



# KENYA RURAL ROADS AUTHORITY

## TENDER NOTICE

### ADDENDUM NO. 3

#### UPGRADING TO BITUMEN STANDARDS, SPOT IMPROVEMENT AND ROUTINE MAINTENANCE OF VARIOUS ROADS

Reference is made to the Tender Notice that appeared in the Authority's website and MyGov on The Star Newspaper dated 7th January 2025, Addendum No. 1 dated 14th January, 2025, Addendum No. 2 dated 22<sup>nd</sup> January, 2025 and the Long Advert dated 22<sup>nd</sup> January 2025.

Interested Bidders are requested to note the following amendments for the Tenders published under the referenced Tender Notice;

1. That the Tender for Upgrading To Bitumen Standard of Chobe - Kambi George – Weru - Matundura & Muti – Ini - Thindi (Phase 2) Road, Tender No. RWC 663 is hereby **CANCELLED**.
2. That the BoQ for the Tender for **Rehabilitation and Spot Improvement of Katheri - Mariene University – Equator - Kambau Road, Tender No. KeRRA/08/39/58/2024-25** is hereby revised as follows;
  - i). Bill Item 1.18. Appendix D is attached herein as **Annex 1**.
  - ii). Bill Item 1.19, to read as follows

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.19	Provide with license and install the permanent version of Item 1.18 above.	L.S	1		

3. That sections of various Bill Items under the Tender for **Rehabilitation of Kaanwa - Chuka Technical - Kamutiria Road, Tender No. KeRRA/08/39/128/2024 – 25** are being amended as follows;
  - i) **Sections of Bill Items are erroneously headlined as;**  
Reconstruction And Rehabilitation of Matulo Airstrip Access Road  
Tender No. Kerra/08/39/01/2024-2025.  
  
**The headings are hearby corrected to read as follows;**  
Rehabilitation of Kaanwa - Chuka Technical - Kamutiria Road  
Tender No. Kerra/08/39/128/2024-2025

ii) **Bill items A104/16.19 and A104/16.22 under Appendix A are missing units and quantities.**

**The Bill Items A104/16.19 and A104/16.22 are amended to read as follows;**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene	No	2		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer	Set	2		

iii) **Bill Item 21** under Appendix B shown below is amended as follows:

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
21	As Item 19 but 15" screen	No.	4		

The revised Bill of Quantity is attached herewith as **Annex 2**.

4. **The Bill Item No. 01-80-017 for the Tender for Spot Improvement of Wamumu - Pi - Karaba - Makima - Machanga Road, Tender No. KeRRA/08/39/141/2024-25** should read as follows:

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
01-80-017	Provide with drivers, fuel and maintain with comprehensive insurance one (1) new 4WD fully loaded double cabin pickup of minimum diesel engine capacity 3000cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month for the duration of the Contract. Vehicle to revert to the Contractor at the end of the project.	Months	9		

The Bill of Quantity is amended as per **Annex 3** herein attached.

5. Bill No. 1: General: Office administration and overheads/ Preliminaries for the tender for **Spot Improvement of Yalahuri/ Malangauhonya/ Yala Tatro/ Wangai Karua Bridge/ Njenjra/ Ujimbe/ Matumbu Kokwiri, Tender No. KeRRA/08/39/122/2024-25** is hereby amended as shown under **Annex 4**.

6. That Table A: Approximate Weightings for Price Adjustment is **APPLICABLE** for all **LOT 1** tenders as given in the respective tender documents.

7. That Table B: Schedule Payments is **APPLICABLE for all LOT 1** tenders as given in the respective tender documents.
8. For all tenders where a provision has been given requiring bidders to provide houses for accommodation for Engineer's Supervision Offices and Laboratory that revert to the employer, the employer shall provide land.
9. Clarifications and amendments as to the tender for Upgrading to Bitumen Standard of Agolomuok - Otati - Kogore (Aorachuodho) Road, Tender No. KeRRA/08/39/146/2024-25 ar as follows;

Sr.	Section	Clause & Page	Reference to Bidding Document	Bidders/ Clarification request	Response
1	Section VII - Bills of Quantities	Bill No 1.03: Preliminaries and General Items	Provide maintain Laboratory equipment, reagents and other items as priced in the Appendix 'A' to the Engineers Representative office for the duration of the Contract.	Appendix 'A' is not provided. Please provide	Appendix 'A' is provided herein in <b>Annex 5</b>
2	Section VII-Bills of Quantities	Bill No. 1.04A: Preliminaries and General Items	Provide and maintain furniture, tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix 'B'	Appendix 'B' is not provided. Please provide	Appendix 'B' is provided herein in <b>Annex 6</b>
3	Section VII-Bills of Quantities	Bill No. 1.04B: Preliminaries and General Items	Provide and maintain survey, equipment as priced in Appendix C for the duration of the contract	Appendix 'C' is not provided. Please provide	Appendix 'C' provided herein in <b>Annex 7</b>
4	Section VII-Bills of Quantities	Summary of Bill of Quantities	Bill No. 21	Bill No. 21 is missing from the summary page. Please Clarify	Bill No. 21 has been included in the Revised Summary Page attached in <b>Annex 8</b>
5	Section VII-Bills of Quantities	Bill No. 1, Bill No. 20, Bill No. 21	Bill No. 1.01, 20.08,21.08, 21.02,21.04, 21.07,21.08, 21,09	These items refer to drawings that have not been provided. Please provide the necessary drawings	These drawings will be provided by the Engineer on Site.
6	Part II- Work requirements	Section VI- Specifications	Section 1 General clause 102 item N0. 8 – provision of quarry dust and paving blocks	To clarify on this item as there is no quantity and provision in the BoQ	Delete Item No. 8 of Clause 102 in Section 1 Special Specifications

Sr.	Section	Clause & Page	Reference to Bidding Document	Bidders/ Clarification request	Response
7	Part III- Conditions of Contract and Contract forms	Section IX- Special Conditions of Contract. GCC Clause 14.6.2 Table B: Schedule of Payment	Minimum Amount of Interim Payment Certificated Full measure of milestone (5% of project length completed to Bitumen Standard) Table B: Schedule of Payment (NOT APPLICABLE)	GCC clause 14.6.2 specifies milestone, but Table B is marked (NOT APPLICABLE). Please confirm payment method.	The amended Table B is hereby attached in <b>Annex 9</b>
8	Section VII-Bills of Quantities	Bill No. 1	Bill No. 1.05, 1.07, 1.09 and 1.11	Provide with drivers, fuel and maintain approved vehicles by the Engineer for his exclusive use.	The amended Bill No. 1 is hereby attached in <b>Annex 10</b>

10. Bill No. 1 for the tender for **Upgrading to Bitumen Standard Of Miomponi - Mukothima - Gatunga Road, Tender No. RWC 664** has been revised and is attached herewith as **Annex 11**. Both the Engineers representative Office & Equipment, Laboratory and Laboratory Equipment shall revert to the Employer at the end of the contract.
11. The submission date and time for ALL the tenders (Apart from **Tender for Upgrading To Bitumen Standard of Chobe - Kambi George – Weru - Matundura & Muti – Ini - Thindi (Phase 2) Road, Tender No. RWC 663 that has been cancelled**) listed under the initial Advertisement published on 7<sup>th</sup> January, 2025 & 22<sup>nd</sup> January, 2025, Addendum No. 1 dated 14<sup>th</sup> January, 2025 and Addendum No. 2 dated 22<sup>nd</sup> February, 2025 is hereby revised from **11<sup>th</sup> February, 2025 at 11.00am** to on or before **19<sup>th</sup> February, 2025 at 11.00am**.
12. Completed tender documents under Lot 1 should be enclosed in plain sealed envelopes, clearly marked with the Tender Name, Tender Number and deposited in the Tender Boxes at KeRRA Head Office (Barabara Plaza, Block B) as indicated in the initial Long Advertisement that can be downloaded from the Authority's website.
13. Completed tender documents under Lot 2 should be enclosed in plain sealed envelopes, clearly marked with the Tender Name, Tender Number and deposited in the Tender Boxes at the offices of respective Regional Directors as indicated in the initial Long Advertisement that can be downloaded from the Authority's website.
14. All interested bidders are required to continually check the Kenya Rural Roads Authority website: [www.kerra.go.ke](http://www.kerra.go.ke) for any tender addendums or clarifications that may arise before submission date.
15. Bidders with enquiries are encouraged to do so vide the email address [procurement@kerra.go.ke](mailto:procurement@kerra.go.ke).
16. All other information as pertaining to the tenders remains the same.

Deputy Director (Supply Chain Management)  
FOR: **DIRECTOR GENERAL**

**ANNEX 1 - Rehabilitation and Spot Improvement of Katheri - Mariene University – Equator - Kambau Road, Tender No. KeRRA/08/39/58/2024-25**

**APPENDIX D**

S/No	Item Description	GEODETTIC GLOBAL NAVIGATION SATELLITE SYSTEM SPECIFICATIONS (GNSS)	REMARKS
1	Geodetic GNSS Receivers	<p><b>General Characteristics</b></p> <p>Geodetic Set enabled for both Static and RTK functions with respective supporting software and accessories</p> <hr/> <p><b>Specific Specifications</b></p> <p><b>1. Channels:</b> At least 120 enabled for simulteneous signal tracking</p> <hr/> <p><b>2. Reception</b></p> <p>Must be enabled for Multi - Constellation / Frequency i.e current systems e.g. GPS (L1, L2, L2C, L5)                      GLONASS ( L1C/A, L1P, L2C/A); SBAS (EGNOS, WAAS, MSAS, GAGAN, QZSS)                      Galileo ready: E1, E5A, E5B                      BeiDou ready (Compass) : B1, B2                      Must have some multipath mitigation technology embeded  <b>Note: Should be configured to recieve new and upcoming constellations (if any)</b></p>	
		<p><b>2. Accuracy :</b></p> <hr/> <p><b>Real Time Kinematics (RTK)</b></p> <p>Horizontal: 8 mm + 1 ppm RMS                      Vertical: 15 mm + 1 ppm RMS                      Initialization time: typically &lt; 5 s                      - Initialisation reliability &gt;99.9%</p> <p><b>Post Processing Static</b></p> <p>Horizontal: 3 mm + 0.5 ppm RMS                      Vertical: 5 mm + 0.5 ppm RMS                      Baseline Length: ≤ 80 km</p>	
		<p><b>3. Special functionalities</b></p> <hr/> <p><b>Extended RTK range - base setup</b></p>	

