	BILL OF QUANTITIES FOR MULIMA WATER P	ROJECT	PHASE 2		
	Mbooni ward, Mbooni Sub-County GRAND SUMMARY OF THE BILL OF QUANTITIES				
Bill No	Description		Estima	ted Amount (KE	ES)
1.0	Preliminaries and General				
2.2	Water Treatment Works;				
2.2.1	Treatment Works - Stilling Well and Chemical Dosing Channel				
2.2.2	Treatment Works - Composite Filtration one Unit				
2.2.3	Treatment Works - Clear Water Tank				
2.2.4	Pump house and pump with all accessories				
3	Rising Main to Syiluni				
4	Provisional for Rehabilitation of Syiluni Tank				
-	Trovisional for Reliabilitation of Syndin Tarik				
	Project Sub-total (1)				
	Add Ksh.1,500,000 for Physical Contingencies to be expended as advised by the engineer and approved by the project manager				
	Sub-total (2)				
	Add 16% for VAT				
	Grand Total C/F to Bid				
	Graniu rotai C/F to biu				
DILL 1 D	RELIMINARY AND GENERAL WORKS				
Item No.	RELIMINARY AND GENERAL WORKS			Kenv	an Shillings
	Description				ency (KES)
	Description		Quantity	Unit Price	Amount (c)
	The rates quoted by the Contractor shall be deemed to include provision by the Contractor to provide temporary vehicular access to all construction sites including negotiating with private land owners and paying the necessary charges as required. Any additional working area shall be provided by the Contractor at his own cost.	Unit	(a)	(b)	(c) = (b) x (a)
1.1	Contractual requirements				
1.1	Contractual requirements				
1.1.1	Allow for provision of Insurance of Works, Materials, Contractor's Equipment, Workmen Injury Benefits, third party insurance, in accordance with the Conditions of Contract	LS	1		
1.1.2	Allow for provision of project signboards as instructed by the supervising engineer				
		LS	2		
	Bill 1 total Carroed to summary				
	STILLING WELL AND CHEMICAL DOSING CHANNEL				
	BILL No. 2.2.1				
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				(Kshs)	(Kshs.)
1.1	F				
	Excavation				
	<u>Excavation</u>				
	The rates shall include for all strutting, shuttering, stabilising the excavation faces and				
	The rates shall include for all strutting, shuttering, stabilising the excavation faces and keeping the excavation free of water by pumping, bailing or other means.				
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1.1.1	The rates shall include for all strutting, shuttering, stabilising the excavation faces and keeping the excavation free of water by pumping, bailing or other means. Excavate for foundations and chamber, part backfill after construction and remainder,	m ³	6		
1.1.1	The rates shall include for all strutting, shuttering, stabilising the excavation faces and keeping the excavation free of water by pumping, bailing or other means. Excavate for foundations and chamber, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Engineer	m³	6		

	Extra Over Excavation in Any Position for:-			
1.1.3	Excavating in rock Class "A"	m ³	1	
1.1.3	Excavating in rock class. A	- 111	1	
1.1.4	Excavating in rock Class "B"	m³	1	
1.1.5	Excavating in rock Class "C"	m ³	1	
			_	
	Approved Selected Filling:-			
1.1.6	Fill and ram selected excavated materials around foundations	m ³	8	
	Diseased of Country Consilla			
	Disposal of Surplus Spoil:-			
1.1.7	Cart away surplus excavated materials to an approved dumping site	m³	1	
1.2	Concrete Works			
	Provide and place:			
	Mass Concrete Maximum Aggregate as Described in:-			
	Class 15/20 in 75mm blinding layer under column bases and Scour Chamber base slab			
1.2.1	Class 13/20 III / 3/IIIII billiding layer under column bases and 3cour chamber base slab	m ²	2	
122	Class 20/20 in 400mm thick raised platform in the chemical dosing channel	m ²	1	
1.2.2	Class 20/20 III 400IIIII tilick raiseu piatroffi iii the chemical dosing chamei	m	1	
	Guaranteed Strength Reinforced Concrete Class 35/20mm Maximum Aggregate as			
	Described in:-			
1.2.3	Column bases	m³	1	
1.2.4	Columns	m ³	1	
1.2.4	Country	- 111	1	
1.2.5	200mm thick base slab	m ³	2	
1.2.6	200mm thick walls	m ³	5	
1.2.7	150mm thick baffle wall	m ³	1	
1.2.8	100mm thick baffle walls	m ³	1	
1.2.9	Scour Chambers A & B	m ³	6	
1.2.10	200mm thick walkway	m ³	1	
12	Polish was and			
1.3	Reinforcement Provide and fix high tensile steel reinforcement to SRN 127 including cutting, bending,			
	propping, with spacers and tying as specified			
1.3.1	Reinforcement, all diameters	kg	1715	
1.4	Formwork Provide and fix shuttering including propping, strutting and striking all as specified			
	(i) Formwork - Class F1 Finish			
1.4.1	Vertical sides to Column bases, width n.e 0.3m	m	4	
1.4.2	Horizontal to Soffits of Stilling Well & Chemical Dosing Channel Base Slabs	m ²	8	
	fii) Formwork, Close F3 Finish			
	(ii) Formwork - Class F3 Finish			
1.4.3	Sides of Base Slabs and Walls of Scour Chambers	m ²	26	
1.4.4	Vertical sides to Columns	m ²	5	
			-	
1.4.5	Vertical sides to Stilling Well walls	m ²	33	
1.4.6	Vertical sides to Dosing Channel walls	m ²	2	
1.4.7	Vertical sides to baffle wall in Stilling Well	m ²	4	

1.4.8	Horizontal to Soffit of baffle walls in stilling well, width n.e 0.15m	m	1	
1.4.9	Vertical to sides of walkway, thickness n.e. 0.20m	m ²	2	
1.4.10	Horizontal to soffit of walkway, width n.e. 0.40m	2	2	
1.4.10	nonzontar to some of warkway, width fi.e. 0.4011	m ²	2	
	Other Formwork			
1.4.11	Boxouts for Pipes in 200mm thick R.C. Walls for Stilling Well and Scour Chamber, pipe diameters n.e. 200mm and making good after pipe inserts installation	Nr	5	
1.5	Concrete Surface Finish			
1.5.1	Provide Class UF3 Finish for top of base slab of Stilling Well and Dosing Channel	m ²	5	
1.6	Construction Joints - Water Bar			
	Provide and install the following waterstops in construction joints including all surface			
	treatment, formwork, forming of rebate 20mm x 20mm and sealing of rebate with			
	polysulphide sealant all as per Drawings and Specifications.			
1.6.1	240mm wide expandite super-cast water foil PVC or similar approved waterstop in		15	
1.6.1	construction joints in walls.	m	15	
1.7	Motel Work			
1./	Metal Work All steel work to be completely cleaned by acid dipping prior to galvanising. For details see			
	drawings.			
1.7.1	Provide all materials and fix GMS access ladder to Stilling Well Channel, height of ladder	Nr	1	
	n.e. 3m to details as shown.			
	Provide and fix 900 mm high level balustrades of 40 mm diameter tubing Class 'B'			
1.7.2	throughout consisting of handrail and parallel middle rail 450mm below the handrail with	m	75	
	balusters at maximum 1500 mm centres, all as detailed.			
10	Lock Donaf Tooking			
1.8	Leak Proof Testing			
101	Allow for leak proof testing of Stilling Well and Chemical Dosing Channel as specified.	14	1.6	
1.8.1		Item	L.S	
10	Discound Fitting O Value			
1.9	Pipework Fittings & Valves			
1				
	Supply and tranport to site and store in a secure place all pipework and fittings including			
	Supply and tranport to site and store in a secure place all pipework and fittings including Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable			
	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable			
1.9.1	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable	Nr	1	
	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90 ⁰ bend (Mark 1)	Nr	1	
1.9.1	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16	Nr Nr	1	
1.9.2	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90 ⁰ bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2)		1	
	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one			
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1.9.2	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90 ⁰ bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2)	Nr	1	
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1.9.2 1.9.3 1.9.4	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5)	Nr Nr Nr	1 2 1	
1.9.2	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4)	Nr Nr Nr	2	
1.9.2 1.9.3 1.9.4	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5)	Nr Nr Nr	1 2 1	
1.9.2 1.9.3 1.9.4 1.9.5	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7)	Nr Nr Nr Nr	1 2 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6)	Nr Nr Nr Nr	1 2 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7)	Nr Nr Nr Nr	1 2 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16	Nr Nr Nr Nr	1 2 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6 1.9.7	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a)	Nr Nr Nr Nr Nr Nr Nr	1 2 1 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end	Nr Nr Nr Nr Nr	1 2 1 1 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6 1.9.7	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flanged adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a)	Nr Nr Nr Nr Nr Nr Nr Nr	1 2 1 1 1 1 1 2 2 4 4	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6 1.9.7	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a)	Nr Nr Nr Nr Nr Nr Nr	1 2 1 1 1 1	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6 1.9.7	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flanged adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a)	Nr Nr Nr Nr Nr Nr Nr Nr	1 2 1 1 1 1 1 2 2 4 4	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6 1.9.7 1.9.8 1.9.9 1.9.10	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a) 150mm dia. flange adaptor (Mark b) 150mm dia. all flanged gate valve (Mark c)	Nr	1 2 1 1 1 1 2 2 4 4 2 2 1 1	
1.9.2 1.9.3 1.9.4 1.9.5 1.9.6 1.9.7	Jointing Material, Bolts, Gaskets, Paking, Jointing Glue, etc, As Applicable Raw Water Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class NP16 200mm dia. flanged spigot 90° bend (Mark 1) 200mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one end (Mark 2) 200mm dia. double flanged 90° bend (Mark 3) 200mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4) 200mm dia. flange adaptor (Mark 5) 200mm dia. flanged spigot pipe, length 1200mm (Mark 6) 200mm dia. stepped coupling (Mark 7) Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16 150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end (cut to suit on site) (Mark a) 150mm dia. flange adaptor (Mark b)	Nr Nr Nr Nr Nr Nr Nr Nr Nr	1 2 1 1 1 1 1 2 2 4 4 2 2	

