverter and the system design. The diesel generator shall work in a fully automatic manner with the above stated component. A concrete plinth to be constructed for the generator placement plus a shed of steel hollow sections and IT 4 sheets to engineer's approval to house the generator.  | Set  | 1    |               |                 |
| 7.1.20  | Supply, install, test and commission a 45 kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 45kW 87A or approved equivalent complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.  | Set  | 1    |               |                 |
| 7.1.21  | 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    |               |                 |
| 7.1.22  | 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    |               |                 |
| 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |     |               |                 |
| BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT  |  |      |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.1.23  | Supply of materials and construct a Genset/Control room building to drawing and Specifications. Rate to include excavations, setting out, erection and all installations for the structure as per Appendix B   | Item | 1   |               |                 |
| 7.1.24  | Supply, install, test and commission Cabling complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at 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   |               |                 |
| 7.1.25  | Supply, install, test and commission Pressure Gauge - 0-25bar  | No   | 2   |               |                 |
| 7.1.26  | Supply, install, test and commission Modem and router for remote monitoring and control. Grundfos SqFlex or equivalent   | Set  | 1   |               |                 |
| 7.1.27  | Supply and install Aerial lightning arrestors at 6m height, fixed to concrete foundations  | Set  | 1   |               |                 |
| 7.1.28  | Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole  | Set  | 1   |               |                 |
| 7.1.29  | Supply, install, test and commission Motor Protection Unit MP204 or equivalent   | No   | 1   |               |                 |
|   |  |      |     |               |                 |
| 7.1.31  | Allow for 12 months after sale service including training of operators and technicians.  | Ls   | 1   |               |                 |
|   |  |      |     |               |                 |
|   | <b>Communication Infrastructure</b>  |      |     |               |                 |
| 7.1.33  | Supply and installation of GSM/GPRS/4G communication modules for boreholes and booster stations  | No.  | 2   |               |                 |
| 7.1.34  | Supply and installation of Antennas and signal boosters for remote locations   | No.  | 2   |               |                 |
| 7.1.35  | Supply and installation of Fiber Optic Cable (8-core, single-mode)   | m    | 500 |               |                 |
| 7.1.36  | Supply and installation of Fiber Optic Termination Boxes, Wall-mounted, dustproof  | Set  | 5   |               |                 |
| 7.1.37  | Supply and installation of Fiber Optic Splicing and Accessories  | Lot  | 5   |               |                 |
| 7.1.38  | <b>Fire Fighting Equipment</b><br>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>  |      |     |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |             |     |               |                 |
|---|---|-------------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |             |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |             |     |               |                 |
| BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT  |   |             |     |               |                 |
| ITEM  | DESCRIPTION   | UNIT        | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Fencing</b>  |             |     |               |                 |
| 7.1.39  | 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 |               |                 |
| 7.1.40  | 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>WELL HEAD PROTECTION</b>   |             |     |               |                 |
| 7.1.41  | Provide materials and construct a 1.2mx0.9m with height not exceeding 2m wellhead protection for Borehole to details as per the drawing and as directed by the Engineer. The rate includes a lockable 5mm thick mild steel access cover, mild steel step irons, provision for conduits and pipeworks, vent provision and base slab 150mm C25/20 reinforced with A142 BRC mesh per borehole. All as per the drawings and as directed by the engineer | Nr          | 1   |               |                 |
|   | <b>Borehole pipeworks</b>   |             |     |               |                 |
| 7.1.42  | 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   |               |                 |
| 7.1.43  | All Flanged 90 deg long elbow DN 50   | Nr          | 3   |               |                 |
| 7.1.44  | Double Flanged Non-Return Valve 50  | Nr          | 1   |               |                 |
| 7.1.45  | Double Flanged Gate Valve DN 50   | Nr          | 4   |               |                 |
|   | Supply and intalls multi-turn actuators for open-close duty paired with actuator controls, and variable speed models.   | No.         | 4   |               |                 |
| 7.1.46  | All flanged equal steel tee 50mmx50mmx50mm  | Nr          | 1   |               |                 |
| 7.1.47  | DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.  | No.         | 1   |               |                 |
| 7.1.48  | Double flanged pipe piece DN50 length 1500mm  | Nr          | 1   |               |                 |
| 7.1.49  | 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   |               |                 |
| 7.1.50  | Double flanged pipe piece DN50 length 1000mm  | Nr          | 2   |               |                 |
| 7.1.51  | All flanged equal 1.8m long extended steel tee 50mmx50mmx50mm   | Nr          | 2   |               |                 |
| 7.1.52  | All flanged reducing taper 50mmx63mm  | Nr          | 1   |               |                 |
| 7.1.53  | Flanged HDPE Stub end DN63  | Nr          | 1   |               |                 |
| 7.1.54  | All Flanged 50mmx50mmx50mm tee connection to a surge protection vessel PN16   | Nr          | 1   |               |                 |
| 7.1.55  | 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<br>Sum | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND**

