

PART B

BILL OF QUANTITIES

BILL A

CIVIL WORKS

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL A - CIVIL WORKS
RAM PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
1.0000	General				
1.0001	Checking, completing, and/or performing topographic survey and site delimitation <i>Unit Rate in Letters</i>	Site	1		-
1.0002	Site clearance <i>Unit Rate in Letters</i>	L.S.	1		-
1.0003	Site rearrangement after construction <i>Unit Rate in Letters</i>	L.S.	1		-
	Sub-Total 1.0000				-
1.1000	Earthworks				
1.1100	Soil investigations				
1.1101	Boring, core sampling, SPT tests and report <i>Unit Rate in Letters</i>	L.S.	1		-
	Sub-Total 2.1100				-
1.1200	Excavation				
1.1201	Excavation in all types of soils and rocks and demolition of existing concrete structures and transport of unsuitable backfilling material to disposal sites <i>Unit Rate in Letters</i>	cu.m	1,750		-
	Sub-Total 1.1200				-
1.1300	Preparation of formation under reservoirs and other constructions				
1.1301	Supply, preparation and compaction of the granular beds in addition to laying the polyethylene sheet under the construction's foundations <i>Unit Rate in Letters</i>	cu.m	30		-
	Sub-Total 1.1300				-
1.1400	Backfilling				
1.1401	Backfilling and compaction <i>Unit Rate in Letters</i>	cu.m	450		-
	Sub-Total 1.1400				-
	Sub-Total 1.1000				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL A - CIVIL WORKS
RAM PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
1.2000	Concrete works and accessories				
1.2100	Concrete works				
1.2101	Blinding and mass concrete Class C20 <i>Unit Rate in Letters</i>	cu.m	30		-
1.2102	Reinforced Concrete Class C30, 400 kg of cement /cu.m, for reservoirs, including formwork <i>Unit Rate in Letters</i>	cu.m	85		-
1.2103	Reinforced Concrete Class C30, 350 kg of cement /cu.m, for other buildings, including formwork <i>Unit Rate in Letters</i>	cu.m	180		-
1.2104	Concrete surface leveling with mechanical float <i>Unit Rate in Letters</i>	sq.m	250		-
1.2105	Cyclopean concrete <i>Unit Rate in Letters</i>	cu.m	30		-
1.2106	Steel reinforcement for reservoirs and other buildings <i>Unit Rate in Letters</i>	Ton	31		-
	Sub-Total 1.2100				-
1.2200	Water stop and bearing pads				
1.2201	Water stop up to 25 cm in width <i>Unit Rate in Letters</i>	lin.m	25		-
1.2202	Neoprene pads between walls and roof slab <i>Unit Rate in Letters</i>	lin.m	25		-
	Sub-Total 1.2200				-
	Sub-Total 1.2000				-
1.3000	Blockwork, cladding, and plastering				
1.3001	Hollow concrete block wall 20 cm thick <i>Unit Rate in Letters</i>	sq.m	80.00		-
1.3002	Rendering or plastering of interior and exterior surfaces <i>Unit Rate in Letters</i>	sq.m	425.00		-
1.3003	Exterior rendering with colored bush - hammered render <i>Unit Rate in Letters</i>	sq.m	125.00		-
1.3004	Cladding of natural stone (minimum thick.5 cm) <i>Unit Rate in Letters</i>	sq.m	385.00		-
1.3005	Bush - Hammered stone (Stone Jambs, Lintels, Skirting & Capping) <i>Unit Rate in Letters</i>	lin.m	90.00		-
1.3006	Supply and installation of roof bricks <i>Unit Rate in Letters</i>	sq.m	45.00		-
	Sub-Total 1.3000				-
1.5100	Metal works				
1.5101	Supply and installation of exterior steel doors and windows including glazing and painting (with blue color). <i>Unit Rate in Letters</i>	sq.m	17		-
1.5102	Supply and installation of metal works: steel protection bars for exterior windows, metallic ladders with or without safety hoops, gratings for channels, railings, locks and all other metal works, including painting (blue color) <i>Unit Rate in Letters</i>	kg	1,250		-
	Sub-Total 1.5100				-
	Sub-Total 1.5000				-

