

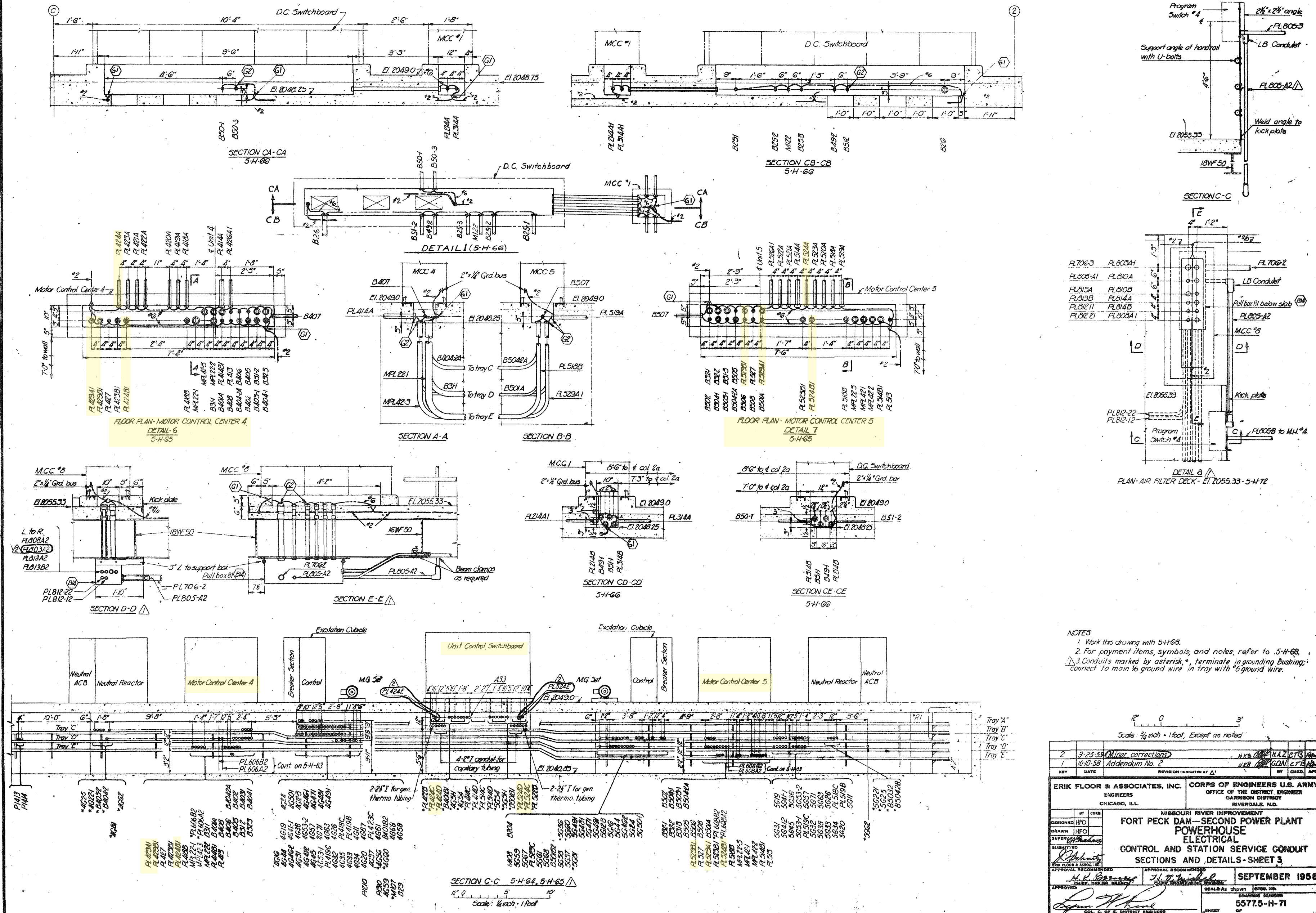
KEY PLAN  
#26 Cont on 5-H-67

3	7-8-59	Minor corrections	WCB	J.H.V.B.	WCB
2	3-25-59	Minor corrections	WCB	D.H.E.C.T.O.	WCB
1	11-7-58	Addendum No. 4	WCB	J.H.V.B.	WCB
KEY	DATE	REVISION (INDICATED BY Δ)	BY	CHKD.	APP.
ERIK FLOOR & ASSOCIATES, INC. CHICAGO, ILL.					
CORPS OF ENGINEERS U.S. ARMY OFFICE OF THE DISTRICT ENGINEER GARRISON DISTRICT RIVERDALE, N.D.					
DESIGNED BY CHKD. HFO/YF					
DRAWN BY HFO/J.H.					
SUPERV. J.H.V.B.					
SUBMITTED					
APPROVAL RECOMMENDED					
APPROVED: [Signature]					
SEPTEMBER 1958					
DRAWING NUMBER 5577.5-H-65					

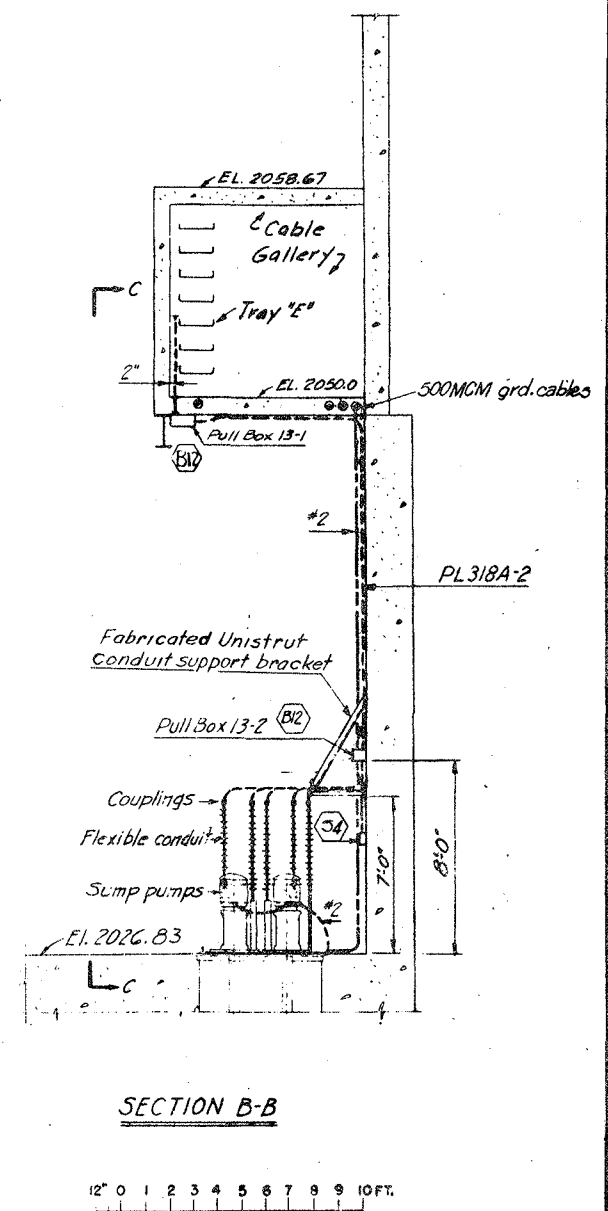
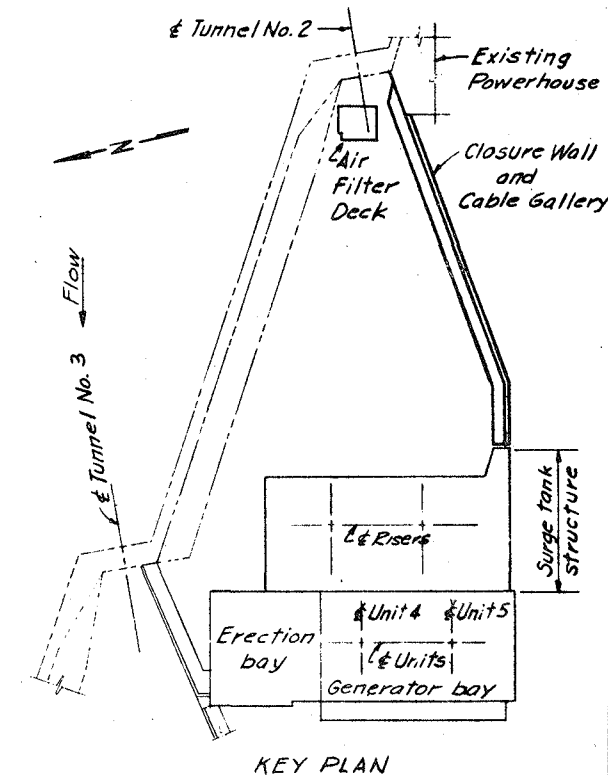
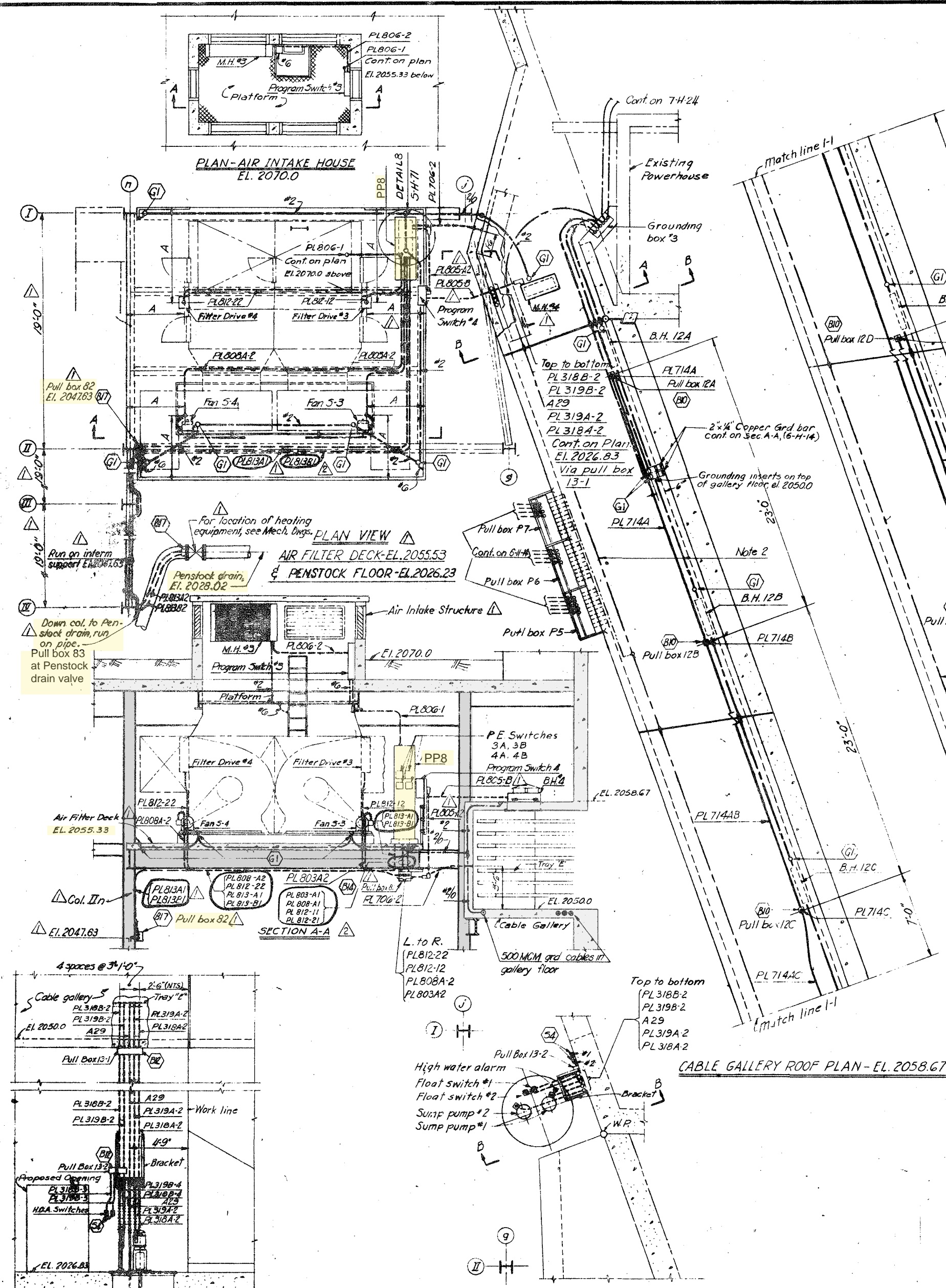












