|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Client** | **IGAD Climate Predictions and Application Centre** |  |  |  |
| **Activity** | **Lot 2.3: Rehabilitation of Xingood Dam** |  |  |  |
| **Village** | **Xingood Village** |  |  |  |
| **District** | **Hobyo, Galmudug State** |  |  |  |
|  | **Summary** |  |  |  |
| **NO.** | **Description** | **Qty** | **Rate** | **Amount USD** |
|  | Unit prices will include mobilization i.e. Contractor’s plant, machinery, other equipment including his work force etc. to the site |  |  |  |
| 2.3.1 | Construction of Haffir Dam of 72,000m3 | 1 |  |  |
| 2.3.2 | Construction of protected shallow well water system | 1 |  |  |
| 2.3.3 | Supply and installation of solar pumping system | 1 |  |  |
| 2.3.4 | Construction of sheep’s/goats trough | 1 |  |  |
| 2.3.5 | Construction of camels trough | 1 |  |  |
| 2.3.6 | Construction of 15m3 elevated water tank with generator room underneath | 1 |  |  |
| 2.3.7 | Construction of communal water point | 1 |  |  |
| 2.3.8 | Construction of single pit latrine | 1 |  |  |
| **Total** | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.1** | **CONSTRUCTION OF 72,000 m3 OF HAFFIR DAM** |  |  |  |  |
|  |  |  |  |  |  |
| **1.0** | **Site Clearance, Reservoir Excavation and Embankment** |  |  |  |  |
| 1.1 | Mobilization and Demobilization: To mobilize to the site and to demobilize from the site all materials, equipment, machines, and staff camping. | LS | 1 |  |  |
| 1.2 | Site clearing and soil stripping: Clear project area of trees/bush/stumps and cart away for area under embankment, reservoir and inlet/spillway. Including soil stripping (to depth of 200mm) and cart away to spoil as directed by supervising Engineer. | m2 | 36,081 |  |  |
|  | Excavation |  |  |  |  |
| 1.3 | Excavate reservoir area of capacity 72,000 m3 by bulldozers with manual correction, transport, place and compact on the embankment/dam wall and any extra earth material placed and spread downstream. Including cleaning of loose and shaping of the reservoir area as directed by supervising Engineer. | m3 | 72,000 |  |  |
|  | Permeability Control |  |  |  |  |
| 1.4 | Provide lay and join approved 1.0mm thick High Density Polyethylene Sheet at the bottom and the sides of the pan to specifications. (Optional). Engineer to give direction. | m2 | 28,600 |  |  |
| 1.5 | Provision of approved clay fill 0.3m in the reservoir core section and to 95% minimum dry density as impervious seal, compacted and leveled. (Optional). Engineer to give direction. | m3 | 5,760 |  |  |
|  | **Sub-total of Site Clearance, Reservoir Excavation and Embankment** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **Cut - Off Drains, Silt- Trap, Inlet Channel and Spillways** |  |  |  |  |
|  | Cut- off drains |  |  |  |  |
| 2.1 | Cut- off drains: Excavate in soil to depth of approx. 0.5m for trapezoidal cut - off trench/drain, to direct runoff to the silt -trap including gabion boxes (2mx1mx1m) protection up to 10m length at the entrance of the silt - trap. Include trimming of channel sides | m3 | 2,000 |  |  |
| Gabion  boxes | 20 |  |  |
|  | Silt trap |  |  |  |  |
| 2.2 | Silt trap: Excavate trapezoidal shaped silt trap by bulldozers (top dimension of 20mx30m and 2m depth) at the convergent of the inlet channels and shape, trim the side slopes and cart away the soil to the embankment; and stabilize inlet side slope with gabion boxes as instructed by the site Engineer. | m3 | 900 |  |  |
| Gabion  boxes | 20 |  |  |
|  | Inlet channel |  |  |  |  |
| 2.3 | Inlet channel: Excavate and construct a masonry inlet channel (trapezoidal wall stone riprapped (stone pitched) channel bed) of at least 9.0m length x 3m wide x 0.5m high connecting the silt - trap and reservoir with channel bed extending to the reservoir bottom as directed by the supervising Engineer. | m3 | 12 |  |  |
|  | Spillway |  |  |  |  |
| 2.4 | Excavation of Overflow and construct spillway channel by bulldozers to make flexible the soil and move to embankment with manual correction, with channel of 5m wide, 0.5m deep and at least 50m length. | m3 | 119 |  |  |
| 2.5 | Spillway scour protection - Rip-rap (stone pitching) on the channel bed section | m2 | 90 |  |  |
| 2.6 | Concrete sills (5m x 0.5m x 0.5m) at specified intervals including along the fence at silt- trap entrance. | No. | 1 |  |  |
| 2.7 | Supply and installation Support riprap stone to embankment of dam 160mx120 length @0.3m width and | m2 | 560 |  |  |
| 2.8 | Supply and installation Support riprap stone silt trap 30mx20m to protect embankment erosion. | m2 | 100 |  |  |
|  | **Sub-total of Cut - Off Drains, Silt- Trap, Inlet Channel and Spillways** |  |  |  |  |
