14. LEDGER FOR INDIVIDUAL TOWER

West Wharf P/S — b c a d — Baldia G/S

LEDGER FOR INDIVIDUAL TOWER

Circuit Voltage : 220 kV
No. of Circuit : 2 cct.
Conductor : ACSR/AS 330 mm²
Ground Wire : OPGW 190/90 mm²

Tower No.	Span (m)	Wind Span (m)	Daviation Angle	Tower Type	Tower Extention	Ground Level Difference (m)	Formation Level (m)	Cond. Support Height (m)	Cond. Support Level Difference (m)	h / S h1/S1	h / S h2/S2	h / S Σh/S	Catenary Ang. (°) For side	Catenary Ang. (°) Back side	Catenary Ang. (°) Total	Insulator Class	Insulator Type	Type of Foundation	Remarks Crossing	Remarks Land Item
G1				Gantry	+0	0.0	0.0	9.0								12t*1	—	PILE FOUND.		Factory Area
	15																			
G2				Gantry	+0	-0.2	0.0	9.0								12t*1	—	PILE FOUND.		
	35																			
1		185		D4	-3	-0.1	0.0	39.2	32.57	0.6514	-0.0102	0.6412	36	7	43	12t*1 12t*2	—=	D4-S		
	320																			
2		325		A4	+0	0.0	0.0	42.5	3.28	0.0102	0.0095	0.0198	6	6	12	12t*2	V	A4-S		
	330																		Road	
3		303		A4	-3	-0.2	0.0	39.5	-3.15	-0.0095	0.0006	-0.0090	5	5	10	12t*2	V	A4-S		
	276																		Road, Mosque	
4		313	L 70°48'	DR4	-3	0.1	0.0	39.2	-0.16	-0.0006	0.0556	0.0550	7	11	18	12t*2	=|=	DR4-S	Sea Water	
	350																		Houses, Boat Manuf.	
5		365		A	+0	-2.9	0.0	22.5	-19.45	-0.0556	-0.0277	-0.0833	3	5	8	12t*2	V	A-S		Trees
	380																		Sea Water	
6		440		AL	+6	0.7	0.0	32.5	10.53	0.0277	-0.0034	0.0243	8	8	16	12t*2	V	AL-S		Sea Water
	500																		Sea Water, House	Enchroachment Area
7		480		AL	+7.5	0.1	0.0	34.0	1.72	0.0034	0.0175	0.0210	9	9	18	12t*2	V	AL-S		
	460																		Fish Yard, River	
8		445		AL	+0	-0.5	0.0	26.5	-8.06	-0.0175	0.0016	-0.0159	7	7	14	12t*2	V	AL-R		River
	430																		Layari River	
9		382		A	+3	0.3	0.0	25.5	-0.70	-0.0016	0.0055	0.0039	7	6	13	12t*2	V	A-R		River
	333																		Layari River, Bund	Water Lodging
10		312	L 36°42'	C	+0	1.4	0.0	22.2	-1.84	-0.0055	0.0293	0.0238	8	9	17	12t*2	==	C-C	Katcha Road	
	290																		Water Lodging	
11		258		AS	+0	-0.8	0.0	14.5	-8.50	-0.0293	-0.0024	-0.0317	3	4	7	12t*2	V	AS-C		
	225																		ater Lodging	
12		223	L 44°39'	D	-3	0.8	0.0	14.2	0.53	0.0024	0.0010	0.0033	6	6	12	12t*2	=|=	D-C		
	220																			Broken Area
13		220		AS	+0	-0.5	0.0	14.5	-0.21	-0.0010	-0.0059	-0.0068	4	3	7	12t*2	V	AS-C		
	220																			
14		220		AS	+0	1.3	0.0	14.5	1.29	0.0059	-0.0048	0.0011	4	3	7	12t*2	V	AS-C		
	220																			
15		220		AS	+0	1.1	0.0	14.5	1.05	0.0048	0.0019	0.0066	4	4	8	12t*2	V	AS-C		
	220																			
16		200		AS	+0	-0.8	0.0	14.5	-0.41	-0.0019	-0.0053	-0.0072	4	3	7	12t*2	V	AS-C		
	180																		KMC Boundary, Market	
17		175	R 4°49'	B	-6	-0.6	0.0	16.2	1.11	0.0053	0.0163	0.0216	6	6	12	12t*2	==	B-C		
	170																		H.T Line	
18																				Salt Area

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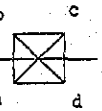
West Wharf P/S — Baldia G/S

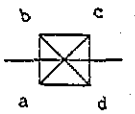


LEDGER FOR INDIVIDUAL TOWER

Circuit Voltage : 220 kV
No. of Circuit : 2 cct.
Conductor : ACSR/AS 330 mm²
Ground Wire : OPGW 190/90 mm²

Tower No.	Span (m)	Wind Span (m)	Daviation Angle	Tower Type	Tower Extention	Ground Level Difference (m)	Formation Level (m)	Cond. Support Height (m)	Cond. Support Level Difference (m)	h / S h1/S1	h / S h2/S2	h / S Σh/S	Catenary Ang. (°) For side	Catenary Ang. (°) Back side	Catenary Ang. (°) Total	Insulator Class	Insulator Type	Type of Foundation	Remarks Crossing	Remarks Land Item
18		208		AS	+0	-1.0	0.0	14.5	-2.74	-0.0161	0.0000	-0.0161	2	4	6	12t*2	V	AS-C		
19	245	245		AS	+0	0.0	0.0	14.5	0.00	0.0000	-0.0004	-0.0004	4	4	8	12t*2	V	AS-C	Old Salt Area	Old Salt Area
20	245	233		AS	+0	0.0	0.0	14.5	0.10	0.0004	0.0023	0.0027	4	4	8	12t*2	V	AS-C	Old Salt Area Katcha Road	
21	220	210		AS	+0	-0.5	0.0	14.5	-0.50	-0.0023	0.0000	-0.0023	3	3	6	12t*2	V	AS-C		Sea Water
22	200	200		AS	+0	0.0	0.0	14.5	0.00	0.0000	0.0005	0.0005	3	3	6	12t*2	V	AS-C	Sea Water	
23	200	215		AS	+0	-0.1	0.0	14.5	-0.10	-0.0005	0.0004	-0.0001	3	4	7	12t*2	V	AS-C	Sea Water, Nala	
24	230	225		AS	+0	-0.1	0.0	14.5	-0.10	-0.0004	0.0014	0.0009	4	4	8	12t*2	V	AS-C	Sea Water	
25	220	230		AS	+0	-0.3	0.0	14.5	-0.30	-0.0014	-0.0148	-0.0161	4	3	7	12t*2	V	AS-C	Sea Water	
26	240	210	L 12°27'	B	-6	1.8	0.0	16.2	3.54	0.0148	0.0180	0.0328	7	6	13	12t*2	= =	B-C	Bund, Sea Water	
27	180	180		AS	+0	-1.5	0.0	14.5	-3.21	-0.0178	-0.0051	-0.0230	2	3	5	12t*2	V	AS-C	Sea Water	
28	180	180		AS	+0	0.9	0.0	14.5	0.92	0.0051	0.0067	0.0118	3	3	6	12t*2	V	AS-C	Sea Water, Bushes	
29	180	170	R 71°22'	DR	-3	-1.0	0.0	14.2	-1.21	-0.0067	-0.0015	-0.0083	5	5	10	12t*2	= =	DR-C	Sea Water	
30	160	200		AS	+0	-0.0	0.0	14.5	0.25	0.0015	-0.0013	0.0002	3	4	7	12t*2	V	AS-C	Marin Academy, Road	
31	240	240		AS	+0	0.3	0.0	14.5	0.32	0.0013	0.0038	0.0052	4	4	8	12t*2	V	AS-C	Sea Water	
32	240	240		AS	+0	-0.9	0.0	14.5	-0.92	-0.0038	-0.0037	-0.0075	4	4	8	12t*2	V	AS-C	Sea Water	Salt Area
33	240	245		AS	+0	0.9	0.0	14.5	0.88	0.0037	-0.0005	0.0032	4	4	8	12t*2	V	AS-C	Sea Water, Salt Area	
34	250	245		AS	+0	0.1	0.0	14.5	0.12	0.0005	0.0006	0.0011	4	4	8	12t*2	V	AS-C	Salt Area	
35	240	245		AS	+0	-0.1	0.0	14.5	-0.14	-0.0006	-0.0004	-0.0010	4	4	8	12t*2	V	AS-C	Salt Area	
36	250	215	R 52° 7'	D	-3	0.4	0.0	14.2	0.10	0.0004	-0.0004	-0.0000	6	5	11	12t*2	= =	D-C		
37	180																			

West Wharf P/S — Baldia G/S



LEDGER FOR INDIVIDUAL TOWER

Circuit Voltage : 220 kV
No. of Circuit : 2 cct.
Conductor : ACSR/AS 330 mm²
Ground Wire : OPGW 190/90 mm²

Tower No.	Span (m)	Wind Span (m)	Daviation Angle	Tower Type	Tower Extention	Ground Level Difference (m)	Formation Level (m)	Cond. Support Height (m)	Cond. Support Level Difference (m)	h / S h1/S1	h / S h2/S2	h / S Σh/S	Catenary Ang. (°) For side	Catenary Ang. (°) Back side	Catenary Ang. (°) Total	Insulator Class	Insulator Type	Type of Foundation	Remarks Crossing	Remarks Land Item
37		175		AS	+0	-0.2	0.0	14.5	0.08	0.0004	-0.0054	-0.0050	3	2	5	12t*2	V	AS-C		Salt Area
	169																			
38		155	L 45°27'	D	-3	1.2	0.0	14.2	0.91	0.0054	0.0088	0.0142	5	5	10	12t*2	=|=	D-C	Road, H.T Line	
	140																		Old Salt Area	
39		180		AS	+0	-1.5	0.0	14.5	-1.23	-0.0088	0.0002	-0.0086	2	4	6	12t*2	V	AS-C		
	220																		Sea Water	
40		230		AS	+0	-0.1	0.0	14.5	-0.05	-0.0002	-0.0020	-0.0022	4	4	8	12t*2	V	AS-C		Sea Water
	240																		Sea Water	
41		240		AS	+0	0.5	0.0	14.5	0.47	0.0020	0.0019	0.0039	4	4	8	12t*2	V	AS-C		
	240																		Sea Water	
42		240		AS	+0	-0.5	0.0	14.5	-0.46	-0.0019	-0.0011	-0.0030	4	4	8	12t*2	V	AS-C		
	240																		Sea Water	
43		240		AS	+0	0.3	0.0	14.5	0.27	0.0011	-0.0034	-0.0023	4	4	8	12t*2	V	AS-C		Open Area
	240																			
44		198		AS	+0	0.8	0.0	14.5	0.82	0.0034	0.0058	0.0093	4	3	7	12t*2	V	AS-C		
	155																			
45		153		B	-6	-0.1	0.0	14.5	-0.91	-0.0058	-0.0084	-0.0142	2	2	4	12t*2	=|=	B-C		
	150																			
46		190		B	-6	1.6	0.0	14.5	1.04	0.0084	-0.0055	0.0029	3	3	6	12t*2	==	B-C	Nala, Road, H.T Line	
	230																			
47		240		AS	+0	1.0	0.0	14.5	1.26	0.0055	0.0001	0.0056	4	4	8	12t*2	V	AS-C		
	250																		Road under const.	
48		250		AS	+0	-0.2	0.0	14.5	-0.02	-0.0001	-0.0318	-0.0319	4	2	6	12t*2	V	AS-C		
	250																			
49		240	R 38°18'	C	+0	-0.1	0.0	22.2	7.64	0.0318	0.0311	0.0630	8	8	16	12t*2	==	C-C		
	230																		Road under const.	
50		230		AS	+0	0.6	0.0	14.5	-7.16	-0.0311	-0.0043	-0.0354	2	4	6	12t*2	V	AS-D		
	230																			
51		230		AS	+0	1.0	0.0	14.5	0.99	0.0043	-0.0040	0.0003	4	4	8	12t*2	V	AS-D		
	230																		Trees & Bushies	
52		213		AS	+0	0.9	0.0	14.5	0.91	0.0040	-0.0046	-0.0007	4	3	7	12t*2	V	AS-D		Bushes
	196																		Trees & Bushies	
53		210		AS	+0	0.9	0.0	14.5	0.97	0.0046	-0.0058	-0.0012	4	3	7	12t*2	V	AS-D		Bushes
	224																		Road under const.	
54		217		AS	+0	1.3	0.0	14.5	1.22	0.0058	-0.0031	0.0027	4	3	7	12t*2	V	AS-D		Open Area
	210																			
55		210		AS	+0	0.7	0.0	14.5	0.66	0.0031	-0.0055	-0.0024	4	3	7	12t*2	V	AS-D		Bushies
	210																		Bushies	
56																				Bushies

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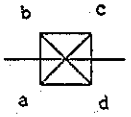
West Wharf P/S — Baldia G/S



LEDGER FOR INDIVIDUAL TOWER

Circuit Voltage : 220 kV
No. of Circuit : 2 cct.
Conductor : ACSR/AS 330 mm²
Ground Wire : OPGW 190/90 mm²

Tower No.	Span (m)	Wind Span (m)	Daviation Angle	Tower Type	Tower Extention	Ground Level Difference (m)	Formation Level (m)	Cond. Support Height (m)	Cond. Support Level Difference (m)	h / S h1/S1	h / S h2/S2	h / S Σh/S	Catenary Ang. (°) For side	Catenary Ang. (°) Back side	Catenary Ang. (°) Total	Insulator Class	Insulator Type	Type of Foundation	Remarks Crossing	Remarks Land Item
56		205		AS	+0	1.2	0.0	14.5	1.16	0.0055	-0.0048	0.0008	4	3	7	12t*2	V	AS-D		
	200																			
57		200		AS	+0	1.0	0.0	14.5	0.95	0.0048	-0.0031	0.0017	4	3	7	12t*2	V	AS-D	Bushies	
	200																			
58		208		AS	+0	0.6	0.0	14.5	0.61	0.0031	-0.0041	-0.0010	3	3	6	12t*2	V	AS-D		
	215																			
59		208	R 56°51'	D	-3	1.1	0.0	14.2	0.87	0.0041	-0.0063	-0.0023	6	5	11	12t*2	= =	D-D		Open Area
	200																			
60		220		AS	+0	1.0	0.0	14.5	1.27	0.0063	-0.0035	0.0028	4	4	8	12t*2	V	AS-D	Road	
	240																			
61		225		AS	+0	0.9	0.0	14.5	0.85	0.0035	-0.0057	-0.0021	4	3	7	12t*2	V	AS-D		
	210																			
62		210		AS	+0	1.2	0.0	14.5	1.19	0.0057	-0.0049	0.0008	4	3	7	12t*2	V	AS-D		
	210																			
63		210		AS	+0	1.0	0.0	14.5	1.02	0.0049	-0.0072	-0.0024	4	3	7	12t*2	V	AS-D		
	210																			
64		210		AS	+0	1.5	0.0	14.5	1.52	0.0072	-0.0075	-0.0003	4	3	7	12t*2	V	AS-D		
	210																			
65		210		AS	+0	1.6	0.0	14.5	1.58	0.0075	-0.0001	0.0074	4	4	8	12t*2	V	AS-D		Open Area
	210																		Nala, Trees & Bushes	
66		210		AS	+0	0.0	0.0	14.5	0.02	0.0001	-0.0019	-0.0018	4	4	8	12t*2	V	AS-D		
	210																		Bushes, Nala	
67		250		AS	+0	0.4	0.0	14.5	0.39	0.0019	-0.0363	-0.0345	4	3	7	12t*2	V	AS-D		
	290																		Bushes	
68		345		A	+1.5	1.0	0.0	24.0	10.53	0.0363	-0.0020	0.0343	7	6	13	12t*2	V	A-D		Bushes
	400																		Bushes, Rail Way	
69		395		A	+1.5	0.8	0.0	24.0	0.79	0.0020	0.0064	0.0084	7	7	14	12t*2	V	A-D		
	390																		Bushes, Nala	
70		375		A	+0	-1.0	0.0	22.5	-2.51	-0.0064	-0.0032	-0.0096	6	6	12	12t*2	V	A-D		
	360																		Sparco Building Wall	
71		355		A	+0	1.1	0.0	22.5	1.14	0.0032	-0.0066	-0.0035	6	5	11	12t*2	V	A-D		
	350																			
72		350		A	+0	2.3	0.0	22.5	2.32	0.0066	-0.0075	-0.0008	6	5	11	12t*2	V	A-D		
	350																			
73		330	R 17°37'	C	+0	2.9	0.0	22.2	2.61	0.0075	0.0082	0.0156	9	8	17	12t*2	= =	C-D		
	310																			
74																				

West Wharf P/S — b c / a d — Baldia G/S

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Ground Wire : OPGW 190/90 mm^2

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74		310		A	-3	0.2	0.0	19.5	-2.53	-0.0082	-0.0023	-0.0104	5	5	10	12t*2	V	A-D		
75	310	310		A	-3	0.7	0.0	19.5	0.70	0.0023	-0.0111	-0.0088	5	5	10	12t*2	V	A-D		
76	310	350	R 27° 0'	C	+0	0.7	0.0	22.2	3.44	0.0111	-0.0006	0.0105	8	9	17	12t*2	= =	C-D	Poultry Forme	
77	390	390		A	+0	-0.0	0.0	22.5	0.24	0.0006	0.0011	0.0017	7	7	14	12t*2	V	A-D		
78	390	384		A	+0	-0.4	0.0	22.5	-0.44	-0.0011	-0.0032	-0.0044	7	6	13	12t*2	V	A-D	Poultry Forme	
79	378	323		A	+0	1.2	0.0	22.5	1.22	0.0032	-0.0346	-0.0314	7	4	11	12t*2	V	A-D		
80	267	215	L 27° 47'	C	+12	1.1	0.0	34.2	12.81	0.0346	-0.0081	0.0265	11	5	16	12t*2	= =	C-D	Cattle Farm	
81	163	299	R 3° 00'	A	+12	1.0	0.0	34.5	1.26	0.0081	0.0365	0.0446	3	9	12	12t*2	V	A-D	Wall, 132kV Line, Tel Line Road, H.t Line	
82	435	393		A	-3	0.4	0.0	19.5	-14.60	-0.0365	-0.0131	-0.0496	5	5	10	12t*2	V	A-D	Nala	
83	350	347		A	+0	1.6	0.0	22.5	4.60	0.0131	0.0115	0.0246	7	6	13	12t*2	V	A-D	Nala	
84	344	309	L 89° 3'	DR	+0	1.2	0.0	17.2	-3.96	-0.0115	-0.0051	-0.0166	8	7	15	12t*2	=|=	DR-D		
85	273	332	R 90° 8'	DR	+0	1.4	0.0	17.2	1.36	0.0050	-0.0517	-0.0467	7	6	13	12t*2	=|=	DR-D		
86	390	400		A	+12	2.9	0.0	34.5	20.17	0.0517	0.0045	0.0562	10	7	17	12t*2	V	A-D	Road, 132kV Line	Urban Area
87	410	400		A	+4.5	5.7	0.0	27.0	-1.83	-0.0045	-0.0106	-0.0151	7	6	13	12t*2	V	A-D	Road	
88	390	357		A	+3	5.6	0.0	25.5	4.13	0.0106	0.0072	0.0178	7	7	14	12t*2	V	A-D	Road	
89	323	262	R 89° 4'	DR	+0	5.6	0.0	17.2	-2.68	-0.0072	0.0110	0.0037	8	7	15	12t*2	=|=	DR-D	Road	
90	200	200		AS	+0	0.5	0.0	14.5	-2.19	-0.0110	0.0066	-0.0043	3	4	7	12t*2	V	AS-D	Nala	
91	199	155	R 90° 0'	DR	-6	1.9	0.0	11.2	-1.32	-0.0066	0.0357	0.0291	5	6	11	12t*2	=|=	DR-D		
92	110	70		D	-3	-6.9	0.0	14.2	-3.93	-0.0357	0.1033	0.1676	2	21	23	12t*2 12t*1	= —	D-D	Boundary Wall, Road, Nala	
93	30			Gantry	+0	-0.9	0.0	12.0	-3.10							12t*1	—|	MONO BLOCK FOUNDATION		

2-173

MESSRS: KARACHI ELECTRIC SUPPLY CORPORATION

PROJECT: WEST WHARF THERMAL POWER PLANT PROJECT

SCHEDULE OF IMPLEMENTATION (TENTATIVE)

No. WGT-1003

DATE 10TH JAN 1990

DIV.

