COUNTY GOVERNMENT OF KWALE

Department of Lands, Environment and Natural Resources

Proposed Desilting and Expansion of Chanyiro Water Pan in Mkongani Ward

Bills of Quantities

Bill 1: Preliminary & General Items

Item	Item Description	Unit	Quantity	Unit Rate	Amount
1.1	**Publicity Sign Board**				
1.1.1	Provide,Fabricate,install and maintain for the entire contractor period a publicity sign board, well supported to detail as provided in the drawing and Project Branding.	No	2		
1.2	**Mobilization of Machinery, Equipments and personnel**				
1.2.1	Mobilization of Personnel, plant and equipment to the project site. Rate shall be inclusive of Maintenance of plant and equipment for the entire project duration and to also include	item	1		
1.4	**Topographical Survey & Setting Out**				
1.4.1	Allow for topographical survey and setting out of the works in accordance with Clause 17.1 of the Part 1 of the Conditions of Contract and Clause 1.4 of the Specifications before commencement of works and avail a survey report/drawing in DWG format as shall be directed by the Project Manager	Ls	1		
1.4.2	Prepare and submit as-built drawing (A1- copies)	item	1		
1.5	**ESMP**				
1.5.1	Allow Provisional sum of Kenya Shillings 300,000 for implementation of the Environmental and Social Management Plan as recommended by the ESIA report and as shall be directed by the Project Manager and or the E&S officer	Ls	1		
1.6	**Project Management & Capacity Building**				
1.6.1	Provide a provisional sum of Kes. 250,000 to support supervision to be expended as directed by Project Manager.	Ls	1		
1.6.2	Provide a provisional sum of Kes. 200,000 for WCCPC and PMC capacity building and project implementation facilitation to be expended as directed by Project Manager.	Ls	1		
1.6.3	Allow for Contractors Profit overheads on items 1.05 & 1.06 above	%	20		
	Total carried from Bill 1 to Main summary				

Bill 2:Bush Clearance & Earthworks

Item	Item Description	Unit	Quantity	Rate (Kes)	Amount (Kes)
	Notes				
	i. All earthworks shall be carried out as per the drawings which will be provided aftery survey.				
	ii. Jointly step by step verificatiob of works to be done at every stage of the construction process to ensure quality of works				
	Earthworks				
2.1	**Bush Clearance & Topsoilstripping**				
2.1.1	Clear the site of all trees, bushes, shrubs, and stumps around the embankment area, along the streams, and within the reservoir area. All cleared vegetation and debris shall be removed from the site and disposed of as directed by the Project Manager.	sm	17,100		

2.1.2	Cut, remove and dispose whole trees of 200 -450mm in girth including their stumps along the embankment area, slopes and or within the reservoir area	No.	2		
2.2	**Top soil stripping and hipping**				
2.2.1	Allow for topsoil stripping to a depth not exceeding 250mm deep and cart away to spoil as shall be directed by the Project Manager	cm	2,823		
2.3	**Reservoir (Desilting & Expansion)**				
2.3.1	Excavate wet silt to desilt the existing pan, including loading, hauling, and disposal of all unsuitable material to a designated spoil area downstream of the pan, as directed by the Project Manager.	cm	19,650.00		
2.3.2	Excavate in soft material to expand the reservoir, including stockpiling of suitable excavated material for reuse in embankment construction and loading, hauling, and disposal of all unsuitable material to a designated spoil area downstream of the pan, as directed by the Project Manager.	cm	6,300.00		
2.4	**River Channel Trimming/Training**				
2.41	Site clearance, including removal of bushes, vegetation, debris and other obstructions shall be removed from the site and disposed of as directed by the Project Manager.	sm	1,050.00		
2.42	Excavation and trimming of river channel in soft/common material to the lines, levels and dimensions shown on the drawings, including formation of 2.00 m bed, 2.00 m depth and side slopes of 1V:2H.Loading, haulage and disposal of surplus excavated material as directed by the Project Manager	cm	640.00		
2.43	Preparation and grassing of channel side slopes with approved erosion-resistant grass, I ncluding supply and planting/establishment and maintain it until it sprouts	sm	240.00		
2.5	**Gabions**				
2.5.1	Excavation to the sides of wing walls to a depth n.e 1000mm to a stable formation as shall be directed by the Project Manager.	cm	200		
2.5.2	Provide and place 2mx1mx1m gabion mesh boxes, complete with rockfill, as directed by the Project Manager	cm	20		
2.6	**RipRap**				
2.6.1	Using suitable hard rock with average diameter of 300mm, hand pack them to form a rip rap after the gabbions, well bound by mass conctere at the end.	cm	36		
	Total carried from Bill 3 to Main summary				

Bill 3: Embankment Works (Earthworks)

Item	Item Description	Unit	Quantity	Rate (Kes)	Amount (Kes)
3.1	**Site clearence**				
3.1.1	Clear site, grab stumps and roots and dispose or as shall be directed on site	sm	2,925		
3.1.2	Cut, remove and dispose whole trees of 200 -450mm in girth including their stumps along the embankment area, slopes and or within the reservoir area	No.	-		
3.2	**Embankment Rehabilitation**				

3.2.1	Repair and reinstate the existing embankment by excavating, hauling, placing, spreading in layers not exceeding 300 mm, watering and compacting approved suitable material from the reservoir, spillway and/or approved borrow areas within 0.5 km of the site. Include filling eroded and settled sections, restoring the 6.0 m crest width, 3H:1V side slopes and required embankment profile, complete as directed by the Project Manager.	cm	6,633.00		
3.3	**Slope Protection**				
3.3.1	On the Upstream slope (3:1), hand pack rock fill/rip rap with average diameter of 300mm as directed by the Project Manager	cm	396.00		
	Total carried from Bill 3 to Main summary				

