

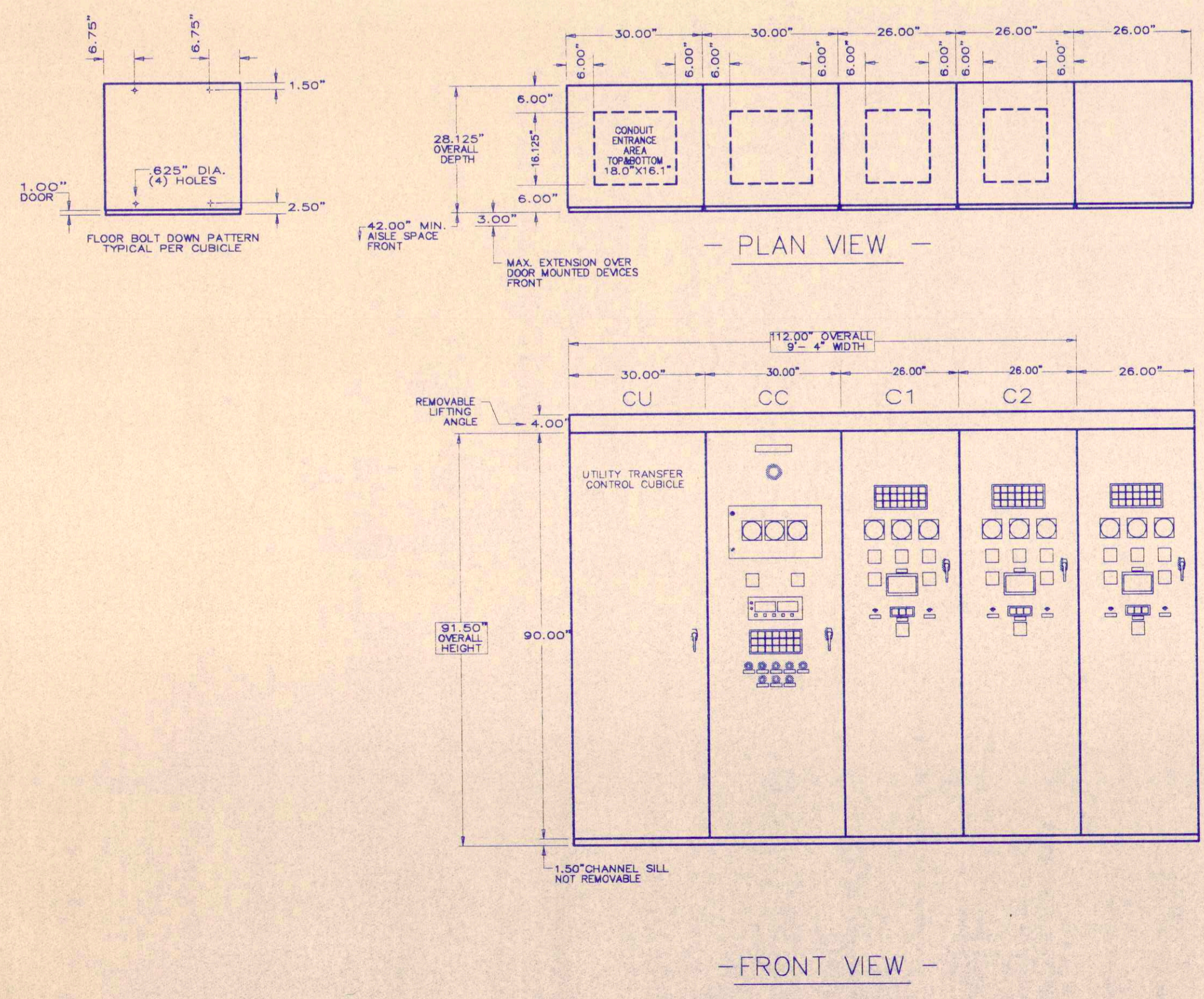
DEVICE NO.	FUNCTION
12	GENERATOR OVERSPEED SHUTDOWN SWITCH
25M	SYNC. CHECK DEVICE TO PREVENT OUT OF SYNC. CLOSURES BETWEEN DIFFERENT SOURCES.
25A	SYNCHRONIZER TO PROVIDE AUTOMATIC SYNCHRONIZING SIGNAL WHEN CLOSING GENERATOR TO SYNCHRONIZING BUS.
27	UNDER VOLTAGE RELAY TO MONITOR THE VOLTAGE AND TRIP ITS ASSOCIATED MAIN CIRCUIT BREAKER.
32	REVERSE POWER RELAY USED TO SENSE REVERSE POWER FLOW.
32U	REVERSE POWER RELAY USED TO SENSE REVERSE POWER FLOW INTO THE UTILITY.
40	LOSS OF FIELD PROTECTION TO BE DETECTED AS REVERSE VARS TO PROTECT THE GENERATOR.
54	OVER VOLTAGE RELAY TO MONITOR THE VOLTAGE AND TRIP ITS ASSOCIATED CIRCUIT BREAKER
49	GENERATOR WINDING HIGH TEMPERATURE SHUTDOWN RELAY.
50GS	INSTANTANEOUS TRIP GROUND OVERCURRENT RELAY TO TRIP CIRCUIT BREAKER IF SET POINT IS EXCEEDED.
50/51	OVERCURRENT TRIP DEVICE WITH LONG TIME AND INSTANTANEOUS TRIPS.
51	LONG TIME OVERCURRENT RELAY TO TRIP THE CIRCUIT BREAKER IF SET POINT IS EXCEEDED.