COPY TO

PROGRES MONTHS

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

MASTER SCHEDULE

UNIT 1 P/S M/F TSS BSS D/L BHT P/R I/F I/S C/O

UNIT 2 DM/S P/S M/F TSS BSS D/L BHT P/R I/F I/S C/O

LOT I

POWER PLANT EQUIPMENT & CIVIL AND ARCHITECTURAL

LOT I

UNIT 1

C/S

BOILER SHIPPING

T/G ROOM SHIPPING

ELECTRICAL ERECTION P/R T/O

DESIGN & MANUFACTURING STEEL STRUCTURE D/L CHIPPING T/G ERECTION T/O I/S T/O UNIT 1 C/O

SHIPPING P/S PILING M/F FOUND. UNIT 1 MAIN POWERHOUSE TSS T/G PEDESTAL

PREPARATION MAT FOUNDATION BSS BOILER STRUCTURE BOILER ERECTION D/L BHT BOILER ERECTION T/O

AUX. FOUDATION AUX. ERECTION T/O

DISCHARGE TUNNEL CONSTRUCTION

INTAKE CHANNEL PUMP PIT CONSTRUCTION CWP. SCREEN ETC. INSTALLATION

PLANT WATER FOUNDATION & ERECTION T/O

OUTDOOR PIPE SUPPORT FOUND. & ERECTION ST/PIPE INSTALLATION

SUPER STRUCTURE PLANT WATER OUTDOOR PIPE INSTALLATION T/G ROOM SHIPPING ELECTRICAL ERECTION P/R T/O

UNIT 2

DM/S P/S M/F TSS D/L CHIPPING T/G ERECTION T/O I/S UNIT 2 C/O T/O

"B" & "E" DISMANTLING BELOW GROUND MAT FOUND. BSS BOILER STRUCTURE T/G PEDESTAL D/L BHT BOILER ERECTION BOILER ERECTION T/O

UNIT 1 P/S BOILER SHIPPING

AUX. FOUNDATION AUX. ERECTION T/O

DISCHARGE TUNNEL CONSTRUCTION

INTAKE CHANNEL PUMP PIT CONSTRUCTION CWP. SCREEN ETC. INSTALLATION

OUTDOOR PIPE SUPPORT FOUND. & ERECTION ST/PIPE INSTALLATION

LOT II

DISMANTLING WORKS

LOT II

C/S "A" & "B" "A" & "B" ABOVE GROUND "BX" ABOVE GROUND

GP

ADMI BUILDING CONSTRUCTION

LOT IIA

SUBSTATION & GRID STATION

LOT IIA

C/S DESIGN & MANUFACTURING SHIPPING 220kv, 132kv INSTALLATION C/O TEST

FINISHING A/C VENT PLUMBING

PILE SHIPPING PILING FOUND STEEL STRUCTURE SHIPPING

CABLE TUNNEL CONSTRUCTION

PREPARATION CABLING

DISMANTLING "B" DISCHARGE WAY INCLUDING TEMPO. WORK

LOT IIB

220/132kv TRANSMISSION LINE

LOT IIB

C/S DESIGN & MANUFACTURING SHIPPING TOWER ERECTION C/O TEST

TOWER FOUNDATION WORKS STRINGING

OWNER'S WORKS

SHIFTING WORKS OF 66KV OUTDOOR SWITCHYARD (6 MONTHS)

SHUT-DOWN OF "BX"

C/S : CONTRACT SIGNING
P/S : PILING START
M/F : MAT FOUNDATION START
TSS : TURBINE STEEL STRUCTURE START
BSS : BOILER STEEL STRUCTURE START
D/L : DRUM LIFTING
BHT : BOILER HYDROSTATIC TEST
P/R : POWER RECEIVING
I/F : INITIAL FIRING
I/S : INITIAL STEAMING
C/O : COMMERCIAL OPERATION
T/O : TEST & TRIAL OPERATION
DM/S : DISMANTLING WORK START
AUX. : AUXILIARY EQUIPMENT
GP : GUARANTEE PERIOD
▭ : INTERNATIONAL TENDER
▭ : OWNER'S WORK
◉ : EVENT
◎ : KEY DATE OF THE CONTRACT

REMARKS

REV. No.	APPROVED BY	CHECKED BY	DRAWN BY
REV. DATE			
CONTENTS			

SECTION III

DRAWINGS FOR TENDERING

SECTION III: DRAWINGS FOR TENDERING

NO.	DRAWING NO.	TITLE OF DRAWING
1.	WLT-1001	ROUTE MAP
2.	WLT-1002	BORING POINT AND BORING LOG
3.	WLT-1101	SKELETON OF TOWER (1)
4.	WLT-1102	SKELETON OF TOWER (2)
5.	WLT-1103	SKELETON OF TOWER (3)
6.	WLT-1104	CONFIGULATION AT THE PLACE OF TOWER NO. 1
7.	WLT-1105	PLAN AT THE PLACE OF TOWER NO. 1
8.	WLT-1106	ARRANGEMENT OF 220 kV INCOMING LINES AT TOWER NO. 1
9.	WLT-1201	220 kV V-SUSPENSION INSULATOR STRING
10.	WLT-1202	220 kV SINGLE TENSION INSULATOR STRING
11.	WLT-1203	220 kV DOUBLE TENSION INSULATOR STRING
12.	WLT-1204	220 kV JUMPER SUPPORT INSULATOR STRING
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14.	WLT-1206	132 kV SINGLE TENSION INSULATOR STRING
15.	WLT-1207	132 kV DOUBLE TENSION INSULATOR STRING
16.	WLT-1208	132 kV JUMPER SUPPORT INSULATOR STRING
17.	WLT-1209	132 kV TIE DOWN INSULATOR STRING
18.	WLT-1210	FOG TYPE SUSPENSION INSULATOR
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20.	WLT-1302	SUSPENSION CLAMP FOR ACSR/AS 680 MM^2
21.	WLT-1303	SUSPENSION CLAMP FOR OPGW
22.	WLT-1304	TENSION CLAMP FOR ACSR/AS
23.	WLT-1305	TENSION CLAMP FOR OPGW
24.	WLT-1306	PREFORMED ARMOR RODS

25.	WLT-1307	MID SPAN JOINT
26.	WLT-1308	REPAIR SLEEVE
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28.	WLT-1310	DOUBLE TORSIOAL DAMPER
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30.	WLT-1401	EARTHING CLAMP FOR OPGW
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32.	WLT-1403	FIXING CLAMP FOR OPGW (2)
33.	WLT-1404	JOINT BOX FOR OPGW 190/90 MM^2
34.	WLT-1405	TERMINAL BOX FOR OPGW 190/90 MM^2
35.	WLT-1501	DANGER PLATE AND NUMBER PLATE
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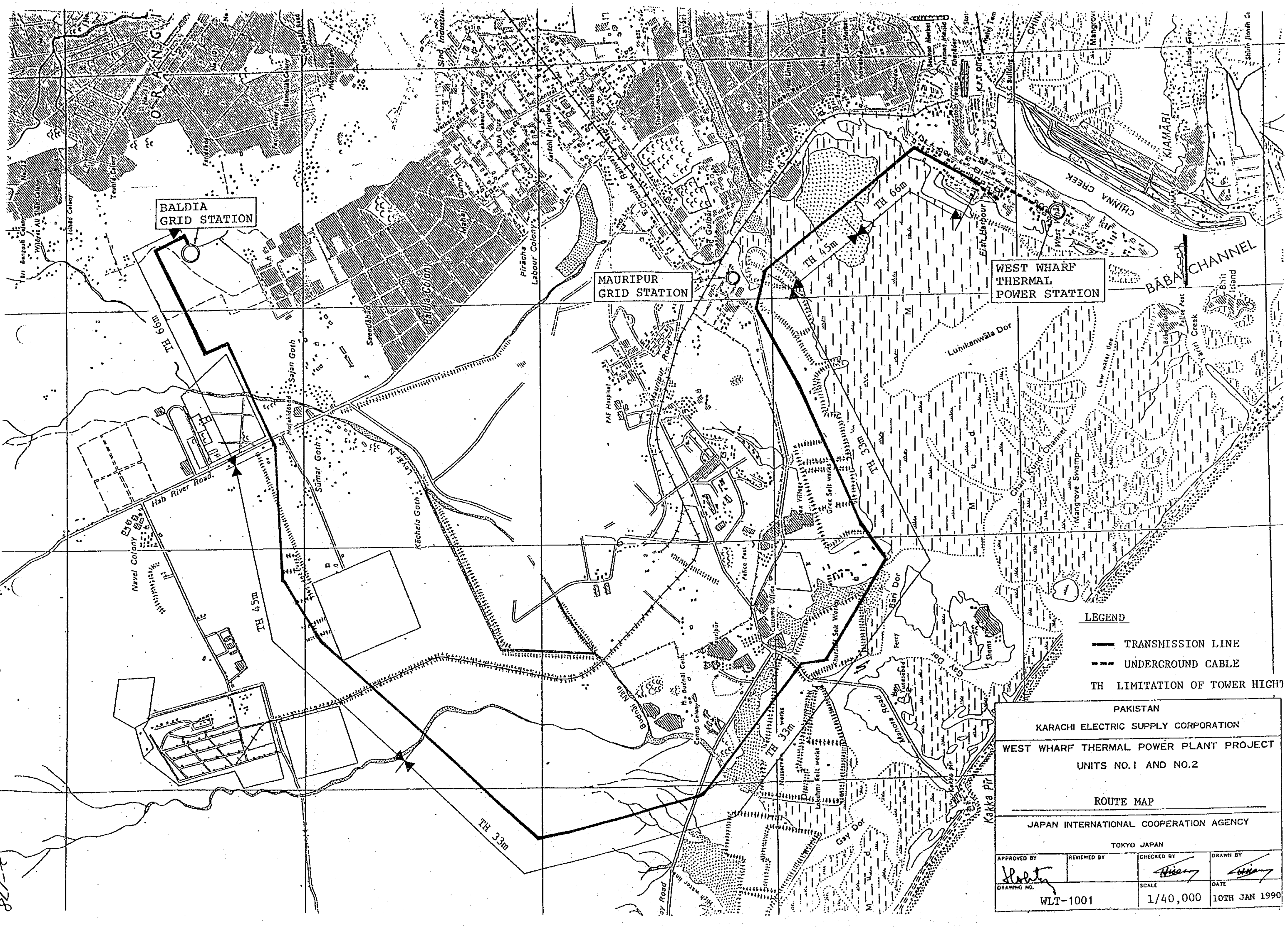
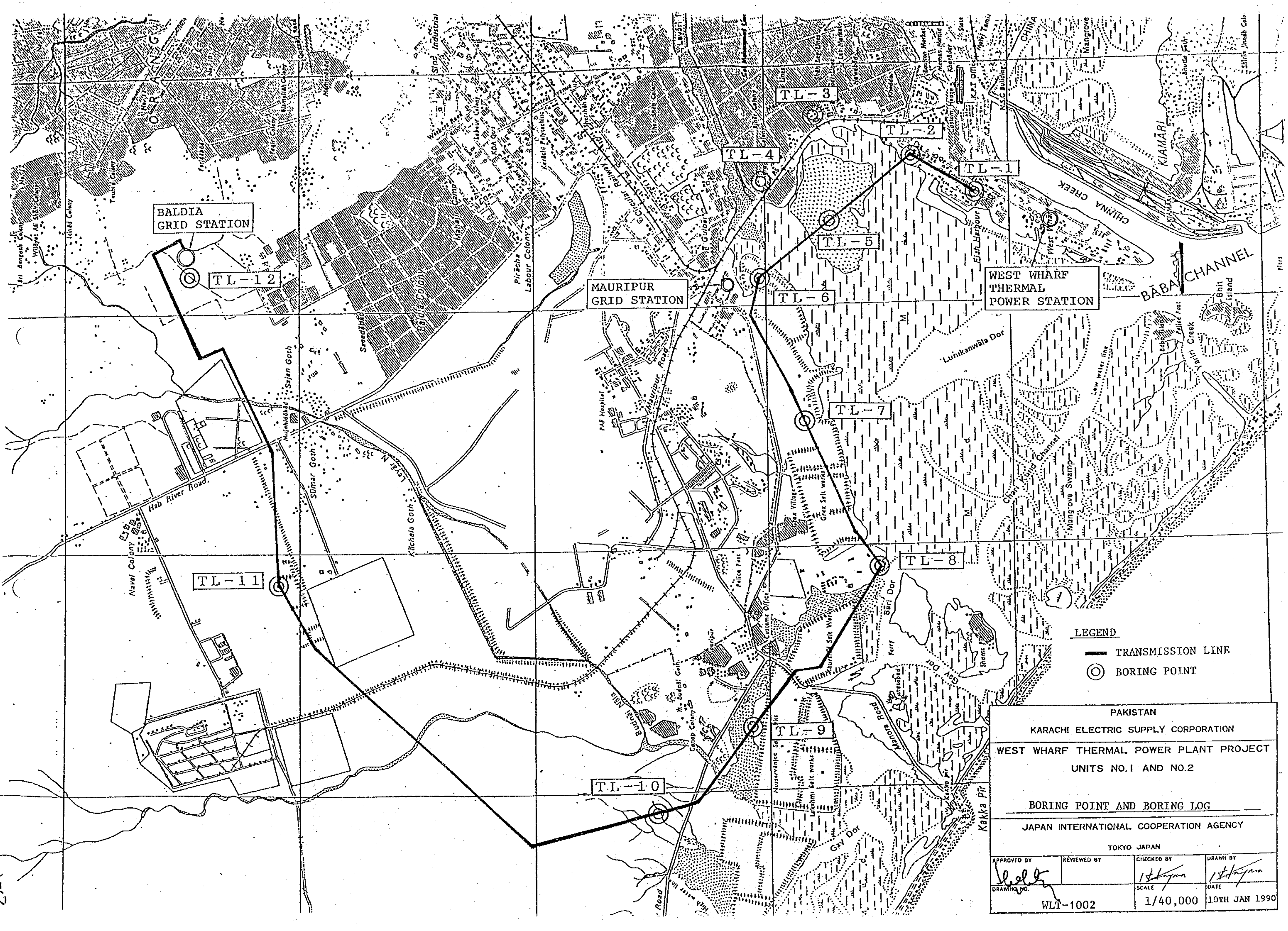
37.	WLT-1503	GROUNDING DEVICE
38.	WLT-1504	STRINGING BLOCK FOR OPGW
39.	WLT-1505	STUB SETTING TEMPLATE


BALDIA GRID STATION
MAURIPUR GRID STATION
WEST WHARF THERMAL POWER STATION
TH 66m
TH 45m
TH 33m
BABA CHANNEL
CHINA CREEK
KIAMARI
Hab River Road
Mauripur Road
Lunikanwala Dor
Mangrove Swamp
Kakka Pir
LEGEND
TRANSMISSION LINE
UNDERGROUND CABLE
TH LIMITATION OF TOWER HIGHT
PAKISTAN
KARACHI ELECTRIC SUPPLY CORPORATION
WEST WHARF THERMAL POWER PLANT PROJECT
UNITS NO.1 AND NO.2
ROUTE MAP
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN
APPROVED BY
REVIEWED BY
CHECKED BY
DRAWN BY
DRAWING NO.
WLT-1001
SCALE
1/40,000
DATE
10TH JAN 1990



BALDIA GRID STATION
MAURIPUR GRID STATION
WEST WHARF THERMAL POWER STATION
TL-1
TL-2
TL-3
TL-4
TL-5
TL-6
TL-7
TL-8
TL-9
TL-10
TL-11
TL-12
KIAMARI
CHINA CREEK
BABA CHANNEL
Hab River Road
Mauripur Road
LEGEND
TRANSMISSION LINE
BORING POINT
PAKISTAN
KARACHI ELECTRIC SUPPLY CORPORATION
WEST WHARF THERMAL POWER PLANT PROJECT
UNITS NO.1 AND NO.2
BORING POINT AND BORING LOG
JAPAN INTERNATIONAL COOPERATION AGENCY
TOKYO JAPAN
APPROVED BY
REVIEWED BY
CHECKED BY
DRAWN BY
DRAWING NO.
WLT-1002
SCALE
1/40,000
DATE
10TH JAN 1990

KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL-1

BORE LOG

Date: 28.5.89 to 30.5.89 Ground Elev: 3.066m Ground Water Table: 3.00m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1-2	3.00	3.00	Brown, very loose, fine SAND.			2 1
3-4	4.00	1.00	Dark brown, decayed, soft wooden pieces.			2 2
5-10	10.50	6.50	Grey, loose, fine SAND with traces of shell fragments.			1 1 7 5 4 8 8
11-12	12.50	2.00	Grey, hard, Silty CLAY.			78
13-14	14.50	2.00	Grey, very dense, fine SAND.			84
15-22	22.50	8.00	Brown, very dense, fine to medium, SAND with traces of coarse SAND.			83 68 65 85
23-24	24.50	2.00	Brownish grey, hard, Silty CLAY.			107
25-30	30.50	6.00	Brownish grey, fine to medium, very dense SAND with traces of coarse sand and gravel.			110 120 130
31			Borehole completed.			

SPT Sample: ☐

NB: Ground Water Table reported in all Borecharts indicate depth of water below the existing ground level.

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KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL-2

BORE LOG

Date: 31.5.89 to 1.6.1989. Ground Elev: 2.860m Ground Water Table: 3.10m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1-2	1.50	1.50	Grey, loose, Silty, very fine SAND with traces of mica.			1, 1
3-4	3.50	2.00	Grey, very loose to loose, sandy SILT.			9, 2
4-5	4.50	1.00				
5-7	7.50	3.00	Grey, very loose, medium to coarse SAND.			3, 5, 29
7-10			Grey, loose to medium dense, fine SAND with traces of Silt and shell fragments.			50, 60
10-14	14.50	7.00	Brown, dense to very dense, medium to coarse SAND with gravel.			50, 50, 32
14-18	18.50	4.00	Grey, hard, Silty CLAY.			115, 40, 70
18-22	22.50	4.00	Brown, very dense, fine to medium SAND with traces of Silt.			118
22-24	24.50	2.00	Grey, hard, Silty CLAY.			182
24-30	30.50	6.00	Brown, very dense, medium to coarse SAND.			129, 105, 100
30-31			Borehole completed.			

SPT Sample: ▭

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2-181

KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL-3

BORE LOG

Date: 18.6.89 to 20.6.89 Ground Elev: -

Ground Water Table: 2.38m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1-2-3-	1.50	1.50	Brownish gray, very loose, silty fine SAND.			2, 2
4-	4.50	3.00	Dark gray, soft, clayey SILT.			2
5-6-	6.00	1.50				16
7-	7.50	1.50	Dark gray, very stiff, silty CLAY with traces of organic matters.			13
8-	8.50	1.00				23
9-10-11-			Grayish brown, medium dense, silty fine SAND with traces of coarse sand and clay.			75, 16, 45
12-	12.50	4.00				76
13-14-	14.50	2.00	Brown, very dense, gravelly coarse SAND.			30
15-16-	16.50	2.00	Grayish brown, medium dense to very dense, Sandy SILT with occasional concretions.			50
17-18-19-						67
20-21-	21.00	4.50	Brown, dense, silty coarse SAND with traces of clay.			50
22-23-			Brownish gray, hard, Silty CLAY.			
24-25-26-27-			Brown, very dense, Sandy SILT with traces of Clay, coarse Sand and concretions.			
28-29-30-31-32-33-34-35-36-37-38-			Brown, hard, well cemented, coarse grained SANDSTONE.			
39-40-	40.00	19.00				
41-42-			Borehole completed.			

SPT Sample: ▭

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P.O. Box No: 3969, KARACHI-4

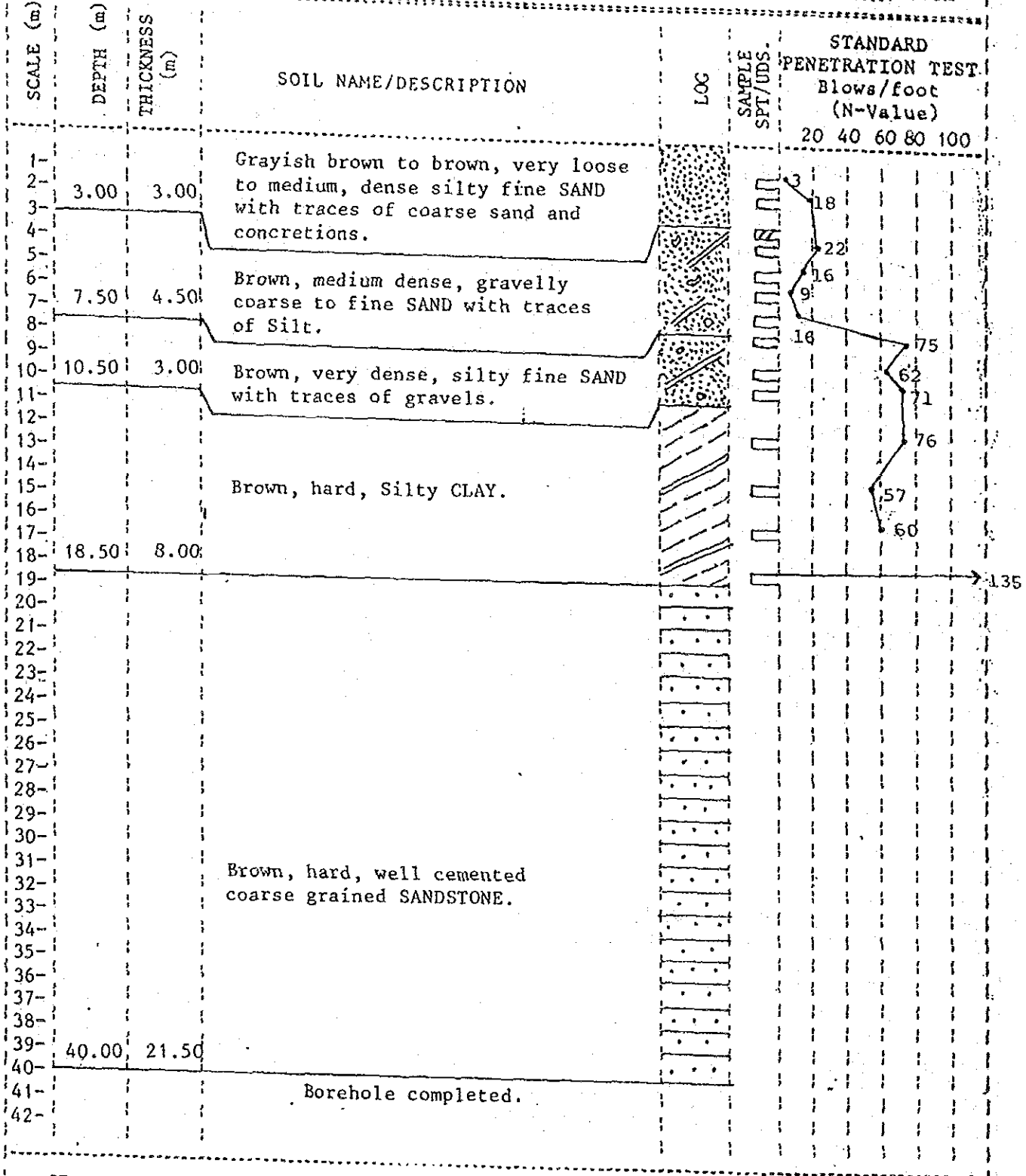
KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL – 4

BORE LOG

Date: 21.6.89 to 22.6.89 Ground Elev:

Ground Water Table: 2.89m



SPT Sample: ☐ ▨

PGEL

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P.O. Box No: 3969, KARACHI-4

SP-4

KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL-5

BORE LOG

Date: 9.6.89 to 14.6.89 | Ground Elev: 0.965m | Ground Water Table: 1.35 m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1-42	0.30	0.30	Brownish to yellowish brown, very fine Silty SAND.			1
	4.50	4.20	Gray to dark gray, very soft Silty CLAY.			1
	6.00	1.80	Gray, very stiff, Silty CLAY.			1, 19, 64, 83
	19.50	13.50	Brown to reddish brown, hard, Silty SHALE.			
	40.00	20.50	Brownish gray, medium hard to hard, silty fine grained SANDSTONE.			
			Borehole completed.			

SPT Sample: ▭
UDS Sample: ▨

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KESC WEST WHARF - Transmission Line.

