

PROPOSED CIVIL AND BUILDING WORKS AT SIAYA 33/11KV SUBSTATION

Item	Description	Unit	Qty	Rate	Amount (Kshs)
ELEMENT No.1					
PRELIMINARIES AND ENABLING WORKS					
A	Allow for temporary site office, notice-board, shelves, store for materials and tools storage and changing room for operatives and able to accommodate 10 people, furniture and meeting accessories including refreshments etc. during meetings	ITEM	1		
B	Allow for all necessary statutory approvals for the works by relevant County Authorities, replication of drawings to required formats by county government, endorsement by relevant professional persons and submit a set of approved drawings to client before commencement of the works.	ITEM	1		
C	Allow for registration of site/project and staff (foreman, Masons, Capenters, etc) with National Construction Authority (NCA) including NCA fees (0.5 % of the Project Cost)	ITEM	1		
D	Allow for a qualified person conversant with Kenya Power safety regulations with capacity to receive safety electrical permits and to double up as 'Safety Officer' for the entire contract period	ITEM	1		
E	Allow for prompt communication and updates facilitation to client supervision team including communication and project data storage facilities, laptops, hard drives, airtime etc	ITEM	1		
F	Allow for security and insurance for the proposed works	ITEM	1		
G	Allow for temporary sign post for the proposed works.	ITEM	1		
H	Allow for temporary hoarding where necessary for the proposed works	ITEM	1		
I	Allow for temporary metered electricity supply for the works (Lv supply within site)	ITEM	1		
J	Allow for clean water on site for the construction works.	ITEM	1		
K	Allow for careful demolition of existing guard-house and pit-latrines upto and including carting away rubbles, removing any wastes that may pose health hazard from the pit-latrines and dumping the same to local authority's designated places. Allow for properly filling up/making good any disturbed areas as result of the demolition works to KPLC's approval	ITEM	1		
ELEMENT No.2					
SWITCH YARD REHABILITATION					
A	Clear site of all existing bushes, shrubs and under-growth including grubbing up roots and burning the arising	SM	2500		
B	Excavate oversite vegetable soil average depth 400mm including Scooping any existing ballast within the live switch-yard and cart way to Municipal Council designated dumping site.	CM	1000		
Total to this page and carried to Summary page					



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
C	Level and Compact bottom of excavation as before described to receive approved imported murrum fill to approval including keeping it free from surface water	SM	2500		
D	Provide averagely 700mm thick selected and approved imported murrum fill in switchyard, compacted in layers not exceeding 150mm thick using a 10 tonne vibrating roller and finally finishing the top 200mm to achieve slope and receive ballast	CM	1750		
E	Prepare and apply Gradiator 4TC or equal and approved insecticide to surfaces of murrum fill and blinding as per Manufacturer's written instructions (certificate of application to be provided to the client)	SM	2500		
F	Apply suitable weed killer, herbicide to surfaces of blinding as per the Manufacture's written instructions(Certificate of application to be provided to the client)	SM	2500		
G	1000 gauge polythene or other equal and approved mebrane laid on compacted and treated murrum with welted laps of 200mm wide.	SM	2300		
H	Supply and spread uniformly 150mm thick 'one inch ' (50mm) ballast in switchyard	SM	2300		
	ELEMENT No. 3				
	TRANSFORMER PLINTHS 2Nos.				
A	Excavate for 2No. transformer plinths pits sizes (9900x7900)mm, depths n.e. 1.5m from reduced levels.	CM	271		
B	Ditto exceeding 1.5m but n. e. 3m	CM	90		
C	Extra over excavation in rock.	CM	94		
D	Allow for keeping excavated pits water free by pumping, bailing or otherwise.	ITEM	1		
E	Allow for planking and strutting to uphold the foundations.	ITEM	1		
F	Return,fill and ram selected excavated materials around transformer plinths.	CM	124		
G	Removing excess excavated materials from Site and disposing off.	CM	237		
H	Compacting bases of the transformer plinths foundation bases and blinding with concrete mix (1:4:8 - 50 mm thick)	SM	98		
	<i>Vibrated Reinforced Concrete Class 25/20 mm Aggregates in:</i>				
I	300mm Thick Base	CM	32		
J	Vertical/Pedestal walls	CM	30		
K	300mm Thick Cover Slab	CM	17		
L	Sump Walling	CM	17		
	Hard-Core Filling				
M	Approved hardcore filling compacted to approval; WITH COMPACTION in layers to 95 MDD or equivalent; minimum layers in 200mm layers	CM	84		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
N	Blind and Level surface of hardcore to receive cover slab	SM	33		
	<u>High yieled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.</u>				
O	Y10	KG	1455		
P	Y12	KG	6230		
	<u>Fair - Face FormWork to:</u>				
Q	Vertical Sides of Base	LM	56		
R	Vertical Sides of Pedestals and Sump wall	SM	330		
S	Vertical Sides of Cover Slab	LM	36		
T	Supply and fix fabricated 1000 mm wide X 54000mm, heavy duty grating of deformed R16 @ 20mm c/c welded to 50x50x4mm mild steel angle Iron fixed to 50x50x4mm thick mild steel angle iron fastened to concrete with 10mm thick mild steel plate and fish tailed lugs, with full welds, painted with zinc/red-oxide primer base coat and final Alluminium leafing paint to cover the transformer oil spillage sump.	ITEM	1		
	ELEMENT No. 4				
	<u>The following in 2Nos Transformer Ground Anchors (1.0m x 1.0m)</u>				
A	Excate pits commencing from ground level n.e 1.5m	CM	14		
B	Excavate Ditto exceeding 1.5m but n.e 3.0m	CM	3		
C	Extra over for excavating in all classes of rock at any depth	CM	2		
D	Level and blind pit bottoms to receive concrete base	SM	6		
E	Allow for keeping excavation free from general water.	ITEM	1		
F	Allow for all necessary planking and struting	ITEM	1		
G	Back-Fill selected excavated materials around the concrete Anchor plinth and compact	CM	5		
H	Level and blind pit bottoms to receive concrete base	SM	6		
I	Cart-Away Excess excavated materials from site and deposit at designated places by local County government	CM	9		
	<u>Vibrated Reinforced Concrete Class 25/20 mm Aggregates In:</u>				
J	300mm Thick base	CM	3		
K	Stub columns	CM	10		
	<u>Fair - Face FormWork to:</u>				
L	To vertical sides of bases -(225-300mm)	LM	7		
	Total to this page and carried to Summary page				



PROPOSED CIVIL AND BUILDING WORKS AT SIAYA 33/11KV SUBSTATION

Item	Description	Unit	Qty	Rate	Amount (Kshs)
M	To vertical sides of stub-Columns	SM	15		
	High yeiled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.				