51G	LONG TIME GROUND OVERCURRENT RELAY WHICH WILL TRIP THE CIRCUIT BREAKER IF SET POINT EXCEEDED.
51V	LONG TIME OVERCURRENT RELAY (VOLTAGE RESTRAINED) TO TRIP CIRCUIT BREAKER IF SET POINT IS EXCEEDED.
52	VACUUM CIRCUIT BREAKER.
65	GOVERNOR FOR CONTROLLING THE PRIME MOVER, LOAD SHARING TYPE.
65 I/E	PROCESS CONTROLLER USED AS AN IMPORT/EXPORT DEVICE FOR RAMPING LOAD ON TO AND OFF OF ENGINE GENERATORS.
81 C 81 U	OVER OR UNDER FREQUENCY RELAY TO SENSE ABNORMAL BUS FREQUENCY AND TRIP THE UTILITY MAIN CIRCUIT BREAKER IF OVER FREQUENCY OCCURS WHILE OPERATING IN PARALLEL WITH UTILITY.
86	LOCK-OUT RELAY WITH MANUAL RESET.
87G & 87T	DIFFERENTIAL OVERCURRENT RELAY.
90	VOLTAGE REGULATOR WITH PARALLELING CAPABILITY.
90PF	POWER FACTOR CONTROLLER TO CONTROL GENERATOR EXCITATION WHEN PARALLELED WITH UTILITY.
67 & 67N	DIRECTIONAL PHASE OVERCURRENT RELAY WHICH WILL TRIP THE MAIN BREAKER UPON A FAULT ON THE UTILITY DISTRIBUTION SYSTEM.

