



# African Development Bank Group



**African Development Bank's Field Office in Abuja,  
Nigeria**

***LOT 2: VOL 3-1 - BILLS OF QUANTITIES:  
MECHANICAL (PIPED SERVICES) WORKS***

**Prepared by  
Interstate Architects Ltd.**

**In Conjunction with:  
IAA Associates Ltd.  
KOA Associates Ltd. &  
Construction Economists Partnership Ltd.**



APRIL, 2015

<b>BILL No. 1 - SANITARY WARES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	<p>Supply,install,test,verify and commission the following sanitary wares. The indicated selections are based on the Twyford model but Tenderer is at liberty to propose approved equal unit. Tenderer is expected to be familiar with the specified manufacturers and is to submit appropriate brochures of the specified items (or an equivalent product of another acceptable manufacturer as shall be agreed with the Client and Consultants.</p> <p>The colour for the wares shall generally be white but Tenderer to note that the final selection is at the discretion of the Client and the Architect.</p>						
<b>1</b>	<b><u>Water Closet - Close Coupled</u></b>						
	Close coupled, water efficient, washdown WC unit in vitreous china with dual flush 4/6 litres capacity, bottom supply and overflow with freeflow plastics syphon fittings and microvalve bottom supply ballvalve and close coupling fitment cp lever c/w all fixing, seats and operating accessories (e.g. <b>Twyford Entice ho or</b>	21	Nos				
<b>2</b>	<b><u>Wash hand basin (Wall hung)</u></b>						
	Wall hung wash basin 1 taphole c/w thermostatic mixing valve, battery (9V) operated infra-red monobloc and flow restrictor, BREEM compliant, chain waste and plug (e.g. <b>Twyford Entice 600 with Sola Infra-red taps or Approved equal</b> )	31	Nos				
<b>3</b>	<b><u>Wall hung urinal (electronic flush)</u></b>						
	Wall hung urinal bowl in vitreous china, back inlet, concealed waste kit, battery (9V) powered infra-red activated electronic flush, BREEM compliant, including dividers c/w mounting and fixing accessories (e.g. <b>Twyford Idol concealed or Approved equal</b> )	10	Nos				
<b>4</b>	<b><u>Shower Units</u></b>						
	SH - 900x900 polyconcrete Shower tray and framed glass (2-sides) enclosure with hinged door, accessories c/w riser pipe, angled shower arm, short projection shower head and thermostatic shower valve e.g Twyford Twilight upstand and Hydra8 panel or equal, c/w all mounting and fixing accessories	6	nos				
<b>5</b>	<b><u>Disable toilet Package</u></b>						
	Disable toilet Package consisting of low level water closet and wall hung wash basin, all in vitreous china, c/w seat and cover, infra-red activated thermostatic tap, etc., all mounting accessories.package to include for grab rails at wc and the whb, (e.g <b>Twyford rimless Doc.M packs or Approved equal</b> )	6	Nos				
	<b>TO COLLECTION</b>						