N	Y10	KG	77		
O	Y12	KG	284		
P	Supply and Cast together with the reinforced Concrete 2Nos per plinth 3m long, 150x75x8mm thick Mild steel U-Channel hot formed welded back to back complete with 1 hole 50mm diameter on the channel protruding about 200mm above top of concrete, fish tailed mild steel angle lugs 50x50x6mm thick with appropriate length welded onto the U-Channels .	ITEM	1		
	ELEMENT No.5				
	FOUNDATION PLINTHS Foundation plinths for the conversion of the following 33 and 11kv KPLC wooden structures to steel structures on the existing bays cast in situ consisting of ,28Nos Fnds. for A/B switch structures, 2Nos Fnds. for Neutral CT structures, 4Nos Fnds. for Post insulator structures, 4Nos Fnds for CBs, 8Nos Fnds. for CTs structures, 8Nos Fnds. for lightning arresters, 12Nos Fnds. for future 11kv feeder bays (as requested by the County/Regional team) and 6Nos Fnds. for single legged Bus- Bar lattice structure as per the General arrangement drawing (GA) and all to structural engineers details-; Total 72 No. plinths				
A	Excavate for 66No. Structure plinths foundation pits size (1200x1200) and 6No. Bus bar foundations size (2200x1800) depths not exceeding 1.5m from reduced level.	CM	233		
B	Ditto exceeding 1.5m but n.e 3.0m.	CM	90		
C	Extra over excavation in rock.	CM	48		
D	Allow for keeping excavated pits water free by pumping, bailling or otherwise.	ITEM	1		
E	Allow for planking and strutting to uphold the foundations.	ITEM	1		
F	Compacting bases of pits and blinding with concrete mix (1:4:8 - 50 mm thick)	SM	131		
G	Class 25(20) concrete in stub column foundation bases and bus bars bases.	CM	40		
H	Class 25(20) concrete in stub columns plinths and Bus-Bars	CM	106		
I	Return,fill and ram selected excavated materials around stub columns and bus bars.	CM	217		
J	Removing excess excavated materials from Site and disposing off.	CM	106		
	High yeiled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.				
K	Y10	KG	2500		
L	Y12	KG	5736		
M	Steel/ wooden formwork to sides of stub columns to produce a fairly smooth concrete surface finish to stub columns faces.	SM	100		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
N	Grouting the foundation bolts in stub columns by setting to precision and securing them in place when pouring concrete. (Bolts provided by client approx. size 600mm long and 20mm diameter).	PCS	396		
O	Allow for making holes sizes (250x250X1200 depth)mm in the 8No. Lightning arresters and other plinths during casting.	ITEM	1		
P	Surface finish smooth trowelled including 25mm chamfer all round on all plinths.	SM	48		
ELEMENT No. 6					
ACCESS ROAD (Paving Blocks)					
A	Excavate for a 5m wide access road depth not exceeding 750mm starting from the reduced levels and cart away the spoil.	CM	410		
B	Level and compact Road Base with imported and approved murrum to an average thickness of 150mm in layers of 50mm thick to receive hardcore	SM	82		
C	Approved handpacked hardcore fill, average depth of 450mm and well compacted in layers of 150mm using a 10 tonne vibrating roller.	SM	543		
D	50mm thick approved and well compacted quarry dust blinding on hardcore surfaces	SM	543		
E	Heavy duty industrial concrete paving blocks size (210x105x80mm) minimum strength 49N/mm square laid to slope on quarry dust and compacted.	SM	543		
F	125 x 250 mm Splayed kerb to BS 340 including 125 x 100 mm channel on and including concrete Class 'E' foundation and 100 mm haunching to back of a kerb including all necessary excavation, formwork and disposal.	LM	158		
G	Ditto curved to plan.	LM	20		
H	Extra over for junction between straight and curved kerbs.	NO	8		
I	Prepare surfaces and apply three coats of approved road marking paint: to Kerb stones and parking 75-150mm girth with kenya power branded colours.	LM	158		
J	Supply and install as shall be directed by client, 150mm diameter medium gauge PVC pipes as ducts for cables crossing the access road including all necessary excavations, concrete bedding, haunching and surround to ducts.	LM	120		
K	Allow for 150mm diameter medium duty pvc bends on selected equipment plinths as shall be directed by client including bedding and haunching with (1:3:6) mass concrete to approval	No.	15		
ELEMENT No.7					
CABLE TRENCHES AND DUCTS (All Provisional)					
<i>Trench (600x600mm deep) length approx. 160 metres at various locations</i>					
A	Excavate for cable trench 1.0m wide from reduced level not exceeding 0.6 metres deep.	CM	97		
	Total to this page and carried to Summary page				



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	Description	Unit	Qty	Rate	Amount (Kshs)
B	Load, cart away excavated materials and dispose at areas designated by local authority.	CM	90		
C	Backfill and ram selected excavated materials around trench walls.	CM	7		
D	50mm plain concrete(1:4:8) blinding on cable trench base	SM	160		
	Vibrated reinforced concrete class 20/25 1:2:4 as described in;				
E	In 150mm thick trench base.	CM	22		
F	In 150mm thick trench walls with fairly smooth face finish.	CM	30		
G	Provide and put in place (900x300x75mm) thick precast concrete trench covers reinforced with Y8 bars spaced at 100mm both ways with fair face finish on both sides, with all edges protected with 25x25x3mm angle iron. smooth face finish on both sides.	No.	530		
