



**Ministry Of Water  
Sanitation And  
Irrigation**



**County Water Department of Wajir**



**Wajir Water and Sewerage  
Company (WAJWASCO)**

# **Bills of Quantities for Construction, Rehabilitation and Expansion of Groundwater – Based Rural Water Supply Schemes - Batch 1 Schemes in Wajir County**

*Lot 2: Adan Awale, Arbajahan, Griftu, Kubeyssurur and Nyata-Korondille*

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**RFB No:** *KE-WAJIR-503205-CW-RFB-LOT 2*

**Project:** *The Horn of Africa Groundwater for Resilience Project, Kenya (P174867)*

**Employer:** **County Government of Wajir – Wajir Water and Sewerage Company (WAJWASCO)**

**Country:** **Kenya**

**Issued on:** **5<sup>th</sup> August 2025**

**THE HORN OF AFRICA GROUNDWATER FOR RESILIENCE PROJECT,**

**KENYA (P174867)**

**SCHEDULE OF BILLS OF QUANTITIES – WAJIR COUNTY, LOT 2**

<b>SCHEME NO.</b>	<b>RURAL WATER SUPPLY SCHEME (RWSS)</b>
1	ADAN AWALE RURAL WATER SUPPLY SCHEME
2	ARBAJAHAN RURAL WATER SUPPLY SCHEME
3	GRIFTU RURAL WATER SUPPLY SCHEME
4	KUBEYSURUR RURAL WATER SUPPLY SCHEME
5	NYATA-KORONDILLE RURAL WATER SUPPLY SCHEME

# **WAJIR COUNTY - LOT 2**

**BILL No. 1:**  
**PRELIMINARIES AND**  
**GENERAL ITEMS**





# **ADAN AWALE WATER SUPPLY SCHEME**

# PROJECT SUMMARY



**ADAN AWALE WATER SUPPLY SCHEME, WAJIR COUNTY****MAIN SUMMARY**

<b>BILL</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
<b>TOTAL FOR ADAN AWALE WATER SUPPLY SCHEME</b>		

**BILL No. 2:  
BOREHOLES, PUMPS AND  
POWER SUPPLY**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>  <b>ADAN AWALE MAIN BOREHOLE</b>  <b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
<b>SECTION 1:</b> <b>MOBILIZATION AND SETTING UP</b>		Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	160		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN63mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 63mm diameter rising main GMS water pipe, Class C.	Lm	160		
2.2.7	63mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	63mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 63 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	260		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	520		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 13KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 10.5 m³/hr of water against a total head of 340m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.,. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commisioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>SECTION 4: SOLAR POWER</b>					
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 25kW on a bright sunny day at midday taking into account the system losses. (16,500W -To add to the existing solar Panels)	No	30		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 25kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
<b>SECTION 4: SOLAR POWER</b>				<b>Carried to Main Summary</b>	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 35 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5: GENERATOR POWER BACK UP</b>				
		Carried to Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>ADAN AWALE MAIN BOREHOLE</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>BOOSTER STATION</b>				
	<b>SECTION 1: PUMPS</b>				
2.1.1	Supply & install 18.5KW Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 10.5 m³/hr of water against a total head of 285m.	No	1		
2.1.2	Supply and install a control panel to be mounted in the plant room. The control panel shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, and Sine-wave filter. It shall be complete with power surge protector, time delay switch, MCBs, isolators, ON/OFF LED indicator light and any other necessary controls for proper functioning of the borehole pump.	No	1		
2.1.3	Earth rod Complete with earth lead	Set	1		
2.1.4	Junction box Complete fittings	Set	1		
2.1.5	Main switch fuse/MCCB 40 A	No.	1		
<b>SECTION 1:</b>		Carried to			
<b>PUMPS</b>		Main Summary			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: SOLAR POWER</b>				
	<b>Supply, install, test and commission of an array of solar with the following specifications:</b>				
2.2.1	550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 30kW on a bright sunny day at midday taking into account the system losses. (33,000W -To add to the existing solar Panels)	No.	60		
2.2.2	Supply, installation and furnishing support structures with the following specifications: Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.2.3	Supply, install, test and commission a 30kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 30kW 100A complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	Set	1		
2.2.4	Supply and install DC MCB SL7-63 1000VDC 4P 100A	Pcs	1		
2.2.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.2.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.2.7	Supply, install, test and commission 6mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	Lot	1		
2.2.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.2.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.2.10	Supply, install, test and commission 3 phase Motor Protection Unit MP204 or equivalent	No	1		
2.2.11	Allow for supply, installation, testing and commissioning of Variable Speed Pump Controller CUE	Sum	1		
2.2.12	Allow for 12 months after sale service including training of operators and technicians.	Ls	1		
2.2.13	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 2:</b>	Carried to			
	<b>SOLAR POWER</b>	Main Summary			

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SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>BOOSTER STATION</b>				
	<b><u>SUMMARY</u></b>				
1	PUMPS				
2	SOLAR POWER				
3	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 3:**  
**FENCING AND GATE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to <i>Pedestrian</i> gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates ( <i>measured on both sides</i> )	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>				
	<b><u>SUMMARY</u></b>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 4:**  
**WATER KIOSKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<b><u>Anti-termite treatment</u></b>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<b><u>Damp-proof Membrane</u></b>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
4.1.19	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	12.26		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
4.1.20	Vertical sides of column bases	Sm	4.32		
4.1.21	Vertical sides of columns	Sm	3.84		
4.1.22	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.23	Ditto: to edges of ramp	Lm	4.00		
	<b>Carried to Collection</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i><u>Vibrated reinforced concrete class 25/20: as described in</u></i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</u></i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	<b>SECTION 2:</b>				
	<b>SUPERSTRUCTURE</b>				
	<b>Carried to Main Summary</b>				





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>SECTION 5: INTERNAL WALL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	<b><u>SECTION 5 :</u></b>				
	<b>INTERNAL FINISHES</b>				
	Carried to Main Summary				







ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 1</u></b>				
	<b>SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM</b>				
	<b><u>5,000 litres Elevated Plastic Tank</u></b>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<b><u>Tank Roof</u></b>				
	<i><u>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</u></i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<b>Water ATM</b>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<b><u>SECTION 8</u></b>	<b>Carried to</b>			
	<b><u>PLASTIC WATER TANK</u></b>	<b>Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 10: GULLEY TRAP</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<b><u>Concrete</u></b>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<b><u>Blockwork</u></b>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<b><u>Fittings</u></b>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	<b>SECTION 10: GULLEY TRAP</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 1</u></b>				
	<b><u>SUMMARY</u></b>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	<b>TOTAL FOR 1No. WATER KIOSK</b>			<b>Kes.</b>	
	<b>TOTAL FOR 5 No. WATER KIOSKS</b>	<b>NO.</b>	<b>5</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 5:**  
**OPERATOR'S BUILDING AND**  
**GUARD HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i>Disposal</i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i>Hardcore or other approved filling, as described</i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<b><u>Anti - termite treatment</u></b>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<b><u>Damp-proof membrane</u></b>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<b>Carried to Collection</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<b><u>Foundation walling</u></b>				
	<i><u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u></i>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<b>Carried to Collection</b>				







ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
5.4.1	Tie beam: 75 x50	m	18.80		
5.4.2	King Post: 75x50	m	4.40		
5.4.3	Struts: 75x50	m	10.40		
5.4.4	Purlins: 50 x 50	m	97.99		
5.4.5	Wall plate: 150x50mm	m	16		
5.4.6	Rafters: 75x50	m	25		
	<b><u>Eaves Finishes</u></b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
5.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.33		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions: as described to</i>				
5.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.99		
5.4.9	Ridge cap to match	Lm	8.17		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.4.10	Metal surfaces: 200 - 300mm girth	Lm	4.20		
	<b><u>SECTION 4</u></b>				
	<b><u>ROOFING</u></b>				
	<b>Carried to Main Summary</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b> <b>SECTION 6: INTERNAL FINISHES</b>  <u><b>Wall Finishes</b></u>  <u>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</u>  5.6.1 Concrete surfaces, internally Sm 9.30  5.6.2 Masonry surfaces, internally Sm 76.96  <u><b>Floor Finishes</b></u>  <u>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</u>  5.6.3 32 mm Thick bed screed on floor to steel trowel finish level Sm 32.68  <u><b>Painting and decoration</b></u>  <u>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as "Crown Paints" or approved equivalent: as described on</u>  5.6.4 Plastered concrete surfaces, internally Sm 9.30  5.6.5 Plastered walls surfaces, internally Sm 76.96				
	<b>SECTION 6</b> <b>INTERNAL FINISHES</b>	Carried to Main Summary			

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 8: WINDOWS</u></b>				
	<b><u>Window Sill</u></b>				
	<i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<b><u>Steel Casement Windows</u></b>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges; including all necessary cutting, welding and grinding; ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<b><u>SECTION 8</u></b>	<b>Carried to</b>			
	<b><u>WINDOWS</u></b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.9.1	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>				
	<b><u>Builder's work in connection with Electrical Installations:</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>Builder's work in connection with plumbing and drainage installations:</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
<b><u>SECTION NO. 9</u></b> Carried to <b><u>B.W.I.C WITH SERVICES</u></b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.1	<b><u>BILL 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SUMMARY</u></b>				
	Substructure (Provisional)				
	R.C. Superstructure				
	Walling				
	Roofing				
	External Finishes				
	Internal Finishes				
	Doors				
	Windows				
5.9	Builders' Work in Connection with Services (Provisional)				
<b>TOTAL FOR 1No. OPERATOR'S BUILDING</b> <b>TOTAL FOR 1 No. OPERATOR'S BUILDING</b>					
<b>TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 6:**  
**PIT LATRINE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<i><u>Disposal</u></i>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<i><u>Hardcore or other approved filling, as described</u></i>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<b><u>Anti-termite treatment</u></b>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<b><u>Damp-proof Membrane</u></b>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Concrete works</u></b>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
6.1.17	150 mm thick foundation walling	Sm	15.38		
6.1.18	150 mm thick walling for the pit	Sm	8.40		
	<b>Carried to Collection</b>				

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 2: SUPERSTRUCTURE</u></b>  <b><u>R.C Frame</u></b>  <b><u>Concrete</u></b>  <i>Vibrated reinforced concrete class 20/20; as described in</i>  6.2.1 Beams Cm 0.51  <b><u>Reinforcement (Provisional)</u></b>  <i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>  6.2.2 Assorted bars (D8 - D16) Kg 31  <b><u>Formwork</u></b>  <i>Sawn formwork; including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>  6.2.3 Vertical sides and soffites of beams Sm 5.13				
	<b>SECTION 2</b> <b>SUPERSTRUCTURE</b>	Carried to Main Summary			





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
6.4.2	Rendered concrete surfaces, externally	Sm	3		
<b><u>SECTION 4</u></b> Carried to <b>EXTERNAL FINISHES</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>SECTION 5: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
6.5.1	Concrete surfaces, internally	Sm	5		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>mat</u></b> <b><u>emulsion</u></b> paint as described on</i>				
6.5.3	Plastered concrete surfaces, internally	Sm	5		
<b><u>SECTION NO. 5</u></b> Carried to <b><u>INTERNAL FINISHES</u></b> Main Summary					







ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 6: PIT LATRINES</u></b>				
SEC	<b><u>SUMMARY</u></b>				
6.1	Substructure (Provisional)				
6.2	R.C. Superstructure				
6.3	Walling				
6.4	External Wall Finishes				
6.5	Internal Finishes				
6.6	Doors				
6.7	Windows				
6.8	Roofing				
	<b>TOTAL FOR 1No. PIT LATRINE</b>			<b>Kes.</b>	
	<b>TOTAL FOR 3No. PIT LATRINES</b>	<b>No.</b>	<b>3</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 6 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 7:**  
**WATER TROUGHS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 1: Water Troughs for Camels and Cattle</u></b>				
	<b>Excavations</b>				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	<b>Hardcore filling</b>				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	<b>Concrete Work</b>				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	<b>Walling for substructure</b>				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	<b>Walling for superstructure</b>				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	<b>Wall finishes</b>				
	<i>Cement and sand (1:3) render as described in:</i>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (1) No water troughs</b>	No	1		



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 2: Water Troughs for Sheep and Goats</u></b>				
	<b>Excavations</b>				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	<b>Hardcore filling</b>				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	<b>Concrete Work</b>				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	<b>Walling for substructure</b>				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	<b>Walling for superstructure</b>				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (1) No water troughs</b>	No	1		
<b>TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY</b>					

# **BILL No. 8: PIPEWORK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 8: PIPE WORK</b> <b>SECTION 1: RISING MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	32,588		
	<b>Trench Excavation</b> Excavation and backfilling of trench for pipelines; depth not exc. 1.2m.				
8.1.2	Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	32,588		
8.1.3	Extra Over for excavation in rock of all types	Cm	3,128		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.1.4	HDPE pipes OD32mm PN10	m	69		
8.1.5	HDPE pipes OD90mm PN10	m	15,163		
8.1.6	HDPE pipes OD110mm PN10	m	3,281		
8.1.7	HDPE pipes OD110mm PN16	m	14,075		
	<b>Air valves</b> Various dia. flanged single orifice air valves PN10 and PN16. Include all the required pipework and fittings.	No	48		
	<b><u>Wash outs</u></b> Various dia. mm GI washout valves.	No	29		
	<b>Gate Valves</b> DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	1		
	<b>Water Meters</b> Supply and install a DN 75mm dia master meter. Rate to include all jointing materials.	No	1		
	<b><u>Valve Chambers</u></b> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.12	Air valve chambers, as per the detailed drawings	No	48		
8.1.13	Wash out chambers with outfall structure, as per drawings	No	29		
8.1.14	Gate valve and meter chambers, as per the detailed drawings	No	1		
8.1.15	Extra Over for excavation in rock of all types, for chambers	Cm	20.22		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<b><i>Other Pipework Ancillaries</i></b> <u>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</u>				
8.1.16	Pipeline marker posts	No	163		
8.1.17	Air valve marker posts	No	48		
8.1.18	Washout marker posts	No	29		
8.1.19	Gate valve marker posts	No	1		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b><u>Concrete stools and thrust blocks</u></b>				
8.1.20	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	7.9		
	<b><i>Crossings</i></b> <u>Rate to include all necessary materials, and fittings for anchoring pipes across rivers, laghas</u>				
8.1.21	River or lagha crossing, width 3 - 10m, pipe bore not exce. 300mm	No	1		
<b>SECTION 1: RISING MAIN</b>		<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: GRAVITY MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <u>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</u>				
8.2.1	General clearance along pipeline route	Lm	2,899		
	<b>Trench Excavation</b> Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2,899		
8.2.3	Extra Over for excavation in rock of all types	Cm	278		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.2.4	HDPE pipes OD40mm PN10	m	1,611		
8.2.5	HDPE pipes OD50mm, PN10	m	429		
8.2.6	HDPE pipes OD63mm PN10	m	709		
8.2.7	HDPE pipes OD110mm, PN10	m	136		
	<b>Air valves</b>				
8.2.8	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	3		
	<b>Wash outs</b>				
8.2.9	Various dia. GI washout valves.	No	3		
	<b>Valve Chambers</b>				
	<i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.10	Air valve chambers, as per the detailed drawings	No	3		
8.2.11	Wash out chambers with outfall structure, as per drawings	No	3		
8.2.12	Extra Over for excavation in rock of all types, for chambers	Cm	1.56		
	<b>Other Pipework Ancillaries</b> <u>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</u>				
8.2.13	Pipeline marker posts	No	14		
8.2.14	Air valve marker posts	No	3		
8.2.15	Washout marker posts	No	3		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b>Reinstatements</b> Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 2:</b> <b>GRAVITY MAIN</b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DISTRIBUTION NETWORK</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <u>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</u>				
8.3.1	General clearance along pipeline route	Lm	2,192		
	<b>Trench Excavation</b> Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2,192		
8.3.3	Extra Over for excavation in rock of all types	Cm	210		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.3.4	HDPE pipes OD32mm PN10	m	837		
8.3.5	HDPE pipes OD40mm, PN10	m	801		
8.3.6	HDPE pipes OD50mm PN10	m	533		
8.3.7	HDPE pipes OD110mm PN10	m	21		
	<b><u>Other Pipework Ancillaries</u></b> <u>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</u>				
8.3.8	Pipeline marker posts	No	11		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b>Reinstatements</b> Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 3:</b> <b>DISTRIBUTION NETWORK</b>	Carried to Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 8: PIPE WORK</u></b>				
	<b><u>SUMMARY</u></b>				
1	RISING MAIN				
2	GRAVITY MAIN				
3	DISTRIBUTION NETWORK				
	<b>TOTAL</b>				
<b>TOTAL FOR BILL 8 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 9:**  
**ELEVATED STEEL TANK**



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 9: ELEVATED STEEL TANKS</b> <u>Earth works, concrete works and Tank construction to be done in line with EST drawing</u> <b>Excavations and Earthworks</b> <u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	<b>Tank Construction</b> Supply and place reinforced concrete Class C20/20 as foundation for tank tower.				
9.1.5	Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 100m <sup>3</sup> steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No	1		
	<b>Pipes and Specials</b> All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site  Provide, fix and test following : ( All screwed flanges listed separately)				
	<b>Inlet</b>				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	<b>Overflow</b>				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b>BILL No. 9: ELEVATED STEEL TANKS</b>				
	<b>Outlet</b>				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	<b>Wash out</b>				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No.	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	<b>Painting</b>				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	<b>Testing and Sterilizing</b>				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
<b>TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 10:**  
**ELEVATED PLASTIC TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM</b>				
	<b>Storage</b>				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	<b>Construction Steel Tower Platform</b>				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	<b>Piping works</b>				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	<b>Fittings and Appurtenances</b>				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	<b>INSTALLATION OF 1No.TANK AND TOWER FRAME</b>	No.	5		
	<b>INSTALLATION OF 5No.TANK AND TOWER FRAME</b>				
	<b>TOTAL FOR ELEVATED PLASTIC TANKS</b>				
<b>TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 11:**  
**GROUND MASONRY TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 11: GROUND MASONRY TANK</b>				
	<b>SECTION 1: -REHABILITATION OF EXISTING GROUND MASONRY TANK</b>				
	<b>General Items:</b>				
11.1.1	Site clearance and preparation	Sum	1		
	<b>Structural Rehabilitation:</b>				
11.1.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.1.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.1.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.1.5	Repairing cracks using non-shrink grout	Sm	51		
	<b>Pipeworks and Fittings:</b>				
11.1.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.1.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.1.8	Repair and replace internal and external pipe connections	Sum	1		
	<b>Valves and Accessories:</b>				
11.1.9	Supply and install new gate valve of 50mm diameter	No	1		
11.1.10	Supply and install new non-return valve 50mm diameter	No	1		
11.1.11	Replacement of air release valve	No	1		
	<b>Roof Rehabilitation:</b>				
11.1.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.1.13	Application of waterproofing membrane on the roof	Sm	20		
11.1.14	Replacement of tank access cover with lockable steel cover	No	1		
	<b>Test and Comissioning:</b>				
11.1.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.1.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	<b>Rehabilitation of 1 No. Masonry Tank</b>				
	<b>Rehabilitation of 1 No. Masonry Tank</b>		1		
<b>TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 12:**  
**WATER TREATMENT**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 12: WATER TREATMENT</b>				
	<b>SECTION 1: CHLORINATION UNITS</b>				
	<b>Chlorination House</b>				
12.1.1	Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	<b>Chlorination Equipment</b>				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
<b>TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 13:**  
**GENERATOR HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks (Provisional)</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<b><u>Anti - termite treatment</u></b>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<b><u>Damp-proof membrane</u></b>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				-
	<b><u>Reinforcement (Provisional)</u></b>				
	<u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<b><u>Formwork</u></b>				
	<u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar. reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<b><u>Plinth finishes</u></b>				
	<u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<b><u>Paving Slabs</u></b>				
	<u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
<b>SECTION 1: Carried to</b> <b>SUBSTRUCTURES Main Summary</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>					
<b><u>SECTION 2: SUPERSTRUCTURE</u></b>					
<b><u>R.C Frame</u></b>					
<b><u>Concrete</u></b>					
<i>Vibrated reinforced concrete class 20/20: as described in</i>					
13.2.1	Beams	Cm	1.76		
<b><u>Reinforcement</u> (Provisional)</b>					
<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>					
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
<b><u>Formwork</u></b>					
<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>					
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
<b><u>SECTION 2:</u></b>		<b>Carried to</b>			
<b>R.C SUPERSTRUCTURE</b>		<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b><u>SECTION 3: WALLING</u></b>					
<b><u>External Walling</u></b>					
<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>					
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>					
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
<b><u>Ventilation</u></b>					
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
<b><u>SECTION 3:</u></b>		<b>Carried to</b>			
<b>WALLING</b>		<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
13.4.1	Tie beam: 100 x50	m	22		
13.4.2	King Post: 100x50	m	6.35		
13.4.3	Struts: 75x50	m	19.10		
13.4.4	Purlins: 50 x 50	m	46.40		
13.4.5	Wall plate: 150x50mm	m	47.52		
13.4.6	Rafters: 100x50	m	30.60		
	<b><u>Eaves Finishes</u></b>				
13.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	23.82		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
13.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	35.43		
13.4.9	Ridge cap to match	Lm	5.80		
	<b><u>SECTION 4</u></b>				
	<b>ROOFING</b>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 5: EXTERNAL FINISHES</u></b>				
	<b><u>External wall finishes</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<b><u>Ramp finishes</u></b>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply tthree coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<b><u>SECTION 5</u></b>	<b>Carried to</b>			
	<b>EXTERNAL FINISHES</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 6: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<b><u>SECTION 6</u></b>	<b>Carried to</b>			
	<b>INTERNAL FINISHES</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 7: DOORS</u></b>				
	<b><u>Metal Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	<b><u>SECTION 7</u></b> <b>Carried to</b> <b><u>DOORS</u></b> <b>Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>				
	<b><u>Builder's work in connection with Electrical Installations:</u></b>				
13.8.1	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 8</u></b> <b>Carried to</b> <b><u>B.W.I.C WITH SERVICES</u></b> <b>Main Summary</b>				

