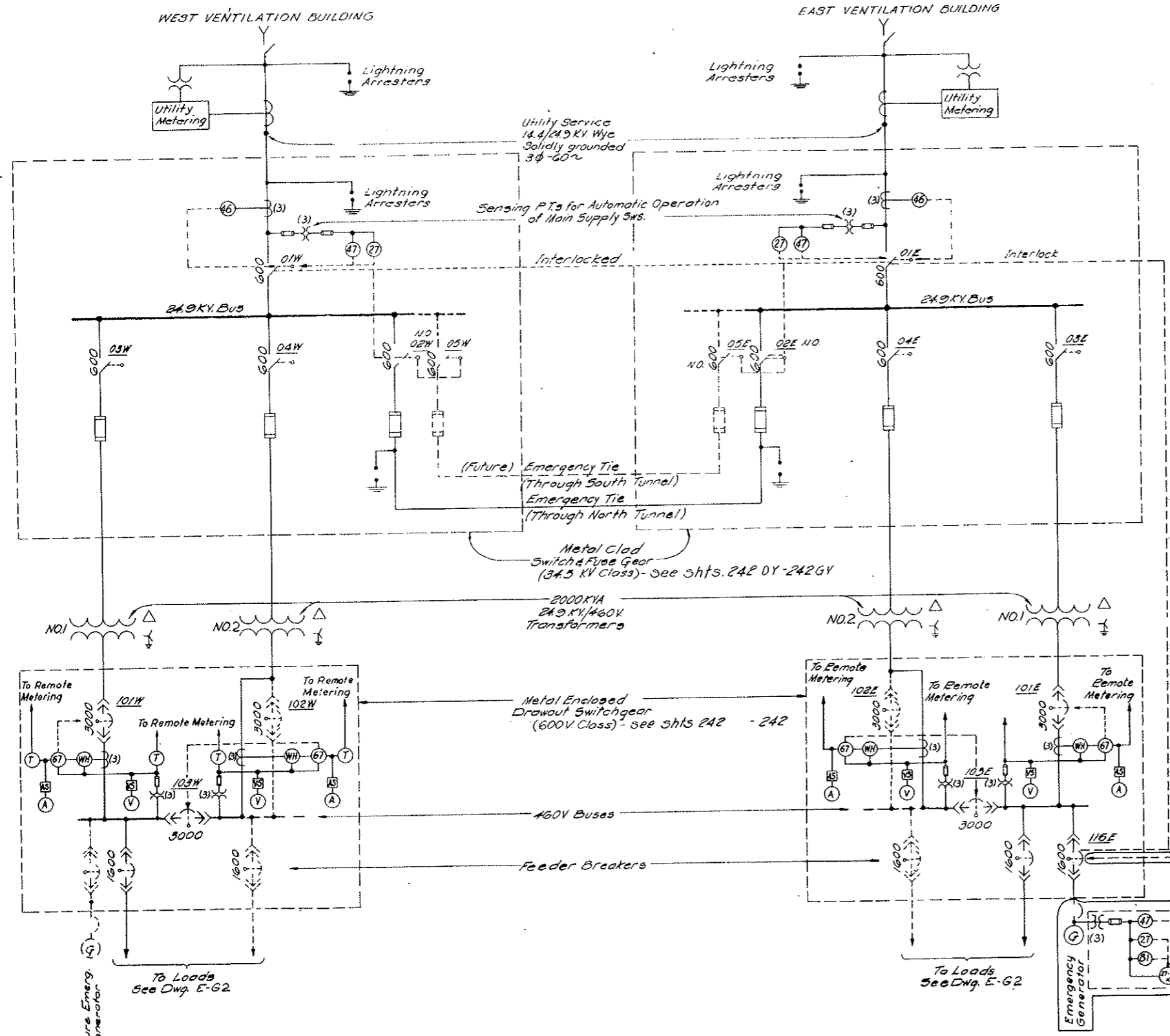


FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	241	326

AS CONSTRUCTED
NO REVISIONS DATE
OCT. 26 1973

LEGEND

- Electrically Operated Drawout Low Voltage Power Air Circuit Breaker
Dual Magnetic Trip
Frame Size as Indicated
- Fuse
- Electrically Operated Load Break Switch
- Initial Connections
- Future Connections
- Reverse Phase Voltage Relay
- Reverse Power Relay
- Teleducators or Transducers for Remote Telemetry
- UV Relay
- Current Balance Relay (For Single Phasing Protection)
- Frequency Relay
- Frequency & Undervoltage Aux. Relay



- NOTES:**
- On the 24.9 KV Switchgear, Sws. # 01W, 02W, 01E and 02E are interlocked to permit closure of only 3 switches at one time (For Present Installation)
 - All Main Electrical Switches and Circuit Breakers are operated from respective Building Battery Supply.

(R-1)
NOTE A:
Emerg. Gen. System (Bid Item 180) Deleted see W.O. 14153 & Spec. 18B. Equipment & Wiring N.I.C., but Conduit for Wiring is in this Contract (Bid Item 187).

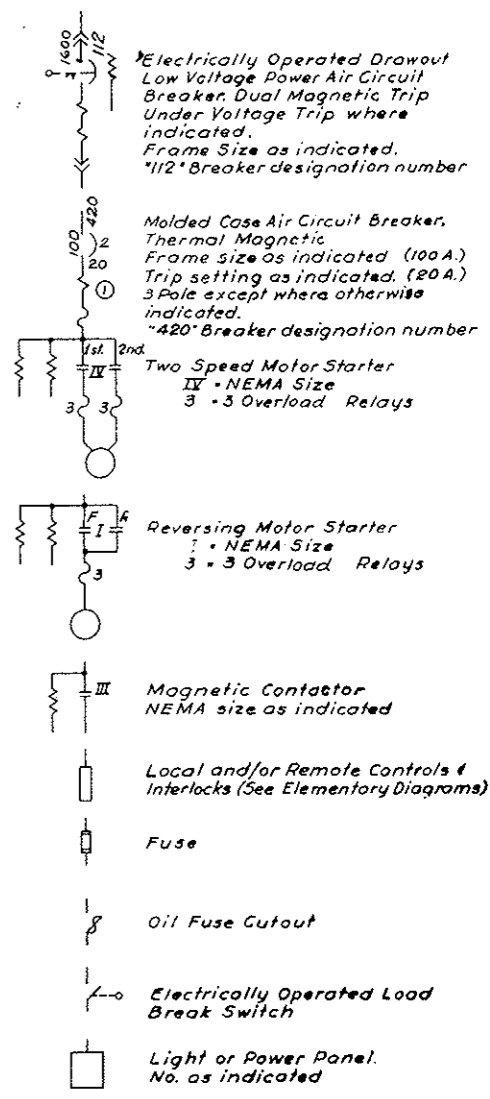
W.G. Contract Limits Defined - See Note A.		E.A. SHEETS	
NO. DATE	DESCRIPTION OF REVISION	BY	CHK. APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT			
ELECTRICAL POWER SUPPLY SINGLE LINE DIAGRAM GENERAL ARRANGEMENT			
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.			
DESIGNED: D.H.D.	RECOMMENDED: [Signature]	DRAWING NO. E-61	
DRAWN: R.D.S.-E.A.N.	CHECKED: N.A.C.	DATE: AUG. 1967	
SUBMITTED: [Signature]	APPROVED: [Signature]	SCALE: NONE	
NEW YORK, N. Y.		DATE: AUG. 1967	

3-3-69 Diff. Rev. Trans. Voltage
 (R-2) Rev. 2-1-71 Reinstated Items W.O. # 16527

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	242	326

AS CONSTRUCTED
NO REVISIONS DATE Oct. 26 1973

LEGEND



NOTE:
 All cables are 600V. insulation unless noted otherwise.
 Motor Control Center Details Dwg 242AX Thru 242WY
 High Voltage Switch Gear Details Shts 242XX Thru 242YF
 Low Voltage Switch Gear Details Shts 242

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
1		Connections as indicated			S.A. DHO/M.A.S.
2		Contract Limits Defined (See Note A)			S.A. DHO/M.A.S.
3		Motor Control Center Details as indicated			S.A. DHO/M.A.S.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL POWER DISTRIBUTION
 DETAILED SINGLE LINE DIAGRAM
 (TYPICAL PER BUILDING)

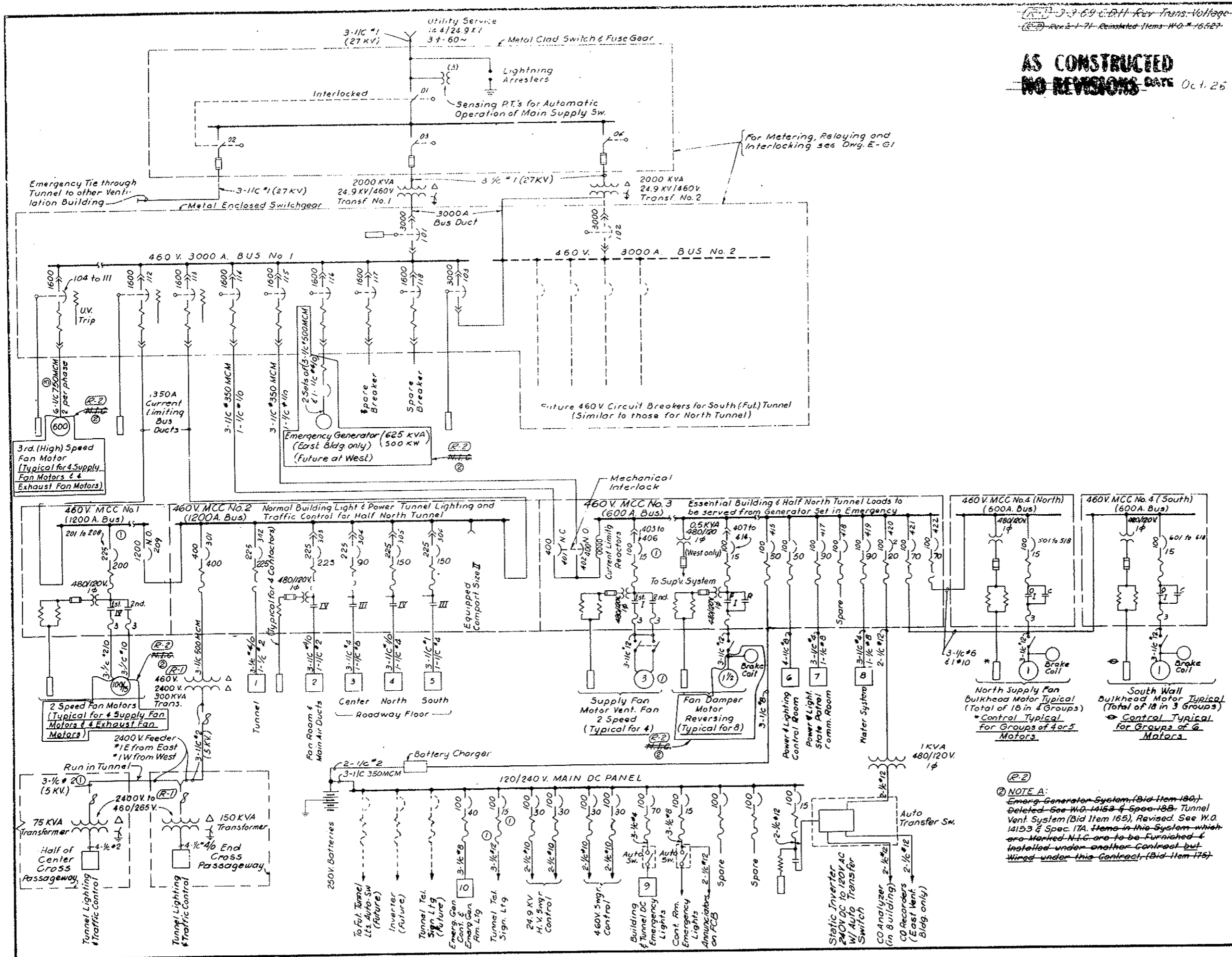
TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

DESIGNED: J.H.D.
 DRAWN: E.A.N.
 CHECKED: H.A.C.
 SUBMITTED: [Signature]
 APPROVED: [Signature]
 NEW YORK, N. Y.

RECOMMENDED: [Signature]
 APPROVED: [Signature]

DRAWING NO. **E-62**

SCALE: NONE DATE: AUG. 1967



(R-2) NOTE A:
 Emergency Generator System (Bid Item 180) Deleted - See H.O. 14153 & Spec. 188. Tunnel Vent. System (Bid Item 165), Revised. See W.O. 14153 & Spec. 17A. Items in this system which are marked N.T.C. are to be furnished & installed under another contract but wired under this contract. (Bid Item 178)

UNLESS OTHERWISE SPECIFIED DECIMAL DIMS. TO BE
 FRACTIONAL DIMS. TO BE
 ANGLES TO BE
 CAST DIMS. TO BE

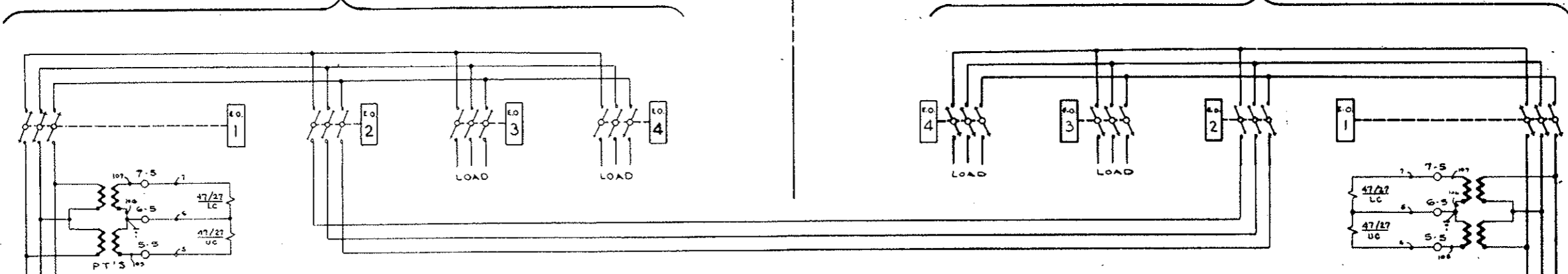
REV.	DATE	BY	REVISIONS
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FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
III	COLORADO	170-31341220	242XX	

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

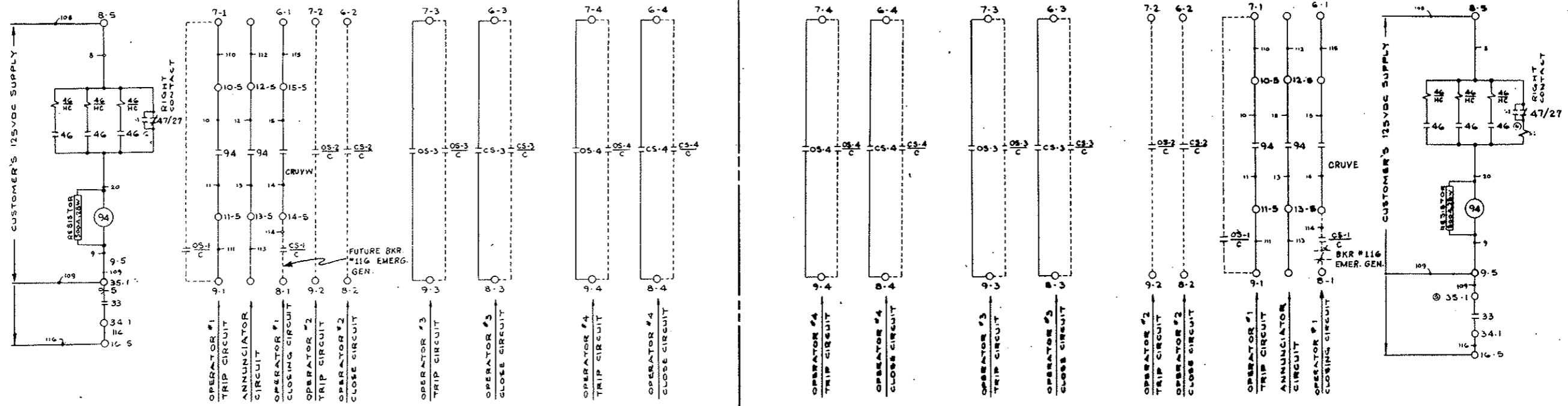
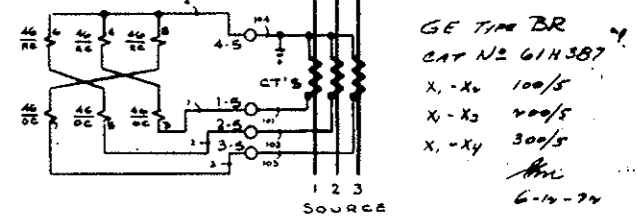
CD-112794

CD-112804



GL Type BR
 CAT No. 61H387
 X₁-X₂ 100/5
 X₁-X₃ 200/5
 X₁-X₄ 300/5
 6-12-72

- EXPLANATION OF DEVICE DESIGNATIONS
- 46 BALANCED-CURRENT RELAY (G.E. #121UC5164A)
 - 47/27 PHASE-SEQUENCE RELAY (G.E. #121CR 53A1A)
 - 94 AUXILIARY "TRIP" RELAY (P.A.S. #KAP 110)
 - OS, CS OPEN-CLOSE CONTROL SWITCH ON RESPECTIVE OPERATORS.
 - OS, CS/C CUSTOMER'S OPEN-CLOSE CONTROL SWITCH (SHOWN DOTTED)
 - TERMINAL POINT ON:
 - 1 (OPERATOR NO. 1)
 - 2 (" NO. 2)
 - 3 (" NO. 3)
 - 4 (" NO. 4)
 - 5 RELAY PANEL



PROPRIETARY STATEMENT

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DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
USED ON	DATE

FINISH: DESCRIPTION: S & C SPEC. NO.

SAC ELECTRIC COMPANY - CHICAGO
 Specialists in High-Voltage Circuit Interruption

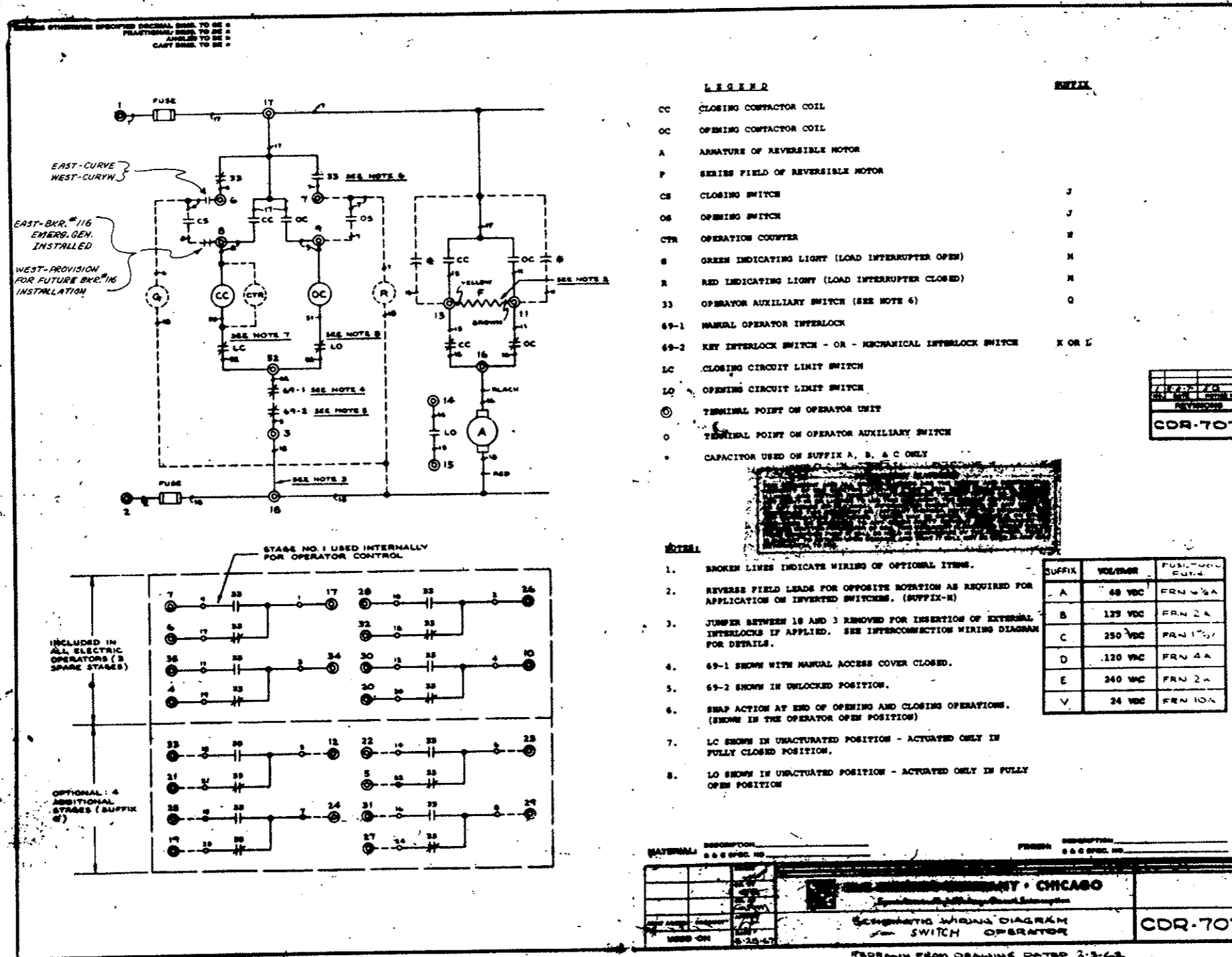
SCHEMATIC WIRING DIAGRAM

CDR 2688

REF: COR 707 S.D. SCHEMATIC W.D.

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XII	COLORADO	I 70-3(BA)220	242BY	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1979

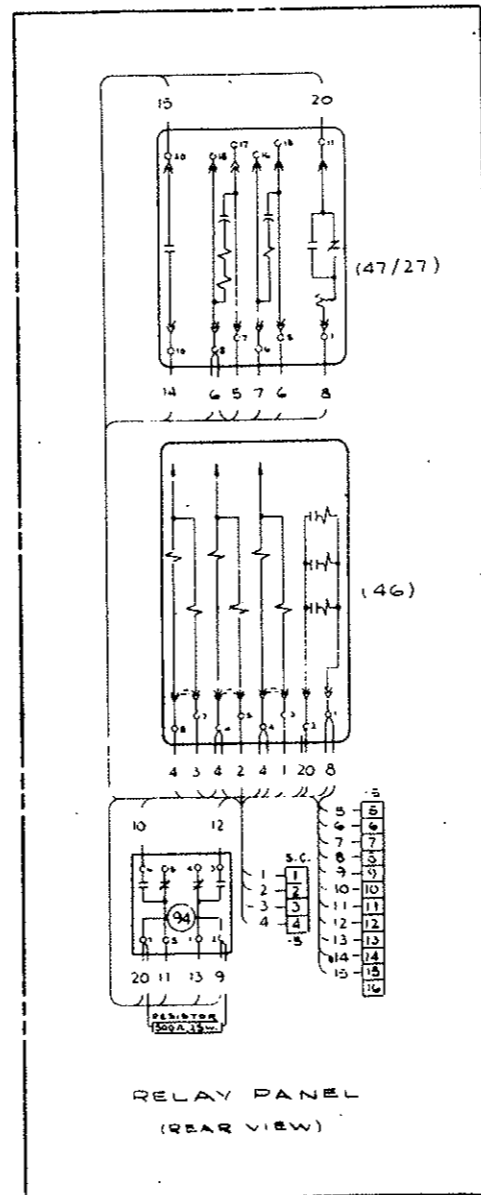


CDR-707

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(34)220	242YX	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

UNLESS OTHERWISE SPECIFIED DECIMAL DIMS. TO BE *
 FRACTIONAL DIMS. TO BE *
 ANGLES TO BE *
 CAST DIMS. TO BE *



NO.	DATE	ISSUED BY
REVISIONS		
		CDR 2688-1

REF. CDR 2688 SCHEMATIC W.D

RELAY PANEL
 (REAR VIEW)

MATERIAL: _____ DESCRIPTION: _____
 S & C SPEC. NO. _____ FINISH: _____
 S & C SPEC. NO. _____

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DATE	BY	REASON
8-29-69	APB	USED ON

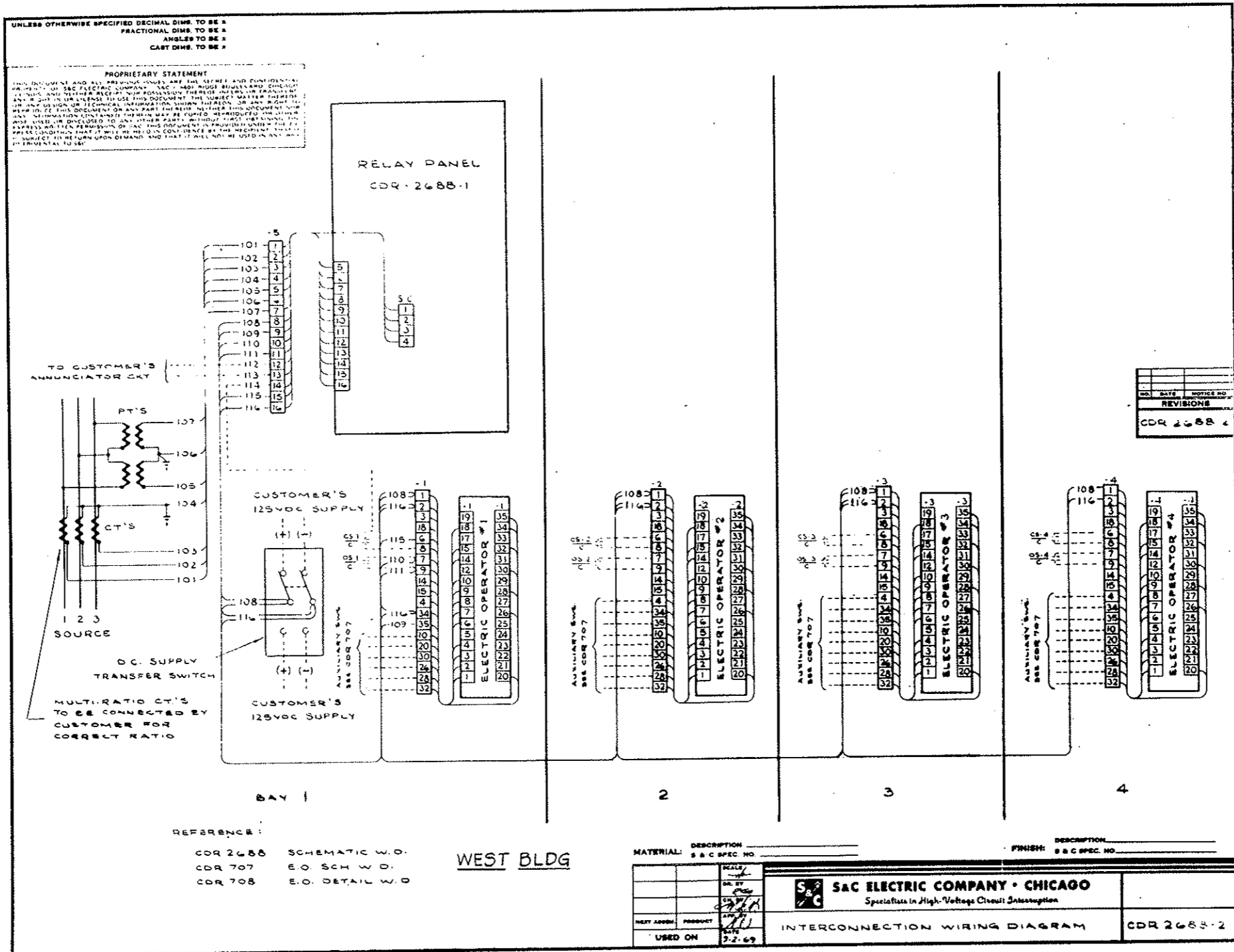
SAC ELECTRIC COMPANY - CHICAGO
 Specialists in High-Voltage Circuit Interruption

DETAIL WIRING DIAGRAM

CDR 2688-1

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VI	COLORADO	I 70-3(34)220	242EX	

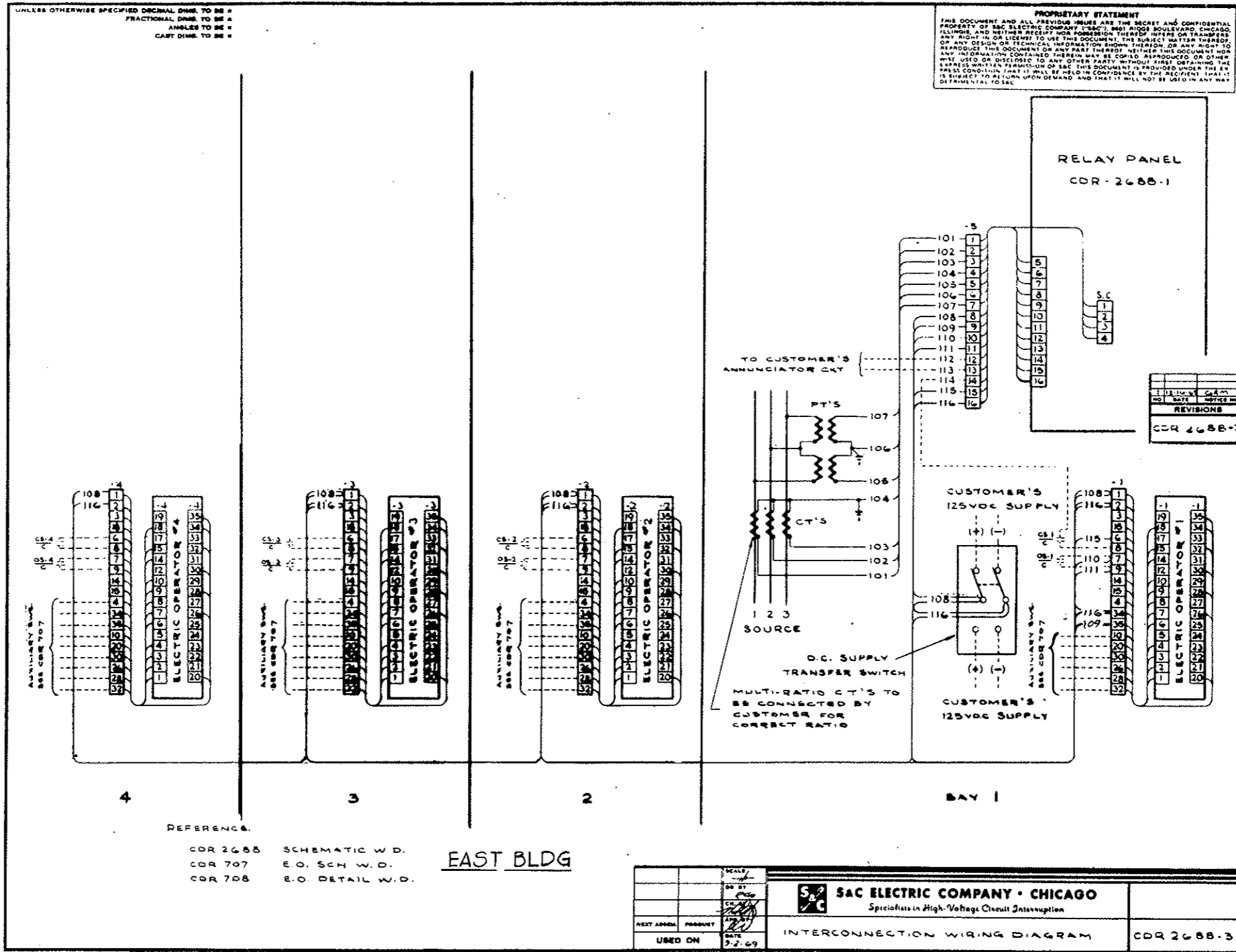
AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



S & C FORM NO. 126 (8-69)

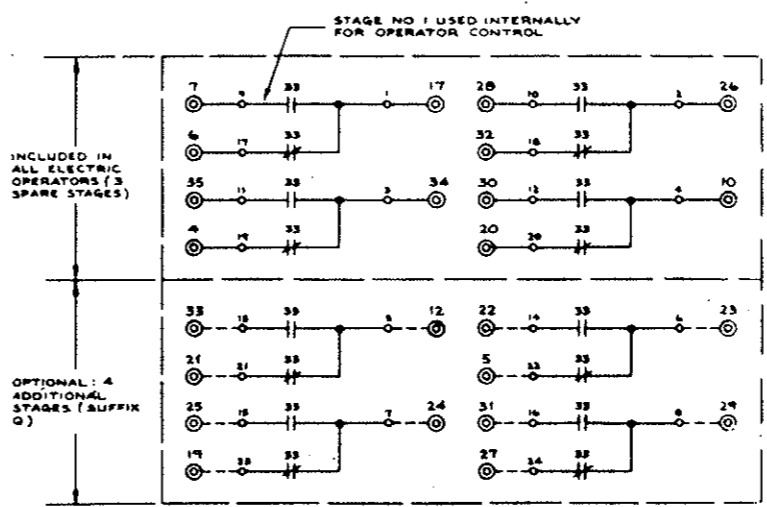
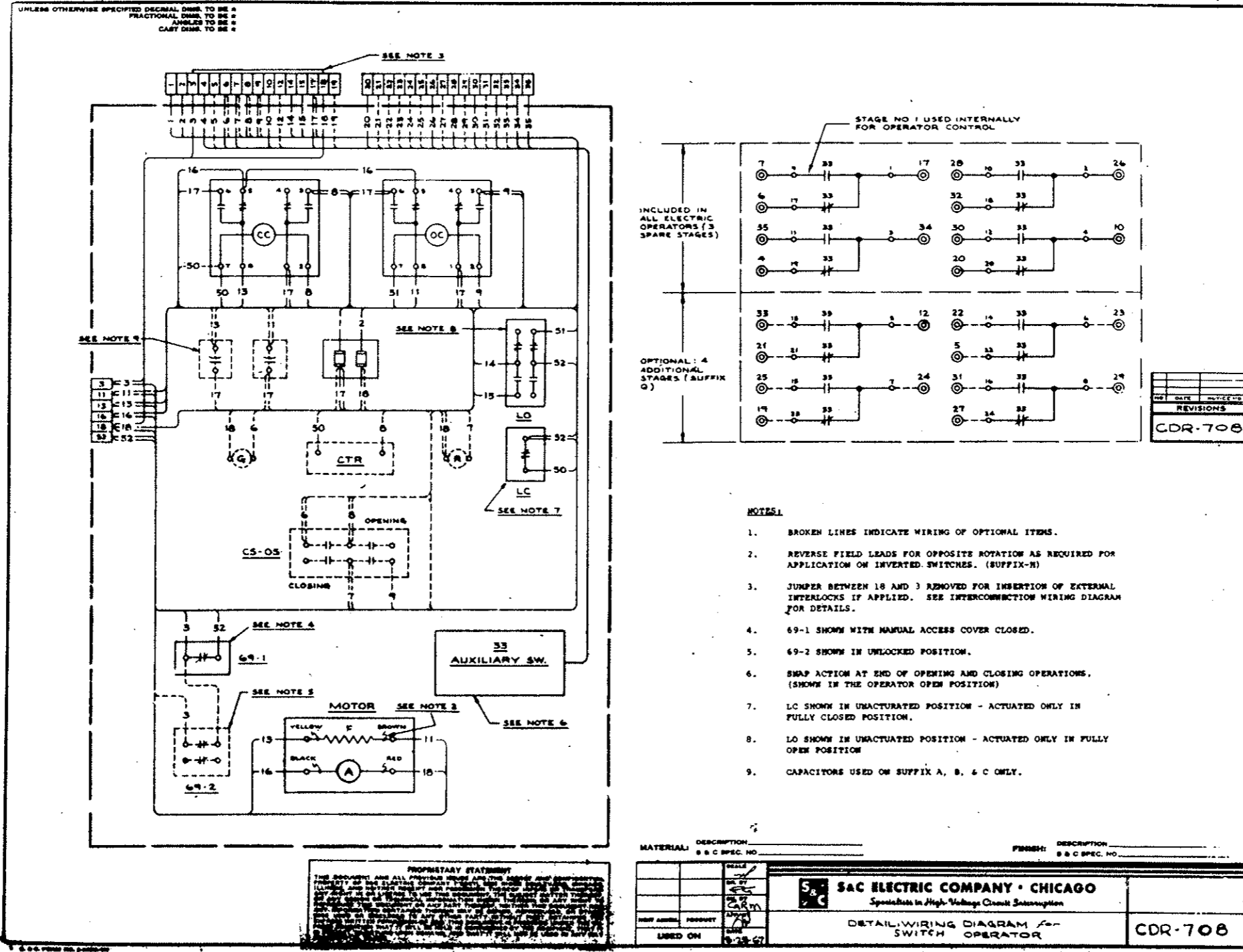
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	170-31341220	242AY	

AS CONSTRUCTED
REVISED DATE *Oct. 26, 1973*



FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
III	COLORADO	170-3(34)220	242CY	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



NO.	DATE	INITIALS
REVISIONS		
CDR-708		

- NOTES:**
- BROKEN LINES INDICATE WIRING OF OPTIONAL ITEMS.
 - REVERSE FIELD LEADS FOR OPPOSITE ROTATION AS REQUIRED FOR APPLICATION ON INVERTED SWITCHES. (SUFFIX-N)
 - JUMPER BETWEEN 18 AND 3 REMOVED FOR INSERTION OF EXTERNAL INTERLOCKS IF APPLIED. SEE INTERCONNECTION WIRING DIAGRAM FOR DETAILS.
 - 69-1 SHOWN WITH MANUAL ACCESS COVER CLOSED.
 - 69-2 SHOWN IN UNLOCKED POSITION.
 - SNAP ACTION AT END OF OPENING AND CLOSING OPERATIONS. (SHOWN IN THE OPERATOR OPEN POSITION)
 - LC SHOWN IN UNACTUATED POSITION - ACTUATED ONLY IN FULLY CLOSED POSITION.
 - LO SHOWN IN UNACTUATED POSITION - ACTUATED ONLY IN FULLY OPEN POSITION
 - CAPACITORS USED ON SUFFIX A, B, & C ONLY.

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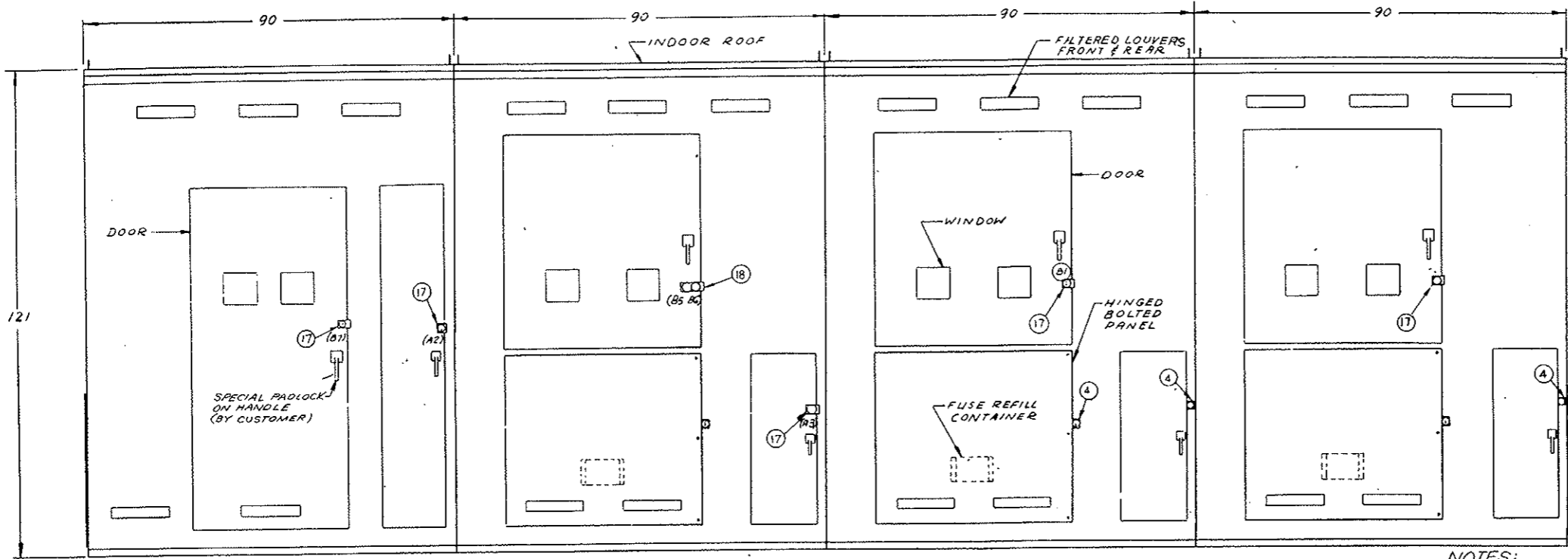
MATERIAL	DESCRIPTION	FINISH	DESCRIPTION
	S & C SPEC. NO.		S & C SPEC. NO.
SAC ELECTRIC COMPANY - CHICAGO Specialists in High Voltage Circuit Interruption			
DETAIL WIRING DIAGRAM FOR SWITCH OPERATOR			
			CDR-708
DRAWN FROM DRAWING DATED 2-8-62			

UNLESS OTHERWISE SPECIFIED DECIMAL DIMS. TO BE 1/16" FRACTIONAL DIMS. TO BE 1/32" ANGLES TO BE 1/8" CAST DIMS. TO BE 1/4"

REVISIONS
 CD-112794
 SHEET 1 OF 2

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(34)220	2420Y	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



BILL OF MATERIAL

ITEM NO.	NO. REQD.	PART NO.	DESCRIPTION
1	4	32030AR9	INTERRUPTER SWITCH 3 POLE HVX DUTY 600A
2	9	8757PP2-S103	SM-5 POWER FUSE LIVE PARTS 300A
3	9	8681AQ100	SM-5S FUSE HOLDER NON DISC.
4	5	QDA-1500-1	KEY OPER. SNAPLOCK
5	2	38760-B8JUMH	ELECTRIC OPERATOR 125VDC
6	2	38760-B8JUMH	ELECTRIC OPERATOR 125VDC
7	2	JVT-150	POT. TRMFR 24,000VAC V.G.E. (24.7)
8	3		BUSHING CURRENT TRMFR GE TYPE BR 300V/200/100-5A
9	1	TC10323WP2	SEL. SWT. 125 VDC. G.E.
10	1	QCDA-3558	RELAY PANEL
11			
12	4	136303-F	KIRK KEY INTERLOCK
13	2	4742	CABLE CONN #2-500MCM
14	5	211758	OB LIGHTNING ARR. 24 KV TYPE - MP24
15		9785	LAPP BUS SUPPORT
16	16	QCD-1805	ANCHOR BRACKET
17	7	TYPE-D	KIRK KEY INTERLOCK
18	1	TYPE-M20	KIRK KEY INTERLOCK
19	12	NT-1924IR	G&W 1/2-PH. W/SB 250 MCM MAX.
20	3PR.		G&W PORCELAIN BLOCKS WITH ADAPTER

BAY-1 (INCOMING) BAY-2 (TIE) **FRONT VIEW** BAY-3 (TRANSF #2) BAY-4 (TRANSF #1)

NOTES:
 1. RATINGS: 600 AMP CONTINUOUS VOLTAGE 34.5 KV NOM. 200 KV BIL. SH. CIRG. INT. 1000 MVA 3 PHASE SYM MOMENTARY 40,000 AMP RMS ASYM 4 SEC. 25,000 AMP RMS SYM.

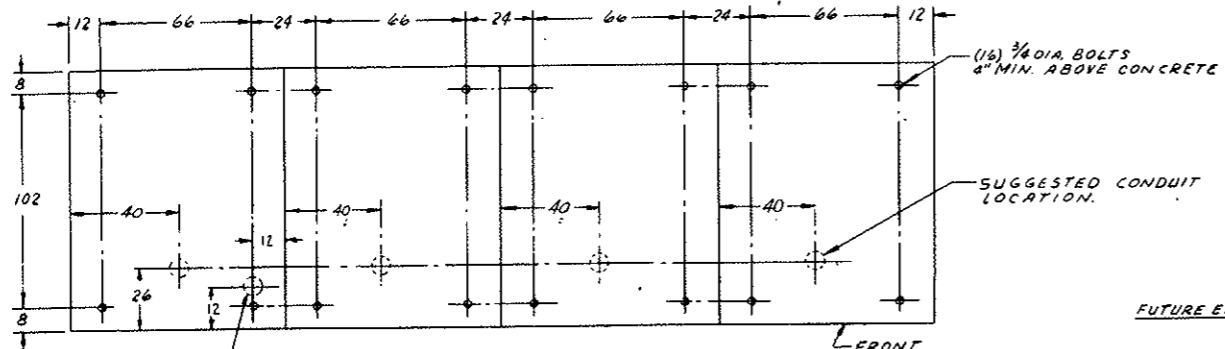
2. ALL HANDLES HAVE PROVISIONS FOR PADLOCKING.

3. KEY INTERLOCKS A1 (5 KEYS AVAILABLE) PREVENT ACCESS TO MANUAL HAND-CRANK HUB ON ELECTRIC OPERATOR UNLESS REMOTE CONTROL IS LOCKED OPEN AT P.C.B. IN CONTROL ROOM. KEY INTERLOCKS A2, A3, A4, A5 PREVENT OPENING DOOR ON ELECTRIC OPERATOR COMPARTMENT UNLESS REMOTE CONTROL IS LOCKED OPEN, RELEASING ASSOCIATED KEY A2, A3, A4 OR A5. KEY INTERLOCKS B1 THRU B6 PREVENT ACCESS TO FUSE COMPARTMENT UNLESS FUSES ARE DE-ENERGIZED. KEY INTERLOCKS B7 & B8 WILL BE USED IN ADDITION TO SPECIAL PADLOCKS FOR ACCESS TO INTERRUPTER SWITCH IN BAY 1s.

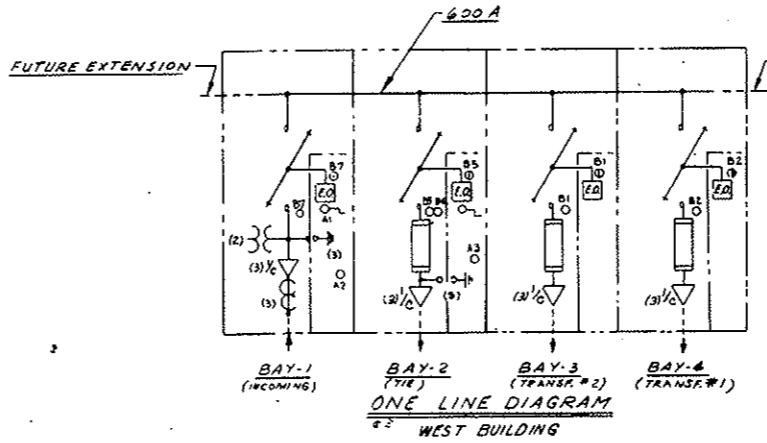
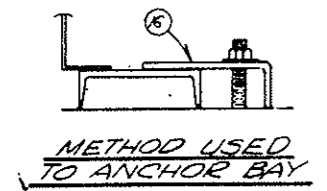
4. EACH BAY TO BE SHIPPED SEPARATELY.

6. ITEMS 5, 6, 7, 8, 9 & 10 FURNISHED, INSTALLED AND WIRED BY S&C PER: CDR-2688 SCHEMATIC W.D. CDR-2688-1 DETAIL W.D. CDR-2688-2 INTERCONNECTION W.D. CDR-707 E.O. SCHEMATIC W.D. CDR-708 E.O. DETAIL W.D.

7. HIGH VOLTAGE CABLE TERMINATION BY OTHERS. THE CABLE SHIELDING GROUND LEAD MUST BE BROUGHT BACK THROUGH THE WINDOW TYPE C.T. BEFORE CONNECTING TO THE GROUND BUS.



BAY-1 BAY-2 BAY-3 BAY-4
 SECONDARY CONDUIT LOCATION
ANCHOR BOLT PLAN
 (ALL BAYS HAVE OPEN BOTTOMS)



BUS MAT'L: ALUMINUM
 BAY MAT'L: #11GAL(19) REINF. SHEET STEEL
 WEST VENTILATION BLDG.

FINISH: LIGHT GRAY SUPER DURABAKE 75A-67
 S & C SPEC. NO. DB-601

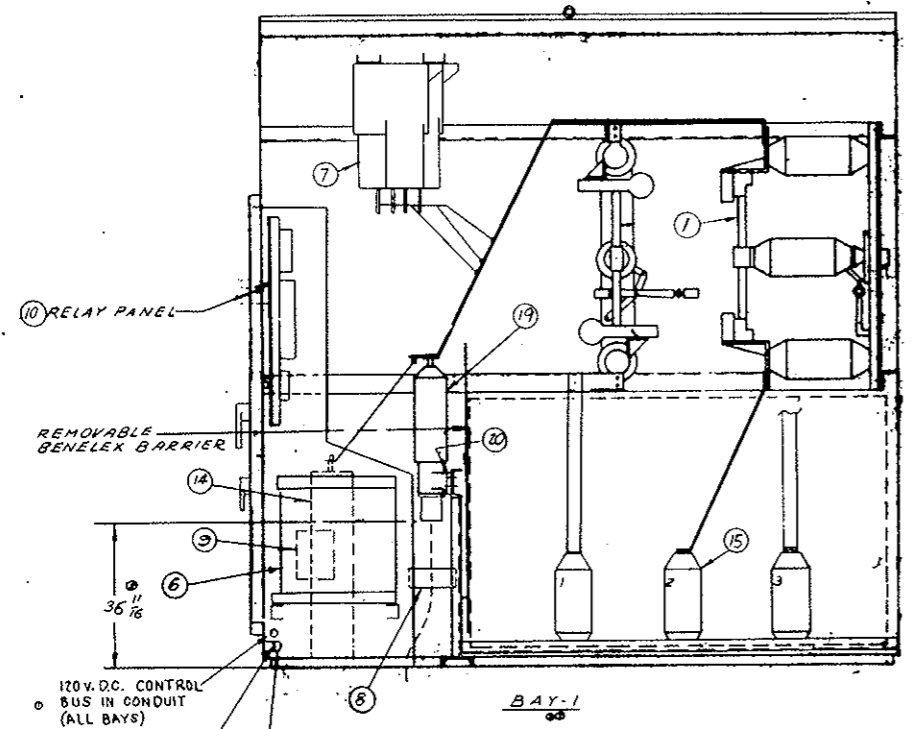
SCALE	1/4" = 1'-0"	S & C ELECTRIC COMPANY - CHICAGO Specialists in High-Voltage Circuit Interruption	SHEET 1 OF 2
DATE	12-19-68		
USED ON	12-19-68	34.5KV - 4 BAY - INDOOR - METAL ENCLOSED SWITCHGEAR	CD -112794

UNLESS OTHERWISE SPECIFIED DECIMAL DIMS. TO BE 3/16
 FRACTIONAL DIMS. TO BE 3/16
 ANGLES TO BE 30°
 CAST DIMS. TO BE 3/16

NO.	DATE	REVISIONS
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2	11/20/73	REVISED
3	12/10/73	REVISED
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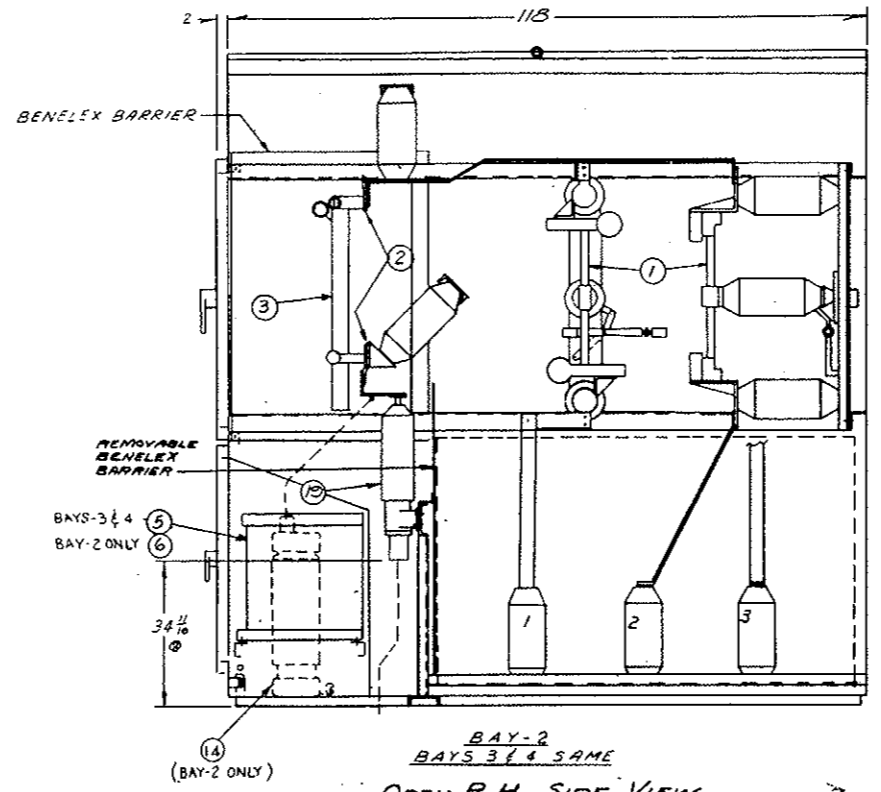
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VII	COLORADO	170-3(54)220	242 EY	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



BAY-1
 OPEN P.H. SIDE VIEW

- 120V. D.C. CONTROL BUS IN CONDUIT (ALL BAYS)
- CONTINUOUS GROUND BUS 600A. (1/4 x 2 1/2 ALUM.)
- GROUND CONNECTOR ONE AT BOTH ENDS OF SWITCHGEAR



BAY-2
 BAYS 3 & 4 SAME
 OPEN P.H. SIDE VIEW

WEST VENTILATION BLDG.

FINISH: SEE SHEET 1 OF 2
 S & C SPEC. NO.

DESIGNED BY	DATE	SCALE	34.5 KV - 4 BAY - INDOOR - METAL ENCLOSED SWITCHGEAR
CHECKED BY	DATE	SCALE	
USED ON	DATE	SCALE	

SAC ELECTRIC COMPANY - CHICAGO
 Specialists in High Voltage Circuit Interruption

SHEET 2 OF 2

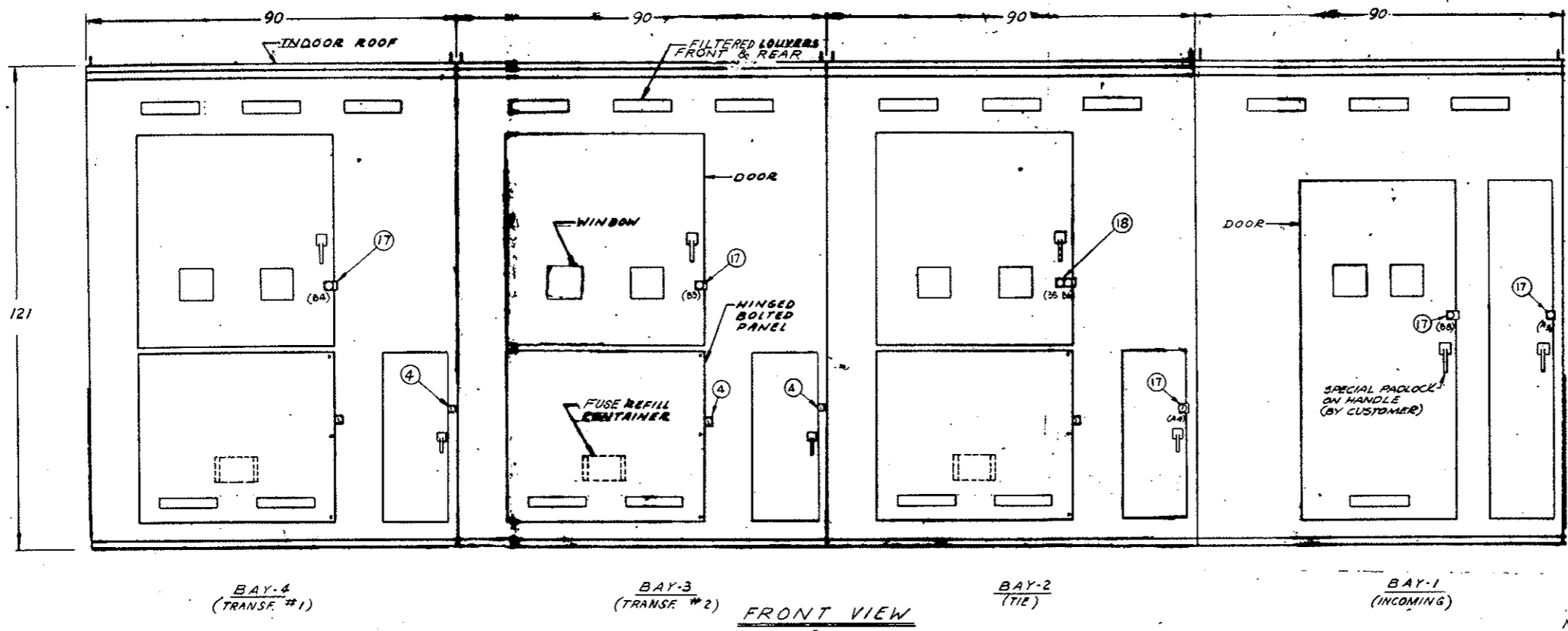
CD -112794

UNLESS SPECIFIED DECIMAL DIMS. TO BE FRACTIONAL DIMS. TO BE ANGLES TO BE CAST DIMS. TO BE

REVISIONS
CD-112804

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
III	COLORADO	170-31341220	242FY	

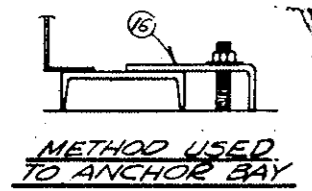
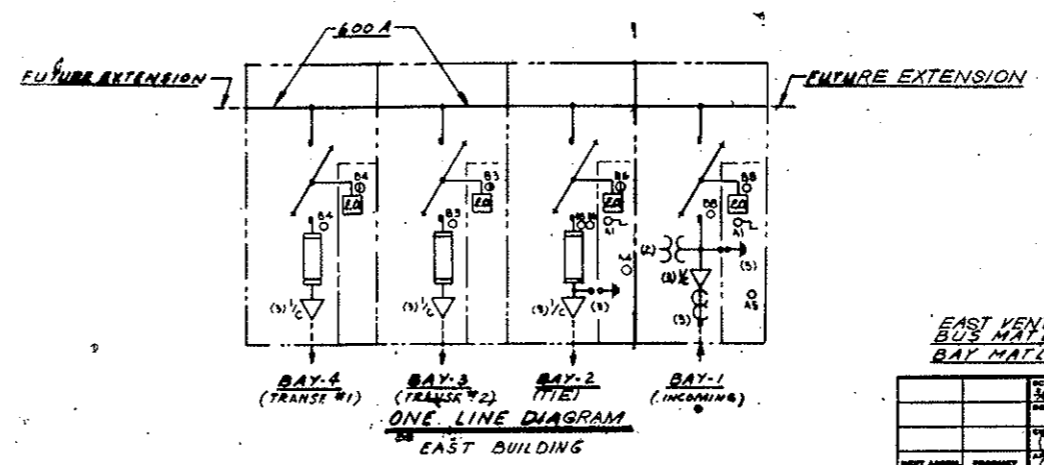
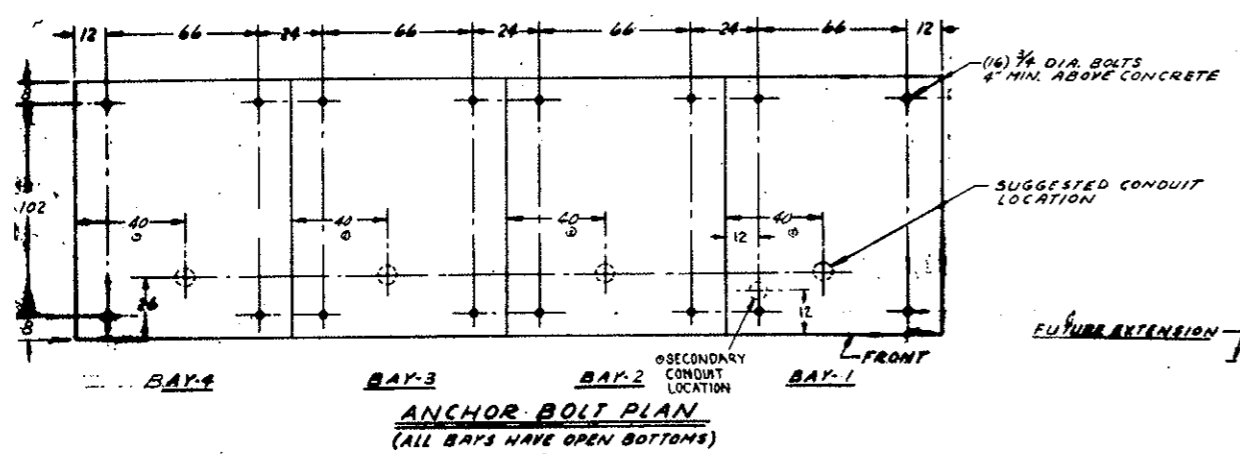
AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



BILL OF MATERIAL

ITEM NO	REQD	PART NO.	DESCRIPTION
1	4	45304R9	INTERRUPTER SWITCH 3 POLE HVY DUTY 600A
2	9	87509RE-S103	SM-5 POWER FUSE LIVE PARTS 300A
3	9	8881AQ100	SM-5S FUSE HOLDER NON DISC.
4	5	CDA-1600-1	KEY OPER. SNAPLOCK
5	2	38760 BGLMLH	ELECTRIC OPERATOR 125VDC
6	2	38760-BGLMMH	ELECTRIC OPERATOR 125VDC
7	2	JVT-150	POT. TRMFR 24000/120V GE (200K V. BIL.)
8	3		BUSHING CURRENT TRMFR G.E. TYPE BR 300/200/100-5A
9	1	TC10323WPE	SEL. SWT. 125 VDC G.E.
10	1	QCDA-3658	RELAY PANEL
11			
12	4	136303-F	KIRK KEY INTERLOCK
13	2	4742	CABLE CONN #2-500MCM
14	6	211758	OB LIGHTNING ARR. 24 KV TYPE MP-24
15		9785	LAPP BUS SUPPORT
16	16	QCD-1805	ANCHOR BRACKET
17	7	TYPE -D	KIRK KEY INTERLOCK
18	1	TYPE M2D	KIRK KEY INTERLOCK
19	12	NT-19241R	G & W/ PH. W/ SB 250 MOM MAX. G&W PORCELAIN BLOCKS WITH ADAPTER
20	3PR		

- NOTES:**
- RATINGS: 600 AMP CONTINUOUS VOLTAGE 34.5 KV NOM. 200 KV BIL. SH. CIRC. INT. 1000 MVA 3 PHASE SYM MOMENTARY 40,000 AMP RMS ASYM 4 SEC. 25,000 AMP RMS. SYM
 - ALL HANDLES HAVE PROVISIONS FOR PADLOCKING.
 - KEY INTERLOCKS A1 (3 KEYS AVAILABLE) PREVENT ACCESS TO MANUAL HAND CRANK HUB ON ELECTRIC OPERATOR UNLESS REMOTE CONTROL IS LOCKED OPEN AT P.C.B. IN CONTROL ROOM.
KEY INTERLOCKS A2, A3, A4, A5 PREVENT OPENING DOOR ON ELECTRIC OPERATOR COMPARTMENT UNLESS REMOTE CONTROL IS LOCKED OPEN, RELEASING ASSOCIATED KEY A2, A3, A4 OR A5.
KEY INTERLOCKS B1 THRU B6 PREVENT ACCESS TO FUSE COMPARTMENT UNLESS FUSES ARE DE-ENERGIZED.
KEY INTERLOCKS B7 & B8 WILL BE USED IN ADDITION TO SPECIAL PADLOCKS FOR ACCESS TO INTERRUPTER SWITCHES IN BAY 1s.
 - EACH BAY TO BE SHIPPED SEPARATELY.
5,6,7,8,9 & 10 FURNISHED, INSTALLED BY S&C PER: CDR-2688-1 SCHEMATIC W.D., CDR-2688-1 DETAIL W.D., CDR-2688-3 INTERCONNECTION W.D., CDR-708 E.O. SCHEMATIC W.D., CDR-708 E.O. DETAIL W.D.
 - HIGH VOLTAGE CABLE TERMINATION BY OTHERS. THE CABLE SHIELDING GROUND LEAD MUST BE BROUGHT BACK THROUGH THE WINDOW TYPE C.T. BEFORE CONNECTING TO THE GROUND BUS.



EAST VENTILATION BLDG.
BUS MATL: ALUMINUM
BAY MATL: #11GA(119) REINF. SHEET STEEL

CD-112804

S&C ELECTRIC COMPANY - CHICAGO
Specialists in High Voltage Circuit Interruption

34.5 KV - 4 BAY - INDOOR - METAL ENCLOSED SWITCHGEAR

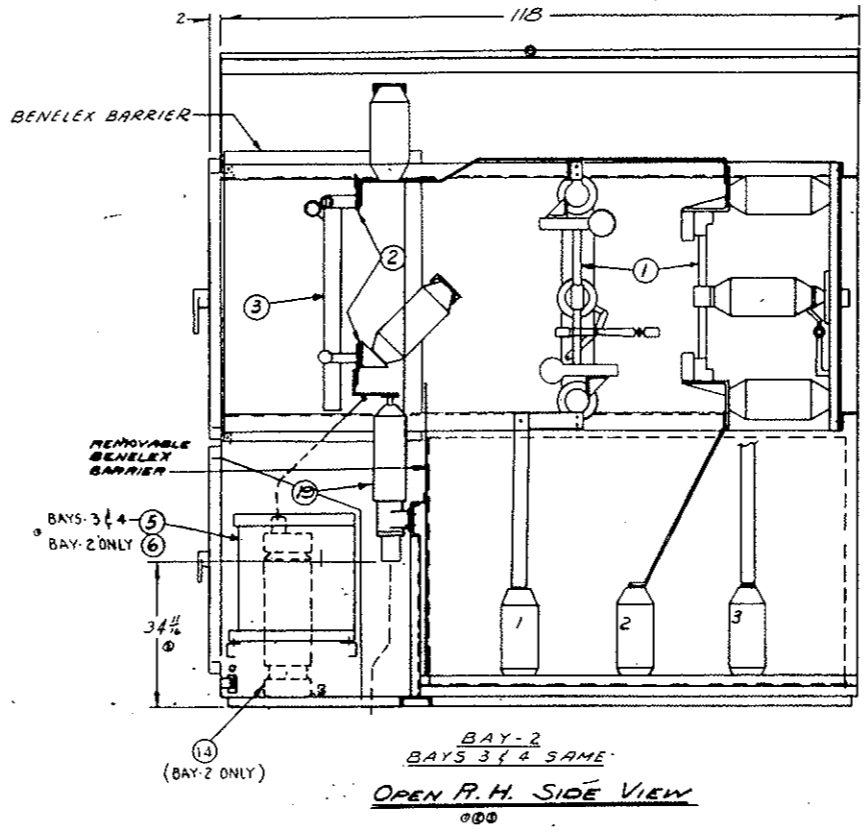
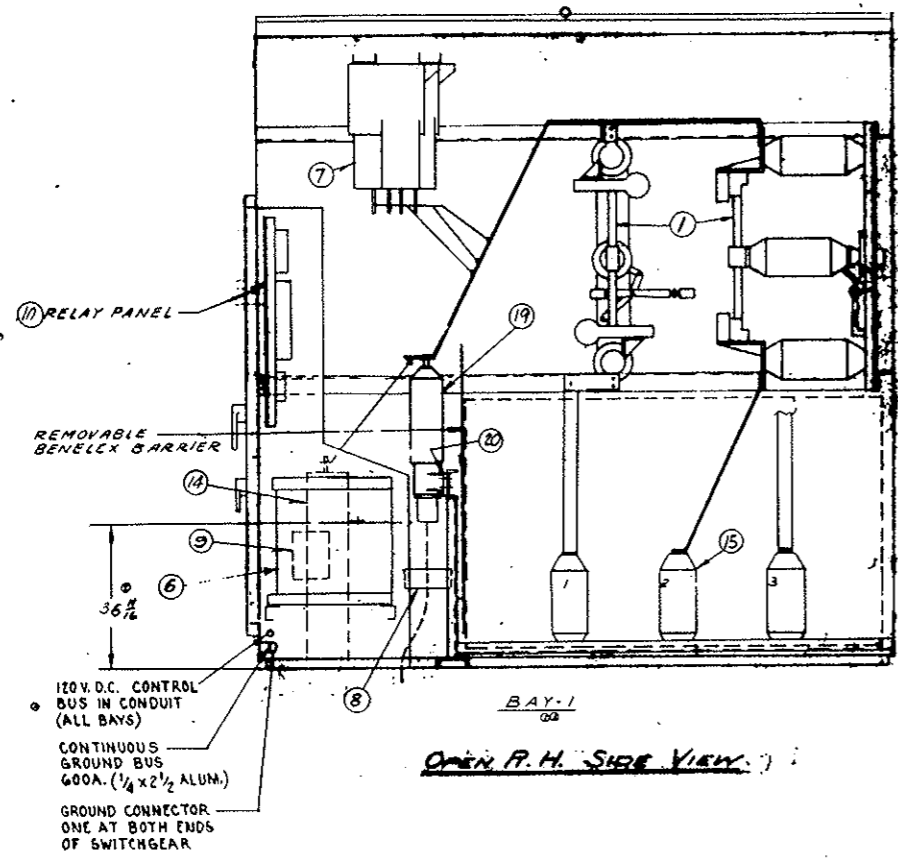
SHEET 10 OF 2
CD-112804

UNLESS OTHERWISE SPECIFIED DIMS. TO BE:
 FRACTIONAL DIMS. TO BE:
 ANGLES TO BE:
 CAST DIMS. TO BE:

CD - 112804
 SHEET 2 OF 2

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	I 70-3(34)220	2426Y	

AS CONSTRUCTED
REVISED DATE **Oct. 26, 1973**



EAST VENTILATION BLDG.

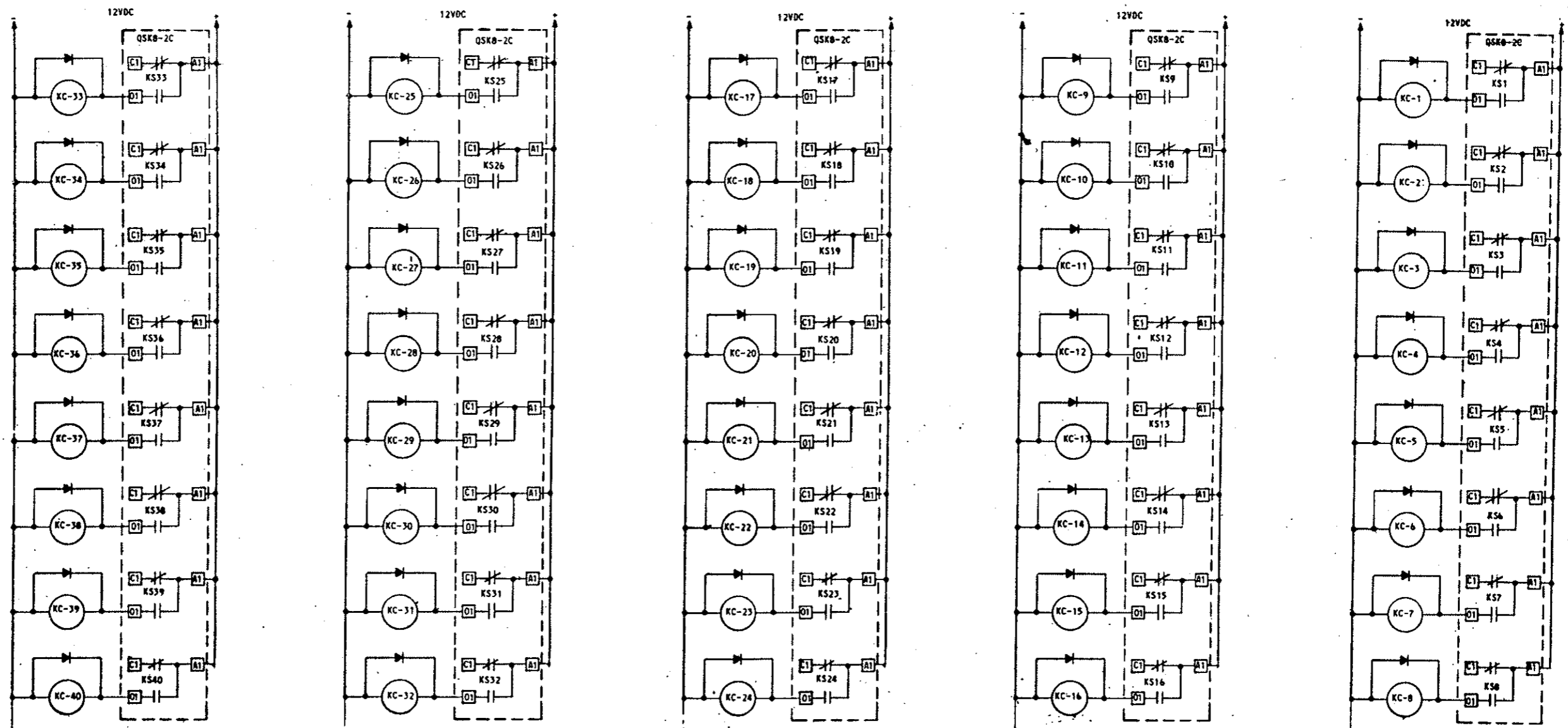
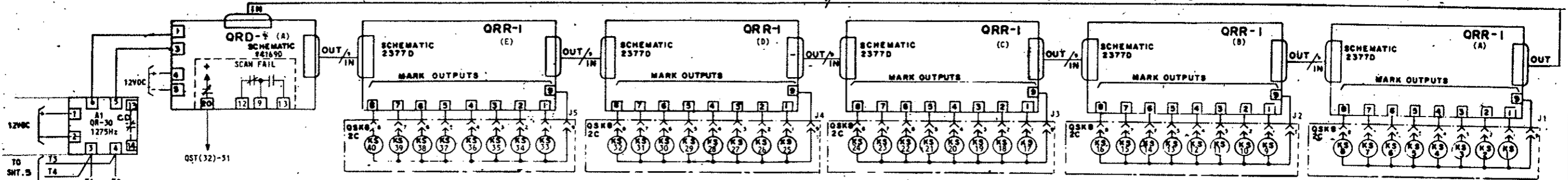
FINISH: SEE SHEET 1 OF 2
 DESCRIPTION: SEE SHEET 1 OF 2
 S & C SPEC. NO.