	External Access Road (Murraum)				
H	Excavate commencing from stripped level depth not exceeding 900mm deep for piped culvert and cart away the spoil.	CM	108		
I	50mm thick plain concrete blinding to make up levels for the precast culvert	SM	30		
J	Supply and install 600mm internal diameter concrete pipe culvert and headwall	LM	24		
K	Vibrated mass concrete class 20/25 (1:2:4) in culvert surrounding thickness 200mm including head and wing wall.	CM	20		
L	Excavate commencing from ground level 6metres wide access road and not exceeding 300mm deep and cart away the spoil.	CM	87		
J	Hand pack and compact hardcore 300mm layer to external road section to existing public road	CM	87		
M	Approved murrum fill 300mm well compacted with vibratory rollers in 150mm thick layers to above road to engineers approval.	CM	87		
N	50mm surfacing of entry road with approved gravel.	SM	288		
O	Allow for connecting the murrum access road with the external public road	ITEM	1		
P	Allow for opening up the drainage at the front part of the substation and channeling the storm water along the murrum road to an appropriate out-fall on main tarmac road approximately 200m away in consultation with local County government	ITEM	1		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
Q	Supply and fix steel fabricated cable trays from 50x50x4mm thick angle irons frame, jointed together with 50x6mm thick galvanized flat iron bars to 600mm long pieces and weld on top of angle iron spaced at 400 c/c to form cable tray and with 200mm high vertical triangular support stands spaced at 400mm c/c	ITEM	1		
	High yielded steel reinforcement bars including cutting, tying, bending and fixing in place, spacer blocks and tying wires to BS 4449.				
R	Y 8 and Y10 in cable trench	KG	2880		
S	Form work to				
T	To sides of trench walls.	SM	485		
	ELEMENT No.8				
	CONTROL ROOM 10M.X5M				
	<u>Substructure works(All provisional)</u>				
	<u>Excavation</u>				
A	Excavate for foundation strip 700mm wide commencing from stripped level depth not exceeding 1.5m.	CM	37		
B	Ditto but for widening for column bases (1000mmx1000mm)	CM	3		
C	Ditto but for Internal cable trenches (600x600)mm	CM	30		
D	Extra over for excavations in all classes of rock at any depth	CM	4		
E	Allow for all necessary planking and strutting.	ITEM	1		
F	Allow for keeping excavation free from general water.	ITEM	1		
G	Level and compact bottom of trenches to receive blinding	SM	54		
	<u>Blinding (Mass Concrete Class P as described)</u>				
H	Plain concrete (1:4:8-20mm aggregates) in 50mm thick blinding for strip foundation	SM	27		
I	Ditto to column bases	SM	10		
J	Ditto to cable trenches	SM	15		
	Sawn formwork to: -				
K	Sides of strip footing 100-150mm high	LM	68		
L	Sides of ground floor slab 100-150mm high	LM	30		
M	Ditto but in cable trenches	SM	35		
N	Ditto but to column bases and footing	SM	4		
	Concrete.				
	Vibrated reinforced concrete class 20/20 (1:2:4/25) as described in				
O	Strip foundation	CM	4		
P	Cable trenches(150mm thick)	CM	7		
Q	Column bases(1000mm x1000mm x250mm thick)	CM	2		
R	Substructure columns stubs (200x200)	CM	1		
S	Concrete door ramp	CM	5		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
	High yield mild steel reinforcement from 8mm to 12mm including cutting, bending, spacers, tying wire and fixing to BS 4449 in, strip foundation, column bases, footing and cable trenches.				
T	Y 12	KG	239		
U	Y 10	KG	180		
V	Y8	KG	175		
	Substructure natural stone walling in cement sand mortar (1:3) including and reinforced with 20 SWG Hoop iron in every alternative course				
W	200mm thick wall.	SM	126		
	HardCore Filling				
X	Excavations in control room to reduce levels and cart away the spoil	CM	15		
Y	Average 150mm thick layers of selected and well compacted imported murrum fill , compact using approx. 2 ton vibrating roller to receive hardcore filling.	CM	88		
Z	Selected imported hardcore fill, compacted in layers of 150mm thick to satisfaction of client	CM	30		
AA	50mm thick approved murrum blinding on hardcore fill.	SM	70		
AB	Return, fill and ram selected excavated materials around foundations and trenches.	CM	30		
AC	Load cart away surplus excavated materials and dispose in areas designated by local authority.	CM	15		
	Insecticide.				
AD	Prepare and apply "Premise 200 SC " or equal and approved insecticide to surfaces of blinding as per manufacturer's written instructions	SM	50		
	Damp Proofing.				
AE	1000 gauge polythene DPM laid on top of blinding including 200mm side and end laps.	SM	70		
	Mild steel bar to BS 4449;				
AF	BRC mesh reference No. A142 weighing 2.22kg per square meter including 150mm minimum end and side laps,bends, tying wires and spacer blocks.	SM	70		
	Vibrated reinforced concrete class 20/20 (1:2:4/25) as described in				
AG	150mm thick ground floor slab.	SM	50		
	<u>Superstructure Works</u>				
	<u>Damp Proof Course.</u>				
AH	200mm wide damp proof course (DPC) laid with 1:3 mix (cement sand mortar.)	LM	35		
	walling in cement sand mortar (1:3) including and reinforced with 20 SWG hoop iron in every two alternating course.				
