

**SOUTHERN POWER DISTRIBUTION
COMPANY OF TELANGANA LIMITED**



**COST DATA FOR THE
YEAR 2020-21**



SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA. LIMITED
6-1-50, Corporate Office, Mint Compound, Hyderabad - 63

O/o Chief General Manager Projects,
4th Floor, Corporate Office, TSSPDCL,
Mint Compound, Hyderabad -500 004.

Memo No.CGM(P)/SE(P)/DE(RE)/D.No.490/2020, Dt:03-07-2020.

Sub: Projects – Approved Cost Data for the FY 2020-21- Communication - Reg.

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The Cost Data for FY 2020-21 is prepared by taking inputs from CGM/P&MM, CGM/Op/RRZone and CGM/Op/Rural Zone i.e. latest material purchase order rates received from P&MM wing and applicable SSR labour rates of GHMC and Non GHMC area for FY 2020-21 are received from Operation/RR Zone and Rural Zone.

In the preparation of Cost Data, maximum of GHMC and Non GHMC SSR rates are considered for labour rates and Material rates are inclusive of applicable GST taxes.

The approved cost-data for the FY 2020-21 is herewith enclosed. The soft copy is placed in 202/cgm-proj/ Cost-data FY20-21. The cost data for FY2020-21 is also available on the TSSPDCL website i.e., www.tssouthernpower.com.

This is issued with the concurrence of Chairman & Managing Director/TSSPDCL, vide Dt:30.06.2020.

Encls: As above.


Chief General Manager / Projects

To:

All Superintending Engineers/ Operation/
The Superintending Engineers/ Master Plan/
The Superintending Engineer/SCADA

Copy communicated to:

The Chief General Manager/Operation/
The Chief General Manager/Master Plan/
All the Chief General Managers / Corporate office / TSSPDCL

Copy submitted to

The Director (Projects & IT)/ TSSPDCL, Corporate Office, Mint Compound, Hyderabad.
The Director (Operation)/TSSPDCL, Corporate Office, Mint Compound, Hyderabad.
The Director (Finance)/TSSPDCL, Corporate Office, Mint Compound, Hyderabad.

COST DATA OF CENTRALISED MATERIALS FOR R.E. AND DISTRIBUTION WORKS

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
SUBHEAD - I : SUPPORTS AND FIXTURES, IRON, STEEL AND CEMENT										
1 (a)	RS Joists 175 x 85 mm.	PM-1988/19, dt. 01-06-2019	MT	58,410.00	45,000.00	4,500.00	49,500.00	8,910.00	18	MST00032
(b)	RS Joists 150 x 150 mm.	PM-1988/19, dt. 01-06-2019	MT	58,410.00	45,000.00	4,500.00	49,500.00	8,910.00	18	MST00029
2	MS Channel 100 x 50.	PM-2056/19, dt. 05-08-2019	MT	49,324.00	41,800.00	-	41,800.00	7,524.00	18	MST00012
3	MS Channel 75 x 40 mm	PM-2056/19, dt. 05-08-2019	MT	49,678.00	42,100.00	-	42,100.00	7,578.00	18	MST00013
4	MS Angle 65 x 65 x 6 mm.	PM-2056/19, dt. 05-08-2019	MT	49,170.60	41,670.00	-	41,670.00	7,500.60	18	MST00003
5	MS Angle 50 x 50 x 6 mm	PM-2056/19, dt. 05-08-2019	MT	49,170.60	41,670.00	-	41,670.00	7,500.60	18	MST00002
6	MS Flat 75x 8	Repeat PM-1805/18 dt. 05-11-2018.	MT	56,433.50	44,875.00	2,950.00	47,825.00	8,608.50	18	MST00015
7	MS Flat 50 x 6 mm	PM-2056/19, dt. 05-08-2019	MT	48,816.60	41,370.00	-	41,370.00	7,446.60	18	MST00014
8	MS Rod 20 mm.	Repeat PM-1805/18 dt. 05-11-2018.	MT	56,433.50	44,875.00	2,950.00	47,825.00	8,608.50	18	MST00019
9	MS Rod 16 mm.	PM-2056/19, dt. 05-08-2019	MT	45,902.00	35,400.00	3,500.00	38,900.00	7,002.00	18	MST00018
10	GI Stay wire 7/3.15 mm.	PM-1662/18, dt. 29-06-2018	MT	70,500.00	58,745.76	1,000.00	59,745.76	10,754.24	18	WRS00006
11	GI Stay wire 7/2.5 mm	PM-2275/19 dt. 27-01-2020	MT	59,000.00	48,800.00	1,200.00	50,000.00	9,000.00	18	WRS00007
12	GI wire 4 mm	PM-1920/19 Dt: 22-04-2019	MT	68,440.00	57,000.00	1,000.00	58,000.00	10,440.00	18	WRS00005
13	PSCC Pole (9.1 M) - 280 Kg WL	PM-2205/19 Dt: 30-11-2019	Nos.	2,948.82	2,400.00	99.00	2,499.00	449.82	18	PLS00004
14	PSCC Pole (8.0 M) - 140 Kg WL	PM-2252/19 Dt:16-01-2020	Nos.	1,534.00	1,150.00	150.00	1,300.00	234.00	18	PLS00001
15	PSCC Poles (11 Mtrs) 365 Kgs	PM-2226/19 Dt: 31-12-2019	Nos.	5,416.20	4,000.00	590.00	4,590.00	826.20	18	PLS00013
SUBHEAD - II : INSULATORS AND HARDWARE										
1	33KV Polymer Pin Insulators With GI Pins	PM-2066/19, Dt. 16-08-2019	Nos.	459.00	378.00	10.98	388.98	70.02	18	INS30008
2	33 KV Post Insulators	Rpt PM-1074/16, Dt. 27-03-2017	Sets	898.13	761.13	-	761.13	137.00	18	INS30004
3	33 KV Hard Ware Fittings (B&S)	PM-1298/17, Dt. 13-09-2017.	Sets	185.25	150.00	6.99	156.99	28.26	18	HWR00004
4	33 KV Polymer String Insulator (B&S)	PM-1312/17, Dt. 18-09-2017.	Nos.	282.40	239.32	-	239.32	43.08	18	INS30007
5	11KV Polymer Pin Insulators With GI Pins	PM-2186/19, Dt: 18-11-2019.	Nos.	157.84	125.50	8.26	133.76	24.08	18	INS10009
6	11 KV Post Insulator.	Rpt PM-2147/19 Dt: 15-10-2019.	Nos.	315.00	266.95	-	266.95	48.05	18	INS10008
7	11 KV String Hardware Fitting (C&T)	PM-2046/19 Dt:26-07-2019	Sets	99.12	81.00	3.00	84.00	15.12	18	HWR00002
8	11 KV Polymer String insulator (C&T)	PM-2060/19 Dt: 16-08-2019	Nos.	123.90	100.00	5.00	105.00	18.90	18	INS10003
9	11 KV Solid Core Insulators	Rpt & Extn PM- 2152/19, Dt: 18-10-2019	Nos.	264.00	223.73	-	223.73	40.27	18	INS10006
10	LT Pin Insulators	Extn PM-2153/19, Dt: 18-10-2019	Nos.	14.67	12.43	-	12.43	2.24	18	INS00001
11	LT GI Pins	PM-2219/19, Dt: 30-12-2019	Nos.	33.24	26.17	2.00	28.17	5.07	18	HWR00015
12	LT Shackle Insulators	Rpt PM- 2177/19, Dt: 13-11-2019	Nos.	14.67	12.43	-	12.43	2.24	18	INS00002
13	LT Shackle Hardware (LT Metal Parts)	Rpt PM-2162/19 Dt: 21-10-2019	Nos.	39.40	32.00	1.39	33.39	6.01	18	HWR00016
14	HT Guy Insulators	PM-2180/19, Dt: 13-11-2019.	Nos.	28.26	23.95	-	23.95	4.31	18	INS10005
15	LT Guy Insulators	PM-2182/19 Dt: 13-11-2019	Nos.	12.96	10.98	-	10.98	1.98	18	INS00003
SUBHEAD - III CONDUCTOR AND CABLES										
1	ACSR Panther Conductor (200 sq mm).	PM-1975/19, Dt:21-05-2019	KM	152,537.42	127,469.00	1,800.00	129,269.00	23,268.42	18	CDR00010
2	100 Sqmm AAA Conductor or 7/4.26 AAAC.	PM-2100/19, Dt:13-09-2019	KM	51,973.10	43,090.00	955.00	44,045.00	7,928.10	18	CDR00004
3	55 Sqmm AAA Conductor or 7/3.15 AAAC/RABBIT	PM-2138/19, Dt:14-10-2019	KM	28,344.78	23,499.00	522.00	24,021.00	4,323.78	18	CDR00003
4	34 Sqmm AAA Conductor or 7/2.50 AAAC/Weasel	PM-2111/19, Dt:17-09-2019	KM	18,027.12	14,962.62	314.60	15,277.22	2,749.90	18	CDR00002
SUBHEAD - III (A) LT AERIAL BUNCHED CABLE										
1	2 x 16+25 Sqmm Cable	Rpt PM-832/15 Dt: 27-07-2016	KM	28,998.69	23,970.16	605.00	24,575.16	4,423.53	18	CBA00005
2	3 x 16+25 Sqmm Cable	PM-2258/19, Dt:17-01-2020	KM	43,354.00	35,990.68	750.00	36,740.68	6,613.32	18	CBA00006

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
3	3 x 70 + 1x16 +1x50 Sqmm XLPE AB, Cable	PM-2308/19, Dt. 28-02-2020.	KM	166,964.10	140,495.00	1,000.00	141,495.00	25,469.10	18	CBA00004
SUBHEAD - III (B) 33 & 11 KV XLPE POWER CABLE										
1	33 KV 3CX400 Sq.mm.	PM-2230/19, Dt:31-12-2019	KM	2,488,620.00	2,071,460.00	37,540.00	2,109,000.00	379,620.00	18	CBX30001
2	11 KV 3x300 sq.mm	Rpt.PM-1874/18, Dt.29-01-2019	KM	1,386,500.00	1,175,000.00	-	1,175,000.00	211,500.00	18	CBX10008
3	11 KV 3x185 sq.mm.	Rpt.PM-1870/18, Dt.16-01-2019	KM	1,031,979.62	874,559.00	-	874,559.00	157,420.62	18	CBX10007
4	11 KV 3x95 sq.mm	PM-285/11-02-2015	KM	521,049.85						CBX10005
5	11 KV 3x35 sq.mm	PM-4327/22-04-2015	KM	317,665.84						CBX10002
SUBHEAD - III (C) 11 KV AB Cable (Aluminum)										
1	3x35+35 Sqmm.	PM-3326/16-05-2011	KM	214,895.25						CBA10004
2	3x70+70 Sqmm.	PM-3326/16-05-2011	Km	299,076.25						CBA10005
3	3x120+70 Sqmm.	PM-2532/31-5-08	KM	4,76,000-00						CBA10007
4	3x185+70 Sqmm.	PM-2007/19, Dt.05-07-2019	KM	800,000.00	655,040.10	22,926.00	677,966.10	122,033.90	18	CBA10006
SUBHEAD - III (D) LT XLPE POWER CABLE										
1	3 ½ Cx185 sq.mm.	PM-1413/17, Dt.07-12-2017	KM	469,382.76	387,000.00	10,782.00	397,782.00	71,600.76	18	CBX00015
2	3 ½ Cx95 sq.mm	PM-1142/17, Dt.11-05-2017.	KM	227,400.60	191,634.42	1,077.95	192,712.37	34,688.23	18	CBX00013
3	3 ½ Cx70 sq.mm	PM-1285/17, 04-09-2017	KM	184,660.50	154,751.00	1,740.95	156,491.95	28,168.55	18	CBX00012
4	3 ½ Cx35 sq.mm	PM-1246/17, Dt.20-07-2017.	KM	112,549.38	86,951.00	978.20	87,929.20	24,620.18	28	CBX00020
5	1x120 sq mm	PM-2297/19, Dt.10-02-2020	KM	73,515.55	62,301.31	-	62,301.31	11,214.24	18	CBX00004
SUBHEAD - III (E) L.T.P.CONTROL CABLE										
1	2x2.5 sq.mm Copper	PM-1755/18, Dt.12-09-2018	KM	44,604.00	37,500.00	300.00	37,800.00	6,804.00	18	CBP00001
2	4x2.5 sq.mm Copper.	PM-1976/19, Dt.21-05-2019	KM	74,500.01	62,389.60	746.00	63,135.60	11,364.41	18	CBP00002
3	10x2.5 sq.mm Copper.	PM-1713/18, Dt.10-08-2018	KM	180,110.48	145136	7,500.00	152,636.00	27,474.48	18	CBP00006
SUBHEAD - IV : POWER TRANSFORMERS & TRANSFORMER OIL										
1	5 MVA PTR	PM-2260/19, Dt.17-01-2020	Nos.	3,294,736.46	2,767,149.54	25,000.00	2,792,149.54	502,586.92	18	PTR00006
2	8 MVA PTR	PM-2217/19, Dt.28-12-2019	Nos.	4,283,400.00	3,605,000.00	25,000.00	3,630,000.00	653,400.00	18	PTR00008
3	12.5 MVA PTR	PM-2103/19, Dt.13-09-2019	Nos.	6,854,679.00	5,773,050.00	36,000.00	5,809,050.00	1,045,629.00	18	PTR00020
4	Transformer Oil (New)	PM-1896/ D.No.3778/19, Dt.29-08-2019	KL	67,944.40	57580.00	-	57,580.00	10,364.40	18	OFO10006
SUBHEAD - IV (A) : Distribution Transformers										
1	3-Phase 63 KVA (CSP) (Al) BIS EE LEVEL 3	PM-2301/19, Dt.10-02-2020	Each	94,339.82	79,389.00	560.00	79,949.00	14,390.82	18	DTC30128
2	3-Phase 100 KVA (CSP) (Al) BIS EE LEVEL 3	Rpt&Ext PM-2261/19, Dt.18-01-2020	Each	124,997.40	104,904.00	1,026.00	105,930.00	19,067.40	18	DTC30137
3	3-Phase 160 KVA (CSP) (Al) BIS EE LEVEL 3	PM-2278/19, Dt.28-01-2020	Each	204,339.42	171,999.00	1,170.00	173,169.00	31,170.42	18	DTC30135
4	3-ph 315 KVA DTR Al BIS EE Level-3	PM-2291/19, Dt.31-01-2020	Each	562,756.42	474,862.22	2,050.00	476,912.22	85,844.20	18	DTC30127
5	3-ph 315 KVA DTR Al BIS EE Level-2	PM-1520/17 Dt: 19-03-2018	Each	545,615.40	457,818.92	4,567.01	462,385.93	83,229.47	18	DTC30123
6	3-ph 25 KVA DTR Al BIS EE Level-2	Rpt&Ext.PM-2281/19 Dt.28-01-2020	Each	58,059.54	48,903.00	300.00	49,203.00	8,856.54	18	DTC30126
7	3-ph 500 KVA DTR Al BIS EE Level-3	Ext.PM- 2247/19, Dt.13-01-2020	Each	859,699.62	726,309.00	2,250.00	728,559.00	131,140.62	18	DTC30136
8	1-Phase 25 KVA (CSP) (Aluminium)	PM-2113/19, Dt.21-09-2019	Each	46,903.76	39,348.95	400.00	39,748.95	7,154.81	18	DTC10009
9	3-Phase 315 KVA (CSP) Copper	PM-1270/17 Dt: 16-08-2017	Each	620,143.37	519,745.23	5,800.00	525,545.23	94,598.14	18	DTC30123 DTC30127
10	3-Phase 500 KVA Copper (Conventional)	PM-1243/17 Dt: 13-07-2017	Each	809,267.60	681,054.00	4,766.00	685,820.00	123,447.60	18	DTC30120 DTC30124
SUBHEAD - V : SWITCH CONTROL AND PROTECTIVE GEAR										
1	33 KV 24V DC HV VCB with CRPs & CTs 400-200-100/1-1-1A	PM-1948/19, Dt.02-05-2019	Nos.	395,604.44	325,700.00	9,558.00	335,258.00	60,346.44	18	BRK30031
2	33 KV 24V DC VCB with CRPs & CTs ratio 400-200-100/1-1A	PM-1949/19, Dt.02-05-2019	Nos.	386,046.44	317,600.00	9,558.00	327,158.00	58,888.44	18	BRK30019
3	11KV, 24V DC LV VCB with diff. prot. with CRPs & CTs of Ratio 600-300/1-1-0.577A	Rpt.PM-2264/19, Dt.25-01-2020	Nos.	313,448.12	258,200.00	7,434.00	265,634.00	47,814.12	18	BRK10009

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
4	11KV 24V LV VCBs with CTs & Panel (600-300/1-1A)	PM-2327/18, Dt.20-04-2020	Nos.	273,996.00	225,000.00	7,200.00	232,200.00	41,796.00	18	BRK10014
5	11KV, 24V DC feeder VCBs with CRPs & CTs of Ratio 400-200-100/1-1A	PM-2316 /19, Dt.10 -03-2020	Nos.	266,778.00	219,153.05	6,930.00	226,083.05	40,694.95	18	BRK10015
6	33 KV PT (Single Phase) 10VA Burden 0.2 Class	Rpt.&Ext.PM-2167/19, Dt.22-10-2019	Nos.	21,792.24	17,280.00	1,188.00	18,468.00	3,324.24	18	ITR30061
7	33 KV PT (Single Phase) 100VA Burden 0.2 Class	PM-1651/18, Dt.13-06-2018	Nos.	21,712.00	17,900.00	500.00	18,400.00	3,312.00	18	ITR30058
8	11 KV 3 Ph PTs with 50VA Burden 0.2 Class accuracy	PM-2212/19, Dt.20-12-2019	Nos.	19,849.96	15,852.00	970.00	16,822.00	3,027.96	18	ITR10065
9	33 KV 800 Amps AB Switch	Repeat PM-1808/18, Dt. 05-11-2018	Nos.	36,348.59	30,803.89	-	30,803.89	5,544.70	18	ABS30004
10	11 KV 800 Amps (Conventional) AB Switch	PM-1614/18, Dt. 17-05-2018	Nos.	23,499.70	19,915.00	-	19,915.00	3,584.70	18	ABS10015
11	11 KV 400 Amps (Conventional) SB AB Switch with post type porcelain insulators	PM-1989/19, Dt. 01-06-2019	Nos.	8,248.20	6,990.00	-	6,990.00	1,258.20	18	ABS10008
12	11 KV 200 Amps AB Switch (Tilting) round pipe	PM-2174/19, Dt. 04-11-2019	Nos.	6,006.20	5,090.00	-	5,090.00	916.20	18	ABS10002
13	30 KV 10 KA Metal Oxide Lightning Arresters (station type)	Rpt.PM-2306/19, Dt.22-02-2020	Nos.	3,274.50	2,775.00	-	2,775.00	499.50	18	LAS00004
14	9 KV 10 KA Metal Single Phase Lightning Arrester (station type)	PM-2211/19, Dt.20-12-2019	Nos.	1,617.90	1,371.10	-	1,371.10	246.80	18	LAS00002
15	11 KV HG Fuse set with insulators	PM-2241/19, Dt. 13-01-2020	Nos.	1,749.00	1,482.20	-	1,482.20	266.80	18	HGF10002
16	24 V, 40 AH Batteries with Chargers (Conventional)	PM- 2255/19, Dt. 17 -01-2020	Nos.	28,000.00	21,875.00	-	21,875.00	6,125.00	28	BAT00074
17	24 V, 40 AH Chargers (Conventional)	Rpt.PM-2075/19, Dt.16-08-2019	Nos.	15,749.46	13,347.00	-	13,347.00	2,402.46	18	BAT00075
18	12 V 42 AH SMF VRLA Batteries	Rpt.&Ext.PM-2184/19, Dt.16-11-2019	Nos.	4,003.84	3,064.00	64.00	3,128.00	875.84	28	BAT00056
19	220V 80 AH Battery charger & DCDB	PM - 1711/18, Dt. 10-08-2018.	Nos.	310,003.70	259,857.00	2,858.00	262,715.00	47,288.70	18	BAT00072
20	220 V, 80 AH SMF Batteries	PM-2294/20, Dt.03-02-2020	Nos.	211,200.00	165,000.00	-	165,000.00	46,200.00	28	BAT00023
21	11 KV 2 MVAR Capacitor banks with associated equipment			-			-			
(a)	Type A	PM-1382/17 Dt: 10-11-2017	Nos.	799,000.00	677,118.64	-	677,118.64	121,881.36	18	CPT10009
(b)	Type B with 40 Mtrs HT UG cable	PM-2672/15.12.08	Nos.	895869.07						
(c)	Type C (Indoor Type with HT UG cable	PM-3518, Dt.29-02-2012	Nos.	1,295,000.00						CPT10014
22	Sectionalizers	PM-671/04-03-2016	Nos.	487,782.24						SBR00599
23	Auto - Reclosures	PM-671/04-03-2016	Nos.	855,193.83						
24	11 KV 3 Way RMU (Conventional)	PM-2106, Dt.27-10-2006	Nos.	1,71,658.33						
25	11KV 3 Way RMU with FRTU	PM- 2132/19, Dt.26-10-2019	Nos.	561,680.00	476,000.00	-	476,000.00	85,680.00	18	BRK10022
26	11KV 5 Way RMU with FRTU	PM- 2132/19, Dt.26-10-2019	Nos.	886,180.00	751,000.00	-	751,000.00	135,180.00	18	BRK10023
27	33 KV Indoor twin feeder control panel	PM-579/15, Dt: 30-11-2015	Nos.	385,643.32	324,299.00	2,517.37	326,816.37	58,826.95	18	BRK30014
28	33/11 KV Indoor switch gear (8 feeders)	PM-2209/19, Dt. 04-12-2019	Nos.	18,000,000.84	14,836,000.00	418,238.00	15,254,238.00	2,745,762.84	18	BRK30020
29	33 KV CTs of ratio 600-300/1-1A 0.2S Class of Accuracy	Rpt&Extn.PM-1116/17, Dt.17-04-2017	Nos.	22,566.91	18,400.00	724.50	19,124.50	3,442.41	18	ITR30068
30	33KV 3-way RMU with VCB	PM-151/14, Dt: 09-09-2014	Nos.	3,087,759.28	2,589,062.00	27,683.15	2,616,745.15	471,014.13	18	BRK30024
SUBHEAD - VI : METERS AND METERING EQUIPMENT				-			-			
I	HT Metering			-			-			
1	HT Trivector Meter of class 0.2S	PM-2317/19 Dt: 20-03-2020	Nos.	7,949.66	6,737.00	0.00	6,737.00	1,212.66	18	As per annexure
II	11 KV Metering (11 KV CT PT Sets)						-			
1	10/5, 20/5, 40/5 (0.2S class)	PM-2319/19 Dt. 20-03-2020	Nos.	35,565.20	28,152.00	1,988.00	30,140.00	5,425	18	ITR10047 ITR10048
2	5/5A (0.2s class)	PM-2321/19 Dt. 20-03-2020	EA	41,860.50	34,780.00	695.00	35,475.00	6,386	18	ITR10076
3	60/5A (0.2s class)	PM-2319/19 Dt. 20-03-2020	Nos.	35,990.00	28,502.00	1,998.00	30,500.00	5,490	18	ITR10046

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
4	40/5A,60/5,100/5A(0.2S CLASS)	PM-843/16, Dt.06-08-2016	Nos.	45,253.00	37,750.00	600.00	38,350.00	6,903	18	ITR10047, ITR10046 ITR10045
5	100/5A & 40/5A (0.2s class)	PM-843/16, Dt.06-08-2016	Nos.	38,908.46	32,600.00	373.27	32,973.27	5,935	18	ITR10047
6	10/5A (0.2s class)	PM-1666/18, Dt. 03-07-2018	EA	34,574.00	27,302.00	1,998.00	29,300.00	5,274	18	ITR10049
7	20/5A (0.2s class)	PM-1748/18, Dt. 05-09-2018	EA	34,043.00	26,852.00	1,998.00	28,850.00	5,193	18	ITR10048
III LT Meters										
1	LT Trivector meter (without CTs & Meter box) 100/5A (with DLMS) - Cat- C with IRDA port	PM-2254/19 Dt: 17-01-2020	Nos.	2,340.00	1,983.05	0.00	1,983.05	357	18	MTE30042
2	LT TVR Meters Cl. 0.5 (Including Box & 3 CTs) 200/5A for DTR Metering (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	5,758.40	4,880.00	-	4,880.00	878	18	MTE30025
3	LT TVR Meters Cl. 0.5S (Including Box & 3 CTs) 50/5A for AGL DTRs		Nos.	5,758.40	4,880.00	-	4,880.00	878	18	MTE30023
4	LT TVR Meters Cl. 0.5S (Including Box & 3 CTs) 100/5A (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	5,758.40	4,880.00	-	4,880.00	878	18	MTE30024
IV Single phase electronic meter										
1	Single Phase 5-30A Meters With PP box & IR port	PM-1995/19 Dt: 20-06-2019	Nos.	830.00	703.39	0.00	703.39	126.61	18	MTE10007
2	Single Phase 5-30A Meters Without PP box & IR port	PM-1995/19 Dt: 20-06-2019	Nos.	660.00	559.32	0.00	559.32	100.68	18	MTE10007
V Three phase Electronic meters										
1	Three Phase 10-40A Meters with IRDA Port with PP Box	PM-1939/19 Dt: 01-05-2019	Nos.	2,160.00	1,805.51	25.00	1,830.51	329.49	18	MTE30038
VI Testing equipments & others										
1	LT ERS Field Testing Kit (Along with accessories)	PM-1865/18, Dt: 07-01-2019	Each	174,067.11	147,000.00	514.50	147,514.50	26,553	18	TEQ10016
2	ERS Testing kits of accuracy 0.02 Class	PM-1656/18, Dt.18-06-2018	Nos.	1,216,519.22	1,026,330.00	4,618.49	1,030,948.49	185,571	18	TEQ10029
3	Semi Automatic Master Test benches of class 0.1 accuracy	PM-2627, Dt.03-10-2008	Nos.	2,320,506.58	1,959,881.00	6,650.00	1,966,531.00	353,976	18	TEQ10030
4	Hand held computers	PM-2802/9.10.09	Each	5273.83						OMT10026
5	Integrated Spot Billing Machines	PM-2237/19 Dt: 04-01-2020	Nos.	10,500.01	8,898.31	-	8,898.31	1,602	18	OMT10083
6	CMRI	PM-2052/19 Dt: 30-07-2019	Nos.	22,355.10	18,945.00	0.00	18,945.00	3,410.10	18	OMT10014
7	LT distribution box (SMC)	PM-2172/19 Dt: 06-12-2019	Nos.	8,218.66	6,787.00	177.97	6,964.97	1,253.69	18	BXS00047
SUBHEAD - VII : VCB & PTR spares										
1	IDMT (3 O/L+E/L) Numerical Relay 24V DC	PM- 2265 /19, Dt. 25-01-2020	Nos.	7,338.42	6,219.00	-	6,219.00	1,119.42	18	SBR00177
2	IDMT Static Relay (3 O/L+1E/L) 220 V DC Relays	PM- 2092/19, Dt.30-08-2019	Nos.	29,854.00	25,300.00	-	25,300.00	4,554.00	18	SBR00216
⚡ Rates are as per prevailing market rates										
VIII COMPUTERS/LAPTOPS										
1	Desktop Computers(Make HP)	PM-1855/18, Dt.24-12-2018	Nos.	42,900.08	36356	-	36,356.00	6,544	18	CAH00011
2	Desktop Computers(Make DELL)	Rpt PM-1429/17, Dt. 11-12-2017	Nos.	37,978.30	32,185.00	-	32,185.00	5,793	18	CAH00011
3	Desktop Computers(Make ACER)	Rpt PM-1428/17, Dt. 11-12-2017	Nos.	37,978.30	32,185.00	-	32,185.00	5,793	18	CAH00011
4	Printers Dot Matrix Printers: (80 Column)	PM-1882/18, Dt: 13-03-2019	Nos.	8,206.90	6955	-	6,955.00	1,252	18	CAH00016
5	Dot Matrix Printers: (132 Column)	PM-1882/18, Dt: 13-03-2019	Nos.	11,398.80	9660	-	9,660.00	1,739	18	CAH00288
6	Laser Jet Printer	PM-1855/18, Dt. 24-12-2018	Nos.	9,589.86	8,127.00	-	8,127.00	1,462.86	18	CAH00004
7	Transformer winding resistance kit	PM-2729, Dt: 23-04-2009	Nos.	121,540.00	100000	3000	103,000.00	18,540	18	TEQ10033
8	Transformer Turns Ratio Test Kit	PM-2729, Dt: 23-04-2009	Nos.	133,340.00	110000	3000	113,000.00	20,340	18	TEQ10034
9	Tan Delta and Capacitance Test Kit	PM-2729, Dt: 23-04-2009	Nos.	572,300.00	480000	5000	485,000.00	87,300	18	TEQ10035
10	Transformer Oil Resistivity Test kit	PM-2729, Dt: 23-04-2009	Nos.	357,540.00	300000	3000	303,000.00	54,540	18	TEQ10036
11	Digital Earth Clamp Testers	PM-3180, Dt:06-10-2010	Nos.	63,592.56	53,892.00	-	53,892.00	9,701	18	TEQ10073
12	High Voltage Detectors	PM-3180, Dt:06-10-2010	Nos.	17,211.07	14,585.65	-	14,585.65	2,625	18	TEQ10074
13 11KV LV VCBs with CTs and panel (CTs ratio 600-300/1-1A)										
14	9KV 10KA LAS (Line type) Porcelain	PM-2018/19, Dt.12-07-2019	Nos.	619.50	525.00	-	525.00	94.50	18	LAS00001
15	Three phase portable analyzers	PM-2833, Dt: 10-11-2009	Nos.	404,740.00	340,000.00	3,000.00	343,000.00	61,740.00	18	TEQ10067
16	Circuit Breaker Time interval Meter with PC download software	PM-2834, Dt: 10-11-2009	Nos.	88,500.00	75,000.00	-	75,000.00	13,500.00	18	TEQ10068
17	Dissolved Gas Analyzer(DGA) with water PPM Kit(Model-Transport-X)	PM-2835, Dt: 10-11-2009	Nos.	3,148,240.00	2,668,000.00	-	2,668,000.00	480,240.00	18	TEQ10069