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
13.9.1	<b><u>BILL No. 13: REHABILITATION OF PUMP HOUSE</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Paving Slabs</u></b>  <i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar including all necessary site preparation, excavations and earthworks around the existing building to achieve required levels and alignment; as described to</i>				
	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
	<b><u>SECTION 1:</u></b>	<b>Carried to</b>			
	<b><u>SUBSTRUCTURES</u></b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.10.1	<b><u>BILL No. 13: REHABILITATION OF PUMP HOUSE</u></b>				
	<b><u>SECTION 2: WINDOWS/GRILLES</u></b>				
	<b><u>Steel Casement Windows/Grilles</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and stays: one coat aluminium grey primer before fixing: all to Engineer's schedule and/or direction; as described to</i>				
	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
13.10.2	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
	General surfaces of metal windows/grilles (measured on both sides)	Sm	8		
	<b><u>SECTION 2</u></b>	<b>Carried To</b>			
	<b><u>WINDOWS/METAL GRILLES</u></b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.11.1	<b>BILL No. 13: REHABILITATION OF PUMP HOUSE</b>				
	<b><u>SECTION 3: ROOFING</u></b>				
	<b><u>Eaves Finishes</u></b>				
	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.00		
	<b><u>Roof covering</u></b>				
13.11.2	<b><u>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u></b>				
	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.00		
13.11.3	Ridge cap to match	Lm	6.00		
<b><u>SECTION 3</u></b> Carried to <b><u>ROOFING</u></b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.12.1	<b>BILL No. 13: REHABILITATION OF PUMP HOUSE</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<b><u>Ramp finishes</u></b>				
	<b><u>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</u></b>				
	Surfaces of ramps, sloping	Sm	3.20		
13.12.2	<b><u>Painting and decorating</u></b>				
	<b><u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u></b>				
13.12.2	Rendered concrete surfaces, externally	Sm	50.00		
<b><u>SECTION 4</u></b> Carried to <b><u>EXTERNAL FINISHES</u></b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: REHABILITATION OF PUMP HOUSE</b> <b><u>SECTION 5: INTERNAL FINISHES</u></b>  <b><u>Wall Finishes</u></b>  <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
13.13.1	Masonry surfaces, internally	Sm	50.00		
<b><u>Floor Finishes</u></b>  <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
13.13.2	25 mm thick screeds on floor to finish level	Sm	24.00		
<b><u>Painting and decoration</u></b>  <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as described on</i>					
13.13.3	Plastered walls surfaces, internally	Sm	50.00		
<b><u>SECTION 5</u></b> Carried to <b>INTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: REHABILITATION OF PUMP HOUSE</b> <b><u>SECTION 6: DOORS</u></b>  <b><u>Metal Door</u></b>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
13.14.1	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
13.14.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
13.14.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
<b><u>SECTION 6</u></b> Carried to <b>DOORS</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.15.1	<b><u>BILL No. 13: REHABILITATION OF PUMP HOUSE</u></b>  <b><u>SECTION 7: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations;</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 7</u></b> <b><u>B.W.I.C WITH SERVICES</u></b>				
	Carried to Main Summary				
SEC	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: REHABILITATION OF PUMP HOUSE</u></b>  <b><u>SUMMARY</u></b>  1 Substructure (Provisional)  2 Windows/Grills  3 Roofing  4 External Finishes  5 Internal Finishes  6 Doors  7 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. PUMP HOUSE  TOTAL FOR 1No. PUMP HOUSE				
			1		

SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW GENERATOR HOUSE				
2	REHABILITATION OF PUMP HOUSE				
	TOTAL				
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

# **ARBAJAHAN WATER SUPPLY SCHEME**

# PROJECT SUMMARY

**ARBAJAHAN WATER SUPPLY SCHEME, WAJIR COUNTY****MAIN SUMMARY**

<b>BILL</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
<b>TOTAL FOR ARBAJAHAN WATER SUPPLY SCHEME</b>		



**BILL No. 2:  
BOREHOLES, PUMPS AND  
POWER SUPPLY**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>  <b>ARBAJAHAN MAIN BH</b>  <b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
<b>SECTION 1:</b> <b>MOBILIZATION AND SETTING UP</b>					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	180		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	180		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	230		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	460		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Provide the Maintenance & Rehabilitation of the existing Borehole Pump to include Pulling out, testing, checking of controller & cable connections, re-installation, test and commissioing	Ls	1		
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Carried to Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
	<b>Supply, install, test and commission of an array of solar with the following specifications:</b>				
2.4.1	550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 20kW on a bright sunny day at midday taking into account the system losses. (11,000W -To add to the existing solar Panels)	No.	20		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
	<b>Supply, installation and furnishing support structures with the following specifications:</b>				
2.4.3	Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 20kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 30 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5: GENERATOR POWER BACK UP</b>	Carried to Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>ARBAJAHAN MAIN BH</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>  <b>ARBAJAHAN BH</b>  <b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
<b>SECTION 1:</b> <b>MOBILIZATION AND SETTING UP</b>					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	180		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	180		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	230		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	460		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 11KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 9.8 m³/hr of water against a total head of 231m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Carried to Main Summary</b>			





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
	<b>Supply, install, test and commission of an array of solar with the following specifications:</b>				
2.4.1	550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 20kW on a bright sunny day at midday taking into account the system losses. (22,000W -To add to the existing solar Panels)	No.	40		
	<b>Supply, installation and furnishing support structures with the following specifications:</b>				
2.4.2	Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 20kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 30 KVA Power Back up Generator (For	No	2		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	Carried to			
	<b>GENERATOR POWER BACK UP</b>	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>ARBAJAHAN BH</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 3:**  
**FENCING AND GATE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				-
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to <i>Pedestrian</i> gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates ( <i>measured on both sides</i> )	Sm	25.44		
	<b>SECTION 1:</b>	Carried to			
	<b>GATES AND GATE ENTRANCE</b>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>				
	<b><u>SUMMARY</u></b>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b> <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b> <i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b> <i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b> <i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b> <i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>				
	<b><u>SUMMARY</u></b>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>				
	<b><u>SUMMARY</u></b>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 4:**  
**WATER KIOSKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<b><u>Anti-termite treatment</u></b>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<b><u>Damp-proof Membrane</u></b>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto: to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u></i>				
4.1.19	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	12.26		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
4.1.20	Vertical sides of column bases	Sm	4.32		
4.1.21	Vertical sides of columns	Sm	3.84		
4.1.22	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.23	Ditto: to edges of ramp	Lm	4.00		
	<b>Carried to Collection</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i><u>Vibrated reinforced concrete class 25/20: as described in</u></i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</u></i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	<b>SECTION 2: SUPERSTRUCTURE</b>	<b>Carried to Main Summary</b>			





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>SECTION 5: INTERNAL WALL FINISHES</b>					
<b>Wall Finishes</b>					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
<b>Floor Finishes</b>					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
<b>Painting and decoration</b>					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>					
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>					
4.5.8	Plastered soffites of slabs, internally	Sm	8		
<b>SECTION 5 : Carried to</b>					
<b>INTERNAL FINISHES Main Summary</b>					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 4: WATER KIOSK TYPE 1</b>					
<b>SECTION 6: DOORS</b>					
<b>Metal Doors</b>					
<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
4.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<b>Painting and decoration</b>					
<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
4.6.3	General surfaces of metal doors (measured on both sides)	Sm	4		
<b>SECTION 6 Carried to</b>					
<b>DOORS Main Summary</b>					





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 1</u></b>				
	<b>SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM</b>				
	<b><u>5,000 litres Elevated Plastic Tank</u></b>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<b><u>Tank Roof</u></b>				
	<i><u>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</u></i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<b>Water ATM</b>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<b><u>SECTION 8</u></b>	<b>Carried to</b>			
	<b><u>PLASTIC WATER TANK</u></b>	<b>Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 10: GULLEY TRAP</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<b><u>Concrete</u></b>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<b><u>Blockwork</u></b>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<b><u>Fittings</u></b>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	<b>SECTION 10: GULLEY TRAP</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 1</u></b>				
	<b><u>SUMMARY</u></b>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	<b>TOTAL FOR 1No. WATER KIOSK</b>			<b>Kes.</b>	
	<b>TOTAL FOR 1 No. WATER KIOSKS</b>	<b>NO.</b>	<b>1</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i><u>Disposal</u></i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<b><u>Anti-termite treatment</u></b>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<b><u>Damp-proof Membrane</u></b>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<b>Carried to Collection</b>				







ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
4.2.1	Beams	Cm	0.49		
	<b><u>Reinforcement</u></b> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	<b>SECTION 2:</b>				
	<b>SUPERSTRUCTURE</b>				
	Carried to Main Summary				-



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i><u>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</u></i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<b><u>Steps and Ramp finishes</u></b>				
	<i><u>Cement and sand (1:3) screeds, backings, beds etc: coloured to approval: finished in smooth steel float</u></i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<b><u>Painting and decorating</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as supplied by "Crown Paints" or approved equivalent: as described on</u></i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	<b>SECTION 4: Carried to</b>				
	<b>EXTERNAL FINISHES Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>SECTION 5: INTERNAL WALL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i><u>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</u></i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<b><u>Floor Finishes</u></b>				
	<i><u>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</u></i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint: as described on</u></i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i><u>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</u></i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	<b><u>SECTION 5 :</u></b>				
	<b>INTERNAL FINISHES</b>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 6: DOORS</u></b>				
	<b><u>Metal Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
	<b><u>Ironmongery</u></b>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
	<b><u>SECTION 6</u></b>	Carried to			
	<b><u>DOORS</u></b>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 2</u></b>  <b><u>SECTION 7: WINDOWS</u></b>  <b><u>Steel Windows</u></b>  <b><u>The following to Water Kiosk:-</u></b>  <u>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</u>  4.7.1 Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details  <b><u>Painting &amp; Decoration</u></b>  <u>Prepare and apply two finishing coats of super gloss finished paint to:</u>  4.7.2 General surfaces of metal windows (measured on both sides)	No	1		
		Sm	3		
	<b><u>SECTION 7</u></b> <b><u>WINDOWS</u></b>	Carried to Main Summary			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 2</u></b>				
	<b><u>SECTION 9: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<b><u>Eaves Finishes</u></b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<b><u>Roof covering</u></b>				
	<b><u>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</u></b>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier: fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.5	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	<b><u>SECTION 9</u></b>				
	<b><u>ROOFING</u></b>				
	Carried to Main Summary				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 10: SOAK AWAY PIT</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<b><u>Hardcore or other approved filling, as described</u></b>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<b><u>Plastic Sheet Lining</u></b>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<b><u>Drain Pipe</u></b>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<b><u>SECTION 10</u></b>				
	<b>SOAK AWAY PIT</b>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 11: GULLEY TRAP</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<b><u>Concrete</u></b>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<b><u>Blockwork</u></b>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<b><u>Fittings</u></b>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No	1		
	<b><u>SECTION 11</u></b>				
	<b>GULLEY TRAP</b>				
	Carried to Main Summary				

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b>SUMMARY</b>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plumbing and Water Kiosk ATM				
4.9	Roofing				
4.10	Soak Away Pit				
4.11	Gulley Trap				
	TOTAL FOR 1No. WATER KIOSK	No.	2	Kes.	
	TOTAL FOR 2 No. WATER KIOSKS			Kes.	
<b>TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 5:**  
**OPERATOR'S BUILDING AND**  
**GUARD HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i><u>Disposal</u></i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i><u>Hardcore or other approved filling, as described</u></i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<b><u>Anti - termite treatment</u></b>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<b><u>Damp-proof membrane</u></b>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u></i>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<b><u>Foundation walling</u></b>				
	<i><u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm²; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u></i>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Plinth finishes</u></b>				
	<i><u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u></i>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<i><u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u></i>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<b><u>Paving slabs</u></b>				
	<i><u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u></i>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page 2				
	From Page above				
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>SUBSTRUCTURES</b>	<b>Main Summary</b>			







ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
5.4.1	Tie beam: 75 x50	m	18.80		
5.4.2	King Post: 75x50	m	4.40		
5.4.3	Struts: 75x50	m	10.40		
5.4.4	Purlins: 50 x 50	m	97.99		
5.4.5	Wall plate: 150x50mm	m	16		
5.4.6	Rafters: 75x50	m	25		
	<b><u>Eaves Finishes</u></b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
5.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.33		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
5.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.99		
5.4.9	Ridge cap to match	Lm	8.17		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.4.10	Metal surfaces: 200 - 300mm girth	Lm	4.20		
	<b>SECTION 4</b>	<b>Carried to</b>			
	<b>ROOFING</b>	<b>Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b> <b><u>SECTION 6: INTERNAL FINISHES</u></b>  <b><u>Wall Finishes</u></b>  <u>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</u>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<b><u>Floor Finishes</u></b>  <u>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</u>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<b><u>Painting and decoration</u></b>  <u>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as "Crown Paints" or approved equivalent: as described on</u>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
<b>SECTION 6</b> <b>INTERNAL FINISHES</b>					Carried to Main Summary



ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 8: WINDOWS</u></b>				
	<b><u>Window Sill</u></b>				
	<i><u>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</u></i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<b><u>Steel Casement Windows</u></b>				
	<i><u>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</u></i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<b><u>Painting &amp; Decoration</u></b>				
	<i><u>Prepare and apply two finishing coats of super gloss finished paint to:</u></i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<b><u>SECTION 8</u></b>				
	<b><u>WINDOWS</u></b>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
5.9.1	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>					
	<b><u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>					
	<b><u>Builder's work in connection with Electrical Installations;</u></b>					
	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1			
5.9.2	<b><u>Builder's work in connection with plumbing and drainage installations;</u></b>					
	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1			
<b><u>SECTION NO. 9</u></b>						
<b><u>B.W.I.C WITH SERVICES</u></b>						
<b>Carried to Main Summary</b>						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
	<b><u>BILL 5: OPERATOR'S BUILDING</u></b>					
	<b><u>SUMMARY</u></b>					
	5.1 Substructure (Provisional)					
	5.2 R.C. Superstructure					
	5.3 Walling					
	5.4 Roofing					
	5.5 External Finishes					
	5.6 Internal Finishes					
	5.7 Doors					
	5.8 Windows					
	5.9 Builders' Work in Connection with Services (Provisional)					
	<b>TOTAL FOR 1No. OPERATOR'S BUILDING</b>					
	<b>TOTAL FOR 1 No. OPERATOR'S BUILDING</b>					
<b>TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY</b>						

**BILL No. 6:**  
**PIT LATRINE**



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>  <b><u>Excavations and Earthworks</u></b>  <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<i><u>Disposal</u></i>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<i><u>Hardcore or other approved filling, as described</u></i>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<b><u>Anti-termite treatment</u></b>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<b><u>Damp-proof Membrane</u></b>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Concrete works</u></b>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
6.1.17	150 mm thick foundation walling	Sm	15.38		
6.1.18	150 mm thick walling for the pit	Sm	8.40		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
6.1.19	Concrete surfaces externally; finished smooth	Sm	15.38		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as described on</i>				
6.1.20	Rendered surfaces, externally	Sm	15.38		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page Above				
	<b><u>SECTION 1</u></b>				
	<b>SUBSTRUCTURES</b>				
	<b>Carried to Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 2: SUPERSTRUCTURE</u></b> <b><u>R.C Frame</u></b> <b><u>Concrete</u></b> <i>Vibrated reinforced concrete class 20/20: as described in</i>					
6.2.1	Beams	Cm	0.51		
<b><u>Reinforcement</u> (Provisional)</b> <i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>					
6.2.2	Assorted bars (D8 - D16)	Kg	31		
<b><u>Formwork</u></b> <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>					
6.2.3	Vertical sides and soffites of beams	Sm	5.13		
<b><u>SECTION 2</u></b> Carried to <b><u>SUPERSTRUCTURE</u></b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 3: WALLING</u></b> <b><u>External Walling</u></b> <i>Masonry Blocks: as described to</i>					
6.3.1	150 mm thick walling	Sm	12.63		
<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>					
6.3.2	150 mm wide; levelled and bedded under wall	Lm	10.25		
<b><u>SECTION 3</u></b> Carried to <b><u>WALLING</u></b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b>					
<b><u>SECTION 4: EXTERNAL FINISHES</u></b>					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar; wood floated: on exposed masonry or concrete surfaces: to</i>					
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
<b><u>Painting and decorating</u></b>					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>					
6.4.2	Rendered concrete surfaces, externally	Sm	3		
<b><u>SECTION 4</u></b> Carried to <b>EXTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b><u>SECTION 5: INTERNAL FINISHES</u></b>					
<b><u>Wall Finishes</u></b>					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
6.5.1	Concrete surfaces, internally	Sm	5		
<b><u>Floor Finishes</u></b>					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
<b><u>Painting and decoration</u></b>					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint as described on</i>					
6.5.3	Plastered concrete surfaces, internally	Sm	5		
<b><u>SECTION NO. 5</u></b> Carried to <b>INTERNAL FINISHES</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 6: DOORS</u></b>  <b><u>Wooden Doors</u></b>  <i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i>					
6.6.1	Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details.	No	2		
<b><u>Ironmongery</u></b>  <i>Supply and fix the following ironmongery complete with matching screws: as described to</i>					
6.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	2		
<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
6.6.3	General surfaces of wooden doors (measured on both sides)	Sm	6		
<b><u>SECTION 6 DOORS</u></b> Carried to Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 7: WINDOWS</u></b>  <b><u>Steel Windows</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule; as described to</i>					
6.7.1	Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details.	No	2		
<b><u>Painting &amp; Decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
6.7.2	General surfaces of metal windows (measured on both sides)	Sm	1		
<b><u>SECTION 7 WINDOWS</u></b> Carried to Main Summary					



ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 6: PIT LATRINES</u></b>				
<b>SEC</b>	<b><u>SUMMARY</u></b>				
6.1	Substructure (Provisional)				
6.2	R.C. Superstructure				
6.3	Walling				
6.4	External Wall Finishes				
6.5	Internal Finishes				
6.6	Doors				
6.7	Windows				
6.8	Roofing				
	<b>TOTAL FOR 1No. PIT LATRINE</b>			<b>Kes.</b>	
	<b>TOTAL FOR 6No. PIT LATRINES</b>	<b>No.</b>	<b>6</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 6 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 7:**  
**WATER TROUGHS**



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 1: Water Troughs for Camels and Cattle</u></b>				
	<b>Excavations</b>				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	<b>Hardcore filling</b>				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	<b>Concrete Work</b>				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	<b>Walling for substructure</b>				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	<b>Walling for superstructure</b>				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (7) No water troughs</b>	No	7		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 2: Water Troughs for Sheep and Goats</u></b>				
	<b>Excavations</b>				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	<b>Hardcore filling</b>				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	<b>Concrete Work</b>				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	<b>Walling for substructure</b>				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	<b>Walling for superstructure</b>				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (3) No water troughs</b>	No	3		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: -REHABILITATION OF EXISTING WATER TROUGHS</b>				
	<b>General Items:</b>				
7.3.1	Site clearance and preparation, including removal of debris	Sm	50		
	<b>Structural Rehabilitation:</b>				
7.3.2	Hacking loose concrete/plaster from internal and external surfaces	Sm	44		
7.3.3	Applying new cement-sand plaster (1:3 mix) on internal and external surfaces	Sm	44		
7.3.4	Application of waterproofing treatment using approved sealants	Sm	28		
	<b>Pipeworks and Water Supply:</b>				
7.3.5	Replace outlet pipe to prevent water stagnation	m	10		
7.3.6	Installation of float valve to control water level	No.	1		
	<b>Finishing and Protection:</b>				
7.3.7	Reinforcing edges with concrete or stone pitching for durability	Sm	24		
	<b>Testing and Commissioning:</b>				
7.3.8	Leak testing and assessment after rehabilitation	Sum	1		
7.3.9	Cleaning, disinfection, and commissioning of the rehabilitated trough	Sum	1		
	<b>Subtotal for one (1 No) Water Trough</b>				
	<b>Total for (3) No water troughs</b>	No	3		
<b>TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY</b>					

# **BILL No. 8: PIPEWORK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 8: PIPE WORK</b> <b>SECTION 1: RISING MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <u>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</u>				
8.1.1	General clearance along pipeline route	Lm	2,641		
8.1.2	Removal of trees of girth 600 to 900mm	No.	3		
	<b>Trench Excavation</b>				
8.1.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	2,641		
8.1.4	Extra Over for excavation in rock of all types	Cm	254		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.1.5	HDPE pipes OD25mm PN10	m	20		
8.1.6	HDPE pipes OD32mm PN10	m	26		
8.1.7	HDPE pipes OD50mm PN10	m	179		
8.1.8	HDPE pipes OD63mm PN10	m	1,533		
8.1.9	HDPE pipes OD75mm PN10	m	34		
8.1.10	HDPE pipes OD90mm PN10	m	849		
	<b>Air valves</b>				-
8.1.11	Various dia. flanged single orifice air valves PN10. Include all the required pipework and fittings.	No.	1		
	<b><u>Wash outs</u></b>				
8.1.12	Various dia. mm GI washout valves.	No.	2		
	<b>Gate Valves</b>				
8.1.13	DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No.	2		
	<b>Water Meters</b>				
8.1.14	Supply and install a DN 90mm dia master meter. Rate to include all jointing materials.	No.	2		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b><u>Valve Chambers</u></b> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.15	Air valve and Wash out chambers with outfall structure, as per drawings	No	3		
8.1.16	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.17	Extra Over for excavation in rock of all types, for chambers	Cm	1.30		
	<b><u>Other Pipework Ancillaries</u></b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.18	Pipeline marker posts	No	13		
8.1.19	Air valve and washout marker posts	No	3		
8.1.20	Gate valve marker posts	No	2		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b>				
	<b><u>Concrete stools and thrust blocks</u></b>				
8.1.21	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.6		
	<b><u>Reinstatements</u></b>				
8.1.22	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 1:</b>	Carried to			
	<b>RISING MAIN</b>	Main Summary			

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DISTRIBUTION NETWORK</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <u>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</u>				
8.3.1	General clearance along pipeline route	Lm	16,380		
	<b>Trench Excavation</b> Excavation and backfilling of trench for pipelines; depth not exc. 1.2m.				
8.3.2	Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	16,380		
8.3.3	Extra Over for excavation in rock of all types	Cm	1,572		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.3.4	HDPE pipes OD25mm PN10	m	5,589		
8.3.5	HDPE pipes OD32mm, PN10	m	2,519		
8.3.6	HDPE pipes OD40mm PN10	m	1,570		
8.3.7	HDPE pipes OD50mm PN10	m	2,116		
8.3.8	HDPE pipes OD63mm PN10	m	2,450		
8.3.9	HDPE pipes OD75mm PN10	m	834		
8.3.10	HDPE pipes OD90mm PN10	m	1,302		
	<b>Water Meters</b>				
8.3.11	Supply and install consumer water meters for the existing individual connections	No.	58		
8.3.12	Supply and install smart consumer water meters for the existing individual connections	No.	50		
	<b>Other Pipework Ancillaries</b> <u>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</u>				
8.3.13	Pipeline marker posts	No.	82		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b><u>Concrete stools and thrust blocks</u></b>				
8.3.14	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	5.8		
	<b>Reinstatements</b>				
8.3.15	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 3:</b> <b>DISTRIBUTION NETWORK</b>	Carried to Main Summary			



**BILL No. 9:**  
**ELEVATED STEEL TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 9: ELEVATED STEEL TANKS</b> <i>Earth works, concrete works and Tank construction to be done in line with EST drawing</i> <b>Excavations and Earthworks</b> <i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	<b>Tank Construction</b>				
9.1.5	Supply and place reinforced concrete Class C20/20 as foundation for tank tower. Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 150m <sup>3</sup> steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	<b>Pipes and Specials</b> <i>All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site</i>  Provide, fix and test following : ( All screwed flanges listed separately)				
	<b>Inlet</b>				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	<b>Overflow</b>				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b>BILL No. 9: ELEVATED STEEL TANKS</b>				
	<b>Outlet</b>				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	<b>Wash out</b>				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	<b>Painting</b>				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	<b>Testing and Sterilizing</b>				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
<b>SECTION 1:</b> <b>CONSTRUCUTION OF NEW ELEVATED STEEL TANK</b>					<b>Carried to</b> <b>Main Summary</b>

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ITEM	DESCRIPTION				AMOUNT (KSHS)
	<u>Earth works, concrete works and Tank construction to be done in line with EST drawing</u>				
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW ELEVATED STEEL TANK				
2	REHABILITATION OF EXISTING STEEL TANK				
	TOTAL				
TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY					

