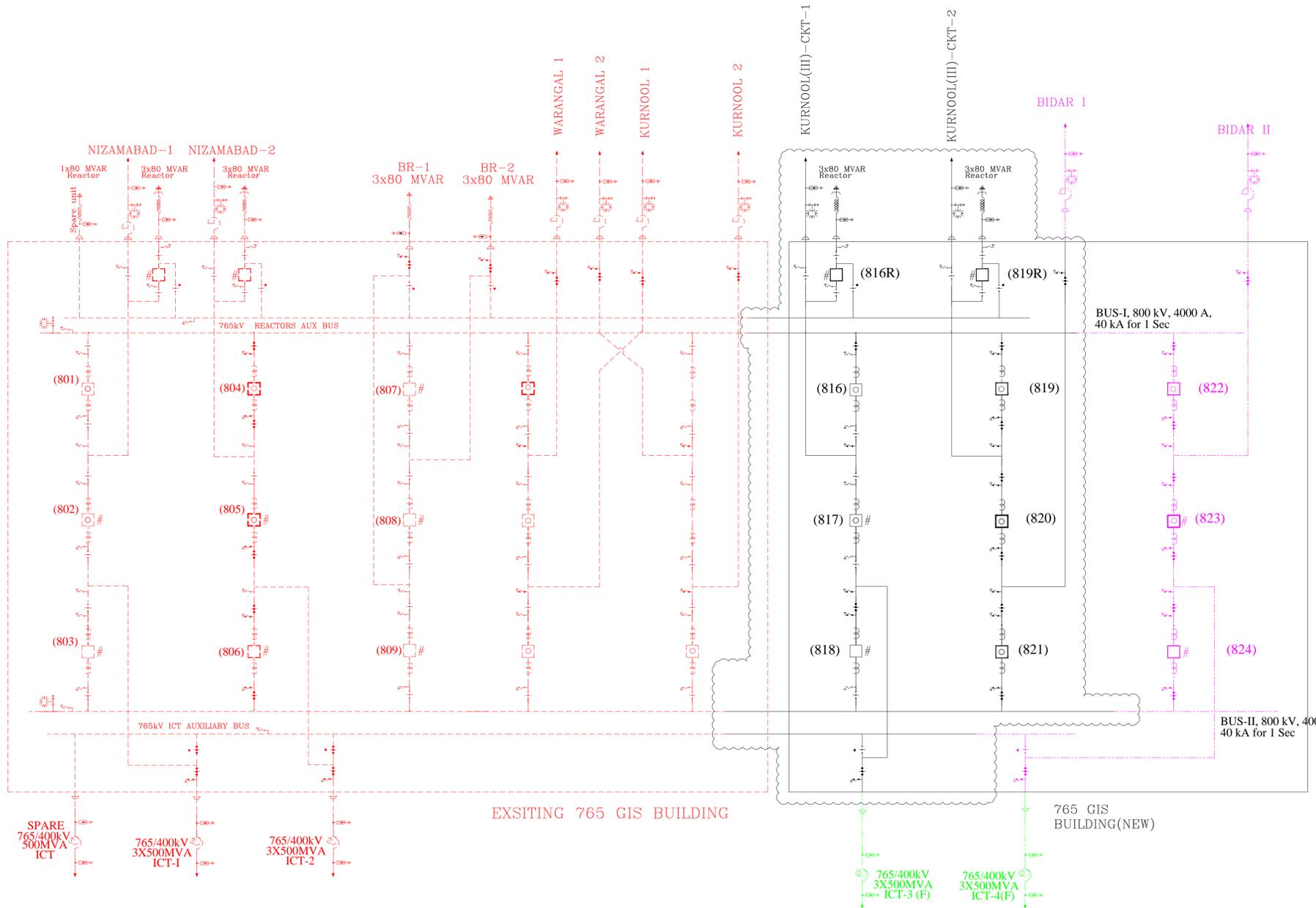


Single Line Diagram



LEGEND

- PRESENT SCOPE
- EXISTING SCOPE
- FUTURE SCOPE
- TRANSMISSION SCHEME FOR SOLAR ZONE IN BIDAR (2500MW)