Sl. No	Name of the Material	P.O. No.	Unit	Rupees	EX-Works	F&I	Basic Price	GST	% GST	SAP Code No.
1	2	3	4	5	6	7	8	9	10	11
18	RGGVY SMC Meter Boxes along with accessories	PM-3227, Dt: 07-01-2011	Nos.	345.60	280.00	12.88	292.88	52.72	28	BXS00048
19	RGGVY Polycarbonate Meter Boxes along with accessories	PM-3076, Dt: 06-09-2010	Nos.	282.02	239.00	-	239.00	43.02	28	BXS00049
20	Digital Clamp Meters	PM-3286, Dt: 06-04-2011	Nos.	2,745.57	2,270.00	56.75	2,326.75	418.82	18	OMT10050
21	Single phase Variacs	PM-3286, Dt: 06-04-2011	Nos.	15,723.50	13,000.00	325.00	13,325.00	2,398.50	18	TEQ10075
22	Electronic Insulated Testers/Meggors	PM-3286, Dt: 06-04-2011	Nos.	79,461.20	65,690.00	1,650.00	67,340.00	12,121.20	18	TEQ10076
23	Ratio Test Kits	PM-3287, Dt: 06-04-2011	Nos.	105,374.00	87,300.00	2,000.00	89,300.00	16,074.00	18	TEQ10079
24	Capacitance Meters	PM-3287, Dt: 06-04-2011	Nos.	30,975.00	24,250.00	2,000.00	26,250.00	4,725.00	18	TEQ10080
25	Portable Relay Test Kits	PM-3288, Dt: 06-04-2011	Nos.	531,000.00	450,000.00	-	450,000.00	81,000.00	18	TEQ10077
26	Time interval Meter	PM-3289, Dt: 06-04-2011	Nos.	20,650.00	17,500.00	-	17,500.00	3,150.00	18	TEQ10078
27	Earth Tester (0-20-200-2000Ω)	PM-3290, Dt: 06-04-2011	Nos.	4,743.60	3,920.00	100.00	4,020.00	723.60	18	OMT10074
28	Primary Injection Kit	PM-3291, Dt: 06-04-2011	Nos.	90,034.00	75,300.00	1,000.00	76,300.00	13,734.00	18	TEQ10081
29	33KV, 3CX400 Sq.mm XLPE UG Cable Straight through heat shrinkable jointing kits	PM-1500/17, Dt:28-02-2018	Nos.	26,035.60	21,738.00	326.07	22,064.07	3,971.53	18	SCB10113
30	Integrated Spot Billing Machines Without GSM/GPRS Modems	PM-1475/17, Dt: 21-02-2018.	Nos.	10,500.01	8,898.31	-	8,898.31	1,601.70	18	OMT10083
31	9KV 10KA LAS (Line type) Polymer	PM-3032, Dt:03-05-2012	Nos.	1154.94			-			LAS00009
Additional Items										
1	11KV 400 Amps (Conventional) DB AB Switch with Porcelain type insulators	Rpt. PM- 2266/19 Dt: 27-01-2020	Nos.	12,787.01	10,836.45	-	10,836.45	1,950.56	18	ABS10009
2	11 KV 200 Amps AB Switch (Tilting) Square pipe (a) Polymer Type	PM-1728/18, Dt: 27-08-2018	Nos.	6,632.78	5,621.00	-	5,621.00	1,011.78	18	ABS10002
3	11KV, 220V DC Feeder VCBs with CRPs & CTs of ratio 400-200-100/1-1A (with Feeder Protection)	PM-2292/19, Dt: 31-01-2020	Nos.	331,620.12	273,600.00	7,434.00	281,034.00	50,586.12	18	BRK10019
4	11KV, 220V DC LV VCBs with CRPs & CTs of ratio 600-300/1-1A (with Trans. Prot. IED relays)	PM-2324/20, Dt: 09-04-2020	Nos.	430,700.00	355,000.00	10,000.00	365,000.00	65,700.00	18	BRK10020
5	33KV, 220V DC Feeder VCBs with CRPs & CTs of ratio 400-200-100/1-1A (with IEDs)	PM-1895/18, Dt: 27-03-2019	Nos.	480,363.84	396,043.20	11,044.80	407,088.00	73,275.84	18	BRK30037
6	11KV three phase HG Fuse Sets with Solid Core Insulators	PM-2241/19 Dt: 13-01-2020	Nos.	1,749.00	1,482.20	-	1,482.20	266.80	18	HGF10002
7	11 KV Solid Core Insulators for HG Fuses	PM-1879/18 Dt: 11-03-2019	Nos.	184.81	156.62	-	156.62	28.19	18	INS10007
8	33KV / 11KV indoor switch gear (8 feeders)	PM-187, 24.11.14	Nos.	16,869,455.87			-			BRK30020
9	33 KV CTs 50/1 for HT Metering (0.2s class)	PM- 2136/19, Dt:14-10-2019	Nos.	16,875.18	13,302.00	999.00	14,301.00	2,574.18	18	ITR30057
10	33 KV CTs 400-200-100/1-1A for HT Metering (0.2s class)	PM- 1527/18, Dt:29-03-2018	Nos.	21,234.10	16,807.00	1,188.00	17,995.00	3,239.10	18	ITR30067
11	11KV CTs of ratio 600-300/1-1A, 0.2S class	PM-2251/19 DT: 13-01-2020	Nos.	17,999.72	14,504.00	750.00	15,254.00	2,745.72	18	ITR10071
12	11KV CTs of ratio 400-200/1-1A, 0.2S class	R&E PM-1609/18 Dt: 17-05-2018	Nos.	15,257.40	12,111.00	819.00	12,930.00	2,327.40	18	ITR10072
13	11KV CTs of ratio 600-300/1-1-0.577A, 0.2S class	PM-1923/19 DT: 23-04-2019	Nos.	20,827.00	17,250.00	400.00	17,650.00	3,177.00	18	ITR10075
14	1Ph 10-60A Ele meter with PP box	PM-299/14, Dt:13-02-2015.	Nos.	1,025.77	846.96	22.34	869.30	156.47	18	MTE10007
15	Three phase 10-40 A Meters without PP Box with IRDA port	PM-1939/19 Dt: 01-05-2019	Nos.	1,850.00	1,552.80	15.00	1,567.80	282.20	18	MTE30047
16	LT TVR Meters (4 CTs-0.5S)-DLMS protocol	PM-1288/17, Dt:06-09-2017	Nos.	5,923.60	4,900.00	120.00	5,020.00	903.60	18	MTE30026
17	LTCT Mts(4CTs-0.5S)400/5A DLMS Protocol	PM-4211/13, Dt:31-12-2013	Nos.	6,706.90	5,454.00	229.81	5,683.81	1,023.09	18	MTE30036
18	LT TVR 100/5A PP 0.5S (CAT-C) DLMS&IRDA	Rpt PM-1249/17, Dt: 22-07-2017	Nos.	9,654.42	7,992.00	189.71	8,181.71	1,472.71	18	MTE30040
19	LT TVR 50/5A 0.5S Cat-C meter w/o box	PM-862/16, Dt:01-09-2016	Nos.	2,057.38	1,725.30	18.24	1,743.54	313.84	18	MTE30041
20	LT TVR 200/5A 4CTs0.5S DLMS(w/oCTs&box)	PM-1288/17, Dt: 06-09-2017	Nos.	1,905.70	1,600.00	15.00	1,615.00	290.70	18	MTE30043
21	LT TVR 200/5A 3CT 0.5S DLMS(w/o CTs&box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	1,774.72	1,504.00	-	1,504.00	270.72	18	MTE30044
22	LT TVR 100/5A 3CT 0.5S DLMS(w/o CTs&box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	1,774.72	1,504.00	-	1,504.00	270.72	18	MTE30045
23	LT TVR 50/5A 3CT 0.5S DLMS(w/o CTs&box) (for AGL DTRs)	PM-1691/18, Dt: 21-07-2018	Nos.	1,774.72	1,504.00	-	1,504.00	270.72	18	MTE30046
24	11KV 1 MVAR Capacitor Banks	PM-1382/17 Dt: 10-11-2017	Nos.	699,000.00	592,372.88	-	592,372.88	106,627.12	18	CPT10016
25	ERS Testing kits 0.05 accuracy	PM-2289/19 Dt: 30-01-2020	Nos.	1,300,000.10	1,096,713.00	4,982.00	1,101,695.00	198,305.10	18	TEQ10087
26	LT XLPE cable 1C x 150 Sq.mm	PM-2240/19, Dt:08-01-2020	KM	97,000.00	80,703.39	1,500.00	82,203.39	14,796.61	18	CBX00021
27	LT XLPE cable 1C x 185 Sq.mm	PM-2238/19, Dt:08-01-2020	KM	120,151.60	101,823.39	0.00	101,823.39	18,328.21	18	CBX00022
28	LT 3 ½ Cx240 sq.mm.	PM-1277/17, Dt:28-08-2017	KM	626,490.89	484,001.00	5,445.01	489,446.01	137,044.88	28	CBX00019

INDEX

Sl. No.	Description	Page No.
1	Rates for CENTRALIZED MATERIALS	1-5
2	ABSTRACT of rates of 33 KV / 11 KV / LT Lines	6-7
3	Cost Data for Hilly and Tribal areas as adopted by Irrigation Department in the State	8
4	33 KV Single circuit Line over 11 Mts. RS Joists poles at 50 Mts. Span with 100 Sq.mm Conductor.	9
5	33 KV Double circuit line over 12 mts. RS Joists box poles at 50 Mts. Span with 100 Sq.mm Conductor.	10
6	33 KV Single circuit Line over11 Mts. PSCC pole at 60 Mts.Span with100 Sq.mm Conductor.	11
7	33 KV Double circuit Line over11 Mts. PSCC pole at 40 Mts.with 100 Sq.mm Conductor.	12
8	33 KV Line over 9.1 Mts. PSCC Poles at 80 Mts.Span with 100 Sq.mm Conductor.	13
9	33 KV Line over 9.1 Mts. PSCC Poles at 65 Mts.Span with 100 Sq.mm Conductor.	14
10	11 KV Line over 9.1 Mts. PSCC Poles at 60 Mts.Span with 55 Sq.mm Conductor.	15
11	11 KV Line over 9.1 Mts. PSCC Poles at 60 Mts.Span with 34 Sq.mm Conductor.	16
12	11 KV Line over 8 Mts. PSCC Poles at 60 Mts.Span with 55 Sq.mm Conductor.	17
13	11 KV Line over 8 Mts. PSCC Poles at 60 Mts.Span with 34 Sq.mm Conductor.	18
14	11 KV Line over R.S Joist Poles at 50 Mts.Span with 55 Sq.mm Conductor.	19
15	6.3 KV Line over 8 Mts. PSCC Poles at 90 Mts.Span with 34 Sq.mm Conductor.	20
16	LT 3 Ph.5 Wire line (Horizontal) over 8 Mts. PSCC Poles at 65 Mts.Span with 3X55+2X34 Sq.mm Conductor.	21
17	LT 3 Ph.5 Wire line (Horizontal) over 8 Mts. PSCC Poles at 45 Mts.Span with 3X55+2X34 Sq.mm Conductor.	22
18	LT 3 Ph.5 Wire line (Horizontal) over 8 Mts. PSCC Poles at 65 Mts.Span with 34 Sq.mm Conductor.	23
19	LT 3 Ph.4 Wire line (Horizontal) over 8 Mts. PSCC Poles at 65 Mts.Span with 3X55+1X34 Sq.mm Conductor.	24
20	LT 3 Ph.4 Wire line (Horizontal) over 8 Mts. PSCC Poles at 65 Mts.Span with 34 Sq.mm Conductor.	25
21	LT 1 Ph. 3 Wire line (Horizontal) over 8 Mts. PSCC Poles at 65 Mts.Span with 34 Sq.mm Conductor.	26
22	LT 1 Ph. 2 Wire line (Horizontal) over 8 Mts. PSCC Poles at 65 Mts.Span with 34 Sq.mm Conductor.	27
23	L.T.AB Cable over 8 Mts. PSCC Poles at 65 Mts.Span with 3x16+25 Sqmm Cable	28
24	L.T.AB Cable over 8 Mts. PSCC Poles at 65 Mts.Span with 2x16+25 Sqmm Cable	29
25	Conversion of single Phase 2 W/L to 3 Phase 4 W/L	30
26	Erection of 100 KVA CSP Distribution Transformer	31
27	Erection of 63 KVA CSP Distribution Transformer	32
28	Erection of 63 KVA CSP Distribution Transformer on plinth	33
29	Erection of 63 KVA CSP Distribution Transformer on structure	34
30	Erection of 100 KVA DTR on column type plinth	35
31	Erection of Three Phase 25 KVA CRGO Distribution Transformer (Copper)	36
32	Erection of Three Phase 25 KVA CRGO Distribution Transformer (Alluminium)	37
33	Erection of 25 KVA Single Phase 6.3 KV/0-240 V CSP Distribution Transformer	38
34	Erection of 15 KVA Single Phase 6.3 KV/0-240 V CSP Distribution Transformer	39
35	Release of poly phase Agl. Service erected on support	40
36	Release of 1 ph (Electronic Meter) Domestic & Non-domestic service	41

Sl. No.	Description	Page No.
37	Release of 3 ph. (Electronic Meter) Domestic & non-domestic service	42
38	Release of poly phase Industrial service (upto20HP) with Electronic Meter	43
39	Release of Industrial service (above 20 HP and upto 50) - with CT meter	44
40	Release of Industrial service (above 50 HP and upto 75 HP) - HT metering	45
41	Release of Street light service (1 -ph electronic meter)	46
42	Erection of L.T. Electronic trivector meter on LV side of DTR	47
43	Erection of 33/11 KV Sub-station with 2x8 MVA PTR & 6 Nos. 11 KV feeders (without 11 KV 2 MVAR Capacitor Bank)	48
44	Erection of 33/11 KV Sub-station with 2X8 MVA Power Transformer & 6 Nos. 11 KV feeders (with 11 KV 2 MVAR Capacitor Bank)	49
45	Erection of 33/11 KV Sub-station (Indoor) with 2X8 MVA Power Transformer & 6 Nos. 11 KV feeders (without 11 KV 2 MVAR Capacitor Bank)	50
46	Erection of 33/11 KV Sub-station with 2x5 No. Power Transformer & 5 Nos. 11 KV feeders (without 11 KV 2 MVAR Capacitor Bank)	51
47	Erection of 33/11 KV Sub-station with 2x5 No. Power Transformer & 5 Nos. 11 KV feeders (with 11 KV 2 MVAR Capacitor Bank)	52
48	Erection of 33/11 KV Sub-station with 1x5 Power Transformer & 3 Nos. 11 KV feeders (with 11 KV 2 MVAR Capacitor Bank)	53
49	Erection of 11 KV bay extension with girder poles	54
50	Erection of 11 KV bay extension with PSCC poles	55
51	Erection of 33 KV Extension Bay at 33/11 KV Sub-station	56
52	33KV bay at 132/33KV SS.	57
53	Erection of 11 KV VCB at 33/11 KV Sub-station	58
54	Erection of 33KV VCB and Twin feeder control pannel in 132/33KV SS	59
55	Erection of 2 MVAR capacitor bank	60
56	Enhancement of PTR capacity from 5 MVA to 8 MVA	61
57	Laying of 11KV, 3 core 95Sq.mm UG Cable	62
58	Laying of 33KV, 3 core 400Sq.mm UG Cable	63
59	Erection of M+3 tower	64-65
60	Erection of L+3 Towers	66-67
61	Erection of K+3 Towers	68-69
62	Extension of 3mtrs for K+3 Tower as per ASCI Standard	70-71
63	Extension of 3mtrs for L+3 Tower as per ASCI Standard	72-73
64	Extension of 3mtrs for M+3 Tower as per ASCI Standard	74-75
65	Erection of additional PTR in existing 33/11 KV Sub-station	76
66	REC Construction Standard Specification Nos. for items, other than included in the 33 KV, 11 KV & LT lines.	77
67	REC Construction Standard diagrams	78-96

COST - DATA ABSTRACT

Sl. No	Particulars of items	Wind. Pr. In Kg /m2	W.Load in Kg.	Type of pole being used	Span in Mtrs.	No. of poles/ KM	Size of conductor	Total Cost in Rs.
1	33 KV Line	75	365	11 M RS Joist	50	21	100 sqmm AAAC	1206612
2	33 KV DC Line	75	365	12 M RS Joist	50	21	100 sqmm AAAC	1593557
3	33 KV Line	75	365	11 M PSCC	60	17	100 sqmm AAAC	748867
4	33 KV DC Line	75	365	11 M PSCC	40	26	100 sqmm AAAC	1263977
5	33 KV Line	75	280	9.1 Mtr.PSCC	80	14	100 sqmm AAAC	534400
6	33 KV Line	75	280	9.1 Mtr.PSCC	65	16	100 sqmm AAAC	546300
7	11 KV line	75	140	9.1 Mtr.PSCC	60	18	55 sqmm AAAC	427864
8	11 KV line	75	140	9.1 Mtr.PSCC	60	18	34 sqmm AAAC	384881
9	11 KV line	75	140	8 Mtr.PSCC	60	18	55 sqmm AAAC	387645
10	11 KV line	75	140	8 Mtr.PSCC	60	18	34 sqmm AAAC	346166
11	11 KV line	75	140	RSJoist Poles	50	21	55 sqmm AAAC	669459
12	6.3 KV line	75	140	8 Mtr.PSCC	90	11	34 sqmm AAAC	157309
13	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x55+2x34sqmmAAA	348688
14	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	45	23	3x55+2x34sqmmAAA	389495
15	LT 3 Ph.5 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	5x34sqmm AAA	311861
16	LT 3 Ph.4 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x55+1x34sqmmAAA	318470
17	LT 3 Ph.4 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	4x34sqmm AAA	281846
18	LT 1 Ph. 3 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	3x34 sqmm AAA	240249
19	LT 1 Ph. 2 Wire line (Horizontal)	75	140	8 Mtr.PSCC	65	16	2x34 sqmm AAA	208977
20	L.T.AB Cable	75	140	8 Mtr.PSCC	65	16	3x16+25sqmm	219968
21	L.T.AB Cable	75	140	8 Mtr.PSCC	65	16	2x16+25sqmm	200059
22	Conversion of 1Ph 2 W/L to 3 Ph 4 W/L	75	140	8 Mtr.PSCC	65	16	2x55xqmm	100279
22	Erection of 100 KVA CSP CRGO Distribution Transformer							244438
23	Erection of 63 KVA CSP Distribution Transformer							208876
24	Erection of 63 KVA CSP CRGO core Distribution Transformer on plinth							175308
25	Erection of 63 KVA CSP CRGO core Distribution Transformer on structure							176330
26	Erection of 100 KVA CSP CRGO core Distribution Transformer on column plinth							232490
27	Erection of 25 KVA, 3- Phase CRGO core Distribution Transformer							123024
28	Erection of 25 KVA, 3-Phase, 11 KV/433 V /250 V CRGO Conventional Transformer							114365
29	Erection of 25 KVA, Single Phase, 6.3 KV/0-240 V C.S.P. CRGO Transformer							70700
30	Erection of 15 KVA Single Phase 6.3 KV/0-240 V CSP CRGO Distribution Transformer							46183
31	Release of poly phase Agl. Service erected on support							6751
32	Release of 1 ph Domestic & non-domestic service (Electronic meter)							2399
33	Release of 3 ph. Domestic & non-domestic service (Electronic meter)							6047

34	Release of poly phase Indl.service below 20 HP (Electronic meter)	6701
35	Release of Industrial service above 20H.P upto 50 HP with LT Trivector meter	11039
36	Release of Industrial service above 50 HP and upto 75 HP (HT metering)	199062
37	Release of Street light service (1 -ph electronic meter)	2895
38	Erection of L.T. C.T. Operated Electronic trivector meter on LV side of DTR	11207
39	Erection of 33/11 KV Sub-station with 2 x 8 MVA power transformer & 6 Nos. 11 KV feeders (without 11 KV 2 MVAR capacitor Bank)	25800000
40	Erection of 33/11 KV Sub-station with 2 x 8 MVA power transformer & 6 Nos. 11 KV feeders (with 11 KV 2 MVAR capacitor Bank)	27300000
41	Erection of 33/11 KV Sub-station (Indoor substation) with 2x8 MVA power transformer & 6 Nos. 11 KV feeders (without 11 KV 2 MVAR capacitor Bank)	44001393
42	Erection of 33/11 KV Sub-station with 9.1 mts PSCC Poles and 2x5 MVA power transformer & 5 Nos. 11 KV feeders (without 11 KV 2 MVAR capacitor Bank)	16861000
43	Erection of 33/11 KV Sub-station with 9.1 mts PSCC Poles and 2x5 MVA power transformer & 5 Nos. 11 KV feeders (with 11 KV 2 MVAR capacitor Bank)	17900000
44	Erection of 33/11 KV Sub-station with 9.1 mts PSCC Poles and 1 No. power transformer & 3 Nos. 11 KV feeders (with 11 KV 2 MVAR capacitor Bank)	12430000
45	11 KV Bay extension in existing 33/11 KV Sub-stations with girder poles	94033
46	11 KV Bay extension in existing 33/11 KV Sub-stations with PSCC poles	61200
47	33KV Bay Extension at 33/11 kV Sub-station	118000
48	33KV Bay Extension at 132/33KV SS	839747
49	Erection of 11 KV VCB at 33/11 kV Sub-station	346847
50	Erection of 33KV VCB at 132/33KV SS	1236972
51	Erection of 2MVAR Capacitor Bank	1173062
52	Enhancement of PTR Capacity	3920169
53	Laying of 11 KV, 3 core 300 Sq.mm UG Cable	2400571
54	Laying of 33 KV, 3 core 400 Sq.mm UG Cable	3459025
55	Erection of M+3 tower	150494
56	Erection of K+3 tower	91912
57	Erection of L+3 tower	123010
58	Erection of additional 5 MVA PTR in existing 33/11 KV Sub-station	3787100
59	Extension of 3Mtrs for K+3 Towers as per ASCI Standard	12968
60	Extension of 3Mtrs for L+3 Towers as per ASCI Standard	20472
61	Extension of 3Mtrs for M+3 Towers as per ASCI Standard	25732
62	REC construction standard Drawings (19 Nos.)	

**COST DATA FOR HILLY AND TRIBAL AREAS
AS ADOPTED BY IRRIGATION DEPARTMENT IN THE STATE**

For hilly and tribal areas, the following extra rates are allowed over and above approved cost data of labour.

a.40% extra allowed for the works located within the interior Agency/Tribal limits, i.e., for the works located beyond 16Km from any all weather route inside Agency/Tribal.

b.25% extra allowed for the works located within the interior Agency/Tribal limits, i.e., for the works located within & upto 16KM from any all weather routes inside Agency/Tribal.

Cost data per Km of 33 KV Line with 100 Sq.mm AAA Conductor over 11 Mts.

RS Joist box type at 50 Mts. Span, 100 Kg/sq.Mt wind pressure, working load 365 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	RS Joist box type 11mtrs Pole with 175x85mm of 450Kgs	21	26,285	Each	551,985
2	1.53 M Channel / 'V' Cross Arm (100x50mm)	21	1,396	Each	29,316
3	Top Clamp with cleat(75x8mm)	20	380	Each	7,600
4	Back Clamp	20	217	Each	4,340
5	Stay Set complete	12	1,389	Each	16,668
6	Bracing Set with double cross arm	1	8,797	Set	8,797
7	100 Sq.mm AAA Conductor	3.06	51,973	K.M.	159,037
8	33KV Polymer Pin Insulators With GI Pins	63	459	Each	28,917
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting))	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	103,273
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	9036
Total Cost of Material					922,358

3% storage & handling charges on items (1) to (9)	24,301
3% Contingencies on Materials	27,671
Labour & Transport	118,683
GST at 18 % on L&T	21,363
10% Estt. & Genl. Charges on Materials	92,236
Total	1206612.24

**Cost data per Km of 33 KV DC Line with 100 Sq.mm AAA Conductor over 12 Mts.
RS Joist box type at 50 Mts. Span, 100 Kg/sq.Mt wind pressure, working load 365 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	RS Joist box type 12mtrs Pole with 150 x 150 mm of 500Kgs	21	29,205	Each	613,305
2	1.53 M Channel / 'V' Cross Arm	60	1,396	Each	83,760
3	Back Clamp	60	217	Each	13,020
4	Stay Set complete	12	1,389	Each	16,668
5	Double Bracing Set with double cross arm	1	12,353	Set	12,353
6	100 Sq.mm AAA Conductor	6.12	51,973	K.M.	318,075
7	33KV Polymer Pin Insulators With GI Pins	108	459	Each	49,572
8	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	24	282	Set	6,778
9	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	104,275
10	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	9,036
Total Cost of Material					1,226,842

3% storage & handling charges on items (1) to (8) 33,406

3% Contingencies on Materials 36,805

Labour & Transport 147305

GST at 18 % on L&T 26,515

10% Estt. & Genl. Charges on Materials 122,684

Total 1,593,557

REC Construction Standard No.M2/1979 (R-1989)

Cost data per Km of 33 KV Line (SC) with 100 Sq.mm AAA Conductor over 11 Mts. PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 365 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	11 M PSCC Pole	17	5416	Each	92,072
2	1.53 M Channel / 'V' Cross Arm	17	1396	Each	23,732
3	Top Clamp with cleat	16	380	Each	6,080
4	Back Clamp	17	217	Each	3,689
5	Stay Set complete	12	1389	Each	16,668
6	Bracing Set with double cross arm	1	8797	Set	8,797
7	100 Sq.mm AAA Conductor	3.06	51973	K.M.	159,037
8	33KV Polymer Pin Insulators With GI Pins	48	459	Each	22,032
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	119530
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	6050
Total Cost of the Material					461,076

3% storage & handling charges on items (1) to (9)	10,065
3% Contingencies on Materials	13,832
Labour & Transport	184564
GST at 18 % on L&T	33,222
10% Estt. & Genl. Charges on Materials	46,108
Total	748,867
Stays Pits (0.76x0.76x1.5) Excavation	Or Say 748,867

REC Construction Standard No.M2/1979 (R-1989)

**Cost data per Km of 33 KV Line (DC) with 100 Sq.mm AAA Conductor over 11 Mts.
PSCC Poles at 40 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 365 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	11 M PSCC Pole	26	5416	Each	140,816
2	1.53 M Channel / 'V' Cross Arm	72	1396	Each	100,512
3	Back Clamp	75	217	Each	16,275
4	Stay Set complete	12	1389	Each	16,668
5	Double Bracing Set with double cross arm	1	12353	Set	12,353
6	100 Sq.mm AAA Conductor	6.12	51973	K.M.	318,075
7	33KV Polymer Pin Insulators With GI Pins	156	459	Each	71,603
8	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	24	282	Set	6,778
9	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	143767
10	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	6655
Total Cost of the Material					833,502

3% storage & handling charges on items (1) to (8)	20,492
3% Contingencies on Materials	25,005
Labour & Transport	255617
GST at 18 % on L&T	46,011
10% Estt. & Genl. Charges on Materials	83,350
Total	1,263,977

REC Construction Standard No.M-2/1979 (R-1989)

Cost data per Km of 33 KV Line with 100 Sq.mm AAA Conductor over 9.1 Mts.

PSCC Poles at 80 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 280 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	14	2,949	Each	41,283
2	1.53 M Channel / 'V' Cross Arm	14	1,396	Each	19,544
3	Top Clamp with cleat	12	380	Each	4,560
4	Back Clamp	13	217	Each	2,821
5	Stay Set complete	12	1,389	Each	16,668
6	Bracing Set with double cross arm	1	8,797	Set	8,797
7	100 Sq.mm AAA Conductor	3.06	51,973	K.M.	159,037
8	33KV Polymer Pin Insulators With GI Pins	39	459	Each	17,901
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	88,789
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	5500
Total Cost of Material					368,289

3% storage & handling charges on items (1) to (9)	8,220
3% Contingencies on Materials	11,049
Labour & Transport	93192
GST at 18 % on L&T	16,775
10% Estt. & Genl. Charges on Materials	36,829
Total	534,354

REC Construction Standard No.M-2/1979 (R-1989)

Cost data per Km of 33 KV Line with 100 Sq.mm AAA Conductor over 9.1 Mts.

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 280 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	16	2,949	Each	47,181
2	1.53 M Channel / 'V' Cross Arm	16	1,396	Each	22,336
3	Top Clamp with cleat	15	380	Each	5,700
4	Back Clamp	15	217	Each	3,255
5	Stay Set complete	10	1,389	Each	13,890
6	Bracing Set with double cross arm	1	8,797	Set	8,797
7	100 Sq.mm AAA Conductor	3.06	51,973	K.M.	159,037
8	33KV Polymer Pin Insulators With GI Pins	45	459	Each	20,655
9	Strain Insulators set (3x 11 KV B&S Insulator with 33 KV Hard ware fitting)	12	282	Set	3,389
10	Concreting of Pole, Stay sets & Base concreting	L.S		L.S	83,455
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc	L.S		L.S	5500
Total Cost of Material					373,195

3% storage & handling charges on items (1) to (9)	8,527
3% Contingencies on Materials	11,196
Labour & Transport	98347
GST at 18 % on L&T	17,702
10% Estt. & Genl. Charges on Materials	37,320
Total	546,287

REC Construction Standard No. A-34/1993

**Cost data per Km of 11 KV Line with 55 Sq.mm AAA Conductor over 9.1 Mts.
PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	18	2,949	Each	53,079
2	1.07 M Channel / 'V' Cross Arm	18	624	Each	11,232
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,057	Each	10,570
6	Bracing Set with double cross arm	1	6,861	Set	6,861
7	55 Sq.mm AAA Conductor	3.06	28,345	K.M.	86,736
8	11 KV Pin Insulator with Pin	54	158	Each	8,523
9	Strain Insulator with metal parts	12	124	Each	1,487
10	Concreting of Pole, Stay sets & Base concreting			L.S	78,293
11	Misc. Items like coil earthing, pipe earthing, danger, bolts & nuts, etc			L.S	4000
Total Cost of Material					269,918

3% storage & handling charges on items (1) to (9) 5,629

3% Contingencies on Materials 8,098

Labour & Transport 99345

GST at 18 % on L&T 17,882

10% Estt. & Genl. Charges on Materials 26,992

Total 427,864

**Cost data per Km of 11 KV Line with 34 Sq.mm AAA Conductor over 9.1 Mts.
PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 M PSCC Pole	18	2,949	Each	53,079
2	1.07 M Channel / 'V' Cross Arm	18	624	Each	11,232
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,057	Each	10,570
6	Bracing Set with double cross arm	1	6,861	Set	6,861
7	34 Sq.mm AAA Conductor	3.06	18,027	K.M.	55,163
8	11 KV Pin Insulator with Pin	54	158	Each	8,523
9	Strain Insulator with metal parts	12	124	Each	1,487
10	Concreting of Pole, Stay sets & Base concreting			L.S	78293
11	Misc. Items like coil earthing, pipe earthing, danger, bolts & nuts, etc			L.S	4000
	Total Cost of Material				238,345

3% storage & handling charges on items (1) to (9) 4,682

3% Contingencies on Materials 7,150

Labour & Transport 93957

GST at 18 % on L&T 16,912

10% Estt. & Genl. Charges on Materials 23,835

Total 384,881

REC Construction Standard No. A-34/1993

Cost data per Km of 11 KV Line with 55 Sq.mm AAA Conductor over 8 Mts.

³SCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	18	1,534	Each	27,612
2	1.07 M Channel / 'V' Cross Arm	18	624	Each	11,232
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,057	Each	10,570
6	Bracing Set with double cross arm	1	6,861	Set	6,861
7	55 Sq.mm AAA Conductor	3.06	28,345	K.M.	86,736
8	11 KV Pin Insulator with Pin	54	158	Each	8,523
9	Strain Insulator with metal parts	12	124	Each	1,487
10	Concreting of Pole, Stay sets & Base concreting			L.S	78,293
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
Total Cost of Material					244,451

3% storage & handling charges on items (1) to (9) 4,865

3% Contingencies on Materials 7,334

Labour & Transport 90297

GST at 18 % on L&T 16,253

10% Estt. & Genl. Charges on Materials 24,445

Total 387,645

REC Construction Standard No. A-34/1993

Cost data per Km of 11 KV Line with 34 Sq.mm AAA Conductor over 8 Mts.

PSCC Poles at 60 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	18	1,534	Each	27,612
2	1.07 M Channel / 'V' Cross Arm	18	624	Each	11,232
3	Top Clamp with cleat	16	400	Each	6,400
4	Back Clamp	17	161	Each	2,737
5	Stay Set complete	10	1,057	Each	10,570
6	Bracing Set with double cross arm	1	6,861	Set	6,861
7	34 Sq.mm AAA Conductor	3.06	18,027	K.M.	55,163
8	11 KV Pin Insulator with Pin	54	158	Each	8,523
9	Strain Insulator with metal parts	12	124	Each	1,487
10	Concreting of Pole, Stay sets & Base concreting			L.S	78,293
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
Total Cost of Material					212,878

3% storage & handling charges on items (1) to (9) 3,918

3% Contingencies on Materials 6,386

Labour & Transport 86183

GST at 18 % on L&T 15,513

10% Estt. & Genl. Charges on Materials 21,288

Total 346,166

REC Construction Standard No. A-34/1993

Cost data per Km of 11 KV Line with 55 Sq.mm AAA Conductor over RS Joist Poles at 50 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	RSJoist Poles (175x85mm)	21	11,682	Each	245,322
2	1.07 M Channel / 'V' Cross Arm	21	624	Each	13,104
3	Top Clamp with cleat	20	400	Each	8,000
4	Back Clamp	21	161	Each	3,381
5	Stay Set complete	10	1,057	Each	10,570
6	Bracing Set with double cross arm	1	6,861	Set	6,861
7	55 Sq.mm AAA Conductor	3.06	28,345	K.M.	86,735
8	11 KV Pin Insulator with Pin	54	158	Each	8,523
9	Strain Insulator with metal parts	12	124	Each	1,487
10	Concreting of Pole, Stay sets & Base concreting			L.S	88,617
11	Misc. Items like coil earthing, pipe eathing, danger, bolts & nuts, etc			L.S	4000
Total Cost of Material					476,600

3% storage & handling charges on items (1) to (9)	11,519
3% Contingencies on Materials	14,298
Labour & Transport	101171
GST at 18 % on L&T	18,211
10% Estt. & Genl. Charges on Materials	47,660
Total	669,459

REC Construction Standard No. A-17/1987

**Cost data per Km of 6.3 KV Sph Line with 34 Sq.mm AAA Conductor over 8 Mts.
PSCC Poles at 90 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	11	1,534	Each	16,874
2	Top Clamp with cleat	11	400	Each	4,400
3	Back Clamp	10	161	Each	1,610
4	Stay Set complete	4	1,057	Each	4,228
5	34 Sq.mm AAA Conductor	1.02	18,027	K.M.	18,388
6	11 KV Pin Insulator with Pin	10	158	Each	1,578
7	Strain Insulator with metal parts	4	124	Each	496
8	Concreting of Pole, Stay sets & Base concreting			L.S	31317
9	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	2100
Total Cost of Material					80,991

3% storage & handling charges on items (1) to (7)	1,427
3% Contingencies on Materials	2,430
Labour & Transport	54544
GST at 18 % on L&T	9,818
10% Estt. & Genl. Charges on Materials	8,099
Total	157,309

REC Construction Standard No. B-8/1984

**Cost data per Km of LT 3 Ph 5 Wire line (Horizontal formation) with
3 x 55 Sq. mm + 2 x 34 Sq. mm AAAC over 8 Mts.**

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	LT 3 Phase cross arms	18	361	Each	6,498
3	LT top fitting	18	205	Each	3,690
4	Back Clamp	18	77	Each	1,386
5	Stay Set complete	6	1,057	Each	6,342
6	55 Sq.mm AAA Conductor	3.06	28,345	KM	86,736
7	34 Sq.mm AAA Conductor	2.04	18,027	KM	36,775
8	Shackle Insulator with metal parts	16	54	Each	864
9	LT pin insulator with pin	56	48	Each	2,688
10	C.I. Knob	16	10	Each	160
11	Concreting of Pole, Stay sets & Base concreting			L.S	46976
12	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
Total Cost of Material					220,659

3% storage & handling charges on items (1) to (10) 5,090

3% Contingencies on Materials 6,620

Labour & Transport 79875

GST at 18 % on L&T 14,378

10% Estt. & Genl. Charges on Materials 22,066

Total 348,688

REC Construction Standard No. B-8/1984

Cost data per Km of LT 3 Ph 5 Wire line (Horizontal formation) with

3 x 55 Sq. mm + 2 x 34 Sq. mm AAAC over 8 Mts.

PSCC Poles at 45 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	23	1,534	Each	35,282
2	LT 3 Phase cross arms	24	361	Each	8,664
3	LT top fitting	24	205	Each	4,920
4	Back Clamp	24	77	Each	1,848
5	Stay Set complete	6	1,057	Each	6,342
6	55 Sq.mm AAA Conductor	3.06	28,345	KM	86,736
7	34 Sq.mm AAA Conductor	2.04	18,027	KM	36,775
8	Shackle Insulator with metal parts	16	54	Each	864
9	LT pin insulator with pin	84	48	Each	4,032
10	C.I. Knob	23	10	Each	230
11	Concreting of Pole, Stay sets & Base concreting			L.S	57300
12	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
	Total Cost of Material				246,993

3% storage & handling charges on items (1) to (10) 5,571

3% Contingencies on Materials 7,410

Labour & Transport 88,832

GST at 18 % on L&T 15,990

10% Estt. & Genl. Charges on Materials 24,699

Total 389,495

REC Construction Standard No. B-8/1984

**Cost data per Km of LT 3 Ph 5 Wire line (Horizontal formation) with
5 x 34 Sqmm AAAC over 8 Mts.**

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	LT 3 Phase cross arms	18	361	Each	6,498
3	LT top fitting	18	205	Each	3,690
4	Back Clamp	18	77	Each	1,386
5	Stay Set complete	6	1,057	Each	6,342
6	34 Sq.mm AAA Conductor	5.1	18,027	KM	91,938
7	Shackle Insulator with metal parts	16	54	K.M.	864
8	LT pin insulator with pin	56	48	Each	2,688
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	46976
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
Total Cost of Material					189,086

3% storage & handling charges on items (1) to (9) 4,143

3% Contingencies on Materials 5,673

Labour & Transport 79704

GST at 18 % on L&T 14,347

10% Estt. & Genl. Charges on Materials 18,909

Total 311,861

REC Construction Standard No. B-8/1984

Cost data per Km of LT 3 Ph 4 Wire line (Horizontal formation) with

3 x 55 Sqmm + 1 x 34 mm AAAC over 8 Mts.

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	LT 3 Phase cross arms	18	361	Each	6,498
3	Back Clamp	18	77	Each	1,386
4	Stay Set complete	6	1,057	Each	6,342
5	55 Sq.mm AAA Conductor	3.06	28,345	K.M.	86,735
6	34 Sq.mm AAA Conductor	1.02	18,027	K.M.	18,388
7	Shackle Insulator with metal parts	12	54	Each	648
8	LT pin insulator with pin	42	48	Each	2,016
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	46976
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
Total Cost of Material					197,693

3% storage & handling charges on items (1) to (9) 4,402

3% Contingencies on Materials 5,931

Labour & Transport 76844

GST at 18 % on L&T 13,832

10% Estt. & Genl. Charges on Materials 19,769

Total 318,470

REC Construction Standard No. B-8/1984

Cost data per Km of LT 3 Ph 4 Wire line (Horizontal formation) with

4 x 34 Sqmm AAAC over 8 Mts.

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	LT 3 Phase cross arms	18	361	Each	6,498
3	Back Clamp	18	77	Each	1,386
4	Stay Set complete	6	1,057	Each	6,342
5	34 Sq.mm AAA Conductor	4.08	18027	K.M.	73,551
6	Shackle Insulator with metal parts	12	54	Each	648
7	LT pin insulator with pin	42	48	Each	2,016
8	C.I. Knob	16	10	Each	160
9	Concreting of Pole, Stay sets & Base concreting			L.S	46976
10	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
Total Cost of Material					166,121

3% storage & handling charges on items (1) to (8) 3,454

3% Contingencies on Materials 4,984

Labour & Transport 76,844

GST at 18 % on L&T 13,832

10% Estt. & Genl. Charges on Materials 16,612

Total 281,846

REC Construction Standard No. B-11/1984

Cost data per Km of LT Single Phase 3 Wire line (Horizontal formation)

with 34 Sqmm AAAC over 8 Mts.

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	LT 1 Phase cross arms	18	191	Each	3,438
3	LT top fitting	18	205	Each	3,690
4	Back Clamp	18	77	Each	1,386
5	Stay Set complete	4	1,057	Each	4,228
6	34 Sq.mm AAA Conductor	3.06	18,027	K.M.	55,163
7	Shackle Insulator with metal parts	8	54	Each	432
8	LT pin insulator with pin	28	48	Each	1,344
9	C.I. Knob	16	10	Each	160
10	Concreting of Pole, Stay sets & Base concreting			L.S	36479
11	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	4000
Total Cost of Material					134,864

3% storage & handling charges on items (1) to (9) 2,832

3% Contingencies on Materials 4,046

Labour & Transport 72,052

GST at 18 % on L&T 12,969

10% Estt. & Genl. Charges on Materials 13,486

Total 240,249

REC Construction Standard No. B-11/1984

Cost data per Km of LT Single Phase 2 Wire line (Horizontal formation)

with 2 x 34 Sqmm AAAC over 8 Mts.

PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	LT 1 Phase cross arms	18	191	Each	3,438
3	Back Clamp	18	77	Each	1,386
4	Stay Set complete	4	1,057	Each	4,228
5	34 Sq.mm AAA Conductor	2.04	18,027	K.M.	36,775
6	Shackle Insulator with metal parts	4	54	Each	216
7	LT pin insulator with pin	14	48	Each	672
8	C.I. Knob	16	10	Each	160
9	Concreting of Pole, Stay sets & Base concreting			L.S	36479
10	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	2900
Total Cost of Material					110,798

3% storage & handling charges on items (1) to (8) 2,143

3% Contingencies on Materials 3,324

Labour & Transport 69,179

GST at 18 % on L&T 12,452

10% Estt. & Genl. Charges on Materials 11,080

Total 208,977

REC Construction Standard No. B-32/1984

**Cost data per Km of LT Line with 3 x 16 + 25 Sqmm AB Cable over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	Suspension clamp assembly with eye hook	14	70	Each	980
3	Dead end clamp assembly with eye hook	4	105	Each	420
4	Stay Set complete	4	1,057	Set	4,228
5	L.T. A.B. Cable 3 x 16 + 25 Sq.mm	1.02	43,354	K.M.	44,221
6	Insulated Connectors with covers	56	105	Each	5,880
7	Concreting of Pole, Stay sets & Base concreting			L.S	36479
8	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	3000
Total Cost of Material					119,752

3% storage & handling charges on items (1) to (6) 2,408

3% Contingencies on Materials 3,593

Labour & Transport 69,695

GST at 18 % on L&T 12,545

10% Estt. & Genl. Charges on Materials 11,975

Total 219,968

REC Construction Standard No. B-32/1984

**Cost data per Km of LT Line with 2 x 16 + 25 Sqmm AB Cable over 8 Mts.
PSCC Poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure, working load 140 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	8 M PSCC Pole	16	1,534	Each	24,544
2	Suspension clamp assembly with eye hook	14	70	Each	980
3	Dead end clamp assembly with eye hook	4	105	Each	420
4	Stay Set complete	4	1,057	Set	4,228
5	L.T. A.B. Cable 2 x 16 + 25 Sq.mm	1.02	28,999	K.M.	29,579
6	Insulated Connectors with covers	56	105	Each	5,880
7	Concreting of Pole, Stay sets & Base concreting			L.S	36479
8	Misc. Items like coil earthing, danger board, bolts & nuts, etc			L.S	3000
Total Cost of Material					105,110

3% storage & handling charges on items (1) to (6)	1,969
3% Contingencies on Materials	3,153
Labour & Transport	67,217
GST at 18 % on L&T	12,099
10% Estt. & Genl. Charges on Materials	10,511
Total	200,059

**Cost Data for Conversion of Single Phase 2 wire line to Three Phase 4 wire line
over existing 8 M PSCC poles at 65 Mts. Span, 75 Kg/sq.Mt wind pressure,
working load 140 Kgs.**

Sl. No.	Particulars	Qty.	Rate in Rs.	Unit	Amount in Rs.
1	55 Sq.mm AAA conductor	2.04	28345	KM	57823
2	LT 3 phase X arms	17	361	Each	6137
3	Back Clamps	17	77	Each	1309
4	Shackle Insulators with metal parts	12	54	Each	648.8112
5	Pin Insulators with pins	45	48	Each	2155.86
6	Stay sets complete	6	1057	Each	6342
	Total Cost of Material				74,416

3% storage & handling charges on items (1) to (6)	2,232
3% Contingencies on Materials	2,232
Labour & Transport	14,300
Dismantling Charges	1,000
GST at 18 % on L&T	2,574
10% Estt. & Genl. Charges on Materials	7,442
Total	104,196
Or Say	104,196

Less Credits

1	Single Phase cross arms (scrap)	51	11	Kg	561
2	Original Erection charges				2200
3	Dismantling charges				1100
4	Original Estt & Genl Charges				56
	Total				3917
	Or Say				3917
	Net Cost			Gross - Less	100,279

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1993

COST DATA FOR ERECTION OF 100 KVA - 11 KV/433 V CSP TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 100 KVA CSP TRANSFORMER (Aluminium)	124997.40	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	D.P. Structure	14,929	18,595
4	Erection of 11 K.V. H.G. Fuse set	1,749	932
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	880
7	Installation of HT Lightning Arresters	1,116	198
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
Total Cost of Material		169,982	40,051

3% Storage & handling charges	5,099
3% Contingencies on Materials	5,099
Labour & Transport	40,051
GST at 18 % on L&T	7,209
10% Estt. & General charges on Materials	16,998
Total Cost in Rs.	244,438
Or Say	244,438

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 63 KVA - 11 KV/433 V CSP TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 63 KVA CSP Distribution Transformer (Aluminium)	94,339.82	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	D.P. Structure	14,929	18,595
4	Erection of 11 K.V. H.G. Fuse set	1,749	932
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	Metering arrangement with CTs including cable connections and cleat arrangement	8,999	880
7	Installation of HT Lightening Arresters	1,116	198
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	139,324	40,051

3% Storage & handling charges 4,180

3% Contingencies on Materials 4,180

Labour & Transport 40,051

GST at 18 % on L&T 7,209

10% Estt. & General charges on Materials 13,932

Total Cost in Rs. 208,876

Or say 208,876

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 63 KVA - 11 KV/433 V TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 63 KVA Distribution Transformer (Aluminium)	94,340	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	Plinth for distribution transformer (5'x4'x8')	0	4,823
4	Erection of 11 K.V. H.G. Fuse set	1,749	932
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	880
7	Installation of HT Lightning Arresters	1,116	198
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
Total Cost of Material		124,395	26,279

3% Storage & handling charges 3,732

3% Contingencies on Materials

Labour & Transport 26,279

GST at 18 % on L&T 4,730

10% Estt. & General charges on Materials 12,440

Total Cost in Rs. 175,308

Or say 175,308

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

COST DATA FOR ERECTION OF 63 KVA - 11 KV/433 V TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 63 KVA CSP Distribution Transformer (Aluminium)	94,340	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	Erection of structure for mounting of transformer	4,910	863
4	Erection of 11 K.V. H.G. Fuse set	1,749	932
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	880
7	Installation of HT Lightning Arresters	1,116	198
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	129,305	22,319

3% Storage & handling charges 3,879

3% Contingencies on Materials 3,879

Labour & Transport 22,319

GST at 18 % on L&T 4,017

10% Estt. & General charges on Materials 12,931

Total Cost in Rs. 176,330

Or say 176,330

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981
COST DATA FOR ERECTION OF 100 KVA - 11 KV/433 V
CSP TRANSFORMER

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433 V 100 KVA CSP Distribution Transformer (Aluminium)	124,997	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	Construction of RCC Column type DTR Plinth of size 1'X1'X10',topslab 4'x4'x6" & beam size 4'X8'X8"	0	23,144
4	Erection of 11 K.V. H.G. Fuse set	1,749	932
5	Installation of L.T.H.G. Fuse sets including connections	968	484
6	L.T. Metering arrangement with CTs including cable connections and cleat arrangement	8,999	880
7	Installation of HT Lightning Arresters with earth connection	1,116	198
8	C.I. Pipe earthing (3 Nos.)	11,217	6,948
	Total Cost of Material	155,053	44,600

3% Storage & handling charges 4,652

3% Contingencies on Materials 4,652

Labour & Transport 44,600

GST at 18 % on L&T 8,028

10% Estt. & General charges on Materials 15,505

Total Cost in Rs. 232,490

Or say 232,490

REC - CONSTRUCTION STANDARD SPECIFICATION No. F3 & F4/1981

**COST DATA FOR ERECTION OF 25 KVA, 3-Ph, 11 KV/433 V/250 V
DISTRIBUTION TRANSFORMER (COPPER)**

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433V/250 V 25 KVA 3-Ph Distribution Transformer (Copper)	65,524	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	Erection of 11 KV HG Fuse set	1,749	932
4	Mounting arrangements for Transformer	4,910	550
5	Installation of L.T.H.G. Fuse sets including connect	968	484
6	C.I. Pipe earthing (2 Nos.)	7,478	4,632
7	Misc. items (like bolts & nuts, washers etc.)	500	
Total Cost of Material		87,135	18,612

3% Storage & handling charges	2,599
3% Contingencies on Materials	2,614
Labour & Transport	18,612
GST at 18 % on L&T	3,350
10% Estt. & General charges on Materials	8,714
Total Cost in Rs.	123,024
Or Say	123,024

**COST DATA FOR ERECTION OF 25 KVA, 3-Ph, 11 KV/433 V /250 V
CONVENTIONAL TRANSFORMER (Alluminium)**

S. No.	Particulars	Cost of Material (Rs.)	Labour & Transport (Rs.)
1	11 KV/433V/250 V 25 KVA 3-Ph Conventional Distribution Transformer (Aluminium)	58,060	9,394
2	Erection of 11 KV AB Switch (200A)	6,006	2,620
3	Erection of 11 KV HG Fuse set	1,749	932
4	Mounting arrangements for Transformer	4,910	550
5	Installation of L.T.H.G. Fuse sets including connect	968	484
6	C.I. Pipe earthing (2 Nos.)	7,478	4,632
7	Misc. items (like bolts & nuts, washers etc.)	500	
Total Cost of Material		79,671	18,612

3% Storage & handling charges 2,375

3% Contingencies on Materials 2,390

Labour & Transport 18,612

GST at 18 % on L&T 3,350

10% Estt. & General charges on Materials 7,967

Total Cost in Rs. 114,365

Or Say 114,365

REC - CONSTRUCTION STANDARD SPECIFICATION No. F-13/1987

COST DATA FOR ERECTION OF 25 KVA SINGLE PHASE 6.3 KV/0-240 V

C.S.P. TRANSFORMER ON EXISTING 8 M PSCC SUPPORT

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	25 KVA Oil Immersed Single Phase 6.3 KV/0-240 V CSP CRGO core Transformer (Copper)	1	46,904	Each	46,904
2	Mounting arrangements for Transformer	1	2,050	Set	2,050
3	C.I. Pipe earthing	2	3,739	Each	7,478
4	LT Distribution Box (1-Phase) with XLPE 70 sq mm cable and 100 A fuse unit completely	1	1,000	Each	1,000
5	Misc. items (like bolts & nuts, washers etc.)	L.S.	500	L.S.	500
Total Cost of Material					57,932

3% Storage & handling charges on items 1 to 3 1,693

3% Contingencies on Materials 1,738

Labour & Transport 3,000

GST at 18 % on L&T 540

10% Estt. & General charges on Materials 5,793

Total Cost in Rs. 70,696

Or Say 70,700

REC - CONSTRUCTION STANDARD SPECIFICATION No. F-13/1987
COST DATA FOR ERECTION OF 15 KVA SINGLE PHASE 6.3 KV/0-240 V
CRGO CORE C.S.P. TRANSFORMER ON EXISTING 8 M PSCC SUPPORT

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	15 KVA Oil Immersed Single Phase 6.3 KV/0-240 V CRGO Core Transformer (Copper)	1	25,869	Each	25,869
2	Mounting arrangements for Transformer	1	2,050	Set	2,050
3	C.I. Pipe earthing	2	3,739	Each	7,478
4	LT Distribution Box (1-Phase) with XLPE 70 sq mm cable and 100 A fuses complete.	1	1,000	Each	1,000
5	Misc. Items	L.S.	400		400
Total Cost of Material					36,797

3% Storage & handling charges on items 1 to 3	1,062
3% Contingencies on Materials	1,104
Labour & Transport	3,000
GST at 18 % on L&T	540
10% Estt. & General charges on Materials	3,680
Total Cost in Rs.	46,183

REC - CONSTRUCTION STANDARD SPECIFICATION No. H6 & H8/1981
COST DATA FOR RELEASE OF POLY PHASE AGRICULTURAL SERVICE
ERECTED ON SUPPORT

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	Three Phase 10-40A Meters with IRDA Port with PP Box	1	2,160	Each	2,160
2	3 Phase 63 A M.C.B.	1	1477	Each	1477
3	P.V.C. Cable 6 Sq.mm Single Core	90	8.91	Each	802
4	Installation of 2 KVAR Capacitor	1	550	Each	550
5	Misc. items such as Bolts, Nuts & Board etc.	L.S.	220	L.S.	220
Total Cost of Material					5,209

3% Contingencies on Materials 156

Labour & Transport 733

GST at 18 % on L&T 132

10% Estt. & General charges on Materials 521

Total Cost in Rs. 6,751

REC - CONSTRUCTION STANDARD SPECIFICATION No. H-1 TO H3/1981
COST DATA FOR DOMESTIC AND NON-DOMESTIC SERVICE CONNECTION (SINGLE PHASE)
WITH ELECTRONIC METER

S. No.	Particulars	Rate		Chargeable to DISCOM		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	Single Phase Electronic meter (5 A to 30 A) housed in a PP box	830	Each	1	830			830
2	M.C.B. 16 A	200.6	Each	1	201			201
3	P.V.C. Cable Single Core 2.5 Sq.mm	5	Mts.			60	300	300
4	G.I. Wire No. 6	48	Kg			1	48	48
5	P.V.C. Pipe 25 mm	30.3	Mts.			2	61	61
6	P.V.C. Bends 25 mm	6.1	Each			2	12	12
7	Misc.items (meter board & bolts & nuts etc.)	L.S.	L.S.		50		100	150
Total Cost of Material					1,081		521	1,601

3% Contingencies on Materials	32	16	48
Labour & Transport	160	340	500
GST at 18 % on L&T	29	61	90
10% Estt. & General charges on Materials	108	52	160
Total Cost in Rs.	1,409	990	2,399
Or Say			2,399

**REC - CONSTRUCTION STANDARD SPECIFICATION No. H1 TO H3/1981
COST DATA FOR DOMESTIC AND NON-DOMESTIC SERVICE CONNECTION
(THREE PHASE) (Electronic)**

S. No.	Particulars	Rate		Chargeable to DISCOM		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	3 Phase Electronic Energy Meter (10 A - 40 A) with PP Box	2160	Each	1	2,160			2,160
2	3 Phase 63 A M.C.B.	1477	Each	1	1,477			1,477
3	P.V.C. Cable Single Core 2.5 Sq.mm	5	Mts.			120	600	600
4	G.I. Wire No. 8	53	Kg			1	53	53
5	P.V.C. Pipe 40 mm	77.5	Mts.			2	155	155
6	P.V.C. Bends 40 mm	18.2	Each			2	36	36
7	Misc.	L.S.	L.S.				75	75
Total Cost of Material					3,637		919	4,556

3% Contingencies on Materials	109	28	137
Labour & Transport	320	440	760
GST at 18 % on L&T	58	79	137
10% Estt. & General charges on Materials	364	92	456
Total Cost in Rs.	4,488	1,559	6,047
Or Say			6,047

Note: Item Nos. 3 to 7 are to be borne & arranged by the consumer as per latest APTRANSCO rules.

**REC - CONSTRUCTION STANDARD SPECIFICATION No. H-5/1981
POLY PHASE SERVICE CONNECTION CHARGES FOR ERECTION OF
1 NO. INDUSTRIAL SERVICE (BELOW 20 H.P.) (ELECTRONIC METER)**

S. No.	Particulars	Rate		Chargeable to DISCOM		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	3-Phase (10 - 40 A) Electronic meter housed in a PP box	2160	Each	1	2,160			2,160
2	3 Phase 63 A M.C.B.	1477	Each	1	1,477			1,477
3	P.V.C. Cable Single Core 10 Sq.mm	12	Mts.			80	960	960
4	G.I. Wire 8 mm	48	Kg			1	48	48
5	P.V.C. Pipe 40 mm	77.5	Mts.			2	155	155
6	P.V.C. Bends 40 mm	18.2	Each			2	36	36
7	Misc. items viz. link clips, wooden box, bolts & nuts etc.	L.S.	L.S.		100		200	300
Total Cost of Material					3,737		1,399	5,136

3% Contingencies on Materials	112	42	154
Labour & Transport	320	440	760
GST at 18 % on L&T	58	79	137
10% Estt. & General charges on Materials	374	140	514
Total Cost in Rs.	4,601	2,101	6,701
Or Say			6,701

**REC - CONSTRUCTION STANDARD SPECIFICATION No. H-5/1981
POLY PHASE SERVICE CONNECTION CHARGES FOR ERECTION OF
1 NO. INDUSTRIAL SERVICE (20 HP & ABOVE) (LT TRIVECTOR METER)**

S. No.	Particulars	Rate		Chargeable to DISCOM		Chargeable to Consumers		Amount in Rs.
				Qty.	Amount	Qty.	Amount	
1	LT TVR Meters Cl. 0.5S (Including Box & 4 CTs)	5758	Each	1	5,758			5,758
2	3 Phase 63 A M.C.B.	1477	Each	1	1,477			1,477
3	P.V.C. Cable Single Core 10 Sq.mm	15	Mts.			80	1,200	1,200
4	G.I. Wire 8 mm	48	Kg			1	48	48
5	P.V.C. Pipe 40 mm	77.5	Mts.			2	155	155
6	P.V.C. Bends 40 mm	18.2	Each			2	36	36
7	Misc. items viz. link clips, wooden box, bolts & nuts etc.	L.S.	L.S.		100		200	300
Total Cost of Material					7,335		1,639	8,975

3% Contingencies on Materials	220	49	269
Labour & Transport	320	440	760
GST at 18 % on L&T	58	79	137
10% Estt. & General charges on Materials	734	164	897
Total Cost in Rs.	8,667	2,372	11,039
Or Say			11,039

**REC - CONSTRUCTION STANDARD SPECIFICATION No. H-5/1981
POLY PHASE SERVICE CONNECTION CHARGES FOR ERECTION OF
1 NO. INDUSTRIAL SERVICE (50 HP & UPTO 75 HP) (HT METERING)**

Amount in Rs.