- NOTES:
- SET 23 KV SITE DISTRIBUTION FEEDERS (SDF-1, SDF-2, SDF-3) TO TRIP AT 40 AMPS.
 - SET TRANSFORMER PRIMARY BREAKER (G-M) TO TRIP AT 1000 AMPS.
 - SET UTILITY MAIN BREAKER (U-1) TO TRIP AT 150 AMPS.
 - SET BUS TIE (23 KV BREAKER (B-T)) TO TRIP AT 120 AMPS.
 - SET GENERATOR MAIN BREAKER (G-1, G-2, G-3) TO TRIP AT 225 AMPS.

FIELD WIRING TO GENERATOR/UTILITY MASTER CONTROLS:
 INPUTS TO MASTER CONTROLS (SEE SPECS)
 CONTROL OUTPUT CONTACTS TO EQUIPMENT (SEE SPECS)
 ALARM OUTPUTS TO E.M.S. (SEE SPECS)
 LOAD SHED OUTPUT CONTACTS (10)

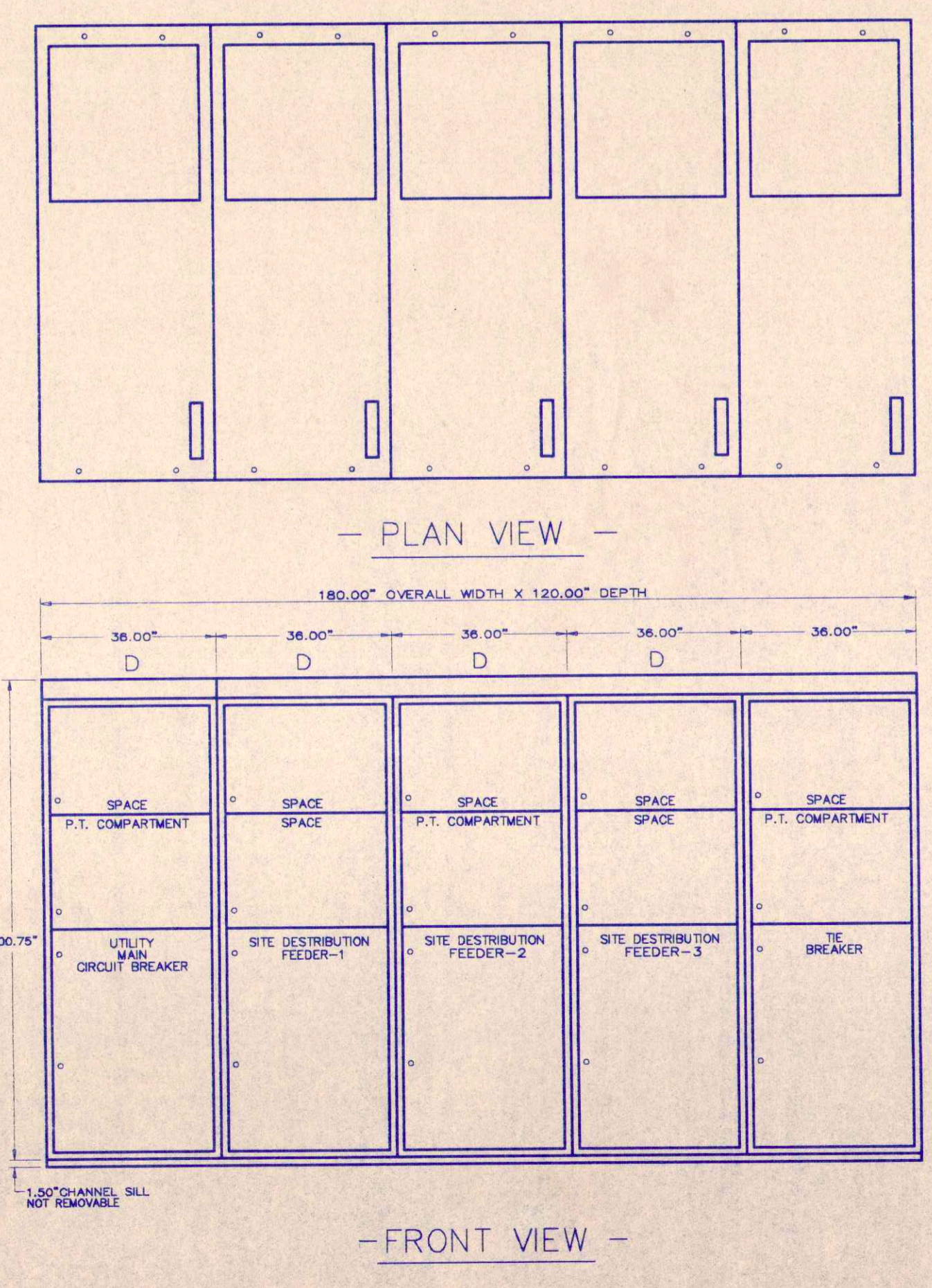
23 kv SITE DISTRIBUTION AND STANDBY GENERATOR SWITCHGEAR SINGLE LINE DIAGRAM

N.T.S.