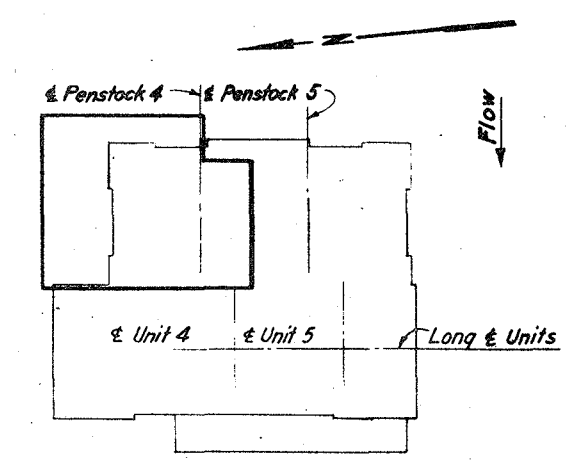
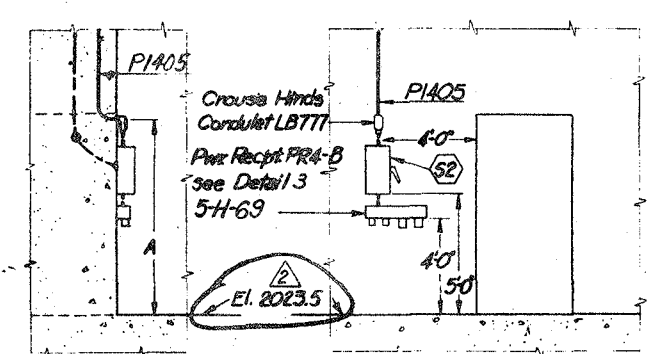
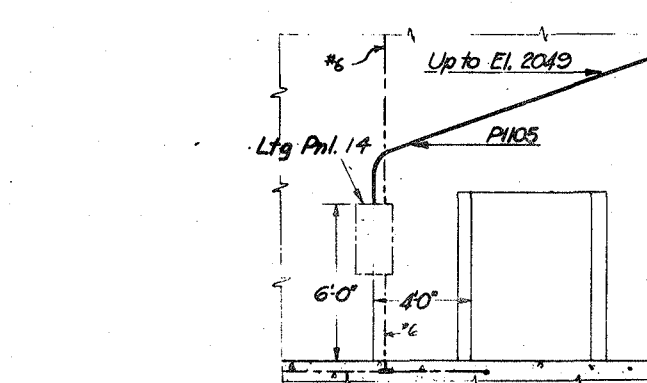
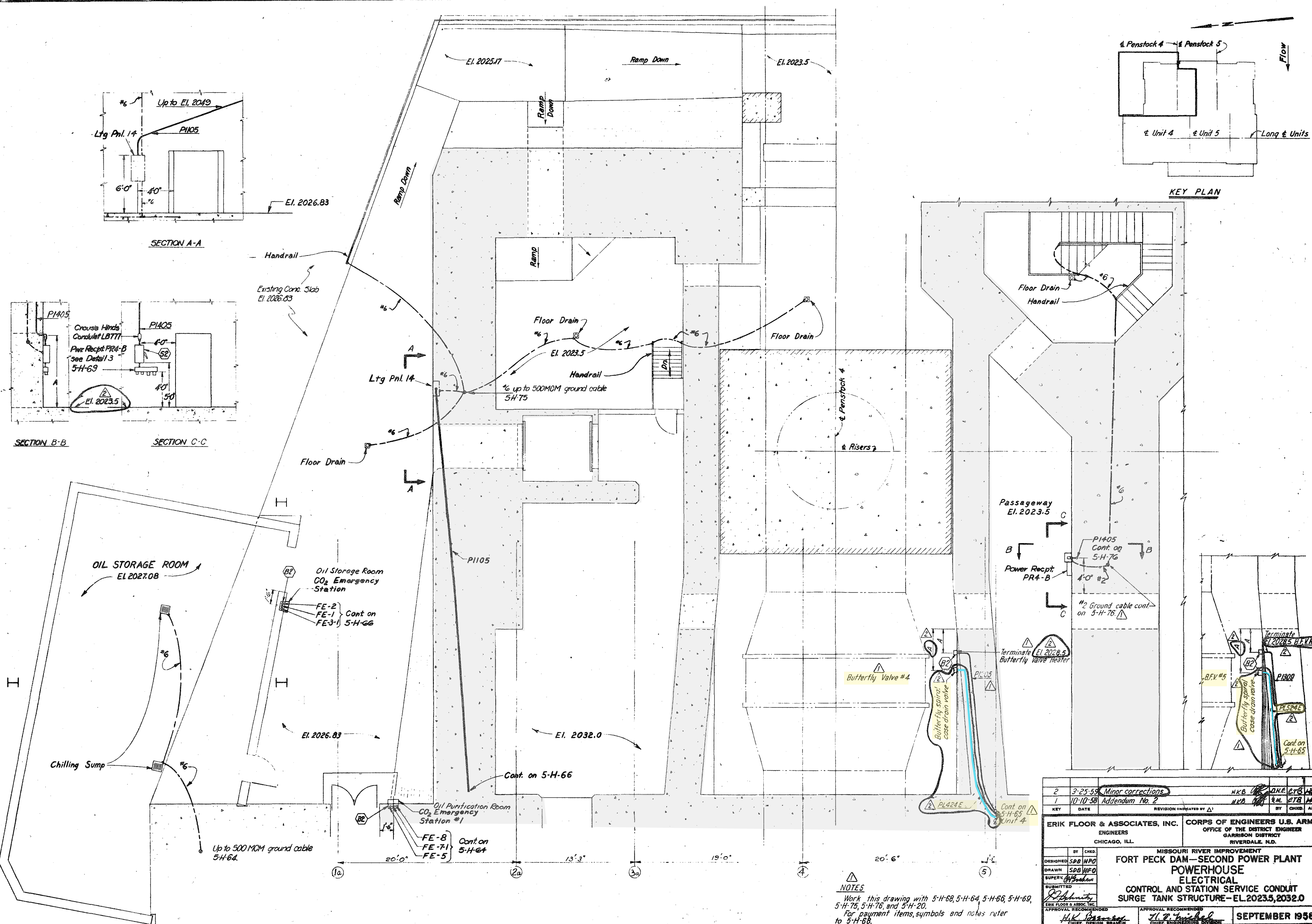
PLAN (Cont.)

NOTES

1. Work this drawing with 7-H-24, 5-H-68, 5-H-20, 5-H-71, 5-H-76, 5-H-79 & 6-H-14.
2. Two 500 MCM ground cables shown in cable gallery, are to be embedded in gallery floor.
3. For payment items, symbols and notes refer to 5-H-68.

2	3-25-59	Minor corrections	HCB	DHE	C.T.B.
1	10-10-58	Addendum No. 2	HCB	DHE	C.T.B.
KEY	DATE	REVISION INDICATED BY Δ	BY	CHKD.	APP.
ERIK FLOOR & ASSOCIATES, INC. ENGINEERS CHICAGO, ILL.			CORPS OF ENGINEERS U.S. ARMY OFFICE OF THE DISTRICT ENGINEER GARRISON DISTRICT RIVERDALE, ILL.		
MISSOURI RIVER IMPROVEMENT FORT PECK DAM—SECOND POWER PLANT POWERHOUSE ELECTRICAL CONTROL AND STATION SERVICE CONDUIT PENSTOCK AREA AND CABLE TUNNEL EL. 2026.83, 2049.0 AND 2055.33					
DESIGNED HFO/Y.F.	DRAWN ERH/HFO	SUPERV. H.H.H.	APPROVAL RECOMMENDED H.H.H.		
APPROVED H.H.H.			APPROVAL RECOMMENDED H.H.H.		
CHIEF DESIGNER			CHIEF ENGINEERING DIVISION		
APPROVED H.H.H.			APPROVED H.H.H.		
COL. C. OF E. DISTRICT ENGINEER			SEPTEMBER 1958		
SCALE: 1/4" = 1'-0"			SPEC. NO.		
DRAWING NUMBER 557.7.5-H-72			SHEET OF		

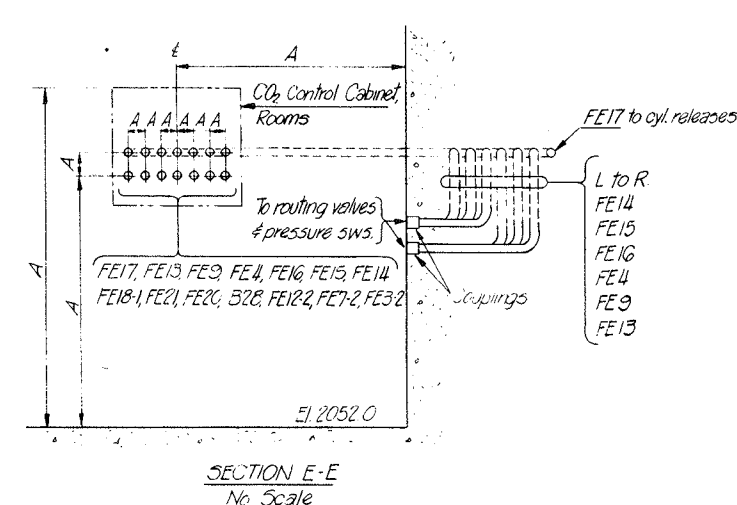
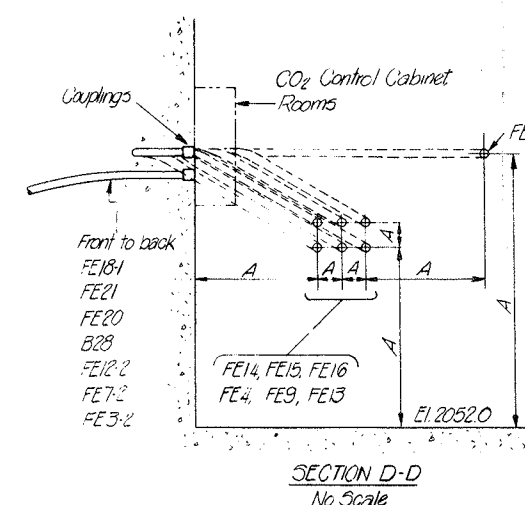
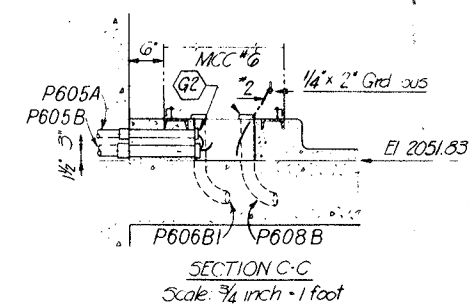
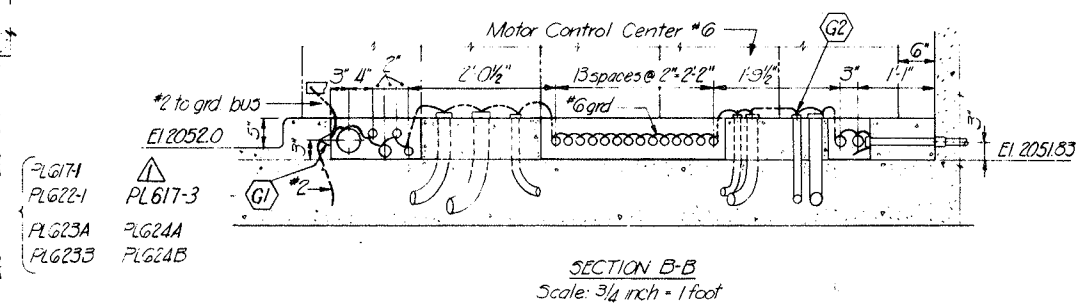
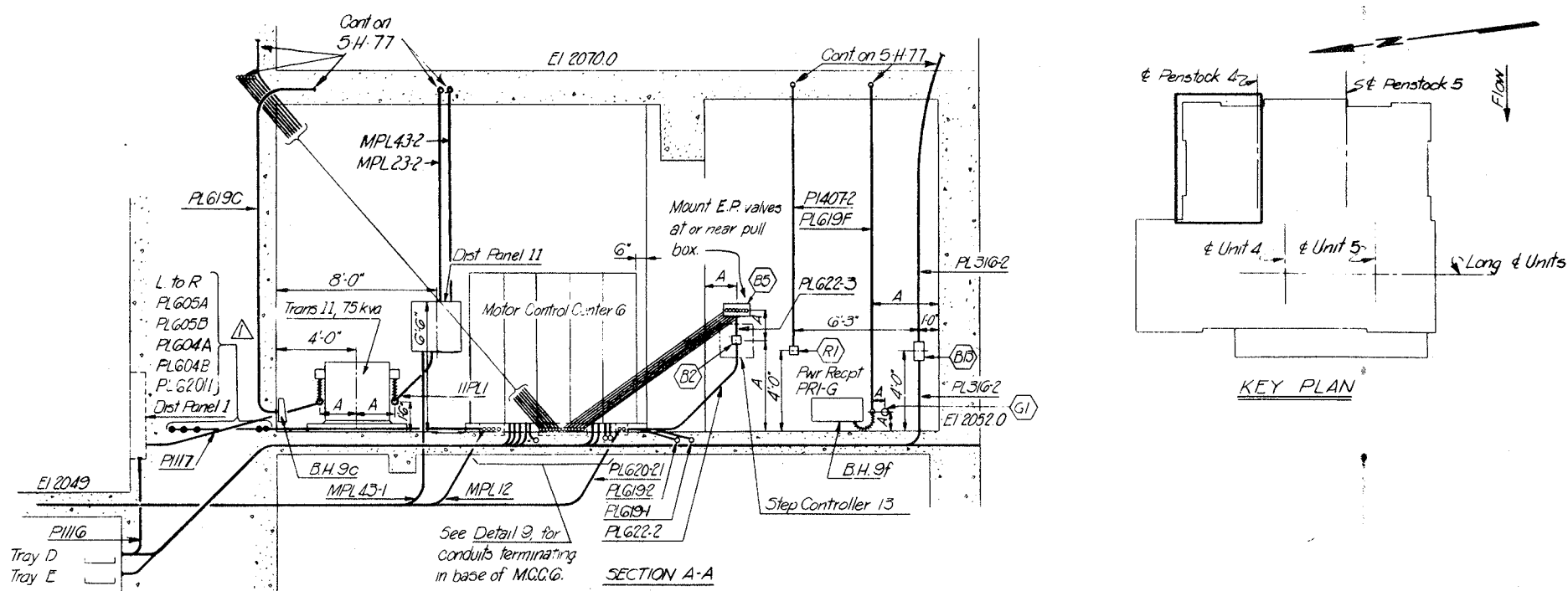




