



GOVERNMENT OF MAKUENI COUNTY

DEPARTMENT OF LANDS, URBAN PLANNING & DEVELOPMENT,
ENVIRONMENT & CLIMATE CHANGE

THANGE INTEGRATED PROJECT

IN

THANGE WARD

ENGINEER'S ESTIMATES

Apr-25

GOVERNMENT OF MAKUENI COUNTY

23 MAY 2025

Chief officer:
Environment & Climate Change

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

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, well supported to detail as provided in the drawing and as instructed by the project manager.	No	2		
	Total For Bill 1 carried to summary Page				
BILL 2	INTAKE WORKS				
2.1	100M³ INTAKE MASONRY SUMP TANK				
	EXCAVATIONS				
2.101	Strip top soil 200mm from g.l. over area of tank and remove all vegetable soil to temporary spoil heap.	CM	65		
2.102	Excavate from stripped level over the tank site to depth n.e. 1.5m deep and dispose soil as directed	CM	91		
2.103	Excavate pit commencing 1.50m from stripped level but not exceeding 4.0m deep and dispose as directed soil as directed	CM	152		
2.104	Extra over items 3 for excavating in rock Rate to include making good)	CM	18.3		
2.105	Allow for backfilling to approve levels after Completion of the works.	CM	98		
2.106	Allow for keeping all excavation free from general waters	L/ Sum	1		
2.107	Allow for planking and strutting of the pit	L/ Sum	1		
2.108	200-300mm approved hardcore to make up levels	SM	37		
2.109	75mm blinding concrete 1:3:6	SM	37		
2.11	CONCRETE WORK				
2.111	Provide place, handle, mix and vibrate as directed by the Engineer				
2.112	Vibrated reinforced concrete mix 1:2:4 in 200mm thick for slab	m ³	7.5		
2.113	Vibrated reinforced concrete mix 1:2:4 mix in 150mm thick at edges rising to 200mm thick the centre roof slab	m ³	6.5		
2.114	Ditto in lintel	m ³	2		
2.115	Ditto in ring beam	m ³	2		
2.116	Ditto centre Column	m ³	1		
2.117	Vibrated mass concrete 250mm thick surrounded to off take and scour pipes	m ³	0.2		
2.118					
2.119	REINFORCEMENT BARS				
2.12	Provided handle, cut, bend and fix the following reinforcement bars as stated in the bending schedule or as directed by the Engineer				
2.121	6mm round mild steel stirrup	Kg	16.65		
2.122	8 twisted mild steel stirrup	Kg	327.06		
2.123	10mm twisted mild steel bars	Kg	783.59		

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Item	Item Description	Unit	Quantity	Unit Rate	Amount
2.124	16mm twisted mild steel bars	Kg	584.6		
2.125	20mm twisted mild steel bars	Kg	866.97		
2.126	FORMWORK				
2.127	Sawn timber formwork as per engineer's Specification. Include propping strutting and striking off to:				
2.128	Edges of 125mm ring	M	25		
2.129	Edges of 200mm roof slab	M	26		
2.13	Sofit of 200mm roof slab	SM	37		
2.131	Edge of the manhole opening	M	16		
2.132	Sofit of roof slab on the external side	SM	13		
2.133	WALLING				
2.134	300mm thick dressed quarry stone walling curved on plan radius 3400mm	SM	55		
2.135	225mm thick dressed quarry stone walling curved on plan radius 3400mm	SM	55.1		
2.136	Provide, handle and fix bondex as per drawing	Kg	25		
2.137					
2.138	BITUMEN PAINT				
2.139	Floor slab 300mm wide long circumference with mean radius of 3400mm in three coats	M	17		
2.14	Top of 300mm thick wall along circumference with mean radius of 3400mm in three coats	M	7		
2.141	25mm thick 1:2 cement sand screed to floor slab with waterproof cement at 1kg for 1 No.50kg ordinary Portland cement with steel float finish	SM	92		
2.142	20mm thick 1:2 cement sand to interior face of the wall with water proof cement at 1kg for 1No. 50kg of ordinary Portland cement with steel float finish	SM	81		
2.143	20mm thick 1:2 cement sand to exterior face of tank wall	SM	87.2		
2.144	20mm thick 1:2 cement sand to masonry column with steel float finish	SM	8		
2.145	20mm thick 1:2 cement sand to lintel with steel float finish	SM	1		
2.146	20mm ditto to exterior face of roof slab	SM	36.5		
2.147	20mm thick 1:2 cement sand to edge of 100mm thick slab	SM	2		
2.148	20mm thick 1:2 cement sand to soffit of roof slab with groove	SM	5		
2.149					
2.15	MISCELLANEOUS WORKS				
2.151	Construct and fix a vertical GI ladder of length of 3.4 fixed to wall and floor on the internal side of tank. Apply 3 coats of aluminium paint	No.	1		
2.152	600mmx600mm reinforced concrete manhole cover complete with frame, locking provision	No.	2		