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

**BILL NO.7.1: LAISAMIS WATER SUPPLY SCHEME-BOREHOLE DEVELOPMENT**

[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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |          |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |          |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |          |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY      | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | i. The Contactor to maintain uninterrupted continuity of water supply in existing pipelines   |      |          |               |                 |
|   | <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>RISING MAINS</b>   |      |          |               |                 |
| 7.2.1   | HDPE Pipe DN110mm PN16  | m    | 3,850.00 |               |                 |
|   | <b>Non return valves</b>  |      |          |               |                 |
| 7.2.2   | DN 110mm Non-return valves  | Nr   | 1.00     |               |                 |
|   | <b>Airvalves</b>  |      |          |               |                 |
| 7.2.3   | DN 50 mm airvalve AVK or approved equivalent  | Nr   | 5.00     |               |                 |
|   | <b>MAIN PIPELINES AND DISTRIBUTION SYSTEM</b>   |      |          |               |                 |
| 7.2.4   | HDPE Pipe DN50mm PN16   | m    | 9,445.00 |               |                 |
| 7.2.5   | HDPE Pipe DN63mm PN16   | m    | 7,434.00 |               |                 |
| 7.2.6   | HDPE Pipe DN75mm PN16   | m    | 1,933.00 |               |                 |
| 7.2.7   | HDPE Pipe DN90mm PN16   | m    | 140.00   |               |                 |
| 7.2.8   | HDPE Pipe DN110mm PN16  | m    | 226.00   |               |                 |
| 7.2.9   | HDPE Pipe DN125mm PN16  | m    | 640.00   |               |                 |
|   | <b>Bends</b>  |      |          |               |                 |
| 7.2.10  | DN 125mm 90°  | Nr.  | 2.00     |               |                 |
| 7.2.11  | DN 125mm 45°  | Nr.  | 2.00     |               |                 |
| 7.2.12  | DN 110mm 90°  | Nr.  | 2.00     |               |                 |
| 7.2.13  | DN 110mm 45°  | Nr.  | 2.00     |               |                 |
| 7.2.14  | DN 90mm 90°   | Nr.  | 2.00     |               |                 |
| 7.2.15  | DN 75mm 90°   | Nr.  | 2.00     |               |                 |
| 7.2.16  | DN 63mm 90°   | Nr.  | 2.00     |               |                 |
| 7.2.17  | DN 50mm 90°   | Nr.  | 2.00     |               |                 |
|   | <b>Reducers</b>   |      |          |               |                 |
| 7.2.18  | DN 125/110 mm   | Nr.  | 1.00     |               |                 |
| 7.2.19  | DN 110/90 mm  | Nr.  | 1.00     |               |                 |
| 7.2.20  | DN 90/75 mm   | Nr.  | 1.00     |               |                 |
| 7.2.21  | DN 75/63 mm   | Nr.  | 1.00     |               |                 |
| 7.2.22  | DN 63/50 mm   | Nr.  | 1.00     |               |                 |
|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>125mm offtake (JD 6)</b>                           |      |       |               |                 |
| 7.2.23  | DN 125x125x63mm HDPE tee                              | Nr   | 1.00  |               |                 |
| 7.2.24  | DN 125x125x110mm HDPE Reducer                         | Nr   | 1.00  |               |                 |
| 7.2.25  | DN 63mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.26  | DN 63mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
|   | <b>125mm offtake (JD 7&amp;8)</b>                     |      |       |               |                 |
| 7.2.27  | DN 125x125x50mm HDPE tee                              | Nr   | 1.00  |               |                 |
| 7.2.28  | DN 50mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.29  | DN 50mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
|   | <b>125mm offtake (JD 9)-2</b>                         |      |       |               |                 |
| 7.2.30  | DN 125x125x75mm HDPE tee                              | Nr   | 2.00  |               |                 |
| 7.2.31  | DN 75mm stub end with MS flange ring                  | Nr   | 4.00  |               |                 |
| 7.2.32  | DN 75mm flanged sluice valve                          | Nr   | 2.00  |               |                 |
|   | <b>110mm offtake (JD 4)</b>                           |      |       |               |                 |
| 7.2.33  | DN 110x110x50mm HDPE tee                              | Nr   | 1.00  |               |                 |
| 7.2.34  | DN 110X75 mm reducer                                  | Nr   | 1.00  |               |                 |
| 7.2.35  | DN 75mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.36  | DN 75mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
| 7.2.37  | DN 50mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.38  | DN 50mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
|   | <b>110mm offtake (JD 5)</b>                           |      |       |               |                 |
| 7.2.39  | DN 110x110x75mm HDPE tee                              | Nr   | 1.00  |               |                 |
| 7.2.40  | DN 75mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.41  | DN 75mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
|   | <b>75mm offtake (JD 2)</b>                            |      |       |               |                 |
| 7.2.42  | DN 75x75x50mm HDPE tee                                | Nr   | 1.00  |               |                 |
| 7.2.43  | DN 75x63mm HDPE reducer                               | Nr   | 1.00  |               |                 |
| 7.2.44  | DN 50mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.45  | DN 50mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
|   | <b>75mm offtake (JD 3,14,15)</b>                      |      |       |               |                 |
| 7.2.46  | DN 75x75x50mm HDPE tee                                | Nr   | 3.00  |               |                 |
| 7.2.47  | DN 50mm stub end with MS flange ring                  | Nr   | 6.00  |               |                 |
| 7.2.48  | DN 50mm flanged sluice valve                          | Nr   | 3.00  |               |                 |
|   | <b>75mm offtake (JD 16)</b>                           |      |       |               |                 |
| 7.2.49  | DN 75x75x63mm HDPE tee                                | Nr   | 1.00  |               |                 |
| 7.2.50  | DN 63mm stub end with MS flange ring                  | Nr   | 2.00  |               |                 |
| 7.2.51  | DN 63mm flanged sluice valve                          | Nr   | 1.00  |               |                 |
|   | <b>63mm offtake (JD 1,11,12,17&amp;18)</b>            |      |       |               |                 |
| 7.2.52  | DN 63x63x50mm HDPE tee                                | Nr   | 6.00  |               |                 |
| 7.2.53  | DN 63x50mm HDPE reducer                               | Nr   | 6.00  |               |                 |
| 7.2.54  | DN 50mm stub end with MS flange ring                  | Nr   | 12.00 |               |                 |
| 7.2.55  | DN 50mm flanged sluice valve                          | Nr   | 6.00  |               |                 |
|   | <b>50mm offtake (JD 19,20,21,22)</b>                  |      |       |               |                 |
| 7.2.56  | DN 63x63x50mm HDPE tee                                | Nr   | 5.00  |               |                 |
| 7.2.57  | DN 50mm stub end with MS flange ring                  | Nr   | 10.00 |               |                 |
| 7.2.58  | DN 50mm flanged sluice valve                          | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>DN 50mm Terminal connection (with washout)</b>     |      |       |               |                 |
| 7.2.59  | DN 50x50x50mm HDPE (Reduced or Equal) tee             | Nr   | 1.00  |               |                 |
| 7.2.60  | DN 50mm stub end with MS flange back ring             | Nr   | 4.00  |               |                 |
| 7.2.61  | DN 50mm Flanged gate valve                            | Nr   | 2.00  |               |                 |
| 7.2.62  | DN 50mm HDPE flap valve                               | Nr   | 1.00  |               |                 |
| 7.2.63  | DN 50mm HDPE PN 16 pipe                               | m    | 60.00 |               |                 |
|   | <b>DN 63mm Terminal connection (with washout)</b>     |      | -     |               |                 |
| 7.2.64  | DN 63x63x50mm HDPE (Reduced or Equal) tee             | Nr   | 1.00  |               |                 |
| 7.2.65  | DN 50mm stub end with MS flange back ring             | Nr   | 4.00  |               |                 |
| 7.2.66  | DN 50mm Flanged gate valve                            | Nr   | 2.00  |               |                 |
| 7.2.67  | DN 50mm HDPE flap valve                               | Nr   | 1.00  |               |                 |
| 7.2.68  | DN 50mm HDPE PN 16 pipe                               | m    | 60.00 |               |                 |
|   | <b>DN 75mm Terminal connection (with washout)</b>     |      | -     |               |                 |
| 7.2.69  | DN 75x75x50mm HDPE (Reduced or Equal) tee             | Nr   | 1.00  |               |                 |
| 7.2.70  | DN 50mm stub end with MS flange back ring             | Nr   | 4.00  |               |                 |
| 7.2.71  | DN 50mm Flanged gate valve                            | Nr   | 2.00  |               |                 |
| 7.2.72  | DN 50mm HDPE flap valve                               | Nr   | 1.00  |               |                 |
| 7.2.73  | DN 50mm HDPE PN 16 pipe                               | m    | 60.00 |               |                 |
|   | <b>Air Valve Chamber Fittings (DN125mm) -(1No)</b>    |      |       |               |                 |
| 7.2.74  | HDPE Reducer Tee DN 125mm x 125mm x 63mm              | Nr   | 1.00  |               |                 |
| 7.2.75  | DN63 mm HDPE Stub End with MS Flange                  | Nr   | 1.00  |               |                 |
| 7.2.76  | DN 50mm double flanged sluice valve                   | Nr   | 1.00  |               |                 |
| 7.2.77  | DN 50mm double orifice airvalve                       | Nr   | 1.00  |               |                 |
|   | <b>Washout (DN 125mm) -(1No)</b>                      |      |       |               |                 |
| 7.2.78  | HDPE Reducer Tee DN 125mm x 125mm x 90mm              | Nr   | 1.00  |               |                 |
| 7.2.79  | DN 125mm HDPE stub end with MS Flange                 | Nr   | 4.00  |               |                 |
| 7.2.80  | DN 90 mm HDPE stub end with MS Flange                 | Nr   | 2.00  |               |                 |
| 7.2.81  | DN 90mm sluice valve                                  | Nr   | 1.00  |               |                 |
|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.2.82  | DN 90mm HDPE pipe (PN 12.5)   | m    | 24.00 |               |                 |
| 7.2.83  | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 1.00  |               |                 |
|   | <b>Air Valve Chamber Fittings (DN110mm) -(5No)</b>                        |      |       |               |                 |
| 7.2.84  | HDPE Reducer Tee DN 110mm x 110mm x 63mm                                  | Nr   | 2.00  |               |                 |
| 7.2.85  | DN63 mm HDPE Stub End with MS Flange                                      | Nr   | 2.00  |               |                 |
| 7.2.86  | DN 50mm double flanged sluice valve                                       | Nr   | 2.00  |               |                 |
| 7.2.87  | DN 50mm double orifice airvalve   | Nr   | 2.00  |               |                 |
|   | <b>Washout (DN 110mm) -(1No)</b>  |      |       |               |                 |
| 7.2.88  | HDPE Reducer Tee DN 110mm x 110mm x 90mm                                  | Nr   | 1.00  |               |                 |
| 7.2.89  | DN 110mm HDPE stub end with MS Flange                                     | Nr   | 4.00  |               |                 |
| 7.2.90  | DN 90 mm HDPE stub end with MS Flange                                     | Nr   | 2.00  |               |                 |
