(R-1) 4/29/75 T.A.L. Delete reference to Utilities.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	1	202

R.O.W. Acquired Under I 70-3(14)220
I 70-3(16)
I 70-3(26)
(R-1) P.E. under I 70-3(78)

SEE STANDARD M-100-A FOR STANDARD SYMBOLS.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO

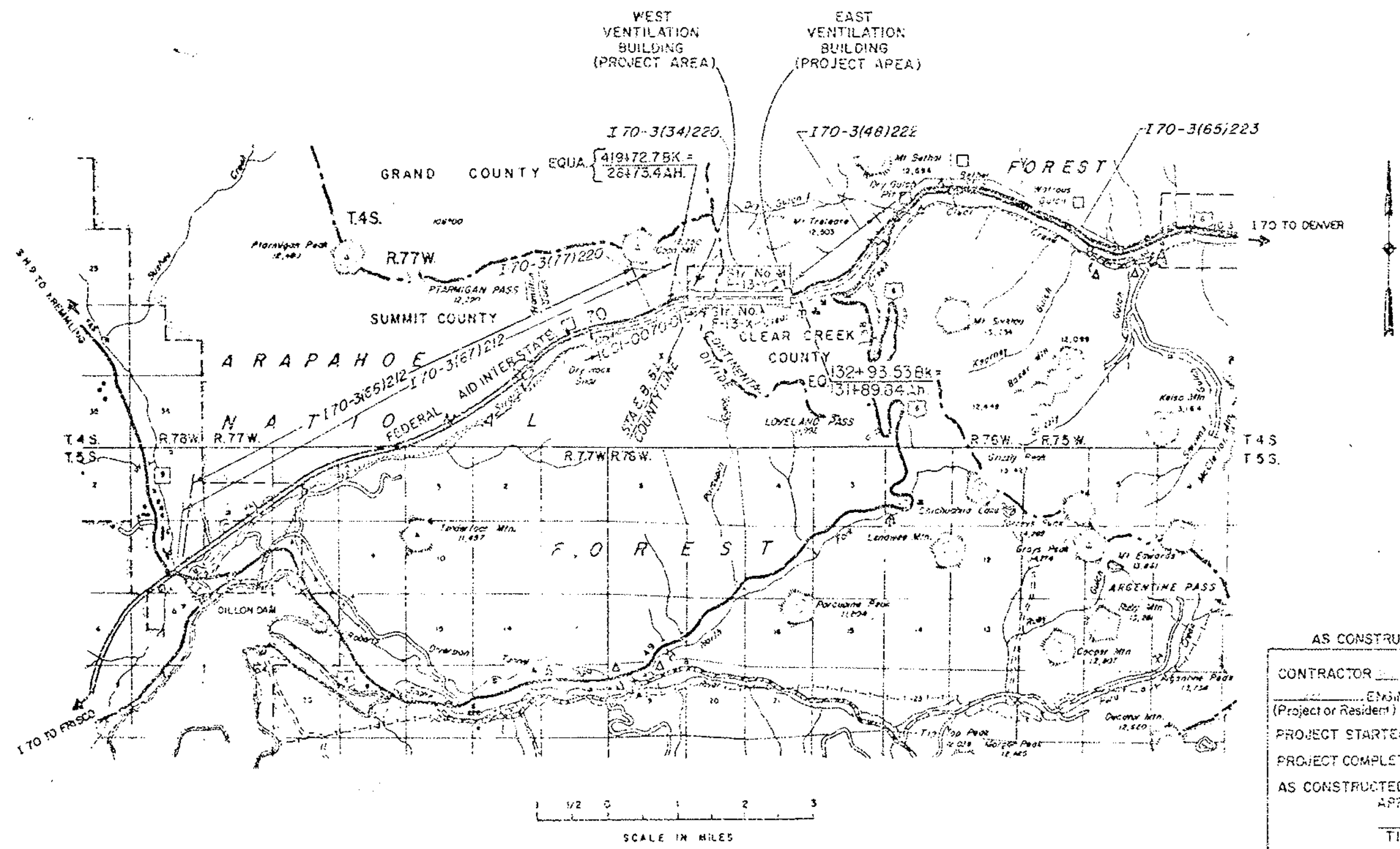
PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. I 70-3(82)220
STATE HIGHWAY NO. 70

AS CONSTRUCTED

SUMMIT AND CLEAR CREEK COUNTIES

NO CENTERLINE LENGTH INVOLVED

Date started : 7-1-75
Date completed: 8-31-79
Resident Engineer Jack Gay
Contractor Howard Electric & Mechanical Co



ALL SCALES SHOWN ARE FOR ORIGINAL DRAWINGS.

INDEX OF DRAWINGS
(SEE SHEET 2)

AS CONSTRUCTED INFORMATION

CONTRACTOR ______________
______ ENGINEER ______
(Project or Resident)
PROJECT STARTED ______
PROJECT COMPLETED ______
AS CONSTRUCTED PLANS APPROVED ______

TITLE DATE

DIVISION OF HIGHWAYS

APPROVED:
J. N. Haase [signature] 4/ /75
CHIEF ENGINEER DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED ______ DATE

DIVISION ENGINEER

TAL

AS CONSTRUCTED
NO REVISIONS DATE

INDEX OF SHEETS

REGION NO.	DIVISION	PROJ. NO.	NO	SHEETS
VIII	COLORADO	I70-3(82)220	2	208

REGION NO.	DIVISION	PROJECT TITLE	SHEET NO.	SHEETS
VIII	COLORADO		2A	208

AS CONSTRUCTED

NO REVISIONS ☐ REVISED 3-31-79 VOID ☐

INDEX OF SHEETS

SUMMARY OF APPROXIMATE QUANTITIES

(R-1) 5-15-75 T.A.L. Revised & Split Items

REGION NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	3	208

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	SUMMIT COUNTY (R-1)	CLEAR CREEK COUNTY (R-1)	PROJECT TOTALS	FINAL TOTALS	DIFF.	% Change
1	65	5/19	206	Structure Excavation	Cu.Yd.		~~1,690~~ 2,185	1,690	2,126	+ 436	+ 25
1	15	5/19	206	Structure Backfill (Class 2)	Cu.Yd.		1,786 ~~2,050~~	2,050	1786	- 264	- 13
1	17	5/19	206	Filter Material (Class A)	Cu.Yd.		425	425	425	0	0
1	21	19	507	Concrete Slope and Ditch Paving (Reinforced)	Cu.Yd.		40.86 ~~40~~	40	40.86	+0.86	+ 2
1	32	19	518	Waterstop (6 Inch)	Lin.Ft.		~~77~~ ~~60~~	60	77	+ 17	+ 28
1	34	19	601	Concrete Class A (Wall)	Cu.Yd.		~~706~~ ~~633~~	633	706	+ 73	+ 12
2	17	6	601	Concrete Class B	Cu.Yd.	~~147.50~~ ~~145~~	~~137.41~~ ~~131~~	276	284.91	+8.91	+ 3
1	75	19	601	Masonry Veneer	Sq.Ft.		~~5,432~~ 5,657	5,432	5657	+ 225	+ 4
2	55	6	602	Reinforcing Steel	Lb.	9,550	78,550	88,100	88,100	0	0
1	53	5	605	6 Inch Perforated Corrugated Steel Pipe	Lin.Ft.		675	675	675	0	0
1	57	5	605	6 Inch Non-Perforated Corrugated Steel Pipe	Lin.Ft.		100	100	100	0	0
(R-1) 3	2		620	Field Laboratory	Each		1	1	1	0	0
3	15		620	Field Facility	L.S.	1		1	1	0	0
3	63		620	Janitorial Service	Month	~~12.16~~ ~~14~~		~~12.16~~ ~~14~~	12.76	-1.24	- 9
9	63		626	Mobilization	L.S.	0.5	0.5	1	1	0	0
4	2		630	24.9 KV Power Distribution System	L.S.	0.5	0.5	1	1	0	0
4	24		630	2.4 KV Power Distribution Fan Drive Motors and Motor Control System	L.S.	0.5	0.5	1	1	0	0
4	44		630	480 Volt Power Distribution and Motor Control Systems	L.S.	0.5	0.5	1	1	0	0

REV. SEPT. 1974

SUMMARY OF APPROXIMATE QUANTITIES

(R-1) 4/23/75 T.A.L. Revise force account items - Delete Utility Note.
(R-2) 5/15/75 T.A.L. Revised & Split Items

REGION NO.	STATE	PROJECT NO.	NO.	SHEETS
VIII	COLORADO	I 70-3(82)220	4	208

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	SUMMIT COUNTY (R-2)	CLEAR CREEK COUNTY (R-2)	PROJECT TOTALS	FINAL TOTALS	DIFF.	% Change
5	8		630	Control Boards	L.S.	0.5	0.5	1	1	0	0
5	40		630	Supervisory Control System	L.S.	0.5	0.5	1	1	0	0
6	11		636	Gas Meter Building East	Each		1	1	1	0	0
6	45		636	Gas Meter Building West	Each	1		1	1	0	0
7	8		640	Tunnel Ventilation System	L.S.	0.5	0.5	1	1	0	0
7	45		641	Emergency Generator System	L.S.	1		1	1	0	0
11	12			FA-07 Line 2 Structure Excavation	C.Y.		540	0	540	+540	+100
R-2 8	3		643	Gas Supply System	L.S.	0.5	0.5	1	1	0	0
9	3		644	Passenger Elevator Systems	L.S.	0.5	0.5	1	1	0	0
9	43		645	Water Metering System	L.S.	1		1	1	0	0
9	62		699	Fixed Fee	L.S.	0.5	0.5	1	1	0	0
DO NOT ADD				Liquidated Damages	Day				352.5		
				FORCE ACCOUNT							
			F/A 01	Erosion Control	L.S.	0.5	0.5	1			
R-1		4A	F/A 02	On-The-Job-Trainee	Each	1	2	3	3	0	0
R-1		4A	F/A 03	Furnish Electricity	L.S.	0.5	0.5	1	1	0	0
R-1		4A	F/A 04	Building Insulation	L.S.	0.5	0.5	1	1	0	0
R-1		4A	F/A 05	Adjust Natural Gas Service (Work by Western Slope Gas Co.)	L.S.	0.5	0.5	1	1	0	0
R-1		4A	F/A 06	Adjust Power Service (Work by Public Service Co.)	L.S.	1		1	1	0	0
R-2	11	48	F/A 07	Miscellaneous	L.S.	0.5	0.5	1	1	0	0
				NON - FEDERAL AID							
R-2	8	44	643	Air Heat Burner	L.S.	0.5	0.5	1	1	0	0
				FORCE ACCOUNT							
R-2		4A	F/A 08	Furnish Spare Parts For Various Systems	L.S.			1	1	0	0

D. O. H. FORM NO. 126
JUNE 1962

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(82)220	44	208

FINAL SUMMARY OF CHANGE ORDERS

PCO NO	CMO NO	DESCRIPTION	PLAN AMT	FINAL AMT	DIFFERENCE	PERCENT CHANGE	REFERENCE BOOK	REFERENCE PAGE	REMARKS
1	17103	Weekend Work	0	0	0	0	12	8	
FA-02		On-the-Job Trainee	2,400	2,400	0	0	12	15	Plan force account
3	17108	Additional Duct Bracing	9,493.00	9,493.00	0	0	12	20-22	
4	0289	Building Insulation	235,000	301,014.09	+66,014.09	+28	12 10	9 —	Plan force account FA/04
5	0286	Power & Control Wiring - Water Storage	25,000	19,778.97	-5,221.03	-21	12	23	Includes $ 3,180.38 Non-Federal Aid
S-1	0335	Supplement 1 to PCO 5	21,000	20,575.85	-424.15	-2	12	24	Non-Federal Aid
FA-05	17106	Adjust Natural Gas Service	24,840	24,134.22	-3,405.78	-19	12	14	Plan Force Account
S-1	17106	Supplement 1 to FA-05	2,700						
FA-08		Furnish Spare Parts	10,000	9,076.34	-923.66	-9	12	16	Plan Force Account
FA-06	17107	Relocate Electric Lines	12,000	16,640.31	+4,640.31	+39	12	17	Plan Force Account
7	0293	Extra Gas System Alarms	5,385.77	5,385.77	0	0	12	28	Non-Federal Aid
8	0299	15 Day Time Extension	0	0				30	
9	0356	Deletion of Thomas Couplings	0	0				31	
10	0357	Emergency Generator Breaker	10,047.00	10,047.00	0	0		32	
11	0364	Fan Testing Costs	17,000.00	16,517.69	-482.31	-3		33	
12	0365	Excavation & Backfill Compensation	7,593.20	7,593.20	0	0		34	
13	0366	Damper Control Access Doors	989.81	989.81	0	0		35	
14	0367	Raise L-P Tank	12,838.03	12,838.03	0	0		36	
15	4731	Modify Fan Controls	8,641.42	8,641.42	0	0	12	37	
FA-03		Furnish Electricity	6,000.00	223,922.10	+217,922.10	+3632			
FA-01		Erosion Control	10,000.00	0	-10,000	100			FA-01 Voided
16		Butyl Membrane vs Bonding Compound	4,241.10	4,241.10	0	0	12	38	

D. O. H. FORM NO. 126
JUNE 1969

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	COLORADO	I 70-3(82)220	48	208

FINAL SUMMARY OF MISCELLANEOUS FORCE ACCOUNT

LINE NO	DESCRIPTION	PLAN AMT	FINAL AMT	DIFFERENCE	PERCENT	REFERENCE Book Page	REMARKS
1	Electric Conduit Thru "A" Wall	1,000'	1,212.70'	+212.70'	+21'	11' 8-9'	
2	Extra Excavation For 8" Gas Line	600'	1,188.00'	+588'	+98'	11-12	540 yds³ @ $2.20/yd³ negotiated price (Bid item)
3	Grout Upper Keyways in Duct Divider Wall	2,000'	1,700.58'	-299.42'	-15'	14-15	
4	DC to AC Inverter	400'	400.00'	0	0	16-17	Negotiated Lump Sum
5	Additional Costs & Credits, Field Facility	2,210.70'	2,210.70'	0	0	18-21	
6	Steel Plates Over Fan Deck Blockouts	250'	228.41'	-21.59'	-9'	23'	
7	Modify Gas Piping, East Vent Bldg	1,262.83'	1,262.83'	0	0	27-28'	
8	Additional Lockers, Field Facility	550'	566.50'	+16.50'	+3'	29'	
9	Fan Control Board Relays	530.25'	530.25'	0'	0'	31'	
10	Elevator Pit Ladders	143.00'	143.00'	0'	0'	33'	
11	Omitted Brick Reinforcement	(676.16)'	(676.16)'	0'	0'	34'	Credit
12	Extra Brickwork, E.V.B. @ "A" Wall	269.50'	269.50'	0	0	36'	
13	Transformer & Wiring, Emerg. Gen.	3,002.71'	3,002.71'	0'	0'	35'	
14	Continuous Angle, Evase Stack Skirts	1,515.00'	1,515.00'	0'	0'	37-38'	
15	Delete Fencing, Vaporizer-Blender	(2,050)'	(2,050)'	0'	0'	39'	Credit
16	Returned Valve Train	(739.46)'	(739.46)'	0'	0'	41'	Credit
17	Supply Fan Flexible Connections	1,482.27'	1,482.27'	0'	0'	42'	
18	Remove Duct for Fan Testing	715.00'	715.00	0	0	43	
19	Additional Wireway Clearance	4,000'	5,407.23'	+1,407.23'	+35'	44'	
20	Plugged Conduit, Stop Switch Handles	600'	654.43'	+54.43'	+9'	45'	
21	Cut Idler Sheave Take-up bolts	338.04'	338.04'	0'	0'	46'	
22	Furnish 100 Amp Breaker	412.47'	412.47'	0'	0'	47'	
23	Replace A.H. Burner Regulators	2,400'	3,832.76'	+1,432.76'	+60'	48'	Non-Federal Aid
24	Modifications, Fan Control Switches	2,500'	2,580.82'	+80.82'	+3'	49'	
25	Sewer Repair, Field Facility	1,000'	1,368.64'	+368.64'	+37'	50'	$426.79 of $1,368.64 is Non-Federal Aid
26	Air Heat Burner - Fan Interlocks	2,000'	5,162.74'	+3,162.74'	+158'	51'	
27	Roof Jack Repair - Field Facility	500'	83.25'	-416.75'	-83'	52'	
28	Curbs - Emerg. Gen. Room Ventilation	2,043.14'	2,043.14'	0'	0'	53'	
29	Credit, Photo-Electric Relay	(112)'	(112)'	0'	0'	11 54'	Credit

JUNE 1969

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	I 70-3(82)220	40	208

FINAL SUMMARY OF MISCELLANEOUS FORCE ACCOUNT

LINE NO	DESCRIPTION	PLAN AMT	FINAL AMT	DIFFERENCE	PERCENT	REFERENCE Book	REFERENCE Page	REMARKS
30	Check Emg. Gen. Manifold for Oil	221.33	221.33	0	0	11	55	
31	Inspection of Electrical Gear	175.47	175.47	0	0		56	
32	Disconnect 75 KVAR Capacitors	300.00	273.09	-26.91	- 9		57	
33	Grounding Grid System	(1,361.65)	(1,361.65)	0	0		58	Credit
34	Returned Insulation Credit	(1,970.71)	(1,970.71)	0	0			Credit

THE STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS - STATE OF COLORADO
FORM D.O.H. 125 (MYLAR)
REVISED SEPT. 1970

STRUCTURE QUANTITIES

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
VIII	COLORADO	I 70-3(52)220	5

INDEX BOOK	INDEX PAGE	INDEX SHEET	LOCATION	STRUCTURE EXCAVATION CUBIC YARD	STRUCTURE BACKFILL CUBIC YARD CL. 2	REMOVAL OF STRUCTURE EACH	CONCRETE CLASS A CUBIC YARD WALL	REINFORCING STEEL LB.	MISCELLANEOUS
		19	33+to35+						1-Gas Meter Building(West) 0.5-Gas Supply System
3	18		34+50						1-Field Facility
1	53		124+48to130+51	120					675-Lin.Ft. 6" Perforated Corrugated Steel Pipe 300 Cu.Yd. Filter Material (Class A)
1	55								
1	17								
		19	125+to129+	~~2002~~ 1506	1774 2038		◣	◣	40.36 40-Cu.Yds Concrete Slope & Ditch Paving(Reinforced) 125-Cu.Yds Filter Material (Class A) 77 ~~60~~-Lin.Ft. Waterstop (6 Inch) 5,657 ~~5432~~-Sq.Ft. Masonry Veneer 1-Gas Meter Building(East) 0.5-Gas Supply System
		19	125+to126+						
1	15		130+51to130+87	64	12				100-Lin.Ft. 6" Non-Perforated Corrugated Steel Pipe
1	65								
1	57								
			West Ventilation Bldg.						0.5-24.9KV Power Distribution System. 0.5-2.4KV Power Distribution, Fan Drive Motors and Motor Control System. 0.5-480 Volt Power Distribution and Motor Control System. 0.5-Control Boards 0.5-Supervisory Control System 0.5-Tunnel Ventilation System 1-Emergency Generator System 0.5 Elevator System 1-Water Metering System
			East Ventilation Bldg.						0.5-24.9 KV Power Distribution System 0.5-2.4 KV Power Distribution, Fan Drive Motors and Motor Control System. 0.5-480 Volts Power Distribution and Motor Control System. 0.5-Control Boards 0.5-Supervisory Control System 0.5-Tunnel Ventilation System 0.5-Elevator System
			Project Totals	~~1640~~ 1506	1756 2050				

◣ Included in Tabulation of Concrete and Reinforcing Steel.

REV. MARCH, 1974

(R-1) 5-15-75 T.A.L. Added Separate County Totals

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	6	208

TABULATION OF CONCRETE AND REINFORCING STEEL

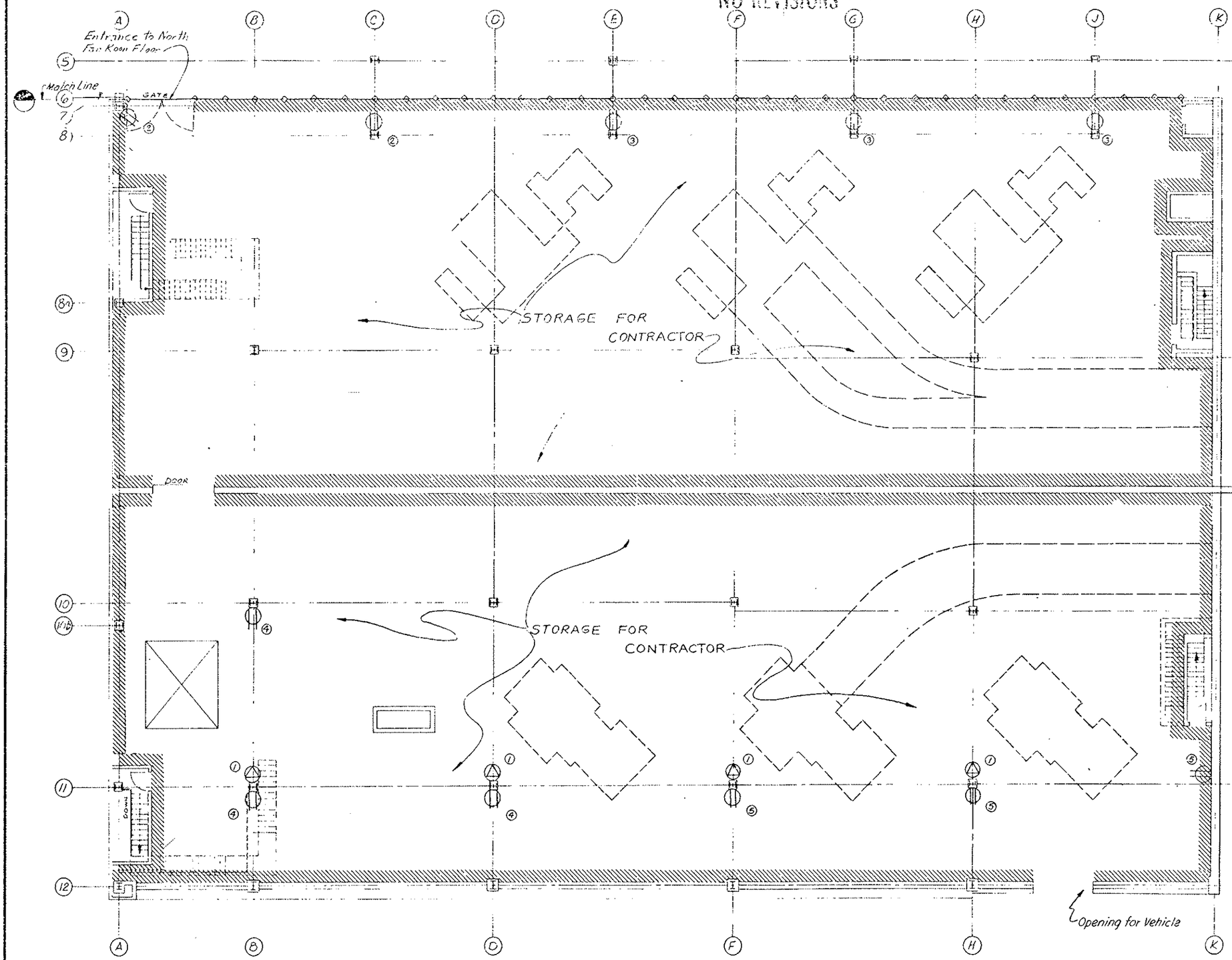
Bk	Page	Description	Concrete Class A (Wall) Cu. Yd.	Concrete Class B Cu. Yd.	Reinforcing Steel Lb.
2	17 55	West Ventilation Building Ventilation System		128.61 ~~123~~	7350
2	17 55	Emergency Generator		11.68 ~~14~~	200
2	17 55	Elevator		7.21 ~~8~~	2000
2	17 55	East Ventilation Building Ventilation System		128.61 ~~123~~	7350
2	17 55	Elevator		8.80 ~~8~~	2000
1 2	34 55	East Portal Area Retaining Wall	706 ~~633~~		69,200
(R-1)		Summit County Totals		121.30 ~~145~~	9,550
(R-1)		Clear Creek County Totals	706 ~~633~~	134.1 ~~121~~	78,550
		Totals	706 ~~633~~	255.91 ~~216~~	88,100

Note: Gas Meter Buildings, Field Facility and Gas Supply System require quantities of Concrete and Reinforcing Steel that will not be paid for separately, but shall be included in the work.

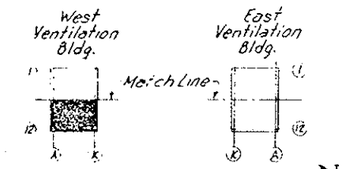
AS CONSTRUCTED
NO REVISIONS DATE

FEDERAL ROAD REGION NO	DISTRICT	PROJ. NO.	SHEET NO	TOTAL SHEETS
XIII	COLORADO	I70-3(82)220	7	208

REVISIONS		



PLAN



KEY PLAN

- Work and Storage area
- Proposed Chain Link Fence
- Duplex Receptacles-120V-1 Phase
- 480V Receptacles 3Ph-4W-4P-30A

Reference No	Voltage	Total Allowable Circuit Load	Panel	Circuit No
①	480	32A	P2	10
②	120	16A	Ln 2B	4
③	120	16A	Ln 2B	30
④	120	16A	Ln 2C	2
⑤	120	16A	Ln 2C	4

Notes:

1. Aisleway shall be readily available for entrance to the North side of Fan Room Floor from the movable bulkhead vehicle opening in South Side of building.
2. An approved Chain Link Fence and Gate (Minimum Height-5 Feet) shall be constructed along the Match Line between column Lines 6 and 7 to separate storage area from North side Fan Room Floor operations Fence and Gate will not be paid for separately, but shall be included in the work.

DIVISION OF HIGHWAYS

WEST VENTILATION BLDG
FAN ROOM SOUTH
WORK AND STORAGE AREAS

Designer		Structure Numbers	
Detailer			
Drawing Number		of	Drawings

INITIAL	DATE	CHECKED BY
		QUANTITIES BY
		CHECKED BY
DESIGNED BY		
CHECKED BY		
DETAILED BY		

REV. MARCH, 1974

(R-1) 4/29/75 T.A.L. Revise Building Insulation Note.

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(8E) 220	8	208

AS CONSTRUCTED
NO REVISIONS DATE

ACCESS ONLY
EMERGENCY VEHICLE GARAGE

ELECTRICAL EQUIPMENT ROOM

TRANSFORMER ROOM

POSTAL ATTENDANT'S BOOTH

MEN'S REST ROOM

WALK WAY
CAR ENCLOSURE

SOUTH TUNNEL

Match Line

West Ventilation Bldg.

East Ventilation Bldg.

KEY PLAN

N

VEHICLE STORAGE

MATERIALS STORAGE

BATTERY CHARGER ROOM

BATTERY ROOM

Entrance

PUBLIC ENTRANCE AND LOBBY

MEN'S REST ROOM

WOMEN'S REST ROOM

GAS METER ROOM

BOILER ROOM

STORAGE ROOM

FUTURE EMERGENCY GENERATOR ROOM

PLAN

(R-1)
Work areas shall also include those locations applicable to the Force Account Item "Building Insulation".

Notes:
1. Aisleway shall be readily available from outside rollup door entrance to Battery Room and Boiler Room.
- Work and Storage area
- Duplex Receptacles - 120 V - 1 Phase

Reference No.	Voltage	Total Allowable Load	Panel	Circuit No.
⑥	120	16A	LN3	25
⑦	120	16A	LN5	14
⑧	120	16A	LN5	16
⑨	120	16A	LN5	19
⑩	120	16A	LN5	21
⑪	120	16A	LN5	22

DIVISION OF HIGHWAYS

WEST VENTILATION BLDG
ROADWAY FLOOR PLAN-SOUTH
WORK AND STORAGE AREAS

Designer	Structure Numbers	
Detailer		

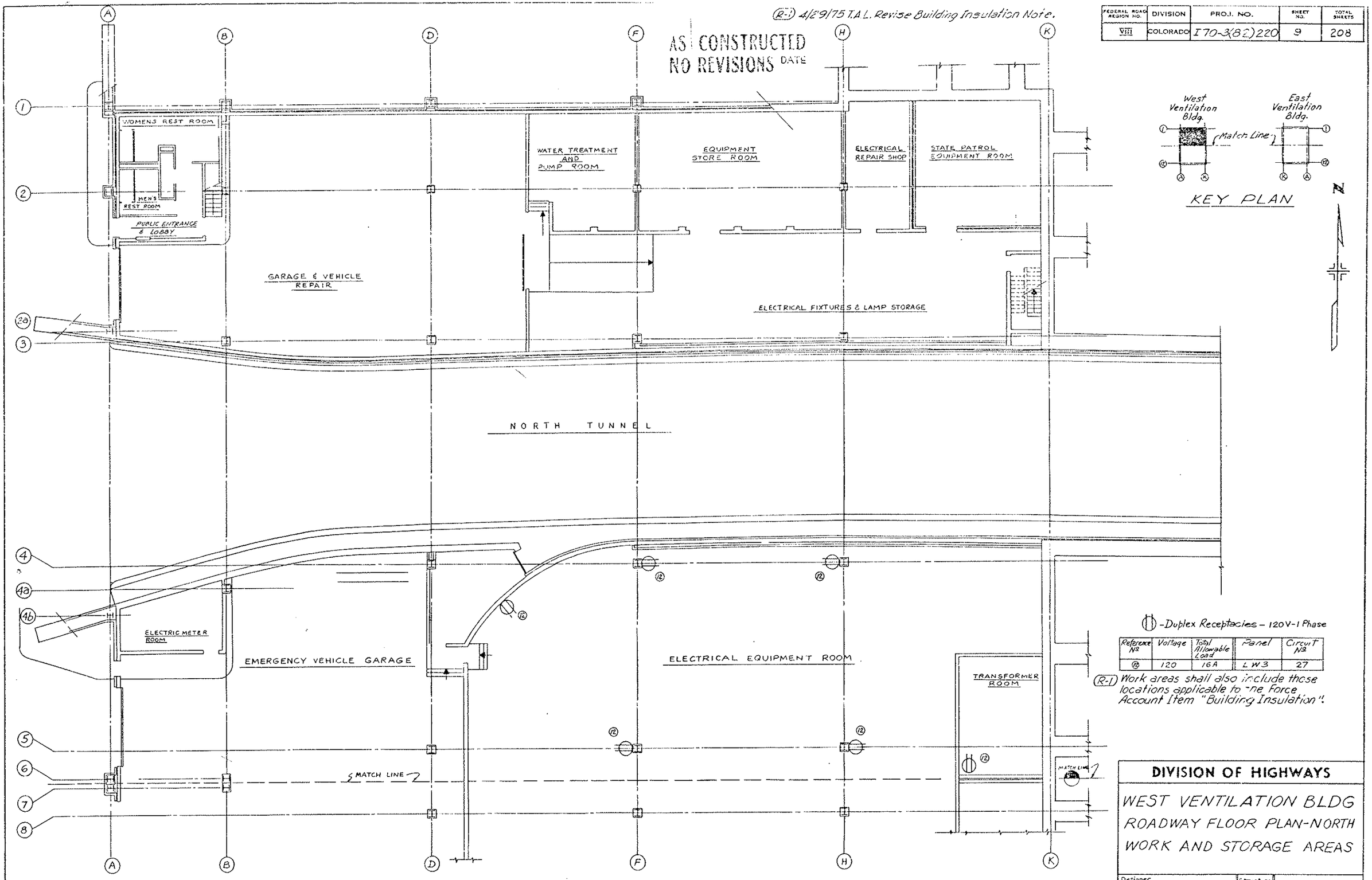
Drawing Number of Drawings

REV. MARCH, 1974

(R-1) 4/29/75 T.A.L. Revise Building Insulation Note.

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	9	208

AS CONSTRUCTED
NO REVISIONS DATE



PLAN

KEY PLAN

N

(12) -Duplex Receptacles - 120V-1 Phase

Reference No	Voltage	Total Allowable Load	Panel	Circuit No
(12)	120	16A	LW3	27

(R-1) Work areas shall also include those locations applicable to the Force Account Item "Building Insulation".

DIVISION OF HIGHWAYS

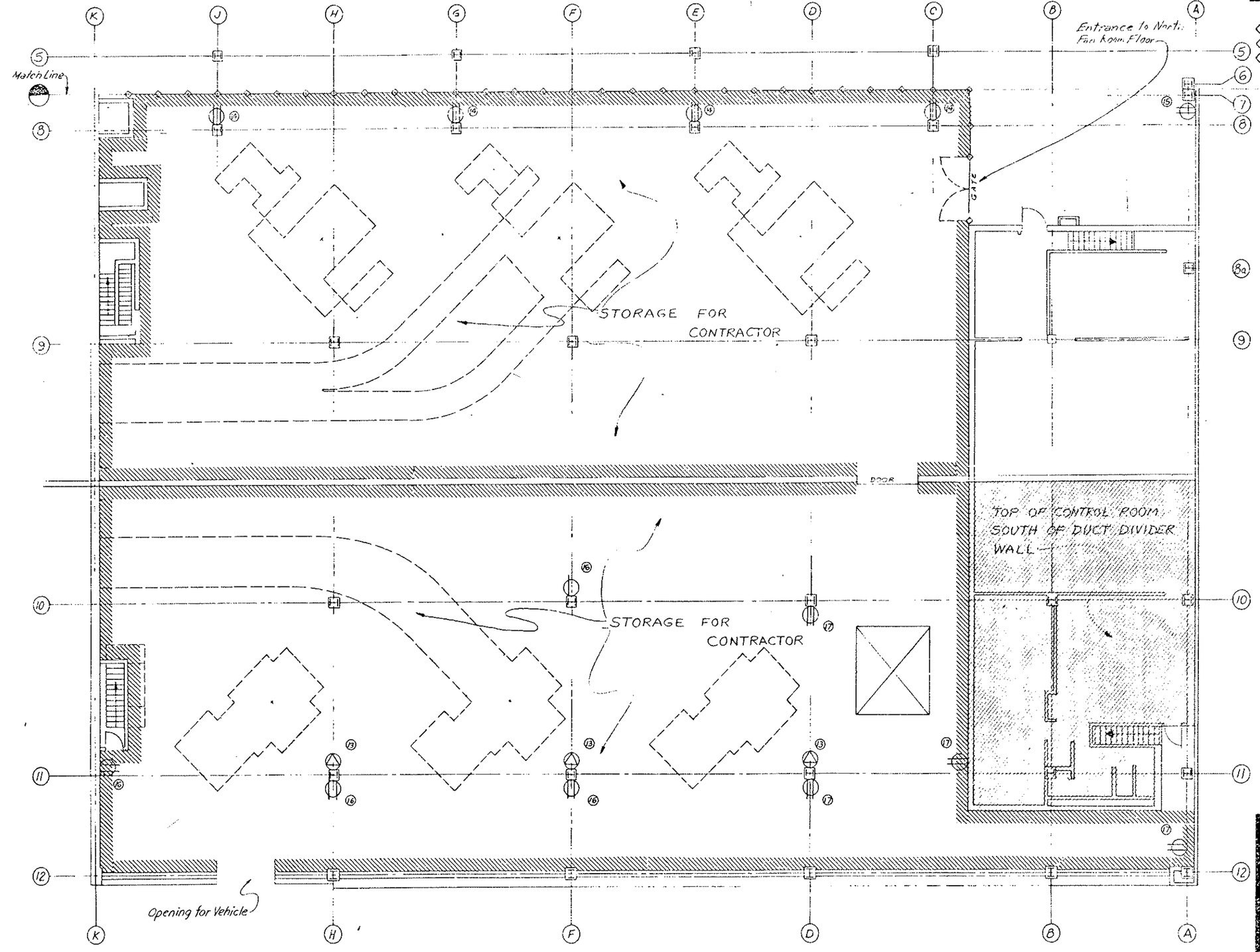
WEST VENTILATION BLDG ROADWAY FLOOR PLAN-NORTH WORK AND STORAGE AREAS

Designer	Structure Numbers	
Detailer		
Drawing Number	of	Drawings

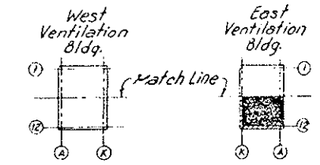
AS CONSTRUCTED
NO REVISIONS DATE

FEDERAL ROAD REGION NO	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3 32)220	10	208

REVISIONS		



PLAN



KEY PLAN

- Single Receptacle 120V-1 Phase
- Duplex Receptacle 120V-1 Phase
- 480V Receptacle 3 Phase-4P-4W-30A

Reference No	Voltage	Total Allowable Load	Panel	Circuit No
(13)	480	32A	P2	6
(14)	120	16A	LE2B	4
(15)	120	16A	LE2B	6
(16)	120	16A	LE2C	16
(17)	120	16A	LE2C	18

Notes:

1. Aisleway shall be readily available for entrance to the North side of Fan Room Floor from the movable bulkhead vehicle opening in South Side of building.
2. An approved Chain Link Fence and Gate (Minimum Height-5 Feet) shall be constructed along the Match Line between column Lines 6 and 7 to separate storage area from North side Fan Room floor operations Fence and Gate will not be paid for separately, but shall be included in the work.
3. Contractor shall furnish temporary stairways to work area above Control Room South of Duct Divider Wall, at his own expense.
4. Work Area - on Control Room Roof
   Work and Storage areas
   Proposed Chain Link Fence

DIVISION OF HIGHWAYS

EAST VENTILATION BLDG
FAN ROOM SOUTH
WORK AND STORAGE AREAS

Designed		Structure Numbers	
Detailed			
Drawing Number		of	Drawings

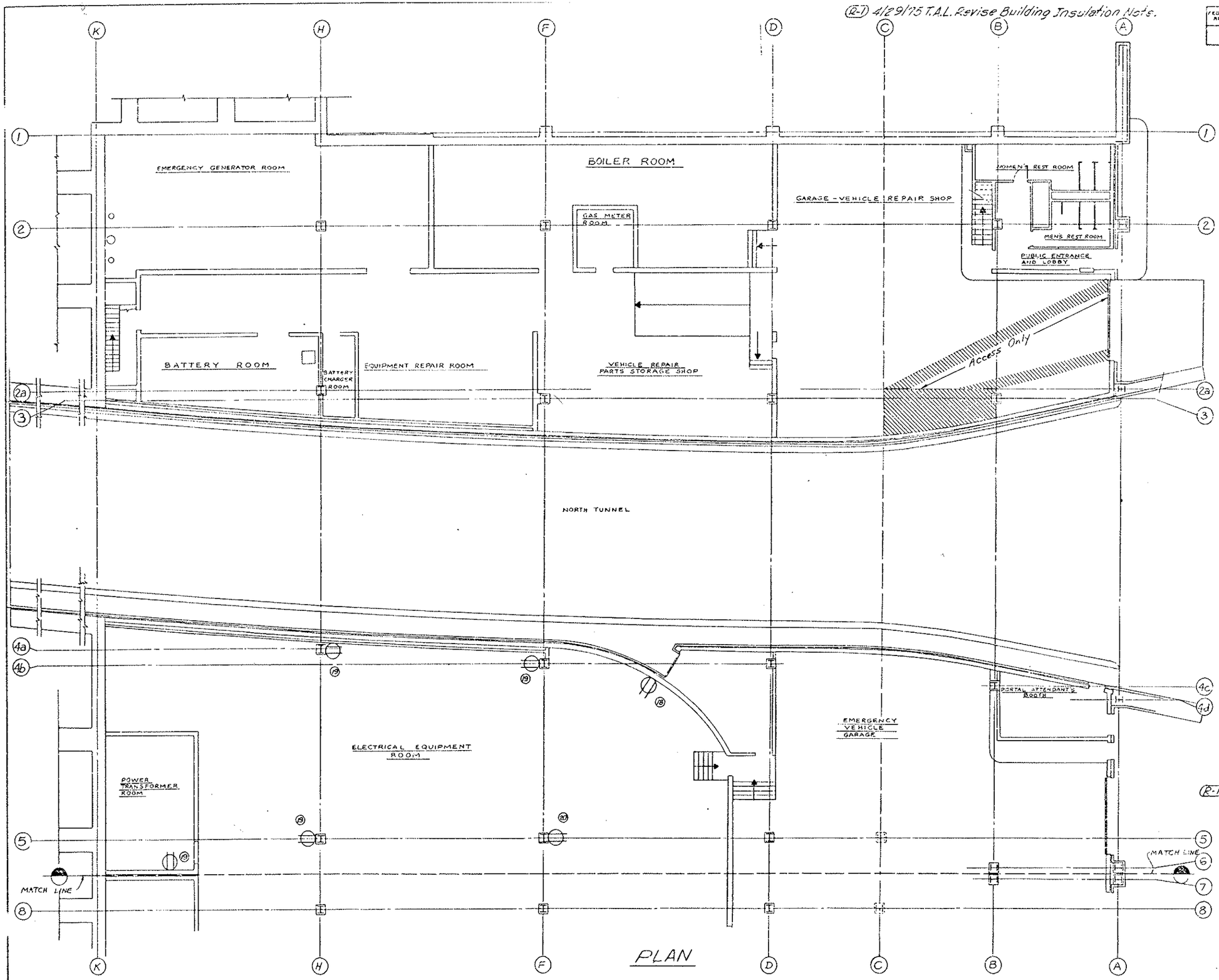
	INITIAL	DATE
DESIGNED BY		
CHECKED BY		
DETAILED BY		
CHECKED BY		
QUANTITIES BY		
CHECKED BY		

REV. MARCH, 1974

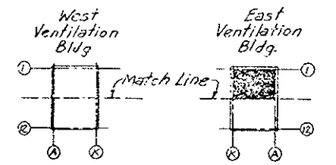
(R-1) 4/29/75 T.A.L. Revise Building Insulation Note.

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	11	208

AS CONSTRUCTED
NO REVISIONS DATE



PLAN



KEY PLAN

Work Area —

⊖ - Duplex Receptacles — 120V - 1 Phase

Reference Nº	Voltage	Total Allowable Load	Panel	Circuit Nº
(18)	120	16A	LE 3A	19
(19)	120	16A	LE 3A	21
(20)	120	16A	LE 3A	23

(R-1) Work areas shall also include those locations applicable to the Force Account Item "Building Insulation".

DIVISION OF HIGHWAYS

EAST VENTILATION BLDG ROADWAY FLOOR PLAN-NORTH WORK AND STORAGE AREAS

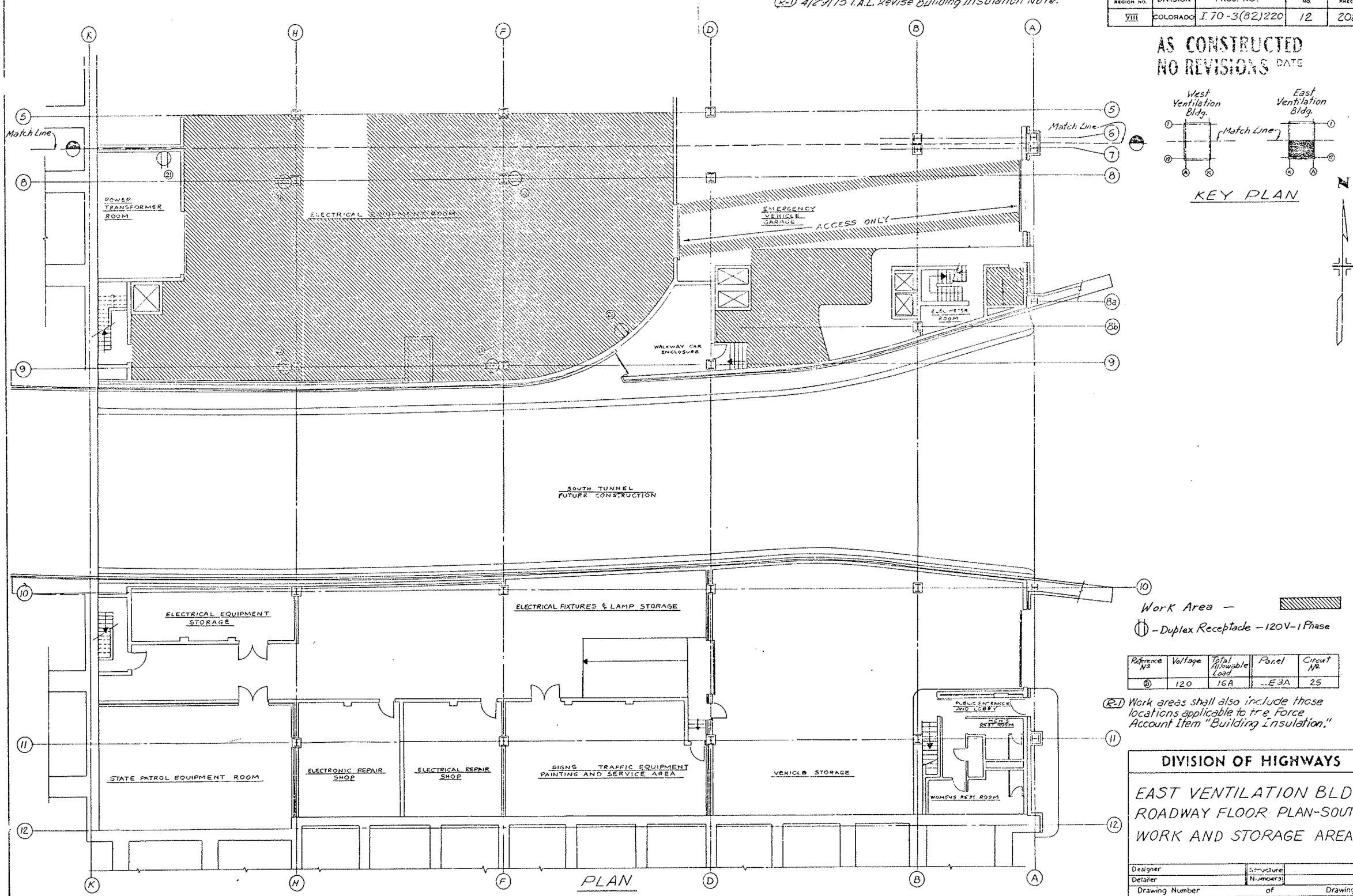
Designer	Structure Numbers	
Detailer		
Drawing Number	of	Drawings

DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 126
REV. MARCH, 1974

(R-1) 4/29/75 T.A.L. Revise Building Insulation Note.

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	12	208

AS CONSTRUCTED
NO REVISIONS DATE



PLAN

KEY PLAN

N

Work Area —

⊕ – Duplex Receptacle – 120V-1 Phase

Reference No.	Voltage	Total Allowable Load	Panel	Circuit No.
②	120	16A	..E3A	25

(R-1) Work areas shall also include those locations applicable to the Force Account Item "Building Insulation."

DIVISION OF HIGHWAYS

EAST VENTILATION BLDG ROADWAY FLOOR PLAN-SOUTH WORK AND STORAGE AREAS

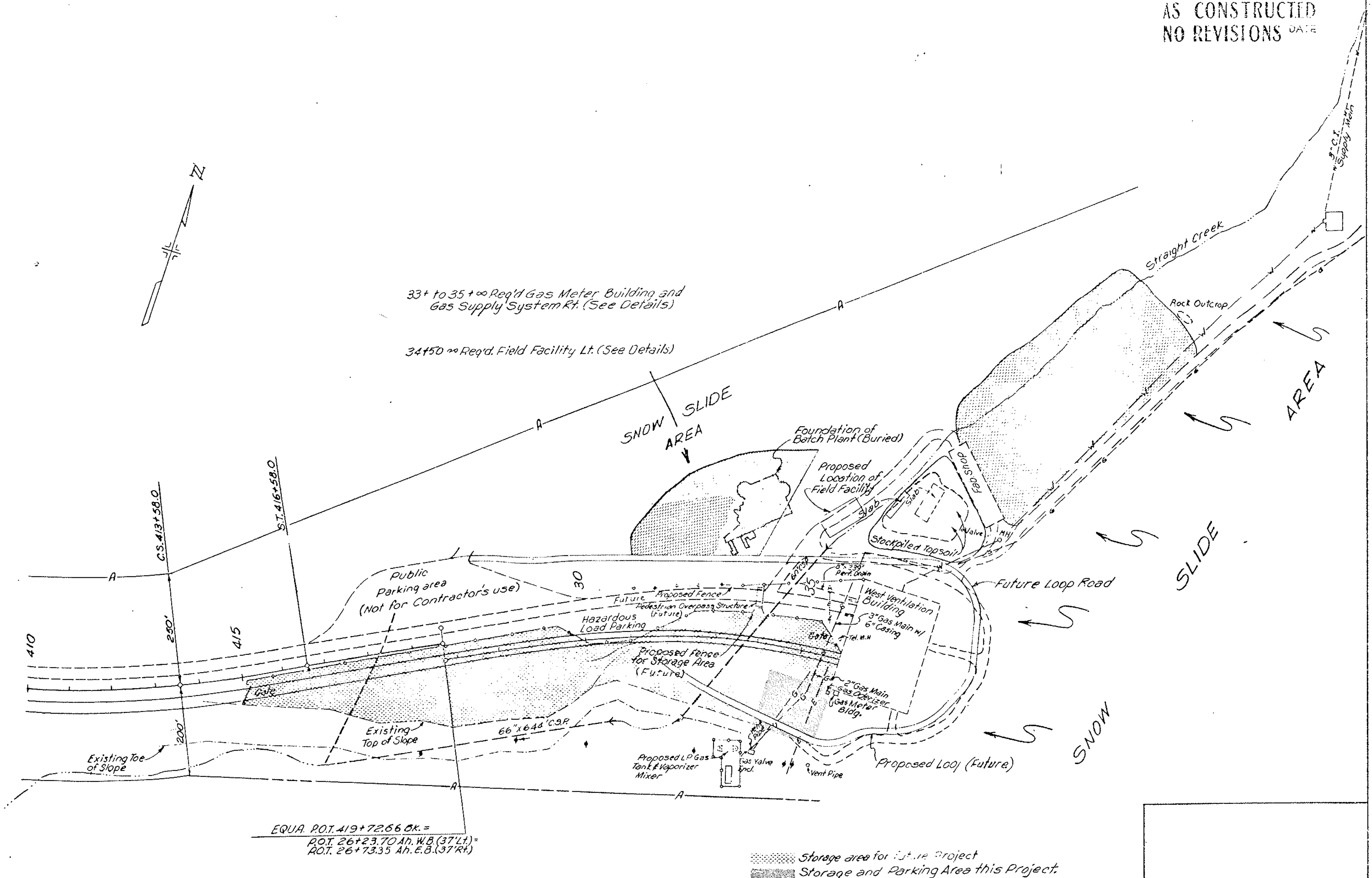
Designer	Structure Number 31
Detailer	
Drawing Number	of Drawings

DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	13	208

AS CONSTRUCTED
NO REVISIONS DATE

WEST PORTAL AREA



N
33+ to 35+00 Req'd Gas Meter Building and Gas Supply System Rt. (See Details)
34+50 00 Req'd. Field Facility Lt. (See Details)
SNOW SLIDE AREA
Straight Creek
Rock Outcrop
8" C.I. Supply Main
Foundation of Batch Plant (Buried)
Proposed Location of Field Facility
Slab
Fab Shop
Valve
MH
Stockpiled Topsoil
Future Loop Road
Public Parking area (Not for Contractor's use)
Future Proposed Fence
Pedestrian Overpass Structure (Future)
Hazardous Load Parking
West Ventilation Building
3" Gas Main w/ 6" Casing
Gate
Tel. M.H.
Proposed Fence for Storage Area (Future)
2" Gas Main
Gas Odorizer
Gas Meter Bldg.
Proposed LP Gas Tank & Vaporizer Mixer
Gas Valve Encl.
Vent Pipe
Proposed Loop (Future)
Existing Top of Slope
Existing Toe of Slope
66" x 648' C.S.P.
C.S. 413+58.0
S.T. 416+58.0
410
415
30
35
250'
200'
EQUA. P.O.T. 419+72.66 Bk. =
P.O.T. 26+23.70 Ah. W.B. (37' Lt.) =
P.O.T. 26+73.35 Ah. E.B. (37' Rt.)
Storage area for Future Project
Storage and Parking Area this Project.

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 136
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VII	COLORADO	I 70-3(82)220	14	208

AS CONSTRUCTED
NO REVISIONS DATE

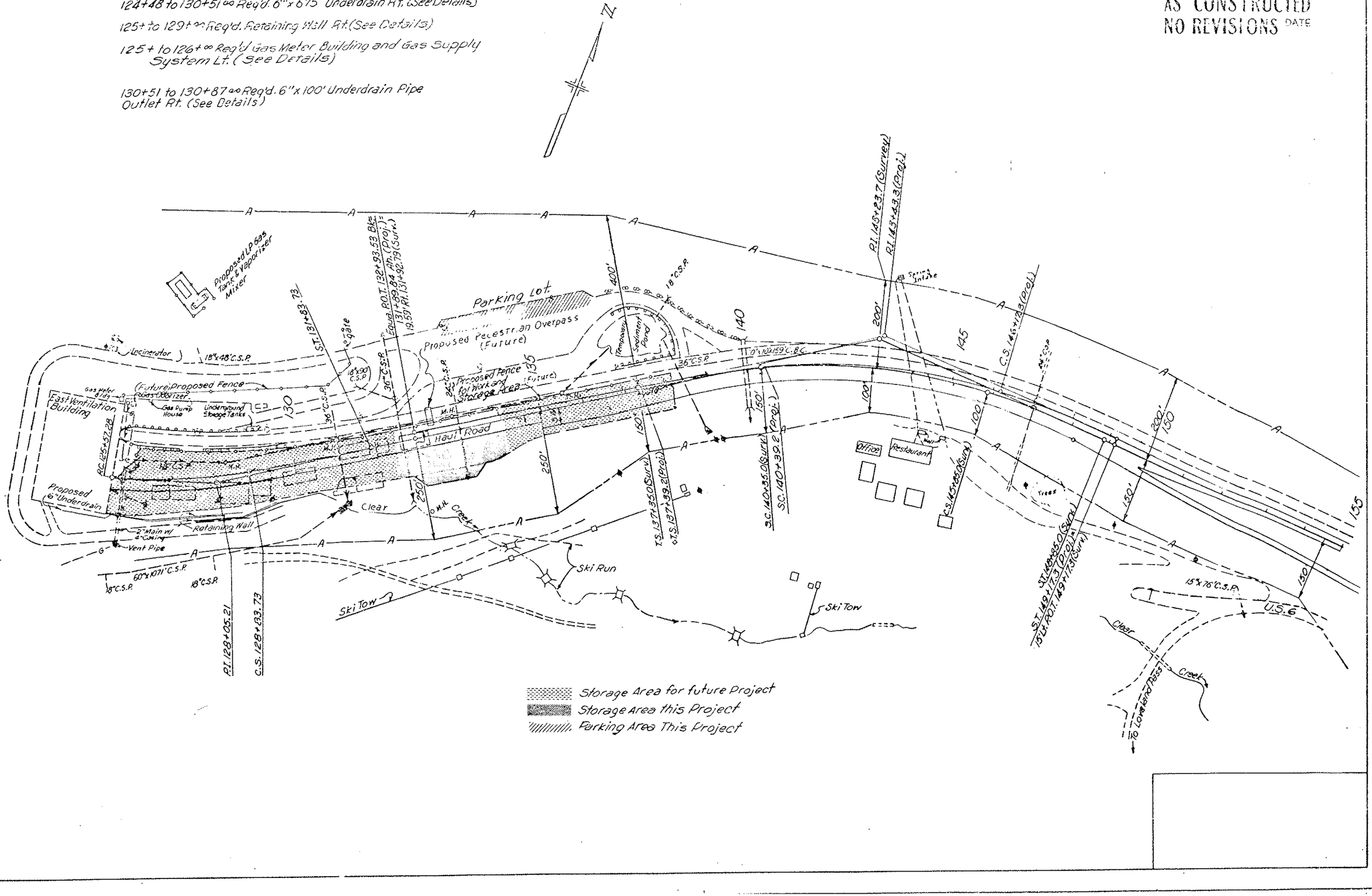
EAST PORTAL AREA

124+48 to 130+51 ∞ Req'd. 6" x 675' Underdrain Rt. (See Details)

125+ to 129+ ∞ Req'd. Retaining Wall Rt. (See Details)

125+ to 126+ ∞ Req'd Gas Meter Building and Gas Supply System Lt. (See Details)

130+51 to 130+87 ∞ Req'd. 6" x 100' Underdrain Pipe Outlet Rt. (See Details)

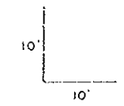


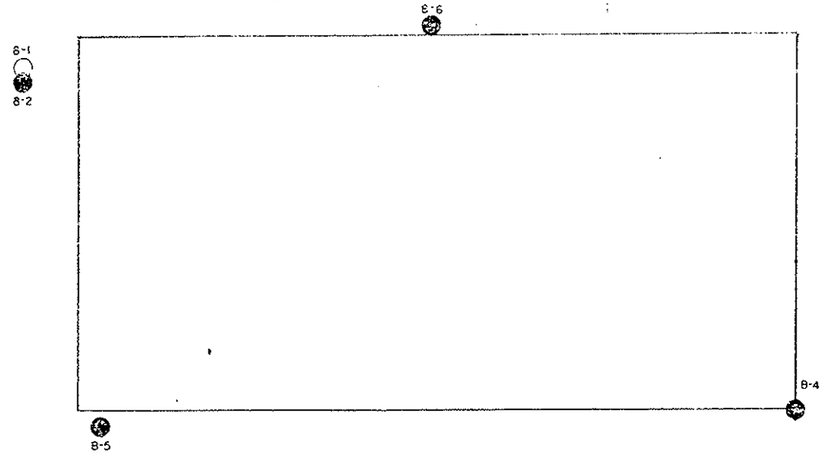
DOH FORM NO. 166
REVISED: OCTOBER, 1970

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	I70-3(82)220	15	208

DETAILS OF FIELD FACILITY

As Constructed
Revised
Date 8/31/79



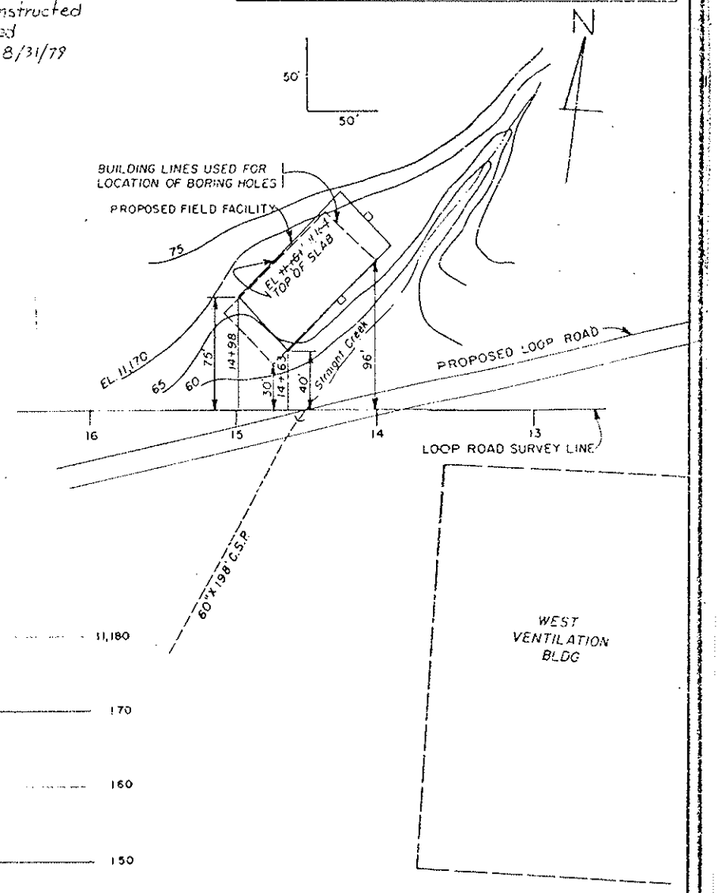


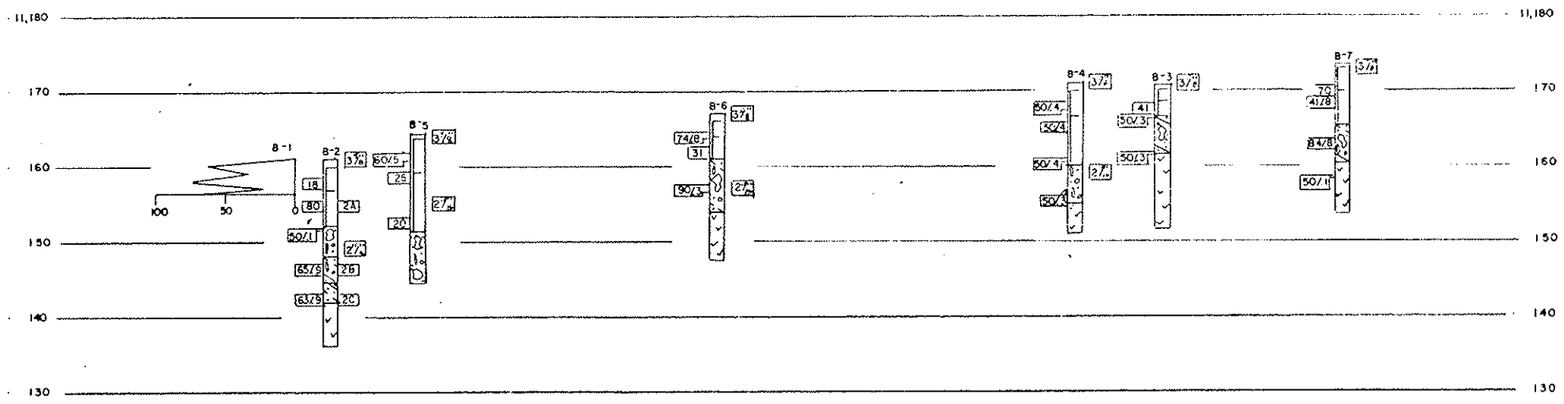
NOTE:

Place continuous footings under the bearing walls of the building. An allowable bearing capacity of one ton per square foot will be attained on 12 inches of compacted filter material, Placed as shown on the plans.

The final location of the field facility may be adjusted to fit field conditions

The cost of dirt and rock excavation will not be paid for separately but will be included in the work.





SUMMARY OF TEST RESULTS

Sample No.	Depth	Classification: Corps of Engrs. or Visual	Classification: AASHO	Grading Analyses: Percent Gravel	Coarse Sand	Fine Sand	Silt and Clay	Atterberg Limits: Liquid Limit L_w	Plastic Limit P_w	Plasticity Index I_w	Water Cont. W %	Wet Unit Weight T P.C.F.	Unconfined Strength Q_u T.S.F.	Triaxial Shear Strength: Unconsolidated ϕ	C T.S.F.	Consolidated ϕ	C T.S.F.	Time hrs.	Pressure P.S.I.	Dia. Of Sample (inches)
2A	5.5 - 7	Silty Sand Gravel	A-1-a(0)	57	18	13	12	26	22	4	6.2									
2B	14 - 15.4	Clayey Sandy Gravel	A-2-4(0)	61	13	11	15	28	21	7	10.8									
2C	18 - 19.4	Sandy Silt	A-4(0)	9	3	30	58	27	24	3	22.7									

TYPE OF MATERIAL

- FILL
- SAND & GRAVEL W/ COBBLES BOULDERS
- SILTY SAND & GRAVEL W/ COBBLES & BOULDERS
- CLAYEY SAND & GRAVEL W/ COBBLES & BOULDERS
- SILTY, CLAYEY SAND & GRAVEL W/ COBBLES & BOULDERS
- GRANITE

LEGEND

DIVISION OF HIGHWAYS
STATE OF COLORADO

ENGINEERING GEOLOGY
FOR FIELD FACILITY
EISENHOWER TUNNEL

Sta.
Near Sec. T. R.
Geologist A C E
Made by S M O
Checked by A C E
Approved by
Bridge Engineer
Date: 4-17-75

STRUCTURE NO.
DWG. NO. B OF

LAYOUT OF FIELD FACILITY

(R-1) 4/29/75 T.A.L. Deleted Brick Veneer. Revise Pipe Size

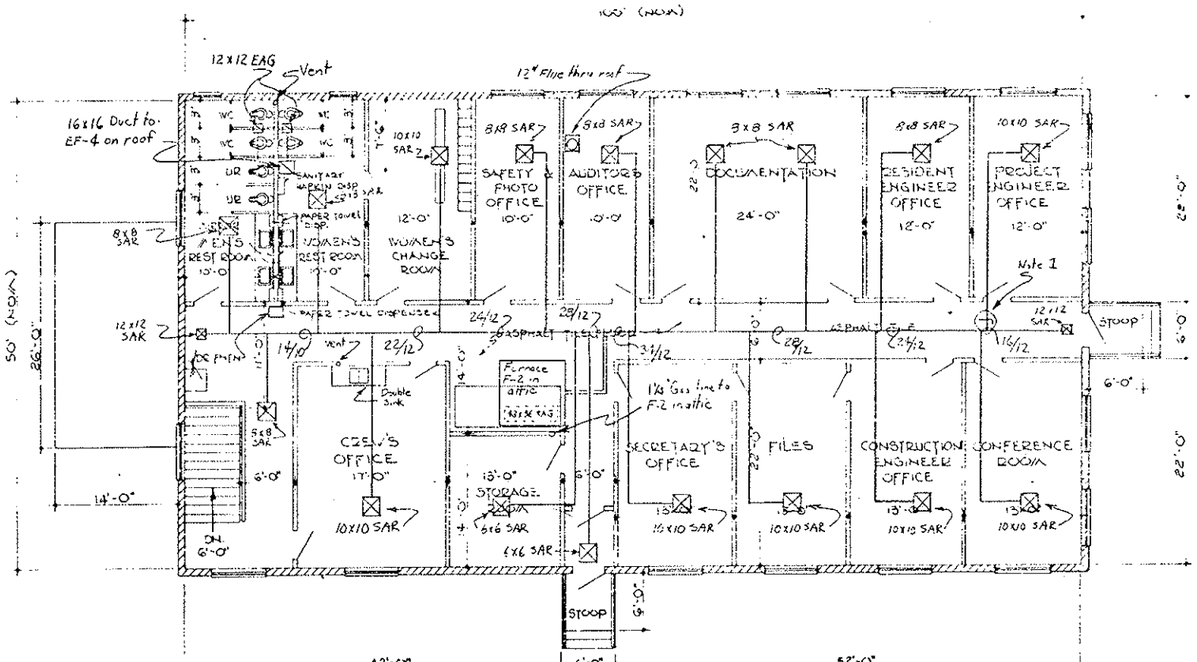
As Constructed
Revised
Date

NOTES:
1. ⊖ Adjustable Damper Typical at all Branch Ducts
2. 6"ϕ Typical at all Duct Branches

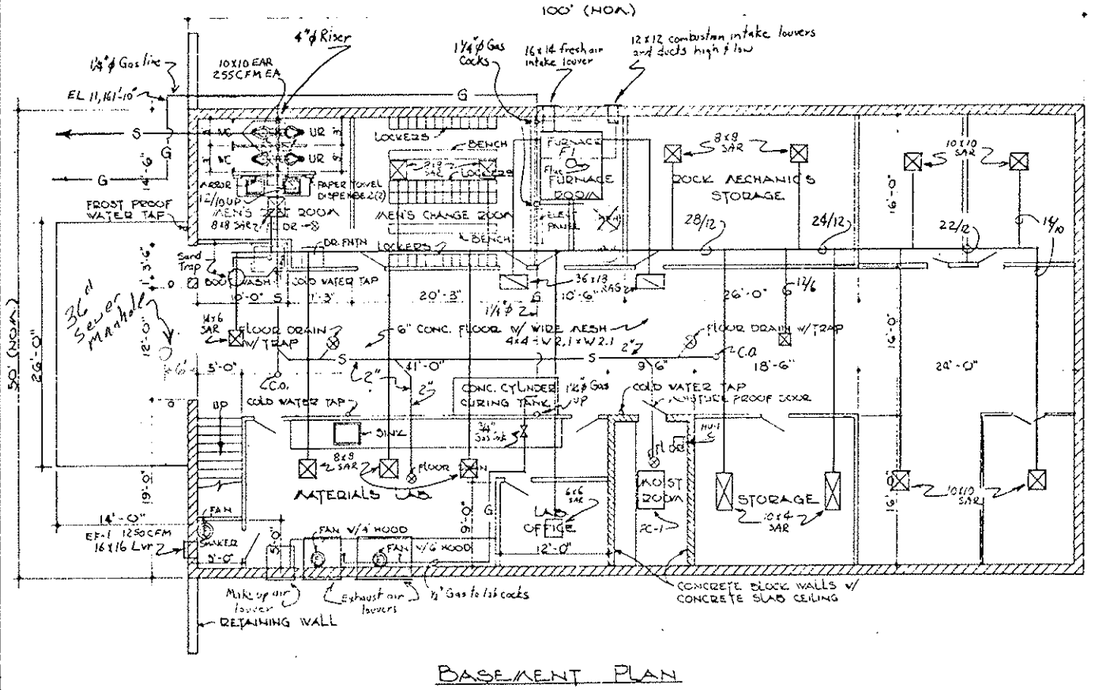
More Notes on Sheet 17

FEDERAL AID REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	16	208

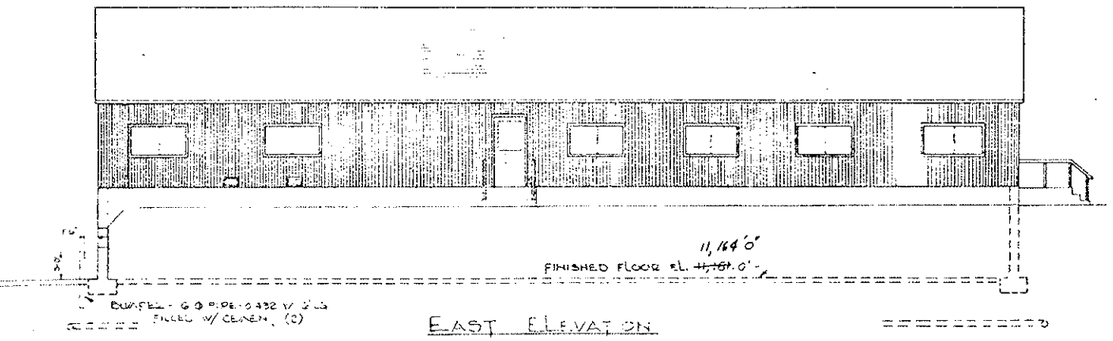
REVISIONS		



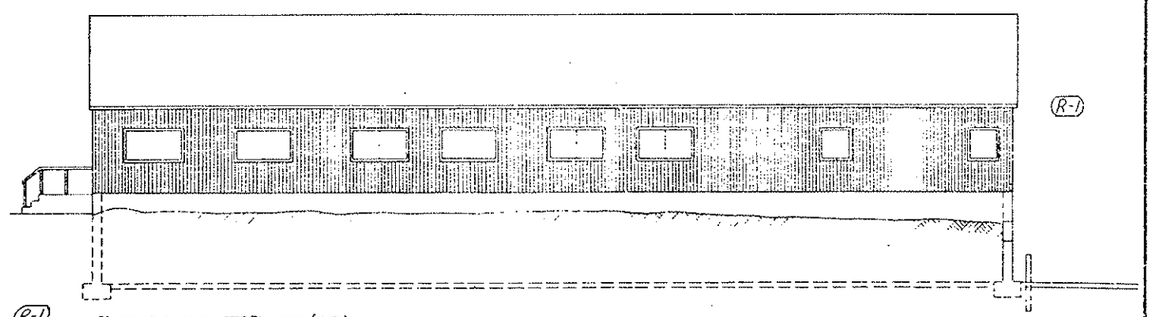
FIRST FLOOR PLAN



BASEMENT PLAN

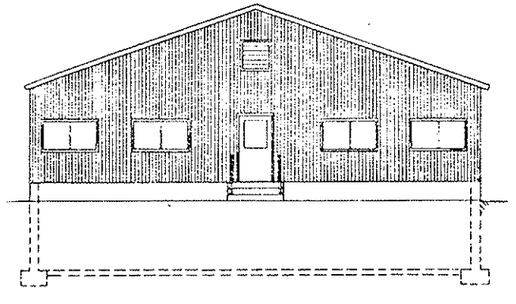


EAST ELEVATION

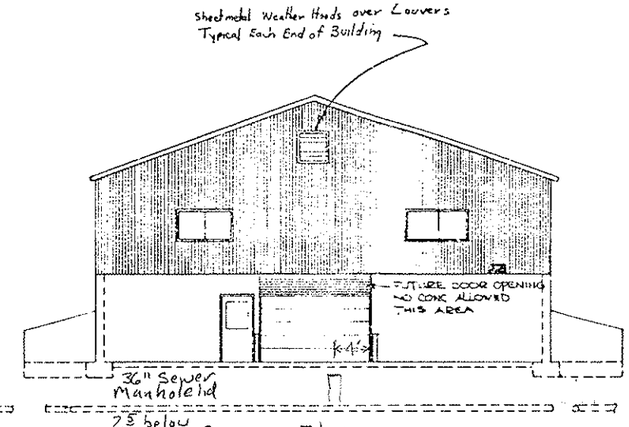


WEST ELEVATION

NOTE: FOR DETAIL OF UNDERDRAIN SEE NEXT SHEET.



NORTH ELEVATION



SOUTH ELEVATION

DETAILS OF FIELD FACILITY

(R-1) 4/28/75 T.A.L. Revise Pipe Size.

FEDERAL ROAD REGION NO	DIVISION	PROJ NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(32)220	17	208

REVISIONS		

AS CONSTRUCTED
REVISED
DATE 8/31/79

Notes

F-1 furnace 3995 CFM @ 1/8" S.P. 625,000 BTU input, 480V, 3φ

F-2 furnace 4920 CFM @ 3/8" S.P. 937,500 BTU input, 480V, 3φ

FC-1 fan unit with electric heating coil 200 CFM @ 1/8" S.P. 2KW, 1/40 HP, 120V φ

HU-1, Humidifier Walton SW10 10 lbs/hr, 120V, 1φ

EF-1 1250 CFM @ 1/8" SP Prop fan with backdraft damper, 1/8 HP, 120V, 1φ

EF-2 2500 CFM @ 1/8" SP Prop fan with backdraft damper, 1/4 HP, 120V, 1φ

EF-3 5000 CFM @ 1/8" SP Prop fan with backdraft damper, 1/2 HP, 120V, 1φ

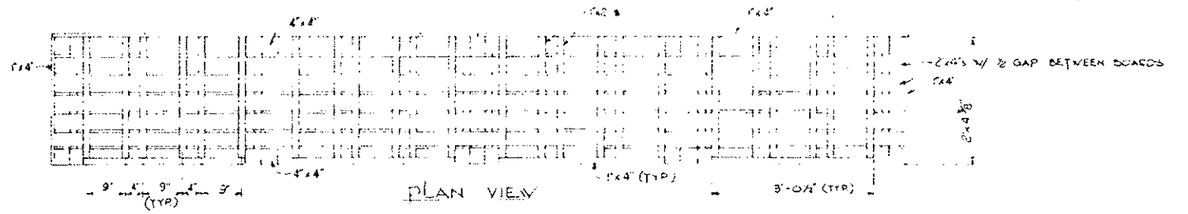
EF-4 1400 CFM @ 1/4" SP Roof exhaust fan w/curb and backdraft damper 1/6 HP, 120V, 1φ

Insulate all ductwork installed in attic space with 1" x 1½ lb ductliner

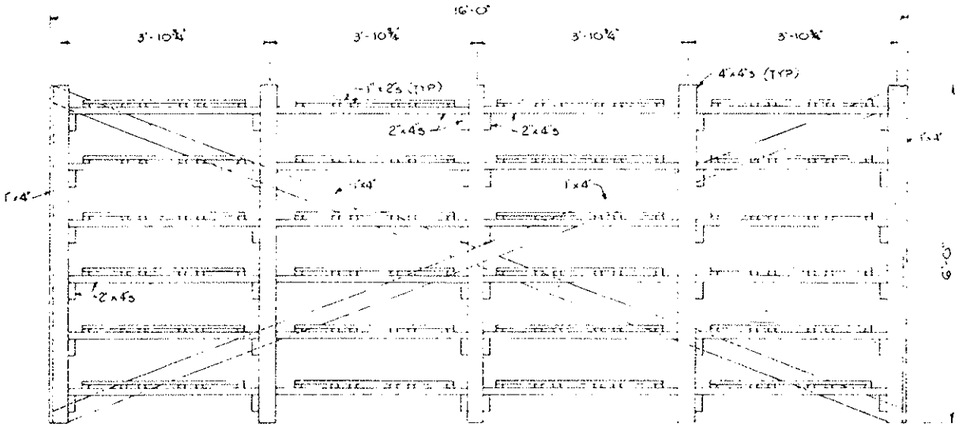
Flues shall be Type B

Undercut all doors 1" for return air

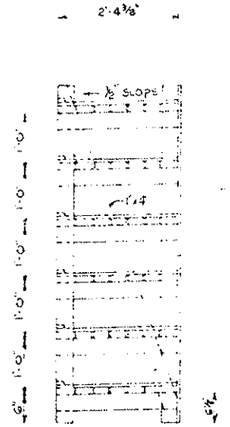
Combustion air for F-2 to come from attic louvers



PLAN VIEW



FRONT ELEVATION



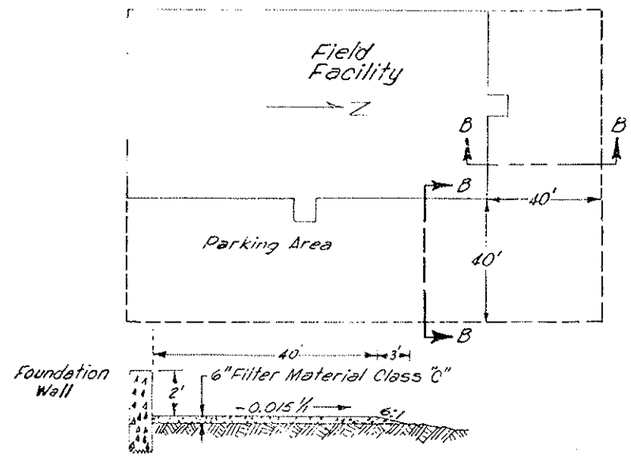
END ELEVATION

REDWOOD SHELVES FOR MOIST ROOM
SCALE ¾" = 1'-0"

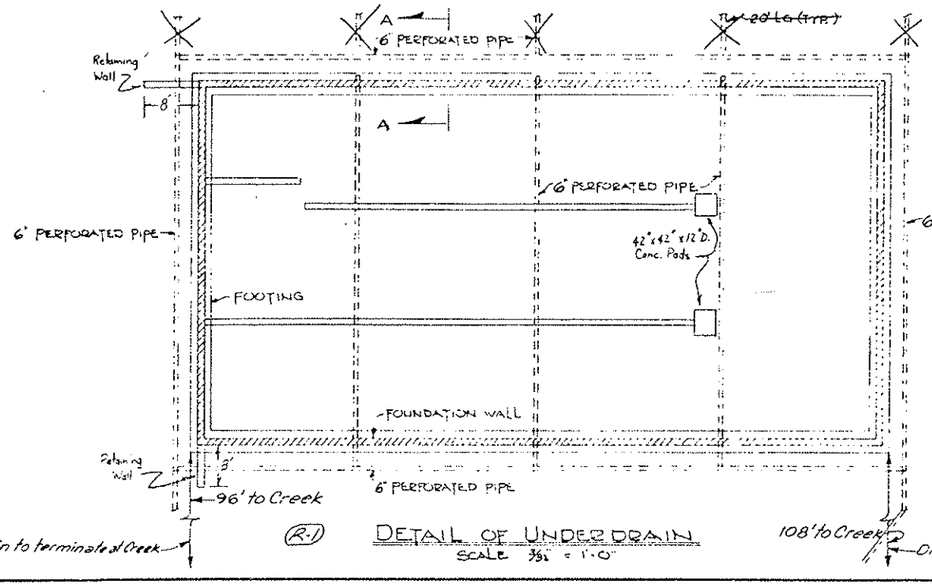
NOTE: ALL MATERIAL FOR SHELVES WILL BE REDWOOD

NOTE: FLOOR SLAB TO BE PLACED ON 12 INCH LAYER OF FILTER MATERIAL CLASS "C"

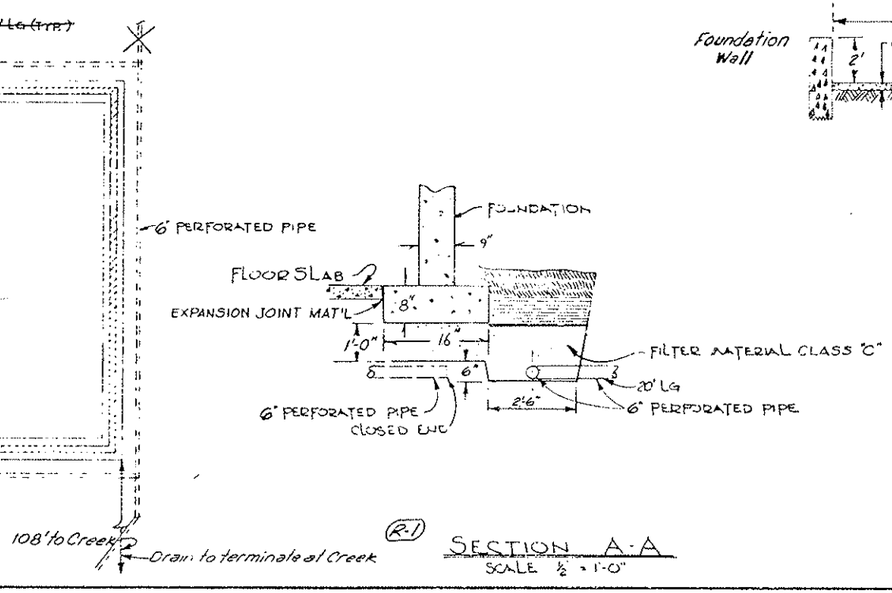
DETAILS OF PARKING AREA



Section B-B



(R-1) DETAIL OF UNDERDRAIN
SCALE 3/32" = 1'-0"



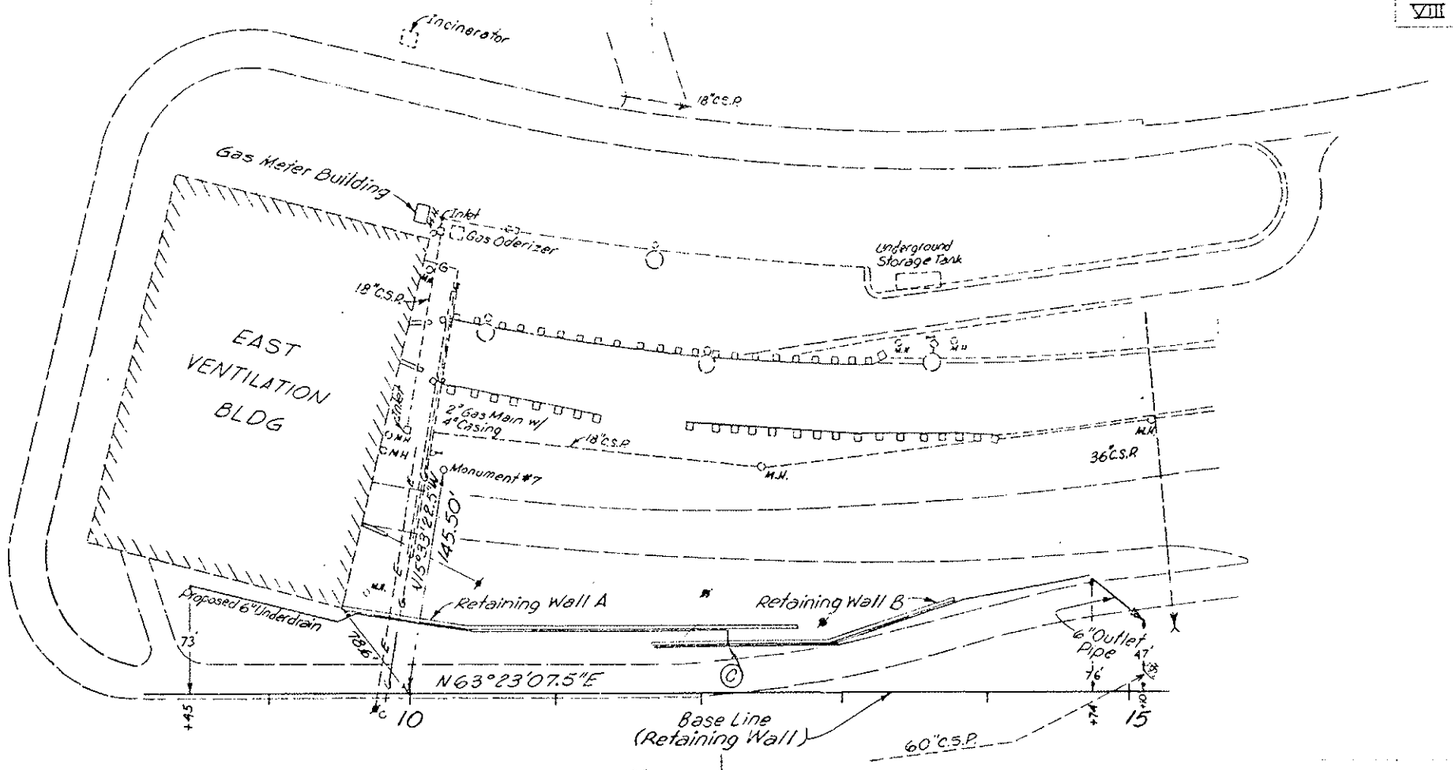
(R-1) SECTION A-A
SCALE ½" = 1'-0"

DETAILS OF FIELD FACILITY

DETAILS OF UNDERDRAIN - EAST PORTAL

VIII I70-3(82)220 18

AS CONSTRUCTED
NO REVISIONS DATE



FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(83)220	19	208

REVISIONS		

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE SPECIFICATIONS APPLICABLE TO THIS PROJECT.

ALL CONCRETE SURFACES MARKED WITH THE SYMBOL f AS SHOWN ON DRAWING NO. B-7 SHALL RECEIVE A CLASS 2 SURFACE FINISH.

ALL CONCRETE CHAMFERS SHALL BE 3/4 INCH UNLESS OTHERWISE NOTED.

EXPANSION JOINT MATERIAL SHALL MEET A.A.S.H.T.O. SPECIFICATION M-213-65. IT SHALL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE WORK.

SOUNDINGS AND DEPTH OF FOOTINGS ARE IN ACCORDANCE WITH THE BEST AVAILABLE DATA. WHEN DIFFERENT CONDITIONS ARE ENCOUNTERED, THE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

WHEN EXCAVATING FOR FOOTINGS, THE FINAL SIX INCHES IN DEPTH SHALL BE DONE BY HAND LABOR METHODS.

FOOTINGS IN ROCK SHALL NOT BE FORMED BUT SHALL BE PLACED AGAINST UNDISTURBED ROCK.

FOR DETAILS OF STRUCTURE EXCAVATION AND STRUCTURE BACKFILL, SEE STANDARD M-206-AA.

ALL STRUCTURAL STEEL NOT OTHERWISE NOTED SHALL BE A.A.S.H.T.O. SPECIFICATION M-183.

ALL BOLTS SHALL BE 3/4" DIAMETER, HIGH STRENGTH, UNLESS OTHERWISE NOTED.

NO WELDING OF ANY KIND SHALL BE PERMITTED ON THE FLANGES OF STEEL GIRDERS UNLESS SPECIFICALLY CALLED FOR ON THE PLANS.

THE FOLLOWING TABLE SHOWS THE MINIMUM LAP FOR COMMON BAR SIZES.

BAR SIZE NUMBER	4	5	6	7	8	9	10	11
SPLICE LENGTH	1'-0"	1'-2"	1'-8"	2'-3"	3'-0"	3'-10"	4'-10"	6'-0"

GRADE 60 REINFORCING STEEL REQUIRED FOR #5 BARS AND LARGER

GRADE 40 OR GRADE 60 MAY BE FURNISHED FOR #4 BARS.

E. F. = EACH FACE
N. F. = NEAR FACE
F. F. = FAR FACE

CROSS REFERENCE DRAWING NUMBER
SECTION OR DETAIL IDENTIFICATION

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE APPROVED BY THE ENGINEER

METAL TIES FOR BRICK VENEER SHALL BE PLACED SUCH THAT MAXIMUM AREA = 4½ SQ.FT. PER TIE.
HORIZONTAL LADDER OR TRUSS TYPE STANDARD WEIGHT TIES SHALL BE PROVIDED AT MAXIMUM 16" SPACING.

LOADING DATA

DESIGN DATA

A.A.S.H.T.O. 1973 UNIT STRESSES, EXCEPT AS NOTED

REINFORCING STEEL — #5 & LARGER — Fs = 24,000 PSI
#4 BARS — Fs = 20,000 PSI

STRUCTURAL STEEL: A36 — Fs = 20,000 LBS. PER SQ. IN.
572, GRADE 50 — Fs = 27,000 LBS. PER SQ. IN.

Fc = 1,200 LBS. PER SQ. IN.
n = 10

SUMMARY OF QUANTITIES

Bk	Pg	Item No.	Description	Unit	Retaining Wall A	Retaining Wall B	~~Total~~	Final Quantity
1	65	206	STRUCTURE EXCAVATION	Cu. Yd.	1403* ~~1050~~	599 ~~450~~	~~1500~~	2002
1	15	206	STRUCTURE BACKFILL (CLASS 2)	Cu. Yd.	1427 ~~1491~~	347 ~~541~~	~~2038~~	1774
1	17	206	FILTER MATERIAL (CLASS)	Cu. Yd.	104	21	125	125
1	20	507	CONCRETE SLOPE & DITCH PAVING NO REINFORCING	Cu. Yd.			~~40~~	40.86
1	32	518	WATERSTOP (6 INCH)	Lin. Ft.	~~42~~ 52	~~18~~ 25	~~60~~	77
1	63	601	CONCRETE CLASS A (WALL)	Cu. Yd.	505 ~~450~~	201 ~~185~~	~~653~~	706
1	75	601	MASONRY VENEER	Sq. Ft.	4439 ~~5285~~	1218 ~~1169~~	~~5432~~	5657
1	49	602	REINFORCING STEEL	LBS	57400	11800	69200	69,200
6	11	636	GAS METER BUILDING (EAST)	Ea.			1	1
6	48	636	GAS METER BUILDING (WEST)	Ea.			1	1
			*Includes sub exc. for conc. slope & ditch paving					

Note: Gas Meter Building (East) and Gas Meter Bldg. (West) require partial Quantities to complete the work as shown below. These quantities will not be paid for separately but shall be included in the work.

DESCRIPTION	UNIT	GAS METER BUILDING (EAST)	GAS METER BUILDING (WEST)
STRUCTURE EXCAVATION	Cu. Yd.	29	29
STRUCTURE BACKFILL (CLASS 2)	Cu. Yd.	27	27
CONCRETE CLASS A (WALL)	Cu. Yd.	21	22.7
MASONRY VENEER	Sq. Ft.	460	467
REINFORCING STEEL	LBS.	1200	1207

INDEX OF DRAWINGS

Approved

Bridge Engineer Date

DIVISION OF HIGHWAYS

GENERAL INFORMATION
SUMMARY OF QUANTITIES

Station 9+46 TO 12+65
Station 11+60 TO 13+70
Near DILLON Sec. 26/27 T. 4 S R. 76 W
Designer L L FELZIEN — Structure Numbers
Detailer K D HEATER
Drawing Number B 1 of 7 Drawings

(6-15 74) Revision Dates (Preliminary Stage Only)

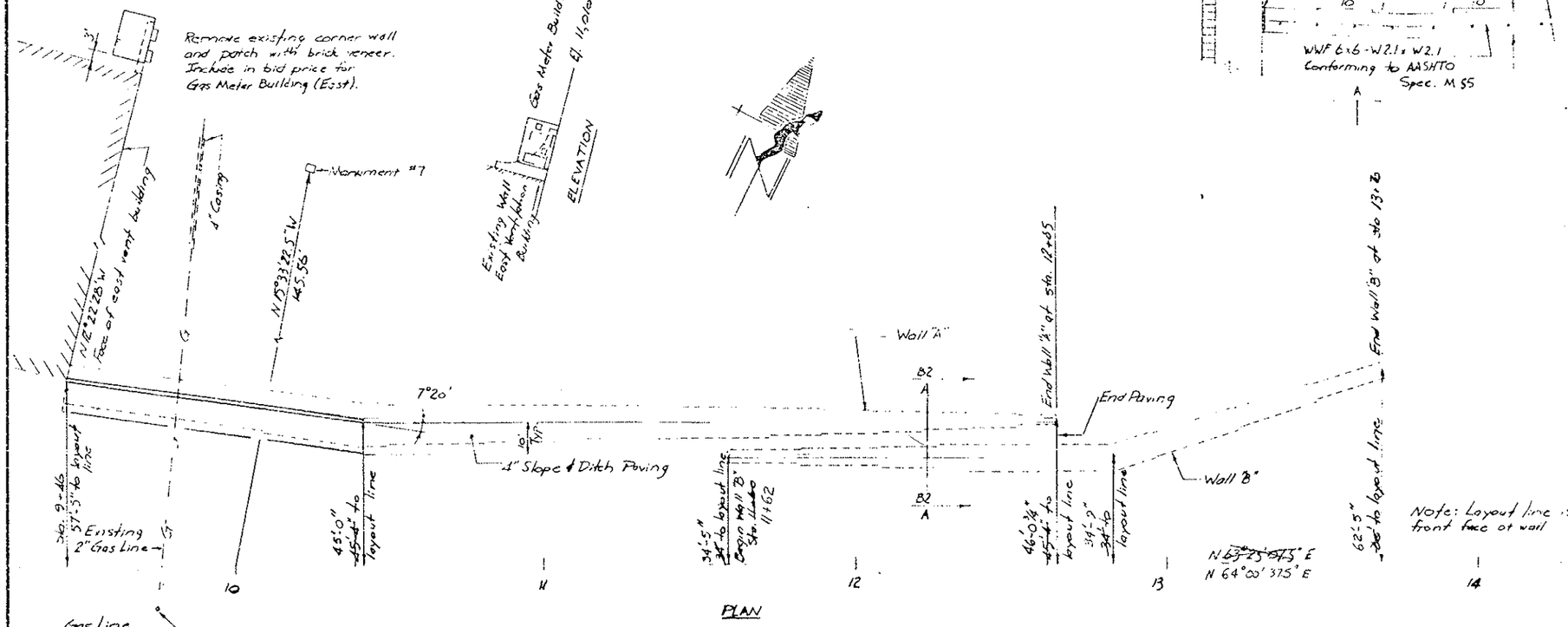
DESIGNED BY / CHECKED BY / DETAILED BY / INITIAL / DATE / CHECKED BY / QUANTITIES BY / CHECKED BY

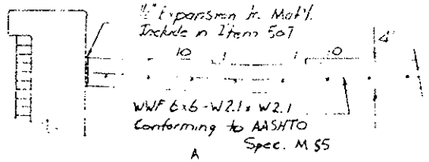
FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70 - 3(82)220	20	208

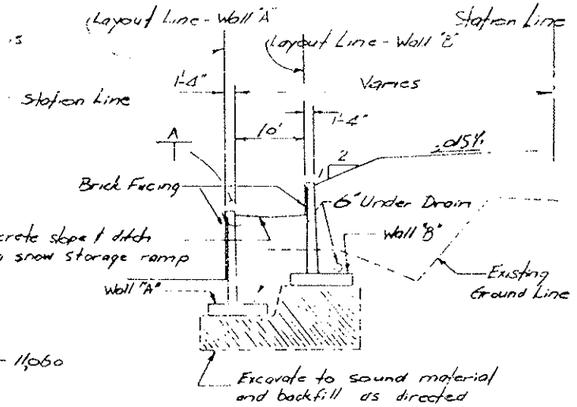
REVISIONS		

AS CONSTRUCTED
REVISED
DATE 8/31/79

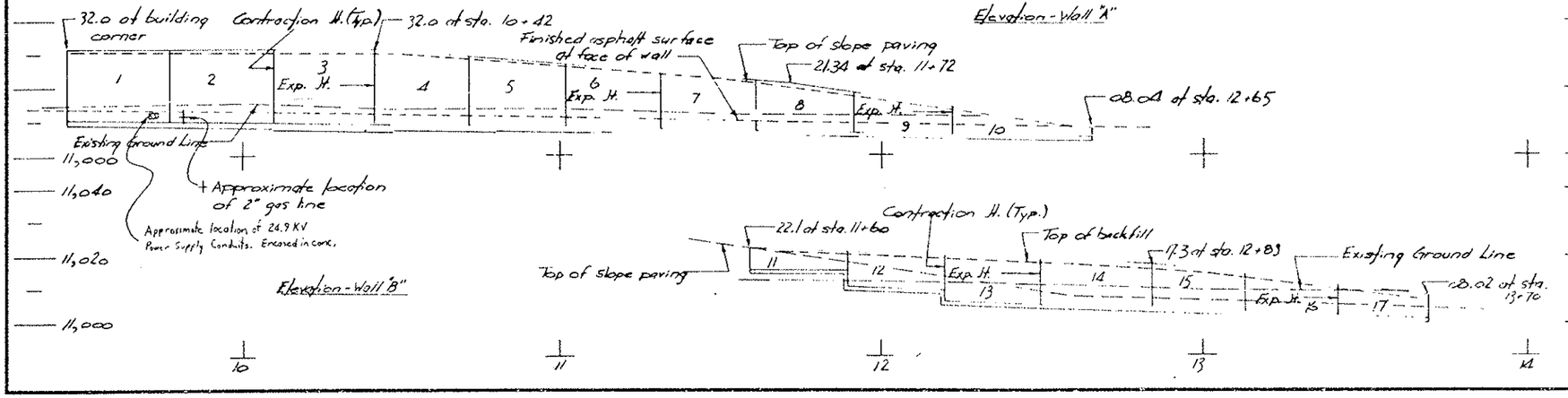
Wall "A"		Wall "B"	
Panel No	Length	Panel No	Length
1	32.0	11	30.0
2	32.0	12	30.0
3	32.8	13	30.0
4	30.0	14	33.0
5	30.0	15	30.0
6	30.0	16	30.0
7	30.0	17	30.8
8	30.0		
9	30.0		
10	43.0		







Note: See Mechanical Drawings For Gas Pipe Locations



DIVISION OF HIGHWAYS

Retaining Walls - East Portal

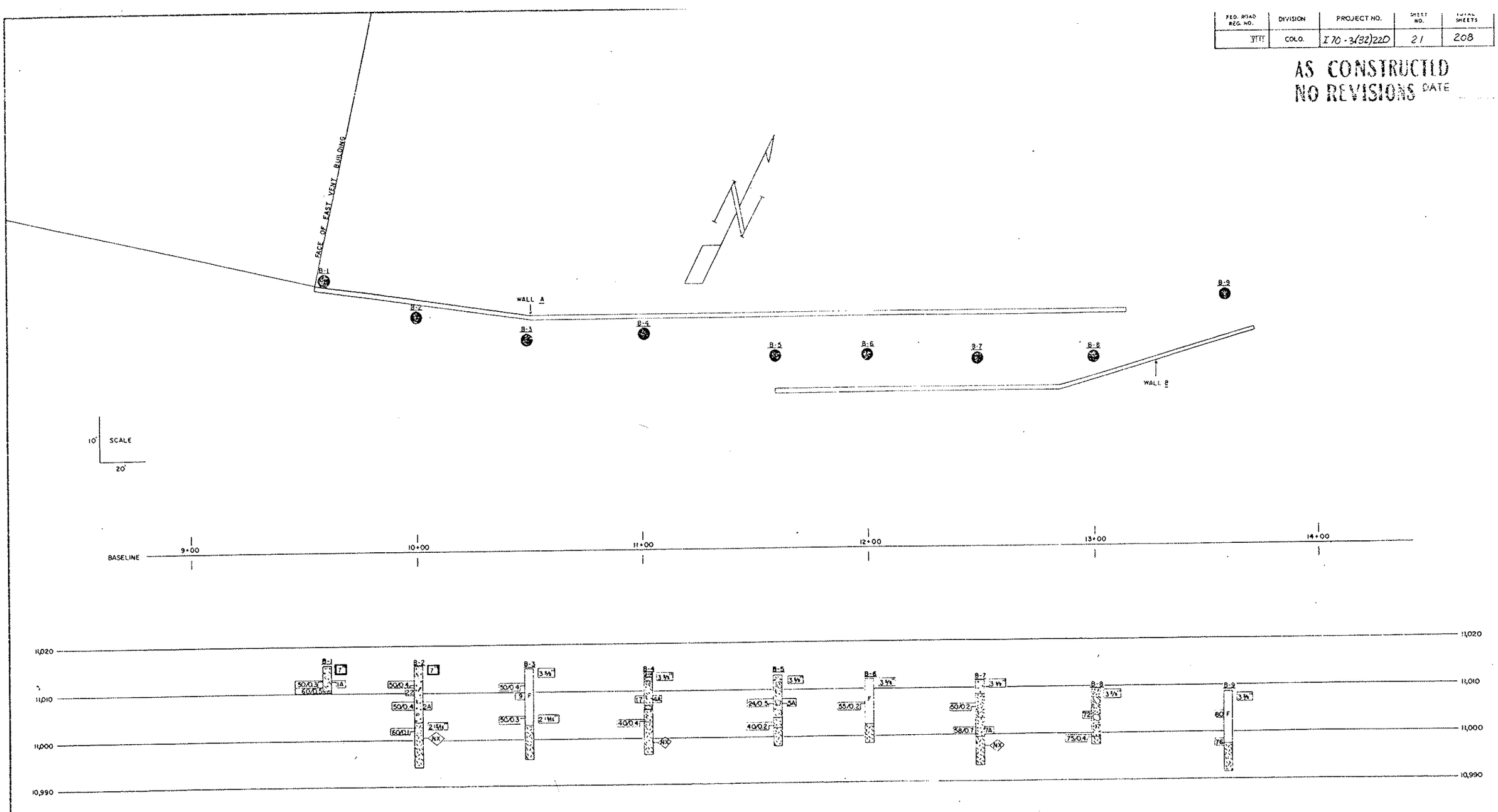
Designer	Folsom	Structure Numbers	
Detailer	Folsom		
Drawing Number	B 2	of 7	Drawings

Revision Dates (Preliminary Stage Only)

DOH FORM NO. 149
REVISED: OCTOBER, 1979

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLO.	I 70-3(32)220	21	208

AS CONSTRUCTED
NO REVISIONS DATE



SUMMARY OF TEST RESULTS

Sample No.	Depth	Classification: Corps of Engrs. or Visual	Classification: AASHO	Grading Analysis, Percent: Gravel	Coarse Sand	Fine Sand	Silt and Clay	Atterberg Limits: Liquid Limit L.L.	Plastic Limit P.L.	Plasticity Index I.P.	Water Cont. W %	Wet Unit Weight γ P.C.F.	Unconfined Strength Qu T.S.F.	Triaxial Shear Strength, Unconsolidated: φ	C T.S.F.	Consolidated: φ	C T.S.F.	Time Press (P.S.I.)	Dia. of Sample Inches
1A	30-33	CLAYEY SANDY GRAVEL	A-2-4(0)	49	19	15	17	26	19	7	9.3								
2A	75-90	SANDY GRAVEL	A-1-a(0)	72	15	8	5	NV	NP	NP	7.8								
5A	50-65	SANDY GRAVEL	A-1-a(0)	71	11	8	10	29	24	5	9.3								
5A	50-60	CLAYEY SANDY GRAVEL	A-1-b(0)	47	22	14	17	29	23	6	15.0								
7A	100-112	SANDY GRAVEL	A-1-a(0)	66	14	10	10	25	23	2	8.6								

TYPE OF MATERIAL

- SILTY, GRAVELLY SAND
- GRANITE
- SANDY GRAVEL W/COBBLES
- SANDY GRAVEL
- BOULDER
- FILL
- SILTY, SANDY GRAVEL W/COBBLES
- SILTY, SANDY GRAVEL W/COBBLES & BOULDERS
- SILTY GRAVEL
- SILTY GRAVEL W/COBBLES

LEGEND

TEST BORING

Blows Per Foot (Standard Penetration Test)
Water Table
Hole Size
Sample No.
2 15 67
Core Size
* 2 in. O.D. Split-Tube Sampler
140 Lb. Hammer
30 in. Free Fall

CONTINUOUS PENETRATION TEST

2 in. Dia. Drive Point
140 Lb. Hammer
30 in. Free Fall
0 50 100
Blows per Foot

- Location of Test Boring
- Location of Continuous Penetration Test
- Rotary Boring
- Auger Boring
- Core Boring

DIVISION OF HIGHWAYS
STATE OF COLORADO

ENGINEERING GEOLOGY

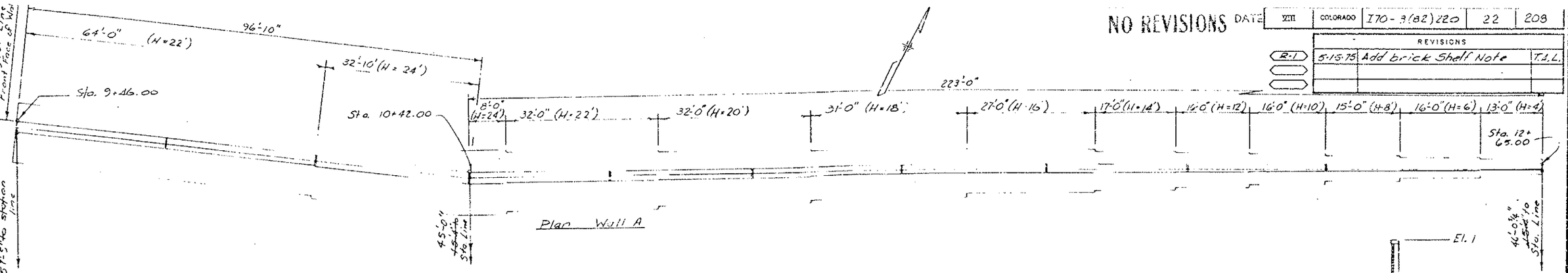
Project: RETAINING WALL - EAST PORTAL
Sta.
Near: EISENHOWER TUNNEL T R
Geologist: K.W.B.
Made by: D.L.S.
Checked by: D.L.S.
Approved by: Bridge Engineer
Date: 19

STRUCTURE NO. RETAINING WALL - EAST PORTAL
DWG. NO. B 3 OF

NO REVISIONS

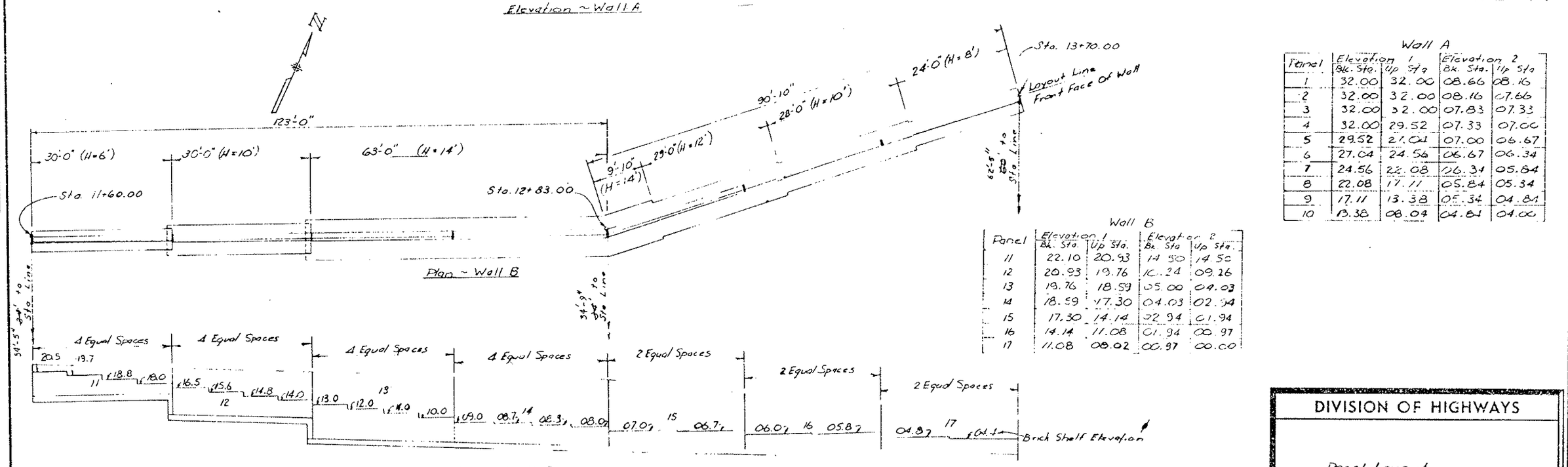
DATE	VIII	COLORADO	I70-3(82)220	22	208

REVISIONS			
R-1	5-15-75	Add brick shelf Note	T.J.L.



