

BILL NO. 1: PRELIMINARIES AND GENERAL ITEMS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
1.01	Provide or rent accommodation for Engineer's senior and junior staff					
	(i) Type I (1No.)	Month	42	65,000		2,730,000.00
	(j) Type II (3No.)	Month	84	55,000		4,620,000.00
	(iii) Type III (5No.)	Month	84	40,000		3,360,000.00
	(iv) Type IV (5No.)	Month	126	30,000		3,780,000.00
	(v) Type V (10No.)	Month	210	21,000		4,410,000.00
	Total	Total Item 1.01				18,900,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%				
1.03	Provide or rent and maintain Engineer's Representative's office as shown on the drawings or as instructed by the Engineer for use during the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LUMP SUM	1			
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract, ownership to revert to the Contractor at the end of the Contract	LUMP SUM	1			
1.05	Provide and maintain Laboratory equipment, reagents and other items as priced in Appendix 'A' to the Bill of Quantities for use by the Engineer's representative for the duration of the contract.	LUMP SUM	1			
1.06a	Provide and maintain furniture , tools and other items for the Engineers office and Engineers representative houses as priced in Appendix B for the duration of the contract	LUMP SUM	1			
1.06b	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract	LUMP SUM	1			
1.07	Provide with drivers, fuel and maintain Two (2) new 4WD fully loaded station wagons of minimum diesel engine capacity 2400cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	54			
1.08	E.O item 1.07 for total aggregated mileage in excess of 5000km per vehicle month.	km	63,000			
1.09	Provide with drivers, fuel and maintain Two (2) new 4WD fully loaded double cabin pick-ups of minimum diesel engine capacity 2400cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	Veh Month	84			
1.10	E.O item 1.07 for total aggregated mileage in excess of 5000km per vehicle month.	km	126,000			
1.11	Ditto item 1.09, but one (1) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2400cc approved for the exclusive use of the Engineer inclusive of the first 5000km per vehicle month. Vehicles to revert to the Contractor at the end of the project.	veh Month	42			
1.12	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle per month.	km	63,000			
1.13	Ditto item 1.09, but two (2) new 4WD Single cabin pick-up with fibre glass body, with cushioned benches of minimum diesel engine capacity 2200cc approved for the exclusive use of the Engineer inclusive of the first 5000km per vehicle month. Vehicle to revert to the Contractor at the end of the project.	veh Month	84			
1.14	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month.	km	72,000			
1.15	Allow a Prime Cost Sum of Kshs. 12,600,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1			
1.16	E.O. item 1.13 for Contractor's overheads and profits.	% of item				
1.17	Allow a Prime Cost Sum of Kshs 37,800,000.00 for attendance upon the Resident Engineer's staff.	PC Sum	1			
1.18	E.O. item 1.15 for Contractor's overheads and profits.	% of item				
1.19	Provide/Repair/Replace the stickers on 4No. Existing project signboard as directed by the Engineer	No	4			
1.20	Allow a Prime Cost Sum of Kshs 3,000,000.00 for relocation of services	PC Sum	1			
1.21	E.O item 1.17 for Contractor's overheads and profits	% of item				
1.22	Provide and maintain for the duration of the contract a mobile weigh bridge with manufacturers warranty, as specified in Appendix E in a PDF file. The weigh bridge to revert to employer at commencement of the project. Allowances for repairs and maintenance must be included in the quotation	No	1			
1.23	Allow for Prime Cost Sum of Kshs. 2,000,000.00 for training of Engineers	PC Sum	1			
1.24	E.O. item 1.23 for Contractor's overheads and profits	%				
1.25	Allow for Prime Cost Sum of Kshs. 4,000,000.00 for post construction pavement investigation and review	PC Sum	1			
1.26	E.O. item 1.25 for Contractor's overheads and profits.	%				
Bill No. 1 Total Carried Forward to Grand Summary						18,900,000.00

BILL NO. 4 : SITE CLEARANCE AND TOP SOIL STRIPPING						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
4.01	Clear site on road reserve including removal of all growths, bushes, hedges, trees, stumps, grub up roots, and other deleterious materials and back-fill and compact to 100% MDD(AASHTO T99) in layers not exceeding 150mm	Ha.	13			
4.02	Strip top soil upto 0.2m in thickness along alignment or material sites including removal of all grass and other vegetation,transport to spoil and spread or stock pile for re-use as directed by the Engineer.	m³	24,200			
4.03	Provide Kshs. 1,000,000 for the removal of structures and obstructions as instructed by the Engineer to be paid on dayworks basis	Prov. Sum	1			
Bill No. 4 Total Carried Forward to Grand Summary						0.00
BILL NO. 5 : EARTHWORKS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	NOTE: No separate payment shall be made for the overhaul of material and the cost of such haulage shall be included in the rates and/or prices inserted					
5.01	Fill in soft material including benching of shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm	m³	110,750			
5.02	Extra Over Item 5.01 for compaction of the top 300mm subgrade to 100% MDD	m³	152,000			
5.03	Ditto item 5.01 but in hard material	m³	11,100			
5.04	Cut to spoil in soft material	m³	217,000			
5.05	Ditto item 5.04 but in hard material	m³	108,500			
5.06	Provide improved sub grade material as directed by the Engineer to a compaction of 100% MDD (AASHTO T99)	m³	149,000			
5.07	Compaction of top 300mm below formation level in cuts to 100% MDD (AASHTO T99)	m³	134,000			
5.08	Compaction of 150mm original ground below fills to 95% MDD(AASHTO T99)	m³	74,000			
5.09	Top-soiling prior to planting grass as directed by the Engineer	m²	83,000			
5.10	Grassing as directed by the Engineer	m²	83,000			
Bill No. 5 Total Carried Forward to Grand Summary						0.00

BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	These work items covers all excavations and filling operations to bridges, box culverts, retaining walls and other major structures.					
7.01	Excavate to spoil in soft materials.	m³	12,000			
7.02	As item 7.01 but in hard material.	m³	3,000			
7.03	Provide,place and compact rockfill below strcures.	m³	1,000			
7.04	Provide and place 150mm thick stone pitching including grouting as directed by the Engineer.	m²	20,000			
7.05	Excavate for gabions in soft material.	m³	10,000			
7.06	Provide and place gabion boxes and mattresses where directed by the Engineer.	m²	11,000			
7.07	Rockfill to gabions.	m³	8,000			
7.08	Filter fabric behind gabion boxes.	m²	6,000			
7.09	Provide and backfill approved material around new box culverts, compact to 100% MDD (AASHTO T99) in layers not exceeding 150mm.	m³	9,000			
7.10	Allow for protection of structures pursuant to Section 708 of the specifications	LS	1			
7.11	Allow for the provision and removal of cofferdams or other measures for the exclusion of water from site and for protection of works against floods.	LS	1			
Bill No. 7 Total Carried Forward to Grand Summary						0.00

BILL NO. 8: CULVERTS AND DRAINAGE WORKS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	Notes: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included					
8.01	Excavate for inlet,outfall,mitre and catch water drains in soft material	m³	12,000			
8.02	As per item 8.01, but for hard material	m³	3,000			
8.03	Excavation in soft material for pipe culverts,headwalls, wingwalls, apron, toewalls,and drop inlets and compact as directed by the engineer	m³	15,000			
8.04	As per item 8.03, but for hard material	m³	3,750			
8.05	Provide,lays and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for recess roads	m	2,500			
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	1,500			
8.07	As for item 8.05 but 1200mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	600			
8.08	Provide and place class 15/20 concrete to beds, surround and haunches	m³	7,500			
8.09	Provide, place and compact class 25(20) concrete for headwalls, wingwalls, aprons, and toewalls to access and cross pipe culverts including all form work and the provision and placing of reinforcement as shown in the drawings	m³	3,500			
8.10	Provide and place invert block drains with two course side slabs (Provisional)	m	800			
8.11	Construct in concrete class 15(20) side drains scour checks as instructed	m³	800			
8.12	Provide and place precast concrete slabs 1000mm x 600mm x 50mm and place over open lined drains in trade centres and markets	No.	500			
8.13	Provide subsoil filter drains fabric to isolated wet spots inclusive of artesian cloth, and 1422mm single size aggregates as directed by the Engineer	m	1,000			
8.14	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	400			
Bill No. 8 Total Carried Forward to Grand Summary						-

BILL NO. 9: PASSAGE OF TRAFFIC						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	NOTE: Notwithstanding the provision of Section 9 of the Standard Specification, no extra payments shall be due as all costs shall be deemed to be included in the rates inserted herein					
9.01	Construct and maintain diversions in maximum lengths of 5km sections as directed by the Engineer, including including 150mm wearing course gravel all signage, lighting and barriers	km	40			
9.02	Provide, spread, water and compact gravel of minimum CBR 30% as directed by the Engineer for maintenance works.	m³	11,800			
9.03	Allow for the passage of traffic through and around the works	LS	1			
9.04	Grade, water and compact existing road ahead of works	km	50			
Bill No. 9 Total Carried Forward to Grand Summary						-

BILL NO. 12: NATURAL MATERIAL FOR SUBBASE AND BASE						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	Notes: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates.					
12.01	Provide gravel Sub-base material, haul, spread, compact to at least 95% M.D.D (AASHTO T-180) and shape to level and tolerance.	m³	150,000			
12.02	Ditto item 12.01 but for base	m³	140,000			
Bill No. 12 Total Carried Forward to Grand Summary						0.00

BILL NO. 14 : CEMENT OR LIME TREATED SUBBASE AND BASE						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	Notes: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates.					
14.01	Provide and spread Lime as an improvement agent for sub-base /base	Tonne	2,900			
14.02	Provide and spread Cement as an improvement agent for sub-base /base	Tonne	7,933			
14.03	Provide and spread Cement as an improvement agent for base	Tonne	10,633			
14.04	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified(Mix-in-place method)	m³	140,000			
14.05	Curing of cement / lime treated base and sub-base layers	m²	261,500			
Bill No. 14 Total Carried Forward to Grand Summary						0.00

BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING TO SHOULDERS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
15.01	Prepare surface of road base and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat at 0.8-1.2 Litres/m².	Litres	642,200			
15.02	Prepare surface of road base and shoulders, provide, heat and spray K1-60 bitumen emulsion tack coat at 0.5-0.8 Litres/m2.	Litres	428,200			
Bill No. 15 Total Carried Forward to Grand Summary						0.00

BILL NO. 16: BITUMINOUS MIXES						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
16.01	Provide, lay and compact 35mm Asphalt Concrete Type II wearing course as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m³	18,600			
16.02	Provide, place and compact Asphaltic concrete type I for construction of bumps and rumbleseat Bitumen Content of 5.5 - 7.0% by weight of total mix.	m³	550			
Bill No. 16 Total Carried Forward to Grand Summary						0.00

BILL NO. 17: CONCRETE WORKS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
	BRIDGES AND BOX CULVERTS					
	Concrete					
17.01	Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer	m³	2,000			
17.02	Provide, place and compact concrete class 25(20) to aprons, wingwalls, abutments, piers, walls and slabs for box culverts abd bridges as shown in drawings.	m³	8,300			
17.03	Provide, place and compact concrete class 30(20) to main beams, cross-beams, deck and approach slabs as shown in drawings.	m³	1,450			
	Reinforcement: Provide, cast, bend & fix into position steel reinforcement as shown in the drawings or as instructed by the Engineer					
17.11	High yield reinforcement steel bars to BS 4461 equal to or less than 16mm diameter bar size	Tonne	1,254			
17.12	High yield bond strength reinforcement steel to BS 4461 greater than 16mm diameter bar size	Tonne	400			
	Formwork : Provide,erect and afterwards dismantle and remove all the formwork as specified by the Engineer					
17.24	Provide & fix in place formwork to achieve class F1 finish	m²	22,000			
17.25	Vertical formwork to achieve class F3 finish	m²	2,000			
17.33	Class 20/20 Roller compacted concrete for road construction 100 mm, incl. A142 Steel reinforcing mesh mats (6mm)	m³	700			
Bill No. 17 Total Carried Forward to Grand Summary						0.00