<b>BILL No. 1 - SANITARY WARES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
6	<b>Kitchen sink</b> Stainless steel sink c/w double bowl, single drain c/w pillar mixer tap (swivel faucet), bottle trap with seal, work surface and all other necessary fittings and accessories (e.g. Ariston or Approved equal)	1	Nos				
7	Soap dispenser (chrome) e.g. Boberick or approved equal	17	Nos				
8	Chrome Toilet roll holder e.g. Boberick or approved equal	27	Nos				
9	Automatic Hand Drier (automatic) e.g Dyson Airblade or approved equal	17	Nos				
10	Chrome towel rail (900mm) e.g. Boberick or approved equal	6	Nos				
11	Mirror (900x600mm) - to Architect's specification	37	Nos				
	<b>TO COLLECTION</b>						
	<b><u>COLLECTION</u></b>						
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<b>BILL No. 2 - WATER SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following						
	Pipework shall be rigid chlorinated PVC suitable for hot and cold water rated for 16 bars to EN 12731 and ISO/DIS 15877 (e.g. Durapipe Friatherm PVC-C PN 16 or approved equal). Alternative pex-al-pex multi-layered pipes (e.g. Henco) is acceptable						
	Indicated sizes are nominal diameters and these relate to the internal diameters. Pipes and ancillaries shall not be selected based on external diameters						
1	<u>Pipes</u>						
	15mm	256	m				
	20mm	78	m				
	25mm	228	m				
	32mm	60	m				
	40mm	36	m				
	50mm	180	m				
2	<u>90° Bend</u>						
	15mm	234	nos				
	20mm	18					
	25mm	26					
	32mm	14					
	40mm	4					
	50mm	33					
3	<u>135° Bend</u>						
	20mm	8					
	25mm	8					
	32mm	2					
	40mm	2					
	50mm	5					
4	<u>Tee</u>						
	15mm	26	nos				
	20mm	22					
	25mm	30					
	32mm	10					
	40mm	5					
	50mm	8					
5	<u>Union Connector</u>						
	15mm	105	nos				
	20mm	35	nos				
	25mm	28	nos				
	32mm	12	nos				
	40mm	6	nos				
	50mm	32	nos				
6	<u>Cap</u>						
	25mm	2	nos				
	<b>TO COLLECTION</b>						

<b>BILL No. 2 - WATER SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
7	<u>Angle Valve (e.g Crane or approved equal)</u>						
	15mm	76	nos				
	20mm	1					
8	<u>Gate Valve (e.g Crane or approved equal)</u>						
	15mm	1	nos				
	20mm	12					
	25mm	32					
	32mm	4					
	40mm	1					
	50mm	11					
9	<u>Check Valve (e.g Crane or approved equal)</u>						
	32mm	1	no				
10	<u>Foot Valve (with strainer)</u>						
	50mm	1	no				
11	<u>Ball Float Valve - Delayed Action Type</u>						
	50mm	5	no				
12	Safety relief valve	2	no				
13	Automatic air valve	2	no				
14	Pressure guage (1-10 bar)	4	no				
15	Float switch	3	no				
16	Flow switch	2	no				
17	<u>Booster pump set</u>						
	Packaged booster pump set (mounted on a common base frame) comprising of duplicate pumps, line pressurisation units, twin pressure vessels, interconnecting pipework, integral control panel etc. as detailed in the drawing and specifications eg Lowara or approved equal	1	set				
	Cap:1.2l/s @ 20m (set shall be mounted outdoors on roof)						
	<b>TO COLLECTION</b>						

<b>BILL No. 2 - WATER SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
18	<u>Lift pump set</u>						
	Packaged booster pump set (mounted on a common base frame) comprising of duplicate pumps, line pressurisation units, twin pressure vessels, interconnecting pipework, integral control panel etc. as detailed in the drawing and specifications eg Lowora or approved equal  Cap:1.0l/s @ 45m (set shall be mounted outdoors on roof)	1	set				
19	<u>Storage tank</u>						
	Bolted sectional GRP tank c/w all mountings and connections, content gauge, ladders, tappings etc Tank shall be partitioned into 2 sections.  Dim: 3.66m x 2.44m x 1.22mH e.g Braithwaite or approved equal	1	no				
20	<u>Flexible connector</u>						
	15mm	72	no				
	20mm	2	"				
	32mm	3	"				
21	<u>Miscellaneous items</u>						
	- Nipples, reducers, sockets, etc	Lot					
	- Brackets, anchors, etc	Lot					
	- Remote digital tank content level indicator for roof mounted and u/grd water tanks (suitable for BMS connectivity )	5	nos				
	- Water Meter	5	"				
	<b>to collection</b>						
	<b><u>COLLECTION</u></b>						
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	to summary						