BILL A - CIVIL WORKS
RAM PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
1.6000	Finishing works				
1.6100	Industrial flooring				
1.6101	Supply and application of industrial flooring <i>Unit Rate in Letters</i>	sq.m	120		-
	Sub-Total 1.6100				-
1.6200	Washable Paint internal or external use coating				
1.6201	Supply and application of internal or external use coating <i>Unit Rate in Letters</i>	sq.m	450		-
	Sub-Total 1.6200				-
	Sub-Total 1.6000				-
1.7000	Fence				
1.7001	Supply and installation of site's external fence, including painting <i>Unit Rate in Letters</i>	lin.m	79		-
1.7002	Supply and installation of the access gate (L = 4 m) <i>Unit Rate in Letters</i>	L.S.	1		-
	Sub-Total 1.7000				-
1.8000	Asphalting				
1.8001	Subgrade compaction, sub-base and base preparation, and asphalting <i>Unit Rate in Letters</i>	sq.m	200		-
	Sub-Total 1.8000				-
	TOTAL RAM PUMPING STATION				-

BILL B

ELECTROMECHANICAL WORKS

BILL B 1- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
S2.0000	Mechanical, Electrical and Control Equipment				
S2.0100	Pumping system				
S2.0101	Submersible Motopumpset Q=5 l/s, Hmt=629 m <i>Unit Rate in Letters</i>	nb	1		-
S2.0102	Submersible Motopumpset in Barrel Q=5 l/s, Hmt=111 m <i>Unit Rate in Letters</i>	nb	2		-
S2.0103	Hydraulic accessories (Barrels, base frame, shock absorbers, supports, bolts, nuts, flanges, etc...) <i>Unit Rate in Letters</i>	L.S	1		-
	Sub -Total S2.0100				-
S2.0200	Piping and accessories				
S2.0201	Rising column pipe DN80 <i>Unit Rate in Letters</i>	lin.m	650		-
S2.0202	Piezometric tube OD40 <i>Unit Rate in Letters</i>	lin.m	1300		-
S2.0203	Double Air release valve DN50, PN16 with isolating valve <i>Unit Rate in Letters</i>	nb	3		-
S2.0204	Air release valve DN18, PN16 with isolating valve <i>Unit Rate in Letters</i>	nb	2		-
S2.0205	Sampling ball valve DN13, PN16 <i>Unit Rate in Letters</i>	nb	3		-
S2.0206	Dismantling Joints DN80 PN16 <i>Unit Rate in Letters</i>	nb	8		-
S2.0207	Dismantling Joints DN100 PN16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0208	Check Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	3		-
S2.0209	Globe Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0210	Gate Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	7		-
S2.0211	Gate Valve DN100 PN16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0212	Butterfly Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	3		-
S2.0213	Suction Strainer DN 80 PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0214	Y-strainer DN 80 PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0215	Rubber Spherical Joint DN 80 PN 16 <i>Unit Rate in Letters</i>	nb	4		-
S2.0216	Overhead Electrical Crane of 1 Ton Capacity <i>Unit Rate in Letters</i>	nb	1		-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL B 1- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