NOTES

SUPPLY OF 765KV LINE REACTORS FOR 765KV KURNOOL III D/C LINES IS COVERED UNDER SEPARATE PACKAGE

	765kV (GIS EQUIPMENT)	SYMBOL
1	CIRCUIT BREAKER WITH PIR	⦿
2	CIRCUIT BREAKER WITHOUT PIR	□
3	CIRCUIT BREAKER WITH CSD	□#
4	CIRCUIT BREAKER WITH PIR & CSD	⦿#
5	SINGLE PH. ISO. SHALL BE RATED TO WITHSTAND PH. TO PH. VOLTAGE.	⋮
6	ISOLATOR WITH ONE EARTH SWITCH	⋮⋮
7	ISOLATOR WITH TWO EARTH SWITCH	⋮⋮⋮
8	SF6 TO AIR BUSHING	∇

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(A GOVERNMENT OF INDIA ENTERPRISE)

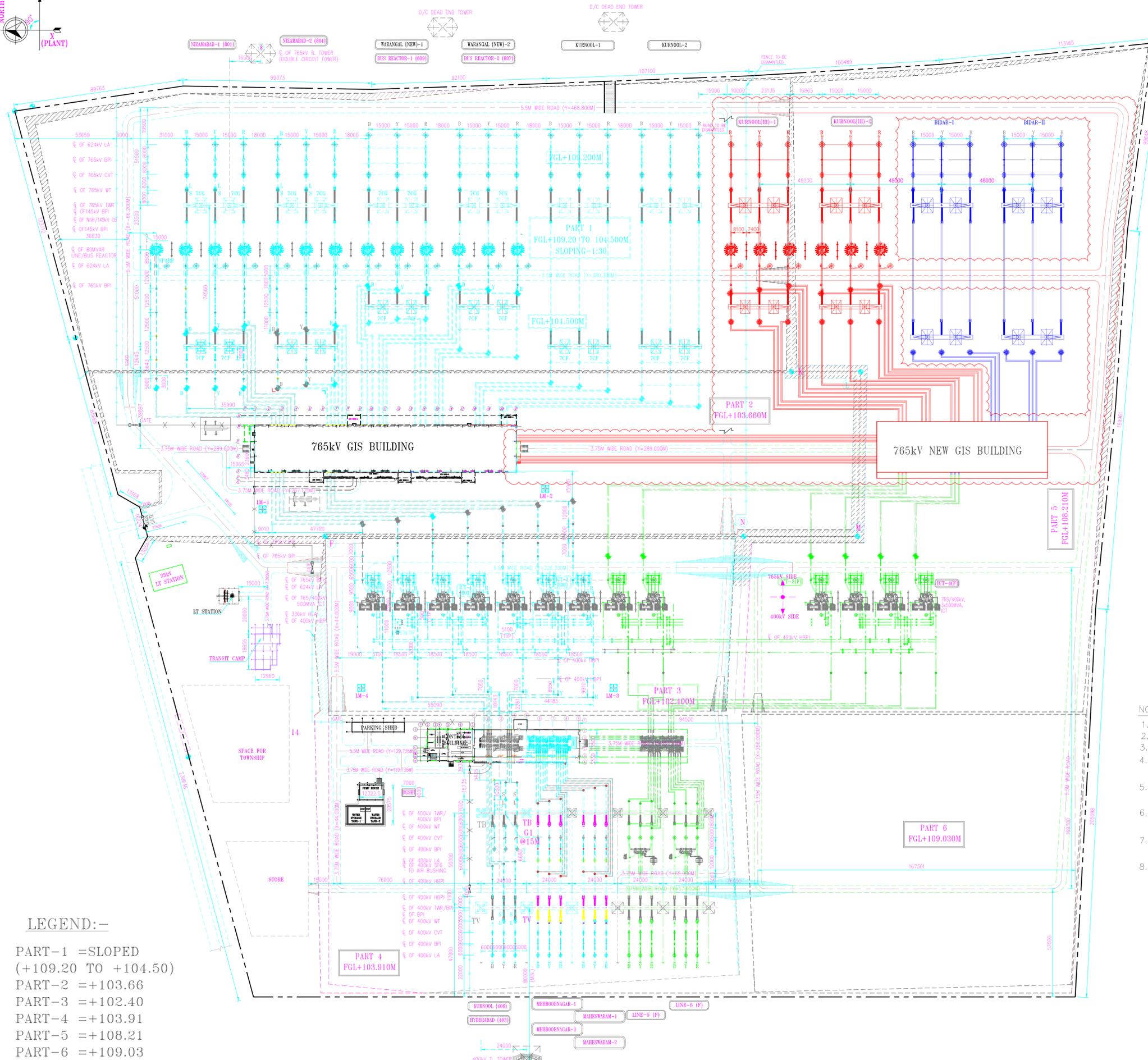
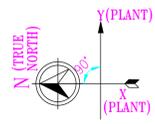
PROJECT:
Transmission System for Kurnool Wind Energy Zone (3000MW)/ Solar Energy Zone (AP) (1500MW)