SCALE	3/4" = 1'-0"	SAC ELECTRIC COMPANY - CHICAGO Specialists in High-Voltage Circuit Interruption	SHEET 2 OF 2 34.5 KV - 4 BAY - INDOOR - METAL ENCLOSED SWITCHGEAR CD - 112804
DESIGNED BY	JN		
CHECKED BY	JN		
DATE	12-19-68		

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
33X	COLORADO	170-3(34)220	243 HX	

DOUBLE SCAN SCANNER

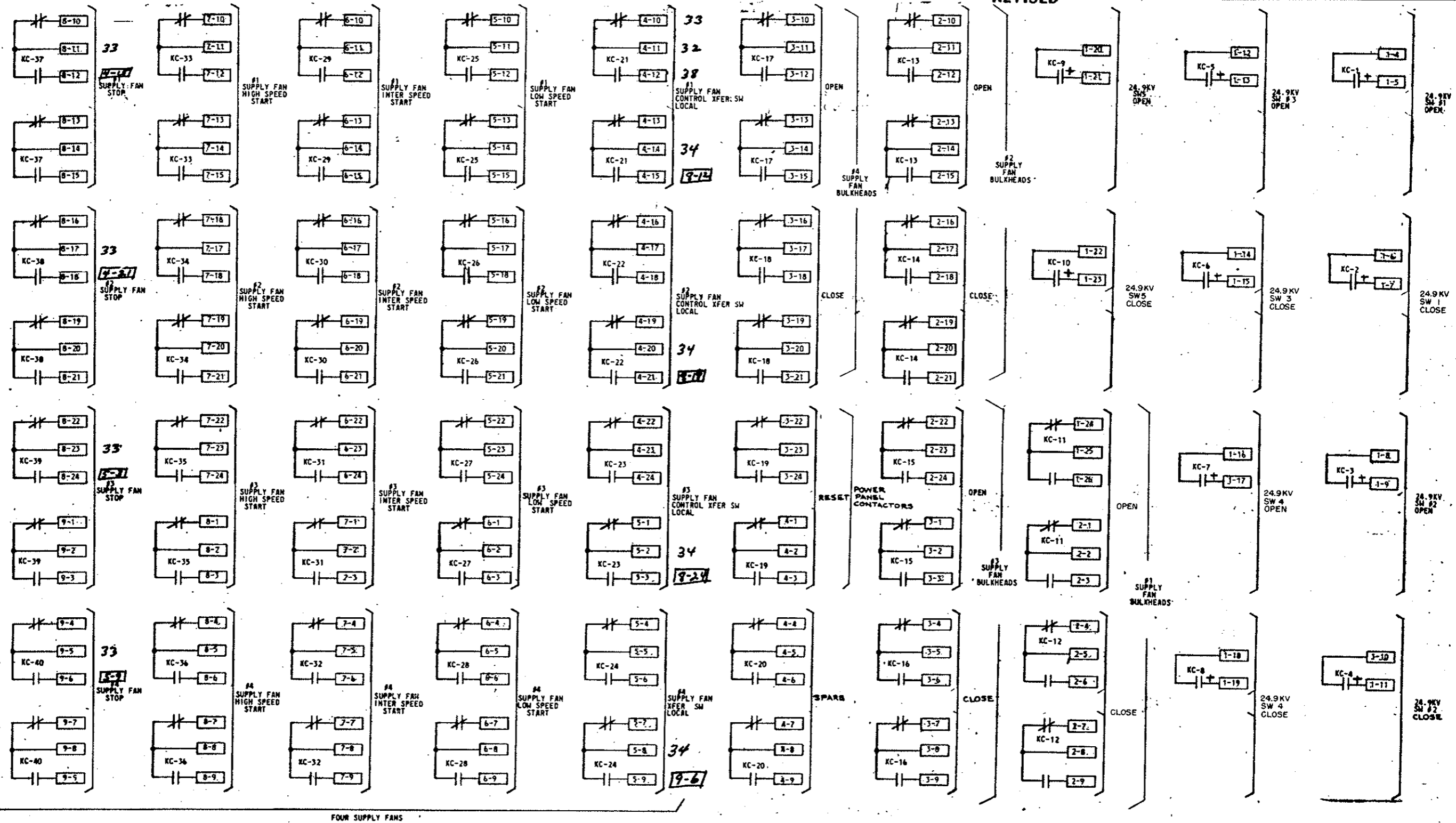


NOTE: INTERPOSE RELAYS KC1 THRU KC10
 ARE PR 30 MG. ALL OTHERS ARE PR 11 DY.
 ALL DIODES ARE 1N2069

DETAILS OF QUINDAR SYSTEM
 (Remote Fan Control)

AS CONSTRUCTED
REVISED DATE Oct 26, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
III	COLORADO	I70-3(34)220	249 IX	

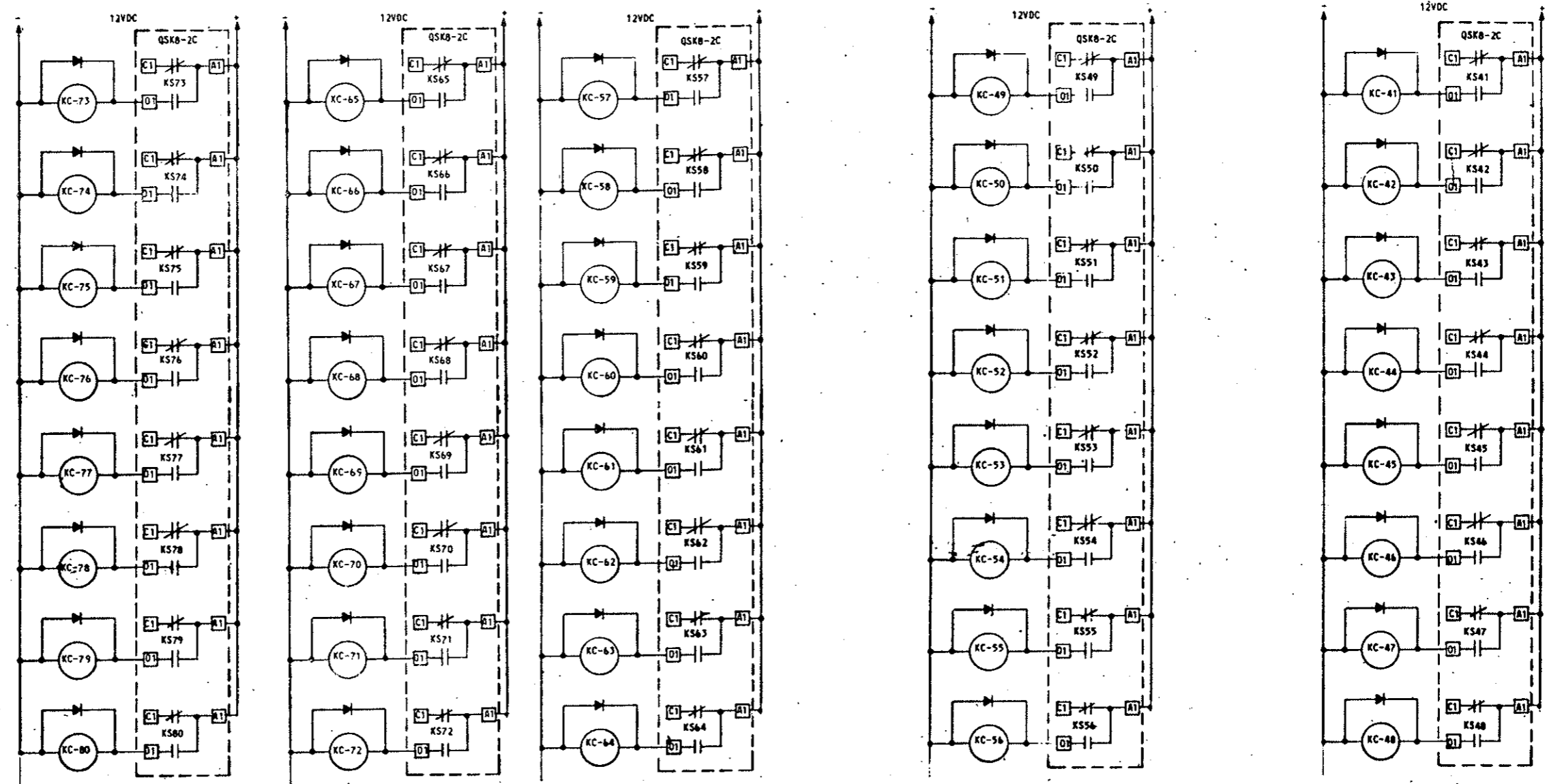
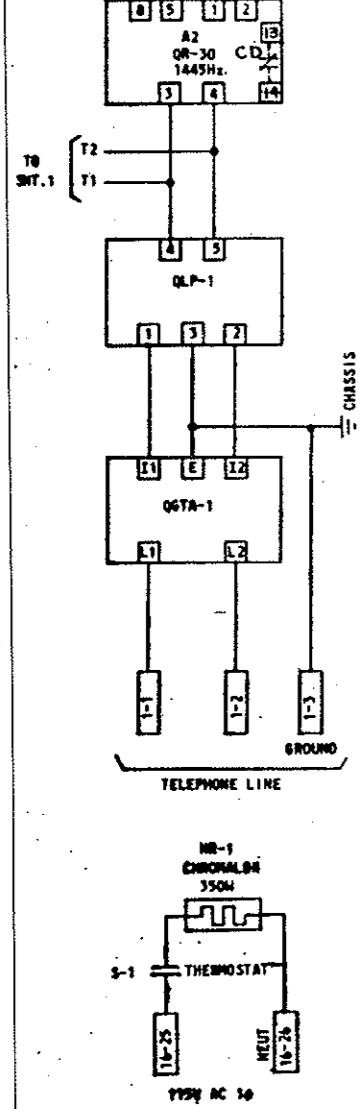
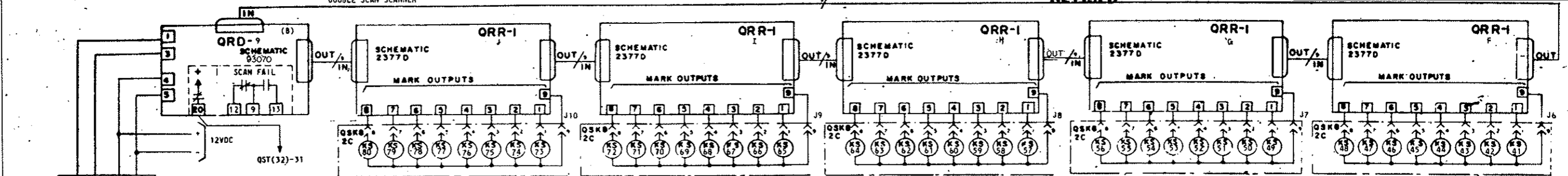


DETAILS OF QUINDAR SYSTEM
(Remote Fan Control)

AS-CONSTRUCTED
REVISED DATE Oct 26, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
201	COLORADO	I 70-3(34) 220	243 JX	

DOUBLE SCAN SCANNER



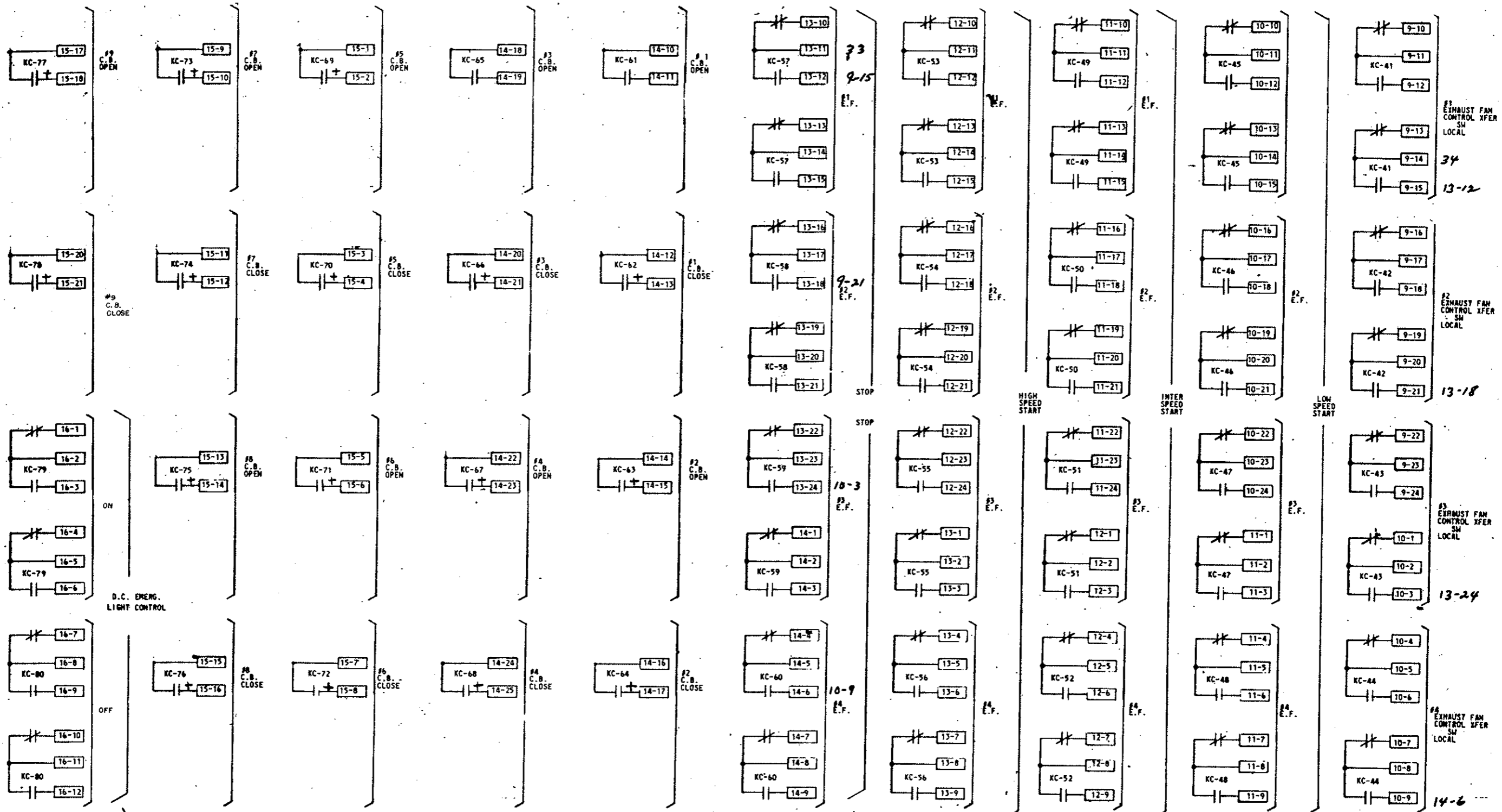
NOTE: ALL DIODES ARE 1N2049

NOTE: INTERPOSING RELAYS, KC-61 THRU KC-70 ARE PR 3D MG ALL OTHERS ARE PR 11 OY.

DETAILS OF QUINDAR SYSTEM
(Remote Fan Control)

AS CONSTRUCTED
REVISED DATE Oct 26, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
33E	COLORADO	I 70-3(34) 220	243 KX	

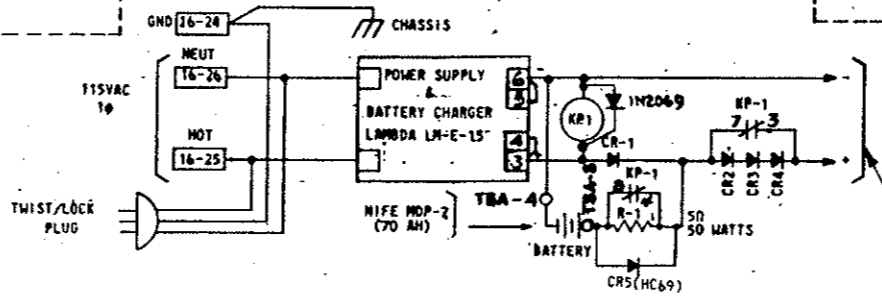
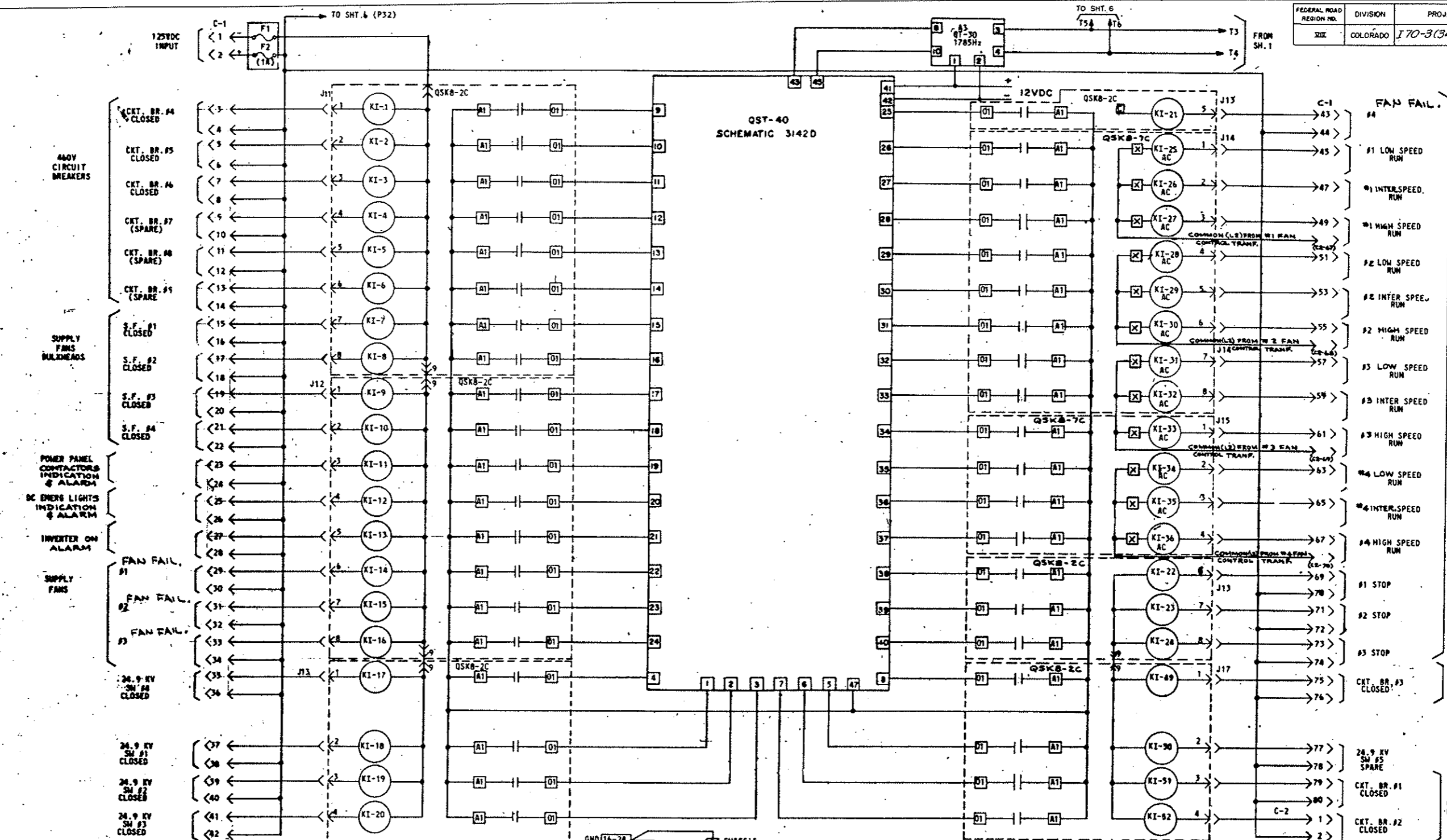


460V CIRCUIT BREAKERS

FOUR EXHAUST FANS

DETAILS OF QUINDAR SYSTEM
 (Remote Fan Control)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XXX	COLORADO	I70-3(34)220	243 LX	



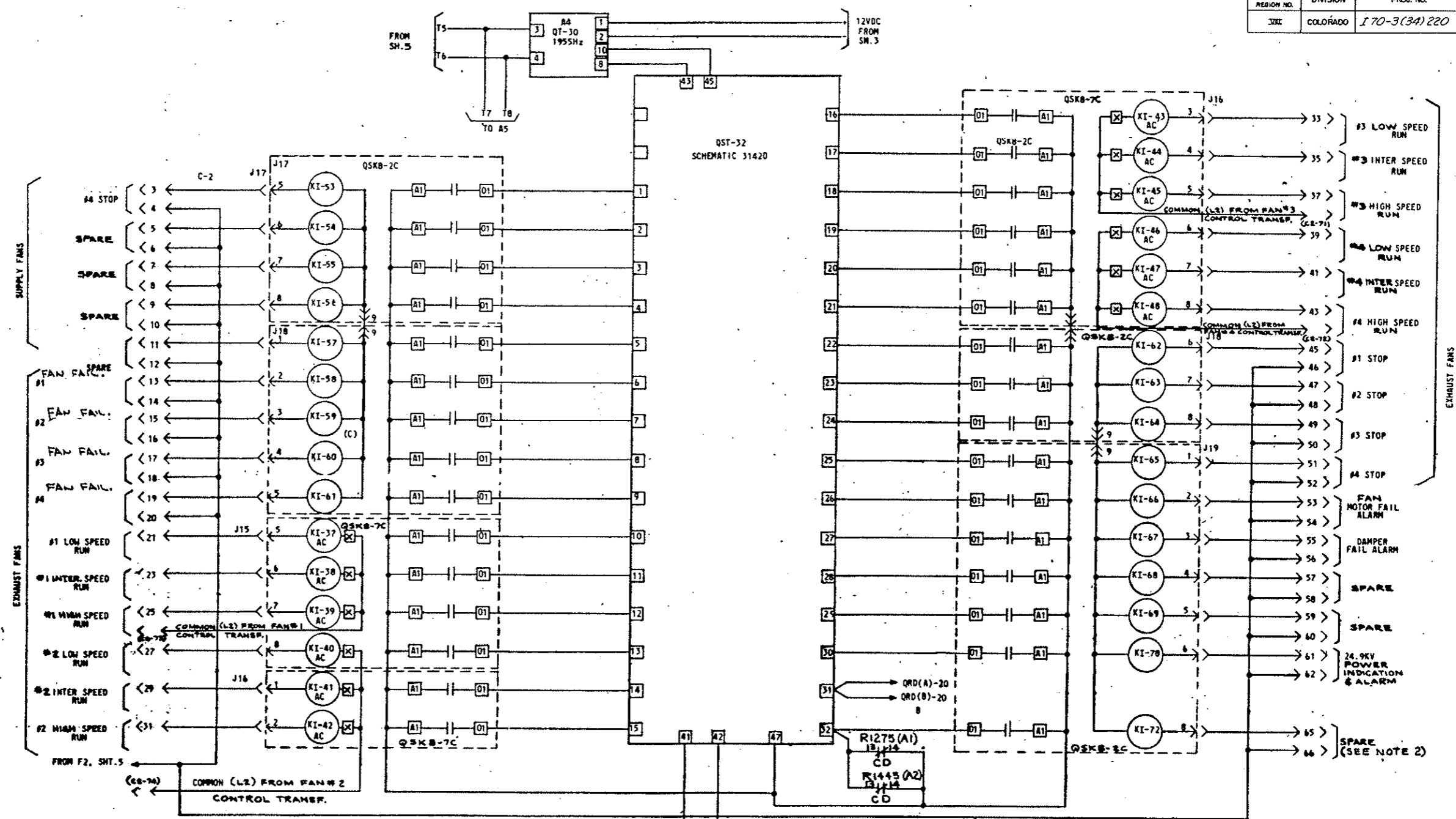
NOTE: CR1 - CR4 TO BE 1N1200 A
ADJUST POWER SUPPLY AS REQ'D. (15V. NOM.)
TO OBTAIN 12VDC AT THIS
PRINT.

AS CONSTRUCTED
REVISED Oct. 26, 1973

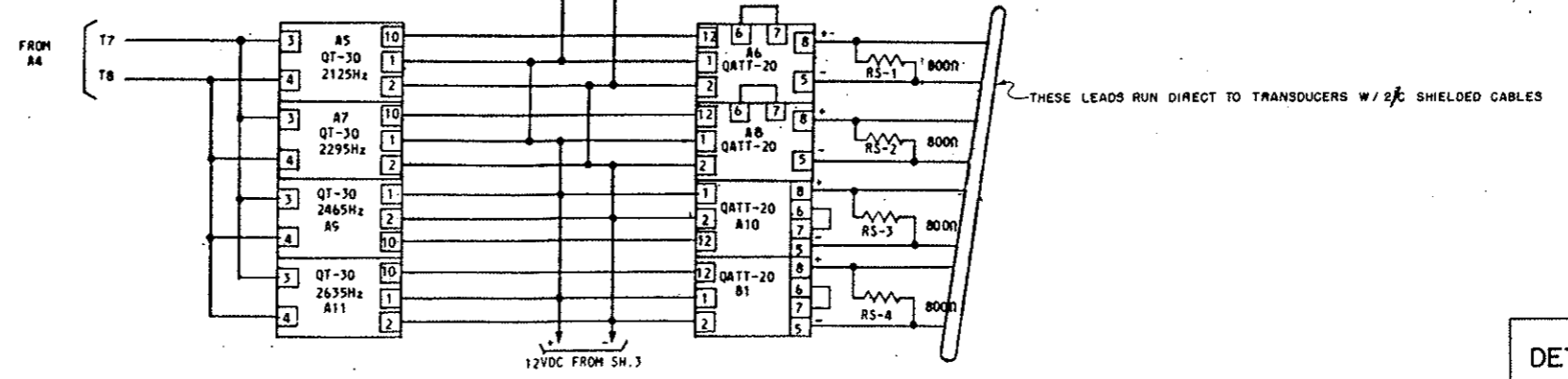
DETAILS OF QUINDAR SYSTEM
(Remote Fan Control)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XXX	COLORADO	I 70-3(34) 220	243 MX	

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

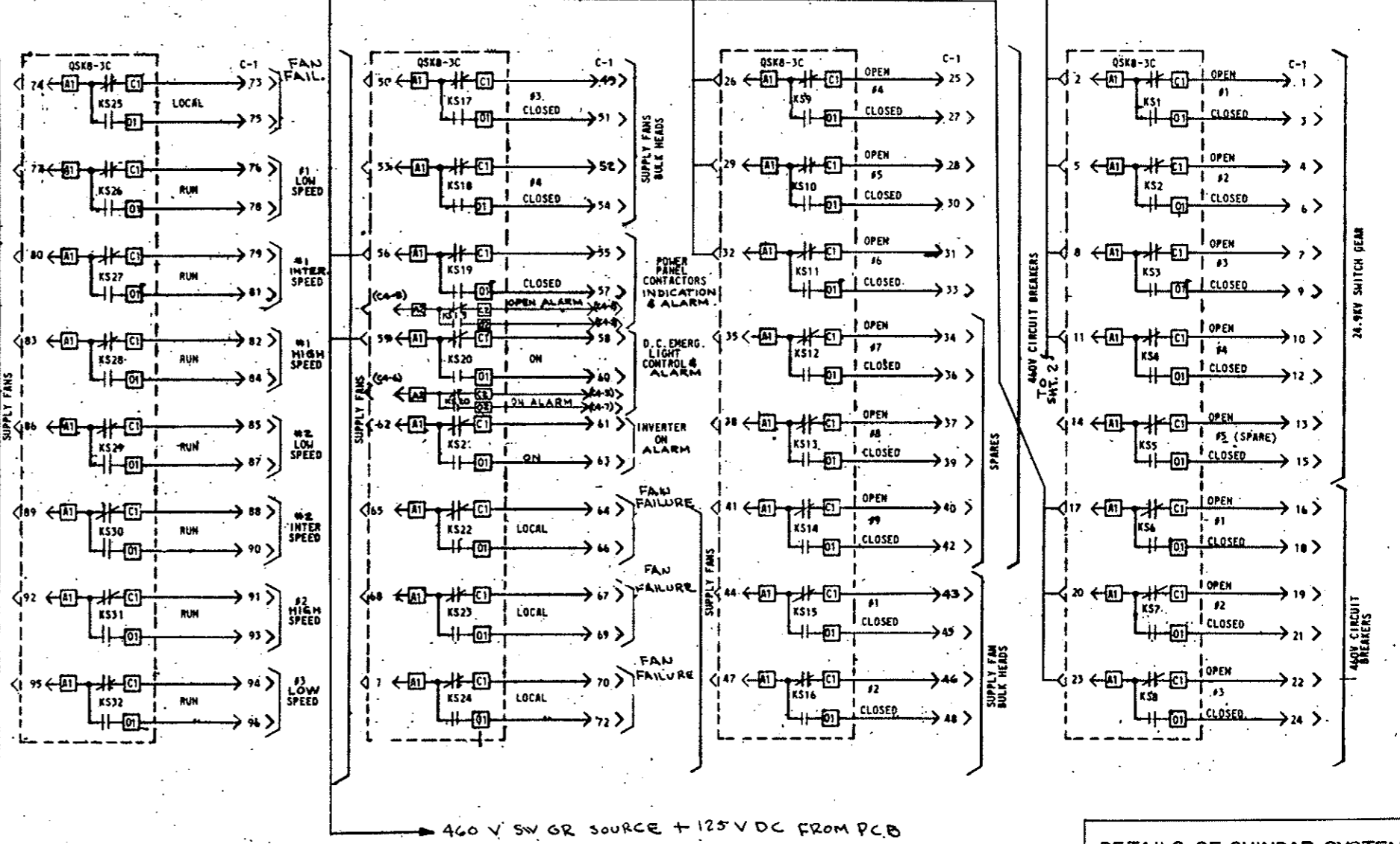
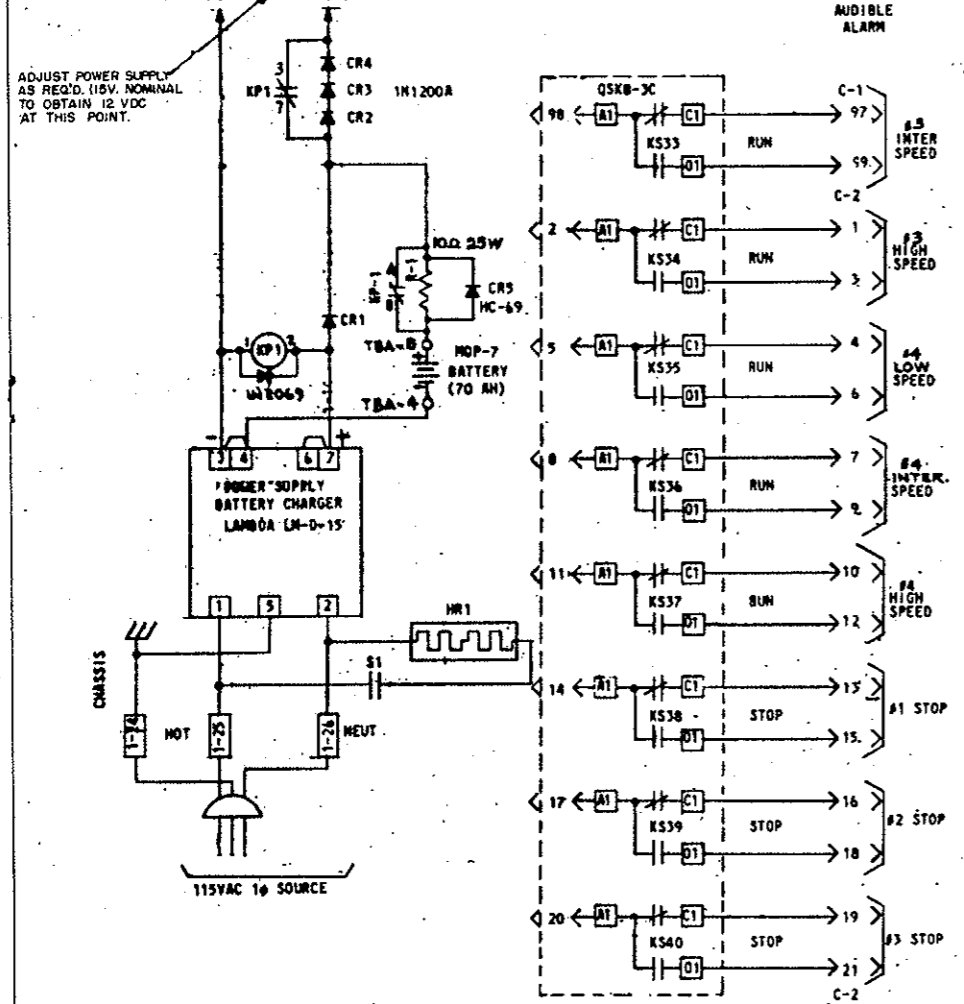
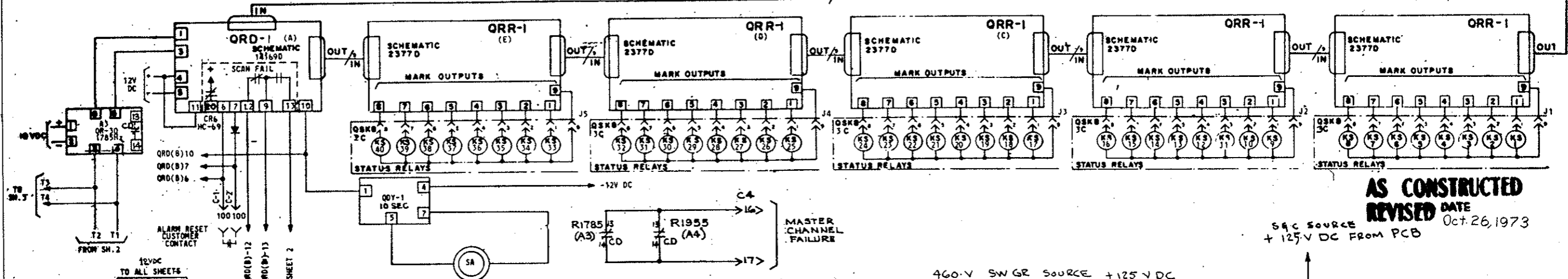


- NOTES:**
1. CD IND. CARRIER DETECTOR SEE SH.1 & SH.3 FOR RECEIVER LOCATION
 2. SPARE ALARM ONLY IF CARRIER DET. IS NOT USED.



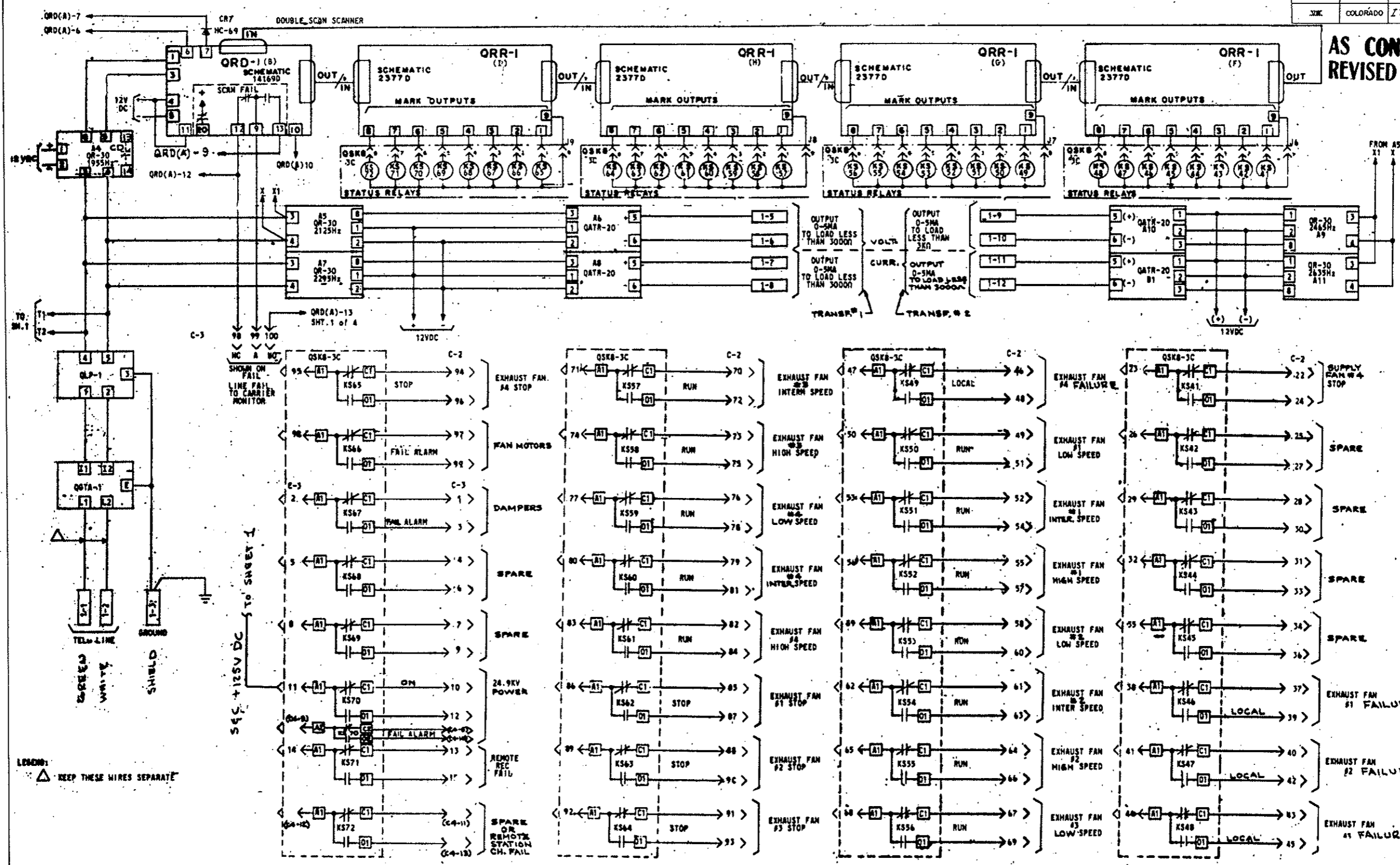
THESE LEADS RUN DIRECT TO TRANSDUCERS W/ 2/3 SHIELDED CABLES

DETAILS OF QUINDAR SYSTEM
(Remote Fan Control)



DETAILS OF QUINDAR SYSTEM
(Remote Fan Control)

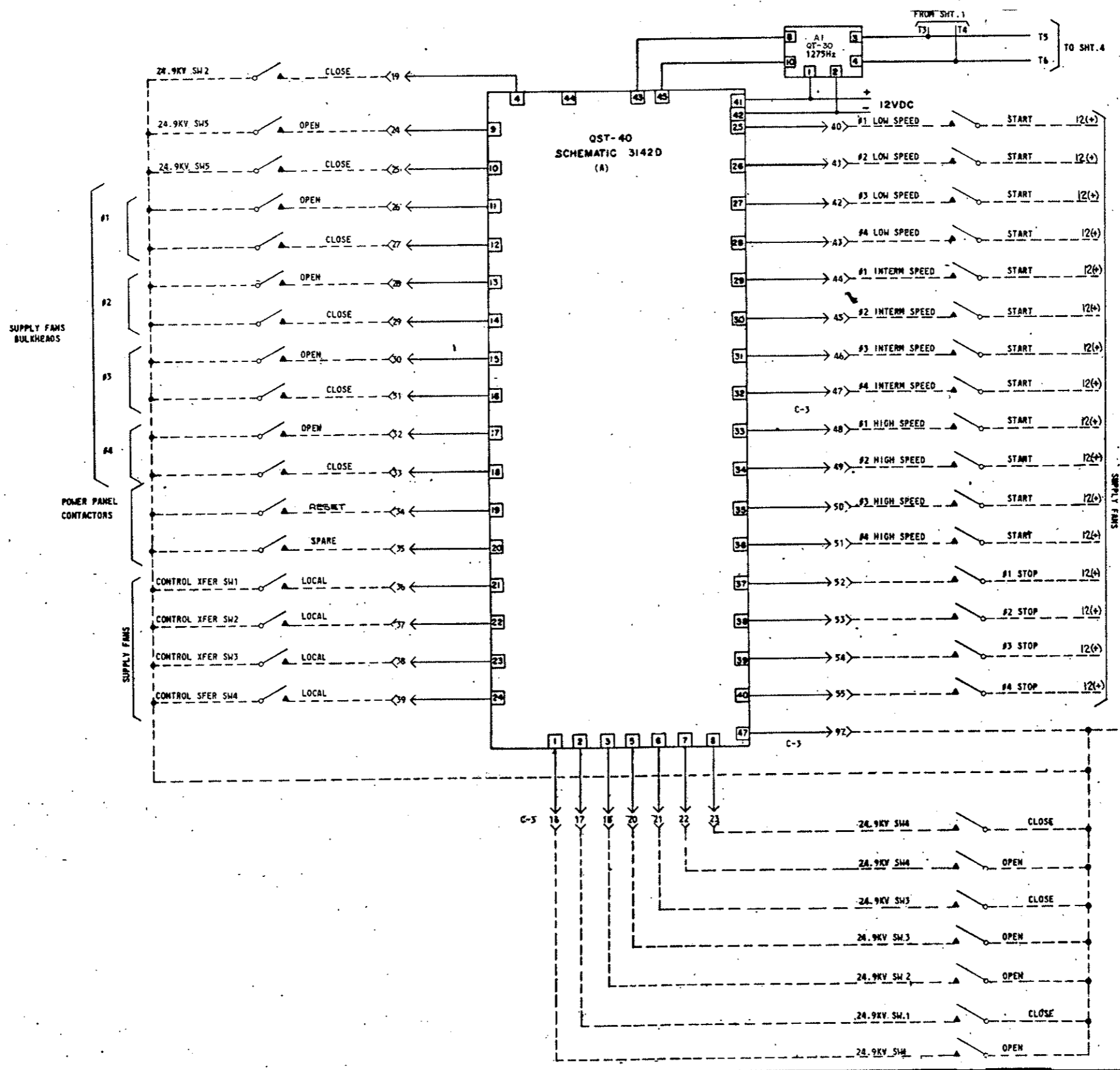
AS CONSTRUCTED
REVISED DATE *Oct. 26, 1973*



DETAILS OF QUINDAR SYSTEM
 (Remote Fan Control)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
336	COLORADO	170-3(34)220	243 PK	

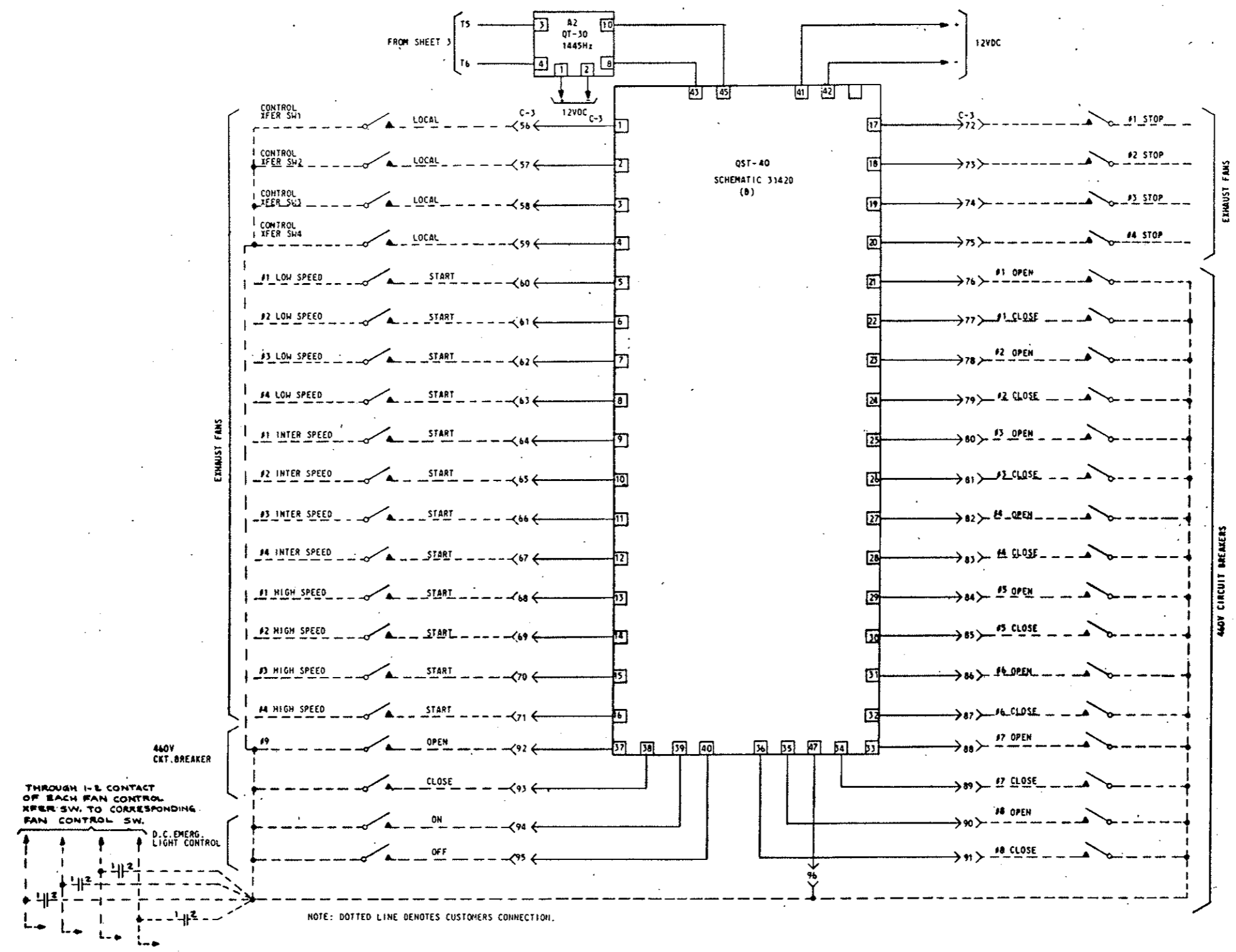
AS CONSTRUCTED
REVISED DATE *Oct. 26, 1973*



DETAILS OF QUINDAR SYSTEM
 (Remote Fan Control)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
700	COLORADO	170-3(34)220	243 QX	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



DETAILS OF QUINDAR SYSTEM
 (Remote Fan Control)

PURCHASER GESCO/JELGO INC.
LOCATION STRAIGHT CREEK TUNNEL, 13 MILES WEST OF GEORGETOWN COLO.
STATION EAST VENTILATION & WEST VENTILATION BUILDINGS
EQUIPMENT AKD-5 POWERMASTER SWITCH GEAR

REV. No.
0165B8182
 CONT ON SHEET 2 SH NO 1

TITLE
ELEMENTARY DIAGRAM
 FIRST MADE FOR REG. 433-20323 S.O. 9/22/77

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973
 AS CONSTRUCTED
 REVISED DATE

209A1005	SUMMARY
168R067D	FRONT VIEW
168R0671	

NOTES

- - SYMBOL INDICATES SWITCHES AND/OR DEVICES USED ON THIS SHOP ORDER.
- ⊕ - PURCHASER TO MAKE THESE CONNECTIONS
- * - REMOTE FROM SWITCHGEAR
- ⊙ - PURCHASER TO REMOVE THESE JUMPERS WHEN METERING IS COMPLETED.
- △PS - POSITION SWITCH (PS) SHOWN WITH BREAKER IN OPERATING POSITION. CONTACTS REVERSED IN TEST AND WITHDRAWN POSITION.
- STB2 - DENOTES SHIPPING TERMINAL BLOCK 2, STUD 1, UNIT 4
- OTB2 - DENOTES OUTGOING TERMINAL BLOCK 2, STUD 1, UNIT 4
- ⚡ - DEVICES LOCATED AT POWER TRANSFORMER

INTERNAL DEVICE DIAGRAMS (SHOWN B.V. UNLESS OTHERWISE NOTED)

<p>PS</p> <table border="1"> <thead> <tr> <th colspan="2">CONTACTS</th> <th colspan="2">POSITIONS</th> </tr> <tr> <th>SHAFT END</th> <th>NO</th> <th>BAR OUT</th> <th>BAR IN</th> </tr> </thead> <tbody> <tr><td>11 1</td><td>2 21</td><td>1</td><td>X</td></tr> <tr><td>11 2</td><td>3 31</td><td>2</td><td>X</td></tr> <tr><td>11 3</td><td>4 41</td><td>3</td><td>X</td></tr> <tr><td>11 4</td><td>5 51</td><td>4</td><td>X</td></tr> <tr><td>11 5</td><td>6 61</td><td>5</td><td>X</td></tr> <tr><td>11 6</td><td>7 71</td><td>6</td><td>X</td></tr> <tr><td>11 7</td><td>8 81</td><td>7</td><td>X</td></tr> <tr><td>11 8</td><td>9 91</td><td>8</td><td>X</td></tr> <tr><td>11 9</td><td>10 101</td><td>9</td><td>X</td></tr> <tr><td>11 10</td><td>11 111</td><td>10</td><td>X</td></tr> <tr><td>11 11</td><td>12 121</td><td>11</td><td>X</td></tr> <tr><td>11 12</td><td>13 131</td><td>12</td><td>X</td></tr> </tbody> </table> <p>SPRING RETURN TO BAR OUT X-DENOTES CONTACT CLOSED SB 18A448</p>	CONTACTS		POSITIONS		SHAFT END	NO	BAR OUT	BAR IN	11 1	2 21	1	X	11 2	3 31	2	X	11 3	4 41	3	X	11 4	5 51	4	X	11 5	6 61	5	X	11 6	7 71	6	X	11 7	8 81	7	X	11 8	9 91	8	X	11 9	10 101	9	X	11 10	11 111	10	X	11 11	12 121	11	X	11 12	13 131	12	X	<p>PS</p> <table border="1"> <thead> <tr> <th colspan="2">CONTACTS</th> <th colspan="2">POSITIONS</th> </tr> <tr> <th>SHAFT END</th> <th>NO</th> <th>BAR OUT</th> <th>BAR IN</th> </tr> </thead> <tbody> <tr><td>11 1</td><td>2 21</td><td>1</td><td>X</td></tr> <tr><td>11 2</td><td>3 31</td><td>2</td><td>X</td></tr> <tr><td>11 3</td><td>4 41</td><td>3</td><td>X</td></tr> <tr><td>11 4</td><td>5 51</td><td>4</td><td>X</td></tr> <tr><td>11 5</td><td>6 61</td><td>5</td><td>X</td></tr> <tr><td>11 6</td><td>7 71</td><td>6</td><td>X</td></tr> <tr><td>11 7</td><td>8 81</td><td>7</td><td>X</td></tr> <tr><td>11 8</td><td>9 91</td><td>8</td><td>X</td></tr> </tbody> </table> <p>SPRING RETURN TO BAR OUT X-DENOTES CONTACT CLOSED SB 18A448</p>	CONTACTS		POSITIONS		SHAFT END	NO	BAR OUT	BAR IN	11 1	2 21	1	X	11 2	3 31	2	X	11 3	4 41	3	X	11 4	5 51	4	X	11 5	6 61	5	X	11 6	7 71	6	X	11 7	8 81	7	X	11 8	9 91	8	X	<p>PS</p> <table border="1"> <thead> <tr> <th colspan="2">CONTACTS</th> <th colspan="2">POSITIONS</th> </tr> <tr> <th>SHAFT END</th> <th>NO</th> <th>BAR OUT</th> <th>BAR IN</th> </tr> </thead> <tbody> <tr><td>11 1</td><td>2 21</td><td>1</td><td>X</td></tr> <tr><td>11 2</td><td>3 31</td><td>2</td><td>X</td></tr> <tr><td>11 3</td><td>4 41</td><td>3</td><td>X</td></tr> <tr><td>11 4</td><td>5 51</td><td>4</td><td>X</td></tr> <tr><td>11 5</td><td>6 61</td><td>5</td><td>X</td></tr> <tr><td>11 6</td><td>7 71</td><td>6</td><td>X</td></tr> <tr><td>11 7</td><td>8 81</td><td>7</td><td>X</td></tr> <tr><td>11 8</td><td>9 91</td><td>8</td><td>X</td></tr> </tbody> </table> <p>SPRING RETURN TO BAR OUT X-DENOTES CONTACT CLOSED SB 18A448</p>	CONTACTS		POSITIONS		SHAFT END	NO	BAR OUT	BAR IN	11 1	2 21	1	X	11 2	3 31	2	X	11 3	4 41	3	X	11 4	5 51	4	X	11 5	6 61	5	X	11 6	7 71	6	X	11 7	8 81	7	X	11 8	9 91	8	X
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NOTE: FOR SWITCHGEAR DIAGRAM INSTRUCTIONS, STANDARD DEVICE FUNCTION NUMBERS AND ABBREVIATIONS SEE ATTACHED GEK-7317

MADE BY
 C.W. Lewis 7-2-70
 ISSUED OCT 6 70

APPROVALS
 LOW VOLTAGE SWITCHGEAR DEPARTMENT
 PHILADELPHIA

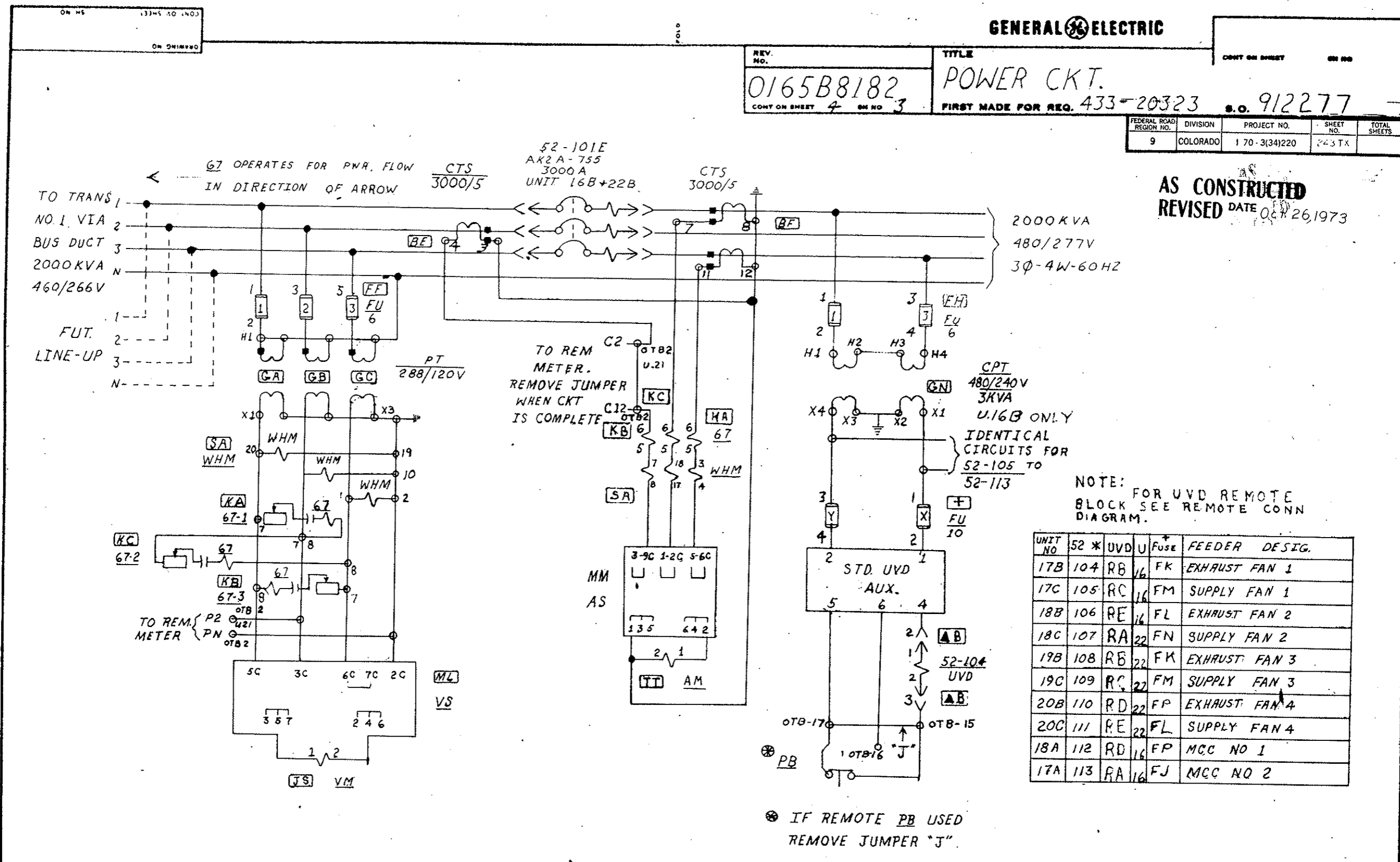
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REV. NO. 0165B8182
CONT ON SHEET 4 SHE NO 3

TITLE POWER CKT.
FIRST MADE FOR REQ. 433-20323 S.O. 912277

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 TX	

AS CONSTRUCTED
REVISED DATE OCT 26, 1973



UNIT NO	52 * UVD	FUSE	FEEDER DESIG.
17B	104 RB	16 FK	EXHAUST FAN 1
17C	105 RC	16 FM	SUPPLY FAN 1
18B	106 RE	16 FL	EXHAUST FAN 2
18C	107 RA	22 FN	SUPPLY FAN 2
19B	108 RB	22 FK	EXHAUST FAN 3
19C	109 RC	22 FM	SUPPLY FAN 3
20B	110 RD	22 FP	EXHAUST FAN 4
20C	111 RE	22 FL	SUPPLY FAN 4
18A	112 RD	16 FP	MCC NO 1
17A	113 RA	16 FJ	MCC NO 2

⊗ IF REMOTE PB USED REMOVE JUMPER "J"

67 CKT / TABLE	OCT 6 9-30-70	AKZ/KE	1		
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MADE BY 6/30/70
ISSUED OCT 6 '70

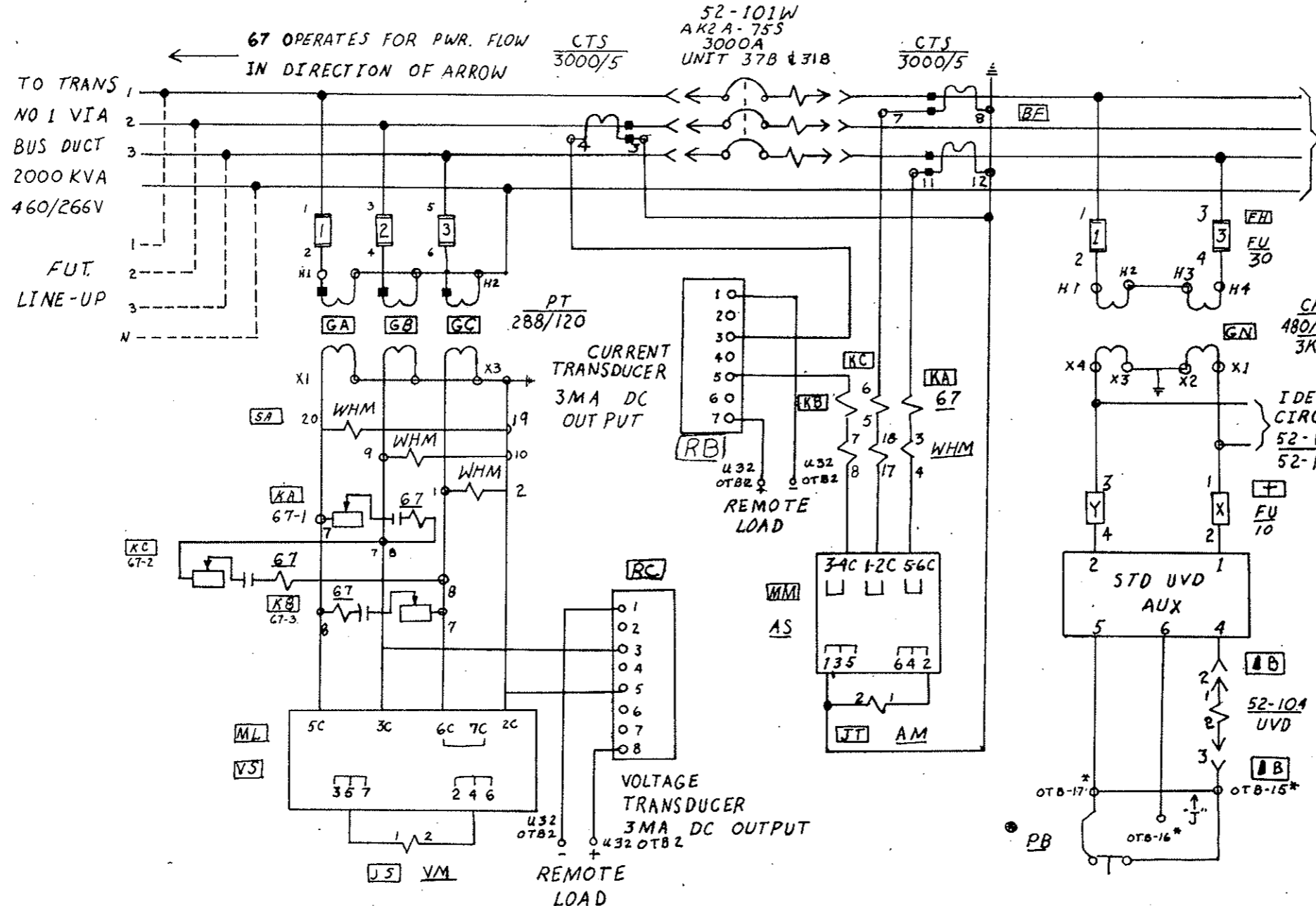
APPROVALS

LOW VOLTAGE SWITCHGEAR DEPARTMENT PHILADELPHIA

0165B8182
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0165B8182 POWER CKT. FIRST MADE FOR REQ. 433-20323 912277

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 Ux	



AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

NOTE:
FOR UVD REMOTE OTB BLOCK SEE REMOTE CONN. DIAGRAM

UNIT NO	52-*	UVD	U	FUSE	FEEDER	DESIG.
36B	104	RD	37	FK	EXHAUST FAN 1	
36C	105	RE	37	FM	SUPPLY FAN 1	
35B	106	RG	37	FL	EXHAUST FAN 2	
35C	107	RA	31	FL	SUPPLY FAN 2	
34B	108	RD	31	FK	EXHAUST FAN 3	
34C	109	RE	31	FM	SUPPLY FAN 3	
33B	110	RF	31	FP	EXHAUST FAN 4	
33C	111	RG	31	FN	SUPPLY FAN 4	
35A	112	RF	37	FP	MCC NO 1	
36A	113	RA	37	FJ	MCC NO 2	

IF REMOTE PB USED REMOVE JUMPER "J"

67 CRT #	TABLE	RLZIKE	1		
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MADE BY	APPROVALS	LOW VOLTAGE: SWITCHGEAR DEPARTMENT PHILADELPHIA	0165B8182
ISSUED 10-6-70			

REV. No. 12
0165B8182
 CONT ON SHEET 6 ON NO 5

TITLE
BKR. CONTROL CKT
 FIRST MADE FOR REQ. 433-20323 S.O. 912277

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

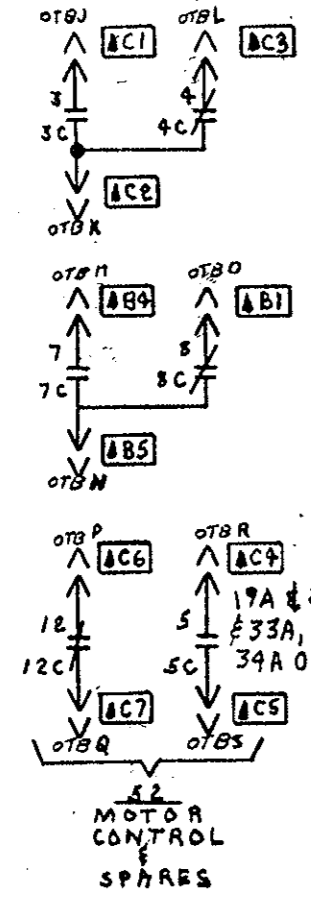
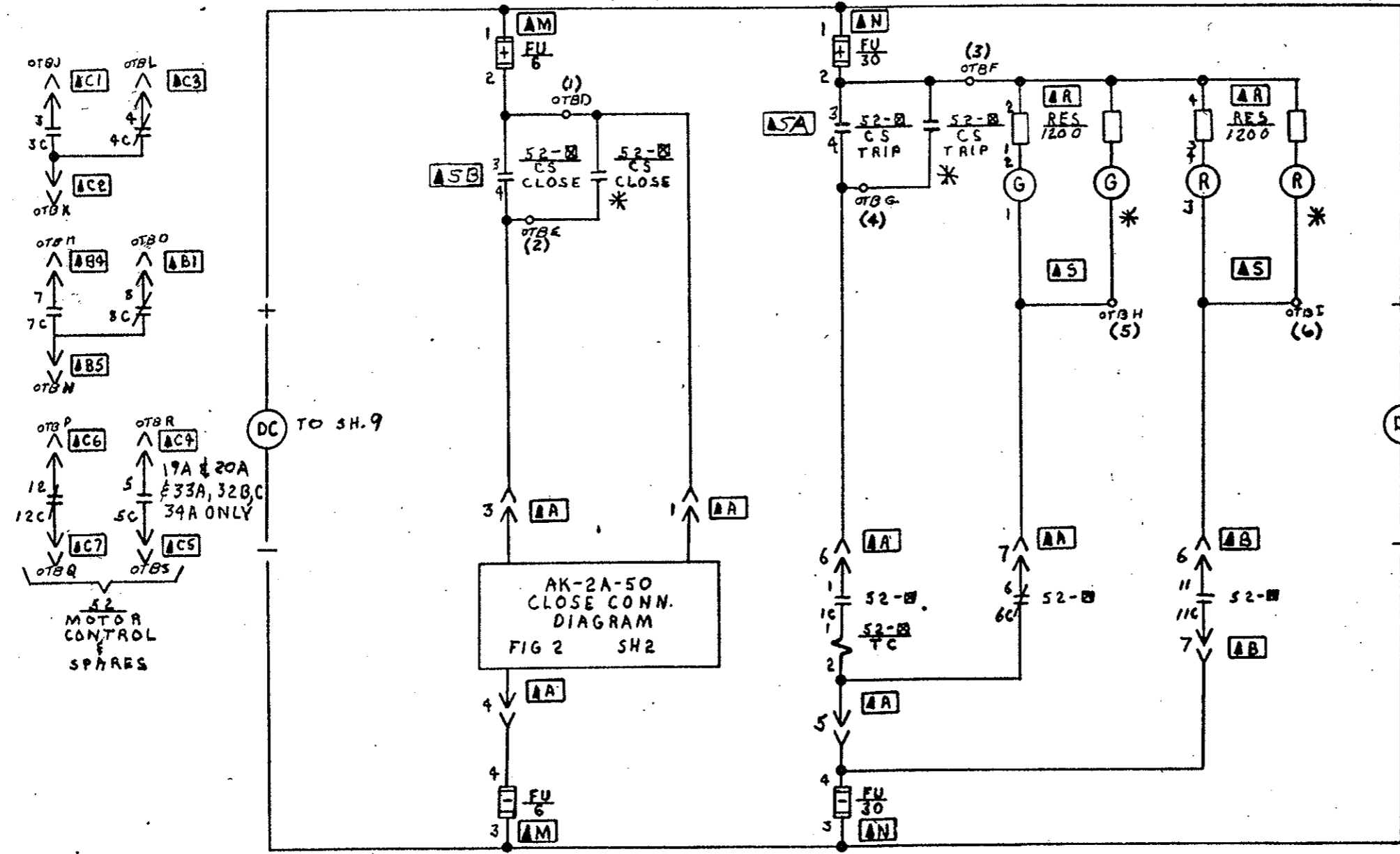


TABLE A

EAST VENTILATION

52-#	UNIT NO.	MCC.
112	018A	#1
113	017A	#2
114	019A	#3
115	020A	#3
117	021B	SPARE
118	021C	SPARE

WEST VENTILATION

52-#	UNIT NO.	MCC.
112	035A	#1
113	036A	#2
114	034A	#3
115	033A	#3
117	032B	SPARE
118	032C	SPARE

A - SAME AS COMPT DESIGNATION

NOTE: SEE REM. CONN. DIAGRAM FOR OTB POINTS (D THRU S)

RES. STAFF	OFF. NO.			
CS CONT	RLZIKE	1		
FIELD CHG	CW LEWIS	2		

MADE BY
 712 CWJ 6-29-77
 ISSUED OCT 6 78

APPROVALS

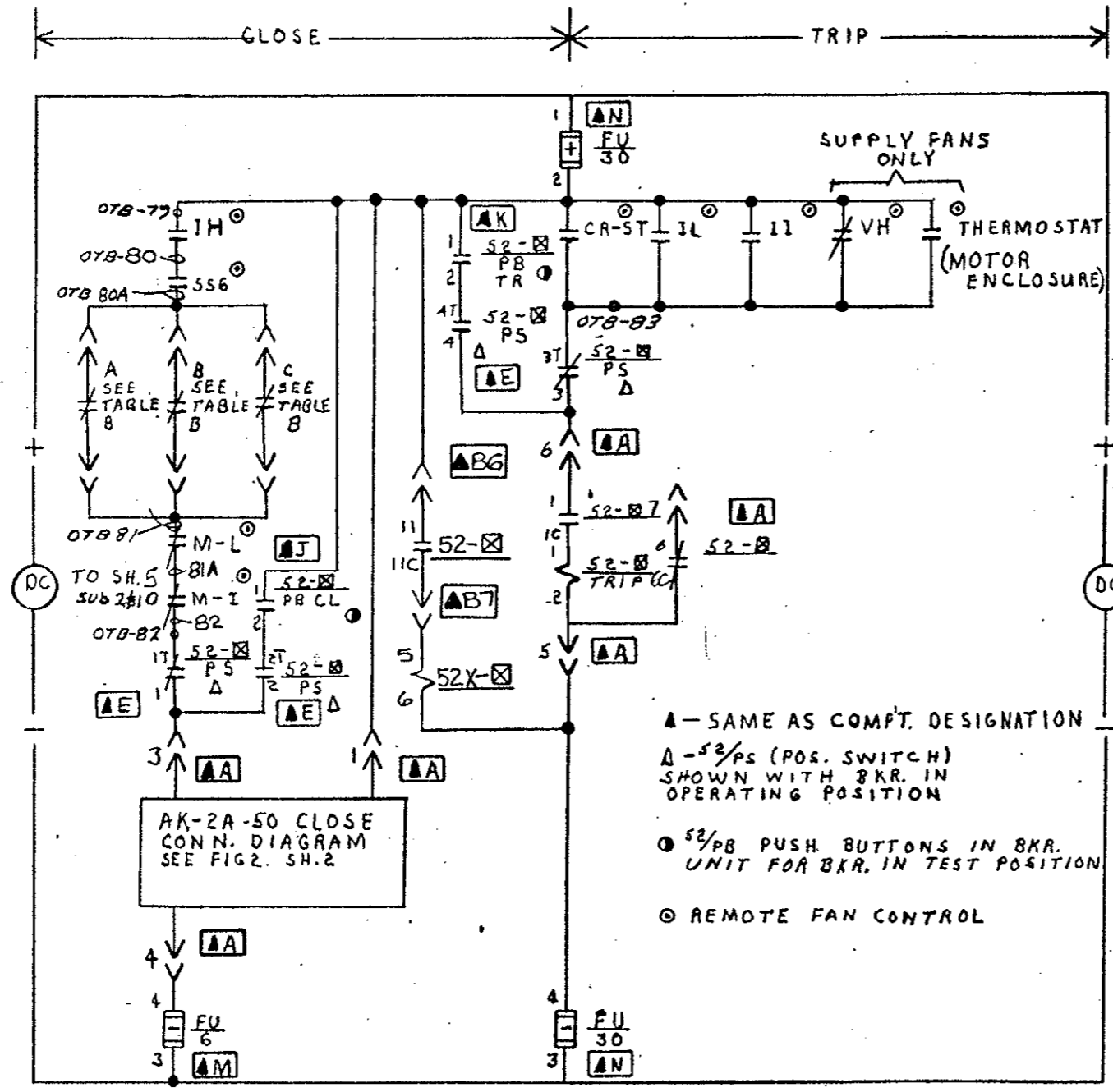
LOW VOLTAGE SWITCHGEAR DEPARTMENT
 PHILADELPHIA

0165B8182
 CONT ON SHEET 6 ON NO 5

REV. NO. 1
 0165B8182
 CONT ON SHEET 7 ON NO 6

TITLE
BKR. CONTROL CKT.
 FIRST MADE FOR REQ. 433-20323 S.O. 9/2277

NOTE: SEE REMOTE CONN. DIAGRAM FOR POINTS (79 THRU 83)



▲ - SAME AS COMPT. DESIGNATION
 Δ - 52/PS (POS. SWITCH) SHOWN WITH BKR. IN OPERATING POSITION
 ● 52/PB PUSH BUTTONS IN BKR. UNIT FOR BKR. IN TEST POSITION
 ⊙ REMOTE FAN CONTROL

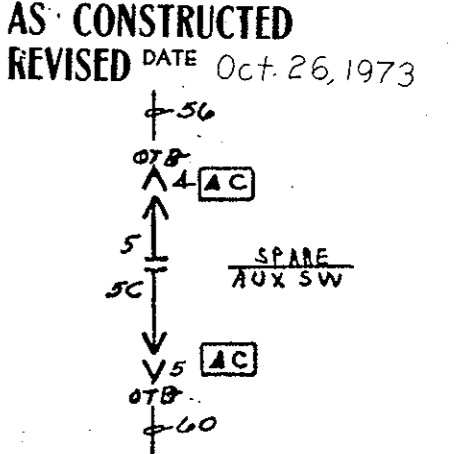
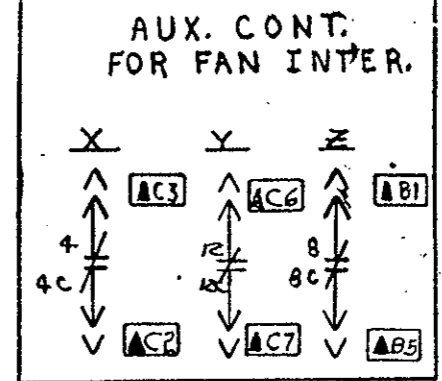
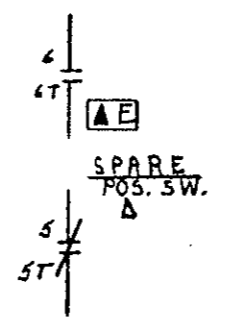


TABLE B

52-UNIT NO.	FAN	FAN INTERLOCK			PREFX TO WIRE NO. ⊙	52 RELAYS UNIT DEV
		A AUX CONT	B AUX CONT	C AUX CONT		
EAST VENT.						
104	017B EXHAUST 1	52-106X	52-108X	52-110X	5E-16	RH
105	017C SUPPLY 1	52-107X	52-109X	52-111X	1E-16	RI
106	018B EXHAUST 2	52-104X	52-108Y	52-110Y	6E-16	RJ
107	018C SUPPLY 2	52-105X	52-109Y	52-111Y	2E-16	RK
108	019B EXHAUST 3	52-104Y	52-106Y	52-110Z	7E-20	RH
109	019C SUPPLY 3	52-105Y	52-107Y	52-111Z	3E-20	RI
110	020B EXHAUST 4	52-104Z	52-106Z	52-108Z	8E-20	RJ
111	020C SUPPLY 4	52-105Z	52-107Z	52-109Z	4E-20	RK
WEST VENT.						
104	036B EXHAUST 1	52-104X	52-108X	52-110X	5W 37	RH
105	036C SUPPLY 1	52-107X	52-109X	52-111X	1W 37	RI
106	035B EXHAUST 2	52-104X	52-108Y	52-110Y	6W 37	RJ
107	035C SUPPLY 2	52-105X	52-109Y	52-111Y	2W 37	RK
108	034B EXHAUST 3	52-104Y	52-106Y	52-110Z	7W 31	RH
109	034C SUPPLY 3	52-105Y	52-107Y	52-111Z	3W 31	RI
110	033B EXHAUST 4	52-104Z	52-106Z	52-108Z	8W 31	RJ
111	033C SUPPLY 4	52-105Z	52-107Z	52-109Z	4W 31	RK

⊙ EXAMPLE - 5E-79, 5E-80, 5E-81 ETC.

- EXH & SUP. FAN EAST & WEST No. ⊙
- #1 - 1103
 - #2 - 1133
 - #3 - 1203
 - #4 - 1233

NOTES	DATE	BY	REV.
FIELD CHG.	9/2/72	C.W. LEWIS	2

MADE BY
 P. Z. C.W. Lewis
 ISSUED OCT 6 70

APPROVALS
 LOW VOLTAGE SWITCHGEAR DEPARTMENT
 PHILADELPHIA

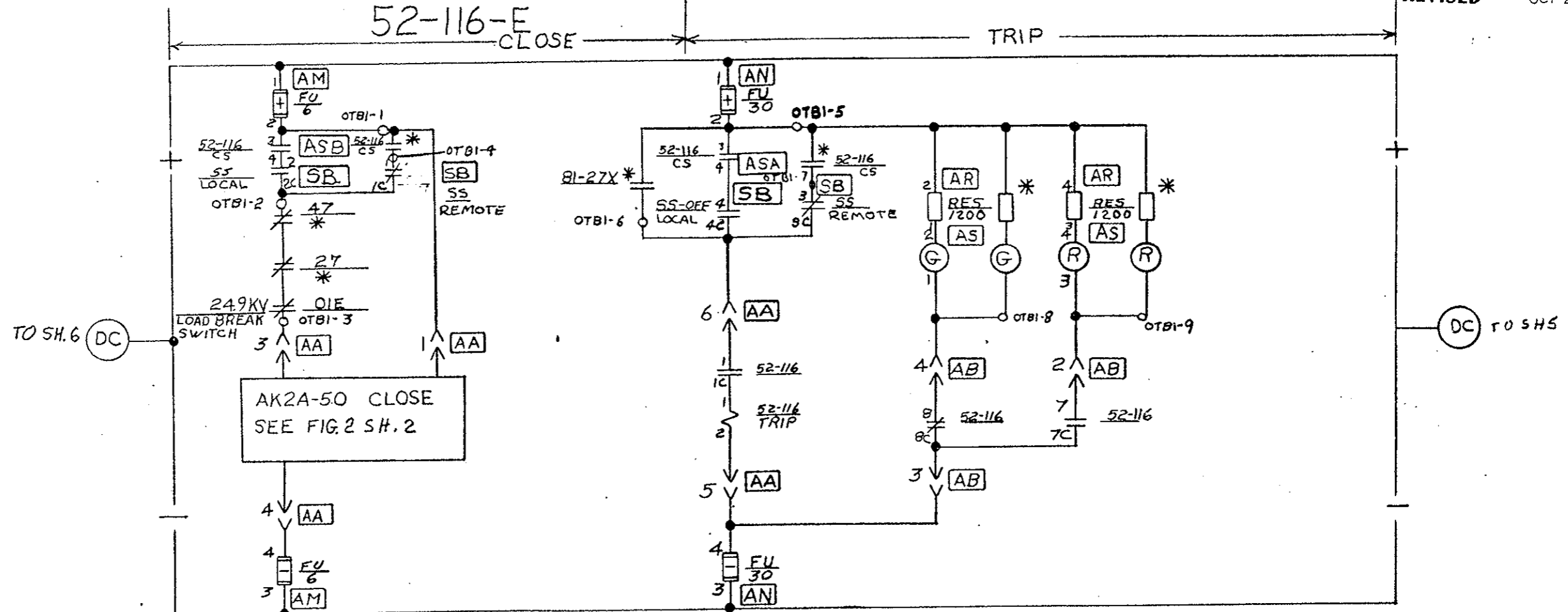
0165B8182
 CONT ON SHEET 7 ON NO 6

REV. No. 123
0165B8182
CONT ON SHEET 8 SH NO 7

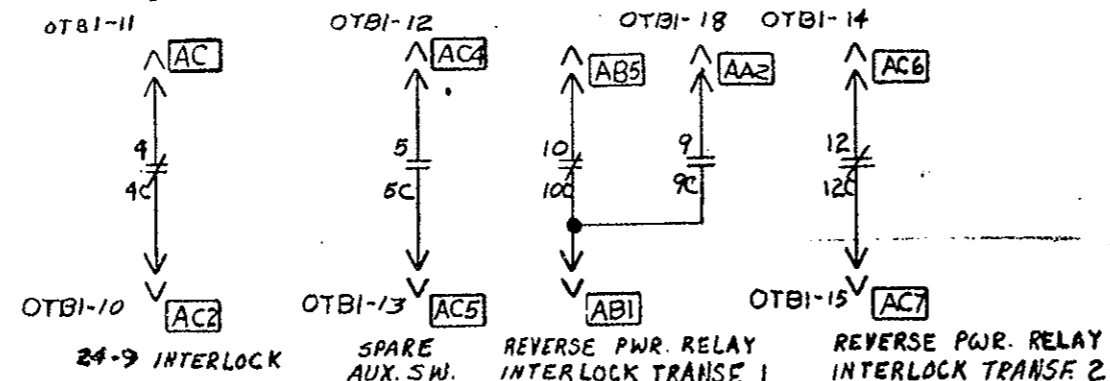
TITLE
BREAKER CONTROL CKT.
FIRST MADE FOR REQ. 433-20323 S.O. 912277

**UNIT 21A
EMERGENCY GENERATOR
52-116-E**

AS CONSTRUCTED
REVISED DATE Oct 26, 1978.



⊙ KEY REMOVABLE WITH SWITCH IN "REMOTE POSITION."