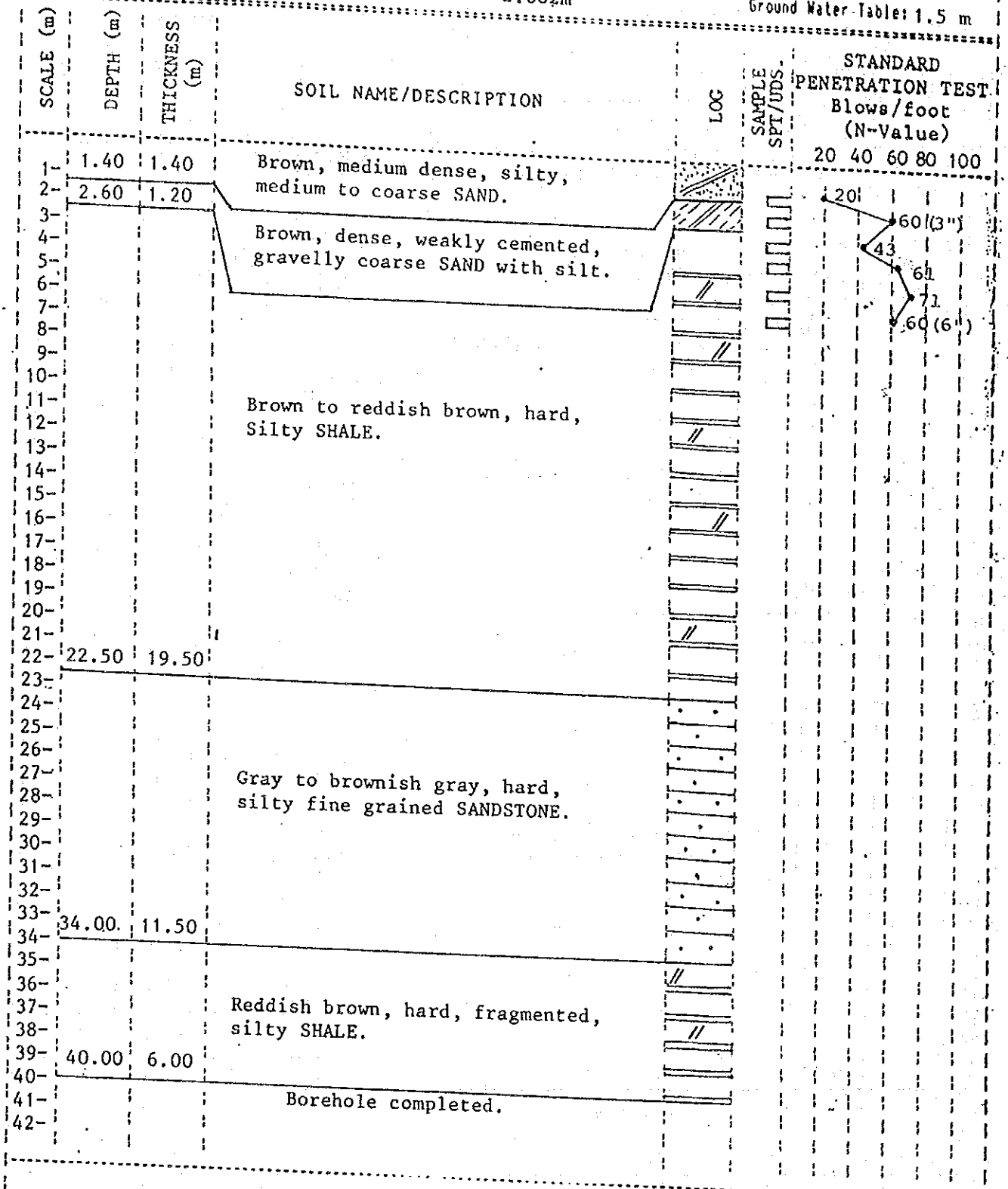
BORE HOLE NO: TL-6

BORE LOG

Date: 24-6-89 to 26-6-89

Ground Elev: 2.062m

Ground Water Table: 1.5 m



SPT Sample: ☐

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P.O. Box No: 3969, KARACHI-4

KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL – 7

BORE LOG

Date: 29.6.89 to 30.6.89 Ground Elev: 2.579m Ground Water Table: 2.0m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST. Blows/foot (N-Value) 20 40 60 80 100
1–	1.00	1.00	Brownish gray, very dense, silty fine SAND with gravel (weakly cemented).			
2–	2.50	1.50				
3–						
4–	5.00	2.50	Brownish grey, dense, fine to medium SAND with silt.			
5–						
6–						
7–						
8–						
9–			Brown, very stiff to hard, Silty CLAY, fissile, shaly.			
10–						
11–						
12–						
13–						
14–						
15–						
16–						
17–						
18–						
19–						
20–						
21–						
22–						
23–						
24–						
25–						
26–						
27–			Brown, hard, Silty SHALE.			
28–						
29–						
30–						
31–						
32–						
33–						
34–						
35–						
36–						
37–						
38–						
39–						
40–	40.00	35.00				
41–			Borehole completed.			
42–						

59
44
28
42
56
78
90

SPT Sample: □

PGEL
PEMCON GEO-ENGINEERING (PVT.) LTD.
9 Sunny Side Road, Civil Lines,
P.O. Box No: 3969, KARACHI-4

KESC WEST WHARF - Transmission Line.
(within Marine Academy)

BORE HOLE NO: TL-8

BORE LOG

Date: 8.7.89 to 9.7.89 | Ground Elev: 1.060m | Ground Water Table: 1.20m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1-2-3-4-5-	2.45	2.45	Brown, dense, occasionally weakly cemented, gravelly, Silty, Coarse SAND with traces of fine Sand.			
6-7-8-	8.50	6.00	Light brown, hard, well cemented, CONGLOMERATE.			
9-10-11-12-13-14-15-16-17-18-	19.00	10.50	Brown to dark brown, hard laminated CLAYSTONE/Silty SHALE.			63 (3") 67 (2½")
19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-	40.00	21.00	Brown, medium hard to hard, fine grained SANDSTONE.			
40-41-42-			Borehole completed.			

SPT Sample: ☐

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KESC WEST WHARF – Transmission Line.

BORE HOLE NO: TL – 9

BORE LOG

Date: 3.7.89 to 5.7.89 Ground Elev: 1.38m Ground Water Table: 0.30m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1–2	2.00	2.00	Brown, loose, medium to coarse SAND with traces of gravel.			8
2–3	3.00	1.00				52
3–7			Gray, very dense, medium to fine, weakly cemented SAND.			48
7–12	12.00	9.00	Grey, medium hard to hard, silty fine grained SANDSTONE with thin layers of hard Siltstone.			
12–18	18.00	6.00	Brown, hard, brittle, Silty SHALE.			
18–24	24.00	6.00	Gray, hard, silty, fine to medium grained SANDSTONE.			
24–33	33.00	9.00	Grayish brown hard silty SHALE.			
33–40	40.00	7.00	Gray, hard, silty fine grained SANDSTONE.			
40			Borehole completed.			

SPT Sample: □

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KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL-10

BORE LOG

Date: 6.7.89 to 7.7.89 | Ground Elev: 3.480m | Ground Water Table: 2.90m

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1	0.50	0.50	Brownish gray, dense, silty coarse SAND with occasional gravel.			
2						
3	4.00	3.50	Brownish gray, very dense, silty coarse SAND with gravel.			60 (3") 60 (2½") 60 (2") 47 71 87
4						
5						
6						
7						
8						
9						
10						
11						
12						
13			Brown, hard, silty SHALE.			
14						
15						
16						
17						
18						
19						
20	20.00	16.00				
21			Borehole completed			
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

SPT Sample: ☐

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9 Sunny Side Road, Civil Lines,
P.O. Box No: 3969, KARACHI-4

KESC WEST WHARF - Transmission Line.

BORE HOLE NO: TL-11

BORE LOG

Date: 1.7.89 to 2.7.89 Ground Elev: 27.374m Ground Water Table: Not Encountered

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1	0.50	0.50	Dark brown, dense, sandy SILT.			60(3") 63(2½")
2						
3						
4						
5						
6			Brown, very dense/hard, coarse SAND with gravel, weakly cemented.			
7						
8						
9						
10	10.00	9.50				
11						
12						
13						
14						
15			Brown, moderately hard to hard CONGLOMERATE (gravelly coarse SAND with occasional boulders and traces of hard clay in matrix).			
16						
17						
18						
19						
20	20.00	10.00				
21			Borehole completed.			
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

SPT Sample: □

PGEL
PEMCON GEO-ENGINEERING (PVT.) LTD.
9 Sunny Side Road, Civil Lines,
P.O. Box No: 3969, KARACHI-4

2-10

KESC WEST WHARF - Transmission Line.

BORE HOLE NO: T L – 1 2

BORE LOG

Date: 27.6.89 to 28.7.89 Ground Elev: 54.263m Ground Water Table: Not Encountered

SCALE (m)	DEPTH (m)	THICKNESS (m)	SOIL NAME/DESCRIPTION	LOG	SAMPLE SPT/UDS.	STANDARD PENETRATION TEST Blows/foot (N-Value) 20 40 60 80 100
1–2	2.00	2.00	Grayish brown, dense, sandy SILT.			37 52 (6")
3–19			Light brown, fractured, LIMESTONE (slightly weathered at the top).			
19–20	20.00	18.00				
20–31			Borehole completed.			

SPT Sample: □

PGEL
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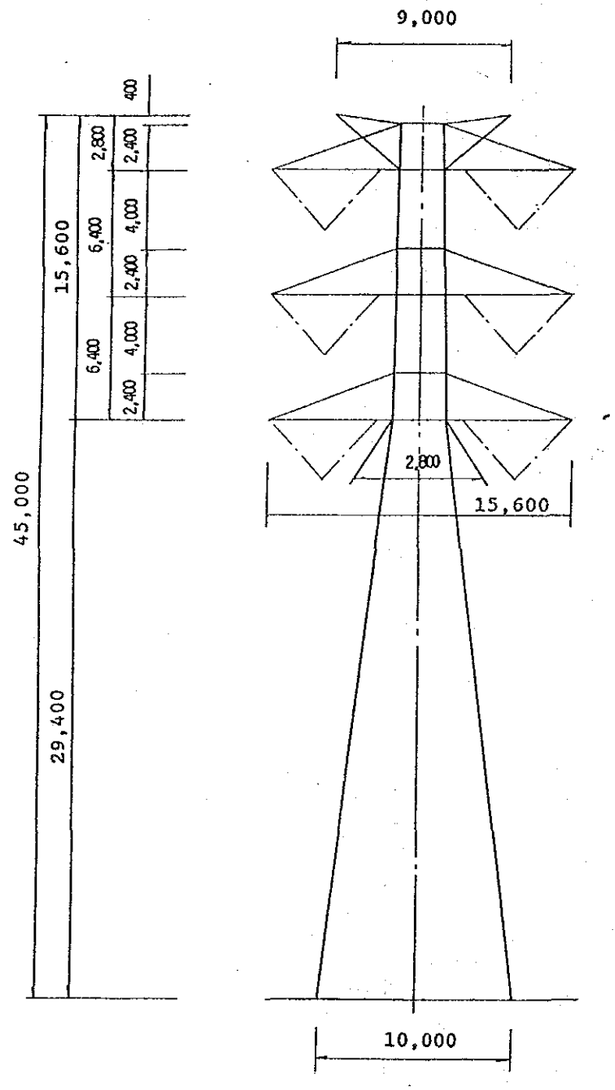
9 Sunny Side Road, Civil Lines,
P.O. Box No: 3969, KARACHI-4

TYPE AL



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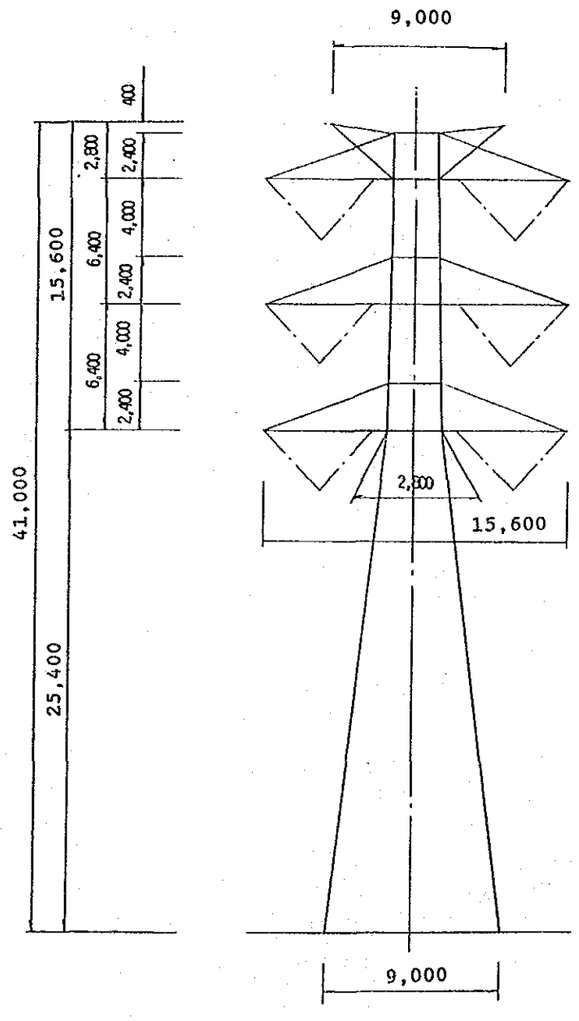

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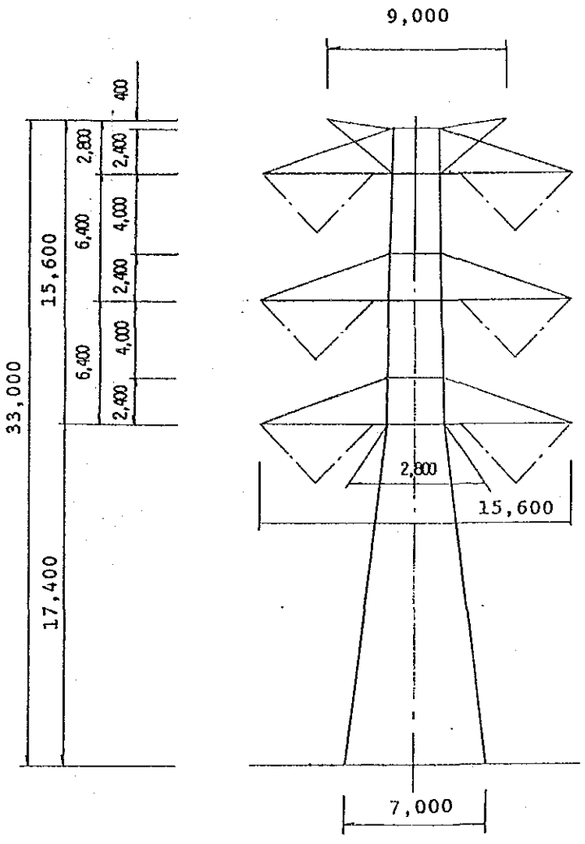

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

SKELETON OF TOWER (1)

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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DRAWING NO.		SCALE	DATE
WLT-1101		1/300	10TH JAN 1990

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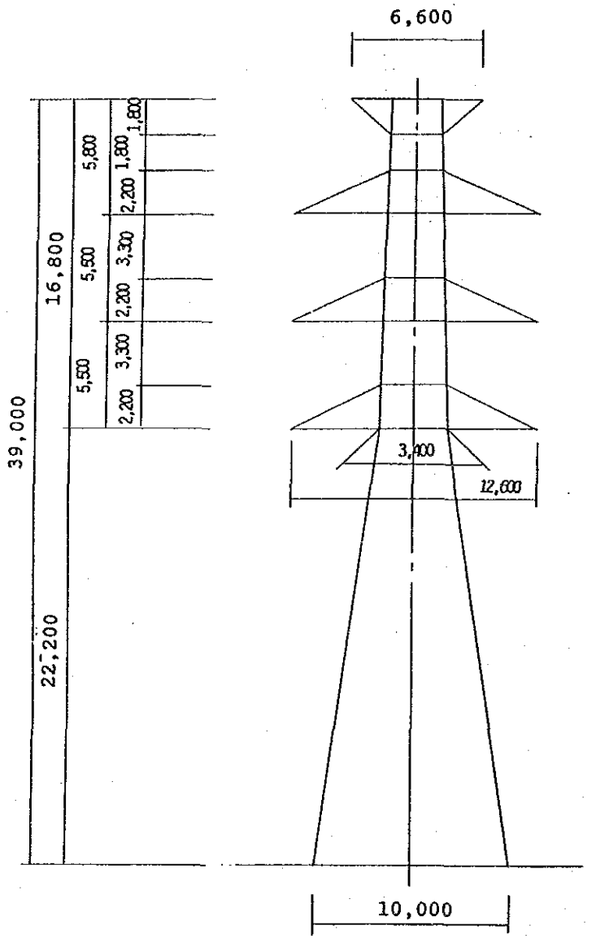

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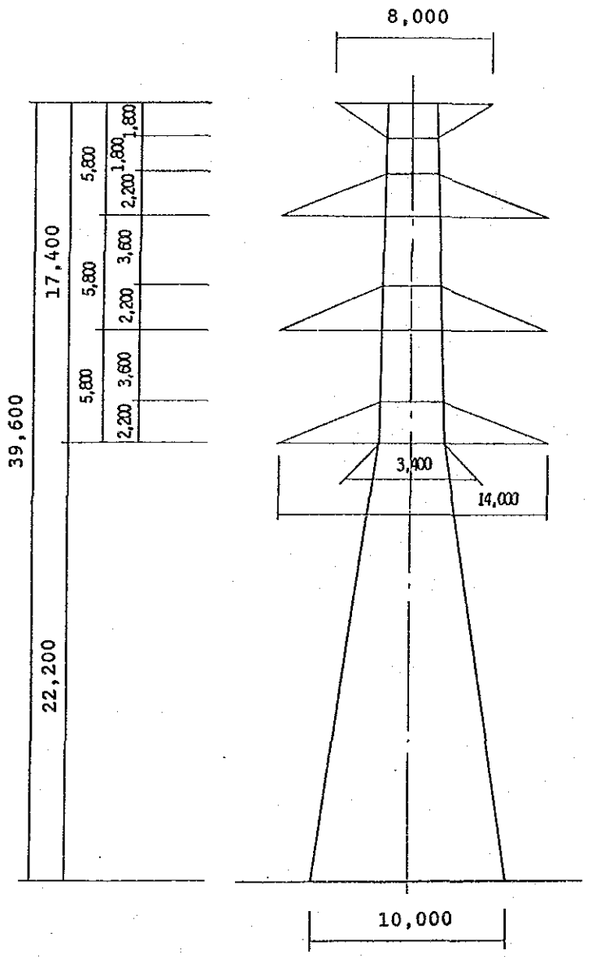

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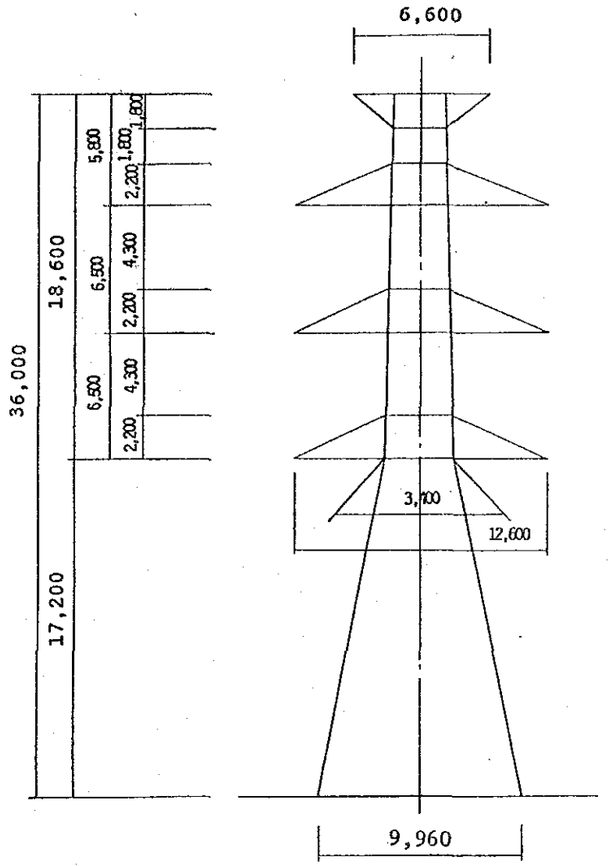

PAKISTAN			
KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2			
SKELETON OF TOWER (2)			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO. WLT-1102		SCALE 1/300	DATE 10TH JAN 1990

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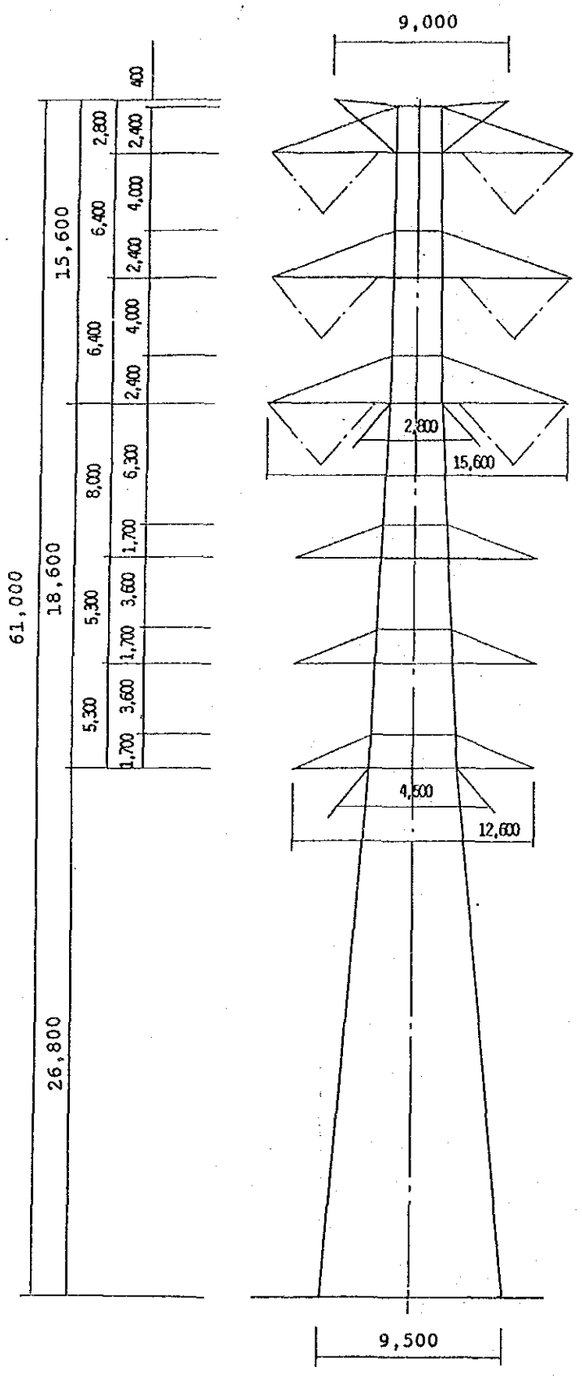

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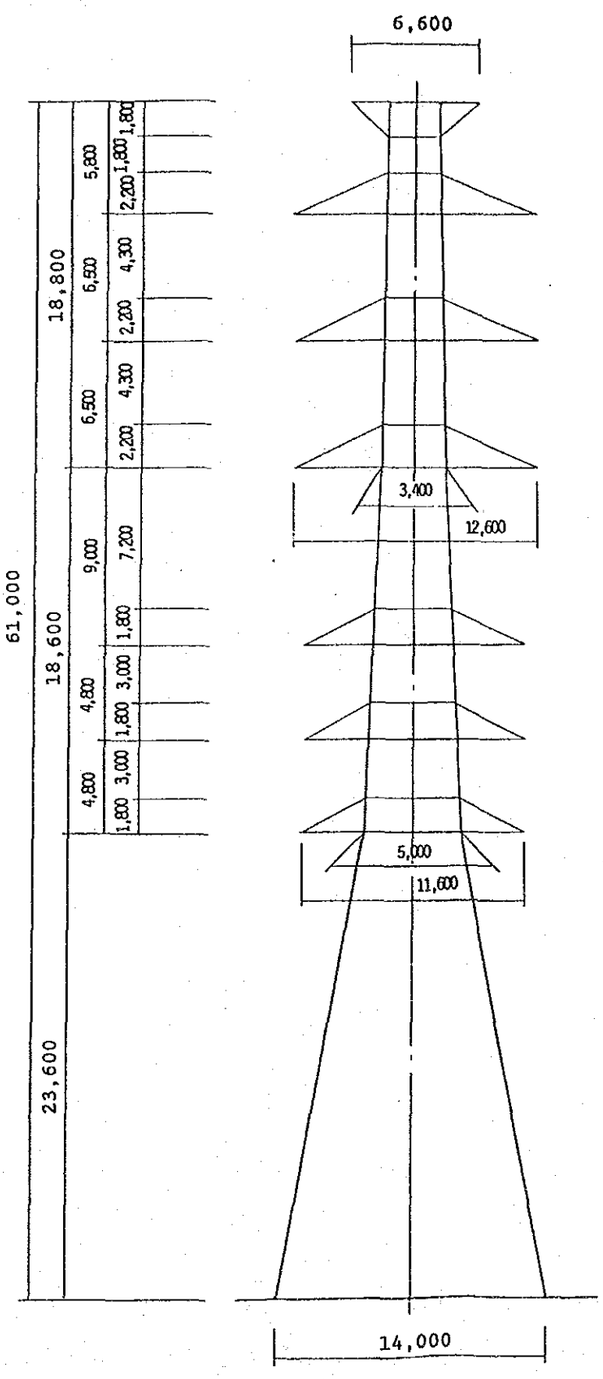