SUBSTATION:
765kV MAHESHWARAM (PG) GIS SUBSTATION(EXTN.)

TITLE:
SINGLE LINE DIAGRAM

DATE	DRAWN	CHKD.	SCALE	DRG.NO.	REV.
				C/ENGG/SR/REZ/MAHESHWARAM/SLD/001	1

General Arrangement



LEGEND:-

- EXISTING/UNDER CONSTRUCTION
- FUTURE
- EXTENSION UNDER TRANSMISSION SCHEME FOR EVACUATION OF POWER FROM RE SOURCES IN KURNOOL WIND ENERGY ZONE (3000 MW)/ SOLAR ENERGY ZONE (1500 MW)
- TRANSMISSION SCHEME FOR SOLAR ENERGY ZONE IN BIDAR (2500 MW)

LEGEND:-

- PART-1 =SLOPED (+109.20 TO +104.50)
- PART-2 =+103.66
- PART-3 =+102.40
- PART-4 =+103.91
- PART-5 =+108.21
- PART-6 =+109.03

NOTES:-

1. ALL DIMENSIONS ARE IN MM.
2. LAYOUT IS INDICATIVE AND SHALL BE FINALISED DURING DETAILED ENGINEERING
3. THE PROPOSED S/S AREA ARE IN MORE THAN ONE LEVELS AS INDICATED ABOVE.
4. GIS DUCTS SHOWN ARE INDICATIVE ONLY AND SHALL BE OPTIMISED DURING DETAILED ENGINEERING.
5. DUCT FOR ICT 3 (F) BAY AND BIDAR LINE 1 SHALL BE BROUGHT UPTO OUTER EDGE OF GIS HALL UNDER PRESENT PACKAGE
6. DUCT FOR ICT 4 (F) BAY SHALL BE BROUGHT UPTO OUTER EDGE OF GIS HALL UNDER TRANSMISSION SCHEME FOR SOLAR ENERGY ZONE IN BIDAR (2500MW)
7. SUPPLY OF 765KV LINE REACTORS FOR 765KV KURNOOL III D/C LINES IS COVERED UNDER SEPARATE PACKAGE
8. FGL FOR PRESENT SCOPE WORKS SHALL BE FINALISED DURING DETAILED ENGINEERING

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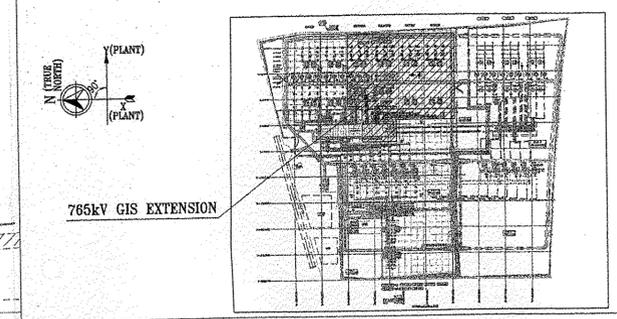
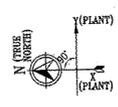
PROJECT: TRANSMISSION SCHEME FOR EVACUATION OF POWER FROM RE SOURCES IN KURNOOL WIND ENERGY ZONE (3000 MW) /SOLAR ENERGY ZONE (1500 MW)

SUBSTATION: 765/400kV MAHESHWARAM SUBSTATION EXTN.

