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KARNATAKA POWER TRANSMISSION CORPORATION LIMITED
Corporate Identity Number(CIN): U40109KA1999SGC025521

No: B19/69685/17-18

Corporate Office,
Kaveri Bhavan,
Bangalore-560 009.
Dated: 11.07.2017

OFFICIAL MEMORANDUM

Sub:- DPR for the work of establishing 1x12.5MVA, 66/11kV Sub-station at **Kunur** in Kanakapura Taluk, Ramanagara District.

Ref:- I.O Note No. CEE(P&C)/SEE(Plg)/EE(Plg)/KCO-88/F-80848/6345
Dt.27.06.2017 of the Chief Engineer Electy, P&C, KPTCL.

Administrative approval is hereby accorded to the DPR having an estimated cost of Rs 822.65 Lakhs for the work of establishing 1x12.5MVA, 66/11kV Substation at **Kunur** in Kanakapura Taluk, Ramanagara District by constructing 66kV SC line on DC towers from 66/11kV Harobele S/S to the proposed 66/11kV Kunur S/S using 66kV NBT KPTCL design for a distance towers for 7.297Kms and construction of one of Terminal Bay at 66/11kV Harobele S/S with the following provisions.

SI No	Particulars	Amount in Rs Lakhs
1	Establishing 1x12.5MVA, 66/11kV sub-station at Kunur in Kanakapura Taluk, Ramanagara District.	464.02
2	Constructing 66kV SC line on DC towers from 66/11kV Harobele substation to the proposed 66/11kV Kunur Substation using 66kV NBT KPTCL design towers for a distance of 7.297Kms.	303.92
3	Construction of 66kV Terminal Bay at 66/11kV Harobele substation in Kanakapura Taluk, Ramanagara District.	54.71
	Total DPR cost	822.65

(Rs Eight Crores Twenty-Two Lakhs and Sixty-Five Thousand Only)

The currency of the project report is fixed as **two** years.

SEE(P) 12/7
EE-Plg(S) HBS 13/7
Deputy General Manager (Tech)
KPTCL

Copy to
The Principal Accountant General Audit-I, (Karnataka) Bengaluru
The Chief Engineer Electricity (P&C) (T&P) / (RT&RD) Kaveri Bhavan, KPTCL Bengaluru
The Chief Engineer (Electricity) Transmission Zone, KPTCL, Bengaluru.
The Financial Adviser (A&R) / (I/A) KPTCL, Kaveri Bhavan, KPTCL, Bengaluru.
The Superintending Engineer Electricity P&M, KPTCL, Bengaluru.
The Superintending Engineer Electricity Works Circle, KPTCL, Bengaluru.
The Superintending Engineer Electricity Ramanagara Maintenance Circle, KPTCL, Bengaluru.
EA to Director(Transmission), KPTCL, Kaveri Bhavan, Bengaluru.
PS to Director(Finance), KPTCL, Bengaluru to place it before the Director(Finance), KPTCL.
PS to Managing Director, BESCOM, Bengaluru to place it before the Managing Director, BESCOM.

KCO-88/80
13/7/17

KARNATAKA POWER TRANSMISSION CORPORATION LTD

**Establishing 1x12.5 MVA 66/11 kV Substation at Kunur,
Kanakapura Taluk, Ramanagara District**

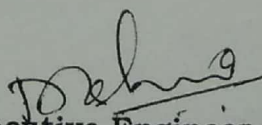
GENERAL ABSTRACT

Sl. No.	Particulars	Amount in Rs. Lakhs
1	Establishing 1x12.5 MVA 66/11 kV Substation at Kunur, Kanakapura Taluk, Ramanagara District	464.02
2	Construction of 66kV SC line on DC towers from existing 66/11 kV Harobebe station to proposed 66/11 kv Kunur Sub-Station in Kanakapura taluk, Ramanagara district, by using 66 kV narrow based KPTCL design towers for a distance of 7.297 Kms	303.92
3	Construction of 66 kV line terminal bay at existing 66/11 kV Harobebe Sub-station in Kanakapura Taluk, Ramanagara District	54.72
TOTAL		822.65

Total Project Cost Rs. 822.65 Lakhs

CERTIFICATE

Certified that the project estimate has been prepared by my gazetted Assistant based on the Major Works estimate furnished by CEE Tr zone Bengaluru for the most economical way of execution of the work.


**Executive Engineer Elecl.,
Planning South**

KARNATAKA POWER TRANSMISSION CORPORATION LTD.

**Establishing 1x12.5 MVA 66/11 kV Substation at Kunur, Kanakapura
Taluk, Ramanagara District**

ABSTRACT-I

Sl. No.	Particulars	Amount in Rs.
1	Material Cost	24800000.00
2	Spares at 3 % on Material Cost	744000.00
3	Transportation & Insurance charges @ 1.5 % on Material Cost + Spares	383160.00
4	Labour charges	720000.00
5	Civil Engineering Works	12650000.00
6	Service tax @ 15% on 40% of Civil Engineering cost	759000.00
7	Works contract Tax @14.5% on 70% of Civil Works	1283975.00
8	Testing and commissioning charges	250000.00
9	Service tax @ 15% on Labour and testing & commissioning charges	145500.00
10	Total Works Cost	41735635.01
11	Establishment Charges at 5% on Works cost	2086781.75
12	Contingencies at 1.5 % on Works cost + Establishment Charges	657336.25
13	Performance Guarantee and loss of interest on margin money for Bank Guarantee @ 0.1% on Works Cost	41735.64
14	Interest during construction @ 4% on (10+11+12+13)	1780859.55
15	Total estimated cost for comparison purpose (10+11+12+13+14)	46302348.19
16	Statutory charges for payment to Civic bodies etc.,	100000.00
17	Electrical Inspectorate Charges	
	Total	46402348.19

Say Rs. 464.02 Lakhs

KARNATAKA POWER TRANSMISSION CORPORATION LTD

Establishing 1x12.5 MVA 66/11 kV Substation at Kunur, Kanakapura Taluk, Ramanagara District

RT - A : Supply of materials, Erection and Commissioning

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7	8	9	10
A1	Power Transformer								
1	Power Transformer 12.5 MVA, 66/11 kV Delta / Star, Dyn11, 3 Ph, 50 Hz, Core type winding with OLTC, RTCC panel, etc., complete filled with Transil oil with 10% spare oil with Terminal connectors suitable for Drake ACSR on both primary and secondary and Neutral connectors suitable for 2 nos. of 50mm X 8mm Copper Flats.	No.	1	11307000.00	1,13,07,000.00	122877.00	1,22,877.00	49310.00	49,310.00
A2	Circuit Breaker:								
	CIRCUIT BREAKER : SF-6 circuit breakers with semi pneumatic / pneumatic operated / Spring type operating mechanism, including mounting structure with rigid, bi-metallic terminal connector suitable for Drake ACSR conductor and mounting structure.								
I	66 kV, 1250 A, 31.5 KA SF6 CB	No.	1	5,63,000.00	5,63,000.00	9,976.00	9,976.00	29,585.00	29,585.00
I	Transformer side								
A3	ISOLATORS :								
	ISOLATORS : Isolators including marshalling box, terminal connectors suitable for Drake ACSR and solid core cylindrical post insulators.								
I	66 kV, 1250 A, 31.5 KA class double break manually operated isolator with terminal connectors suitable for Drake ACSR								
1	Upright mounting type with Earth switch. LPH 4.60 Mtr.	Set	1	2,24,000.00	2,24,000.00	3,332.00	3,332.00	333.00	333.00
2	Upright mounting type without Earth switch. LPH 4.60 Mtr.	Set	3	1,89,000.00	5,67,000.00	3,332.00	9,996.00	333.00	999.00
II	11 kV SYSTEM								
3	11 kV isolator, single break 400 A, 25 KA capacity with Roaster switch, with rigid bimetallic terminal connector suitable for coyote ACSR.	Set	6	20,695.00	1,24,170.00	500.00	3,000.00		
A4	Current Transformer								
	CURRENT TRANSFORMER : Current transformer including Marshalling box, Single phase, oil filled outdoor type with rigid bimetallic terminal connectors suitable for Drake ACSR conductor.								
1	66 kV class, 31.5 KA, CT of ratio 200-100 / 1-1-A for Transformer. For metering : Accuracy 0.2, Burden 10 VA For backup protection : Accuracy 5P20, Burden 30 VA For differential / Distance protection PS class	No.	3	94,000.00	2,82,000.00	1,107.33	3,322.00	3,286.67	9,860.00