RES.	DCP 570-20	1	FIELD CHG.	3-21-73	3
SPARE SW.	R. Z. I. K. E.	2		C.W. LEWIS	
FIELD CHG.	C.W. LEWIS	2			

MADE BY C.W. LEWIS 6-29-70
ISSUED OCT 6 70

APPROVALS
LOW VOLTAGE SWITCHGEAR DEPARTMENT PHILADELPHIA

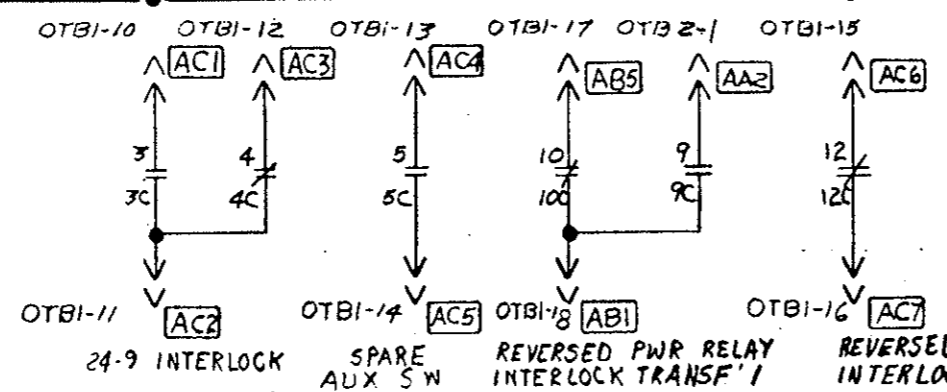
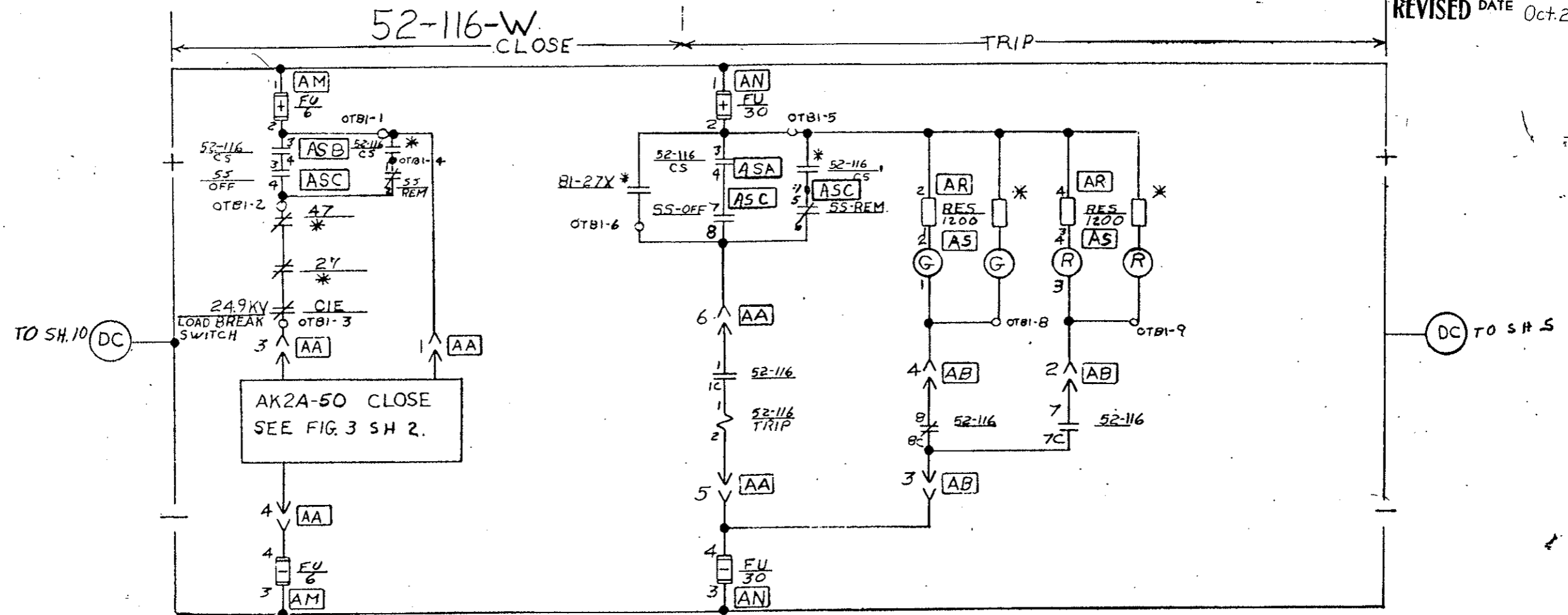
0165B8182
CONT ON SHEET 8 SH NO 7

REV. NO. 12
0165B8182
CONT ON SHEET 9 SH NO 8

TITLE BREAKER CONTROL CKT.
FIRST MADE FOR REQ. 433-20323
S.O. 912277

UNIT 32A (FUTURE)
EMERGENCY GENERATOR

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



RES. SIZE	10-6-70		
ASA, ASE, ASC	PLZIK	1	
FIELD CHG.	C.W. LEWIS	2	

MADE BY C.W. LEWIS 6-29-70
ISSUED 10-6-70

APPROVALS

LOW VOLTAGE SWITCHGEAR DEPARTMENT
PHILADELPHIA

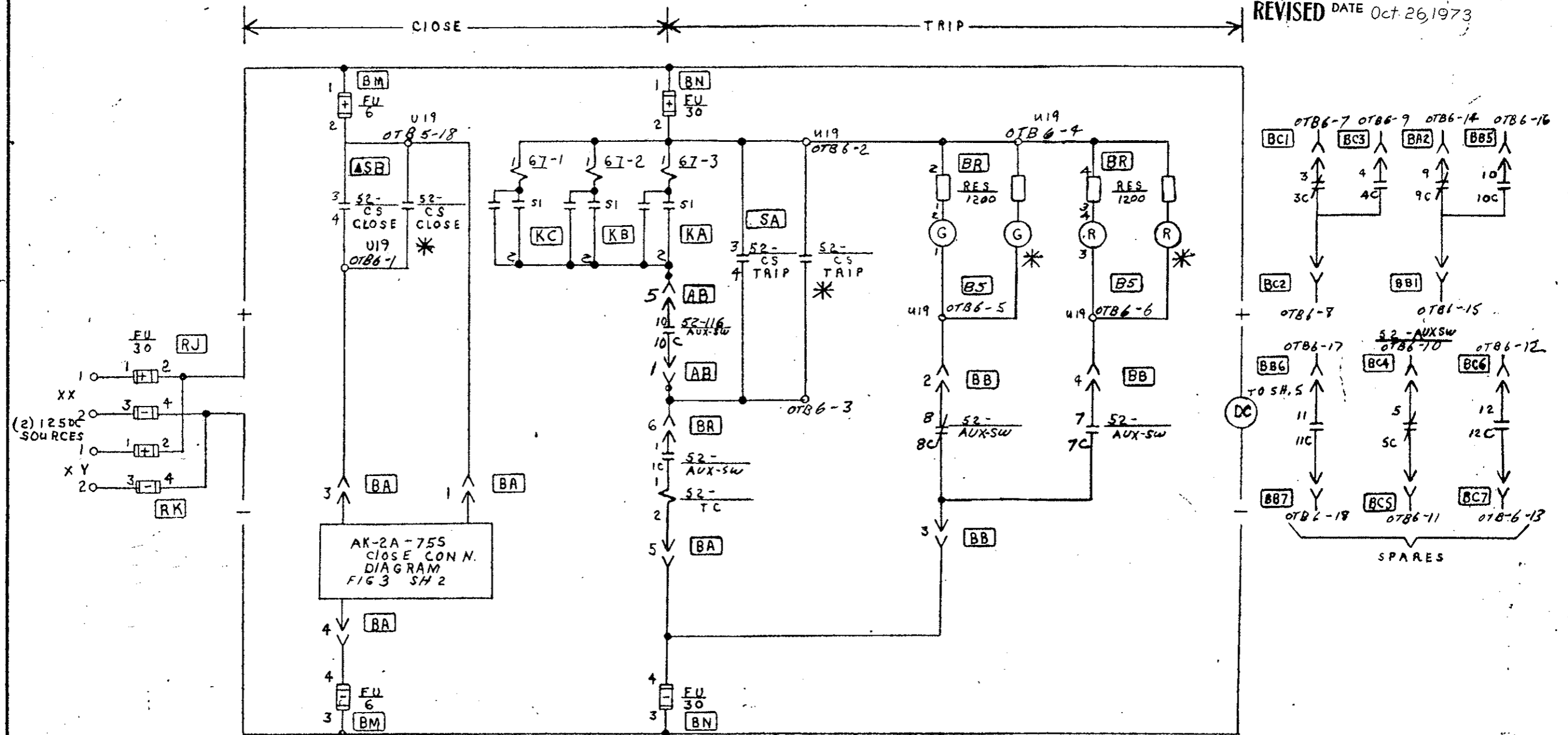
0165B8182
CONT ON SHEET 9 SH NO 8

REV. NO. 12
0165B8182
CONT ON SHEET 10 SHE NO 9

TITLE
BKR CONTROL CKT
FIRST MADE FOR REQ. 433-20323 S.O. 9/2277

52-101E (UNIT 016B)

AS CONSTRUCTED
REVISED DATE Oct 26, 1973



RES SIZE	10-6-70			
CS CONT UNITS	RLZ 1K5	1		
FIELD CHG	B-21-73 C.W. LEWIS	2		

MADE BY
R. C. [Signature]
ISSUED 10-6-70

APPROVALS

LOW VOLTAGE
SWITCHGEAR DEPARTMENT
PHILADELPHIA

0165B8182
CONT ON SHEET 10 SHE NO 9

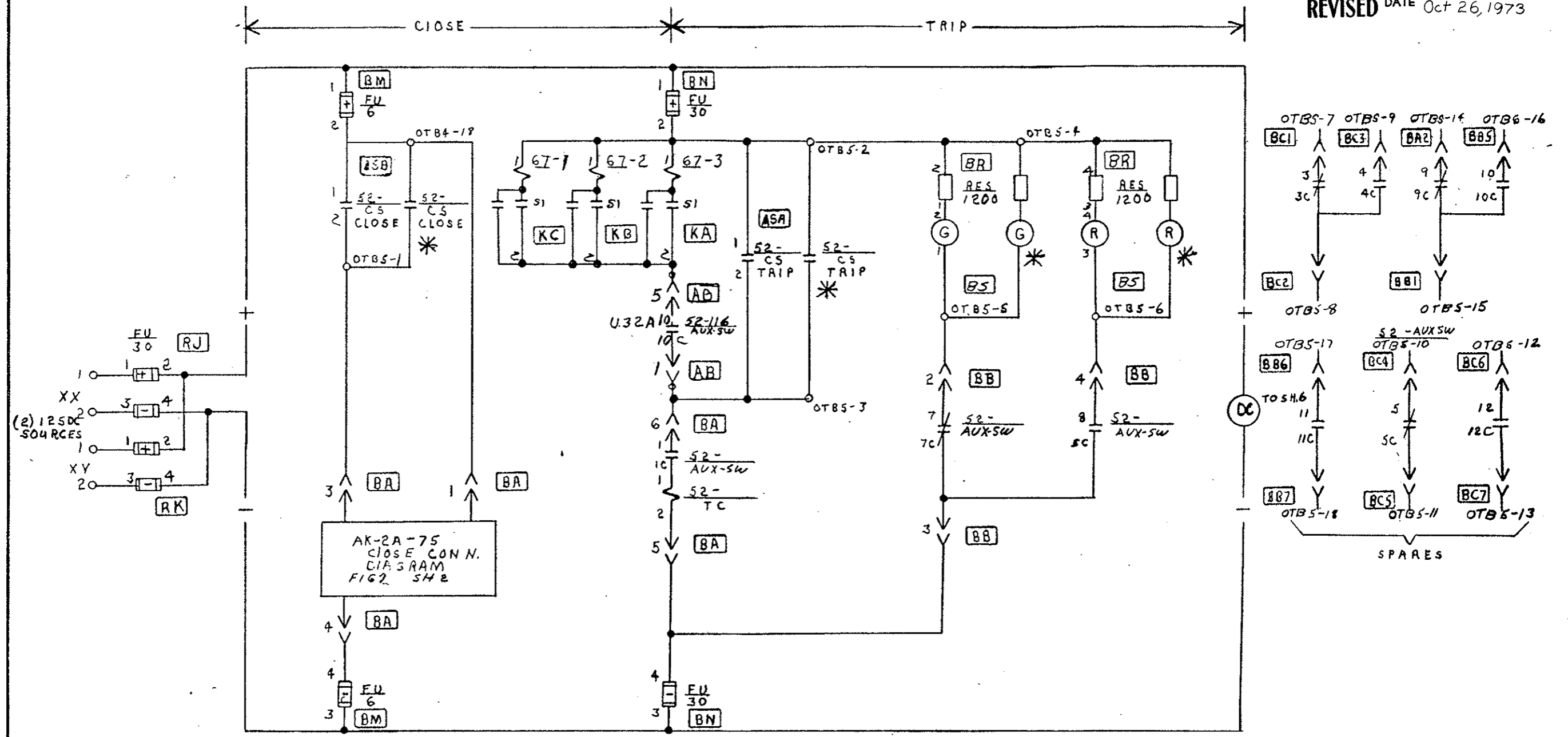
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243AY	

REV. NO. **x2**
0165B8182
 CONT ON SHEET // SN NO 10

TITLE
BKR. CONTROL CKT
 FIRST MADE FOR REG. 433-20323 S.O. 9/2277

52-103W (UNIT 031B)

AS CONSTRUCTED
 REVISED DATE Oct 26, 1973



MS. SIZE	OCT 6 '70				
UNIT 32A (AB)	REV. KE	1			
FIELD CHG	CW LEWIS	2			

MADE BY	C. W. Lewis	APPROVALS	
ISSUED	OCT 4 '70		

LOW VOLTAGE
 SWITCHGEAR DEPARTMENT
 PHILADELPHIA

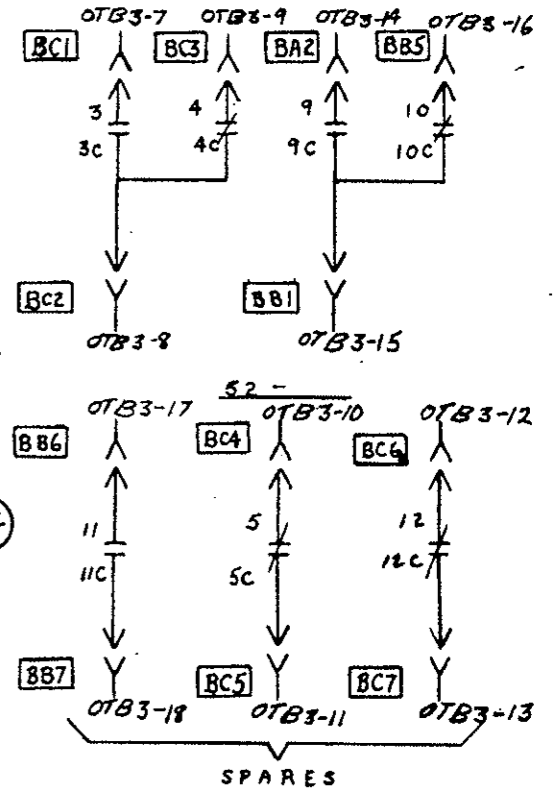
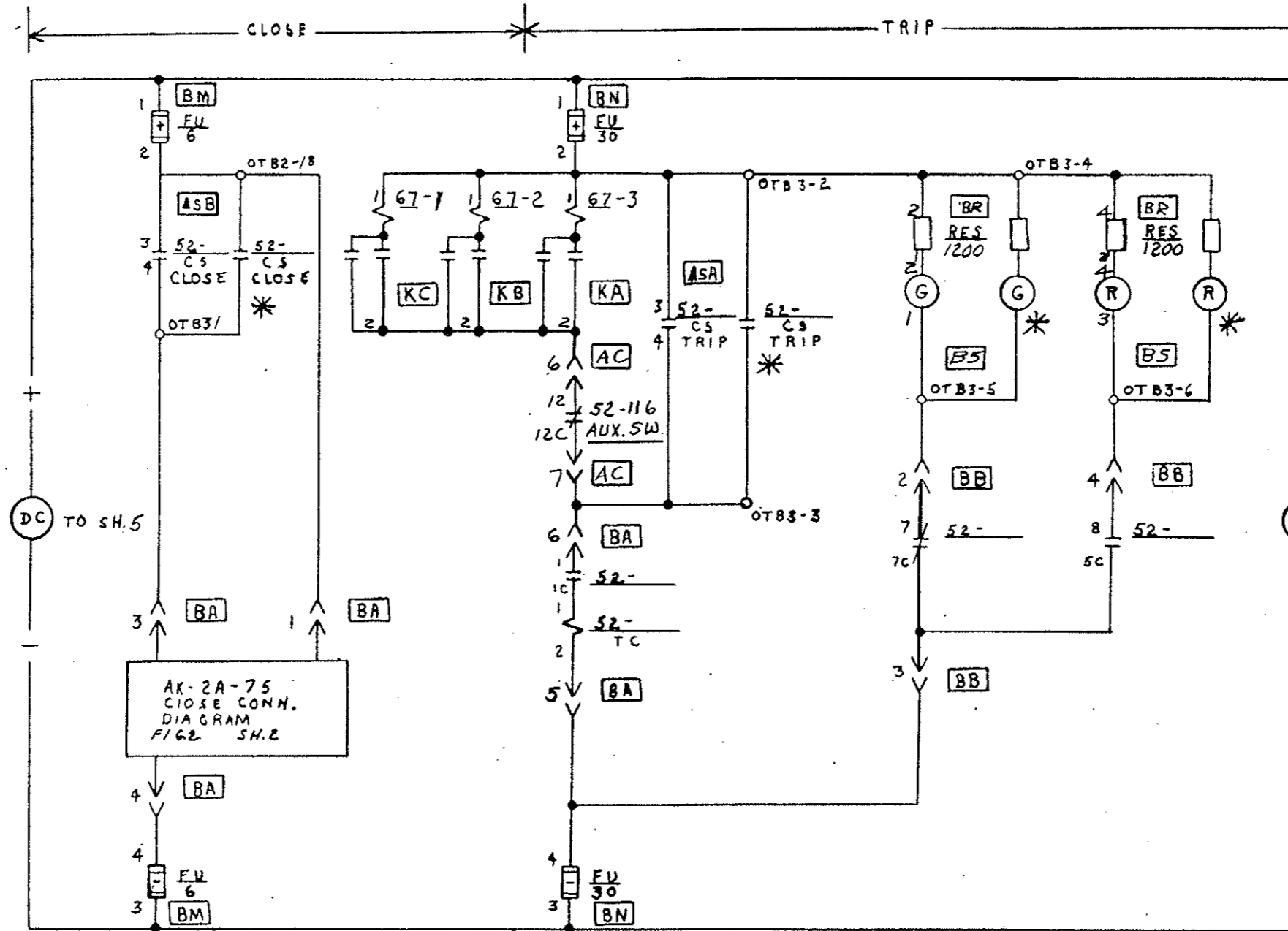
0165B8182
 CONT ON SHEET // SN NO 10

REV. NO. **12**
0165B8182
 CONT ON SHEET **PC1** SH NO **11**

TITLE
BKR. CONTROL CKT
 FIRST MADE FOR REQ. **433-20323** S.O. **9/2277**

52-101E (UNIT 22B)
 52-103W (UNIT 37B)

AS CONSTRUCTED
 REVISED DATE **Oct. 26, 1973**



AK-2A-75
 CLOSE CONN.
 DIAGRAM
 FIG. 2 SH. 2

FIG. SIZE	10-6-70	1				
AUX. C.S. SMT	REZIK					
FIELD CHG	8-21-73 CW LEWIS	2				

MADE BY
R.E. C.W. Lewis 6-29-70
 ISSUED
10-6-70

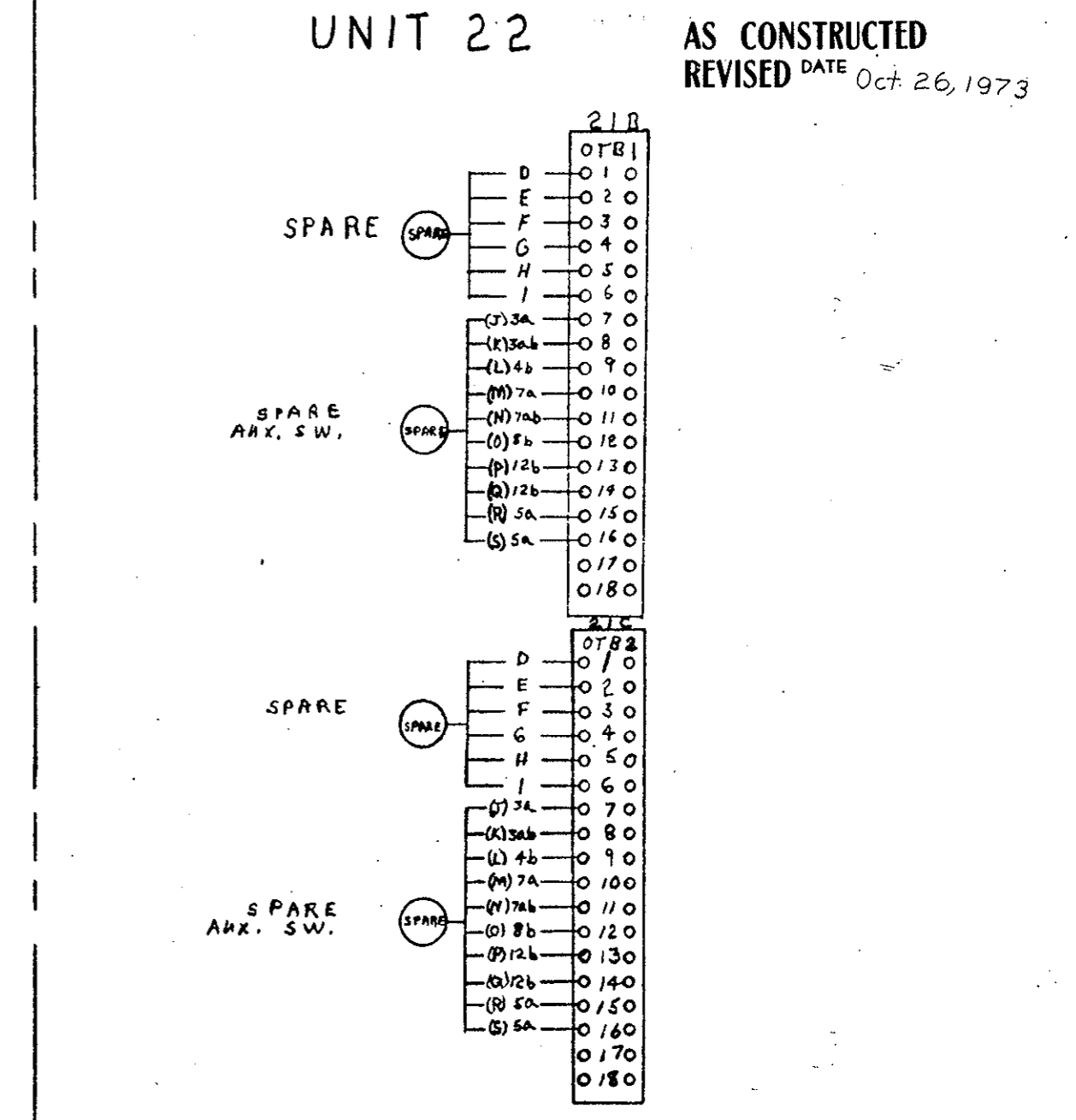
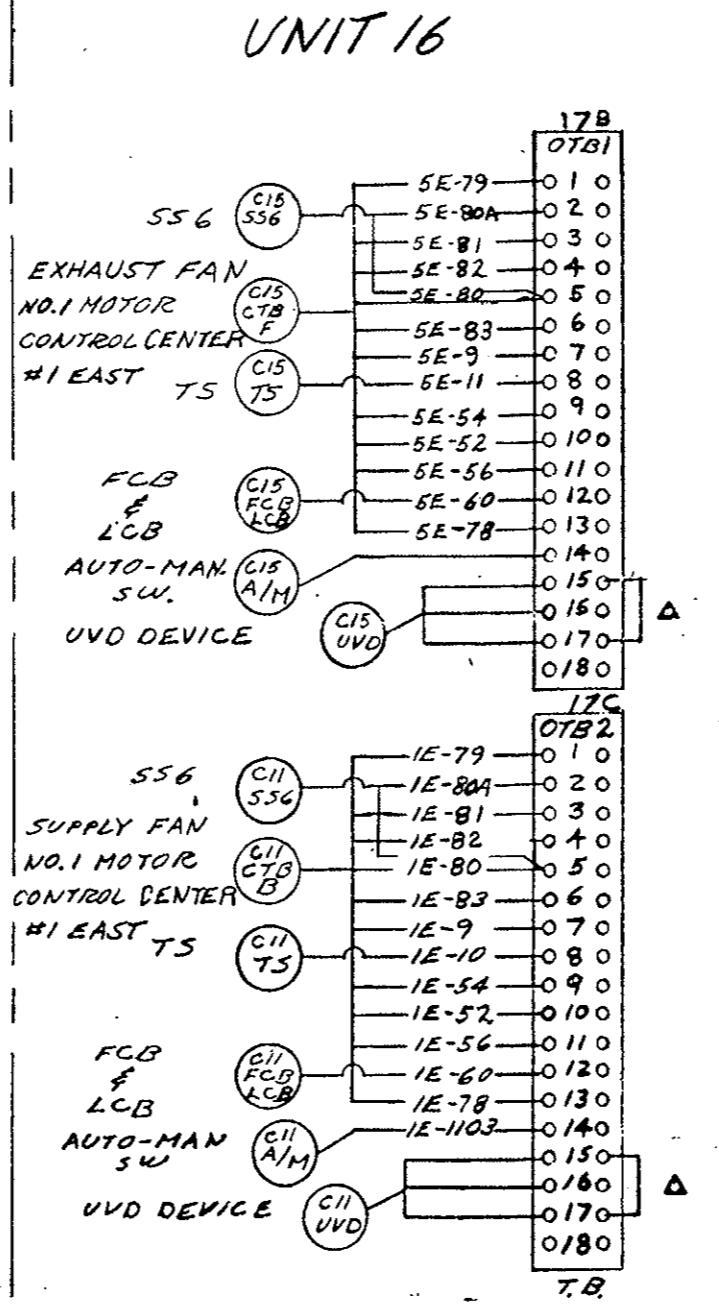
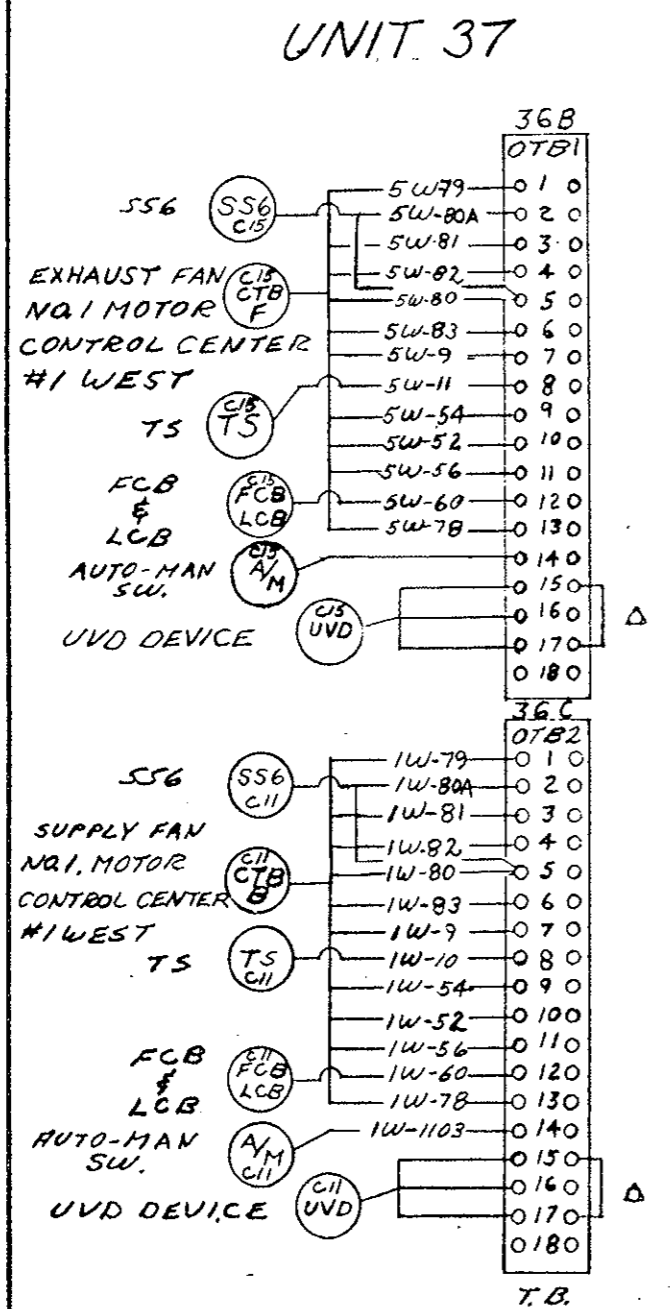
APPROVALS

LOW VOLTAGE
 SWITCHGEAR DEPARTMENT
 PHILADELPHIA

0165B8182
 CONT ON SHEET **PC1** SH NO **11**

0165B8182
CONT ON SHEET PC2 ON NO PC1

TITLE: REMOTE CONN.
FIRST MADE FOR REG. 433-20323 S.O. 912277



AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

FIELD CHK. 9/15/73 C.W. LEWIS 1

MADE BY 462 C.W. LEWIS 10-6-70
ISSUED 10-6-70

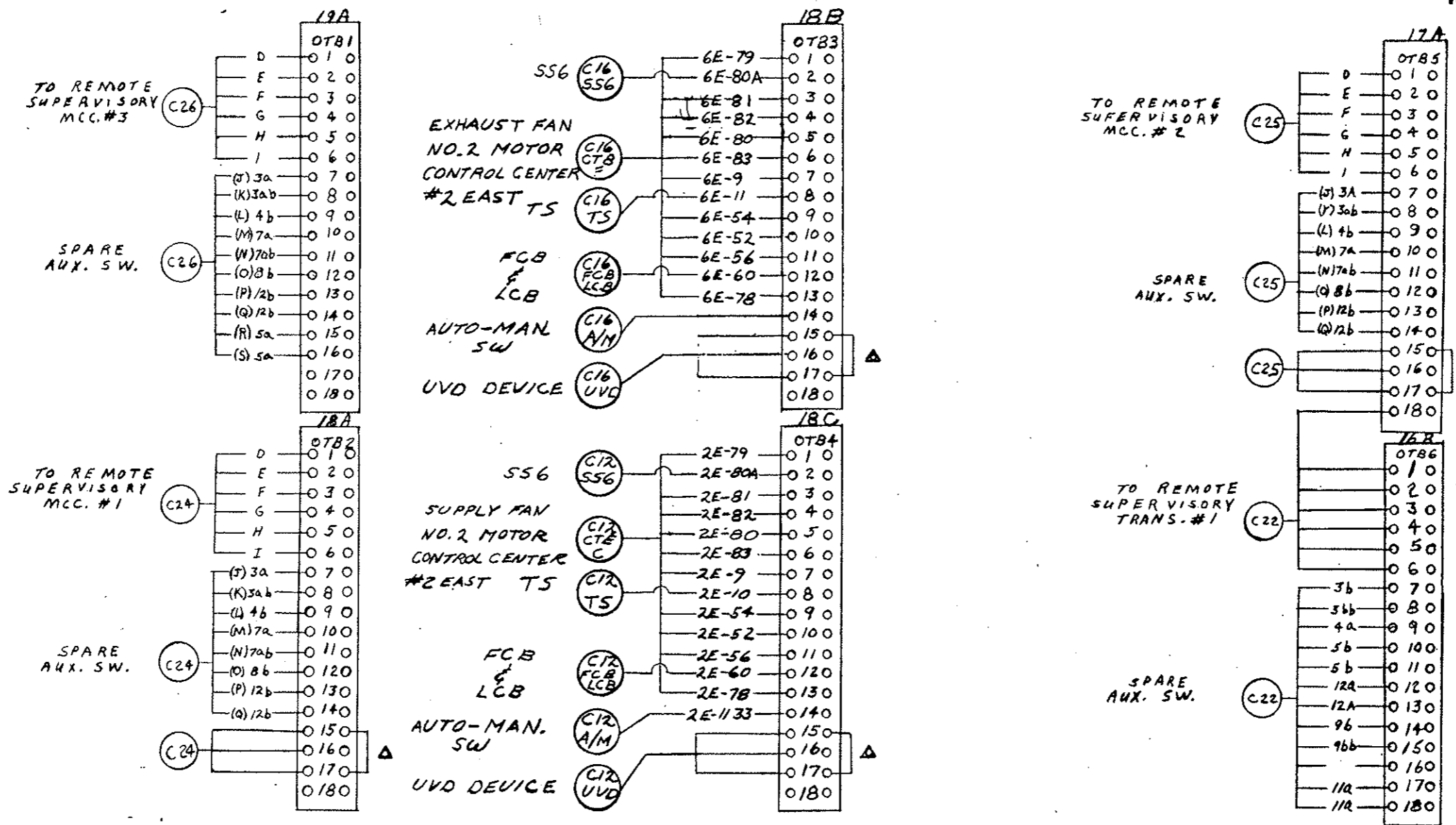
APPROVALS
LOW VOLTAGE SWITCHGEAR DEPARTMENT PHILADELPHIA

0165B8182
CONT ON SHEET PC2 ON NO PC1

NAT. NO. 0165B8182 <small>CONT. ON SHEET RC3 SH NO RC2</small>	TITLE REMOTE CONN. <small>FIRST MADE FOR REG. 433-20323</small>	<small>S.O. 912277</small>
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UNIT 19

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973



	FLD CHG	CWL 9-18-71	MADE BY	APPROVALS	LOW VOLTAGE SWITCHGEAR DEPARTMENT PHILADELPHIA	0165B8182
			ISSUED 10-6-70			<small>CONT. ON SHEET RC3 SH NO RC2</small>

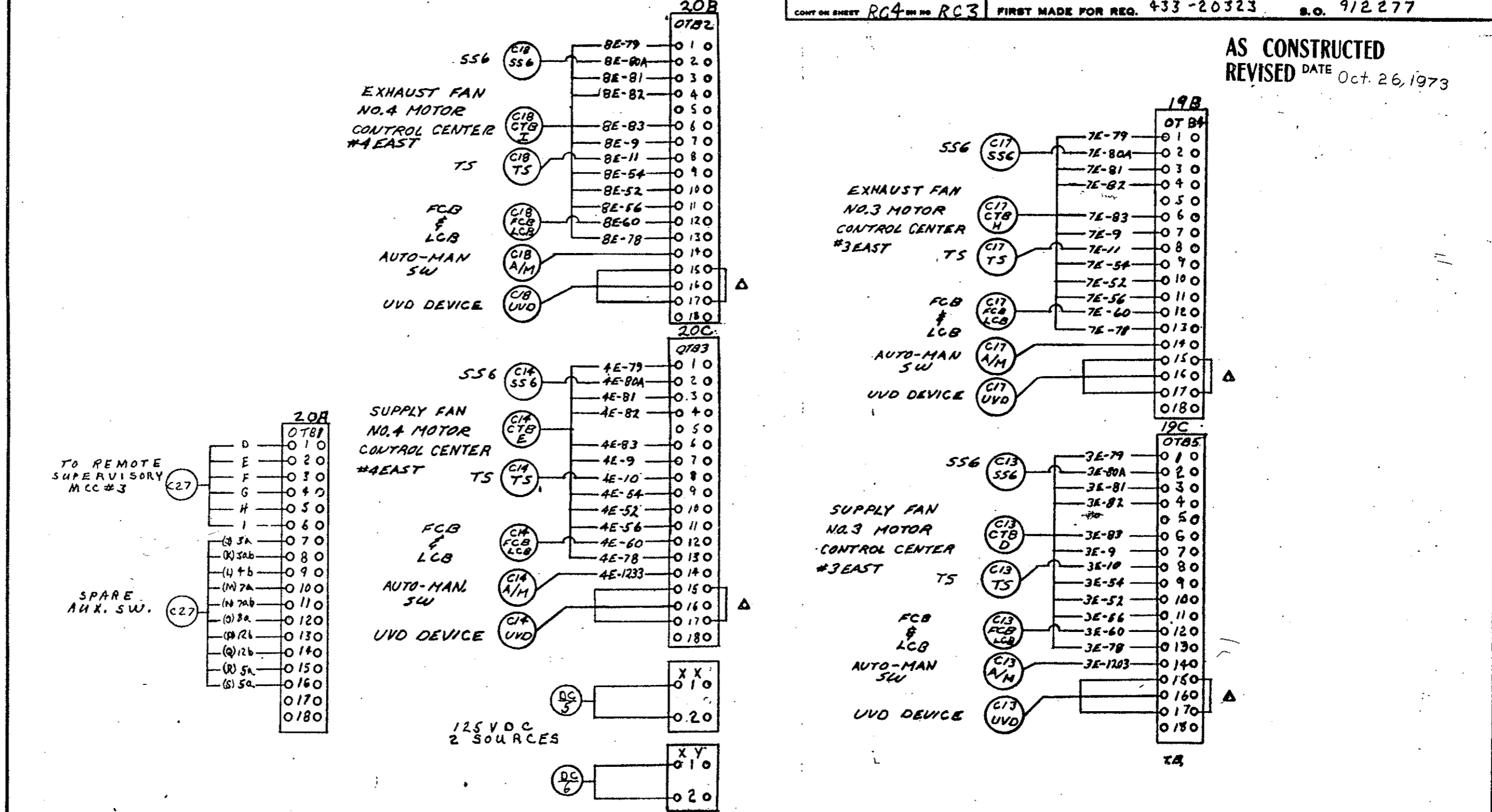
GENERAL ELECTRIC

ON MS 133NS AD 1403
ON DELAYED

REV. No.	TITLE	CONT ON SHEET	ON NO.
0165B8182	REMOTE CONN.	RC4 ON NO RC3	
FIRST MADE FOR REG. 433-20323		S.O. 912277	

UNIT 20

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



FLD GHG	CW LEWIS	1
	9-18-72	

MADE BY
RLZ, CWT, JMW 47-2-70
ISSUED 10-6-70

APPROVALS
LOW VOLTAGE SWITCHGEAR DEPARTMENT
PHILADELPHIA

0165B8182
CONT ON SHEET RC4 ON NO RC3

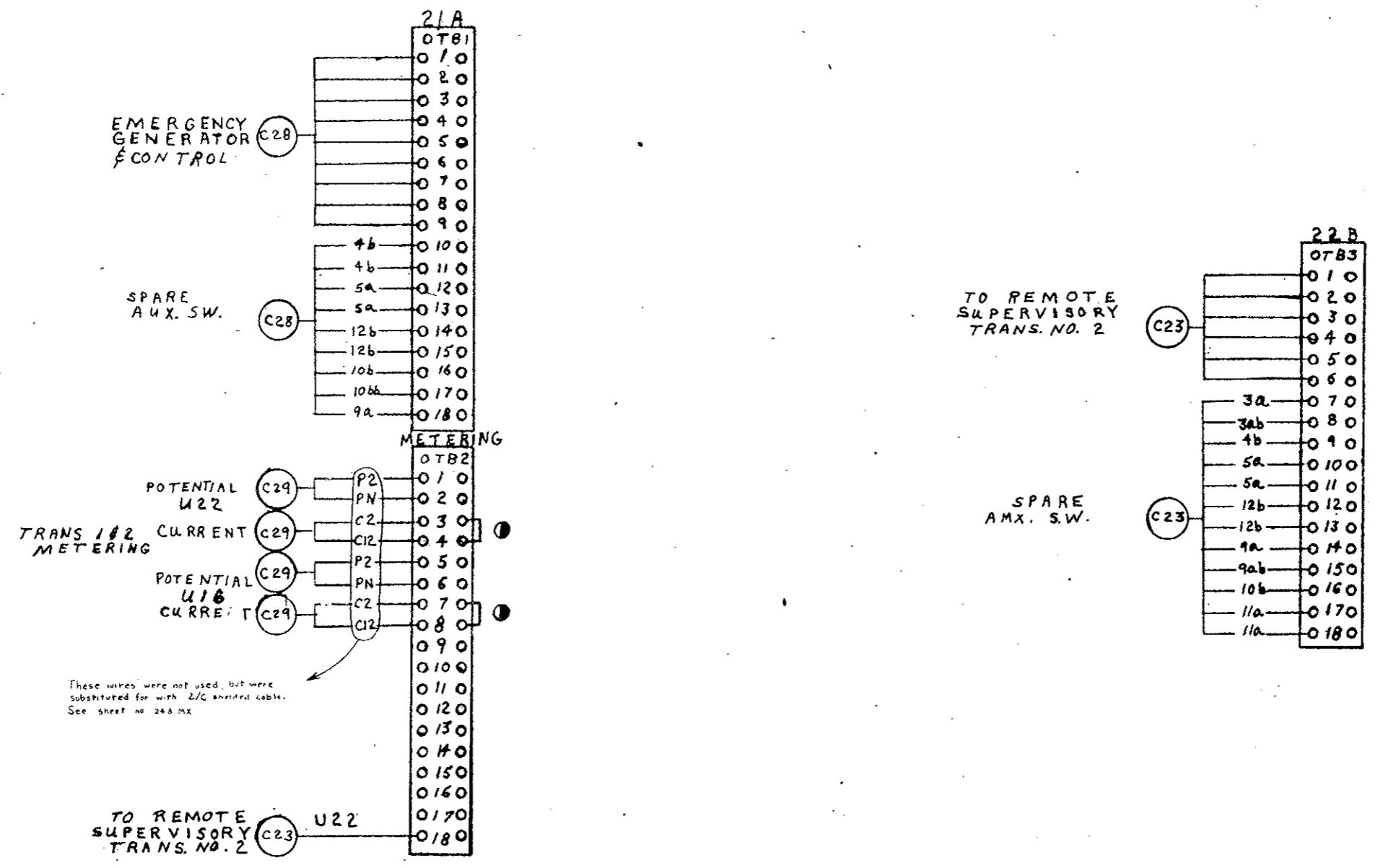
REV. NO. 1
0165B8182
CONT ON SHEET RC5 ON NO RC4

TITLE
REMOTE CONN.
FIRST MADE FOR REG. 433-20323
S.O. 9/22/77

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243FY	

UNIT 21

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

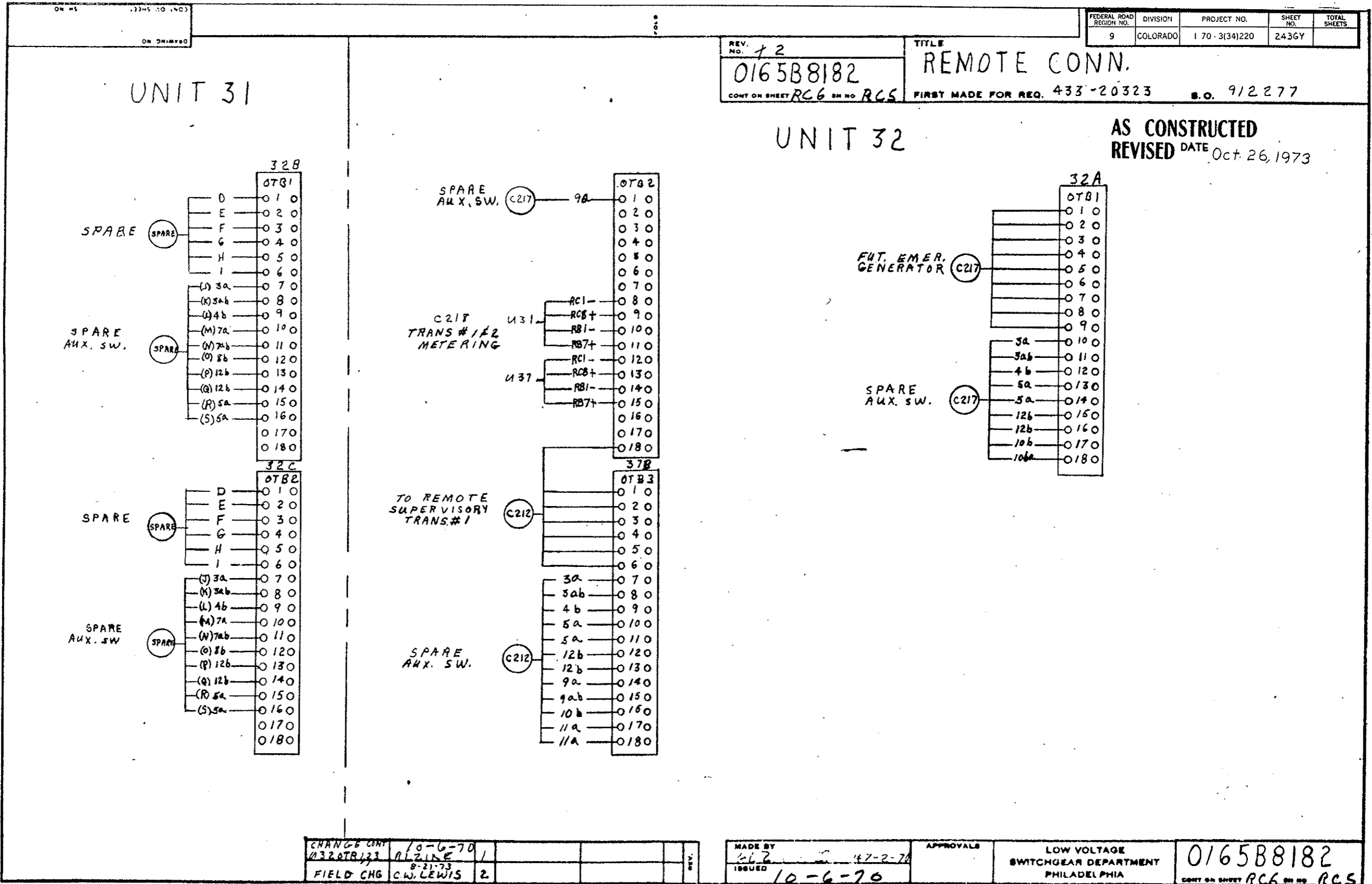


CHANGE CONT	BY	DATE	REASON
ALZ	ALZ	7-6-70	REVISION

MADE BY ALZ CW Series 7-6-70
ISSUED 10-6-70

APPROVALS
LOW VOLTAGE SWITCHGEAR DEPARTMENT
PHILADELPHIA

0165B8182
CONT ON SHEET RC5 ON NO RC4



FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	2436Y	

REV. NO. 12
 0165B8182
 CONT ON SHEET RC6 OR NO. RCS

TITLE
 REMOTE CONN.
 FIRST MADE FOR REQ. 433-20323
 S.O. 912277

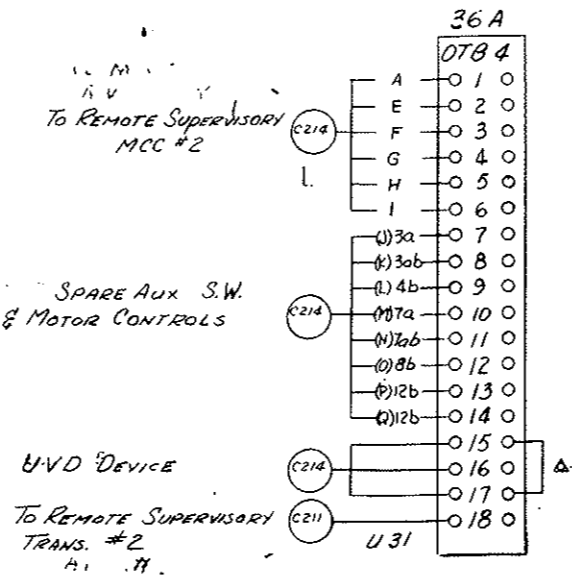
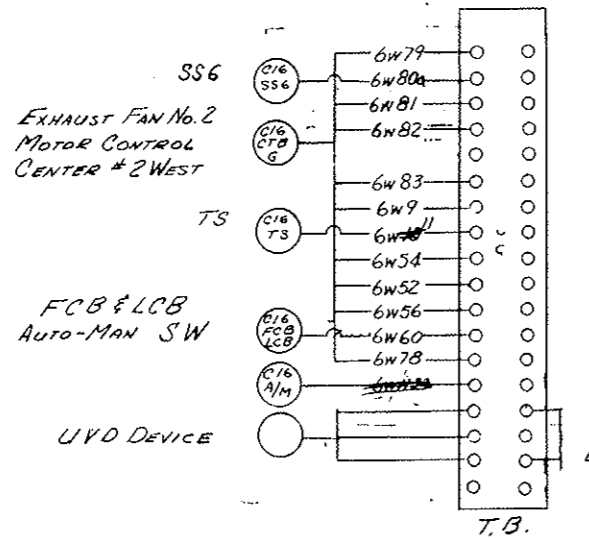
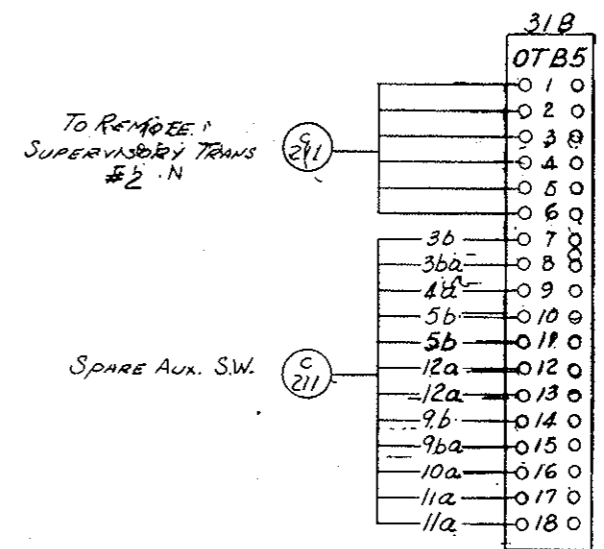
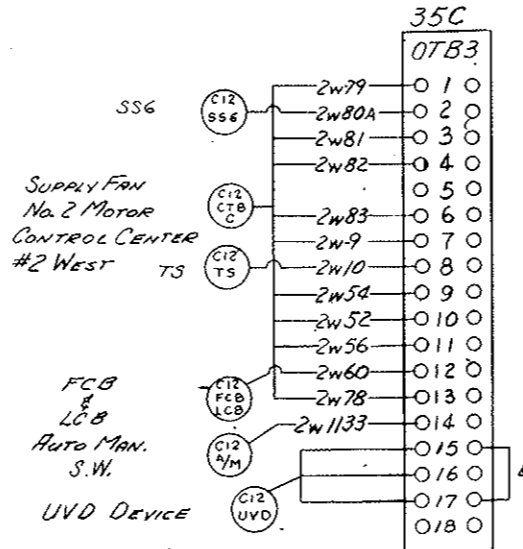
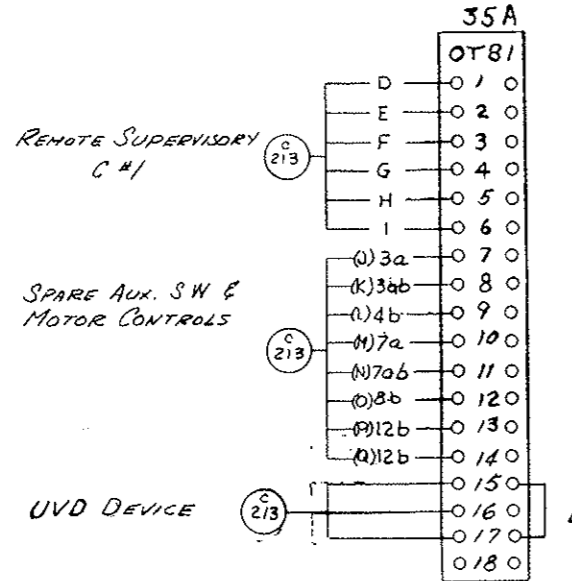
AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

CHANGE CONT	10-6-70			
132.0TR123	ALZINE	1		
FIELD CHG	C.W. LEWIS	2		

MADE BY 4-6-70	ISSUED 10-6-70	APPROVALS	LOW VOLTAGE SWITCHGEAR DEPARTMENT PHILADELPHIA	0165B8182 CONT ON SHEET RC6 OR NO. RCS
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UNIT 34

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



AS CONSTRUCTED
REVISED DATE

FLD CHG	C.W. LEWIS	1
FIELD CHG	C.W. LEWIS	2

MADE BY
ALZ C.W. LEWIS 7-2-70
ISSUED 10-6-70

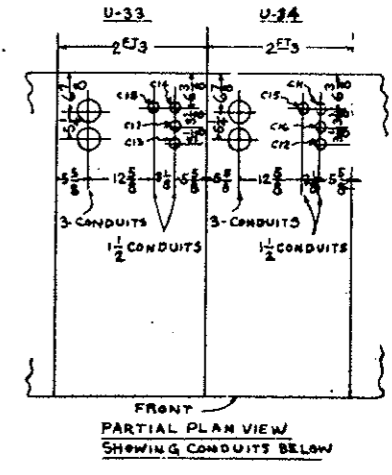
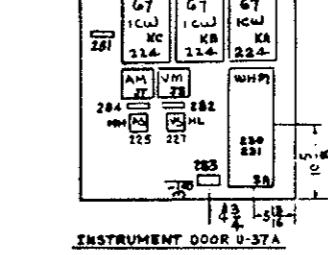
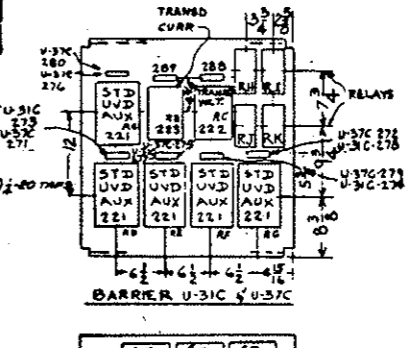
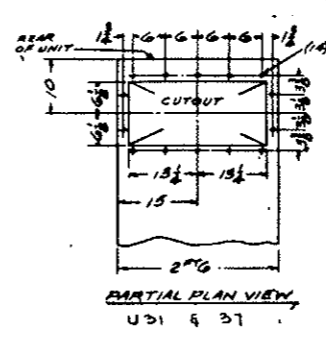
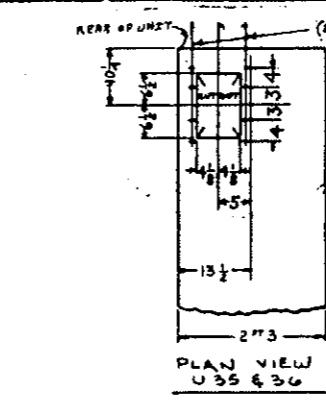
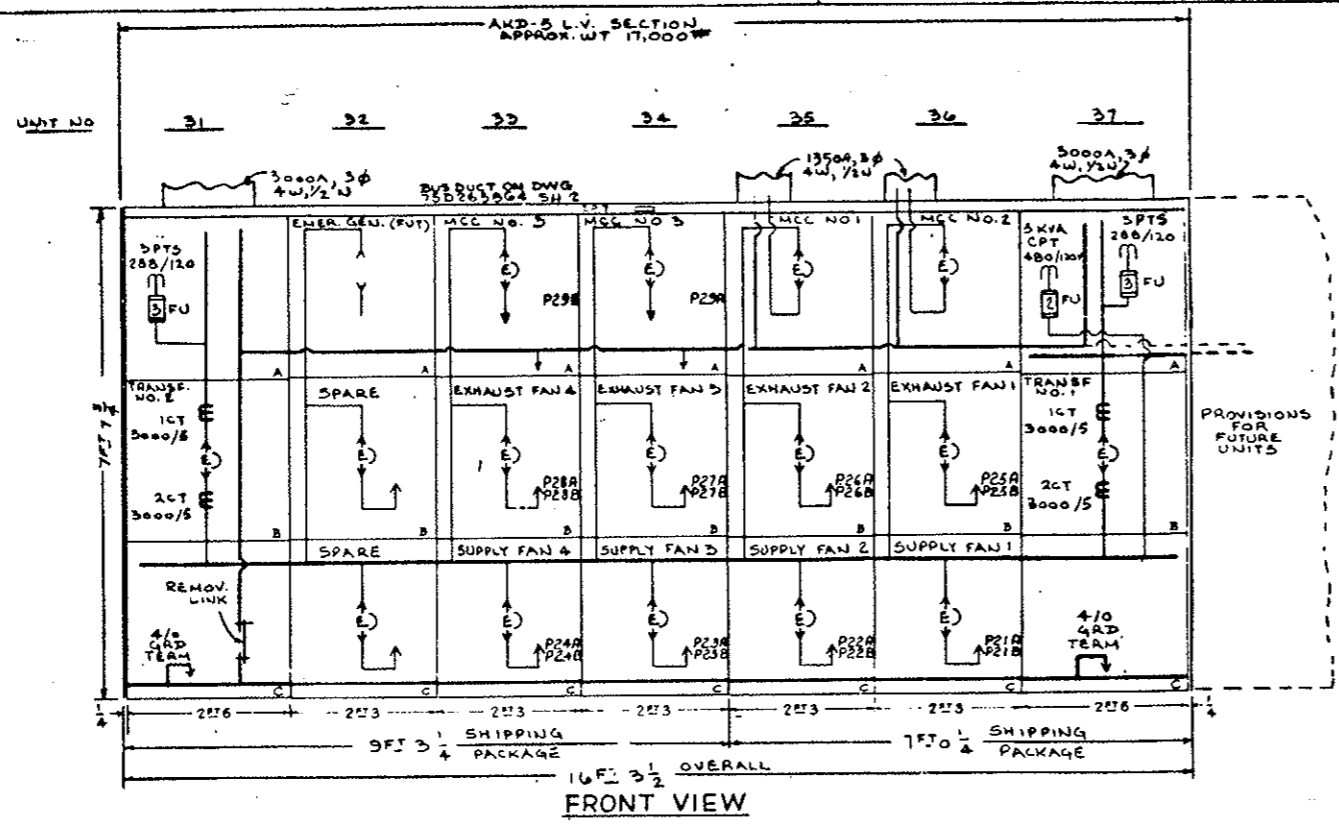
APPROVALS
LOW VOLTAGE SWITCHGEAR DEPARTMENT
PHILA

016588182
CONTRACT NO. 170-3(34)220

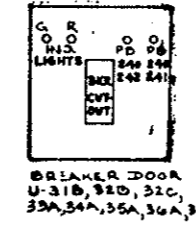
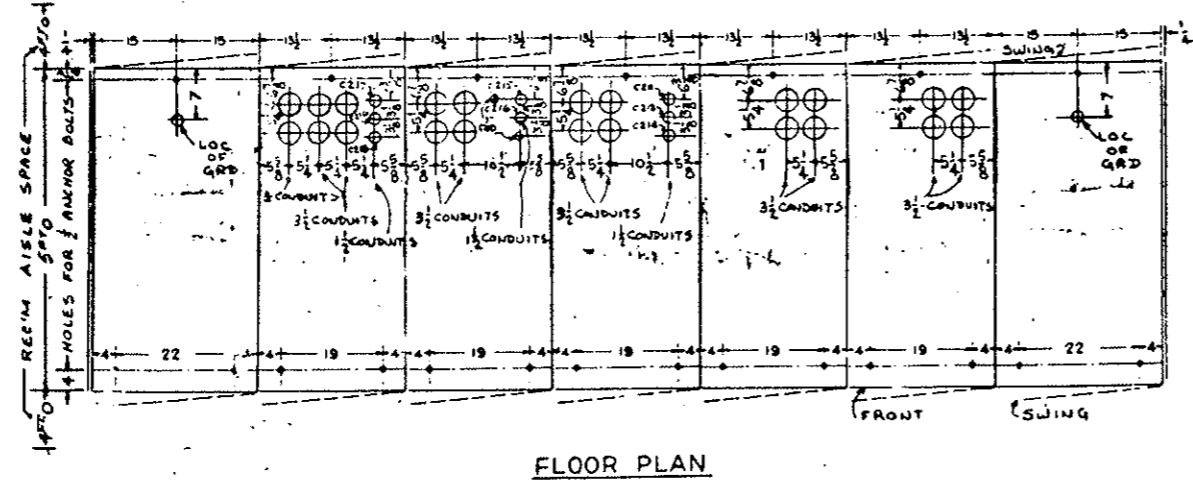
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9.	COLORADO	170-3(34)220	243KY	

GENERAL ELECTRIC 0168R067
 INDOOR SWGR
 WEST VENTILATION BUILDING
 REVISION SUMMARY
 433-20325 91227 0209A1005

AS CONSTRUCTED
 REVISED DATE Oct 26, 1973



UNIT	BREAKER NO.	BREAKER TYPE	TRIP RATING	TERMINALS
31B	0209A1005-201	AK-2A-50	3000A	BUS DUCT
32A	FUTURE			
32B	0209A1005-204	AK-2A-50	1000A	FUTURE
33A	202		600A	1-1/0
33B	204		1000A	2-750MCM
33C	204		1000A	2-750MCM
34A	203		600A	1-350MCM
34B	204		1000A	2-750MCM
34C	204		1000A	2-750MCM
35A	202		1000A	BUS DUCT
35B	204		1000A	2-750MCM
35C	204		1000A	2-750MCM
36A	202		1000A	BUS DUCT
36B	203		1000A	2-750MCM
36C	204		1000A	2-750MCM
37B	0209A1005-201	AK-2A-50	3000A	BUS DUCT



NOTE:
 FOR METHOD OF ANCHORING AND INSTALLATION OF EQUIPMENT SEE DRAWING 0673D0500 SH.002

REVISIONS	DATE	BY	CHKD BY
1	10-26-73		
ADDED (8) RELAYS TO BARRIER U-31C & U-37C			
L.V. SWGR		0168R0671	
PHILA		303	

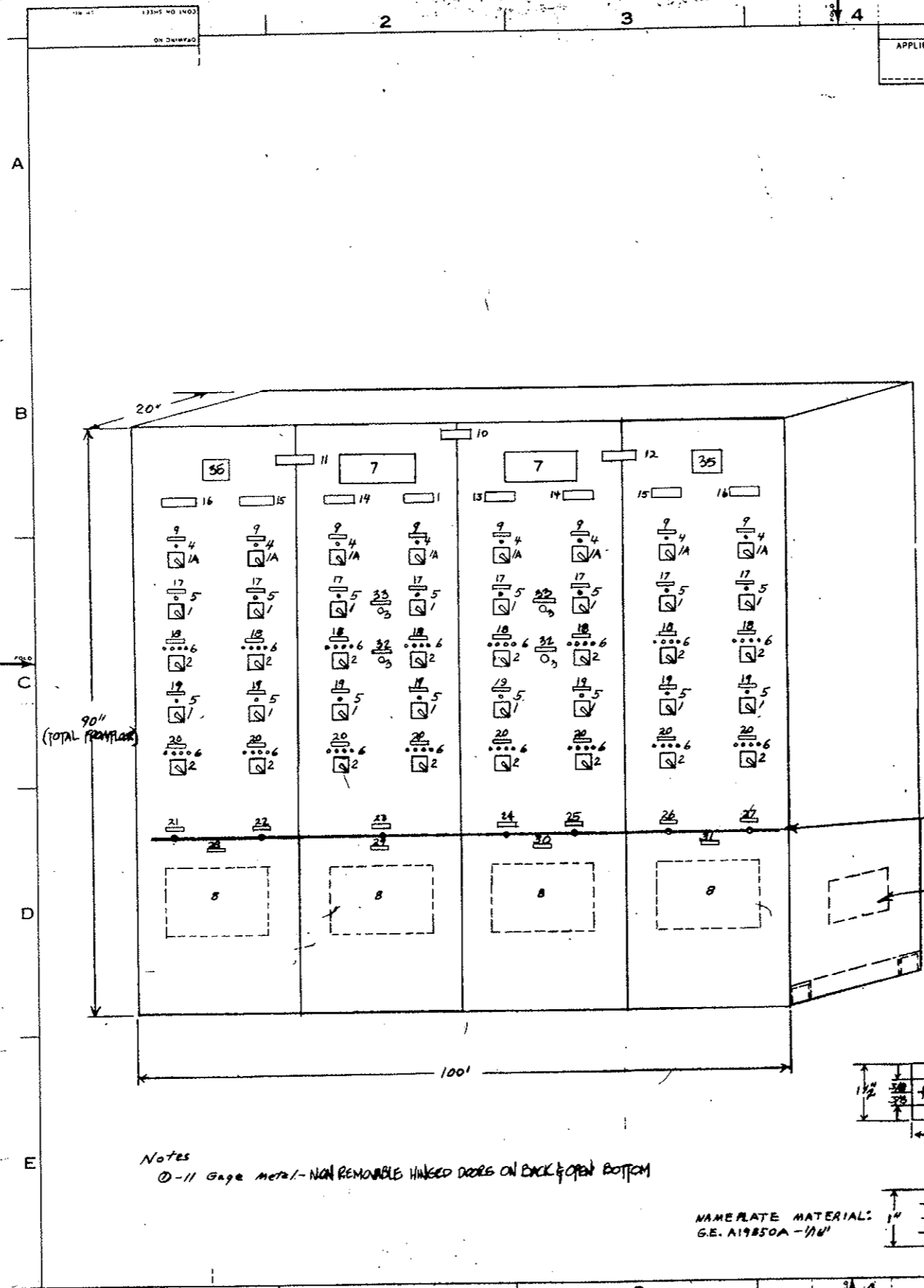
UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:

APPLIED PRACTICES	SURFACES	TOLERANCES ON MACHINED DIMENSIONS		
		FRACTIONS	DECIMALS	ANGLES
✓	✓	±	±	±

TITLE
OUTLINE - FAN CONTROL BOARD
FIRST MADE FOR CR143ND1213 STRAIGHT CREEK TUNNEL
GESCD - JELCO

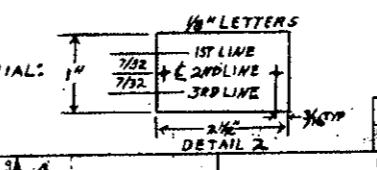
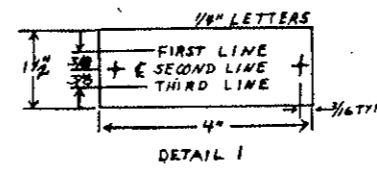
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243LY	

AS CONSTRUCTED
REVISED DATE 06/26/97
REVISED



1. SWITCH TYPE S01 1ST STAGE 55-105205 P5
1. SWITCH TYPE S01 1ST STAGE 55-105205 P2
2. SWITCH TYPE S02 STAGE, 55-105235 P1
3. PUSH BUTTON TYPE CR2940UAQ02B
4. INDICATING LIGHTS TYPE ET-16 RED
5. INDICATING LIGHTS TYPE ET-16 GREEN
6. INDICATING LIGHTS TYPE ET-16 WHITE-3 RED
7. ANNUNCIATOR, ALARM, MODEL 50-A1, SEQUENCE AP
8. SPACE ONLY FOR CO. INDICATING RECORDER (20" X 20" FREE PANEL AREA), TO BE FURNISHED & INSTALLED BY OTHERS. NAME PLATE SCHEDULE

	FIRST LINE	SECOND LINE	THIRD LINE	DETAIL
9.	SUPPLY FAN	BULBHEADS	CONTROL	2
10.	FAN	CONTROL BOARD	NORTH TUNNEL	1
11.	WEST FANS	CONTROL		1
12.	EAST FANS	CONTROL		1
13.	FAN 1			1
14.	FAN 2			1
15.	FAN 3			1
16.	FAN 4			1
17.	SUPPLY FAN	CONTROL	TRANSFER	2
18.	SUPPLY FAN	CONTROL		2
19.	EXHAUST FAN	CONTROL	TRANSFER	2
20.	EXHAUST FAN	CONTROL		2
21.	CO	ANALYZER 1		2
22.	CO	ANALYZER 2		2
23.	CO	ANALYZER 3		2
24.	CO	ANALYZER 4		2
25.	CO	ANALYZER 5		2
26.	CO	ANALYZER 6		2
27.	CO	ANALYZER 7		2
28.	ANALYZER	1&2	RECORDER	2
29.	ANALYZER	3	RECORDER	2
30.	ANALYZER	4&5	RECORDER	2
31.	ANALYZER	6&7	RECORDER	2
32.	ALARM	SILENCE		2
35.	ANNUNCIATOR	LAMP TEST		2



Notes
① - 1/16 Gage Metal - NON REMOVABLE HINGED DOORS ON BACK & OPEN BOTTOM

NAMEPLATE MATERIAL:
G.E. A19850A - 1/16"

34 TERMINAL BOARDS (NOT SHOWN), TYPE CR151626
35 ALARM MODEL VSD BELL

CONNECTION DIAGRAM: 55-760607

REVISIONS	DATE	BY	REASON	PRINTS TO
1	8/24/70	JAN 24 1970		
2	9-23-70			
3	Sept 23, 1970			

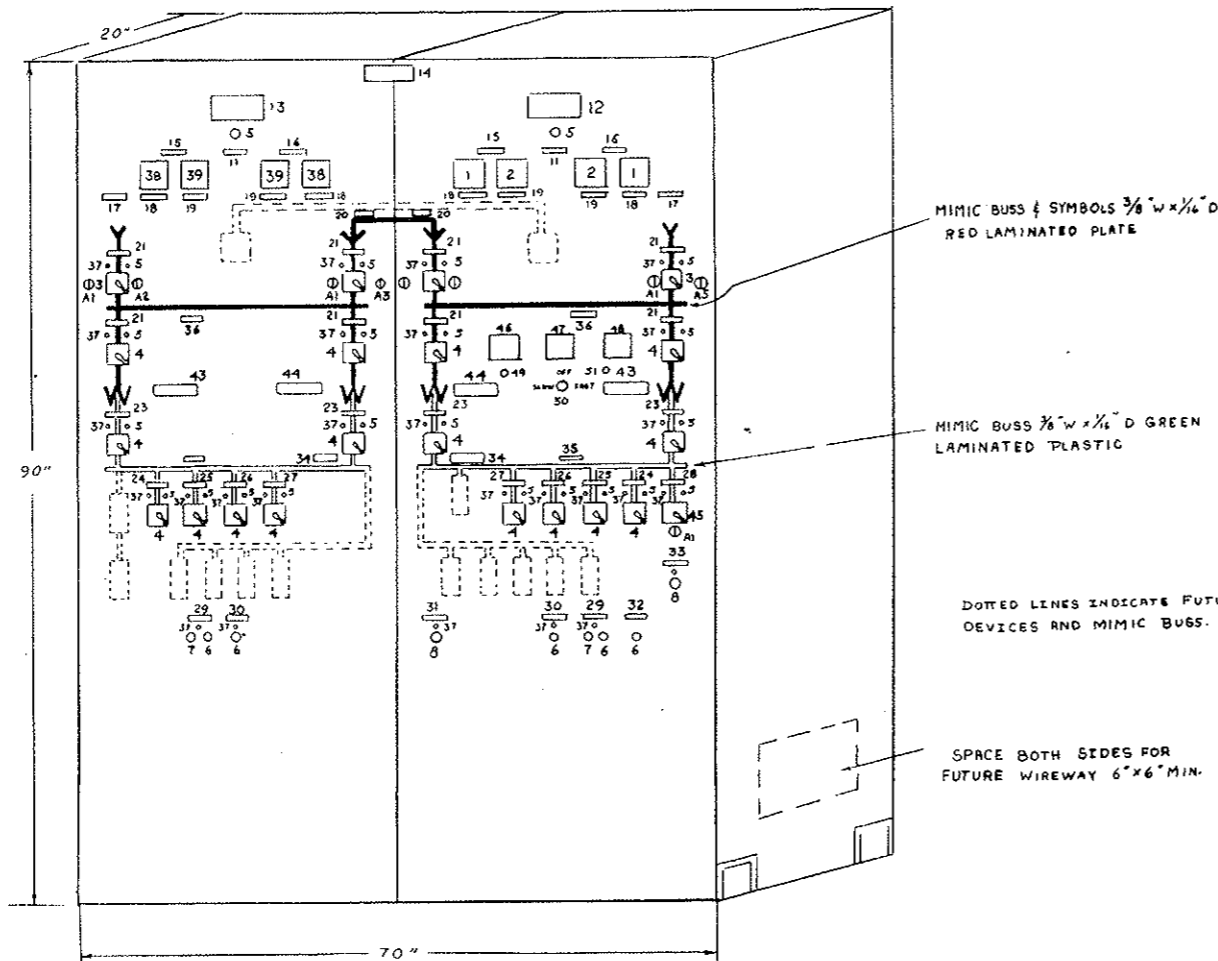
MADE BY CSC	APPROVALS GPE	NO. HOLLYWOOD	55-660253
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FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
III	COLORADO	170-3(34)220	243MY	
GENERAL ELECTRIC			55-660254	
TITLE				
OUTLINE - POWER CONTROL BOARD.				
FIRST MADE FOR GRI43N01214 STRAIGHT CREEK TUNNEL				
GESCO- JELCO				

CONTRACT NO 7544-3257D
BID ITEM 177
ITEM GI

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

NOTE: 'A' PREFIX NOS ARE KIRK KEY DESIGNATIONS PER T.A.M.S. SK 116-3-69-E1 AND DRAWING 55-195419



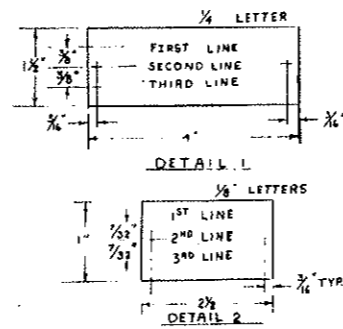
MIMIC BUSS & SYMBOLS 3/8" W x 1/4" D RED LAMINATED PLATE

MIMIC BUSS 3/8" W x 1/4" D GREEN LAMINATED PLASTIC

DOTED LINES INDICATE FUTURE DEVICES AND MIMIC BUSS.

SPACE BOTH SIDES FOR FUTURE WIREWAY 6" x 6" MIN.