		- the base receiver to be able to stream RTK data via integrated GSM modem and to support upto 10 rovers simultaneously	
		- the base to provide WiFi hotspot functionality for better control/setup of the receiver	
		- the base to provide web interface functionality via any smart phone, tablet or computer	
		- the base to provide NTRIP caster and dynDNS functions	
		<b>Increased reliability - rover setup</b>	
		- the rover to provide a mode for better performance under difficult conditions (close to buildings, trees and urban areas)	
		- the rover to be able to connect to any CORS GNSS networks or Single stations via internet	
		<b>4. Communications</b>	
		<b>a) I/O</b>	
		· 2x TNC connector ( 1 for UMTS antenna and 1 for UHF antenna)	
		· 2x LEMO	
		· 1x high speed USB	
		· Integrated GSM/GPRS modem	
		· Integrated Bluetooth class 2	
		· Optional radio modem (2):	
		Internal Rx/Tx: 403473 MHz	
		External Radio: 1W 35W adjustable (at least 12Km range)	
		· Should be configured to log into any upcoming CORS protocol	
		· Should be enabled to use SIM card	
		<b>b) Radio Transmission Protocols (RTK)</b>	
		RTCM2.1, RTCM2.3, RTCM3.0, CMR, CMR+ input and output	
		NMEA0183 output	
		<b>5. Data Storage:</b>	
		· Must be able to store raw data	
		· Must have at least 4 GB internal storage	
		· Optional external microSD storage	
		· Device should mount as a USB external hard drive	
		<b>6. Power Supply</b>	
		· Battery life: at least 5 hours in RTK mode	
		· Must have External power input option	
		· Each set should be supplied with two internal battery packs	
		<b>7. Software</b>	
		<b>Two types of software</b>	

		<b>a) for Static</b>	
		· Permanent licence to be included ( protected by USB dongle)	
		· Must be able to process raw data ( GPS L1&L2, Glonas L1&L2) from leading brands	
		· Must be able to define datums and compute varios trasformations	
		· Must be able to do 3D adjustment	
		· Must be able to export/inport raw data to RINEX format and process the same. This feature must be inclusive of the total cost	
		<b>b) for RTK</b>	
		Supplier should provide licence free field data collection software that has the following key survey operational features:-	
		▪must provide functions for topo survey	
		▪must provide functions for stakeout	
		▪Operating platform - Windows Mobile 6.5 or equivalent	
		<b>8. Sourcing</b>	
		The equipment must be sourced from manufacturer's authorized dealers in Kenya who must be capable of training users and commissioning the equipment for full use.	
		<b>9. Warranty</b>	
		Minimum of One year	

**ANNEX 2****BILL OF QUANTITIES FOR KANWA - CHUKA TECHNICAL - KAMUTIRIA**

<b>ADDENDUM NO. 03. ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT (KES)</b>
1.01 (i)	Provide or rent accommodation for Engineer's senior and junior staff (i)Type I	Months	24.00	65,000.00	1,560,000.00
1.01 (ii)	Provide or rent accommodation for Engineer's senior and junior staff (ii)Type II	Months	72.00	55,000.00	3,960,000.00
1.01 (iii)	Provide or rent accommodation for Engineer's senior and junior staff (iii)Type III	Months	96.00	40,000.00	3,840,000.00
1.01 (iv)	Provide or rent accommodation for Engineer's senior and junior staff (iv)Type IV	Months	144.00	30,000.00	4,320,000.00
1.01 (v)	Provide or rent accommodation for Engineer's senior and junior staff (v)Type V	Months	240.00	21,000.00	5,040,000.00
	Total	Total Item 1.01			18,720,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%	18,720,000.00		
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. The office shall revert to the Employer at the end of the project.	LS	1.00		
1.04	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract. The Laboratory shall revert to the Employer at the end of the project.	LS	1.00		



ADDENDUM NO. 03. ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
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.	LS	1.00		
1.06 (A)	Provide and maintain furniture , tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix `B'.	LS	1.00		
1.06 (B)	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract.	LS	1.00		
1.09	Provide with drivers, fuel and maintain two (2) new 4WD fully loaded double cabin pick-up of minimum diesel engine capacity 3000cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	48.00		
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	90,000.00		
1.13	Ditto item 1.09, but two (2) new 4WD Single cabin pick-ups with fibre glass body of minimum diesel engine capacity 2800cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. engine capacity approved by	Veh-Month	48.00		

<b>ADDENDUM NO. 03. ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT (KES)</b>
1.14	E.O item 1.13 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	90,000.00		
1.15	Allow a Prime Cost Sum of Kshs.9,000,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts	PC Sum	1.00	9,000,000.00	9,000,000.00
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%	9,000,000.00		
1.17	Allow a Prime Cost Sum of Kshs. 21,600,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1.00	21,600,000.00	21,600,000.00
1.18	E.O. item 1.17 for Contractor's overheads and profits.	%	21,600,000.00		
1.19	Provide, erect and maintain publicity signs as directed by the Engineer.	No.	4.00		
<b>Total Bill 1 Taken to Summary Page</b>					

Bill No. 4: SITE CLEARANCE AND TOP SOIL STRIPPING					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
4.01	Clear site on road reserve including removal of trees, hedges, bushes, other vegetation and deleterious organic material, grub up roots and back fill to 100% MDD (AASHTO T99) with approved material in accordance with the specification.	Ha	4.00		
4.02	Remove top soil not exceeding 200mm depth and spread or stockpile for reuse as directed by the engineer.	m3	13,500.00		
4.03	Allow a Lump Sum of Kshs.150,000 for explosives for rock blasting, removal of any structures and obstructions as directed by the engineer.	L S	150,000.00		
<b>Total Bill 4 Taken to Summary Page</b>					

Bill No. 5: EARTHWORKS					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
5.01	Fill in soft material including benching to shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm in accordance with the Specification or as instructed by the Engineer	m3	25,700.00		
5.02	Extra over item 5.01 for compaction of top 300mm Subgrade to 100% MDD (AASHTO T99)	m3	16,100.00		
5.03	Ditto item 5.01 but in hard material	m3	1,300.00		
5.04	Cut to spoil in soft material	m3	8,000.00		
5.05	Ditto item 5.04 but in hard material	m3	800.00		
5.06	Provide improved subgrade material as instructed by the Engineer and compaction to 100% MDD (AASHTO T99)	m3	0.00		
5.07	Compaction of the top 150mm below formation level in cutting to 100% MDD (AASHTO T99)	m3	2,400.00		
5.08	Compaction of 150mm original ground below fills to 95% MDD (AASHTO T99)	m3	7,700.00		
5.09	Topsoiling prior to grassing in accordance with the specifications	m2	13,200.00		
5.10	Grassing over sideslopes in cuts and fills as directed by the engineer	m2	13,200.00		
5.11	Provide and place rockfill to swampy areas as directed by the engineer	m3	400.00		
<b>Total Bill 5 Taken to Summary Page</b>					

Bill No. 7: EXCAVATION AND FILLING FOR STRUCTURES					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment 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				
7.01	Excavate for structures in soft material	m3	108.00		
7.02	Ditto item 7.01 but in hard material	m3	30		
7.03	Provide,place and compact rockfill below and around structures.	m3	50		
7.04	Provide and place 150mm thick stone pitching as directed by the Engineer including cement grouting	m2	3,000.00		
7.05	Excavate for gabions in soft material.	m3	1,200.00		
7.06	Provide and place gabion boxes and mattresses where directed by the Engineer.	No.	10.00		
7.07	Provide and place rock fill to gabion boxes	m3	20.00		
7.08	Place filter fabric under and/or behind gabion boxes and structures	m2	0.00		
<b>Total Bill 7 Taken to Summary Page</b>					

Bill No. 8: CULVERT AND DRAINAGE WORKS					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation material and the cost of such be included in rates and prices				
8.01	Excavate for inlet,outfall,mitre and catch water drains in soft material	m3	700.00		
8.02	Ditto item 8.01 but in hard material	m3	170.00		
8.03	Excavation in soft material for pipe culverts, headwalls, wing walls, apron, toe walls and drop inlets and compaction of excavated ground as specified or as directed by the Engineer.	m3	16,100.00		
8.04	Ditto item 8.03 but in hard material	m3	4,020.00		
8.05	Provide,lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	0.00		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross culverts	m	100.00		
8.07	As for item 8.05 but 1200mm dia concrete pipes (precast to BS 5911 parts 1 & 3)for cross culverts	m	100.00		
8.08	As for item 8.05 but 450mm dia concrete pipes (precast to BS 5911 parts 1 & 3)for access culverts and sleeves	m	0.00		
8.09	Provide, place and compact class 15/20 concrete to beds, surround and haunches	m3	3,000.00		
8.10	Provide place and compact class 25/20 concrete for headwalls, wingwalls, aprons and toewalls to pipe culverts including all formwork and the provision and	m3	150.00		

	placing of reinforcement as shown in the drawings				
8.14	Provide subsoil filter drains fabric to isolated wet spots inclusive of artesian cloth, and 14/20mm single size aggregates as directed by the Engineer	m	400.00		
8.15	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	40.00		
8.16	Provide and place A142 wire mesh reinforcement	m2	920.00		
8.17	Provide, lay and joint ducts and sleeves including 150mm concrete (C15/20) (insert size in mm) heavy duty PVC class B with 150mm surround (precast to BS 5911 Parts 1 & 3) ducts/sleeves	m	50.00		
8.20	Excavate for and construct subsoil drains, backfill with approved material where instructed by Engineer	m3	400.00		
8.21	Provide, place and compact rockfill below culverts as per Clause 507 and 804 of the Specifications, drawings and as directed by the Engineer	m3	1,880.00		
Total Bill 8 Taken to Summary Page					

## Bill No. 9: PASSAGE OF TRAFFIC

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				

9.01	Construct and maintain diversions in maximum lengths of 5km sections as directed by the Engineer, including 150mm gravel wearing course & all signage, lighting and barriers as directed by the Engineer	Kms	15		
9.02	Provide, spread, water and compact gravel as directed by the Engineer for maintenance ahead of works.	m3	13,500		
9.03	Allow for the passage of traffic through and around the works	LS	1		
9.04	Maintenance of existing road including grading, shaping, watering and compaction as directed by the Engineer	Kms	15		
9.06	Reinstate deviations to original state	Kms	15		
<b>Total Bill 9 Taken to Summary Page</b>					