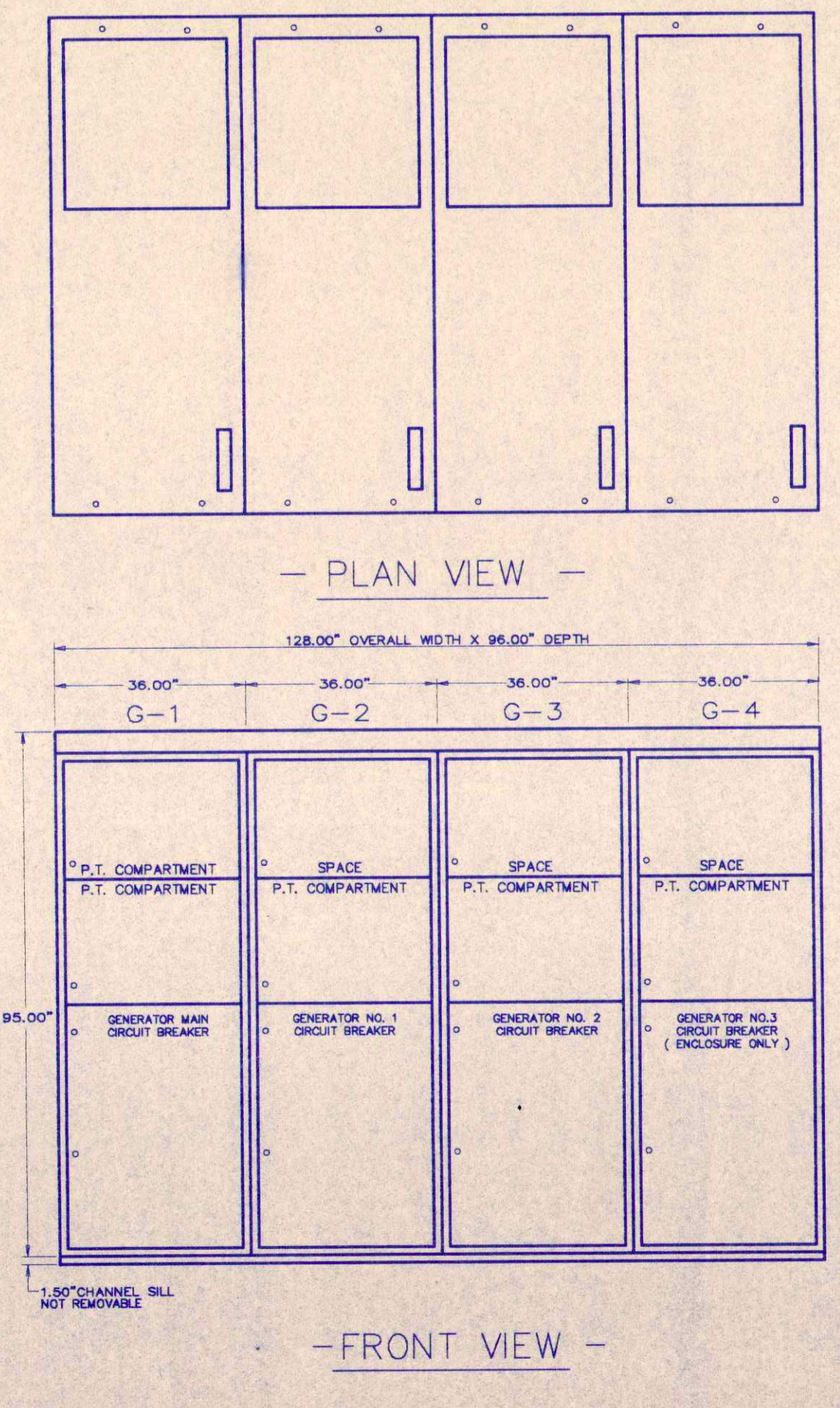
GENERATOR CONTROL SWITCHGEAR ELEVATIONS

N.T.S.