S2.0217	Anti Water Hammer System PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0218	Hydraulic accessories (bends, tees, pipes, flanges, gaskets, joints, bolts, nuts, supports, insert well head piece...) <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0200				-
S2.0300	Gas chlorination system				
S2.0301	Chlorinator complete system with a capacity of 0.11 kg/hr and a back pressure of 2 bars (including pump, ejector, preregulators, auto-transfer switch, Cl2 flowmeter, Gas masks...) <i>Unit Rate in Letters</i>	nb	1		-
S2.0302	Chlorine cylinders <i>Unit Rate in Letters</i>	nb	3		-
S2.0303	Chlorine leakage detection system <i>Unit Rate in Letters</i>	nb	1		-
S2.0304	Ventilators <i>Unit Rate in Letters</i>	nb	2		-
S2.0305	Accessories (pipes, bends, tees, joints, bolts, nuts, supports, flow switch, vacuum switch...) <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0300				-
S2.0400	Electrical system				
S2.0401	Main ATS panel 375 A <i>Unit Rate in Letters</i>	nb	1		-
S2.0402	V.F.D Starter control panel 62 kW with filter <i>Unit Rate in Letters</i>	nb	1		-
S2.0403	V.F.D Starter control panel 14 kW with filter <i>Unit Rate in Letters</i>	nb	2		-
S2.0404	Low voltage cable 1x(3x25+16) mm ² <i>Unit Rate in Letters</i>	lin.m	60		-
S2.0405	Low voltage cable 1x(3x95+50) mm ² <i>Unit Rate in Letters</i>	lin.m	80		-
S2.0406	Low voltage cable 1x(3x120+70) mm ² <i>Unit Rate in Letters</i>	lin.m	1350		-
S2.0407	UPS system <i>Unit Rate in Letters</i>	nb	2		-
S2.0408	Grounding system - Lightning & Surge Protections <i>Unit Rate in Letters</i>	LS	1		-
S2.0409	Electric accessories (cables, Lugs, clamps, connectors, conduits, cable trays, insulation, junction boxes ...) <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0400				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL B 1- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
S2.0500	Instrumentation and Control				
S2.0501	650 m deep well piezoresistive Level measurement <i>Unit Rate in Letters</i>	nb	1		-
S2.0502	Piezoresistive level measurement at reservoir <i>Unit Rate in Letters</i>	nb	2		-
S2.0503	Piezoresistive pressure measurement <i>Unit Rate in Letters</i>	nb	4		-
S2.0504	650 m water level protection system with 3 electrodes and relay <i>Unit Rate in Letters</i>	nb	1		-
S2.0505	Temperature measurement for well pump (1 per motor) <i>Unit Rate in Letters</i>	set	3		-
S2.0506	Radio Control Unit with Repeaters <i>Unit Rate in Letters</i>	set	1		-
S2.0507	Flow measurement DN 80 PN16 <i>Unit Rate in Letters</i>	nb	2		-
S2.0508	Flow switch DN13 PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0509	Level Switch <i>Unit Rate in Letters</i>	nb	2		-
S2.0510	Glycerine filled manometer Ø 100 with 3 way valve caliber 16 <i>Unit Rate in Letters</i>	nb	4		-
S2.0511	Mimic panel <i>Unit Rate in Letters</i>	nb	1		-
S2.0512	Control accessories (PLC, RTU, programming, transmissioncables, etc...) <i>Unit Rate in Letters</i>	L.S	1		-
Sub -Total S2.0500					-