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
2	11 kV class, 25 KA, NCT of ratio 1200-800/1-1A for REFR protection (of similar rating and ratio as that of Incomer of 11 kV Switchgear)	No.	1	43,000.00	43,000.00	1,000.00	1,000.00	115.00	115.00
	Note:- 1) All the CTs in each kV class shall be of one and the same make for inter-changeability & reliability of performance. 2) The make and characteristics of 11kV NCT should be the same as that of the incomer CT of 11kV switchgear. 3) The terminal connectors for 11kV NCT shall be suitable for 2 nos. of 50x8mm Copper flat.								
A5	VOLTAGE TRANSFORMER : 66 kV, Single phase, oil filled outdoor type including Marshalling KIOSK with rigid bimetallic terminal connectors suitable for Drake ACSR as per technical specification.								
1	66 kV class 66kV/√3/110V/√3- 110V/√3-110V/√3 Core - 1 : 300 VA, Accuracy class 3P protection Core - 2 : 200 VA, Accuracy class 0.2. metering Core - 3 : 50 VA, Accuracy class 3P. Open delta Protection	No.	3	59,000.00	1,77,000.00	1,107.33	3,322.00	3,286.67	9,860.00
A6	SURGE ARRESTOR								
	SURGE ARRESTOR : (Procelain housing) metal oxide, Gapless type as per technical specification								
1	60 kV, 10 KA, class - II	No.	6	20,000.00	1,20,000.00	166.67	1,000.00		
2	9 kV, 10 KA class	No.	18	761.00	13,698.00	25.00	450.00		
A7	Control and Relay Panel complete:-Simplex type control and relay panels complete as per specifications:-								
1	66/11 kV Power Transformer	No.	1	6,68,000.00	6,68,000.00	3,332.00	3,332.00	29,585.00	29,585.00
	Note:- 1) All the C&R panels and associated panels shall be of one and the same make for uniformity and interchangeability of Components. 2) The Electronic Tri-vector meter with ABT features has to be provided both on HT side and LV side of transformer								
A8	STATION STRUCTURES :								
a)	66 kV Station Structure fabricated out of galvanised mild steel including Bolts and Nuts (Approx. Unit Wt. in MT add 5% towards B & N)								
1	Station Towers (Vertical 6T1) (0.91MT)	Nos/MT	6/5.46	82,764.50	4,96,587.00	2,822.04	16,178.76		
2	Station beams (6B1) (0.412MT)	Nos/MT	03 / 01.24	37,471.40	1,12,414.20	2,822.04	3,662.44		

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
b)	11 kV ODS and take off structure								
1	Supplying and erection of D.P structure with all accessories using 9 mts long, 145 KG WL suitable for mounting roaster GOS.	Set	5	30,000.00	1,50,000.00	5,000.00	25,000.00		
2	Supplying and erection of DP structure with all accessories for auxiliary transformer	Set	1	50,000.00	50,000.00	5,000.00	5,000.00		
A9	MOUNTING STRUCTURES : including Bolts & Nuts (Lattice type)								
1	66 kV Isolators live point height 4600mm (0.72 MT per Structure)	No/ MT	04/2.88	65,484.00	2,61,936.00	2,135.34	6,149.79		
2	66 kV Current transformer & 11 kV NCT's (0.190 MT per Structure)	No/ MT	7/1.33	17,280.50	1,20,963.50	2,135.34	2,840.01		
3	Voltage transformer, 66 kV . (0.190 MT per Structure)	No/ MT	03/0.57	17,280.50	51,841.50	2,135.34	1,217.15		
4	Lightening arrestors, 66 kV . (0.1400 MT per Structure)	No/ MT	06/0.84	12,733.00	76,398.00	2,135.34	1,793.69		
5	Pedestal insulators, 66 kV . (0.1500 MT per Structure)								
a)	66 kV Pedestal insulators (For bus)	No/MT	03/0.45	13,642.50	40,927.50	2,135.34	960.90		
b)	66 kV High Pedestal insulators (for transformer)	No/MT	03/0.45	13,642.50	40,927.50	2,135.34	960.90		
6	For 11 kV UG Cable terminating structure - (0.2200 MT suitable for bolted type)	No/ MT	01/0.22	20,009.00	20,009.00	2,135.34	469.78		
A10	BUS BAR FORMATION :								
1	Drake ACSR	Mtrs	300	242.00	72,600.00				
3	Earth wire 7/3.15 mm steel with clamps/lugs	Mtrs	100	62.00	6,200.00				
4	Formation of Main/Cross bus with Single Drake	Bay	1			7,395.00	7,395.00		
5	Formation of Main/Cross bus with Single Drake for 11 kV	Bay	3			7,395.00	22,185.00		
6	Formation of Main/Cross bus with Single Coyote for 11 kV	Bay	8			6,152.00	49,216.00		
A11	POST INSULATORS :Cylindrical solid core as per IS5350, part-ii & iii								
1	66 kV class, 1Unit/ stack	Stacks	12	4,685.25	56,223.00	198.00	2,376.00		
ii)	DISC INSULATORS & HARDWARES								
1	Single Tension string using 6 units of each 11kV, 90 KN Disc insulator along with Bolted type Tension clamp and hardware suitable for Drake ACSR.(66 kV)	String	6	4,512.14	27,072.84				
2	Single Suspension string using 6 units of each 11 kV, 90 KN Disc insulator along with suspension clamp and hardware suitable for Drake ACSR.(66 kV)	String	3	4,005.14	12,015.42				

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
A12	HARDWARES :								
1	Fired wedge Connector type-T- Clamp suitable for Drake - Drake	Nos.	6	2,598.00	15,588.00				
2	Fired wedge Connector type-T- Clamp suitable for Coyote - Drake (for 66 kV line side)	Nos.	6	1,935.00	11,610.00				
3	Post insulator clamp suitable for Single Drake ACSR and 66kV Solid core insulator	Nos.	9	689.00	6,201.00				
A13	Auxiliary Transformer:								
1	Supply and erection of Station Auxiliary Transformer with oil, outdoor type, 100 kVA, 11 kV/433 V, 3 Ph, Vector group Dyn 11 off load tap changer(5 taps) with step voltage of 2.5% along with DOLO/HG-fuse unit, LT protection kit, Distribution box and other accessories as per specification.	No.	1	2,29,659.00	2,29,659.00	2,500.00	2,500.00		
A14 (a)	LTAC panel (Indoor):-415 V, as per technical specification, comprising of Volt meter, Ammeter & 1 no of ETV meter, 1 I/C MCCB 200A + 2 nos 3 phase, 63A OG HRC fuse + 2 nos 3 phase 32A OG HRC fuse + 6 nos 3 phase 16A HRC fuse etc complete with all necessary protection	No.	1	1,11,000.00	1,11,000.00	3,528.00	3,528.00		
(b)	AC Distribution box (out door):-Single front type with 6 terminals, 750 x 1350 x 300 mm one I/C of 100 A MCCB, 20 KA+ 6 O/G 16 A MCB + 1 O/G of 100 A HRC Fuse panel 415 V outdoor type	No	1	61,000.00	61,000.00	2,500.00	2,500.00		
A15	LT POWER armoured UG CABLE as per specification :								
1	1.1 kV PVC Insulated 95 Sq mm Aluminium Cable, 4 Core with glands/ lugs/ ferrules	Mtr	75	540.00	40,500.00	10.00	750.00		
1	1.1 kV PVC Insulated 25 Sq mm Copper Cable, 4 Core with glands/ lugs/ ferrules	Mtr	50	550.00	27,500.00	10.00	500.00		
A16	STATION BATTERY & BATTERY CHARGER :								
1	110 V, 100 AH, Battery set consisting of 55 No. cells with accessories as per specification	Set	1	3,56,000.00	3,56,000.00	8,320.00	8,320.00		
2	Battery charger suitable for '1 X 110 V, 100 AH, Battery set consisting of 55 No. cells with float cum booster type battery charger as per specification	Set	1	1,10,000.00	1,10,000.00	1,333.00	1,333.00	21,303.00	21,303.00
A17	DC Distribution panel indoor type as per technical specification comprising of Earth faulty indicator, Indication circuit for AC main failure, 1 No. 100A SFU for 1C + 12 Nos., 32A SFU for OG etc., complete.	Nos.	1	80,000.00	80,000.00	2,500.00	2,500.00		