S. No.	Particulars	Rate	Material		Labour			
			Qty.	Amount	Qty.	Amount		
1	DP Structure with 9.1 mts. PSCC poles	14929	Each	2	29,859	2	18,595	
2	11 KV 400 Amps conventional type AB switch	8,248	Each	2	16,496	2	2,984	
3	11 KV HG Fuse set	1,749	Each	2	3,498	2	1,864	
4	3x35 sq.mm 11 KV XLPE cable	317.67	Mts.	30	9,530	30	14,460	
5	End termination suitable for 35 sq.mm XLPE (Cable outdoor type)	1375	Each	4	5,500	4	6,544	
6	G.I. earthing (3 Nos. GI Pipe)	4299.9	Nos.	1	4,300	1	3,960	
7	11 KV CT PT 10-20/5	35,565	Each	1	35,565	1	870	
8	HT Trivector Meter (Clause 0.2 S)	7,950	Each	1	7,950	1	3,830	
9	Special type box for Trivector meter	5500	Each	1	5,500	1	200	
10	Transport of material						1,650	
11	Misc. items viz. link clips, wooden box, bolts & nuts etc.	L.S.	L.S.				550	
Total Cost of Material					118,198		55,507	-

3% Contingencies on Materials 3,546

Labour & Transport 55,507

GST at 18 % on L&T 9,991

10% Estt. & General charges on Materials 11,820

Total Cost in Rs. 199,062

Or Say Rs. 199,062.00

COST DATA FOR STREET LIGHT SERVICE CONNECTION (SINGLE PHASE)

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	1 Phase (5-20A) Electronic Meter housed in a PP box	1	830	Each	830
2	1 Phase 20 A M.C.B.	1	179	Each	179
3	Light sensitive switch	1	400	Each	400
4	P.V.C. Cable 4 Sq.mm Single Core	15	10	Mts.	150
5	P.V.C. Pipe 25 mm	2	30	Mts.	61
6	P.V.C. Bends 25 mm	2	6.10	Each	12
7	Moulded Distribution Box	1	250	Each	250
8	Wooden, Plugs, clamps, bolts, nuts, link clips etc.	L.S.		L.S.	150
Total Cost of Material					2,031

3% Contingencies on Materials	61
Labour & Transport	600
GST at 18 % on L&T	108
10% Estt. & General charges on Materials	203
Total Cost in Rs.	2,895
Or Say	2,895

COST ESTIMATE FOR ERECTION OF 1 NO. LT ELECTRONIC TRIVECTOR METERS ON LV SIDE OF DTR

Sl. No.	Particulars	Qty.	Unit	Rate per (in Rs.)	Amount (in Rs.)
1	LT 3-Phase class 0.5S Accuracy CT Operated Energy Meter Housed in a box with 3 Nos. CTs	1	Each	5,758.4	5,758.4
2	3.5 Core 95 LT XLPE Cable (for 10 meters) to LT side of DTR with cleat wiring.	LS			3,240.6
	Total				8,999.0

3% Contingencies 270.0

Fixing of CT operated meter on LV side of Distribution transformers with box including cost of lugs, clamps, GI wire and transport from district store to site. 880.0

GST at 18 % on L&T 158.4

10% Estt. & Genl. Charges 899.9

Total Cost in Rs. 11,207.3

Or Say 11,207.0

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 2X8MVA POWER TRANSFORMERS AND NF = 6 NO. 11 KV FEEDERS (WITH OUT 11 KV 2 MVAR CAPACITORS BANK)

Rs. in Lakhs

Sl. No		Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 (a)	Lands and Rights	LS	As per local conditions		50.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	16.50
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	13	0.584	MT	7.59
8	Transformers				
a)	33/11kv 8 MVA Power Transformer	2	42.834	Each	85.67
b)	11kv / 433 v 25 kva 3-ph Stn. Transformer (CSP copper)	1	0.581	Each	0.58
9	Circuit Breakers (including trivector meters)				
a)	33 KV Group control VCB with CTs and panel	1	3.956	Each	3.96
b)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=6)	6	2.668	Each	16.01
c)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
10	Control Circuit Panels				
a)	AC Supply Panel	1	0.330	Each	0.33
b)	Alarm Panel	1	0.330	Each	0.33
11	Instrument Transformers				
a)	33KV PT (single unit)	3	0.217	Each	0.65
b)	11kv P.T (3 Phase)	1	0.198	Each	0.20
12	Lightning Arrestors				
a)	33KV 10KA	6	0.033	Each	0.20
b)	11KV Line Type (NF=6)	18	0.016	Each	0.29
c)	11KV Station Type 10 KA	6	0.016	Each	0.10
13	Isolating Switches				
a)	33KV 800A AB Switch (Double Breaker)	3	0.363	Each	1.09
b)	11KV 800A AB Switch (Double Breaker)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (Double Breaker)	12	0.082	Each	0.99
d)	11KV 200A AB Switch	1	0.060	Each	0.06
e)	11KV HG fuse Switch	3	0.017	Each	0.05
f)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
14	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.45
15	220 Volts 80 AH SMF Battery Set including Battery Charger and DC DB	1	3.10	Each	3.10
16	Earthing of Power Transformer VCBs, AB Swiches, Structures with 75x8mm GI Flat			LS	1.98
Sub Total					216.38

3% Contingencies on items 7 to 15

3.86

1% T&P Charges on items No. 7 to 15

1.29

10% Erection and transport and commissioning charges on items 7 to 15

12.86

GST at 18% on L&T

2.32

10% Establishment and General Charges

21.64

Grand Total

258.34

Or Say

258.00

**COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 2X8MVA POWER TRANSFORMERS AND
NF = 6 NO. 11 KV FEEDERS (WITH 11 KV 2 MVAR CAPACITORS BANK)**

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in	Unit	Amount (Rs. in
1 (a)	Lands and Rights	LS	As per local conditions		50.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	16.50
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	20	0.584	MT	11.68
8	Transformers				
a)	33/11kv 8 MVA Power Transformer	2	42.834	Each	85.67
b)	11kv / 433 v 25 kva 3-ph Stn. Transformer	1	0.581	Each	0.58
9	Circiut Breakres (including trivector meters)				
a)	33 KV Group control VCB with CTs and panel	1	3.956	Each	3.96
b)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=6)	6	2.668	Each	16.01
c)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
10	Control Circiut Panels				
a)	AC Supply Panel	1	0.330	Each	0.33
b)	Alaram Panel	1	0.330	Each	0.33
11	Instrumnet Transformers				
a)	33KV PT (single unit)	3	0.217	Each	0.65
b)	11kv P.T (3 Phase)	1	0.198	Each	0.20
12	Lightning Arrestors				
a)	33KV 10KA	6	0.033	Each	0.20
b)	11KV Line Type (NF=6)	18	0.016	Each	0.29
c)	11KV Station Type 10 KA	6	0.016	Each	0.10
13	Isolating Switches (Double Breaker)				
a)	33KV 800A AB Switch (Double Breaker)	3	0.363	Each	1.09
b)	11KV 800A AB Switch (Double Breaker)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (Double Breaker)	12	0.082	Each	0.99
d)	11KV 200A AB Switch	1	0.060	Each	0.06
e)	11KV HG fuse Switch	3	0.017	Each	0.05
f)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
14	2MVAR 11KV Capacitor Bank along with Associated Equipment (Type A)	1	7.990	Each	7.99
15	220 Volts 80 AH Battery Set including Battery Charger and DC DB	1	3.100	Each	3.10
16	Earthing of Power Transformer VCBs,AB Swiches,Strucutres with 75x8mm GI Flat			LS	1.98
Sub Total					228.01

3% Contingencies on items 7 to 15

4.21

1% T&P Charges on items No. 7 to 15

1.40

10% Erection and transport and commissioning charges on items 7 to 15

14.02

GST at 18% on L&T

2.52

10% Establishment and General Charges

22.80

Grand Total

272.97

Or Say

273.00

COST DATA FOR ERECTION OF 33/11KV INDOOR SUBSTATION WITH 2 Nos. 8MVA POWER TRANSFORMERS & 6 Nos. 11KV FEEDERS

Sl. No.	PARTICULARS	QTY	RATE	UNIT	AMOUNT Rs in
1	Lands and rights	Ls	As per local conditions		50.00
a)	Plantation of Trees	Ls	0.15	LS	0.15
2	Civil Works				
i	Construction of Control room	LS	22.00	LS	22.00
ii	Compound wall, Gate,levelling of site and Borewell	LS	4.95	LS	4.95
iii	special foundations				
iv	Laying of Cable Trench	LS	3.03	LS	3.03
v	Electrification and sanitation arrangements	LS	0.83	LS	0.83
vi	Construction of Transformer plinth	LS	0.83	LS	0.83
3	Station Auxillaries				0.00
a)	Yard lighting	6	0.07	E	0.43
b)	Spreading of Metal	Ls	0.11	LS	0.11
c)	Telephone (P &T) and wireless set	Ls	1.38	LS	1.38
d)	Fire fighting Equipment, Miscellenous items like Rubber Mats, Earth rods, Helmets, Gloves, Furniture, T&P etc	Ls	1.10	LS	1.10
e)	Water supply arrangements	Ls	0.55	LS	0.55
4	Foundations for breakers etc.	Ls	0.66	LS	0.66
5	Bus bar arrangements	Ls	2.75	LS	2.75
6	Control cables	Ls	1.10	LS	1.10
7	Power and Distribution Transformers				
a)	33/11 KV, 8 MVA Power Transformers	2	42.834	E	85.67
b)	25KVA 11/04KV Station Transformer	1	0.581	E	0.58
8	Indoor switch gear & Control panels				
a)	33 KV, 25 KVA, 1250 A, 8 Panels SF-6, GIS Switch gear consisting of the following				
i	1250 A Transformers control cubicals 2 Nos.				
ii	1250 - A Incoming feeder cubicals - 3 Nos.				
iii	1250 - A Bus coupler - 1 No.				
b)	11 KV, 20 KVA, 1250 A ,14 panels SF6 GIS switch gear consisting the following equipments	1	180.00	E	180.00
i	1250 A Transformers control cubicals 2 Nos.				
ii	1250 - A feeder cubicals - 6 Nos.				
iii	1250 - A Bus coupler - 1 No.				
iv	Bus transformers panel - 1 No.				
v	Adopter for station transformer - 1 No.				
9	Alaram and Annunciation Panel	1	0.31	E	0.31
10	AC Panel	1	0.33	E	0.33
11	220 Volts, 200 AH, Battery with trickle charger	1	3.10	E	3.10
12	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.45
13	Earthing Arrangements				
a)	MS Flat75x8 mm for providing earthing matting complete	2	0.564	MT	0.58
b)	MS Flat 50x6 mm for earthing the equipment	2	0.488	MT	0.58
c)	Earthing electrodes & GI pipes	LS	0.90	LS	0.90
14	RS Joist 175x85/150x150(Girder poles) for base of switch gear	1.5	0.5841	MT	0.88
Total					363.23
3% Contingencies on Items 7 To 14					8.20
10% Transport, Erection and Commissioning charges on items 7 To 14					27.34
GST at 18% on L&T					4.92
10% Establishment and General Charges					36.32
Grand Total					440.01

**COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 9.1 Mtrs PSCC POLES, 2 X 5 MVA
POWER TRANSFORMERS AND 5 NO. 11 KV FEEDERS
(WITH 11 KV 2 MVAR CAPACITORS BANK)**

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 (a)	Lands and Rights	LS	As per local		11.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	11.00
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	4.5	0.584	MT	2.63
8	9.1 meters PSCC poles	30	0.03	Each	0.88
9	Transformers				
a)	33/11kv 5 MVA Power Transformer	2	32.95	Each	65.89
b)	3-Phase 25 KVA (CSP) (AI)	1	0.581	Each	0.58
10	Circuit Breakers (including trivector meters)				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=5)	5	2.668	Each	13.34
b)	20 KA 11 kv LV VCB including Control panel and CTs	2	3.134	Each	6.27
11	Control Circuit Panels				
a)	AC Supply Panel	1	0.303	Each	0.30
b)	Alaram Panel	1	0.303	Each	0.30
12	Instrumnet Transformers				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
13	Lightning Arrestors				
a)	33KV 10KA	6	0.033	Each	0.20
b)	11KV Line Type (NF=5)	15	0.016	Each	0.24
c)	11KV Station Type 10 KA	6	0.016	Each	0.10
14	Isolating Switches				
a)	33KV 800A AB Switch (Double Break)	3	0.363	Each	1.09
b)	11KV 800A AB Switch (NT X 1+1) (Double Break)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (NF X 2+2) (Double Break)	12	0.082	Each	0.99
d)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
15	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.40
16	24 Volts 40 AH Battery Set including Battery Charger	7	0.280	Each	1.96
17	2MVAR 11KV Capacitor Bank along with Associated Equipment	1	7.990	Each	7.99
18	Earthing of Power Transformer VCBs, AB Swiches, Strucutres with 75x8mm GI Flat			LS	1.98
	Sub Total				147.34

3% Contingencies on items 7 to 17	3.12
1% T&P Charges on items No. 7 to 17	1.04
Erection and transport and commissioning charges on items 7 to 17 at 10%	10.41
GST at 18% on L&T	1.873
10% Establishment and General Charges	14.73
Total	178.51

Or say **179.00**

Note NF = No. of 11 KV Feeders, The number of outgoing feeders at substation limited to the demand in MVA i.e. if substation demand is 5 MVA, the number of feeders should not exceed five.
In GHMC area include 33 KV group control VCB

**COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH 9.1 Mtrs PSCC POLES, 2 X 5 MVA
POWER TRANSFORMERS AND 5 NO. 11 KV FEEDERS
(WITH OUT 11 KV 2 MVAR CAPACITORS BANK)**

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in	Unit	Amount (Rs. in
1 (a)	Lands and Rights	LS	As per local conditions		11.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	11.00
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.00
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	6	0.584	MT	3.50
8	9.1 meters PSCC poles	38	0.029	Each	1.12
9	Transformers				
a)	33/11kv 5 MVA Power Transformer	2	32.95	Each	65.89
b)	3-Phase 25 KVA (CSP) (AI)	1	0.581	Each	0.58
10	Circuit Breakers (including trivector meters)				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=	5	2.668	Each	13.34
b)	20 KA 11 kv LV VCB including Control panel and CTs	2	2.740	Each	5.48
11	Control Circuit Panels				
a)	AC Supply Panel	1	0.303	Each	0.30
b)	Alarm Panel	1	0.303	Each	0.30
12	Instrument Transformers				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
13	Lightning Arrestors				
a)	33KV 10KA	6	0.033	Each	0.20
b)	11KV Line Type (NF=5)	15	0.016	Each	0.24
c)	11KV Station Type 10 KA	6	0.016	Each	0.10
14	Isolating Switches				
a)	33KV 800A AB Switch (Double Breaker)	3	0.363	Each	1.09
b)	11KV 800A AB Switch (NT X 1+1) (Double Breaker)	3	0.235	Each	0.70
c)	11KV 400A AB Switch (NF X 2+2) (Double Breaker)	12	0.082	Each	0.99
d)	33KV Horn Gap Fuse Set (1XNT)	2	0.000	Each	0.00
15	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.40
16	24 Volts 40 AH Battery Set including Battery Charger	7	0.280	Each	1.96
17	Earthing of Power Transformer VCBs, AB Switches, Structures with 75x8mm GI Flat			LS	1.80
	Sub Total				139.44

3% Contingencies on items 7 to 16

2.89

1% T&P Charges on items No. 7 to 16

0.96

Erection and transport and commissioning charges on items 7 to 16 at 10%

9.64

GST at 18% on L&T

1.735

10% Establishment and General Charges

13.94

Total

168.61

Or say

168.61

Note : NF = No. of 11 KV Feeders, The number of outgoing feeders at substation limited to the demand in MVA i.e. if substation demand is 5 MVA, the number of feeders should not exceed five.

COST DATA FOR ERECTION OF 33/11 KV SUBSTATION WITH PSCC POLES, 1 X 5 MVA POWER TRANSFORMERS and 3 NO. 11 KV FEEDERS WITH 11 KV 2 MVAR CAPACITORS BANK

Rs. in Lakhs

Sl. No	Particulars	Qty.	Rate (Rs. in lakhs)	Unit	Amount (Rs. in lakhs)
1 (a)	Lands and Rights	LS	11.00		11.00
(b)	Plantation of Trees	LS		LS	0.15
2	Control Room and Consumer service centre (including furniture)	LS		LS	12.00
3	Station Auxillaries				
a)	Peripheral, Security Fencing, Approach road, retaining wall around switchward with gravel filling, gate and bore well	LS		LS	11.00
b)	Yard lighting	8	0.07	Each	0.58
c)	Fire fighting Equipment	LS		LS	0.70
d)	P&T Phone and wireless set	LS		LS	0.05
4	Foundations for structures, PTRs & breakers	LS		LS	3.30
5	Bus bars, Jumpers, Connectors claps etc.	LS		LS	1.32
6	Control Cables	LS		LS	1.19
7	Structural Steel	5.5	0.584	MT	3.21
8	9.1 meters PSCC poles	23	0.029	Each	0.68
9	8 meters PSCC poles	8	0.015	Each	0.12
10	Transformers				
a)	33/11kv 5 MVA Power Transformer	1	32.95	Each	32.95
b)	3-Phase 25 KVA (CSP) (AI)	1	0.581	Each	0.58
11	Circiut Breakres (including trivector meters)				
a)	20 KA 11 kv feeder VCB including Control panel and CTs (NF=3)	3	2.668	Each	8.00
b)	20 KA 11 kv LV VCB including Control panel and CTs	1	2.740	Each	2.74
12	Control Circiut Panels				
a)	AC Supply Panel	1	0.303	Each	0.30
b)	Alaram Panel	1	0.303	Each	0.30
13	Instrumnet Transformers				
a)	11kv P.T (3 Phase)	1	0.198	Each	0.20
14	Lightning Arrestors				
a)	33KV 10KA	6	0.033	Each	0.20
b)	11KV Line Type (NF=3)	9	0.016	Each	0.15
c)	11KV Station Type 10 KA	3	0.016	Each	0.05
15	Isolating Switches				
a)	33KV 800A AB Switch	3	0.363	Each	1.09
b)	11KV 800A AB Switch (NT X 1+1)	2	0.235	Each	0.47
c)	11KV 400A AB Switch (NF X 2+2)	8	0.082	Each	0.66
d)	33KV Horn Gap Fuse Set (1XNT)	1	0.000	Each	0.00
16	Data Acquisition equipment (SIM, modem, cabling etc)			LS	0.30
17	24 Volts 40 AH Battery Set including Battery Charger	4	0.280	Each	1.12
18	2MVAR 11KV Capacitor Bank along with Associated Equipment	1	7.990	Each	7.99
19	Earthing of Power Transformer VCBs,AB Swiches,Strucutres with 75x8mm GI Flat			LS	1.80
	Sub Total				104.19

3% Contingencies on items 7 to 17

1.83

1% T&P Charges on items No. 7 to 17

0.61

10% Erection and transport and commissioning charges on items 7 to 17

6.11

GST at 18% on L&T

1.100

10% Establishment and General Charges

10.42

Total

124.27

Or say

124.30

Note : NF = No. of 11 KV Feeders, The number of outgoing feeders at substation limited to the demand in MVA i.e. if substation demand is 5 MVA, the number of feeders should not exceed five.

**Cost data for erection of 11 KV Bay Extension in existing 33/11 KV sub-station
(with RS Joist)**

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	150X150 mm H type beam of 8.5 mts length (2 Nos. RS Joist)	0.598	58,410.00	MT	34953.00
2	100x50 mm Channel	0.166	49,324.00	MT	8183.00
3	MS flat 75x8 mm	0.05	56,433.50	MT	2822.00
4	AB switch 400 Amps conventional type	1	8,248.20	Each	8248.00
5	200 sqmm ACSR Conductor (Panther-conductor)	0.02	152,537.42	KM	3051.00
6	11 KV Polymer String insulator (C&T)	18	124	Each	2230.00
7	Earthing arrangement (20 mts length with 75x8 MS flat (20x4.7=94)	94	56.43	KG	5305.00
8	Pad clamps, bolts & nuts & Miscellaneous items	LS			1650.00
	Sub-Total				66442.00

3% Contingencies 1993.26

Labour & Transport 16061.93

GST at 18% on L&T 2891.147

10% Establishment & General charges 6644.200

Grand Total 94032.53

or say 94033.00

**Cost data for erection of 11 KV Bay Extension in existing 33/11 KV sub-station
(with 9.1 mts PSCC poles)**

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	9.1 mts. PSCC poles	2	2,949	Each	5898.00
2	100x50 mm Channel	0.166	49,324.00	MT	8183.00
3	MS flat 75x8 mm	0.05	56,433.50	MT	2822.00
4	AB switch 400 Amps conventional type	1	8,248.20	Each	8248.00
5	200 sqmm ACSR Conductor (Panther conductor)	0.02	152,537.42	KM	3051.00
6	11 KV Polymer String insulator (C&T)	18	124	Each	2230.00
7	Earthing arrangement (20 mts length with 75x8 MS flat (20x4.7=94))	94	56.43	KG	5305.00
8	Pad clamps, bolts & nuts & Miscellaneous items	LS			1650.00
Sub-Total					37387.00

3% Contingencies	1121.61
Labour & Transport	16061.93
GST at 18% on L&T	2891.147
10% Establishment & General charges	3738.700
Grand Total	61200.38

or say 61200.00

Cost Data for 33 KV Bay Extension in 33/11 KV substation

Sl. No	Description of Material	Qty	Unit	Rate	Amount in Rs.
1	150 x 150 RSJ pole (8m)	0.6	MT	58,410.00	35046
2	100 x 50 mm MS channel	0.27	MT	49,324.00	13317
3	75 x 8mm flat for clamps & earthing	0.2	MT	56,433.50	11286.7
4	200 sqmm Panther conductor	0.02	KM	152,537.42	3050.748
5	Strain Insulator set with metal parts (each set consists 3 Nos 11 KV strain insulators)	6	Set	372	2230
6	Erection of 33 KV AB switch (800 Amps, Conventional)	1	Each	36,348.59	36348.59
7	Miscellaneous items like fabrication of channels & pad clamps etc.		LS		2750
	Sub-Total				104030

3% Contingencies	3120.89
3% S&H charges	3120.89
Labour & Transport	16771.70
GST at 18 % on L&T	3018.91
10% Estt & General charges on material	10402.97

Total **140465.08**
Or Say Rs **140500.00**

Cost-Data for Extention of 33KV Bay at 132/33KV Sub-station

Sl. No.	Description	Qty	Rate	Per	Amount in Rs.
1	Galvanised steel such as M.S.angles, flats, channels for TC & TD towers. (GHMC SSR Towers sheet)	5.00	76174	MT	380871
2	Spacer clamps for 33KV bus	9	533	Each	4797
3	Spacer clamp with T off zebra for one feeder	3	161	Each	483
4	33 KV Polymer String Insulator (B&S)	8	282	Each	2259
5	Tension hardware for twin zebra	6	2,638	Each	15828
6	Zebra condutor	0.150	299369	KM	44905
7	33KV AB Switch 800 A	1	36349	Each	36349
8	Twin Zebra connector	12	600	Each	7200
9	T Clamps	12	500	Each	6000
10	MS.Flat 100x16	0.63	46904	MT	29550
11	MS.Flat 50X8	0.62	51817	MT	32127
12	GI Flat 100X16	0.151	63235	MT	9548
13	GI Flat 50X8	0.155	63478	MT	9839
14	Civil works for erection of towers in sub-station yard and other miscellaneous items.			LS	100000
Sub-Total					679755

3% S&H charges on Material	17393
3% Contingencies on Material	17393
Labour & Transport	112121
GST at 18 % on L&T	20181.78
10% Estt. & Gen. Chargtes	67976
Gross Total	914819

Or Say in Rs. 914819

Cost Data for erection of 11 KV breaker in sub-station

Sl. No	Description of work	Qty	Unit	Rate	Amount in Rs.
1	11 KV VCB along with all Accessories Including CTs	1	Each	266778	266778.00
2	4x2.5 sqmm Control cable	0.05	KM	74500	3725
3	Earthing arrangements	LS			1650
4	Miscellaneous items like conductor and clamps etc	LS			1650
Sub-Total					273803

3% Contingencies	8214
3% S&H charges	8214
Labour & Transport	24776
GST at 18 % on L&T	4459.70
10% Estt & General charges	27380
Total	346847

**Cost-Data for erection of 33 KV VCB and Twin feeder Control Panel
at 132/33KV Sub-stations**

S. No.	Description of work	Qty	Rate	Per	Amount in Rs.
1	33 KV VCB with relay& CTs (400-200-100/1-1-1A)	1	395,604.44	Each	395604
2	LT PVC Copper Control Cable 10 C x2.5 Sq.mm	0.75	180,110.48	KM	135083
3	LT PVC Copper Control Cable 4 C x2.5 Sq.mm	0.75	74,500.01	KM	55875
4	33KV LAS line type	3	3,274.50	Each	9824
5	33 KV Twin feeder control panel	1	385,643.32	No	385643.32
6	Miscellaneous items			LS	1100
	Sub-Total				983129

3% S&H charges 29494

3% Contingencies on material 29494

Labour & Transport 81816

GST 18 % on L&T 14726.84

10% Estt. & General Charges 98313

Gross Total 1236972

Or Say Rs. 1236972

Cost data for erection of 2 MVAR Capacitor Bank

S. No.	Particulars	Qty.	Rate in Rs.	Per Unit	Amount in Rs.
1	2 MVAR 11KV Capacitor Bank along with associated Equipment (Capactors, Structure and VCB) (Type A)	1	799,000.00	Each	799000
2	24 volts 40AH Battery Set including Battery Charger	1	28,000.00	Each	28000
3	M.S.Flat 50x6mm	0.36	48,816.60	MT	17574
4	Panther Conductor	0.05	152,537.42	KM	7627
5	4 Core 2.5 Sqmm PVC Copper Control Cable	0.05	74,500.01	KM	3725
6	10 Core 2.5 Sqmm PVC Copper Control Cable	0.1	180,110.48	KM	18011
7	2 Core 2.5 Sqmm PVC Copper Control Cable	0.06	44,604.00	KM	2676
8	11KV Post type insulators	3	315.00	Each	945
9	Cost of CI pipe of 100 mm dia, 8 mm thick and 2.75 Mts long	2	3494	Each	6988
10	11KV H.G. Fuse Set with Insulators	1	1,749.00	Each	1749
11	11KV LA's Station type	3	1,617.90	Each	4854
12	M.S. Channel 100x50mm	0.24	49,324.00	MT	11838
13	Miscellaneous items	LS			550.00
	Sub-Total				903537.00

3% Contingencies	27106.11
Labour ,Transport & Commsioning charges	72763.28
GST at 18 % on L&T	13097.391
10% Establishment & General charges	90353.7

Grand Total 1106857.49
or say 1106857.00

Cost Data for Enhancement of capacity of existing Power Transformer from 5 MVA to 8 MVA.

Sl. No	Particulars	Qty	Rate in Rs.	Unit	Amount in Rs.
1	33/11 KV 8 MVA Power Transformer	1	4283400.00	Each	4283400
2	Erection of 33 KV VCB with directional relay	1	395,604.44	Each	395604
3	Miscellaneous Items			LS	50000
		Sub-Total			4729004

3 % Storage & Handling charges	141870
3% Contingencies on material	141870
Labour & Transport	120000
GST at 18% on L&T	21600.00
10% Estt & General charges on material	472900
Add: Dismantling charges	50000

Grand Total 5677244

Or
say 5677244

Less Credit

Less Credit has to be valued as per the respective PTR book value in SAP, if data is not available in SAP, the following value may be considered.

1	33/11KV 5 MVA Power Transformer	1	3294736.46	Each	3294736
	Depreciation 40% (Variable as per life served)		1317895.00		1317895
				Net	1976841
	Original erection charges (SWR 21275 MP)				35280
	Original dismantling charges				17640
	10% Estt. & General charges				197684
			Total		2227445
			Or Say	Rs.	2227445
	Net Amount = Grand total - Less credit		5677244	2227445	3449799

Cost data for laying of 3 core 300 Sq.mm 11 KV UG Cable

Sl. No.	Description of the material	Qty	Rate	Unit	Amount in Rs.
1	Laying 11 KV 3 core 300Sq.mm UG Cable at depth of 1.20mtrs along CC road	1	1386500.00	KM	1386500.00
2	Erection of 3 way RMU (SF6) outdoor type	1	561680.00	Each	561,680.00
3	Straight through joints for 3 core 11KV 300Sq.mm UG Cable	1	3176	Each	3176.00
4	End termination suitable for 3 core 300 Sq.mm UG cable	4	2021	Each	8084.00
5	Earthing of Cable with GI pipe of 2mt length	3	733.00	Nos	2199.00
	Sub-Total				1961639.00

3 % storage & handling charges	41595.00
3 % contingencies	41595.00
Labour and Transport	514570.10
GST at 18 % on L&T	92622.618
10 % Estt & General charges	196163.90

Grand Total 2848185.62

Or Say Rs 2848186

Cost data for laying of 3 core 400Sq.mm 33KV UG Cable

Sl. No	Description of the material	Qty	Rate	Unit	Amount in Rs.
1	Laying 33 KV 3 core 400Sq.mm UG Cable at depth of 1.20mtrs along CC road	1	2488620.00	KM	2488620.00
2	Straight through joints and end terminators suitable for 3 core 33KV 400Sq.mm UG Cable and Hume pipes and GI pipe (15% of cost cable)	1	5000	Each	5000.00
3	End termination suitable for 400 Sq.mm (outdoor type)	2	2310	Nos	4620.00
4	Earthing of Cable with GI pipe of 2mt length	2	733.00	Nos	1466.00
Sub-Total					2499706.00

3 % Storage & handling charges 74658.60

3 % Contingencies 74658.60

Labour and Transport 599986.20

GST at 18 % on L&T 107997.516

10 % Estt & General charges 249970.60

Grand Total 3606977.52

Or Say Rs 3606978

Erection of Non Galvanised M+3 Tower as per ASCI Standard without excavation (for span length 100m for angle deviation 20degrees to 60degrees/Cut point/Deadend)

S. No.	Particulars	Qty.	Per Unit	Rate	Amount in Rs.
1	Supply of Non Galvanised M+3 type tower as per Specification.	1.468	MT	54174.12	79527.61
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	158	KG	100.49	15877.42
3	Fabrication of tower Parts as per Specification	1.468	MT	6352.50	9325.47
4**	Excavation of pit including dewatering, planking, showing and shuttering(where ever necessary) and leveling a) in all types of soils such as BC, red earth, hard gravel etc., b) in hard rock sites (where blasting is prohibited) with size 1.2x1.2x3.3 mtr i.e.4.752 cum	4.752	CUM		
5	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days	4.752	CUM	7166.78	34056.54
6	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering,transport of material and bolts and nuts etc.,	1.468	MT	7507.50	11021.01
7	Tack welding of total tower nuts and bolts	1	Job	1732.50	1732.50
8	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2	Each	1708.82	3417.64
9	Transport of Material to site including loading and unloading	1.626	MT	2310.00	3756.06
10	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	1.468	MT	2175.80	3194.07
b	Labour charges for painting including scratching and cleaning of tower	1.468	MT	847.77	1244.53

S. No.	Particulars	Qty.	Per Unit	Rate	Amount in Rs.
c	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc.,	1.468	MT	1289.20	1892.55
d	Labour charges for painting including scratching and cleaning of tower	1.468	MT	480.48	705.34
				Total:	165750.74

GST will be extra

(**) Note:- (1) Earth work excavation of Hard Rock removal (where blasting is prohibited) rate to be calculated as per code SWR10856 -- 985/- Per Cum. The quantity of earth work excavation with Hard Rock removal may vary based on the site condition.

This quantity is to be certified by the field Engineer and the same has to be deducted from the quantity of excavation of pit with hard gravel at the time of billing.

(2) The material has to be certified before dispatch of materials to the site by field Engineer not below the rank of Divisional Engineer.

(*) Note: - (3) the steel used for the fabrication of towers should be of Tata steel, sail steel, vizag steel or zindal steel to be certified by the field Engineer not below the rank of Divisional Engineer.

Tower details

1	Weight of M type tower	1.29 MT
2	Weight of 1 No. extension of 3 Mts	0.335 MT
3	Weight of M+3 tower	1.626 MT
4	Weight of M+6 tower	1.962 MT
5	Weight of M+9	2.294 MT
6	Weight of SIX arms	0.091 MT

stu (110X110X8) **110X110X10**= 4.56 mts

100X100X8=1.998 mts

80X80X8 =1.898 mtrs

65X65X6 = 2.274 mts

50X50X6=2.761 mtrs

Total height 13.5 mts

Depth of tower below ground level : 3.2 mts

Height of tower above ground level : 10.3 mts.

Erection of Non-Galvanised L+3 Tower as per ASCI Standard without excavation (for span length 100mts for angle deviation between 2degrees to 20degrees)

S. No.	Particulars	Qty.	Per Unit	Rate	Amount
1	Supply of Non-Galvanized L+3 type tower as per Specification.	1.05	MT	54174.12	56882.83
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	168	KG	100.49	16882.32
3	Fabrication of tower Parts as per Specification	1.05	MT	6352.50	6670.13
4	Excavation of pit including dewatering, planking, showing and shuttering(where ever necessary) and leveling a) in all types of soils such as BC, red earth, hard gravel etc., b) in hard rock sites (where blasting is prohibited) with size 1.0x1.0x3.0 mtr i.e.3.0cum	3	CUM		
5	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days i.e 3.15 cum	3.15	CUM	6887.27	21694.88
6	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering,transport of material and bolts and nuts etc.,	1.05	MT	7507.50	7882.88
7	Tack welding of total tower nuts and bolts	1	Job	1732.50	1732.50
8	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc.,	2	Each	1708.82	3417.64
9	Transport of Material to site including loading and unloading	1.22	MT	2310.00	2813.58
10	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				

S. No.	Particulars	Qty.	Per Unit	Rate	Amount
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	1.05	MT	2175.80	2284.59
b	Labour charges for painting including scratching and cleaning of tower	1.05	MT	847.77	890.16
c	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc.,	1.05	MT	1289.20	1353.66
d	Labour charges for painting including scratching and cleaning of tower	1.05	MT	480.48	504.50
				Total:	123009.66

GST will be extra

(**) Note:-(1) Earth work excavation of Hard Roack removal (where blasting is prohibited) rate to be calculated as per code SWR10856 -- 985/- Per Cum. The quantity of earth work excavation with Hard Rock removal may vary based on the site condition.