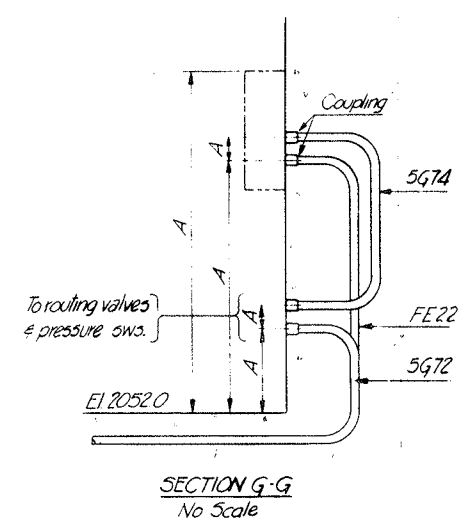
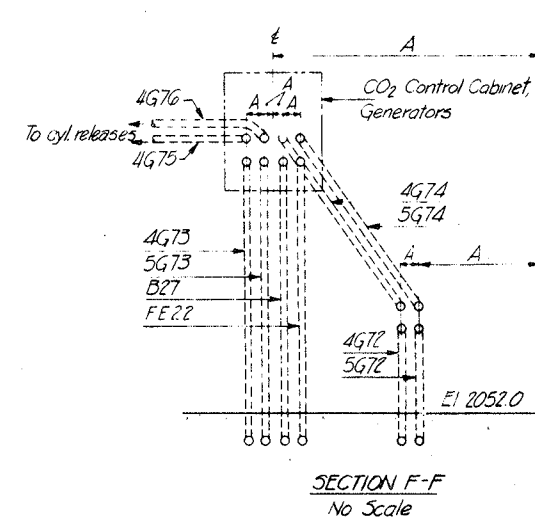
**NOTES**  
 Work this drawing with 5-H-68, 5-H-64, 5-H-66, 5-H-69, 5-H-75, 5-H-76, and 5-H-20.  
 For payment items, symbols and notes refer to 5-H-68.

DESIGNED	BY	CHD	DATE	3-25-59	Minor corrections	REVISION INDICATED BY	BY	CHD	APP.
DRAWN	SDH	WFO	DATE	10-10-58	Addendum No. 2	REVISION INDICATED BY	BY	CHD	APP.
SUPERVISED	SDH	WFO	DATE			REVISION INDICATED BY	BY	CHD	APP.
SUBMITTED	SDH	WFO	DATE			REVISION INDICATED BY	BY	CHD	APP.
ERIK FLOOR & ASSOCIATES, INC. ENGINEERS CHICAGO, ILL.					CORPS OF ENGINEERS U.S. ARMY OFFICE OF THE DISTRICT ENGINEER GARRISON DISTRICT RIVERDALE, N.D.				
DESIGNED					MISSOURI RIVER IMPROVEMENT				
DRAWN					FORT PECK DAM—SECOND POWER PLANT				
SUPERVISED					ELECTRICAL				
SUBMITTED					CONTROL AND STATION SERVICE CONDUIT				
					SURGE TANK STRUCTURE—EL. 2023.5, 2032.0				
APPROVED					SEPTEMBER 1958				
SCALE: 1" = 10'					DRAWING NUMBER				
					5577.5-H-74				
					SHEET				



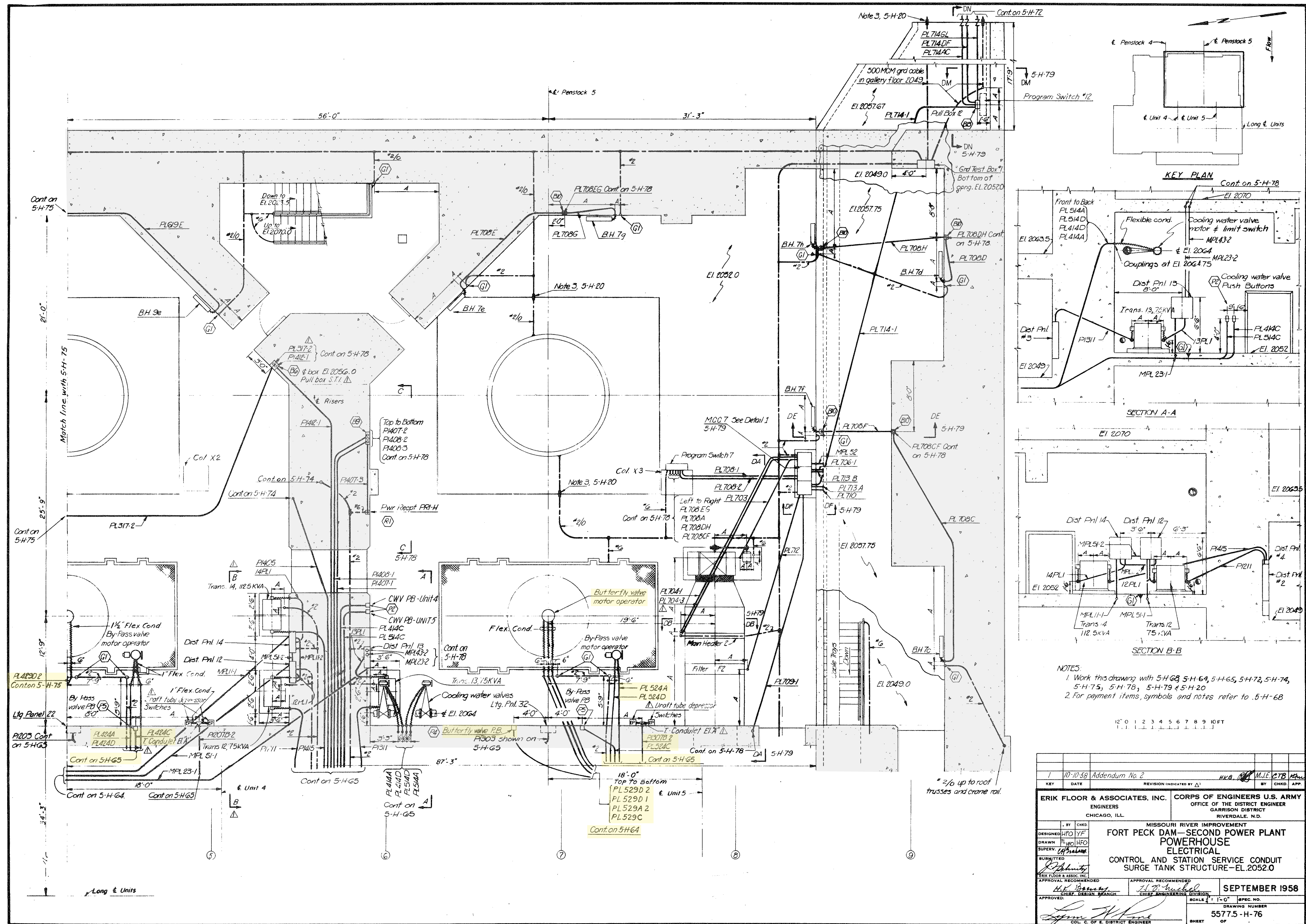


NOTES:  
Work this drawing with 5-H-64, 5-H-66, 5-H-76, 5-H-77,  
5-H-79, 5-H-20.  
For payment items, symbols and notes refer to 5-H-68.

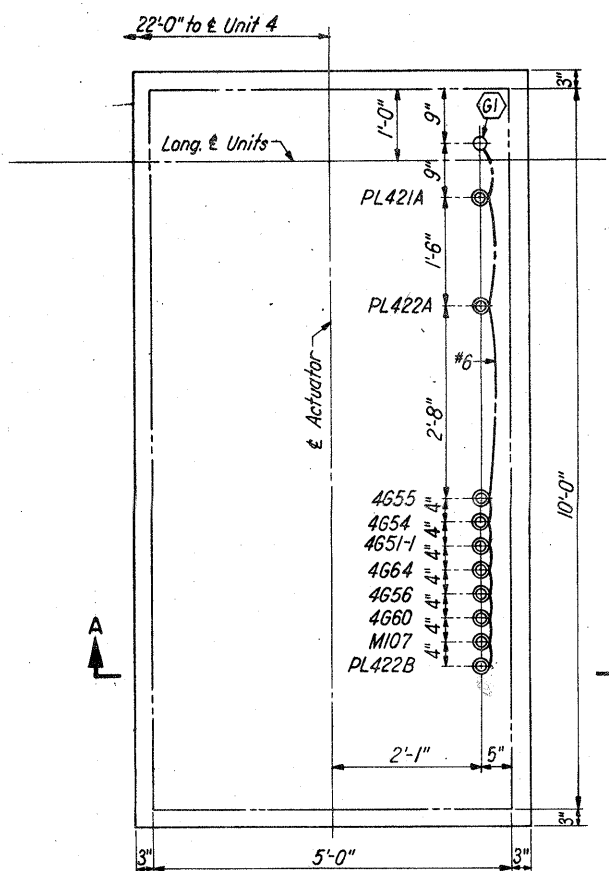


1		10-10-58		Addendum No. 2		HKB		J.P.		DTB	
KEY		DATE		REVISION INDICATED BY Δ				BY		CHKD. AP	
ERIK FLOOR & ASSOCIATES, INC. ENGINEERS CHICAGO, ILL.						CORPS OF ENGINEERS U.S. ARMY OFFICE OF THE DISTRICT ENGINEER GARRISON DISTRICT RIVERDALE, N.D.					
DESIGNED BY CHKD.						MISSOURI RIVER IMPROVEMENT					
DRAWN HFOYF						FORT PECK DAM—SECOND POWER PLANT					
SUPERV HFOYF						POWERHOUSE					
SUBMITTED						ELECTRICAL					
ERIK FLOOR & ASSOC. INC.						CONTROL AND STATION SERVICE CONDUIT					
APPROVAL RECOMMENDED						SURGE TANK STRUCTURE—EL. 2052.0					
H.K. Bessner						H.D. Michael					
CHIEF DESIGN BRANCH						CHIEF ENGINEERING DIVISION					
APPROVED:						SCALE: 3" = 1'-0" SPEC. NO.					
DRAWING NUMBER						DRAWING NUMBER					
5577.5-H-75						5577.5-H-75					
SHEET						OF					
CON. C. OF DISTRICT ENGINEER											

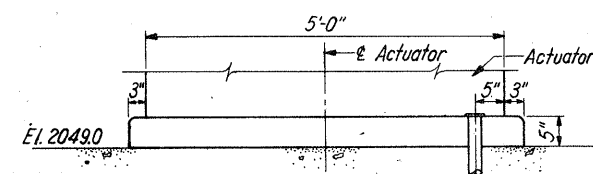




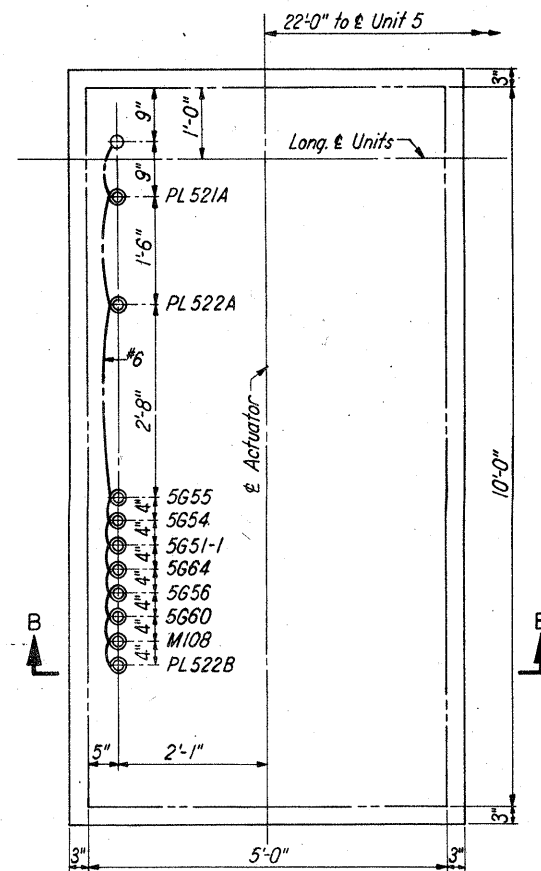




DETAIL 1  
PLAN VIEW-UNIT 4 ACTUATOR  
SCALE  $\frac{3}{4}$ " = 1'-0"



SECTION A-A  
SECTION B-B SIMILAR EXCEPT OPPOSITE HAND  
SCALE  $\frac{3}{4}$ " = 1'-0"



DETAIL 2  
PLAN VIEW-UNIT 5 ACTUATOR  
SCALE  $\frac{3}{4}$ " = 1'-0"

KEY	DATE	REVISION (INDICATED BY A)	BY	CHGD.	APP.
1	7-8-59	Sheet added to contract			

CORPS OF ENGINEERS, U. S. ARMY  
OFFICE OF THE DISTRICT ENGINEER  
GARRISON DISTRICT  
RIVERDALE, N.D.

