# BILL OF QUANTITIES FOR MULIMA WATER PROJECT PHASE 2

Mbooni ward, Mbooni Sub-County

**GRAND SUMMARY OF THE BILL OF QUANTITIES**

| Bill No | Description | Estimated Amount (KES) |
|---|---|---|
| 1.0 | Preliminaries and General | |
| 2.2 | Water Treatment Works; | |
| 2.2.1 | Treatment Works - Stilling Well and Chemical Dosing Channel | |
| 2.2.2 | Treatment Works - Composite Filtration one Unit | |
| 2.2.3 | Treatment Works - Clear Water Tank | |
| 2.2.4 | Pump house and pump with all accessories | |
| 3 | Rising Main to Syiluni | |
| 4 | Provisional for Rehabilitation of Syiluni Tank | |
| | **Project Sub-total (1)** | |
| | Add Ksh.1,500,000 for Physical Contingencies to be expended as advised by the engineer and approved by the project manager | |
| | **Sub-total (2)** | |
| | Add 0.03% to sub-total (2) for PPRA Capacity Building Levy | |
| | Add 16% to sub-total (2) for VAT | |
| | **Grand Total C/F to Bid** | |

**BILL 1 - PRELIMINARY AND GENERAL WORKS**

| Item No. | Description | Unit | Quantity (a) | Kenyan Shillings Currency (KES) Unit Price (b) | Amount ( c ) (c) = (b) x (a) |
|---|---|---|---|---|---|
| | **The rates quoted by the Contractor shall be deemed to include provision by the Contractor to provide temporary vehicular access to all construction sites including negotiating with private land owners and paying the necessary charges as required. Any additional working area shall be provided by the Contractor at his own cost.** | | | | |
| **1.1** | **Contractual requirements** | | | | |
| 1.1.1 | Allow for provision of Insurance of Works, Materials, Contractor's Equipment, Workmen Injury Benefits, third party insurance, in accordance with the Conditions of Contract | LS | 1 | | |
| 1.1.2 | Allow for provision of project signboards as instructed by the supervising engineer | LS | 2 | | |
| | **Bill 1 total Carroed to summary** | | | | |

**STILLING WELL AND CHEMICAL DOSING CHANNEL**

**BILL No. 2.2.1**

| ITEM No. | DESCRIPTION | UNIT | QUANTITY | RATE (Kshs) | AMOUNT (Kshs.) |
|---|---|---|---|---|---|
| **1.1** | **Excavation** | | | | |
| | The rates shall include for all strutting, shuttering, stabilising the excavation faces and keeping the excavation free of water by pumping, bailing or other means. | | | | |
| | Excavate for foundations and chamber, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Engineer | | | | |
| 1.1.1 | Excavation below stripped level, depth less than 1.0m | $m^3$ | 6 | | |
| 1.1.2 | -Ditto- but depth n.e 1.5m | $m^3$ | 2 | | |

| | | | | | |
|---|---|---|---|---|---|
| | **Extra Over Excavation in Any Position for:-** | | | | |
| | | | | | |
| 1.1.3 | Excavating in rock Class "A" | $m^3$ | 1 | | |
| | | | | | |
| 1.1.4 | Excavating in rock Class "B" | $m^3$ | 1 | | |
| | | | | | |
| 1.1.5 | Excavating in rock Class "C" | $m^3$ | 1 | | |
| | | | | | |
| | **Approved Selected Filling:-** | | | | |
| | | | | | |
| 1.1.6 | Fill and ram selected excavated materials around foundations | $m^3$ | 8 | | |
| | | | | | |
| | **Disposal of Surplus Spoil:-** | | | | |
| | | | | | |
| 1.1.7 | Cart away surplus excavated materials to an approved dumping site | $m^3$ | 1 | | |
| | | | | | |
| **1.2** | **Concrete Works** | | | | |
| | | | | | |
| | **Provide and place:** | | | | |
| | | | | | |
| | **Mass Concrete Maximum Aggregate as Described in:-** | | | | |
| | | | | | |
| 1.2.1 | Class 15/20 in 75mm blinding layer under column bases and Scour Chamber base slab | $m^2$ | 2 | | |
| | | | | | |
| 1.2.2 | Class 20/20 in 400mm thick raised platform in the chemical dosing channel | $m^2$ | 1 | | |
| | | | | | |
| | **Guaranteed Strength Reinforced Concrete Class 35/20mm Maximum Aggregate as Described in:-** | | | | |
| | | | | | |
| 1.2.3 | Column bases | $m^3$ | 1 | | |
| | | | | | |
| 1.2.4 | Columns | $m^3$ | 1 | | |
| | | | | | |
| 1.2.5 | 200mm thick base slab | $m^3$ | 2 | | |
| | | | | | |
| 1.2.6 | 200mm thick walls | $m^3$ | 5 | | |
| | | | | | |
| 1.2.7 | 150mm thick baffle wall | $m^3$ | 1 | | |
| | | | | | |
| 1.2.8 | 100mm thick baffle walls | $m^3$ | 1 | | |
| | | | | | |
| 1.2.9 | Scour Chambers A & B | $m^3$ | 6 | | |
| | | | | | |
| 1.2.10 | 200mm thick walkway | $m^3$ | 1 | | |
| | | | | | |
| **1.3** | **Reinforcement** | | | | |
| | Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending, propping, with spacers and tying as specified | | | | |
| | | | | | |
| 1.3.1 | Reinforcement, all diameters | kg | 1715 | | |
| | | | | | |
| **1.4** | **Formwork** | | | | |
| | Provide and fix shuttering including propping, strutting and striking all as specified | | | | |
| | | | | | |
| | **(i) Formwork - Class F1 Finish** | | | | |
| | | | | | |
| 1.4.1 | Vertical sides to Column bases, width n.e 0.3m | m | 4 | | |
| | | | | | |
| 1.4.2 | Horizontal to Soffits of Stilling Well & Chemical Dosing Channel Base Slabs | $m^2$ | 8 | | |
| | | | | | |
| | **(ii) Formwork - Class F3 Finish** | | | | |
| | | | | | |
| 1.4.3 | Sides of Base Slabs and Walls of Scour Chambers | $m^2$ | 26 | | |
| | | | | | |
| 1.4.4 | Vertical sides to Columns | $m^2$ | 5 | | |
| | | | | | |
| 1.4.5 | Vertical sides to Stilling Well walls | $m^2$ | 33 | | |
| | | | | | |
| 1.4.6 | Vertical sides to Dosing Channel walls | $m^2$ | 2 | | |
| | | | | | |
| 1.4.7 | Vertical sides to baffle wall in Stilling Well | $m^2$ | 4 | | |