Wall A

Panel	Elevation 1 Bk. Sta.	Elevation 1 Up Sta	Elevation 2 Bk. Sta.	Elevation 2 Up Sta
1	32.00	32.00	08.66	08.16
2	32.00	32.00	08.16	07.66
3	32.00	32.00	07.83	07.33
4	32.00	29.52	07.33	07.00
5	29.52	27.04	07.00	06.67
6	27.04	24.56	06.67	06.34
7	24.56	22.08	06.34	05.84
8	22.08	17.11	05.84	05.34
9	17.11	13.38	05.34	04.84
10	13.38	08.04	04.84	04.00



Wall B

Panel	Elevation 1 Bk. Sta.	Elevation 1 Up Sta.	Elevation 2 Bk. Sta	Elevation 2 Up Sta.
11	22.10	20.93	14.50	14.50
12	20.93	19.76	10.24	09.26
13	19.76	18.59	05.00	04.03
14	18.59	17.30	04.03	02.94
15	17.30	14.14	02.94	01.94
16	14.14	11.08	01.94	00.97
17	11.08	08.02	00.97	00.00

Brick Shelf Elevations are approximate. Contractor shall set final elevations to assure proper alignment of all horizontal and vertical brick joints.

DESIGNED BY
CHECKED BY
DETAILED BY
QUANTITIES BY
CHECKED BY
INITIAL
DATE

DIVISION OF HIGHWAYS

Panel Layout
Walls "A" & "B"

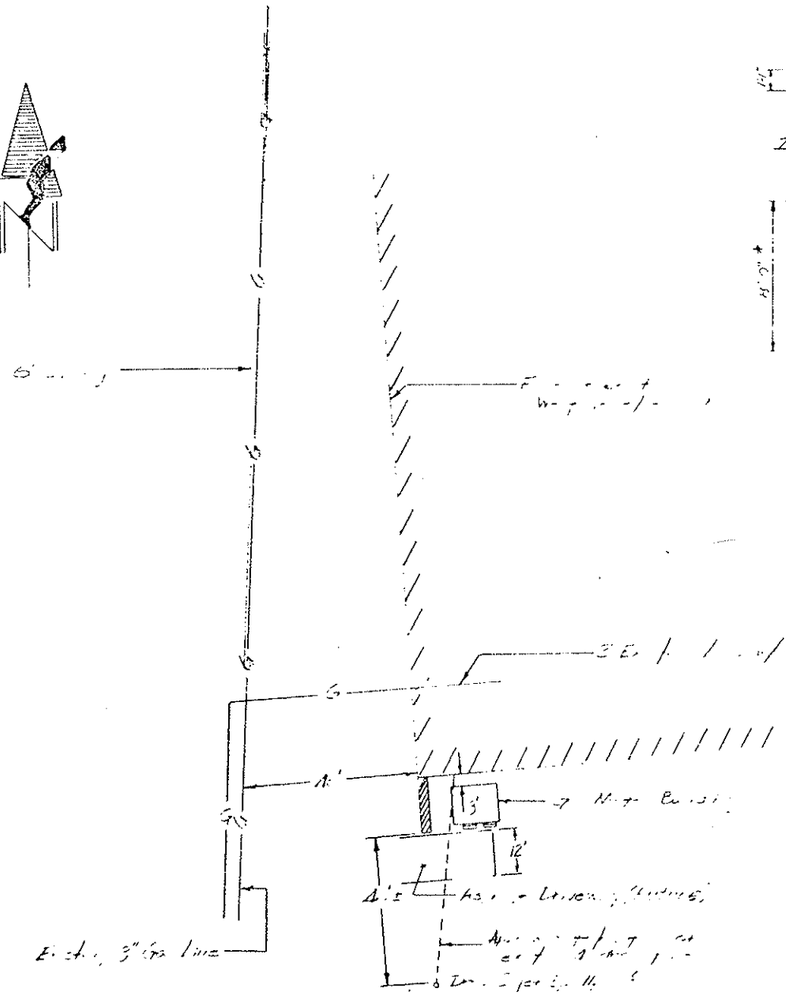
Designer L. Felzien	Structure Numbers
Detailer L. Felzien	
Drawing Number B 4 of 7 Drawings	

Revision Dates (For Preliminary Stage Only)

VIII	COLORADO	I 70-3(62) 220	23	208

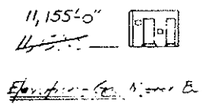
REVISIONS		

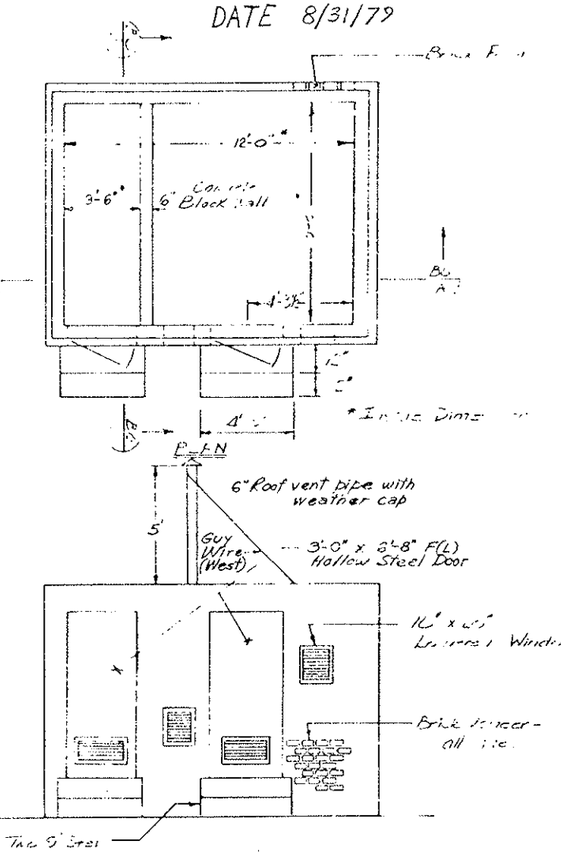
AS CONSTRUCTED
REVISED
DATE 8/31/79



LOCATION OF GAS LINE PIPE SLEEVES IN GAS METER BUILDING WALLS

PLAN





Front Elevation
Gas Meter Building (East) — As Shown
Gas Meter Building (West) — Opposite Hand

DESIGNED BY	DATE	CHECKED BY
DETAILED BY		QUANTITIES BY
CHECKED BY		CHECKED BY
INITIAL		

DIVISION OF HIGHWAYS

Gr. Meter Building Detail
Location of West Portal

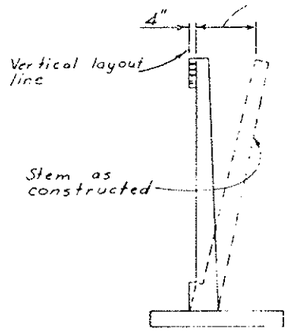
Designer Federal	Structure Numbers
Detailer Falcon	
Drawing Number B 5 of 7 Drawings	

Revision Dates	(Preliminary Stage Only)

DESIGN NO.			NO.	SHEETS
VIII	COLORADO	I 70-3(52)220	24	208

REVISIONS		

AS CONSTRUCTED
REVISED Date 8/31/79



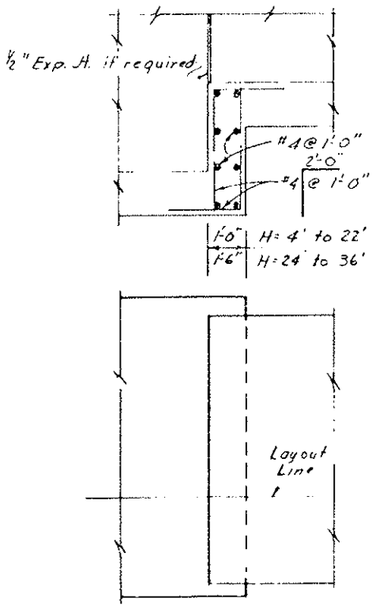
Offset as follows

H 4 = 1/4"	H 16 = 1 1/2"
H 6 = 3/8"	H 18 = 1 1/2"
H 8 = 1/2"	H 20 = 1 3/4"
H 10 = 5/8"	H 22 = 2"
H 12 = 3/4"	H 24 = 2 1/4"
H 14 = 1"	H 26 thru H 36 = 2 1/2"

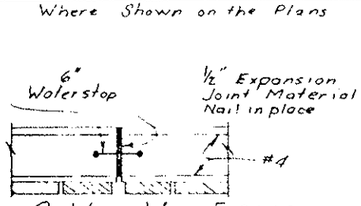
Values for offsetting form to be determined by the Engineer

APPROXIMATE WALL OFFSET VALUES

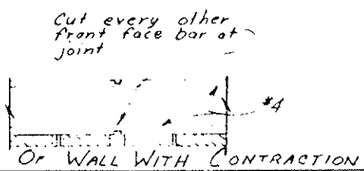
V. C. AT TOP OF WALL SLOPE CHANGE
Where Shown on the Plans



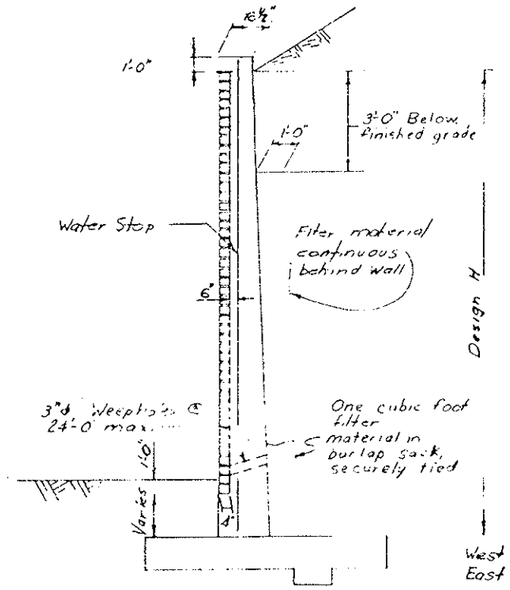
FOOTING STEP



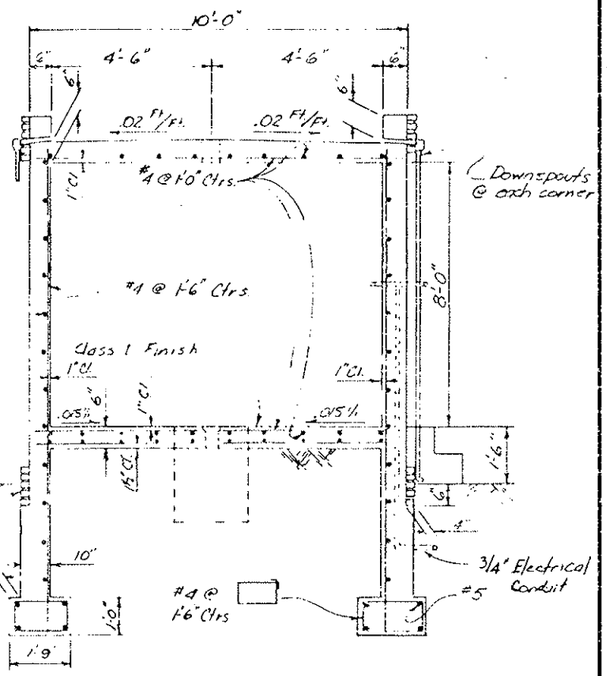
PLAN OF WALL WITH EXPANSION JOINT

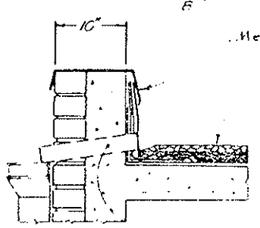


PLAN OF WALL WITH CONTRACTION JOINT



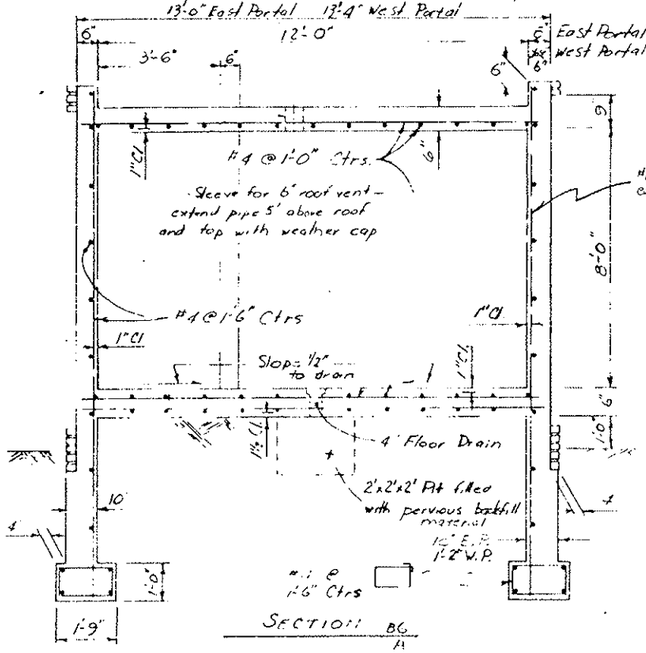
DRAINAGE DETAIL (TYP)





SECTION 6/E

Detail At Corners



SECTION 6/A

DIVISION OF HIGHWAYS

RETAINING WALL AND GAS METER BUILDING DETAILS

Designer	L. Felzien	Structure Numbers	
Detailer	D. Blocker		
Drawing Number	8 6 of 7	Drawings	

Revision Dates (Preliminary Stage Only)

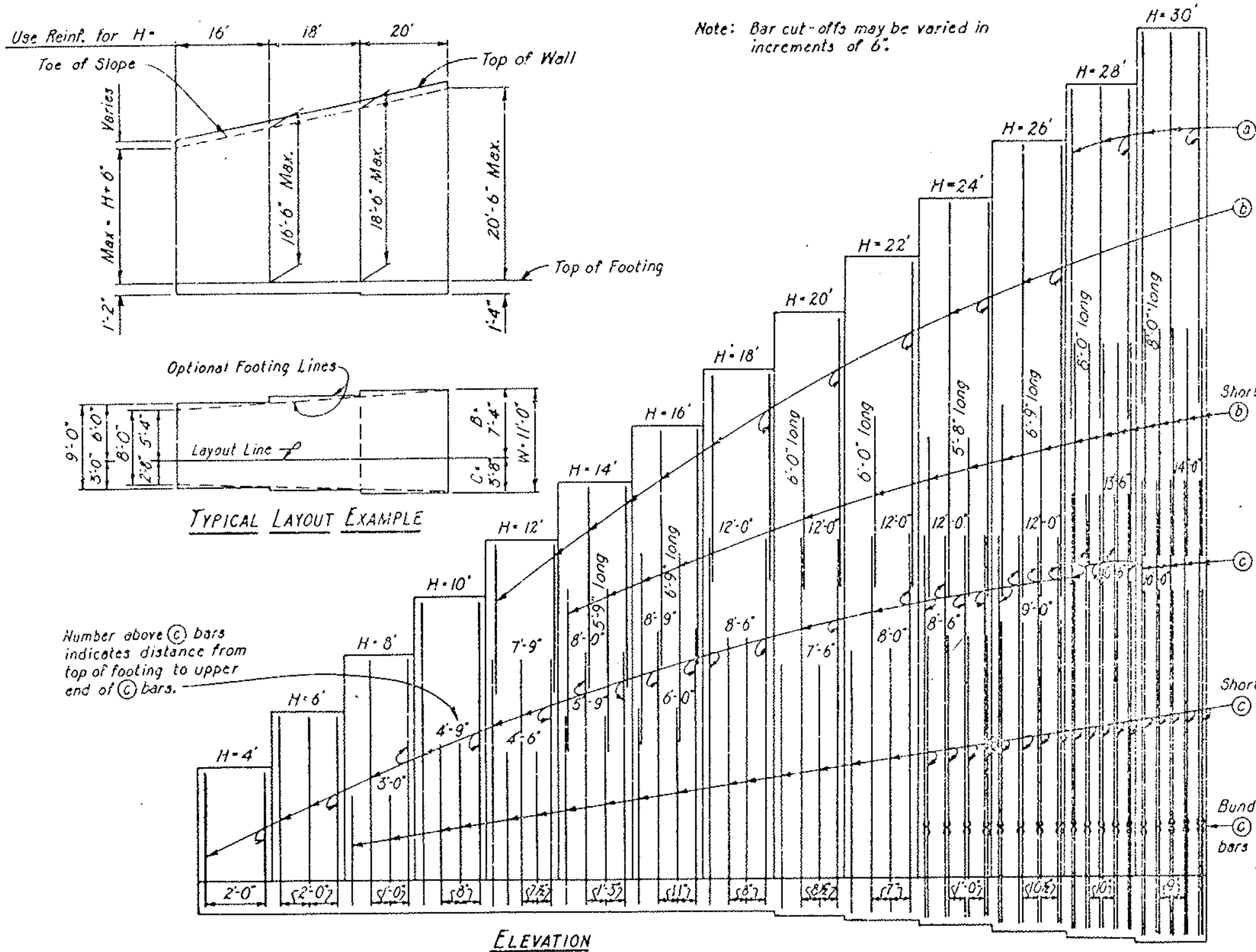
	INITIAL	DATE	CHECKED BY	QUANTITIES BY	CHECKED BY
DESIGNED BY					
CHECKED BY					
DETAILED BY					

VIII	COLORADO			25	208

REVISIONS

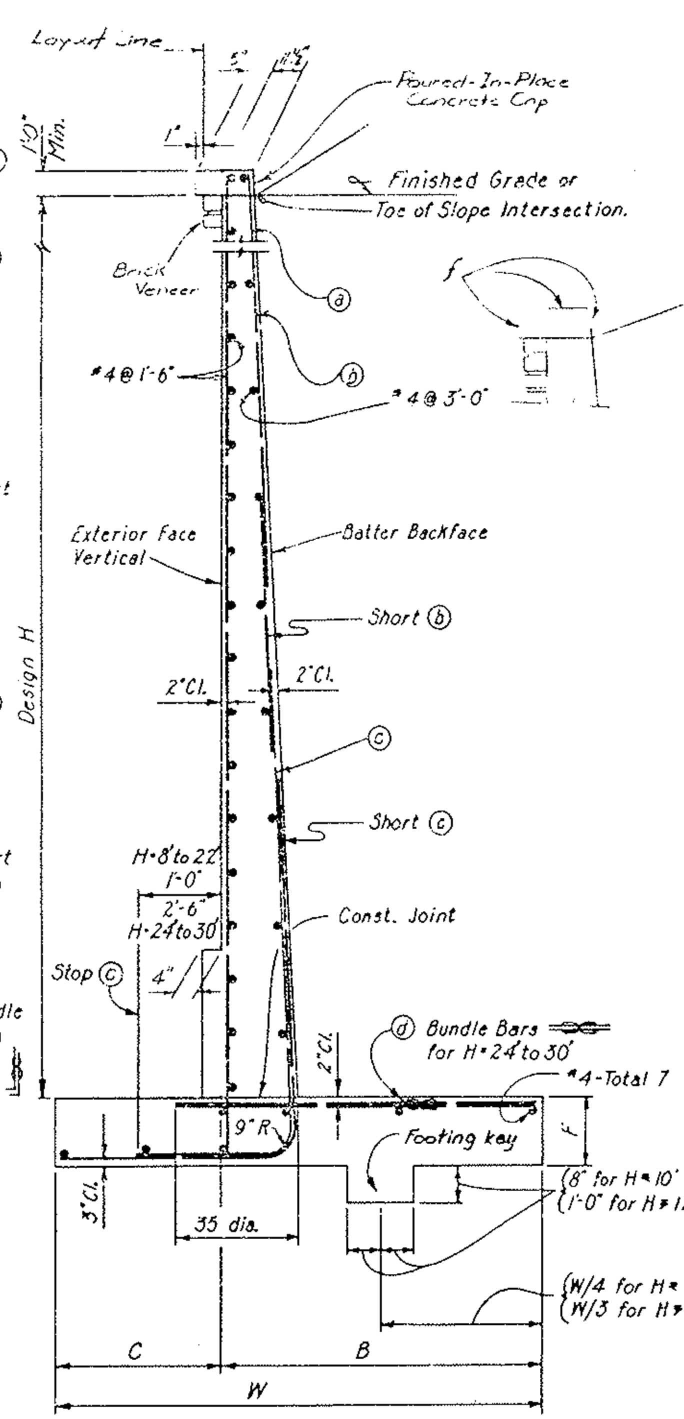
AS CONSTRUCTED
NO REVISIONS DATE

Note: Bar cut-offs may be varied in increments of 6".

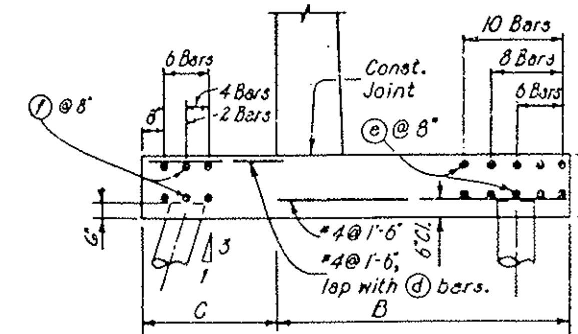


TYPICAL LAYOUT EXAMPLE

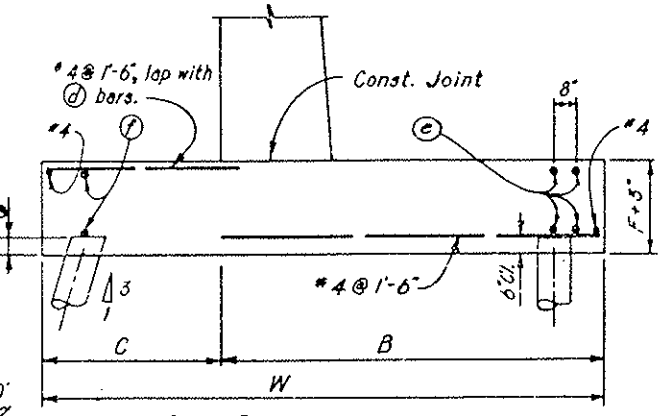
ELEVATION



SPREAD FOOTING SECTION



PILE FOOTING SECTION
H = 4' Thru H = 22'



PILE FOOTING SECTION
H = 24' Thru H = 30'

Note:
Reinforcement detailed is to be placed in addition to that shown for spread footing. All piles not shown, see Pile Layout on other sheets.
▲ For pile footing Design H = 4' use same footing dimension as Design H = 6'.

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA

Design H		▲ 4'	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'
W		3'-2"	4'-2"	5'-2"	6'-2"	7'-2"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-3"	14'-3"	15'-3"	16'-3"
C		1'-0"	1'-4"	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-5"	4'-9"	5'-1"	5'-5"
B		2'-2"	2'-10"	3'-6"	4'-2"	4'-10"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"	8'-10"	9'-6"	10'-2"	10'-10"
F Spread Footing		1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-4"	1'-6"	1'-8"	1'-11"	2'-2"	2'-4"
Batter		½:12	½:12	½:12	½:12	½:12	½:12	½:12	½:12	½:12	½:12	5/8:12	5/8:12	¾:12	7/8:12
ⓐ bars														#7@1'-8"	#7@1'-6"
ⓑ bars						#5@2'-6"	#5@1'-3"	#5@11"	#6@2'-0"	#7@1'-5"	#7@1'-2"	#8@1'-0"	#8@10½"	#9@10"	#9@9"
ⓒ bars		#5@2'-0"	#5@2'-0"	#5@1'-0"	#5@8"	#6@7½"	#10@1'-3"	#10@11"	#10@8"	#11@8½"	#11@7"	#11@1'-0"8	#11@10½"8	#11@10"8	#11@9"8
ⓓ bars		#5@2'-0"	#5@2'-0"	#4@1'-0"	#4@8"	#5@7½"	#9@1'-5"	#9@11"	#9@8"	#10@8½"	#10@7"	#10@1'-0"8	#10@10½"8	#9@10"8	#9@9"8
Total ⓔ bars															
Total ⓕ bars															
2' level surcharge	Toe Pr. k/sf	1.4	1.8	2.2	2.5	2.8	3.1	3.5	3.8	4.1	4.6	4.7	5.3	5.7	6.2
2:1 unlimited slope	Toe Pr. k/sf	1.1	1.5	2.0	2.5	2.9	3.4	3.8	4.3	4.8	5.5	5.9	6.5	7.1	7.8
1½:1 limited slope	Toe Pr. k/sf	1.3	1.9	2.4	2.8	3.5	3.8	4.2	4.6	4.9	5.5	5.8	6.4	6.9	7.5
Spread Footing & Wall	Reinf. Lbs./L.F.	16	20	26	38	54	83	114	165	198	264	320	386	418	477
	Conc. Cu.Yd./L.F.	0.330	0.463	0.604	0.748	0.941	1.089	1.252	1.422	1.667	1.930	2.344	2.711	3.263	3.841
Pile Footing & Wall	Reinf. Lbs./L.F.														
	Conc. Cu.Yd./L.F.														

8 Denotes a bundle of two bars.

Note:
For notes, design and details not shown see Drawing No. B6.

Quantities apply to Design H portion and exclude the added portion above "Finished Grade or Toe of Slope Intersection."
Use Grade 40 for all reinforcing on this sheet.

Brick veneer shall be constructed after walls have been backfilled.

Design Data:

Earth surcharge, 2' ...

Equivalent Fluid Pressure = { .. pcf Max. for determination of toe pressure; 27 pcf Min. for determination of heel pressure }

DIVISION OF HIGHWAYS

RETAINING WALL DETAILS

Designer		Structure Numbers	
Detailer R. Kilpatrick			
Drawing Number B	of	Drawings	

Revision Dates | (Preliminary Stage Only)

(7-1-74)

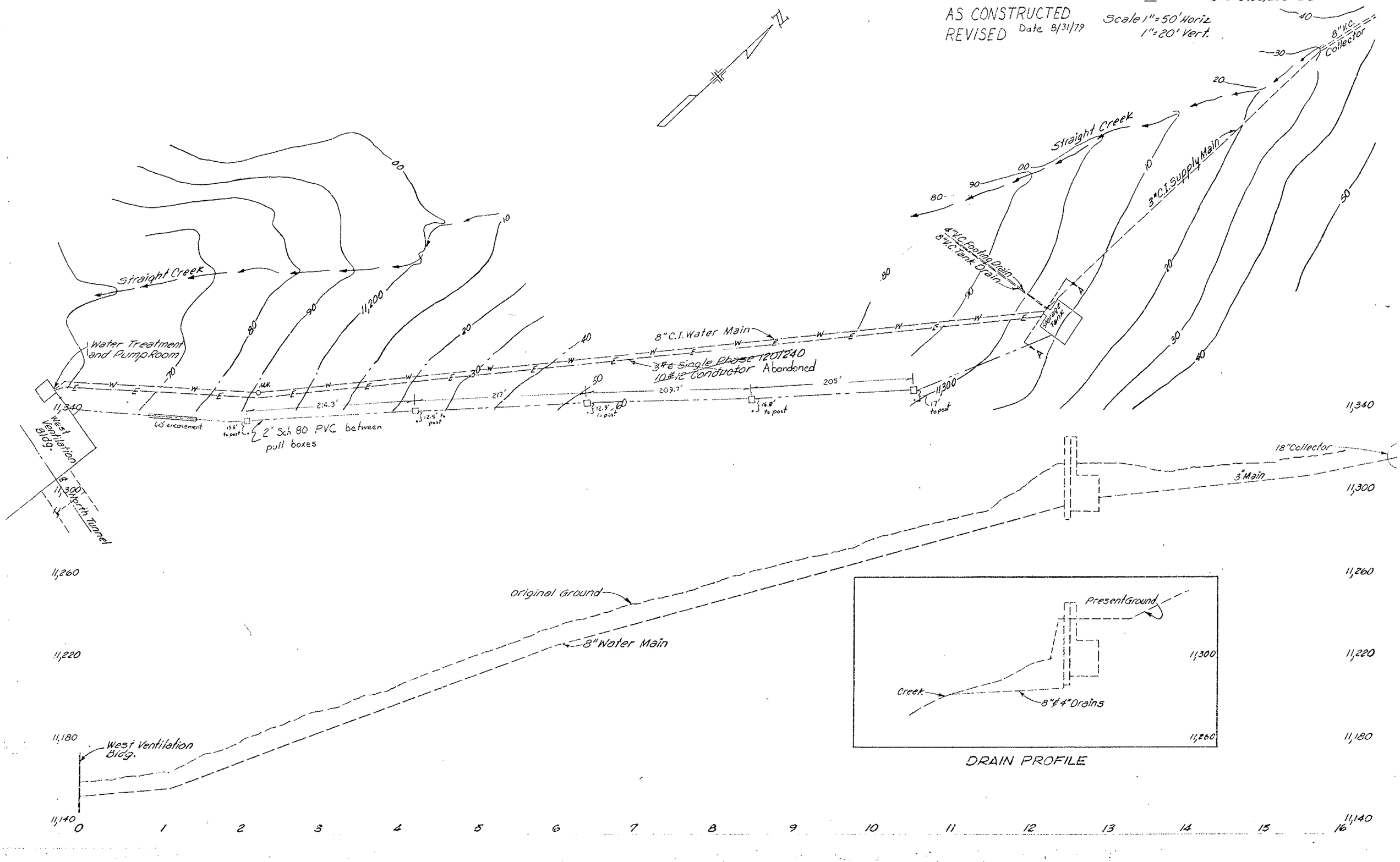
Designed by	Checked by	Detailed by	Quantities by	Checked by
Initial	R.L.K.	Date		

DETAILS OF WATER METERING SYSTEM

VIII 170-3(82)220 26

AS CONSTRUCTED
REVISED Date 8/31/79

Scale 1"=50' Horiz.
1"=20' Vert.

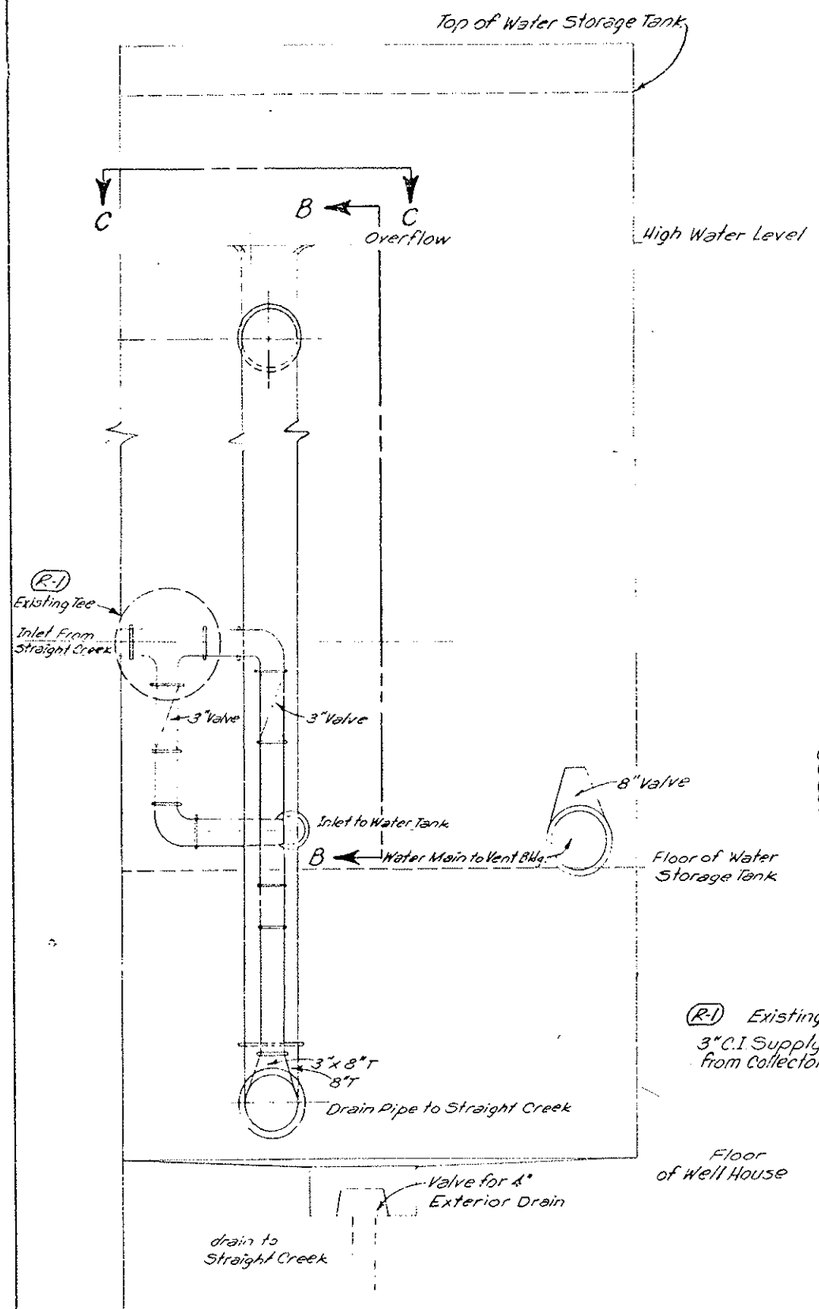


DRAIN PROFILE

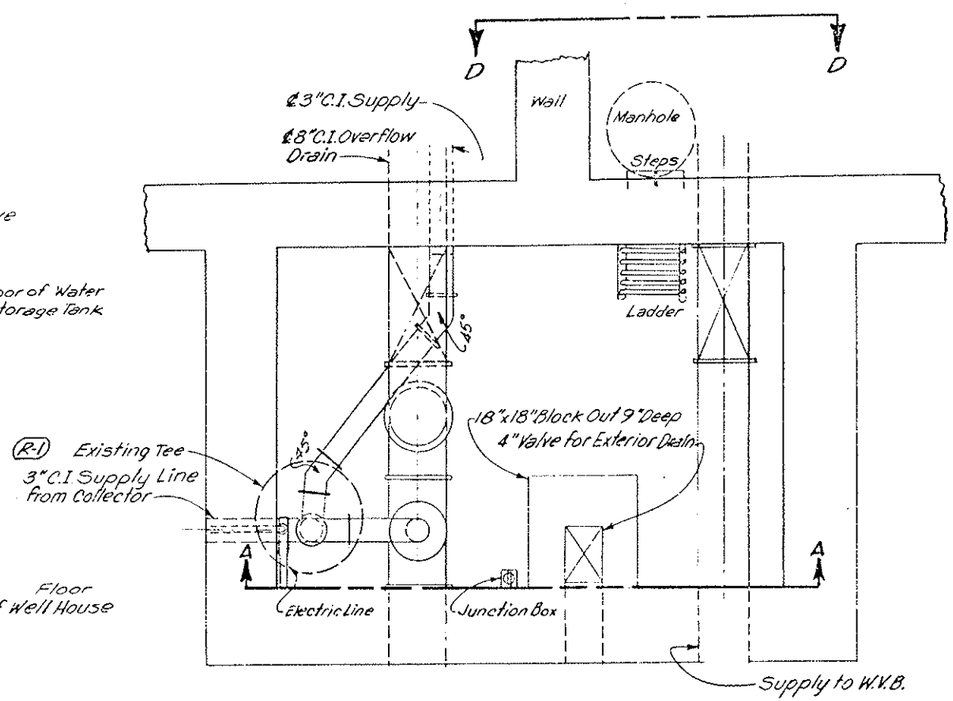
VIII	COLORADO	I 70-3(82)220	27	208

(R-1) 1/29/75 TAL Clarify Location of tee connection.

AS CONSTRUCTED
NO REVISIONS DATE

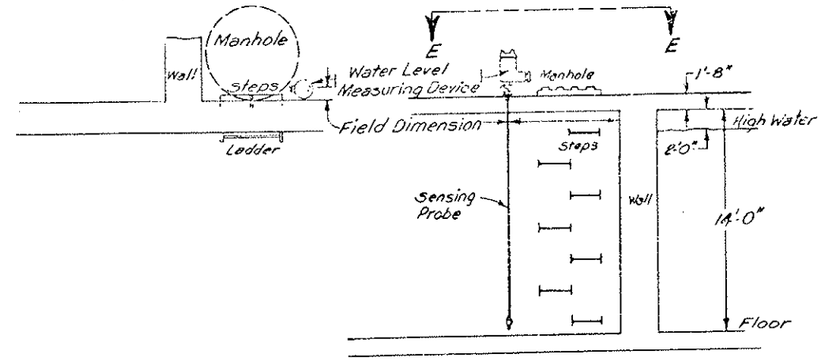


SECTION A-A
Existing System

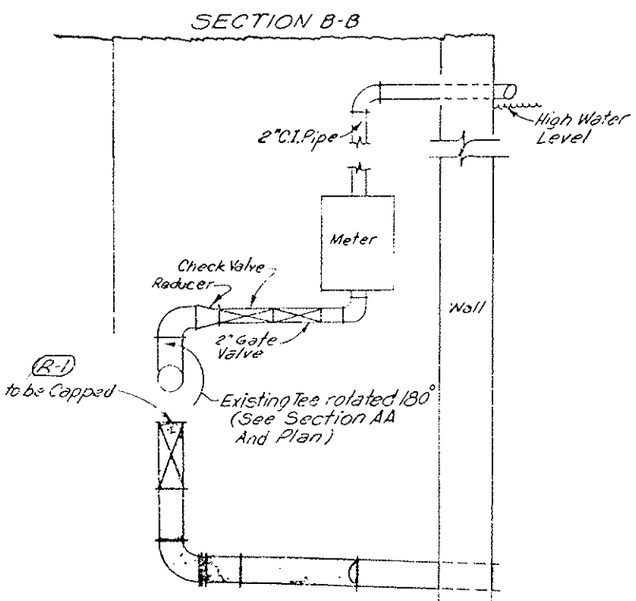


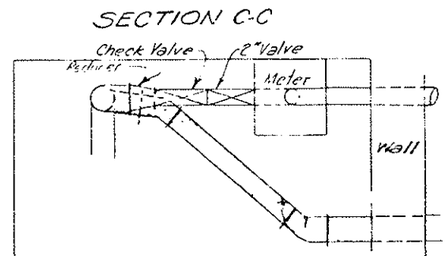
PLAN
Existing System

DETAILS OF WATER LEVEL MEASURING DEVICE



DETAILS OF METER INSTALLATION

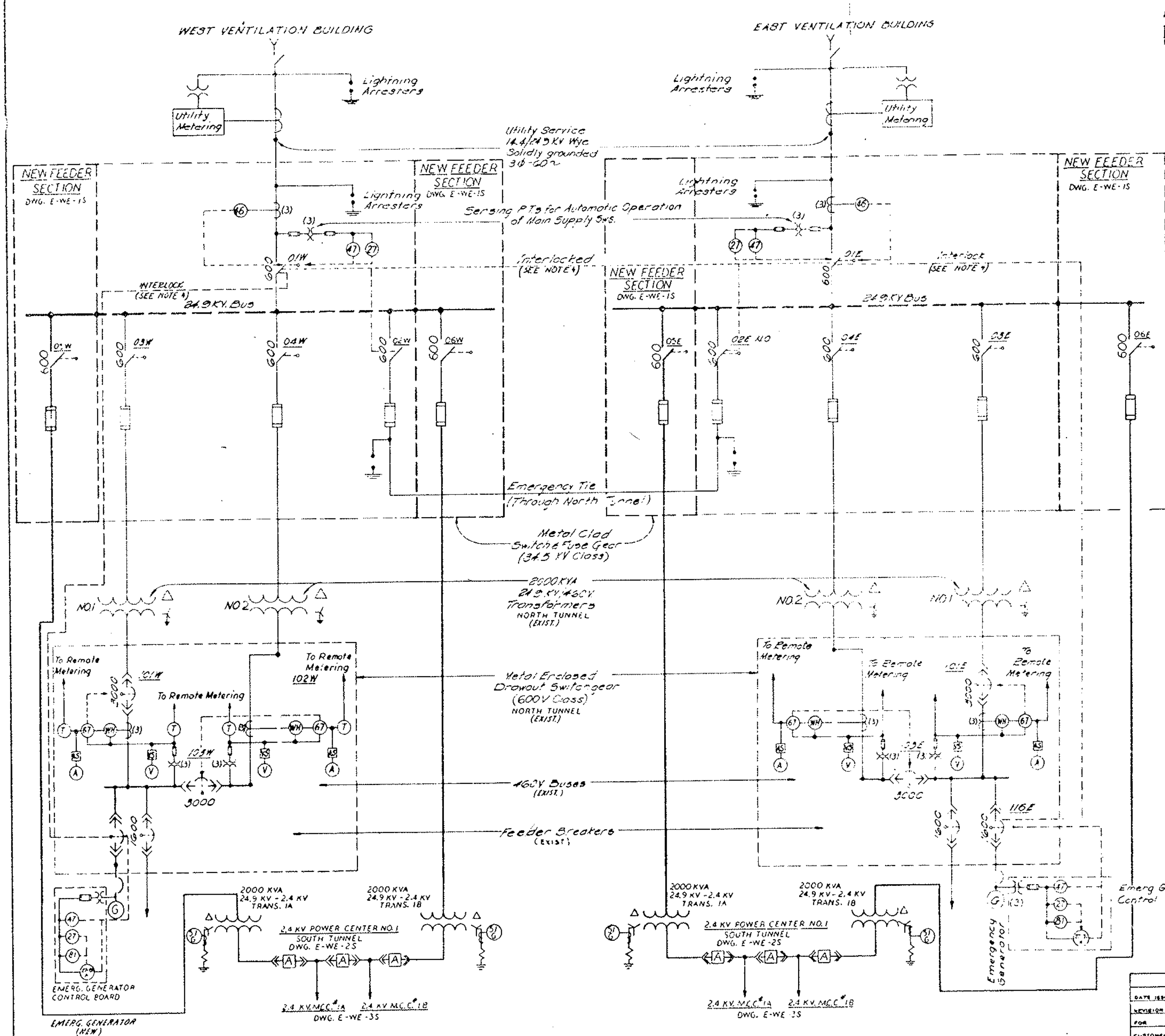




☐ Pipe to be abandoned

AS CONSTRUCTED
NO REVISIONS DATE

IX	COLORADO	I70-3(82)220	28	208



LEGEND

- Electrically Operated Drawout Low Voltage Power Air Circuit Breaker Dual Magnetic Trip Frame Size as Indicated
- Fuse
- Electrically Operated Load Break Switch
- (47) Reverse Phase Voltage Relay
- (67) Reverse Power Relay
- (T) Teleductors or Transducers for Remote Telemetering
- (27) UV Relay
- (46) Current Balance Relay (For Single Phasing Protection)
- (81) Frequency Relay
- (27/81 X) Frequency & Undervoltage Aux. Relay
- (A) HIGH VOLTAGE DRAW-OUT TYPE POWER CIRCUIT BREAKER
- (51 G) TIME OVERCURRENT GROUND RELAY

NOTES:

1. On the 24.9 KV. Switchgear, Sws.# 01W, 02W, 01E and 02E are Interlocked to permit closure of only 3 Switches at one time.
2. All Main Electrical Switches and Circuit Breakes are operated from respective Building Battery Supply.
3. LIGHT BACKGROUND INDICATES EXISTING EQUIPMENT. DARK BACKGROUND INDICATES NEW EQUIPMENT REQUIRED FOR SOUTH TUNNEL.
4. KEY INTERLOCKING FOR EXISTING EQUIPMENT SHALL RETAIN THE CAPABILITY OF PREVENTING PARALLELING OF THE UTILITY SERVICES FROM THE 24.9 KV SWITCHGEAR LOCATIONS AS WELL AS FROM THE REMOTE POWER CONTROL BOARD. NEW FEEDER SECTIONS SHALL HAVE KEY INTERLOCKING SAFETY DEVICES TO PROVIDE THE SAME LEVEL OF OPERATING PROTECTION AS IN THE EXISTING FEEDER SECTIONS. EXISTING KEY AND ELECTRICAL INTERLOCKING ON THE 24.9 KV SWITCHGEAR, 460 VOLT SWITCHGEAR BREAKER AND THE REMOTE POWER CONTROL PANEL SHALL BE MODIFIED AS REQUIRED AND ADDITIONAL KEY AND ELECTRICAL INTERLOCKING SCHEMES SHALL BE ADDED AT ALL EXISTING AND NEW LOCATIONS TO PREVENT PARALLELING OF THE TWO EMERGENCY GENERATORS AND ALSO PREVENT BACK-FEED OF THE EMERGENCY GENERATORS INTO THE UTILITY SERVICES

6526

PRINT RECORD				
DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO	0	0	0	0
FOR	PRE	PRE	CA	FCA
CUSTOMER	5	5	10	5
FIELD	—	-	-	0
INTRA CO.	15	15	1	1

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
GENERAL
POWER SUPPLY
SINGLE LINE DIAGRAM

DRAWN	H. S.	[illegible]	DRAWING NO
CHECKED	[illegible]	[illegible]	E-G-1S
SCALE	ORDER NO		
NONE	C14570		

AS CONSTRUCTED

REVISED Date 8/31/79

REGION NO				
VII	COLORADO	I70-3(82)220	29	208

(R1) CHANGED 15KVA TRANS 2WS(WEST) TO 30KVA FOR EMERG. GEN WATER & LUBE OIL HEATING SYSTEMS POWER REQU. DAW 8/4/76

(R2) DELETED (1)00A CB FROM 120VDC PANEL & ADDED NEW 40A 1P 120VDC CB FOR NEW UPG SYSTEM INVERTER. LB 9-15-76/DAW

Electrically Operated Drawout Low Voltage Power Air Circuit Breaker. Dual Magnetic Trip Under Voltage Trip where indicated. Frame Size as indicated "112" Breaker designation number

Molded Case Air Circuit Breaker, Thermal Magnetic Frame size as indicated. (100 A.) Trip setting as indicated. (20 A.) 3 Pole except where otherwise indicated. "420" Breaker designation number

Two Speed Motor Starter IV • NEMA Size 3 • 3 Overload Relays

Reversing Motor Starter I • NEMA Size 3 • 3 Overload Relays

Magnetic Contactor NEMA size as indicated

Local and/or Remote Controls & Interlocks (See Elementary Diagrams)

Fuse

Oil Fuse Cutout

Electrically Operated Load Break Switch

Light or Power Panel. No. as indicated

HIGH VOLTAGE DRAW-OUT TYPE POWER CIRCUIT BREAKER

MULTI-SPEED DRAW-OUT TYPE CURRENT LIMITING STARTER

NOTE:

1. ALL CABLES ARE 600 V. INSULATION UNLESS NOTED OTHERWISE.
2. LIGHT BACKGROUND INDICATES EXISTING EQUIPMENT. DARK BACKGROUND INDICATES NEW EQUIPMENT REQUIRED FOR SOUTH TUNNEL.

(R2) NOTE
CONTRACTOR SHALL REMOVE EXIST. (1) 100A CB FROM 120VDC PANEL & INSTALL NEW 40A, 1P CB FOR NEW UPG INVERTER.

6526

PRINT RECORD					
DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO	0	3	[illegible]	1	R2
FOR	PRE	PRE	FCA	ARL	APL
CUSTOMER	5	5	10	[illegible]	[illegible]
FIELD	-	-	-	-	4
INTRA CO	15	15	1	5	5

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
GENERAL
POWER DISTRIBUTION
SINGLE LINE DIAGRAM

DRAWN	[illegible]	[illegible]
CHECKED	[illegible]	[illegible]
SCALE	ORDER NO	
NONE	C14570	

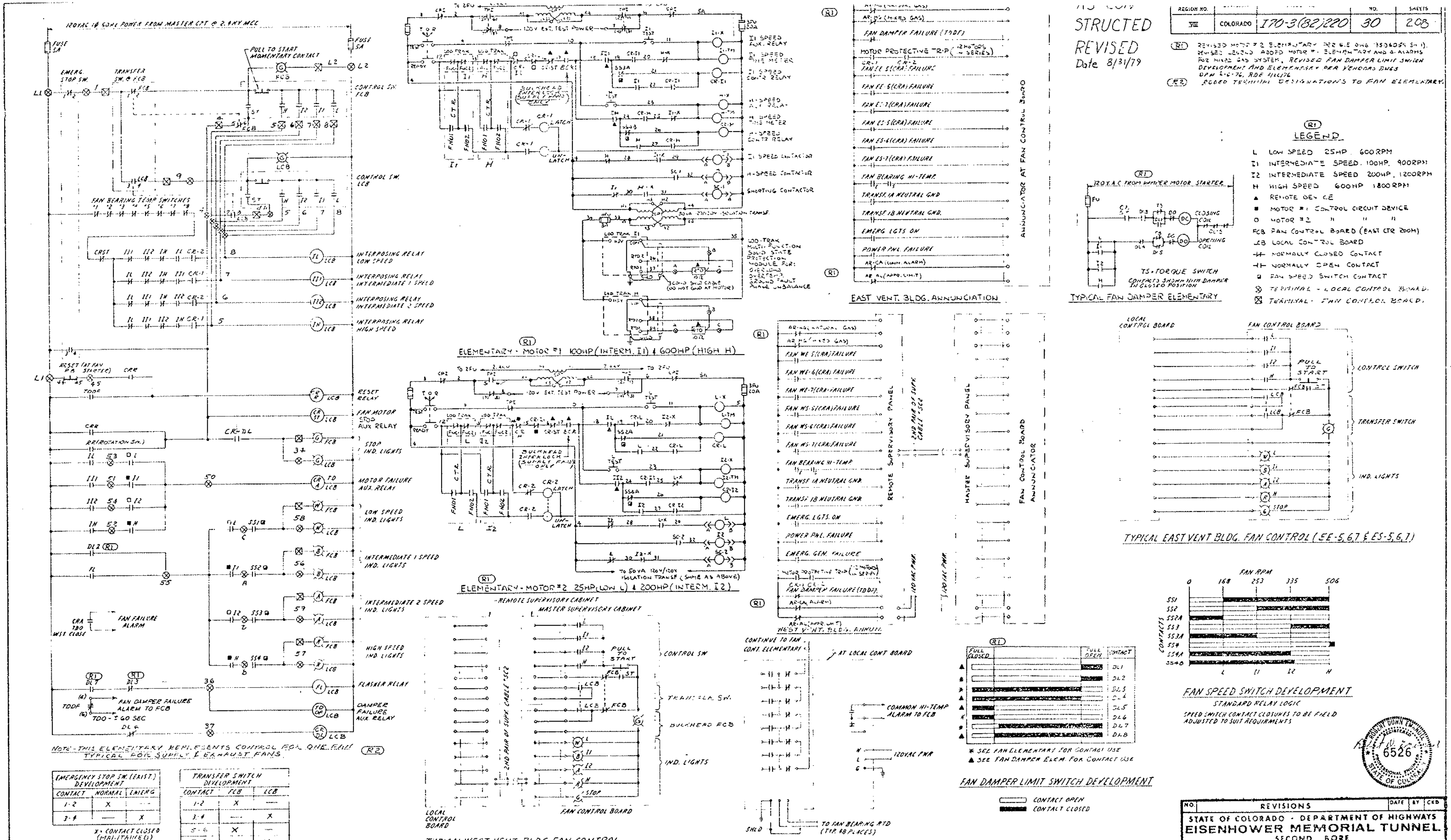
DRAWING NO
E-G-2S

REGION NO.			NO.	SHEETS
VIII	COLORADO	I70-3(82)220	30	208

AS CONSTRUCTED
REVISED
Date 8/31/79

(R1) REVISED MOTOR #2 ELEMENTARY PER G.E. DWG 3504054 SH 1). REVISED LEGEND ADDED MOTOR #1 ELEMENTARY AND 4 ALARMS FOR MIXED GAS SYSTEM, REVISED FAN DAMPER LIMIT SWITCH DEVELOPMENT AND ELEMENTARY PER VENDORS DWGS DPW 4-6-76, RDE 4/26/76

(R2) ADDED TERMINAL DESIGNATIONS TO FAN ELEMENTARY.



(R1)
LEGEND

- L LOW SPEED 25HP 600RPM
- I1 INTERMEDIATE SPEED 100HP 900RPM
- I2 INTERMEDIATE SPEED 200HP, 1200RPM
- H HIGH SPEED 600HP 1800RPM
- ▲ REMOTE DEVICE
- ■ MOTOR #1 CONTROL CIRCUIT DEVICE
- ○ MOTOR #2 " " "
- FCB FAN CONTROL BOARD (EAST CTR ROOM)
- LCB LOCAL CONTROL BOARD
- ⊣/⊢ NORMALLY CLOSED CONTACT
- ⊣⊢ NORMALLY OPEN CONTACT
- FAN SPEED SWITCH CONTACT
- ⊗ TERMINAL - LOCAL CONTROL BOARD.
- ⊠ TERMINAL - FAN CONTROL BOARD.

EMERGENCY STOP SW. (EXIST.) DEVELOPMENT

CONTACT	NORMAL	EMERG
1-2	X	—
3-4	—	X

X = CONTACT CLOSED (MAINTAINED)

TRANSFER SWITCH DEVELOPMENT

CONTACT	FCB	LCB
1-2	X	—
3-4	—	X
5-6	X	—
7-8	—	X

CONTROL SW DEVELOPMENT

CONTACTS	POSITION ST	H	I2	I1	L
ST	X	—	—	—	—
H	—	X	—	—	—
I2	—	—	X	—	—
I1	—	—	—	X	—
L	—	—	—	—	X
PULL		*			

X = CONTACT CLOSED (MAINTAINED)
* = CONTACT CLOSED (MOMENTARY) WHEN HANDLE IS PULLED IN "HIGH, INTERM. 1, INTERM 2, & LOW" POSITIONS

PRINT RECORD

DATE ISSUED	[illegible]
REVISION NO	[illegible]
FOR	[illegible]
CUSTOMER	5 5 10 10 ORIG [illegible]
FIELD	— — — — — — —
INTRA CO.	15 15 1 1 15 15 15

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
GENERAL
CONTROL SCHEMATIC DIAGRAMS
SHEET NO. 1

DRAWN	RPJ [illegible]	
CHECKED	[illegible]	
SCALE NONE	ORDER NO Ci4570	DRAWING NO E-G-3S

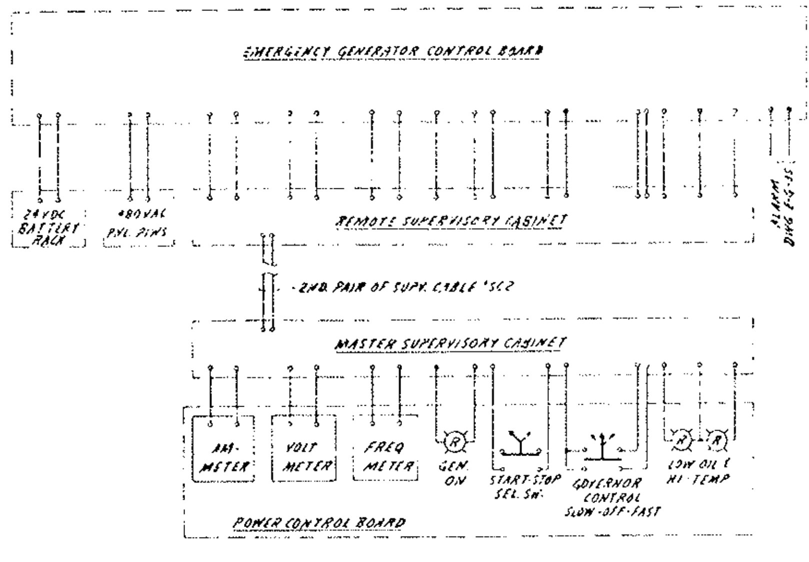
STATE OF COLORADO PROFESSIONAL ENGINEER 6526

VIII	COLORADO	I 70-3(82)220	31	208

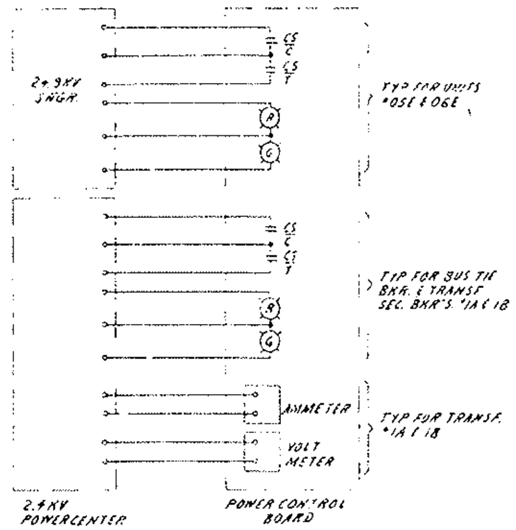
(R1) REVISED POWER CENTER BREAKER CONTROL POWER FROM 120VAC TO 240VAC AND ADDED MIXED GAS SYSTEM ALARM RELAY DIAGRAM. DRW 2/11/76

(R-2) ADDED BULKHEAD CONTROL RELAY FOR INDICATION - POWER CENTER SECONDARY CIRCUIT BREAKER CONTROL REVISED TO BE APPLICABLE TO INSTALLED G.E. ... 3/5/79.

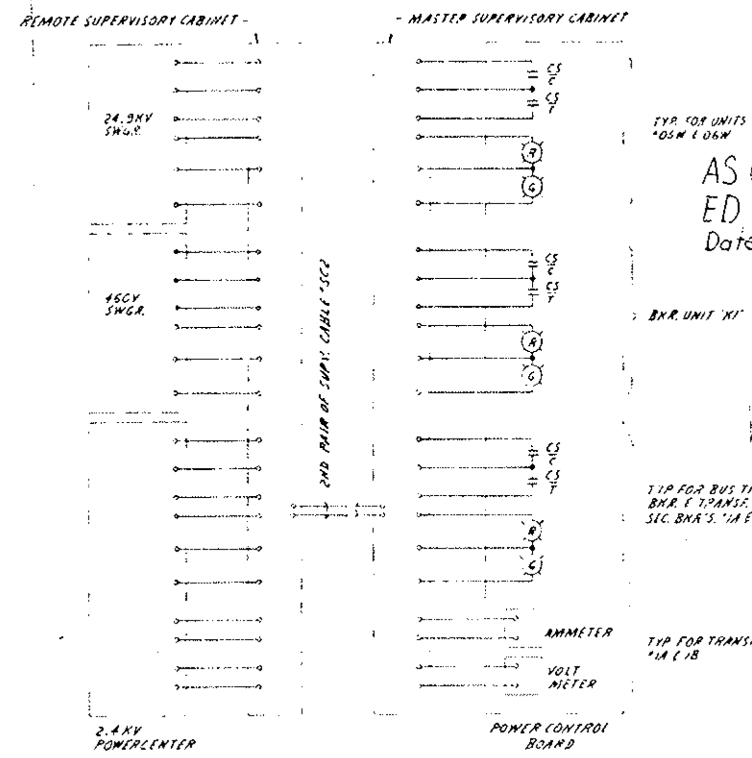
AS CONSTRUCTED REVISED
Date 8/31/79



EMERGENCY GENERATOR POWER SUPPLIES, CONTROL, & INDICATION



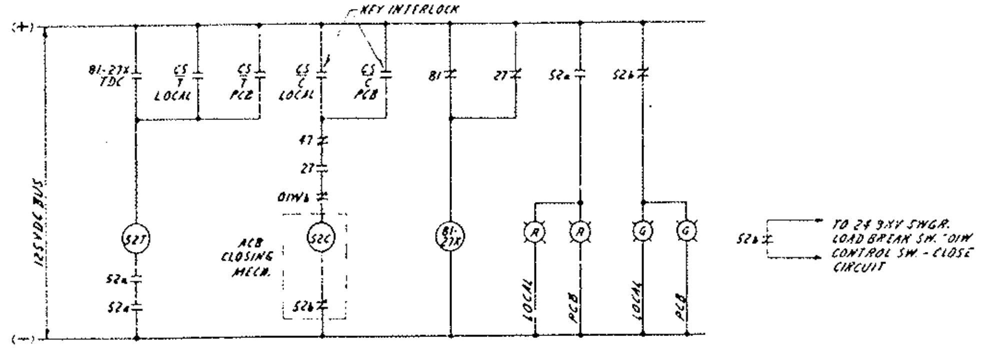
CONTROL & INDICATION FOR 24.9KV SWGR. & 2.4KV POWERCENTER
EAST VENT. BLDG.



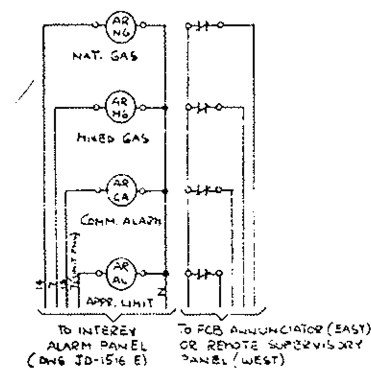
CONTROL & INDICATION FOR 24.9KV SWGR., 460V SWGR & 2.4KV POWERCENTER
WEST VENT. BLDG.

LEGEND

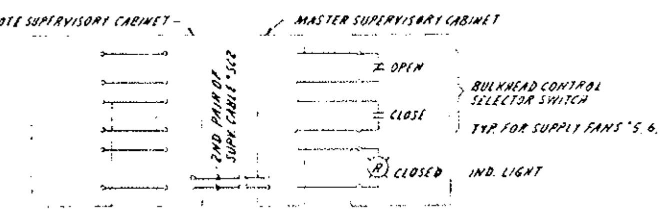
- FCB — FAN CONTROL BOARD
- PCB — POWER CONTROL BOARD
- CS-C — CONTROL SWITCH (CLOSING)
- CS-T — CONTROL SWITCH (TRIPPING)
- 27 — UNDERVOLTAGE RELAY
- 33 — BKR POSITION SW (BKR. IN OPERATING POSITION)
- 47 — REVERSE PHASE RELAY
- 52a — AUX SW. - OPEN WHEN BKR. IS OPEN
- 52b — AUX. SW. - CLOSED WHEN BKR IS OPEN
- 52C, 52CC — AIR CIRCUIT BREAKER - CLOSING COIL
- 52T, 52TC — AIR CIRCUIT BREAKER - TRIPPING COIL
- 52X, 52Y — AIR CIRCUIT BREAKER AUX. RELAY
- 69 — PERMISSIVE CONTROL DEVICE
- 81 — FREQUENCY RELAY
- 81-27X — AUX. RELAY FOR 27 & 81 RELAYS
- 51 — TIME OVERCURRENT RELAY
- 51G — TIME OVERCURRENT GROUND RELAY
- TDC — TIME DELAY CLOSING CONTACT
- OIWL — 24.9KV SWGR UNIT OIW INTERLOCK
- —||— — NORMALLY OPEN CONTACT
- —|/|— — NORMALLY CLOSED CONTACT
- 86 — LOCKING-OUT RELAY
- 301 TO 306 — BULKHEADS #1 TO 6 OPENING STARTER COIL
- BC1 TO BC6 — " " CLOSING " "
- M-C — BULKHEADS CLOSING AUX. RELAY
- M-O — " OPENING " "



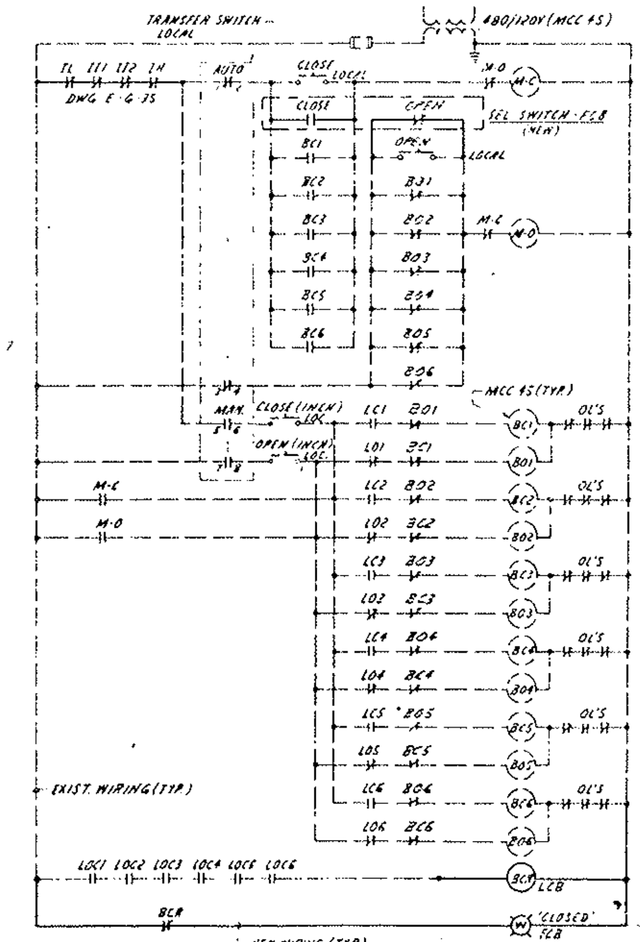
EMERGENCY GENERATOR-460V SWGR.-BREAKER 'K1' CONTROL
(BASED ON EXIST. GENERAL ELECTRIC BREAKER CONTROL)



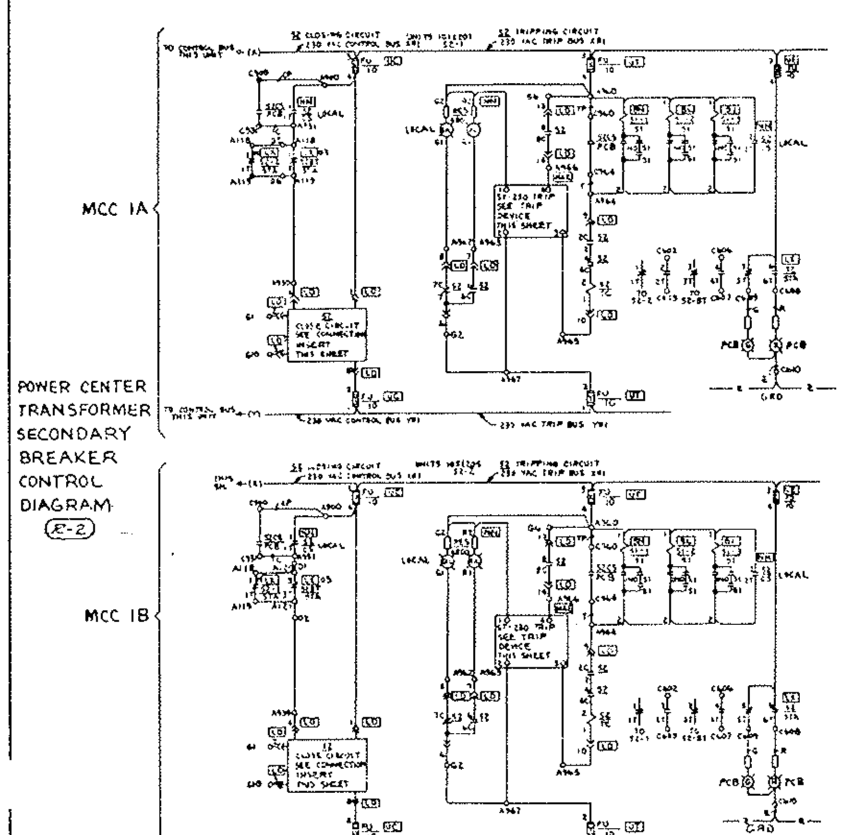
MIXED GAS SYSTEM ALARM RELAYS
(R1)



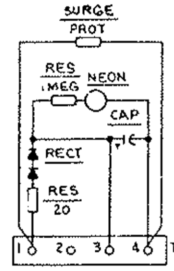
CONTROL & INDICATION FOR BULKHEADS - WEST VENT BLDG.
EAST VENT BLDG. SIMILAR - EXCEPT W/O QUINDAR SYSTEM



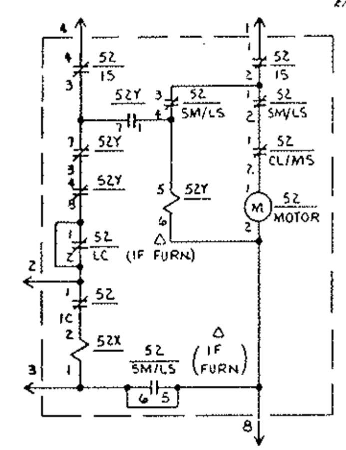
BULKHEADS CONTROL
TYP. FOR 1 SUPPLY FAN
(R-2)



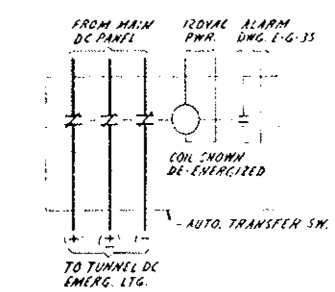
POWER CENTER TRANSFORMER SECONDARY BREAKER CONTROL DIAGRAM (R-2)



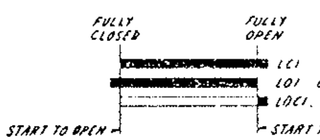
ST-230
CAPACITOR TRIP DEVICE
(R-2)



52 CLOSE CIRCUIT CONNECTION INSERT
(R-2)



TUNNEL EMERGENCY LIGHTING CONTROL



BULKHEAD LIMIT SWITCH DEVELOPMENT (EXIST.)
CONTACT OPEN
CONTACT CLOSED
TYP. FOR LIMIT SWITCHES #1 TO 6

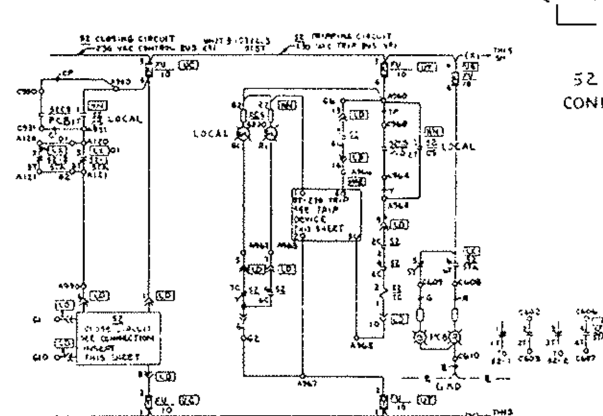
TRANSFER SWITCH (EXIST.)

CONTACT	AUTO	MAN
1-2	X	
3-4	X	
5-6		X
7-8		X

BULKHEAD CONTROL SELECTOR SW.

CONTACT	OPEN	CLOSE
OPEN	X	—
CLOSE	—	X

X = CONTACT CLOSED (MAINTAINED)



POWER CENTER TIE BREAKER CONTROL DIAGRAM

PRINT RECORD

DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	0	2	2
FOR	PRE	PRE	FCR	APC	A-C
CUSTOMER	5	5	10	CRG	DRG
FIELD	—	—	—	—	—
INTRA CO.	15	15	1	15	15

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
GENERAL
CONTROL SCHEMATIC DIAGRAMS
SHEET NO. 2

6526

DRAWN	RPJ	7-10-74
CHECKED	H.S.	7-29-74
SCALE NONE	ORDER NO C14570	

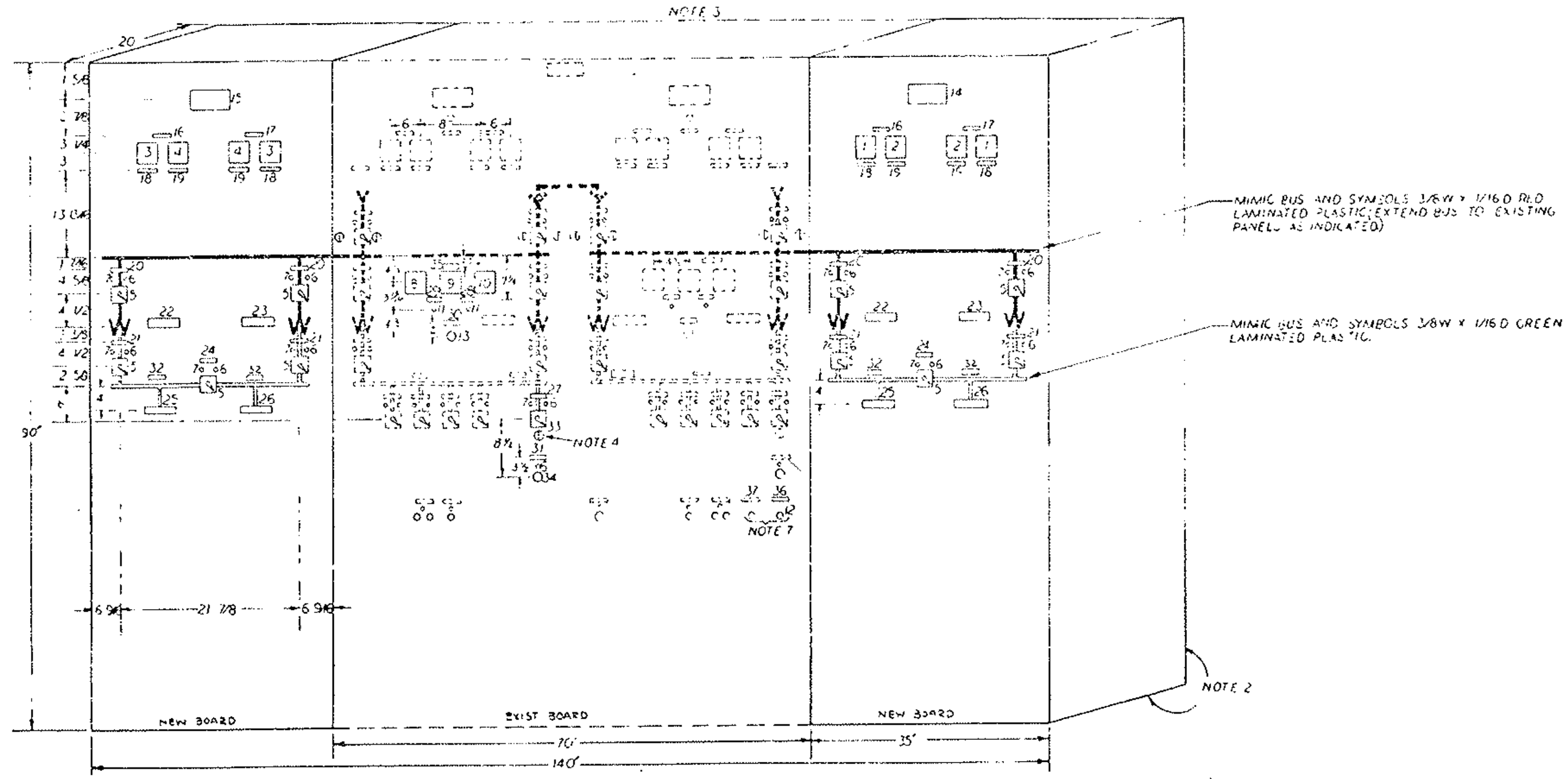
stearns-roger architects

DRAWING NO. E-G-4S

REGION NO.		PROJECT	NO.	SHEETS
XIII	COLORADO	I 70-3(82)220	32	208

(R1) REVISED EQU P. LIST ITEMS 4, 8, 9 & 10 TO INCLUDE "0-5 MILLIAMMETER" SPW 2/9/76, RDE 4/14/76.

AS CONSTRUCTED
REVISED Date 8/31/77



EQUIPMENT LIST

1. AMMETER, AC 0-800 AMP, 4 3/8"H x 4 7/8"W
2. VOLTMETER, AC 0-3000 VOLT, 4 3/8"H x 4 7/8"W
3. 0-5 MILLIAMMETER WITH 0-800 AMP SCALE, 4 3/8"H x 4 7/8"W
4. 0-5 MILLIAMMETER WITH 0-3000 VOLT SCALE, 4 3/8"H x 4 7/8"W (R1)
5. SWITCH TYPE SBI 2 STAGE, "ON-OFF"
6. INDICATING LIGHT, RED, 125 V.DC
7. INDICATING LIGHT, GREEN, 125 V.DC
8. 0-5 MILLIAMMETER WITH 0-900 AMP SCALE, 4 3/8"H x 4 7/8"W (R1)
9. 0-5 MILLIAMMETER WITH 55-65 HERTZ SCALE 4 3/8"H x 4 7/8"W (R1)
10. 0-5 MILLIAMMETER WITH 0-600VAC SCALE, 4 3/8"H x 4 7/8"W (R1)
11. INDICATING LIGHT, RED 125 V.DC
12. PUSHBUTTON "RESET"
13. SELECTOR SWITCH, SPRING RETURN TO CENTER FROM LEFT & RIGHT POSITIONS, "FAST-OFF-SLOW"

NAMEPLATE SCHEDULE

	FIRST LINE	SECOND LINE	THIRD LINE	DETAIL
14.	EAST	BUILDING	S-TUNNEL	1
15.	WEST	BUILDING	S-TUNNEL	1
16.	TRANSFORMER	NO. 1A	SECONDARY	2
17.	TRANSFORMER	NO. 1B	SECONDARY	2
18.	AMMETER			2
19.	VOLTMETER			2
20.	LOAD	BREAK	SWITCH	2
21.	AIR	CIRCUIT	BREAKER	2
22.	TRANSFORMER	NO. 1A		2
23.	TRANSFORMER	NO. 1B		2
24.	2.4 KV BUS	TIE	BREAKER	2
25.	MCC 1A			2
26.	MCC 1B			2
27.	EMERGENCY	GENERATOR	BREAKER	2
28.	APPROACHING	LOW OIL PRESSURE		3
29.	APPROACHING	HIGH WATER TEMP		3
30.	EMERGENCY GENERATOR GOVERNOR CONTROL			2 (NOTE 5)
31.	EMERGENCY	GENERATOR	CONTROL	2
32.	2.4 KV BUS			4

EQUIPMENT LIST (CONT)

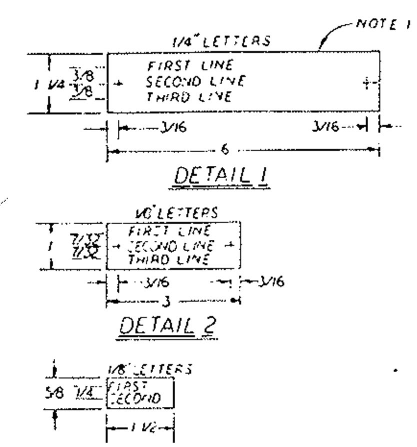
33. SWITCH, TYPE SBI, WITH KIRK KEY LOCK (NOTE 4) "ON-OFF"
34. SELECTOR SWITCH, "START-STOP"

NAMEPLATE SCHEDULE (CONT)

	FIRST LINE	SECOND LINE	THIRD LINE	DETAIL
35.	WEST VENT BUILDING	EMERGENCY GENERATOR		2 (NOTE 6)
36.	NORTH TUNNEL & BLDG.	NORMAL LIGHTS	RESET	2
37.	SOUTH TUNNEL	NORMAL LIGHTS	RESET	2

NOTES -

1. NAMEPLATE MATERIAL - G.E. A15359A - 1/16".
2. NON-REMOVABLE DOORS ON BACK, OPEN BOTTOM.
3. DOTTED LINES INDICATE EXISTING EQUIPMENT.
4. KIRK KEY LOCK TO MATCH EXISTING LOCKS. (SEE NOTE 4 ON DWG E-G-4S)
5. "EMERGENCY GENERATOR" ON LINE 1, "GOVERNOR CONTROL" ON LINE 2.
6. SAME AS DETAIL 2 EXCEPT 3/16" LETTERS.
7. RELOCATE EXIST. WIRING TO NEW PUSHBUTTON & ADD NAMEPLATE #36. ADD SOUTH TUNNEL WIRING TO EXIST. PUSHBUTTON & ADD NAMEPLATE #37.
8. THE TWO SECTIONS (SHOWN SOLID) ARE ADDITIONS TO THE EXIST. POWER CONTROL BOARD BUILT BY GENERAL ELECTRIC. THE NEW SECTIONS SHALL BE IDENTICAL IN APPEARANCE & PAINT COLOR WITH THE EXIST. POWER CONTROL BOARD.



DETAIL 1

DETAIL 2

DETAIL 3

6526

PRINT RECORD					
DATE ISSUED					
REVISION NO.	0	0	0	0	R1
FOR	PRE	PRE	FCA	FCA	[illegible]
CUSTOMER	5	5	10	5	ORIG
FIELD	-	-	-	-	-
INTRA CO.	15	15	1	1	15

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

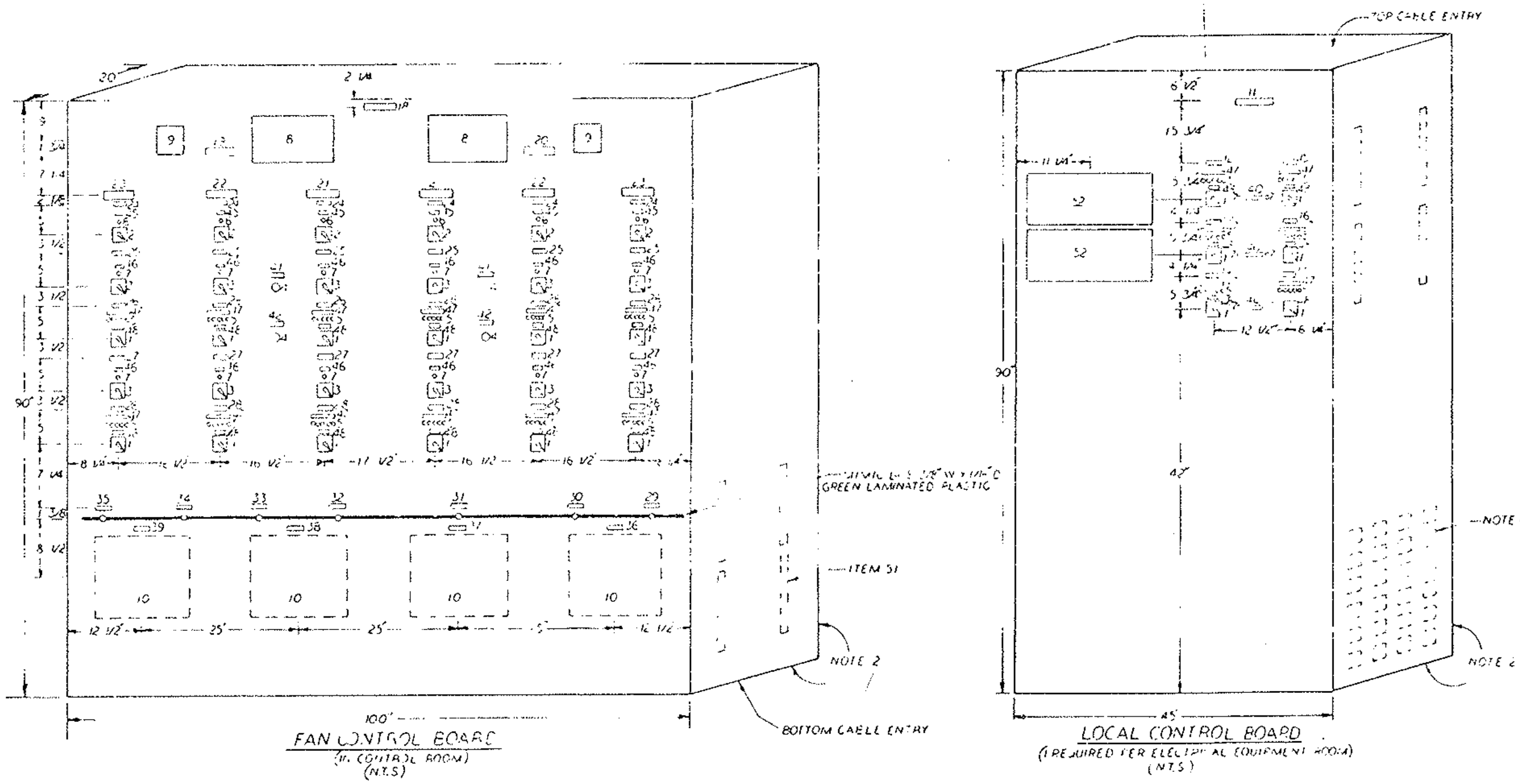
ELECTRICAL
GENERAL
POWER CONTROL BOARD
LAYOUT AND DETAILS

DRAWN	H.D.	
CHECKED	T.P.J.	6-27-74
SCALE	ORDER NO.	
NONE	C14570	

DRAWING NO. E-G-5S

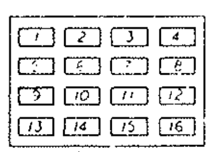
REGION NO			NO.	SHEETS
XII	COLORADO	I 70-3(82)220	33	208

(R1) ADDED 4 ALARM WINDOWS TO ANNUNCIATOR, ITEM 8 FOR MIXED GAS SYSTEM. DWG 21176, ASR 8/24/...

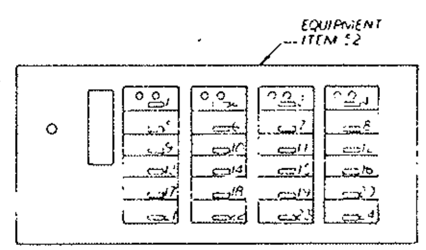


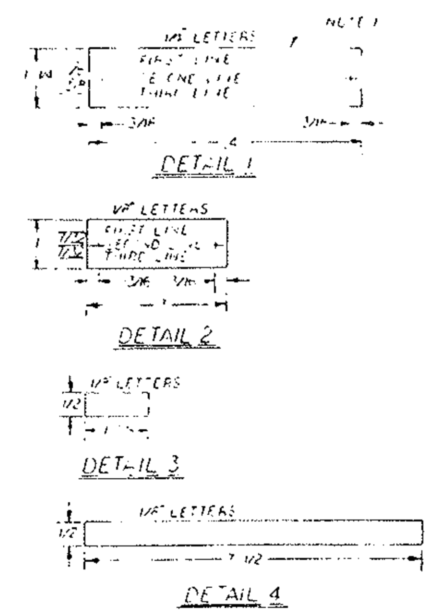
FAN CONTROL BOARD
(IN CONTROL ROOM)
(N.T.S.)

LOCAL CONTROL BOARD
(1 REQUIRED FOR ELECTRICAL EQUIPMENT ROOM)
(N.T.S.)



FAN CONTROL BOARD
WEST SIDE ANNUNCIATOR
(SIMILAR FOR EAST SIDE EXCEPT OPPOSITE HAND)





ANNUNCIATOR PANEL WINDOW ENGRAVING

WINDOW	FIRST LINE	SECOND LINE
1	SUPPLY FAN 5	FAILURE
2	SUPPLY FAN 6	FAILURE
3	SUPPLY FAN 7	FAILURE
4	TRANSF. 1A	NEUTRAL GROUND
5	EXHAUST FAN 5	FAILURE
6	EXHAUST FAN 6	FAILURE
7	EXHAUST FAN 7	FAILURE
8	TRANSF. 1B	NEUTRAL GROUND
9	POWER PANELS	OFF
10	EMERG. LIGHTS	ON
11	CO	LEVEL 1
12	CO	LEVEL 2
13	EMERGENCY GEN.	FAILURE (NOTE 3)
14	MOTOR HIGH	TEMPERATURE
15	FAN DAMPER	FAILURE
16	BEARING HIGH	TEMPERATURE
17	NATURAL GAS	[illegible]
18	MIXED GAS	[illegible]
19	MIXED GAS SYSTEM	[illegible]
20	APPROACHING	NATURAL GAS ...

(R1) [illegible]

ALARM/CONTROLLER NAMEPLATE SCHEDULE

N.P. NO.	FIRST LINE	SECOND LINE
1	FAN EE5 (NOTE 9)	BEARING NO. 1
2		BEARING NO. 2
3		BEARING NO. 3
4		BEARING NO. 4
5		BEARING NO. 5
6		BEARING NO. 6
7		BEARING NO. 7
8		BEARING NO. 8
9	FAN EE6 (NOTE 9)	BEARING NO. 1
10		BEARING NO. 2
11		BEARING NO. 3
12		BEARING NO. 4
13		BEARING NO. 5
14		BEARING NO. 6
15		BEARING NO. 7
16		BEARING NO. 8
17	FAN EE7	BEARING NO. 1
18		BEARING NO. 2
19		BEARING NO. 3
20		BEARING NO. 4
21		BEARING NO. 5
22		BEARING NO. 6
23		BEARING NO. 7
24		BEARING NO. 8

SUBSTITUTE 'W' FOR WEST BUILDING.

EQUIPMENT LIST

1. SWITCH, TYPE SBIC, PULL TO START, 5 POSITION; 'STOP-HIGH-INTERMEDIATE 2-INTERMEDIATE 1-LOW'
2. SWITCH, TYPE SB1, 2 POSITION; OPEN-CLOSE
3. SWITCH, TYPE SB1, 2 POSITION, FCB-LCB
4. PUSHBUTTON
5. INDICATING LIGHTS (SEE NOTE 6)
6. INDICATING LIGHT, WHITE
7. INDICATING LIGHT, GREEN
8. ANNUNCIATOR, PANALARM, MODEL 5H5 (R1)
9. BELL, PANALARM MODEL V7D
10. CO INDICATING RECORDER (NOTE 7)

AS CONSTRUCTED
REVISED Date 8/31/79

NAMEPLATE SCHEDULE

	FIRST LINE	SECOND LINE	THIRD LINE	DETAIL
11.	LOCAL	CONTROL BOARD		1 (NOTE 5)
12.	SUPPLY FAN 5	CONTROL		2
13.	SUPPLY FAN 6	CONTROL		2
14.	SUPPLY FAN 7	CONTROL		2
15.	EXHAUST FAN 5	CONTROL		2
16.	EXHAUST FAN 6	CONTROL		2
17.	EXHAUST FAN 7	CONTROL		2
18.	FAN	CONTROL BOARD	SOUTH TUNNEL	1 (NOTE 5)
19.	EAST FANS	CONTROL		1
20.	WEST FANS	CONTROL		1
21.	FAN 5			1
22.	FAN 6			1
23.	FAN 7			1
24.	SUPPLY FAN	BULKHEADS	CONTROL	2
25.	SUPPLY FAN	CONTROL	TRANSFER	2
26.	SUPPLY FAN	CONTROL		2
27.	EXHAUST FAN	CONTROL	TRANSFER	2
28.	EXHAUST FAN	CONTROL		2
29.	CO	ANALYZER 1		2
30.	CO	ANALYZER 2		2
31.	CO	ANALYZER 3		2
32.	CO	ANALYZER 4		2
33.	CO	ANALYZER 5		2
34.	CO	ANALYZER 6		2
35.	CO	ANALYZER 7		2
36.	ANALYZER	EAST	RECORDER	2
37.	ANALYZER	[illegible]	RECORDER	2
38.	ANALYZER	WEST	RECORDER	2
39.	ANALYZER	WEST	RECORDER	2
40.	CONTROL	AVAILABLE		2
41.	ANNUNCIATOR	LAMP TEST		2
42.	ALARM	SILENCE		2
45.	CLOSED			3
46.	FCB ON			3
47.	STOP-HIGH-INTERMEDIATE 2-INTERMEDIATE 1-LOW			4
48.	PULL TO START			3

EQUIPMENT LIST (CONT)

43. RELAY, 5 POLE 120V AC COIL GE TYPE CR 120A
44. RELAY, 6 POLE 120V AC COIL GE TYPE CR 120A
49. RELAY, 4 POLE 120V AC COIL GE TYPE CR 120A
50. FLASHER RELAY, 120V AC COIL, 60 PULSES/MIN ZENITH TYPE E-1
51. TERMINAL STRIP, 20A 600V 40 PT TUBULAR CLAMP
52. INDICATING MULTIPOINT ALARM/CONTROLLER, SIGMA SERIES 9221
53. RELAY 2 POLE 120V AC COIL GE TYPE CR 120A
54. RELAY 4 POLE 120V AC COIL AGASTAT #7012 AE OR EQUAL

NOTES:-

1. NAMEPLATE MATERIAL ... AIDESCA-1/16".
2. NON-REMOVABLE DOOR ON BACK, OPEN BOTTOM.
3. ON WEST SIDE ANNUNCIATOR ONLY.
4. LOCAL CONTROL BOARD BUILDER TO FURNISH & INSTALL TERMINAL STRIPS & RELAYS. FOR EACH FAN, MOUNT ... ITEM 43, ... ITEM 44, ... ITEM 49, ... ITEM 50, ... ITEM 51, ... ITEM 53 & (1) ITEM 54 & WIRE PER ELEMENTARY DIAGRAMS ON DWG. E-G-3S, FURNISH & WIRE PER ELEMENTARY DIAGRAMS, ... ITEM 51 FOR ALL ALARM CIRCUITS. MOUNT TERMINAL STRIPS ON UPPER SIDES OF BOARDS & RELAYS BELOW THEM ON SUBPANEL.
5. WIDTH IS ... INCHES.
6. INDICATING LIGHT COLORS TO BE AS FOLLOWS:
   - GREEN - STOP
   - RED - HIGH SPEED
   - AMBER - INTERMEDIATE #2 SPEED
   - BLUE - INTERMEDIATE #1 SPEED
   - WHITE - LOW SPEED
7. CO RECORDERS ARE LEEDS AND NORTHRUP MODEL 'SPEEDOMAX W' INSTALLED BY FUTURE CONSTRUCTION. PANEL FABRICATOR TO PROVIDE CUTOUTS AS REQUIRED.
8. EXISTING FAN CONTROL BOARD & LOCAL CONTROL BOARDS WERE BUILT BY GENERAL ELECTRIC. NEW FAN CONTROL BOARD & LOCAL CONTROL BOARDS TO IDENTICAL IN APPEARANCE & PAINT COLOR & WIRED PER ELEMENTARY DIAGRAMS SHOWN ON DWG. E-G-3S.
9. FOR UPPER CONTROLLER, EAST BUILDING. USE E55, E56 & E57 FOR LOWER CONTROLLER.

PRINT RECORD

DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	0		21
FOR	PRE	PRE	BLR	BLR	PRG
CUSTOMER	5	5	10	10	ORIG
FILE	-	-	-	-	-
INTRA-...	15	15	1	1	15

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
GENERAL
FAN CONTROL BOARDS
LAYOUT AND DETAILS

DRAWN	H.S.	[illegible]
CHECKED	RPJ	1-2-74
SCALE NONE	ORDER NO. C14570	

stearns-roger architects

DRAWING NO. E-G-6S

XII	COLORADO	I70-3(82)220	34	208

Ⓡ1 DELETED GROUNDING PLAN - FAN ROOM FLOOR (GROUNDING IS EXISTING) REVISED DETAIL "A" TO SHOW EXISTING GROUNDING INDICATED FUTURE CONTRACT. DPW 4/1/76, RDE 1/14/76

AS CONSTRUCTED
REVISED Date 8/31/79

NOTE:
EAST VENT. BLDG & EAST CROSS PASSAGEWAY SHOWN. WEST VENT. BLDG. & OTHER PASSAGEWAYS SIMILAR

GROUNDING PLAN
VENT BLDG'S & TUNNEL
NTS

LEGEND

— — — —	EXISTING GROUND
— - — - —	NEW GROUND

NOTES:

1. NEW UNITS OF 24.9 KV SWITCH GEAR TO BE TIED INTO EXISTING GND BUS OF SWGR.
2. ALL GROUNDING IN VENT BUILDING TO BE INSTALLED BY CONTRACTOR. ALL GROUNDING IN TUNNEL & CROSS PASSAGEWAYS TO BE INSTALLED BY FUTURE CONSTR.
3. Ⓡ1 TUNNEL GROUNDING FURNISHED AND INSTALLED BY TUNNEL ELECTRICAL CONTRACTOR

TYPICAL GROUNDING FOR MOTORS
DETAIL-"A"
N.T.S.