<b>BILL No. 3 - HOT WATER SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following						
	Pipework shall be rigid chlorinated PVC suitable for hot and cold water rated for 16 bars (e.g. Durapipe Friatherm PVC-C PN 16 or approved equal). Alternative pex-al-pex multi-layered pipes (e.g. Henco) is acceptable						
	Indicated sizes are nominal diameters and these relate to the internal diameters. Pipes and ancillaries shall not be selected based on external diameters						
1	<u>Pipes</u>						
	15mm	138	m				
	20mm	108	m				
	25mm	6	m				
	32mm	36	m				
2	<u>90° Bend</u>						
	15mm	138	nos				
	20mm	38					
	32mm	12					
4	<u>Tee</u>						
	15mm	24	nos				
	20mm	22					
	25mm	30					
	32mm	10					
5	<u>Union Connector</u>						
	15mm	20	nos				
	20mm	18					
	25mm	10					
	32mm	3					
6	<u>Cap</u>						
	25mm	1	nos				
7	<u>Angle Valve (e.g Crane or approved equal)</u>						
	15mm	40	nos				
8	<u>Gate Valve (e.g Crane or approved equal)</u>						
	20mm	16					
	25mm	6					
	32mm	6					
	<b>to collection</b>						

<b>BILL No. 3 - HOT WATER SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
9	<u>Check Valve (e.g Crane or approved equal)</u>						
	20mm	2	no				
	32mm	2	no				
10	<u>3-way Mixing Valve (e.g Crane or approved equal)</u>						
	32mm	1	no				
11	Safety relief valve	2	no				
12	Automatic air valve	2	no				
13	Temperature guage - dial type (0 - 100oC)	3	no				
14	Thermostat (c/w cabling and control)	2	no				
15	Flow switch	2	no				
16	Armaflex insulation of appropriate thickness as per spec. of the following internal dimension. No insulation to pipes installed in walls (or structure)						
	20mm	78	"				
	25mm	6	"				
	32mm	36	"				
17	Aluminum cladding for the hot water pipes at the roof level.	Item					
18	Hot water electric heater c/w all installation accessories, wall hung, unit mounted thermostat (65°C set point), safety valve, etc. E.g. Ariston or approved equal						
	25ltrs cap.	1	No				
	80ltrs cap.	1	No				
19	<u>Passive Solar Collector</u>						
	Solar collector c/w all accessories. Capacity: 80Ltrs e.g. ProgressivTube or approved	1	No				
20	Hot water circulating pump set (duty/standby) - E.g Pullen Canned Rotor PCR pumps or approved equal						
	0.1L/s @ 50kPa	1	set				
21	<u>Flexible connector</u>						
	15mm	38	no				
22	<u>Miscellaneous items</u>						
	- Nipples, reducers, sockets, etc	Lot					
	- Brackets, anchors, etc	Lot					
	<b>to collection</b>						





<b>BILL No. 4 - DRAINAGE SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following:						
	Pipework shall be rigid high density poly ethylene HDPE to BS EN 1519. Note that joints for undergrd or buried pipework shall be of the flexible plug-in joints (c/w o-rings).						
1	<u>Pipes</u>						
	32mm	24	m				
	40mm	9	m				
	50mm	240	"				
	100mm	492	"				
2	<u>90° Bend</u>						
	50mm	23					
	100mm	76					
3	<u>135° Bend</u>						
	50mm	30	nos				
	100mm	8					
4	<u>Tee</u>						
	50mm	48	no				
	100mm	30					
	100x50mm	11					
5	<u>Wye</u>						
	50mm	14	nos				
	100mm	8					
	100x50mm	4					
6	<u>Cap</u>						
	50mm	30	no				
	100mm	24	no				
7	<u>Traps</u>						
	32mm bottle	38	no				
	40mm bottle	2					
	40mm P	10					
	50mm shower drain (trapped)	6	"				
8	<u>Reducers</u>						
	50x32mm	38	no				
	50x40mm	12					
	100x50mm	22					
9	<u>Vent Cowl</u>						
	50mm	2	no				
	100mm	2	no				
	<b><i>to collection</i></b>						



