

KINZE WATER PROJECT - PUMPING SYSTEM SOLARIZATION AND DISTRIBUTION NETWORK REHABILITATION

Preamble: All prices are inclusive of transport, labour costs, profits, overheads and 16% VAT. All materials supplied should have manufacturers design specifications as highlighted in bill of quantity and drawing adhering on them and shall be used in the project upon client representative approval.

BILL NO.	BILL/ITEM DESCRIPTION	UNIT	QTY	RATE (Kshs.)	AMOUNT (KShs.)
BILL 1	PRELIMINARIES AND GENERAL ITEMS				
1.1	Publicity Sign Board				
	Provide for a project publicity sign board	Item	1/s		
	BILL 1.0 TOTAL CARRIED TO SUMMARY				
BILL 2	PIPELINE DISTRIBUTION NETWORK				
2.2	Rising Main to Namba Nyaanya				
	Contractor to supply, deliver the following items, trench, lay, fix, test and commission the pipeline				
2.2.1	75 mm dia. HDPE pipes PN20 (100 M Roll)	m	2200		
2.2.2	Bush clearing, Trench Pipeline 450mm wide x 600mm and back fill the	m	2200		
2.2.3	Provision for butt fusion to engineers approval	No	Item		
2.2.4	Standard valve chambers 1mx1mx 1m complete with steel manhole cover and a padlock to house all offtake appliances	Item	2		
	Item 2.2 Sub Total				
2.3	Distribution pipeline to Namba Nyanyaa Water Kiosk from Storage tank				
	Contractor to supply, deliver the following items, trench, lay, fix, test and commission the pipeline				
2.3.1	63 mm dia. HDPE pipes PN10 (100 M Roll)	m	300		
2.3.2	Bush clearing, Trench Pipeline 450mm wide x 600mm and back fill the	m	1500		
2.3.3	63 mm dia. HDPE PN.12.5 Connectors	No	6		
2.3.4	63 mm dia. HDPE adaptor	No	1		

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2.3.5	Standard valve chambers 1 mx 1mx 1m complete with concrete manhole cover and a padlock to house all offtake appliances	Item	1		
	Item 2.3 Sub Total				
	BILL 2.0 TOTAL CARRIED TO SUMMARY				
BILL 3.0	CONSTRUCTION OF NAMBA NYAANYA WATER KIOSK				
3.1	Namba nyaanya Water Kiosk				
	Supply, deliver all necessary materials as below and construct a 2M×2.5M kiosks <u>WITH PWD ACCESS RAMPS</u> at sites as advised by the engineer.				
3.1.1	FOUNDATION				
3.1.1.1	Cut to spoil top soil n.e. 150mm below g.l. over Kiosks and fetching bay areas into a permanent heap	m ²	7		
3.1.1.2	Cut to spoil a strip foundation trench n.e. 600mm below g.l.	m ³	1.2		
3.1.1.3	300mm thick hardcore filling well watered and compacted in layers of 150mm maximum thickness to make up levels	m ³	2.1		
3.1.1.4	50mm thick quarry dust/Murram blinding to surfaces of hardcore	m ²	7		
3.1.1.5	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		
3.1.1.6	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)	m ²	9		
3.1.1.7	Natural stone walling, roughly chisel dressed on both sides and jointed in cement and sand (1:3) mortar 200mm foundation walling	LM	9		
3.1.1.8	Mass concrete class 15 (1:4:8) in 50mm thick surface blinding under strip footings	m ³	0.35		
3.1.1.9	Mesh fabric reinforcement A98 to B.S 4483 (measured nett-allow for laps)	m ²	7		
3.1.1.10	100mm thick 1:2:4 (C20/20) vibrated RC floor slab over Kiosks and fetching bay areas	m ²	7		
3.1.1.11	25mm thick Cement sand screed (1:3) finished with steel float.	LM	5		

