BILL OF QUANTITIES FOR THE PROPOSED KAVUKO BOREHOLE WATER DISTRIBUTION LAND AND LIVELIHOOD RESTORATION PROJECT

Preamble: The rates entered shall include, third party fees, levies, input costs, labour and contractor's overheads and profits.

Item	Item Description	Unit	Quantity	Unit Rate	Amount
BILL 1	**Preliminary & General Items**				
1.1	**Publicity Sign Board**				
1.1	Fabricate erect and maintain public sign post 1200x1200x1.5mm metal sheet, 1500mm above ground level. It should be anchored 600mm deep motorised in mass concrete and well supported with 50x25mm RHS frame to detail as provided in the drawing and as instructed by the project manager.	No	1		
	Total carried from Bill 1 to Main summary				
BILL 2	**PIPELINE**				
	RISING MAIN				
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	The rate quoted is for site clearance and demolition along construction wayleave. Rate shall be deemed to include removal of the material, natural and artificial articles, objects and obstructions which are above the original surface and carting away to tips, identified by the contractor in liaison with the Local Authority				
	General clearence				
2.01	Site clear and excavate to pipe invert level 750 mm n.e 1m below existing ground level and backfill/ reinstate to original ground level after testing pipeline, all to the approval of the engineer	m	2,250		
	CLASS I: PIPEWORK - PIPES				
	The rate quoted is for supply and transport to site storage, transport from site storage, excavate, lay and joint pipes complete with all jointing materials and but fusing. The rate is deemed to include excavation, bed lining, installation and backfilling of the pipe trenches. keep trenches and ther excavations free of water.				
2.02	PN25 OD90mm HDPE PE100 ISO4427	m	550		
2.03	PN20 OD90mm HDPE PE100 ISO4427	m	1,000		
2.04	PN16 OD90mm HDPE PE100 ISO4427	m	300		
2.05	PN12.5 OD90mm HDPE PE100 ISO4427	m	400		
2.06	Allow for butt fusion of joint throughout the rising main	item	28		
	CLASS J: PIPEWORK - FITTINGS AND VALVES				
	The rate quoted is for provision and fixing				
	Bends				
2.07	OD 90mm 45^{o}	nr	2		
	Junctions and branches				
2.08	OD 90mmx1" tee with all the necessary accessories for airvalves and washouts	nr	2		
	Airvalves				
2.09	Supply and install DN63mm anti-shock/ anti-surge Air Valves as per the attached technical specifications with threaded or flanged base , c/w isolating valve, including tees and reducers for connecting Airvalve	nr	2		
	Sluice Valves				
2.1	Supply and install DN90 PN16 gate valves Pegler or equivalent approved for Air Valves and Washouts	nr	4		
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	The rate quoted is for chambers, culverts, crossings and reinstatements and other ancilleries as specified.				
	Air Valve/Washout/Sluice Valve Chambers				