Bill 3: RC Spill way

Item	Item Description	Unit	Quantities	Rate (Kes)	
4.1	**Site Clearance**				
4.1.1	Clear site from all undergrowth shrubs, bushes,including stubs uprooting and removal of all deleterious materials from site around the Spillway area and cart away to spoil as directed by the Project Manager	sm	1800		
4.2	**Earth works**				
4.2.1	Excavation and disposal for spillway in normal soils for depth n.e 500mm	cm	600		
4.2.2	Ditto for excavation hard/ rock formation for depth 1500mm - 2500mm	cm	0		
4.2.4	Excavation for sill/weir along the axis to a depth n.e 1500mm in hard/rock formation.	cm	120		
4.3	**Formwork**				
4.3.1	Form work to F3 finish to sides of weir/sill body as directed by the Project Manager	sm	166.40		
4.3.2	Form work to F3 finish to sides of Headwalls and wing walls as directed by the Project Manager	sm	160.00		
4.4	**Reinforcements**				
	High yield deformed steel bars; Rates to include for bending, tying and fixing				
4.4.1	High yield square twisted bars to BS 4461 12mmø in weir body at 200mm c/c.	Kg	135.00		
4.4.3	High yield square twisted bars to BS 4461 10mmø as stirrups at 400mm c/c.	Kg	99.00		
4.4.4	High yield square twisted bars to BS 4461 10mmø in stilling basin at 200mm c/c.	Kg	100.00		
4.5	**Concrete works**				
	Reinforced Concrete Works to Sill, Wingwalls and Stilling Basin				
4.5.1	50mm thick Lean Concrete Blinding class 15/20 under weir, wing walls and Stilling basin as specified(1:3:6)	cm	1		
4.5.2	Cast in situ, reinforced concrete class 25/20 to weir, cutoff walls as specified1:1.5:3	cm	10.00		
4.5.3	Cast in situ, reinforced concrete class 25/20 to wingwalls as specified1:1.5:3	cm	10.0		
4.6	**RipRap**				
4.6.1	Using suitable hard rock with average diameter of 300mm, hand pack them to form a rip rap after the stilling basin slab, well bound by mass conctere at the end.	cm	54		

4.6.2	Using suitable rock material, stone pitch the side slopes of the spill way channel using 1:3 mortar as directed on site.	sm	20		
	Total carried from Bill 4 to Main summary				

Bill 4: Water Abstraction Works (Pipe works, Earthworks & Concrete)					
Item	**Item Description**	**Unit**	**Quantity**	**Unit Rate**	**Amount**
5.1	**In take works**				
5.1.1	Construct a masonry machine -cut walling intake structure 1500x1500mm with openings as per the drawing attached	sm	23.1		
5.1.2	Conctrete class 25/20 for in take floor and holding the HDPE draw off pipe	cm	1.2		
5.1.3	Plaster to nil finish using water proof additive mortar	sm	46.2		
5.1.4	Approved hardcore material as course sieve, well handpacked into the constructed in take structure.	cm	7.4		
5.1.5	Intake pipe, well perforated (10mm diameer all around the pipe for 2500mm length) 150mm HDPE pipe PN 12.5. Installation including bends, end cap and any other fittings to connect it such that it is vertical and be able to connect with the horizontal draw off pipe	item	1		
5.2	**Draw-off Pipe**				
5.2.1	Supply, lay and test 150mm (6") diameter PN 16 HDPE pipes or approved equivalent steel pipes as directed by the project manager	lm	70		
5.2.1	Supply, fix and test 150mm (6") diameter sluice valves. Fixing to include necessary fittings for connection to the 160mm (6") diameter pipes	No.	1		
5.3	**Concrete Surround**				
5.3.1	Cast in situ, mass concrete surround class 25/20 as haunch to the laid drawoff pipe inorder to hold it in horizontal alignment and as anchorage as directed by the project manager	cm	14.38		
5.4	**Inspection Chamber**				
5.4.1	Construct a masonry chamber 1500x1500mm and at least 1000mm above the ground complete with manhole cover and access ladder	No.	1		
	Total carried from Bill 5 to Main summary				

Bill No.5: Auxillary Facilities (Sump well, Fencing, Trough & Water Point)					
Item	**Description**	**Unit**	**Quantity**	**Rate (Kes)**	**Amount (Kes)**
1	**10m3 Sump-well**				
	Allow for general site clearance including removal of trees (provisional)	M2	8		
	Genera l Excavation to remove top soil commencing from ground level n.e. 300m m deep a nd dispose -off a rising within the construction site a s directed.	M3	2.5		
	Excavate for Sump well 2400mm dia. Depth not exceeding 1.5	M3	12		
	Ditto but 1.5m - 3m depth	M3	12		
	Place 300mm thick hardcore filling at bottom of well	M3	2.5		
	100mm thick murram filling ontop of hardcore	M3	0.9		
	Place reinforced concrete class 25/20 (1:1.5:3) for 200mm thick floor slab	M3	1.6		
	Place reinforced concrete class 25/20 (1:1.5:3) for 150mm thick roof slab	M3	1.5		
	Provide materials and Construct 200mm thick concrete block walling	M2	40		

