

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**PHASE 1 SUMMARY**  
**PHASE 1 COLLECTION SHEET**

<i>All prices are deemed to be inclusive of taxes</i>	
DESCRIPTION	TOTAL (KSHS )
PRELIMINARY AND GENERAL ITEMS	-
LINE A1(1)	-
LINE A1-2	-
LINE A1-3	-
LINE A1-4 (FROM CH. 0 +000 TO CH. 0 +745)	-
LINE A1-6 (FROM CH.0+000 TO CH. 2 + 2300)	-
LINE A1-11	-
LINE C1	-
LINE C1-2	-
LINE C1-3	-
LINE C2-2	-
LINE C2-3	-
LINE C2-6	-
LINE C3-1(1)	-
LINE C3-2(2)	-
LINE C3-3(1)	-
LINE C3-4(1)	-
LINE C3-5(1)	-
GRAVITY MAINS FROM HIGH LEVEL TANK AT RIAT	-
RISING MAIN	-
HIGH LEVEL AND GROUND LEVEL TANK AT RIAT	-
<b>TOTAL</b>	-

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT  
PHASE 1  
BILL 1-PRELIMINARY AND GENERAL ITEMS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CONTRACTUAL REQUIREMENTS</b>				
A1	Allow for provision of Performance Bond in accordance with Clause 10 of Part II of Conditions of Contract	Sum			-
A2	Allow for provision of Insurance in accordance with Clause 21 of Parts I and II of the Conditions of Contract	Sum			-
A3	Allow for provision of Insurance in accordance with Clause 23 of Part I of Conditions of Contract	Sum			-
A4	Allow for provision of Insurance in accordance with Clause 24 of Part I of Conditions of Contract	Sum			-
	<b>SPECIFIC REQUIREMENTS</b>				
<b>A21</b>	<b>Facilities for the Engineer's Staff</b>				
A24	<b>Equipment for use by the Project Manager's staff</b>				
A211.1	Establishment and removal of Engineers site office in accordance with the specifications and as directed by the Engineers for the exclusive use of the Resident Engineers and his staff	Sum	1		
A216.1	Maintenance of Engineers Offices	mnth	8		-
	<b>Signboards</b>				
A235.1	Provide and maintain sign boards at the Site of works as directed	No.	4		-
	<b>A24 Equipment for use by the Engineers staff</b>				
A241.1	Establishment and removal of office equipment	Sum	1		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
A3	<b>METHOD RELATED CHARGES</b>				-
A31	<b>Accommodation and buildings</b>				-
A311	Establish, maintain and remove Contractor's offices	Sum			
A312	Establish, maintain and remove Contractor's Laboratories	Sum			
A313	Establish, maintain and remove Contractor's Houses	Sum			
A314	Establish, maintain and remove Contractor's Stores	Sum			
A315	Establish, maintain and remove Contractor's Canteens	Sum			
<b>A32</b>	<b>Services</b>				-
A32	Provide and maintain services to the camp site including electricity, water, security, site transport, personnel transport and staff welfare.	Sum			
<b>A33</b>	<b>Plant</b>				
A34	Mobilize plant as required for pipe laying, paving, crushing and screening, boring and drilling and all other Contractors plant required under contract	Sum			
A4	<b>PROVISIONAL SUMS</b>				-
A42	<b>Other Provisional Sums</b>				-
A420.1	Allow Provisional Sum of KShs. 500,000 to cover the Engineer's miscellaneous expenses including communications, site photographs, reports, etc, to be expended as directed by the Project Manager's representative.	P sum		500,000.00	500,000.00
					-
					-
					-

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT  
PHASE 1  
BILL 1-PRELIMINARY AND GENERAL ITEMS**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
A420.2	Allow the Provisional Sum of KShs. 400,000 to cover supervision costs of Engineers assigned on the project from the Employer's head office to cover expenses for communications,	p sum		400,000	400,000
	transport, allowances, etc to be expended as directed by the Engineer				-
A420.3	Add a percentage of item A420.1 & A420.2 for contractor's overheads and profit.	%			
A420.4	Allow the Provisional Sum of KShs. 200,000 to costs of laboratory testing of materials and works using external laboratories, to be expended as directed by the Engineer 's representative.	PC	1	200,000.00	200,000.00
					-
A420.6	Allow the Provisional Sum of KSh300,000 to cover mitigation measures arising from the environmental and social impacts including HIV/Aids awareness campaign, to be expended as directed by the Engineer	PC		300,000.00	300,000.00
A420.7	Add a percentage of item A420.6 for contractor's overheads and profit.	%			
A429.5	Provision for payment demanded by authorities for the permanent diversion of existing services.	sum		144,000.00	144,000.00
A429.6	Provision for payment demanded by Authorities for pipeline crossings.	sum		192,000.00	192,000.00
A429.10	Percentage adjustment to provisional sum in item 1A429.5 to 1A429.6	%			-
A429.12	Add percentage of item for contraction overhead and profit	%			
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				
	<b>Testing of Materials</b>				-
A259.1	<i>Concrete Tests</i>	sum	1		
A259.4	Testing of materials - soil tests Testing of the Works	sum	1		
A269.1	Testing of the Works - specified tests in all sections of the Works (excluding pipelines)	sum			
					-
	<i>Inspection by relevant authorities of cutting and reinstating roads for pipe crossings (provisional)</i>	sum			
A269.2	Inspection by relevant authorities of cutting and reinstating railway for pipe crossings (provisional)	sum			
					-
	<b>Temporary Works</b>				-
A271	Traffic diversion during road crossing works (PROVISIONAL)	sum			
A272	Traffic regulation; establishment, operation and removal (PROVISIONAL)	sum			
A275.1	River diversion works	sum			-
A275.2	Allow for Gabion Protection	sum			-
A290.3	Allow for setting out of pipeline routes as required in Clause 106 of the specification	km	34		
	<b>Method Related Charges</b>				-
	The tenderer may insert in the Bill of Quantities such items for Method-Related-Charges as he may decide to cover items of work relating to his intended method of executing the works,				-
	the cost of which are not to be considered as proportional to the quanti				



KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
PIPELINE A1(1)					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
<b>CLASS A: GENERAL ITEM</b>					
A25	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	350		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	350		
<b>D DEMOLITION AND SITE CLEARANCE</b>					
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences	ha	0.05		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>					
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All HDPE pipes shall be manufactured to KS-1425-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
I6	<b>HDPE PN 12.5 pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 50 in trench, depth not exceeding 1.5m	m	1,000		
I61.5.3	DN 50 in trench, depth 1.5m-2m	m	80		
	<i>In road and river crossings</i>				
I51.2.1	DN 50 G.I pipe class B	m	24		
<b>PAGE TOTAL CARRIED TO COLLECTION</b>					
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
PIPELINE A1(1)					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				
	<b>FITTINGS AND SPECIALS</b>				
	<i>Tees</i>				
J631.1	50x63 all equal screw tee	nr	2		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 50	nr	1		
	<b>J61 Bends</b>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.5.1	DN 50 HDPE PN 16 Bend 11.25 Degrees	nr	2		
J611.5.2	DN 50 HDPE PN 16 Bend 22.5 Degrees	nr	3		
	<i>Joints(Provisional quantity)</i>				
J421.1	DN 50 Mechanical joint.	nr	2		
J451.1	DN 63 Flanged adapter.	nr	2		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.1	Excavation in trench for soft rock	m	70		
L111.2	Excavation in trench for hard rock	m	35		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	70		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	2		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection at Gravity mains from HLT and A1-II</b>				
K861	Connectin to line Distribution lines the beginning and the end approx . Include all fittings, tees and valves	nr	2		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				
	<b>BILL COLLECTION</b>				
	From page 1				
	From page 2				
	<b>BILL 2 TOTAL TO SUMMARY PAGE</b>				-