GROUNDING PLAN
FAN ROOM FLOOR
~~NTS~~
Ⓡ1

6526

PRINT RECORD				
DATE ISSUED	5/31/74	7/15/74	10/8/74	4/1/76
REVISION NO.	0	0	0	R1
FOR	PRE	PRE	FCA	AFC
CUSTOMER	5	5	10	5
FIELD	-	-	-	-
INTRA CO.	15	15	1	15

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

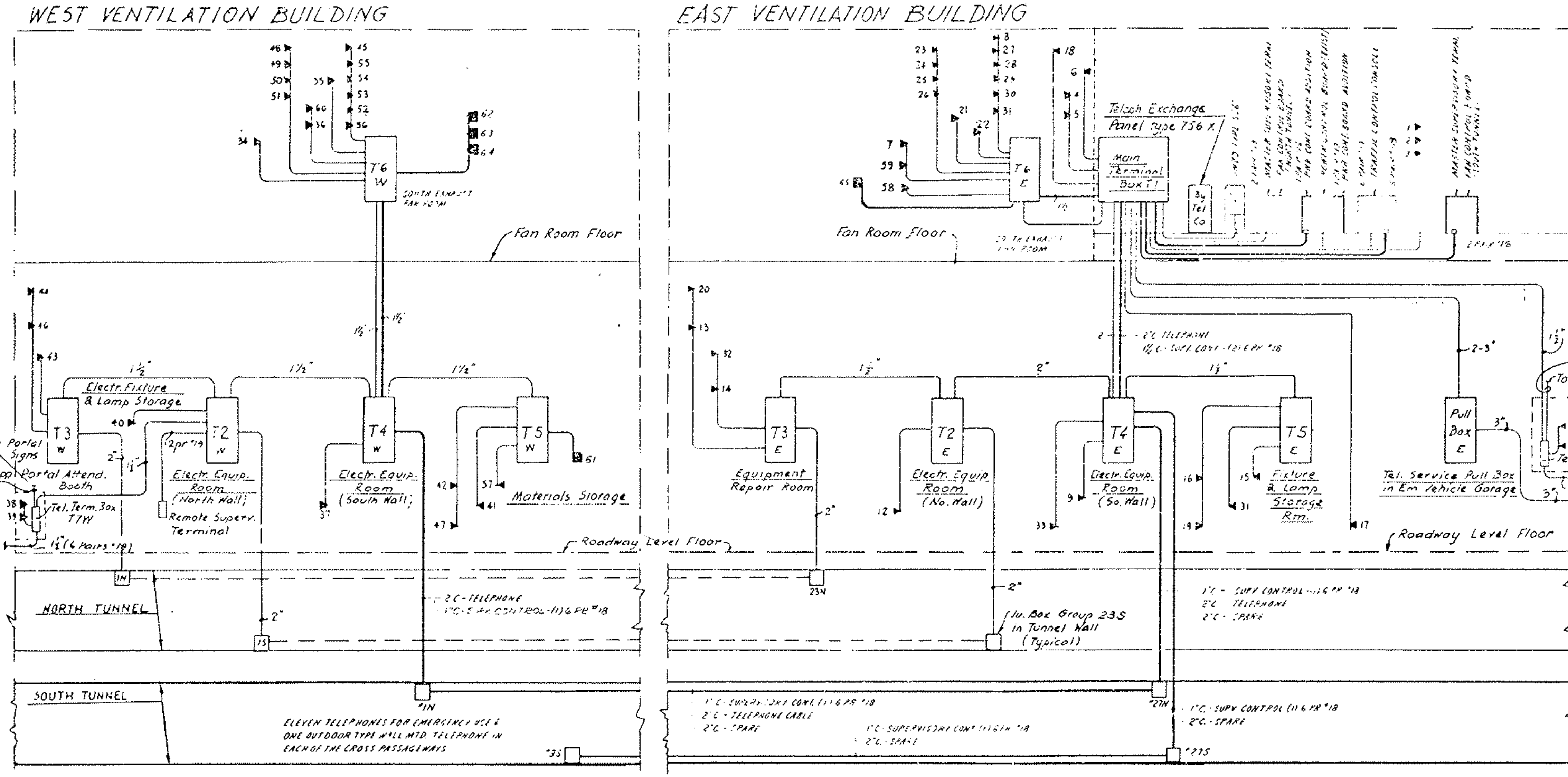
ELECTRICAL
GENERAL
GROUNDING
PLANS & DETAILS

DRAWN	CEW	6-19-74
CHECKED	RPJ	6-27-74
SCALE AS NOTED	ORDER NO. C14570	

DRAWING NO. E-G-7S

XII	COLORADO	I70-3(82)220	35	208

AS CONSTRUCTED
NO REVISIONS DATE



EAST VENTILATION BUILDING (EXIST. OUTLETS)

Outlet No	LOCATION	TYPE	PURPOSE
1	Control Room	Floor Ducts	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.B. 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	"	
17	Sewage Treatment Plant	Expl. prf.	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	" " " " " " J/5	" "	" " "
28	" " " " " " G/5	" "	" " "
29	" " " " " " E/5	" "	" " "
30	" " " " " " C/5	" "	" " "
31	State Patrol Equipment Room	Wall	

WEST VENTILATION BUILDING (EXIST OUTLETS)

Outlet No	LOCATION	TYPE	PURPOSE
34	North Supply Fan Room @ Col 2/A	Wall	Outdoor Type Tel. Connection.
35	" " " " @ Col. F/3	Horn	Signal Service from Control Room
* 36	South Supply Fan Room @ Col F/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	" " "	"	
43	Electrical Fixture & Lamp Storage	"	For Telephone & Loudspeaker Conn.
44	Garage & Vehicle Repair	Wall	
45	CO Analyzer Room	"	For Telephone Connection
46	North Tunnel Rest Room @ Col D/2	Coinless	Public Telephone Service
47	South Tunnel Rest Room @ Col 3/11		" " "
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	" " Conv. Outlet @ Col. A/5	Wall	
57	Materials Storage	"	
60	South Supply Fan Rm. Tel. Outlet Col. A/11	"	

EAST VENTILATION BLDG (EXIST OUTLETS) CONTINUED ON

32	EMERGENCY GENERATOR ROOM	WALL	
33	↓ VEHICLE GARAGE	↓	
58	SOUTH SUPPLY FAN ROOM @ COL C-11	↓	
59	SOUTH EXHAUST FAN ROOM @ COL A-7	↓	

NOTES
1. THIS DRAWING REPRESENTS THE TELEPHONE SYSTEM AS SHOWN ON DWG E-G8 INCLUDING THE ADDITIONS AS REQUIRED FOR THE SOUTH TUNNEL.
2. FOR PHYSICAL LOCATIONS OF TELEPHONE BOXES & OUTLETS IN VENTILATION BUILDINGS SEE DWG E-W-25 & [illegible]
~~3. [illegible]~~
4. WHERE A HORN IS INDICATED THE CONTRACTOR SHALL PROVIDE A 120VAC SUPPLY FROM NEAREST LTG PANEL
5. ALL CONDUIT TO BE 1" RIGID GALV STEEL UNLESS OTHERWISE NOTED
6. TELEPHONE WIRING & EQUIPMENT WILL BE FURNISHED BY MTN BELL.
7. WHERE CABLE PAIRS ARE INDICATED THEY WILL BE FURNISHED & INSTALLED BY CONTRACTOR.

LEGEND
- EXIST. CONDUIT
- NEW CONDUIT
- 7 ▶ EXIST TELEPHONE OUTLET BOX W/COVER
- 61 ■ NEW TELEPHONE OUTLET BOX W/COVER
- * HORN FURNISHED, WIRED & INSTALLED BY TELEPHONE COMPANY

WEST VENTILATION BLDG. (NEW OUTLETS)

OUTLET No.	LOCATION	TYPE
61	EMERGENCY GENERATOR ROOM	WALL
62	SOUTH SUPPLY FAN ROOM @ COL F 11	TEL JACK
63	↓ ↓ N 10 FUTURE	↓
64	↓ ↓ N 11 FUTURE	↓

EAST VENTILATION BLDG. (NEW OUTLETS)

65	SOUTH SUPPLY FAN ROOM @ COL F 11	TEL JACK

6526

PRINT RECORD

DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO	0	0	0	0
FOR	[illegible]	[illegible]	[illegible]	[illegible]
CUSTOMER	5	5	5	1
FIELD	-	-	-	-
INTRA CO	15	15	5	1

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
TELEPHONE RISER DIAGRAM

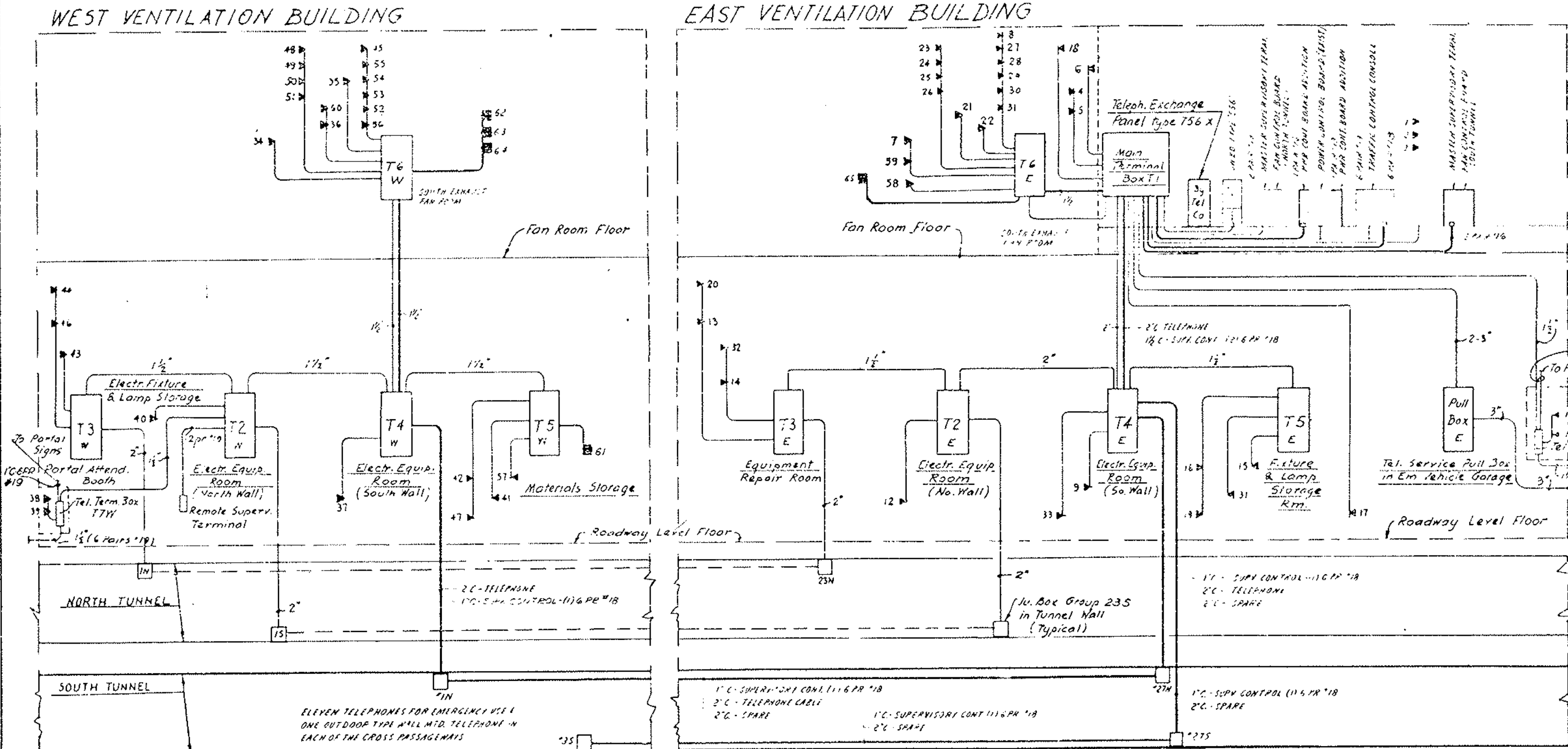
DRAWN [illegible]
CHECKED [illegible]
SCALE NONE
ORDER NO CI4570

stearns-roger architects

DRAWING NO E-G-8S

REGION NO.			NO.	SHEETS
XII	COLORADO	I70-3(82)220	35	208

AS CONSTRUCTED
NO REVISIONS DATE



NOTES

1. THIS DRAWING REPRESENTS THE TELEPHONE SYSTEM AS SHOWN ON DWG. E-G8 INCLUDING THE ADDITIONS AS REQUIRED FOR THE SOUTH TUNNEL
2. FOR PHYSICAL LOCATIONS OF TELEPHONE BOXES & OUTLETS IN VENTILATION BUILDINGS SEE DWGS. E-W-25 & [illegible]
3. ~~[illegible]~~
4. WHERE A HORN IS INDICATED THE CONTRACTOR SHALL PROVIDE A 120VAC SUPPLY FROM NEAREST LTG. PANEL.
5. ALL CONDUIT TO BE 1" RIGID GALV STEEL UNLESS OTHERWISE NOTED.
6. TELEPHONE WIRING & EQUIPMENT WILL BE FURNISHED BY MTN. BELL.
7. WHERE CABLE PAIRS ARE INDICATED THEY WILL BE FURNISHED & INSTALLED BY CONTRACTOR.

LEGEND

- EXIST. CONDUIT
- NEW CONDUIT
- EXIST. TELEPHONE OUTLET BOX W/COVER
- NEW TELEPHONE OUTLET BOX W/COVER
- * HORN FURNISHED, WIRED & INSTALLED BY TELEPHONE COMPANY

EAST VENTILATION BUILDING (EXIST. OUTLETS)

Outlet No	LOCATION	TYPE	PURPOSE
1	Control Room	Floor Duct	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.B. 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	"	
17	Sewage Treatment Plant	Expl. prf.	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	" " " " " " J/5	" "	" " "
28	" " " " " " G/5	" "	" " "
29	" " " " " " E/5	" "	" " "
30	" " " " " " C/5	" "	" " "
31	State Patrol Equipment Room	Wall	

WEST VENTILATION BUILDING (EXIST. OUTLETS)

Outlet No	LOCATION	TYPE	PURPOSE
34	North Supply Fan Room @ Col. 2/A	Wall	Outdoor Type Tel. Connection
35	" " " " @ Col. F/3	Horn	Signal Service from Control Room
* 36	South Supply Fan Room @ Col. F/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	" " "	"	
43	Electrical Fixture & Lamp Storage	"	For Telephone & Loudspeaker Conn.
44	Garage & Vehicle Repair	Wall	
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 B/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	" " Cab. Outlet @ Col. A/5	Wall	
57	Materials Storage	"	
60	South Supply Fan Rm. Tel. Outlet Col. A/11	"	

EAST VENTILATION BLDG (EXIST OUTLETS) CONTINUED ON

32	EMERGENCY GENERATOR ROOM	WALL	
33	" VEHICLE GARAGE	"	
58	SOUTH SUPPLY FAN ROOM @ COL. C-1	"	
59	SOUTH EXHAUST FAN ROOM @ COL. A-7	"	

WEST VENTILATION BLDG (NEW OUTLETS)

OUTLET No.	LOCATION	TYPE
61	EMERGENCY GENERATOR ROOM	WALL
62	SOUTH SUPPLY FAN ROOM @ COL. F-11	TEL JACK
63	" " " " (FUTURE)	"
64	" " " " (FUTURE)	"

EAST VENTILATION BLDG. (NEW OUTLETS)

65	SOUTH SUPPLY FAN ROOM @ COL. F-11	TEL JACK

PRINT RECORD

DATE ISSUED				
REVISION NO.				
FOR				
CUSTOMER	5	5	5	
FIELD				
INTRA CO.	5	5	5	

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
TELEPHONE RISER DIAGRAM

DRAWN		stearns-roger architects	DRAWING NO.
CHECKED			E-G-8S
SCALE NONE	ORDER NO. C14570		

AS CONSTRUCTED
REVISED Date 3/31/77

REGION NO.			NO.	SHEETS
VIII	COLORADO	I70-3(82)220	36	208

(R1) ADDED CIRCUITS P2ES-20 AND P2WS-20 — DRW 2/4/76, RRS 4/24/76

(R2) REVISED FOR EMERG. GENERATOR WATER HEATER #1 #2 AND LUBE OIL PUMP & HTR. POWER REQU AS SHOWN. — JEF/DRW 7/3/76

(R3) REVISED FIXED GAS SYSTEM CONTROL POWER CKTS P2WS-20 & P2ES-20

AC POWER DIST. PANEL NO. P1WS

LOCATION: WEST VENTILATION BLDG. ELECT. EQUIPMENT ROOM (DWG. E-W-15) — ONE LINE DIAG. DWG. E-G-25

480/277 VOLT 60HZ 3 PHASE-4 WIRES
4 # 4/0 FEEDER CABLES-TOP ENTRY
225A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP. LOAD A	AMP. LOAD B	AMP. LOAD C	BKR. AMP SIZE	BKR. AMP FRAME	COND. SIZE	WIRE NO. AND SIZE
1	INT. ZONE NORTH LTG. FEEDER N1	21.5	21.5	21.0	30	100	—	4 # 6
2	SOUTH S1	21.5	21.5	20.5	30		—	
3	NORTH N2	17.1	17.1	16.2	30		—	
4	SOUTH S2	17.1	17.1	17.1	30		—	
5	NORTH N3	15.5	15.5	16.3	30		—	
6	SOUTH S3	15.5	15.5	15.5	30		—	
7	WATER MAIN PIPE HEATING FOR	18.4	9.2	9.2	30		—	
8	SEEPAGE DRAIN PIPE HEATING FOR.	26.0	17.9	24.4	40		—	3 # 6
9	TRAFFIC CONTROL FOR SO WALL	—	12	12	30		—	3 # 6
10	AIR HEAT BURNER FLAME CONT. PNL	10	10	10	15		—	3 # 12
(R2) 11	30 KVA TRANSFORMER	36	36	36	40		—	3 # 8
12	EMERG. GEN AIR COMPRESSOR	8	8	8	20		—	3 # 12
13	EMERG GEN CONTROL PNL.	3	3	—	15		—	3 # 12
14	EMERG GEN MISC. POWER	5	5	5	15		—	3 # 12
15	SPARE	—	—	—	30		—	
16		—	—	—	15		—	
	PHASE LOAD	214.6 (R2)	209.3 (R2)	211.2 (R2)				

AC POWER DIST. PANEL NO. P1TS

LOCATION: WEST CROSS PASSAGEWAY TRANSFORMER VAULT (DWG. E-T-25) — ONE LINE DIAG. DWG. E-T-85

480/277 VOLT 60HZ 3PHASE-4WIRES
4 # 350MCM FEEDER CABLES-BOTTOM ENTRY
400 A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP. LOAD A	AMP. LOAD B	AMP. LOAD C	BKR. AMP SIZE	BKR. AMP FRAME	COND SIZE	WIRE NO. AND SIZE
1	TUNNEL LTG. NORTH FDR. N1	21.0	21.0	21.0	30	100	—	4 # 6
2	N2	21.0	21.0	21.0	30		—	
3	N3	21.0	21.0	21.0	30		—	
4	N4	21.0	21.0	21.6	30		—	
5	LIGHTING TRANSFORMER	18	18	18	30		—	3 # 10
6	WATER MAIN PIPE HEATING FOR	19.4	27.6	27.6	40		—	4 # 6
7	SPARE	—	—	—	30		—	
8	TRAFFIC CONTROL FOR. SO. WALL	12	—	12	30		—	3 # 6
9	TUNNEL LTG. SOUTH FDR. S1	20.6	20.5	21.0	30		—	4 # 6
10	S2	20.6	20.6	21.0	30		—	
11	S3	20.6	20.6	21.0	30		—	
12	S4	20.6	20.6	21.0	30		—	
13	SPARE	—	—	—	30		—	
14	SPARE	—	—	—	40		—	
15	SPARE	—	—	—	30		—	
16	SPARE	—	—	—	30		—	
	PHASE LOAD	214.4	212.0	225.6				

AC POWER DIST. PANEL NO. P2WS

LOCATION: WEST VENTILATION BLDG. ELECT. EQUIPMENT ROOM (DWG. E-W-15) — ONE LINE DIAG. DWG. E-G-25

120/208 VOLT 60HZ 3PHASE-4WIRES — (R2) 100A MAIN CKT. BKR.
(R2) 4 # 2 FEEDER CABLES-TOP ENTRY
100A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP LOAD A	AMP LOAD B	AMP LOAD C	BKR AMP SIZE	BKR AMP FRAME	COND SIZE	WIRE NO. AND SIZE
1	2.4KV MCC NO.1A, TEST POWER	10.0	—	—	20	—	—	
2	2.4KV MCC NO.1B, TEST POWER	10.0	—	—	20	—	—	
3	RELAY PANEL CONTROL POWER	—	5.0	—	15	—	—	
4	AUTO TRANSFER SWITCH	—	5.0	—	15	—	—	
5	SPEED SWITCHES	—	—	5.0	15	—	—	
6	GAS METER BLDG. LTG.	—	—	2.0	15	—	—	
7	TUNNEL TV FEEDER NO. WALL	4.5	—	—	20	—	—	
8	RECEPTACLE SO. WALL	1.5	—	—	20	—	—	
9	NO. WALL	—	3.0	—	20	—	—	
10	SO. WALL	—	1.5	—	20	—	—	
11	NO. WALL	—	—	1.5	20	—	—	
12	SO. WALL	—	—	1.5	20	—	—	
13	SPARE	—	—	—	15	—	—	
(R2) 14	EMERG. GEN. WATER HEATER # 1	18	—	—	20	—	—	
15	REMOTE SUPERVISORY CABINET	—	15	—	20	—	—	
16	EMERG. GEN. RADIATOR RECEPT.	—	.5	—	20	—	—	
(R2) 17	EMERG. GEN. LUBE OIL HTR & PUMP			34	40			
18	LOCAL CONTROL BOARD	—	—	10	20	—	—	
19	SPARE	—	—	—	20	—	—	
(R3)(R1) 20	LPG SYSTEM ANNUNCIATOR & LEVEL METER	5	—	—	20	—	—	
(R2) 21	EMERG. GEN. WATER HEATER # 2	—	18	—	20	—	—	
22	ELEVATOR LTG. & RECEPT.	—	1.8	—	20	—	—	
23	Combustible Gas Detector	—	—	2.0	20	—	—	
24	Air heat burner panel	—	—	2.0	15	—	—	
	PHASE LOAD	49 (R2)	53.8 (R2)	~~54~~ 58 (R2)				

AC POWER DIST. PANEL NO. P2ES

LOCATION: EAST VENTILATION BLDG. ELECT. EQUIPMENT ROOM (DWG. E-E-15) — ONE LINE DIAG. DWG. E-G-25

120/208 VOLT 60HZ 3PHASE-4WIRES — 50A MAIN CKT. BKR.
4 # 6 FEEDER CABLES-TOP ENTRY
100A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP LOAD A	AMP LOAD B	AMP LOAD C	BKR AMP SIZE	BKR AMP FRAME	COND SIZE	WIRE NO. AND SIZE
1	2.4KV MCC NO. 1A, TEST POWER	10.0	—	—	20	—	—	
2	2.4KV MCC NO. 1B, TEST POWER	10.0	—	—	20	—	—	
3	RELAY PANEL CONTROL POWER	—	5.0	—	20	—	—	
4	AUTO TRANSFER SWITCH	—	5.0	—	15	—	—	
5	SPEED SWITCHES	—	—	5.0	15	—	—	
6	GAS METER BLDG. LTG.	—	—	2.0	15	—	—	
7	TUNNEL TV FEEDER NO. WALL	3.0	—	—	20	—	—	
8	RECEPTACLE SO. WALL	1.5	—	—	20	—	—	
9	NO. WALL	—	3.0	—	20	—	—	
10	SO. WALL	—	1.5	—	20		—	
11	NO. WALL	—	—	1.5	20	—	—	
12	SO. WALL	—	—	0	20	—	—	
13	SPARE	—	—	—	15	—	—	
14	SPARE	—	—	—	20	—	—	
15	MASTER SUPERVISORY CABINET	—	15	—	20	—	—	
16	SPARE	—	—	—	20	—	—	
17	FAN CONTROL BOARD	—	—	10	20	—	—	
18	LOCAL CONTROL BOARD	—	—	10	20	—	—	
19	ELEVATOR LTG. & RECEPT.	4.8	—	—	20	—	—	
(R3)(R1) 20	LPG SYSTEM ANNUNCIATOR LEVEL METER	5	—	—	20	—	—	
21	SPARE	—	—	—	20	—	—	
22		—	—	—	20	—	—	
23	Combustible Gas Detector	—	—	2.0	20	—	—	
24	Air heat burner panel	—	—	2.0	15	—	—	
	PHASE LOAD	34.3 (R1)	29.5	~~28.5~~ 32.5				

AC POWER DIST. PANEL NO. P2TS

LOCATION: CENTER CROSS PASSAGEWAY TRANSFORMER VAULT (DWG. E-T-25) — ONE LINE DIAG. DWG. E-T-85

480/277 VOLT 60HZ 3PHASE-4WIRES
4 # 350 MCM FEEDER CABLES-BOTTOM ENTRY
400 A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP LOAD A	AMP LOAD B	AMP LOAD C	BKR. AMP SIZE	BKR. AMP FRAME	COND SIZE	WIRE NO. AND SIZE
1	TUNNEL LTG. NORTH FDR. N1	21.6	21.6	21.6	30	100	—	4 # 6
2	N2	21.6	21.6	21.6	30		—	
3	N3	21.0	21.6	21.6	30		—	
4	N4	21.0	21.6	21.6	30		—	
5	LIGHTING TRANSFORMER	18	18	18	30		—	3 # 10
6	WATER MAIN PIPE HEATING FDR	27.5	27.6	27.6	40		—	4 # 6
7	SPARE	—	—	—	30		—	
8	TRAFFIC CONTROL FDR. SO. WALL	12	12	12	30		—	3 # 6
9	TUNNEL LTG. SOUTH FEEDER S1	21.0	21.0	21.6	30		—	4 # 6
10	S2	21.0	21.0	21.6	30		—	
11	S3	21.0	21.0	21.6	30		—	
12	S4	21.0	21.0	21.6	30		—	
13	SPARE	—	—	—	30		—	
14	SPARE	—	—	—	40		—	
15	SPARE	—	—	—	30		—	
16	SPARE	—	—	—	30		—	
	PHASE LOAD	226.8	228.0	230.4				

AC POWER DIST. PANEL NO. P3TS

LOCATION: EAST CROSS PASSAGEWAY TRANSFORMER VAULT (DWG. E-T-25) — ONE LINE DIAG. DWG. E-T-85

480/277 VOLT 60HZ 3PHASE-4WIRES
4 # 350MCM FEEDER CABLES-BOTTOM ENTRY
400A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP. LOAD A	AMP. LOAD B	AMP. LOAD C	BKR. AMP SIZE	BKR. AMP FRAME	COND SIZE	WIRE NO. AND SIZE
1	TUNNEL LTG. NORTH FDR. N1	21.0	21.0	21.0	30	100	—	4 # 6
2	N2	21.0	21.0	21.0	30		—	
3	N3	21.0	21.0	21.0	30		—	
4	N4	21.0	21.0	21.0	30		—	
5	LIGHTING TRANSFORMER	18	18	18	30		—	3 # 10
6	WATER MAIN PIPE HEATING FDR	36.8	27.6	27.6	50		—	4 # 6
7	SPARE	—	—	—	30		—	
8	TRAFFIC CONTROL FDR. SO. WALL	—	12	12	30		—	3 # 6
9	TUNNEL LTG. SOUTH FDR. S1	20.6	20.6	21.0	30		—	4 # 6
10	S2	20.6	20.6	21.0	30		—	
11	S3	20.6	20.6	21.0	30		—	
12	S4	20.6	20.6	21.0	30		—	
13	SPARE	—	—	—	30		—	
14	SPARE	—	—	—	40		—	
15	SPARE	—	—	—	30		—	
16	SPARE	—	—	—	30		—	
	PHASE LOAD	221.2	224.0	225.6				

AC POWER DIST. PANEL NO. P1ES

LOCATION: EAST VENTILATION BLDG. ELECT. EQUIPMENT ROOM (DWG. E-E-15) — ONE LINE DIAG. DWG. E-G-25

480/277 VOLT 60HZ 3 PHASE-4WIRES
4 # 4/0 FEEDER CABLES-TOP ENTRY
225A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP. LOAD A	AMP. LOAD B	AMP. LOAD C	BKR. AMP SIZE	BKR. AMP FRAME	COND. SIZE	WIRE NO. AND SIZE
1	INT. ZONE NORTH LTG FDR. N1	21.5	21.5	21.5	30	100	—	4 # 6
2	SOUTH S1	21.5	21.5	21.5	30		—	
3	NORTH N2	17.1	17.1	17.1	30		—	
4	SOUTH S2	17.1	17.1	17.1	30		—	
5	NORTH N3	15.5	15.5	15.5	30		—	
6	SOUTH S3	15.5	15.5	15.5	30		—	
7	WATER MAIN PIPE HEATING FDR.	18.9	9.2	9.2	30		—	
8	SEEPAGE DRAIN PIPE HEATING FDR.	24.3	24.3	21.3	40		—	3 # 6
9	TRAFFIC CONTROL FOR SO. WALL		12	12	30		—	3 # 6
10	AIR HEAT BURNER FLAME CONT. PNL.	10	10	10	15		—	3 # 12
11	TRANSFORMER	18	18	18	30		—	3 # 10
12	SPARE	—	—	—	40		—	
13		—	—	—	30		—	
14		—	—	—	40		—	
15		—	—	—	30		—	
16					30			
	PHASE LOAD	178.9	181.7	177.7				

LIGHTING PANEL NO. L1TS

LOCATION: WEST CROSS PASSAGEWAY TRANSFORMER VAULT (DWG. E-T-25) — ONE LINE DIAG. DWG. E-T-85

120/208 VOLT 60HZ 3PHASE-4WIRES — 50A MAIN CKT BKR.
4 # 6 FEEDER CABLES-TOP ENTRY
100A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP. LOAD A	AMP. LOAD B	AMP. LOAD C	BKR AMP. SIZE	BKR AMP. –	COND. SIZE	WIRE NO. AND SIZE
1	TUNNEL TV & CO. ANAL FOR NO. WALL	4	—	—	20	—	—	
2	TUNNEL RECEPTACLE SO. WALL	1.5	—	—	20	—	—	
3	NO. WALL	—	4.5	—	20	—	—	
4	SO. WALL	—	1.5	—	20	—	—	
5	NO. WALL	—	—	3.0	20	—	—	
6	PASSAGEWAY RECEPTACLE (1)	—	—	1.6	20	—	—	
7	PASSAGEWAY LTG. W/EMERG.	2.5	—	—	15	—	—	
8	SPARE	—	—	—	15	—	—	
9	PASSAGEWAY LTG.	—	3.3	—	15	—	—	
10	SPARE	—	—	—	20	—	—	
11	RELAY PANEL CONTROL PWR.	—	—	5	15	—	—	
12	SPARE	—	—	—	20	—	—	
	PHASE LOAD	8	3.3	9.5				

LIGHTING PANEL NO. L2TS

LOCATION: CENTER CROSS PASSAGEWAY TRANSFORMER VAULT (DWG. E-T-25) — ONE LINE DIAG. DWG. E-T-85

120/208 VOLT 60HZ 3PHASE-4WIRES — 50A MAIN CKT. BKR.
4 # 6 FEEDER CABLES-TOP ENTRY
100A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP. LOAD A	AMP. LOAD B	AMP. LOAD C	BKR AMP. SIZE	BKR AMP. –	COND. SIZE	WIRE NO. AND SIZE
1	TUNNEL TV & CO. ANAL. FDR. NO. WALL	5.0	—	—	20	—	—	
2	TUNNEL RECEPTACLE SO. WALL	1.5	—	—	20	—	—	
3	NO. WALL	—	4.5	—	20	—	—	
4	SO. WALL	—	3.0	—	20	—	—	
5	NO. WALL	—	—	4.5	20	—	—	
6	PASSAGEWAY RECEPTACLE (1)	—	—	1.6	20	—	—	
7	PASSAGEWAY LTG. W/EMERG.	2.5	—	—	15	—	—	
8	SPARE	—	—	—	15	—	—	
9	PASSAGEWAY LTG.	—	5	—	15	—	—	
10	SPARE	—	—	—	20	—	—	
11	RELAY PANEL CONTROL PWR.	—	—	5	15	—	—	
12	SPARE	—	—	—	20	—	—	
	PHASE LOAD	9	12.5	11				

LIGHTING PANEL NO. L3TS

LOCATION: EAST CROSS PASSAGEWAY TRANSFORMER VAULT (DWG. E-T-25) — ONE LINE DIAG. DWG. E-T-85

120/208 VOLT 60HZ 3PHASE-4WIRES — 50A MAIN CKT. BKR.
4 # 6 FEEDER CABLES-TOP ENTRY
100A MAIN BUS — NEUTRAL BUS REQD.

BKR NO.	DESCRIPTION	AMP LOAD A	AMP LOAD B	AMP LOAD C	BKR AMP SIZE	BKR AMP –	COND. SIZE	WIRE NO. AND SIZE
1	TUNNEL TV & CO. ANAL. FDR. NO. WALL	3.0	—	—	20	—	—	
2	TUNNEL RECEPTACLE SO. WALL	1.5	—	—	20	—	—	
3	NO. WALL	—	3.0	—	20	—	—	
4	SO. WALL	—	1.5	—	20	—	—	
5	NO. WALL	—	—	3.0	20	—	—	
6	PASSAGEWAY RECEPTACLE (1)	—	—	1.6	20	—	—	
7	PASSAGEWAY LTG W/EMERG	2.5	—	—	15	—	—	
8	SPARE	—	—	—	15	—	—	
9	PASSAGEWAY LTG.	—	3.3	—	15	—	—	
10	SPARE	—	—	—	20	—	—	
11	RELAY PANEL CONTROL PWR.	—	—	5	15	—	—	
12	SPARE	—	—	—	20	—	—	
	PHASE LOAD	7	7.8	9.5				

NOTES:

1. AC POWER DISTRIBUTION PANELS SHALL HAVE INTERRUPTING CAPACITY BREAKERS (25000 AMPS-RMS) WESTINGHOUSE TYPE HFB (OR EQUAL)
2. LIGHTING PANELS L1TS, L2TS, L3TS, BREAKERS # 2, 3, 4, 5, 6 & 12 & PANEL P2ES, BREAKERS # 8, 9, 10, 11, 12, 16 & 19 & PANEL P2WS BKRS. # 8, 9, 10, 11, 12, 16, 19 & 22 SHALL BE GROUND FAULT CIRCUIT BREAKERS, WESTINGHOUSE TYPE QBGF1020 (OR EQUAL)
3. ALL BREAKERS IN POWER DIST. PANELS ARE 3 POLE. ALL BREAKERS IN LTG. PANELS ARE 1 POLE.

PRINT RECORD

DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	0	0	0	0	23
FOR	FAS	P2S	P2S	FCN	[illegible]	[illegible]	[illegible]
CUSTOMER	5	5	5	10	[illegible]	[illegible]	[illegible]
FIELD	-	-	-	-	-	-	4
INTRA CO.	15	15	15	1	15	15	15

Seal: REGISTERED PROFESSIONAL ENGINEER, STATE OF COLORADO, 6526

NO.	REVISIONS	DATE	BY	CHK

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
GENERAL
POWER & LIGHTING
PANEL SCHEDULES

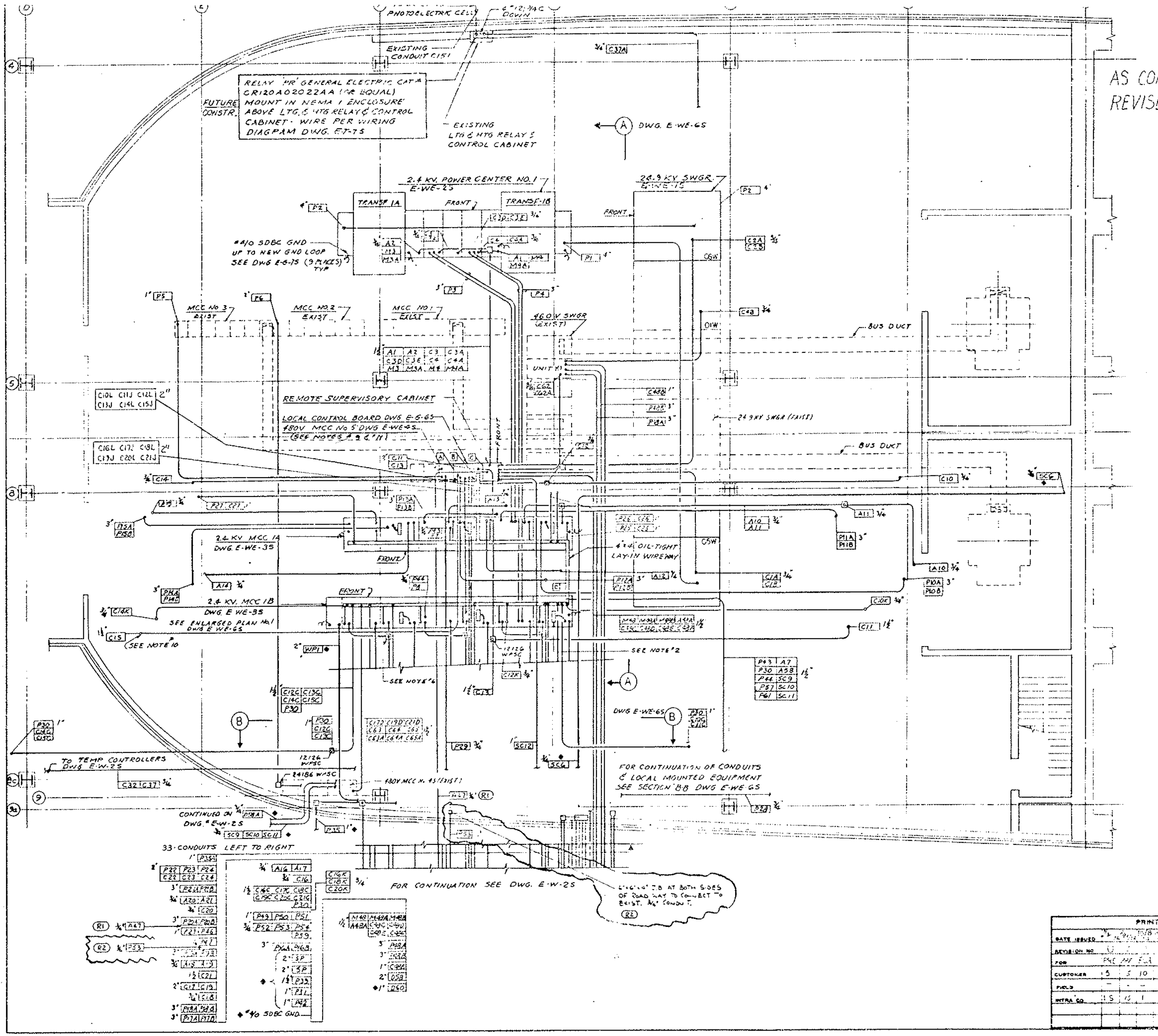
DRAWN	JEU	3-25-74	SHEET NO.
CHECKED	RPS	3-28-74	E-G-95
SCALE NONE	ORDER NO. C14570		

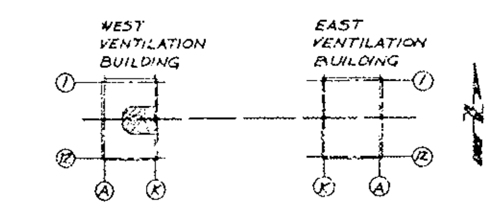
REGION NO.	DIVISION	PROJ. NO.	NO.	SHEETS
IX	COLORADO	I 70-3(82) 220	37	208

(R1) ADDED MIXED GAS SYSTEM CIRCUIT A47

(R2) REVISED FOR EMERG. GENERATOR WATER HEATER #1 & #2 AND LUBE OIL PUMP & HEATER POWER REQU. AS SHOWN

AS CONSTRUCTED
REVISED Date 8/31/79





KEY PLAN

LEGEND

- CONDUIT RUN EXPOSED
- GROUND WIRE, NEW ADDITION.
- EXPOSED CONDUIT COMING TOWARD OBSERVER.
- EXPOSED CONDUIT GOING AWAY FROM OBSERVER.
- FLEXIBLE CONDUIT
- JUNCTION BOX OR PULL BOX

NOTES

1. CONDUIT & EQUIPMENT SHOWN DIAGRAMMATICALLY ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CHECK POSSIBLE EXISTING & NEW INTERFERENCES SUCH AS CONDUIT EQUIPMENT, PIPES, DUCTS & STRUCTURAL BEFORE INSTALLING NEW EQUIPMENT & CONDUIT.
2. FOR POWER FACTOR CORRECTION CAPACITOR MOUNTING & CONNECTION SEE DETAIL ON DWG. E-WE-10S.
3. FOR CONDUIT & CABLE SCHEDULES, SEE DWG E-W-4S & 5S, E-WE-7S, 8S & E-T-10S.
4. FOR GROUNDING PLAN & DETAILS, SEE E-G-7S.
5. ◆ INDICATES WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION
6. ALL JUNCTION BOXES TO BE 8"x8"x6" WPSC EXCEPT AS NOTED.
7. FOR ELEMENTARY DIAGRAMS SEE DWG E-G-3S, 4S.
8. FOR PANEL SCHEDULES SEE DWG E-G-9S.
9. CONTRACTOR TO PREPARE FOR & PROVIDE LEVELING CHANNELS FOR POWER CENTER & MCC'S.
10. FOR CONDUITS GOING UP SEE DWG E-W-3S.
11. GROUND REMOTE SUPV. CABINET & LOCAL CONTROL BOARD W/ #4 SDBC GND. FROM MCC #5 GROUND BUS.
12. [A] INDICATES CIRCUIT LIST SHOWN ON DWG E-WE-6S.

6526

PRINT RECORD	
DATE ISSUED	[illegible]
REVISION NO.	[illegible]
FOR	[illegible]
CUSTOMER	5 5 10 [illegible]
FIELD	
INTRA CO.	15 15 1 1 15 15

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS

EISENHOWER MEMORIAL TUNNEL

SECOND BORE

ELECTRICAL
WEST VENTLIATION BUILDING
ELECTRICAL EQUIPMENT ROOM
POWER & CONTROL PLAN

DRAWN	CDW	[illegible]
CHECKED	[illegible]	[illegible]
SCALE	ORDER NO	
3/16"=1'-0"	C14570	

DRAWING NO. E-W-1S

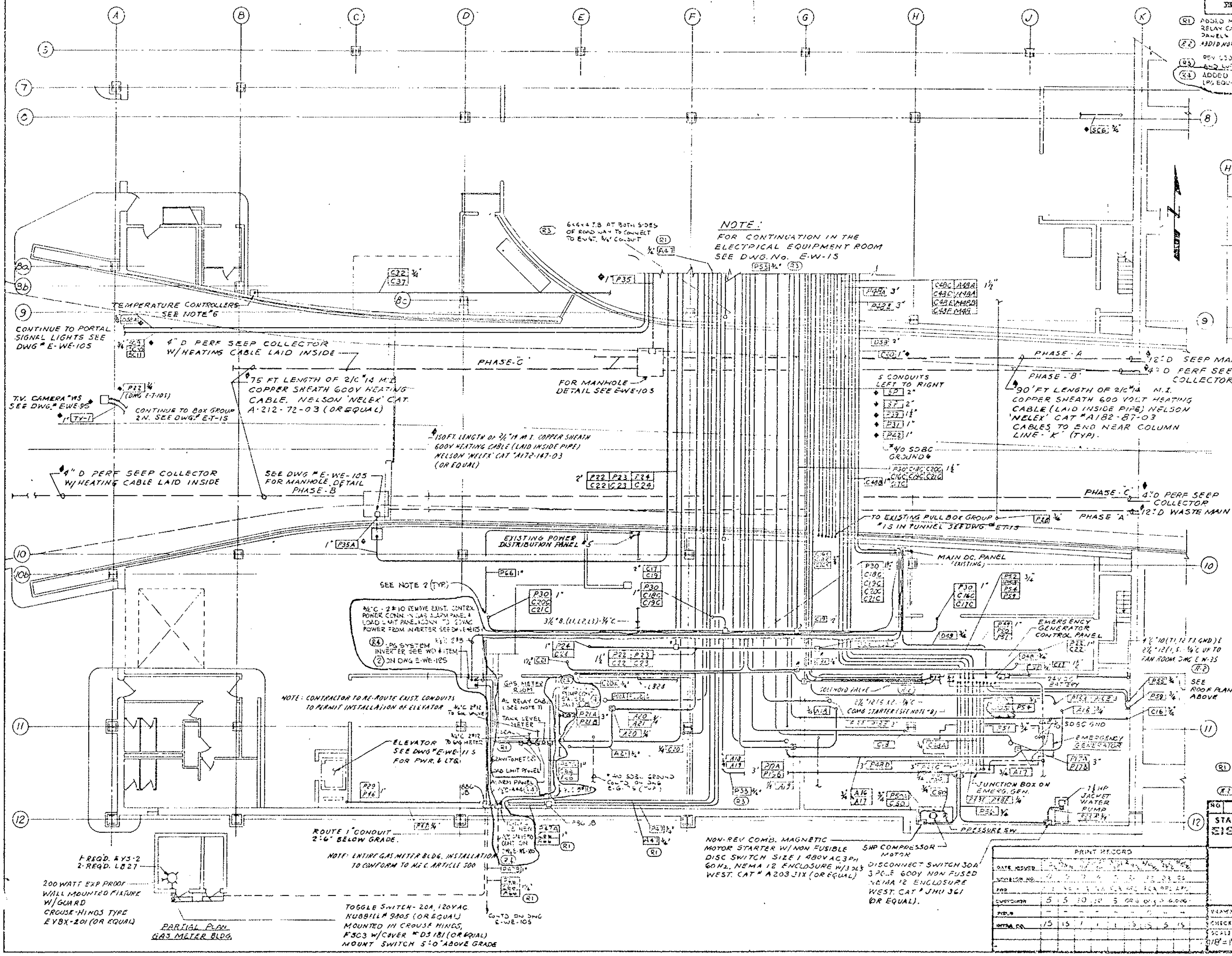
REGION NO.	DIVISION	PROJ. NO.	NO.	SHEETS
VIII	COLORADO	I70-3(82)220	38	208

(R1) ADDED MIXED GAS SYSTEM CIRCUITS P47A P47B, A47, C66 A66, ALARM RELAY CABINET NOTE #7 AND REVISED GAS METER ROOM TO SHOW PANELS & METERS DPW 2-21-76

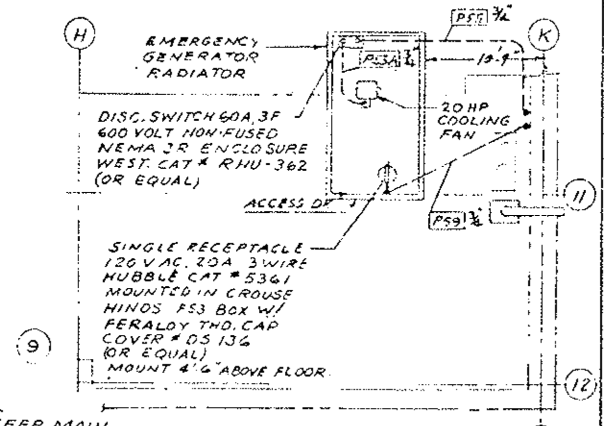
(R2) ADDED NOTE "8 & EMERG. GEN. ROOM VENT FAN COMB. STARTER & CKTS. RPT/DPW 6-16-76

(R3) REV. CDD FOR EMERG. GENERATOR WATER HEATER & LUBE OIL PUMP & HEATER POWER REQ. AS SHOWN 7/22/76

(R4) ADDED INVERTER, LPG ... PUMP CONT. STA., FEEDERS FROM DC DIST. PNL & LPG EQUIP. ... PNL. FOR LPS SYSTEM LC 9-4-76/DPW



NOTE:
FOR CONTINUATION IN THE ELECTRICAL EQUIPMENT ROOM SEE DWG. No. E-W-1S
TEMPERATURE CONTROLLERS SEE NOTE 6
CONTINUE TO PORTAL SIGNAL LIGHTS SEE DWG # E-WE-10S
4" D PERF SEEP COLLECTOR W/HEATING CABLE LAID INSIDE
PHASE-C
75 FT LENGTH OF 2/C #14 M.I. COPPER SHEATH 600V HEATING CABLE. NELSON 'NELEX' CAT. A-212-72-03 (OR EQUAL)
FOR MANHOLE DETAIL SEE E-WE-10S
T.V. CAMERA #1S SEE DWG # EWE-9S
CONTINUE TO BOX GROUP 2N. SEE DWG # E-T-1S
150 FT. LENGTH OF 2/C #14 M.I. COPPER SHEATH 600V HEATING CABLE (LAID INSIDE PIPE) NELSON 'NELEX' CAT. A172-147-03 (OR EQUAL)
SEE DWG # E-WE-10S FOR MANHOLE DETAIL
PHASE-B
5 CONDUITS LEFT TO RIGHT
4/0 SDBC GROUND
PHASE-A
12" D SEEP MAIN
4" D PERF SEEP COLLECTOR
90' FT LENGTH OF 2/C #14 M.I. COPPER SHEATH 600 VOLT HEATING CABLE (LAID INSIDE PIPE) NELSON 'NELEX' CAT # A182-87-03 CABLES TO END NEAR COLUMN LINE 'K' (TYP).
PHASE-C
4" D PERF SEEP COLLECTOR
12" D WASTE MAIN
TO EXISTING PULL BOX GROUP #1S IN TUNNEL SEE DWG # ET-1S
EXISTING POWER DISTRIBUTION PANEL "S"
MAIN DC. PANEL (EXISTING)
SEE NOTE 2 (TYP)
EMERGENCY GENERATOR CONTROL PANEL
SEE ROOF PLAN ABOVE
SOLENOID VALVE
COMB STARTER (SEE NOTE 8)
EMERGENCY GENERATOR
JUNCTION BOX ON EMERG. GEN.
1 1/2 HP JACKET WATER PUMP
PRESSURE SW.
NOTE: CONTRACTOR TO RE-ROUTE EXIST. CONDUITS TO PERMIT INSTALLATION OF ELEVATOR
ELEVATOR SEE DWG # E-WE-11S FOR PWR. & LTG.
GAS METER ROOM
TANK LEVEL METER
LOAD LIMIT PANEL
ALARM PANEL
ROUTE 1" CONDUIT 2'-6" BELOW GRADE.
NOTE: ENTIRE GAS METER BLDG. INSTALLATION TO CONFORM TO NEC ARTICLE 500
1-REQD. EYS-2
2-REQD. LB27
200 WATT EXP PROOF WALL MOUNTED FIXTURE W/GUARD CROUSE-HINDS TYPE EVBX-201 (OR EQUAL)
PARTIAL PLAN GAS METER BLDG.
TOGGLE SWITCH- 20A, 120VAC HUBBELL # 9805 (OR EQUAL) MOUNTED IN CROUSE HINDS, FSC3 W/COVER # DS 181 (OR EQUAL) MOUNT SWITCH 5'-0" ABOVE GRADE
CONTD ON DWG E-WE-10S
NON-REV COMB. MAGNETIC MOTOR STARTER W/ NON FUSIBLE DISC SWITCH SIZE 1 480V AC 3PH 60Hz, NEMA 12 ENCLOSURE W/3 OLS WEST. CAT # A203 J1X (OR EQUAL)
5HP COMPRESSOR MOTOR
DISCONNECT SWITCH 30A 3 POLE 600V NON FUSED NEMA 12 ENCLOSURE WEST. CAT # JHU 361 (OR EQUAL).



EMERGENCY GENERATOR RADIATOR
DISC. SWITCH 60A, 3F 600 VOLT NON-FUSED NEMA 3R ENCLOSURE WEST. CAT # RHU-362 (OR EQUAL)
20 HP COOLING FAN
ACCESS DR
SINGLE RECEPTACLE 120 VAC, 20A 3 WIRE HUBBLE CAT # 5361 MOUNTED IN CROUSE HINDS FS3 BOX W/ FERALOY THD. CAP COVER # DS 136 (OR EQUAL) MOUNT 4'-6" ABOVE FLOOR

ROOF PLAN
SCALE 1/8" = 1'-0"

AS CONSTRUCTED
REVISED Date 3/31/79

NOTES:

1. ◆ INDICATES THE WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION.
2. FOR CONDUITS GOING UP SEE DWG. # E-W-3S.
3. FOR LEGEND & GENERAL NOTES SEE DWG # E-W-1S.
4. ALL BOXES TO BE 8" x 8" x 6" WPSC EXCEPT THOSE MARKED WITH AN * TO BE 12" x 12" x 6 WPSC.
5. FOR CONDUIT & CABLE SCHEDULE, SEE DWG. # E-WE-7S E-WE-8S, E-W-4S, EW-5S.
6. TEMPERATURE CONTROLLER TO BE HONEYWELL CAT. # T654A-1495 W/20 FOOT CAPILLARY & BULB (OR EQUAL) RANGE -50° TO +100°F, 120VAC, SPDT CONTACTS
   1-REQD. FOR LIGHTING CKT. SET @ -20°F FOR CONTACT CLOSURE.
   1-REQD. FOR HEATING CKT. SET @ +40°F FOR CONTACT CLOSURE.
   MOUNT CONTROLLERS IN NEMA 4 ENCLOSURE & COIL EXCESS CAPILLARY BETWEEN TUNNEL LINING & SIDING. THE CONTRACTOR TO PROVIDE A 6" DIA. SCREENED OPENING IN TUNNEL SIDING & MOUNT TEMPERATURE CONTROLLER BULBS BEHIND OPENING.
7. (R1) PROVIDE ... ALARM RELAY CABINET WITH 4-2 POLE RELAYS ... COIL & N.C. CONTACTS G.E. #A00222AA (SEE SCHEMATIC ON DWG E-G-4S
8. (R2) EMERG GEN ROOM VENT FAN NOTES (#2,3,4,5) & WIRING DIAGRAM ARE SHOWN ON DWG E-WE-9S

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST VENTILATION BUILDING
ROADWAY FLOOR
POWER & CONTROL PLAN

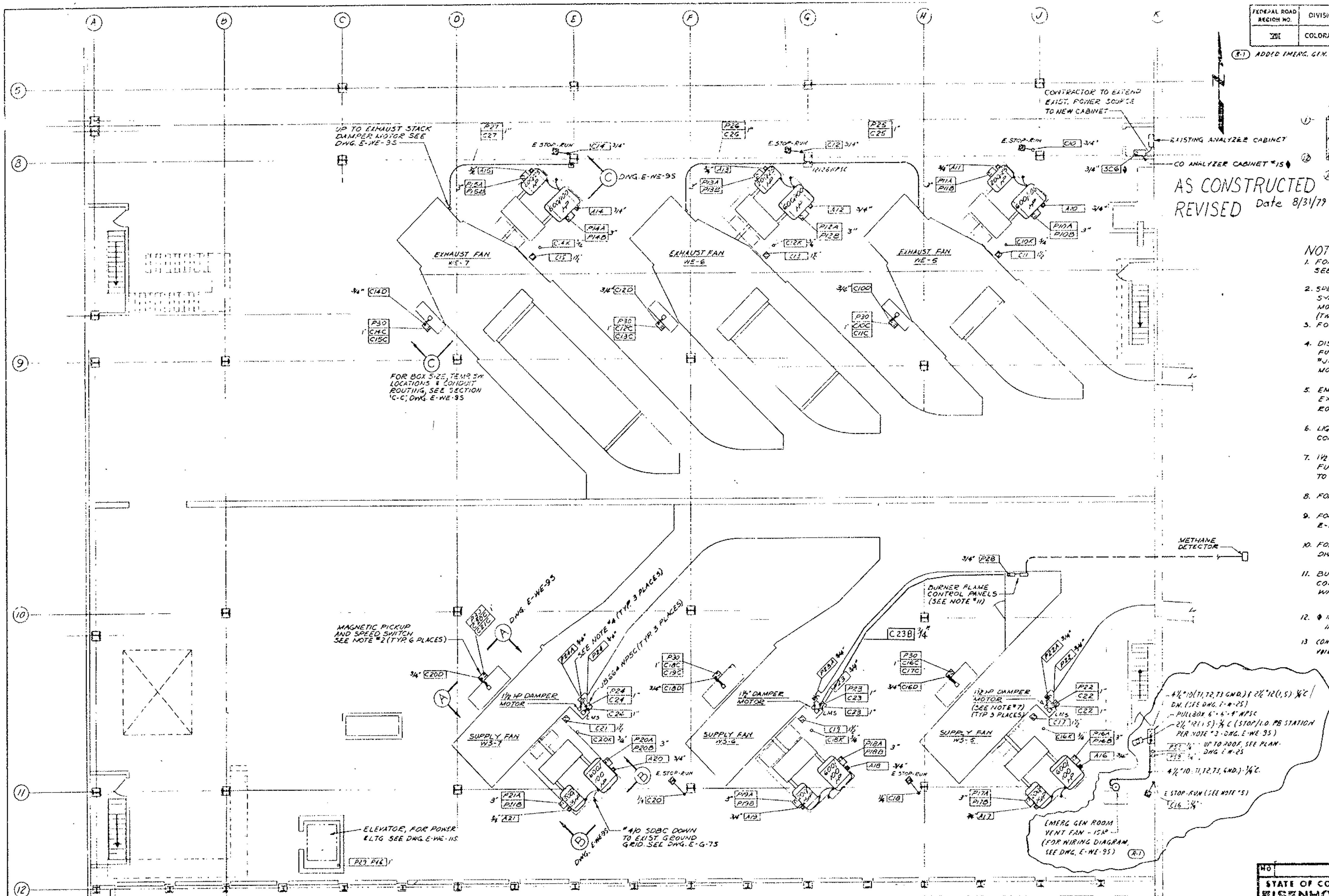
DRAWN	CEW
CHECKED	
SCALE 1/8" = 1'-0"	C14570

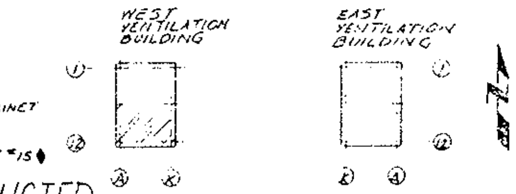
DRAWING NO. E-W-2S

Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	39	208

(R-1) ADDED EMERG. GEN. ROOM VENT. FAN & CIRCUITS RPJ/JEW 6-16-76





KEY PLAN

AS CONSTRUCTED
REVISED Date 8/31/79

NOTES:

1. FOR CONTINUATION OF CONDUITS GOING DOWN SEE DWG. E-W-1S & E-W-2S
2. SPEED SWITCHES W/MAGNETIC PICKUP TO BE SYNCHRO-START PRODUCTS, INC. MODEL #ESSB4AT MOUNTED IN A 20"×15"×10" WPSC BOX W/SUBPANEL (TWO SETS OF 4 SPDT CONTACTS PER FAN)
3. FOR LEGEND & GENERAL NOTES SEE DWG. E-G-1S
4. DISCONNECT SWITCH TO BE 30AMP, 3P, 600V NON-FUSIBLE NEMA 12 ENCLOSURE, WESTINGHOUSE CAT #JHU-361 (OR EQUAL). TOP OF DISCONNECT TO BE MOUNTED 5'-0" ABOVE FINISHED FLOOR.
5. EMERG. STOP-RUN SELECTOR SWITCH IS EXISTING. CONTRACTOR TO WIRE AS REQD & ROUTE CONDUIT.
6. LIGHTING FIXTURES, WELDING RECEPTACLES & CONVENIENCE RECEPTACLES ARE EXISTING & WIRED
7. 1½HP DAMPER MOTOR & LIMIT SWITCH (LMS) ARE FURNISHED BY OTHERS. CONTRACTOR TO WIRE AS INDICATED.
8. FOR TELEPHONE OUTLETS, SEE DWG E-G-8S.
9. FOR CONDUIT & CABLE SCHEDULE, SEE DWG. E-WE-7S & E-WE-8S.
10. FOR FAN & DAMPER ELEMENTARY DIAGRAMS, SEE DWG. E-G-3S
11. BURNER FLAME CONTROL PANELS & ASSOCIATED CONTROLS W/METHANE DETECTOR ARE TO BE WIRED PER MANUFACTURER'S RECOMMENDATIONS
12. ◆ INDICATES WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION.
13. CONTRACTOR TO CORE DRILL FLOOR FOR CONDUITS & SEAL VOIDS W/ DUXSEAL

6526 STATE OF COLORADO

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST VENTILATION BUILDING
FAN FLOOR
POWER & CONTROL PLAN

PRINT RECORD					
DATE ISSUED	[illegible]				
REVISION NO	0	0	0	0	[illegible]
FOR	PRE	PRE	FCA	FCA	FCA
CUSTOMER	5	5	10	10	orig.
FIELD	–	–	–	–	0
WITHA CO.	15	15	1	1	15

DRAWN	JEJ	6/10/74
CHECKED	RPJ	6-25-74
SCALE 1/8"=1'-0"	ORDER NO. C14570	

DRAW NO. E-W-3S

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XII	COLORADO	I 70-3(82)220	40	208

(R1) ADDED MIXED GAS SYSTEM CIRCUITS P47A, P47B, A47, A47A AND REVISED CIRCUIT P47 DPW 2/11/76, RDE 2/24/76

(R2) REVISED FOR EMERG. GENERATOR WATER HEATER [illegible] AND [illegible] AS SHOWN [illegible]

AS CONSTRUCTED
REVISED Date 8/31/79

CONDUIT NO	SIZE & KIND	QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
C1A	—	3	1/C #12	24.9 KV SWITCHGEAR, UNIT #[illegible]	REMOTE SUPERVISORY CABINET	CONTROL
C1B	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C1C	—	[illegible]	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	CONTROL
C1D	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C2A	—	3	1/C #12	24.9 KV SWITCHGEAR, UNIT #DSW	REMOTE SUPERVISORY CABINET	CONTROL
C2B	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C2C	—	3	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	CONTROL
C2D	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C3	—	3	1/C #12	2.4 KV POWERCENTER NO. 1, FDR BKR 1A	REMOTE SUPERVISORY CABINET	CONTROL
C3A	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C3B	—	3	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	CONTROL
C3C	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C3D	—	3	1/C #12	2.4KV POWERCENTER NO. 1, BUSTIE	REMOTE SUPERVISORY CABINET	CONTROL
C3E	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C3F	—	3	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	CONTROL
C3G	—	3	1/C #12	↓	↓	INDICATING LIGHTS
M3	—	2	1/C #12	2.4KV POWERCENTER NO. 1, AUX SECT 1A	REMOTE SUPERVISORY CABINET	AMMETER VIA TRANSDUCER
M3A	—	2	1/C #12	↓	↓	VOLTMETER VIA TRANSDUCER
M3B	—	2	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	AMMETER
M3C	—	2	1/C #12	↓	↓	VOLTMETER
C4	—	3	1/C #12	2.4KV POWERCENTER NO. 1, FDR BKR 1B	REMOTE SUPERVISORY CABINET	CONTROL
C4A	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C4B	—	3	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	CONTROL
C4C	—	3	1/C #12	↓	↓	INDICATING LIGHTS
M4	—	2	1/C #12	2.4KV POWERCENTER NO. 1, AUX SECT 1B	REMOTE SUPERVISORY CABINET	AMMETER VIA TRANSDUCER
M4A	—	2	1/C #12	↓	↓	VOLTMETER VIA TRANSDUCER
M4B	—	2	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	AMMETER
M4C	—	2	1/C #12	↓	↓	VOLTMETER
C10E	—	9	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	EXHAUST FAN NO. 5, CONTROL
C10F	—	6	1/C #12	↓	↓	IND. LIGHTS
C10G	—	7	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C10H	—	6	1/C #12	↓	↓	IND. LIGHTS
A10A	—	2	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	EXHAUST FAN NO. 5, FAN FAILURE ALARM
A10B	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A10C	—	1	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	FAN BEARINGS HIGH TEMPERATURE ALARM
A10D	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A10E	—	2	1/C #12	LOCAL CONTROL BOARD	2.4KV MCC NO. 1A UNIT #[illegible]	ALARM - MOTOR HIGH TEMPERATURE
C12E	—	9	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	EXHAUST FAN NO. 6, CONTROL
C12F	—	6	1/C #12	↓	↓	IND. LIGHTS
C12G	—	7	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C12H	—	6	1/C #12	↓	↓	IND. LIGHTS
A12A	—		1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	EXHAUST FAN NO. 6, FAN FAILURE ALARM
A12B	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A12C	—	2	1/C #12	LOCAL CONTROL BOARD	2.4KV MCC NO. 1A UNIT #[illegible]	ALARM - MOTOR HIGH TEMPERATURE
C14E	—	9	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	EXHAUST FAN NO. 7, CONTROL
C14F	—	6	1/C #12	↓	↓	IND. LIGHTS
C14G	—	7	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C14H	—	6	1/C #12	↓	↓	IND. LIGHTS
A14A	—	1	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	EXHAUST FAN NO. 7, FAN FAILURE ALARM
A14B	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A14C	—	2	1/C #12	LOCAL CONTROL BOARD	2.4KV MCC NO. 1A UNIT #5	ALARM - MOTOR HIGH TEMPERATURE
C16E	—	9	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	SUPPLY FAN NO. 5, CONTROL
C16F	—	6	1/C #12	↓	↓	IND. LIGHTS
C16G	—	7	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C16H	—	6	1/C #12	↓	↓	IND. LIGHTS
A16A	—	1	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	SUPPLY FAN NO. 5, FAN FAILURE ALARM
A16B	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A16C		2	1/C #12	LOCAL CONTROL BOARD	2.4KV MCC NO. 1A UNIT #[illegible]	ALARM - MOTOR HIGH TEMPERATURE

CONDUIT NO	SIZE & KIND	QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
C18E	—	9	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	SUPPLY FAN NO. 6, CONTROL
C18F	—	6	1/C #12	↓	↓	IND. LIGHTS
C18G	—	7	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C18H	—	6	1/C #12	↓	↓	IND. LIGHTS
A18A	—	1	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	SUPPLY FAN NO. 6, FAN FAILURE ALARM
A18B	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A18C	—	2	1/C #12	LOCAL CONTROL BOARD	2.4KV MCC NO. 1A UNIT #[illegible]	ALARM - MOTOR HIGH TEMPERATURE
C20E	—	9	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	SUPPLY FAN NO. 7, CONTROL
C20F	—	6	1/C #12	↓	↓	IND. LIGHTS
C20G	—	7	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C20H	—	6	1/C #12	↓	↓	IND. LIGHTS
A20A	—	1	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	SUPPLY FAN NO. 7, FAN FAILURE ALARM
A20B	—		1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
A20C	—	2	1/C #12	LOCAL CONTROL BOARD	2.4KV MCC NO. 1B UNIT #[illegible]	ALARM - MOTOR HIGH TEMPERATURE
A20D	—	1	1/C #12	↓	REMOTE SUPERVISORY CABINET	
A20E		1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	↓
P28	—	3	1/C #10 & 1/C #10G	AC POWER DIST PANEL #P1WS	AIR HEATED BURNER FLAME CONTR. PNL	FEEDER
P3[illegible]	—	2	1/C #12	AC POWER DIST. PANEL #P2WS	SPEED SWITCH & TEMP CONTROLLER	120V FEEDER
P[illegible]	◆ —	3	1/C #6	AC POWER DIST. PANEL #P1WS	SOUTH TUNNEL WALL AC PULLBOX GRPS.	TRAFFIC CONTROL
P32	—	4	1/C #6	AC POWER DIST. PANEL #P1WS	LTG & HTG CONTACTOR PANEL	WATER MAIN PIPE HTG. FEEDER
C32	—	2	1/C #12	TEMPERATURE CONTROLLER #2	LTG. & HTG. RELAY & CONTROL PNL.	CONTROL
P33	◆ —	4	1/C #6	LTG. & HTG CONTACTOR PANEL	NORTH TUNNEL WALL AC PULLBOX GRPS.	WATER MAIN PIPE HTG FEEDER
P34	—	4	1/C #6	AC POWER DIST. PANEL #P1WS	LTG & HTG. CONTACTOR PANEL	SEEPAGE DRAIN HTG FEEDER
P35	◆ —	4	1/C #6	LTG. & HTG. CONTACTOR PANEL	NORTH TUNNEL WALL DRAIN MANHOLE	SEEPAGE DRAIN HTG FEEDER
P35A	◆ —	4	1/C #6	↓	SOUTH ↓	↓
P36	—	12	1/C #6	AC POWER DIST. PANEL #P1WS	LTG. & HTG CONTACTOR PANEL	TUNNEL INT ZONES LTG FEEDER N1, N2, N3
P37	—	12	1/C #6	↓	↓	S1, S2, S3
C37	—	2	1/C #12	TEMPERATURE CONTROLLER #1	LTG. & HTG RELAY & CONTROL PNL.	CONTROL
C37A	—	2	1/C #12	PHOTOELECTRIC CELL RELAY "PE"		
C37B	—	6	1/C #12	LTG. & HTG. CONTACTOR PANEL	↓	↓
P38	◆ —	12	1/C #6		NORTH TUNNEL WALL AC PULLBOX GRPS	TUNNEL INT ZONES LTG FEEDER N1, N2, N3
P39	◆ —	12	1/C #6	↓	SOUTH ↓	S1, S2, S3
P40	—	3	1/C #2	AC POWER DIST. PANEL #P1WS	30KVA TRANSFORMER PRIMARY	FEEDER (R2)
P40A	—	4	1/C #2	30KVA TRANSFORMER SECONDARY	AC POWER DIST. PANEL #P2WS	120/208V FEEDER (R2)
P41	◆ —	4	1/C #8 & 1/C #10G	AC POWER DIST PANEL #P2WS	NORTH TUNNEL AC PULLBOX GRPS.	TV CAMERA, TUNNEL RECEPTACLE FDR
P42	◆ —	4	1/C #8 & 1/C #10G		SOUTH ↓	TUNNEL RECEPTACLE FEEDER
P43	—	2	1/C #12		2.4KV MCC NO 1A	120V TEST POWER
P44	—	2	1/C #12		2.4KV MCC NO 1B	↓
P45	—	2	1/C #12		LTG. & HTG. RELAY & CONTROL PNL.	120V FEEDER
P46		2	1/C #12 & 1/C #10G	↓	ELEVATOR PENTHOUSE	LTG & RECEPTACLE FEEDER
P47	—	3	1/C #12	[illegible]	[illegible]	[illegible] (R1)
P47A	—	[illegible]	[illegible]	LOCAL JCT. BOX (BAFFLED)	MIXED GAS SYSTEM ALARM & LTR PNL	[illegible] (R1)
P47B	—	2	[illegible]	↓ [illegible]	GAS METER BLDG LIGHT	[illegible] FEEDER (R1)
A47	—	5	[illegible]	GAS FILTER [illegible] ALARM RELAY [illegible]	REMOTE SUPERVISORY PANEL	MIXED GAS SYSTEM [illegible] (R1)
A47A		5	[illegible]	MASTER SUPERVISORY PANEL	[illegible] FAN CONTROL BOARD	↓ (R1)

CONTINUED ON DWG. E-W-5S

NOTES:

1. [illegible] SECTION # 720.
2. ◆ INDICATES WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION.

6526 STATE OF COLORADO PROFESSIONAL ENGINEER

PRINT RECORD	
DATE ISSUED	[illegible]
REVISION NO	[illegible]
FOR	[illegible]
CUSTOMER	[illegible]
FIELD	[illegible]
INTRA CO	[illegible]

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST VENTILATION BUILDING
CONDUIT & CABLE SCHEDULE
SHEET NO. 1

DRAWN	[illegible]	[illegible]
CHECKED	[illegible]	[illegible]
SCALE NONE	ORDER NO C14570	

stearns-roger architects DENVER COLORADO

DRAWING NO. E-W-4S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	41	208

(R1) ADDED MIXED GAS SYSTEM CIRCUITS C66 & A66 — SPW / RDO — 2/2/76 / 2/24/76

(R2) REVISED FOR EMERG. GENERATOR WATER HEATER #1 & #2 AND LUBR OIL PUMP & HTR POWER REQD. AS SHOWN. — JEF/SPW 7/1/76

AS CONSTRUCTED
REVISED Date 8/31/79

CONDUIT NO	CONDUIT SIZE & KIND	WIRE OR CABLE QUANT.	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
P48A	—	4	1/C #500 MCM	480V SWGR. UNIT 'K'	EMERG. GENERATOR CONTROL PANEL	FEEDER
P48B	—	3	1/C #500 MCM			
P48C	—	4	1/C #500 MCM	EMERG. GENERATOR CONTROL PANEL	EMERG. GENERATOR JUNCTION BOX	
P48D	—	3	1/C #500 MCM			
P48E	—	2	1/C #12			EMERG. GENERATOR FIELD EXC.
P48F	—	3	1/C #12			GOVERNOR MOTOR, FEEDER
D48	—	2	1/C #10	EMERG. GENERATOR CONTROL PANEL	24V DC BATTERY COMPARTMENT	24V DC FEEDER
C48		2	1/C #12	480V SWGR. UNIT 'K'	2.4KV SWITCHGEAR, UNIT 'B1N'	INTERLOCK
C48A	—	2	1/C #12	EMERG. GENERATOR CONTROL PANEL	EMERG. GENERATOR JUNCTION BOX	CONTROL
C48B	—	7	1/C #12		480V SWGR. UNIT 'K'	& INTERLOCK
C48C	—	3	1/C #12		REMOTE SUPERVISORY CABINET	GOVERNOR SEL. SW. CONTROLS
C48D	—	2	1/C #12			EMERG. GEN. START-STOP SEL. SW.
C48E	—	2	1/C #12			EMERG. GEN. 'ON' IND. LTG.
C48F	—	3	1/C #12			LOW OIL & HIGH TEMP IND LTG.
C48G	—	3	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	GOVERNOR SEL. SW.
C48H	—	2	1/C #12			EMERG. GEN. START-STOP SEL. SW.
C48J	—	2	1/C #12			EMERG. GEN. 'ON' IND. LTG.
C48K	—	3	1/C #12			LOW OIL & HIGH TEMP LTG.
M48	—	2	1/C #12	EMERG. GEN. CONTROL PANEL	REMOTE SUPERVISORY CABINET	AMMETER
M48A	—	2	1/C #12			VOLTMETER
M48B	—	2	1/C #12			FREQUENCY METER
M48C	—	2	1/C #12	MASTER SUPERVISORY CABINET	POWER CONTROL BOARD	AMMETER
M48D	—	2	1/C #12			VOLTMETER
M48E	—	2	1/C #12			FREQUENCY METER
A48A	—	2	1/C #12	EMERG. GEN. CONTROL PANEL	REMOTE SUPERVISORY CABINET	ALARM - EMERG. GENERATOR FAILURE
A48B	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	ALARM - GENERATOR FAILURE
P49	—	3	1/C #12	AC POWER DIST. PANEL #P1WS	EMERG. GEN CONTROL PANEL	FEEDER - BATTERY CHARGER (R2)
D49	—	3	1/C #10	120/240V DC MAIN PANEL	EMERG. GEN. CONTROL PANEL	MISC CONTROLS
P50	—	3	1/C #12 & 1/C #10G	AC POWER DIST. PANEL #P1WS	COMB. MAGNETIC STARTER	FEEDER - AIR COMPRESSOR
P50A	—	3	1/C #12 & 1/C #10G	COMB. MAGNETIC STARTER	AIR COMPRESSOR MOTOR (5HP)	
C50	—	2	1/C #12		PRESSURE SWITCH	CONTROL
P51	—	3	1/C #12	AC POWER DIST. PANEL #P1WS	EMERG. GENERATOR JUNCTION BOX	MISC. 480V POWER FEEDER
P52	—	2	1/C #12	AC POWER DIST. PANEL #P2WS	EMERG. GENERATOR JUNCTION BOX	FEEDER - ENGINE WATER HEATER #1 (R2)
P53	—	2	1/C #8			- LUBR. OIL HEATER & CIRC. PUMP VIA CONTACTOR (R2)
P54	—	2	1/C #12			- ENGINE WATER HEATER #2 (R2)
P55	—	3	1/C #8 & 1/C #10G	EMERG. GENERATOR CONTROL PANEL	60A DISC. SWITCH ON ROOF	FEEDER
P55A	—	3	1/C #8 & 1/C #10G	60A DISC SWITCH ON ROOF	RADIATOR FAN MOTOR (20HP)	
P56	—	3	1/C #12 & 1/C #10G	EMERG. GENERATOR CONTROL PANEL	30A DISC SWITCH	FEEDER
P56A	—	3	1/C #12 & 1/C #10G	30A DISC SWITCH	JACKET WATER PUMP (7½HP)	
P57	—	2	1/C #12	AC POWER DIST. PANEL #P2WS	REMOTE SUPERVISORY CABINET	120V AC FEEDER
D58	—	3	1/C #4/0	MAIN DC PANEL	AUTO TRANSFER SWITCH	TUNNEL EMERG. LTG. FEEDER
D58A	♦ —	2	1/C #10	DC DISTRIBUTION PULLBOX GRP IN	PORTAL STOP LIGHTS	POWER FAILURE STOP LIGHTS
P58	—	2	1/C #12	AC POWER DIST. PANEL #P2WS	AUTO TRANSFER SWITCH	CONTROL POWER
A58	—	2	1/C #12	AUTO TRANSFER SWITCH	REMOTE SUPERVISORY CABINET	ALARM - EMERG. LTGS. ON
A58A	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	
A1	—	2	1/C #12	2.4KV POWERCENTER, TRANSF. 1B	REMOTE SUPERVISORY CABINET	ALARM - GROUND NEUTRAL
A1A	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	
A2	—	2	1/C #12	2.4KV POWERCENTER, TRANSF. 1A	REMOTE SUPERVISORY CABINET	
A2A	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	
A7	—	2	1/C #12	LTG. & HTG. RELAY & CONTROL CABINET	REMOTE SUPERVISORY CABINET	- POWER PANELS OFF
A7A	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	
P59	—	2	1/C #10 & 1/C #10G	AC POWER DIST. PANEL #P2WS	RECEPTACLE AT RADIATOR FAN	120V AC FEEDER
D60	♦ —	3	1/C #4	MAIN DC PANEL	DC DISTRIBUTION PULLBOX GRP IN	TELEPHONE MARKER & SIGNAL LIGHT FDR. TUNNEL CKT 'D2'
P61		2	1/C #12	AC POWER DIST PANEL #P2WS	LOCAL CONTROL BOARD	120V AC FDR - TEMP CONTROLLERS
SC5	—	1	2/C #16	TELEPHONE CABINET 'T4W'	LTG. & HTG. RELAY & CONTROL CABINET	CONTACTOR RESET
SC9	♦ —	2	1/C #12	REMOTE SUPERVISORY CABINET	PORTAL SIGNAL LIGHT WIRED 'X'	TRAFFIC CONTROL
SC10	♦ —	2	1/C #12		PORTAL SIGNAL LIGHT W/GREEN ARROW	
SC11	♦ —	2	1/C #12		PORTAL SIGNAL STOP LIGHT	
SC12	—	1	6PR #18 SHLD	TELEPHONE CABINET 'T4W'	REMOTE SUPERVISORY CABINET	SUPERVISORY CONTROL

CONDUIT NO	CONDUIT SIZE & KIND	WIRE OR CABLE QUANT.	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
C62	—	3	1/C #12	480V SWITCHGEAR, UNIT 'K'	REMOTE SUPERVISORY CABINET	CONTROL
C62A	—	3	1/C #12			INDICATING LIGHTS
C62B	—	3	1/C #12	REMOTE SUPERVISORY CABINET	POWER CONTROL BOARD	CONTROL
C62C	—	2	1/C #12			INDICATING LIGHTS
C63	—	4	1/C #12	480 MCC No. 4S	REMOTE SUPERVISORY CABINET	CONTROL - FAN WS-5 BULKHEADS
C63A	—	2	1/C #12			IND. LGT.
C63B	—	4	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C63C	—	2	1/C #12			IND. LGT.
C64	—	4	1/C #12	480V MCC No. 4S	REMOTE SUPERVISORY CABINET	CONTROL - FAN WS-6 BULKHEADS
C64A	—	2	1/C #12			IND. LGT.
C64B	—	4	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C64C	—	2	1/C #12			IND LGT.
C65	—	4	1/C #12	480V MCC No. 4S	REMOTE SUPERVISORY CABINET	CONTROL - FAN WS-7 BULKHEADS
C65A	—	2	1/C #12			IND. LGT.
C65B	—	4	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	CONTROL
C65C	—	2	1/C #12			IND. LGT
A27	—	1	1/C #12	LOCAL CONTROL BOARD	REMOTE SUPERVISORY CABINET	ALARM - FAN DAMPER FAILURE
A27A	—	1	1/C #12	MASTER SUPERVISORY CABINET	FAN CONTROL BOARD	
P66	—	4	1/C #8 & 1/C #8 G	POWER DIST. PNL #5 (EXISTING) (SA, SP BRKR CKT NO. 11)	LP-GAS SYSTEM POWER PANEL	LPG SYSTEM FEEDER
C66	—	1	5/C #22 (600V)	LPG STORAGE TANK LEVEL TRANSMITTER	GAS METER ROOM LEVEL METER	LPG TANK LEVEL INDICATION (R1)
A66	—	2	1/C #12	BLENDER CONTROL PANEL	GAS METER ROOM ALARM PANEL	BLENDER ALARM (R1)

NOTES:

1. FOR WIRE & CABLE, SEE D.O.H. SPECIFICATIONS, SECTION # 720
2. ♦ INDICATES WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION.

6526

PRINT RECORD						
DATE ISSUED	[illegible]					
REVISION NO.	0	0	[illegible]			
FOR	FCE	PRF	[illegible]	FIA	AFC	AFC
CUSTOMER	5	5	12	5	2R.S	2R.6
FIELD	—	—	—	—	—	—
INTRA CO.	15	15	1	1	15	15

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST VENTILATION BUILDING
CONDUIT & CABLE SCHEDULE
SHEET NO. 2

DRAWN	JEU	7/5/74
CHECKED	RPJ	7/10/74
SCALE: NONE	ORDER NO: C14570	

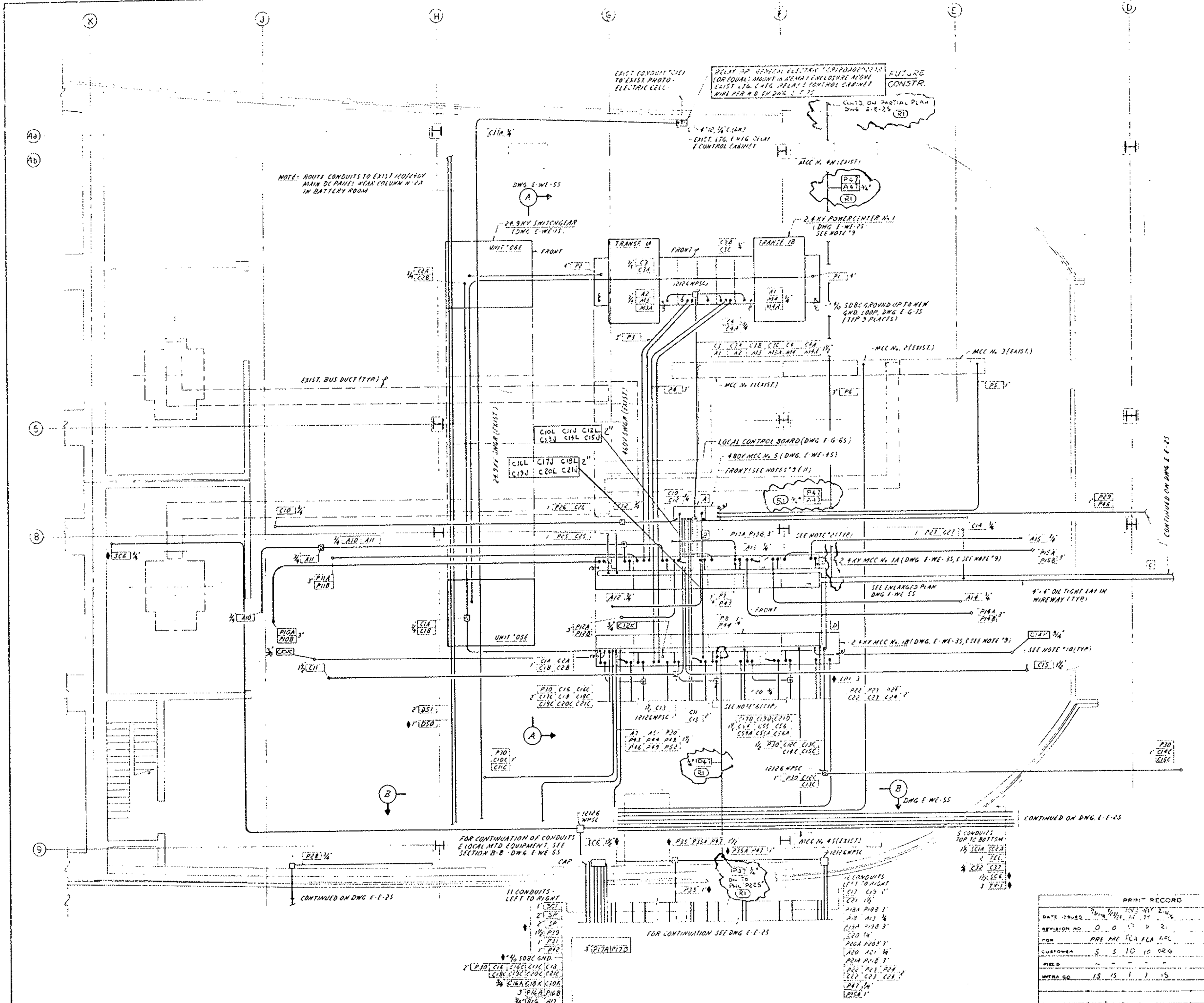
DRAWING NO. E-W-5S

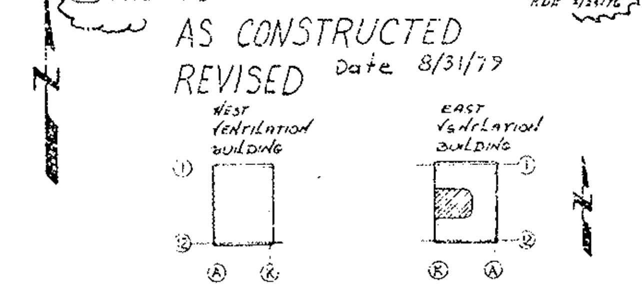
DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
Rev. October, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	COLORADO	I 70-3(82) 220	42	208

(R1) ADDED MIXED GAS SYSTEM CIRCUITS P47 & A47

AS CONSTRUCTED
REVISED Date 8/31/79





KEY PLAN

LEGEND

- CONDUIT RUN EXPOSED
- EMBEDDED CONDUIT
- EXPOSED CONDUIT COMING TOWARD OBSERVER
- EXPOSED CONDUIT GOING AWAY FROM OBSERVER
- FLEX. CONDUIT
- NEW GROUND CABLE
- JUNCTION OR PULLBOX

NOTES

1. CONDUIT & EQUIPMENT SHOWN DIAGRAMMATICALLY ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK POSSIBLE EXISTING & NEW INTERFERENCES SUCH AS CONDUIT, EQUIPMENT, PIPES & DUCTS & STRUCTURAL BEFORE INSTALLING NEW EQUIPMENT & CONDUIT.
2. FOR POWER FACTOR CORRECTION CAPACITOR MOUNTING & CONNECTION, SEE DETAIL ON DWG. E-WE-105.
3. FOR CONDUIT & CABLE SCHEDULES, SEE DWG. E-E-55, E-WE-75, 85, & E-T-105
4. FOR GROUNDING PLAN & DETAILS, SEE DWG. E-G-75
5. ♦ INDICATES WIRE CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION.
6. ALL JUNCTION BOXES TO BE 886 NPSC EXCEPT AS NOTED.
7. FOR ELEMENTARY DIAGRAMS SEE DWG. E-G-35, 45
8. FOR PANEL SCHEDULES, SEE DWG. E-G-55
9. CONTRACTOR TO PREPARE FOR & PROVIDE LEVELING CHANNELS FOR POWERCENTER & MCC'S.
10. FOR CONDUIT GOING UP, SEE DWG. E-E-35
11. GROUND LOCAL CONTROL BOARD W/ #4 SDBC GND. FROM MCC No. 5 GROUND BUS.
12. [A] INDICATES CIRCUIT LIST SHOWN ON DWG. E-WE-55

PRINT RECORD

DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	0	0	2
FOR	PRE	PRE	FCA	FCA	AFC
CUSTOMER	5	5	10	10	ORG
FIELD	–	–	–	–	–
INTRA CO.	15	15	1	1	15

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
EAST VENTILATION BUILDING
ELECTRICAL EQUIPMENT ROOM
POWER & CONTROL PLAN

DRAWN	H.S.	1-19-74
CHECKED	RPJ	1-25-74
SCALE 3/16"=1'-0"	ORDER NO. C14570	

DRAWING NO. E-E-1S

6526 — PROFESSIONAL ENGINEER — STATE OF COLORADO

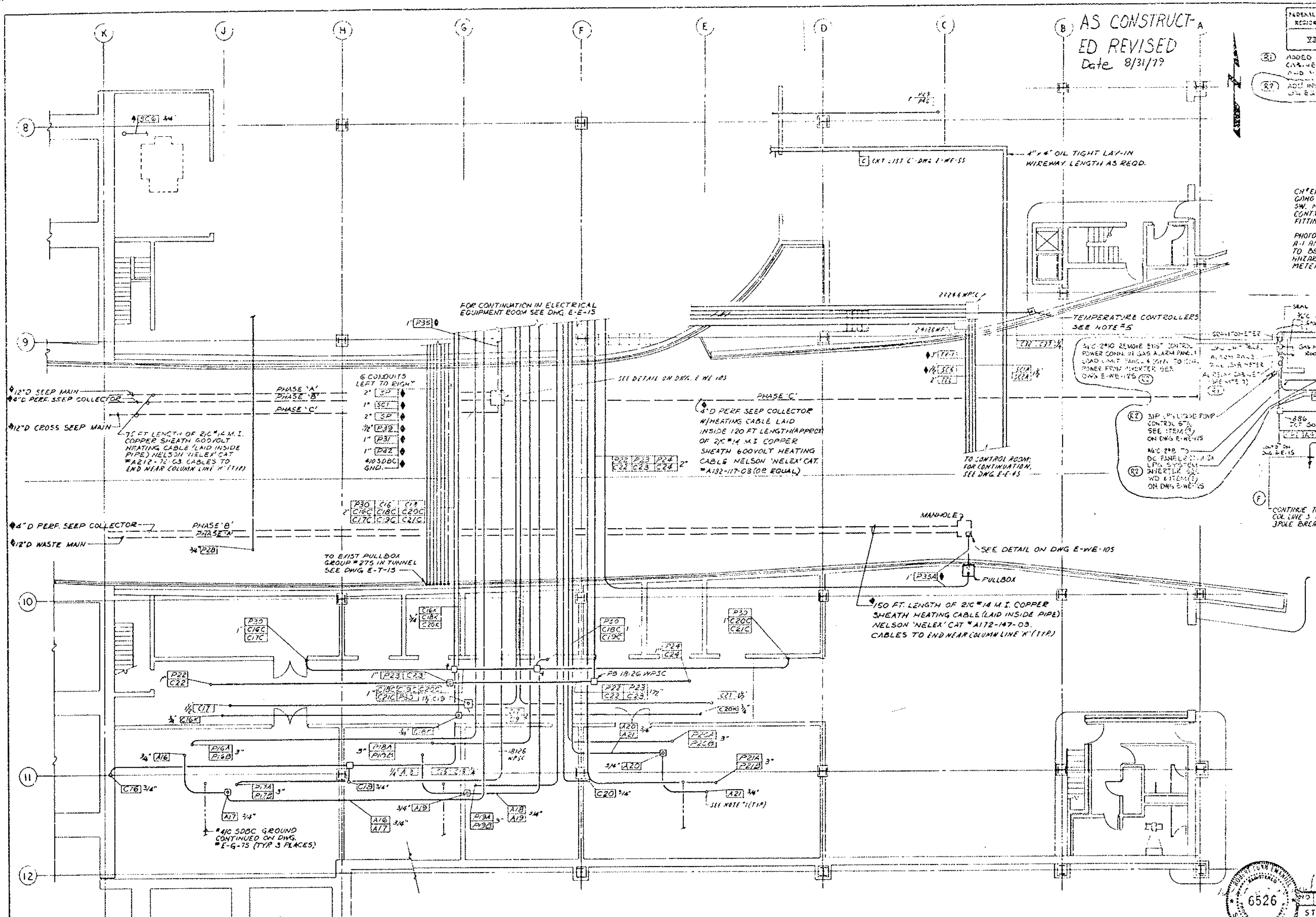
DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 126
Rev. October, 1972

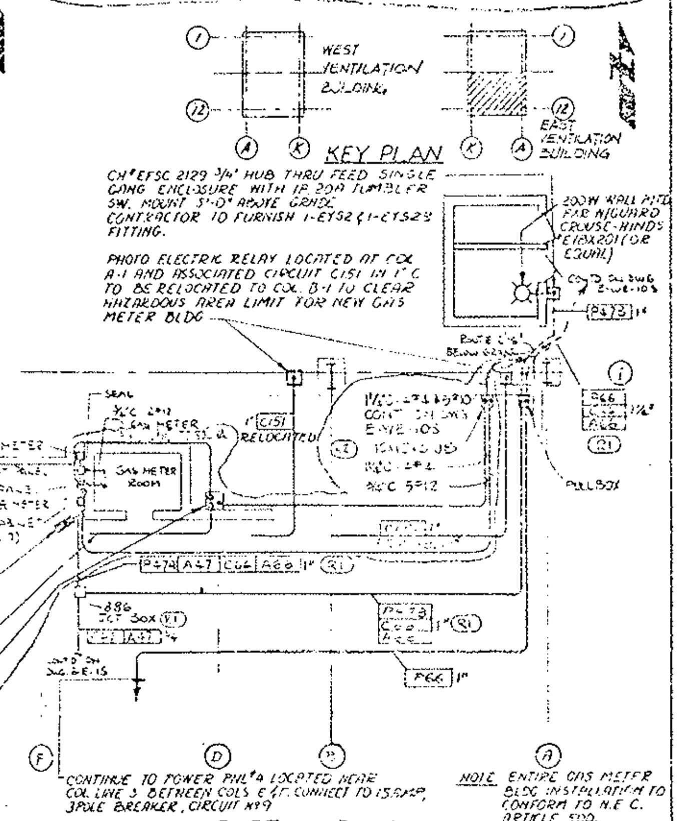
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VII	COLORADO	I 70-3(82) 220	43	208

AS CONSTRUCTED REVISED
Date 8/31/79

(R1) ADDED MIXED GAS SYSTEM CIRCUITS P47A, P47B, A47, C66, A66, ALARM RELAY CABINET, NOTE #7 AND REVISED GAS METER ROOM TO SHOW PANELS AND METERS. DRW 2/10/76, FAE 4/14/76

(R2) ADD INVERTER, LPG LIQUID PUMP CONT. STA., FEEDERS FROM DC DISC. PNL & DIS EQUIP ELEC. PNL FOR LPG SYSTEM.





CONTINUE TO POWER PNL #4 LOCATED NEAR COL. LINE 3 BETWEEN COLS E & F. CONNECT TO 15 AMP, 3 POLE BREAKER, CIRCUIT #29

NOTE: ENTIRE GAS METER BLDG INSTALLATION TO CONFORM TO N.E.C. ARTICLE 500.

PARTIAL PLAN GAS METER BLDG & ADDITIONAL CIRCUITING

NOTES:

1. FOR CONDUITS GOING UP SEE DWG. E-E-35.
2. FOR LEGEND & GENERAL NOTES SEE DWG. E-E-15
3. ALL BOXES TO BE 8"x8"x6" WPSC EXCEPT THOSE MARKED WITH AN * TO BE 12"x12"x6 WPSC
4. FOR CONDUIT & CABLE SCHEDULE, SEE DWG. E-WE-75, E-WE-85, E-E-55, E-W-45 & E-W-55.
5. TEMPERATURE CONTROLLER TO BE HONEYWELL, CAT. #T654A-1495 W/20 FOOT CAPILLARY & BULB, RANGE -50° TO +100°F, 120VAC, SPDT CONTACTS
   1 REQD FOR LIGHTING CKT. -SET @ -20°F FOR CONTACT CLOSURE.
   1 REQD FOR HEATING CKT. -SET @ 10°F FOR CONTACT CLOSURE.
   MOUNT CONTROLLERS IN NEMA 4 ENCLOSURE & COIL EXCESS CAPILLARY BETWEEN TUNNEL LINING & SIDING (OR EQUAL). CONTRACTOR TO PROVIDE 6" DIA. SCREENED OPENING IN TUNNEL SIDING & MOUNT TEMPERATURE CONTROLLER BULBS BEHIND OPENING.
6. ♦ INDICATES WIRE, CABLE, & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION
7. (R1) PROVIDE 12"H x 10"W x 6"D ALARM RELAY CABINET WITH 4-2POLE RELAYS W/120VAC COIL & N.C. CONTACTS G.E. #700222AA (SEE SCHEMATIC ON DWG E-G-45)

6526

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
EAST VENTILATION BUILDING
ROADWAY FLOOR
POWER & CONTROL PLAN

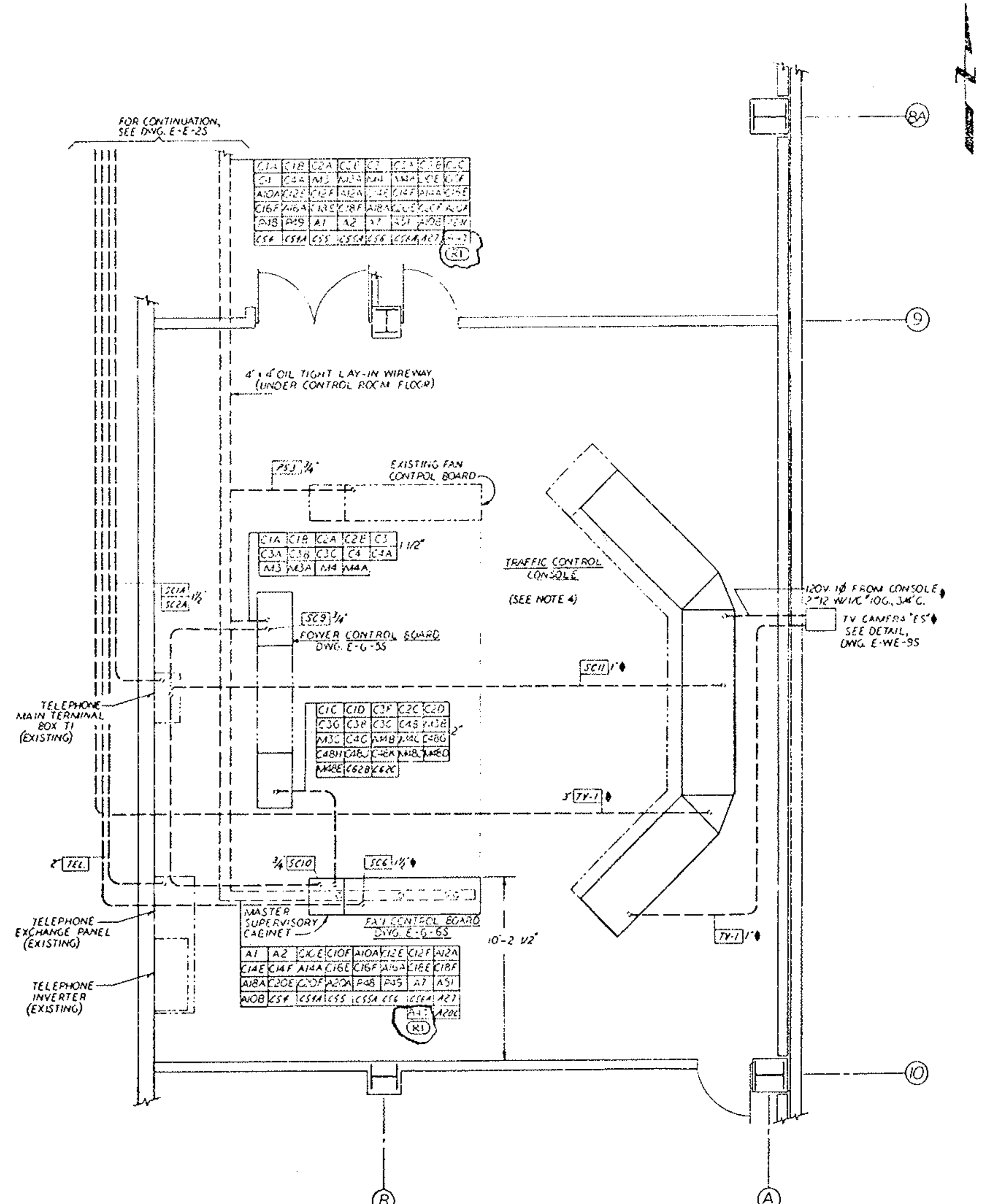
PRINT RECORD							
DATE ISSUED							
REVISION NO.	0	0			0	R1	R2
FOR	FRE	PRE	FCA	FCA	FCA	AFC	AFC
CUSTOMER	5	5	10	10	5	ORIG	ORIG
FIELD	–	–	–	–	–	–	4
INTRA CO.	15	15	1	1	1	15	15

DRAWN	CHECKED	SCALE	ORDER NO	DRAWING NO.
JEU	PPJ	1/8"=1'-0"	C14570	E-E-2S

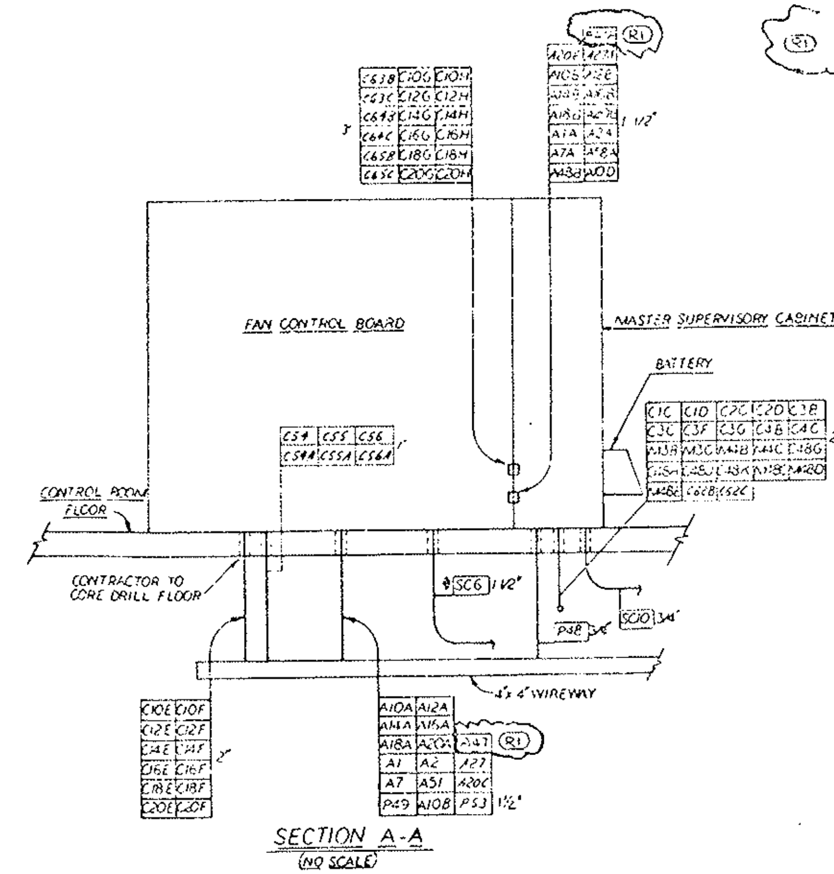
D.O.H. FORM NO. 126
Rev. October, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	45	203

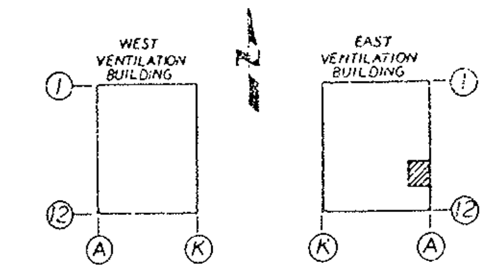
(R1) ADDED MIXED GAS SYSTEM ALARM CIRCUITS A47 & A47A



CONTROL ROOM PLAN



SECTION A-A
(NO SCALE)



KEY PLAN

AS CONSTRUCTED
REVISED Date 8/31/79

NOTES:
1. FOR ELEMENTARY DIAGRAMS, SEE DWGS. E-G-3S & 4S.
2. FOR CONDUIT & CABLE SCHEDULES, SEE DWGS. E-E-5S & E-W-4S & 5S.
3. ♦ INDICATES WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION.
♦4. FUTURE CONSTRUCTION TO FURNISH & INSTALL TV MONITORS (13) & PORTAL TV CAMERA "ES". ALSO MODIFY TRAFFIC CONTROL CONSOLE.