MISSOURI RIVER IMPROVEMENT  
FORT PECK DAM—SECOND POWER PLANT  
POWERHOUSE  
ELECTRICAL  
CONTROL AND STATION SERVICE CONDUIT  
SECTIONS AND DETAILS—SHEET 5

DESIGNED	BY	CHGD.
DRAWN		
TRACED		
APPROVED		

APPROVAL, RECOMMENDATION  
CHIEF DESIGN BRANCH

APPROVAL, RECOMMENDATION  
CHIEF ELECTRICAL DIVISION

JULY 1959

SCALE: AS SHOWN | SPEC. NO.  
DRAWING NUMBER  
55775-H-80  
SHEET OF

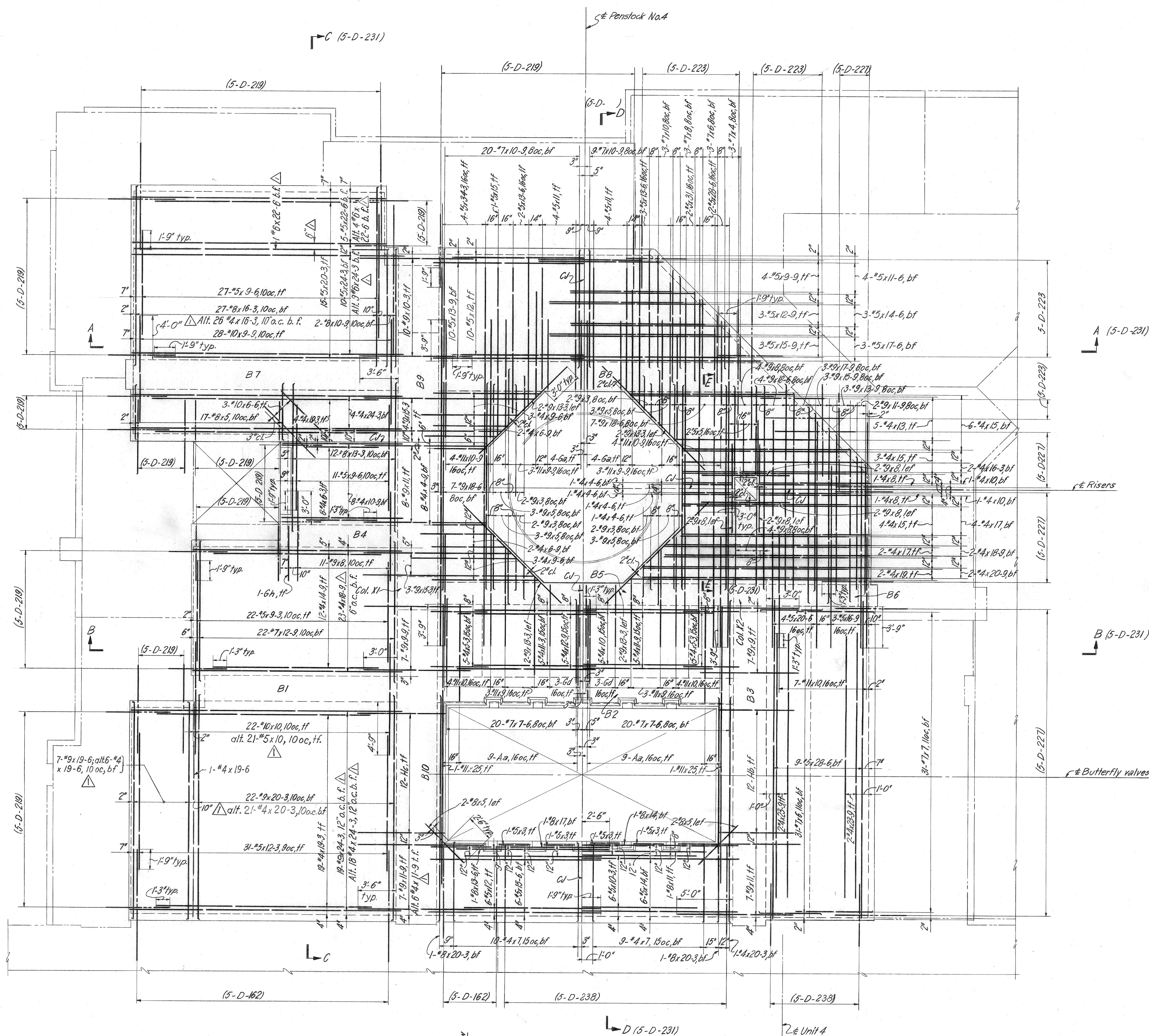












## PAYMENT ITEMS



## REFERENCE DWGS.

Concrete outline  
Reinforcement schedule

(5-C-187)  
(5-D-232)

## NOTES

Work this drawing with (5-D-231) and (5-D-232)  
Bar laps to be 30 bar diameters minimum  
Reinforcement spacing 12" oc unless noted  
Slab reinforcement to have 1" minimum cover unless noted  
Beam reinforcement to have 2" cover or 1 1/2" to outside of stirrups unless noted  
Reinforcement to clear openings  
All bar marks to have prefix (5-D-230) is (5-D-230 Aa) etc.  
Reference (5-D-230) indicates dwg. 55775-D-230, etc.  
Column ties to have 1 1/2" cover unless noted.

FOR CONSTRUCTION DETAILS SEE  
"CONTRACTOR FURNISHED" DRAWINGS  
12' 0" 1 2 3 4 5 6 7 8 9 10 FT

10-1-65		REVISED TO SHOW "AS-BUILT" CONDITIONS.		
1		FIELD MARKED PRINTS NOT AVAILABLE.		
KEY	DATE	REVISION INDICATED BY	BY	CHKD. APP.
1	10-23-59	Revised slab reinforcement	Hol	RN
ERIK FLOOR & ASSOCIATES, INC. ENGINEERS CHICAGO, ILL.		CORPS OF ENGINEERS U.S. ARMY OFFICE OF THE DISTRICT ENGINEER GARRISON DISTRICT RIVERDALE, N.D.		
DESIGNED AD 200		MISSOURI RIVER IMPROVEMENT		
DRAWN HJP 7-5		FORT PECK DAM—SECOND POWER PLANT		
SUPERVISED J. W. Wines		POWERHOUSE REINFORCEMENT		
SUBMITTED J. W. Wines		SURGE TANK STRUCTURE—NORTH PORTION		
APPROVED J. W. Wines		FLOOR EL. 2070.0		
APPROVAL RECOMMENDED H. K. Bessy		SHEET 1		
APPROVAL RECOMMENDED J. D. Michael		SEPTEMBER 1958		
APPROVED J. W. Wines		DRAWING NUMBER		
COL. C. OF E. DISTRICT ENGINEER		55775-D-230.2		
		SHEET OF		

DA-59-175

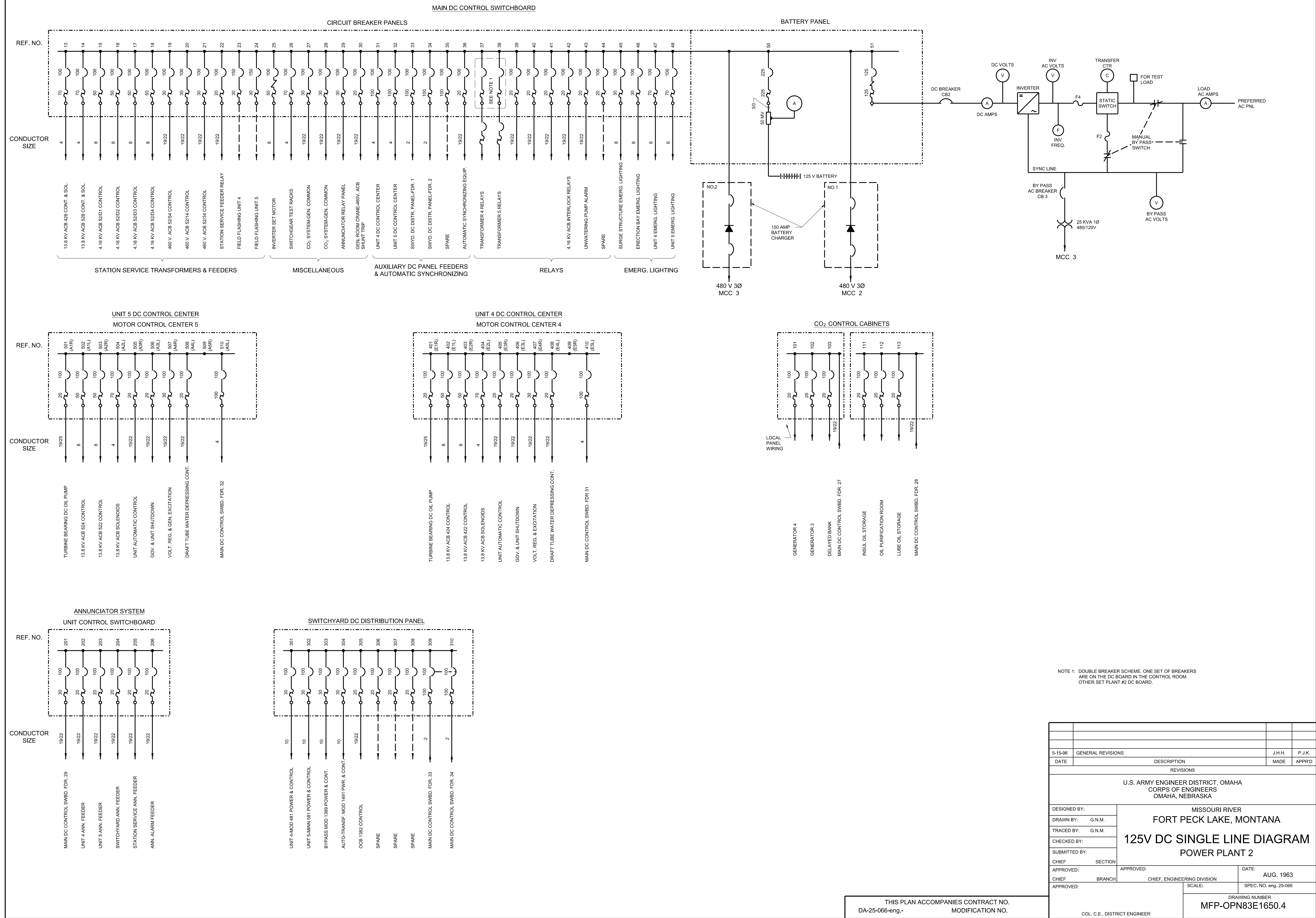
POWERHOUSE AND SWITCHYARD—CONTRACT RECORD DWG