2.11	Construct 900mm by 900mm masonary valve chamber. Depth not exceeding 1m, all in accordance with details shown on drawings. Include for provision and fixing of cast iron step irons and heavy duty rectangular mild steel frame with locking devices as per details on drawing	nr	4.00		
	Marker Posts				
	Construct concrete marker posts and install along the water supply pipeline, all in accordance with details shown on drawings. (Reinforced concrete 1:2:4(class 20/20, bars D12), as per details on drawing				
2.12	Pipeline marker post inscribed WL	nr	3.00		
2.13	Air valve marker post Inscribed AV	nr	1.00		
2.14	Washout marker post inscribed WO	nr	1.00		
	CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION				
	Extras to excavation and backfilling in pipe trenches				
2.15	Excavation in rock Class A	$_m3$	1.00		
2.16	-Ditto- but rock Class B	$_m3$	1.00		
2.17	-Ditto- but rock Class C	$_m3$	1.00		
	Note:- Blasting is NOT permitted				
	Class L; PIPEWORK - SUPPORTS AND PROTECTION, ANCILLIARIES TO LAYING AND EXCAVATION				
2.18	Construct concrete stools for fitting and thrust blocks and anchor blocks to all bends along the water supply pipeline, all in accordance with details shown on drawings Thrust blocks - RC, Volume 0.2 - 0.5m3	nr	3.00		
2.19	Concrete surround to pipe	m	70.00		
	Amount for Rising main carried to Summary				
	DISTRIBUTION PIPELINE				
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	The rate quoted is for site clearance and demolition along construction wayleave. Rate shall be deemed to include removal of the material, natural and artificial articles, objects and obstructions which are above the original surface and carting away to tips, identified by the contractor in liaison with the Local Authority				
	General clearence				
2.2	Site clear and excavate to pipe invert level 600 mm n.e 1m below existing ground level and backfill/ reinstate to original ground level after testing pipeline, all to the approval of the engineer	m	8,600		
	CLASS I: PIPEWORK - PIPES				
	The rate quoted is for supply and transport to site storage, transport from site storage, excavate, lay and joint pipes complete with all jointing materials and but fusing. The rate is deemed to include excavation, bed lining, installation and backfilling of the pipe trenches. keep trenches and ther excavations free of water.				
2.21	PN10 OD63mm HDPE PE100 ISO4427	m	2,300		
2.22	PN12.5 OD63mm HDPE PE100 ISO4427	m	1,300		
2.23	Allow for butt fusion of joints	item	41		
	Line to Kima Mkt From Kiongwani Girls and line to Kiosk near Nolturesh				
2.24	PN10 OD63mm HDPE PE100 ISO4427	m	2000		
2.25	PN10 OD63mm HDPE PE100 ISO4427	m	1500		
	Towards Silanga Mbuu				
2.26	PN10 OD63mm HDPE PE100 ISO4427	m	1500		
2.27	Allow for rehabilitation and testing of line from Kavuko to Kwa King'ee Market	Item	1		
	CLASS J: PIPEWORK - FITTINGS AND VALVES				
	The rate quoted is for provision and fixing				
	Bends				
2.28	OD 90mm 45^0	nr	2		

	Junctions and branches				
2.29	OD 63mmx1" tee with all the necessary accessories for airvalves and washouts	nr	12		
	Airvalves				
2.3	Supply and install DN63mm anti-shock/ anti-surge Air Valves as per the attached technical specifications with threaded or flanged base , c/w isolating valve, including tees and reducers for connecting Airvalve	nr	6		
	Sluice Valves				
2.31	Supply and install DN63 PN16 gate valves Pegler or equivalent approved for Air Valves and Washouts	nr	12		
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	The rate quoted is for chambers, culverts, crossings and reinstatements and other ancilleries as specified.				
	Air Valve/Washout/Sluice Valve Chambers				
2.32	Construct 900mm by 900mm masonary valve chamber. Depth not exceeding 1m, all in accordance with details shown on drawings. Include for provision and fixing of cast iron step irons and heavy duty rectangular mild steel frame with locking devices as per details on drawing	nr	12.00		
	Marker Posts				
	Construct concrete marker posts and install along the water supply pipeline, all in accordance with details shown on drawings. (Reinforced concrete 1:2:4(class 20/20, bars D12), as per details on drawing				
2.33	Pipeline marker post inscribed WL	nr	15.00		
2.34	Air valve marker post Inscribed AV	nr	6.00		
2.35	Washout marker post inscribed WO	nr	6.00		
	CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION				
	Extras to excavation and backfilling in pipe trenches				
2.36	Excavation in rock Class A	$_m3$	1.00		
2.37	-Ditto- but rock Class B	$_m3$	1.00		
2.37	-Ditto- but rock Class C	$_m3$	1.00		
	Note:- Blasting is NOT permitted				
	Amount for Bill 3 carried to Summary				
Bill 3	**WATER POINTS**				
	Description	**Unit**	**Quantity**		
	2.5M x 2.5M STD Ministry Water Kiosk				
	SUB - STRUCTURE				
3.1.1	Cut to spoil top soil n.e. 150mm below g.l. over Kiosks and fetching bay areas into a permanent heap	m2	7.00		
3.1.2	Cut to spoil a strip foundation trench n.e. 600mm below g.l.	m3	1.20		
3.1.3	300mm thick hardcore filling well watered and compacted in layers of 150mm maximum thickness to make up levels	m3	2.10		
3.1.4	50mm thick quarry dust/Murram blinding to surfaces of hardcore	m2	7.00		
3.1.5	Chemical anti-termite treatment (as gladiator or equally approved) executed complete by an approved specialist under ten (10) year guarantee to surfaces of blinded hardcore	m2	7.00		
3.1.6	1000gauge polythene or any other equally approved Damp proof membrane laid under surface bed with 300mm side and end laps(measured nett - allow for laps)	m2	9.00		
3.1.7	Natural stone walling, roughly chisel dressed on both sides and jointed in cement and sand (1:3) mortar 200mm foundation walling	LM	9.00		
3.1.8	Mass concrete class 15 (1:4:8) in 50mm thick surface blinding under strip footings	m3	0.35		
3.1.9	Mesh fabric reinforcement A98 to B.S 4483 (measured nett-allow for laps)	m2	7.00		
3.1.10	100mm thick 1:2:4 (C20/20) vibrated RC floor slab over Kiosks and fetching bay areas	m2	7.00		