| 7.2.91  | DN 90mm sluice valve  | Nr   | 1.00  |               |                 |
| 7.2.92  | DN 90mm HDPE pipe (PN 12.5)   | m    | 24.00 |               |                 |
| 7.2.93  | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 1.00  |               |                 |
|   | <b>Air Valve Chamber Fittings (DN90mm) -(1No)</b>                         |      |       |               |                 |
| 7.2.94  | HDPE Reducer Tee DN 90mm x 90mm x 63mm                                    | Nr   | 1.00  |               |                 |
| 7.2.95  | DN63 mm HDPE Stub End with MS Flange                                      | Nr   | 1.00  |               |                 |
| 7.2.96  | DN 50mm double flanged sluice valve                                       | Nr   | 1.00  |               |                 |
| 7.2.97  | DN 50mm double orifice airvalve   | Nr   | 1.00  |               |                 |
|   | <b>Washout (DN 90mm) -(1No)</b>   |      |       |               |                 |
| 7.2.98  | HDPE Reducer Tee DN 90mm x 90mm x 75mm                                    | Nr   | 1.00  |               |                 |
| 7.2.99  | DN 90mm HDPE stub end with MS Flange                                      | Nr   | 4.00  |               |                 |
| 7.2.100   | DN 75 mm HDPE stub end with MS Flange                                     | Nr   | 2.00  |               |                 |
| 7.2.101   | DN 75 mm sluice valve   | Nr   | 1.00  |               |                 |
| 7.2.102   | DN 75mm HDPE pipe (PN 12.5)   | m    | 24.00 |               |                 |
| 7.2.103   | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 1.00  |               |                 |
|   | <b>Air Valve Chamber Fittings (DN75mm) -(1No)</b>                         |      |       |               |                 |
| 7.2.104   | HDPE Reducer Tee DN 75mm x 75mm x 63mm                                    | Nr   | 1.00  |               |                 |
| 7.2.105   | DN63 mm HDPE Stub End with MS Flange                                      | Nr   | 1.00  |               |                 |
| 7.2.106   | DN 50mm double flanged sluice valve                                       | Nr   | 1.00  |               |                 |
| 7.2.107   | DN 50mm double orifice airvalve   | Nr   | 1.00  |               |                 |
|   | <b>Washout (DN 75mm) -(3No)</b>   |      |       |               |                 |
| 7.2.108   | HDPE Equal Tee DN 75mm x 75mm x 75mm                                      | Nr   | 3.00  |               |                 |
| 7.2.109   | DN 75mm HDPE stub end with MS Flange                                      | Nr   | 12.00 |               |                 |
| 7.2.110   | DN 75 mm HDPE stub end with MS Flange                                     | Nr   | 6.00  |               |                 |
| 7.2.111   | DN 75 mm sluice valve   | Nr   | 3.00  |               |                 |
| 7.2.112   | DN 75mm HDPE pipe (PN 12.5)   | m    | 72.00 |               |                 |
| 7.2.113   | Masonry headwall with base slab for Erosion protection at discharge point | Ls   | 3.00  |               |                 |
|   | <b>Air Valve Chamber Fittings (DN 63mm) -(8No)</b>                        |      |       |               |                 |
| 7.2.114   | HDPE DN 63 X 63 X 32 mm Reducer Tee (NB: Must be electrofusion)           | Nr   | 1.00  |               |                 |
| 7.2.115   | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |       |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.2.116   | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 1.00  |               |                 |
| 7.2.117   | HDPE DN 32 mm Pegler brass gate valve   | Nr   | 1.00  |               |                 |
| 7.2.118   | DN 32 mm Stainless Steel Hex Nipple   | Nr   | 1.00  |               |                 |
| 7.2.119   | DN 32 mm Threaded Air Valve   | Nr   | 1.00  |               |                 |
|   | <b>Washout (DN 63mm) -(2No)</b>   |      |       |               |                 |
| 7.2.120   | HDPE DN 63 X 63 X 63 mm Equal Tee (NB: Must be electrofusion)   | Nr   | 1.00  |               |                 |
| 7.2.121   | HDPE DN 63 mm PN 16 short piece pipe (400 mm long)  | Nr   | 1.00  |               |                 |
| 7.2.122   | HDPE DN 63 mm PN 16 Flanged adapter   | Nr   | 1.00  |               |                 |
| 7.2.123   | HDPE DN 50 mm Flanged Sluice valve  | Nr   | 1.00  |               |                 |
| 7.2.124   | DN 63 mm HDPE pipe (PN 12.5)  | m    | 24.00 |               |                 |
| 7.2.125   | Masonry headwall with base slab for Erosion protection at discharge point   | Ls   | 1.00  |               |                 |
|   | <b>Air Valve Chamber Fittings (DN 50mm) -(10 No)</b>  |      |       |               |                 |
| 7.2.126   | HDPE DN 50 X 50 X 32 mm Reducer Tee (NB: Must be electrofusion)   | Nr   | 2.00  |               |                 |
| 7.2.127   | HDPE DN 32 mm PN 16 short piece pipe (400 mm long)  | Nr   | 2.00  |               |                 |
| 7.2.128   | HDPE DN 32 mm PN 16 Male adapter  | Nr   | 2.00  |               |                 |
| 7.2.129   | HDPE DN 32 mm Pegler brass gate valve   | Nr   | 2.00  |               |                 |
| 7.2.130   | DN 32 mm Stainless Steel Hex Nipple   | Nr   | 2.00  |               |                 |
| 7.2.131   | DN 32 mm Threaded Air Valve   | Nr   | 2.00  |               |                 |
|   | <b>Washout (DN 50mm) -(3No)</b>   |      |       |               |                 |
| 7.2.132   | HDPE DN 50 X 50 X 50 mm Equal Tee (NB: Must be electrofusion)   | Nr   | 1.00  |               |                 |
| 7.2.133   | HDPE DN 50 mm PN 16 short piece pipe (400 mm long)  | Nr   | 1.00  |               |                 |
| 7.2.134   | HDPE DN 50 mm PN 16 Flanged adapter   | Nr   | 1.00  |               |                 |
| 7.2.135   | HDPE DN 50 mm Flanged Sluice valve  | Nr   | 1.00  |               |                 |
| 7.2.136   | DN 50 mm HDPE pipe (PN 12.5)  | m    | 24.00 |               |                 |
| 7.2.137   | Masonry headwall with base slab for at discharge point  | Ls   | 1.00  |               |                 |
|   | <b>Water Draw Off Facilities</b>  |      |       |               |                 |
| 7.2.138   | 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  |               |                 |
| 7.2.139   | 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  |               |                 |
| 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.2.140   | 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 |               |                 |
| 7.2.141   | Supply of materials and construct a sanitation facility as described to detail in Appendix E  | Item | 1.00 |               |                 |
| 7.2.142   | 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   | 2.00 |               |                 |
| 7.2.143   | Allow for supply and installation of institutional stand point connection kits, which include a Prepaid smart metering,lockable meter chamber,offtake tee, steel standpipe with tap, average of 100m long DN25 connection pipe and 1.2m 20mm diameter HDPE connection pipes as per the drawings and as directed by the Engineer. Rate to include cost of all necessary fittings, setting out, excavation and installation as per the drawing.   | Nr   | 5.00 |               |                 |
| 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <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. |      |        |               |                 |
| 7.2.144   | Washouts  | Nr.  | 26.00  |               |                 |
| 7.2.145   | Air valves  | Nr.  | 58.00  |               |                 |
| 7.2.146   | Valve chambers  | Nr.  | 32.00  |               |                 |
|   | <b>ANCILLARIES ITEMS</b>  |      |        |               |                 |
| 7.2.147   | Supply and fix marker posts along water Main Route, Road Crossings, change of direction, Air valves, Washouts and valve chambers. All in accordance with drawings and specifications  | No   | 99.00  |               |                 |
|   | <b>Thrust Blocks</b>  |      |        |               |                 |
| 7.2.148   | Construction of thrust block at bends and Tee junctions price includes all cost such as excavation, concrete, Re-steel bar, the formwork and others as detailed on drawing  | Nr   | 30.00  |               |                 |
| 7.2.149   | Allow for micro tunneling across tarmacked road for hdpe pipe of diameter 90mm - 150mm as detailed in the drawings and as per the design guidelines in the Kenya Roads Design manual. Rate inclusive of steel casing. Contractor to allow for provision of requisite diversion signage, controls and safety precaution and liaison and approval of the methodology with the relevant roads agencies   | m    | 30     |               |                 |
| 7.2.150   | Ditto but for DN 32mm - 75mm  | m    | 30.00  |               |                 |
| 7.2.151   | Breaking up, temporary and permanent reinstatement of murram road with 300mm thick well graded stabilised gravel with 3% cement base compacted using an 8-10 tonne roller to the satisfaction of the Engineer. Nominal bore n.e. 150mm. Rate to include steel casing sleeve. Contractor to allow for provision of requisite diversion signage, controls and safety precaution in his rates, nominal bore not exceeding 200mm.   | m    | 30.00  |               |                 |
|   | <b>Gulley/ River Crossings</b>  |      |        |               |                 |
| 7.2.152   | Allow for gulley crossing for HDPE pipe as detailed in the book of drawings - Road and Seasonal river crossing structural details (dwg Nr KE/WSTF/RE/GW/STD/030)  | m    | 300.00 |               |                 |
|   | <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 1: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |               |                 |
| BILL NO. 7.2: LAISAMIS WATER SUPPLY SCHEME - PIPELINES AND FITTINGS   |   |      |     |               |                 |
| ITEM  | DESCRIPTION                               | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | Page Total, Page 1                        |      |     |               |                 |
|   | Page Total, Page 2                        |      |     |               |                 |
|   | Page Total, Page 3                        |      |     |               |                 |
|   | Page Total, Page 4                        |      |     |               |                 |
|   | Page Total, Page 5                        |      |     |               |                 |
|   | Page Total, Page 6                        |      |     |               |                 |
|   | Page Total, Page 7                        |      |     |               |                 |
|   |   |      |     |               |                 |
|   |   |      |     |               |                 |
|   | <b>Bill Total Carried to Bill Summary</b> |      |     |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER |   |                |              |               |                 |
|--|---|----------------|--------------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA     |   |                |              |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |   |                |              |               |                 |
| BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m3 TANK                        |   |                |              |               |                 |
| ITE<br>M<br>No.  | ITEM DESCRIPTION  | UNI<br>T       | QUANT<br>ITY | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|  | <b>CLASS E: EARTHWORKS</b>  |                |              |               |                 |
|  | <i>The sites for the proposed Water Reservoirs shall be within the Water Supply Schemes.</i>  |                |              |               |                 |
|  | <b>300m3 RC Storage Tank</b>  |                |              |               |                 |
|  | <b>General excavation</b>   |                |              |               |                 |
| 7.3.1  | Excavate in Topsoil for Storage tank Works  |                |              |               |                 |
