BILL OF QUANTITIES FOR MULIMA WATER LIVELIHOOD AND RESTORATION PROJECT					
MBOONI WARD, MBOONI SUB-COUNTY, MAKUENI COUNTY					
FY2025-2026					
NB: Rates and prices inserted by Contractor in the BoQ shall include value of the work described under the item and shall cover all over heads charges, profits, and applicable taxes. Contract to be paid as per actual works done.					
	BILL 1: Preliminaries				
ITEM	**ITEM DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
				(KShs.)	(KShs.)
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.	Item	1		
Bill 1 Total carried to Summary					
	BILL 2: PIPELINES				
	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 th e original surface and carting away to tips, identified by the contractor in liaison with the Local Authority				
2.1	*General clearence*				
2.1.1	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	6,000		
2.1.2	Allow for the setting out of the pipeline and all allied installations	Item	1.00		
2.2.	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 butt 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.				
2.2.1	OD75mm PN10 HDPE PE100 ISO4427	m	2,300		
2.2.2	OD63mm PN12.5 HDPE PE100 ISO4427	m	700		
2.2.3	OD63mm PN16 HDPE PE100 ISO4427	m	500		
2.2.4	OD63mm PN10 HDPE PE100 ISO4427	m	2,500		
2.2.6	Supply 0D40mm (1.25") PN10 HDPE PE100 ISO4427 pipes to the community for private connections incduding 20no. 40mm (1.25") HDPE connectors. 500m for Kinyee-dam area, 700m for Kiinyuni-dam area, 500m for Kitheetyo-dam area, 500m Ndolo area	m	2,200		
2.2.7	2" GI Class B inclusive of connectors and adopters	m	24		
2.2.3	CLASS J: PIPEWORK - FITTINGS AND VALVES				
	The rate quoted is for provision and fixing inclusive of all allied materials				
2.3.1	Reducers & connectors				

2.3.1.1	Allow for assorted HDPE reducers and connectors as shall be needed for the above pipeline instalations	item			
2.3.2	Junctions and branches				
	Supply and install GI/HDPE tees and reducers as instructed complete with all the necessary accessories for airvalves, washouts, and distribution				
2.3.2.2	2"x2"	nr	15		
2.3.2.3	4"x2.5"	nr	1		
2.3.2.4	2.5"X2.5"	nr	10		
2.3.3	Airvalves				
	Supply and install anti-shock/ anti-surge Metallic Air Valves approved with threaded or flanged base , c/w isolating valve, including tees and reducers for connecting Airvalve				
2.3.3.1	DN50	nr	5		
2.3.4	Sluice/Gate Valves				
	Supply and install GI sluice/gate valves threaded or flanged as shall be instructed and approved for Washouts & Tees				
	2.5"	nr	7		
	2"	nr	12		
2.3.5	Water meters				
	Supply and install approved GI threaded or flanged water meters inclusive of allied adoptors and jointing materials as instructed by the engineer				
	2.5"	nr	7		
	2"	nr	11		
2.4	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	The rate quoted is for chambers, culverts, crossings and reinstatements and other ancilleries as specified.				
2.4.1	Air Valve/Washout/Sluice Valve Chambers				
2.4.1.1	Construct 900mm by 900mm masonry valve chamber. Depth not exceeding 1m, all in accordance with details shown on drawings and as per engineer's instructions. 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	9.00		
2.4.1.2	Construct 500mm by 500mm masonry valve chamber. Depth not exceeding 1m, all in accordance with details shown on drawings and as per engineer's instructions. 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	6.00		
2.4.2	Marker Posts				
	Construct concrete marker posts and install along the water supply pipeline, all in accordance with engineer's instructions and details shown on drawings. (Reinforced concrete 1:2:4(class 20/20, bars D12), as per details on drawing				
2.4.2.1	Pipeline marker post inscribed WL at 500m intervals	nr	13.00		
2.4.2.2	Air valve marker post Inscribed AV	nr	5.00		
2.4.2.3	Washout marker post inscribed WO	nr	6.00		