23 MAY 2025

Coast

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
2.153	16mm reinforcement bar to be cut bent to terminate at manhole cover as per drawings or as directed by the engineer	SM	8		
2.154					
2.155	INFILTRATION				
2.156	Supply and install 75mm sluice valve flanged to 75mm dia. GI pipes 800 mm long fixed at the walls of the sump as shall be instructed	No	4		
2.157	Supply and install well graded ballast at the exterior side of the sump tank	CM	24		
2.158	SCOUR PIPE				
2.159	Supply and install 100mm x 75mm Bell Mouth GS with 90° Bend connected to 75mm diameter flanged pipe 3.6m long for washout	No	1		
2.16	Supply and install 50mm diameter Sluice valve	No	1		
2.161	Supply and install 75mm diameter GI flanged pipe 2m long	No	1		
2.162	Construct standard valve chamber 1200 x 1200 n.e 4m, with provision for access	No	1		
2.2	SPRING BOX				
2.21	Provided materials and construct a spring box as per the provided drawing	No.	1		
2.22	Trench, supply, install, anchor and cover 90mm HDPE pipe PN12.5 as shall be instructed	m	100		
	Total For Bill 2 carried to summary Page				
BILL 3	SOLAR PUMPING SYSTEM AND ACCESSORIES				
3.01	Supply, Deliver and Install on the steel tower, Solar Array System of total output 8,720 Watts, including high-efficiency tier I modules As 545 W panels in 1 string of 16 panels with maximum string voltage VOC 850 VDC, Vmmp 500<700 V as approved using 4mm sq dc cable and MC4 terminated on both sides to be mounted on the structure.	W	8,720		
3.02	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, solar controller box 1000mm by 500mm by 300mm well ventilated to be included and tower inclination angle 10-15 degrees. To be installed as directed by the supervising Engineer	Lot	1		
3.03	Supply and install DC enclosure complete with inline 1100VDC fused isolator	NO	1		

GOVERNMENT OF MAKUENI COUNTY



BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
3.04	Supply install and test 4 mm sq PV Cable Single Core 1000VDC Tinnd Copper ; Insulation: XLPO ; Insulation Color: Red and black to string solar panels as directed by supervising engineer	M	80		
3.05	Allow for system earthing, lightening arrestor and balance of system	Lot	1		
3.06	Allow for installation sundries as Hg flex conduit, cable ties, MC4 Connectors, cable lugs cable clips and all necessary assortment	Lot	1		
3.07	Supply and Deliver a solar three-phase submersible electric pump with a flow rate of 10 cubic metre per hour at 90 meters Preferably 4SR8-24, 4kw, 3~ or equivalent approved. The pump impellers and pump shaft should be of Stainless Steel. Provide Copies of Pump Characteristic /Performance Curves (Brochures) for approval. The pump efficiency should be atleast 65%. Install and test as directed and approved by the Supervising Engineer	No	1		
3.08	Supply a 4kw three phase motor compatible to item above c/w 4PD sacrificial anode Preferably Pedrollo or as directed and approved by the Supervising Engineer	No	1		
3.09	Provide for the installation, testing and commissioning of the pump set and accessories	Item			
3.10	Supply, Deliver & Install an AC/DC Solar inverter Incorporating: - Hybrid Capability with the option of DC solar power, generator or main grid power inputs, patented MPPT fast response, good stability and up to 99% efficiency, Motor rated power 5.5kw, Detachable Control Interface, Settable Min/Max Frequency & open Circuit Voltage, Display of operating Parameters, including frequency, voltage, amperage, input power & pump speed; Display of Historical Data, including Energy generation, maximum power & operating times; Protection against over/under voltage, over current, system overload and module over temperature; Fault detection with error code display; Display of dry run sensors and automatic controls (SV3/5.5T) or equivalent as approved by the Supervising Engineer	No.	1		
3.11	Pump stand; stainles steel or painted angle line as shall be instructed.	No	1		
3.12	Electrodes	No	2		
3.13	Submersible Cable 2.5 mm 4core	m	40		
3.14	Supply and lay Armored Cable, 4.0mm ² X 4 core	M	40		
3.15	Sensor Cable, Twin, Double Insulated, 0.75mm ²	M	35		
3.16	Armored Copper Cable, 1.5mm ² X 2 core	M	35		