3.1.11	25mm thick Cement sand screed (1:3) finished with steel float.	LM	5.00		
3.2	**WALLING**				
3.2.1	Hessian based bituminous felt DPC 225mm wide horizontally placed below masonry walling	LM	10.00		
3.2.2	Dressed Natural stone / Block walling: 200mm thick, bedded and jointed with cement and sand mortar (1:3), reinforced with 20SWG hoop iron in alternate courses to external wall including gable ends	m2	30.00		
3.2.3	Vibrated reinforced concrete 1:2:4 (class 20 (20/20mm) in Ringbeams	m3	0.40		
	High yield square twisted steel reinforcement bars to BS 4461 including for cutting, bending to shape, tying, hooking and spacer blocks as described in:				
3.2.4	8mm diameter ditto	KG	10.00		
3.2.5	12mm diameter ditto	KG	50.00		
3.2.6	Sawn formwork to Sides of ringbeam	m2	2.70		
3.2.7	Horizontal key pointing in masonry joints in external wall surfaces	m2	27.00		
3.2.8	15mm thick Cement sand plaster to walls surfaces (1:3) finished to walls to receive paint internally	m2	30.00		
3.2.9	ROOFING:				
3.2.10	Wrought Cypress Timber 4x2	LM	17.00		
3.2.11	Wrought Cypress Timber 3" x 2"	LM	39.00		
3.2.12	Wrought Cypress Timber 2" x 2"	LM	39.00		
3.2.13	G30 2m Corrugated Iron Sheets.	m2	4.00		
3.4	**Roofing Nails**	Kg	1.50		
3.4.1	Assorted Ordinary Wire Nails	Kg	5.00		
3.4.2	2.1M x 1M Standard steel door complete with frame, hinges latch bolts and padlock.	No	1.00		
3.4.3	1M X 1M Standard steel window complete with frame hinges and latch bolts.	No	1.00		
3.4.4	FINISHES:				
3.4.5	ROOF: 8" x 1" planed timber fascia board	LM	36.00		
3.4.6	METAL SURFACES: Prepare and apply three coats plastic enamel paint to General metal surfaces (both sides).- (Red oxide primer glossy)	m2	3.50		
3.5	**INTERNAL PLASTERED WALLS: Prepare and apply three coats plastic silk emulsion paint to Plastered wall surfaces internally**	m2	29.00		
3.5.1	EXTERNAL WALLS: Prepare and apply three coats permaplast external wall paint to Rendered sides of beam and walls externally and allow for branding of the kiosk as directed by the supervising engineer	m2	7.00		
	PLUMBING:				
3.5.2	**1.5" diameter uPVC pipe class C**	No.	3.00		
3.5.3	1.5" diameter uPVC Elbow	No	4.00		
3.5.4	1.5" diameter uPVC couplers.	No.	4.00		
3.5.5	1.5" by 3/4" reducing socket	No.	1.00		
3.5.6	**Water meter 3/4" dia. Kent**	No.	2.00		
3.5.7	3/4" diameter assorted length G.I nipples	No	5.00		
3.5.8	3/4" diameter GI Pipe class B	No.	1.00		
3.5.9	3/4" diameter Gate valve-peglar type	No.	3.00		
3.5.10	3/4" diameter valve sockets	No	2.00		
3.5.11	**3/4" diameter GI union.**	No.	4.00		
3.5.12	3/4" diameter GI Elbow	No	4.00		
3.5.13	Pipe joining material:				
3.5.14	Boss white for G.I Pipes	Kg	0.50		
3.5.15	Solvent Cement	Kg	0.50		
3.5.16	Coolant	Lts	1.00		
3.5.17	**Sealing thread**	Pcs	2.00		
	Sub-total for kiosk				
3.5.18	Supply and Install 10m³ double layer UPVC tank Kentank/ roto or equivalent approved; on a masonry platform next to the water kiosk. Install inlet 50mm, outlet 63mm and overflow 63mm fixtures	nr	1		
	Sub Total 1 No. Water Kiosk				
	Total for 3 No. Water Kiosks				
3.5.19	Provide a 5m3 plastic tank on a platform, and construct a double tap stand water point along line to Silanga Mbuu with a 600mm*600mm masonry chamber to house the gate valve	Item	1		