| 7.3.2  | Maximum depth not exceeding 1 m   | m <sup>3</sup> | 196          |               |                 |
| 7.3.3  | Maximum depth exceeding 1 m   | m <sup>3</sup> | 235          |               |                 |
| 7.3.4  | Reinstate, fill and level the tank site after construction as directed by the Engineer  | Ls             | 1            |               |                 |
|  | <b>Filling</b>  |                |              |               |                 |
|  | <b>Hardcore</b>   |                |              |               |                 |
| 7.3.5  | Provide approved hardcore and compact in layers of 150mm, blinded with final material 25mm thick  | m <sup>3</sup> | 51           |               |                 |
| 7.3.6  | Provide fill material to Storage tank Works structures  |                |              |               |                 |
|  | <b>CLASS F: IN SITU CONCRETE Cement Grade 42.5 to Specifications.</b>   |                |              |               |                 |
|  | <b>blinding concrete</b>  |                |              |               |                 |
| 7.3.7  | Strength Grade 15/20 (1:3:6) blinding concrete 75 mm thick the tank, with sulphate resisting cement   | m <sup>3</sup> | 14           |               |                 |
|  | <b>Reinforced concrete Class 30/20:</b>   |                |              |               |                 |
| 7.3.8  | Foundation, Base and ground slab concrete, Walls, Beams, Columns, Paparet Wall, Suspended Slab and Gutter   | m <sup>3</sup> | 164          |               |                 |
|  | <b>Formwork</b>   |                |              |               |                 |
|  | Provide and fix shuttering including propping, strutting and striking, all as specified and including boxing out  |                |              |               |                 |
| 7.3.9  | (i) Vertical Formwork - Class F3 Finish   | m <sup>2</sup> | 600          |               |                 |
|  | <b>Concrete Surface Finish</b>  |                |              |               |                 |
| 7.3.10   | Provide Class UF3 Finish for top of base slab of tank and top suspended slab  | 0.00           | 310          |               |                 |
|  | <b>Reinforcement</b>  | 0.00           |              |               |                 |
|  | Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, lapping propping with spacers and tying as specified  | 0.00           |              |               |                 |
| 7.3.11   | High yield tensile steel 16mm diameter  | 0.00           | 7,500        |               |                 |
| 7.3.12   | High yield tensile steel 12mm diameter  | 0.00           | 9,500        |               |                 |
| 7.3.13   | High yield tensile steel 10mm diameter  | kg             | 4,500        |               |                 |
|  | <b>CLASS L: ACCESS CHAMBERS</b>   |                |              |               |                 |
| 7.3.14   | Provide ,supply and install hot-dip galvanised mild steel 1000x1000x6mm thick lockable access chamber covers with 6mm thick angle frame, installation anchors, gaskets etc.. for a complete installation. | nr             | 2            |               |                 |
|  |   |                |              |               |                 |
|  | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>   |                |              |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER |   |                |              |               |                 |
|--|---|----------------|--------------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA     |   |                |              |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |   |                |              |               |                 |
| BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m3 TANK                        |   |                |              |               |                 |
| ITE<br>M<br>No.  | ITEM DESCRIPTION  | UNI<br>T       | QUANT<br>ITY | RATE<br>(Ksh) | AMOUNT<br>(Ksh) |
|  | <b>CLASS H: PRECAST CONCRETE</b>  |                |              |               |                 |
| 7.3.15   | Provide and lay with all leads and lifts etc. complete 600 x 600 x 50 mm thick precast paving slabs on and including 50 mm thick sand bed as per the drawings   | m <sup>2</sup> | 60           |               |                 |
|  | <b>CLASS N: MISCELLANEOUS METAL WORK</b>  |                |              |               |                 |
|  | All steelwork to be completely cleaned by acid dipping prior to galvanising. All steel pipes shall be hot-dip galvanised steel pressure pipes rated PN16 or as per the system distribution whichever is higher.   |                |              |               |                 |
|  | <b>Stainless Steel water level Indicator</b>  |                |              |               |                 |
| 7.3.17   | Provide, supply, install and commission a tank's stainless steel water level Indicator for O&M.   | nr             | 1            |               |                 |
|  | <b>Access Ladder with safety cage</b>   |                |              |               |                 |
| 7.3.18   | Provide, supply and install internal/external access ladder not exceeding 4.5m high made of hot-dip galvanised mild steel 50 mm diameter tubes. The rate includes flat vertical guard strips 40 x 3mm including, cleats 40 x 6mm bolted to distribution chamber walls, stringer 40 x 6mm all fillet welded for complete installation. | nr             | 3            |               |                 |
| 7.3.19   | Provision for an 100mm air vent to standard drawing detail  | No.            | 9            |               |                 |
|  | <b>Overflow PIPEWORK</b>  |                |              |               |                 |
| 7.3.20   | DN 150 Steel Flanged spigot pipe 2.2m with puddle flange 75mm from spigot end   | Nr             | 1            |               |                 |
| 7.3.21   | DN 150 All flanged 90deg short radius bend  | Nr             | 1            |               |                 |
| 7.3.22   | DN 150 Double Flanged pipe piece with puddle flange at 600mm, length 1500mm   | Nr             | 1            |               |                 |
| 7.3.23   | DN 150 Flanged spigot 90deg long radius bend  | Nr             | 1            |               |                 |
|  | <b>Scour Pipework</b>   |                |              |               |                 |
| 7.3.24   | DN 150 Flanged spigot 90 deg short radius bend  | Nr             | 1            |               |                 |
| 7.3.25   | DN 150 double flanged pipe with puddle flange @ 1500mm from one end, length 2000mm  | Nr             | 1            |               |                 |
| 7.3.26   | DN 150 All flanged Globe Control valve PN10 with EPDM lining  | Nr             | 1            |               |                 |
|  | <b>Inlet Pipework</b>   |                |              |               |                 |
| 7.3.27   | DN 100 All flanged steel 90 deg long radius bend  | Nr             | 2.00         |               |                 |
| 7.3.28   | DN 100 Steel double flanged pipe with puddle flange at 1500mm from one end, length 2000mm   | Nr             | 1.00         |               |                 |
| 7.3.29   | DN 100 Flanged ball valve   | Nr             | 1.00         |               |                 |
| 7.3.30   | DN 110 HDPE Stub end Flange   | Nr             | 1            |               |                 |
| 7.3.31   | DN 100 Double flanged pipe piece, length 3000mm   | Nr             | 1            |               |                 |
|  | <b>Outlet Pipework</b>  |                |              |               |                 |
| 7.3.32   | DN 125 Flanged special bell mouth   | Nr             | 1            |               |                 |
| 7.3.33   | DN 125 All Flanged 90 degree short radius bend  | Nr             | 1            |               |                 |
|  | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION SHEET</b>   |                |              |               |                 |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER |  |                |          |            |              |
|--|--|----------------|----------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA     |  |                |          |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |  |                |          |            |              |
| BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m <sup>3</sup> TANK            |  |                |          |            |              |
| ITEM No.   | ITEM DESCRIPTION   | UNIT           | QUANTITY | RATE (Ksh) | AMOUNT (Ksh) |
| 7.3.34   | DN 125 Steel double flanged pipe with double puddle flanges at 400mm and 1200mm, length 2000mm                                 | Nr             | 1        |            |              |
| 7.3.35   | DN 125 Steel flanged spigot pipe with puddle flange 775mm from spigot end, length 1200mm                                       | Nr             | 1        |            |              |
| 7.3.36   | DN 125 All flanged Sluice valve PN16 EPDM encapsulated   | Nr             | 1        |            |              |
| 7.3.37   | DN 125 Electromagnetic meter complete with all accessories and installation sundry for operation                               | Nr             | 1.00     |            |              |
| 7.3.38   | DN 125 Double flanged steel pipe, length 1000mm  | Nr             | 1        |            |              |
| 7.3.39   | DN 125 All flanged semi-motorised Globe Control valve PN16 EPDM encapsulated fitted with actuator                              | Nr             | 1        |            |              |
| 7.3.40   | DN 125 dismantling steel joint with central flange   | Nr             | 1.00     |            |              |
| 7.3.41   | DN 125 double flanged pipe with puddle flange at 400mm from one end, length 1000mm   | Nr             | 1.00     |            |              |
| 7.3.42   | DN 125 HDPE Stub end Flange  | Nr             | 1        |            |              |
| 7.3.43   | DN125 double flanged pipe with puddle flange at 400mm from one end, length 1000mm  | nr             | 2.00     |            |              |
| 7.3.44   | DN150 mm Bellmouth for Overflow  | nr             | 1.00     |            |              |
| 7.3.45   | DN150 mm x 90° Double flanged bend for overflow  | nr             | 2.00     |            |              |
|  | <b>Expansion Joint</b>   |                |          |            |              |
| 7.3.46   | plastic or rubber waterstop width 400mm with centre bulb   | m              | 50       |            |              |
| 7.3.47   | Formed surface joint with filler, width of depth not exceeding 0.5 m   | m <sup>2</sup> | 25.00    |            |              |
| 7.3.48   | Provide & lay 300mm wide (to suit drawing wall thickness as appropriate) x 12mm thick Ruberoid layer between wall & roof slab. | m              | 44.00    |            |              |
| 7.3.49   | Provide pumice aggregates and spread at 300mm to the roof of tank include rate for uPVC dropdown pipes to drain roof.          | m <sup>3</sup> | 36.3     |            |              |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER |                                    |      |          |            |              |
|--|------------------------------------|------|----------|------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA     |                                    |      |          |            |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS  |                                    |      |          |            |              |
| BILL NO. 7.3: LAISAMIS WATER SUPPLY SCHEME - 300m3 TANK                        |                                    |      |          |            |              |
| ITEM No.   | ITEM DESCRIPTION                   | UNIT | QUANTITY | RATE (Ksh) | AMOUNT (Ksh) |
|  |                                    |      |          |            |              |
|  | Page Total, Page 1                 |      |          |            |              |
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|  | Bill Total Carried to Bill Summary |      |          |            |              |



| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |      |       |               |                 |
|---|--|------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 7.4: LAISAMIS SCHEME - ADMINISTRATION BUILDING   |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>Kshs. |
|   | <b>Administration Building Type I</b>  |      |       |               |                 |
|   | <b>CLASS E: EARTHWORKS</b>   |      |       |               |                 |
| 7.4.1   | Excavation of surfaces to reduce the level, depth not exceeding 0.25m  | m3   | 11.58 |               |                 |
| 7.4.2   | Foundations and bases for depth not exceeding 1500 mm for strip footing  | m3   | 41.67 |               |                 |
|   | <b>Excavation Ancillaries</b>  |      |       |               |                 |
| 7.4.3   | Trimming of excavated surfaces to receive blinding concrete  | m2   | 56.70 |               |                 |
|   | <b>Filling as Described:-</b>  |      |       |               |                 |
|   | <b>Hardcore</b>  |      |       |               |                 |
| 7.4.4   | 300mm thick hand packed well compacted hardcore including 75 mm thick blinding layer   | m3   | 16.20 |               |                 |
|   | <b>Anti-Termite treatment</b>  |      |       |               |                 |
| 7.4.4b  | 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>   |      |       |               |                 |
| 7.4.5   | 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>  |      |       |               |                 |
| 7.4.6   | 75mm Thick blinding under strip footing  | m3   | 4.05  |               |                 |
|   | <b>Vibrated Reinforced Concrete Reinforced Concrete Class 25/20mm:-</b>  |      |       |               |                 |
| 7.4.7   | 150mm thick ground slab with BRC A142 mesh laid 40 mm from the top finished with red oxide polish. BRC mesh rate shall be provided separately.                     | m3   | 8.10  |               |                 |
| 7.4.8   | 200 mm Thick Class 25/20 concrete for 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  |               |                 |
| 7.4.9   | 200x300 Ring Beam concrete   | m3   | 4.62  |               |                 |
|   | <b>CLASS G: CONCRETE ANCILLARIES</b>   | -    |       |               |                 |
|   | <b>Formwork</b>  | -    |       |               |                 |
|   | <b>Formwork - Fair Finish:-</b>  | -    |       |               |                 |
| 7.4.10  | Formwork to sides of 300 mm deep ring beam   | -    | 23.10 |               |                 |
| 7.4.11  | Vertical Sides of the 150mm ground slab  | -    | 9.63  |               |                 |
| 7.4.12  | 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>                     |      |       |               |                 |
| 7.4.13  | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |   |      |        |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |               |                 |
| BILL NO. 7.4: LAISAMIS SCHEME - ADMINISTRATION BUILDING   |   |      |        |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY    | RATE<br>Kshs. | AMOUNT<br>Kshs. |
| 7.4.14  | High yield tensile steel 10mm diameter to strip footing   | kg   | 300.60 |               |                 |
| 7.4.15  | High yield tensile steel 8mm diameter links to ring beam  | kg   | 101.96 |               |                 |
|   | <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>  |      |        |               |                 |
| 7.4.16  | Fabric reinforcement with minimum 200mm wide side and end laps, laid in bed- A142 mesh at 25mm from the top   | m2   | 54.00  |               |                 |
|   | <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>                       |      |        |               |                 |
| 7.4.17  | 200 mm thick masonry wall in substructure   | m2   | 45.00  |               |                 |
| 7.4.18  | 200 mm smooth dressed walling in superstructure   | m2   | 114.00 |               |                 |
| 7.4.19  | 150 mm smooth dressed walling in superstructure   | m2   | 64.60  |               |                 |
|   | <b>Damp-Proof Course: Bituminous Felt Damp-Proof Course as Described:-</b>  |      |        |               |                 |
| 7.4.20  | 200mm and 150mm Wide under walls  | m    | 35.20  |               |                 |
|   | <b>Finishes.</b>  |      |        |               |                 |
| 7.4.21  | 20 mm 1:4 Cement/sand plaster to internal of walls  | m2   | 133.76 |               |                 |
| 7.4.22  | 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 |               |                 |
| 7.4.23  | 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>   |      |        |               |                 |
| 7.4.24  | 50x 100 mm Rafter, ridge piece and tie beams: in trusses  | m    | 140.50 |               |                 |
| 7.4.25  | 50x 100 mm: timber beam (GMS posts)   | m    | 10.00  |               |                 |
| 7.4.26  | 100 x 50 mm: Struts and ties  | m    | 95.40  |               |                 |
| 7.4.27  | 200 X 25mm fascia and badge   | m    | 36.00  |               |                 |
| 7.4.28  | 100 x 50 mm Wall plate: fixed to concrete   | m    | 54.00  |               |                 |
| 7.4.29  | 75 x 50mm purlins   | m    | 80.00  |               |                 |
| 7.4.30  | 28 Gauge Blue prepainted roof sheets including ridge caps   | m2   | 80.00  |               |                 |
|   | <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| BILL NO. 7.4: LAISAMIS SCHEME - ADMINISTRATION BUILDING   |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>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>   |      |       |               |                 |
| 7.4.31  | 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>   |      |       |               |                 |
| 7.4.32  | 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 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> |      |       |               |                 |
| 7.4.33  | Window size 1200x 1200mm high with 1 No. fixed and 2 No. side hung opening bottom sashes and with 2 No. fixed and 1 No. top-hung top ventilators 200mm high with permanent ventilator hood over  | Nr   | 5.00  |               |                 |
|   | <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   |      |       |               |                 |
| 7.4.34  | Horizontal ceiling fixed to underside of trusses   | m2   | 54.00 |               |                 |
| 7.4.35  | 12mm Cornice 50mm high, plugged  | m    | 47.00 |               |                 |
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| <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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND**