| | | | | | |
|---|---|---|---|---|---|
| 1.4.8 | Horizontal to Soffit of baffle walls in stilling well, width n.e 0.15m | m | 1 | | |
| | | | | | |
| 1.4.9 | Vertical to sides of walkway, thickness n.e. 0.20m | $m^2$ | 2 | | |
| | | | | | |
| 1.4.10 | Horizontal to soffit of walkway, width n.e. 0.40m | $m^2$ | 2 | | |
| | | | | | |
| | **Other Formwork** | | | | |
| | | | | | |
| 1.4.11 | Boxouts for Pipes in 200mm thick R.C. Walls for Stilling Well and Scour Chamber, pipe diameters n.e. 200mm and making good after pipe inserts installation | Nr | 5 | | |
| | | | | | |
| **1.5** | **Concrete Surface Finish** | | | | |
| 1.5.1 | Provide Class UF3 Finish for top of base slab of Stilling Well and Dosing Channel | $m^2$ | 5 | | |
| | | | | | |
| **1.6** | **Construction Joints - Water Bar** | | | | |
| | Provide and install the following waterstops in construction joints including all surface treatment, formwork, forming of rebate 20mm x 20mm and sealing of rebate with polysulphide sealant all as per Drawings and Specifications. | | | | |
| | | | | | |
| 1.6.1 | 240mm wide expandite super-cast water foil PVC or similar approved waterstop in construction joints in walls. | m | 15 | | |
| | | | | | |
| **1.7** | **Metal Work** | | | | |
| | All steel work to be completely cleaned by acid dipping prior to galvanising. For details see drawings. | | | | |
| | | | | | |
| 1.7.1 | Provide all materials and fix GMS access ladder to Stilling Well Channel, height of ladder n.e. 3m to details as shown. | Nr | 1 | | |
| | | | | | |
| 1.7.2 | Provide and fix 900 mm high level balustrades of 40 mm diameter tubing Class 'B' throughout consisting of handrail and parallel middle rail 450mm below the handrail with balusters at maximum 1500 mm centres, all as detailed. | m | 75 | | |
| | | | | | |
| **1.8** | **Leak Proof Testing** | | | | |
| | | | | | |
| 1.8.1 | Allow for leak proof testing of Stilling Well and Chemical Dosing Channel as specified. | Item | L.S | | |
| | | | | | |
| **1.9** | **Pipework Fittings & Valves** | | | | |
| | | | | | |
| | **Supply and tranport to site and store in a secure place all pipework and fittings including Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable** | | | | |
| | | | | | |
| | **Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16** | | | | |
| | | | | | |
| 1.9.1 | 200mm dia. flanged spigot $90^0$ bend (Mark 1) | Nr | 1 | | |
| | | | | | |
| 1.9.2 | 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) | Nr | 1 | | |
| | | | | | |
| 1.9.3 | 200mm dia. double flanged $90^0$ bend (Mark 3) | Nr | 2 | | |
| | | | | | |
| 1.9.4 | 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) | Nr | 1 | | |
| | | | | | |
| 1.9.5 | 200mm dia. flange adaptor (Mark 5) | Nr | 1 | | |
| | | | | | |
| 1.9.6 | 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) | Nr | 1 | | |
| | | | | | |
| 1.9.7 | 200mm dia. stepped coupling (Mark 7) | Nr | 1 | | |
| | | | | | |
| | **Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16** | | | | |
| | | | | | |
| 1.9.8 | 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a) | Nr | 2 | | |
| | | | | | |
| 1.9.9 | 150mm dia. flange adaptor (Mark b) | Nr | 4 | | |
| | | | | | |
| 1.9.10 | 150mm dia. all flanged gate valve (Mark c) | Nr | 2 | | |
| | | | | | |
| 1.9.11 | 150mm dia. all flanged tee (Mark d) | Nr | 1 | | |
| | | | | | |
| 1.9.12 | 150mm dia. flanged spigot pipe, length 650mm (cut to suit on site) (Mark e) | Nr | 2 | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 1.9.13 | 150mm dia. special flanged spigot $90^0$ bend (Mark f) | Nr | 2 | | |
| | | | | | |
| 1.9.14 | 150mm dia. double flanged $90^0$ bend (Mark g) | Nr | 2 | | |
| | | | | | |
| 1.9.15 | 150mm dia. plain ended pipe, length 500mm with puddle flange at 100mm from one end (cut to suit on site) (Mark h) | Nr | 1 | | |
| | | | | | |
| | **Dosed Water Outlet Pipework - Approved Lined Ferrous Pipes to Class NP16** | | | | |
| | | | | | |
| 1.9.16 | 200mm dia. flanged spigot $45^o$ bend (cut to suit on site) (Mark A) | Nr | 1 | | |
| | | | | | |
| 1.9.17 | 200mm dia. flanged spigot pipe, length 6100mm (cut to suit on site) (Mark B) | Nr | 1 | | |
| | | | | | |
| | **Transport From Site Store, Install, Test & Commission** | | | | |
| | | | | | |
| | **Raw Water Pumping Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16** | | | | |
| | | | | | |
| 1.9.18 | 100mm dia. flanged spigot $90^0$ bend (Mark 1) | Nr | 1 | | |
| | | | | | |
| 1.9.19 | 100mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) | Nr | 1 | | |
| | | | | | |
| 1.9.20 | 100mm dia. double flanged $90^0$ bend (Mark 3) | Nr | 2 | | |
| | | | | | |
| 1.9.21 | 100mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) | Nr | 1 | | |
| | | | | | |
| 1.9.22 | 100mm dia. flange adaptor (Mark 5) | Nr | 1 | | |
| | | | | | |
| 1.9.23 | 100mm dia. flanged spigot pipe, length 1200mm (Mark 6) | Nr | 1 | | |
| | | | | | |
| 1.9.24 | 100mm dia. stepped coupling (Mark 7) | Nr | 1 | | |
| | | | | | |
| | **Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16** | | | | |
| | | | | | |
| 1.9.25 | 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a) | Nr | 2 | | |
| | | | | | |
| 1.9.26 | 150mm dia. flange adaptor (Mark b) | Nr | 4 | | |
| | | | | | |
| 1.9.27 | 150mm dia. all flanged gate valve (Mark c) | Nr | 2 | | |
| | | | | | |
| 1.9.28 | 150mm dia. all flanged tee (Mark d) | Nr | 1 | | |
| | | | | | |
| 1.9.29 | 150mm dia. flanged spigot pipe, length 650mm (cut to suit on site) (Mark e) | Nr | 2 | | |
| | | | | | |
| 1.9.30 | 150mm dia. special flanged spigot $90^0$ bend (Mark f) | Nr | 2 | | |
| | | | | | |
| 1.9.31 | 150mm dia. double flanged $90^0$ bend (Mark g) | Nr | 2 | | |
| | | | | | |
| 1.9.32 | 150mm dia. plain ended pipe, length 500mm with puddle flange at 100mm from one end (cut to suit on site) (Mark h) | Nr | 1 | | |
| | | | | | |
| | **Dosed Water Outlet Pipework - Approved Lined Ferrous Pipes to Class NP16** | | | | |
| | | | | | |
| 1.9.33 | 200mm dia. flanged spigot $45^o$ bend (cut to suit on site) (Mark A) | Nr | 1 | | |
| | | | | | |
| 1.9.19 | 200mm dia. flanged spigot pipe, length 6100mm (cut to suit on site) (Mark B) | Nr | 1 | | |
| | | | | | |
| **2** | **MISCELLANEOUS ITEMS** | | | | |
| | | | | | |
| 2.1 | Provide and apply 3 coats of approved epoxy paint on one coat of epoxy primer to internal concrete surfaces of Stilling Well and Chemical Dosing Channel, beyond chemical dosing point ('Masterseal 180' as made by BASF or approved equivalent). | $m^2$ | 24 | | |
| | | | | | |
| | **Bill No 2.2.1 Page Total Carried to Grand Summary Page** | | | | |
| | | | | | |
| | **COMPOSITE FILTRATION UNIT** | | | | |
| | **BILL No. 2.2.3 600m3/Day One Unit (25-30cmph unit)** | | | | |
| **ITEM No.** | **DESCRIPTION** | **UNIT** | **QUANTITY** | **RATE (Kshs)** | **AMOUNT (Kshs)** |
| | | | | | |
| **1** | **EXCAVATION** | | | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | The rates should include for all strutting, shuttering, stabilising the excavation and keeping the excavation free from water by pumping, bailing or other means. Excavate for foundation part backfill after construction and remainder cart away to tips or use as fill on site, all as directed. | | | | |
| 1.1 | Maximum depth less than 1.0m | $m^3$ | 270 | | |
| | | | | | |
| 1.2 | -Ditto- but depth 1.0 to 2.0m | $m^3$ | 150 | | |
| | | | | | |
| 1.3 | Extra over excavation in rock Class 'A' | $m^3$ | 32 | | |
| | | | | | |
| 1.4 | -Ditto - in rock Class 'B' | $m^3$ | 48 | | |
| | | | | | |
| 1.5 | -Ditto - in rock Class 'C' | $m^3$ | 32 | | |
| | | | | | |
| **2** | **CONCRETE WORKS** | | | | |
| | | | | | |
| | **Design Assumption** | | | | |
| | Only the 375mm deep section with the outlet pipes is sunken below the foundation. Base slab projection is 150mm all round. | | | | |
| | | | | | |
| | Provide, mix and place concrete as directed. | | | | |
| | | | | | |
| 2.1 | Concrete Class 15/20 in 75mm blinding layer under base slab and footings allowing for sloping sides. | $m^2$ | 8 | | |
| | | | | | |
| 2.2 | Concrete Class 15/20 in surround to 200mm dia. pipe | $m^3$ | 1 | | |
| | | | | | |
| 2.3 | Mass concrete thickness 300mm Class 15/20 for surround to approved plastic nozzles and wash water channel. | $m^2$ | 5 | | |
| | | | | | |
| 2.4 | Concrete Class 15/20 in benching layer to 100mm wide scour channel | $m^3$ | 2 | | |
| | | | | | |
| 2.5 | Allow for formation of a 100mm wide, 18.85m long channel in concrete class 15/20 benching as required | m | 22 | | |
| | | | | | |
| 2.6 | Vibrated reinforced concrete Class 35/20 to base slab 250mm thick | $m^3$ | 11 | | |
| | | | | | |
| 2.7 | -Ditto - but for external CFU wall 250mm thick and 3280mm long | $m^3$ | 14 | | |
| | | | | | |
| 2.8 | -Ditto - but for internal filter wall 250mm thick and 3280mm long | $m^3$ | 4 | | |
| | | | | | |
| 2.9 | -Ditto - but for 6 No. dividing walls, 3280mm long | $m^3$ | 10 | | |
| | | | | | |
| 2.10 | -Ditto - but for walkway 650mm wide | $m^3$ | 2 | | |
| | | | | | |
| **3** | **STEEL REINFORCEMENT** | | | | |
| | | | | | |
| | Provide and fix steel reinforcements including cutting, bending, propping with spacers and tying as specified. | | | | |
| | | | | | |
| 3.1 | Steel reinforcement, all diameters | kg | 3,520 | | |
| | | | | | |
| **4** | **FORMWORK** | | | | |
| | | | | | |
| | Provide and fix shuttering including propping, strutting and striking all as specified, allowing for curvature where necessary. | | | | |
| | | | | | |
| 4.1 | Sides of outlet pipes concrete surround, 375mm thick | m | 42 | | |
| | | | | | |
| 4.2 | Sides of 250mm thick base slab | $m^2$ | 5 | | |
| | | | | | |
| 4.3 | Sides of concrete surround to approved plastic nozzles and wash water channel | $m^2$ | 2 | | |
| | | | | | |
| 4.4 | Sides of benching to scour channel | $m^2$ | 31 | | |
| | | | | | |
| 4.5 | Sides of 3280mm external CFU wall (vertical) | $m^2$ | 141 | | |
| | | | | | |
| 4.6 | Sides of 3280mm internal filter wall (vertical) | $m^2$ | 111 | | |
| | | | | | |
| 4.7 | Sides of 6 No. dividing walls (vertical) | $m^2$ | 107 | | |
| | | | | | |
| 4.8 | Soffit of 150mm thick underflow walls beams (horizontal) | $m^2$ | 1 | | |
| | | | | | |
| 4.9 | Sides of 650mm wide walkway | $m^2$ | 5 | | |

| | | | | | |
|---|---|---|---|---|---|
| 4.10 | Soffit of 650mm wide walkway | $m^2$ | 1 | | |
| | | | | | |
| **5** | **WATER BAR** | | | | |
| | | | | | |
| 5.1 | Provide and install 240mm wide bituminous expansion board in construction joint concrete base slab and walls. Include for all surface treatment, formwork, forming of rebate 20mm x 20mm and sealing of rebate with polysulphide sealant all as per drawings and specification | m | 59 | | |
| | | | | | |
| | **Epoxy Floor and Wall Paint as 'Masterseal 180' or approved equivalent Apllied strictly in accordance with the Manufacturer's printed instruction:-** | | | | |
| | | | | | |
| 5.2 | Paint to Filtration unit | $m^2$ | 52 | | |
| | | | | | |
| 5.3 | Paint to Sedimentation unit walls, dividing walls, collection weir, etc | $m^2$ | 127 | | |
| | | | | | |
| **6** | **PIPES AND FITTINGS - PN 10** | | | | |
| | | | | | |
| | **Supply and install all pipework and fittings including jointing material, concrete surrounds etc. to the the CFU and filter unit as specified in the CFU drawings.** | | | | |
| | | | | | |
| | **Inlet Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings)** | | | | |
| | | | | | |
| 6.1 | 200mm dia. coupling (Mark 1) | Nr | 1 | | |
| | | | | | |
| 6.2 | 200mm dia. single threaded (male) pipe 1645mm long with puddle flange at 8400mm from threaded end (Mark 2) | Nr | 1 | | |
| | | | | | |
| 6.3 | 200mm dia. female threaded socket (Mark 3) | Nr | 1 | | |
| | | | | | |
| 6.4 | 200mm dia. single threaded (male) $90^o$ bend (Mark 4) | Nr | 1 | | |
| | | | | | |
| 6.5 | 200mm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain end (Mark 5) | Nr | 1 | | |
| | | | | | |
| 6.6 | 200mm dia. double flanged $90^o$ bend (Mark 6) | Nr | 2 | | |
| | | | | | |
| 6.7 | 200mm dia. flanged spigot pipe 660mm long (Mark 7) | Nr | 1 | | |
| | | | | | |
| | **Outlet Pipework and Fittings (Approved HDPE Pipes and Fittings)** | | | | |
| | | | | | |
| 6.8 | 200mm dia. equal $90^o$ tee (Mark A) | Nr | 1 | | |
| | | | | | |
| 6.9 | 200mm dia. plain ended pipe 250mm long (cut to suit on site) (Mark B) | Nr | 1 | | |
| | | | | | |
| 6.10 | 200mm dia. $90^o$ elbow (Mark C) | Nr | 1 | | |
| | | | | | |
| 6.11 | 200mm dia. plain ended pipe 5000mm long (cut to suit on site) (Mark D) | Nr | 1 | | |
| | | | | | |
| 6.12 | 200mm dia. stub end with galvanized steel flange (Mark E) | Nr | 1 | | |
| | | | | | |
| | **Outlet Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings)** | | | | |
| | | | | | |
| 6.13 | 200mm x 200mm dia. all flanged cross (Mark F) | Nr | 1 | | |
| | | | | | |
| 6.14 | 200mm dia. all flanged gate valve with 1.5m long extension spindle (Mark G) | Nr | 4 | | |
| 6.15 | 200mm dia. flange adaptor (Mark H) | Nr | 6 | | |
| | | | | | |
| 6.16 | 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut to suit on site) (Mark I) | Nr | 3 | | |
| | | | | | |
| 6.17 | 200mm dia. coupling (Mark J) | Nr | 3 | | |
| | | | | | |
| 6.18 | 200mm dia. plain ended pipe 3.6m long (cut to suit on site) (Mark K) | Nr | 3 | | |
| | | | | | |
| 6.19 | 200mm dia. Butterfly valve | Nr | 1 | | |
| | | | | | |
| | **Washwater Outlet Pipework and Fittings (Approved HDPE Pipes and Fittings)** | | | | |
| | | | | | |
| 6.20 | Concentric wash water collector, 420mm x200mm and 375mm long (Mark i) | Nr | 1 | | |
| 6.21 | 200mm dia. socket (Mark ii) | Nr | 1 | | |
| | | | | | |
| 6.22 | 200mm dia. plain ended pipe 1500mm long (cut to suit on site) (Mark iii) | Nr | 1 | | |
| | | | | | |
| 6.23 | 200mm dia. $90^o$ elbow (Mark iv) | Nr | 1 | | |