NOTE: NON-REMOVABLE DOORS ON BACK OPEN BOTTOM



NAME PLATE MATERIAL
G.E. A19858A-1116

1. AMMETER TYPE 171-141-LSVJ AC 0-3000 AMP
 2. VOLTMETER TYPE 171-031-SJSJ AC 0-600 VOLTS
 3. SWITCH TYPE SBI 2 STAGE WITH KIRK KEYLOCK, 55-185285P3
 4. SWITCH TYPE SBI 2 STAGE 55-185285P4
 5. INDICATING LIGHTS, TYPE ET16, RED 125 V.D.C.
 6. CR2940UA202 B PUSH BUTTON.
 7. CR2940UA202 C PUSH BUTTON.
 8. CR2940UB202 A SELECTOR SWITCH
- | NAME PLATE SCHEDULE | | | |
|---------------------|----------------|---------------|--------------|
| FIRST LINE | SECOND LINE | THIRD LINE | DETAIL |
| 11. | POWER | ON | 2 |
| 12. | EAST | BUILDING | 1 |
| 13. | WEST | BUILDING | 1 |
| 14. | POWER | CONTROL BOARD | 1 |
| 15. | TRANSFORMER | NO. 2 | SECONDARY 2 |
| 16. | TRANSFORMER | NO. 1 | SECONDARY 2 |
| 17. | PUBLIC SERVICE | INCOMING | LINE 2 |
| 18. | AMMETER | | 2 |
| 19. | VOLTMETER | | 2 |
| 20. | 24.9 K.V. | EMERGENCY | TIE 2 |
| 21. | LOAD | BREAK | SWITCH 2 |
| 23. | AIR | CIRCUIT | BREAKER 2 |
| 24. | MCC #1 | FEEDER | BREAKER 2 |
| 25. | MCC #2 | FEEDER | BREAKER 2 |
| 26. | MCC #3 | FEEDER | BREAKER A 2 |
| 27. | MCC #3 | FEEDER | BREAKER B 2 |
| 28. | EMERGENCY | GENERATOR | BREAKER 2 |
| 29. | TUNNEL & BLDG. | NORMAL LIGHTS | RESET 2 |
| 30. | BUILDING | POWER PANELS | RESET 2 |
| 31. | SEDIMENTATION | TANKS | EMERG VENT 2 |
| 32. | TUNNEL & BLDG. | NORMAL LIGHTS | RESET 2 |
| 33. | EMERGENCY | GENERATOR | CONTROL 2 |
| 34. | 460 V. BUSS | TIE | BREAKER 2 |
| 35. | 460 V. BUSS | | 2 |
| 36. | 24.9 KV | BUSS | 2 |
37. INDICATING LIGHT, TYPE ET-16 GREEN 125 V. D.C.
 38. 0-5 MILLIAMMETER, TYPE 171-111-FXFX WITH 0-3000 AMP SCALE
 39. 0-5 MILLIAMMETER, TYPE 171-111-FXFX WITH 0-600 VOLT SCALE
 42. TERMINAL BOARD, (NOT SHOWN) CR151B26
 - CONNECTION DIAGRAM: 55-760614 -
 43. TRANSFORMER #1
 44. TRANSFORMER #2
 45. SWITCH, TYPE SBI, WITH KIRK KEY LOCK, 55-185285P4

- ADDED EMERGENCY GENERATOR METERING PER C.O. # 198
- * 46. AMP METER
- * 47. HERTZ METER
- * 48. VOLT METER
- * 49. APPROACH LOW OIL PRESSURE LIGHT
- 50. GOVERNOR CONTROL
- * 51. APPROACH HIGH WATER TEMPERATURE

* NOTE: REVISED 11/14 1973

NO.	REVISIONS	DATE
1	As Constructed	Jan 23, 1974
2	Revised	Dec 12, 1973
3	Revised	Sept 27, 1972

DESIGNED BY	DATE	CHECKED BY	DATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
J. J. Miller	August 2, 1968	CSC		G.P.C.	55-660254	
NO HOLLYWOOD			G.E. A19858A-1116			

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:

APPLIED PRACTICES	SURFACE	TOLERANCES IN MILLIMETERS	TOLERANCES IN INCHES
✓	✓	± .1	± .005

TITLE: **OUTLINE-LOCAL CONTROL BOARD**
 FIRST MADE FOR CR143N01215 STRAIGHT CREEK TUNNEL
 GE500-JE LCO

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 NY	

AS CONSTRUCTED
 REVISED DATE Oct 26, 1979

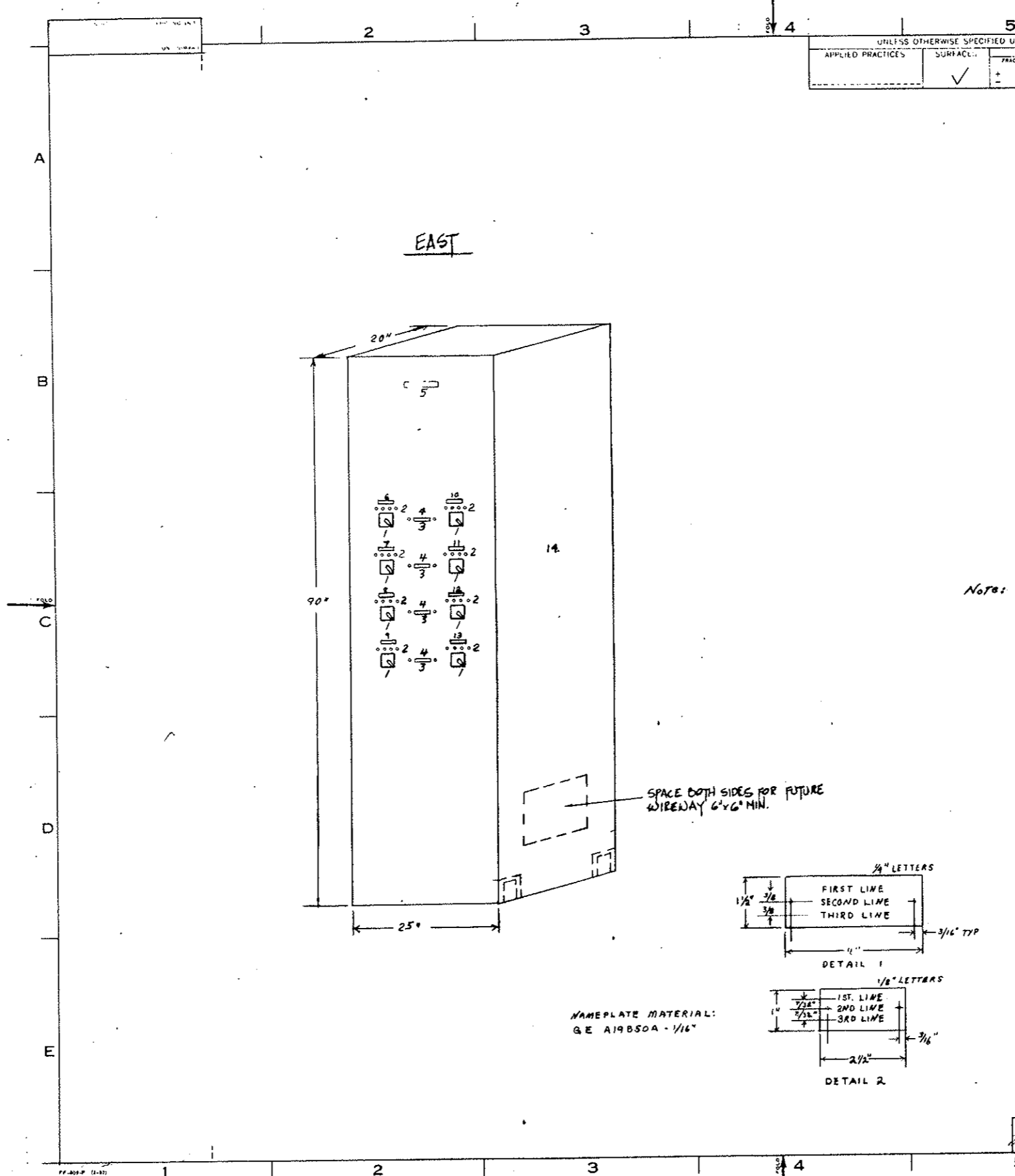
1. SWITCH TYPE SB102 STAGE, PULL TO START, 55-185883
2. INDICATING LIGHTS - 1 WHITE-3 RED TYPE ET-16
3. INDICATING LIGHTS - GREEN TYPE ET-16

NAMEPLATE SCHEDULE

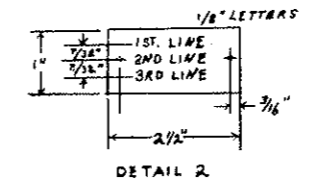
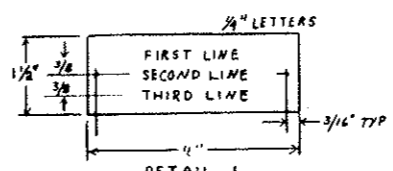
	FIRST LINE	SECOND LINE	DETAIL
4	CONTROL	AVAILABLE	2
5	LOCAL	CONTROL BOARD	1
6	SUPPLY FAN 1	CONTROL	2
7	SUPPLY FAN 2	CONTROL	2
8	SUPPLY FAN 3	CONTROL	2
9	SUPPLY FAN 4	CONTROL	2
10	EXHAUST FAN 1	CONTROL	2
11	EXHAUST FAN 2	CONTROL	2
12	EXHAUST FAN 3	CONTROL	2
13	EXHAUST FAN 4	CONTROL	2

- Notes: ① 14. G.E. TYPE AV SWITCH BOARD, PAINTED ASA-11 LIGHT GRAY - Note ①
 15. 1 3/8" X 2 1/2" STEEL FLOOR SILL
 16. TERMINAL BOARD (NOT SHOWN), CR151826
 17. FLASHERS FL-1 TO FL-8 Inclusive - NOT SHOWN - A.B. McMahon Model 22-01

NOTE:
 11 GAGE METAL WILL BE USED
 NON-REMOVABLE HINGED DOORS ON BACK
 CLOSED BOTTOM



SPACE BOTH SIDES FOR FUTURE WIREWAY 6"x6" MIN.

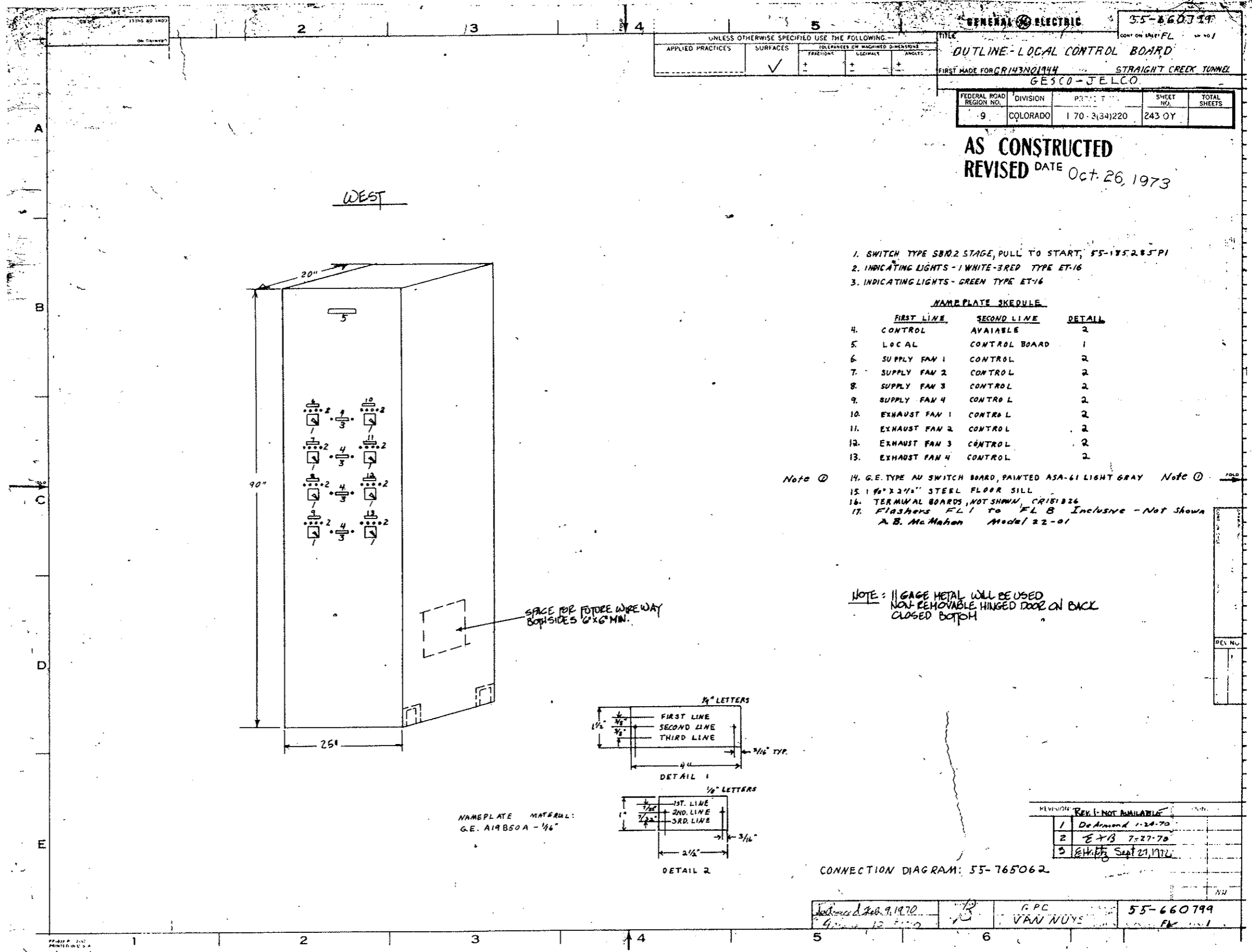


NAMEPLATE MATERIAL:
 GE A19B50A - 1/16"

CONNECTION DIAGRAM: 55-760 615

REVISION	BY	DATE	PRINTS TO
1	Dr. Demand	Jan 29, 1970	
2	E J B	7/27/70	
3	Chetty	Sept 21, 1970	

DATE: August 2, 1968	APPROVED: CSC	BY: GPC	NO. HOLLYWOOD	55-660255
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GENERAL ELECTRIC 55-660799

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING--

APPLIED PRACTICES	SURFACES	TOLERANCES ON MACHINED DIMENSIONS	COLLARS	KEYWAYS	ANGLES
	✓				

TITLE: **OUTLINE-LOCAL CONTROL BOARD**

FIRST MADE FOR: GR143N01944 STRAIGHT CREEK TUNNEL
GESCO-JELCO

FEDERAL ROAD REGION NO.	DIVISION	PROJECT	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 OY	

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

1. SWITCH TYPE SB10.2 STAGE, PULL TO START, 55-185.2.85 P1
2. INDICATING LIGHTS - 1 WHITE-3 RED TYPE ET-16
3. INDICATING LIGHTS - GREEN TYPE ET-16

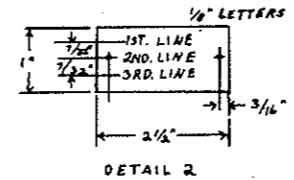
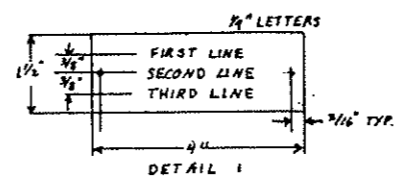
NAMEPLATE SCHEDULE

	FIRST LINE	SECOND LINE	DETAIL
4.	CONTROL	AVAILABLE	2
5.	LOCAL	CONTROL BOARD	1
6.	SUPPLY FAN 1	CONTROL	2
7.	SUPPLY FAN 2	CONTROL	2
8.	SUPPLY FAN 3	CONTROL	2
9.	SUPPLY FAN 4	CONTROL	2
10.	EXHAUST FAN 1	CONTROL	2
11.	EXHAUST FAN 2	CONTROL	2
12.	EXHAUST FAN 3	CONTROL	2
13.	EXHAUST FAN 4	CONTROL	2

- Note ①
14. G.E. TYPE AN SWITCH BOARD, PAINTED ASA-61 LIGHT GRAY
 15. 1 1/2" X 2 1/2" STEEL FLOOR SILL
 16. TERMINAL BOARDS, NOT SHOWN, CR151826
 17. Flashers FL1 to FL8 Inclusive - Not Shown
A. B. McMahon Model 22-01

NOTE: 11 GAGE METAL WILL BE USED
 NON-REMOVABLE HINGED DOOR ON BACK
 CLOSED BOTTOM

SPACE FOR FUTURE WIREWAY
 BOTH SIDES 6" X 6" MIN.



NAMEPLATE MATERIAL:
 G.E. A19B50A - 1/8"

REVISION: REV. 1 - NOT AVAILABLE

1	De Armond 1-24-70
2	EJB 7-27-70
3	Shelley Sept 27, 1972

CONNECTION DIAGRAM: 55-765062

Designed & Drawn: Feb. 9, 1970	Checked: 12-1-70	APC	55-660799
		VAN NUYS	FL

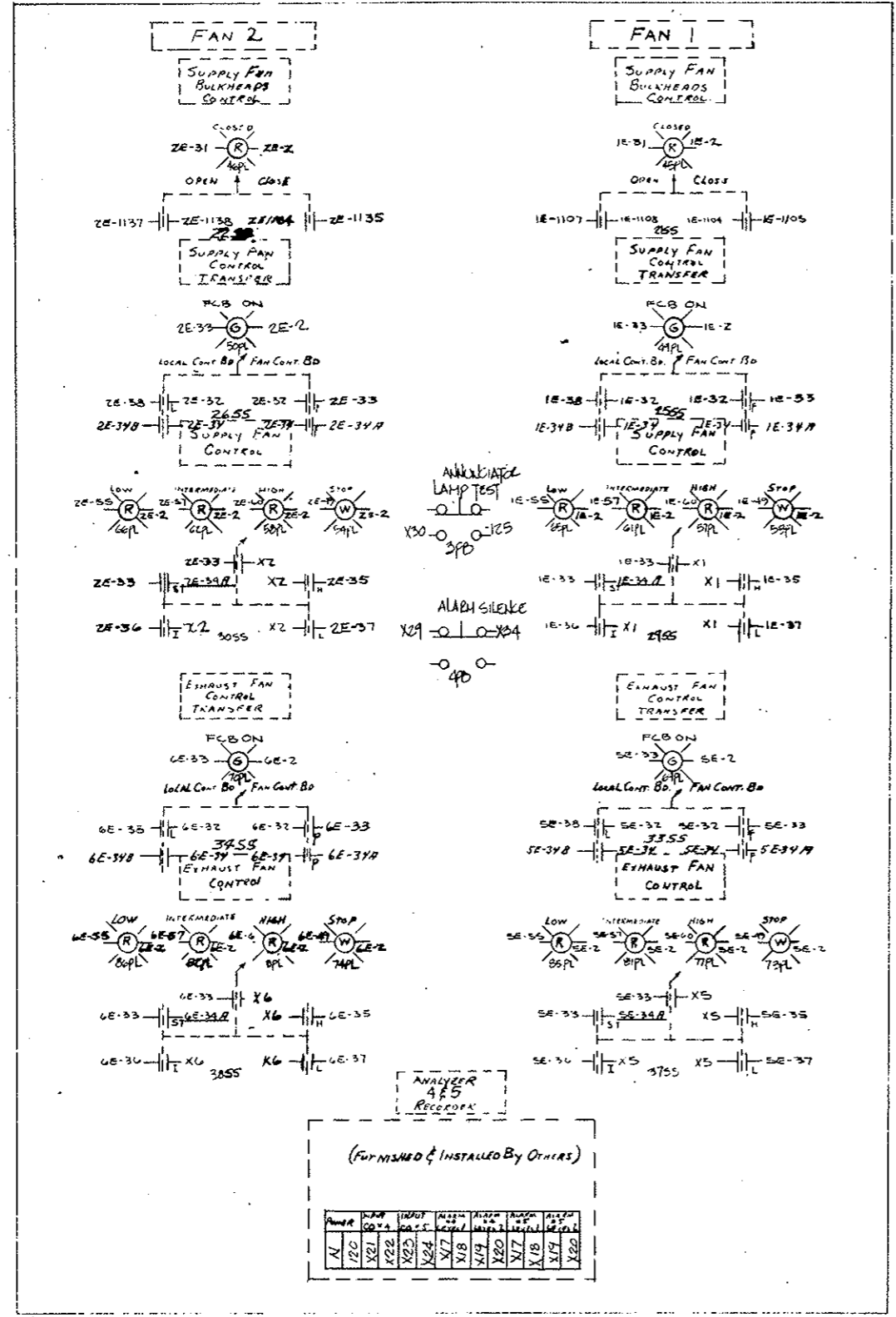
UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:			
APPLIED PRACTICES	SURFACES	TOLERANCES OR FINISHES UNLESS OTHERWISE SPECIFIED	KEY
	✓		

TITLE
CONNECTION DIAGRAM - FAN CONTROL BOARD
UNLESS MADE FOR C.P. IDENTITIES

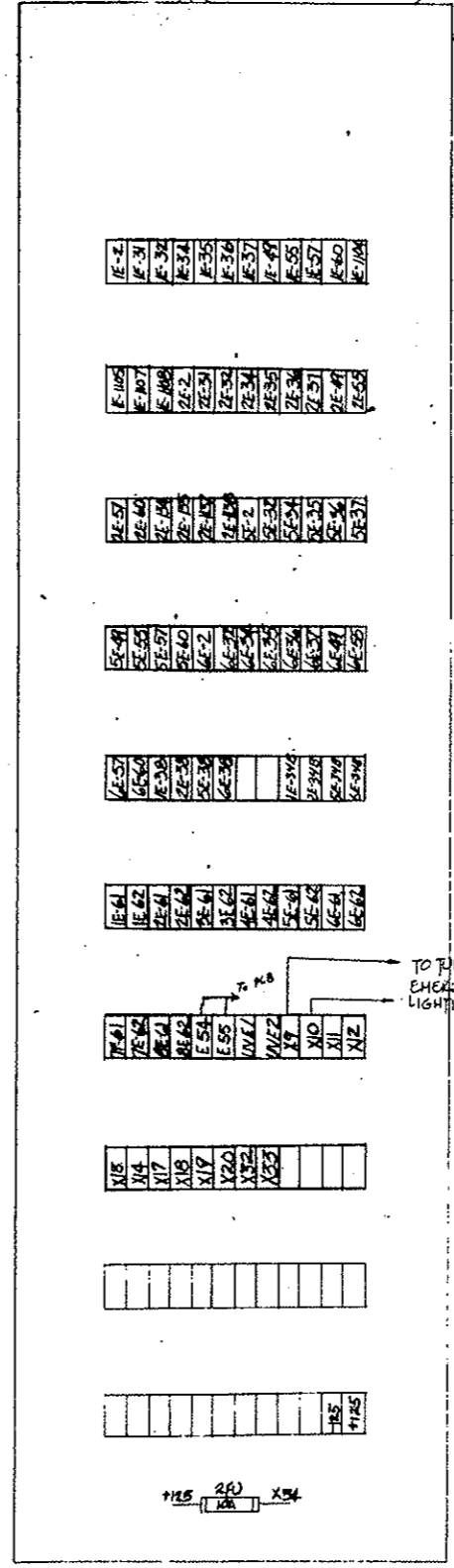
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243RY	

EAST

*3 FRONT PANEL (REAR VIEW)



CENTER LEFT (FROM REAR OF ENCLOSURE)



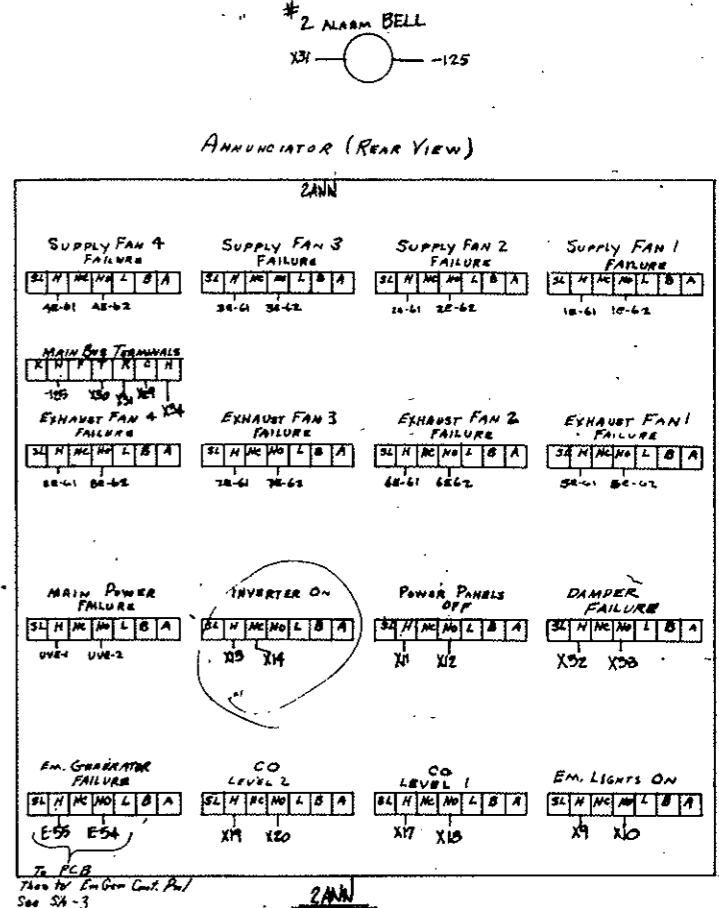
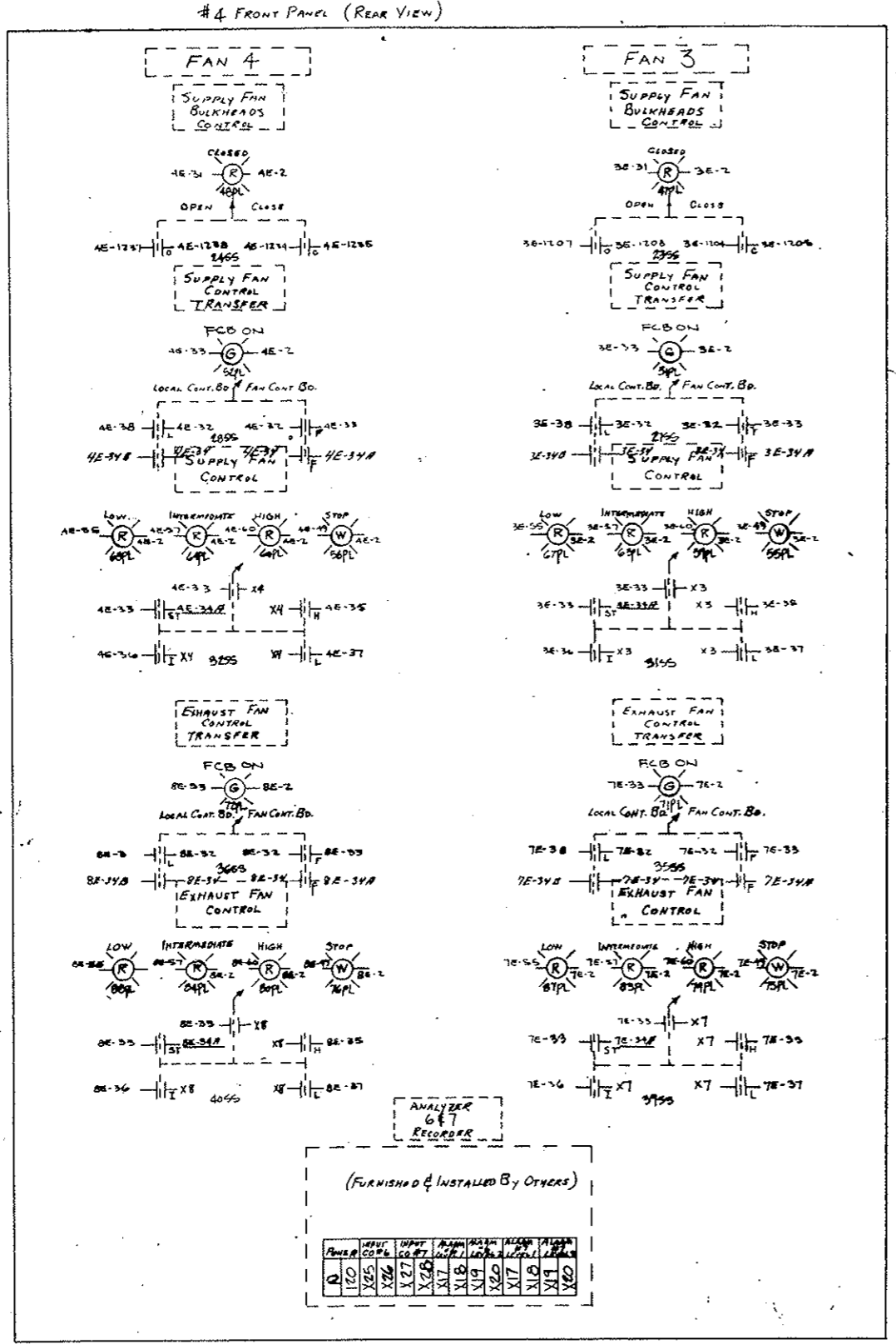
AS CONSTRUCTED
REVISED DATE Oct-26, 1973

- NOTE ~
1. NUMBERS HAVING NUMERICAL PREFIX, REFER TO GENERAL ELECTRIC CO. INDUSTRY CONTROL DEPT. DRAWING NO. 973D560.
 2. NUMBERS WITH "X" PREFIX REFER TO THIS PANEL ONLY.
 3. "N" AND "120" DESIGNATE LOCAL 120 VOLT, 60 HZ, POWER SOURCE

REVISIONS	DATE	BY
1. REVISED 9-23-70		NLL
2. REVISED 10-26-73		

EAST

LEFT (FROM REAR OF ENCLOSURE)



NOTE

- NUMBERS HAVING NUMERICAL PREFIX REFER TO GENERAL ELECTRIC CO. INDUSTRY CONTROL DEPT. DRAWING NO. 973D500
- NUMBERS WITH "X" PREFIX REFER TO THIS PANEL ONLY.
- "N" AND "120" DESIGNATE LOCAL 120 VOLT, 60 HZ. POWER SOURCE
- NUMBERS WITH "E" PREFIX REFER TO EMERGENCY GENERATOR CONTROL PANEL.

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:

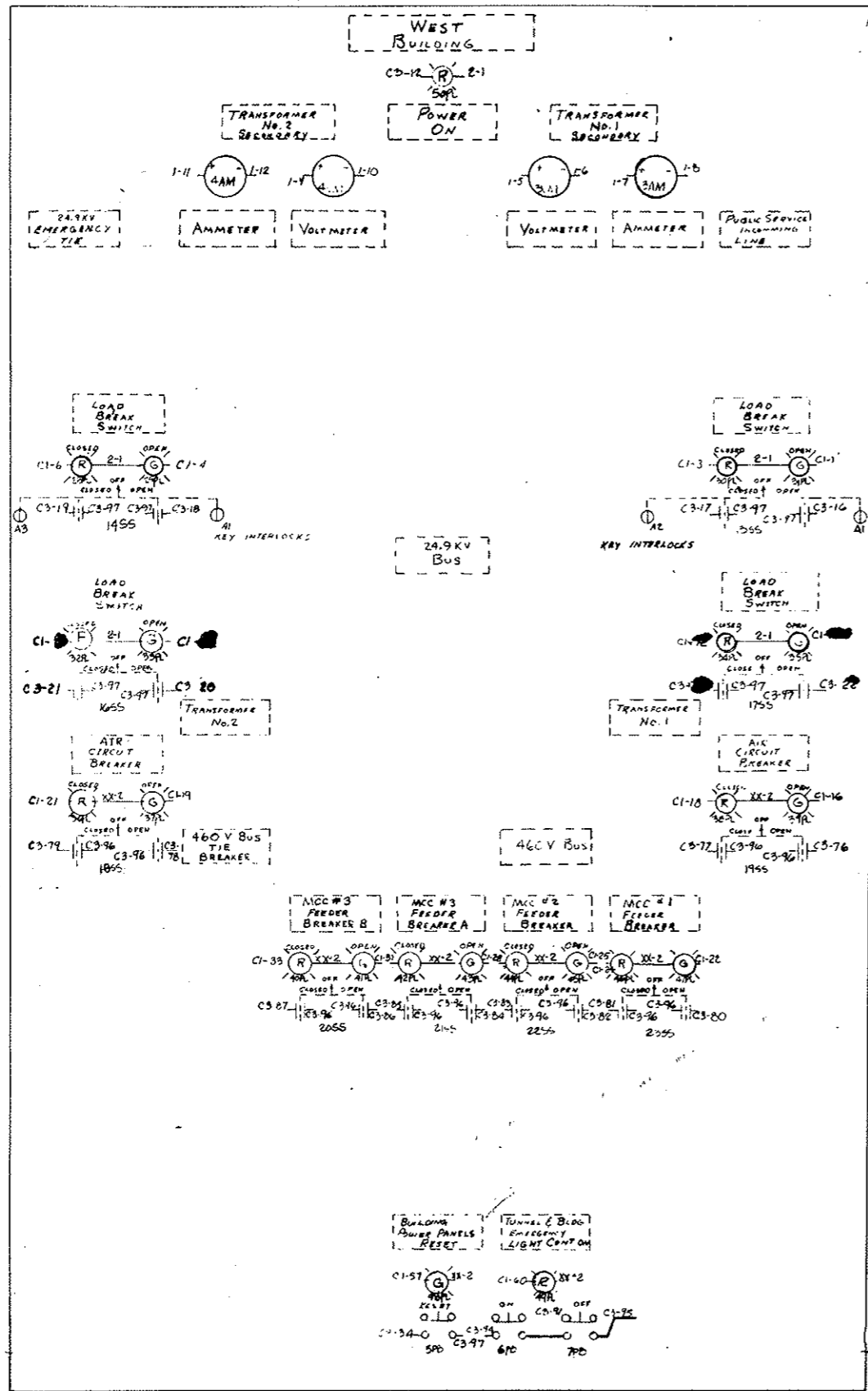
APPLIED PRACTICES	SURFACES	TERMINALS	WIRE GAUGES
✓	✓	✓	✓

CONNECTION DIAGRAM POWER CONTROL BOARD
 GESCO/LEICO/STRAIGHT CLINA TUNING

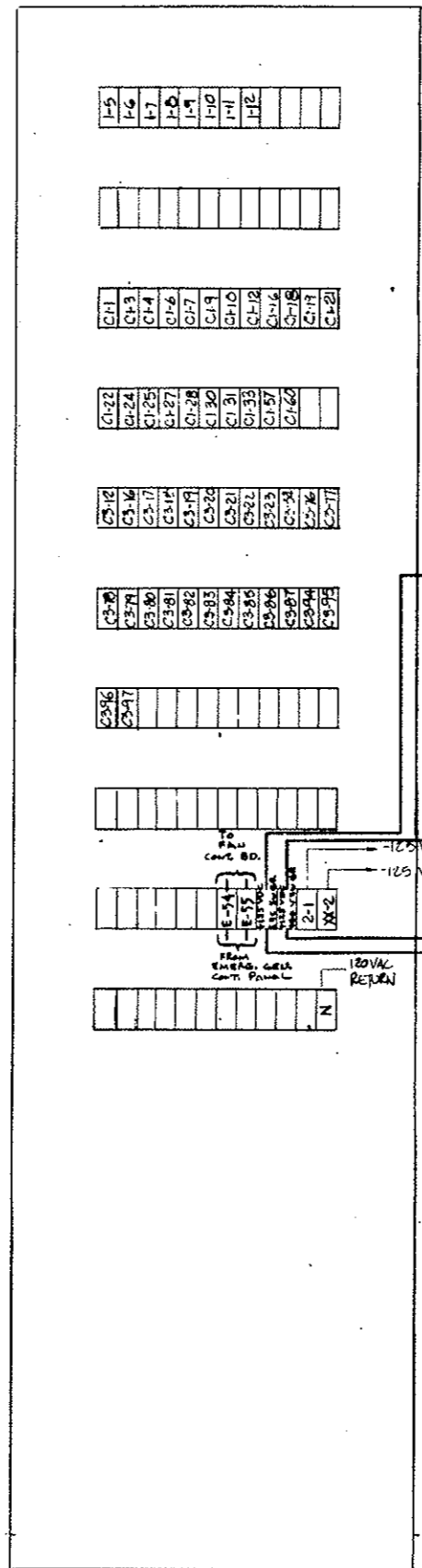
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243TY	

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

FRONT PANEL (REAR VIEW)



RIGHT SIDE



+125VDC FROM 57C SWGR TO QUANDAR COMMON TO PIS CI-2, CI-5, CI-8, CI-11

+125VDC FROM 460V SWGR TO QUANDAR COMMON TO PIS CI-17, CI-20, CI-23, CI-26, CI-29, CI-32, CI-56, CI-57, CI-12, CI-11

-125VDC FROM (57C SWGR)

-125VDC FROM (460V SWGR)

FROM 460 V SW GR

120VAC RETURN

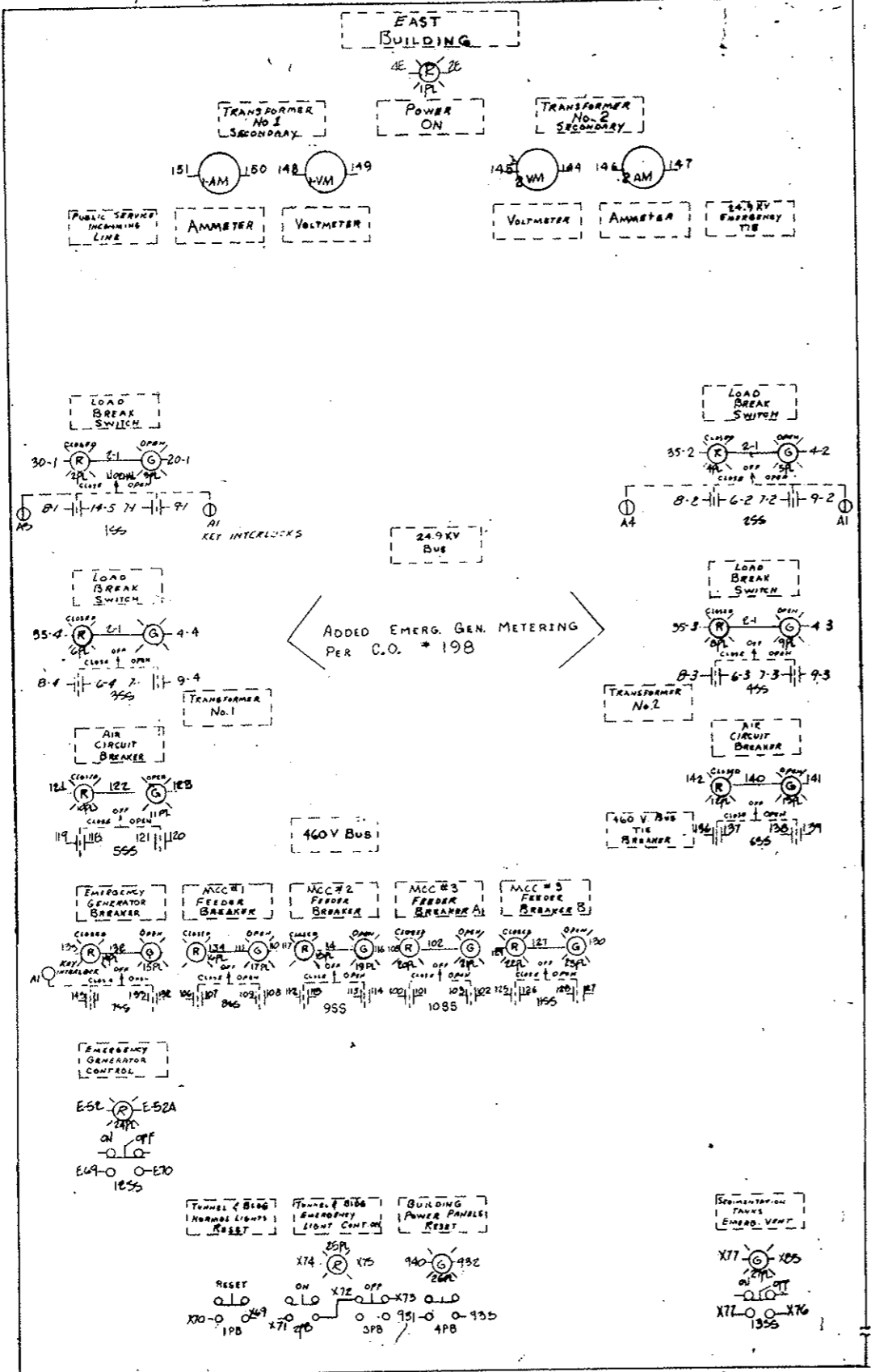
NOTES
 1. NUMBERS WITH 'C' OR 'I' PREFIX REFER TO QUANDAR ELECTRONICS DRAWING 16395D

NO.	REVISION	DATE	BY
1	REVISED		NH
2	REVISED		
3	REVISED		

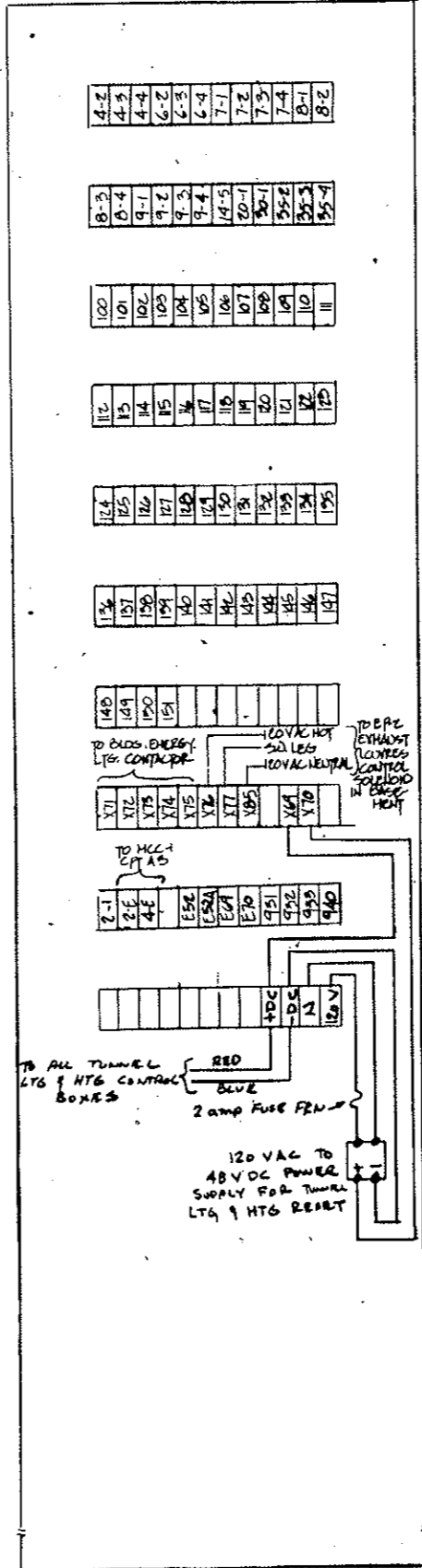
UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING—
 APPLIED PRACTICES SURFACES

TITLE
 CONNECTION DIAGRAM - POWER C.
 FIRST MADE FOR R.I. TUNNELS
 GESCO/HECLA/STANANT CREEK

#2 FRONT PANEL (REAR VIEW)



Left Side



WIRE #	REF. TO CONNECTION
100	19-OTB-1
101	19-OTB-2
102	19-OTB-3
103	19-OTB-4
104	19-OTB-5
105	19-OTB-6
106	19-OTB-1
107	19-OTB-2
108	19-OTB-3
109	19-OTB-4
110	19-OTB-5
111	19-OTB-6
112	19-OTB-1
113	19-OTB-2
114	19-OTB-3
115	19-OTB-4
116	19-OTB-5
117	19-OTB-6
118	19-OTB-1
119	19-OTB-2
120	19-OTB-3
121	19-OTB-4
122	19-OTB-5
123	19-OTB-6
124	19-OTB-1
125	20-OTB-1
126	20-OTB-2
127	20-OTB-3
128	20-OTB-4
129	20-OTB-5
130	20-OTB-6
131	21-OTB-1
132	21-OTB-2
133	21-OTB-3
134	21-OTB-4
135	21-OTB-5
136	21-OTB-6
137	21-OTB-7
138	21-OTB-8
139	21-OTB-9
140	21-OTB-10
141	21-OTB-11
142	21-OTB-12
143	21-OTB-13
144	21-OTB-14
145	21-OTB-15
146	21-OTB-16
147	21-OTB-17
148	21-OTB-18
149	21-OTB-19
150	21-OTB-20
151	21-OTB-21

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 UY	

WIRE #	FUNCTION
X69	TUNNEL BLDG NORMAL LIGHTS PUSH BUTTON
X70	
X71	BLDG EMERGENCY LIGHTS CONTROL ON
X72	
X73	COMMON
X74	OFF
X75	BLDG POWER PANELS RESET PUSH BUTTON
X76	
X77	SEGMENTATION TANKS EMERGENCY VENT ON
X78	
X79	HEB VDC BLDG EMER. LTB. PILOT LIGHT
X80	HEB VDC
X81	SEGMENTATION TANKS EMER. VENT PILOT LIGHT
X82	
X83	CONTROL ON
X84	COMMON
X85	OFF
X86	PILOT LIGHT CONTROL ON
X87	
X88	RETURN

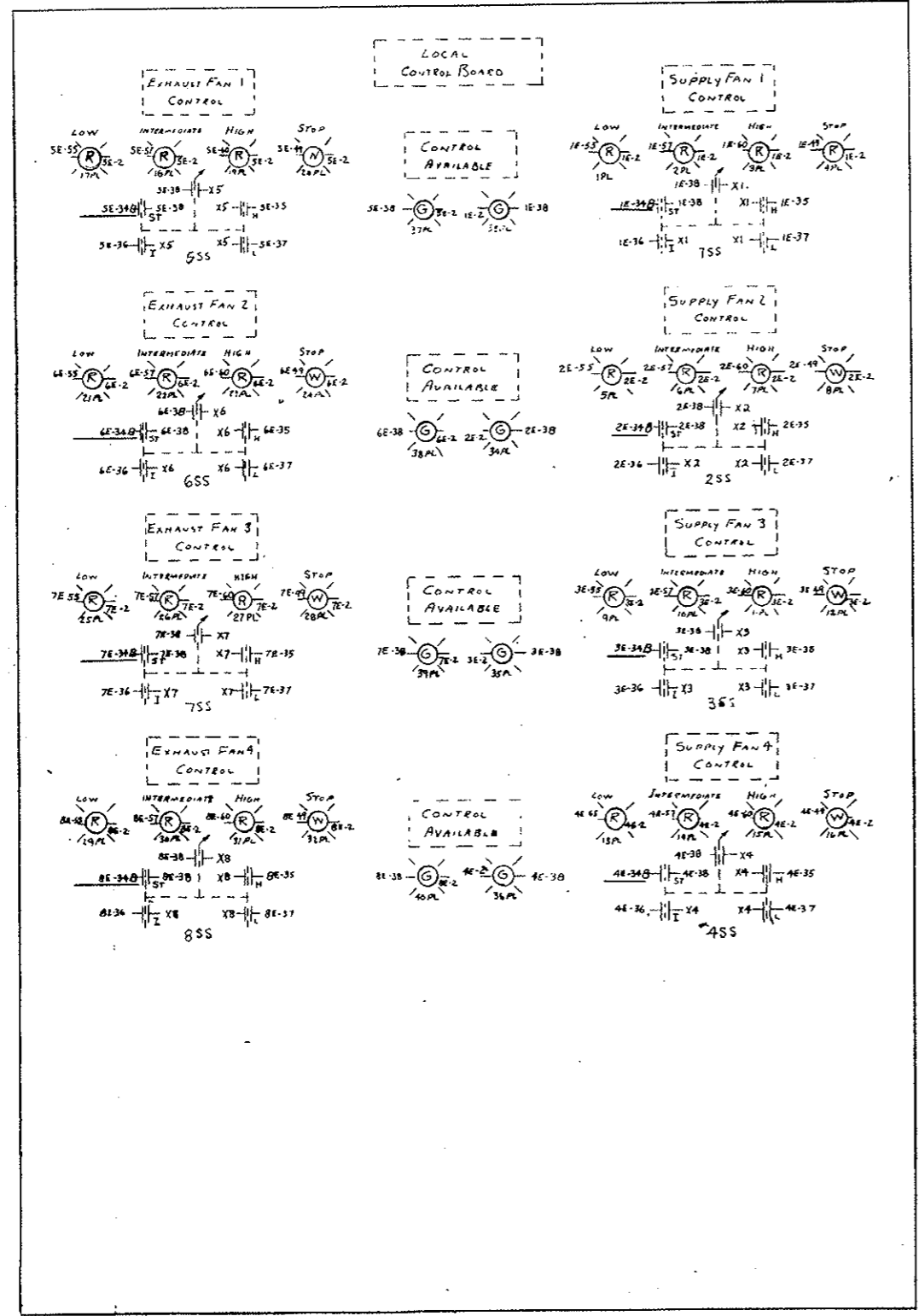
NOTE:
 1-NUMBERS WITH NUMERICAL PREFIX REFER TO SFC ELECTRICAL CO. CROSS CUES TO 1 COR 2508
 2-NUMBERS WITH 'X' PREFIX REFER TO THE DUG ONLY
 3-NUMBERS WITH DCI, E, B, & 19 PREFIXES REFER TO G.E. ADV. P. 466 B, 518C NUMBERS WITH 'E' PREFIX REFER TO EMERGENCY GEL CONTROL PANEL.

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING	
APPLIED PRACTICES	✓
SURFACES	✓

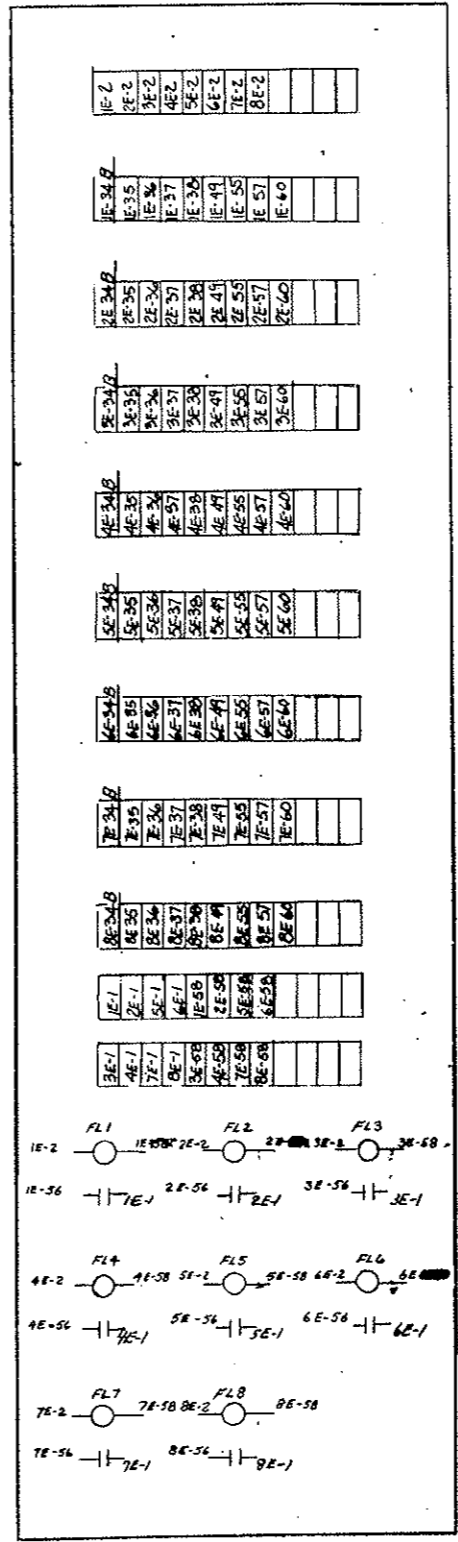
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 YY	

EAST

FRONT PANEL (REAR VIEW)



RIGHT SIDE



NOTE -
 1. NUMBERS HAVING NUMERICAL PREFIX REFER TO GENERAL ELECTRIC CO. INDUSTRY CONTROL DEPT. DWG. 973D580.
 2. NUMBERS HAVING 'X' PREFIX REFER TO THIS PANEL ONLY.

REVISIONS	PRINTS TO
1 EJB 9-25-70	NH
2 JLB 7-11-71	
3 JLB 9/1/72	

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:

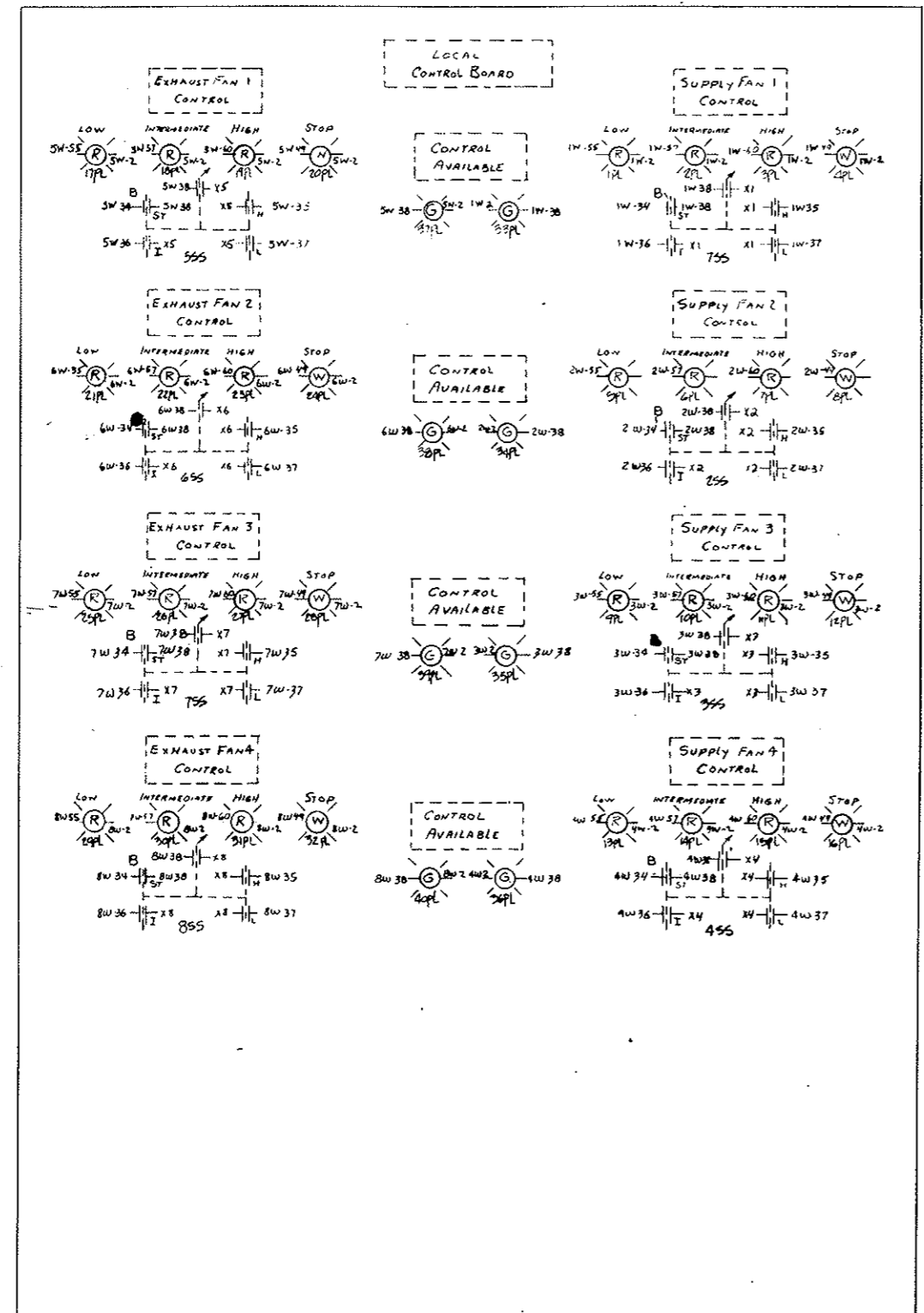
APPLIED PRACTICES	SURFACES	TERMINALS	WIRING	LETTERS
✓	✓	✓	✓	✓

CONNECTION DIAGRAM - LOCAL CONTROL BOARD
 GASSO LEICA / STEAMY CREEK TUNNEL

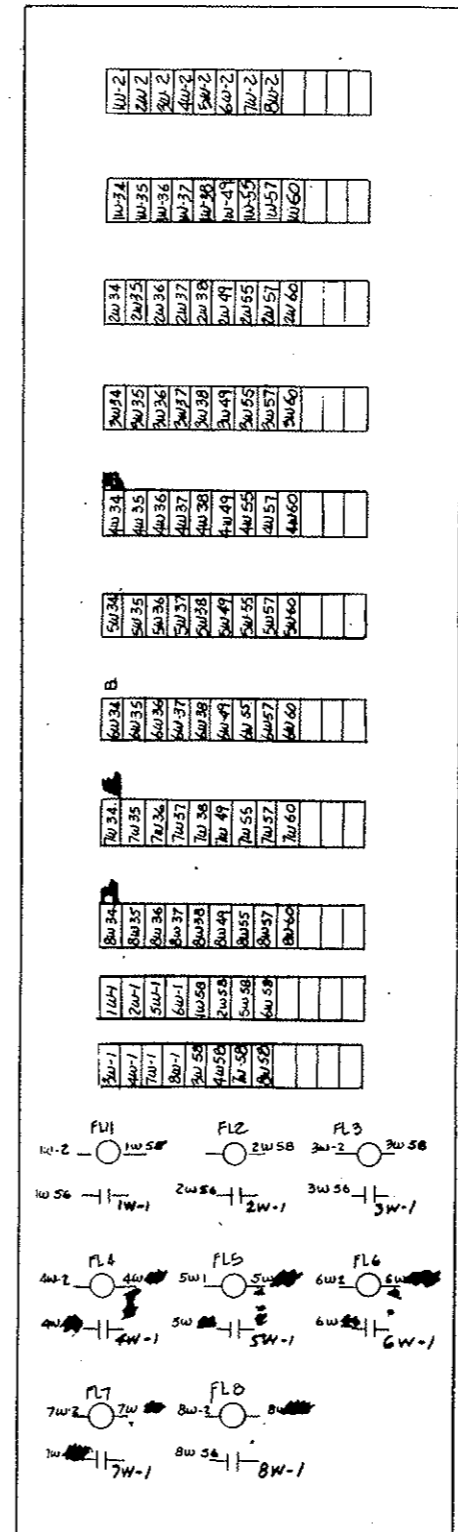
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	170-3(34)220	243 WY	

WEST

FRONT PANEL (REAR VIEW)



RIGHT SIDE

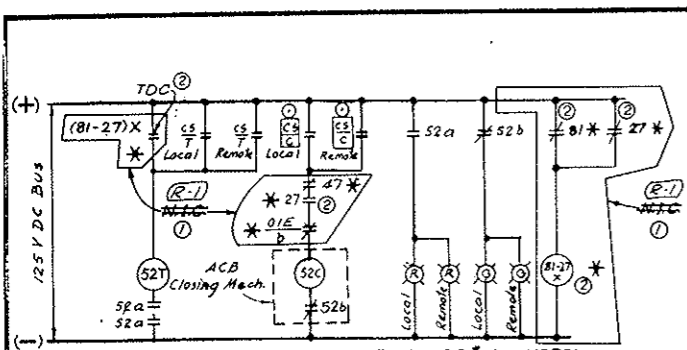


AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

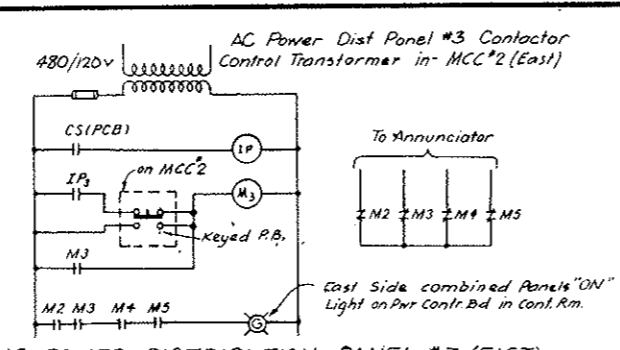
NOTE -
 1. NUMBERS HAVING NUMERICAL PREFIX REFER TO GENERAL ELECTRIC CO. INDUSTRIAL CONTROL DEPT. DWG. 9750580
 2. NUMBERS HAVING X PREFIX REFER TO THIS PANEL ONLY

REVISION	DATE	PRINTS TO
1	EYS 9-25-70	NH
2	WPL 7-19-71	
3	WPL 9-9-72	

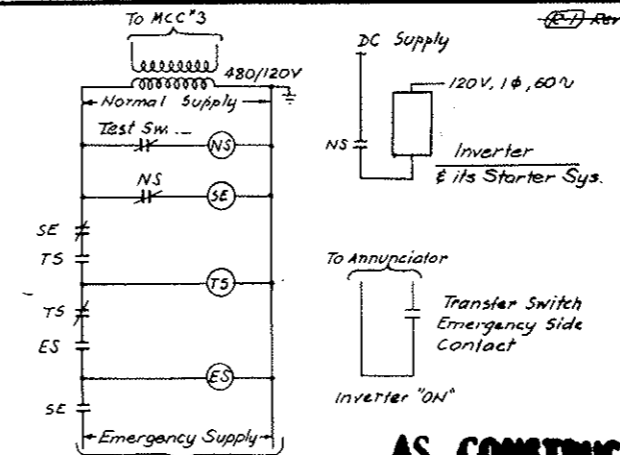
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	244	326



EMERGENCY GENERATOR 480V BREAKER #116 CONTROL
 Typical for breaker #12, #13, #14, #15, #17 & #18
 Except: omit relays or contacts marked *, they are only for Emergency Generator Breaker #118, 47, 27, 81 & 81-27x are located in Emergency Generator Control Board.
 Key interlock switches only for breaker #118.



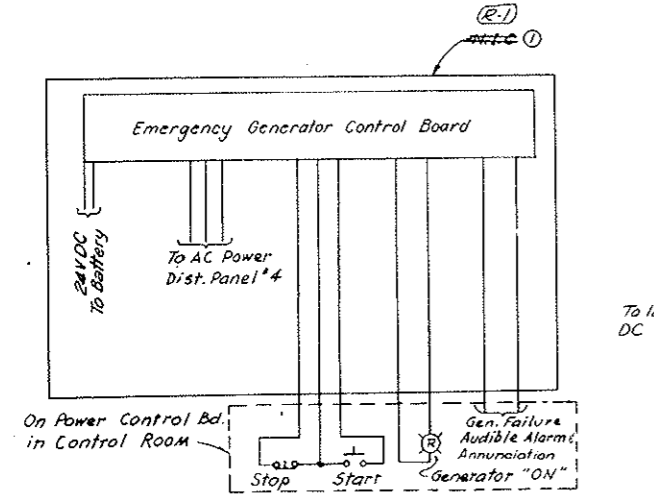
AC POWER DISTRIBUTION PANEL #3 (EAST) RESET SYSTEM & COMBINED IND. LIGHT
 (Typical for Panels #2, #4 & #5)
 Similar Control for West Panels Except Remote Control & Indication over Sup'v. Equip't



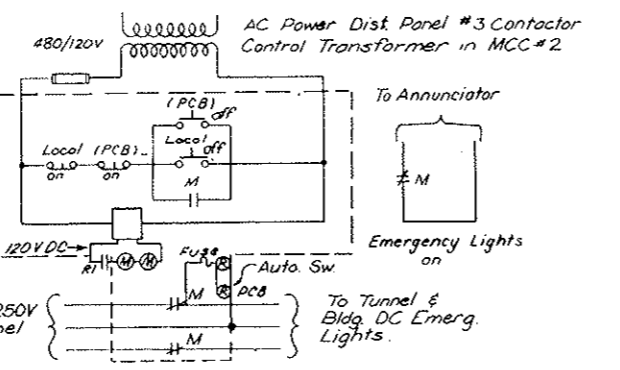
CO SYSTEM NORMAL EMERG. AUTO TRANSFER SWITCH
 (Mechanically Held)
 Circuit Shown as Normal Supply on

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

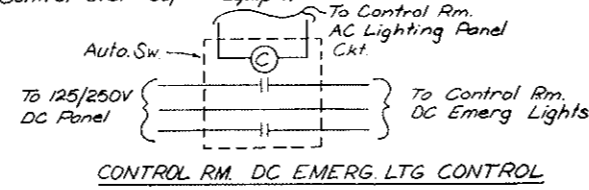
- LEGEND:**
- 27 - Undervoltage Relay
 - 47 - Reverse Phase Relay
 - 52 - AC Circuit Breaker
 - 52a - Aux. Sw. - Open when breaker is open
 - 52b - Aux. Sw. - Close when breaker is open
 - 81 - Frequency Relay
 - (81-27)X - Aux. Relay for 27 & 81 (Time delay closing)
 - CS - Control Switch
 - CS-C - Control Switch (Closing)
 - CS-T - Control Switch (Tripping)
 - CS-K - Control Switch with Key
 - CS-C - Panel interposing Relay with 4 Contacts each one on one Panel Reset Circuit.
 - M2, M3 - Contactors for Panels #2, #3, #4 & #5
 - ES - Emergency Source Supervising Relay
 - NS - Normal Source Supervising Relay
 - SE - Source Selector Relay
 - TS - Transfer Switch Operating Solenoid
 - Local - On MCC or on the board containing the equipment.
 - Remote - On "Power Control Board" in Control Room
 - 67 - AC Directional overcurrent Relay
 - 52C - Breaker Closing Relay
 - 52T - Trip Coil
 - PCB - Power Control Board in Control Room



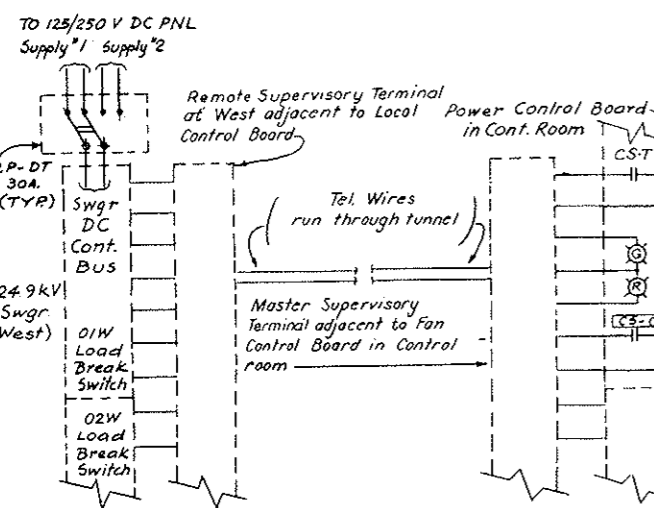
EMERGENCY GENERATOR AC-DC PWR SUPPLIES CONTROL & INDICATION



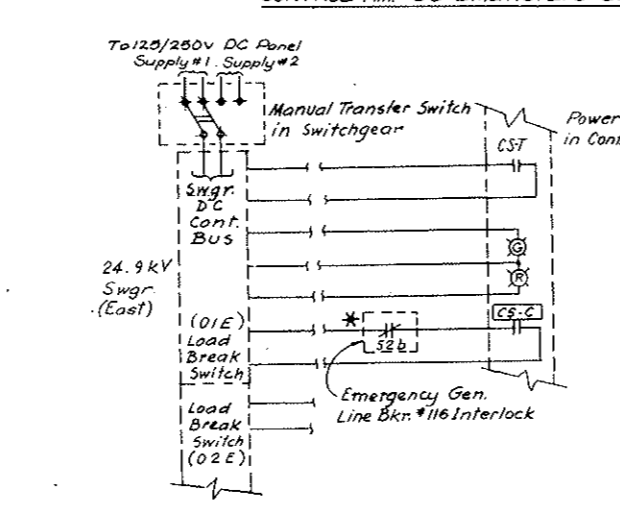
EAST BUILDING & HALF TUNNEL DC EMERGENCY LIGHTING CONTROL
 (Similar for West Bldg. & the other Half of the Tunnel, except Remote Control over Sup'v. Equip't)



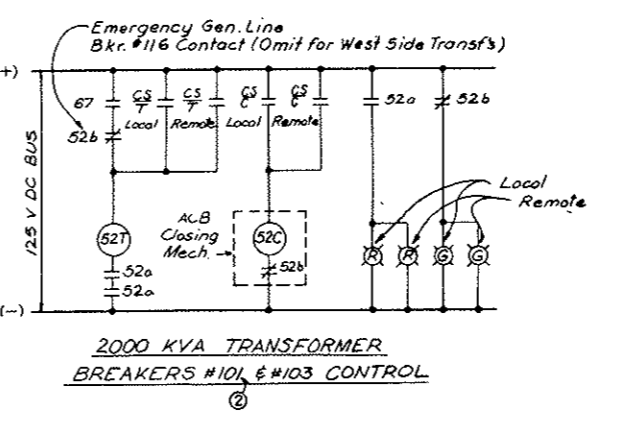
CONTROL RM. DC EMERG. LTG. CONTROL



(01W) LOAD BREAK SWITCH CONTROL
 (02W), (03W) & (04W) Load Break Sw Control Similar



(01E) LOAD BREAK SWITCH CONTROL
 (02E), (03E), (04E) Load Break Sw Control Similar
 * Except: Omit 52b



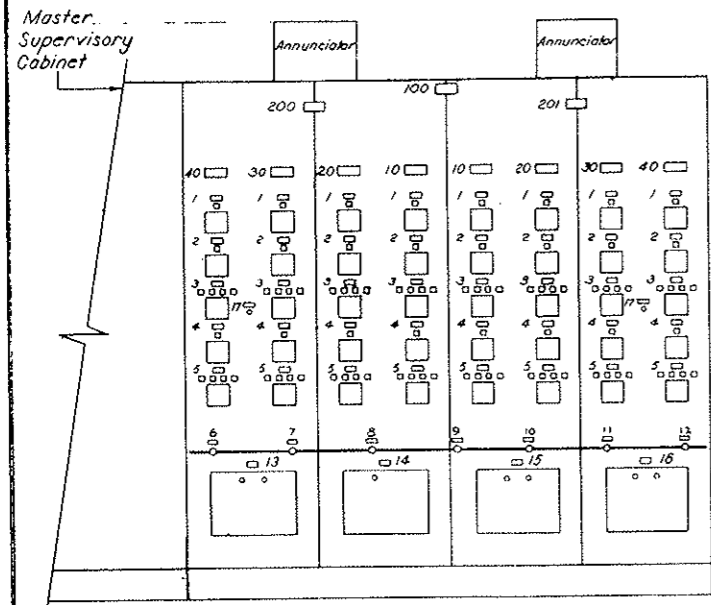
2000 KVA TRANSFORMER BREAKERS #101 & #103 CONTROL

NOTE A:
 Emergency Generator System, (Bid Item 100) Deleted, see W.O. M159-G Spec. 100-
 Emerg. Gen. Wiring N.I.G. but Conduit for Wiring is in this Contract, (Bid Item 107)

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT	
ELECTRICAL MISCELLANEOUS CONTROL & ELEMENTARY DIAGRAMS	
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.	
DESIGNED: N.A.S. DRAWN: S.J.E. CHECKED: D.H.D. SUBMITTED: [Signature]	RECOMMENDED: [Signature] APPROVED: [Signature]
NEW YORK, N. Y.	SCALE: NONE DATE: AUG. 1967
DRAWING NO. E-65	

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

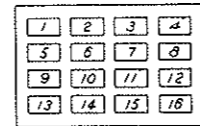
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	245	326



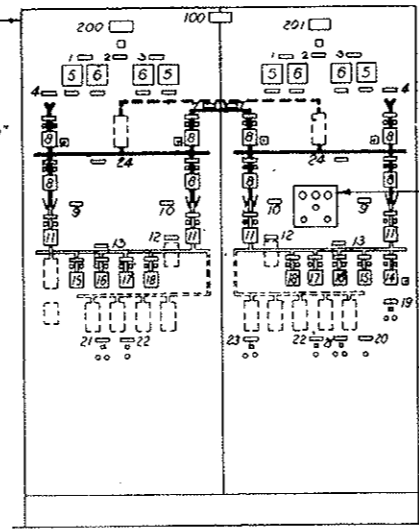
FAN CONTROL BOARD
(In Control Room)

Mimic Bus Legend
 24.9 KV Bus - Red
 460 V Bus - Green

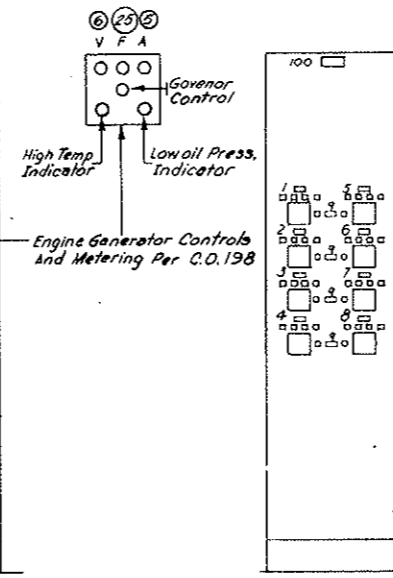
Key Interlock - Key Removable with Control Switch in "open" position only. (3 Keys - 5 Switches)



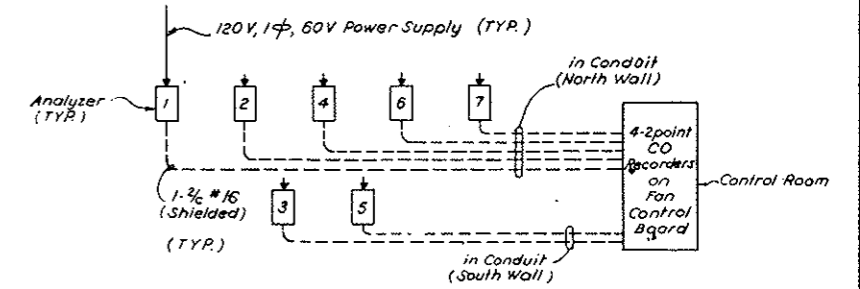
FAN CONTROL BOARD
 EAST SIDE ANNUNCIATOR
 - N.T.S. -
 Similar for West Side except Opposite Hand



POWER CONTROL BOARD
(In Control Room)



LOCAL CONTROL BOARDS
(In Electrical Rooms)



ANALYZER NO.	LOCATION
1	WEST FAN ROOM
2	PULPIT P-2
3	PULPIT P-3
4	PULPIT P-4
5	PULPIT P-5
6	PULPIT P-6
7	EAST FAN ROOM

CARBON MONOXIDE ANALYZER OUTPUT WIRING DIAGRAM

NAME PLATE ENGRAVING SCHEDULE				
REF.	FIRST LINE	SECOND LINE	THIRD LINE	DET.
FAN CONTROL BOARD (NORTH)				
100	FAN	CONTROL BOARD	NORTH TUNNEL	1
200	WEST FANS	CONTROL		1
201	EAST FANS	CONTROL		1
10	FAN 1			1
20	FAN 2			1
30	FAN 3			1
40	FAN 4			1
1	SUPPLY FAN	BULKHEADS	CONTROL	2
2	SUPPLY FAN	CONTROL	TRANSFER	2
3	SUPPLY FAN	CONTROL		2
4	EXHAUST FAN	CONTROL	TRANSFER	2
5	EXHAUST FAN	CONTROL		2
6	CO	ANALYZER 1		2
7	CO	ANALYZER 2		2
8	CO	ANALYZER 3		2
9	CO	ANALYZER 4		2
10	CO	ANALYZER 5		2
11	CO	ANALYZER 6		2
12	CO	ANALYZER 7		2
13	ANALYZER	1 & 2	RECORDER	2
14	ANALYZER	3	RECORDER	2
15	ANALYZER	4 & 5	RECORDER	2
16	ANALYZER	6 & 7	RECORDER	2
17	ALARM	SILENCER		

ANN. PANEL WINDOW ENGRAVING		
WINDOW NO.	FIRST LINE	SECOND LINE
1	SUPPLY FAN 1	FAILURE
2	SUPPLY FAN 2	FAILURE
3	SUPPLY FAN 3	FAILURE
4	SUPPLY FAN 4	FAILURE
5	EXHAUST FAN 1	FAILURE
6	EXHAUST FAN 2	FAILURE
7	EXHAUST FAN 3	FAILURE
8	EXHAUST FAN 4	FAILURE
9		
10	POWER PANELS	OFF
11	INVERTER ON	
12	MAIN POWER	FAILURE
13	EMERG LIGHTS	ON
14	CO	LEVEL 1
15	CO	LEVEL 2
16	EMERGENCY GEN	FAILURE

NAME PLATE ENGRAVING SCHEDULE				
REF.	FIRST LINE	SECOND LINE	THIRD LINE	DET.
POWER CONTROL BOARD				
100	POWER	CONTROL	BOARD	1
200	WEST	BUILDING		1
201	EAST	BUILDING		1
1	TRANSFORMER	NO. 1	SECONDARY	2
2	POWER	ON		2
3	TRANSFORMER	NO. 2	SECONDARY	2
4	PUBLIC SERVICE	INCOMING	LINE	2
5	AMMETER			2
6	VOLTMETER			2
7	24.9 KV	EMERGENCY	TIE	2
8	LOAD	BREAK	SWITCH	2
9	TRANSFORMER	NO. 1		2
10	TRANSFORMER	NO. 2		2
11	AIR	CIRCUIT	BREAKER	2
12	460 V. BUS	TIE	BREAKER	2
13	460 V. BUS			2
14	EMERGENCY	GENERATOR	BREAKER	2
15	MCC #1	FEEDER	BREAKER	2
16	MCC #2	FEEDER	BREAKER	2
17	MCC #3	FEEDER	BREAKER	2
18	MCC #3	FEEDER	BREAKER	2
19	EMERGENCY	GENERATOR	CONTROL	2
20	TUNNEL & BLDG.	NORMAL LIGHTS	RESET	2
21	TUNNEL & BLDG.	EMERGENCY	LIGHT CONT.	2
22	BUILDING	POWER PANELS	RESET	2
23	SEDIMENTATION	TANKS	EMERG. VENT.	2
24	24.9 KV	BUS		2
25	FREQUENCY			2

NAME PLATE ENGRAVING SCHEDULE			
REF.	FIRST LINE	SECOND LINE	DET.
LOCAL CONTROL BOARD			
100	LOCAL	CONTROL BOARD	1
1	SUPPLY FAN 1	CONTROL	2
2	SUPPLY FAN 2	CONTROL	2
3	SUPPLY FAN 3	CONTROL	2
4	SUPPLY FAN 4	CONTROL	2
5	EXHAUST FAN 1	CONTROL	2
6	EXHAUST FAN 2	CONTROL	2
7	EXHAUST FAN 3	CONTROL	2
8	EXHAUST FAN 4	CONTROL	2
9	CONTROL	AVAILABLE	2

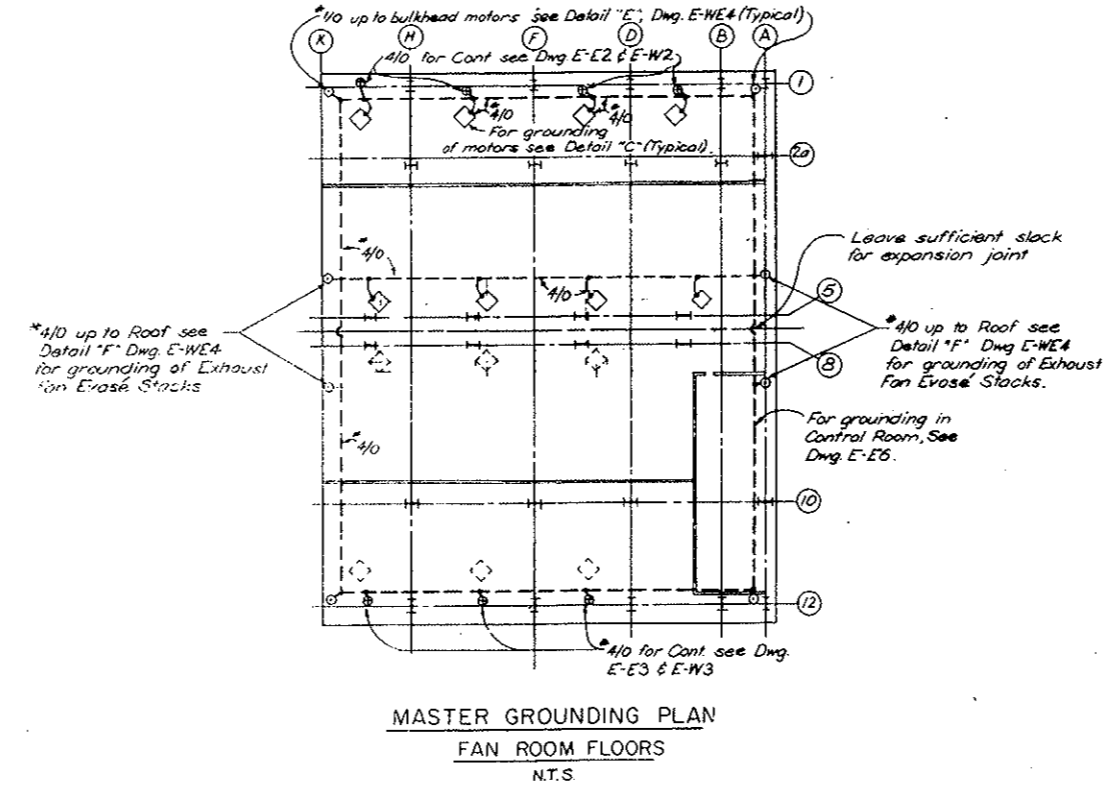
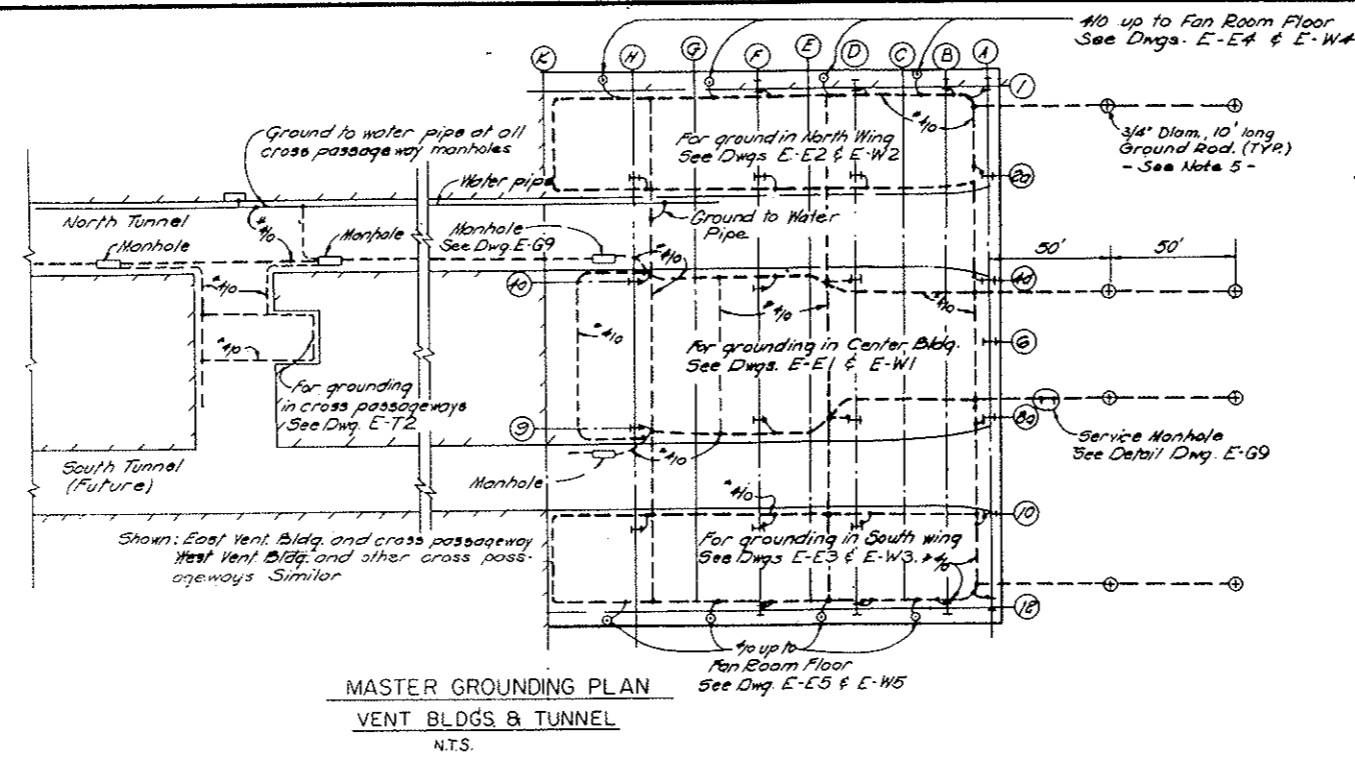
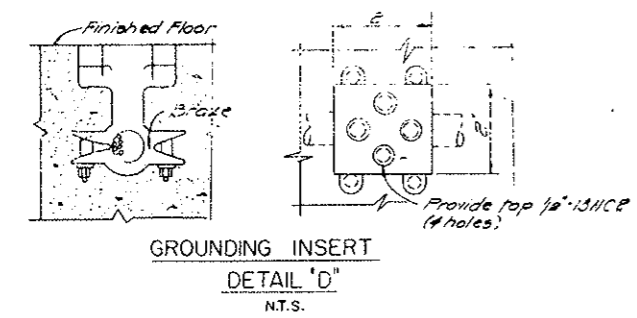
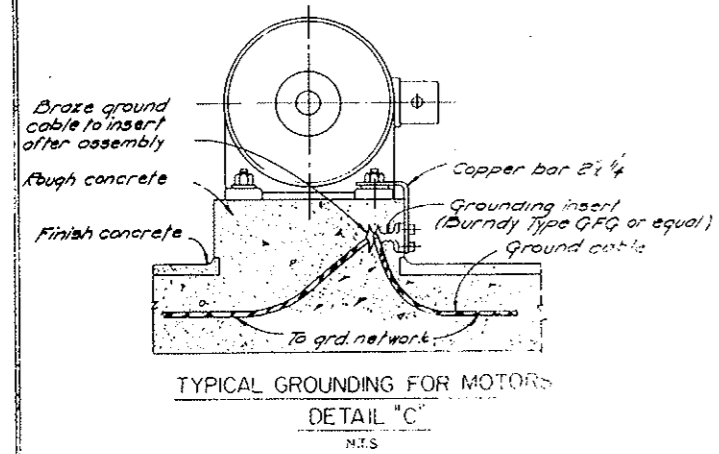
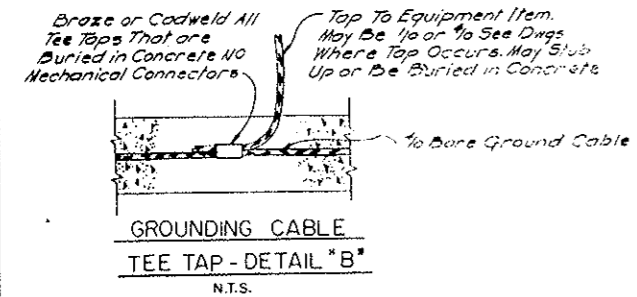
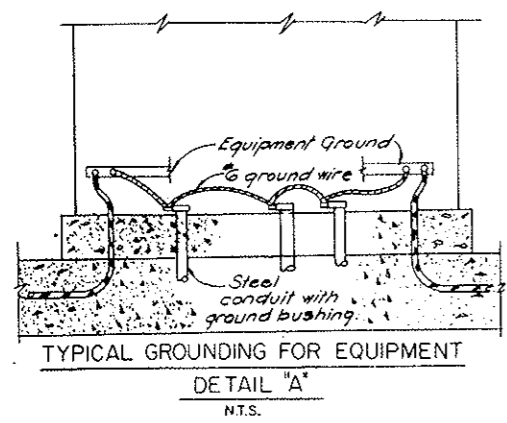
NOTES:
 1-For nameplate engraving schedule details see dwg. E-WE1.