**BILL No. 10:**  
**ELEVATED PLASTIC TANK**



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM</b>				
	<b>Storage</b>				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	<b>Construction Steel Tower Platform</b>				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	<b>Piping works</b>				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	<b>Fittings and Appurtenances</b>				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	<b>INSTALLATION OF 1No.TANK AND TOWER FRAME</b>				
	<b>INSTALLATION OF 10No.TANK AND TOWER FRAME</b>	No.	10		
	<b>TOTAL FOR ELEVATED PLASTIC TANKS</b>				
<b>TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 11:**  
**GROUND MASONRY TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL No. 11: GROUND MASONRY TANK</b>					
<b>SECTION 1: CONSTRUCTION OF NEW 50M3 MASONRY TANK</b>					
<b>Earthworks (All Provisional)</b>					
11.1.1	Demolition and disposal of the 50m3 existing masonry tank at Main BH to allow for the construction of a new one	Sum	1		
11.1.2	Strip top soil 150mm from ground level over the area of tank and remove all the soil to a temporary soil heap	Sm	23.76		
11.1.3	Trim ,spread and level the ground around the tank to form suitable drainage of surface water	Item	L/s		
11.1.4	Excavate from the stripped level to a depth not exceeding 1.5m deep	Cm	15.55		
11.1.5	Extra over for excavation in rock of all classes	Cm	4.67		
11.1.6	Return, fill and ram selected excavated material around foundations.	Cm	8.29		
<b>Hardcore Filling as Specifications</b>					
11.1.7	Provide, place and compact hardcore using, 300mm thick to make up levels.	Sm	23.76		
11.1.8	50 mm thick quarry dust or approved murrum blinding layer to surface of hardcore to make up levels under floor slab.	Sm	23.758		
11.1.9	Provide and place 1000 gauge polythene sheet to the surface of the blinded hardcore	Sm	23.76		
<b>Walling</b>					
11.1.10	200 mm thick foundation walling	Sm	10.3673		
<b>Concrete Works.</b> <i>Provide materials, handle, mix and place.</i>					
11.1.11	50 mm thick blinding under strip foundations	Sm	10.3673		
11.1.12	Vibrated Class 20/20 concrete mix as described to strip footings	Cm	3.11018		
11.1.13	Vibrated Class 20/20 concrete mix as described to 150mm thick floor slab.	Cm	3.56		
11.1.14	Vibrated Class 25/20 concrete mix as described to 150mm thick roof slab	Cm	3.56		
11.1.15	Ditto to column	Cm	0.2925		
11.1.16	Vibrated Class 20/20 concrete mix as described to outlet /inlet pipes anchorage including inlet and outlet valve chambers and column.	Cm	0.5		
<b>Reinforcement (Provisional)</b>					
<u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>					
11.1.17	Assorted bars (D6 - D12)	Kg	1032.52		
<b>Shuttering/formwork</b>					
11.1.18	Provide sawn timber form work to soffit of roof slab including the inlet/outlet valve chambers and columns	Sm	23.76		
11.1.19	Provide cut and fix ply wood to the edges of 150mm thick floor slab	Sm	2.59		
<b>Sub Total carried forward to next page</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
11.1.20	Ditto to edges of roof slab	Sm	2.59		
11.1.21	Ditto to sides of column	Sm	3.9		
11.1.22	Sawn timber formwork 150mm wide to the edges of manhole opening including the outlet and inlet valve chambers.	m	10		
	<b>Masonry Walling</b> <i>Provide all materials, handle, mix mortar as per specification and construct the following.</i>				
11.1.23	9"x9"x1' quarry stone walling in 1:1:3 cement: water proof cement: sand mortar ration between the joints.	Sm	56.16		
11.1.24	Provide and install bondex seal in the joints as per the instruction	Item	L/s		
11.1.25	Install double layer of bitumen coat between surface of masonry wall and floor/roof slab	Item	L/s		
11.1.26	Construct and complete valve chamber in concrete masonry block measuring 1500mmx1500mmx1000mm deep complete with steel plate cover including locking device.	No	2		
	<b>Finishes</b>				
11.1.27	Provide all materials, handle, mix and apply 25mm thick 1:3 cement: sand mortar screed including water proof cement to floor slab	Sm	19.63		
11.1.28	Provide all materials, handle, mix and apply 15mm thick 1:3 cement: sand mortar screed including water proof cement to the interior surface of the concrete block walls	Sm	51.05		
11.1.29	Ditto to the exterior surface of block walls including water proof cement.	Sm	56.16		
11.1.30	20mm thick 1:3 cement: sand mortar screed to the exterior surface of the roof slab	Sm	23.76		
	<b>Metal Work and Miscellaneous Items</b>				
11.1.31	Supply and install internal and external tank ladder fabricated on stainless steel tubing and include provision and fixing of 25mm G.S Pipes extension of ladder top as directed by the Engineer.	No	2		
11.1.32	Supply and install tank manhole cover size 600mmx 450mm fabricated on 3mm thick steel plate including locking device and good quality padlock.	No	1		
11.1.33	Supply and install 100mmΦ GI bend to air vent as per the drawing	No	4		
11.1.34	100mmΦ G.S pipe threaded on one side and side lugged and fixed to the top concrete cover slab.	m	3		
	<b>Painting</b>				
11.1.35	Apply undercoat to external walling	Sm	56.16		
11.1.36	Ditto cream paint	Sm	56.16		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
11.1.37	Ditto Bermuda blue paint 600mm from bottom of tank and 600mm from top of tank	Sm	20.73		
11.1.38	Provide and tie mosquito gauze to the G.S bend opening to air vents above the tank roof cover slap.	No	3		
	<b>Tank-Associated Pipework</b> <i>Provide, handle cut and fix the following pipe fittings as per the drawing.</i>				
	<b>Inlet</b>				
11.1.39	50mmΦ G.I pipe	m	5		
11.1.40	50mmΦ G.I bend	No	3		
11.1.41	50mmΦ G.I Socket	No	1		
11.1.42	50mmΦ G.I nipple	No	1		
11.1.43	50mmΦ G.I elbow	No	3		
11.1.44	Float valve	No.	1		
	<b>Outlet</b>				
11.1.45	50mmΦ G.I pipe	m	5		
11.1.46	50mm ΦG.I tee	No	2		
11.1.47	50mmΦ bend	No	3		
11.1.48	3mm thick rubber gasket	No	1		
11.1.49	50mm x 40mmΦ G.I reducing bush	No	3		
11.1.50	50mmΦ gate valve	No	1		
	<b>Overflow Pipe</b>				
11.1.51	50mmΦ G.I pipe	m	2		
11.1.52	50mmΦ G.I socket	No	1		
11.1.53	50mmΦ G.I Plain flange	No	1		
11.1.54	50mmΦ G.I bend	No	2		
	<b>Scour Pipe</b>				
11.1.55	50mmΦ G.I pipe	m	3		
11.1.56	50mmΦ plain G.I flange	No	1		
11.1.57	50mm ΦG.I nipple	No	2		
11.1.58	50mmΦG.I bend	No	1		
11.1.59	50mmΦ G.I socket	No	2		
11.1.60	50mmΦG.I union	No	1		
11.1.61	50mmΦ gate valve	No	1		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	Pipes and Fittings.				
11.1.62	Supply and lay 2" HDPE pipes	m	500		
11.1.63	Supply and lay 2" G.I pipes class B	m	24		
<b>SECTION 1:</b> <b>CONSTRUCTION OF NEW GROUND MASONRY TANK</b>					Carried to Main Summary



ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 11: GROUND MASONRY TANK</u></b>				
	<b><u>SUMMARY</u></b>				
1	CONSTRUCTION OF NEW 50M3 GROUND MASONRY TANK				
2	REHABILITATION OF EXISTING MASONRY TANK				
	<b>TOTAL</b>				
<b>TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 12:**  
**WATER TREATMENT**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 12: WATER TREATMENT</b>				
	<b>SECTION 1: CHLORINATION UNITS</b>				
	<b>Chlorination House</b>				
12.1.1	Provide all materials, fabricate and install a 2mx2m steel trsucture for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	<b>Chlorination Equipment</b>				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	<b>Total for Treatment for 1No Borehole</b>				
	<b>Total for Treatment for 3No Borehole</b>		3		
<b>TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 13:**  
**GENERATOR HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks (Provisional)</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<b><u>Anti - termite treatment</u></b>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<b><u>Damp-proof membrane</u></b>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar. reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<b><u>Paving Slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>SUBSTRUCTURES</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>					
<b><u>SECTION 2: SUPERSTRUCTURE</u></b>					
<b><u>R.C Frame</u></b>					
<b><u>Concrete</u></b>					
<i>Vibrated reinforced concrete class 20/20: as described in</i>					
13.2.1	Beams	Cm	1.76		
<b><u>Reinforcement</u> (Provisional)</b>					
<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>					
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
<b><u>Formwork</u></b>					
<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>					
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
<b><u>SECTION 2:</u></b>		<b>Carried to</b>			
<b>R.C SUPERSTRUCTURE</b>		<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b><u>SECTION 3: WALLING</u></b>					
<b><u>External Walling</u></b>					
<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>					
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>					
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
<b><u>Ventilation</u></b>					
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
<b><u>SECTION 3:</u></b>		<b>Carried to</b>			
<b>WALLING</b>		<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
13.4.1	Tie beam: 100 x50	m	22		
13.4.2	King Post: 100x50	m	6.35		
13.4.3	Struts: 75x50	m	19.10		
13.4.4	Purlins: 50 x 50	m	46.40		
13.4.5	Wall plate: 150x50mm	m	47.52		
13.4.6	Rafters: 100x50	m	30.60		
	<b><u>Eaves Finishes</u></b>				
13.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	23.82		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
13.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	35.43		
13.4.9	Ridge cap to match	Lm	5.80		
	<b><u>SECTION 4</u></b>	<b>Carried to</b>			
	<b>ROOFING</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 5: EXTERNAL FINISHES</u></b>				
	<b><u>External wall finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i><u>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</u></i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<b><u>Ramp finishes</u></b>				
	<i><u>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</u></i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<b><u>Painting and decorating</u></b>				
	<i><u>Prepare surfaces, skim and apply tthree coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u></i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
<b>SECTION 5</b>					
<b>EXTERNAL FINISHES</b>					
<b>Carried to Main Summary</b>					



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 6: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/line/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<b><u>SECTION 6</u></b>	<b>Carried to</b>			
	<b>INTERNAL FINISHES</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 7: DOORS</u></b>				
	<b><u>Metal Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together: one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	<b><u>SECTION 7</u></b>	<b>Carried to</b>			
	<b>DOORS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.8.1	<b><u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations:</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 8</u></b> <b><u>B.W.I.C WITH SERVICES</u></b>				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>  <b><u>SUMMARY</u></b>  1 Substructure (Provisional)  2 R.C. Superstructure  3 Walling  4 Roofing  5 External Finishes  6 Internal Finishes  7 Doors  8 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE  TOTAL FOR 2No. GENERATOR HOUSE		2		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
13.9.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b>				
	<b>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</b>				
	<b><u>Paving Slabs</u></b>  <i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar including all necessary site preparation, excavations and earthworks around the existing building to achieve required levels and alignment; as described to</i>				
	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
<b>SECTION 1: SUBSTRUCTURES</b>		Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.10.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b>				
	<b>SECTION 2: WINDOWS/GRILLES</b>				
	<b><u>Steel Casement Windows/Grilles</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges; including all necessary cutting, welding and grinding; ironmongery hinges, fasteners and stays; one coat aluminium grey primer before fixing; all to Engineer's schedule and/or direction; as described to</i>				
	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
13.10.2	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
	<b><u>Painting &amp; Decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
	General surfaces of metal windows/grilles (measured on both sides)	Sm	8		
	<b>SECTION 2 WINDOWS/METAL GRILLES</b>		Carried To Main Summary		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.11.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b>				
	<b><u>SECTION 3: ROOFING</u></b>				
	<b><u>Eaves Finishes</u></b>				
	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.00		
	<b><u>Roof covering</u></b>				
13.11.2	<b><u>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u></b>				
	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.00		
13.11.3	Ridge cap to match	Lm	6.00		
<b>SECTION 3</b> Carried to <b>ROOFING</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.12.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<b><u>Ramp finishes</u></b>				
	<b><u>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</u></b>				
	Surfaces of ramps, sloping	Sm	3.20		
13.12.2	<b><u>Painting and decorating</u></b>				
	<b><u>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</u></b>				
13.12.2	Rendered concrete surfaces, externally	Sm	50.00		
<b>SECTION 4</b> Carried to <b>EXTERNAL FINISHES</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.13.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b> <b><u>SECTION 5: INTERNAL FINISHES</u></b>  <b><u>Wall Finishes</u></b>  <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
	Masonry surfaces, internally	Sm	50.00		
	<b><u>Floor Finishes</u></b>  <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
	25 mm thick screeds on floor to finish level	Sm	24.00		
	<b><u>Painting and decoration</u></b>  <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint as described on</i>				
13.13.3	Plastered walls surfaces, internally	Sm	50.00		
<b><u>SECTION 5</u></b> Carried to <b>INTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.14.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b> <b><u>SECTION 6: DOORS</u></b>  <b><u>Metal Door</u></b>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
	General surfaces of metal doors (measured on both sides)	Sm	6.72		
<b><u>SECTION 6</u></b> Carried to <b>DOORS</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.15.1	<b><u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u></b>  <b><u>SECTION 7: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations;</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 7</u></b> <b><u>B.W.I.C WITH SERVICES</u></b>				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u></b>  <b><u>SUMMARY</u></b>  1 Substructure (Provisional)  2 Windows/Grills  3 Roofing  4 External Finishes  5 Internal Finishes  6 Doors  7 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE  TOTAL FOR 1No. GENERATOR HOUSE		1		

SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW GENERATOR HOUSE				
2	REHABILITATION OF GENERATOR HOUSE				
	TOTAL				
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

# **GRIFTU WATER SUPPLY SCHEME**



# PROJECT SUMMARY

# GRIFTU WATER SUPPLY SCHEME, WAJIR COUNTY

## MAIN SUMMARY

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR GRIFTU WATER SUPPLY SCHEME		

**BILL No. 2:**  
**BOREHOLES, PUMPS AND**  
**POWER SUPPLY**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>GRIFTU MAIN BH</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b>	<b>Carried to</b>			<b>300,000.00</b>
	<b>MOBILIZATION AND SETTING UP</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	180		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN63mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 63mm diameter rising main GMS water pipe, Class C.	Lm	180		
2.2.7	63mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	63mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 63 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	230		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	460		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 13KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 10.5 m³/hr of water against a total head of 257m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 25kW on a bright sunny day at midday taking into account the system losses. (16,500W -To add to the existing solar Panels)	No.	30		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 25kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz IP66 20kW 31A complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>				
	<b>SOLAR POWER</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 35 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	Carried to			
	<b>GENERATOR POWER BACK UP</b>	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>GRIFTU MAIN BH</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>GRIFTU LOKOLE BH</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>MOBILIZATION AND SETTING UP</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe), Class E	Lm	60		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	60		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	160		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	220		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 5.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 7 m³/hr of water against a total head of 141m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses.(11,000W -To add to the existing solar Panels)	No	20		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Allow for Complete Maintenance of Generator Engine, Rewiring or replacement of the Alternator, Checking and repair of cooling system, fuel systems, filters, mountings, exhaust and general repairs of the existing Generators.	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	<b>Carried to</b>			
	<b>GENERATOR POWER BACK UP</b>	<b>Main Summary</b>			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>GRIFTU LOKOLE BH</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>GRIFTU SOLAR WELL</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b> <b>MOBILIZATION AND SETTING UP</b>	<b>Carried to Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	60		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	60		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	160		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	220		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 5.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 7 m³/hr of water against a total head of 139m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc,. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2:</b> <b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (16,500W -To add to the existing solar Panels)	No.	30		
2.4.2	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Peroid Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 20 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	Carried to			
	<b>GENERATOR POWER BACK UP</b>	Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>GRIFTU SOLAR WELL</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>GRIFTU FOREST WELL</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>MOBILIZATION AND SETTING UP</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	60		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	60		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	160		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	220		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 5.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 7 m³/hr of water against a total head of 139m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (16,500W - To add to the existing solar Panels)	No.	30		
2.4.2	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.3	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.4	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.5	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.6	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.7	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.8	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.9	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.10	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.11	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 20 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b> <b>GENERATOR POWER BACK UP</b>	<b>Carried to Main Summary</b>			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>GRIFTU FOREST WELL</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 3:**  
**FENCING AND GATE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				-
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<u>Prepare and apply two finishing coats of super gloss enamel paint to:</u>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>				
	<b><u>SUMMARY</u></b>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>				
	<b><u>SUMMARY</u></b>				
1	GATES AND GATE ENTRANCE				
2	CHAIN-LINK FENCING				
3	STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				-
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to <i>Pedestrian</i> gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates ( <i>measured on both sides</i> )	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

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**BILL No. 4:**  
**WATER KIOSKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	14.56		
4.1.2	Excavate for strip footing pits not exceeding 1.5 metres deep, starting from reduced levels	Cm	12.00		
4.1.3	Extra over for excavation in rock of all classes	Cm	3.60		
	<i><u>Disposal</u></i>				
4.1.4	Return, fill and ram selected excavated material around foundations.	Cm	6.99		
4.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	5.01		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.37		
4.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	14.56		
	<b><u>Anti-termite treatment</u></b>				
4.1.8	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	14.56		
	<b><u>Damp-proof Membrane</u></b>				
4.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	14.56		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.10	50 mm thick blinding unde Strip footings	Sm	8.00		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.11	100 mm Thick floor slab	Cm	1.31		
4.1.12	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.13	Strip footings	Cm	1.60		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.14	Assorted bars (D8 - D16)	Kg	96.00		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
4.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	13.77		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork: as described to:-</i>				
4.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.17	Ditto: to edges of ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.1.18	200 mm thick foundation walling	Sm	12.36		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
4.1.19	Concrete surfaces externally; finished smooth	Sm	8.40		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.1.20	Rendered surfaces, externally	Sm	8.40		
	<b><u>Paving slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs as supplied by Kenya Builders or equal and approved; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
4.1.21	Paving slabs, around building (one row); including all excavations and earthworks	Sm	8.80		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page above				
	<b>SECTION 1:</b>				
	<b>SUBSTRUCTURES</b>				
	<b>Carried to Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
4.2.1	Beams	Cm	0.49		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.2	Assorted bars (D8 - D16)	Kg	29		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.3	Vertical sides and soffits of beams	Sm	5.05		
4.2.4	Vertical sides of columns	Sm	6.72		
4.2.5	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.6	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.29		
	<b>SECTION 2: Carried to SUPERSTRUCTURE Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<b><u>Coping</u></b>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	<b>SECTION 3: Carried to WALLING Main Summary</b>				





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 6: DOORS</u></b>				
	<b><u>Metal Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
	<b><u>Ironmongery</u></b>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
4.6.2	Steel door lock complete with handles	No	1		
4.6.3	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.4	General surfaces of metal doors (measured on both sides)	Sm	4		
	<b><u>SECTION 6</u></b>	<b>Carried to</b>			
	<b><u>DOORS</u></b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 7: WINDOWS</u></b>				
	<b><u>Steel Windows</u></b>				
	<b><u>The following to Water Kiosk:-</u></b>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1200 x 1000 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3		
	<b><u>SECTION 7</u></b>	<b>Carried to</b>			
	<b><u>WINDOWS</u></b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b>SECTION 8: PLUMBING AND WATER KIOSK ATM</b>				
4.8.1	Supply, install and commission a 32mm diameter water meter.	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<b>Water ATM</b>				
4.8.4	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.5	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<b>SECTION 8 PLUMBING</b>	<b>Carried to Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b>SECTION 9: ROOFING</b>				
	<b>Roof Structure (Provisional)</b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
4.9.1	Rafters: 150 x50	m	16.00		
4.9.2	Purlins: 50 x 50	m	13.50		
4.9.3	Wall plate: 150 x 50	m	5.40		
	<b>Eaves Finishes</b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
4.9.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	11.80		
	<b>Roof covering</b>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</i>				
4.9.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	8.64		
	<i>Heavy duty roof insulation complete with polythylene foam core that provides a radiant barrier, reflective insulation and moisture barrier; fixed in accordance to manufacturer's printed instructions: as described to</i>				
4.9.6	10 mm thick double-sided reflective foil insulation; underlay	Sm	8.64		
	<b>SECTION 9 ROOFING</b>	<b>Carried to Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 10: SOAK AWAY PIT</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.10.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.10.2	Extra over for excavation in rock material	Cm	1.43		
4.10.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.10.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<b><u>Hardcore or other approved filling, as described</u></b>				
4.10.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<b><u>Plastic Sheet Lining</u></b>				
4.10.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<b><u>Drain Pipe</u></b>				
4.10.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<b><u>SECTION 10</u></b>				
	<b>SOAK AWAY PIT</b>				
	<b>Carried to Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 2</b>				
	<b><u>SECTION 11: GULLEY TRAP</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
4.11.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.11.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<b><u>Concrete</u></b>				
4.11.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.11.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<b><u>Blockwork</u></b>				
4.11.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.11.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<b><u>Fittings</u></b>				
4.11.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No	1		
	<b><u>SECTION 9</u></b>				
	<b>ROOFING</b>				
	<b>Carried to Main Summary</b>				



**BILL No. 5:**  
**OPERATOR'S BUILDING AND**  
**GUARD HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 5: CONSTRUCTION OF NEW OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i><u>Disposal</u></i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i><u>Hardcore or other approved filling, as described</u></i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<b><u>Anti - termite treatment</u></b>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<b><u>Damp-proof membrane</u></b>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Reinforcement (Provisional)</u></b>  <u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	<b><u>Formwork</u></b>  <u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<b><u>Foundation walling</u></b>  <u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<b><u>Plinth finishes</u></b>  <u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar; wood floated: on masonry or concrete surfaces: as described to</u>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<b><u>Paving slabs</u></b>  <u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	<p style="text-align: right;"><b>Carried to Collection</b></p> <p style="text-align: center;"><b><u>Collection Page</u></b></p> <p style="text-align: center;">From Page 1</p> <p style="text-align: center;">From Page above</p>				
	<b>SECTION 1:</b> <b>SUBSTRUCTURES</b>	<b>Carried to Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: CONSTRUCTION OF NEW OPERATOR'S BUILDING</b>				
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course; as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	<b><u>Internal Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course; as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
<b><u>SECTION 3:</u></b>					
<b>WALLING</b>					
Carried to Main Summary					







ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 5: CONSTRUCTION OF NEW OPERATOR'S BUILDING</b> <b>SECTION 6: INTERNAL FINISHES</b>					
<b>Wall Finishes</b>					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
<b>Floor Finishes</b>					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
<b>Painting and decoration</b>					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as "Crown Paints" or approved equivalent: as described on</i>					
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
<b>SECTION 6</b> <b>INTERNAL FINISHES</b>					Carried to Main Summary
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 5: CONSTRUCTION OF NEW OPERATOR'S BUILDING</b> <b>SECTION 7: DOORS</b>					
<b>Metal Doors</b>					
<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
<b>Painting and decoration</b>					
<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
<b>SECTION 7</b> <b>DOORS</b>					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL No. 5: CONSTRUCTION OF NEW OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 8: WINDOWS</u></b>				
	<b><u>Window Sill</u></b>				
	<i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<b><u>Steel Casement Windows</u></b>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<b><u>SECTION 8</u></b>	Carried to			
	<b><u>WINDOWS</u></b>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL No. 5: CONSTRUCTION OF NEW OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>				
	<b><u>Builder's work in connection with Electrical Installations;</u></b>				
5.9.1	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>Builder's work in connection with plumbing and drainage installations;</u></b>				
5.9.2	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 9</u></b>	Carried to			
	<b><u>B.W.L.C WITH SERVICES</u></b>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SUMMARY</u></b>				
5.1	Substructure (Provisional)				
5.2	R.C. Superstructure				
5.3	Walling				
5.4	Roofing				
5.5	External Finishes				
5.6	Internal Finishes				
5.7	Doors				
5.8	Windows				
5.9	Builders' Work in Connection with Services (Provisional)				
	<b>TOTAL FOR 1No. OPERATOR'S BUILDING</b>			<b>Kes.</b>	
	<b>TOTAL FOR 2 No. OPERATOR'S BUILDING</b>	<b>No.</b>	<b>2</b>	<b>Kes.</b>	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b><u>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</u></b>					
<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>					
<b><u>Paving slabs</u></b>					
<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>					
5.10.1	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
<b><u>SECTION 1:</u></b> Carried to <b><u>SUBSTRUCTURES</u></b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b><u>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</u></b>					
<b><u>SECTION 2: WINDOWS/GRILLES</u></b>					
<b><u>Steel Casement Windows/Grilles</u></b>					
<i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and stays: one coat aluminium grey primer before fixing: all to Engineer's schedule and/or direction; as described to</i>					
5.11.1	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
5.11.2	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
<b><u>Painting &amp; Decoration</u></b>					
<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
5.11.3	General surfaces of metal windows/grilles (measured on both sides)	Sm	8		
<b><u>SECTION 2:</u></b> Carried to <b><u>R.C SUPERSTRUCTURE</u></b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</b>				
	<b><u>SECTION 3: ROOFING</u></b>				
	<b><u>Eaves Finishes</u></b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
5.12.1	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.00		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
5.12.2	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.00		
5.12.3	Ridge cap to match	Lm	6.00		
	<b>SECTION 3</b>	Carried to Main Summary			
	<b>ROOFING</b>				-
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<b><u>Ramp finishes</u></b>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
5.13.1	Surfaces of ramps, sloping	Sm	3.20		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.13.2	Rendered concrete surfaces, externally	Sm	50.00		
	<b>SECTION 4</b>	Carried to Main Summary			
	<b>EXTERNAL FINISHES</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</b> <b><u>SECTION 5: INTERNAL FINISHES</u></b>  <b><u>Wall Finishes</u></b>  <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
5.14.1	Masonry surfaces, internally	Sm	50.00		
<b><u>Floor Finishes</u></b>  <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
5.14.2	32 mm Thick bed screed on floor to steel trowel finish level	Sm	24.00		
<b><u>Painting and decoration</u></b>  <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as "Crown Paints" or approved equivalent: as described on</i>					
5.14.3	Plastered walls surfaces, internally	Sm	50.00		
<b><u>SECTION 5</u></b> Carried to <b>INTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</b> <b><u>SECTION 6: DOORS</u></b>  <b><u>Metal Doors</u></b>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
5.15.1	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
5.15.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
5.15.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
<b><u>SECTION 6</u></b> Carried to <b>DOORS</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.16.1	<b><u>BILL No. 5: REHABILITATION OF EXISTING OPERATOR'S BUILDING</u></b>  <b><u>SECTION 7: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations:</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 7</u></b> <b><u>B.W.I.C WITH SERVICES</u></b>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL 5: OPERATOR'S BUILDING</u></b>  <b><u>SUMMARY</u></b>  1 Substructure (Provisional) 2 Windows/Grills 3 Roofing 4 External Finishes 5 Internal Finishes 6 Doors 7 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. OPERATOR'S BUILDING TOTAL FOR 2 No. OPERATOR'S BUILDING				
		No.	2	Kes. Kes.	



SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW GENERATOR HOUSE				
2	REHABILITATION OF GENERATOR HOUSE				
	TOTAL				
TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY					

**BILL No. 6:**  
**PIT LATRINE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<u>Disposal</u>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<u>Hardcore or other approved filling, as described</u>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<b><u>Anti-termite treatment</u></b>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<b><u>Damp-proof Membrane</u></b>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<b><u>Concrete works</u></b>				
	<u>Vibrated Reinforced Concrete class 20/20: as described in</u>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<u>Vibrated Reinforced Concrete class 20/20: as described in</u>				
6.1.13	Strip footings	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Formwork</b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	<b>Foundation walling</b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
6.1.17	150 mm thick foundation walling	Sm	15.38		
6.1.18	150 mm thick walling for the pit	Sm	8.40		
	<b>Plinth finishes</b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
6.1.19	Concrete surfaces externally; finished smooth	Sm	15.38		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as described on</i>				
6.1.20	Rendered surfaces, externally	Sm	15.38		
Carried to Collection					
Collection Page					
From Page 1					
From Page Above					
SECTION 1					
SUBSTRUCTURES					
Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b>SECTION 2: SUPERSTRUCTURE</b>  <u><b>R.C Frame</b></u>  <u><b>Concrete</b></u>  <i>Vibrated reinforced concrete class 20/20: as described in</i>  6.2.1 Beams Cm 0.51  <u><b>Reinforcement (Provisional)</b></u>  <i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>  6.2.2 Assorted bars (D8 - D16) Kg 31  <u><b>Formwork</b></u>  <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>  6.2.3 Vertical sides and soffits of beams Sm 5.13				
	<b>SECTION 2</b> <b>SUPERSTRUCTURE</b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b>SECTION 3: WALLING</b>  <u><b>External Walling</b></u>  <i>Masonry Blocks: as described to</i>  6.3.1 150 mm thick walling Sm 12.63  <i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>  6.3.2 150 mm wide; levelled and bedded under wall Lm 10.25				
	<b>SECTION 3</b> <b>WALLING</b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b>SECTION 4: EXTERNAL FINISHES</b>  <i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>  6.4.1 Concrete surfaces externally; finished smooth Sm 3  <u><b>Painting and decorating</b></u>  <i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>  6.4.2 Rendered concrete surfaces, externally Sm 3				
	<b>SECTION 4</b> <b>EXTERNAL FINISHES</b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: INTERNAL FINISHES</b>				
	<b>Wall Finishes</b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
6.5.1	Concrete surfaces, internally	Sm	5		
	<b>Floor Finishes</b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
	<b>Painting and decoration</b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as described on</i>				
6.5.3	Plastered concrete surfaces, internally	Sm	5		
	<b>SECTION NO. 5</b>	Carried to			
	<b>INTERNAL FINISHES</b>	Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b>SECTION 6: DOORS</b>				
	<b>Wooden Doors</b>				
	<i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i>				
6.6.1	Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details.	No	2		
	<b>Ironmongery</b>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
6.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	2		
	<b>Painting and decoration</b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
6.6.3	General surfaces of wooden doors (measured on both sides)	Sm	6		
	<b>SECTION 6</b>	Carried to			
	<b>DOORS</b>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>  <b>SECTION 7: WINDOWS</b>  <b>Steel Windows</b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule; as described to</i>				
6.7.1	Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details.	No	2		
	<b>Painting &amp; Decoration</b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
6.7.2	General surfaces of metal windows (measured on both sides)	Sm	1		
	<b>SECTION 7</b> <b>WINDOWS</b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>  <b>SECTION 8: ROOFING</b>  <b>Roof Structure (Provisional)</b>  <i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
6.8.1	Rafters: 150 x50	m	14.70		
6.8.2	Purlins: 50 x 50	m	17.70		
6.8.3	Wall plate: 150x50	m	10.25		
	<b>Eaves Finishes</b>  <i>Fascia Board as described to:</i>				
6.8.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	5.04		
	<b>Roof covering</b>  <b>Gauge 28 IT5 Pre-painted box-profiled roofing sheets</b>				
6.8.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	7.23		
	<b>SECTION 8</b> <b>ROOFING</b>	Carried to Main Summary			

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 6: PIT LATRINES</u></b>				
<b>SEC</b>	<b><u>SUMMARY</u></b>				
6.1	Substructure (Provisional)				
6.2	R.C. Superstructure				
6.3	Walling				
6.4	External Wall Finishes				
6.5	Internal Finishes				
6.6	Doors				
6.7	Windows				
6.8	Roofing				
	<b>TOTAL FOR 1No. PIT LATRINE</b>			<b>Kes.</b>	
	<b>TOTAL FOR 6No. PIT LATRINES</b>	<b>No.</b>	<b>6</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 6 CARRIED FORWARD TO PROJECT SUMMARY</b>					



# **BILL No. 8: PIPEWORK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 8: PIPE WORK</b> <b>SECTION 1: RISING MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level (assumed).</i>				
8.1.1	General clearance along pipeline route	Lm	3,095		
8.1.2	Removal of trees of girth 600 to 900mm	No	6		
	<b>Trench Excavation</b>				
8.1.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	3,095		
8.1.4	Extra Over for excavation in rock of all types	Cm	297		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b>HDPE Pipes</b>				
8.1.5	HDPE pipes OD25mm PN10	m	27		
8.1.6	HDPE pipes OD63mm PN10	m	870		
8.1.7	HDPE pipes OD75mm PN10	m	1,269		
8.1.8	HDPE pipes OD90mm PN10	m	49		
8.1.9	HDPE pipes OD110mm PN10	m	73		
8.1.10	HDPE pipes OD125mm PN10	m	803		
8.1.11	<b>Air valves</b> Various dia. flanged single orifice air valves PN10. Include all the required pipework and fittings.	No	4		
8.1.12	<b>Gate Valves</b> DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	5		
8.1.13	<b>Water Meters</b> Supply and install a DN 50mm dia master meter. Rate to include all jointing materials.	No.	5		
	<b>Valve Chambers</b> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.14	Gate valve and meter chambers, as per the detailed drawings	No	10		
8.1.15	Air valve chambers, as per the detailed drawings	No	4		
8.1.16	Extra Over for excavation in rock of all types, for chambers	Cm	3.63		
	<b>Sub Total carried forward to next page</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: GRAVITY MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	6,591		
8.2.2	Removal of trees of girth 600 to 900mm	No	5		
	<b>Trench Excavation</b>				
8.2.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	6,591		
8.2.4	Extra Over for excavation in rock of all types	Cm	633		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b>HDPE Pipes</b>				
8.2.5	HDPE pipes OD63mm PN10	m	1,021		
8.2.6	HDPE pipes OD75mm, PN10	m	571		
8.2.7	HDPE pipes OD90mm PN10	m	301		
8.2.8	HDPE pipes OD110mm PN10	m	4,698		
8.2.9	<b>Air valves</b> <i>Various dia. flanged single office air valves etc. etc. include all the required pipework and fittings</i>	No	24		
8.2.10	<b>Wash outs</b> Various dia. GI washout valves.	No	17		
	<b>Valve Chambers</b> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.11	Air valve chambers, as per the detailed drawings	No	24		
8.2.12	Wash out chambers with outfall structure, as per drawings	No	17		
8.2.13	Extra Over for excavation in rock of all types, for chambers	Cm	10.63		
	<b>Other Pipework Ancillaries</b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.14	Pipeline marker posts	No	33		
8.2.15	Air valve marker posts	No	24		
8.2.16	Washout marker posts	No	17		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b>				
	<b>Crossings</b> <i>Rate to include all necessary materials, and fittings for anchoring pipes across rivers.</i>				
8.2.17	River or lagha crossing, width 3 - 10m, pipe bore not exce. 300mm	No	1		
8.2.18	<b>Reinstatements</b> Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 2: GRAVITY MAIN</b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DISTRIBUTION NETWORK</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.3.1	General clearance along pipeline route	Lm	43,381		
8.3.2	Removal of trees of girth 600 to 900mm	No	3		
	<b>Trench Excavation</b>				
8.3.3	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	43,381		
8.3.4	Extra Over for excavation in rock of all types	Cm	4,165		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.3.5	HDPE pipes OD25mm PN10	m	20,213		
8.3.6	HDPE pipes OD32mm, PN10	m	1,643		
8.3.7	HDPE pipes OD40mm PN10	m	11,939		
8.3.8	HDPE pipes OD50mm PN10	m	4,094		
8.3.9	HDPE pipes OD63mm PN10	m	5,004		
8.3.10	HDPE pipes O75mm PN10	m	488		
	<b>Water Meters</b>				
8.3.11	Supply and install consumer water meters for the existing individual connections.	No.	393		
8.3.12	Supply and install smart water meters for the existing individual connections.	No.	50		
	<b><u>Other Pipework Ancillaries</u></b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.13	Pipeline marker posts	No	217		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b>				
	<b><u>Concrete stools and thrust blocks</u></b>				
8.3.14	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	39.3		
	<b><u>Crossings</u></b> <i>Rate to include all necessary materials, and fittings for anchoring pipes across rivers.</i>				
8.3.15	River or lagha crossing, width 3 - 10m, pipe bore not exce. 300mm	No	1		
	<b>Reinstatements</b>				
8.3.16	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 3:</b>	Carried to			
	<b>DISTRIBUTION NETWORK</b>	Main Summary			



**BILL No. 9:  
ELEVATED STEEL TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 9: ELEVATED STEEL TANKS</b>				
	<i>Earth works, concrete works and Tank construction to be done in line with EST drawing.</i>				
	<b>Excavations and Earthworks</b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	<b>Tank Construction</b>				
9.1.5	Supply and place reinforced concrete Class C20/20 as foundation for tank tower. Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1	60,000.00	60,000.00
9.1.7	Supply all materials, tools and equipment and erect a 150m <sup>3</sup> steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	<b>Pipes and Specials</b>				
	<i>All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site</i>				
	Provide, fix and test following : ( All screwed flanges listed separately)				
	<b>Inlet</b>				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	<b>Overflow</b>				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	<b>Sub Total carried forward to next page</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	Sub Total Brought Forward from previous Page				
	<b>BILL No. 9: ELEVATED STEEL TANKS</b>				
	<b>Outlet</b>				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1	20,000.00	20,000.00
	<b>Wash out</b>				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	<b>Painting</b>				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1	60,000.00	60,000.00
	<b>Testing and Sterilizing</b>				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1	5,000.00	5,000.00
<b>SECTION 1: CONSTRUCTION OF NEW ELEVATED STEEL TANK</b>					
<b>Carried to Main Summary</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION NO. 2 -REHABILITATION OF EXISTING ELEVATED STEEL TANKS</b>				
	<b>General Items:</b>				
9.2.1	Site clearance, removal of debris, and preparation for works	Sum	1		
	<b>Structural Repairs and Steel Works:</b>				
9.2.2	Chipping off and removing rusted or corroded sections of steel panels	Sm	28		
9.2.3	Replacement of worn out parts of the existing tank and tower members - 36m3 tank	Sum	1		
9.2.4	Replacement of worn out parts of the existing tank and tower members - 50m3 tank	Sum	1		
9.2.5	Replacement of worn out parts of the existing tank and tower members - 60m3 tank	Sum	1		
9.2.6	Replacement of worn out parts of the existing tank and tower members - 75m3 tank	Sum	1		
9.2.7	Replacing damaged structural steel members (columns, beams, bracing)	Kg	10		
9.2.8	Replacing tank anchorage bolts and supports	No.	20		
	<b>Pipeworks and Fittings:</b>				
9.2.9	Supply and install new inlet pipe (GI) of specified diameter	m	15		
9.2.10	Supply and install new outlet pipe (HDPE) of specified diameter	m	15		
9.2.11	Replace tank overflow pipe to prevent water loss	m	15		
	<b>Valves and Accessories:</b>				
9.2.12	Supply and install new gate valve (specified diameter)	No.	1		
9.2.13	Supply and install new non-return valve (specified diameter)	No.	1		
9.2.14	Supply and install new air release valve	No.	1		
9.2.15	Replace float valve to regulate water level	No.	1		
	<b>Safety Enhancement and Accessories:</b>				
9.2.16	Replace access ladder and safety cage	m	15		
9.2.17	Replacement of lockable tank access cover	No.	1		
	<b>Testing and Commissioning:</b>				
9.2.18	Leak testing and structural integrity assessment after rehabilitation	Sum	1		
9.2.19	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	1		
	<b>Total for Replacement of Worn Out Elements of Tanks</b>				
	<b>Total for Other Provisions per Tank</b>				
	<b>Total for Other Provisions - 4Nr. Tanks</b>				
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>REHABILITATION OF EXISTING STEEL TANKS</b>	<b>Main Summary</b>			

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**BILL No. 10:**  
**ELEVATED PLASTIC TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM</b>				
	<b>Storage</b>				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	<b>Construction Steel Tower Platform</b>				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	<b>Piping works</b>				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	<b>Fittings and Appurtenances</b>				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	<b>INSTALLATION OF 1No.TANK AND TOWER FRAME</b>	<b>No.</b>	<b>12</b>		
	<b>INSTALLATION OF 12No.TANK AND TOWER FRAME</b>				
	<b>TOTAL FOR ELEVATED PLASTIC TANKS</b>				
<b>TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 11:**  
**GROUND MASONRY TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 11: GROUND MASONRY TANK</b>				
	<b>SECTION 1: -REHABILITATION OF EXISTING GROUND MASONRY TANK</b>				
	<b>General Items:</b>				
11.1.1	Site clearance and preparation	Sum	1		
	<b>Structural Rehabilitation:</b>				
11.1.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.1.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.1.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.1.5	Repairing cracks using non-shrink grout	Sm	51		
	<b>Pipeworks and Fittings:</b>				
11.1.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.1.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.1.8	Repair and replace internal and external pipe connections	Sum	1		
	<b>Valves and Accessories:</b>				
11.1.9	Supply and install new gate valve of 50mm diameter	No	1		
11.1.10	Supply and install new non-return valve 50mm diameter	No	1		
11.1.11	Replacement of air release valve	No	1		
	<b>Roof Rehabilitation:</b>				
11.1.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.1.13	Application of waterproofing membrane on the roof	Sm	20		
11.1.14	Replacement of tank access cover with lockable steel cover	No	1		
	<b>Test and Comissioning:</b>				
11.1.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.1.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	<b>Rehabilitation of 1 No. Masonry Tank</b>				
	<b>Rehabilitation of 1 No. Masonry Tank</b>		1		
<b>TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 12:**  
**WATER TREATMENT**



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 12: WATER TREATMENT</b>				
	<b>SECTION 1: CHLORINATION UNITS</b>				
	<b>Chlorination House</b>				
12.1.1	Provide all materials, construct and commission a 2mx2m chlorination building for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	<b>Chlorination Equipment</b>				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	<b>Total for Treatment for 1No Borehole</b>				
	<b>Total for Treatment for 5No Borehole</b>		5		
<b>TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 13:**  
**GENERATOR HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks (Provisional)</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<b><u>Anti - termite treatment</u></b>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<b><u>Damp-proof membrane</u></b>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</u>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<b><u>Formwork</u></b>				
	<u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<b><u>Plinth finishes</u></b>				
	<u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<b><u>Paving Slabs</u></b>				
	<u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
<b>SECTION 1: Carried to</b> <b>SUBSTRUCTURES Main Summary</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
13.2.1	Beams	Cm	1.76		
	<b><u>Reinforcement</u></b> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork; including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
	<b><u>SECTION 2:</u></b> Carried to <b>R.C SUPERSTRUCTURE</b> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
	<b><u>Ventilation</u></b>				
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
	<b><u>SECTION 3:</u></b> Carried to <b>WALLING</b> Main Summary				

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 5: EXTERNAL FINISHES</u></b>				
	<b><u>External wall finishes</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<b><u>Ramp finishes</u></b>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<b>SECTION 5</b> Carried to				
	<b>EXTERNAL FINISHES</b> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 6: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<b>SECTION 6</b> Carried to				
	<b>INTERNAL FINISHES</b> Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 7: DOORS</u></b>				
	<b><u>Metal Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	<b><u>SECTION 7</u></b>	<b>Carried to</b>			
	<b><u>DOORS</u></b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>				
	<b><u>Builder's work in connection with Electrical Installations;</u></b>				
13.8.1	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 8</u></b>	<b>Carried to</b>			
	<b><u>B.W.L.C WITH SERVICES</u></b>	<b>Main Summary</b>			



ITEM	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SUMMARY</u></b>				
1	Substructure (Provisional)				
2	R.C. Superstructure				
3	Walling				
4	Roofing				
5	External Finishes				
6	Internal Finishes				
7	Doors				
8	Builders' Work in Connection with Services (Provisional)				
	<b>TOTAL FOR 1No. GENERATOR HOUSE</b>				
	<b>TOTAL FOR 2No. GENERATOR HOUSE</b>		2		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
13.9.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b>				
	<b>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</b>				
	<b><u>Paving Slabs</u></b>  <i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar including all necessary site preparation, excavations and earthworks around the existing building to achieve required levels and alignment; as described to</i>				
	Paving slabs, around building (one row); including all excavations and earthworks	Sm	12.00		
	<b>SECTION 1:</b> <b>SUBSTRUCTURES</b>	<b>Carried to Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
13.10.1	<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b>				
	<b>SECTION 2: WINDOWS/GRILLES</b>				
	<b><u>Steel Casement Windows/Grilles</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows or metal grilles, as necessary in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and stays: one coat aluminium grey primer before fixing: all to Engineer's schedule and/or direction; as described to</i>				
	Provide and fix window/grilles to match existing, including all necessary frames, ironmongery, glazing, and finishes, all as directed by the Engineer	No	4		
	Carefully rehabilitate to match existing window, including repair or replacement of damaged components such as frames, glazing, ironmongery, and finishes,	No	4		
	<b><u>Painting &amp; Decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>  General surfaces of metal windows/grilles (measured on both sides)				
	<b>SECTION 2</b> <b>WINDOWS/METAL GRILLES</b>	<b>Carried To Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b> <b>SECTION 5: INTERNAL FINISHES</b>  <u>Wall Finishes</u>  <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
13.13.1	Masonry surfaces, internally	Sm	50.00		
<u>Floor Finishes</u>  <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
13.13.2	25 mm thick screeds on floor to finish level	Sm	24.00		
<u>Painting and decoration</u>  <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as described on</i>					
13.13.3	Plastered walls surfaces, internally	Sm	50.00		
<b>SECTION 5</b> Carried to <b>INTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</b> <b>SECTION 6: DOORS</b>  <u>Metal Door</u>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>					
13.14.1	Overall size 1600 x 2100 mm high; details as per standard drawings	No	1		
13.14.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
<u>Painting and decoration</u>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>					
13.14.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
<b>SECTION 6</b> Carried to <b>DOORS</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.15.1	<b><u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u></b>  <b><u>SECTION 7: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations:</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 7</u></b> <b><u>B.W.L.C WITH SERVICES</u></b>				
	Carried to Main Summary				
ITEM	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: REHABILITATION OF GENERATOR HOUSE</u></b>  <b><u>SUMMARY</u></b>  1 Substructure (Provisional)  2 Windows/Grills  3 Roofing  4 External Finishes  5 Internal Finishes  6 Doors  7 Builders' Work in Connection with Services (Provisional)				
	TOTAL FOR 1No. GENERATOR HOUSE  TOTAL FOR 2No. GENERATOR HOUSE		2		

SEC	DESCRIPTION				AMOUNT (KSHS)
	<u>SUMMARY</u>				
1	CONSTRUCTION OF NEW GENERATOR HOUSE				
2	REHABILITATION OF GENERATOR HOUSE				
	TOTAL				
TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY					