BILL NO. 20: ROAD FURNITURE						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	(KSHS)
20.01	Provide Road Reserve Boundary posts	No.	300			
20.02	Excavate for, provide & place 250 x 125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer.					
	a) Straight kerbs	m	420			
	b) Kerbs radius 12m - 6m	m	100			
	c) Ditto but radius 5m - 1m	m	100			
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	420			
20.04	Provide and erect permanent road signs where instructed by the Resident Engineer and in accordance with Special Specifications Clause 2004 as follows:					
	a) warning signs	No.	60			
	b) Priority prohibitory and mandatory signs	No.	60			
	c) Standard informatory signs	No.	60			
	d) Non standard informaton signs area					
	i) Less than 1.0m²	No.	60			
	ii) More than 1.0m² but less than 5m²	No.	60			
20.05	Provide, deliver, point and mark the road as specified or as directed by the Engineer, with white reflectionized thermoplastic paint from an approved supplier.	m²	20,600			
20.06	As item 20.05 but for yellow reflectionized thermoplastic paint	m²	10,800			
20.07	Provide and erect concrete posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	900			
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	900			
20.09	Provide Edge marker posts	No.	180			
20.10	Provide kilometre marker posts as directed by the Engineer	No.	150			
Bill No. 20 Total Carried Forward to Grand Summary						0.00

d) Non standard informantor signs area					
i) Less than 1.0m ²		No.	60		
ii) More than 1.0m ² but less than 5m ²		No.	60		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectionized thermoplastic paint from an approved supplier.	m ²	20,600		
20.06	As item 20.05 but for yellow reflectionized thermoplastic paint	m ²	10,800		
20.07	Provide and erect concrete posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	900		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	900		
20.09	Provide Edge marker posts	No.	180		
20.10	Provide kilometre marker posts as directed by the Engineer	No.	150		
BILL No. 20 Total Carried Forward to Grand Summary				0.00	
BILL No. 21: MISCELLANEOUS BRIDGE WORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
21.01	Provide 75-100mm diameter weepholes to suit abutments and structural walls to structures as instructed by the Engineer	No	750		
21.02	Provide 75-100mm diameter weepholes todeck slab and insert 100mm diameter PVC heavy duty 600mm long top sealed with perforated steel grating	No	500		
21.03	Provide and install elastomeric bearings LEB IRHD size 500 x 450 x 54mm thick	No	100		
21.04	Movement joints at abutments and piers including dowels (provisional)	m	120		
21.05	25mm thick flex cell or similar approved low compression joint filler at expansion joint	m	120		
21.06	Providing and placing bitumen emulsion or cutback bitumen or bitumen/rubber latex emulsion to all structural concrete in contact with fill material or cut soil.	m ²	2,000		
21.07	Parasol or similar approved cold poured polysulphide joint sealant	m	120		
21.08	Provide and place into position handrails to kerbs of bridge deck & ramps as shown on the drawing and as directed by the Engineer.	m	1,250		
21.09	Provide and place into position galvanneal flex-beam guardrails including end pieces,nuts and bolts along the approaches to the bridges as per drawings and as instructed by the Engineer	m	1,250		
21.10	Provide and place a 0.5m wide drainage layer of class 14/20 mm to structural concrete in contact with fill material.	m ³	700		
BILL No. 21 Total Carried Forward to Grand Summary				-	

UPGRADING TO BITUMEN STANDARD AND MAINTENANCE OF OINOBOI-KAPKELELWA-KAPKAYO-TENGES/KAPKAYO-KIPSAOS ROAD
CONTRACT NO. RWC 602

SUMMARY OF BILL OF QUANTITIES		
BILL ITEM	DESCRIPTION	AMOUNT (KSHS)
1	Preliminaries and General Items	
4	Site Clearance and Top Soil Stripping	
5	Earth Works	
7	Excavation and Filling of Structures	
8	Culverts and Drainage Works	
9	Passage to Traffic	
12	Natural Gravel Base and Subbase	
14	Lime/Cement Improved gravel Subbase and Base	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
17	Concrete Works	
20	Road Furniture	
21	Miscellaneous Bridge works	
22	Schedule of Dayworks.	
25	HIV/AIDS, Gender &Social Issues, Local Participation	
(A)	SUB-TOTAL (1)	
(B)	Add 15% VARIATION OF PRICE of sub total (1)	
(C)	Add 10% CONTIGENCIES of sub total (1)	
(D)	SUB-TOTAL (2) = (A + B + C)	
(E)	Add 0.03% Public Procurement Capacity Building Levy of sub-total (2)	
(F)	Add ...14% VAT of sub-total (2)	
TOTAL CARRIED FORWARD TO FORM OF BID AS BID SUM 1		-