2.5	CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION				
	Extras to excavation and backfilling in pipe trenches				
2.5.1	Excavation in rock Class A	$_m3$	1.00		
2.5.2	-Ditto- but rock Class B	$_m3$	1.00		
2.5.3	-Ditto- but rock Class C	$_m3$	0.50		
	Note:- Blasting is NOT permitted				
2.6	Class L; PIPEWORK - SUPPORTS AND PROTECTION, ANCILLIARIES TO LAYING AND EXCAVATION				
2.6.1	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	2.00		
2.6.2	Concrete surround to pipe	m	24.00		
	Sub-total for the pipeline carried to summary				
	Bill 3: Water kiosks and water points				
	Supply, deliver all necessary materials as below and Construct 2M×2.5M kiosks each with a tank. The rates must include all connection costs from the main line or the tanks and Branding the kiosks at sites as advised by the engineer				
D5.1	**FOUNDATION**				
D5.1.1	Cut to spoil top soil i.e. 150mm below g.l. over Kiosks and fetching bay areas into a permanent heap	m^2	7		
D5.1.2	Cut to spoil a strip foundation trench i.e. 600mm below g.l.	m^3	1.2		
D5.1.3	300mm thick hardcore filling well-watered and compacted in layers of 150mm maximum thickness to make up levels	m^3	2.1		
D5.1.4	50mm thick quarry dust/Marram blinding to surfaces of hardcore	m^2	7		
D5.1.5	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	m^2	7		
D5.1.6	1000gauge polythene or any other equally approved Damp proof membrane laid under surface bed with 300mm side and end laps(measured net - allow for laps)	m^2	9		
D5.1.7	Natural stone walling, roughly chisel dressed on both sides and jointed in cement and sand (1:3) mortar 200mm foundation walling	LM	9		
D5.1.8	Mass concrete class 15 (1:4:8) in 50mm thick surface blinding under strip footings	m^3	0.35		
D5.1.9	Mesh fabric reinforcement A98 to B.S 4483 (measured net-allow for laps)	m^2	7		
D5.1.10	100mm thick 1:2:4 (C20/20) vibrated RC floor slab over Kiosks and fetching bay areas	m^2	7		
D5.1.11	25mm thick Cement sand screed (1:3) finished with steel float.	LM	5		
D5.2	**WALLING**				
D5.2.1	Hessian based bituminous felt DPC 225mm wide horizontally placed below masonry walling	LM	10		

D5.2.2	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	m^2	30		
D5.2.3	Vibrated reinforced concrete 1:2:4 (class 20 (20/20mm) in Ring beams	m^3	0.4		
D5.2.4	High yield square twisted steel reinforcement bars to BS 4461 including for cutting, bending to shape, tying, hooking and spacer blocks as described in:				
D5.2.5	8mm diameter ditto	KG	10		
D5.2.6	12mm diameter ditto	KG	50		
D5.2.7	Sawn formwork to Sides of ring beam	m^2	2.7		
D5.2.8	Horizontal key pointing in masonry joints in external wall surfaces	m^2	27		
D5.2.9	15mm thick Cement sand plaster to walls surfaces (1:3) finished to walls to receive paint internally	m^2	30		
D5.3	**ROOFING:**				
D5.3.1	Wrought Cypress Timber 4x2	LM	17		
D5.3.2	Wrought Cypress Timber 3" x 2"	LM	39		
D5.3.3	Wrought Cypress Timber 2" x 2"	LM	39		
D5.3.4	G30 Box profile, Blue Iron Sheets.	m^2	6		
D5.3.5	Roofing Nails	Kg	1.5		
D5.3.6	Assorted Ordinary Wire Nails	Kg	5		
D5.3.7	2.1M x 1M Standard steel door complete with frame, hinges latch bolts and padlock.	No	1		
D5.3.8	1M X 1M Standard steel window complete with frame hinges and latch bolts.	No	1		
D5.4	**FINISHES:**				
D5.4.1	ROOF: 8" x 1" planed timber fascia board	LM	36		
D5.4.2	METAL SURFACES: Prepare and apply three coats plastic enamel paint to General metal surfaces (both sides).- (Red oxide primer glossy)	m^2	3.5		
D5.4.3	INTERNAL PLASTERED WALLS: Prepare and apply three coats plastic silk emulsion paint to Plastered wall surfaces internally	m^2	29		
D5.4.4	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	m^2	7		
D5.5	**PLUMBING:**				
D5.5.1	2" diameter GI pipe class B, 3m long c/w elbow and couplers	No.	1		
D5.5.2	2" by 3/4" reducing socket	No.	1		
D5.5.3	Water meter 3/4" dia. Kent	No.	1		
D5.5.4	3/4" diameter assorted length G.I nipples	No	5		
D5.5.5	3/4" diameter GI Pipe class B	No.	1		
D5.5.6	3/4" diameter Gate valve-Peglar type	No.	3		
D5.5.7	3/4" diameter valve sockets	No	2		
D5.5.8	3/4" diameter GI union.	No.	4		
D5.5.9	3/4" diameter GI Elbow	No	4		
	Pipe joining material:				
D5.5.10	Boss white for G.I Pipes	Kg	0.5		
D5.5.11	Solvent Cement	Kg	0.5		
D5.5.12	Coolant	Lts	1		
D5.5.13	Sealing thread	Pcs	2		
	Sub-total for 1no. Water kiosk				
	Sub-total for 5no. Water kiosks - Kikalyoni, Ndolo, Kiinyuni, Katumbu, Kitheetyo				