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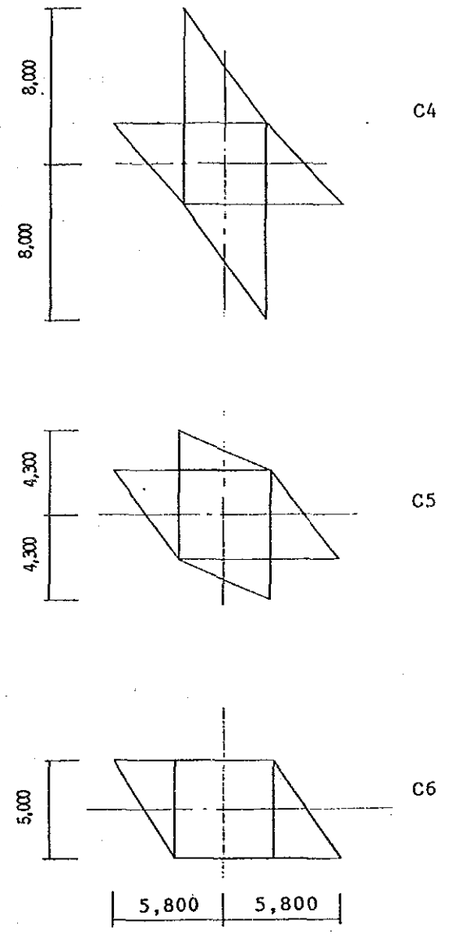
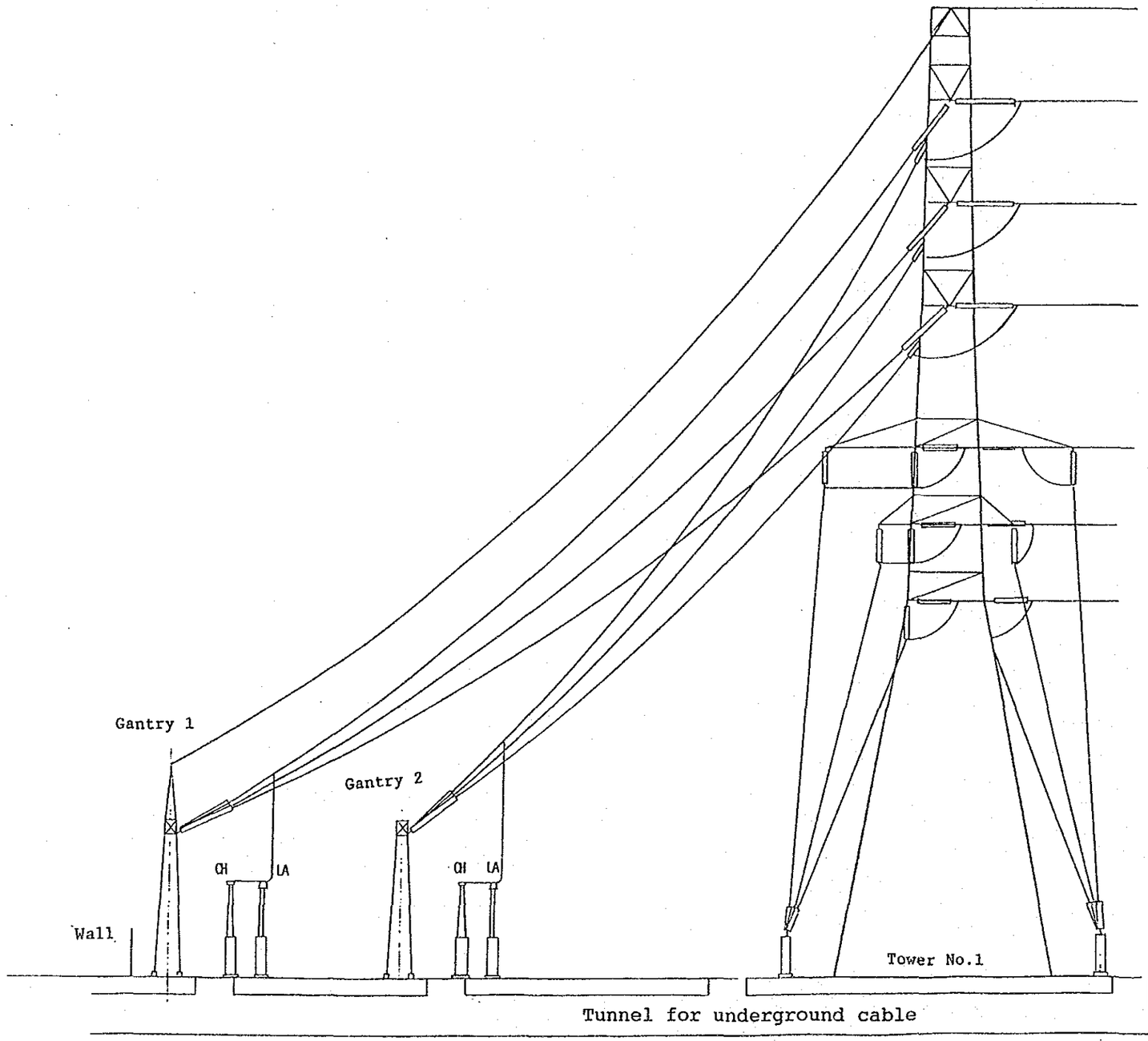


PAKISTAN			
KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2			
SKELETON OF TOWER (3)			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO. WLT-1103		SCALE 1/300	DATE 10TH JAN 1990



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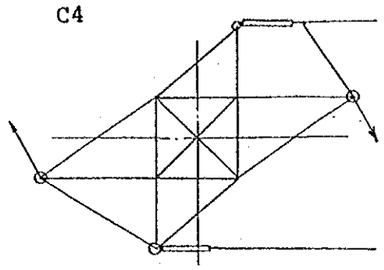

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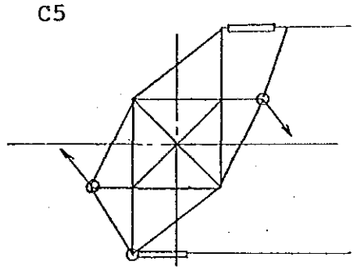

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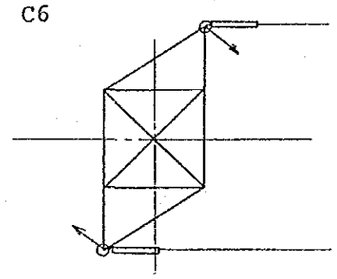


PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

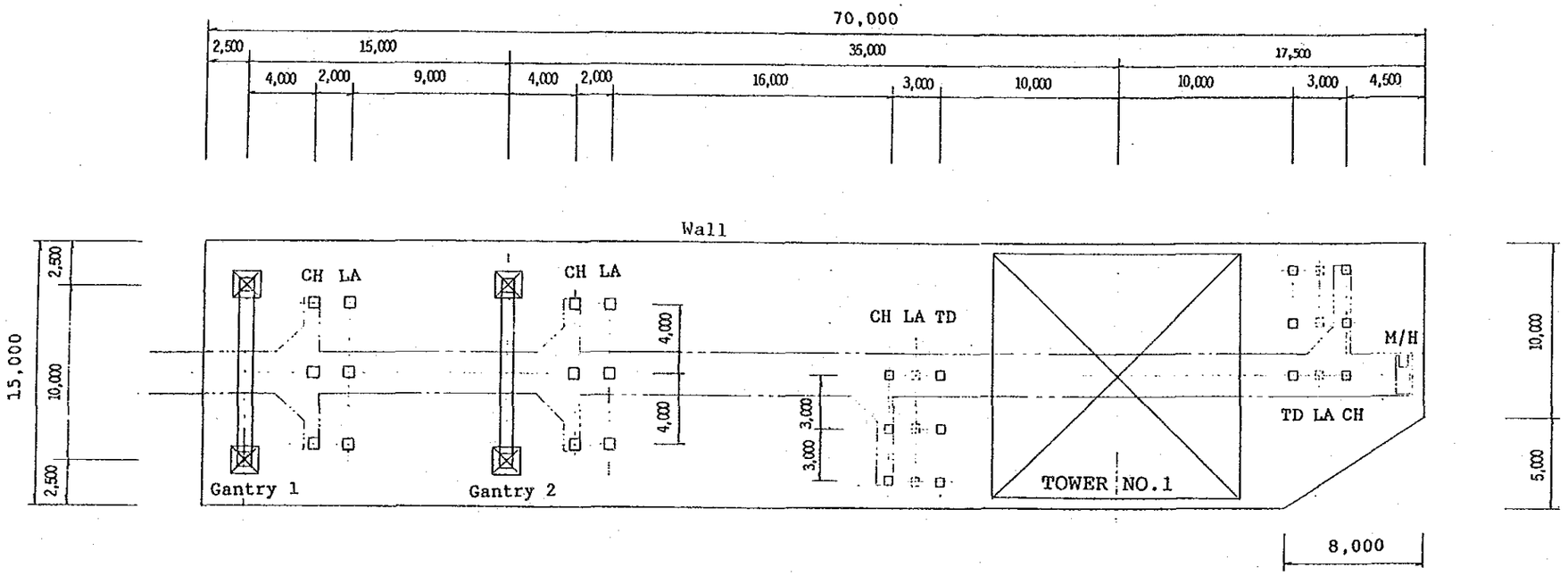
CONFIGULATION AT THE PLACE OF TOWER No. 1

JAPAN INTERNATIONAL COOPERATION AGENCY

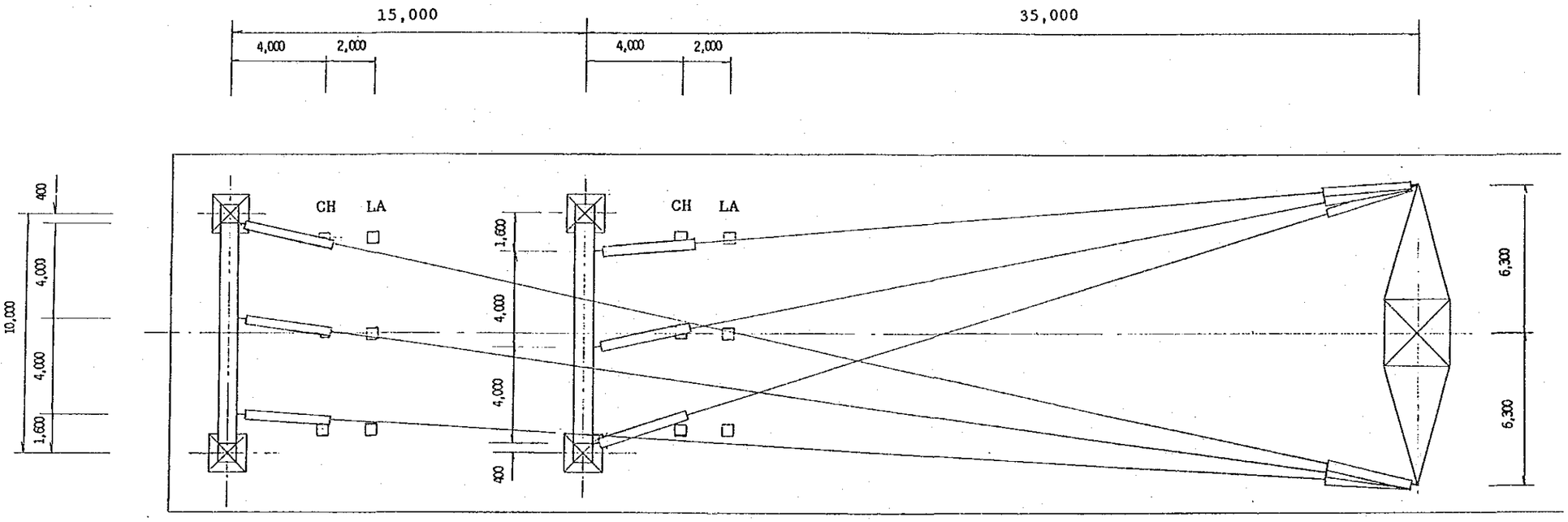
TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO.		SCALE	DATE
WLT-1104		1/300	10TH JAN 1990

2-1/8



PAKISTAN KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2 PLAN AT THE PLACE OF TOWER No.1			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO. WLT-1105		SCALE 1/300	DATE 10TH JAN 1990



Gantry 1 Gantry 2 Tower No.1

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

ARRANGEMENT OF 220 kV INCOMING LINES AT TOWER No.1

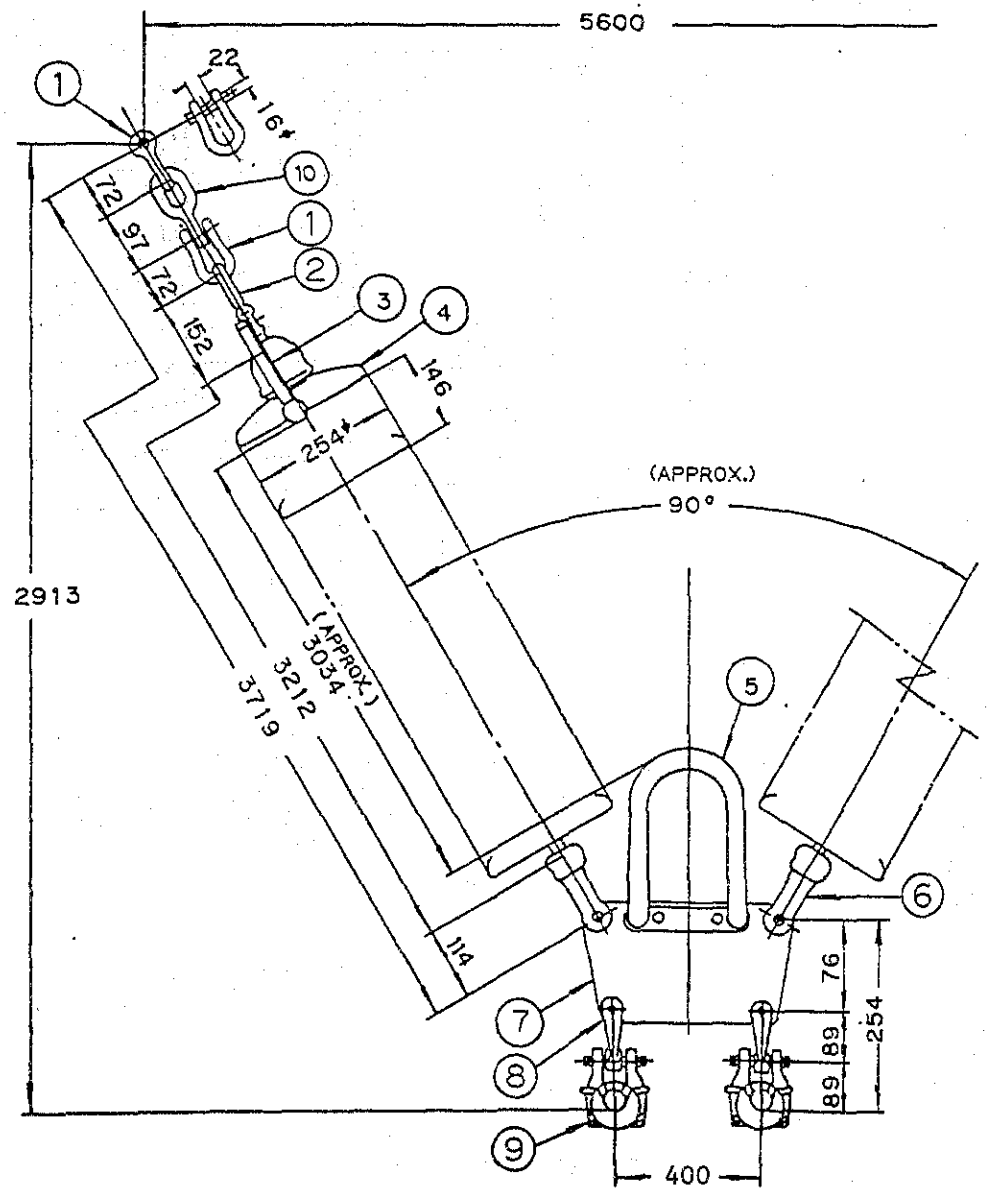
JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO.		SCALE	DATE
WLT-1106		1/200	10TH JAN 1990

881-C

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQD.
1	ANCHOR SHACKLE	HIGH TENSION STEEL	4
2	HORN HOLDER BALL EYE	HIGH TENSION STEEL	2
3	ARCING HORN	STEEL	2
4	SUSPENSION INSULATOR	PORCELAIN	22×2
5	ARCING HORN	STEEL	1
6	SOCKET CLEVIS	DUCTILE IRON	2
7	YOKE	STEEL	1
8	CLEVIS EYE	STEEL	2
9	SUSPENSION CLAMP	ALUMINIUM ALLOY	2
10	EYE LINK	HIGH TENSION STEEL	2
MIN. BREAKING STRENGTH OF STRING		12000kg	
SUITABLE CONDUCTOR SIZE OF CLAMP		39.3ϕ~44.3ϕ	
TYPE OF BALL AND SOCKET PARTS		IEC 16mm A	

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

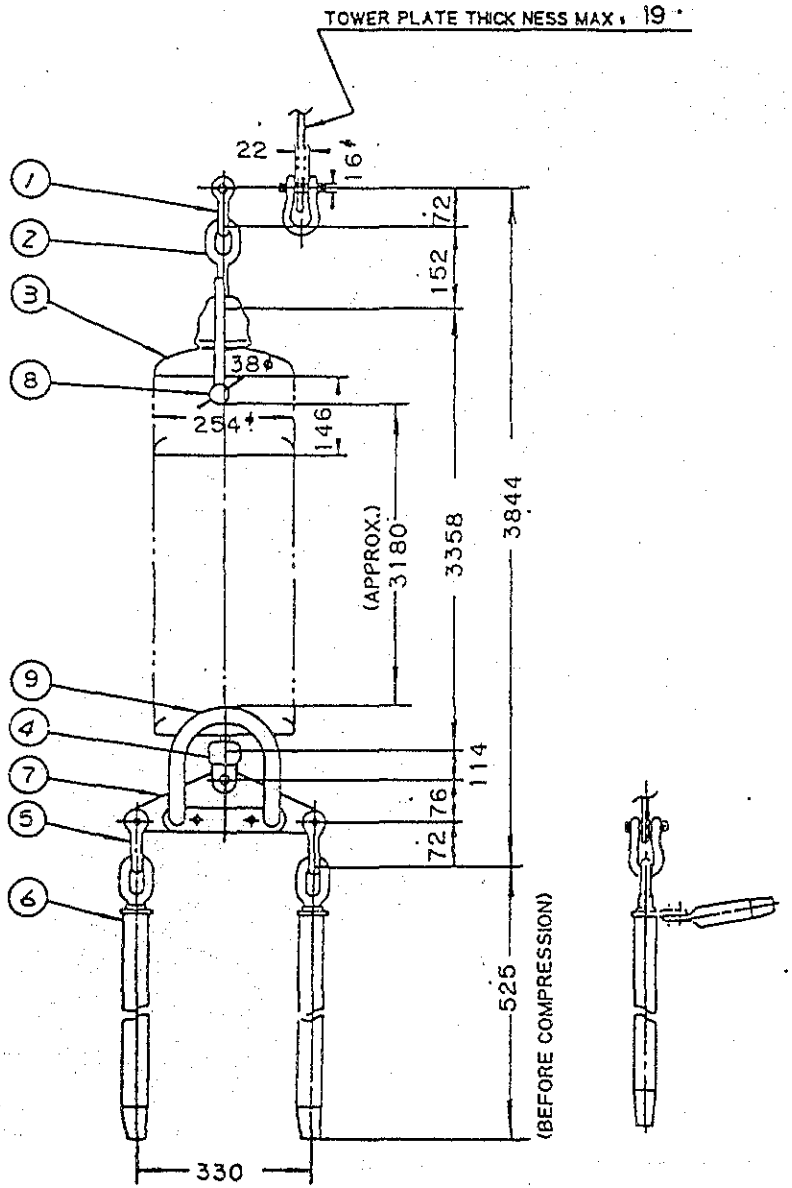
220 kV V-SUSPENSION INSULATOR STRING

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Ukai
DRAWING NO.		SCALE	DATE
WLT-1201			10TH JAN 1990

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQ'D.
1	ANCHOR SHACKLE	HIGH TENSION STEEL	1
2	HORN HOLDER BALL EYE	HIGH TENSION STEEL	1
3	SUSPENSION INSULATOR	PORCELAIN	23
4	SOCKET CLEVIS	DUCTILE IRON	1
5	ANCHOR SHACKLE	HIGH TENSION STEEL	2
6	COMPRESSION CLAMP	ALUMINIUM	2
7	YOKE	STEEL	1
8	ARCING HORN	STEEL	1
9	ARCING HORN	STEEL	1

SUITABLE CONDUCTOR SIZE OF CLAMP	ACSR/AS 330mm²
* MIN. BREAKING STRENGTH OF STRING EXCEPT COMPRESSION CLAMP	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