42F233



NAMEPLATE SCHEDULE				NP. NO.	FIRST LINE	SECOND LINE	THIRD LINE	BILL OF MATERIALS		B.M. NO.	DESCRIPTION	B.M. NO.	DESCRIPTION
NP. NO.	FIRST LINE	SECOND LINE	THIRD LINE					B.M. NO.	DESCRIPTION				
N1	UNIT 5			N94	UNIT RUN	AUXILIARY				U25	AGUSTAT TIMING RELAY, TIME RELAY ON DE-ENERG. 0-30 SEC.	U45	EMERGENCY SHUTDOWN SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS-29167-Y WITH A RED MODERN OVAL HANDLE, SPRING RETURN TO NEUTRAL PULL TO TURN, 2 STAGE, 2 POSITION, 2 CONTACTS AS PER DEVELOPMENT ESCUTCHEON MARKING PULL TRIP, SWITCH DESIGNATION MARKING EMERGENCY SHUTDOWN
N2	STATION SERVICE			N95	TRANSFORMER B	PHASE A	DIFFERENTIAL	U1	GENERATOR THRUST BEARING THERMOMETER, 6" FOX BORO				
N3	UNIT 4			N96	TRANSFORMER B	PHASE B	DIFFERENTIAL	U2	GENERATOR THRUST BARING OIL THERMOMETER, 6" FOX BORO	U26	PARTIAL SHUTDOWN RESET SWITCH		
N4	GENERATOR	THRUST BEARING	THERMOMETER	N97	TRANSFORMER B	PHASE C	DIFFERENTIAL					U46	VOLTAGE ADJUSTING RHEOSTAT SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802477 WITH A BLACK MODERN PISTOL GRIP HANDLE, SPRING RETURN TO NEUTRAL, 2 STAGE, 3 POSITION, 2 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING LOWER, RAISE, SWITCH DESIGNATION MARKING VOLTAGE ADJUSTING RHEOSTAT
N5	GENERATOR THRUST	BEARING OIL	THERMOMETER	N98	STATION SERVICE	PHASE A	OVERCURRENT	U3	GENERATOR GUIDE BARING THERMOMETER, 6" FOX BORO				
N6	GENERATOR	GUIDE BEARING	THERMOMETER	N99	STATION SERVICE	RESIDUAL	OVERCURRENT	U4	TURBINE BEARING THERMOMETER, 6" FOX BORO	U27	AGUSTAT TIMING RELAY, TIME DELAY ON DE-ENERG 0-30 SEC.		
N7	TURBINE	BEARING	THERMOMETER	N100	STATION SERVICE	PHASE C	OVERCURRENT	U5	TURBINE BEARING DISCHARGE OIL THERMOMETER, 6" FOX BORO			U47	SYNCHRONIZING SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1040759D, NO HANDLE REQUIRED, OPERATED WITH REMOVABLE BLACK MODERN OVAL KEY HANDLE, BLACK HANDLE LOCATED IN KEY CABINET, TURBINE FLOOR ELEVATION 2049, POWER PLANT 2, FOR OPERATION AT ALL TIMES, MAINTAINED CONTACTS, 4 STAGE, 2 POSITION, 4 CONTACTS AS PER DEVELOP- MENT, ESCUTCHEON MARKING OFF, ON, OFF, ON, SWITCH DESIGNATION MARKING GENERATOR SYNCHRONIZING
N8	TURBINE BEARING	DISCHARGE OIL	THERMOMETER	N101	STATION SERVICE	OVERCURRENT	AUXILIARY						
N9	TURBINE BEARING	OIL PRESSURE	GAUGE	N102	ANNUNCIATOR	SYSTEM	MAIN FEEDER	U6	TURBINE BEARING OIL PRESSURE GAUGE, 6" FOX BORO	U28	ANNUNCIATOR, TYPE 5-LINE, SCAM CAL NO. SC-4ACT, 28 WINDOWS, 4 HIGH X7 WIDE, 125V DC		
N10	SPIRAL CASE	PRESSURE	GAUGE	N103	UNIT 4	ANNUNCIATOR	FEEDER			U29	AC AMMETER, TYPE KA-241, WESTINGHOUSE, STYLE NO. 291B240A32, SCALE 0-2500A, FOR USE WITH 2500/5 CT		
N11	THRUST BRG.	OIL PRESSURE		N104	UNIT 5	ANNUNCIATOR	FEEDER	U8	SPIRAL CASE PRESSURE GAUGE, 6" FOX BORO				
N12				N105	SWITCHYARD	ANNUNCIATOR	FEEDER	U9				U30	AC VOLT METER, TYPE KA-241, WESTINGHOUSE, STYLE NO. GR-55165-XX, SCALE 0-18KV, FOR USE WITH 14, 400/120V PT
N13	UNIT 5	ANNUNCIATOR		N106	STATION SERVICE	ANNUNCIATOR	FEEDER	U10	CO <sub>2</sub> BREAK GLASS STATION, C-O TWO FIRE-EQUIPMENT CO.	U31	AC WATTMETER, TYPE KF-241, WESTINGHOUSE, STYLE NO. GR-55165-108, SCALE 15-0-60 MW, 2 ELEMENT, 3 PHASE, 3 WIRE, FOR USE WITH 14, 400/120V PTT'S AND 2500/5 CTS	U48	SPEED LEVEL CONTROL SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS-29168-Y WITH A BLACK MODERN OVAL HANDLE, SPRING RETURNS TO NEUTRAL, 3 STAGE, 3 POSITION, 3 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING LOWER, RAISE, SWITCH DESIGNATION MARKING SPEED LEVEL CONTROL
N14	AC AMMETER			N107	STATION SERVICE	ALARM		U11	TELEPHONE PAX				
N15	AC VOLT METER			N108	D.T. DEPRESS.	WATER LEVEL	AUX. RELAY 63DX	U12	TELEPHONE PBX	U32	OC AMMETER, TYPE KX-241, WESTINGHOUSE, STYLE NO. 87-50335-1, SCALE 0-1000A, FOR USE WITH 100 MV SHUNT AND 140 IL OR SHUNT LEAD, ES-50 ATH		
N16	WATT METER			N109	PARTIAL SHUTDOWN	RESET AUX.	RELAY 3					U49	EXCITER FIELD BREAKER SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802478 WITH A BLACK MODERN PISTOL GRIP HANDLE, SPRING RETURN TO NEUTRAL, 3 STAGE, 3 POSITION, 3 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING LAMP CUTOUT, PULL TRIP, CLOSE, SWITCH DESIGNATION MARKING EXCITER FIELD BREAKER
N17	GENERATOR	FIELD	AMMETER	N110	PLANT	CONTROL TRANSFER	RELAY 4PS	U13	INDICATING LIGHT, TYPE ET-5, GENERAL ELECTRIC, CAT. NO. 6105700G3, 3300 OHMS, 125V DC, WITH GREEN, WHITE, RED OR AMBER LENS	U33	DC NULL METER, TYPE KX241 WESTINGHOUSE, STYLE NO. 691B868BA09, 10-0-10 V SCALE, USE WITH ± LINE TRANSDUCER		
N18	DC	NULL	METER	N111	MASTER	START-STOP	AUX. RELAY 4X3	U14	INDICATING LIGHT, TYPE ET-5, GENERAL ELECTRIC, CAT. NO. 6105700G9, 2800 OHMS, 115V AC, WITH RED OR GREEN LENS	U34	VARMETER, TYPE KF-241, WESTINGHOUSE, STYLE NO. GR-55165-111, SCALE 40-0-40 VAR, 2 ELEMENT, 3 PHASE, 3 WIRE, FOR USE WITH 14, 400/120V PTT'S AND 2500/5A CTS, SCALE, IN-0-OUT	U52	ACB SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802485 WITH BLACK MODERN PISTOL HANDLE, SPRING RETURN TO NEUTRAL, 7 STAGE, 3 POSITION, 7 CONTACTS AS PER DEVELOP- MENT, ESCUTCHEON MARKING LAMP CUTOUT-PULL-TRIP CLOSE, SWITCH DESIGNATION MARKING GENERATOR NEUTRAL ACB 522
N19	VARMETER			N112	START	ALARM TIME	DELAY RELAY 2FH	U15	CO <sub>2</sub> DELAYED BANK CUTOFF SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 10802494 WITH BLACK MODERN ROUND HANDLE, MAINTAIN CONTACTS, 2 STAGE, 2 POSITION, 2 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING ON-CUT OUT, SWITCH DESIGNATION MARKING CO <sub>2</sub> DELAYED BANK CUTOUT			U53	EXCITER FIELD RHEOSTAT SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802477 WITH A BLACK MODERN PISTOL GRIP HANDLE, SPRING RETURN TO NEUTRAL, 2 STAGE, 3 POSITION, 2 CONTACT AS PER DEVELOPMENT, ESCUTCHEON MARKING LOWER, RAISE, SWITCH DESIGNATION MARKING EXCITER FIELD RHEOSTAT
N20	230 KV	AMIN	TRANSFORMER 15	N113	GATE	SERVO LOCK	ANN. TIMER 2GSL	U16	TURBINE BEARING AC-DC OIL PUMP SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS29170-Y WITH BLACK MODERN PISTOL GRIP HANDLE, MAINTAIN CONTACTS, 6 STAGE, 3 POSITION, 6 CONTACT AS PER DEVELOPMENT, ESCUTCHEON MARKING START-STOP, SWITCH DESIGNATION MARKING TURBINE BEARING AC-DC OIL PUMP	U35	AMMETER TRANSFER SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1151B79G, WITH A BLACK MODERN ROUND HANDLE, MAINTAIN CONTROL, 2 CONTACTS AS PER DEVELOPMENTS, ESCUTCHEON MARKING OFF-A-B-C OFF, SWITCH DESIGNATION MARKING AC AMMETER TRANSFER		
N21	GOVERNOR AND	UNIT SHUTDOWN	DC FEED	N114	D.T. WATER	DEPRESS. TIME	DELAY RELAY 2WD	U17	GENERATOR MAIN COOLING WATER VALVE SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 29171-Y, WITH BLACK MODERN OVAL HANDLE, SPRING RETURN TO NEUTRAL, 2 STAGE, 3 POSITION, 2 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING CLOSE-OPEN, SWITCH DESIGNATION MARKING GENERATOR MAIN COOLING WATER VALVE	U36	VOLTMETER TRANSFER SWITCH, TYPE W, WESTINGHOUSE, WITH A BLACK MODERN ROUND HANDLE, MAINTAIN CONTACT, 2 CONTACT AS PER DEVELOPMENT, ESCUTCHEON MARKING A-B, B-C, C-A, OFF, A-B, B-C, C-A, OFF, SWITCH DESIGNATION MARKING AC VOLT METER TRANSFER	U54	
N22	5			N115	D.T. DEPRESS.	AUX.	RELAY 20DX	U18	HP THRUST BEARING OIL PUMP SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS29112-Y WITH BLACK MODERN PISTOL GRIP HANDLE, SPRING RETURN TO NEUTRAL, 2 STAGE, 3 POSITION, 2 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING STOP-START, SWITCH DESIGNATION MARKING HP THRUST BRG. OIL PUMP	U37	ANNUNCIATOR TEST AND RESET SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802477, WITH A BLACK MODERN OVAL HANDLE, SPRING RETURN NEUTRAL, 2 STAGE, 3 POSITION, 2 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING RESET-TEST, SWITCH DESIGNATION MARKING ANNUNCIATOR TEST & RESET	U55	
N23	UNIT 5	NEUTRAL REACTOR		N116	GENERATOR	START ALARM	RELAY 74G	U19	DRAFT TUBE WATER DEPRESSOR SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS29073-Y WITH BLACK MODERN OVAL HANDLE, MAINTAIN CONTACTS, 2 STAGE, 3 POSITION, 2 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING ON-OIL-REMOTE, SWITCH DESIGNATION MARKING DRAFT TUBE WATER DEPRESSOR	U38	AGUSTAT TIMING RELAY, TIME DELAY ON DE-ENERG 1-10 MIN.	U56	TEST BLOCK, TYPE PK-2, GENERAL ELECTRIC, CAT. NO. 6422120G3, 4 POLE
N24	UNIT 5 GENERATOR	1 G 3		N117	SHUTDOWN	TIMING	RELAY 62	U20	GOVERNOR DASHPOT BYPASS SOLENOID VALVE SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802505 WITH BLACK MODERN ROUND HANDLE, MAINTAIN CONTACTS, 1 STAGE, 2 POSITION, 1 CONTACT AS PER DEVELOPMENT, ESCUTCHEON MARKING OFF-ON, SWITCH DESIGNATION MARKING GOV. DASHPOT BYPASS VALVE	U39	AGUSTAT TIMING RELAY, TIME DELAY ON DE-ENERG 1-10 MIN.	U57	TEST BLOCK, TYPE PK-2, GENERAL ELECTRIC, CAT. NO. 6422120G4, 6 POLE
N25	UNIT 5 GENERATOR	1 11 0 01 3 31		N118	INCOMPLETE	SEQUENCE	TIMER 48	U21	HOUSING HEATER SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802505 WITH BLACK MODERN OVAL HANDLE, MAINTAIN CONTACTS, 1 STAGE, 2 POSITION, 1 CONTACT AS PER DEVELOP- MENT, ESCUTCHEON MARKING OFF-ON, SWITCH DESIGNATION MARKING GENERATOR HOUSING HEATER	U41	GENERATOR HOUSING HEATER SWITCH, MAN-OIL-AUTO	U58	AC AMMETER, TYPE KA-241, WESTINGHOUSE, CAT. NO. 291B240A19, SCALE 0-100A, USE 20/1 CT, ES-5
N26	STATION SERVICE	ANNUNCIATOR		N119	UNIT RUN	AUX.	URY	U22	BUTTERFLY VALVE SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS-29174-Y WITH BLACK MODERN OVAL HANDLE, SPRING RETURN, 3 STAGE, 5 POSITIONS PULL TO TURN FROM STOP POSITION, 3 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING CLOSE-AFTER CLOSE-STOP-AFTER OPEN-OPEN, SWITCH DESIGNATION MARKING BUTTERFLY VALVE	U42		U59	AC AMMETER, TYPE KA-241, WESTINGHOUSE, CAT. NO. 291B240A20, SCALE 0-150A, 30/1 CT, ES-5
N27	STATION SERVICE	TRANSFORMER 5	AC AMMETER	N120	GENERATOR	FIELD	GROUND	U23	VALVE SELECTOR SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. 1802485 WITH BLACK MODERN ROUND HANDLE, MAINTAIN CONTACTS, 4 STAGE, 2 POSITION, 4 CONTACTS AS PER DEVELOP- MENT, ESCUTCHEON MARKING CONTROL SWBD-VALVE ROOM, SWITCH DESIGNATION MARKING VALVE SELECTOR	U43	START-STOP SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS 29166-Y WITH A BLACK MODERN PISTOL GRIP HANDLE, SPRING RETURN TO NEUTRAL, 4 STAGE, 3 POSITION, 4 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING STOP-START, SWITCH DESIGNATION MARKING UNIT AUTOMATIC START STOP CONTROL		
N28	STATION SERVICE	TRANSFORMER 4	AC AMMETER	N121	GENERATOR	PHASE B	OVERCURRENT	U24	BYPASS VALVE SWITCH, TYPE W, WESTINGHOUSE, STYLE NO. WS-29174-Y WITH A BLACK MODERN OVAL HANDLE, SPRING RETURN, 3 STAGE, 5 POSITION, PULL TO TURN FROM STOP POSITION, 3 CONTACTS AS PER DEVELOPMENT, ESCUTCHEON MARKING CLOSE-AFTER CLOSE-STOP-AFTER OPEN-OPEN, SWITCH DESIGNATION MARKING BYPASS VALVE				
N29	STATION SERVICE	TRANSFORMER 3	AC AMMETER	N122	GENERATOR	LOSS OF FIELD							
N30	STATION SERVICE	4.16 KV BUS TIE	AC AMMETER	N123	GENERATOR	NEGATIVE	SEQUENCE						
N31	TRANSFORMER RELAYS	D.C. FEED		N124	GENERATOR	ACB	AUX.						
N32	13.8 KV	STATION SERVICE	TRANSFORMER 8	N125	GENERATOR	FIELD	GROUND AUX.						
N33	4.16 KV	BUS TIE		N126	GENERATOR	NEGATIVE	SEQUENCE AUX.						
N34	STATION SERVICE	4.16 KV ACB D2		N127	GENERATOR	LOSS OF FIELD	AUX.						
N35	4.16 KV BUS												
N36	STATION SERVICE	4.16 KV ACB D1	TRANSFORMER 4										
N37	4.16 KV	STATION SERVICE											
N38	STATION SERVICE	4.16 KV ACB D4											
N39	STATION SERVICE	4.16 KV ACB D3	TRANSFORMER 3										
N40	4.16 KV	STATION SERVICE											
N41	STATION SERVICE	460 V ACB 54											
N42	STATION SERVICE	460 V ACB 34											
N43	STATION SERVICE	460 V ACB 14											
N44	260 KV BUS												
N45													
N46	STATION SERVICE	1 11 0 01 3 31											
N47	4.16 KV BUS TIE	1 11 2 21 3 31											
N48	TRANSFORMER 4	1 11 2 21 3 31											
N49	UNIT 4 OR 5	1 G 3											
N50	TRANSFORMER POT.												
N51	UNIT 4	1 11 2 21 3 31											
N52	230 KV		TRANSFORMER 14										
N53	GOVERNOR AND	MAIN	DC FEED										
N54	4												
N55	UNIT 4	NEUTRAL REACTOR											
N56	UNIT 4 GENERATOR	1 G 3											
N57	UNIT 4 GENERATOR	1 11 0 01 3 31											
N58	THRUST BRG.	OIL PRESSURE	INCOMING										
N59	FREQUENCY	INDICATOR	RUNNING										
N60	FREQUENCY	INDICATOR											
N61	SYNCHROSCOPE		INCOMING										
N62	SYNCHRONIZING	VOLTMETER											
N63	SYNCHRONIZING	VOLTMETER	RUNNING										
N64													
N65													