See Shts 245AX Thru 245LX for correct details.

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL					
CONTROL BOARDS & PANELS					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: N. A. C.	DRAWN: E. A. N.		CHECKED: D. H. D.		SUBMITTED: <i>[Signature]</i>
RECOMMENDED: <i>[Signature]</i>		APPROVED: <i>[Signature]</i>		DRAWING NO. E-66	
NEW YORK, N. Y.		SCALE: 3/4" = 1'-0"		DATE: AUG. 1967	

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)22D	246	326

AS CONSTRUCTED
REVISED Oct. 26, 1973



- NOTES:**
- All wire for grounding of equipment to be soft drawn bare stranded copper conductor.
 - Ground wire run exposed to be fastened to structure in an approved manner.
 - All electrical equipment to be grounded.
 - Conduits to be grounded through grounding bushing whenever not properly grounded elsewhere.
 - A sufficient number of ground rods to be driven into ground to reduce the resistance from main grid to ground to 5 ohms or less.
 - All ground wire run outside building to be buried at least 18" below grade.

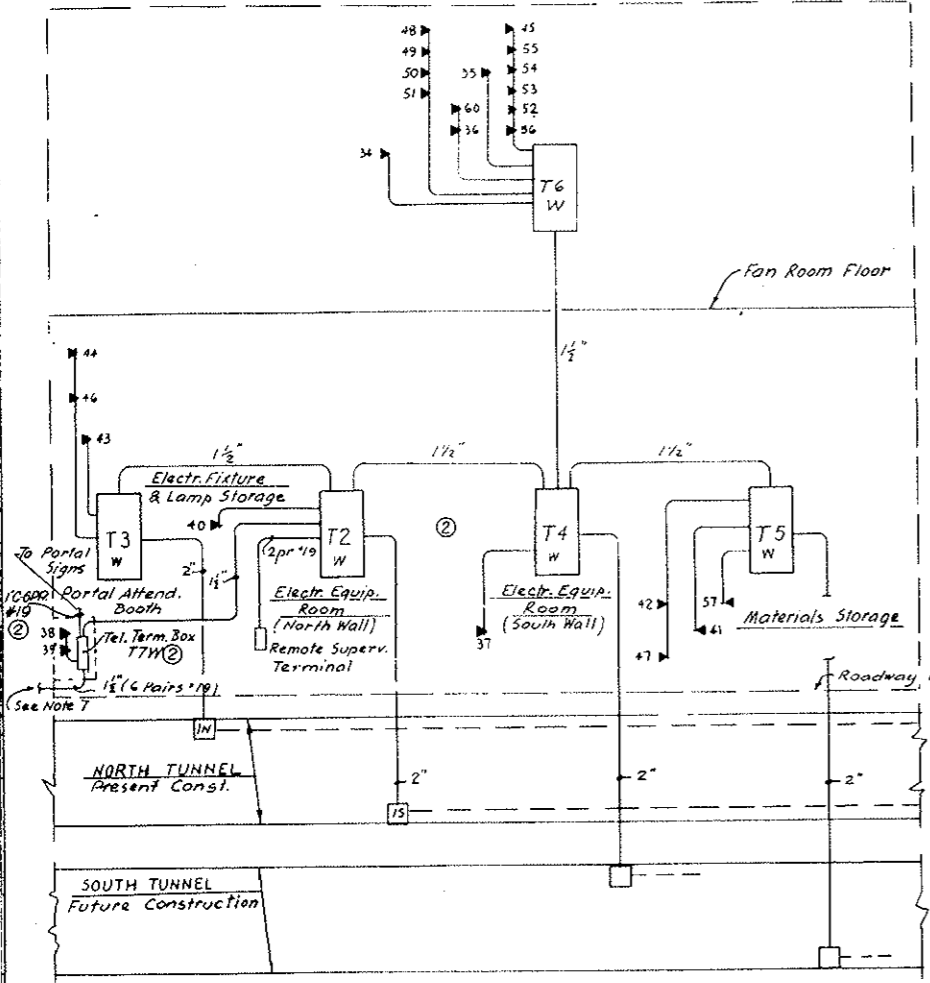
NO.	DATE	DESCRIPTION OF REVISION	BY	CHK	APP
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL GROUNDING PLAN & TYPICAL DETAILS					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: J.A.G.	RECOMMENDED:				
DRAWN: R.D.S.	CHECKED: D.H.O.	APPROVED:			
SUBMITTED:					
NEW YORK, N. Y.			SCALE: AS NOTED	DATE: AUG. 1967	DRAWING NO. E-67

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

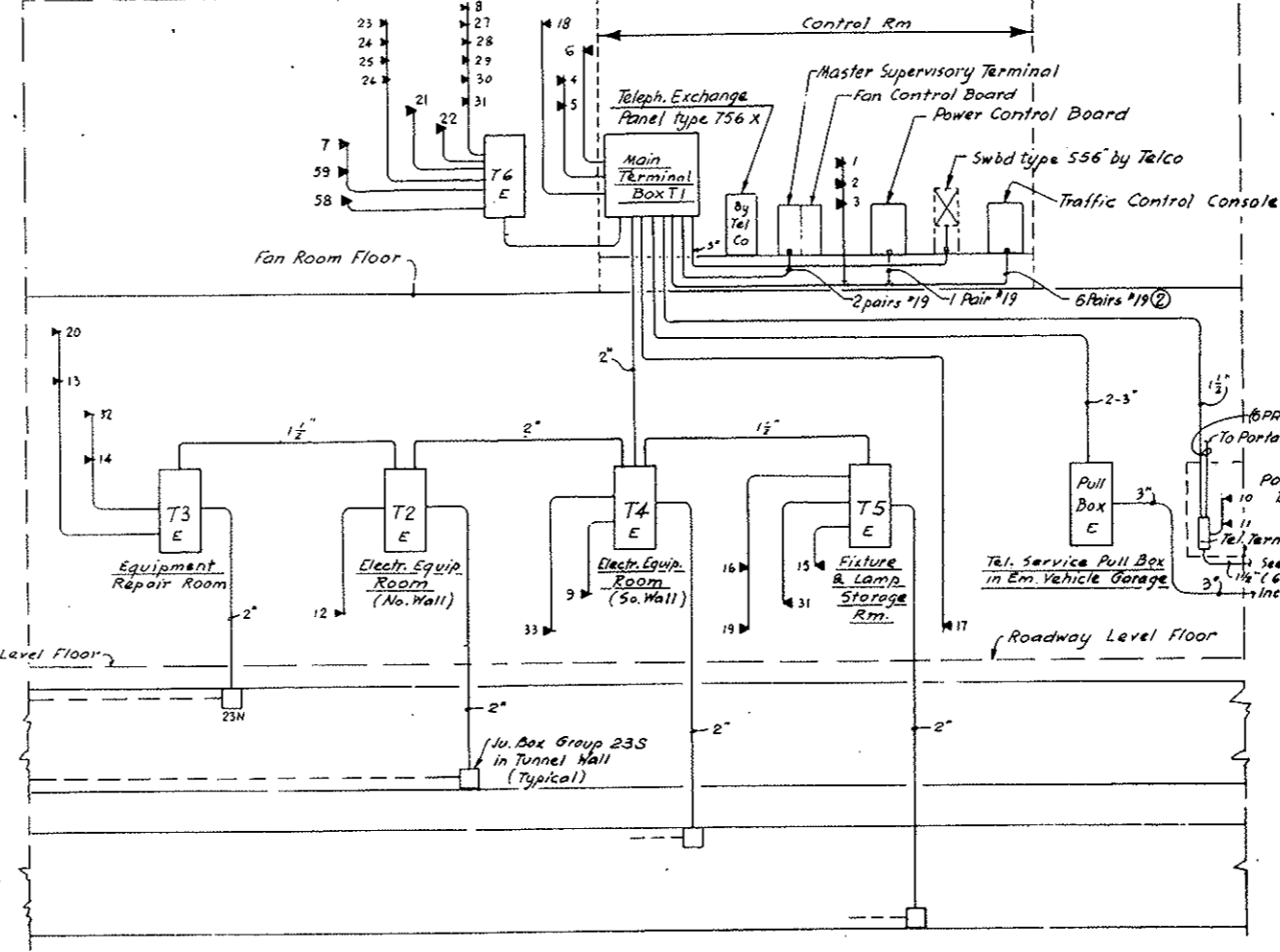
- NOTES:**
- All Conduit shall be 3/4" Rigid Steel Galvanized unless otherwise noted.
 - For physical Location of Telephone Terminal Boxes & Telephone Outlets see Lighting Drawings.
 - Telephone wiring & Equipment will be furnished & installed by Telephone Company, unless otherw. indicated.
 - For Continuation of Conduits in Tunnel see Dwg E-T1
 - Where a Horn is indicated, Electrical Contractor shall provide for a 110 Volt AC Supply from the nearest Ltg circuit.
 - Teleph. Terminal Boxes to have wooden backboards and hinged doors mounted 5' Center above the finished floor
 - Continue as shown on Dwg. GA-1 (For West Bldg) or on Dwg GA-2 (For East Bldg)
 - Where Telephone Pairs are specified, they shall be furnished & installed by Contractor.
- LEGEND**
- Telephone Outlet Box with Cover. See Table below for Number Identification.

- REFERENCE DRAWINGS**
- Control Room & Basement Plan Dwg E-EG
 - For Service Pull Box, T4E & T5E Location " E-EB
 - For Location of Tel. Term. Boxes T2E & T3E " E-E7
 - For Location of Tel. Term. Boxes T1 & T6E " E-E5
 - For Location of Tel. Term. Boxes T2W & T3W " E-W6
 - For Location of Tel. Term. Boxes T4W & T5W " E-W7
 - For Location of West Ventil. Bldg Tel. Term. Box T6W " E-W5
 - For Loc. of Tunnel Tel. Ju. Boxes see Cross Section " E-T3

WEST VENTILATION BUILDING



EAST VENTILATION BUILDING



EAST VENTILATION BUILDING

Outlet No	LOCATION	TYPE	PURPOSE
1	Control Room	Fan Desk	For Office Desk Telephone
2	"	"	"
3	"	"	"
4	Tunnel Superintendent Office	Desk	"
5	"	"	"
6	Emergency Sleeping Quarters	Wall	For Telephone Conn.
7	Fan Room near Col. Line A/2	"	"
8	CO Analyzer Room	"	"
9	Electrical Equipment Room	"	"
10	Portal Attendant Booth	Desk or Wall	For Teleph & Loudspeaker Connect.
11	"	Built-in	Comes with 400 P.A. type Panel
12	Emergency Vehicle Garage	Wall	For Teleph & Loudspeaker Connect.
13	Garage Vehicle Repair Shop	"	Telephone Connection
14	Equipment Repair Room	"	For Telephone & Signal Horn #14H
15	Electrical Fixture & Lamp Storage	"	For Telephone & Loudsp. Connection
16	South Vehicle Storage	"	For future Telephone Installation
17	Sewage Treatment Plant	Exp. prof.	For Teleph Install in Hazard Area
18	Lounge	Wall	Telephone
19	South Tunnel Rest Room	Coinless	Public Telephone Service
20	North Tunnel Rest Room	"	"
21	Fan Room East near Col. 3/F	Horn	Signal Service from Control Room
22	" West 10/F	"	"
23	Fan Rm Fl. Emerg. Stop Switch @ Col. K/2	Tel. Jack	Portable Telephone Connection
24	" " " " " " H/2	"	"
25	" " " " " " F/2	"	"
26	" " " " " " D/2	"	"
27	" " " " " " 3/5	"	"
28	" " " " " " G/5	"	"
29	" " " " " " E/5	"	"
30	" " " " " " C/5	"	"
31	State Patrol Equipment Room	Wall	Future Teleph. Conn.

WEST VENTILATION BUILDING

Outlet No	LOCATION	TYPE	PURPOSE
34	North Supply Fan Room @ Col. 2/A	Wall	Outdoor Type Tel. Connection.
35	" " " " " " @ Col. 7/A	Horn	Signal Service from Control Room
36	South Supply Fan Room @ Col. 1/10	Horn	"
37	Electrical Equipment Room	Wall	For Telephone Connection
38	Portal Attendant Booth	Desk	For Telephone & Loudspeaker Conn.
39	"	Built-in	Supplied with 400 Push Button Panel
40	Emergency Vehicle Garage	Wall	For Telephone & Loudspeaker Conn.
41	South Vehicle Storage	"	"
42	"	"	For future Telephone installation
43	Electrical Fixture & Lamp Storage	"	For Telephone & Loudspeaker Conn.
44	Garage & Vehicle Repair	Wall	For future Telephone Installation
45	CO Analyzer Room	"	For Telephone Connection
46	North Tunnel Rest Room @ Col. B/2	Coinless	Public Telephone Service
47	South Tunnel Rest Room @ Col. A/11	"	"
48	North Suppl. Fan Rm. Emerg. Stop Sw. @ D/2	Tel. Jack	Portable Telephone Connection
49	" " " " " " F/2	"	"
50	" " " " " " H/2	"	"
51	" " " " " " K/2	"	"
52	North Exh. Fan Rm. " " C/5	"	"
53	" " " " " " E/5	"	"
54	" " " " " " G/5	"	"
55	" " " " " " J/5	"	"
56	" " " " " " Col. Outlet @ Col. A/5	Wall	For future Teleph. Installation.
57	Materials Storage	"	"
60	South Supply Fan Rm. Tel. Outlet Col. A/11	"	"

EAST VENTILATION BLDG. (Continuation)

32	Emergency Generator Room	Wall	Future Telephone Installation
33	" Vehicle Garage	Wall	"
58	South Supply Fan Room @ Col. 5/11	"	"
59	South Exhaust Fan Rm. @ Col. 1/7	"	"

Area	TEL. BOX	LOCATION	DIMENSIONS	FUNCTION
EAST VENTIL. BLDG.	Pull Box E	Em. Veh. Garage	36" x 48" x 12" D	Tel. Service Box
	T1	Control Room	48" x 60" x 10" D	Tel. Term. Main Box
	T2E	El. Equip. Room	12" x 30" x 4" D	Teleph. Term. Box
	T3E	Equip. Repair Rm.		
	T4E	Electr. Equip. Rm.		
	T5E	Electr. Fixture & Lamp Storage		
	T6E	Fan Room Fl.		
T7E	Portal Attendant's Booth			
WEST VENTIL. BLDG.	T2W	El. Equip. Room		
	T3W	Electr. Fixture & Lamp Storage		
	T4W	El. Equip. Room		
	T5W	Material Stor.		
	T6W	South Exh. Fan Rm.		
T7W	Portal Attendant's Booth			

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL
TELEPHONE RISER DIAGRAMS

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS NEW YORK, N.Y.

DESIGNED: G.Z.
 DRAWN: G.Z.
 CHECKED: D.D.
 SUBMITTED: [Signature]

RECOMMENDED: [Signature]
 APPROVED: [Signature]

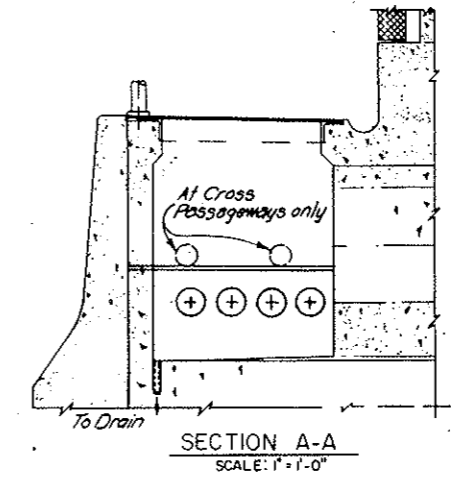
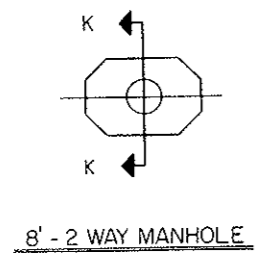
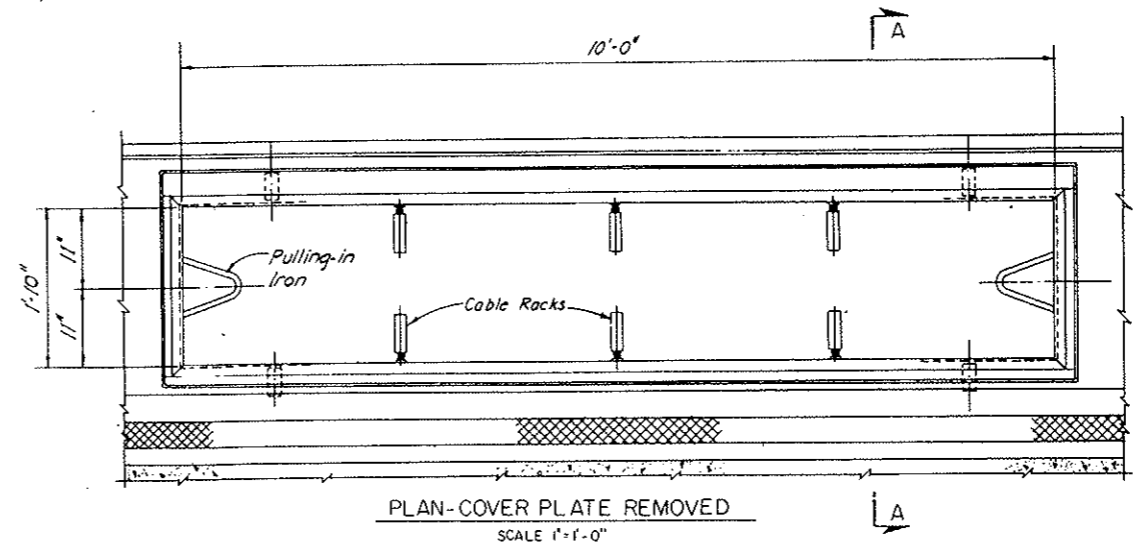
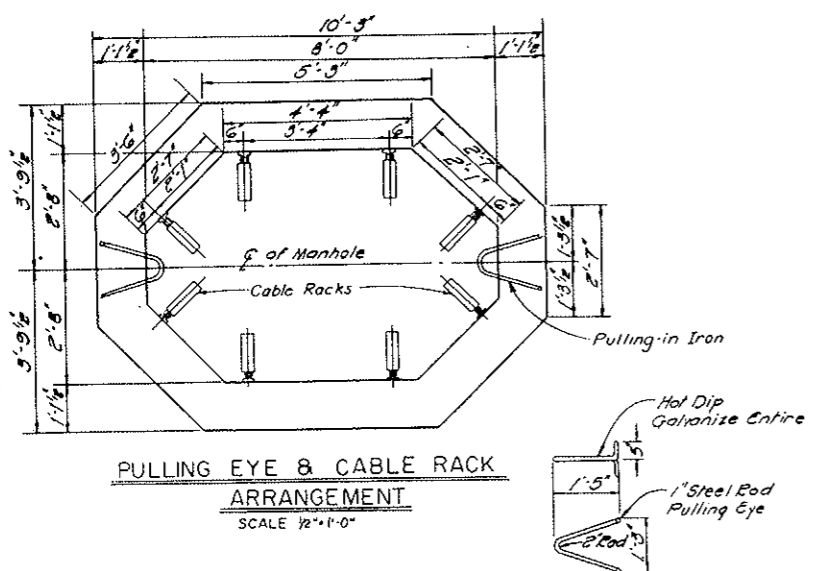
DATE: AUB. 1967

SCALE: NONE

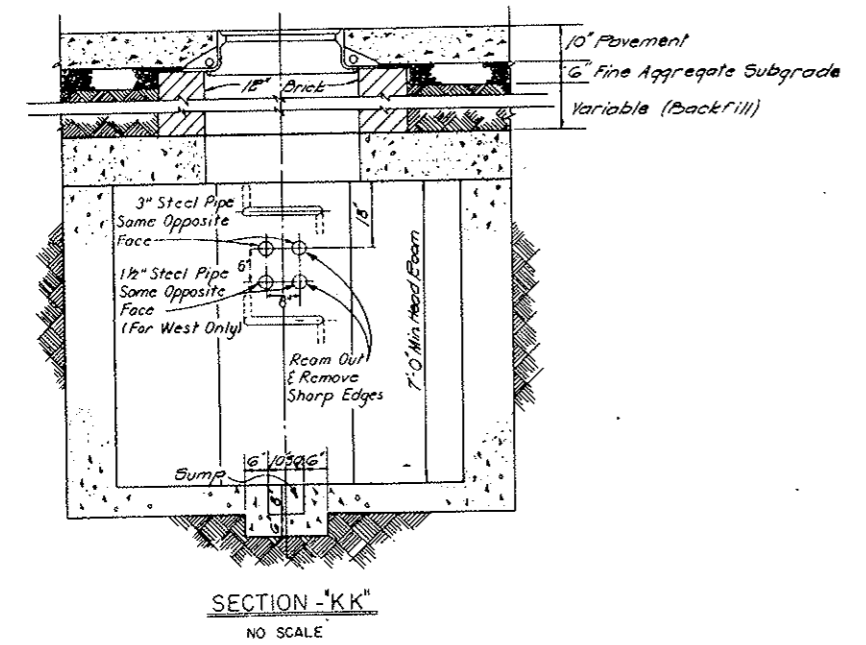
DRAWING NO. **E-68**

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	248	328

AS CONSTRUCTED
REVISED *DATE* Oct. 26, 1973



TYPICAL TUNNEL ELECTRICAL MANHOLE



TYPICAL PLAZA MANHOLE

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL TUNNEL AND PORTAL PLAZAS MISCELLANEOUS DETAILS					
TIPPETTS-ABBETT-McCARTHY-STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: J. A. S.	RECOMMENDED: <i>[Signature]</i>				
DRAWN: R. D. S.	CHECKED: N. A. C.				
SUBMITTED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>				
NEW YORK, N. Y.		SCALE: AS NOTED	DATE: AUG. 1967	DRAWING NO. E-69	

REV. 5-3-70 Identification of Plans H.P. 170
REV. 1-11-68 Reinstated Items 160-1027

AS BLDG. DIV. Oct. 26, 1973

AC POWER DISTR. PANEL NO. 1 (EAST)

LOCATION: ELEC. EQUIP. ROOM ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 225 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	INT. ZONE NORTH LTG. FOR. H1	20	20	20	30	150	1" 4#10
2	" SOUTH " S1	20	20	20	30	150	1" 4#10
3	WATER MAIN PIPE HTG	12	12	12	15	150	1" 4#12
4	DRAIN PIPE HTG	25	25	25	30	150	1" 3#10
5	SPARE BKR				30	150	
6	MESSAGE BOARDS	11	11	11	20	3/4"	3#12 (R-3)
7	PORTAL TV(S)	2	2	2	15	150	3/4" 2#12
8	TV(S)	0.2	0.2	0.2	15	150	3/4" 2#12
9	LTG. & HTG. CONT. TRANS.	1	1	1	15	150	3/4" 2#12
10	PLAZA LTG.	25	25	25	30	150	1 1/2"
11	INT. ZONE NORTH LTG. FOR. H2	20	20	20	30	150	1" 4#10
12	" SOUTH " S2	20	20	20	30	150	1" 4#10
13	" NORTH " N3	20	20	20	30	150	1" 4#10
14	" SOUTH " S3	20	20	20	30	150	1" 4#10
15	SPARE BKR				15	150	
16	SPARE BKR				15	150	
PHASE LOAD		183.4	193.4	194.0			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 1 (WEST)

LOCATION: ELEC. EQUIP. ROOM ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 225 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	INT. ZONE NORTH LTG. FOR. H1	20	20	20	30	150	1" 4#10
2	" SOUTH " S1	20	20	20	30	150	1" 4#10
3	WATER MAIN PIPE HTG	12	12	12	15	150	1" 4#12
4	DRAIN PIPE HTG	40	40	40	50	150	1" 3#8
5	SPARE BKR				30	150	
6	MESSAGE BO. D	11	11	11	20	3/4"	3#12 (R-3)
7	PORTAL TV(S)	2	2	2	15	150	3/4" 2#12
8	TV(S)	0.2	0.2	0.2	15	150	3/4" 2#12
9	LTG. & HTG. CONT. TRANS.	1	1	1	15	150	3/4" 2#12
10	PLAZA LTG.	25	25	25	30	150	1 1/2"
11	INT. ZONE NORTH LTG. FOR. H2	20	20	20	30	150	1" 4#10
12	" SOUTH " S2	20	20	20	30	150	1" 4#10
13	" NORTH " N3	20	20	20	30	150	1" 4#10
14	" SOUTH " S3	20	20	20	30	150	1" 4#10
15	SPARE BKR				15	150	
16	SPARE BKR				15	150	
PHASE LOAD		202.4	209.4	199.0			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 2 (EAST)

LOCATION: FAN RM. EAST ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 225 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	LTG. TRANS. TE2A	32	32	32	40	100	1" 3#8
2	" TE2B	49	49	49	70	100	1" 3#6
3	" TE2C	33	33	33	40	100	1" 3#8
4	POWER RECS. AT COLLN. 2	30	30	30	40	100	1" 3#8
5	" " " " "	5	30	30	40	100	1" 3#8
6	" " " " "	11	30	30	40	100	1" 3#8
7	ROOF DRAINAGE HTG.	6	6	6	15	100	3/4" 2#12
8	" " " " "	6	6	6	15	100	3/4" 2#12
9	" " " " "	6	6	6	15	100	3/4" 2#12
10	FAN ROOM DRAINS HTG.	6	6	6	15	100	3/4" 2#12
11	" " " " "	6	6	6	15	100	3/4" 2#12
12	" " " " "	6	6	6	15	100	3/4" 2#12
13	SPARE BKR				15	100	3/4" 2#12
14	" " " " "				15	100	
15	" " " " "				15	100	
16	SPACE						
PHASE LOAD		216.0	216.0	216.0			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 2 (WEST)

LOCATION: FAN RM. WEST ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 225 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	LTG. TRANS. TW2A	30	30	30	40	100	1" 3#8
2	" TW2B	46	46	46	70	100	1" 3#6
3	" TW2C	30	30	30	40	100	1" 3#8
4	POWER RECS. AT COLLN. 2	30	30	30	40	100	1" 3#8
5	" " " " "	5	30	30	40	100	1" 3#8
6	" " " " "	11	30	30	40	100	1" 3#8
7	ROOF DRAINAGE HTG.	6	6	6	15	100	3/4" 2#12
8	" " " " "	6	6	6	15	100	3/4" 2#12
9	" " " " "	6	6	6	15	100	3/4" 2#12
10	FAN ROOM DRAINS HTG.	6	6	6	15	100	3/4" 2#12
11	" " " " "	6	6	6	15	100	3/4" 2#12
12	" " " " "	6	6	6	15	100	3/4" 2#12
13	SPARE BKR				15	100	3/4" 2#12
14	" " " " "				15	100	
15	" " " " "				15	100	
16	SPACE						
PHASE LOAD		208.0	208.0	208.0			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 4 (EAST)

EAST VENT BLDG.
LOCATION: ROADWAY FL. NORTH ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 200 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	E-6 FAN	7	7	7	15	100	1" 3#12
2	P-4 PUMP	7.5	7.5	7.5	15	100	1" 3#12
3	P-5 PUMP	7.5	7.5	7.5	15	100	1" 3#12
4	P-6 PUMP	7.5	7.5	7.5	15	100	1" 3#12
5	HV UNIT NO. 2	20	20	20	30	100	1" 3#10
6	DH-6 DUCT HEATER	16.3	16.3	16.3	30	100	1" 3#10
7	LTG. TRANS. TE-4	27	27	27	30	100	1" 3#10
8	SUMP PUMP #1	1.0	1.0	1.0	15	100	1" 3#12
9	" " #2	1.0	1.0	1.0	15	100	1" 3#12
10	E-1A FAN	7	7	7	15	100	1" 3#12
11	INCUBATOR	1.8	1.8	1.8	15	100	1" 3#12
12	BOILER NO. 1	4.5	4.5	4.5	15	100	1" 3#12
13	" " #2	4.5	4.5	4.5	15	100	1" 3#12
14	E-9 FAN	14	14	14	30	100	1" 3#12
15	E-10 FAN	4.5	4.5	4.5	15	100	1" 3#12
16	OVERHEAD DOOR (FRONT E-4)	3.3	3.3	3.3	15	100	3/4" 3#12 (R-3)
17	ENERGY GEN. CONTROL BD.	12.0	12.0	12.0	15	100	3/4" 3#12 (R-3)
18-19	SPARE BKRS.				15	100	
20	OVERHEAD DOOR (E-108)	1.8	1.8	1.8	15	100	3/4" 3#12
PHASE LOAD		134.3	134.3	134.3			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 4 (WEST)

WEST VENT BLDG.
LOCATION: ROADWAY FL. NORTH ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 100 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	DH-1 DUCT HEATER	13	13	13	20	100	1" 3#12
2	DH-3 DUCT HEATER	16.3	16.3	16.3	30	100	1" 3#10
3	LTG. TRANS. TW4	25	25	25	30	100	1" 3#10
4	OVERHEAD DOOR (W-106)	3.3	3.3	3.3	15	100	3/4" 3#12
5	SPARE BKR				15	100	
6	" " " " "				15	100	
7	OVERHEAD DOOR (W-107)	1.8	1.8	1.8	15	100	3/4" 3#12
8	SPACE						
9	SUMP PUMP #1	1.0	1.0	1.0	15	100	1" 3#12
10	" " #2	1.0	1.0	1.0	15	100	1" 3#12
PHASE LOAD		61.6	61.6	61.6			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 3 (EAST)

LOCATION: ELEC. EQUIP. RM ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 100 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	OVERHEAD DOOR (FRONT E-17)	3.3	3.3	3.3	15	150	3/4" 3#12
2	OVERHEAD DOOR (FRONT E-120)	3.3	3.3	3.3	15	150	3/4" 3#12
3	DH-7 DUCT HEATER	8	8	8	15	150	1" 3#12
4	DH-8 DUCT HEATER	5	5	5	15	150	1" 3#12
5	LTG. TRANS. TE-3	43	43	43	50	150	1" 3#8
6	DRAIN PIPE HTG VEHICLE STOR.	3	3	3	15	150	3/4" 2#12
7	" " " " "	3	3	3	15	150	3/4" 2#12
8	" " " " "	3	3	3	15	150	3/4" 2#12
9	SPARE BKR				15	150	
10	B1-FOLD DOOR (E-121)	0.4	0.4	0.4	15	150	1" 3#12
11	B1-FOLD DOOR (E-127)	0.4	0.4	0.4	15	150	1" 3#12
12	SPARE BKR				15	150	
13	" " " " "				15	150	
14	OVERHEAD DOOR (E-126)	1.8	1.8	1.8	15	150	3/4" 3#12
15	SPACE						
16	" " " " "						
PHASE LOAD		68.2	68.2	68.2			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL NO. 3 (WEST)

LOCATION: ELEC. EQUIP. RM ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 3-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 100 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	OVERHEAD DOOR (FRONT W-11)	3.3	3.3	3.3	15	150	3/4" 3#12
2	OVERHEAD DOOR (FRONT W-11)	3.3	3.3	3.3	15	150	3/4" 3#12
3	DH-2 DUCT HEATER	6.6	6.6	6.6	15	150	1" 3#12
4	DH-3 DUCT HEATER	12	12	12	20	150	1" 3#12
5	LTG. TRANS. TW-3	32	32	32	40	150	1" 3#8
6	DRAIN PIPE HTG VEHICLE STOR.	3	3	3	15	150	3/4" 2#12
7	" " " " "	3	3	3	15	150	3/4" 2#12
8	" " " " "	3	3	3	15	150	3/4" 2#12
9	SEWAGE EJECTOR PUMP	1.4	1.4	1.4	15	150	1" 3#12
10	" " " " "	1.4	1.4	1.4	15	150	1" 3#12
11	B1-FOLD DOOR (W-117)	0.4	0.4	0.4	15	150	1" 3#12
12	B1-FOLD DOOR (W-127)	0.4	0.4	0.4	15	150	1" 3#12
13	SPARE BKR				15	150	
14	" " " " "				15	150	
15	OVERHEAD DOOR (W-145)	1.8	1.8	1.8	15	150	3/4" 3#12
16	SPACE						
PHASE LOAD		63.6	63.6	63.6			

* CONDUIT ONLY. TERMINATE CONDUIT 5 FT. OUTSIDE BLDG. - 2 FT. BELOW GRADE

AC POWER DISTR. PANEL

LOCATION: CENTER CROSS PASSAGEWAY - WEST TRANSF. RM ONE LINE DIAG. NO. E-G2

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
MAIN BKR PROV. FRAME — A, TRIP — A
INCOMING CABLE: 4-1/2" #4 ENTRANCE: TOP X BOTTOM X
MAIN BUS 200 A. NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP LOAD			BKR. AMPS	COND. SIZE	WIRE NO. AND SIZE
		A	B	C			
1	TUNNEL NORTH SIDE LTG. FOR. H1	22	22	22	30	100	2" 4#4
2	" " SOUTH SIDE " S1	22	22	22			

AC POWER DISTR. PANEL NO. 5 (EAST)
 EAST VENT BLDG
 LOCATION: ROADWAY FL. SOUTH ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	DH-9 DUCT HEATER	13.2	13.2	13.2	20	100	1" 3#12
2	DH-10 DUCT HEATER	16.5	16.5	16.5	20	100	1" 3#12
3	LIG TRANS. T-E-5	23	23	23	30	100	1" 3#10
4	OVERHEAD DOOR (FRONT E-134)	3.3	3.3	3.3	15	100	1" 3#12
5	FAN E-8	1	1	1	15	100	1" 3#12
6	SPARE BKR				15	100	
7	OVERHEAD DOOR (E-140)	1.8	1.8	1.8	15	100	3/4" 3#12
	PHASE LOAD	58.8	58.8	58.8			

AC POWER DISTR. PANEL NO. 5 (WEST)
 WEST VENT BLDG
 LOCATION: ROADWAY FL. SOUTH ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 200 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	OVERHEAD DOOR (FRONT W-143)	3.3	3.3	3.3	15	100	1" 3#12
2	P-1 PUMP	7	7	7	15	100	1" 3#12
3	P-2 PUMP	7	7	7	15	100	1" 3#12
4	P-3 PUMP	1.4	1.4	1.4	15	100	1" 3#12
5	HV UNIT NO. 1	2.0	2.0	2.0	30	100	1" 3#10
6	DH-4 DUCT HEATER	16.5	16.5	16.5	20	100	1" 3#12
7	LIG TRANS. T-W-5	22	22	22	30	100	1" 3#10
8	E-3 FAN	1	1	1	15	100	1" 3#12
9	INCINERATOR	1.8	1.8	1.8	15	100	1" 3#12
10	BOILER NO. 1	4.5	4.5	4.5	15	100	1" 3#12
11	E-4 FAN	1.4	1.4	1.4	30	100	1" 3#10
12	E-5 FAN	4.5	4.5	4.5	15	100	1" 3#12
13	SPARE BKR				15	100	
14	OVERHEAD DOOR (W-135)	1.8	1.8	1.8	15	100	3/4" 3#12
15	SPACE						
16	SPACE						
17	SPACE						
18	PHASE LOAD	106.6	106.6	106.6			

AC POWER DISTR. PANEL NO. 6
 LOCATION: CONTROL RM ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 4-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	HV UNIT NO. 3	3.3	3.3	3.3	15	100	1" 3#12
2	LIG TRANS. T-E-6	20.0	20.0	20.0	30	100	1" 3#10
3	SPARE BKR				15	100	
4	"				15	100	
5	"				15	100	
6	SPACE						
7	"						
8	"						
	PHASE LOAD	23.3	23.3	23.3			

AC POWER DISTR. PANEL NO. 7 (EAST)
 LOCATION: STATE PATROL EQUIP RM. EAST ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 4-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 225 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	TUNNEL NORTH SIDE LIG FOR N1	42	42	42	70	100	2" 4#4
2	" SOUTH " " " 51	42	42	42	70	100	2" 4#4
3	" NORTH " " " 13	42	42	42	70	100	2" 4#4
4	" SOUTH " " " 33	42	42	42	70	100	2" 4#4
5	MESSAGE BD	20	20	20	30	100	1 1/2" 3#4
6	TV CAMERA	3	3	3	15	100	1 1/2" 13#21
7	PULPITS	11	11	11	15	100	1 1/2" 3#6
8	CROSS PASSAGEWAY LIG TRANS.	5	5	5	15	100	3/4" 2#12
9	TUNNEL LIG CONTR. TRANS.	1	1	1	15	100	3/4" 2#12
10	WATER MAIN PIPE HTG	18	18	18	30	100	1 1/2" 4#3
11	SPARE BKR				30	100	
12	"				15	100	
13	"				15	100	
14	SPACE						
	PHASE LOAD	222.3	222.3	222.3			

AS CONSTRUCTED
 REVISION
 Oct. 26, 1973

AC POWER DISTR. PANEL NO. 7 (WEST)
 LOCATION: STATE PATROL EQUIP RM. WEST ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	LIG TRANS. T-E-7	20	20	20	30	100	1" 3#10
2	AC AIR HANDLING UNIT	4.5	4.5	4.5	15	100	1" 3#12
3	CONDENSING UNIT	20	20	20	30	100	1" 3#10
4	HEATING UNIT	20	20	20	30	100	1" 3#10
5	SPARE BKR				15	100	
6	"				15	100	
7	"				15	100	
8	SPACE						
	PHASE LOAD	64.5	64.5	64.5			

AC POWER DISTR. PANEL NO. 8 (EAST)
 LOCATION: EAST VENT. BLDG
 ROADWAY FL. CENTER FRONT ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	LIG TRANS. T-W-7	32	32	32	40	100	1" 3#10 (R-1)
2	AC AIR HANDLING UNIT	4.5	4.5	4.5	15	100	1" 3#12 (R-1)
3	CONDENSING UNIT	20	20	20	30	100	1" 3#10
4	HEATING UNIT	20	20	20	30	100	1" 3#10
5	SPARE BKR				15	100	
6	"				15	100	
7	"				15	100	
8	SPACE						
	PHASE LOAD	76.5	76.5	76.5			

MAIN DC POWER DISTR. PANEL (EAST & WEST)
 LOCATION: BATTERY CHARGER RM. ONE LINE DIAG. NO. E-62

POWER SUPPLY: 120/240 VOLT DC 3 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 200 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	MAIN D.C. AUTO SW.	50	50	50	70	100	1 1/2" 3#4
2	DC PANEL NO. 10-FEED	30	30	30	40	100	1" 3#8
3	249KV SWGR CONTROL	15	15	15	30	100	1" 2#10
4	249KV SWGR CONTROL	15	15	15	30	100	1" 2#10
5	460V SWGR CONTROL	15	15	15	30	100	1" 2#10
6	460V SWGR CONTROL	15	15	15	30	100	1" 2#10
7	TUNNEL TEL. SIGN LIG	5	5	5	15	100	1" 3#12
8	CONTRM. EMERG. AUTO SW.	6	6	6	15	100	1" 3#8
9	INVERTER MOTOR	8.5	8.5	8.5	15	100	1" 2#12
10	SPARE BKR				15	100	
11	"				15	100	
12	"				15	100	
13	SPACE						
14	"						
15	"						
16	"						
	TOTAL	129.5	129.5	129.5			

* FOR EAST BLDG ONLY

DC POWER DISTR. PANEL NO. 9
 LOCATION: ELECTRICAL EQUIPM RM. ONE LINE DIAG. NO. E-62

POWER SUPPLY: 120/240 VOLT DC 3 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	LIGHTING CIRCUIT	6	6	6	20	100	3/4" 3#10
2	"	6	6	6	20	100	3/4" 3#10
3	"	7.5	7.5	7.5	20	100	3/4" 3#10
4	"	7.5	7.5	7.5	20	100	3/4" 3#10
5	"	3	3	3	20	100	3/4" 2#10
6	SPARE BKR				20	100	
7	LIGHTING CIRCUIT	5	5	5	20	100	3/4" 3#10
8	"	4	4	4	20	100	3/4" 3#10
9	"	6	6	6	20	100	3/4" 3#10
10	"	7	7	7	20	100	3/4" 3#10
11	SPARE BKR				20	100	
12	TUNNEL EMERG. LIG	21	21	21	30	100	3/4" 3#10
	TOTAL	118.5	118.5	118.5			

NOTE: WEST BLDG EAST BLDG

AC POWER DISTR. PANEL NO. 8 (WEST)
 LOCATION: WEST VENT. BLDG
 ROADWAY FL. NORTH ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	E-11 FAN	1.8	1.8	1.8	15	100	1" 3#12
2	PORTAL SIGNS	2	2	2	15	100	3/4" 3#12
3	HV UNIT NO. 4	3.3	3.3	3.3	15	100	1" 3#12
4	TRANSFER PUMP #1	3.3	3.3	3.3	15	100	1" 3#12
5	TRANSFER PUMP #2	3.3	3.3	3.3	15	100	1" 3#12
6	SLUDGE PUMP #1	1.4	1.4	1.4	40	100	1" 3#12
7	SLUDGE PUMP #2	1.4	1.4	1.4	40	100	1" 3#12
8	SUMP PUMP #1	2.5	2.5	2.5	15	100	1" 3#12
9	SUMP PUMP #2	2.5	2.5	2.5	15	100	1" 3#12
10	AIR COMPRESSOR	4.5	4.5	4.5	15	100	1" 3#12
11	SLUDGE COLLECTOR	1.0	1.0	1.0	15	100	1" 3#12
12	CLASSIFIER MOTOR	1.8	1.8	1.8	15	100	1" 3#12
13	PORTAL SIGN DETECTOR SIGNS	15	15	15	30	100	1 1/2" 4#6
14	WATER CONTROLS	20	20	20	30	100	1" 3#10
15	AMMUNIT DRAIN PUMP #1	3.3	3.3	3.3	15	100	1" 3#12
16	AMMUNIT DRAIN PUMP #2	3.3	3.3	3.3	15	100	1" 3#12
17	DUMBWATER	1.4	1.4	1.4	15	100	3/4" 3#12
18	TO 20 SPARE BKRS.				15	100	
	PHASE LOAD	77.0	77.0	77.0			

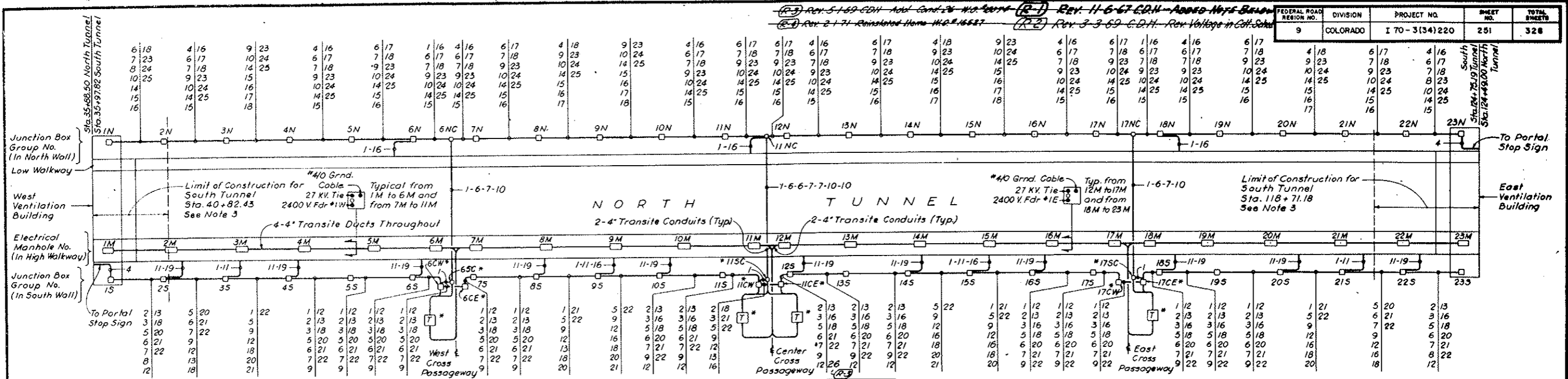
AC POWER DISTR. PANEL NO. 8 (WEST)
 LOCATION: WEST VENT. BLDG
 ROADWAY FL. NORTH ONE LINE DIAG. NO. E-62

POWER SUPPLY: 460 VOLTS, 3 PHASE, 4 WIRES
 MAIN BKR PROV: 3-1/2" FRAME A, TRIP A
 INCOMING CABLE: 3-1/2" ENTRANCE: TOP X BOTTOM
 MAIN BUS 100 A NEUT. BUS REQ'D X GND BUS REQ'D

CKT NO.	DESCRIPTION	AMP. LOAD			BKR TRIP	AMP. COND. FRAME SIZE	WIRE NO. AND SIZE
		A	B	C			
1	FRESH WATER PUMP #1	4.5	4.5	4.5	15	100	1" 3#12
2	FRESH WATER PUMP #2	4.5	4.5	4.5	15	100	1" 3#12
3	S						

(R-3) Rev. 5-1-69 CDH Add Cond. to No. 20 (R-1) Rev. 11-6-67 CDH - Added Note Below
 (R-2) Rev. 2-1-71 Reinstated Home W.G. 14557 (R-2) Rev. 3-3-69 C.D.H. Rev. Voltage in Coll. Sigs

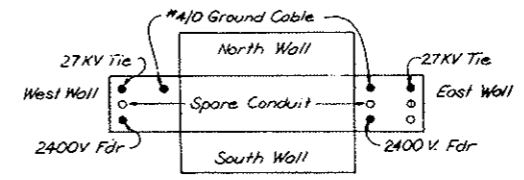
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	251	326



LEGEND:

- Transformer in Cross Passageway
- Galvanized Steel Conduits between Junction Box Groups in Walls. Numbers indicate Size & Purpose. See Schedule at right. See Dwg. E-T4 to E-T7 incl for cables required in conduits. See Dwg. E-T3 for Junction Box arrangement & further details.

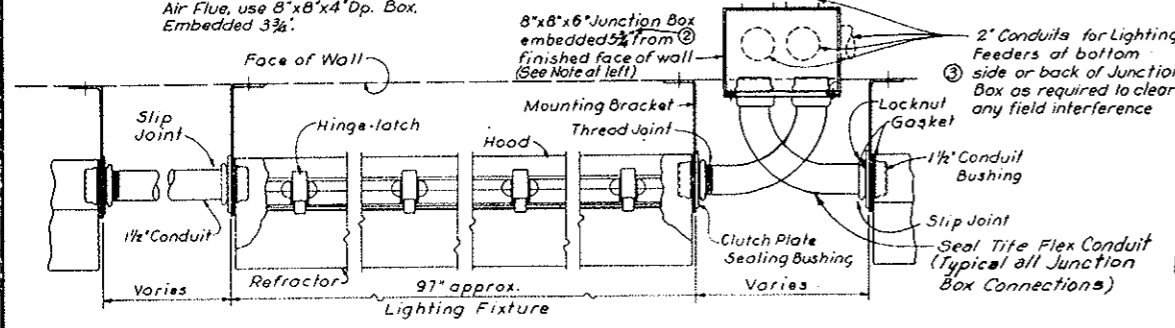
CONDUIT SCHEDULE		CONDUIT SCHEDULE	
Cdt. No.	Size & Purpose	Cdt. No.	Size & Purpose
1	1 1/2" C Pulpit Feeder	14	2" C Telephone & Supervisory Control *
2	1" C T.V. Camera Feeder (See Note A)	15	2" C Spare
3	1 1/2" C Traffic Signs Feeder	16	1" C CO Signal
4	1" C Stop Signal Feeder	17	1" C Loop Detector & Traffic Control *
5	1 1/2" C Spare	18	1 1/2" C Spare
6	2" C 460 V. AC Lighting Feeder #1	19	1" C Telephone Recess DC Light
7	2" C 460 V. AC Lighting Feeder #2	20	3" C 250 V. DC Emergency Feeder
8	2" C 460 V. AC Lighting Feeder #3	21	2" C Spare
9	2" C Spare	22	3" C T.V. Coaxial Cable (See Note A)
10	2" C Hydrant Heating Feeder	23	2" C State Patrol Communication
11	1" C Telephone Recess *	24	2" C State Patrol Communication
12	2" C Emerg. Telephone & Control *	25	2" C Spare
13	1" C Local Telephone *	26	1" C 250 V. DC Emergency Lighting



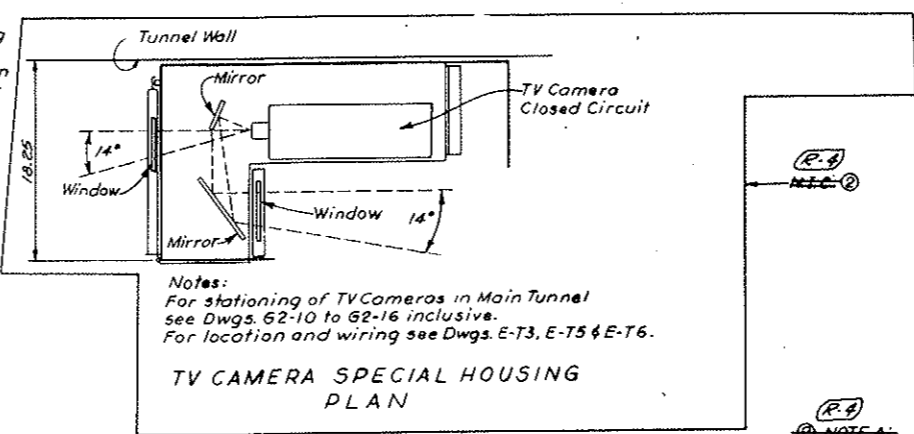
- NOTES:**
- For Stationing of Electrical Manholes, Junction Box Groups, Traffic Control Pulpits & Electrical Equipment in Main Tunnel see Dwg. G2-10 to G2-16 inclusive. Symbols used in these drawings for Electrical Manholes & Boxes are as follows:
 - D. Manhole
 - B. Junction Box Group South Wall
 - C. Junction Box Group North Wall
 - CO. Junction Box North Side opposite Cross Passageway
 - Asterisk * denotes located in Cross Passageways. For details see Dwg. E-T2.
 - Repeat Junction Box Groups and related conduit work as shown for North Tunnel, except Electrical Manholes with corresponding ducts, between Limits of Construction for South Tunnel at both ends.

NOTE:
 If Box falls in front of Fresh Air Flue, use 8"x8"x4" Dp. Box. Embedded 3 3/4".

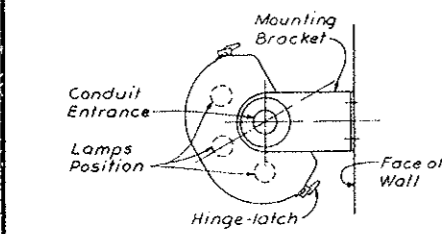
SCHMATIC ARRANGEMENT PLAN - TUNNEL DISTRIBUTION FACILITIES



Notes:
 For stationing of Lighting Fixtures in Main Tunnel, location, typical spacing and wiring diagrams see Dwg. E-T3, E-T4 & E-T5.



Notes:
 For stationing of TV Cameras in Main Tunnel see Dwg. G2-10 to G2-16 inclusive. For location and wiring see Dwg. E-T3, E-T5 & E-T6.



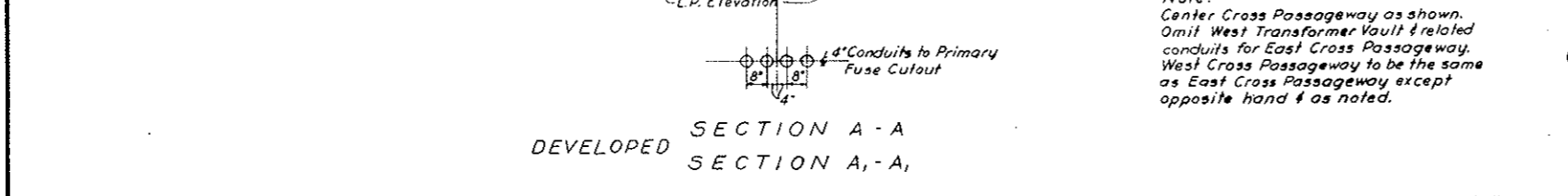
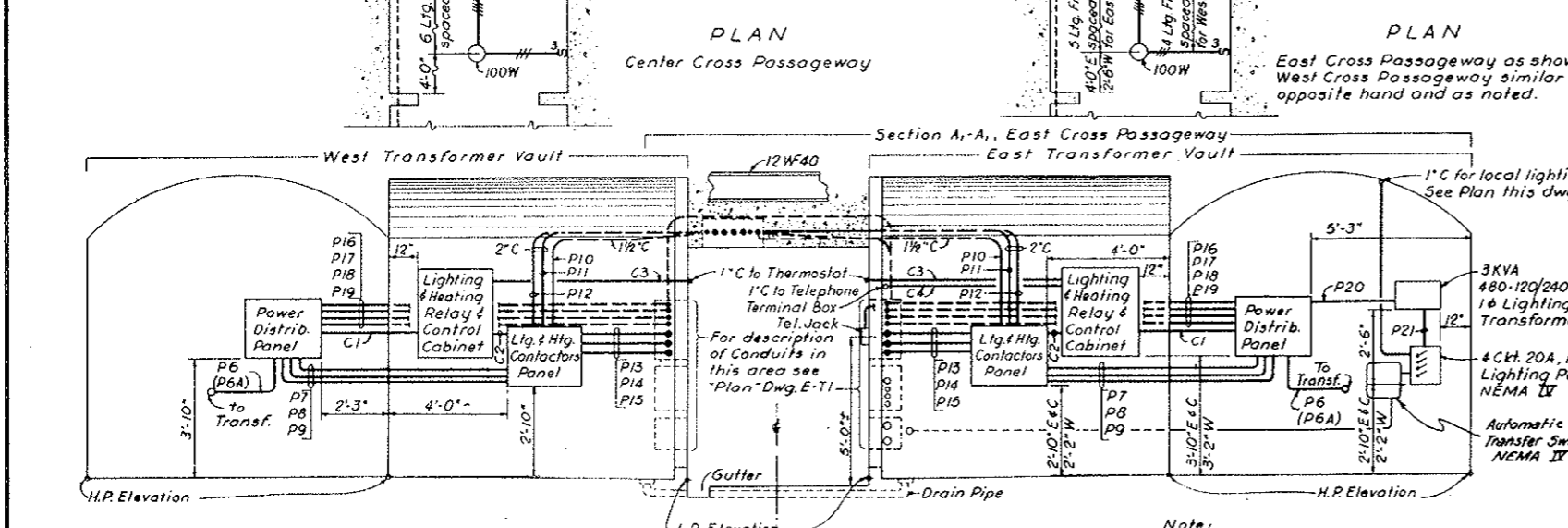
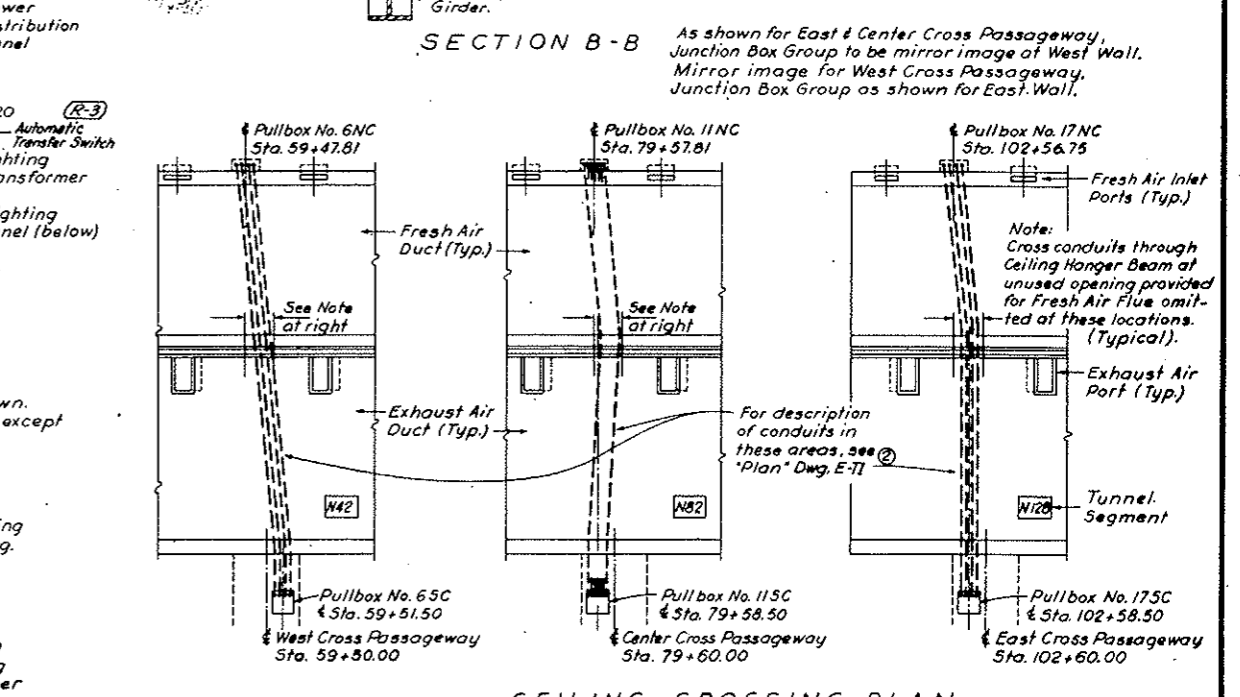
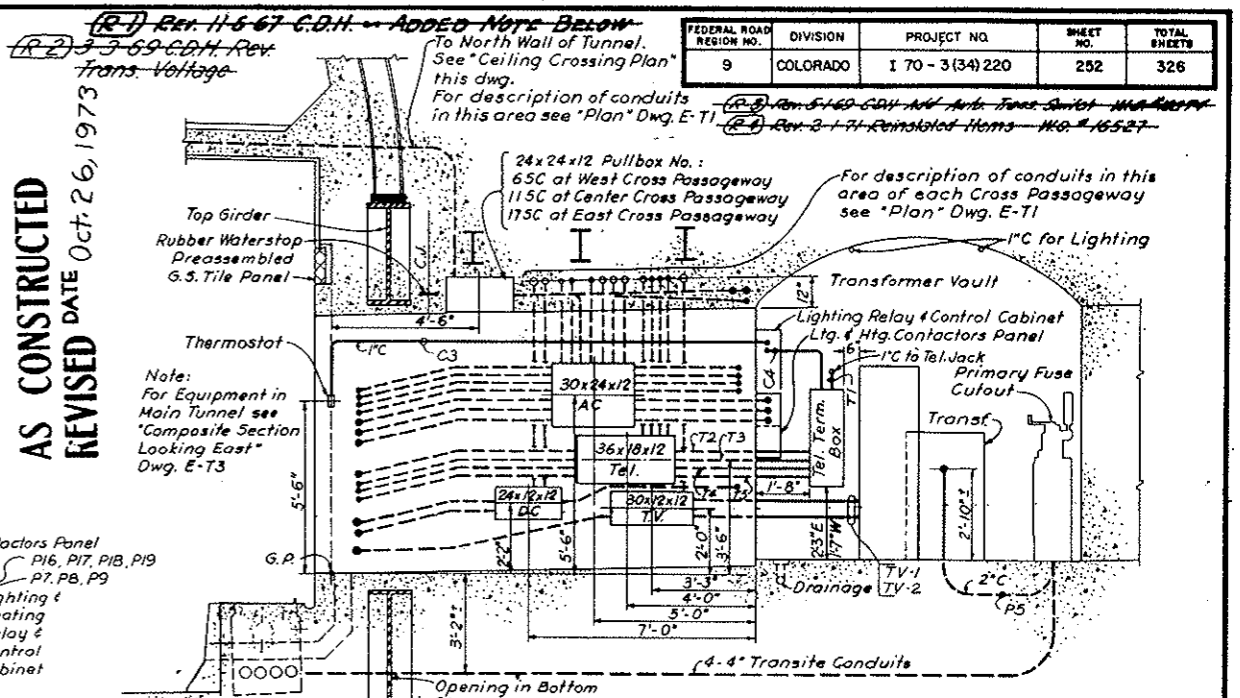
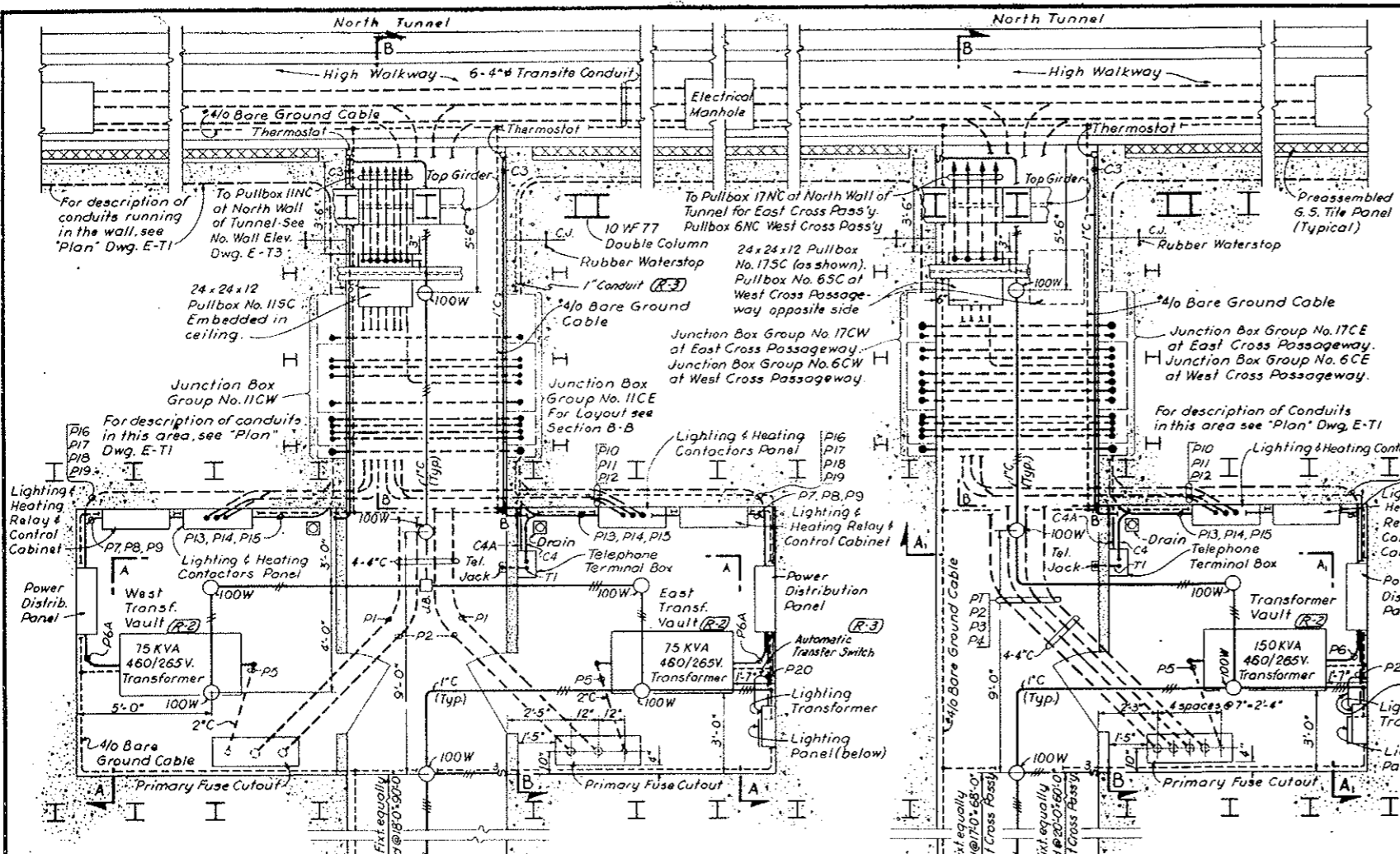
Use upper, middle & lower lamps for lighting at Intensive Zones I & II.
 Use middle & lower lamps for lighting at Intensive Zone III.
 Use upper & lower lamps for lighting at Normal Zone

FIXTURE CROSS SECTION

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL TUNNEL PLANS, SECTIONS & DETAILS SHEET I					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: E. A. N.	CHECKED: D. H. D.	RECOMMENDED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>	DRAWING NO. E-T1	
NEW YORK, N. Y.		SCALE: NONE		DATE: AUG. 1967	

(R-4) ~~(R-2) TV SURVEILLANCE SYSTEM DELETED W.G. 14153 SEE SPEC. 18-H~~

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70 - 3(34) 220	292	326



NOTES:

- 1/2 Bare Copper Ground Cable to be buried in concrete.
- Stub up & protect Ground Cable of the end of Cross Passageway Lined portions (See Specifications).
- Ground every piece of equipment to nearest grounding loop. See Dwg. E-67 for typical grounding details.
- Work this drawing with Conduit & Cable Schedule Dwg. E-77

NOTE A: TV Surveillance System (Bid Item 190) deleted. See W.O. 14153 & Spec. 18H. TV Equipment shown is not in this Contract, but all conduit, boxes etc. are in this Contract. (Bid Item 186)

DESIGNED: E.A.N.	RECOMMENDED: [Signature]	DRAWN: E.A.N.	CHECKED: N.A.C.	APPROVED: [Signature]	DRAWING NO. E-T2
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS		STRAIGHT CREEK VEHICULAR TUNNEL PROJECT		ELECTRICAL TUNNEL PLANS, SECTIONS & DETAILS SHEET 2	
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.		DATE: AUG. 1967		SCALE: 1/8\"/>	

~~(R-4) (R-2) TV SURVEILLANCE SYSTEM DELETED W.O. 14153 See Spec. 18H~~

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

~~(R-2) Rev. 11-6-67 C.D.H. - ADDED NOTE BELOW~~
~~(R-2) 3-3-69 C.D.H. Rev. Trans. Voltage~~

North Tunnel
High Walkway
6-4\"/>

For description of conduits in the wall see "Plan" Dwg. E-T1
To Pullbox 11NC at North Wall of Tunnel See No. Wall Elev. Dwg. E-T3
24x24x12 Pullbox No. 115C Embedded in ceiling.
Junction Box Group No. 11CW
For description of conduits in this area see "Plan" Dwg. E-T1
Lighting & Heating Relay & Control Cabinet
Power Distrib. Panel
West Transf. Vault (R-2)
75 KVA 480/265V. Transformer
1/2 Bare Ground Cable
Primary Fuse Cutout
PLAN
Center Cross Passageway

North Tunnel
High Walkway
6-4\"/>

Top Girder
Rubber Waterstop
Preassembled G.S. Tile Panel (Typical)
Thermostat
1\"/>

As shown for East & Center Cross Passageway, Junction Box Group to be mirror image of West Wall. Mirror image for West Cross Passageway. Junction Box Group as shown for East Wall.
SECTION B-B
Fresh Air Duct (Typ.)
Exhaust Air Duct (Typ.)
Pullbox No. 6NC Sta. 59+47.81
Pullbox No. 11NC Sta. 79+57.81
Pullbox No. 17NC Sta. 102+56.75
Fresh Air Inlet Ports (Typ.)
Exhaust Air Port (Typ.)
Tunnel Segment
Pullbox No. 65C Sta. 59+51.50
Pullbox No. 115C Sta. 79+58.50
Pullbox No. 175C Sta. 102+58.50
CEILING CROSSING PLAN
1/8\"/>

NOTES:

- 1/2 Bare Copper Ground Cable to be buried in concrete.
- Stub up & protect Ground Cable of the end of Cross Passageway Lined portions (See Specifications).
- Ground every piece of equipment to nearest grounding loop. See Dwg. E-67 for typical grounding details.
- Work this drawing with Conduit & Cable Schedule Dwg. E-77

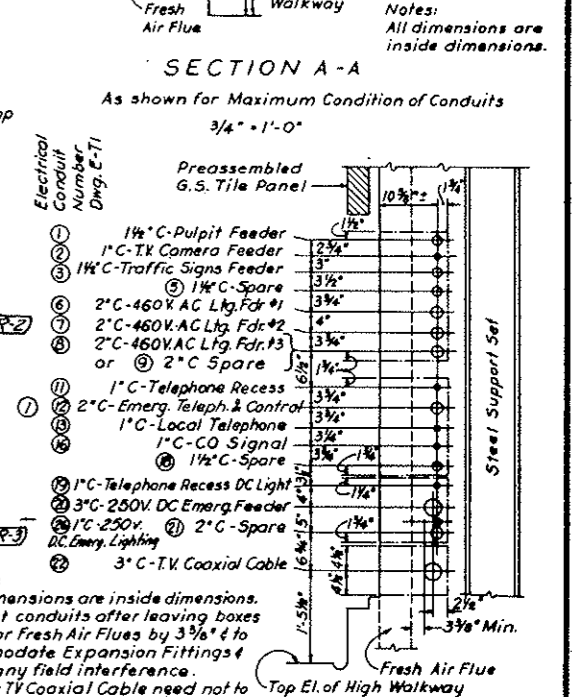
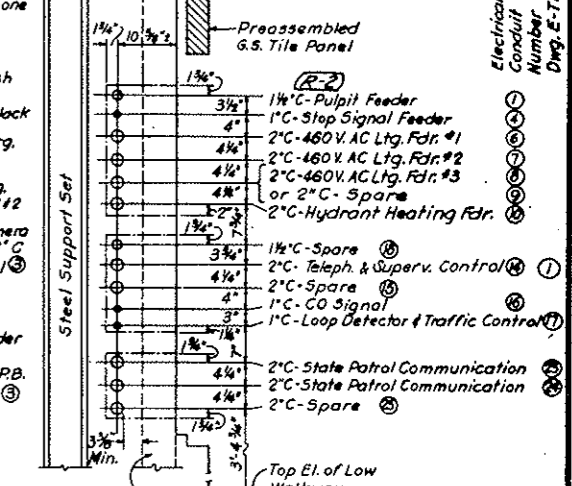
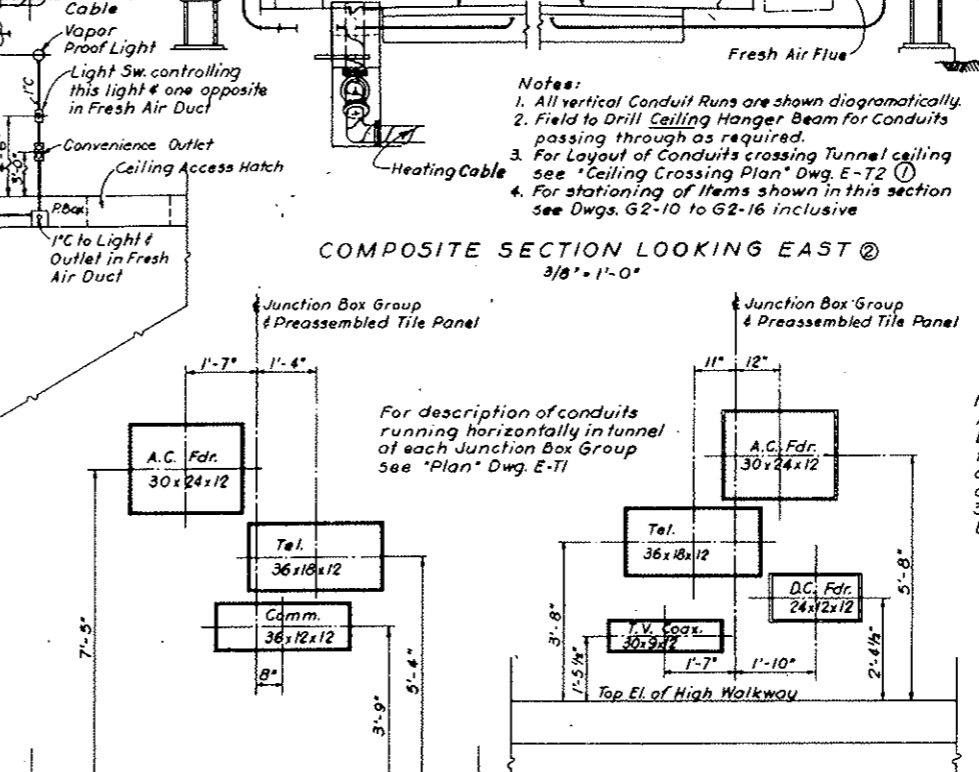
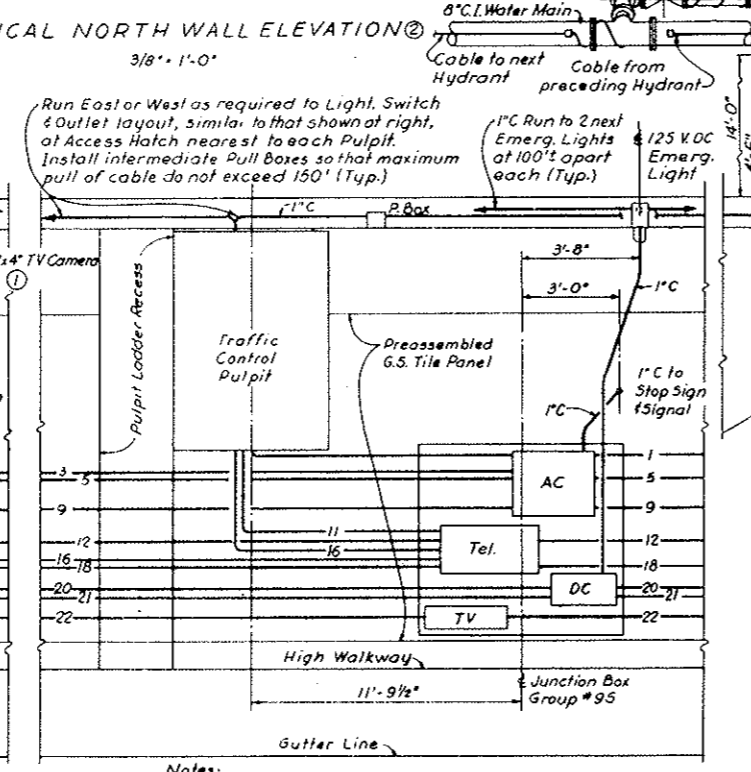
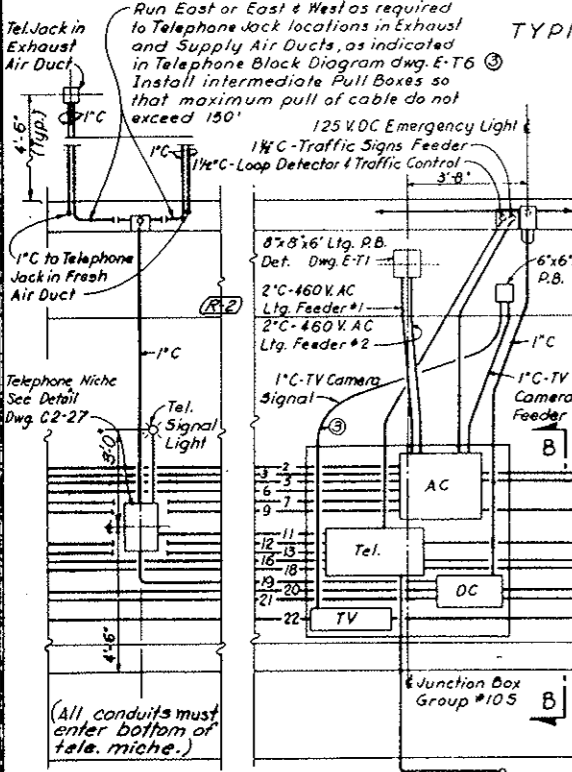
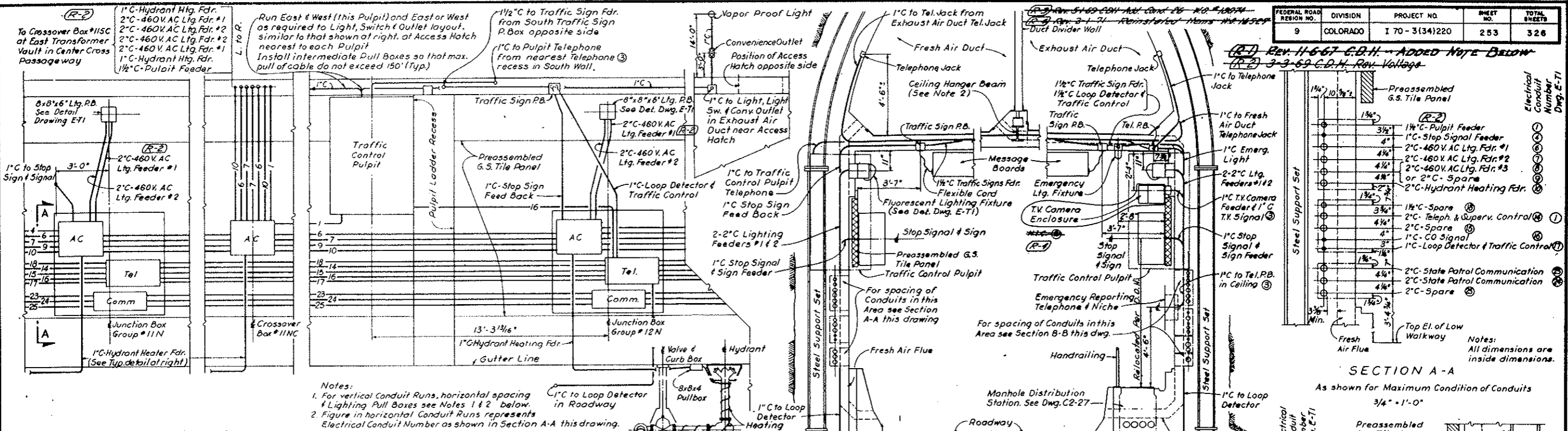
NOTE A: TV Surveillance System (Bid Item 190) deleted. See W.O. 14153 & Spec. 18H. TV Equipment shown is not in this Contract, but all conduit, boxes etc. are in this Contract. (Bid Item 186)

DESIGNED: E.A.N.	RECOMMENDED: [Signature]	DRAWN: E.A.N.	CHECKED: N.A.C.	APPROVED: [Signature]	DRAWING NO. E-T2
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS		STRAIGHT CREEK VEHICULAR TUNNEL PROJECT		ELECTRICAL TUNNEL PLANS, SECTIONS & DETAILS SHEET 2	
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.		DATE: AUG. 1967		SCALE: 1/8\"/>	

~~(R-4) (R-2) TV SURVEILLANCE SYSTEM DELETED W.O. 14153 See Spec. 18H~~

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70 - 3(134)220	253	326

(R-2) Rev. 11-6-67 C.D.H. - ADDED NOTE BELOW
(R-2) 3-3-69 C.D.H. Rev. Voltage



NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL TUNNEL PLANS, SECTIONS, & DETAILS SHEET 3

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

DESIGNED: E. A. N. ORSHAN
 CHECKED: N. A. C.
 SUBMITTED: [Signature]

RECOMMENDED: [Signature]
 APPROVED: [Signature]

SCALE: AS NOTED DATE: AUG. 1967 DRAWING NO. **E-T3**

AS CONSTRUCTED REVISED DATE Oct. 26, 1973

JUNCTION BOX GROUPS ELEVATION
 NORTH WALL 1/2" - 1'-0" SOUTH WALL

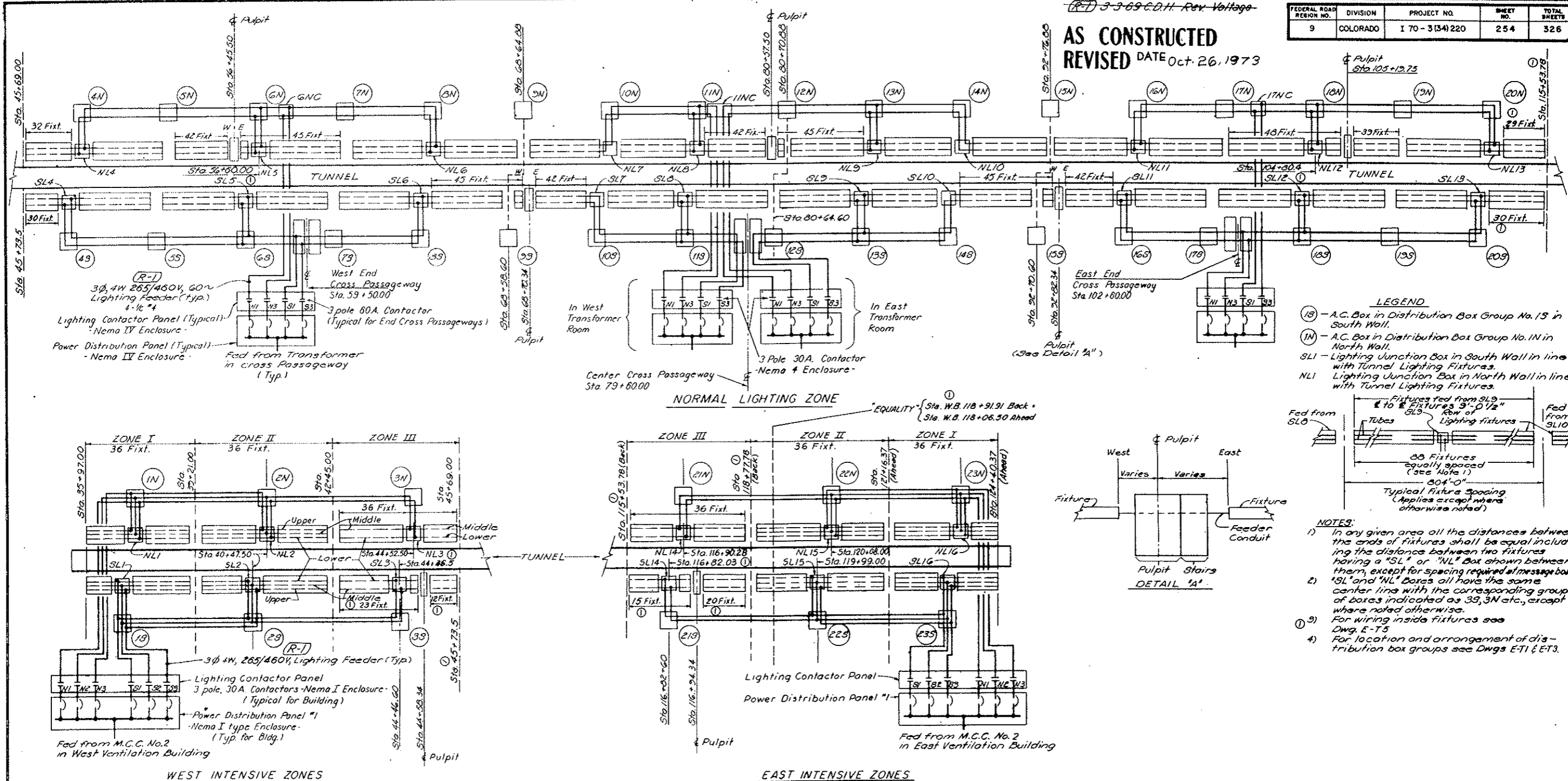
NOTE: All box dimensions are inside dimensions.