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
A18	PVC insulated Copper Control Cable with Lugs / Ferrules/glands as per technical specification 1.1 KV class.								
	Size of cable:								
	1 19 Core 2.5 Sq.mm.	Mtr	1,000	388.00	3,88,000.00	10.00	10,000.00		
	3 4 Core 6.0 Sq.mm.	Mtr	1,000	199.00	1,99,000.00	10.00	10,000.00		
	3 4 Core 2.5 Sq.mm.	Mtr	600	105.00	63,000.00	10.00	6,000.00		
	6 2 Core 6.0 Sq.mm.	Mtr	500	124.00	62,000.00	10.00	5,000.00		
A19	2 Core 2.5 Sq.mm.	Mtr	300	72.00	21,600.00	10.00	3,000.00		
	11 kV Switchgear								
1	11 kV, 500 MVA, metal clad VCB switchgear (1600 A for incomer and 1250 A for feeders), outdoor type each comprising of 1IC+6F+1CB+1AP) Remote Annunciation cum control panel) with CTs & PTs and terminal connectors suitable for Drake/Coyote ACSR etc, complete as per technical specification.								
	Note:- 1. Simplex type Annunciator panel shall be provided for switchgear (consisting of incomer, feeders and bus coupler). 2. For capacitor bank:- The capacitor bank panel shall be same as that of the 11 kV bank i.e., incomer panel in all respect. In addition to relays provided in the 1/c the following addition relays to be provided. 1. Circulating current relay 2. Under voltage relay 3. Timer relay	Set	1	46,55,000.00	46,55,000.00	17,991.00	17,991.00	49,127.25	49,127.25
A20	Capacitor Bank								
1	Design, Engineering, supply, erection (including civil works), testing & commissioning of 2.9 MVAR, 12.1 kV Capacitor Bank, star connected, Double Bank with internal fuses, terminal connectors with suitable neutral CT and station class LAs, 0.2% series reactor on neutral side with mounting structures for NCT, Capacitor Bank, station class LAs, Series reactor etc., complete as per specification (including testing & commissioning).	Set	1	3,77,000.00	3,77,000.00	6,000.00	6,000.00		
	11 kV UG cable with the required cable terminations at both ends, a) One run of 11 kV, XLPE 95 sq.mm AL, 3 core cable (to be run for Auxiliary Transformers from 11 kv switch Gear to Auxiliary Transformer).	Mtrs	50	595.98	29,799.10	52.00	2,600.00		
b)	b) 11 kV XLPE cable, 1000 sq. mm. (2 runs of 1CX1000 sq mm) Aluminium cable from 66/11 kV transformers to 11 kV switchgear.	Mtrs	250	1,139.97	2,84,992.50	52.00	13,000.00		

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
c)	c) 11 kV XLPE cable, 240 Sq. mm Aluminium cable 3 core to be run from 11 kV Switch gear to 11 kV take off DP structure.	Mtrs	150	1,015.00	1,52,250.15	52.00	7,800.00		
d)	d) Cable termination kits suitable for following sizes as per 1)95								
	Technical specification sq mm 3 core								
	1a) indoor	Nos	1	3,556.00	3,556.00	3,009.00	3,009.00		
	1b) outdoor	Nos	1	2,662.58	2,662.58	3,009.00	3,009.00		
	2) 1000 sq mm Single core								
	2a) indoor	Nos	6	3,000.00	18,000.00	3,009.00	18,054.00		
	2b) Outdoor	Nos	6	3,300.00	19,800.00	3,009.00	18,054.00		
	3) 240 Sq mm three Core								
	3a) Indoor	Nos	6	3,000.00	18,000.00	3,009.00	18,054.00		
	3b) Outdoor	Nos	6	3,000.00	18,000.00	3,009.00	18,054.00		
A22	FIRE FIGHTING EQUIPMENTS WITH NECESSARY MOUNTING STANDS :								
1	1 Foam type extinguisher (Mechanical) 50 Ltr. capacity	No.	4	10,075.00	40,300.00				
2	2 Foam type extinguisher (Mechanical) 9 Ltr. capacity	No.	4	3,336.00	13,344.00				
3	3 Water type (gas pressure type) 9 Ltr. capacity	No.	6	1,973.00	11,838.00				
4	4 Carbon di-oxide type 6 lts Capacity	No.	6	6,421.00	38,526.00				
5	5 Sand type G.I Buckets 9Ltr. Capacity	No.	12	411.00	4,932.00				
6	6 Steel stands for above to have 4 buckets to each stand.	No.	3	1,611.00	4,833.00				
A23	MAINTENANCE TOOLS AND PLANTS :								
1	1 Portable (mobile) oil pumps (1/2 HP Air pump 500 to 1000 gallons)	No.	1	13,808.70	13,808.70				
2	2 Telescopic ladder Aluminium 6 Mtr. Height	No.	1	29,919.52	29,919.52				
3	3 Ring spanner set	Set	1	600.00	600.00				
4	4 Tube spanner set	Set	1	1,300.00	1,300.00				
5	5 Pipe wrench 24 inch	Nos.	2	1,059.94	2,119.88				
6	6 Pipe wrench 18 inch.	Nos.	2	615.06	1,230.12				
7	7 Hydraulic crimping tools up to 1000 Sq.mm	No.	1	47,563.30	47,563.30				
8	8 Rubber hand gloves (15 kV tested)	Pairs	3	199.66	598.98				
9	9 Hand torch 5 Cells	Nos.	2	598.98	1,197.96				
10	10 Hand torch 3 Cells	Nos.	2	506.52	1,013.04				
11	11 Insulated cutting plier 12 inch size	Nos.	3	268.00	804.00				
12	12 Insulated cutting plier 8 inch size	Nos.	3	280.00	840.00				
13	13 Line live tester	Nos.	2	211.72	423.44				
14	14 Screw driver 18"	Nos.	3	198.32	594.96				