| | | | | | |
|---|---|---|---|---|---|
| 6.24 | 200mm dia. stub ended pipe with galvanized steel flange 5950mm long (Mark v) | Nr | 1 | | |
| | | | | | |
| | **Washwater Outlet Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings)** | | | | |
| | | | | | |
| 6.25 | 200mm dia. all flanged gate valve with 1.7m long extension spindle (Mark vi) | Nr | 1 | | |
| 6.26 | 200mm dia. single flanged 90$^{o}$ bend (Mark vii) | Nr | 1 | | |
| | | | | | |
| | **Scour Pipework and Fittings (Approved Epoxy Coated Pipes and Fittings)** | | | | |
| | | | | | |
| 6.27 | 100mm dia plain ended pipe 2685mm long (Mark a) | Nr | 2 | | |
| | | | | | |
| 6.28 | 100mm dia plain ended pipe 4455mm long (Mark a1) | Nr | 1 | | |
| | | | | | |
| 6.29 | 100mm dia flange adaptor (Mark b) | Nr | 3 | | |
| | | | | | |
| 6.30 | 100mm dia all flanged gate valve with 1.5m long extension spindle (Mark c) | Nr | 3 | | |
| | | | | | |
| 6.31 | 100mm dia single flanged 90$^{o}$ bend (Mark d) | Nr | 3 | | |
| | | | | | |
| | **Overflow Pipework and Fittings (Approved Epoxy Coated Pipes and Fittings)** | | | | |
| | | | | | |
| 6.32 | 150mm dia. flanged spigot pipe 600mm long with puddle flange 100mm from one end (Mark e) | Nr | 1 | | |
| | | | | | |
| 6.33 | 150mm dia. double flanged 90$^{o}$ bend (Mark f) | Nr | 1 | | |
| | | | | | |
| 6.34 | 150mm dia. flanged spigot pipe 3.0m long cut to suit on site (Mark g) | Nr | 1 | | |
| | | | | | |
| | **Other Pipework and Fittings (Approved HDPE Pipes and Fittings) and Metalwork as Detailed on Drawings** | | | | |
| | | | | | |
| 6.35 | Supply and install 75 dia. flap valve as specified | Nr | 4 | | |
| | | | | | |
| 6.36 | Supply and install 50mm dia. HDPE pipe, 900mm long with 5Nr. 19mm dia. holes as shown | Nr | 2 | | |
| | | | | | |
| 6.37 | Supply and install 50mm dia. HDPE pipe, 1100mm long with 6Nr. 19mm dia. holes as shown | Nr | 2 | | |
| | | | | | |
| 6.38 | Supply and install 50mm dia. HDPE pipe, 1300mm long with 7Nr. 19mm dia. holes as shown | Nr | 2 | | |
| | | | | | |
| 6.39 | Supply and install 50mm dia. HDPE pipe, 1700mm long with 9Nr. 19mm dia. holes as shown | Nr | 2 | | |
| | | | | | |
| 6.40 | Supply and install 50mm dia. HDPE pipe, 2100mm long with 11Nr. 19mm dia. holes as shown | Nr | 2 | | |
| | | | | | |
| 6.41 | Supply and install 50mm dia. HDPE pipe, 2500mm long with 13Nr. 19mm dia. holes as shown | Nr | 4 | | |
| | | | | | |
| 6.42 | Supply and install approved plastic nozzles in underdrain pipes | Nr | 120 | | |
| | | | | | |
| **7** | **FILTER MEDIA** | | | | |
| | **Filter Media details are shown on Drawing No. 5188481-ATK-WTP-CF-DR-W-010** | | | | |
| | | | | | |
| 7.1 | Supply and lay graded gravel of size 2mm to 38mm in 4 layers 75mm thick | $m^3$ | 3 | | |
| | | | | | |
| 7.2 | Supply and lay coarse sand of size 1mm in one layer 75mm thick | $m^3$ | 1 | | |
| | | | | | |
| 7.3 | Supply and lay graded sand of size 0.5mm - 1.0mm in two layers as shown | $m^3$ | 6 | | |
| | | | | | |
| 7.4 | Allow for connection of the composite filtration unit to the inflow 150mm dia. GMS pipe and outflow as directed. | Nr | 1 | | |
| | | | | | |
| **8** | **MISCELLANEOUS WORKS** | | | | |
| | | | | | |
| 8.1 | Provide and fix GMS sheet 6mm thick settled water collection weir length 3000mm as detailed on Drawings. | Nr | 1 | | |
| | | | | | |
| 8.2 | Provide all materials and fix an external access ladder to Composite Filtration Unit as per details on Drawings. | Item | LS | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 8.3 | Provide all materials and fix 1200mm wide Chequered Plate Walking Platform over the Composite Filtration Unit complete with handrails as per details on Drawing No. | Item | LS | | |
| | | | | | |
| 8.4 | Test and commission the composite filtration unit including disinfection of media for 24 hours. | Nr | 1 | | |
| | | | | | |
| 9 | **PRECAST CONCRETE** | | | | |
| | | | | | |
| 9.1 | Precast concrete blocks class 20/20 finished fair on wash water channels 240mm x 100mm x 50mm thick. The rate should include formwork and reinforcemet, all as directed. | Nr | 60 | | |
| | | | | | |
| **10** | **CHAMBERS** | | | | |
| | | | | | |
| **10.1** | **EXCAVATION** | | | | |
| | | | | | |
| | The rates should include for all strutting, shuttering, stabilising the excavation and keeping the excavation free from water by pumping, bailing or other means. Excavate for foundation part backfill after construction and remainder cart away to tips or use as fill on site, all as directed. | | | | |
| 10.1.1 | Maximum depth less than 1.0m | $m^3$ | 55 | | |
| | | | | | |
| 10.1.2 | -Ditto- but depth 1.0 to 2.0m | $m^3$ | 25 | | |
| | | | | | |
| 10.1.3 | Extra over excavation in rock Class 'A' | $m^3$ | 6 | | |
| | | | | | |
| 10.1.4 | -Ditto - in rock Class 'B' | $m^3$ | 13 | | |
| | | | | | |
| 10.1.5 | -Ditto - in rock Class 'C' | $m^3$ | 13 | | |
| | | | | | |
| **10.2** | **CONCRETE WORKS** | | | | |
| | | | | | |
| | Provide, mix and place concrete as directed. | | | | |
| | | | | | |
| 10.2.1 | Concrete Class 15/20 in 50mm blinding layer under base slab. | $m^2$ | 33 | | |
| | | | | | |
| 10.2.6 | Vibrated reinforced concrete Class 25/20 to base slab 200mm thick | $m^3$ | 6 | | |
| | | | | | |
| 10.2.7 | -Ditto - but for chamber walls 200mm thick and 2000mm long | $m^3$ | 17 | | |
| | | | | | |
| **10.3** | **STEEL REINFORCEMENT** | | | | |
| | | | | | |
| | Provide and fix steel reinforcements including cutting, bending, propping with spacers and tying as specified. | | | | |
| | | | | | |
| 10.3.1 | Steel reinforcement | kg | 400 | | |
| | | | | | |
| **10.4** | **FORMWORK** | | | | |
| | | | | | |
| | Provide and fix shuttering including propping, strutting and striking all as specified. | | | | |
| | | | | | |
| 10.4.1 | Sides of 200mm thick base slab | $m^2$ | 10 | | |
| | | | | | |
| 10.4.2 | Sides of 2000mm chamber walls (vertical) | $m^2$ | 74 | | |
| | | | | | |
| **Bill No. 2.2.3 Total Carried to Grand Summary Page** | | | | | |
| | | | | | |
| | **CLEAR WATER TANK; one unit of four 100$m^3$ tanks** | | | | |
| | **BILL No.2.2.4** | | | | |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QUANTITY** | **RATE** | **AMOUNT** |
| **No.** | | | | **Kshs** | **Kshs** |
| | | | | | |
| **1** | **EARTHWORKS** | | | | |
| | **Excavation** | | | | |
| | | | | | |
| | Excavations shall include for strutting, shuttering, stabilizing excavated surfaces and keeping excavations free of water bailing out, pumping or other means | | | | |
| | | | | | |
| 1.1 | Excavate to reduce levels in top soil for depth not exceeding 0.25m | $m^3$ | 9 | | |
| | | | | | |
| 1.2 | Excavate for tank in material other than top soil, rock or artificial hard material depth range n.e 1m | $m^3$ | 36 | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 1.3 | Ditto but depth range between 1m - 2m | $m^3$ | 36 | | |
| | | | | | |
| 1.4 | Ditto but depth range between 2m - 3m | $m^3$ | 36 | | |
| | | | | | |
| 1.5 | Ditto but depth range between 3m - 4m | $m^3$ | 22 | | |
| | | | | | |
| 1.6 | Extra over for rock - Class 'A' blasting not permitted | $m^3$ | 11 | | |
| | | | | | |
| 1.7 | ditto - but Class B | $m^3$ | 16 | | |
| | | | | | |
| 1.8 | ditto - but Class C | $m^3$ | 27 | | |
| | | | | | |
| | **Filling** | | | | |
| | | | | | |
| | Filling to completed structures including compaction as specified | | | | |
| | | | | | |
| 1.9 | Selected excavated material other than topsoil, approved and use as fill and compact in 200mm layers as specified on site as and when directed by the Engineer. Compaction tests to be done and rates to include for this | $m^3$ | 89 | | |
| | | | | | |
| 1.10 | Filling hardcore of 300mm hand parked rubble along tank perimeter compacted in layers of 150mm | $m^3$ | 28 | | |
| | | | | | |
| | **Disposal of excavated Material** | | | | |
| | | | | | |
| 1.11 | Disposal of excavated material other than topsoil, rock or artificial hard material | $m^3$ | 5 | | |
| | | | | | |
| 1.12 | Disposal of excavated material-rock | $m^3$ | 54 | | |
| | | | | | |
| **2** | **IN SITU CONCRETE** | | | | |
| | **Provision of concrete** | | | | |
| | | | | | |
| | **Design Mix** | | | | |
| | | | | | |
| | **Grade: C15/20** | | | | |
| | | | | | |
| 2.1 | Provide all materials, mix and place 50mm thick concrete blinding mix (Class 15/20) to base slab, allow for sloping sides | $m^2$ | 73 | | |
| | | | | | |
| 2.2 | 100mm Thick Pipe Surround | $m^3$ | 1 | | |
| | | | | | |
| | **Reinforced Concrete; Class 35/30** | | | | |
| | Provide all materials, mix and place reinforced concrete for; | | | | |
| | | | | | |
| 2.3 | 250mm concrete in tank base slab and sump base and walls | $m^3$ | 17 | | |
| | | | | | |
| 2.4 | 250mm thick Tank walls | $m^3$ | 18 | | |
| | | | | | |
| 2.5 | Columns base and columns | $m^3$ | 1 | | |
| | | | | | |
| 2.6 | Roof Beams | $m^3$ | 2 | | |
| | | | | | |
| 2.7 | 200mm thick Roof Slab | $m^3$ | 14 | | |
| | | | | | |
| 2.8 | 150mm thick baffle walls | $m^3$ | 6 | | |
| | | | | | |
| | **Reinforced Concrete; Class 25/20** | | | | |
| | | | | | |
| | Provide all materials, mix and place reinforced concrete for; | | | | |
| | | | | | |
| 2.8 | Scour chamber walls and base slab | $m^3$ | 2 | | |
| | | | | | |
| | **CLASS G: CONCRETE ANCILLARIES** | | | | |
| | **Dimensions as per details on Specific Structural Drawings** | | | | |
| | **Formwork: Rough Finish; Plane Vertical** | | | | |
| | | | | | |
| 2.10 | Provide and fix strip shuttering including propping, strutting and striking to the edge of tank base slab - 250mm wide | $m^2$ | 8 | | |
| | | | | | |
| 2.11 | Provide and fix wrought shuttering including propping, strutting and striking to sump including pipe sorround | $m^2$ | 13 | | |
| | | | | | |
| 2.12 | Provide and fix wrought shuttering including propping, strutting and striking to scour chamber base slab, n.e. 200mm wide | $m^2$ | 6 | | |