# **KUBEYSURUR WATER SUPPLY SCHEME**

# PROJECT SUMMARY



# KUBEYSURUR WATER SUPPLY SCHEME, WAJIR COUNTY

## MAIN SUMMARY

BILL	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
TOTAL FOR KUBEYSURUR WATER SUPPLY SCHEME		

**BILL No. 2:**  
**BOREHOLES, PUMPS AND**  
**POWER SUPPLY**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>KUBEYSURUR BH</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b>				
	<b>MOBILIZATION AND SETTING UP</b>				<b>300,000.00</b>
	<b>Carried to Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	100		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN63mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 63mm diameter rising main GMS water pipe, Class C.	Lm	100		
2.2.7	63mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	63mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 63 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	250		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	300		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 13KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 10.5 m³/hr of water against a total head of 430m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple. The contractor to attach catalogs and 5years minimum Warranty for the pumps model proposed	No	1		
	<b>SECTION 2:</b>				
	<b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
	<b>Carried to Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 0r 12mS/cm2	No	1		
2.3.2	Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal	No	1		
2.3.3	DXT -Cable - AS2xxx with standard lengths of 300m	m	300		
2.3.4	Allow for Testing, User Training and Commissioning the Monitoring system	Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>		Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 25kW on a bright sunny day at midday taking into account the system losses. (16,500W -To add to the existing solar Panels)	No	30		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 25kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 35 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	<b>Carried to</b>			
	<b>GENERATOR POWER BACK UP</b>	<b>Main Summary</b>			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>KUBEYSURUR BH</b>				
1	<b><u>SUMMARY</u></b>				
2	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
3	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
4	DATA ACQUISITION AND MONITORING SYSTEM				
5	SOLAR POWER				
	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 3:**  
**FENCING AND GATE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE BH</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to <i>Pedestrian</i> gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates ( <i>measured on both sides</i> )	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	77.35		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	6		
	<b>SECTION 2: CHAIN-LINK FENCING</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>  <u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>  3.3.1 Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.  3.3.2 Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Sm	240		
		Cm	112.5		
	<b>SECTION 3:</b> <b>STORMWATER DRAINS</b>	Carried to Main Summary			
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 3 - FENCING AND GATE BH</u></b>  <b><u>SUMMARY</u></b>  1 GATES AND GATE ENTRANCE  2 CHAIN-LINK FENCING  3 STORMWATER DRAINS				
<b>TOTAL FOR BILL 3 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 4:**  
**WATER KIOSKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<b><u>Anti-termite treatment</u></b>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<b><u>Damp-proof Membrane</u></b>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto; to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
4.1.19	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	12.26		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
4.1.20	Vertical sides of column bases	Sm	4.32		
4.1.21	Vertical sides of columns	Sm	3.84		
4.1.22	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.23	Ditto: to edges of ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.1.24	200 mm thick foundation walling	Sm	12.36		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
4.1.25	Concrete surfaces externally; finished smooth	Sm	8.40		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.1.26	Rendered surfaces, externally	Sm	8.40		
	<b><u>Paving slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
4.1.27	Paving slabs, around building (one row); including all excavations and earthworks	Sm	8.80		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page above				
	<b>SECTION I:</b>	<b>Carried to</b>			
	<b>SUBSTRUCTURES</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	<b>SECTION 2: Carried to SUPERSTRUCTURE Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<b><u>Coping</u></b>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	<b>SECTION 3: Carried to WALLING Main Summary</b>				

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: INTERNAL WALL FINISHES</b>				
	<b>Wall Finishes</b> <i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<b>Floor Finishes</b> <i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<b>Painting and decoration</b> <i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffites of slabs, internally	Sm	8		
	<b>SECTION 5 :</b> <b>INTERNAL FINISHES</b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b>SECTION 6: DOORS</b>				
	<b>Metal Doors</b> <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
4.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b>Painting and decoration</b> <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.3	General surfaces of metal doors (measured on both sides)	Sm	4		
	<b>SECTION 6</b> <b>DOORS</b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b>SECTION 7: WINDOWS</b>				
	<b>Steel Windows</b>				
	<b><u>The following to Water Kiosk:-</u></b>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule; as described to</i>				
4.7.1	Window overall size: 1000 x 1200 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<b>Painting &amp; Decoration</b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3.12		
	<b>SECTION 7</b> Carried to <b>WINDOWS</b> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b>SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM</b>				
	<b><u>5,000 litres Elevated Plastic Tank</u></b>				
4.8.1	Provide for the purchase, supply and installation of a 5m3 plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<b><u>Tank Roof</u></b>				
	<i>Sawn cypress first grade: pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details: timber to meet the following minimum strength criteria, bending 5N/mm2, tension 3N/mm2 and compression 6N/mm2</i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<b>Water ATM</b>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<b>SECTION 8</b> Carried to <b>PLASTIC WATER TANK</b> Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 9: SOAK AWAY PIT</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<b><u>Hardcore or other approved filling, as described</u></b>				
4.9.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<b><u>Plastic Sheet Lining</u></b>				
4.9.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<b><u>Drain Pipe</u></b>				
4.9.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<b>SECTION 9: Carried to Main Summary</b>				
	<b>SOAK AWAY PIT</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 10: GULLEY TRAP</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<b><u>Concrete</u></b>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<b><u>Blockwork</u></b>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<b><u>Fittings</u></b>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	<b>SECTION 10: Carried to Main Summary</b>				
	<b>GULLEY TRAP</b>				

ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 1</u></b>				
	<b><u>SUMMARY</u></b>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	<b>TOTAL FOR 1No. WATER KIOSK</b>			<b>Kes.</b>	
	<b>TOTAL FOR 4 No. WATER KIOSKS</b>	<b>NO.</b>	<b>4</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 5:**  
**OPERATOR'S BUILDING AND**  
**GUARD HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i>Disposal</i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i>Hardcore or other approved filling, as described</i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<b><u>Anti - termite treatment</u></b>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<b><u>Damp-proof membrane</u></b>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<b><u>Concrete works</u></b>				
	<i>Plain concrete class 15: in</i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<b><u>Paving slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page above				
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>SUBSTRUCTURES</b>	<b>Main Summary</b>			





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>				
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course; as described to</i>				
5.3.1	150 mm thick walling	Sm	36.90		
5.3.2	Ditto: to Gable walling	Sm	23.26		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.3	150 mm wide; levelled and bedded under wall	Lm	23.00		
	<b><u>Internal Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course; as described to</i>				
5.3.4	150 mm thick walling	Sm	8.40		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
5.3.5	150 mm wide; levelled and bedded under wall	Lm	4		
<b><u>SECTION 3:</u></b>		Carried to			
<b><u>WALLING</u></b>		Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
5.4.1	Tie beam: 75 x50	m	18.80		
5.4.2	King Post: 75x50	m	4.40		
5.4.3	Struts: 75x50	m	10.40		
5.4.4	Purlins: 50 x 50	m	97.99		
5.4.5	Wall plate: 150x50mm	m	16		
5.4.6	Rafters: 75x50	m	25		
	<b><u>Eaves Finishes</u></b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
5.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.33		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
5.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.99		
5.4.9	Ridge cap to match	Lm	8.17		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.4.10	Metal surfaces: 200 - 300mm girth	Lm	4.20		
	<b>SECTION 4</b>	<b>Carried to</b>			
	<b>ROOFING</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>				
	<b><u>SECTION 5: EXTERNAL FINISHES</u></b>				
	<b><u>External wall finishes</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
5.5.1	Concrete surfaces externally; finished smooth	Sm	6.90		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
5.5.2	Masonry surfaces externally; finished smooth	Sm	60.16		
	<b><u>Steps and Ramp finishes</u></b>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
5.5.3	Surfaces of ramps, sloping	Sm	3.60		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
5.5.4	Rendered concrete surfaces, externally	Sm	6.90		
<b><u>SECTION 5</u></b>		Carried to Main Summary			
<b>EXTERNAL FINISHES</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b> <b><u>SECTION 6: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint as "Crown Paints" or approved equivalent: as described on</i>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
<b>SECTION 6</b> <b>INTERNAL FINISHES</b>					Carried to Main Summary

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>  <b><u>SECTION 7: DOORS</u></b>  <b><u>Metal Doors</u></b>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
5.7.1	Overall size 1000 x 2100 mm high; details as per architectural drawings	No	2		
5.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	3		
	<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.7.3	General surfaces of metal doors (measured on both sides)	Sm	4.20		
	<b><u>SECTION 7 DOORS</u></b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>BILL No. 5: OPERATOR'S BUILDING</b>  <b><u>SECTION 8: WINDOWS</u></b>  <b><u>Window Sill</u></b>  <i>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<b><u>Steel Casement Windows</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<b><u>Painting &amp; Decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<b><u>SECTION 8 WINDOWS</u></b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>  <b><u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations;</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided  <b><u>Builder's work in connection with plumbing and drainage installations;</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided				
5.9.1		Item	1		
5.9.2		Item	1		
	<b><u>SECTION NO. 9</u></b> <b><u>B.W.I.C WITH SERVICES</u></b>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL 5: OPERATOR'S BUILDING</u></b>  <b><u>SUMMARY</u></b>				
5.1	Substructure (Provisional)				
5.2	R.C. Superstructure				
5.3	Walling				
5.4	Roofing				
5.5	External Finishes				
5.6	Internal Finishes				
5.7	Doors				
5.8	Windows				
5.9	Builders' Work in Connection with Services (Provisional)				
	<b>TOTAL FOR 1No. OPERATOR'S BUILDING</b> <b>TOTAL FOR 1 No. OPERATOR'S BUILDING</b>	No.	1	Kes. Kes.	
TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY					

**BILL No. 6:  
PIT LATRINE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<b><u>Disposal</u></b>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<b><u>Hardcore or other approved filling, as described</u></b>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<b><u>Anti-termite treatment</u></b>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<b><u>Damp-proof Membrane</u></b>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<b><u>Concrete works</u></b>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<b>Carried to Collection</b>				





ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.2.1	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
6.2.1	Beams	Cm	0.51		
6.2.2	<b><u>Reinforcement</u> (Provisional)</b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.2.2	Assorted bars (D8 - D16)	Kg	31		
6.2.3	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
6.2.3	Vertical sides and soffites of beams	Sm	5.13		
<b>SECTION 2</b> Carried to <b>SUPERSTRUCTURE</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
6.3.1	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Masonry Blocks: as described to</i>				
	150 mm thick walling	Sm	12.63		
6.3.2	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
	150 mm wide; levelled and bedded under wall	Lm	10.25		
<b>SECTION 3</b> Carried to <b>WALLING</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
6.4.2	Rendered concrete surfaces, externally	Sm	3		
	<b><u>SECTION 4</u></b>				
	<b>EXTERNAL FINISHES</b>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>SECTION 5: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
6.5.1	Concrete surfaces, internally	Sm	5		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>				
6.5.3	Plastered concrete surfaces, internally	Sm	5		
	<b><u>SECTION NO. 5</u></b>				
	<b>INTERNAL FINISHES</b>				
	Carried to Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b><u>SECTION 6: DOORS</u></b>				
	<b><u>Wooden Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i>				
6.6.1	Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details.	No	2		
	<b><u>Ironmongery</u></b>				
	<i>Supply and fix the following ironmongery complete with matching screws: as described to</i>				
6.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	2		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
6.6.3	General surfaces of wooden doors (measured on both sides)	Sm	6		
	<b><u>SECTION 6</u></b>				
	<b>DOORS</b>				
	Carried to Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b>SECTION 7: WINDOWS</b>				
	<b>Steel Windows</b>				
	<i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule; as described to</i>				
6.7.1	Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details.	No	2		
	<b>Painting &amp; Decoration</b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
6.7.2	General surfaces of metal windows (measured on both sides)	Sm	1		
	<b>SECTION 7 WINDOWS</b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b>				
	<b>SECTION 8: ROOFING</b>				
	<b>Roof Structure (Provisional)</b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
6.8.1	Rafters: 150 x50	m	14.70		
6.8.2	Purlins: 50 x 50	m	17.70		
6.8.3	Wall plate: 150x50	m	10.25		
	<b>Eaves Finishes</b>				
	<i>Fascia Board as described to:</i>				
6.8.4	Fascia/Barge boards 250x25 mm thick sawn cypress and planed to approval	Lm	5.04		
	<b>Roof covering</b>				
	<i>Gauge 28 ITS Pre-painted box-profiled roofing sheets</i>				
6.8.5	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	7.23		
	<b>SECTION 8 ROOFING</b>	Carried to Main Summary			



**BILL No. 7:**  
**WATER TROUGHS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 1: Water Troughs for Camels and Cattle</u></b>				
	<b>Excavations</b>				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	<b>Hardcore filling</b>				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	<b>Concrete Work</b>				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	<b>Walling for substructure</b>				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	<b>Walling for superstructure</b>				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (2) No water troughs</b>	No	2		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 2: Water Troughs for Sheep and Goats</u></b>				
	<b>Excavations</b>				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	<b>Hardcore filling</b>				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	<b>Concrete Work</b>				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	<b>Walling for substructure</b>				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	<b>Walling for superstructure</b>				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (2) No water troughs</b>	No	2		
<b>TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY</b>					



# **BILL No. 8: PIPEWORK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 8: PIPE WORK</b> <b>SECTION 1: RISING MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	17,059		
	<b>Trench Excavation</b> Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	17,059		
8.1.3	Extra Over for excavation in rock of all types	Cm	1,638		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b>HDPE Pipes</b>				
8.1.4	HDPE pipes OD25mm PN10	m	14		
8.1.5	HDPE pipes OD75mm PN10	m	8,998		
8.1.6	HDPE pipes OD90mm PN16	m	8,047		
	<b>Air valves</b>				
8.1.7	Various dia. flanged single orifice air valves PN10. Include all the required pipework and fittings.	No	27		
	<b>Wash outs</b>				
8.1.8	Various dia. mm GI washout valves.	No	28		
	<b>Gate Valves</b>				
8.1.9	DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	1		
	<b>Water Meters</b>				
8.1.10	Supply and install a DN 90mm dia master meter. Rate to include all jointing materials.	No.	1		
	<b>Valve Chambers</b>				
	<i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.11	Air valve chambers, as per the detailed drawings	No	27		
8.1.12	Wash out chambers with outfall structure, as per drawings	No	28		
8.1.13	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.14	Extra Over for excavation in rock of all types, for chambers	Cm	14.77		
	<b>Other Pipework Ancillaries</b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.15	Pipeline marker posts	No	85	1,850.00	
8.1.16	Air valve marker posts	No	27	1,850.00	
8.1.17	Washout marker posts	No	28	1,850.00	
8.1.18	Gate valve marker posts	No	2	1,850.00	
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b>Concrete stools and thrust blocks</b>				
8.1.19	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	5.7	22,500.00	
	<b>Reinstatements</b>				
8.1.20	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not excc. 300mm (Provisional)	m	100	6,500.00	
	<b>SECTION 1:</b> <b>RISING MAIN</b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: GRAVITY MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	1,153		
	<b>Trench Excavation</b>				
8.2.2	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	1,153		
8.2.3	Extra Over for excavation in rock of all types	Cm	111		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.2.4	HDPE pipes OD32mm PN10	m	277		
8.2.5	HDPE pipes OD50mm, PN10	m	333		
8.2.6	HDPE pipes OD75mm PN10	m	28		
8.2.7	HDPE pipes OD90mm, PN10	m	515		
	<b>Air valves</b>				
8.2.8	Various dia. flanged single orifice air valves PN10. Include all the required pipework and fittings.	No	3		
	<b><u>Wash outs</u></b>				
8.2.9	Various dia. mm GI washout valves.	No	3		
	<b><u>Valve Chambers</u></b> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.10	Air valve chambers, as per the detailed drawings	No	3		
8.2.11	Wash out chambers with outfall structure, as per drawings	No	3		
8.2.12	Extra Over for excavation in rock of all types, for chambers	Cm	1.56		
	<b><u>Other Pipework Ancillaries</u></b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.13	Pipeline marker posts	No	6		
8.2.14	Air valve marker posts	No	3		
8.2.15	Washout marker posts	No	3		
	<b><u>Concrete stools and thrust blocks</u></b>				
8.2.16	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.6		
	<b>Reinstatements</b>				
8.2.17	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 2:</b>				
	<b>GRAVITY MAIN</b>				
	<b>Carried to Main Summary</b>				





**BILL No. 9:**  
**ELEVATED STEEL TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 9: ELEVATED STEEL TANKS</b> <u>Earth works, concrete works and Tank construction to be done in line with EST drawing</u> <b>Excavations and Earthworks</b>  <u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	<b>Tank Construction</b> Supply and place reinforced concrete Class C20/20 as foundation for tank tower.				
9.1.5	Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 75m <sup>3</sup> steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	<b>Pipes and Specials</b> <i>All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site</i>  Provide, fix and test following : ( All screwed flanges listed separately)				
	<b>Inlet</b>				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	<b>Overflow</b>				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b>BILL No. 9: ELEVATED STEEL TANKS</b>				
	<b>Outlet</b>				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	<b>Wash out</b>				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	<b>Painting</b>				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	<b>Testing and Sterilizing</b>				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
<b>TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 10:**  
**ELEVATED PLASTIC TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM</b>				
	<b>Storage</b>				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	<b>Construction Steel Tower Platform</b>				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	<b>Piping works</b>				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	<b>Fittings and Appurtenances</b>				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	<b>INSTALLATION OF 1No.TANK AND TOWER FRAME</b>	No.	4		
	<b>INSTALLATION OF 4No.TANK AND TOWER FRAME</b>				
	<b>TOTAL FOR ELEVATED PLASTIC TANKS</b>				
<b>TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 11:**  
**GROUND MASONRY TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 11: GROUND MASONRY TANK</b>				
	<b>SECTION 1: -REHABILITATION OF EXISTING GROUND MASONRY TANK</b>				
	<b>General Items:</b>				
11.1.1	Site clearance and preparation	Sum	1		
	<b>Structural Rehabilitation:</b>				
11.1.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.1.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.1.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.1.5	Repairing cracks using non-shrink grout	Sm	51		
	<b>Pipeworks and Fittings:</b>				
11.1.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.1.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.1.8	Repair and replace internal and external pipe connections	Sum	1		
	<b>Valves and Accessories:</b>				
11.1.9	Supply and install new gate valve of 50mm diameter	No	1		
11.1.10	Supply and install new non-return valve 50mm diameter	No	1		
11.1.11	Replacement of air release valve	No	1		
	<b>Roof Rehabilitation:</b>				
11.1.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.1.13	Application of waterproofing membrane on the roof	Sm	20		
11.1.14	Replacement of tank access cover with lockable steel cover	No	1		
	<b>Test and Comissioning:</b>				
11.1.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.1.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	<b>Rehabilitation of 1 No. Masonry Tank</b>				
	<b>Rehabilitation of 1 No. Masonry Tank</b>		1		
<b>TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 12:**  
**WATER TREATMENT**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 12: WATER TREATMENT</b>				
	<b>SECTION 1: CHLORINATION UNITS</b>				
	<b>Chlorination House</b>				
12.1.1	Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	<b>Chlorination Equipment</b>				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m <sup>3</sup> /hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
<b>TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 13:**  
**GENERATOR HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks (Provisional)</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i>Disposal</i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i>Hardcore or other approved filling, as described</i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<b><u>Anti - termite treatment</u></b>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<b><u>Damp-proof membrane</u></b>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<b><u>Concrete works</u></b>				
	<i>Plain concrete class 15: in</i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<b>Sub Total carried forward to next page</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.1.14	Assorted bars (D8 - D16)	Kg			
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm			
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
13.1.16	Vertical sides of strip footings	Sm			
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm			
13.1.18	Ditto: but sloping, to ramp	Lm			
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.1.19	200 mm thick foundation walling	Sm			
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm			
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
13.1.21	Rendered surfaces, externally	Sm			
	<b><u>Paving Slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm			
<b>SECTION 1:</b> <b>SUBSTRUCTURES</b>					
Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 20/20: as described in</i>				
13.2.1	Beams	Cm	1.76		
	<b><u>Reinforcement</u></b> (Provisional)				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
13.2.3	Vertical sides and soffits of beams	Sm	17.64		
	<b><u>SECTION 2:</u></b> Carried to R.C SUPERSTRUCTURE Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
	<b><u>Ventilation</u></b>				
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
	<b><u>SECTION 3:</u></b> Carried to WALLING Main Summary				

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ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 5: EXTERNAL FINISHES</u></b>				
	<b><u>External wall finishes</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
	<b><u>Ramp finishes</u></b>				
	<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>				
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
	<b><u>SECTION 5</u></b>	<b>Carried to</b>			
	<b>EXTERNAL FINISHES</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 6: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>				
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
	<b><u>SECTION 6</u></b>	<b>Carried to</b>			
	<b>INTERNAL FINISHES</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>  <b><u>SECTION 7: DOORS</u></b>  <b><u>Metal Doors</u></b>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors <i>(measured on both sides)</i>	Sm	6.72		
	<b>SECTION 7</b> <b>DOORS</b>	<b>Carried to</b> <b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>  <b><u>Builder's work in connection with Electrical Installations;</u></b>  Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided				
13.8.1		Item	1		
	<b><u>SECTION NO. 8</u></b> <b>B.W.I.C WITH SERVICES</b>	<b>Carried to</b> <b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SUMMARY</u></b>				
1	Substructure (Provisional)				
2	R.C. Superstructure				
3	Walling				
4	Roofing				
5	External Finishes				
6	Internal Finishes				
7	Doors				
8	Builders' Work in Connection with Services (Provisional)				
	<b>TOTAL FOR 1No. GENERATOR HOUSE</b>				
	<b>TOTAL FOR 1No. GENERATOR HOUSE</b>		<b>1</b>		
<b>TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY</b>					

# **NYATA KORONDILE WATER SUPPLY SCHEME**

# PROJECT SUMMARY



**NYATA KORONDILE WATER SUPPLY SCHEME, WAJIR COUNTY**

**MAIN SUMMARY**

<b>BILL</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
1	PRELIMINARIES AND GENERAL ITEMS	
2	BOREHOLES, PUMPS AND POWER SUPPLY	
3	FENCING AND GATES	
4	WATER KIOSKS	
5	OPERATOR'S BUILDING	
6	PIT LATRINES	
7	WATER TROUGHS	
8	PIPEWORKS	
9	ELEVATED STEEL TANK	
10	ELEVATED PLASTIC TANK	
11	GROUND MASONRY TANK	
12	WATER TREATMENT	
13	GENERATOR HOUSE	
<b>TOTAL FOR NYATA KORONDILE WATER SUPPLY SCHEME</b>		

**BILL No. 2:  
BOREHOLES, PUMPS AND  
POWER SUPPLY**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>					
<b>NYATA KORONDILLE BHI</b>					
<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>					
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
<b>SECTION 1: MOBILIZATION AND SETTING UP</b>				<b>Carried to Main Summary</b>	
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>					
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe),Class E	Lm	205		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	205		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>					
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	600		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
<b>Solar panels Cleaning - Sprinklers system</b>					
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
<b>BOREHOLE PUMP</b>					
2.2.19	Supply & install 7.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 3.5m <sup>3</sup> /hr of water against a total head of 270m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				<b>Carried to Main Summary</b>	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>				Carried to Main Summary	

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (8,250W -To add to the existing solar Panels)	No.	15		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,001
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b> <b>SOLAR POWER</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 25 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	<b>Carried to</b>			
	<b>GENERATOR POWER BACK UP</b>	<b>Main Summary</b>			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>NYATA KORONDILLE BH1</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>NYATA KORONDILLE BH2</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b> <b>MOBILIZATION AND SETTING UP</b>	<b>Carried to Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe), Class E	Lm	205		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN50mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 50mm diameter rising main GMS water pipe, Class C.	Lm	205		
2.2.7	50mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	50mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 50 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	600		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 7.5KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 4.9m³/hr of water against a total head of 270m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc., The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2:</b> <b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - -20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>					Carried to Main Summary