AI	200mm thick smooth dressed natural stone wall/approved concrete blocks/Machine cut including making horizontal keys on external wall surface	SM	160		
	Sawn formwork to;				
AJ	Vertical sides of floor slab beams	SM	12		
	Total to this page and carried to Summary page				


 8

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Item	Description	Unit	Qty	Rate	Amount (Kshs)
AK	Ditto but soffit	SM	2		
AL	Ditto but soffit of roof slab	SM	45		
AM	Sides of roof slab 100-150mm high	LM	30		
AN	Sides of columns	SM	15		
	Vibrated reinforced concrete class				
	20/20 (1:2:4/25) as described in:				
AO	Columns	CM	3		
AP	Ring beam	CM	5		
AQ	150mm thick roof slab	SM	50		
	Reinforcement				
	Steel reinforcement bars including cutting, bending, spacer blocks, tying wires and fixing. High tensile bars to BS 4461: 8mm to 12mm bars to:				
AR	Y 8	KG	149		
AS	Y 10	KG	550		
AT	Y 12	KG	240		
	Roofing				
	Supply and fix 5No.fabricated steel trusses spanning 5000mm and hoisted height not exceeding 4.00m high above finished floor level including Fixing to R.C Roof Slab as described;				
AU	Trusses consisting of 50x50x4mm tie beam,rafters 50x50x3mm, struts and ties 50x50x3mm; all with 10 nos. mild steel cleats 100x50x4mm for purlins anchor, to heights not exceeding 4m spanning 5m with weight not exceeding 200kg including fixing the same to wall.	NO	5		
AV	Zed purlins ZS6 100mm deep	LM	110		
AW	Prepare and apply 2 coats of grey - oxide primer paint on roof structural steel work prior to hoisting/fixing in position and one final touch-up coat after erection.	ITEM	1		
AX	Supply and fix BP760 box profile factory pre-painted gauge 28 roofing sheets to an approved colour laid with 94mm side laps and 150mm end laps fixed to steel 'Z' purlin (m/s) including 'J' bolts washers, nuts and rubber caps at 600mm centers	SM	132		
AY	Ditto but 28Gx480mm with stiffeners ridge caps	LM	11		
	Rainwater Goods				
AZ	Fabricate SHS 50x50x4mm thick steel fascia cladding framework structure 1000mm high, 50x50x4mm angle iron struts, including fixing into the wall with adequate wall passes as described to client satisfaction including application of 2 coats of red-oxide primer and a final touch-coat after erection.	LM	35		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
BA	Supply and fix BP760 box profile factory pre-painted gauge 28 cladding sheets to an approved colour laid with 94mm side and end laps to 1000mm high fixed to steel 50x50x4mm fascia cladding frame including 'J' bolts washers, nuts and rubber caps.including underside of cladding 500mm wide	SM	45		
BB	Purpose made 14 gauge box gutter 900mm girth, screwed/welded to gutter stool on 50x25x3mm thick M.S fixed to rafters at 600mm centres; internally painted with two coats of black bituminous paint, externally with one coats of red oxide primer and two coats of finishing silver alluminium paint	LM	27		
BC	Extra over for stopped ends.	NO	4		
BD	Ditto for 150mm diameter holes in gutter.	NO	2		
BE	Allow for 150mm diameter 28 gauge mild steel down-pipe including fixing to wall	NO	2		
BF	Extra over down pipe for swan neck	ITEM	1		
BG	Extra over down pipe for bends	ITEM	1		
BH	Extra over down pipe for shoe	ITEM	1		
	Painting generally.				
BI	Prepare and apply 2 coats of red oxide primer and apply 2 coats of silver alluminium finish on rainwater goods	ITEM	1		
	Windows				
BJ	Composite purpose made mild steel casement window (Overall Size 1200mm wide X 1500mm high) frame size,25mm 'Z' bar, 25mm million with 63x3 flat bar welded on the back and 25mm T bar for windows pane panels of maximum 275 x 225mm complete with 5mm glass with putty all to client approval	No.	4		
BK	Prepare and apply 2 coats of red oxide primer and apply 2 coats of matt finish paint on window frames of 63mm girth	SM	8		
BL	250x50mm thick precast concrete weathered and throated window Cill reinforced, finished fair face on all exposed surfaces, bedded and jointed in cement sand mortar (1:4)	LM	8		
	Doors				
BM	Double leaf steel doors overal size (1650x3075mm) openable 1500x3000mm high in two panels 750mm wide consisting of 1.6mm thick plate welded to 50x25x3mm framework; 75x50x6mm main frame with wall anchors; client approved steel louvres size (400x300)mm fixed at top and bottom of all shutters as per the clients requirement.	NO	2		
BN	Ditto but single leaf steel internal door 1200mm wide	NO	1		
BO	Prepare and apply 2 coats of red oxide primer and 3 coats of gloss paint on all steel doors internally and externally.	ITEM	1		
	Internal Finishes (Walling)				
BP	13mm thick cement sand plaster (1:4) to walling mixed with lime smooth finish to receive paint	SM	180		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
CA	Allow for Electrical installation to be carried out by a nominated sub-contractor as per Electrical drawing-lump sum and to comprise of the following, (1) 1No.- 12way 3-phase, 415v distribution board rated 100Amps, complete with 3-phase MCBS, 32Amps, 3-sets, 20Amps, 3-sets, 16Amps, 2-sets, (2) 1No. single phase consumer unit rated 100A with four single phase MCBS rated 10A, 16A, 30A & 20A, (3) 4No. approved double socket outlets, (4) 4no. approved complete fluorescent lights 30watts x 1200mm long & 4No. security lights, (5) 3No. approved switches. (6) Approved standard wiring cables and any other necessary fittings.	ITEM	1		
	Sub-Station Lighting				
D	Supply 240 watts AC (LIGHT DEPENDENT TYPE) bulky head floodlights with energy saver 100 watts sodium metal halide lamps (for kplc to install on the bus bars)	NO	12		
E	Supply and fix emergency chargeable lights in the control room to client approval.	NO	2		
	ELEMENT NO. 10- SMOKE DETECTORS				