| | | | | | |
|---|---|---|---|---|---|
| 2.13 | Provide and fix wrought shuttering including propping, strutting and striking to scour chamber base walls, n.e. 1.5m height | m² | 19 | | |
| 2.14 | Provide and fix strip shuttering including propping, strutting and striking to the Tank wall - height 2300mm | m² | 138 | | |
| 2.15 | Provide and fix wrought shuttering including propping, strutting and striking to sides of columns, n.e. 300mm wide | m² | 6 | | |
| 2.16 | Provide and fix wrought shuttering including propping, strutting and striking to sides of column bases, n.e. 100mm wide | m² | 1 | | |
| 2.17 | Provide and fix wrought strip shuttering including propping, strutting and striking to the vertical edge of roof slab - 200mm wide | m² | 61 | | |
| 2.18 | -Ditto- to sides of beams - 300mm wide | m² | 20 | | |
| 2.19 | -Ditto- to soffit of beams - 300mm wide | m² | 7 | | |
| 2.20 | -Ditto- to soffit of projection of roof slab - 300mm wide | m² | 4 | | |
| 2.21 | Provide and fix wrought shuttering including propping, strutting and striking to the soffit of roof slab | m² | 61 | | |
| | Finishing on Surfaces | | | | |
| 2.22 | 1:3 cement sand screed with steel trowel finish laid to fall tank floors at 1:120, and minimum depth 15mm | m² | 3 | | |
| 2.23 | 1:3 cement sand screed with steel trowel finish laid to roof slab at 1:120, and minimum depth 15mm | m² | 3 | | |
| **3** | **REINFORCEMENT** | | | | |
| 3.1 | Provide, cut, bend and fix mild steel reinforcement bars as per details on structural drawings. | kg | 5633 | | |
| | **JOINTS AND WATER STOPS** | | | | |
| | (Rates to include for all rebates, shuttering, PVC waterstop, resin bonded cork joint sealers and bituminous painting) | | | | |
| 3.2 | Provide and install 240mm wide, 20mm thick bituminous expansion board in construction joint at base slab and walls. Include for all surface treatment, formwork, forming of rebate 20mm x 20mm and sealing of rebate with polysulphide sealant all as per drawings and specification | m | 62 | | |
| **4** | **MISCELLANEOUS ITEMS** | | | | |
| 4.1 | Provide all materials and construct vents as per details on Drawing | Nr | 4 | | |
| 4.2 | Allow for construction of 600mm x 600mm access manhole with cast iron frame and cover | Nr | 2 | | |
| 4.3 | Provide all materials and fix galvanized wrought iron cat ladder to outside of reservoir. (Stringers - 50mm x 10mm rings - 20mm diameter at 300mm centres) Length n.e. 2.5m | Nr | 1 | | |
| 4.4 | Provide all materials and fix galvanized wrought iron cat ladder to inside of reservoir. (Stringers - 50mm x 10mm rings - 20mm diameter at 300mm centres) Length n.e. 2.4m | Nr | 1 | | |
| 4.5 | Allow for boxing out holes in reinforced concrete floors, walls, etc diameter n.e. 200mm including concrete reinstatement after pipe installation. The exact dimension to suit the pipe. | Nr | 4 | | |
| 4.6 | Allow for construction of 25mm x 25mm drip all round the roof edge as detailed | m | 35 | | |
| 5 | **PIPES, FITTINGS AND VALVES** | | | | |
| | **Note:** | | | | |
| | 1) Supply of pipes and fittings to include for supply of jointing materials, bolts, nuts, washers, gaskets, packings, jointing glue, etc | nr | 1 | | |

| | | | | | |
|---|---|---|---|---|---|
| | 2) All pipes, fittings and valve diameters indicated are nominal diameters. | nr | 1 | | |
| | | | | | |
| | **SUPPLY, TRANSPORT TO SITE AND STORE** | | | | |
| | **Supply, transport to site, store, transport from site store, install, test and commission all pipework and fittings including jointing material, concrete surrounds etc.** | | | | |
| | | | | | |
| **5** | **INLET PIPEWORK** | | | | |
| | | | | | |
| | **Cement Mortar Lined Ferrous Pipe Fittings and Specials** | | | | |
| | | | | | |
| 5.1 | 200 mm dia flanged ball valve (Series 1000 - Biwater or approved equivalent)(Mark 1) | Nr | 1 | | |
| | | | | | |
| 5.2 | 200 mm dia flanged pipe 640mm long with puddle flange 180mm from one end (Mark 2) | Nr | 1 | | |
| | | | | | |
| 5.3 | 200mm Dia 1200mm long flanged spigot pipe (Mark 3) | Nr | 1 | | |
| | | | | | |
| 5.4 | 1Nos. 200 mm dia Coupling (Mark 4) | Nr | 1 | | |
| | | | | | |
| | **OUTLET/SUCTION PIPEWORK** | | | | |
| | | | | | |
| 5.5 | Suction Pipework accounted for in Treated Water Pump House BOQ | | | | |
| | | | | | |
| | **OVERFLOW & WASHOUT PIPEWORK** | | | | |
| | | | | | |
| 5.6 | 150mm dia.flanged spigot pipe 600mm long with puddle flange at 150mm from spigot end (Mark a) | Nr | 1 | | |
| | | | | | |
| 5.7 | 150mm dia. double flanged 90º short radius bend (Mark b) | Nr | 1 | | |
| | | | | | |
| 5.8 | 150mm dia. double flanged pipe 1050mm long (cut to suite on site) (Mark c) | Nr | 1 | | |
| | | | | | |
| 5.9 | 150mm dia. flange adaptor (Mark d) | Nr | 1 | | |
| | | | | | |
| 5.10 | 150mm dia. all flanged 60º bend (Mark e) | Nr | 1 | | |
| | | | | | |
| 5.11 | 150mm dia. flanged spigot pipe 1250mm long with spigot end bevelled. (cut to suite on site) (Mark f) | Nr | 1 | | |
| | | | | | |
| 5.12 | 150mm dia. All flanged gate valve (EURO 20 SERIES TYPE 23 SAINT GOBAIN PAM or approved equivalent) (Mark g) | Nr | 1 | | |
| | | | | | |
| 5.13 | 150mm dia. 90º flanged spigot bend (cut to suite on site) (Mark h) | Nr | 1 | | |
| | | | | | |
| 5.14 | 150mm dia. 90º flanged spigot bend (cut to suite on site) (Mark i) | Nr | 1 | | |
| | | | | | |
| 6 | **CONSTRUCTIONAL WORK** | | | | |
| | | | | | |
| 6.1 | Provide and fix step irons to chambers | Nr | 6 | | |
| | | | | | |
| **Bill No. 2.2.4 Total Carried to Grand Summary Page** | | | | | |
| | | | | | |
| | **PUMP HOUSE BUILDING** | | | | |
| | **BILL No. 2.2.5** | | | | |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QUANTITY** | **RATE** | **AMOUNT** |
| **No.** | | | | **(Kshs)** | **(Kshs)** |
| | | | | | |
| | **SUB-STRUCTURE** | | | | |
| | | | | | |
| **1** | **EXCAVATION AND EARTHWORKS** | | | | |
| | The rates shall include for all strutting, shuttering, stabilising the excavation faces, and keeping the excavation free of water by pumping, bailing or other means. | | | | |
| | | | | | |
| | Excavate average 150mm deep to remove vegetable soil and cart away | $m^2$ | 4.95 | | |
| | Excavate below stripped level to formation level in common material, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Engineer. | | | | |
| 1.1 | Maximum depth n.e. 1.0 m | $m^3$ | 33 | | |
| | | | | | |
| 1.2 | -Ditto- but maximum depth 1.0 m to 2.0 m | $m^3$ | 49.5 | | |

