

## SECTION VII – BILLS OF QUANTITIES

### Notes for preparing Bills of Quantities

#### I.0 Preamble to Bill of Quantities

- a) The Bill of Quantities shall form part of the Contract Documents and is to be read in conjunction with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications and Drawings.
- b) The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for the full direction and description of work and materials.
- c) The Quantities set forth in the Bill of Quantities are estimated and provisional, representing substantially the work to be carried out, and are given to provide a common basis for tendering and comparing of Tenders. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfilment of his obligation under the Contract.
- d) The prices and rates inserted in the Bills of Quantities will be used for valuing work executed, and the Engineer will measure the whole of the works executed in accordance with this Contract.
- e) A price or rate shall be entered in ink against every item in the Bill of Quantities with the exception of items, which already have provisional sums, affixed thereto. The Tenderers are reminded that no "nil" or "included" rates or "lump-sum" discounts will be accepted. The rates for various items should include discounts if any. Tenderers who fail to comply will be disqualified.
- f) Provisional sums (including Day works) in the Bill of Quantities shall be expended in whole or in part at the discretion of the Engineer in accordance with Sub-clause 52.4 and Clause 58 of part of the Conditions of Contract.
- g) The price and rates entered in the Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance, testing, materials, erection, maintenance or works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the Contract by the Engineer and his staff.
- h) The tender sum and the price scheduled as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity pursuant to section 82 of the public procurement and Asset Disposal Act, 2015.

- i) The Bills of Quantities, unless otherwise expressly stated therein, shall be deemed to have been prepared in accordance with the principles of the latest edition of Standard Specification for Road & Bridge Construction of the Ministry of Roads & Public Works.
- j) “Authorised” “Directed” or “Approved” shall mean the authority, direction or approval of the Engineer.
- k) Unless otherwise stated, all measurements shall be net taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills, waste or additional thickness necessary to obtain the minimum finished thickness or dimensions required in this Contract. Any work performed in excess or the requirements of the plans and specifications will not be paid for, unless ordered in writing by the Engineer.
- l) (a) Hard material, in this Contract, shall be defined as the material which, in the opinion of the Engineer, require blasting, or the use of metal wedges and sledgehammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a dozer tractor of at least 150 brake horse power (112 kilowatt) with a single, rear-mounted, hydraulic ripper. Boulders of more than 0.2m<sup>3</sup> occurring in soft material shall be classified as hard material.  
 (b) Soft material shall be all material other than hard material.

2.0 The objectives of the Bills of Quantities are;

- (a) To provide sufficient information on the quantities of Works to be performed to enable tenders to be prepared efficiently and accurately; and
- (b) When a Contract has been entered into, to provide a priced Bills of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bills of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bills of Quantities should be as simple and brief as possible.

3.0 The Bills of Quantities should be divided generally into the following sections:

(a) Preliminaries.

The preliminaries should indicate the inclusiveness of the unit prices, and should state the methods of measurement which have been adopted in the preparation of the Bills of Quantities and which are to be used for the measurement of any part of the Works.

The number of preliminary items to be priced by the tenderer should be limited to tangible items such as site office and other temporary works, otherwise items such as security for the Works which are primarily part of the Contractor’s obligations should be included in the Contractor’s rates.

(b) Work Items

- (i) The items in the Bills of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing or any other special characteristics may give rise to different methods of construction or phasing of the Works or considerations of cost. General items common to all parts of the Works may be grouped as a separate section in the Bills of Quantities.
- (ii) The brief description of the items in the Bill of Quantities should in no way modify or supersede the detailed descriptions given in the Contract drawings, Conditions of Contract and Specifications.
- (iii) Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage or waste. Quantities should be rounded up or down where appropriate.
- (iv) The following units of measurement and abbreviations are recommended for use.