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	Item 3.1.1 sub-total				
3.1.2	WALLING				
3.1.2.1	Hessian based bituminous felt DPC 225mm wide horizontally placed below masonry walling	LM	10		
3.1.2.2	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		
3.1.2.3	Vibrated reinforced concrete 1:2:4 (class 20 (20/20mm) in Ringbeams	m ³	0.4		
3.1.2.4	High yield square twisted steel reinforcement bars to BS 4461 including for cutting, bending to shape, tying, hooking and spacer blocks as described in:				
3.1.2.5	8mm diameter ditto	KG	10		
3.1.2.6	12mm diameter ditto	KG	50		
3.1.2.7	Sawn formwork to Sides of ringbeam	m ²	2.7		
3.1.2.8	Horizontal key pointing in masonry joints in external wall surfaces	m ²	27		
3.1.2.9	15mm thick Cement sand plaster to walls surfaces (1:3) finished to walls to receive paint internally	m ²	30		
	Item 3.1.2 sub-total				
3.1.3	ROOFING:				
3.1.3.1	Wrought Cypress Timber 4x2	LM	8		
3.1.3.2	Wrought Cypress Timber 3" x 2"	LM	8		
3.1.3.3	Wrought Cypress Timber 2" x 2"	LM	8		
3.1.3.4	G28 2m roofing Iron Sheets.	m ²	4		
3.1.3.5	Roofing Nails	Kg	1.5		
3.1.3.6	Assorted Ordinary Wire Nails	Kg	5		
3.1.3.7	2.1M x 1M Standard steel door complete with frame, hinges latch bolts and padlock.	m ²	1		
3.1.3.8	1M X 1M Standard steel window complete with frame hinges and latch bolts.	m ²	1		
	Item 3.1.3 sub-total				

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3.1.4	FINISHES:				
3.1.4.1	ROOF: 8" x 1" planed timber fascia board	LM	12		
3.1.4.2	METAL SURFACES: Prepare and apply three coats plastic enamel paint to General metal surfaces (both sides).- (Red oxide primer glossy)	m ²	3.5		
3.1.4.3	INTERNAL PLASTERED WALLS: Prepare and apply three coats plastic silk emulsion paint to Plastered wall surfaces internally	m ²	30		
3.1.4.4	EXTERNAL WALLS: Prepare and apply three coats permaplast external wall paint to Rendered sides of beam and walls externally	m ²	7		
	Item 3.1.4 sub-total				
3.1.5	PLUMBING:				
3.1.5.1	1.5" diameter hdpe pipe PN12.5	M	5		
3.1.5.2	1.5" diameter hdpe Elbow	No	4		
3.1.5.3	1.5" diameter hdpe couplers.	No.	4		
3.1.5.4	1.5" by 3/4" reducing socket	No.	1		
3.1.5.5	Water meter 3/4" dia. Kent	No.	1		
3.1.5.6	3/4" diameter assorted length G.I nipples	No	5		
3.1.5.7	3/4" diameter GI Pipe class B	No.	1		
3.1.5.8	3/4" diameter Gate valve-peglar type	No.	3		
3.1.5.9	3/4" diameter valve sockets	No	2		
3.1.5.10	3/4" diameter GI union.	No.	4		
3.1.5.11	3/4" diameter GI Elbow	No	4		
	Pipe joining material:				
3.1.5.12	Boss white for G.I Pipes	Kg	0.5		
3.1.5.13	Solvent Cement	Kg	0.5		
3.1.5.14	Coolant	Lts	1		
3.1.5.15	Sealing thread	Pcs	2		
	Item 3.1.5 sub-total				

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	Total for Kwa Namba Nyaanya water Kiosk				
	Item 3 total cost				
BILL 4.0	PLASTIC STORAGE TANK AT NAMBA NYAANYA - Supply, deliver materials and construct a 1m high reinforced masonry tank platform to hoist a 10CM plastic tank, supply and install the tank and interconnect to the Kiosks as directed on site				
4.1.1	10CM double laminated tank	No.	1		
4.1.2	1m high Reinforced masonry tank platform to hoist 10CM tank	No.	1		
4.1.3	2" gate valve, peglar type or as approved by the engineer	No.	2		
4.1.5	2" HDPE pipes	M.	15		
4.1.6	Standard valve chambers 1 mx 1mx 1m complete with concrete manhole cover and a padlock to house all offtake appliances	Item	1		
4.1.7	Provide for the interconnections to water point and to gravity line	Item	1		
	Total for one Storage Tank at Namba Nyaanya Kiosk				
	BILL 4.0 TOTAL CARRIED TO SUMMARY				
BILL 5	PUMP INSTALLATION AND SOLARIZATION				
5.1	Pump				
	Supply,deliver and install a Solar Powered Submersible Multistage Centrifugal Pump Set of Duty Point: 30 m ³ /hr at a Total Head of 180 meters. The pump Efficiency at duty point should be 50%. The pump Impellers should be of Stainless Steel. Provide Copies of Pump Characteristic/Performance Curves (Brochures). Install as directed by the Supervising Engineers	Set	1		
5.2	Sunverter				
5.2.1	Supply, Deliver & Install an AC Solar Pump Control Module as Sunverter SV3/22T Incorporating: - Detachable Control Interface Settable Min/Max Frequency & open Circuit Voltage Display of operating Parameters, including frequency, voltage, Display of Historical Data, including Energy	Unit	1		