220 kV SINGLE TENSION INSULATOR STRING

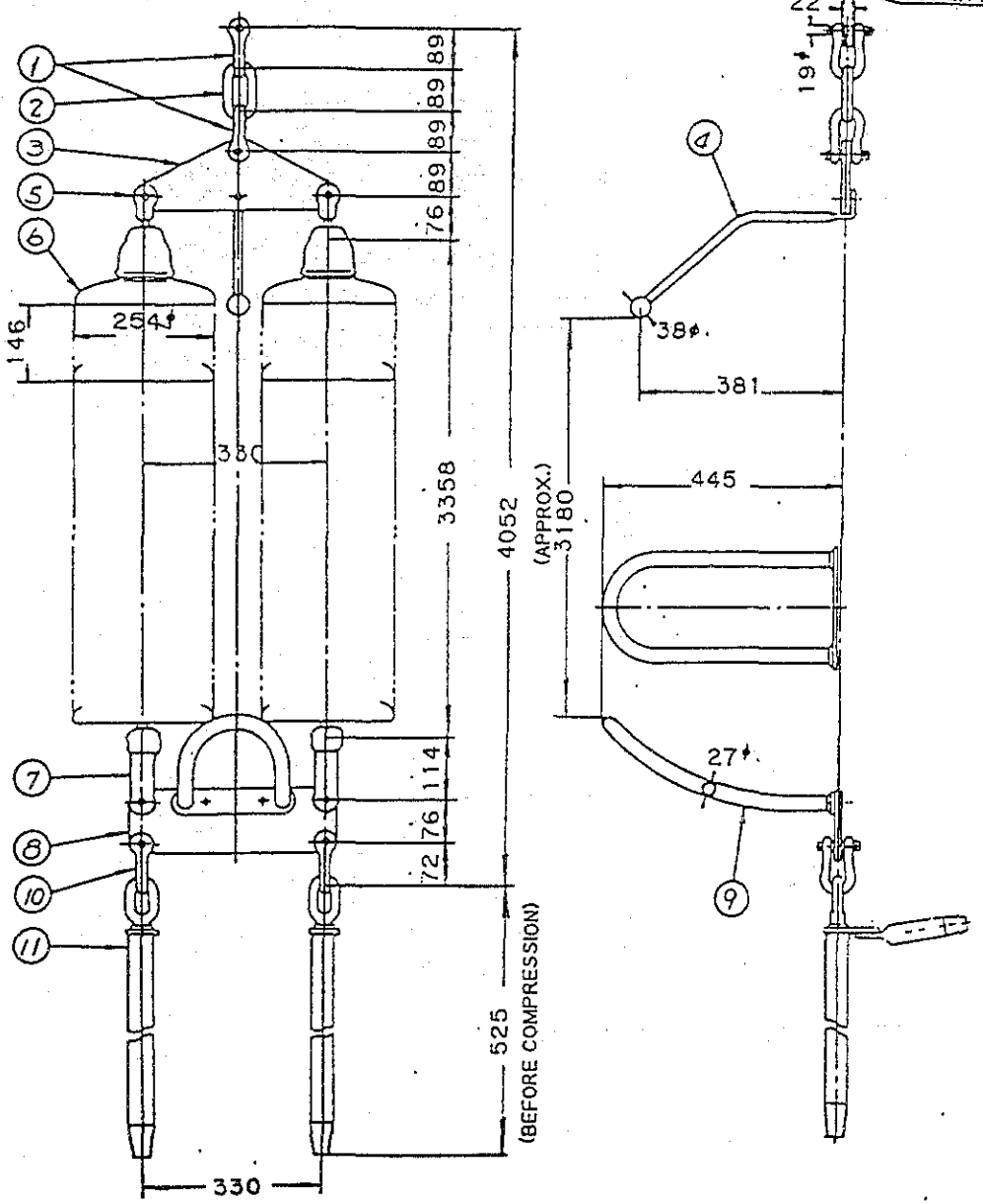
JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1202		SCALE	DATE 10TH JAN 1990

2-199

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQ'D.
1	ANCHOR SHACKLE	HIGH TENSION STEEL	2
2	CHAIN LINK	HIGH TENSION STEEL	1
3	YOKE	STEEL	1
4	ARCING HORN	STEEL	1
5	BALL-CLEVIS	HIGH TENSION STEEL	2
6	SUSPENSION INSULATOR	PORCELAIN	23×2
7	SOCKET-CLEVIS	DUCTILE IRON	2
8	YOKE	STEEL	1
9	ARCING HORN	STEEL	1
10	ANCHOR SHACKLE	HIGH TENSION STEEL	2
11	COMPRESSION CLAMP	ALUMINIUM	2

SUITABLE CONDUCTOR SIZE OF CLAMP	ACSR/AS 330mm²
* MIN. BREAKING STRENGTH OF STRING EXCEPT COMPRESSION CLAMP	24000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

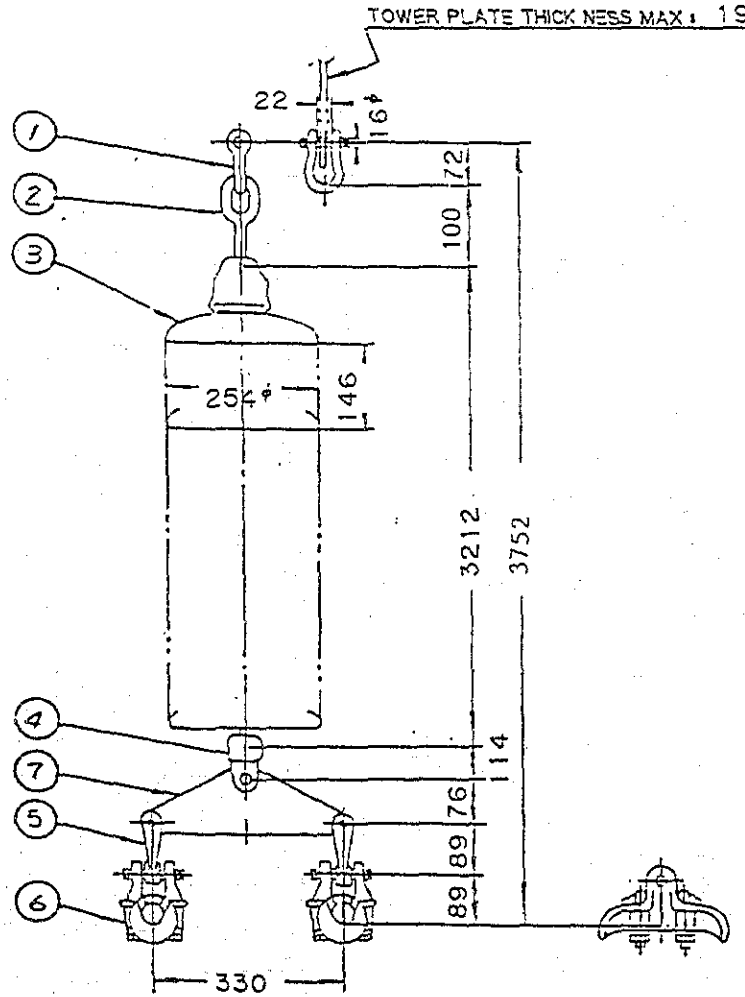
220 kV DOUBLE TENSION INSULATOR STRING

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1203		SCALE	DATE 10TH JAN 1990

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQD
1	ANCHOR SHACKLE	HIGH TENSION STEEL	1
2	BALL EYE	HIGH TENSION STEEL	1
3	SUSPENSION INSULATOR	PORCELAIN	22
4	SOCKET CLEVIS	DUCTILE IRON	1
5	CLEVIS EYE	STEEL	2
6	SUSPENSION CLAMP	ALUMINIUM ALLOY	2
7	YOKE	STEEL	1

SUITABLE CONDUCTOR SIZE OF CLAMP	39.3φ ~44.3φ
MIN. BREAKING STRENGTH OF STRING	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

220 kV JUMPER SUPPORT INSULATOR STRING

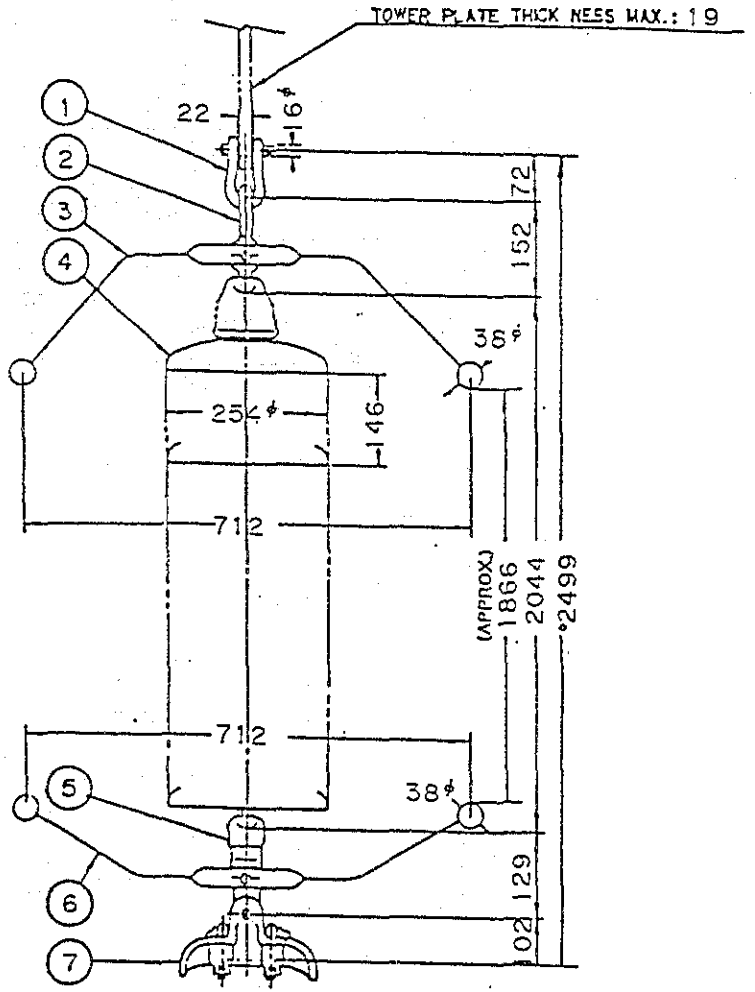
JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1204		SCALE	DATE 10TH JAN 1990

2-201

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQD
1	ANCHOR SHACKLE	HIGH TENSION STEEL	1
2	HORN HOLDER BALL EYE	HIGH TENSION STEEL	1
3	ARCING HORN	STEEL	1
4	SUSPENSION INSULATOR	PORCELAIN	14
5	HORN HOLDER SOCKET-EYE	MALLEABLE IRON OR DUCTILE IRON	1
6	ARCING HORN	STEEL	1
7	SUSPENSION CLAMP	ALUMINIUM ALLOY	1

SUITABLE CONDUCTOR SIZE OF CLAMP	43.2φ ~57.1φ
MIN. BREAKING STRENGTH OF STRING	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

132 kV SINGLE SUSPENSION INSULATOR STRING

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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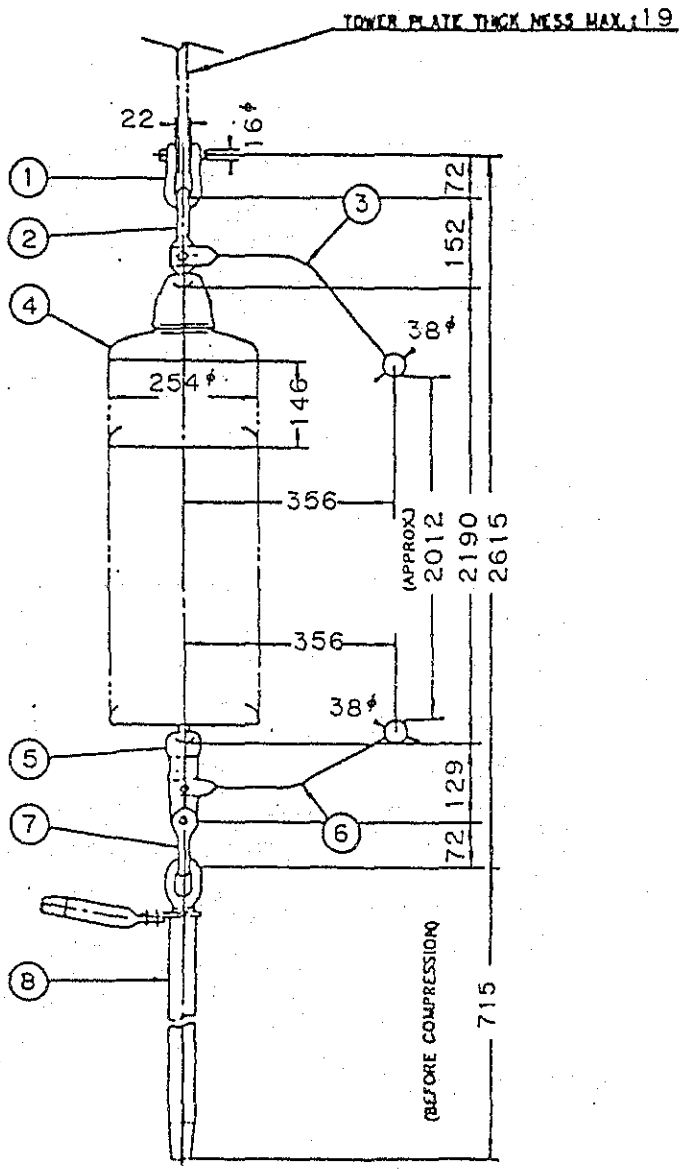
			N. Inoue
DRAWING NO. WET-1205		SCALE	DATE 10TH JAN 1990

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQD
1	ANCHOR SHACKLE	HIGH TENSION STEEL	1
2	HORN HOLDER BALL EYE	HIGH TENSION STEEL	1
3	ARCING HORN	STEEL	1
4	SUSPENSION INSULATOR	PORCELAIN	15
5	HORN HOLDER SOCKET-EYE	MALLEABLE IRON OR DUCTILE IRON	1
6	ARCING HORN	STEEL	1
7	ANCHOR SHACKLE	HIGH TENSION STEEL	1
8	COMPRESSION CLAMP	ALUMINIUM	1

SUITABLE CONDUCTOR SIZE OF CLAMP	ACSR/AS 680mm²
* MIN. BREAKING STRENGTH OF STRING EXCEPT COMPRESSION CLAMP	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

132 kV SINGLE TENSION INSULATOR STRING

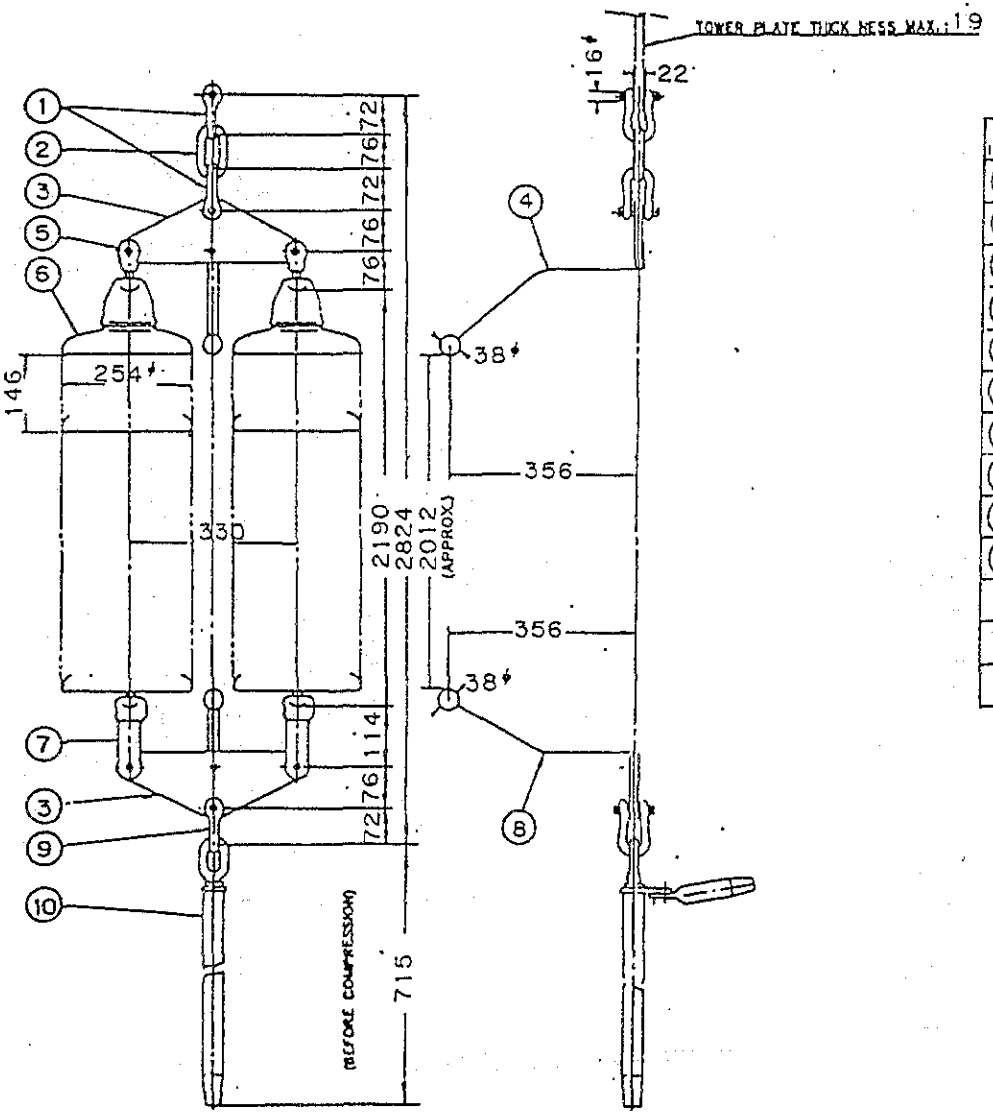
JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WDT-1206		SCALE	DATE 20TH JAN 1990

2-203

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQ'D.
1	ANCHOR SHACKLE	HIGH TENSION STEEL	2
2	CHAIN LINK	HIGH TENSION STEEL	1
3	YOKE	STEEL	2
4	ARCING HORN	STEEL	1
5	BALL-CLEVIS	HIGH TENSION STEEL	2
6	SUSPENSION INSULATOR	PORCELAIN	15×2
7	SOCKET-CLEVIS	MALLEABLE IRON OR DUCTILE IRON	2
8	ARCING HORN	STEEL	1
9	ANCHOR SHACKLE	HIGH TENSION STEEL	1
10	COMPRESSION CLAMP	ALUMINIUM	1

SUITABLE CONDUCTOR SIZE OF CLAMP	ACSR/AS 680mm²
MIN. BREAKING STRENGTH OF STRING ※ EXCEPT COMPRESSION CLAMP	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

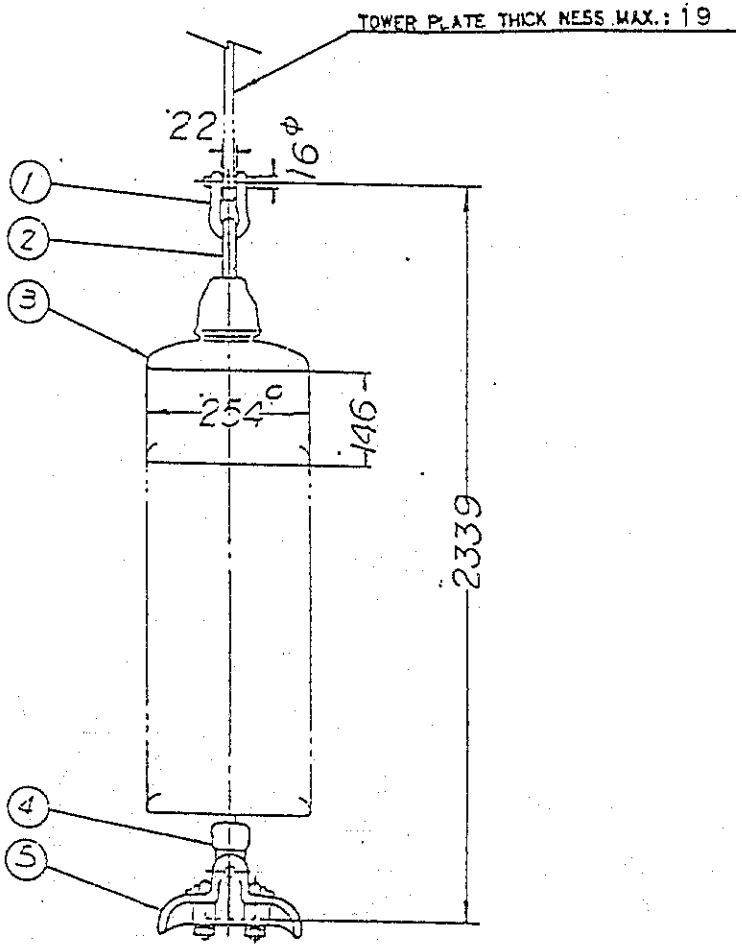
132 kV DOUBLE TENSION INSULATOR STRING

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1207		SCALE	DATE 10TH JAN 1990

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQD
1	ANCHOR SHACKLE	HIGH TENSION STEEL	1
2	BALL EYE	HIGH TENSION STEEL	1
3	SUSPENSION INSULATOR	PORCELAIN	14
4	SOCKET - EYE	MALLEABLE IRON OR SPHEROIDAL GRAPHITE IRON (DUCTILE IRON)	1
5	SUSPENSION CLAMP	MALLEABLE IRON OR DUCTILE IRON	1

SUITABLE CONDUCTOR SIZE OF CLAMP	43.2φ ~57.1φ
MIN. BREAKING STRENGTH OF STRING	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

132 kV JUMPER SUPPORT INSULATOR STRING

JAPAN INTERNATIONAL COOPERATION AGENCY

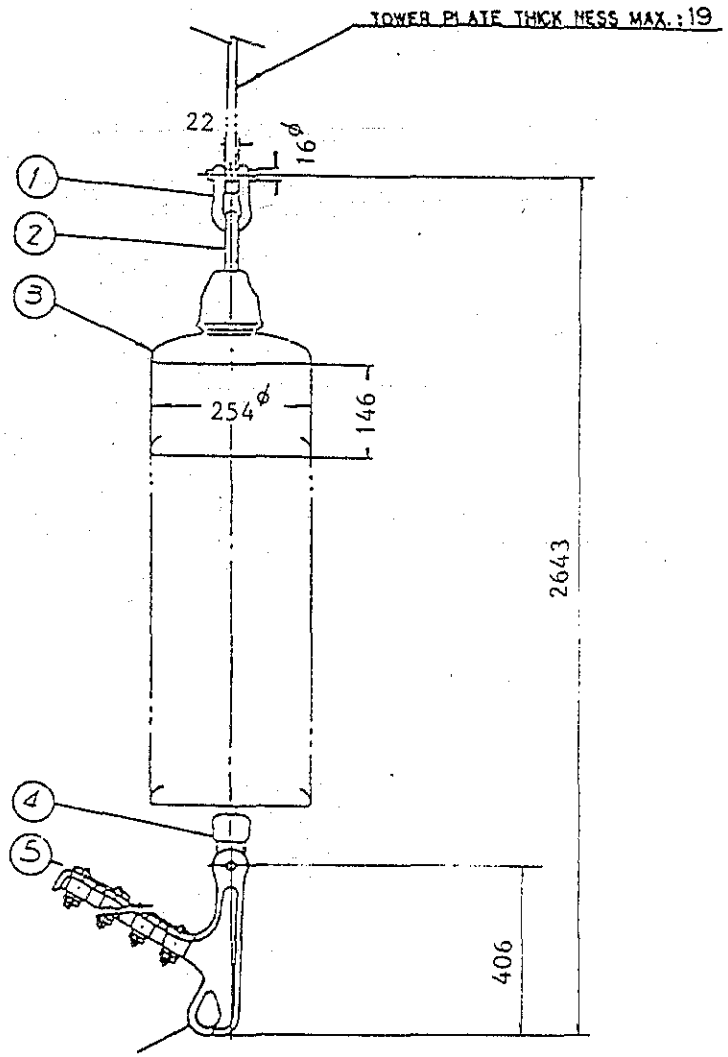
TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1208		SCALE	DATE 10TH JAN 1990

2-205

90C-C

FORM 04



ITEM	DESCRIPTION	MAIN MATERIAL	REQD
1	ANCHOR SHACKLE	HIGH TENSION STEEL	1
2	BALL EYE	HIGH TENSION STEEL	1
3	SUSPENSION INSULATOR	PORCELAIN	14
4	SOCKET-EYE	MALLEABLE IRON OR DUCTILE IRON	1
5	STRAIN CLAMP	ALUMINIUM ALLOY	1

SUITABLE CONDUCTOR SIZE OF CLAMP	30.5φ~43.2φ
MIN. BREAKING STRENGTH OF STRING	12000kg
TYPE OF BALL AND SOCKET PARTS	IEC 16mm A