23 kv DISTRIBUTION SWITCHGEAR PLAN AND ELEVATION

N.T.S.



4.16 kv GENERATOR SWITCHGEAR PLAN AND ELEVATION

N.T.S.

CS	BREAKER CONTROL SWITCH
WM	WATT HOUR METER
AM	AM METER AND SWITCH
VM	VOLT METER AND SWITCH
FM	FREQUENCY METER AND SWITCH
WM	WATT METER
PF	POWER FACTOR METER
SSW	MANUAL SYNCHRONIZING PANEL GENERATOR SELECTOR SWITCH
C	CURRENT TRANSFORMER (C.T.)
R	RESIDUAL (GROUND) CURRENT TRANSFORMER (R.C.T.)
P.T.	POTENTIAL TRANSFORMER (P.T.)
T	TRIP CIRCUIT
C	CLOSE CIRCUIT
PC	PERMISSIVE CLOSE CIRCUIT
⏏	AUXILIARY CONTACT DEVICE, FUNCTION AS NOTED 'a' CONTACT-NORMALLY OPEN WHEN DEVICE IS OPEN 'b' CONTACT-NORMALLY CLOSED WHEN DEVICE IS OPEN

drawing title 23 kv POWER DISTRIBUTION-SWITCHGEAR ELEVATIONS AND SYNCHRONIZING PLAN		STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS	
REVISIONS		DRAWINGS PREPARED BY Harrington, Durham & Richardson, Inc. Maguire Group Inc.	
mark	date	description	date
Δ	6/19/88	APPENDUM 2/22/87	03/28/1987
project 350 Bed Facility For Women Connecticut Corrections Institution Mantic, Connecticut		scale AS NOTED	drawn by J.M.
project no. BI-JA-217C		checked J.P.	drawing no. E6-2

LEGEND

- BOLLARD (NEW)
- ⊗ BOLLARD (EXISTING)
- LUMINAIRE/POLE/FOUNDATION (EXISTING)
- LUMINAIRE/POLE/EXISTING FOUNDATION (EXISTING)
- ⊠ ELECTRICAL MANHOLE (NEW)
- ⊞ ELECTRICAL MANHOLE (EXISTING)
- ⊞ ELECTRICAL MANHOLE (EXISTING)
- ⊞ TRANSFORMER PAD (EXISTING)
- ⊞ DISTRIBUTION SWITCH GEAR PAD (EXISTING)
- ⊞ COMMUNICATIONS MANHOLE (EXISTING)
- CAPPED DUCT BANK/CONDUIT (EXISTING)
- EXISTING DUCT BANK
- NEW ELECTRICAL DUCT BANKS LETTER DESIGNATES DUCT SECTION SEE DETAIL THIS SHEET
- LIGHTING CONDUIT (EXISTING)
- LIGHTING CONDUIT (NEW)
- ⊙ EXISTING FIXTURE TO BE REMOVED (N.I.C.)