F	Allow for Hardwired Smoke detectors installations; including a battery back up; to be carried out by a nominated sub-contractor	ITEM	1		
G	Allow for general attendance on specialist contractor	ITEM	1		
H	Builder's work in connection with Smoke detector installations; cut away for and attend in all trades on the sub-contractor installing the following points in a mainly concealed system; including chases, holes and recess notching in timber etc; and making good all finishes for cut in boxes, electrical wiring, mounting brackets, smoke detector feeds, fire alarm points etc	ITEM	1		
	ELEMENT NO. 11 - FIRE EXTINGUISHERS				
	Supply and fix controlled discharge 9 litre water, carbon dioxide gas fire extinguisher manufactured to BS EN 3-9:2006, Bs 7863:2009, BS 5306-4:2001 and the cylinder manufactured to BS 5045 complete with the following:				
A	Charge and fixing bracket	NO	4		
	Pictorial instructions				
	Colour code				
	Servicable on site				
	Discharge horn and hose				
	Brass hot stamping				
	Operating valve				
	Local Fire Brigade approval				
B	Ditto but powder fire extinguishers	No	2		
C	Ditto fire blanket 6' x 4' container	No	2		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
ELEMENT No.13					
STORM WATER DRAINS (All Provisional)					
A	Excavate on site drain trench not exceeding 1.5m deep including plunking and strutting, disposal of spoil to receive drainage channels and forming sloping sides in well compacted murram bed.	LM	188		
B	Lay (300x450)mm precast concrete invert block drains to suitable fall with grooved edges and tongued, joints filled with cement/sand mortar (1:3) and laid on 75mm concrete bed.	LM	188		
C	Lay on sides of sloped trench (600x300x50mm) precast concrete slabs jointed in 1:3 mortar	SM	226		
D	Stone pitching in 1:3 mortar at various locations as directed by client	SM	113		
E	Allow for mass concrete (1:2;4) mix in drainage channels works	CM	15		
F	Fabricate grating overall size (300x12000mm long) made from angle irons size (50x50x6mm thick), with partitions (Y20) spaced at 100mm including the sides angle irons embedded into drainage trench and three coats of gloss paint.	ITEM	1		
ELEMENT No.14					
CHAINLINK FENCE					
A	(2.4m highx12.5 gauge chainlink) fence on precast concrete posts complete with 4 strands of 3mm galvanised steel wire passing through holes drilled on overall height of 2.4m high and crank with 2 strands of 12.5 gauge barbed wire including securing chainlink to wire strands.	LM	50		
ELEMENT No.15					
PPERIMETER WALLING(188M LONG X 2.5M HIGH)					
Demolition works					
	Carefully demolish the existing chainlink fence and hand over the recoverables to KPLC and cart away the debris.	ITEM	1		
Walling					
	Excavate for foundation trench 1000mm wide commencing from ground level depth not exceeding 1.5m	CM	367		
	Excavations for widening 68No. column bases size (1.0x1.0)m spaced at 3.0m c/c	CM	55		
	Extra over for excavation in all classes of rock at any depth.	CM	45		
	Fill in and ram selected excavated materials around the substructural walling and columns.	CM	345		
	Load, cart away from site surplus excavated materials and dispose at areas designated by local authority.	CM	75		
	Provide all the necessary planking and strutting to uphold sides of trenches.	ITEM	1		
	Total to this page and carried to Summary page				



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Item	Description	Unit	Qty	Rate	Amount (Kshs)
	Allow for keeping all excavations water free by pumping, bailing or otherwise.	ITEM	1		
	50mm thick (1:4:8) mass concrete blinding to walling and column bases	SM	140		
	Vibrated reinforced concrete class 20/25 1:2:4 as described in;				
	Foundation strip size (700x250)mm and columns size (1000x1000)mm.	CM	32		
	Substructure and superstructure columns (200x200)mm	CM	9		
	(300x200)mm ground beam and ring beam size (200x200)mm respectively.	CM	15		
	High yielded steel reinforcement bars including cutting, tying, bending and fixing in place, spacer blocks and tying wires to BS 4449.				
	Y10 in foundation strip spaced @ 200mm both ways, ground beam and ring beams.	KG	1810		
	Y12 in column bases @ 200mm c/c both ways, and in columns.	KG	1310		
	Y8 in rings to columns, ground beam and ring beam @ 200mm c/c.	KG	750		
	Sawn/Steel form work to				
	Vertical sides of substructure and superstructure columns, foundation strip, ground beam and ring beam.	SM	400		
	225mm thick natural stone/machine dressed stones/approved concrete blocks in substructure and superstructure walling in cement sand mortar (1:3) including and reinforcing with 20 SWG hoop iron in every two alternating course.				
	225mm thick in substructure walling	SM	268		
	25mm thick cement/sand (1:4) rendering on plinth area finished smooth to receive bituminous paint-600mm high	SM	120		
	225mm thick and 2400mm high machine-cut or fair faced dressed natural or approved concrete blocks stone walling in cement/sand (1:3) mortar including 20SWG hoop-iron in every alternate courses. Internally plastered (1:4) cement/sand and trowelled smooth to receive paint. Externally horizontal joints keyed in cement /sand mortar 1:3 and moulds to columns and ring beams externally.	SM	461		
	Prepare surface and apply three coats of greyish Crown permaplast paint to the boundary wall plastered surfaces.	SM	455		
	350mm wide pre-cast concrete coping twice weathered and throated fixed to walling.	LM	188		
	(800x550)mm concrete coping weathered and throated on all sides fixed to double columns.	NO	15		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	(550x450)mm square concrete coping weathered and throated on all sides fixed to columns.	NO	68		
	Expansion Joints 6No.				