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

132KV

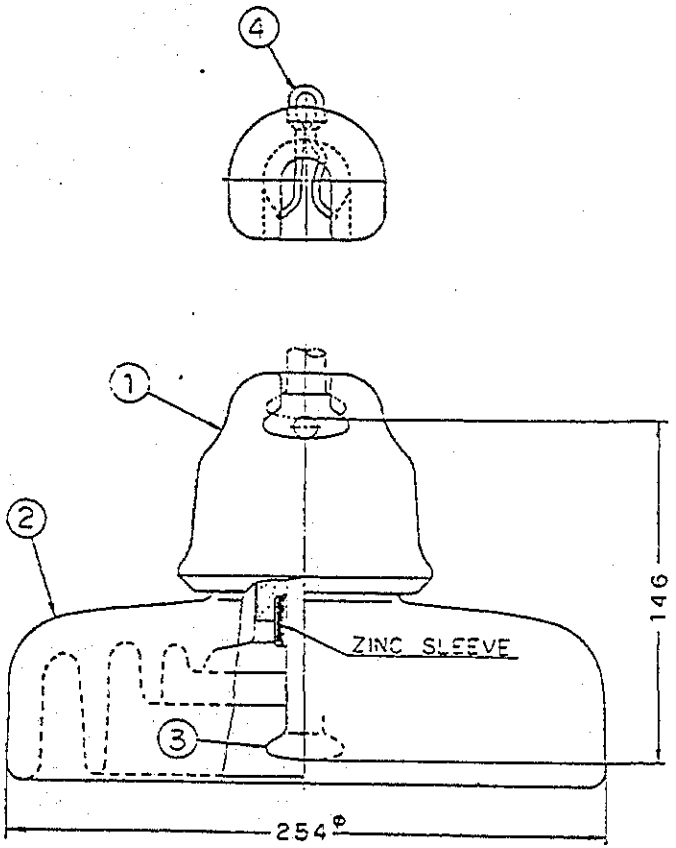
TIE DOWN INSULATOR STRING

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1209		SCALE	DATE 10TH JAN 1990

FORM 04



TECHNICAL DATA

SPECIFICATION APPLIED : IEC Pub. 383-1983

Characteristics	Rating
1. Type of ball and socket coupling	IEC 16mm A
2. Creepage distance (mm)	432
3. Electro-mechanical failing load (kN)	120
4. Dry lightning impulse withstand voltage (kV)	125
5. Wet power-frequency withstand voltage (kV)	45
6. Power-frequency puncture voltage (kV)	130

ITEM	MATERIAL
①	DUCTILE IRON
②	PORCELAIN
③	HIGH TENSION STEEL
④	STAINLESS STEEL

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

FOG TYPE SUSPENSION INSULATOR

JAPAN INTERNATIONAL COOPERATION AGENCY

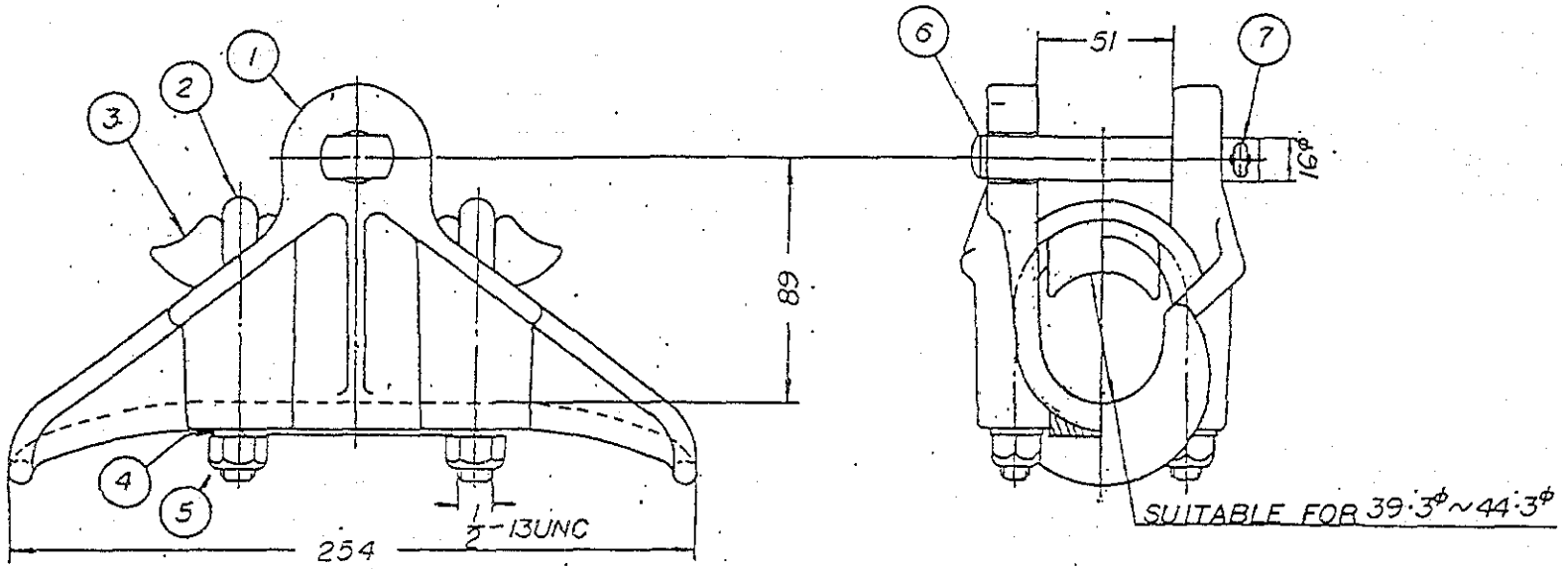
TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Hoke
DRAWING NO. WLT-1210		SCALE	DATE 10TH JAN 1990

2-207

FORM 04

MIN. BREAKING STRENGTH : 12000 kg



ITEM	MATERIAL	REQD.
⑦	STAINLESS STEEL	1
⑥	HIGH TENSION STEEL	1
⑤	STEEL	4
④	STEEL	4
③	ALUMINIUM ALLOY	1
②	STEEL	2
①	ALUMINIUM ALLOY	1

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

SUSPENSION CLAMP FOR ACSR/AS 330 MM^2

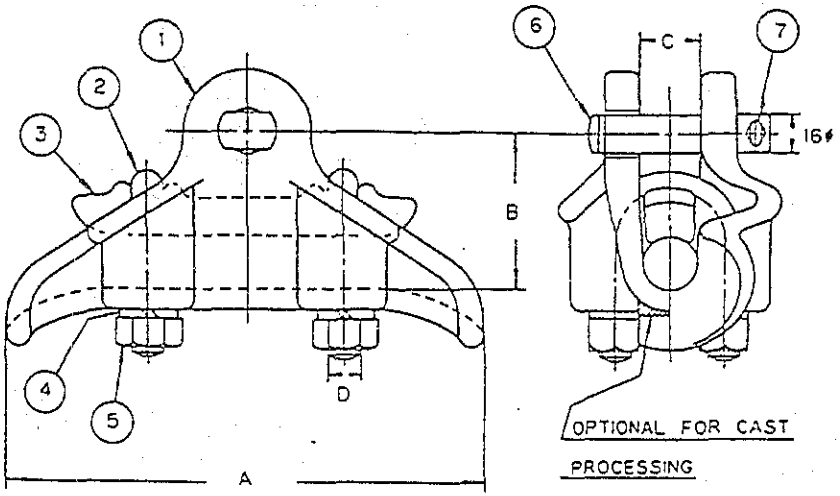
JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue

DRAWING NO.	SCALE	DATE
WDT-1301		10TH JAN 1990

FORM 04



ITEM	MATERIAL	REQD.
⑦	STAINLESS STEEL	1
⑥	STEEL	1
⑤	STEEL	4
④	STEEL	4
③	ALUMINIUM ALLOY	1
②	STEEL	2
①	ALUMINIUM ALLOY	1

CONDUCTOR DIA.		CLAMP DIMENSIONS				ULTIMATE STRENGTH
MIN.	MAX.	A	B	C	D	Kg
43.0	58.0	280	102	60.5	5/8"-11UNC	12,000

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

SUSPENSION CLAMP FOR ACSR/AS 680 MM^2

JAPAN INTERNATIONAL COOPERATION AGENCY

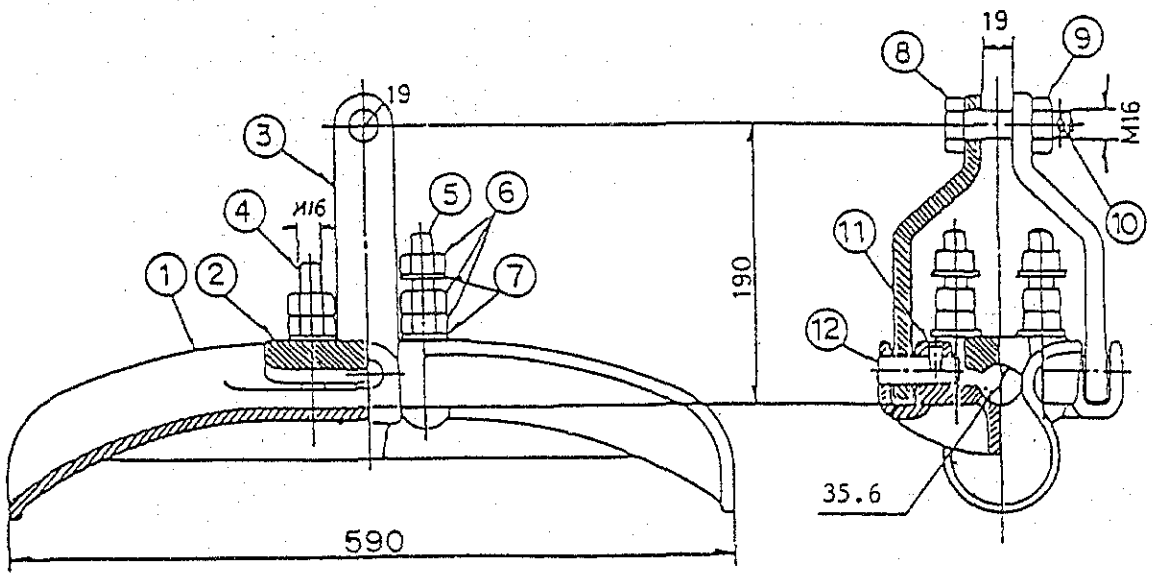
TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N. Inoue
DRAWING NO. WLT-1302		SCALE	DATE 10TH JAN 1990

2-209

OH-E

FORM 84



ITEM	MATERIAL	REQD.
(12)	HIGH TENSION STEEL	2
(11)	STAINLESS STEEL	2
(10)	STAINLESS STEEL	1
(9)	STEEL	1
(8)	STEEL	1
(7)	STEEL	6
(6)	STEEL	10
(5)	STEEL	2
(4)	STEEL	2
(3)	STEEL	2
(2)	ALUMINIUM ALLOY	1
(1)	ALUMINIUM ALLOY	1

SUITABLE WIRE OPGW mm²	ULTIMATE STRENGTH (Kgf)
190/90 *	6500

* WITH PREFORMED ARMOR RODS.

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

SUSPENSION CLAMP FOR OPGW

JAPAN INTERNATIONAL COOPERATION AGENCY

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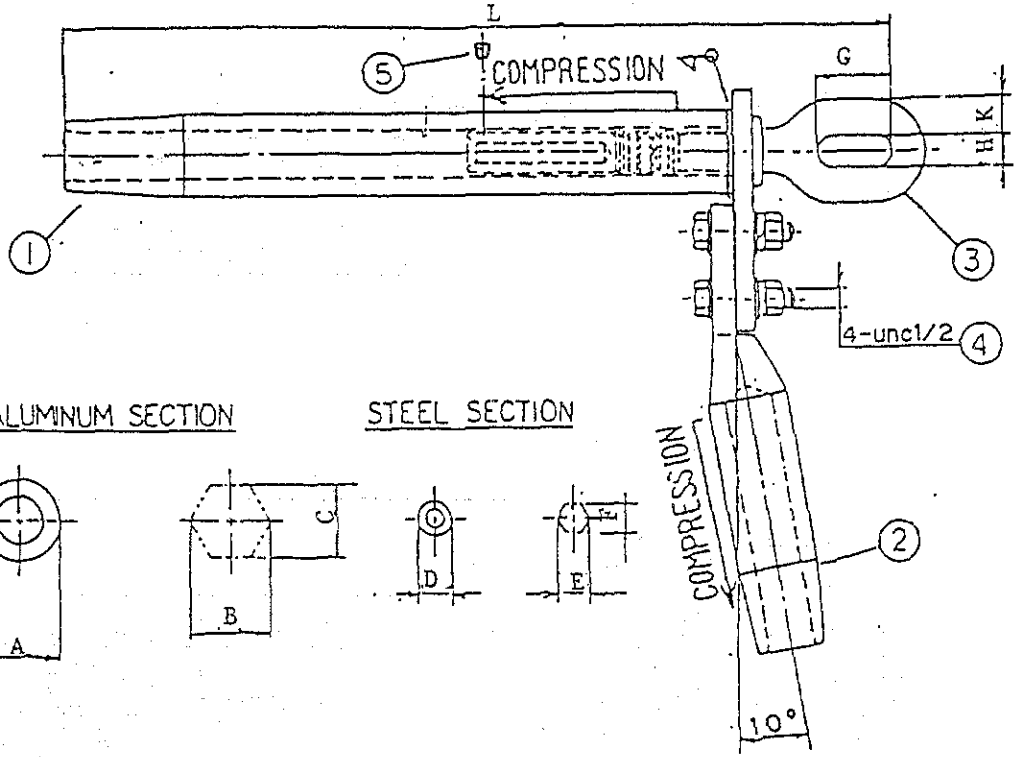
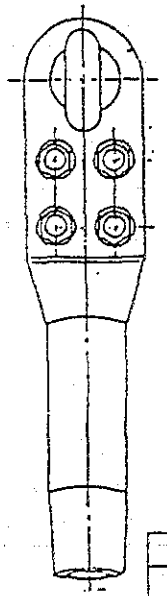
			N. Inoue
DRAWING NO. WLT-1303		SCALE	DATE 10TH JAN 1990

FORM 04





ITEM	MATERIAL
5	ALUMINUM
4	STEEL
3	STEEL
2	ALUMINUM
1	ALUMINUM

CONDUCTOR	DIMENSIONS									
	A	B	C	D	E	F	G	H	K	L
ACSR/AS 330mm^2	42	42	36.4	22	22	19.0	20	18	55	525
ACSR/AS 680mm^2	65	65	56.3	26	26	22.5	26	21	60	715

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

TENSION CLAMP FOR ACSR/AS

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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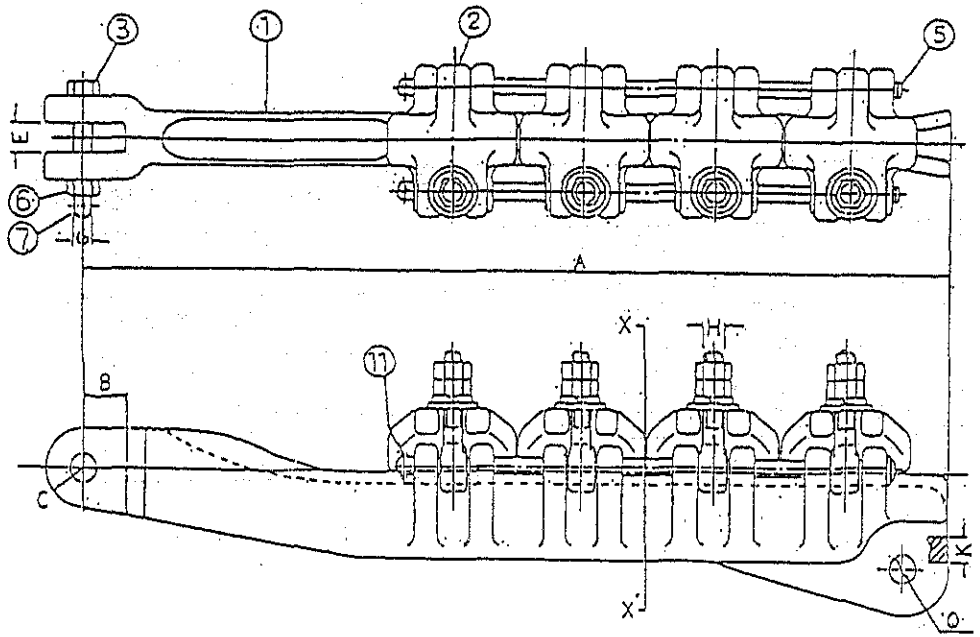
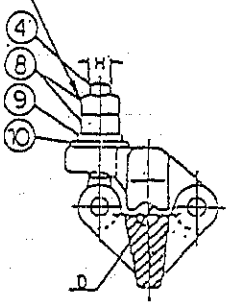
			N.Inoue
DRAWING NO. WLT-1304		SCALE	DATE 20TH JAN 1990

J-211

FORM 04



RECOMMENDED TORQUE 1000Kg-cm



SECTION X-X'

ITEM	MATERIAL	REQD
⑪	STAINLESS STEEL	2
⑩	STEEL	4
⑨	STEEL	4
⑧	STEEL	8
⑦	BRASS	1
⑥	STEEL	1
⑤	HIGH TENSION STEEL	2
④	STEEL	4
③	STEEL	1
②	ALUMINIUM ALLOY	4
①	ALUMINIUM ALLOY	1

DIMENSIONS (mm)									SUITABLE WIRE OPGW mm²	ULTIMATE STRENGTH Kg	EYE PORTION ULTIMATE STRENGTH Kg
A	B	C	D	E	G	H	K	Q			
730	33	30	22.2	22	M20	H16	19	22	190/90	11000	7200

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

TENSION CLAMP FOR OPGW 120 MM²

JAPAN INTERNATIONAL COOPERATION AGENCY

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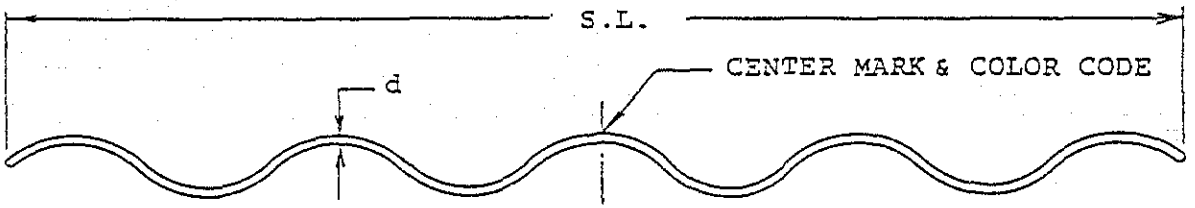
			N. Inoue
DRAWING NO.	SCALE	DATE	
WTT-1305		10TH JAN 1990	

FORM 04



CONDUCTOR SIZE	DIMENSION IN MM		R/S	END TREATMENT
	d	S.L.		
ACSR/AS 330mm2 (O.D. 25.3mm)	7.8	2300 ±5	12	Ball End
ACSR/AS 680mm2 (O.D. 36.0mm)	9.3	2500 ±5	13	Ball End
OPGW 190/90mm^2 (O.D. 22.2mm)	6.7	2200 ±10	12	Deburred

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

PREFORMED ARMOR RODS

JAPAN INTERNATIONAL COOPERATION AGENCY

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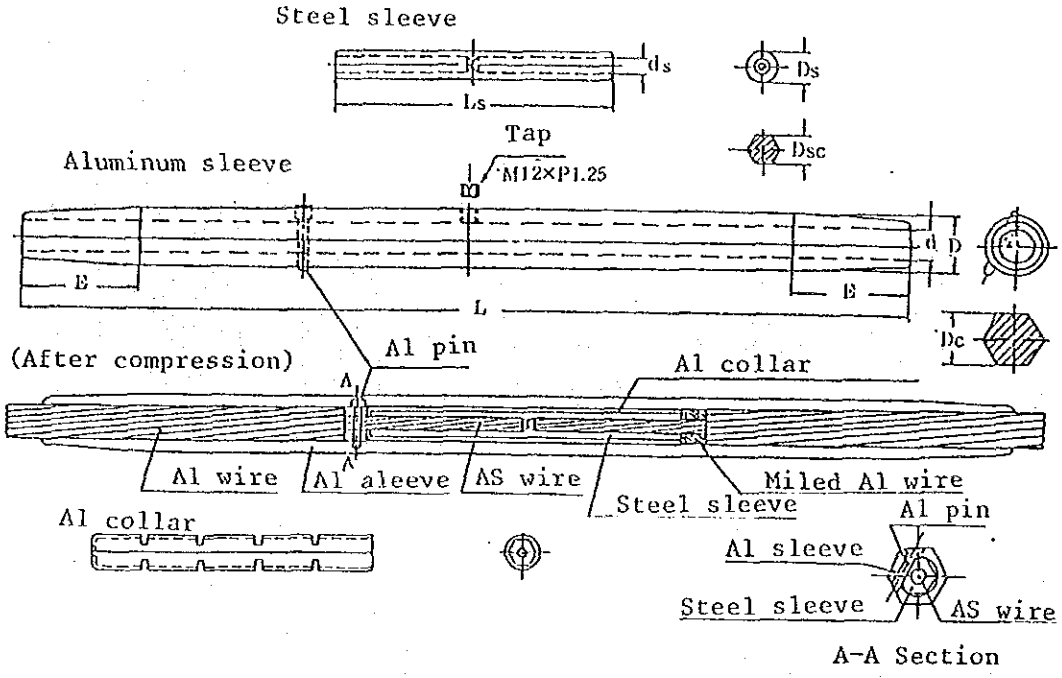
			N. Inoue
DRAWING NO. WET-1306	SCALE	DATE 10TH JAN 1990	

J-218

(Before compression)



CONDUCTOR ACSR					DIMENSION mm								
SIZE	CONSTRUCTION		DIAMETER		Al sleeve				St sleeve			Dice	
mm²	Al	AS	Al	AS	L	D	d	E	Ls	Ds	ds	Dc	Dsc
680	54/4.0	7/4.0	36.0	12.0	930	65	37.5	120	280	26	12.6	56.3	22.5
330	26/4.0	7/3.1	25.3	9.3	640	42	26.6	85	200	22	9.9	36.4	19.0

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

MID SPAN JOINT

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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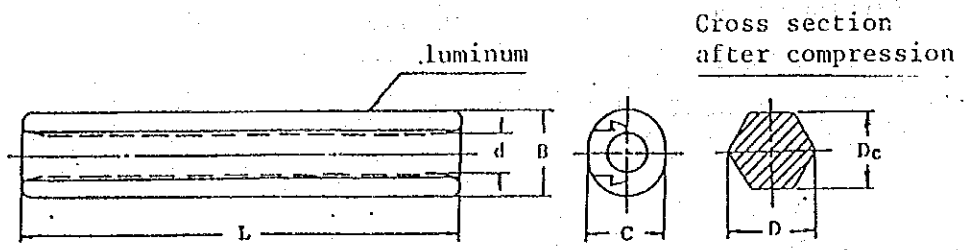
DRAWING NO. WLT-1307		SCALE	DATE 10TH JAN 1990