PRINT RECORD				
DATE ISSUED				
REVISION NO.	0	0	0	R
FOR	PRE	PRE	ECA	AFC
CUSTOMER	5	5	10	ORG
FIELD	-	-	-	-
INTRA CO.	15	15	1	15

REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
EAST VENTILATION BUILDING
CONTROL ROOM
POWER AND CONTROL PLAN

DRAWN H.S. | SCALE 1/4" = 1'-0" | ORDER NO. C14570 | DRAWING NO. E-E-4S

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
[illegible]	COLORADO	I70-3(82)220	46	208

(R1) ADDED MIXED GAS SYSTEM CIRCUITS P47A, P47B, A47, C66, A66 & NOTE #4, REVISED CKT P47 DPW 2/11/76 RDE [illegible]

AS CONSTRUCTED
REVISED Date 8/31/79

CONDUIT NO	CONDUIT SIZE & KIND	WIRE OR CABLE QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
C1A	—	3	1/C #12	24.9KV SWITCHGEAR, UNIT # 055	POWER CONTROL BOARD	CONTROL
C1B	—	3	1/C #12	↓	↓	INDICATING LIGHTS
C2A	—	3	1/C #12	24.9KV SWITCHGEAR, UNIT # 06E		CONTROL
C2B	—	3	1/C #12	↓		INDICATING LIGHTS
C3	—	3	1/C #12	2.4KV POWERCENTER NO.1 FOR BKR. 1A		CONTROL
C3A	—	3	1/C #12	↓		INDICATING LIGHTS
C3B	—	3	1/C #12	2.4KV POWERCENTER NO.1 BUS TIE		CONTROL
C3C	—	3	1/C #12	↓		INDICATING LIGHTS
M3	—	2	1/C #12	2.4KV POWERCENTER NO.1, AUX. SECT. 1A		AMMETER
M3A	—	2	1/C #12	↓		VOLTMETER
C4	—	3	1/C #12	2.4KV POWERCENTER NO.1 FOR BKR 1B		CONTROL
C4A	—	3	1/C #12	↓		INDICATING LIGHTS
M4	—	2	1/C #12	2.4KV POWERCENTER NO.1, AUX SECT. 1B		AMMETER
M4A	—	2	1/C #12	↓	↓	VOLTMETER
C10E	—	7	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	EXHAUST FAN NO 5, CONTROL
C10F	—	6	1/C #12	↓	↓	↓ IND. LIGHTS
A10A	—	2	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	EXHAUST FAN NO. 5, FAN FAILURE ALARM
A10B	—	1	1/C #12		↓	↓ [illegible]
A10C	—	2	1/C #12	↓	2.4KV MCC No. 1A UNIT #1	ALARM - MOTOR HIGH TEMPERATURE
C12E	—	7	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	EXHAUST FAN NO. 6, CONTROL
C12F	—	6	1/C #12	↓	↓	↓ IND. LIGHTS
A12A	—	1	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	EXHAUST FAN NO 6, FAN FAILURE ALARM
A12B	—	2	1/C #12	↓	2.4KV MCC No. 1A, UNIT #3	ALARM - MOTOR HIGH TEMPERATURE
C14E	—	7	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	EXHAUST FAN NO.7, CONTROL
C14F	—	6	1/C #12	↓	↓	↓ IND. LIGHTS
A14A	—	1	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	EXHAUST FAN NO.7, FAN FAILURE ALARM
A14B	—	2	1/C #12	↓	2.4KV MCC No. 1A UNIT #5	ALARM - MOTOR HIGH TEMPERATURE
C16E	—	7	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	SUPPLY FAN NO.5, CONTROL
C16F	—	6	1/C #12	↓	↓	↓ IND. LIGHTS
A16A	—	1	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	SUPPLY FAN NO.5, FAN FAILURE ALARM
A16B	—	2	1/C #12	↓	2.4KV MCC No. 1B UNIT #1	ALARM - MOTOR HIGH TEMPERATURE
C18E	—	7	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	SUPPLY FAN NO. 6, CONTROL
C18F	—	6	1/C #12	↓	↓	↓ IND. LIGHTS
A18A	—	1	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	SUPPLY FAN NO 6, FAN FAILURE ALARM
A18B	—	2	1/C #12	↓	2.4KV MCC No. 1B UNIT #3	ALARM - MOTOR HIGH TEMPERATURE
C20E	—	7	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	SUPPLY FAN NO 7, CONTROL
C20F	—	6	1/C #12	↓	↓	↓ IND LIGHTS
A20A	—	1	1/C #12	LOCAL CONTROL BOARD	FAN CONTROL BOARD	SUPPLY FAN NO. 7, FAN FAILURE ALARM
A20B	—	2	1/C #12		2.4KV MCC No. 1B UNIT #5	ALARM - MOTOR HIGH TEMPERATURE
A20C	—	1	1/C #12	↓	FAN CONTROL BOARD	↓
P28	—	3	1/C #10	AC POWER DIST PANEL #P1ES	AIR HEAT BURNER FLAME CONTROL PNLS	FEEDER
P30	—	2	1/C #12	AC POWER DIST. PANEL #P2ES	SPEED SWITCH	120V FEEDER
P31	♦—	3	1/C #6	AC POWER DIST. PANEL # P1ES	SOUTH TUNNEL WALL AC PULLBOX GROUP	TRAFFIC CONTROL
P32	—	4	1/C #6	AC POWER DIST PANEL # P1ES	LTG. & HTG. CONTACTOR PANEL	WATER MAIN PIPE HTG. FEEDER
C32	—	2	1/C #12	TEMPERATURE CONTROLLER #2	LTG. & HTG. RELAY & CONTROL CAB.	CONTROL
P33	♦—	4	1/C #6	LTG. & HTG. CONTACTOR PANEL	NORTH TUNNEL WALL AC PULLBOX GROUP	WATER MAIN PIPE HTG. FEEDER
P34	—	4	1/C #6	AC POWER DIST PANEL # P1ES	LTG. & HTG. CONTACTOR PANEL	SEEPAGE DRAIN HTG. FEEDER
P35	♦—	4	1/C #6	LTG. & HTG. CONTACTOR PANEL	NORTH WALL DRAINAGE MANHOLE	SEEPAGE DRAIN HTG. FEEDER
P35A	♦—	3	1/C #6	↓	SOUTH WALL DRAINAGE MANHOLE	↓
P36	—	12	1/C #6	AC POWER DIST PANEL #P1ES	LTG. & HTG CONTACTOR PANEL	TUNNEL INT. ZONES LTG. FEEDER N1,N2,N3
P37	—	12	1/C #6	↓	↓ ↓	↓ ↓ S1,S2,S3
C37	—	2	1/C #12	TEMPERATURE CONTROLLER #1	LTG. & HTG. RELAY & CONTROL CAB.	CONTROL
C37A	—	2	1/C #12	PHOTOELECTRIC CELL RELAY 'PR'		
C37B	—	6	1/C #12	LTG. & HTG. CONTACTOR PANEL	↓ ↓	↓

CONDUIT NO	CONDUIT SIZE & KIND	WIRE OR CABLE QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION	
P38	♦—	12	1/C #6	LTG & HTG. CONTACTOR PANEL	NORTH TUNNEL AC PULLBOX GRP	TUNNEL INT. ZONES LTG. FOR N1,N2,N3	
P39	♦—	12	1/C #6	↓ ↓	SOUTH ↓ ↓	↓ ↓ S1,S2,S3	
P40	—	3	1/C #10	AC POWER DIST PANEL # P1ES	15KVA TRANSFORMER PRIMARY	FEEDER	
P40A	—	4	1/C #6	15KVA TRANSFORMER SECONDARY	AC POWER DIST. PANEL #P2ES	120/208V FEEDER	
P41	♦—	4	1/C #8 & 1/C #10G	AC POWER DIST. PANEL # P2ES	NORTH TUNNEL WALL AC PULLBOX GRP	TUNNEL RECEPTACLE FEEDER	
P42	♦—	4	1/C #8 & 1/C #10G		SOUTH ↓ ↓	TUNNEL RECEPTACLE FEEDER	
P43	—	2	1/C #12		2.4KV MCC NO. 1A	120V TEST POWER	
P44	—	2	1/C #12		2.4KV MCC NO.1B	↓	
P45	—	2	1/C #12		LTG & HTG RELAY & CONTROL PNL	120V FEEDER	
P46	—	2	1/C #12 & 1/C #10G	↓	ELEVATOR PENTHOUSE	LTG & RECEPTACLE FEEDER	
P47	—	3	1/C #12	POWER PANEL P2ES BKR 6 & 20	LOCAL JCT. BOX	LTG. FEEDER & INSTRUMENTS	(R1)
P47A	—	2	1/C #12	LOCAL JCT. BOX (BKR #20)	MIXED GAS SYSTEM ALARM & CTR PNLS	ALARM & CONTROL POWER	(R1)
P47B	—	2	1/C #12	↓ (BKR #6)	GAS METER BLDG LIGHT	LIGHTING FEEDER	(R1)
A47	—	5	1/C #12	GAS METER RM ALARM RELAY CAB.	ANNUNCIATOR - FAN CONTROL BOARD	MIXED GAS SYSTEM ALARMS	(R1)
P48	—	2	1/C #12	AC POWER DIST. PANEL #P2ES	MASTER SUPERVISORY CABINET	120V FEEDER	
P49	—	2	1/C #12	↓	FAN CONTROL BOARD	↓	
D50	♦—	3	1/C #4	MAIN DC PANEL	DC DISTRIBUTION PULLBOX GROUP '27N'	TEL MARKER & SIGNAL LGT FOR TUNNEL CALL DE	
SC1A	♦—	1	6PR #19 SHLD	TEL. BOX 'T4E'	MAIN TERMINAL BOX 'T1'	SUPERVISORY CONTROL	
SC2A	♦—	1	6PR #19 SHLD		↓	↓	
SC5	♦—	1	2/C #16 SHLD	↓	LTG. & HTG. RELAY & CONTROL CAB	CONTACTOR RESET	
SC6	♦—	1	2/C #16 SHLD	CO ANALYZER CABINET #75	FAN CONTROL BOARD	CONTROL	
SC9	—	1	2/C #16 SHLD	MAIN TERMINAL BOX 'T1'	POWER CONTROL BOARD	CONTACTOR RESET	
SC10	—	2	2/C #16 SHLD		MASTER SUPERVISORY CABINET	SUPERVISORY CONTROL	
SC11	♦—	1	6PR #18 SHLD	↓	TRAFFIC CONTROL CONSOLE	↓	
A1	—	2	1/C #12	2.4KV POWERCENTER, TRANSF. '1B'	FAN CONTROL BOARD	ALARM - GROUND NEUTRAL	
A2	—	2	1/C #12	↓ TRANSF. '1A'		↓	
A7	—	2	1/C #12	LTG & HTG. RELAY & CONTROL CABINET		POWER PANELS OFF	
A27	—	1	1/C #12	LOCAL CONTROL BOARD	↓	↓ FAN DAMPER FAILURE	
TV-1	♦—	—	COAX CABLE (BY MOTOROLA)	PORTAL TV CAMERA 'ES'	TRAFFIC CONTROL CONSOLE		
DS1	—	3	1/C #4/0	MAIN DC PANEL	AUTO. TRANSFER SWITCH	TUNNEL EMERG LTG FEEDER	
PS1	—	2	1/C #12	AC POWER DIST. PANEL #P2ES	↓	CONTROL POWER	
AS1	—	2	1/C #12	AUTO. TRANSFER SWITCH	FAN CONTROL BOARD	ALARM - EMERG. LIGHTS ON	
PS2	—	2	1/C #12	AC POWER DIST PANEL #P2ES	LOCAL CONTROL BOARD	120VAC FDR - TEMP CONTROLLERS	
PS3	—	2	1/C #12	EXIST FAN CONTROL BOARD	NEW FAN CONTROL BOARD	120V CO ANALYZER RECORDER FDR. & Panel alarm	
C54	—	4	1/C #12	480V MCC No. 4S	FAN CONTROL BOARD	CONTROL - FAN ES-5 BULKHEADS	
C54A	—	2	1/C #12	↓	↓	IND LGT. ↓	
C55	—	4	1/C #12	480V MCC No. 4S	FAN CONTROL BOARD	CONTROL - FAN ES-6 BULKHEADS	
C55A	—	2	1/C #12	↓	↓	IND LGT. ↓	
C56	—	4	1/C #12	480V MCC No. 4S	FAN CONTROL BOARD	CONTROL - FAN ES-7 BULKHEADS	
C56A	—	2	1/C #12	↓	↓	IND. LGT. ↓	
PGS	—	4	1/C #8 & 1/C #8 G	POWER DIST PNL #4 (EXISTING) 15 A, 3P. BRKR CIRCUIT #19	LP-GAS SYSTEM POWER PANEL	LPG SYSTEM FEEDER	
C66	—	1	5/C #22 (600V)	LPG STORAGE TANK LEVEL TRANSMITTER	GAS METER ROOM LEVEL METER	LPG TANK LEVEL INDICATION	(R1)
A66	—	2	1/C #12	BLENDER CONTROL PANEL	GAS METER ROOM ALARM PANEL	BLENDER ALARM	(R1)

NOTES:

1. FOR WIRE & CABLE, SEE D.O.H. SPECIFICATIONS, SECTION #720
2. ♦ INDICATES WIRE, CABLE & CONDUIT FURNISHED & INSTALLED BY FUTURE CONSTRUCTION
3. ALARM CIRCUITS HAVE COMMON NEUTRAL INCORPORATED W/CIRCUIT A10A
4. FOR CKT. A47A SEE DWG. E-N-45

6526

STATE OF COLORADO

PRINT RECORD						
DATE ISSUED	[illegible]					
REVISION NO.	0	0				R1
FOR	PRE	PRE	[illegible]	[illegible]	[illegible]	[illegible]
CUSTOMER	5	5	10	5	5	[illegible]
FIELD	—	—		0	0	0
INTRA CO.	15	15		1	1	15

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

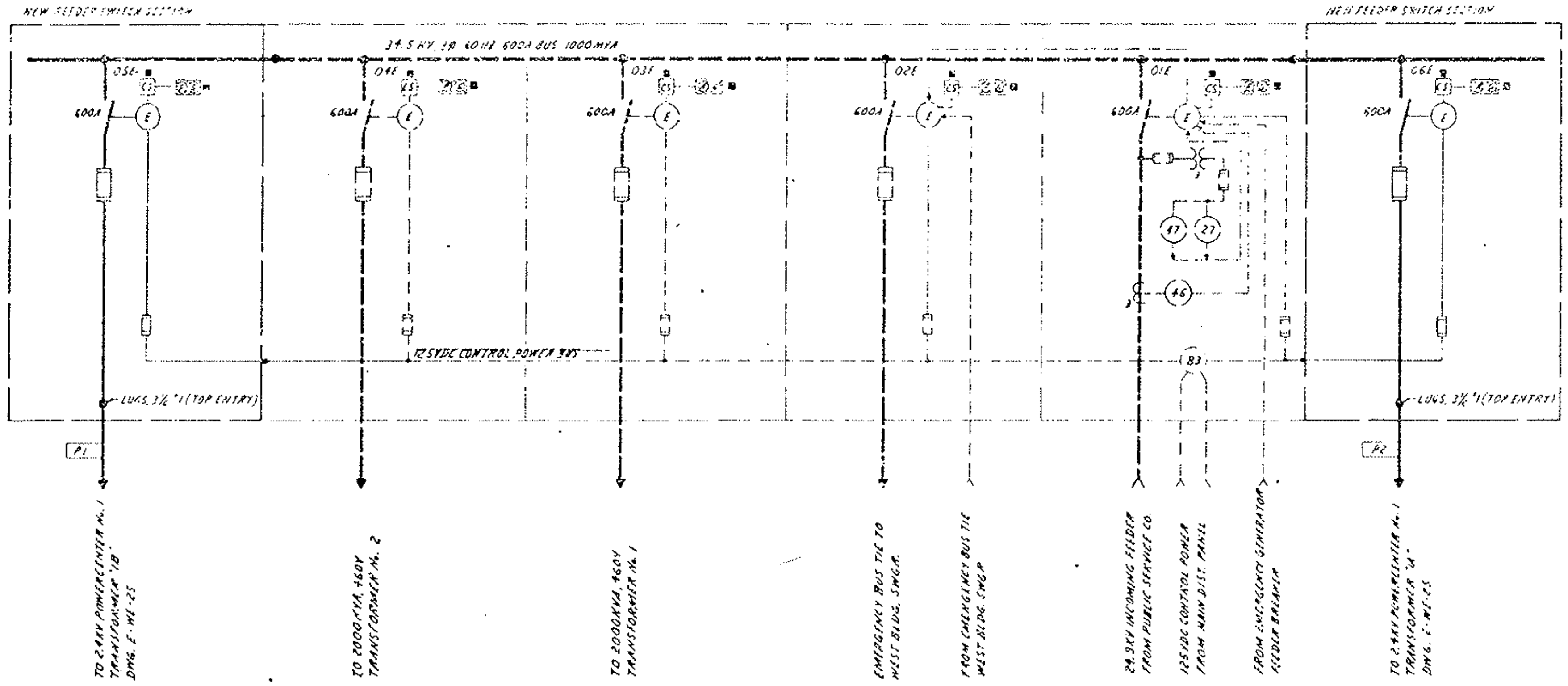
ELECTRICAL
EAST VENTILATION BUILDING
CONDUIT & CABLE SCHEDULE

DRAWN [illegible] CHECKED [illegible]
SCALE NONE
ORDER NO. C14570
DRAWING NO. E-E-56

Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	47	208

AS CONSTRUCTED
NO REVISIONS DATE 8/31/79



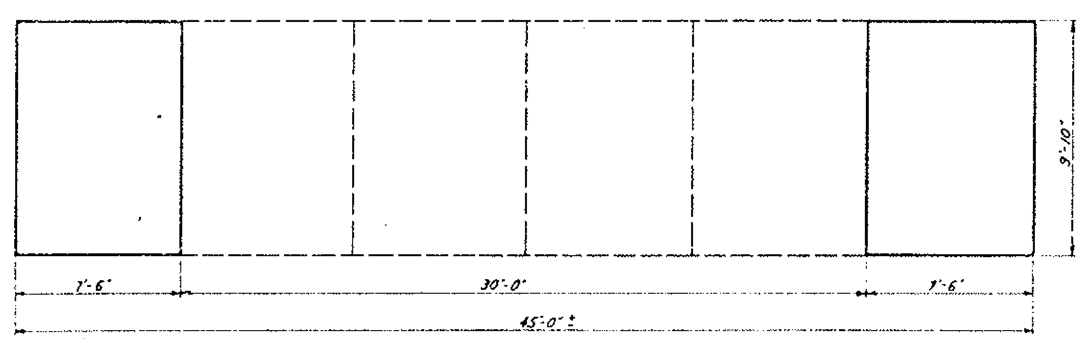
24.9KV (RATED 34.5KV) SWITCHGEAR

LEGEND

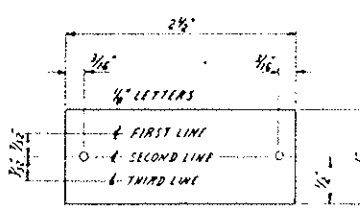
- (E) ELECTRICALLY OPERATED SWITCH
- (27) UNDERVOLTAGE RELAY
- (46) PHASE-BALANCE CURRENT RELAY (FOR SINGLE PHASING PROTECTION)
- (47) PHASE-SEQUENCE VOLTAGE RELAY
- (83) AUTOMATIC TRANSFER RELAY (OR SWITCH)
- CS CONTROL SWITCH
- R RED INDICATING LIGHT "CLOSED"
- G GREEN INDICATING LIGHT "OPEN"
- ■ INDICATES DEVICES LOCATED ON POWER CONTROL BOARD
- DOTTED INDICATES EXISTING EQUIPMENT
- SOLID INDICATES NEW EQUIPMENT
- ELECTRICAL INTERLOCK

NOTES:

1. SWITCHGEAR SHOWN FOR EAST VENT. BLDG. OPPOSITE HAND FOR WEST VENT. BLDG. SUBSTITUTE "W" FOR WEST VENT. BLDG. SWGR UNIT NUMBERS.
2. FOR 2.4KV POWERCENTER No. 1 SINGLE LINE DIAGRAM, SEE DWG. E-WE-2S
3. FOR POWER SUPPLY SINGLE LINE DIAGRAM, SEE DWG. E-G-1S

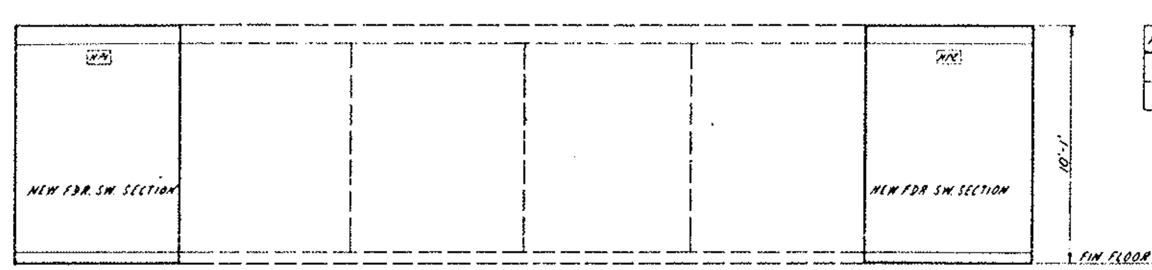


FLOOR PLAN



NAMEPLATE ENGRAVING SCHEDULE

NP No.	FIRST LINE	SECOND LINE	THIRD LINE
1	POWERCENTER No. 1	TRANSFORMER 1B	SOUTH TUNNEL
2	POWERCENTER No. 1	TRANSFORMER 1A	SOUTH TUNNEL



FRONT VIEW

PRINT RECORD

REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
24.9KV SWITCHGEAR
SINGLE LINE DIAGRAM

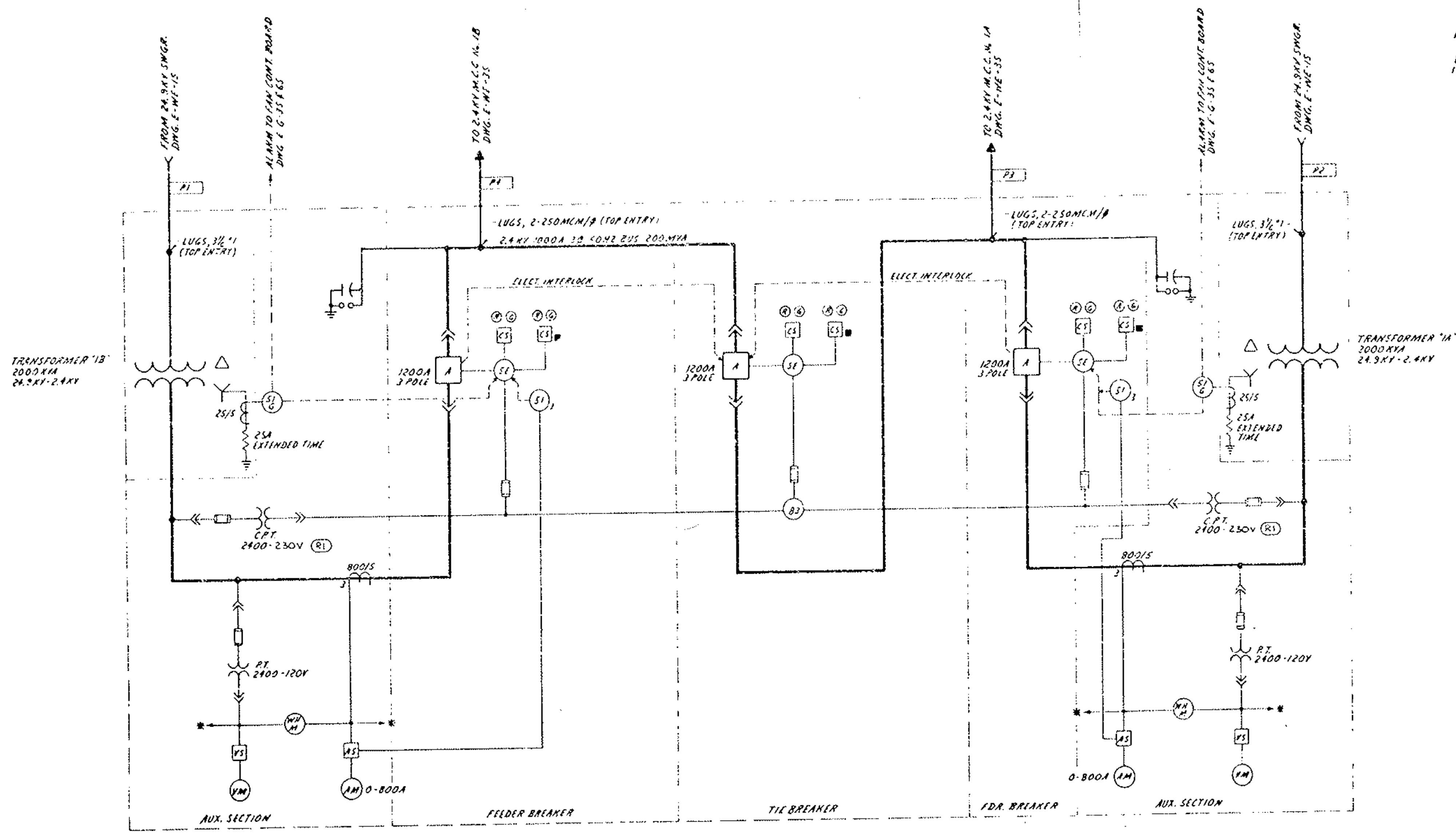
SCALE NONE
ORDER NO. C14570
DRAWING NO. E-WE-1S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 125
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	48	208

AS CONSTRUCTED
REVISED Date 8/31/79

(R1) REVISED CONTROL POWER FROM 120VAC TO 230VAC PER G.E. DWG. SK22392-1 SH. 6 DPW 4/12/75, RDK 4/24/76.
(R2) ADDED OVERCURRENT RELAY SETTINGS DPW 1/1/77



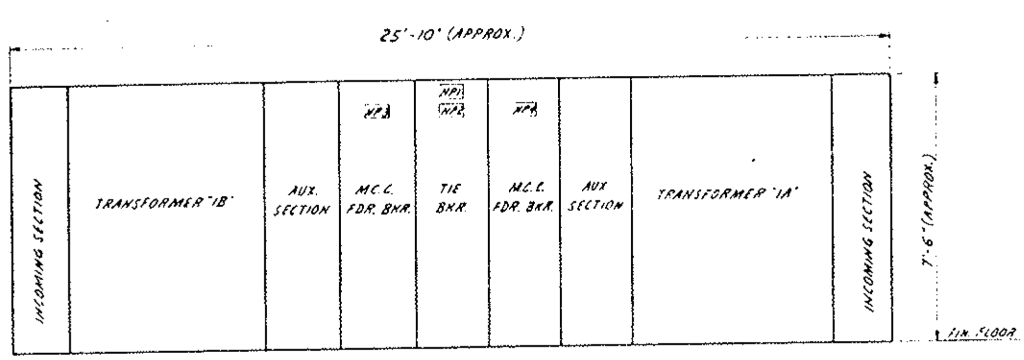
2.4KV POWERCENTER No. 1
SOUTH TUNNEL
(4KV RATED)

LEGEND

- [A]-(SC) AIR CIRCUIT BREAKER W/ STORED ENERGY OPERATOR
- (51) TIME OVERCURRENT RELAY
- (51/G) TIME-OVERCURRENT GROUND RELAY
- (83) AUTOMATIC TRANSFER RELAY (OR SWITCH)
- [AS]-(AM) AMMETER & AMMETER SWITCH
- [VS]-(VM) VOLT METER & VOLT METER SWITCH
- (WH/M) WATTHOUR METER
- ■ INDICATES DEVICE LOCATED IN POWER CONTROL BOARD
- * INDICATES REMOTE METERING ON POWER CONTROL BOARD
- [CS] OPEN-CLOSE CONTROL SWITCH
- SURGE PACK

NOTES:

1. THIS DIAGRAM REPRESENTS (2) TWO POWERCENTERS, ONE FOR EACH VENTILATION BUILDING.
2. SEE DWG. E-G-1S FOR POWER SUPPLY SINGLE LINE DIAGRAM
3. SEE DWG. E-WE-1S FOR 24.9KV SWGR. SINGLE LINE DIAGRAM
4. SEE DWG. E-WE-3S FOR 2.4KV M.C.C. No. 1A & 1B SINGLE LINE DIAGRAM
5. (R2) PHASE OVERCURRENT RELAYS (51) SHALL BE SET ON 4A. TAP AND NO. 2 TIME DAIL.
6. (R2) GROUND FAULT OVERCURRENT RELAYS (51G) SHALL BE SET ON 2A. TAP AND NO. 1 TIME DAIL.



FRONT VIEW

NAMEPLATE SCHEDULE

NP No.	ENGRAVING	SIZE
1	2.4KV POWERCENTER No. 1 SOUTH TUNNEL	5"-2"
2	BUS TIE BREAKER	STD.
3	2.4KV M.C.C. No. 1B FEEDER BREAKER	STD.
4	2.4KV M.C.C. No. 1A FEEDER BREAKER	STD.

PRINT RECORD					
DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	8/77
REVISION NO.	0	0	1	R1	R2
FOR	PRE	PRE	FCN	AFC	AFC
CUSTOMER	5	5	10	ORIG	ORIG
FIELD	-	-	-	-	-
INTRA CO.	15	15	1	15	15

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
2.4KV POWERCENTER
SINGLE LINE DIAGRAM

DRAWN	RPJ	5-1-74
CHECKED	DPW	[illegible]
SCALE	ORDER NO.	
NONE	C14570	

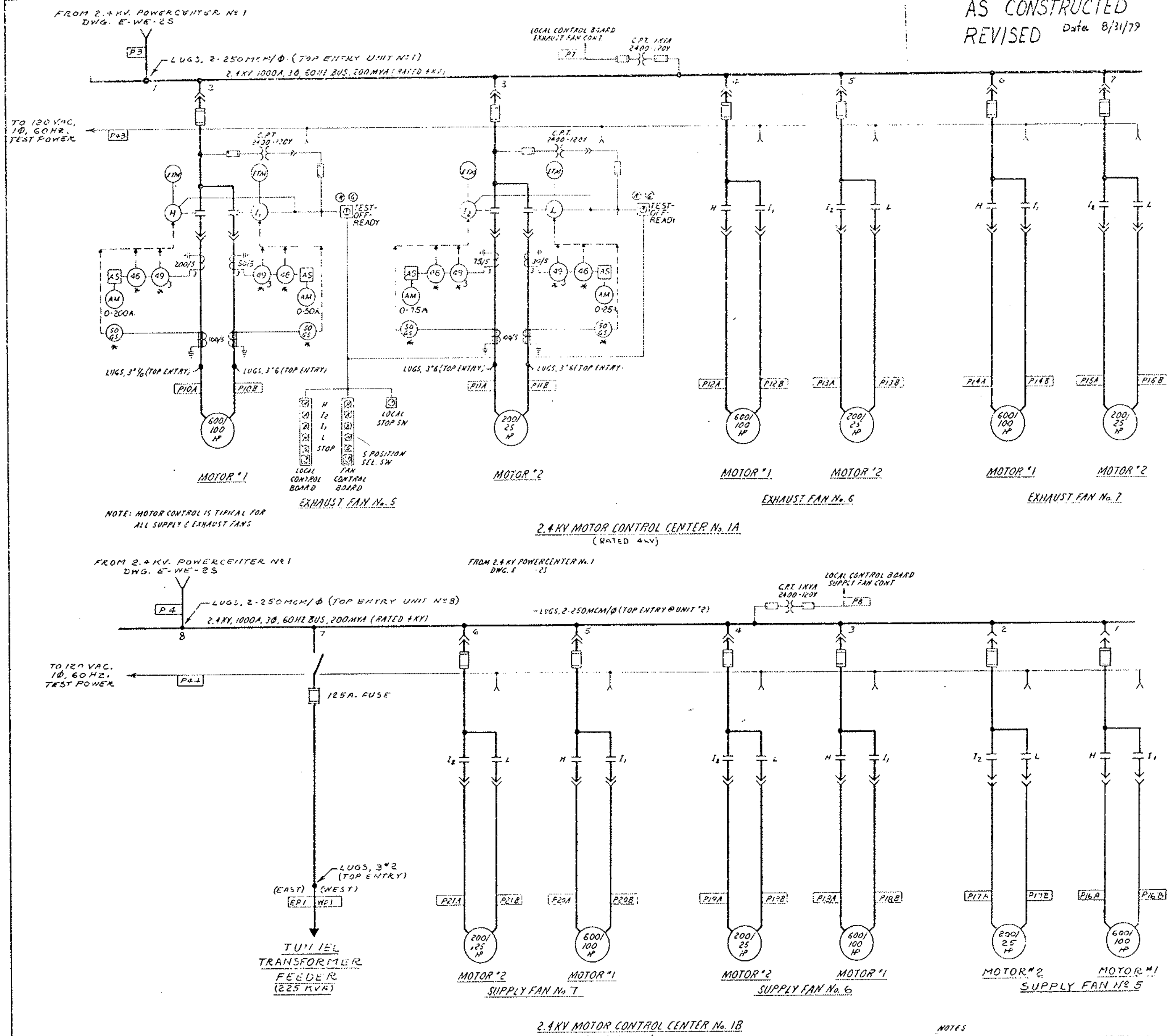
DRAWING NO. E-WE-2S

6526

D.O.H. FORM NO. 126
Rev. October, 1971

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	49	208

AS CONSTRUCTED
REVISED Date 8/31/79



NP No.	ENGRAVING	SIZE	No. REQ'D
1	2.4KV M.C.C. No. 1A SOUTH TUNNEL	5"-2	1
2	2.4KV M.C.C. No. 1B SOUTH TUNNEL	5"-2	1
3	EXHAUST FAN EE-5 MOTOR No. 1	STD	1
4	EXHAUST FAN EE-5 MOTOR No. 2		1
5	EXHAUST FAN EE-6 MOTOR No. 1		1
6	EXHAUST FAN EE-6 MOTOR No. 2		1
7	EXHAUST FAN EE-7 MOTOR No. 1		1
8	EXHAUST FAN EE-7 MOTOR No. 2		1
9	SUPPLY FAN ES-5 MOTOR No. 1		1
10	SUPPLY FAN ES-5 MOTOR No. 2		1
11	SUPPLY FAN ES-6 MOTOR No. 1		1
12	SUPPLY FAN ES-6 MOTOR No. 2		1
13	SUPPLY FAN ES-7 MOTOR No. 1		1
14	SUPPLY FAN ES-7 MOTOR No. 2		1
15	TUNNEL TRANSFORMER FEEDER		1

SUBSTITUTE WEST (W) FOR WEST VENT BLDG MOTOR CONTROL CENTERS.

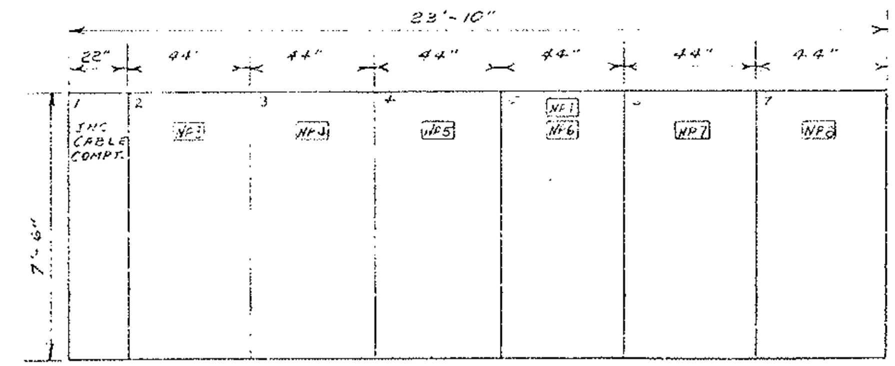
NAMEPLATE SCHEDULE

(R1) REVISED CT RATIOS & AMMETER SCALES FOR 25, 200 & 600HP MOTORS PER G.E. DWG 3606054 SH.2, DELETED DEVICE #27 UNDERVOLTAGE RELAY & INDICATED SOLID STATE TRIP DEVICE

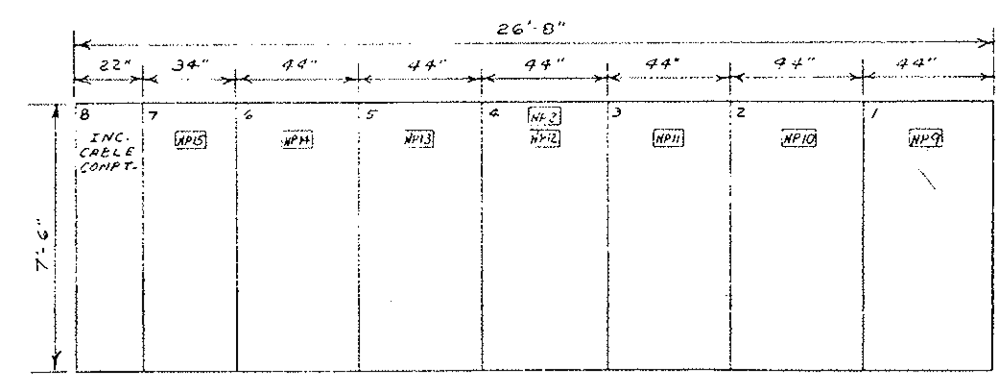
(R2) GENERAL REVISION FOR AS-BUILT EQUIPMENT, ... 8/31/79.

LEGEND

- ✱ PART OF SOLID STATE TRIP DEVICE (P1)
- (46) PHASE-BALANCE CURRENT RELAY (FOR SINGLE PHASING PROTECTION)
- (49) THERMAL OVERLOAD RELAY
- (AS)-(AM) AMMETER SWITCH & AMMETER
- (50 GS) INSTANT. OVERCURRENT GROUND FAULT RELAY
- ---- ELECTRICAL INTERLOCK
- MULTI-SPEED DRAWOUT TYPE CURRENT LIMITING STARTER
- 600/100HP, 1800/900 RPM, HIGH (H) / INTERMEDIATE #1 (I_1) SPEED
- 200/25HP, 1200/600 RPM, INTERMEDIATE #2 (I_2) / LOW (L) SPEED
- POWER FACTOR CORRECTION CAPACITORS
- (ETM) ELAPSED TIME METER - RESET TYPE



2.4KV M.C.C. No. 1A - FRONT VIEW
N.T.S.
(WEST VENT. BLDG. - OPPOSITE HAND)



2.4KV M.C.C. No. 1B - FRONT VIEW
N.T.S.
(WEST VENT. BLDG. - OPPOSITE HAND)

NOTES
1. THIS DRAWING REPRESENTS FOUR MOTOR CONTROL CENTERS TWO FOR THE EAST VENT. BLDG. AS SHOWN AND TWO FOR THE WEST VENT BLDG.
2. SEE DWG. E-WE-2S FOR 2.4KV POWERCENTER No. 1 SINGLE LINE DIAGRAM.
3. FRONT VIEWS OF MCC'S BASED ON GENERAL ELECTRIC LIMITAMP CONTROLLERS.

PRINT RECORD

DATE ISSUED						
REVISION NO	0	0		R1	R1	R2
FOR	PRE	PRE		AFC	AFC	AFC
CUSTOMER	5	5			ORKs	5RG
FIELD	-	-	-	-	-	-
INTRA CO.	15	15	1	15	15	15

6526

NO.	REVISIONS	DATE	BY	CKD

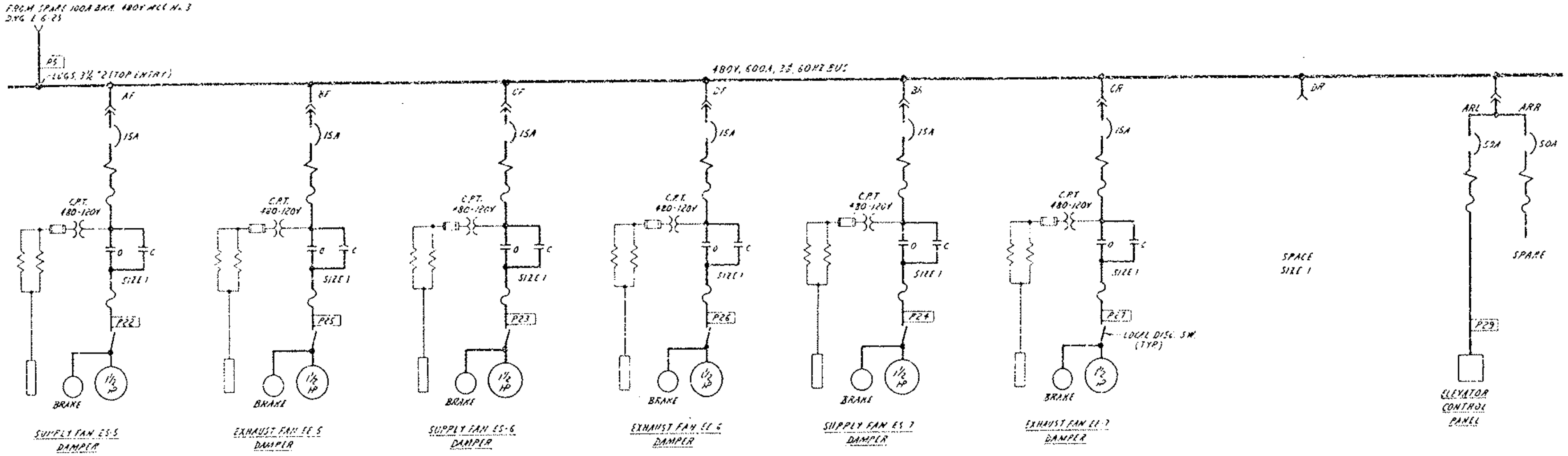
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
2.4KV MOTOR CONTROL CENTERS
SINGLE LINE DIAGRAM

DRAWN: RPJ 6-6-74
CHECKED
SCALE: NONE
ORDER NO: C14570
stearns-roger architects
DRAWING NO. E-WE-3S

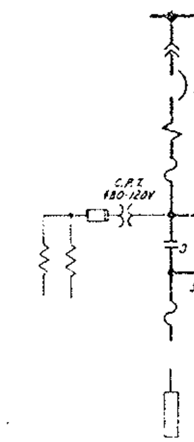
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	50	208

AS CONSTRUCTED
NO REVISIONS DATE



480V MOTOR CONTROL CENTER No. 5
SOUTH TUNNEL

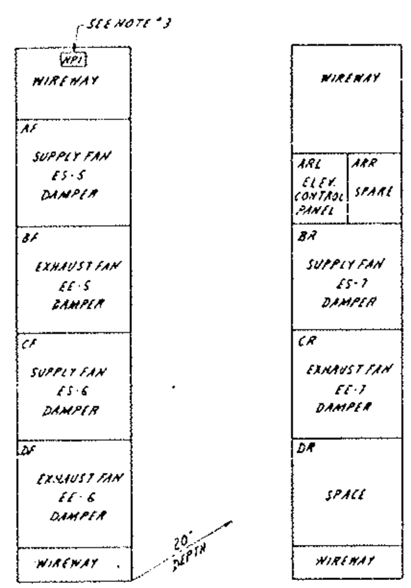
LEGEND



15A MOLDED CASE AIR CIRCUIT BREAKER THERMAL MAGNETIC, TRIP SIZE AS INDICATED

REVERSING MOTOR STARTER OPEN-CLOSE OPERATION NEMA SIZE 1 W/3 OVERLOAD RELAYS CONTROL POWER TRANSFORMER W/FUSED SECONDARY

LOCAL AND/OR REMOTE CONTROLS & INTERLOCKS (SEE ELEMENTARY DIAGRAM)



FRONT

REAR

NOTES

1. 480V M.C.C. No. 5 SHALL BE PROVIDED FOR BACK-TO-BACK MOUNTING OF BREAKER-STARTER ASSEMBLIES, CAPABLE OF INTERCHANGING WITH EXISTING M.C.C. - GENERAL ELECTRIC 7700 LINE
2. FOR POWER DISTRIBUTION SINGLE LINE DIAGRAM, SEE DWG E-6-25
3. NP1 TO BE 5"×2" WITH 1/8" LETTERS TO READ AS FOLLOWS:
   480V MOTOR CONTROL CENTER No. 5
   SOUTH TUNNEL
   ALL UNITS TO HAVE STANDARD SIZE NAMEPLATES, ENGRAVED AS SHOWN ON SINGLE LINE DIAGRAM. SUBSTITUTE WEST (W) FOR WEST VENT. BLDG. MOTOR CONTROL CENTER
4. THIS DRAWING REPRESENTS TWO MOTOR CONTROL CENTERS, ONE FOR THE EAST VENT. BLDG. AS SHOWN AND ONE FOR THE WEST VENT. BLDG.

6526
STATE OF COLORADO

PRINT RECORD			
DATE ISSUED	[illegible]		
REVISION NO.	0	0	0
FOR	[illegible]		
CUSTOMER	5	3	2
FIELD	-	-	-
INTRA CO.	15	15	1

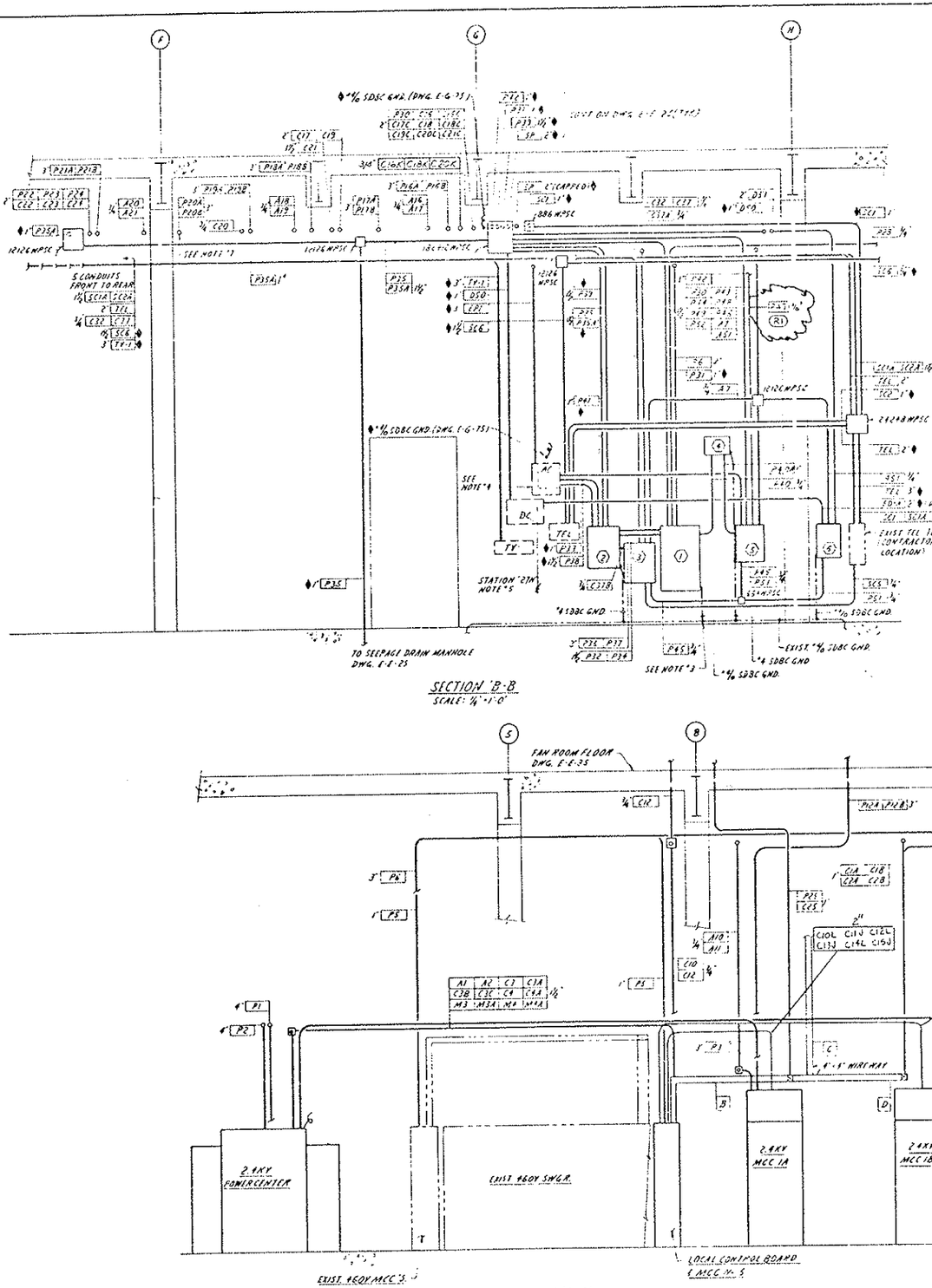
NO.	REVISIONS	DATE	BY	CKD

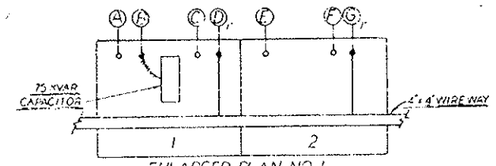
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
480V MOTOR CONTROL CENTER No.5
SINGLE LINE DIAGRAM

DRAWN	R.P.J.	6-10-74
CHECKED	[illegible]	[illegible]
SCALE	ORDER NO.	
NONE	C14570	

DRAWING NO. E-WE-4S





DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 125
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	51	208

(R1) ADDED MIXED GAS SYSTEM CIRCUITS P47 & A47 DPW 2/4/76 RDS 4/14/76

SECTION 'B-B'
SCALE: 1/4"=1'-0"

ENLARGED PLAN NO. 1

2.4 KV MCC NO. 1A & MCC NO. 1B
(PLAN SHOWN FOR 1 FAN, TYPICAL-6 PLACES)

FAN	A	B	C	D	E	F	G
EE-5	P10A P10B	P10C	A10	C10A C10B A10C	P11A P11B	A11	C11A C11B A11A
EE-6	P12A P12B	P12C	A12	C12A C12B A12B	P13A P13B	A13	C13A C13B A13A
EE-7	P14A P14B	P14C	A14	C14A C14B A14B	P15A P15B	A15	C15A C15B A15A
ES-5	P16A P16B	P16C	A16	C16A C16B A16B	P17A P17B	A17	C17A C17B A17A
ES-6	P18A P18B	P18C	A18	C18A C18B A18B	P19A P19B	A19	C19A C19B A19A
ES-7	P20A P20B	P20C	A20	C20A C20B A20A	P21A P21B	A21	C21A C21B A21A

CIRCUIT LIST 'A'

P16	C22A	C23A	C24A	C25A	C26A	C27A	P25	P26	P28
P23	P24	P27	W/#? SDBC GND.						

MCC NO.5 TO LOCAL CONTROL BOARD VIA 2" NIPPLE.

CIRCUIT LIST 'B'

P25	C10A	C10B	C10C	C11A	C11B	C11C	C12A	C12B	C12C	P27	C27
C13A	C13B	C13C	C14A	C14B	C14C	C15A	C15B	C15C	C15	P24	C24
C16A	C16B	C16C	C17D	C19D	C21D	A10C	A11A	A12B	A13A	P23	C23
C17A	C17B	C17C	A14B	C18	C18A	C18B	C18C	A15A	C19A	P22	C22
C19E	C19C	A16B	C20	C20A	C20B	C20C	A17A	C21A	C21B	P8	
C21C	A18B	P46	P52	P45	C25	P46	C26	C3	C3A	P7	
C3B	C3C	C4	C4A	M3	M3A	M4	M4A	C10E	C10F	P27	
A10A	C12E	C12F	A12A	C14E	C14F	A14A	C16E	C16F	A16A	A20B	
C18E	C18F	A18A	C20E	C20F	A20A	A1	A2	A19A	A20C	A21A	C25C
C10J	C12J	C14J	C16J	C18J	C20J	C10K	C12K	C14K	C16K	C18K	C20K

WIREWAY FROM LOCAL CONTROL BOARD

CIRCUIT LIST 'C'

C1A	C1B	C2A	C2B	C3	C3A	C3B	C3C	C4	C4A
M3	M3A	M4	M4A	C10E	C10F	A10A	C12E	C12F	A12A
C14E	C14F	A14A	C16E	C16F	A16A	C18E	C18F	A18A	C20E
C20F	A20A	P48	P49	A1	A2	A7	A51	A20B	
C54	C54A	C55	C55A	C56	C56A	A17	A20C	A47	

WIREWAY TO CONTROL ROOM (R1)

CIRCUIT LIST 'D'

C1A	C1B	C2A	C2B	C10C	C11C	C12C	C13C	C14C	C15C
C16	C16A	C16B	C16C	—	C17A	C17B	C17C	P22	C19
C18A	C18B	C18C	P23	C19A	C19B	C19C	P24	C20C	C20A
C20B	C20C	C22	C21A	C21B	C21C	C23	P43	P16	P18
P49	P52	P50	C24	A7	A51	A14B	A17A	A15B	A13A
C11D	C13D	C21D	C54	C54A	C55	C55A	C56	C55A	A20B
C16J	C18J	C20J	C10K	C12K	C14K	C16K	C18K	P8	A21A
C20K	C23C								P47

(R1)

WIREWAY BETWEEN 2.4 KV MCC #1A & 1B

LEGEND

① 480Y/277 V AC POWER DISTRIBUTION PANEL (P1ES), CIRCUIT BREAKER TYPE CDP WESTINGHOUSE (OR EQUAL). SEE DWG. E-G-9S FOR SCHEDULE.

② LIGHTING & HEATING CONTACTOR PANEL, W/8-30 A., 3P, 480V. CONTACTORS (120 V. COILS), NEMA I ENCLOSURE. SEE WIRING DIAG. DWG. E-T-7S.

③ LIGHTING & HEATING RELAY & CONTROL CABINET, NEMA I ENCLOSURE. SEE WIRING DIAGRAM ON DWG. E-T-7S.

④ LIGHTING TRANSFORMER, 480-208/120 V., WALL-MOUNTED, NON-VENT TYPE EPT, W/2-2 1/2% FCAN & FCBN TAPS, 15 KVA, WESTINGHOUSE CAT. NO. 6E962 (OR EQUAL).

⑤ 120/208 V. AC POWER DISTRIBUTION PANEL (P2ES). 50 A. MAIN CIRCUIT BREAKER WESTINGHOUSE CAT. NO. NGB 24-48-050, SURFACE MOUNTED (OR EQUAL). SEE DWG. E-G-9S FOR SCHEDULE.

⑥ AUTO-TRANSFER SWITCH – ~~DOUBLE THROW~~ CONTACTOR, 30 A., 3 POLE, 12V/240 V. DC, W/120 V. AC COIL, W/AUX. 1PDT CONTACT, NEMA I ENCLOSURE, ZENITH CAT. NO. 6QT33A (OR EQUAL). WIRING DIAG. DWG. E-G-4S.

AS CONSTRUCTED
REVISED Date 8/31/79

NOTES-

1. WORK THIS DRAWING WITH DWGS. E-E-1S & E-E-2S.
2. FOR LEGEND AND GENERAL NOTES, SEE DWG. E-E-1S.
3. USE CADWELD TYPE GROUND CONNECTIONS FOR GND. TAPS.
4. CONTRACTOR TO PROVIDE H.V. BARRIER IN AC. PULLBOX.
5. PULL BOXES-STATION 27N ARE EXISTING & HAVE EXIST. GROUND TIED INTO EXIST. #4/0 GROUND LOOP.
6. ITEMS #1 THRU #6 TO BE MOUNTED ON UNISTRUT #P1000 CHANNEL (OR EQUAL). ITEMS #1,2,5 & 6 TO HAVE TOP OF BOXES @ 6'-0" ABOVE FLOOR; TOP OF ITEM #3 TO BE 5'-0" ABOVE FLOOR; TOP OF ITEM #4 TO BE 11'-6" ABOVE FLOOR.
7. CORE DRILL WALL FOR CONDUITS & SEAL VOIDS W/DUXSEAL (OR EQUAL).

SECTION 'A-A'
SCALE: 1/4"=1'-0"

MIXED GAS TERMINAL STRIP

652

PRINT RECORD						
DATE ISSUED	1/24	4/1/74	7/12/74	7/31/74	3/4/75	5/18/76
REVISION NO.	0	0	0	0	0	R1
FOR	PRE	PRE	FCA	FCA	FCA	AFC
CUSTOMER	5	5	10	10	5	ORG
FIELD	—	—	—	—	—	—
INTRA CO.	15	15	1	1	1	15

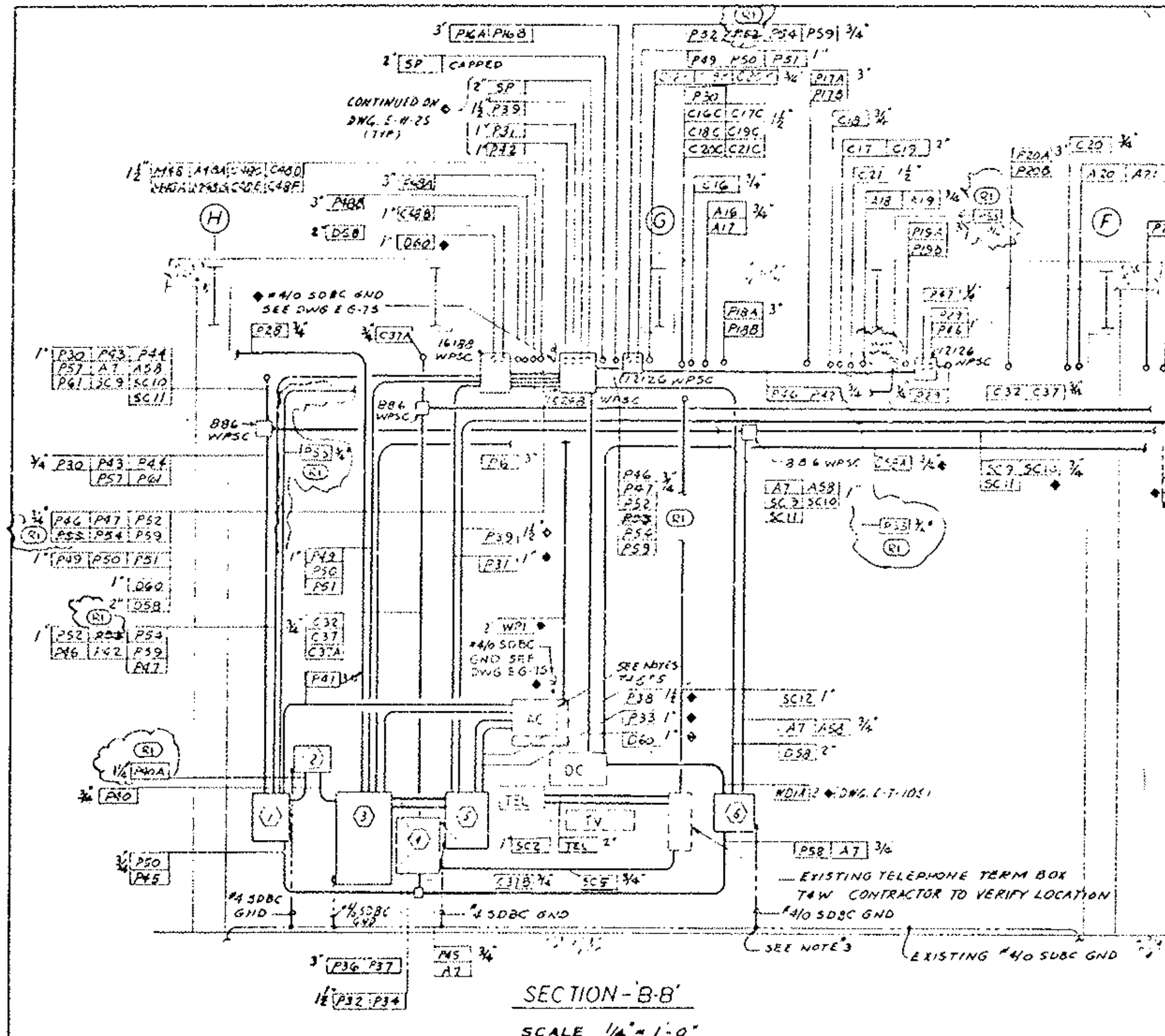
NO	REVISIONS	DATE	BY	CK'D

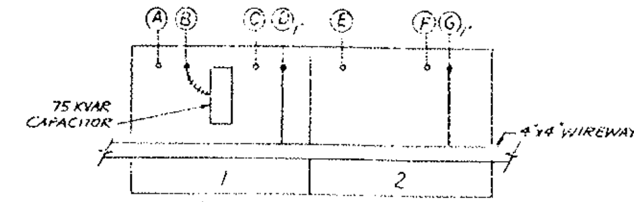
STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
CONDUIT SECTIONS & DETAILS
SHEET NO. 1

DRAWN	H.S.	7-cu-74
CHECKED	R.P.J.	1-31-74
SCALE NOTED	ORDER NO. C14570	

DRAWING NO.
E-WE-6S





ENLARGED PLAN NO. 1
2.4 KV MCC No 1A & MCC No 1B
(PLAN SHOWN FOR 1 FAN TYPICAL 6-PLACES)

FAN	A	B	C	D	E	F	G
EE-5	P10A P10B	P10C	A10	C10A C10B A10C	P11A P11B	A11	C11A C11B A11A
EE-6	P12A P12B	P12C	A12	C12A C12B A12C	P13A P13B	A13	C13A C13B A13A
EE-7	P14A P14B	P14C	A14	C14A C14B A14C	P15A P15B	A15	C15A C15B A15A
ES-5	P16A P16B	P16C	A16	C16A C16B A16C	P17A P17B	A17	C17A C17B A17A
ES-6	P18A P18B	P18C	A18	C18A C18B A18C	P19A P19B	A19	C19A C19B A19A
ES-7	P20A P20B	P20C	A20	C20A C20B A20C	P21A P21B	A21	C21A C21B A21A

CIRCUIT LIST 'A'

P22	P23	P24	P25	P26	P27				
C22A	C23A	C24A	C25A	C26A	C27A				

& #4 SDBC GND.
FROM MCC #5 TO LOCAL CONTROL BOARD VIA 2" NIPPLE

CIRCUIT LIST 'B'

P57	A7	C19A	SC9	C16A	P25	C13C	C25	C18A	C17D	C63
SC11	C11A	C19B	A58	C16B	P26	C17A	C26	C18B	C19D	C63A
C10	C11B	C19C	C12	C16C	P27	C17B	C27	C18C	C21D	C64
C10A	C11C	P8	C12A	C20	SC10	C17C	[illegible]	P7		C64A
C10B	C15A	C22	[illegible]	C20A	[illegible]	C21A	[illegible]	P22		C65
C10C	C15B	C23	C12C	C20B	C13A	C21B	[illegible]	P23		C65A
P61	C15C	C24	[illegible]	C20C	C13B	C21C	[illegible]	P24		[illegible]
A10C	A11A	A12C	A13A	A14C	A15A	A16C	A17A	A18C	A19A	A20C
C10J	C12J	C14J	C16J	C18J	C20J	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C22K										

FROM LOCAL CONTROL BOARD TO WIREWAY

CIRCUIT LIST 'C'

P57	C10E	C10F	C18E	C18F	A16A	A58	SC9	SC10	SC11
C12E	C20E	A18A	A10A	C14E	C16E	A12A	A7	A20A	A27
C12F	C20F	A20A	A10B	C14F	C16F	A14A	A10C		
C63	C63A	C64	C64A	C65	C65A				

& #4 SDBC GND.
FROM LOCAL CONTROL BOARD TO REMOTE SUPERVISORY CABINET VIA 3" NIPPLE

CIRCUIT LIST 'D'

P57	P61	C19C	C16A	P8	C20C	C21A	C24	P43	C18
SC9	P30	P22	C16B	C17C	C20B	C21B	A7	A58	C18A
SC10	C19A	C22	C17A	C20	P23	C21C			C18B
SC11	C19B	C16	C17B	C20A	C23	P24			C18C
C17D	C19D	C21D	C63	C63A	C64	C64A	C65	C65A	
A15C	A17A	A18C	A19A	A20C	A21A	C16J	C18J	C20J	C10K
C12K	C14K	C16K	C18K	C20K					

WIREWAY BETWEEN 2.4 KV MCC'S #1A & 1B

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3W	COLORADO	I 70-3(82)220	52	208

(R1) REVISED FOR EMERG GENERATOR WATER HEATER #1 & #2 AND LUBE OIL PUMP & HEATER POWER REQD. AS SHOWN. JBT/DPW 7/22/76

LEGEND

(R1) ① 120/208 V. AC. POWER DISTRIBUTION PANEL (P2WS) 100A MAIN CIRCUIT BREAKER WEST CAT # NQB 24-4B-050, SURFACE MOUNTED (OR EQUAL) SEE DWG E-G-95 FOR SCHEDULE.

(R1) ② LIGHTING TRANSFORMER, 480-208/120 V, WALL MOUNTED, NON-VENT TYPE EPT W/2-2½% FCAN & FCBN TAPS 30KVA WEST. CAT #6E4397 (OR EQUAL)

③ 480 Y 277V AC POWER DISTRIBUTION PANEL (P1WS) CIRCUIT BREAKER TYPE CDP WEST (OR EQUAL) SEE DWG E-G-95 FOR SCHEDULE.

④ LIGHTING & HEATING RELAY & CONTROL CABINET, NEMA 1, ENCLOSURE. SEE WIRING DIAGRAM ON DWG. ET-75.

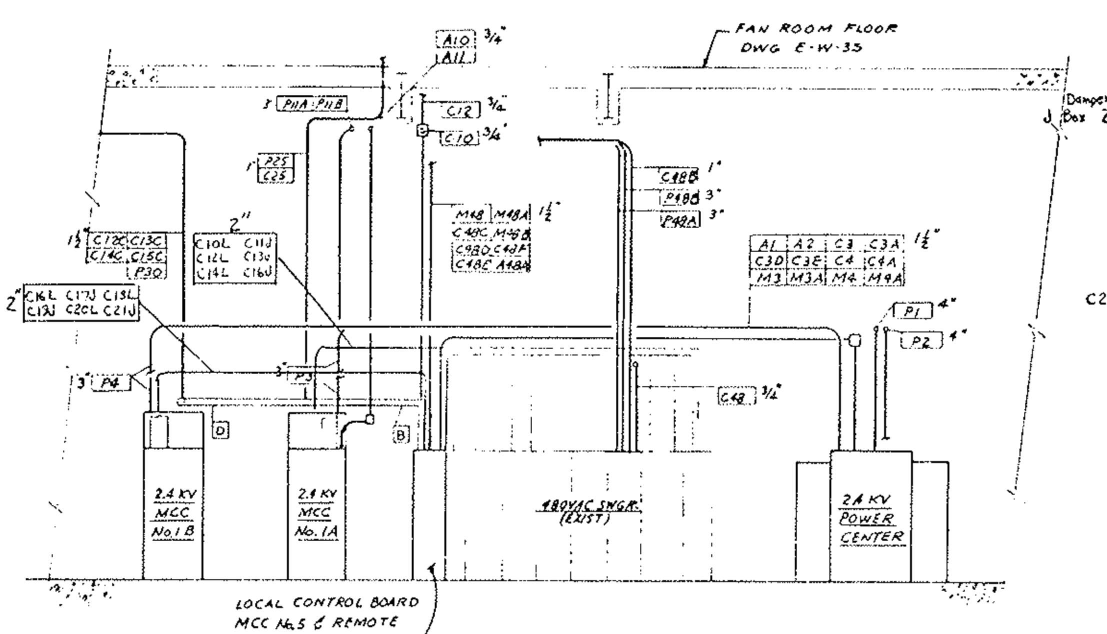
⑤ LIGHTING & HEATING CONTACTOR PANEL W/8-30A, 3 POLE 480V AC CONTACTORS (120V COILS) NEMA 1, ENCLOSURE SEE WIRING DIAGRAM DWG ET-75

⑥ AUTO-TRANSFER SWITCH - ~~DOUBLE THROW~~ CONTACTOR 30A, 3 POLE 120/240V DC. W/120 V COIL. W/AUX SPDT CONTACT. NEMA 1, ENCLOSURE. ZENITH CAT # GQT33A (OR EQUAL) WIRING DIAGRAM - DWG. E-G-45.

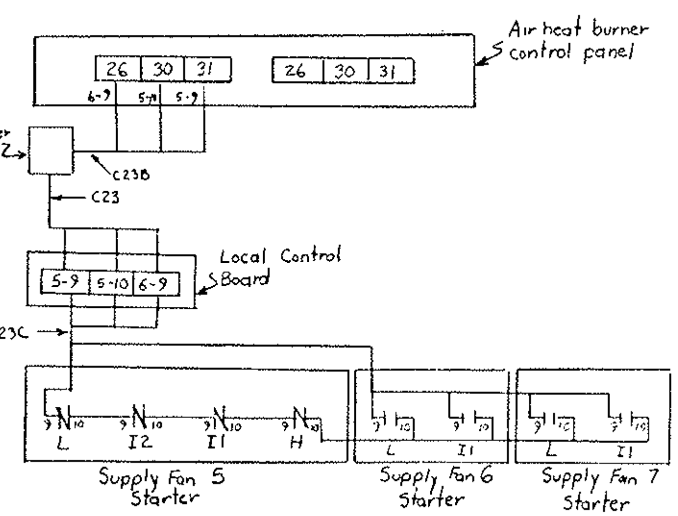
NOTES

1. WORK THIS DRAWING WITH DWG'S E-W-15 & E-W-25.
2. FOR LEGEND & GENERAL NOTES SEE DWG E-W-15.
3. USE CADWELD TYPE GROUND CONNECTIONS FOR GND TAPS.
4. CONTRACTOR TO PROVIDE H.V. BARRIER IN AC. PULLBOX.
5. PULLBOXES @ STATION 'IN' ARE EXISTING & HAVE GROUNDS TIED INTO EXISTING #4/0 GROUND LOOP.
6. ITEMS #1 THRU #6 TO BE MOUNTED ON UNISTRUT # P1000 CHANNEL (OR EQUAL) ITEMS #1, 3, 5 & 6 TO HAVE TOP OF BOXES @ 6'-0" ABOVE FLOOR. TOP OF ITEM #4 TO BE 5'-0" ABOVE FLOOR. TOP OF ITEM #2 TO BE 9'-0" ABOVE FLOOR.
7. CORE DRILL WALL FOR CONDUITS & SEAL VOIDS W/ DUXSEAL (OR EQUAL).

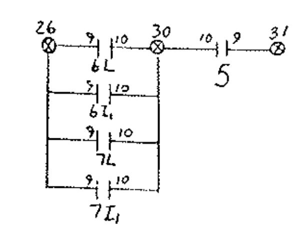
AS CONSTRUCTED
REVISED Date 8/31/79



SECTION 'A-A'
SCALE 3/16" = 1'-0"



AIR HEAT BURNER - FAN INTERLOCK



Partial air heat burner wiring diagram

PRINT RECORD					
DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO	0	0	0	0	R1
FOR	PRE	PRE	FCA	FCA	APS
CUSTOMER	5	5	10	10	20.6
FIELD	—	—	—	—	—
INTRA CO.	15	15	1	1	15

6526

REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
CONDUIT SECTIONS & DETAILS
SHEET NO. 2

DRAWN	CEW	7-24-74
CHECKED	RPJ	7-31-74
SCALE	ORDER NO	
AS NOTED	C14570	

DRAWING NO. E-WE-6S

D.O.H. FORM NO. 125
Rev. October, 1971

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3X	COLORADO	I70-3(82)220	53	208

AS CONSTRUCTED
REVISED Date 8/31/79

CONDUIT NO	CONDUIT SIZE & KIND	QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
P1	—	3	1/C #1(27KV SHLD)	24.9 KV SWITCHGEAR UNIT #05	2.4KV POWER CENTER NO.1, TRANSF.1B	FEEDER
C1	—			NOT USED		
C1A	—	—	———	REFERENCE ONLY	———	
P2	—	3	1/C #1(27KV SHLD)	24.9KV SWITCHGEAR UNIT #06	2.4KV POWER CENTER NO.1, TRANSF.1A	FEEDER
C2	—			NOT USED		
C2A	—	—	———	REFERENCE ONLY	———	
P3	—	6	1/C #250MCM(5KV SHLD)	2.4KV POWER CENTER NO.1	2.4KV MCC NO.1A	FEEDER (2 PER Ø)
C3	—	—	———	REFERENCE ONLY	———	
P4	—	6	1/C #250MCM(5KV SHLD)	2.4KV POWER CENTER NO 1	2.4KV MCC NO.1B	FEEDER (2 PER Ø)
C4	—	—	———	REFERENCE ONLY	———	
P5	—	3	1/C #2 (600V)	EXIST. 480V MCC NO.3, 100A BKR.	480V MCC NO 5	FEEDER
P6	—	4	1/C #4/0(600V)	EXIST. 480V MCC NO.2, 225A BKR.	AC POWER DIST. PANEL "PIES(PIWS)	↓
P7	—	2	1/C #12 (600V)	2.4KV MCC No. 1A CONTROL PWR. TRANSF.	LOCAL CONTROL BOARD	CONTROL POWER FEEDER
P8	—	2	1/C #12 (600V)	2.4KV MCC No. 1B CONTROL PWR. TRANSF.	↓	↓
P10A	—	3 / 1	1/C #1/0(5KV SHLD) / 1/C #6 G	2.4KV MCC NO.1A, UNIT #1	EXHAUST FAN NO.5, MOTOR #1	FEEDER - HIGH SPEED
P10B	—	3	1/C #6(5KV SHLD)	↓	↓	- INTERMEDIATE #1 SPEED
P10C	—	3 / 1	1/C #6 (5KV SHLD) / 1/C #6 G	↓	75KVAR CAPACITORS	POWER CORRECTION
C10	—	3	1/C #12 (600V)	LOCAL CONTROL BOARD	LOCAL EMERG. STOP-RUN SEL. SW.	CONTROL
C10A	—	6	1/C #12 (600V)	2.4 KV MCC NO.1A, UNIT #1	LOCAL CONTROL BOARD	↓
C10B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C10C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C10D	—		NOTE #4	SPEED SWITCH	MAGNETIC PICKUP	
C10E	—	—	———	REFERENCE ONLY	———	↓
C10I	—	2	1/C #12 (600V)	2.4KV MCC NO 1A, UNIT #1	2.4KV MCC NO. 1A UNIT #2	EXHAUST FAN NO 5 MOTOR #1 INTLK TO MOTOR #2
C10J	—	2	1/C #12 (600V)	↓	LOCAL CONTROL BOARD	EXHAUST FAN #5, DAMPER RESET
C10K	—	2	1/C #12 (600V)	EXHAUST FAN #5	↓	EXHAUST FAN #5, REVERSE ROTATION SWITCH
A10	—	1	2/C #16 SHLD	2.4 KV MCC NO. 1A UNIT #1	MOTOR #1 RTD	ALARM
A10A	—	—	———	REFERENCE ONLY	———	↓
C10L		4	1/C #12 (600V)	Local Control Board	Exhaust Fan #5, Mtr #1	Lod-Trak Interlock
C11J		4	1/C #12 (600V)	Local Control Board	Exhaust Fan #5, Mtr #2	Lod-Trak Interlock
P11A	—	3 / 1	1/C #6(5KV SHLD) / 1/C #6 G	2.4 KV MCC NO 1A, UNIT #2	EXHAUST FAN NO.5, MOTOR #2	FEEDER-INTERMEDIATE #2 SPEED
P11B	—	3	1/C #6(5KV SHLD)	↓	↓	- LOW SPEED
P11C	—			NOT USED		
C11	—	1	2/C #16 SHLD	FAN BEARING TEMPERATURE SWITCH	LOCAL CONTROL BOARD	CONTROL NOTE #3
C11A	—	6	1/C #12 (600V)	2.4KV MCC NO.1A, UNIT #2		↓
C11B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C11C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C11D	—			NOT USED		
A11	—	1	2/C #16 SHLD.	2.4KV MCC No. 1A, UNIT #2	MOTOR #2 RTD	ALARM
A11A	—	2	1/C #12		LOCAL CONTROL BOARD	↓ MOTOR HIGH TEMP.
C11I		2	1/C #12 (600V)	↓	2.4KV MCC NO. 1A UNIT #1	EXHAUST FAN NO 5 MOTOR #2 INTLK TO MOTOR #1
P12A	—	3 / 1	1/C #1/0(5KV SHLD) / 1/C #6 G	2.4KV MCC NO.1A, UNIT #3	EXHAUST FAN NO.6, MOTOR #1	FEEDER - HIGH SPEED
P12B	—	3	1/C #6(5KV SHLD)	↓	↓	- INTERMEDIATE #1 SPEED
P12C	—	3 / 1	1/C #6 (5KV SHLD) / 1/C #6 G	↓	75KVAR CAPACITORS	POWER CORRECTION
C12	—	3	1/C #12 (600V)	LOCAL CONTROL BOARD	LOCAL EMERG. STOP-RUN SEL. SW.	CONTROL
C12A	—	6	1/C #12 (600V)	2.4KV MCC NO. 1A, UNIT #3	LOCAL CONTROL BOARD	↓
C12B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C12C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C12D	—		NOTE #4	SPEED SWITCH	MAGNETIC PICKUP	
C12E	—	—	———	REFERENCE ONLY	———	↓
C12I	—	2	1/C #12 (600V)	2.4KV MCC NO.1A, UNIT #3	2.4KV MCC NO.1A, UNIT #4	EXHAUST FAN NO 6 MOTOR #1 INTLK TO MOTOR #2
C12J	—	2	1/C #12 (600V)	↓	LOCAL CONTROL BOARD	EXHAUST FAN #6 DAMPER RESET
C12K	—	2	1/C #12 (600V)	EXHAUST FAN #6	↓	EXHAUST FAN #6, REVERSE ROTATION SW.
A12	—	1	2/C #16 SHLD	2.4KV MCC NO.1A, UNIT #3	MOTOR #1 RTD	ALARM
A12A	—	—	———	REFERENCE ONLY	———	↓
C12L		4	1/C #12 (600V)	Local Control Board	Exhaust Fan #6, Motor #1	Lod-Trak Interlock
C13J		4	1/C #12 (600V)	Local Control Board	Exhaust Fan #6, Mtr #2	Lod-Trak Interlock
P13A	—	3 / 1	1/C #6(5KV SHLD) / 1/C #6 G	2.4 KV MCC NO. 1A, UNIT #4	EXHAUST FAN NO 6, MOTOR #2	FEEDER-INTERMEDIATE #2 SPEED
P13B	—	3	1/C #6(5KV SHLD)	↓	↓	- LOW SPEED
P13C	—			NOT USED		
C13	—	1	2/C #16 SHLD	FAN BEARING TEMPERATURE SWITCH	LOCAL CONTROL BOARD	CONTROL NOTE #3
C13A	—	6	1/C #12 (600V)	2.4KV MCC NO 1A, UNIT #4		↓
C13B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C13C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C13D	—			NOT USED		
C13I	—	2	1/C #12 (600V)	2.4KV MCC No. 1A, UNIT #4	2.4KV MCC NO.1A, UNIT #3	EXHAUST FAN NO 6 MOTOR #2 INTLK TO MOTOR #1
A13	—	1	2/C #16 SHLD		MOTOR #2 RTD	ALARM
A13A	—	2	1/C #12	↓	LOCAL CONTROL BOARD	↓ MOTOR HIGH TEMP.
P14A	—	3 / 1	1/C #1/0(5KV SHLD) / 1/C #6 G	2.4 KV MCC NO.1A UNIT #5	EXHAUST FAN #7, MOTOR #1	FEEDER - HIGH SPEED

CONDUIT NO	CONDUIT SIZE & KIND	QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
P14B	—	3	1/C #6(5KV SHLD)	2.4 KV MCC NO.1A, UNIT #5	EXHAUST FAN NO.7, MOTOR #1	FEEDER - INTERMEDIATE #1 SPEED
P14C	—	3	1/C #6(5KV SHLD)	↓	75KVAR CAPACITORS	POWER CORRECTION
C14	—	3	1/C #12 (600V)	LOCAL CONTROL BOARD	LOCAL EMERG. STOP-RUN SEL. SW.	CONTROL
C14A	—	6	1/C #12 (600V)	2.4KV MCC NO 1A, UNIT #5	LOCAL CONTROL BOARD	↓
C14B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C14C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C14D	—		NOTE #4	SPEED SWITCH	MAGNETIC PICKUP	
C14E	—	—	———	REFERENCE ONLY	———	↓
C14I	—	2	1/C #12 (600V)	2.4 KV MCC NO. 1A, UNIT #5	2.4 KV MCC NO 1A, UNIT #6	EXHAUST FAN NO. 7 MOTOR #1 INTLK TO MOTOR #2
C14J	—	2	1/C #12 (600V)	↓	LOCAL CONTROL BOARD	EXHAUST FAN #7, DAMPER RESET
C14K	—	2	1/C #12 (600V)	EXHAUST FAN #7	↓	EXHAUST FAN #7 REVERSE ROTATION SW.
A14	—	1	2/C #16 SHLD	2.4 KV MCC NO.1A, UNIT #5	MOTOR #1 RTD	ALARM
A14A	—	—	———	REFERENCE ONLY	———	↓
C14L		4	1/C #12 (600V)	Local Control Board	Exhaust Fan #7, Mtr #1	Lod-Trak Interlock
C15J		4	1/C #12 (600V)	Local Control Board	Exhaust Fan #7, Mtr #2	Lod-Trak Interlock
P15A	—	3 / 1	1/C #6(5KV SHLD) / 1/C #6 G	2.4 KV MCC NO 1A, UNIT #6	EXHAUST FAN NO.7 MOTOR #2	FEEDER-INTERMEDIATE #2 SPEED
P15B	—	3	1/C #6(5KV SHLD)	↓	↓	- LOW SPEED
P15C	—			NOT USED		
C15	—	1	2/C #16 SHLD	FAN BEARING TEMPERATURE SWITCH	LOCAL CONTROL BOARD	CONTROL NOTE #3
C15A	—	6	1/C #12 (600V)	2.4 KV MCC NO. 1A, UNIT #6		↓
C15B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C15C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C15D	—			NOT USED		
C15I	—	2	1/C #12 (600V)	2.4KV MCC No. 1A UNIT #6	2.4KV MCC NO 1A UNIT #5	EXHAUST FAN NO 7 MOTOR #2 INTLK TO MOTOR #1
A15	—	1	2/C #16 SHLD	2.4KV MCC NO. 1A, UNIT #6	MOTOR #2 RTD	ALARM
A15A	—	2	1/C #12	↓	LOCAL CONTROL BOARD	↓ MOTOR HIGH TEMP.
P16A	—	3 / 1	1/C #1/0(5KV SHLD) / 1/C #6 G	2.4KV MCC NO.1B, UNIT #1	SUPPLY FAN NO. 5, MOTOR NO.1	FEEDER - HIGH SPEED
P16B	—	3	1/C #6(5KV SHLD)	↓	↓	- INTERMEDIATE #1 SPEED
P16C	—	3 / 1	1/C #6(5KV SHLD) / 1/C #6 G	↓	75KVAR CAPACITORS	POWER CORRECTION
C16	—	3	1/C #12 (600V)	LOCAL CONTROL BOARD	LOCAL EMERG. STOP-RUN SEL. SW.	CONTROL
C16A	—	6	1/C #12 (600V)	2.4KV MCC NO.1B, UNIT #1	LOCAL CONTROL BOARD	↓
C16B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C16C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C16D	—		NOTE #4	SPEED SWITCH	MAGNETIC PICKUP	
C16E	—	—	———	REFERENCE ONLY	———	↓
C16I	—	2	1/C #12 (600V)	2.4 KV MCC NO. 1B, UNIT #1	2.4KV MCC NO. 1B, UNIT #2	SUPPLY FAN #5 MOTOR #1 INTLK TO MOTOR #2
C16J	—	2	1/C #12 (600V)	↓	LOCAL CONTROL BOARD	SUPPLY FAN #5, DAMPER RESET
C16K	—	2	1/C #12 (600V)	SUPPLY FAN #5	↓	SUPPLY FAN #5 REVERSE ROTATION SW.
A16	—	1	2/C #16 SHLD	2.4 KV MCC NO. 1B, UNIT #1	MOTOR #1 RTD	ALARM
A16A	—	—	———	REFERENCE ONLY	———	↓
C16L		4	1/C #12 (600V)	Local Control Board	Supply Fan #5, Mtr #1	Lod-Trak Interlock
C17J		4	1/C #12 (600V)	Local Control Board	Supply Fan #5, Mtr #2	Lod-Trak Interlock
P17A	—	3 / 1	1/C #6(5KV SHLD) / 1/C #6 G	2.4 KV MCC NO. 1B, UNIT #2	SUPPLY FAN NO. 5, MOTOR #2	FEEDER-INTERMEDIATE #2 SPEED
P17B	—	3	1/C #6(5KV SHLD)	↓	↓	- LOW SPEED
P17C	—			NOT USED		
C17	—	1	2/C #16 SHLD	FAN BEARING TEMPERATURE SWITCH	LOCAL CONTROL BOARD	CONTROL NOTE #3
C17A	—	6	1/C #12 (600V)	2.4KV MCC NO.1B, UNIT #2		↓
C17B	—	3	1/C #12 (600V)	↓	↓	INDICATING LIGHTS
C17C	—	8	1/C #12 (600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C17D	—	2	1/C #12 (600V)	↓	MCC No. 4S	↓ [illegible]
C17I	—	2	1/C #12 (600V)	2.4 KV MCC NO. 1B, UNIT #2	2.4 KV MCC NO 1B, UNIT #1	SUPPLY FAN NO. 5 MOTOR #2 INTLK TO MOTOR #1
A17	—	1	2/C #16 SHLD	2.4 KV MCC NO. 1B, UNIT #2	MOTOR #2 RTD	ALARM
A17A	—	2	1/C #12	↓	LOCAL CONTROL BOARD	↓ MOTOR HIGH TEMP

FOR CONTINUATION, SEE DWG E-WE-8S

NOTES:
1. FOR WIRE & CABLE SEE D.O.H SPECIFICATIONS, SECTION 720
2. FOR CIRCUITS MARKED "REFERENCE ONLY," SEE DWG. E-E-55 FOR CONTINUATION IN EAST VENT. BLDG. & DWG. E-W-45 & DWG. E-W-55 FOR CONTINUATION IN WEST VENT. BLDG.
3. CIRCUIT TYPICAL FOR 8 TEMP. SWITCHES PER FAN.
4. MAGNETIC PICKUP FURNISHED W/10 FOOT LEADS.

6526 STATE OF COLORADO

PRINT RECORD

DATE ISSUED	[illegible]			
REVISION NO	0	0	0	0
FOR	[illegible]			
CUSTOMER	5	5	10	10
FIELD	—	—	—	—
INTRA CC.	15	15	1	1

REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
CONDUIT & CABLE SCHEDULE
SHEET NO. 1

DRAWN	[illegible]	[illegible]
CHECKED	[illegible]	[illegible]
SCALE NONE	ORDER NO C14570	DRAWING NO. E-WE-7S

D.O.H. FORM NO. 136
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3X	COLORADO	I 70-3(82)220	54	208

AS CONSTRUCTED
REVISED Date 8/31/79

CONDUIT NO	CONDUIT SIZE & KIND	WIRE OR CABLE QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
P18A	—	3 / 1	1/C #2/0(5KV SHLD) 1/C #6 G	2.4 KV MCC NO. 1B, UNIT #3	SUPPLY FAN NO. 6, MOTOR #1	FEEDER - HIGH SPEED
P18B	—	3	1/C #6(5KV SHLD)	↓	↓	↓ - INTERMEDIATE #1 SPEED
P18C	—	3 / 1	1/C #6(5KV SHLD) 1/C #6 G	↓	75KVAR CAPACITORS	POWER CORRECTION
C18	—	3	1/C #12(600V)	LOCAL CONTROL BOARD	LOCAL EMERG. STOP-RUN SEL. SW.	CONTROL
C18A	—	6	1/C #12(600V)	2.4 KV MCC NO. 1B, UNIT #3	LOCAL CONTROL BOARD	↓
C18B	—	3	1/C #12(600V)	↓	↓	INDICATING LIGHTS
C18C	—	8	1/C #12(600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C18D	—		NOTE #4	SPEED SWITCH	MAGNETIC PICKUP	
C18E	—	–	———	REFERENCE ONLY	———	↓
C18I	—	2	1/C #12(600V)	2.4 KV MCC NO. 1B, UNIT #3	2.4 KV MCC NO. 1B, UNIT #4	SUPPLY FAN NO. 6 MOTOR #1 INTLK TO MOTOR #2
C18J	—	2	1/C #12(600V)	↓	LOCAL CONTROL BOARD	SUPPLY FAN #6, DAMPER RESET
C18K	—	2	1/C #12(600V)	SUPPLY FAN #6	↓	SUPPLY FAN #6, REVERSE ROTATION SW.
A18	—	1	2C #16 SHLD	2.4 KV MCC NO. 1B, UNIT #3	MOTOR #1 RTD	ALARM
A18A	—	–	———	REFERENCE ONLY	———	↓
C18L		4	1/C #12 (600V)	Local Control Board	Supply Fan #6, Mtr #1	Led-Trak Interlock
C19J		4	1/C #12 (600V)	Local Control Board	Supply Fan #6, Mtr #2	Led-Trak Interlock
P19A	—	3 / 1	1/C #6(5KV SHLD) 1/C #6 G	2.4 KV MCC NO. 1B, UNIT #4	SUPPLY FAN NO. 6, MOTOR #2	FEEDER-INTERMEDIATE #2 SPEED
P19B	—	3	1/C #6(5KV SHLD)	↓	↓	↓ - LOW SPEED
P19C	—			NOT USED		
C19	—	1	2/C #16 SHLD.	FAN BEARING TEMPERATURE SWITCH	LOCAL CONTROL BOARD	CONTROL NOTE #3
C19A	—	6	1/C #12(600V)	2.4 KV MCC NO. 1B, UNIT #4		↓
C19B	—	3	1/C #12(600V)	↓	↓	INDICATING LIGHTS
C19C	—	8	1/C #12(600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C19D	—	2	1/C #12(600V)	↓	MCC No. 4S	↓ - BULKHEADS #7 TO 12
C19I	—	2	1/C #12(600V)	2.4 KV MCC No. 1B, UNIT #4	2.4 KV MCC NO. 1B, UNIT #3	SUPPLY FAN #6 MOTOR #2 INTLK TO MOTOR #1
A19	—	1	2/C #16 SHLD		MOTOR #2 RTD	ALARM
A19A	—	2	1/C #12	↓	LOCAL CONTROL BOARD	↓ MOTOR HIGH TEMP
P20A	—	3 / 1	1/C #2/0(5KV SHLD) 1/C #6 G	2.4 KV MCC NO. 1B, UNIT #5	SUPPLY FAN No. 7, MOTOR #1	FEEDER - HIGH SPEED
P20B	—	3	1/C #6(5KV SHLD)		↓	↓ - INTERMEDIATE #1 SPEED
P20C	—	3 / 1	1/C #6(5KV SHLD) 1/C #6 G	↓	75KVAR CAPACITORS	POWER CORRECTIONS
C20	—	3	1/C #12(600V)	LOCAL CONTROL BOARD	LOCAL EMERG STOP-RUN SEL SW	CONTROL
C20A	—	6	1/C #12(600V)	2.4 KV MCC No. 1B UNIT #5	LOCAL CONTROL BOARD	↓
C20B	—	3	1/C #12(600V)	↓	↓	INDICATING LIGHTS
C20C	—	8	1/C #12(600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C20D	—		NOTE #4	SPEED SWITCH	MAGNETIC PICKUP	
C20E	—	–	———	REFERENCE ONLY	———	↓
C20I	—	2	1/C #12(600V)	2.4 KV MCC NO. 1B, UNIT #5	2.4 KV MCC NO 1B, UNIT #6	SUPPLY FAN NO 7 MOTOR #1 INTLK TO MOTOR #2
C20J	—	2	1/C #12(600V)	↓	LOCAL CONTROL BOARD	SUPPLY FAN #7 DAMPER RESET
C20K	—	2	1/C #12(600V)	SUPPLY FAN #7	↓	SUPPLY FAN #7 REVERSE ROTATION SW
A20	—	1	2/C #16 SHLD	2.4 KV MCC NO. 1B, UNIT #5	MOTOR #1 RTD	ALARM
A20A	—	–	———	REFERENCE ONLY	———	↓
C20L		4	1/C #12 (600V)	Local Control Board	Supply Fan #7, Mtr #1	Led-Trak Interlock
C21J		4	1/C #12 (600V)	Local Control Board	Supply Fan #7, Mtr #2	Led-Trak Interlock
P21A	—	3 / 1	1/C #6(5KV SHLD) 1/C #6 G	2.4 KV MCC NO. 1B, UNIT #6	SUPPLY FAN NO 7 MOTOR #2	FEEDER-INTERMEDIATE #2 SPEED
P21B	—	3	1/C #6(5KV SHLD)	↓	↓ ↓	↓ - LOW SPEED
P21C	—			NOT USED		
C21	—	1	2/C #16 SHLD.	FAN BEARING TEMPERATURE SWITCH	LOCAL CONTROL BOARD	CONTROL NOTE #3
C21A	—	6	1/C #12(600V)	2.4 KV MCC NO. 1B, UNIT #6		↓
C21B	—	3	1/C #12(600V)	↓	↓	INDICATING LIGHTS
C21C	—	8	1/C #12(600V)	LOCAL CONTROL BOARD	SPEED SWITCH	CONTROL
C21D	—	2	1/C #12(600V)	↓	MCC No. 4S	↓ - BULKHEADS #13 TO 18
C21I	—	2	1/C #12(600V)	2.4 KV MCC No. 1B, UNIT #6	2.4 KV MCC NO. 1B, UNIT #5	SUPPLY FAN NO. 7 MOTOR #2 INTLK TO MOTOR #1
A21	—	1	2/C #16 SHLD		MOTOR #2 RTD	ALARM
A21A	—	2	1/C #12(600V)	↓	LOCAL CONTROL BOARD	↓ MOTOR HIGH TEMP
P22	—	3	1/C #12 & 1/C #10G	480V MCC NO. 5, UNIT AF	LOCAL DISCONNECT SWITCH	FEEDER
P22A	—	3	1/C #12 & 1/C #10G	LOCAL DISCONNECT SWITCH	SUPPLY FAN NO. 5, DAMPER MOTOR	↓
C22	—	12	1/C #12	LOCAL CONTROL BOARD	LOCAL LIMIT SWITCH	CONTROL
C22A	—	4	1/C #12	480V MCC No. 5, UNIT AF	LOCAL CONTROL BOARD	CONTROL & INTERLOCK
P23	—	3	1/C #12 & 1/C #10G	480V MCC NO. 5, UNIT CF	LOCAL DISCONNECT SWITCH	FEEDER
P23A	—	3	1/C #12 & 1/C #10G	LOCAL DISCONNECT SWITCH	SUPPLY FAN NO. 6, DAMPER MOTOR	↓
C23	—	12	1/C #12	LOCAL CONTROL BOARD	LOCAL LIMIT SWITCH	CONTROL
C23A	—	4	1/C #12	480V MCC No. 5, UNIT CF	LOCAL CONTROL BOARD	CONTROL & INTERLOCK
C23B		3	1/C #12 (600V)	Local Limit Sw, damper J.B.	Burner Control Panel	Fan-Air heat burner Interlock
C23C		3	1/C #12 (600V)	Local Control Board	2.4KV MCC #1B	Fan-Air heat burner Interlock

CONDUIT NO	CONDUIT SIZE & KIND	WIRE OR CABLE QUANT	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
P24	—	3	1/C #12 & 1/C #10G	480V MCC NO. 5, UNIT BR	LOCAL DISCONNECT SWITCH	FEEDER
P24A	—	3	1/C #12 & 1/C #10G	LOCAL DISCONNECT SWITCH	SUPPLY FAN NO. 7 DAMPER MOTOR	↓
C24	—	12	1/C #12	LOCAL CONTROL BOARD	LOCAL LIMIT SWITCH	CONTROL
C24A	—	4	1/C #12	480V MCC No. 5 UNIT BR	LOCAL CONTROL BOARD	CONTROL & INTERLOCK
P25	—	3	1/C #12 & 1/C #10G	480V MCC NO. 5, UNIT BF	LOCAL DISCONNECT SWITCH	FEEDER
P25A	—	3	1/C #12 & 1/C #10G	LOCAL DISCONNECT SWITCH	EXHAUST FAN NO. 5 DAMPER MOTOR	↓
C25	—	12	1/C #12	LOCAL CONTROL BOARD	LOCAL LIMIT SWITCH	CONTROL
C25A	—	4	1/C #12	480V MCC No. 5 UNIT BF	LOCAL CONTROL BOARD	CONTROL & INTERLOCK
P26	—	3	1/C #12 & 1/C #10G	480V MCC NO. 5, UNIT DF	LOCAL DISCONNECT SWITCH	FEEDER
P26A	—	3	1/C #12 & 1/C #10G	LOCAL DISCONNECT SWITCH	EXHAUST FAN NO. 6, DAMPER MOTOR	↓
C26	—	12	1/C #12	LOCAL CONTROL BOARD	LOCAL LIMIT SWITCH	CONTROL
C26A	—	4	1/C #12	480V MCC No. 5 UNIT DF	LOCAL CONTROL BOARD	CONTROL & INTERLOCK
P27	—	3	1/C #12 & 1/C #10G	480V MCC NO. 5, UNIT CR	LOCAL DISCONNECT SWITCH	FEEDER
P27A	—	3	1/C #12 & 1/C #10G	LOCAL DISCONNECT SWITCH	EXHAUST FAN NO. 7 DAMPER MOTOR	↓
C27	—	12	1/C #12	LOCAL CONTROL BOARD	LOCAL LIMIT SWITCH	CONTROL
C27A	—	4	1/C #12	480V MCC No. 5, UNIT CR	LOCAL CONTROL BOARD	CONTROL & INTERLOCK
P28	—	–	———	REFERENCE ONLY	———	
P29	—	3	1/C #8 & 1/C #10G	480V MCC NO. 5, UNIT ARL	60A FUSED DISCONNECT SWITCH	FEEDER
P29A	—	3	1/C #8 & 1/C #10G	60A FUSED DISCONNECT SWITCH	ELEVATOR CONTROL PANEL	
P29B	—	3	1/C #12 & 1/C #10G	↓	30A FUSED DISCONNECT SWITCH	
P29C	—	3	1/C #12 & 1/C #10G	30A FUSED DISCONNECT SWITCH	ELEVATOR PENTHOUSE UNIT HEATER	↓

NOTES:

1. FOR WIRE & CABLE SEE D.O.H. SPECIFICATIONS, SECTION #720
2. FOR CIRCUITS MARKED "REFERENCE ONLY" SEE DWG. E-E-5S FOR CONTINUATION IN EAST VENT. BLDG. & DWG. E-W-4S & DWG E-W-5S FOR CONTINUATION IN WEST VENT. BLDG.
3. CIRCUIT TYPICAL FOR # 2 TEMP. SWITCHES PER FAN.
4. MAGNET PICKUP FURNISHED W/10 FOOT LEADS.