3.2	**Water points**				
3.2.1	Supply all necessary materials and Construct a 1.5m wide×1.5m high above ground tap stand complete with a 1" metered and lockable control chamber , water fetching bay & allied 1" PPR pipes for two taps per stand, connection to the tanks and branding as directed by the supervising engineer; for Kithungui-Mweani, Kinyee	No	2		
	Bill 3 total carried to summary				
	BILL 4: Plastic Tanks on Masonry Platforms				
4.1	**Plastic Tanks on platforms**				
4.1.1	Supply, Deliver & Install 10,000L Double Laminated Plastic Water Tank at Kiosks and water points , c/w GI class B Inlet, Outlet & Overflow Fixtures, 2'' dia. c/w constructing a 1m high above ground masonry platform with reinforced concrete slab. Include for water connection to the water points and branding of the tank as per drawings and the engineer's instructions. Kikalyoni water point to use existing 10,000L tank	No	6		

	BILL 5: 2no. 10,000L tanks on 6m elevated steel tower				
5.1	Provide all materials and construct a 6m high steel water tower on concrete foundations, using 4no. 110x110X4mm SHS steel columns, 50mm angle line bracings, chequered steel plates, and other details as per drawings provided and instructions issued by the supervising engineer	Item	1		
5.2	Supply, Deliver & Install 10,000L Double Laminated Plastic Water Tank at Kiosks , c/w GI Inlet, Outlet & Overflow Fixtures,. The 4no. Tanks to be interconnected for one unified outlet as instructed by the Engineer	No	2		
5.3	Supply and install 2.5" GI Class B pipes as risers and droppers complete with connectors	m	24		
	Bill 5 total carried to summary				
	Bill 6: Intake weir works				
6.1	**Reservoir desilting and protection works**				
5.1.1	Allow for preparing a cofferdam using soil packed in 50kg bags, and rerouting the water across the weir as directed by the engineer	LS	1		
5.1.2	Allow for intermittent dewatering of the weir reservoir and keeping sub-structure free from water during desilting and gabionning	LS	1		
5.1.3	Allow for setting out of the weir in presence of the supervising engineer				
5.1.4	Manually desilt and dispose off spoil from the weir reservoir current levels to an average of 0.5-1m deep	CM	50		
5.1.5	Provide for stripping bases and slopes around the reservour as directed by the supervising engineer for gabions as bank protection and sieve installations	m^3	40		
5.1.6	Supply, lay, pack, and tie 2m*1m*1m high gauge gabion boxes (2.2mm min mesh wire size) at the excavated silt trap foundations above for bases and slopes as directed by the supervising engineer. Cost inclusive of aliminium gabion box ties.	No.	10		
5.1.7	Supply and pack hardcore in the gabion boxes above	m^3	20		
6.2	**Extension walling of the weir**				
5.2.1	Clear 0.5m-1m around side walls of bush and vegetable soils not exceeding 0.5m deep and dispose off as guided by the engineer	CM	5		
5.2.2	Excavate two trenches upto 2m long on dam ends as in the drawing with width 0.6m wide and an average depth of 1m from current wall levels or to hard rock base foundation. Excavation to be certified by supervising engineer. All spoil to be deposited as directed by the site engineer.	CM	4		
5.2.3	E.O for rock surface	CM	2		
5.2.4	Provide for hacking of rock and existing concrete, clearing site of loose rocks and soil to create base for concreting and reinforcement lapping as shall be directed by the engineer	SM	20		