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	generation, maximum power & operating times Protection against over/under voltage, over current, system overload Fault detection with error code display				
5.2.2	PV solar disconnect switch, with MCB & cable termination connector block	No.	1		
5.2.3	Sensor Cable, Twin, Double Insulated, 0.75mm ²	M	60		
5.2.4	Well probe	No.	2		
5.3	Solar Panels				
5.3.1	Firmly anchored/secured high efficiency monocrystalline halfcell tier 1 Solar Panels MC4 connections and 6mm ² , dc cable black and red Arrayed/positioned for maximum insolation to give a total of 28,050Watts	W	28050		
5.4	Steel Tower				
5.4.1	Supply, deliver and erect firmly on Concrete Anchors, Fabricated Steel Tower, use square tubes, 4" x 4" x 4mm, for solar Array System, minimum height 5 meters. To be installed as directed by the supervising Engineer	Lot	1		
5.5	Fittings and Accessories				
	Supply, deliver, fix, test and commission the following materials:				
5.5.1	Armored Copper Cable, 6mm ² x 4 core	M	40		
5.5.2	Submersible copper cable, 6mm x 4 core	M	15		
5.5.3	Armored Copper Cable, 1.5mm ² x 2 core	M	20		
5.5.4	UPVC Conduit, HG, 1"Ø	No.	4		
5.5.5	Cable Glands, 25mmL	No.	4		
5.5.6	Cable Glands, 20mmL	No.	2		
5.5.7	Splicing Kit, Medium Packet	No.	1		
5.5.8	Cable Ties, Large Packet, Manila	No.	1		
5.5.9	Insulating Tapes, Large	No.	10		
5.5.10	Copper Earth Rod, 5ft c/w Clamp	No.	1		
5.5.11	Earth Lead Cable, 10mm ² , single	M	15		

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5.5.12	Carryout installation of new Pump with provision for all necessary wiring.	Item	1/s		
	BILL 5.0 TOTAL CARRIED TO SUMMARY				
BILL 6	STEEL TOWER AND PLASTIC TANKS				
	Contractor to construct 6m high elevated steel tower to hoist 2No. 10CM interconnected plastic water tanks				
6.1	FOUNDATION CONCRETE WORKS - Contractor to Excavate foundation (5ft deep 2ft square footing), Supply, deliver, cut, bend and tie the steel, mix and pour the concrete insitu as directed on site				
6.1.1	Concrete works. Use 1:1.5:3 (C25) concrete for the column bases	CM	5		
6.1.2	Form work	SM	23		
6.1.3	Ancorage Bolts	No.	24		
6.1.4	Reinforcement bars. Use R10	Kg.	25		
6.1.5	binding wire	Kg.	5		
	Item 6.1 sub-total				
6.2	STEEL WORKS - Contractor to supply, deliver, cut, bend and weld the materials below and test the structure as directed on site				
6.2.1.1	7m high main columns. Use 100 x100mm, 4mm thick, 73.10 kg/6m length square hollow sections.	No.	7		
6.2.1.2	6m span cross beams. Use 50 x 50mm, 4mm thick, 41.26 kg/6m length rectangular hollow sections.	No.	16		
6.2.1.3	6m long Main lateral beams. Use 75 x 75mm, 4mm thick, 73.10 kg/6m length square hollow sections.	No.	2		
6.2.1.4	Cross type Bracing. Use 50 x 50 x2mm Angle lines	No.	36		
6.2.1.5	Plain sheets (8 x4 ft gauge 22) for deck lining	No.	4		
	GUARD RAILS				

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6.2.2.1	Vertical support stands. Use 32mm diameter 2mm thick circular sections	No.	12		
6.2.2.2	Laterals. Use 25mm diameter 2mm thick circular sections.	No.	12		
	LADDER				
6.2.3.1	Main rails. Use 32mm diameter 2mm thick circular sections.	No.	4		
6.2.3.2	Step rungs. Use 25mm diameter 2mm thick circular sections.	No.	10		
	FINISHES				
6.2.4.1	Provision for painting the structure.	Item	1		
	Item 6.2 sub-total				
	6.3 STORAGE TANKS - Supply, deliver and instal the materials below and interconnect the new system to the water distribution network at the main storage tanks as directed on site				
6.3.1	10CM double laminated tanks to be interconnected in parallel	No.	2		
	Item 6.3 sub-total				
	6.4 PLUMBING WORKS				
6.4.1	2" Assorted GI nipples	No.	5		
6.4.2	Gate Valves, Peglar type or as approved by the engineer	No.	2		
6.4.3	2" Class B GI pipes	6m pieces	6		
6.4.4	2" GI bends	No.	4		
6.4.5	2" gate valves (peglar type)	No.	2		
6.4.6	GI reducing tee (2.5" x 2")	No.	1		
6.4.7	Assorted GI nipples	No.	4		
	Item 6.4 sub-total				
	BILL 6.0 TOTAL CARRIED TO SUMMARY				