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
15	Screw driver 12"	Nos.	3	127.30	381.90				
16	Hammer 8 lbs	Nos.	2	339.02	678.04				
17	Hammer 2 lbs	Nos.	2	170.18	340.36				
18	Chain pulley block 5 ton cap	No.	1	32,988.12	32,988.12				
19	Hydraulic jack 5T capacity	Nos.	4	4,806.58	19,226.32				
20	Pipe derrick suitable for lifting 3 MT and lift of 6 Mtr. height.	No.	1	19,085.62	19,085.62				
21	Allen keys	Set	1	325.62	325.62				
22	Box spanners	Set	1	4,877.60	4,877.60				
23	Transil oil di-electric break down test kit	No.	1	99,729.50	99,729.50				
24	Insulation megger 2.5 - 5 kV	No.	1	52,166.20	52,166.20				
25	Insulation megger 500 V	No.	1	14,576.52	14,576.52				
26	SF-6 Gas leak detector / Gas filling.	No.	1	44,494.70	44,494.70				
27	Multimeter electromechanical	No.	1	3,068.60	3,068.60				
28	Multimeter Electronic	No.	1	6,674.54	6,674.54				
29	Hydrometer	No.	1	613.72	613.72				
30	DC Voltmeter range -5V to +5V	No.	1	1,841.16	1,841.16				
31	Hydrometer syring suitable for vent holes	No.	1	613.72	613.72				
32	Specific gravity correction chart	No.	1	613.72	613.72				
33	Wall mounting type holder for hydrometer	No.	1	1,841.16	1,841.16				
34	Thermometer with wall mounting holder	No.	1	1,841.16	1,841.16				
35	Rubber apron	No.	1	1,303.82	1,303.82				
36	Pipette	No.	1	537.34	537.34				
37	Protective goggles	No.	1	613.72	613.72				
38	Acid resisting jars (4 pint capacity)	No.	1	613.72	613.72				
39	Rubber shoes knee height	Pairs	2	1,457.92	2,915.84				
40	Glass funnel	Nos.	2	460.96	921.92				
41	Grounding sticks	Nos.	6	4,450.14	26,700.84				
A24	MISCELLANEOUS ITEMS :								
1	Rubber mats 1000 mm x 2000 mm x 12 mm size tested for 15KV class	No.	4	2,500.00	10,000.00				
2	First aid box.	No.	1	441.00	441.00				
3	Shock treatment charts, hard board, liminated with coloured pictures & literature both in Kannada & English.	No.	1	1,000.00	1,000.00				
4	Water filter / Water purifier : Wall mounting type (Aqua-guard type).	No.	1	6,000.00	6,000.00				
5	Sub-station name board duly painted as per specification including erection & civil works	No.	1	7,500.00	7,500.00				
6	Fixograph of size 1.5m x 2.5m with English / Kannada alphabets.	Set	1	4,000.00	4,000.00				

No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
7	Door locks 7 levers (Navtal make) (Sizes and capacities to be got approved)	No.	5	300.00	1,500.00				
8	Danger Board (prohibited) with support structure including fixing in front of the gate	No	1	3,500.00	3,500.00				
9	Equipment name plates and earthing name plates including fixing at outdoor yard	No	31	150.00	4,650.00				
A25	Furniture for control room, staff and maintenance, staff, godrej / featherlite / chandan make :								
1	Steel Almirahs 6 1/2 feet	No.	2	8,000.00	16,000.00				
2	Steel Almirahs 6 1/2 feet with glass panel doors.	No.	1	7,500.00	7,500.00				
3	Officer's tables	Nos.	2	8,000.00	16,000.00				
4	Steel slotted angle rack (big size)	No.	4	2,000.00	8,000.00				
5	Steel slotted angle rack (small size)	No.	4	1,500.00	6,000.00				
6	Steel dust bins	No.	4	200.00	800.00				
7	Executive Revolving chairs	No.	2	6,000.00	12,000.00				
8	'S' type arm chairs	No.	6	800.00	4,800.00				
9	Steel folding chairs	No.	4	250.00	1,000.00				
A26	Earth Mat formation :								
1	Excavation, formation, refilling for earth mat	CMT	1,038	100.00	1,03,800.00				
2	Supplying and laying MS.Flat 50 x 6 mm flat welding and applying ACB paint to welded portion and covering with soil as per drawing/standards without Sodium Bentonate clay (all materials to be supplied by the contractor)	Rmtr.	2,330	135.00	3,14,550.00				
3	Grounding of equipments with 50 x6 mm G I flat and connecting equipments to the earth mat/ground pit including all connected works.	Rmtr.	466	226.00	1,05,316.00				
4	Providing 25mm dia, 1.05mtr. long Earthmat Spike of MS Rod including bending top 50mm etc and connecting to earthmat as per specification	No.	128	260.00	33,280.00				
5	Providing C.I. Pipe of 100mm ID 13mm thick 2.75 mtr. long with 2 part GI Flat 50x6mm clamp welded allround the pipe etc., including cost of excavation (all materials supplied by contractor)	set	31	7,370.00	2,28,470.00	2,011.00	62,341.00		
6	Supplying and fixing 450mm dia x 450mm height 1.5" to 2" Hume pipe collars for earth pits.	No.	31	864.00	26,784.00				
A27	STATION & YARD LIGHTING (OUTDOOR)								
1	Supplying and erection of Fabricated supporting structures including foundation(9mtrs height swaged or welded MS tubular poles).	No.	8	6,400.00	51,200.00				

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material			Erection charges			Testing and Commissioning charges		
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Amount (in Rs.)
2	Supplying and fixing and wiring of 250 W high pressure sodium vapour street light fittings deep drawn aluminium for control gear finished stove enamel grey glossy with canopy interval with pair reflection duly wired with Porcelain holder choke igniter and HPE condenser including sodium vapour lamp (Mysore Lamps)	Set	8	7,007.00	56,056.00							
3	Supplying and laying 1.1 kV LT UG cable (2 core 10 Sq.mm) PVC insulated galvanised steel wire / tape armour cable in the existing trench / stone ware / running above the ground level using necessary fixtures with suitable termination with guard.	Mtr	250	138.00	34,500.00							
4	Supplying 32 mm dia A class G.I. pipe bracket 2 Mtr. long bent at suitable angle and fixing the brackets to street light fittings to RCC poles using suitable clamps bolts and nuts and wiring using 3/20 copper wire and 15 A fuse.	Set	8	120.00	960.00							
5	Supplying and fixing inspection box switch board control box made out of 16 SWG MS sheet including fabricated with one coat of primes and two coats of approved paint of size 200x90x65 mm.	No.	8	1,000.00	8,000.00							
6	Fixing of control box on the angle iron mounting at the yard inclusive of connecting of mounting and fixing of weather proof control box to the mounting.	No.	8	150.00	1,200.00							
7	Supplying and fixing Porcelain fuse channel with cutout 60 A.	No.	8	665.00	5,320.00							
8	Supplying and fixing of 30 A DPST.	No.	1	88.00	88.00							
9	Supplying and fixing PVC conduit pipe and accessories of approved gauge of 2 mm thick 25 mm dia with 2 of 3/20 copper wire.	Mtr	16	11.00	176.00							
A28	Miscellaneous and other unforeseen materials				1,17,534.83			49,090.59			49,922.75	
	Sub- total				2,48,00,000.00			6,00,000.00			2,50,000.00	
A29	Scattered area mobilization allowance at 5% on labour							30,000.00				
A30	Allowance to take care of Contractors overhead @ 15% on Labour							90,000.00				
A31	TOTAL				2,48,00,000.00			7,20,000.00			2,50,000.00	
Note: For the DPR purpose the total weight of the Power transformer is taken for erection of the power transformer and a maximum of 50 meters is taken for the movement of the power transformer. However while executing the work, the actual distance and weight of the transformer for movement and actual transportation weight for the erection of the transformer shall be taken. The Testing and commissioning charges are based on Turnkey work. If the work has to be executed on labour contract basis, the same may be altered suitably.												