1.9.13	150mm dia. special flanged spigot 90° bend (Mark f)	Nr	2		
1.9.14	150mm dia. double flanged 90 ⁰ bend (Mark g)	Nr	2		
1.5.14	130Hill dia. double Haliged 30 Delid (Mark g)	INI	2		
1.9.15	150mm dia. plain ended pipe, length 500mm with puddle flange at 100mm from one end		_		
	(cut to suit on site) (Mark h)	Nr	1		
	Dosed Water Outlet Pipework - Approved Lined Ferrous Pipes to Class NP16				
1.9.16	200mm dia. flanged spigot 45° bend (cut to suit on site) (Mark A)	Nr	1		
1.5.10	200mm dia. nangeu spigot 45 - benu (cut to suit on site) (Mark A)	Nr	1		
1.9.17	200mm dia. flanged spigot pipe, length 6100mm (cut to suit on site) (Mark B)	Nr	1		
	Transport From Site Store, Install, Test & Commission				
	Raw Water Pumping Main (Inlet) Pipework - Approved Lined Ferrous Pipes to Class				
	NP16				
1.9.18	100mm dia. flanged spigot 90 ⁰ bend (Mark 1)	Nr	1		
1.9.19	100mm dia. double flanged pipe, length 630mm with puddle flange at 200mm from one				
1.5.15	end (Mark 2)	Nr	1		
1.9.20	100mm dia. double flanged 90° bend (Mark 3)	Nr	2		
1.9.21	100mm dia. flanged spigot pipe, length 2000mm (cut to suit on site) (Mark 4)	Nr	1		
1.9.22	100mm dia. flange adaptor (Mark 5)	Nr	1		
1.9.23	100mm dia. flanged spigot pipe, length 1200mm (Mark 6)	Nr	1		
			-		
1.9.24	100mm dia. stepped coupling (Mark 7)	Nr	1		
	Scour & Overflow Pipework - Approved Lined Ferrous Pipes to Class NP16				
	150mm dia. plain ended pipe, length 420mm with puddle flange at 100mm from one end				
1.9.25	(cut to suit on site) (Mark a)	Nr	2		
1.9.26	150mm dia. flange adaptor (Mark b)	Nr	4		
1.9.20	130HIII dia. Hange adaptor (Mark D)	INI	4		
1.9.27	150mm dia. all flanged gate valve (Mark c)	Nr	2		
1.9.28	150mm dia. all flanged tee (Mark d)	Nr	1		
4.0.20					
1.9.29	150mm dia. flanged spigot pipe, length 650mm (cut to suit on site) (Mark e)	Nr	2		
1.9.30	150mm dia. special flanged spigot 90° bend (Mark f)	Nr	2		
1.9.31	150mm dia. double flanged 90° bend (Mark g)	Nr	2		
		141			
1.9.32	150mm dia. plain ended pipe, length 500mm with puddle flange at 100mm from one end (cut to suit on site) (Mark h)	Nr	1		
	(cut to suit on site) (warkin)	INI	1		
	Dosed Water Outlet Pipework - Approved Lined Ferrous Pipes to Class NP16				
1.9.33	200mm dia. flanged spigot 45° bend (cut to suit on site) (Mark A)	Nr	1		
4 2					
1.9.19	200mm dia. flanged spigot pipe, length 6100mm (cut to suit on site) (Mark B)	Nr	1		
2	MISCELLANEOUS ITEMS				
	Provide and apply 3 coats of approved epoxy paint on one coat of epoxy primer to				
2.1	internal concrete surfaces of Stilling Well and Chemical Dosing Channel, beyond chemical	m ²	24		
	dosing point ('Masterseal 180' as made by BASF or approved equivalent).	"'			
	Bill No 2.2.1 Page Total Carried to Grand Summary Page				
	COMPOSITE FILTRATION UNIT				ı
ITEM	BILL No. 2.2.3 600m3/Day One Unit (25-30cmph unit) DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.	DESCRIPTION	CIVIT	QUANTITY	(Kshs)	(Kshs)
1	EXCAVATION				
	I	1	l		I

	The rates should include for all strutting, shuttering, stabilising the excavation and keeping the excavation free from water by pumping, bailing or other means. Excavate for foundation part backfill after construction and remainder cart away to tips or use as fill on			
1.1	site, all as directed. Maximum depth less than 1.0m	m ³	270	
1.2	-Ditto- but depth 1.0 to 2.0m	m ³	150	
1.3	Extra over excavation in rock Class 'A'	m ³	32	
1.4	-Ditto - in rock Class 'B'	m³	48	
1.5	-Ditto - in rock Class 'C'	m ³	32	
2	CONCRETE WORKS			
	Design Assumption Only the 375mm deep section with the outlet pipes is sunken below the foundation. Base slab projection is 150mm all round.			
	Provide, mix and place concrete as directed.			
2.1	Concrete Class 15/20 in 75mm blinding layer under base slab and footings allowing for sloping sides.	m²	8	
2.2	Concrete Class 15/20 in surround to 200mm dia. pipe	m ³	1	
2.3	Mass concrete thickness 300mm Class 15/20 for surround to approved plastic nozzles and wash water channel.	m²	5	
2.4	Concrete Class 15/20 in benching layer to 100mm wide scour channel	m ³	2	
2.5	Allow for formation of a 100mm wide, 18.85m long channel in concrete class 15/20 benching as required	m	22	
2.6	Vibrated reinforced concrete Class 35/20 to base slab 250mm thick	m³	11	
2.7	-Ditto - but for external CFU wall 250mm thick and 3280mm long	m ³	14	
2.8	-Ditto - but for internal filter wall 250mm thick and 3280mm long	m ³	4	
2.9	-Ditto - but for 6 No. dividing walls, 3280mm long	m ³	10	
2.10	-Ditto - but for walkway 650mm wide	m ³	2	
3	STEEL REINFORCEMENT			
	Provide and fix steel reinforcements including cutting, bending, propping with spacers and tying as specified.			
3.1	Steel reinforcement, all diameters	kg	3,520	
4	<u>FORMWORK</u>			
	Provide and fix shuttering including propping, strutting and striking all as specified, allowing for curvature where necessary.			
4.1	Sides of outlet pipes concrete surround, 375mm thick	m	42	
4.2	Sides of 250mm thick base slab	m ²	5	
4.3	Sides of concrete surround to approved plastic nozzles and wash water channel	m ²	2	
4.4	Sides of benching to scour channel	m ²	31	
4.5	Sides of 3280mm external CFU wall (vertical)	m ²	141	
4.6	Sides of 3280mm internal filter wall (vertical)	m ²	111	
4.7	Sides of 6 No. dividing walls (vertical)	m ²	107	
4.8	Soffit of 150mm thick underflow walls beams (horizontal)	m ²	1	
4.9	Sides of 650mm wide walkway	m ²	5	