This quantity is to be certified by he field Engineer and the same has to be deducted from the quantity of excavation of pit with hard gravel at the time of billing.

(2) The material has to be certified before dispatch of materials to the site by field Engineer not below the rank of Divisional Engineer.

(*) Note: -(3) the steel used for the fabrication of towers should be of Tata steel, sail steel, vizag steel or zindal steel to be certified by the field Engineer not below the rank of Divisional Engineer.

Tower details

1	Weight of L type tower including nuts&bolts	0.9565 MT
2	Weight of 1 No. extension of 3 Mts	0.26325 MT
3	Weight of L+3 tower	1.219
4	Weight of L+6 tower	1.483
5	Weight of L+9	1.746
6	Weight of each arm	0.084 MT
stubs	90X90X8 = 4.256 mts	
	80X80X8=1.998 mts	
	65X65X6 =2.898 mtrs	
	50X50X5 = 1.274 mts	
	45X45X5=2.726 mtrs	
	Total height 13.15 mts	
	Depth of tower below ground level : 3.0 mts	
	Height of tower above ground level : 10.15mts.	

Erection of Non-Galvanised K+3 Tower as per ASCI Standard without excavation (for span length 100mts for angle deviation not exceeding 2degrees)

S. No.	Particulars	Qty	Per Unit	Rate	Amount
1	Supply of Non Galvanised K+3 type tower as per Specification.	0.75	MT	54174.12	40630.59
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.(MP SSR)	118.27	KG	100.49	11884.95
3	Fabrication of tower Parts as per Specification	0.75	MT	6352.50	4764.38
4**	Excavation of pit including dewatering, planking, showing and shuttering(where ever necessary) and leveling a) in all types of soils such as BC, red earth, hard gravel etc., b) in hard rock sites (where blasting is prohibited) with size 1.0x1.0x2.5 mtr i.e.2.5 cum	2.5	CUM		
5	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days i.e 2.65 cum	2.65	CUM	6887.27	18251.27
6	Erection of tower parts completely as per specification including erection of insulators with all accessories, jumpering and bolts and nuts etc.,	0.75	MT	7507.50	5630.63
7	Tack welding of total tower nuts and bolts	1	Job	1732.50	1732.50
8	Pipe earthing of towers with 40mm dia GI pipe, including cost of pipe, bentonite powder and running of GI flat etc., (MP SSR)	2	Each	1708.82	3417.64
9	Transport of Material to site including loading and unloading	0.87	MT	2310.00	2005.08
10	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				

S. No.	Particulars	Qty	Per Unit	Rate	Amount
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.75	MT	2175.80	1631.85
b	Labour charges for painting including scratching and cleaning of tower	0.75	MT	847.77	635.83
c	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc.,.	0.75	MT	1289.20	966.90
d	Labour charges for painting including scratching and cleaning of tower	0.75	MT	480.48	360.36
Total:					91911.97

GST will be extra as per Govt. orders

(**) Note:-(1) Earth work excavation of Hard Roack removal (where blasting is prohibited) rate to be calculated as per code SWR10856 -- 985/- Per Cum. The quantity of earth work excavation with Hard Rock removal may vary based on the site condition.

This quantity is to be certified by he field Engineer and the same has to be deducted from the quantity of excavation of pit with hard gravel at the time of billing.

(2) The material has to be certified before dispatch of materials to the site by field Engineer not below the rank of Divisional Engineer.

(*) Note: -(3) the steel used for the fabrication of towers should be of Tata steel, sail steel, vizag steel or zindal steel to be certified by the field Engineer not below the rank of Divisional Engineer.

Tower details

1	Weight of K type tower including nuts&bolts	0.705 MT
2	Weight of 1 No. extension of 3 Mts	0.163 MT
3	Weight of K+3 tower	0.867
4	Weight of K+6 tower	1.03
5	Weight of K+9	1.193
6	Weight of each arm	0.103 MT
stubs	75X75X6 = 3.76 mts	
	65X65X6=1.054 mts	
	50X50X5 =1.103 mtrs	
	45X45X5 = 3.883 mts	
	45X45X5=4.817 mtrs	
	Total height 14.6 mts	
	Depth of tower below ground level : 2.5 mts	
	Height of tower above ground level : 12.1 mts.	

DATA-VIII

Extension of 3mtrs for Non-Galvanized K+3 Tower as per ASCI Standard

S. No	Description	Qty	Per Unit	Rate	Amount
Material					
1	Supply of Non-Galvanised K+3 type tower as per Specification.	0.14	MT	54174.12	7477.89
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	24.96	KG	100.49	2508.67
3	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.14	MT	2175.80	300.34
b	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc.,	0.14	MT	1289.20	177.95
				Total:	10464.85
Labour					
1	Fabrication of tower Parts as per Specification	0.140	MT	6352.50	889.35
2	Erection of tower parts completely as per specification including erection of insulators with all accessories, jumpering and bolts and nuts etc.,	0.140	MT	7507.50	1051.05
3	Transport of Material to site including loading and unloading	0.16	MT	2310.00	376.53

S. No	Description	Qty	Per Unit	Rate	Amount
4	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Labour charges for painting including scratching and cleaning of tower	0.140	MT	847.77	118.69
b	Labour charges for painting including scratching and cleaning of tower	0.140	MT	480.48	67.27
				Total:	2502.89

GST will be extra

Tower details

1	Weight of K type tower including nuts&bolts	0.705 MT
2	Weight of 1 No. extension of 3 Mts	0.163 MT
3	Weight of K+3 tower	0.867
4	Weight of K+6 tower	1.03
5	Weight of K+9	1.193
6	Weight of each arm	0.103 MT
stubs	75X75X6 = 3.76 mts	
	65X65X6=1.054 mts	
	50X50X5 =1.103 mtrs	
	45X45X5 = 3.883 mts	
	45X45X5=4.817 mtrs	
	Total height 14.6 mts	
	Depth of tower below ground level : 2.4 mts	
	Height of tower above ground level : 12.2 mts.	

DATA-IX

Extension of 3mtrs for Non-Galvanized L+3 Tower as per ASCI Standard

S. No	Description	Qty.	Per Unit	Rate	Amount
Material					
1	Supply of Non-Galvanized L+3 type tower as per Specification	0.24	MT	54174.12	13001.79
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers. (MP SSR)	23.81	KG	100.49	2392.37
3	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.24	MT	2175.80	522.19
b	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc.,	0.24	MT	1289.20	309.41
				Total:	16225.75
Labour					
1	Fabrication of tower Parts as per Specification	0.24	MT	6352.50	1524.60
2	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering, transport of material and bolts and nuts etc.,	0.24	MT	7507.50	1801.80

S. No	Description	Qty.	Per Unit	Rate	Amount
3	Transport of Material to site including loading and unloading	0.26	MT	2310.00	600.60
4	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Labour charges for painting including scratching and cleaning of tower	0.24	MT	847.77	203.46
b	Labour charges for painting including scratching and cleaning of tower	0.24	MT	480.48	115.32
				Total:	4245.78

GST will be extra

Tower details

1	Weight of L type tower including nuts&bolts	0.9565 MT
2	Weight of 1 No. extension of 3 Mts	0.26325 MT
3	Weight of L+3 tower	1.219
4	Weight of L+6 tower	1.483
5	Weight of L+9	1.746
6	Weight of each arm	0.084 MT
stubs	90X90X8 = 4.256 mts	
	80X80X8=1.998 mts	
	65X65X6 =2.898 mtrs	
	50X50X5 = 1.274 mts	
	45X45X5=2.726 mtrs	
	Total height 13.15 mts	
	Depth of tower below ground level : 3.0 mts	
	Height of tower above ground level : 10.15mts.	

DATA-X

Extension of 3mtrs for Non-Galvanized M+3 Tower as per ASCI Standard

S. No	Description	Qty.	Per Unit	Rate	Amount
Material					
1	Supply of Non-Galvanised M+3 type tower as per Specification.	0.30	MT	54174.12	16312.00
2	Supply of Suitable Hot dip Galvanised, Zinc coated Nuts and bolts with suitable plain and spring washers.	30.23	KG	100.49	3,038
3	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Material for First coat of 1st Grade Aluminium Paint, paint, brushes etc.	0.30	MT	2175.80	655
b	Material for Second coat of 1st Grade Aluminium Paint, brushes, etc.,	0.30	MT	1289.20	388
Total:					20392.82
Labour					
1	Fabrication of tower Parts as per Specification	0.30	MT	6352.50	1913.00
2	Erection of tower parts completely as per specifications including erection of insulators with all accessories, jumpering, transport of material and bolts and nuts etc.,	0.30	MT	7507.50	2261.00
3	Transport of Material to site including loading and unloading	0.33	MT	2310.00	765.00

S. No	Description	Qty.	Per Unit	Rate	Amount
4	Painting of sub-station structures with two coats of Aluminium paint using Aluminium paint 1st grade containing 3.6 kg of Aluminium paste for 18 litres of thinner 1st coat is to be applied before erection of tower and 2nd coat after stringing and half round welding including cost of paint, cost of brushes, labour charges etc., complete.				
a	Labour charges for painting including scratching and cleaning of tower	0.30	MT	847.77	255.00
b	Labour charges for painting including scratching and cleaning of tower	0.30	MT	480.48	145.00
				Total:	5339.00

GST will be extra

Tower details

1	Weight of M type tower	1.29	MT
2	Weight of 1 No. extension of 3 Mts	0.335	MT
3	Weight of M+3 tower	1.626	MT
4	Weight of M+6 tower	1.962	MT
5	Weight of M+9	2.294	MT
6	Weight of SIX arms	0.091	MT
stubs	(110X110X8) 110X110X10 = 4.56 mts		
	100X100X8=1.998 mts		
	80X80X8 =1.898 mtrs		
	65X65X6 = 2.274 mts		
	50X50X6=2.761 mtrs		
	Total height 13.5 mts		
	Depth of tower below ground level : 3.2 mts		
	Height of tower above ground level : 10.3 mts.		

**Cost Data for Erection of 5MVA Additional Power Transformer with
33 KV Bay Extension in 33/11 KV substation**

Sl. No	Description of Material	Qty	Unit	Rate	Amount in Rs.
1	150 x 150 RSJ pole (8m)	0.6	MT	58,410.00	35046.00
2	100 x 50 mm MS channel	0.27	MT	49,324.00	13317
3	75 x 8mm flat for clamps & earthing	0.4	MT	56,433.50	22573.4
4	200 sqmm Panther conductor	0.02	KM	152,537.42	3050.75
5	Strain Insulator set with metal parts (each set consists 3 Nos 11 KV strain insulators)	6	Set	372	2230
5	Erection of 33 KV AB switch	1	Each	36,348.59	36348.59
6	5 MVA Power Transformer	1	Each	3294736	3294736.46
7	Foundation of Power Transformer	1	LS	50000	50000
8	Miscellaneous items like fabrication of channels & pad clamps etc.		LS		5000
Sub-Total					3462302.88

3% Contingencies	103869.09
3% S&H charges	103869.09
Labour & Transport	45085.70
GST at 18 % on L&T	8115.426
10% Estt & General charges on material	346230.29
Total	4069472.46
Or Say Rs	4069500.00

COST ESTIMATE FOR ERECTION OF 11KV, 70 SQ MM COVERED CONDUCTOR

Sl. No	Description of Material	Qty	Unit	Rate in Rs.	Amount in Rs.
1	11KV X 70 Sqmm Covered Conductor	1	CKM	1,357,731	1,357,731
2	IPC	50	Nos.	1,176	58,811
3	Ties	100	Nos.	477	47,716
4	11KV Mid Span Jointing Kit	1	Sets	5,044	5,044
5	11KV Termination Kit	5	Sets	2,565	12,823
5	11KV tension insulator Hardware	50	Nos.	378	18,910
Material value (in Rs.)					1,501,033

3% Contingencies 45,031

3% S&H charges 45,031

Labour & Transport 197,200

GST at 18 % on L&T 35,496

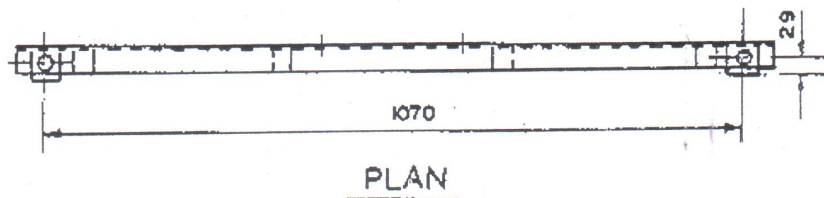
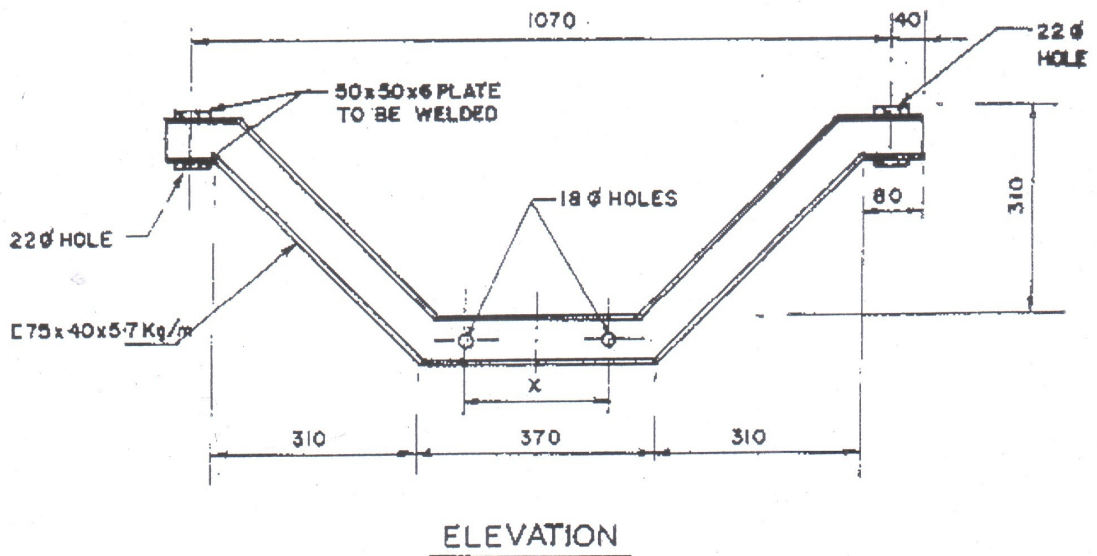
10% Estt & General charges on material 150,103

Total **1,973,895**

**REC- CONSTRUCTION STANDARD NOS. OTHER THAN THE ITEMS INCLUDED IN
THE 33 KV 11 KV & LT LINES ERECTION AND CENTRALISED MATERIAL**

S. No	Particulars	REC Construction Standard No./ Specification No.	Remarks/ Notes
1	1.53 Mts. Cross arm (Channel)	M-1/1981	33 KV line
2	Top clamp with cleat	M-4/1984	33 KV line
3	Back clamp	K-1/1972	33 KV line & 11 KV line
4	Base concreting	K-2/1972 (R-1987)	33 KV line & 11 KV line
5	Stay sets complete with concreting	G-1/1972	33 KV line & 11 KV line
6	Coil earthing	J-1/1972	33 KV line & 11 KV line
7	Pipe earthing	J-2/1972	33 KV line & 11 KV line
8	Concreting of poles	K-1/1972	All lines
9	8 M PSCC poles	15/1979	11 KV line
10	1.07 M Cross arm (Channel)	A-6/1972	11 KV line
11	Top clamp with cleat	A-7/1972	11 KV line
12	Bracing set with double cross arm	A-12/1972	H.T. line
13	Guy grip dead end	G-1/1972 & SP.No.25/1983	H.T. line
14	C.I. Knob	31/1983	L.T. lines
15	L.T. conductor dead end	G-2/1984	L.T. lines
16	Guy grip dead end	G-2/1984	L.T. lines
17	L.T. Spares	29/1983 (R-1987)	L.T. lines
18	Spool for shackle insulator tieing	D-6/1984	L.T. lines
19	D.P. Structure for distribution substation	F-1/1981 (R-1993)	L.T. lines
20	HT and LT conductor dead end fittings	Sp. No. 25/1983	All lines
21	Side tie for pin insulator tieing	Sp. No. 25/1983	All lines
22	Fibre Reinforced Plastic Cross Arms	40/1987	

REC
CONSTRUCTION STANDARD
A-6



X :- -TO SUIT THE POLE
NOTE:-AS AN ALTERNATIVE, M.S. ANGLE CROSS-ARM
(A-13) MAY BE USED IF CHANNEL SECTION
AS PER THIS STANDARD IS NOT AVAILABLE

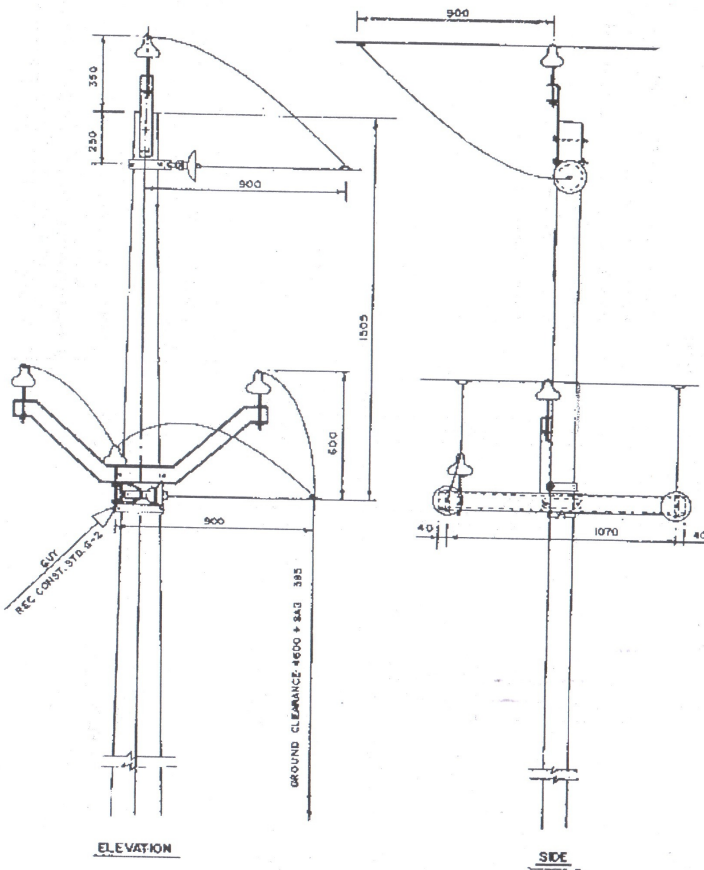
ALL DIMENSIONS ARE IN mm.

११ के.वी. लाईन
V-केंची भुजा
11 KV LINES
V - CROSS ARM

SCALE:-N.T.S

SEPT. - 1972

REC
CONSTRUCTION STANDARD
A-II



BILL OF MATERIAL

P.C.C SUPPORT	8M LONG	1No.
CHANNEL I FOR V-CROSS ARM	REFER REC CONST. STD. A-6	1No.
CHANNEL FOR HORIZONTAL CROSS ARM	75X40-1150 (APPROX.)	1No.
11KV STRAIN INSULATORS WITH HARDWARE	---	3 Nos.
11KV PIN INSULATORS WITH PINS	---	4 Nos.
POLE TOP BRACKET	REFER REC. CONST. STD. A-7	1No.
GUY SET	REFER REC CONST. STD. G-2	1No.
BASE PLATE	REFER REC CONST. STD. K-1	1No.
PIPE / ROD EARTHING	REFER REC CONST. STD. J-2	1No.
BACK CLAMP (FOR V-CROSS ARM)	REFER REC CONST. STD. K-2	1No.
EARTHING MATERIAL, NUTS, BOLTS, CLAMPS ETC.	---	AS REQUIRED

NOTE: MAXIMUM SPAN BETWEEN THE TAPPING POLE AND ADJACENT POLE OF THE BRANCH LINE - 50 METRES

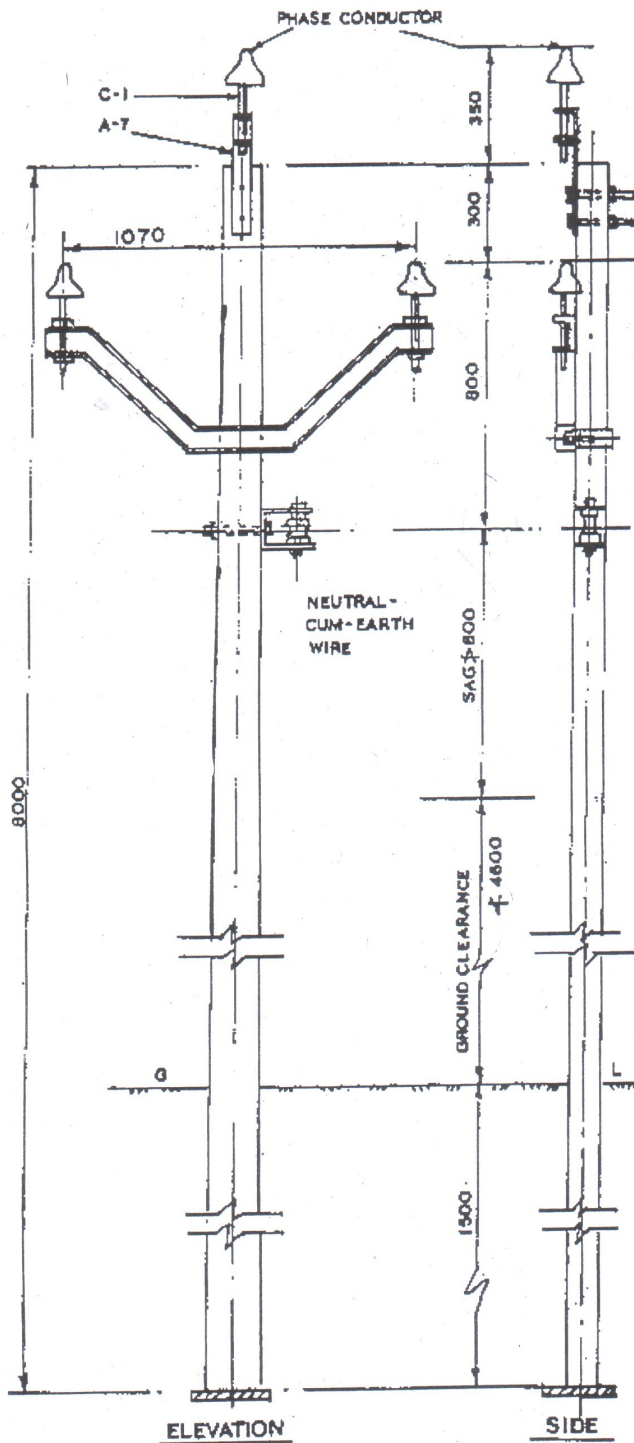
ALL DIMENSIONS ARE IN MM.

११ के वी लाईन
निकासी व्यवस्था एक खम्भे से निकाला

11KV LINE
TAPPING ARRANGEMENT
SINGLE POLE TAPPING

SCALE: N.T.S | FEB.-1979

**REC
CONSTRUCTION STANDARD
A-16**



BILL OF MATERIAL

P.C.C SUPPORT BM	1
POLE TOP BRACKET	1
V-CROSS ARM	1
11 KV PIN INSULATOR WITH PINS	3
SHACKLE INSULATOR	1
U-CLAMP WITH BOLT	1
EARTHING MATERIAL	1
BOLTS, NUTS, CLAMPS ETC.	AS REQD.
BOLTS 16 #	4
BASE PLATE	1

NOTES :-

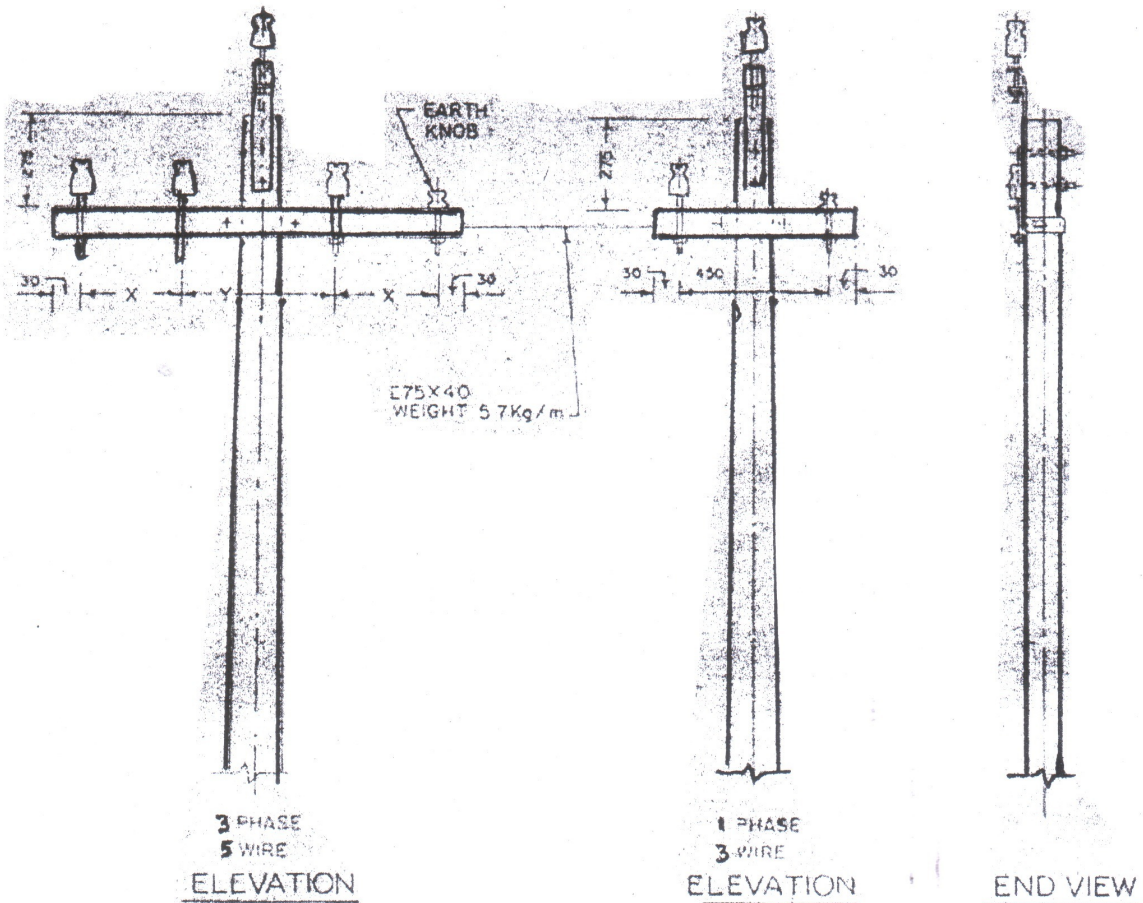
- IF THROUGH BOLT ARRANGEMENT FOR FIXING THE SHACKLE INSULATOR TO THE POLE IS NOT POSSIBLE, SUITABLE POLE CLAMP MAY BE USED.
- THE EARTH-CUM-NEUTRAL WIRE SHALL BE RUN ON LT SHACKLE INSULATORS

११ के.वी. ३-फेज लाइन व कन्डक्टर फारमेशन
और क्लोयोरम-३ फेज/सिंगल फेज कम्पोजिट सिस्टम
फेज से-न्यूट्रल
11 KV LINES

**CONDUCTOR FORMATION AND CLEARANCES
OF 11KV 3-PHASE LINE IN
3-PHASE/SINGLE PHASE COMPOSITE SYSTEM
(PHASE-TO-NEUTRAL)**

SCALE:- N.T.S | JULY, 1987

REC
CONSTRUCTION STANDARD
B-3



TANGENT LOCATION
MAXIMUM SPAN - 67 METRES

SAGS	HORIZONTAL SPACING	
	X	Y
UP TO 750	300	450
750 TO 1200	450	450

ALL DIMENSIONS ARE IN mm

४१५/२४० वी. लाईन
कन्डक्टर रचना व अंतराल
समाप्त रचना
415/240V LINES
CONDUCTOR FORMATION AND
CLEARANCES
HORIZONTAL FORMATION

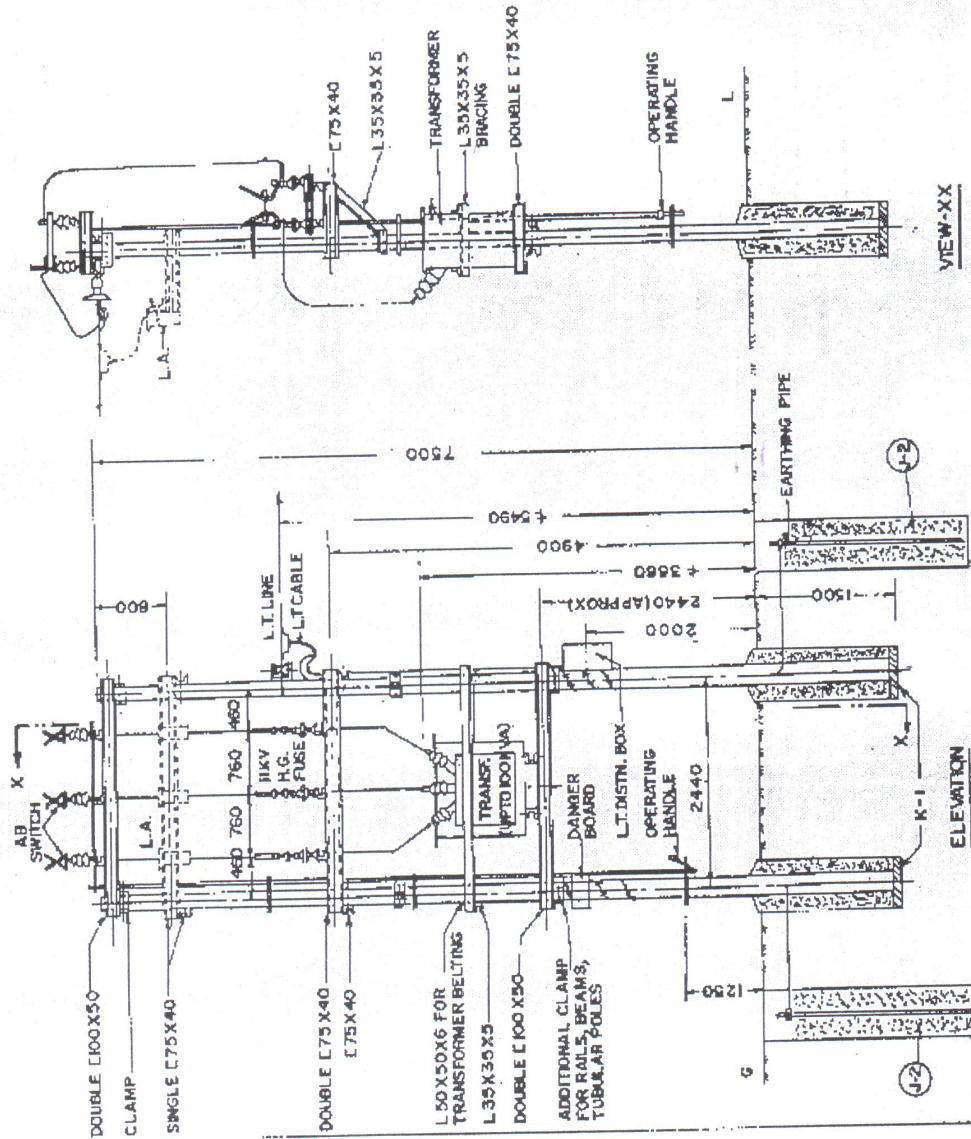
SCALE - N.T.S

SEPT. - 1972

REC
CONSTRUCTION STANDARD
F-2

BILL OF MATERIAL

SUPPORTS - 9 m.	2
CHANNELS 100X50 - 2600 (APPROX.)	4
CHANNELS 75 X 40 - 2600 (APPROX.)	2+1
CHANNELS 75 X 40 - X-ARM FOR SUPPORTING H.G. FUSE & L.A.	2+2
ANGLES 50 X50X6 - 2600 (APPROX.)	2
ANGLES 35X35X5 - 460 (APPROX.)	2
ANGLES 35X35X5 - BRACING FOR SUPPORTING H.G. FUSE FOR SUPPORTING DISTRIBUTION BOX	2
DISTRIBUTION TRANSFORMER	1
AIR BREAK SWITCH (HORIZONTAL TYPE)	1
H.G. FUSE UNIT-3 PHASE	1 SE
11 KV. LIGHTNING ARRESTERS	3
DISTRIBUTION BOX	1
EARTHING SET	AS REQD.
DANGER BOARD	1
CLAMPS, NUTS, BOLTS, BARBED WIRE ETC. AS REQD.	AS REQD.
L.T. CABLE	AS REQD.