|  |  |  |  |  |  |
| **3.0** | **Water Draw-off System** |  |  |  |  |
| 3.1 | Excavation of the main outlet pipe trench (0.5mx5mx40m) from steel gage to shallow well | m3 | 100 |  |  |
| 3.2 | Construction of intake structure: Construction of vertical intake structure (steel cage 1.5mx1.5mx2.5m high with concrete base) with graded ballast and hardcore around the perforated 110mm PE pipe with Tee and the base with inspection end cap and covered with another end cap at the top as shown in the provided drawing as directed by the Site Engineer. | No. | 1 |  |  |
| 3.3 | Draw- off pipe network - Pipework connecting the outlet structure and the draw off community water point; perforated pipe and 110mm dia PE (or uPVC class D) pipe 60m long. Including anti - seepage concrete collars 750mm x 750mm x 200mm thick | Ls | 1 |  |  |
| 3.4 | Valve chamber: Construct masonry water control unit of 1mx1m internal dimensions x 5m depth (including a main gate valve (4") and descending steps secured with lockable steel manhole before the pumping well including a padlock. | Ls | 1 |  |  |
|  | **Sub-total of Water draw-off system** |  |  |  |  |
|  |  |  |  |  |  |
| **4.0** | **Fence and Gate** |  |  |  |  |
|  | Gate |  |  |  |  |
|  | The contractor will provide all material and construct a steel gate measuring approximately 4500x2100m. |  |  |  |  |
| 4.1 | Excavate for column pads, depth not exceeding 1.5m and of 1.5 x 1.5 mm width commencing at the original ground level, and cart away to spoil as directed | m3 | 6.75 |  |  |
|  | Reinforced Concrete using 3/4 + 1/2" mix machine crushed Ballast in: |  |  |  |  |
| 4.2 | Vibrated reinforced concrete (class 25) column base, 350mm deep | m3 | 0.79 |  |  |
| 4.3 | Ditto in columns 600x600mm thick, average height of 2.7 m with 1.5 m being the foundation column | m3 | 1.94 |  |  |
| 4.4 | Assorted high tensile twisted steel reinforcement bars to B.S 4446. | Kg | 200.00 |  |  |
| 4.5 | Sawn formwork to vertical sides of the columns | m2 | 10.00 |  |  |
| 4.6 | 15mm thick cement/Sand plaster to vertical sides of the columns | m2 | 10.00 |  |  |
| 4.7 | 350x350x25mm thick P.C.C coping stone | No. | 2.00 |  |  |
|  | Main and pedestrian gates |  |  |  |  |
| 4.8 | Supply and fix double leaf steel gate size 4500x 2100mm high with small pedestrian door made from 3mm thick steel plate welded on both sides of the frame. Frame as follows: 75x50x3mm thick RHS external members and 25mm SHS 3mm thick secondary members, fixed onto the concrete columns using heavy duty steel pin hinges; with all fastening accessories including all cutting welding, grinding and priming with one coat of grey oxide before fixing. The gate should also have peep holes of not more that 25mm dia with a slilding door. It should also have 2 locking mechanisms, top and bottom. | No. | 1.00 |  |  |
|  | Fence |  |  |  |  |
| 4.9 | Dig circullar holes measuring 250mm diameter and 500mm in depth spaced at 3000mm covering the perimeter circumference in dimensions of 200mx210m | No. | 275 |  |  |
| 4.1 | Provide and erect pre-cast concrete fencing posts in dimensions of 2.5m in length and 0.15m square in thickness made of concrete C25 (1:1.5:3), height of 2.0m using concrete class 20 (C20) - 1:2:4, 20mm aggregates. | No. | 275 |  |  |
| 4.11 | Provide and fix anchor pre-cast concrete posts in all four corners of the field, every after 20 poles interval and all posts gate entrances, anchoring them securely using concrete class 20 (C20) 1:2:4 at bottom and nails at joints | No. | 60 |  |  |
| 4.12 | Using a 2m height laminated chain link wire gauge 14, fence the perimeter leaving only the areas for prescribed gate | m | 820 |  |  |
| 4.13 | Using barbed wire gauge 12.5, fix 5 strands of the wire, 2 lines at the top and 3 lines at the top, mid and bottom of the barbed wire | m | 820 |  |  |
|  | **Sub-total of Fence and Gate** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Site Clearance, Reservoir Excavation and Embankment |  |  |  |  |
|  | Cut - Off Drains, Silt- Trap, Inlet Channel and Spillways |  |  |  |  |
|  | Water Draw-off System |  |  |  |  |
|  | Fence and Gate |  |  |  |  |
| **Total of Construction of Haffir Dam (72,000m3)** | |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.2** | **CONSTRUCTION OF HAND DUG WELL** |  |  |  |  |
|  |  |  |  |  |  |
|  | The quantities given are for a 2000mm shallow well, 8 meters deep. Quantities to be verified if these dimensions are varied |  |  |  |  |
| **1.0** | **EXCAVATION** |  |  |  |  |
| 1.1 | Excavate pit 0.00 – 1.50 meters deep | m3 | 4.71 |  |  |
| 1.2 | Ditto 1.50 - 3.00 meters deep | m3 | 4.71 |  |  |
| 1.3 | Ditto 3.00 - 4.50 meters deep | m3 | 4.71 |  |  |