BILL B 1- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
S2.0600	Domestic Plumbing and drainage system <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0600				-
S2.0700	Fire extinguishers <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0700				-
S2.0800	Electrical installation for buildings <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0800				-
	Total RAM WELL AND BOOSTER PUMPING STATION, Equipment				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL B 1- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
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ELECTRO-MECHANICAL WORKS

W2.0000	Mechanical, Electrical and Control Installation etc.				
W2.0100	Pumping system	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0101	Piping and accessories	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0102	Surge Suppression Equipment	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0103	Gas chlorination system	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0104	Electrical system	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0105	Lifting and Handling	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0106	Instrumentation and Control	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0107	Domestic Plumbing and drainage system	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0108	Fire extinguishers	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0109	Electrical installation for buildings	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0110	Training, testing and commissioning	LS	1		
	<i>Unit Rate in Letters</i>				
W2.0111	Water Analysis	LS	1		
	<i>Unit Rate in Letters</i>				
	Total RAM WELL AND BOOSTER PUMPING STATION Works				-

	TOTAL OF RAM WELL AND BOOSTER PUMPING STATION ELECTRO-MECHANICAL EQUIPMENT AND WORKS	-
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BILL B 2- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL LINE 2 WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
S2.0000	Mechanical, Electrical and Control Equipment				
S2.0100	Pumping system				
S2.0101	Submersible Motopumpset Q=5 l/s, Hmt=63 m <i>Unit Rate in Letters</i>	nb	2		-
S2.0102	Hydraulic accessories (Barrels, base frame, shock absorbers, supports, bolts, nuts, flanges, etc...) <i>Unit Rate in Letters</i>	L.S	1		-
	Sub -Total S2.0100				-
S2.0200	Piping and accessories				
S2.0201	Double Air release valve DN50, PN16 with isolating valve <i>Unit Rate in Letters</i>	nb	2		-
S2.0202	Air release valve DN18, PN16 with isolating valve <i>Unit Rate in Letters</i>	nb	2		-
S2.0203	Sampling ball valve DN13, PN16 <i>Unit Rate in Letters</i>	nb	2		-
S2.0204	Dismantling Joints DN80 PN16 <i>Unit Rate in Letters</i>	nb	5		-
S2.0205	Check Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	2		-
S2.0206	Gate Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	6		-
S2.0207	Butterfly Valve DN80 PN16 <i>Unit Rate in Letters</i>	nb	2		-
S2.0208	Suction Strainer DN 80 PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0209	Y-strainer DN 80 PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0210	Rubber Spherical Joint DN 80 PN 16 <i>Unit Rate in Letters</i>	nb	4		-
S2.0211	Anti Water Hammer System PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0212	Hydraulic accessories (bends, tees, pipes, flanges, gaskets, joints, bolts, nuts, supports, insert well head piece...) <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0200				-
S2.0300	Electrical system				
S2.0301	V.F.D Starter control panel 8 kVv with filter <i>Unit Rate in Letters</i>	nb	2		-
S2.0302	Low voltage cable 1x(3x25+16) mm ² <i>Unit Rate in Letters</i>	lin.m	60		-
S2.0303	UPS system <i>Unit Rate in Letters</i>	nb	2		-
S2.0304	Electric accessories (cables, Lugs, clamps, connectors, conduits, cable trays, insulation, junction boxes ...) <i>Unit Rate in Letters</i>	LS	1		-
	Sub -Total S2.0300				-

BILL B 2- ELECTROMECHANICAL EQUIPMENT AND WORKS
RAM WELL LINE 2 WELL AND BOOSTER PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
S2.0400	Instrumentation and Control				
S2.0401	Piezoresistive level measurement at reservoir <i>Unit Rate in Letters</i>	nb	2		-
S2.0402	Piezoresistive pressure measurement <i>Unit Rate in Letters</i>	nb	3		-
S2.0403	Temperature measurement for well pump (1 per motor) <i>Unit Rate in Letters</i>	set	2		-
S2.0404	Radio Control Unit with Repeaters <i>Unit Rate in Letters</i>	set	1		-
S2.0405	Flow measurement DN 80 PN16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0406	Flow switch DN13 PN 16 <i>Unit Rate in Letters</i>	nb	1		-
S2.0407	Level Switch <i>Unit Rate in Letters</i>	nb	2		-
S2.0408	Glycerine filled manometer Ø 100 with 3 way valve caliber 16 <i>Unit Rate in Letters</i>	nb	2		-
S2.0409	Mimic panel <i>Unit Rate in Letters</i>	nb	1		-
S2.0410	Control accessories (PLC, RTU, programming, transmissioncables, etc...) <i>Unit Rate in Letters</i>	L.S	1		-
	Sub -Total S2.0400				-
	Total RAM WELL AND BOOSTER PUMPING STATION, Equipment				-

BILL B - ELECTROMECHANICAL WORKS

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
W2.0000	Mechanical, Electrical and Control Installation etc.				
W2.0100	Pumping system	LS	1		-
	<i>Unit Rate in Letters</i>				
W2.0101	Piping and accessories	LS	1		-
	<i>Unit Rate in Letters</i>				
W2.0102	Surge Suppression Equipment	LS	1		-
	<i>Unit Rate in Letters</i>				
W2.0103	Electrical system	LS	1		-
	<i>Unit Rate in Letters</i>				
W2.0104	Instrumentation and Control	LS	1		-
	<i>Unit Rate in Letters</i>				
	Total RAM WELL AND BOOSTER PUMPING STATION Works				-
	TOTAL OF RAM WELL AND BOOSTER PUMPING STATION ELECTRO-MECHANICAL EQUIPMENT AND WORKS				-

BILL C

TRANSMISSION PIPELINES

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL C 1 - LIFT LINE
RAM LIFT LINE 1 WORKS