Soft of 550mm vide walknay NATIRE ABS. WATER BAS. NATIRE BAS. NAT		T T			
1. Provide and install 240mm wide bituminous expansion board in construction joint concrete base side and walls. Include for all surface treatment, formous, forming of richare concrete base side and walls. Include for all surface treatment, formous, forming of richare concrete base side and wall barin as Mosteresal 180° or approved equivalent Apilliad strictly in scoordance with the Manufacturer's printed instruction. 2. Pariat to Filtration unit 3. Pariat to Filtration unit 4. Pariat to Sedimentation unit walls, dividing walls, collection well, etc. 5. Pariat to Sedimentation unit walls, dividing walls, collection well, etc. 6. Pariat to Sedimentation unit walls, dividing walls, collection well, etc. 7. Pariat to Sedimentation unit walls, dividing walls, collection well, etc. 8. Supply and install all pipework and fittings including jueiting material, concrete surrounds etc. to the the CPU and filter unit as specified in the CPU drawings. 8. Intel Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings) 8. Otome dia. Coupling (Mark 1) 8. Otome dia. Suppling (Mark 1) 8. Otome dia. Single throaded (male) pipe 1645mm long with puddie flange at 8400mm from threaded and (Mark 2) 8. Otome dia. Single threaded (male) 90° bend (Mark 4) 8. Otome dia. Bringed singlat pipe 800mm long with puddie flange at 75mm from the plain and (Mark 5) 8. Otome dia. Bringed singlat pipe 800mm long with puddie flange at 75mm from the plain and (Mark 5) 8. Otome dia. Bringed singlat pipe 800mm long (with or salt on site) (Mark 8) 8. Otome dia. Bringed singlat pipe 800mm long (with or salt on site) (Mark 8) 8. Otome dia. Bringed singlat pipe 800mm long (with or salt on site) (Mark 8) 8. Otome dia. Situla cred with Extra long externation spindle (Mark 6) 8. No 1 9. Otome dia. Situla cred with Extra long externation spindle (Mark 6) 9. No 1 9. Otome dia. Situla cred with Extra long externation spindle (Mark 6) 9. No 1 9. Otome dia. Situla cred with Extra long externation spindle (Mark 6) 9. No 1 9.	4.10	Soffit of 650mm wide walkway	m ²	1	
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Assist to Fitration unit 2. Paint to Sedimentation unit walls, dividing walls, collection weir, etc 3. Paint to Sedimentation unit walls, dividing walls, collection weir, etc 4. Piers AND FITTINGS - PN 10 5. Supply and Install all pipework and fittings including jointing material, concrete arrounds etc. to the the CTU and filter unit as specified in the CTU drawings. 5. Index Pipework and Fittings (Approved Epony Coated Forrous Pipes and Fittings) 6. 2 200mm dia. single threaded (male) pipe 1645mm long with puddle flange at 8400mm recommendation of the commendation of the c		Fnovy Floor and Wall Paint as 'Masterseal 180' or approved equivalent Apllied strictly in			
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6 PIPES AND FITTINGS - FN 10 Supply and install all pipework and fittings including jointing material, concrete surrounds etc. to the the CFU and filter unit as specified in the CFU drawings. Iniet Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings) 6.1 200mm dia. coupling (Mark 1) 6.2 200mm dia. coupling (Mark 1) 6.3 200mm dia. famale threaded (male) pipe 1545mm long with puddle flange at 8400mm	5.2	Paint to Filtration unit	m ²	52	
Supply and install all pipework and fittings including jointing material, concrete surrounds etc. to the the CFU and filter unit as specified in the CFU drawings. Inlet Pipework and Fittings (Approved Epoxy Costed Ferrous Pipes and Fittings) 5.1 200mm dia. coupling (Mark 1) No. 1 Comm dia. single threaded (male) pipe 1645mm long with puddle flange at 8400mm No. 1 Comm dia. single threaded (male) pipe 1645mm long with puddle flange at 8400mm No. 1 Comm dia. single threaded (male) 90° bend (Mark 3) No. 1 Comm dia. single threaded (male) 90° bend (Mark 4) No. 1 Comm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain no. 1 Comm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain no. 1 Comm dia. flanged spigot pipe 800mm long (Wark 7) No. 1 Coultet Pipework and Fittings (Approved HDPE Pipes and Fittings) Comm dia. plain ended pipe 250mm long (cut to suit on site) (Mark 8) No. 1 Comm dia. plain ended pipe 5000mm long (cut to suit on site) (Mark B) No. 1 Coultet Pipework and Fittings (Approved Index (Common fittings) Comm dia. stub end with galvanized steel flange (Mark E) No. 1 Coultet Pipework and Fittings (Approved Index (Common fittings) Common dia. all flanged cross (Mark F) No. 1 Coultet Pipework and Fittings (Approved Index (Common fittings) No. 1 Coultet Pipework and Fittings (Approved Index (Common fittings) Common dia. all flanged cross (Mark F) No. 1 Coultet Pipework and Fittings (Approved Index (Common fittings) No. 3 Common dia. Blanged diagnor (Mark F) No. 4 Common dia. Blanged diagnor (Mark F) No. 5 Comm	5.3	Paint to Sedimentation unit walls, dividing walls, collection weir, etc	m ²	127	
surrounds etc. to the the CFU and filter unit as specified in the CFU drawings. Intel Ripework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings) 5.1 200mm dia. coupling (Mark 1) 200mm dia. Sungle threaded (male) pipe 1645mm long with puddle flange at 8400mm from threaded end (Mark 2) 6.3 200mm dia. flanged spigot pipe 800mm long with puddle flange at 8400mm from the plain end (Mark 5) 6.4 200mm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain end (Mark 5) 6.5 200mm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain end (Mark 5) 6.6 200mm dia. flanged spigot pipe 800mm long (Mark 7) Outlet Pipework and Fittings (Approved HDPE Pipes and Fittings) 6.8 200mm dia. equal 90° tee (Mark A) 8 200mm dia. plain ended pipe 250mm long (cut to sult on site) (Mark B) 8 Nr 1 6.1 200mm dia. plain ended pipe 5000mm long (cut to sult on site) (Mark D) 8 Nr 1 6.1 200mm dia. plain ended pipe 5000mm long (cut to sult on site) (Mark D) 8 Nr 1 6.1 200mm dia. all flanged cross (Mark F) 6.1 3 200mm dia. all flanged cross (Mark F) 6.1 4 200mm dia. all flanged cross (Mark F) 6.1 5 200mm dia. all flanged cross (Mark F) 6.2 200mm dia. all flanged cross (Mark F) 6.3 200mm dia. all flanged cross (Mark F) 6.4 200mm dia. all flanged cross (Mark F) 6.5 200mm dia. all flanged cross (Mark F) 6.6 3 200mm dia. all flanged cross (Mark F) 6.7 4 200mm dia. all flanged cross (Mark F) 6.8 8 200mm dia. all flanged cross (Mark F) 6.9 200mm dia. all flanged cross (Mark F) 6.0 200mm dia. all flanged cross (Mark F) 6.0 3 200mm dia. all flanged cross (Mark F) 6.1 4 200mm dia. all fl	6	PIPES AND FITTINGS - PN 10			
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6.1 20mm dia. coupling [Mark 1] 6.2 20mm dia. single threaded (male) pipe 1645mm long with puddle flange at 8400mm from threaded end (Mark 2) 6.3 200mm dia. female threaded socket (Mark 3) 6.4 200mm dia. finaged spigot pipe 800mm long with puddle flange at 75mm from the plain ner (Mark 5) 6.5 200mm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain ner (Mark 5) 6.6 200mm dia. double flanged 90° bend (Mark 6) 6.7 200mm dia. flanged spigot pipe 600mm long (Mark 7) 6.8 200mm dia. flanged spigot pipe 600mm long (Mark 7) 6.9 200mm dia. plain ended pipe 500mm long (Mark 7) 6.9 200mm dia. plain ended pipe 250mm long (cut to suit on site) (Mark B) 6.1 200mm dia. plain ended pipe 250mm long (cut to suit on site) (Mark B) 6.1 200mm dia. plain ended pipe 5000mm long (cut to suit on site) (Mark D) 6.1 200mm dia. plain ended pipe 5000mm long (cut to suit on site) (Mark D) 6.1 200mm dia. sub end with galvanized steel flange (Mark E) 6.1 200mm dia. sub end with galvanized steel flange (Mark E) 6.1 200mm dia. sub end with galvanized steel flange (Mark E) 6.1 200mm dia. all flanged across (Mark F) 6.1 200mm dia. all flanged across (Mark F) 6.1 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut on site) (Mark B) 6.1 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut on site) (Mark W) 6.1 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut on site) (Mark W) 6.1 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut on site) (Mark W) 6.2 200mm dia. plain ended pipe 3.6m long (cut to suit on site) (Mark W) 6.3 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut on site) (Mark W) 6.4 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut on site) (Mark W) 6.5 2 200mm dia. plain ended pipe 1.500mm long (cut to suit on site) (Mark W) 6.2 2 200mm dia. plain ended pipe 1.500mm long (cut to suit on si					
6.2 200mm dia. single threaded (male) pipe 1645mm long with puddle flange at 8400mm from threaded end (Mark 2) 6.3 200mm dia. female threaded socket (Mark 3) 6.4 200mm dia. single threaded (male) 90° bend (Mark 4) 6.5 200mm dia. single threaded (male) 90° bend (Mark 4) 6.5 200mm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain end (Mark 5) 6.6 200mm dia. flanged spigot pipe 800mm long with puddle flange at 75mm from the plain end (Mark 5) 6.6 200mm dia. flanged spigot pipe 660mm long (Mark 7) 6.7 200mm dia. flanged spigot pipe 660mm long (Mark 7) 6.8 200mm dia. equal 90° bend (Mark 6) 6.8 200mm dia. equal 90° tee (Mark A) 6.9 200mm dia. plain ended pipe 250mm long (cut to suit on site) (Mark B) 6.1 200mm dia. plain ended pipe 250mm long (cut to suit on site) (Mark D) 6.1 200mm dia. plain ended pipe 5000mm long (cut to suit on site) (Mark D) 6.1 200mm dia. stub end with galvanized steel flange (Mark E) 6.1 200mm dia. stub end with galvanized steel flange (Mark E) 6.1 200mm dia. stub end with galvanized steel flange (Mark E) 6.1 200mm dia. ali flanged gare valve with 1.5m long extension spindle (Mark G) 6.1 3 200mm dia. ali flanged gare valve with 1.5m long extension spindle (Mark G) 6.1 4 200mm dia. plain ended pipe 1.2m long with puddle flange at 400mm from one end (cut los uit on site) (Mark I) 6.1 200mm dia. plain ended pipe 3.6m long (cut to suit on site) (Mark K) 6.1 200mm dia. blain ended pipe 3.6m long (cut to suit on site) (Mark K) 6.1 200mm dia. blain ended pipe 3.6m long (cut to suit on site) (Mark K) 6.1 3 200mm dia. blain ended pipe 3.6m long (cut to suit on site) (Mark K) 6.2 200mm dia. plain ended pipe 3.6m long (cut to suit on site) (Mark K) 6.2 200mm dia. plain ended pipe 1.500mm x200mm and 375mm long (Mark II) 6.2 200mm dia. plain ended pipe 1.500mm long (cut to suit on site) (Mark III) 6.2 200mm dia. plain ended pipe 1.500mm x200mm and 375mm long (Mark III) 6.2 200mm dia. plain ended pipe 1.500mm x200mm and 375mm long (Mark III) 6.2 200mm		Inlet Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings)			
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	6.21	200mm dia. socket (Mark ii)	Nr	1	
6.23 200mm dia. 90° elbow (Mark iv) Nr 1	6.22	200mm dia. plain ended pipe 1500mm long (cut to suit on site) (Mark iii)	Nr	1	
	6.23	200mm dia. 90° elbow (Mark iv)	Nr	1	

			ı	1	
6.24	200mm dia. stub ended pipe with galvanized steel flange 5950mm long (Mark v)	Nr	1		
	Washwater Outlet Pipework and Fittings (Approved Epoxy Coated Ferrous Pipes and Fittings)				
6.25	200mm dia. all flanged gate valve with 1.7m long extension spindle (Mark vi) 200mm dia. single flanged 90° bend (Mark vii)	Nr Nr	1		
0.20	20011111 dia. Single Hanged 50 Della (Mark VII)	INI	1		
	Scour Pipework and Fittings (Approved Epoxy Coated Pipes and Fittings)				
6.27	100mm dia plain ended pipe 2685mm long (Mark a)	Nr	2		
6.28	100mm dia plain ended pipe 4455mm long (Mark a1)	Nr	1		
6.29	100mm dia flange adaptor (Mark b)	Nr	3		
6.30	100mm dia all flanged gate valve with 1.5m long extension spindle (Mark c)	Nr	3		
6.31	100mm dia single flanged 90° bend (Mark d)	Nr	3		
	Overflow Pipework and Fittings (Approved Epoxy Coated Pipes and Fittings)				
6.32	150mm dia. flanged spigot pipe 600mm long with puddle flange 100mm from one end	Nr	1		
0.32	(Mark e)	INI	1		
6.33	150mm dia. double flanged 90° bend (Mark f)	Nr	1		
0.55			-		
6.34	150mm dia. flanged spigot pipe 3.0m long cut to suit on site (Mark g)	Nr	1		
	Other Pipework and Fittings (Approved HDPE Pipes and Fittings) and Metalwork as				
	Detailed on Drawings				
6.35	Supply and install 75 dia. flap valve as specified	Nr	4		
6.36	Supply and install 50mm dia. HDPE pipe, 900mm long with 5Nr. 19mm dia. holes as shown	Nr	2		
6.37	Supply and install 50mm dia. HDPE pipe, 1100mm long with 6Nr. 19mm dia. holes as	Nr	2		
	shown				
6.38	Supply and install 50mm dia. HDPE pipe, 1300mm long with 7Nr. 19mm dia. holes as	Nr	2		
	shown		_		
6.39	Supply and install 50mm dia. HDPE pipe, 1700mm long with 9Nr. 19mm dia. holes as	Nr	2		
	shown		_		
6.40	Supply and install 50mm dia. HDPE pipe, 2100mm long with 11Nr. 19mm dia. holes as	Nr	2		
0.40	shown	141	2		
C 41	Supply and install 50mm dia. HDPE pipe, 2500mm long with 13Nr. 19mm dia. holes as	Nie	4		
6.41	Shown	Nr	4		
6.42	Supply and install approved plastic nozzles in underdrain pipes	NI.	120		
0.42	Supply and install approved plastic nozzles in underdrain pipes	Nr	120		
7	FILTER MEDIA				
	Filter Media details are shown on Drawing No. 5188481-ATK-WTP-CF-DR-W-010				
7.1	Supply and lay graded gravel of size 2mm to 38mm in 4 layers 75mm thick	m ³	3		
7.2	Supply and lay coarse sand of size 1mm in one layer 75mm thick	m ³	1		
7.3	Supply and lay graded sand of size 0.5mm - 1.0mm in two layers as shown	m ³	6		
7.4	Allow for connection of the composite filtration unit to the inflow 150mm dia. GMS pipe and outflow as directed.	Nr	1		
8	MISCELLANEOUS WORKS				
8.1	Provide and fix GMS sheet 6mm thick settled water collection weir length 3000mm as	Nr	1		
	detailed on Drawings.				
8.2	Provide all materials and fix an external access ladder to Composite Filtration Unit as per	Item	LS		
	details on Drawings.				