SECTION 1: PERFORMANCE BASED ROUTINE MAINTENANCE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Road safety				
	1)Removal of trees, falling rocks,logs or any other obstruction on the carriageway	Km.Month	36	2,000.00	72,000.00
	2) Bush clearing including grass cutting for visibility and safety Durability	Km.Month	108	2,000.00	216,000.00
1.02	Clean side drains, mitre drains, cross and access culverts to free flow conditions	Km.Month	180	2,000.00	360,000.00
(A)	SUB-TOTAL 1: CARRIED FORWARD TO GRAND SUMMARY OF PERFORMANCE BASED ROUTINE MAINTENANCE				648,000.00
SECTION 2: INSTRUCTED WORKS FOR PERFORMANCE BASED ROUTINE MAINTENANCE					
BILL NO. 1: PRELIMINARIES AND GENERAL ITEMS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Allow a Prime Cost Sum of Kshs. 7,200,000.00 for attendance upon the Resident Engineer's staff for supervision of the PBRM works	PC Sum	1	7,200,000.00	7,200,000.00
1.02	E.O. item 1.01 for contractor's overheads and profits	%		10%	720,000.00
1.03	Provide one (1) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2200cc approved for the exclusive use of the Engineer inclusive of the first 5,000km per vehicle month. Vehicle to	Veh. Month	36	220,000.00	7,920,000.00
1.04	E.O. item 1.03 for total aggregated mileage in excess of 5000km per vehicle per month	Km	2000	15.00	30,000.00
	Bill No. 1 Total Carried Forward to Grand Summary		72		15,870,000.00
BILL NO. 5 : EARTHWORKS					
ITEM	DESCRIPTION	UNIT	72.00	RATE	AMOUNT (KSHS)
	<i>Note: No separate payments shall be made for gravel for blinding on hard material fill areas or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
5.01	Fill in soft material including benching of shoulders for repairs to embankments, shoulders and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm	m³	36.00	100.00	3,600.00
5.02	Ditto item 5.01 but in hard material	m³	500.00	300.00	150,000.00
5.03	Cut to spoil in soft material	m³	72.00	100.00	7,200.00
5.04	Ditto item 5.03 but in hard material	m³	500.00	300.00	150,000.00
Bill No. 5 Total Carried Forward to Summary					310,800.00
BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES					
ITEM	DESCRIPTION	UNIT	QTY	19,800,000.00	AMOUNT (KSHS)
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
7.01	Provide and place 150mm thick stone pitching as directed by the Engineer including cement grouting	m²	1,200.00	1,000.00	1,200,000.00
7.02	Excavate for gabions in soft material.	m³	115.00	300.00	34,500.00
7.03	Provide and place gabion boxes and mattresses where directed by the Engineer.	m²	825.00	800.00	660,000.00
7.04	Rockfill to gabions.	m³	500.00	1,000.00	500,000.00
7.05	Filter fabric behind gabion boxes.	m²	500.00	200.00	100,000.00
Bill No. 7 Total Carried Forward to Summary					2,494,500.00
BILL NO. 8. CULVERTS AND DRAINAGE WORKS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
8.01	Excavate for inlet,outfall,mitre and catch water drains in soft material	m³	1,500.00	150.00	225,000.00
8.02	As per item 8.01, but for hard material	m³	150.00	800.00	120,000.00
8.03	Excavation in soft material for pipe culverts,headwalls, wingwalls, apron, toewalls,and drop inlets and compact as directed by the engineer	m³	14.00	200.00	2,800.00
8.04	As per item 8.03, but for hard material	m³	270.00	800.00	216,000.00
8.05	Provide,lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	750.00	3,000.00	2,250,000.00
8.06	Provide,lay and joint 900mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	120.00	5,000.00	600,000.00
8.07	Provide and place class 15/20 concrete to beds, surround and haunches	m³	1,500.00	9,000.00	13,500,000.00
8.08	Provide, place and compact class 25(20) concrete for headwalls, wingwalls, aprons,and toewalls to access and cross pipe culverts including all form work and the provision and placing of reinforcement as shown in the drawings	m³	500.00	11,000.00	5,500,000.00
8.09	Provide and place invert block drains 300mm radius with two course side slabs	m	375.00	2,000.00	750,000.00
8.10	Construct in concrete class 15(20) side drains scour checks as instructed	m³	75.00	9,000.00	675,000.00
8.11	Provide and place reinforced with Y10 BARS spaced 200x200 c/c precast concrete slabs 1000mm x 600mm x 150mm with recessed lift hooks and water ingress notches as instructed and place over open lined drains where instructed	No.	375.00	3,000.00	1,125,000.00
Bill No. 8 Total Carried Forward to Summary					24,963,800.00
BILL NO. 11 : SHOULDERS TO CARRIAGEWAY PAVEMENT AND PEDESTRIAN WALKWAYS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
11.01	Grade, shape, water and compact existing shoulders, access and busbays where directed by the Engineer	m²	12,000.00	50.00	600,000.00
11.02	Cut benches on shoulders , widening and busbays where directed by the Engineer	m²	12,000.00	50.00	600,000.00
11.03	Provide , lay and compact 150mm thick gravel to shoulders in accordance with specifications and as directed by the Engineer	m³	1,800.00	400.00	720,000.00