| | | | | | |
|---|---|---|---|---|---|
| | **Extra Over Excavation in Any Position for:-** | | | | |
| 1.3 | Excavating in rock Class "A" | $m^3$ | 1 | | |
| 1.4 | Excavating in rock Class "B" | $m^3$ | 4 | | |
| 1.5 | Excavating in rock Class "C" | $m^3$ | 2 | | |
| | **Approved Selected Filling as Described:-** | | | | |
| 1.6 | Provide and deposit approved selected fill in maximum 150mm thick layers in making up levels including achieving satisfactory compaction. Rate to include performing necessary compaction tests. | $m^3$ | 5 | | |
| 1.7 | Provide, lay and level out fine crushed stone, sand or gravel blinding 50mm thick to surface of filling, including watering and rolling to achieve satisfactory compaction. | $m^2$ | 4 | | |
| 1.8 | Fill with approved hardcore in a 300mm thick layer including achieving satisfactory compaction. | $m^2$ | 11 | | |
| | **Disposal of Surplus Spoil:-** | | | | |
| 1.9 | Cart away surplus excavated materials to an approved dumping site | $m^3$ | 5 | | |
| | **Anti-Termite Treatment** | | | | |
| 1.10 | Chemical anti-termite treatment to surface of filling with an approved insecticide. | $m^2$ | 33 | | |
| | **Damp-Proof Membrane** | | | | |
| 1.11 | 500 Gauge polythene sheeting, laid over hardcore in two layers | $m^2$ | 33 | | |
| | **CONCRETE WORK** | | | | |
| | **Mass Concrete Class 15/20mm Maximum Aggregate as Described in:-** | | | | |
| 1.12 | 75mm Thick blinding under the walls strip footings, column bases and over hardcore | $m^2$ | 5 | | |
| | **SUPER-STRUCTURE** | | | | |
| | **Guaranteed Strength Reinforced Concrete Class 25/20mm Maximum Aggregate as Described in:-** | | | | |
| 1.13 | 200mm Thick Base Slab | $m^3$ | 7 | | |
| 1.14 | 150mm Thick Base Slab topping | $m^3$ | 5 | | |
| 1.15 | 300mm Thick Column Bases and Wall Strip Footings | $m^3$ | 2 | | |
| 1.16 | Control Panel 300mm upstand beams | $m^3$ | 1 | | |
| 1.17 | Pump Plinth size 1100mm long x 800mm wide x 300mm deep | Nr | 2 | | |
| 1.18 | Pump Plinth size 700mm long x 700mm wide x 300mm deep | Nr | 1 | | |
| | **Builders Work** | | | | |
| | Provide all materials and construct; | | | | |
| 1.19 | Drainage sump internal size 400mm long x 400mm wide x 150mm deep in concrete floor slab including forming rebate 100mm wide x 50mm deep to top inner edges of sump wall to receive metal grating cover (m.s.) and including all necessary excavation, disposal and formwork. | Nr | 1 | | |
| 1.20 | Form cable duct internal size 200mm wide x 150mm deep in concrete floor slab including forming rebate 100mm wide x 50mm deep to top inner edges of channel wall to receive chequer plate cover (m.s.) | m | 4 | | |
| 1.21 | Form drainage channel internal size 200mm wide and depth varying from 100mm to 150mm deep in concrete floor slab including forming rebate 100mm wide x 50mm deep to top inner edges of channel wall to receive mild steel grating cover (m.s.) | m | 4 | | |
| 1.22 | Provide all materials and install a 200mm Dia. Upvc drainage pipe from cable ducts cast into floor slab as shown on Drg. No. 5188481-ATK-WTP-PH-DR-W-017 | m | 2 | | |

| | | | | | |
|---|---|---|---|---|---|
| 1.23 | Form pocket internal size 1100mm long x 800mm wide x 50mm deep in base slab to receive treated water pump plinth (R.C.) including all the necessary formwork | Nr | 2 | | |
| | | | | | |
| 1.24 | Form pocket internal size 700mm long x 700mm wide x 50mm deep in concrete topping to receive backwash pump plinth (R.C.) including all the necessary formwork | Nr | 1 | | |
| | | | | | |
| | **Provide and Fix High Tensile Steel Reinforcement to SRN 127 including Cutting, Bending, Propping With Spacers and Tying as Specified :-** | | | | |
| | | | | | |
| 1.25 | Reinforcement, all diameters as specified in the drawings | Kg | 2000 | | |
| | | | | | |
| | **FORMWORK** | | | | |
| | | | | | |
| | **Provide and Fix Shuttering Including Propping, Strutting and Striking, all as Specified** | | | | |
| | | | | | |
| | **Sawn Formwork - Class F1 Finish:-** | | | | |
| | | | | | |
| 1.26 | Sides of 200mm thick pump house base slab | $m^2$ | 10 | | |
| | | | | | |
| 1.27 | Sides of column bases and columns in the foundations | $m^2$ | 13 | | |
| | | | | | |
| 1.28 | Sides of 200mm Walls Strip footings - Pump house walls | $m^2$ | 50 | | |
| | | | | | |
| | **Wrot Formwork - Class F3 Finish:-** | | | | |
| | | | | | |
| 1.29 | Edges of Treated Water Pump Plinth size 1100mm long x 800mm wide x 300mm deep not exceeding 300mm wide | m | 4 | | |
| | | | | | |
| 1.30 | Edges of Backwash Water Pump Plinth size 700mm long x 700mm wide x 300mm deep not exceeding 300mm wide | m | 3 | | |
| | | | | | |
| 1.31 | Edges of Control Panel Upstand Beams 1600mm long x 200mm wide x 300mm deep | m | 5 | | |
| | | | | | |
| | **RENDERING** | | | | |
| | | | | | |
| | **15mm Cement and sand (1:4) render to plinths, finished with a wood float** | | | | |
| | | | | | |
| 1.32 | Pump Plinth size 1100mm long x 800mm wide x 350mm deep including pocket in base slab | $m^2$ | 5 | | |
| | | | | | |
| 1.33 | Pump Plinth size 700mm long x 700mm wide x 350mm deep including pocket in base slab | $m^2$ | 7 | | |
| | | | | | |
| | **Bonded Cement and Sand (1:4) Screed Bed in One Coat with Approved Hardener incorporated in the Mix, Well Bonded to Concrete Base as Described:-** | | | | |
| | | | | | |
| 1.34 | 40mm Thick paving with wood float finish on pump house slab | $m^2$ | 32 | | |
| | | | | | |
| | **Damp-proof course:** | | | | |
| | | | | | |
| | **Bituminous Felt Damp-Proof Course as Described:-** | | | | |
| | | | | | |
| 1.35 | 200mm Wide under walls | m | 13 | | |
| | | | | | |
| | **Joint Filler** | | | | |
| 1.36 | 20mm Thick resin bonded cork filler between 1100 x 800 x 350mm pump plinth and 200mm thick floor slab sealed with 25mm deep bitumen | $m^2$ | 5 | | |
| | | | | | |
| 1.37 | -Ditto for 700 x 700 x 350mm pump plinth | $m^2$ | 5 | | |
| | | | | | |
| | **Walling** | | | | |
| | | | | | |
| | **Natural Stone Block Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at every third course, and Bedded, Jointed and Pointed in Cement Mortar (1:4):-** | | | | |
| | | | | | |
| 1.38 | 200 mm Walling | $m^2$ | 45 | | |
| | | | | | |
| | **CONCRETE WORKS** | | | | |
| | | | | | |
| | **Guaranteed Strength Reinforced Concrete Class 25/20mm as Described in:** | | | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 1.39 | Upstand beams for the control panel | $m^3$ | 2 | | |
| | | | | | |
| 1.40 | Columns | $m^3$ | 4 | | |
| | | | | | |
| 1.41 | Beams | $m^3$ | 4 | | |
| | | | | | |
| | **Precast Concrete Paving Slabs** | | | | |
| | | | | | |
| 1.42 | Slabs size 600 x 600 x 50mm Thick laid on and including 50mm thick bed of sand and jointing and pointing in cement mortar | $m^2$ | 23 | | |
| | | | | | |
| | **REINFORCEMENT** | | | | |
| | | | | | |
| | Provide and Fix High Tensile Steel Reinforcement to SRN 127 including Cutting, Bending, Propping with Spacers and Tying as Specified :- | | | | |
| | | | | | |
| 1.43 | Reinforcement, all diameters | kg | 1500 | | |
| | | | | | |
| | **FORMWORK** | | | | |
| | | | | | |
| | Provide and Fix Shuttering Including Propping, Strutting and Striking, all as Specified. | | | | |
| | | | | | |
| 1.44 | Upstand for the control panel, columns and beams in the superstructure. | $m^2$ | 25 | | |
| | | | | | |
| | **WALLING** | | | | |
| | | | | | |
| | Selected Machine Dressed Natural Stone Block Walling, Reinforced with 20 swg Hoop Iron at Every Third Courses, and Bedded, Jointed and Pointed in Cement Mortar (1:5):- | | | | |
| | | | | | |
| 1.45 | 200mm Thick walling | $m^2$ | 30 | | |
| | | | | | |
| | **Labours** | | | | |
| 1.46 | Extra over walling for ruled horizontal and flush vertical joints | $m^2$ | 30 | | |
| | | | | | |
| | **Precast Concrete Louvre Block Walling** | | | | |
| | | | | | |
| 1.47 | 200mm Thick louvre block walling | $m^2$ | 15 | | |
| | | | | | |
| | **Precast Concrete Cills** | | | | |
| | | | | | |
| 1.48 | 200mm Thick x 275mm wide precast concrete cill bedded, jointed and pointed in cement mortar on top of 200mm wall with 25mm x 25mm drip | m | 28 | | |
| | | | | | |
| | **PLASTERING** | | | | |
| | | | | | |
| 1.49 | 12.5mm thick cement gauged plaster internally on blockwork surfaces | $m^2$ | 70 | | |
| | **RENDERING** | | | | |
| | | | | | |
| 1.50 | 12.5mm thick cement and sand rendering externally on concrete surfaces | $m^2$ | 25 | | |
| | | | | | |
| | **METALWORK** | | | | |
| | | | | | |
| | **Rates to include for Provision of all Material, Fabrication and Fixing** | | | | |
| | | | | | |
| | **Floor Gratings** | | | | |
| | | | | | |
| 1.51 | Mild steel grating drain channel cover 400mm wide x 6550mm long made out of 16mm round m.s transverse bars welded at 20mm spacing to 16mm round m.s longitudinal bars welded to 38 x 38 x 6mm thick m.s angles | $m^2$ | 3 | | |
| | | | | | |
| 1.52 | Mild steel chequer plate cover for cable duct internal size 200mm wide x 150mm deep | $m^2$ | 3 | | |
| | | | | | |
| | **UB Gantry** | | | | |
| | | | | | |
| 1.53 | Provide and fix Gantry girder made out of 203 x 133 x 30 kg/m UB. Include for 500kg capacity chain block mounted on roller bracket on the gantry, fixing of gantry to concrete beams of pump house with 16mm bolts, etc., all as detailed. | Nr | 1 | | |
| | | | | | |
| | **Steel Doors** | | | | |
| | | | | | |
| | **Pressed Metal Louvre Doors** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | 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:- | | | | |
| | | | | | |
| 1.54 | Double door size 1800 x 2400 mm high in two equal panels | Nr | 1 | | |
| | | | | | |
| | **Steel Casement Windows** | | | | |
| | | | | | |
| | Supply and Fix the following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with putty, complete with the following, all finished with three coats oil paint:- | | | | |
| | | | | | |
| | - Opening accessories, including building in lugs to jambs and head and water-proofing and filling around opening with approved compound | | | | |
| | | | | | |
| | - 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; | | | | |
| | | | | | |
| 1.55 | Window size 1797 x 1197mm high in 3 equal panels with upper part having 2 No. fixed and 1 No. top hung ventilator,and lower half having 2 No. side-hung panels opening outward and 1 No. fixed panel | Nr | 5 | | |
| | | | | | |
| | **PVC Gauze Screen set on and including a Timber Framing all Round and Fixing to Wall :-** | | | | |
| | | | | | |
| 1.56 | Gauze size 1800 x 1200mm high | Nr | 1 | | |
| | | | | | |
| | | | | | |
| | **Precast Concrete Louvre Block Walling :-** | | | | |
| | | | | | |
| 1.57 | 200mm Thick louvre block walling with twin section with plastic coated coffee tray wire sandwiched between sections | $m^2$ | 8 | | |
| | | | | | |
| | **PAINTING AND DECORATING** | | | | |
| | **Prepare and Apply Three Coats Exterior Quality Plastic Emulsion Paint:-** | | | | |
| | | | | | |
| | Externally on:- | | | | |
| | | | | | |
| 1.58 | Fair-faced concrete surfaces | $m^2$ | 25 | | |
| | | | | | |
| | **Prepare and Apply Three Coats Interior Quality Plastic Emulsion Paint:-** | | | | |
| | Internally on:- | | | | |
| 1.59 | Plastered blockwork and concrete surfaces | $m^2$ | 95 | | |
| | | | | | |
| | **Prepare and Apply Three Coats Washable Distemper as Described to:-** | | | | |
| | | | | | |
| 1.60 | Horizontal soffites of suspended chipboard or plasterboard ceilings | $m^2$ | 54 | | |
| | | | | | |
| | **ROOF COVERINGS** | | | | |
| | | | | | |
| | Gauge 28 galvanised corrugated coloured IT5 Sheets including ridge capping including all necessary underlay and jointing material | $m^2$ | 42 | | |
| | | | | | |
| | | | | | |
| | **CARPENTRY AND JOINERY** | | | | |
| | | | | | |
| | **Carpentry** | | | | |
| | **Roof Trusses** | | | | |
| | | | | | |
| | **Single Pitch Roof Truss With 600mm eaves projection, in 150 x 50mm Rafters, Ceiling Joists, Struts and Ties in Sawn Cypress Grade II Seasoned and Pressure Impregnated with Wood Preservative and timber joints with bolted and nailed connections to the Engineer's approval :-** | | | | |
| | | | | | |
| 1.61 | Equal truss 4400mm clear span and 900mm high | Nr | 5 | | |
| | **Other Roof Members** | | | | |
| | | | | | |
| | Sawn Cypress Grade II Maximum Moisture Content 12% Seasoned and Pressure Impregnated with Wood Preservative and Timber Joints With Bolted and Nailed Connections to the Engineer's Approval:- | | | | |
| | | | | | |
| 1.62 | 150 x 50mm Purlins | m | 42 | | |