<b>Bill No. 10: GRAVEL WEARING COURSE</b>					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
10.01	Provide, water and compact gravel material, to 95% MDD (AASHTO T180) and shape to level and tolerance	m3	12,000.00		
<b>Total Bill 10 Taken to Summary Page</b>					

<b>Bill No. 12: NATURAL MATERIAL BASE AND SUBBASE</b>					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
12.01	Provide gravel subbase material, haul spread, compact to 95% MDD (AASHTO T180) and shape to level and tolerance	m3	6,700.00		
12.02	Provide gravel base material, haul spread, compact to 95% MDD (AASHTO T180) and shape to level and tolerance	m3	5,900.00		
<b>Total Bill 12 Taken to Summary Page</b>					

<b>Bill No. 14: CEMENT AND LIME TREATED MATERIAL</b>					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul material. The cost of such shall be included in the rates and/or prices				
14.03	Provide and spread Cement as an improvement agent for sub-base layer	Tonne	300.00		
14.04	Provide and spread cement as an improvement agent for base layers	Tonne	810.00		
14.05	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m3	12,510.00		
14.06	Protection and curing of cement / lime treated base and sub-base layers	m2	42,600.00		
<b>Total Bill 14 Taken to Summary Page</b>					

<b>Bill No. 15: BITUMINOUS SURFACE TREATMENT AND SURFACE DRESSING</b>					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No separate payment shall be made for the overhaul of bitumen/chippings as these shall be deemed to have been included in the rates				
15.01	Prepare surface of carriageway and shoulders, provide, heat and spray MC 30 cutback bitumen prime coat at 0.8-1.2 Litres/m <sup>2</sup>	Litres	49,200.00		
15.02	Provide, Spread and Roll Emulsified Slurry Seal at a rate of 130 - 250 m <sup>2</sup> /m <sup>3</sup> (4 - 8 litre/m <sup>2</sup> ) on carriageway, shoulder and bus bays as directed by the Engineer.	m <sup>3</sup>	0.00		
15.03	Provide & spray K1-60 as tack coat on carriageway, shoulders and on rumble strips at a rate of 0.5-0.8 l/m <sup>2</sup>	Litres	32,800.00		
Total Bill 15 Taken to Summary Page					

<b>Bill No. 16: BITUMINOUS MIXES</b>					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	NOTE: No haulage will be paid for aggregates, bitumen or the premix. The cost for haulage shall be included in the rates. Rates to be inclusive of fines				
16.01	Provide, place and compact Asphalt Concrete Type II to a 35mm thickness on carriageway and bus bays as directed by the Engineer at Bitumen Content of 5.5 - 7.0% by weight of total mix.	m3	1,365.00		
16.07	Provide and erect Asphalt Concrete Type II bumps and rumble strips as directed by the Engineer at Bitumen Content of 5.5-7.0% by weight of total mix.	m3	40.40		
Total Bill 16 Taken to Summary Page					

Bill No. 17: CONCRETE WORKS					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
	Note: No haulage will be paid for aggregates, bitumen or the premix. The cost for haulage shall be included in the rates. Rates to be inclusive of fines				
17.01	Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer	m3	1.82		
17.02	Provide, place and compact concrete class 25(20) to aprons, wingwalls, abutments, piers, walls and box culverts as shown in drawings.	m3	113.86		
17.11	High yield reinforcement steel bars to specifications equal to or less than 16mm diameter bar size	TONNE	15.00		
17.12	High yield bond strength reinforcement steel to specifications greater than 16mm diameter bar size	TONNE	10.00		
17.24	Provide & fix in place vertical formwork to achieve Class U F1 finish	m2	155.89		
17.27	Provide & fix in place vertical formwork to achieve Class U F2 finish	m2	155.89		
17.28	As item 17.09 but horizontal	m2	148.50		
17.30	Provide & fix in place vertical formwork to achieve Class U F3 finish	m2	0.00		
Total Bill 17 Taken to Summary Page					

Bill No. 20: ROAD FURNITURE					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
20.01	Provide Road Reserve Boundary posts	No.	12.00		
20.02	Excavate for, provide & place 250x125mm 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	m	200		
	(b) Kerbs radius 12m - 6m	m	200		
	(c) Ditto but radius 5m - 1m	m	200		
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	0		
20.04	Provide and erect permanent road signs as instructed by the Engineer in accordance with Special Specifications Clause 2004 as follows:				
	a) Warning signs	No.	4		
	b) Priority, prohibitory and mandatory signs	No.	5		
	c) Standard informatory signs	No.	5		
	d) Non standard informatory signs area				
	i) Less than 1.0 m <sup>2</sup>	No.	5		
	ii) More than 1.0 m <sup>2</sup> but less than 5 m <sup>2</sup>	No.	3		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectorized thermoplastic paint from an approved supplier.	m <sup>2</sup>	1,200		
20.06	As item 20.05 but for yellow reflectorized thermoplastic paint	m <sup>2</sup>	600		

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.	60		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	40		
20.09	Provide and erect edge marker posts as directed by the Engineer	No.	20		
20.10	Provide and erect Kilometer marker posts as directed by the Engineer	No.	10		
20.14	Provide and install cat-eyes as directed by the Engineer	No.	60		
20.21	Provide approved reflectorised white paint and mark 0.2 m wide for bus bays as directed by the Engineer.	m <sup>2</sup>	50		
Total Bill 20 Taken to Summary Page					

Bill No. 21: Miscellaneous Bridge/Drift Works					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT (KES)
21.01	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 <sup>2</sup>	135		
21.02	Provide and place into position elastomeric laminated rubber fixed bearings code 3710443, size 406mm x 279mm x 58mm as shown in drawings or as shall be instructed by the Engineer.	No.	60		
21.03	As item 21.02 but code 3710444, size 406mm x 279mm x 74mm free bearings.	No.	0		
21.04	Provide and install movement joint and sealant for bridges	m	300		
21.05	Provide and install bituminous felt bearings as shown in the drawings.	No.	195		
21.06	Provide and install vertical joint sealant for bridges	m	50		
21.07	As Item 21.06 but horizontal	m	0		
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	0		
21.09	Provide and place into position handrails along the edge of the carriageway as per drawings and as instructed by the Engineer.	m	0		
21.10	Provide and place into position galvanised flexi-beam guardrails including end pieces,nuts and bolts along the approaches to the bridges as per	m	0		



	drawings and as instructed by the Engineer. including end pieces,nuts and bolts along the approaches to the bridges as per drawings and as instructed by the Engineer.				
21.11	Provide and place into position galvanised flexi-beam guardrails including end pieces,nuts and bolts along the approaches to culverts as per drawings and as instructed by the Engineer.	m	0		
21.12	Provide and place a 0.5m wide drainage layer of class 14/20 mm to structural concrete in contact with fill material.	m <sup>3</sup>	195		
21.13	Provide and place as directed by the Engineer PVC pipes of diametre 75mm and length 600 mm to form weep holes to bridge abutments and wingwalls	No.	0		
21.14	Provide and place as directed by the Engineer PVC pipes of diametre 75 mm and length 300 mm to form storm drain pipes of the bridge deck	No.	0		
Total Bill 20 Taken to Summary Page					

## BILL No. 22 : Schedule of Dayworks

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL
	The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time and overtime. In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced.				
22.01	Crawler dozers with hydraulic attachmentsto include ripper				
	a) Up to 135 kw rated flywheel power	hrs	20.00		
	b) Over 136 kw rated flywheel power	hrs	20.00		
22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	50.00		
	b) Over 100kw rated flywheel power	hrs	20.00		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	20.00		
	b) Over 8.91 tonne un-ballasted weight	hr	20.00		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	40.00		
22.05	Cat 950G wheel loader or equivalent	hrs	40.00		
22.06	10 Tonne tipper lorry	hrs	40.00		
22.07	Small dumpers, 750-1000kg rated payload	hrs	40.00		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated	hrs	40.00		
	bucket capacity of upto 1m3.		40.00		

22.09	Articulated wheel loader with 1.5-2.0m <sup>3</sup> SAE rated bucket capacity	hrs	40.00		
22.1	50mm delivery water pump and motor	hrs	40.00		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	40.00		
22.12	Concrete Mixer of 100 - 150litres	hrs	40.00		
22.13	Concrete poker vibrator	hrs	40.00		
	<b>LABOUR</b>				
	The rates inserted herein are to include all costs of labour such as insurance, accomodation, travelling time, over-time, use and maintenance of small tools of trade, supervision, overheads and Profit. Only the actual time engaged upon the work will be paid for.				
22.14	Unskilled Labour	hrs	500.00		
22.15	Artisans	hrs	500.00		
22.16	Office attendants and chainmen	hrs	500.00		
22.17	Watchmen (all round surveillance)	hrs	500.00		
	<b>MATERIALS</b>				
	All materials are to comply with the Specification. The rates inserted herein are to include for delivery to the site, storage, handling, overheads and profit				
22.18	Ordinary Portland Cement 42.5 N	Ton	10.00		
22.19	Hydrated Lime	Ton	10.00		
22.2	Mild Steel( any diametre)	Ton	10.00		
22.21	High Yield Steel ( any diametre)	Ton	10.00		
22.22	Fine Aggregate for Concrete	m <sup>3</sup>	100.00		
22.23	Coarse Aggregate for Concrete	m <sup>3</sup>	100.00		
22.24	Wrot Shuttering Timber	m <sup>2</sup>	100.00		
22.25	Rough shuttering timber.	m <sup>2</sup>	100.00		
22.26	Bitumen Emulsion KI-60.	Litre	200.00		
22.27	Straight run bitumen Grade 80/100.	Litre	200.00		
22.28	Kerosene	Litre	200.00		
22.29	14/20 mm nominal size surface chips.	m <sup>3</sup>	10.00		
22.3	6/10mm nominal size surface chips	m <sup>3</sup>	10.00		
22.31	AC Type II Ex-plant	m <sup>3</sup>	50.00		