	1:2 sand/cement Plastering to internal walls with water proofing 50mm thick	M2	40		
	Formwork				
	(i) To roof soffit	M2	7.5		
	(ii) 3Ply to sides of roof slab	M2	3		
	Supply, cut and fix reiforcement to well ring, wall and roof slab as specified in the DWG				
	(i)D8	Kgs	150		
	(ii)D10	Kgs	300		
	Fabricate, supply and Install internally 3.5M long x 0.45m wide stainless steel ladder as per specification or as shall be directed by the Project manager on	No.	1		
	Fabricate, supply and fix 600mm x 600mm x 50mm thick well cover and capping complete with frame and locking system	No.	1		
	Sub-total for Sump well				
2	**Fencing**				
	Earthworks				
	Clear sight of shrubs, small trees, 1m wide girth not exceeding 600mm and grub roots and remove from site as directed by the Project Manager	SM	600		
	Excavate for pits not exceeding 600mm depth and 300mm diameter	No.	201		
	Provide and pour insitu mass concrete class 20/20 agg(1:2:4) into excavated pits for backfilling	CM	10.85		
	Supply all material & Cast insitu 2.5m high (ɳ shaped) concrete fencing posts at 3m cetre to centre with holes to allow fixing of 2.1m high chain link. The posts shall be of 100 x100 mm grade 20 reinforced concrete with D8 reinforcement bars as shall be directed by the Project Manager	No.	201		
	Supply all material & Cast insitu 2.1m high concrete fencing posts as support for anchoring fence at change of direction The posts shall be of 100 x100 mm grade 20 reinforced concrete with D8 reinforcement bars as shall be directed by the Project Manager	No.	126		
	Galvanizing wire 3 lines	LM	1800		
	Barbed wire 3 lines on the cranked position	LM	1800		
	PVC Coated Chain link 2.1 metre high gauge12	LM	600		
	Gate				
	Gate civil works				
	Excavate 500x500x600mm for foundation of the gate pillars	cm	1		
	50mm thick blinding using concrete 15/20	sm	0.3		
	Reinforcements				
	Supply,cut, bend and fix high yield deformed steel bars:				
	D12	Kg	90		
	D8	Kg	31		
	Sawn form work or Equivalent	sm	25		
	Cast concrete into the columns concrete class 20/20	cm	6		
	Using mortar 1:3, plaster the columns as directed on site	sm	25		
	Fabricate and mount onto the concrete columns 2.5m wide and 2.1m high double opening steel gate (as per drawing)	item	1		
	Painting				
	Prepare and apply two white emulsion paint coats onto the columns	sm	25		
	Prepare and apply two bermuda blue paint coats onto the double steel gate on both sides	sm	45		
	Branding of gate				
	Employ a skilled artist to carry out branding for:				

	i. Kwale County logo which should be approximately 450x450mm square	Ls	1		
	ii. The script as detailed wording below				
	ii. (a). Letters/Font to be 300mm height				
	ii. (b). Font Thickness to be 50mm				
	ii. © . The font colour to be black				
	The script to be in 2 lines:				
	line 1: PROPOSED CONSTRUCTION OF CHANYIRO WATER PAN				
	line 2: FINANCED BY FLLOCA FY 2026/2027				
	cost for script writing	Ls	1		
	Sub-total for Fencing				
3	**Pump Installation & Solarization**				
	Solar panels, pumps and accessories				
	Supply, Install and test Grundfos or its equivalent european standard submersible Pump. Discharge should not be less than 5m3/hr against 80m head.	No.	1		
	Supply,install and test 1.5kW Sub motor		1		
	Supply, deliver and test 2.2kW Sunverter or its eqivalent as approved by the Project Manager.	No.	1		
	DC PV Disconnect switch 1000 VDC/200A	No.	1		
	6mm 2x4 PVC Flat submersible drop cable	M	50		
	Float switch	Item	1		
	Supply, deliver, install and test Monocrystaline Crystalline solar module as approved by the Project Manager	Watt	2400		
	Supply all materials and fabricate 3m high solar support structure (steel and as recommended by the project manager)	Item	1		
	Installation sundries	Item	1		
	Sub-total for Pump Installation & Solarization				
4	**Pipeline Works, Communal Watering Point & Animal Drinking Troughs**				
	Pipeline Works				
	Excavate for trench 600mmx600mm to receive pipes	cm	180		
	Supply, lay, test and backfill OD 63mm HDPE PN 12.5	lm	500		
	Allow provisional sum for pipeline connection from the sump-well inclusive of all fittings as directed by the Project Manager	item	1		
	Community watering Point				
	Provide all materials and construct a 4metres water tower cum kiosk inclusive of filtration unit with 10,000ltrs overhead tank as per annex 1	item	1		
	Provide all materials and construct a platform with 5,000ltrs overhead tank as per annex 2	item	1		
	Animal Drinking Troughs				
	Provide all materials and construct 2no. animal drinking point as per Annex 3	item	2		
	Sub-total for CWP & ADT				
	SUMMARY				
1	**10m3 Sump**				
2	**Fencing**				
3	**Pump installation & Solarization**				
4	**Community Water Point & Troughs**				
Sub-total for Auxillary Facilities Carried forward to Summary Page					

PROPOSED BILL OF QUANTITIES FOR CHANYIRO DAM IRRIGATION PROJECT IN MKONGANI WARD

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
BILL 1	**IRRIGATION SYSTEM**				