	40mm thick construction joints in flex cell or equally approved expansion jointis including (25x25)mm expedite sealer.	SM	10		
	Razor Wire				
	Supply and fix Razor Wire at the top of boundary wall conforming to the following specifications:				
	Coil size-450mm diameter, Blade profile-ripper razor wire,Stretch factor-maximum of 10m per coil and secured to wall with galvanised steel plates @ 1m centres and (1"x1"x3mm thick and 600mm high galvanised SHS fixed on each column to secure the razor wire also.	LM	200		
	Apply two coats of greyish Crown permaplast paint to the boundary wall plastered surfaces and column moulds	SM	455		
	Allow for extra double Columns (Reinforced concrete) at expansion joints	No.	12		
	ELEMENT No.16				
	PIT LATRINE				
	Substructures				
	Excavation				
	Site excavate for latrine pit size (1200x700)mm commencing from existing ground level, not exceeding 1.5m deep including for foundation strip.	CM	7		
	Excavate exceeding 1.5m deep and not exceeding 3m deep	CM	1		
	Excavate 3m deep to 4.5m deep	CM	1		
	Excavate from 4.5m to 6m deep	CM	1		
	Excavate from 6m deep to 7.5 m deep	CM	1		
	Excavate from 7.5m deep to 9m deep	CM	2		
	Excavate from 9m deep to 10.5m deep	CM	2		
	Extra over excavation in rock at any depth	CM	6		
	Remove surplus soil from site to a place approved by local authority	CM	15		
	Mass concrete mix (1:4:8) in				
	50mm thick blinding under strip foundations	SM	4		
	Vibrated reinforced insitu concrete class 20/20; with minimum cube crushing strength of 20N/mm at 28 days; in				
	Strip foundations 250mm thick	CM	1		
	150mm thick ground floor slab	SM	5		
	Supply and fix steel bar in structural concrete work including cutting, bending, holsting, tying wire, spacer blocks and supporting all in position:				
	10mm bars in floor slab @ 200 c/c both ways T&B.	KG	77		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	<u>Mesh fabric reinforcement</u>				
	Mesh reinforcement No. A142 size 200 x 200mm weighing 2.22 kg per square meter; in floor slab; including all necessary supports	SM	5		
	<u>Sawn formwork to:</u>				
	Edges: slabs 75 - 150mm girth	LM	9		
	Vertical sides; strip footing; 200mm high	LM	9		
	<u>Walls</u>				
	200mm thick natural coral stone foundation walls; machine dressed square; bedded and jointed in cement and sand (1:4) mortar; reinforced with 20SWG Hoop Iron in every alternate course	SM	14		
	<u>Anti-termite treatment</u>				
	Approved anti-termite chemical treatment; applied by approved professional pest control specialist; applied strictly in accordance with the manufacturers' instructions; ten(10) year guarantee	SM	3		
	<u>DPM</u>				
	Guage 1000 polythene damp proof membrane	SM	5		
	<u>25mm thick cement/sand (1:4) rendering; on concrete or stonework; wood float finished to;</u>				
	Plinths ; externally	SM	5		
	<u>Prepare surfaces and apply undercoat and two finishing coats black bitumastic or other equal approved water resistant paint on rendered surfaces to:</u>				
	Plinths: externally	SM	5		
	<u>R.C SUPERSTRUCTURE</u>				
	<u>Sawn formwork to</u>				
	Sides and soffits beams	SM	6		
	<u>Supply and fix square twisted steel bars in structural concrete work including cutting, bending, hoisting, tie wire, spacer blocks and supporting all in position</u>				
	8mm bars	SM	24		
	12mm bars	SM	47		
	<u>Vibrated reinforced insitu concrete class 20/20; with minimum cube crushing strength of 20N/mm sq. at 28 days; in</u>				
	Ring beams	SM	1		
	<u>WALLS</u>				
	<u>External Walls</u>				
	<u>Machine dressed natural stone walling bedded in cement/sand mortar(1:4) with minimum stone crushing strength of 7N/mm²; reinforced with 20SWG Hoop Iron in every alternate course</u>				
	200mm thick walls	SM	21		
	Extra over external walling for horizontal pointing	SM	21		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	<u>Bituminous felt or other equal approved damp proof course; in cement/sand (1:3) mortar</u>				
	200mm wide	SM	2		
	Make holes on 100mm thick concrete slab for 150mm diameter PVC pipe	NO	1		
	Provide and fix 100mm thick PVC vent with cap average length 3m	LM	3		
	<u>ROOF</u>				
	<u>The following in 4 No. purlins; steel structural roof; spanning 3.2m; hoisted to a height of approximately 2.4m from ground level</u>				
	150 x 50 x 2mm Z purlins bedded in masonry wall with cement sand mortar	LM	15		
	Drill holes in steel members for 12mm bolts in Z purlins	NO	23		
	12mm bolts	NO	23		
	Supply and fix 24g mild steel trough roofing sheets type LT5; factory prepainted to approved standard colour; laid with 150mm end lap and 94mm side laps; fixed to metal purlins including hook bolts, washers and nuts at 1000mm centres	SM	12		
	Ditto cladding sheets to an approved colour laid with 94mm side laps fixed to 1000mm high steel fascia cladding frame including 'J' bolts washers, nuts and rubber caps, including underside of cladding 500mm wide, 14gauge galvanized gutters and 100mm dia. down pipe well secured.	SM	14		
	<u>OPENINGS</u>				
	<u>Concrete Louvres</u>				
	150 x150 x 150mm concrete louvre blocks fixed with cement sand mortar (1:3)	SM	2		
	<u>Window Cill</u>				
	Supply and fix clay window cills; bedded and jointed in cement/sand (1:3) mortar; pointed in matching coloured cement to windows	LM	6		
	<u>DOORS</u>				
	16 gauge Mild steel door size 965 x 2100 mm 50x50x4mm and shutter complete with all iron mongery	NO	2		
	<u>Iron mongery</u>				