8		7		6		5		4		3		2		1									
ID		DEVICE INFORMATION									PROTECTION INFO				UNIT DATA			TERMINATIONS					DETAILED DRAWING REFERENCE OR CATALOG NUMBER
SECTION NUMBER	CELL	CIRCUIT NAMEPLATE	DEVICE TYPE	DEVICE MOUNTING (SEE NOTES)	DEVICE SIZE	POLES	KAIC RATING (SEE NOTES)	BREAKER FRAME OR FUSE CLIP TYPE	RATING PLUG OR FUSE AMPS	BREAKER TRIP OR FUSE CLIP AMPS	STARTER SIZE	ACTUAL LOAD SIZE	FULL LOAD AMPS (SEE NOTES)	OVERLOAD	CPT SIZE	ADDITIONAL ACCESSORIES, FEATURES & NOTES	DEVICE SPACE REQ INCHES	CONTROL CABLE ENTRY DIRECTION	POWER CABLE ENTRY DIRECTION	TYPE (SEE NOTES)	PHASE SIZE	#PER PHASE	
1F			VERTICAL BUS		600A																		
1F	B	VOLTAGE REGULATOR	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
1F	D	SPARE	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
1F	G	GEN. 4 COOLING WATER VALVE	FVNR STARTER F206	D		3	65K	HMCPS		3A (9-30)	1	0.5HP	1.00	H2004B-3	100VA	ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD81
1F	J	MCC SPACE HEATERS	FEEDER BREAKER FDRB	D		3	65K	EGH		20A					750VA	ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	WD-HTR
1F	M	BUTTERFLY VALVE	FVNR STARTER F206	D		3	65K	HMCPS		30A (90-300)	1	10HP	14.00	H2011B-3	100VA	ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD82
2F			VERTICAL BUS		600A																		
2F	B	GOVERNOR OIL PUMP 4A	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
2F	D	GOVERNOR OIL PUMP 4B	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
2F	G	TURB. BRG. AC OIL PUMP	FVNR STARTER F206	D		3	65K	HMCPS		3A (9-30)	1	0.5HP	1.00	H2004B-3	100VA	ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD83
2F	K	BY-PASS VALVE	FVNR STARTER F206	D		3	65K	HMCPS		7A (21-70)	1	1HP	2.10	H2006B-3	100VA	ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD84
2F	M	GEN THRUST BRG. OIL PUMP	FEEDER BREAKER FDRB	D		3	65K	HFD		20A						ROTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158

LINE 1  
LINE 2  
LINE 3

1.0" [25.4mm]

2.5" [64mm]

1B	2B
1D	2D
1G	2G
1J	2K
1M	2M

NAMEPLATE FEATURES  
COLOR: BLACK / WHITE LETTERS  
SECURED WITH SCREWS  
CHARACTER HEIGHT: 0.1875" [5mm]  
CHARACTERS PER LINE: 17 MAXIMUM  
(LINE 2 MAX 15 CHARACTERS)  
NAMEPLATE SECURED VIA SELF TAPPING SCREWS  
NOT TO SCALE

NOTES:  
TERMINATIONS  
M = MECHANICAL CU/AL  
C = COMPRESSION TYPE, 2 HOLE MOUNTING, COPPER  
DEVICE MOUNTING  
F = FIXED MOUNTED  
D = DRAW-OUT MOUNTED  
B = BOLTED IN  
KAIC RATING  
RMS SYMMETRICAL INTERRUPTING RATING AT MAXIMUM OF RATED VOLTAGE  
FULL LOAD AMPERES & HEATER SIZE  
MOTOR FLA AND HEATER SELECTION IS BASED ON  
NEMA B, 1800 RPM MOTOR WITH SF = 1.15

MCC4 - POWER PLANT 2

CONTRACT NO. W9128F-16-C-0026 NA  
AS-BUILT

NEG-ALT NUMBER: SE220225X6K1-C001  
ITEM NUMBER: 008  
CUSTOMER: FORT PECK DAM  
LOCATION: FORT PECK, MT 59223  
P.O. NUMBER: 6669-208199

Certified As-Built

This document accurately reflects the manufacturing details of this product when it shipped from the factory.

CAGE CODE  
380H0

UNIT SCHEDULE

THE INFORMATION ON THIS DOCUMENT WAS CREATED BY EATON CORPORATION. IT WAS DISCLOSED IN CONFIDENCE AND IS ONLY TO BE USED FOR THE PURPOSE IN WHICH IT WAS SUPPLIED.

DATE  
8/31/2016

DATE  
11/29/2016

PRODUCT CODE  
MCC

REVISION  
3

APPD  
AH

DATE  
11/29/2016

S.O.  
COOJHCC

G.O.  
MKW0008196-008

TITLE  
FORT PECK MCC REPLACEMENT PROJECT  
MCC No. 4 - POWER PLANT 2

TYPE  
FREEDOM FLASHGARD MCC

SCHEDULES

DWG  
COOJHCC-N

SHEET  
001

Page 105

05/09/18



ID		DEVICE INFORMATION									PROTECTION INFO				UNIT DATA			TERMINATIONS					DETAILED DRAWING REFERENCE OR CATALOG NUMBER
SECTION NUMBER	CELL	CIRCUIT NAMEPLATE	DEVICE TYPE	DEVICE MOUNTING (SEE NOTES)	DEVICE SIZE	POLES	KAIC RATING (SEE NOTES)	BREAKER FRAME OR FUSE CLIP TYPE	RATING PLUG OR FUSE AMPS	BREAKER TRIP OR FUSE CLIP AMPS	STARTER SIZE	ACTUAL LOAD SIZE	FULL LOAD AMPS (SEE NOTES)	OVERLOAD	CPT SIZE	ADDITIONAL ACCESSORIES, FEATURES & NOTES	DEVICE SPACE REQ INCHES	CONTROL CABLE ENTRY DIRECTION	POWER CABLE ENTRY DIRECTION	TYPE (SEE NOTES)	PHASE SIZE	#PER PHASE	
1F			VERTICAL BUS		600A																		
1F	B	VOLTAGE REGULATOR	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
1F	D	SPARE	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
1F	G	SPARE	FVNR STARTER F206	D		3	65K	HMCPS		30A (90-300)	1	10HP	14.00	H2011B-3	100VA	ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD91
1F	J	MCC SPACE HEATERS	FEEDER BREAKER FDRB	D		3	65K	EGH		20A					750VA	ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	WD-HTR
1F	M	BUTTERFLY VALVE	FVNR STARTER F206	D		3	65K	HMCPS		30A (90-300)	1	10HP	14.00	H2011B-3	100VA	ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD92
2F			VERTICAL BUS		600A																		
2F	B	GOVERNOR OIL PUMP 5A	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
2F	D	GOVERNOR OIL PUMP 5B	FEEDER BREAKER FDRB	D		3	65K	HFD		70A						ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158
2F	G	TURB. BRG. AC OIL PUMP	FVNR STARTER F206	D		3	65K	HMCPS		3A (9-30)	1	0.5HP	1.00	H2004B-3	100VA	ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD93
2F	K	BY-PASS VALVE	FVNR STARTER F206	D		3	65K	HMCPS		7A (21-70)	1	1HP	2.10	H2006B-3	100VA	ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	18	EITHER	EITHER	M	#14-1 AWG	1	WD94
2F	M	GEN THRUST BRG. OIL PUMP	FEEDER BREAKER FDRB	D		3	65K	HFD		20A						ROTOTRACT (UNIT DISCONNECT MECHANISM) TRIP TYPE: THERMAL MAG MOTOR LOAD BLOCK	12	EITHER	EITHER	M	#14-1 AWG	1	287158

LINE 1  
LINE 2  
LINE 3

1.0" [25.4mm]

2.5" [64mm]

NAMEPLATE FEATURES  
COLOR: BLACK / WHITE LETTERS  
SECURED WITH SCREWS  
CHARACTER HEIGHT: 0.1875" [5mm]  
CHARACTERS PER LINE: 17 MAXIMUM  
(LINE 2 MAX 15 CHARACTERS)  
NAMEPLATE SECURED VIA SELF TAPPING SCREWS  
NOT TO SCALE

1B	2B
1D	2D
1G	2G
1J	2K
1M	2M

NOTES:  
TERMINATIONS  
M = MECHANICAL CU/AL  
C = COMPRESSION TYPE, 2 HOLE MOUNTING, COPPER  
DEVICE MOUNTING  
F = FIXED MOUNTED  
D = DRAW-OUT MOUNTED  
B = BOLTED IN  
KAIC RATING  
RMS SYMMETRICAL INTERRUPTING RATING AT MAXIMUM OF RATED VOLTAGE  
FULL LOAD AMPERES & HEATER SIZE  
MOTOR FLA AND HEATER SELECTION IS BASED ON  
NEMA B, 1800 RPM MOTOR WITH SF = 1.15

MCC5- POWER PLANT 2

CONTRACT NO. W9128F-16-C-0026 NA

AS-BUILT

NEG-ALT NUMBER: SE220225X6K1-C001  
ITEM NUMBER: 009  
CUSTOMER: FORT PECK DAM  
LOCATION: FORT PECK, MT 59223  
P.O. NUMBER: 6669-208199

Certified As-Built

This document accurately reflects the manufacturing details of this product when it shipped from the factory.

CAGE CODE  
380H0

DATE  
8/31/2016

DATE  
8/31/2016

PRODUCT CODE  
MCC

REVISION  
3

S.O.  
COOJHCK

THE INFORMATION ON THIS DOCUMENT WAS CREATED BY EATON CORPORATION. IT WAS DISCLOSED IN CONFIDENCE AND IS ONLY TO BE USED FOR THE PURPOSE IN WHICH IT WAS SUPPLIED.