A	**Preliminaries and General**				
1.2	Clear site of all trees, bushes, shrubs etc and dispose as specified by the Engineer. Size of land - one acre	Lump Sum	1		
1.3	Plough and harrow land of one acre size as specified by the project manager	Lump Sum	1		
1.4	Formation of beds 1.5 m x 40 m as specified by engineer	Lump Sump	1		
	Sub - Total (Preliminaries)				
B	**Installation of Irrigation**				
	Water tanks Installtion				
	Insntall 10,000-litres tanks using PPR pipes of 63mm. This incliudes all the fittings needed for the intake and outlates of the tanks. Then later connect the tanks to either the water kiosk for domestic use or irrigation.	No.	2		
	Procure, supply, deliver and place 50 mm diameter PN12.5 HDPE pipe complete with all the coupling accessories	LM	40		
	Mainline				
	Supply, lay and test;				
	DN 63mm HDPE PN12.5 pipe with all the necessary fittings and materials required to couple it to the tanks and fix all the pipes required	LM	80		
	Submain line				
	Supply, lay and test;				
	DN 50mm HDPE PN 8 pipe with all necessary fittings required to couple it to the submain line	LM	100		
	Supply, lay and test;				
	1/4 acre drip kit, 16mm, thickness 0.4mm. Include all the fittings which i.e. connectors, rubbers, take-offs, and ball corks for the blocks. Also a lateral pipe of 40mm, PN 8 will be required for each block with all the fittings as well	No.	4		
	Sub - Total (Irrigation System)				

6.0M WATER TOWER					
ITEM	**DESCRIPTION**	**QTY**	**UNIT**	**RATE**	**AMOUNT**
	WATER TOWER				
	ELEMNET NO 1.				
	SUBSTRUCTURE WORKS (All Provisional)				
	EXCAVATION AND EARTHWORKS				
1.0	Clear site of all bushes, tufts and any small or large trees, including grubbing out roots and burn on site where directed	28	SM		
2.0	Excavate oversite average 250mm deep and cart away	6	SM		
3.0	Excavate trench for strip foundation: not exceeding 1.5m deep	30	CM		
4.0	Excavate for column pits: not exceeding 1.5m deep	6	CM		
	Disposal of excavated material				
5.0	Filling around substructure walls and columns; backfill and compact in 150mm layers; selected excavated materials.	20	CM		

6.0	Load and cart away surplus material from site as directed	8	CM		
	Disposal of Water				
7.0	Allow for keeping the whole of the excavation free from mud, water and fallen materials	1	Item		
	TOTAL CARRIED FORWARD				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Brought Forward				
	Planking and strutting				
1.0	Allow for planking and strutting sides of excavation	1	Item		
	Filling				
2.0	300mm thick (minimum) approved hardcore handpacked in layers not exceeding 150mm	7	SM		
3.0	50mm thick murram dust or any other equal and approved material in blinding surface of hardcore	12	SM		
	Insecticide Treatment				
4.0	Treat hardcore & murram surfaces and tops of foundation wall with approved antitermite applied in accordance with the manufacturer's instructions and subject to a TEN YEAR guarantee	12	SM		
	TOTAL CARRIED FORWARD				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	SUBSTRUCTURES & SSUPERSTRUCTURE CONTINUED				
	CONCRETE WORKS				
1.0	50mm thick concrete blinding to surfaces of strip footing & column bases (mix 1:3:6)	8	SM		
	Vibrated reinforced concrete class 20/20 (Mix 1:2:4) to:-				
2.0	200mm thick Strip footing	5	CM		
3.0	Columns Bases	6	CM		
4.0	300x300mm Columns	5	CM		
5.0	Beams	15	CM		
6.0	150mm thick ground floor slab	10	CM		
	High Tensile Reinforcement Bars to B. S. 4461 including cutting, bending and all necessary spacer blocks : (Provisional) :-				
6.0	8mm dia bars	230	KG		
7.0	10mm dia bars	390	KG		
8.0	12mm dia bars	250	KG		
9.0	16mm dia bars	370	KG		
	Mesh Fabric reinforcement to BS 4483:				
10.0	Square Mesh reference A142:weighing 2.22kilogrmmes per square metre	12	SM		
	Sawn treated Cypress formwork to: -				
11.0	Edges of strip footing	8	SM		
12.0	Ditto but to column bases	20	SM		
13.0	Ditto but to sides of columns	650	SM		
14.0	Ditto but to sides of beams	81	SM		
15.0	Ditto but to edges of floor slab	24	LM		
	TOTAL CARRIED FORWARD				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	Brought Forward				
	FOUNDATION WALLING				
1.0	200mm natural stone foundation wall in cement:sand (1:3) reinforced with hoop iron at every to alternative course	95	SM		
	WATERPROOFING				
2.0	1000 gauge polythene sheet waterproof to slab area, measured net, no allowances made for overlaps	12	SM		
	PLINTH FINISHES				
3.0	15mm cement and sand (1:4) render trowelled smooth and comprising 12mm thick backing and 3mm finishing coat.	40	SM		
	Painting and Decoration				
4.0	Prepare and apply 3 coats of first quality emulsion paint to rendered surfaces	40	SM		
	TOTAL CARRIED FORWARD TO ELEMENT COLLECTION				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMT
	PRIME COST AND PROVISIONAL SUMS				
1.0	Allow a Prime cost Sum of Kshs. One hundred thousand (150,000.00) only for Connection of Plumbing and drainage Works		Lump Sum		
2.0	Allow a Prime cost Sum of Kshs. Fifty thousand (100,000.00) only for fabrication of access ladder		Lump Sum		
	TOTAL PRIME COST AND PROVISIONAL SUMS, CARRIED TO GRAND SUMMARY				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	ELEMENT NO. 1 (SUBSTRUCTURE WORKS) COLLECTION				
1.0	Total Excavation and Earthworks brought forward from page MB/1				
2.0	Total Substructure,Superstructure, Walling and Concrete Works brought forward from page MB/2				
3.0	Prime Cost and Provisional Sums				
	TOTAL ELEMENT NO. 1 (SUBSTRUCTURE WORKS), CARRIED TO SUMMARY				

Farm Inputs & Implements

S/No.	Item description	Unit	Qty	Rate (Ksh)	Amount (KES)
1	Okra seeds, 250 g	No.	2		
2	Kales seeds, Tausi F1, 50 g sachet	No.	2		
3	Tomato seeds, Ranger F1, 1000 seed-	No.	2		
4	Onions seeds, red creole 100 g	No.	2		