UNITS OF MEASUREMENT

<b>Unit</b>	<b>Abbreviation</b>	<b>Unit</b>	<b>Abbreviation</b>
Cubic meter	m <sup>3</sup> or cu m	Millimetre	mm
Hectare	Ha	Month	Mon
Hour	hr.	Number	Nr or No
Kilogram	Kg	Square meter	m <sup>2</sup> or Sq m
Lump sum	Lump sum	Square millimetre	mm <sup>2</sup> or sq mm
Meter	Lm	Week	Wk
Metric ton(1,000 kg)	T	Prime cost sum	Pc sum
Kilometre	Km	Vehicle month	V.mth

- (v) The commencing surface should be identified in the description of each item for Work involving excavation, boring or drilling, for which the commencing surface is not also the original surface. The excavated surface should be identified in the description of each item for Work involving excavation for which the excavated surface is not also the final surface. The depths of Work should be measured from the commencing surface to the excavated surface, as defined.

(c) Day work Schedule

A Daywork Schedule should be included if the probability of unforeseen work, outside the items included in the Bills of Quantities is relatively high. To facilitate checking by the Employer of the realism of rates quoted by the tenderers, the Daywork Schedule should normally comprise:

- (i) a list of the various classes of labour, and materials for which basic Daywork rates or prices are to be inserted by the tenderer, together with a statement of the conditions under which the Contractor will be paid for Work executed on a Day work basis; and

(d) Provisional Quantities and Provisional Sums

- (i) Provision for quantity contingencies in any particular item or class of Work with a high expectation of quantity overrun should be made by entering specific “Provisional Quantities” or “Provisional Items” in the Bills of Quantities, and not by increasing the quantities for that item or class of Work beyond those of the Work normally expected to be required. To the extent not covered above, a general provision for physical contingencies (quantity overruns) should be made by including a “Provisional Sum” in the Summary of the Bills of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a “Provisional Sum” in the Summary of the Bills of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.
- (ii) Provisional Sums to cover specialized works normally carried out by Nominated Sub Contractors should be avoided and instead Bills of Quantities of the specialised Works should be included as a section of the main Bill of Quantities to be priced by the Main Contractor. The Main Contractor should be required to indicate the name (s) of the specialised firms he proposes to engage to carry out the specialized Works as his approved domestic sub-contractors. Only Provisional Sums to cover specialized Works by statutory authorities should be included in the Bills of Quantities.
- (iii) Unless otherwise provided in the Contract, the Provisional Sums included in the Bills of Quantities should always be expended in whole or in part at the discretion of the Engineer after full consultation with the Employer.

(e) Summary

The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with Provisional Sums for Daywork, physical (quantity) contingencies, and price contingencies (upward price) where applicable.