<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE A - PHASE 1</b>					
<b>PIPELINE A1-2</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	1,080		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	1,080		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences	ha	0.16		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets, mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All HDPE pipes shall be manufactured to KS-1425-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>I6</b>	<b>HDPE PN 12.5 pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 63 in trench, depth not exceeding 1.5m	m	1,000		
I61.5.3	DN 63 in trench, depth 1.5m-2m	m	80		
	<i>In road and river crossings</i>				
I51.2.1	DN 75 G.I pipe class B	m	24		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
PIPELINE A1-2					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				
	<b>FITTINGS AND SPECIALS</b>				
	<i>Air Valves, Fire Hydrants and Washouts</i>				
	<i>(inclusive of fittings, nuts bolts and gaskets but exclude chambers)</i>				
J86.1	For Single small-orifice Air Valve type " Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	1		
J86.3	Fire Hydrants to BS 750 (Type 2) with loose internal valve	nr	1		
	<b>Tees</b>				
J631.1	50x63 all equal screw tee	nr	2		
J631.2	DN 75 FH tee all flanged	nr	1		
	<b>Reducer</b>				
	DN 75X63 reducer flanged at larger end	nr	1		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 50	nr	5		
<b>J61</b>	<b>Bends</b>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.5.1	DN 63 HDPE PN 16 Bend 11.25 Degrees	nr	2		
J611.5.2	DN 63 HDPE PN 16 Bend 22.5 Degrees	nr	3		
J611.5.3	DN 63 HDPE PN 16 Bend 30 Degrees	nr	3		
J611.5.4	DN 63 HDPE PN 16 Bend 90 Degrees	nr	4		
	<b>Joints(Provisional quantity)</b>				
J421.1	DN 50 Mechanical joint.	nr	6		
J451.1	DN 63 Flanged adapter.	nr	2		
J451.2	DN 75 Blank flanged adapter.	nr	1		
J451.3	DN 75 Blank flanged spigot piece for FH	nr	1		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.1	Excavation in trench for soft rock	m	216		
L111.2	Excavation in trench for hard rock	m	160		
	Note:- Blasting is not permitted for item L11				





<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE A - PHASE 1</b>					
<b>PIPELINE A1-3</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	700		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	700		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed including cutting and reinstatement of fences.	ha	0.11		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All uPVC pipes shall be manufactured to ISO 4427. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>HDPE PN 16.5 pipe with connectors, inclusive of backfilling</b>				
I61.2.2	DN 90 in trench, depth not exceeding 1.5m	m	220		
I61.2.3	DN 90 in trench, depth 1.5m-2m	m	20		
I61.6.2	DN 50 in trench, depth not exceeding 1.5m	m	420		
I61.6.3	DN 50 in trench, depth 1.5m-2m	m	40		



<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE A - PHASE 1</b>					
<b>PIPELINE A1-3</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	140		
L111.3	Excavaion in trench for hard rock	m3	70		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	140		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	4		
	<b>CLASS K:PIPE WORK-MANHOLES AND PIPEWORK ANCILLARIES</b>				
	<b>Chambers</b>				
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				-
K231.1	For air valve and Isolation valves as on drawing	nr	1		
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	1		
K231.4	Fire hydrants surface box as shown on drawing	nr	1		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	2		
	<b>New connection to A1 and A1-11</b>				
K861	Connectin to existing system to line A1 a ch.0+00 and ch.0+700 Include all fittings, tees and valves	nr	2		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>BILL COLLECTION</b>				
	From page 1				-
	From page 2				-
	From page 3				-

<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b> <b>ZONE A - PHASE 1</b> <b>PIPELINE A1-3</b>					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	BILL 2 TOTAL TO SUMMARY PAGE				-

<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE A - PHASE 1</b>					
<b>PIPELINE A1-4</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	1,490		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	1,490		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed including cutting and reinstatement of fences	ha	0.22		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All HDPE pipes shall be manufactured to KS-1425-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>I6</b>	<b>HDPE PN16.5 pipe with connectors, inclusive of backfilling</b>				
I61.2.2	DN 90 in trench, depth not exceeding 1.5m	m	1,300		
I61.2.3	DN 90 in trench, depth 1.5m-2m	m	190		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-



KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
PIPELINE A1-4					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	298		
L111.3	Excavaion in trench for hard rock	m3	250		
	Note:- Blasting is not permitted for item L11				
L5	<b>Imported Selected Fill (Provisional)</b>				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	298		
	<i>Concrete Anchor blocks</i>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	7		
	<b>CLASS K:PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>				-
	<i>Chambers</i>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				
K231.1	For air valve and Isolation valves as on drawing	nr	3		
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	4		
K231.3	Sluice valves chamber as on drawing	nr	1		
	<i>Marker Posts</i>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	12		
	<i>New connection at existing service at tank</i>				
K861	Connectin to existing system to line A1 at ch 0+00 and ch 1+490 . Include all fittings, tees and valves	nr	2		
					-
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
PIPELINE A1-6 MAIN GRAVITY LINE FROM RIAT GROUND LEVEL TANK (GLT)					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
I61.7.2	HDPE DN 40 in trench, depth not exceeding 1.5m	m	720		
I61.7.3	HDPE DN 40 in trench, depth exceeding 1.5m	m	40		
	<i>In road and river crossings</i>				
I51.2.2	DN 50 G.I pipe class B	m	48		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				
	<b>FITTINGS AND SPECIALS</b>				
	<i>Air Valves, Fire Hydrants and Washouts</i> (inclusive of fittings, nuts bolts and gaskets but exclude chambers)				
J86.1.1	For Single small-orifice Air Valve type "Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	5		
J86.2	Washout to detail as shown on drawings	nr	4		
J86.3	Fire Hydrants to BS 750 (Type 2) with loose internal valve	nr	1		
	<b>Tees</b>				
J631.1	50mm all flanged equal tee	nr	5		
J631.2	50 x 63 mm all flanged equal tee	nr	3		
	<b>Valves</b>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				
J81	flanged Sluice Valves to BS 5163 type "Glenfield/avk " PN10 or approved equivalent				
J81.1	DN50	nr	2		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 50	nr	20		
<b>J61</b>	<b>Bends</b>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.2.1	DN 110 HDPE PN 16 pipe Bend 11.25 Degrees	nr	5		
J611.2.2	DN 110 HDPE PN 16 pipe Bend 22.5 Degrees	nr	4		
J611.2.3	DN 110 HDPE PN 16 pipe Bend 30 Degrees	nr	2		
J611.2.4	DN 110 HDPE PN 16 pipe Bend 45 Degrees	nr	3		
J611.2.5	DN 110 HDPE PN 16 pipe Bend 90 Degrees	nr	6		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
PIPELINE A1-6 MAIN GRAVITY LINE FROM RIAT GROUND LEVEL TANK (GLT)					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
J611.6.1	DN 50HDPE PN 16.5 Bend 11.25 Degrees	nr	2		
J611.6.2	DN 50HDPE PN 16.5 Bend 22.5 Degrees	nr	1		
J611.6.3	DN 50HDPE PN 16.5 Bend 30 Degrees	nr	1		
J611.6.4	DN 50HDPE PN 16.5 Bend 45 Degrees	nr	2		
J611.6.5	DN 50HDPE PN 16.5 Bend 90 Degrees	nr	1		
J611.7.1	DN 40 HDPE PN 16.5 Bend 11.25 Degrees	nr	5		
J611.7.2	DN 40 HDPE PN 16.5 Bend 22.5 Degrees	nr	1		
J611.7.3	DN 40 HDPE PN 16.5 Bend 30 Degrees	nr	2		
J611.7.4	DN 40 HDPE PN 16.5 Bend 45 Degrees	nr	3		
J611.7.5	DN 40 HDPE PN 16.5 Bend 90 Degrees	nr	7		
	<b>Joints(Provisional quantity)</b>				
J421.1	DN 50 mechanical joint (Steel to HDPE)	nr	16		
J451.1	DN 110 Blank Flanged adapter (Steel to HDPE)	nr	16		
J451.2	DN 50 Flanged adapter (Steel to HDPE)	nr	6		
J451.3	DN 75 Blank FH Flanged adapter (Steel to HDPE)	nr	1		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	920		
L111.3	Excavaion in trench for hard rock	m3	690		
	Note:- Blasting is not permitted for item L11				
	<b>L5 Imported Selected Fill (Provisional)</b>				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	920		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	23		
	<b>CLASS K:PIPE WORK-MANHOLES AND PIPEWORK ANCILLARIESANCILLARIES</b>				
	<b>Chambers</b>				
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				
K231.1	For air valve and Isolation valves as on drawing	nr	5		
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	3		
K231.3	Sluice valves chamber as on drawing	nr	2		
K231.4	Fire hydrants surface box as shown on drawing	nr	2		
	<b>New connection at existing service at tank</b>				
K861	Connectin to existing system at the existing line ch 0+00 and line A1 at ch 2+520. Include all fittings, tees and valves	nr	2		
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**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE A - PHASE 1**  
**PIPELINE A1-2**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				
<b>J61</b>	<b>Bends</b>				-
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				-
J611.5.1	DN 110 HDPE PN 16 Bend 11.25 Degrees	nr	2		
J611.5.2	DN 110 HDPE PN 16 Bend 22.5 Degrees	nr	3		
J611.5.4	DN 110 HDPE PN 16 Bend 90 Degrees	nr	4		
	<b>Joints(Provisional quantity)</b>				
J421.1	DN 110 Mechanical joint.	nr	6		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.1	Excavation in trench for soft rock	m	72		
L111.2	Excavation in trench for hard rock	m	36		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	72		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	2		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection at existing service at tank</b>				
K861	Connectin to line A1 at the beginning approx . Include all fittings, tees and valves	nr	1		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
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<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C1</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	4,730.00		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	4,730.00		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.71		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	16		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>I6</b>	<b>UPVC pipe Class D with couplings, inclusive of backfilling</b>				
I62.2.2	UPVC DN 225 in trench, depth not exceeding 1.5m	m	400.00		
I62.2.3	UPVC DN 225 in trench, depth 1.5m-2m	m	72.00		
I61.1.2	UPVC DN 160 in trench, depth not exceeding 1.5m	m	100.00		
I61.1.3	UPVC DN 160 in trench, depth 1.5m-2m	m	20.00		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C1</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
I61.2.2	UPVC DN 110 in trench, depth not exceeding 1.5m	m	900.00		
I61.2.3	UPVC DN 110 in trench, depth 1.5m-2m	m	40.00		
I61.4.2	UPVC DN 75 in trench, depth not exceeding 1.5m	m	480.00		
I61.4.3	UPVC DN 75 in trench, depth 1.5m-2m	m	30.00		
I61.5.2	UPVC DN 63 in trench, depth not exceeding 1.5m	m	1,000.00		
I61.5.3	UPVC DN 63 in trench, depth 1.5m-2m	m	410.00		
I61.7.2	UPVC DN 40 in trench, depth not exceeding 1.5m	m	1,000.00		
I61.7.3	UPVC DN 40 in trench, depth 1.5m-2m	m	70.00		
	<i>In road and river crossings</i>				
I51.2.1	DN 160 G.I pipe class B	m	48		
I51.2.2	DN 110 G.I pipe class B	m	48		
I51.2.3	DN63 G.I pipe class B	m	48		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i>				-
	<i>(inclusive of fittings, nuts bolts and gaskets but exclude chambers</i>				
J86.1	For Single small-orifice Air Valve type " Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	5		
J86.2	Washout to detail as shown on drawings	nr	6		
J86.3	Fire Hydrants to BS 750 (Type 2) with loose internal valve	nr	1		
	<b>Tees</b>				
J631.1	225mm x 63mm all flanged tee	nr	1		
J631.2	160mm x 63mm all flanged tee	nr	2		
J631.3	110mm x 63mm all flanged tee	nr	3		
J631.4	75mm x 63mm all flanged tee	nr	2		
J631.5	40mm x 63mm all flanged tee	nr	4		
J631.6	110mm all flanged steel equal tee	nr	2		
J631.7	40mm all flanged steel equal tee	nr	2		
					-
	<b>Valves</b>				-
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				-
J81.3	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees DN 50	nr	13		