FORT PECK MCC REPLACEMENT PROJECT  
MCC No. 5 - POWER PL

TYPE  
FREEDOM FLASHGARD MCC

SCHEDULES

G.O.  
MKW0008196-009

DWG  
COOJHCK-N

SHEET  
001

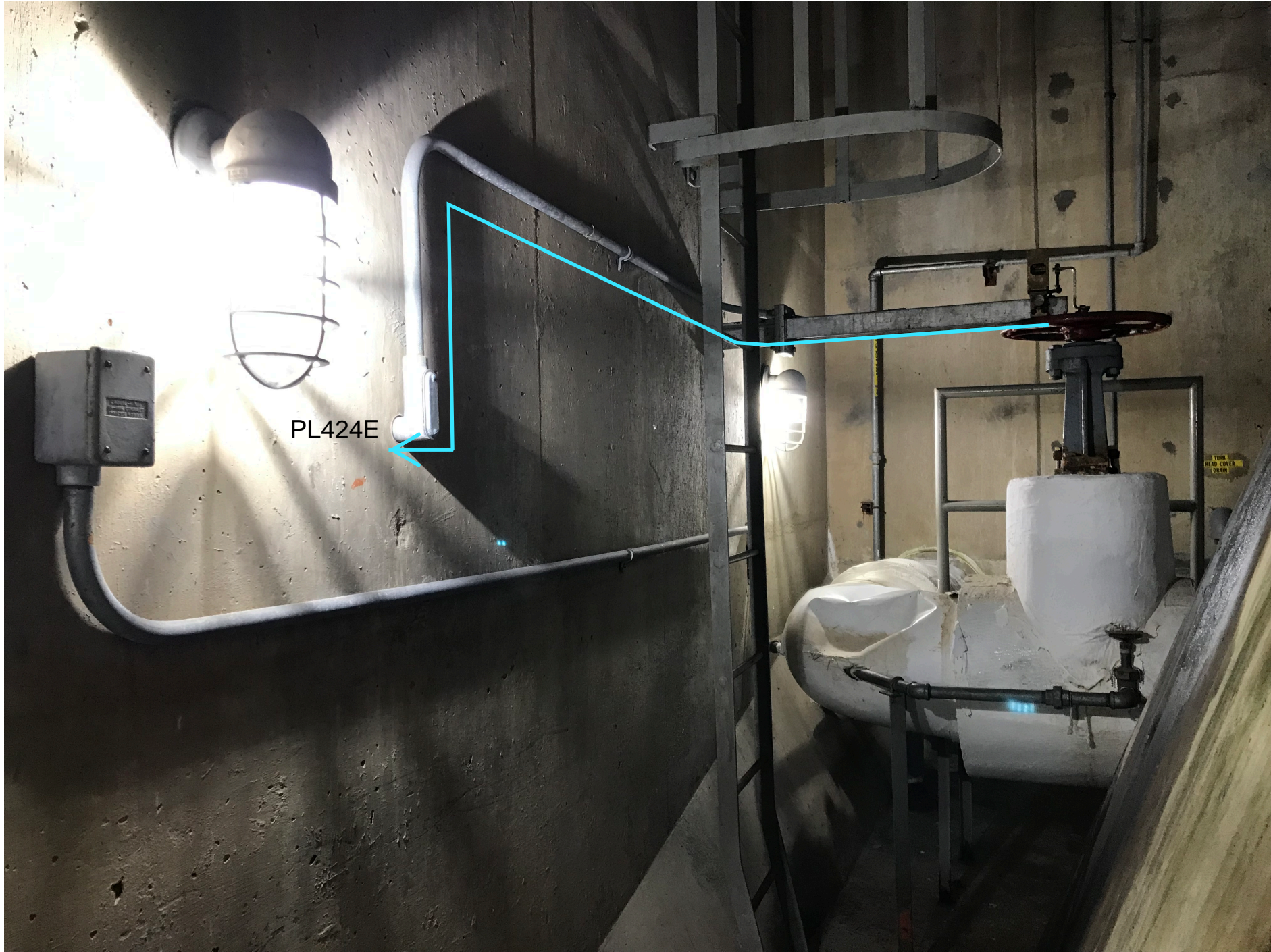
UNIT SCHEDULE

05/09/18





UNIT 4 Spiral Case Drain Valve Limit Switch & Conduit



Unit 4 - Spiral Case Drain Valve Limit Switch, Conduit Continued.  
Refer to 5577.5-H-74



CONTACTS		BLACK PISTOL SHIP HANDLE POSITION					
HANDLE END	NO.	PULL OUT LCO	TRIP	OFF		CLOSE	
				AFTER TRIP	AFTER CLOCK		
2	1					X	
4	3	X	X				
6	5		X	X	X	X	
8	7			X	X		
10	9			X	X		
12	11				X	X	
14	13				X	X	
SPRING RETURN							

TYPE W. STYLE NO.1502455

ACB'S 422, 424, 428, 522, 524 & 528 CONTROL SWITCHES

CONTACTS		RED REM. OWAL KEY HOL. POS	
HANDLE END	NO.	OFF	ON
2	1		X
4	3		X
6	5		X
8	7		X
SPRING RETURN			

TYPE W. STYLE NO.1040759-D

ACB'S 424 & 524 SYNCHRONIZING CONTROL SWITCHES

CONTACTS		BLK ROUND HDL POSITION				
HANDLE END	NO.	OFF	AØ	BØ	CØ	
2	1	X				
4	3		X			
6	5	X	X	X		
8	7				X	
10	9					X
12	11			X		
14	13			X		
SPRING RETURN						

TYPE W. STYLE NO.1134878-E

AMMETER CONTROL SWITCHES

CONTACTS		BLK ROUND HDL. POSITION			
HANDLE END	NO.	OFF	A-D	D-C	C-A
2	1		X		X
4	3		X		
6	5			X	
8	7	X	X		X
SPRING RETURN					

TYPE W. STYLE NO.1173014-D

VOLTMETER CONTROL SWITCHES

CONTACTS		BLK OVAL HANDLE POS.		
HANDLE END	NO.	RESET	NORM.	TEST
2	1		X	X
4	3	X	X	
SPRING RETURN				

TYPE W. STYLE NO.1802477

ANNUNCIATOR TEST & RESET CONTROL SWITCHES

CONTACTS		BLK OVAL HANDLE POS.		
HANDLE END	NO.	RESET	NORM.	TEST
2	1			X
4	3	X		
6	5	X		
8	7	X		
SPRING RETURN				

TYPE W. STYLE NO.WS-29176-Y

ALARM TEST & RESET CONTROL. SWITCH

TRIP	CLOSE
PULL OUT LCO	

CONTACTS		BLK PISTOL GRIP HDL POS		
HANDLE END	NO.	STOP	NEUL	START
2	1			X
4	3		X	X
6	5	X		
8	7			X
SPRING RETURN				

TYPE W. STYLE NO.

UNIT AUTOMATIC START-STOP CONTROL SWITCHES

CONTACTS		BLK OVAL HANDLE POS.	
HANDLE END	NO.	NEUTRAL PULL OUT	TRIP
2	1		X
4	3		X
SPRING RETURN			

TYPE W. STYLE NO.

UNIT EMERGENCY SHUTDOWN CONTROL SWITCHES

CONTACTS		BLK OVAL HANDLE POS.		
HANDLE END	NO.	LOWER	AUTO	RAISE
2	1			X
4	3	X		
6	5		X	
SPRING RETURN				

TYPE W. STYLE NO.

UNIT SPEED LEVEL CONTROL SWITCHES

CONTACTS		BLACK PISTOL GRIP HANDLE POSITION			
HANDLE END	NO.	PULL OUT LCO	TRIP	OFF	CLOSE
2	1				X
4	3	X	X		
6	5		X	X	X
SPRING RETURN					

TYPE W. STYLE NO.11645840

EXCITER FIELD BREAKER CONTROL SWITCHES

CONTACTS		BLK. PISTOL GRIP HDL. POS.		
HANDLE END	NO.	LOWER	NEUT	RAISE
2	1			X
4	3	X		
SPRING RETURN				

TYPE W. STYLE NO.1645840

GEN'S VOLTAGE ADJUSTING & EXCITER FIELD RHEOSTAT CONTROL SWITCHES

CONTACTS		BLK. ROUND HANDLE POS.	
HANDLE END	NO.	OFF	ON
2	1		X
SPRING RETURN			

TYPE W. STYLE NO.1802505

GOV'S DASHPOT BYPASS VALVE CONTROL SWITCHES

CONTACTS		BLK. OVAL. HANDLE POS.	
HANDLE END	NO.	NORM	RESET
2	1	X	
4	3	X	
6	5	X	
8	7		X
SPRING RETURN			

TYPE W. STYLE NO.3804A 92G01

UNIT PARTIAL SHUTDOWN CONTROL SWITCHES

STOP	START

10UA

NEUT PULL OUT	TRIP

1ES

AUTO	RAISE
LOWER	

65MSS

TRIP	CLOSE
PULL OUT LCO	

CONTACTS		BLK. MODERN OVAL HDL. POS.				
HANDLE END	NO.	PULL OUT		STOP	PULL OUT	
		CLOSE	AFTER CLOSE		AFTER CLOCK	OPEN
2	1	X				
4	3	X	X		X	X
6	5					X
SPRING RETURN						

TYPE W. STYLE NO.WS-29174-Y

BUTTERFLY & BYPASS VALVES CONTROL SWITCHES

CONTACTS		BLACK ROUND HANDLE POS.	
HANDLE END	NO.	CONT. SWBDS.	VALVE ROOM
2	1		X
4	3	X	
6	5		X
8	7	X	
SPRING RETURN			

TYPE W. STYLE NO.