	Total for Bill 4 Carried to form of tender				
BILL 4	50m3 MASONRY TANK				
Item	Item Description	Unit	Qty	Rate	Amount
	EXCAVATIONS				
4.01	Strip top soil 200mm from g.l. over area of tank and remove all vegetable soil to temporary spoil heap.	m^3	44.5		
4.02	Excavate from stripped level over the tank site to depth n.e. 1.5m deep and dispose soil as directed	m^3	36.5		
4.03	Excavate pit commencing 1.50m from stripped level but not exceeding 3.0m deep and dispose as directed soil as directed	m^3	23		
4.04	Extra over items 3 for excavating in rock Rate to include making good)	m^3	4		
4.05	Allow for backfilling to approve levels after Completion of the works.	m^3	24		
4.06	Allow for keeping all excavation free from general waters	item	1		
4.07	Allow for planking and strutting of the pit	item	1		
4.08	**HARDCORE**				
4.09	Provide, place and compact hardcore of approved quality 250mm thick to make up levels	m^2	36		
4.1	**CONCRETE WORK**				
4.11	Provide place, handle, mix and vibrate as directed by the Engineer				
4.12	Mass concrete mix 1:4:8: in 50mm thick blinding to hardcore	m^3	1.4		
4.13	Vibrated reinforced concrete mix 1:2:4 in 200 mm thick for slab	m^3	5.5		
4.14	Vibrated reinforced concrete mix 1:2:4 mix in 150 mm thick at edges rising to 200 mm thick at the centre roof slab	m^3	4.8		
4.15	Ditto in lintel	m^3	0.11		
4.16	Ditto in ring and cross beams	m^3	2.8		
4.17	Ditto centre Column	m^3	0.36		
4.18	Vibrated mass concrete 250mm thick surrounded to off take and scour pipes	m3	0.3		
	REINFORCEMENT BARS				
4.19	Provided handle, cut, bend and fix the following reinforcement bars as stated in the bending schedule or as directed by the Engineer				
4.2	8 mm twisted mild steel bars	Kg	300		
4.21	10mm round mild steel stirrup	Kg	450		
4.22	12mm twisted mild steel bars	Kg	125		
4.23	16 twisted mild steel stirrup	Kg	28		
4.3	**FORMWORK**				
4.31	Sawn timber formwork as per engineer's Specification. Include propping strutting and striking off to:				
4.32	Edges of 125mm floor slab	M	28		
4.33	Edges of 100mm roof slab	M	28		
4.34	Sofift of 100mm roof slab	m^2	52		
4.35	Edge of the manhole opening	M	24		
4.36	Soffits of roof slab on the external side	m^2	20		
4.4	**WALLING**				
4.41	225 mm thick dressed quarry stone walling curved on plan radius 2500mm	m^2	48.1		
4.42	300 mm thick dressed quarry stone walling	m^2	15		
4.43	Provide, handle and fix bondex as per Drawing	Kg	12		
4.5	**BITUMEN PAINT**				
4.51	20mm thick 1:2 cement sand to masonry column with steel float finish	m^2	50		
4.52	20mm thick 1:2 cement sand to lintel with steel float finish	m^2	1.5		
4.53	20mm thick 1:2 cement sand to soffit of roof slab	m^2	15		
4.54	20mm ditto to exterior face of roof slab	m^2	15		
4.55	20mm thick 1:2 cement sand to edge of 100mm thick slab	m^2	1.5		
4.56	20mm thick 1:2 cement sand to soffit of roof slab with groove	No	0.9		
4.6	**MISCELLANEOUS WORKS**				
4.61	Construct and fix a vertical ladder of length of 3.4 fixed to wall and floor on the external and internal side of tank	No.	2		
4.62	600 mmx 600 mm r/c manhole cover complete with frame, locking device and keys	No.	2		
4.63	12mm reinforcement bar to be cut bent to terminate at manhole cover as per drawings or as directed by the engineer	m^2	6		
4.7	**OUTLET PIPE:**				