for

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
3.17	UPVC Conduit, HG, 1"Ø	No.	6		
3.18	Splicing Kit, as shall be approved	No.	1		
3.19	Adaptor set, 50mm	No.	1		
3.20	Assorted Plain end HDPE fusion elbows 63mm 45°, 90°	No.	4		
3.21	Flanged HDPE fusion adaptor (Stub and backing), 63mm	set	3		
3.22	63mm HDPE plain ended fusion tee	No.	2		
3.23	50mm Flanged Non Return Valve	No.	1		
3.24	50mm sluice valve	No.	2		
3.25	Flanged Bulk cold water master meter 2" Wesan or equivalent approved	No.	1		
3.26	Flanged KLORMAN INLINE chorinator or equivalent approved with by-pass and catridges	Item	1		
Total For Bill 3 carried to summary Page					
BILL 4 THANGE RISING MAIN PIPELINE					
CLASS D: DEMOLITION AND SITE CLEARANCE					
<i>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</i>					
<u>General clearence</u>					
4.01	Bush 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	1,300		
CLASS I: PIPEWORK - PIPES					
<i>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.</i>					
4.02	PN12.5 DN63mm HDPE PE100 ISO4427	m	1,300		
	Setting out of pipeline in presence of client representative	Item	1		
4.03	Allow for but fusion of the pipes and fittings	item			
CLASS J: PIPEWORK - FITTINGS AND VALVES					
<i>'The rate quoted is for provision and fixing</i>					
	Bends	nr	2		
4.04	OD 63mm 45°, 90°				

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

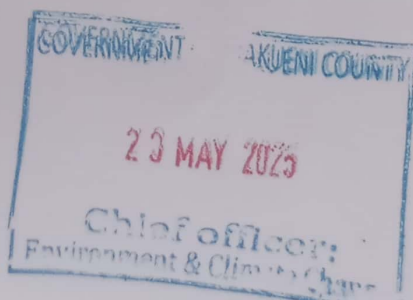
Preamble: The rates entered shall include, third party fees, levies, input costs, labour and contractor's overheads and

Item	Item Description	Unit	Quantity	Unit Rate	Amount
	Junctions and branches				
4.05	OD 63mm plain ended tee to be fused, with flanged branch and valves and all the necessary accessories for airvalves and washouts	nr	1		
	Airvalves				
4.06	Supply and install DN40mm anti-shock/ anti-surge double-orifice 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		
	All Flanged Sluice Valves				
4.07	Supply and install DN50 PN16 sluice valves for line valves	nr	1		
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	<i>The rate quoted is for chambers, culverts, crossings and reinstatements and other ancillaries as specified.</i>				
	Air Valve/Washout/Sluice Valve Chambers				
4.08	Construct 1m by 1m masonry valve chamber. Depth not exceeding 2m, 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 as per details on drawing	nr	2		
	Marker Posts				
	<i>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</i>				
4.09	Pipeline marker post inscribed WL	nr	5		
4.1	Air valve marker post Inscribed AV	nr	1		
4.11	Washout marker post inscribed WO	nr	1		
4.12	Sluice Valve marker post inscribed SV	nr	1		
	CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION				
	<i>Extras to excavation and backfilling in pipe trenches</i>				
4.13	Excavation in rock Class A	m ³	1		
4.14	-Ditto- but rock Class B	m ³	1		
4.15	-Ditto- but rock Class C	m ³	1		
	Note:- Blasting is NOT permitted				

23 MAY 2025

Geoff

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD					
Preamble: The rates entered shall include, third party fees, levies, input costs, labour and contractor's overheads and					
Item	Item Description	Unit	Quantity	Unit Rate	Amount
	<u>Class L: PIPEWORK - SUPPORTS AND PROTECTION, ANCILLIARIES TO LAYING AND EXCAVATION</u>				
4.16	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		
4.17	Concrete surround to pipe	m	30		
	Provide materials and construct 4 tap communal water points as per the provided drawing	nr	2		
	Total For Bill 4 carried to summary Page				
BILL 5	KWA ILELI RISING MAIN				
	<u>CLASS D: DEMOLITION AND SITE CLEARANCE</u>				
	<i>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</i>				
	<u>General clearance</u>				
5.01	Bush 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	1,700		
	Setting out of pipeline in presence of client representative	Item	1		
	<u>CLASS I: PIPEWORK - PIPES</u>				
	<i>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.</i>				
5.02	PN12.5 DN63mm HDPE PE100 ISO4427	m	1,700		
5.03	Allow for but fusion of the pipes and fittings	item			
	<u>CLASS J: PIPEWORK - FITTINGS AND VALVES</u>				
	<i>The rate quoted is for provision and fixing</i>				
	Bends				
5.04	OD 63mm 45°, 90°	nr	2		
	Junctions and branches				