5	Amaranthus, 1 kg	No.	2		
6	PVC spray suit (complete with goggles, gloves and gumboots)	No.	4		
7	knapsack sprayer, 20-L	No.	4		
8	Watering cans	No.	3		
9	hand hoes (alligator)	No.	10		
10	Wheel barrow	No.	2		
11	Sukari F1, 250 g	No.	5		
12	Confidor, 15 g	No.	1		
13	DAP, 50 kg	No.	5		
14	Redomil, 250 g	No.	3		
15	Optimizer, 1 litre	No.	5		
16	Lavender, super starter, 1 litre	No.	2		
17	Billionare, 100 g	No.	5		
18	Absolute star, 250 ml	No.	5		
19	Twig ace, 250 ml	No.	3		
20	Wuxal micromix, 1 litre	No.	1		
21	N.P.K, 17:17:17, 50 kg	No.	3		
22	CAN, 50 kg	No.	3		
23	Mult N.P.K, (npK)	Kg	4		
24	High Mult K, 1 litre (Gold chance)	No.	1		
25	Vitabor Gold, 1 litre	No.	1		
26	Lancer, 250 ml	No.	3		
27	Magical, calcium, 500 ml	No.	1		
	Sub - Total (Inputs & Implements)				

Fence

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Earthworks				
	Clear sight of shrubs, small trees, 1m wide girth not exceeding 600mm and grub roots and remove from site as directed by the Project Manager	SM	388		
	Excavate for pits not exceeding 600mm depth and 300mm diameter	No.	130		
	Supply, place and test;				
1	Treated poles, 100mm x 2500mm, placed at 2500mm interval on the ground. Cast-in-place concrete to support the post on the ground. **Note:** bluegum posts will not be accepted	No.	130		
	supply, fix and test;				
2	G 12.5 Berbed wire on to the erected post, include all necessary materials required	LM	3,000.00		
	Supply, fix and test;				
3	2000mm x 2500mm steel gate, include all necessary maerials required for fixing the gate on vibrated concrete columns reinforced with steel bars. The gate will be using square tubes of 76 mm. It should include a lock section and a badlock	Item	1		
	Sub - Total (Fencing)				

	SUMMARY				
1	**IRRIGATION SYSTEM**				
2	**6.0M WATER TOWER**				
3	**Farm Inputs & Implements**				
4	**Fence**				
	Sub-total for Auxillary Facilities Carried forward to Summary Page				

CONSTRUCTION OF A 2-DOOR PUBLIC TOILET (ALL PROVISIONAL)

Item	Description	Unit	Qty	Rate KShs	Amount KShs

	BILLS OF QUANTITIES FOR PROPOSED DOOR VIP LATRINE BLOCK WITH URINAL				
	SUBSTRUCTURE				
	Site clearance				
1.0	Clear site of shrubs,grass,small trees girth not exceeding 600mm and grub roots and remove from	SM	15		
	Excavations and earth works				
2.0	Excavate vegetable soil,shrubs and undergrowth grub there roots and burn the uprising.	SM	15		
3.0	Excavate for strip foundation starting from strip level depth not exceeding 1.5m deep.	CM	11		
4.0	Excavate for pit latrine 2100mmx1450mm wide depth not exceeding 1.5m deep.	CM	4		
5.0	Ditto but from 1.5m but not exceeding 3.0m deep.	CM	5		
6.0	Ditto but from 3.0m but not exceeding 4.5m deep.	CM	5		
7.0	Ditto but from 4.5m but not exceeding 6.0m deep.	CM	5		
8.0	Ditto but excavations in soft rock	CM	3		
9.0	Ditto but excavations in hard rock	CM	2		
10.0	Return fill and rum selected excavated material.	CM	3		
11.0	Cart away surplus excavated material.	CM	25		
	Planking and strutting				
12.0	Allow for plunking and strutting	Item	1		
	Disposal of water				
13.0	Allow for keeping excavations free from water.	Item	1		
	Fillings				
14.0	Approved hardcore fill 300mm thick ,well watered and compacted to receive murram blinding(m.s)	SM	2		
15.0	Approved 50mm thick murram blinding.	SM	2		
16.0	Gladiator T.C.L or any other equal and approved chemical anti-termite treatment to sub soil or filling	SM	2		
	CARRIED FORWARD				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
	BROUGHT FORWARD				
	Insitu Plain Concrete mix 1:3:6 in:				
1.0	50mm thick concrete blinding under strip foundations	SM	9		
2.0	50mm thick concrete blinding under pit linning strip foundations	SM	9		
	Insitu vibrated reinforced concrete mix 1:2:4 in				
3.0	200mm thick strip foundations	CM	2		
4.0	200mm thick under pit linning strip foundations	CM	2		
5.0	200mm x 200mm thick in fioor beams	CM	1		
6.0	150mm thick in suspended floor beds	SM	4		
	High yield square twisted reinforcement including cutting to lengths,bending,twisting and fixing ,including all necessary tying wires and spacing blocks to B.S. 4461:-				
7.0	8mm longitudinal bars in strip foundation	KG	20		
8.0	10mm cross(main) bars ditto	KG	31		