2-24



CONDUCTOR ACSR					DIMENSION mm					Dice
SIZE mm²	CONSTRUCTION		DIAMETER mm		L	B	C	D	d	Dc
	AL	AS	AL	AS						
680	54/4.0	7/4.0	36.0	12.0	460	72	58	65	38.2	56.3
330	26/4.0	7/3.1	25.3	9.3	300	47	38	42	27.3	36.4

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

REPAIR SLEEVE

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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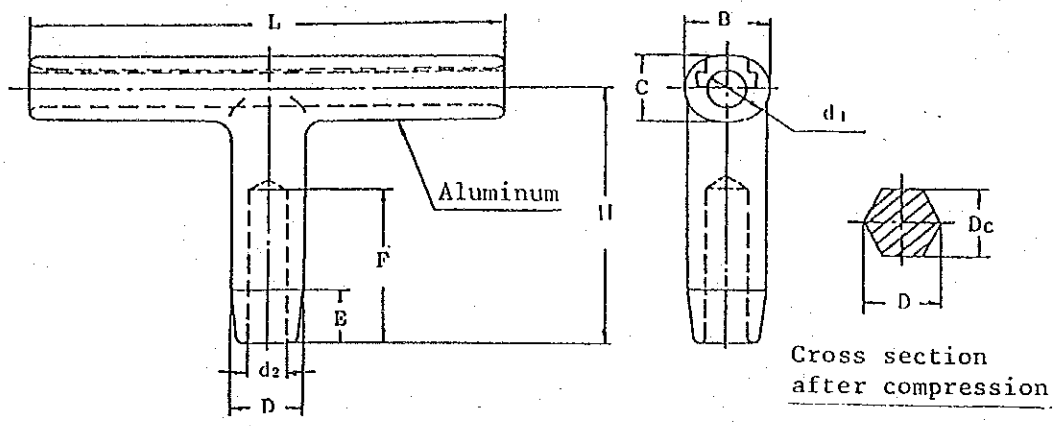
			N. Inoue
DRAWING NO		SCALE	DATE
WBT-1308			10TH JAN 1990



CONDUCTOR ACSR SIZE mm²	CONSTRUC ル	鋼	Dia mm ル	鋼	DIMENSION mm L	B	C	D	d_1	d_2	E	F	H	Dice Dc
810	45/4.8	7/3.2	38.4	9.6	460	76	61	68	40.6	40.0	68	210	282	58.9
610	54/3.8	7/3.8	34.2	11.4	430	67	54	60	36.4	35.7	60	180	242	52.0
520	54/3.5	7/3.5	31.5	10.5	345	58	47	52	33.6	32.9	52	138	197	45.0
410	26/4.5	7/3.5	28.5	10.5	335	54	42	48	30.6	29.9	48	133	189	41.6
⇨ 330	26/4.0	7/3.1	25.3	9.3	330	47	38	42	27.3	26.6	42	130	184	36.4
240	30/3.2	7/3.2	22.4	9.6	305	43	34	38	24.3	23.6	38	118	170	31.9
200	30/2.9	7/2.9	20.3	8.7	260	38	30	34	22.2	21.5	34	95	145	28.4
160	30/2.6	7/2.6	18.2	7.8	260	33	28	30	20.1	19.4	30	95	144	25.0
120	30/2.3	7/2.3	16.1	6.9	260	33	28	30	18.0	17.2	30	95	144	25.0

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

T-SLEEVE

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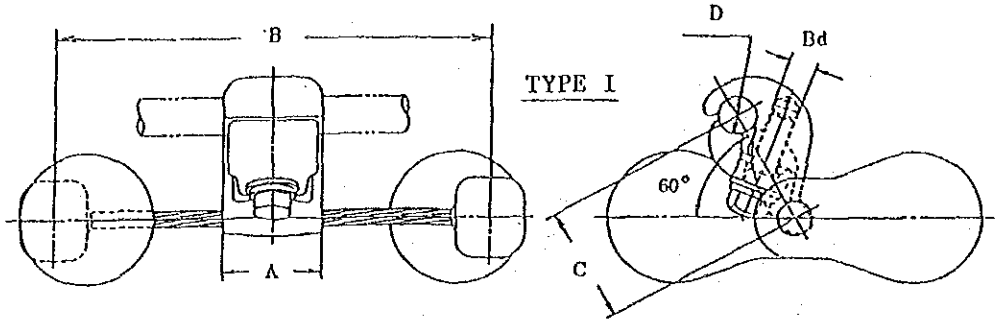
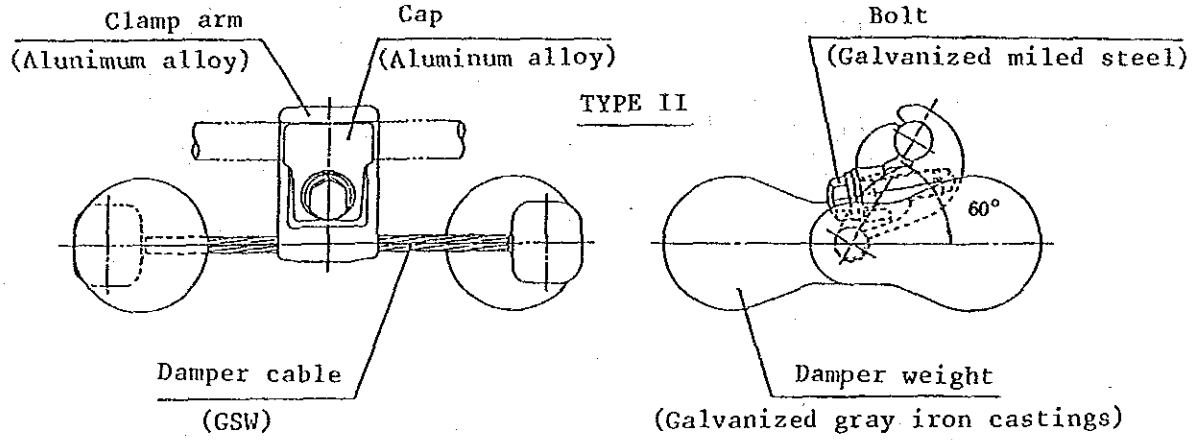
			N. Inoue
DRAWING NO. WDT-1309	SCALE	DATE 10TH JAN 1990	

T-216





SIZE. mm²	CONDUCTOR CONSTRUC AL	CONDUCTOR CONSTRUC AS	Dia mm	DIMENSION mm A	B	C	D	Bd	No	Fix. Point m
ACSR 680	54/4.0	19/2.4	36.0	70	400	83	36.2	M20	18	1.8
ACSR 330	26/4.0	7/3.1	25.3	64	326	70	25.5	M16	14	1.4
OPGW 190/90			22.2	60	260	70	22.3	M16	12	1.3

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

DOUBLE TORSIONAL DAMPER

JAPAN INTERNATIONAL COOPERATION AGENCY

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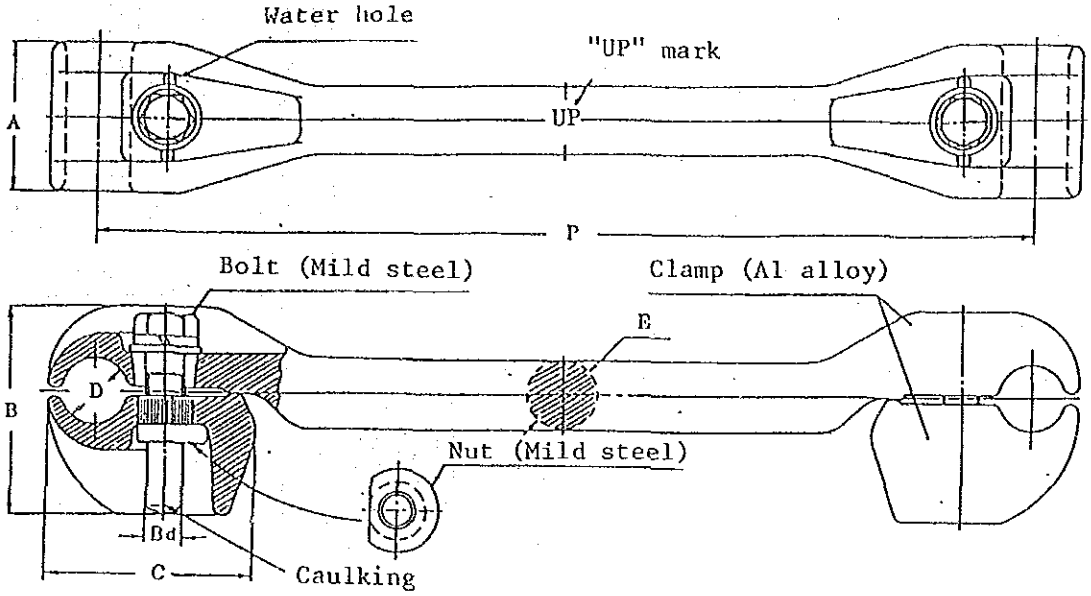
DRAWING NO. WET-1310		SCALE	DATE 10TH JAN 1990



CONDUCTOR ACSR				DIMENSION mm						
SIZE mm²	CONSTRUCTION AL	CONSTRUCTION AS	Dia mm	P	A	B	C	D	E	Bd
1160	84/4.2	7/4.2	46.2	600 300	70	98	125	46.2	38	M16
810	45/4.8	7/3.2	38.4	500 400	70	96	110	38.4	38	M16
610	54/3.8	7/3.8	34.2	500 400	70	96	110	34.2	30	M16
410	26/4.5	7/3.5	28.5	400	65	90	89	28.5	30	M16
⇨330	26/4.0	7/3.1	25.3	400	65	90	89	25.3	30	M16
240	30/3.2	7/3.2	22.4	400	65	90	89	22.4	30	M16

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

SPACER FOR ACSR/AS 330 MM^2

JAPAN INTERNATIONAL COOPERATION AGENCY

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			N. Inoue
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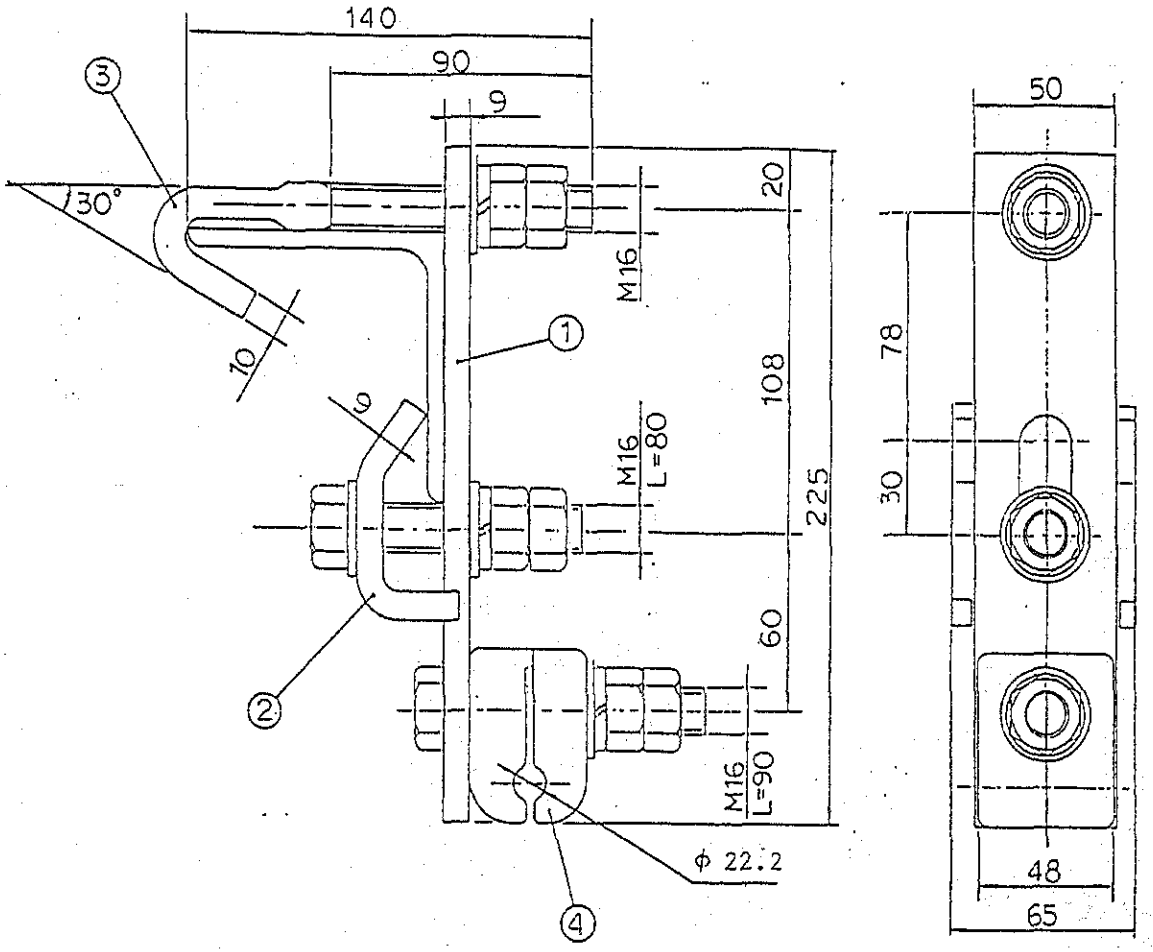

ITEM	DESCRIPTION	MATERIAL
①	Fitting Material I	Steel
②	Fitting Material II	Steel
③	Hook Bolt M16	Steel
④	Aluminum Clamp	Aluminum

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

EARTHING CLAMP FOR OPGW

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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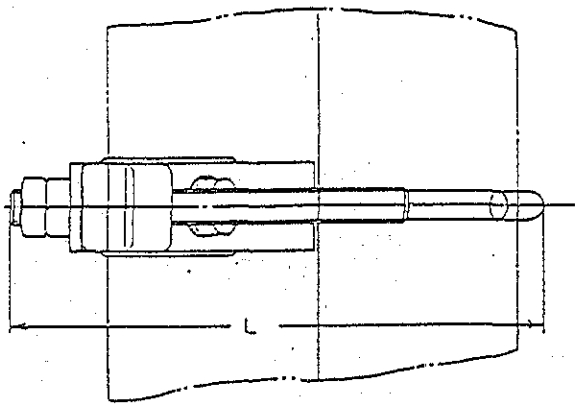
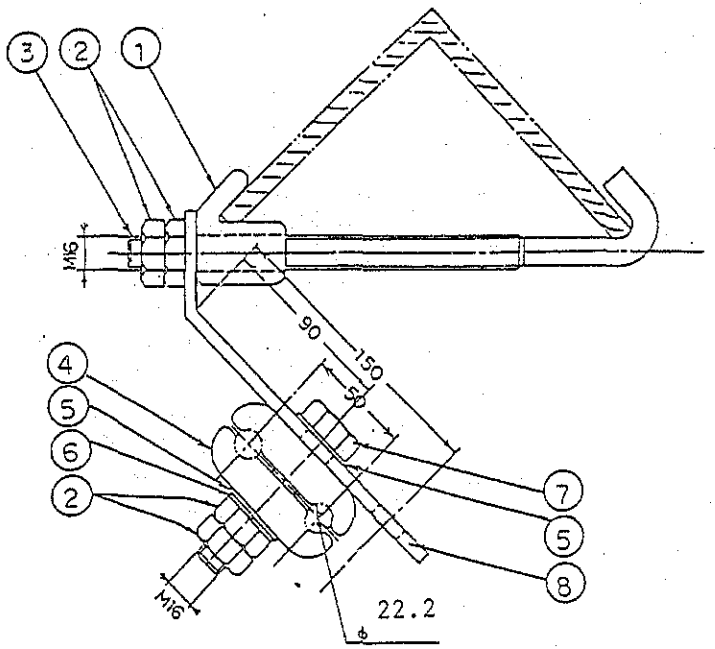
			N. Nour
DRAWING NO. WT-1401		SCALE	DATE 10TH JAN 1990

2-219

FORM 04



TYPE	ANGLE SIZE		DIMENSION L (mm)
A	L40×40	L60×60	170
B	L65×65	L100×100	230
C	L120×120	L200×200	370



ITEM	DESCRIPTION	REQD	REMARKS
8	FIXING PLATE	1	MILD STEEL, ZINC COATED
7	BOLT	1	MILD STEEL, ZINC COATED
6	SPRING WASHER	1	SPRING STEEL, ZINC COATED
5	WASHER	2	MILD STEEL, ZINC COATED
4	ALUMI-CLAMP	1	ALUMINUM CASTING
3	U-BOLT	1	MILD STEEL ZINC COATED
2	NUT	4	MILD STEEL, ZINC COATED
1	ANGLE CLAMP	1	ALUMINUM CASTING

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

FIXING CLAMP FOR OPGW (1)

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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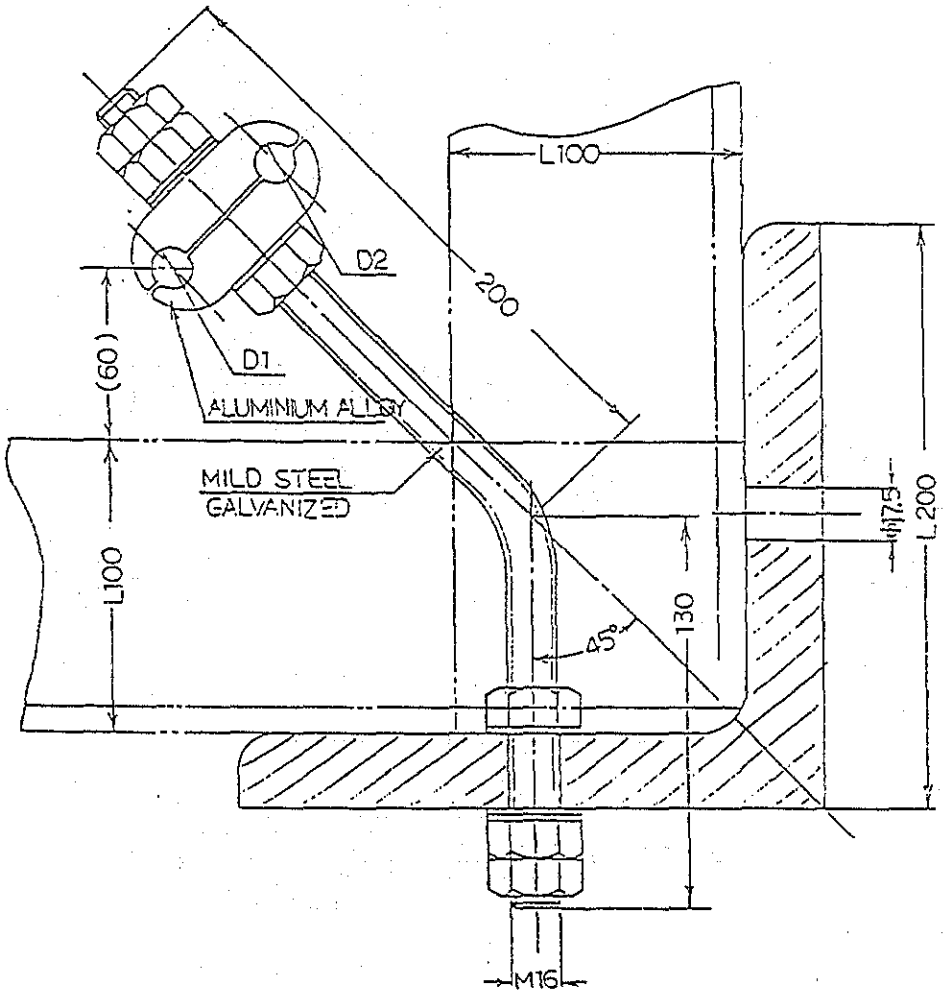
			N. Inoue

DRAWING NO.	SCALE	DATE
WLT-1402		10TH JAN 1990

FORM 04



	OPGW 190/90MM^2
D1 mm	22.2
D2 mm	22.2

THE HOLES OF 17.5 MM DIAMER FOR THE BOLTS OF Z2 CLAMPS ARE REQUIRED TO THE MAIN TOWER LEG IN ADVANCE.