| 1.4 | Ditto 4.50 - 6.00 meters deep | m3 | 4.71 |  |  |
| 1.5 | Ditto 6.00 - 7.50 meters deep | m3 | 4.71 |  |  |
| 1.6 | Ditto 7.50 - 8.00 meters deep | m3 | 1.57 |  |  |
| 1.7 | Remove surplus excavated materials from site | m3 | 10 |  |  |
| 1.8 | Return, fill in and ram selected excavated materials around walls | m3 | 15 |  |  |
| 1.9 | Extra-over for excavating in rock | m3 | 8 |  |  |
|  | Filing |  |  |  |  |
| 1.10 | Approved hard-core filling spread well rammed and compacted | m3 | 5 |  |  |
|  | **Sub-total of Excavation and Filling** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **CONCRETE WORK** |  |  |  |  |
|  | Mass Concrete class 15 (1:3:6) |  |  |  |  |
| 2.1 | 50mm thick Concrete /Quarry dust blinding | m2 | 15 |  |  |
| 2.2 | 25mm gravel pack placed in the bottom of the well | m3 | 4 |  |  |
| 2.3 | 25mm gravel mixed with 5-12mm gravel and coarse sand mixture | m3 | 8 |  |  |
| 2.4 | 5-12mm graded and mixed gravel or coarse sand fill | m3 | 46 |  |  |
| 2.5 | Normal backfill with selected granular material up to 300mm above water table | m3 | 4 |  |  |
| 2.6 | Highly compacted impermeable clay or equivalent approved material fill | m3 | 2 |  |  |
|  | Reinforced Concrete class 25 (1:1.5:3) with 20mm thick maximum aggregate size |  |  |  |  |
| 2.7 | 100mm thick perforated reinforced concrete rings reinforced as shown on the drawings | No | 7 |  |  |
| 2.8 | 100mm thick solid reinforced concrete rings reinforced as shown on the drawings | No | 2 |  |  |
| 2.9 | 100mm Thick sloping cover slab | m2 | 20 |  |  |
| 2.1 | 150mm Thick cover slab | m2 | 8 |  |  |
| 2.11 | 675 x 675 x 50mm Thick precast concrete manhole cover with and including 12mm 'U' shaped mild steel lifting eye | No | 1 |  |  |
|  | Sawn Formwork |  |  |  |  |
| 2.12 | Formwork to side and top of ring beam | m2 | 6 |  |  |
| 2.13 | Formwork to side and top of drain channel | m2 | 20 |  |  |
| 2.14 | Formwork to soffit of cover slab | m2 | 1 |  |  |
|  | Reinforcement |  |  |  |  |
| 2.15 | BRC A393 Mesh | m2 | 42 |  |  |
| 2.16 | 38 x 38 x 6mm Thick angle Ring edging to manhole cover | m | 3 |  |  |
|  | Walling |  |  |  |  |
| 2.17 | 400 mm Thick rubble walling jointed in cement and sand mortar (1:3) | m2 | 25 |  |  |
|  | **Sub-total of Concrete Work** |  |  |  |  |
|  |  |  |  |  |  |
| **3.0** | **FINISHES** |  |  |  |  |
| 3.1 | 20mm cement and sand (1:3) plaster to internal side of walls | m2 | 21 |  |  |
| 3.2 | 12mm Diameter mild steel bars, ‘U’ shaped to form steps with ends embedded into retaining wall, average length 600mm | No | 20 |  |  |
| 3.3 | 250mm wide grating for the drainage channel made of Y10 reinforcement bars welded together at 125mm c/c to form a mesh | m | 35 |  |  |
|  | **Sub-total of Finishes** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Concrete Work |  |  |  |  |
|  | Finishes |  |  |  |  |
|  |  |  |  |  |  |
| **Total of Hand Dug Well Construction** | | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.3** | **SUPPLY AND INSTALLATION SOLAR PUMPING SYSTEM** |  |  |  |  |
|  |  |  |  |  |  |
| 1.0 | **SOLAR PANEL STAND** |  |  |  |  |
|  | Excavation(Provisional) |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials by bailing, pumping or otherwise |  |  |  |  |
| 1.1 | Prepare site by stripping top 200 mm of soil to remove all debris including sand (if any) from site and carting away spoil | m2 | 17 |  |  |
| 1.2 | Pit excavation commencing at reduced levels depth not exceeding 1.50m deep | m3 | 1 |  |  |
| 1.3 | Remove surplus excavated material from site | m3 | 0.13 |  |  |
| 1.4 | Backfill around foundation | m3 | 1 |  |  |
|  | Concrete work |  |  |  |  |
|  | Reinforced Concrete class 25 |  |  |  |  |
| 1.5 | Concrete pad with surface steel trowelled smooth | m3 | 0.13 |  |  |
|  | Reinforcement |  |  |  |  |
| 1.6 | Reinforcement bars (all sizes) | kg | 35 |  |  |
|  | Sawn formwork |  |  |  |  |
| 1.7 | Formwork to sides | m | 2 |  |  |
|  | Structural steelwork |  |  |  |  |
|  | Supply, fabricate and erect the following framed structural steelwork; complete with and including all welded and bolted connections; and including one shop coat red oxide, zinc chromate or similar and approved primer and 2 finishing coats of gloss oil paint after erection: |  |  |  |  |
| 1.8 | 38mm x 38mm x 3mm angle frame made by welding the angle sections using 6mm thick gusset plates and supported on 38mm diameter x 2.5mm thick pipes | Sum | 1 |  |  |
|  | **Sub-total of solar panel stand** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **PUMPING SYSTEM** |  |  |  |  |
|  | Provide and fix Solar Panels complete with a switch unit, grid tie inverter, watt meter and other accessories |  |  |  |  |