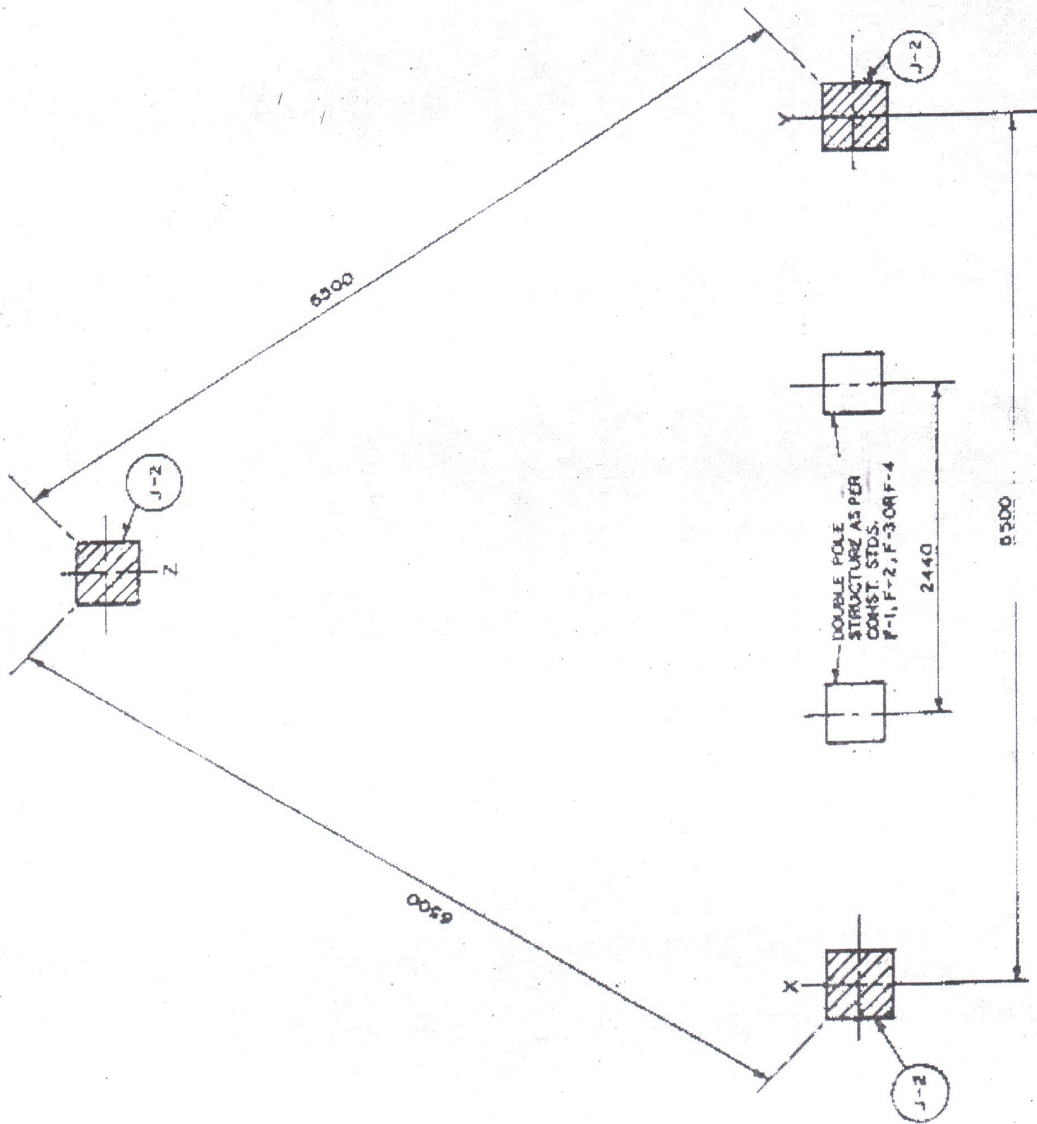


रि. सं. १०/५३३-२५० दि. २०. ११.१९७२
 प्रकृत्य अंतर्गत
 11KV/433-250 V
 DISTRIBUTION SUB-STATION
 WITH A.B. SWITCH &
 HORN GAP FUSES
 SCALE - N.T.S. 1972 / JAN. - 197

REC
CONSTRUCTION STANDARD
F-5

NOTES:

- I. THE CONNECTIONS TO THE THREE - EARTH ELECTRODES SHOULD BE AS FOLLOWS:-
 - (a) TO ONE OF THE EARTH ELECTRODES ON EITHER SIDE OF DOUBLE POLE STRUCTURE (X OR Y).
 - (i) ONE DIRECT CONNECTION FROM THREE 11KV LIGHTNING ARRESTERS.
 - (ii) ANOTHER DIRECT CONNECTION FROM THE LT LIGHTNING ARRESTERS, IF PROVIDED.
- (b) TO EACH OF THE REMAINING TWO EARTH - ELECTRODES.
- II. ONE SEPARATE CONNECTION FROM THE NEUTRAL (ON THE MEDIUM VOLTAGE SIDE) OF THE TRANSFORMER.
- III. ONE SEPARATE CONNECTION FROM THE TRANSFORMER BODY AND THE HANDLE OF THE 11KV AB SWITCH.
- IV. ONE SEPARATE CONNECTION FROM THE EARTHING TERMINAL OF THE POLES.
- V. 4mm² (B.S.M.G) G.I. WIRE SHOULD BE USED FOR EARTH LEADS.



ALL DIMENSIONS ARE IN MM.

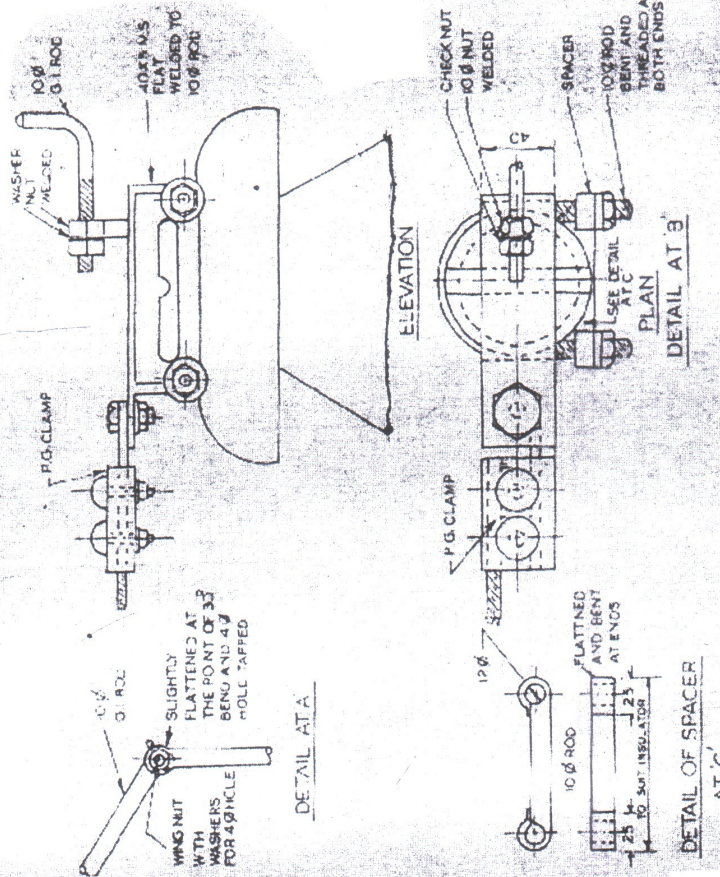
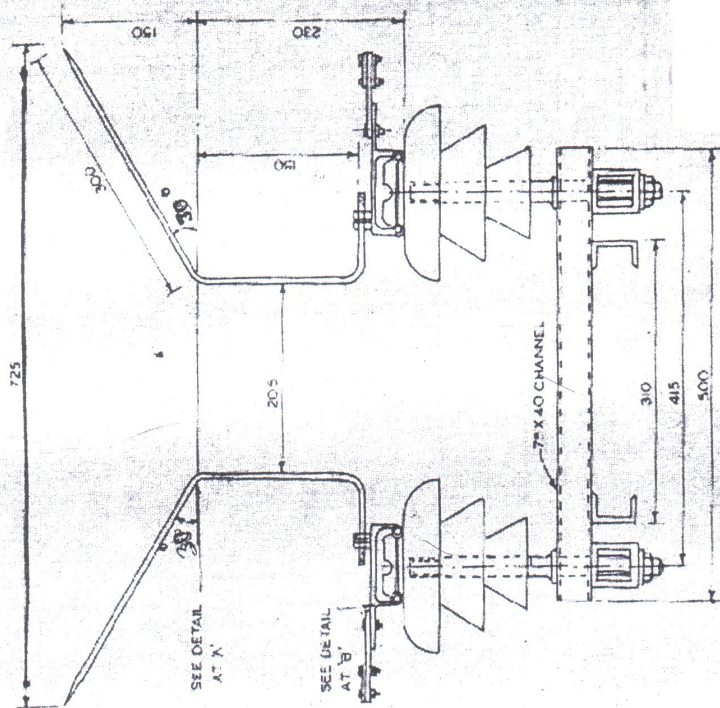
॥ क्व/४३३-२५० स्टेशन
विद्युत उप-स्टेशन
स्थिति के अर्थ पिट
संयोजन के अर्थ

11 KV/433-250V
DISTRIBUTION SUB-STATION
LOCATION OF EARTH PITS
AND CONNECTIONS

R-2 SCALE: N.T.S. 1993 / JAN. - 1993

PLAN

REC CONSTRUCTION STANDARD F-6



ALL DIMENSIONS ARE IN MM

११ के. वी. हॉर्न गैप फ्यूज

11KV HORN GAP FUSES

SCALE: N.T.S.

REC
CONSTRUCTION STANDARD
F-8
(REVISED-1967)

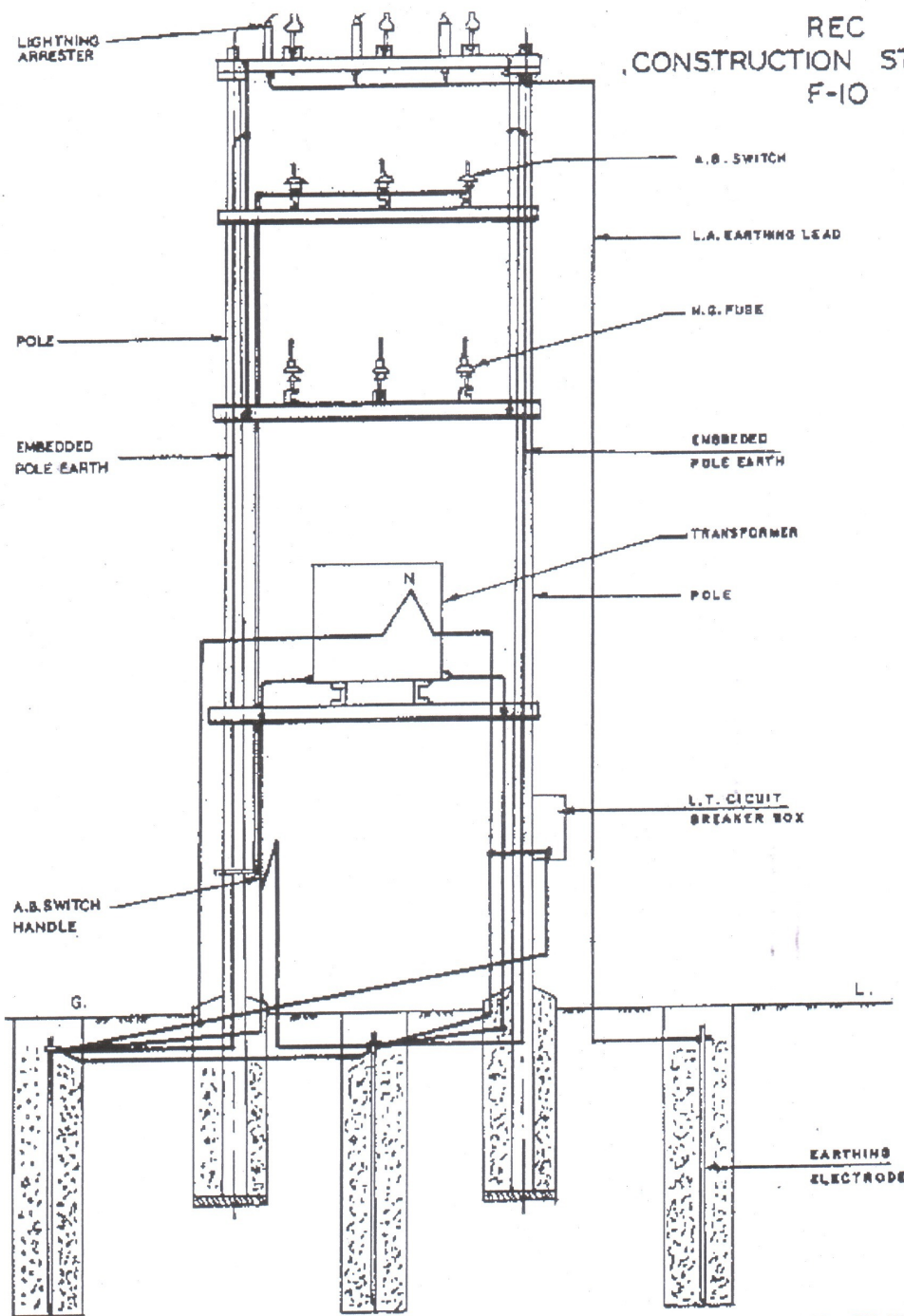
RECOMMENDED TYPE AND SIZES OF MULTICORE CABLES

Distribution Transformer Centre Capacity in KVA	TYPE	Size (Nominal area of cross section)
25	PVC insulated and sheathed un-armoured four-core aluminium cable.	16 mm ²
63	PVC insulated and sheathed un-armoured four-core aluminium cable with reduced neutral conductor.	70 mm ²
	OR	
	PVC insulated and sheathed aluminium armoured three-core solid aluminium conductored cable.	70 mm ²
100	PVC insulated and sheathed un-armoured four-core aluminium cable with reduced neutral conductor.	120 mm ²
	OR	
	PVC insulated and sheathed aluminium armoured three-core solid aluminium conductored cable.	120 mm ²

- NOTE: 1. The cables would be laid in air.
 2. In case of PVC armoured cables, aluminium armour shall serve as neutral for 63 and 100 KVA distribution transformer centres.
 3. Size of reduced neutral conductor shall comply with the main-neutral conductor combination as per IS:1554 (Part-I)-1976.
 4. Type and size of single core cables which can be used for the same purpose are given in REC Construction Standard F-18.

वितरण उप-केन्द्र के लिए
मल. टी. बहुकोर केबिल (एल्यूमीनम)
संस्तुत प्रकार एवं आकार
L.T MULTICORE CABLES (ALUM.)
FOR DISTRIBUTION SUB-STATIONS
RECOMMENDED TYPE AND SIZES.

FEBRUARY - 1970



REC
CONSTRUCTION STANDARD
F-10

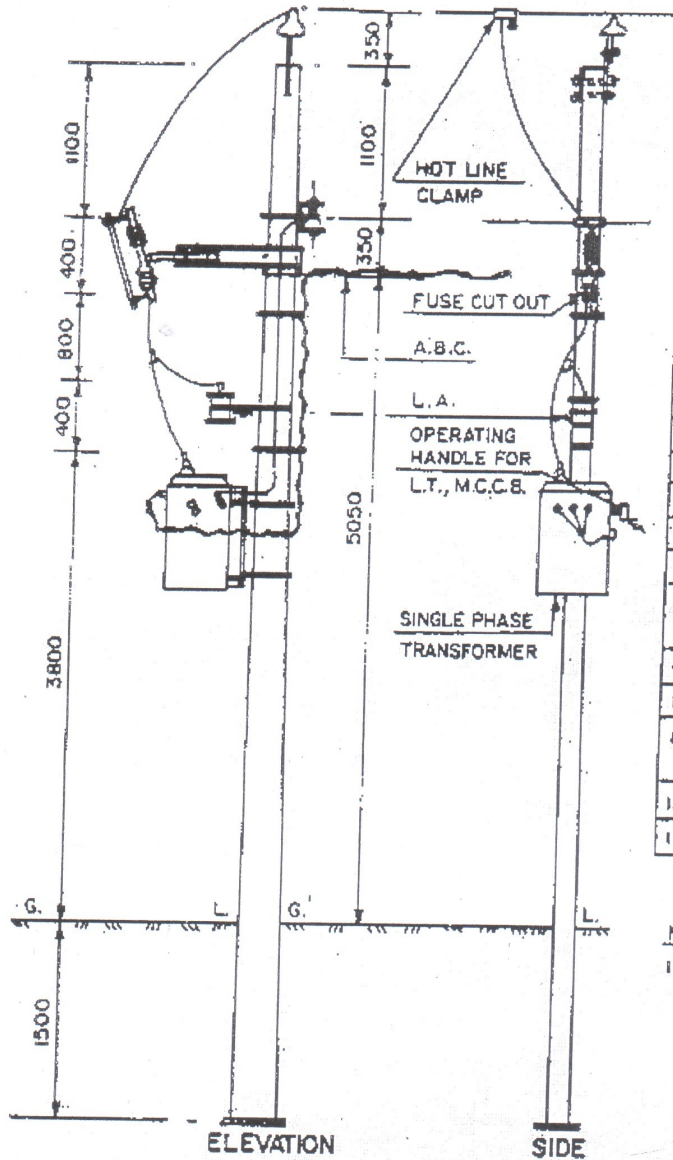
ALL DIMENSIONS ARE IN mm.

वितरण सब-स्टेशन के लिए
अर्थन व्यवस्था

EARTHING ARRANGEMENT FOR
DISTRIBUTION SUB-STATION

SCALE:- N.T.S | APRIL - 1983

REC
CONSTRUCTION STANDARD
F-13



BILL OF MATERIAL

1.	P.C.C. SUPPORT BM	
2.	POLE TOP BRACKET	
3.	11KV PIN INSULATOR WITH PIN	1
4.	SHACKLE INSULATOR	1
5.	U-CLAMP WITH BOLT	1
6.	L.A WITH FIXTURES	1
7.	FUSE CUT-OUT WITH FIXTURES	1
8.	SINGLE PHASE TRANSFORMER WITH LT MCCB AND FIXTURES	1
9.	A.B.C	AS REQD.
10.	POLE CLAMPS	4
11.	EARTHING MATERIAL, NUTS, BOLTS, CLAMPS ETC.	AS REQD.
12.	HOTLINE CLAMP	1
13.	BASE PLATE	1

NOTE:-

1. THE TRANSFORMER MOUNTING DETAILS ARE GIVEN IN R.E.C CONSTRUCTION STANDARD 'F-14'

ALL DIMENSIONS ARE IN mm.

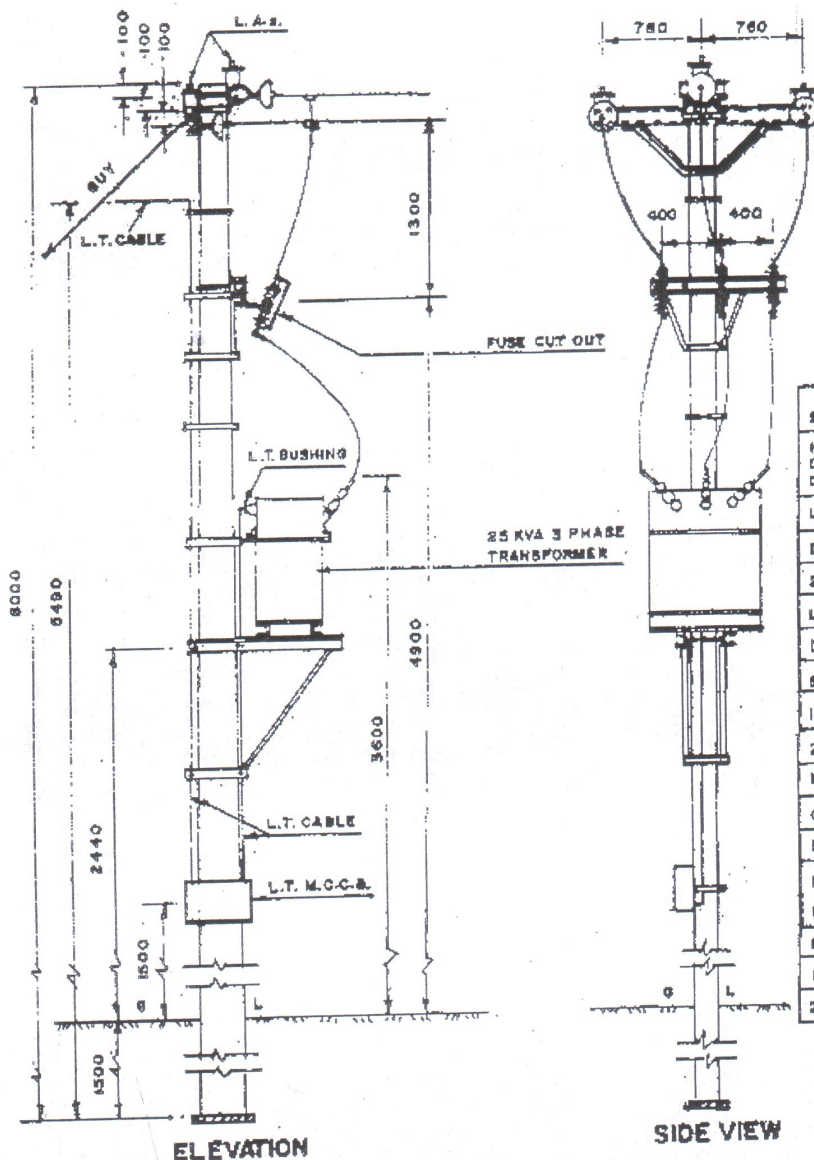
सिंगल फेज (फेज-से-न्यूट्रल) वितरण
सब-स्टेशन की व्यवस्था

SINGLE PHASE (PHASE - TO - NEUTRAL)
DISTRIBUTION SUB - STATION
ARRANGEMENT

SCALE:- N.T.S

JULY, 1987

REC
CONSTRUCTION STANDARD
F-20



BILL OF MATERIALS

SUPPORT (SM/200Kg)	(No.
HORIZONTAL CROSS ARM C100X50X6-150	1No.
C100X60X6-1800	1No.
L.A. WITH FITTINGS	3Nos.
D.O. FUSE WITH FITTINGS	3Nos.
25 KVA TRANSFORMER	1No.
L.T. M.C.C.B.	1No.
DISC INSULATOR WITH FITTINGS	3Nos.
STRUCTURE FOR TRANS.MOUNTING:-	
1. C100X50X6-1000	2Nos.
2. L 50X50X6-800	2Nos.
EARTHING MATERIAL	(No.
GUY SET	1SET
BASE PLATE	1No.
NUTS, BOLTS, POLE TOP CLAMPS AS REQD.	REQD.
STRUCTURE FOR D.O. FUSE MOUNTING:-	
1. C100X50X6-900	1No.
2. L 50X50X6-400	2 Nos.

ALL DIMENSIONS ARE IN MM.

वितरण सब-स्टेशन
माउंटिंग व्यवस्था
सिंगल पोल पर २५ के.वी. स्. ट्रांसफार्मर की
DISTRIBUTION SUB-STATION
MOUNTING ARRANGEMENT OF 25 KVA
TRANSFORMER ON SINGLE POLE

SCALE: N.T.S.

OCT., 1987

**REC
CONSTRUCTION STANDARD
G-1**



3 STAY INSULATOR MAKE-OFF



4 END MAKING OF GUY WIRE

NOTES:-

1. ANCHOR ROD WITH WASHER & NUT SHOULD BE PREFERABLY GALVANIZED.
2. WHEN CONTINUOUS EARTH WIRE IS USED, GUY INSULATOR MAY NOT BE USED. (REFER-IE-RULE 90)

ALL DIMENSIONS ARE IN MM.

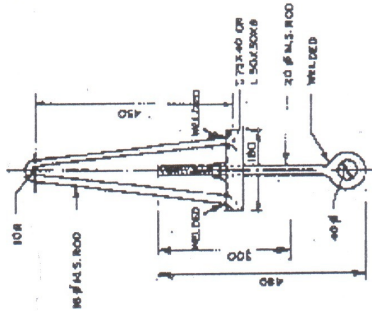
शिरा त्तौ वल्लभाय
(सर्व शिराहा)

GUY ASSEMBLY

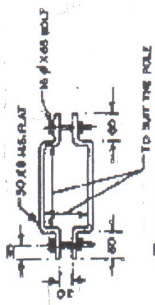
(CONVENTIONAL ARRANGEMENT)

SCALE: N.T.S

SEPT. - 1972

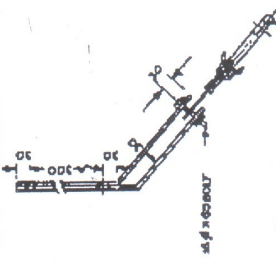


2 TURN BUCKLE



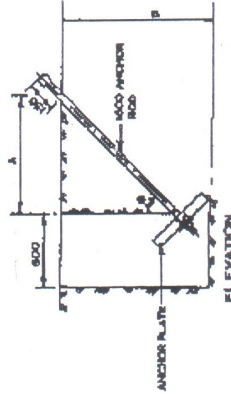
1 CLAMP

(IN LV LINES & LT LINES HORIZONTAL FORMATION)



1 CLAMP

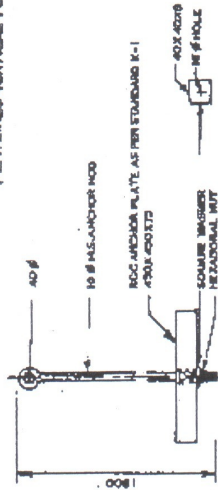
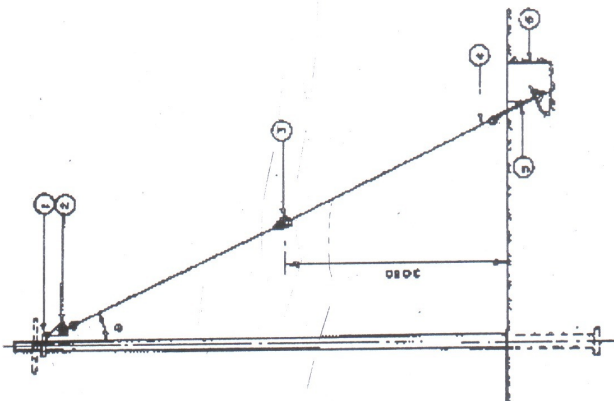
(LT LINES VERTICAL FORMATION)



ELEVATION

PLAN

6 STAY PIT - ANCHOR ASSEMBLY

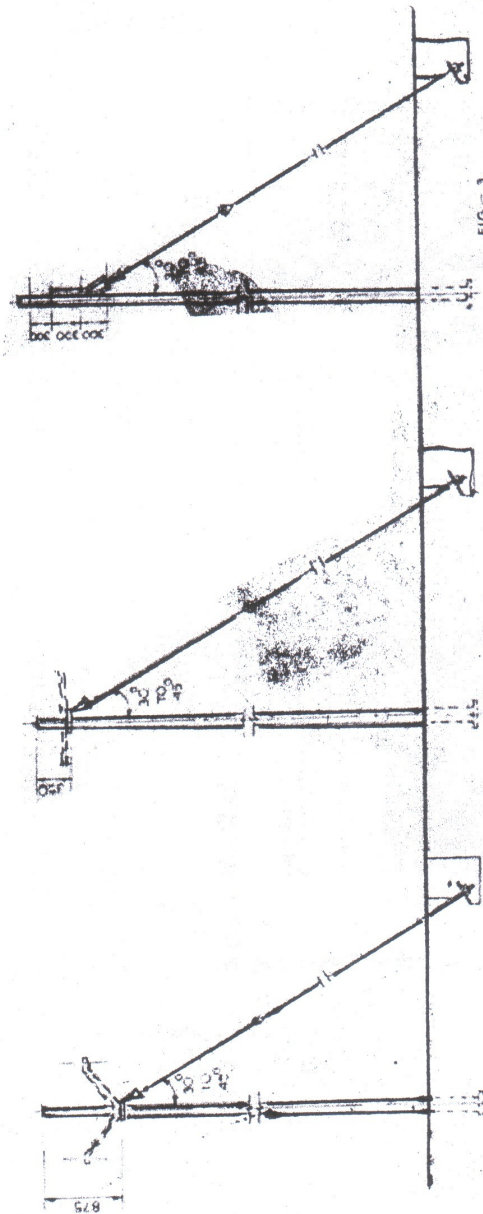


5 ANCHOR ROD & PLATE

PLAN

30°	45°
A	750
B	1000
C	1300

REC
CONSTRUCTION STANDARD
G-3



NOTES:
1. SINGLE GUY ARRANGEMENT AS PER FIGURE 1, 2 & 3 CAN BE USED WHEN TOTAL TENSION TO BE TAKEN ON THE GUY DOES NOT EXCEED THE FOLLOWING LIMITS:

SIZE OF GUY WIRE	MAXIMUM TENSION TO WHICH PER QUALITY ON THE GUY
7/2 90 mm	920 KG
7/3 115 mm	1480 KG

2. IN THE DOUBLE GUY ARRANGEMENT THE FOUNDATION OF THE GUYS SHOULD BE SO PLACED THAT ONE DOES NOT REDUCE THE STRENGTH OF THE OTHER. IN OTHER WORDS, THE SOIL WHICH RESISTS THE UP-LIFT SHOULD NOT BE DISTURBED WHILE DIGGING THE FOUNDATION FOR THE OTHER STAY.

