

APPENDIX A					
APPENDIX TO BILL ITEM 1.05:					
Provide and maintain furniture and equipment for the Engineer's Laboratory					
S/NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
	I. 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 ² , 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 ²	No	2		
A104/1.08	Two Plate electric heater	No	1		
A104/1.09	Fire extinguisher, 10 litre capacity, CO ₂ 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 (ASHTO) Standards)</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		
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 ³	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)				
A105/3.01	Metal containers 450mm diameter	No	2		
A105/3.02	Stainless steel tray 305mm diameter	No	2		
A105/3.03	Metal tray with 150 mm diameter hole in the centre, 300mmx300 mm square or equivalent area, 40mm deep	No	2		
A105/3.04	Metal tray with 200mm diameter hole in the centre, 500mm x 500 mm square , 50 mm deep	No	2		
A105/3.05	Steel pegs for fixing tray in position	No	15		
A105/3.06	Sand pouring cylinder, 150 mm diameter	No	2		
A105/3.07	Sand pouring cylinder, 215 mm diameter	No	2		
A105/3.08	Cold steel chisel 20mm x 300mmm	No	4		
A105/3.09	Cold steel chisel 10mm x 250mmm	No	4		
A105/3.10	1.5kg, 3.5kg hammers and 1kg rubber mallet	Set	1		
A105/3.11	Scoop for removing excavated material from hole, 250 mm long handle	No	6		
A105/3.12	100mm brush, soft	No	3		
A105/3.13	50mm brush, soft	No	3		
A105/3.14	Primus gas stove	No	1		
A105/3.15	Calibrating can 150 mm diameter x 150 mm deep	No	3		
A105/3.16	Ditto but 200 mm diameter x 250 mm deep	No	3		
	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 Nox 61.4 mm, 1 No x 50.8 mm and 2 Nox 38.8 mm thick with handles	set	1		
A104/5.07	Disk lifting handle	No	2		
A104/5.08	Central extruder, complete with 20kN hydraulic jack and accessories	No	1		
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		
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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 guage 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 ²	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		
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		
	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		
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		
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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		
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 to 150°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		
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	11. Concrete: Slump and Cube Manufacture (BS 1881)				
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		
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		
A104/14.2	Steel tray 20 mm deep x0.1m ² (for measuring bitumen spray rates) with purpose made detachable handle 1.5m long.	No.	4		
	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 large 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 ² and fitted with flexible hose approximately 1.2m long and connector	No	2		
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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		
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	No	2		
A104/16.20	Gyratory compactor ELE Servo Pac or equivalent with 1 x 100mm and 1 x 150mm moulds	No	2		
A104/16.21	PRD Vibrating hammer compactor complete with 6 moulds, 7 base plates from ELE	Set	1		
A104/16.22	Two (2) sets of Tamping foot 102mm diameter and 146mm diameter and shanks to fit the supplied vibratory hammer	Set	2		
	17. Consumables				
A104/17.01	Paraffin wax	Kg	50		
A104/17.02	Gunny sack	No	500		
A104/17.03	Plastic bag 900x450x1000 gauge	No	500		
A104/17.04	Plastic bag 450x300x1000 gauge	No	500		
A104/17.05	Filter paper 150mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.06	Filter paper 400mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.07	Filter paper 100mm diameter Whatman No. 5 (Boxes of 100)	No	20		
A104/17.08	Filter paper 400mm diameter Whatman No. 54 (Boxes of 100)	No	10		
A104/17.09	Filter paper 270mm diameter with 33 diameter hole at centre Whatman No. 5 (Boxes of 100)	No	15		
A104/17.10	Trichloroethylene (205 Litre Drum)	No	5		
A104/17.11	Dichloromethane	kg	200		
A104/17.12	Cotton waste	kg	50		
A104/17.13	Gas cylinders (13Kg) with compatible gas burners - filled	No	5		
A104/17.14	Sodium sulphate	kg	45		
A104/17.15	Sand for density test	kg	250		
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APPENDIX C