## BILLS OF QUANTITIES

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill No.1</b>					
	<b>PRELIMINARIES</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
1.01	Provide and maintain a furnished Engineer's Representative's office as shown in the drawings or as instructed by the Engineer for use during the duration of the contract. Ownership to revert to the client at the end of the Contract.	LS	1		
1.02	Provide a VIP toilet as per the drawing	LS	1		
1.03	Allow a Prime Cost Sum of Kshs. 2,000,000/= for materials testing including equipment whose ownership shall revert to employer at end of contract.	Item	1	2,000,000	2,000,000
1.04	Include percentage of P.C Sum in item 1.03 for contractor's overheads and profit.	%			
1.05	Allow a prime cost Sum of Ksh.1,500,000.00 for Engineer's miscellaneous account.	Item	1	1,500,000	1,500,000
1.06	Include percentage of P.C sum in item 1.05 for contractor's overheads and profit.	%			
1.07	Allow a prime cost sum of KShs.2,000,000.00 for wages and allowances of a site supervisor and Engineer's site staff including overtime whose employment shall be determined by the employer.	Item	1	2,000,000	2,000,000
1.08	Include percentage of P.C sum in item 1.07 for contractor's overheads and profit.	%			
<b>Total of Bill Carried Forward to next Page</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill No. I</b>					
<b>PRELIMINARIES</b>					
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
<b>Brought Forward from Previous Page</b>					
1.09	Provide with driver, fuel, service and maintain, insure 1 No. new clean 4WD Double cab pick-up vehicle, diesel engine capacity 2800-3000 cc for exclusive use of the Engineer inclusive of the first 5,000 km per vehicle month to Engineer's approval. Vehicle to revert back to the contractor.	Veh. Month	15		
1.10	Extra over item 1.09 for mileage over 5,000km per vehicle month inclusive of all fuels, lubricants, servicing and maintenance insurances and driver.	Km	15,000		
1.11	Provide automatic level machine complete with levelling staff and levelling bubble for exclusive use by the Engineer's representative for the entire duration of the contract as per special specifications.	per month	15		
1.12	Provide project signboard being 1200mm x 600mm Gauge 14 (1.99mm thick) mild steel plate welded onto 50mm x 50mm x 3mm square hollow sections frame, 2.5m frame with 0.5m fixed below ground, and painted approved colours for the duration of the project including the defects liability period	No	1		
1.13	Provide, Transport to site and place as directed on site approved standard 40 foot shipping container (12.18m X 2.59m X 2.44m)	No	2		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill No.4</b>					
	<b>SITE CLEARANCE AND TOP SOIL STRIPPING</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
	No separate payment shall be made for the overhaul material and the cost of such haulage shall be included in the rate and /or prices.				
4.01	Clear site including removal of hedges, bushes, trees including uprooting of trees stumps (except those designated to remain by the engineer) and other vegetation and objectionable materials in accordance with the specifications	Ha	5.0		
4.02	Removal of topsoil to spoil. Depth not exceeding 200mm.	m <sup>3</sup>	13,815		
4.03	Removal and disposal of existing 450mm Dia. concrete pipes.	Lm	25		
4.04	Remove existing barbed wire fence and store as directed by the Engineer	Lm	3,320		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.5</b>	<b>EARTH WORKS</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs.)</b>
No separate payment shall be made for the overhaul material and the cost of such haulage shall be included in the rate and /or prices. It is the contractor's responsibility to identify quarries, borrow pits and spoil areas.					
5.01	Provide, lay and compact soft material in layers not exceeding 150mm in Fill as directed by the Engineer	m <sup>3</sup>	1,500		
5.02	Improved subgrade Fill	m <sup>3</sup>	10,800		
5.03	Extra over item 5.02 for compaction of top 300mm to 100% MDD (AASHTO T99)	m <sup>3</sup>	10,800		
5.04	Spoil in soft material	m <sup>3</sup>	21,421		
5.05	Spoil in hard material	m <sup>3</sup>	100		
5.06	Compaction of existing ground to a depth of 150mm to 95% MDD (AASHTO T99)	m <sup>3</sup>	5,400		
5.07	Compaction of the 300mm below formation level in cutting to 100%MDD (AASHTO T99)	m <sup>3</sup>	4,500		
5.08	Provide, lay and compact in 200mm layers approved rock fill as directed by Engineer.	Tonne	350		
5.09	Top soiling	m <sup>2</sup>	40,000		
5.10	Destroy termite colonies and treat existing ground with METRO 200SC (or equivalent approved termicide), after dilution (1:800) at the rate of 5 liters per square metre or any other equal and approved insecticide treatment as instructed by the Engineer. Application to be undertaken by a person registered with Pest Control Products Board (PCBP) and approved by the Engineer.	m <sup>2</sup>	15,000		
<b>Total Carried Forward to Summary Sheet</b>					



Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.8</b>	<b>CULVERT AND DRAINAGE WORKS</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs.)</b>
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rates/prices.				
8.01	Excavate for culverts and subsoil drains in soft material.	m <sup>3</sup>	75		
8.02	Excavate for inlet, outfall, and mitre and catch water drains in soft material.	m <sup>3</sup>	450		
8.03	Extra over items 8.01 & 8.02 for excavation in hard material.	m <sup>3</sup>	200		
8.04	selected fill material	m <sup>3</sup>	25		
8.05	Approved crushed rock fill in subsoil drains and rockfill under culverts	m <sup>3</sup>	150		
8.06	Provide, lay and joint 900 mm inner diameter (ID) precast concrete pipes including bed, surround and haunches.	Lm	60		
8.07	Provide and place class 20/20 reinforced concrete to headwalls, wingwalls, aprons, to pipe culverts including formwork and reinforcement.	m <sup>3</sup>	30		
8.08	Provide and fix steel fabric reinforcement to BS 4483 size A142 where directed by the Engineer.	m <sup>2</sup>	100		
8.09	Construct subsoil drains where directed including backfilling with approved hard material.	m <sup>3</sup>	100		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.12</b>	<b>NATURAL MATERIAL BASE AND SUBBASE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
	No overhaul will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates (METHOD B).				
12.01	Provide, place, spread and compact natural gravel min soaked 4 day CBR 30% at 95% MDD (AASHTO T180) compaction for subbase.	m <sup>3</sup>	5,988		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.13</b>	<b>GRADED CRUSHED STONE SUBBASE AND BASE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
	No overhaul will be paid separately under this item and the cost for haulage will be deemed to have been included in the rates.				
13.01	Provide, place, spread and compact class D graded crushed stone thickness not exceeding 200mm with an average dry density not less than 98% MDD with no results less than 96% MDD.	m <sup>3</sup>	3,992		
<b>Total Carried Forward to Summary Sheet</b>					

Project	PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP				
Contract No.	KAA/OT/KAKAMEGA/1542/2018-2019				
<b>Bill of Quantities</b>					
<b>Bill No.14</b>	<b>CEMENT AND LIME TREATED SUBBASE AND BASE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs.)</b>
14.01	Provide, transport to site, store and spread Ordinary Portland Cement to gravel material for subbase or as specified and as instructed by the Engineer at 20-40 kg/m <sup>3</sup> at the point of works including all handlings.	Tonne	240		
14.02	Allow for mixing in cement and/or lime into natural gravel.	m <sup>3</sup>	5,315		
14.03	Allow for curing and protection of treated layers as specified	m <sup>2</sup>	36,000		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.15</b>	<b>BITUMINOUS SURFACE TREATMENT AND SURFACE DRESSING</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
15.01	Prepare surface of runway, taxiway, apron and shoulders, provide and spray MC-30 as a prime coat cutback bitumen at a rate of 0.8 -1.2 Lt/m <sup>2</sup> as prime coat.	Lts	47,520		
15.02	Prepare primed surfaces, provide and spray K1-60 bitumen emulsion as tack coat at a spray rate of 0.8 - 1.0 Lt/m <sup>2</sup> as directed by Engineer.	Lts	39,600		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.16</b>	<b>BITUMINOUS MIXES</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
16.01	Provide, place and compact 35mm asphalt concrete Type I with 5-6% nominal bitumen content by weight to total mix as wearing Course on Runway, Taxiway & Apron as directed by Engineer.	m <sup>3</sup>	1,510		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.20</b>	<b>ROAD FURNITURE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
20.01	Excavate holes for fencing posts footing not exceeding 1.50 m deep, average 1.0m deep in hard and soft material; ram base to receive 'Class 20' concrete bases; include carting away	m <sup>3</sup>	110		
20.02	Ditto but for chain-link anchoring posts	m <sup>3</sup>	35		
20.03	Mass concrete; Class 20 in footings	m <sup>3</sup>	60		
20.04	Ditto but for chain-link anchoring posts	m <sup>3</sup>	25		
20.05	Supply and install precast reinforced intermediate posts size 125 x125mm overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing to Engineer's approval and satisfaction.	No.	1,101		
20.06	Ditto but precast reinforced straining posts size 125x125mm all through; overall height 2.4m with cranked top of 475mm long as per detailed drawing including labour for 6mm diameter holes and bolts and 8mm galvanized mild steel bars with 12.5 S.W.G. stirrups at 350mm c/c as per detailed drawing with and including provision to receive struts to detail drawing to Engineer's approval.	No.	110		
<b>Total of Bill Carried Forward to next Page</b>					