GENERAL NOTES - ELECTRICAL SITE WORK

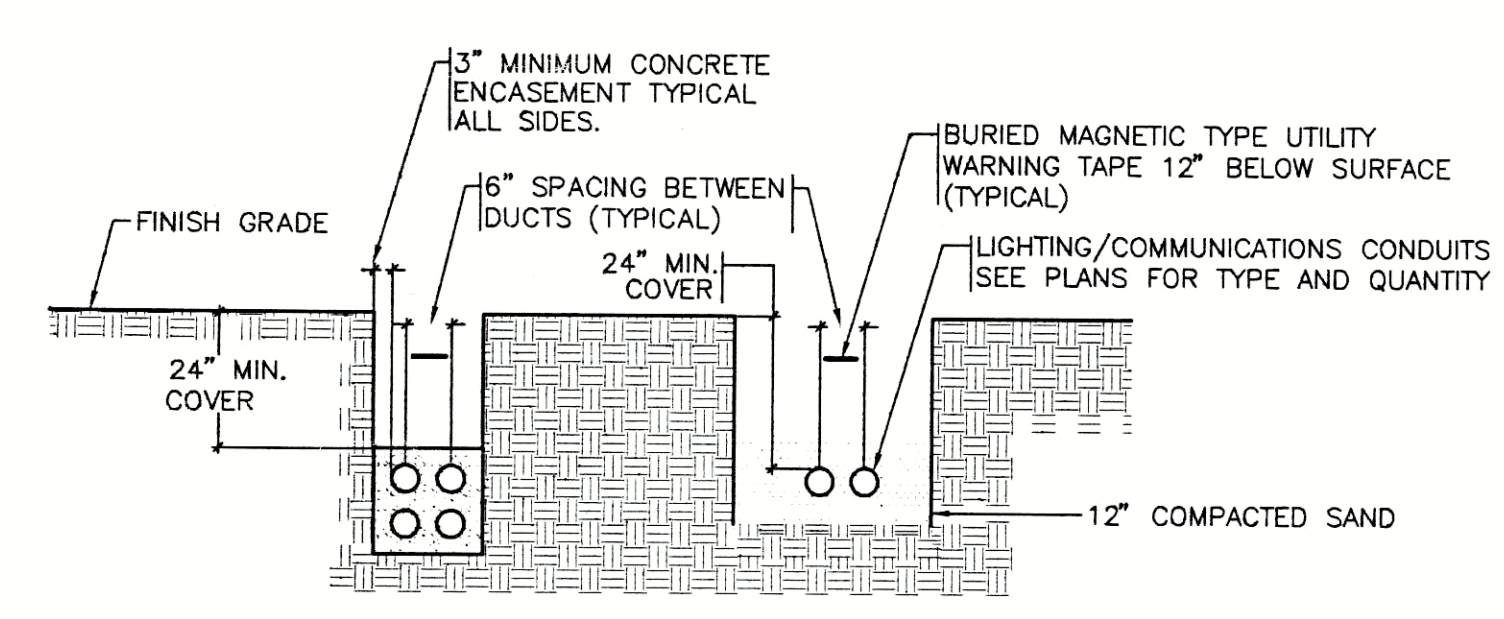
1. BOLLARD FOUNDATIONS SHALL BE PROVIDED BY GENERAL CONTRACTOR. SEE BOLLARD INSTALLATION DETAIL, DRAWING L2-2. BOLLARD LOCATIONS ARE APPROXIMATE SEE LANDSCAPE DWGS. L1-1 THRU L1-6 FOR ACTUAL LOCATIONS.
2. LIGHTING FEEDER CONDUITS SHALL BE PROVIDED WITH A MINIMUM OF 24" COVER. SEE TRENCHING DETAIL, THIS SHEET.
3. DUCT BANKS, LIGHTING AND COMMUNICATION CONDUITS SHALL BE PITCHED 4"/100 FEET TO PROVIDE DRAINAGE INTO MANHOLES OR HANDHOLES.
4. DUCT BANK ROUTING AND COMMUNICATION CONDUIT ROUTING SHOWN ON THE PLAN MAY BE ALTERED TO ACCOMMODATE EXISTING FIELD CONDITIONS. COORDINATE ROUTING WITH OWNER'S REPRESENTATION PRIOR TO INSTALLATION.
5. PROVIDE 1/4" NYLON PULL WIRES IN ALL SPARE DUCT BANKS, LIGHTING CONDUITS AND COMMUNICATION CONDUITS.
6. REFER TO DETAILS ON THIS DRAWING FOR CONSTRUCTION REQUIREMENTS OF DUCT BANK. SECTIONS SHOWN ON PLANS INDICATE SIZE AND QUANTITY OF CONDUITS REQUIRED.
7. ALL MANHOLE COVERS SHALL BE FLUSH WITH THE FINISHED GRADE OF PAVEMENT.
8. PROVIDE GROUND RODS AND GROUND WIRE (#8 AWG CU) IN ALL MANHOLES.
9. PROVIDE CABLE RACKS, CABLE HOOKS AND INSULATORS AS REQUIRED IN ALL MANHOLES.
10. COMMUNICATION/LIGHTING CONDUITS AND DUCT BANKS SHALL BE PROVIDED WITH A MAGNETIC TYPE WARNING MARKER TAPE ONE FOOT ABOVE THE TOP OF THE CONDUITS/DUCT BANKS.
11. COORDINATE THE ROUTING OF PRIMARY AND SECONDARY DUCT BANKS TO AVOID PROPOSED DRY WELLS.
12. BOLLARD LIGHTING CIRCUIT (2 #10, 1 #120, 1" PVC) TO TIME CLOCK TCO-1 AND CIRCUIT LPOA-13. SEE DRAWING E1-2 FOR CONTINUATION.
13. EXTEND EXISTING CAPPED CONDUIT DUCT BANK FROM EXISTING TERMINATION POINT INTO NEW BUILDING 0 ELECTRIC ROOM. EXTEND NEW FEEDERS TO BUILDING 0 VIA NEW AND EXISTING DUCT BANKS.