8.3	Provide all materials and fix 1200mm wide Chequered Plate Walking Platform over the Composite Filtration Unit complete with handrails as per details on Drawing No.	Item	LS		
8.4	Test and commission the composite filtration unit including disinfection of media for 24 hours.	Nr	1		
9	PRECAST CONCRETE				
9.1	Precast concrete blocks class 20/20 finished fair on wash water channels 240mm x 100mm x 50mm thick. The rate should include formwork and reinforcemet, all as directed.	Nr	60		
10	CHAMBERS				
10.1	EXCAVATION				
	The rates should include for all strutting, shuttering, stabilising the excavation and keeping the excavation free from water by pumping, bailing or other means. Excavate for foundation part backfill after construction and remainder cart away to tips or use as fill on site, all as directed.				
10.1.1	Maximum depth less than 1.0m	m ³	55		
10.1.2	-Ditto- but depth 1.0 to 2.0m	m ³	25		
10.1.3	Extra over excavation in rock Class 'A'	m ³	6		
10.1.4	-Ditto - in rock Class 'B'	m ³	13		
10.1.5	-Ditto - in rock Class 'C'	m ³	13		
10.2	CONCRETE WORKS				
	Provide, mix and place concrete as directed.				
10.2.1	Concrete Class 15/20 in 50mm blinding layer under base slab.	m ²	33		
10.2.6	Vibrated reinforced concrete Class 25/20 to base slab 200mm thick	m ³	6		
10.2.7	-Ditto - but for chamber walls 200mm thick and 2000mm long	m ³	17		
10.3	STEEL REINFORCEMENT				
	Provide and fix steel reinforcements including cutting, bending, propping with spacers and tying as specified.				
10.3.1	Steel reinforcement	kg	400		
10.4	FORMWORK				
	Provide and fix shuttering including propping, strutting and striking all as specified.				
10.4.1	Sides of 200mm thick base slab	m ²	10		
10.4.2	Sides of 2000mm chamber walls (vertical)	m ²	74		
Bill No. 2	2.3 Total Carried to Grand Summary Page				
	CLEAR WATER TANK; one unit of four 100m ³ tanks BILL No.2.2.4				
ITEM No.	DESCRIPTION	UNIT	QUANTITY	RATE Kshs	AMOUNT Kshs
1	EARTHWORKS Excavation				
	Excavations shall include for strutting, shuttering, stabilizing excavated surfaces and keeping excavations free of water bailing out, pumping or other means				
1.1	Excavate to reduce levels in top soil for depth not exceeding 0.25m	m ³	9		
1.2	Excavate for tank in material other than top soil, rock or artificial hard material depth range n.e 1m	m ³	36		

1.3	Ditto but depth range between 1m - 2m	m³	36	
1.4	Ditto but depth range between 2m - 3m	m ³	36	
1.5	Ditto but depth range between 3m - 4m	m ³	22	
1.6	Extra over for rock - Class 'A' blasting not permitted	m ³	11	
1.7	ditto - but Class B	m ³	16	
1.8	ditto - but Class C	m ³	27	
	Filling			
	Filling to completed structures including compaction as specified			
1.9	Selected excavated material other than topsoil, approved and use as fill and compact in 200mm layers as specified on site as and when directed by the Engineer. Compaction tests to be done and rates to include for this	m³	89	
1.10	Filling hardcore of 300mm hand parked rubble along tank perimeter compacted in layers of 150mm	m ³	28	
	Disposal of excavated Material			
1.11	Disposal of excavated material other than topsoil, rock or artificial hard material	m ³	5	
1.11	Disposal of excavated material other than topsoil, rock of artificial naturnaterial	m ⁻	3	
1.12	Disposal of excavated material-rock	m ³	54	
2	IN SITU CONCRETE			
	Provision of concrete			
	Design Mix			
	Grade: C15/20			
2.1	Provide all materials, mix and place 50mm thick concrete blinding mix (Class 15/20) to	m²	73	
2.1	base slab, allow for sloping sides		75	
2.2	100mm Thick Pipe Surround	m ³	1	
	Reinforced Concrete; Class 35/30			
	Provide all materials, mix and place reinforced concrete for;			
2.3	250mm concrete in tank base slab and sump base and walls	m ³	17	
2.4	250mm thick Tank walls	m ³	18	
			_	
2.5	Columns base and columns	m ³	1	
2.6	Roof Beams	m ³	2	
2.7	200mm thick Roof Slab	m ³	14	
2.8	150mm thick baffle walls	m ³	6	
2.0		III		
	Reinforced Concrete; Class 25/20			
	Provide all materials, mix and place reinforced concrete for;			
2.8	Scour chamber walls and base slab	m ³	2	
	CLASS G: CONCRETE ANCILLARIES			
	Dimensions as per details on Specific Structural Drawings			
	Formwork: Rough Finish; Plane Vertical			
2.10	Provide and fix strip shuttering including propping, strutting and striking to the edge of tank base slab - 250mm wide	m²	8	
2.11	Provide and fix wrought shuttering including propping, strutting and striking to sump including pipe sorround	m²	13	
2.12	Provide and fix wrought shuttering including propping, strutting and striking to scour chamber base slab, n.e. 200mm wide	m²	6	

2.13 Provide and fix wought shuttering including propping, strutting and striking to scour m² 139 2.14 Provide and fix strip shuttering including propping, strutting and striking to title Tank wall m² 138 2.15 Provide and fix wrought shuttering including propping, strutting and striking to sides of columns, no. 300mm wide not striken and striking to sides of columns, no. 300mm wide not sides of columns, no. 300mm wide not sides of columns, no. 300mm wide not sides of columns and striking to sides of not not sides of sides of columns and striking to sides of not not sides of columns and sides. Not n
Provide and fix wrought shuttering including propping, strutting and striking to sides of columns, n.e. 300mm wide 2.16 Provide and fix wrought shuttering including propping, strutting and striking to sides of column bases, n.e. 100mm wide 2.17 Provide and fix wrought strip shuttering including propping, strutting and striking to sides of column bases, n.e. 100mm wide 2.18 Provide and fix wrought strip shuttering including propping, strutting and striking to the westerd edge of roof size 3.000mm wide 2.18 Otto- to sides of beams - 300mm wide m² 2.0 2.19 Otto- to sides of beams - 300mm wide m² 7 2.20 Otto- to soffix of beams - 300mm wide m² 7 2.20 Otto- to soffix of projection of roof slab - 300mm wide m² 4 2.21 Provide and fix wrought shuttering including propping, strutting and striking to the soffit droof slab dro
columns, n.e. 300mm wide 2.16 Provide and fix wrought shuttering including propping, strutting and striking to sides of column bases, n.e. 100mm wide 2.17 Provide and fix wrought strip shuttering including propping, strutting and striking to the writch edge of root slab. 200mm wide 2.18 Ditto to sides of beams - 300mm wide 2.19 Ditto to soffic of beams - 300mm wide 2.19 Ditto to soffic of beams - 300mm wide 2.10 Ditto to soffic of beams - 300mm wide 2.10 Ditto to soffic of projection of roof slab. 300mm wide 2.10 Ditto to soffic of projection of roof slab. 300mm wide 2.11 Provide and fix wrought shuttering including propping, strutting and striking to the soffit 2.12 Provide and fix wrought shuttering including propping, strutting and striking to the soffit 2.13 cement sand screed with steel trowel finish laid to fall tank floors at 1:120, and minimum depth 15mm 3.1 Cement sand screed with steel trowel finish laid to roof slab at 1:120, and minimum midepth 15mm 3.2 Provide and fix mild steel reinforcement bars as per details on structural kg drawings. JOINTS AND WATER STOPS (Rates to include for all rebates, shuttering, PVC waterstop, resin bonded cork joint sealer and struminous painting) 3.2 Provide and install 240mm wide, 20mm thick bituminous expansion board in construction in sealer and struminous painting) 3.2 Provide and install 240mm wide, 20mm thick bituminous expansion board in construction in pecification 4. MISCILLANDOUS TEMS 4.1 Provide all materials and construct vents as per details on Drawing 4.2 Allow for construction of 600mm x 600mm access manhole with cast iron frame and cover of the soft and the sealer and and the soft and and and and and and and and and the soft and
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2.19 Ditto- to soffit of beams - 300mm wide m² 7 7 2.20 Ditto- to soffit of projection of roof slab - 300mm wide m² 4 2.21 Provide and fix wrought shuttering including propping, strutting and striking to the soffit of roof slab Finishing on Surfaces Finishing on Surfaces 1.3 cement sand screed with steel trowel finish laid to fall tank floors at 1:120, and minimum depth 1:5mm 2.21 3.3 cement sand screed with steel trowel finish laid to roof slab at 1:120, and minimum depth 1:5mm 3 REINFORCEMENT 3.1 Provide, cut, bend and fix mild steel reinforcement bars as per details on structural kg 5633 drawings. JOINTS AND WATER STOPS (Rates to include for all rebates, shuttering, PVC waterstop, resin bonded cork joint sealers and bituminous painting) 3.2 Provide and install 240mm wide, 20mm thick bituminous expansion board in construction joint at base slab and walls. Include for all surface treatment, formwork, forming of rebate 20mm x 20mm and scaling of rebate with polysulphide sealant all as per drawings and specification 4 MISCELLANEOUS/ITEMS 4.1 Provide all materials and construct vents as per details on Drawing Nr 4 4.2 Allow for construction of 600mm x 600mm access manhole with cast iron frame and cover 4.3 Provide all materials and fix galvanized wrought iron cat ladder to outside of reservoir. Stringers - 50mm x 10mm rings - 20mm diameter at 300mm centres) Length n. e. 25 m Nr 1 (Stringers - 50mm x 10mm rings - 20mm diameter at 300mm centres) Length n. e. 25 m Nr 1 Allow for boxing out holes in reinforced concrete floors, walls, etc diameter n. e. 200mm Nr 1 including concrete reinstatement after pipe installation. The exact dimension to suit the pipe.
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including concrete reinstatement after pipe installation. The exact dimension to suit the pipe.
4.6 Allow for construction of 25mm x 25mm drip all round the roof edge as detailed m 35
5 PIPES, FITTINGS AND VALVES
Note:
Note: 1) Supply of pipes and fittings to include for supply of jointing materials, bolts, nuts, nr 1