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 15kW on a bright sunny day at midday taking into account the system losses. (16,500W -To add to the existing solar Panels)	No	20		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 15kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b>	<b>Carried to</b>			
	<b>SOLAR POWER</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 25 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b>	<b>Carried to</b>			
	<b>GENERATOR POWER BACK UP</b>	<b>Main Summary</b>			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>NYATA KORONDILLE BH2</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</b>				
	<b>NYATA KORONDILLE BH3</b>				
	<b>SECTION 1: MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING</b>				
2.1.1	Mobilization/ demobilization of Rehabilitation unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of Rehabilitation units.	PS	1	300,000	300,000
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>MOBILIZATION AND SETTING UP</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>				
2.2.1	Raise borehole well-head by 1.5m including steel pedestal, fittings, and connection to existing casing	PS	1	10,000.00	10,000.00
2.2.2	Construction of concrete plinth size 1.5mx1.5mx1.5m around well head.	No	1		
2.2.3	Supply and install 25mm diameter pvc water pipe (observation pipe), Class E	Lm	210		
2.2.4	Supply and install high quality pressure gauge range 0-40bars complete with accessories for mounting on galvanised pipe with capabilities for remote control link	No	1		
2.2.5	DN63mm non-slam Double-orifice Air Valve with flanged base, complete to detail as indicated in the Drawings.	No	2		
2.2.6	Supply and install 63mm diameter rising main GMS water pipe, Class C.	Lm	210		
2.2.7	63mm diameter Non-Return valve as 'pegler' or approved equivalent	No	2		
2.2.8	63mm diameter galvanised steel bend	No	4		
2.2.9	Provide, install, test and commission an electromagnetic Master flow meter DN 63 PN16. Rate to include 2 battery power supply, IP 68, RS232 and RS485 port outputs for RTU Monitoring	No	1		
	<b>Supply, install &amp; connect all incoming and outgoing cables to make the pump set work</b>				
2.2.10	10mm2 4-core PVC round hardened PVC submersible electric cable	Lm	300		
2.2.11	1.5mm2 4-core PVC round hardened PVC electrode cable waterproof	Lm	600		
2.2.12	1.5mm2 4-core PVC/SWA/PVC cable from control panel to water tanks	Lm	100		
2.2.13	Electrode probe pair	No	2		
2.2.14	6mm2 Twin Flat earth cable	Lm	30		
2.2.15	Earth rod Complete with earth lead Clamp	Set	1		
2.2.16	8mm thick borehole cover complete with sundries	Ls	1		
2.2.17	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	Lm	100		
	<b>Solar panels Cleaning - Sprinklers system</b>				
2.2.18	Allow for 6 No. sprinklers complete with 60m long 40mm pvc high pressure pipes including fittings and 1No. Manually Controlled Gate valve. The system to be connected to the rising mains	Ls	1		
	<b>BOREHOLE PUMP</b>				
2.2.19	Supply & install 13KW Submersible Multistage centrifugal borehole stainless steel Pump and Motor, continuously rated and capable of pumping 7 m³/hr of water against a total head of 276m. The pump shall have in-built non-return valve, tail strainer, cable guard, etc.. The pump to be supplied complete with water tight cable splicing kit and connection ripple.	No	1		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>REHABILITATION, INSTALLATION &amp; TESTING OF BOREHOLE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DATA ACQUISITION AND MONITORING SYSTEM</b>  <i>Supply, install, test and commission the following Data Acquisition &amp; Monitoring System. The cost shall include cabling and integration of the sensors into the data logger, Communication protocols, Transmission and User Display and controls.</i>  Supply and installation of Borehole CTD-Diver-D128x with the capacity to do Data Acquisition and Monitoring for Water Levels, Temperature, PH, Conductivity and Pressure within the Boreholes. The Specifications for the Diver; Length 135mm, Diameter 22mm, weight 100g, Housing Stainless steel 316L, Pressure sensor- piezzo resistive ceramic, conductivity sensor -Platinum electrode, Battery life of upto 10 years, Sample interval of 1 sec to 99hrs, Sample method as fixed interval or event dependent, Communication-RS232 2G, 3G, 4G/LTE. Temperature range - 20 to 80 degrees and Conductivity 0 to 30 Or 12mS/cm2  Supply and installation of Diver -LINK- DN4xx with data logging and transmission, compact enclosure, Universal SIM card, Battery Operated, Internal and external Antenna, Barometric data logger, IP67 rating magnet operated, Bluetooth smart enabled, over-the-air firmware update and compatible with all Diver data loggers and cables. The Power supply battery life of 5 or more years 2 D-cells with option of solar or mains 3 to 16V, 500mA. Capacity to transfer Diver data to a secure FTP servers, send data to emails, notifications, warnings, thresholds, Alarms, Incremental data upload. The Configurations to be Auto and remote control through HUB401-403 Diver-Hub web portal  DXT -Cable - AS2xxx with standard lengths of 300m  Allow for Testing, User Training and Commissioning the Monitoring system	No	1		
2.3.1		No	1		
2.3.2		No	1		
2.3.3		m	300		
2.3.4		Ls	1		
<b>SECTION 3:</b> <b>DATA ACQUISITION AND MONITORING SYSTEM</b>		Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 4: SOLAR POWER</b>				
2.4.1	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 25kW on a bright sunny day at midday taking into account the system losses. (27,500W -To add to the existing solar Panels)	No	50		
2.4.2	Allow for Maintenance and Rehabilitation of the existing Solar Panels to involve cleaning of the solar panels, checking for any faults/cracks, Cable connections, Testing output and performance, Re-positioning for maximum efficiency. The cost to include the rehabilitation of the existing mounting structures to include but not limited to spray painting, anchoring and reinforcing loose supports.	PS	1	100,000	100,000
2.4.3	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	Ls	1		
2.4.4	Supply, Install, Test and Commission a 25kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V, 50Hz complete with accessories. The controller shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemecanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit. The controller should provide the following protections and functions including but not limited to Dry run protection, overload protection, underload protection, over voltage protection, phase failure protection, short circuit protection. The Control Panel to include Variable speed Controller CUE for the Pump. The control mode to be remote controlling with RTU and Remote Central SCADA link. The display to be LCD display with signal transmissions for level float switch, level probe and pressure switch. The panel to be able to show faults detected and with working temperature of -25 to 60 degrees and working Humidity of 20 to 90% RH. The degree of protection of atleast IP54.	Set	1		
2.4.5	Supply and install DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.4.6	Supply, install, test and commission a TPN Automatic change over switch for the above components with override switch, complete with the metal enclosure to have a protection of atleast IP54.	No	1		
2.4.7	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	No	1		
2.4.8	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	m	120		
2.4.9	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	Set	1		
2.4.10	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	Set	1		
2.4.11	Allow for 12 months Defects Period Maintenance including training of User operators and technicians.	Ls	1		
2.4.12	<b>Stand alone Solar Powered Security Lights</b> Supply and Install Solar street lights 6m height complete with LED lamps 100 watts, 2 water proof battery(10-12 hrs lighting per day) complete with concrete mounting base	Ls	4		
	<b>SECTION 4:</b> <b>SOLAR POWER</b>	<b>Carried to Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 5: GENERATOR POWER BACK-UP</b>				
2.5.1	Supply, Deliver, Install, Test and Commission New 35 KVA Power Back up Generator	No	1		
2.5.2	Solar and Generator Power Intergration -Automatic Change over Panel	Pcs	1		
2.5.3	Solar DC MCB SL7-63 1000VDC 4P 31A	Pcs	1		
2.5.4	10mm2 4Core Underground Cable	m	30		
	<b>Fire Fighting Equipment</b>				
2.5.5	Supply, install, test and commission 5 Kg Class ABC Powder steel cylinder fire extinguisher, c/w pressure gauge wall mounting steel bracket, operating instructions and accessories, fully charged.	No	3		
	<b>SECTION 5:</b> <b>GENERATOR POWER BACK UP</b>	Carried to Main Summary			
SEC	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 2: BOREHOLES, PUMPS AND POWER SUPPLY</u></b>				
	<b>NYATA KORONDILLE BH3</b>				
	<b><u>SUMMARY</u></b>				
1	MOBILIZATION, SETTING UP, DEMOBILIZATION AND SHIFTING				
2	REHABILITATION, INSTALLATION & TESTING OF BOREHOLE				
3	DATA ACQUISITION AND MONITORING SYSTEM				
4	SOLAR POWER				
5	GENERATOR POWER BACK-UP				
<b>SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY</b>					

BILL 2: BOOSTER STATION PUMP AND POWER SUPPLY					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Supply & install 9.2KW Surface Multistage centrifugal Pump and Motor, continuously rated and capable of pumping 5 m <sup>3</sup> /hr of water against a total head of 150m. The pump set to be duty and stand-by with automatic switch and controls	2	Set		
B	Supply and install a control panel to be mounted in the plant room. The control panel shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear, Switch box / control unit: OTDCP16, Circuit Breaker, 40Amp; Switch box / control unit: OVR PV 40-1000 P, Variable Speed Pump Controller CUE, and Sine-wave filter. It shall be complete with power surge protector, time delay switch, MCBs, isolators, ON/OFF LED indicator light and any other necessary controls for proper functioning of the borehole pump.	2	No.		
C	Earth rod Complete with earth lead	2	Set		
D	Junction box Complete fittings	2	Set		
E	Main switch fuse/MCCB 40 A	2	No.		
	<b>Pump House</b>				
F	Provide all materials, construct and commission a 2mx2m internal dimensions pump house for housing the pump system, all as detailed in the drawings.	1	Ls		
	<b>Sump - 50m3 Ground Masonry Tank</b>				
G	Construct a 50m <sup>3</sup> ground-level masonry sump tank for the booster station, including all earthworks, concrete works, masonry walling, waterproof plastering, cover slab with access hatch, and all inlet, outlet, overflow, and scour pipework complete as per standard masonry tank drawings and specifications.	1	Ls		
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<b>Solar Power</b>				
A	<b>Supply, install, test and commission of an array of solar with the following specifications:</b> 550W solar panels, Monocrystalline Silicon PV a with 25 years warranty. The power output of the modules should generate enough power such that the power output at the connection point to the distribution board is not less than 30kW on a bright sunny day at midday taking into account the system losses.	56	No.		
B	<b>Supply, installation and furnishing support structures with the following specifications:</b> Galvanized 75mm x 75mm x 5mm Thick SHS beams (minimum) and 50mm x 50mm x 4mm angle sections, stainless steel bolts of appropriate size and anchored firmly to the ground on concrete fixtures so that the modules are about 3 m above the ground for the low height side and a maximum of 5m above the ground for the high height side in case of a 2m length solar panel or any other height on the high height side as long as the tilt angle is not more than 15oC from the horizontal. A layer of ballast aggregate of 16mm to be laid below the solar PV arrays. The angle of inclination and orientation of the modules to be determined by the site geographical coordinates for maximum optimization of the power output.	1	Ls		
C	Supply, install, test and commission a 30kW (minimum) Hybrid Solar Pumping Inverter RSI 3x380-440V IP66 complete with accessories. The inverter to be installed indoors or under the solar panels mounting with a small shed above and to have protection of at least IP54.	1	Set		
D	Supply and install DC MCB SL7-63 1000VDC 4P 31A	1	Pcs		
E	Supply, install, test and commission 3phase Energy Meter for measuring energy generated by the solar PV system complete with IP66 rated enclosure.	1	No		
F	Supply, install, test and commission 10mm2 4Core Underground Cable complete with all necessary accessories for connection of solar modules to inverter, to intelligent controller/manager and to agreed connection point at the station through an energy meter and generator. This to also include cabling from the diesel generator for integration with power from the solar plant.	100	Lm		
H	Supply and install Aerial lightning arrestors at 10m height, fixed to concrete foundations	1	Set		
I	Supply and install Earthing materials, including all inspection chambers, rods, tape bonding straps etc. as necessary for the earthing requirements with the borehole	1	Set		
J	Supply, install, test and commission 3 phase Motor Protection Unit MP204 or equivalent	1	No		
K	Allow for supply, installation, testing and commissioning of Variable Speed Pump Controller CUE	1	Sum		
L	Allow for 12 months after sale service including training of operators and technicians.	1	Ls		
	<b>Stand alone Solar Powered Security Lights</b>				
M	Solar street lights 8m height complete with LED lamps 60 watts, 2 water proof battery(10-12 hrs lighting per day)	3	Ls		
SUB TOTAL FOR BILL 2 CARRIED FORWARD TO PROJECT SUMMARY					

**BILL No. 3:**  
**FENCING AND GATE**



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 3 - FENCING AND GATE ALL BHs</b>				
	<b>SECTION 1: GATES AND GATE ENTRANCE</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
3.1.1	Excavate pits for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	6.48		
3.1.2	Extra over for excavation in rock of all classes	Cm	1.944		
	<i><u>Disposal</u></i>				
3.1.3	Return, fill and ram selected excavated material around foundations, and balance spread on site	Cm	4.86		
3.1.4	Load and cart away surplus excavated material away from site	Cm	1.62		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
3.1.5	50 mm thick blinding under column bases	Sm	4.32		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
3.1.6	Column bases	Cm	1.296		
	<i><u>Vibrated Reinforced Concrete class 25/20: as described in</u></i>				
3.1.7	Columns	Cm	0.972		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
3.1.8	Assorted bars (D8 - D16)	Kg	224		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
3.1.9	Vertical sides of column bases	Sm	4.32		
3.1.10	Vertical sides of columns	Sm	12.96		
	<b><u>Coping</u></b>				
	<i><u>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</u></i>				
3.1.11	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
3.1.12	Pillar coping; overall size 400 x 400 x 150 mm, raised	No	3		
	<b><u>Finishes</u></b>				
	<i><u>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</u></i>				
3.1.13	Concrete surfaces externally; finished smooth	Sm	8.64		
	<b><u>Gates</u></b>				
	<i><u>Supply, assemble and fix the following purpose made standard section steel gates obtained from an approved manufacturer, complete with heavy duty hinges, padlock hasps barrel bolts, primed with red oxide primer before delivery to site and building in lugs to masonry</u></i>				
3.1.14	Mild steel gate: overall size 4,000 x 2,400 mm high; spray-painted in enamel paint (m/s); all as per Engineer's design and details	No	1		
3.1.15	Ditto: to Pedestrian gate: overall size 1,300 x 2,400 mm high	No	1		
	<b><u>Painting and decoration</u></b>				
	<i><u>Prepare surfaces, skim and apply three coats of Silicone exterior paint as described on</u></i>				
3.1.16	Rendered concrete surfaces, externally	Sm	8.64		
	<i><u>Prepare and apply two finishing coats of super gloss enamel paint to:</u></i>				
3.1.17	General surfaces of metal gates (measured on both sides)	Sm	25.44		
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>GATES AND GATE ENTRANCE</b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: CHAIN-LINK FENCING</b>				
3.2.1	3350 mm high concrete post and chain link fencing; comprising of hot-dip galvanized 12G chain link wire of mesh size 50 x 50mm, fixed to 4No. Rows of 12G high-tensile wires fixed to 3350mm long overall x 100 x 100 mm precast concrete class 20 posts, spaced at 2500 mm centres, reinforced as necessary for handling and seven times holed for wires or fixing bolts; the top of post cranked for a length of 500 mm comprising 3No. Rows of 12G high-tensile barbed wires; the bottom of post cast into and including 400 mm dia. x 400 mm deep plain concrete class 15/20 base, including all necessary excavations, disposal and formwork; the fencing secured to ground with approved type metal peg hooks fixed to ground at 1000 mm centres to approval and satisfaction of the Engineer	Lm	154.7		
3.2.2	Extra over for end posts with one raking strut; size 120 x 120 x 3350 mm Long	No	2		
3.2.3	Extra over for corner posts with two raking struts; size 120 x 120 x 3350 mm Long	No	8		
3.2.4	Extra over for mid posts with two raking struts; size 120 x 120 x 3350 mm Long	No	10		
	<b>SECTION 2:</b>	<b>Carried to</b>			
	<b>CHAIN-LINK FENCING</b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: STORMWATER DRAINS</b>				
	<u>Site Preparation and Earthworks - Involves clearing the site of all vegetation and debris, followed by earthworks to achieve the required grade. Soil compaction to meet 95% Proctor density standard.</u>				
3.3.1	Site Clearing and Vegetation Removal - Clearing vegetation and disposing of waste in accordance with environmental standards. Minimum clearing depth 300mm. Use chainsaws, skid steers, and trucks.	Sm	240		
3.3.2	Channel Excavation - Excavation of channels for water diversion with a slope and depth as per design. Soil stabilization required where necessary.	Cm	112.5		
	<b>SECTION 3:</b>	<b>Carried to</b>			
	<b>STORMWATER DRAINS</b>	<b>Main Summary</b>			

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**BILL No. 4:**  
**WATER KIOSKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
4.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	16.35		
4.1.2	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	4.86		
4.1.3	Excavate for Strip footing pits not exceeding 1.0 metres deep, starting from reduced levels	Cm	3.12		
4.1.4	Extra over for excavation in rock of all classes	Cm	3.99		
	<i><u>Disposal</u></i>				
4.1.5	Return, fill and ram selected excavated material around foundations.	Cm	3.72		
4.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	4.26		
	<i><u>Hardcore or other approved filling, as described</u></i>				
4.1.7	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	4.91		
4.1.8	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	16.35		
	<b><u>Anti-termite treatment</u></b>				
4.1.9	Chemical anti-termite treatment executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	16.35		
	<b><u>Damp-proof Membrane</u></b>				
4.1.10	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	16.35		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
4.1.11	50 mm thick blinding under Column bases	Sm	3.24		
4.1.12	Ditto: under Strip footings	Sm	3.12		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.13	Column bases	Cm	1.33		
4.1.14	Columns	Cm	0.19		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
4.1.15	100 mm thick floor Slab	Cm	1.16		
4.1.16	Ditto: to sloping ramp slabs	Cm	0.69		
4.1.17	Strip footings	Cm	0.62		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.1.18	Assorted bars (D8 - D16)	Kg	128.88		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
4.1.19	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	12.26		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
4.1.20	Vertical sides of column bases	Sm	4.32		
4.1.21	Vertical sides of columns	Sm	3.84		
4.1.22	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	14.66		
4.1.23	Ditto: to edges of ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar; reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.1.24	200 mm thick foundation walling	Sm	12.36		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar; wood floated: on masonry or concrete surfaces: as described to</i>				
4.1.25	Concrete surfaces externally; finished smooth	Sm	8.40		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as supplied by "Crown Paints" or approved equivalent: as described on</i>				
4.1.26	Rendered surfaces, externally	Sm	8.40		
	<b><u>Paving slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
4.1.27	Paving slabs, around building (one row); including all excavations and earthworks	Sm	8.80		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page above				
	<b>SECTION 1:</b>				
	<b>SUBSTRUCTURES</b>				
	<b>Carried to Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i>Vibrated reinforced concrete class 25/20: as described in</i>				
4.2.1	Beams	Cm	0.59		
4.2.2	Roof slab, 150 mm thick	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
4.2.3	Assorted bars (D8 - D16)	Kg	129		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>				
4.2.4	Vertical sides and soffits of beams	Sm	5.88		
4.2.5	Vertical sides of columns	Sm	6.72		
4.2.6	Horizontal soffits of suspended slabs	Sm	8.19		
4.2.7	Edge of suspended slabs over 75 mm but not exceeding 150 mm girth	Sm	2.20		
	<b>SECTION 2: Carried to SUPERSTRUCTURE Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
4.3.1	200 mm thick walling	Sm	15.60		
	<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>				
4.3.2	200 mm wide; levelled and bedded under wall	Lm	14.66		
	<b><u>Coping</u></b>				
	<i>Precast concrete class 20 (12mm aggregate) including formwork finishing fair face on all exposed surfaces, and bedding and jointing in cement and sand (1:3) mortar with drip groove:-</i>				
4.3.3	Size 200 x 75 mm coping; twice weathered and throated	Lm	2.30		
	<b>SECTION 3: Carried to WALLING Main Summary</b>				