KARNATAKA POWER TRANSMISSION CORPORATION LTD

Establishing 1x12.5 MVA 66/11 kV Substation at Kunur, Kanakapura Taluk, Ramanagara District

CIVIL ENGINEERING WORKS - PART ' B '

Sl No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6
SCHEDULE OF ITEMS FOR ASSOCIATED CIVIL WORKS AND STRUCTURES :					
C1	Yard leveling:				
1	Yard leveling: (For switchyard area and approach road) Earth excavation for Levelling the ODS yard to required RL including cutting, Transporting the excavated stuff to the place shown, in all types of soil and strata including Hardrock and filling the same where ever required with available earth including levelling the approach road length from main road to station to required line and gradient with all lead and lift etc., complete.including compaction (Hard soil)	CMT	861.66	226.60	195252.16
2	Filling the yard with approved new/borrowed earth in layers of 250 mm loose thickness, removal of roots and other organic materials etc., breaking of clods, consolidation/ compaction using PRR duly adding water to achieve 96% proctors density with all leads and lifts etc complete as per specifications, drawings and directions of the Engineer incharge of the work.	CMT	642.02	379.68	243762.15
C2					
1	66 kV Towers (Vertical 6T1)	Nos.	6	58421.60	350529.60
2	66 kV Isolators. (0.72 MT per tower)	Nos.	4	12720.50	50882.00
3	Current transformer. 66 kV & 11 kV NCT's . (0.190 MT per tower)	Nos.	7	6643.50	46504.50
4	Voltage transformer. 66 kV . (0.19 MT per tower)	Nos.	3	5263.30	15789.90
5	Lightening arrestors. 66 kV . (0.14 MT per tower)	Nos.	6	5304.50	31827.00
6	Pedestal insulatorsfor 66 kV side. (0.15 MT per tower)	Nos.	3	5304.50	15913.50
7	High pedestal insulatorsfor 66 kV side. (0.15 MT per tower)	Nos.	3	6200.60	18601.80
8	11 kV Cable terminating structures for LV side of 66/11 kV Tr.. (0.22 MT per Structure)	Nos.	1	6200.60	6200.60
9	9.0 Mtr.. Long RCC pole 300 KG WL for DP structure	Nos.	10	2575.00	25750.00
10	9.0 Mtr.. Long RCC pole 145 KG WL for Auxiliary transformer	Nos.	2	2575.00	5150.00

Sl No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
11	12.1 kV 2.9 MVAR star connected capacitor bank	Nos.	1	26780.00	26780.00
C3	Equipment Foundation:				
	Transformer foundation & associated rail track: Design, Engineering, supply of materials/equipments, labour & construction of Transformer and radiator foundations, rail tracks (Concrete grade M-20) including all associated works, jacking pads, anchor block, MS gratings, gravel filling, pylon support system including the cost of excavation in all types of soil/rock, back filling with available approved earth or borrowed/new earth, disposal of surplus soil/rock to the places directed, concrete (RCC M-20 grade and lean concrete 1:4:8), strengthening of foundation in expansive/BC soil, reinforcement steel, structural steel, form work, grouting, jelly, painting, curing, sundries and other items not mentioned herein but required for the completion of work as per technical specification, drawing and directions of the Engineer in-charge of work (foundation for radiators and cooling system is only for 100 MVA Transformer and above)				
1	POWER TRANSFORMER : Power Transformer 12.5 MVA, 66/11 kV Delta / Star, Dynll, 3 Ph, 50 Hz, Core type winding with OLTC, RTCC panel, etc., complete filled with Transil oil with 10% spare oil.	No	1	140646.50	140646.50
2	66 kV, 1250 A, 31.5 KA SF6 CB	No.	1	29015.10	29015.10
3	Platform with size stone cement concrete for erection of 100 kVA, 11kV/433V Auxiliary Transformer	No	1	20445.50	20445.50
4	11kV MCVCB, 500 MVA 1600 A for incomer and 1250 A for feeder Out door type switchgear comprising of 11+6F+1CB+1AP with CTs & PTs etc	Set	1	456835.90	456835.90
5	RCC shelter : Providing & Construction of AC roof shelter as per technical specification, design and drawing including cost of materials and labour (Size 7500x5500x3750mm) suitable for 11C x 6OGF+1CB switchgear	No.	1	156580.60	156580.60
C4	Site Surfacing				
1	Jelly spreading : Providing and spreading 20/25 mm granite metal jelly in station yard including conveying, stacking for measurement, spreading in layer of 100 mm over all.	CMT	230	1469.81	338056.30
C5	Cable ducts :				

Sl No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
1	Cable ducts : Construction of RCC Main Cable duct " SSY-I " type of internal dimension 1050 x 1160 mm as per Technical specification design and drawings, including material, cement, steel, flats.	Mtr.	30	10403.00	312090.00
2	Cable ducts : Construction of RCC Main Cable duct type " SSY-II " type of internal dimension 800 x 800 mm as per Technical specification design and drawings, including material, cement, steel, flats.	Mtr.	45	8579.90	386095.50
3	Cable ducts : Construction of RCC Main Cable duct with 2 nos of NP2 Pipe with internal dimension 450 x 450 mm as per Technical specification design and drawings, including material, cement, steel, flats.	Mtr.	50	2399.90	119995.00
4	Cable ducts : Construction of RCC Main Cable duct with 1 nos of NP2 Pipe with internal dimension 450 x 450 mm as per Technical specification design and drawings, including material, cement, steel, flats.	Mtr.	150	1215.40	182310.00
5	Inspection Chambers Construction of Brick masonry inspection chamber with cast iron cover of size 650 x 450 mm as per technical specification design and drawing	No.	5	7252.23	36261.15
6	Inspection Chambers Construction of Brick masonry inspection chamber with cast iron cover of size 450 x 450 mm as per technical specification design and drawing	No.	5	5504.32	27521.60
7	Construction of RCC duct across road crossing for " SSY-I/SS-2 " type Cable ducts as per technical specification design and drawings.	No.	1	104648.00	104648.00
C6	Road Works				
1	Road Works : Design and construction of 5 meter RCC roads with suitable gradient and walkways/shoulders within sub-station as per specification, layout and sectional detail drawing etc., complete in all respect (As per drawing enclosed) 5 meter wide	Mtr.	200	9632.56	1926512.00
2	Culverts : Providing and Constructing culverts across approach road using NP-3 class RCC Hume pipes with RCC wing walls as per design and approved drawing, specifications and directions of Engineer in charge of work, including cost of material labour complete	No.	1	58988.10	58988.10
C7	Storm water drains :				
1	Storm water drains : Providing and Constructing RCC storm water drains as per technical specification design and drawing including cost of material labour complete (both side wall)	Rmtr.	50	2801.60	140080.00

Sl No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
2	Storm water drains : Providing and Constructing storm water drains as per technical specification design and drawing including cost of material labour complete (One side wall and one side the existing structure used as wall	Rmtr.	225	1658.30	373117.50
C8	Switch Yard fencing :				
1	Providing and fixing chain link fencing for the switch yard using RCC fencing poles & chain link mesh as per technical specification, design & drawing including cost of all materials labour etc., complete (for 110/66 kV Stations)	Mtr.	235	2982.06	700783.16
2	Providing and fixing MS gate for the switch yard with a 2.35 x 1.25 Mtr wicket gate and a 2.35 x 2.0 meter main gate fitted over column structure made out of 2 Nos of 125 x 65 mm ISMC as per technical specification (110/66 kV stations).	No.	1	87817.80	87817.80
C9	Oil sump pit : Providing & Construction of Oil sump pit (suitable for 20000 lts) as per technical specification, design and drawing including cost of materials and labour	Lot.	1	177469.00	177469.00
C10	Control Room Building :				
	Control Room Building :Type CBR- type-1- 17.5mX7.5m over all size Design, Engineering, and construction of control room building including necessary treatment to sub-soil depending upon the soil condition including providing internal water supply arrangements, electrification to the control room building, providing sanitary arrangements (internal & external) and internal RCC cable ducts as per enclosed drawing, specifications and directions of engineer in charge of work including cost of all material, labour etc., complete. The various cable ducts within control room are in the scope of the bidder including internal water supply and sanitary works. Note: In city areas where underground drainage of local bodies exists, the effluent pipe/final discharge point shall be connected to the existing system. Obtaining necessary approval for permission and payment of necessary fees , road cutting, observing usual formalities etc. is included in the scope of work. Modular Multi-diameter cable sealing system which is water proof, fire proof & rodent proof consisting of frames, blocks, and accessories to be installed wherever the electrical (control/power cables)/ instrumentation/ communication cables under ground and over-ground enter or leave control room as per specification	No.	1	3248890.75	3248890.75