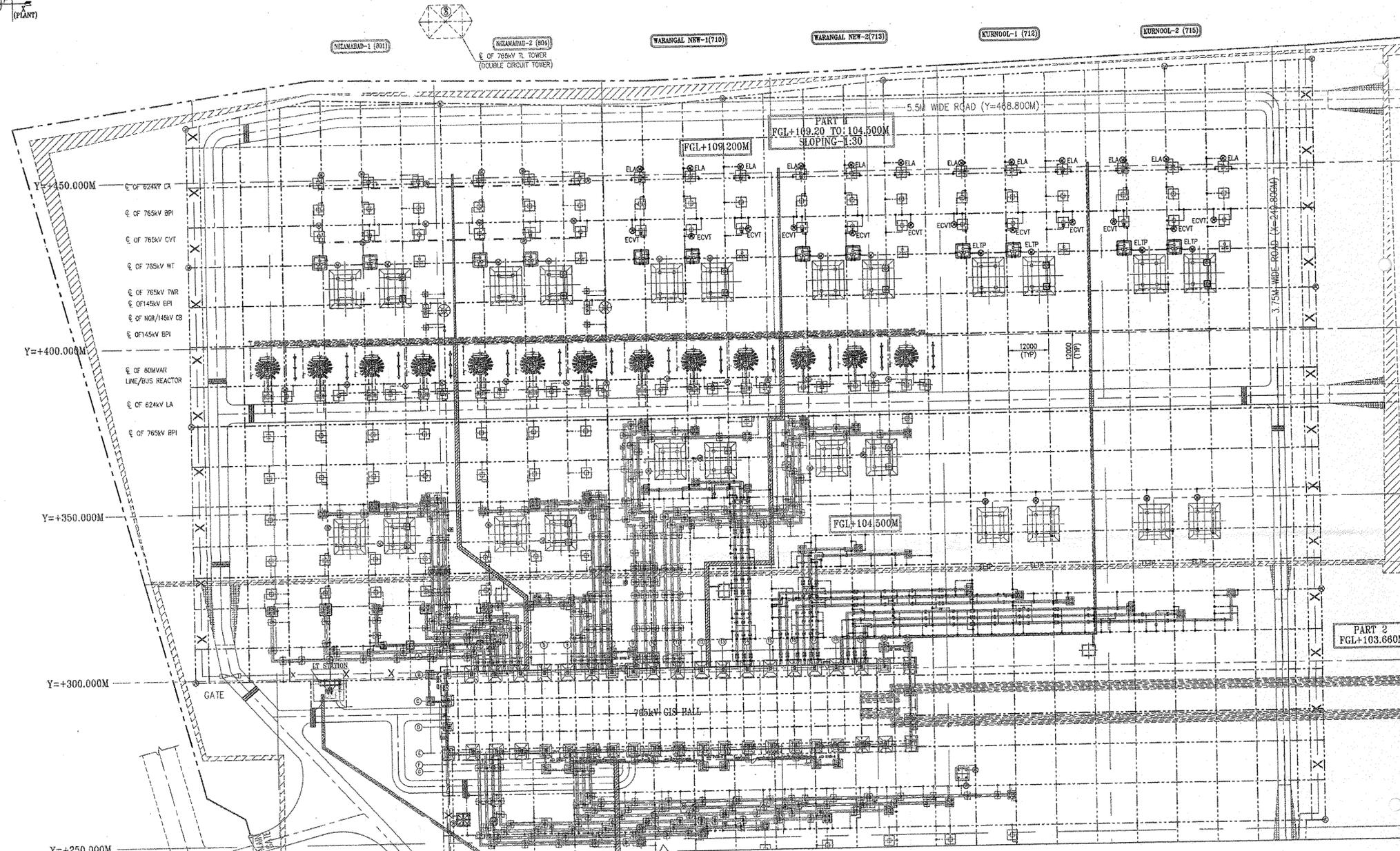
TITLE: GENERAL ARRANGEMENT

DATE DRAWN	SCALE	DRG. NO.	REV.
	NTS	C/ENGG/SR/REZ/MAHESHWARAM/GA/001	1

Earthmat Layout



- LEGEND:-**
- 40mm ϕ MS ROD FOR MAIN EARTH MAT (EXISTING UNDER PROPOSED BAY AND THEREFORE NOT IN L&T'S SCOPE)
 - 40mm ϕ MS ROD (BELOW GROUND RISER)
 - 50x6mm MS FLAT (FOR OUTDOOR CABLE TRENCH)
 - 40mm ϕ , 3M LONG M.S ROD ELECTRODE
- PGCIL REFERENCE DRAWINGS:-**
1. GENERAL ARRANGEMENT - 765/400KV HYDERABAD GIS SUBSTATION, DWG NO. C/ENG/SR-/HYDERABAD GIS/GA, REV. 00.
 2. STANDARD EARTHING DETAILS, DRAWING NO. C/ENG/SPEC/SE, REV. NO. 08
- EXISTING SUBSTATION REFERENCE DRAWINGS:-**
1. 765/400KV HYDERABAD GIS SUBSTATION - OVERALL EQUIPMENT LAYOUT, DWG NO. 017129-E-IS-SY-EL-1001.
 2. 765/400KV HYDERABAD GIS SUBSTATION - 765KV GIS BUILDING EARTHING & LIGHTNING PROTECTION LAYOUT, DWG NO. 015052-E-IS-GS-GL-1014
 3. 765/400KV HYDERABAD GIS SUBSTATION - 765KV GIS OUTDOOR EARTHING LAYOUT, DWG NO. 015052-E-IS-SY-GL-1013.
- L&T REFERENCE DRAWINGS:-**
1. 765/400KV HYDERABAD GIS SUBSTATION - 765KV GIS BUILDING EARTHING LAYOUT, DRAWING NO. 017129-E-IS-HY-GL-1009.
 2. 765/400KV HYDERABAD GIS SUBSTATION - 765KV OUTDOOR EARTHING LAYOUT, DRAWING NO. 017129-E-IS-HY-CL-1008.
- NOTES:-**
1. ALL DIMENSIONS ARE IN MM AND LEVELS & CO-ORDINATES ARE IN METERS, UNLESS OTHERWISE SPECIFIED.
 2. EARTHING LOCATION SHOWN ARE INDICATIVE ONLY. MINOR MODIFICATION IF ANY MAY BE CARRIED OUT AT SITE.
 3. EARTHING CONNECTIONS TO EQUIPMENT TERMINALS SHALL BE OF BOLTED TYPE.