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BILL 7.0	CATTLE TROUGH FROM NAMBA NYAANYA WATER TANK				
7.1	CATTLE TROUGH AT NAMBA NYANYAA Supply, deliver materials to construct a cattle trough measuring 4m long and 2 m wide and provide for all interconnection as directed on site				
7.1.1	Cut to spoil a strip foundation trench n.e. 600mm below g.l.	CM	8		
7.1.2	Supply, deliver, place and compact average 150mm thick approved hardcore on trough foundation to receive stone pitching/trough slab.	CM	1.5		
7.1.3	Ditto stone pitching round the trough average size 225mm and sloping outwards (1:200).	CM	1		
7.1.4	Supply, deliver, place and compact concrete class 20 in trough slab	CM	1		
7.1.5	Supply, deliver, place and construct 150mm rectangular masonry wall	SM	5		
7.1.6	Ditto and fix R-6 bars in wal	KG	5.2		
7.1.7	Supply, deliver and plaster internal trough surfaces with 25mm thick c/s screed (1:3)	SM	5		
7.1.8	Supply, deliver and fix weld mesh (2.4 x 1.2) mesh 75 x 50mm of gauge 8 to concrete slab	NO	2		
7.1.9	Excavate trench to receive supply pipe n.e 1.0m deep and backfill.	LM	20		
7.1.10	Supply, deliver and fix diameter 25mm HDPE PN 12.5 supply pipe and all necessary accessories	LM	20		
7.1.11	Drill stone wall to prepare a hole to ditto and make good with c/s mortar	Item	1		
7.1.12	Supply and fix 25mm diameter ball valve	Item	1		
7.1.13	Supply , deliver, install and test 500 m 63mm diameter HDPE PN12.5 pipes for cattle trough	m	500		
	Item 7 TOTAL CARRIED TO SUMMARY				
BILL 8.0	ESTABLISHMENT OF DEMMO FARM, PROMOTION OF CLIMATE SMART AGRICULTURE AND AQUACULTURE				
8.1	Supply and deliver the following	Units	Qty	Unit Price	Total Cost
8.1.1	Vertical bags- Large Kitchen Garden Sacks	No.	120		
8.1.2	Conical garden dam-liner polythene sheet	No.	120		

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8.1.3	Purchase and supply of Kales seeds (Hybrid)	grams	50		
8.1.4	Purchase and supply spinach seeds (Local)	grams	50		
8.1.5	Purchase and supply amarathas (Managu) seeds (Local)	grams	50		
8.1.6	Purchase and supply black night shade (Mchicha) (Local)	grams	25		
8.1.7	Purchase and supply Coriander (Daniah) seeds (Local)	grams	50		
8.1.8	Purchase and supply Onion seeds (Hybrid)	grams	250		
8.1.9	Supply all necessary materials and installation 0.25 ACRE Drip Kit as shall be instructed	No.	1		
8.1.10	Supply and install 5,000 litres double layer PVC water tank on a high masonry platfoarm, and plumbing works as shall be instructed	No.	1		
8.1.11	Construct tank platform 1 m high for item above	No.	1		
8.1.12	Purchase and supply of fingerlings as shall be instructed by livestock production officer	No.	3000		
8.1.13	Pasture development (purchase and supply of brachiaria splits for improved livestock productivity) as shall be instructed	No.	20000		
	TOTAL				
	Item 8 TOTAL CARRIED TO SUMMARY				
	BUILDERS WORKS SUMMARY				
BILL 1.0	PRELIMINARIES AND GENERAL ITEMS				-
BILL 2.0	PIPELINE DISTRIBUTION NETWORK				-
BILL 3.0	WATER KIOSK				-
BILL 4.0	PLASTIC STORAGE TANKS AND PLATFORMS				-
BILL 5.0	PUMP INSTALLATION AND SOLARIZATION				-
BILL 6.0	STEEL TOWER AND PLASTIC TANKS				-
BILL 7.0	CATTLE TROUGH				-
BILL 8.0	DEMMO FARM				-
	BUILDERS' WORKS TOTAL COST CARRIED TO GRAND SUMMARY				

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BILL 8.0	CONTIGENCIES				
8.1	Add provisional sum of Four hundred and eighty thousand kenya shillings for contingency to be expended on exclusive direction of the project manager upon evident project need				480,000
	BILL 8.0 TOTAL CARRIED TO SUMMARY				480,000.00
	GRAND SUMMARY				
A	BUILDERS WORKS				-
B	CONTIGENCY				480,000
	PROJECT GRAND TOTAL COST				

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