SI No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
C11	water supply & Sewerage system				
	Water supply system: Design, Engineering and providing water supply systems for drinking and earth pits as per approved drawing and specifications. Work includes drilling of one good yielding borewell, erection electrification and commissioning of suitable pumpset, providing synthetic water storage tank of 2000 lts capacity, providing water supply mains of 50mm dia. B class GI pipe inside borewell and 50 mm dia 80 schedule PVC threaded pipe from borewell to water tank and distributary mains with 80 schedule PVC threaded pipes of 50/40/32/25mm GI spouts, concrete supports, gun metal gate valve/ ball valve, hose pipe connectors, GI fittings & specials, necessary earth work for laying pipes below ground etc., complete to provide water supply to control room building, earth pits etc., complete as per approved drawing, specifications and directions of engineer incharge of work. Providing internal and external sewerage system for the switchyard and building in the Sub-stations as per technical specification.	No.	1	824922.82	824922.82
C12	Toe wall, Retaining Wall and pitching				
1	Providing size stone masonry Toe wall to the security fencing as per the approved/enclosed drawing, technical specification and directions of Engineer incharge work including cost of all materials labour etc., complete. Note:- Only size stone masonry will be measured and paid at the accepted rate. The rate shall include the cost of all the items of work complete in all respect.	Cmt	100	2276.30	227630.00
1	Retaining wall:- Providing & construction of retaining wall in CM-1:6 using granite stones of size not less than 20 cm high with bond stones two meters apart including stone faces chistle dressed etc., complete including curing, scaffolding, frame works as per technical specification and drawings.	Cmt	375	4057.85	1521693.68
C13	Miscellaneous Civil Engineering Works	L/S			18650.84
C14	TOTAL				12650000.00
Note: For the DPR purpose the foundation and other civil works are designed for the hard soil condition. However while executing the work, the foundation and other civil works shall be suitably designed based on the actual soil condition.					

KARNATAKA POWER TRANSMISSION CORPORATION LTD.

Construction of 66kV SC line on DC towers from existing 66/11 kV Harobele station to proposed 66/11 kv Kunur Sub-Station in Kanakapura taluk, Ramanagara district, by using 66 kV narrow based KPTCL design towers for a distance of 7.297 Kms

ABSTRACT -II

Sl. No.	Particulars	Amount in Rs.
1	Material Cost	12000000.00
2	Spares at 3 % on Material Cost	360000.00
3	Transportation & Insurance charges @ 4 % on Material Cost + Spares	494400.00
4	Labour Charges	1020000.00
5	Civil Engineering Works	3600000.00
6	Service tax @ 15% on 40% of Civil Engineering cost	216000.00
7	Works contract Tax @14.5% on 70% of Civil Works	365400.00
8	Service tax @ 15% on Labour charges	153000.00
9	Total Works Cost	18208800.00
10	Establishment Charges at 5% on Works cost	910440.00
11	Contingencies at 2 % on Works cost + Establishment Charges	382384.80
12	Performance Guarantee and loss of interest on margin money for Bank Guarantee @ 0.1% on Works Cost	18208.80
13	Interest during construction @ 4% on (9+10+11+12)	780793.34
14	Total estimated cost for comparison purpose (9+10+11+12+13)	20300626.95
15	Statutory Charges such as PTCC Clearance Charges, Electrical Inspectorate Charges (payment towards CA & NPV charges to forest department) etc.,	3000000.00
16	Forest clearance/Tree cut and crop cut compensation	7090929.00
	Total	30391555.95
Say Rs. 303.92 Lakhs		

KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

Construction of 66kV SC line on DC towers from existing 66/11 kV Harobele station to proposed 66/11 kv Kunur Sub-Station in Kanakapura taluk, Ramanagara district, by using 66 kV narrow based KPTCL design towers for a distance of 7.297 Kms

Sl. No.	Particulars	Unit	Quantity	Material Cost		Labour Charges	
				Rate (Rs)	Amount (Rs)	Rate (Rs)	Amount (Rs)
B1	Survey						
1	Check survey using their own equipment for 66 kV Plain terrain	Km	7.297			2864.00	20898.61
B2	Tower 66 kV NBT KPTCL design						
I	Tower type 66 kV DC-A						
1	66 kV A-Normal (2.003MT per tower)	No/MT	4/8.012				
2	66 kV A - 3 Mtrs Extension (2.336MT per tower)	No/MT	15/35.04				
3	66 kV A - 6 Mtrs Extension (2.652MT per tower)	No/MT	5/13.26				
II	Tower type 66 kV DC-C						
1	66 kV C - Normal (3.128 MT per tower)	No/MT	8/25.024				
2	66 kV A - 3 Mtrs Extension (3.691 MT per tower)	No/MT	1/3.691				
III	Tower type 66 kV DC-D						
1	66 kV D - Normal (3.981 MT per tower)	No/MT	1/3.981				
2	66 kV D - Normal with Box cross arm (4.762MT per tower)	No/MT	1/4.762				
	Sub Total :	No/MT	35/93.77	85000.00	7970450.00	2759.00	258711.43
B3	Stub setting templates						
	Setting of stub templates and aligning dismantling and transportation of templates from one location to another location for 66 kV	Loc	35			500.00	17500.00
B4	Supply of Galvanised Bolts & Nuts	MT	5.705	119000.00	678895.00	2759.00	15740.10

Sl. No.	Particulars	Unit	Quantity	Material Cost		Labour Charges	
				Rate (Rs)	Amount (Rs)	Rate (Rs)	Amount (Rs)
B5	Tower accessories :						
1	Supplying and fixing GI angle 450 x 450 mm 1Mtr length with cleats, bolts nuts as per specification and fixing above 0.5 mts length each at inner and outer surface of tower to facilitate running of barbed wire AC device	Set	35			2374.00	83090.00
2	Supplying and fixing Barbed wire	Rmtr	1372			44.00	60368.00
3	Number Plates	No	35	155	5440.40	46.00	1610.00
4	Danger Boards	No	35	173	6050.10	46.00	1610.00
5	Circuit plate	No	35	155	5440.40	46.00	1610.00
6	Phase plate (Set of 6 No.)	Set	18	205	3690.36	137.00	2466.00
7	Earth bond 300 mm long	No	24	371	8908.32		
8	Earth bond 450 mm long	No	11	426	4687.32		
9	Grounding of tower with GI Pipe including the cost of GI pipe	Set	33	3010	99330.00	832.00	27456.00
10	Supplying & fixing counter poise earthing with GI flat where hard rock is encountered (including excavation charges)	Loc	2	2143.00	4286.00	1916.00	3832.00
B6	Conductor & Earth wire :						
1	Coyote conductor (with 1.5% sag)	Km	22.22	85000.00	1888646.45	7831.00	173999.89
2	Ground wire Plain Terrian	Km	7.30	62000.00	452414.00	3915.00	28567.76
3	Single Tension string of 5 units each of 90kV Disc Insulators along with hard ware for Coyote ACSR and arcing horn	Stack	66	3404.95	224726.70		
4	Double Tension string of 2x5 units each along with hardware for Coyote ACSR and arcing horn	Stack	3	7720.9	23162.70		
5	Single Suspension string of 4 units each along with hard ware for Coyote ACSR and arcing horn	Stack	72	3161.76	227646.72		
6	Double Suspension string of 2x4 units each along with hard ware for Coyote ACSR and arcing horn	Stack	3	6372.52	19117.56		