6526
STATE OF COLORADO

PRINT RECORD				
DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO	0	0	0	0
FOR	PRE	PR	FCR	FLA
CUSTOMER	5	5	10	10
FIELD	–	–	–	–
INTRA CO.	15	15	1	1

NO. | REVISIONS | DATE

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
CONDUIT & CABLE SCHEDULE
SHEET NO. 2

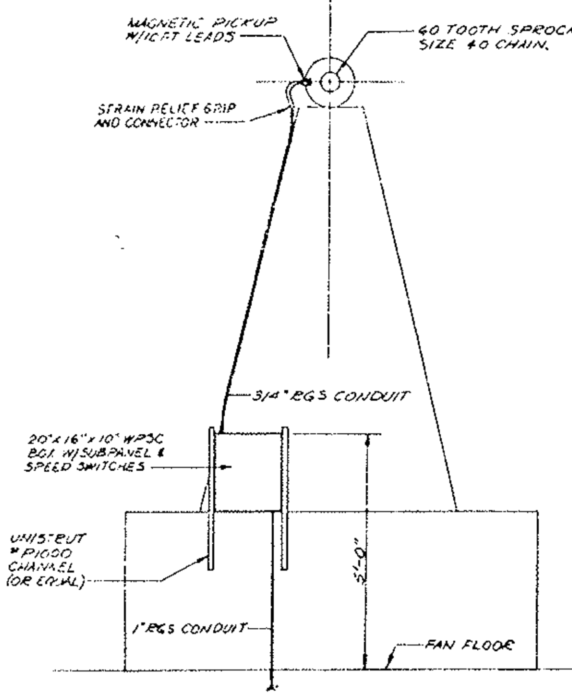
DRAWN [illegible] | CHECKED [illegible] | SCALE NONE | ORDER NO. C14570 | DRAWING NO. E-WE-6[illegible]

D.O.H. FORM NO. 125
Rev. October, 1972

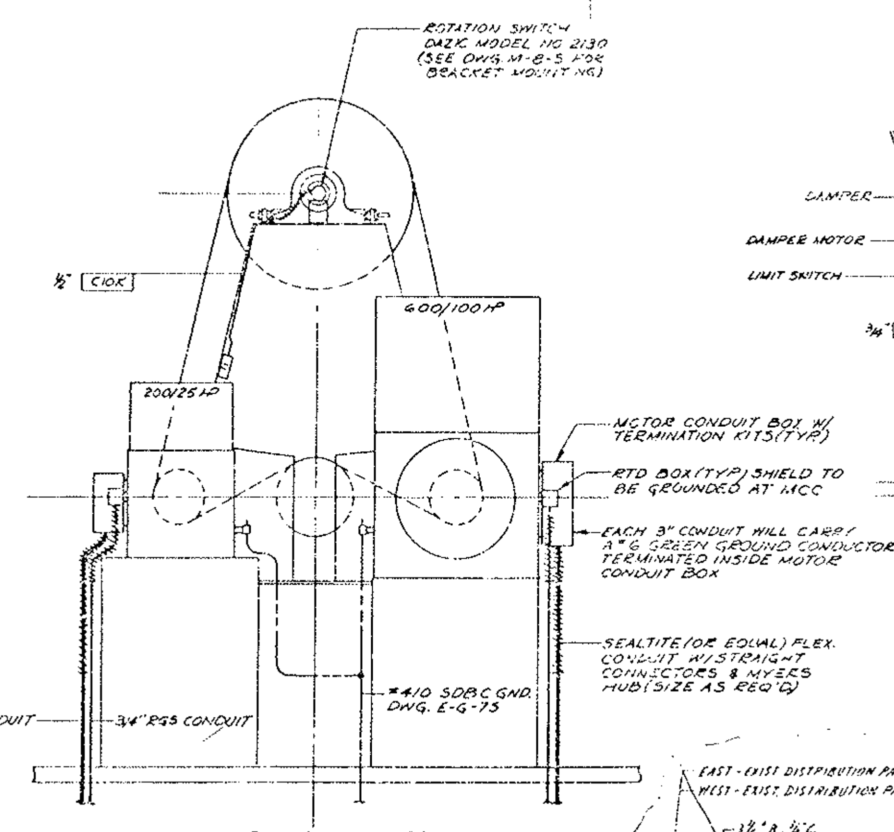
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VI	COLORADO	I 70-3(82)220	55	208

(R-1) ADDED EMERG. GEN. VENT FAN WIRING DIAG. & PARTIAL PLANS, ADDED NOTES # 2,3,4,5. RPJ/DMS 6/16/76

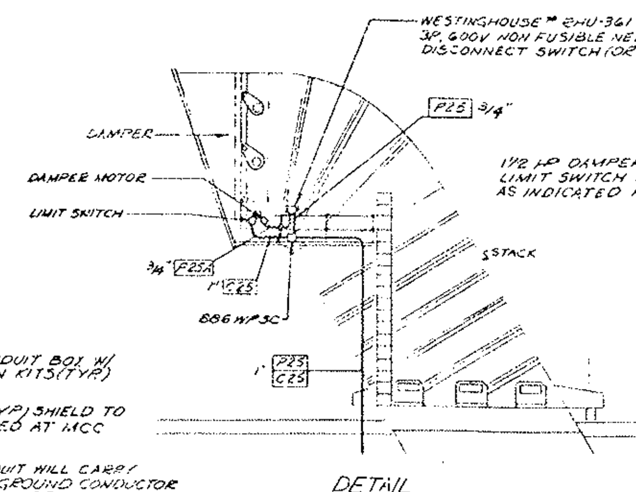
AS CONSTRUCTED
REVISED Date 8/31/79



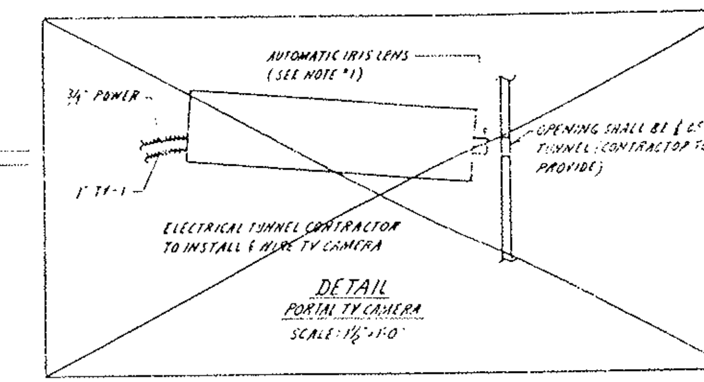
SECTION 'A-A'
SCALE: 1/2"=1'-0"



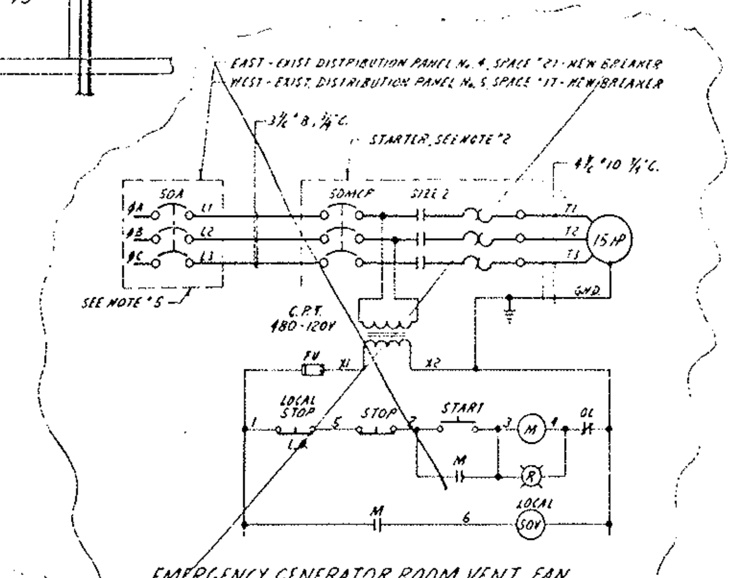
SECTION 'B-B'
SCALE: 1/2"=1'-0"



DETAIL
TYP. EXHAUST DAMPER
SCALE: 1/8"=1'-0"



DETAIL
PORTAL TV CAMERA
SCALE: 1 1/2"=1'-0"



EMERGENCY GENERATOR ROOM VENT. FAN
WIRING DIAGRAM (R-1)

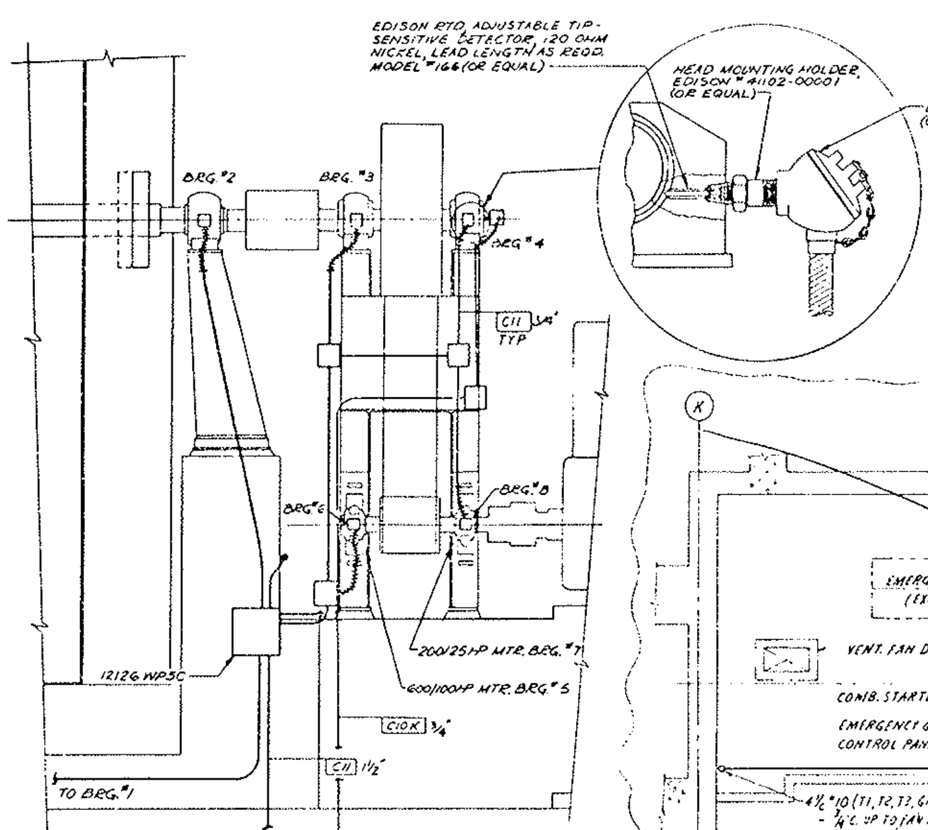
NOTES:

1. ~~POSITION CAMERA BACK FROM OPENING TO AVOID DIRECT SUNLIGHT ON VIDICON TUBE.~~

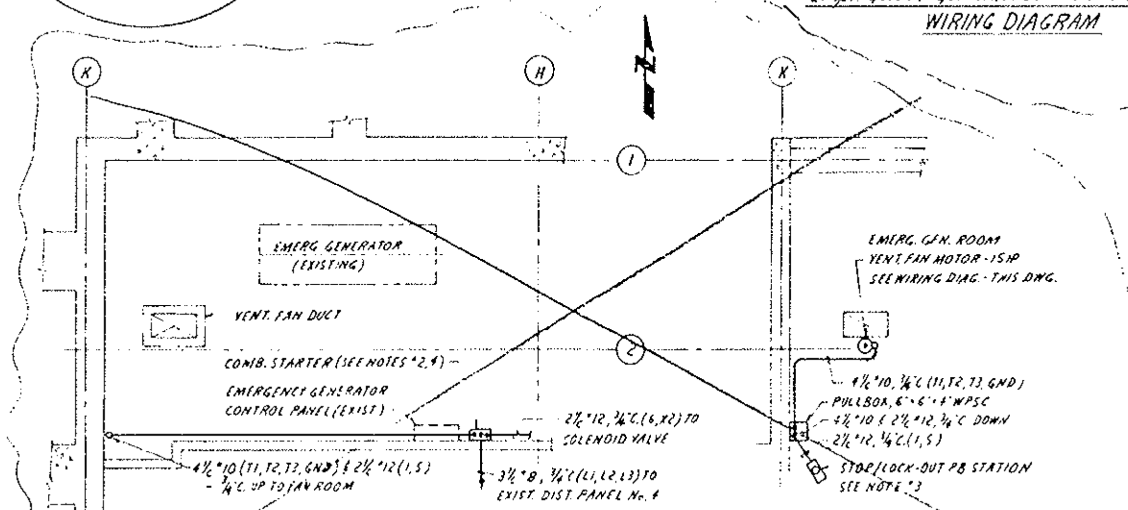
(R-1)

2. EMERGENCY GENERATOR ROOM VENT FAN COMBINATION STARTER WITH 3 POLE-50AMP MOTOR CKT PROTECTOR, NEMA SIZE 2, NON-REVERSING, 120VAC-60HZ COIL, CONTROL POWER TRANSFORMER (480V PRI-120V SEC.) 1-N.O. & 1-N.C. AUX. CONTACT BLOCK, NEMA 12 ENCLOSURE WITH RED INDICATING LIGHT AND START-STOP PUSHBUTTONS ON COVER, 3-FA50 OVERLOAD HEATERS. WESTINGHOUSE CAT # A206J2AIGAC-LA5T (OR EQUAL); TOP OF STARTER TO BE 6'-0" ABOVE FLOOR AND MOUNTED ADJACENT TO EMERGENCY GENERATOR CONTROL PANEL.
3. STOP/LOCK-OUT PUSHBUTTON STATION TO CONSIST OF A RED PUSHBUTTON OPERATOR WITH NO SHROUD, (#OT02 (N.C.) CONTACT BLOCK, OIL TITE. WESTINGHOUSE CAT # OT2C2D, STOP LEGEND PLATE-CAT #IRIF004 R01; LATCHING ATTACHMENT-CAT #31AC2B8G01; SURFACE MOUNTED DIE CAST 1 UNIT ENCLOSURE-CAT # OT25G1 WITH COVER-CAT # OT1F01 (OR EQUAL). MOUNT STATION 4'-6" ABOVE FLOOR.
4. CONTRACTOR TO GROUND STARTER WITH 1/2" #6 SDBC TO THE NEAREST BUILDING OR EQUIPMENT GROUND CABLE. MOTOR TO BE GROUNDED WITH 1/2" #10 STRANDED COPPER & XHHW INSULATION; ENDS OF WIRE TO BE GREEN TAPED.
5. CONTRACTOR TO FURNISH CIRCUIT BREAKERS AS SHOWN ON EMERGENCY GENERATOR ROOM VENT FAN WIRING DIAGRAM. BREAKER TO BE 50A-600VAC-3 POLE THERMAL MAGNETIC SUITABLE FOR USE IN EXIST. DISTRIBUTION PANELS No. 4 & 5.

1. Erase stacks grounded from motor ground East Portal.



SECTION 'C-C'
FAN BEARING TEMPERATURE SWITCHES
SCALE: 1/2"=1'-0"



PARTIAL PLAN (R-1)
EAST VENTILATION BUILDING
ROADWAY FLOOR
SCALE: 1/8"=1'-0"

PARTIAL PLAN (R-1)
EAST VENTILATION BUILDING
FAN ROOM FLOOR
SCALE: 1/8"=1'-0"

PRINT RECORD					
DATE ISSUED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	0	0	R1
FOR	PRE	PRE	FCA	FCA	FCA
CUSTOMER	5	5	10	10	Orig
FIELD	—	—	—	—	0
INTRA CO.	15	15	1	1	15

NO.	REVISIONS	DATE	BY	CKD

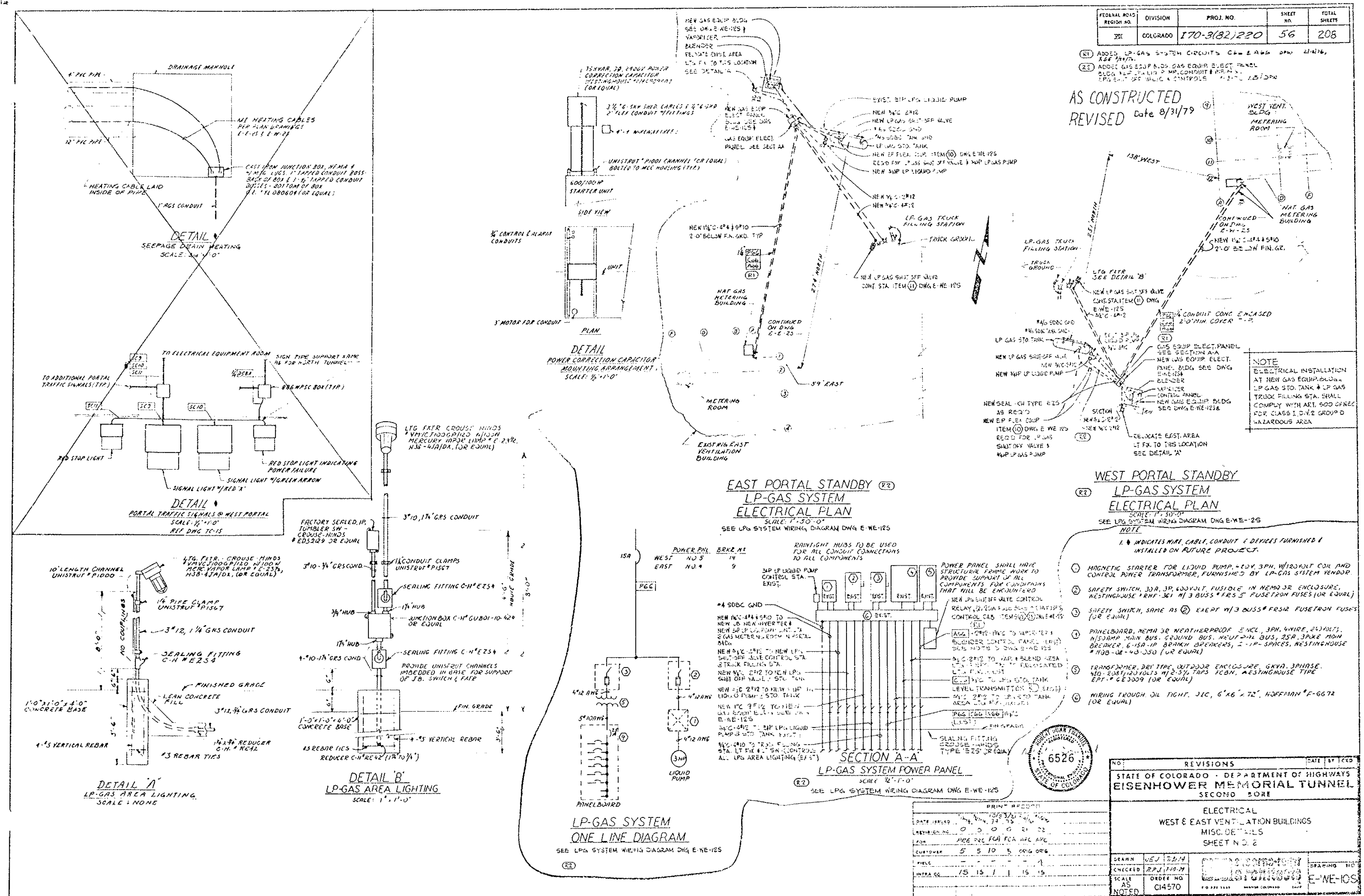
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

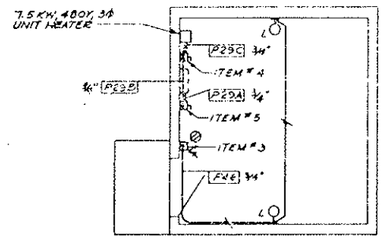
ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
MISC. DETAILS
SHEET NO. 1

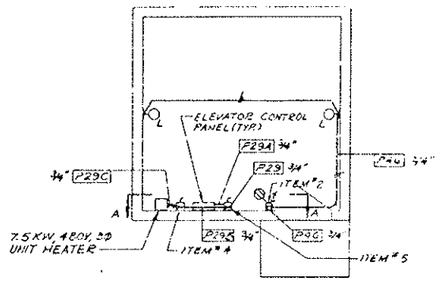
DRAWN	JEU	7-2-74
CHECKED	RPJ	7-11-74
SCALE AS NOTED	ORDER NO. C14570	

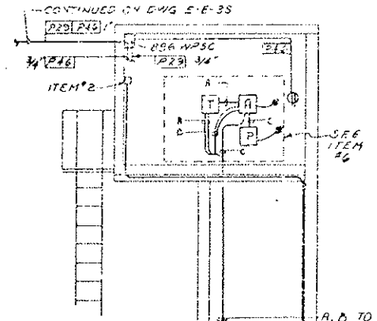
DRAWING NO. E-WE-9S

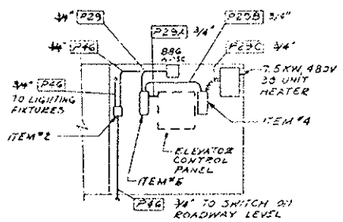
STATE OF COLORADO 6526

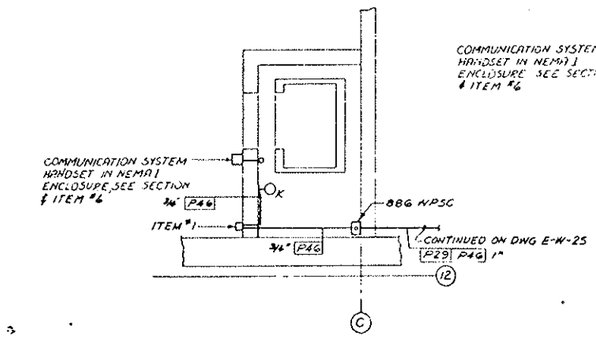

D.O.H. FORM NO. 1xx
Rev. October, 1972
FEDERAL ROAD REGION NO. | DIVISION | PROJ. NO. | SHEET NO. | TOTAL SHEETS
VIII | COLORADO | I70-3(82)220 | 56 | 208
AS CONSTRUCTED
REVISED Date 8/31/79
DETAIL
SEEPAGE DRAIN HEATING
DRAINAGE MANHOLE
MI HEATING CABLES PER PLAN DRAWINGS E-E-125 & E-W-125
HEATING CABLE LAID INSIDE OF PIPE
1" RGS CONDUIT
DETAIL
PORTAL TRAFFIC SIGNALS @ WEST PORTAL
REF DWG TC-15
TO ELECTRICAL EQUIPMENT ROOM
TO ADDITIONAL PORTAL TRAFFIC SIGNALS (TYP.)
RED STOP LIGHT
SIGNAL LIGHT W/RED 'X'
SIGNAL LIGHT W/GREEN ARROW
RED STOP LIGHT INDICATING POWER FAILURE
DETAIL
POWER CORRECTION CAPACITOR MOUNTING ARRANGEMENT
SCALE: 1/2"=1'-0"
SIDE VIEW
PLAN
600/100 HP STARTER UNIT
UNISTRUT P1001 CHANNEL (OR EQUAL) BOLTED TO MCC HOUSING (TYP.)
3/4" CONTROL & ALARM CONDUITS
3" MOTOR FDR CONDUIT
DETAIL 'A'
LP-GAS AREA LIGHTING
SCALE: NONE
10' LENGTH CHANNEL UNISTRUT P1000
1 1/4" PIPE CLAMP UNISTRUT P1567
3#12, 1 1/4" GRS CONDUIT
SEALING FITTING C-H EZS4
FINISHED GRADE
LEAN CONCRETE FILL
1'-0"x1'-0"x4'-0" CONCRETE BASE
4-#5 VERTICAL REBAR
#3 REBAR TIES
DETAIL 'B'
LP-GAS AREA LIGHTING
SCALE: 1"=1'-0"
LTG. FXTR. CROUSE HINDS
FACTORY SEALED, I.P. TUMBLER SW - CROUSE-HINDS #EDS2129 OR EQUAL
3#10, 1 1/4" GRS CONDUIT
SEALING FITTING C-H EZS4
JUNCTION BOX C-H GUB01-10-42 OR EQUAL
PROVIDE UNISTRUT CHANNELS IMBEDDED IN BASE FOR SUPPORT OF J.B., SWITCH & FXTR
FIN. GRADE
REDUCER C-H RE42 (1 1/4" TO 3/4")
EAST PORTAL STANDBY
LP-GAS SYSTEM
ELECTRICAL PLAN
SCALE: 1"=30'-0"
SEE LPG SYSTEM WIRING DIAGRAM DWG E-WE-125
LP-GAS TRUCK FILLING STATION
NAT GAS METERING BUILDING
METERING ROOM
EXISTING EAST VENTILATION BUILDING
WEST PORTAL STANDBY
LP-GAS SYSTEM
ELECTRICAL PLAN
SCALE: 1"=30'-0"
SEE LPG SYSTEM WIRING DIAGRAM DWG E-WE-125
NOTE
ELECTRICAL INSTALLATION AT NEW GAS EQUIP. BLDG., LP GAS STO. TANK & LP GAS TRUCK FILLING STA. SHALL COMPLY WITH ART. 500 OF NEC FOR CLASS 1, DIV. 2 GROUP D HAZARDOUS AREA
LP-GAS SYSTEM
ONE LINE DIAGRAM
SEE LPG SYSTEM WIRING DIAGRAM DWG E-WE-125
PANELBOARD
LIQUID PUMP
SECTION A-A
LP-GAS SYSTEM POWER PANEL
SCALE: 1/2"=1'-0"
SEE LPG SYSTEM WIRING DIAGRAM DWG E-WE-125
NOTE
1. ♦ INDICATES WIRE, CABLE, CONDUIT & DEVICES FURNISHED & INSTALLED ON FUTURE PROJECT.
1 MAGNETIC STARTER FOR LIQUID PUMP, 480V, 3PH, W/120VOLT COIL AND CONTROL POWER TRANSFORMER, FURNISHED BY LP-GAS SYSTEM VENDOR
2 SAFETY SWITCH, 30A, 3P, 600VOLT, FUSIBLE IN NEMA 3R ENCLOSURE, WESTINGHOUSE #RHF-361 W/ 3 BUSS #FRS 5 FUSETRON FUSES (OR EQUAL)
3 SAFETY SWITCH, SAME AS 2 EXCEPT W/3 BUSS #FRS12 FUSETRON FUSES (OR EQUAL)
4 PANELBOARD, NEMA 3R WEATHERPROOF ENCL., 3PH, 4WIRE, 240VOLTS, W/30AMP MAIN BUS, GROUND BUS, NEUTRAL BUS, 25A, 3PAXE MAIN BREAKER, 6-15A-1P BRANCH BREAKERS, 2-1P-SPACES, WESTINGHOUSE #43B-08-48-050 (OR EQUAL)
5 TRANSFORMER, DRY TYPE, OUTDOOR ENCLOSURE, 6KVA, 3PHASE, 480-208Y/120 VOLTS W/ 2-5% TAPS FCBN, WESTINGHOUSE TYPE EPT #6E3009 (OR EQUAL)
6 WIRING TROUGH OIL TIGHT, JIC, 6"x6"x72", HOFFMAN #F-6672 (OR EQUAL)
6526
REVISIONS
STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
MISC. DETAILS
SHEET NO. 2
ORDER NO. C14570
SCALE AS NOTED
DRAWING NO. E-WE-105

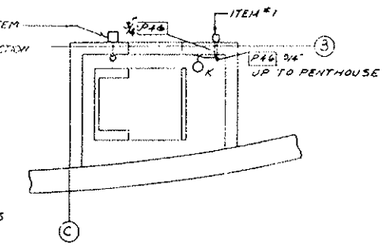












Rev. October, 1977

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XII	COLORADO	I 70-3(82)220	57	208

AS CONSTRUCTED
NO REVISIONS DATE

PENTHOUSE PLAN - WEST
SCALE: 1/4" = 1'-0"

PENTHOUSE PLAN - EAST
SCALE: 1/4" = 1'-0"

PIT PLAN
ELEVATOR AT WEST PORTAL
SCALE: 1/4" = 1'-0"

NOTE: CONTRACTOR TO RE-ROUTE EXISTING CONDUITS TO PREMIT INSTALLATION OF ELEVATOR.

PIT PLAN
ELEVATOR AT EAST PORTAL
SCALE: 1/4" = 1'-0"

SECTION THRU EAST PORTAL ELEVATOR SHAFT
WEST PORTAL SIMILAR
SCALE: 1/4" = 1'-0"

SECTION 'A-A'
SCALE: 1/4" = 1'-0"
ELEVATION OF EAST PENTHOUSE
WEST PENTHOUSE IS THE SAME
EXCEPT MAIN FEEDERS ENTER
THRU THE FLOOR

ITEM #1	TOGGLE SWITCH TO BE 120V AC, 20A, HUBBELL #9805 (OR EQUAL) MOUNTED IN A CROUSE-HINDS 'FS3' W/COVER #DS181 (OR EQUAL) MOUNT 4'-6" ABOVE FLOOR. CONTRACTOR TO FURNISH EYS2 & LB27 FITTINGS
ITEM #2	TOGGLE SWITCH TO BE 120V AC, 20A, HUBBELL #9805 (OR EQUAL), SINGLE RECEPTACLE TO BE 120V AC, 20A, 3 WIRE GROUNDED, HUBBELL CAT #5361 (OR EQUAL), ALL MOUNTED IN A CROUSE-HINDS 'FSC212 W/COVER #S32212 (OR EQUAL) MOUNT 4'-6" ABOVE FLOOR.
ITEM #3	TOGGLE SWITCH TO BE 120V AC, 20A, HUBBELL #9805 (OR EQUAL), SINGLE RECEPTACLE TO BE 120V AC, 20A, 3 WIRE GROUNDED, HUBBELL CAT #5361 (OR EQUAL), ALL MOUNTED IN A CROUSE-HINDS 'FSC222' W/COVER #S32212 (OR EQUAL) MOUNT 4'-6" ABOVE FLOOR.
ITEM #4	DISCONNECT SWITCH TO BE 30A, 3P, 600V FUSIBLE NEMA 12 ENCLOSURE, WESTINGHOUSE CAT #JHF-361 (OR EQUAL). (3) BUSS ONE-TIME FUSE 600V, 15A NOS15 (OR EQUAL) MOUNT 5'-6" ABOVE FLOOR.
ITEM #5	DISCONNECT SWITCH TO BE 60A, 3P, 600V FUSIBLE NEMA 12 ENCLOSURE, WESTINGHOUSE CAT #JHF-362 (OR EQUAL). (3) BUSS ONE TIME FUSE 600V, 50A NOS50 (OR EQUAL). MOUNT 5'-6" ABOVE FLOOR.
ITEM #6	EXECUTONE INC (OR EQUAL) COMMUNICATION SYSTEM COMPONENTS.

- 1PTH154L5301 HANDSET
- T J349542 TRANSFORMER
- A F274K AMPLIFIER
- P M216 POWER SUPPLY
- Ⓢ C198 CAR STATION
- A - WS3 WIRE
- B - WS5 WIRE
- C - WT2HD WIRE

LIGHTING FIXTURE SCHEDULE

STYLE NO.	DESCRIPTION	TYPE	TOTAL
CROUSE-HINDS #EVBX240	INCANDESCENT WALL BRACKET, EXPLOSION PROOF, 100W, A19 MOUNT 3'-8" ABOVE PIT FLOOR	K	2
CROUSE-HINDS #VXHBF25G	INCANDESCENT WALL BRACKET, VAPORTIGHT, 150W, A21 MOUNT 6'-0" ABOVE FLOOR	L	4

6526

PRINT RECORD					
DATE ISSUED	7-31-74	8-29-74	11-18-74	3-12-75	3-18-75
REVISION NO.	0	0	0	0	0
FOR	PRE	PRE	FCA	FCA	FCA
CUSTOMER	5	5	10	5	5
FIELD	-	-	-	0	0
INTRA CO.	15	15	1	1	1

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
WEST & EAST VENTILATION BUILDINGS
PASSENGER ELEVATOR

DRAWN	JEJ	7-19-74
CHECKED	PPJ	7-19-74
SCALE AS NOTED	ORDER NO. C14570	

DRAWING NO. E-WE-11S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8E	COLORADO	I 70-3(82) 220	58	208

AS CONSTRUCTED
NO REVISIONS DATE

MATCH LINE

CARBON MONOXIDE ANALYZER ROOM, EXISTING.

WEST VENTILATION BUILDING

EAST VENTILATION BUILDING

MATCH LINE

KEY PLAN

3'F.D. (TYP) (EXISTING)

FAN WE-7 CCW ROTATION

FAN WE-6 CCW ROTATION

FAN WE-5 CCW ROTATION

45°

FLEXIBLE CONNECTION (TYP)

SEE DET 1 DWG M-15S (TYP)

SEE DET 2 DWG M-15S (TYP)

SEE DET 3 DWG M-15S (TYP)

EXHAUST FAN ROOM
FIN. FL. EL. 11182'-6"
T.O. STRUCT. SLAB EL. 11182'-3"

EXISTING 12" THK. R.C. DUCT DIVIDER WALL.

SUPPLY FAN ROOM
FIN. FL. EL. 11182'-6"
T.O. STRUCT. SLAB EL. 11182'-3"

SEE PRESSURE DOOR ELEV'S., DWG. M-15-S

SEE DETAIL (8) DWG. M-16S FOR SPEED SWITCH PICK UP (TYP ALL FANS)

FLEXIBLE CONNECTION (TYP)

DROP AREA (EXIST.)

FRESH AIR INTAKE DUCT (EXISTING)

OUTLET DAMPER, PARALLEL BLADE (TYP)

HOUSING FOR RATIO MOTOR & LIMIT SWITCH (TYP)

AIR HEAT BURNER VALVE TRAIN ROOM. SEE DETAIL (6), DWG. M-17S

FAN WS-7 CW ROTATION

FAN WS-6 CW ROTATION

FAN WS-5 CW ROTATION

JIB CRANE SUPPORT (TYP 7 PLCS) (EXISTING)

EXISTING 4'-(±) DEEP BLOCKOUTS IN CONC. TOPPING, FILL WITH CONC. AS PER INSTRUCTIONS AT SECTIONS (F)+(T), DWG. M-4S, (TYP. FOR ALL BLOCKOUTS - EAST & WEST VENTILATION BLDGS.)

AIR HEAT BURNER (2 REQ'D). FOR SUPPORT DET'S, SEE SECT. (5), DWG. M-15S.

NOTES:

1. WORK THIS DWG. WITH DWG'S. M-2S THRU M-17S.
2. SEE DWG. M-2S FOR ADDITIONAL SECTIONS, VIEWS AND DETAIL CALLOUTS.
3. GENERAL ARRANGEMENT AS SHOWN IS SIMILAR & OPPOSITE HAND FOR EAST & WEST VENTILATION BUILDINGS WITH SLIGHT VARIATIONS IN COLUMN LOCATIONS.

6200

NO.	REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
WEST VENTILATION BUILDING
FAN ROOM FLOOR PLAN - SOUTH
FAN AND DUCTWORK ARRANGEMENT

PRINT RECORD

DATE ISSUED	3-29-73	8-25				
REVISION NO.	0	0	0	0	0	0
FOR	PRE. PCE	PRE. PCE	PRE. PCE	FCA	FCA	FCA
CUSTOMER	5	5	5	10	10	10
FIELD	0	0	0	0	0	0
MYLAR SH.	15	15	0	1	1	1

DRAWN	REB 5-15-74		
CHECKED	YM 5-28-74		
SCALE	1/8"=1'-0"	ORDER NO.	C 14570

DRAWING NO. M-1S

182'-6" (TO COL. LINE K)

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	59	205

(R-1) ADD 2 PIPE BRACES & REVISE 2 PIPE BRACES FOR EXHAUST DUCT. ADD 15 TIE RODS TO SUPPLY DUCT. ADD NOTE № 4 & 5. 11-22-75, ZEC

(R-1) ADD WF SUPPORT TO EXHAUST DUCT AND DET. ⑩ CALL-OUT FOR SUPPLY DUCT, 12-11-75, ZEC

KEY PLAN

AS CONSTRUCTED
REVISED Date 8/31/79

NOTES:

1. WORK THIS DWG. WITH DWG'S M-1 S AND M-3 S THRU M-17 S.
2. SEE DWG. M-1 S FOR ADDITIONAL SECTIONS, VIEWS AND DETAIL CALLOUTS.
3. GENERAL ARRANGEMENT AS SHOWN IS SIMILAR & OPPOSITE HAND FOR EAST & WEST VENTILATION BUILDINGS WITH SLIGHT VARIATIONS IN COLUMN LOCATIONS.
4. (R-1) FOR EXHAUST DUCTING, 2½" ⌀ PIPE BRACES ARE REQUIRED FOR THE 15'-8½" AND 12'-11" WIDE DUCT SECTIONS, ALL OTHERS FOR EXHAUST DUCT TO BE 2" ⌀ PIPE. (TYP. FOR BOTH EAST AND WEST VENTILATION BUILDINGS.)
5. (R-1) CONVERGING CHANNEL BRACES (C4x7.25) AT MIDSPAN OF THE VERTICAL PORTION OF THE EXHAUST DUCT TO BE MITERED AND BUTT WELDED. (TYP. 5 PLACES EACH IN BOTH EAST AND WEST VENTILATION BUILDINGS.)

6200

PRINT RECORD

DATE ISSUED	3-25	7-31	3-23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	0	[illegible]	0	[illegible]	1	1
FOR	PRE	PRE	PRE	FCA	FCA	FCA	REV	REV
CUSTOMER	5	5	5	10	10	10	ORIG	ORIG
FIELD	0	0	0	0	0	-	1	1
MTRL CO.	15	13	0	1	1	1	15 4	15 4

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

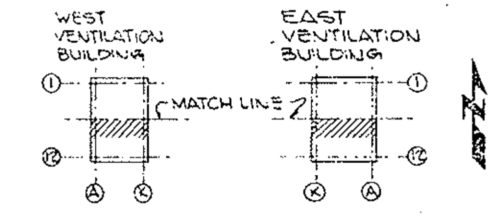
MECHANICAL
EAST VENTILATION BUILDING
FAN ROOM FLOOR PLAN-SOUTH
FAN AND DUCTWORK ARRANGEMENT

DRAWN	YM	3-15-74
CHECKED	[illegible]	3-26-74
SCALE	ORDER NO.	
1/8" = 1'-0	C 14570	

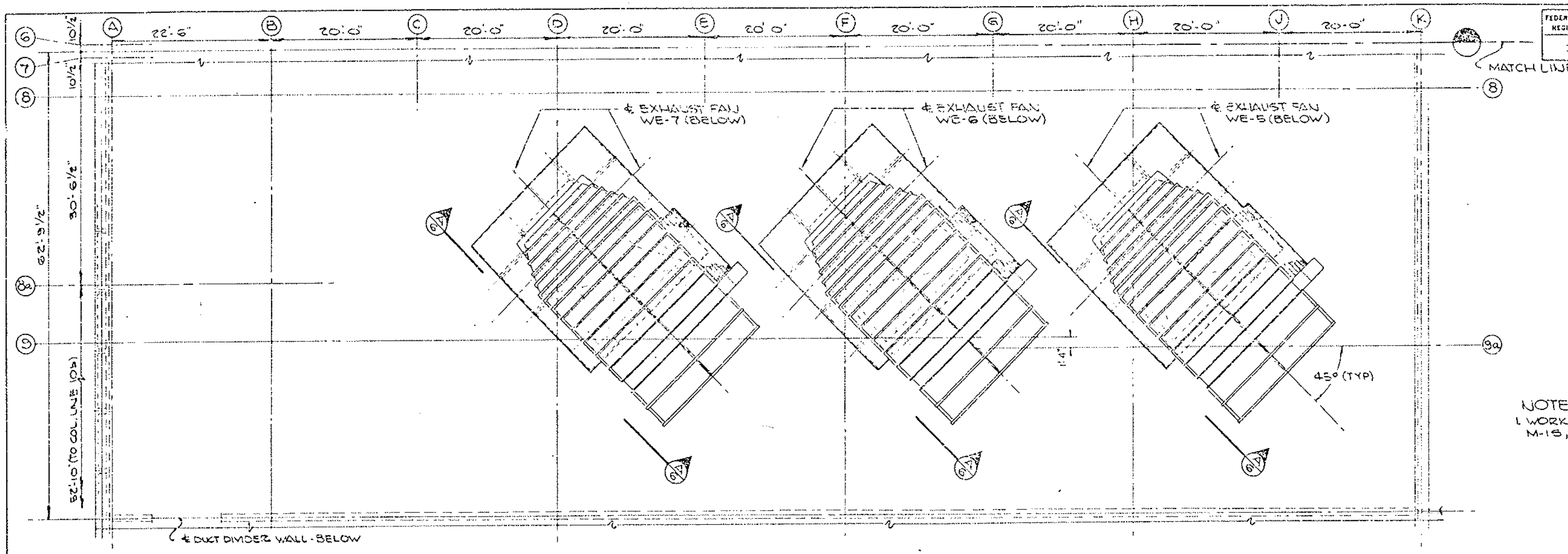
DRAWING NO. M-2 S

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	60	208

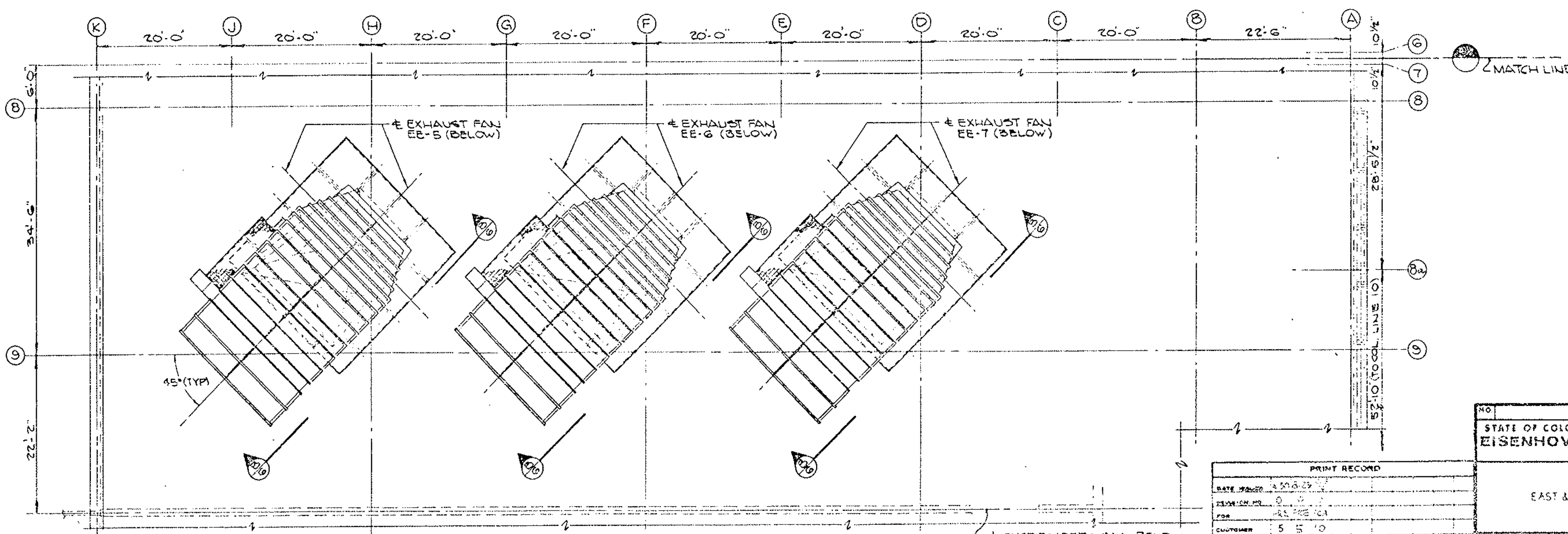
AS CONSTRUCTED
NO REVISIONS DATE



NOTES:
1. WORK THIS DRAWING WITH DRAWINGS M-15, M-25 & M-45 THRU M-17 S.



PARTIAL ROOF PLAN - WEST VENTILATION BUILDING



PARTIAL ROOF PLAN - EAST VENTILATION BUILDING

6200

PRINT RECORD	
DATE	4 30 8-29
REVISION NO.	0 0 2
FOR	
CUSTOMER	5 5 0
FIELD	0 0 0
INTRA CO.	1S 0 1

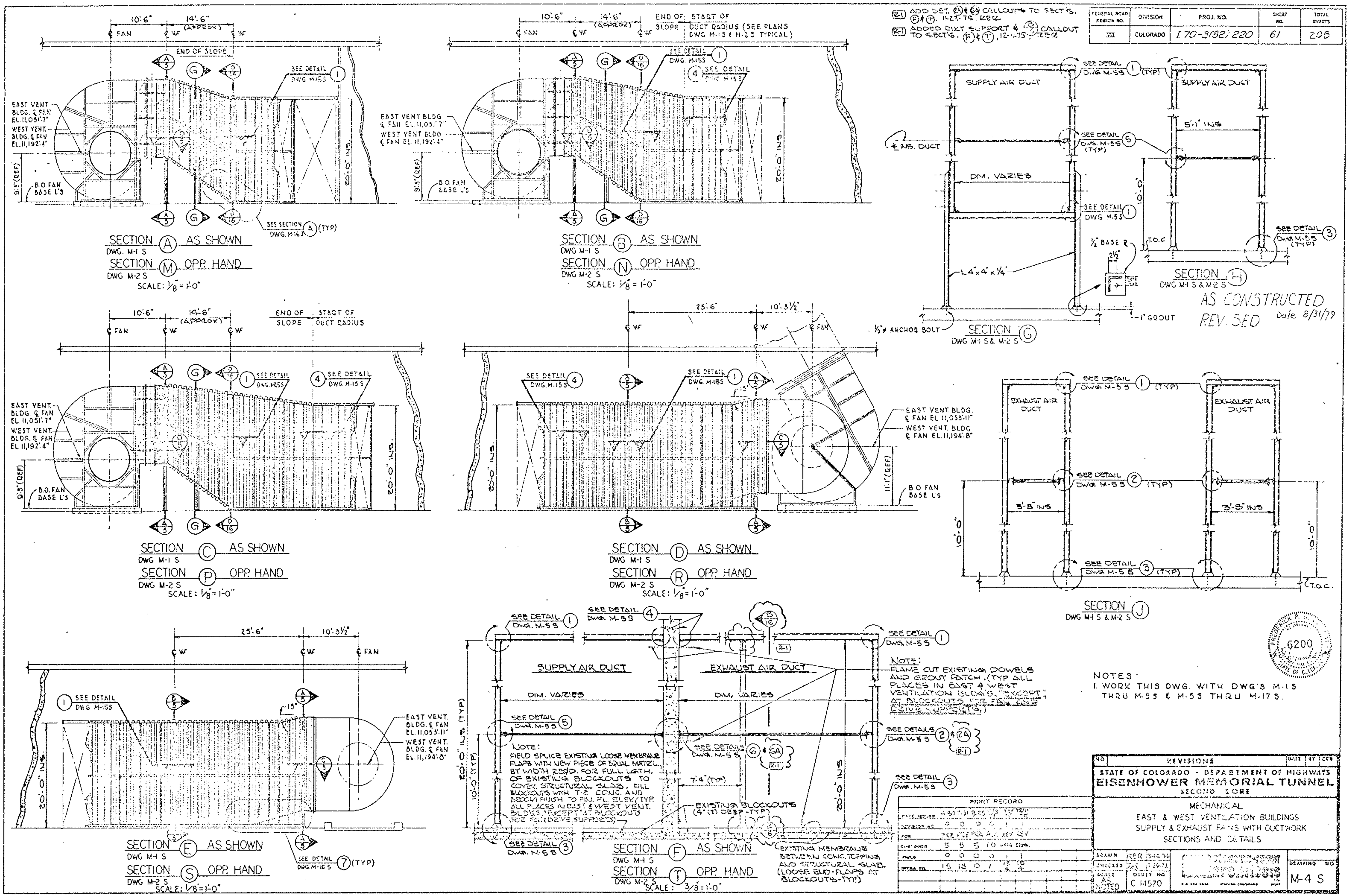
NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
EAST & WEST VENTILATION BUILDINGS
ROOF PLANS

DRAWN		4-1-74
CHECKED		
SCALE 1/8"=1'-0"	ORDER NO. C 14570	

DRAWING NO. M-3 S

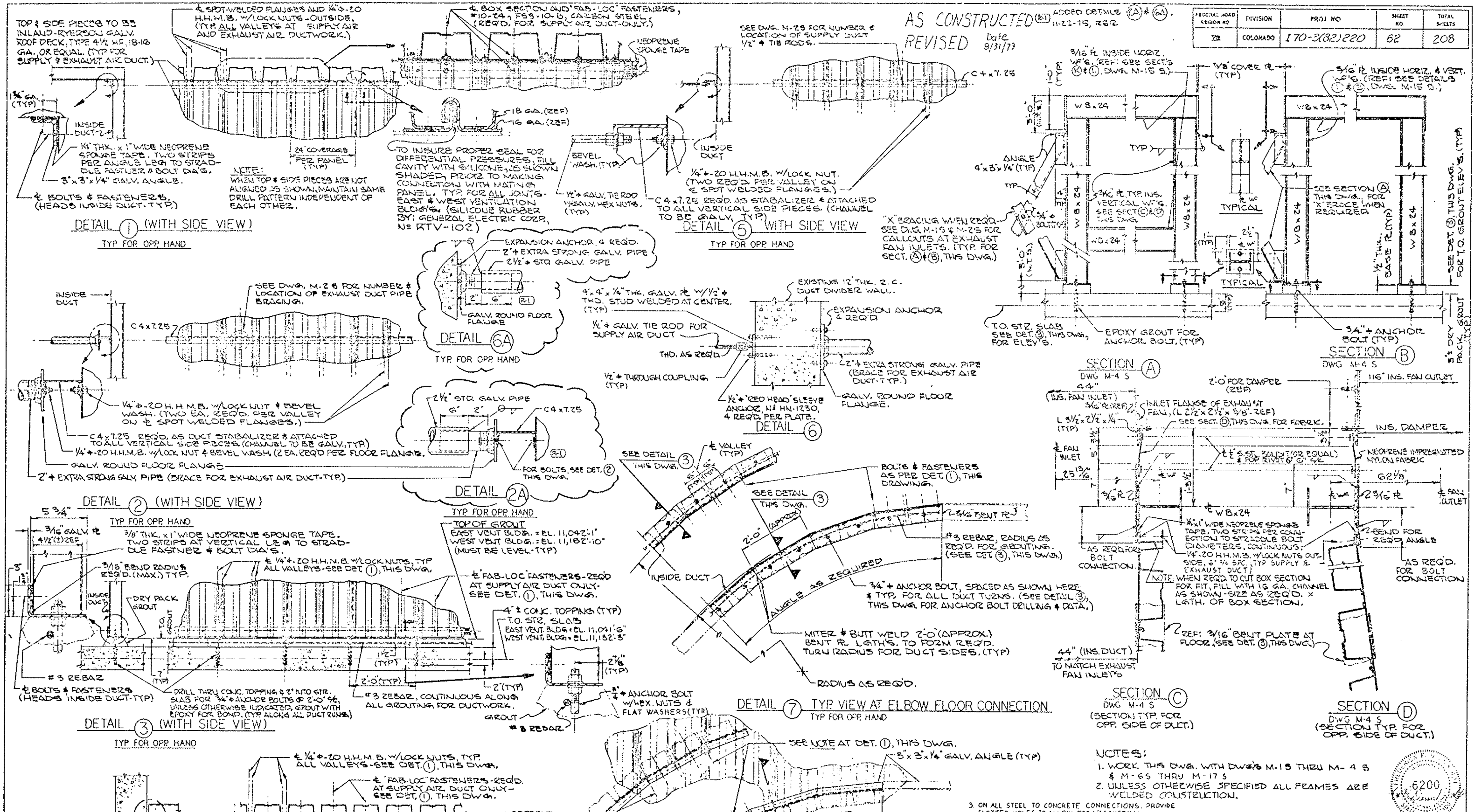


ADD DET. 2A & 6A CALLOUTS TO SECT'S. F & T. 11-27-75 RER
ADDED DUCT SUPPORT & CALLOUT TO SECT'S. F & T. 12-1-75 RER
FEDERAL ROAD REGION NO. | DIVISION | PROJ. NO. | SHEET NO. | TOTAL SHEETS
VIII | COLORADO | I 70-3(62) 220 | 61 | 205
SECTION A AS SHOWN DWG. M-1 S
SECTION M OPP. HAND DWG M-2 S
SCALE: 1/8" = 1'-0"
SECTION B AS SHOWN DWG. M-1 S
SECTION N OPP. HAND DWG M-2 S
SCALE: 1/8" = 1'-0"
SECTION G DWG M-1 S & M-2 S
SECTION H DWG M-1 S & M-2 S
AS CONSTRUCTED REV. SED Date 8/31/79
SECTION C AS SHOWN DWG M-1 S
SECTION P OPP. HAND DWG M-2 S
SCALE: 1/8" = 1'-0"
SECTION D AS SHOWN DWG M-1 S
SECTION R OPP. HAND DWG M-2 S
SCALE: 1/8" = 1'-0"
SECTION J DWG M-1 S & M-2 S
SECTION E AS SHOWN DWG M-1 S
SECTION S OPP. HAND DWG M-2 S
SCALE: 1/8" = 1'-0"
SECTION F AS SHOWN DWG M-1 S
SECTION T OPP. HAND DWG M-2 S
SCALE: 3/8" = 1'-0"
EAST VENT BLDG. ℄ FAN EL. 11,051'-7"
WEST VENT BLDG. ℄ FAN EL. 11,192'-4"
EAST VENT. BLDG. ℄ FAN EL. 11,053'-11"
WEST VENT. BLDG. ℄ FAN EL. 11,194'-8"
B.O. FAN BASE L'S
SUPPLY AIR DUCT
EXHAUST AIR DUCT
DIM. VARIES
NOTE: FIELD SPLICE EXISTING LOOSE MEMBRANE FLAPS WITH NEW PIECE OF EQUAL MATRL. BY WIDTH REQ'D. FOR FULL LGTH. OF EXISTING BLOCKOUTS TO COVER STRUCTURAL SLAB. FILL BLOCKOUTS WITH T-2 CONC. AND BROOM FINISH TO FIN. FL. ELEV. (TYP. ALL PLACES IN EAST & WEST VENT. BLDGS. "EXCEPT" AT BLOCKOUTS FOR FAN DRIVE SUPPORTS)
NOTE: FLAME CUT EXISTING DOWELS AND GROUT PATCH. (TYP ALL PLACES IN EAST & WEST VENTILATION BLDG'S. "EXCEPT" AT BLOCKOUTS FOR FAN DRIVE SUPPORTS)
EXISTING BLOCKOUTS (4" (±) DEEP-TYP)
EXISTING MEMBRANE BETWEEN CONC. TOPPING AND STRUCTURAL SLAB. (LOOSE END-FLAPS AT BLOCKOUTS-TYP)
NOTES:
1. WORK THIS DWG. WITH DWG'S M-1S THRU M-3S & M-5S THRU M-17S.
REVISIONS
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
MECHANICAL
EAST & WEST VENTILATION BUILDINGS
SUPPLY & EXHAUST FANS WITH DUCTWORK
SECTIONS AND DETAILS
PRINT RECORD
SCALE AS NOTED
ORDER NO. C 11570
DRAWING NO. M-4 S

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XX	COLORADO	I70-3(82)220	62	208

AS CONSTRUCTED
REVISED Date 9/31/77

ADDED DETAILS (2A) & (6A) 11-22-75, RER



NOTES:
1. WORK THIS DWG. WITH DWG'S M-1S THRU M-4 S & M-6S THRU M-17 S
2. UNLESS OTHERWISE SPECIFIED ALL FRAMES ARE WELDED CONSTRUCTION.
3. ON ALL STEEL TO CONCRETE CONNECTIONS, PROVIDE SLOTTED HOLES TO ALLOW FOR ±¼" THERMAL EXPANSION/CONTRACTION

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

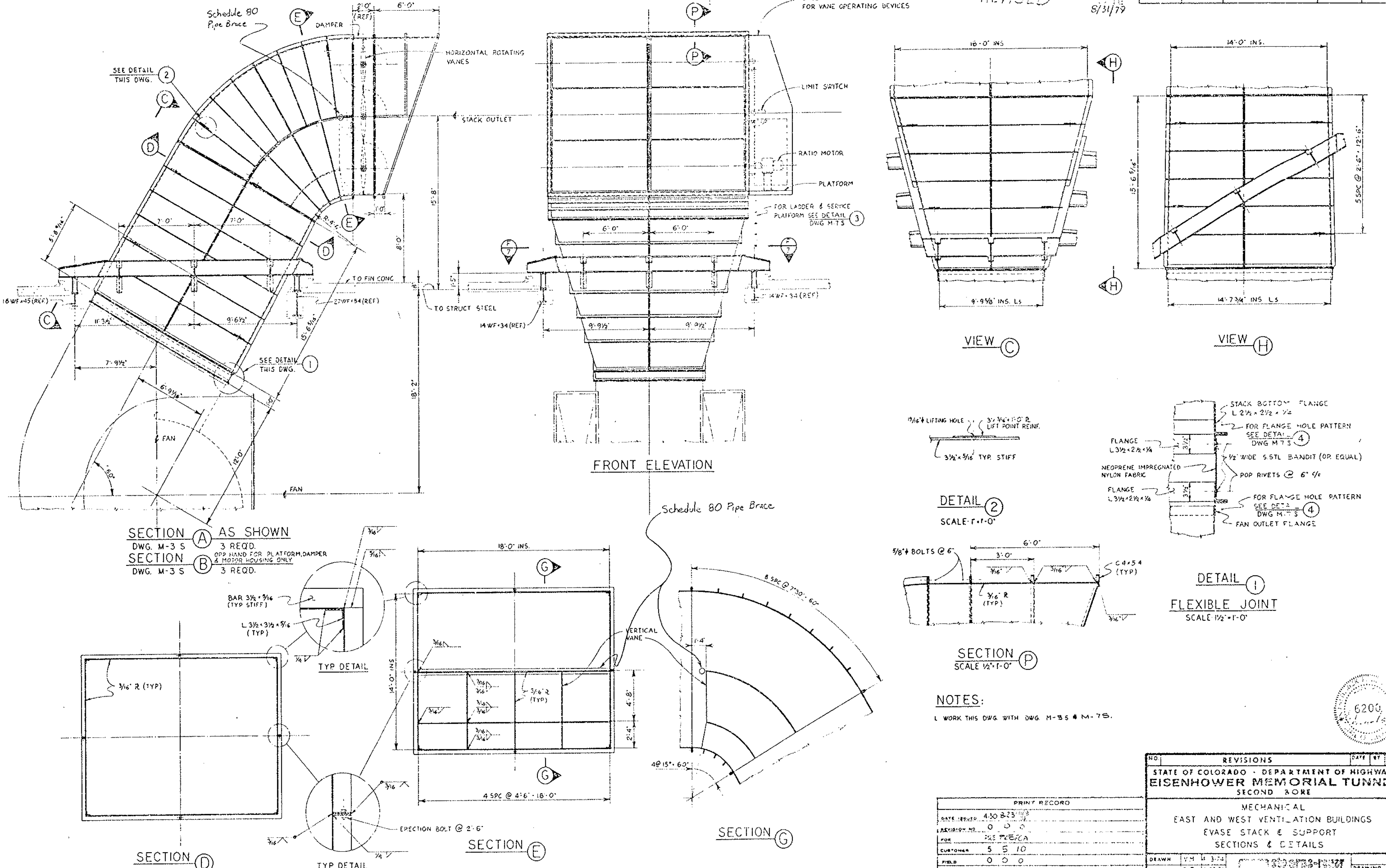
MECHANICAL
EAST & WEST VENTILATION BUILDINGS
DUCTWORK SECTIONS & DETAILS

DRAWN RER 4-23-74
CHECKED
SCALE NONE
ORDER NO. C 14570
DRAWING NO. M-5 S

D O H FORM NO. 126
Rev. October, 1972

AS CONSTRUCTED
REVISED 8/31/79

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
IX	COLORADO	I 70-3(82) 220	63	208



NOTES:

1. WORK THIS DWG. WITH DWG. M-3 S & M-7 S.

PRINT RECORD			
DATE ISSUED	4-30	8-23	[illegible]
REVISION NO.	0	0	0
FOR	PRE PIERCA		
CUSTOMER	5	5	10
FIELD	0	0	0
INTRA CO.	15	0	1

NO.	REVISIONS	DATE	BY	CKD

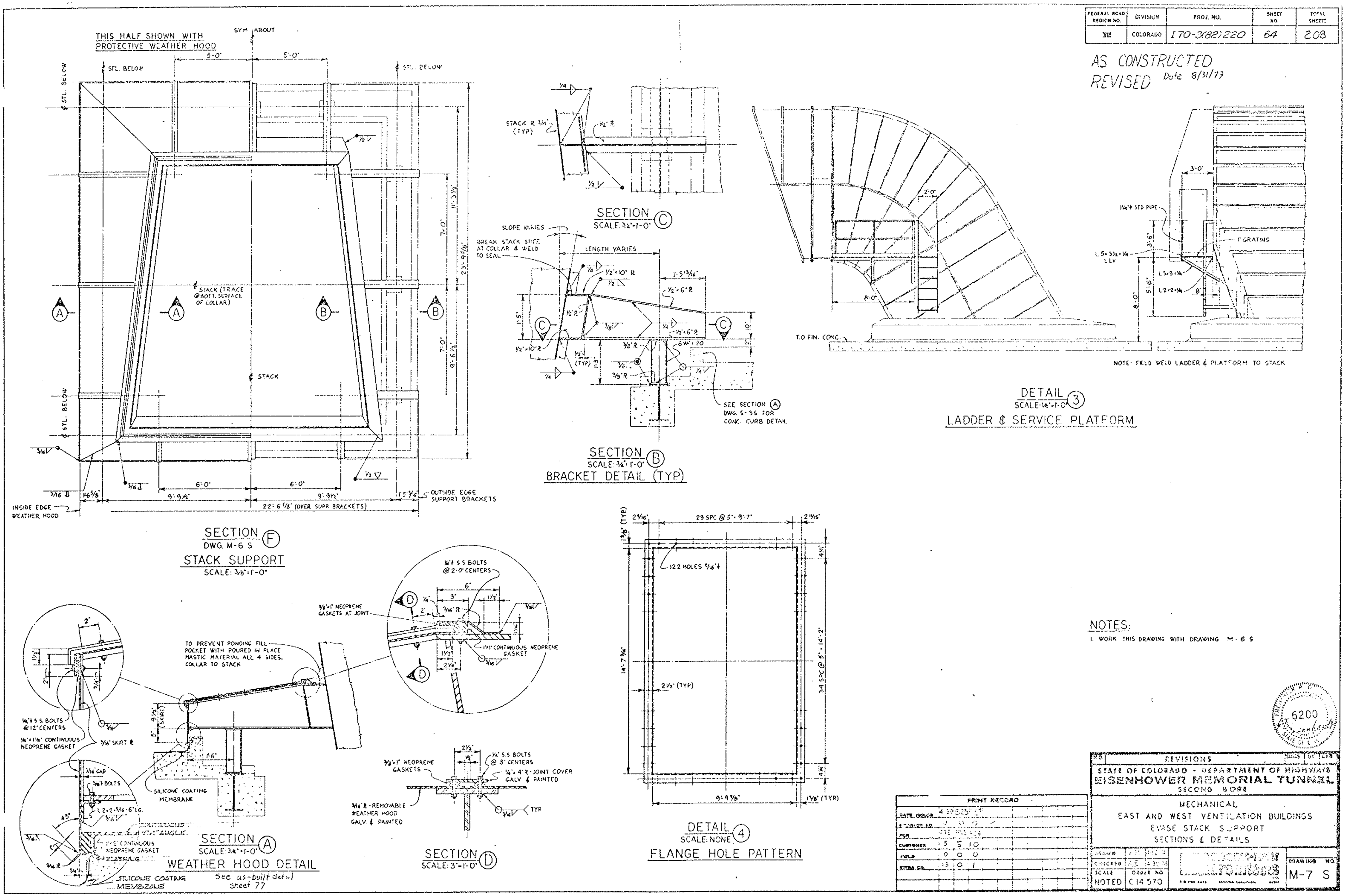
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
EAST AND WEST VENTILATION BUILDINGS
EVASE STACK & SUPPORT
SECTIONS & DETAILS

DRAWN	V.H.	3-74
CHECKED	[illegible]	4-29-74
SCALE 1/4" = 1'-0" U.N.	ORDER NO. C 14 570	

DRAWING NO. M-6 S

6200



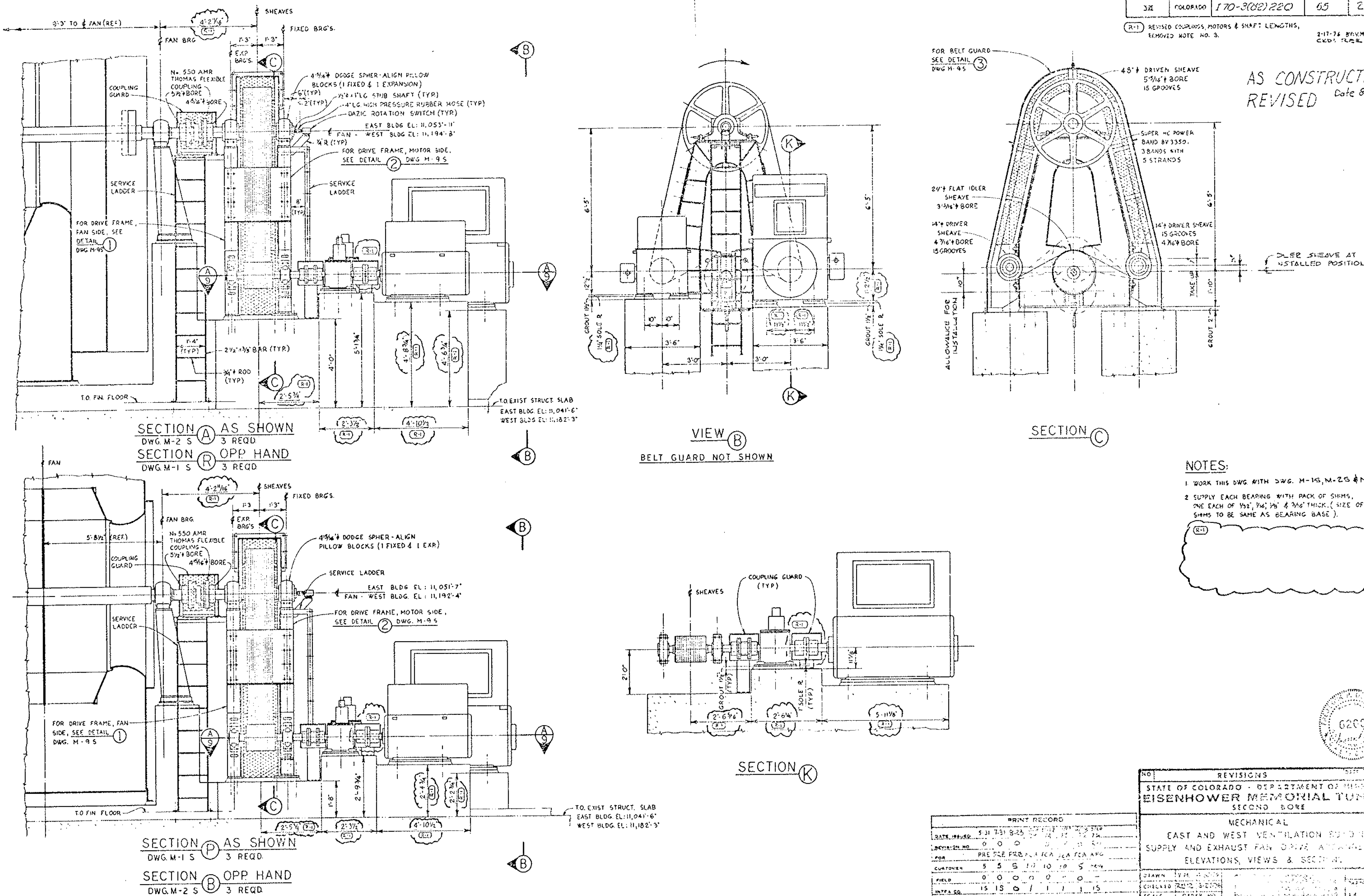
U. S. R. FORM NO. 1A5 Rev. October, 1972
FEDERAL ROAD REGION NO. VIII
DIVISION COLORADO
PROJ. NO. I 70-3(82)220
SHEET NO. 64
TOTAL SHEETS 208
AS CONSTRUCTED
REVISED Date 8/31/79
THIS HALF SHOWN WITH PROTECTIVE WEATHER HOOD
SYM ABOUT
STL. BELOW
STACK (TRACE @ BOTT. SURFACE OF COLLAR)
STACK
INSIDE EDGE WEATHER HOOD
OUTSIDE EDGE SUPPORT BRACKETS
22'-6 5/8" (OVER SUPP. BRACKETS)
SECTION F
DWG. M-6 S
STACK SUPPORT
SCALE: 3/8"=1'-0"
STACK R 3/8" (TYP)
SECTION C
SCALE: 3/4"=1'-0"
SLOPE VARIES
BREAK STACK STIFF. AT COLLAR & WELD TO SEAL
LENGTH VARIES
SEE SECTION A DWG. S-35 FOR CONC. CURB DETAIL
SECTION B
SCALE: 3/4"=1'-0"
BRACKET DETAIL (TYP)
T.O FIN. CONC.
1 1/4" STD PIPE
1" GRATING
NOTE: FIELD WELD LADDER & PLATFORM TO STACK
DETAIL 3
SCALE: 1/8"=1'-0"
LADDER & SERVICE PLATFORM
3/4" S.S. BOLTS @ 2'-0" CENTERS
3/8"x1" NEOPRENE GASKETS AT JOINT
1"x1" CONTINUOUS NEOPRENE GASKET
TO PREVENT PONDING FILL POCKET WITH POURED IN PLACE MASTIC MATERIAL ALL 4 SIDES, COLLAR TO STACK
1/4" S.S. BOLTS @ 12" CENTERS
3/4"x1 1/4" CONTINUOUS NEOPRENE GASKET
3/16" SKIRT R
SILICONE COATING MEMBRANE
1"x2" CONTINUOUS NEOPRENE GASKET
SILICONE COATING MEMBRANE
SECTION A
SCALE: 3/4"=1'-0"
WEATHER HOOD DETAIL
See as-built detail sheet 77
3/8"x1" NEOPRENE GASKETS
3/16" R REMOVABLE WEATHER HOOD GALV. & PAINTED
1/4" S.S. BOLTS @ 8" CENTERS
1/4"x 4" R JOINT COVER GALV. & PAINTED
SECTION D
SCALE: 3"=1'-0"
29 SPC @ 5" = 9'-7"
122 HOLES 9/16"φ
34 SPC @ 5" = 14'-2"
DETAIL 4
SCALE: NONE
FLANGE HOLE PATTERN
NOTES:
1. WORK THIS DRAWING WITH DRAWING M-6 S
PRINT RECORD
REVISIONS
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
MECHANICAL
EAST AND WEST VENTILATION BUILDINGS
EVASE STACK SUPPORT
SECTIONS & DETAILS
SCALE NOTED
ORDER NO. C14 570
DRAWING NO. M-7 S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	65	293

(R-1) REVISED COUPLINGS, MOTORS & SHAFT LENGTHS, REMOVED NOTE NO. 3. 2-17-76 BY V.M. CKD: R.E.R.

AS CONSTRUCTED
REVISED Date 8/31/79



NOTES:

1. WORK THIS DWG WITH DWG. M-1S, M-2S & M-9S.
2. SUPPLY EACH BEARING WITH PACK OF SHIMS, ONE EACH OF 1/32", 1/16", 1/8" & 3/16" THICK. (SIZE OF SHIMS TO BE SAME AS BEARING BASE).

(R-1)

PRINT RECORD								
DATE ISSUED	5-31	7-31	8-23					
REVISION NO.	0	0	0					
FOR	PRE	PRE	PRE	FCA	FCA	FCA	FCA	AFC
CUSTOMER	5	5	5	10	10	10	5	
FIELD	0	0	0	0	0	-	0	-
INTRA CO.	15	15	0	1	1	1	1	15

REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
EAST AND WEST VENTILATION BUILDING
SUPPLY AND EXHAUST FAN DRIVE ARRANGEMENT
ELEVATIONS, VIEWS & SECTIONS

DRAWN V.M.
CHECKED R.E.R.
SCALE 1/2" = 1'-0"
ORDER NO. C14570
M-9 S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 126
Rev. October, 1972

(R-1) REVISED COUPLINGS, MOTORS & SHAFT LENGTHS, REMOVED NOTE NO. 3. 2-18-76 BY V.M.

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	66	208

AS CONSTRUCTED
REVISED Date 8/31/79

SECTION (A)
DWG M-8 S
SCALE: ½"=1'-0"

DETAIL (1)
SCALE: ¾"=1'-0"

DETAIL (2)
SCALE: ¾"=1'-0"

SECTION (A)
SCALE: ¾"=1'-0"

SECTION (B)
SCALE: ¾"=1'-0"

DETAIL (3)
SCALE: ½"=1'-0"

SECTION (D)
SCALE: ½"=1'-0"

SECTION (C)
SCALE ¾"=1'-0"

SECTION (G)
SCALE: ¾"=1'-0"

NOTES:

1. WORK THIS DRAWING WITH DRAWING M-6S
2. FABR TO ASSUME RESPONSIBILITY FOR CHANGES TO BE MADE IF HE USES EQUIP OTHER THAN THAT SHOWN.

(R-1)

SECTION (E)
SCALE: ½"=1'-0"

SECTION (F)
SCALE: ½"=1'-0"

SECTION (H)
SCALE: ¾"=1'-0"

6200

PRINT RECORD								
DATE ISSUED	5-31	7-31	8-23	[illegible]	11-12	[illegible] 74	4-23 75	2-16 76
REVISION NO	0	0	0	0	0	0	0	R-1
FOR	PQE	PQE	PRE	FCA	FCA	FCA	FCA	AFC
CUSTOMER	5	5	5	10	10	10	5	ORIG
FIELD	0	0	0	0	0	–	0	–
INTRA CO.	15	15	0	1	1	1	1	15

NO | REVISIONS

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

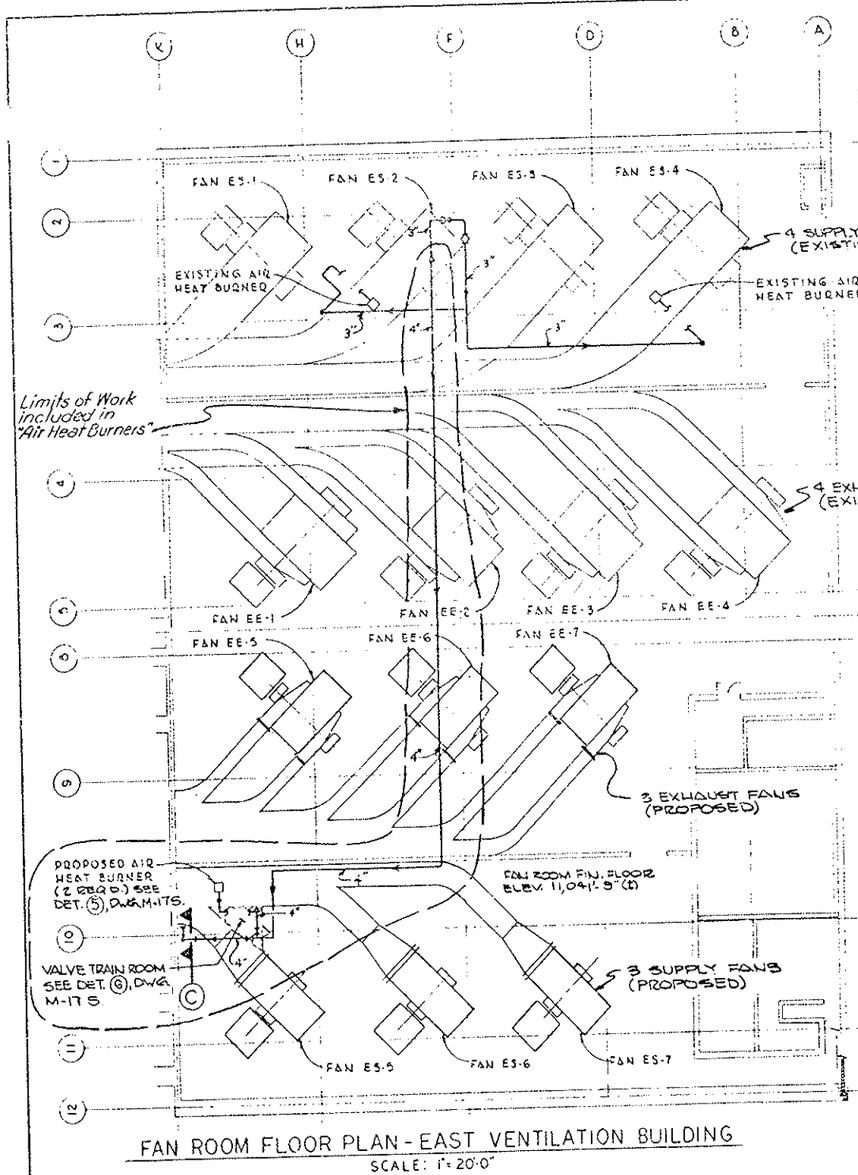
MECHANICAL
EAST AND WEST VENTILATION BUILDING
SUPPLY AND EXHAUST FAN DRIVES
PLAN, SECTIONS & DETAILS

DRAWN V.M. 5-20-74
CHECKED ZBR 9-08-74
SCALE NOTED
ORDER NO C 14 570
DRAWING NO. M-9 S

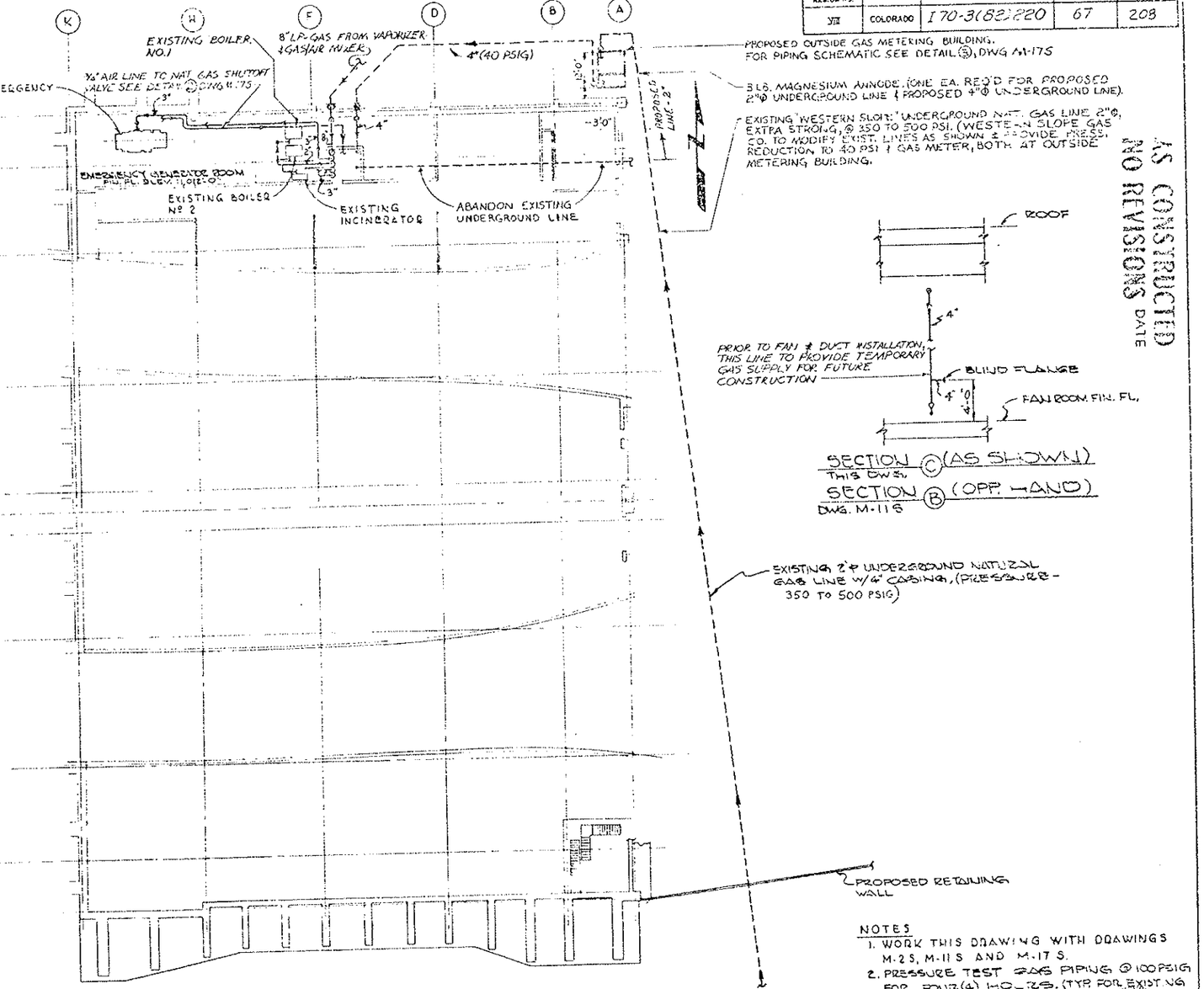
DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 136
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	67	208

AS CONSTRUCTED
NO REVISIONS DATE



FAN ROOM FLOOR PLAN - EAST VENTILATION BUILDING
SCALE: 1"=20'-0"



ROADWAY FLOOR PLAN
EAST VENTILATION BUILDING
SCALE: 1"=20'-0"

SECTION ⓒ (AS SHOWN)
This Dwg.
SECTION Ⓑ (OPP. HAND)
Dwg. M-11S

NOTES
1. WORK THIS DRAWING WITH DRAWINGS M-2S, M-11S AND M-17S.
2. PRESSURE TEST GAS PIPING @ 100PSIG FOR FOUR(4) HOURS. (TYP FOR EXISTING & NEW PIPE RUNS.)

6200

NO	REVISIONS	DATE APPROVED

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
MECHANICAL
EAST GAS METERING STATIONS AND PIPING MODIFICATIONS
PLANS & SECTIONS

PRINT RECORD

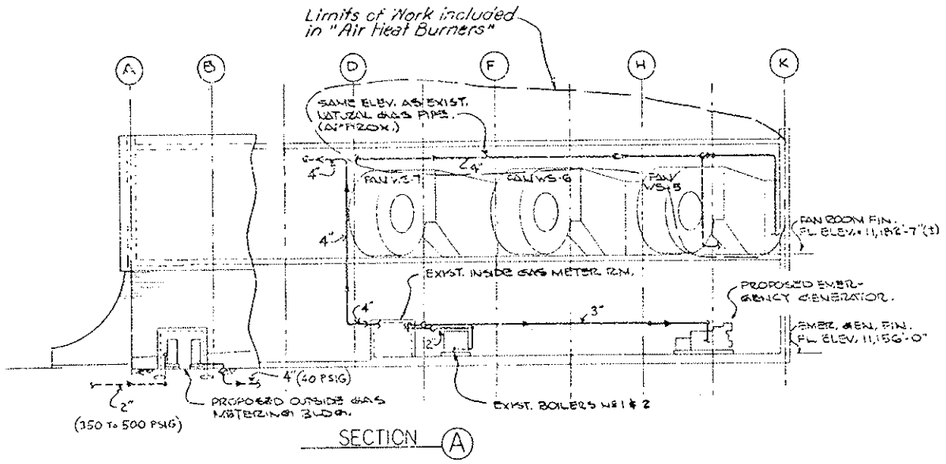
DATE ISSUED	T-Bl	8-23						
REVISION NO.	0	0	0	0	0	0		
FOR	PRE BID	FOR	FOR	FOR	FOR			
CUSTOMER	5	5	10	10	5	5		
FIELD	0	0	0	0	0	0		
INTRA CO.	18	0	1	1	1	1		

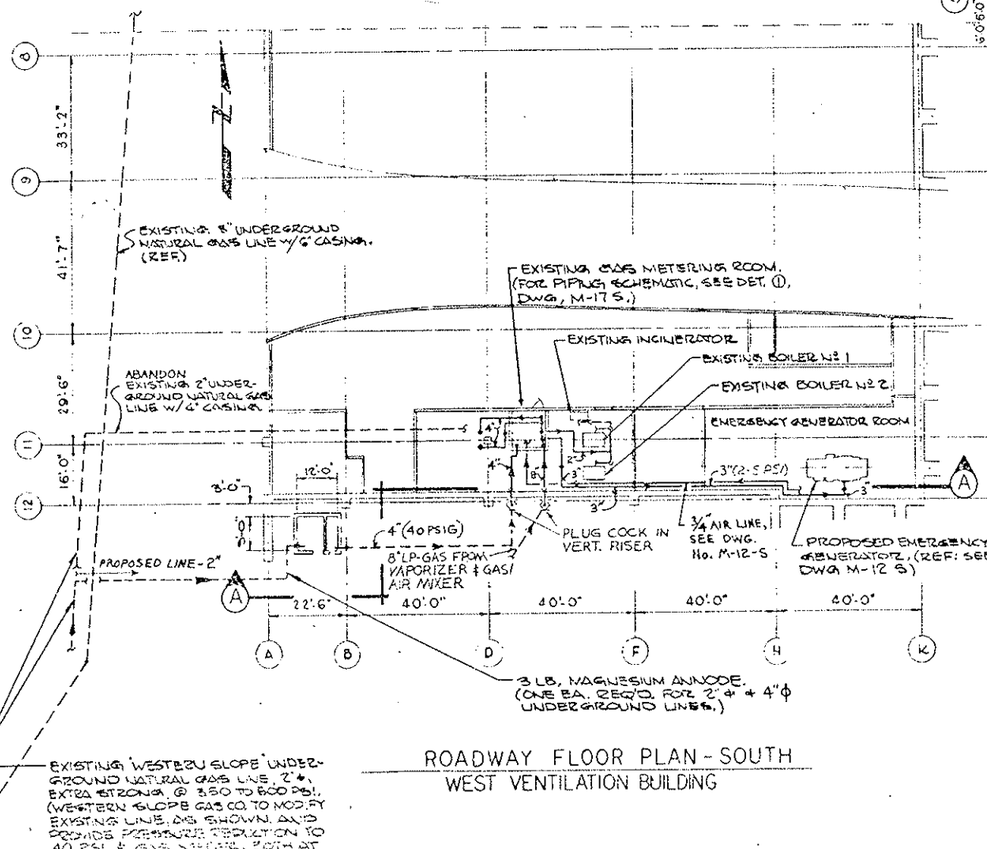
DRAWN JAE 5-24-74
CHECKED DS 9-23-74
SCALE AS NOTED
ORDER NO. C-14570
DRAWING NO. M-10S

D. O. H. FORM NO. 126
Rev. October, 1972

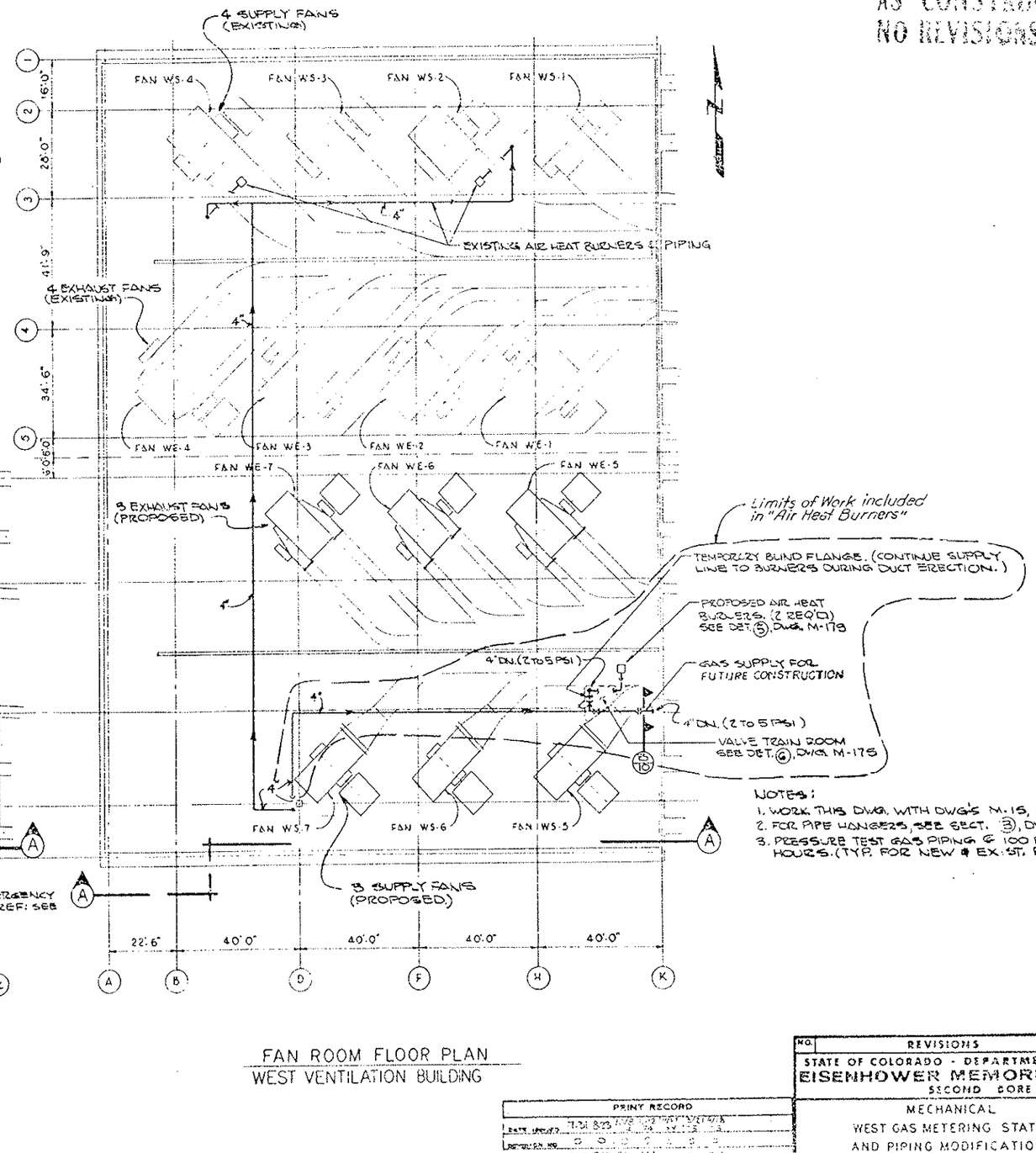
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VII	COLORADO	I 70-3(82) 220	68	208

AS CONSTRUCTED
NO REVISIONS DATE





ROADWAY FLOOR PLAN - SOUTH
WEST VENTILATION BUILDING



NOTES:
1. WORK THIS DWG. WITH DWG'S M-15, M-106 & M-175.
2. FOR PIPE HANGERS, SEE SECT. ③, DWG. M-10 S.)
3. PRESSURE TEST GAS PIPING @ 100 PSIG FOR FOUR(4) HOURS. (TYP. FOR NEW & EXIST. PIPE RUNS.)

FAN ROOM FLOOR PLAN
WEST VENTILATION BUILDING

REGISTERED PROFESSIONAL ENGINEER 6209 STATE OF COLORADO

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
WEST GAS METERING STATIONS
AND PIPING MODIFICATIONS
PLANS & SECTION

PRINT RECORD	
DATE UPDATED	7-31-73
REVISION NO.	0 0 1 2 3 4 5
FOR	PRE PRE FOR FOR FOR FOR
CUSTOMER	S S 10 10 10 S S
TYPE	0 0 0 0 0 0 0
INITIAL CO.	IS 0 I I I I I

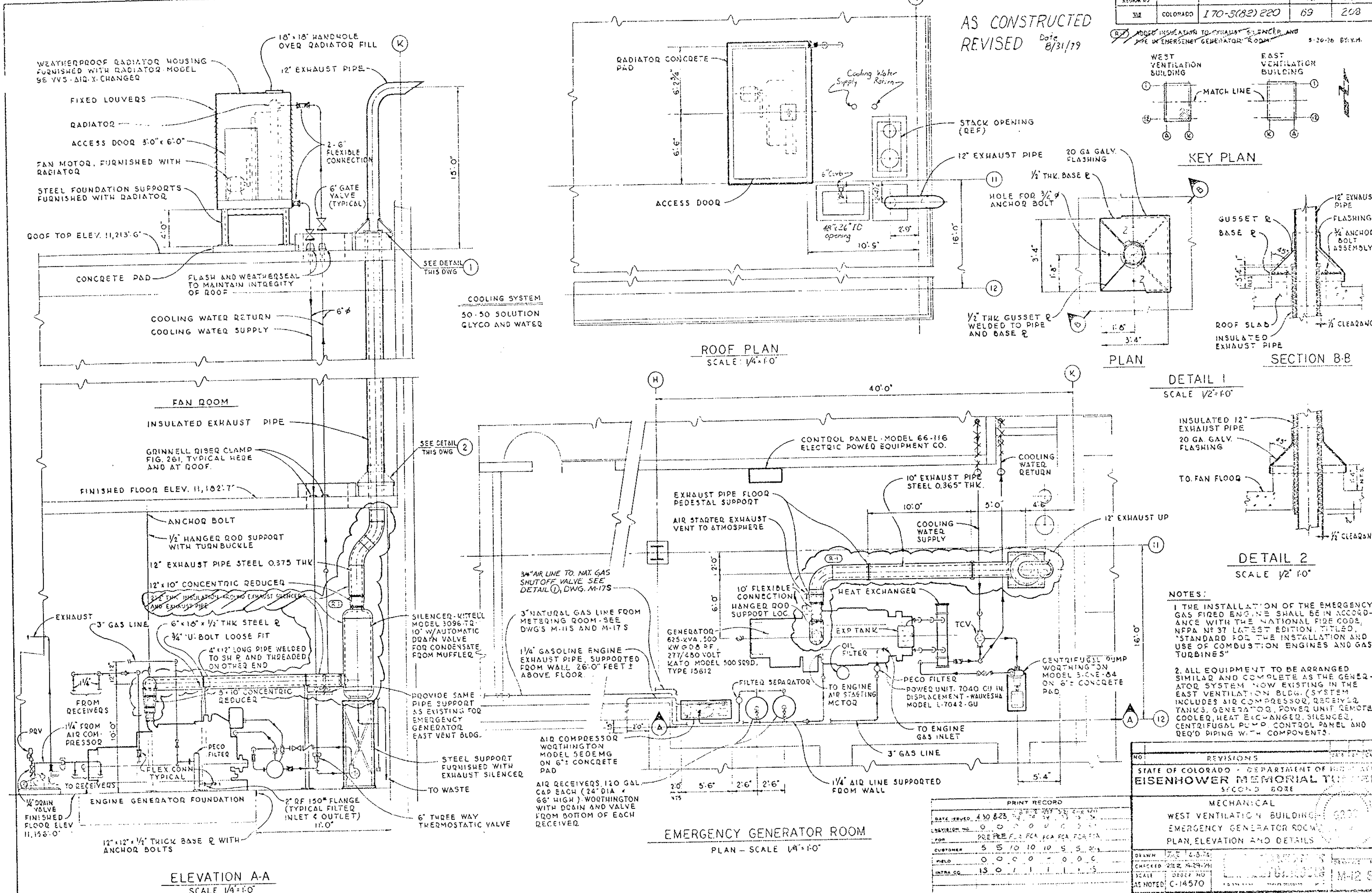
DRAWN	JWF	2-18-74	
CHECKED	JRS	9-23-74	
SCALE	1"=20'-0"	ORDER NO.	C-14570

DRAWING NO. M-11 S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
7	COLORADO	I 70-3(82) 220	69	208

AS CONSTRUCTED
REVISED Date 8/31/79



R-1 ADDED INSULATION TO EXHAUST SILENCER AND PIPE IN EMERGENCY GENERATOR ROOM 5-20-86 BY:V.M.

NOTES:

1. THE INSTALLATION OF THE EMERGENCY GAS FIRED ENGINE SHALL BE IN ACCORDANCE WITH THE NATIONAL FIRE CODE, NFPA Nº 37 LATEST EDITION, TITLED, "STANDARD FOR THE INSTALLATION AND USE OF COMBUSTION ENGINES AND GAS TURBINES"

2. ALL EQUIPMENT TO BE ARRANGED SIMILAR AND COMPLETE AS THE GENERATOR SYSTEM NOW EXISTING IN THE EAST VENTILATION BLDG. (SYSTEM INCLUDES AIR COMPRESSOR, RECEIVER TANKS, GENERATOR, POWER UNIT, REMOTE COOLER, HEAT EXCHANGER, SILENCER, CENTRIFUGAL PUMP, CONTROL PANEL AND REQ'D PIPING WITH COMPONENTS.

PRINT RECORD

DATE ISSUED	4-10	8-23						
REVISION NO.	0	0	0	0	0	0	0	
FOR	PRE	PRE	FCA	FCA	FCA	FCA	FCA	
CUSTOMER	5	5	10	10	10	5	5	
FIELD	0	0	0	0		0	0	0
INTRA CO.	15	0	1	1	1	1	1	5

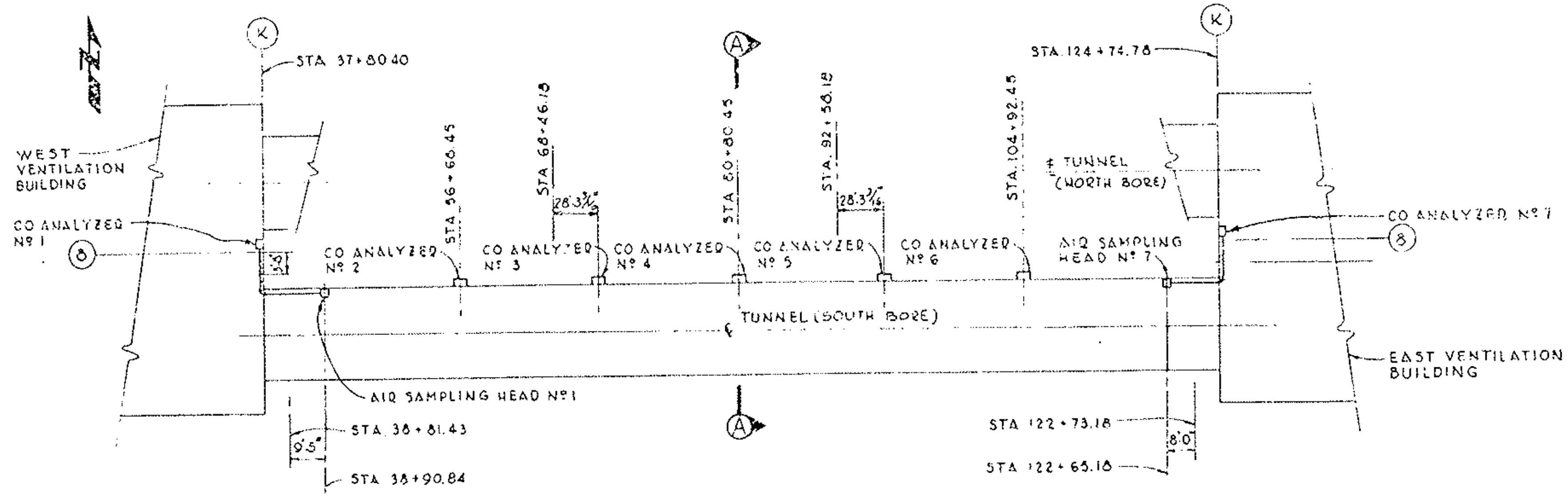
NO.	REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
MECHANICAL
WEST VENTILATION BUILDING
EMERGENCY GENERATOR ROOM
PLAN, ELEVATION AND DETAILS

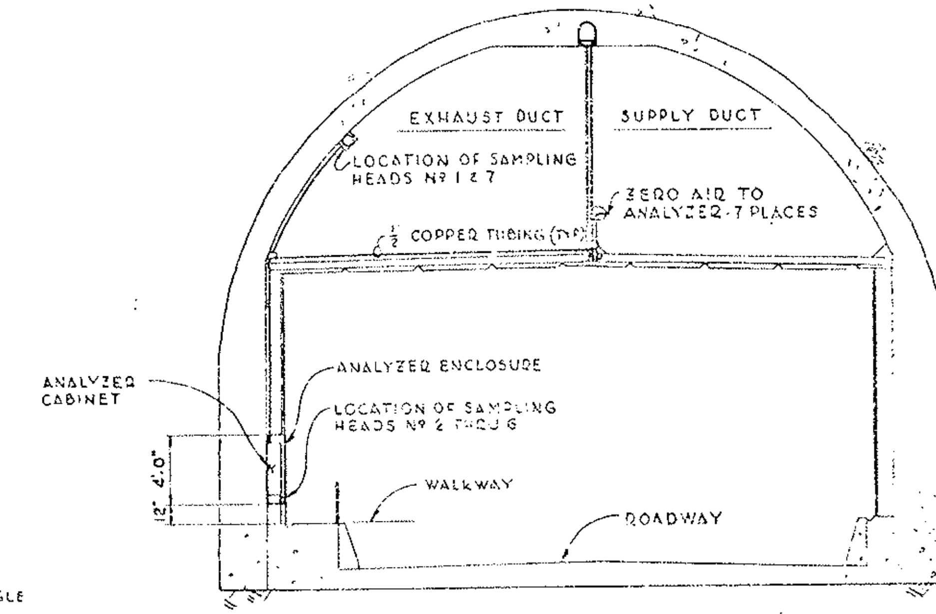
DRAWN 4-8-74
CHECKED 4-29-74
SCALE AS NOTED
DRAWING NO C-14570
M-12 S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 136
Rev. October, 1972

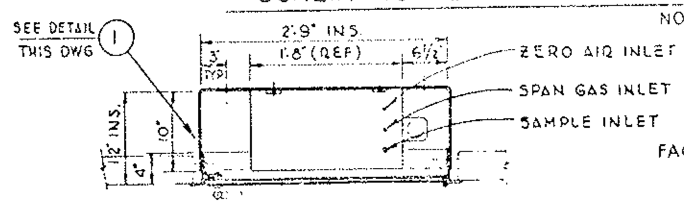
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82) 220	70	208



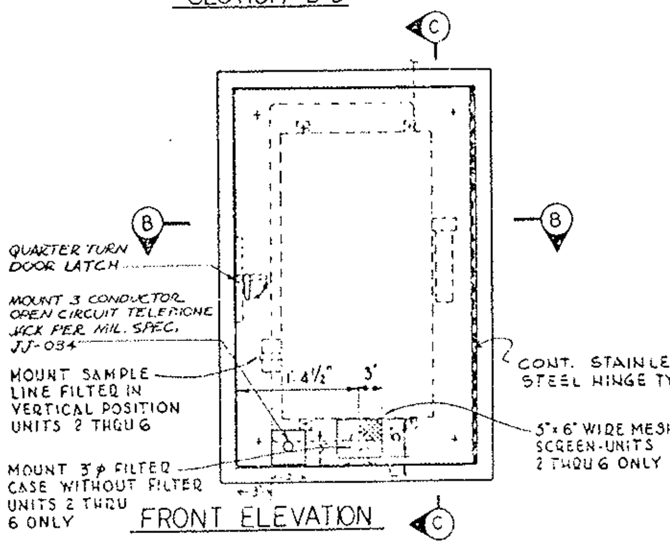
SCHEMATIC PLAN OF SOUTH TUNNEL AND PART OF VENTILATION BLDGS
NO SCALE



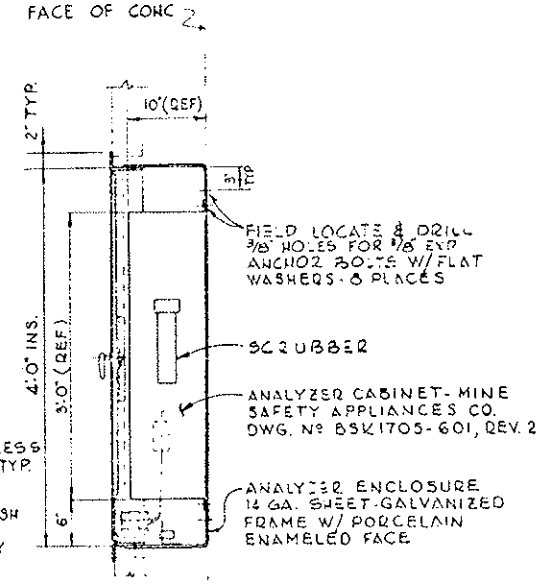
SECTION A-A TYPICAL
SCALE 3/16"=1'-0"



SECTION B-B

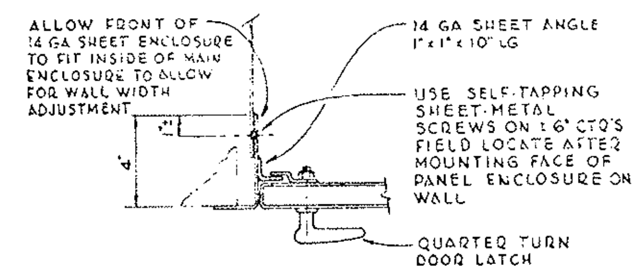


FRONT ELEVATION

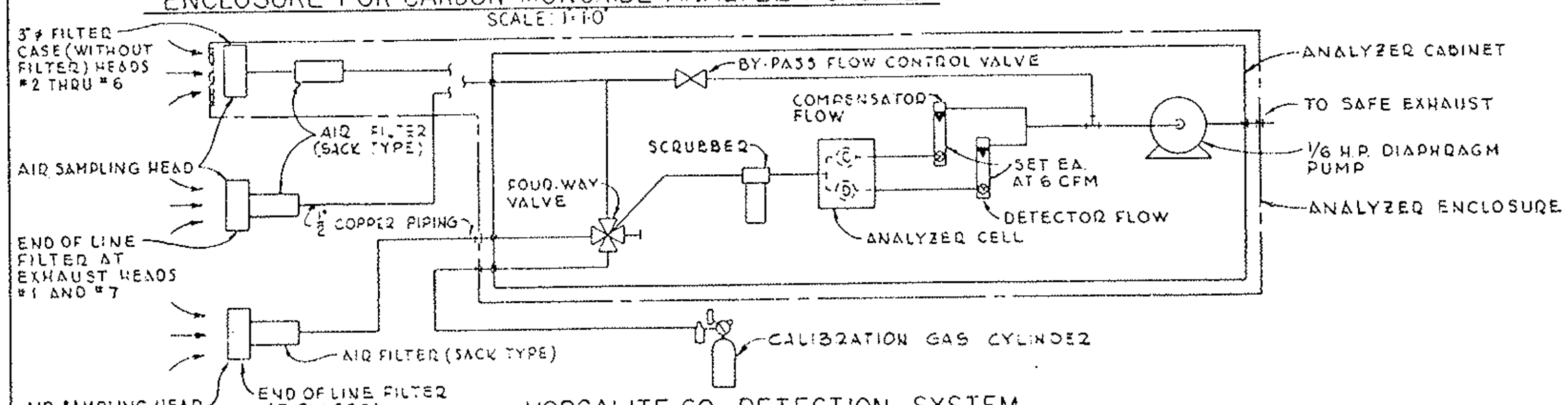


SECTION C-C

ENCLOSURE FOR CARBON MONOXIDE ANALYZER CABINET
SCALE: 1"=1'-0"



DETAIL 1
SCALE: 3"=1'-0"



HOPCALITE CO DETECTION SYSTEM
AIR SAMPLE FLOW DIAGRAM
NO SCALE

NOTES:
1. ALL ANALYZER CABINETS WILL HAVE AN ENCLOSURE AS DETAILED.
2. UNITS 2 THRU 6 WILL BE MOUNTED ON WALL ALONG ROADWAY IN TUNNEL AND REQUIRE AIR SAMPLING HEAD ATTACHED TO ENCLOSURE DOOR WITH 5"×6" SCREEN.
3. UNITS 1 & 7 WILL BE MOUNTED IN EXIST. CO ANAL. ROOM IN VENTILATION BUILDINGS WITH AIR SAMPLING HEADS LOCATED IN EXHAUST DUCT-NOT ON ENCLOSURE DOOR.
4. CO ANALYZER VERTICAL PIPING SHALL TERMINATE IN A DRIP LEG, AND NO SAGS PERMITTED IN HORIZONTAL PIPING.