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
3.0000	General				
3.0001	Site Topographic Survey <i>Unit Rate in Letters</i>	km.	2.83		-
3.0002	Trial pit not exceeding 3m depth <i>Unit Rate in Letters</i>	nb	15.00		-
3.0003	Trial trench not exceeding 3m depth <i>Unit Rate in Letters</i>	lin.m	43.00		-
3.0004	As-built drawings <i>Unit Rate in Letters</i>	km.	2.83		-
	Sub-Total 3.0000				-
3.1000	Pipeworks				
3.1100	Supply of ductile iron K9 pipes including all necessary fittings (bends, tees, reducers, flanges, etc...)				
3.1101	Supply of 80 mm pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.1100				-
3.1200	Trench excavation				
3.1201	Trench excavation for 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.1200				-
3.1300	Sand bedding and surrounds				
3.1301	Sand bedding for 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.1300				-
3.1400	Laying of ductile iron pipes				
3.1401	Laying of 80 mm pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.1400				-
3.1500	Backfilling of trenches on other roads including compaction and testing				
3.1501	Backfilling of trenches for 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.1500				-
	Sub-Total 3.1000				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL C 1 - LIFT LINE
RAM LIFT LINE 1 WORKS

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
3.2000	Accessories				
3.2100	Supply and installation of air release valves				
3.2101	Anti-shock double air release valve including GV PN16, DN 60 mm <i>Unit Rate in Letters</i>	nb	2.00		-
	Sub-Total 3.2100				-
3.2200	Supply and installation of washouts				
3.2201	Washout PN25, DN 80 mm <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.2200				-
3.2300	Supply and installation of connections to existing pipes				
3.2301	Connection to existing pipe <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.2300				-
	Sub-Total 3.2000				-
3.3000	Valve chambers and Surface box units				
3.3100	Construction of pre-cast or cast in situ, concrete valve chamber (excluding cover and frame)				
3.3101	Valve chamber internal size 125 x 100 cm x cm <i>Unit Rate in Letters</i>	nb	2.00		-
3.3102	Valve chamber internal size 150 x 150 cm x cm <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.3100				-
3.3200	Valve chamber cover				
3.3201	Valve chamber cover Grade A <i>Unit Rate in Letters</i>	nb	3.00		-
	Sub-Total 3.3200				-
3.3300	Surface box units for washouts and service connections				
3.3301	Supply and installation of surface box unit <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.3300				-
	Sub-Total 3.3000				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL C 1 - LIFT LINE
RAM LIFT LINE 1 WORKS

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
3.4000	Concrete works				
3.4001	Mass concrete - Class C20 for blinding <i>Unit Rate in Letters</i>	cu.m	10.00		-
3.4002	Mass concrete - Class C25 for pipe supports, thrust blocks, anchors, pipe bedding and surround at river crossing. <i>Unit Rate in Letters</i>	cu.m	10.00		-
3.4003	Reinforced concrete - Class C25 for pipe anchors, supports, protection slabs, thrust blocks, drainage and irrigation channels <i>Unit Rate in Letters</i>	cu.m	35.00		-
	Sub-Total 3.4000				-
3.5000	Testing and commissioning of potable water pipes				
3.5001	Testing and commissioning of 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.5000				-
3.6000	Road Reinstatement				
3.6100	Cutting				
3.6101	Cutting of paved roads for water pipes <i>Unit Rate in Letters</i>	lin.m	2,826.00		-
	Sub-Total 3.6100				-
3.6200	Reinstatement				
3.6201	Reinstatement in one layer of other paved roads including recutting works <i>Unit Rate in Letters</i>	sq.m	2,420.00		-
	Sub-Total 3.6200				-
	Sub-Total 3.6000				-
	TOTAL RAM LIFT LINE WORKS				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL C 2 - LIFT LINE
RAM LIFT LINE 2 WORKS