Bill No. 11 Total Carried Forward to Summary					1,920,000.00
BILL NO. 12 : NATURAL MATERIAL FOR SUBBASE AND BASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	<i>Note: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates</i>				
12.01	Provide gravel of base quality material, haul, spread, compact to at least 100% M.D.D (AASHTO T-180) and shape to level and tolerance for repairs to pavement layers as instructed	m³	750.00	200.00	150,000.00
Bill No. 12 Total Carried Forward to Summary					150,000.00
BILL NO. 14 : CEMENT OR LIME TREATED SUBBASE AND BASE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	<i>Note: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates</i>				
14.01	Provide and spread Lime as an improvement agent for sub-base and base	Tonne	30.00	19,500.00	585,000.00
14.02	Provide and spread Cement as an improvement agent for sub-base and base	Tonne	45.00	18,500.00	832,500.00
14.03	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m³	750.00	200.00	150,000.00
14.04	Curing of cement / lime treated base and sub-base layers	m²	375.00	30.00	11,250.00
Bill No. 14 Total Carried Forward to Summary					1,578,750.00
BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING TO SHOULDERS					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
15.01	Prepare surface of road base and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat at 0.8-1.2 Litres/m2.	Litres	600.00	90.00	54,000.00
15.02	Prepare surface of road base and shoulders,Provide, heat and spray 80/100 cut-back bitumen as first seal on the shoulders at a rate of 1.0-1.2 Litres/m2.	Litres	578,000.00	60.00	34,680,000.00
15.03	Prepare surface of road base and shoulders,Provide, transport, lay and roll 10/14 mm Class 2 pre-coated with MC 30, chippings at a rate of 90-110m2/m3	m³	7,000.00	3,500.00	37,891,500.00
15.07	Prepare surface of road base and shoulders,Provide & spray KI-60 as tack coat on carriageway, rate of 0.5-0.8 l/m²	Litre	500.00	90.00	45,000.00
Bill No. 15 Total Carried Forward to Summary					72,670,500.00
BILL NO. 16: BITUMINOUS MIXES					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
16.01	Provide, lay and compact cold Asphalt Concrete(AC) for repair of carriageway as directed by the Engineer. The rate to include preparing the ground including compaction to receive AC.	m³	200.00	13,000.00	2,600,000.00
16.02	Provide and erect Asphalt Concrete Type I bumps and rumble strips as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m³	150.00	13,000.00	1,950,000.00
Bill No. 16 Total Carried Forward to Summary					4,550,000.00
BILL NO. 20: ROAD FURNITURE					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
20.01	Provide and replace permanent road signs				
	a) warning signs	No.	5	12,000.00	60,000.00
	b) Priority prohibitory and mandatory signs	No.	5	12,000.00	60,000.00
	c) Standard informatory signs	No.	5	12,000.00	60,000.00
	d) Non standard informantor signs area				
	i) Less than 1.0m²	No.	5	20,000.00	100,000.00
	ii) More than 1.0m² but less than 5m²	No.	5	30,000.00	150,000.00
20.02	Provide and replace guard rails	m	200	3,600.00	720,000.00
20.03	Provide and replace handrail	m	200	3,600.00	720,000.00
20.04	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectionized thermoplastic paint from an approved supplier.	m²	17,000	1,000.00	17,000,000.00
20.05	As item 20.04 but for yellow reflectionized thermoplastic paint	m²	9,000	1,000.00	9,000,000.00
Bill No. 20 Total Carried Forward to Summary					27,870,000.00
SUMMARY OF INSTRUCTED WORKS FOR INSTRUCTED WORKS					
BILL ITEM	DESCRIPTION				AMOUNT (KSHS)
1	Preliminary and General Items				15,870,000.00
5	Earth Works				310,800.00
7	Excavation and Filling of Structures				2,494,500.00
8	Culverts and Drainage Works				24,963,800.00
11	Shoulders to Carriageway pavement and pedestrian walkway				1,920,000.00
12	Natural Gravel Base and Subase				150,000.00
14	Lime/Cement Improved gravel Subbase and Base				1,578,750.00
15	Bituminous Surface Treatment and Surface Dressing				72,670,500.00
16	Bituminous Mixes				4,550,000.00
20	Road furniture				27,870,000.00
(B)	SUB-TOTAL (2) - INSTRUCTED WORKS FOR PERFORMANCE BASED ROUTINE MAINTENANCE CARRIED FORWARD TO GRAND SUMMARY				152,378,350.00
GRAND SUMMARY OF BILL OF QUANTITIES FOR MAINTENANCE WORKS					
BILL ITEM	DESCRIPTION				AMOUNT (KSHS)
(C)	Total for Performance based routine maintenance works (PBRM) = SUB-TOTAL (1)				648,000.00
(D)	Total for instructed maintenance works = SUB-TOTAL (2)				152,378,350.00
(E)	SUB-TOTAL (3) = (C) + (D)				153,026,350.00
(F)	Add 5% CONTIGENCIES of sub total (3)				7,651,317.50
(G)	Add 15% VARIATION OF PRICE of sub total (3)				22,953,952.50
(H)	SUB-TOTAL (4) = (E) + (F) + (G)				183,631,620.00
(I)	Add ...14% VAT of sub-total (4)				25,708,426.80
GRAND TOTAL (H) + (I)-CARRIED FORWARD TO FORM OF BID AS BID SUM 2					209,340,046.80