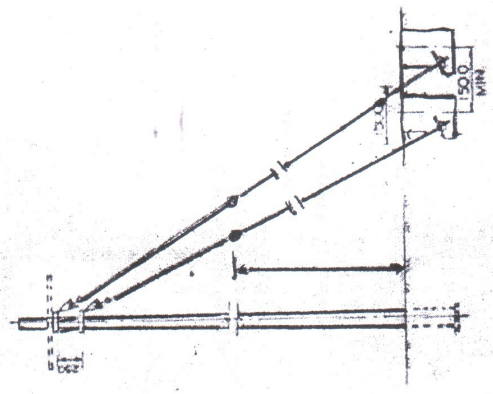
3. FOR DETAILS OF COMPONENTS OF GUY ASSEMBLY, REFER: G-1

ALL DIMENSIONS ARE IN MM
 गैर तहत संयोजन
 एकल गैर तहत संयोजन
 GUYING ARRANGEMENTS
 एकल गैर तहत संयोजन

FIG-3

FIG-2

SINGLE GUY



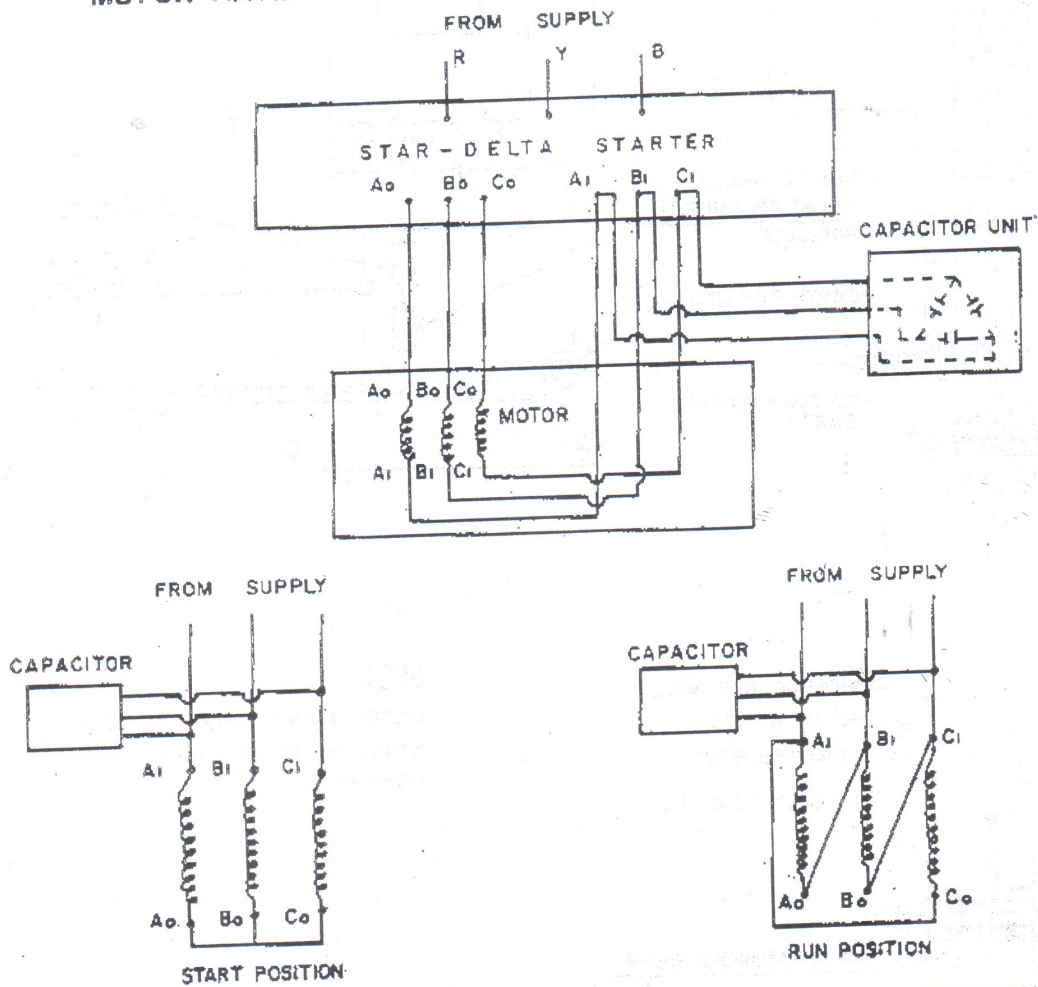
DOUBLE GUY

REC
CONSTRUCTION STANDARD
H-9

RECOMMENDED CAPACITOR RATINGS

MOTOR RATING	22KW(3H.P.)	37KW(5H.P.)	55KW(75H.P.)	75KW(10H.P.)
CAPACITOR RATING IN KVAR	1	2	3	4

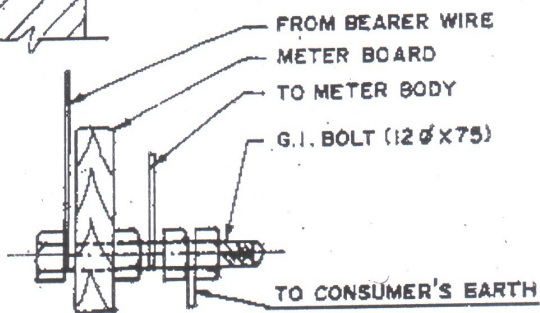
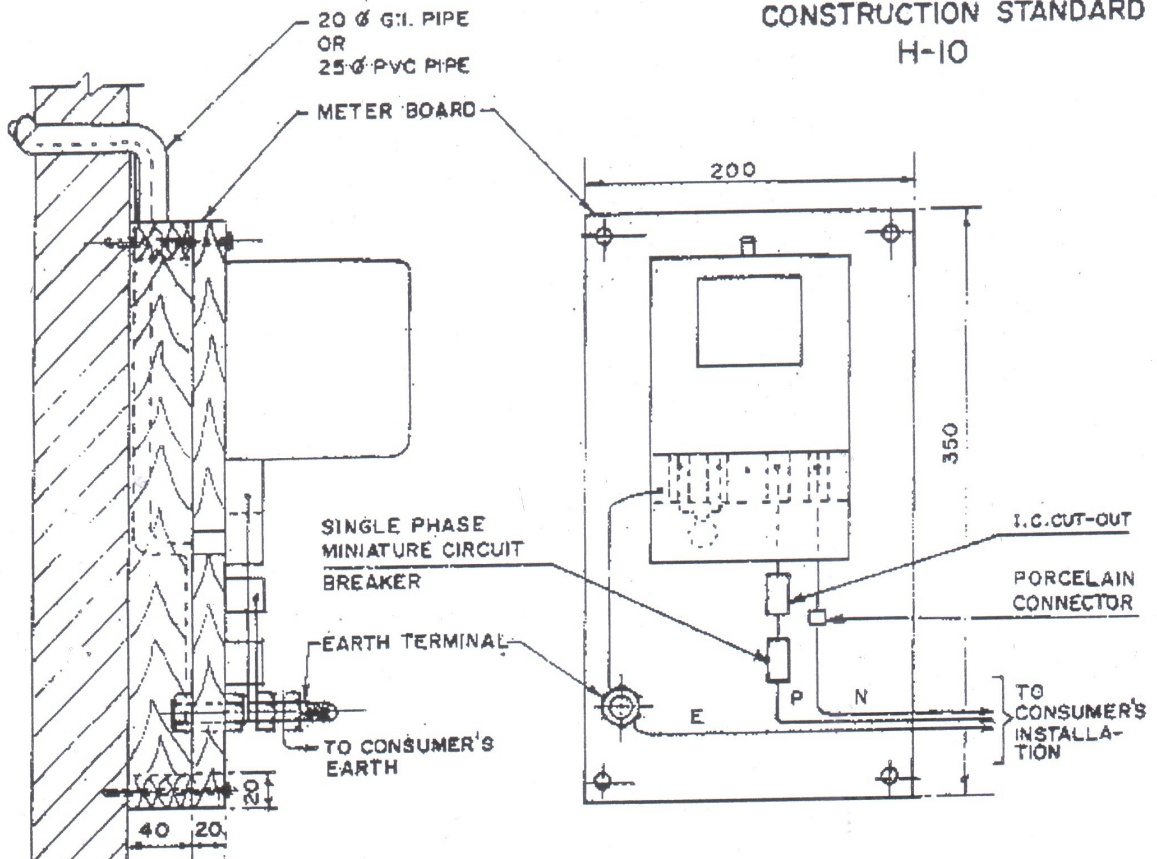
CONNECTIONS OF A 3-TERMINAL CAPACITOR UNIT TO A MOTOR HAVING A START DELTA STARTER



एल. टी. कैपेसिटर
कनेक्शनों की संस्तुत रेटिंग एवं पद्धति
L.T. CAPACITORS
RECOMMENDED RATINGS
AND MODE OF CONNECTIONS

MARCH - 1974.

REC
CONSTRUCTION STANDARD
H-10



EARTH TERMINAL DETAILS

NOTE :-

METER BOARD CAN BE OF TEAK
WOOD OR ANY SUITABLE
HARD WOOD.

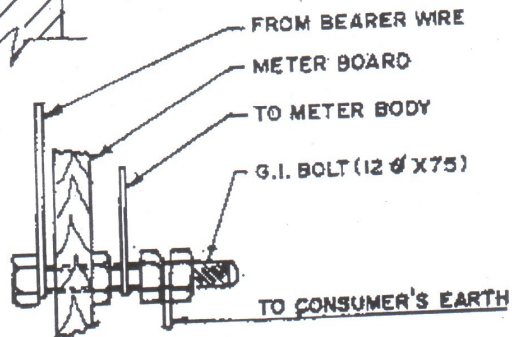
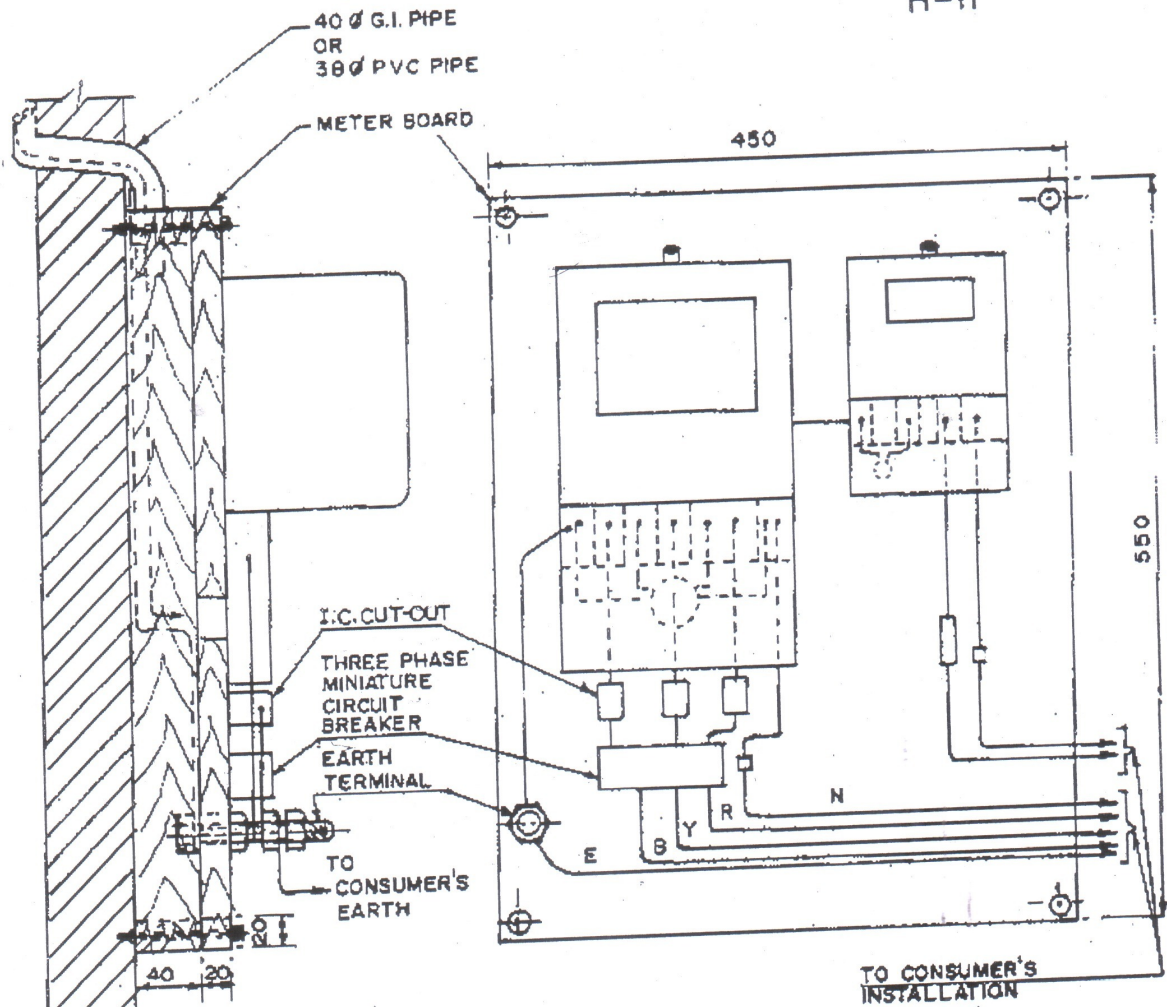
ALL DIMENSIONS ARE IN MM.

एम. सी. बी. कन्ट्रोल के साथ सर्विस
कनेक्शन सिंगल फेज मीटर
(अलग न्यूट्रल और अर्थ सहित)
SERVICE CONNECTIONS
SINGLE PHASE METER BOARD
WITH MCB CONTROL
(WITH SEPARATE NEUTRAL AND EARTH)

SCALE: N.T.S.

MAY, 1993

REC
CONSTRUCTION STANDARD
H-II



EARTH TERMINAL DETAILS

NOTES:-

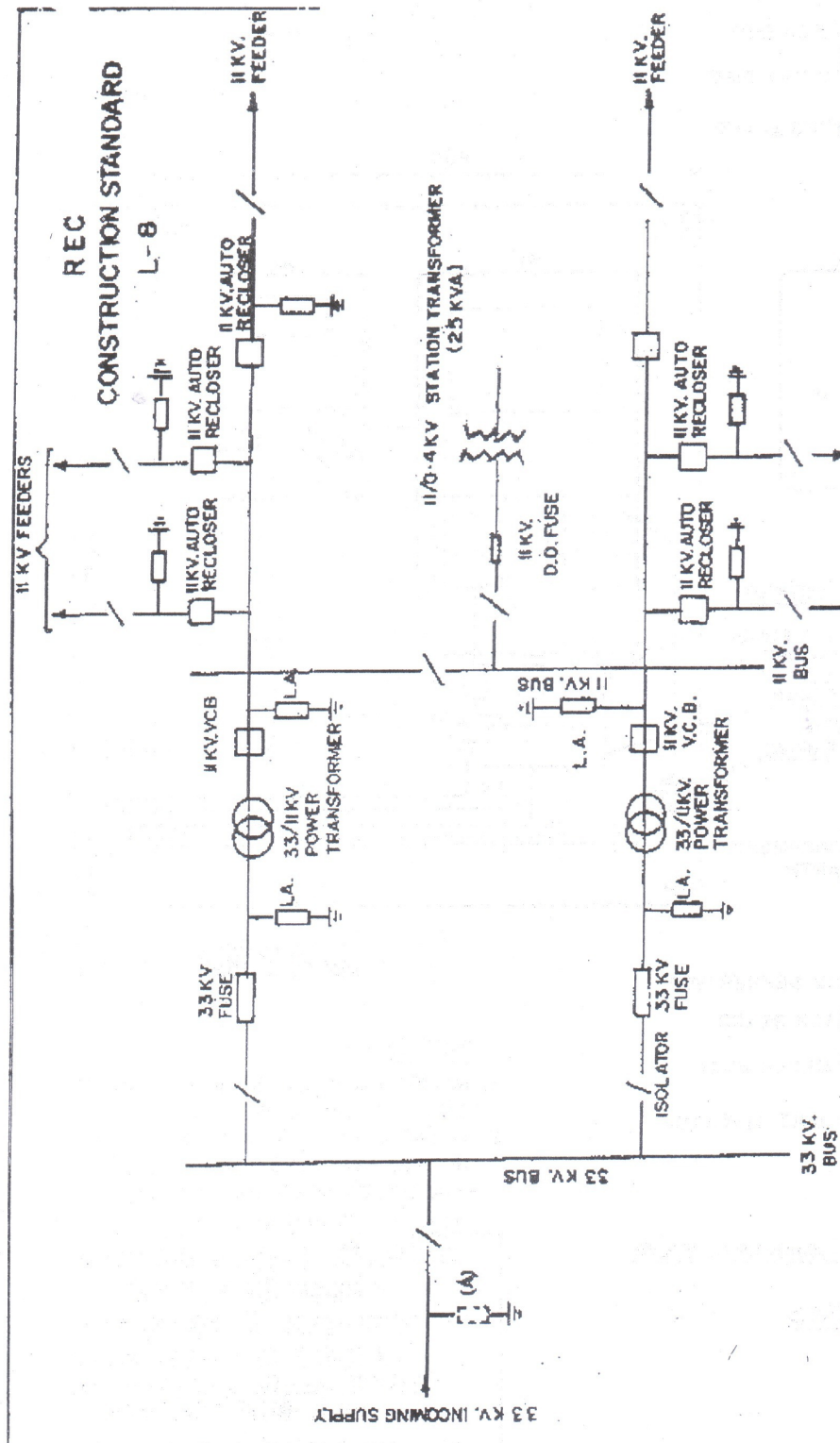
1. METER BOARD CAN BE OF TEAK WOOD OR ANY SUITABLE HARD WOOD.
 2. WHERE ONLY A THREE PHASE METER IS TO BE USED, THE DIMENSIONS OF THE METER BOARD MAY BE 550X350
- ALL DIMENSIONS ARE IN mm.

रम.सी.बी. कन्ट्रोल के साथ सर्विस
कनेक्शन तीन फेज मीटर
(अलग न्यूट्रल और अर्थ साइल)
SERVICE CONNECTIONS
THREE PHASE METER BOARD
WITH MCB CONTROL

(WITH SEPARATE NEUTRAL AND EARTH)

SCALE: N.T.S.

MAY, 1993.



REC
CONSTRUCTION STANDARD
L-8

LEGEND

- ISOLATOR
- 33 KV M.R.C. OR EXPULSION TYPE FUSE
- LIGHTNING ARRESTER
- 33 KV POWER TRANSFORMER
- 11 KV V.C.B.
- 11 KV AUTO RECLOSER
- 11 KV D.O. FUSE
- 11/0-4 K.V. STATION TRANSFORMER

NOTE

1 33 KV L.A. AT (A) NOT REQUIRED IN CASE ONLY FUSES ARE USED TO PROTECT THE 33/11KV POWER TRANSFORMER. IN CASE CIRCUIT BREAKERS ARE USED INSTEAD OF THE FUSES, THE 11KV L.A. AT (A) MAY BE USED TO PROTECT THE C.B. FROM SURGE.

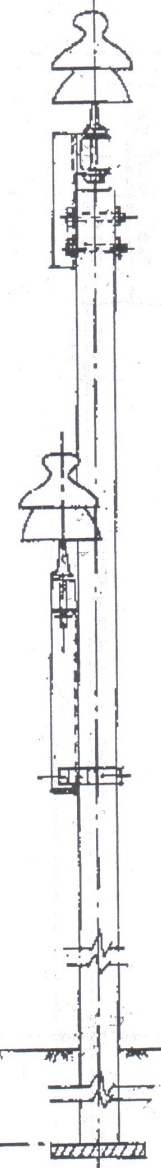
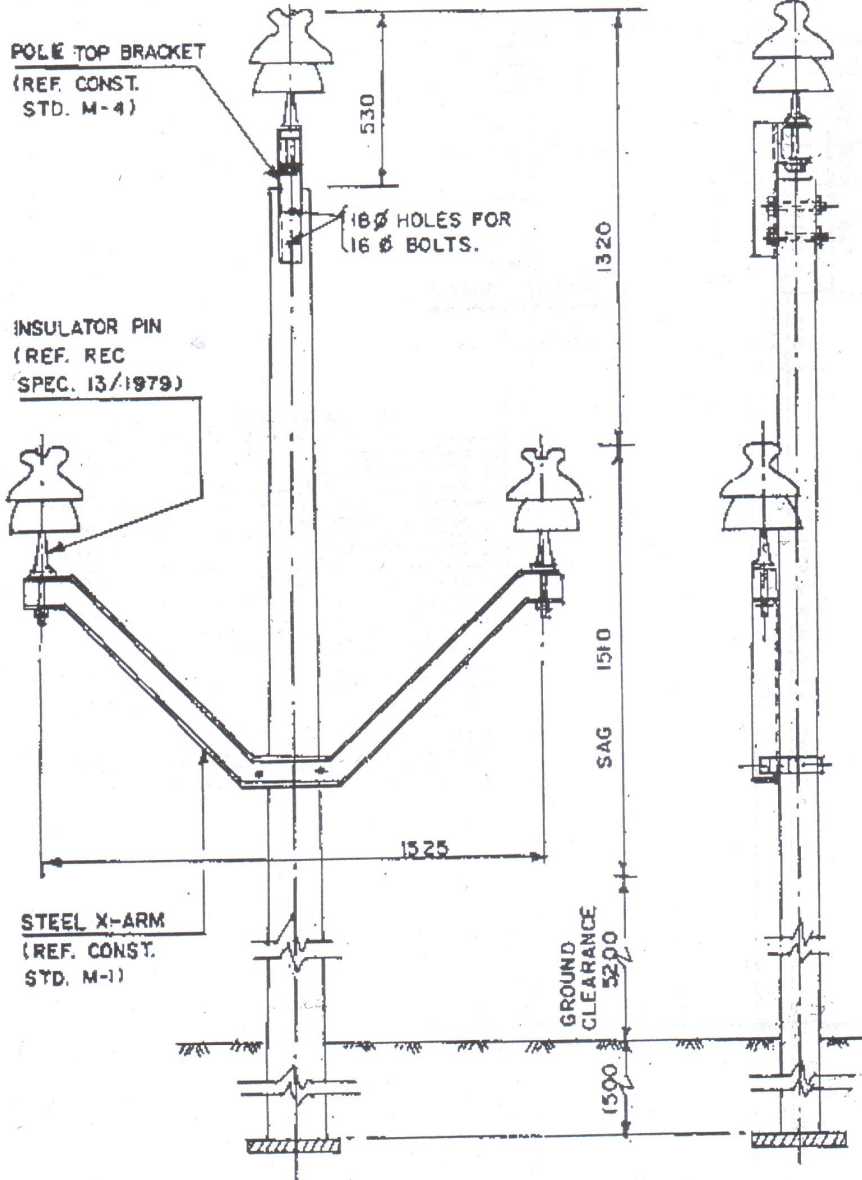
2 CIRCUIT BREAKERS HAVE TO BE USED INSTEAD OF 11KV FUSES IN CASE OF POWER TRANSFORMER CAPACITY OF 5 MVA AND ABOVE AS PER I.E. RULES.

डॉ. आर. के. वी. ट्रांसफार्मर के साथ
33/11 के. वी. कनेक्चरी रजिस्ट्रार सिस्टम के उपकरणों
को एकल लाइन डायग्राम

SINGLE LINE DIAGRAM
OF 33/11KV UNATTENDED TYPE
SUB-STATION WITH TWO 33/11KV TRANSFORMERS

SCALE: N.T.S. | SEPT., 1997

R E C
CONSTRUCTION STANDARD
M - 3



BILL OF MATERIAL

9-DM SUPPORT	1
POLE TOP BRACKET	1
V- CROSS ARM (M.S.CHANNEL-100X50X6-4)	1
BACK CLAMP	1
BOLTS 16 ϕ	4
33 KV PIN INSULATOR	3
33 KV PINS	3
EARTHING COMPLETE	1

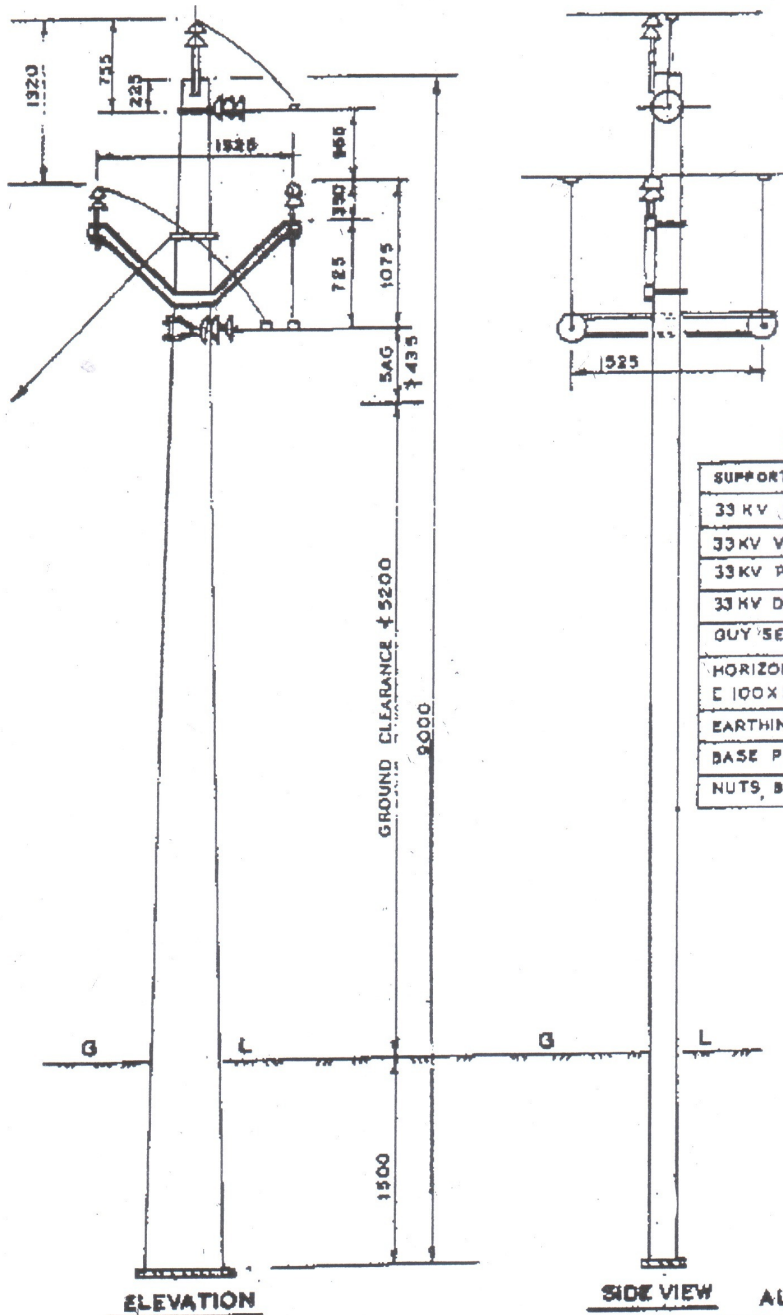
TANGENT LOCATION
MAX. SPAN 125 M
(CROSS COUNTRY)

ALL DIMENSIONS ARE IN mm.

३३ कि० वी० लाईन
कन्डक्टर रचना एवं अन्तराल
33KV LINE
CONDUCTOR FORMATION
AND CLEARANCES

SCALE:-N.T.S | APRIL - 1981.

REC
CONSTRUCTION STANDARD
M-10



BILL OF MATERIAL

SUPPORT - P.O.M	END.
33 KV POLE TOP BRACKET	1NO.
33KV V-CROSS ARM	1NO.
33KV PIN INSULATOR	3 NOS.
33KV DISC INSULATORS	3 SETS
GUY SET	1NO.
HORIZONTAL CROSS ARM E 100X50X6.4	1NO.
EARTHING MATERIAL	AS REQD.
BASE PLATE	1NO.
NUTS, BOLTS, POLE CLAMPS ETC AS REQD.	

NOTE :- MAXIMUM SPAN BETWEEN THE TAPPING
POLE AND ADJACENT POLE OF THE
BRANCH LINE - 50 MTS.

ALL DIMENSIONS ARE IN mm.