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

FIXING CLAMP FOR OPGW (2)

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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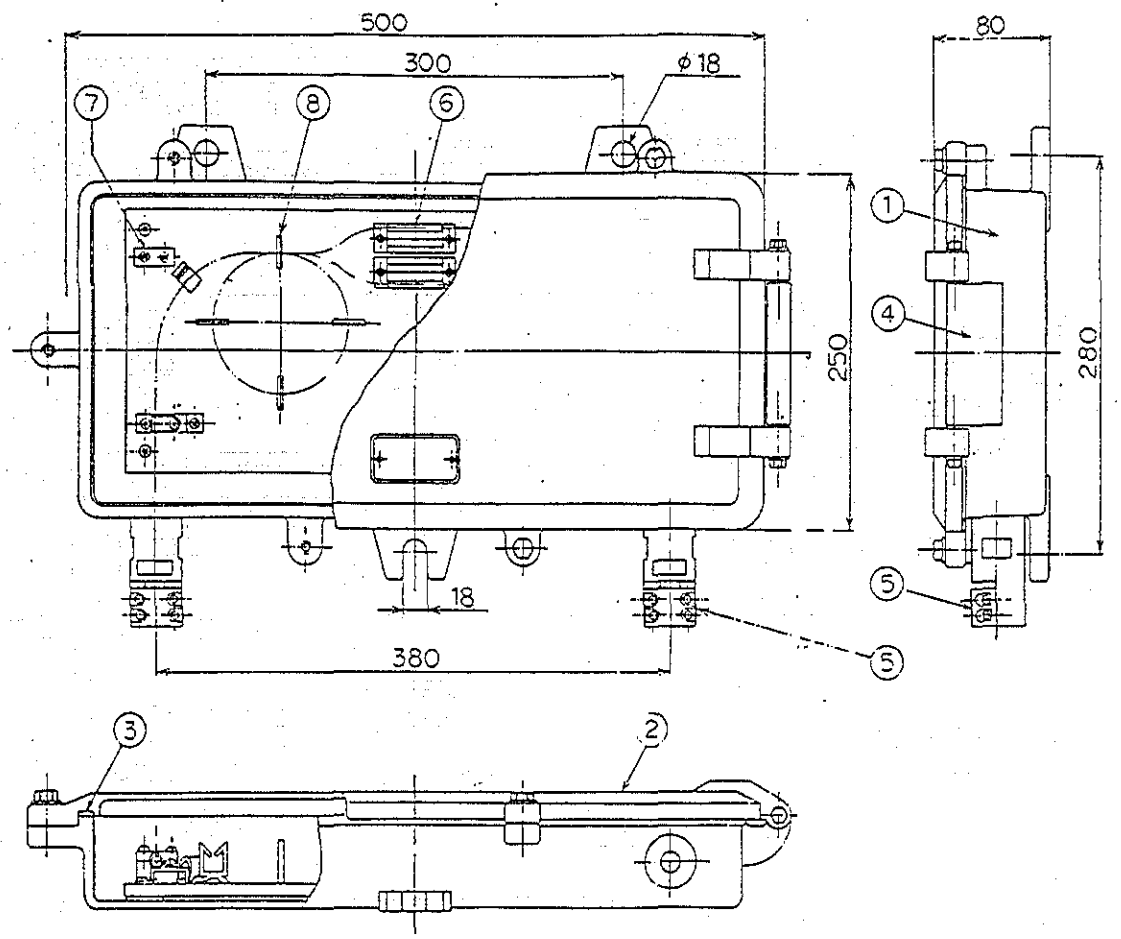
			N. UDUA
DRAWING NO. WLT-1403		SCALE	DATE 10TH JAN 1990

2-22/



① CASE (ALUMINUM ALLOY CASTING)
② COVER (ALUMINUM ALLOY CASTING)
③ GASKET
④ HINGE
⑤ GLAND (A) FOR O.P.G.W
⑥ SPLICE OF OPTIC FIBER
⑦ TENSION MEMBER CLAMP
⑧ CLAMPS

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

JOINT BOX FOR OPGW 190/90 MM^2

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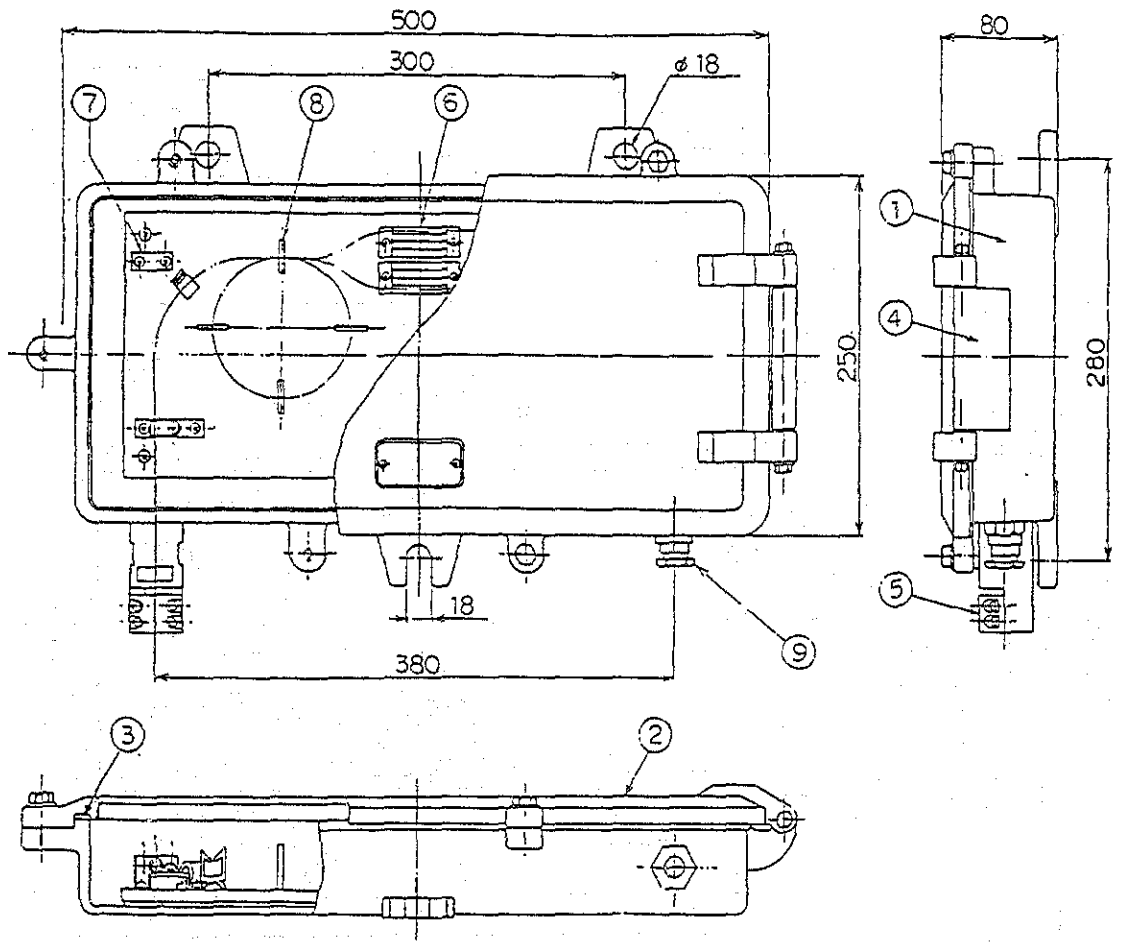
DRAWING NO. WLT-1404	SCALE	DATE 10TH JAN 1990	

FORM 04



① CASE (ALUMINUM ALLOY CASTING)
② COVER (ALUMINUM ALLOY CASTING)
③ GASKET
④ HINGE
⑤ GLAND (A) FOR O.P.G.W
⑥ SPLICE OF OPTIC FIBER
⑦ TENSION MEMBER CLAMP
⑧ CLAMPS
⑨ GLAND (B) FOR OPTICAL FIBER CABLE

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KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

TERMINAL BOX FOR OPGW 190/90 MM^2

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

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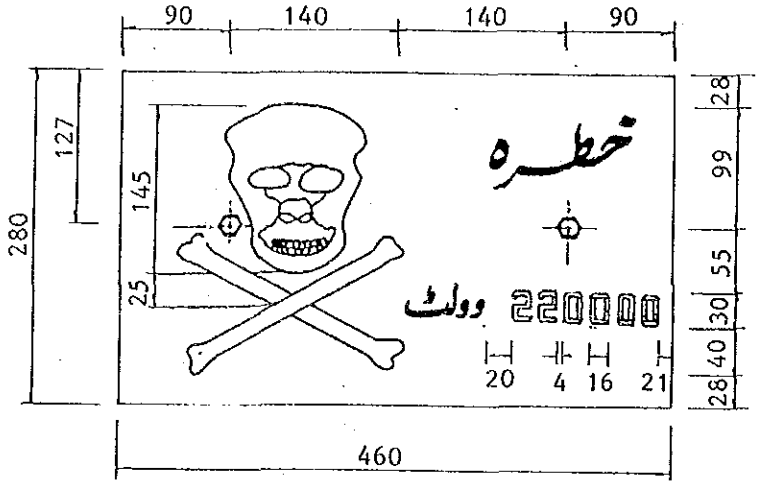
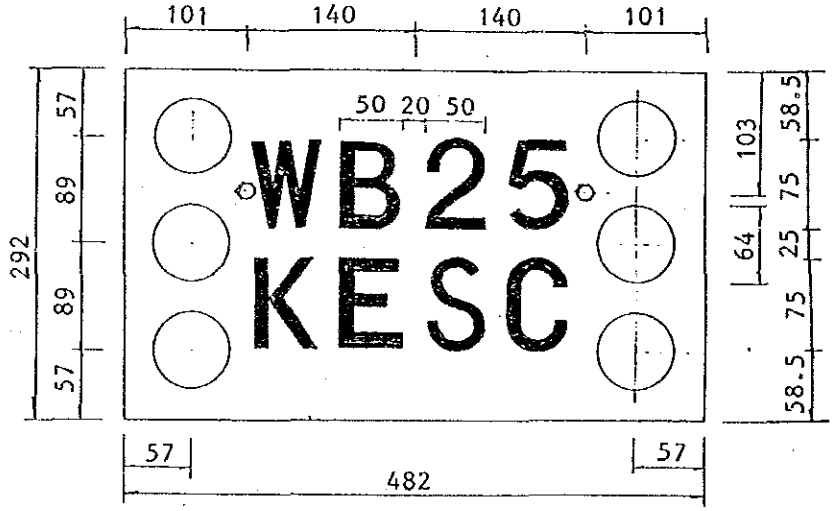
DRAWING NO. WLT-1405		SCALE	DATE 10TH JAN 1990

2-223



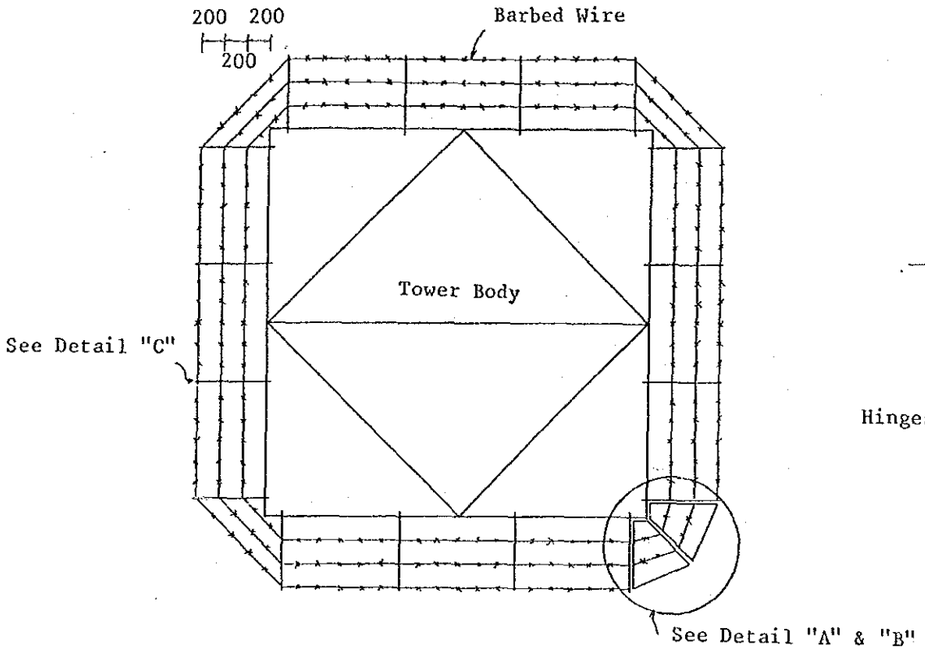
DANGER PLATE



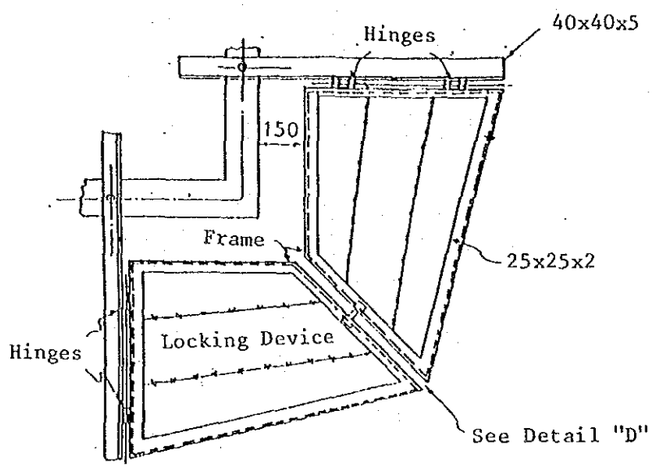
NUMBER PLATE

PAKISTAN			
KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2			
DANGER PLATE AND NUMBER PLATE			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO. WLT-1501		SCALE	DATE 10TH JAN 1990

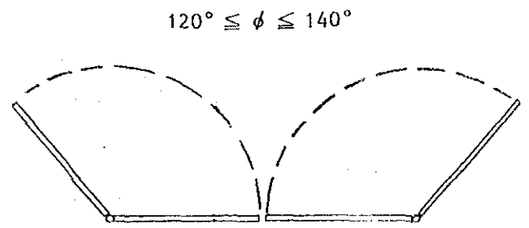
FORM 04



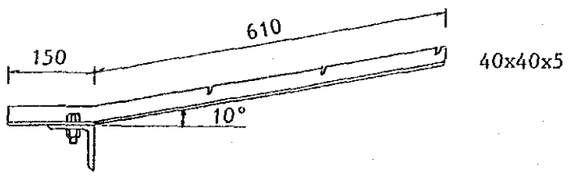
ANTI-CLIMBUNG DEVICE



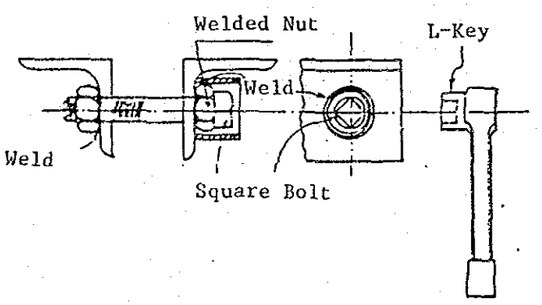
DETAIL A



DETAIL B

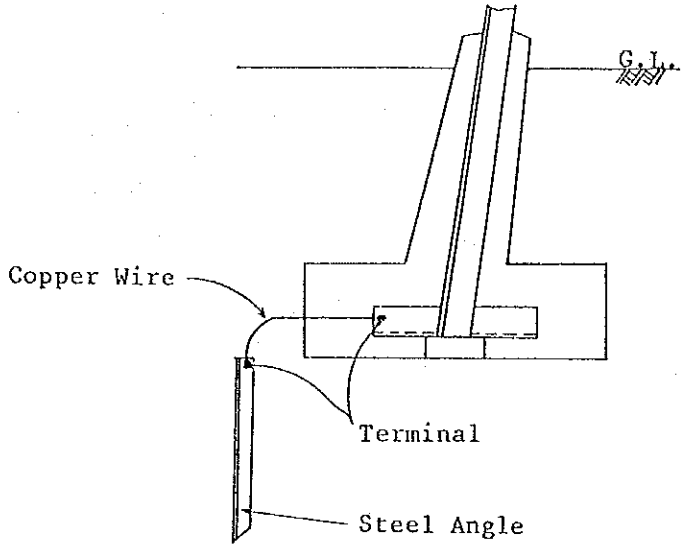


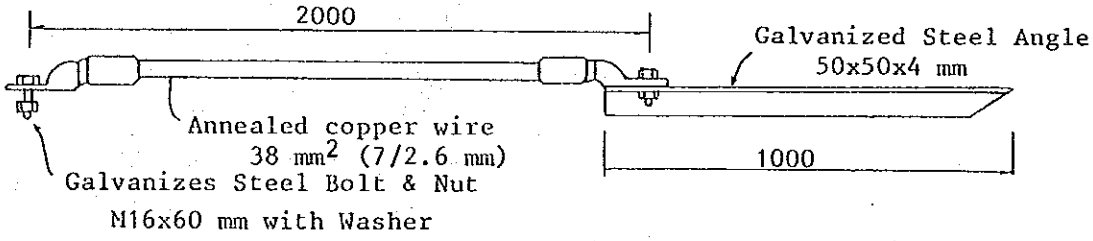
DETAIL C

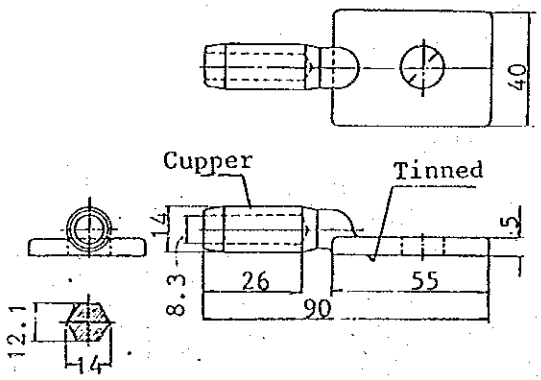


DETAIL D

PAKISTAN KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2			
ANTI-CLIMBING DEVICE			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO. WLT-1502		SCALE	DATE 10TH JAN 1990





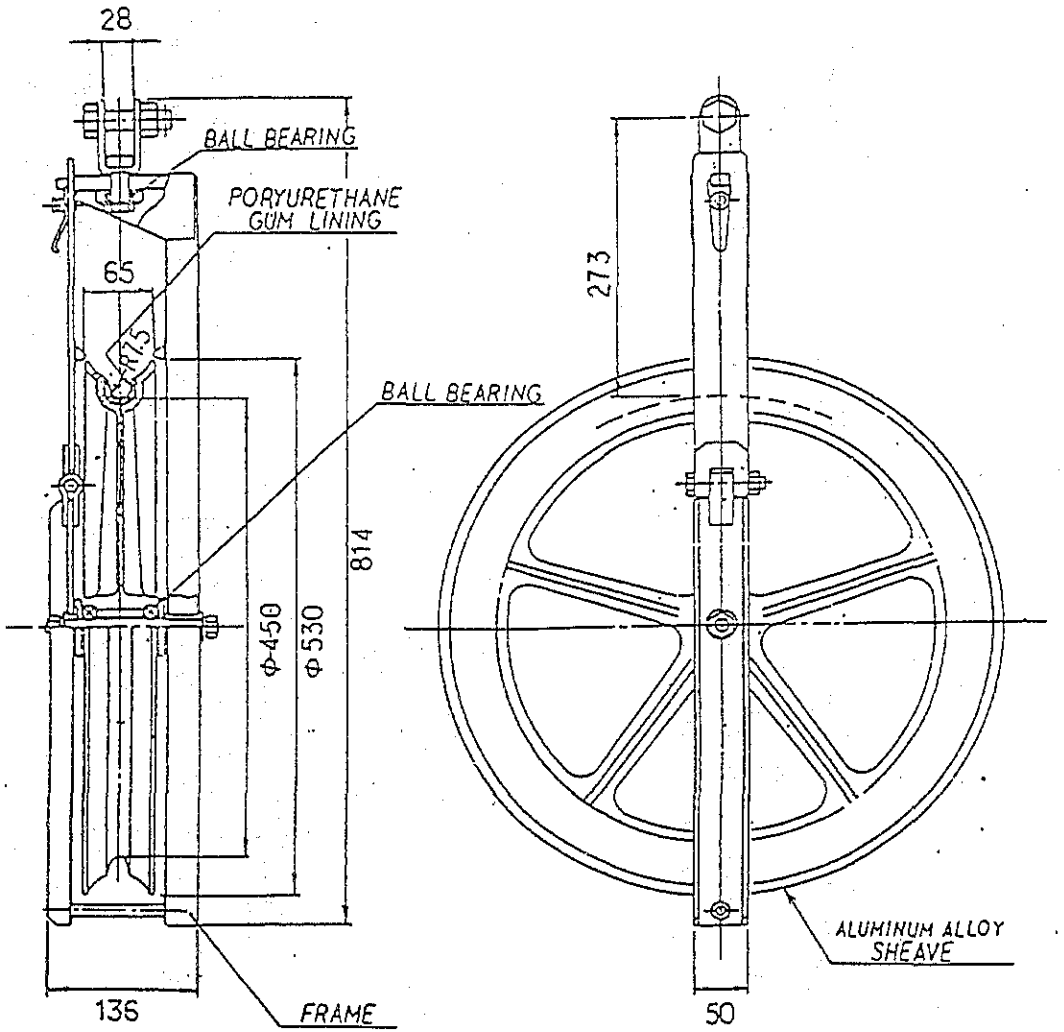


COMPRESSION TERMINAL

PAKISTAN KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2 GROUNDING DEVICE			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
DRAWING NO. WLT-1503		SCALE	DATE 10TH JAN 1990

FORM 04

FORM 02



NOTE 1) WORKING LOAD : 1500 KG
2) LOAD FACTOR : 1.6
3) WEIGHT : 12 KG

PAKISTAN

KARACHI ELECTRIC SUPPLY CORPORATION

WEST WHARF THERMAL POWER PLANT PROJECT

UNITS NO.1 AND NO.2

STRINGING BLOCK FOR OPGW

JAPAN INTERNATIONAL COOPERATION AGENCY

TOKYO JAPAN

APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY
			N.Inoue
DRAWING NO. WL12-1504		SCALE	DATE 10TH JAN 1990

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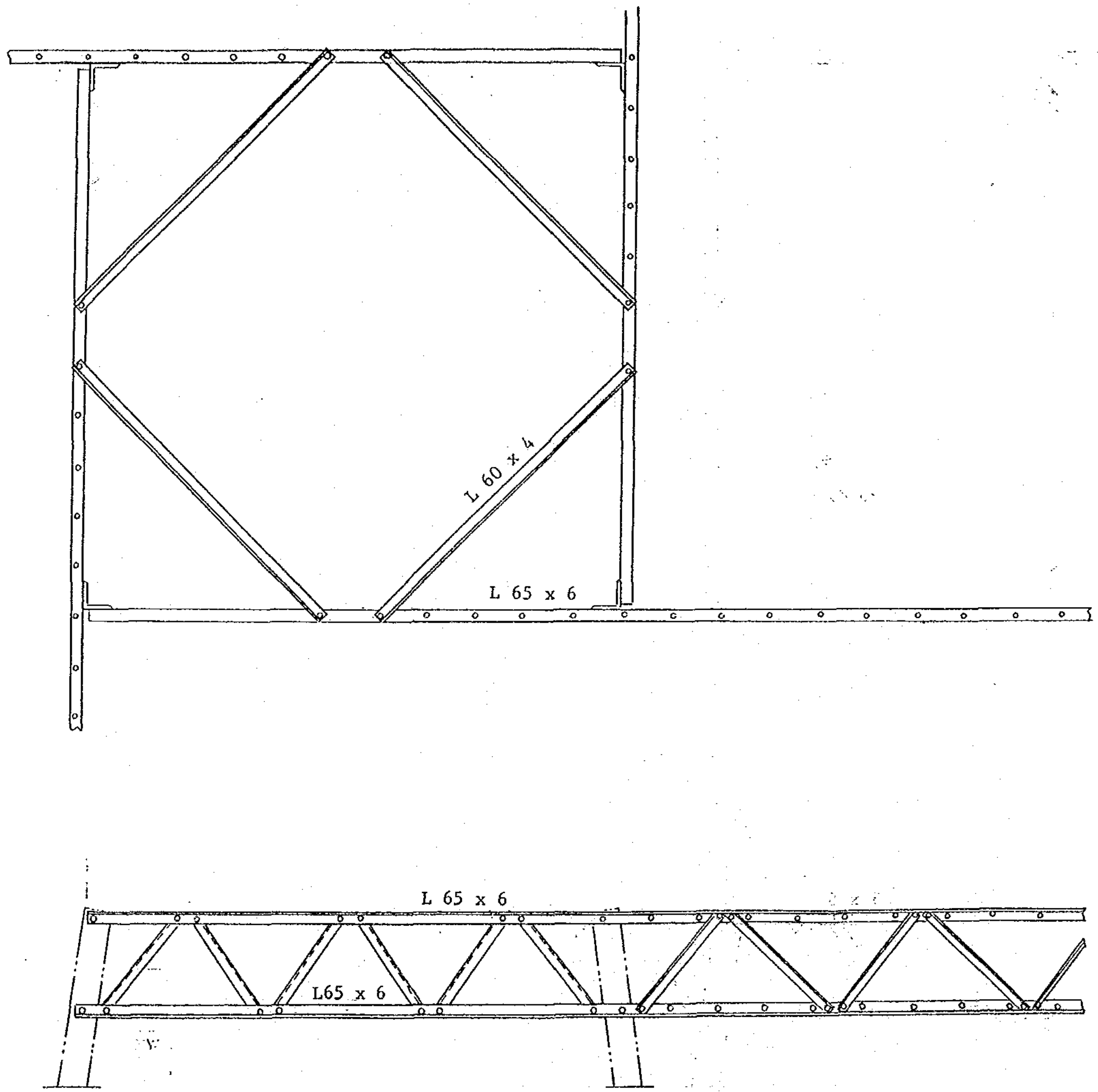

PAKISTAN			
KARACHI ELECTRIC SUPPLY CORPORATION			
WEST WHARF THERMAL POWER PLANT PROJECT UNITS NO.1 AND NO.2			
STUB SETTING TEMPLATE			
JAPAN INTERNATIONAL COOPERATION AGENCY TOKYO JAPAN			
APPROVED BY	REVIEWED BY	CHECKED BY	DRAWN BY N. Inoue
DRAWING NO. WLT-1505		SCALE	DATE 10TH JAN 1990

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