| 2.1 | Lorentz PU 150 C-SJ5-4 pump c/w motor | No. | 1 |  |  |
| 2.2 | LorentZ PS2-150 controller, 0.3 KVA | No. | 1 |  |  |
| 2.3 | 11/2" UPVC pipe | m | 3 |  |  |
| 2.4 | 25mm Airline pipe | m | 6 |  |  |
| 2.5 | 4 mm2 flat Submersible drop cable | m | 10 |  |  |
| 2.6 | Well probe sensor for dry run protection | No. | 1 |  |  |
| 2.7 | Well probe cable | m | 12 |  |  |
| 2.8 | JA solar, 270 Watt polycrystalline solar module | No. | 12 |  |  |
| 2.9 | 6mm2 Auto DC cable | m | 5 |  |  |
| 2.10 | Lorentz PV disconnect 440-40-1 | No. | 1 |  |  |
| 2.11 | Installation sundries | No. | 1 |  |  |
| 2.12 | Installation cost | LS | 1 |  |  |
|  | **Sub-total of pumping system** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Solar Panel Stand |  |  |  |  |
|  | Pumping System |  |  |  |  |
|  |  |  |  |  |  |
| **Total of Supply and Installation of Solar Pumping System** | | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.4** | **CONSTRUCTION OF SHEEP’S/GOATS TROUGH** |  |  |  |  |
|  |  |  |  |  |  |
| **1.0** | **Excavation** |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials by bailing, pumping or otherwise |  |  |  |  |
| 1.1 | Prepare site by stripping top 150 mm of soil to remove all debris including sand (if any) from site and carting away spoil | m2 | 56.0 |  |  |
| 1.2 | Excavate for foundation strip commencing at stripped levels depth not exceeding 1.50m deep | m3 | 5.6 |  |  |
| 1.3 | *Extra-over for excavating in rock (optional)* | *m3* | *0.0* |  |  |
| 1.4 | Remove surplus excavated material from site | m3 | 9.0 |  |  |
| 1.5 | Backfill around foundation | m3 | 3.4 |  |  |
|  | Filing |  |  |  |  |
| 1.6 | 200 mm thick approved hard-core filling spread, well rammed and compacted in 150mm layers to receive concrete surface bed | m2 | 38.0 |  |  |
| 1.7 | Treat hard-core surface with approved insecticide | m2 | 38.0 |  |  |
|  | **Sub-total of Excavation** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **Concrete work** |  |  |  |  |
|  | Mass Concrete class 15 (1:3:6) with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.1 | 50mm blinding layer under foundations | m2 | 9.3 |  |  |
| 2.2 | 50mm blinding layer on hard-core surfaces | m2 | 56.1 |  |  |
|  | Vibrated reinforced concrete class 25 (1:1.5:3) with 20mm maximum aggregate as described in: |  |  |  |  |
| 2.3 | Strip foundation | m3 | 1.9 |  |  |
| 2.4 | 100 mm thick floor slab | m2 | 6.9 |  |  |
|  | Vibrated reinforced concrete class 25 (1:1.5:3) with 20mm maximum aggregate as described in: |  |  |  |  |
| 2.5 | 150mm thick walls | m2 | 9.3 |  |  |
|  | Reinforcement |  |  |  |  |
| 2.6 | Mesh fabric reinforcement ref. No. A142 laid in floor slab with minimum 150 mm side allowance | m2 | 67.0 |  |  |
| 2.7 | Reinforcement bars (All sizes) as shown on drawings | kg | 210.0 |  |  |
|  | Sawn formwork |  |  |  |  |
| 2.8 | Formwork to sides of foundation strip girth 150-225mm | m | 31.0 |  |  |
| 2.9 | Formwork to edges of floor slab girth not exceeding 75mm | m | 31.0 |  |  |
| 2.10 | Formwork to sides of walls | m2 | 39.4 |  |  |
|  | Walling |  |  |  |  |
| 2.11 | 150 Thick solid concrete block walling | m2 | 3.0 |  |  |
|  | Finishes |  |  |  |  |
|  | Cement and sand mortar (1:3) in: |  |  |  |  |
| 2.12 | 15mm thick plaster to internal side of wall with water proof cement | m2 | 5.1 |  |  |
|  | **Sub-total of Concrete work** |  |  |  |  |
|  |  |  |  |  |  |
| **3.0** | **Water Supply System** |  |  |  |  |
|  | Galvanized mild steel pipes class "B" medium thickness with and including jointing fittings and fixed as described |  |  |  |  |
| 3.1 | 25mm diameter inlet pipe chased through masonry wall 300 mm long with and including stop cork | No | 4.0 |  |  |
| 3.2 | 25mm diameter inlet pipe | No | 2.0 |  |  |
| 3.3 | 32mm diameter PVC draw off pipe 300mm long with and including gate valve | No | 1.0 |  |  |
|  | **Sub-total of Water Supply System** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Concrete work |  |  |  |  |
|  | Water Supply System |  |  |  |  |
|  |  |  |  |  |  |
| **Total of Sheep/Goats Trough** | | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.5** | **CONSTRUCTION OF CAMELS TROUGH** |  |  |  |  |
|  |  |  |  |  |  |
| **1.0** | **Excavation** |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials by bailing, pumping or otherwise |  |  |  |  |
| 1.1 | Prepare site by stripping top 150 mm of soil to remove all debris including sand (if any) from site and carting away spoil | m2 | 58.6 |  |  |
| 1.2 | Excavate for foundation strip commencing at stripped levels depth not exceeding 1.50m deep | m3 | 5.9 |  |  |
| 1.3 | *Extra-over for excavating in rock (optional)* | *m3* | *0.0* |  |  |