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

**BILL NO. 7.4: LAISAMIS SCHEME - ADMINISTRATION BUILDING**

| ITEM   | DESCRIPTION  | UNIT   | QTY  | RATE  | AMOUNT |
|--|--|--------|------|-------|--------|
|  |  |        |      | Kshs. | Kshs.  |
|  | ELECTRIFICATION FITTINGS   |        |      |       |        |
| 7.4.36   | Lighting points wired in 1.5mm <sup>2</sup> single core pvc insulated copper cables drawn in HG high impact pvc conduits and accessories all concealed in building fabric for one or two way switching,13 Amps socket outlet points wired in 2.5mm <sup>2</sup> single pvc insulated cables enclosed in pvc conduits, accessories and concealed in building fabric to form ring main circuits, 15mmx16mm diameter pure electroylite copper earth rods including 35mm <sup>2</sup> earth lead cable, deep driven to permanent moisture level. Rate to include supply of all necessary materials and installation. | L. Sum | 1.00 |       |        |
|  | FURNITURE  |        |      |       |        |
| 7.4.37   | Curtains for office for all windows and doors  | Set    | 1.00 |       |        |
| 7.4.38   | Office tables 2.2x0.9 m  | No     | 1.00 |       |        |
| 7.4.39   | Standard office chairs   | No     | 8.00 |       |        |
| 7.4.40   | Desk 2.2x0.9 m with chair and three lockup drawers   | No     | 2.00 |       |        |
|  | SANITATION FACILITY  |        |      |       |        |
| 7.4.41   | 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 |       |        |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |                                    |      |     |               |                 |
|---|------------------------------------|------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND  |                                    |      |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |                                    |      |     |               |                 |
| BILL NO. 7.4: LAISAMIS SCHEME - ADMINISTRATION BUILDING   |                                    |      |     |               |                 |
| ITEM  | DESCRIPTION                        | UNIT | QTY | RATE<br>Kshs. | AMOUNT<br>Kshs. |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |                  |                 |              |
|---|---|------|------------------|-----------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |                  |                 |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |                  |                 |              |
| BILL NO. 8: DAYWORKS  |   |      |                  |                 |              |
| Item No.  | Description   | Unit | Nominal Quantity | Unit Rate (Ksh) | Amount (Ksh) |
| 8.1.1   | labour - unskilled  | hr.  | 1                |                 |              |
| 8.1.2   | labour - semi-skilled   | hr.  | 1                |                 |              |
| 8.1.3   | drillers - jackhammers  | hr.  | 1                |                 |              |
| 8.1.4   | drillers – air tracks   | hr.  | 1                |                 |              |
| 8.1.5   | drillers - rotary crawler over 150 mm                             | hr.  | 1                |                 |              |
| 8.1.6   | powder-men  | hr.  | 1                |                 |              |
| 8.1.7   | carpenters  | hr.  | 1                |                 |              |
| 8.1.8   | reinforcing steel fixers  | hr.  | 1                |                 |              |
| 8.1.9   | concrete workers  | hr.  | 1                |                 |              |
| 8.1.10  | masons, concreters, bricklayers                                   | hr.  | 1                |                 |              |
| 8.1.11  | plasterers  | hr.  | 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 m <sup>3</sup> to 3 m <sup>3</sup> | hr.  | 1                |                 |              |
| 8.1.24  | front-end loader operators - 5 m <sup>3</sup> to 10m <sup>3</sup> | hr.  | 1                |                 |              |
| 8.1.25  | shovel operator - 2 m <sup>3</sup>                                | hr.  | 1                |                 |              |
| 8.1.26  | shovel operator - 5 m <sup>3</sup>                                | hr.  | 1                |                 |              |
| 8.1.27  | roller drivers  | hr.  | 1                |                 |              |
| 8.1.28  | mobile crane operators  | hr.  | 1                |                 |              |
| 8.1.29  | compressor & pump attendants                                      | hr.  | 1                |                 |              |
| 8.1.30  | crusher / screening plant operator                                | hr.  | 1                |                 |              |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |                |                  |                 |              |
|---|--|----------------|------------------|-----------------|--------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |                |                  |                 |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |                  |                 |              |
| BILL NO. 8: DAYWORKS  |  |                |                  |                 |              |
| Item No.  | Description  | Unit           | Nominal Quantity | Unit Rate (Ksh) | Amount (Ksh) |
| 8.1.31  | batch mixer  | hr.            | 1                |                 |              |
| 8.1.32  | plant operator   | hr.            | 1                |                 |              |
| 8.1.33  | oiler, greasers  | hr.            | 1                |                 |              |
| 8.1.34  | mechanics - up to 10 years experience  | hr.            | 1                |                 |              |
| 8.1.35  | mechanics - over 10 years experience   | hr.            | 1                |                 |              |
| 8.1.36  | foreman and gangers working with gang  | hr.            | 1                |                 |              |
| 6.2.1   | ordinary Portland cement - bagged  | t              | 1                |                 |              |
| 6.2.2   | ordinary Portland cement - bulk  | t              | 1                |                 |              |
| 6.2.3   | fine aggregate   | m <sup>3</sup> | 1                |                 |              |
| 6.2.4   | coarse aggregate   | m <sup>3</sup> | 1                |                 |              |
| 6.2.5   | concrete mix at central batch plant characteristic strength 20 MPa, slump 80mm and maximum aggregate size 20mm | m <sup>3</sup> | 1                |                 |              |
| 6.2.6   | reinforcing steel  | t              | 1                |                 |              |
| 6.2.7   | reinforcing fabric   | t              | 1                |                 |              |
| 6.2.8   | structural steel   | t              | 1                |                 |              |
| 6.2.9   | explosive - gelatine   | kg             | 1                |                 |              |
| 6.2.10  | explosive - ammonium nitrate   | kg             | 1                |                 |              |
| 6.2.11  | timber - primary hardwood  | m <sup>3</sup> | 1                |                 |              |
| 6.2.12  | timber - secondary hardwood  | m <sup>3</sup> | 1                |                 |              |
| 6.2.13  | waterproof plywood - 7.5 mm  | m <sup>3</sup> | 1                |                 |              |
| 6.2.14  | waterproof plywood - 15 mm   | m <sup>3</sup> | 1                |                 |              |
| 6.2.15  | waterproof plywood - 20 mm   | m <sup>3</sup> | 1                |                 |              |
| 6.2.16  | Supply and Installation of Borehole casing 160mm to 200mm  | m              | 1                |                 |              |
| 6.2.17  | Supply and Installation of Gravel pack   | m              | 1                |                 |              |
| 6.3.1   | excavator, up to and including 1 m <sup>3</sup>  | hr.            | 1                |                 |              |
| 6.3.2   | excavator, 1 m <sup>3</sup> to 2 m <sup>3</sup>  | hr.            | 1                |                 |              |
| 6.3.3   | excavator, over 2 m <sup>3</sup>   | hr.            | 1                |                 |              |
| 6.3.4   | face shovel, over 2 m <sup>3</sup>   | hr.            | 1                |                 |              |
| 6.3.5   | dragline, over 2 m <sup>3</sup>  | hr.            | 1                |                 |              |
| 6.3.6   | tractor, up to and including 150 kW  | hr.            | 1                |                 |              |
| 6.3.7   | tractor, 200 kW  | hr.            | 1                |                 |              |
| 6.3.8   | tractor, 250 kW  | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |                  |                 |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |                  |                 |              |
| BILL NO. 8: DAYWORKS  |  |      |                  |                 |              |
| Item No.  | Description  | Unit | Nominal Quantity | Unit Rate (Ksh) | Amount (Ksh) |
| 6.3.9   | wheel loader, up to 2 m <sup>3</sup>   | hr.  | 1                |                 |              |
| 6.3.10  | wheel loader, 2 m <sup>3</sup> to 5 m <sup>3</sup>                                       | hr.  | 1                |                 |              |
| 6.3.11  | grader, up to 3.7 m blade  | hr.  | 1                |                 |              |
| 6.3.12  | grader, over 3.7 m blade   | hr.  | 1                |                 |              |
| 6.3.13  | rear dump truck, 5 to 10 t   | hr.  | 1                |                 |              |
| 6.3.14  | smooth vibratory roller, 10 t  | hr.  | 1                |                 |              |
| 6.3.15  | rear dump truck, 10 to 15 t  | hr.  | 1                |                 |              |
| 6.3.16  | rear dump truck, 15 to 25 t  | hr.  | 1                |                 |              |
| 6.3.17  | rear dump truck, 10 to 15 t  | hr.  | 1                |                 |              |
| 6.3.18  | lorry - ordinary, up to and including 6 t  | hr.  | 1                |                 |              |
| 6.3.19  | lorry - ordinary, 6 to 10 t  | hr.  | 1                |                 |              |
| 6.3.20  | lorry - tipper, up to and including 6 t  | hr.  | 1                |                 |              |
| 6.3.21  | lorry - tipper, 6 to 10 t  | hr.  | 1                |                 |              |
| 6.3.22  | mobile crane, up to and including 5 t  | hr.  | 1                |                 |              |
| 6.3.23  | mobile crane, 5 to 10 t  | hr.  | 1                |                 |              |
| 6.3.24  | mobile crane, 10 to 15 t   | hr.  | 1                |                 |              |
| 6.3.25  | mobile crane, 15 to 25 t   | hr.  | 1                |                 |              |
| 6.3.26  | mobile crane, over 25 t  | hr.  | 1                |                 |              |
| 6.3.27  | derrick crane w. jib, up to and incl. 5 t  | hr.  | 1                |                 |              |
| 6.3.28  | grout pump, piston type  | hr.  | 1                |                 |              |
| 6.3.29  | grout pump, diaphragm type   | hr.  | 1                |                 |              |
| 6.3.30  | concrete pump, including supply pipeline, 15 m <sup>3</sup> / h to 20 m <sup>3</sup> / h | hr.  | 1                |                 |              |
| 6.3.31  | portable pump including hoses, strainer, etc., 50 mm delivery                            | 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 I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |                  |                 |              |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |                  |                 |              |
| BILL NO. 8: DAYWORKS  |   |      |                  |                 |              |
| Item No.  | Description   | Unit | Nominal Quantity | Unit Rate (Ksh) | Amount (Ksh) |
| 6.3.32  | portable pump including hoses, strainer, etc., 100 mm delivery        | hr.  | 1                |                 |              |
| 6.3.33  | portable pump including hoses, strainer, etc., 150 mm delivery        | hr.  | 1                |                 |              |
| 6.3.34  | pump, portable, including hoses, strainer, etc., over 150 mm delivery | hr.  | 1                |                 |              |
| 6.3.35  | shotcrete machine, up to and including 0.5 m3                         | hr.  | 1                |                 |              |
| 6.3.36  | shotcrete machine, over 0.5 m3  | hr.  | 1                |                 |              |
| 6.3.37  | concrete vibrators, immersion type, up to and including 75 mm         | hr.  | 1                |                 |              |
| 6.3.38  | concrete vibrators, immersion type, over 75 mm                        | hr.  | 1                |                 |              |
| 6.3.39  | concrete mixer, up to 1 m3  | hr.  | 1                |                 |              |
| 6.3.40  | transit mixer 5 to 6 m3   | hr.  | 1                |                 |              |
| 6.3.41  | portable compressor, up to and including 7 m3/min                     | hr.  | 1                |                 |              |
| 6.3.42  | portable compressor, over 7 m3/min                                    | hr.  | 1                |                 |              |
| 6.3.43  | jack hammer   | hr.  | 1                |                 |              |
| 6.3.44  | track drill, 35 to 89 mm  | hr.  | 1                |                 |              |
| 6.3.45  | track drill, 64 to 115 mm   | hr.  | 1                |                 |              |
| 6.3.46  | welding and cutting set, oxy-acetylene                                | hr.  | 1                |                 |              |
| 6.3.47  | welding and cutting set - electric                                    | hr.  | 1                |                 |              |
| 6.3.48  | generator set, up to 5 kVA  | hr.  | 1                |                 |              |
| 6.3.49  | generator set, 5 to 20 kVA  | hr.  | 1                |                 |              |
| 6.3.50  | generator set, over 20 kVA  | hr.  | 1                |                 |              |
|   |   |      |                  |                 |              |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF AROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |      |     |                |                  |
|---|---|------|-----|----------------|------------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |                |                  |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |                |                  |
| APPENDIX A : PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE  |   |      |     |                |                  |
| ITEM  | DESCRIPTION   | UNIT | QTY | RATE<br>(KSHS) | AMOUNT<br>(KSHS) |
|   | <b>1. ENGINEER'S MAIN OFFICE AND FURNITURE</b>  |      |     |                |                  |
| A01   | Executive desk 2.2x0.9 m with six lockup drawers  | No   | 1   |                |                  |
| A02   | Desk 2.2x0.9 m with chair and three lockup drawers  | No   | 3   |                |                  |
| A03   | Office tables 2.2x0.9 m   | No   | 2   |                |                  |
| A04   | Executive Swivel orthopedic chair adjustable height   | No   | 1   |                |                  |
| A05   | Standard office chairs  | No   | 5   |                |                  |
| A06   | Typist's desk   | No   | 1   |                |                  |
| A07   | Typist's chair  | No.  | 1   |                |                  |
| A08   | Medium size steel filing cabinet, 2 lockable drawers  | No.  | 2   |                |                  |
| A09   | Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door  | No.  | 1   |                |                  |
| A10   | Conference table with 10 chairs   | No.  | 1   |                |                  |
| A11   | Ordinary 2 hole paper punch   | No   | 1   |                |                  |
| A12   | Heavy duty 2 hole paper punch   | No   | 1   |                |                  |
| 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  | No   | 50  |                |                  |
| A21   | Stapling machine Offrex size 50 or similar with 5000 staples  | No   | 3   |                |                  |
| A22   | Heavy duty punch and spiral binder, IBICO AG or similar approved  | No   | 2   |                |                  |
|   |   |      |     |                |                  |
|   | <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) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |                |       |               |                 |
|---|---|----------------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |                |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |                |       |               |                 |
| APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS   |   |                |       |               |                 |
| ITEM  | DESCRIPTION   | UNIT           | QTY   | RATE<br>Kshs. | AMOUNT<br>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  | m3             | 15.0  |               |                 |
|   | <b>FILLING AND COMPACTION</b>   |                |       |               |                 |
| B.1.3   | 300 mm thick hardcore bed, handpacked, well watered and well comapcted in 100 mm layers.  | m <sup>3</sup> | 30.0  |               |                 |
|   | <b>IN-SITU CONCRETE</b>   |                |       |               |                 |
| B.1.4   | Provide and place Concrete Grade: 15/20   | m3             | 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>   |                |       |               |                 |
| 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   | m2             | 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) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |      |      |               |                 |
|---|--|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |      |               |                 |
| APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS   |  |      |      |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>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) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |      |      |               |                 |
|---|---|------|------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |      |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |      |               |                 |
| APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS   |   |      |      |               |                 |
| ITEM  | DESCRIPTION   | UNIT | QTY  | RATE<br>Kshs. | AMOUNT<br>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) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |      |       |               |                 |
|---|--|------|-------|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |       |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |       |               |                 |
| APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS   |  |      |       |               |                 |
| ITEM  | DESCRIPTION  | UNIT | QTY   | RATE<br>Kshs. | AMOUNT<br>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) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |        |     |               |                 |
|---|--|--------|-----|---------------|-----------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |        |     |               |                 |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |        |     |               |                 |
| APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS   |  |        |     |               |                 |
| ITEM  | DESCRIPTION  | UNIT   | QTY | RATE<br>Kshs. | AMOUNT<br>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 |               |                 |
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**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  
AND LAISAMIS IN MARSABIT COUNTY**

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

## APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS

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| CONSTRUCTION, REBABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |      |     |       |        |
|---|--|------|-----|-------|--------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |  |      |     |       |        |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |     |       |        |
| APPENDIX B: BOREBOLE PUMP AND GUARD HOUSE BUILDINGS   |  |      |     |       |        |
| ITEM  | DESCRIPTION                                | UNIT | QTY | RATE  | AMOUNT |
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|   | Page Total, Page 6                         |      |     |       |        |
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## APPENDIX C WATER KIOSK