4.71	Supply and install 75mm x 75mm Bell Mouth GS with 900 Bend connected to 75mm diameter flanged pipe 3.6m long	No	1		
4.72	Supply and install 75mm diameter flanged AVK Sluice valve NP 10	No	1		
4.73	Supply and install 75mm diameter GI flanged pipe 2m long	No	1		
4.74	Construct standard valve chamber (1200 x1200)	No	1		
4.75	Supply and install 75mm diameter GI flanged pipe 3m long for connection with the pump set	No	1		
4.76	50mm GI pipe 2m long with 50mm sluice valve for scour	No	1		
4.77	1000x1000m standard valve chamber	No	1		
4.8	**INLET PIPE:**				
4.81	Supply and install 75mm 4m long GI Pipe flanged with GS flanged 75mm 900 double Bend flanged as instructed by engineer	No	1		
4.82	Supply and install 75mm 500mm long GI pipe wflanged with puddle flange	No	1		
4.83	NP 10 Supply and install 75mm diameter gate valve	No	1		
4.9	**AIRVENT :**				
4.91	50mm GI pipe piece 200mm long threaded	No	4		
4.92	50mm GI elbow with mosquito gauze	No	8		
4.93	50mm GI nipple	No	4		
	Total carried for collection				
BILL 5	**AGRICULTURE, LIVESTOCK AND ENVIRONMENT**				
	Description	**Unit**	**Qty**		
CSA	Supply and Deliver Large Conical bags (120 seedlings capacity) of 6 polythene layers sheets of gauge 1mm, Bottom one with 4.71M diameter and the last apex layer/sheet of 30cm, All Sheets of 20cm Width/height pinned and screwed with 2inch long screws as shall be instructed by the agriculture officer	No.	150		
	GRAND TOTAL				
	LIVESTOCK				
	Bee House Construction				
Item No	Description	Unit	Quantity		
A1	Excavation for post holes (600mm deep)	No	12		
A2	Concrete for post footings (1:3:6)	m3	0.6		
B1	Treated timber posts 100x100mm	No	12		
B2	Treated timber beams 75x100mm	m	30		
B3	Treated timber rafters 50x75mm	m	40		
B4	Timber wall rails and bracing	m	25		
C1	Mabati roofing sheets (Gauge 28, 3m)	No	10		
C2	Ridge cap	No	2		
C3	Roofing nails & accessories	Sum	1		
D1	Timber hive stands (5 hives per stand)	No	4		
D2	Ant-proof metal / grease cups	No	16		
E1	Chicken wire / welded mesh	m2	20		
E2	Timber framed door	No	1		
E3	Hinges & padlock	Set	1		
F1	Wood preservative / paint	Ltr	10		
F2	Termite control treatment	Sum	1		
G1	Skilled labour (carpenter)	Day	5		
G2	Unskilled labour	Day	6		
	Sub Total				
	BEE EQUIPMENT AND INSTALLATION BUDGET (Apiary insstallation)				
Item	Description	Units	Qty		
1.1	Supply and delivery of Material: Kiln-dried softwood or hardwood (e.g. cypress, pine, or traditional trees).	Nos	20		
	Hive body dimensions (approx.):				
	- Brood chamber: 50 cm (L) × 43 cm (W) × 24 cm (H)				
	- Super chamber: 50 cm (L) × 43 cm (W) × 17 cm (H)				
	Frame size: 48.3 cm (top bar) × 44.8 cm (side bar) × 23.2 cm (height for brood)				
	Frame type: Movable, wired, with foundation wax support.				