APPENDIX TO BILL ITEM 1.07 ENGINEERS’S SURVEY EQUIPMENT					
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
1.01	<p>Digital Total Station <u>reading to 1”accuracy (one second)</u> with the following facilities</p> <ul style="list-style-type: none">Inbuilt data loggerUploading/downloading softwareData transfer cableBattery (2<i>No</i>)Battery chargerTool kitTwo face keyboardUser manual <p>It must have the following inbuilt survey programs as a minimum</p> <ul style="list-style-type: none">SurveyStaking outResection/intersectionTraverseCogo	No.	0		
1.02	The following mandatory total station accessories must be included per Total station instrument				
(a)	1No. Heavy duty telescopic tripod(<i>preferably wooden</i>)	No.	0		
(b)	Telescopic plumbing prism pole complete with a prism and prism holder with target and plumbing bubble (<i>length not less than 2.15m</i>)	No.	0		
(c)	Triple prism holder set, in a casing, comprising triple prisms, prisms holder with target, tribrach and a tribrach adaptor	No.	0		
(d)	<ul style="list-style-type: none">Survey umbrella	No.	1		
(e)	<ul style="list-style-type: none">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		
	<ul style="list-style-type: none">Accuracy of 0.7 mm per 1 km double run				
	<ul style="list-style-type: none">Standard magnification of: 32x				
	<ul style="list-style-type: none">Shortest focusing distance of 1.6m				
	<ul style="list-style-type: none">Compensator setting accuracy of 0.3"				
	Total carried forward to next page				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KSHS)
	Brought Forward				
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		
1.09	50m. Linen Measuring Tape	No.	5		
1.1	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.	2		
1.14	Pangas (16’')	No.	10		
1.15	Marker Pens	No.	20		
1.16	Reflector Jackets	No.	30		
1.17	Levelling Survey Books	No.	100		
1.18	Provision of Geodetic GNSS receivers comprising of one base and two rovers as per the specifications in Appendix D	No.	1		
1.19	Provide with license and install the latest version of	L.S	1		
Total carried to Bill Item 1.06B					