	All pipes, fittings and valve diameters indicated are nominal diameters.	nr	1		
	2) The pipes, metings and valve diameters indicated are nominal diameters.		-		
	SUPPLY, TRANSPORT TO SITE AND STORE				
	Supply, transport to site, store, transport from site store, install, test and commission all				
	pipework and fittings including jointing material, concrete surrounds etc.				
5	INLET PIPEWORK				
	Cement Mortar Lined Ferrous Pipe Fittings and Specials				
5.1	200 mm dia flanged ball valve (Series 1000 - Biwater or approved equivalent)(Mark 1)	Nr	1		
5.1	200 Hilli dia Hanged bali valve (Series 1000 - biwater of approved equivalent)(Mark 1)	INI	1		
5.2	200 mm dia flanged pipe 640mm long with puddle flange 180mm from one end (Mark 2)	Nr	1		
5.3	200mm Dia 1200mm long flanged spigot pipe (Mark 3)	Nr	1		
3.3	20011111 Did 120011111 Tolig Haliged Spigot pipe (Walk 3)	141			
5.4	1Nos. 200 mm dia Coupling (Mark 4)	Nr	1		
	OUTLET/SUCTION PIPEWORK				
5.5	Suction Pipework accounted for in Treated Water Pump House BOQ				
	, and the second				
	OVERFLOW & WASHOUT PIPEWORK				
	AFOur die flands derivaties CCO				
5.6	150mm dia.flanged spigot pipe 600mm long with puddle flange at 150mm from spigot end (Mark a)	Nr	1		
	(Walk a)				
5.7	150mm dia. double flanged 90º short radius bend (Mark b)	Nr	1		
5.8	150mm dia. double flanged pipe 1050mm long (cut to suite on site) (Mark c)	Nr	1		
5.9	150mm dia. flange adaptor (Mark d)	Nr	1		
3.5	250mm did. Halige adaptor (mark d)		-		
5.10	150mm dia. all flanged 60º bend (Mark e)	Nr	1		
	450 II (II II				
5.11	150mm dia. flanged spigot pipe 1250mm long with spigot end bevelled. (cut to suite on site) (Mark f)	Nr	1		
	Sice (Mark I)				
5.12	150mm dia. All flanged gate valve (EURO 20 SERIES TYPE 23 SAINT GOBAIN PAM or	Nr	1		
	approved equivalent) (Mark g)				
5.13	150mm dia. 90º flanged spigot bend (cut to suite on site) (Mark h)	Nr	1		
3.13	150mm dia. 90= nanged spigot bend (cut to suite on site) (Mark II)	INI	1		
5.14	150mm dia. 90º flanged spigot bend (cut to suite on site) (Mark i)	Nr	1		
6	CONSTRUCTIONAL WORK				
6.1	Provide and fix step irons to chambers	Nr	6		
Bill No. 2	.2.4 Total Carried to Grand Summary Page				
-	PUMP HOUSE BUILDING				
	BILL No. 2.2.5				
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				(Kshs)	(Kshs)
	SUB-STRUCTURE				
	<u>SOD-STROCTORE</u>				
1	EXCAVATION AND EARTHWORKS				
	The rates shall include for all strutting, shuttering, stabilising the excavation faces, and				
	keeping the excavation free of water by pumping, bailing or other means.				
	Excavate average 150mm deep to remove vegetable soil and cart away	m ²	4.95		
	,				
	Excavate below stripped level to formation level in common material, part backfill after				
	construction and remainder, cart away to tips or use as fill on site, all as directed by the				
	Engineer.				
1.1	Maximum depth n.e. 1.0 m	m ³	33		
1.2	-Ditto- but maximum depth 1.0 m to 2.0 m	m³	49.5		

				1
	Extra Over Excavation in Any Position for:-			
1.3	Excavating in rock Class "A"	m ³	1	
1.3	LACAVATING INTOCK Class A	m	1	
1.4	Excavating in rock Class "B"	m ³	4	
1.5	Excavating in rock Class "C"	m ³	2	
				•
1.6	Approved Selected Filling as Described:- Provide and deposit approved selected fill in maximum 150mm thick layers in making up	m ³	5	
1.0	levels including achieving satisfactory compaction. Rate to include performing necessary	'''		
1.7	compaction tests. Provide, lay and level out fine crushed stone, sand or gravel blinding 50mm thick to	m ²	4	
1.7	surface of filling, including watering and rolling to achieve satisfactory compaction.	m	4	
1.8	Fill with approved hardcore in a 300mm thick layer including achieving satisfactory	m ²	11	
	compaction.			
	Disposal of Surplus Spoil:-			
1.9	Cart away surplus excavated materials to an approved dumping site	m ³	5	
	Anti-Termite Treatment			
1.10	Charles and the state of the st	2	22	
1.10	Chemical anti-termite treatment to surface of filling with an approved insecticide.	m ²	33	
	Damp-Proof Membrane			
1.11	500 Gauge polythene sheeting, laid over hardcore in two layers	m ²	33	
1.11	Soo daage polyanene sheeting, lala over hardeore in two layers	111	33	
	CONCRETE WORK			
	Mass Concrete Class 15/20mm Maximum Aggregate as Described in:-			
1.12	75mm Thick blinding under the walls strip footings, column bases and over hardcore	m ²	5	
	SUPER-STRUCTURE			
	Guaranteed Strength Reinforced Concrete Class 25/20mm Maximum Aggregate as			
	Described in:-			
1.13	200mm Thick Base Slab	m³	7	
1.14	150mm Thick Base Slab topping	m ³	5	
1.14	130mm mick base stab topping	m	,	
1.15	300mm Thick Column Bases and Wall Strip Footings	m³	2	
1.16	Control Panel 300mm upstand beams	m ³	1	
	The state of the s			
1.17	Pump Plinth size 1100mm long x 800mm wide x 300mm deep	Nr	2	
1.18	Pump Plinth size 700mm long x 700mm wide x 300mm deep	Nr	1	
	Builders Work			
	Pariners MANIV			
1.19	Provide all materials and construct; Drainage sump internal size 400mm long x 400mm wide x 150mm deep in concrete floor	Nr	1	
1.19	slab including forming rebate 100mm wide x 50mm deep to top inner edges of sump wall	INI	1	
	to receive metal grating cover (m.s.) and including all necessary excavation, disposal and			
	formwork.			
1.20	Form cable duct internal size 200mm wide x 150mm deep in concrete floor slab including	m	4	
	forming rebate 100mm wide x 50mm deep to top inner edges of channel wall to receive chequer plate cover (m.s.)			
1.21	Form drainage channel internal size 200mm wide and depth varying from 100mm to	m	4	
	150mm deep in concrete floor slab including forming rebate 100mm wide x 50mm deep to top inner edges of channel wall to receive mild steel grating cover (m.s.)			
	to top			
1.22	Provide all materials and install a 200mm Dia. Upvc drainage pipe from cable ducts cast	m	2	
1.22	into floor slab as shown on Drg. No. 5188481-ATK-WTP-PH-DR-W-017	""		

1.23	Form pocket internal size 1100mm long x 800mm wide x 50mm deep in base slab to receive treated water pump plinth (R.C.) including all the necessary formwork	Nr	2		
1.24	Form pocket internal size 700mm long x 700mm wide x 50mm deep in concrete topping to receive backwash pump plinth (R.C.) including all the necessary formwork	Nr	1		
	Provide and Fix High Tensile Steel Reinforcement to SRN 127 including Cutting, Bending, Propping With Spacers and Tying as Specified:-				
1.25	Reinforcement, all diameters as specified in the drawings	Kg	2000		
	FORMWORK				
	Provide and Fix Shuttering Including Propping, Strutting and Striking, all as Specified				
	Sawn Formwork - Class F1 Finish:-				
1.26	Sides of 200mm thick pump house base slab	m ²	10		
1.27	Sides of column bases and columns in the foundations	m ²	13		
1.28	Sides of 200mm Walls Strip footings - Pump house walls	m ²	50		
	Wrot Formwork - Class F3 Finish:-				
1.29	Edges of Treated Water Pump Plinth size 1100mm long x 800mm wide x 300mm deep not exceeding 300mm wide	m	4		
1.30	Edges of Backwash Water Pump Plinth size 700mm long x 700mm wide x 300mm deep not exceeding 300mm wide	m	3		
1.31	Edges of Control Panel Upstand Beams 1600mm long x 200mm wide x 300mm deep	m	5		
	RENDERING				
	15mm Cement and sand (1:4) render to plinths, finished with a wood float				
1.22		2	_		
1.32	Pump Plinth size 1100mm long x 800mm wide x 350mm deep including pocket in base slab	m ²	5		
1.33	Pump Plinth size 700mm long x 700mm wide x 350mm deep including pocket in base slab	m²	7		
	Bonded Cement and Sand (1:4) Screed Bed in One Coat with Approved Hardener incorporated in the Mix, Well Bonded to Concrete Base as Described:-				
1.34	40mm Thick paving with wood float finish on pump house slab	m ²	32		
	Damp-proof course:				
	Bituminous Felt Damp-Proof Course as Described:-				
1.35	200mm Wide under walls	m	13		

1.36	<u>Joint Filler</u> 20mm Thick resin bonded cork filler between 1100 x 800 x 350mm pump plinth and 200mm thick floor slab sealed with 25mm deep bitumen	m ²	5		
1.37	-Ditto for 700 x 700 x 350mm pump plinth	m ²	5		
	Walling				
	Natural Stone Block Walling, Medium Chisel Dressed, Reinforced with 20 swg Hoop Iron at every third course, and Bedded, Jointed and Pointed in Cement Mortar (1:4):-				
1.38	200 mm Walling	m ²	45		
		111	,,,		
	CONCRETE WORKS				
	Guaranteed Strength Reinforced Concrete Class 25/20mm as Described in:				
L	1			l	I.

1.40 Columns m²	1.39	Upstand beams for the control panel	m³	2	
1.42 States size 600 x 600 x 500 x 5	1.40	Columns	m ³	4	
Precast Concrete Paving Salabs 1.42 Sabas size 600 x 600 x 500 mm Thick Italia on and including 50mm thick bed of sand and pointing in cement mortar and pointing in cement mortar in the salab size of the salab					
1.42 Salas size 600 × 600 × 50mm Thick bild on and including 50mm thick bed of sand and pointing and pointing in cement mortar RENPORCEMENT Provide and En Heigh Tensile Seal Reinforcement to 5RN 127 including Cutting, Bending, Propping with Spacers and Tying as Specified: 1.43 Scinforcement, all diameters Provide and Fix Shuttering including Propping, Strutting and Striking, all as Specified. 1.44 Upstand for the control panel, columns and beams in the superstructure. MALING Selected Machine Dressed Natural Stone Block Walling, Reinforced with 20 awg Hoop Iron at Every Third Courses, and Bedded, Jointed and Prointed in Cement Mortar (1:5): 1.45 20mm Thick walling 1.46 20mm Thick walling Precast Concrete Louvee Block Walling PASTERING 1.49 22 smm thick cement gauged plaster internally on blockwork surfaces MATAWORK Rates to include for Provision of all Material, Fabrication and Fishing Floor Gratings Floor Gratings Floor Gratings 1.51 Mild steel garting dain channel cover 400mm wide x \$550mm long made out of Somm own well as the surfaces well as 50mm thick as a naise seed to form out on a strawner base walled at 20mm spacing to form mortar on to raise wall and the seed at 20mm spacing to 16mm round and 5 mortar and 5	1.41	Beams	m ³	4	
pointing and pointing in carrent mortar RENPORCEMENT Provide and Ta High Tensile Steel Reinforcement to SRN 127 including Cutting, Bending, Proping with Spacers and Twing as Specified: 1.43 Reinforcement, all diameters kg 2500 FORMWORK Provide and Pas Shutsering including Propping, Strutting and Striking, all as Specified. 1.44 Upstand for the control panel, columns and beams in the superstructure. m² 25 WALING Selected Machine Dressed Natural Stone Block Walling, Reinforced with 20 way Hoop Iron at Every Third Courses, and Bedded, Jointed and Pointed in Cement Mortar (1:5): 1.45 200mm Thick walling m² 30 1.46 close over walling for ruled horizontal and flush vertical joints m² 30 Presst Concrete Louve Block Walling m² 15 Presst Concrete Close Walling m² 15 Presst Concrete Close Walling 1.47 200mm Thick over Block walling m² 28 Presst Concrete Close Walling 1.48 200mm Thick coment gauged plaster internally on blockwork surfaces MEXTERING REDUCTION RESTRING REDUCTION RESTRING REDUCTION RESTRING RESTRING Restriction Well steel grating drain channel cover 400mm wide x 5550mm long made out of 16mm round ms. Isongitudinal bars welled to 38 x 38 x fmm thick ms. angles 1.50 Wild steel grating drain channel cover 400mm wide x 5550mm long made out of 16mm round ms. Isongitudinal bars welled to 38 x 38 x fmm thick ms. angles 1.51 Wild steel chequer plate cover of cable duct internal size 200mm wide x 150mm deep Department of the Garitry grider made out of 20 x 13 x 30 kg/m Us. Include for 500kg packet by this block mounted on coller bracket on foller bracket on		Precast Concrete Paving Slabs			
Provide and fix High Tensile Steel Reinforcement to SRN 127 including Cutting, Bending, Propping with Spacers and Tying as Specified: Reinforcement, all diameters Reinforcement, all as decement and sand rendering externally on concrete surfaces m² 70 Reinforcement, all diameters Reinforcement, all diameters Reinforcement, all diameters Reinforcement, all diameters Reinforcement, all di	1.42	-	m ²	23	
Propries with Spacers and Tying as Specified: Reinforcement, all diameters Rg 1500		REINFORCEMENT			
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MALLING		FORMWORK			
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1.53 Provide and fix Gantry girder made out of 203 x 133 x 30 kg/m UB. Include for 500kg	1.52	Mild steel chequer plate cover for cable duct internal size 200mm wide x 150mm deep	m ²	3	
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capacity chain block mounted on roller bracket on the gantry, fixing of gantry to concrete beams of pump house with 16mm bolts, etc., all as detailed. Steel Doors	1.53	Provide and fix Gantry girder made out of 203 x 133 x 30 kg/m LIR Include for 500kg	Nr	1	
	1.55	capacity chain block mounted on roller bracket on the gantry, fixing of gantry to concrete		_	
Pressed Metal Louvre Doors		Steel Doors			
		Pressed Metal Louvre Doors			