<b>BILL No. 5 - RAINWATER DISPOSAL</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following:						
	Pipework shall be rigid high density poly ethylene HDPE to BS EN 1519. Note that joints for undergrd or buried pipework shall be of the flexible plug-in joints (c/w o-rings).						
1	<u>Pipes</u>						
	75mm	96	m				
	100mm	280	m				
	200mm	168	m				
2	<u>Bend (90<sup>o</sup>)</u>						
	75mm	56	nos				
	100mm	28					
3	<u>Bends (135<sup>o</sup>)</u>						
	100mm	2					
6	<u>Roof Gutter Outlet (c/w screwed domical grating)</u>						
	200mm dia	16					
8	Miscellaneous Items						
	- Sockets, coupling, etc	Lot					
	- Anchors, brackets, etc	Lot					
	<b>to summary</b>						
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<b>BILL No. 6A - FIREFIGHTING HYDRANT, DRY RISER AND SITE INSTALLATIONS</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following						
	Pipework shall be galvanised steel to BS 1387 Class C. Finish shall be 2 coats of protective paint and final coat to colour approved by client. Buried pipework shall be denso tape wrapped. Jointing shall be welded/flanged						
1	<u>Pipes</u>						
	65mm	24	m				
	100mm	504					
	150mm	24					
2	<u>Bend (90°)</u>						
	65mm	8	Nos				
	100mm	12					
	150mm	6					
3	<u>Bend (135°)</u>						
	65mm	1	Nos				
	100mm	6					
4	<u>Tee</u>						
	100x100x65	16	Nos				
	150x150x100	2					
	100mm equal	2					
	150mm equal	4					
5	<u>Flange</u>						
	65mm	24	Nos				
	100mm	84	Nos				
	150mm	16					
6	<u>Gate Valve</u>						
	100mm	4	Nos				
	150mm	4	Nos				
7	<u>Check (Swing) Valve</u>						
	150mm	3	Nos				
8	<u>Landing Valve</u>						
	65mm	12	Nos				
	<b>to conclusion</b>						

<b>BILL No. 6A - FIREFIGHTING</b>							
<b>HYDRANT, DRY RISER AND SITE INSTALLATIONS</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
9	Pillar Hydrant (c/w isolating rising stem gate valve) 65mm	4	Nos				
10	Automatic air valve 25mm	3	Nos				
11	Quad Fireman's inlet breeching in box enclosure	1	Nos				
12	Submersible fire pumps (mounted in u/grd fire water tank) e.g Grunfos or approved equal 35l/s @ 75m (duty/standby)	2	nos				
	Pump automatic control panel mounted in weather proof enclosure and mounted by tank	1					
13	Miscellaneous Items						
	- nipples, reducers, sockets, etc	Lot					
	- brackets, anchors, etc	Lot					
	- allow for protective taping of buried pipes	Lot					
	<b>to conclusion</b>						

<b>BILL No. 6B - FIREFIGHTING</b>							
<b>HOSE REEL INSTALLATIONS</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply and install the following						
	Pipework shall be black galvanised steel to BS 1387 Class C. Finish shall be 2 coats of protective paint and final coat to colour approved by client. Buried pipework shall be denso tape wrapped.						
1	<u>Pipes</u>						
	25mm	18	m				
	50mm	66					
	65mm	18					
2	<u>Bend (90°)</u>						
	25mm	24	Nos				
	65mm	18					
3	<u>Bend (135°)</u>						
	65mm	1					
4	<u>Tee</u>						
	50x25mm	12					
	65mm	2					
5	<u>Union</u>						
	25mm	12	Nos				
	50mm	6					
	65mm	8					
6	<u>Gate Valve e.g. Crane or approved equal</u>						
	25mm	12	Nos				
	50mm	3					
	65mm	4					
7	<u>Hose Reel</u>						
	Swinging hose reel assembly c/w 30m long 19mmDIA hose eg Angus or approved equal	12	Nos				
8	<u>Automatic air valve e.g. Crane or approved equal</u>						
	25mm	2	Nos				
	<b>to conclusion</b>						