APPENDIX A					
APPENDIX TO BILL ITEM 1.05: PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	36 108 180	RATE (KSHS)	AMOUNT (KSHS)
	1. FURNITURE		180 360		
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2	40,000	80,000.00
A104/1.02	Desk chair (standard)	No	15	7,000	105,000.00
A104/1.03	Stationery cupboard, 1.2 m³, lockable	No	2	15,000	30,000.00
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2	22,000	44,000.00
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2	15,000	30,000.00
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2	50,000	100,000.00
A104/1.07	Table - 6 m²	No	2	60,000	120,000.00
A104/1.08	Two Plate electric heater	No	72	60,000	4,320,000.00
A104/1.09	Fire extinguisher, 10 litre capacity, CO₂ type	No	4	5,000	20,000.00
A104/1.10	Complete first aid kit	No	72	20,000	1,440,000.00
	EQUIPMENT <i>(The following equipment shall be purpose made for use in the Engineer's laboratories and shall comply with the relevant British (BS) or American (AASHTO) Standard)</i>		36		
			72		
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2	9,000,000.00	18,000,000.00
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2	7,200.00	14,400.00
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1	19,800,000.00	19,800,000.00
A104/2.05	Straight edge 300 mm long with handles	No	4	4,500.00	18,000.00
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3	14,000.00	42,000.00
A104/2.07	Compaction mould 152.4 mm, dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	2	11,500.00	23,000.00
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4	7,400.00	29,600.00
A104/2.09	75mm brush	No	2	140.00	280.00
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1	40,000.00	40,000.00
A104/2.11	20mm BS Sieve, 300mm diameter	No	1	13,800.00	13,800.00
A104/2.12	Stop Clock	No	2	5,000.00	10,000.00
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m³	No	2	200,000.00	400,000.00
A104/2.14	As above but gas heated	No	1	170,000.00	170,000.00
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60	500.00	30,000.00
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2	150,000.00	300,000.00
			14		
C/Forward to next page					45,180,080.00
	B/Forward from previous page				45,180,080.00
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2	450.00	900.00
A104/3.02	Stainless steel tray 305mm diameter	No	2	3,200.00	6,400.00
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2	5,800.00	11,600.00
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2	8,800.00	17,600.00
A104/3.05	Steel pegs for fixing tray in position	No	15	150.00	2,250.00
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2	20,000.00	40,000.00
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2	30,000.00	60,000.00
A104/3.08	Cold steel chisel 20mm x 300mmm	No	4	400.00	1,600.00
A104/3.09	Cold steel chisel 10mm x 250mmm	No	4	400.00	1,600.00
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1	7,000.00	7,000.00
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6	700.00	4,200.00
A104/3.12	100mm brush, soft	No	3	200.00	600.00
A104/3.13	50mm brush, soft	No	3	140.00	420.00
A104/3.14	Primus gas stove	No	1	8,150.00	8,150.00
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3	8,000.00	24,000.00
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3	16,300.00	48,900.00
	5. CBR (AASHTO T193)				
A104/5.01	CBR mould, 152.4 mm dia x 178 mm high, complete with perforated base plate and extension collar 50.8 mm high that can be fitted to either side of mould	No	50	8,800.00	440,000.00
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	40	3,000.00	120,000.00
A104/5.03	2.25 kg split surcharge weight	No	2	2,000.00	4,000.00
A104/5.04	Set of annular surcharge weights	No	1	3,000.00	3,000.00
A104/5.05	Solid base plate for CBR mould	No	2	3,000.00	6,000.00
A104/5.06	Static compaction displacer discs 1 Nox 61.4 mm, 1 No x 50.8 mm and 2 Nox 38.8 mm thick with handles	set	1	100,000.00	100,000.00
A104/5.07	Disk lifting handle	No	2	10,000.00	20,000.00
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1	70,000.00	70,000.00
A104/5.09	Automatic CBR Proctor Compaction press, 50 tonnes capacity with an adjustable distance between platens of 530mm-250mm, rammer weights and automatic count selector	No	1	460,000.00	460,000.00
A104/5.10	Set of guards for above press.	No	1	6,500.00	1,271,900.00
A104/5.11	50 kN CBR Load frame complete with stabilising bar (electric and hand operated) including proving rings for 10KN, 28KN and 50KN, piston and bracket	No	1	643,000.00	643,000.00
C/Forward to next page					48,553,200.00
	B/Forward From previous page				48,553,200.00
A104/5.12	Penetration gauge range 0 - 25mm	No	2	23,000.00	46,000.00
A104/5.13	CBR piston including bracket	No	2	5,000.00	10,000.00
A104/5.14	Swell measurement tripod complete with guage calibrated in 0.01 mm divisions	No	2	6,000.00	12,000.00
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1	226,000.00	226,000.00
	6. Relative Density of Aggregates (BS 812)				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	2	30,000.00	60,000.00
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2	7,000.00	14,000.00
A104/6.03	Soft absorbent cloth (tea towel)	No	10	300.00	3,000.00
A104/6.04	Shallow tray of area not less than 0.065 m²	No	2	4,000.00	8,000.00
A104/6.05	An airtight container of similar capacity to the basket	No	2	3,000.00	6,000.00
A104/6.06	Pycnometer of 1 litre capacity	No	4	5,000.00	20,000.00
A104/6.07	Semi automatic 5 kg balance accurate to 0.1g to be of size and type to permit the basket containing the sample to be suspended in water(to be supplied with weights)	No	1	302,000.00	302,000.00
A104/6.08	Hot air drier (electric)	No	2	40,000.00	80,000.00
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2	12,600.00	25,200.00
	8. Sieve Analysis (BS 1377)				
A104/8.01	BS Sieve 300mm diameter in sizes 75, 63, 50, 37.5, 28, 20, 14, 10, 6.3, 5 and 4 mm, plus lid and receiver	Set	2	175,000.00	350,000.00
A104/8.02	BS Sieve 200mm diameter in sizes 2, 1, 0.6, 0.5, 0.425, 0.300,0.150 and 0.075 mm, plus lid and receiver	Set	2	85,000.00	170,000.00