| | | | | | |
|---|---|---|---|---|---|
| 1.63 | 200 x 50mm Ridge board | m | 7 | | |
| 1.64 | 100 x 50mm Wall plate tied to wall with 20 s.w.g. hoop iron at 900mm centres and bedded in cement mortar (1:3) on top of wall | m | 42 | | |
| | **Joinery** | | | | |
| | **General Timbers** | | | | |
| | Wrot Prime Grade Cypress, Including Finishing With Three Coats First Quality Gloss Paint :- | | | | |
| 1.65 | 250 x 40mm Fascia board | m | 26 | | |
| **2** | **CEILING** | | | | |
| | 12mm Thick Approved Chipboard to BS 2604, Part 2, density 480-640kgs, per Square Electro-magnetic 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 | | | | |
| 2.1 | Horizontal ceiling fixed to underside of trusses | $m^2$ | 30 | | |
| 2.2 | 12mm Cornice 50mm high, plugged | m | 15 | | |
| 2.3 | Extra over ceiling lining for forming removable access trap door size 600 x 600mm with 100 x 38 mm sawn treated cypress trimming joists between tie beams,120 x 20mm (finished) wrot cypress frame all round and 20mm blockboard removable panel set loose on top of framing. | Nr | 1 | | |
| | **Builders Work in Connection with Electrical Installations** | | | | |
| 2.4 | Allow for cutting and leaving all necessary holes, notches, mortices, sinkings and chases both in the structure and its finishes and for all making good in connection with concealed conduits or cables | Item | L.S | | |
| | **PIPEWORK AND FITTINGS** | | | | |
| | **Supply, Transport to Site and Store in Secure Place, Including Jointing Material, Bolts, Gaskets, Packing, Jointing Glues, etc. as Applicable** | | | | |
| | **Treated And Backwash Water Pumps - Suction Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)** | | | | |
| 2.5 | 150mm dia. flanged strainer (Mark 1) | Nr | 1 | | |
| 2.6 | 150mm dia. double flanged pipe, 1100mm long with puddle flange at 500mm from one end (Mark 2) | Nr | 1 | | |
| 2.7 | 150mm dia. double flanged 30º bend (Mark 3) | Nr | 1 | | |
| 2.8 | 150mm dia. double flanged pipe, 1900mm long (Mark 4) | Nr | 1 | | |
| 2.9 | 150mm dia. flanged adaptor (Mark 5) | Nr | 3 | | |
| 2.10 | 150mm dia. double flanged pipe, 1700mm long with puddle flange at 500mm from one end (Mark 6) | Nr | 1 | | |
| 2.11 | 150mm x 150mm x 150mm dia. all flanged radial tee (Mark 7) | Nr | 2 | | |
| 2.12 | 150mm dia. double flanged pipe, 250mm long (Mark 8) | Nr | 2 | | |
| 2.13 | 150mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 9) | Nr | 2 | | |
| 2.14 | 150mm x 65mm dia. double flanged eccentric taper (Mark 10) | Nr | 2 | | |
| 2.15 | 150mm dia. double flanged pipe, 900mm long (Mark 11) | Nr | 1 | | |
| 2.16 | 150mm x 50mm dia. double flanged concentric taper (Mark 12) | Nr | 1 | | |
| 2.17 | 50mm dia. double flanged pipe, 700mm long (Mark 13) | Nr | 1 | | |
| 2.18 | 50mm x 50mm x 50mm dia. all flanged tee (Mark 14) | Nr | 1 | | |
| 2.19 | 50mm dia. flanged adaptor (Mark 15) | Nr | 4 | | |
| 2.20 | 50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 16) | Nr | 2 | | |