BUTTERFLY & BYPASS VALVES SELECTOR CONTROL SWITCHES

CONTACTS		BLK OVAL GRIP HDL. POS.		
HANDLE END	NO.	ON	OFF	REMOTE
2	1	X		
4	3			X
SPRING RETURN				

TYPE W. STYLE NO.WS20173-Y

DRAFT TUBE WATER DEPRESSOR CONTROL SWITCHES

AFTER STOP CLOSE	AFTER OPEN
CLOSE	OPEN

1BPV

CONT. SWBDS.	VALVE ROOM

63DA

STOP	REMOTE
START	

1TB

TYPE W. STYLE NO.WS-29170-Y

TURBINE BEARING AC-DC OIL PUMP CONTROL SWITCHES

CONTACTS		BLK. PISTOL GRIP HDL. POS.		
HANDLE END	NO.	STOP	NEUT	START
2	1			X
4	3	X	X	
SPRING RETURN				

TYPE W. STYLE NO.WS-29172-Y

HIGH PRESS. THRUST BRG. OIL PUMP CONTROL SWITCHES

CONTACTS		BLK. OVAL HANDLE. POS.		
HANDLE END	NO.	CLOSE	NEUT	OPEN
2	1	X		
4	3			X
SPRING RETURN				

TYPE W. STYLE NO.WS-29171-Y

GEN. MAIN COOLING WATER VALVE CONTROL SWITCHES

CLOSE	OPEN

63GBWT

CONTACTS		BLK. ROUND HDL. POSITION	
HANDLE END	NO.	ON	CUTOUT
2	1		X
4	3	X	
SPRING RETURN			

TYPE W. STYLE NO.1802494

CO DELAYED BANK CUTOFF CONTROL SWITCH

CONTACTS		BLK. OVAL HANDLE POS.	
HANDLE END	NO.	ON	CUTOUT
2	1	X	
4	3	X	
SPRING RETURN			

TYPE W. STYLE NO. WS-29169-Y

HORN CUT-OUT CONTROL SWITCH

CONTACTS		BLK. OVAL HANDLE POS.			
HANDLE END	NO.	PULL OUT LCO	OFF	NEUT	ON
2	1		X	X	X
4	3			X	
6	5				X
SPRING RETURN					

TYPE W. STYLE NO. WS-29176-Y

SWITCHYARD LIGHTING CONTROL SWITCH

CONTACTS		BLK OVAL HANDLE POS.		
HANDLE END	NO.	ON	AUTO	OFF
2	1	X		
4	3		X	
6	5	X		
8	7		X	
SPRING RETURN				

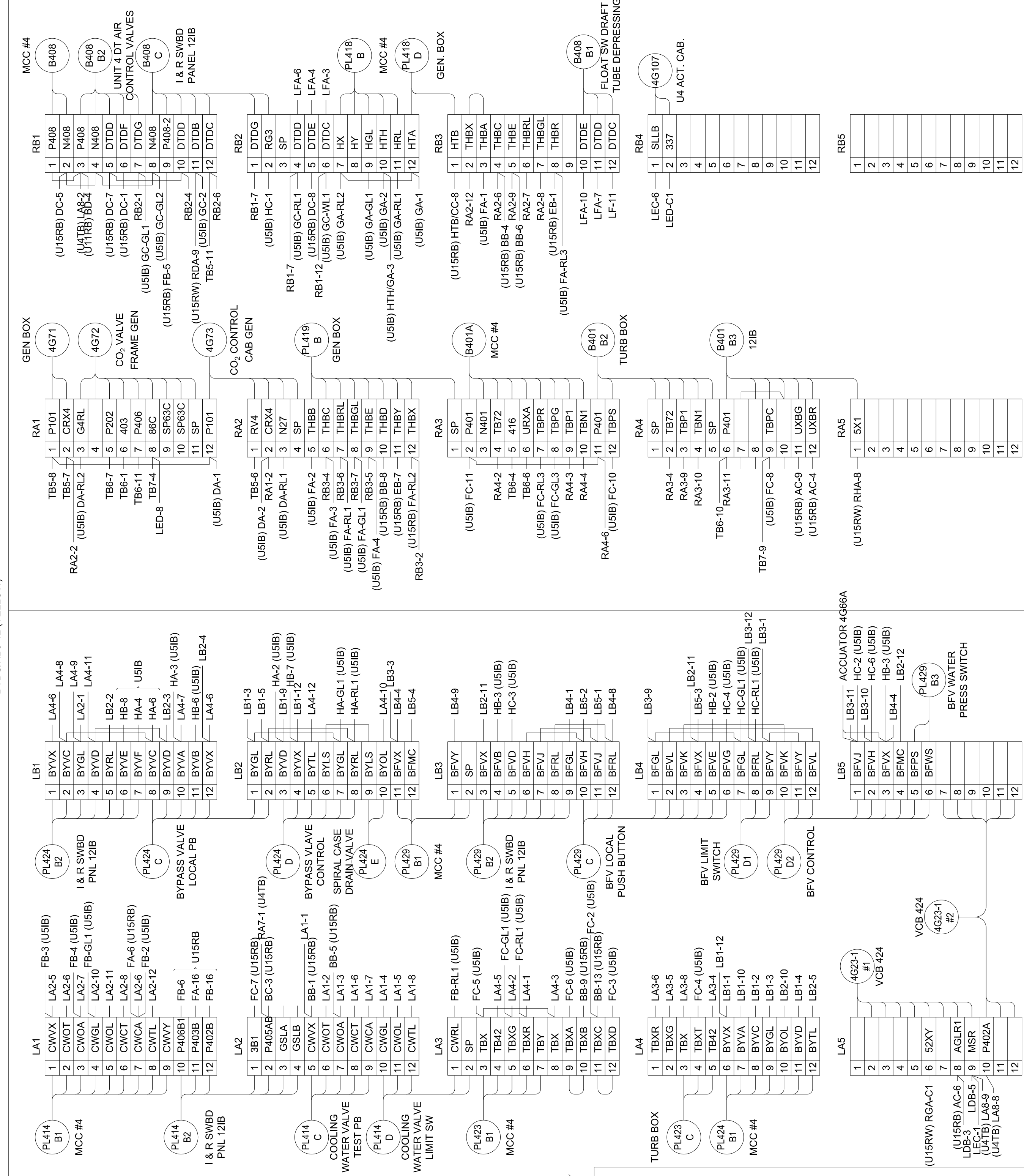
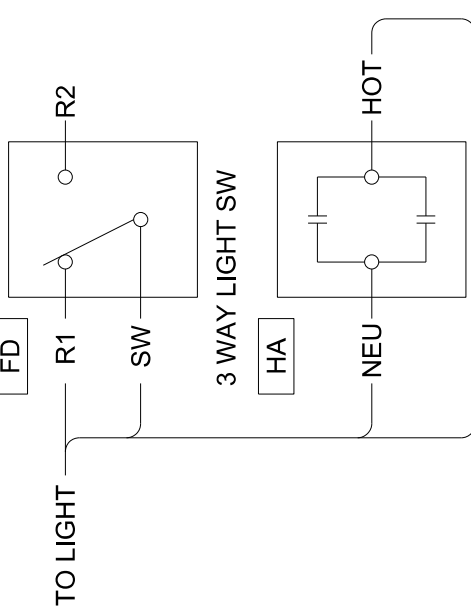
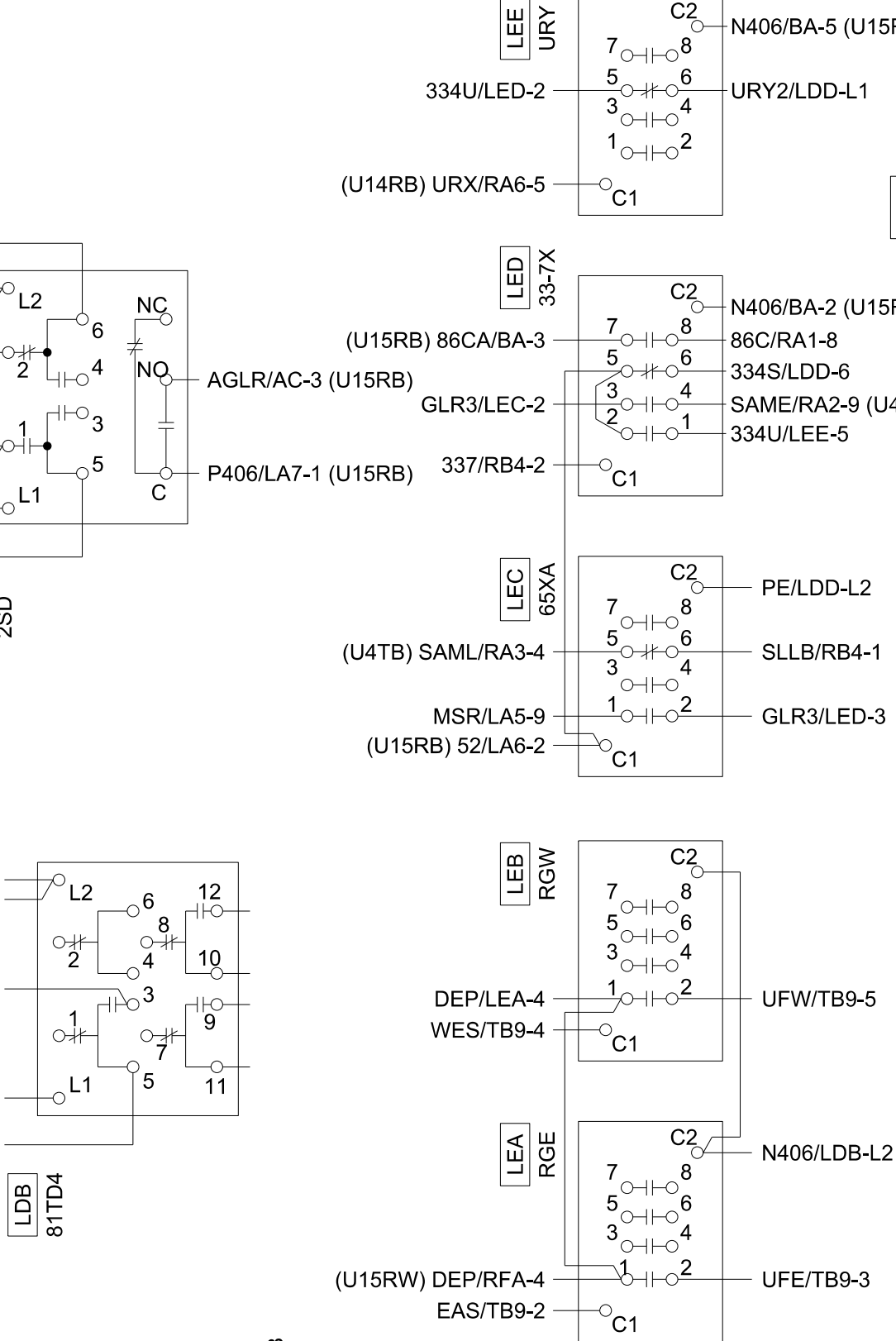
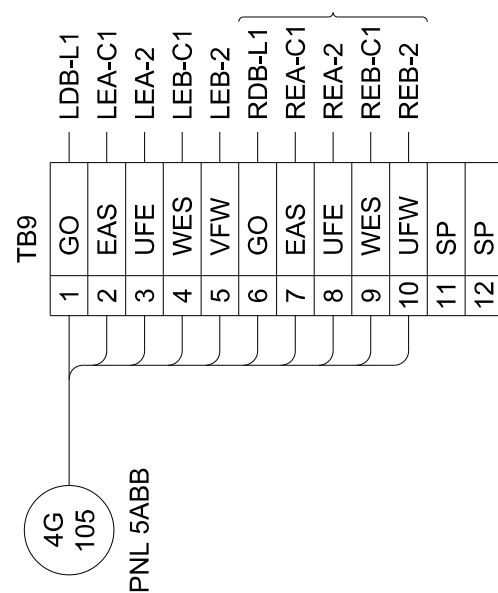
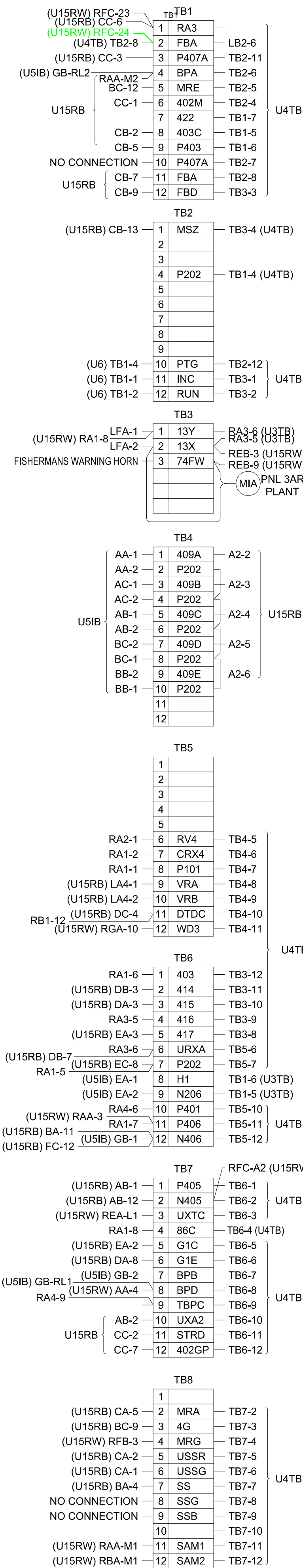
TYPE W. STYLE NO.3804A91G01

GEN, HOUSING HEATER CONTROL SWITCHES

4-2-02	GENERAL REVISIONS			
11-10-02	GENERAL REVISIONS			J.H.H. P.J.K.
DATE	DESCRIPTION			MADE APPRD
REVISIONS				
U.S. ARMY ENGINEER DISTRICT, OMAHA CORPS OF ENGINEERS OMAHA, NEBRASKA				
DESIGNED BY:	MISSOURI RIVER FORT PECK LAKE, MONTANA  UNIT 4 & 5 CONTROL BOARD SWITCH DEVELOPMENTS			
DRAWN BY: T.S.E.				
CHECKED BY:				
SUBMITTED BY:				
CHIEF	SECTION			
RECOMMENDED:				
CHIEF	BRANCH	APPROVED:	DATE:	SEPT 1979
		CHIEF ENGINEERING DIVISION		
APPROVED:		SCALE: AS SHOWN	SPEC. NO.	
		DRAWING NUMBER MFP-OPN83E153.3		
COL. C.E., DISTRICT ENGINEER				

THIS PLAN ACCOMPANIES CONTRACT NO.  
MODIFICATION NO.





<b>\$\$ - THINK VALUE ENGINEERING - \$\$</b>			
Revisions			
10/18/18	DIGITAL RELAY UPGRADE	TMA	IEW
9/22/00	GENERAL REVISIONS		
12/20/95	PLANT 2, 13.8KV BREAKER REVISIONS		
<p align="center"><b>U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS OMAHA, NEBRASKA</b></p>			
Designed by:	<p align="center"><b>MISSOURI RIVER FORT PECK PROJECT PLANT 2 CONTROL BOARDS UNIT NO.4 INSTRUMENT BOARD TERMINAL BLOCK WIRING PANEL U5TB</b></p>		
Drawn by:			
Checked by:			
Reviewed by:	Scale:	Date:	
	As Shown		
Submitted by:	Spec. No.: DACW45	<p align="center"><b>Drawing Code:</b></p> <p align="center"><b>MFP-OPN83E1159A.13</b></p>	
Chief:	Contract No.: DACV45		
Section			

THIS PRINT HAS BEEN REVISED FOR PPCS,  
GATE CRACKING, UNDERFREQ, DRAFT TUBB  
DEPRESSING AND SERVO LOCK REMOVAL.

*A*

LEFT SIDE

C

4

RIGHT SIDE

1

2

3

4

5



## MCC4 DC PANEL

**LOCATION:** Plant 2 Turbine Floor, MCC4

**INCOMING FEED:** DC Control SWBD **CIR:** 31

125VDC

**100 AMP MAIN**

CIR #	CIRCUIT DESIGNATION	TRIP AMP	CABLE SIZE	CIR #	CIRCUIT DESIGNATION	TRIP AMP	CABLE SIZE
1	Turbine & Governor Control B405	20	19/25	2	13.8kV VCB 424 Control B402	20	8
3				4			
5	Generator Protection Control B406	20	19/25	6	SPARE	70	4
7				8			
9	Draft Tube Water Depressing Cont. B408	20	19/25	10	Volt. Reg & Gen Excitation B407	20	19/22
11				12			
13	Spare	20		14	Turbine Bearing DC Oil Pump B401	20	19/25
15				16			
17	Spare	20		18	Spare	20	
19				20			
21	Spare	20		22	Spare	20	
23				24			
25	Spare	20		26	Spare	20	
27				28			
29	Spare	20		30	Spare	20	
31				32			
33	SPARE	30	8	34	Spare	20	
35				36			
37	Blank			38	Blank		
39				40			

**Notes:**

1.



## MCC5 DC PANEL

**LOCATION:** Plant 2 Turbine Floor, MCC 5

**INCOMING FEED:** DC Control SWBD **CIR:** 32

125VDC

**100 AMP MAIN**

CIR #	CIRCUIT DESIGNATION	TRIP AMP	CABLE SIZE	CIR #	CIRCUIT DESIGNATION	TRIP AMP	CABLE SIZE
1	Turbine & Governor Control B505	20	19/25	2	13.8kV VCB 524 Control B502	20	8
3				4			
5	Generator Protection Control B506	20	19/25	6	Spare	70	4
7				8			
9	Draft Tube Water Depressing Cont. B508A	20	19/25	10	Volt. Reg & Gen Excitation B507	20	19/22
11				12			
13	Spare	20		14	Turbine Bearing DC Oil Pump B501	20	19/25
15				16			
17	Spare	20		18	Spare	20	
19				20			
21	Spare	20		22	Spare	20	
23				24			
25	Spare	20		26	Spare	20	
27				28			
29	Spare	20		30	Spare	20	
31				32			
33	Blank	30	8	34	Spare	20	
35				36			
37	Blank			38	Blank		
39				40			

**Notes:**

1.



## **PANEL PP8**

**LOCATION:** Power Plant 2 Air Intake (Elev. 2055.5)

**INCOMING FEED:** MCC7 **BKR:** 1E (Equipment Room 2)

480V 3Phase 3 Wire

### **400 AMP MAIN**

CIR #	CIRCUIT DESIGNATION	TRIP AMP	CABLE SIZE	CIR #	CIRCUIT DESIGNATION	TRIP AMP	CABLE SIZE
1	Main Heater - MH3 (Inside air intake house)	150		2	25KVA Transformer for PP8A (25KVA, 1Ø, 480/240/120 V transformer)	70	
3				4			
5				6	Blank		
7	Heater Step Controller 4 (to the right of PP8A)	20		8	Fan S3	20	
9				10			
11				12			
13	Oil Skimmer	20		14	Fan S4	20	
15				16			
17				18			
19	Penstock Drain Heater	20		20	Spare	20	
21				22			
23				24			

**Notes:**

1. Refer to drawings: MFP-OPN83E1679, 5577.5-H-53, 5577.5-H-72
2. New Power Panel was installed in 2017 with contract W9128F-16-C-0026. Power Panel PP8 & PP8A replaced MCC8.
- 3.