9.0	8mm longitudinal bars in strip foundation for pit linnng	KG	12		
10.0	10mm cross(main) bars ditto	KG	19		
11.0	12mm bars as main bars in suspended floors and beams	KG	126		
12.0	10mm bars as main bars in suspended floors	KG	90		
	Mild steel reinforcement to BS 4449				
13.0	8mm diameter bars as links to floor beams	KG	25		
	CARRIED FORWARD				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
	BROUGHT FORWARD				
	Mesh fabric reinforcement to BS 4483:Square mesh reference A142:weighing 2.22kilogrammes per square metre				
1.0	In bebs 200mm laps	SM	2		
	Formwork to:				
2.0	Vertical sides of strip foundations	SM	8		
3.0	Vertical sides of strip foundations for pit linning	SM	4		
4.0	Soffits and sides of floor beams and slabs exceeding 3.0m high	SM	8		
5.0	Vertical edges of beds over 75mm but not exceeding 150mm wide.	LM	6		
	Machine cut natural stones beded in cement sand mortar (1:4) including hoop iron in every alternate course				
6.0	200mm walls	SM	21		
	Machine cut natural stones beded in cement sand mortar (1:4) including hoop iron in every alternate course				
7.0	200mm walls in pit linning	SM	60		
	Bituminous felt damp proof courses bedded in cement sand mortar (1:4) :300mm laps:-				
10.0	200mm wide horizontal	LM	25		
	12mm cement sand (1:4) render:Steel trowelled on concrete or stonework to				
11.0	Plinths	SM	9		
	Prepare and apply two coats bituminous paint on render to:-				
12.0	Plinth	SM	9		
	SUBSTRUCTURE WORKS				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
	VIBRATED REINFORCED SUPERSTRUCTURE				
	Insitu vibrated reinforced concrete mix 1:2:4 grade 20 as describe d in :-				
1	Beams	CM	1		

	High yield square twisted reinforcement including cutting to lengths,bending,twisting and fixing ,including all necessary tying wires and spacing blocks to B.S. 4461:-				
2	12mm bars in beams	KG	33		
	Mild steel reinforcement to BS 4449				
3	8mm diameter bars in beams	KG	18		
4	**Formwork**				
	Sawn softwood formwork to in-situ concrete as;				
4.1	Vertical sides and soffites of beams not exceeding 3.0m high.	SM	4		
	VIBRATED REINFORCED SUPERSTRUCTURE				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
	WALLING SUPERSTRUCTURE				
	Machine cut walling				
1.0	200mm thick machine cut coral block walling bedded and jointed in cement and sand mortar mix 1:3 with 20mm wide hoop iron reinforcement at every alternate course	SM	36		
2.0	150mm thick precast concrete permanent vent block walling	SM	1		
	Copping stone				
3.0	Mass concrete copping stone mix (1:3) twice weathered and throated on top of screen wall	LM	4		
	Heavy duty steel grilles comprising 16mm square bar perimeter framing and horizontal middle rail 12mm square bar ventical infilla st 150mm centres, 16 x 4 mm flat diamond shaped welded onto square bars primed as per crown paints primer the whole grillecomplete with fixing lugs and including fixing to masonary walling				
5.00	Grill	SM	5.00		
	WALLING SUPERSTRUCTURE				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
	ROOFING				
	The following in 5No.second grade celcured cypress timber rafters including nails ,U-bars, lappers and all the necessary for assembling and hoisting to position as per roofing details.				
1.0	100x50mm rafters.	LM	9		
2.0	75x50mm Purlins.	LM	10		
	ROOF COVERING				
3.0	28gauge Pre-painted box profile Roof Covering nailed to Timber Purlins(780mm effective cover width)	SM	10		
	WROT CYPRESS				
4.0	150x25mm fascia and bardge board	LM	13		
	PAINT WORK				
	Prepare and apply 3 coats of first grade clear wood varnish				
5.0	Surfacess not exceeding 300mm	LM	38		
6.0	General surfaces	SM	12		
	ROOFING				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
5	**DOORS**				
	The folowing in wrot graded cedar				

1	100mm x 50mm frame with one labour and fixed to block wall with fish tailed metal (m.s)	LM	10		
1.2	75mm x 25mm moulded camphor architrave to Architect approval	LM	10		
1.3	15mm x 15mm ditto quadrant ditto	LM	10		
	Shutter				
1.4	45mm thick (finished) hardwood ledged,braced and battened door comprising of 95 x 20mm (finished) braces,ledges and tongued and grooved matchboarding, V-jointed on one side and let flush on the other	NO	2		
	Ironmongry				
	Supply and fix the following ironmongery with screws to match.				
1.5	100mm brass butt hinges with matching screws.	NO	6		
1.6	15mm diameter rubber door stop	NO	2		
1.7	25mm x 3mm fish tailed metal cramps one end screwed to 50mm timber frame while the other end fixed to block wall	NO	6		
1.8	300mm long steel aldrop(Pad bolt)	NO	2		
1.9	150mm Brass tower bolt	NO	2		
	PAINT WORK				
	Prepare and apply 3 coats of first grade clear wood varnish:				
10	Surfacess not exceeding 300mm General surface	LM	20		
11	General Surfaces	SM	9		
	DOORS				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
6	**FINISHES**				
	Floor finishes				
6.1	40mm thick Cement Sand (1:4) and screed	SM	8		
6.2	Ditto,in 100mm high skirting ,with painted top, ditto	LM	8		
6.3	Supply and fix Ceramic Floor tiles to screeded floor	SM	8		
	Interior and exterior surfaces				
	Wall and Concrete surfaces				
6.4	15mm thick cement and sand plaster(1:4) plaster to internal wall and concrete surfaces finished smooth with steel trowel	SM	32		
	Interior and exterior surfaces				
	Wall and Concrete surfaces				
6.5	**PAINTING**				
	Prepare and apply one coat of " Crowm " penetrating primer and three finishing coats of CROWN silk vinyl emulsion paint on plastered wall surfaces	SM	32		
	MISCELLEANOUS				
6.6	U.P.V.C golden brown vent pipe 100mm diameter	LM	6		
6.7	U.P.V.C ballon guard(vent cap) 100mm diameter	LM	1		
6.8	Allow for drawing the County logo and the text reading " KWALE COUNTY GOVERNMENT' and the name of the Public toilet as directed by the project manager	Item			
	1000 litres PVC Water storage tank as EXOTANK or equal approved				
9.0	Supply and fix 1000litres PVC Water tank as before described including all necessary fittings	NO	1		