5.2.5	Increase the weir width and height; height by 0.5m with base and top widths as per drawing and site instructions using vibrated reinforced concrete class 20 (1:2:4) with quarry ballast ½"x3/4" and clean river sand. Hardcore use to be as per site instructions. Cost includes waterproofing and curing sand dam for 21 days.	CM	15		
5.2.6	Provide for water proofing cement (pudlo or similar approved by the site engineer) and mix in the ratio of 1kg for every 50kg bag of cement	KGs	90		
5.2.7	Provide and prepare sawn smooth formwork/shutterwork. Include for propping strutting and striking off to dam upstream and downstream surfaces.	SM	74		
5.2.8	***Provided handle, cut, bend and fix the following reinforcement bars to BS 4449 & BS 4461 as in the drawing or as advised by the site engineer***				
5.2.8.1	D12 at 400mm C/C	KGs	160		
5.2.8.2	D10 at 250mm C/C	KGs	100		
5.2.8.3	D8 at 250mm C/C including ties	KGs	96		
5.2.8.4	Binding wire	KGs	20		
5.2.9	Allow a prime sum for the provision and installation of a 2m, 4" lagged GI scour pipe with 4" sluice valve, 2m 4" lagged off-take pipe with 4" sluice valve, the removal and re-installation of existing community pipes, and the construction of 1no. masonry chamber 1000mm*1000mm inner dimensions as shall be guided by the supervising engineer	LS	1		

	Bill 6 total carried over to summary				
	BILL 7: COFFEE AND MACADAMIA NURSERY ESTABLISHMENT				
No	**Activity/particular**	**Unit**	**Quantity**	**Rate**	**Amount**
1	Forest soil	Treller (4ton	2		
2	Fine Sand	Treller	2		
3	Manure (Farm yard) - well decomposed	Treller	2		
4	Assorted Poly bags (5*8) 100pc packets	Pkts	400		
5	Assorted Poly bags (5*8) 100pc packets	Pkts	200		
6	Watering cans	No	2		
7	Pruning wire	No	2		
8	Wheelbarrows (Juakali, Dutsan)	No	1		
9	Hose pipe (1/2 inch) - 50m	No	1		
10	Jembe with handle - medium size	No	1		
11	Panga	No	1		
12	Shovels with metal handle	No	1		
13	Green Shading net (55% permeability level) 50m legth by 4ft)	roll	2		
14	Insecticide - as shall be instructed by the agriculture officer	Litres	0.5		
15	Fungicides- as shall be instructed by the agriculture officer	Kg	1		
16	Purchase SL28 Certified Coffee seeds	Kg	8		
17	Purchase Murang'a 20 Certified macadamia seeds	Kg	15		
18.0	**Construction Perimeter fencing of the seedlings section at Machoyo farm**				

	Supply, deliver and install following materials for perimeter fencing 90m primeter (15m*30m plot) piece of land as follows: -				
18.1	Excavation of fencing post hole Ø 0.15 x 0.45 cm depth and also anchoring the fence to 50mm below normal ground level	CM	5		
18.2	100 x 100 x 2440 mm high cranked fencing post with concrete base using mass concrete 1:3:6 spacing 3m apart	No.	30		
18.3	100 x 100 x 2440 mm high cranked corner post with concrete base using mass concrete 1:3:6 spacing 10m apart	No.	8		
18.4	12.5 G Galvanized chainlink fabric woven in a diamond pattern, with mesh openings of 50 mm × 50 mm, 2.44 m height	SM	220		
18.5	121/2G soft Galvanized wire x 4 strands	LM	360		
18.6	121/2G Galvanized Barbed wire x 3strands	LM	270		
18.7	22 G galvanized steel chicken wire mesh, hexagonal pattern, 12 mm (½ inch) openings width of 0.9 m	SM	81		
18.8	Supply, fabrication, delivery, and installation of a pedestrian gate 2m*2.4m metal gate complete with frame, including locking mechanism, padlock, and a set of keys. Gate to be fabricated from mild steel sections as per specifications, finished with corrosion-resistant paint or coating. Works to include fixing of hinges, alignment, and installation in true vertical and horizontal positions, ready for operation as shall be instructed by the irrigation engineer	Sum	1		
18.9	Construct support columns of masonry stone with steel reinforcement using 15 mm mortar joints and plaster finish as per drawing specifications, ensuring proper alignment, plumb, and level for smooth gate operation.	Sum	1		
	Sub-total for bill 7 carried to summary				
	BILL 8: Stocking tilapia fingerlings at Mulima dam				
8.1	Supply and delivery at Tilapia fingerlings at Mulima Dam site as shall be guided by the fisheries officer	No	10000		
	Bill 8 total carried to summary				
	BILL 9: JUNCAO FODDER ESTABLISHMENT				
	Irrigation works for the 1 acre juncao farm at Machoyo				
1.0	**Construction of Sub Main pipeline**				
1.1.0	Supply and install HDPE 2" HDPE pipe OD63mm PN10 PE100 cost including trenching and backfilling in 600mm deep trench, and connectors. From weir to tank	m	300		
1.1.1	Site clear and excavate to pipe invert level of 600mm n.e 1m below the existing ground leve on normal soil and backfill/ reinstate to original ground level after testing O/D 40 mm (11/4'') HDPE pipeline	LM	70		