	<u>Supply and fix "Assa Abloy" or equal approved iron mongery; matching screws; locks to include a set of 3 keys; available from their authorised local dealers to approval</u>				
	100mm mild steel butt hinges	NO	7		
	3 lever steel casement rebated door lock with handles	NO	2		
	<u>Prepare surfaces,three coats gloss oil paint to metal surfaces</u>				
	Doors internally	SM	2		
	Doors externally	SM	2		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	<u>FINISHES</u>				
	Floor Finishes				
	<u>Screed; cement/sand (1:3) on concrete</u>				
	30mm thick to receive floor tiles	SM	5		
	<u>Supply and fix coloured ceramic floor tiles on screed; joints pointed in matching cement grout to approval</u>				
	300 x300 x 10mm thick tiles	SM	5		
	<u>WALLING</u>				
	<u>Plaster; 13mm cement/lime putty/sand; steel trowelled; on masonry and concrete to</u>				
	Walls and concrete surfaces	SM	6		
	<u>Prepare surfaces; apply three coats First grade vinyl emulsion paint or other equal approved; on steel trowelled plaster to:</u>				
	Walls and concrete surfaces	SM	6		
	<u>Backing; 10mm cement/sand (1:4); on masonry or concrete ; wood float finished to</u>				
	Walls to receive ceramic tiles	SM	23		
	<u>Supply and fix coloured glazed ceramic wall tiles; on backing; joints pointed in matching cement grout</u>				
	300 x 300 x 10mm thick tiles	LM	23		
	300 x 50 x10mm thick border tile	LM	14		
	Supply and fix matching pvc tile strip to tile edges	LM	56		
	<u>Plaster; 13mm cement/lime putty/sand; wood float; on masonry and concrete to</u>				
	Walls and concrete surfaces; externally	SM	5		
	<u>Prepare surfaces; apply three coats First grade vinyl emulsion paint or other equal approved; on wood float plaster to:</u>				
	Walls and concrete surfaces	SM	6		
	<u>Concrete paving Slabs</u>				
	600x600x50mm thick precast paving blocks embeded on well compacted 50mm murrum, jointed with cement/sand mortar (1:4)	SM	120		
	<u>Ceilling Finishes</u>				
	Supply and fix 12mm thick pvc ceiling including conices and supporting all in position	SM	5		
	<u>ELECTRICAL INSTALLATION WORKS</u>				
	Allow for Electrical installation to be carried out by a nominated sub-contractor as per Electrical drawing-lump sum and to comprise of the following, 1No. approved double socket outlets, 1no. approved complete lighs & 2No. security lights, approved switches and Approved standard wiring cables and any other necessary fittings.	ITEM	1		
	Total to this page and carried to Summary page				


19

Item	Description	Unit	Qty	Rate	Amount (Kshs)
	ELEMENT 17; GUARD HOUSE				
	SUBSTRUCTURES				
	Excavation				
	Site excavate to reduce levels commencing from existing ground level; 150mm deep and not exceeding 1.5m deep;	SM	7		
	Excavate for strip foundation trench, commencing reduced level ; not exceeding 1.5m deep	CM	6		
	Remove surplus soil from site to a place approved by local authority	CM	7		
	Mass concrete mix (1:4:8) in				
	50mm thick blinding under strip foundations	SM	5		
	Vibrated reinforced insitu concrete class 20/20; with minimum cube crushing strength of 20N/mm² at 28 days; in				
	150mm thick ground floor slab	CM	1		
	Strip foundations	CM	1		
	Supply and fix steel bar in structural concrete work including cutting, bending, hoisting, tying wire, spacer blocks and supporting all in position:				
	8mm bars	KG	17		
	12mm bars	KG	29		
	Mesh fabric reinforcement				
	Mesh reinforcement No. A142 size 200 x 200mm weighing 2.22 kg per square meter; in floor slab; including all necessary supports	SM	5		
	Sawn formwork to:				
	Edges: slabs 75 - 150mm girth	LM	9		
	Vertical sides; strip footing; 200mm high	SM	5		
	Walls				
	200mm thick natural coral stone foundation walls; machine dressed square; bedded and jointed in cement and sand (1:4) mortar; reinforced with 20SWG Hoop Iron in every alternate course	SM	8		
	Hardcore				
	300mm thick hardcore of approved inert material; well watered and compacted in 150mm thick (maximum) layers	CM	2		
	Blinding				
	50mm thick approved quality murrum blinding to surfaces of hardcore	SM	5		
	Anti-termite treatment				
	Approved anti-termite chemical treatment; applied by approved professional pest control specialist; applied strictly in accordance with the manufacturers' instructions; ten (10) year guarantee	SM	5		
	DPM				
	Guage 1000 polythene damp proof membrane	SM	5		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	25mm thick cement/sand (1:4) rendering; on concrete or stonework; wood float finished to				
	Plinths ; externally	SM	5		
	Prepare surfaces and apply undercoat and two finishing coats black bitumastic or other equal approved water resistant paint on rendered surfaces to:				
	Plinths: externally	SM	5		
	<u>R.C SUPERSTRUCTURE</u>				
	<u>Sawn formwork to</u>				
	Sides and soffits beams	SM	5		
	Bench slab	SM	1		
	<u>Supply and fix square twisted steel bars in structural concrete work including cutting, bending, hoisting, tie wire, spacer blocks and supporting all in position</u>				
	8mm bars	KG	18		
	12mm bars	KG	38		
	<u>Vibrated reinforced insitu concrete class 20/20; with minimum cube crushing strength of 20N/mm2 at 28 days; in</u>				
	Ring beam	CM	1		
	Bench slab	CM	1		
	<u>WALLS</u>				
	<u>External Walls</u>				
	<u>Machine dressed natural stone walling bedded in cement/sand mortar(1:4) with minimum stone crushing strength of 7N/mm2; reinforced with 20SWG Hoop Iron in every alternate course</u>				
