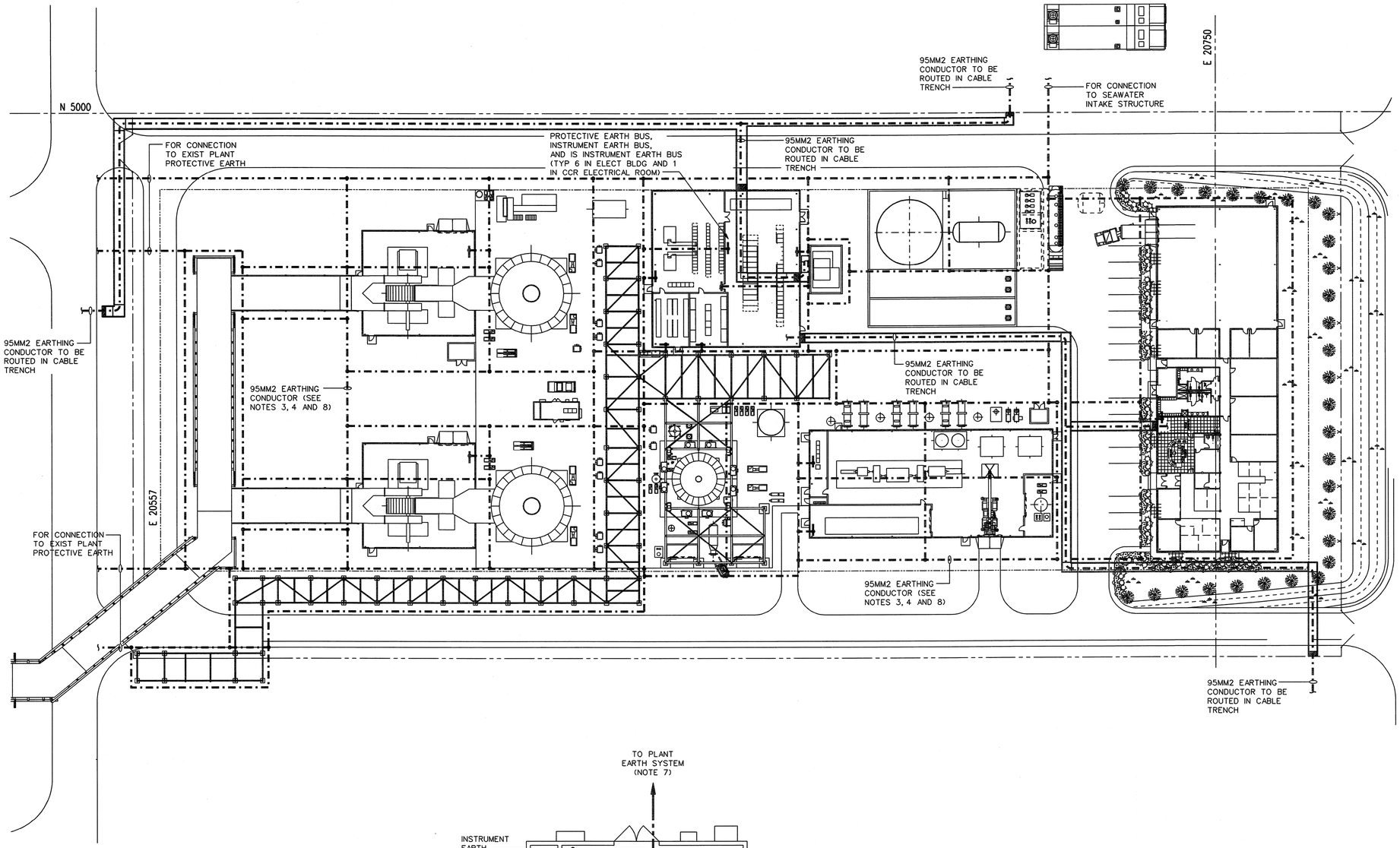

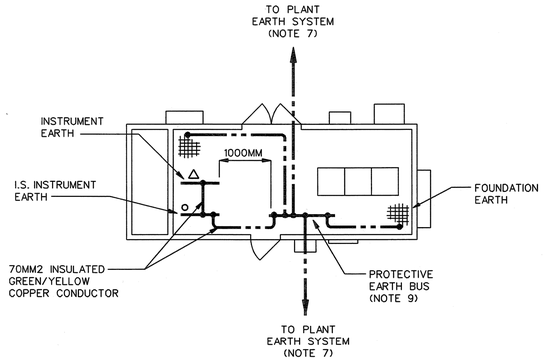

TYPICAL EARTHING BAR INSTALLATION

NOTES:

1. THE CCC PLANT MAIN POWER EARTH AND INSTRUMENT GROUNDING GRID SHALL BE CONNECTED TO THE EXISTING PLANT EARTHING GRID IN A MINIMUM OF FOUR PLACES.
2. GROUNDING CONNECTION TO INDIVIDUAL EQUIPMENT AND STRUCTURES TO BE SHOWN DURING DETAILED DESIGN.
3. MAIN GROUND GRID SHALL BE 95 MM2 BARE STRANDED COPPER.
4. THE MAIN GROUND GRID SHALL BE DIRECT BURIED AT A MINIMUM DEPTH OF 500MM BELOW THE FINISHED GRADE.
5. BONDING CONDUCTORS TO EQUIPMENT AND STRUCTURES SHALL NOT BE LESS THAN 35MM2 INSULATED, GREEN/YELLOW INSULATED COPPER CONDUCTOR. STRUCTURAL STEEL OF PIPE RACKS AND MECHANICAL EQUIPMENT WILL BE CONNECTED TO THE PLANT EARTHING SYSTEM. EXPOSED AND EXTRANEOUS METAL PARTS SHALL BE BONDED TO THE PLANT EARTHING SYSTEM TO AVOID BUILD UP OF STATIC ELECTRICITY.
6. CABLE TRAYS SHALL BE BONDED TO THE STEEL STRUCTURE AT A MAXIMUM SPACING OF 10M.
7. FOR CONNECTION OF EARTHING BARS TO MAIN EARTHING SYSTEM, CONDUCTOR SIZE SHALL NOT BE LESS THAN 70MM2.
8. EARTHING WIRES, NOT IN TRENCHES, SHALL BE SURROUNDED BY 200MM OF COMPACTED FINE ROCK FILL AND HAVE WARNING TAPE PLACED 200MM ABOVE EARTHING WIRE.
9. ELECTRICAL EQUIPMENT ROOMS SHALL HAVE A MINIMUM OF ONE COPPER EARTH BAR, EACH EARTH BAR SHALL HAVE A MINIMUM OF TWO CONNECTION TO MAIN PLANT EARTH AND TWO CONNECTIONS TO FOUNDATION EARTH. EACH EARTH BAR SHALL INCLUDE 50% SPARE CAPACITY FOR FUTURE EARTH CONNECTIONS.
10. THE REINFORCING BARS OF CONCRETE FOUNDATIONS WITH THE CCC PLANT BATTERY LIMIT SHALL BE ELECTRICALLY INTERCONNECTED BY WELDING, CLAMPING OR WIRE LASHING. THE REINFORCING BARS SHALL BE BONDED TO THE MAIN EARTH GRID.
11. THE LIGHTNING PROTECTION SYSTEM SHALL BE DESIGNED AS PER IEC 62305. LIGHTNING PROTECTION WILL BE PROVIDED FOR ELECTRICAL BUILDING, COMPRESSOR BUILDING, BLOWER BUILDINGS, AND ADMINISTRATION BUILDINGS UNLESS BUILDINGS ARE WITHIN ZONE OF PROTECTION FROM ABSORBER OR STRIPPER VESSELS. BONDING CONDUCTORS FOR FOR NON-ELECTRICAL EQUIPMENT EXPOSED TO LIGHTNING (ABSORBER AND STRIPPER) SHALL BE 95MM2 INSULATED COPPER.
12. THE ABSORBER AND STRIPPER COLMNS PROVIDE A CONTINUOUS CURRENT PATH FROM THE HIGHEST POINT ONTHE UNIT TO THE MAIN GROUND GRID. THESE COLUMNS ARE CONSIDERED "SELF PROTECTED" FOR LIGHTNING PROTECTION. BONDING CONDUCTORS FOR THE ABSORBER AND STRIPPER COLUMNS SHALL BE 95MM2 INSULATED COPPER CABLE.
13. FOR EARTHING OF INSTRUMENT PANELS INSIDE THE ANALYZER BUILDING AND ELECTRICAL EQUIPMENT ROOMS, AN INTRINSICALLY SAFE (I.S. EARTH) AND A NON I.S. SYSTEM IS USED. I.S. AND NON I.S. EARTH BARS ARE CONNECTED TOGETHER WITH A 70MM2 INSULATED EARTH CABLE.
14. INSTRUMENT LOCAL PANELS, INSTRUMENT EQUIPMENT CONTROL PANELS, FIELD JUNCTION BOX FRAMES AND ALL OTHER INSTRUMENT EQUIPMENT SHALL BE EARTHED TO THE NEAREST PROTECTIVE EARTH BAR USING 35MM2, STRANDED, GREEN/YELLOW INSULATED COPPER CONDUCTOR.
15. EARTHING AND LIGHTNING PROTECTION WILL BE IN ACCORDANCE WITH 10112936-FI-B-CON-0108, 10112936-FI-B-CON-0281, AND 10112936-FI-B-CON-0282.

NOTES:

- 95MM2 BARED STRANDED COPPER (PROTECTIVE EARTH)
- 70MM2 INSULATED CLEAN INSTRUMENT EARTH CABLE
- COMPRESSION CONNECTION
- INSTRUMENT EARTH
- INTRINSICALLY SAFE INSTRUMENT EARTH

PRELIMINARY

NO.	DATE	REVISIONS	BY	CHK	DES	ENGR.	PROJ	APPR
0	5Dec08	ISSUED FOR INFORMATION	CK	RP	-	-	-	-

Owner: GASSNOVA
Owner Drawing No.: 10112936-PB-E-TD0-0011
Contractor: BECHTEL POWER CORPORATION FREDERICK, MARYLAND

CO2 KARSTO PROJECT

ELECTRICAL EARTHING AND LIGHTNING PROTECTION PLAN

Sheet Size	Scale	JOB NO.	DRAWING NO.	REV.
594X841 "A1"	SCALE	25474	EG-0300-00001	0