

220kV CURRENT TRANSFORMER PARAMETERS

fr=50 Hz lth = 50kA, 3s l_{dyn} = 125kA l_{ct} = 150%

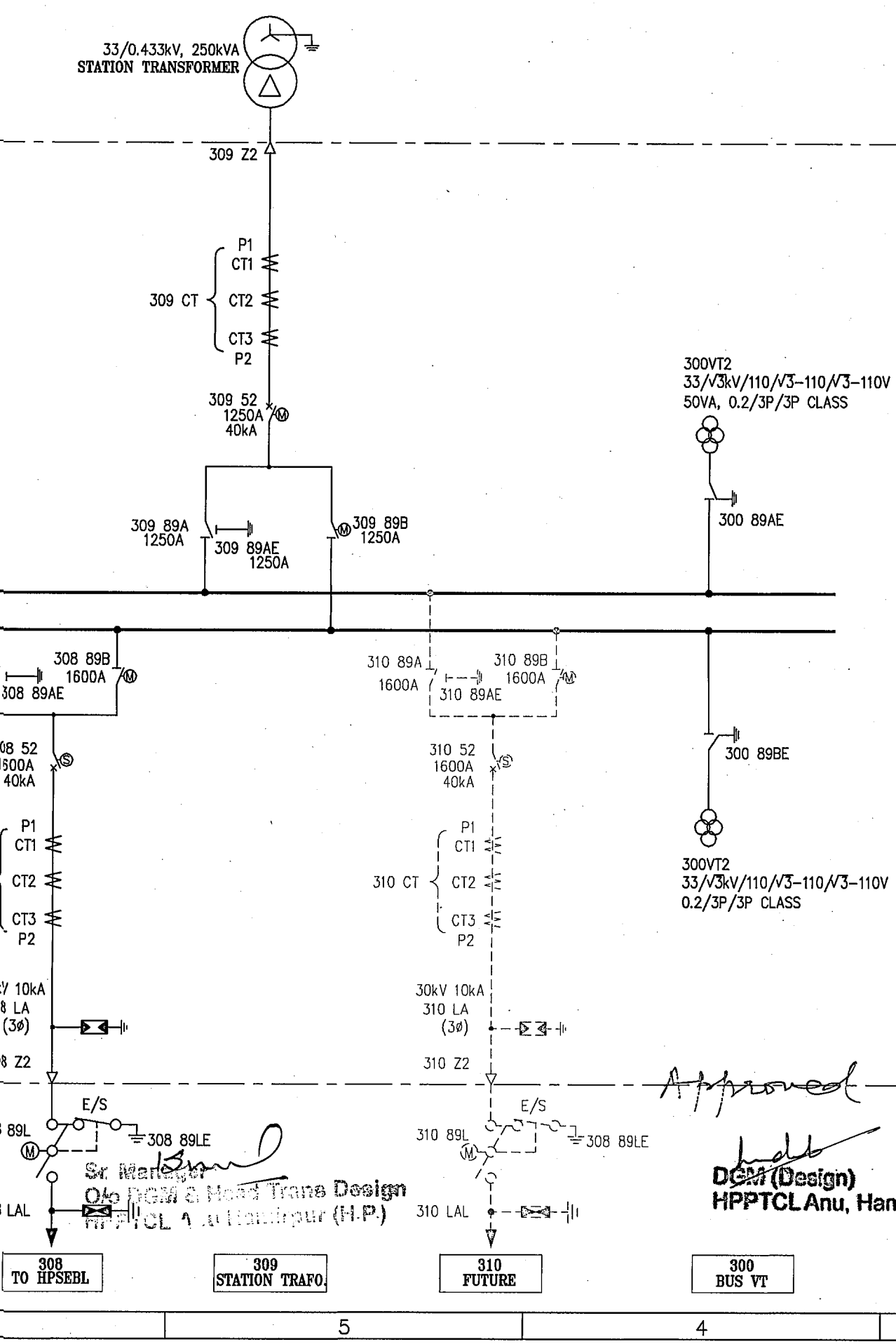
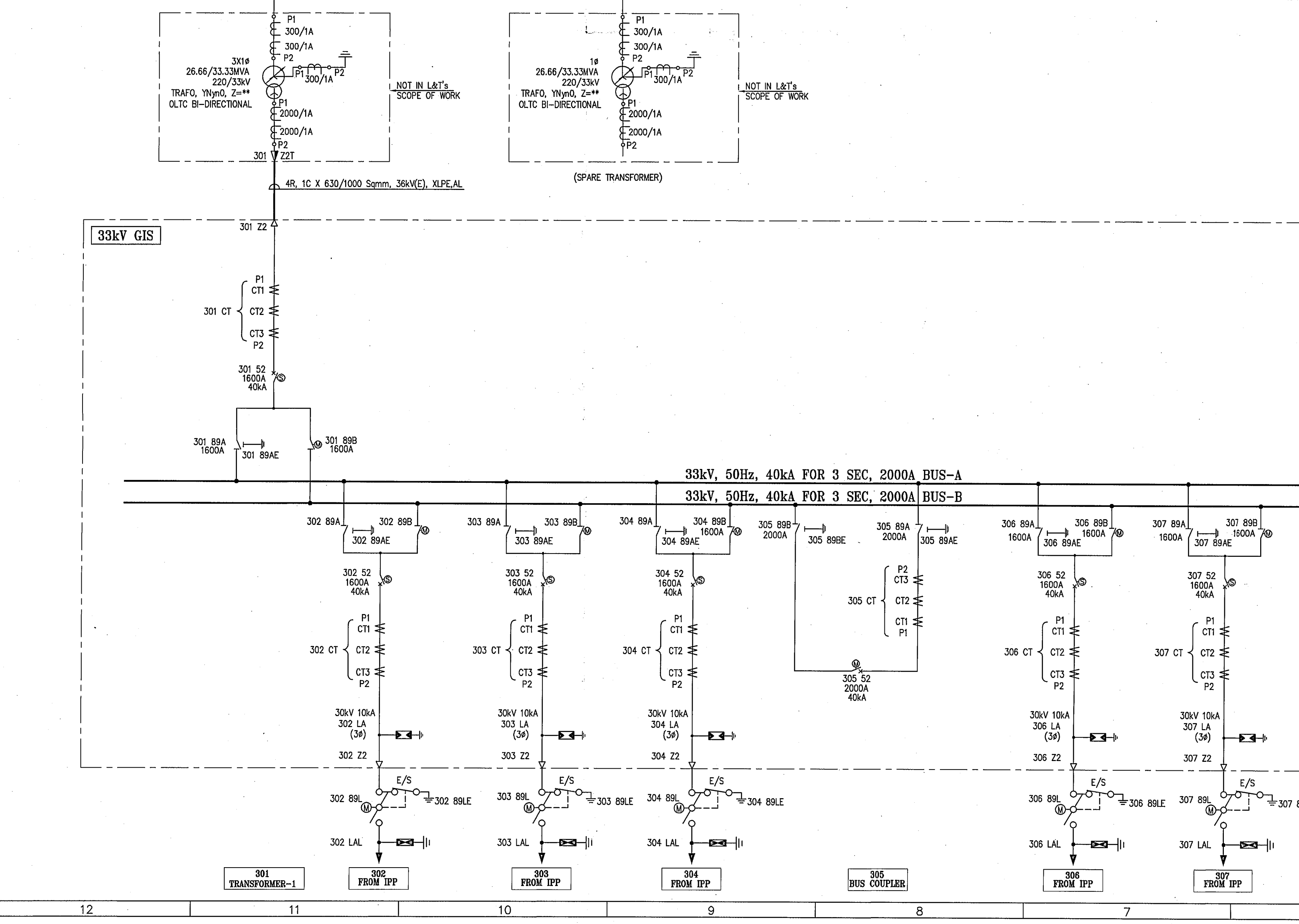
CT No.	BAY NAME	Reference	Ratio (A)	Accuracy Class	Factor of Safety	Output (VA)	Max. KVP (V)	RCT (Ω)	Max. Exciting Current (mA) at VK
201 CT	LINE BAY	CT1	600/1A	PS	-	-	600	-	-
		CT2	600/1A	PS	-	-	600	-	-
		CT3	600/1A	PS	-	-	600	-	-
		CT4	600/1A	PS	-	-	600	-	-
		CT5	600/1A	0.2	5	20	-	<5	-
202 CT	TRAFO BAY	CT1	300/1A	PS	-	-	300	-	-
		CT2	300/1A	PS	-	-	300	-	-
		CT3	300/1A	PS	-	-	300	-	-
		CT4	300/1A	PS	-	-	300	-	-
		CT5	300/1A	0.2	5	25	-	<5	-
204 CT	BUSCOUPLER BAY	CT1	2000/1A	0.2	5	20	-	<5	-
		CT2	2000/1A	PS	-	-	1000	-	-
		CT3	2000/1A	PS	-	-	1000	-	-
		CT4	2000/1A	PS	-	-	1000	-	-
		CT5	2000/1A	PS	-	-	1000	-	-

