PROPOSED CONSTRUCTION OF BUILDING FOR SME BRANCH & RASMECC
at Ram Murthy Nagar, Nellore, Andhra Pradesh.

BILL OF QUANTITIES - BOQ

S.NO.	DESCRIPTION OF WORKS	UNIT	QUANTITY	RATE	AMOUNT
1	**HT - EXTERNAL ELECTRICAL WORKS**				
	Double Pole Structure				
1.1	SITC of Double Pole Structure with ICMC 100x50 with cross arms, HG Fuse set and Lightning Areestors along with 200AB Switch including related civil works supply and errection.	Set	1.00		
1.2	Supply, Transportation, Installation, Testing and Commissioning of 11/0.433 KV **TRANSFORMER** with all test reports. The Transformer shall be designed and manufactured as per Energy Efficiency Level - 2 at basic Insulation level conforming to ISS 2026 (Part- I to Part - II) with latest ammended and as per IS 1180 Part-I : 2014 latest ammended, OCTC with initial filling of oil as per IS 335-1993. The basic details of the Transformer are as under. Makes:Schneider/Kirloskar/Voltamp/ Esennar/ Toshiba/ KPEL/ Powertech /SSE / THOTA / Vajra				
	1. Quantity : 1 2. Rated KVA: 250 kVA 3. Service & Location: Continuous Outdoor Distribution Transformer 4. Mounting: Plinth. 5. Wound: Copper Double wound 6. Type: Core type oil immersed 7. Cooling: ONAN 8. Temp Rise: 40^{o}C in oil, 45^{o}C by resistance 9. Vector Group: Dyn 11 10. Primary Connection: Delta 11. Nominal Voltage / Current : 11000 V / 18A 12. Highest system Voltage: 12000V 13. Primary Frequency :50 HZ +/- 3% 14. Number of Phases: 3 15. Primary wires: 3 16. Secondary connection: Star 17. Secondary Volts / Current : 433V / 580A 18. Secondary phases: 3 19. Secondary wires: 4 20. Taps on primary winding for primary voltage variation: +5% to - 10% in steps of 2.5% of 7 position (6 Steps) 21. Terminal arrangement. a. HV: HT terminal box as per the site condition. b. LV: Cable box suitable to receive 3.5 C x 300 Sqmm XLPE cable				

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	22. LV: One separate terminal for earthing. 23. Total Losses at 50% Loading [Watts] [Max] --- as per IS 24. Total Losses at 100% Loading [Watts] [Max]--- as per IS 25.Percentage Impedance at 75 deg. C as per IS 26. No Load current: Less than 2% of full load current. 27. Standard Fittings & Accessories. a. Rating and terminal marking plate: One b. Lifting Lugs: Two c. Off-circuit tap switch: One. d. Earthing Terminals : Two e. Radiators (Attachable): Adequate f. Explosion vent with Diaphragm : One g. Conservator with Drain plug: one h. Oil filling hole with cap :One i. Oil level indicator: One j. Dehydrating Silica gel Breather: One k. Terminal Arrangement: HV With Terminal Box l. Terminal Arrangement: LV Cable Box m. Separate Neutral Bushing : One n. Drain cum filter valve with blanking plate: One o. Air release device: One p. Thermometer Pocket: One q. Four: Unidirectional flat rollers r. One :10Cm dial thermometer (Rigid stem type)				
1.2.1	250 KVA Copper Wound Transformer	Nos	1.00		
1.3	Supply and Transportation of XLPE insulated IS:7098/II/85 H.T. cable for working voltage 11 KV Earthed with Stranded Compacted Circular Aluminium Conductor Screened with Extruded Semi-conducting compound, XLPE Insulated Screened with extruded semi-conducting compound in combination with Copper Tape, cores laid up, inner sheath of Thermoplastic tape, galvanized flat steel strip armoured and overall Extruded PVC Type ST- 2 Outer Sheathed cable etc., complete. Make: Torrent / Universal / Unicab / Havells / KEI /Polycab/Gloster/RR Kabel/RPG				
1.3.1	3C X 95 Sq mm	Rm	100.00		
1.4	Supply and Making heat shrinkable type indoor /outdoor/straight through terminations/ joint kit of approved make suitable for XLPE insulated 11 KV cable, with required components, preparation of cable ends, testing etc. as required of following sizes. Makes: As per list of recommended brands.				
1.4.1	3 core 70/95 Sq mm-out door	Nos	4.00		
1.5	Supply and transportation of following XLPE insulated, 1100V grade armoured aluminum cable as per specification confirming to IS:7098 (Part - I)./1554-I				
1.5.1	300Sq mm X 3.5 core	Rm	100.00		
1.6	Supply and making one end termination with heavy duty double compression brass gland as per BS 6121:2005, IP 66 complete, SIBG type, heavy duty Aluminum lugs duly crimped with crimping tool, PVC tape etc., for following size of Armoured PVC insulated & PVC sheathed/ XLPE aluminum conductor cable of 1100 volt grade as required of size. Makes: As per list of recommended brands.				
1.6.1	3.5 core x 300 sq.mm	Set	2.00		
1.7	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (Galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required.				
1.7.1	300 mm width X 50 mm depth X 1.6 mm thickness	Rm	50.00		