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 4: EXTERNAL FINISHES</u></b>				
	<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>				
4.4.1	Concrete surfaces externally; finished smooth	Sm	2.95		
	<i>Key pointing to horizontal joints and flushing to vertical joints; in cement and sand (1:3) mortar: as described to</i>				
4.4.2	Masonry surfaces externally; finished smooth	Sm	12.64		
	<b><u>Steps and Ramp finishes</u></b>				
	<i>Cement and sand (1:3) screeds, backings, beds etc: coloured to approval: finished in smooth steel float</i>				
4.4.3	Treads to steps, 300 mm wide	Lm	6		
4.4.4	Risers to steps, 150 mm high	Lm	6		
	<b><u>Painting and decorating</u></b>				
	<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>				
4.4.5	Rendered concrete surfaces, externally	Sm	3.0		
	<b><u>SECTION 4:</u></b> Carried to				
	<b>EXTERNAL FINISHES</b> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>SECTION 5: INTERNAL WALL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>				
4.5.1	Concrete surfaces, internally	Sm	2.95		
4.5.2	Masonry surfaces, internally	Sm	12.64		
4.5.3	Jambs and reveals: 100 - 200 mm girth	Lm	10.40		
	<b><u>Floor Finishes</u></b>				
	<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>				
4.5.4	25 mm thick screeds on floors to steel trowel finish	Sm	7		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint: as described on</i>				
4.5.5	Plastered concrete surfaces, internally	Sm	3		
4.5.6	Plastered walls surfaces, internally	Sm	13		
4.5.7	Jambs and reveals: 100 - 200 mm girth	Lm	10		
	<i>Prepare surfaces, skim and apply one undercoat and two final coats of brilliant white plastic emulsion paint as: as described on</i>				
4.5.8	Plastered soffits of slabs, internally	Sm	8		
	<b><u>SECTION 5 :</u></b> Carried to				
	<b>INTERNAL FINISHES</b> Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>  <b><u>SECTION 6: DOORS</u></b>  <b><u>Metal Doors</u></b>  <i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
4.6.1	Door: Overall Size 900 x 2100 mm high, in single leaf; complete with purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Architectural design and details	No	1		
4.6.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.6.3	General surfaces of metal doors (measured on both sides)	Sm	4		
	<b><u>SECTION 6</u></b> <b><u>DOORS</u></b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>  <b><u>SECTION 7: WINDOWS</u></b>  <b><u>Steel Windows</u></b>  <b><u>The following to Water Kiosk:-</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</i>				
4.7.1	Window overall size: 1000 x 1200 mm high: in two equal leaves; complete with advert pockets in 500 x 600 mm perspex covers; details to Engineer's design and details	No	1		
	<b><u>Painting &amp; Decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
4.7.2	General surfaces of metal windows (measured on both sides)	Sm	3.12		
	<b><u>SECTION 7</u></b> <b><u>WINDOWS</u></b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b>SECTION 8: PLASTIC WATER TANK AND WATER KIOSK ATM</b>				
	<b><u>5,000 litres Elevated Plastic Tank</u></b>				
4.8.1	Provide for the purchase, supply and installation of a 5m <sup>3</sup> plastic tank & fix all the necessary fittings including inlets, outs, and taps as directed by the supervising Engineer	No	1		
4.8.2	Supply, Install and Commission a 25mm diameter water meter.	No	1		
4.8.3	25mm Gate valves	No	7		
	<b><u>Tank Roof</u></b>				
	<i>Sawn cypress first grade; pressure impregnated; thoroughly seasoned and treated with anti-termite; and other jointing accessories to structural engineer's details; timber to meet the following minimum strength criteria, bending 5N/mm<sup>2</sup>, tension 3N/mm<sup>2</sup> and compression 6N/mm<sup>2</sup></i>				
4.8.4	50 x 50 x 3mm thick steel stanchion fixed to the reinforced concrete column to approval	Lm	10		
4.8.5	75 x 50 mm timber rafter fixed to the steel stanchions	Lm	12		
4.8.6	50 x 50 mm timber batten fixed to the rafter to approval	Lm	9		
4.8.7	MRM box profile sheets available in white and clear; 12,000mm length x 810mm width.	Sm	7		
	<b><u>Water ATM</u></b>				
4.8.8	Supply, install, test, and commission smart card-operated water ATM system including cabinet, dispenser, solar power unit, piping, fittings, control unit, and user training, complete as per specifications.	Ls	1		
4.8.9	Provide all materials and install high level MDF shelves inside water kiosks, as shown on the drawings.	Ls	1		
	<b>SECTION 8</b> Carried to <b><u>PLASTIC WATER TANK</u></b> Main Summary				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b>SECTION 9: SOAK AWAY PIT</b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</i>				
4.9.1	Excavate for soak away pit, 1.5m diameter, 2.7m depth, in normal soil	Cm	4.77		
4.9.2	Extra over for excavation in rock material	Cm	1.43		
4.9.3	Return, fill and ram selected excavated material around to 0.3m depth	Cm	0.53		
4.9.4	Load, wheel and deposit surplus excavated material away from site	Cm	4.24		
	<b><u>Hardcore or other approved filling, as described</u></b>				
4.9.5	300 mm thick handpacked h/core material in filling to 2.4m height, compacted in layers n.e. 150mm thick.	Cm	4.24		
	<b><u>Plastic Sheet Lining</u></b>				
4.9.6	1000 gauge polythene or other equal and approved plastic sheet lining, laid over hardcore.	Sm	1.77		
	<b><u>Drain Pipe</u></b>				
4.9.7	Supply and install 150mm dia uPVC drain pipe, 5m length	m	5.00		
	<b>SECTION 9</b> Carried to <b><u>SOAK AWAY PIT</u></b> Main Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 4: WATER KIOSK TYPE 1</b>				
	<b><u>SECTION 10: GULLEY TRAP</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
4.10.1	Excavate for gulley trap, 0.6m x 0.6m x 0.5m depth, in normal soil	Cm	0.22		
4.10.2	Load, wheel and deposit surplus excavated material away from site	Cm	0.22		
	<b><u>Concrete</u></b>				
4.10.3	Supply and place 50mm thick mass concrete blinding under base slab; class 15/20 for gulley trap (0.6m x 0.6m)	Cm	0.02		
4.10.4	Supply and place 100mm thick mass concrete base class 20/20 for gulley trap (0.6m x 0.6m)	Cm	0.04		
	<b><u>Blockwork</u></b>				
4.10.5	Supply and lay 150mm thick masonry blockwork walls in cement mortar joints, as approved (0.4m high)	Sm	0.7		
4.10.6	Plaster external and internal walls with 15mm thick cement:sand (1:4) render	Sm	1.44		
	<b><u>Fittings</u></b>				
4.10.7	Supply and install 50mm thick 400mm x 400mm precast concrete top cover slab for gully trap (reinforced with A142 mesh fabric)	No.	1		
	<b>SECTION 10: Carried to GULLEY TRAP Main Summary</b>				
ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 4: WATER KIOSK TYPE 1</u></b>				
	<b><u>SUMMARY</u></b>				
4.1	Substructure (Provisional)				
4.2	R.C. Superstructure				
4.3	Walling				
4.4	External Wall Finishes				
4.5	Internal Finishes				
4.6	Doors				
4.7	Windows				
4.8	Plastic Water Tank and Water Kiosk ATM				
4.9	Soak Away Pit				
4.10	Gulley Trap				
	<b>TOTAL FOR 1No. WATER KIOSK</b>				
	<b>TOTAL FOR 8 No. WATER KIOSKS</b>	NO.	8	Kes. Kes.	
<b>TOTAL FOR BILL 4 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 5:**  
**OPERATOR'S BUILDING AND**  
**GUARD HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
5.1.1	Oversite excavation 200 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Cm	6.54		
5.1.2	Excavate for trench foundations not exceeding 1.50 metres deep, starting from reduced levels	Cm	20.52		
5.1.3	Extra over for excavation in rock of all classes	Cm	6.16		
	<i><u>Disposal</u></i>				
5.1.4	Return, fill and ram selected excavated material around foundations.	Cm	11.88		
5.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	8.64		
	<i><u>Hardcore or other approved filling, as described</u></i>				
5.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Cm	9.80		
5.1.7	50 mm thick quarry dust or approved murrum blinding layer to surfaces of hardcore m.s	Sm	32.68		
	<b><u>Anti - termite treatment</u></b>				
5.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	32.68		
	<b><u>Damp-proof membrane</u></b>				
5.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	32.68		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
5.1.10	50 mm thick blinding under strip foundations	Sm	16.20		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
5.1.11	Strip footings	Cm	3.24		
5.1.12	150 mm Thick Surface beds	Cm	4.90		
5.1.13	Ditto; to sloping ramp slabs	Sm	0.54		
5.1.14	Extra over ramp slabs for formation of herringbone pattern; tamping to top surface of concrete slabs during casting	Sm	0.54		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
5.1.15	Assorted bars (D8 - D16)	Kg	162.00		
	<i><u>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</u></i>				
5.1.16	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	36.28		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</u></i>				
5.1.17	Vertical sides of strip footings	Sm	10.80		
5.1.18	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	23.00		
5.1.19	Ditto: but sloping, to ramps	Lm	9.80		
	<b><u>Foundation walling</u></b>				
	<i><u>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u></i>				
5.1.20	150 mm thick foundation walling	Sm	36.00		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>Plinth finishes</u></b>				
	<i><u>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</u></i>				
5.1.21	Concrete and masonry surfaces externally; finished smooth	Sm	10.35		
	<i><u>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</u></i>				
5.1.22	Rendered surfaces, externally	Sm	10.35		
	<b><u>Paving slabs</u></b>				
	<i><u>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</u></i>				
5.1.23	Paving slabs, around building (one row); including all excavations and earthworks	Sm	13.80		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page 2				
	From Page above				
	<b>SECTION 1:</b>	<b>Carried to</b>			
	<b>SUBSTRUCTURES</b>	<b>Main Summary</b>			







ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<i>structural timber to be second grade sawn and planed celcured cypress to approval.</i>				
5.4.1	Tie beam: 75 x50	m	18.80		
5.4.2	King Post: 75x50	m	4.40		
5.4.3	Struts: 75x50	m	10.40		
5.4.4	Purlins: 50 x 50	m	97.99		
5.4.5	Wall plate: 150x50mm	m	16		
5.4.6	Rafters: 75x50	m	25		
	<b><u>Eaves Finishes</u></b>				
	<i>Fascia Board: in 2mm thick mild steel</i>				
5.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	28.33		
	<b><u>Roof covering</u></b>				
	<i>Gauge 28 IT5 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</i>				
5.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	48.99		
5.4.9	Ridge cap to match	Lm	8.17		
	<b><u>Painting &amp; Decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
5.4.10	Metal surfaces: 200 - 300mm girth	Lm	4.20		
	<b>SECTION 4</b>	<b>Carried to</b>			
	<b>ROOFING</b>	<b>Main Summary</b>			



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 5: OPERATOR'S BUILDING</b> <b><u>SECTION 6: INTERNAL FINISHES</u></b>				
	<b><u>Wall Finishes</u></b>				
	<u>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</u>				
5.6.1	Concrete surfaces, internally	Sm	9.30		
5.6.2	Masonry surfaces, internally	Sm	76.96		
	<b><u>Floor Finishes</u></b>				
	<u>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</u>				
5.6.3	32 mm Thick bed screed on floor to steel trowel finish level	Sm	32.68		
	<b><u>Painting and decoration</u></b>				
	<u>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b>matt emulsion</b> paint as "Crown Paints" or approved equivalent: as described on</u>				
5.6.4	Plastered concrete surfaces, internally	Sm	9.30		
5.6.5	Plastered walls surfaces, internally	Sm	76.96		
<b>SECTION 6</b> <b>INTERNAL FINISHES</b>					Carried to Main Summary



ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>				
	<b><u>SECTION 8: WINDOWS</u></b>				
	<b><u>Window Sill</u></b>				
	<i><u>Precast concrete class 20 fair faced all exposed surfaces bedded and jointed cement and sand (1:3) mortar</u></i>				
5.8.1	Size 175 x 75 mm thick window sill once rebated and throated; laid and jointed in cement and sand (1:3) mortar	Lm	6.40		
	<b><u>Steel Casement Windows</u></b>				
	<i><u>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Engineer's schedule: as described to</u></i>				
5.8.2	Window overall size: 1500 x 1175 mm high: details to Architect's design and details	No	2		
5.8.3	Window overall size: 2000 x 1175 mm high: details to Architect's design and details	No	2		
	<b><u>Painting &amp; Decoration</u></b>				
	<i><u>Prepare and apply two finishing coats of super gloss finished paint to:</u></i>				
5.8.4	General surfaces of metal windows (measured on both sides)	Sm	8		
	<b><u>SECTION 8</u></b>	<b>Carried to</b>			
	<b><u>WINDOWS</u></b>	<b>Main Summary</b>			

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
5.9.1	<b><u>BILL No. 5: OPERATOR'S BUILDING</u></b>					
	<b><u>SECTION 9: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>					
	<b><u>Builder's work in connection with Electrical Installations;</u></b>					
	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1			
	<b><u>Builder's work in connection with plumbing and drainage installations;</u></b>					
5.9.2	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing plumbing, drainage and fire-fighting installations: to include sanitary and fire-fighting fittings, wastes under floor slabs, supply pipes fixed on walls including cutting holes, chases and making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1			
	<b><u>SECTION NO. 9</u></b> <b>Carried to</b>					
	<b><u>B.W.I.C WITH SERVICES</u></b>	<b>Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
5.1 5.2 5.3 5.4 5.5 5.6 5.7 5.8 5.9	<b><u>BILL 5: OPERATOR'S BUILDING</u></b>					
	<b><u>SUMMARY</u></b>					
	Substructure (Provisional)					
	R.C. Superstructure					
	Walling					
	Roofing					
	External Finishes					
	Internal Finishes					
	Doors					
	Windows					
	Builders' Work in Connection with Services (Provisional)					
	<b>TOTAL FOR 1No. OPERATOR'S BUILDING</b>		<b>No.</b>	<b>1</b>	<b>Kes.</b> <b>Kes.</b>	
	<b>TOTAL FOR 1 No. OPERATOR'S BUILDING</b>					
<b>TOTAL FOR BILL 5 CARRIED FORWARD TO PROJECT SUMMARY</b>						



**BILL No. 6:**  
**PIT LATRINE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>  <b><u>Excavations and Earthworks</u></b>  <i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
6.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	4.35		
6.1.2	Excavate for Strip footing pits not exceeding 1.5 metres deep, starting from reduced levels.	Cm	9.23		
6.1.3	Excavate for underground pit (size 1.5x 2.0 m), depth upto 6 m	Cm	18.00		
6.1.4	Extra over for excavation in rock of all classes	Cm	8.17		
	<i><u>Disposal</u></i>				
6.1.5	Return, fill and ram selected excavated material around foundations.	Cm	18.61		
6.1.6	Load, wheel and deposit surplus excavated material away from site	Cm	16.78		
	<i><u>Hardcore or other approved filling, as described</u></i>				
6.1.7	Imported inert h/core material in filling to make up levels, compacted in layers n.e. 150 mm thick with a vibratory roller to the satisfaction and approval of the Structural Engineer (S.E)	Cm	1.30		
6.1.8	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	4.35		
6.1.9	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	4.35		
	<b><u>Anti-termite treatment</u></b>				
6.1.10	Chemical anti-termite treatment as <i>Termidor 96 SC</i> or aproved equivalent, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	4.35		
	<b><u>Damp-proof Membrane</u></b>				
6.1.11	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	4.35		
	<b>Carried to Collection</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>Concrete works</u></b>				
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.12	150 mm Thick floor Slab	Cm	1.38		
	<i>Vibrated Reinforced Concrete class 20/20: as described in</i>				
6.1.13	Strip footings	Cm	1.23		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
6.1.14	Assorted bars (D8 - D16)	Kg	74		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps);</i>				
6.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	9.23		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
6.1.16	Edges; over 75 mm but not exceeding 100 mm high, to slab	Lm	10.25		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
6.1.17	150 mm thick foundation walling	Sm	15.38		
6.1.18	150 mm thick walling for the pit	Sm	8.40		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
6.1.19	Concrete surfaces externally; finished smooth	Sm	15.38		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint as described on</i>				
6.1.20	Rendered surfaces, externally	Sm	15.38		
	<b>Carried to Collection</b>				
	<b><u>Collection Page</u></b>				
	From Page 1				
	From Page Above				
	<b><u>SECTION 1</u></b>				
	<b>SUBSTRUCTURES</b>				
	<b>Carried to Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 2: SUPERSTRUCTURE</u></b>  <b><u>R.C Frame</u></b>  <b><u>Concrete</u></b>  <i>Vibrated reinforced concrete class 20/20: as described in</i>					
6.2.1	Beams	Cm	0.51		
<b><u>Reinforcement</u> (Provisional)</b>  <i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>					
6.2.2	Assorted bars (D8 - D16)	Kg	31		
<b><u>Formwork</u></b>  <i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</i>					
6.2.3	Vertical sides and soffits of beams	Sm	5.13		
<b><u>SECTION 2</u></b> Carried to <b><u>SUPERSTRUCTURE</u></b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 3: WALLING</u></b>  <b><u>External Walling</u></b>  <i>Masonry Blocks: as described to</i>					
6.3.1	150 mm thick walling	Sm	12.63		
<i>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</i>					
6.3.2	150 mm wide; levelled and bedded under wall	Lm	10.25		
<b><u>SECTION 3</u></b> Carried to <b><u>WALLING</u></b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b>BILL NO. 6: PIT LATRINES</b>					
<b><u>SECTION 4: EXTERNAL FINISHES</u></b>					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar; wood floated: on exposed masonry or concrete surfaces: to</i>					
6.4.1	Concrete surfaces externally; finished smooth	Sm	3		
<b><u>Painting and decorating</u></b>					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>					
6.4.2	Rendered concrete surfaces, externally	Sm	3		
<b><u>SECTION 4</u></b> Carried to <b>EXTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
<b><u>SECTION 5: INTERNAL FINISHES</u></b>					
<b><u>Wall Finishes</u></b>					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
6.5.1	Concrete surfaces, internally	Sm	5		
<b><u>Floor Finishes</u></b>					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
6.5.2	25 mm thick screed on floor to finished level	Sm	3		
<b><u>Painting and decoration</u></b>					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality <b><u>matt emulsion</u></b> paint as described on</i>					
6.5.3	Plastered concrete surfaces, internally	Sm	5		
<b><u>SECTION NO. 5</u></b> Carried to <b>INTERNAL FINISHES</b> Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL NO. 6: PIT LATRINES</b> <b><u>SECTION 6: DOORS</u></b>  <b><u>Wooden Doors</u></b>  <i>Supply, assemble and fix the following purpose made wooden doors: hardwood smoothly joined together; one shop coat of wood preservative primer; building in lugs on jambs and plugging and screwing to head; complete with purpose made ironmongery: as described to.</i>  6.6.1 Wooden door: overall size 900 x1800 mm high, in single leaf; complete with hardwood frames, purpose made heavy duty steel hinges, hasp locks, tower bolts, etc all as necessary; door completed to Standard Drawings and details. No 2  <b><u>Ironmongery</u></b>  <i>Supply and fix the following ironmongery complete with matching screws: as described to</i>  6.6.2 Rubber door stop; fixed to floor or wall in rawl bolt No 2  <b><u>Painting and decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>  6.6.3 General surfaces of wooden doors (measured on both sides) Sm 6				
	<b><u>SECTION 6 DOORS</u></b>	Carried to Main Summary			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL NO. 6: PIT LATRINES</u></b> <b><u>SECTION 7: WINDOWS</u></b>  <b><u>Steel Windows</u></b>  <i>Supply and fix the following purpose made heavy duty mild steel framed windows in m.s sheet panels welded in approved pattern to 25 x 25 x 2mm thick framing all round: pin type hinges: including all necessary cutting, welding and grinding: ironmongery: hinges, fasteners and window stays: one coat aluminium grey primer before fixing: all to Architect's schedule; as described to</i>  6.7.1 Window overall size: 600 x 600 mm high: in single leaf; details to Standard drawings and details. No 2  <b><u>Painting &amp; Decoration</u></b>  <i>Prepare and apply two finishing coats of super gloss finished paint to:</i>  6.7.2 General surfaces of metal windows (measured on both sides) Sm 1				
	<b><u>SECTION 7 WINDOWS</u></b>	Carried to Main Summary			



ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL NO. 6: PIT LATRINES</u></b>				
<b>SEC</b>	<b><u>SUMMARY</u></b>				
6.1	Substructure (Provisional)				
6.2	R.C. Superstructure				
6.3	Walling				
6.4	External Wall Finishes				
6.5	Internal Finishes				
6.6	Doors				
6.7	Windows				
6.8	Roofing				
	<b>TOTAL FOR 1No. PIT LATRINE</b>			<b>Kes.</b>	
	<b>TOTAL FOR 3No. PIT LATRINES</b>	<b>No.</b>	<b>3</b>	<b>Kes.</b>	
<b>TOTAL FOR BILL 6 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 7:**  
**WATER TROUGHS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 1: Water Troughs for Camels and Cattle</u></b>				
	<b>Excavations</b>				
7.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	81.2		
7.1.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	14.64		
7.1.3	Return, fill and ram selected excavated material around foundations.	Cm	9.76		
	<b>Hardcore filling</b>				
7.1.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	81.2		
	<b>Concrete Work</b>				
7.1.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	19.44		
7.1.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.944		
7.1.7	Timber shattering provided to sides of floor slab	Lm	25.2		
7.1.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	19.44		
	<b>Walling for substructure</b>				
7.1.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	24.4		
	<b>Walling for superstructure</b>				
7.1.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	21.96		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.1.11	12mm Thick with finish to masonry walling	Sm	43.92		
7.1.12	25mm thick floor finish	Sm	19.44		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.1.13	GI PN10 pipe	m	10		
7.1.14	GI Barrel Nipples	No	6		
7.1.15	GI Sockets	No	4		
7.1.16	GI Unions	No	3		
7.1.17	GI Gate Valves	No	2		
7.1.18	GI Ball valve	No	1		
7.1.19	GI Elbows	No	4		
7.1.20	2m wide stone masonry riprap all round the water trough	Sm	63.2		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (4) No water troughs</b>	No	4		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 7: WATER TROUGHS</b>				
	<b><u>Section 2: Water Troughs for Sheep and Goats</u></b>				
	<b>Excavations</b>				
7.2.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	64.67		
7.2.2	Excavate bulk for strip footing 0.00-1.5 meters	Cm	11.22		
7.2.3	Return, fill and ram selected excavated material around foundations.	Cm	7.48		
	<b>Hardcore filling</b>				
7.2.4	Supply, fill and ram 300mm thick approved Hardcore	Sm	64.67		
	<b>Concrete Work</b>				
7.2.5	Class 15/20 mass concrete blinding under floor slab and benching	Sm	14.31		
7.2.6	100mm thick reinforced concrete slab class 20/20 to Bs 8110	Cm	1.431		
7.2.7	Timber shattering provided to sides of floor slab	Lm	19.5		
7.2.8	A142 BRC mesh reinforcement inside floor slab and benching	Sm	14.31		
	<b>Walling for substructure</b>				
7.2.9	200 mm thick dressed natural stones for foundation walling in cement and sand mortar (1:3)	Sm	18.7		
	<b>Walling for superstructure</b>				
7.2.10	200 mm Thick (building stones /rubble/interlocking soil blocks) walling in cement and sand mortar (1:3)	Sm	10.005		
	<b>Wall finishes</b>				
	<u>Cement and sand (1:3) render as described in:</u>				
7.2.11	12mm Thick with finish to masonry walling	Sm	20.01		
7.2.12	25mm thick floor finish	Sm	14.31		
	<b>40mm diameter GI pipes and fittings for inlet pipeworks</b>				
7.2.13	GI PN10 pipe	m	10		
7.2.14	GI Barrel Nipples	No	6		
7.2.15	GI Sockets	No	4		
7.2.16	GI Unions	No	3		
7.2.17	GI Gate Valves	No	2		
7.2.18	GI Ball valve	No	1		
7.2.19	GI Elbows	No	4		
7.2.20	2m wide stone masonry riprap all round the water trough	Sm	51.8		
	<b>Subtotal for one (1) No Water Trough</b>				
	<b>Total for (1) No water troughs</b>	No	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: -REHABILITATION OF EXISTING WATER TROUGHS</b>				
	<b>General Items:</b>				
7.3.1	Site clearance and preparation, including removal of debris	Sm	50		
	<b>Structural Rehabilitation:</b>				
7.3.2	Hacking loose concrete/plaster from internal and external surfaces	Sm	44		
7.3.3	Applying new cement-sand plaster (1:3 mix) on internal and external surfaces	Sm	44		
7.3.4	Application of waterproofing treatment using approved sealants	Sm	28		
	<b>Pipeworks and Water Supply:</b>				
7.3.5	Replace outlet pipe to prevent water stagnation	m	10		
7.3.6	Installation of float valve to control water level	No.	1		
	<b>Finishing and Protection:</b>				
7.3.7	Reinforcing edges with concrete or stone pitching for durability	Sm	24		
	<b>Testing and Commissioning:</b>				
7.3.8	Leak testing and assessment after rehabilitation	Sum	1		
7.3.9	Cleaning, disinfection, and commissioning of the rehabilitated trough	Sum	1		
	<b>Subtotal for one (1 No) Water Trough</b>				
	<b>Total for (4) No water troughs</b>	No	4		
<b>TOTAL FOR BILL 7 CARRIED FORWARD TO PROJECT SUMMARY</b>					

# **BILL No. 8: PIPEWORK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 8: PIPE WORK</b> <b>SECTION 1: RISING MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.1.1	General clearance along pipeline route	Lm	4,731		
8.1.2	Removal of trees of girth 600 to 900mm	No	3		
	<b>Trench Excavation</b> 8.1.3 Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications. 8.1.4 Extra Over for excavation in rock of all types	Lm Cm	4,731 454		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.1.5	HDPE pipes OD25mm PN10	m	2,372		
8.1.6	HDPE pipes OD32mm PN10	m	1,851		
8.1.7	HDPE pipes OD40mm PN10	m	86		
8.1.8	HDPE pipes OD50mm PN10	m	57		
8.1.9	HDPE pipes OD63mm PN10	m	112		
8.1.10	HDPE pipes OD90mm PN10	m	253		
	<b>Gate Valves</b> 8.1.11 DN 50mm gate valves. Include all fittings for connection to HDPE or GI pipes as appropriate	No	2		
	<b>Water Meters</b> 8.1.12 Supply and install a DN 90mm dia master meter. Rate to include all jointing materials.	No.	2		
	<b><u>Valve Chambers</u></b> <i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.1.13	Gate valve and meter chambers, as per the detailed drawings	No	2		
8.1.14	Extra Over for excavation in rock of all types, for chambers	Cm	0.52		
	<b><u>Other Pipework Ancillaries</u></b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.1.15	Pipeline marker posts	No	24		
8.1.16	Gate valve marker posts	No	2		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b><u>Concrete stools and thrust blocks</u></b> 8.1.17 Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	0.4		
	<b>Reinstatements</b> 8.1.18 Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 1:</b> <b>RISING MAIN</b>	Carried to Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 2: GRAVITY MAIN</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.2.1	General clearance along pipeline route	Lm	9,174		
	<b>Trench Excavation</b>				
8.2.2	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	9,174		
8.2.3	Extra Over for excavation in rock of all types	Cm	881		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.2.4	HDPE pipes OD75mm PN10	m	496		
8.2.5	HDPE pipes OD110mm, PN10	m	150		
8.2.6	HDPE pipes OD125mm PN10	m	52		
8.2.7	HDPE pipes O140mm PN10	m	8,476		
	<b>Air valves</b>				
8.2.8	Various dia. flanged single orifice air valves PN 10. Include all the required pipework and fittings.	No	19		
	<b><u>Wash outs</u></b>				
8.2.9	Various dia. GI washout valves.	No	6		
	<b><u>Valve Chambers</u></b>				
	<i>For valve chamber detail refer to the schedule of standard drawings</i>				
8.2.10	Air valve chambers, as per the detailed drawings	No	19		
8.2.11	Wash out chambers with outfall structure, as per drawings	No	6		
8.2.12	Extra Over for excavation in rock of all types, for chambers	Cm	6.48		
	<b><u>Other Pipework Ancillaries</u></b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.2.13	Air valve marker posts	No	19		
8.2.14	Washout marker posts	No	6		
8.2.15	Pipeline marker posts	No	46		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b>				
	<b>Reinstatements</b>				
8.2.16	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 2:</b>	Carried to			
	<b>GRAVITY MAIN</b>	Main Summary			