Sl. No.	Particulars	Unit	Quantity	Material Cost		Labour Charges	
				Rate (Rs)	Amount (Rs)	Rate (Rs)	Amount (Rs)
B7	Accessories for Conductor :						
1	M S C Joints suitable for Coyote ACSR	No.	5	423	2115		
2	Pre formed armour rods suitable for Coyote ACSR	No.	72	738	53136		
3	Repair sleeves suitable for Coyote ACSR	No.	5	205	1025		
4	P G Clamps suitable for COYOTE ACSR	No.	66	367	24222		
5	Vibration dampers for Coyote	No.	210	582	122220		
B8	Hardware for Earthwire :						
1	M S C Joints suitable for Ground conductor	No.	2	312.00	624		
2	Repair sleeves suitable for Ground conductor	No.	2	210.00	420		
3	P G Clamps suitable for GROUND ACSR	No.	22	275.00	6050		
4	Single Tension clamps (bolted type) suitable for Ground conductor	No.	22	842.00	18524		
5	Single Suspension clamps (bolted type) suitable for Ground conductor	No.	24	887.00	21288		
6	Tack welding of Bolts and Nuts (No of tower x 250)	No.	8750			12.00	105000.00
B9	Clearing of Bushes						
1	Clearing for bushes tree branches etc., upto 3 Mtr. width for detailed survey 66 kV Plain terrain	KM	7.297			854.00	6231.64
B10	Miscellaneous and other unforeseen materials.	L/S			127483.97		41308.59
	Sub-total				12000000.00		850000.00
B11	Scattered Mobilisation Allowance at 5% on labour						42500.00
B12	Allowance to take care of Contractors overhead @ 15% on Labour						127500.00
	TOTAL				12000000.00		1020000.00

KARNATAKA POWER TRANSMISSION CORPORATION LIMITED

Construction of 66kV SC line on DC towers from existing 66/11 kV Harobebe station to proposed 66/11 kV Kunur Sub-Station in Kanakapura taluk, Ramanagara district, by using 66 kV narrow based KPTCL design towers for a distance of 7.297 Kms

Civil Engineering Cost

Sl. No.	Particulars	Unit	Qty	Labour Charges	
				Rate	Amount
				(Rs)	(Rs)
1	Excavation for Foundation Including Back filling, Leveling and Consolidation				
a	Normal soil	CMT	178.57	292.01	52143.92
b	Partly submerged soil	CMT	44.64	437.24	19519.48
c	Hard rock with blasting/Hard laterite	CMT	44.64	792.59	35381.22
d	Dry fissured/Ordinary rock	CMT	625.00	1364.24	852649.60
2	Foundation Concreting				
i)	Concreting and curing 1 : 1.5 : 3	CMT	222.35	7739.16	1720802.23
ii)	1:3:6 C C Foundation	CMT	18.15	6800.58	123430.44
iii)	Steel Reinforcement (including material and labour)	MT	9.424	62294.40	587062.43
iv)	Back filling and levelling with available soil	CMT	563.07	143.89	81020.71
v)	Back filling and levelling with borrowed soil for hard rock and WBC(with 2 km lead)	CMT	89.29	407.20	36358.89
3	Miscellaneous and rounded off				91631.10
	Total				3600000.00

KARNATAKA POWER TRANSMISSION CORPORATION LTD.		
Construction of 66 kV line terminal bay at existing 66/11 kV Harobebe Sub-station in Kanakapura Taluk, Ramanagara District		
ABSTRACT-III		
Sl. No.	Particulars	Amount in Rs.
1	Material Cost	3000000.00
2	Spares at 3 % on Material Cost	90000.00
3	Transportation & Insurance charges @ 1.5 % on Material Cost + Spares	46350.00
4	Labour charges	90000.01
5	Civil Engineering Works	1300000.00
6	Service tax @ 15% on 40% of Civil Engineering cost	78000.00
7	Works contract Tax @14.5% on 70% of Civil Works	131950.00
8	Testing and commissioning charges	80000.00
9	Service tax @ 15% on Labour and testing & commissioning charges	25500.00
10	Total Works Cost	4841800.01
11	Establishment Charges at 5% on Works cost	242090.00
12	Contingencies at 1.5 % on Works cost + Establishment Charges	76258.35
13	Performance Guarantee and loss of interest on margin money for Bank Guarantee @ 0.1% on Works Cost	4841.80
14	Interest during construction @ 4% on (10+11+12+13)	206599.61
15	Total estimated cost for comparison purpose (10+11+12+13+14)	5371589.76
16	Statutory charges for payment to Civic bodies etc.,	100000.00
17	Electrical Inspectorate Charges	
	Total	5471589.76
Say Rs. 54.72 Lakhs		

KARNATAKA POWER TRANSMISSION CORPORATION LTD

Construction of 66 kV line terminal bay at existing 66/11 kV Harobe Sub-station in Kanakapura Taluk, Ramanagara District

T - A : Supply of materials, Erection and Commissioning

No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6	7	8	9	10
A1	Circuit Breaker: CIRCUIT BREAKER : SF-6 circuit breakers with semi pneumatic / pneumatic operated / Spring type operating mechanism, including mounting structure with rigid, bi-metallic terminal connector suitable for Drake ACSR conductor and mounting structure.								
1	66 kV, 1250 A, 40 kA SF6 CB	No.	1	5,63,000.00	5,63,000.00	9,976.00	9,976.00	29,585.00	29,585.00
A2	ISOLATORS : ISOLATORS : Isolators including marshalling box, terminal connectors suitable for Drake ACSR and solid core cylindrical post insulators.								
I	66 kV, 1250 A, 31.5 KA class double break manually operated isolator with terminal connectors suitable for Drake ACSR								
1	Upright mounting type with Earth switch. LPH 4.60 Mtr.	Set	1	2,24,000.00	2,24,000.00	3,332.00	3,332.00	333.00	333.00
2	Upright mounting type without Earth switch. LPH 4.60 Mtr.	Set	1	1,89,000.00	1,89,000.00	3,332.00	3,332.00	333.00	333.00
A3	Current Transformer CURRENT TRANSFORMER : Current transformer including Marshalling box, Single phase, oil filled outdoor type with rigid bimetallic terminal connectors suitable for Drake ACSR conductor.								
1	66 kV class, 31.5 KA, CT of ratio 400-200 / 1-1-1A for lines. For metering : Accuracy 0.2, Burden 10 VA For backup protection : Accuracy 5P20, Burden 30 VA For differential / Distance protection PS class, 1600 V	No.	3	95,000.00	2,85,000.00	1,107.33	3,322.00	3,286.67	9,860.00
	Note:- 1) All the CTs in each kV class shall be of one and the same make for inter-changeability & reliability of performance.								
A4	SURGE ARRESTOR : (Procelain housing) metal oxide, Gapless type as per technical specification								
1	60 kV, 10 KA, class - II	No.	3	20,000.00	60,000.00	166.67	500.00		
A5	Control and Relay Panel complete:-Simplex type control and relay panels complete as per specifications:-								
1	66/11 kV transmission line	No.	1	5,83,000.00	5,83,000.00	3,332.00	3,332.00	29,585.00	29,585.00