J87	DN 100 pressure regulating valve to BS 2591 PN 10 or approved equivalent.	nr	1		
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<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C1</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
<b>J61</b>	<b>Bends</b>				-
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J612.1.1	DN 225 upvc class D Bend 11.25 Degrees	nr	2		
J612.1.2	DN 225 upvc class D Bend 22.5 Degrees	nr	3		
J612.1.3	DN 225 upvc class D Bend 30 Degrees	nr	1		
J612.1.4	DN 225 upvc class D Bend 45 Degrees	nr	1		
J611.2.1	DN 160 upvc class D Bend 11.25 Degrees	nr	2		
J611.2.2	DN 160 upvc class D Bend 22.5 Degrees	nr	2		
J611.2.3	DN 160 upvc class D Bend 30 Degrees	nr	1		
J611.2.4	DN 160 upvc class D Bend 45 Degrees	nr	1		
J611.2.5	DN 160 upvc class D Bend 90 Degrees	nr	2		
J611.3.1	DN 110 upvc class D Bend 11.25 Degrees	nr	2		
J611.3.2	DN 110 upvc class D Bend 22.5 Degrees	nr	3		
J611.3.3	DN 110 upvc class D Bend 30 Degrees	nr	1		
J611.3.4	DN 110 upvc class D Bend 45 Degrees	nr	1		
J611.3.5	DN 110 upvc class D Bend 90 Degrees	nr	2		
J611.5.1	DN 63 upvc class D Bend 11.25 Degrees	nr	2		
J611.5.2	DN 63 upvc class D Bend 22.5 Degrees	nr	1		
J611.5.3	DN 63 upvc class D Bend 30 Degrees	nr	2		
J611.5.4	DN 63 upvc class D Bend 45 Degrees	nr	2		
J611.5.5	DN 63 upvc class D Bend 90 Degrees	nr	3		
J611.7.1	DN 40 upvc class D Bend 11.25 Degrees	nr	2		
J611.7.2	DN 40 upvc class D Bend 22.5 Degrees	nr	3		
J611.7.3	DN 40 upvc class D Bend 30 Degrees	nr	2		
J611.7.4	DN 40 upvc class D Bend 45 Degrees	nr	2		
J611.7.5	DN 40 upvc class D Bend 90 Degrees	nr	3		
	<b>Joints(Provisional quantity)</b>				
J421.1	DN225 Mechanical joint(Steel to upvc)	nr	10		
J421.2	DN160 Mechanical joint(Steel to upvc)	nr	2		
J421.3	DN110 Mechanical joint(Steel to upvc)	nr	3		
J421.4	DN75 Mechanical joint(Steel to upvc)	nr	4		
J421.5	DN40 Mechanical joint(Steel to upvc)	nr	6		
J451.1	DN 160 Flanged adapter (Steel to upvc)	nr	2		
J451.2	DN 110 Flanged adapter (Steel to upvc)	nr	2		
J451.3	DN 63 Flanged adapter (Steel to upvc)	nr	2		
J451.4	DN 40 Flanged adapter (Steel to upvc)	nr	1		
J451.5	DN 75 Blank FH Flanged adapter (Steel to upvc)	nr	1		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	946		
L111.3	Excavaion in trench for hard rock	m3	473		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				-
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				-
L531	Not exceeding 400mm thick for bedding and cover	m3	946		
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<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C1-2</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	540		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	540		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.28		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC pipe Class D with couplings, inclusive of backfilling</b>				
I61.2.2	DN 110 in trench, depth not exceeding 1.5m	m	360		
I61.2.3	DN 110 in trench, depth 1.5m-2m	m	45		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i>				-
	<i>(inclusive of fittings, nuts bolts and gaskets but exclude chambers</i>				
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE C - PHASE 1					
PIPELINE C1-2					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
J86.1	For Single small-orifice Air Valve type " Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	1		
J86.2	Washout to detail as shown on drawings	nr	2		
J86.3	Fire Hydrants to BS 750 (Type 2) with loose internal valve	nr	1		
	<b>Tees</b>				
J631.1	110mm all flanged equal tee	nr	4		
	110mm x 63mm all flanged tee	nr	2		
	<b>Valves</b>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 110	nr	10		
J61	<b>Bends</b>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.4.1	DN 110 upvc class D Bend 11.25 Degrees	nr	6		
J611.4.2	DN 110 upvc class D Bend 22.5 Degrees	nr	5		
J611.4.3	DN 110 upvc class D Bend 45 Degrees	nr	2		
J611.4.4	DN 110upvc class D Bend 90 Degrees	nr	1		
	<b>Joints(Provisional quantity)</b>				
J421.1	DN110 Mechanical joint(Steel to upvc)	nr	8		
J451.1	DN 110 Flanged adapter (Steel to upvc)	nr	7		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	108		
L111.3	Excavaion in trench for hard rock	m3	75		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	108		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	3		
	<b>CLASS K: PIPEWORK-MANHOLES AND PIPE WORK ANCILLARIES</b>				
	<b>Chambers</b>				
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				
K231.1	For air valve and Isolation valves as on drawing	nr	1		
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	2		
K231.4	Fire hydrants surface box as shown on drawing	nr	1		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE C - PHASE 1					
PIPELINE C1-3					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
<b>CLASS A: GENERAL ITEM</b>					
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	2,200		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	2,200		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed including cutting and reinstatement of fences.	ha	0		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	20		
D22	Girth 2.01 -3.5m	nr	10		
<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>					
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC pipe Class C with couplings, inclusive of backfilling</b>				
I61.1.2	UPVC DN 160 in trench, depth not exceeding 1.5m	m	650		
I61.1.3	UPVC DN 160 in trench, depth 1.5m-2m	m	50		
I61.5.2	UPVC DN 75 in trench, depth not exceeding 1.5m	m	2,000		
I61.5.3	UPVC DN 75 in trench, depth 1.5m-2m	m	295		
	<i>In road and river crossings</i>				
I51.2.3	DN 75 G.I pipe class B	m	24		
<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>					
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
<b>PAGE TOTAL CARRIED TO COLLECTION</b>					
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<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C1-3</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i>				-
	<i>(inclusive of fittings, nuts bolts and gaskets but exclude chambers</i>				
J86.1	For Single small-orifice Air Valve type " Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	2		
	<b>Tees</b>				
J631.2	160mm all flanged equal tee	nr	2		
J631.3	75 all flanged equal tee	nr	4		
J631.6	75mm x 63mm all flanged tee	nr	3		
	<b>Valves</b>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3.3	DN 75	nr	11		
J81.3.4	DN 63	nr	10		
J81.4	DN 160 pressure regulating valve to BS 2591 PN 10 or approved equivalent.	nr	1		
	<b>Bends</b>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				-
J611.1.4	DN 160 upvc class D Bend 45 Degrees	nr	2		
J611.1.5	DN 160 upvc class D Bend 90 Degrees	nr	3		
J611.5.2	DN 75 upvc class D Bend 22.5 Degrees	nr	11		
J611.5.4	DN 75 upvc class D Bend 45 Degrees	nr	4		
J611.5.5	DN 75 upvc class D Bend 90 Degrees	nr	2		
	<b>Joints(Provisional quantity)</b>				
J421.3	DN75 Mechanical joint(Steel to upvc)	nr	14		
J451.3	DN 75 Flanged adapter (Steel to upvc)	nr	4		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	440		
L111.3	Excavaion in trench for hard rock	m3	300		
	Note:- Blasting is not permitted for item L11				
L5	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	174		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional	m3	3		
	<b>CLASS K: PIPEWORK-MANHOLES AND PIPE WORK ANCILLARIES</b>				-
	<b>Chambers</b>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				
K231.1	For air valve and Isolation valves as on drawing	nr	2		
	<b>New connection at existing service at tank</b>				
K86	Connection to existing system at the tank at ch 0+00 approx . Include all fittings, tees and valves	nr	1		
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE C - PHASE 1					
PIPELINE C2-2					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS A: GENERAL ITEM</b>				