३३ के. वी. लाईन
टैपिंग व्यवस्था
सिंगल पोल टैपिंग

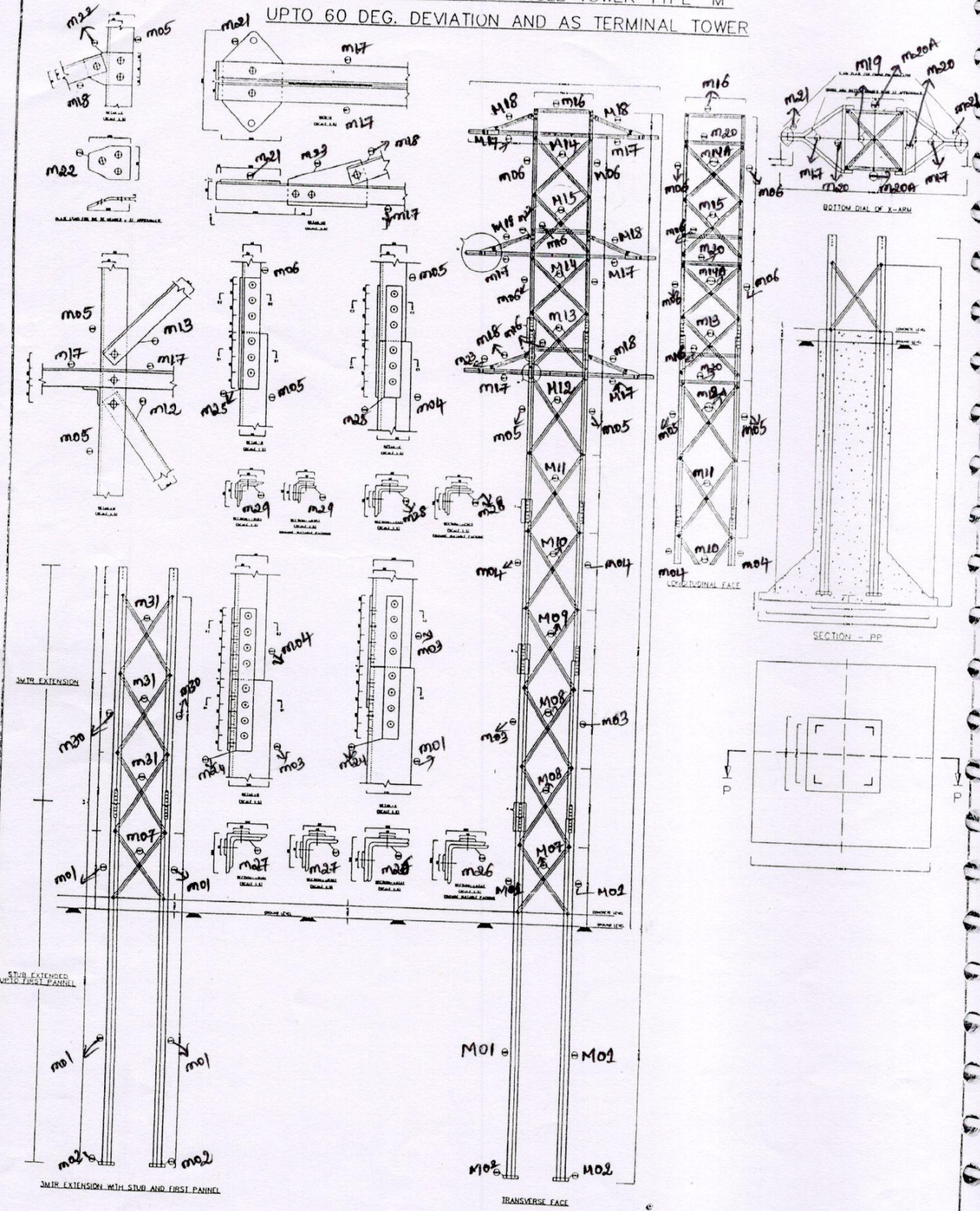
33 KV LINES
TAPPING ARRANGEMENT ON
SINGLE POLE

SCALE: N.T.S. OCT., 1967

STRUCTURAL DRAWING

OF

33 KV DOUBLE CIRCUIT ANGLE TOWER TYPE "M"
UPTO 60 DEG. DEVIATION AND AS TERMINAL TOWER



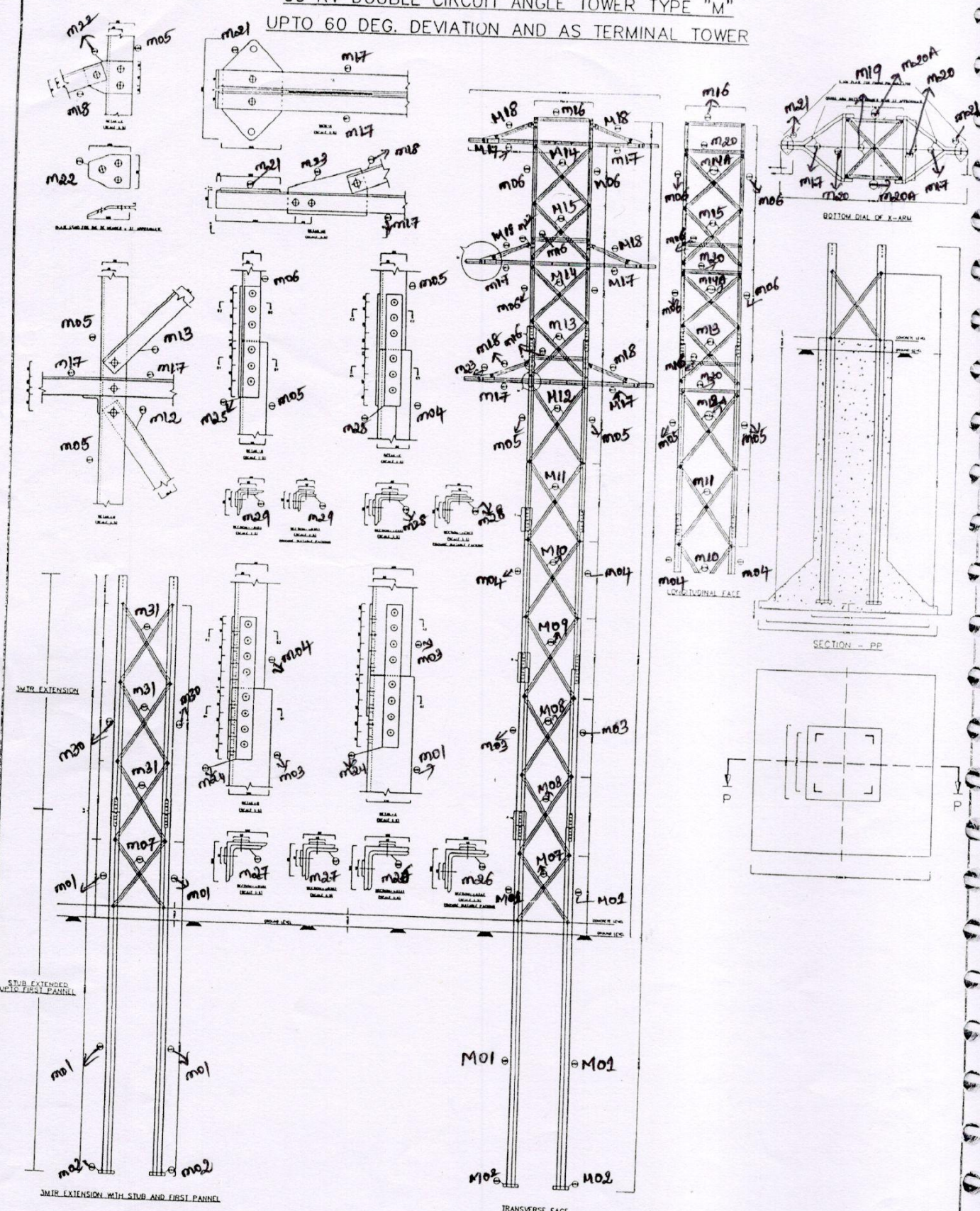
CENTRAL POWER DISTRIBUTION COMPANY OF
ANDHRA PRADESH LTD, MENT COMPOUND, HYDERABAD
33 K.V. DOUBLE CIRCUIT
ANGLE TOWER TYPE "M"
UPTO 60 DEG. DEVIATION AND AS
TERMINAL TOWER

For clarity of drawing, may refer the Cost data 18-19 pdf file placed on website.

STRUCTURAL DRAWING

OF

33 KV DOUBLE CIRCUIT ANGLE TOWER TYPE "M"
 UPTO 60 DEG. DEVIATION AND AS TERMINAL TOWER



CENTRAL POWER DISTRIBUTION COMPANY OF
 ANDHRA PRADESH LTD, MENT COMPOUND, HYDERABAD
 33 K.V. DOUBLE CIRCUIT
 ANGLE TOWER TYPE "M"
 UPTO 60 DEG. DEVIATION AND AS
 TERMINAL TOWER

For clarity of drawing, may refer the Cost data 18-19 pdf file placed on website.

BILL OF MATERIAL FOR 33 KV DOUBLE CIRCUIT TOWER TYPE ' M '

Sl. No.	PART DESCRIPTION	PART NO.	DIMENSION S OF SECTION/P LATE B and	LENGTH/AREA (m/m)	QUANTITY (No's)	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)
stub and cleats							
1	stub	M01	110x110x8	4.560m	4	13.4	244.416
2	cleats for stub	M02	45x45x5	0.200m	8	3.4	5.44
						sub total	249.856
super structure of L type tower							
3	leg	M03	100x100x8	1.998m	4	12.1	96.703
4	leg	M04	80x80x8	1.898m	4	9.6	72.883
5	leg	M05	66x65x6	2.274m	4	5.8	52.575
6	leg	M06	45x45x5	2.761m	4	3.4	37.55
7	bracing	M07	45x45x5	1.098m	8	3.4	29.866
8	bracing	M08	45x30x5	1.222m	16	2.8	54.746
9	bracing	M09	45X30X5	1.230m	8	2.8	27.552
10	bracing	M10	45x30x5	1.238m	8	2.8	27.731
11	bracing	M11	45x30x5	1.224m	8	2.8	27.418
12	bracing	M12	45x30x5	1.200m	4	2.8	13.44
13	bracing	M12A	45x30x5	1.172m	4	2.8	13.126
14	bracing	M13	45x30x5	1.012m	8	2.8	22.669
15	bracing	M14	45x30x5	1.013m	8	2.8	22.691
16	bracing	M14A	45x30x5	0.999m	8	2.8	22.378
17	bracing	M15	45x30x5	1.019m	8	2.8	22.826
18	horizontal bracing	M16	45x30x5	0.750m	12	3.4	25.2
19	cross arms main member	M17	45x45x5	1.048m	12	2.8	42.758
20	cross arm tie member	M18	45x30x5	0.520m	12	2.8	17.472
21	cross arm plan member	M19	45x30x5	1.016m	6	2.8	17.069
22	belt member-langitudinal face	M20	45x30x5	0.750m	6	2.8	12.6
23	belt member-transverse face	M20A	45x30x5	0.740m	6	2.8	12.432
24	strain plate	M21	6 mm thick	0.038m ²	6	47.1	10.598
25	plate(b/w tie number & leg)	M22	6 mm thick	0.013m ²	12	47.1	7.235
26	plate(b/w tie number & main member)	M23	6 mm thick	0.020m ²	6	47.1	5.652
27	cover plate for leg joint	M24	6 mm thick	0.01448m ²	16	47.1	10.912
28	cover plate for leg joint	M25	6 mm thick	0.01128m ²	16	47.1	8.501
29	cleat	M26	100x100x8	0.362m	4	12.1	17.521
30	cleat	M27	80x80x8	0.362m	4	9.6	13.901
31	cleat	M28	65x65x6	0.282m	4	5.8	6.542
32	cleat	M29	45x45x5	0.282m	4	3.4	3.835
33	bolts and nuts for leg joints	NA	16 mm DIA	65mm	128	0.288	36.8
34	bolts and nuts for leg joints	NA	16 mm DIA	50mm	96	0.2997	25.603
35	bolts and nuts for other joints	NA	16 mm DIA	40mm	243	0.2467	59.948
36	spring washers	NA	3.5 mm thick	suitable for 16mm bolts bolts and nuts	467	0.009	4.203
37	flat washers for packing	NA	2 mm thick	suitable for 16mm bolts bolts and nuts	48	0.01	0.48
38	flat washers for packing	NA	1 mm thick	suitable for 16mm bolts bolts and nuts	48	0.005	0.24
						sub total	883.838
						grand total	1133.692

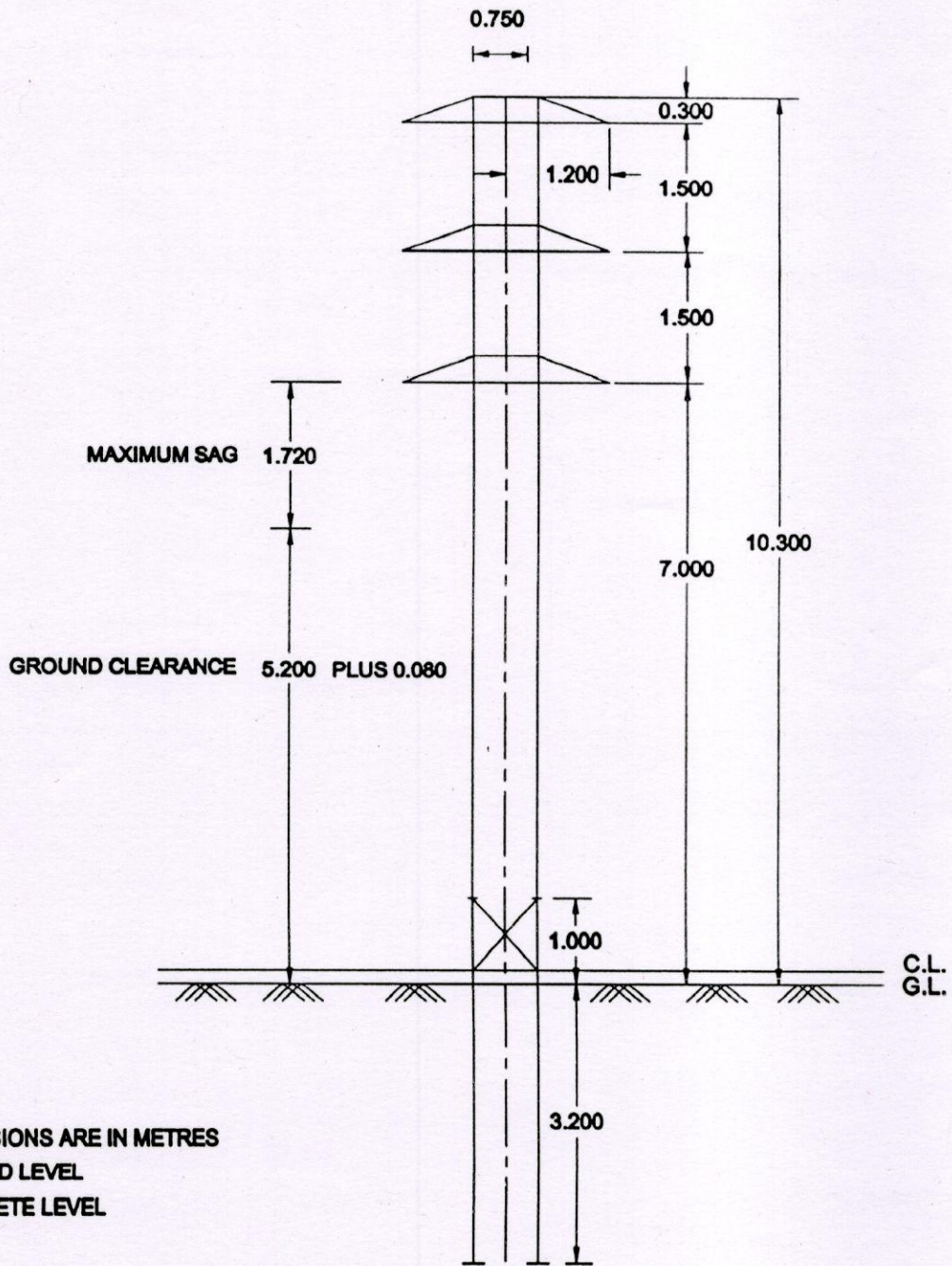
weight of normal tower type "M" :1133.692kgs

BILL OF MATERIAL FOR 3 M EXTENSION OF M TYPE TOWER

Sl. No.	PART DESCRIPTION	PART NO.	DIMENSIONS OF SECTION/PLATE B and N (mm)	LENGTH/AREA (m/m ²)	QUANTITY (No's)	UNIT WEIGHT (kg)	TOTAL WEIGHT (kg)
1	leg	M30	110x110x8	2.998m	4	13.4	160.693
2	bracing	M31	45x45x5	1.222m	24	3.4	99.715
3	cover plate	M24	6 mm thick	0.01448m	8	47.1	5.456
4	cleat	M26	100x100x8	0.362m	4	47.1	68.2
5	bolts and nuts	NA	16mm dia	65m	64	0.2875	18.4
6	bolts and nuts	NA	18 mm dia	40m	44	0.2467	10.855
7	spring washers	NA	3.5mm dia	suitable for 16 mm dia bolts and nuts	108	0.009	0.972
Total							384.292

weight of 3M extension of "M" type tower::364.292

OUTLINE DIAGRAM OF 'M' TYPE TOWER

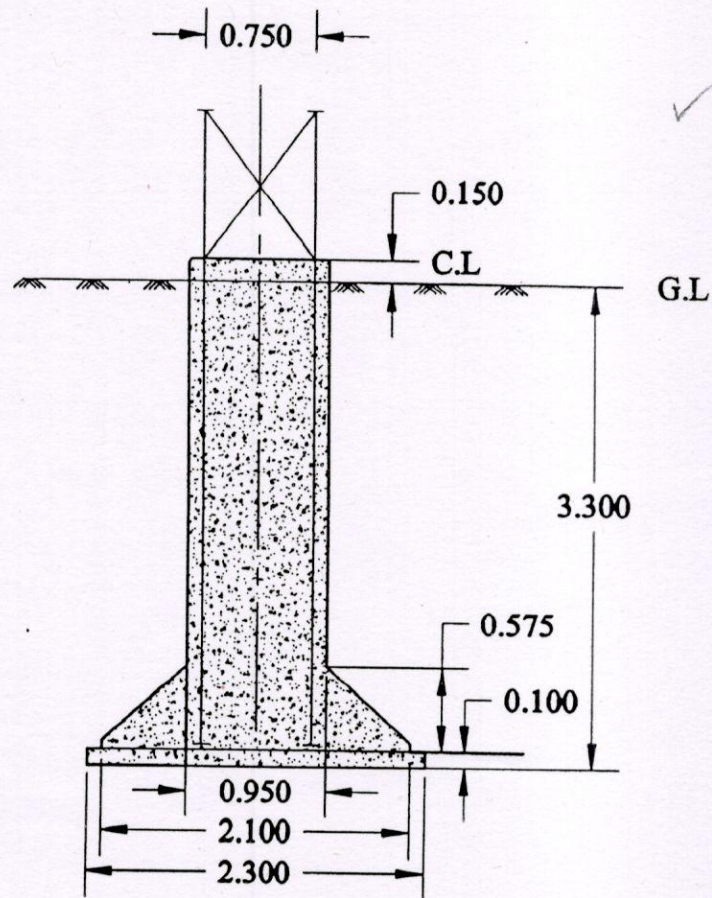


ALL DIMENSIONS ARE IN METRES
G.L. GROUND LEVEL
C.L. CONCRETE LEVEL

FIG - 11

Drawing No: APCPDCL-C.M-TOWERS-11

FOUNDATION DRAWING OF 33Kv D.C. TOWER TYPE 'M'



ALL DIMENSIONS ARE IN METRES.

FOUNDATION IS DESIGNED FOR NORMAL TOWER, PLUS 3M AND 6M EXTENSIONS.

STUBS EXTENDED UPTO FIRST PANEL.

SECTION : 110 X 110 X 10 MM.

DIAGONAL BRACINGS OF FIRST PANEL : 45 X 45 X 5 MM.

CLEATS WELDED TO STUBS AT BOTTOM : 45 X 30 X 5 MM, 200MM LONG TWO FOR EACH STUB.
ONE OF THE FOUR LEGS IS TO BE CONNECTED TO PIPE EARTHING PROVIDED SEPARATELY AT TOWER LOCATION.

VOLUME OF EXCAVATION = 22.308 CU.M (WORKING SPACE OF 150 MM ALL AROUND THE BOTTOM PAD)

VOLUME OF CONCRETE = 4.434 CU.M

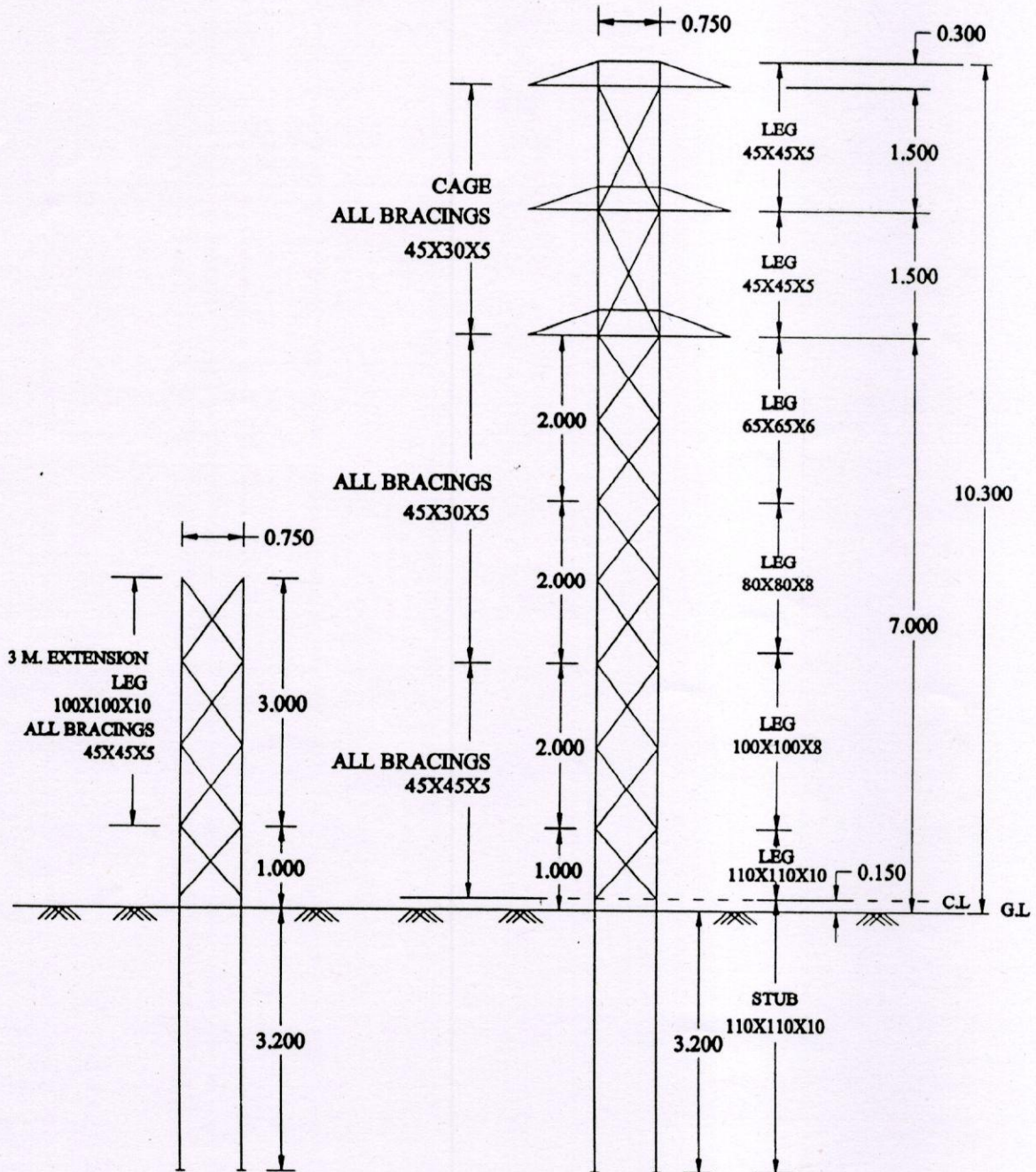
THE FOUNDATION IS SUITABLE FOR NORMAL TOWER, PLUS 3M AND PLUS 6M EXTENSIONS.

THE FOUNDATION CAN BE ADOPTED FOR PLUS 9M AND PLUS 12M EXTENSIONS ERECTING THE TOWER AS A STRAIGHT LINE CUT POINT AND LIMITING THE SPAN TO 80M.

FIG - 14

Drawing No: APCPDCL-C.M-TOWERS-09

**33KV DOUBLE CIRCUIT ANGLE TOWER TYPE 'M'
UPTO 60 DEGREES DEVIATION AND AS TERMINAL TOWER**



ALL DIMENSIONS ARE IN METRES.

STEEL SECTIONS FOR LEG MEMBERS AND BRACINGS ARE INDICATED IN THE DRAWING.

CROSS-ARM MAIN MEMBERS AND BELT MEMBERS ARE 45 X 45 X 5 MM. OTHER MEMBERS OF CROSS-ARMS ARE 45 X 30 X 5 MM.

ALL SECTIONS ARE IN MM.

8NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FIRST PANEL, 3M AND 6M EXTENSIONS.

8NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR SECOND AND THIRD PANELS.

6NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FOURTH TO SEVENTH PANELS.

4NO.S 16 MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR CAGE.

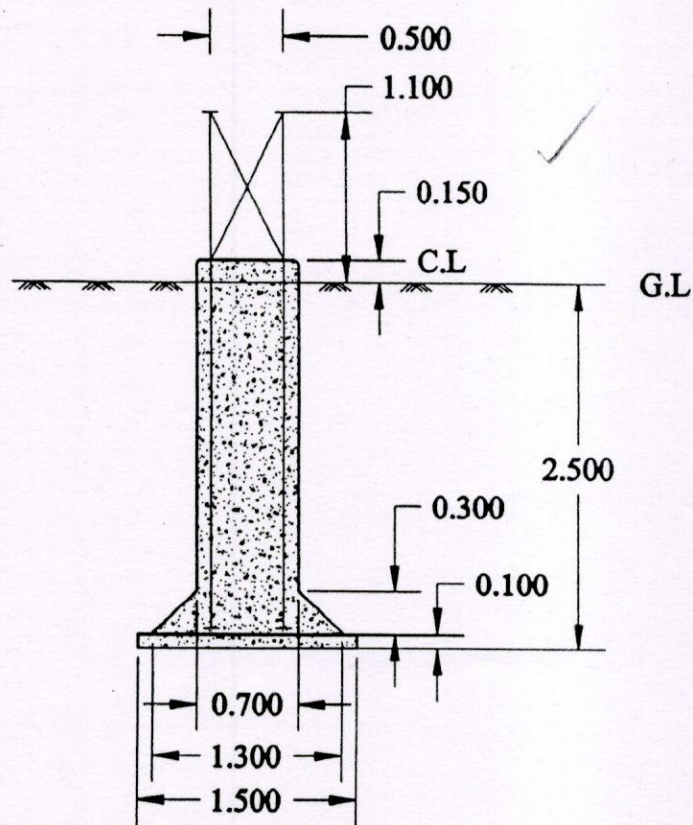
ALL DIAGONALS SHALL HAVE SINGLE BOLT CONNECTIONS.

ALL LEG MEMBERS ARE BUTT-JOINTED.

FIG - 13

Drawing No: APCPDCL-C.M-TOWERS-13

FOUNDATION DRAWING OF 33 Kv D.C. TOWER TYPE 'K'



ALL DIMENSIONS ARE IN METRES

FOUNDATION IS DESIGNED FOR NORMAL TOWER WITH 3M AND 6M EXTENSIONS

VOLUME OF EXCAVATION : 8.100 CU M (WORKING SPACE OF 150 MM ALL AROUND THE BOTTOM PAD)

VOLUME OF CONCRETE : 1.636 CU M

STUBS EXTENDED UPTO FIRST PANEL

SECTION : 75 X 75 X 6 MM

CLEATS : 45 X 30 X 5, 200MM LONG

TWO FOR EACH STUB

ONE OF THE FOUR LEGS IS TO BE CONNECTED TO PIPE EARTHING PROVIDED SEPARATELY.

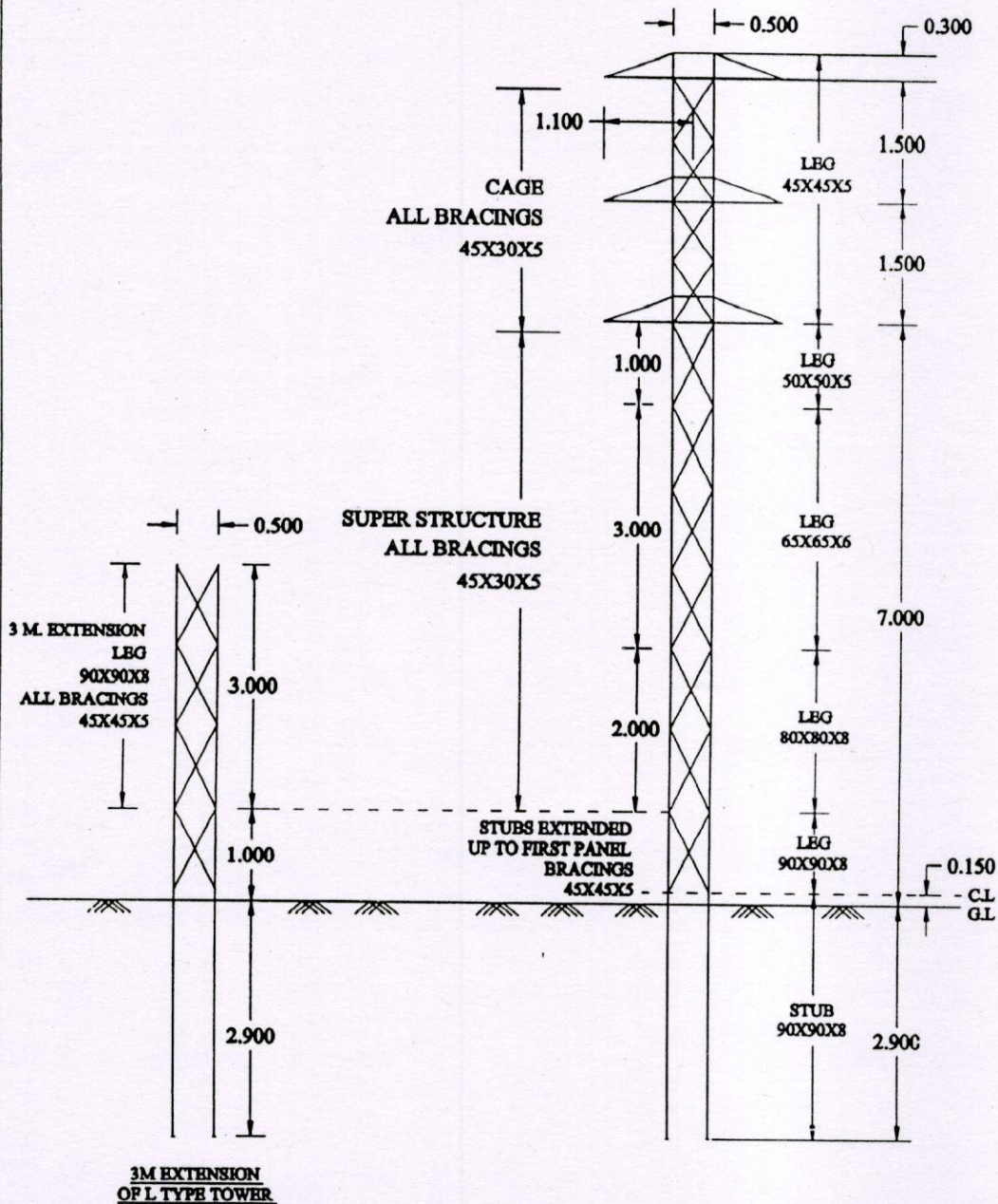
THE FOUNDATION IS SUITABLE FOR NORMAL TOWER, PLUS 3M AND PLUS 6M EXTENSIONS.

THE FOUNDATION CAN BE ADOPTED FOR PLUS 9M AND PLUS 12M EXTENSIONS LIMITING THE SPAN TO 80M.

FIG - 04

Drawing No: APCPDCL-C.M-TOWERS-04

**SINGLE LINE DIAGRAM OF 33KV DOUBLE CIRCUIT
ANGLE TOWER TYPE 'L' ANGLE OF DEVIATION : 20DEG**



ALL DIMENSIONS ARE IN METERS.
 ALL SECTIONS ARE IN MM.
 CROSS ARM MAIN MEMBERS AND DIAGONAL BRACINGS
 OF FIRST PANEL AND EXTENSIONS SHALL BE 45X45X5MM.
 ALL OTHER MEMBERS OF CROSSARMS AND DIAGONAL BRACINGS OF TOWER SHALL BE 45X30X5 MM.
 8NO.S 16MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR 3M. AND 6M. EXTENSIONS, FIRST, SECOND AND
 THIRD PANELS.
 6NO.S 16MM Ø BOLTS AND NUTS DOUBLE SHEAR FOR FOURTH TO SEVENTH PANELS.
 4NO.S FOR CAGE.
 ALL DIAGONALS SHALL HAVE SINGLE BOLT CONNECTIONS.
 LEG MEMBERS SHALL BE BUTT-JOINTED

FIG - 08

Drawing No: APCPDCL-C.M-TOWERS-08