

**SCHEDULE NO. 3**  
**DESIGN SERVICES**  
**FOR KABARNET SUBSTATION**

**Note 1:** All of the manufacturer's documentations including test reports, layout and dimensions drawings, datasheets, Catalogs, O&M instruction manuals, etc. shall be submitted to the Client.

**Note 2:** All of the blank cells shall be filled with quoted price or "included". Any other alternation interpreted as "included". It means that relevant price has been included in other items.

1	2	4	3	5	6	7	8	9	10
Item No	Description	Unit	Estimated Quantity	Foreign Currency (FC1) = USD (FC2) = EURO	Local Currency (KSh) = KENYAN SHILLINGS	Total Price			
				Design Services	Design Services	Design Services			
				Unit Price	Unit Price	(Quantity x Unit Price)			
				FC1	FC2	KSh	FC1	FC2	KSh
1	DESIGN SERVICES								
1.1	132kV and 33kV primary equipment sizing/rating calculations and drawings (CB, DS, ES, CT, CVT, power transformer, Aux. transformer, suspension/strain Insulators, etc.)	Lot	1						
1.2	Detail design drawings of layout, site plan and sections	Lot	1						
1.3	Substation earthing system design Calculations and drawings (including cross section of grounding conductor and rizer, step voltage, touch voltage, maximum potential rise, main grid resistance, etc. as required)	Lot	1						
1.4	Lightning protection design calculation and drawings (including risk level assessment, protection zone, etc. as required)	Lot	1						
1.5	Short circuit design analysis (including grid short circuit level at the substation and inteconnection lines, etc. as required)	Lot	1						
1.6	Surge/Lightning arrester design calculations and drawings (including protection zone, protection margin, rated volatge, continous voltage, discharge class, etc. as required)	Lot	1						
1.7	Insulation coordination studies	Lot	1						
1.8	Buswork electrical and mechanical calculations and drawings (Including stranded/tubular conductors sizing, continous and short circuit current carrng capacity, corona level or surface volatge gradient, electromechanical forces due to wieght, Ice,wind and short circuit for buasbars, gantry and between equipment, post insulator, and etc. as required)	Lot	1						
1.9	Conductors sag and tension calculations and drawings	Lot	1						
1.1	LVAC/LVDC/UPS auxiliary supply systems, EAT and DG sizing, chargers, batteries design calculations and detail drawings	Lot	1						
1.11	Protection, control, fault monitoring/ metering system design calculations, detail drawings and logic diagram together with relays' configuration, protection relay setting calculations and studies	Lot	1						
1.12	Substation automation system (SAS) design calculations and detail drawings	Lot	1						
1.13	Telecommunication system design calculations and detail drawings (for communication with NCC/RCC/NSCC)	Lot	1						
1.14	Substation access control system and CCTV design calculations and detail drawings	Lot	1						
1.15	External and internal lighting design calculations and detail drawings	Lot	1						
1.16	LV cables and cable laying design calculations and detail drawings	Lot	1						
1.17	Gantry and steel structures calculations and detail drawings	Lot	1						
1.18	Equipment foundations calculations and detail drawings	Lot	1						
1.19	Main and Aux. Transformers' foundations, plinth, firewall, oil pits, and etc., calculations and detail drawings	Lot	1						
1.2	Cable trenches/ ducts calculations and detail drawings	Lot	1						
1.21	All relevant substation civil works design calculations and detail drawings to ensure a fully functional substation including borehole, plumbing, landscaping, parking, fence, entrance gate, etc.	Lot	1						
1.22	Substation internal roads design calculations and detail drawings	Lot	1						
1.23	Substation external access road (tarmac) design calculations and detail drawings (rehabilitation, if any)	Lot	1						
1.24	HVAC air-conditioning design calculations and detail drawings (if any)	Lot	1						
1.25	Drainage, sewage and plumbing works design calculations and detail drawings	Lot	1						
1.26	Other required detail design drawings	Lot	1						
1.27	Design review meeting as specified in the Employer's Requirements Part 2-A Clause 31.3	Lot	1						
1.28	Modification of all relevant as-built drawings of Kabarnet substation to Client/Consultant approval	Lot	1						
	TOTAL PRICE SCHEDULE 3A KABARNET SUBSTATION								
	<b>Note:</b> Contractor shall include all design services in his proposal, which are necessary to complete the works.								