Total of Bill No. 22 Forwarded to Summary Page		
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BILL No. 25 : HIV/AIDS, Gender & Social Issues, Local Participation				RATE	TOTAL
ITEM	DESCRIPTION	UNIT	QUANTITY		
25.01	All for a prime cost sum of KShs 5,000,000 (five Million) for ESIA study and report, Compliance Audits and environmental monitoring.	PC sum	1.00	5000000	5,000,000.00
25.02	E.O for Item 25.01 for Contractor's Oveheads and Profit	%	5,000,000.00		
25.03	Allow for engagement of a HIV/AIDS specialist subcontractor to deal with prevention, awareness activities as per programme to be approved by the Engineer	Months	36.00		
25.04	Allow for the availability of male and female condoms to workers and staff strategically and socially presented for the duration of the contract	No.	2,300.00		
25.05	Allow for preparation and submmision of monthly reports on HIV/AIDS awareness and prevention activities. Report to be tabled at site meetings.,	Months	36.00		
25.06	Provide, Instal and maintain HIV/AIDS awareness bill boards with approved message and graphics with maximum area 4m2 fabricated as per specifications of permanent informatory sign boards	No.	10.00		
25.07	Allow for vedio shows on HIV/AIDS related awareness and prevention matters every 3months	No.	10.00		
25.08	Allow for production and distribution of HIV/AIDS awareness material as follows:				
	a) T-Shirt printed with approved message and graphics	No.	200.00		
	b) Ditto (a) above but caps	No.	200.00		
	c) A1 size weather proved posters	No.	20.00		
	d) A3 size weather proved posters	No.	200.00		
	e) 200x150mm stickers with HIV/AIDS awareness/prevention slogan	No.	200.00		
	f) Key rings with HIV/AIDS awareness/prevention slogan	No.	200.00		
	g) Ball point pens with HIV/AIDS awareness / prevention slogan.	No.	500.00		
Total of Bill No. 25 Forwarded to Summary Page					

BILL No. 26 : Land Acquisition, Axle Load Control, and Relocation of Services				RATE	TOTAL
ITEM	DESCRIPTION	UNIT	QUANTITY		
26.01	Allow a Prime Cost sum of Ksh.5,000,000 for acquisition of land required for the works,etc.in accordance with Specifications	PC Sum			
26.02	E.O. item 26.01 for allowance for Contractor's profit and overheads	%			
26.03	Allow a Prime Cost Sum of Ksh. 5,000,000 for relocation of services as instructed or directed by the Engineer.	PC Sum			
26.04	E.O. item 26.03 for Contractor's overheads and profits.	%			
Total of Bill No. 26 Forwarded to Summary Page					

**APPENDIX A, B and C**

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	1. FURNITURE				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	15		
A104/1.03	Stationery cupboard, 1.2 m <sup>3</sup> , lockable	No	2		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	2		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	2		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	2		
A104/1.07	Table - 6 m <sup>2</sup>	No	2		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO <sub>2</sub> type	No	4		
A104/1.10	Complete first aid kit	No	2		
	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>				
	2. General Equipment				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	2		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	2		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	1		
A104/2.05	Straight edge 300 mm long with handles	No	4		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	3		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
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		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	4		
A104/2.09	75mm brush	No	2		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		
A104/2.12	Stop Clock	No	2		
A104/2.13	Thermostatically controlled electric oven 105-110°C, capacity 0.225 m <sup>3</sup>	No	2		
A104/2.14	As above but gas heated	No	1		
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminium plated	No	60		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	2		
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	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	2		
A104/3.02	Stainless steel tray 305mm diameter	No	2		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2		
A104/3.05	Steel pegs for fixing tray in position	No	15		
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	2		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/3.08	Cold steel chisel 20mm x 300mm	No	4		
A104/3.09	Cold steel chisel 10mm x 250mm	No	4		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	3		
A104/3.14	Primus gas stove	No	1		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	4. Density (Nuclear Density method AASHTO T238)				
A104/4.01	Nuclear density gauge (Troxler 3411B or similar approved) complete with 3 no. hole forming device and 3 no. guide	No	1		



	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		
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		
A104/5.03	2.25 kg split surcharge weight	No	2		
A104/5.04	Set of annular surcharge weights	No	1		
A104/5.05	Solid base plate for CBR mould	No	2		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
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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		
A104/5.10	Set of guards for above press.	No	1		
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		
A104/5.12	Penetration gauge range 0 - 25mm	No	2		
A104/5.13	CBR piston including bracket	No	2		
A104/5.14	Swell measurement tripod complete with gauge calibrated in 0.01 mm divisions	No	2		

A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	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		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	2		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m <sup>2</sup>	No	2		
A104/6.05	An airtight container of similar capacity to the basket	No	2		
A104/6.06	Pycnometer of 1 litre capacity	No	4		
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		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/6.08	Hot air drier (electric)	No	2		
	7. Flakiness (BS 812)				
A104/7.01	Thickness gauge (various sizes)	No	2		
	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		
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		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075 mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metal tray	No	10		

A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		
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	9. Miscellaneous Equipment				
A104/9.01	Wheel barrow	No	3		
A104/9.02	Dustpan and brush	No	3		
A104/9.03	Shovel	No	4		
A104/9.04	Pick axe with handle	No	4		
A104/9.05	Metal scoop, large (150mm wide)	No	3		
A104/9.06	Metal scoop, medium (100mm wide)	No	4		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	15		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/9.09	Palette knife 200mm long blade	No	3		
A104/9.10	Palette knife 100mm long blade	No	4		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		

A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	2		
A104/9.18	BS Sieve brush	No	2		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500 ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	10		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	20		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	1		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	1		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	2		
A104/9.27	Stiff broom	No	2		
A104/9.28	Vernier calipers, 150mm	No	2		
A104/9.29	Vernier calipers, 250mm	No	2		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
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A104/9.30	Pestle and mortar	No	2		
A104/9.31	Linear shrinkage mould (BS 1377)	No	6		
A104/9.32	Liquid Limit Device	No	2		
A104/9.33	Average least dimension gauge	No	2		

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		
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	6		
A104/9.36	Polythene wash bottle (500 ml)	No	5		
A104/9.37	A4 size clipboard	No	4		
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	2		
A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	2		
A104/9.40	Maximum and minimum thermometer (BS692)	No	2		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to ± 3%	No	1		
A104/9.43	Ditto with 0.75m long stem	No	1		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to ± 3% with 0.1 m stem	No	2		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	50		
A104/9.46	Hotplate 200mm diameter with Simmerstat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	6		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	10. Standard Specifications ( <i>Copies of each of the latest editions of the following Standards</i> )				
A104/10.01	BS 598	No	1		
A104/10.02	BS 812	No	1		
A104/10.03	BS 882	No	1		
A104/10.04	BS 1377	No	1		
A104/10.05	BS 1881	No	1		

A104/10.06	BS 1924	No	1		
A104/10.07	Standard Specifications for Transportation Material and Methods of Sampling and Testing (AASHTO) Parts I and II, 14th Edition	Set	1		
A104/10.08	ASTM D1559	No	1		
A104/10.09	Asphalt Institute, Superpave Manual Series No.2(SP-2)	No	1		
A104/10.10	Overseas Road Note 19	No	1		
A104/10.11	BS 5911 Part 1 &3	No	1		
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	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/10.12	BS 4449	No	1		
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	30		
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	1		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/12.02	Safety guard for above				
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				
	13. Aggregate and Chippings				

A104/13.01	Sand equivalent to AASHTO T176 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 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter, including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	50		
	14. Bitumen Spray Test (BS 1707)				
A104/14.1	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	1		
A104/14.02	Steel tray 20 mm deep x0.1m <sup>2</sup> (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
C/Forward to next page					

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
B/Forward From previous page					
	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		

A104/16.02	Flat bottomed scoop	No	3		
A104/16.03	Steel garden trowel	No	2		
A104/16.04	Large steel spoon	No	2		
A104/16.05	Heat resistant gloves	pair	10		
A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m <sup>2</sup> and fitted with flexible hose approximately 1.2m long and connector	No	2		
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	2		
A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	2		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	2		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		
A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	1		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	1		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	2		
A104/16.14	Centrifuge complying with BS 598	No	1		
A104/16.15	Binder recovery	No	1		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	2		

APPENDIX A					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/16.17	Recovery still for Dichloromethane	No	1		
	B) Hot Extractor Method BS 598 Part 2				
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	2		



A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene				
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	1		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	No	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer				

## 17. Consumables

A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gas	Kg	1600		
A104/17.03	Gunny sack	No	500		
A104/17.04	Plastic bag 900x450x1000 gauge	No	500		
A104/17.05	Plastic bag 450x300x1000 gauge	No	500		
A104/17.06	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.09	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		

## APPENDIX A

## PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
A104/17.10	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.11	Trichloroethylene (205 Litre Drum)	No	2		
A104/17.12	Dichloromethane	kg	0		
A104/17.13	Cotton waste	kg	50		
A104/17.14	Gas cylinders compatible with supplied stoves	No	10		
A104/17.15	Sodium sulphate	kg	45		

A104/17.16	Sand for density test	kg	250		
C/Forward to bill item					

APPENDIX B					
APPENDIX TO BILL ITEM: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE					
DESCRIPTION		UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
1. ENGINEER'S MAIN OFFICE AND FURNITURE					
1	Executive desk 2.2x0.9 m with six lockup drawers	No	2		
2	Desk 2.2x0.9 m with chair and three lockup drawers	No	4		
3	Office tables	No	3		
4	Executive Swivel orthopaedic chair adjustable height	No	2		
5	Standard office chairs	No	8		
6	Bench 3m long with cushioned backrest (located as directed)	No	1		
7	Typist's desk	No	1		
8	Typist's chair	No	3		
9	Lockable steel stationery cupboard, 1.2 m <sup>3</sup> , lockable	No	4		
10	Medium size steel filing cabinet, 4 drawers lockable	No	4		
11	Medium size steel filing cabinet, 2 lockable drawers lockable	No	3		
12	Bookshelf, 1.5 m wide 3 shelves (for box files) sliding glass door	No	3		
13	Conference table with 12 chairs	No	1		
14	Waste paper basket	No.	5		
15	Curtains for office and laboratory -for all windows and doors	Set	2		
16	Ordinary 2 hole paper punch	No	2		
17	Heavy duty 2 hole paper punch	No	2		
18	Set of full divided scale (metric 1/1000, 1/2500, 1/500, 1/2000, 1/1250, 1/1500)	No	1		
19	Computer meeting the following specifications or equivalent: Personal computer with 20" screen full multimedia, 1000GB hard disk, 12.0GB RAM, Core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, Professional and MS Project	No	2		