FOR INFORMATION ONLY

NO | REVISIONS

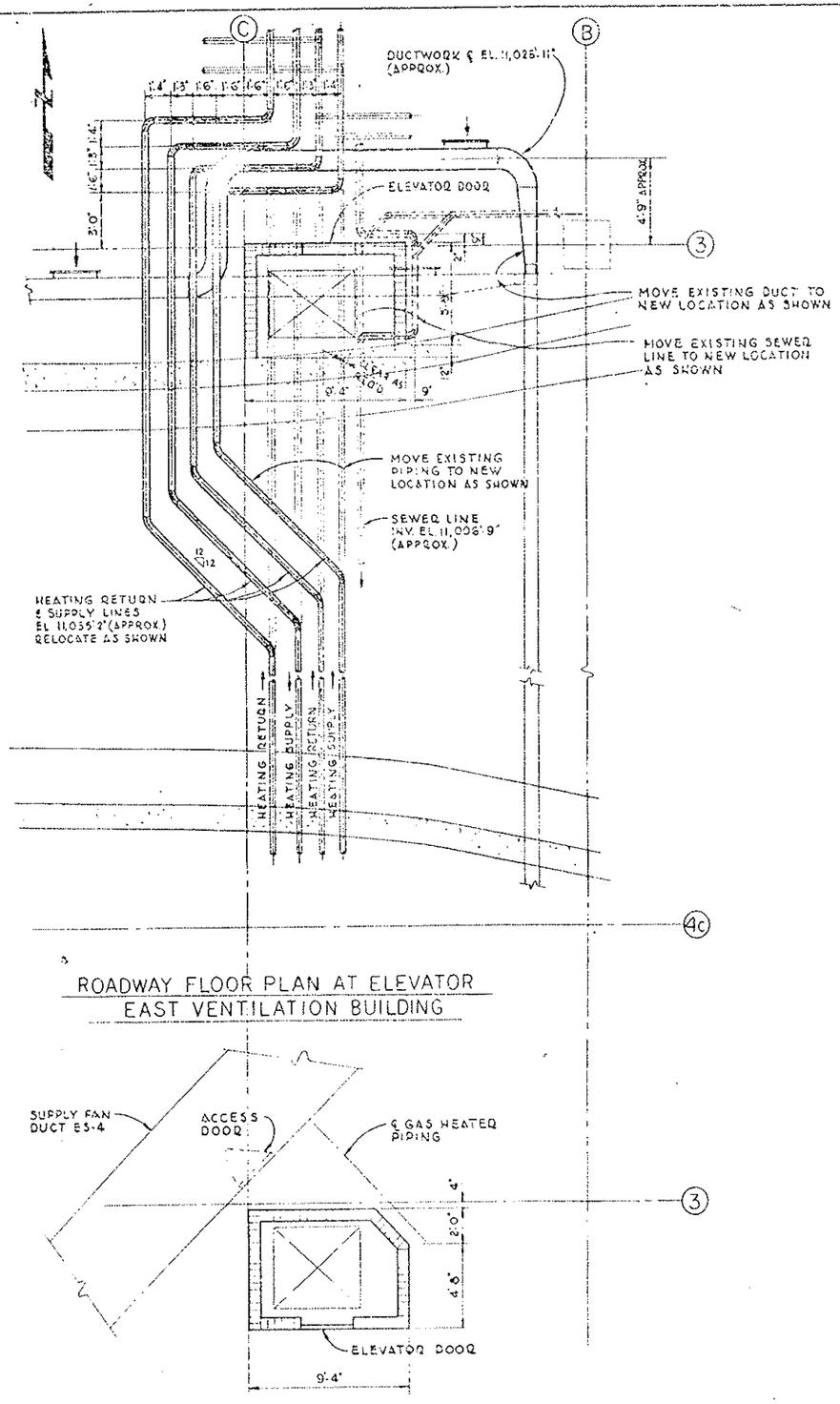
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
CARBON MONOXIDE SAMPLING AND ANALYZING SYSTEM
PLANS, SECTIONS AND DETAILS

SCALE AS NOTED | ORDER NO. C 14570 | DRAWING NO. M-13 S

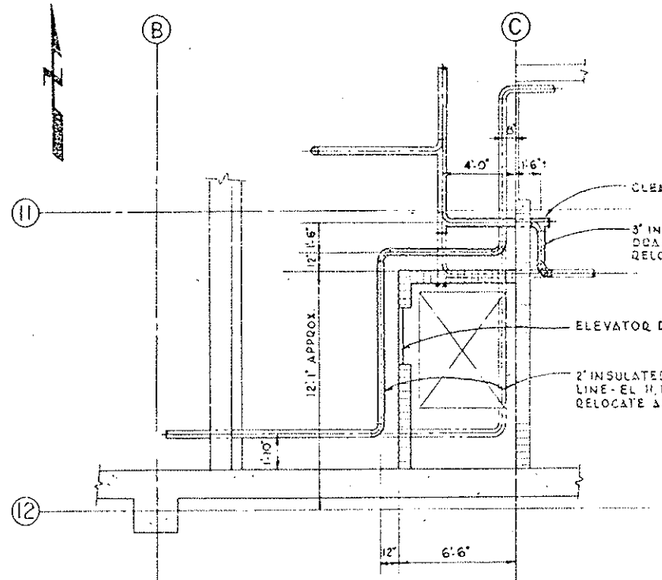
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	71	208

AS-CONSTRUCTED
NO REVISIONS DATE

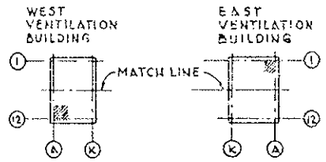


ROADWAY FLOOR PLAN AT ELEVATOR
EAST VENTILATION BUILDING

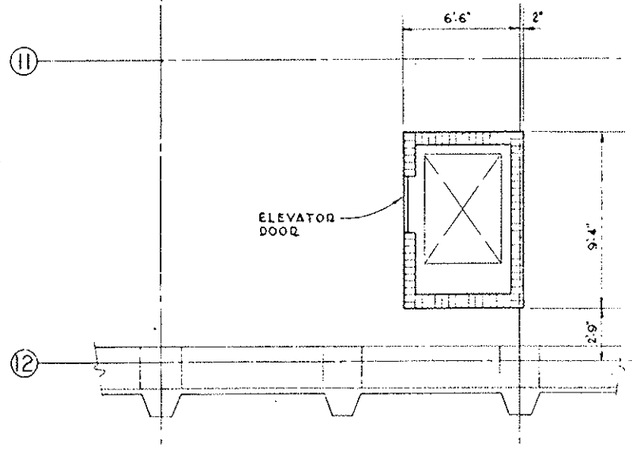
FAN ROOM FLOOR PLAN AT ELEVATOR
EAST VENTILATION BUILDING



ROADWAY FLOOR PLAN AT ELEVATOR
WEST VENTILATION BUILDING



KEY PLAN



FAN ROOM FLOOR PLAN AT ELEVATOR
WEST VENTILATION BUILDING

NOTES:

1. CONTRACTOR TO MODIFY & RELOCATE DUCTWORK & PIPING APPROXIMATELY AS SHOWN.
2. CONTRACTOR TO CHECK DUCTWORK & PIPING ELEVATIONS & DIMENSIONS.
3. FOR ELEVATOR REFERENCE SEE DWG'S S-4 S AND S-5 S.
4. FOR HEATING, VENTILATING & PLUMBING REFERENCES SEE PROJECT Nº I-70-3(34)220, DWG'S M-21 AND M-35.
5. PHANTOM LINES INDICATE EXISTING PIPING OR DUCTWORK TO BE RELOCATED.
6. SHADED LINES INDICATE NEW PIPING OR DUCTWORK TO BE ADDED.

PRINT RECORD	
DATE PRINTED	7 31 [illegible]
REVISION NO.	0 0
FOR	SEE PROJ. FILE
CUSTOMER	5 5 10
FIELD	0 0 0
MICRO. CO.	19 0 1

NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
EAST & WEST VENTILATION BUILDINGS
DUCTWORK & PIPING MODIFICATIONS FOR
ELEVATOR INSTALLATION - PLANS & DETAILS

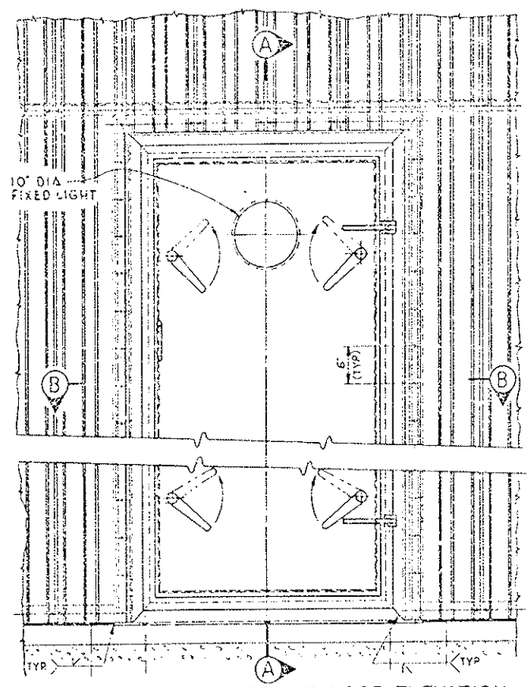
DRAWN	[illegible]	1-30-74
CHECKED	J. M.	2-5-74
SCALE	1/4"=1'-0"
ORDER NO.	C 14570
DRAWING NO.	M-14 S

[illegible]

Rev. October, 1972

AS CONSTRUCTED
NO REVISIONS DATE

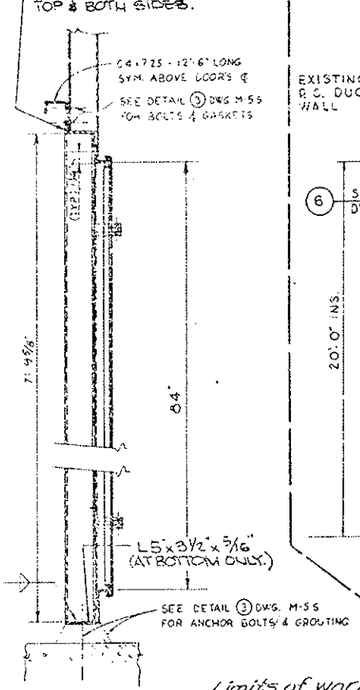
FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XX	COLORADO	I70-3(82)220	72	208



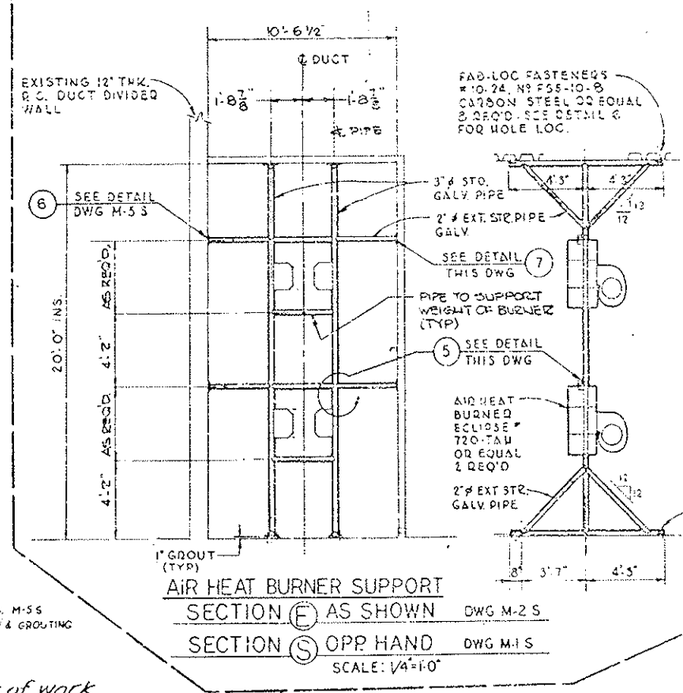
EXHAUST AIR DUCT PRESSURE DOOR ELEVATION

EAST VENTILATION BUILDING - AS SHOWN
WEST VENTILATION BUILDING - OPPOSITE HAND SCALE: 1/4"=1'0"

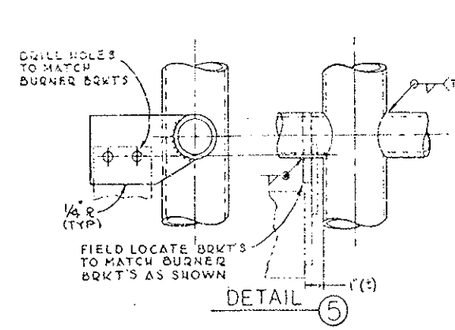
PRESSURE DOOR BY JULIUS MOCK & SONS, INC., BROOKLIN, N.Y., MODEL ON DWG. 261-A-1-SQ. WITH 4 DOGS, ONE 10"ø FIXED LIGHT AND TWO ADJUSTABLE HINGES.(OR EQUAL.)



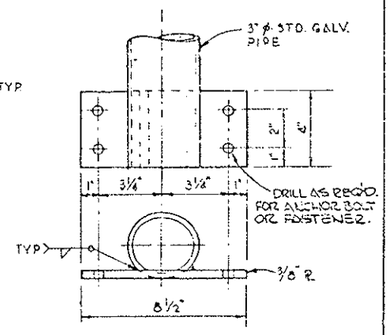
SECTION (A)
DOGS NOT SHOWN



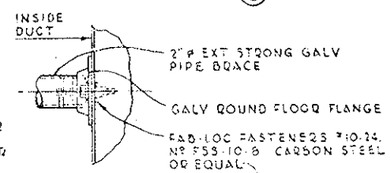
AIR HEAT BURNER SUPPORT
SECTION (E) AS SHOWN DWG M-2 S
SECTION (S) OPP HAND DWG M-1 S
SCALE: 1/4"=1'0"

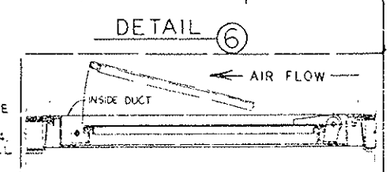


DETAIL (5)

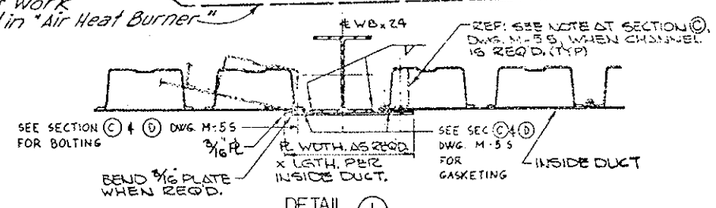


DETAIL (6)

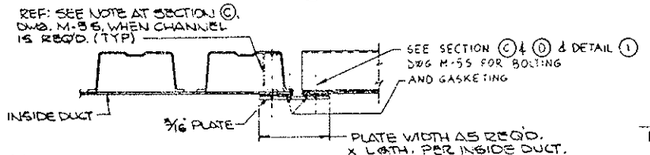




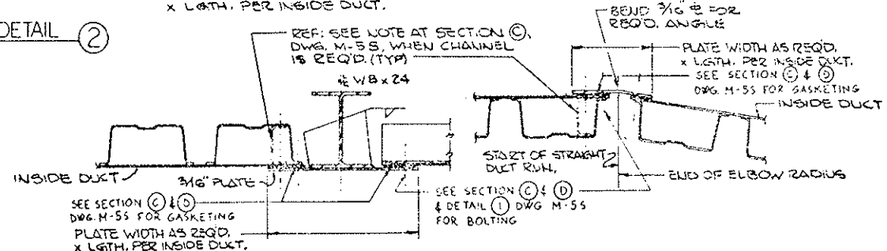
Limits of work included in "Air Heat Burner"



DETAIL (1)

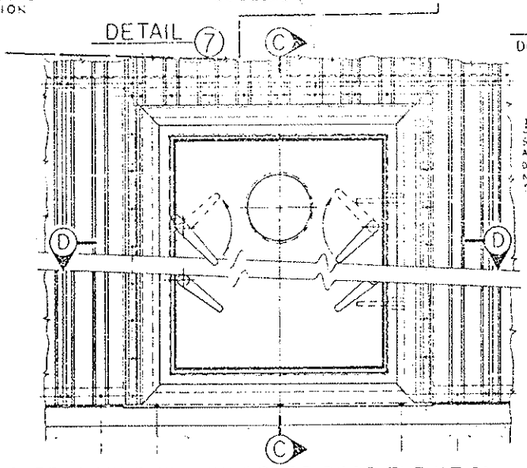


DETAIL (2)



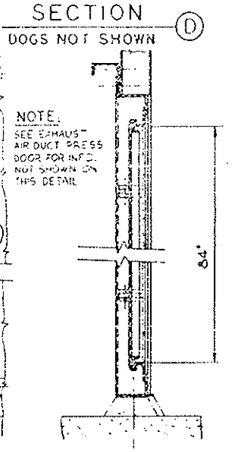
DETAIL (3)

DETAIL (4)



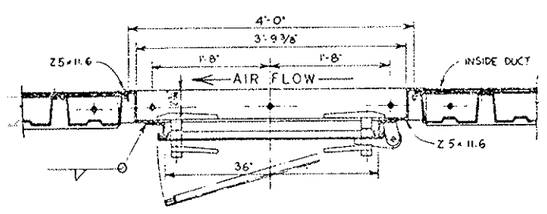
SUPPLY AIR DUCT PRESSURE DOOR ELEVATION
EAST VENT. BLDG.- AS SHOWN WEST VENT. BLDG.- OPP HAND SCALE: 1"=1'0"

DETAIL (7)

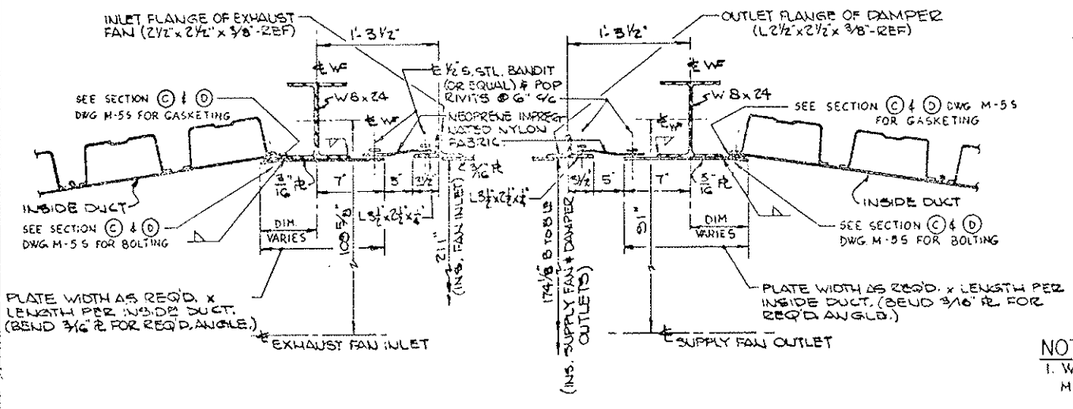


SECTION (D)
DOGS NOT SHOWN

SECTION (C)
DOGS NOT SHOWN



SECTION (B)



SECTION (K)
DWG M-1 S & M-2 S

SECTION (L)
DWG M-1 S & M-2 S
(SECTION IS REVERSE ℄ TYP. FOR BOTTOM OF OUTLET.)

NOTES:
1. WORK THIS DRAWING WITH DRAWINGS M-1 S THRU M-17 S.

PRINT RECORD	
DATE ISSUED	5-31-83
REVISION NO	0 0 0
FOR	PREPRESCO
CUSTOMER	5 5 10
FIELD	0 0 0
INTRA CO.	1 5 0 1

NO.	REVISIONS	DATE	BY	CKD

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
EAST & WEST VENTILATION BUILDINGS
MISCELLANEOUS SECTIONS & DETAILS

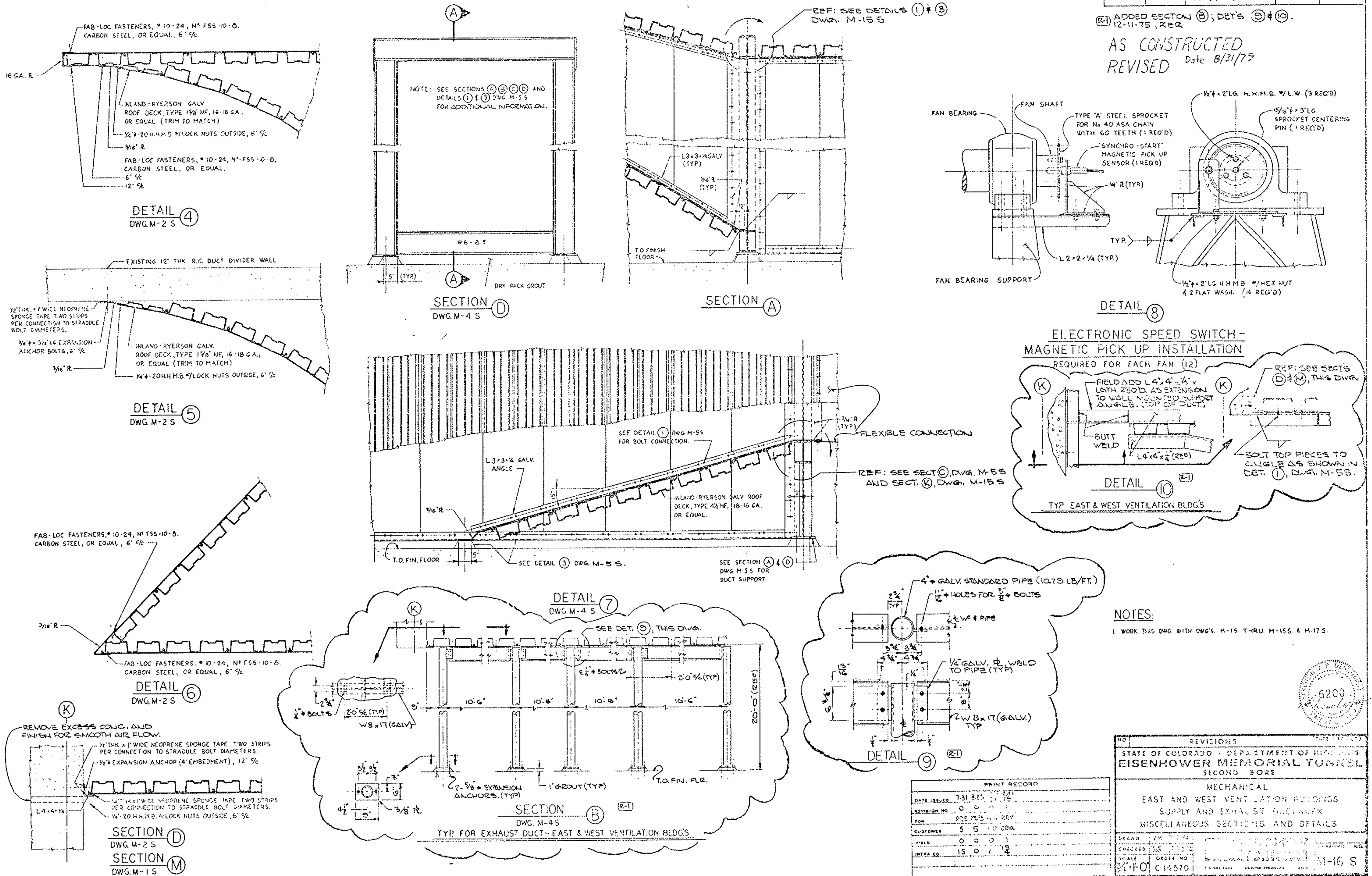
DRAWN	PER	5-31-83
CHECKED	PER	5-31-83
SCALE AS NOTED	ORDER NO C 14570	DRAWING NO M-15 S

6200

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	73	208

R-1 ADDED SECTION (B); DET'S (9) & (10). 12-11-75, RER

AS CONSTRUCTED
REVISED Date 8/31/79


FAB-LOC FASTENERS, # 10-24, No FSS-10-8, CARBON STEEL, OR EQUAL, 6" c/c
16 GA. R.
INLAND-RYERSON GALV ROOF DECK, TYPE 1 5/8" NF, 16-18 GA., OR EQUAL (TRIM TO MATCH)
1/4"φ-20 H.H.M.B. W/LOCK NUTS OUTSIDE, 6" c/c
3/16" R.
DETAIL (4)
DWG. M-2 S
EXISTING 12" THK. R.C. DUCT DIVIDER WALL
DETAIL (5)
DWG. M-2 S
DETAIL (6)
DWG. M-2 S
NOTE: SEE SECTIONS (A)(B)(C)(D) AND DETAILS (1) & (3) DWG. M-5 S FOR ADDITIONAL INFORMATION.
W6-8.5
DRY PACK GROUT
SECTION (D)
DWG. M-4 S
REF: SEE DETAILS (1) & (3) DWG. M-15 S
L3x3x1/4 GALV. (TYP)
TO FINISH FLOOR
SECTION (A)
FAN BEARING
FAN SHAFT
TYPE 'A' STEEL SPROCKET FOR No 40 ASA CHAIN WITH 60 TEETH (1 REQ'D)
"SYNCHRO-START" MAGNETIC PICK UP SENSOR (1 REQ'D)
L 2x2x1/4 (TYP.)
FAN BEARING SUPPORT
DETAIL (8)
ELECTRONIC SPEED SWITCH - MAGNETIC PICK UP INSTALLATION
REQUIRED FOR EACH FAN (12)
FIELD ADD L4"x4"x1/4" x LGTH. REQ'D AS EXTENSION TO WALL MOUNTED SUPPORT ANGLE. (TOP OF DUCT)
BUTT WELD
REF: SEE SECTS (D) & (M), THIS DWG.
BOLT TOP PIECES TO ANGLE AS SHOWN IN DET. (1), DWG. M-5S.
DETAIL (10)
TYP. EAST & WEST VENTILATION BLDG'S
L 3x3x1/4 GALV. ANGLE
SEE DETAIL (1) DWG. M-5S FOR BOLT CONNECTION
FLEXIBLE CONNECTION
REF: SEE SECT (C), DWG. M-5S AND SECT. (K), DWG. M-15 S
INLAND-RYERSON GALV ROOF DECK, TYPE 4 1/2" NF, 18-16 GA. OR EQUAL.
T.O. FIN. FLOOR
SEE DETAIL (3) DWG. M-5 S.
SEE SECTION (A) & (D) DWG M-5S FOR DUCT SUPPORT
4"φ GALV. STANDARD PIPE (10.79 LB/FT.)
11/16"φ HOLES FOR 5/8"φ BOLTS
1/4" GALV. PL WELD TO PIPE (TYP)
W 8x17 (GALV.) TYP
DETAIL (9)
DETAIL (7)
DWG M-4 S
SEE DET. (9), THIS DWG.
W8x17 (GALV)
2-5/8"φ EXPANSION ANCHORS. (TYP)
1" GROUT (TYP)
T.O. FIN. FLR.
SECTION (B)
DWG. M-4S
TYP. FOR EXHAUST DUCT - EAST & WEST VENTILATION BLDG'S
REMOVE EXCESS CONC. AND FINISH FOR SMOOTH AIR FLOW.
1/2" EXPANSION ANCHOR (4" EMBEDMENT), 12" c/c
SECTION (D)
DWG. M-2 S
SECTION (M)
DWG. M-1 S

NOTES:

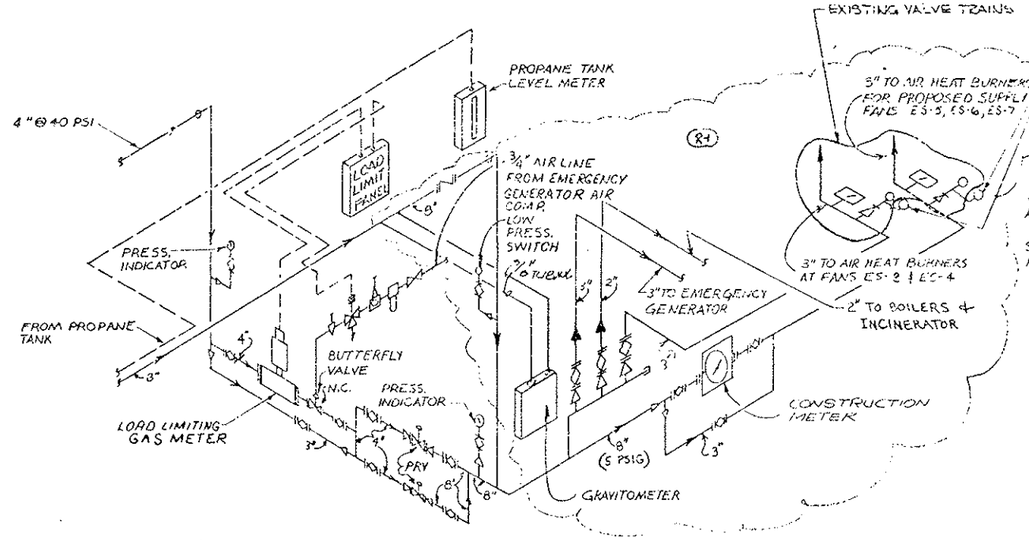
1. WORK THIS DWG. WITH DWG'S. M-15 THRU M-15S & M-17S.

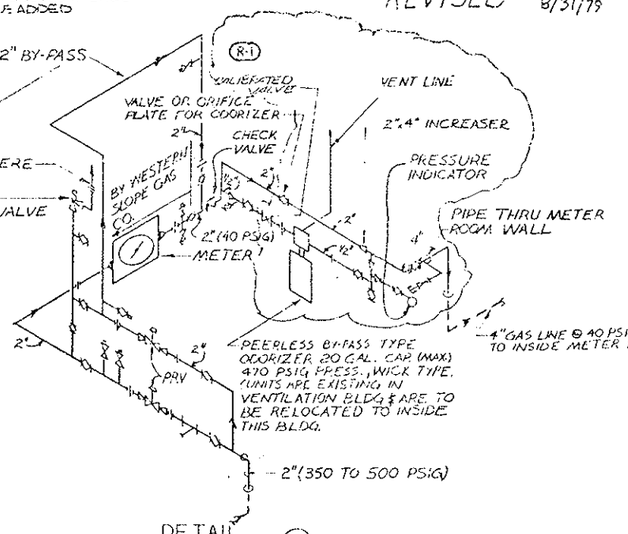
REVISIONS

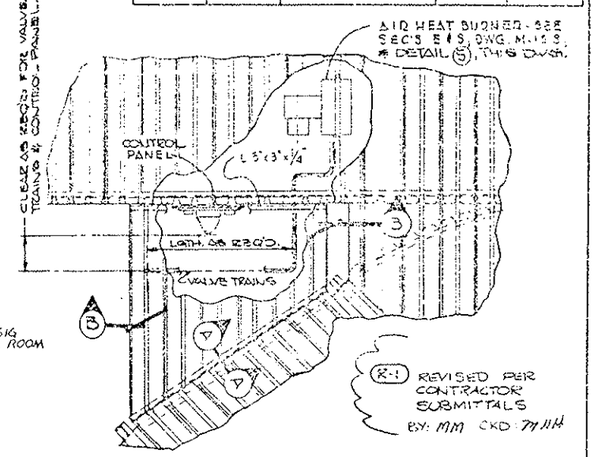
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

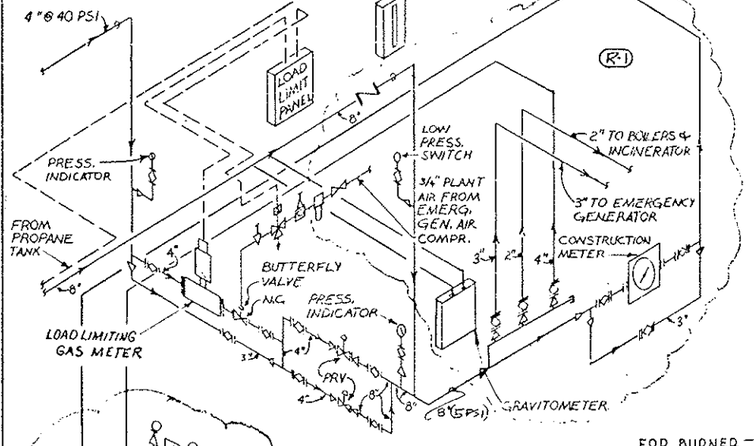
MECHANICAL
EAST AND WEST VENTILATION BUILDINGS
SUPPLY AND EXHAUST DUCTWORK
MISCELLANEOUS SECTIONS AND DETAILS

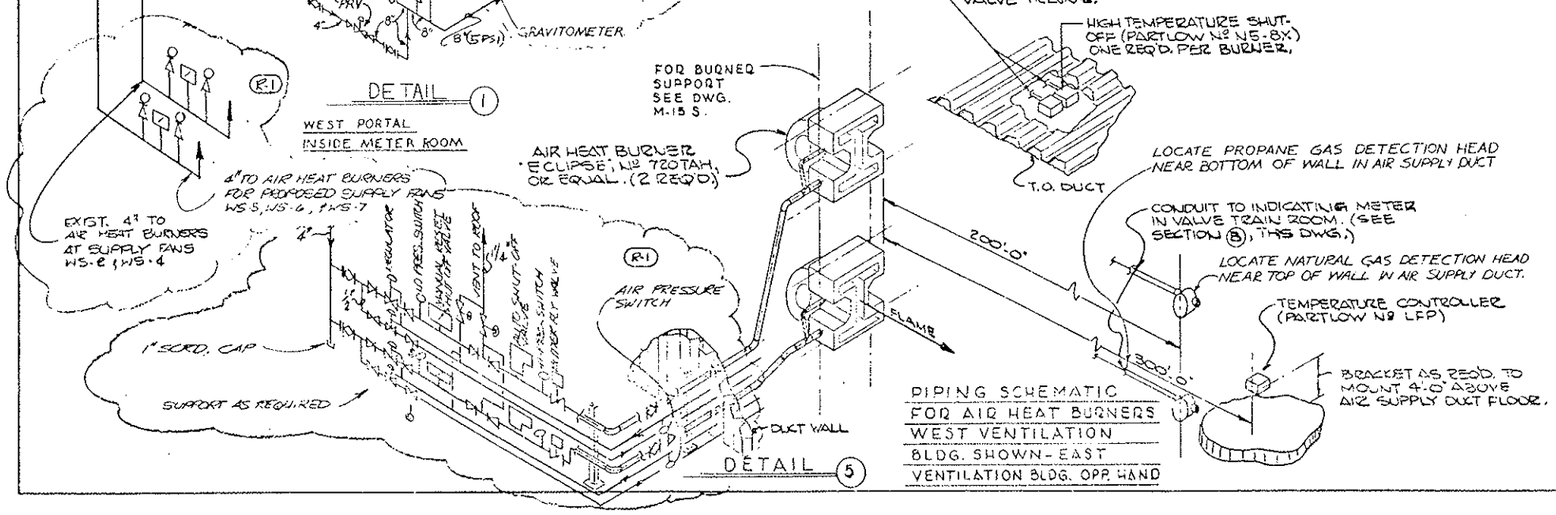
M-16 S

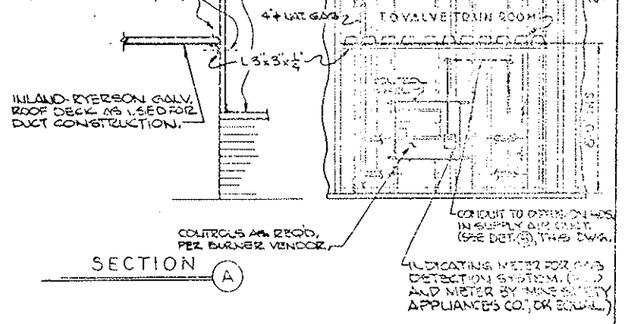












FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	74	208

AS CONSTRUCTED
REVISED Date 8/31/79

DETAIL ②

EAST PORTAL
INSIDE METER ROOM

DETAIL ③

WEST PORTAL - EAST PORTAL
OUTSIDE METER ROOM

DETAIL ⑥

PLAN-VALVE TRAIN ROOM-WEST VENTILATION BUILDING AS SHOWN-EAST VENTILATION BUILDING OPPOSITE HAND.

DETAIL ①

WEST PORTAL
INSIDE METER ROOM

SECTION Ⓐ

SECTION Ⓑ

NOTE:
1. WORK THIS DWG. WITH DWG'S M-1S, M-2S, M-5S, M-10S, M-11S & M-15S.

DETAIL ⑤

PIPING SCHEMATIC FOR AIR HEAT BURNERS
WEST VENTILATION BLDG. SHOWN-EAST VENTILATION BLDG. OPP. HAND

6200

PRINT RECORD								
DATE ISSUED	7-31	8-23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
REVISION NO.	0	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
FOR	PRE	PRE	FCA	FCA	FCA	FCA	FCA	AFC
CUSTOMER	5	5	10	10	10	5	5	ORIG
FIELD	0	0	0	0	-	0	0	-
INTRA CO.	15	0	1	1	1	1	1	15

NO	REVISIONS	DATE

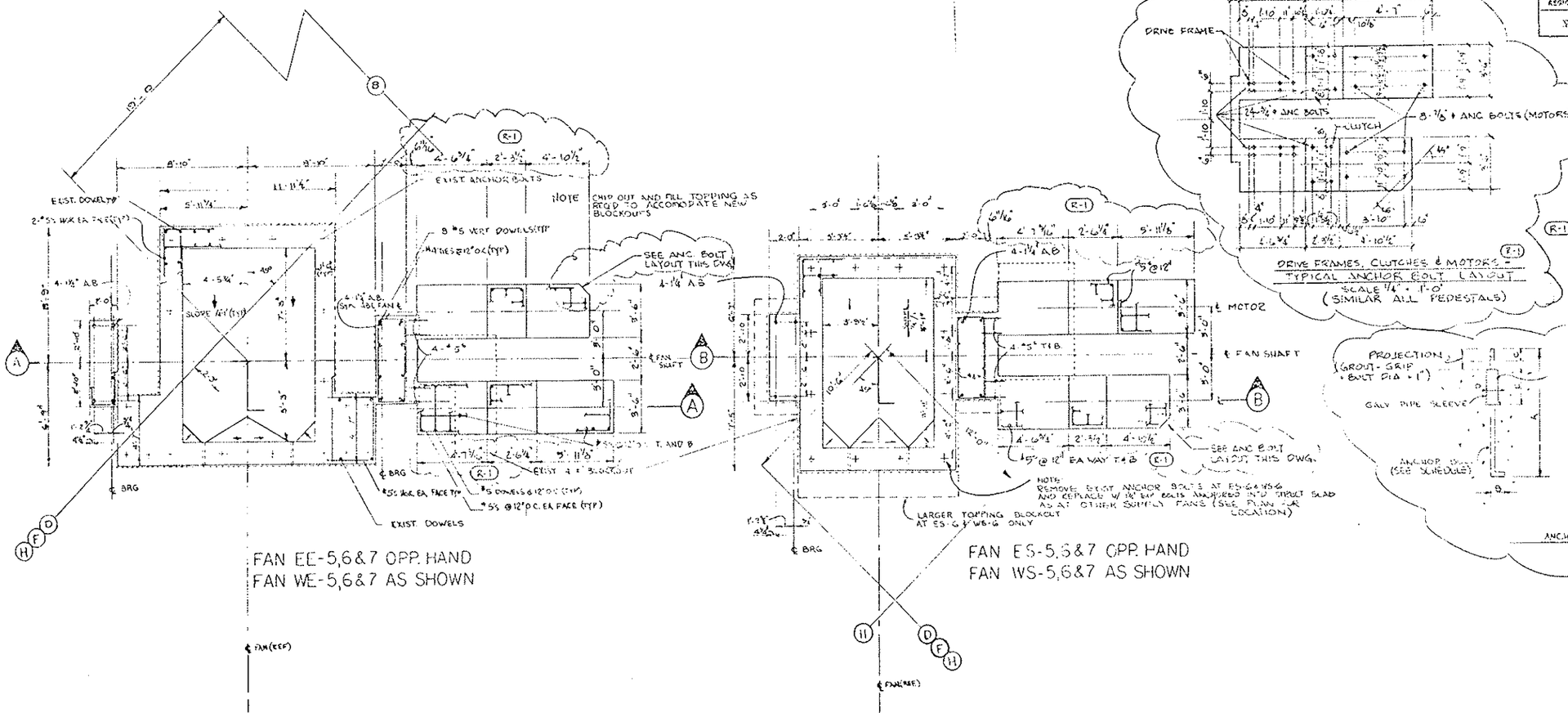
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

MECHANICAL
EAST AND WEST VENTILATION BUILDINGS
NATURAL GAS PIPING SCHEMATICS AND
BURNER VALVE TRAIN ROOM DETAILS

DRAWN [illegible]
CHECKED [illegible]
SCALE NONE
C-14570
DRAWING NO. M-17 S

D. O. H. FORM NO. 126
Rev. October, 1972

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)320	75	203



AS CONSTRUCTED
REVISED Date 8/31/79

NOTES:
1 WORK THIS DWG. WITH DWG'S M 15 THRU M 63.
2 CONCRETE TO BE CLASS B
3 REINFORCING STEEL TO COMPLY WITH ASTM SPEC A615 GRADE 40
R-1 4 PROVIDE EPOXY BONDING COMPOUND PER SPEC PARA 6400.03 PER MFG SPEC WHEN NEW CONCRETE IS TO BE POURED ON OLD CONCRETE.

PRINT RECORD

DATE ISSUED	7-31-79					
REVISION NO.	0	0	0	1	R1	
FOR	PRE-FAB FOR FOR APP.					
CUSTOMER	5	5	10	10	206	
FIELD	0	0	0	0	-	
INTRA CO.	15	1	1	1	15	

NO	REVISIONS	DATE	BY

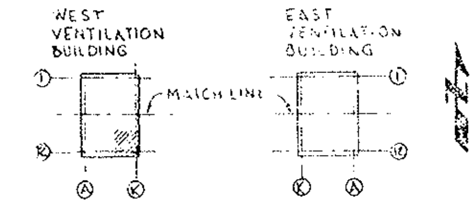
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
CONCRETE PEDESTALS
EAST AND WEST VENTILATION BUILDING
SUPPLY AND EXHAUST FAN & MOTOR SUPPORTS
PLANS & SECTIONS

DRAWN	GTB	12-1-78	
CHECKED	TJM	12-1-78	
SCALE	¼"-1'-0"	ORDER NO.	C14570

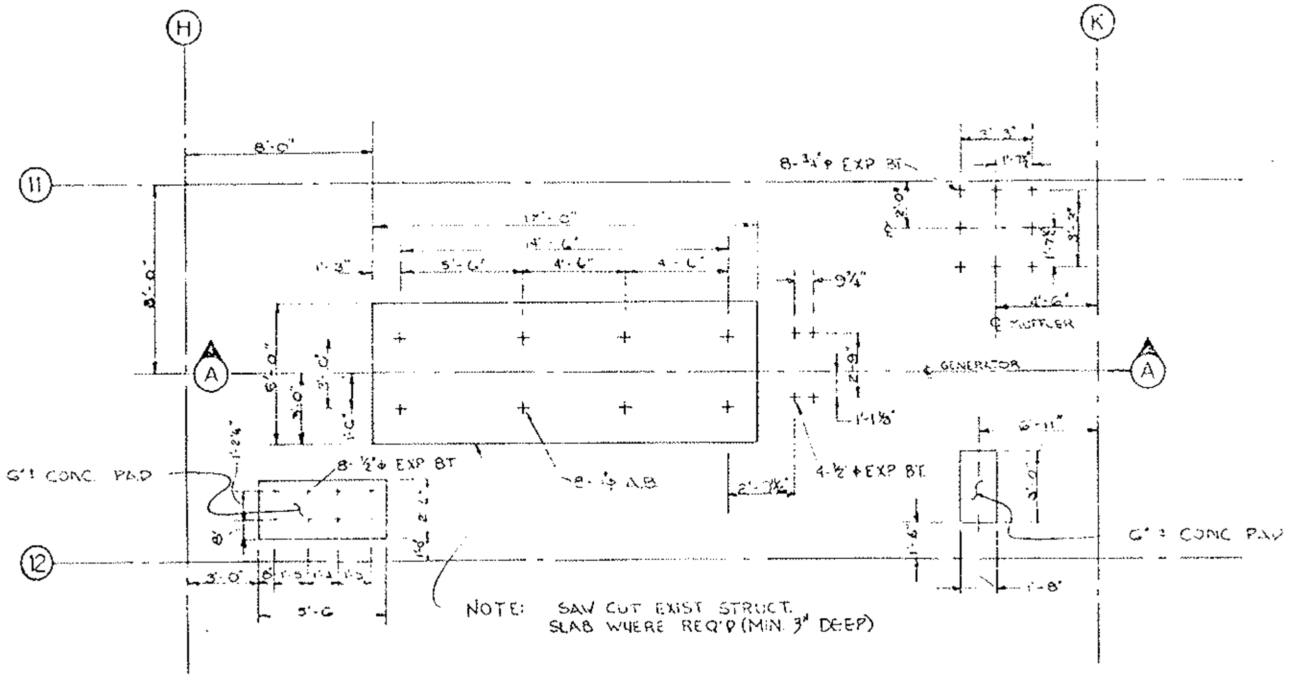
DRAWING NO. S-15

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	76	208

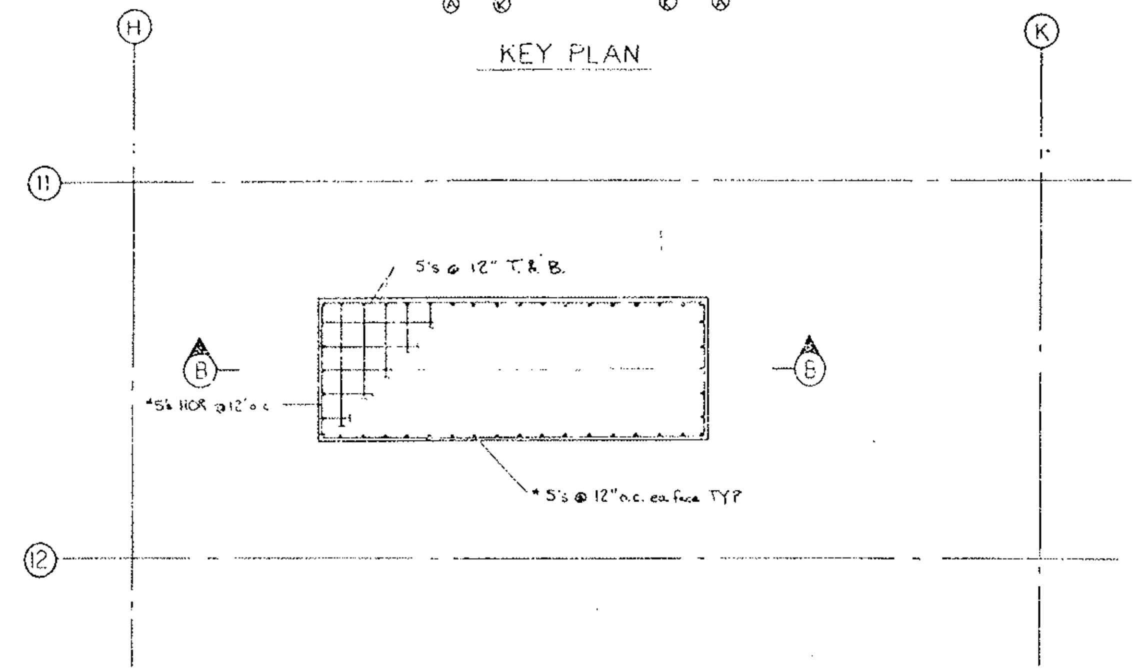
AS CONSTRUCTED
NO REVISIONS DATE



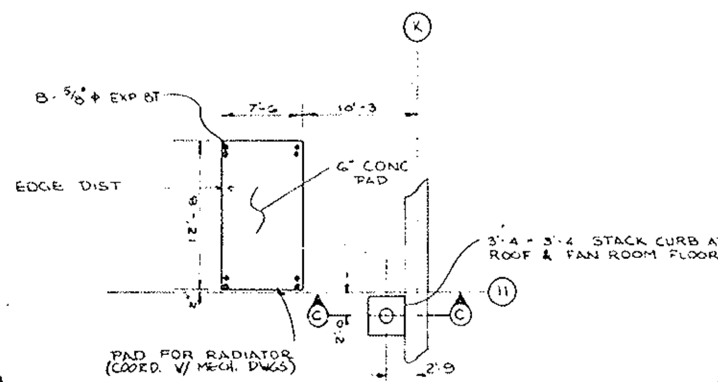
KEY PLAN



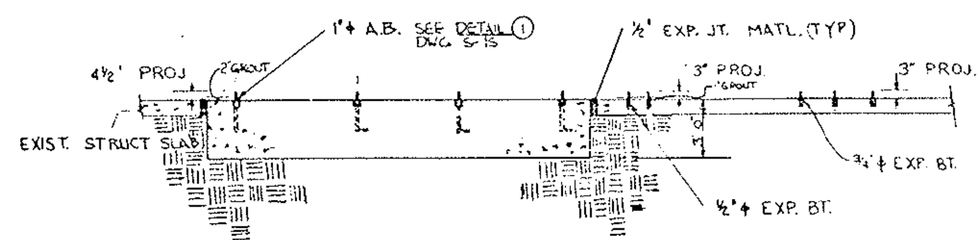
FOUNDATION & FLOOR SLAB PLAN



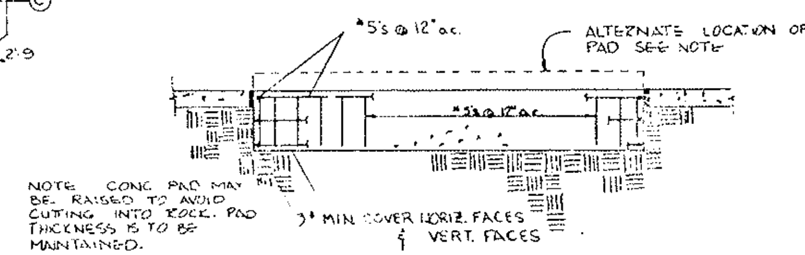
PLAN OF REINFORCING



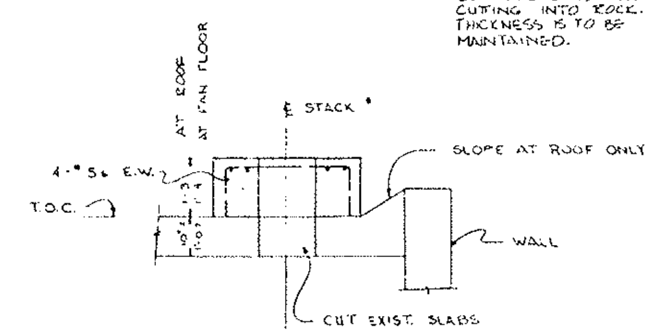
ROOF PLAN
SCALE: 1/8" = 1'-0"



SECTION (A)



SECTION (B)



SECTION (C)
SCALE: 1/2" = 1'-0"

* HOLD OPENING DIMENSION UNTIL THICK. OF INSULATION IS DETERMINED APRON. 1'-4" DIA.

NOTES
1. WORK THIS DWG WITH DWG M-125
2. CONCRETE TO BE CLASS B
3. REINFORCING STEEL TO COMPLY WITH ASTM SPEC A615 GRADE 40.
4. PROVIDE EPOXY BONDING COMPOUND PROTEX, OR EQUAL AS PER MANUFACTURERS SPEC WHERE NEW CONCRETE IS TO BE POURED ON EXIST CONC.
5. PROVIDE #5's @ 12" EACH WAY IN 6" CONCRETE PADS.

PAUL MOLLER

PRINT RECORD			
DATE ISSUED	7-31		
REVISION NO.	0	0	
FOR	PRE	PRE	FCA
CUSTOMER	5	5	10
FIELD	0	0	0
INTRA CO	15	1	

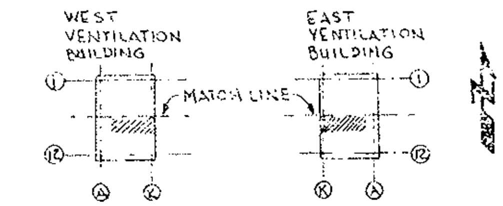
NO	REVISIONS	DATE	BY	CKD

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

CONCRETE FOUNDATIONS
WEST VENTILATION BUILDING
EMERGENCY GENERATOR ROOM
PLANS & SECTIONS

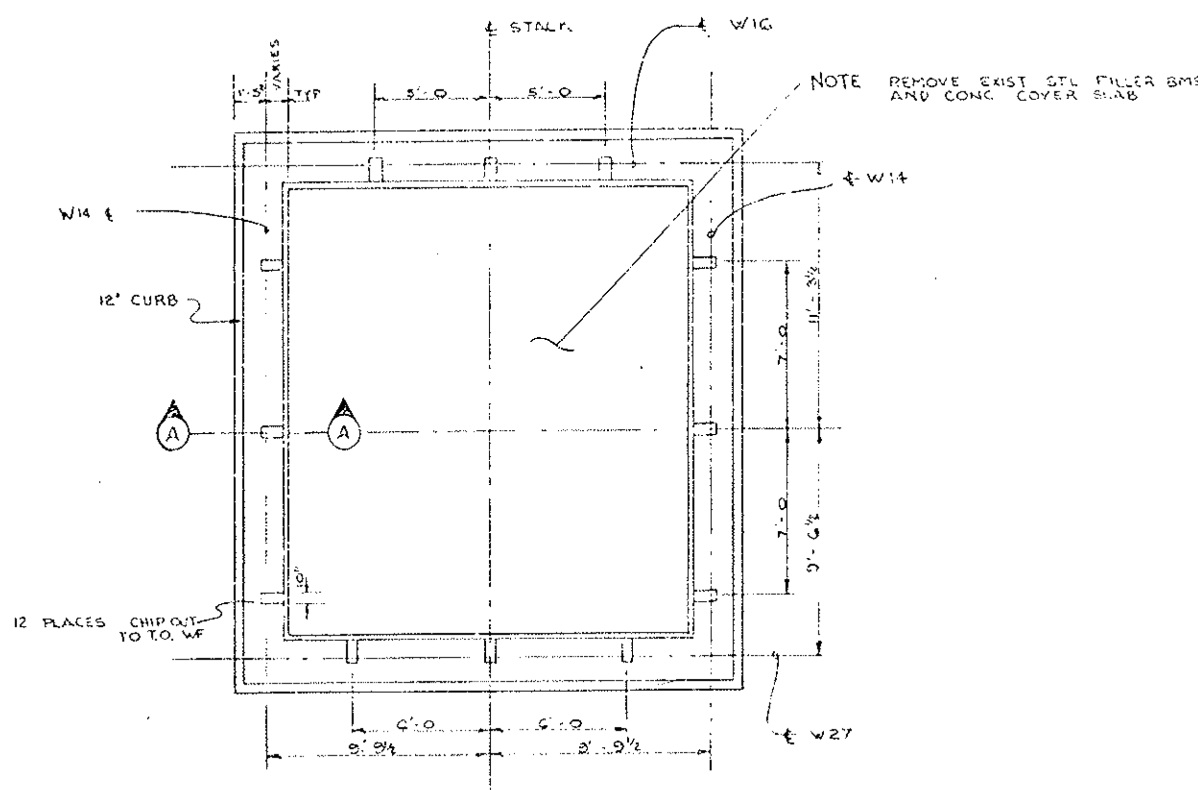
DRAWN	STB	1-2-74	DRAWING NO
CHECKED	PM	12-74	
SCALE	1/4" = 1'-0"	ORDER NO C14570	S-25

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XX	COLORADO	I70-3(82)220	77	208

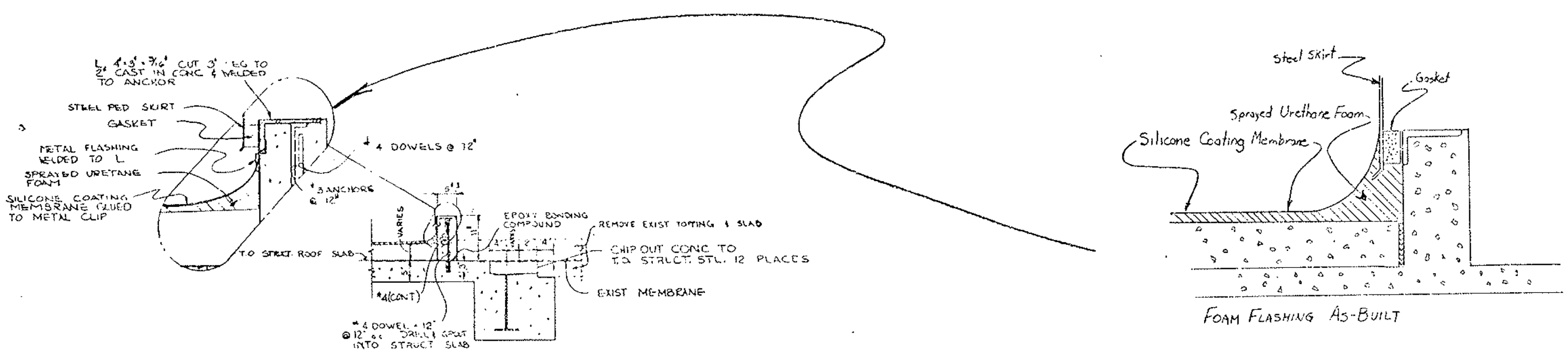


KEY PLAN

AS CONSTRUCTED
REVISED Date 8/31/79



PLAN OF STACK SUPPORT
(6 REQ'D)



SECTION (A)
SCALE: 3/4"=1'-0

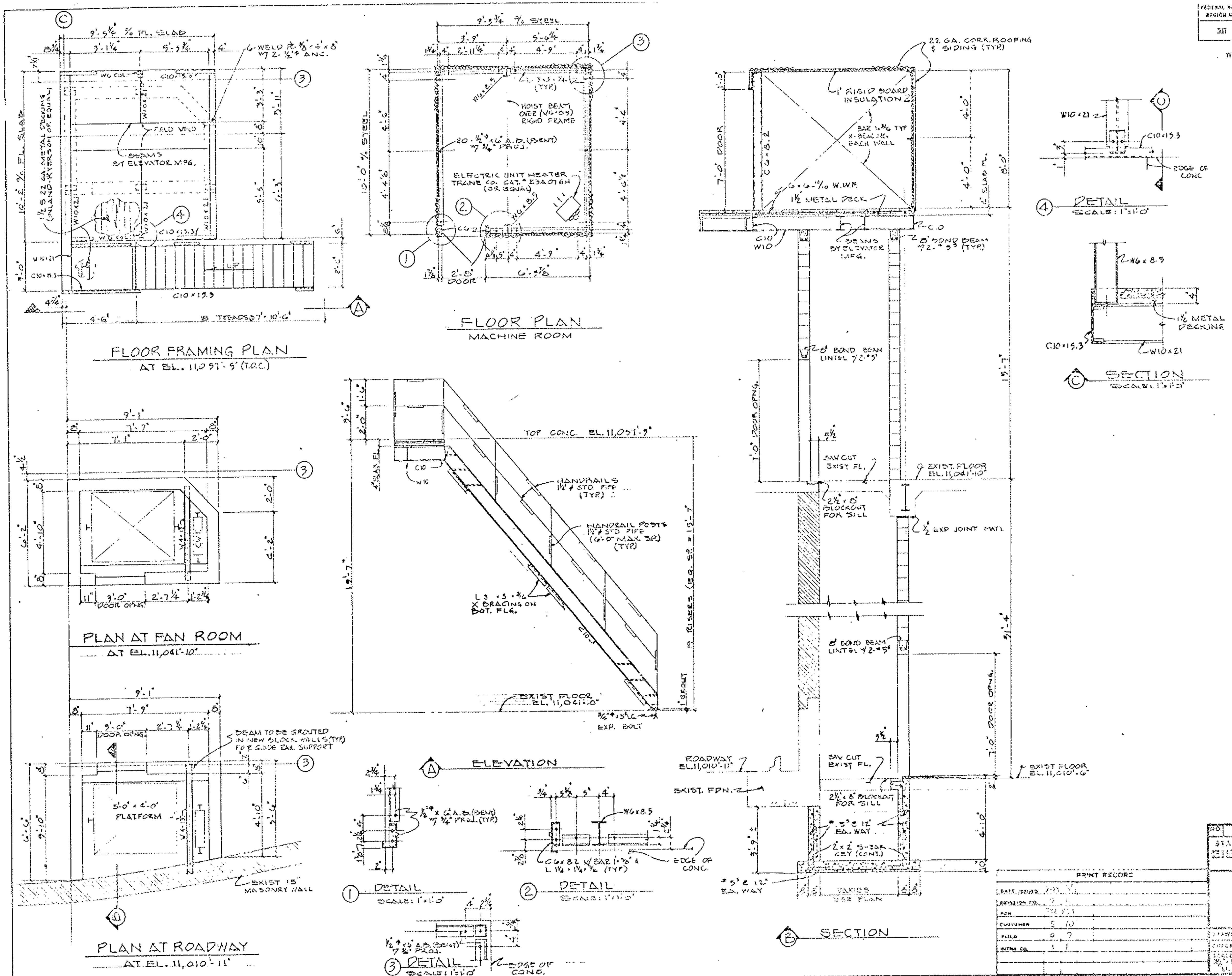
NOTES:
1. WORK THIS DWG WITH DWG'S M-65 & M-73.
2. CONCRETE TO BE CLASS B
3. REINFORCING STEEL TO COMPLY WITH ASTM SPEC. A615 GRADE 40

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

CONCRETE CURB
EAST AND WEST VENTILATION BUILDINGS
EVASE STACK
PLAN & SECTION

DRAWN GTB
CHECKED PM
SCALE 1/4"=1'-0
ORDER NO C14570
DRAWING NO S-35

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	78	208



AS CONSTRUCTED
NO REVISIONS DATE

NOTES:

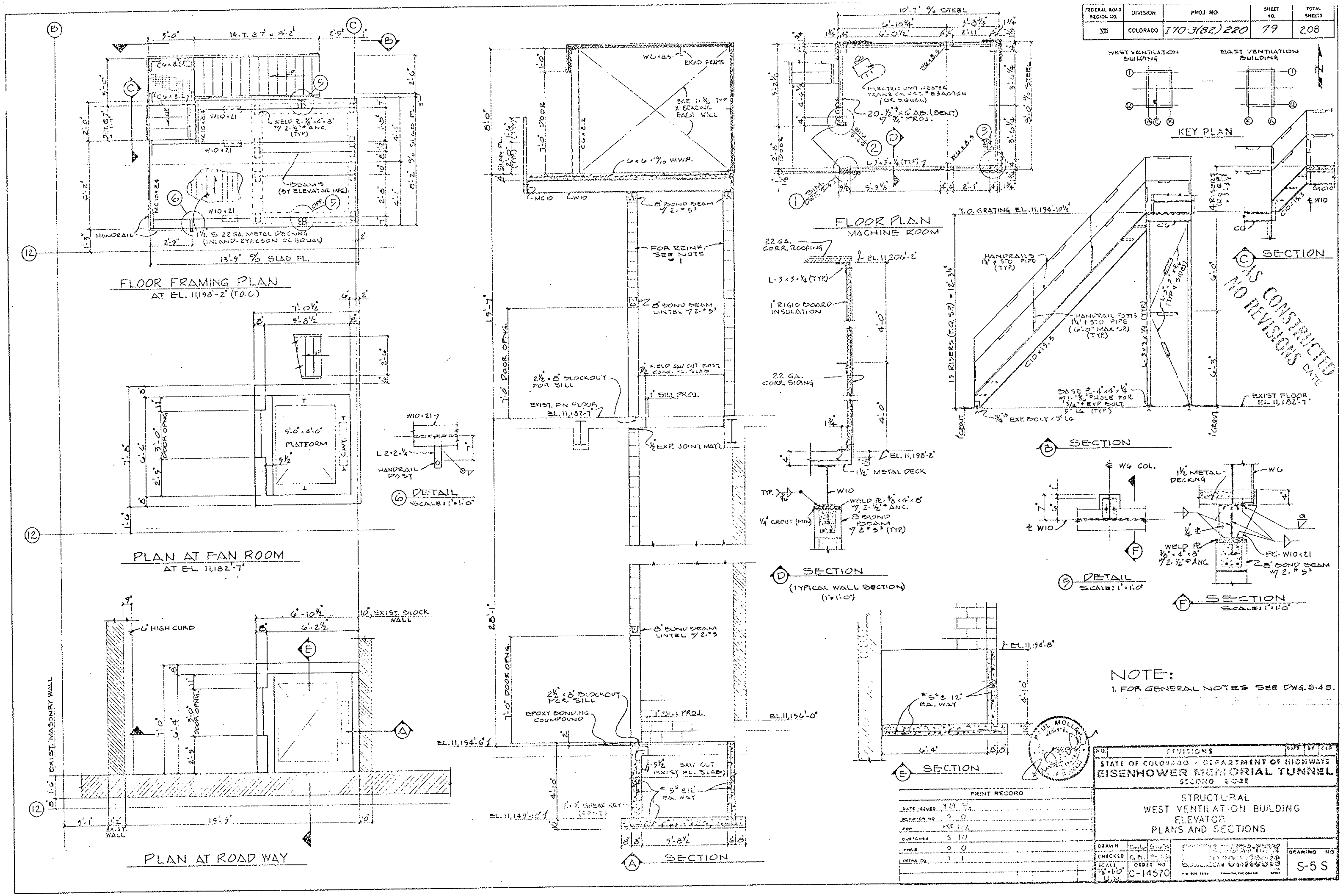
1. HEAVY WEIGHT CONC. BLOCK WALLS TO BE REINF. WITH #5's @ 24" CTR. AND AT ALL CORNERS & DOOR JAMBS. VERT. GROUT ALL CELLS. STANDARD DUR-O-WALL @ 16" CTR. VERT.
2. REINFORCING STEEL TO COMPLY WITH A.S.T.M. SPEC. A615 GRADE 40.
3. CONCRETE TO BE CLASS B
4. PROVIDE EPOXY BONDING COMPOUND PROTEX, OR EQUAL AS PER MFG. SPEC. WHERE NEW CONCRETE IS TO BE POURED ON EXIST. CONCRETE.
5. GRATING TO BE WELDED BAR TYPE WITH 1" x 1/8" BEARING BARS @ 1 3/16" CTR. & CROSS BARS @ 4" CTR.
6. STAIR TREADS TO BE SERRATED WELDED BAR TYPE WITH OUT NOSING.
7. OPENINGS IN MACHINE ROOM FLOOR TO BE COORDINATED WITH ELEVATOR MFG.
8. WORK THIS DWG. WITH DWG. S-5-S & ELEVATOR INSTALLATION SPECS.
9. MACHINE ROOM DOORS TO BE 2'-8" x 7'-0" HOLLOW STEEL COMPLETE WITH HARDWARE.

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

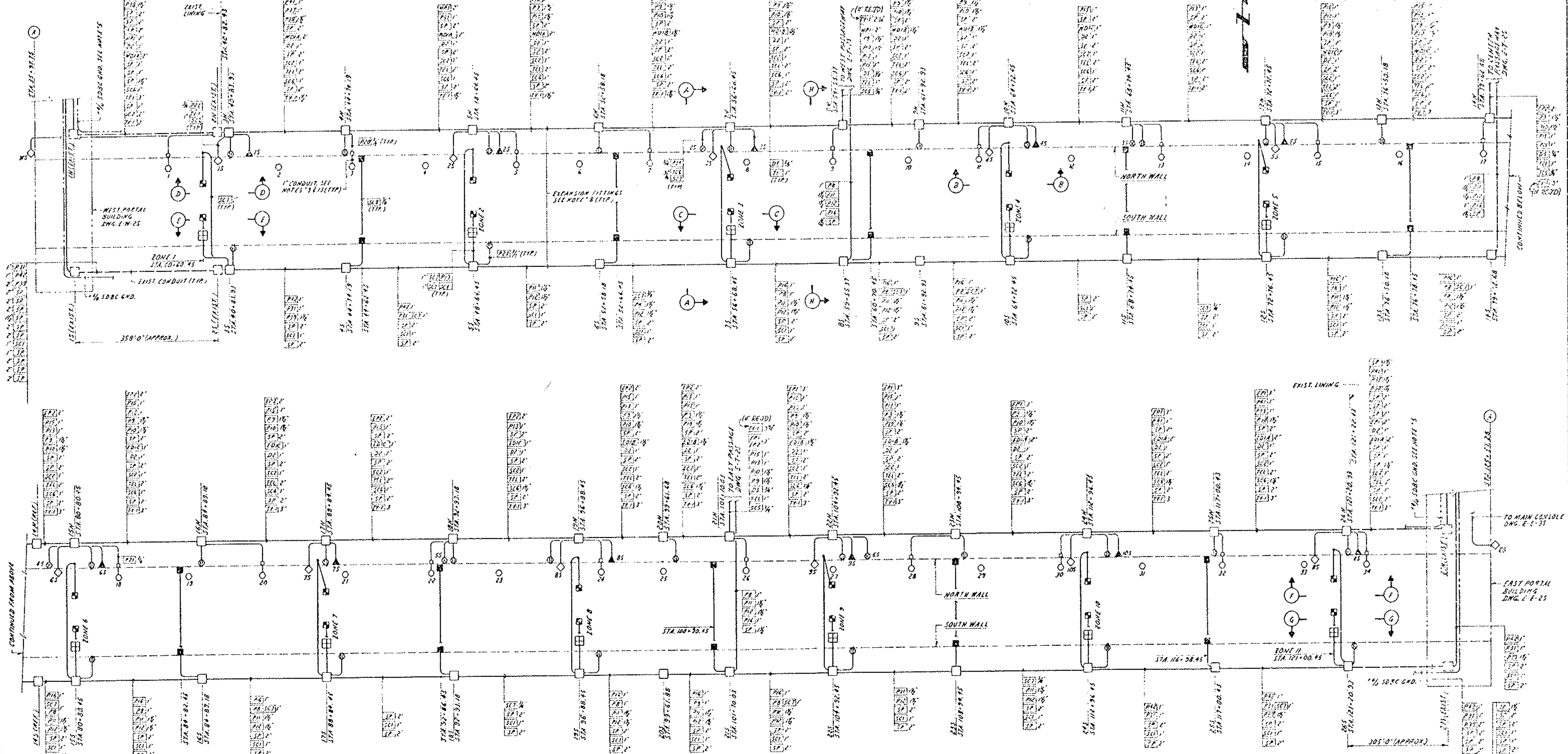
STRUCTURAL
EAST VENTILATION BUILDING
ELEVATOR
PLANS AND SECTIONS

C-14570

DRAWING NO. S-4-S


FEDERAL ROAD REGION NO. VIII
DIVISION COLORADO
PROJ. NO. I70-3(82)220
SHEET NO. 79
TOTAL SHEETS 208
FLOOR FRAMING PLAN
AT EL. 11,198'-2" (T.O.C.)
PLAN AT FAN ROOM
AT EL. 11,182'-7"
PLAN AT ROAD WAY
6 DETAIL
SCALE: 1"=1'-0"
A SECTION
FLOOR PLAN
MACHINE ROOM
D SECTION
(TYPICAL WALL SECTION)
(1"=1'-0")
E SECTION
KEY PLAN
WEST VENTILATION BUILDING
EAST VENTILATION BUILDING
C SECTION
B SECTION
5 DETAIL
SCALE: 1"=1'-0"
F SECTION
SCALE: 1"=1'-0"
AS CONSTRUCTED
NO REVISIONS
NOTE:
1. FOR GENERAL NOTES SEE DWG. S-4S.
PRINT RECORD
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE
STRUCTURAL
WEST VENTILATION BUILDING
ELEVATOR
PLANS AND SECTIONS
C-14570
DRAWING NO. S-5S

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82)220	80	208



CONDUIT LAYOUT PLAN

NOTES:

1. FOR CONDUIT & CABLE SCHEDULE, SEE DWG. E-T-103
2. FOR TUNNEL LIGHTING, SEE DRAWINGS E-T-55, E-T-65 & E-T-75
3. FOR TELEPHONE SYSTEM, SEE DWG E-G-85
4. ALL CONDUIT TO BE RIGID GAL. STEEL
5. ROUTE #4/0 SDBC GROUND WITH CONDUITS ALONG NORTH & SOUTH WALLS OF TUNNEL & GROUND TO WATER MAIN AT ALL CROSS PASSAGEWAYS. SUPPORT TO UNISTRUT CHANNELS W/ ONE HOLE CLAMPS.
6. FOR TUNNEL SIGNS & LOOP DETECTORS, SEE DWG TE-15
7. FOR POWER WIRING, CONTROL SIGNAL WIRING & CO ANALYZER WIRING, SEE DRAWING E-T-35
8. EXPANSION FITTINGS TO BE OZ TYPE EX WEATHERPROOF WITH BONDING JUMPERS, 4" CONDUIT MOVEMENT (OR EQUAL). LOCATE MIDWAY BETWEEN DISTRIBUTION BOX GROUPS
9. FIELD TO ROUTE COLD SECTION OF MI HEATING CABLE TO JUNCTION BOX NEAR HYDRANT FOR SPLICING TO FEEDER TAP
10. SECTIONS A-A', B-B', C-C', D-D', & E-E' LOCATED ON DWG E-T-35. SECTIONS F-F', G-G', & H-H' LOCATED ON DWG E-T-45.
11. ~~FOR STATION LOCATIONS OF HYDRANTS, TV CAMERAS, LOOP DETECTORS, TELEPHONES & CO ANALYZER CABINETS, SEE STATE OF COLORADO - DEPT. OF HIGHWAYS DWG.~~
12. CONDUITS SUPPORTED ON TUNNEL WALLS WITH UNISTRUT "P1000" (OR EQUAL) CHANNELS & CONDUIT CLAMPS AT 10'-0" MAX INTERVALS
13. ROUTE HEATING CABLE FROM HYDRANT TO PRECEEDING HYDRANT ALONG 8" WATER MAIN PIPE (PER WIRING DIAGRAM - DWG E-T-85) APPROX. 255 FEET LONG. USE NELSON "NELEX" MI HEATING CABLE TYPE 182 (OR EQUAL) 3/C 600V, COPPER SHEATH RATED AT 10 WATTS PER FOOT AT 277V BASED ON A TEMPERATURE DIFFERENTIAL OF 60°F (-20° TO -40°F) W/ HEAT TRANSFER COMPOUND & EQUIVALENT OF 2" OF CALCIUM SILICATE INSULATION. USE NELSON (OR EQUAL) "PS12" PIPE STRAPS & TYPE NS "CAUTION SIGNS" AS REQD.
14. FOR WIRING DIAGRAMS OF DC SYSTEM, TV SYSTEM, & WATER MAIN HEAT TRACING, SEE DRAWING E-T-85.
15. CIRCUIT NUMBERS "P31, P33, P38, P39, P41 & P42" ARE LISTED ON EAST VENT. BLDG. SCHEDULE - DWG E-E-55 & WEST VENT. BLDG. SCHEDULE - DWG E-W-45, 55.

LEGEND

- MESSAGE BOARD
- LOOP DETECTOR
- STOP LIGHT
- TV CAMERA
- TELEPHONE
- HYDRANT
- CO ANALYZER CABINET
- RECEPTACLE, 120VAC
- PULLBOX GROUP (No. 3-NORTH WALL) 3N

PRINT RECORD	
DATE ISSUED	[illegible]
REVISION NO.	0
FOR	PRE PRE PRE FCA FCA
CUSTOMER	5 5 5 10 5
FIELD	- - - - 0
INTRA CO.	15 15 15 1 1

FOR INFORMATION ONLY

NO.	REVISIONS	DATE	BY	CHK

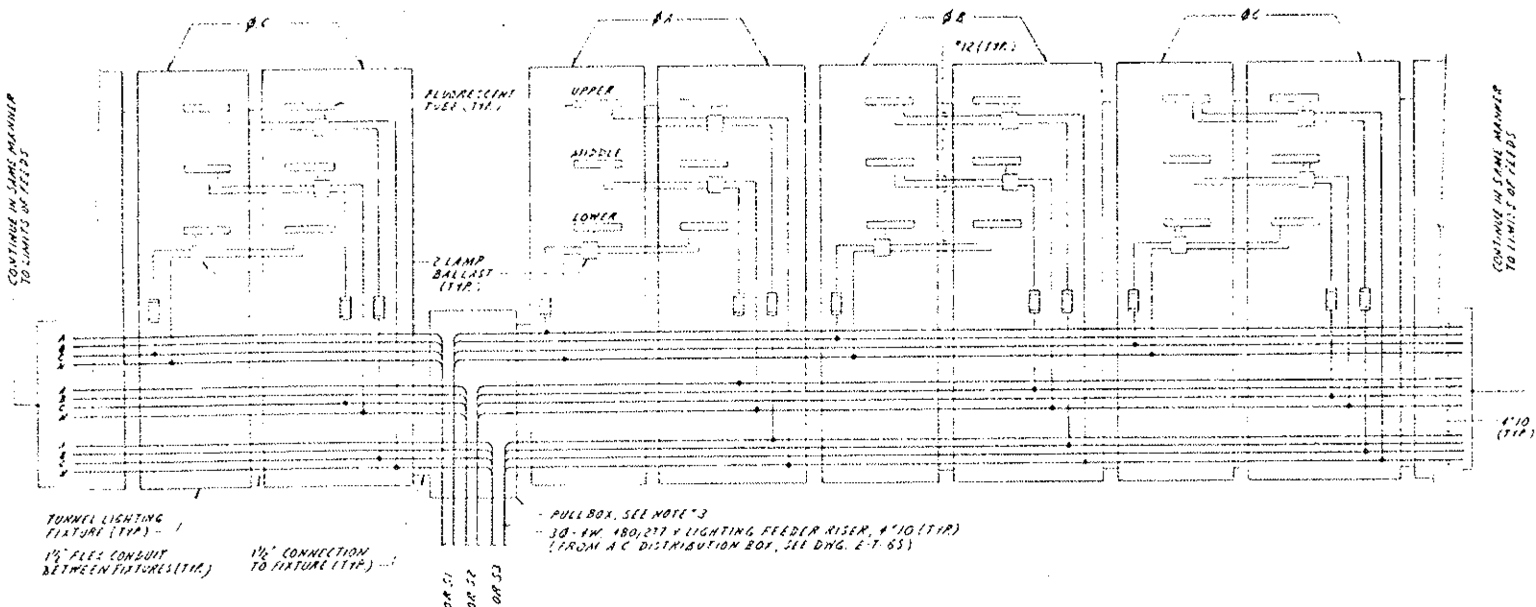
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
TUNNEL
POWER PLAN, SECTIONS & DETAILS
SHEET NO. 1

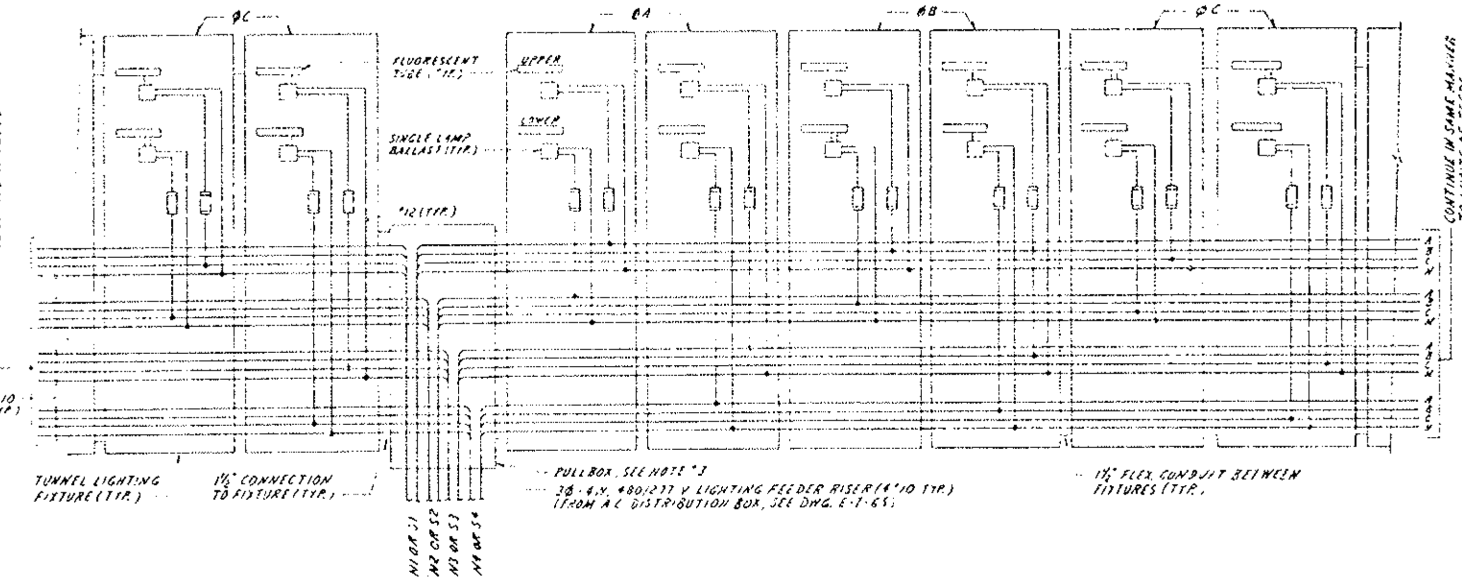
DRAWN	RPJ	1-4-77	DRAWING NO.
CHECKED	DRW		E-T-15
SCALE	ORDER NO.		
NONE	C14570		

D.O.H. FORM NO. 169
Rev. October, 1972

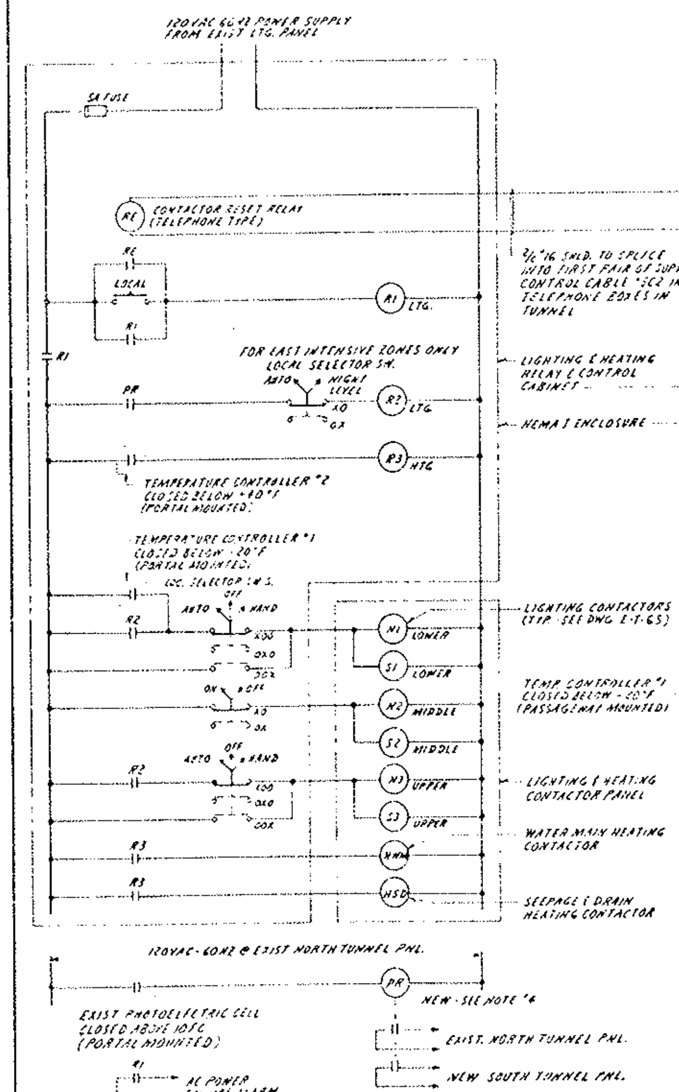
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I70-3(82)220	81	208



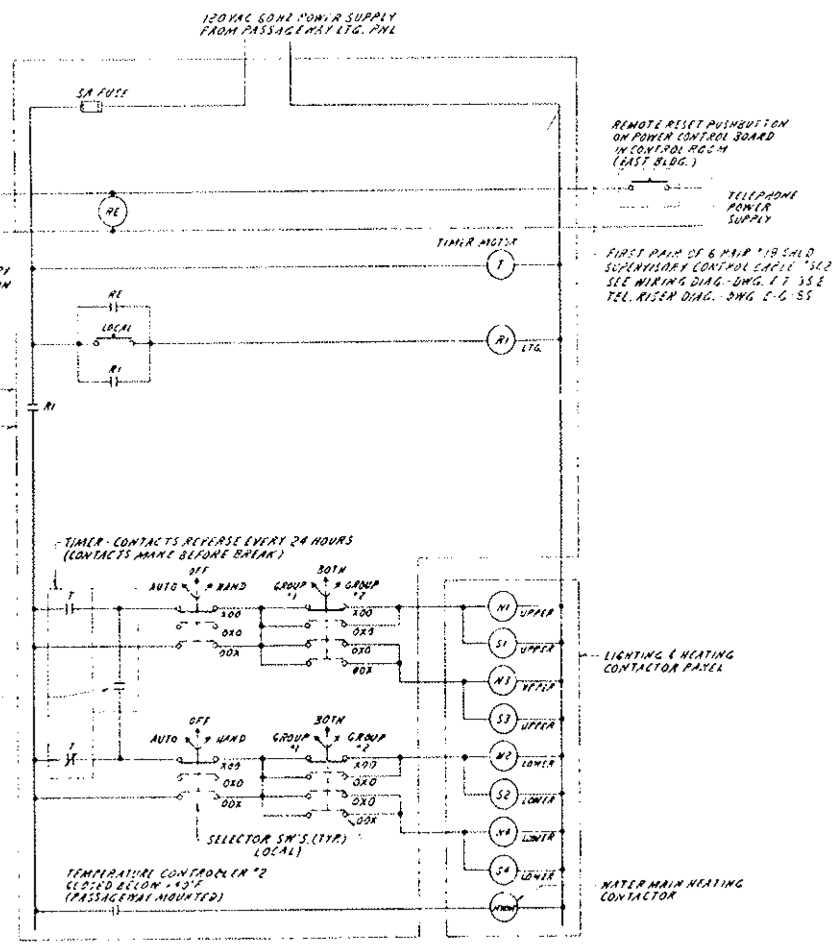
INTENSIVE ZONES No. 1 & 2



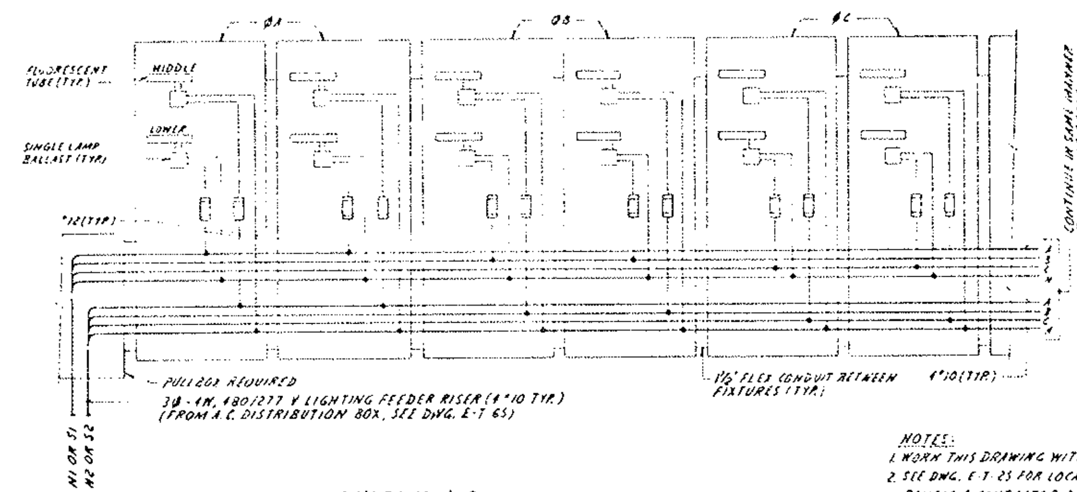
NORMAL ZONE



EAST INTENSIVE ZONES LIGHTING & HEATING CONTROL CIRCUITS
WEST INTENSIVE ZONES SIMILAR EXCEPT AS NOTED



NORMAL ZONE LIGHTING & HEATING CONTROL CIRCUITS FOR CROSS PASSAGEWAYS
ONE REQUIRED IN EACH PASSAGEWAY



INTENSIVE ZONE No. 3

FLUORESCENT TUBE PLACEMENT

INTENSIVE

CONTACTORS		TUBE	ZONE 1	ZONE 2	ZONE 3
N1	S1	LOWER	SHO	N.O.	N.O.
N2	S2	MIDDLE	N.O.	N.O.	N.O.
N3	S3	UPPER	SHO	N.O.	—

NORMAL ZONE

CONTACTORS		TUBE	TYPE
N1	S1	UPPER	N.O.
N3	S3		
N2	S2	LOWER	N.O.
N4	S4		

LIGHTING FIXTURE WIRING
(TYPICAL FOR BOTH SIDES)

NOTES:
1. WORK THIS DRAWING WITH DWG'S No. E-T-5S, E-T-6S, E-T-8S & E-T-9S
2. SEE DWG. E-T-2S FOR LOCATIONS OF POWER DIST. PANELS, RELAY & CONTROL PANELS & CONTACTOR PANELS
3. NO PULLBOXES REQUIRED AT LIGHTING FIXTURES WHERE MESSAGE BOARDS ARE LOCATED.
4. CONTRACTOR TO WIRE EXIST PORTAL MOUNTED PHOTOELECTRIC CELL TO NEW RELAY "PR" (120VAC-60HZ COIL "1/2 N.O. CONTACTS IN A NEMA 1 ENCLOSURE) NEAR EXISTING LTG & HTG RELAY & CONTROL CABINET. ROUTE CONTACT WIRES INTO EXIST CIRCUIT IN PLACE OF PHOTOELECTRIC CELL CONTACT & INTO NEW CIRCUIT AS SHOWN.

6526

FOR INFORMATION ONLY

REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
TUNNEL
WIRING DIAGRAMS
SHEET NO. 2

PRINT RECORD

CUSTOMER	5	5	5	10
FIELD				
INTRA CO.	15	15	15	1

SCALE NONE
ORDER NO. C14570
E-T-7S

DIVISION OF HIGHWAYS, STATE OF COLORADO
D.O.H. FORM NO. 136
Rev. October, 1972

FEDERAL ROAD DIVISION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XII	COLORADO	I70-3(82)220	82	208

CONDUIT NO	CONDUIT SIZE & KIND	QUANT.	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
EP1	—	3	1/c #2 (5KV)	2400V LOADCENTER (EAST) UNIT#	EAST PASSAGEWAY PRI FUSE CUTOUT	2400 VOLT FEEDER
EP1A	—	3	1/c #4 (5KV)	EAST PASSAGEWAY PRI FUSE CUTOUT	225KVA TRANSFORMER PRIMARY	
WP1	—	3	1/c #4 (5KV)	2400V LOADCENTER (WEST) UNIT#	WEST PASSAGEWAY PRI FUSE CUTOUT	
WP1A	—	3	1/c #4 (5KV)	WEST PASSAGEWAY PRI FUSE CUTOUT	225 KVA TRANSFORMER PRIMARY	
EP2	—	3	1/c #4 (5KV)	EAST PASSAGEWAY PRI FUSE CUTOUT	CENTER PASSAGEWAY PRI FUSE CUTOUT	2400 VOLT FEEDER
EP2A	—	3	1/c #4 (5KV)	CENTER PASSAGEWAY PRI FUSE CUTOUT	225KVA TRANSFORMER PRIMARY	
P1	—	4	1/c #350MCM	225KVA TRANSFORMER SECONDARY	AC POWER DISTRIBUTION PANEL	480Y/277V FEEDER
P2				NOT USED		
P3	—	16	1/c #6	AC POWER DISTRIBUTION PANEL	LTG & HTG CONTACTOR PANEL	TUNNEL NORTH LTG FDR N1 TO N4
P4	—	16	1/c #6			TUNNEL SOUTH LTG FDR S1 TO S4
P5	—	4	1/c #6			WATER MAIN PIPE HTG FDR.
P6	—	3	1/c #10		15 KVA LTG TRANSFORMER PRIMARY	
P7	—			NOT USED		
P8	—	3	1/c #6	AC POWER DISTRIBUTION PANEL	SOUTH WALL AC DIST. BOXES	TRAFFIC CONTROL
P9	—	8	1/c #6	LTG & HTG CONTACTOR PANEL	NORTH WALL AC DIST. BOXES	TUNNEL LTG FEEDERS #N1, N2
P10	—	8	1/c #6			TUNNEL LTG FEEDERS #N3, N4
P11	—	8	1/c #6		SOUTH WALL AC DIST BOXES	TUNNEL LTG FEEDERS #S1, S2
P12	—	8	1/c #6			TUNNEL LTG FEEDERS #S3, S4
P13	—	4	1/c #6		NORTH WALL AC DIST BOXES	WATER MAIN PIPE HTG FDR.
P14	—	4	1/c #6	15 KVA LTG TRANSFORMER SECONDARY	LIGHTING PANEL	120/208V FEEDER
P15	—	4	1/c #8 & 1/c #10 G	LIGHTING PANEL, BKRS. # 1-3-5	NORTH WALL AC DIST BOXES	CO ANALYZER, TUNNEL RECEPTACLE, TV CAMERA FEEDER
P16	—	4	1/c #8 & 1/c #10 G	BKR'S # 2-4-6	SOUTH WALL AC DIST. BOXES	RECEPTACLE FEEDER
P17	—			NOT USED		
P18	—	3	1/c #10	AC DISTRIBUTION BOX	LOCAL DISCONNECT SWITCH	MESSAGE BOARD CUT-OUT
P19	—	2	1/c #10 & 1/c #10 G		MESSAGE BOARD	FEEDER
P20	—	2	1/c #10		JUNCTION BOX NEAR HYDRANT	WATER MAIN PIPE HEATING FEEDER
P21	—	2	1/c #10		JUNCTION BOX NEAR HYDRANT #18	
P22	—	2	1/c #12 & 1/c #10 G		TV CAMERA	120V FEEDER
P23	—	2	1/c #12 & 1/c #10 G		TUNNEL RECEPTACLE	
P24	—	2	1/c #12 & 1/c #10 G		CO ANALYZER CABINET	
ED1A	—	3	1/c # 4/0	AUTO TRANSFER SWITCH	DC DISTRIBUTION BOX # 23N	TUNNEL DC EMERG. LTG FDR
ED1B	—	3	1/c # 2/0	DC DISTRIBUTION BOX # 23N	DC DISTRIBUTION BOX # 19N	
ED1C	—	3	1/c # 2	DC DISTRIBUTION BOX # 19N	DC DISTRIBUTION BOX # 15N	
WD1A	—	3	1/c # 4/0	AUTO TRANSFER SWITCH	DC DISTRIBUTION BOX # 6N	
WD1B	—	3	1/c # 2/0	DC DISTRIBUTION BOX # 6N	DC DISTRIBUTION BOX # 10N	
WD1C	—	3	1/c # 2	DC DISTRIBUTION BOX # 10N	DC DISTRIBUTION BOX # 14N	
D2	—	3	1/c #4	DC MAIN PANEL	DC DISTRIBUTION BOXES	TELEPHONE MARKER & SIGNAL LIGHT FDR
D3	—	3	1/c #10	DC DISTRIBUTION BOXES	TUNNEL EMERG LIGHTING	TUNNEL EMERG LTG FIXTURES
D4	—	2	1/c #10		TELEPHONE NICHE	TELEPHONE MARKER & SIGNAL LIGHT
D5	—	2	1/c #10		LIGHTING TRANSFER RELAY	
C1	—	2	1/c #12	LIGHTING PANEL, BKR. # 11	LTG & HTG RELAY & CONTROL PANEL	CONTROL POWER FEEDER
C2	—	6	1/c #12	LTG & HTG. RELAY & CONTROL PNL	LTG & HTG CONTACTOR PANEL	CONTROL
C3	—	4	1/c #12		TEMPERATURE CONTROLLER	
SC1	—	1	6 PAIR #19 SHLD	MAIN CONTROL CONSOLE	SOUTH WALL TELEPHONE DIST BOXES	SUPERVISORY CONTROL & COMMUNICATION
SC2	—	1	6 PAIR #19 SHLD		NORTH WALL TELEPHONE DIST BOXES	
SC3	—	1	6 PAIR #19 SHLD	TELEPHONE DISTRIBUTION BOX	MESSAGE BOARD	
SC4	—	2	1/c #14 TYPE UF	MESSAGE BOARD	LOOP DETECTOR	CONTROL
SC5	—	1	1 PAIR #16 SHLD.	TELEPHONE DISTRIBUTION BOX	LTG & HTG RELAY & CONTROL PANEL	TUNNEL LTG RESET SYSTEM
SC6	—	1	1 PAIR #16 SHLD.	CO. ANALYZER CABINET	FAN CONTROL PANEL	
SC7	—	2	1/c #10	MESSAGE BOARD	LOCAL TRANSFORMER 301	480V PRI.-120V SEC
SC8	—	2	1/c #12	LOCAL TRANSFORMER 301	STOP LIGHT	CONTROL

CONDUIT NO	CONDUIT SIZE & KIND	QUANT.	WIRE OR CABLE SIZE & TYPE	FROM	TO	FUNCTION
T1	—	—	CABLE BY MTN. BELL	TELEPHONE DISTRIBUTION BOX	TELEPHONE NICHE	COMMUNICATION & RELAY CONTACT
TV-1	—	—	COAX CABLE (BY MTN. BELL)	TV CAMERAS(3)	TV MONITORS(3)	TV SURVEILLANCE SYSTEM (SEE NOTE 4)

NOTES

1. ALL 480VAC, 120/208 VAC 125/250 VDC WIRE & CABLE TO BE STRANDED 1/C COPPER, TYPE XHHW COLOR CODED AS FOLLOWS:
   - PHASE A - BLACK
   - PHASE B - RED
   - PHASE C - BLUE
   - NEUTRAL - WHITE
   - GROUND - GREEN
2. FOR WIRE & CABLE, SEE ELECTRICAL CONTRACT SPECS.
3. THIS CIRCUIT SCHEDULE IS TYPICAL FOR EAST, CENTER, AND WEST CROSS PASSAGEWAYS
4. INSTALL SPARE COAXIAL CABLE RUN FROM TV COAX BOX IN PULLBOX GROUP IN TO TV CONSOLE LOCATED IN EAST PORTAL CONTROL ROOM. ALL COAXIAL CABLE SECTIONS TO BE CONNECTED WITH AMP SPECIAL INDUSTRIES, VALLEY FORGE, PA, CRIMP TYPE MALE/FEMALE CONNECTOR #226208-4.