33kV CURRENT TRANSFORMER PARAMETERS

CT No.	BAY NAME	Reference	Ratio (A)	Accuracy Class	Factor of Safety	Output (VA)	Max. KVP (V)	RCT (Ω)	Max. Exciting Current (mA) at VK
302 CT	LINE BAY	CT1	200/1A	0.5	-	5-2.5	-	-	-
		CT2	200/1A	6P15	-	5-2.5	-	-	-
		CT3	200/1A	PS	-	-	200	<0.7-0.25	<100-200
301 CT	POWER TRAFO BAY	CT1	1200/1A	0.2	-	10	-	-	-
		CT2	1200/1A	6P15	-	60-30	-	-	-
		CT3	1200/1A	PS	-	-	800	<8.5-4.5	<30
305 CT	BUSCOUPLER BAY	CT1	2000/1A	0.2	-	20-10	-	-	-
		CT2	2000/1A	6P15	-	60-30	-	-	-
		CT3	2000/1A	PS	-	-	800	<22-11	<60
300 CT	STATION TRAFO BAY	CT1	200/1A	0.5	-	5-2.5	-	-	-
		CT2	200/1A	6P15	-	5-2.5	-	-	-
		CT3	200/1A	PS	-	-	200	<0.7-0.25	<100-200

33kV OUTDOOR EQUIPMENTS:-

LOA SL.NO	SYMBOLS	DESCRIPTION	QTY.
NEW ITEMS C-1		33kV, 200A, 50Hz, 25kA FOR 3 Sec. MECHANICALLY GANGED, DOUBLE BREAK ISOLATOR WITH 1 E/S (3φ) (MOTORIZED)	6 Nos.
NEW ITEMS C-2		30kV, 10kA, CLASS-II, 1φ (MCOV=26kVrms) GAPLESS TYPE SURGE ARRESTOR	18+1(spare) = 19 Nos.
A-5		250kVA, 33/0.433kV 3φ TRANSFORMER INCLUDING BUSHING, ACCESSORIES & FIRST FLING OF OIL.	1 No.



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EQUIPMENT IDENTIFICATION:

201-89L

EQUIPMENT ID	L FOR LINE SIDE
	T FOR TRANSFORMER
	89 FOR ISOLATOR
	52 FOR CIRCUIT BREAKER
	CT FOR CURRENT TRANSFORMER
	LA LIGHTNING ARRESTOR
	WT WAVE TRAP
	CVT CAPACITIVE VOLTAGE TRANSFORMER
	00 FOR BUS
	XX FOR BAY NUMBER
BAY NUMBER	2 FOR 220kV SYSTEM
	3 FOR 33kV SYSTEM