APPENDIX B					
APPENDIX TO BILL ITEM: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE					
DESCRIPTION		UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
20	Autocad Civil 3D 2012 and Licences for above computers	No	2		
21	As A103/2.11 but with 15" screen	No	4		
22	Laptop PC with Intel Core i7-350M Processor 15.4" screen, 12GB DDR3 RAM 1000GB 8xDVD+/-RW or simillar approved with Microsoft Windows professional	No	1		
23	Latest HP (A4) Laser Printer with accessories	No	3		
24	Latest HP (A3) Laser Printer with accessories	No	1		
25	UPS 600 VA	No	6		
26	wall clocks, battery powered min size 350mm x 350mm	No	2		
27	Safe for cash and valuables min.size approx. 0.8mx0.5mx0.4m to be concreted in place (wall/floor mounted) complete with lock and keys	No	1		
28	First Aid Kit	No	4		
29	Fire Extinguisher	No	4		
30	Filing Tray - set of 3no.	set	10		
31	Refrigerator minimum capacity 0.2 m <sup>3</sup>	No	1		
32	Drinking water dispenser, hot/cold	No	1		
33	Table - 0.8 m <sup>2</sup> surface area	No	1		
34	Cupboard, 0.15 m <sup>3</sup> , lockable	No	1		
35	Cooker 4 plate electric cooker with oven and grill	No	1		
36	A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		
37	Reams of A4 phocopying paper	No	100		

## APPENDIX B

## APPENDIX TO BILL ITEM: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE

DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
38	Reams of A3 photocopying paper	No	20	
39	Electronic scientific calculator, Casio fx 992s or equivalent approved	No	6	
40	Stapling machine Ofrex size 50 or similar with 5000 staples	No	6	
41	Heavy duty punch and spiral binder, IBICO AG or similar approved	No	2	
42	Inkjet Plain Paper Fax Machine with 4MB of memory	No	1	
43	Pencil sharpener (desk mounted type)	No	6	
44	Digital Camera, 20.1 Megapixel(min), 1920x1080 full HD movie recording, optical steadyShot, sweep panorama, 2.7" LCD screen, minimum 15x digital zoom, multimedia card/SD 8GB memory, 12 scene selection modes, all inclusive.	No	1	
45	PABX Telephone system including intercom connecting all offices and laboratory. rate includes headsets, wiring and operational costs. including High Speed Internet Access using optic fibre or HDSL (High Data Digital Subscriber Line) broadband connection networked to all computers, with annual subscription paid during the entire contract period.	item	1	
Total carried to Bill Item				

APPENDIX TO BILL ITEM :ENGINEERS’S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	Digital Total Station reading to 1”accuracy ( <i>one second</i> ) with the following facilities	No.	1		
	· Inbuilt data logger				
	· Uploading/downloading software				
	· Data transfer cable				
	· Battery (2No)				
	· Battery charger				
	· Tool kit				
	· Two face keyboard				
	· User manual				
	It must have the following inbuilt survey programs as a minimum				
	· Survey				
	· Staking out				
	· Resection/intersection				
	· Traverse				
· Cogo					
1.02	The following mandatory total station accessories must be included per Total station instrument				
	1No. Heavy duty telescopic tripod( <i>preferably wooden</i> )	No.	1		
	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.	3		
	Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	1		
	1No. Survey umbrella	No.	1		
	1No.Telescopic Tripod	No.	1		
1.03	Engineer’s Automatic Level Wild NAK 2 or similar with a tripod and the following specifications:-	No.	2		
	· Accuracy of 0.7 mm per 1 km double run				
	· Standard magnification of: 32x				
	· Shortest focusing distance of 1.6m				
	· Compensator setting accuracy of 0.3"				
1.04	Hand held GPS with accuracy of 1 Metre	No.	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	1		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		

1.08	Scientific Calculators FX 912ms or equivalent	No.	3		
<hr/>					
1.09	30m. Linen Measuring Tape	No.	6		
1.10	1 M stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	6		
1.12	Sledge hammer 2kg weight	No.	2		
1.13	Mattock	No.	2		
1.14	Pangas (16'')	No.	4		
1.15	Roll of Tracing Paper	No.	1		
1.16	Graph Paper A3 Size	No.	10		
1.17	Marker Pens	No.	20		
1.18	Reflector Jackets	No.	10		
1.19	Laptop	No.	1		
1.2	Scale Rules	No.	2		
1.21	Drawing Pen (0.25mm)	No.	2		
1.22	Graph paper 1mm(roll)	No.	1		
Total carried to Bill Item					

## ANNEX 3

<b>WAMUMU-PIAI-KARABA-MAKIMA-MACHANGA ROAD, Tender No. KeRRA/08/39/141/2024-25 REVISED BILL OF QUANTITIES</b>					
<b>Bill No.1</b>	<b>General: Office administration and overheads/Preliminaries</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Bid Rate (Kshs)</b>	<b>Amount KSh</b>
01-60-005	Provide, erect and maintain publicity signs as directed by the engineer	No	2		
01-80-030	Allow a prime cost for attendance to the RE, s supervisory staff, material testing, survey works including overtime	PC SUM	1	3,000,000	3,000,000.00
01-80-031	Extra over Item 01-80-030 for Contractor's overheads and profits	%	3,000,000		
01-80-017	Provide with drivers, fuel and maintain with comprehensive insurance <b>one (1) new 4WD</b> fully loaded double cabin pickup of minimum diesel engine capacity 3000cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month for the duration of the Contract. Vehicle to revert to the Contractor at the end of the project.	Months	9		
01-80-018	E.O item 01-80-017 for total aggregated mileage in excess of 5,000kms per vehicle month	Km	36,000		
	<b>Total Carried Forward to Summary:</b>				

<b>Bill No.4</b>	<b>SITE CLEARANCE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Bid Rate (Kshs)</b>	<b>Amount KSh</b>
04-50-003	Heavy Bush Clearing	M <sup>2</sup>	75,000		
	<b>Total Carried Forward to Summary:</b>				

<b>Bill No.7</b>	<b>EXCAVATION AND FILLING FOR STRUCTURES</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Bid Rate (Kshs)</b>	<b>Amount KSh</b>
07-50-001	Excavate for structures in soft material	M <sup>3</sup>	1500		
07-50-006	Selected granular fill material	M <sup>3</sup>	1500		
	<b>Total Carried Forward to Summary:</b>				



<b>Bill No.8 CULVERT AND DRAINAGE WORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Bid Rate (Kshs)</b>	<b>Amount KSh</b>
08-60-026	Supply and installation of 900mm concrete pipe culverts, complete with class 20/20 surround, wing walls, headwalls and aprons.	M	50		
08-70-001	Stone Pitching	M <sup>2</sup>	500		
08-70-004	Provide and place Gabion Installation	NO	75		
08-70-005	Provide and place Rock fill to Gabions	M <sup>3</sup>	500		
	<b>Total Carried Forward to Summary:</b>				

<b>Bill No.10 GRADING AND GRAVELLING WORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Bid Rate (Kshs)</b>	<b>Amount KShs</b>
10-50-002	Heavy grading with watering or compaction instructed by the Engineer	M <sup>2</sup>	150,000		
10-60-003	Gravelling with watering and compaction	M <sup>3</sup>	30,000		
	<b>Total Carried Forward to Summary:</b>				

<b>Bill No.17 CONCRETE WORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Bid Rate (Kshs)</b>	<b>Amount KSh</b>
17-60-001	Provide place and compact concrete class 15/20 for blinding	M <sup>3</sup>	40		
17-60-002	Provide, place and compact concrete class 25(20) to aprons, wingwalls, abutments, piers, walls and box culverts as shown in drawings.	M <sup>3</sup>	500		
17-80-001	High yield reinforcement steel bars to BS 4461 equal to or less than 16mm diameter bar size	TON	40		
17-80-002	High yield reinforcement steel bars to BS 4461 equal or greater than 16mm diameter bar size	TON	50		
17-80-003	Provide & fix in place formwork to achieve Class U F1 finish	M2	200		

17-80-004	BRC mesh class 142	M2	40		
	<b>Total Carried Forward to Summary:</b>				

<b>SUMMARY OF BoQ</b>		
<b>Item No.</b>	<b>Description</b>	
1	GENERAL: OFFICE ADMINISTRATION AND OVERHEADS/PRELIMINARIES	
4	SITE CLEARANCE	
7	EXCAVATION AND FILLING FOR STRUCTURES	
8	CULVERT AND DRAINAGE WORKS	
10	GRADING AND GRAVELLING WORKS	
17	CONCRETE WORKS	
A	<b>Sub Total (1)</b>	
B	Add 15% Variation of Price of Sub Total (1)	
C	Add 10% Contingencies of sub total (1)	
D	<b>Sub Total (2) = (A+B+C)</b>	
E	Add 16% VAT OF Sub Total (3)	
F	Add 0.03% Public Procurement Capacity Building Levy of (A)	
	<b>Grand Total Carried to page on the form of Tender</b>	

## ANNEX 4

**Spot Improvement Of Yalahuri/Malangauhonya/Yala Tatro/Wangai Karua Bridge/Njenjra/Ujimbe/Matumbu  
Kokwiri Tender No. KeRRA/08/39/122/2024-25**

Bill of Quantities					Page: 1
Bill No.1	General: Office administration and overheads/Preliminaries				Project:
Item No.	Description	Units	Quantity	Unit Bid Rate (Ksh)	Amount KSh
1.01	Allow a Prime Cost Sum of KShs.800,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1.00	800,000.00	
1.02	E.O. item 1.01 for Contractor's overheads and profits.	%	800,000.00		
1.03	Allow a Prime Cost Sum of KShs 500,000 for the quality control as directed by the Resident Engineer against receipts.	LS	1.00	500,000.00	
1.04	E.O. item 1.03 for contractor's overhead and profit	%	500,000.00		
1.05	Allow a Prime Cost Sum of Kshs. 2,500,000 for attendance upon the Resident Engineer' staff.	PC Sum	1.00	2,500,000.00	
1.06	E.O. item 1.05 for Contractor's overheads and profits.	%	2,500,000.00		
1.07	Allow a Prime Cost Sum of KShs. 50,000 for survey works as directed by the Resident Engineer.	PC Sum	1.00	50,000.00	
1.08	E.O. item 1.07 for Contractor's overheads and profits.	%	50,000.00		
1.09	Provide, erect and maintain publicity signs as directed by the Engineer.	no.	2		
1.10	Allow a Prime Cost Sum of KShs. 650,000.00 for provision of fuel and repair of vehicles during the contract period.	PC Sum	1.00	650,000.00	
1.11	E.O. item 1.10 for Contractor's overheads and profits.	%	650,000.00		
1.12	Allow a prime cost sum KShs. 100,000 for off road Enviromental Mitigation	PC Sum	1.00	100,000.00	
1.13	E.O. item 1.12 for Contractor's overheads and profits.	%	100,000.00		
	<b>Total Carried Forward to Summary:</b>				-