<b>Project</b>	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
<b>Contract No.</b>	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.20</b>	<b>ROAD FURNITURE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
<b>Brought Forward from Previous Page</b>					
20.07	100 x 80mm precast reinforced concrete struts to detail anchor on to concrete base and straining posts at approved level and 45 degrees to the horizontal to detail drawings and Engineer's approval.	No.	220		
20.08	High tensile galvanized barbed wire 12 1/2 G (2.5mm diameter) threaded through posts secured by galvanized binding wire to Engineer's approval.	Lm	9,950		
20.09	Supply, fabricate and install galvanized heavy duty metal gate overall size 6000 x 2900mm high; in two equal leaves; with and including 100 x 100 x 6mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top of each leaf; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint.	No.	1		
<b>Total of Bill Carried Forward to next Page</b>					



Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.20</b>	<b>ROAD FURNITURE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
<b>Brought Forward from Previous Page</b>					
20.10	Supply materials, fabricate and install galvanized heavy duty metal gate overall size 1000 x 2400mm high pedestrian gate with and including 75 x 75 x 4mm SHS fixed firmly to the ground in approved concrete base; 8 gauge welded wire mesh covering fixed to 50 x 50 x 4mm SHS and tower locking heavy gauge bolt (including VIRO Cylinder 104); 3 lines of 12.5 gauge barbed wire at the top; all as per attached drawings and approval of Project Manager. Gate to be painted in three coats of approved protective paint. Rate inclusive of casting of beam.	No.	3		
20.11	High tensile galvanized straining wire 9 Gauge through concrete posts (m/s) including hook bolts.	Lm	13,200		
20.12	Supply and fix 2.4m high galvanized chain-link; gauge 9.0; 50x50mm mesh onto precast concrete posts (m/s); fastening with 5 No. lines of galvanized wire (m/s); threaded through and including mesh and hook bolts; secured by binding wire; all as per the drawings.	Lm	3,320		
20.13	Excavate 150mm by 300 mm for ground beam	m <sup>3</sup>	150		
20.14	Mass concrete; Class 20 in ground beam	m <sup>3</sup>	150		
<b>Total of Bill Carried Forward to next Page</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.20</b>	<b>ROAD FURNITURE</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate(Kshs)</b>	<b>Amount (KShs.)</b>
<b>Brought Forward from Previous Page</b>					
20.16	Provide and erect Windssock complete with Mast fixed to the ground		2		
20.17	RAZOR WIRE: Supply and Install Galvanized steel spiral razor wire 2.5 mm dia. High Tensile, blade/strip 0.55mm, BTC-18 hot dipped galvanized surface treatment along the inner face of the fence in 3 lines to Engineer's instructions, in concertina coil of loops max 150mm long, 450mm diameter so as to give 4m (3 clips) installed length per coil. Length to be measured for each coil separately.	Lm	10,000		