EXTERIOR LIGHTING FIXTURE SCHEDULE

F - NEW BOLLARD LIGHTING FIXTURE: DEVINE "OLEF"-175M-277-V LARGE LOUVERED CAST ALUMINUM WHITE FINISH MOUNTED TO CONCRETE PEDISTAL. SEE ARCHITECTURAL DETAIL LIGHTING FIXTURE SHALL BE 15-1/2" DIAMETER BY 16" HIGH WITH INTEGRAL HFP BALLAST. PROVIDE A 175W COATED VERTICAL MOUNTED METAL HALIDE LAMP. PROVIDE TAMPERPROOF STAINLESS STEEL HARDWARE.

SECTION 'A-A'

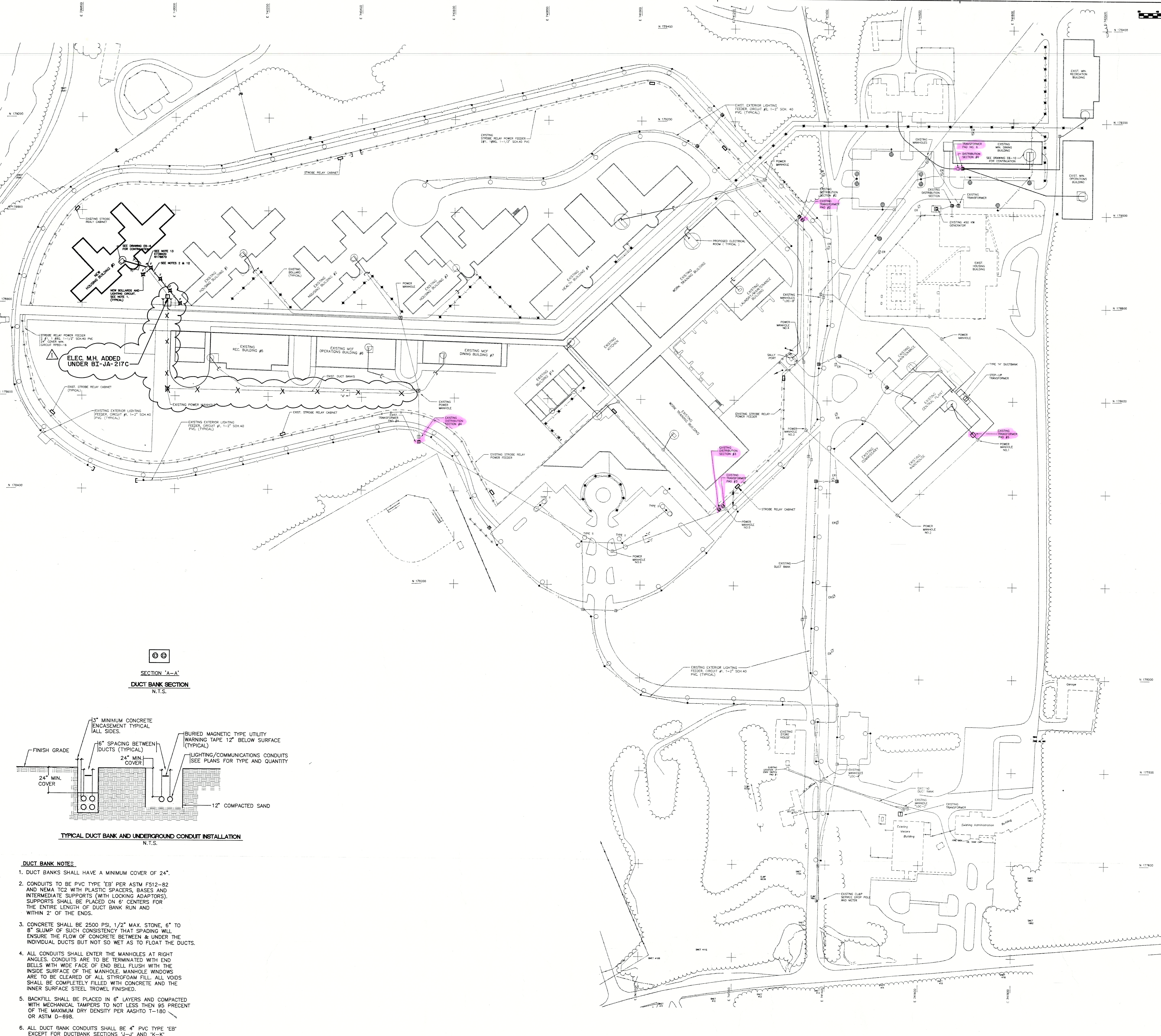
DUCT BANK SECTION
N.T.S.