	Supply and Fix the Following Pressed Metal Louvre Doors with 100 x 50mm Stiles and Top Rails, 150 x 50mm Middle and Bottom Rails With Pressed Metal Infill Louvres and 100 x 50mm Pressed Metal Frames, Including Hinges, Pad Bolts and Tower Bolts, All To Manufacturer's Details, With Three Coats Gloss Paint Complete With Opening			
	Accessories Including Bedding and Pointing Around Frames in Cement Mortar:-			
1.54	Double door size 1800 x 2400 mm high in two equal panels	Nr	1	
	Steel Casement Windows			
	Cumply and Firsh's following Chandred Castina Chan Conservat Windows including Appea			
	Supply and Fix the following Standard Section Steel Casement Windows, including 4mm Thick Clear Sheet Glass glazed to Steel Casements with putty, complete with the following, all finished with three coats oil paint:-			
	- Opening accessories, including building in lugs to jambs and head and water-proofing and filling around opening with approved compound			
	- Burglar-Proofing Fabricated from 12 x 12mm Mild Steel Square Bars at 150mm Centres Vertically and 150mm Horizontally and Fixed Internally to Surrounding Wall with 12mm Mild Steel Fish-Tailed Lugs at Maximum 600mm Centres;			
1.55	Window size 1797 x 1197mm high in 3 equal panels with upper part having 2 No. fixed and 1 No. top hung ventilator, and lower half having 2 No. side-hung panels opening outward and 1 No. fixed panel	Nr	5	
	PVC Gauze Screen set on and including a Timber Framing all Round and Fixing to Wall :-			
1.56	Gauze size 1800 x 1200mm high	Nr	1	
	Dungash Canavaha Lauwa Bladi Walling .			
	Precast Concrete Louvre Block Walling :-			
1.57	200mm Thick louvre block walling with twin section with plastic coated coffee tray wire sandwiched between sections	m ²	8	
	PAINTING AND DECORATING Prepare and Apply Three Coats Exterior Quality Plastic Emulsion Paint:-			
	Externally on:-			
1.58	Fair-faced concrete surfaces	m ²	25	
	Prepare and Apply Three Coats Interior Quality Plastic Emulsion Paint:-			
	Internally on:-	2		
1.59	Plastered blockwork and concrete surfaces	m ²	95	
	Prepare and Apply Three Coats Washable Distemper as Described to:-			
1.60	Horizontal soffites of suspended chipboard or plasterboard ceilings	m ²	54	
	ROOF COVERINGS			
	Gauge 28 galvanised corrugated coloured IT5 Sheets including ridge capping including all necessary underlay and jointing material	m ²	42	
	CARPENTRY AND JOINERY			
	Cavanta			
	Carpentry Roof Trusses			
	Clark Disk Day of Tarrow Wilsh Cooperation 1 and			
	Single Pitch Roof Truss With 600mm eaves projection, in 150 x 50mm Rafters, Ceiling Joists, Struts and Ties in Sawn Cypress Grade II Seasoned and Pressure Impregnated with Wood Preservative and timber joints with bolted and nailed connections to the Engineer's approval:-			
1.61	Equal truss 4400mm clear span and 900mm high Other Roof Members	Nr	5	
	Sawn Cypress Grade II Maximum Moisture Content 12% Seasoned and Pressure Impregnated with Wood Preservative and Timber Joints With Bolted and Nailed Connections to the Engineer's Approval:-			
1.62	150 x 50mm Purlins	m	42	

1.63	200 x 50mm Ridge board	m	7	
1.64	100 x 50mm Wall plate tied to wall with 20 s.w.g. hoop iron at 900mm centres and bedded in cement mortar (1:3) on top of wall	m	42	
	Joinery General Timbers			
	General Timbers			
	Wrot Prime Grade Cypress, Including Finishing With Three Coats First Quality Gloss Paint :-			
1.65	250 x 40mm Fascia board	m	26	
1.05	250 X 40//// Tubbu Sourd		20	
2	CEILING			
	12mm Thick Approved Chipboard to BS 2604, Part 2, density 480-640kgs, per Square Electro-magnetic meter in Sheets Size 2400 x 1200mm Fixed to and Including 50 x 50mm Sawn Cypress Grade 2 Battens at 600mm Centres in Both Directions Complete with Gauge Jointing Material			
2.1	Horizontal ceiling fixed to underside of trusses	m ²	30	
2.2	12 may Country FOrmer high plugged		15	
2.2	12mm Cornice 50mm high, plugged	m	15	
2.3	Extra over ceiling lining for forming removable access trap door size 600 x 600mm with 100 x 38 mm sawn treated cypress trimming joists between tie beams,120 x 20mm (finished) wrot cypress frame all round and 20mm blockboard removable panel set loose on top of framing.	Nr	1	
	Builders Work in Connection with Electrical Installations			
2.4	Allow for cutting and leaving all necessary holes, notches, mortices, sinkings and chases both in the structure and its finishes and for all making good in connection with concealed conduits or cables	Item	L.S	
	PIPEWORK AND FITTINGS			
	Supply, Transport to Site and Store in Secure Place, Including Jointing Material, Bolts,			
	Gaskets, Packing, Jointing Glues, etc. as Applicable			
	Treated And Backwash Water Pumps - Suction Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)			
2.5	150mm dia. flanged strainer (Mark 1)	Nr	1	
2.6	150mm dia. double flanged pipe, 1100mm long with puddle flange at 500mm from one end (Mark 2)	Nr	1	
2.7	150mm dia. double flanged 30º bend (Mark 3)	Nr	1	
2.8	150mm dia. double flanged pipe, 1900mm long (Mark 4)	Nr	1	
2.9	150mm dia. flanged adaptor (Mark 5)	Nr	3	
2.9	130mm dia. nangeu adaptor (wark 3)	INI	3	
2.10	150mm dia. double flanged pipe, 1700mm long with puddle flange at 500mm from one end (Mark 6)	Nr	1	
2.11	150mm x 150mm x 150mm dia. all flanged radial tee (Mark 7)	Nr	2	
2.12	150mm dia. double flanged pipe, 250mm long (Mark 8)	Nr	2	
2.13	150mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 9)	Nr	2	
2.14	150mm x 65mm dia. double flanged eccentric taper (Mark 10)	Nr	2	
2.14	150mm dia. double flanged pipe, 900mm long (Mark 11)	Nr	1	
2.16	150mm x 50mm dia. double flanged concentric taper (Mark 12)	Nr	1	
2.17	50mm dia. double flanged pipe, 700mm long (Mark 13)	Nr	1	
2.18	50mm x 50mm x 50mm dia. all flanged tee (Mark 14)	Nr	1	
2.19	50mm dia. flanged adaptor (Mark 15)	Nr	4	
2.20	50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 16)	Nr	2	
2.20				

2.21	50mm dia. single flanged 90º bend (Mark 17)	Nr	1	
	Deliver & Divine Deliver Main (Assessed Lined Foreste Dive Fithings & Class ND 4C)			
	Backwash Pumps - Delivery Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)			
2.22	FOrmer dis double flagged gate valve to BS E162 (chart face to face) (Mark A)	Nr	2	
2.22	50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark A)	INI	2	
2.23	50mm dia. double flanged free acting check valve (Non return valve) (Mark B)	Nr	2	
2.24	50mm dia. double flanged 90° bend (Mark C)	Nr	3	
2.25	50mm x 50mm x 50mm dia. all flanged tee (Mark D)	Nr	1	
2.26	50mm x 80mm dia. double flanged concentric taper (Mark E)	Nr	1	
2.27	80mm x 80mm x 50mm dia. all flanged tee (Mark F)	Nr	1	
2.28	50mm dia. single orifice air valve with built in isolating valve (Mark G)	Nr	1	
2.29	80mm dia. double flanged pipe, 700mm long (Mark H)	Nr	1	
2.30	80mm dia. double flanged water Electro-magnetic meter (Mark I)	Nr	1	
2.31	80mm dia. flanged adaptor (Mark J)	Nr	2	
2.32	80mm dia. double flanged pipe, 500mm long with puddle flange at 200mm from one end	Nr	1	
2.52	(Mark K)		-	
2.33	80mm dia. double flanged 45º bend (Mark L)	Nr	2	
2.24		NI	2	
2.34	80mm dia. flanged spigot pipe, 800mm long (cut to suit on site) (Mark M)	Nr	2	
2.35	80mm dia. stepped coupling (Mark N)	Nr	1	
	Treated Water Pumps - Delivery Main (Approved Lined Ferrous Pipe Fittings to Class NP			
	16			
2.36	100mm x 65mm double flanged concentric taper with 25mm dia. male threaded tapping	Nr	2	
	for pressure gauge (Mark a)			
2.37	25mm dia. pressure gauge (pressure class up to 30 bars) - Hunter or approved equivalent (Mark b)	Nr	2	
			_	
2.38	100mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark c)	Nr	2	
2.39	100mm dia. double flanged free acting check valve (Non return valve) (Mark d)	Nr	2	
2.4	100mm dia. double flanged 90° bend (Mark e)	Nr	1	
2.41	100mm dia. double flanged pipe, 910mm long (Mark f)	Nr	1	
2.42	100mm x 100mm x 100mm dia. all flanged radial tee (Mark g)	Nr	1	
2.43	100mm x 100mm x 50mm dia. all flanged tee (Mark h)	Nr	1	
2.44	50mm dia. single orifice air valve with built in isolating valve (Mark i)	Nr	1	
2.45	100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j)	Nr	1	
2.40		Nie	2	
2.46	100mm dia. double flanged 45° bend (Mark k)	Nr	2	
2.47	100mm dia. double flanged pipe, length 1200mm (cut to suit on site) (Mark I)	Nr	2	
2.48	100mm dia. flanged adaptor (Mark m)	Nr	2	
2.49	100mm dia. double flanged water Electro-magnetic meter (Mark n)	Nr	1	
2.50	100mm dia. flanged spigot pipe, length 1500mm (cut to suit on site) (Mark o)	Nr	1	
2.51	100mm dia. stepped coupling (Mark p)	Nr	1	
		**	_	
	Supply, Transport From Site Store, Install, Test and Commission			
	Backwash Pumps - Suction Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)			