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>SECTION 3: DISTRIBUTION NETWORK</b> <i>Refer to Construction Drawings</i> <b>Site Clearance</b> <i>Site clearance shall be deemed to include removal of trees and stumps where required, and disposal to the appropriate locations. The girth shall be measured 1m above the ground level. (provisional)</i>				
8.3.1	General clearance along pipeline route	Lm	5,236		
	<b>Trench Excavation</b>				
8.3.2	Excavation and backfilling of trench for pipelines; depth not exc. 1.2m. Trench width and minimum cover to the pipes is as indicated in the drawings and specifications.	Lm	5,236		
8.3.3	Extra Over for excavation in rock of all types	Cm	503		
	<b>Pipework</b> <i>Supply and transport to site store; transport from site store, lay and joint pipes in trench, use of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, all as specified. The cost should include all the required fittings and joinery materials, anchorage and associated fittings.</i>				
	<b><u>HDPE Pipes</u></b>				
8.3.4	HDPE pipes OD25mm PN10	m	1,330		
8.3.5	HDPE pipes OD40mm, PN10	m	1,263		
8.3.6	HDPE pipes OD50mm PN10	m	1,990		
8.3.7	HDPE pipes OD63mm PN10	m	653		
	<b>Water Meters</b>				
8.3.8	Supply and install water meters for the existing I.Cs.	No.	40		
	<b><i>Other Pipework Ancillaries</i></b> <i>Marker posts shall be made from reinforced precast concrete class 25/20, to detail. This item shall be deemed to include supply, fixing and painting as directed by the Engineer.</i>				
8.3.9	Pipeline marker posts	No	26		
	<b>PIPEWORK – SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION</b> <b><u>Concrete stools and thrust blocks</u></b>				
8.3.10	Provide and place mass concrete (class 15/20) for anchor blocks and stools in valves, bends etc. Rate to include excavation and necessary formwork (provisional).	Cm	4		
	<b><i>Crossings</i></b> <i>Rate to include all necessary materials, and fittings for anchoring pipes across rivers, laghas</i>				
8.3.11	River or lagha crossing, width 3 - 10m, pipe bore not exce. 300mm	No	1		
	<b>Reinstatements</b>				
8.3.12	Breaking up, temporary and permanent reinstatement of dirt roads, pipe bore not exce. 300mm (Provisional)	m	100		
	<b>SECTION 3: DISTRIBUTION NETWORK</b>	Carried to Main Summary			



ITEM	DESCRIPTION				AMOUNT (KSHS)
	<b><u>BILL No. 8: PIPE WORK</u></b>				
	<b><u>SUMMARY</u></b>				
1	RISING MAIN				
2	GRAVITY MAIN				
3	DISTRIBUTION NETWORK				
	<b>TOTAL</b>				
<b>TOTAL FOR BILL 8 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 9:  
ELEVATED STEEL TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 9: ELEVATED STEEL TANKS</b> <u>Earth works, concrete works and Tank construction to be done in line with EST drawing</u> <b>Excavations and Earthworks</b> <u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u>				
9.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	25		
9.1.2	Excavate for Column pits not exceeding 1.50 metres deep, starting from reduced levels	Cm	37.5		
9.1.3	Extra over for excavation in rock of all classes	Cm	11.25		
9.1.4	Return, fill and ram selected excavated material around foundations.	Cm	19.2		
	<b>Tank Construction</b> Supply and place reinforced concrete Class C20/20 as foundation for tank tower.				
9.1.5	Rate to include for reinforcement bars for the foundation, and formwork as necessary	Cm	19.58		
9.1.6	Allow for compliance to other foundation requirements as recommended by the manufacturer	Sum	1		
9.1.7	Supply all materials, tools and equipment and erect a 75m <sup>3</sup> steel sectional tank of the Braithwaite type or equally approved standard include a tank tower of 15 meters, ladder with ladder guard inside ladder, walkway with walkway guard, water level gauge and tank cover, provision of air vent, support rails, inlets and outlet for pipes etc., for complete installation	No.	1		
	<b>Pipes and Specials</b> All pipes and specials shall comply with the requirements of BS 5950. Allow for gaskets, nuts, washers, bolts, cutting and threading on site Provide, fix and test following : ( All screwed flanges listed separately)				
	<b>Inlet</b>				
9.1.8	100mm G.I. flanged socket adaptor, all flanged	No	1		
9.1.9	100mm 65 G.I. 90° bend, all flanged	No	4		
9.1.10	100mm all flanged gate valve	No.	1		
9.1.11	100mm G.I flanged pipe	m	18		
9.1.12	DN 50mm float valve	No.	1		
	<b>Overflow</b>				
9.1.13	100mm G.I 90° flanged bend	No.	4		
9.1.14	100mm flanged equal tee	No.	1		
9.1.15	100mm flanged sluice Valve	No.	1		
9.1.16	100mm G.I flanged pipe	m	5		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b>BILL No. 9: ELEVATED STEEL TANKS</b>				
	<b>Outlet</b>				
9.1.17	100mm flanged G.I steel 90° duck foot bend	No.	4		
9.1.18	100mm flanged G.I steel, length 8500mm	No.	1		
9.1.19	100mm steel flanged spigot adaptor	No.	1		
9.1.20	G.I pipe diameter 100mm	m	15		
9.1.21	100mm diameter rose strainer or equivalent	No.	1		
9.1.22	100mm Gate valve	No.	1		
9.1.23	100mm Bulk water meter on the main outlet pipeline	No.	1		
9.1.24	Lockable water meter and gate valve chamber	Ls	1		
	<b>Wash out</b>				
9.1.25	80mm wash out valve	No.	1		
9.1.26	80mm GI pipe for wash	m	5		
9.1.27	80mm flanged G.I steel 90° bend	No	1		
9.1.28	80mmx80mm equal tee for joining to the overflow pipe	No.	1		
	<b>Painting</b>				
9.1.29	Allow for the complete installation to be painted as recommended by the manufacturers or the engineer	Ls	1		
	<b>Testing and Sterilizing</b>				
9.1.30	Test and sterilize tank including the necessary chemicals	Ls	1		
<b>TOTAL FOR BILL 9 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 10:**  
**ELEVATED PLASTIC TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 10: INSTALLATION OF 10,000L UPVC TANK AND CONSTRUCTION OF A 3M ELEVATED STEEL PLATFORM</b>				
	<b>Storage</b>				
10.1.1	Supply plastic tank of capacity 10,000ltrs. Rate to include transport to site and overheads	No	1		
	<b>Construction Steel Tower Platform</b>				
10.1.2	Clear of all bushes and shrubs and remove debris from tank site	Sm	25		
10.1.3	Excavate for column bases not exceeding 1.50 metres deep, starting from reduced levels	Cm	8.64		
10.1.4	Extra over for excavation in rock of all classes	Cm	2.592		
10.1.5	Fabricate, supply and install at site a metal tower, 2.5m x 2.5 , 3 m high from ground with a platform to receive the tank, walkway, rail guard to prevent the tank from falling and cat ladder. Rate to include transport of all materials to site, fabricating, erecting and overheads. Using 100mm X 100mm x4mm RHS and 70mm x 70mm x 4mm RSA for the internal member	Item	1		
10.1.6	Concrete Class 20/20 to tank stand bases and columns	Cm	3.852		
10.1.7	Formwork to bases and sides of columns	Sm	18.24		
	<b>Piping works</b>				
10.1.8	Inlet pipe of PPR 50mm DN	m	10		
	<b>Fittings and Appurtenances</b>				
10.1.9	2 inch GI Elbow	No	5		
10.1.10	2 inch GI long nipple	No	2		
10.1.11	2 inch GI back nuts	No	4		
10.1.12	2 inch gate valve	No	1		
10.1.13	2 inch GI sockets	No	5		
10.1.14	2 inch float valve	No	1		
10.1.15	Other installation sundries including 5 thread tapes,tangent glue	Item	1		
10.1.16	Construction of a masonry lockable inspection chambers at the tank base 1000mm by 1000mm by 1000mm	No	1		
	<b>INSTALLATION OF 1No.TANK AND TOWER FRAME</b>	<b>No.</b>	<b>8</b>		
	<b>INSTALLATION OF 8No.TANK AND TOWER FRAME</b>				
	<b>TOTAL FOR ELEVATED PLASTIC TANKS</b>				
<b>TOTAL FOR BILL 10 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 11:**  
**GROUND MASONRY TANK**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 11: GROUND MASONRY TANK</b>				
	<b>SECTION 1: -REHABILITATION OF EXISTING GROUND MASONRY TANK</b>				
	<b>General Items:</b>				
11.1.1	Site clearance and preparation	Sum	1		
	<b>Structural Rehabilitation:</b>				
11.1.2	Hacking damaged or loose plaster from internal and external surfaces	Sm	102		
11.1.3	Preparing surfaces and applying new cement-sand plaster (1:3 mix) on internal and external surface	Sm	102		
11.1.4	Application of waterproofing treatment on the internal surface using approved waterproofing compounds	Sm	51		
11.1.5	Repairing cracks using non-shrink grout	Sm	51		
	<b>Pipeworks and Fittings:</b>				
11.1.6	Supply and install new inlet pipe (GI) of 50mm diameter	m	5		
11.1.7	Supply and install new outlet pipe (GI) of 50mm diameter	m	5		
11.1.8	Repair and replace internal and external pipe connections	Sum	1		
	<b>Valves and Accessories:</b>				
11.1.9	Supply and install new gate valve of 50mm diameter	No	1		
11.1.10	Supply and install new non-return valve 50mm diameter	No	1		
11.1.11	Replacement of air release valve	No	1		
	<b>Roof Rehabilitation:</b>				
11.1.12	Repairing and sealing cracks on the roof slab	Sm	20		
11.1.13	Application of waterproofing membrane on the roof	Sm	20		
11.1.14	Replacement of tank access cover with lockable steel cover	No	1		
	<b>Test and Comissioning:</b>				
11.1.15	Leak testing and structural integrity assessment after rehabilitation	Sum	L/s		
11.1.16	Cleaning, disinfection, and commissioning of the rehabilitated tank	Sum	L/s		
	<b>Rehabilitation of 1 No. Masonry Tank</b>				
	<b>Rehabilitation of 1 No. Masonry Tank</b>		1		
<b>TOTAL FOR BILL 11 CARRIED FORWARD TO PROJECT SUMMARY</b>					



**BILL No. 12:**  
**WATER TREATMENT**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>BILL No. 12: WATER TREATMENT</b>				
	<b>SECTION 1: CHLORINATION UNITS</b>				
	<b>Chlorination House</b>				
12.1.1	Provide all materials, fabricate and install a 2mx2m steel structure for housing the inline chlorine dosing system, all as detailed in the drawings.	LS	1		
	<b>Chlorination Equipment</b>				
12.1.2	Supply, install, and commission of a complete inline chlorination system, designed for a flow rate of up to 30 m³/hr, comprising a high-capacity Dosatron D8RE3000 proportional dosing pump (0.2–2% adjustable dosing), 100-litre GRP dosing tank with outlet and stand, suction hose kit with integrated filter and non-return valve, inline pressure regulator (5–6 bar), 2-inch non-return valve and Y-strainer, all necessary fittings and accessories, including installation, testing, and operator training.	LS	1		
	<b>Total for Water Treatment for 1No. Borehole</b>		1		
	<b>Total for Water Treatment for 3No. Borehole(Common Treat Unit for all the 3BHs)</b>				
<b>TOTAL FOR BILL 12 CARRIED FORWARD TO PROJECT SUMMARY</b>					

**BILL No. 13:**  
**GENERATOR HOUSE**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 1: SUBSTRUCTURES (PROVISIONAL)</u></b>				
	<b><u>Excavations and Earthworks (Provisional)</u></b>				
	<i><u>Excavations including maintaining and supporting sides and keeping free from water, mud and fallen material</u></i>				
13.1.1	Oversite excavation 150 mm (average) depth to remove vegetable top soil; load and cart away spoil from site	Sm	23.76		
13.1.2	Excavate for trench foundations for strip footings not exceeding 1.50 metres deep, starting from reduced levels	Cm	17.64		
13.1.3	Extra over for excavation in rock of all classes	Cm	5.29		
	<i><u>Disposal</u></i>				
13.1.4	Return, fill and ram selected excavated material around foundations.	Cm	10.19		
13.1.5	Load, wheel and deposit surplus excavated material away from site	Cm	7.45		
	<i><u>Hardcore or other approved filling, as described</u></i>				
13.1.6	300 mm thick handpacked h/core material in filling to make up levels, compacted in layers n.e. 150mm thick.	Sm	23.76		
13.1.7	50 mm thick quarry dust or approved murram blinding layer to surfaces of hardcore m.s	Sm	23.76		
	<b><u>Anti - termite treatment</u></b>				
13.1.8	Chemical anti-termite treatment, executed complete by an approved specialist under a ten-year guarantee, to surfaces of hardcore	Sm	23.76		
	<b><u>Damp-proof membrane</u></b>				
13.1.9	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (m/s) with 300mm side and end laps (measured net - allow for laps).	Sm	23.76		
	<b><u>Concrete works</u></b>				
	<i><u>Plain concrete class 15: in</u></i>				
13.1.10	50 mm thick blinding under strip foundations	Sm	11.76		
	<i><u>Vibrated Reinforced Concrete class 20/20: as described in</u></i>				
13.1.11	Strip footings	Cm	2.35		
13.1.12	150 mm Thick Surface beds	Cm	3.56		
13.1.13	Ditto; to sloping ramp slabs at the door entrance	Cm	0.32		
	<b>Sub Total carried forward to next page</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	<b>Sub Total Brought Forward from previous Page</b>				
	<b><u>Reinforcement (Provisional)</u></b>				
	<i>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</i>				
13.1.14	Assorted bars (D8 - D16)	Kg	70.14		
	<i>Steel mesh fabric reinforcement to BS 4483 and setting in concrete with 300mm side and end laps (measured net - allow for laps):</i>				
13.1.15	Fabric ref. A142 weighing 2.22 kg/sq.metre, in surface bed.	Sm	23.76		
	<b><u>Formwork</u></b>				
	<i>Sawn formwork: including erection and making good all exposed faces of concrete after stripping off formwork; as described to:-</i>				
13.1.16	Vertical sides of strip footings	Sm	39.20		
13.1.17	Edges; over 75 mm but not exceeding 150 mm high, to slab	Lm	19.60		
13.1.18	Ditto: but sloping, to ramp	Lm	4.00		
	<b><u>Foundation walling</u></b>				
	<i>Natural hard chisel dressed quarry stone with a crushing strength of 7.5 N/mm<sup>2</sup>; walling bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</i>				
13.1.19	200 mm thick foundation walling	Sm	31.36		
	<b><u>Plinth finishes</u></b>				
	<i>Render/backings: 15 mm thick coat of cement/sand (1:3) mortar: wood floated: on masonry or concrete surfaces: as described to</i>				
13.1.20	Concrete and masonry surfaces externally; finished smooth	Sm	8.82		
	<i>Prepare surfaces and apply three coats of first quality Black Bituminous paint: as described on</i>				
13.1.21	Rendered surfaces, externally	Sm	8.82		
	<b><u>Paving Slabs</u></b>				
	<i>Size 600 x 600 x 50mm Thick precast concrete paving slabs; laid on and including 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar; as described to</i>				
13.1.22	Paving slabs, around building (one row); including all excavations and earthworks	Sm	11.76		
<b>SECTION 1: Carried to SUBSTRUCTURES Main Summary</b>					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SECTION 2: SUPERSTRUCTURE</u></b>				
	<b><u>R.C Frame</u></b>				
	<b><u>Concrete</u></b>				
	<i><u>Vibrated reinforced concrete class 20/20: as described in</u></i>				
13.2.1	Beams	Cm	1.76		
	<b><u>Reinforcement (Provisional)</u></b>				
	<i><u>High yield steel ribbed reinforcement bars to K.S 573:2005; including all binding wires and spacer blocks; cutting, bending and laying to Structural Engineer's approval: as described to:-</u></i>				
13.2.2	Assorted bars (D8 - D16)	Kg	112.36		
	<b><u>Formwork</u></b>				
	<i><u>Sawn formwork: including erection and making good all exposed faces of concrete after stripping of formwork; as described to:-</u></i>				
13.2.3	Vertical sides and soffites of beams	Sm	17.64		
	<b><u>SECTION 2:</u></b>				
	<b>Carried to R.C SUPERSTRUCTURE Main Summary</b>				
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 3: WALLING</u></b>				
	<b><u>External Walling</u></b>				
	<i><u>Natural hard machine cut stone, bedded and jointed in cement and sand (1:4) mortar, reinforcement with and including 25mm wide x 20 gauge hoop iron at every alternate course: as described to</u></i>				
13.3.1	200 mm thick walling	Sm	22.26		
13.3.2	Ditto: to Gable walling	Sm	6.68		
	<i><u>Hessian based bituminous felt 3-ply membrane damp proof course or other equal approved damp-proof course; laid on and including cement and sand (1:4) mortar; as described to</u></i>				
13.3.3	200 mm wide; levelled and bedded under wall	Lm	19.60		
	<b><u>Ventilation</u></b>				
13.3.4	Supply and install 300 x 200 x 200mm concrete louvre blocks and place in 1:3 cement/sand as shall be directed.	Sm	15.54		
	<b><u>SECTION 3:</u></b>				
	<b>Carried to WALLING Main Summary</b>				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 4: ROOFING</u></b>				
	<b><u>Roof Structure (Provisional)</u></b>				
	<u>structural timber to be second grade sawn and planed celcured cypress to approval.</u>				
13.4.1	Tie beam: 100 x50	m	22		
13.4.2	King Post: 100x50	m	6.35		
13.4.3	Struts: 75x50	m	19.10		
13.4.4	Purlins: 50 x 50	m	46.40		
13.4.5	Wall plate: 150x50mm	m	47.52		
13.4.6	Rafters: 100x50	m	30.60		
	<b><u>Eaves Finishes</u></b>				
13.4.7	Fascia/Barge boards 200x25 mm thick sawn cypress and planed to approval	Lm	23.82		
	<b><u>Roof covering</u></b>				
	<u>Gauge 28 IT4 Pre-painted box-profiled roofing sheets on and including light gauge steel battens (m.s) at 600mm centres: laid in accordance with the manufacturer's instructions; as described to</u>				
13.4.8	Roof covering not exceeding 15° from the horizontal: including all necessary fixtures	Sm	35.43		
13.4.9	Ridge cap to match	Lm	5.80		
<b>SECTION 4</b>					
<b>ROOFING</b>					
Carried to Main Summary					

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>					
<b><u>SECTION 5: EXTERNAL FINISHES</u></b>					
<b><u>External wall finishes</u></b>					
<i>Render/backings: 15 mm coat of cement/sand (1:3) mortar: wood floated: on exposed masonry or concrete surfaces: to</i>					
13.5.1	Concrete surfaces externally; finished smooth	Sm	8.82		
<i>Key pointing to horizontal joints and flushing to vertical joints: in cement and sand (1:3) mortar: as described to</i>					
13.5.2	Masonry surfaces externally; finished smooth	Sm	28.94		
<b><u>Ramp finishes</u></b>					
<i>25 mm thick screeds: Cement and sand (1:3) mortar: wood-floated to receive terrazzo floor (m.s); including plastic dividing strips cast in screeds: as described to</i>					
13.5.3	Surfaces of ramps, sloping	Sm	3.20		
<b><u>Painting and decorating</u></b>					
<i>Prepare surfaces, skim and apply three coats of Permacote Ultra Guard (with Silicone) exterior paint as described on</i>					
13.5.4	Rendered concrete surfaces, externally	Sm	8.82		
<b><u>SECTION 5</u></b> Carried to <b>EXTERNAL FINISHES</b> Main Summary					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
<b><u>SECTION 6: INTERNAL FINISHES</u></b>					
<b><u>Wall Finishes</u></b>					
<i>15 mm thick plaster: 9 mm first coat of cement/sand (1:6): 3mm second coat of cement/lime/putty (1:6): steel trowelled: as described to</i>					
13.6.1	Concrete surfaces, internally	Sm	8.82		
13.6.2	Masonry surfaces, internally	Sm	28.94		
<b><u>Floor Finishes</u></b>					
<i>Cement and sand (1:3) mortar: to screeds, backings, beds etc: in</i>					
13.6.3	25 mm thick screeds on floor to finish level	Sm	23.76		
<b><u>Painting and decoration</u></b>					
<i>Prepare surfaces, skim and apply one undercoat and two final coats of first quality matt emulsion paint as described on</i>					
13.6.4	Plastered concrete surfaces, internally	Sm	8.82		
13.6.5	Plastered walls surfaces, internally	Sm	28.94		
<b><u>SECTION 6</u></b> Carried to <b>INTERNAL FINISHES</b> Main Summary					



ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</b>				
	<b><u>SECTION 7: DOORS</u></b>				
	<b><u>Metal Doors</u></b>				
	<i>Supply, assemble and fix the following purpose made metal doors: mild steel smooth welded together; one shop coat grey aluminium primer; building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to</i>				
13.7.1	Overall size 1600 x 2100 mm high; details as per standard drawings No GW4R-MDR-STD-05	No	1		
13.7.2	Rubber door stop; fixed to floor or wall in rawl bolt	No	1		
	<b><u>Painting and decoration</u></b>				
	<i>Prepare and apply two finishing coats of super gloss finished paint to:</i>				
13.7.3	General surfaces of metal doors (measured on both sides)	Sm	6.72		
	<b><u>SECTION 7</u></b>	<b>Carried to</b>			
	<b><u>DOORS</u></b>	<b>Main Summary</b>			
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	<b><u>SECTION 8: BUILDER'S WORK IN CONNECTION WITH SPECIALISTS SERVICES (ALL PROVISIONAL)</u></b>				
	<b><u>Builder's work in connection with Electrical Installations;</u></b>				
13.8.1	Provide sum for cutting, making good and attendance in all trades on the subcontractor installing electrical and power points, including associated switch points in concealed electrical system, distribution boards, consumer units and all related electrical works, cutting all chases and holes, notching and boxing timber etc. making good all finishes and leave clean to satisfaction of the Engineer; refer to all drawings provided	Item	1		
	<b><u>SECTION NO. 8</u></b>	<b>Carried to</b>			
	<b><u>B.W.I.C WITH SERVICES</u></b>	<b>Main Summary</b>			

ITEM	DESCRIPTION				AMOUNT
	<b><u>BILL No. 13: CONSTRUCTION OF NEW GENERATOR HOUSE</u></b>				
	<b><u>SUMMARY</u></b>				
1	Substructure (Provisional)				
2	R.C. Superstructure				
3	Walling				
4	Roofing				
5	External Finishes				
6	Internal Finishes				
7	Doors				
8	Builders' Work in Connection with Services (Provisional)				
	<b>TOTAL FOR 1No. GENERATOR HOUSE</b>				
	<b>TOTAL FOR 1No. GENERATOR HOUSE</b>		<b>1</b>		
<b>TOTAL FOR BILL 13 CARRIED FORWARD TO PROJECT SUMMARY</b>					