<b>Total Carried Forward to Summary Sheet</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.22</b>	<b>DAYWORKS (RATES ONLY)</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
	<b>LABOUR</b>				
	All items for labour must be priced. Only the actual time engaged upon the work will be paid for. NOTE: The rate inserted herein shall include all costs of labour as well as overtime, travelling, time and cost of accommodation, social security, contributions, use and maintenance of small tools of trade, supervision, insurance, overheads, profits and any other cost allowance.				
22.01	Unskilled Labour	Hrs	450		
22.02	Skilled Labour	Hrs	450		
<b>Total of bill Carried Forward to next page</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.22</b>	<b>DAYWORKS ( RATES ONLY)</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
<b>Brought Forward from previous Page</b>					
	<b><u>MATERIALS</u></b>				
	All materials should comply with the specification. The rates inserted herein are to include for delivery to site, storage, handling, overheads and profit				
22.03	Ordinary Portland Cement	Tonne	1		
22.04	Hydrated Lime	Tonne	1		
22.05	<b>Aggregates for Concrete</b>				
	a) Sand	Tonne	30		
	b) Coarse aggregates (12mm)	Tonne	30		
	c) Coarse aggregate (20mm)	Tonne	30		
22.06	<b>Shuttering Timber</b>				
	Class F1 finish	m <sup>2</sup>	20		
	Class F3 finish	m <sup>2</sup>	20		
22.07	<b>Mild Steel</b>				
	a) Up to and including 16mm diameter	Tonne	2		
	b) Over 16mm diameter size	Tonne	2		
22.08	<b>High Yield Steel</b>				
	a) Up to and including 16mm diameter	Tonne	2		
	b) Over 16mm diameter size	Tonne	2		
22.09	<b>Bitumen</b>				
	a) 80/100 Penetration Grade Bitumen	Litre	10		
	b) MC 30 Cutback Bitumen	Litre	10		
	c) MC 3000 Cutback Bitumen	Litre	10		
	d) K 1-70 Bitumen Emulsion	Litre	10		
	e) Kerosene	Litre	10		
22.10	<b>Asphalt Concrete Type I</b>				
	a) 0/14mm grading	m <sup>3</sup>	12		
	b) 0/20mm grading	m <sup>3</sup>	8		
<b>Total of bill Carried Forward to next page</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.22</b>	<b>DAYWORKS (RATES ONLY)</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
<b>Brought Forward from previous Page</b>					
22.11	<b>Class 2-3 Chippings for Bituminous Surface Dressing</b>				
	a) 0/6 mm (quarry dust)	m <sup>3</sup>	10		
	b) 6/10mm	m <sup>3</sup>	10		
	c) 10/14mm	m <sup>3</sup>	10		
	d) 14/20mm	m <sup>3</sup>	10		
22.12	Approved quarry waste	m <sup>3</sup>	10		
22.13	Hard-core	m <sup>3</sup>	10		
22.14	Building Stone	m <sup>2</sup>	10		
22.15	<b>Gravel</b>				
	a) Natural Base or sub- base (Minimum CBR-30%)	m <sup>3</sup>	30		
22.16	Gabion Mesh (2.0x1.0x1.0)m	m <sup>2</sup>	10		
22.17	Rock fill to Gabions	m <sup>3</sup>	10		
22.18	Barbed Wire heavy gauze	Lm	15		
22.19	Ordinary steel nails (All sizes)	Kg	30		
22.20	Treated wooden fencing post 100mm diameter by 1000mm long	No.	50		
22.21	250x125mm half-battered precast concrete road kerbs	Lm	50		
22.22	125x100mm precast concrete road channel	Lm	50		
<b>Total of bill Carried Forward to next page</b>					