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
3.0000	General				
3.0001	Site Topographic Survey <i>Unit Rate in Letters</i>	km.	1.49		-
3.0002	Trial pit not exceeding 3m depth <i>Unit Rate in Letters</i>	nb	8.00		-
3.0003	Trial trench not exceeding 3m depth <i>Unit Rate in Letters</i>	lin.m	23.00		-
3.0004	As-built drawings <i>Unit Rate in Letters</i>	km.	1.49		-
	Sub-Total 3.0000				-
3.1000	Pipeworks				
3.1100	Supply of ductile iron K9 pipes including all necessary fittings (bends, tees, reducers, flanges, etc...)				
3.1101	Supply of 80 mm pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.1100				-
3.1200	Trench excavation				
3.1201	Trench excavation for 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.1200				-
3.1300	Sand bedding and surrounds				
3.1301	Sand bedding for 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.1300				-
3.1400	Laying of ductile iron pipes				
3.1401	Laying of 80 mm pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.1400				-
3.1500	Backfilling of trenches on other roads including compaction and testing				
3.1501	Backfilling of trenches for 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.1500				-
	Sub-Total 3.1000				-
3.2000	Accessories				
3.2100	Supply and installation of air release valves				
3.2101	Anti-shock double air release valve including GV PN16, DN 60 mm <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.2100				-
3.2200	Supply and installation of washouts				
3.2201	Washout PN25, DN 80 mm <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.2200				-
3.2300	Supply and installation of connections to existing pipes				
3.2301	Connection to existing pipe <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.2300				-
	Sub-Total 3.2000				-

BILL C 2 - LIFT LINE
RAM LIFT LINE 2 WORKS

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
3.3000	Valve chambers and Surface box units				
3.3100	Construction of pre-cast or cast in situ, concrete valve chamber (excluding cover and frame)				
3.3101	Valve chamber internal size 125 x 100 cm x cm <i>Unit Rate in Letters</i>	nb	1.00		-
3.3102	Valve chamber internal size 150 x 150 cm x cm <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.3100				-
3.3200	Valve chamber cover				
3.3201	Valve chamber cover Grade A <i>Unit Rate in Letters</i>	nb	2.00		-
	Sub-Total 3.3200				-
3.3300	Surface box units for washouts and service connections				
3.3301	Supply and installation of surface box unit <i>Unit Rate in Letters</i>	nb	1.00		-
	Sub-Total 3.3300				-
	Sub-Total 3.3000				-
3.4000	Concrete works				
3.4001	Mass concrete - Class C20 for blinding <i>Unit Rate in Letters</i>	cu.m	10.00		-
3.4002	Mass concrete - Class C25 for pipe supports, thrust blocks, anchors, pipe bedding and surround at river crossing. <i>Unit Rate in Letters</i>	cu.m	10.00		-
3.4003	Reinforced concrete - Class C25 for pipe anchors, supports, protection slabs, thrust blocks, drainage and irrigation channels <i>Unit Rate in Letters</i>	cu.m	18.00		-
	Sub-Total 3.4000				-
3.5000	Testing and commissioning of potable water pipes				
3.5001	Testing and commissioning of 80 mm DI pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.5000				-
3.6000	Road Reinstatement				
3.6100	Cutting				
3.6101	Cutting of paved roads for water pipes <i>Unit Rate in Letters</i>	lin.m	1,482.00		-
	Sub-Total 3.6100				-
3.6200	Reinstatement				
3.6201	Reinstatement in one layer of other paved roads including recutting works <i>Unit Rate in Letters</i>	sq.m	1,270.00		-
	Sub-Total 3.6200				-
	Sub-Total 3.6000				-
	TOTAL RAM LIFT LINE 2 WORKS				-