<b>BILL No. 7 - DIESEL FUEL SERVICES</b>							
ITEM	DESCRIPTION	QTY	UNIT	BASIC RATE	FIXED RATE	TOTAL RATE	TOTAL COST
	Supply,install,test,verify and commission the following						
	Pipework shall be black mild steel seamless to sch. 40. Finish shall be 2 coats of protective paint and final coat to colour approved by client. Buried pipework shall be denso tape wrapped.						
1	<u>Pipes</u>						
	25mm	30	m				
	32mm	60	m				
	40mm	0	m				
	50mm	204	m				
	80mm	30	m				
2	<u>90° Bend</u>						
	25mm	18	nos				
	32mm	24					
	50mm	24					
	80mm	6					
3	<u>135° Bend</u>						
	50mm	2					
	80mm	2					
4	<u>Tee</u>						
	32mm	10					
	50mm	1					
5	<u>Union Connector</u>						
	25mm	12	nos				
	32mm	15					
	50mm	24					
	80mm	4					
6	<u>Flexible connectors</u>						
	25mm	6	no				
7	<u>Solenoid Valve e.g. Crane or approved equal (including controller and cabling)</u>						
	25mm	3	no				
	32mm	2	no				
	<b>to collection</b>						

<b>BILL No. 7 - DIESEL FUEL SERVICES</b>							
ITEM	DESCRIPTION	QTY	UNIT	BASIC RATE	FIXED RATE	TOTAL RATE	TOTAL COST
8	<u>Isolating butterfly Valve e. g Crane or approved equal</u>						
	25mm	6	no				
	32mm	6	no				
9	<u>Check Valve e. g Crane or approved</u>						
	25mm	2	no.				
	32mm	3	no.				
10	<u>Strainer e. g Crane or approved</u>						
	25mm	3	no.				
	32mm	2	no.				
11	<u>Weight operated valve e. g Crane or approved</u>						
	32mm	1	no				
12	80mm Tanker fill point	1	no				
13	Undergrd (mounted in concrete chamber) mild steel diesel tank (with domical ends c/w all bracing, mounting and remote contents guage. Tank shall be fabricated from 6mm thick black steel plates with 2 coats of bitumastic paint and a final coat to the clients specification. Tank shall be c/w all mountinas, footinas, etc Cap: 33m <sup>3</sup> - 6.40mL x 2.74mDIA	1	no				
14	Mild steel diesel day tank c/w all bracing, mounting and remote contents guage. Tank shall be fabricated from 6mm thick black steel plates with 2 coats of bitumastic paint and a final coat to the clients specification. Tank shall be c/w all mountinas, 450mm tank stand, etc Cap: 0.85m <sup>3</sup> - 1.2mL x 0.60mW x 1.2mH	1	no				
15	<u>Fuel Transfer Pump e.g Lowara or approved equal</u> Pumps shall be of the positive displacement type and shall be suitable for indoors Cap: 1.0L/s @ 12m	2	nos				
16	Provide control panel for pumps with provisions for indications as listed in schedules. Panel shall be weather proofed.	1	nos				
17	Digital level sensor - with provisions for connection to BMS	1					
18	Allow for protective taping to pipes to be installed underground.	sum					
19	Allow for couplings, nipples, sockets, supports, hangers, etc	Lot					
	<b>to collection</b>						



<b>BILL No. 8 - IRRIGATION AND WATER</b>							
<b>DISPLAY SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following						
	Pipework shall be rigid pressure uPVC suitable for 6 bars						
1	<u>Pipes</u>						
	15mm	18	m				
	25mm	330	m				
2	<u>90° Bend</u>						
	15mm	14	nos				
	25mm	14					
3	<u>135° Bend</u>						
	25mm	3					
4	<u>Tee</u>						
	25mm	10					
5	<u>Union Connector</u>						
	15mm	7	nos				
	25mm	30					
8	<u>Gate Valve e.g Crane</u>						
	25mm	8					
	<b>to collection</b>						