	FINISHES				

Item	Description	Unit	Qty	Rate KShs	Amount KShs
	SUMMARY				
1.0	SUBSTRUCTURE WORKS				
2.0	VIBRATED REINFORCED SUPERSTRUCTURE				
3.0	WALLING SUPERSTRUCTURE				
4.0	ROOFING				
5.0	DOORS				
6.0	FINISHES				
	TOTAL				

Main Summary

Item	Description				Amount
Bill 1	Preliminary & General Items				
Bill 2	Bush Clearance & Earthworks				
Bill 2	Embankment				
Bill 3	Spillway				
Bill 4	Water Abstraction works				
Bill 5	Auxiliary Facilities				
Bill 6	Micro Irrigation				
Bill 7	Sanitation				
	Sub-total 1	-			
	ADD 2% CONTIGENCIES	-			
	Add 0.03% PPRA Capacity Building	-	-		
	Sub-total 2	-	-		
	ADD 16% VAT	-			
	GRAND TOTAL TAKEN TO FORM OF TENDER	**-**			

Annexes

ANNEX 1: BILL OF QUANTITIES FOR 4METRES TOWER & KIOSK

Item	Description	Unit	Qty	Rate (Kes)	Amount (Kes)
	EXCAVATION AND EARTH WORK				
	Allow for general site clearance	Item	2		
	Approved 150mm thick layer hard core bed hand packed, well watered and compacted below floor slab.	CM	2		
	50mm quarry dust/ murram blinding to hard core surface, well rolled and leveled to receive concrete.	SM	5		
	1000mm gauge polythene sheeting with sides and end laps as described laid on blinded surface.	SM	4		
	Allow for excavation to a solid foundation of depth of 1.5 meters	CM	1		

	Concrete Works				
	50mm thick blinding concrete (1:3:6) to strip footing and column bases.	CM	0.5		
	Place and compact Concrete 300mm Class 25/20 (1:1.5:3) in Strip footing and column bases.	CM	1		
	Place and compact 150mm thick ground floor slab concrete grade 20 (1:2:4). Allow for the required formwork.	CM	2		
	Place and compact 150mm thick roof slab concrete grade 25/20 (1:1.5:3). Allow for the required formwork.	CM	3		
	Prepare and place concrete grade 25/20 in Beams	CM	3		
	Prepare and place concrete grade 25/20 in columns.	CM	3		
	Place and compact concrete grade 20 (1:2:4) in fetching bay. Allow for the required formwork.	CM	1.8		
	Reinforcements				
	Substructure				
	Supply and place No. A 142-fabric mesh reinforcement in floor slab (Include also the fetching bay). Allow for 300mm overlaps.	SM	4		
	Supply bend and place as specified in the drawings, D12mm square twisted high tensile bars in foundations bases. Include for the binding wire and stirrups.	KG	560		
	Supply bend and place as specified in the drawings, D16mm square twisted high tensile bars in columns. Include for the binding wire and stirrups.	KG	833		
	Ditto but D8mm diameter round bars.	KG	455		
	Superstructure				
	Supply bend and place as specified in the drawings, 16mm square twisted high tensile bars in columns and beams. Include for the binding wire and stirrups.	KG	634		
	Ditto but 8mm diameter round bars.	KG	122		
	Supply bend and place as specified in the drawings, 12mm square twisted high tensile bars in roof slab. Include for the binding wire and stirrups.	KG	478		
	Formwork				
	Allow for Sawn formwork to sides of fetching bay walls and slab.	SM	33		
	Allow for Sawn formwork to soffit of roof slab and beams. Include for props.	SM	45		
	Allow for Sawn formwork to columns in the sub-structure and edges of floor slab.	SM	26		
	Allow for Sawn formwork to columns and sides of roof slab. Include for props.	SM	67		
	Walling				
	200mm natural stone (machine cut or chisel dressed) walling in 1:3 cement and sand mortar and including reinforcing with 25mm thick hoop iron in every alternate course in the sub-structure. Include for supply and delivery.	SM	80		
	200mm natural stone (machine cut or chisel dressed) walling in 1:3 cement and sand mortar and including reinforcing with 25mm thick hoop iron in every alternate course in the super-structure. Include for supply and delivery.	SM	67		
					-