2.52	150mm dia. flanged strainer (Mark 1)	Nr	1	
2.53	150mm dia. double flanged pipe, 1100mm long with puddle flange at 500mm from one end (Mark 2)	Nr	1	
	Crit (Mork 2)			
2.54	150mm dia. double flanged 30º bend (Mark 3)	Nr	1	
2.55	150mm dia. double flanged pipe, 1900mm long (Mark 4)	Nr	1	
2.56	150mm dia. flanged adaptor (Mark 5)	Nr	3	
2.50				
2.57	150mm dia. double flanged pipe, 1700mm long with puddle flange at 500mm from one end (Mark 6)	Nr	1	
2.58	150mm x 150mm x 150mm dia. all flanged radial tee (Mark 7)	Nr	2	
2.59	150mm dia. double flanged pipe, 250mm long (Mark 8)	Nr	2	
2.60	150mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 9)	Nr	2	
2.61	150mm x 65mm dia. double flanged eccentric taper (Mark 10)	Nr	2	
2.62	150mm dia. double flanged pipe, 900mm long (Mark 11)	Nr	1	
2.63	150mm x 50mm dia. double flanged concentric taper (Mark 12)	Nr	1	
		N1		
2.64	50mm dia. double flanged pipe, 700mm long (Mark 13)	Nr	1	
2.65	50mm x 50mm x 50mm dia. all flanged tee (Mark 14)	Nr	1	
2.66	50mm dia. flanged adaptor (Mark 15)	Nr	4	
2.67	FOrmer dia desible flagged gate value to DC F1C2 (shout force to food) (Mayle 1C)	Nie	2	
2.07	50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark 16)	Nr	2	
2.68	50mm dia. single flanged 90º bend (Mark 17)	Nr	1	
	Backwash Pumps - Delivery Main (Approved Lined Ferrous Pipe Fittings to Class NP 16)			
2.69	FOmm dia dauble flagged gate valve to BS E162 (chart face to face) (Mark A)	Nr	2	
2.09	50mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark A)	INI	2	
2.70	50mm dia. double flanged free acting check valve (Non return valve) (Mark B)	Nr	2	
2.71	50mm dia. double flanged 90° bend (Mark C)	Nr	3	
2.72	50mm x 50mm x 50mm dia. all flanged tee (Mark D)	Nr	1	
		141		
2.73	50mm x 80mm dia. double flanged concentric taper (Mark E)	Nr	1	
2.74	80mm x 80mm x 50mm dia. all flanged tee (Mark F)	Nr	1	
2.75	50mm dia. single orifice air valve with built in isolating valve (Mark G)	Nr	1	
2.76	80mm dia. double flanged pipe, 700mm long (Mark H)	Nr	1	
			_	
2.77	80mm dia. double flanged water Electro-magnetic meter (Mark I)	Nr	1	
2.78	80mm dia. flanged adaptor (Mark J)	Nr	2	
2.79	80mm dia. double flanged pipe, 500mm long with puddle flange at 200mm from one end	Nr	1	
	(Mark K)			
2.80	80mm dia. double flanged 45º bend (Mark L)	Nr	2	
2.81	80mm dia. flanged spigot pipe, 800mm long (cut to suit on site) (Mark M)	Nr	2	
2.82	80mm dia. stepped coupling (Mark N)	Nr	1	
2.02		N1	2	
2.83	100mm x 65mm double flanged concentric taper with 25mm dia. male threaded tapping for pressure gauge (Mark a)	Nr	2	
2.84	25mm dia. pressure gauge (pressure class up to 30 bars) - Hunter or approved equivalent	Nr	2	
	(Mark b)			
2.85	100mm dia. double flanged gate valve to BS 5163 (short face to face) (Mark c)	Nr	2	
2.86	100mm dia. double flanged free acting check valve (Non return valve) (Mark d)	Nr	2	

2.88 1 2.89 1 2.90 1 2.91 5 2.92 1 (100mm dia. double flanged 90° bend (Mark e) 100mm dia. double flanged pipe, 910mm long (Mark f) 100mm x 100mm x 100mm dia. all flanged radial tee (Mark g) 100mm x 100mm x 50mm dia. all flanged tee (Mark h) 50mm dia. single orifice air valve with built in isolating valve (Mark i) 100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j)	Nr Nr Nr Nr Nr	1 1 1 1 1 1 1	
2.89 1 2.90 1 2.91 5 2.92 1 ((100mm x 100mm x 100mm dia. all flanged radial tee (Mark g) 100mm x 100mm x 50mm dia. all flanged tee (Mark h) 50mm dia. single orifice air valve with built in isolating valve (Mark i) 100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j)	Nr Nr	1 1 1	
2.90 1 2.91 5 2.92 1 (2.93 1	100mm x 100mm x 50mm dia. all flanged tee (Mark h) 50mm dia. single orifice air valve with built in isolating valve (Mark i) 100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j)	Nr Nr	1	
2.91 5 2.92 1 (2.93 1	50mm dia. single orifice air valve with built in isolating valve (Mark i) 100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j)	Nr	1	
2.92 1 (100mm dia. double flanged pipe, 900mm long with puddle flange at 200mm from one end (Mark j)			
2.93 1	(Mark j)	Nr	1	
2 9/1 1	100mm dia. double flanged 45° bend (Mark k)	Nr	2	
2.54	100mm dia. double flanged pipe, length 1200mm (cut to suit on site) (Mark I)	Nr	2	
2.95 1	100mm dia. flanged adaptor (Mark m)	Nr	2	
2.96 1	100mm dia. double flanged water Electro-magnetic meter (Mark n)	Nr	1	
2.97 1	100mm dia. flanged spigot pipe, length 1500mm (cut to suit on site) (Mark o)	Nr	1	
2.98 1	100mm dia. stepped coupling (Mark p)	Nr	1	
	PUMPS Provide all materials, install, test and commission;			
	Treated Water Transmission Pumps			
f f c f	with a capacity of 25m3/h at 265m static head) fixed speed control booster set for cold water complete with: *Base frame with anti-vibration mountings *Pressure switch (double pole) arrangement including flow switch and necessary valve and fittings *Automatic Control Panel for automatic pump operation with 'run' & 'trip' indicator, overload protections and automatic changeover in case of duty pump failure, time switch for control *All other necessary items for booster set to specification Power (P2) main pump 15kW Mains frequency: 50Hz Rated voltage: 3 x 380-415D/660-690Y V			
E	Backwash Pumps			
f f c c	1 No. Backwash pumps (Duty and standby) as GRUNDFOS vertical, multistage centrifugal pumps, (each with a capacity of 17m3/h at 16.5m head) fixed speed control booster set for cold water complete with: **Base frame with anti-vibration mountings* **Pressure switch (double pole) arrangement including flow switch and necessary valve and fittings **Automatic Control Panel for automatic pump operation with 'run' & 'trip' indicator, overload protections and automatic changeover in case of duty pump failure, time switch for control **All other necessary items for booster set to specification **Power (P2) main pump 2.2kW **Mains frequency: 50Hz **Rated voltage: 3 x 380-500 V	Item	LS	
1 1				
F	MISCELLANEOUS			
4 N	MISCELLANEOUS Drainage Pipe			
4 N		m	30	
4 N C C C C C C C C C C C C C C C C C C	Drainage Pipe Provide, excavate for, lay and joint 200mm dia uPVC Class 'B' drainage pipe (or HDPE	m	30	

4.2	150 x 25mm dia steel saddle clamp	Nr	1		
4.3	25mm dia. G.I. 1000mm long pipe with male threaded ends (Mark 2)	Nr	1		
4.5	25/11/11 dia. G.f. 1000/11/11 long pipe with male threaded chas (Wark 2)	IVI	1		
4.4	25mm dia. G.I. elbow (female threaded) (Mark 3)	Nr	1		
4.5	25mm dia C.I. 250mm lang pina (mala threadad) (Mark 4)	Nr	1		
4.5	25mm dia. G.I. 250mm long pipe (male threaded) (Mark 4)	INI	1		
4.6	25mm dia. G.I. union (female threaded) (Mark 5)	Nr	1		
4.7	OF war die Davie Ten (Mark C)	Ni.	4		
4.7	25mm dia. Brass Tap (Mark 6)	Nr	1		
	Water Electro-magnetic meter Chamber				
1.2					
4.3	Excavate for, provide all materials, special shuttering etc. and construct 600mm x 450mm internal dimensions in-situ concrete inspection chambers on sewers diaElectro-magnetic	Item	1		
	meter less than 160mm. All as per standard drawings. Include for building in pipes,				
	forming benching to falls, Grade 'B' Medium Duty cast iron covers, etc. Depth to invert				
	n.e. 1.0m				
Bill No 2.	2.5 Total Carried to Grand Summary Page				
	Bill No 3: Rising Main to Syiluni Tank HDPE DN 225 PN25 and DN 200 (PN20 & PN16)				
	, , , , , , , , , , , , , , , , , , , ,			Keny	an Shillings
Item No.	Description	Unit	Quantity		ency (KES)
	·		(a)	Unit Price (b)	Amount (c) (c) = (b) x (a)
Α	CLASS A:GENERAL ITEMS		(a)	(6)	(c) = (b) x (a)
	Provision for General obligations, site services and facilities, Temporary Works, testing				
	of materials and work, Provisional Sums				
	and Prime Cost Items Items to cover elements of the cost of the work which are not to be considered as proportional to the quantities				
	of the Permanent Work				
	Not applicable				
B C	Not applicable Not applicable				
D	DEMOLITION & SITE CLEARANCE				
	provision for Demolition and removal of natural and artificial articles, objects and				
	obstructions which are above the Original Surface				
D1	GENERAL CLEARANCE (mostly for pipe trasportation and placing of pipes along the pipeline route)				
	METHOD OF MEASUREMENT				
	(items on site clearance shall be deemed to include disposal pf material arising locally				
D2	REMOVAL OF TREES (Provisional)				
D1	Trees of girth: 500 mm - 1 m., locally disposed.	nr	50		
D3	REMOVAL OF STUMPS(Provisional)				
D31	Stumps of diameter: less than 1m.,	nr	10		
D32	Stumps of diameter: less than 1m.,	nr	10		
D6	locally disposed. CLEARANCE OF PIPELINE (Provisional)				
50	WAYLEAVES, DISPOSAL LOCAL,				
D6	Nominal bore: not exceeding 100-300mm; For Washout pipeline Pipeline only at KM 0+060 and KM1+080	m	100		
	ι τρεπιτε στην ατ κινι στουσ απα κινι Στυου	111	100		
Е	Not applicable				
F	Not applicable				
G H	Not applicable Not applicable				
<u> </u>	PIPEWORK: PIPES				
	Provision for supply, laying and joining of pipes through butt fusion				
	METHOD OF MEASUREMENT				
	(Backfilling of trenches shall not be measued ,lengths of pipes shall be measured along their center lines				
	center intes				
I1	High-density -Polyethylene				
	Normal bore:not exceeding 200-300mm HDPE DN225 of PN 25, DN200 of PN25 and&8 as per Technical Specifications Clauses 3,				
	702, 760, 801, 805, 808, 809 and 1008				
	in treaches , depth not exceeding 1.5-2.0 for main pipeline				