MAINTENANCE OF KIONYO -KANYAKINE - MITUNGUU ROAD						RWC xxx
17.05	Provide & fix in place vertical formwork to achieve class F1 finish	m²	180.00			
17.06	As item 17.05 but horizontal	m²	120.00			
17.07	As item 17.05 but sloped.	m²	50.00			
17.08	Vertical formwork to achieve class F3 finish	m²	120.00			
Bill No. 17 Total Carried Forward to Grand Summary						0.00
BILL NO. 20: ROAD FURNITURE						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
20.01	Provide Road Reserve Boundary posts	No.	176			
20.02	Excavate for, provide & place 250 x 125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer.					
	a) Straight kerbs	m	5,000			
	b) Kerbs radius 12m - 6m	m	1,000			
	c) Ditto but radius 5m - 1m	m	1,000			
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	5,000			
20.04	Provide and erect permanent road signs where instructed by the Resident Engineer and in accordance with Special Specifications Clause 2004 as follows:					
	a) warning signs	No.	10			
	b) Priority prohibitory and mandatory signs	No.	10			
	c) Standard informatory signs	No.	15			
	d) Non standard informantor signs area					
	i) Less than 1.0m²	No.	5			
	ii) More than 1.0m² but less than 5m²	No.	5			
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectionized thermoplastic paint from an approved supplier.	m²	3,520			
20.06	As item 20.05 but for yellow reflectionized thermoplastic paint	m²	1,760			
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.	2,000			
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	8,000			
20.09	Provide Edge marker posts	No.	50			
20.10	Provide kilometre marker posts as directed by the Engineer	No.	16			
20.13	Construction of speed bumps with Concrete as directed by Engineer	m³	20			
20.14	Provide and install cat-eyes as directed by the Engineer	No.	1,600			
20.15	Provide, plant, and nurture tree seedlings for a period of not less than half the construction period of the project or as directed by the Engineer	No.	350			
Bill No. 20 Total Carried Forward to Grand Summary						0.00
BILL NO. 22: SCHEDULE OF DAYWORKS						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
	PLANT					
	<i>The rates inserted herein are to include all operational and Maintenace 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.</i>					
22.01	Crawler dozers with hydraulic attachmentsto include ripper					
	a) Up to 135 kw rated flywheel power	hrs	10			
	b) Over 136 kw rated flywheel power	hrs	4			
22.02	Motor Grader					
	a) Up to 110kw rated flywheel power	hrs	5			
	b) Over 100kw rated flywheel power	hrs	5			
22.03	Vibratory Roller					
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	5			
	b) Over 8.91 tonne un-ballasted weight	hr	5			
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	5			
22.05	Cat 950G wheel loader or equivalent	hrs	5			
22.06	10 Tonne tipper lorry	hrs	5			
22.07	Small dumpers, 750-1000kg rated payload	hrs	5			
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m3.	hrs	5			
22.09	Articulated wheel loader with 1.5-2.0m³ SAE rated bucket capacity	hrs	5			
22.10	50mm delivery water pump and motor	hrs	5			
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	5			
22.12	Concrete Mixer of 100 - 150litres	hrs	5			
22.13	Concrete poker vibrator	hrs	5			
	LABOUR					
	<i>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.Only the actual time engaged upon the work will be paid for.supervision, overheads and Profit.</i>					
22.14	Unskilled Labour	hrs	10			
22.15	Artisans	hrs	10			
22.16	Office attendants and chainmen	hrs	10			
22.17	Watchmen (all round surveillance)	hrs	10			
TOTAL CARRIED FORWARD TO THE NEXT PAGE						-
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
TOTAL BROUGHT FORWARD						0
	MATERIALS					
	<i>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</i>					
22.18	Ordinary Portland Cement	Ton	1			
22.19	Hydrated Lime	Ton	1			
22.20	Mild Steel(any diameter)	Ton	2			
22.21	High Yield Steel (any diameter)	Ton	1			
22.22	Fine Aggregate for Concrete	m³	1			
22.23	Coarse Aggregate for Concrete	m³	5			
22.24	Wrot Shuttering Timber	m²	5			
22.25	Rough shuttering timber.	m²	5			
22.26	Bitumen Emulsion KI-60.	Litre	5			
22.27	Straight run bitumen Grade 80/100.	Litre	5			
22.28	Kerosene	Litre	5			
22.29	14/20 mm nominal size surface chips.	m³	5			
22.30	6/10mm nominal size surface chips	m³	5			
22.31	AC Type I Ex-plant	m³	5			
22.32	AC Type II Ex-plant	m³	5			
22.33	Dense Bitumen Macadam	m³	5			
Bill No. 22 Total Carried Forward to Grand Summary						0.00
BILL NO. 24: STREET LIGHTING						
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
24.01	Supply and install galvanized single bracket, boom < 1m, galvanized steel lighting columns till 8m above ground and 1.2m below ground, according to specification andd approved by the Engineer. All columns shall be installed with a triangular lock and	NO.	40			
24.02	Allow the construction of pit for mounting of columns till 8m height, including excavation, filling and compaction concrete and concrete works, form works and all other elated works. Dimensions according to attached drawings.	NO.	40			
24.03	Supply and install rail mounted class "MCBs" mounted in column for high pressure sodium lamps.	NO.	40			
24.04	Supply and install street lighting lantern IP66 complete with LED 74W;> 9100lm and control gear as Trilux 971 ISG-AB7L/9100-740 10GIS ET or similar as specified.	NO.	0			
24.05	Supply and install street lighting lantern IP66 complete with high voltage pressure sodium lamp 250W/230V;>32000lm and control gear as Trilux 9721/250 HSE or similar as specified.	NO.	40			
24.06	Supply and install twin cable with earth rated according to VDE 0298-4, not less than 3 x 1.5mm2 from MCB mounted in column luminaire.	M	4,000			
24.07	Supply and install weatherproof feeder pillar units according to IEC 60439-1 Degree of protection IP55, impact proection level K10 in accordance with specification, allowing for the circuitry shown on the drawing.	NO.	3			