BILL D

BOREHOLES

BILL D - BOREHOLE WORKS
RAM WELL PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
4.0000	Site Preparation				
4.0100	Site preparation and set up borehole drilling unit and later dismantle <i>Unit Rate in Letters</i>	LS	1		-
	Sub-Total 4.0000				-
4.1000	Drilling by rotary				
4.1100	Drilling at nominal diameter 22" <i>Unit Rate in Letters</i>	lin.m	20		-
4.1200	Drilling at nominal diameter 17 ^{1/2} " <i>Unit Rate in Letters</i>	lin.m	180		-
4.1300	Drilling at nominal diameter 14 ^{3/4} " <i>Unit Rate in Letters</i>	lin.m	300		-
4.1400	Drilling at nominal diameter 12 ^{1/4} " <i>Unit Rate in Letters</i>	lin.m	250		-
	Sub-Total 4.1000				-
4.2000	Well Construction				
4.2100	Supply, transport and install 18" black steel casing 5mm thick <i>Unit Rate in Letters</i>	lin.m	20		-
4.2200	Supply, transport and install 15.5" black steel casing 5mm thick <i>Unit Rate in Letters</i>	lin.m	200		-
4.2300	Supply, transport and install 12.5" carbon steel casing 6mm thick <i>Unit Rate in Letters</i>	lin.m	500		-
4.2500	Supply, transport and install 10" carbon steel casing 6mm thick <i>Unit Rate in Letters</i>	lin.m	650		-
4.2600	Supply, transport and install 10" carbon steel bridge slotted screens 6mm thick <i>Unit Rate in Letters</i>	lin.m	100		-
	Sub-Total 4.2000				-
4.3000	Verticality and alignment tests				
4.3100	Carry out verticality and alignment tests <i>Unit Rate in Letters</i>	LS	1		-
	Sub-Total 4.3000				-
4.4000	Grouting				
4.4100	Supply and transport cement <i>Unit Rate in Letters</i>	kg	2200		-
4.4100	Pump cement in annular space <i>Unit Rate in Letters</i>	lin.m	20		-
	Sub-Total 4.4000				-

VOLUME 5 - PART B - BILL OF QUANTITIES

BILL D - BOREHOLE WORKS
RAM WELL PUMPING STATION

ITEM Nb.	DESCRIPTION	UNIT	QUANTITY	UNIT RATE USD	TOTAL AMOUNT USD
4.6000	Well Development				
4.6100	Supply, install and remove test pumping unit (5 l/s, depth 700m) and all associated equipment including discharge pipeline <i>Unit Rate in Letters</i>	nb	1		-
4.6200	Pumping and surging at different rates <i>Unit Rate in Letters</i>	hr.	16		-
4.6200	Supervise development test <i>Unit Rate in Letters</i>	LS	1		-
	Sub-Total 4.6000				-
4.7000	Well Testing				
4.7100	Step drawdown test <i>Unit Rate in Letters</i>	hr.	16		-
4.7200	Water level recovery measurements <i>Unit Rate in Letters</i>	hr.	16		-
4.7300	Constant rate test <i>Unit Rate in Letters</i>	hr.	72		-
4.7400	Water level recovery measurements <i>Unit Rate in Letters</i>	hr.	24		-
	Sub-Total 4.7000				-
4.8000	Water Analysis				
4.8100	Collection and delivery of water samples to an approved laboratory <i>Unit Rate in Letters</i>	nb	6		-
4.8200	Physico-chemical analysis <i>Unit Rate in Letters</i>	nb	3		-
4.8300	Bacteriological analysis <i>Unit Rate in Letters</i>	nb	3		-
	Sub-Total 4.8000				-
4.9000	Reports				
4.9100	Detailed daily reports <i>Unit Rate in Letters</i>	LS	1		-
4.9200	Final well report <i>Unit Rate in Letters</i>	nb	1		-
	Sub-Total 4.9000				-
	TOTAL RAM BOREHOLE				-

VOLUME 5 - PART B - BILL OF QUANTITIES

SUMMARY (WITHOUT ACTUATORS, TRANS AND GENSET + ONE LINE RAM + 20% DISCOUNT)

	DESCRIPTION	TOTAL AMOUNT USD
BILL A : CIVIL WORKS		
	TOTAL RAM PUMPING STATION CIVIL WORKS	-
BILL B : ELECTROMECHANICAL WORKS		
	TOTAL OF RAM ELECTRO-MECHANICAL WORKS	-
BILL C : LIFT TRANSMISSION PIPES LINES		
	TOTAL OF RAM LIFT LINES WORKS	-
BILL D : BOREHOLE		
	TOTAL OF RAM BOREHOLE (750m)	-
I	Summation of all bill items	-
II	11 % VAT	-
III	GRAND TOTAL VALUE OF THE PROJECT	-

	TOTAL RAM	
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