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
	Note:- 1) All the C&R panels and associated panels shall be of one and the same make for uniformity and interchangeability of Components.								
A6	STATION STRUCTURES :								
a)	66 kV Station Structure fabricated out of galvanised mild steel including Bolts and Nuts (Approx. Unit Wt. in MT add 5% towards B & N)								
1	Station Towers (Vertical 6Tl) (0.91MT)	Nos/ MT	3/2.73	82,764.50	2,48,293.50	2,822.04	8,089.38		
2	Station beams (6B1) (0.412MT)	Nos/ MT	02 / 0.82	37,471.40	74,942.80	2,822.04	2,441.63		
A7	MOUNTING STRUCTURES : including Bolts & Nuts (Lattice type)								
1	66 kV Isolators live point height 4600mm (0.72 MT per Structure)	No/ MT	02/1.44	65,484.00	1,30,968.00	2,135.34	3,074.89		
2	66 kV Current transformer (0.190 MT per Structure)	No/ MT	03/0.57	17,280.50	51,841.50	2,135.34	1,217.15		
3	Lightening arrestors. 66 kV . (0.1400 MT per Structure)	No/ MT	03/0.42	12,733.00	38,199.00	2,135.34	896.84		
4	66 kV Pedestal insulators (For bus 0.15 MT)	No/MT	03/0.45	13,642.50	40,927.50	2,135.34	960.90		
A8	BUS BAR FORMATION :								
1	Drake ACSR (including 66 kV side)	Mtrs	250	242.00	60,500.00				
3	Earth wire 7/3.15 mm steel with clamps/lugs	Mtrs	50	62.00	3,100.00				
A9	INSULATORS :								
1	Cylindrical solid core as per IS5350, part-ii & iii insulator 66 kV class, 1Unit/stack	Stacks	3	4,685.25	14,055.75	198.00	594.00		
1	Single Tension string using 1X5 units of each 11kV, 90 KN Disc insulator along with Bolted type Tension clamp and hardware suitable for Drake ACSR.(66 kV)	String	9	4,035.95	36,323.55				
2	Single Suspension string using 1X4 units of each 11 kV, 90 KN Disc insulator along with bolted type suspension clamp and hardware suitable for Drake ACSR.(66 kV)	String	3	3,052.76	9,158.28				
A10	HARDWARES :								
1	C- Clamp suitable for Drake - Drake	Nos.	3	2,598.00	7,794.00				
2	Post insulator clamp suitable for Single Drake ACSR and 66kV Solid core insulator	Nos.	3	689.00	2,067.00				
A11	PVC insulated Copper Control Cable with Lugs / Ferrules/glands as per technical specification 1.1 KV class. Size of cable:								
1	19 Core 2.5 Sq.mm.	Mtr	300	388.00	1,16,400.00	10.00	3,000.00		
2	4 Core 6.0 Sq.mm.	Mtr	350	199.00	69,650.00	10.00	3,500.00		

Sl No.	Name of the Equipment/Materials	Unit	Quantity	Supply of Material		Erection charges		Testing and Commissioning charges	
				Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)	Unit Rate (in Rs.)	Amount (in Rs.)
3	4 Core 2.5 Sq.mm.	Mtr	150	105.00	15,750.00	10.00	1,500.00		
4	4 Core 10.0 Sq.mm.	Mtr	100	317.00	31,700.00	10.00	1,000.00		
5	2 Core 2.5 Sq.mm.	Mtr	100	72.00	7,200.00	10.00	1,000.00		
A12	Earth Mat formation :								
1	Grounding of equipments with 50 x6 mm G 1 flat and connecting equipments to the earth mat/ground pit including all connected works.	Rmtr.	200	226.00	45,200.00				
2	Providing C.I. Pipe of 100mm ID 13mm thick 2.75 mtr. long with 2 part GI Flat 50x6mm clamp welded allround the pipe etc., including cost of excavation (all materials supplied by contractor)	set	3	7,370.00	22,110.00	2,011.00	6,033.00		
3	Supplying and fixing 450mm dia x 450mm height 1.5" to 2" Hume pipe collars for earth pits.	No.	3	864.00	2,592.00				
A13	Miscellaneous and other unforeseen materials								
	Sub- total				67,227.12		17,898.21		10,304.00
A14	Scattered area mobilization allowance at 5% on labour				30,00,000.00		75,000.00		80,000.00
A15	Allowance to take care of Contractors overhead @ 15% on Labour						3,750.00		
A16	TOTAL				30,00,000.00		11,250.00		
							90,000.01		80,000.00
Note: For the DPR purpose the total weight of the Power transformer is taken for erection of the power transformer and a maximum of 50 meters is taken for the movement of the power transformer. However while executing the work, the actual distance and weight of the transformer for movement and actual transportation weight for the erection of the transformer shall be taken. The Testing and commissioning charges are based on Turnkey work. If the work has to be executed on labour contract basis, the same may be altered suitably.									

KARNATAKA POWER TRANSMISSION CORPORATION LTD

Construction of 66 kV line terminal bay at existing 66/11 kV Harobe Sub-station in Kanakapura Taluk, Ramanagara District

CIVIL ENGINEERING WORKS - PART ' B '

Sl No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
1	2	3	4	5	6
	SCHEDULE OF ITEMS FOR ASSOCIATED CIVIL WORKS AND STRUCTURES :				
C1	Yard leveling:				
1	Yard leveling: (RL-95.6 mtrs)(For switchyard portion and approach road only) Earth excavation for Levelling the ODS yard to required RL including cutting, Transporting the excavated stuff to the place shown, in all types of soil and strata including Hardrock and filling the same where ever required with available earth including levelling the approach road length from main road to station to required line and gradient with all lead and lift etc., complete.including compaction (Hard soil)	CMT	200.00	226.00	45200.00
C2	Foundation: Design, Engineering, supply of all labours, materials and construction of RCC(M20 Grade)footings and pedestals of any section/ size including the cost of Excavation in all types of soil/rock, back filling with available approved earth or borrowed/new earth, disposal of surplus earth/rock to the places directed, Concrete(M20 Grade and Lean concrete 1:4:8), Reinforcement steel, form work, Grouting, under pinning, foundation strengthening in expansive/BC soil, curing, sundries and other items not mentioned herein but required for the completion of the work for the following station towers and equipments support structure as per technical specification, approved drawings and directions of the Engineer in-charge of the work.				
1	66 kV Towers (Vertical 6T1)	Nos.	3	58421.60	175264.80
2	66 kV Isolators. (0.72 MT per tower)	Nos.	2	12720.50	25441.00
3	Current transformer. 66 kV & 11 kV NCT's . (0.190 MT per tower)	Nos.	3	6643.50	19930.50
4	Lightening arrestors. 66 kV . (0.14 MT per tower)	Nos.	3	5304.50	15913.50
5	Pedestal insulatorsfor 66 kV side. (0.15 MT per tower)	Nos.	3	5304.50	15913.50

Sl No	PARTICULARS	UNIT	QTY	Unit Rate (in Rs.)	Amount (in Rs.)
C3	Equipment Foundation:				
1	66 kV, 1250 A, 40 KA SF6 CB	No.	1	29015.10	29015.10
C4	Site Surfacing				
1	Jelly spreading : Providing and spreading 20/25 mm jelly in station yard including conveying, stacking for measurement, spreading in layer of 100 mm over all.	CMT	40	1469.81	58792.40
C5	Cable ducts :				
1	Cable ducts : Construction of RCC Main Cable duct type " SSY-II " type of internal dimension 800 x 800 mm as per Technical specification design and drawings. including material, cement, steel, flats.	Mtr.	60	8579.90	514794.00
2	Cable ducts : Construction of RCC Main Cable duct with 2 nos of NP2 Pipe with internal dimension 450 x 450 mm as per Technical specification design and drawings. including material, cement, steel, flats.	Mtr.	50	2399.90	119995.00
3	Cable ducts : Construction of RCC Main Cable duct with 1 nos of NP2 Pipe with internal dimension 450 x 450 mm as per Technical specification design and drawings. including material, cement, steel, flats.	Mtr.	100	1215.40	121540.00
C4	Inspection Chambers				
4	Construction of Brick masonry inspection chamber with cast iron cover of size 650 x 450 mm as per technical specification design and drawing	No.	4	7252.23	29008.92
C5	Inspection Chambers				
5	Construction of Brick masonry inspection chamber with cast iron cover of size 450 x 450 mm as per technical specification design and drawing	No.	5	5504.32	27521.60
C6	Miscellaneous Civil Engineering Works				
C7	TOTAL	L/S			101669.68
					1300000.00

Note: For the DPR purpose the foundation and other civil works are designed for the hard soil condition. However while executing the work, the foundation and other civil works shall be suitably designed based on the actual soil condition.