| 1.4 | Remove surplus excavated material from site | m3 | 17.0 |  |  |
| 1.5 | Backfill around foundation | m3 | 11.1 |  |  |
|  | Filing |  |  |  |  |
| 1.6 | 200 mm thick approved hard-core filling spread, well rammed and compacted in 150mm layers to receive concrete surface bed | m2 | 54.1 |  |  |
| 1.7 | Treat hard-core surface with approved insecticide | m2 | 54.1 |  |  |
|  | **Sub-total of Excavation** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **Concrete work** |  |  |  |  |
|  | Mass Concrete class 15 (1:3:6) with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.1 | 50mm blinding layer under foundations | m2 | 9.8 |  |  |
| 2.2 | 50mm blinding layer on hard-core surfaces | m2 | 54.1 |  |  |
|  | Vibrated reinforced concrete class 25 (1:1.5:3) with 20mm maximum aggregate as described in: |  |  |  |  |
| 2.3 | Strip foundation | m3 | 2.0 |  |  |
| 2.4 | 75mm thick concrete benching laid to falls and with surface steel troweled rough (optional) | m2 | 48.6 |  |  |
| 2.5 | 100 mm thick floor slab | m2 | 6.9 |  |  |
|  | Vibrated reinforced concrete class 25 (1:1.5:3) with 20mm maximum aggregate as described in: |  |  |  |  |
| 2.6 | 200mm thick walls | m2 | 26.1 |  |  |
| 2.7 | 150mm thick wall | m2 | 0.7 |  |  |
|  | Reinforcement |  |  |  |  |
| 2.8 | Mesh fabric reinforcement ref. No. A142 laid in floor slab with minimum 150 mm side allowance | m2 | 68.4 |  |  |
| 2.9 | Reinforcement bars (All sizes) as shown on drawings | kg | 280.0 |  |  |
|  | Sawn formwork |  |  |  |  |
| 2.10 | Formwork to sides of foundation strip girth 150-225mm | m | 31.0 |  |  |
| 2.11 | Formwork to edges of floor slab girth not exceeding 75mm | m | 32.3 |  |  |
| 2.12 | Formwork to sides of walls | m2 | 47.4 |  |  |
|  | Finishes |  |  |  |  |
|  | Cement and sand mortar (1:3) in: |  |  |  |  |
| 2.13 | 15mm thick plaster to internal side of wall with water proof cement | m2 | 10.0 |  |  |
| 2.14 | 12mm thick plaster to external side of wall | m2 | 17.1 |  |  |
|  | **Sub-total of Concrete work** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Concrete work |  |  |  |  |
|  |  |  |  |  |  |
| **Total of Camel Trough** | | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.6** | **CONSTRUCTION OF 15M3 ELEVATED WATER TANK WITH GENERATOR ROOM UNDERNEATH** |  |  |  |  |
|  |  |  |  |  |  |
| **1.0** | **Excavation** |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials |  |  |  |  |
| 1.1 | Prepare site by stripping top 150 mm of soil to remove all debris including sand (if any) from site and carting away spoil | m2 | 9.00 |  |  |
| 1.2 | Excavate trench commencing at reduced levels depth not exceeding 1.50m deep | m3 | 14.00 |  |  |
| 1.3 | Pit excavation commencing at reduced levels depth not exceeding 1.50m deep | m3 | 4.80 |  |  |
| 1.4 | Extra-over for excavation in rock | m3 | 5.00 |  |  |
| 1.5 | Remove surplus excavated material from site | m3 | 4.80 |  |  |
| 1.6 | Backfill around foundation | m3 | 14.00 |  |  |
|  | Filing |  |  |  |  |
| 1.7 | 300 mm thick approved hard-core filling spread, well rammed and compacted in 150mm layers | m3 | 1.68 |  |  |
|  | **Sub-total of Excavation** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **Concrete work** |  |  |  |  |
|  | Mass Concrete class 15 (1:3:6) with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.10 | 50mm Thick blinding | m3 | 0.40 |  |  |
|  | Vibrated Reinforced Concrete class 25 (1:1.5:3) with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.2 | Ground beam | m3 | 0.70 |  |  |
| 2.3 | Column base | m3 | 1.40 |  |  |
|  | Vibrated Reinforced Concrete class 25 (1:1.5:3) with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.4 | Tie beam | m3 | 2.09 |  |  |
| 2.5 | Columns | m3 | 2.81 |  |  |
|  | Vibrated Reinforced Concrete class 30 (1:1:2) with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.6 | 200mm thick Walls | m2 | 4.32 |  |  |
| 2.7 | 200mm thick Base slab | m2 | 22.00 |  |  |
| 2.8 | 200mm thick Cover slab | m2 | 22.00 |  |  |
|  | Reinforcement |  |  |  |  |
| 2.9 | Reinforcement bars (all sizes) as shown on drawings | kg | 1684.00 |  |  |
|  | Sawn formwork |  |  |  |  |
| 2.10 | Formwork to sides of column bases | m2 | 124.00 |  |  |
| 2.11 | 200mm wide PVC water bar | m | 32.00 |  |  |
|  | **Sub-total of Concrete work** |  |  |  |  |
|  |  |  |  |  |  |
| **3.0** | **Water Supply System** |  |  |  |  |
|  | Galvanized Mild Steel pipes class "B" medium thickness with and including jointing, fittings and fixe as described |  |  |  |  |
| 3.1 | 50mm diameter inlet pipe 800mm long | No | 1.00 |  |  |
| 3.2 | 50mm diameter draw off pipe Ditto | No | 1.00 |  |  |
| 3.3 | 50mm diameter overflow pipe Ditto | No | 1.00 |  |  |