 4. CONNECTION OF EQUIPMENT ARE INDICATIVE ONLY. EXACT LOCATION OF CONNECTIONS SHALL BE DECIDED SUITABLY AT SITE AS PER EQUIPMENT MANUFACTURER'S EARTHING ARRANGEMENT.
 5. TAP CONNECTION FROM EARTHROD TO THE EQUIPMENT/STRUCTURE SHALL BE TERMINATED ON THE EARTHING TERMINALS OF THE EQUIPMENT/STRUCTURE AS PER THE "PGCIL STANDARD EARTHING DETAILS" OF SECTION-SWITCHYARD SECTION REV. 10 OF TECHNICAL SPECIFICATION.
 6. WHEREVER EARTHING GRID INFRINGES WITH FOUNDATION, GRID CONDUCTOR SHALL BE DIVERTED SUITABLY AT SITE, WITHOUT EXCEEDING THE MAXIMUM SPAN INDICATED IN THE LAYOUT.
 7. ALL UNDERGROUND CONNECTIONS SHALL BE MADE BY ELECTRIC ARC WELDING. THE WELDING JOINT SHALL BE ALLOWED TO COOL NATURALLY.
 8. ALL THE WELD JOINTS SHALL BE TREATED WITH RED LEAD AND AFTERWARDS COATED WITH TWO COATS OF BITUMEN COMPOUND.
 9. CABLE SUPPORTS IN TRENCHES SHALL BE EARTHED BY 50x6mm MS FLAT.
 10. WHEREVER EARTHING CONDUCTOR INFRINGES CABLE TRENCH, THE SAME SHALL BE LAID AT 300mm BELOW CABLE TRENCH.
 11. THE EARTH FLAT ALONG THE CABLE TRENCH SHALL BE EARTHED AT THE ENDS OF THE TRENCH END AND AT EVERY 500M (MAX.) INTERVAL. THE FLAT SHALL BE FINALLY PAINTED WITH TWO COATS OF RED OXIDE PINKER AND TWO COATS OF POST OFFICE RED ENAMEL PAINT.
 12. ALL THE EQUIPMENTS STRUCTURE, TOWER STRUCTURE SHALL BE CONNECTED TO THE NEAREST EARTHING GRID BY TWO EARTHING LEADS.
 13. GRAVEL SPREADING AND PCC MAT SHALL BE PROVIDED IN SEPARATE CIVIL LAYOUT.
 14. TWO RISERS TO BE PROVIDED FOR EACH BUSDUCT SUPPORT STRUCTURE.