24.08	Supply and install feeder pillar equipment and wiring according to IEC 60439-1 Degree of protection IP55, impact protection level K10 in accordance with specification, drawing and incorporating 1) meter 2) Cut out 3) Isolator, 4) MCB's 5) T.P and N	NO.	3		
24.09	Allow for excavation for complete foundation for mounting feeder pillars as shown in the drawings.	NO.	3		
24.10	Allow for concrete foundation base for mounting feeder pillars as shown on the drawings.	NO.	3		
24.11	Allow excavation, laying of 100mm PVC cable duct and warning tape, back filling and clearing reinstatement of all as per specifications for power supply poles.	M	4,000		
24.12	Supply, install and connect 4 core PVC SWA PVC street light cable complete with glands and accessories rated according to VDE 0298-4 for power supply to poles.	M	4,000		
24.13	Supply and install single core earth cable, alongside the above power cable from feeder pillar to each circuit as per the specifications. For the power to supply the poles.	M	4,000		
24.14	Allow 100mm thick concrete cover for cable in PVC duct for road crossing.	M	30		
24.15	Solidly earth every fourth street lighting columns with 1200mm copper earth electrodes complete with all accessories.	NO.	10		
24.16	Allow 25 x 3mm earthing tape and earth pits to feeder pillars including 1200mm earth copper electrodes and other necessary accessories etc. as specified.	NO.	3		
24.17	Allow for the cable route markers at changes of direction and at intervals of approximately 30m (between street lighting columns)	NO.	135		
24.18	Supply and install weatherproof photocell units/control panels, Degree of protection IP55 as specified.	NO.	40		
24.19	Allow for excavation, laying of 100mm PVC Cable duct and warning tape, back filling and clearing reinstatement, all as per the specifications for control cabling.	M	50		
24.20	Supply, install and connect PVC SWA PVC Cable complete with glands and accessories rated according to VDE 0298-4 for control cabling.	M	50		
24.21	Supply and installation of step-down transformers, 11/0.4 Kv, 25Kva. Allow for all accessories including concrete works and earthing.	No.	3		
24.22	Allow for construction of 2 x 150mm concrete covered cable duct including excavation, concrete mix, back filling for connection from power source to transformer.	M	300		
24.23	Supply, install and connect PVC SWA PVC Cable complete with glands and accessories rated according to BS EN/IEC 60228 standards for connection from power source to transformer.	M	300		
24.24	Supply and install single core earth cable, alongside the above power cable as per the specifications.	M	300		
24.25	Allow for construction of 2 x 150mm concrete covered cable duct including excavation, concrete mix, backfilling for connection from the transformer to feeder pillar.	M	300		
24.26	Supply, install and connect PVC SWA PVC Cable complete with glands and accessories rated according to VDE 0298-4 for connection from transformer to feeder pillar.	M	300		
24.27	Supply and install single core earth cable, alongside the above power cable as per the specifications.	M	300		
24.28	Allow for construction of manholes along the duct including excavation, concrete and concrete works, form work, heavy duty covers and all other related works.	NO.	40		
24.29	Allow for Contractor's overheads and profits as a percentage of all supply and install items	%	15%		
24.30	Allow for provisional sum for payment for Power Company for incoming electricity supply to each feeder pillar	LS	2		
24.31	Allow for liaison with Power Company in connection with works for incoming electricity supply including making such power supply applications and submissions that they require	LS	2		
24.32	Allow for all working drawings and schematic drawings prior to commencing	LS	2		
24.33	Allow for the testing and commissioning for the entire electrical system to the satisfaction of the Power Company & Engineer, including the provision of the equipment	LS	2		
24.34	Allow for as installed drawings, manuals and details of equipment installed.	LS	2		
24.35	Supply, Install, Test, Commission and set to work the following: An integrated Solar street light system which combines the green-energy parts of Solar panel, LED lamp and the Li-Fe battery into a single unit (all-in-one) as manufactured by 1st beam	NO	0		
	Bill No. 24 Total Carried Forward to Grand Summary				0.00

