

<b>PROPOSED CIVIL WORKS BALANCE AT RABAI 220/ 132 KV SUBSTATION</b>					
<b>BILL OF QUANTITIES</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>UNIT</b>	<b>QTY</b>	<b>RATE</b>	<b>AMOUNT(Ksh.)</b>
<b>SECTION. 1</b>					
<b>Preliminaries</b>					
A	Allow for a temporary site office ,notice board, shelves and , store for materials and tools storage. To accomodate 7 people and all furniture and meeting accesories	ITEM	1		
B	Allow for clean water for the works	ITEM	1		
C	Allow for temporary sign post for the proposed works	ITEM	1		
D	Allow for security and insurance for the proposed works	ITEM	1		
E	Allow for supply of power connection for use for the works.	ITEM	1		
F	Allow for a qualified personel conservant with Kenya Power safety regulations for the entire contract period	ITEM	1		
G	Allow for prompt communication and updates facilitation to client supervision team	ITEM	1		
H	Demolition and relocation of road at gantry area and create retaining wall with as per ground profile not exeeding 66 m	ITEM	1		
I	Replication of drawings ,acquiring all proffessional authetication and a set to client including statutory county government approval	ITEM	1		
<b>SECTION. 2</b>					
<b>SWITCHYARD REHABILITATION &amp; REINSTATEMENT</b>					
<b>1 Switch yard 500 SM</b>					
A	Clear working area of all the site of existing ballast and rubbles	ITEM	1		
B	Scoop loose top soil by cutting average 400mm deep to recieve imported fill	SM	500		
C	Provide average 300 mm thick selected well compacted imported murrum fill, compacted in layers of 150mm thick using a plate compactor to achieve slope	SM	500		
D	Prepare and apply Gradiator 4TC or equal and approved insecticide to surfaces of blinding as per Manufacturer's written instructions	SM	500		
E	Apply suitable weed killer, herbicide to surfaces of blinding as per the Manufacture's written instructions	SM	500		
F	1000 gauge polythene or other equal and approved membrane laid on compacted and treated quarry dust with welted laps of 200mm wide.	SM	500		
G	Supply and spread uniformly 150mm thick 'one inch' (1") ballast in switch yard to match existing-re use existing ballast where not sufficent top up with new supply	SM	500		
H	precast concrete channel 200mm high at the ballast perimeter to prevent ballast spill over as restraint	LM	100		
I	allow for making good all station yard affected by new works	ITEM	1		
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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>ELEMENT NO.3</b>				
	<b>SCREEN WALLS</b>				
	(Substructures)				
A	<u>Allow for the following in Unfinished Screen Walls:</u>				
1	Bulk Excavation commencing from stripped level but n.e 2m deep	CM	130		
2	Extra-Over for excavating in all form of rock & to expose/demolish any concrete surfaces	CM	33		
3	Allow for necessary plunking, strutting and dewatering to foundations	ITEM	1		
4	Allow for leveling, back-fill & carting away surplus excavated material	ITEM	1		
5	Concrete Class 30 to bases	CM	21		
6	Concrete Class 25 to walls and columns	CM	71		
7	Steel Reinforcement from Y8-Y20	KG	3411		
8	Fair Face Formwork	SM	364		
B	Provision to fix rectangular C-channel on wall tip at both wall sets including supply of structural steel	ITEM	1		
C	provision to fabricate ,supply on site and erect hoorizontal and vertical boom and girder all lattice angular members to match existing formation across screen walls-this to be casted with screen wall	ITEM	1		
D	OIL Interceptor chamber 6m x 5m x 3m deep; perimeter 200mm thick block walling; internal plaster complete with niru finish; with ring beam at every 2m interval 250x200mm with 4 nos.12mm bars and 8mm shear links at 200mm spacing; cover slab with manhole opening 150mm reinforced with 8mm steel bothways at 150mm spacing; heavy duty steel cover; including pvc pipe 4"connecting with the main transformer pit not exceeding 6m away.-in two compartments	ITEM	1		
	<b>ROAD REHABILITATION</b>				
	<b>ACCESS ROAD</b>				
2	<u>Paving blocks (Access road)</u>				
A	Excavate for 5m wide access road depth not exceeding 750mm and cart away the spoil	SM	2,100		
B	Average 300mm thick selected well compacted hardcore fill, compacted in layers of 150mm thick using 10 tonne vibrating roller to receive concrete paving blocks	SM	2,100		
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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
C	300mm approved compacted murram fill in 150mm layers	SM	2,100		
D	Demolition and relocation of road at gantry area and create retaining masonry wall with pillars as per ground profile not exceeding 66m with the following details; Strip Fnd, 600x200mm thick class 20 with 8mm steel at 200 c/c both ways/ Masonry wall 200mm thick with pillars 400x400mm at 2.4m centres; wall height average 1.5m all sides plastered with application of black Bituminous	ITEM	1		
