



EARTHMAT LAYOUT OF
400/220 KV GIS SUBSTATION AT PATRAN

NOTES:

1. ALL DIMENSION ARE IN MM.
2. DEPTH OF MAIN EARTHMAT IS 600mm BELOW THE F.G.L.
3. SURFACE DETAIL, CRUSHED ROCK LAYER OF 100mm, THICK FROM FGL, WILL BE PROVIDED.
4. 40mm, DIA MS ROD ELECTRODE AS PER PGCL STANDARD DRG. SHALL BE PROVIDED FOR LA,CVT, PEAK TOWER, GRID CORNER, BUILDING CORNER.
5. EARTHING CONDUCTOR RUNNING BELOW CABLE TRENCH, DRAINS, ROADS & RAIL, WILL BE LAID 300 mm, BELOW THE BOTTOM OF ABOVE SAID ITEMS.
6. EARTHING CONDUCTORS SHALL BE LAID MINIMUM 1.5 MTR OUTSIDE BUILDING PERIMETERS. 400 & 220 KV GIS BUILDINGS SHALL HAVE MAIN MAT IN THE LOOSE SOIL BELOW THE CONCRETE FLOORING.
7. THIS DRG. IS ONLY SYMBOLIC REPRESENTATION OF EARTHING CONDUCTOR LAYOUT. AT SITE THE MAT SHALL BE LAID IN SUCH A MANNER SO THAT IT DOES NOT FOUL, WITH ANY FOUNDATION, BUILDING ETC.
8. ALL EARTHINGS WILL BE DONE IN ACCORDANCE WITH IS:3043 UNLESS OTHERWISE MENTIONED IN THE TECHNICAL SPECIFICATION & EARTHING DETAILS.
9. THE WELDING JOINTS OF THE EARTHMAT WILL BE PROTECTED WITH ANTICORROSIVE PAINT AND EARTHING FLAT IN THE CABLE TRENCHES WILL BE PAINTED AS PER SPECIFICATION.
10. MINIMUM DISTANCE OF 6000 mm SHALL BE MAINTAINED BETWEEN TWO TREATED PIPE ELECTRODE.
11. ALL EQUIPMENT STRUCTURES, TOWER STRUCTURES, METALLIC STAIRS SHALL BE CONNECTED TO NEAREST EARTHING GRID BY ATLEAST TWO EARTHING LEADS.
12. THIS DRAWING IS FOR MAIN EARTHMAT GRID ONLY.
13. EARTHING OF EACH EQUIPMENT SHALL BE DONE IN TWO DIFFERENT DIRECTIONS (CONNECTED TO MAIN EARTHMAT GRID).
14. EARTHING OF LA, CVT, TOWER WITH PEAK SHALL BE ADDITIONALLY CONNECTED TO 1 NO ROD ELECTRODE AND TO THE MAIN EARTHMAT GRID. TOWER WITH PEAK WHICH ARE CONSIDERED AS LM FOR DSLP 2 NO ROD ELECTRODE SHALL BE USED FOR LM EARTHINGS.
15. FOR EQUIPMENT & STRUCTURE EARTHING DETAILS PLEASE REFER PGCL STANDARD DRAWING (STANDARD EARTHING DETAIL, DRG. NO: C/ENG/STD/EARTHINGS-R-09)
16. FOR GIS & DUCT SUPPORT STRUCTURE EARTHING PL REFER ABB DRAWING. (400 KV GIS EARTHING DETAIL DRG NO: 1HYG900006-17, 220 KV EARTHING PLAN DRG NO: 1HZC2 3 1532-05)

REFERENCE:

1. OGA (DRG. No. - 0701PA_PTRN_SWYD_E_DRG_42_001.R-0)
2. OVERALL ELECTRICAL LAYOUT - PLAN & SECTION (DRG. No. -0701PA_PTRN_SWYD_E_DRG_42_003.R-01)
3. FOUNDATION LAYOUT-400 KV (DRG. No. - 0701PA_PTRN_SWYD_E_DRG_35_016A.R-0)
4. FOUNDATION LAYOUT-220 KV (DRG. No. - 0701PA_PTRN_SWYD_E_DRG_35_016B.R-0)

BILL OF MATERIALS :

LEGENDS	ITEM	QUANTITY	REMARKS
	MAIN EARTHING CONDUCTOR (40 MM DIA MS ROD)	10900 Mtr. (Approx)	Qty. estimated for Main Mat under GIS Building, Ring outside the CRB & FFPH & Interconnection with Tap Off Tower.
	MAIN MAT AUXILIARIES-40 MM DIA MS ROD (FOR EQUIPMENT, STRUCTURE RISER CONNECTION)	3020 Mtr. (Approx)	Qty. estimated for Main Mat to Equipment/ Structure Riser Connection.
	75x12 MM GS FLAT	2800 Mtr. (Approx)	Qty. estimated for Above Ground Equipment Structure earthing
	50x6 MM GS FLAT	650 Mtr. (Approx)	Qty. estimated for Above Ground Cubicle MOM Box earthing
	PIPE ELECTRODE IN TREATED EARTH PIT (3 Mtr. LONG, 40 mm DIA GI PIPE)	10 Nos	For Earthing of Auto transformer(4 Nos), LT Trafo(4 Nos), DG Neutral (2 Nos)
	ROD ELECTRODE (3 Mtr. LONG, 40 mm DIA MS ROD)	190 Nos	For Periphery of Main Mat, Corner Outside CRB, GIS Building, FFPH & Earthing of Down conductor From LA, CVT & Tower With Peak
	CLEAT TYPE CLAMP FOR 75 X12 mm GI FLAT	1100 Nos	Support Between Earthflat & Structure
	CLEAT TYPE CLAMP FOR 50 X6 mm GI FIAT	50 Nos	Support Between Earthflat & Structure
	16 SWG GI WIRE	1500 Mtr	For Earthing of JB, Conduit, Earthing of Fixture, Receptacle etc.

2	THIRD SUBMISSION	C.R.	A.B.	B.B.M	19.04.16
1	SECOND SUBMISSION	C.R.	A.B.	B.B.M	24.11.15
0	FIRST SUBMISSION	C.R.	A.B.	B.B.M	27.08.15
REV.	DESCRIPTION	PREP.	CHKD.	APPD.	DATE
OWNER		PATRAN TRANSMISSION COMPANY LIMITED			
CONTRACTOR:		TECHNO ELECTRIC & ENGG. CO. LTD. ENGINEERS & CONSTRUCTORS KOLKATA , INDIA			
NOA NO.	SUPPLY	PTCL-PATRAN/KOL/14-15/CA-13 DTD 01.02.2014			
	ERECTION	PTCL-PATRAN/KOL/14-15/CA-14 DTD 01.02.2014			
PROJECT		TRANSMISSION SYSTEM FOR PATRAN 400 KV S/S.			
SUB-STATION		400 / 220 KV GIS SUBSTATION AT PATRAN			
DRG. TITLE		EARTHMAT LAYOUT FOR SWITCHYARD			
DRG. No.		0701PA_PTRN_SWYD_E_DRG_27_022			
SCALE :	NTS	JOB No. :	0701PA	SHEET :	1 OF 1