| 3.4 | 75mm diameter scour pipe Ditto | No | 1.00 |  |  |
| 3.5 | 20mm diameter brass gate valve with wheel and head | No | 1.00 |  |  |
| 3.6 | 20mm diameter stop corks | No | 1.00 |  |  |
| 3.7 | 600x600x6mm heavy gauge steel primed metal manhole cover on slab with and including metal framing all around | No | 1.00 |  |  |
| 3.8 | 20mm Diameter bars, ‘U’ shaped to form steps with ends embedded into retaining wall, average length 450mm | No | 10.00 |  |  |
| 3.9 | 8.7m High Ladder | No | 1.00 |  |  |
|  | **Sub-total of Water Supply System** |  |  |  |  |
|  |  |  |  |  |  |
| **4.0** | **Finishes** |  |  |  |  |
|  | Cement and sand mortar (1:3) rendering in: |  |  |  |  |
| 4.1 | 25 mm Thick screed to base slab with waterproof cement | m2 | 8.41 |  |  |
| 4.2 | 15mm internal plaster to cover slab with waterproof cement | m2 | 27.84 |  |  |
| 4.3 | 12mm plaster to external sides of wall | m2 | 32.00 |  |  |
| 4.4 | 12mm plaster to cover slab | m2 | 10.24 |  |  |
| 4.5 | 12mm plaster to soffits of base slab | m2 | 2.56 |  |  |
| 4.6 | 12mm plaster to beams | m2 | 41.76 |  |  |
| 4.7 | 12mm plaster to columns | m2 | 37.44 |  |  |
|  | **Sub-total of Finishes** |  |  |  |  |
|  |  |  |  |  |  |
| **5.0** | **Generator House** |  |  |  |  |
|  | Walling |  |  |  |  |
| 5.1 | Supply and construction of 200mm Hollow block walling | m2 | 37.12 |  |  |
| 5.2 | 12mm internal and external plaster | m2 | 74.24 |  |  |
| 5.3 | Internal and external white washing and colouring | m2 | 74.24 |  |  |
|  | Openings |  |  |  |  |
| 5.4 | 1.5m wide by 2.4m high metal double door | No | 1.00 |  |  |
| 5.5 | 1m wide by 1.2m high metal window | No | 1.00 |  |  |
|  | Roofing |  |  |  |  |
| 5.6 | 50x80mm Timber for Roofing | No | 5.00 |  |  |
| 5.7 | 25x50mm Timber for roofing | No | 7.00 |  |  |
| 5.8 | 200mx25 Timber | No | 4.00 |  |  |
| 5.9 | G32 Corrugated Iron sheet | No | 10.00 |  |  |
|  | **Sub-Total of Generator House** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Concrete work |  |  |  |  |
|  | Water Supply System |  |  |  |  |
|  | Finishes |  |  |  |  |
|  | Generator House |  |  |  |  |
|  |  |  |  |  |  |
| **Total of Construction of 15m3 Water Tank with Room Underneath** | | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.7** | **CONSTRUCTION OF COMMUNAL WATER POINT** |  |  |  |  |
|  |  |  |  |  |  |
| **1.0** | **Yard** |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials by bailing, pumping or otherwise |  |  |  |  |
| 1.1 | Prepare site by stripping top 200 mm of soil to remove all debris including sand (if any) from site and carting away spoil | m2 | 33.1 |  |  |
| 1.2 | Excavate to reduce levels not exceeding 1.50m deep average depth 300mm | m2 | 33.1 |  |  |
|  | Filing |  |  |  |  |
| 1.3 | 300 mm thick approved hard-core filling spread, well rammed and compacted in 150mm layers to receive concrete surface bed | m3 | 9.9 |  |  |
|  | In-situ concrete: class 15: mix 1:3:6 |  |  |  |  |
| 1.4 | 50mm blinding layer on hard-core surfaces | m2 | 33.1 |  |  |
| 1.5 | Treat hard-core surface with approved insecticide | m2 | 33.1 |  |  |
|  | **Sub-total of Yard** |  |  |  |  |
|  |  |  |  |  |  |
| 2.0 | **Concrete work** |  |  |  |  |
|  | Reinforced Concrete class 25 |  |  |  |  |
| 2.1 | 75mm thick floor slab with surface steel troweled smooth | m2 | 26.0 |  |  |
| 2.2 | 200mm thick floor slab with surface steel troweled smooth | m2 | 7.2 |  |  |
| 2.3 | 200mm walls | m2 | 1.4 |  |  |
| 2.4 | 200x50mm thickening under 200mm slab | m | 4.0 |  |  |
|  | Reinforcement |  |  |  |  |
| 2.5 | Reinforcement bars (all sizes) as shown on drawings | kg | 20.0 |  |  |
| 2.6 | Mesh fabric reinforcement ref. No. A142 laid in floor slab with minimum 150 mm side allowance | m2 | 36.5 |  |  |
|  | Sawn formwork |  |  |  |  |
| 2.7 | Formwork to edges of floor slab girth not exceeding 75mm, formwork to sides of walls and 100 x 100mm open drain channel | LS | 1.0 |  |  |
|  | Finishes |  |  |  |  |
|  | Floor Finishes |  |  |  |  |
|  | Cement and sand mortar (1:3) in: |  |  |  |  |
| 2.8 | 30mm thick steel troweled screed | m2 | 33.1 |  |  |
|  | Gate valve chamber |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials by bailing, pumping or otherwise |  |  |  |  |
| 2.9 | Pit excavation commencing at reduced levels depth not exceeding 1.50m deep | m3 | 1.0 |  |  |
| 2.10 | Remove surplus excavated material from site | m3 | 0.5 |  |  |
| 2.11 | Backfill around foundation | m3 | 0.5 |  |  |
|  | Concrete work |  |  |  |  |
|  | Mass Concrete class 20 with 20mm thick maximum aggregate size in |  |  |  |  |
| 2.12 | 50mm Thick | m2 | 1.0 |  |  |
|  | Walling |  |  |  |  |
| 2.13 | 150 Thick load bearing solid concrete block walling | m2 | 2.0 |  |  |