	Joinery & Glazing				
	Timber shelves as per drawing nos. ARC1 and ARC2.	NO	3		
	Metal Work				
	Windows				
	Supply & fix purpose made 25mm thick x 1000 mm long x 1200mm high steel shutter window fabricated from standard sections complete with frames, mullions and transoms including all necessary locking and window stays, screws and nuts once shop primed before delivery to site. Include for precast concrete panel, Perspex cover, brackets etc as detailed in drawings.	NO	1		
	Allow for 50x50x3mm angle section fixed and anchored in the reinforced concrete window sill to detail as in the drawings. The section shall be set in place before placement of the concrete.	LM	3		
	Doors				
	2.5mm thick x 900 x2100mm high burglar proof steel door complete as detailed in drawing no. ARC 09. Include for provision of high security padlock. Allow for painting including red oxide primer.	NO	1		
	Plumbing Installations				
	Supply, deliver and install 25mm diameter GI class `B` pipe including jointing, coupling and fixing as detailed in the drawings. Include for all original Pegler valves, meter and all fittings and consumables and placement as shown in the drawings including pipe work into and out of the overhead tank and floater valve to manufacturers' specifications.	Sum	1		
	Testing and commissioning				
	Allow for testing and commissioning of the whole of water supply plumbing works.	Item	1		
	Floor, Wall & Ceiling Finishes				
	External finishes				
	Extra over walling for smooth chisel dressing with flush pointed vertical joints and recessed horizontal joints	SM	25		
	15mm thick cement sand plaster trowelled smooth to external surface of masonry wall in fetching bay, beams, columns, roof slab edges and soffit	SM	30		
	Internal finishes				
	Floors				
	25mm thick cement screed.	SM	13		
	Walls				
	15mm thick cement sand plaster trowelled smooth to internal wall surface and soffit of roof slab.	SM	15		
	Wall and floor tiles to raised fetching bay section	SM	3		
	Provide and place 600x600mm paving slabs all round the water kiosk Or cast 100mm thick insitu concrete grade 20 (1:2:4) 300mm width all round the water kiosk as directed on site	SM	3		
	Painting & Finishes				
	Prepare and apply three coats gloss oil paint to general surfaces of metal doors, windows, sections etc	SM	10		

	Prepare and apply three coats of first grade silk vinyl emulsion paint to plastered surfaces of beams, columns, roof slab edges and soffit.	SM	35		
	Prepare and apply three coats first grade plastic emulsion paint to plastered internal surfaces of walls	SM	15		
	Filtration Unit				
	Supply, install and test Dayliff or equivalent approved European standard manual high pressure Filtration system model (PXD600) inclusive of all plumbing works as shall be directed by the Project manager	Ls	1		
	Storage Tank				
	Supply, deliver, install and test 10,000l PVC tank as directed and approved by the Project manager	No	1		
	Sub-Total For 1 No. Water Kiosk				

ANNEX 2:BILL OF QUANTITY FOR CONSTRUCTION OF A WATER TANK PLATFORM					
Item	**Description**	**Unit**	**Qty**	**Rate (Kes)**	**Amount (Kes)**
a	**Site Clearance and excavation work**				
i	Excavate oversite average 150mm deep, wheel and deposit on site as directed.	SM	2		
ii	Excavate for foundation trench not exceeding 1.5m from the ground	CM	2		
iii	Ditto for rock formation	CM	0.3		
iv	Return fill and ram well selected excavated materials	CM	2		
v	Load and cart away surplus excavated materials	CM	1.3		
vi	300mm thick hardcore layer compacted in 3 layers and blinded with murram	CM	1.5		
vii	50mm thick murram blinding	CM	0.75		
viii	50mm thick weak concrete blinding under strip foundations	CM	0.75		
b	**Vibrated reinforced concrete (1:2:4) -20mm aggregate**				
i	200mm thick foundation concrete	CM	1		
ii	150mm thick floor surface bed	CM	1		
c	**Steel reinforcement**				
i	Steel bars cut and bent as required including short joining lengths, binding wire and spacer blocks				
ii	Y8 longitudinal bars in strip footing	kg	50		
iii	Y10 cross(main) bar in strip foundation footing	kg	30		
d	**Sawn softwood formwork to;-**				
i	Slides of floor bed 150 to 225mm	LM	22		
ii	Solid coral block walling in cement sand mortar (1:4) 200mm thi	SM	15		
iii	12mm cement sand (1:4) render trowelled smooth platform finishes	SM	26		
iv	25mm thick cement sand plaster to sides and top platform	SM	18		
e	**Plumbing Works**				
i	Provide 2" PPR pipes for connection from the 2" main line to the tank and provide taps for the fetching bay.	item	1		
ii	Supply, fix and test 3/4" PVC water meter	No	1		
f	**PVC Tank**				
	Supply, fix on top of the slab and test 5,000l PVC KENTANK or Equivalent and approved quality	No	1		
	Grand Total for platform				

ANNEX 3; BILL OF QUANTITIES FOR CONSTRUCTION OF ANIMAL DRINKING TROUGH

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (Kes)	AMOUNT (Kes)
	CATTLE TROUGHS				
	Clear trough area and excavate over site soil material to 300mm deep and cart away	SM	72		
	Bulk excavation to reduce levels for trough.	CM	17		
	225 mm thick hand-packed approved hardcore filling, leveled and compacted.	SM	17		
	Level and blind surface of hardcore with 50mm thick 1:4:8 concrete mix blinding.	SM	17		
	Formwork to sides of floor slab 150mm thick	LM	26		
	Reinforcement bars D8 including for tying to floor slab	Kg	102		
	In-situ reinforced concrete mix Class 20/20 mm aggregate (1:2:4) vibrated in foundation strip 150mm thick	CM	2		
	6"x9" approved quarry stone; squared; and rough chisel dressed one side, bedding and jointing in cement mortar (1:3) in Walls 150mm Thick	SM	13		
	Reinforcement bars D8 including for tying to walling	Kg	32		
	25mm thick internal 1:3 cement: sand waterproofed plaster to steel trowel finish.	SM	13		
	25mm thick external 1:3 cement: sand waterproofed plaster to steel trowel finish.	SM	15		
	Supply, deliver to site approved hardcore, hand-pack level and compact and join with 1:3 cement mortar to form grouted riprap 2m wide around trough as directed.	SM	48		
	Fabricate and install a 700mmx1000mm lockable 16g steel plate manhole cover framed and cross reinforced with 16g, 25mm hollow section steel cover.	No	1		
	50mm Ø elbow	No	2		
	50x25mm Ø reducing socket	No	1		
Total for 1no.Animal Drinking Trough					