**Upgrading to Bitumen Standard of Agolomuok - Otati - Kogore (Aorachuodho) Road, Tender No. KeRRA/08/39/146/2024-25**

**ANNEX 5 – FURNITURE AND EQUIPMENT FOR ENGINEER’S LABORATORY**

APPENDIX A					
APPENDIX TO BILL ITEM 1.03:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (KSHS)	AMOUNT (KSHS)
	<b>1. FURNITURE</b>				
A104/1.01	Desk 2.2x0.9 m with chair and lockup drawers	No	2		
A104/1.02	Desk chair (standard)	No	8		
A104/1.03	Stationery cupboard, 1.2 m, lockable	No	1		
A104/1.04	Steel filing cabinet, 4 drawers, lockable	No	1		
A104/1.05	Steel filing cabinet, 2 drawers, lockable	No	1		
A104/1.06	Bookshelf, 3 shelves 1.2 m long (to hold box files)	No	1		
A104/1.07	Table - 6 m <sup>2</sup>	No	1		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO2 type	No	2		
A104/1.10	Complete first aid kit	No	1		
	<b>EQUIPMENT</b>				
	(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)				
	<b>2. General Equipment</b>				
A104/2.02	2.49kg. Compaction hammer, drop regulated to 304.8mm	No	1		
A104/2.03	4.535kg compaction hammer drop regulated to 457.2mm	No	1		
A104/2.04	Electric vibrating Kango Hammer fitted with steel tamper(BS 1377) with support frame	No	0		
A104/2.05	Straight edge 300 mm long with handles	No	1		
A104/2.06	Steel Tamper (BS1377) compatible with Kango hammer	No	1		
A104/2.07	Compaction mould 152.4 mm. dia x 116.43 mm complete with base plate and extension collar, 101.6 mm	No	1		
A104/2.08	Galvanized metal tray 1m x 0.5m x 75 mm deep	No	1		
A104/2.09	75mm brush	No	1		
A104/2.10	Semi-automatic balance, 25kg Capacity accurate to 1g, including weights	No	1		
A104/2.11	20mm BS Sieve, 300mm diameter	No	1		
A104/2.12	Stop Clock	No	1		
A104/2.13	Thermostatically controlled electric oven 105-1100C, capacity 0.225 m <sup>3</sup>	No	1		
A104/2.14	As above but gas heated	No	0		
A104/2.15	Moisture content tins, 75 mm dia, Cadmium or aluminum plated	No	100		
A104/2.16	Cone penetrometer with gauge and automatically controlled test cup	No	1		

## APPENDIX A

## APPENDIX TO BILL ITEM 1.03:

## PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
	C/Forward to next page				
	B/Forward from previous page				
	3. Density (Sand replacement method BS 1377)				
A104/3.01	Metal containers 450mm diameter	No	1		
A104/3.02	Stainless steel tray 305mm diameter	No	1		
A104/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	1		
A104/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	1		
A104/3.05	Steel pegs for fixing tray in position	No	0		
A104/3.06	Sand pouring cylinder, 150 mm diameter	No	10		
A104/3.07	Sand pouring cylinder, 215 mm diameter	No	1		
A104/3.08	Cold steel chisel 20mm x 300mmm	No	2		
A104/3.09	Cold steel chisel 10mm x 250mmm	No	2		
A104/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	2		
A104/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	1		
A104/3.12	100mm brush, soft	No	3		
A104/3.13	50mm brush, soft	No	2		
A104/3.14	Primus gas stove	No	2		
A104/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	1		
A104/3.16	Ditto but 200 mm diameter x 250 mm deep	No	1		
	4. Density (Nuclear Density method AASHTO T238)				
A104/4.01	Nuclear density gauge (Troxler 3411B or similar approved) complete with 3 no. hole forming device and 3 no. guide	No	1		
	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	10		
A104/5.02	Perforated swell plate 150 mm dia with an adjustable centre post of rust proof metal provided with a lock-nut	No	10		
A104/5.03	2.25 kg split surcharge weight	No	1		
A104/5.04	Set of annular surcharge weights	No	1		
A104/5.05	Solid base plate for CBR mould	No	1		
A104/5.06	Static compaction displacer discs 1 No x 61.4 mm, 1 No x 50.8 mm and 2 No x 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	1		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		

<b>APPENDIX A</b>					
<b>APPENDIX TO BILL ITEM 1.03:</b>					
<b>PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT</b>
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		
A104/5.10	Set of guards for above press.	No	0		
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		
A104/5.12	Penetration gauge range 0 - 25mm	No	1		
A104/5.13	CBR piston including bracket	No	1		
A104/5.14	Swell measurement tripod complete with gauge calibrated in 0.01 mm divisions	No	1		
A104/5.15	Soaking tank for CBR mould sufficient for 50 moulds	No	1		
	<b>6. Relative Density of Aggregates (BS 812)</b>				
A104/6.01	Wire mesh basket with apertures not greater than 6.5 mm large enough to contain 2.5 kg of aggregate	No	1		
A104/6.02	A stout watertight container in which the basket can be freely suspended	No	1		
A104/6.03	Soft absorbent cloth (tea towel)	No	10		
A104/6.04	Shallow tray of area not less than 0.065 m <sup>2</sup>	No	1		
A104/6.05	An airtight container of similar capacity to the basket	No	1		
A104/6.06	Pycnometer of 1 litre capacity	No	1		
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		
A104/6.08	Hot air drier (electric)	No	1		
	<b>7. Flakiness (BS 812)</b>				
A104/7.01	Thickness gauge (various sizes)	No	1		
	<b>8. Sieve Analysis (BS 1377)</b>				
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	1		
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	1		
A104/8.03	Electric sieve shaker	No	1		
A104/8.04	BS sieve 200mm diameter 0.425 and 0.075mm	set	1		
A104/8.05	1 m x 1 m x 75mm deep galvanized metaltray	No	3		
A104/8.06	Riffle box with 50mm slots (BS 1377)	No	1		
	B/Forward from previous page				
	<b>9. Miscellaneous Equipment</b>				
<b>APPENDIX A</b>					

<b>APPENDIX TO BILL ITEM 1.03:</b>					
<b>PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT</b>
A104/9.01	Wheel barrow	No	1		
A104/9.02	Dustpan and brush	No	1		
A104/9.03	Shovel	No	1		
A104/9.04	Pick axe with handle	No	1		
A104/9.05	Metal scoop, large (150mm wide)	No	1		
A104/9.06	Metal scoop, medium (100mm wide)	No	1		
A104/9.07	Garden trowel	No	2		
A104/9.08	Steel tray 0.3m x 0.3m x 0.01m deep	No	1		
A104/9.09	Palette knife 200mm long blade	No	1		
A104/9.10	Palette knife 100mm long blade	No	1		
A104/9.11	BS sieve 450mm diameter, 37.5mm	No	1		
A104/9.12	BS sieve 450mm diameter, 20mm	No	1		
A104/9.13	BS sieve 450mm diameter, 5mm	No	1		
A104/9.14	BS sieve 450mm diameter, 0.425mm	No	1		
A104/9.15	BS sieve 450mm diameter, 0.3mm	No	1		
A104/9.16	BS sieve 450mm diameter, 0.075mm	No	1		
A104/9.17	Set of lid and receiver for metal scoop and steel trays	No	1		
A104/9.18	BS Sieve brush	No	1		
A104/9.19	Measuring cylinder set, 25 ml, 100 ml, 500ml, 1000 ml, 2000 ml	set	2		
A104/9.20	Glass jar capacity 5 litres with lid	No	3		
A104/9.21	200mm x 200mm x 20mm cadmium plated or aluminium tin	No	5		
A104/9.22	Electronic balance capacity 1000 g, accurate to 0.01gm.	No	2		
A104/9.23	Balance 2000 g capacity accuracy to 0.1g (manual), including weights	No	1		
A104/9.24	Balance 50kg capacity accurate to 10gm including weights	No	1		
A104/9.25	Still for producing distilled water	No	0		
A104/9.26	Polythene or glass 20 litres storage vessel with tap at bottom	No	1		
A104/9.27	Stiff broom	No	1		
A104/9.28	Vernier calipers, 150mm	No	1		
A104/9.29	Vernier calipers, 250mm	No	1		
	C/Forward to next page		1		
A104/9.30	Pestle and mortar	No	1		
A104/9.31	Linear shrinkage mould (BS 1377)	No	1		
A104/9.32	Liquid Limit Device	No	1		
A104/9.33	Average least dimension gauge	No	0		
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	2		

<b>APPENDIX A</b>					
<b>APPENDIX TO BILL ITEM 1.03:</b>					
<b>PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT</b>
A104/9.35	Plastic or metal bucket including lid,10 litres capacity	No	1		
A104/9.36	Polythene wash bottle (500 ml)	No	1		
A104/9.37	A4 size clipboard	No	1		
A104/9.38	Thermometer, range -10°C to150°C, glass (BS 593)	No	1		
A104/9.39	Laboratory thermometer, range + 0°C to + 250°C (BS 593)	No	1		
A104/9.40	Maximum and minimum thermometer (BS692)	No	1		
A104/9.41	Rain gauge	No	1		
A104/9.42	Portable dial thermometer + 50°C to +250°C accurate to ± 3%	No	1		
A104/9.43	Ditto with 0.75m long stem	No	2		
A104/9.44	Pocket thermometer + 50°C to +250°C accurate to ± 3% with 0.1 m stem	No	10		
A104/9.45	5 litre capacity steel storage containers with leak and dust proof lids for storage of bitumen samples	No	1		
A104/9.46	Hotplate 200mm diameter with Simmer stat heat control unit.	No	2		
A104/9.47	450mm diameter x 150mm deep metal mason's basin	No	1		
	10. Standard Specifications (Copies of each of the latest editions of the following Standards)				
A104/10.01	BS 598	No	1		
A104/10.02	BS 812	No	1		
A104/10.03	BS 882	No	1		
A104/10.04	BS 1377	No	1		
A104/10.05	BS 1881	No	1		
A104/10.06	BS 1924	No	1		
A104/10.07	Standard Specifications for Transportation Material and Methods of Sampling and Testing (AASHTO) Parts I and II, 14 <sup>th</sup> Edition	Set	1		
A104/10.08	ASTM D1559	No	1		
A104/10.09	Asphalt Institute, Superpave Manual Series No.2(SP-2)	No	1		
A104/10.10	Overseas Road Note 19	No	1		
A104/10.11	BS 5911 Part 1 &3	No	1		
	C/Forward to next page				
	11. Concrete: Slump and Cube Manufacture (BS 1881)				
A104/10.12	BS 4449	No	1		
A104/11.01	Slump cone, tamping rod and base	set	2		
A104/11.02	Concrete cube mould, 150mm cube	No	10		