A104/8.03	Electric sieve shaker	No	1	220,000.00	220,000.00
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1	85,000.00	85,000.00
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10	10,000.00	100,000.00
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1	45,000.00	45,000.00
	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3	4,000.00	12,000.00
A104/9.02	Dustpan and brush	No	3	550.00	1,650.00
A104/9.03	Shovel	No	4	450.00	1,800.00
A104/9.04	Pick axe with handle	No	4	1,200.00	4,800.00
A104/9.05	Metal scoop, large (150mm wide)	No	3	5,300.00	15,900.00
A104/9.06	Metal scoop, medium (100mm wide)	No	4	2,500.00	10,000.00
A104/9.07	Garden trowel	No	2	800.00	1,600.00
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15	2,000.00	30,000.00
A104/9.09	Palette knife 200mm long blade	No	3	500.00	1,500.00
A104/9.10	Palette knife 100mm long blade	No	4	400.00	1,600.00
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1	15,000.00	15,000.00
A104/9.12	BS sieve 450mm diameter, 20mm	No	1	15,000.00	15,000.00
A104/9.13	BS sieve 450mm diameter, 5mm	No	1	15,000.00	15,000.00
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1	20,000.00	20,000.00
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1	20,000.00	20,000.00
Page 5 C/Forward tonext page					50,501,250.00
	B/Forward from previois page				50,501,250.00
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1	20,000.00	20,000.00
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2	20,000.00	40,000.00
A104/9.18	BS Sieve brush	No	2	3,600.00	7,200.00
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2	6,800.00	13,600.00
A104/9.20	Glass jar capacity 5 litres with lid	No	10	450.00	4,500.00
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20	2,300.00	46,000.00
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1	46,000.00	46,000.00
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1	46,000.00	46,000.00
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1	220,000.00	220,000.00
A104/9.25	Still for producing distilled water	No	1	96,000.00	96,000.00
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2	7,200.00	14,400.00
A104/9.27	Stiff broom	No	2	900.00	1,800.00
A104/9.28	Vernier calipers, 150mm	No	2	4,500.00	9,000.00
A104/9.29	Vernier calipers, 250mm	No	2	12,000.00	24,000.00
A104/9.30	Pestle and mortar	No	2	17,000.00	34,000.00
A104/9.31	Linear shrinkage mould (BS 1377)	No	6	6,800.00	40,800.00
A104/9.32	Liquid Limit Device	No	2	7,000.00	14,000.00
A104/9.33	Average least dimension gauge	No	2	42,000.00	84,000.00
A104/9.34	Lockable tool box containing: 1 pr"Molegrips", 2 x 150mm screwdriver, 2 x 200 mm screwdriver, 2 x 300 mm screwdriver,(1 standard and 1 Phillips head of each) adjustable spanners 200 mm and 300 mm, 1 pair round nosed pliers, 1 pair general purpose pliers,	No	1	75,000.00	75,000.00
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	6	250.00	1,500.00
A104/9.36	Polythene wash bottle (500 ml)	No	5	400.00	2,000.00
A104/9.37	A4 size clipboard	No	4	250.00	1,000.00
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	2	350.00	700.00
A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2	1,400.00	2,800.00
A104/9.40	Maximum and minimum thermometer (BS692)	No	2	2,200.00	4,400.00
A104/9.41	Rain gauge	No	1	8,000.00	8,000.00
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to ± 3%	No	1	6,000.00	6,000.00
A104/9.43	Ditto with 0.75m long stem	No	1	16,000.00	16,000.00
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to ± 3% with 0.1 m stem	No	2	8,000.00	16,000.00
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50	230.00	11,500.00
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2	8,600.00	17,200.00
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6	350.00	2,100.00
	C/Forward to next page				51,426,750.00
	B/Forward from previous page				51,426,750.00
A104/11.01	11. Concrete: Slump and Cube Manufacture (BS 1881) Slump cone, tamping rod and base	set	2	20,000.00	40,000.00
A104/11.02	Concrete cube mould, 150mm cube	No	30	7,800.00	234,000.00
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1	180,000.00	180,000.00
A104/11.04	Cube tamping bars	No	10	4,000.00	40,000.00
A104/12.01	12. Concrete: Cube Compression Testing Concrete compression machine to BS1610 grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer				
A104/12.02	Safety guard for above	No	1	1,450,000.00	1,450,000.00
A104/12.03	50mm distance piece				
A104/12.04	70mm distance piece				
A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece				
A104/13.01	13. Aggregate and Chippings Sand equivalent to AASHTO T1176 including graduated plastic cylinder, rubber stopper, irrigation tube weighted foot assembly, siphon assembly, 85ml tin box (57mm dia.), 100 mm dia wide mouth funnel, stop clock,mechanical shaker and 1 litre jar	Set	1	65,000.00	65,000.00
A104/13.02	Beaker 250ml	No	2	300.00	600.00
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter , including plunger and base plate	No	2	100,000.00	200,000.00
A104/13.04	Tamping rod and metal measure for above	Set	4	10,600.00	42,400.00
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1	500,000.00	500,000.00
A104/13.06	Set of 12 abrasive charges	No	2	1,300.00	2,600.00
A104/13.07	Thermometer, 0°C to +50°C	No	2	600.00	1,200.00
A104/13.08	Thermometer, 0°C to +250°C	No	2	800.00	1,600.00
A104/13.09	Reagent grade Silica gel, 500g container	No	50	1,400.00	70,000.00
A104/14.1	14. Bitumen Spray Test (BS 1707) Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent	Set	1	1,120,000.0	1,120,000.00
A104/14.02	Steel tray 20 mm deep x0.1m² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4	3,500.0	14,000.00
	16. Bitumen Extraction Test				
	A) Extractor Bottle Method BS 598 Part 2				
A104/16.01	Electronic top pan balance 4kg capacity, sensitive to 0.1gm	No	1	55,000.00	55,000.00
A104/16.02	Flat bottomed scoop	No	3	3,000.00	9,000.00
A104/16.03	Steel garden trowel	No	2	1,300.00	2,600.00
A104/16.04	Large steel spoon	No	2	700.00	1,400.00