LEGEND:-

SYMBOL	DEVICE NO.	DESCRIPTION	OPERATION TYPE
		PRESENT SCOPE	
		FUTURE/NOT IN SCOPE OF WORK	
	52	CIRCUIT BREAKER	SPRING, MANUAL
	89A, 89B, 89L	DISCONNECTING SWITCH	MOTOR DRIVEN, MANUAL
	89AE, 89BE, 89LE1, 89LE2	MAINTENANCE EARTHING SWITCH	MOTOR DRIVEN, MANUAL
	89AE, 89BE, 89LE2	HIGH-SPEED EARTHING SWITCH	MOTOR DRIVE SPRING CHARGED, MANUAL
		3 POSITION DS & ES	MOTOR DRIVE OPERATING MECHANISM, MANUAL
		2 POSITION DS & ES	MOTOR DRIVE OPERATING MECHANISM, MANUAL
	CT	CURRENT TRANSFORMER	RING TYPE-220kV GIS BLOCK/POLE TYPE-33kV GIS
	VTA, VTB	VOLTAGE TRANSFORMER	EMVT Type
	LA	LIGHTNING ARRESTOR	GAS INSULATED TYPE
	Z1	GAS TO OIL BUSHING	
	Z3	GAS TO AIR BUSHING	
	Z2	CABLE SEALING END	
	Z2T	CABLE SEALING END AT TRANSFORMER SECONDARY	
	TR-1	220/33kV TRANSFORMER	OUTDOOR OIL TYPE

HPPTCL REFERENCE DRAWING:-

1. SINGLE LINE DIAGRAM OF PROPOSED 220/33kV, 80/100MVA GIS AT PHOZAL (KULLU DISTRICT)

NOTE:-
1. 4 Nos. OF 26.66/33.33MVA, 220/33kV POWER TRANSFORMER IS FREE SUPPLY FROM HPPTCL.

220kV OUTDOOR EQUIPMENTS:-

LOA SL.NO	SYMBOLS	DESCRIPTION	QTY.
B-6		198kV, 10kA, CLASS-II, 1φ (MCOV=168kVrms) GAPLESS TYPE SURGE ARRESTOR	6+1(spare) = 7 Nos.
B-5		245kV, 4400pF, 1φ, 3 WINDING, CAPACITIVE VOLTAGE TRANSFORMER	6 Nos.
F-1		245kV, 2000A, 0.5mH, 1φ, 50kA FOR 15Sec. WAVE TRAP	4 Nos.

Single line Diagram approved, any future expansion proposed by HPPTCL shall be marked Dotted.

REV.NO.	DESCRIPTION	DESIGNED	DRAWN	CHECKED	APPROVED
D	REVISED BASED ON AMENDMENT DATED 08.03.2013 (PHOZAL SITE)	SJJ	RA	AKL	AKL
C	REVISED BASED ON CHANGE IN SCOPE AND CHANGE IN SITE LOCATION	SJJ	GG	AKL	AKL
B	REVISED BASED ON HPPTCL LETTER 138, DT. 07.04.11	CSP	VAV	SKW	SKW
A	ISSUED FOR APPROVAL	CSP	ADA	AKL	AKL

L&T Construction
Power Transmission & Distribution

CLIENT: HIMACHAL PRADESH POWER TRANSMISSION CORPORATION LTD CONSULTANT:

PROJECT: 220/33kV PHOZAL GIS SUBSTATION (EARLIER PALCHHAN), DISTRICT KULLU - HIMACHAL PRADESH

SUPPLIER / CONTRACTOR:

JOB No.: 010222-E-IS	TITLE: 220/33kV GIS SUBSTATION SINGLE LINE DIAGRAM	SCALE: 1:1
DSGN: CSP	SIGN: ADA	DATE: 05.01.11
DRWN: ADA	DATE: 06.01.11	
CHKD: AKL	DATE: 11.01.11	
APPD: AKL	DATE: 11.01.11	

DRG. No. 010222-E-IS-SY-1L-0101 SHEET 01 OF 01

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