TYPICAL DUCT BANK AND UNDERGROUND CONDUIT INSTALLATION
N.T.S.

DUCT BANK NOTES

1. DUCT BANKS SHALL HAVE A MINIMUM COVER OF 24".
2. CONDUITS TO BE PVC TYPE 'EB' PER ASTM F512-82 AND NEMA TC2 WITH PLASTIC SPACERS, BASES AND INTERMEDIATE SUPPORTS (WITH LOCKING ADAPTORS). SUPPORTS SHALL BE PLACED ON 6" CENTERS FOR THE ENTIRE LENGTH OF DUCT BANK RUN AND WITHIN 2' OF THE ENDS.
3. CONCRETE SHALL BE 2500 PSI, 1/2" MAX. STONE, 6" TO 8" SLUMP OF SUCH CONSISTENCY THAT SPADING WILL ENSURE THE FLOW OF CONCRETE BETWEEN & UNDER THE INDIVIDUAL DUCTS BUT NOT SO WET AS TO FLOAT THE DUCTS.
4. ALL CONDUITS SHALL ENTER THE MANHOLES AT RIGHT ANGLES. CONDUITS ARE TO BE TERMINATED WITH END BELLS WITH WIDE FACE OF END BELL FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE. MANHOLE WINDOWS ARE TO BE CLEARED OF ALL STYROFOAM FILL. ALL VOIDS SHALL BE COMPLETELY FILLED WITH CONCRETE AND THE INNER SURFACE STEEL TROWEL FINISHED.
5. BACKFILL SHALL BE PLACED IN 6" LAYERS AND COMPACTED WITH MECHANICAL TAMPERS TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM DRY DENSITY PER AASHTO T-180 OR ASTM D-698.
6. ALL DUCT BANK CONDUITS SHALL BE 4" PVC TYPE 'EB' EXCEPT FOR DUCTBANK SECTIONS 'J-J' AND 'K-K' WHICH SHALL BE 2" PVC TYPE 'EB'.



drawing title ELECTRICAL SITE PLAN		STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS	
REVISIONS			
mark	date	description	drawings prepared by
0	4/15/94	GENERAL REVISIONS	Henningson, Durham & Richardson, Inc.
Δ	0-14-97	AS-BUILT INFO.	Maguire Group Inc.
		project	date
		Additional Housing Unit	OCT. 8, 1993
		State Correctional Facility	scale
		New Britain, Connecticut	1" = 80'
		drawn by	JPM
		approved	JEP
		checked	JEP
		drawing no.	
		project no.	