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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |   |                |          |  |  |
|---|---|----------------|----------|--|--|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |   |                |          |  |  |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |                |          |  |  |
| APPENDIX C WATER KIOSK  |   |                |          |  |  |
| ITEM NO.  | ITEM DESCRIPTION  | UNIT           | QUANTITY |  |  |
|   | <b>CLASS G: CONCRETE ANCILLARIES</b>  |                |          |  |  |
|   | <b>REINFORCEMENTS</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>Steel fabric mesh reinforcement to B.S. 4483</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>FORMWORK</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>CONCRETE ACCESSORIES</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>CLASS I: PIPEWORK - PIPES</b>  |                |          |  |  |
|   | <b>Drainage system</b>  |                |          |  |  |
| C1.23   | 110mm OD HDPE pipe class PN 10 in trench, depth n.e 1.5m  | m              | 10.0     |  |  |
|   | <b>Piped Building Services</b>  |                |          |  |  |
|   | <b>Portable water supply installation to detail drawings for Water Kiosk</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      |  |  |
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**CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER  
SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER  
POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY**

**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA**

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

## APPENDIX C WATER KIOSK

| ITEM NO. | ITEM DESCRIPTION  | UNIT           | QUANTITY |  |  |
|----------|---|----------------|----------|--|--|
|          | <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. Gully 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 gully, dishing base of gully, 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      |  |  |
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| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY |  |                |          |  |  |
|---|--|----------------|----------|--|--|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |  |                |          |  |  |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |          |  |  |
| APPENDIX C WATER KIOSK  |  |                |          |  |  |
| ITEM NO.  | ITEM DESCRIPTION   | UNIT           | QUANTITY |  |  |
|   | <b>INTERNAL WALL FINISHES</b>  |                |          |  |  |
|   | 15mm thick lime plaster (1:2:9) as described to:-  |                |          |  |  |
| C1.36   | Interior surfaces of walls   | m <sup>2</sup> | 56.8     |  |  |
| C1.37   | On roof slab soffit  | m <sup>2</sup> | 11.8     |  |  |
| 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>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   | Suply and install Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications<br>-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      |  |  |
|   |  |                |          |  |  |
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**CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCH 1 PROJECTS IN MARSABIT COUNTY**

**LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA**

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

## APPENDIX C WATER KIOSK

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**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**

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

## APPENDIX C WATER KIOSK

| ITEM NO.  | ITEM DESCRIPTION                     | UNIT | QUANTITY |  |  |
|---|--------------------------------------|------|----------|--|--|
|   | Appendix C Bill Item Collection Page |      |          |  |  |
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|   | Page 1 Total                         |      |          |  |  |
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| Appendix C Bill Item Collection Page to Water Kiosk Bill Item |                                      |      |          |  |  |



| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |      |     |             |               |
|---|---|------|-----|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |     |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |             |               |
| APPENDIX D: TROUGH  |   |      |     |             |               |
| ITEM NO.  | ITEM DESCRIPTION  | UNIT | QTY | RATE (Kshs) | Amount (Kshs) |
| <b>D1</b>   | <b>ANIMALS TROUGH</b>   |      |     |             |               |
|   | Clearance of trough area and removal of trees and stumps  | m2   | 66  |             |               |
| D1.1  | Excavate over site soil material to reduce levels not exceeding 225mm deep and cart away  | m2   | 66  |             |               |
| D1.2  | Excavation for raft foundation not exceeding 1.0 metres deep starting from reduced levels.  | m3   | 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  | m2   | 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  | Kg   | 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                 | m2   | 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   |             |               |
|   | <b>Fittings from tank to trough</b>   |      |     |             |               |
| D1.14   | 2" Ø GI pipes "B"   | No   | 2   |             |               |
| D1.15   | 2" Ø GI long nipple   | No   | 4   |             |               |
| D1.16   | 2" Ø GI elbow   | No   | 4   |             |               |
| D1.17   | 2" Ø GI backnut   | No   | 4   |             |               |
| D1.18   | 2" diameter union   | No   | 1   |             |               |
| D1.19   | 2" diameter gate valve  | No   | 1   |             |               |
| D1.20   | 2"x1½" Ø reducing socket  | No   | 1   |             |               |
| D1.21   | 1½" Ø plain socket  | No   | 1   |             |               |
| D1.22   | 1½" Ø ball valve Pegler   | No   | 1   |             |               |
|   | <b>Total for Cattle trough summary</b>  |      |     |             |               |

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

| CONSTRUCTION, REBABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |      |        |             |               |
|---|---|------|--------|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA AND LAISAMIS IN MARSABIT COUNTY  |   |      |        |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |        |             |               |
| APPENDIX E: LATRINE   |   |      |        |             |               |
| Item  | Description   | Unit | Qty    | Rate (kshs) | Amount (kshs) |
|   | <b>Element No. 4: Concrete Ancillaries and openings</b>   |      |        |             |               |
|   | <b>Formwork</b>   |      |        |             |               |
|   | Provide cut and fix in position sawn timber formwork or equivalent.   |      |        |             |               |
| E.14  | side of foundation footing 150mm wide   | m2   | 13.20  |             |               |
| E.15  | edges floor slab 150mm wide   | m2   | 14.00  |             |               |
| E.16  | Under floor slab  | m2   | 12.00  |             |               |
| E.17  | Side of ring beam 300mm deep  | m2   | 4.98   |             |               |
| E.18  | support props and floor slab  | Item | 1.00   |             |               |
| E.19  | on substructure columns and beams   | m2   | 27.90  |             |               |
| G   | <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.20  | 10mm diameter high tensile steel (0.89kg/m) (in strip footing as 2 No. main reinforcement at 150mm )  | Kg   | 16.82  |             |               |
| E.21  | 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.22  | 12mm diameter high tensile steel (0.89kg/m) (in columns as 4 No. main reinforcement )   | Kg   | 64.08  |             |               |
| E.23  | 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.24  | 8mm diameter mild steel (0.39kg/m) in substructure beams and columns as distrubution steel  | Kg   | 29.00  |             |               |
| E.25  | 12mm diameter high tensile steel (0.89kg/m) (as 4No. In substructure and ground beams)  | Kg   | 45.57  |             |               |
| E.26  | <i>BRC A 142 in the floor slab</i>  | m2   | 12.00  |             |               |
|   | <b>Superstructure Lintel/ Ring beam</b>   |      |        |             |               |
| E.27  | 8mm diameter mild steel (0.39kg/m)as distribution steel in ring beam  | Kg   | 41.00  |             |               |
| E.28  | 8mm diameter mild steel (0.39kg/m) as main reinforcement in ring beam   | Kg   | 21.00  |             |               |
|   | <b>Openings</b>   |      |        |             |               |
| E.29  | 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.30  | 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.31  | a) 100 X 50mm wall plate  | M    | 14.00  |             |               |
| E.32  | b) 50X 100mm rafter   | M    | 22.40  |             |               |
| E.33  | c)225 X 50mm Fascia Board   | M    | 14.00  |             |               |
| E.34  | 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>  |      |        |             |               |

## APPENDIX E: LATRINE

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL<br>WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND<br>WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |      |     |                |                  |
|---|---|------|-----|----------------|------------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA<br>AND LAISAMIS IN MARSABIT COUNTY   |   |      |     |                |                  |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |      |     |                |                  |
| APPENDIX E: LATRINE   |   |      |     |                |                  |
| Item  | Description   | Unit | Qty | Rate<br>(kshs) | Amount<br>(kshs) |
|   |   |      |     |                |                  |
|   | <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> |      |     |                |                  |