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Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.22</b>	<b>DAY WORKS (RATES ONLY)</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
<b>Brought Forward from previous Page</b>					
	<b>PLANT &amp; EQUIPMENT</b>				
	Where items of major plant listed in the schedule of Day works are specified by type (e.g. Cat D7, Cat 120H) the power rating of such plant is that manufactured within the two years prior to the date of tender. Any plant employed upon day works which have power rating lower than that stated above shall be paid for at rates lower than those schedule of day works. The deduction in the payable rates shall be in proportion to the power rating below the specified above plant.				
22.23	Cat D6 bull dozer or equivalent with Dozer/ Ripper attachment.	Hr	10		
22.24	Cat 140H motor grader or equivalent complete with scarifier.	Hr	15		
22.25	Vibrating roller (10 tons).	Hr	10		
22.26	Hand propelled vibrating roller.	Hr	10		
22.27	Hand held Lawn mower	Hr	8		
22.28	Cat 950G wheel loader or equivalent.	Hr	10		
22.29	15 tonne tipper lorry.	Hr	20		
22.30	10 tonne tipper lorry.	Hr	10		
22.31	2cm/hr dewatering pump	Hr	10		
22.32	Concrete mixer 0.3 - 0.7 m <sup>3</sup>	Hr	10		
22.33	Pneumatic self-propelled roller -15 tonne.	Hr	10		
22.34	As item 22.33 but 10 tons.	Hr	10		
22.35	Smooth steel roller - 16-18 tons	Hr	10		
22.36	As item 22.35 but 12 tonne.	Hr	10		
22.37	As item 22.35 but 10 tonne.	Hr	10		
22.38	One ton hand-propelled vibrating roller.	Hr	10		
<b>Total of bill Carried Forward to next page</b>					

Project	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>				
Contract No.	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>				
<b>Bill of Quantities</b>					
<b>Bill No.22</b>	<b>DAYWORKS (RATES ONLY)</b>				
<b>Item No.</b>	<b>Description</b>	<b>Units</b>	<b>Quantity</b>	<b>Unit Rate (Kshs)</b>	<b>Amount (KShs)</b>
<b>Brought Forward from previous Page</b>					
	<b><u>PLANT &amp; EQUIPMENT</u></b>				
22.39	Hand held rammer compactor or equivalent.	Hr	10		
22.40	Traxcavator with loader attachments- 1.7m <sup>3</sup>	Hr	10		
22.41	As item 22.40 but 1.3m <sup>3</sup>	Hr	1		
22.42	As item 22.40but 1.1m <sup>3</sup>	Hr	1		
22.43	As item 22.40 but 0.6m <sup>3</sup>	Hr	1		
22.44	One to one & a half tonne capacity pick-up truck.	Hr	10		
22.45	Compressor 250 c.f.m. complete with all tools, hoses, steels etc.	Hr	10		
22.46	Concrete poker vibrator	Hr	10		
22.47	Self-propelled water tanker 6,000-10,000 litre minimum capacity with pick-up pump.	Hr	10		
22.48	Mechanical broom	Hr	10		
22.50	Pressure bitumen distributor 4500-8000 litres capacity.	Hr	10		
22.51	Mechanical chips spreader	Hr	5		
<b>Total Carried Forward to Summary Sheet</b>					

<b>Project</b>	<b>PROPOSED PAVEMENTS REHABILITATION WORKS AT KAKAMEGA AIRSTRIP</b>	
<b>Contract No.</b>	<b>KAA/OT/KAKAMEGA/1542/2018-2019</b>	
<b>Bill of Quantities</b>		
	<b>SUMMARY</b>	
<b>Item No.</b>	<b>Description</b>	<b>Amount (KShs)</b>
1	PRELIMINARIES	
4	SITE CLEARANCE	
5	EARTHWORKS	
8	CULVERT AND DRAINAGE WORKS	
12	NATURAL MATERIAL BASES AND SUBBASE	
13	GRADED CRUSHED STONE SUBBASE AND BASE	
14	CEMENT AND LIME TREATED SUBGRADE,SUBBASE AND BASE	
15	BITUMINOUS SURFACE TREATMENT AND SURFACE DRESSING	
16	BITUMINOUS MIXES	
20	ROAD FURNITURE	
22	DAYWORKS	
	<b>Sub Total 1</b>	
	Add 5% of Sub-Total 1 of Bills as Provisional Sum for contingencies to be expended in the whole or part or deleted by the Engineer	
	<b>Sub Total 2</b>	
	Add 16% of Sub-Total 2 for Value Added Tax (VAT)	
	<b>Sub-Total - 3</b>	
	<b>Grand Total Carried to page on the form of Tender</b>	