APPENDIX A					
APPENDIX TO BILL ITEM 1.03:					
PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
A104/11.03	Soaking tank for cubes (capacity 50 No.)	No	1		
A104/11.04	Cube tamping bars	No	10		
	12. Concrete: Cube Compression Testing				
A104/12.01	Concrete compression machine to BS1610 Grade A with 300 mm gauge, rectangular platens, capacity 1560 kN with load spacer	No	0		
A104/12.02	Safety guard for above	No	0		
A104/12.03	50mm distance piece	No	1		
A104/12.04	70mm distance piece	No	1		
A104/12.05	Electro-mechanical load pacer, 100 mm or equivalent distance piece	No	1		
	13. Aggregate and Chippings				
A104/13.01	Sand equivalent to AASHTO T176 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 10 litre jar	Set	1		
A104/13.02	Beaker 250ml	No	2		
A104/13.03	Aggregate Crushing Value Apparatus, 150 mm nominal diameter , including plunger and base plate	No	2		
A104/13.04	Tamping rod and metal measure for above	Set	4		
A104/13.05	Los Angeles Abrasion to ASTM standards	No	1		
A104/13.06	Set of 12 abrasive charges	No	2		
A104/13.07	Thermometer, 0°C to +50°C	No	2		
A104/13.08	Thermometer, 0°C to +250°C	No	2		
A104/13.09	Reagent grade Silica gel, 500g container	No	10		
	14. Bitumen Spray Test (BS 1707)				
A104/14.01	Transverse distribution of spray test bitumen distributor (depot tray test to BS 1707) or equivalent.	Set	0		
A104/14.02	Steel tray 20 mm deep x0.1m <sup>2</sup> (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	1		
	C/Forward from previous page				
	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		
A104/16.02	Flat bottomed scoop	No	1		
A104/16.03	Steel garden trowel	No	1		
A104/16.04	Large steel spoon	No	1		
A104/16.05	Heat resistant gloves	pair	2		

A104/16.06	Foot pump for pressurising air water assemblies up to a maximum of 700KN/m <sup>2</sup> and fitted with flexible hose approximately 1.2m long and connector	No	1		
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**APPENDIX A**

**APPENDIX TO BILL ITEM 1.03:**

**PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY**

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
A104/16.07	Steel bottle 600ml capacity with 49mm rubber stopper	No	1		
A104/16.08	Steel bottle 2500ml capacity with 71mm rubber stopper	No	1		
A104/16.09	Steel bottle 7000ml capacity with 71mm rubber stopper	No	1		
A104/16.10	Flask funnel for fitting to the 700ml steel bottle with rim of funnel retaining sieve 200mm nominal diameter	No	2		
A104/16.11	Bottle roller compact bench mounted unit designed to rotate 2 bottles simultaneously about longitudinal axis	No	0		
A104/16.12	Pressure filter complete with cutting tool for making hole in the filter paper	No	0		
A104/16.13	Filter funnel to take 200mm nominal diameter sieves	No	0		
A104/16.14	Centrifuge complying with BS 598	No	0		
A104/16.15	Binder recovery	No	0		
A104/16.16	Volumetric flask 250ml, 500ml, 1000ml and 2000ml capacity	set	0		
A104/16.17	Recovery still for Dichloromethane	No	0		
	B) Hot Extractor Method BS 598 Part 2		0		
A104/16.18	Hot extractor complete with wire gauze container gasket, cork lid and support assembly	No	0		
A104/16.19	Dean and Stark receiver with condenser to suite Trichloroethylene	No	0		
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	0		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	No	0		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer	No	1		
A104/17.01	Paraffin wax	Kg	40		
A104/17.02	Gas	Kg	80		
A104/17.03	Gunny sack	No	100		
A104/17.04	Plastic bag 900x450x1000 gauge	No	100		
A104/17.05	Plastic bag 450x300x1000 gauge	No	0		
A104/17.06	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	10		
A104/17.07	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	10		

A104/17.08	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	10		
A104/17.09	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		

<b>APPENDIX A</b>					
<b>APPENDIX TO BILL ITEM 1.03:</b>					
<b>PROVIDE AND MAINTAIN FURNITURE AND EQUIPMENT FOR THE ENGINEER'S LABORATORY</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>RATE</b>	<b>AMOUNT</b>
A104/17.10	filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5(Boxes of 100)	No	1		
A104/17.11	Trichloroethylene (205 Litre Drum)	No	1		
A104/17.12	Dichloromethane	kg	30		
A104/17.13	Cotton waste	kg	1		
A104/17.14	Gas cylinders compatible with supplied stoves	No	1		
A104/17.15	Sodium sulphate	kg	70		
A104/17.16	Sand for density test	kg	6		
	<b>Carried Forward to item 1.03</b>				

**ANNEX 6 – FURNITURE FOR RESIDENT ENGINEER'S OFFICE**

<b>APPENDIX B</b>					
<b>APPENDIX TO BILL ITEM 1.04A: PROVIDE, FURNISH AND MAINTAIN THE R.E.'S OFFICE</b>					
	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>Quantity</b>	<b>RATE</b>	<b>AMOUNT</b>
				<b>(KSHS)</b>	<b>(KSHS)</b>
No.	<b>1. ENGINEER'S MAIN OFFICE AND FURNITURE</b>				
1	Executive desk 2.2 x 0.9m with six lockup drawers	No	1		
2	Desk 2.2*0.9m with chair and lockup drawers	No	3		
3	Office tables 2.2 x 0.9m	No	3		
4	Executive swivel orthopedic chair adjustable height	No	6		
5	Standard office chairs	No	12		
6	Typist's chair	No	1		
7	Typist's chair	No	0		
8	Lockable steel stationery cupboard, 1.2m <sup>3</sup> , lockable	No	1		
9	Medium size steel filing cabinet, 4 drawers lockable	No	1		
10	Medium size steel filing cabinet, 2 lockable drawers	No	2		
11	Bookshelf, 1.5m wide 3 shelves (for box files) sliding glass door	No	2		
12	Conference table with 15 chairs	No	1		
13	Waste paper basket	No	10		
14	Curtains for office and laboratory- for all windows and doors	No.	2		
15	Ordinary 2 hole paper punch	Set	3		
16	Heavy duty 2 hole paper punch	No	1		
17	Computer meeting the following specifications or equivalent: Personal computer with 17" screen full multimedia, 500GB SSD hard disk, 4.0 GB RAM, core i7 processor, complete with all accessories preloaded with latest versions of windows OS, MS Office, pro	No	3		
18	Autocad Civil 3D (latest) 6 and licences for above computers	No	3		
19	Laptops PC with intel Core i7-4510U Processor 15.4" screen, CPU @ 2.6GHz 8GB RAM 1TB SSD 8xDVD+/-RW approved with Microsoft Windows professional	No	3		
20	Latest HP (A4) Laser Printer with accessories	No	2		
21	Latest HP (A3) Laser Colour printer with accessories	No	1		
22	UPS 600 VA	No	2		
23	wall clocks, battery powered min size 350mmx350mm	No	1		
24	First aid kit	No	5		
25	fire extinguisher, 10 litre capacity, CO2 type	No	4		
26	Filling tray- set of 3no.	No	2		
27	Refrigerator minimum capacity 0.2m <sup>3</sup>	No	1		
28	Drinking water dispenser, hot/cold	No	3		
29	Table - 0.8m <sup>2</sup> surface area		1		
30	cupboard, 0.15m <sup>3</sup> lockable	No	1		
31	13kg Gas with three gas burners	set	2		
32	A3 Photocopier (approved make), with feeder sorting trays, scanner and print capability	No	1		

Carried Forward to Item 1.04A				
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## ANNEX 7 – SURVEY EQUIPMENT

APPENDIX C					
APPENDIX TO BILL ITEM 1.04B ENGINEERS'S SURVEY EQUIPMENT					
ITEM	Description	UNIT	QUANTITY	RATE	AMOUNT(Kshs)
1.01	Digital Total Station <b>reading to 1"accuracy (one second)</b> with the following facilities	No.	0		
	· Inbuilt data logger				
	· Uploading/downloading software				
	· Data transfer cable				
	· Battery (2No)				
	· Battery charger				
	· Tool kit				
	· Two face keyboard				
	· User manual				
	It must have the following inbuilt survey programs as a minimum				
	· Survey				
	· Staking out				
	· Resection/intersection				
	· Traverse				
	· Cogo				
1.02	The following mandatory total station accessories must be included per Total station instrument				
	1No. Heavy duty telescopic tripod( <i>preferably wooden</i> )	No.	0		
	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		
	· Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	0		
	· Survey umbrella	No.	1		
	· 1No.Telescopic Tripod	No.	0		
1.03	Engineer's Automatic Level Wild NAK 2 or similar with a tripod and the following specifications	No.	2		
	· Accuracy of 0.7 mm per 1 km double run				
	· Standard magnification of: 32x				
	· Shortest focusing distance of 1.6m				
	· Compensator setting accuracy of 0.3"				
1.04	Hand held GPS with accuracy of 1 Metre	No.	1		
1.05	Set of two way radio communication with a range of 1 kilometer	set.	2		
1.06	5 M Leveling staff with leveling bubble	No.	4		
1.07	3 M Ranging Rods	No.	10		
1.08	Scientific Calculators FX 912ms or equivalent	No.	4		
1.09	50m. Linen Measuring Tape	No.	5		