	Top cover: Weatherproof, galvanized iron sheet cover.				
	Bottom board: Ventilated, detachable for cleaning.				
	Entrance size: 1.2 cm (H) × 22 cm (W), adjustable.				
	Coating: Non-toxic paint or varnish (exterior only).				
1.11	Supply and delivery of complete Protective wear with gloves(Soft leather) and gumboots (Rubber or PVC).The suit should be made from heavy cotton, poly-cotton, or ventilated mesh fabric, in light colors (white, beige, or khaki) to reduce bee aggression. Designed as a loose-fitting, one-piece suit with a front zipper, elastic cuffs at wrists and ankles, and a detachable round or fencing-style veil with fine mesh for clear visibility. Reinforced with double stitching at stress points for durability and sting prevention.	Pcs	2		
1.12	Supply and delivery of wide, flat bee brush made with a wooden or high-impact plastic handle, fitted with soft natural (horsehair) or nylon bristles. It measures 35–45 cm in overall length, with 5–7 cm bristles designed for gentle sweeping of bees.	Pcs	2		
1.13	Supply and delivery of a bee smoker made of stainless steel or galvanized iron, 25–28 cm high and 10–12 cm in diameter. It has a leather or synthetic bellows with metal hinges, a conical heat-resistant nozzle, and a protective heat shield. The removable fuel chamber, with air holes, uses fuels like dried grass, sawdust, corn cobs, or cardboard.	Pcs	2		
1.14	Supply and delivery of a hive tool made of tempered stainless or carbon steel, measuring 20–25 cm long and 3–4 mm thick. It features a flat beveled end for prying frames, a curved or hooked end for lifting frames, and a scraper edge for removing propolis and wax. The tool has a polished, corrosion-resistant finish, with an optional plastic or rubber handle for improved comfort.	Pcs	2		
1.15	Supply, delivery and install durable hive stands made of metal (preferably galvanized steel), 60 cm high, and sized to fit the hive—typically 40–50 cm wide and 50–60 cm long for a standard Langstroth hive.	Nos	20		
1.17	Supply and delivery of manual metallic honey extractor made of stainless or food-grade galvanized steel, holding 2–4 frames. It features a hand-crank gear mechanism, removable frame basket for standard frames, a honey tap for controlled flow, a polished corrosion-resistant finish, and a stable base with a protective cover.	Unit	1		
1.18	Training on Climate Smart Agriculture and Agroforestry	Sessions	2	30,000.00	60,000.00
1.19	Sub Total				
	TOTAL PER APIARY UNIT				
	No units				
	GRAND TOTAL FOR THE WARD				
2	**AGROFORESTRY**				
2.1	Purchase and supply of agroforestry 5000 tree seedlings(2500 avocado and 2500 mangoes); all potted, 2ft and above but not more than 3ft.	No.	5000		
	TOTAL CARRIED FOR AGRICULTURE AND LIVESTOCK				

GRAND SUMMARY PAGE

BILL	BILL DESCRIPTION	AMOUNT
BILL 1	PRELIMINARIES AND GENERAL ITEMS	
BILL 2	PIPELINE	
BILL 3	WATER POINTS	
BILL 4	50M3 MASONRY STORAGE TANK	
BILL 5	AGRICULTURE, LIVESTOCK AND ENVIRONMENT	
	SUB TOTAL	

	Contigencies				
	Allow a provisional sum of Kshs. 129,300 for contigencies, 50,000 for water works and 79,300 for Agriculture and Livestock				129,300.00
	TOTAL				
	ADD				
	Public Procurement Capacity Building Levy (0.03%)				
	TOTAL III				
	ADD VAT (16%)				
	TOTAL FOR BUILDER'S WORK				