(R-2) (R-1) F.V. SURVEILLANCE SYSTEM DELETED W.O. 14153 SEE SPEC. 18H

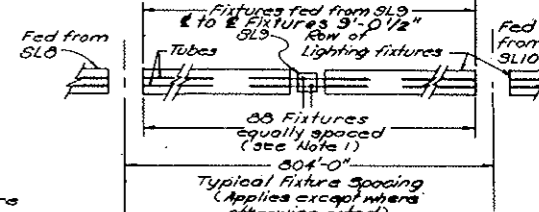
(R-1) 3-3-65 C.D.H. Rev. Voltage

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

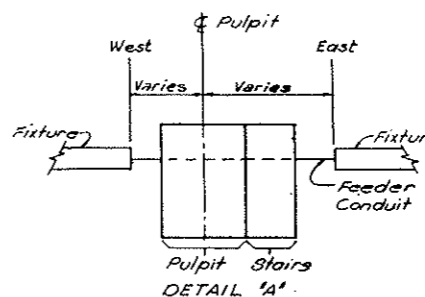
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70 - 3(34) 220	254	326



- LEGEND**
- (18) - A.C. Box in Distribution Box Group No. 18 in South Wall.
 - (1N) - A.C. Box in Distribution Box Group No. 1N in North Wall.
 - SLI - Lighting Junction Box in South Wall in line with Tunnel Lighting Fixtures.
 - NLI - Lighting Junction Box in North Wall in line with Tunnel Lighting Fixtures.



- NOTES:**
- 1) In any given area all the distances between the ends of fixtures shall be equal including the distance between two fixtures having a "SL" or "NL" Box shown between them, except for spacing required at message boards.
 - 2) "SL" and "NL" Boxes all have the same center line with the corresponding group of boxes indicated as 33, 3N etc., except where noted otherwise.
 - 3) For wiring inside fixtures see Dwg. E-T5.
 - 4) For location and arrangement of distribution box groups see Dwg. E-T1 & E-T3.



TUNNEL LIGHTING - SCHEMATIC ARRANGEMENTS SHOWING ZONING & LIMITATIONS OF FEEDS

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL TUNNEL WIRING DIAGRAMS SHEET I

TIPPETTS - ABBETT - MCCARTHY - STRATTON
ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

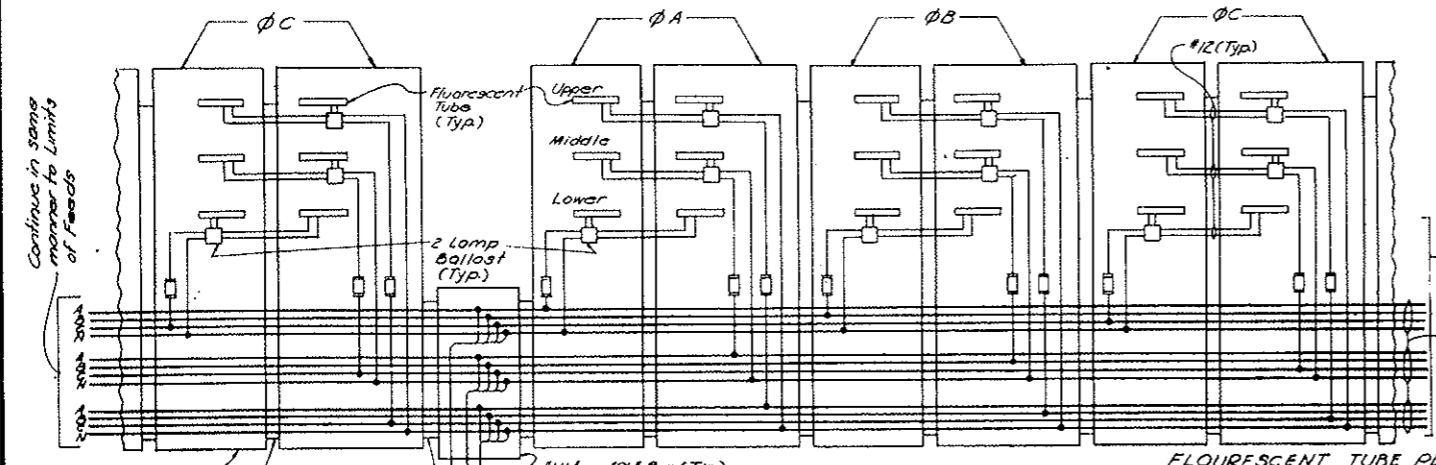
DESIGNED: H.A.C.	RECOMMENDED: <i>[Signature]</i>	DRAWING NO. E-T4
DRAWN: E.A.N.	CHECKED: D.H.D.	
SUBMITTED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>	

SCALE: NONE DATE: AUG. 1967
NEW YORK, N.Y.

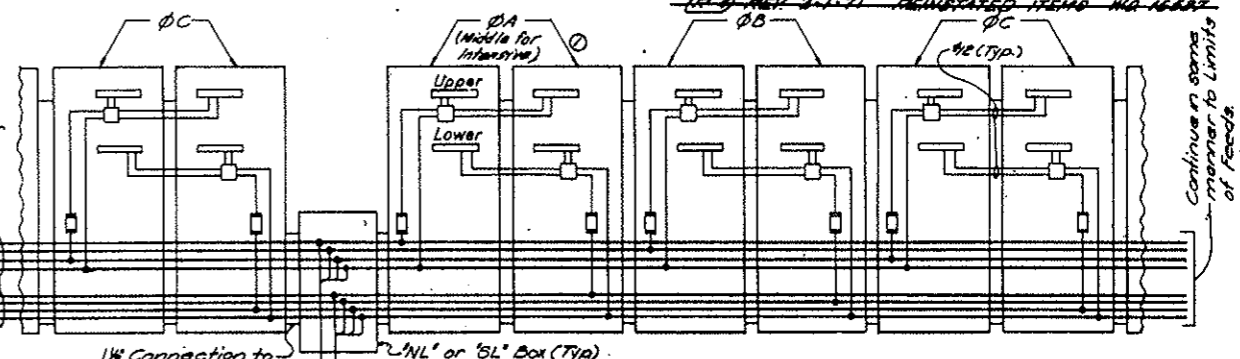
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	255	328

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

(R-1) REV. 11-6-67 C.D.H. - ADDED NOTE BELOW
 (R-2) 3-3-69 C.D.H. Rev. Voltage
 (R-3) 2-2-69 C.D.H. Rev. Voltage
 (R-4) REV. 3-1-71 RECALCULATED ITEMS - NO. 1684Z



Continue in same manner to Limits of Feeds



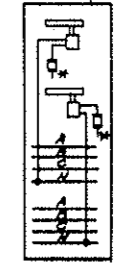
Continue in same manner to Limits of Feeds

FLOURESCENT TUBE PLACEMENT

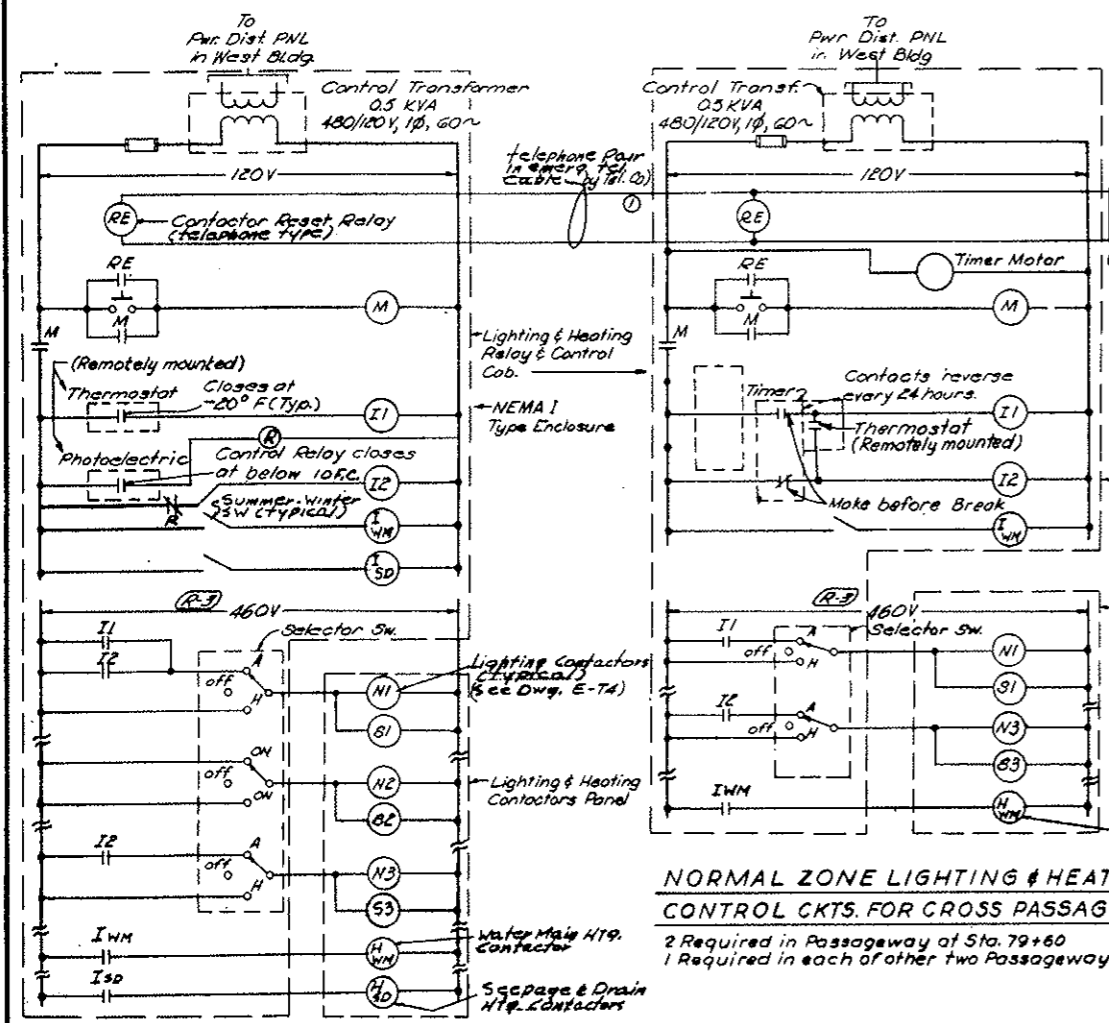
CONTACTORS	TUBE	INTENSIVE			NORMAL ZONE
		ZONE 1	ZONE 2	ZONE 3	
S1 N1	Lower	H.O.	H.O.	H.O.	
S2 N2	Middle	H.O.	H.O.	H.O.	
S3 N3	Upper	H.O.	H.O.	H.O.	

LIGHTING FIXTURE WIRING
 (Typical for Both Sides)

INTENSIVE ZONE 3 & NORMAL ZONE



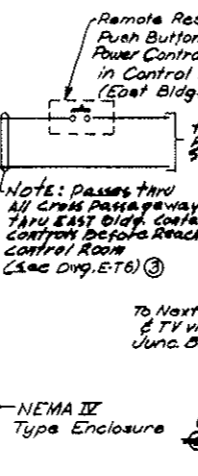
SPECIAL FIXTURE
 (2 Ballasts required where Pulpit interrupts typical spacing & wiring)
 * Connect each ballast to phase A, B, or C, of its feeder as required to maintain typical staggering of tubes on the 3 phases.



NORMAL ZONE LIGHTING & HEATING CONTROL CKTS. FOR CROSS PASSAGEWAYS

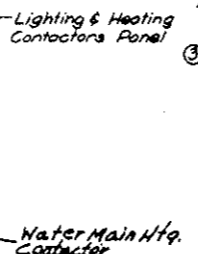
2 Required in Passageway at Sta. 79+60
 1 Required in each of other two Passageways.

WEST INTENSIVE ZONES LIGHTING & HEATING CONTROL CIRCUITS
 Similar for East Intensive Zones

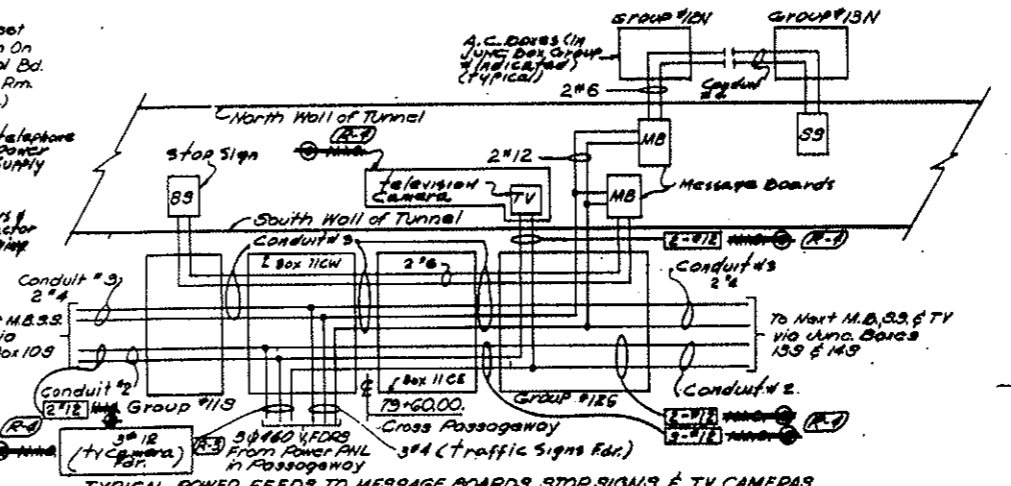


NOTE: Passes thru All Cross Passageways & thru EAST Bldg. Contactor CONTROL ROOM (See Dwg. E-76)

NEMA II Type Enclosure

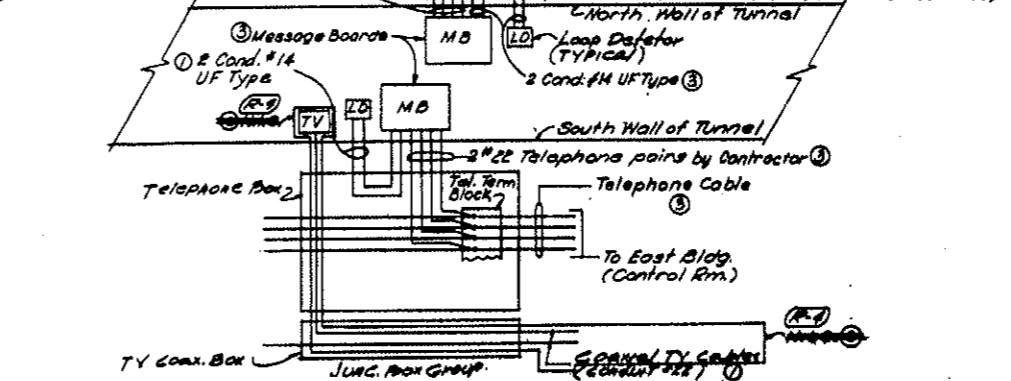


Water Main Htg. Contactor



TYPICAL POWER FEEDS TO MESSAGE BOARDS STOP SIGNS & TV CAMERAS

(Shown for those fed from Cross Passageways of 79+60. Similar for other Passageways)
 Note: - 6 Message Boards & 3 TV's fed from each Passageway. 2 Message Boards and 2 TV's fed from each Ventilation Bldg. (See Power Panel Schedules for feeds from Bldg's)
 3) 2# 22 Telephone pairs by Contractor



TYPICAL M.B. CONTROL, L.D. SIGNAL & TV CAMERA OUTPUT CONNECTIONS

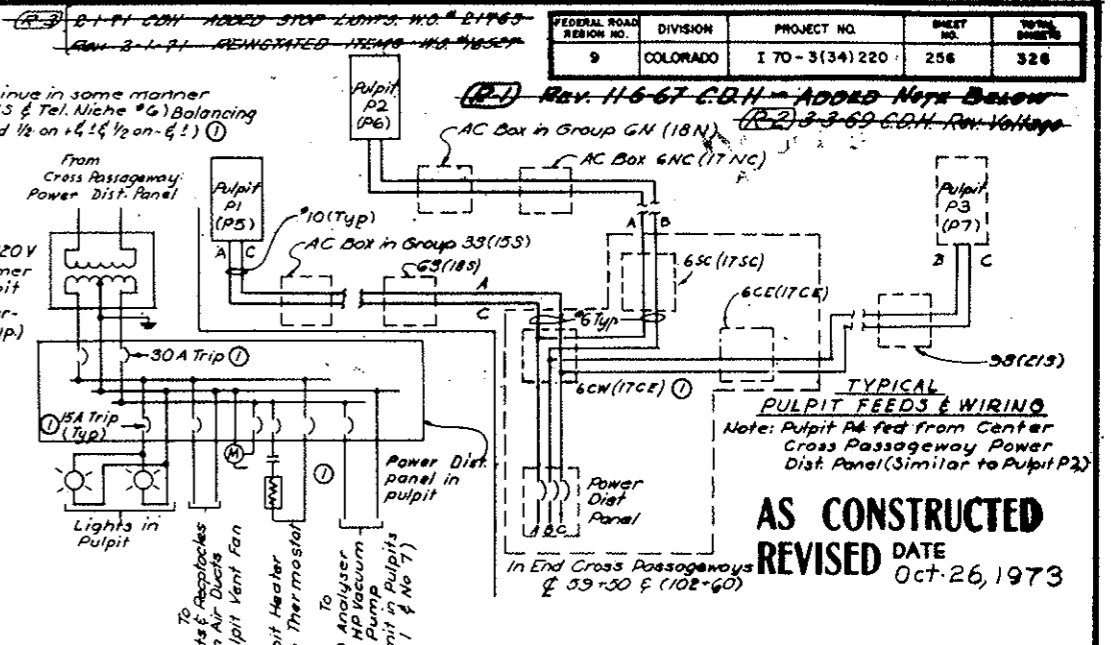
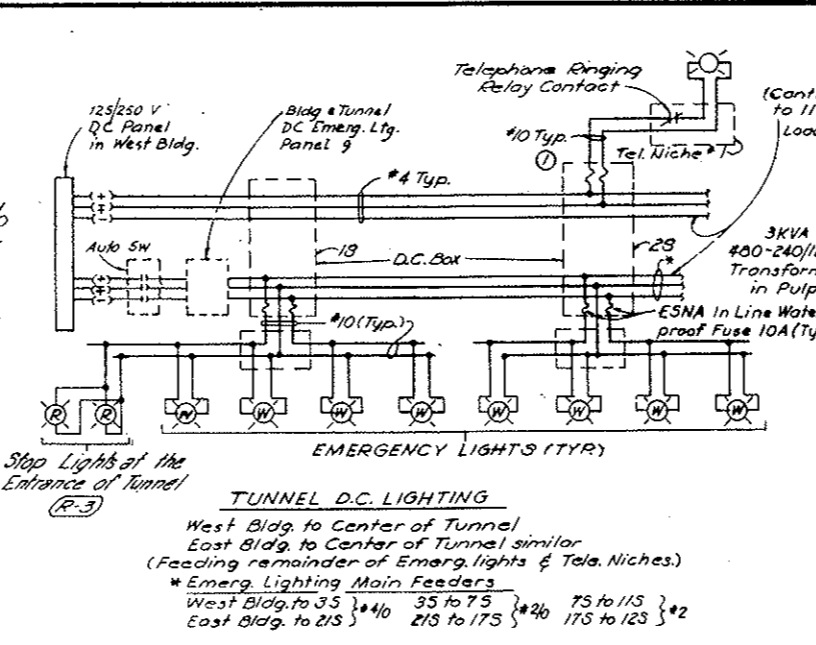
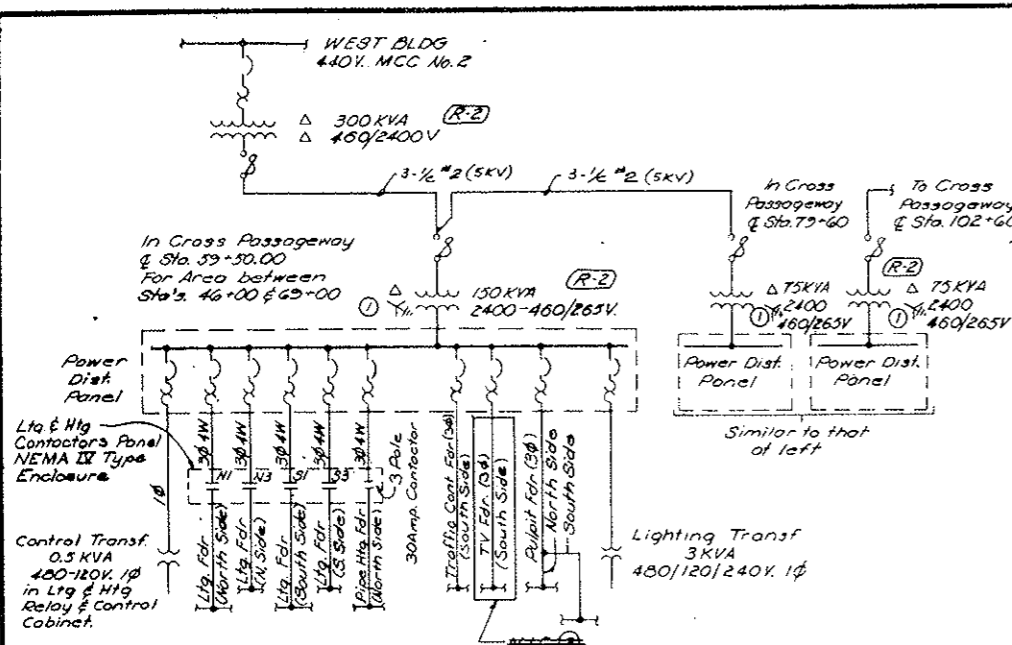
(See Dwg. E-76 for conduit nos. refer to Dwg. E-71)

(R-5) NOTE: TV Surveillance System (Bid Item 160) Deleted. See MO-14153 for spec. 18H. TV camera feeds cables & control cables. All TV cables are in this contract (Bid Item 160)

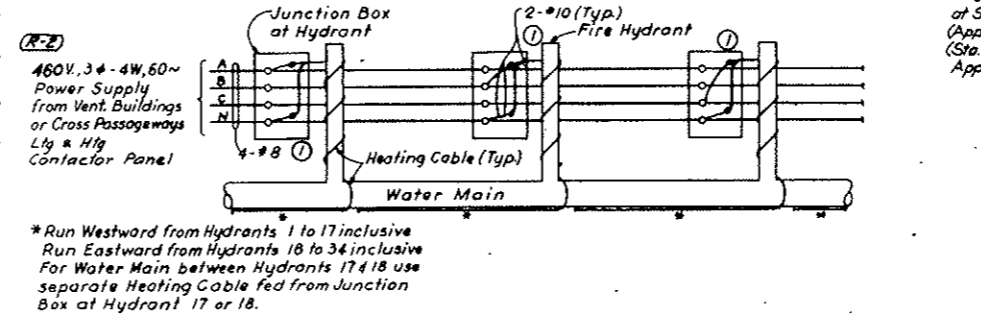
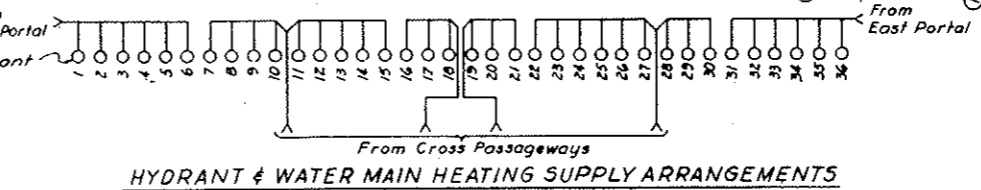
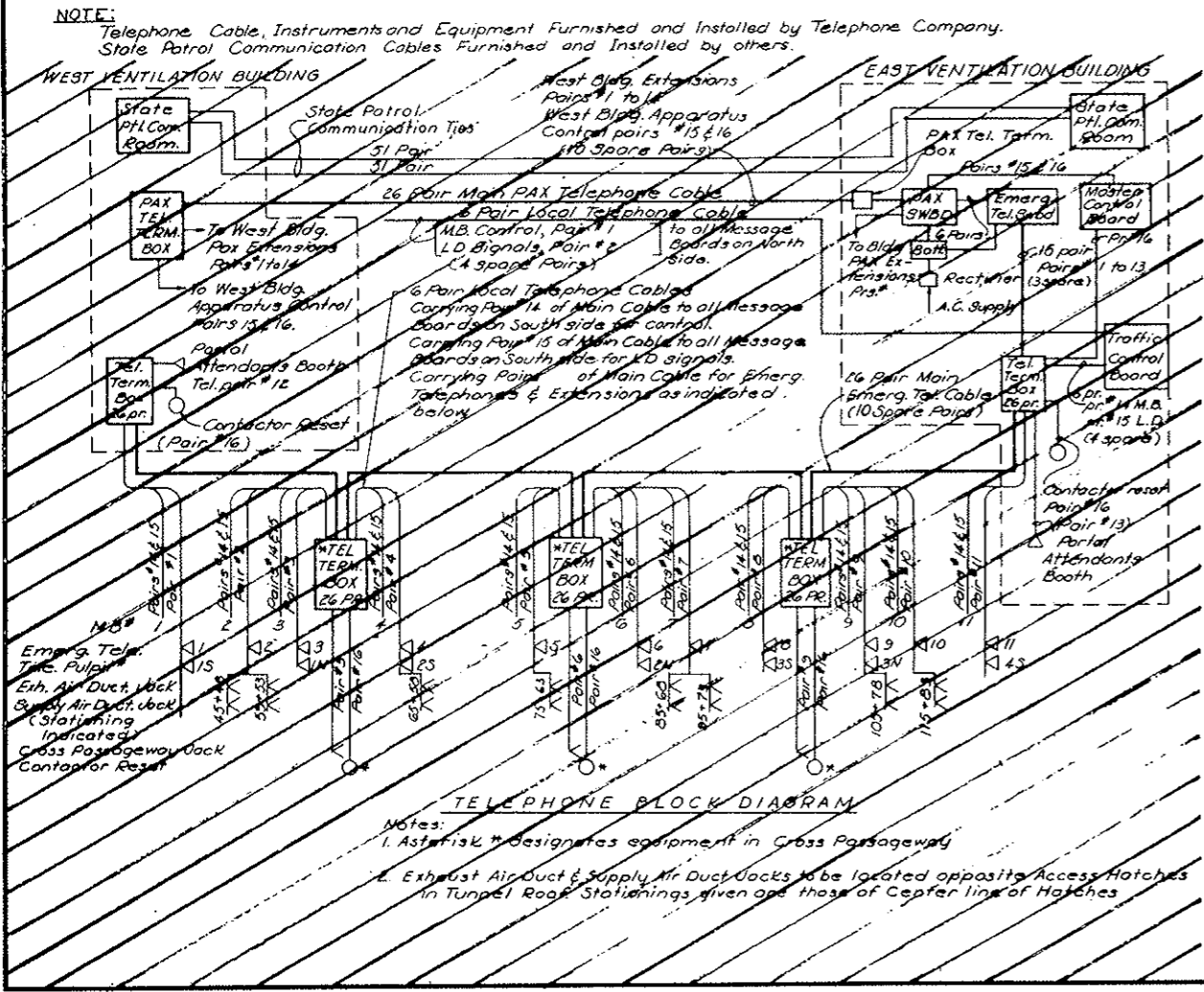
NO.	DATE	DESCRIPTION OF REVISION	BY	CHK	APP
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL TUNNEL WIRING DIAGRAMS SHEET 2					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED BY C.H.C.	CHECKED BY D.H.D.	APPROVED BY M.A. [Signature]	DATE AUG 1967	DRAWING NO. E-75	

(R-1) (R-2) TV SURVEILLANCE SYSTEM DELETED - MO-14153 - SEE SPEC 18H

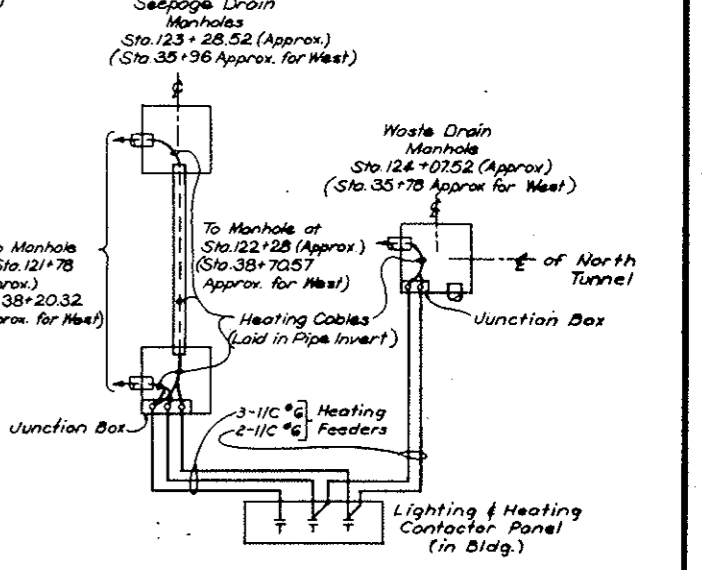
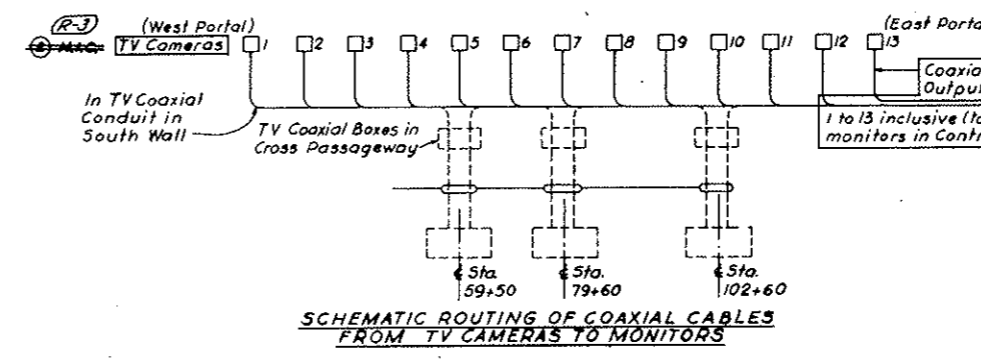
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34) 220	256	328



AS CONSTRUCTED
REVISED DATE
 Oct 26, 1973



NOTE A: TV Surveillance System (Bid Item 190) deleted. See W.O. 14153 and Spec. 18H. TV Equipment & cables N.I.C. as indicated. Circuit breakers & conduit, boxes etc. are in this contract. (Bid Items 196, 196, 197 & 198)



NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
1		Control limits Deleted. See Note 1			
2		TV SURVEILLANCE SYSTEM DELETED. SEE SPEC. 18H			

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL TUNNEL WIRING DIAGRAMS
 SHEET 3

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

DESIGNED: H.A.C.
 DRAWN: E.M.E.A.N.
 CHECKED: D.H.D.
 SUBMITTED: D.H.D.

RECOMMENDED: [Signature]
 APPROVED: [Signature]

NEW YORK, N. Y. SCALE: NONE DATE: AUG. 1967 DRAWING NO. E-T6

~~(R-3) (R-1) TV SURVEILLANCE SYSTEM DELETED W.O. 14153 SEE SPEC. 18H~~

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	257	326

~~(R-2) REV 11-6-67 G.D.H. - ADDED 1/2" COAXIAL~~
~~(R-2) REV 3-1-71 G.D.H. - REVISED ITEMS W.G. 14153~~

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

NOTES:

- 1- This schedule lists conduit & cable for East End Cross passageway. It must be duplicated once for West End & twice for Center Cross Passageway.
- 2- For General Notes see Conduit & Cable Schedule E-WE5.
- 3- Conduits marked (#) are for center cross passageways only.

NOTE #1

TV Surveillance System (Bid Item 100) Deleted. See W.G. 14153 & Spec 1811. Wires & Cables N.T.G. as noted. All conduit etc. is in this Contract. (Bid Item 186).

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
EAST END CROSS PASSAGEWAY							
P5	2"	3	1/C #2 (5KV)		OIL FUSE CUTOUT	(1) TRANSF. PRIMARY	FEEDER
P6	3"	4	1/C #4/0		150 KVA TRANSF. SECONDARY	POWER DISTRIBUTION PANEL	
P6A(1)	2"	4	1/C #2		75 KVA FOR CENTER CROSS P'WAY		
P7	2"	4	1/C #4		POWER DISTRIBUTION PANEL	LTG. & HTG. CONTACTOR PANEL	TUNNEL NORTH SIDE LTG. FDR. N1 TUNNEL SOUTH SIDE LTG. FDR. S1
P8	2"	4	1/C #4				TUNNEL NORTH SIDE LTG. FDR. N3 TUNNEL SOUTH SIDE LTG. FDR. S3
P9	1 1/2"	4	1/C #8				WATER MAIN & FIRE HYDRANTS HTG. FDR.
P10	1 1/2"	4	1/C #4		LTG. & HTG. CONTACTOR PANEL	JUNCT. BOX 17 SC	TUNNEL NORTH SIDE LTG. FDR. N1
P11	2"	4	1/C #4				N3
P12	2"	4	1/C #8				WATER MAIN & FIRE HYDRANTS HTG. FDR.
P13	1 1/2"	4	1/C #4			JUNCT. BOX 17 CE	TUNNEL SOUTH SIDE LTG. FDR. S1
P14	1 1/2"	4	1/C #4				S3
P15	1 1/2"						SPARE CONDUIT
P16	1 1/2"	3	1/C #4		POWER DIST. PANEL		MESSAGE BD FEEDER
P17	1 1/2"	3	1/C #12				TV CAMERA FEEDER
P18	1 1/2"	3	1/C #6				PULPIT FEEDER
P19	1 1/2"						SPARE CONDUIT
P20	1"	3	1/C #12			CROSS PASSAGEWAY LTG. TRANSF. PRI.	FEEDER
P21	1"	3	1/C #12		CROSS PASSAGEWAY LTG. TRANSF. SEC.	CROSS PASSAGEWAY LTG. PANEL	
C1	1"	2	1/C #12		POWER DISTRIBUTION PANEL	LTG. & HTG. RELAY & CONTROL CAB.	0.5KVA CONTROL TRANSF. FEEDER
C2	1"	8	1/C #12		LTG. & HTG. CONTACTOR PANEL		CONTROL
C3	1"	2	1/C #12		LTG. & HTG. RELAY & CONTROL CAB.	THERMOSTAT	
C4	1"		(CABLE BY TEL. CO.)			TELEPHONE TERM. BOX	TUNNEL LTG. RESET SYSTEM
T1	1"	1	PAIR (BY TEL. CO.)		TELEPHONE TERMINAL BOX	TELEPHONE JACK	COMMUNICATION
T2	2"	26				TEL. JUNCT. BOX IN GROUP BOX 17CE	COMMUNICATION & CONTROL
T3	2"	26					
T4	1"	6					
T5	1"	6					
TV-1	3"		TV COAXIAL CABLE		TV BOX IN JUNCT. BOX GROUP	TO TRANSFORMER ROOM	TV IN LINE AMPLIFIER #
TV-2	3"						(* IF REQUIRED)

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
P1	4"	3	1/C #2 (5KV)		MANHOLE 18M (8M FOR WEST CROSS PASSAGEWAY)	OIL FUSE CUTOUT	TRANSFORMER FEEDER
P2	4"				MANHOLE 18M (8M FOR WEST CROSS PASSAGEWAY)		SPARE CONDUIT
P3	4"	3	1/C #2 (5KV)		OIL FUSE CUTOUT	MANHOLE 17M (7M FOR WEST CROSS PASSAGEWAY)	TRANSFORMER FEEDER
P4	4"				MANHOLE 17M (7M FOR WEST CROSS PASSAGEWAY)		SPARE CONDUIT
P1(*)	4"	3	1/C #2 (5KV)		MH 12 M FOR CENTER CROSS PASSAGEWAY EAST SIDE (MH 11 M FOR CENTER CROSS PASSAGEWAY WEST SIDE)	OIL FUSE CUTOUT	TRANSFORMER FEEDER
P2(*)	4"				MH 12 M FOR CENTER CROSS PASSAGEWAY EAST SIDE (MH 11 M FOR CENTER CROSS PASSAGEWAY WEST SIDE)		SPARE CONDUIT

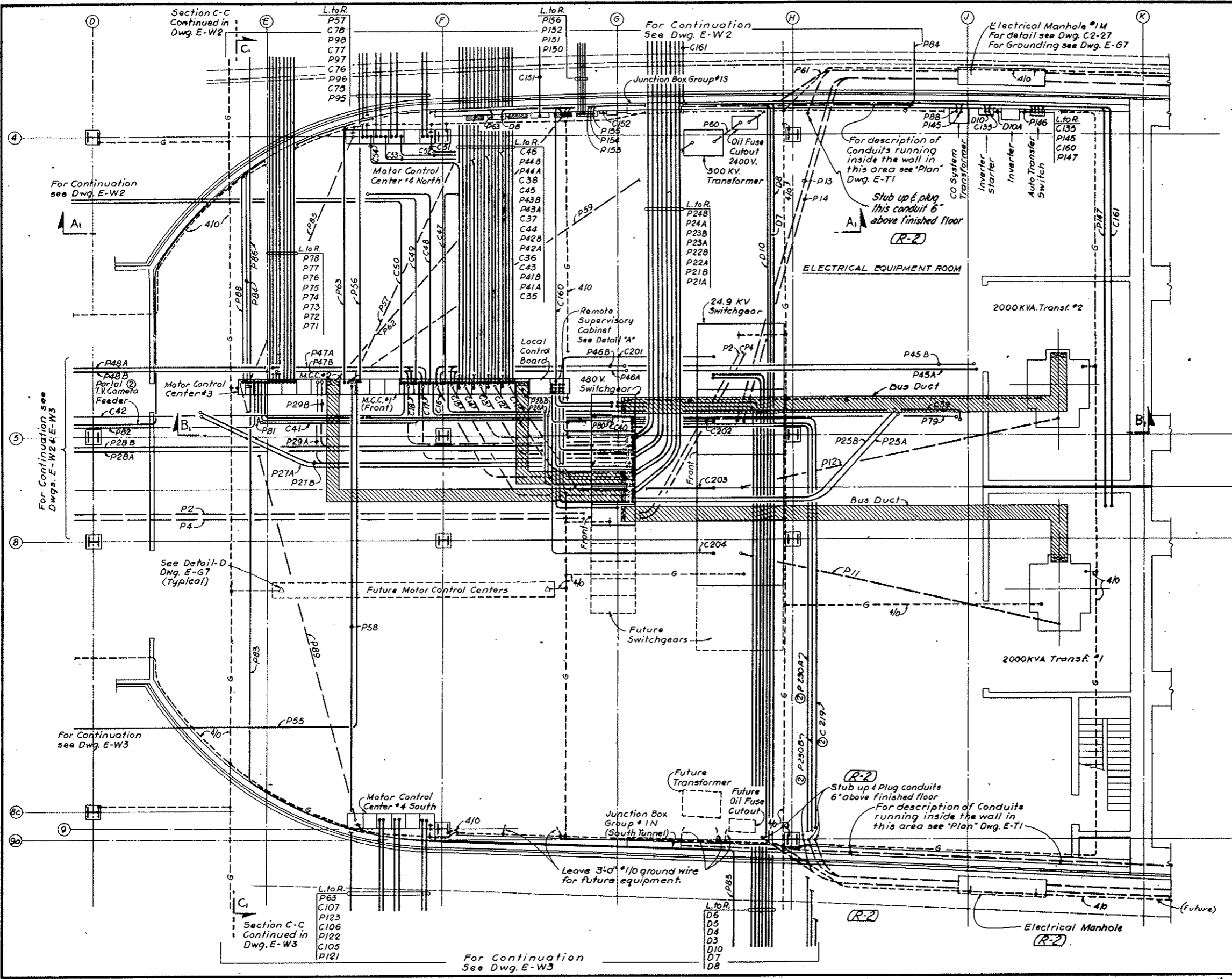
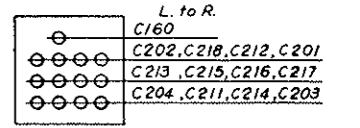
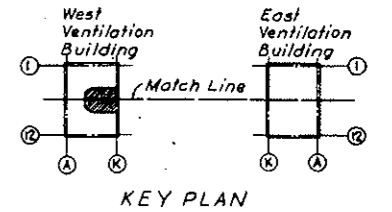
NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL TUNNEL CROSS PASSAGEWAYS CONDUIT & CABLE SCHEDULE					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: H.A.C.	RECOMMENDED: <i>[Signature]</i>				
DRAWN: D.S.G.	CHECKED: D.H.D.				
SUBMITTED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>				
NEW YORK, N.Y.	SCALE: NONE	DATE: AUG. 1967			

~~(R-2) (R-1) TV SURVEILLANCE SYSTEM DELETED W.G. #14153 SEE SPEC. 1811~~

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34) 220	258	328

(R-1) Rev. 11-6-67 E.S.H. - ADDO HOPE BELOW
 (R-2) Rev. 4-2-70 C.S.H. - Rev. Conduits No. 21007
 (R-3) Rev. 2-1-71 - Reinstated Items No. 10507

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



(R-3) NOTE A: Tunnel Ventilation System, (Bid Item 105), revised. Emergency Generation (Bid Item 100), & TV Surveillance System, (Bid Item 190), deleted. See W.O. #153 & Spec. Sections 17A, 105 & 10H. All electrical work shown on this Dwg. remains in-situ. See referenced Dwg. for effects of changes noted above.

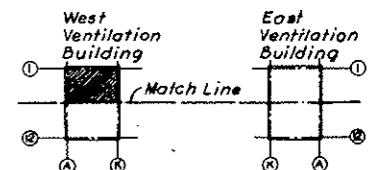
- NOTES:
- For Telephone Riser Diagram see Dwg. E-68
 - For Symbol Legend see Dwg. E-E4 & E-E5
 - For Conduit & Cable runs from Power Panels see Panel Schedule Dwg. E-810 & E-811
 - For Conduit & Cable Schedule see Dwg. E-W63 to E-W69 inclusive and Dwg. E-W8
 - Exact routing of Conduits to be determined by Field.
 - For Conduits or Equipment not shown or identified and for Sections see Dwg. E-W63.

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST VENTILATION BUILDING ELECTRICAL EQUIPMENT ROOM POWER & CONTROL - PLAN					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: E. A. H.	RECOMMENDED: [Signature]	DRAWING NO. E-WI			
DRAWN: E. A. H.	CHECKED: N. A. C.	DATE: AUG 1967			
SUBMITTED: [Signature]	APPROVED: [Signature]	SCALE: 3/16" = 1'-0"			
NEW YORK, N. Y.					

(R-3) (R-1) TV SURVEILLANCE SYSTEM DELETED W.O. #1153 SEE SPEC. 18H

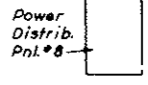
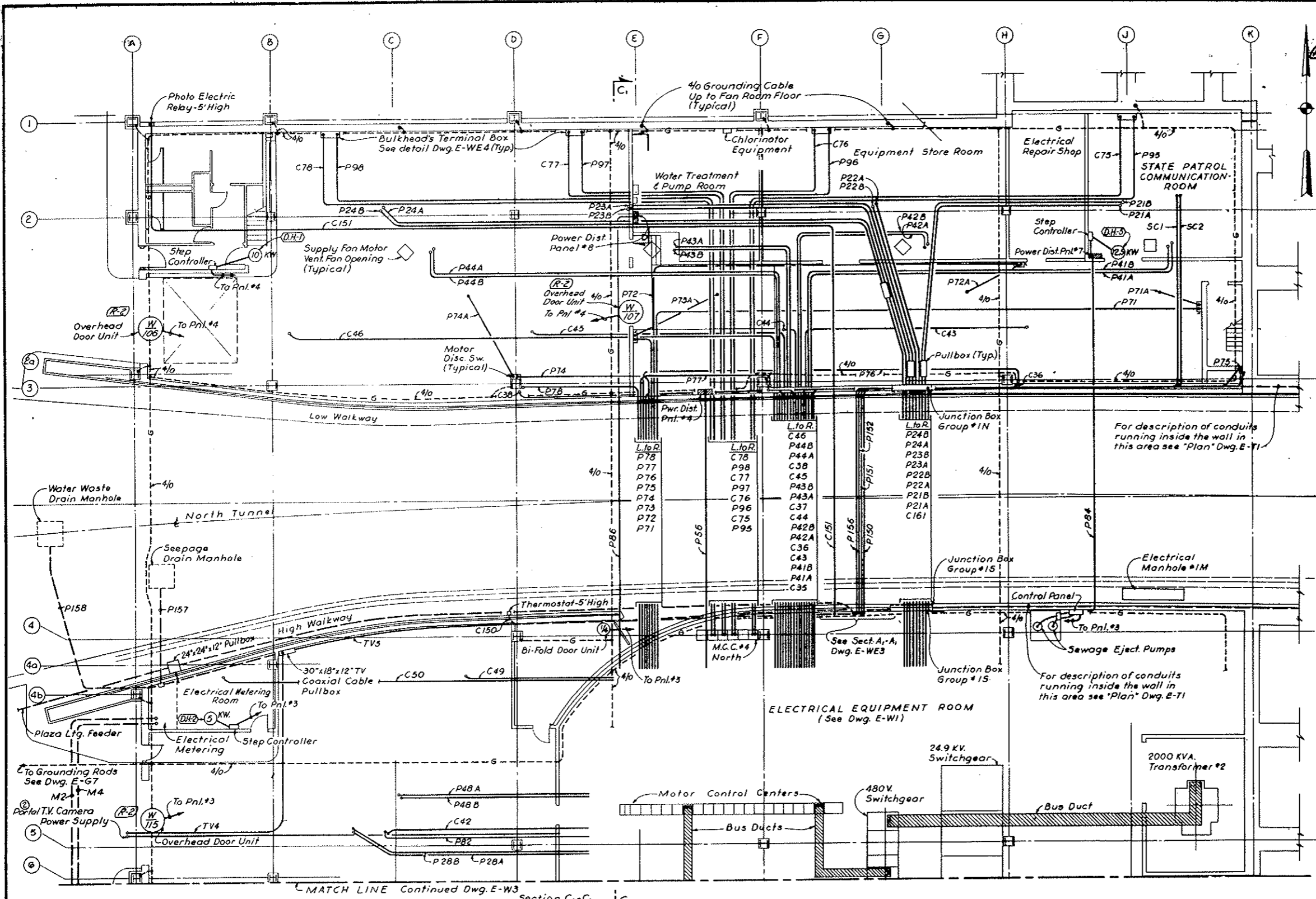
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	259	326

(R-1) REV. 11-6-67 GRH - ADDED NOTE BELOW
 (R-2) REV. 8-5-70 Clarification of Plans 11-7-21-70
 (R-3) REV. 3-1-71 Reinstated Items 11-8-16-59



KEY PLAN

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



For description of conduits running inside the wall in this area see 'Plan' Dwg. E-71

SECTION D-D
 Fresh Water Supply Arrangement
 N.T.S.

NOTE:
 1. For Notes see Dwg. E-W1

(R-3) NOTE A - See Note A on Dwg. E-W1

ELECTRICAL EQUIPMENT ROOM
 (See Dwg. E-W1)

MATCH LINE Continued Dwg. E-W3

Section C1-C1
 Continued in
 Dwg. E-W1 &
 E-W3

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
1		As connections as noted	GM	LDW	W.S.
2		CONTRACT LIMITS DEFINED SEE NOTE A	EM	DWD	W.S.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL WEST VENTILATION BUILDING
 ROADWAY FLOOR - NORTH
 POWER & CONTROL - PLAN

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS NEW YORK, N.Y.

DESIGNED: E.A.H.
 DRAWN: E.A.H.
 CHECKED: H.A.C.
 SUBMITTED: [Signature]
 NEW YORK, N.Y.

RECOMMENDED: [Signature]
 APPROVED: [Signature]
 SCALE: 1/8" = 1'-0" DATE: AUG. 1967

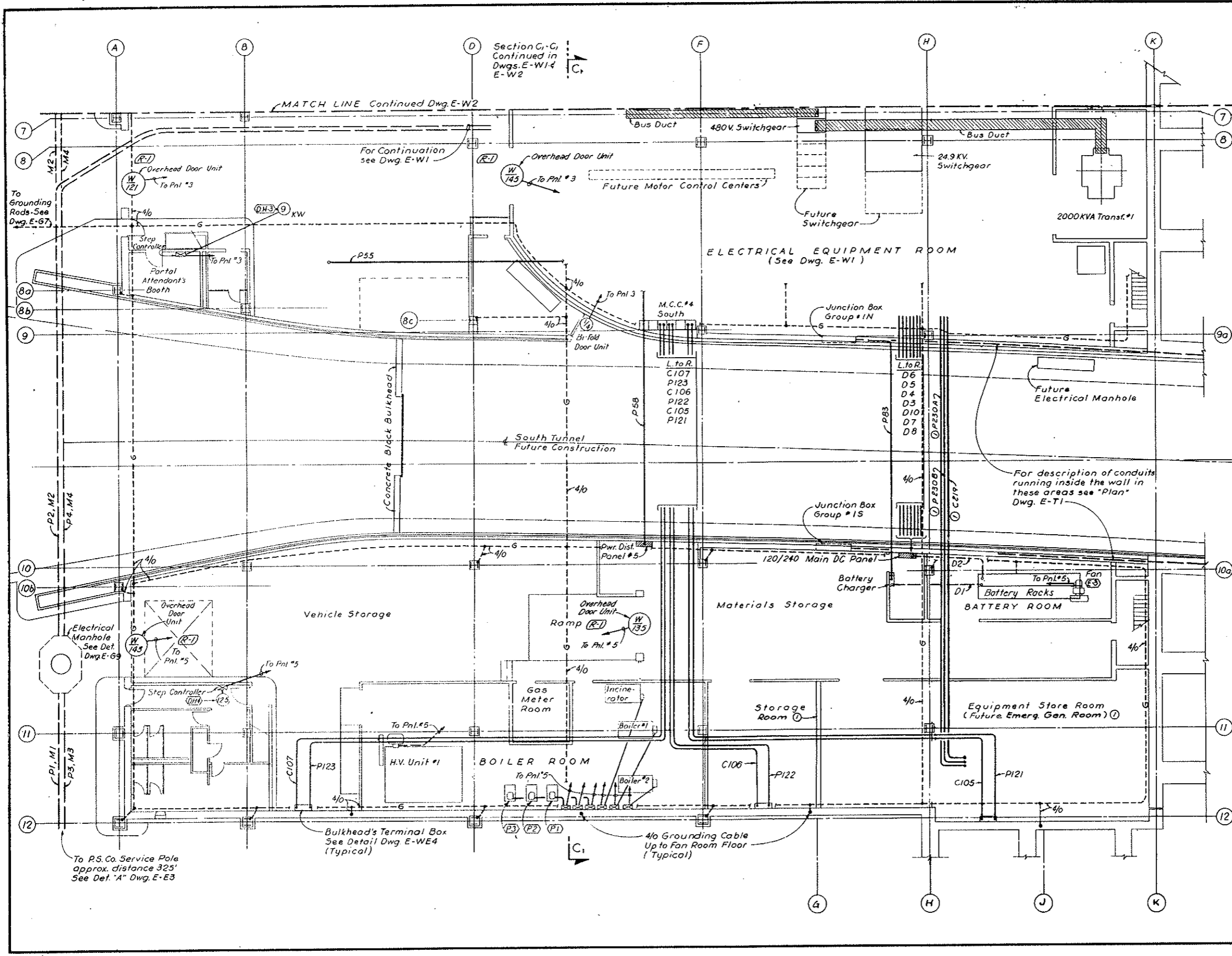
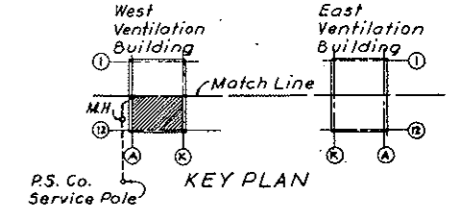
DRAWING NO. **E-W2**

(R-3) (R-1) F.V. SURVEILLANCE SYSTEM DELETED W.O. #14153 SEE SPEC. 18H

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	260	328

Rev. 0-3-70 Clarification of Plans N-7-E-10

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



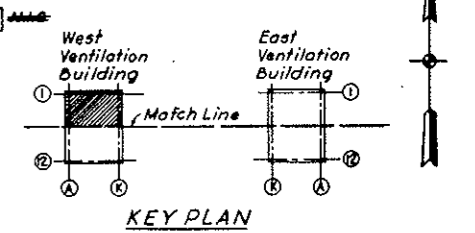
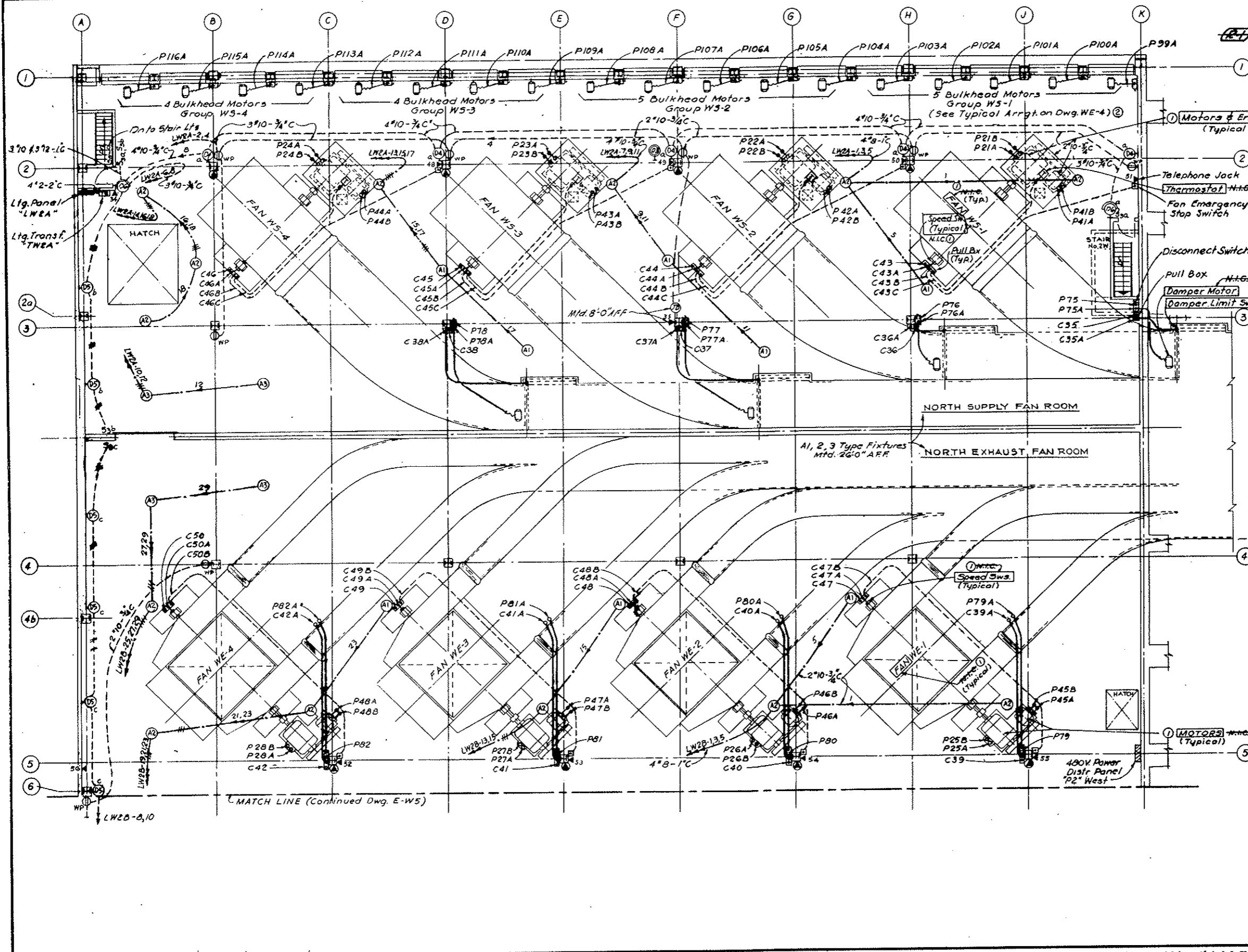
NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST VENTILATION BUILDING ROADWAY FLOOR - SOUTH POWER & CONTROL - PLAN					
TIPPETTS - ABBETT - McCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED	E.A.N.	RECOMMENDED			
DRAWN	E.A.N.	CHECKED			
SUBMITTED	E.A.N.	APPROVED			
		DATE			
		SCALE			
		DATE			
		NEW YORK, N. Y.			

DRAWING NO.
E-W3

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	261	326

Rev. 11-6-67 GRH - ADDED NOTE BELOW

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



NOTE A: - Tunnel Ventilation System, (Bid Item 165) revised. See W.O. 14153 & Spec. 17A. Main Equip. Items N.I.C. as marked. Other Equip. shown remains in this contract. Conduits, Boxes etc., and Lighting Power & Control wiring, including connections, remain in this contract. (Bid Items 188, 175, 184 & 185). Final Terminations of conduit and wiring for N.I.C. items must be coordinated with the actual Equip. (to be furnished & installed under another contract).
 N.I.C. markings are typical [ie FAN WS-1 means that all 4 Fans (WS-1, WS-2, WS-3 & WS-4) are N.I.C.] etc.

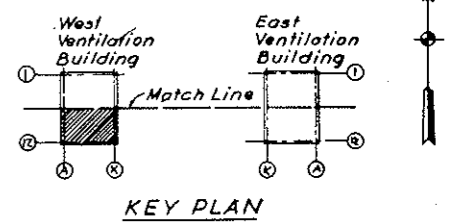
GENERAL NOTES:
 1. Mark this Dwg. with Conduit & Cable Schedules E-WE3 & E-WE4
 2. For Telephone Diagram See Dwg. No. E-G8
 3. For Symbol Legend See Dwg. E-E4, E-E5
 4. For Lighting System Notes See Dwg. No. E-W7

DESIGNED: J.A.B. E.M.M.	RECOMMENDED: [Signature]	DATE: []
DRAWN: S.M.P.	CHECKED: N.A.G.	DATE: []
SUBMITTED: [Signature]	APPROVED: [Signature]	DATE: []
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT		
ELECTRICAL WEST VENTILATION BUILDING FAN FLOOR-NORTH POWER, CONTROL AND LIGHTING-PLAN		
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N.Y.		
DESIGNED: J.A.B. E.M.M.	RECOMMENDED: [Signature]	DATE: []
DRAWN: S.M.P.	CHECKED: N.A.G.	DATE: []
SUBMITTED: [Signature]	APPROVED: [Signature]	DATE: []
NEW YORK, N.Y.	SCALE: 1/8" = 1'-0"	DATE: AUG. 1967

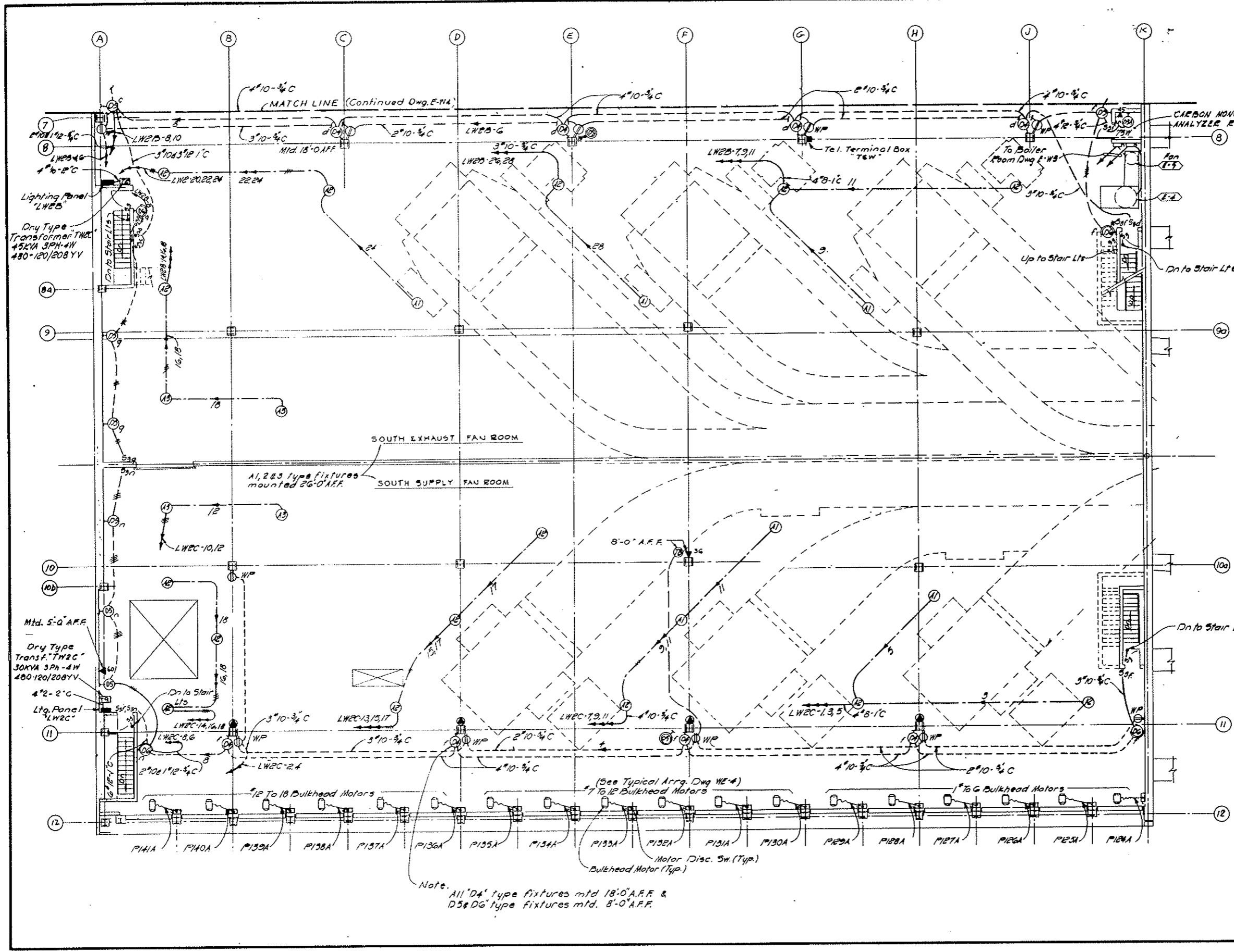
(R-1) TUNNEL VENTILATION SYSTEM REV. W.O. 14153 SEE SPEC. 17A

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	282	328

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973



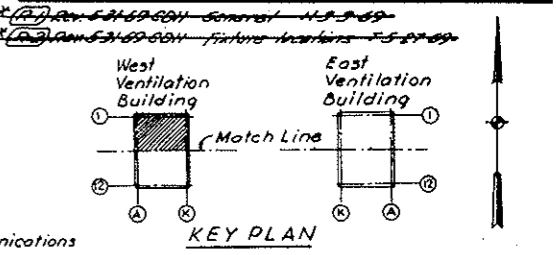
- GENERAL NOTES:**
1. For Telephone Riser Diagram See Dwg E-98
 2. For Symbol Legend See Dwg Nos E-44 & E-45
 3. For Lighting Systems Notes See Dwg. No E-47
 4. Work this Dwg with Conduit & Cable Schedules E-WE3 to E-WE6 included & E-50.



NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST VENTILATION BUILDING FAN FLOOR-SOUTH POWER, CONTROL & LIGHTING PLAN					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: J.R.	RECOMMENDED:				
DRAWN: R.D.S.	APPROVED:				
CHECKED: N.A.C.	SUBMITTED:				
DATE: 8/1/73	DATE: 8/1/73				
NEW YORK, N.Y.	SCALE: 1/8" = 1'-0"	DATE: AUG. 1973	DRAWING NO. E-W5		

Rev. 0-5-70 Identification of Plans 11-7-70 Subject to final approval

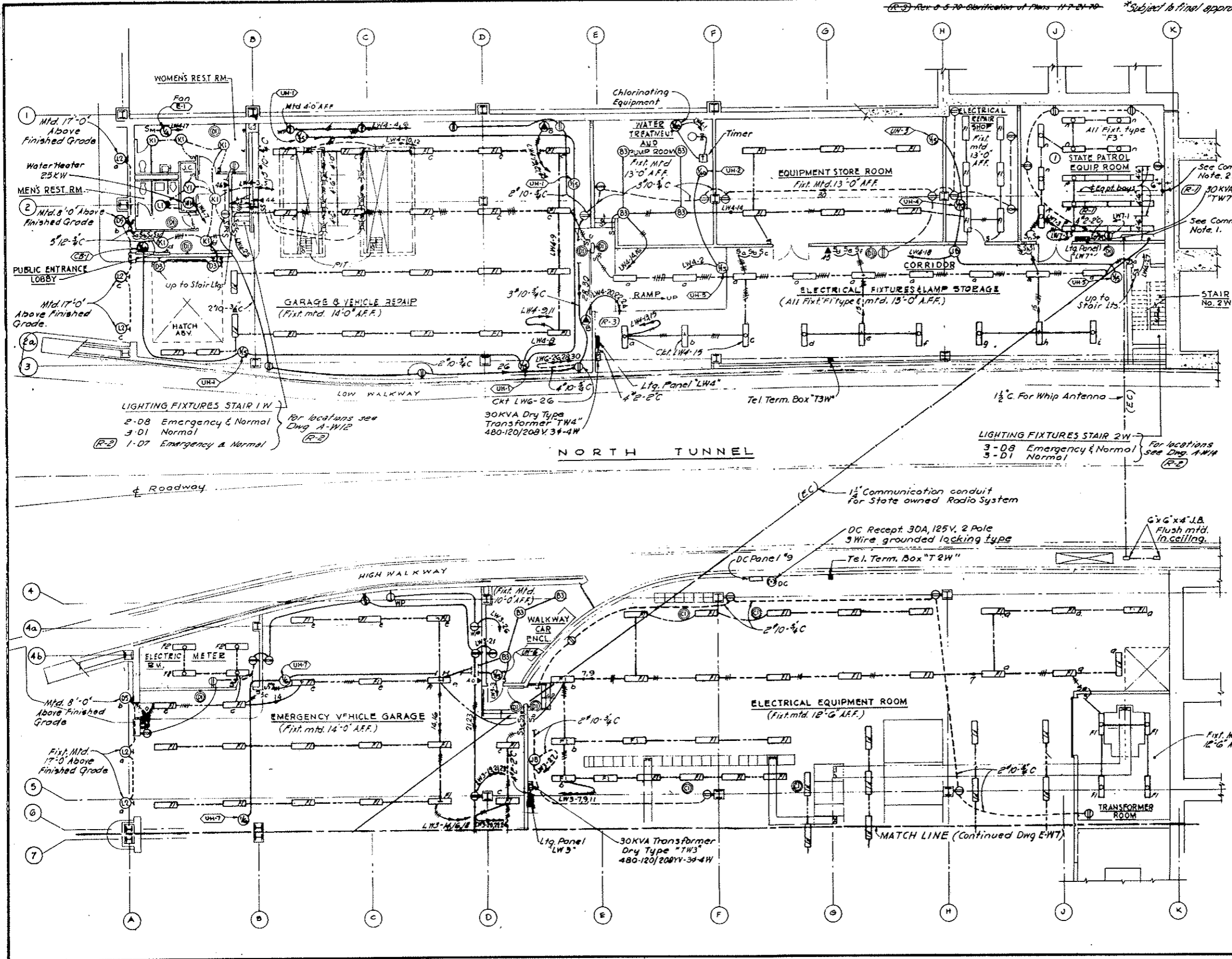
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	263	326



**AS CONSTRUCTED
REVISED**
Oct. 26, 1973

GENERAL NOTES:
1. For Telephone Riser Diagram See Dwg. No. E-08
2. For Symbol Legend See Dwg. No. E-24 & E-25
3. For Lighting Systems Notes See Dwg. No. E-17

COMMUNICATIONS NOTES:
1. All conduits to be stubbed up into room with threaded ends to accept coupling.
2. Stub out 6" (empty) rigid conduit 6" above roof & extend down to 9'-0" A.F.F. Cap both ends. Highway Patrol Communications cables to be installed by others.



NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

**ELECTRICAL
WEST VENTILATION BUILDING
ROADWAY FLOOR - NORTH
LIGHTING PLAN**

TIPPETTS - ABBETT - MCCARTHY - STRATTON
ENGINEERS AND ARCHITECTS
NEW YORK, N. Y.