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BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
5.05	OD 63mm plain ended tee to be fused, with flanged branch and valves and all the necessary accessories for airvalves and washouts	nr	2		
	Airvalves				
5.06	Supply and install DN40mm anti-shock/ anti-surge double-orifice Air Valves as per the attached technical specifications with threaded or flanged base, c/w isolating valve, tees and reducers for connecting Airvalve	nr	1		
	All Flanged Sluice Valves				
5.07	Supply and install DN50 PN16 sluice valves for line valves c/w water gaskets, bolts and nuts	nr	1		
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	<i>The rate quoted is for chambers, culverts, crossings and reinstatements and other ancillaries as specified.</i>				
	Air Valve/Washout/Sluice Valve Chambers				
5.08	Construct 1m by 1m masonry valve chamber. Depth not exceeding 2m, 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 as per details on drawing	nr	3		
	Marker Posts				
	<i>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</i>				
5.09	Pipeline marker post inscribed WL	nr	7		
5.1	Air valve marker post Inscribed AV	nr	2		
5.11	Washout marker post inscribed WO	nr	1		
5.12	Sluice Valve marker post inscribed SV	nr	1		
	CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION				
	<i>Extras to excavation and backfilling in pipe trenches</i>				
5.13	Excavation in rock Class A	m ³	1		
5.14	-Ditto- but rock Class B	m ³	1		
5.14	-Ditto- but rock Class C	m ³	1		
	Note: Blasting is NOT permitted				
	GOVERNMENT OF MAKUENI COUNTY				
	Class L: PIPEWORK - SUPPORTS AND PROTECTIO N, ANCILLARIES TO LAYING AND EXCAVATION				

Chief officer:

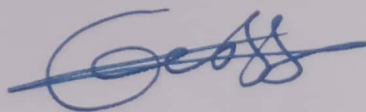
Environment & Climate Change

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BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
5.16	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 - 0.5m ³	nr	3		
5.17	Concrete surround to pipe	m	30		
	Total For Bill 5 carried to summary Page				
BILL 6	THANGE GRAVITY PIPELINE - ST PETER'S				
	<u>CLASS D: DEMOLITION AND SITE CLEARANCE</u>				
	<i>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</i>				
	<u>General clearance</u>				
6.01	Bush 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	2,100		
	<u>CLASS I: PIPEWORK - PIPES</u>				
	<i>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.</i>				
6.02	PN10 DN50mm HDPE PE100 ISO4427	m	1,500		
6.03	PN10 DN40mm HDPE PE100 ISO4428	m	600		
6.04	Setting out of pipeline in presence of client representative	Item	1		
6.05	Allow for but fusion of the pipes and fittings	item	1		
	<u>CLASS J: PIPEWORK - FITTINGS AND VALVES</u>				
	<i>The rate quoted is for provision and fixing</i>				
	Bends				
6.04	OD Assorted 45 ⁰ , 90 ⁰	nr	2		
	Junctions and branches				
6.05	OD 50x32mm plain ended tee to be fused, with flanged branch and valves and all the necessary accessories for airvalves	nr	2		



GOVERNMENT OF MAKUENI COUNTY

22 MAY 2022

Bill of Materials for Thange Integrated Project in Thange Ward

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
6.06	OD40mm equal tee to be fused, with flanged branch and valves and all the necessary accessories for wash outs	nr	2		
6.07	OD 50x40mm plain ended male tee to be fused c/w gate valve Pegler or equivalent approved for water connection to institutions and water points	nr	2		
	Airvalves				
6.07	Supply and install DN25mm anti-shock/ anti-surge single-orifice 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		
	All Flanged Sluice Valves				
6.08	Supply and install DN50 PN16 sluice valves for line valves	nr	1		
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	<i>The rate quoted is for chambers, culverts, crossings and reinstatements and other ancillaries as specified.</i>				
	Air Valve/Washout/Sluice Valve Chambers				
6.09	Construct 1m by 1m masonry valve chamber. Depth not exceeding 2m, 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 as per details on drawing	nr	5		
	Marker Posts				
	<i>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</i>				
6.1	Pipeline marker post inscribed WL	nr	12		
6.11	Air valve marker post Inscribed AV	nr	2		
6.12	Washout marker post inscribed WO	nr	1		
6.13	Sluice Valve marker post inscribed SV	nr	1		
	CLASS L: PIPEWORK - ANCILLARIES TO LAYING AND EXCAVATION				
	Extras to excavation and backfilling in pipe trenches				
6.14	Excavation in rock Class A	m ³	1		
6.15	-Ditto- but rock Class B	m ³	1		
6.16	-Ditto- but rock Class C	m ³	1		
	Note:- Blasting is NOT permitted				

Chief Officer:

Revenue and District Officer

Goss

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD					
Preamble: The rates entered shall include, third party fees, levies, input costs, labour and contractor's overheads and					
Item	Item Description	Unit	Quantity	Unit Rate	Amount
	Class L: PIPEWORK - SUPPORTS AND PROTECTIO N. ANCILLIARIES TO LAYING AND EXCAVATION				
6.17	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 - 0.5m ³	nr	3		
6.18	Concrete surround to pipe	m	30		
6.19	Allow for Liasing with Kenya Pipeline Company (KPC) for pipeline crossing.	L/ Sum	1		
	Total For Bill 6 carried to summary Page				
BILL 7	FENCING SOLAR STRUCTURE AND WATER TANK				
7.01	Supply and install 2.3 m high x 14 gauge chainlink complete with 14 Gauge x 6 strand galvanised wired fencing with 100 x 125 mm cranked precast concrete posts at 2.5 m centres mortised in mass concrete sorround	LM	108		
7.02	3m wide 2 m heigh steel gate anchored on reinforced concrete columns using 4 No. Y10 Debars each column. c/w padlocks as per the provided drawing	No.	2		
	Total For Bill 7 carried to summary Page				
BILL 8	COMMUNAL WATER POINTS				
	2.5M x 2.5M STD Ministry Water Kiosk				
8.1	SUB - STRUCTURE				
8.101	Excavate to remove veg. Soil average 200mm thick	m ²	21.00		
8.102	Excavate foundation trenches n.e 1.5M deep	m ³	7.50		
8.103	Return fill in and ram	m ³	2.00		
8.104	Load and cart away surplus excavated material	m ³	2.00		
8.105	50mm thick 1:3:6 mix foundation blinding	m ²	6.25		
8.106	1:2:4 mix reinforced concrete in strip foundations, columns	m ³	1.65		
8.107	300mm thick hardcore filling	m ²	6.25		
8.108	50mm thick murram blinding	m ²	12.00		
8.109	Anti-termite treatment	m ²	6.50		
8.11	50mm thick 1:3:6 concrete blinding	m ²	9.50		
8.111	1:2:4 reinforced concrete floor slab 100mm thk	m ²	6.50		
8.112	Fabric mesh reinforcement to B.S. 4483 ref: A98 including laps tyingwire and spacer blocks complete(measured nett-allow for laps)	m ²	6.50		
8.113	D12 reinforcement to foundation base and column starters	kg	150.00		
8.114	D8 reinforcement to foundation strip	kg	35.00		

GOVERNMENT OF MAKUENI COUNTY

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Item	Item Description	Unit	Quantity	Unit Rate	Amount
8.115	200mm x 25mm softwood sawn formwork to side of slab	m	10.00		
8.116	225mm thick quarry stone foundation walling laid in cement/ sand mortar 1:3	m ²	10.00		
8.117					
8.118	WALLING				
8.119	1:2:4 mix reinforced ring beam 225mm Thk	Item	L/Sum		
8.12	225mm thick compressed stabilized interlocking machine cut stone walling	m ²	20.00		
8.121	200 x 25mm soft wood sawn timber formwork to sides of lintol	m	8.00		
8.122	D12mm diameter RC bars to column bases/footing and columns	kg	120.00		
8.123	D8mm diameter RC bars to column rings	kg	20.00		
8.124	1:2:4 mix RC to 4No. 225mm x 225mm column and footings	m ³	1.00		
8.125					
8.126	ROOFING				
8.127	200 x 25mm soft wood sawn timber formwork for roof slab.	m ²	7.00		
8.128	100mm dia.- 2.4m long Timber props	nr	12.00		
8.129	100 x 25mm soft wood sawn timber formwork to sides of roof slab	m	10.00		
8.13	1:2:4 mix reinforced concrete to roof slab - 125mm T.H.L	m ³	1.00		
8.131	D10 RC bars @150mm c/c to 125mm thick roof slab	kg	60.00		
8.132					
8.133	DOORS				
8.134	Fix standard steel purpose made door size 1000 x 2000mm as per the provided drawing	nr	1.00		
8.135					
8.136	WINDOWS & VENTILATION				
8.137	Fix standard steel casement purpose made window size 950 x 1000mm	nr	1.00		
8.138	50mm thick precast concrete window sill all sides 1000 x 300mm throated/weartherd on the outside	Item	1.00		
8.139	Supply 150mm concrete louvre blocks and place in 1:3 cement/sand for 600mm x 300mm vent in wall as shall be directed.	Item	1.00		
8.14					
8.141	FINISHES				
8.142	12mm thick internal plaster	m ²	19.00		
8.143	12mm thick external plaster	m ²	22.00		
8.144	25mm thick cement/ sand screed	m ²	12.00		
8.146	PAINTING				