| | | | | | |
|---|---|---|---|---|---|
| 2.21 | 50mm dia. single flanged 90º bend (Mark 17) | Nr | 1 | | |
| | | | | | |
| | **Backwash Pumps - Delivery Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)** | | | | |
| | | | | | |
| 2.22 | 50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark A) | Nr | 2 | | |
| | | | | | |
| 2.23 | 50mm dia. double flanged free acting check valve (Non return valve) (Mark B) | Nr | 2 | | |
| | | | | | |
| 2.24 | 50mm dia. double flanged 90° bend (Mark C) | Nr | 3 | | |
| | | | | | |
| 2.25 | 50mm x 50mm x 50mm dia. all flanged tee (Mark D) | Nr | 1 | | |
| | | | | | |
| 2.26 | 50mm x 80mm dia. double flanged concentric taper (Mark E) | Nr | 1 | | |
| | | | | | |
| 2.27 | 80mm x 80mm x 50mm dia. all flanged tee (Mark F) | Nr | 1 | | |
| | | | | | |
| 2.28 | 50mm dia. single orifice air valve with built in isolating valve (Mark G) | Nr | 1 | | |
| | | | | | |
| 2.29 | 80mm dia. double flanged pipe, 700mm long (Mark H) | Nr | 1 | | |
| | | | | | |
| 2.30 | 80mm dia. double flanged water Electro-magnetic meter (Mark I) | Nr | 1 | | |
| | | | | | |
| 2.31 | 80mm dia. flanged adaptor (Mark J) | Nr | 2 | | |
| | | | | | |
| 2.32 | 80mm dia. double flanged pipe, 500mm long with puddle flange at 200mm from one end (Mark K) | Nr | 1 | | |
| | | | | | |
| 2.33 | 80mm dia. double flanged 45º bend (Mark L) | Nr | 2 | | |
| | | | | | |
| 2.34 | 80mm dia. flanged spigot pipe, 800mm long (cut to suit on site) (Mark M) | Nr | 2 | | |
| | | | | | |
| 2.35 | 80mm dia. stepped coupling (Mark N) | Nr | 1 | | |
| | | | | | |
| | **Treated Water Pumps - Delivery Main (Approved Lined Ferrous Pipe Fittings to Class NP 16** | | | | |
| | | | | | |
| 2.36 | 100mm x 65mm double flanged concentric taper with 25mm dia. male threaded tapping for pressure gauge (Mark a) | Nr | 2 | | |
| | | | | | |
| 2.37 | 25mm dia. pressure gauge (pressure class up to 30 bars) - Hunter or approved equivalent (Mark b) | Nr | 2 | | |
| | | | | | |
| 2.38 | 100mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark c) | Nr | 2 | | |
| | | | | | |
| 2.39 | 100mm dia. double flanged free acting check valve (Non return valve) (Mark d) | Nr | 2 | | |
| | | | | | |
| 2.4 | 100mm dia. double flanged 90° bend (Mark e) | Nr | 1 | | |
| | | | | | |
| 2.41 | 100mm dia. double flanged pipe, 910mm long (Mark f) | Nr | 1 | | |
| | | | | | |
| 2.42 | 100mm x 100mm x 100mm dia. all flanged radial tee (Mark g) | Nr | 1 | | |
| | | | | | |
| 2.43 | 100mm x 100mm x 50mm dia. all flanged tee (Mark h) | Nr | 1 | | |
| | | | | | |
| 2.44 | 50mm dia. single orifice air valve with built in isolating valve (Mark i) | Nr | 1 | | |
| 2.45 | 100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j) | Nr | 1 | | |
| | | | | | |
| 2.46 | 100mm dia. double flanged 45° bend (Mark k) | Nr | 2 | | |
| | | | | | |
| 2.47 | 100mm dia. double flanged pipe, length 1200mm (cut to suit on site) (Mark l) | Nr | 2 | | |
| | | | | | |
| 2.48 | 100mm dia. flanged adaptor (Mark m) | Nr | 2 | | |
| | | | | | |
| 2.49 | 100mm dia. double flanged water Electro-magnetic meter (Mark n) | Nr | 1 | | |
| | | | | | |
| 2.50 | 100mm dia. flanged spigot pipe, length 1500mm (cut to suit on site) (Mark o) | Nr | 1 | | |
| | | | | | |
| 2.51 | 100mm dia. stepped coupling (Mark p) | Nr | 1 | | |
| | | | | | |
| | **Supply, Transport From Site Store, Install, Test and Commission** | | | | |
| | | | | | |
| | **Backwash Pumps - Suction Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)** | | | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 2.52 | 150mm dia. flanged strainer (Mark 1) | Nr | 1 | | |
| | | | | | |
| 2.53 | 150mm dia. double flanged pipe, 1100mm long with puddle flange at 500mm from one end (Mark 2) | Nr | 1 | | |
| | | | | | |
| 2.54 | 150mm dia. double flanged 30º bend (Mark 3) | Nr | 1 | | |
| | | | | | |
| 2.55 | 150mm dia. double flanged pipe, 1900mm long (Mark 4) | Nr | 1 | | |
| | | | | | |
| 2.56 | 150mm dia. flanged adaptor (Mark 5) | Nr | 3 | | |
| | | | | | |
| 2.57 | 150mm dia. double flanged pipe, 1700mm long with puddle flange at 500mm from one end (Mark 6) | Nr | 1 | | |
| | | | | | |
| 2.58 | 150mm x 150mm x 150mm dia. all flanged radial tee (Mark 7) | Nr | 2 | | |
| | | | | | |
| 2.59 | 150mm dia. double flanged pipe, 250mm long (Mark 8) | Nr | 2 | | |
| | | | | | |
| 2.60 | 150mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 9) | Nr | 2 | | |
| | | | | | |
| 2.61 | 150mm x 65mm dia. double flanged eccentric taper (Mark 10) | Nr | 2 | | |
| | | | | | |
| 2.62 | 150mm dia. double flanged pipe, 900mm long (Mark 11) | Nr | 1 | | |
| | | | | | |
| 2.63 | 150mm x 50mm dia. double flanged concentric taper (Mark 12) | Nr | 1 | | |
| | | | | | |
| 2.64 | 50mm dia. double flanged pipe, 700mm long (Mark 13) | Nr | 1 | | |
| | | | | | |
| 2.65 | 50mm x 50mm x 50mm dia. all flanged tee (Mark 14) | Nr | 1 | | |
| | | | | | |
| 2.66 | 50mm dia. flanged adaptor (Mark 15) | Nr | 4 | | |
| | | | | | |
| 2.67 | 50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 16) | Nr | 2 | | |
| | | | | | |
| 2.68 | 50mm dia. single flanged 90º bend (Mark 17) | Nr | 1 | | |
| | **Backwash Pumps - Delivery Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)** | | | | |
| | | | | | |
| 2.69 | 50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark A) | Nr | 2 | | |
| | | | | | |
| 2.70 | 50mm dia. double flanged free acting check valve (Non return valve) (Mark B) | Nr | 2 | | |
| | | | | | |
| 2.71 | 50mm dia. double flanged 90° bend (Mark C) | Nr | 3 | | |
| | | | | | |
| 2.72 | 50mm x 50mm x 50mm dia. all flanged tee (Mark D) | Nr | 1 | | |
| | | | | | |
| 2.73 | 50mm x 80mm dia. double flanged concentric taper (Mark E) | Nr | 1 | | |
| | | | | | |
| 2.74 | 80mm x 80mm x 50mm dia. all flanged tee (Mark F) | Nr | 1 | | |
| | | | | | |
| 2.75 | 50mm dia. single orifice air valve with built in isolating valve (Mark G) | Nr | 1 | | |
| | | | | | |
| 2.76 | 80mm dia. double flanged pipe, 700mm long (Mark H) | Nr | 1 | | |
| | | | | | |
| 2.77 | 80mm dia. double flanged water Electro-magnetic meter (Mark I) | Nr | 1 | | |
| | | | | | |
| 2.78 | 80mm dia. flanged adaptor (Mark J) | Nr | 2 | | |
| | | | | | |
| 2.79 | 80mm dia. double flanged pipe, 500mm long with puddle flange at 200mm from one end (Mark K) | Nr | 1 | | |
| | | | | | |
| 2.80 | 80mm dia. double flanged 45º bend (Mark L) | Nr | 2 | | |
| | | | | | |
| 2.81 | 80mm dia. flanged spigot pipe, 800mm long (cut to suit on site) (Mark M) | Nr | 2 | | |
| | | | | | |
| 2.82 | 80mm dia. stepped coupling (Mark N) | Nr | 1 | | |
| | | | | | |
| 2.83 | 100mm x 65mm double flanged concentric taper with 25mm dia. male threaded tapping for pressure gauge (Mark a) | Nr | 2 | | |
| | | | | | |
| 2.84 | 25mm dia. pressure gauge (pressure class up to 30 bars) - Hunter or approved equivalent (Mark b) | Nr | 2 | | |
| | | | | | |
| 2.85 | 100mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark c) | Nr | 2 | | |
| | | | | | |
| 2.86 | 100mm dia. double flanged free acting check valve (Non return valve) (Mark d) | Nr | 2 | | |

| | | | | | |
|---|---|---|---|---|---|
| 2.87 | 100mm dia. double flanged 90° bend (Mark e) | Nr | 1 | | |
| 2.88 | 100mm dia. double flanged pipe, 910mm long (Mark f) | Nr | 1 | | |
| 2.89 | 100mm x 100mm x 100mm dia. all flanged radial tee (Mark g) | Nr | 1 | | |
| 2.90 | 100mm x 100mm x 50mm dia. all flanged tee (Mark h) | Nr | 1 | | |
| 2.91 | 50mm dia. single orifice air valve with built in isolating valve (Mark i) | Nr | 1 | | |
| 2.92 | 100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j) | Nr | 1 | | |
| 2.93 | 100mm dia. double flanged 45° bend (Mark k) | Nr | 2 | | |
| 2.94 | 100mm dia. double flanged pipe, length 1200mm (cut to suit on site) (Mark l) | Nr | 2 | | |
| 2.95 | 100mm dia. flanged adaptor (Mark m) | Nr | 2 | | |
| 2.96 | 100mm dia. double flanged water Electro-magnetic meter (Mark n) | Nr | 1 | | |
| 2.97 | 100mm dia. flanged spigot pipe, length 1500mm (cut to suit on site) (Mark o) | Nr | 1 | | |
| 2.98 | 100mm dia. stepped coupling (Mark p) | Nr | 1 | | |
| **3** | **PUMPS** | | | | |
| | Provide all materials, install, test and commission; | | | | |
| | **Treated Water Transmission Pumps** | | | | |
| 3.1 | 1 No. Treated water pumps (Duty) as GRUNDFOS vertical, multistage centrifugal pumps, ( with a capacity of 25m3/h at 265m static head) fixed speed control booster set for cold water complete with:<br>•Base frame with anti-vibration mountings<br>•Pressure switch (double pole) arrangement including flow switch and necessary valve and fittings<br>•Automatic Control Panel for automatic pump operation with 'run' & 'trip' indicator, overload protections and automatic changeover in case of duty pump failure, time switch for control<br>•All other necessary items for booster set to specification<br>Power (P2) main pump 15kW<br>Mains frequency: 50Hz<br>Rated voltage: 3 x 380-415D/660-690Y V | Item | 1nr | | |
| | **Backwash Pumps** | | | | |
| 3.3 | 1 No. Backwash pumps (Duty and standby) as GRUNDFOS vertical, multistage centrifugal pumps, (each with a capacity of 17m3/h at 16.5m head) fixed speed control booster set for cold water complete with:<br>•Base frame with anti-vibration mountings<br>•Pressure switch (double pole) arrangement including flow switch and necessary valve and fittings<br>•Automatic Control Panel for automatic pump operation with 'run' & 'trip' indicator, overload protections and automatic changeover in case of duty pump failure, time switch for control<br>•All other necessary items for booster set to specification<br>Power (P2) main pump 2.2kW<br>Mains frequency: 50Hz<br>Rated voltage: 3 x 380-500 V | Item | LS | | |
| **4** | **MISCELLANEOUS** | | | | |
| | **Drainage Pipe** | | | | |
| 4.1 | Provide, excavate for, lay and joint 200mm dia uPVC Class 'B' drainage pipe (or HDPE PN10) as shown on Drg. No. 5188481-ATK-WTP-PH-DR-W-016 . | m | 30 | | |
| | **Water Sampling Point** | | | | |
| | Provide suitable water sampling points whose position will be determined by the Engineer as detailed on Drg. No. 5188481-ATK-WTP-PH-DR-W-017 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 4.2 | 150 x 25mm dia steel saddle clamp | Nr | 1 | | |
| | | | | | |
| 4.3 | 25mm dia. G.I. 1000mm long pipe with male threaded ends (Mark 2) | Nr | 1 | | |
| | | | | | |
| 4.4 | 25mm dia. G.I. elbow (female threaded) (Mark 3) | Nr | 1 | | |
| | | | | | |
| 4.5 | 25mm dia. G.I. 250mm long pipe (male threaded) (Mark 4) | Nr | 1 | | |
| | | | | | |
| 4.6 | 25mm dia. G.I. union (female threaded) (Mark 5) | Nr | 1 | | |
| | | | | | |
| 4.7 | 25mm dia. Brass Tap (Mark 6) | Nr | 1 | | |
| | | | | | |
| | **Water Electro-magnetic meter Chamber** | | | | |
| | | | | | |
| 4.3 | Excavate for, provide all materials, special shuttering etc. and construct 600mm x 450mm internal dimensions in-situ concrete inspection chambers on sewers diaElectro-magnetic meter less than 160mm. All as per standard drawings. Include for building in pipes, forming benching to falls, Grade 'B' Medium Duty cast iron covers, etc. Depth to invert n.e. 1.0m | Item | 1 | | |
| | | | | | |
| | | | | | |
| **Bill No 2.2.5 Total Carried to Grand Summary Page** | | | | | |
| | | | | | |
| | **Bill No 3: Rising Main to Syiluni Tank HDPE DN 225 PN25 and DN 200 (PN20 & PN16)** | | | | |