1.10	1 M stainless steel straight edge	No.	1		
1.11	3 m tape measure	No.	10		
1.12	Sledge hammer 2kg weight	No.	2		
1.13	Mattock	No.	4		
1.14	Pangas (16'')	No.	10		
1.15	Marker Pens	No.	20		
1.16	Reflector Jackets	No.	40		
1.17	levelling survey books	No.	50		
1.18	provision of geodetic GNSS receivers comprising of one base and two rovers as per the specifications	No.	1		
1.19	Provide with license and install the latest version of (insert software)	No.	0		
1.20	Roll of tracing paper	No.	0		
1.21	Laptop PC with Intel Core i7-350M Processor 15.4" screen, 12GB DDR3RAM 1000GB 8xDVD+/-RW or similar approved with microsoft windows professional	No.	1		
1.22	scale rules	No.	0		
1.23	Drawing pens(0.25mm)	No.	0		
1.24	Graph paper 1mm(roll)	No.	0		
	<b>Carried Forward to Bill Item 1.04B</b>				

**ANNEX 8 – REVISED SUMMARY PAGE**

<b>GRAND SUMMARY OF BILL OF QUANTITIES</b>		
<b>SUMMARY OF BILL OF QUANTITIES</b>		
<b>BILL ITEM</b>	<b>DESCRIPTION</b>	<b>AMOUNT (KShs)</b>
1	Preliminaries and General Items	
4	Site Clearance and Top soil stripping	
5	Earthworks	
7	Excavation and Filling for Structures	
8	Culvert and Drainage Works	
9	Passage of Traffic	
12	Natural Material Base and Subbase	
14	Cement and Lime Treated Material	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
17	Concrete Works	
20	Road Furniture	
21	Miscellaneous Bridge/Drift Works	
22	Schedule of Dayworks	
25	HIV/AIDS, Gender & Social Issues, Local Participation	
26	Land Acquisition, Axle Load Control, and Relocation of Services	
(A.)	<b>SUB-TOTAL (1)</b>	
(B.)	Add 15% Variation of Price of Sub-Total (1)	
(C.)	Add 10% Contingency of Sub-Total (1)	
(D.)	<b>SUB-TOTAL (2) = (A+B+C)</b>	
(E.)	Add 0.03% public procurement capacity building levy of (Sub Total 2)	
(F.)	<b>SUB-TOTAL (3) = (D+E)</b>	
(G.)	Add 16% VAT of Sub-Total (3)	
<b>TOTAL CARRIED FORWARD TO FORM OF BID AS BID SUM 1(F+G)</b>		

**ANNEX 9 – SCHEDULE OF PAYMENTS****Table B: Schedule of Payments**

Q/No.	Milestone	Payment Date	Valuation	Recovery of advance
1.	On attainment of 5% of project length to bitumen standard		Full measure of Milestone as measured	
2.	On attainment of 10% of project length to bitumen standard		Full measure of Milestone as measured	
3.	On attainment of 15% of project length to bitumen standard		Full measure of Milestone as measured	
4.	On attainment of 20% of project length to bitumen standard		Full measure of Milestone as measured	Start recovery as per clause 14.2
5.	On attainment of 25% of project length to bitumen standard		Full measure of Milestone as measured	
6.	On attainment of 30% of project length to bitumen standard		Full measure of Milestone as measured	
7.	On attainment of 35% of project length to bitumen standard		Full measure of Milestone as measured	
8.	On attainment of 40% of project length to bitumen standard		Full measure of Milestone as measured	
9.	On attainment of 45% of project length to bitumen standard		Full measure of Milestone as measured	
10.	On attainment of 50% of project length to bitumen standard		Full measure of Milestone as measured	
11.	On attainment of 55% of project length to bitumen standard		Full measure of Milestone as measured	
12.	On attainment of 60% of project length to bitumen standard		Full measure of Milestone as measured	
13.	On attainment of 65% of project length to bitumen standard		Full measure of Milestone as measured	
14.	On attainment of 70% of project length to bitumen standard		Full measure of Milestone as measured	
15.	On attainment of 75% of project length to bitumen standard		Full measure of Milestone as measured	
16.	On attainment of 80% of project length to bitumen standard		Full measure of Milestone as measured	End of recovery as per clause 14.2
17.	On attainment of 85% of project length to bitumen standard		Full measure of Milestone as measured	
18.	On attainment of 90% of project length to bitumen standard		Full measure of Milestone as measured	
19.	On attainment of 95% of project length to bitumen standard		Full measure of Milestone as measured	
20.	On attainment of 100% of project length to bitumen standard		Full measure of Milestone as measured	
	100%			

1. A milestone shall be a fully completed section of the road as above having all pavement layers, access culverts, cross pipe culverts and functioning drains.
2. For assigned or formally sub-contracted works, a milestone shall constitute 5% of the total length assigned or formally sub-contracted, having all pavement layers, access culverts, cross pipe culverts and functioning drains.
3. Consequent to item (2) above, a milestone shall constitute 5% of the total length of the project road remaining with the main Contractor after assignment or formal sub-contracting of portions of the road having all pavement layers, access culverts, cross pipe culverts and functioning drains.
4. Completion of bottleneck section on the project road to pavement standard as instructed and approved by the Engineer shall constitute a milestone.
5. Work executed under Major structures (box culverts and bridges will be valued and paid together with due milestone payments
6. Road Furniture and road marking will form part of the completed mile stone



**ANNEX 10: BILL No. 1: PRELIMINARIES AND GENERAL ITEMS**

<b>BILL NO. 1: PRELIMINARIES AND GENERAL ITEMS</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE</b>	<b>AMOUNT (KES)</b>
1.01	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. The office shall revert to the Employer at the end of the project.	LS	1		
1.02	Provide or rent and maintain Engineer's Site Laboratory for the duration of the Contract. The Laboratory shall revert to the Employer at the end of the project.	LS	1		
1.03	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.	LS	1		
1.04A	Provide and maintain furniture, tools and other items for the Engineers Representative office for the duration of the Contract as priced in Appendix 'B'.	LS	1		
1.04B	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract.	LS	1		
1.05	Provide with drivers, fuel and maintain two (2) new 4WD fully loaded Station Wagon of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	24		
1.06	E.O item 1.05 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	36,000		
1.07	Provide with drivers, fuel and maintain two (2) new 4WD fully loaded double cabin pick-up of minimum diesel engine capacity 2500cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	24		
1.08	E.O item 1.07 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	36,000		
1.09	Ditto item 1.07, but two (2) new 4WD standard double cabin pick-up of minimum diesel engine capacity 2200cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month.	Veh-Month	24		
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	36,000		
1.11	Ditto item 1.07, but two (2) new 4WD Single cabin pick-ups with fibre glass body of minimum diesel engine capacity 2200cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. engine capacity approved by	Veh-Month	48.		
1.12	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	72,000		
1.13	Allow a Prime Cost Sum of Kshs.9,000,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts	PC Sum	1	9,000,000.00	9,000,000.00
1.14	E.O. item 1.13 for Contractor's overheads and profits.	% of item	9,000,000		
1.15	Allow a Prime Cost Sum of Kshs. 21,600,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1.00	21,600,000.00	21,600,000.00
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%	21,600,000		
1.17	Provide, erect and maintain publicity signs as directed by the Engineer.	No.	2		
<b>Total Bill 1 Taken to Summary Page</b>					

## ANNEX 11

<b>Upgrading to Bitumen Standard Of Miomponi - Mukothima - Gatunga Road</b>					
<b>BILL No. 1. PRELIMINARIES AND GENERAL ITEMS</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE</b>	<b>AMOUNT (Kshs)</b>
1.01	Provide or rent accommodation for Engineer's senior and junior staff				
	(i)Type I (1 No.)	Month	30.00	65,000.00	1,950,000.00
	(i)Type II-(3No.)	Month	90.00	55,000.00	4,950,000.00
	(iii) Type III (5No.)	Month	150.00	40,000.00	6,000,000.00
	(iv) Type IV -(6No.)	Month	180.00	30,000.00	5,400,000.00
	(v) Type V - (10No)	Month	300.00	21,000.00	6,300,000.00
	Total	Total Item 1.01			24,600,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%			
1.03A	Construct and maintain Engineer's Representative's office as shall be instructed by the Engineer for use during the duration of the Contract, ownership to revert to the Employer at the end of the Contract	PC Sum	20,000,000		
1.03B	E.O. item 1.03A for Contractor's overheads and profits.	%			
1.04A	Construct and maintain Engineer's Site Laboratory for the duration of the Contract, ownership to revert to the Employer at the end of the Contract	PC Sum	15,000,000		
1.04B	E.O. item 1.04A for Contractor's overheads and profits.	%			
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	ITEM		
1.06A	Provide and maintain furniture, tools and other items for the Engineers office and Engineer's representative houses as priced in Appendix B for the duration of the contract.	LUMP SUM	ITEM		
1.06B	Provide and maintain survey equipment as priced in Appendix C for the duration of the contract	LUMP SUM	ITEM		
1.07	Provide with drivers, fuel and maintain two (2) new 4WD fully loaded Station Wagon of minimum diesel engine capacity 3000cc 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	72.00		
1.08	EO item 1.07 for total aggregated mileage in excess of 5000km per vehicle month.	Km	60,000.00		
1.09	Provide with drivers, fuel and maintain 2No. 4WD fully loaded double cabin pick-ups of minimum diesel engine capacity 3000cc 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	72.00		
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	60,000.00		

1.11	Ditto item 1.09, but Two (2) new 4WD Standard double cabin pick-up of minimum diesel engine capacity 2500cc 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	60.00		
1.12	E.O item 1.11 for total aggregated mileage in excess of 5000 km per vehicle per month. Ditto item 1.09, but Two (2) new 4WD Standard single cabin pick-up with fibre	km	150,000.00		
1.13	Diito item 1.09 but 2 new 4WD single cabin pick-up with glass body and cushioned benches of minimum diesel engine capacity 2500cc 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	60.00		
1.14	E.O item 1.13 for total aggregated mileage in excess of 5000 km per vehicle per month.	km	150,000.00		
1.15	Allow a Prime Cost Sum of Kshs 8,500,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1.00	8,500,000.00	8,500,000.00
1.16	E.O. item 1.15 for Contractor's overheads and profits.	%			
1.17	Allow a Prime Cost Sum of Kshs 18,000,000 for attendance upon the Resident Engineer' staff.	PC Sum	1.00	18,000,000.00	18,000,000.00
1.18	E.O. item 1.17 for Contractor's overheads and profits.	%			
1.19	Provide, erect and maintain publicity signs as directed by the Engineer.	No	2.00		
	<b>Bill No. 1 Total Carried Forward to Grand Summary</b>				