6526

FOR INFORMATION ONLY

PRINT RECORD						
DATE ISSUED	[illegible]					
REVISION NO	0	0	0	0	0	0
FOR	PRE	PRE	PRE	[illegible]	FCA	FCA
CUSTOMER	5	5	5	0	5	4
FIELD	-	-	-	-	0	0
INTRA CO.	15	5	15	1	1	1

NO. | REVISIONS

STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

ELECTRICAL
TUNNEL
CONDUIT & CABLE SCHEDULE

DRAWN	[illegible]
CHECKED	[illegible]
SCALE NONE	ORDER NO C14570

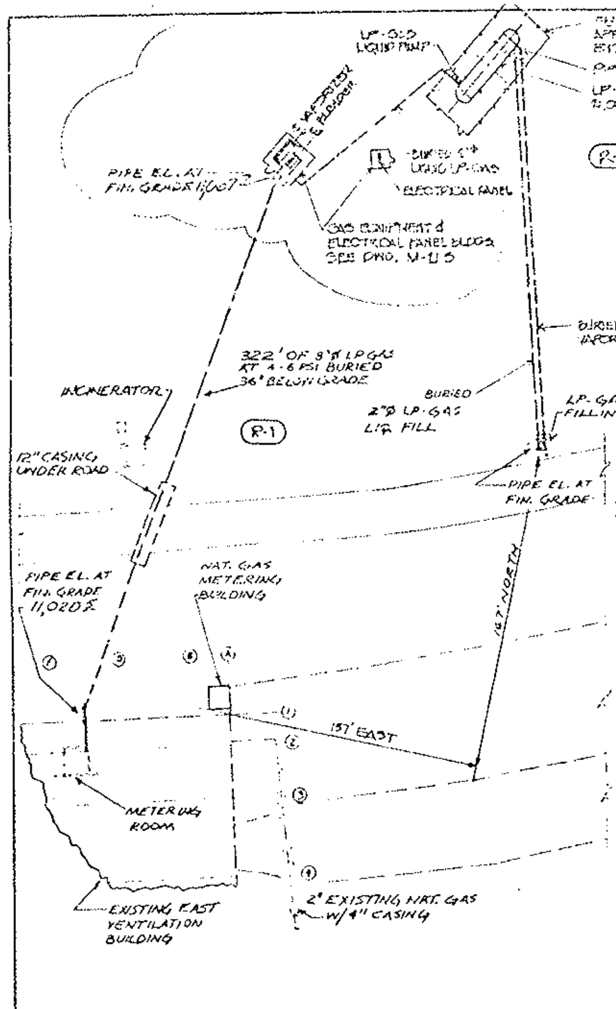
E-T105

Rev. October, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XII	COLORADO	I 70-3(82)220	83	208

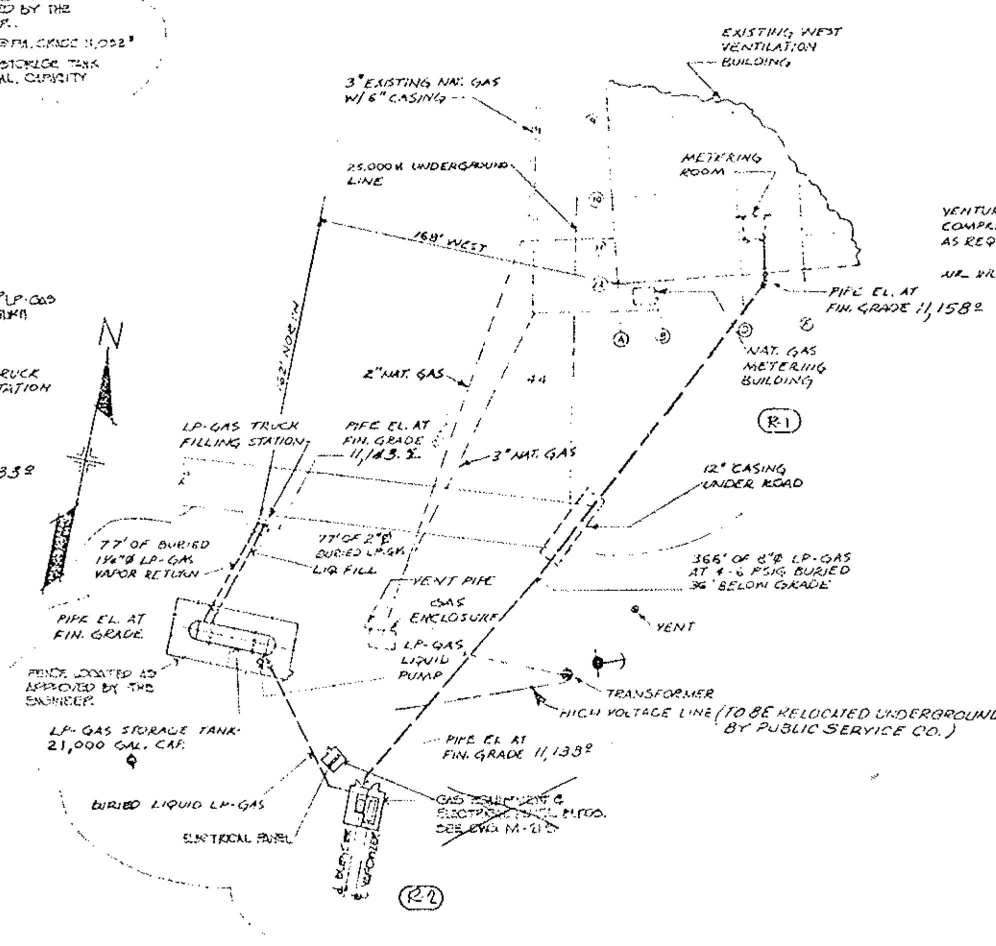
(R-1) REMOVE TANK LEVEL METER TUBING BY ... K.O. 7/11
(R-2) ~~ADD LP-GAS EQUIPMENT & ELECTRICAL PANEL BUILDING~~

AS CONSTRUCTED
REVISED Date 8/31/79



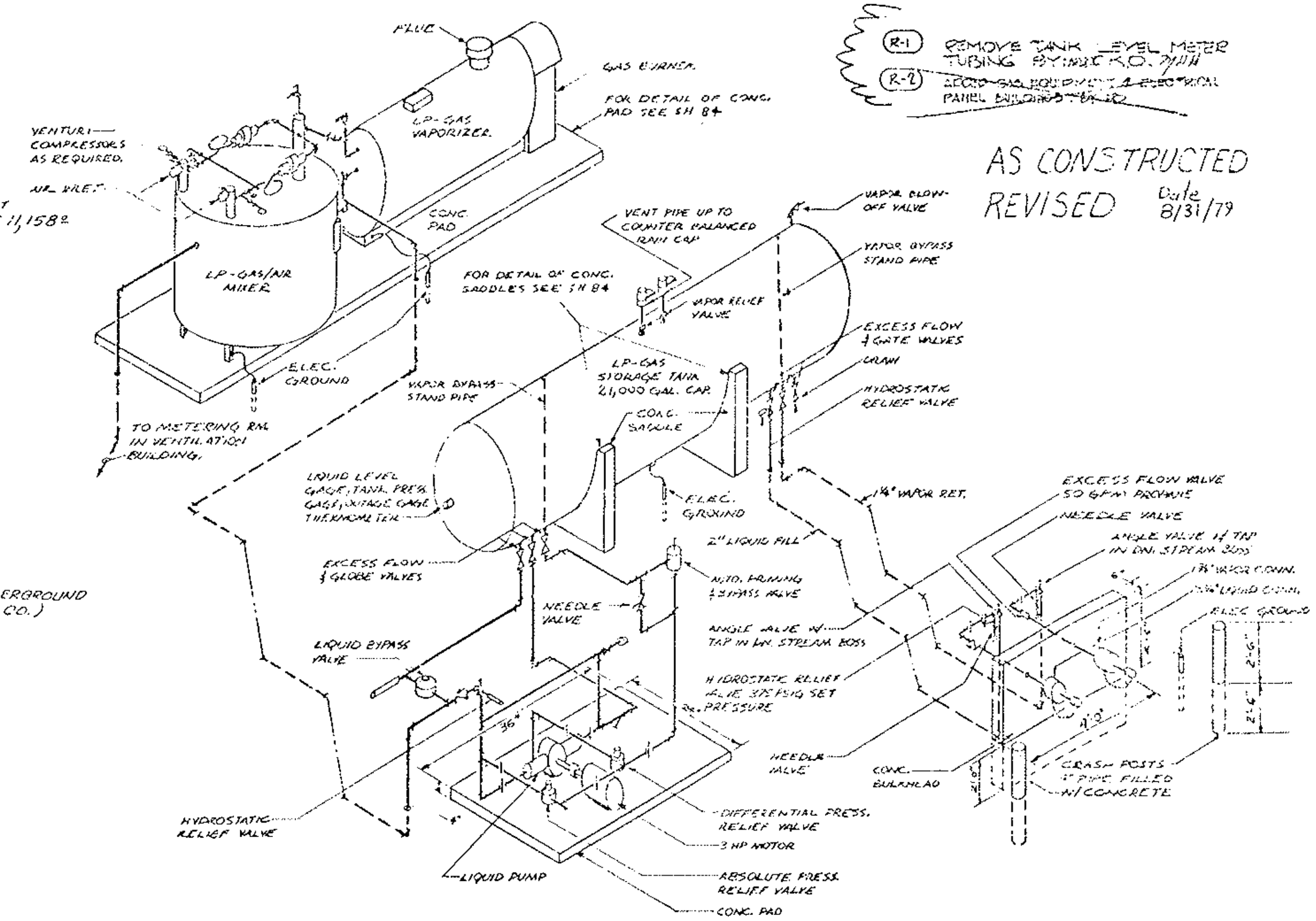
EAST PORTAL STANDBY LP-GAS SYSTEM PLAN

SCALE: 1" = 50'-0"



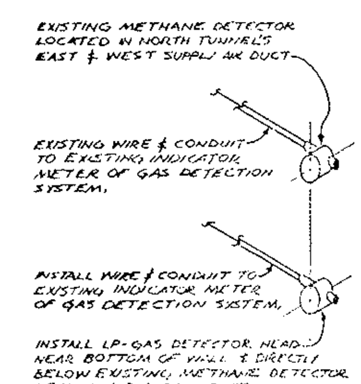
WEST PORTAL STANDBY LP-GAS SYSTEM PLAN

SCALE: 1" = 50'-0"



LP-GAS STORAGE AND VAPORIZING SCHEMATIC

NO SCALE



LP-GAS DETECTION FOR EXISTING NORTH TUNNEL

NO SCALE

NOTES

1. ALL LOCATIONS OF EQUIPMENT & PIPE LENGTHS INDICATED ON THIS DRAWING ARE APPROXIMATE. EXACT LOCATIONS & PIPE LENGTHS SHALL BE DETERMINED IN FIELD.

6200

PRINT RECORD

DATE ISSUED	15 . 15 . [illegible]
REVISION NO.	0 . 0 . R1 . [illegible]
FOR	PRE FCAAFC NO
CUSTOMER	5 . 5 . ORG. ORG
FIELD	0 . 0 . – . 4
INTRA CO.	1 . 1 . 15 . 15

REVISIONS

STATE OF COLORADO · DEPARTMENT OF HIGHWAYS

EISENHOWER MEMORIAL TUNNEL

SECOND BORE

MECHANICAL

EAST AND WEST STANDBY PROPANE SYSTEMS PLANS & SCHEMATICS

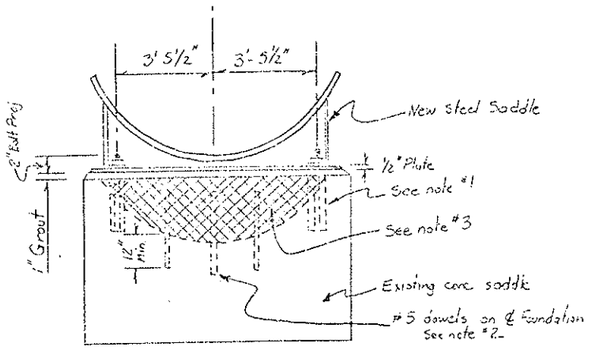
DRAWN	LKE	3/7/75
CHECKED	MWW	4/7/75
SCALE AS NOTED	ORDER NO.	C14580

DRAWING NO. M-18 S

D.O.H. FORM NO. 125
REV. MARCH, 1974

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	I 70-3(82) 220	84	208

WEST PORTAL L-P TANK SADDLE
REVISION



TYP. TWO PLACES

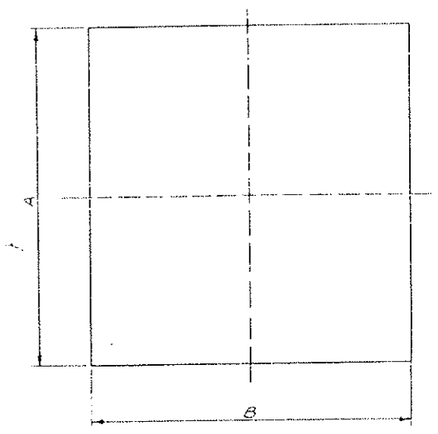
NOTES

1. ¾"ϕ AB 24, Drill and set with epoxy grout
2. Drill and set dowels with epoxy grout
3. Fill conc. saddle with concrete. Roughen existing concrete and coat with bonding agent prior to placing concrete
4. Paint Steel Saddle with same procedure and color as existing tank.
5. Modify piping, ladders, and appurtenances as approved by the engineer.
6. Install in accordance with all requirements of contract specifications, including section 645.

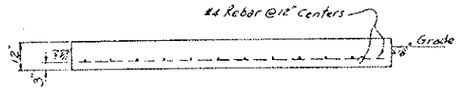
Note:

1. Dimensions A, B, N and R will be determined when type of equipment is chosen.
2. An allowable bearing of 1.5 tons per square foot will be attained in dense sand, gravel cobbles and boulders. If soft material such as peat or clay is encountered in the excavation at the elevation of the proposed base, it shall be removed down to firm material and replaced with compacted sand or gravel.
3. Concrete for Slabs and Saddles shall be Class C.

AS CONSTRUCTED
REVISED Date 8/31/79

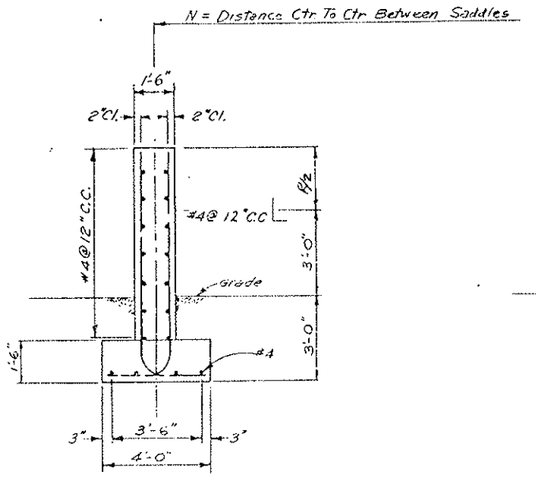


PLAN

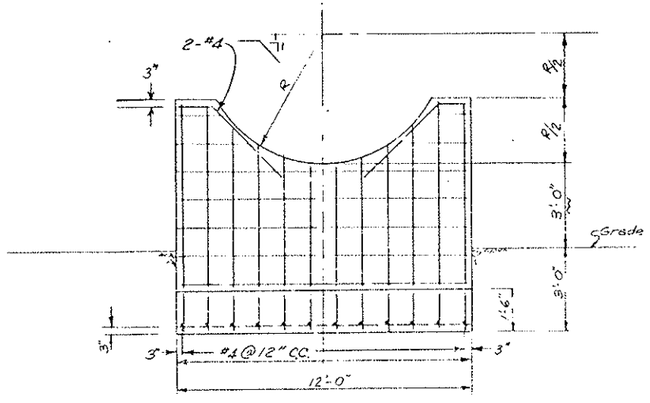


SECTION

Floor Slab for Vaporizer & Mixer



END VIEW



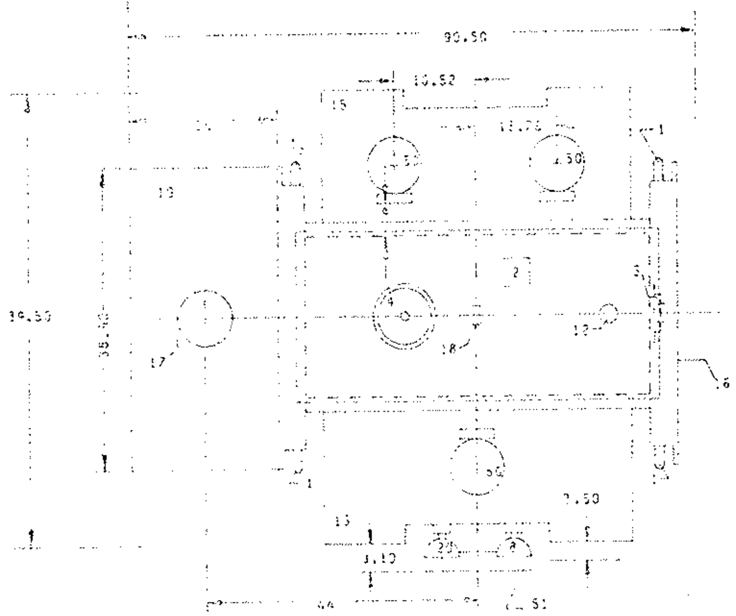
SIDE VIEW

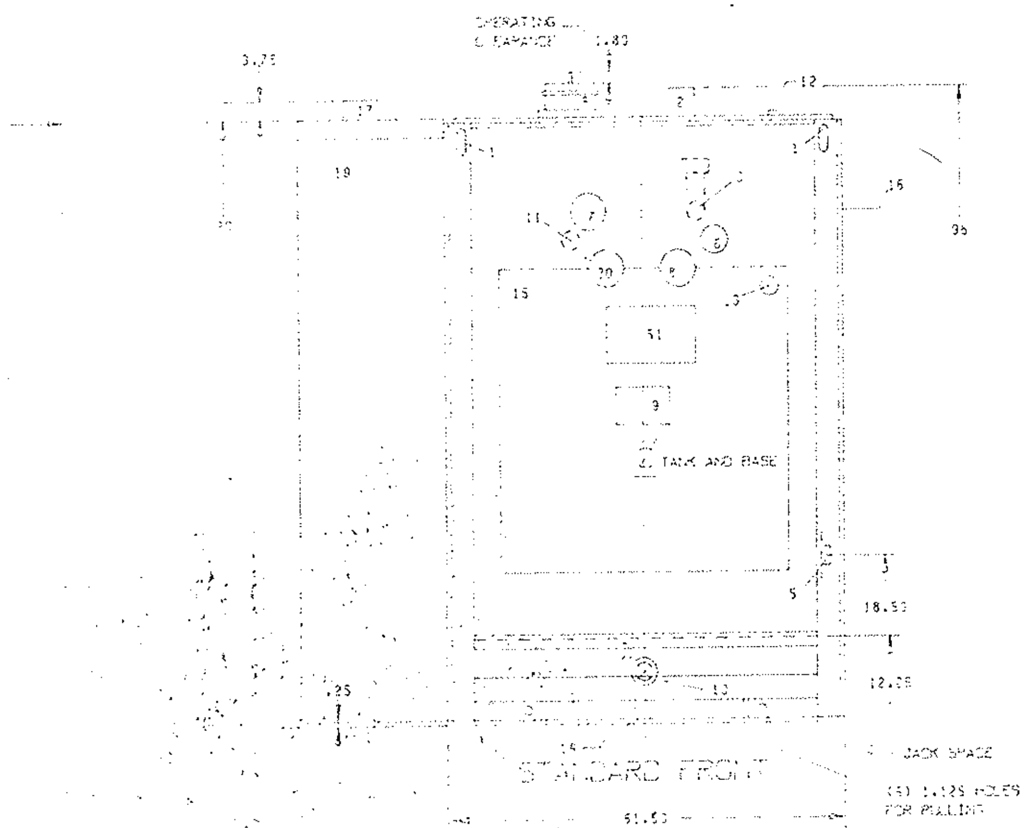
Saddles for Storage Tank

EAST+WEST PORTAL AREA
21,000 GAL. PROPANE TANK
CONCRETE SADDLE AND
VAPORIZER BLDG. SLAB
SH. 84

TITLE OUTLINE

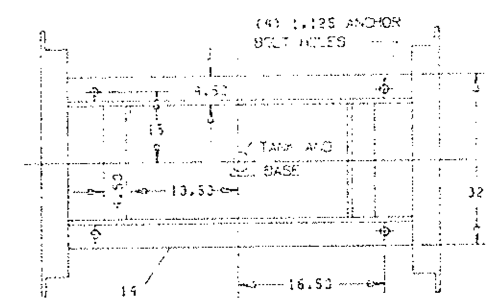
FIRST MADE FOR





FOR MANUFACTURING USE ONLY
LV FLANGE TO 147L1132(A FIG 1A AND 21 EXCEPT C=65.50

1. LIFTING LUG FOR LIFTING COMPLETELY FILLED TRANSFORMER (2 EACH OPENING)
2. TAP CHANGER OPERATING MECHANISM FOR HV WINDING
3. FILLING AND TOP FILTER PRESS CONNECTION, 1 NPT MALE WITH 1 PIPE CAP
4. 6 INCH DIA HANDHOLE, PRESSURE RELIEF FOR PYRANOL UNITS ONLY
5. GROUND BLOCK (NOT STANDARD)
6. PRESSURE VACUUM GAGE
7. LIQUID LEVEL GAGE
8. LIQUID TEMPERATURE INDICATOR ~~WITH ALARM CONTACTS~~
9. NAMEPLATE
10. DRAIN AND FILTER PRESS VALVE, 1 NPT FEMALE (WITH .250 SAMPLER VALVE ON OIL UNITS ONLY)
11. PRESSURE TEST VALVE FOR .250 I.D. TUBE (LOCATED ON OPPOSITE FRONT FROM ITEM 6)
12. AIR VENT .375 PIPE PLUG
13. SAMPLER VALVE .250 NPT FOR PYRANOL UNITS; PIPE PLUG .250 FOR OIL UNITS
14. TRANSFORMER BASE
15. COOLING TUBES (NON-REMOVABLE)
16. LV FLANGE
17. 4 INCH CONDUIT COUPLING FOR CUSTOMER'S ENTRANCE
18. LIFTING LOOP FOR LIFTING COVER
19. HV TERMINAL COMPARTMENT, REMOVABLE END PANEL. TERMINALS ARE LOCATED APPROXIMATELY 30 INCHES FROM THE TOP, AND ARE SUITABLE FOR (1) 1 AWG CABLE PER PHASE
20. WDG TEMPERATURE INDICATOR WITH ALARM CONTACTS
50. FAN
51. TERMINATION BOX FOR ALARM LEADS



BASE DETAILS

APPROXIMATE WEIGHTS IN LBS.

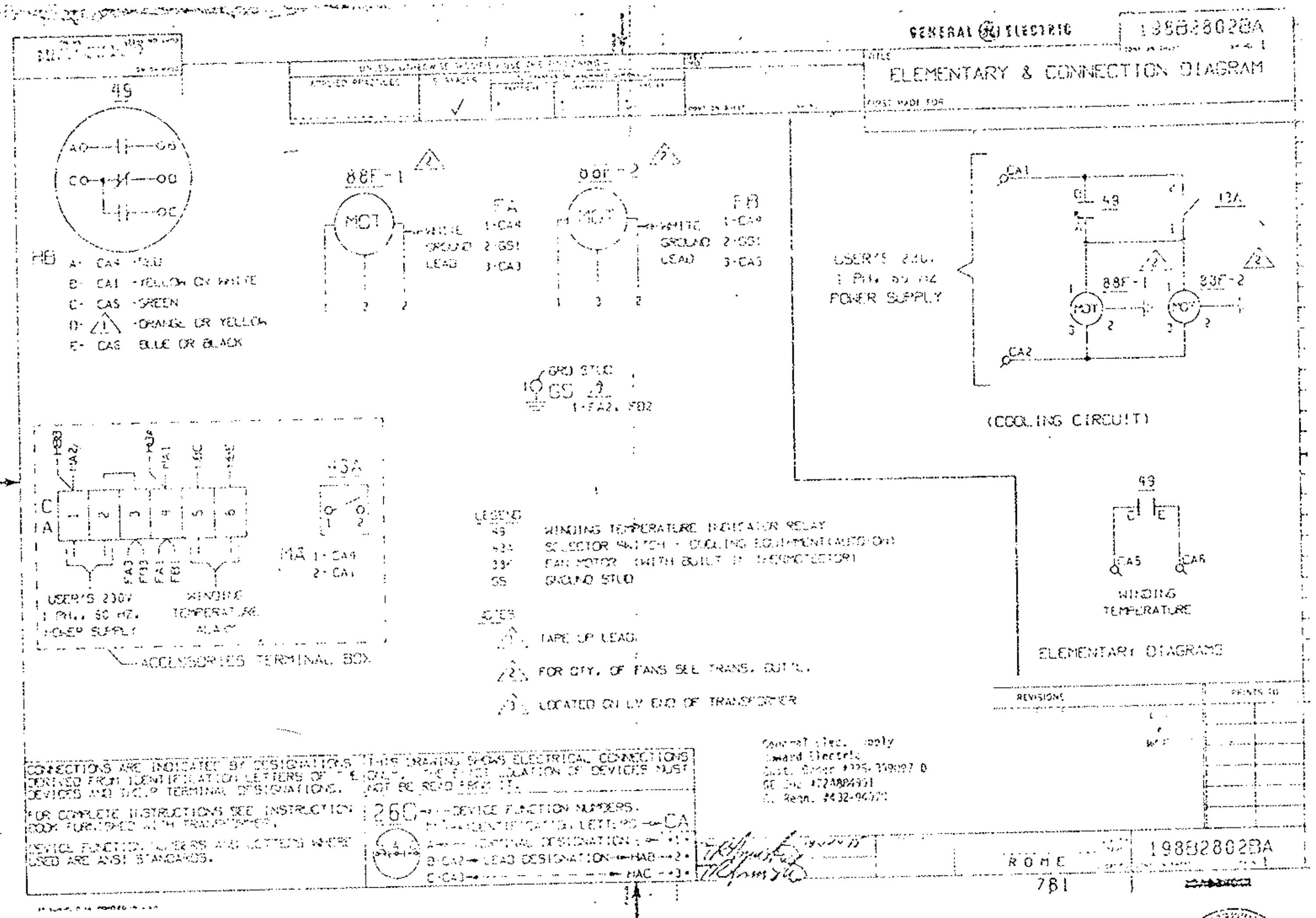
UNTANKING			4650
TANK			3050
LIQUID IN TANK			
PYRANOL	330	GAL	5050
TOTAL TRANS			12750
HV COMPT			250
LV COMPT			
TOTAL UNIT			13000

DIMENSIONS ARE TO THE NEAREST INCH UNLESS OTHERWISE SPECIFIED.
ITEM NO. 6,7,8,9,21 LOCATED ON STANDARD FRONT FOR STANDARD UNIT AND ON REVERSE FRONT FOR REVERSE UNIT.

REVISIONS | PRINTS TO

MADE BY | APPROVALS | MTPD ROME, GA. | 165C6099 | CONT ON SH | SH NO. 1

426 | 72A884931


GENERAL ELECTRIC
198B2802BA
ELEMENTARY & CONNECTION DIAGRAM
49
88F-1
88F-2
FA
FB
MOT
ACCESSORIES TERMINAL BOX
USER'S 230V 1 PH., 60 HZ. POWER SUPPLY
WINDING TEMPERATURE ALARM
43A
LEGEND
WINDING TEMPERATURE INDICATOR RELAY
FAN MOTOR
GROUND STUD
NOTES
TAPE UP LEAD.
FOR QTY. OF FANS SEE TRANS. OUTL.
LOCATED ON LV END OF TRANSFORMER
(COOLING CIRCUIT)
WINDING TEMPERATURE
ELEMENTARY DIAGRAMS
REVISIONS
CONNECTIONS ARE INDICATED BY DESIGNATIONS
FOR COMPLETE INSTRUCTIONS SEE INSTRUCTION BOOK FURNISHED WITH TRANSFORMER.
DEVICE FUNCTION NUMBERS AND LETTERS WHERE USED ARE ANSI STANDARDS.
DEVICE FUNCTION NUMBERS
LEAD DESIGNATION
ROME
781

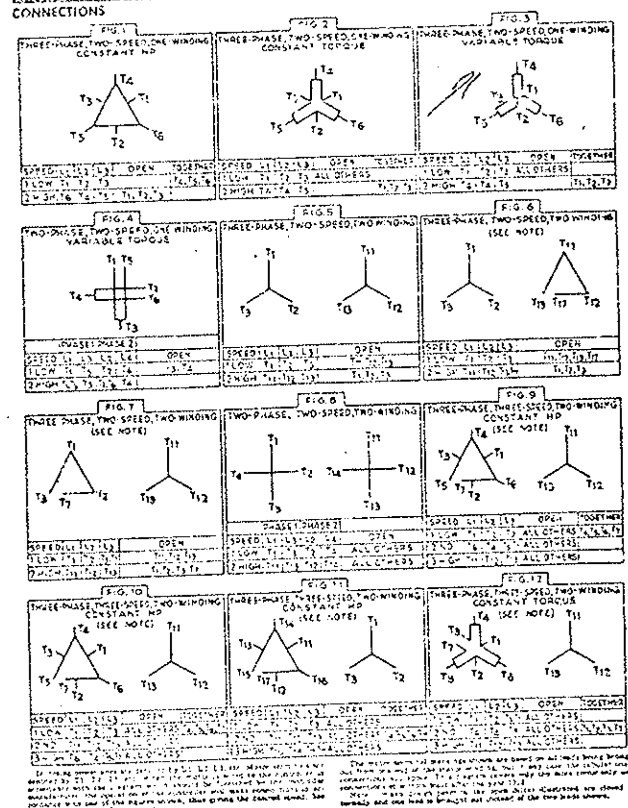
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
-	COLORADO	I 70-3( )226	89	206

INDUCTION MOTORS—INTEGRAL-HP, 3- AND 2-PHASE   SQUIRREL-CAGE   GEM-1000A

Two-, Three-, and Four-speed • Type K • TRI-CLAD

Sept. 1, 1950

CONNECTIONS



GENERAL ELECTRIC
SCHENECTADY, N. Y.

LARGE GENERATOR AND MOTOR DEPARTMENT

MEMO OF DATA TRANSMITTAL

APR 2 6 1976 (DATE)

GENERAL ELECTRIC
SCHENECTADY 5, NEW YORK (LOCATION)

C. E. MAIL (PRINTS FORWARDED VIA)

CUSTOMER: GENERAL ELECTRIC SUPPLY COMPANY

MARK: L5707

STATION OR PROJECT NO.

CUSTOMER ORDER	CUSTOMER REQN.	G.E. CONTRACT	G.E. REQUISITION
325-3990970			432-94070

PRINTS ARE:
☐ FOR APPROVAL ☒ FOR INSTALLATION ☐ FOR REFERENCE ☐

Approval Required Within 5 Days, OR BY........ (Date)

ITEM 2

34B109390-002	OUTLINE
34A103827-003	GROUND PAD
34B101952-001	ACC. OUTLINE
34A740008-004	SOLE PLATE
GEM-1000 FIG. 3	MOTOR CONNECTION
34C840405-017	HEATER CONN. + RTD CONN

MAIL (1) CERT. REPROD. & (14) PRINTS - ALL PRINTS MUST BE 22 X 34" LONG TO:
MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, LASE, DENVER OFFICE (MARK FSK)

NOTE: TEMP RISE - 90°C BY RTD @ 230/25 HP @ 11,000 FT.

MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEED, A FAN WITH WK^2 OF 171,200 LB. $FT.^2$ AND DAMPERS IN OPEN POSITION THRU A SHEAVE RATIO OF 3.46.

THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

MJ LUSHER, 416-2

Copy of W/S to

ENGINEERING REQUISITION SERVICE
R. MARTUSCELLO/jb
By
LA-026A (9/64)

MOTOR MODEL	5K811054C31
MOT. SERIAL	
APPLICATION	
ENCLOSURE	WEATHER PROTECTED TYPE II
BEARINGS	ANTI FRICTION
LUBRICATION	GREASE (SUITABLE FOR MINUS 35°F)
CODE	G
TYPE	K
FRAME	8110S
POLES	6/12
H.P.	200/25
SYN. SPEED	1200/600
PHASES	3
CYCLES	60
VOLTS	2300
SHAFT EXTEN.	DS-2
SEC. VOLTS	
SEC. AMPS	
SEC. OHMS(Y)	
INSUL. CLASS	F - CUSTOM POLYSEAL
TEMP. RISE	90°C BY RTD @ 230/25 HP
ROT.(C.P.E.)	DUAL
F.L. SPEED	1160/595
F.L. AMPS	47/14
AIR GAP	.045
END PLAY	NONE
NET WEIGHT	3320 LBS. APPROX.
MOTOR TERM	
LINE TERM	
HEATER WATTS	600
HEATER VOLTS	115
INSTR. BOOK	GEH-3170
OUTLINE	34B109390-002
MOTOR CONN.	GEM-1000 FIG. 3
HEATER CONN.	34C840405-017
SOLE PLATE	34A740008-004
ACC. OUTLINE	34B101952-001
GROUND PAD	34A103827-003

6 - 2/PHASE - 10 OHM STATOR RTD'S - COPPER RTD'S & SPACE HEATER LEADS TERMINATE IN SAME ACC. BOX

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD

Date 5/6/76 By

630.16
#169
200/25 HP
-Std Box

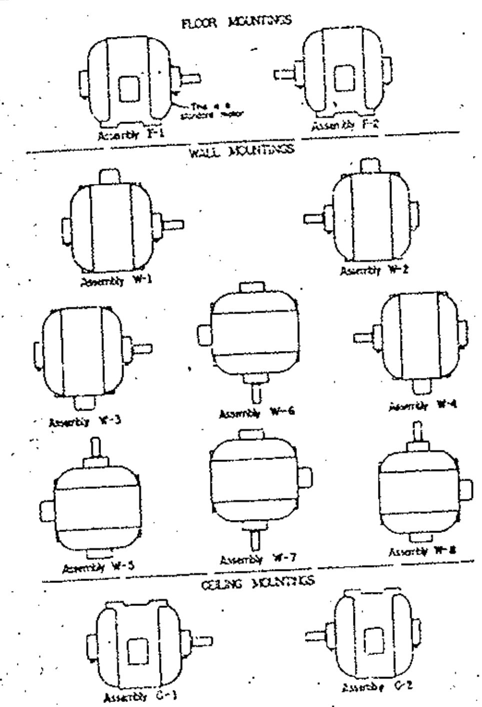
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	90	208

MOTORS, GENERATORS, AND CONVERTING EQUIPMENT

ASSEMBLY SYMBOLS (NEMA)

Selection and Application

GEM-1014A



F-1, W-2, W-3, W-6, W-8 and C-2 = Standard Lead Location.
F-2, W-1, W-4, W-5, W-7 and C-1 = Lead Location Opposite Standard.

For ESTIMATING ONLY

GENERAL ELECTRIC
SCHENECTADY, N. Y.

LARGE GENERATOR AND MOTOR DEPARTMENT

GENERAL ELECTRIC

SCHENECTADY, NEW YORK

MEMO OF DATA TRANSMITTAL APR 28 1978

G. E. HALL

CUSTOMER: GENERAL ELECTRIC SUPPLY COMPANY

MARKS: L5707

STATION OR PROJECT NO. / CUSTOMER ORDER	CUSTOMER REQ.	G.E. CONTRACT	G.E. REQUISITION
325-395097D			432-94030

PRINTS ARE: [ ] FOR APPROVAL [X] FOR INSTALLATION [ ] FOR REFERENCE [ ]

Approval Required within 5 Days, OR BY ...

RETURN OF "FOR APPROVAL" PRINTS SHOULD BE ADDRESSED TO THE GENERAL ELECTRIC OFFICE WITH WHOM YOUR ORDER IS PLACED — NOT TO THE FACTORY.

ITEM 2A

34B103390-002	OUTLINE
34B101952-001	ACC. OUTLINE
34A103527-002	GROUND PAD
34A740009-004	SOLE PLATE
GEH-1000 FIG-3	MOTOR CONN.
34C840405-017	HEATER + RTD CONN.
GEH-1014	F-2 ASSEMBLY

MAIL (1) CERT. REPROD. & (14) PRINTS - ALL PRINTS MUST BE 22 X 34" LONG TO:
MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, IASE, DENVER OFFICE (MARK FSR)

N O T E: MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEED, A FAN WITH WK^2 OF 121,300 LB. FT.^{2} AND DAMPERS IN OPEN POSITION THRU A SHEAVE RATIO OF 3.46.
THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

- MJ LUSHER, #16-2

Copy of M/S to

ENGINEERING REQUISITION SERVICE
R MARTUSCELLO
By
LA-226A (9/64)

MOTOR MODEL -	5K811054032
NOT. SPECIAL -	
APPLICATION -	
ENCLOSURE -	WEATHER PROTECTED TYPE II
BEARINGS -	ANTI FRICTION
LUBRICATION -	GREASE (SUITABLE FOR ... 35°F
CODE -	G
TYPE -	K
FRAME -	8110S
POLES -	6/12
H.P. -	200/25
SYN. SPEED -	1200/600
PHASES -	3
CYCLES -	60
VOLTS -	2300
SHAFT EXTEN. -	DS2
SEC. VOLTS -	
SEC. AMPS -	
SEC. OHMS(Y) -	
INSUL. CLASS -	F- CUSTOM POLYSEAL
TEMP. RISE -	90°C BY RTD @ 230/28HP
ROT.(O.P.E.) -	DUAL @ 11,000 FT.
F.L. SPEED -	1180/595
F.L. AMPS -	47/14
AIR GAP -	.045
END PLAY -	NONE
NET WEIGHT -	3520 LB. APPROX.
MOTOR TERM -	
LINE TERM -	
HEATER WATTS -	800
HEATER VOLTS -	115
INSTR. BOOK -	GEH-3170
OUTLINE -	34B103390-002
MOTOR CONN. -	GEH-1000 FIG. 3
HEATER CONN. -	34C840405-017
ACC. OUTLINE -	34B101952-001
GROUND PAD -	34A103527-002
SOLE PLATE -	34A740009-004

6 - 2/PHASE, 10 OHM STATOR RTD'S - COPPER
RTD'S & SPACE HEATERS LEADS TERMINATE IN SAME ACC. BOX

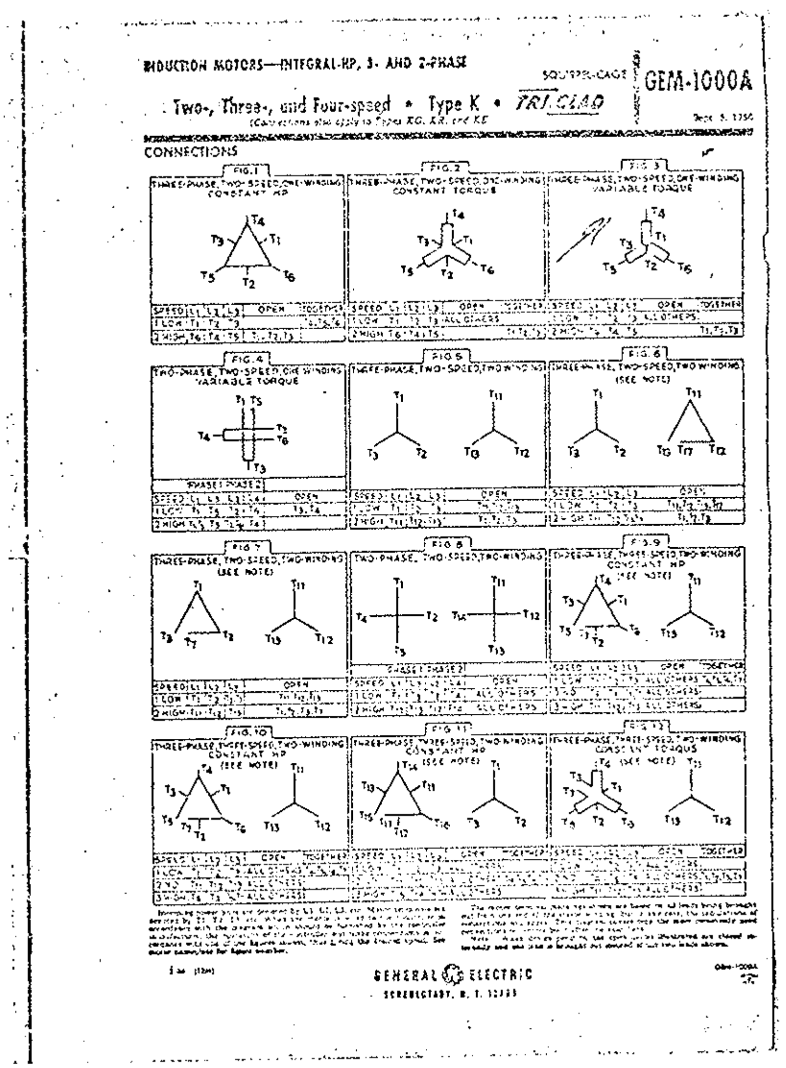
FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

630.16
#169
200/25 HP
F-2 ...

STEARNS-ROGER ARCHITECTS, LTD.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	91	208



LARGE GENERATOR AND MOTOR DEPARTMENT

MEMO OF DATA TRANSMITTAL

APR 26 1976 (DATE)

GENERAL ELECTRIC

SCHENECTADY, NEW YORK (LOCATION)

C. E. MAIL (PRINTS FORWARDED VIA)

CUSTOMER: GENERAL ELECTRIC SUPPLY COMPANY

MARKS: 15707

STATION OR PROJECT NO. / CUSTOMER CERT.	CUSTOMER REQN.	G.E. CONTRACT	G.E. REQUISITION
325-2990370			432-96070

PRINTS ARE: [ ] FOR APPROVAL [✓] FOR INSTALLATION [ ] FOR REFERENCE [ ]

Approval Required Within 5 Days, OR BY .... (Date)

ITEM 7A

34B109390-002	OUTLINE
34B101257-001	ACC. OUTLINE
34A103827-002	GROUND PAD
34A740008-004	SOLE PLATE
GEM-1000 FIG-3	MOTOR CONN.
34C840405-017	HEATER + RTD CONN.
GEM-1014	F-2 ASSEMBLY

MAIL (1) CERT. REPROD. 6 (14) PRINTS - ALL PRINTS MUST BE 22 X 34" LONG TO:
MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, IASE, DENVER OFFICE (MARK FSR)

NOTE: MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEED, A FAN WITH WK² OF 171,300 LB. FT.² AND DAMPERS IN OPEN POSITION THRU A SHEAVE RATIO OF 3.46.
THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

MJ LUSHER, #16-2

Copy of H/S to

ENGINEERING REQUISITION SERVICE
R MARTUSCELLO/dm
By
LA-226A (9/64)

MOTOR MODEL -	5K811054C32
MFT. SERIAL -	
APPLICATION -	
ENCLOSURE -	WEATHER PROTECTED TYPE II
BEARINGS -	ANTI FRICTION
LUBRICATION -	GREASE (SUITABLE FOR (MINUS 35°F
CODE -	G
TYPE -	K
FRAME -	8110S
POLES -	6/12
H.P. -	200/25
SYN. SPEED -	1200/600
PHASES -	3
CYCLES -	60
VOLTS -	2300
SHAFT EXTEN. -	DS2
SEC. VOLTS -	
SEC. AMPS -	
SEC. CONS(Y) -	
INSUL. CLASS -	F- CUSTOM POLYSEAL
TEMP. RISE -	90°C BY RTD @ 220/23HP
ROT.(O.P.E.) -	DUAL (@ 11,000 FT.
F.L. SPEED -	1180/595
F.L. AMPS -	47/14
AIR GAP -	.045
END PLAY -	NONE
NET WEIGHT -	3520 LB. APPROX.
MOTOR TERM -	
LINE TERM -	
HEATER WATTS -	800
HEATER VOLTS -	115
INSTR. BOOK -	GEH-3170
OUTLINE -	34B109390-002
MOTOR CONN. -	GEH-1000 FIG. 3
HEATER CONN. -	34C840405-017
ACC. OUTLINE -	34B101252-001
GROUND PAD -	34A103827-002
SOLE PLATE -	34A740008-004

6 - 2/PHASE, 10 OHM STATOR RTD'S - COPPER RTD'S & SPACE HEATERS LEADS TERMINATE IN SAME ACC. BOX

FINAL

APR 1976 STAFF BRIDGE DESIGN DOH

MAY 1976 RECEIVED D.O.H.

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

STEARNS-ROGER ENGINEERS, LTD.

Stearns-Roger Engineers

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	92	208

INDUCTION MOTORS—INTEGRAL-HP, 3- AND 2-PHASE

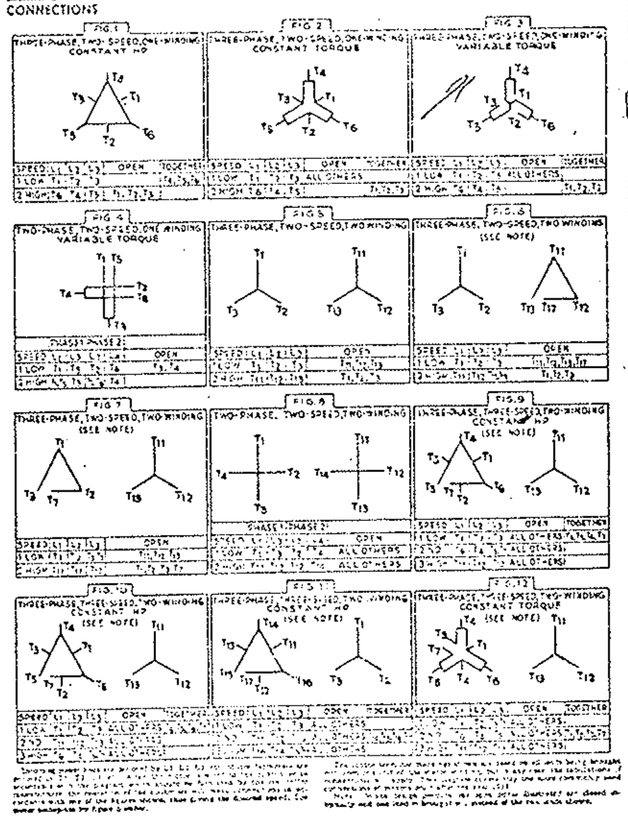
SQUIRREL-CAGE **GEM-1000A**

Sept. 5, 1950

Two-, Three-, and Four-speed • Type K • *TRI/CLAD*

(Connections also apply to Types KG, KR, and KC)

CONNECTIONS



GENERAL ELECTRIC

LARGE GENERATOR AND MOTOR DEPARTMENT

GENERAL ELECTRIC

MEMO OF DATA TRANSMITTAL

APR 2 6 1976 (DATE) — SCHENECTADY, NEW YORK (LOCATION) — G. E. MAIL (PRINTS FORWARDED VIA)

CUSTOMER: GENERAL ELECTRIC SUPPLY COMPANY

MARK: L5707

STATION OR PROJECT NO.

CUSTOMER ORDER	CATALOG NO.	G.E. CONTRACT	G.E. REQUISITION
325-3990970			432-94070

PRINTS ARE: [ ] FOR APPROVAL [X] FOR INSTALLATION [ ] FOR REFERENCE [ ]

Approval Required Within 5 Days. OK BY........ (Date)

RETURN OF "FOR APPROVAL" PRINTS SHOULD BE ADDRESSED TO THE GENERAL ELECTRIC OFFICE WITH WHOM YOUR ORDER IS PLACED — NOT TO THE FACTORY.

ITEM 1A

34C107480-005	OUTLINE
GEM-1014 FIG. F-2	ASSEMBLY
34B101952-002	ACC. OUTLINE
34A103827-002	GROUND PAD
34A740055-004	SOLE PLATE
GEM-1000 FIG. 3	MOTOR CONN.
34C840405-017	HEATER CONN.+ RTD CONN.

MAIL (1) CERT. REPROD. & (14) PRINTS-ALL PRINTS MUST BE 22 X 34" LONG TO:

MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, ILSE, DENVER OFFICE (MARK FSR)

NOTE: TEMP. RISE - 90°C BY RTD @ 690/115 HP @ 11,000 FT.

MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEEDS, A FAN WITH WK^2 OF 121,300 LB. FT.² AND DAMPERS IN OPEN POSITION THUR A SHEAVE RATIO OF 3.46

THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

MJ LUSHER, #16-2

Copy of M/S to

ENGINEERING REQUISITION SERVICE
By R MARTUSCELLO/
1A-226A (9/64)

MOTOR MODEL - 5K821154C17
MOT. SERIAL -
APPLICATION -
ENCLOSURE - WEATHER PROTECTED TYPE II
BEARINGS - ANTI FRICTION
LUBRICATION - GREASE (SUITABLE FOR (MINUS 35°F
CODE - G
TYPE - K
FRAME - 8211S
POLES - 4/8
H.P. - 600/100
SYN. SPEED - 1800/900
PHASES - 3
CYCLES - 60
VOLTS - 2300
SHAFT EXTEN. - DS-2
SEC. VOLTS -
SEC. AMPS -
SEC. OHMS(Y) -
INSUL. CLASS - F CUSTOM POLYSEAL
TEMP. RISE - 90°C BY RTD @ 690/115 (HP
ROT.(O.P.E.) - DUAL
F.L. SPEED - 1780/890
F.L. AMPS - 135/31
AIR GAP - .070
END PLAY - NONE
NET WEIGHT - 5500 LBS. APPROX.
MOTOR TERM -
LINE TERM -
HEATER WATTS - 800
HEATER VOLTS - 115
INSTR. BOOK - GEH-3170
OUTLINE - 34C107480-005
MOTOR CONN. - GEM-1000 FIG. 3
HEATER CONN. - 34C840405-017
SOLE PLATE - 34A740055-004
ACC. OUTLINE - 34B101952-002
GROUND PAD - 34A103827-002
F-2 ASSEMBLY - GEM-1014

6 - 2/PHASE - 10 OHM STATOR RTD'S- COPPER RTD'S & SPACE HEATER LEADS TERMINATE IN SAME ACC. BOX

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

630
#167
600/100 HP
F5 Box

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
-	COLORADO	I 70-3( )220	93	208

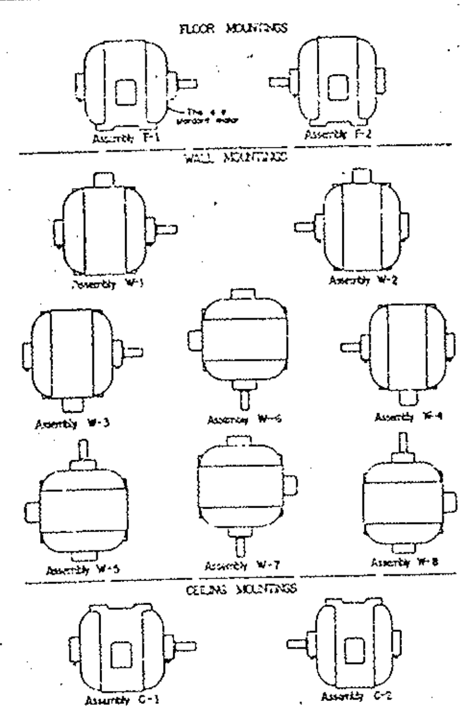
MOTORS, GENERATORS, AND CONVERTING EQUIPMENT

ASSEMBLY SYMBOLS (NEMA)

Selection and Application

GEM-1014A

July 5, 1949



For ESTIMATING ONLY

GENERAL ELECTRIC
SCHENECTADY, N. Y.

LARGE GENERATOR AND MOTOR DEPARTMENT

MEMO OF DATA TRANSMITTAL

APR 2 0 1976 (DATE)

GENERAL ELECTRIC
SCHENECTADY, N. Y. (LOCATION)

G. E. MAIL (PRINTS FORWARDED VIA)

CUSTOMER: GENERAL ELECTRIC SUPPLY COMPANY

MAIL: L5707

STATION OR PROJECT NO. / CUSTOMER ORDER	CUSTOMER REQN.	G.E. CONTRACT	G.E. REQ. NO.
325-390097D			632-94070

PRINTS ARE: [ ] FOR APPROVAL [X] FOR INSTALLATION [ ] FOR REFERENCE [ ]

ITEM 1A

34C107480-005	OUTLINE
GEM-1014 FIG. F-2	ASSEMBLY
34B101952-002	ACC. OUTLINE
34A103827-002	GROUND PAD
34A740055-004	SOLE PLATE
GEM-1000 FIG. 3	MOTOR CONN.
34C840405-017	HEATER CONN. + RTD CONN.

MAIL (1) CERT. REPROD. & (14) PRINTS-ALL PRINTS MUST BE 22 X 34" LONG TO:
MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, IGSE, DENVER OFFICE (MARK FSR)

NOTE: TEMP. RISE - 90°C BY RTD @ 690/115 HP @ 11,000 FT.

MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEEDS, A FAN WITH WK^2 OF 121,300 LB. FT.^{2} AND DAMPERS IN OPEN POSITION THRU A SHEAVE RATIO OF 1.46

THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

MJ-LUSHER, #16-2

Copy of K/S to

MOTOR MODEL - 5K821164C17
MOT. SERIAL -
APPLICATION -
ENCLOSURE - WEATHER PROTECTED TYPE II
BEARINGS - ANTI FRICTION
LUBRICATION - GREASE (SUITABLE FOR MINUS 35°F
CODE - G
TYPE - K
FRAME - 8211S
POLES - 4/8
H.P. - 600/100
SYN. SPEED - 1800/900
PHASES - 3
CYCLES - 60
VOLTS - 2300
SHAFT EXTEN. - DS-2
SEC. VOLTS -
SEC. AMPS -
SEC. CONN(Y) -
INSUL. CLASS - F CUSTOM POLYSEAL
TEMP. RISE - 90°C BY RTD @ 690/115 (HP
ROT.(O.P.E.) - DUAL
F.L. SPEED - 1780/890
F.L. AMPS - 135/31
AIR GAP - .070
END PLAY - NONE
NET WEIGHT - 5500 LBS. APPROX.
MOTOR TERM -
IDE TERM -
HEATER WATTS - 800
HEATER VOLTS - 115
INSTR. BOOK - GEH-3170
OUTLINE - 34C107480-005
MOTOR CONN. - GEM-1000 FIG. 3
HEATER CONN. - 34C840405-017
SOLE PLATE - 34A740055-004
ACC. OUTLINE - 34B101952-002
GROUND PAD - 34A103827-002
F-2 ASSEMBLY - GEM-1014

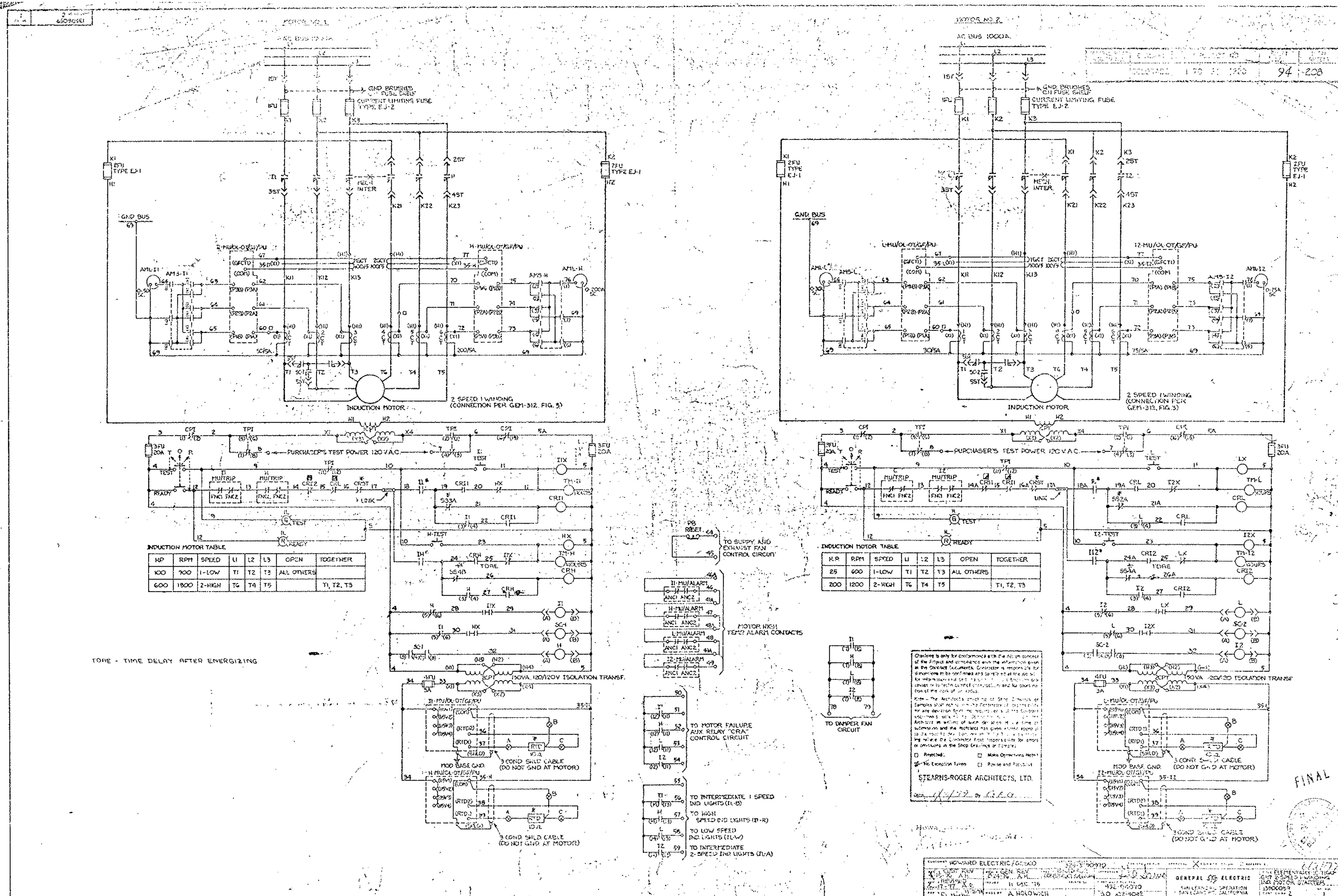
6 - 2/PHASE - 10 OHM STATOR RTD'S- COPPER
RTD'S & SPACE HEATER LEADS TERMINATE IN SAME ACC. BOX

ENGINEERING REQUISITION SERVICE
By R MARTUSCELLO/dm
LA-226A (9/64)

FINAL

Checked
Howard Elect. & Mech. Co.

#630.16
#169
600/100 HP
FA 2nd



INDUCTION MOTOR TABLE

HP	RPM	SPEED	L1	L2	L3	OPEN	TOGETHER
100	900	1-LOW	T1	T2	T3	ALL OTHERS	
600	1800	2-HIGH	T6	T4	T5		T1, T2, T3

INDUCTION MOTOR TABLE

H.P.	RPM	SPEED	L1	L2	L3	OPEN	TOGETHER
25	600	1-LOW	T1	T2	T3	ALL OTHERS	
200	1200	2-HIGH	T6	T4	T5		T1, T2, T3

CUSTOMER HOWARD ELECTRIC/GENCO

ELEMENTARY CONNECTIONS 2 SPEED 1 WINDING IND. MOTOR STARTERS

GENERAL ELECTRIC — SAN LEANDRO OPERATION, SAN LEANDRO, CALIFORNIA

MADE BY A. HOLOWICH

432-96070

S.O. 432-9082

NOMENCLATURE

AML--------LINE AMMETER
AMS--------AMMETER TRANSFER SWITCH
CPI--------CONTROL POWER INTERLOCK (OPERATED BY FUSE SHELF HANDLE)
CPT--------CONTROL POWER TRANSFORMER
CRH--------CONTROL RELAY-HIGH SPEED
CRI--------CONTROL RELAY-INTERMEDIATE SPEED
CRL--------CONTROL RELAY-LOW SPEED
CRST-------CONTROL RELAY-STOP
CT---------CURRENT TRANSFORMER
FU---------FUSE
GCT--------GROUND CURRENT TRANSFORMER
GND--------GROUND
H----------HIGH SPEED CONTACTOR
HX---------AUXILIARY RELAY TO "H"
H-TM-------HIGH SPEED TIME METER
IH---------INTERPOSING RELAY-HIGH SPEED
II---------INTERPOSING RELAY-INTERMEDIATE SPEED
MU---------LOD-TRAK MULTI-FUNCTION SOLID STATE PROTECTION MODULE
MU/GF------GROUND FAULT RELAY IN "MU"
MU/OL-OT---OVERLOAD RELAY AND OVERTEMPERATURE DEVICE IN "MU"
MU/PU------PHASE UNBALANCE IN "MU"
RTD--------RESISTANCE TEMPERATURE DEVICE
SC---------SHORTING CONTACTOR
L ---------SLOW SPEED CONTACTOR
LX --------AUXILIARY RELAY TO "L"
SS2A, SS3A, SS4A, SS4B ---FAN SPEED SWITCH CONTACTS
ST---------STAB
L-TM-------SLOW SPEED TIME METER
TB---------TERMINAL BOARD
TPI--------TEST POWER INTERLOCK (OPERATED BY FUSE SHELF HANDLE)
→≻--------INDICATES DRAWOUT STAB
*----------INDICATES REMOTE-MOUNTED DEVICE
[2] -------INDICATES DEVICE IN MOTOR NO.2 CONTROL CIRCUIT
[1] -------INDICATES DEVICE IN MOTOR NO 1 CONTROL CIRCUIT
I---------INTERMEDIATE SPEED CONTACTOR
IL --------INDICATING LIGHT R-RED, G-GREEN
I-X -------AUXILIARY RELAY TO "I"
TDAE----TIME DELAY AFTER ENERGIZING

MOTOR NO.1

600 H.P.
H—MU" FACTORY TRIP SETTINGS

SEC.FLI. 3.8 AMPS (AT S.F. LOAD) - 80°C
STALL 24 SEC AT 219 A. LRI.
RTD ALARM AT 150°C
RTD TRIP AT 155°C
GF TRIP AT 0.5 AMPS
PU TRIP AT 15% UNBALANCE

100 H.P.
I1—MU" FACTORY TRIP SETTINGS

SEC.FLI. 3.1 AMPS
STALL 73 SEC. AT 18.6 A LRI - 45°C
RTD ALARM AT 150°C
RTD TRIP AT 155°C
GF TRIP AT 0.5 AMPS
PU TRIP AT 15% UNBALANCE

MOTOR NO. 2

25 H.P.
L-MU" FACTORY TRIP SETTINGS

SEC FLI 2.55
STALL 85 SEC. AT 14 A. LRI - 65°C
RTD ALARM AT 150°C
RTD TRIP AT 155°C
GF TRIP AT 0.5 AMPS
PU TRIP AT 15% UNBALANCE

200 H.P.
I2-MU" FACTORY TRIP SETTINGS

SEC. FLI 3.1 AMPS
STALL 27.5SEC. AT 20.4 A.LRI - 83°C
RTD ALARM AT 150°C
RTD TRIP AT 155°C
GF TRIP AT 0.5 AMPS
PU TRIP AT 15% UNBALANCE

GENERAL NOTES

THIS DIAGRAM SHOWS STARTER WITH THE FUSE SHELF IN THE DISCONNECT POSITION AND THE TEST POWER INTERLOCK IN THE TEST POSITION.

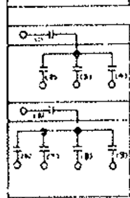
TO TEST: HANDLE MUST BE IN THE DISCONNECT POSITION (OFF). PURCHASER TO CONNECT [illegible] TO THE SYSTEM TERMINALS AND NOTE THAT THE CONTROL CIRCUIT IS NOT [illegible] WHEN DISCONNECTS ARE OPEN.

TO START: SEE CUSTOMER'S REMOTE STARTING AND STOPPING CIRCUITRY.

CPI: OPENS ONLY WHEN FUSE ISOLATING MECHANISM IS PUSHED IN. CANNOT BE OPENED WHEN MAIN LINE CONTACTOR IS CLOSED.

☐: AT TERMINAL BOARD [illegible], A LOOP IN THE CT SECONDARY CIRCUIT WIRE PERMITS THE INSERTION OF A [illegible] AMMETER FOR MEASURING LINE CURRENT.

AMS SEQUENCE TABLE



CONTACTS HANDLE END	OFF	1	2	3
1		X	X	X
2		X		
3			X	
4				X
5	X			
6	X	X	X	
7		X	X	X
8	X		X	X
9	X	X		X

X = DENOTES CLOSED CONTACTS

DIAGRAM PART TABLE

DIAGRAM PART NO	MOTOR HP	MOTOR RPM	MOTOR AMPS	MOTOR VOLTS	MU/OL TRIP	EFFECTIVE C.T. RATIO	ICPT SIZE AND RATING	EJ-1 FUSE SIZE & CAT. NO.	EJ-2 FUSE SIZE & CAT. NO.	PANEL POWER WIRE SIZE 5KV
1	100	900	31A.	2300	SEE FACTORY SETTING TABLE	50/5A.	2KVA 2300-230/115V.	SIZE B3E 9F60BBD003	SIZE 12R 9F60LCB512	#3 SI-58065
	600	1800	135A.			200/5A.				#1/0 SI-58065
2	25	600	14A.	2300	SEE FACTORY SETTING TABLE	30/5A.	2KVA 2300-230/115V.	SIZE B3E 9F60BBD003	SIZE 4R 9F60LCB804	#3 SI-58065
	200	1200	47A.			75/5A.				#4 SI-58065

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. [illegible]

Note – The Architect's checking of Shop Drawings or Samples shall not relieve the [illegible] for any deviation from the requirements [illegible] or errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☑ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

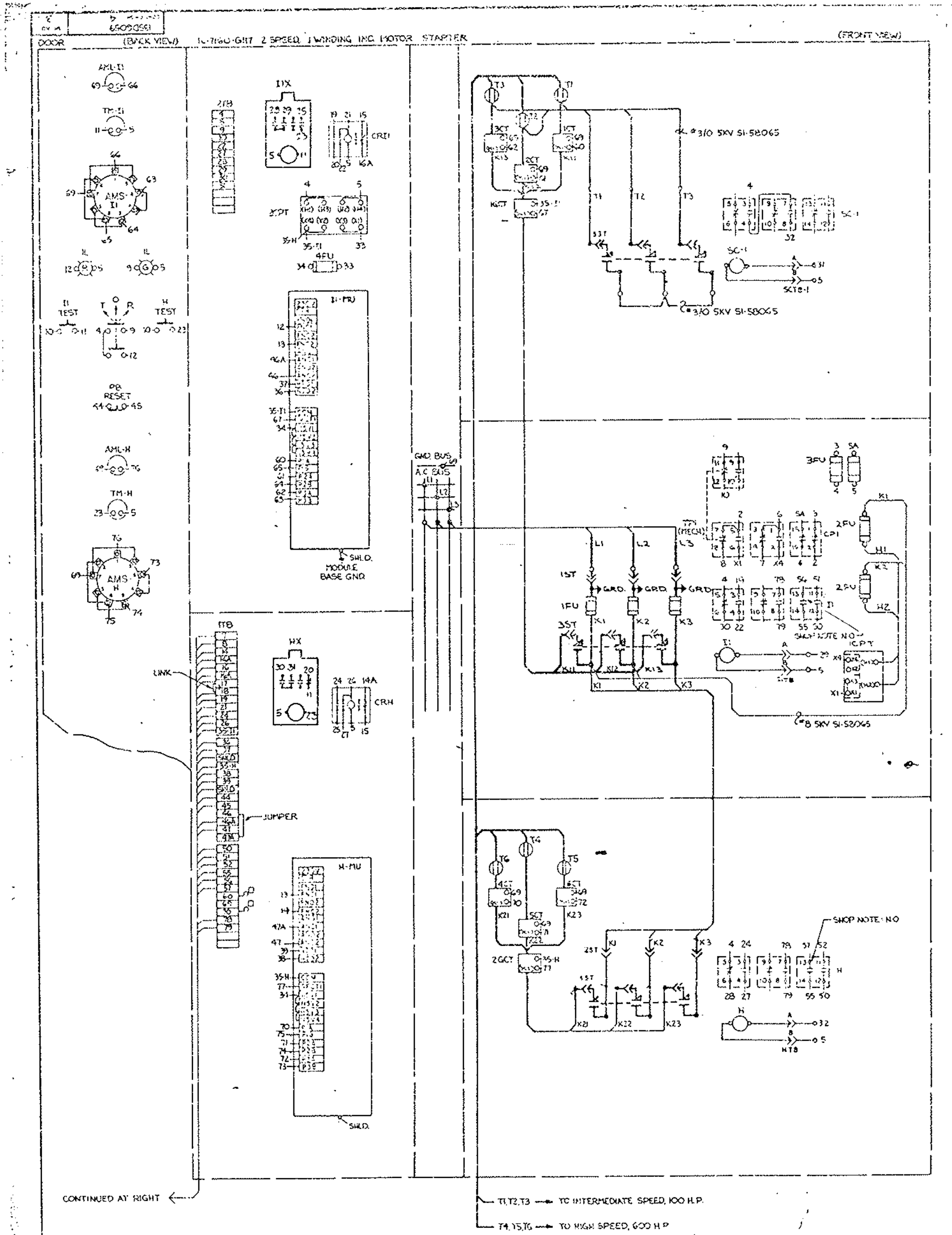
Date 1/3/77 By G.E.G.

FINAL

Approved
Howard Elec. & Mech. [illegible]
Proj. Mgr.

CUSTOMER HOWARD ELECTRIC/GESCO 323-3990970	X CONSTRUCTION	GENERAL ELECTRIC SAN LEANDRO OPERATION SAN LEANDRO, CALIFORNIA	ELEMENTARY IC-7160 GIIT 2-SPEED 1-WINDING IND. MOTOR STARTER 13506059 CONT. ON SH. 3 SH. NO. 2
GEN REV 5-25-77 A.R. / GEN REV 2-24-76 A.H. / ISSUED FOR CONSTRUCTION / GEN REV R. Jalley 5-30-77	ISSUED 11 DEC. '75 / DRAWN A HOLOWICH	432-94070 S.O. 102-5032	

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )226	96	208



WIRE	CONNECTION
#14 STRD SI-58170	
X1	TP1·1CPT
X4	TP1·1CPT
2	CP1·TP1
3	3FU·CP1
4	3FU·T-O-R·H·I1·2CPT·2TB·CCH
5	3FU·I1X·TM-I1·CRI1·IL-G·IL-R·HX·TM-H·CRH·1TB·HTB·SCTB-1·2CPT·2TB
5A	3FU·CP1
6	TP1·CP1
7	1TB·TP1
8	1TB·TP1
9	T-O-R·TP1·IL-G·2TB
10	TP1·I1-TEST·H-TEST·2TB
11	I1-TEST·I1X·HX·TM-I1
12	T-O-R·I1-MU·IL-R
13	I1-MU·H-MU
14	1TB·H-MU
14A	1TB·CRH
15	CRH·CRI1
16A	1TB·CRI1
18	1TB
19	1TB·CRI1·I1
20	CRI1·HX
21	1TB·CRI1
22	I1·CRI1·2TB
23	H-TEST·HX·I1X·TM-H
24	1TB·CRH·H
25	CRH·I1X
26	1TB·CRH
27	H·CRH·2TB
28	H·I1X·2TB
29	I1X·I1TB·2TB
30	I1·HX·2TB
31	HX· SCTB-1·2TB
32	SC-1·HTB
33	4FU·2CPT
34	4FU·I1-MU·H-MU
35-I1	1GCT·I1-MU·2CPT
35-H	2GCT·H-MU·2CPT
44	1TB·PB RESET
45	1TB·PB RESET
46	1TB·I1-MU
46A	1TB·I1-MU
47	1TB·H-MU
47A	1TB·H-MU
50	1TB·I1·H
51	1TB·I1
52	1TB·H
55	1TB·I1·H
56	1TB·I1
57	1TB·H
60	1TB·1CT·I1-MU
61	2CT·I1-MU
62	3CT·I1-MU
63	I1-MU·AMS-I1
64	↓ ↓
65	↓ ↓
66	AML-I1·AMS-I1
67	I1-MU·1GCT
69	1TB·AML-I1·AMS-I1·AML-H·AMS-H
70	1TB·4CT·H-MU
71	5CT·H-MU
72	6CT·H-MU
73	H-MU·AMS-H
74	↓ ↓
75	↓ ↓
76	AML-H·AMS-H
77	H-MU·2GCT
78	1TB·I1·H
79	1TB·I1·H
#12 STRD SI-58175	
69	1TB·1CT·2CT·3CT·4CT·5CT·6CT·GND BUS

(3) COND SHIELDED BELDEN #9955	
35-I1	1TB·I1-MU
36	↓ ↓
37	↓ ↓
SHLD	1TB·I1-MODULE BASE GND
35-H	1TB·H-MU
38	↓ ↓
39	↓ ↓
SHLD	1TB·H-MODULE BASE GND
#8 STRD 5KV SI-58065	
X11	3ST·1GCT·1CT·DUMMY CT
X12	3ST·1GCT·2CT·DUMMY CT
X13	3ST·1GCT·3CT·DUMMY CT
#1/0 STRD 5KV SI-58065	
X21	4ST·2GCT·4CT·DUMMY CT
X22	4ST·2GCT·5CT·DUMMY CT
X23	4ST·2GCT·6CT·DUMMY CT

SEE SH. 4

INTERCONNECTION WIRE TABLE	
#12 STRD SI-58175	
14	MOTOR #1 1TB·MOTOR #2 1TB
14A	↓
16	↓
16A	↓
47	↓
50	↓
55	↓
78	↓
79	↓

TO DAMPER FAN CIRCUIT	78,79
TO PURCHASER'S TEST POWER 120 V.A.C.	7, 8
TO DEVICES MOUNTED IN MOTOR NO 2 CONTROL CIRCUIT	14,14A,16, 16A,50,55
TO PURCHASER'S REMOTE MOUNTED DEVICES	16,17,18,19, 21,24,26
TO REMOTE MOUNTED RTD	35-I1,36,37, SHLD,35-H,38, 39, SHLD
TO MOTOR HIGH TEMP ALARM CONTACTS	46A,47
TO MOTOR FAILURE AUX RELAY "CRA" CONTROL CIRCUIT	50,51,52
TO HIGH SPEED INDICATING LIGHTS (IL-R)	55, 57
TO INTERMEDIATE SPEED INDICATING LIGHTS (IL-B)	55,56
TO SUPPLY AND EXHAUST FAN CONTROL CIRCUIT	44,45

CONTINUED FROM LEFT

FINAL

☐ Rejected
☐ No Exception Taken
STEARNS-ROGER ARCHITECTS, LTD.
Date 1/3/79 By GEG

Approved
Howard Electric & Mech.
Proj. Mgr.

MOTOR NO.1

CUSTOMER: HOWARD ELECTRIC/GESCO	32?-3990970		
ISSUED: 18 FEB.'76	432-9-4070	GENERAL ELECTRIC SAN LEANDRO OPERATION SAN LEANDRO CALIFORNIA	CONNECTION 1C-7180-G117 2 SPEED 1 WINDING IND MOTOR STARTER
MADE BY: A. HOLOWICH	50 102-5082		13506059 CONT ON SH 4 — SH NO 3

F

WIRE TABLE	
WIRE	CONNECTION
#14 STRD. SI-58170	
X1	TP1·1CPT
X4	TP1·1CPT
2	CP1·TP1
5	3FU·CP1
4	3FU·T·O·R·I2·L·2CPT·2TB·SC-2
5	3FU·LX·TM-L·CRL·IL-G·IL-R I2X·TM-I2·CRI2·LTB I2TB·SCTB-2·2CPT·2TB
5A	3FU·CP1
6	CP1·TP1
7	1TB·TP1
8	1TB·TP1
9	T·O·R·TP1·IL-G·2TB
10	TP1·L-TEST·I2-TEST·2TB
11	L-TEST·LX·I2X·TM-L
12	T·O·R·L-MU·IL-R
13	L-MU·I2-MU
14	1TB·CRI2
14A	1TB·I2-MU
15	CRI2·CRL
16	1TB·CRL
18A	1TB·
19A	1TB·CRL·L
20	CRL·I2X
21A	1TB·CRL
22	L·CRL·2TB
23	I2-TEST·I2X·LX·TM-I2
24A	1TB·CRI2·I2
25	CRI2·LX
26A	1TB·CRI2
27	I2·CRI2·2TB
28	I2·LX·2TB
29	LX·LTB·2TB
30	L·I2X·2TB
31	I2X· ·SCTB-2·2TB
32	SC-2·I2TB
33	4FU·2CPT
34	4FU·L-MU·I2-MU
35-L	1GCT·L-MU·2CPT
35-I2	2GCT·I2-MU·2CPT
49	1TB·L-MU
48A	1TB·L-MU
49	1TB·I2-MU
49A	1TB·I2-MU
50	1TB·L·I2
53	1TB·L
54	1TB·I2
55	1TB·L·I2
58	1TB·L
59	1TB·I2
60	1TB·1CT·L-MU
61	2CT·L-MU
62	3CT·L-MU
63	L-MU·AMS-L
64	↓ ↓
65	↓ ↓
66	AML-L·AMS-L
67	L-MU·1GCT
69	1TB·AML-L·AMS-L·AML-I2·AMS-I2
70	1TB·4CT·I2-MU
71	5CT·I2-MU
72	6CT·I2-MU
73	I2-MU·AMS-I2
74	↓ ↓
75	↓ ↓
76	AML-I2·AMS-I2
77	I2-MU·2GCT
78	1TB·L·I2
79	1TB·L·I2
#12 STRD. SI-58175	
69	1TB·1CT·2CT·3CT·4CT·5CT 6CT·GND BUS

(3) COND SHIELDED BELDEN #9953	
35-L	1TB·L-MU
36	↓ ↓
37	↓ ↓
SHLD	1TB·L-MODULE BASE GND
35-I2	1TB·I2-MU
38	↓ ↓
39	↓ ↓
SHLD	1TB·I2-MODULE BASE GND
#8 STRD 5KV SI-58065	
X11	3ST·1GCT·1CT·DUMMY CT
X12	3ST·1GCT·2CT·DUMMY CT
X13	3ST·1GCT·3CT·DUMMY CT
#6 STRD 5KV SI-58065	
X21	4ST·2GCT·4CT·DUMMY CT
X22	4ST·2GCT·5CT·DUMMY CT
X23	4ST·2GCT·6CT·DUMMY CT

INTERCONNECTION WIRE TABLE	
#12 STRD. SI-58175	
14	MOTOR #2 1TB·MOTOR #1 1TB
14A	↓ ↓ ↓ ↓
16	↓ ↓ ↓ ↓
16A	↓ ↓ ↓ ↓
49A	↓ ↓ ↓ ↓
50	↓ ↓ ↓ ↓
55	↓ ↓ ↓ ↓
78	↓ ↓ ↓ ↓
79	↓ ↓ ↓ ↓

TO DAMPER FAN CIRCUIT ← 78, 79
TO PURCHASER'S TEST POWER 120 V.A.C. ← 7, 8
TO DEVICES MOUNTED IN MOTOR NO. 1 CONTROL CIRCUIT ← 14, 14A, 16, 16A, 50, 55
TO PURCHASER'S REMOTE MOUNTED DEVICES ← 16A, 18A, 18A, 19A, 21A, 24A, 26A
TO REMOTE MOUNTED RTD ← 35-L, 36, 37, SHLD, 35-I2, 38, 39, SHLD
TO MOTOR HIGH TEMP ALARM CONTACTS ← 48A, 49
TO MOTOR FAILURE AUX RELAY "CRA" CONTROL CIRCUIT ← 50, 53, 54
TO LOW SPEED INDICATING LIGHTS (IL-W) ← 55, 58
TO INTERMEDIATE SPEED INDICATING LIGHTS (IL-A) ← 55, 59
CONTINUED FROM LEFT

FINAL

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, [illegible]

Note – [illegible] of Shop Drawings or Samples [illegible] responsibility for any deviation from the requirements of the Contract [illegible] the Architect in writing of such deviation at the time of submission and the Architect has given written approval [illegible] the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 1/3/79 By G.L.G.

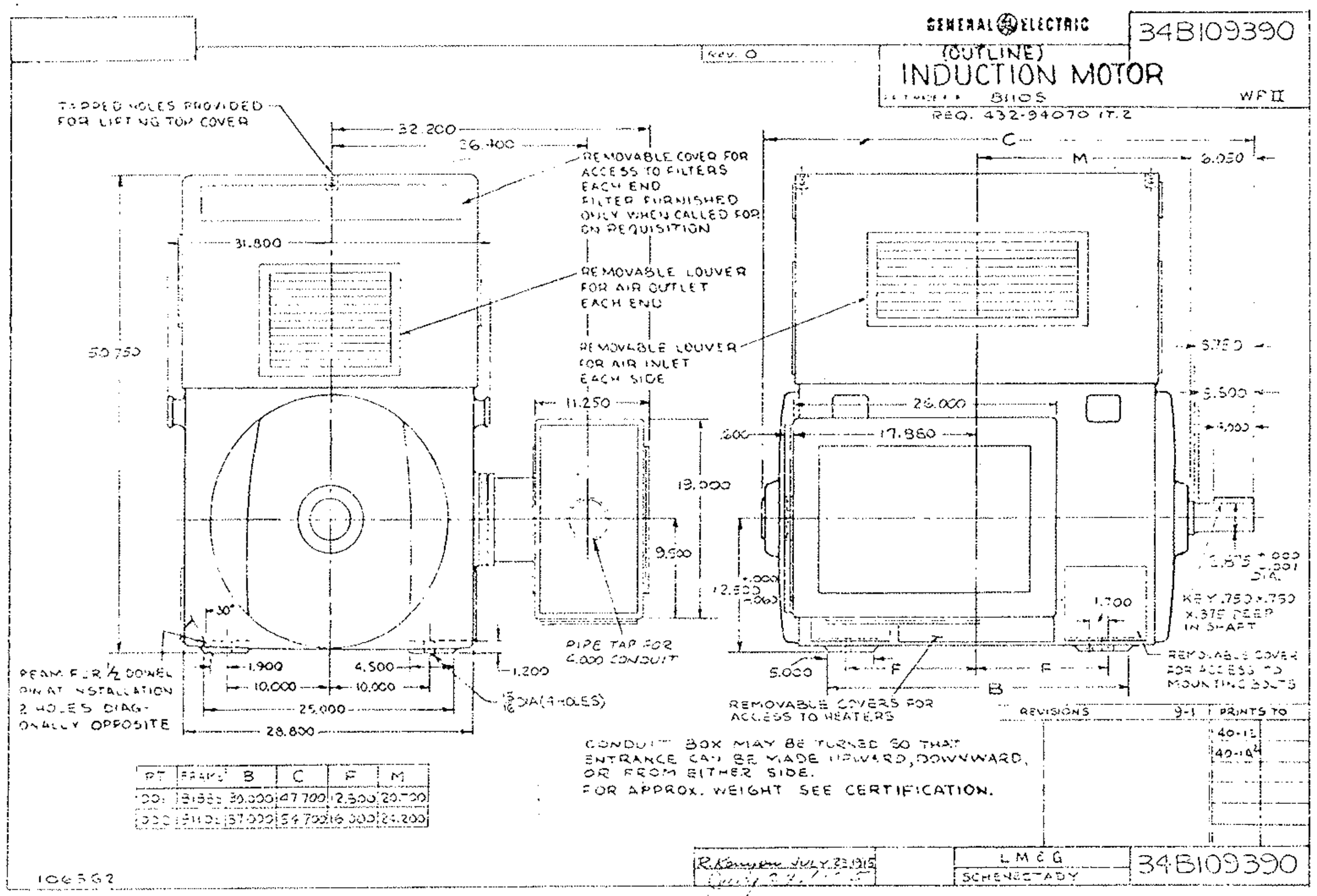
Approved
Howard Electric [illegible]

MOTOR NO. 2

CUSTOMER HOWARD ELECTRIC/GESCO	325-2990970	☐ APPROVAL ✗ CONSTRUCTION		CONNECTION IC7160 G117 2 SPEED 1 WINDING IND MOTOR STARTER
REVISED 2-17-77 A.R. / CUST. REV 4-15-76 A.H.	APPROVED Y.K.	GENERAL ELECTRIC		135D6059
ISSUED 20 FEB '75	FIRST MADE FOR 432-94070	SAN LEANDRO OPERATION SAN LEANDRO, CALIFORNIA		FL. 4
MADE BY A HOLOWICH	SO 102-5082			

ORIGINAL CONTRACT NO.	DWG. NO.	PROJECT NO.	SHEET NO.	TOTAL SHEETS
-	COLORADO	1 70-31 1220	97	208

FEDERAL AID PROJECT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
-	COLORADO	I 70-3( )220	98	208



MEMO OF DATA TRANSMITTAL

LARGE GENERATOR AND MOTOR DEPARTMENT

GENERAL ELECTRIC

SCHENECTADY 5, NEW YORK

APR 2 6 1976

C. E. MAIL

MARK: L5707

GENERAL ELECTRIC SUPPLY COMPANY

CUSTOMER ORDER	CUSTOMER ITEM	G.E. CONTRACT	G.E. REQUISITION
325-3950970			432-94070

PRINTS ARE:

☐ FOR APPROVAL ☒ FOR INSTALLATION ☐ FOR REFERENCE ☐

Approval Required Within 5 Days, OR BY .... (Date)

RETURN OF YOUR APPROVAL PRINTS SHOULD BE ADDRESSED TO THE GENERAL ELECTRIC OFFICE WITH WHOM YOUR ORDER IS PLACED — NOT TO THE FACTORY.

ITEM 2

34B109390-002	OUTLINE
34A103827-003	GROUND PAD
34B101952-001	ACC. OUTLINE
34A740008-004	SOLE PLATE
GEM-1000 FIG. 3	MOTOR CONNECTION
34C840405-017	HEATER CONN. + RTD CONN

MAIL (1) CERT. REPROD. 6 (14) PRINTS - ALL PRINTS MUST BE 22 X 34" LONG TO:
MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, ILSE, DENVER OFFICE (MARK F5X)

NOTE: TEMP RISE - 90°C BY RTD @ 230/28 HP @ 11,000 FT.

MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEED, A FAN WITH WK^2 OF 121,300 LB. FT.^{2} AND DAMPERS IN OPEN POSITION THRU A SHEAVE RATIO OF 3.46.

THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

MJ LUSHER, #16-2

Copy of M/S to

ENGINEERING REQUISITION SERVICE
R MARTUSCELLO/dn
By
LA-226A (9/64)

MOTOR MODEL - 5K811054C31
MOT. SERIAL -
APPLICATION -

ENCLOSURE - WEATHER PROTECTED TYPE II
BEARINGS - ANTI FRICTION

LUBRICATION - GREASE (SUITABLE FOR (MINUS 35°F
CODE - G
TYPE - K
FRAME - 8110S
POLES - 6/12
H.P. - 200/25
SYN. SPEED - 1200/600
PHASES - 3
CYCLES - 60
VOLTS - 2300
SHAFT EXTEN. - DS-2
SEC. VOLTS -
SEC. AMPS -
SEC. OHMS(Y) -
INSUL. CLASS - F - CUSTOM POLYSEAL
TEMP. RISE - 90°C BY RTD @ 230/28 HP
ROT.(O.P.E.) - DUAL
F.L. SPEED - 1180/595
F.L. AMPS - 47/14
AIR GAP - .045
END PLAY - NONE
NET WEIGHT - 3520 LBS. APPROX.
MOTOR TERM -
LDS TERM -
HEATER WATTS - 800
HEATER VOLTS - 115
INSTR. BOOK - GEH-3170
OUTLINE - 34B109390-002
MOTOR CONN. - GEM-1000 FIG. 3
HEATER CONN. - 34C840405-017
SOLE PLATE - 34A740008-004
ACC. OUTLINE - 34B101952-001
GROUND PAD - 34A103827-003

6 - 2/PHASE - 10 OHM STATOR RTD'S - COPPER RTD'S & SPACE HEATER LEADS TERMINATE IN SAME ACC. BOX

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

630.16
#169
200/25 HP
Std Box

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	99	208

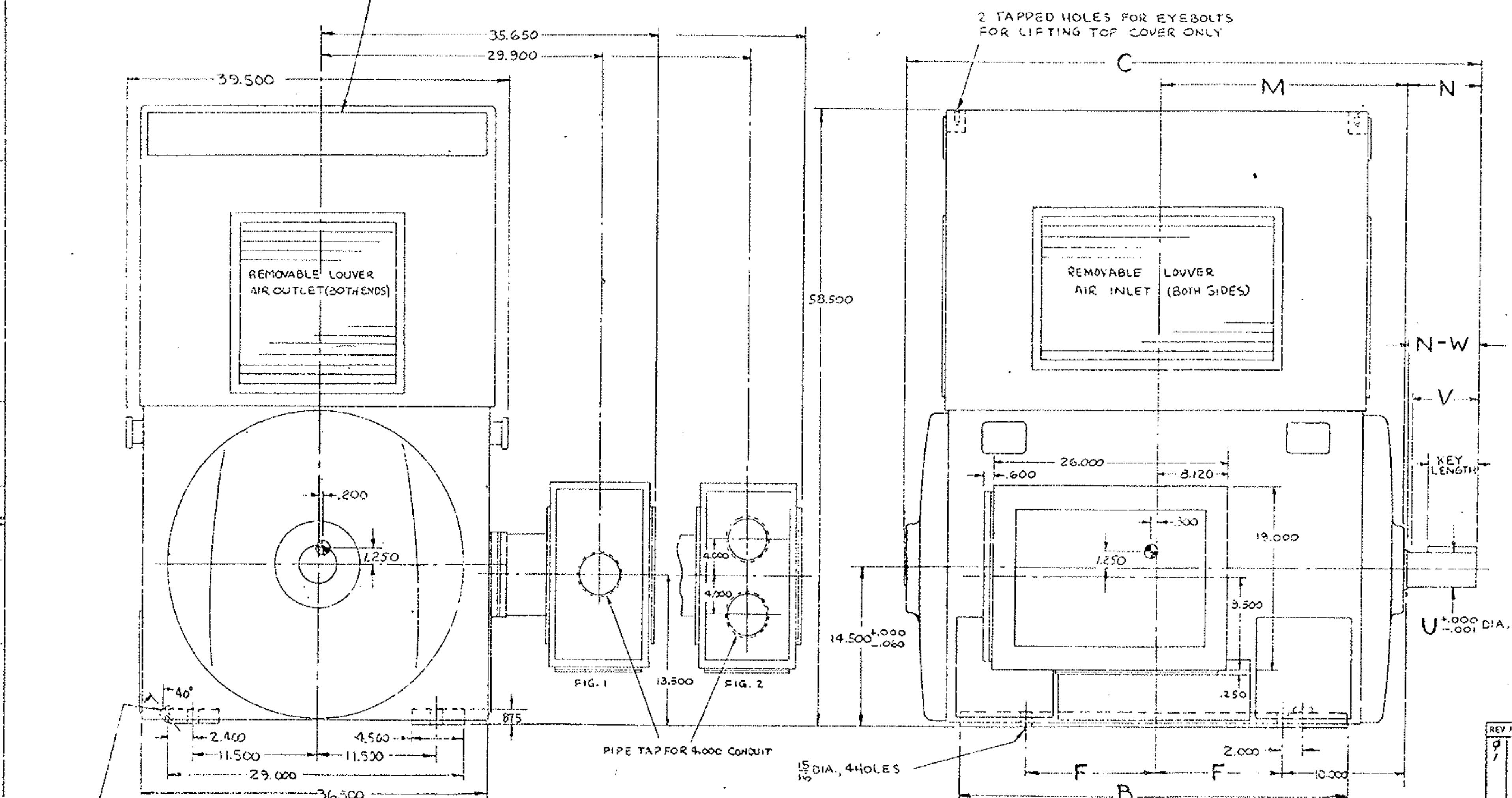
GENERAL ELECTRIC

34C107480

(OUTLINE) INDUCTION MOTOR

FIRST MADE FOR 8200

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING — APPLIED PRACTICES | SURFACES ✓



REAM FOR .500 DOWEL PIN AT INSTALLATION 2 HOLES DIAGONALLY OPPOSITE.

PART NO. CONDUIT BOX FIG. 1	FIG. 2, FIG. 3	FRAME	KEYWAY WIDE	KEYWAY DEEP	KEY LENGTH	B	C	F	M	N	U	V ‡	N-W
001	021	8288S	1.000	.500	5.500	38.100	55.500	14.000	23.600	8.150	3.875	7.500	7.750
002	022	8288	1.000	.500	10.500	38.100	60.875	14.000	23.600	13.525	4.375	12.875	13.125
003	023	8210S	1.000	.500	5.500	46.100	63.500	18.000	27.600	8.150	3.875	7.500	7.750
004	024	8210	1.000	.500	10.500	46.100	65.875	18.000	27.600	13.525	4.375	12.875	13.125
005	025	8211S	1.000	.500	5.500	50.100	67.500	20.000	29.600	8.150	3.875	7.500	7.750
⊠ 006	026	8288S	.750	.375	4.000	38.100	53.500	14.000	23.600	6.150	2.375	5.500	5.750
3600 RPM 007	027	8210S	.750	.375	4.000	46.100	61.500	18.000	27.600	6.150	2.875	5.500	5.750
008	028	8211S	.750	.375	4.000	50.100	65.500	20.000	29.600	6.150	2.875	5.500	5.750

⊕ CONDUIT BOX MAY BE TURNED SO THAT ENTRANCE CAN BE MADE UPWARD, DOWNWARD OR FROM EITHER SIDE.

‡ "V" DIMENSION REPRESENTS THE LENGTH OF STRAIGHT PART OF SHAFT.

⊠ 3600 RPM MOTORS HAVE APPROX. .500 END PLAY USE FLEXIBLE COUPLING IN WHICH AXIAL SLIDE IS LIMITED.

1800 AND 3600 RPM MOTORS - THE FRONT END IS INSULATED AGAINST SHAFT CURRENTS ANY INSTRUMENT INSERTED INTO BRG. MUST BE INSULATED.

R. Kenyon DEC. 11, 1973

15.0

REVISIONS		PRINTS TO
1	ADD CENTER OF GRAVITY	K-1
		40-1A
		40-12

L. M. & G. SCHENECTADY

34C107480

100582

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Make Corrections Noted
☒
☐ Revise And Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 5/6/76 By DPW

LARGE GENERATOR AND MOTOR DEPARTMENT

GENERAL ELECTRIC

GENERAL ELECTRIC SUPPLY COMPANY

☐ FOR APPROVAL ☒ FOR INSTALLATION ☐ FOR REFERENCE

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

stearns-roger architects

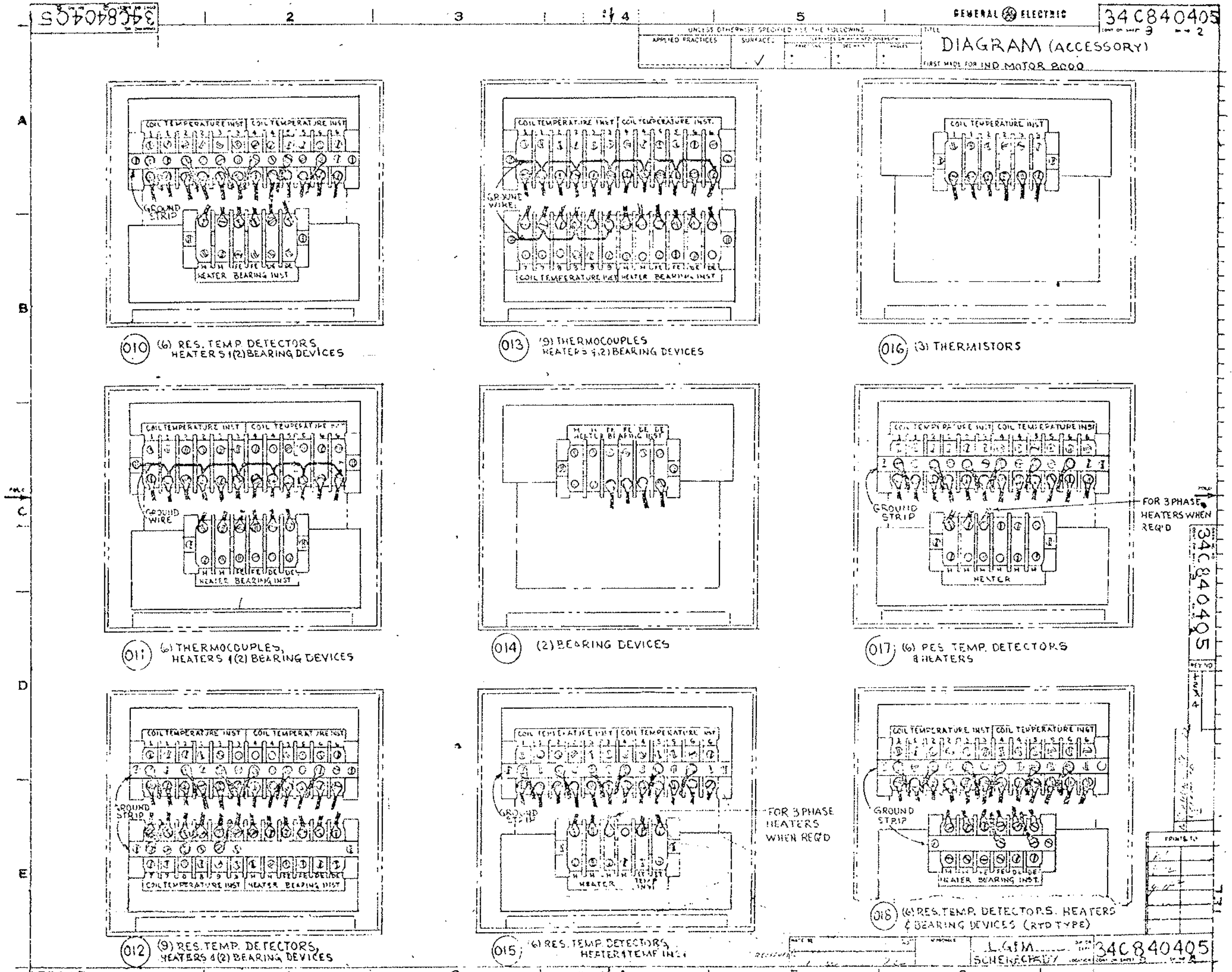
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
-	COLORADO	I 70-3( )220	100	208

GENERAL ELECTRIC

34C840405

DIAGRAM (ACCESSORY)

FIRST MADE FOR IND MOTOR 8000



STEARNS-ROGER ... LTD.

Date 5/6/76 ... Dow

LARGE GENERATOR AND MOTOR DEPARTMENT

MEMO OF DATA TRANSMITTAL

GENERAL ELECTRIC

SCHENECTADY, NEW YORK

O. E. MAIL

GENERAL ELECTRIC SUPPLY COMPANY

MARK: L5707

432-94170

FOR APPROVAL [ ] FOR INSTALLATION [X] FOR REFERENCE [ ]

...-405	OUTLINE
...-402	ACC. OUTLINE
...-403	GROUND PAD
...	NAME PLATE
690-1000 FIG. 3	MOTOR CONN.
34C840405-017	HEATER + RTD CONNECTION

MOTOR MODEL = 5K6211..
MOT. SERIAL =
APPLICATION =
ENCLOSURE = WEATHER PROTECTED TYPE II
BEARINGS = ANTI FRICTION
LUBRICATION = GREASE
CODE = G
TYPE = K
FRAME = ...
POLES = 4/8
H.P. = 600/100
SYN. SPEED = 1800/900
PHASES = 3
CYCLES = 60
VOLTS = 2300
SHAFT EXTEN. = ...
SEC. VOLTS =
SEC. AMPS =
SEC. CONN(Y) =
INSUL. CLASS = F CUSTOM POLYSEAL
TEMP. RISE = 90°C BY RTD @ 600/115 HP
ROT.(O.P.E.) = DUAL
F.L. SPEED = 1780/890
F.L. AMPS = 135/31
AIR GAP = .070
END PLAY = NONE
NET WEIGHT = 5500 LBS. APPROX.
HEATER WATTS = 900
HEATER VOLTS = 115
GROUND PAD = ...

MAIL (1) CERT. APPROD & (14) PRINTS-ALL PRINTS MUST ...

DENVER, COLORADO OFFICE

1 - R. W. ..., DENVER OFFICE (MARK FOR)

NOTE: TEMP. RISE = 90°C BY RTD @ 600/115 HP @ ... FT. RTD'S & SPACE HEATER LEADS TERMINATE IN SAME ACC. BOX ... RATED TO START AND ACCELERATE TO FULL LOAD SPEED, A FAN WITH WK² OF 121,... LB-FT² AND DAMPERS IN OPEN POSITION THRU A VOLTAGE RANGE OF ...

N.O.T.E: THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAIL.

Copy of M/S ...

5 - 2/PHASE - 10 ... STATOR RTD'S - COPPER

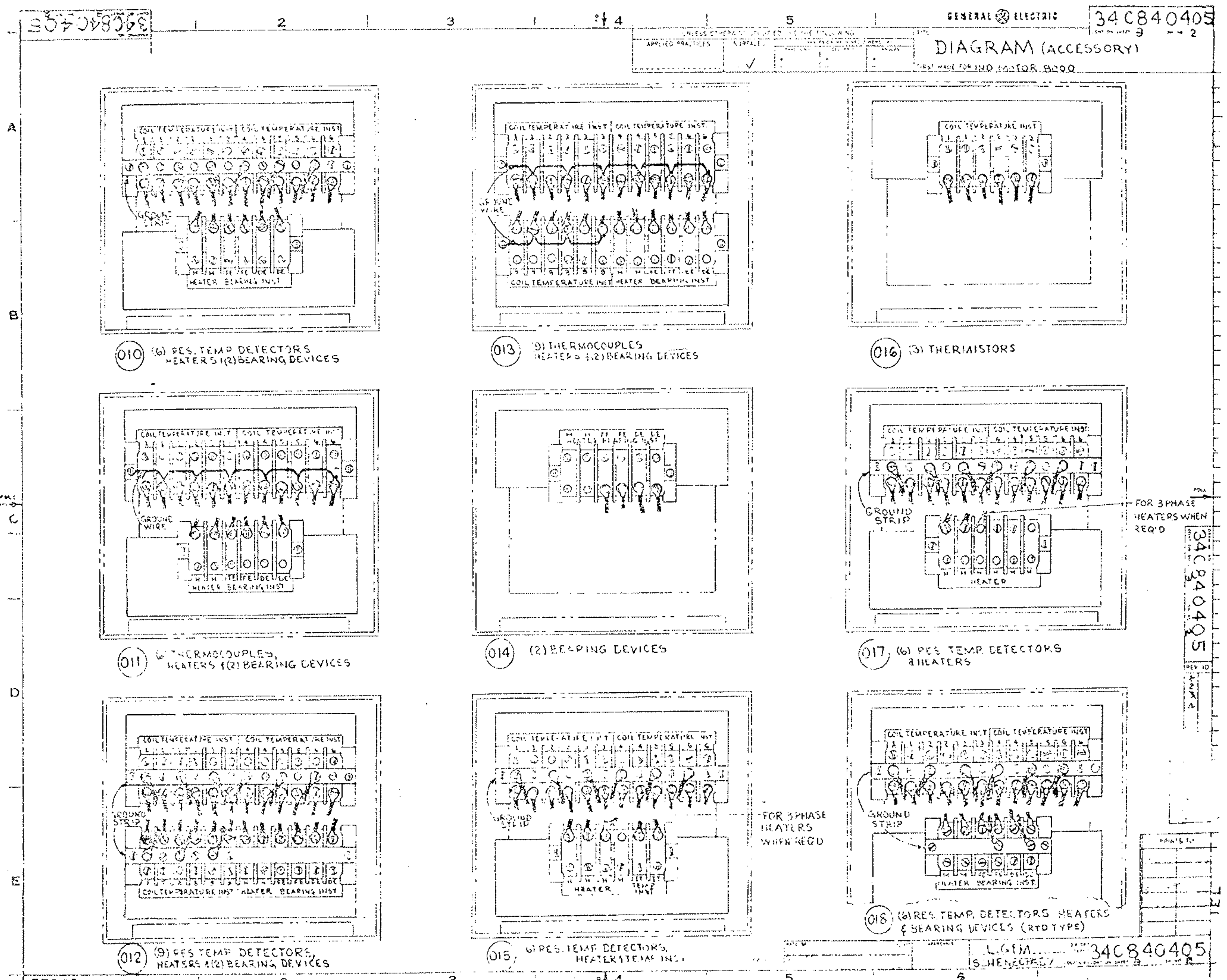
LA-226A (9/64)

Checked
Howard Elect. & Mech. ...