| Item No. | Description | Unit | Quantity | Kenyan Shillings Currency (KES) Unit Price | Amount ( c ) |
|---|---|---|---|---|---|
| | | | (a) | (b) | (c) = (b) x (a) |
| **A** | **CLASS A:GENERAL ITEMS** | | | | |
| | **Provision for General obligations, site services and facilities, Temporary Works, testing of materials and work, Provisional Sums and Prime Cost Items Items to cover elements of the cost of the work which are not to be considered as proportional to the quantities of the Permanent Work** | | | | |
| | **Not applicable** | | | | |
| **B** | **Not applicable** | | | | |
| **C** | **Not applicable** | | | | |
| **D** | **DEMOLITION & SITE CLEARANCE** | | | | |
| | **provision for Demolition and removal of natural and artificial articles, objects and obstructions which are above the Original Surface** | | | | |
| **D1** | **GENERAL CLEARANCE** (mostly for pipe trasportation and placing of pipes along the pipeline route ) | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(items on site clearance shall be deemed to include disposal pf material arising locally*** | | | | |
| | | | | | |
| **D2** | **REMOVAL OF TREES (Provisional)** | | | | |
| | | | | | |
| D1 | Trees of girth: 500 mm - 1 m., | nr | 50 | | |
| | locally disposed. | | | | |
| D3 | **REMOVAL OF STUMPS(Provisional)** | | | | |
| D31 | Stumps of diameter: less than 1m., | nr | 10 | | |
| D32 | Stumps of diameter: less than 1m., | nr | 10 | | |
| | locally disposed. | | | | |
| **D6** | **CLEARANCE OF PIPELINE (Provisional)** | | | | |
| | **WAYLEAVES, DISPOSAL LOCAL,** | | | | |
| | | | | | |
| D6 | Nominal bore: not exceeding 100-300mm; For Washout pipeline | | | | |
| | Pipeline only at KM 0+060 and KM1+080 | m | 100 | | |
| | | | | | |
| E | Not applicable | | | | |
| F | Not applicable | | | | |
| G | Not applicable | | | | |
| H | Not applicable | | | | |
| I | **PIPEWORK: PIPES** | | | | |
| | **Provision for supply, laying and joining of pipes through butt fusion** | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(Backfilling of trenches shall not be measued ,lengths of pipes shall be measured along their center lines*** | | | | |
| | | | | | |
| I1 | High-density -Polyethylene | | | | |
| | Normal bore:not exceeding 200-300mm | | | | |
| | HDPE DN225 of PN 25, DN200 of PN25 and&8 as per Technical Specifications Clauses 3, 702, 760, 801, 805, 808, 809 and 1008 | | | | |
| | | | | | |
| | in treaches , depth not exceeding 1.5-2.0 for main pipeline | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| I422 | DN225 PN 25 between chainage 0+000 to 0+280 as per Drawings Depth not exceeding 1.5m | m | 300 | | |
| | | | | | |
| I423 | DN200 PN20 between chainage 0+280 to 0+420 as per Drawings Depth not exceeding 1.5m | m | 200 | | |
| | | | | | |
| I424 | DN200 PN 16 between chainage 0+420 to 1+495 as per Drawings Depth not exceeding 1.5m | m | 1,200 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| J | **PIPEWORK-FITTINGS AND VALVES** | | | | |
| | provision for placing Fittings and valves for pipework | | | | |
| | Normal bore:not exceeding300-600mm | | | | |
| | **Pipe and fittings install as per the drawings and list of equipments** | | | | |
| | | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(items for fittings and valves does not include the supply of material by sub contrator or unless otherwise stated .*** | | | | |
| | **Install Pipe and fittings** | | | | |
| J1 | **Bends (Holizontal Bend)** | | | | |
| | 11.25°, 45°, 90° Long radius bends | | | | |
| | | | | | |
| | Nb: not exceeding 200-300mm. | nr | 7 | | |
| | | | | | |
| | | | | | |
| J2 | **HDPE Coupler Weldeding sections on bend s** | nr | 14 | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | | | | | |
| | | | | | |
| J3 | **COVER 712mm** | | | | |
| | Fibre glass reinforced cover with locking mechanism | | | | |
| | Wo chamaber | nr | 4 | | |
| | Air valve Chamber | nr | 2 | | |
| | | | | | |
| J4 | **Long spigot (HDPE)** | | | | |
| | | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 4 | | |
| | | | | | |
| | | | | | |
| J5 | **Flange pipe** | | | | |
| | | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 4 | | |
| | | | | | |
| | | | | | |
| J6 | **Double flanged pipe** | | | | |
| | | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 16 | | |
| | | | | | |
| | | | | | |
| J7 | **FLAP VALVE** | | | | |
| | Nb: not exceeding 200mm -300mm. | | | | |
| | OD200 | | | | |
| | | nr | 1 | | |
| | | | | | |
| | | | | | |
| J8 | **GATE VALVE** | | | | |
| | Nb: not exceeding 300mm-200mm. | | | | |
| | OD200 | | | | |
| | | nr | 2 | | |
| | | | | | |
| | | | | | |
| J9 | **Normal TEE** | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 2 | | |
| | | | | | |
| | | | | | |
| J10 | **DISMANTLING JOINT** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 2 | | |
| | | | | | |
| | | | | | |
| J12 | **Invert TEE** | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 2 | | |
| | | | | | |
| | | | | | |
| J13 | **NON -RETURN GATE** | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 2 | | |
| | | | | | |
| | | | | | |
| J14 | **ISOLATION VALVE/BUTTERFLY VALVE** | | | | |
| | Nb: not exceeding 200-300mm. | | | | |
| | OD200 | | | | |
| | | nr | 1 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| J15 | **AIR VALVE MOD.LYNX 3F** | | | | |
| | Nb: not exceeding 200mm. | | | | |
| | OD200 | | | | |
| | | nr | 1 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| J17 | **GS ventilation pipe** | | | | |
| | with mosquito mesh wire cover | nr | 6 | | |
| | | | | | |
| J18 | **LONG STUB** | | | | |
| | Nb: not exceeding 200mm. | | | | |
| | OD200 | nr | 4 | | |
| | | | | | |
| **K** | **PIPEWORK** | | | | |
| | **MANHOLE & PIPEWORK ANCILLARIES** | | | | |
| | **Provision for excavation of chambers, crossings and reinstatement, other ancillaries as listed, including for supply of all necessary materials and construction of insitu chambers** | | | | |
| **K1** | **MANHOLES AND OTHER CHAMBERS EXCAVATIONS** | | | | |
| | **CHAMBERS IN ACCORDANCE WITH DRAWINGS** | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(the depths of chambers shall be measured from the tops of covers )*** | | | | |
| K11 | In -situ concrete outfall structure (washout and Syiluni tank inlet) | | | | |
| | depth ne. 1.5 m. | nr | 3 | | |
| | | | | | |
| K12 | Insitu Concrete air valve chamber | | | | |
| | depth not exceeding 1.5 -2.0m. | nr | 2 | | |
| | | | | | |
| | | | | | |
| K13 | Insitu cast Concrete washouts chamber | | | | |
| | depth not exceeding 1.5 -2.0m. | nr | 2 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **K6** | **CROSSINGS** | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(any crossing shall be measured by widths measued along the pipe centerline )*** | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **K6.3** | **Existing unsurfaced road crossing** | | | | |
| | (this includes open cutting , placing of pipe as sleeves as per drawings ) | | | | |
| | at | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | pipe bore:300-900mm | nr | 1 | | |
| | | | | | |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **K7** | **REINSTATEMENT** | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(reinstatements shall be measured by widths measued along the pipe centerline )*** | | | | |
| K7.1 | Breaking up, temporary and permanent reinstatement of unsurfaced roads, pipe norm. bore 200 - 300mm | m | 20 | | |
| | | | | | |
| K7.2 | Breaking up, temporary and permanent reinstatement of footpaths, pipe norm. bore 200 - 300mm | m | 5 | | |
| | | | | | |
| | | | | | |
| K7.3 | Breaking up, temporary and permanent reinstatement of | m | 5 | | |
| | grassland & lawns pipe nom. Bore not exceeding 200-300 mm. | | | | |
| | | | | | |
| | | | | | |
| **K8** | **OTHER PIPEWORK ANCILLARIES** | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***(marker posts shall be measured for pipes ducts , chambers and road crossing )*** | | | | |
| K8.1 | **Marker Posts installation** | | | | |
| | | | | | |
| | | | | | |
| K82 | Marker Posts for Air valve | nr | 4 | | |
| | in accordance with standard drawings. | | | | |
| | | | | | |
| K83 | Marker Posts for Washouts | nr | 2 | | |
| | in accordance with standard drawings. | | | | |
| | | | | | |
| K84 | Marker Posts for treated main | nr | 8 | | |
| | at 200m spacing and change of direction as per specifications. | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| **L** | **PIPEWORK:SUPPORTS AND RPOTECTION , ANCILARIES TO LAYING AND EXCAVATION** | | | | |
| | **Provision for Extras to excavation and backfilling of trenches for pipework**<br>**Pipe laying in headings and by thrust boring and pipe jacking**<br>**Provision of supports and protection to pipework, ducts and culvert** | | | | |
| **L1** | **EXCAVATION and BACKFILLING** | | | | |
| | *METHOD OF MEASUREMENT* | | | | |
| | ***The volume of extras to excavation and backfilling in pipetrenches shall be calculated by multiplying together the average depth and length of the material removed or backfilled and the nominal trench width. Trenches to be 0.9m deep, and 0.6m wide)*** | | | | |
| | | | | | |
| | **Pipe in trenches** | | | | |
| | **class I rock** | | | | |
| | **class II Laterite gravel** | | | | |
| | **class III soft soil** | | | | |
| L11 | In pipe trenches excavation & backfilling | | | | |
| | of class I material **(Provisional).** | m | 10 | | |
| | | | | | |
| L1.2 | In pipe trenches excavation & backfilling | | | | |
| | of class II material **(Provisional).** | m | 200 | | |
| | | | | | |
| | | | | | |
| L1.3 | In pipe trenches excavation & backfilling | | | | |
| | of class III material | m | 1,600 | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| L5.0 | **SURROUNDS** | | | | |
| | Supply of class 15/20 mass concrete for 150mm pipe surround at road crossing | $m^3$ | 4.0 | | |
| | | | | | |
| **L7** | **CONCRETE STOOLS AND THRUST** | | | | |
| | **BLOCKS CONCRETE CLASS 20** | | | | |
| | | | | | |
| | **To horizontal bends** | | | | |
| | | | | | |
| L7.1 | Volume: 0.8-1 $m^3$, nom. | | | | |
| | bore: 200 - 300 mm. | nr | 7 | | |
| | | | | | |
| | | | | | |
| | **To Junctions, AV TEE, WO TEE** | | | | |
| | | | | | |
| L7.2 | Volume: 0.8-1 $m^3$, nom. | nr | 4 | | |

| | | | | | |
|---|---|---|---|---|---|
| | bore: 200 - 300 mm. | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | **Mass concrete grade C20** | | | | |
| | **20 mm aggregates:** | | | | |
| | | | | | |
| | Isolation Valve_stools | | | | |
| L7.4 | Volume 0.5-1m$^3$, | nr | 4 | | |
| | bore: 200 - 300 mm. | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | **Bill 3 Total Carried to Summary** | | | | |
| | | | | | |
| | **Bill No. 4: Provisional for Rehabilitation of Syiluni Tank** | | | | |
| **Item No.** | **Description** | **Unit** | **Quantity (a)** | **Kenyan Shillings Currency (KES) Unit Price (b)** | **Amount ( c ) (c) = (b) x (a)** |
| | Rehabilitation works (Provisional) | | | | |
| 4.1 | **PLASTERING** | | | | |
| | | | | | |
| | 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking | $m^2$ | 70 | | |
| 4.2 | **RENDERING** | | | | |
| | | | | | |
| | 12.5mm thick 1:3 cement and sand rendering externally on concrete surfaces; cost inclusive of surface hacking | $m^2$ | 70 | | |
| | | | | | |
| | **Bill 4 Total Carried To Summary** | | | | |
| | | | | | |
| | THE END. | | | | |