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1.8	Providing, installing, testing, and commissioning of factory-fabricated wall/floor-mounted panel made of CRCA sheet of minimum 14 SWG thickness, duly powder-coated, dust and vermin-proof, suitable for indoor installation. Panel shall house one 400A, 4-pole, thermal-magnetic type MCCB (breaking capacity 36kA or as specified) with adjustable settings, extended rotary handle for door interlocking and safe operation, phase indication lamps (R/Y/B), digital voltmeter and ammeter with selector switches, incoming/outgoing cable termination arrangement with necessary cable glands, earthing lugs, interconnecting wiring, labeling, and protective barriers. All items shall be installed as per relevant IS standards (IS 13947 for MCCBs, IS 8623 for panels, and IS 5578/11353 for labeling). Complete work including transportation, loading/unloading, civil fixing (if required), and making good of site, etc. – all complete in all respects as directed by Engineer-in-charge.	Nos	1.00		
1.9	Providing independent earthing for Important equipment with 100mm dia Heavy gauge C.I (Cast iron) pipe with Flange 2.5m long enclosed in C.C/ brick masonry chamber of 450m x 450m x 400mm with R.C.C. Slab cover duly providing staggered holes filling with salt and charcoal from the bottom of the pipe giving earth connection from electrode through G.I strip of 40 x 6mm x 200mm length with all accessories and labour charges complete, as per IS specifications 732/1982 (Part II)	Nos	4.00		
1.10	Providing earthing as per IS 3043 with copper earth plate of size 600 x 600 x 3.15 mm by embodying 3 to 4 mtr below the ground level with 40mm dia 'B' Class G.I Pipe by excavating a pit to a depth of 3 to 4 Mtr in all soils for Sophisticated Electronic equipment as per National Electric Code and earth connection from electrode Copper strip of 25mm x 5mm x 200mm length to be bolted with nut bolts to G.I. pipe including 25mm x 3mm copper strip of 6Mtrs length connected from plate to Copper strip including filling with 20Kg Salt and 40Kg Charcoal or 40Kg bentonite powder including all accessories like nuts bolts reducer, nipple, wire meshed funnel and CC finished chamber covered with hinged type with CI cover ,CI frame of size 300 X 300 mm ,testing earth resistance as required etc., complete	Nos	2.00		
1.11	Supply and laying of following sizes Earth wire/Strip in horizontal /Vertical run in Ground/surface/Recess including, riveting, soldering, saddles, making connection etc as required				
1.11.1	50 mm x 6mm Copper Flat (2.680Kgs/1Mtr)	Rm	50.00		
1.11.2	50 mm x 6mm GI Flat (2.5 Kgs/mtr)	Rm	100.00		
1.12	Fencing the Transformer & DG yard and HT yard, 2.5Meter Height vide materials listed under :	Rmt	20.00		
	The rates quoted shall include necessary excavation, PCC for ISMB Supports, coping etc., complete.				
	Frame size : 2.5 M x 1.5 M				
	M.S.Angle : 50 x 6 mm				
	Chain Link : 8 SWG GI.				
	Supporting ISMB : 75 x 40 mm				
	Paint : 2 Coats of Red oxide & 2 coats of enamel paint				
1.13	Gate for HT, Transformer & DG yard with frame.	Nos	2.00		
1.14	Spreading of 40 mm thick metal, 80mm depth in outdoor Trafo.yard	Sq.m	50.00		
1.15	Supply and installation of LT/HT cable route markers at every joints indicating slabs as per EB requirement with necessary excavation and concreting as required to complete the installation.	Nos	10.00		
1.16	Metal Danger Boards 11000 V.	Nos	4.00		
1.17	Shock treatment chart laminated.	Nos.	4.00		
1.18	First aid kit	Nos.	2.00		
	INSPECTION CHAMBERS				

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	Quoted rate shall include necessary excavation, back filling and cementing of joints				
1.19	Constructing 904.0 mm (3'0") dia solid block masonry inspection chamber as per IS - 4111: Part-1:1986 with cement mortar (1:6) prop usingfly-ash blocks of 225 mm thick from approved source having a minimum crushing strength of 10 N/sq.mmincluding plastering with cement mortar 1:3 prop; ½" thick both inside and outside fitted with 20" dia RCC manhole covers and frames including excavating pits up to a depth of 1524 mm (5'-0") in all sorts of soils (excluding rock) and laying cement concrete (1:4:8) 150 mm thick using 40 mm HBG Metal and P.C.C. 1:2:4 benching and channel 100 mm thick as per Standard specification andincluding cost and conveyance of all materials like cement, sand, bricks, water etc., to site, cost of seigniorage charges on all materials and all incidental andoperational, labour charges like mixing cement mortar, constructing masonry, lift charges, curing etc., complete for finished item of work as per Standard specification.	Nos	4.00		
1.20	Supply and laying of 300mm dia NP2 RCC Hume pipe with Collars for Road crossings	Rm	15.00		
1.21	Preparation preparation of drawings as per IE rules & submission of As built drawings/documents along with necessary handing over documents, as required in the form of the Soft & hard copy sets. Arrangement for inspection of substation and other equipment and load approval from electrical inspector of state / central govt. and release of HT supply by local electricity authority (all statutory fees will be reimbursed by Bank on submission of original receipts in Bank's name.)	Lot	1.00		