Chief officer:
Environment & Climate Change

Gross

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
8.147	Prepare and apply 3 coats gloss emulsion paint to wall surfaces externally	m ²	22.00		
8.148	Ditto but to walls internally	m ²	19.00		
8.149	Ditto but to wood surfaces	m ²	4.00		
8.15	Branding as shall be directed, with logos	l/s	1.00		
8.151					
8.152	PLUMBING				
8.153	38mm dia PPR pipe	m	12.00		
8.154	20mm dia PPR pipe	m	2.00		
8.155	38mm dia Bend	nr	4.00		
8.156	38mm dia Nipples	nr	4.00		
8.157	38mm dia Union	nr	4.00		
8.158	38mm dia Socket	nr	3.00		
8.159	38x20mm dia reducing tee	nr	2.00		
8.16	38mm dia water meter	nr	1.00		
8.161	38mm diameter Gate Valve (Peglar)	nr	1.00		
8.162	20mm dia Bend	nr	8.00		
8.163	20mm dia stop cock	nr	4.00		
	Sub Total 1 No. Water Kiosk				
	Sub Total for 3 No. Water Kiosks				
8.2	E.o for 5,000L UPVC tanks and shade as per the provided drawing	nr	1		
8.3	E.o for 5x 0.6 x 0.45m (internal dim) STD cattle trough as per the provided drawing	nr	1		
	Total For Bill 8 (3No. WPs with 2No. tanks) carried to summary Page				
BILL 9	50M³ MASONRY TANKS				
Item	Item Description	Unit	Qty		
	EXCAVATIONS				
9.01	Strip top soil 200mm from g.l. over area of tank and remove all vegetable soil to temporary spoil heap.	m ³	44.5		
9.02	Excavate from stripped level over the tank site to depth n.e. 1.5m deep and dispose soil as directed	m ³	36.5		
9.03	Excavate pit commencing 1.50m from stripped level but not exceeding 3.0m deep and dispose as directed soil as directed	m ³	23		
9.04	Extra over items 3 for excavating in rock Rate to include making good)	m ³	4		
9.05	Allow for backfilling to approve levels after Completion of the works.	m ³	24		
9.06	Allow for keeping all excavation free from general waters	item	1		
9.07	Allow for planking and strutting of the pit	item	1		
9.08	HARDCORE				
9.09	Provide, place and compact hardcore of approved quality 250mm thick to make up levels	m ²	36		

GOVERNMENT OF MAKUENI COUNTY

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD					
Preamble: The rates entered shall include, third party fees, levies, input costs, labour and contractor's overheads and					
Item	Item Description	Unit	Quantity	Unit Rate	Amount
9.1	CONCRETE WORK				
9.11	Provide place, handle, mix and vibrate as directed by the Engineer				
9.12	Mass concrete mix 1:4:8: in 50mm thick blinding to hardcore	m ³	1.4		
9.13	Vibrated reinforced concrete mix 1:2:4 in 200 mm thick for slab	m ³	6		
9.14	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	5		
9.15	Ditto in lintel	m ³	0.2		
9.16	Ditto in ring and cross beams	m ³	3		
9.17	Ditto centre Column	m ³	0.5		
9.18	Vibrated mass concrete 250mm thick surrounded to off take and scour pipes	m ³	0.3		
9.19	REINFORCEMENT BARS				
9.2	Provided handle, cut, bend and fix the following reinforcement bars as stated in the bending schedule or as directed by the Engineer				
9.21	8 mm twisted mild steel bars	Kg	300		
9.22	10mm round mild steel stirrup	Kg	450		
9.23	12mm twisted mild steel bars	Kg	130		
9.24	16 twisted mild steel stirrup	Kg	20		
9.25	FORMWORK				
9.26	Sawn timber formwork as per engineer's Specification. Include propping strutting and striking off to:				
9.27	Edges of 125mm floor slab	M	28		
9.28	Edges of 100mm roof slab	M	28		
9.29	Sofit of 100mm roof slab	m ²	52		
9.3	Edge of the manhole opening	M	24		
9.31	Soffits of roof slab on the external side	m ²	20		
9.32	WALLING				
9.33	300 mm thick dressed quarry stone walling curved on plan radius 2500mm	m ²	55		
9.34	Provide, handle and fix bondex as per Drawing	Kg	17		
9.35	BITUMEN PAINT				
9.36	Floor slab 300mm wide long circumference with mean radius of 2,612 mm in three coats	m ²	5.5		
9.37	Top of 300mm thick wall along circumference with mean radius of 2,612mm in three coats	m ²	4		
9.38	25mm thick 1:2 cement sand screed to floor slab with waterproof cement at 1 kg for 1 No.50kg ordinary Portland cement with steel float finish	m ²	20		
9.39	20mm thick 1:2 cement sand to interior face of the wall with water proof cement at 1 kg for 1 No. 50kg of ordinary Portland cement with steel float finish	m ²	52		