DESIGNED: E. N. M.
DRAWN: S. W. P.
CHECKED: M. A. S.
SUBMITTED: *[Signature]*

RECOMMENDED: *[Signature]*
APPROVED: *[Signature]*

NEW YORK, N. Y. SCALE: NONE DATE: AUG. 1967

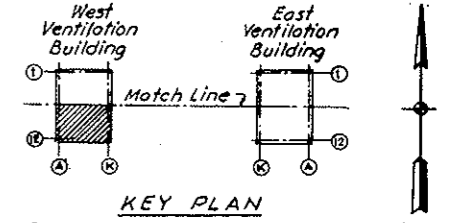
DRAWING NO. **E-W6**

GENERAL NOTES

1. For Telephone Riser Diagram See Dwg. E-G8
2. For Symbol Legend See Dwg. No. E-E4 & E-E5
3. For Lighting Systems Notes See Dwg. No. E-W7

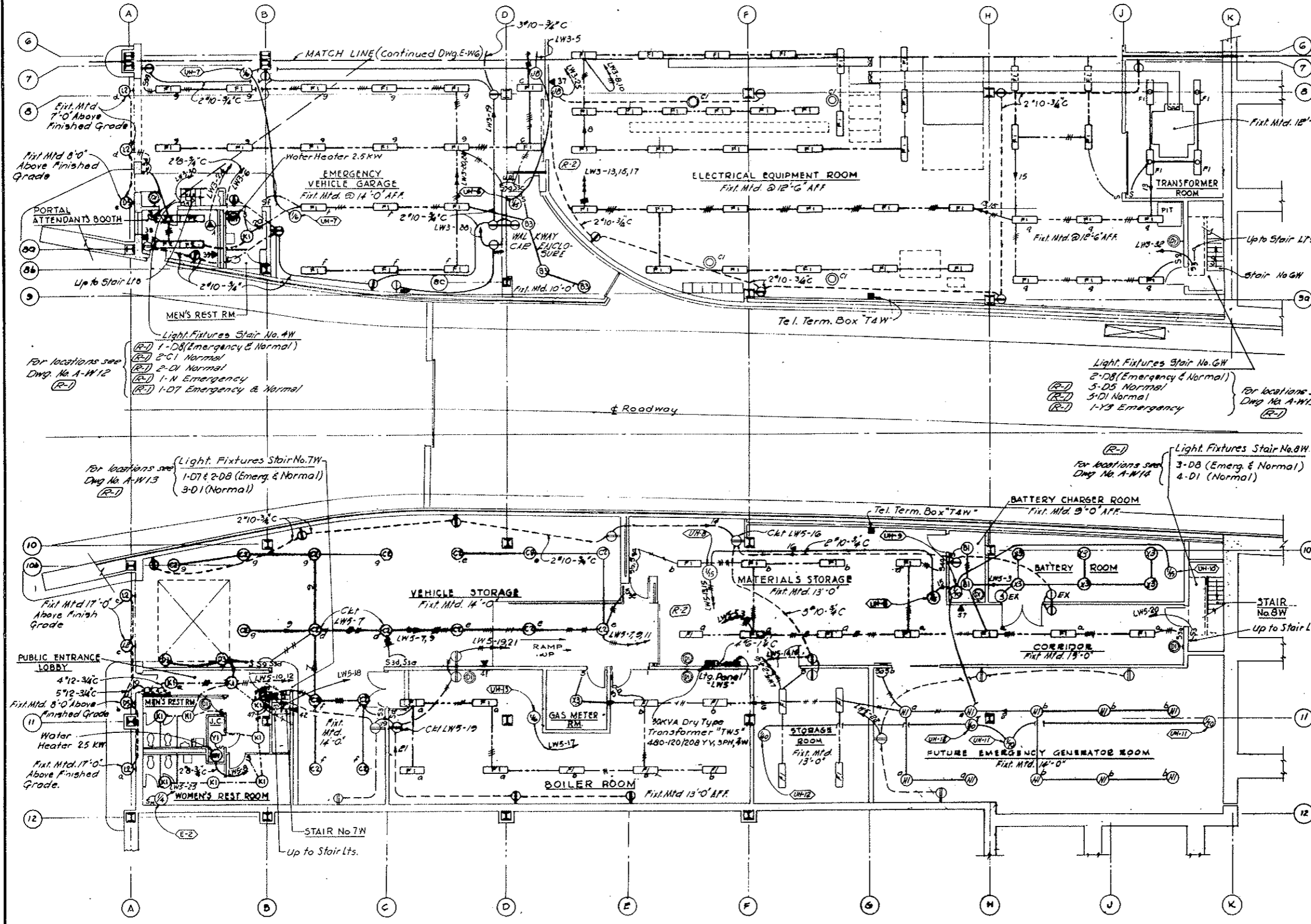
Rev. 5-31-68 Add'l
 Fixture Locations Feb 27-69
 Subject to final approval
 Rev. 9-9-70 Elimination of
 Plans 11-21-70

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	264	326



AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973
LIGHTING SYSTEMS NOTES:

1. Trade names, types and catalog numbers indicate a standard item of manufacturer. Other manufacturer's products of approved equal may be substituted.
2. Emergency lighting circuits shall be 120 volts, 2 wire DC or 120/240 volts 3 wire.
3. All wiring in conduit shall be 2" in 3/4" conduit unless otherwise indicated. 3 to 5 tick marks on conduit symbol indicate 3 to 5 1/2 wires in 3/4", 6 to 8 tick marks indicate 6 to 8 1/2 wires in 1" conduit.
4. All lighting switches shall be mounted 4'-6" above finished floor.
5. Mounting heights of lighting fixtures, where shown are to the bottom of fixtures except for wall mounted fixtures where height of outlet box is indicated.
6. (a) For Lighting Panel Schedule see Dwg. No. E-510 Sh. I.
 (b) For Lighting Fixture Schedule see Dwg. Nos. E-E7 & E-E8.
7. (a) In the East and West Ventilation Buildings, the electrical installation, on the roadway floor from the partition at or near column line "D" to column line "A" shall conform to article 511 of the 1965 edition of the National Electrical Code. Within these column lines in Vehicle or Garage areas convenience receptacles shall be located 4'-0" above finished floor. In non vehicle or garage areas shall be located a minimum of 2'-0" above finished floor.
 (b) Unless otherwise indicated, in the Fan Room Floor East, mount convenience receptacles 1'-6" above finished floor in the Tunnel Superintendent Rm., Control Rm., Lounge, Emerg. Sleeping Rm. & Control Rm. Storage.
 (c) In all other areas unless otherwise indicated all convenience receptacles shall be mounted 4'-0" above finished floor.
8. Electrical installation in the Gas Meter Rm., Signs Traffic Equipment Painting and Service Area, and all of the Basement Level shall conform to the requirements of Article 500 of the National Electrical Code for Class I Division 1 hazardous locations.
9. Wiring for Unit Heaters shall include selector switch, thermostat & disconnect switch as required by Sec. 17B the specifications.



NO.	DATE	DESCRIPTION OF REVISION	BY	CL.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST VENTILATION BUILDING ROADWAY FLOOR - SOUTH LIGHTING PLAN					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED:	E. N. M.	RECOMMENDED:			
DRAWN:	E. M. S.	CHECKED:			
SUBMITTED:	M. A. S.	APPROVED:			
NEW YORK, N. Y.		SCALE:	NONE	DATE:	AUG. 1967
					E-W7

(R-1) REV. 11-6-67 GRN - ADDED NOTE BELOW
 (R-2) REV. 2-1-71 REINSTATED ITEMS W/4-1967

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
24.9 KV HIGH TENSION SWITCHGEAR							
C201	1 1/2"	6	1/c # 12(25p)		24.9 KV SWGR MAIN FOR CUBICLE	REMOTE SUPERVISORY TERMINAL	MAIN FDR LOAD BREAKING SW CONT. & POS. INDICATION
C202	1 1/2"	6	1/c # 12(25p)		24.9 KV SWGR TIE CUBICLE		TIE LOAD BREAKING SW CONT. & POS. INDICATION
C203	1 1/2"	6	1/c # 12(25p)		24.9 KV SWGR TRANSF #2 CUBICLE		2000 KVA TRANSF #2 PRIMARY LOAD BKG SW CONT. & POS. INDICATION
C204	1 1/2"	6	1/c # 12(25p)		24.9 KV SWGR TRANSF #1 CUBICLE		2000 KVA TRANSF #2 PRIMARY LOAD BKG SW CONT. & POS. INDICATION
460 V. LOW TENSION SWITCHGEAR							
C211	1 1/2"	6	1/c # 12(25p)		460 V SWGR COMP'T FI	REMOTE SUPERVISORY TERMINAL	2000 KVA TRANSF #1 SECONDARY BKR CONTROL & POSITION INDICATION
C212	1 1/2"	6	1/c # 12(25p)			LI	2000 KVA TRANSF #2 SECONDARY BKR CONTROL & POSITION INDICATION
C213	1 1/2"	6	1/c # 12(25p)			HI	MCC #1 FEEDER BREAKER CONTROL & POSITION INDICATION
C214	1 1/2"	6	1/c # 12(25p)			GI	MCC #2 FEEDER BREAKER CONTROL & POSITION INDICATION
C215	1 1/2"	6	1/c # 12(25p)			II	MCC #3 FEEDER #1 BREAKER CONTROL & POSITION INDICATION
C216	1 1/2"	6	1/c # 12(25p)			JI	MCC #3 FEEDER #2 BREAKER CONTROL & POSITION INDICATION
C217	1 1/2"		NONE			KI	FUTURE EMERG GENERATOR BKR CONTROL & POSITION INDICATION
C218	1 1/2"	6	1/c # 12(25p)			FI	2000 KVA TRANSFORMERS 1&2 METERING
C219	1"		NONE			KI	FUT. EMERG GEN. CONT BOARD FUT. EMERG GEN. INTERLOCK
P230A	3"		NONE			KI	FUT. EMERG GENERATOR FEEDER
P230B	3"		NONE			KI	FUT. EMERG GENERATOR FEEDER
CO SYSTEM							
C160	1"	2	1/c # 12		CO SYS AUTO-TRANSFER SW.	REMOTE SUPERVISORY TERMINAL	M-G SET "ON" IND. ON FAN CONT. BD
C161	1"	1	2/c # 16 (Shielded)		CO ANALYZER	GROUP BOX 'IN' TEL. BOX	ANALYZER OUTPUT TRANSMISSION TO RECORDER ON FAN CONT. BD.
							(FOR CONTINUATION IN TUNNEL SEE DWG. #E1)

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
TELEVISION CAMERA OUTPUT SYSTEM							
TV-4	1 1/2"		TV Coaxial Cable		WEST PORTAL TV CAMERA	PULL BOX 4a-B	CAMERA OUTPUT
TV-5	1 1/2"				PULL BOX 4a-B	GROUP IS TV BOX	(FOR CONTINUATION IN TUNNEL SEE DWG. E-T1)
24.9 KV SERVICE							
M1	1 1/2"	7	1/c # 10		PUBLIC SERVICE CO. POLE	ELECT. MANHOLE AT WEST PLAZA	PUBLIC SERVICE METERING
M2	1 1/2"	7	1/c # 10		ELECT. MANHOLE AT WEST PLAZA	PUBLIC SERVICE CO. METERING RM	
M3	1 1/2"				PUBLIC SERVICE CO. POLE	ELECT. MANHOLE AT WEST PLAZA	SPARE CONDUIT
M4	1 1/2"				ELECT. MANHOLE AT WEST PLAZA	PUBLIC SERVICE CO. METERING RM	

NOTES
 For "General Notes" see Conduit & Cable schedule E-WES

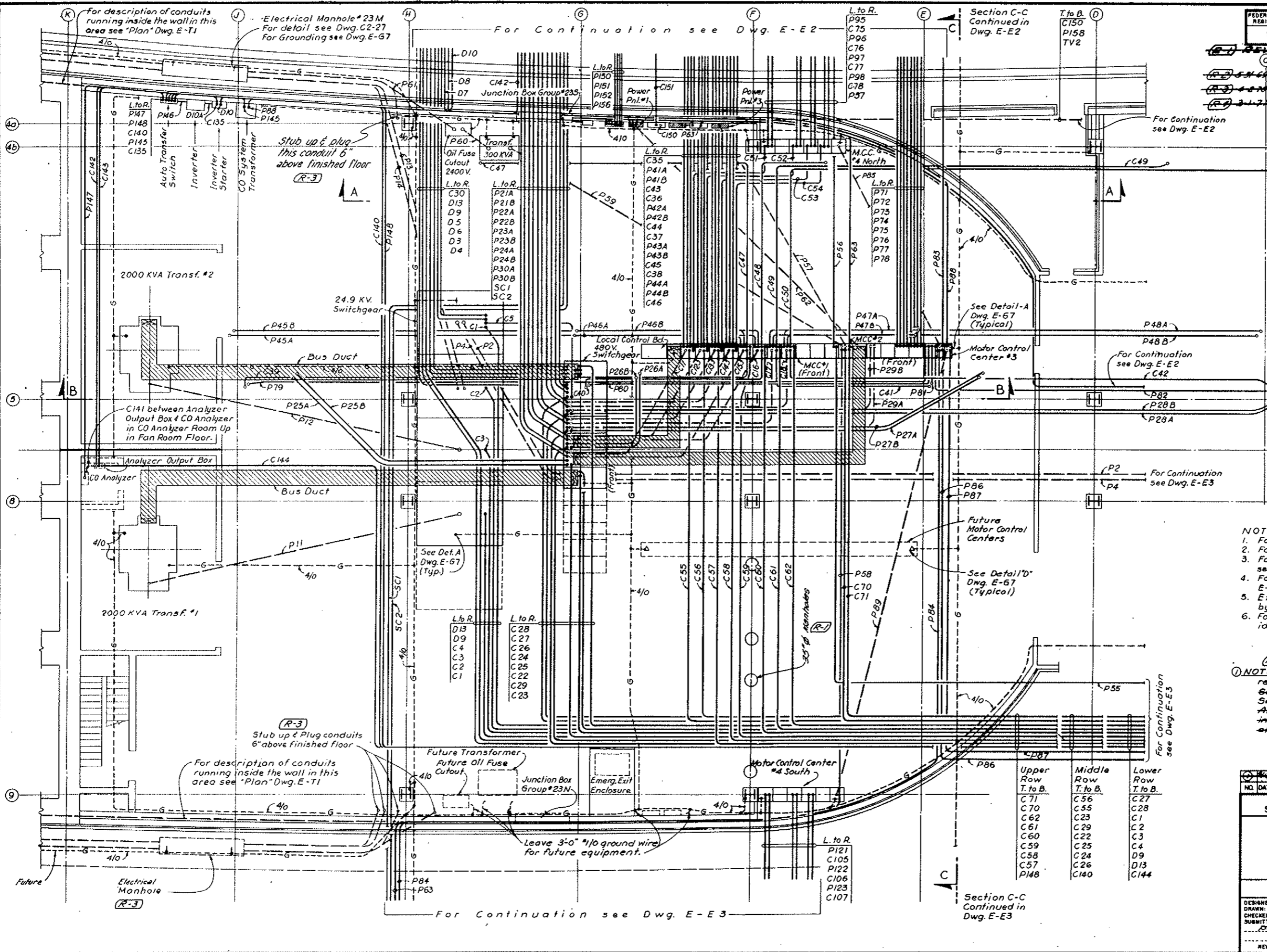
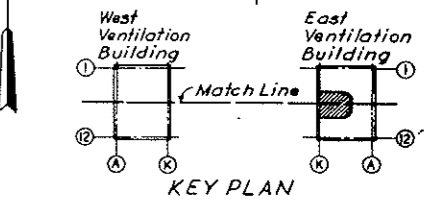
(R-2)
 NOTE A:
 TV Surveillance System (Bid Item 100) Deleted. See W.O. 14153 & Spec. 18H. M.L.C. markings apply to Wire or Cable only. Conduit remains in this Contract (Bid Items 106, 107 & 108).

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST VENTILATION BUILDING CONDUIT & CABLE SCHEDULE					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: N.A.C.	RECOMMENDED: <i>W.B. Strickland</i>				
DRAWN: F.E.J.	APPROVED: <i>W.B. Strickland</i>				
CHECKED: D.H.D.					
SUBMITTED: <i>F.E.J.</i>					
NEW YORK, N.Y.	SCALE: NONE	DATE: AUG. 1967	DRAWING NO. E-W8		

(R-2) (R-1) TV SURVEILLANCE SYSTEM DELETED W.O. 14153 SEE SPEC. 18H

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	266	326

~~(R-1) REV. 11-6-67 C.D.H. - ADDS MORE BELOW~~
~~(R-2) 5-1-68 C.D.H. - ADDS MORE BELOW~~
~~(R-3) 4-27-70 C.D.H. - REV. CONDUITS - NO. 18153~~
~~(R-4) 2-1-71 C.D.H. - REMOVED ITEMS - NO. 18153~~



- NOTES:
- For Telephone Riser Diagram see Dwg. E-68.
 - For Symbol Legend see Dwgs. E-E4 & E-E5.
 - For Conduit & Cable runs from Power Panels see Panel Schedule Dwg. E-610 & E-611.
 - For Conduit & Cable Schedule see Dwg. E-WE5 to E-WE9 inclusive, E-E9 & E-T7.
 - Exact routing of conduits to be determined by Field.
 - For Conduits or Equipment not shown or identified and for Sections see Dwg. E-WE3.

(R-4)
 NOTE A: - Tunnel Ventilation System, (Bid Item 163) revised, Emerg. Generator, (Bid Item 160) & TV Surveillance System (Bid Item 180) deleted. See W.O. 14153 & Spec. Sections 17A, 18B & 18H. All Electrical work shown on this Dwg. remains in contract. See referenced Dwg. for effects of changes listed above.

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
C71					
C70					
C62					
C61					
C60					
C59					
C58					
C57					
P148					
C56					
C55					
C23					
C29					
C22					
C4					
D9					
D13					
C144					

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL
 EAST VENTILATION BUILDING
 ELECTRICAL EQUIPMENT ROOM
 POWER & CONTROL - PLAN

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

DESIGNED: E. A. N.
 DRAWN: E. A. N.
 CHECKED: H. A. C.
 SUBMITTED: [Signature]

RECOMMENDED: [Signature]
 APPROVED: [Signature]

NEW YORK, N. Y. SCALE: 3/16" = 1'-0" DATE: AUG. 1967

DRAWING NO. E-E1

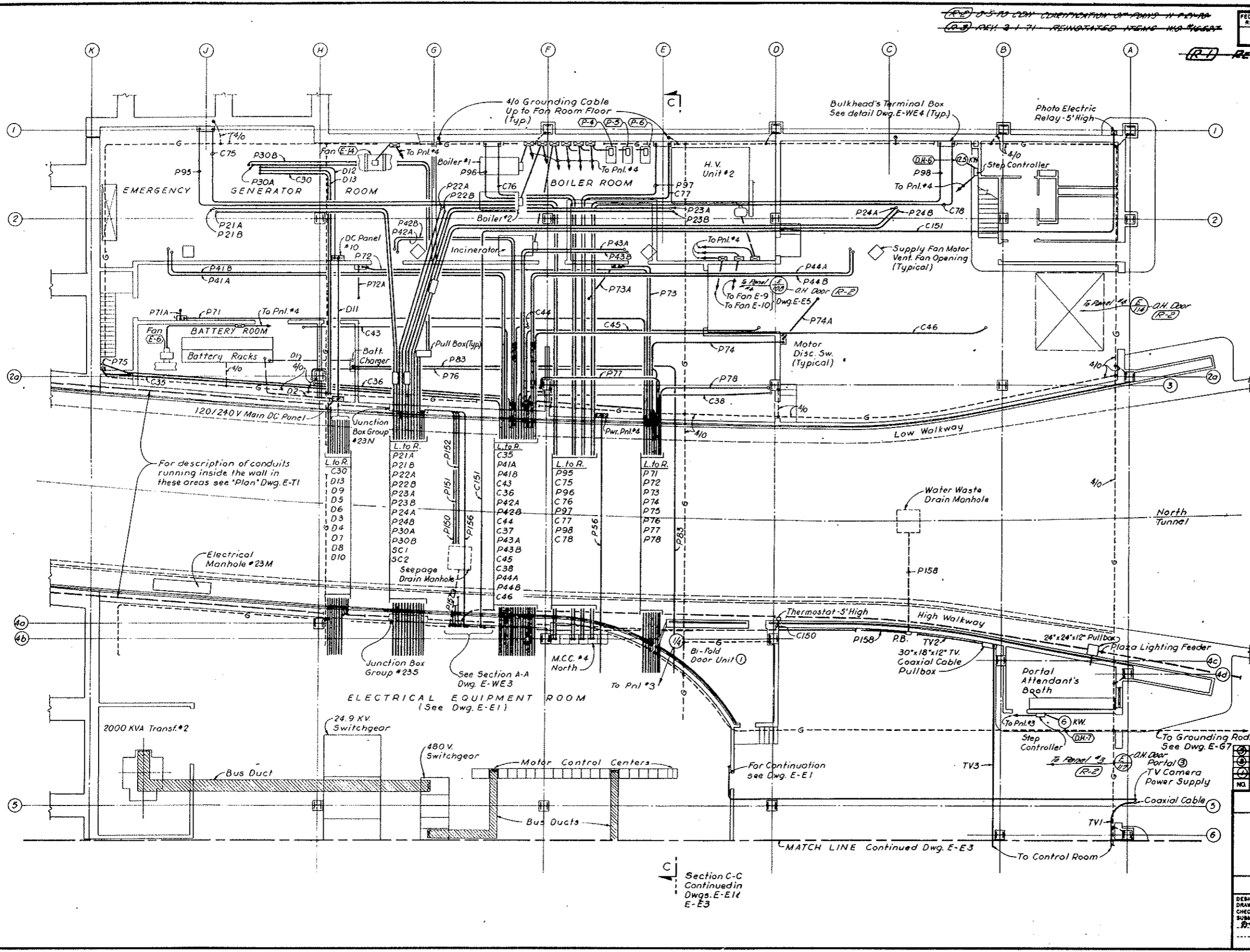
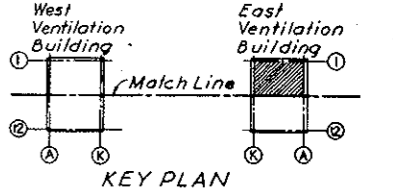
(R-4) (R-1) TV SURVEILLANCE SYSTEM DELETED W.O. #14153 SEE SPEC. 18H

(R-2) 3-5-73 CON. CLARIFICATION OF PANS 11 P-170
 (R-3) 10-1-71 REINSTATED ITEMS WA #4442

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	267	328

(R-1) Rev. 11-6-67 C.D.H. - Added Note Below

AS CONSTRUCTED
REVISED ~~DATE~~ Oct. 26, 1973



NOTE:
 1. For Notes see Dwg. E-E1

(R-3) NOTE A: See Note A on Dwg. E-E1

Section C-C
 Continued in
 Dwg. E-E1 &
 E-E3

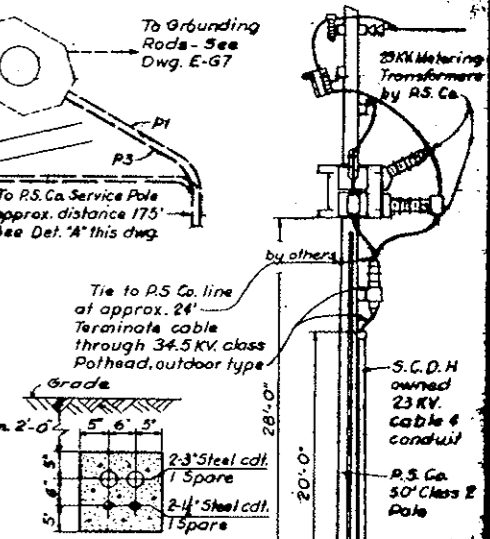
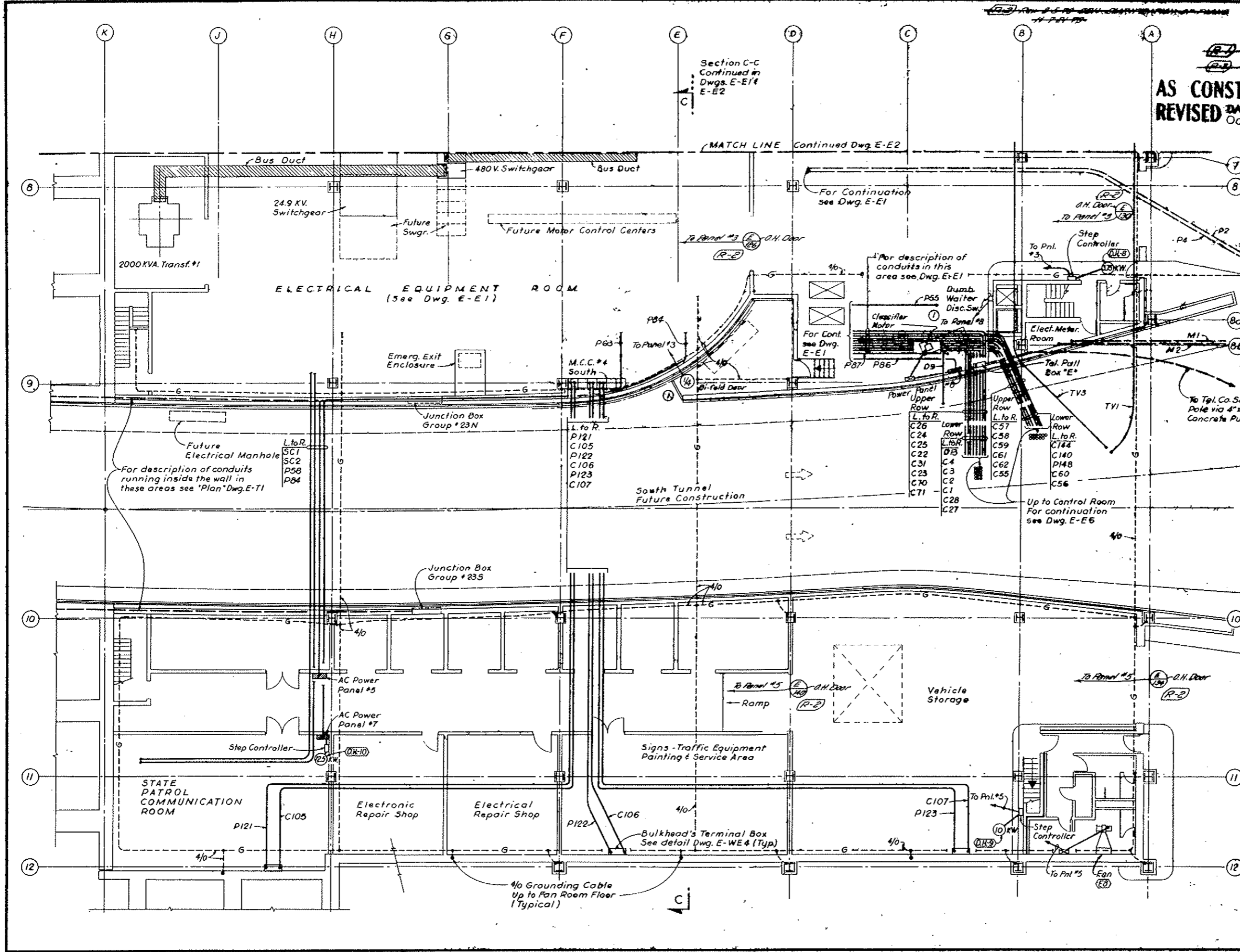
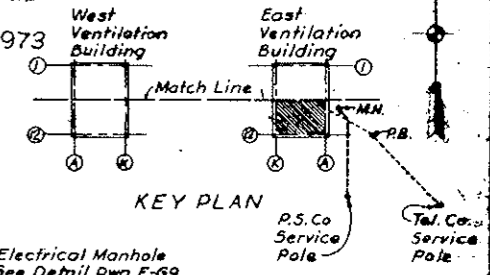
MATCH LINE Continued Dwg. E-E3

DESIGNED: E.A.N.	RECOMMENDED: <i>[Signature]</i>	DATE: AUG. 1967
DRAWN: E.A.N.	CHECKED: N.A.C.	SCALE: 1/8" = 1'-0"
SUBMITTED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>	DATE: AUG. 1967
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT		
ELECTRICAL ROADWAY FLOOR NORTH POWER AND CONTROL PLAN		
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.		
DRAWING NO. E-E2		

(R-3) (R-1) TV SURVEILLANCE SYSTEM DELETED WA #4153 SEE SPEC. 184

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I. 70-3(34) 220	268	838

AS CONSTRUCTED
REVISED DATE Oct 26, 1973



NOTE:
 For Notes see Dwg. E-E1
 NOTE A - See Note A on Dwg. E-E1

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

**ELECTRICAL
 EAST VENTILATION BUILDING
 ROADWAY FLOOR SOUTH
 POWER & CONTROL - PLAN**

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS
 NEW YORK, N. Y.

DESIGNED: E.A.N.
 DRAWN: E.A.N.
 CHECKED: H.A.C.
 SUBMITTED: *[Signature]*

RECOMMENDED: *[Signature]*
 APPROVED: *[Signature]*

SCALE: 1/8" = 1'-0" DATE: AUG. 1967

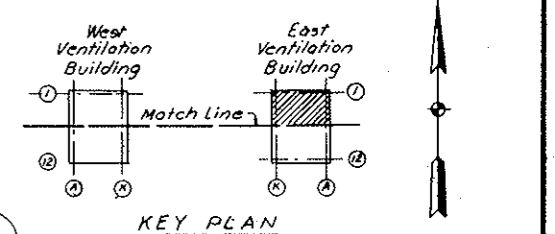
DRAWING NO. **E-E3**

~~(R-3) (R-1) TV SURVEILLANCE SYSTEM DELETED W/O #1153 SEE SPEC. 18A~~

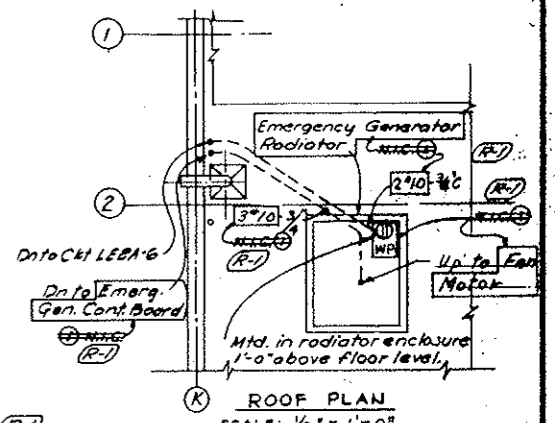
REVISED DATE Oct. 26, 1973

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(4)220	269	326



- SYMBOLS & LEGEND (cont'd)**
(Continued From Dwg. E-E5)
- EC; AFF; WP Empty conduit; Above finished floor; Weatherproof.
 - EX Explosion proof
 - S₁ Switch Single Pole Single Throw, Subscript indicates outlet controlled.
 - S_{3c} Switch 3 way
 - S_{4d} Switch 4 way
 - SM Snap Switch Motor Disconnect
 - ⊞ Dimmer
 - △ Ground Insert
 - ⊞ Telephone Outlet Box, Subscript "5" indicates Schedule Number see Dwg. E-G8.
 - ⊞ Incand. Bracket Fixt. & Outlet - Emergency
 - ⊞ Incand. Bracket Fixt. & Outlet - Emergency & Normal.



NOTE A: Tunnel Vent. System, (Bid Item 165), Revised Emerg. Gen. System (Bid Item 180) deleted. See N.O. 14153 & Spec. Sections 17A & 18B. Main Equip. Home N.T.C. as marked. Other Equip. shown remaining in this Contract. Conduits, Boxes, etc., and Lighting Power & Control wiring, including connections, remain in this Contract. (Bid Items 187, 175, 194 & 195). Final Terminations of conduit & wiring for N.T.C. items must be coordinated with the actual Equip. (to be furnished & installed under another contract).
N.T.C. Markings are typical in (FAN) ES-1 Enclosure that all 4 Fans (ES-1, ES-2, ES-3 & ES-4) are N.T.C. etc.

NO.	DATE	DESCRIPTION OF REVISION	BY	DL	APP.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

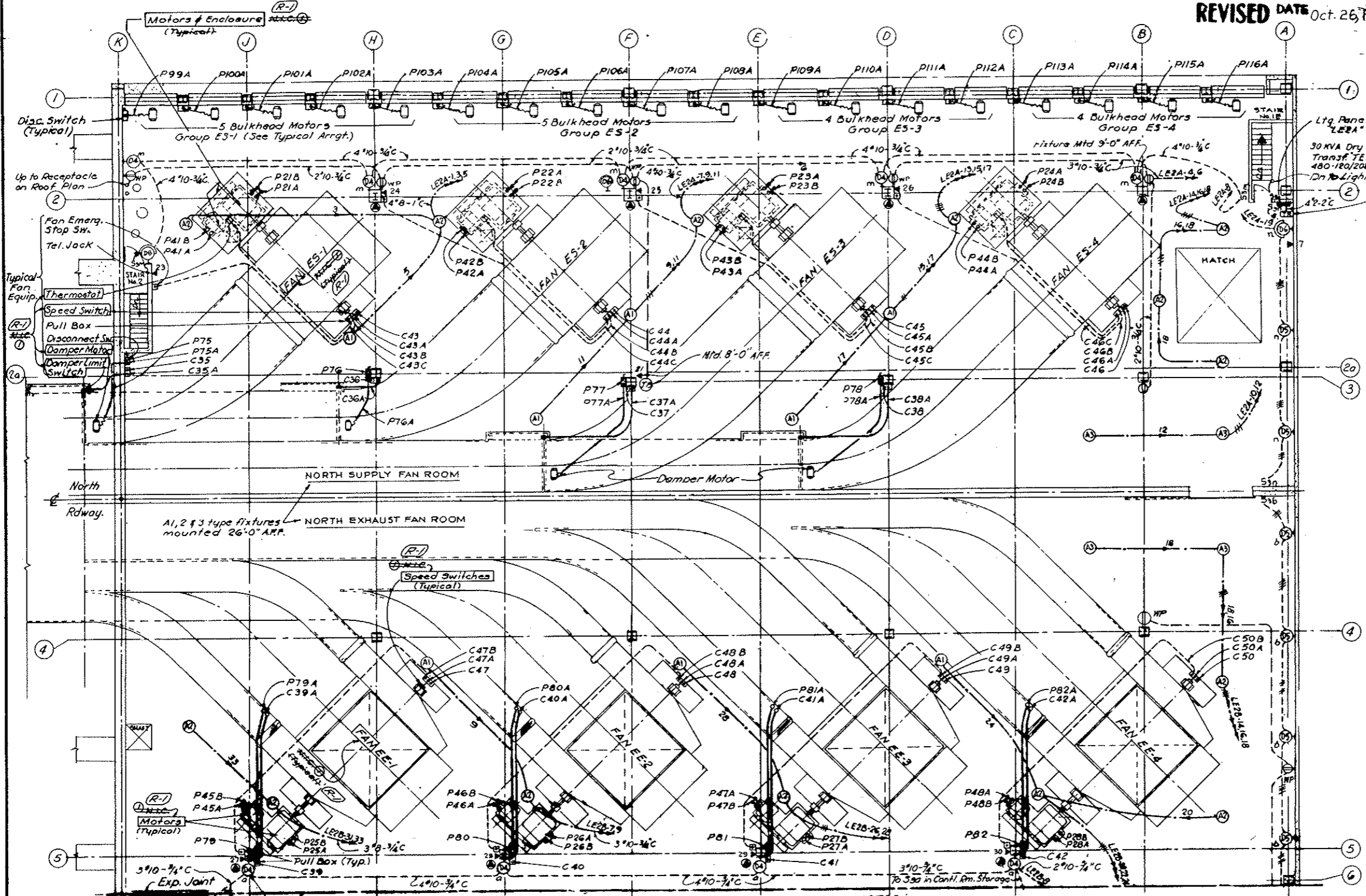
**ELECTRICAL
EAST VENTILATION BUILDING
FAN ROOM - NORTH
POWER, CONTROL AND LIGHTING - PLAN**

TIPPETTS - ABBETT - MCCARTHY - STRATTON
ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

DESIGNED: J.A.G. E.N.M.
DRAWN: S.W.F.
CHECKED: W.A.C.
SUBMITTED: [Signature]
NEW YORK, N.Y.

RECOMMENDED: [Signature]
APPROVED: [Signature]
SCALE: 1/8" = 1'-0" DATE: AUG. 1967

DRAWING NO. **E-E4**



- GENERAL NOTES**
- For Telephone Riser Diagram See Dwg. E-G8
 - For Lighting System Notes See Dwg. No. E-W7
 - Work this Dwg. with Conduit & Cable Schedules E-W5 to E-W9

MATCH LINE (Continued Dwg. E-E5)
Note: All "D4" Type fixtures mtd. 18'-0" AFF.
"D5" & "D6" Type fixtures mtd. 0'-0" AFF.

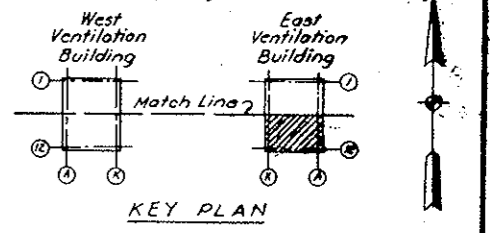
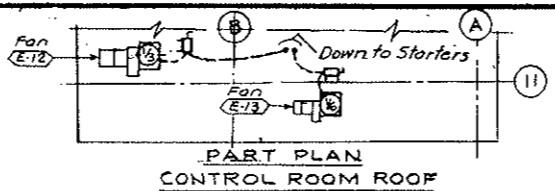
To S30 on outside wall of Carbon Monoxide Analyzer Rm.

AS CONSTRUCTED REVISED DATE Oct. 26, 1973

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	270	326

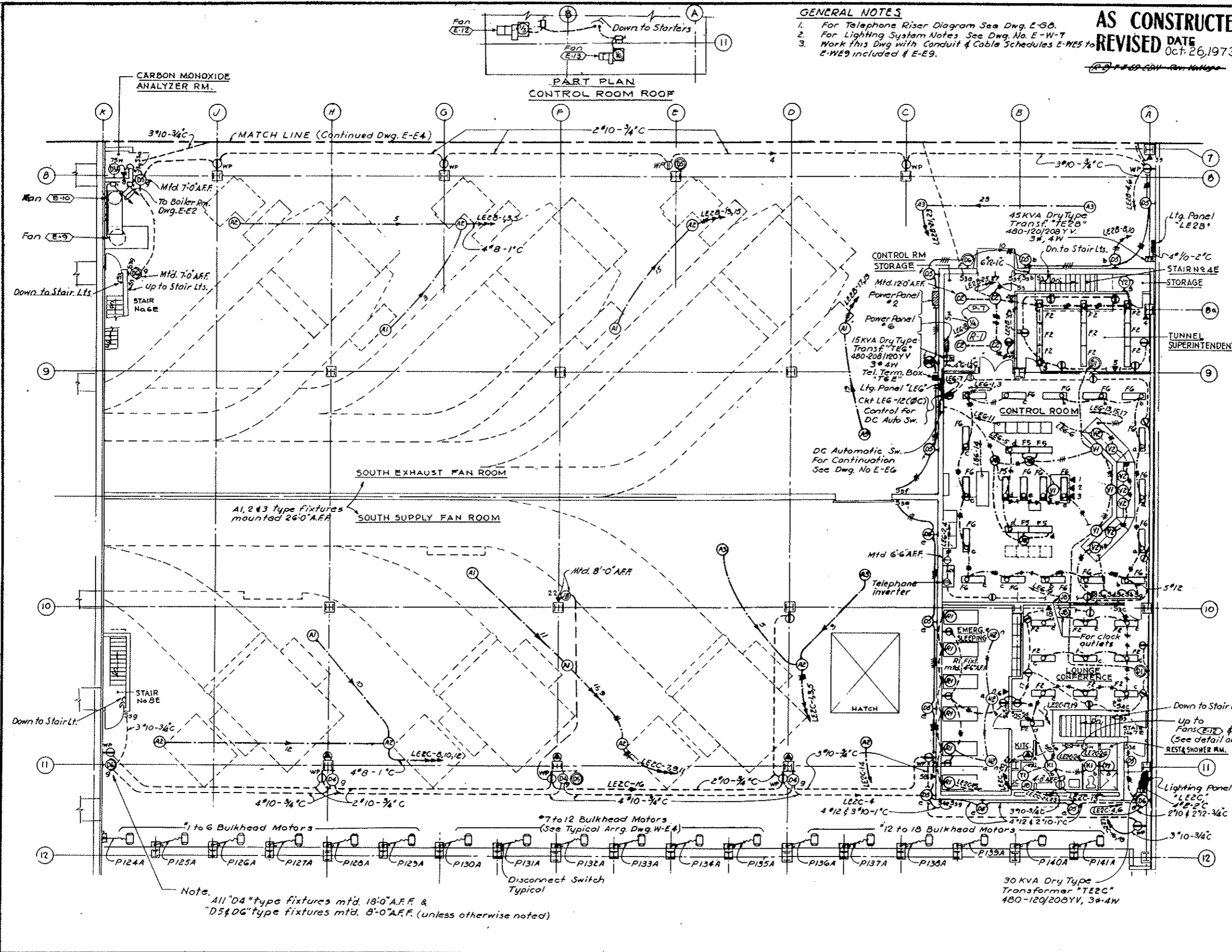
GENERAL NOTES

1. For Telephone Riser Diagram See Dwg. E-66.
2. For Lighting System Notes See Dwg. No. E-W-7
3. Work this Dwg with Conduit & Cable Schedules E-WES to E-WES9 included & E-E9.



SYMBOLS & LEGEND

- Flexible Conduit
- Conduits turned from observer
- Conduits turned toward observer
- Wiring in Conduit exposed
- Wiring in Conduit concealed in floor or wall
- Wiring in Conduit exposed in Hung Ceiling
- Wiring in suspended Lay-in Wireway
- Wiring in Ceiling concealed
- Tick marks indicates number of #12 wires where more than two.
- Home run to Panelboard. Number of arrows indicate number of lighting circuits.
- Power Panel
- Lighting Panel
- Motor Horsepower as indicated.
- Duct Heater Kw as indicated
- Dry Type Transformer 480-120/208V 3 Phase 4W, KVA as indicated.
- Magnetic Motor Starter
- Motor Disconnect Switch
- Combination Magnetic Motor starter circuit breaker type.
- Pushbutton Station.
- Thermostat
- Water Heater
- Wall Outlet & Ltg. Fixt. } A/R Fixture type }
 } b controlled by switch b }
 } 17 circuit no. }
- Pit Light, Wall Mounted.
- Fluorescent Fixture 2x40W without outlet
- Fluorescent Fixture with outlet
- Fluorescent Fixture with Lay-in wireway fitting
- Pull or Junction Box
- Duplex Receptacle, Single Receptacle
- Special Receptacle 30A-480V-4P-4W
- Special Receptacle 30A-250V-3P-3W, Type A
- Special Receptacle 30A-250V-4W, Type B
- Single Receptacle DC 15A-125V-3pole grounded 2W, locking type.
- Mechanical Equipment cross reference number (Continued on Dwg. No. E-E4).



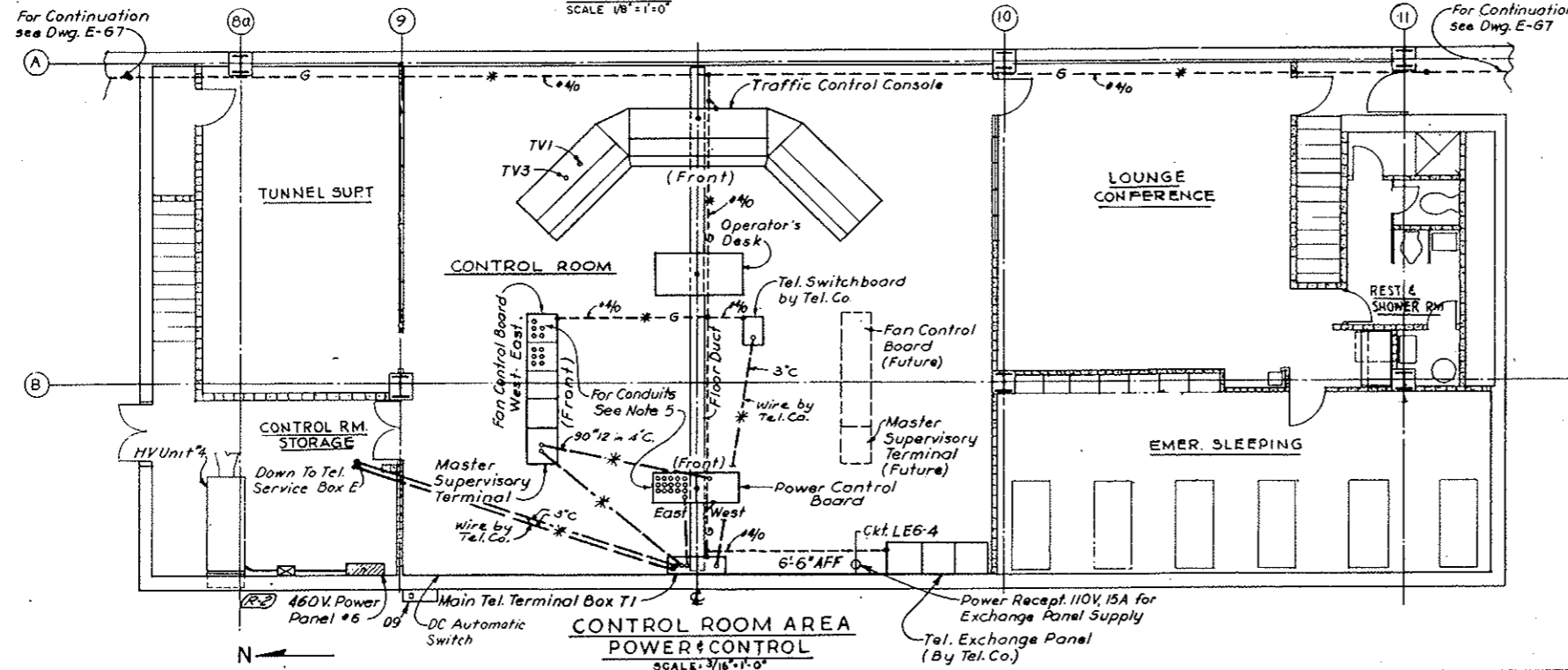
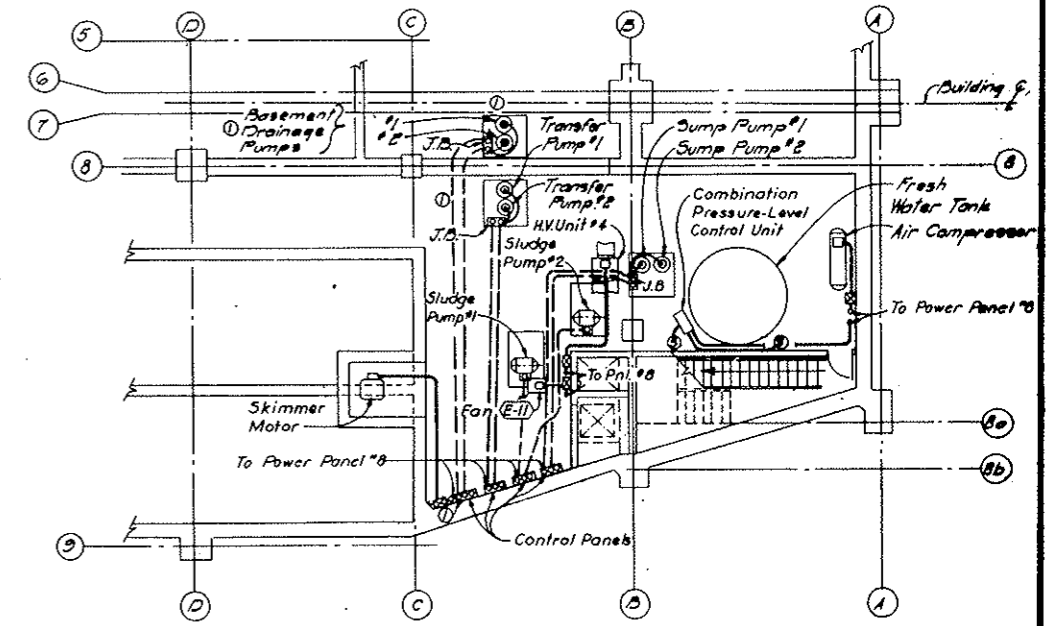
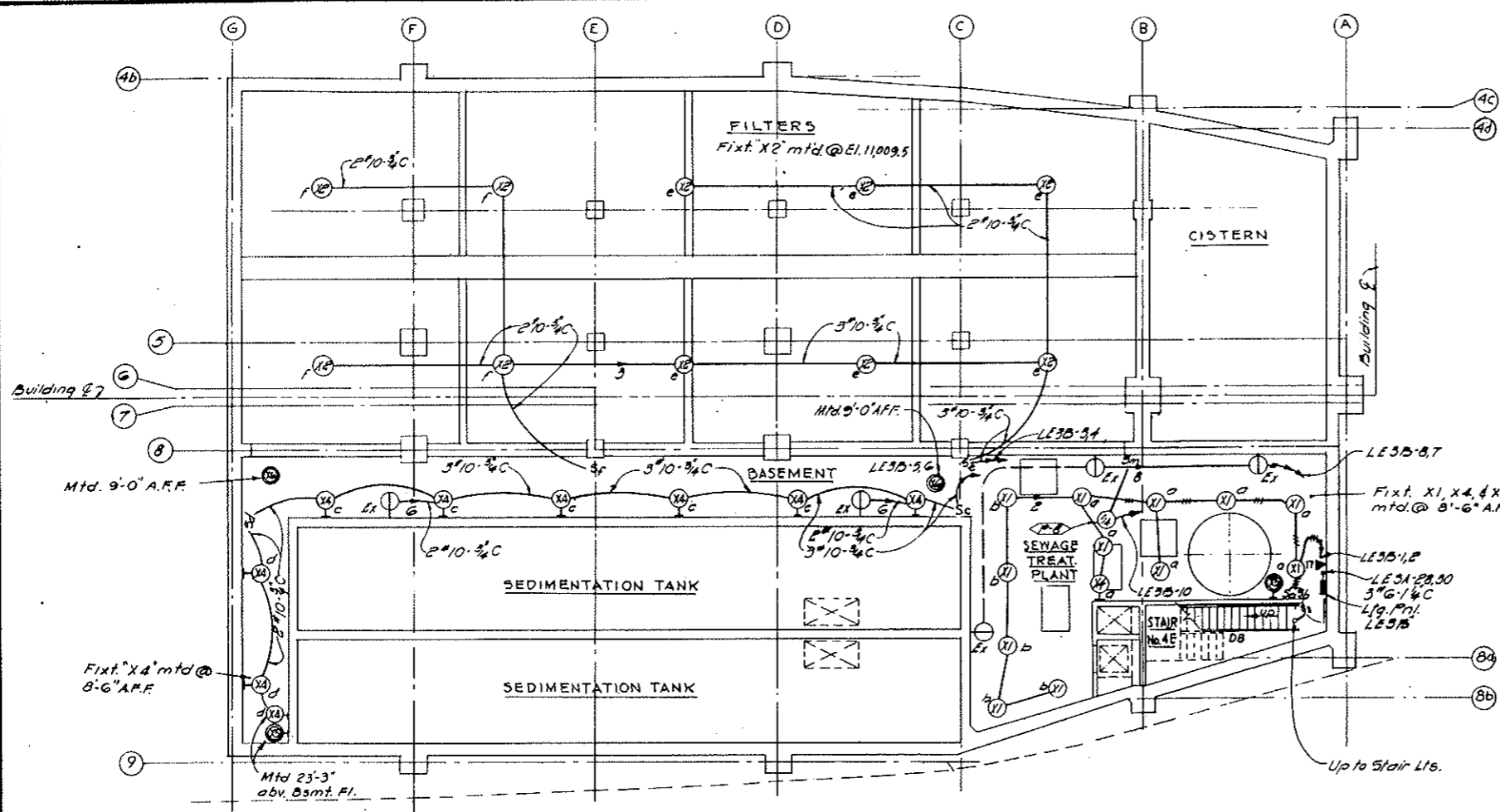
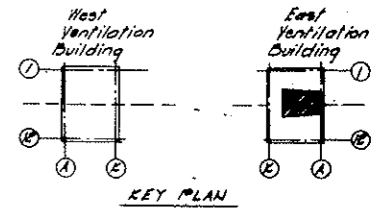
Note. All "D4" type fixtures mtd. 18'-0" A.F.F. & "D5/D6" type fixtures mtd. 8'-0" A.F.F. (unless otherwise noted)

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL EAST VENTILATION BUILDING FAN FLOOR - SOUTH POWER, CONTROL & LIGHTING - PLAN					
TIPPETT'S - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS, NEW YORK, N. Y.					
DESIGNED BY: E.N.M.	DRAWN BY: E.M.	CHECKED BY: M.A.S.	SUBMITTED BY: D.A. Standish	APPROVED BY: D.A. Standish	DRAWING NO. E-E5
NEW YORK, N.Y.					SCALE: 1/8" = 1'-0" DATE: AUG. 1967

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	271	326

~~(R-1) Rev. 11-6-67 CBH - Add Note Below~~
~~(R-2) 1-3-69 CBH - Rev. 10/1/69~~
~~(R-3) Rev. 8-1-71 - REMOVES ITEMS NOT SHOWN~~



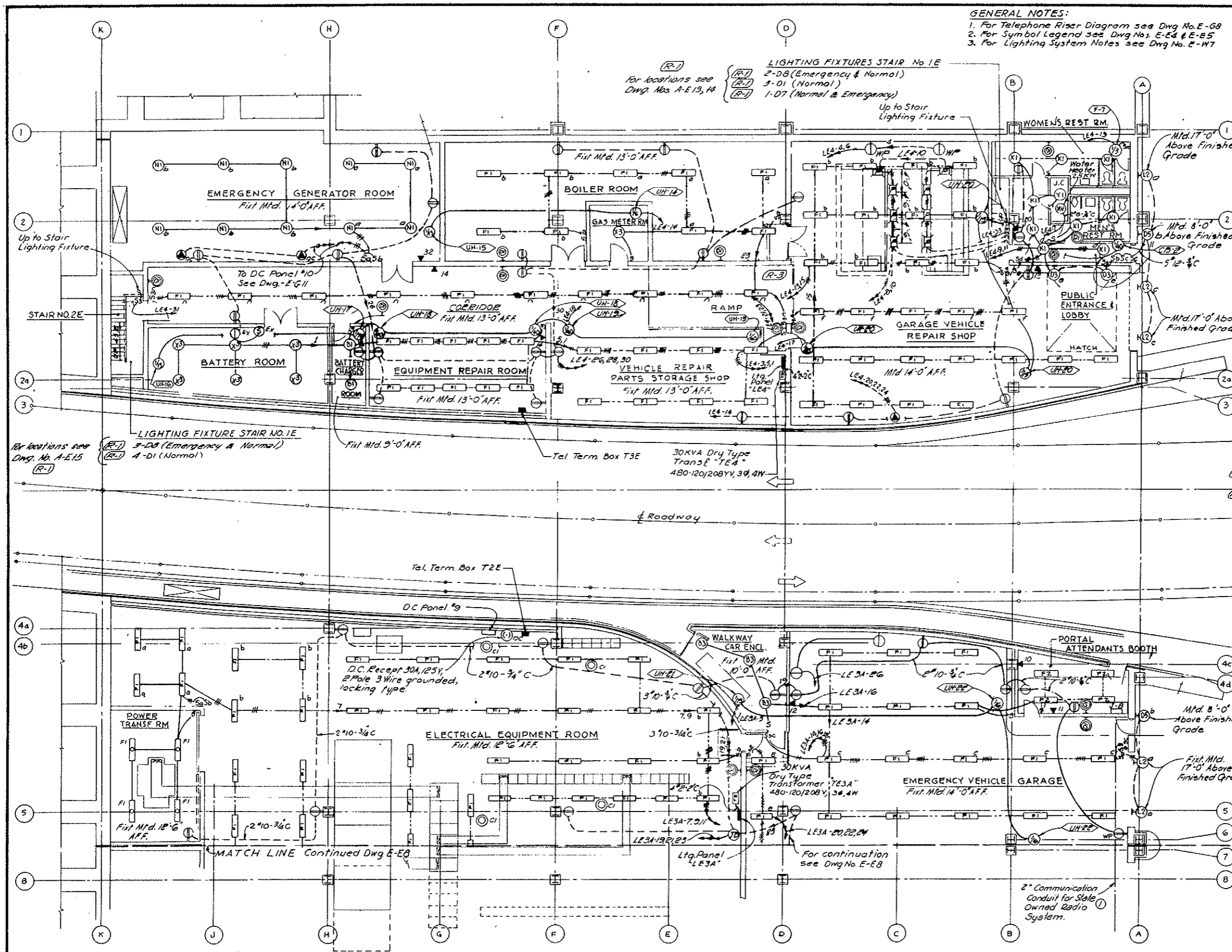
GENERAL NOTES

1. Electrical installation in the Basement Level shall conform to Article 500 of the National Electrical Code for Class I Division 1 hazardous locations.
2. For Symbol Legend See Dwg Nos. E-44 & E-45.
3. For Telephone System Riser Diagram See Dwg No. E-98.
4. For Lighting System Notes See Dwg No. E-17.
5. For identification of Conduits at Fan Control Board & Power Control Board See Dwg E-E-3.
6. Conduits & Ground Cables marked thus * are to be run immediately below Fan Floor.

NOTES
 TV Surveillance System (Bid Item 100) Deleted. See W.O. 14153 & Spec. 184.11.1. Cameras, Feeder Cables, Conduit, Cables, and Monitors are not in this Contract, but all work shown on this Dwg is in this Contract.

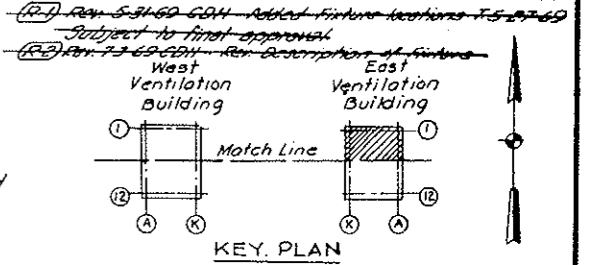
NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL EAST VENTILATION BUILDING CONTROL ROOM & BASEMENT POWER, CONTROL & LIGHTING PLAN					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: J. A. C.	RECOMMENDED: [Signature]				
DRAWN: R. D. S.	CHECKED: M. A. C.				
SUBMITTED: [Signature]	APPROVED: [Signature]				
NEW YORK, N. Y.	SCALE: AS NOTED	DATE: AUG 1967	DRAWING NO. E-E-6		

~~(R-3) (R-1) TV SURVEILLANCE SYSTEM DELETED W.O. 14153 SEE SPEC. 184~~



GENERAL NOTES:
 1. For Telephone Riser Diagram see Dwg No. E-G8
 2. For Symbol Legend see Dwg Nos. E-E4 & E-E5
 3. For Lighting System Notes see Dwg No. E-W7

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	272	326



FIXTURE SCHEDULE

FIXT. NO.	WATTS	DESCRIPTION	CAT. NO.
A1	1500	Incond. Hi Bay Narrow Beam	Holophane 690-AL-N5
A2	1500	Incond. Hi Bay Medium Beam	Holophane 691-AL-N5
A3	1500	Incond. Hi Bay Wide Beam	Holophane 692-AL-N5
B1	150	Glassteel Diffuser, Ceiling mtd.	Appleton 6-23518
B2	200	Dome Reflector, Vaportight, Ceiling mtd.	Benjamin 6352
B3	300	Glassteel Diffuser, Pendant mtd.	Appleton 6-23220
C1	150	Dome Reflector, Pendant mtd.	Benjamin 7642
C2	200	Dome Reflector, Pendant mtd.	Benjamin 7643
D1	100	Incond. Wall Bracket	McPhlben 43-40
D2	150	Incond. Wall Bracket	McPhlben 43-50
D3	200	Interior Wall Bracket	McPhlben 43-50
D4	200	Incond. Asymmetric Bracket	Holophane 423
D5	100	Incond. Wall Bkt - Weatherproof	McPhlben 43-40YT
D6	100	Incond. Wall Bkt - Weatherproof with two opal globes.	McPhlben 43-41YT
D7	150	Interior Wall Bracket with two glass globes	McPhlben 43-51
D8	100	Incond. Wall Bkt with two glass globes	McPhlben 43-41
K1	100	Square Recessed Downlight	McPhlben 68-814
K2	150	White Molded Glass Diffuser	McPhlben 68-814
L2	200	Wall Mounted Luminaires	Holophane 405
N	150	Standard Dome Reflector Ceiling mtd.	Benjamin 9642
N1	300	Pendant Dome Reflector	Benjamin 7644
N2	150	Recessed Downlight with low night light	McPhlben 68-111L

(R-3) Rev. 8-5-70 CDW CLARIFICATION OF PLANS H 7-7-70

AS CONSTRUCTED
REVISED Oct. 26, 1973

NO.	DATE	DESCRIPTION OF REVISION	BY	CH.	APP.
1		Added N1-E6 Communication Conduit			

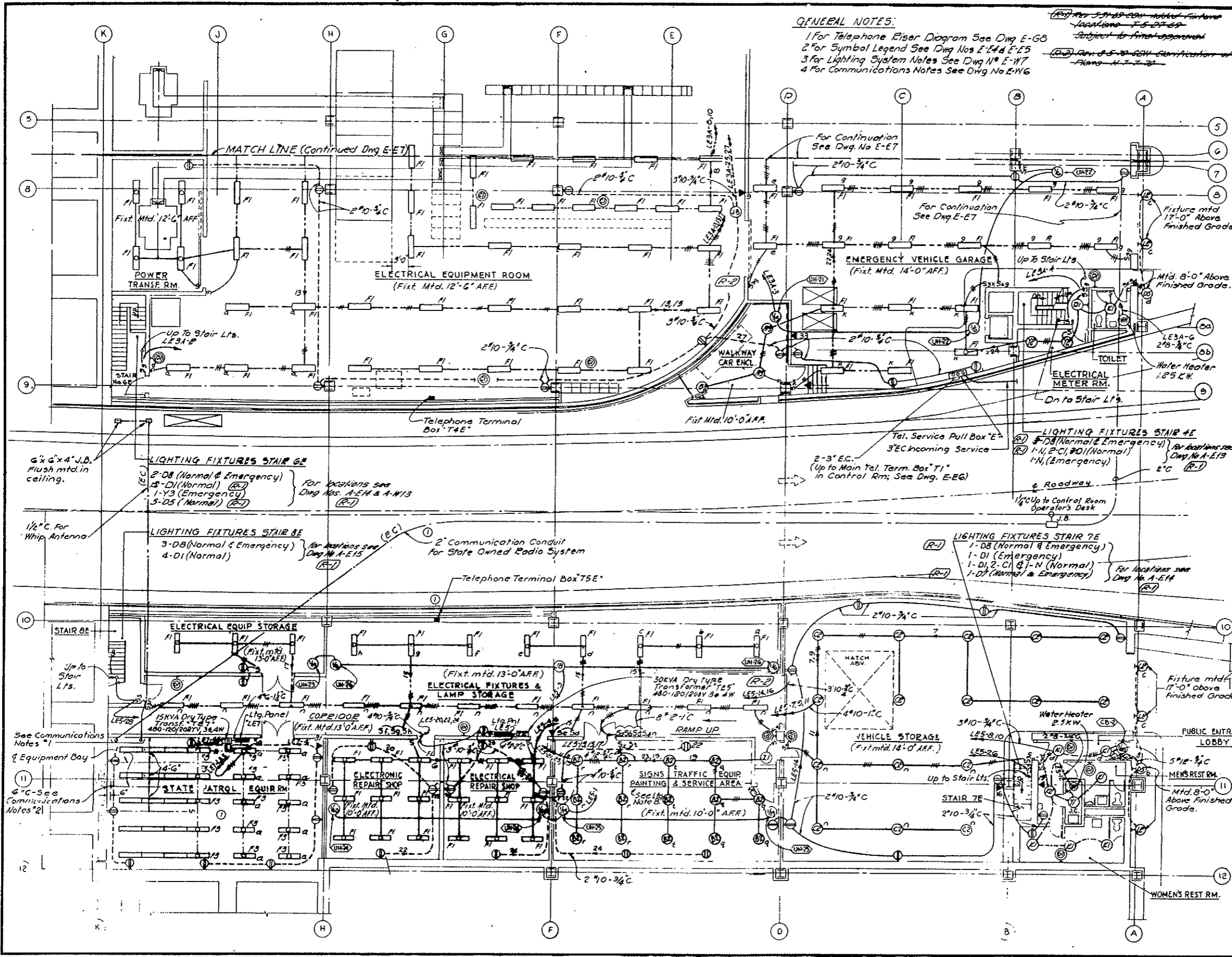
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

**ELECTRICAL
 EAST VENTILATION BUILDING
 ROADWAY FLOOR - NORTH
 LIGHTING PLAN**

TIPPETTS - ABBETT - MCCARTHY - STRATTON
 ENGINEERS AND ARCHITECTS
 NEW YORK, N. Y.

DESIGNED: E. N. M.	RECOMMENDED: [Signature]	DRAWING NO. E-E7
DRAWN: R. O. S.	CHECKED: [Signature]	
SUBMITTED: M. A. S.	APPROVED: [Signature]	
BY: [Signature]	DATE: AUG. 1967	

SCALE: 1/8" = 1'-0" DATE: AUG. 1967

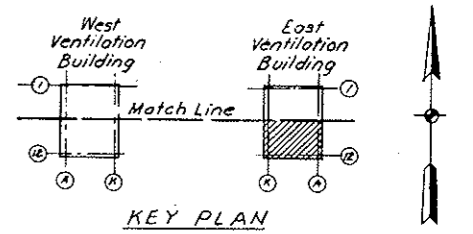


GENERAL NOTES:

- 1 For Telephone Riser Diagram See Dwg E-60
- 2 For Symbol Legend See Dwg Nos E-14 & E-15
- 3 For Lighting System Notes See Dwg No E-17
- 4 For Communications Notes See Dwg No E-16

REVISED 5-25-69 - Added Fixtures
Locations E-5, E-7, E-9
Subject to final approval
REVISED 8-5-69 - Added Clarification of
Plans - 11, 7, 7, 29

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	273	326



FIXTURE SCHEDULE (CONTINUED)

FIXT. NO.	WATTS	DESCRIPTION	CAT. NO.
R1	60	Bed Light	Daybrite 312
T1	100	Recessed Weatherproof	Art Metal 33574
V2	150 Par 38/SP	Recessed Multigroove Baffle	Lightolier A46 H16
V1	150	Recessed Lenslite	Lightolier A46 H16
Y1	75	Porcelain Lamp Receptacle	Alabax AL 3140
Y2	100	Porcelain Lamp Receptacle	Alabax AL 3140
Y3	100	Incandescent Ceiling unit with glass globe	McPhibben 43-45
Z1	75	Ceiling mtd Vaportight	Crouse Hinds GS 0200
X5	100	Explosionproof Bracket without guard	Crouse Hinds EYBX 204
X1	150	Explosionproof pendant with reflector; without guard	Crouse Hinds EYA-2011
X2	200	Explosionproof pendant with guard	Crouse Hinds EYA-205
X3	300	Explosionproof Ceiling Mtd with guard	Crouse Hinds EYCX-2201
X4	150	Explosionproof Bracket without guard	Crouse Hinds EYBX 201
X6	100	Explosionproof Pendant without guard	Crouse Hinds EYA-204
F1	2-40	Industrial Fluorescent with 10% upward component	Benjamin FL-1024-4
F2	2-40	Frameless Troffer Fluorescent	CurTis-Electr. GTF 6160-240
F3	2-40	Surface ceiling mtd. Fluorescent	Benjamin CA 2224-4
F5	2-40	Vertical Surface Fluorescent with 100% Incand. socket	Holophone 901E-4
F6	2-40	Fluorescent Troffer Extruded Louver Pins	CurTis-Electr. 5662-208-14

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL EAST VENTILATION BUILDING ROADWAY FLOOR - SOUTH LIGHTING PLAN

TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.

DESIGNED BY: E. M. M. DRAWN BY: S. W. P. & R. D. S. CHECKED BY: M. A. S. SUBMITTED BY: P. S. APPROVED BY: [Signature]

SCALE: 1/8" = 1'-0" DATE: AUG. 1967

DRAWING NO. **E-E8**

REV 11-6-67 CRH - ADDED NOTE BELOW
 REV 3-71 REINSTATED ITEMS W.O. 4153

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
24.9 KV HIGH TENSION SWITCHGEAR						
C1	1 1/2"	8	1/C # 12 (2 Sp)	24.9 KV SWGR. COMPT #1	POWER CONT. BD. IN CONT. RM.	MAIN FDR LOAD BREAKING SW. CONT. & POSITION INDICATION
C2	1 1/2"	8	1/C # 12 (2 Sp)	24.9 KV SWGR. COMPT #2		TIE LOAD BREAKING SW. CONT. & POSITION INDICATION
C3	1 1/2"	8	1/C # 12 (2 Sp)	24.9 KV SWGR. COMPT #3		2000 KVA TRANSF. #2 PRIMARY LOAD BKS. SW. CONT. & POSITION INDICATION
C4	1 1/2"	8	1/C # 12 (2 Sp)	24.9 KV SWGR. COMPT #4		2000 KVA TRANSF. #1 PRIMARY LOAD BKS. SW. CONT. & POSITION INDICATION
C5	1"	9	1/6 # 12 (2 Sp)	24.9 KV SWGR. COMPT #1	460 V SWGR. COMPT KI	EMERG. GEN. INTERLOCK
460 V. LOW TENSION SWITCHGEAR						
P30A	3"	3	500 MCM	460 V SWGR. COMPT KI	EMERG. GENERATOR	FEEDER
		1	1/6 # 4/0			
P30B	3"	3	500 MCM			
		1	1/6 # 4/0			
C22	1 1/2"	8	1/C # 12 (2 Sp)	F1	POWER CONT. BD. IN CONTROL RM.	2000 KVA. TRANSF. #2 SECONDARY BKR. CONTROL & INDICATION
C23	1 1/2"	8	1/C # 12 (2 Sp)	L1		2000 KVA. TRANSF. #2 SECONDARY BKR. CONTROL & INDICATION
C24	1 1/2"	8	1/C # 12 (2 Sp)	H1		MCC #1 FDR BKR. CONT. & INDICATION
C25	1 1/2"	8	1/C # 12 (2 Sp)	G1		MCC #2 FDR
C26	1 1/2"	8	1/C # 12 (2 Sp)	I1		MCC #3 FDR #1
C27	1 1/2"	8	1/C # 12 (2 Sp)	J1		MCC #3 FDR #2
C28	1 1/2"	8	1/C # 12 (2 Sp)	K1		EMERG. GEN. LINE BKR. CONT. & IND.
C29	1 1/2"	8	1/6 # 12 (2 Sp)	F1		2000 KVA TRANSFORMERS 1 & 2 METERING
		6	1/6 # 12 (2 Sp)			
C30	1"	5	1/6 # 12	K1	EMERG. GEN. CONT. BOARD	EMERG. GEN. INTERLOCK
MOTOR CONTROL CENTER NO. 1 - NORTH						
C55	1 1/2"	18	1/C # 12 (3 Sp)	MOTOR CONTROL CENTER COMPT B1	FAN CONTROL BD. IN CONTROL RM.	SUPPLY FAN & BULKHEADS CONT. & IND.
C56	1 1/2"	18	1/C # 12 (3 Sp)		C1	SUPPLY FAN 2
C57	1 1/2"	18	1/C # 12 (3 Sp)		D1	SUPPLY FAN 3
C58	1 1/2"	18	1/C # 12 (3 Sp)		E1	SUPPLY FAN 4
C59	1 1/2"	18	1/C # 12 (3 Sp)		F1	EXH. FAN 1 COND. & IND.
C60	1 1/2"	18	1/C # 12 (3 Sp)		G1	EXH. FAN 2
C61	1 1/2"	18	1/C # 12 (3 Sp)		H1	EXH. FAN 3
C62	1 1/2"	18	1/C # 12 (3 Sp)		I1	EXH. FAN 4
		5	1/C # 12		I1	GEN. ALARM & ANNUNCIATION
24.9 KV SERVICE						
M1	1 1/2"	7	1/6 # 10	PUBLIC SERVICE CO. POLE	PUBLIC SERVICE CO. METERING RM.	PUBLIC SERVICE METERING
M2	1 1/2"	-	-			SPARE CONDUIT

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
MOTOR CONTROL CENTER NO. 2 - NORTH						
C70	1"	8	1/C # 12 (2 Sp)	MOTOR CONTROL CENTER #2 COMPT B1	POWER CONTROL BD. IN CONTROL RM.	AC POWER DIST. PANELS #2, 3, 4 & 5 RESET & INDICATIONS
C71	1 1/2"	9	1/C # 12 (2 Sp)			DC EMERG. PAN. AUTO SW. CONT.
MOTOR CONTROL CENTER NO. 3 - NORTH						
P87	1"	4	1/6 # 8	MOTOR CONT. CENTER #3 COMPT FIB	AC POWER DIST. PANEL #8	FEEDER
CO SYSTEM						
C140	1"	2	1/6 # 12	CO SYS. AUTO-TRANSFER SW.	TO ANN. CAB. ON FAN CONT. BD.	M-G SET "ON" INDICATION
C141	1"	1	2/C # 16 SHIELDED	CO ANALYZER IN EAST BLDG.	ANALYZER OUTPUT BOX	ANALYZER OUTPUT TRANSMISSION
C142	1 1/4"	4	2/C # 16 SHIELDED	GROUP BOX 23N TEL. BOX		
C143	1"	2	2/C # 16 SHIELDED	GROUP BOX 23S TEL. BOX		
C144	1 1/2"	7	2/C # 16 SHIELDED	ANALYZERS OUTPUT BOX	CO RECORDERS ON FAN CONT. BD.	
P148	1"	2	1/6 # 12	CO SYS. AUTO-TRANSFER SW.		FEEDER
120/240V. MAIN DC PANEL						
D9	1"	3	1/6 # 8	MAIN DC PANEL	CONTROL RM. EMERG. LTG. AUTO. SW.	FEEDER
D11	1"	3	1/6 # 8		DC POWER DIST. PANEL #10	
D12	1"	2	1/6 # 12	DC POWER DIST. PANEL #10	EMERG. GEN. CONTROL BOARD	CONTROL
		2	1/6 # 12			
D13	1"	2	1/6 # 12	EMERG. GEN. CONT. BOARD	POWER CONT. BD. IN CONT. RM.	
TELEVISION CAMERAS OUTPUT SYSTEM						
TV-1	1 1/2"	1	TV COAXIAL CABLE	EAST PORTAL TV CAMERA #13	CONTROL RM. TV MONITOR BOARD	CAMERA #13 OUTPUT
TV-2	3"	1/2		GROUP BOX 23S TV BOX	PULLBOX NEAR COL. 4C-B	
TV-3	3"	1/2		PULLBOX NEAR COL. 4C-B	CONTROL RM. TV MONITOR BOARD	CAMERAS #1 TO #12 OUTPUTS (FOR CONTINUATION IN TUNNEL SEE DWG. E-71)

AS CONSTRUCTED
 REVISED DATE Oct. 26, 1973

NOTES:
 For "General Notes" see Conduit & Cable schedule E-WES

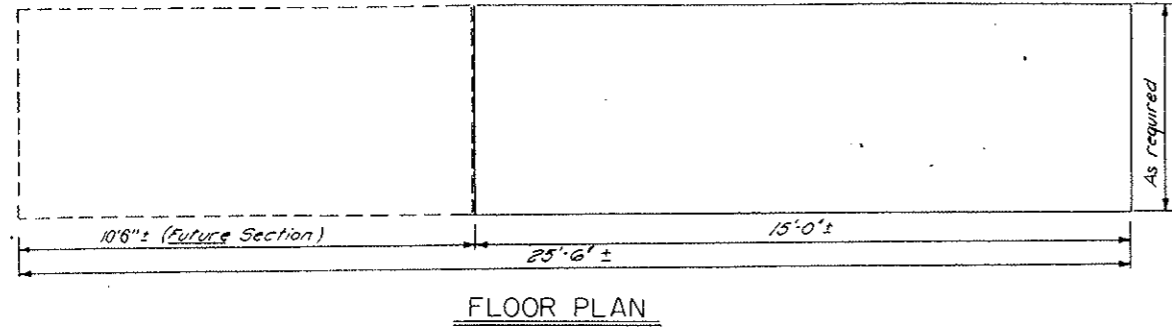
NOTE A:
 Emergency Generator System, (Bid Item 180), & TV Surveillance System, (Bid Item 190), Deleted. See W.O. 4153 & Spec. Sections 100 & 104. N.E.G. Markings Relate to Wire & Cable only. Conduits are in this Contract, (Bid Items 186, 187 & 188).