A25	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	1,804		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	1,804		
D	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed including cutting and reinstatement of fences.	ha	0.28		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
16	<b>UPVC pipe Class D with couplings, inclusive of backfilling</b>				
I61.1.2	DN 75 in trench, depth not exceeding 1.5m	m	600		
I61.1.3	DN 75 in trench, depth 1.5m-2m	m	80		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C2-2</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Tees</i>				
J631.1	75mm x 63mm all flanged equal tee	nr	5		
	<i>Valves</i>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 75	nr	5		
	<i>Bends</i>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.4.2	DN 75 upvc class D Bend 11.25 Degrees	nr	3		
J611.4.1	DN 75 upvc class D Bend 22.55 Degrees	nr	1		
J611.7.2	DN 75 upvc class D Bend 30 Degrees	nr	1		
J611.7.1	DN 75 upvc class D Bend 455 Degrees	nr	1		
	<i>Joints(Provisional quantity)</i>				
J421.1	DN 75 Mechanical joint(Steel to upvc)	nr	10		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	361		
L111.3	Excavaion in trench for hard rock	m3	180		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	361		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	9		
	<i>Marker Posts</i>				-
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	6		
	<i>New connection at existing service at tank</i>				
K86	Connection to line C1 at ch 0+00 approx . Include all fittings, tees and valves	nr	1		
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE C - PHASE 1					
PIPELINE C2-3					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
<b>CLASS A: GENERAL ITEM</b>					
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	850		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	850		
<b>D DEMOLITION AND SITE CLEARANCE</b>					
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed including cutting and restatement of fences.	ha	0.28		
D21	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>					
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC class D pipe with connectors, inclusive of backfilling</b>				
I61.7.2	DN 50 in trench, depth not exceeding 1.5m	m	700		
I61.7.3	DN 50 in trench, depth 1.5m-2m	m	150		
<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>					
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
<b>PAGE TOTAL CARRIED TO COLLECTION</b>					
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KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE C - PHASE 1					
PIPELINE C2-3					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
<b>J6</b>	<b>FITTINGS AND SPECIALS</b>				-
	<i>Tees</i>				
J631.2	50mm x 63mm all flanged tee	nr	2		
	<i>Valves</i>				
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 63	nr	2		
	<i>Bends</i>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.4.2	DN 50 upvc class D pipe Bend 11.25 Degrees	nr	1		
J611.4.1	DN 50 upvc class D pipe Bend 22.5 Degrees	nr	1		
J611.7.2	DN 50 upvc class D pipe Bend 45 Degrees	nr	1		
J611.7.1	DN 50 upvc class D pipe Bend 90 Degrees	nr	1		
	<i>Joints(Provisional quantity)</i>				
J421.1	DN 50 Mechanical joint(Steel to upvc)	nr	4		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
<b>L1</b>	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m	170		
L111.3	Excavaion in trench for hard rock	m	160		
	Note:- Blasting is not permitted for item L11				
<b>L5</b>	<b>Imported Selected Fill (Provisional)</b>				-
	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L521					-
L531	Not exceeding 400mm thick for bedding and cover	m3	170		
	<i>Concrete Anchor blocks</i>				
	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)				
L7		m3	4		
	<i>Marker Posts</i>				
	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed				
K82		nr	3		
	<i>New connection at existing service at tank</i>				
K86	Connection to line C1 at ch 0+00 approx . Include all fittings, tees and valves	nr	1		
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<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE C - PHASE 1</b>					
<b>PIPELINE C2-6</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	1,320		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	1,320		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavation, preparation of surfaces, disposal of excavated material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall include for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC DN 63 class D pipe with connectors, inclusive of backfilling</b>				
I61.5.2	UPVC DN 63 in trench, depth not exceeding 1.5m	m	1,100		
I61.5.3	UPVC DN 63 in trench, depth 1.5m-2m	m	220		
	<i>In road and river crossings</i>				
I51.2.1	DN 63 G.I pipe class B	m	24		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE C - PHASE 1					
PIPELINE C2-6					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i>				-
	<i>Tees</i>				
J631.2	75mm x 63mm all flanged equal tee	nr	3		
	<i>Valves</i>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				
J81.4	flanged Pressure Regulating Valve to BS 5163 type "Glenfield/avk " PN10 or approved equivalent				
J81.1	DN75	nr	1		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 63	nr	3		
<b>J61</b>	<b>Bends</b>				-
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				
J611.5.1	DN 75 upvc class D pipe Bend 11.25 Degrees	nr	2		
J611.5.2	DN 75 upvc class D pipe Bend 22.5 Degrees	nr	2		
J611.5.3	DN 75 upvc class D pipe Bend 45 Degrees	nr	1		
J611.5.4	DN 75 upvc class D pipe Bend 90 Degrees	nr	1		
	<b>Joints(Provisional quantity)</b>				
J421.2	DN 75 mechanical joint (Steel to upvc)	nr	6		
J451.1	DN 75 Flanged adapter (Steel to upvc)	nr	1		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	264		
L111.3	Excavaion in trench for hard rock	m3	160		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				-
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	170		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	7		
	<b>CLASS K:PIPEWORK -MANHOLE AND PIPEWORK ANCILLARIES</b>				
	<b>Chambers</b>				
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				
K231.5	Pressure regulating valve chamber as on drawing	nr	1		
	<b>New connection at existing service at tank</b>				
K86	Connection to line C1 at ch 0+00 approx . Include all fittings, tees and valves	nr	1		
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**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 2**  
**PIPELINE C3-1(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	700		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	700		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC class D pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 63 in trench, depth not exceeding 1.5m	m	600		
I61.5.3	DN 63 in trench, depth 1.5m-2m	m	100		
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**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 2**  
**PIPELINE C3-1(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				-
L111.2	Excavation in trench for soft rock	m3	140		
L111.3	Excavaion in trench for hard rock	m3	70		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	140		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	4		
	<b>CLASS K:PIPEWORK MANHOLES AND PIPEWORK ANCILLARIES</b>				
	<b>Chambers</b>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				-
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	1		
K231.3	Sluice valves chamber as on drawing	nr	1		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection to Line C2-2 and C2-6</b>				
K86	Connection to C2-2 and C2-6 at ch 0+00 and 0+700 approx . Include all fittings, tees and valves	nr	2		
					-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>BILL COLLECTION</b>				
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	<b>BILL 2 TOTAL TO SUMMARY PAGE</b>				-