Chief officer:
Environment & Climate Change

[Signature]

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
9.4	20mm thick 1:2 cement sand to exterior face of tank wall with water proof cement at 1kg for 1No. 50kg of ordinary Portland cement with steel float finish	m ²	58		
9.41	20mm thick 1:2 cement sand to column with steel float finish	m ²	3		
9.42	20mm thick 1:2 cement sand to lintel with steel float finish	m ²	10.8		
9.43	20mm thick 1:2 cement sand to soffit of roof slab	m ²	3		
9.44	20mm ditto to exterior face of roof slab	m ²	24		
9.45	20mm thick 1:2 cement sand to edge of 125mm thick slab	m ²	2.3		
9.46	20mm thick 1:2 cement sand to soffit of roof slab with groove	No	1.3		
9.47	Prepare and apply 3 coats gloss paint to wall surfaces externally	m ²	58		
9.48	16mm reinforcement bar to be cut bent to terminate at manhole cover as per drawings or as directed by the engineer	m ²	12		
9.49	Allow for branding of the tank as shall be instructed	item	1		
9.5	Ladder				
9.51	3000mm long x 800mm wide mild steel ladder stringers 3.0mx50mmx10mm flat bar, rings 800 x 200mm x 20mm round bar at 300mm centres externally anchored to wall lugs: one coat red oxide primer: three coats gloss oil finish: all to Engineers' detail.	No	1		
9.52	3000 long X 800mm width G.I ladder internally anchored to wall lugs: one coat red oxide primer: three coats gloss oil finish: all to Engineers' detail.	No.	1		
9.53	Manhole covers				
9.54	Supply and fix rc manhole cover 600x600mm complete with frames with provision for locking as directed by the Engineer.	No.	2		
9.55	OUTLET PIPES,				
9.56	Supply and install 200mm x 100mm Bell Mouth GS with 90° Bend connected to 110mm diameter flanged pipe 3.6m long	No	1		
9.57	Supply and install 100mm diameter flanged cast iron Sluice valve	No	1		
9.58	Supply and install 100mm diameter GI flanged pipe 2m long	No	1		
9.59	Construct standard valve chamber (1200 x1200)	No	1		
9.6	INLET PIPE:				
9.61	Supply and install 63mm 4m long PPR Pipe with 63mm HDPE 90° Bend both ends as instructed by engineer	No	1		
9.62	Construct standard valve chamber (1200 x1200)	No	1		

GOVERNMENT OF MAKUENI COUNTY

22 MAY 2025

[Signature]

BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

Item	Item Description	Unit	Quantity	Unit Rate	Amount
9.63	WASHOUT :				
9.64	Supply and install 100mm x 50mm Bell Mouth GS with 90° bend connected to 50mm diameter flanged pipe 2m long	No	1		
9.65	Supply and install 50mm diameter sluice valve, PN16 connected to 50mm diameter GI flanged (one end & threaded one end) pipe 1m long	No	1		
9.66	Supply and install 63mm diameter UPVC pipes class B connected to 50 diameter GI Pipe and sluice valve	m	12		
9.67	Construct standard valve chamber (1200 x 1200mm).	No	1		
9.68	OVERFLOW PIPE:				
9.69	Supply and install 75 mm diameter pipe 3.6m long (threaded) and connect to outlet chamber	Item	1		
9.7	75mm 90° bend	No	1		
9.71	75 mm socket	No	2		
9.72	75 mm threaded 300mm with puddle flange	No	1		
9.73	75 mm nipple	No	2		
9.74	75mm equal tee	No	1		
9.75	AIRVENT :				
9.76	75mm GI pipe piece 200mm long threaded	No	4		
9.77	75mm GI elbow with mosquito gauze	No	8		
9.78	75mm GI nipple	No	8		
9.79	75mm equal tee	No	4		
	Total For Bill 9 carried to summary Page				
BILL 10	AGRICULTURE AND LIVESTOCK COMPONENT				
10.1	Promote Community Kitchen Garden				
10.11	Supply, deliver Cone gardens (conical bags): 6 polythene sheets of gauge 1mm, bottom one with 4.71M diameter and the 6th with 30cm diameter of 20cm width/or height pinned and screwed with a 2inch long screws as shall be instructed	No	60		
10.12	Supply and deliver assorted vegetable seedlings (Kales spinach and Onions) As shall be instructed	No	6000		
10.2	Riverine Protection				
10.21	Supply and deliver riverine tree seedlings of between 2-2.5 ft high (Ficus cymorus and acacia xanthophloea)	No	1900		
10.3	Apiculture				
10.31	Supply, deliver and install 20 langstrothe bee hives	No	20		
10.32	Erect and construct 1/4 acre perimeter fence using 14-gauge, 5 ft high chain link, cedar-treated poles with a metallic lockable gate. (Assorted items)	UNIT	1		
	Total For Bill 10 carried to summary Page				