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL EAST VENTILATION BUILDING CONDUIT & CABLE SCHEDULE					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS - NEW YORK, N. Y.					
DESIGNED BY N.A.C.	CHECKED BY N.V.K.	APPROVED BY D.H.D.	APPROVED BY W.D. Stachnik	DRAWING NO. E-99	
NEW YORK, N.Y.		SCALE: NONE	DATE: AUG. 1967		

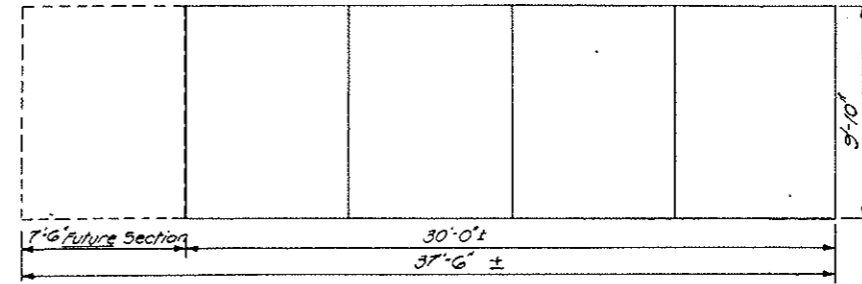
(R-2) (R-1) TV SURVEILLANCE SYSTEM DELETED W.O. 4153 SEE SPEC. 184

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

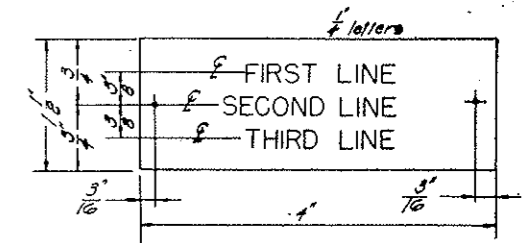
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34) 220	275	328



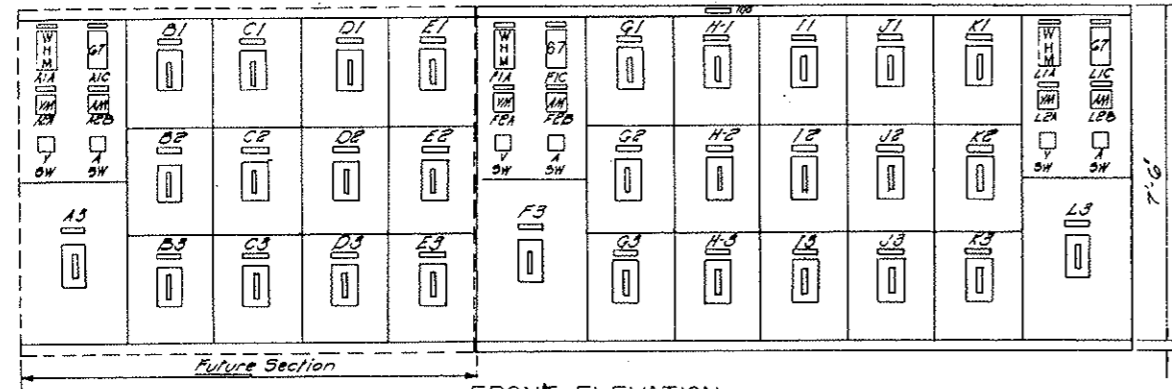
FLOOR PLAN



FLOOR PLAN

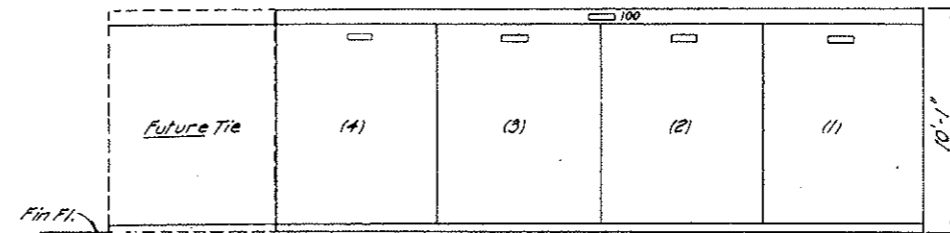


DETAIL 1



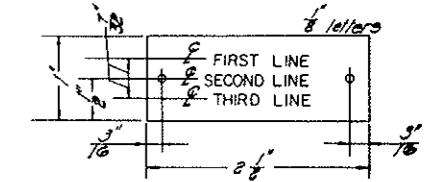
FRONT ELEVATION

SCALE 1/2" = 1'-0"

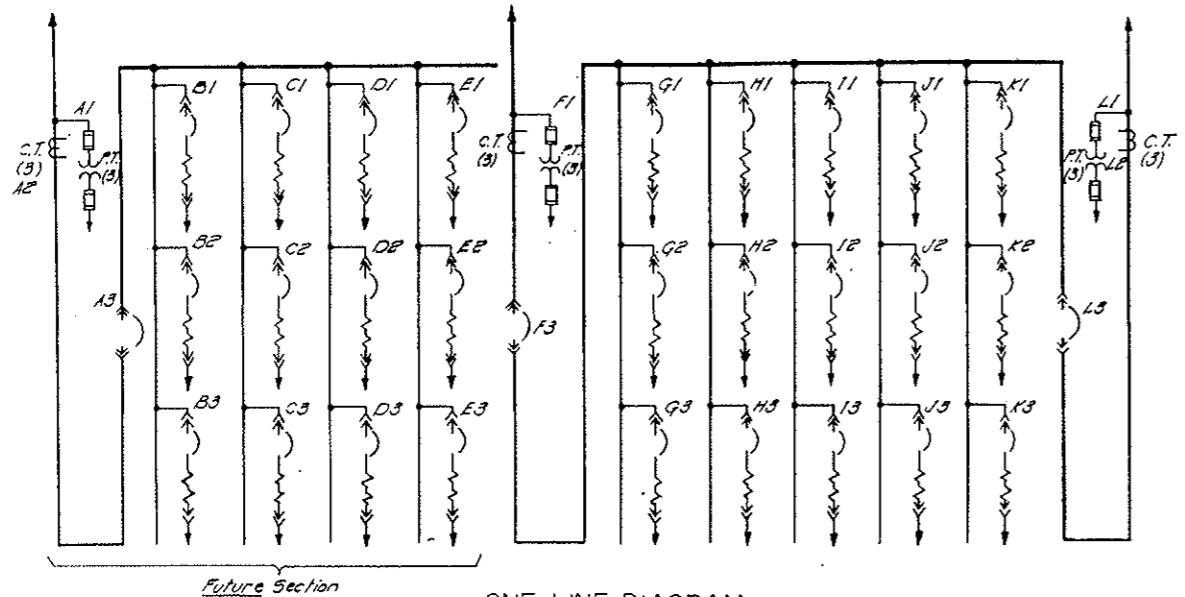


FRONT ELEVATION

SCALE 1/4" = 1'-0"

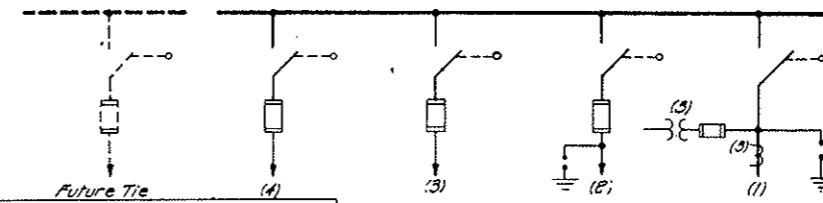


DETAIL 2



ONE LINE DIAGRAM
 460V SWITCHGEAR

(See Dwg. E-1111 for further details)



ONE LINE DIAGRAM
 24.9 KV SWITCHGEAR

See Dwg E-1 for further details

ENGRAVING SCHEDULE				
REF	FIRST LINE	SECOND LINE	THIRD LINE	DET
460V Switchgear				
100	460 volt	Switchgear	East *	1
F1A	Watt hour	Meter		2
F1C	Reverse	Power	Relay	2
F2A	Voltmeter			2
F2B	Ammeter			2
F3	Transformer	N# 1		2
G1	Motor Control	Center 2	Feeder	2
Q2	Exhaust Fan 1	High Speed		2
Q3	Supply Fan 1	High Speed		2
H1	Motor Control	Center 1	Feeder	2
H2	Exhaust Fan 2	High Speed		2
H3	Supply Fan 2	High Speed		2
I1	Motor Control	Center 3	Feeder 1	2
I2	Exhaust Fan 3	High Speed		2
I3	Supply Fan 3	High Speed		2
J1	Motor Control	Center 3	Feeder 2	2
J2	Exhaust Fan 4	High Speed		2
J3	Supply Fan 4	High Speed		2
K1	Emergency	Generator	Incoming	2
K2	Spare	Equipped	Compartment	2
K3	Spare	Equipped	Compartment	2
L1A	Watt hour	Meter		2
L1C	Reverse	Power	Relay	2
L2A	Voltmeter			2
L2B	Ammeter			2
L3	Transformer	N# 2		2

ENGRAVING SCHEDULE				
REF	FIRST LINE	SECOND LINE	THIRD LINE	DET
24.9KV Switchgear				
100	24.9KV	Switchgear	East *	1
1	24.9KV	Incoming	Feeder	2
2	24.9KV	Tie		2
3	24.9KV	Transformer	N# 2	2
4	24.9KV	Transformer	N# 1	2

*Substitute West for West Bldg. Switchgear.

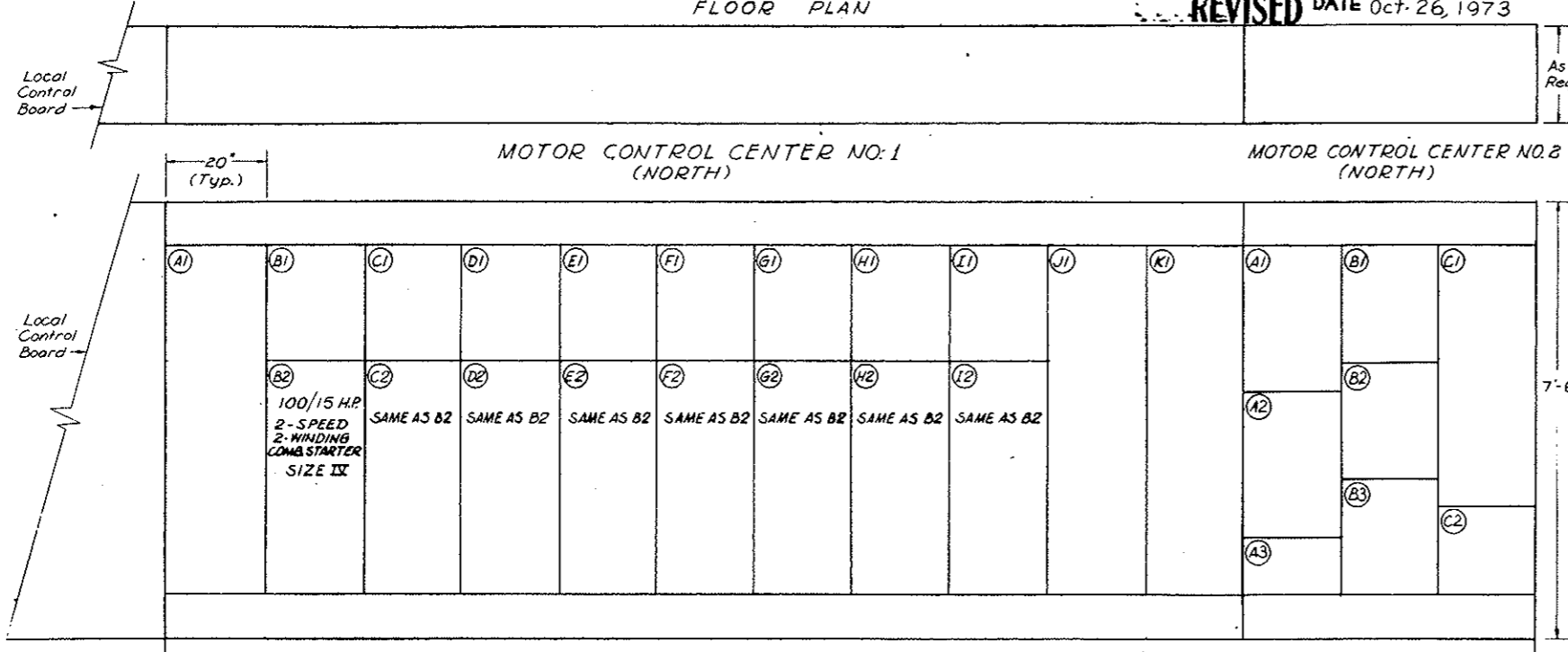
Notes

1. For general notes and legend see Dwg E-G1 & E-G2 & shown for East Vent. Bldg. Opposite hand for West Vent. Bldg.

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST & EAST VENTILATION BUILDINGS 24.9 KV & 460V SWITCHGEAR					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: J.A.G.	RECOMMENDED: H. J. ...				
DRAWN: R.D.S.	APPROVED: W.A. ...				
CHECKED: D.H.D.	SUBMITTED: ...				
DRAWING NO. E-WEI		SCALE: AS NOTED DATE: AUG. 1967			

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

FLOOR PLAN



FRONT ELEVATION

ENGRAVING SCHEDULE				
REF	FIRST LINE	SECOND LINE	THIRD LINE	DET
460V. Motor Control Center No. 3 North				
100	480 Volt	MCC No. 3	North	1
A1	Incoming	Feeder No. 1		2
A2	Incoming	Feeder No. 2		2
A3	Space			2
B1	Current	Limiting	Reactors	2
C1	Vent. Fan	For	SF-1	2
C2	Vent. Fan	For	SF-2	2
C3	Vent. Fan	For	SF-3	2
C4	Vent. Fan	For	SF-4	2
D1	Damper	For	SF-1	2
D2	Damper	For	SF-2	2
D3	Damper	For	SF-3	2
D4	Damper	For	SF-4	2
E1	Damper	For	EF-1	2
E2	Damper	For	EF-2	2
E3	Damper	For	EF-3	2
E4	Damper	For	EF-4	2
F1A	Battery	Charger		2
F2A	State	Communication	Room	2
F3A	Motor Control	Center No. 4	North	2
F4A	Water System	Power Dist.	Panel	2
F1B	Control Rm.	Power Dist.	Panel	2
F2B	CO System			2
F3B	Motor Control	Center No. 4	South	2
F4B	100 Amp	Breaker	Spars	2

* For Motor Control Center #3 North of West End this Comp't contains 480/120V. Power Control Transformer for Supervisory Remote Control Equipment

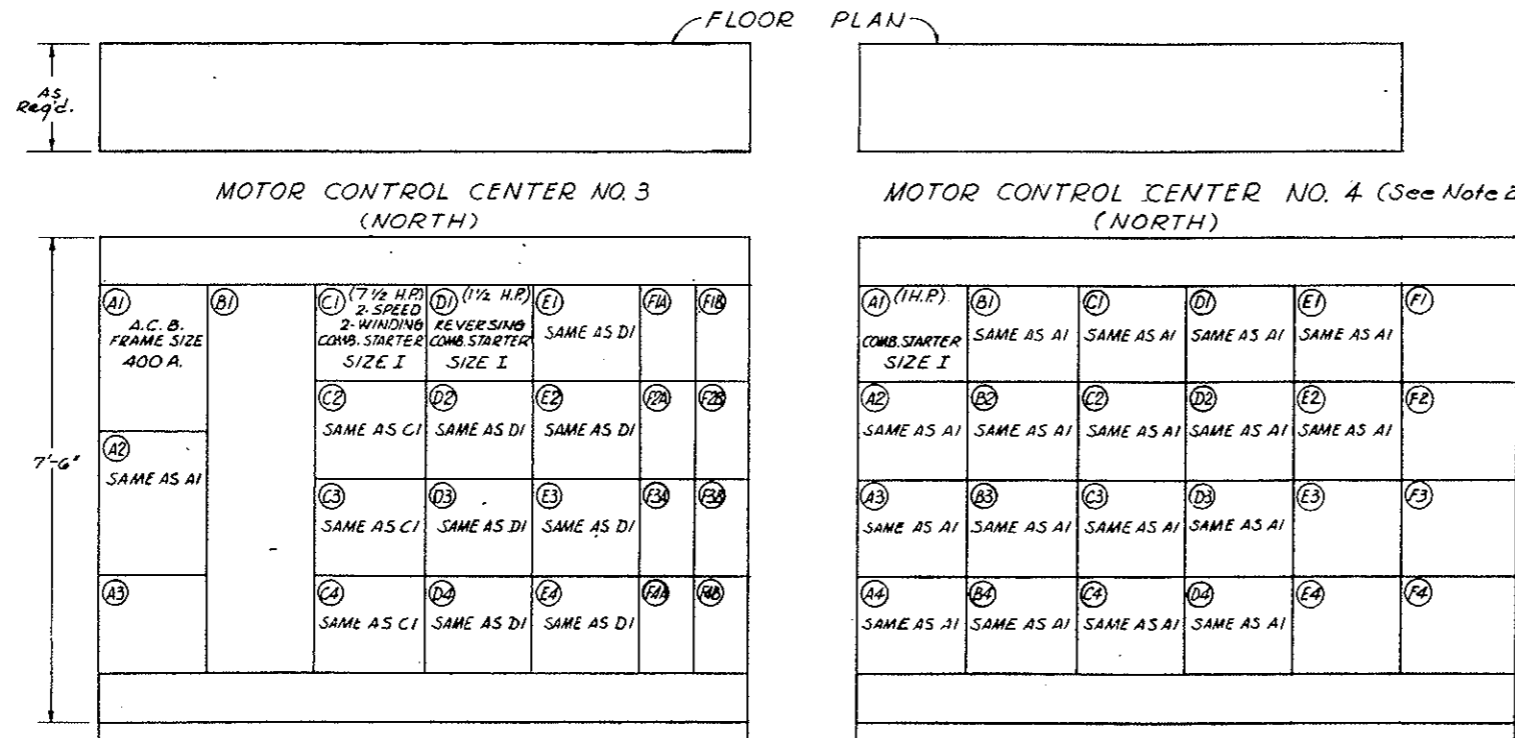
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	278	328

ENGRAVING SCHEDULE				
REF	FIRST LINE	SECOND LINE	THIRD LINE	DET
460V. Motor Control Center No. 1 North				
100	480 Volt	MCC No. 1	North	1
A1	Incoming	Feeder Bus		2
B1	Control	Relays	SF-1	2
B2	Supply Fan 1	Intermediate	& Low Speed	2
C1	Control	Relays	SF-2	2
C2	Supply Fan 2	Intermediate	& Low Speed	2
D1	Control	Relays	SF-3	2
D2	Supply Fan 3	Intermediate	& Low Speed	2
E1	Control	Relays	SF-4	2
E2	Supply Fan 4	Intermediate	& Low Speed	2
F1	Control	Relays	EF-1	2
F2	Exhaust Fan 1	Intermediate	& Low Speed	2
G1	Control	Relays	EF-2	2
G2	Exhaust Fan 2	Intermediate	& Low Speed	2
H1	Control	Relays	EF-3	2
H2	Exhaust Fan 3	Intermediate	& Low Speed	2
I1	Control	Relays	EF-4	2
I2	Exhaust Fan 4	Intermediate	& Low Speed	2
J1	Tie	Breaker	MCC No. 2	2
K1	Bus	Transition	Section	2

ENGRAVING SCHEDULE				
REF	FIRST LINE	SECOND LINE	THIRD LINE	DET
460V. Motor Control Center No. 2 North				
100	460 Volt	MCC No. 2	North	1
A1	Fan Room	Power Dist.	Panel No. 2	2
A2	North Bldg.	Power Dist.	Panel No. 4	2
A3	Equipped Space	for Starter	Size II	2
B1	Center Bldg.	Power Dist.	Panel No. 3	2
B2	South Bldg.	Power Dist.	Panel No. 5	2
B3	300 KVA	Transformer	Primary	2
C1	Incoming	Feeder Bus		2
C2	Tunnel Supply	Power Dist.	Panel No. 1	2

- NOTES
- This Dwg. shows Motor Control Centers in East and Motor Control Centers in West are similar except opposite hand.
 - Motor Control Centers No. 4 North & South are similar, except in South a group of six bulkheads will be associated with each Supply Fan.
 - All combination starters shall be circuit breaker type & these circuit breakers shall have thermo-magnetic trip elements.
 - Circuit breakers in MCC #1 & MCC #2 to be 35,000 Amps Symmetrical Interrupting Capacity Westinghouse "Mark 75" or equal.
 - For Nameplate details see Dwg. # E-WE1.
- REF. DWGS
E-G2 Single Line Diagram
E-G3 Fan Control Elem. Diag.

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST AND EAST VENTILATION BUILDINGS MOTOR CONTROL CENTERS					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: H.A.C.	DRAWN: E.M.		CHECKED: D.H.D.	SUBMITTED: <i>[Signature]</i>	
APPROVED: <i>[Signature]</i>	APPROVED: <i>[Signature]</i>		DATE: AUG. 1972		
SCALE: 3/4" = 1' - 0"					E - WE2



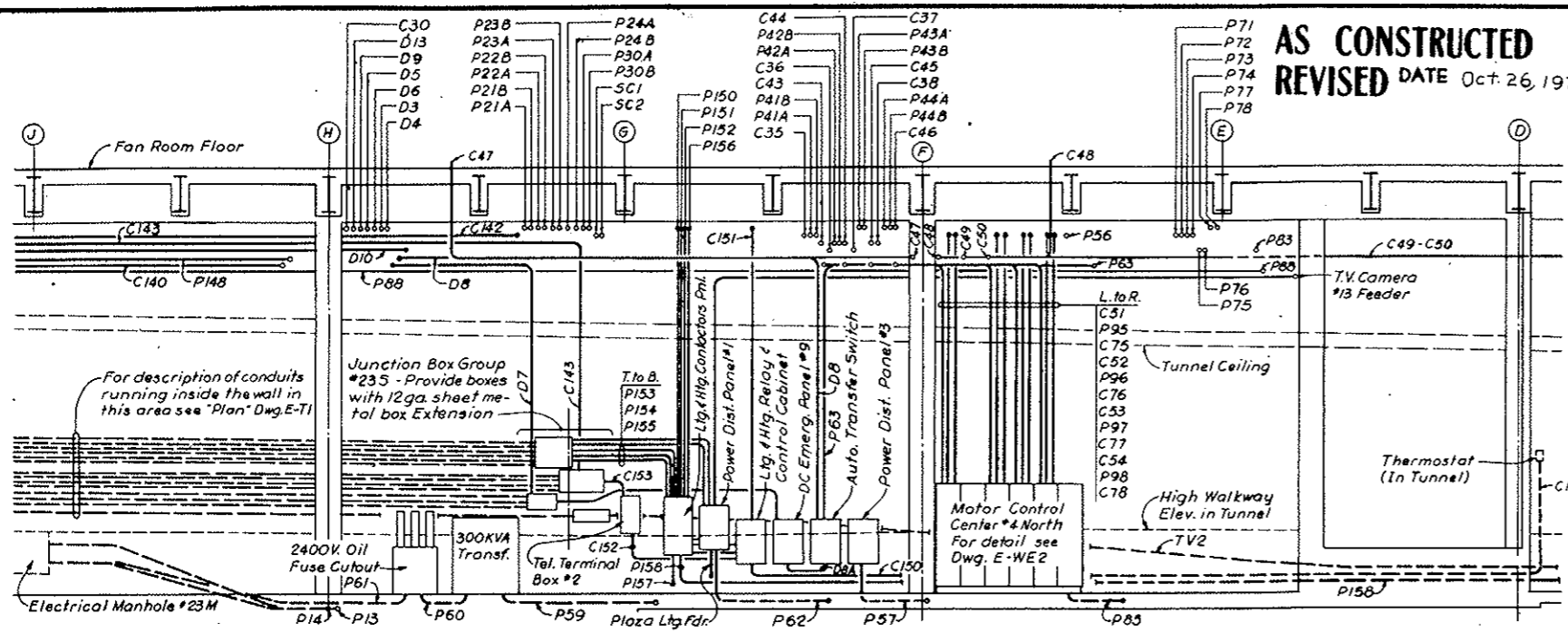
FRONT ELEVATION

ENGRAVING SCHEDULE				
REF	FIRST LINE	SECOND LINE	THIRD LINE	DET
460V. Motor Control Center No. 4 North				
100	480 Volt	MCC No. 4	North	1
A1	Bulkhead 1	For	SF-1	2
A2	Bulkhead 2	For	SF-1	2
A3	Bulkhead 3	For	SF-1	2
A4	Bulkhead 4	For	SF-1	2
B1	Bulkhead 5	For	SF-1	2
B2	Bulkhead 1	For	SF-2	2
B3	Bulkhead 2	For	SF-2	2
B4	Bulkhead 3	For	SF-2	2
C1	Bulkhead 4	For	SF-2	2
C2	Bulkhead 5	For	SF-2	2
C3	Bulkhead 1	For	SF-3	2
C4	Bulkhead 2	For	SF-3	2
D1	Bulkhead 3	For	SF-3	2
D2	Bulkhead 4	For	SF-3	2
D3	Bulkhead 1	For	SF-4	2
D4	Bulkhead 2	For	SF-4	2
E1	Bulkhead 3	For	SF-4	2
E2	Bulkhead 4	For	SF-4	2
E3	Cont. Transf.'s	For SF-1, SF-2	Bulkheads	2
E4	Cont. Transf.'s	For SF-3, SF-4	Bulkheads	2
F1	Equipped Space	For Starter	Size II	2
F2	Equipped Space	For Starter	Size II	2
F3	Space			2
F4	Incoming	Feeder		2

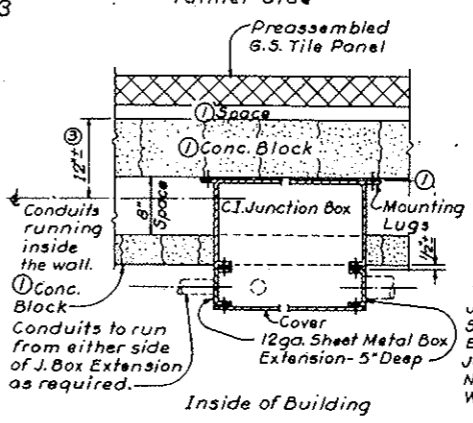
AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

~~(R-1) REV. 11-6-67 C.D.H. - ADDED NOTE BELOW~~
~~(R-2) REV. 2-1-71 REINSTATED ITEMS W.O. #14557~~

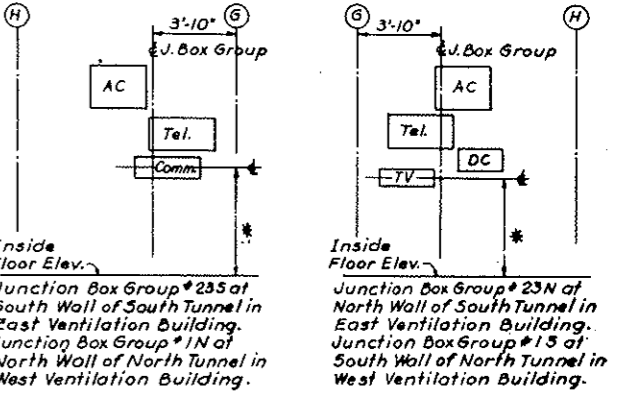
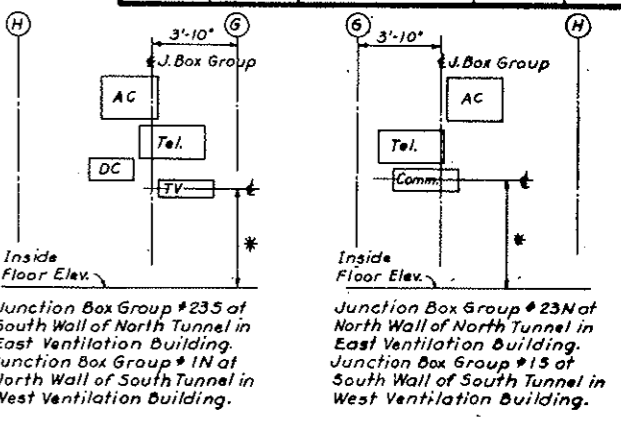
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	277	326



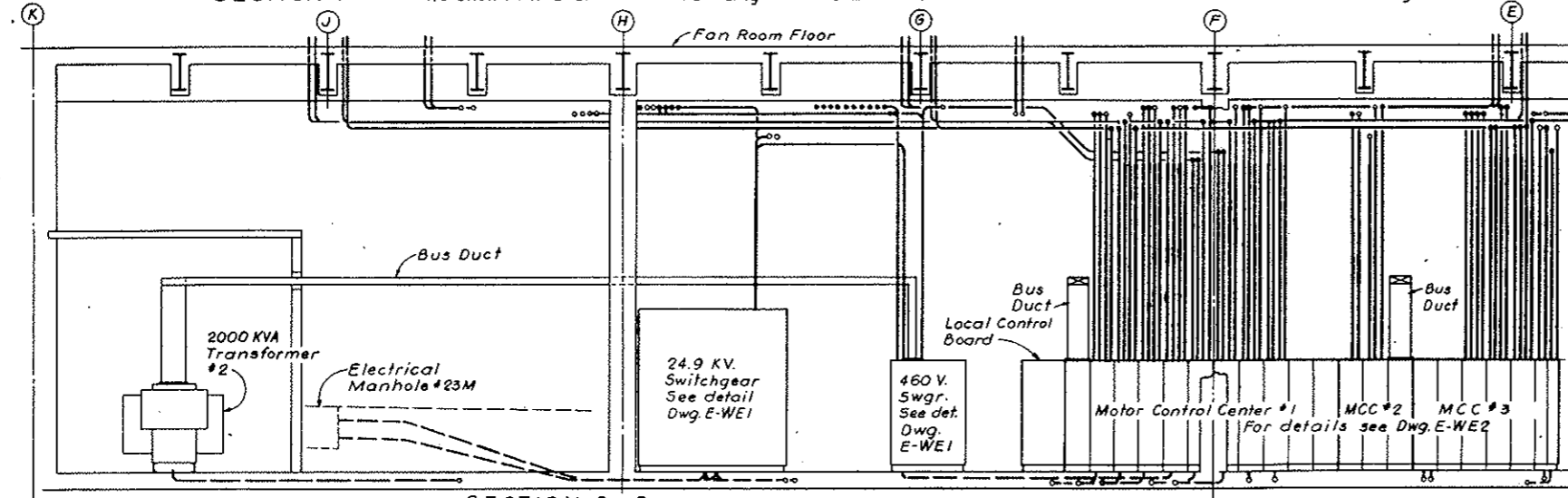
SECTION A-A As shown for East Ventilation Building SECTION A₁-A₁ Similar for West Ventilation Building



DETAIL "A" - PLAN
 Typical for all boxes in Junction Box Groups located at East & West Ventilation Bldgs.



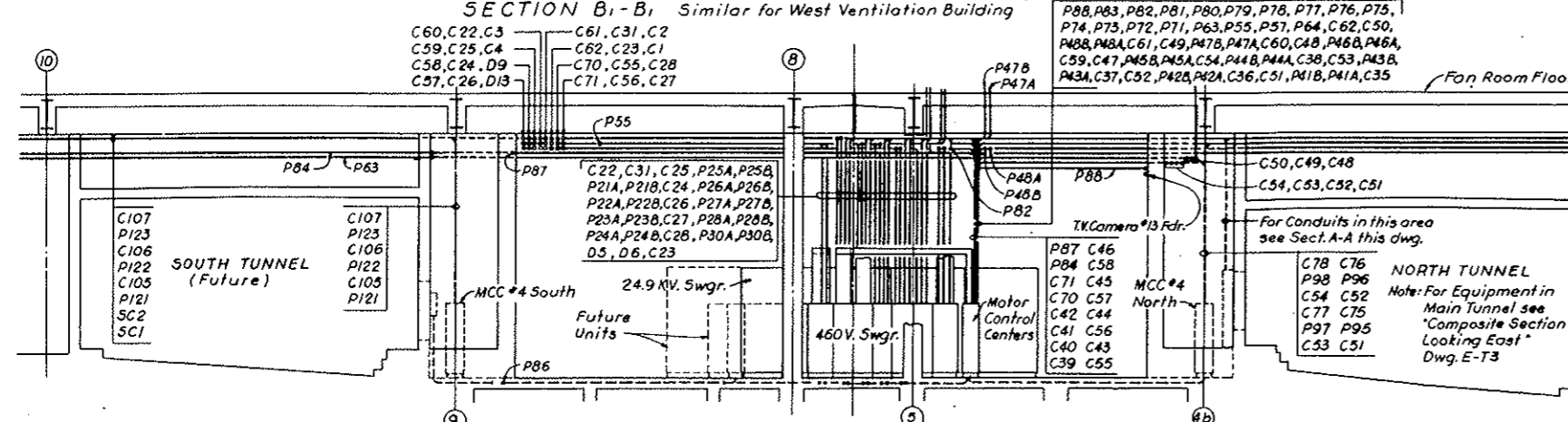
Note:
 For sizes and dimensions between boxes see "Junction Box Group Elevations" Dwg. E-T3
 * As required to maintain conduit runs, (from Building boxes to corresponding Tunnel boxes) as level as possible.



SECTION B-B As shown for East Ventilation Building SECTION B₁-B₁ Similar for West Ventilation Building

~~(R-2) NOTE A:~~
 Tunnel Ventilation System (Bid Item 165) Revised - Emergency Generator (Bid Item 160) & T.V. Surveillance System (Bid Item 120) Deleted - See W.O. 14153. Electrical Work shown on this Dwg. Remains in Contract - See Referenced Dwg. for effects of changes listed above.

- NOTES:
- For Telephone Riser Diagram see Dwg. E-68
 - For Symbol Legend see Dwg. E-E4 & E-E5
 - For Conduit & Cable runs from Power Panels see Panel Schedule Dwg. E-610 & E-611
 - For Conduit & Cable Schedule see Dwg. E-W5 to E-W9 incl. and E-E9 or E-W8 (West Bldg.)
 - Exact routing of conduits to be determined by Field.
 - For Conduits or Equipment not shown or identified refer to Conduit & Cable Schedule Drawings and/or Roadway Floor Plan - Dwg. E-E1, E-E2 & E-E3 or Dwg. E-W1, E-W2 & E-W3 (West Bldg.)
 - For Grounding of Equipment & Notes see Dwg. E-67



SECTION C-C As shown for East Ventilation Building SECTION C₁-C₁ Similar for West Ventilation Building
 Scale: 1/8 in. = 1 Ft.

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
 STRAIGHT CREEK VEHICULAR TUNNEL PROJECT

ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT SECTIONS & DETAILS

SHEET 1

TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N.Y.

DESIGNED: E.A.H.
 DRAWN: E.A.H.
 CHECKED: R.A.C.
 SUBMITTED: [Signature]

SCALE: 3/16" = 1'-0" DATE: AUG. 1967

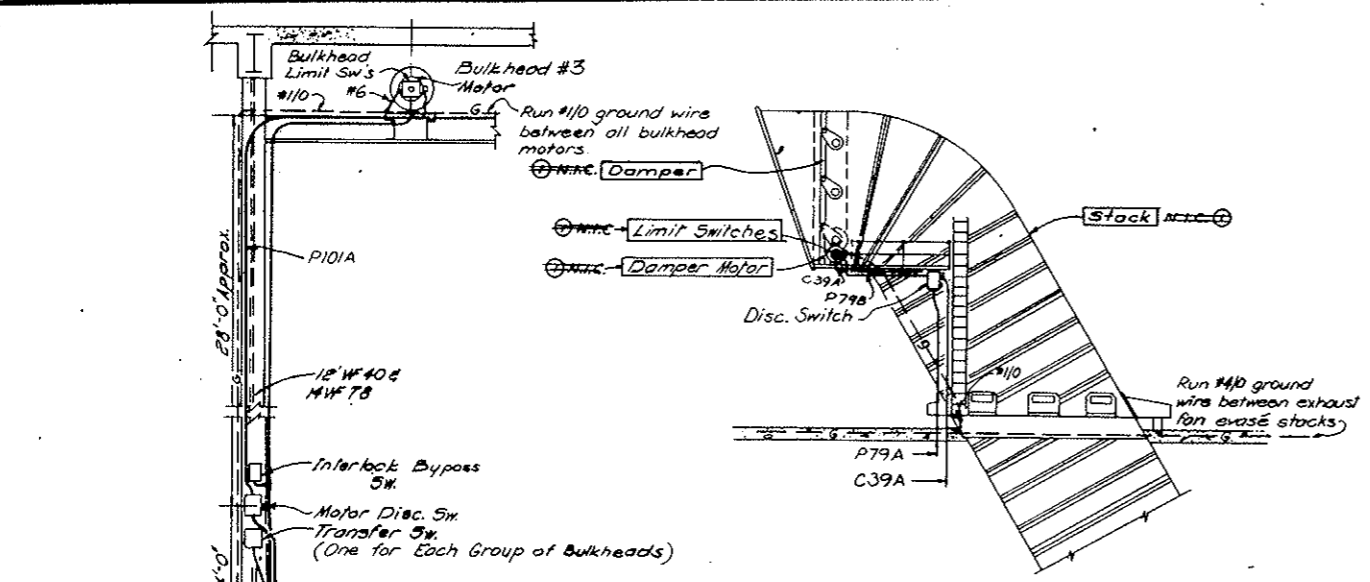
E-WES

~~(R-2) (R-1) T.V. SURVEILLANCE SYSTEM DELETED W.O. #14153 SEE SPEC 10H~~

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	278	328

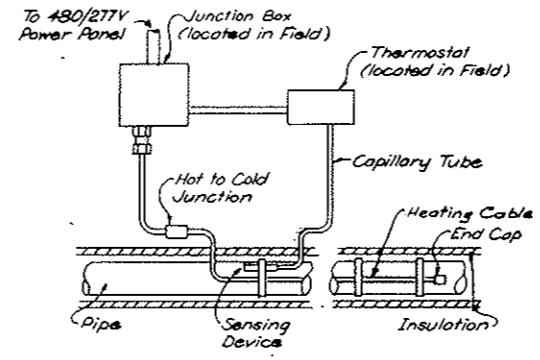
AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

(R-1) REV. 11-6-67 C.B.H. - ADDED NOTE BELOW



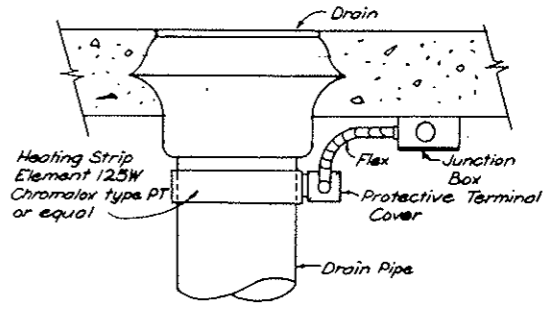
TYPICAL EXHAUST DAMPER

Note:
All bulkhead & damper equipment above the fan floor to be watertight (NEMA III)



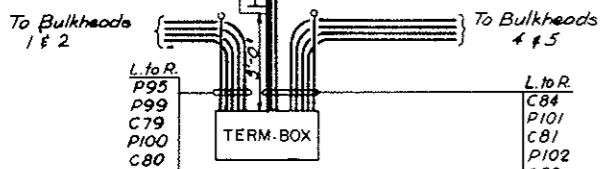
PIPE HEAT TRACING (TYPICAL)

NTS



DRAIN HEAT TRACING (TYPICAL)

NTS



BULKHEAD CONDUIT ARRANGEMENT

Detail "E" Shown for Supply Fan Bulkhead 3

Similar for Supply Fan No 2
Similar for Supply Fans No 3 & 4 except 4 Bulkheads in group
Similar for South Wall except 6 Bulkheads in each group
(For Conduit No's. See Cond. & Cable schedule)

Note A: - Tunnel Ventilation System, (Bid Item 155), revised. See W.O. 14153 & Spec. 17A Equip. Items N.I.C. as marked. Other Equipment shown remains in this contract. Conduit, Boxes, etc. & Power & Control wiring, including connections, remain in this contract, (Bid Items 181, 182 & 175). Final Termination of Conduit & wiring for N.I.C. Items must be coordinated with the actual Equipment, (to be furnished & installed under another contract).

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK	APP
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT SECTIONS & DETAILS SHEET 2					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: J.P. - J.A.G.	RECOMMENDED:				
DRAWN: J.P. - S.S.	CHECKED: H.A.C.				
SUBMITTED:	APPROVED:				
		DRAWING NO.		E-WE4	
NEW YORK, N. Y.		SCALE: AS NOTED		DATE: AUG. 1967	

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	279	326

AS CONSTRUCTED
 REVISION 1 OF 8, 1973
 DATE

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
24.9 KV SERVICE LINES						
P1	3"	3	1/C #1 (27KV)	PUBLIC SERVICE CO. POLE	ELECT. MANHOLE AT PLAZA	PUBLIC SERVICE POWER SUPPLY
P2	3"	3	1/C #1 (27KV)	ELECT. MANHOLE AT PLAZA	24.9 KV SWGR. COMPT 1	
P3	3"	-	-	PUBLIC SERVICE CO. POLE	ELECT. MANHOLE AT PLAZA	SPARE CONDUIT
P4	3"	-	-	ELECT. MANHOLE AT PLAZA	24.9 KV SWGR. COMPT 1	
24.9 KV HIGH TENSION SWITCHGEAR						
P11	3"	3	1/C #1 (27KV)	24.9 KV SWGR. COMPT 4	2000 KVA TRANSF. #1	FEEDER
P12	3"	3	1/C #1 (27KV)	COMPT 3	2000 KVA TRANSF. #2	
P13	4"	3	1/C #1 (27KV)	COMPT 2	MANHOLE #23M (MANHOLE #1M FOR WEST)	TIE BETW. EAST & WEST 24.9KV SWGR'S (FOR CONTINUATION IN TUNNEL SEE DWG # E-T1) ①
P14	4"	-	-	24.9 KV SWGR. COMPT 2	MANHOLE #23M (MANHOLE #1M FOR WEST)	SPARE COND. FOR TIE BETWEEN (FOR CONTINUATION IN TUNNEL SEE DWG # E-T1)
460 V LOW TENSION SWITCHGEAR						
P21A	3 1/2"	3	750 MCM ①	460 V SWGR. COMPT 63	SUPPLY FAN 1 HIGH SPEED MOTOR	FEEDER
P21B	3 1/2"	3		63	1	
P22A	3 1/2"	3		H3	2	
P22B	3 1/2"	3		H3	2	
P23A	3 1/2"	3		I3	3	
P23B	3 1/2"	3		I3	3	
P24A	3 1/2"	3		J3	4	
P24B	3 1/2"	3		J3	4	
P25A	3 1/2"	3		G1	EXHAUST FAN 1	
P25B	3 1/2"	3		G1	1	
P26A	3 1/2"	3		H1	2	
P26B	3 1/2"	3		H1	2	
P27A	3 1/2"	3		I1	3	
P27B	3 1/2"	3		I1	3	
P28A	3 1/2"	3		J1	4	
P28B	3 1/2"	3		J1	4	
P29A	3"	3	350 MCM 1 1/C #1/0	I1	MOTOR CONT. CENTER #3 (NORTH)	FEEDER 1
P29B	3"	3	350 MCM 1 1/C #1/0	J1	J1	FEEDER 2

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
460 V LOW TENSION SWITCHGEAR - CONTINUED -						
C11	1 1/2"	12	1/C #12 (3Sp)	460 V SWGR. COMPT 63	MOTOR CONT. CENTER #1 COMPT B2	SUPPLY FAN 1 HIGH SPEED CONT. & IND.
C12	1 1/2"	12	1/C #12 (3Sp)		H3	C2 SUPPLY FAN 2
C13	1 1/2"	12	1/C #12 (3Sp)		I3	D2 SUPPLY FAN 3
C14	1 1/2"	12	1/C #12 (3Sp)		J3	E2 SUPPLY FAN 4
C15	1 1/2"	10	1/C #12 (3Sp)		G3	F2 EXH. FAN 1
C16	1 1/2"	10	1/C #12 (3Sp)		H3	G2 EXH. FAN 2
C17	1 1/2"	10	1/C #12 (3Sp)		I3	H2 EXH. FAN 3
C18	1 1/2"	10	1/C #12 (3Sp)		J3	I2 EXH. FAN 4
MOTOR CONTROL CENTER NO. 1 NORTH						
P41A	2"	3	1/C #2/0	MOTOR CONT. CENTER #1 COMPT B1	SUPPLY FAN 1 LOW & INTER. SP. MOTOR	INTERM. SPEED MOTOR FEEDER
P41B	1"	3	1/C #10	B1	SUPPLY FAN 1	LOW
P42A	2"	3	1/C #2/0	C1	SUPPLY FAN 2	INTERM.
P42B	1"	3	1/C #10	C1	SUPPLY FAN 2	LOW
P43A	2"	3	1/C #2/0	D1	SUPPLY FAN 3	INTERM.
P43B	1"	3	1/C #10	D1	SUPPLY FAN 3	LOW
P44A	2"	3	1/C #2/0	E1	SUPPLY FAN 4	INTERM.
P44B	1"	3	1/C #10	E1	SUPPLY FAN 4	LOW
P45A	2"	3	1/C #2/0	F1	EXH. FAN 1	INTERM.
P45B	1"	3	1/C #10	F1	EXH. FAN 1	LOW
P46A	2"	3	1/C #2/0	G1	EXH. FAN 2	INTERM.
P46B	1"	3	1/C #10	G1	EXH. FAN 2	LOW
P47A	2"	3	1/C #2/0	H1	EXH. FAN 3	INTERM.
P47B	1"	3	1/C #10	H1	EXH. FAN 3	LOW
P48A	2"	3	1/C #2/0	I1	EXH. FAN 4	INTERM.
P48B	1"	3	1/C #10	I1	EXH. FAN 4	LOW
C35	1 1/2"	18	1/C #12	MOTOR CONT. CENTER #1 COMPT B1	SUPPLY FAN 1 DAMPER LIM. SW'S. JUNCT. BOX	CONTROL
C35A	1 1/2"	18	1/C #12	JUNCT. BOX	DAMPER LIM. SW'S.	
C36	1 1/2"	18	1/C #12	MOTOR CONT. CENTER #1 COMPT C1	SUPPLY FAN 2 DAMPER LIM. SW'S. JUNCT. BOX	
C36A	1 1/2"	18	1/C #12	JUNCT. BOX	DAMPER LIM. SW'S.	

GENERAL NOTES

- Schedules having drawing numbers prefixed "WE" list conduit & cable for East Building. These must be duplicated in the West Building.
- Schedules having drawing numbers prefixed "E" or "W" apply to the "East" or "West" Building resp.
- In general these Conduit & Cable Schedules do not include branch circuits from "AC" & "DC" power distribution panels. For information on these, see Power & Lighting Panel Schedules, conduit layouts & lighting drawings.
- For continuation in the tunnel of certain circuits shown on these schedules as entering boxes in Junction Box groups in Tunnel Wall, see tunnel drawings & wiring diagrams (having drawing numbers prefixed by "T").

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT & CABLE SCHEDULE SHEET 1					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: H.A.C.	CHECKED: D.H.D.		SUBMITTED: R. R. ...		RECOMMENDED: H. B. ...
DRAWING NO. E-WE5					SCALE: NONE
NEW YORK, N. Y.					DATE: AUG. 1967

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	280	326

AS CONSTRUCTION
REVISED DATE: Oct. 26, 1973

NOTES:
 For "General Notes" see Conduit & Cable schedule E-WE5

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
MOTOR CONTROL CENTER NO. 1-NORTH (CONTINUED)							
C37	1 1/2"	18	1/C #12		MOTOR CONTROL CENTER #1 COMPT D1	SUPPLY FAN 3 DAMPER LIM. SW'S JUNC. BOX	CONTROL
C37A	1 1/2"	18	1/C #12		JUNCTION BOX	DAMPER LIMIT SW'S	
C38	1 1/2"	18	1/C #12		MOTOR CONTROL CENTER #1 COMPT E1	SUPPLY FAN 4 DAMPER LIM. SW'S JUNC. BOX	
C38A	1 1/2"	18	1/C #12		JUNCTION BOX	DAMPER LIMIT SW'S	
C39	1 1/2"	18	1/C #12		MOTOR CONTROL CENTER #1 COMPT F1	EXH. FAN 1 DAMPER LIMIT SW'S JUNC. BOX	
C39A	1 1/2"	18	1/C #12		JUNCTION BOX	DAMPER LIMIT SW'S	
C40	1 1/2"	18	1/C #12		MOTOR CONTROL CENTER #1 COMPT G1	EXH. FAN 2 DAMPER LIMIT SW'S JUNC. BOX	
C40A	1 1/2"	18	1/C #12		JUNCTION BOX	DAMPER LIMIT SW'S	
C41	1 1/2"	18	1/C #12		MOTOR CONTROL CENTER #1 COMPT H1	EXH. FAN 3 DAMPER LIMIT SW'S JUNC. BOX	
C41A	1 1/2"	18	1/C #12		JUNCTION BOX	DAMPER LIMIT SW'S	
C42	1 1/2"	18	1/C #12		MOTOR CONTROL CENTER #1 COMPT I1	EXH. FAN 4 DAMPER LIMIT SW'S JUNC. BOX	
C42A	1 1/2"	18	1/C #12		JUNCTION BOX	DAMPER LIMIT SW'S	
C43	1 1/2"	21	1/C #12		MOTOR CONTROL CENTER #1 COMPT B1	SUPPLY FAN 1 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW. & THERMOST. CONTROL
C43A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	FAN EMERGENCY STOP
C43B	1"	3	1/C #12			EMERGENCY STOP SW.	THERMOST. CONTROL
C43C	1"	4	1/C #12			SUPPLY FAN 1 MOT. ENCLOSURE THERMOST.	THERMOST. CONTROL
C44	1 1/2"	21	1/C #12		MOTOR CONTROL CENTER #1 COMPT C1	SUPPLY FAN 2 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW. & THERMOST. CONTROL
C44A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW'S CONTROL
C44B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C44C	1"	4	1/C #12			SUPPLY FAN 2 MOT. ENCLOSURE THERMOST.	THERMOST. CONTROL
C45	1 1/2"	21	1/C #12		MOTOR CONTROL CENTER #1 COMPT D1	SUPPLY FAN 3 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW. & THERMOST. CONTROL
C45A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW CONTROL
C45B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C45C	1"	4	1/C #12			SUPPLY FAN 3 MOT. ENCLOSURE THERMOST.	THERMOST. CONTROL
C46	1 1/2"	21	1/C #12		MOTOR CONTROL CENTER #1 COMPT E1	SUPPLY FAN 4 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW. & THERMOST. CONTROL
C46A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW CONTROL
C46B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C46C	1"	4	1/C #12			SUPPLY FAN 4 MOT. ENCLOSURE THERMOST.	THERMOST. CONTROL
C47	1 1/2"	17	1/C #12		MOTOR CONTROL CENTER #1 COMPT F1	EXH. FAN 1 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW.
C47A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW. CONTROL
C47B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C48	1 1/2"	17	1/C #12		MOTOR CONTROL CENTER #1 COMPT G1	EXH. FAN 2 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW.
C48A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW. CONTROL
C48B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C49	1 1/2"	17	1/C #12		MOTOR CONTROL CENTER #1 COMPT H1	EXH. FAN 3 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW.
C49A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW. CONTROL
C49B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C50	1 1/2"	17	1/C #12		MOTOR CONTROL CENTER #1 COMPT I1	EXH. FAN 4 SPEED SW'S JUNC. BOX	SPEED SW'S EM. STOP SW.
C50A	1 1/2"	14	1/C #12		JUNCTION BOX	SPEED SW'S	SPEED SW. CONTROL
C50B	1"	3	1/C #12			EMERGENCY STOP SW.	FAN EMERGENCY STOP
C51	1 1/2"	12	1/C #12 (3SP)		MOTOR CONTROL CENTER #1 COMPT B1	MOTOR CONTROL CENTER #4 COMPT A1	SUPPLY FAN 1 BULKHEADS CONT. & POS. IND.
C52	1 1/2"	12	1/C #12 (3SP)			C1	C1 SUPPLY FAN 2
C53	1 1/2"	12	1/C #12 (3SP)			D1	D1 SUPPLY FAN 3
C54	1 1/2"	12	1/C #12 (3SP)			E1	E1 SUPPLY FAN 4
MOTOR CONTROL CENTER NO. 2-NORTH							
P55	1 1/2"	3	1/C #10		MOTOR CONTROL CENTER #2 COMPT A1	AC POWER DIST. PANEL NO. 2	FEEDER
P56	1 1/2"	3	1/C #10			A1	NO. 4
P57	1 1/2"	3	1/C #10			B3	NO. 3
P58	1 1/2"	3	1/C #10			B1	NO. 5
P59	3"	3	500 MCM		MOTOR CONTROL CENTER #2 COMPT B3	300 KYA TRANSF. PRIMARY	FEEDER
P60	1 1/2"	3	1/C #2 (5KV)			300 KYA TRANSF. SECONDARY	OIL FUSE CUTOUT
P61	1 1/2"	3	1/C #2 (5KV)			OIL FUSE CUTOUT	MANHOLE 23M (MANHOLE 1M. FOR WEST)
(FOR CONTINUATION IN TUNNEL SEE DWG. E-T1)							
P62	2"	3	1/C #4/0		MOTOR CONTROL CENTER #2 COMPT C2	AC POWER DIST. PANEL No. 1	

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
MOTOR CONTROL CENTER NO. 2-NORTH (CONTINUED)							
P63	1"	5	1/C #12		MOTOR CONTROL CENTER #2	COMPT B1 CONT. TRANSF. SECOND. BLDG. & TUNNEL EMERG. LT'S	CONTROL (Power Failure Sensing)
MOTOR CONTROL CENTER NO. 3-NORTH							
P71	1"	8	1/C #12		MOTOR CONTROL CENTER #3 COMPT C1	SUPPLY FAN 1 VENT. FAN MOT. DISC. SW.	FEEDERS-(2 SPEED MOTORS & ASSOCIATED DAMPER ACTIVATORS)
P71A	1"	8	1/C #12			DISC. SW.	
P72	1"	8	1/C #12		MOTOR CONTROL CENTER #3 COMPT C1	SUPPLY FAN 2 VENT. FAN MOT. DISC. SW.	
P72A	1"	8	1/C #12			DISC. SW.	
P73	1"	8	1/C #12		MOTOR CONTROL CENTER #3 COMPT C1	SUPPLY FAN 3 VENT. FAN MOT. DISC. SW.	
P73A	1"	8	1/C #12			DISC. SW.	
P74	1"	8	1/C #12		MOTOR CONTROL CENTER #3 COMPT C1	SUPPLY FAN 4 VENT. FAN MOT. DISC. SW.	
P74A	1"	8	1/C #12			DISC. SW.	
P75	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT D1	SUPPLY FAN 1 DAMPER MOT. DISC. SW.	FEEDER
P75A	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P76	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT D1	SUPPLY FAN 2 DAMPER MOT. DISC. SW.	
P76A	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P77	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT D1	SUPPLY FAN 3 DAMPER MOT. DISC. SW.	
P77A	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P78	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT D1	SUPPLY FAN 4 DAMPER MOT. DISC. SW.	
P78A	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P79	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT E1	EXH. FAN 1 DAMPER MOT. JUNCT. BOX	
P79A	1"	3	1/C #12		JUNCTION BOX	EXH. FAN 1 DAMPER MOT. DISC. SW.	
P79B	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P80	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT E1	EXH. FAN 2 DAMPER MOT. JUNCT. BOX	
P80A	1"	3	1/C #12		JUNCTION BOX	EXH. FAN 2 DAMPER MOT. DISC. SW.	
P80B	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P81	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT E1	EXH. FAN 3 DAMPER MOT. JUNCT. BOX	
P81A	1"	3	1/C #12		JUNCTION BOX	EXH. FAN 3 DAMPER MOT. DISC. SW.	
P81B	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P82	1"	3	1/C #12		MOTOR CONTROL CENTER #3 COMPT E1	EXH. FAN 4 DAMPER MOT. JUNCT. BOX	
P82A	1"	3	1/C #12		JUNCTION BOX	EXH. FAN 4 DAMPER MOT. DISC. SW.	
P82B	1"	3	1/C #12			DISC. SW.	DAMPER MOTOR
P83	1"	3	1/C #8		MOTOR CONTROL CENTER #3 COMPT F1A	BATTERY CHARGER	
P84	1 1/2"	3	1/C #4			F1A	AC POWER DIST. PANEL 7
P85	1 1/2"	3	1/C #8			F4A	MOTOR CONTROL CENTER #4 NORTH
P86	1 1/2"	3	1/C #4			F4A	AC POWER DIST. PANEL 8
P87	1"	2	1/C #12		MOTOR CONTROL CENTER #3 COMPT F1B	CO SYSTEM TRANSFORMER	FEEDER
P88	1 1/2"	3	1/C #6			F4B	MOTOR CONTROL CENTER #4 (SOUTH)

NO. DATE	DESCRIPTION OF REVISION	BY	CL	APP.
STATE OF COLORADO-DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT				
ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT & CABLE SCHEDULE SHEET 2				
TIPPETTS-ABBETT-McCARTHY-STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N.Y.				
DESIGNED: H.A.C.	RECOMMENDED: <i>K. H. Strickland</i>			
DRAWN: O.S.G.	CHECKED: D.H.D.			
APPROVED: <i>K. H. Strickland</i>				
DRAWING NO. E-WE5		SCALE: NONE DATE: AUG. 1967		

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	281	326

AS CONSTRUCTED
REVISED DATE Oct. 26, 1973

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
MOTOR CONTROL CENTER NO. 4-NORTH							
P95	1 1/2"	15	1/C # 12		MOTOR CONTROL CENTER #4 COMPT A1	SUPPLY FAN 1 BULKHEADS JUNCT. BOX	FEEDER
P96	1 1/2"	15	1/C # 12			C1 SUPPLY FAN 2 BULKHEADS JUNCT. BOX	
P97	1 1/2"	12	1/C # 12			D1 SUPPLY FAN 3 BULKHEADS JUNCT. BOX	
P98	1 1/2"	12	1/C # 12			E1 SUPPLY FAN 4 BULKHEADS JUNCT. BOX	
P99	1"	3	1/C # 12		SUPPLY FAN 1 BULKHEADS JUNCT. BOX	SUPPLY FAN 1 BULKHEAD 1 MOT. DISC SW	FEEDER
P99A	1"	3	1/C # 12		DISC SW	BULKHEAD 1 MOTOR	
P100	1"	3	1/C # 12		SUPPLY FAN 1 BULKHEADS JUNCT. BOX	SUPPLY FAN 1 BULKHEAD 2 MOT. DISC SW	
P100A	1"	3	1/C # 12		DISC SW	BULKHEAD 2 MOTOR	
P101	1"	3	1/C # 12		SUPPLY FAN 1 BULKHEADS JUNCT. BOX	SUPPLY FAN 1 BULKHEAD 3 MOT. DISC SW	
P101A	1"	3	1/C # 12		DISC SW	BULKHEAD 3 MOTOR	
P102	1"	3	1/C # 12		SUPPLY FAN 1 BULKHEADS JUNCT. BOX	SUPPLY FAN 1 BULKHEAD 4 MOT. DISC SW	
P102A	1"	3	1/C # 12		DISC SW	BULKHEAD 4 MOTOR	
P103	1"	3	1/C # 12		SUPPLY FAN 1 BULKHEADS JUNCT. BOX	SUPPLY FAN 1 BULKHEAD 5 MOT. DISC SW	
P103A	1"	3	1/C # 12		DISC SW	BULKHEAD 5 MOTOR	
P104	1"	3	1/C # 12		SUPPLY FAN 2 BULKHEADS JUNCT. BOX	SUPPLY FAN 2 BULKHEAD 1 MOT. DISC SW	
P104A	1"	3	1/C # 12		DISC SW	BULKHEAD 1 MOTOR	
P105	1"	3	1/C # 12		SUPPLY FAN 2 BULKHEADS JUNCT. BOX	SUPPLY FAN 2 BULKHEAD 2 MOT. DISC SW	
P105A	1"	3	1/C # 12		DISC SW	BULKHEAD 2 MOTOR	
P106	1"	3	1/C # 12		SUPPLY FAN 2 BULKHEADS JUNCT. BOX	SUPPLY FAN 2 BULKHEAD 3 MOT. DISC SW	
P106A	1"	3	1/C # 12		DISC SW	BULKHEAD 3 MOTOR	
P107	1"	3	1/C # 12		SUPPLY FAN 2 BULKHEADS JUNCT. BOX	SUPPLY FAN 2 BULKHEAD 4 MOT. DISC SW	
P107A	1"	3	1/C # 12		DISC SW	BULKHEAD 4 MOTOR	
P108	1"	3	1/C # 12		SUPPLY FAN 2 BULKHEADS JUNCT. BOX	SUPPLY FAN 2 BULKHEAD 5 MOT. DISC SW	
P108A	1"	3	1/C # 12		DISC SW	BULKHEAD 5 MOTOR	
P109	1"	3	1/C # 12		SUPPLY FAN 3 BULKHEADS JUNCT. BOX	SUPPLY FAN 3 BULKHEAD 1 MOT. DISC SW	
P109A	1"	3	1/C # 12		DISC SW	BULKHEAD 1 MOTOR	
P110	1"	3	1/C # 12		SUPPLY FAN 3 BULKHEADS JUNCT. BOX	SUPPLY FAN 3 BULKHEAD 2 MOT. DISC SW	
P110A	1"	3	1/C # 12		DISC SW	BULKHEAD 2 MOTOR	
P111	1"	3	1/C # 12		SUPPLY FAN 3 BULKHEADS JUNCT. BOX	SUPPLY FAN 3 BULKHEAD 3 MOT. DISC SW	
P111A	1"	3	1/C # 12		DISC SW	BULKHEAD 3 MOTOR	
P112	1"	3	1/C # 12		SUPPLY FAN 3 BULKHEADS JUNCT. BOX	SUPPLY FAN 3 BULKHEAD 4 MOT. DISC SW	
P112A	1"	3	1/C # 12		DISC SW	BULKHEAD 4 MOTOR	
P113	1"	3	1/C # 12		SUPPLY FAN 4 BULKHEADS JUNCT. BOX	SUPPLY FAN 4 BULKHEAD 1 MOT. DISC SW	
P113A	1"	3	1/C # 12		DISC SW	BULKHEAD 1 MOTOR	
P114	1"	3	1/C # 12		SUPPLY FAN 4 BULKHEADS JUNCT. BOX	SUPPLY FAN 4 BULKHEAD 2 MOT. DISC SW	
P114A	1"	3	1/C # 12		DISC SW	BULKHEAD 2 MOTOR	
P115	1"	3	1/C # 12		SUPPLY FAN 4 BULKHEADS JUNCT. BOX	SUPPLY FAN 4 BULKHEAD 3 MOT. DISC SW	
P115A	1"	3	1/C # 12		DISC SW	BULKHEAD 3 MOTOR	
P116	1"	3	1/C # 12		SUPPLY FAN 4 BULKHEADS JUNCT. BOX	SUPPLY FAN 4 BULKHEAD 4 MOT. DISC SW	
P116A	1"	3	1/C # 12		DISC SW	BULKHEAD 4 MOTOR	

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
MOTOR CONTROL CENTER NO. 4-NORTH (CONTINUED)							
C 75	2"	25	1/C # 12 (3Sp)		MOTOR CONTROL CENTER #4 COMPT A1	SUPPLY FAN 1 BULKHEADS JUNCT. BOX	CONTROL
C 76	2"	25	1/C # 12 (3Sp)			C1 SUPPLY FAN 2 BULKHEADS JUNCT. BOX	
C 77	2"	25	1/C # 12 (3Sp)			D1 SUPPLY FAN 3 BULKHEADS JUNCT. BOX	
C 78	2"	25	1/C # 12 (3Sp)			E1 SUPPLY FAN 4 BULKHEADS JUNCT. BOX	
C 79	1 1/2"	8	1/C # 12		SUPPLY FAN 1 BULKHEADS JUNCT. BOX	BULKHEAD 1 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 1 BYPASS SW	
C 80	1 1/2"	8	1/C # 12			BULKHEAD 2 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 2 BYPASS SW	
C 81	1 1/2"	8	1/C # 12			BULKHEAD 3 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 3 BYPASS SW	
C 82	1 1/2"	8	1/C # 12			BULKHEAD 4 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 4 BYPASS SW	
C 83	1 1/2"	8	1/C # 12			BULKHEAD 5 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 5 BYPASS SW	
C 84	1 1/2"	10	1/C # 12			SUPPLY FAN 1 BULKHEADS TRANSF. SW	
						& OPEN CLOSE INCHING P.B. SW'S.	
C 85	1 1/2"	8	1/C # 12		SUPPLY FAN 2 BULKHEADS JUNCT. BOX	BULKHEAD 1 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 1 BYPASS SW	
C 86	1 1/2"	8	1/C # 12			BULKHEAD 2 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 2 BYPASS SW	
C 87	1 1/2"	8	1/C # 12			BULKHEAD 3 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 3 BYPASS SW	
C 88	1 1/2"	8	1/C # 12			BULKHEAD 4 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 4 BYPASS SW	
C 89	1 1/2"	8	1/C # 12			BULKHEAD 5 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 5 BYPASS SW	
C 90	1 1/2"	10	1/C # 12			SUPPLY FAN 2 BULKHEADS TRANSF. SW	
						& OPEN CLOSE INCHING P.B. SW'S.	
C 91	1 1/2"	8	1/C # 12		SUPPLY FAN 3 BULKHEADS JUNCT. BOX	BULKHEAD 1 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 1 BYPASS SW	
C 92	1 1/2"	8	1/C # 12		SUPPLY FAN 3 BULKHEADS JUNCT. BOX	BULKHEAD 2 LIM. SW'S.	
		2	1/C # 12			BULKHEAD 2 BYPASS SW	

NOTES
 For 'General Notes' see Conduit & Cable schedule E-WES

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT & CABLE SCHEDULE SHEET 3					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: N. A. C.	CHECKED: F. E. J.	APPROVED: <i>[Signature]</i>	DATE: <i>[Date]</i>	DRAWING NO. E-WET	
CHECKED: D. H. B.	APPROVED: <i>[Signature]</i>	DATE: <i>[Date]</i>	SCALE: NONE		
NEW YORK, N. Y.			DATE: AUG. 1967		

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(34)220	282	326

AS CORRECTED
REVISED **DATE** Oct. 26, 1973

NOTES
 For "General Notes" see Conduit & Cable schedule E-WES

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT & CABLE SCHEDULE SHEET 4					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: N. A. C.	RECOMMENDED:				
DRAWN: E. M.	CHECKED: D. H. D.				
SUBMITTED:	APPROVED:				
NEW YORK, N. Y.	SCALE: NONE	DATE: AUG. 1967	DRAWING NO. E-WES		

CONDUIT		WIRE OR CABLE		FROM	TO	FUNCTION
NO.	SIZE & KIND	QUANT.	SIZE & TYPE			
MOTOR CONTROL CENTER NO. 4-NORTH (CONTINUED)						
C93	1/2"	8	1/C # 12	SUPPLY FAN 3 BULKHEADS JUNCT. BOX	BULKHEAD 3 LIM. SW'S	CONTROL
		2	1/C # 12		BYPASS SW.	
C94	1/2"	8	1/C # 12		BULKHEAD 4 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C95	1/2"	10	1/C # 12	SUPPLY FAN 3 BULKHEADS TRANSF. SW. & OPEN, CLOSE INCHING P.B. SW'S		
C96	1/2"	8	1/C # 12	SUPPLY FAN 4 BULKHEADS JUNCT. BOX	BULKHEAD 1 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C97	1/2"	8	1/C # 12		BULKHEAD 2 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C98	1/2"	8	1/C # 12		BULKHEAD 3 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C99	1/2"	8	1/C # 12		BULKHEAD 4 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C100	1/2"	10	1/C # 12	SUPPLY FAN 4 BULKHEADS TRANSF. SW. & OPEN, CLOSE INCHING P.B. SW'S		
MOTOR CONTROL CENTER NO. 4-SOUTH						
PI21	1 1/2"	18	1/C # 12	MOTOR CONTR. CENTER #4 COMPT A1	BULKHEADS 1 TO 6 JUNCT. BOX	FEEDER
PI22	1 1/2"	18	1/C # 12	MOTOR CONTR. CENTER #4 COMPT C1	BULKHEADS 7 TO 12 JUNCT. BOX	
PI23	1 1/2"	18	1/C # 12	MOTOR CONTR. CENTER #4 COMPT D1	BULKHEADS 13 TO 18 JUNCT. BOX	
PI24	1"	3	1/C # 12	BULKHEAD 1 TO 6 JUNCT. BOX	BULKHEAD 1 DISC. SW.	
PI24A	1"	3	1/C # 12		BULKHEAD 1 MOTOR	
PI25	1"	3	1/C # 12	BULKHEAD 1 TO 6 JUNCT. BOX	BULKHEAD 2 DISC. SW.	
PI25A	1"	3	1/C # 12		BULKHEAD 2 MOTOR	
PI26	1"	3	1/C # 12	BULKHEAD 1 TO 6 JUNCT. BOX	BULKHEAD 3 DISC. SW.	
PI26A	1"	3	1/C # 12		BULKHEAD 3 MOTOR	
PI27	1"	3	1/C # 12	BULKHEAD 1 TO 6 JUNCT. BOX	BULKHEAD 4 DISC. SW.	
PI27A	1"	3	1/C # 12		BULKHEAD 4 MOTOR	
PI28	1"	3	1/C # 12	BULKHEAD 1 TO 6 JUNCT. BOX	BULKHEAD 5 DISC. SW.	
PI28A	1"	3	1/C # 12		BULKHEAD 5 MOTOR	
PI29	1"	3	1/C # 12	BULKHEAD 1 TO 6 JUNCT. BOX	BULKHEAD 6 DISC. SW.	
PI29A	1"	3	1/C # 12		BULKHEAD 6 MOTOR	
PI30	1"	3	1/C # 12	BULKHEAD 7 TO 12 JUNCT. BOX	BULKHEAD 7 DISC. SW.	
PI30A	1"	3	1/C # 12		BULKHEAD 7 MOTOR	
PI31	1"	3	1/C # 12	BULKHEAD 7 TO 12 JUNCT. BOX	BULKHEAD 8 DISC. SW.	
PI31A	1"	3	1/C # 12		BULKHEAD 8 MOTOR	
PI32	1"	3	1/C # 12	BULKHEAD 7 TO 12 JUNCT. BOX	BULKHEAD 9 DISC. SW.	
PI32A	1"	3	1/C # 12		BULKHEAD 9 MOTOR	
PI33	1"	3	1/C # 12	BULKHEAD 7 TO 12 JUNCT. BOX	BULKHEAD 10 DISC. SW.	
PI33A	1"	3	1/C # 12		BULKHEAD 10 MOTOR	
PI34	1"	3	1/C # 12	BULKHEAD 7 TO 12 JUNCT. BOX	BULKHEAD 11 DISC. SW.	
PI34A	1"	3	1/C # 12		BULKHEAD 11 MOTOR	

CONDUIT		WIRE OR CABLE		FROM	TO	FUNCTION
NO.	SIZE & KIND	QUANT.	SIZE & TYPE			
MOTOR CONTROL CENTER NO. 4-SOUTH (CONTINUED)						
PI35	1"	3	1/C # 12	BULKHEAD 7 TO 12 JUNCT. BOX	BULKHEAD 12 DISC. SW.	FEEDER
PI35A	1"	3	1/C # 12		BULKHEAD 12 MOTOR	
PI36	1"	3	1/C # 12	BULKHEAD 13 TO 18 JUNCT. BOX	BULKHEAD 13 DISC. SW.	
PI36A	1"	3	1/C # 12		BULKHEAD 13 MOTOR	
PI37	1"	3	1/C # 12	BULKHEAD 13 TO 18 JUNCT. BOX	BULKHEAD 14 DISC. SW.	
PI37A	1"	3	1/C # 12		BULKHEAD 14 MOTOR	
PI38	1"	3	1/C # 12	BULKHEAD 13 TO 18 JUNCT. BOX	BULKHEAD 15 DISC. SW.	
PI38A	1"	3	1/C # 12		BULKHEAD 15 MOTOR	
PI39	1"	3	1/C # 12	BULKHEAD 13 TO 18 JUNCT. BOX	BULKHEAD 16 DISC. SW.	
PI39A	1"	3	1/C # 12		BULKHEAD 16 MOTOR	
PI40	1"	3	1/C # 12	BULKHEAD 13 TO 18 JUNCT. BOX	BULKHEAD 17 DISC. SW.	
PI40A	1"	3	1/C # 12		BULKHEAD 17 MOTOR	
PI41	1"	3	1/C # 12	BULKHEAD 13 TO 18 JUNCT. BOX	BULKHEAD 18 DISC. SW.	
PI41A	1"	3	1/C # 12		BULKHEAD 18 MOTOR	
C105	2"	27	1/C # 12 (3Sp)	MOTOR CONTR. CENTER #4 COMPT A1	BULKHEADS 1 TO 6 JUNCT. BOX	CONTROL
C106	2"	27	1/C # 12 (3Sp)		C1 BULKHEADS 7 TO 12 JUNCT. BOX	
C107	2"	27	1/C # 12 (3Sp)		D1 BULKHEADS 13 TO 18 JUNCT. BOX	
C108	1 1/2"	8	1/C # 12	BULKHEADS 1 TO 6 JUNCT. BOX	BULKHEAD 1 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C109	1 1/2"	8	1/C # 12		BULKHEAD 2 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C110	1 1/2"	8	1/C # 12		BULKHEAD 3 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C111	1 1/2"	8	1/C # 12		BULKHEAD 4 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C112	1 1/2"	8	1/C # 12		BULKHEAD 5 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C113	1 1/2"	8	1/C # 12		BULKHEAD 6 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C114	1 1/2"	10	1/C # 12		BULKHEADS 1 TO 6 TRANSF. SW. & OPEN, CLOSE INCHING P.B. SW'S	
C115	1 1/2"	8	1/C # 12	BULKHEADS 7 TO 12 JUNCT. BOX	BULKHEAD 7 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C116	1 1/2"	8	1/C # 12		BULKHEAD 8 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C117	1 1/2"	8	1/C # 12		BULKHEAD 9 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	
C118	1 1/2"	8	1/C # 12		BULKHEAD 10 LIM. SW'S	
		2	1/C # 12		BYPASS SW.	

AS CONSTRUCTED
REVISED DATE Oct 26, 1973

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION	
			SIZE & TYPE					
MOTOR CONTROL CENTER NO. 4 SOUTH (CONTINUED)								
C119	1 1/2"	8	11C #12		BULKHEADS 7 TO 12 JUNCT BOX	BULKHEAD 11 LIM. SW'S	CONTROL	
		2	11C #12			BULKHEAD 11 BYPASS SW		
C120	1 1/2"	8	11C #12			BULKHEAD 12 LIM. SW'S		
		2	11C #12			BULKHEAD 12 BYPASS SW		
C121	1 1/2"	10	11C #12			BULKHEADS 7 TO 12 TRANSF SW & OPEN CLOSE INCHING PB SW'S		
C122	1 1/2"	8	11C #12		BULKHEADS 12 TO 18 JUNCT BOX	BULKHEAD 13 LIM. SW'S		
		2	11C #12			BULKHEAD 13 BYPASS SW		
C123	1 1/2"	8	11C #12			BULKHEAD 14 LIM. SW'S		
		2	11C #12			BULKHEAD 14 BYPASS SW		
C124	1 1/2"	8	11C #12			BULKHEAD 15 LIM. SW'S		
		2	11C #12			BULKHEAD 15 BYPASS SW		
C125	1 1/2"	8	11C #12			BULKHEAD 16 LIM. SW'S		
		2	11C #12			BULKHEAD 16 BYPASS SW		
C126	1 1/2"	8	11C #12			BULKHEAD 17 LIM. SW'S		
		2	11C #12			BULKHEAD 17 BYPASS SW		
C127	1 1/2"	8	11C #12			BULKHEAD 18 LIM. SW'S		
		2	11C #12			BULKHEAD 18 BYPASS SW		
C128	1 1/2"	10	11C #12		BULKHEADS 13 TO 18 TRANSFER SW & OPEN, CLOSE INCHING PB SW'S			
120V/240 V MAIN DC PANEL								
D1	1 1/2"	2	11C #2		BATTERY CHARGER	BATTERY	FEEDER	
D2	3"	3	350 MCM		BATTERY	MAIN DC PANEL		
D3	1"	2	11C #10		MAIN DC PANEL	24.9 KV HIGH TENSION SWGR	DC CONTROL SUPPLY 1	
D4	1"	2	11C #10			24.9 KV HIGH TENSION SWGR	2	
D5	1"	2	11C #10			460V. LOW TENSION SWGR	1	
D6	1"	2	11C #10			460V. LOW TENSION SWGR	2	
D7	1"	3	1/2" #10		GROUP 235 DC BOX (1S FOR WEST)	TUNNEL TEL SIGN LTG POWER SUPPLY		
					(FOR CONTINUATION SEE DWG E-WE3)			
D8	1 1/2"	3	1/2" #4		BLDG & TUNNEL EMERG. LTG AUTO SW		FEEDER	
D8A	1 1/2"	3	1/2" #4		AUTO SW.	DC POWER DIST PANEL 8		
D10	1"	2	1/2" #12		MAIN DC PANEL	CO.SYS. INVERTER STARTER	CONTROL	
D10A	1"	2	1/2" #12		CO.SYS. INVERTER STARTER	CO.SYS. INVERTER		

CONDUIT NO.	SIZE & KIND	QUANTITY	WIRE OR CABLE		FROM	TO	FUNCTION
			SIZE & TYPE				
CO SYSTEM							
P145	1"	2	1/2" #12		CO.SYS. AUTO-TRANSFER SW.	CO.SYS. 480/20V TRANSF	POWER SUPPLY
P146	1"	2	1/2" #12			CO.SYS. INVERTER	
P147	1"	2	1/2" #12			CO ANALYZER	
C135	1"	2	1/2" #12			INVERTER STARTER	CONTROL
TUNNEL LIGHTING & PIPE HEATING POWER SUPPLY & CONTROL *							
P150	1 1/2"	4	11C #6		LTG & HTG CONTACTORS PANEL	GROUP BOX 23N AC BOX (IN FOR WEST)	INTENSIVE ZONES NORTH SIDE LTG FOR N1
P151	1 1/2"	4	11C #6				N2
P152	1 1/2"	4	11C #6				N3
P153	1 1/2"	4	11C #6			GROUP BOX 23S AC BOX (IS FOR WEST)	INTENSIVE ZONES SOUTH SIDE LTG FOR S1
P154	1 1/2"	4	11C #6				S2
P155	1 1/2"	4	11C #6				S3
P156	1"	4	11C #8			GROUP BOX 23N AC BOX (IN FOR WEST)	WATER MAIN & FIRE HYDRANTS HTG FOR
P157	1"	3	11C #6			J.B. IN SEEPAGE DRAIN MANHOLE SOUTH STA. 123+28.52 (FOR WEST STA. 35+96)	SEEPAGE DRAIN PIPES HTG. FDR
P158	1"	2	11C #6			J.B. IN WASTE DRAIN MANHOLE STA. 124+07.52 (FOR WEST STA. 35+78)	WASTE DRAIN PIPE HTG. FDR.
C150	1"	2	11C #12		LTG & HTG RELAY & CONTROL CAB	THERMOSTAT	CONTROL
C151	1"	2	11C #12			PHOTOELECTRIC CELL	CONTROL
C152	1"	2	11C #12			TELEPHONE TERM BOX T2	TUNNEL NORMAL LTG. RESET SYS.
C153	2"		CABLES BY TEL.CO		TELEPHONE TERM BOX	GROUP BOX 23S TEL. JUNCT. BOX (FOR WEST IS)	
					(FOR CONTINUATION IN TUNNEL SEE DWG. E-T1)		
STATE PATROL COMMUNICATION SYSTEM							
SC-1	2"	*			STATE PATROL COMMUNICAT. R.M	GROUP BOX 23N COMM. BOX (FOR WEST IN)	COMMUNICATION
SC-2	2"	*			(FOR CONTINUATION IN TUNNEL SEE DWG. E-T1)		
					* CABLES BY STATE PATROL		

* For the remainder of Tunnel Ltg & Pipe heating refer to Cond. & Cable Schedule E-T7

NOTES
 For "General Notes" see Conduit & Cable schedule E-WE5

NO.	DATE	DESCRIPTION OF REVISION	BY	CHK.	APP.
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS STRAIGHT CREEK VEHICULAR TUNNEL PROJECT					
ELECTRICAL WEST & EAST VENTILATION BUILDINGS CONDUIT & CABLE SCHEDULE SHEET 5					
TIPPETTS - ABBETT - MCCARTHY - STRATTON ENGINEERS AND ARCHITECTS NEW YORK, N. Y.					
DESIGNED: N.A.C.	DRAWN: F.E.J.	CHECKED: D.H.D.	APPROVED: <i>[Signature]</i>	DRAWING NO. E-WE9	
NEW YORK, N.Y.			SCALE: NONE	DATE: AUG. 1967	