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 2**  
**PIPELINE C3-2(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	900		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	100		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC class D pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 50 in trench, depth not exceeding 1.5m	m	900		
I61.5.3	DN 50 in trench, depth 1.5m-2m	m	100		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-





**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 2**  
**PIPELINE C3-2(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				-
L111.2	Excavation in trench for soft rock	m3	180		
L111.3	Excavaion in trench for hard rock	m3	90		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				-
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				-
L531	Not exceeding 400mm thick for bedding and cover	m3	180		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	5		
	<b>CLASS K: PIPEWORK MANHOLES AND PIPEWORK ANCILLARIES</b>				-
	<b>Chambers</b>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				-
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	1		
K231.3	Sluice valves chamber as on drawing	nr	1		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection at existing service at tank</b>				
K86	Connection to C1-3 at ch 0+00 approx . Include all fittings, tees and valves	nr	1		-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>BILL COLLECTION</b>				
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**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-3(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	960		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	960		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC class D pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 50 in trench, depth not exceeding 1.5m	m	900		
I61.5.3	DN 50 in trench, depth 1.5m-2m	m	60		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-



**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-3(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	192		
L111.3	Excavaion in trench for hard rock	m3	150		
	Note:- Blasting is not permitted for item L11				
L5	<b>Imported Selected Fill (Provisional)</b>				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	192		
					-
	<b>Concrete Anchor blocks</b>				-
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	5		
	<b>CLASS K: PIPEWORK MANHOLES AND PIPEWORK ANCILLARIES</b>				
	<b>Chambers</b>				
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	1		
K231.3	Sluice valves chamber as on drawing	nr	1		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection to line C1</b>				
K86	Connection to C1 -3 and C3-2 ch 0+00 approx and C1 . Include all fittings, tees and valves	nr	2		
					-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
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**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-4(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	500		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	500		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC class D pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 75 in trench, depth not exceeding 1.5m	m	400		
I61.5.3	DN 75 in trench, depth 1.5m-2m	m	100		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-4(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<i>In road and river crossings</i>				-
I51.2.1	DN 75 G.I pipe class B	m	12		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i>				-
	<i>(inclusive of fittings, nuts bolts and gaskets but exclude chambers)</i>				
J86.2	Washout to detail as shown on drawings	nr	1		-
	<b>Tees</b>				
J631.1	63mm all flanged equal tee	nr	5		
	<b>Valves</b>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				-
J81	flanged Sluice Valves to BS 5163 type "Glenfield/avk " PN10 or approved equivalent				-
J81.2	DN 63	nr	1		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 63	nr	7		
J61	<b>Bends</b>				
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				-
J611.4.2	DN 75 upvc class D Bend 11.25 Degrees	nr	7		
J611.4.1	DN 75 upvc class D Bend 22.5 Degrees	nr	6		
J611.7.2	DN 75 upvc class D Bend 45 Degrees	nr	5		
J611.7.1	DN 75 upvc class D Bend 90 Degrees	nr	5		
	<b>Joints(Provisional quantity)</b>				
J421.2	DN 75 mechanical joint (Steel to upvc)	nr	10		
J451.2	DN 75 Flanged adapter (Steel to upvc)	nr	2		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-4(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				-
L111.2	Excavation in trench for soft rock	m3	100		
L111.3	Excavaion in trench for hard rock	m3	50		
	Note:- Blasting is not permitted for item L11				
L5	<b>Imported Selected Fill (Provisional)</b>				-
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				-
L531	Not exceeding 400mm thick for bedding and cover	m3	192		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	3		-
	<b>CLASS K:PIPEWORK MANHOLES AND PIPEWORK ANCILLARIES</b>				-
	<b>Chambers</b>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				-
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	1		
K231.3	Sluice valves chamber as on drawing	nr	1		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection at existing service at tank</b>				
K86	Connection to C1-3 at ch 0+00 approx . Include all fittings, tees and valves	nr	1		-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>BILL COLLECTION</b>				
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**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-5(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	460		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	460		
<b>D</b>	<b>DEMOLITION AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed include cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All UPVC pipes shall be manufactured to KS-1452-2; 2000. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>16</b>	<b>UPVC class D pipe with connectors, inclusive of backfilling</b>				
I61.5.2	DN 75 in trench, depth not exceeding 1.5m	m	400		
I61.5.3	DN 75 in trench, depth 1.5m-2m	m	60		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-



**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT  
ZONE C - PHASE 1  
PIPELINE C3-5(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<i>In road and river crossings</i>				-
J51.2.1	DN 75 G.I pipe class B	m	12		
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				
	<b>FITTINGS AND SPECIALS</b>				
	<i>Air Valves, Fire Hydrants and Washouts</i>				
	<i>(inclusive of fittings, nuts bolts and gaskets but exclude chambers</i>				
J86.2	Washout to detail as shown on drawings	nr	1		
	<b>Tees</b>				
J631.1	63mm all flanged equal tee	nr	5		
	<b>Valves</b>				
	<i>Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing</i>				
J81	flanged Sluice Valves to BS 5163 type "Glenfield/avk " PN10 or approved equivalent				
J81.2	DN 63	nr	1		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				
J81.3	DN 63	nr	7		
J61	<b>Bends</b>				-
	<i>Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer</i>				-
J611.4.2	DN 75 upvc class D Bend 11.25 Degrees	nr	7		
J611.4.1	DN 75 upvc class D Bend 22.5 Degrees	nr	6		
J611.7.2	DN 75 upvc class D Bend 45 Degrees	nr	5		
J611.7.1	DN 75 upvc class D Bend 90 Degrees	nr	5		
	<b>Joints(Provisional quantity)</b>				
J421.2	DN 75 mechanical joint (Steel to upvc)	nr	10		
J451.2	DN 75 Flanged adapter (Steel to upvc)	nr	2		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				

**KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT**  
**ZONE C - PHASE 1**  
**PIPELINE C3-5(1)**

ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
L1	<b>Extras to excavation and Backfilling (provisional)</b>				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	92		
L111.3	Excavaion in trench for hard rock	m3	46		
	Note:- Blasting is not permitted for item L11				
L5	<b>Imported Selected Fill (Provisional)</b>				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	92		
					-
	<b>Concrete Anchor blocks</b>				-
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	2		
					-
	<b>CLASS K:PIPEWORK MANHOLES AND PIPEWORK ANCILLARIES</b>				-
	<b>Chambers</b>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				-
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	1		
K231.3	Sluice valves chamber as on drawing	nr	1		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection to line C1 and C2-6</b>				
K86	Connection to C1 at ch 0+00 approx and C2 -6. Include all fittings, tees and valves	nr	2		
					-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
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<b>KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT</b>					
<b>ZONE A - PHASE 1</b>					
<b>GRAVITY MAINS FROM RIAT HLT</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE (KShs)</b>	<b>AMOUNT (KShs)</b>
	<b>CLASS A: GENERAL ITEM</b>				
<b>A25</b>	<b>TESTING OF WORKS</b>				
A251	Pipeline testing and commissioning for the whole work on this line, including all necessary equipment, materials and works necessary for testing, such as thrust and anchor blocks, transportation and use of water, pipe fitting, disposals of used water.	m	3,310		
A252	Disinfection of Pipelines: flushing with clear water, filling containing 0.05g/l calcium hypochlorite, left for 24 hours. This includes supply of all necessary equipment materials, chemicals and water, measurement of residual chlorine, all as specified.	m	3,310		
<b>D</b>	<b>DEMOLITON AND SITE CLEARANCE</b>				
D1	General clearance 1.5m on either side of the centreline of the pipe along the pipeline route as directed including cutting and reinstatement of fences.	ha	0.50		
	Cut down trees on pipeline route, grub up roots and cart away to tips. Girth measured 1m above ground level (Provisional Quantity)				
D21	Girth 1.0 -2.0	nr	10		
D22	Girth 2.01 -3.5m	nr	5		
	<b>CLASS I: PIPE WORK - PIPES SUPPLY AND PIPE LAYING</b>				
	Supply , handle and transport to site. Transport from site store, lay and joint pipes in trench. Rate to include for excavaion, preparation of surfaces, disposal of excavaed material, shoring sides of excavation and backfilling, cutting				
	fixing and jointing materials inclusive of sockets,mechanical joints, or rubber rings where applicable				
	Note:- Trench width and minimum cover to pipes is as per the specification. and keeping the trenches free of water by pumping or other means and cost of use				
	of selected soil from the excavated material for compaction in bed and surround to backfilling of trenches, etc all as specified. .The cost shall incde for strutting, shuttering, stabilizing the earth faces of trenches				
	All steel pipes shall be manufactured to ISO 4427. All steel fittings shall be manufactured to BS EN 10244/BS 3601. The working pressures and wall thicknesses shall conform to ISO 559 Series B . The flanges shall conform to EN 1092-2				
<b>I6</b>	<b>HDPE PN 16 pipe with connectors, inclusive of backfilling</b>				
I61.2.2	DN 110 in trench, depth not exceeding 1.5m	m	2,220		
I61.2.3	DN 110 in trench, depth 1.5m-2m	m	100		
I61.6.2	DN 50 in trench, depth not exceeding 1.5m	m	900		
I61.6.3	DN 50 in trench, depth 1.5m-2m	m	90		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
GRAVITY MAINS FROM RIAT HLT					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i> (inclusive of fittings, nuts bolts and gaskets but exclude chambers)				-
J86.1.1	For Single small-orifice Air Valve type " Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	7		
J86.2	Washout to detail as shown on drawings	nr	6		
J86.3	Fire Hydrants to BS 750 (Type 2) with loose internal valve	nr	1		
	<b>Tees</b>				
J631.1	110mm all flanged equal tee	nr	12		
J631.2	50mm all flanged equal tee	nr	1		
	<b>Valves</b>				
	Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing				-
J81	flanged Sluice Valves to BS 5163 type "Glenfield/avk " PN10 or approved equivalent				-
J81.1	DN110	nr	10		
J81.2	DN50	nr	4		
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				-
J81.3	DN 110	nr	8		
J81.4	DN 50	nr	8		
<b>J61</b>	<b>Bends</b>				
	Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer				
J611.1.1	DN 110 HDPE PN 16.5 pipe Bend 11.25 Degrees	nr	2		
J611.1.2	DN 110 HDPE PN 16.5 pipe Bend 22.55 Degrees	nr	7		
J611.1.3	DN 110 HDPE PN 16.5 pipe Bend 90 Degrees	nr	6		
J611.1.1	DN 50 HDPE PN 16.5 pipe Bend 11.25 Degrees	nr	3		
J611.1.2	DN 50 HDPE PN 16.5 pipe Bend 30 Degrees	nr	5		
J611.1.3	DN 50 HDPE PN 16.5 pipe Bend 45 Degrees	nr	9		
	<b>Joints(Provisional quantity)</b>				-
J421.1	DN 50 mechanical joint (Steel to HDPE)	nr	2		
J451.1	DN 110 Blank Flanged adapter (Steel to HDPE)	nr	16		
J451.2	DN 50 Flanged adapter (Steel to HDPE)	nr	6		
J451.3	DN 75 Blank FH Flanged adapter (Steel to HDPE)	nr	1		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-

KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
GRAVITY MAINS FROM RIAT HLT					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	662		
L111.3	Excavaion in trench for hard rock	m3	1,000		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	662		
	<b>Concrete Anchor blocks</b>				
L7	Provide and place mass concrete (1:3:6) for thrust blocks and anchor blocks in bends etc Rate to include excavation and necessary formwork (Provisional Quantity)	m3	17		
	<b>CLASS K:PIPE WORK-MANHOLES AND PIPEWORK ANCILLARIES</b>				-
	<b>Chambers</b>				-
	<i>Supply and deliver materials on site, excavate for a construct complete chambers including precast concrete cover slabs where necessary as shown on the drawing</i>				-
K231.1	For air valve and Isolation valves as on drawing	nr	7		
K231.2	For washout valve chambert depth n.e 2.0m as show on drawing	nr	6		
K231.3	Fire hydrants surface box as shown on drawing	nr	2		
	<b>Marker Posts</b>				
K82	Supply and erect marker posts and indicator poles along the chamber with appropriate naming as directed by the engineering.Include for appropriate painting as directed	nr	3		
	<b>New connection at RIAT tank</b>				
K861	Connectin to existing system at the tank at ch 0+00 approx . Include all fittings, tees and valves	nr	2		
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-
	<b>BILL COLLECTION</b>				
	From page 1				-
	From page 2				-
	From page 3				-
	<b>BILL 2 TOTAL TO SUMMARY PAGE</b>				-



KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
ZONE A - PHASE 1					
NEW RISING MAINS					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KShs)	AMOUNT (KShs)
	<b>CLASS J: PIPE WORK - FITTINGS AND VALVES SUPPLY, LAYING AND JOINTING</b>				
	Supply and transport to site. Transport from site store, lay and joint inclusive of fittings, nuts bolts and gaskets but exclude chambers				-
	<b>FITTINGS AND SPECIALS</b>				-
	<i>Air Valves, Fire Hydrants and Washouts</i> (inclusive of fittings, nuts bolts and gaskets but exclude chambers)				-
J86.1.1	For Single small-orifice Air Valve type " Glenfield" or approved equivalent to BS 5163/PN10 with isolating valve	nr	7		
J595	100 Litres steel surge vessel at pump house	nr	2		
	<b>Tees</b>				
J631.1	200mm all flanged steel equal	nr	7		
	<b>Valves</b>				-
	Supply, handle, deliver to site, fix in place inclusive of all jointing fittings/accessories and test Sluice valve and gate valve to Tees as shown in drawing				-
	Gate valves (screwed peglar to BS 5163 "peglar" or equivalent approved in air valves , washouts and tees				-
J81.3	DN 200	nr	7		
	<b>Bends</b>				
	Supply, handle, deliver to site, fix in place and test inclusive of all fittings as directed by the Engineer				
J311.4.1	DN 200 epoxy coated steel Bend 11.25 Degrees plain ended	nr	7		
J311.4.2	DN 200 epoxy coated steel Bend 22.55 Degrees plain ended	nr	9		
J311.4.3	DN 200 epoxy coated steel Bend 30 Degrees plain ended	nr	6		
J311.4.4	DN 200 epoxy coated steel Bend 45 Degrees plain ended	nr	9		
J311.4.5	DN 200 epoxy coated steel Bend 90 Degrees plain ended	nr	8		
	<b>Joints(Provisional quantity)</b>				
J421.1	DN 200 mechanical joint	nr	14		
J451.1	DN 200 Blank Flanged spigot adapter	nr	7		
	<b>CLASS L: PIPE WORK-SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATIONS</b>				
L1	Extras to excavation and Backfilling (provisional)				
L11	In Pipe Trench and chambers				
L111.2	Excavation in trench for soft rock	m3	640		
L111.3	Excavaion in trench for hard rock	m3	900		
	Note:- Blasting is not permitted for item L11				
L5	Imported Selected Fill (Provisional)				
L521	Provide transport to site and place imported selected fill and compact in bed and surround to pipes as specified				
L531	Not exceeding 400mm thick for bedding and cover	m3	538		
L7	Concrete Support, Thrust Blocks and Anchor Blocks				-
	Note:- The work includes pipe and fitting fixing				-
L71	Volume:- not exceeding 0.1m3				-
	<b>PAGE TOTAL CARRIED TO COLLECTION</b>				-





KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
HIGH LEVEL AND GROUND LEVEL WATER TANKS					
PHASE 1					
ITEM No	DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
	<b>75M3 HIGH LEVEL PRESSED STEEL TANKS 1No</b>				
	<b>HIGH LEVEL TANK FOUNDATION AND COLUMNS</b>				
1.1	300mm topsoil excavation, Rate to include carting away to spoil	m3	6		
1.2	Bulk excavation in soils to depth not exceeding 5m	m3	30		
1.3	Excavation in rock (provisional)	m3	15		
1.4	Provide ,place and compact hardcore as directed(provisional)	m3	7		
1.5	Class 25 concrete in foundation base and columns	m3	11.6		
1.6	Class 15 Concrete in foundation blinding	m3	1		
1.7	Steel reinforcement foundation concrete structures	kg	1,700		
1.8	Formwork rough finish	m2	40		
	<b>75M3 PRESSED STEEL TANK</b>				-
2.1	Procure, deliver to site, assemble and install and commission as per manufacturers specification and Engineer's approval and as described in the specifications, a 75m3 net stored volume Viking pressed steel tank manufactured to BS1564or equivalent to Engineers approval, include for all cleats stays, bolts, nuts washers and jointing materials	No.	1		
2.2	Provide and install and commission all fittings for 1no. 75m3 nett stored volume Tank described above as per manufacturers instruction as described in the specifications inclusive of the rising main, outlet services, ball valve, bell mouth, duct foot bends, concrete footings, and 4 No. valves and level indicator	Item	Sum		
2.3	Provide and install and commission Cover to tank, air vents, and tank enclosures, in and out access ladders for 1No. Tank	Item	Sum		
2.4	Protection against corrosion- 3 coats approved paint to all metal surfaces of the tank structure as per specification for 1No. 75m3 Tank	Item	Sum		
2.5	Test, sterilize and commission tank	Item	Sum		
2.6	Submit approved as built drawings for all installed tanks- 3No copies	Item	Sum		
2.8	Supply and install ,on the approved foundation, a 21m high steel Tower to support 75m3 tank as per manufacturers specifications complete with tower piers, gang way and railways. Allow for provision of design calculations of the 21m to Engineer's approval.	Item	Sum		
2.7	Connect tank outlet and inlet to reticulation mains, borehole supply, and ground tank and pump house with a 2" G.I class B pipe as per drawing layout. Allow for all required fittings and valves for the two tank sites	Item	Sum		
	<b>GATE AND FENCING</b>				
4.1	3000 mm high chain link fencing on and including standard treated timber posts 150mm dia placed at 3.0m centres. Rate to include for a pair for straining posts every 9m and at all corners. SWG wire strings and continuous chain link fence, concrete 1:3:6 bases built 600mm deep below ground level as per drawing No. TGL/WS/STD/08. Include for excavations and disposal of excavated materials	m	150		
4.2	<i>Purpose made mild steel gate including necessary iron mongery; fixed to concrete to block work including one coat of red oxide primer before fixing and welding connections</i> Construct a double leaved steel gate as per drawing No. TGL/WS/STD/08. Include for all associated costs.	nr	1		
4.3	Ditto as 3.18 but for pedestrian gate as shown on the drawing	nr	1		

KISUMU WATER AND SEWERAGE Co. LTD OBA PROJECT					
HIGH LEVEL AND GROUND LEVEL WATER TANKS					
PHASE 1					
ITEM No	DESCRIPTION	UNIT	QTY	RATE (Ksh)	AMOUNT (Ksh)
	PAGE TOTAL CARRIED TO BILL COLLECTION				-
	<b><u>GROUND LEVEL PRESSED STEEL TANKS</u></b>				
	<b><u>Tank 1 -229M3</u></b>				
	<b><u>Foundation Base</u></b>				
11.1	300mm topsoil excavation, Rate to include carting away to spoil	m3	15		
11.2	Bulk excavation in soils to depth not exceeding 5m	m3	50		
11.3	Excavation in rock (provisional)	m3	10		
11.4	Provide place and compact hardcore as directed(provisional)	m3	50		
11.5	Class 25 concrete in foundation bases and columns	m3	20		
11.6	50mm Class 15 Concrete in foundation blinding	m3	2.5		
11.7	Steel reinforcement foundation concrete structures	kg	2,000		
11.8	Formwork fair finish	m2	15		
	<b><u>Tank and Accessories</u></b>				
11.9	Procure, deliver to site, assemble and install and commission as per manufacturers specification and Engineer's approval and as described in the specifications, a 229m3 nett stored volume pressed steel tank manufactured to BS1564or equivalent to Engineers approval, include for all cleats stays, bolts, nuts washers and jointing materials	No	1		
11.10	Provide and install and commission all fittings for 1no. 229m3 nett stored volume Tank described above as per manufacturers instruction as described in the specifications inclusive of the rising main, outlet services, ball valve, bell mouth, duct foot bends, concrete footings, and 4 No. valves and level indicator				
11.11	Provide and install and commission Cover to tank, air vents, and tank enclosures, in and out access ladders for 1No. Tank	Item	Sum		
11.12	Protection against corrosion- 3 coats approved paint to all metal surfaces of the tank structure as per specification for 1No. 229m3 Tank				
11.13	Test, sterilize and commission tank	Item	Sum		
	<b><u>CIVIL WORKS</u></b>				
	<i>Drainages , landscaping , grassing and access areas as per drawings</i>				
13.1	Trapezoidal Earth drains , Average depth at mid section 0.5m	m	80		
13.2	Trapezoidal stone pitched Lined drains as per drawings. Include for 1 no culvert crossing and headwall as per drawings	m	45		
13.3	Leveling , grassing and landscaping and murraming of access	ha	0		
13.4	Gabions as directed	m2	100		
13.5	1000mm wide footpath made of 2 × 500mm square concrete paving footpath or approved equivalent on 50mm compacted quarry dust material to engineers approval	m	20		
13.6	Concrete class 15 in thrust blocks	m3	5		
	PAGE TOTAL CARRIED TO BILL COLLECTION				-
	<b>BILL 2 COLLECTION</b>				
	From page 1				-
	From page 2				-
	<b>TOTAL COLLECTION SHEET</b>				
					-