	200mm thick walls	SM	21		
	Extra over external walling for horizontal pointing	SM	21		
	<u>Bituminous felt or other equal approved damp proof course; in cement/sand (1:3) mortar</u>				
	200mm wide	SM	2		
	<u>ROOF</u>				
	<u>The following in 4 No. purlins; steel structural roof; spanning 3.2m; hoisted to a height of approximately 2.4m from ground level</u>				
	150 x 50 x 2mm Z purlins bedded in masonry wall with cement sand mortar	LM	15		
	Drill holes in steel members for 12mm bolts in Z purlins	NO	23		
	12mm bolts	NO	23		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	Supply and fix 24g mild steel trough roofing sheets type LT5; factory prepainted to approved standard colour; laid with 150mm end lap and 94mm side laps; fixed to metal purlins including hook bolts, washers and nuts at 1000mm centres	SM	12		
	Ditto cladding sheets to an approved colour laid with 94mm side laps fixed to 1000mm high steel fascia cladding frame including 'J' bolts washers, nuts and rubber caps, including underside of cladding 500mm wide, 14gauge galvanized gutters and 100mm dia. down pipe well secured.	SM	14		
	OPENINGS				
	Windows				
	Mild steel casement windows ; fixed panes; custom made; sections to drawings and with approved ironmongery; sections divided with 25 x25 x 3mm thick RHS welded onto main frame 40 x 25 x 3mm RHS;				
	Ditto but 900 x 1200mm high	NO	5		
	Window Cill				
	Supply and fix clay window cills; bedded and jointed in cement/sand (1:3) mortar; pointed in matching coloured cement to windows	LM	6		
	DOORS				
	16 gauge Mild steel door size 965 x 2100 mm 50x50x4mm and shutter complete with all iron mongery	NO	1		
	Iron mongery				
	Supply and fix "Assa Abloy" or equal approved iron mongery; matching screws; locks to include a set of 3 keys; available from their authorised local dealers to approval				
	100mm mild steel butt hinges	NO	3		
	3 lever steel casement rebated door lock with handles	NO	1		
	Prepare surfaces, three coats gloss oil paint to metal surfaces				
	Doors internally	SM	2		
	Doors externally	SM	2		
	FINISHES				
	FLOOR FINISHES				
	Screed; cement/sand (1:3) on concrete				
	30mm thick to receive floor tiles	SM	5		
	Supply and fix coloured ceramic floor tiles on screed; joints pointed in matching cement grout to approval				
	300 x300 x 10mm thick tiles	SM	5		
	WALLING				
	Plaster; 13mm cement/lime putty/sand; steel trowelled; on masonry and concrete to				
	Walls and concrete surfaces	SM	5		
	Total to this page and carried to Summary page				



Item	Description	Unit	Qty	Rate	Amount (Kshs)
	Prepare surfaces; apply three coats First grade vinyl emulsion paint or other equal approved; on steel trowelled plaster to:				
	Walls and concrete surfaces	SM	5		
	Backing: 10mm cement/sand (1:4); on masonry or concrete ; wood float finished to				
	Walls to receive ceramic tiles	SM	18		
	Supply and fix coloured glazed ceramic wall tiles; on backing; joints pointed in matching cement grout				
	300 x 300 x 10mm thick tiles	SM	18		
	300 x 50 x 10mm thick border tile	LM	9		
	Supply and fix matching pvc tile strip to tile edges	LM	36		
	Plaster; 13mm cement/lime putty/sand; wood float; on masonry and concrete to				
	Walls and concrete surfaces; externally	SM	6		
	Prepare surfaces; apply three coats First grade vinyl emulsion paint or other equal approved; on wood float plaster to:				
	Walls and concrete surfaces	SM	7		
	Ceiling Finishes				
	Supply and fix 12mm thick 'celotex' softboard ceiling including cornice, supporting all in position and apply three coats First grade vinyl emulsion paint or other equal approved	SM	5		
	ELECTRICAL INSTALLATION WORKS				
	Allow for Electrical installation to be carried out by a nominated sub-contractor as per Electrical drawing-lump sum and to comprise of the following. 1No. approved double socket outlets, 1no. approved complete fluorescent lights 30watts, 600mm long & 2No. security lights, approved switches and Approved standard wiring cables and any other necessary fittings.	ITEM	1		
	ELEMENT 18; WATER SUPPLY				
	Allow for the supply of substation with piped water including all local authorities' charges, sub main pipes 1 inch diameter standard plastic pipes and all connections, testing and commissioning of all the plumbing works. Main pipe not exceeding 200m away	ITEM	1		
	Supply and install 6000 litres capacity ROTO-TANK or similar approved plastic water tank, approved 1/2" watertap and 1200mm high masonry/concrete platform including all necessary required fittings and connections to collect control room roof water.	ITEM	1		
	WATER STORAGE TANK STEEL TOWER				
	Excavate for column bases (1.5X1.5)m n.e 1.5m	CM	21		
	Level and compact bottom of the excavated bases	SM	12		
	50mm thick 1:4:8 blinding to column bases	SM	12		
	Total to this page and carried to Summary page				



SUMMARY PAGE.				
TOTAL FROM PAGE 1				
TOTAL FROM PAGE 2				
TOTAL FROM PAGE 3				
TOTAL FROM PAGE 4				
TOTAL FROM PAGE 5				
TOTAL FROM PAGE 6				
TOTAL FROM PAGE 7				
TOTAL FROM PAGE 8				
TOTAL FROM PAGE 9				
TOTAL FROM PAGE 10				
TOTAL FROM PAGE 11				
TOTAL FROM PAGE 12				
TOTAL FROM PAGE 13				
TOTAL FROM PAGE 14				
TOTAL FROM PAGE 15				
TOTAL FROM PAGE 16				
TOTAL FROM PAGE 17				
TOTAL FROM PAGE 18				
TOTAL FROM PAGE 19				
TOTAL FROM PAGE 20				
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25