|  | Finishes |  |  |  |  |
|  | Cement and sand mortar (1:3) rendering in: |  |  |  |  |
| 2.14 | 15mm internal plaster to walls | m2 | 1.2 |  |  |
| 2.15 | 400 x 400mm precast concrete cover | No | 1.0 |  |  |
|  | **Sub-total of Concrete work** |  |  |  |  |
|  |  |  |  |  |  |
| **3.0** | **Water Supply System** |  |  |  |  |
|  | Galvanized Mild Steel pipes class "B" medium thickness with and including jointing, fittings and fixe as described |  |  |  |  |
| 3.1 | 38mm diameter inlet pipe | m | 9.0 |  |  |
| 3.2 | 38mm diameter brass gate valve with wheel and head | No | 2.0 |  |  |
|  | **Sub-total of Water Supply System** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | Yard |  |  |  |  |
|  | Concrete work |  |  |  |  |
|  | Water Supply System |  |  |  |  |
|  |  |  |  |  |  |
| **Total of construction of communal water point** | | | | |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ITEM** | **DESCRIPTION** | **UNIT** | **QTY** | **RATE** | **TOTAL (USD)** |
|  |  |  |  |  |  |
| **2.3.8** | **CONSTRUCTION OF SINGLE PIT LATRINE** |  |  |  |  |
|  |  |  |  |  |  |
| **1.0** | **Substructure** |  |  |  |  |
|  | Excavation |  |  |  |  |
|  | Excavation including maintaining and supporting sides and keeping free from water, mud and fallen materials by bailing, pumping or otherwise |  |  |  |  |
| 1.1 | Prepare site by stripping top 200 mm of soil to remove all debris including sand (if any) from site and carting away spoil | m2 | 14.7 |  |  |
| 1.2 | Excavate for foundation strip commencing at stripped levels depth not exceeding 1.50m deep | m3 | 17.5 |  |  |
| 1.3 | Pit excavation commencing at stripped levels depth not exceeding 1.50m deep | m3 | 3.4 |  |  |
| 1.4 | Ditto 1.50 - 3.00 meters deep | m3 | 3.4 |  |  |
| 1.5 | Ditto 3.00 - 4.50 meters deep (Optional) | m3 | 3.4 |  |  |
| 1.6 | Ditto 4.50 - 6.00 meters deep (Optional) | m3 | 3.4 |  |  |
| 1.7 | Extra-over for excavation in rock | m3 | 4.0 |  |  |
| 1.8 | Remove surplus excavated material from site | m3 | 15.0 |  |  |
| 1.9 | Backfill around foundation | m3 | 1.5 |  |  |
|  | Filing |  |  |  |  |
| 1.10 | 300 mm thick approved hard-core filling spread, well rammed and compacted in 150mm layers to receive concrete surface bed | m3 | 1.2 |  |  |
|  | **In-situ concrete: class 15: mix 1:3:6** |  |  |  |  |
| 1.11 | 50mm blinding layer under foundations | m2 | 7.4 |  |  |
| 1.12 | 50mm blinding layer on hard-core surfaces | m2 | 4.2 |  |  |
| 1.13 | Treat hard-core surface with approved insecticide | m2 | 4.2 |  |  |
|  | **Sub-total of Substructure** |  |  |  |  |
|  |  |  |  |  |  |
| **2.0** | **Concrete work** |  |  |  |  |
|  | Reinforced Concrete class 15 |  |  |  |  |
| 2.1 | Strip foundation | m3 | 0.8 |  |  |
|  | Reinforced Concrete class 25 |  |  |  |  |
| 2.2 | 100mm thick floor slab with surface steel trowelled smooth | m2 | 10.8 |  |  |
| 2.3 | Allow for pit/squat hole in 100mm thick floor slab | No | 1.0 |  |  |
|  | Reinforcement |  |  |  |  |
| 2.4 | Reinforcement bars (All sizes) as shown on drawings | kg | 85.0 |  |  |
| 2.5 | Mesh fabric reinforcement ref. No. A142 laid in floor slab with minimum 150 mm side allowance | m2 | 10.8 |  |  |
|  | Sawn formwork |  |  |  |  |
| 2.6 | Formwork to edges of floor slab girth over 75mm but not exceeding 150mm | m | 15.0 |  |  |
| 2.7 | Formwork to edges of strip footing girth over 75mm but not exceeding 150mm | m | 15.0 |  |  |
| 2.8 | Formwork to edges of strip footing girth over 150mm but not exceeding 2250mm | m | 12.0 |  |  |
|  | Walling |  |  |  |  |
| 2.9 | 400mm Thick rubble stone retaining wall in cement and sand mortar (1:3) | m2 | 12.3 |  |  |
| 2.10 | 300mm Thick rubble stone foundation walling in cement and sand mortar (1:3) | m2 | 11.0 |  |  |
| 2.11 | 150mm thick masonry wall | m2 | 1.0 |  |  |
| 2.12 | One layer 1000gauge polythene sheet damp proof membrane under beds: 300mm laps | m2 | 15.7 |  |  |
| 2.13 | 200mm wide Bituminous felt damp-proof course | m | 14.4 |  |  |
|  | **Sub-total of Concrete work** |  |  |  |  |
|  |  |  |  |  |  |
| **3.0** | **Steps** |  |  |  |  |
|  | Concrete work |  |  |  |  |
|  | Reinforced Concrete class 25 |  |  |  |  |
| 3.1 | Treads, 300 mm wide | m | 5.0 |  |  |
| 3.2 | Risers, 150 mm high | m | 4.0 |  |  |
| 3.3 | Open string | m2 | 0.3 |  |  |
| 3.4 | Waist | m2 | 0.2 |  |  |
|  | Sawn formwork |  |  |  |  |
| 3.5 | Risers: girth over 75mm but not exceeding 150mm | m | 4.0 |  |  |
| 3.6 | Open string | m2 | 0.3 |  |  |
| 3.7 | Waist | m2 | 0.2 |  |  |
|  | Cement and sand mortar (1:4) trowelled beds: on concrete: to |  |  |  |  |
| 3.8 | Treads, 300 mm wide | m | 5.0 |  |  |
| 3.9 | Risers, 150 mm high | m | 4.0 |  |  |