BILL NO. 25: ENVIRONMENTAL MITIGATION MEASURES & HIV AIDS CAMPAIGN

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
25.01	All for a prime cost sum for of KShs 2,000,000 (Two Million) for ESIA study and report, Compliance Audits and environmental monitoring.	PC sum	1		
25.02	E.O for Item 25.01 for Contractor's Overheads and Profit	Item	%		
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	24		
25.04	Provide for male and female condoms to workers and staff strategically and socially presented for the duration of the contract	No.	25,000		
25.05	Allow for preparation and submission of monthly reports on HIV/AIDS awareness and prevention activities. Report to be tabled at site meetings.	Months	24		
25.06	Provide, Install 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.	5		
25.07	Allow for video shows on HIV/AIDS and COVID-19 related awareness and prevention matters every 3 months	Quartely	6		
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		
	b) Ditto (a) above but caps	No.	200		
	c) A1 size weather proved posters	No.	200		
	d) A3 size weather proved posters	No.	200		
	e) 200x150mm stickers with HIV/AIDS awareness/prevention slogan	No.	200		
	f) Key rings with HIV/AIDS awareness/prevention slogan	No.	200		
	g) Ball point pens with HIV/AIDS awareness / prevention slogan.	No.	200		
25.09	Provide and maintain handwashing points at strategic locations as directed by the Engineer throughout the construction period	No.	5		
25.10	Provide and maintain sanitizing points at strategic locations as directed by the Engineer throughout the construction period	No.	5		
25.11	provide face masks as specified or as shall be directed by the Engineer	No.	100		
	Bill No. 25 Total Carried Forward to Grand Summary				0.00

BILL NO. 26: LAND ACQUISITION, AXLE LOAD CONTROL, AND RELOCATION OF SERVICES

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
26.01	All for a prime cost sum for of KShs 2,000,000 (Two Million) for acquisition of land required for the works, etc. in accordance with Specifications.	PC sum	1		
26.02	E.O for Item 26.01 for Contractor's Overheads and Profit	Item	%		
26.03	All for a prime cost sum for of KShs 2,000,000 (Two million) for relocation of services as instructed or directed by the Engineer.	PC sum	1		
26.04	E.O for Item 26.02 for Contractor's Overheads and Profit	Item	%		
26.05	Provide and maintain for the duration of the contract a mobile weigh bridge with manufacturers warranty, as specified in Appendix 'E' in PD file. The weigh bridge to revert to the employer at the commencement of the contract. Allowance for repairs and maintenance MUST be included in the quotation	No.	0		
	Bill No. 26 Total Carried Forward to Grand Summary				0.00

GRAND SUMMARY OF BILL OF QUANTITIES

BILL ITEM	DESCRIPTION	AMOUNT (KSHS)
1	Preliminaries and General Items	
4	Site Clearance and Top Soil Stripping	
5	Earth Works	
7	Excavation and Filling of Structures	
8	Culverts and Drainage Works	
9	Passage to Traffic	
12	Natural Gravel Base and Subbase	
14	Lime/Cement Improved gravel Subbase and Base	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
17	Concrete Works	
20	Road Furniture	
22	Schedule of Dayworks	
24	Street Lighting	
25	HIV/AIDS, Gender &Social Issues, Local Participation	
26	Land Acquisition, Axle Load Control, And Relocation of Services	
(A)	SUB-TOTAL (1)	
(B)	Add 15% VARIATION OF PRICE of sub total (1)	
(C)	Add 10% CONTIGENCIES of sub total (1)	
(D)	SUB-TOTAL (2) = (A + B + C)	
(E)	Add 0.03% Public Procurement Capacity Building Levy of sub-total (2)	
(F)	Add ...16% VAT of sub-total (2)	
TOTAL OF BIDSUM 1: (E + F)		

GRAND SUMMARY OF BID SUM 1		
BILL ITEM	DESCRIPTION	AMOUNT (KSHS)
1	BID SUM 1	
	GRAND TOTAL OF BID SUM 1 + 2 CARRIED FORWARD TO FORM OF BID	