E	50mm thick approved and well compacted quarry dust blinding on hardcore	SM	2,100		
F	Heavy duty industrial concrete paving blocks size (210x105x80mm) minimum strength 49N/mm square laid to slope on quarry dust and compacted	SM	2,100		
G	125 x 250mm splayed kerb to BS 340 including 125 x 100mm channel : on and including concrete Class "E" foundation and 100mm haunching to back of kerb including all necessary excavation, formwork and disposal	LM	810		
H	Ditto but curved	M	52		
<b>3 Painting</b>					
A	Prepare and apply approved gloss paint to kerblines; 125mm girth; colour to engineer's approval	LM	862		
<b>4 CHAINLINK</b>					
A	(2.4m highx10 gauge chainlink) fence complete with 4 strands of 3mm galvanised steel wire passing through holes drilled on overall height of PCC post 2.4m high and crank with 2 strands of 12.5 gauge barbed wire including securing chainlink to wire strands.	LM	400		
B	Fabricate and fix a GRILL at primary substation gate as per the EXISTING	ITEM	1		
<b>SECTION 4</b>					
<b>SWITCH YARD PLINTHES</b>					
<b>220KV SWITCHGEAR</b>					
Switchgear Foundation plinthes for the following 220kv to +150mm on new proposed bay consisting of typical 1000x1000mm plinthes CONSISTING of the following plinthes -; 3NO -PI; 10Nos. -220KV Disconnectors; 1no. Marshalling Kiosk. ,TOTAL PLINTHS 13Nos. Including the balance works for the 220kv CB and Surge Diverters					
A	Excavate foundation pits commencing from reduced level but not exceeding 1.5 m deep	CM	174		
B	ditto 1.5m But n.e 3.0m deep	CM	59		
	extra over in compacted maruum and all classes of rock	CM	36		
C	Backfill and ram selected excavated material around foundations	CM	16		
D	Cart away surplus excavated materials from Site to municipal council designatated dumping site.	CM	216		
E	Disposal of water and Strutting	ITEM	1		
F	Level and Compact bases to receive concrete Blinding mix (1:4:8 - 50 mm)	SM	32		
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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>Vibrated reinforced concrete class</b>				
	<b>20/20 1:2:4/20 as described in;</b>				
G	Class 25(20) in foundation bases	CM	11		
H	Class 25(20) in stub col bases with fair face finishes	CM	52		
	<b>Steel reinforcement bars including tying bending spacer blocks tying wires and fixing high tensile bars to BS 4461</b>				
I	steel Y8 to Y16mm to bases and stub-column	KG	3457		
	<b>Fairface form work to;</b>				
J	To vertical side of columns stubs	SM	100		
K	To Edges of base ; 75 to 300 mm thick	LM	94		
L	supply and fix and grout bolts /inserts and the like by holding in position when pouring concrete not exceeding 600mm long-bolts all 25mm x 600mm complete with 2 washers and 2 nuts and 100x100mm 8mm plate at one end (all galvanized to clients approval	No.	96		
M	13mm thick plaster (1:3mix) to top surface of foundations with smooth finish trowelled	SM	11		
N	Attendance for KPLC staff to do earthing before all blinding including security for all copper strip edges	ITEM	1		
o	Allow for connection of oilsump to existing separation unit	ITEM	1		
	<b>SECTION 5</b>				
	<b>220 KV STRUCTURES</b>				
	<b>GANTRIES AND GIRDERS</b>				
1	Fabricate ,deliver and erect gantry type A not exceeding 22m high consisting of lattice formation with main member legs 85x85mm equal angles;bracings as per drwawing all bolted with 12mm boltts and all galvanized to 85 microns	NO's	2		
2	Fabricate ,deliver and erect gantry type B not exceeding 12m high consisting of lattice formation with main member legs 85x85mm equal angles;bracings as per drwawing all bolted with 12mm boltts and all galvanized to 85 microns	NO's	5		
3	Fabricate ,deliver and erect GUIDER BOOM type 1 not exceeding 14m long consisting of lattice formation with main member legs 50x50x6mm equal angles;bracings as per drwawing all bolted with 12mm bolts and all galvanized to 85 microns	NOS	2		
4	Fabricate ,deliver and erect GUIDER BOOM type 2 not exceeding 12m long consisting of lattice formation with main member legs 50x50x6mm equal angles;bracings as per drwawing all bolted with 12mm boltts and all galvanized to 85 microns	NOS	3		
5	Fabricate ,deliver and erect GUIDER BOOM type 3 not exceeding 16m long consisting of lattice formation with main member legs 50x50x6mm equal angles;bracings as per drwawing all bolted with 12mm boltts and all galvanized to 85 microns	NOS	1		
6	Allow attendance for shutdowns	ITEM	1		
	<b>SECTION 6 - DEWATERING</b>				
1	Allow for Dewatering all existing foundation pits	ITEM	1		
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