<b>BILL No. 8 - IRRIGATION AND WATER DISPLAY SERVICES</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
9	<u>Check Valve</u>						
	15mm	1	no				
	25mm	2	no				
12	<u>Bib tap</u>						
	15mm	7	"				
14	Automatic air valve	2	no				
15	Pressure guage (1-10 bar)	1	no				
16	Float switch	1	no				
18	<u>Submersible irrigation pumps (mounted in u/grd fire water tank) e.g Grunfos or approved equal</u>						
	0.25l/s @ 10m	1	nos				
	Pump automatic control panel mounted in weather proof enclosure and mounted by tank	1					
19	<u>Water display fountain</u>						
	Engage the services of a specialist fountain installer for the construction and fitting out of the water display fountain. Minimum provisions shall include the following:	1	no	<b>Provisional sum</b>			
	<i>water recirculating pump (dry or submersible)</i>						
	<i>electrical and control panel for pump and lights (including cabling)</i>						
	<i>fountain attachments and water spouts (about 30nos)</i>						
	<i>under water lights (about 8nos)</i>						
	<i>water treatment (bromine chloride) and filtration units</i>						
	<i>overflow and top-up connections</i>						
	<i>any other feature</i>						
20	<u>Miscellaneous items</u>						
	- Nipples, reducers, sockets, etc	Lot					
	- Brackets, anchors, etc	Lot					
	- Flow switch	1	no				
	<b>to collection</b>						



<b>BILL No. 9A - WATER SUPPLY SERVICES</b>							
<b>- BOREHOLE</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following						
	Pipework shall be rigid chlorinated PVC suitable for hot and cold water rated for 16 bars to EN 12731 and ISO/DIS 15877 (e.g. Durapipe Friatherm PVC-C PN 16 or approved equal).  Indicated sizes are nominal diameters and these relate to the internal diameters. Pipes and ancillaries shall not be selected based on external diameters						
	<b>Preliminaries</b>						
1	Mobilisation and Demobilisation	1	sum				
2	Provide record documentation including borehole logs, operating and maintenance manuals, etc.	1	sum				
	<b>Construction</b>						
	The contractor shall quote for the sinking of 1 No borehole in the location indicated in the drawing. The borehole shall be capable of delivering 5m3 of water per day. <i>Refer to the specs for the installation of the borehole for more information</i>						
3	Carry out a Geophysical survey of the site in the vicinity of the borehole location ascertain the availability of water and at what depth	1	sum				
4	Drilling of borehole to an appropriate depth in accordance with required yield and result of survey. <b>Allow for a provisional depth of 250m</b>	1	sum				
	Development of borehole	1	sum				
5	Supply and installation of submersible pump	1	sum				
6	Electrical and control panel in weatherproof enclosure/cabinet. Include for all cabling and accessories	1	sum				
7	Supply and installation of riser pipe	1	sum				
8	Raw water pipe to WTP plantroom (50mmDIA pipe). Rates to include for fittings, valves and accessories	172	m				
9	Testing and Analysis	1	sum				
	<b>to conclusion</b>						

<b>BILL No. 9B - WATER SUPPLY SERVICES</b>							
<b>- WATER TREATMENT PLANT</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply and install, test, verify and commission a Water Treatment Plant rated for 5 cubic meters per day comprising of the following. Plant shall be mounted indoors						
	Pipework shall be rigid chlorinated PVC suitable for hot and cold water rated for 16 bars to EN 12731 and ISO/DIS 15877 (e.g. Durapipe Friatherm PVC-C PN 16 or approved equal).  Indicated sizes are nominal diameters and these relate to the internal diameters. Pipes and ancillaries shall not be selected based on external diameters						
1	Fabricated steel sedimentation tank with aerator tower mounted on top. Tank complete with screen cover  Dimension: Tank: 2.40x1.20x1.20m Aerator: 0.60mDIA x 1.2mH	1	Nos				
2	<u>Pressure Sand Filter</u> Dia: 0.45m Height: 1.8m Flow: 1.0m3/hr including all mountings and sand filter media	2	"				
3	<u>Activated Carbon Filter</u> Dia: 0.45m Height: 1.8m Flow: 1m3/hr including all mountings and active carbon	1	"				
4	<u>Filter/Transfer Pump</u> Horizontal centrifugal pumps - Pullen or approved equal Duty: 0.65L/s at 25m head (filter pumps)	2	"				
5	<u>Sterilising Unit (Chlorine)</u> including dosing pump Duty: 10L/hr @ 8 bar Mixing drum Capacity: 250litres Chemical Agitator	1	"				
6	<u>PH-Regulating Unit (Soda Ash)</u> Including dosing pump Duty: 40L/hr @ 8 bar Mixing drum Capacity: 250litres Chemical Agitator	1	"				
	<b>to conclusion</b>						