23 MAY 2023

Chief officer:

Environment & Climate Change

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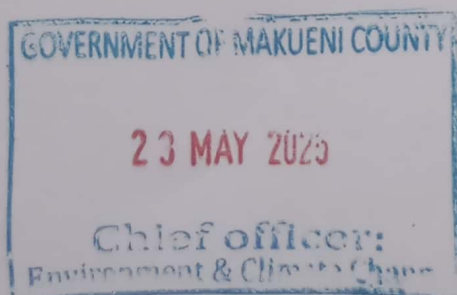
BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD					
Preamble: The rates entered shall include, third party fees, levies, input costs, labour and contractor's overheads and					
Item	Item Description	Unit	Quantity	Unit Rate	Amount
BILL 11 KWA ILELI ELEVATED STORAGE TANKS					
11.1	Steel tower				
11.11	Construct a 6m high steel tower Comprising of columns, bracings, hopped cat ladder, top walkways, safety hand railing etc. as per provided drawings. Tower painting should be one coat of zinc phosphate primer and two coats of silver aluminium. Welding Specification to BS 5135 and welding Electrodes to BS 639 or equivalent.	item	1		
	Plumbing work: Supply the following, fix and test to the satisfaction of the project supervisor.				
11.2	Inlet				
11.21	Allow for OD63mm PPR pipe inlet pipe complete with elbows	item	1		
11.22	Allow for 63mm overflow for each tank	item	1		
11.3	Tank Outlet and interconnections				
11.31	Allow for OD63mm PPR pipe inerconnections to tanks as shall be instructed. Rate includes nipples, backnuts, 2No. gate valves Pegler or equyivalent approved, unions, 63mm PPR pipes adapters and equal tee	item	1		
11.32	63mm fanged adaptor	No	2		
11.33	50mm flanged bulk water master meter Wesan or equivalent approved c/w bolts and nuts	No	1		
11.34	50mm flanged sluice valve PN10 c/w bolts and nuts	No	1		
11.35	Construct 1.2x1.2 stone walled masonry chamber c/w frame, locking devices as per the provided drawing	No	1		
11.4	Tanks				
11.41	Supply, Deliver & Install 10 cm double Laminated Plastic Water Tank approved by the Engineer	No	2		
11.5	Bulk Water Point				
11.21	Provide materials and install a OD 63mm PPR bulk water point for complete with sluice valve and a piece of flex pipe emergency repsonce	No.	1		
	Amount carried for collection				



BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD

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

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11.33	50mm flanged bulk water master meter Wesan or equivalent approved c/w bolts and nuts	No	1		
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	Amount carried for collection				



DEPARTMENT OF LANDS, URBAN PLANNING & DEVELOPMENT, ENVIRONMENT & CLIMATE CHANGE

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**BILL OF QUANTITIES FOR THANGE INTEGRATED PROJECT IN THANGE WARD
GRAND SUMMARY PAGE**

BILL	BILL DESCRIPTION	AMOUNT
BILL 1	PRELIMINARIES AND GENERAL ITEMS	
BILL 2	INTAKE WORKS	
BILL 3	SOLAR PUMPING SYSTEM AND ACCESSORIES	
BILL 4	THANGE RISING MAIN PIPELINE	
BILL 5	KWA ILELI RISING MAIN	
BILL 6	THANGE GRAVITY LINE	
BILL 7	FENCING SOLAR SYSTEM AND STORAGE TANK	
BILL 8	COMMUNAL WATER POINTS (3NO.)	
BILL 9	50M ³ THANGE STORAGE TANK	
BILL 10	AGRICULTURE AND LIVESTOCK COMPONENT	
BILL 11	KWA ILELI ELEVATED STORAGE TANKS	
	SUB TOTAL	
PROVISIONAL SUMS		
	Allow a provisional sum of Kshs. 100,000.00 for contingencies.	100,000.00
	<u>TOTAL II</u>	
	Public Procurement Capacity Building Levy order 2023 which is 0.03% of the total cost before tax (Pursuant to PPRA Circular No. 1 of 2024)	
	<u>TOTAL III</u>	
	ADD VAT (16%)	
	Public Procurement Capacity Building Levy order 2023 which is 0.03% of the total cost before tax (Pursuant to PPRA Circular No. 1 of 2024)	
	TOTAL CARRIED TO FORM OF TENDER	

GOVERNMENT OF MAKUENI COUNTY

23 MAY 2025

Chief officer:
Environment & Climate Change