| CONSTRUCTION, REHABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |                |          |             |               |
|---|--|----------------|----------|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |  |                |          |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |          |             |               |
| APPENDIX F: WATER TANKER COLLECTION POINT   |  |                |          |             |               |
| ITEM NO.  | ITEM DESCRIPTION   | UNIT           | QUANTITY | RATE (Kshs) | Amount (Kshs) |
| F1  | <b>CLASS E: EARTHWORKS</b>   |                |          |             |               |
|   | <b>Excavations</b>   |                |          |             |               |
|   | <i>Rates for excavation to include for disposal</i>  |                |          |             |               |
| F1.1  | Excavations to reduced levels and cart away  | m <sup>3</sup> | 1.0      |             |               |
| F1.2  | Excavate foundation trenches n.e 1500mm deep from stripped level   | m <sup>3</sup> | 3.6      |             |               |
|   | <b>Filling</b>   |                |          |             |               |
|   | <i>Filling to completed structures including compaction as specified.</i>  |                |          |             |               |
| F1.4  | 300 mm thick hardcore bed, handpacked, well watered and well comapcted in 100 mm layers.                             | m <sup>3</sup> | 0.4      |             |               |
| F1.5  | Return fill and ram - make up level with selected murram   | m <sup>3</sup> | 0.4      |             |               |
|   | <b>Approved damp proof course (bituminous)</b>   |                |          |             |               |
| F1.7  | 500g polyethylene damp proof membrane laid with 300 end laps under the floor slab, on hardcore to engineers approval | m              | 2.0      |             |               |
| F1.8  | Single layer of 100 gauge polythene sheeting on blinded hardcore with 150 mm side laps to receive concrete           | m <sup>2</sup> | 2.0      |             |               |
| F2  | <b>CLASS F: CONCRETE WORK</b>  |                |          |             |               |
|   | <i>Provide and Place Mass concrete Class 15</i>  |                |          |             |               |
| F2.1  | 75mm Concrete 1:4:8 Blinding   | m <sup>3</sup> | 0.6      |             |               |
|   | <i>Provide and Place structural concrete Class 25</i>  |                |          |             |               |
| F2.2  | Strip foundation   | m <sup>3</sup> | 0.4      |             |               |
| F2.3  | 100mm Thick floor and roof slab  | m <sup>3</sup> | 0.2      |             |               |
|   | <i>Provide and place paving slab around the water kiosk. Rate to include levelling and compacting the surface.</i>   |                |          |             |               |
| F2.5  | Provide and place 600 x 600 x 50 mm thick grey precast concrete paving slabs on 75 mm thick sand bed.                | m <sup>2</sup> | 2.2      |             |               |
|   |  |                |          |             |               |
|   |  |                |          |             |               |
|   | <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) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |                |          |             |               |
|---|---|----------------|----------|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |   |                |          |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |                |          |             |               |
| APPENDIX F: WATER TANKER COLLECTION POINT   |   |                |          |             |               |
| 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>   |                |          |             |               |
| F2.7  | High yield bars( to BS4449) Diameter 10mm   | kg             | 40.0     |             |               |
| F2.8  | High yield bars(to BS4449) Diameter 12mm  | kg             | 20.0     |             |               |
|   | <b><u>Steel fabric mesh reinforcement to B.S. 4483</u></b>  |                |          |             |               |
| F2.9  | BRC mesh fabric reinforcement ref A142 (weighing 2.2kg/m <sup>2</sup> ) laid in Floor slab (measured net-no allowance made for lamps) | m <sup>2</sup> | 2.0      |             |               |
|   |   |                |          |             |               |
|   | <b><u>FORMWORK</u></b>  |                |          |             |               |
|   | <i>300mm Sawn formwork (fair finish) to: -</i>  |                |          |             |               |
| F2.11   | Vertical sides and soffit of beams and fetching bay   | m              | 20.0     |             |               |
|   |   |                |          |             |               |
| F3  | <b><u>CLASS I: PIPEWORK - PIPES</u></b>   |                |          |             |               |
|   | <b><u>Allow for supply installation including all the necessary support structures as detailed in the drawings</u></b>                |                |          |             |               |
| F3.1.1  | 75 HDPE Stab End Flange   | No             | 2.00     |             |               |
| F3.1.2  | 75mm All flanged pipe piece 1m long   | No             | 4.00     |             |               |
| F3.1.3  | 75mm All flanged sluice valve   | No             | 2.00     |             |               |
| F3.1.4  | 75mm All flanged G.S 90° bend   | No             | 4.00     |             |               |
| F3.1.5  | 75mm All flanged pipe piece 4m long   | No             | 3.00     |             |               |
| F3.1.6  | 75mm All flanged pipe piece 2m long   | No             | 1.00     |             |               |
|   | <b><u>Piped Building Services</u></b>   |                |          |             |               |
|   | <b><u>Portable water supply installation to detail drawings for Water Kiosk</u></b>   |                |          |             |               |
|   | <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) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |      |          |             |               |
|---|--|------|----------|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |  |      |          |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |      |          |             |               |
| APPENDIX F: WATER TANKER COLLECTION POINT   |  |      |          |             |               |
| ITEM NO.  | ITEM DESCRIPTION   | UNIT | QUANTITY | RATE (Kshs) | Amount (Kshs) |
| F3.2  | <b>WATER KIOSK ATM</b>   |      |          |             |               |
|   | <p>Suply and install Automated water dispensing ATM designed to offer a reliable and user-friendly way to access and pay for water using a keypad, screen, tag pay option, and integration with MPesa for payment processing with the following specifications</p> <ul style="list-style-type: none"> <li>-Keypad</li> <li>-Screen (LCD)</li> <li>-Tag Pay Option (RFID/NFC)</li> <li>-Web based dashboard subscription for 10 year</li> <li>-Hybrid dispensing</li> <li>-MPesa Integration for Payment upto 3 taps max</li> <li>-water Flow Sensor</li> <li>-Solar power - charger, controller, battery and solar panel.</li> </ul> <p>The rate to include the first 50 token chips for 50nr. households.</p> | Nr   | 1.0      |             |               |
| F3.3  | Provide, test and commission pipework fittings to the kiosk as shown in the drawing including 4 outlets and integration with the water dispensing ATM and as direccted by the Engineer.  | Ls   | 1.0      |             |               |
|   |  |      |          |             |               |
|   | <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) BATCB 1 PROJECTS IN MARSABIT COUNTY |  |                |          |             |               |
|---|--|----------------|----------|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |  |                |          |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |  |                |          |             |               |
| APPENDIX F: WATER TANKER COLLECTION POINT   |  |                |          |             |               |
| ITEM NO.  | ITEM DESCRIPTION   | UNIT           | QUANTITY | RATE (Kshs) | Amount (Kshs) |
| F4  | <b>CLASS U: MASONRY</b>  |                |          |             |               |
|   | <u>Approved stone walling of minimum compressive strength of 10N/mm2 bedded in cement sand (1:3) mortar reinforced with and including gauge 12 hoop soft wire gauge hoop iron at every alternate course. Keying to be done on exterior wall surfaces for the superstructure</u>    |                |          |             |               |
| F4.1  | 150mm thick solid masonry block walling in cement/sand   | m <sup>2</sup> | 9.0      |             |               |
| F4.2  | 150mm thick solid machine cut masonry block wall in cement/sand (1:3 ) mortar reinforced with hoop iron at every alternate courses   | m <sup>2</sup> | 18.0     |             |               |
| F5  | <b>WINDOWS AND DOORS</b>   |                |          |             |               |
|   | <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> |                |          |             |               |
| F5.2  | Window size 1500 x 900 mm high overall   | Nr             | 1.0      |             |               |
| F5.3  | Single swing door size 900 x 2100mm high   | Nr             | 1.0      |             |               |
| F6  | <b>Painting</b>  |                |          |             |               |
| F6.1  | Prepare, touch up primer and apply three coats gloss paint externally on surface of metal window and door  | m <sup>2</sup> | 25.2     |             |               |
|   | <b>INTERNAL WALL FINISHES</b>  |                |          |             |               |
|   | <u>15mm thick lime plaster (1:2:9) as described to:-</u>   |                |          |             |               |
| F6.2  | Interior and Exterior surfaces of walls  | m <sup>2</sup> | 25.2     |             |               |
| F6.3  | Exposed front areas of fetching bay. Rate to include instalation of angle sections as per the drawings   | m <sup>2</sup> | 1.0      |             |               |
|   | <b>CLASS V: PAINTING</b>   |                |          |             |               |
|   | <b>Prepare and apply</b>   |                |          |             |               |
| F6.5  | Plastered Internal surfaces of walls 2-coats of emulsion undercoat paint and 3-coats of first grade oil paint  | m <sup>2</sup> | 0.0      |             |               |
| F6.6  | 2-coats of primer paint and 3-coats of first grade oil paint to vertical surfaces of metal doors and windows.  | m <sup>2</sup> | 3.4      |             |               |
|   |  |                |          |             |               |
|   |  |                |          |             |               |
|   | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE</b>   |                |          |             |               |

| CONSTRUCTION, REBABILITATION AND EXPANSION OF GROUND WATER – BASED RURAL WATER SUPPLY SYSTEMS (CIVIL WORKS, PIPE LAYING, E&M SUPPLY AND INSTALLATION, AND WATER POINTS) BATCB 1 PROJECTS IN MARSABIT COUNTY |   |                |          |             |               |
|---|---|----------------|----------|-------------|---------------|
| LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA  |   |                |          |             |               |
| PROJECT NO.: KE-WSTF-328819-CS-QCBS   |   |                |          |             |               |
| APPENDIX F: WATER TANKER COLLECTION POINT   |   |                |          |             |               |
| ITEM NO.  | ITEM DESCRIPTION  | UNIT           | QUANTITY | RATE (Kshs) | Amount (Kshs) |
|   |   |                |          |             |               |
|   |   |                |          |             |               |
|   | <b>Roof Cladding</b>  |                |          |             |               |
|   | <b>Supply and fix</b>   |                |          |             |               |
| F7.7  | Supply and Install Roofing Sheets, Prepainted (Blue colour) Gauge 28 Industrial Tough 5 (IT 5). Include for all the installation accessories. (Type specifications attached)  | m <sup>2</sup> | 4.5      |             |               |
|   |   |                |          |             |               |
|   |   |                |          |             |               |
|   | <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. |                |          |             |               |
| F7.9  | a) 250 X 25mm Fascia board  | M              | 6.00     |             |               |
| F7.10   | c) 100 X 50mm Rafters   | M              | 12.00    |             |               |
| F7.11   | d) 100 X 50mm Wall Plate  | M              | 6.00     |             |               |
| F7.12   | e) 50x50mm roof purlin  | M              | 8.00     |             |               |
|   |   |                |          |             |               |
|   | <b>Branding</b>   |                |          |             |               |
| F7.14   | Allow provisional sum for branding as directed by the Engineer.   | Prov. Sum      |          |             |               |
| F7.15   | Allow % for profits and overheads   | %              |          |             |               |
|   |   |                |          |             |               |
|   | <b>Soak Away Pit</b>  |                |          |             |               |
| F7.16   | Construct soak pit to details as provided in the drawings complete with associated drainage details and as directed by the Engineer.  | Ls             | 1.0      |             |               |
|   |   |                |          |             |               |
|   |   |                |          |             |               |
|   | <b>PAGE TOTAL CARRIED TO SECTION COLLECTION PAGE</b>  |                |          |             |               |

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| <p><b>LOT I: KAMBOE MIDROCK, KAMBOE FURMASAN, LOGLOGO, JALDESA, MANYATTA LENGIMA</b></p> <p><b>PROJECT NO.: KE-WSTF-328819-CS-QCBS</b></p> |
|--|

| ITEM NO. | ITEM DESCRIPTION | UNIT | QUANTITY | RATE (Kshs) | Amount (Kshs) |
|----------|------------------|------|----------|-------------|---------------|
|----------|------------------|------|----------|-------------|---------------|

|   |  |  |  |
|---|--|--|--|
| Appendix C Bill Item Collection Page to Water Kiosk Bill Item |  |  |  |
|---|--|--|--|