1.1.2	Supply, deliver, install and test O/D 40 mm (11/4") HDPE pipes PN10, KS ISO 4427:2007 PE100 Smooth Virgin Material. To be laid in the trench mentioned in 3.1.2 above	LM	70		
1.2	Sub Mains Pipeline fittings				
	Provide, lay, joint and test HDPE fittings as follows: -				
1.2.1	40 mm End Plug	No.	1		
1.3	Field Hydrants Installation - items to cover two				
	Provide, lay, joint and test HDPE fittings as follows: -				
1.3.1	Supply, deliver, cut, install and test O/D 40 mm (11/4") HDPE pipes PN10, KS ISO 4427:2007 PE100 Smooth Virgin Material.	LM	16		
1.3.2	40 mm x 11/4'' Saddle clamp	No.	2		
1.3.3	40 mm 90° Equal Tee	No.	6		
1.3.4	40 mm Ball cork valve	No.	8		
1.3.5	40 mm 90° Elbow	No.	8		
1.3.6	40 mm x 11/4'' 90° Male Elbow	No.	8		
1.3.7	40 mm x 11/4'' Male Adaptor	No.	10		
2.0	**Laterals Installation**				
2.1	Supply, deliver, install and test O/D 40 mm (11/4") HDPE pipes PN10, KS ISO 4427:2007 PE100 Smooth Virgin Material. To be laid in the trench mentioned in 3.1.2 above	LM	140		
2.2	Provide, lay, joint and test HDPE fittings as follows: -				
2.2.1	40 mm End Plug	No.	4		
2.2.2	40 mm Straight Coupling	No.	1		
2.2.3	16mm x 0.6m long PVC Rigid tubing complete with suitable connectors to the laterals	LM	113		
2.2.4	16mm Take- off fitting	No.	188		
3.0	**Drip installation**				
3.1	Supply install and test 16mm pressure compensated flat tape PE drip line with flow rate of 1liter/ hour and working pressure range of 1.6 bar with a wall thickness of 1.0mm and emmitter spacing of 200mm. 94 beds x 2 rows per bed x 35m per bed	R-M	6,580		
3.2	Supply, install and test 16mm PE drip line End cap	No.	188		
3.3	**Tank on platform**				
	Supply, deliver and install a 5000L double laminated tank complete with 1.5" GI inlet and 1.25" GI outlet,and 1.5" GDPE overflow fixtures on a 2.3m high above ground steel platform	No.	1		
3,4	**Fertiliser**				
3.4	Supply and spreas manure and fertilizer, Basal application -DAP as instructed by the agriculture officer	Bags	4		
	Bill 9 total carried to summary				

GRAND SUMMARY					
S/No	**BILL DESCRIPTION**				**AMOUNT (Kshs)**
1	Preliminaries				
2	BILL 2: PIPELINES				
3	Bill 3: Water kiosks and water points				
4	BILL 4: Plastic Tanks on Masonry Platforms				
5	BILL 5: 2no. 10,000L tanks on 6m elevated steel tower				
6	Bill 6: Intake weir works				

7	BILL 7: COFFEE AND MACADAMIA NURSERY ESTABLISHMENT				
8	BILL 8: Stocking tilapia fingerlings at Mulima dam				
9	BILL 9: JUNCAO FODDER ESTABLISHMENT				
	SUB-TOTAL				
	Allow Ksh. 125,000 for contingencies (water Ksh.85,000, Agriculture Ksh.20,000, Livestock Ksh.20,000)				125,000.00
	SUB-TOTAL A				
	Add 0.03% to sub-total A for PPRA capacity building levy				
	Add 16% VAT to sub-total A for VAT				
	GRAND TOTAL CARRIED TO FORM OF TENDER				