APPENDIX B

APPENDIX TO BILL ITEM 1.06A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE				
DESCRIPTION	UNIT	36 108	RATE (KSHS)	AMOUNT (KSHS)
1. ENGINEER'S MAIN OFFICE AND FURNITURE		180 180		
Executive desk 2.2x0.9 m with six lockup drawers	No	360	50,000	18,000,000.00
Desk 2.2x0.9 m with chair and three lockup drawers	No	4	40,000	160,000.00
Office tables 2.2x0.9 m	No	5	20,000	100,000.00
Executive Swivel orthopeadic chair adjustable height	No	6	15,000	90,000.00
Standard office chairs	No	10	10,000	100,000.00
Typist's desk	No	1	25,000	25,000.00
Typist's chair	No.	1	10,000	10,000.00
Lockable steel stationery cupboard, 1.2 m³, lockable	No.	2	25,000	50,000.00
Medium size steel filing cabinet, 4 drawers lockable	No.	72	25,000	1,800,000.00
Medium size steel filing cabinet, 2 lockable drawers	No.	2	20,000	40,000.00
Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No.	72	56,000	4,032,000.00
Conference table with 15 chairs	No.	1	250,000	250,000.00
Waste paper basket	No.	36	500	18,000.00
Curtains for office and laboratory -for all windows and doors	Set	2	100,000.00	200,000.00
Ordinary 2 hole paper punch	No	72	500	36,000.00
Heavy duty 2 hole paper punch	No	2	2,000	4,000.00
Computer meeting the following specifications or equivalent: Personal computer with 17" screen full multimedia, 500GB hard disk, 4.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	5	9,000,000	45,000,000.00
Autocad Civil 3D 2016 and Licences for above computers	No	1	40,000	40,000.00
Laptop PC with Intel Core i7-45IOU Processor 15.4" screen, CPU @ 2.6GHz 8GB RAM 1TB 8xDVD+/-RW approved with Microsoft Windows professional	No	4	19,800,000	79,200,000.00
Latest HP (A4) Laser Printer with accessories	No	5	12,000	60,000.00
Latest HP (A3) Laser Colour Printer with accessories	No	1	250,000	250,000.00
UPS 600 VA	No	6	2,500	15,000.00
wall clocks, battery powered min size 350mm x 350mm	No	6	3,000	18,000.00
First Aid Kit	No	4	25,000	100,000.00
Fire Extinguisher	No	4	5,600	22,400.00
Filing Tray - set of 3no.	set	10	3,000	30,000.00
Refrigerator minimum capacity 0.2 m³	No	1	30,000	30,000.00
Drinking water dispenser, hot/cold	No	3	25,000	75,000.00
Table - 0.8 m² surface area	No	1	15,000	15,000.00
Cupboard, 0.15 m³, lockable	No	1	12,000	12,000.00
13 Kg Gas cylinder with three gas burners	No	2	50,000	100,000.00
C/Forward		14		149,882,400.00
DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
B/Forward				149,882,400.00
A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1	300,000	300,000.00
Reams of A4 phocopying paper	No	120	5,000	600,000.00
Reams of A3 phocopying paper	No	24	6,000	144,000.00
Electronic scientific calculator, Casio fx 991ES PLUS or equivalent approved	No	6	3,500	21,000.00
Stapling machine Ofrex size 50 or similar with 5000 staples	No	6	22,000	132,000.00
Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2	4,000	8,000.00
Digital Camera, 16.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 5x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	2	50,000	100,000.00
Provision of mobile phones for supervision team with the latest android version to the approval of the Engineer.	item	8	40,000	320,000.00
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Total carried to Bill Item 1.06A				151,507,400.00

APPENDIX C

APPENDIX TO BILL ITEM 1.06B ENGINEERS’S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT(Kshs)
1.01	Digital Total Station <u>reading to 1”accuracy (one second)</u> with the following facilities:				
	· Inbuilt data logger				
	· Uploading/downloading software				
	· Data transfer cable				
	· Battery (2No)				
	· Battery charger	No.	36	1,500,000.00	54,000,000.00
	· Tool kit				
	· Two face keyboard				
	· User manual				
	It must have the following inbuilt survey programs as a minimum				
1.02	· Survey				
	· Staking out				
	· Resection/intersection				
	· Traverse				
	· Cogo				
	The following mandatory total station accessories must be included per Total station instrument				
	a) 1No. Heavy duty telescopic tripod(<i>preferably wooden</i>)	No.	36	15,000.00	540,000.00
b)	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (<i>length not less than 2.15m</i>)	No.	0	150,000.00	-
	· Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	72	300,000.00	21,600,000.00
c)					
d)	· Survey umbrella	No.	1	12,000.00	12,000.00
e)	· 1No.Telescopic Tripod	No.	0	9,000,000.00	-
1.03	Engineer’s Automatic Level Wild NAK 2 or similar with a tripod and the following specifications				
	· Accuracy of 0.7 mm per 1 km double run	No.	2	180,000.00	360,000.00
	· Standard magnification of: 32x				
	· Shortest focusing distance of 1.6m				
	· Compensator setting accuracy of 0.3"				
	Total carried forward to next page				76,512,000.00
ITEM	Description	UNIT	QTY	RATE	AMOUNT(Kshs)
	Brought Forward				76,512,000.00
1.04	Hand held GPS with accuracy of 1 Metre	UNIT	1	150,000.00	150,000.00
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1	23,000.00	23,000.00
1.06	5 M Leveling staff with leveling bubble	No.	4	5,000.00	20,000.00
1.07	3 M Ranging Rods	No.	10	18,000.00	180,000.00
1.08	Scientific Calculators FX 912ms or equivalent	No.	3	2,500.00	7,500.00
1.09	50m. Linen Measuring Tape	No.	14	24,000.00	336,000.00
1.10	1m stainless steel straight edge	No.	1	12,000.00	12,000.00
1.11	3 m tape measure	No.	10	800.00	8,000.00
1.12	Sledge hammer 2kg weight	No.	2	2,400.00	4,800.00
1.13	Mattock	No.	2	5,000.00	10,000.00
1.14	Pangas (16’')	No.	10	2,400.00	24,000.00
1.15	Marker Pens	No.	20	200.00	4,000.00
1.16	Reflector Jackets	No.	30	2,300.00	69,000.00
1.17	Levelling Survey books	No.	100	1,000.00	100,000.00
1.18	Provision of Geodetic GNSS receivers comprising of one base and two rovers as per the specifications in Appendix D	No.	1	1,500,000.00	1,500,000.00
	Total carried to Bill Item 1.06B				78,960,300.00