<b>BILL No. 9B - WATER SUPPLY SERVICES</b>							
<b>- WATER TREATMENT PLANT</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
9	<u>Dosing Chemicals (in 50kg bags)</u>						
	Soda Ash	10	bags				
	Chlorine (Calcium Hypochlorite)	10	"				
10	<u>Turbine Air Blower</u>						
	Siemens or equal	2	Nos				
11	<u>Air Compressor</u>						
	Compair or equal	1	"				
13	<u>Piping - Water Line</u>						
	Allow for water pipework using high pressure PVC-C to 16bar	lot					
14	<u>Piping - Air Line</u>						
	Allow for air pipework using galvanised mild steel to BS1387 Class C	lot					
15	Full automatic central motor control panel, weather proofed c/w relays, timers, starter contactors, thermal overload relay units, etc with appropriately sized MCB's and the following: - Incomer breaker - Automatic dual direct-on-line starters for duty/standby pump for Transfer/Filter c/w duty selector switch - 2No automatic direct-on-line starters for Dosing pumps for PH regulating, flocculating and sterilising unit c/w selector switch - Automatic dual direct-on-line starters for duty/standby air blower c/w duty/selector switch - 1No manual start/stop on-line starter for air compressor - all items needed for full auto control as indicated on the drawings	1	nos				
16	Allow for Cabling	Lot					
17	Float Switches eg. Dolomit	2	no				
18	Chemical testings of water	2	nos				
	<b>to conclusion</b>						
	<b>COLLECTION</b>						
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	pg 9 - 2						
	pg 9 - 3						
	<b>to summary</b>						
	.						

<b>BILL No. 10 - KITCHEN EQUIPMENT</b>							
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>BASIC RATE</b>	<b>FIXED RATE</b>	<b>TOTAL RATE</b>	<b>TOTAL COST</b>
	Supply,install,test,verify and commission the following. The units shall be c/w all fittings and accessories necessary to give a fully functional equipment. Tenderer shall submit a detailed spec and brochure for each item:						
1	450 ltr double compartment fridge/freezer e.g LG	1	no				
2	900W 19ltrs 3-in-1 combo microwave oven e.g National	2	no				
3	4 burner electric cooker with oven and grill e.g Ariston	1	no				
4	Dish washer - 200 plates per hr eg Electrolux	1	no				
5	4 compartment bain marie on (electric) hot cupboard units eg Electrolux	1	no				
6	Drinks refrigerator (with glass front) - 250ltr	2	nos				
7	Refrigerated display counter	1	no				
8	Plate dispenser (2 x 60 plates) (without heat)	2	no				
9	Tray, cutlery and bread rack	1	no				
10	Basket trolley (c/w baskets) for glasses	1	no				
11	Wire storage shelving racks	2	no				
12	Utility trolleys	2	no				
	<b>sub-total</b>						

<b><u>GENERAL SUMMARY OF BILLS</u></b>						
<b>BILL NO</b>	<b><u>DESCRIPTION</u></b>					<b><u>TOTAL</u></b>
1	SANITARY					
2	WATER SERVICES					
3	HOT WATER SERVICES					
4	DRAINAGE SERVICES					
5	RAINWATER DISPOSAL					
6	FIRE FIGHTING SERVICES					
7	DIESEL FUEL SERVICE					
8	IRRIGATION - FOUNTAIN					
9	BOREHOLE AND WATER TREATMENT PLANT					
10	KITCHEN & CATERING EQUIPMENT					
	<b>SUB-TOTAL</b>					
..						
	<b>ALLOW FOR CONTIGENCY</b>					
	<b>TOTAL TENDER SUM</b>					