	T		I	1
1422	DN225 PN 25 between chainage 0+000 to 0+280 as per Drawings Depth not exceeding	m	300	
	1.5m			
1423	DN200 PN20 between chainage 0+280 to 0+420 as per Drawings Depth not exceeding	m	200	
	1.5m			
1424	DN200 PN 16 between chainage 0+420 to 1+495 as per Drawings Depth not exceeding	m	1,200	
1424	1.5m	111	1,200	
J	PIPEWORK-FITTINGS AND VALVES			
	provision for placing Fittings and valves for pipework			
	Normal bore:not exceeding300-600mm			
	Pipe and fittings install as per the drawings and list of equipments			
	The and manage motor are per the aratimgs and not of equipments			
	METHOD OF MEASUREMENT			
	(items for fittings and valves does not include the supply of material by sub contrator			
	or unless otherwise stated.			
	Install Pipe and fittings			
J1	Bends (Holizontal Bend)			
	11.25°, 45°, 90° Long radius bends			
	Nb: not exceeding 200-300mm.	nr	7	
J2	HDPE Coupler Weldeding sections on bend s	nr	14	
	Nb: not exceeding 200-300mm.			
J3	COVER 712mm			
	Fibre glass reinforced cover with locking mechanism			
	Wo chamaber	nr	4	
	Air valve Chamber	nr	2	
	THE VOICE CHANGE.		_	
J4	Long spigot (HDPE)			
J4	LOTING SPINGOT (HIDPE)			
	NII			
	Nb: not exceeding 200-300mm. OD200			
	00200		4	
		nr	4	
J5	Flange pipe			
	Nb: not exceeding 200-300mm.			
	OD200			
		nr	4	
J6	Double flanged pipe			
	Nb: not exceeding 200-300mm.			
	OD200			
		nr	16	
J7	FLAP VALVE			
	Nb: not exceeding 200mm -300mm.			
	OD200			
		nr	1	
J8	GATE VALVE_			
	Nb: not exceeding 300mm-200mm.			
	OD200			
		nr	2	
		- "		
J9	Normal TEE			
19	Nb: not exceeding 200-300mm.			
	OD200		2	
		nr	2	
J10	DISMANTLING JOINT			

	T	ı	ſ	ı	1
	Nb: not exceeding 200-300mm.				
	OD200				
		nr	2		
J12	Instant TEE				
J12	Invert TEE				
	Nb: not exceeding 200-300mm.				
	OD200				
		nr	2		
J13	NON -RETURN GATE				
313	Nb: not exceeding 200-300mm.				
	OD200				
		nr	2		
J14	ISOLATION VALVE/BUTTERFLY VALVE				
	Nb: not exceeding 200-300mm.				
	OD200				
	05200	nr	1		
-		""	1		
<u></u>					
J15	AIR VALVE MOD.LYNX 3F				
	Nb: not exceeding 200mm.				
	OD200				
		nr	#REF!		
-		111	#NEC!		
J17	GS ventilation pipe				
	with mosquito mesh wire cover	nr	6		
	With mosquito mesh wire cover		-		
140	LONG CTUP				
J18	LONG STUB				
	Nb: not exceeding 200mm.				
	OD200				
К	<u>PIPEWORK</u>				
	MANHOLE & PIPEWORK ANCILLARIES				
	Provision for excavation of chambers, crossings and reinstatement, other ancillaries as				
	listed, including for supply of all necessary materials and construction of insitu chambers				
K1	MANHOLES AND OTHER CHAMBERS EXCAVATIONS				
	CHAMBERS IN ACCORDANCE WITH DRAWINGS				
	METHOD OF MEASUREMENT				
	(the depths of chambers shall be measured from the tops of covers)				
K11	In -situ concrete outfall structure (washout and Syiluni tank inlet)				
	depth ne. 1.5 m.	nr	3		
-	departies 2.5 III.	- '''	,		
	In the Comment of the characters				
K12	Insitu Concrete air valve chamber				
	depth not exceeding 1.5 -2.0m.	nr	2		
K13	Insitu cast Concrete washouts chamber				
	depth not exceeding 1.5 -2.0m.	nr	2		
			_		
-					
	<u> </u>				
			ı	I	I
K6	CROSSINGS				
К6	METHOD OF MEASUREMENT				
К6					
К6	METHOD OF MEASUREMENT				
К6	METHOD OF MEASUREMENT				
К6	METHOD OF MEASUREMENT				
K6	METHOD OF MEASUREMENT				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline)				
K6.3	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline)				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings)				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings)				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings)				
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings) at	ar.	1		
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings)	nr	1		
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings) at	nr	1		
	METHOD OF MEASUREMENT (any crossing shall be measured by widths measued along the pipe centerline) Existing unsurfaced road crossing (this includes open cutting , placing of pipe as sleeves as per drawings) at	nr	1		

	Deliver			1	ı
К7	REINSTATEMENT				
	METHOD OF MEASUREMENT				
	(reinstatements shall be measured by widths measued along the pipe centerline)				
K7.1	Breaking up, temporary and permanent reinstatement of unsurfaced roads, pipe norm.	m	20		
	bore 200 - 300mm	""	20		
	Breaking up, temporary and permanent reinstatement of footpaths, pipe norm. bore 200 -				
K7.2	300mm	m	5		
K7.3	Described up to approximate and posture or only rejected on out of		5		
K7.5	Breaking up, temporary and permanent reinstatement of grassland & lawns pipe nom. Bore not exceeding 200-300 mm.	m	3		
	grassiana a tamis pipe norm sore not encecaning 200 000 mmi				
К8	OTHER PIPEWORK ANCILLARIES				
	METHOD OF MEASUREMENT				
K8.1	(marker posts shall be measured for pipes ducts , chambers and road crossing) Marker Posts installation				
	WATER TOOLS INStallation				
K82	Marker Posts for Air valve	nr	4		
	in accordance with standard drawings.				
K83	Marker Posts for Washouts	nr	2		
	in accordance with standard drawings.		_		
K84	Marker Posts for treated main	nr	8		
	at 200m spacing and change of direction as per specifications.				
L	PIPEWORK:SUPPORTS AND RPOTECTION , ANCILARIES TO LAYING AND EXCAVATION				
	Provision for Extras to excavation and backfilling of trenches for pipework				
	Pipe laying in headings and by thrust boring and pipe jacking Provision of supports and protection to pipework, ducts and culvert				
L1	EXCAVATION and BACKFILLING				
	METHOD OF MEASUREMENT				
	The volume of extras to excavation and backfilling in pipetrenches shall be calculated				
	by multiplying together the average depth and length of the material removed or				
	backfilled and the nominal trench width. Trenches to be 0.9m deep, and 0.6m wide)				
	Pipe in trenches				
	class I rock				
	class II Laterite gravel				
L11	class III soft soil In pipe trenches excavation & backfilling				
	of class I material (Provisional).	m	10		
L1.2	In pipe trenches excavation & backfilling				
	of class II material (Provisional).	m	200		
L1.3	In pipe trenches excavation & backfilling				
	of class III material	m	1,600		
L5.0	SURROUNDS				
	Supply of class 15/20 mass concrete for 150mm pipe surround at road crossing	m ³	4.0		
L7	CONCRETE STOOLS AND THRUST				
	BLOCKS CONCRETE CLASS 20				
	To horizontal bends				
	10 nonzontal Delius				
L7.1	Volume: 0.8-1 m³, nom.				
	bore: 200 - 300 mm.	nr	7		
	To lunchions AV TEE WO TEE				
	To Junctions, AV TEE, WO TEE				
L7.2	To Junctions, AV TEE, WO TEE Volume: 0.8-1 m³, nom.	nr	4		

	bore: 200 - 300 mm.				
	Mass concrete grade C20				
	20 mm aggregates: Isolation Valve stools				
	Isolation Valve stools				
L7.4	Volume 0.5-1m³,	nr	4		
	bore: 200 - 300 mm.				
	Bill 3 Total Carried to Summary				
	,				
	Bill No. 4: Provisional for Rehabilitation of Sylluni Tank				
Item No.				Kenv	an Shillings
					ency (KES)
	Description		Quantity		Amount (c)
		Unit	(a)	(b)	(c) = (b) x (a)
	Rehabilitation works (Provisional)	Unit	(a)	(b)	(c) = (b) x (a)
4 1	Rehabilitation works (Provisional)	Unit	(a)	(b)	(c) = (b) x (a)
4.1	Rehabilitation works (Provisional) PLASTERING	Unit	(a)	(b)	(c) = (b) x (a)
4.1	PLASTERING			(b)	(c) = (b) x (a)
4.1	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces;	Unit m ²	(a) 70	(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking			(b)	(c) = (b) x (a)
4.1	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces;			(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking RENDERING	m ²	70	(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking RENDERING 12.5mm thick 1:3 cement and sand rendering externally on concrete surfaces; cost			(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking RENDERING	m ²	70	(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking RENDERING 12.5mm thick 1:3 cement and sand rendering externally on concrete surfaces; cost inclusive of surface hacking	m ²	70	(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking RENDERING 12.5mm thick 1:3 cement and sand rendering externally on concrete surfaces; cost	m ²	70	(b)	(c) = (b) x (a)
	PLASTERING 12.5mm thick 1:3 cement:sand waterproofed plaster internally on blockwork surfaces; cost inclusive of surface hacking RENDERING 12.5mm thick 1:3 cement and sand rendering externally on concrete surfaces; cost inclusive of surface hacking	m ²	70	(b)	(c) = (b) x (a)