BILL OF QUANTITY FOR EARTHING:-

SYMBOL	DESCRIPTION	UNIT	QUANTITY	BPS	QTY
⊗ ELA	ROD EARTH ELECTRODE FOR LIGHTNING ARRESTOR 40mm ϕ , 3M LONG M.S ROD ELECTRODE (AS PER PGCIL STANDARD DWG SHEET-14 & 06)	No.	12	LS	
⊗ ECVT	ROD EARTH ELECTRODE FOR CAPACITOR VOLTAGE TRANSF. 40mm ϕ , 3M LONG M.S ROD ELECTRODE (AS PER PGCIL STANDARD DWG SHEET-13 & 06)	No.	12	LS	
⊗ ELTP	ROD EARTH ELECTRODE FOR TOWER WITH PEAK 40mm ϕ , 3M LONG M.S ROD ELECTRODE (AS PER PGCIL STANDARD DWG SHEET-06)	No.	8	LS	
---	40mm ϕ MS ROD FOR MAIN EARTH MAT SWITCHYARD AREA	M	1200	LS	
---	40mm ϕ MS ROD (BELOW GROUND RISER INCLUDING GIS SUPPORT STRUCTURES)	M	1500	LS	
---	75x12mm GS FLAT (ABOVE GROUND RISER)	M	50	LS	
---	50x6mm GS FLAT FOR JB / MB	M	276	LS	
---	50x6mm MS FLAT (FOR OUTDOOR CABLE TRENCH)	M	486	LS	
---	CLEAT TYPE CLAMP TO SUIT 75x12mm GS FLAT AT EVERY 2M INTERVAL	No.	486	LS	

① AS PART OF OUTDOOR CABLE TRENCH LAYOUT, DWG No. 017129-E-IS-HY-CL-1008.
 ② EARTH MAT IN THE SWITCHYARD FOR THE PROPOSED BAY IS EXISTING.

Any additional item/quantity required for successful completion of scope of work shall be supplied by without any additional cost implication to POWERGRID.

CAT - I

13/12/17

APPROVED

OVERALL EARTHING LAYOUT - PLAN

CHECKED BY

ARCHITECTURE		
CIVIL & STRUCTURAL	31/10/17	Rv
PLUMBING & SANITARY		
MECHANICAL		
ELECTRICAL		
INSTRUMENTATION		

REV. NO.	ISSUED FOR APPROVAL	DESIGNED	DRAWN	CHECKED	APPROVED

HYOSUNG CORPORATION **L&T Construction**
 Power Transmission & Distribution

CLIENT: **POWER GRID CORPORATION OF INDIA LIMITED**
 (A GOVERNMENT OF INDIA ENTERPRISE)

CONSULTANT: -
 PROJECT: SUBSTATION PACKAGE SS-01 FOR A) EXTENSION OF 765KV HYDERABAD (GIS) SUBSTATION, B) EXTENSION OF 765KV KURNOOL (AIS) SUBSTATION & EXTENSION OF 400KV WARANGAL (AIS) SUBSTATION WORKS ASSOCIATED WITH ADDITIONAL INTER-REGIONAL AC LINK FOR IMPORT INTO SOUTHERN REGION
 LOA NO. -CC-CS/708-SRI/SS-3539/3/G11/NOA-II/7208 & NOA Ref No.-CC-CS/708-SRI/SS-3539/3/G11/NOA-III/7209

017129-E-IS TITLE: **EXTENSION OF 765KV HYDERABAD (MAHESWARAM) GIS SUBSTATION 765KV GIS BUILDING OUTDOOR EARTHING LAYOUT**

SCALE: 1:700
 PROJECTION:

DRG. No. **017129-E-IS-HY-ES-1004** SHEET 01 OF 01

RELEASED FOR PRELIMINARY TENDER INFORMATION APPROVAL CONSTRUCTION