| 3.10 | Open string | m2 | 0.3 |  |  |
| 3.11 | Waist | m2 | 0.2 |  |  |
|  | Non slip approved ceramic floor tiles size 300x300x8mm thick as approved by the Engineer: bedded on cement and sand screeds(measured separately) : jointed and grouted in matching colour cement mortar |  |  |  |  |
| 3.12 | Waist | m2 | 0.2 |  |  |
|  | Reinforcement |  |  |  |  |
| 3.13 | High tensile reinforcement bars in assorted sizes | kg | 20.0 |  |  |
|  | **Sub-total of Steps** |  |  |  |  |
|  |  |  |  |  |  |
| **4.0** | **Plinths** |  |  |  |  |
| 4.1 | 15mm thick cement sand rendering (1:3) to plinths | m2 | 4.0 |  |  |
| 4.2 | Prepare and apply three coats black bituminous paint to rendered plinths externally | m2 | 4.0 |  |  |
|  | **Sub-total of Plinths** |  |  |  |  |
|  |  |  |  |  |  |
| **5.0** | **Walling** |  |  |  |  |
| 5.1 | 150 Thick load bearing solid concrete block walling | m2 | 30.5 |  |  |
| 5.2 | 200mm deep x 400mm wide vent block | No | 1.0 |  |  |
|  | Wall Coping |  |  |  |  |
| 5.3 | Precast concrete 600 x 300 x 50 mm Thick twice weathered and throated coping jointed and pointed in cement and sand mortar | m | 6.0 |  |  |
|  | Concrete Work |  |  |  |  |
|  | Vibrated reinforced concrete class 25 (1:1.5:3) with 20mm maximum aggregate as described in: |  |  |  |  |
| 5.4 | Lintels | m3 | 0.1 |  |  |
|  | Reinforcement |  |  |  |  |
| 5.5 | 8mm Diameter high tensile reinforcement bar | kg | 2.0 |  |  |
| 5.6 | Ditto but 10mm | kg | 4.0 |  |  |
|  | Sawn Formwork to**:** |  |  |  |  |
| 5.7 | Sides and soffits of lintels | m2 | 1.0 |  |  |
|  | Roofing |  |  |  |  |
|  | Roof Structure |  |  |  |  |
|  | Sawn celcured cypress timber as described in: |  |  |  |  |
| 5.8 | 200mm x 15mm Fascia Board | m | 10.7 |  |  |
| 5.9 | l00x50mmRafters | m | 5.0 |  |  |
| 5.10 | 100mm x 50mm wall plate | m | 8.0 |  |  |
| 5.11 | 50 x 50 Purlins | m | 8.0 |  |  |
|  | Roof Covering |  |  |  |  |
| 5.12 | 30 Gauge galvanized corrugated iron sheets fixed to timber Purlins | m2 | 7.1 |  |  |
|  | **Sub-total of Walling** |  |  |  |  |
|  |  |  |  |  |  |
| **6.0** | **Painting and Decorating** |  |  |  |  |
| 6.1 | Knot prime stop and apply two undercoats and one gloss finishing coat oil paint to fascia board 200- 300 mm wide | m | 10.7 |  |  |
|  | Doors |  |  |  |  |
| 6.2 | 45mm thick Match boarded timber single door, overall size 900x 2100mm high | No | 1.0 |  |  |
|  | Wrot cypress 1st grade |  |  |  |  |
| 6.3 | 150x50mm frame two labours plugged screwed and pellated | m | 5.0 |  |  |
| 6.4 | 50x25mm architrave two labours | m | 5.0 |  |  |
| 6.5 | 25x15mm quadrant one labour | m | 5.0 |  |  |
|  | Supply and fix the following ironmongery to timber with matching screws |  |  |  |  |
| 6.6 | Stainless steel hinges | Pairs | 2.0 |  |  |
| 6.7 | Three lever mortice lock | No | 1.0 |  |  |
| 6.8 | Rubber door stop | No | 1.0 |  |  |
| 6.9 | Prepare and apply two undercoats and one finishing coat oil paint to timber door | m2 | 3.8 |  |  |
|  | **Sub-total of Painting and Decorating** |  |  |  |  |
|  |  |  |  |  |  |
| **7.0** | **Finishes** |  |  |  |  |
|  | Floor Finishes |  |  |  |  |
|  | Cement and sand mortar (1:4)trowelled beds: on concrete: to |  |  |  |  |
| 7.1 | 32mm floors finished to receive ceramic tile flooring | m2 | 7.8 |  |  |
|  | Non slip approved ceramic floor tiles size 300x300x8mm thick as approved by the Engineer: bedded on cement and sand screeds(measured separately) : jointed and grouted in matching colour cement mortar |  |  |  |  |
| 7.2 | 100 x 25mm Thick skirting to junction with floor and wall finish | m | 12.2 |  |  |
|  | Supply and fix approved Ceramic wall tiles or other equal and approved fixed with approved quality adhesive in accordance with manufacturer’s instructions bedded on cement sand backing (measured separately): jointed, pointed and grouted in matching colour cement mortar: to |  |  |  |  |
|  | 12mm lime plaster: steel trowelled finish: on concrete, block work or stonework: to |  |  |  |  |
| 7.3 | Walls externally | m2 | 28.5 |  |  |
|  | Prepare and apply three coats plastic emulsion paint to: |  |  |  |  |
| 7.4 | Walls externally | m2 | 28.5 |  |  |
| 7.5 | Extra over keying | m2 | 28.5 |  |  |
| 7.6 | Supply and fix hand washing concrete basin size 300mm x 450mm | No | 1.0 |  |  |
|  | **Sub-total of Finishes** |  |  |  |  |
|  |  |  |  |  |  |
|  | **MAIN SUMMARY** |  |  |  | **AMOUNT (USD)** |
|  |  |  |  |  |  |
|  | SUBSTRUCTURE |  |  |  |  |
|  | Concrete work |  |  |  |  |
|  | Steps |  |  |  |  |
|  | Plinths |  |  |  |  |
|  | Walling |  |  |  |  |
|  | Painting and Decorating |  |  |  |  |
|  | Finishes |  |  |  |  |
| **Total of construction of single pit latrine** | | | | |  |