Stearns-Roger
Architects

FINAL
#169
600/100 HP
Std Box

	DIVISION	PROJECT NO.	SHEET	TOTAL SHEETS
	COLORADO	I 70-3( )220	101	208



LARGE GENERATOR AND MOTOR DEPARTMENT

GENERAL ELECTRIC

MEMO OF DATA TRANSMITTAL

APR 2 6 1976
DATE

SCHENECTADY 5, NEW YORK
(LOCATION)

G. E. MAIL
(PRINTS FORWARDED VIA)

CUSTOMER: GENERAL ELECTRIC SUPPLY COMPANY

MARK: L5707

CUSTOMER ORDER	CUSTOMER REQN.	G.E. CONTRACT	G.E. REQUISITION
325-3990970			432-96070

PRINTS ARE

☐ FOR APPROVAL ☒ FOR INSTALLATION ☐ FOR REFERENCE ☐

Approval Required Within 5 Days, OR BY .... (Date)

RETURN OF YOUR APPROVAL PRINTS SHOULD BE ADDRESSED TO THE GENERAL ELECTRIC OFFICE WITH WHOM YOUR ORDER IS PLACED — NOT TO THE FACTORY.

ITEM 2

34B109390-002	OUTLINE
34A103827-003	GROUND PAD
34B101952-001	ACC. OUTLINE
34A740003-004	SOLE PLATE
GEH-1000 FIG. 3	MOTOR CONNECTION
34C840405-017	HEATER CONN. + RTD CONN

MAIL (1) CERT. REPROD. 6 (16) PRINTS - ALL PRINTS MUST BE 22 x 34" LONG TO:
MR. STAN LOVE
ADSD
DENVER, COLORADO OFFICE

1- R. W. HOOPS, LASE, DENVER OFFICE (MARK FSK)

NOTE: TEMP RISE - 90°C BY RTD @ 230/23 HP @ 11,000 FT.

MOTOR RATED TO START AND ACCELERATE TO FULL LOAD SPEED, A FAN WITH WK^2 OF 121,300 LB. FT.^{2} AND DAMPERS IN OPEN POSITION THRU A SHEAVE RATIO OF 3.46.

THESE PRINTS SUPERSEDE PRINTS PREVIOUSLY MAILED.

MJ LUSHER, 916-2

Copy of X/S to

MOTOR MODEL - 5K811054C31
MOT. SERIAL -
APPLICATION -
ENCLOSURE - WEATHER PROTECTED TYPE II
BEARINGS - ANTI FRICTION
LUBRICATION - GREASE (SUITABLE FOR MINUS 35°F
CODE - G
TYPE - K
FRAME - 8110S
POLES - 6/12
H.P. - 200/25
SYN. SPEED - 1200/600
PHASES - 3
CYCLES - 60
VOLTS - 2300
SHAFT EXTEN. - DS-2
SEC. VOLTS -
SEC. AMPS -
SEC. OHMS(Y) -
INSUL. CLASS - F - CUSTOM POLYSEAL
TEMP. RISE - 90°C BY RTD @ 230/23 HP
ROT. (O.P.E.) - DUAL
F.L. SPEED - 1190/595
F.L. AMPS - 47/16
AIR GAP - .045
END PLAY - NONE
NET WEIGHT - 3520 LBS. APPROX.
MOTOR TERM -
LDS TERM -
HEATER WATTS - 600
HEATER VOLTS - 115
INSTR. BOOK - GEH-3170
OUTLINE - 34B109390-002
MOTOR CONN. - GEH-1000 FIG. 3
HEATER CONN. - 34C840405-017
SOLE PLATE - 34A740003-004
ACC. OUTLINE - 34B101952-001
GROUND PAD - 34A103827-003

6 - 2/PHASE - 10 OHM STATOR RTD'S - COPPER RTD'S & SPACE HEATER LEADS TERMINATE IN SAME ACC. BOX

ENGINEERING REQUISITION SERVICE
By
IA-226A (9/64)

FINAL

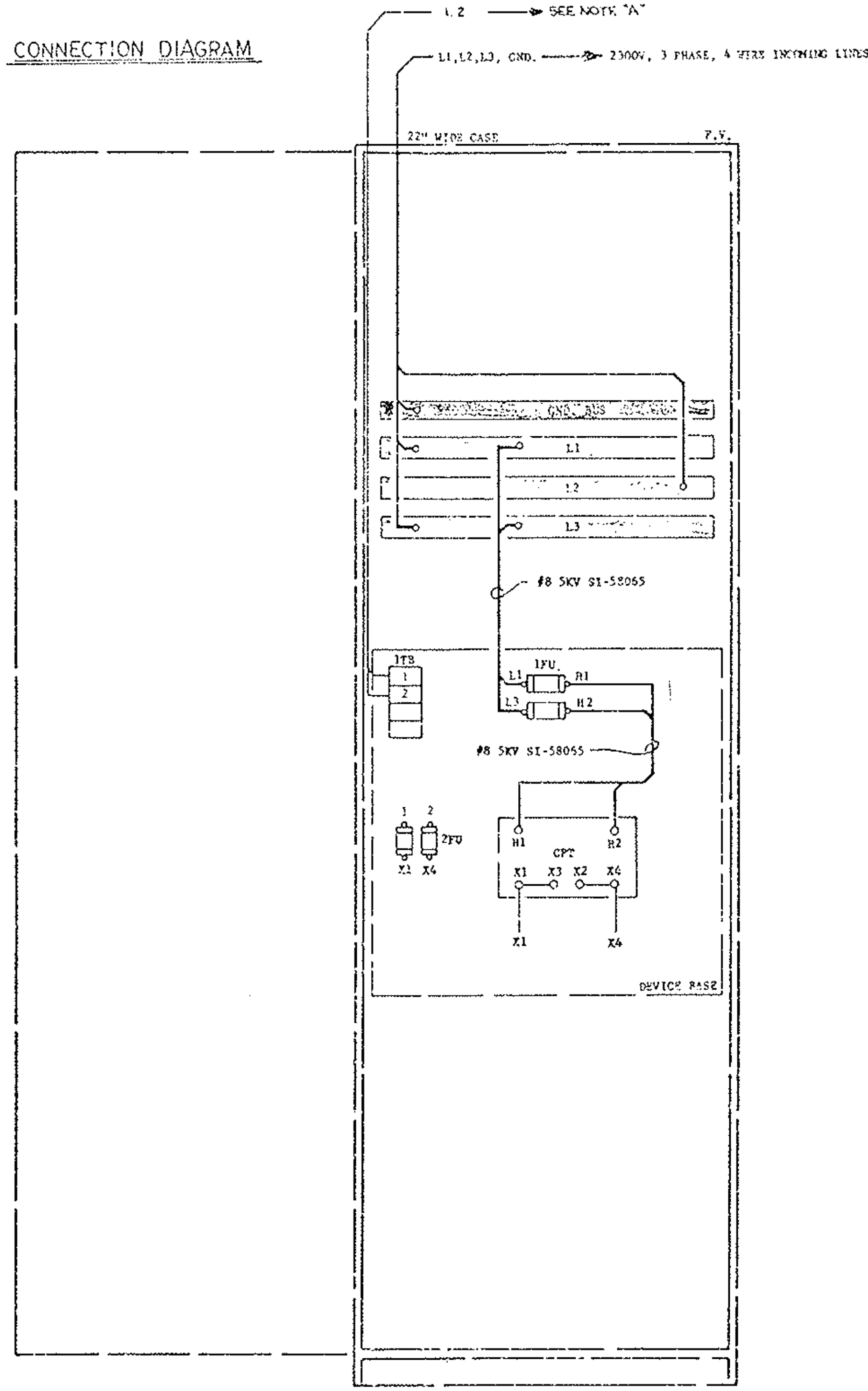
#169
200/25 HP
Std. Box

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

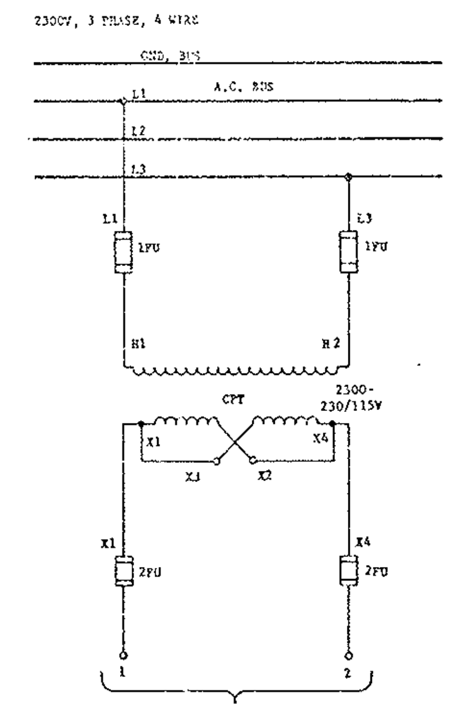
MAY 1976 RECEIVED G.O.H.

APR 1976 STATE BRIDGE DESIGN DIV.

CONNECTION DIAGRAM



ELEMENTARY DIAGRAM



NOTE "A" FOR LINEUP E-1A & W-1A TO LOCAL CONTROL BOARD EXHAUST FAN CONTROL.
FOR LINEUP E-1B & W-1B TO LOCAL CONTROL BOARD SUPPLY FAN CONTROL.

WIRE TABLE	
WIRE	CONNECTION
#14 STRD. SI-58170	
X1	CPT: 2FU
X4	CPT: 2FU
1	1TB: 2FU
2	1TB: 2FU

NOMENCLATURE
FU------ FUSE
CPT----- CONTROL POWER TRANSFORMER
TB------ TERMINAL BOARD

PART NO.	DESCRIPTION	CPT SIZE & RATING	1FU EJ-1 FUSE	2FU	
1	INC. LINE COMPT. E-1A	1KVA 2300-230/115V	SIZE A2E 9F60AAB002	20 AMP	LIMITAMP TO RIGHT
2	INC. LINE COMPT. E-1B	1KVA 2300-230/115V	SIZE A2E 9F60AAB002	20 AMP	LIMITAMP TO RIGHT
3	INC. LINE COMPT. W-1A	1KVA 2300-230/115V	SIZE A2E 9F60AAB002	20 AMP	LIMITAMP TO LEFT
4	INC. LINE COMPT. W-1B	1KVA 2300-230/115V	SIZE A2E 9F60AAB002	20 AMP	LIMITAMP TO LEFT

STARRING-LEE SEA ARCHITECTS, LTD.
Date 3-8-76 By PBW

T-143
#230 4

FINAL

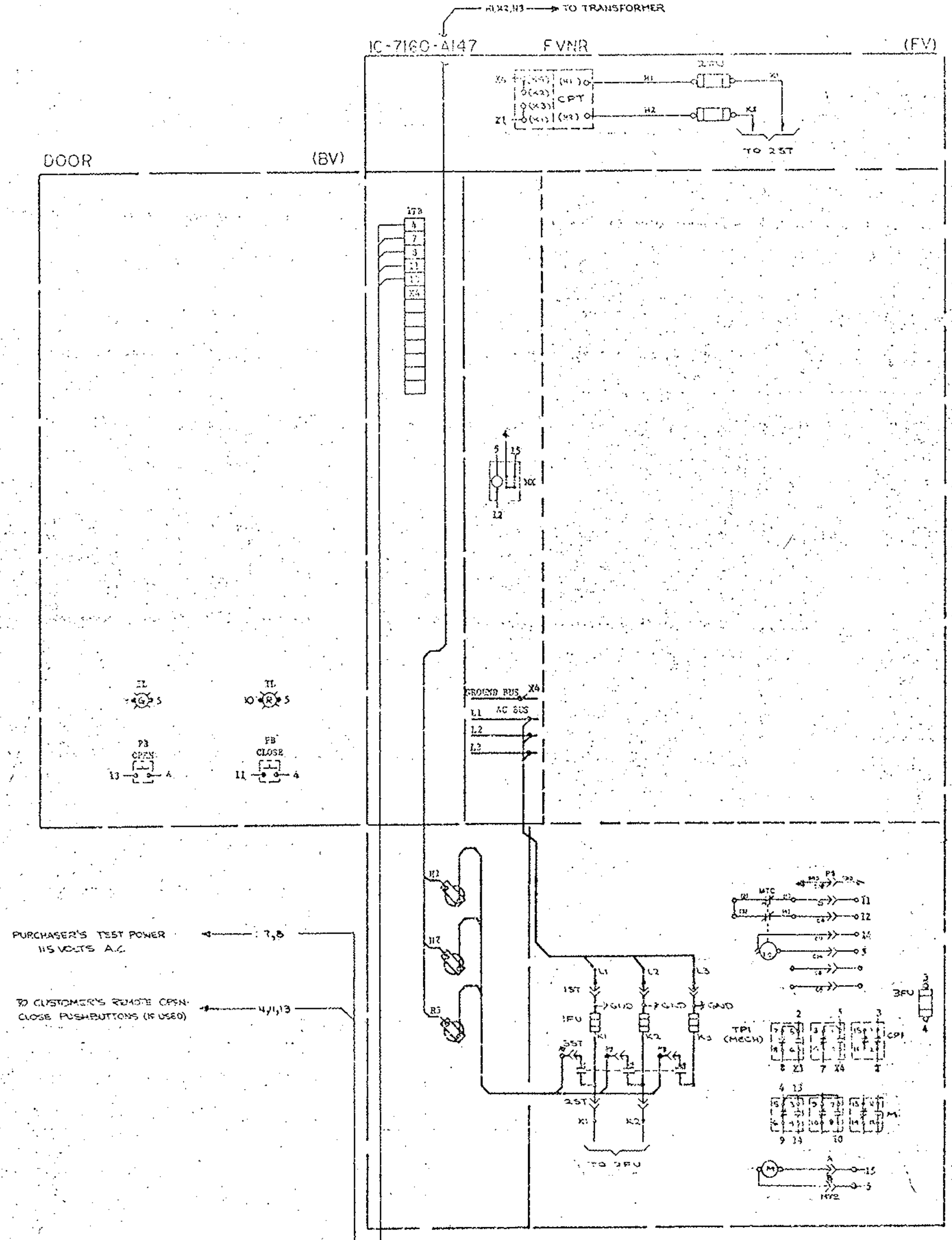
RECEIVED MAR 1976 D.O.H.

MAY 1976 STAFF BRIDGE DESIGN - DOH

Checked
Howard Elect. & Mach. Co.
D.M. Owens Proj. Mgr.

CUSTOMER HOWARD ELECTRIC / GESCO	CUSTOMER ORDER NO. 32-3990970	PRINTS ARE FOR: CONSTRUCTION	
ISSUED FOR CONSTRUCTION	APPROVED R.D. BOSWELL	GENERAL ELECTRIC	ELEMENTARY & CONNECTION
	FIRST MADE FOR 432-94070	SAN LEANDRO OPERATION SAN LEANDRO, CALIFORNIA	IC-7160-E1
MADE BY R.D. BOSWELL	SO 302-5032		120X987

	DIVISION	PROJECT NO.	SHEET	SHEETS
	COLORADO	170-30	103	208



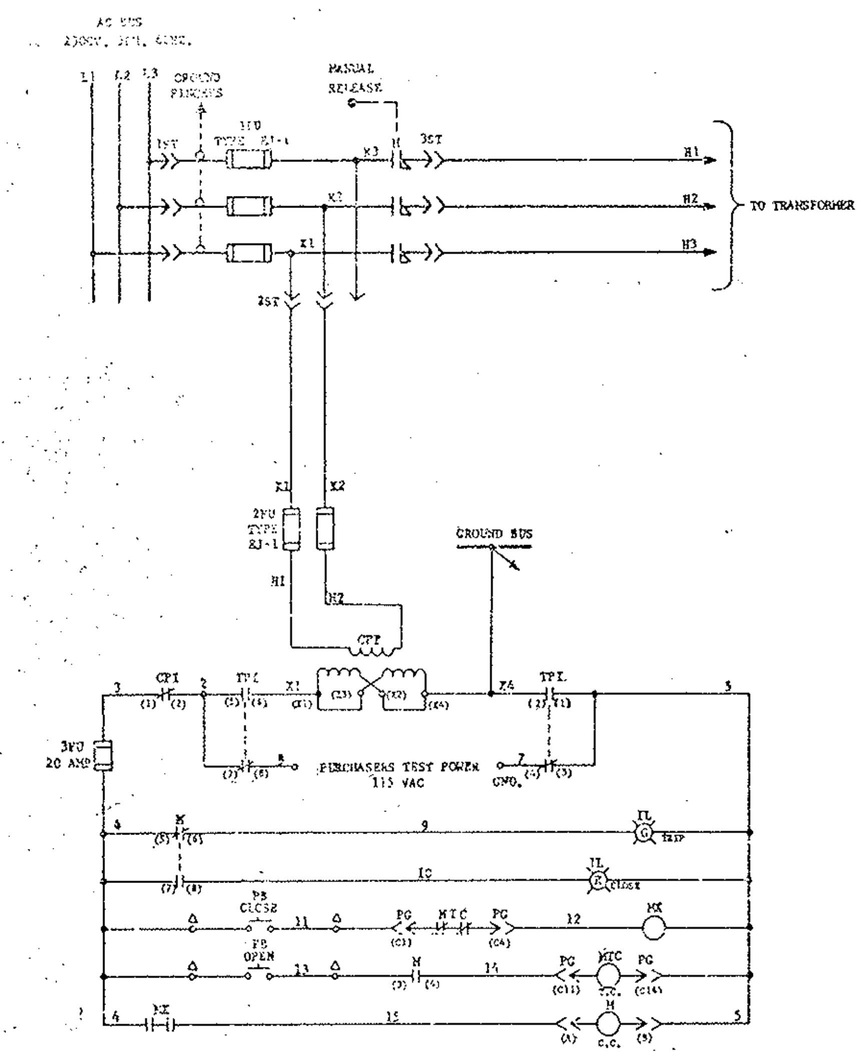


DIAGRAM PART TABLE

DIAGRAM PART NO.	[illegible]	KVA	PRI. VOLTS	[illegible]	EFFECTIVE [illegible] RATIO	CPT SIZE AND RATING	(2FU) EJ-1 FUSE SIZE AND CATALOG NO.	(1FU) EJ-1 FUSE SIZE AND CATALOG NO.	PANEL POWER WIRE SIZE [illegible]
1	[illegible]			———	———	[illegible] 2300-230/115V	SIZE A2R 9F60AAB002	SIZE 10SE 9F60GKB125	#2 STRD 51-58065
2	[illegible]			———	———	[illegible] 2300-230/115V	SIZE A2R 9F60AAB002	SIZE 10SE 9F60GKB125	#2 STRD 51-58065

RECEIVED

stearns-roger architects

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

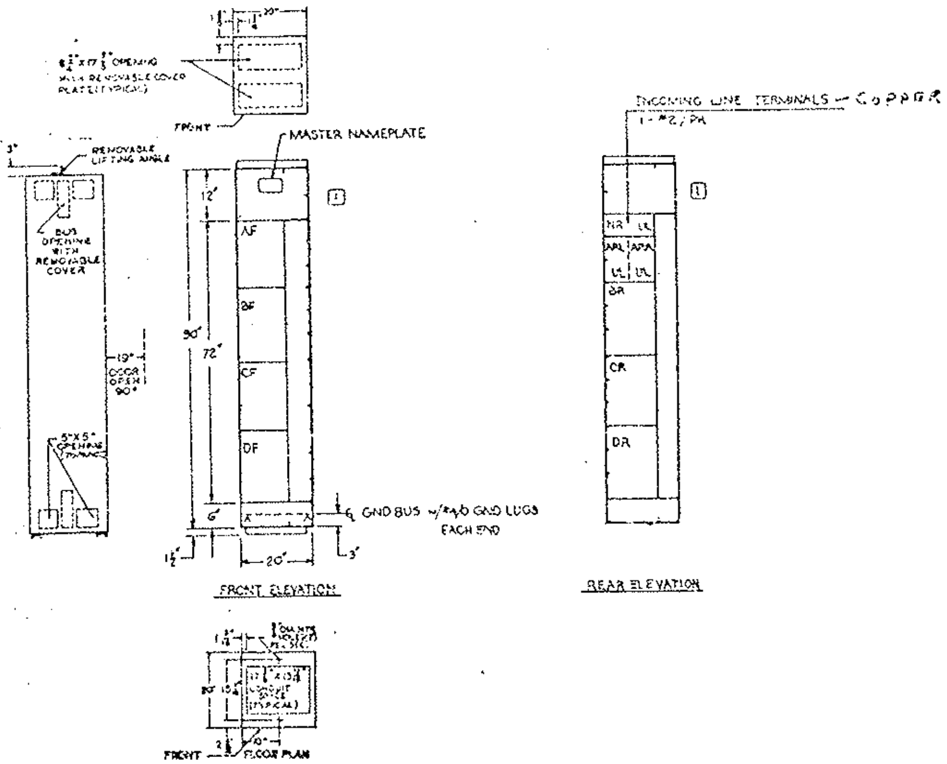
FINAL

T-143

CUSTOMER: HOWARD ELECTRIC / CESCO	CUSTOMER ORDER NO. 325-3390070	ISSUED FOR ☐ APPROVAL ☒ CONSTRUCTION ☐ REFERENCE	2/13/76
ISSUED FOR CONSTRUCTION 2/76	ROSWELL	GENERAL ELECTRIC SAN LEANDRO OPERATION SAN LEANDRO, CALIFORNIA	IC-7160-A147 ELEMENTARY AND CONNECTION
	632-94070		129D1988 FL 1
MADE BY R.D. ROSWELL	SO 103-5082		

7700 LINE MOTOR CONTROL CENTER

DIVISION	PROJECT NO.		SHEETS
COLORADO	I 70-3( )220	104	208



FRONT ELEVATION

REAR ELEVATION

SPECIFICATIONS

FINISH — LIGHT GRAY (ASA-61)

NEMA CLASSIFICATION:
CLASS 1 TYPE B WIRING, NEMA 1 GASKETED BACK-TO-BACK ENCLOSURE.

MOTOR CONTROL CENTER TO BE 20 INCHES DEEP.

UNIT IDENTIFICATION ENGRAVED NAMEPLATES

POWER SUPPLY:
3 PHASE 3 WIRE 480 VOLT 60 HZ.

CONTROL: (UNLESS OTHERWISE NOTED)
SOURCE [illegible] CPT 120 VOLT 1 60 HZ.

HORIZONTAL MAIN BUS RATED 600 AMPS, MAXIMUM 600 VOLTS AND BRACED FOR 22,000 AMPS, RMS SYM.

VERTICAL BUS RATED 300 AMPS, IN SECTION 1F-1R

VERTICAL BUS RATED 450 AMPS, IN SECTION

VERTICAL BUS RATED 600 AMPS, IN SECTION

600V MAX AND BRACED FOR 22,000 AMPS, RMS SYMMETRICAL.

LOWEST UNIT RATING 14,000 AMPS, RMS SYMMETRICAL

GROUND BUS TO BE 1 - 1/8 x 2 COPPER

NEUTRAL BUS TO BE — x — (NONE)

MAIN BUS TO BE ( ) COPPER (X) ALUMINUM, w/ TINPLATED JOINTS [1]

VERT. BUS TO BE ( ) COPPER (X) ALUMINUM, w/ TINPLATED JOINTS

THIS CONTROL CENTER CAN BE SAFELY APPLIED ON SYSTEMS HAVING A MAXIMUM AVAILABLE SHORT CIRCUIT CURRENT NOT IN EXCESS OF THAT AS SHOWN IN THE LOWEST UNIT RATING.

ONLY THOSE NOTES CHECKED IN BLOCK APPLY

- [ ] CALIF. CODE APPLIES TO THIS MCC WITH THE OMISSION OF HINGED TERMINAL BOARDS. SEE DWG. 25C49600
- [ ] CALIF. CODE APPLIES TO THIS MCC WITH HINGED TERMINAL BOARDS ON ALL DRAW-OUT UNITS AND BUCHANAN #312 REMOVABLE BLADE SWITCH BLOCKS ON BOLT-ON UNITS. SEE DWG. 25A49600
- [ ] ALL STARTERS FURNISHED WITH AMBIENT-COMPENSATED OVERLOADS.
- [X] UNIT NAMEPLATES SHALL BE ENGRAVED WITH 1/8" HIGH WHITE LETTERS ON BLACK BACKGROUND.
- [X] INDIVIDUAL CONTROL POWER TRANSFORMER SIZE.
  - a) ALL SIZE 1 - 50VA
  - b) ALL SIZE 2 - 100VA
  - c) ALL SIZE 3 EXCEPT RVNR & 2S-1W-200VA
  - d) ALL SIZE 4 EXCEPT RVNR-250VA
  - e) SIZE 3 AND 4 RVNR AND ALL SIZE 5-50VA PLUS AN INTERPOSING RELAY, CAT. # CR120E01033.
  - f) SIZE 3 2S-1W-250VA
- [ ] FUSIBLE DISCONNECTS SHALL HAVE FUSE CLIPS SIZED FOR:
  - [ ] MCC FUSES FURNISHED BY ____
  - [ ] CLASS J FUSES FURNISHED BY ____
  - [ ] DUAL ELEMENT FUSES FURNISHED BY ____
  - [ ] OTHER
- [X] MCC SHALL BE PROVIDED WITH PROVISION FOR FUTURE EXTENSION ON:
  - [ ] LEFT END [ ] RIGHT END [X] BOTH ENDS
- [ ] UNIT ____ FURNISHED WITH ____ KVA ____ 60 HZ TRANSFORMER WITH ____ VOLT PRI. AND ____ VOLT SECONDARY
- [X] WHEN ACTUAL MOTOR DATA IS NOT RECEIVED BEFORE SHIPMENT OF THIS PANEL, OVERLOAD HEATERS WILL BE SUPPLIED FOR NOMINAL FULL LOAD CURRENT OF MOTOR AT 1800 RPM AND 40° C RISE. CUSTOMER ASSUMES RESPONSIBILITY FOR PROPER REPLACEMENT OF OVERLOAD RELAY HEATERS FOR THOSE UNITS WHICH DO NOT AGREE WITH ACTUAL MOTOR NAMEPLATE DATA.
- [X] THOSE SECTIONS AND UNITS OF THIS MCC THAT ARE SUFFIXED WITH THE SYMBOL U.L. ARE LISTED BY UNDERWRITERS LABORATORIES, INC. AND WILL BEAR A U.L. LABEL. ALL OTHER SECTIONS AND UNITS WILL BE MANUFACTURED TO CONFORM AS CLOSELY AS PRACTICABLE TO U.L. STANDARDS BUT WILL NOT BEAR A U.L. LABEL.

ADDITIONAL NOTES

(1) - MASTER NAMEPLATES SHALL BE 3"x5" ENGRAVED WITH 1/2" HIGH WHITE LETTERS ON BLACK BACKGROUND, ENGRAVED AS FOLLOWS:

MCC-1: EAST VENT. BLDG.
480V MOTOR CONTROL CENTER No. 5
SOUTH TUNNEL

MCC-2: WEST VENT BLDG.
480V MOTOR CONTROL CENTER No. 5
SOUTH TUNNEL

[1] (2) - THIS DRAWING REPRESENTS TWO IDENTICAL MOTOR CONTROL CENTERS EXCEPT FOR UNIT & MASTER NAME PLATES. UNIT NAMEPLATE MARKINGS SHOWN ARE FOR MCC-1; FOR MCC-2, SUBSTITUTE "W" FOR "E" IN FAN DESIGNATION NAMEPLATES: "WS-5", "WE-5", ETC.

(3) - SWITCH HANDLES SHALL BE LOCKABLE IN THE "ON" OR "OFF" POSITION

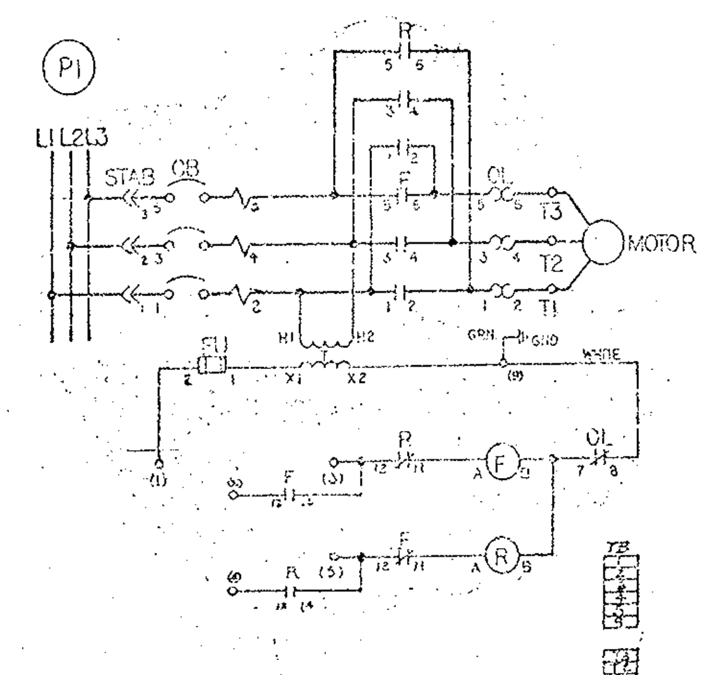
Date 12-9-75 RDE

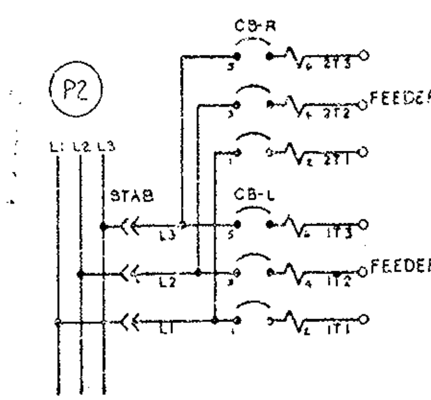
T-#132

RECEIVED DEC 1975 D.O.H.

UNIT NO.	UNIT FUNCTION	SIZE	MOTOR H.P.	MOTOR F.L.A.	CIRC. BRKR OR FUS. DISC SR OR SW	CIRC. BRKR OR FUS. DISC TRIP OR CLIP	O/L HEATER CR123-	PUSH BUTTON START	PUSH BUTTON STOP	SELECTOR SWITCH H-O-A	SELECTOR SWITCH	PILOT LIGHT	PILOT LIGHT	TOTAL INTLKS. N.O.	TOTAL INTLKS. N.C.	CONNECTION DIAGRAM DWG NO.	NAMEPLATE MARKING 1ST LINE	NAMEPLATE MARKING 2ND LINE	NAMEPLATE MARKING 3RD LINE	MFG CODE
MASTER NAMEPLATE																				A
AF	FVR COMB	1	1½	2.3	TED	15	C301A							1	1	P1	SUPPLY FAN ES-5	DAMPER		
BF	FVR C[illegible]	1	1½	2.3	TED	15	C301A							1	1	P1	EXHAUST FAN EE-5	DAMPER		
CF	FVR COMB	1	1½	2.3	TED	15	C301A							1	1	P1	SUPPLY FAN ES-6	DAMPER		
DF	[illegible]	1	1½	2.3	TED	15	C301A							1	1	P1	EXHAUST FAN EE-6	DAMPER		
NR	[illegible]																[illegible]	[illegible]		
ARL	[illegible]				TED	15										2.22	[illegible]	CONTROL	PANEL	
ARH	[illegible]				TED	15														
BR	FVR COMB	1	1½	2.3	TED	15	C301A							1	1	P1	SUPPLY FAN ES-7	DAMPER		
CR	FVR COMB	1	1½	2.3	TED	15	C301A							1	1	P1	EXHAUST FAN EE-7	DAMPER		
DR	[illegible]																			

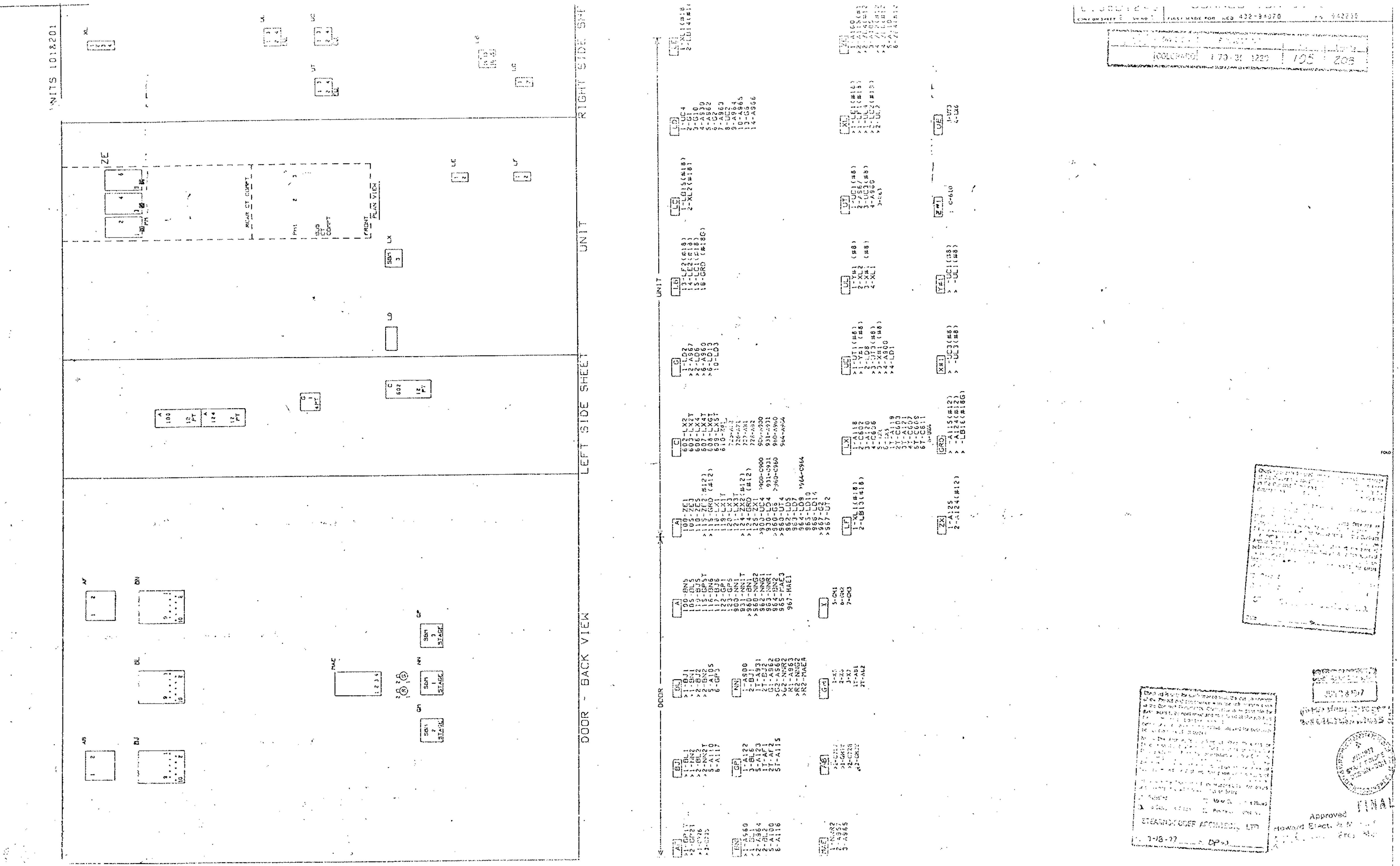
MFG CODE
(A) - SEE NOTES 1 & 2





Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

CUSTOMER HOWARD ELECTRIC / GESCO	CUSTOMER ORDER NO. 325-3990970	PRINTS ARE FOR ☐ APPROVAL X CONSTRUCTION ☐ REFERENCE	11/26/75
REV.	ISSUED 10/1/75	432-96070	GENERAL ELECTRIC SAN LEANDRO OPERATION SAN LEANDRO, CALIFORNIA	IC7700MCC OUTLINE
	MADE BY K. GILLESPIE	52 A15-2408	12901998



CONNECTIONS

BOTH ENDS OF WIRE ARE IDENTIFIED AS TO DESTINATION. SKETCH INDICATES CONNECTION FROM DEVICE E STUD 5 TO TERMINAL BOARD A TERMINAL 1.

DEVICE — IDENTIFICATION LETTER — STUD NUMBERS — TERMINAL BOARD

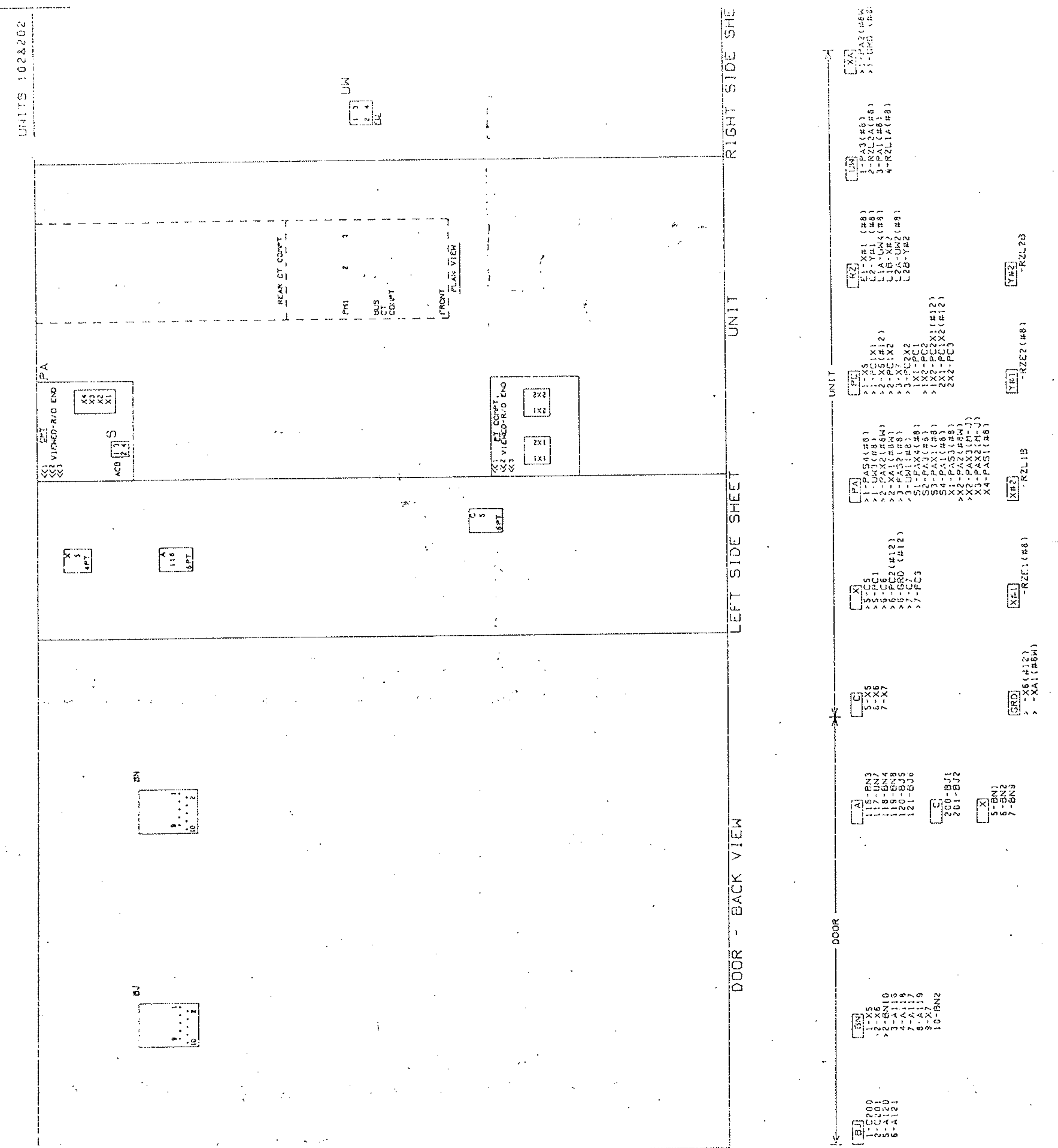
1. THIS DRAWING SHOWS ELECTRICAL CONNECTIONS ONLY. THE EXACT LOCATION OF APPARATUS MUST NOT BE READ FROM IT.
2. NUMBERED CIRCLES ARE MERELY CONVENIENT GROUPINGS OF LEADS AND DO NOT NECESSARILY REPRESENT CONDUITS.
3. INTERNAL CONNECTIONS OF DEVICES ARE INCLUDED WITH THE ELEMENTARY DIAGRAM.
4. DEVICE FUNCTION NUMBERS AND ABBREVIATIONS ARE ASA STANDARDS.

ELEM.	0136D1575
FRONT VIEW	0118RD914
SUMMARY	0258A2954
INTER.CONN.	0136D1746

SWITCHGEAR DEPARTMENT
BURLINGTON, IOWA

0136D1245
CONT ON SHEET 2 SHEET 1

4 5 6 7 8 9 10



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ELEM.	013601576
FRONT VIEW	011680914
SUMMARY	025842364
INTER. CONN.	013601245

COLORADO	170-31
106	208

STEARNS-ROGER ARCHITECTS, LTD.

No Exception Taken

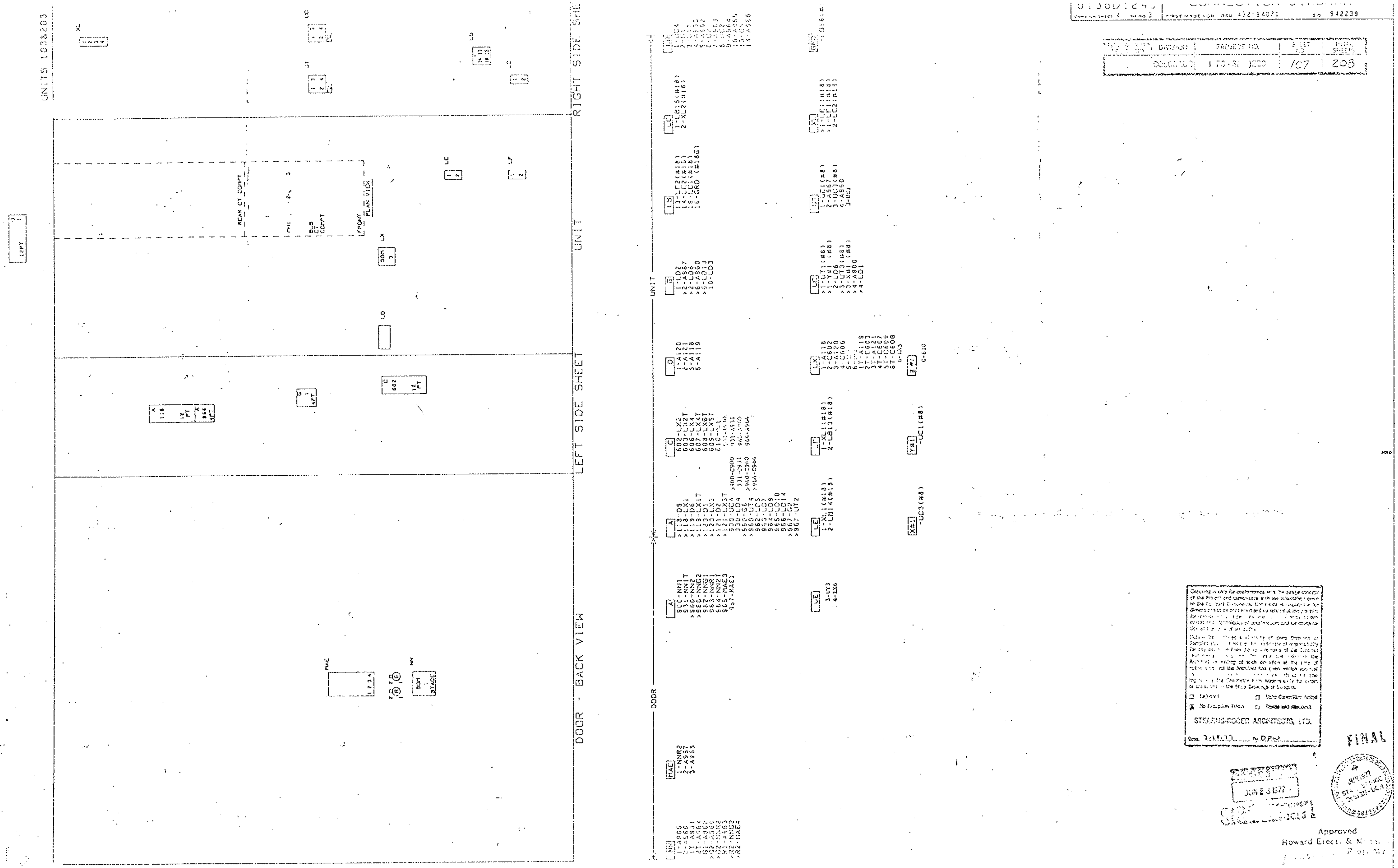
FINAL

JUN 28 1977

Approved
Howard Elect. & Mech. C
Proj. Mgr.

SWITCHGEAR DEPARTMENT
BURLINGTON, IOWA

013601245
CONT ON SHEET 3 SH NO 2



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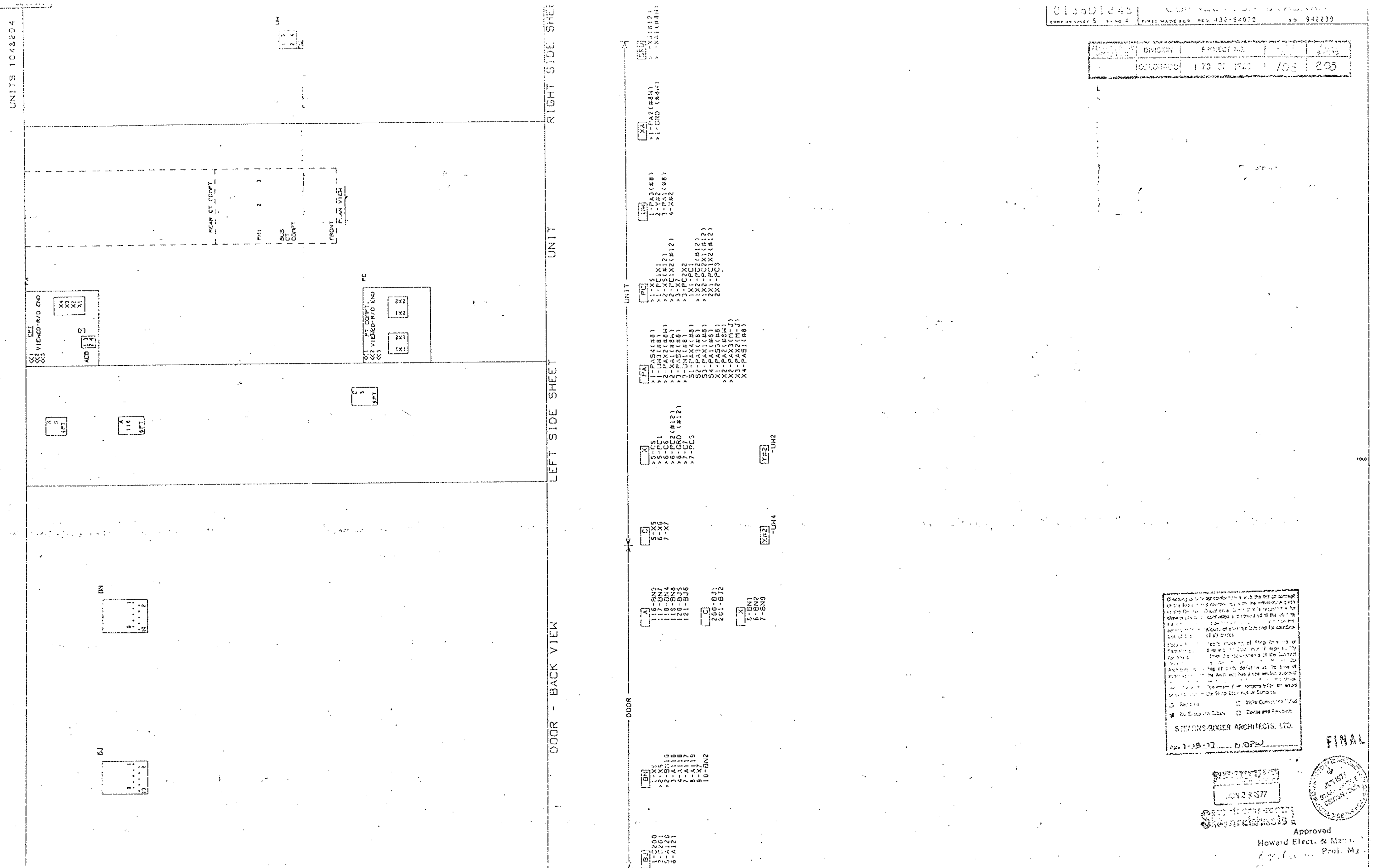
ELEM.	0136D1575
FRONT VIEW	0118R0314
SUMMARY	0258A2564
INTER.CONN.	0136D1245

MADE BY T.L.B.M.

SWITCHGEAR DEPARTMENT

0136D1245

CONT ON SHEET 4 SH NO 3



Approved
Howard Elect. & Mech.
Prof. Mg.

CONNECTIONS

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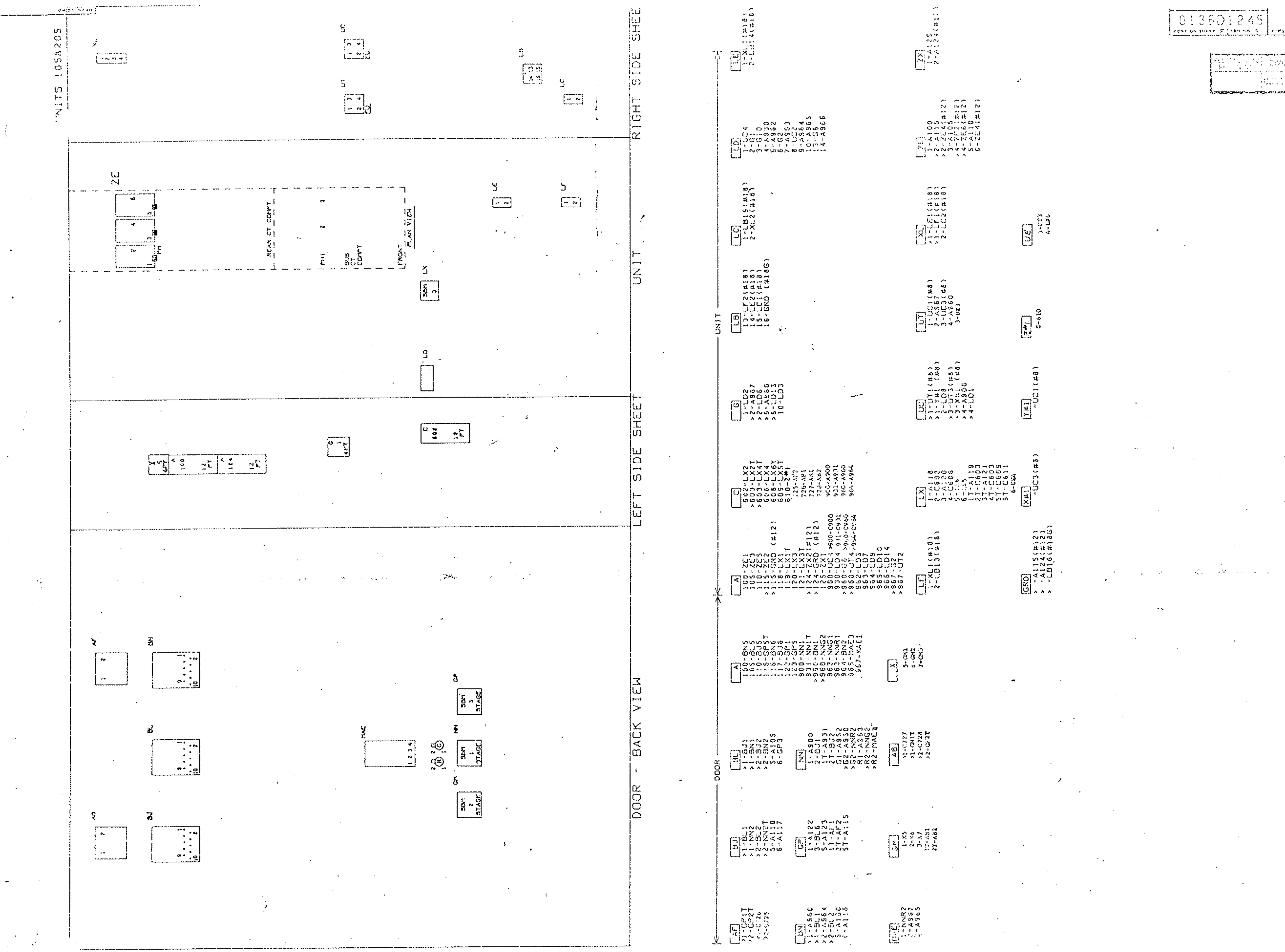
REFERENCE DRAWINGS	
ELEM.	0135D1326
FRONT VIEW	0112SD314
SUMMARY	0258A2564
INTER. CONN.	0136D1245

MADE BY Z.Z. B.
SWITCHGEAR DEPARTMENT
BURLINGTON IOWA
0136D1245
CONT ON SHEET 5 SH NO 4

0136D1245

CONNECTION DIAGRAM



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STEARNS-ROGER ARCHITECTS, LTD.

FINAL

JUN 28 1977

Approved
Howard Elect. & Mech. ?
Proj. Mgr

SWITCHGEAR DEPARTMENT
BURLINGTON, IOWA

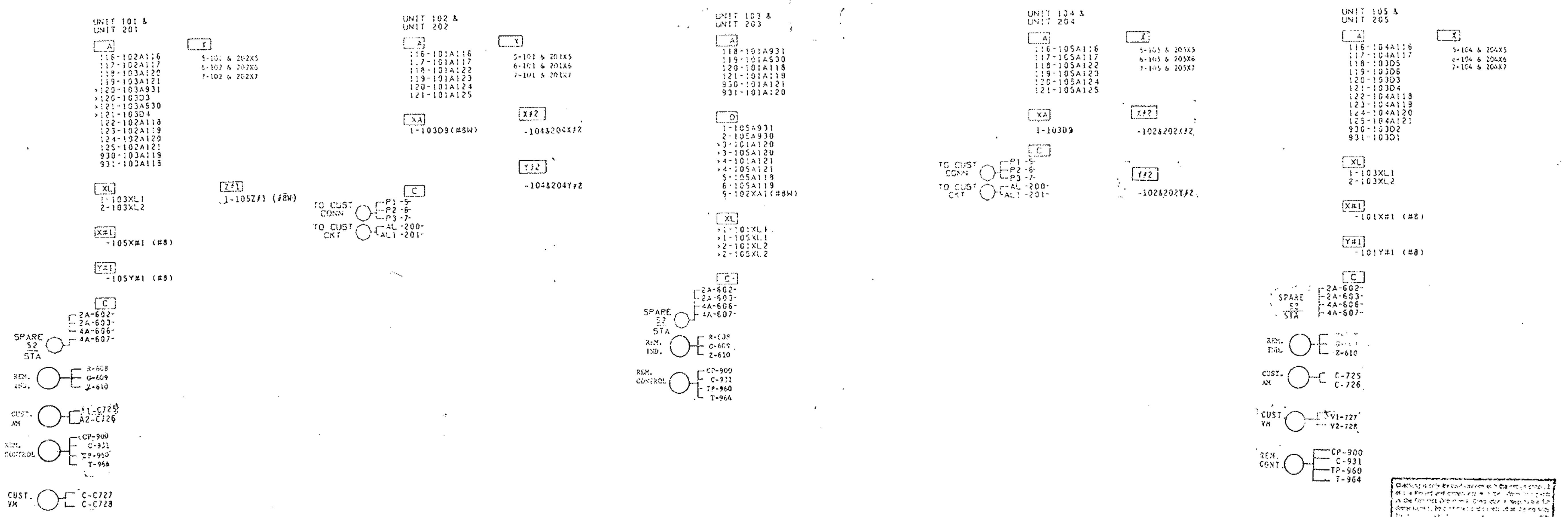
0136D1245

1	2	3	4	5	6	7	8	9	10

0136D1246
CONT ON SHEET FIN SH NO 1

INTERCONN.
FIRST MADE FOR REQ 432-94070 G.O. 942239

FEDERAL ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	1 70-3( )	110	208



STEARNS-ROGER ARCHITECTS, LTD.

FINAL

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

CONNECTIONS

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REFERENCE DRAWINGS	
ELEM.	0136D1575
FRONT VIEW	0118RD914
SUMMARY	0253A2364
CONN. DIAG.	0136D1245

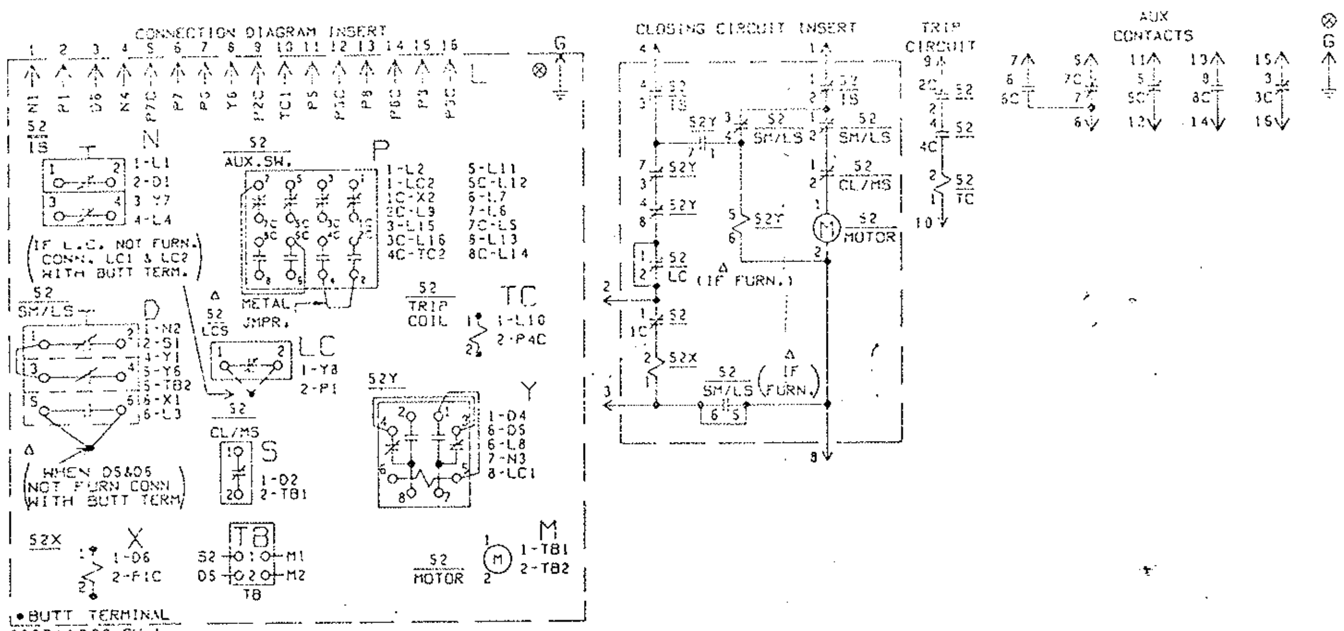
SWITCHGEAR DEPARTMENT
BURLINGTON, IOWA

0136D1246
CONT ON SHEET FIN SH NO 1

0136D1576 M/C SWGR ELECT. DIAG

CONT ON SHEET 2 SH NO 1

DANGER	208



NOTES

52/CL/MS CLOSING LATCH MONITORING SWITCH IS CLOSED WHEN LATCH IS CAPABLE OF BLOCKING FULLY CHARGED CLOSING SPRINGS.

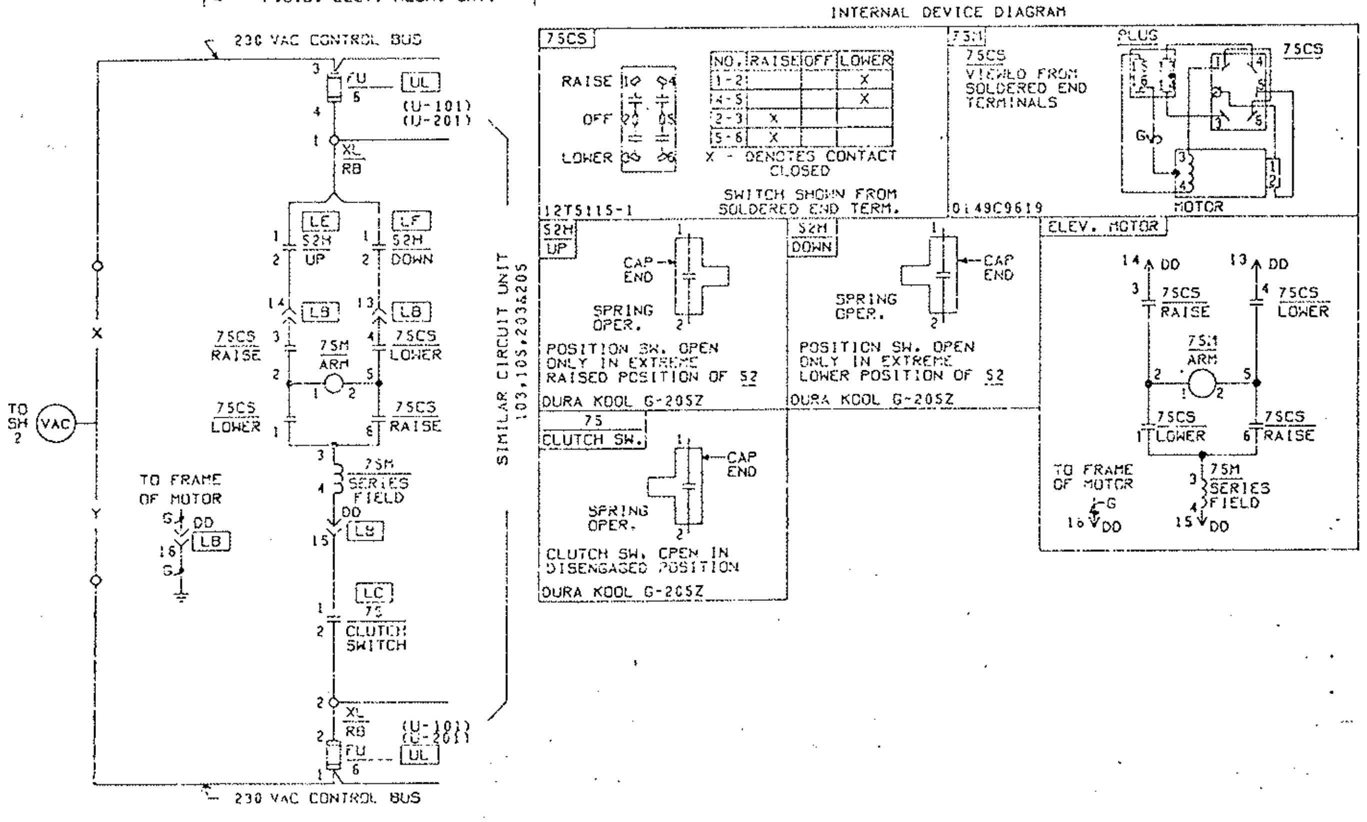
52IS INTERLOCK SWITCH CLOSED WHEN 52 IS IN FULLY RAISED OR FULLY LOWERED POSITION.

52/SM/LS LIMIT SWITCH FOR SPRING CHARGING MOTOR - CONTACTS (1-2) (3-4) OPEN AND CONTACT (5-6) CLOSED WHEN SPRINGS ARE FULLY CHARGED.

52X SPRING RELEASE COIL OPERATES LATCH WHICH RELEASES CLOSING SPRINGS TO CLOSE 52.

Δ 52/LCS & 5-6 OF 52/SM/LS NOT FURN. ON THIS REQ.

⊗ GROUND PIN USED FOR INSPECTION BOX ONLY.



SBM10AA??? (CRANK END)

CONTACTS	NO.	BKR. OPEN	BKR. CLOSED
1T 1 2 2T	1	X	
	2		X
3T 3 4 4T	3	X	
	4		X
5T 5 6 6T	5	X	
	6		X

SBM10AA125

CONTACTS (HANDLE END)	NO.	CLOSE	NORMAL	TRIP
1T 1 2 2T	1	X		
	2			X

SPRING RETURN TO NORMAL

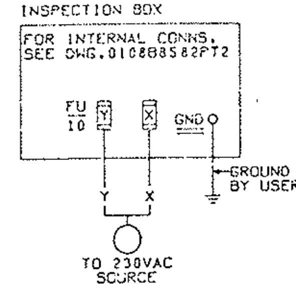
SBM10AA002

CONTACTS (HANDLE END)	NO.	3	*	2	*	1
1T 1 2 2T	1	X	X	X	X	
	2				X	X
3T 3 4 4T	3	X	X		X	X
	4		X	X	X	
5T 5 6 6T	5		X	X	X	X
	6	X	X			

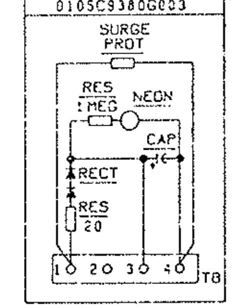
SBM10AA004

CONTACTS (HANDLE END)	NO.	3-1	2-3	1-2	OFF
1T 1 2 2T	1	X		X	
	2		X	X	
3T 3 4 4T	3		X		
	4	X			

INSPECTION BOX



CAP TRIP DEVICE
0105C9380G003



EISENHOWER TUNNEL,

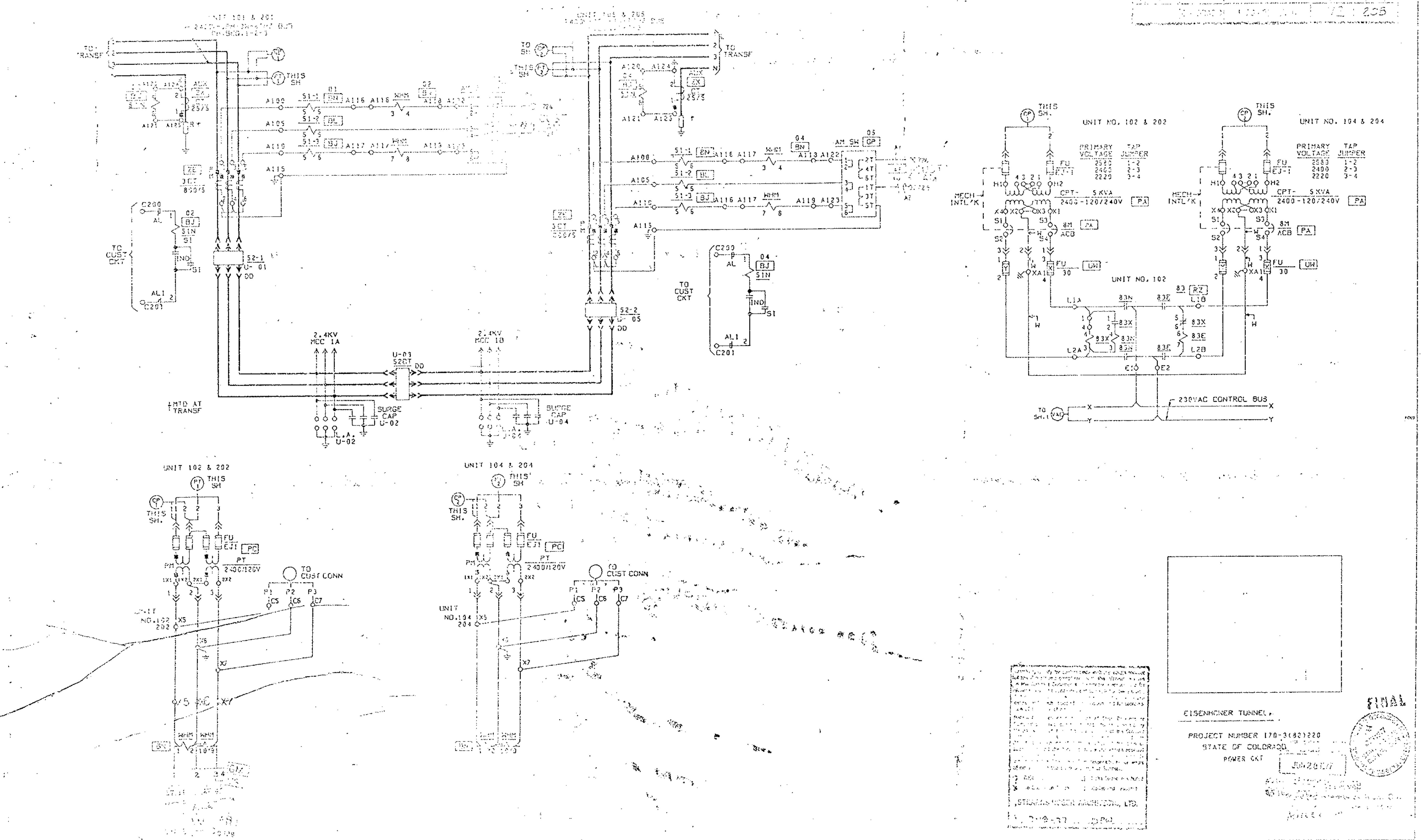
PROJECT NUMBER 170-3(82)220
STATE OF COLORADO
TITLE SHEET

STEARNS-ROGER ARCHITECTS, LTD.
2-18-77 DRW

Howard Elect. & Mech.
Proj. Mgr.

SUMMARY	0253A2951
FRONT VIEW	013RD914
CONN.DIAG.	0136D1245
INTER.CONN	0135D1246

SWITCHGEAR DEPARTMENT
BURLINGTON, IOWA
0136D1576
CONT ON SHEET 2 SH NO 1



EISENHOWER TUNNEL

PROJECT NUMBER I70-3(83)220

STATE OF COLORADO

POWER CKT

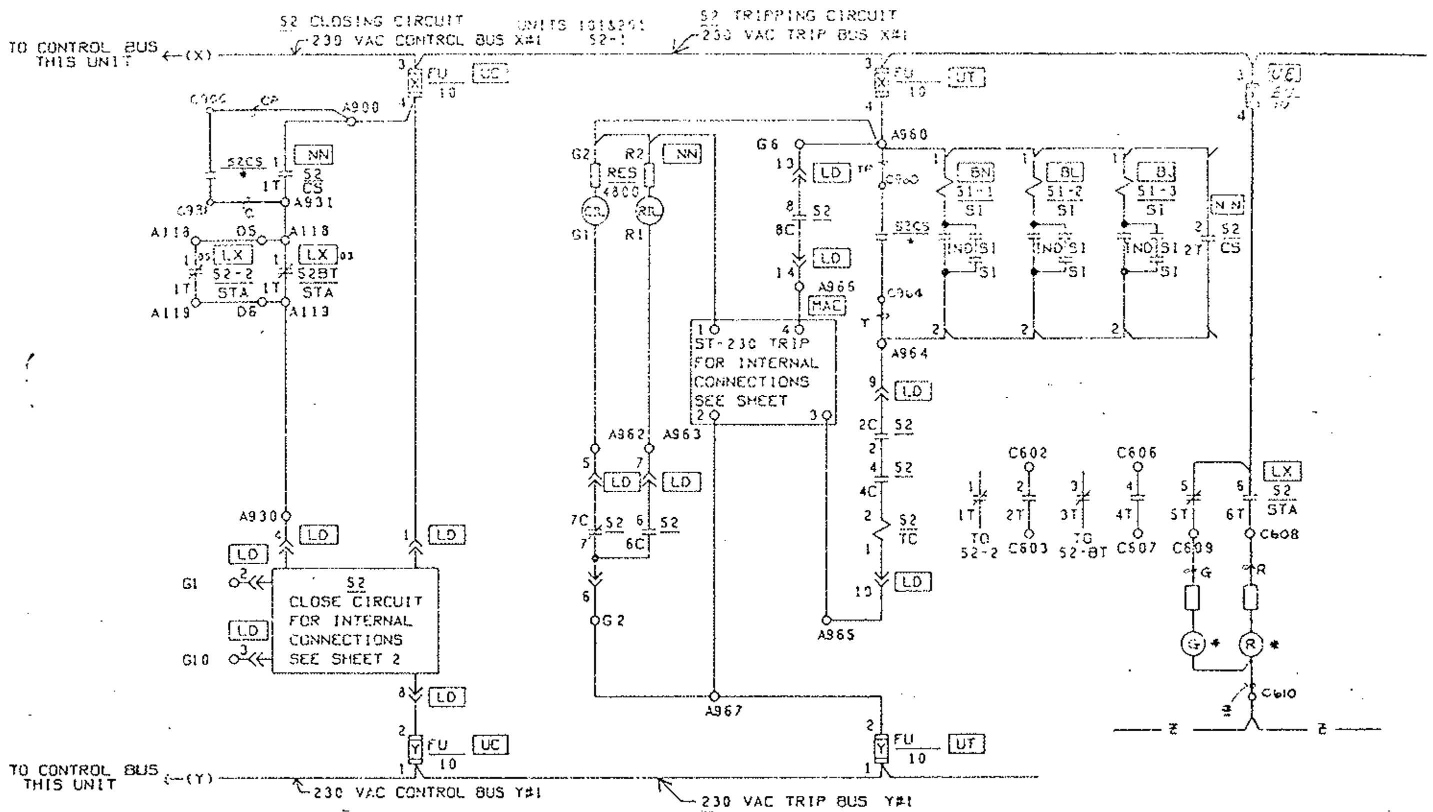
FINAL

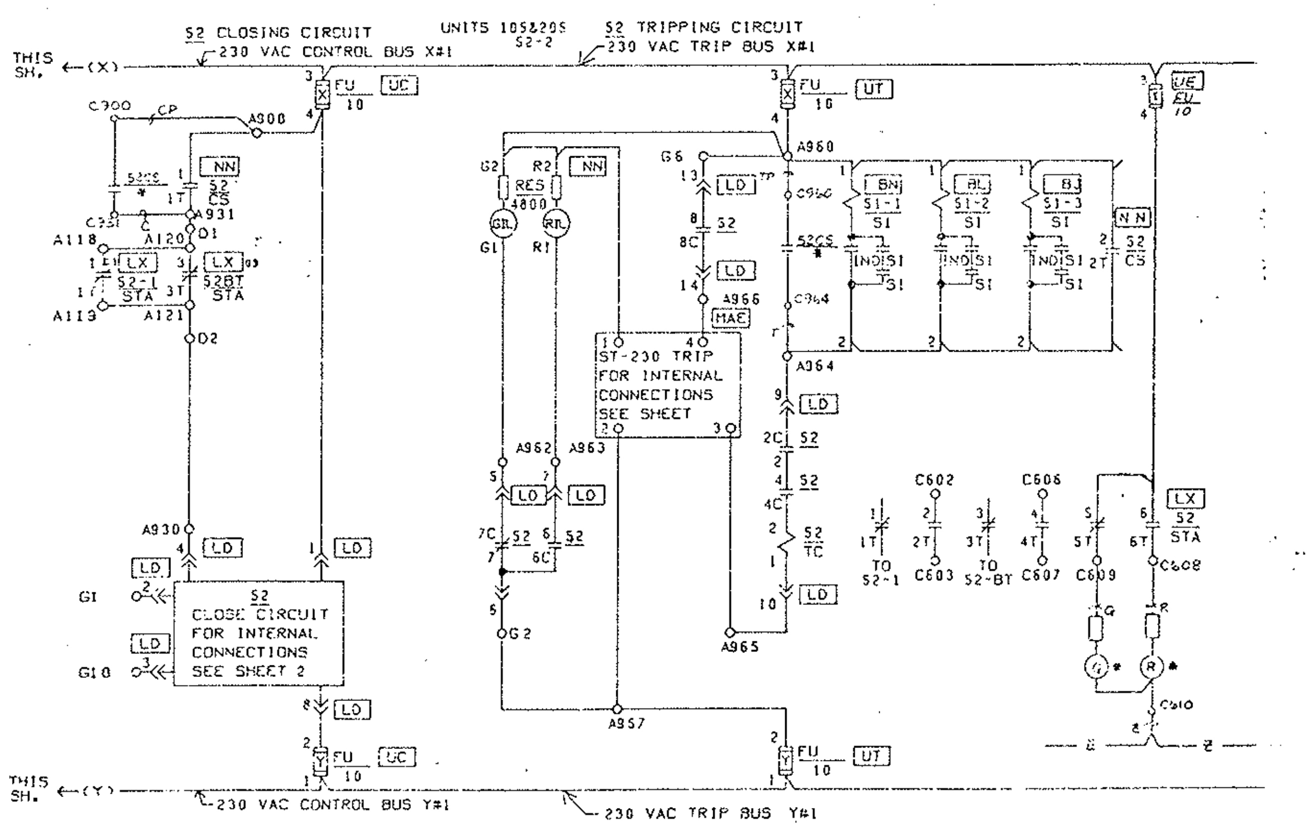
STROMBERG-CARLSON ARCHITECTS, LTD.

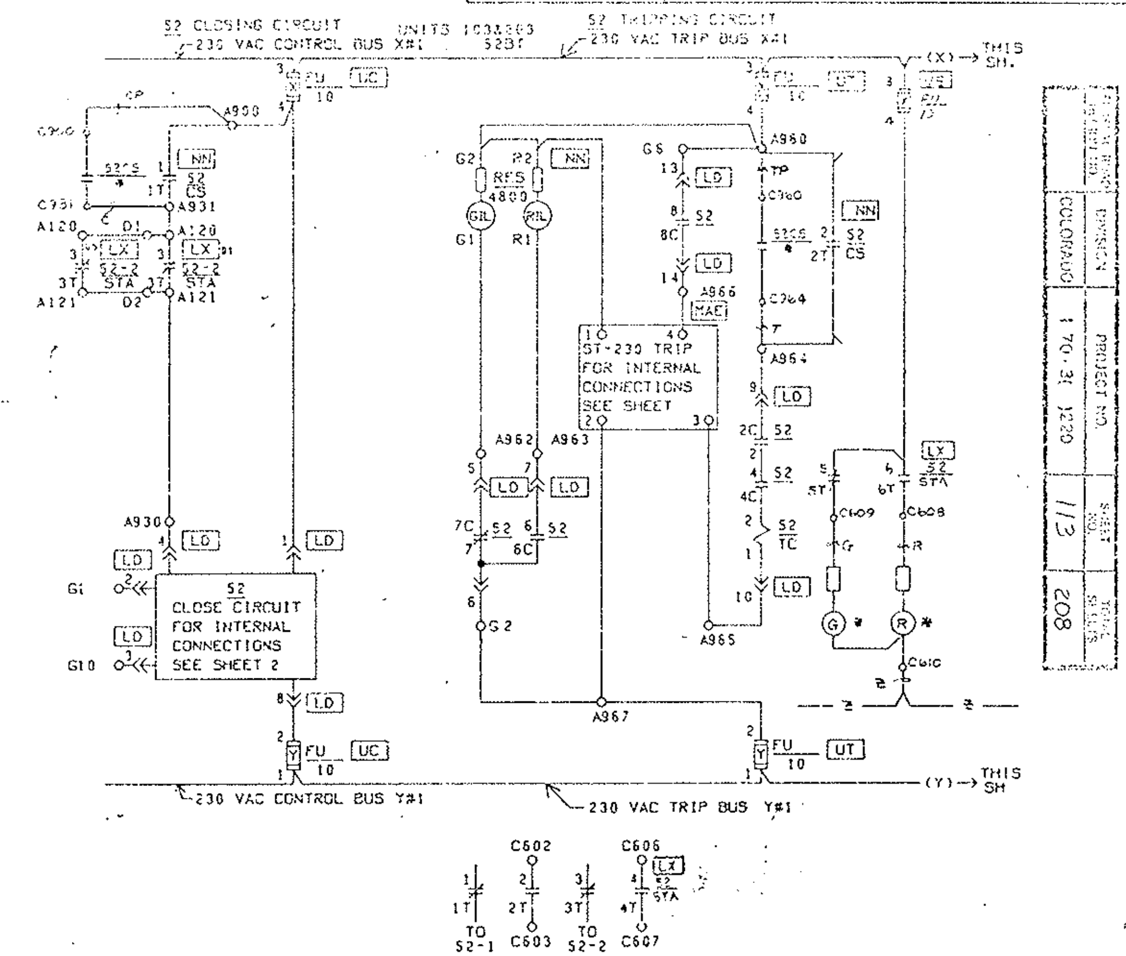
SUMMARY	01L0A2264
FRONT VIEW	011890614
CONN. DIAG.	0136D1245
I/C DIAG	0136D1246

SWITCHGEAR DEPARTMENT

4. DEVICE FUNCTION NUMBERS, AND ABBREVIATIONS ARE ASA STANDARDS.







CONNECTIONS

BOTH ENDS OF WIRE ARE IDENTIFIED AS TO DESTINATION. SKETCH INDICATES CONNECTION FROM DEVICE E STUD 5 TO TERMINAL BOARD A TERMINAL 1.

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4. DEVICE FUNCTION NUMBERS AND ABBREVIATIONS ARE ASA STANDARDS

STEARNS-ROGER ARCHITECTS, LTD.

EISENHOWER TUNNEL

PROJECT NUMBER I70-3(82)220

STATE OF COLORADO

CONTROL CKT

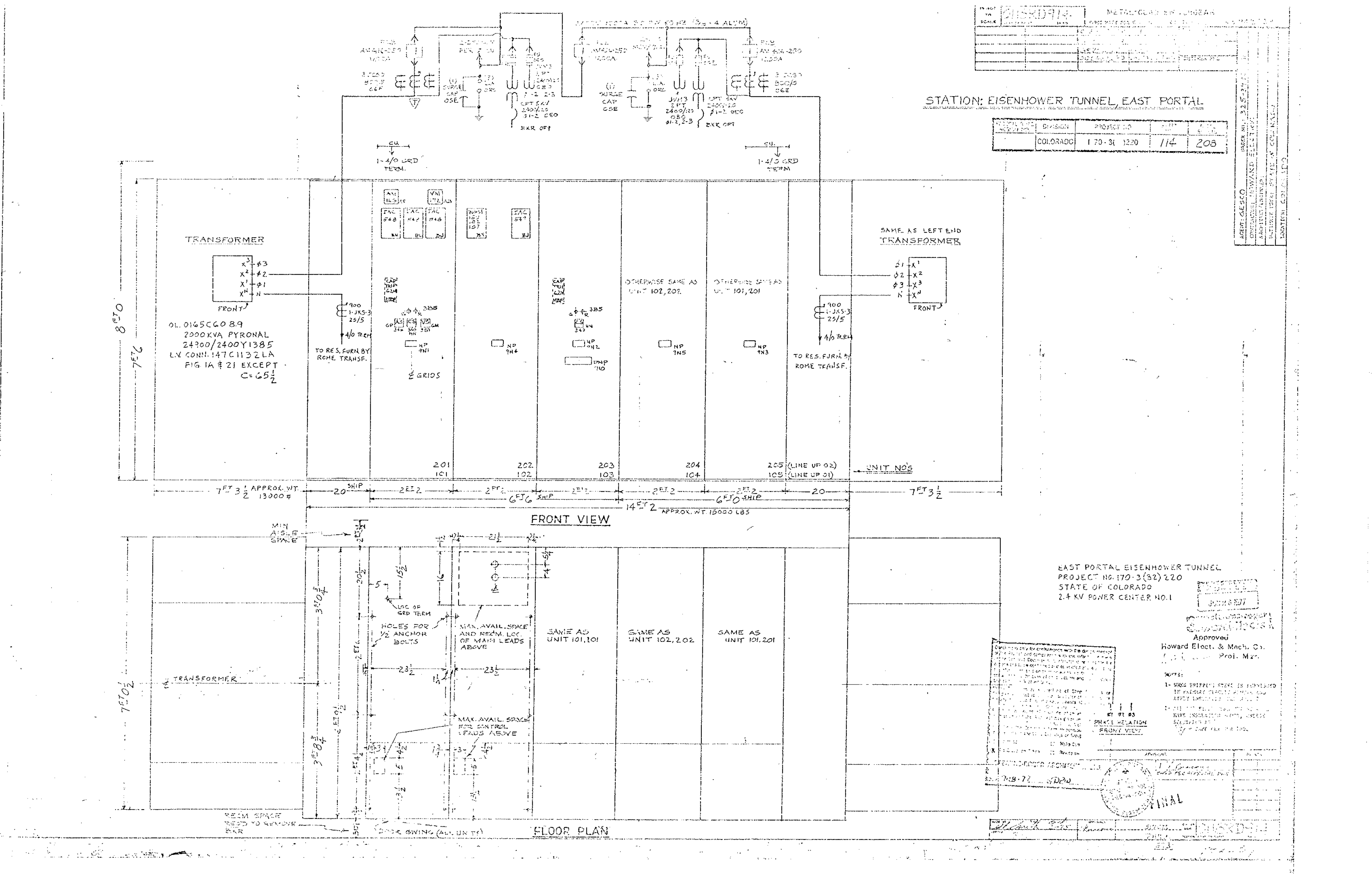
FINAL

Approved
Howard Need & Mach. D.
Proj. Mgr.

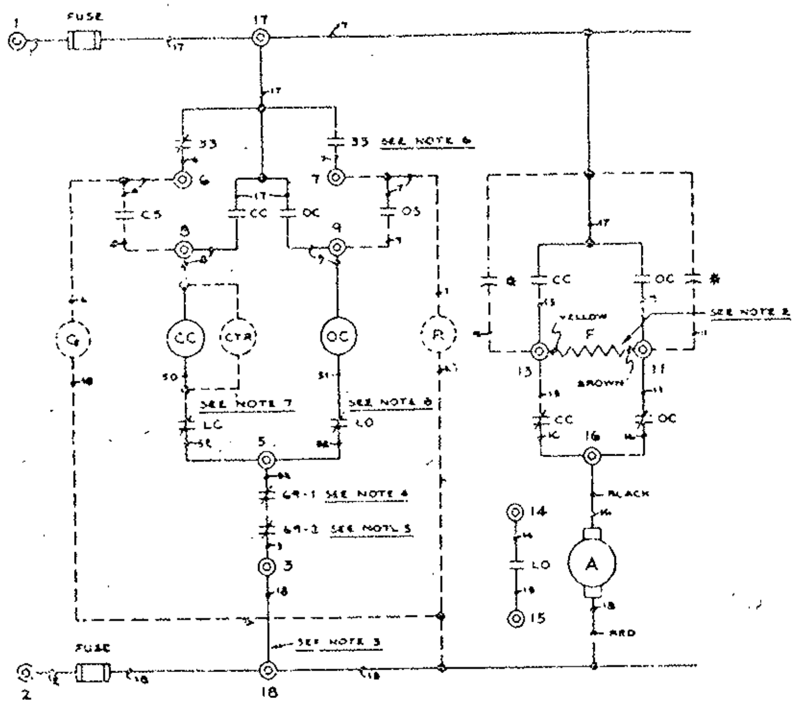
SUMMARY	0252A2934
FRONT VIEW	0118R0914
CONN. DIAG.	0136D1245
E/C DIAG.	0136D1246

SWITCHGEAR DEPARTMENT BURLINGTON, IOWA

0136D1576

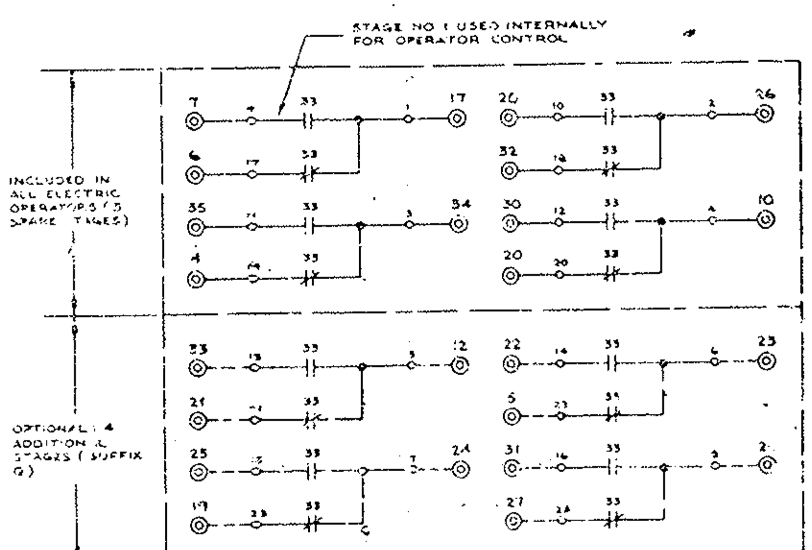

STATION: EISENHOWER TUNNEL, EAST PORTAL
COLORADO
I 70-3( )220
114
208
TRANSFORMER
OL.0165C6089
2000KVA PYRONAL
24900/2400Y1385
L.V. CONN. 147C1132LA
FIG. 1A & 21 EXCEPT
C=65½
FRONT
1-4/0 GRD TERM.
TO RES. FURN. BY ROME TRANSF.
2 GRIDS
OTHERWISE SAME AS UNIT 102,202
OTHERWISE SAME AS UNIT 101,201
SAME AS LEFT END TRANSFORMER
201 101
202 102
203 103
204 104
205 (LINE UP 02) 105 (LINE UP 01)
UNIT NO'S
APPROX. WT. 13000#
14FT 2 APPROX. WT. 15000 LBS
FRONT VIEW
MIN AISLE SPACE
LOC. OF GRD TERM
HOLES FOR ½" ANCHOR BOLTS
MAX. AVAIL. SPACE AND RECM. LOC. OF MAIN LEADS ABOVE
SAME AS UNIT 101,201
SAME AS UNIT 102,202
SAME AS UNIT 101,201
TRANSFORMER
MAX. AVAIL. SPACE FOR CONTROL LEADS ABOVE
RECM SPACE REQD TO REMOVE BKR
DOOR SWING (ALL UNITS)
FLOOR PLAN
EAST PORTAL EISENHOWER TUNNEL
PROJECT NO. 170-3(32)220
STATE OF COLORADO
2.4 KV POWER CENTER NO. 1
Approved
Howard Elect. & Mech. Co.
Proj. Mgr.
PHASE RELATION FRONT VIEW
FINAL

115



LEGEND

CC	CLOSING CONTACTOR COIL
OC	OPENING CONTACTOR COIL
A	ARMATURE OF REVERSIBLE MOTOR
F	SERIES FIELD OF REVERSIBLE MOTOR
CS	CLOSING SWITCH
OS	OPENING SWITCH
CTR	OPERATION COUNTER
G	GREEN INDICATING LIGHT (LOAD INTERRUPTER OPEN)
R	RED INDICATING LIGHT (LOAD INTERRUPTER CLOSED)
33	OPERATOR AUXILIARY SWITCH (SEE NOTE 6)
69-1	MANUAL OPERATOR INTERLOCK
69-2	KEY INTERLOCK SWITCH - OR - MECHANICAL INTERLOCK SWITCH
LC	CLOSING CIRCUIT LIMIT SWITCH
LO	OPENING CIRCUIT LIMIT SWITCH
◎	TERMINAL POINT ON OPERATOR UNIT
O	TERMINAL POINT ON OPERATOR AUXILIARY SWITCH
*	CAPACITOR USED ON SUFFIX A, B, & C ONLY



NOTES:

1. BROKEN LINES INDICATE WIRING OF OPTIONAL ITEMS.
2. REVERSE FIELD LEADS FOR OPPOSITE ROTATION AS REQUIRED FOR APPLICATION ON INVERTED SWITCHES. (SUFFIX-H)
3. JUMPER BETWEEN 18 AND 3 REMOVED FOR INSERTION OF EXTERNAL INTERLOCKS IF APPLIED. SEE INTERCONNECTION WIRING DIAGRAM FOR DETAILS.
4. 69-1 SHOWN WITH MANUAL ACCESS COVER CLOSED.
5. 69-2 SHOWN IN UNLOCKED POSITION.
6. SNAP ACTION AT END OF OPENING AND CLOSING OPERATIONS. (SHOWN IN THE OPERATOR OPEN POSITION)
7. LC SHOWN IN UNACTUATED POSITION - ACTUATED ONLY IN FULLY CLOSED POSITION.
8. LO SHOWN IN UNACTUATED POSITION - ACTUATED ONLY IN FULLY OPEN POSITION

SUFFIX	VOLTAGE	[illegible]
A	48 VDC	[illegible]
B	125 VDC	[illegible] 2A
C	250 V[illegible]	[illegible] 1[illegible]
D	120 V[illegible]	[illegible] 4[illegible]
E	240 VAC	[illegible] 2A
V	24 VDC	[illegible]

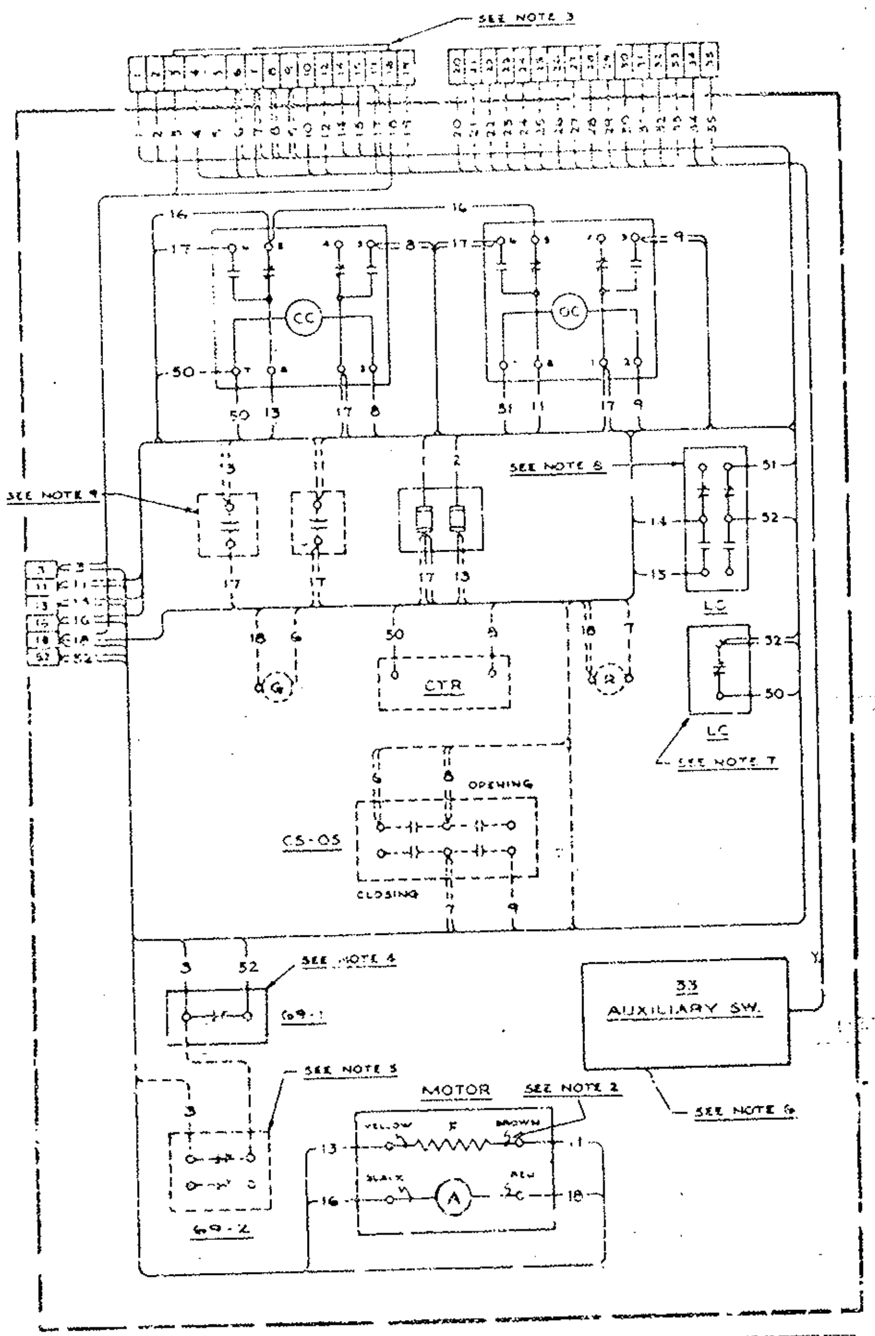
FINAL

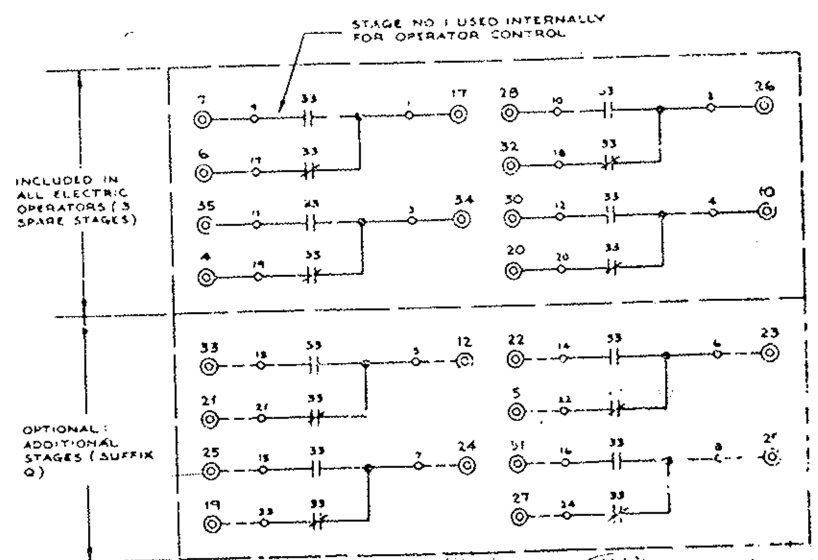
Checked
Howard [illegible]

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

SCHEMATIC WIRING DIAGRAM
FOR [illegible]

CDR-707





FINAL

NOTES:

1. BROKEN LINES INDICATE WIRING OF OPTIONAL ITEMS.
2. REVERSE FIELD LEADS FOR OPPOSITE ROTATION AS REQUIR... APPLICATION ON INVERTED SWITCHES. SUFFIX H)
3. JUMPER BETWEEN 18 AND 3 REMOVED FOR INS... OF ... INTERLOCKS IF APPLIED. SEE INTERCONNECTION WIRING D... FOR DETAILS.
4. 69-1 SHOWN WITH MANUAL ACCESS COVER CLOSED.
5. 69-2 SHOWN IN UNLOCKED POSITION.
6. SNAP ACTION AT END OF OPENING AND CLOSING OPERATIONS. (SHOWN IN THE OPERATOR OPEN POSITION)
7. LC SHOWN IN UNACTUATED POSITION - ACTUATED ONLY IN FULLY CLOSED POSITION.
8. LO SHOWN IN UNACTUATED POSITION - ACTUATED ONLY IN F... OPEN POSITION
9. CAPACITORS USED ON SUFFIX A, B, & C ONLY.

Checked
Howard Elect. & Mfg. Co.
Proj. Mgr.

MATERIAL: DESCRIPTION ______ S & C S. IC NO ______

FINISH: DESIGNATION ______ S & C S.T. ______

		SCALE
		DR BY
		CHK
PART APPVL	PRODUCT	APPD
USED ON		DATE

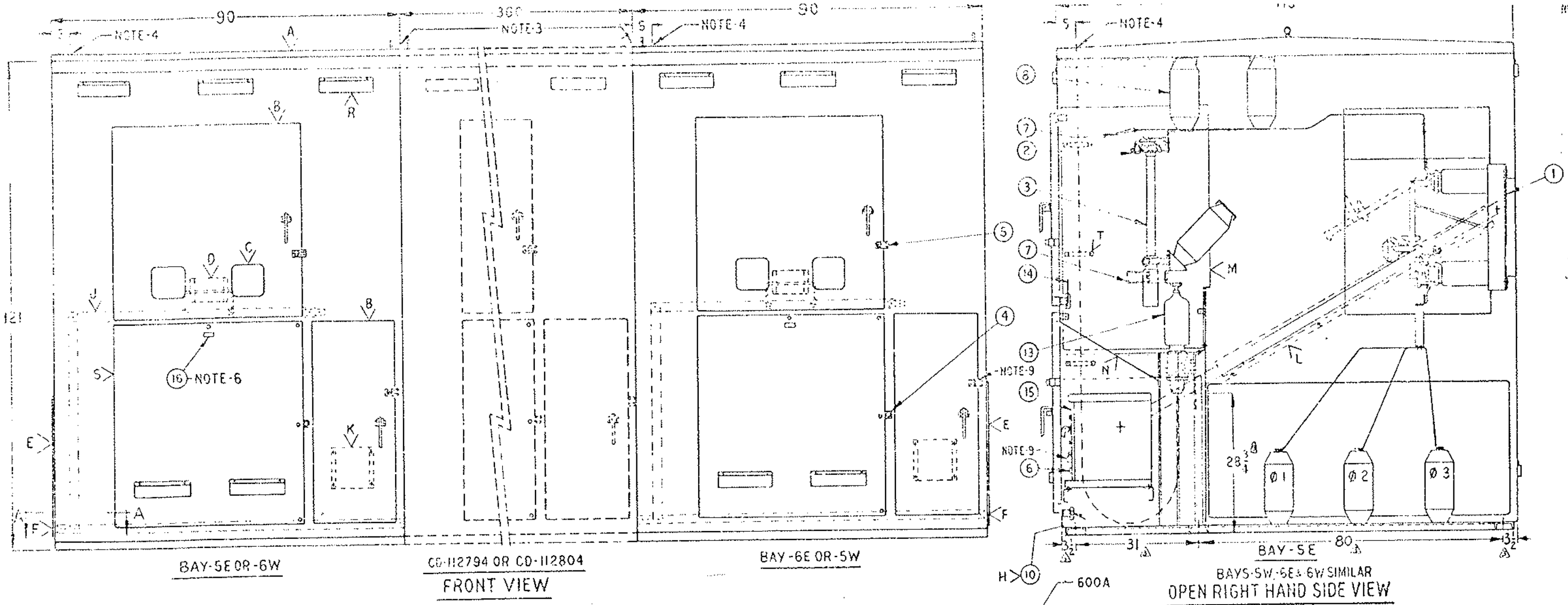
S&C ELECTRIC COMPANY • CHICAGO
Specialists in High-Voltage Circuit Interruption

DETAIL WIRING DIAGRAM for ELECTRIC OPERATOR

CDR-708

REDRAWN FROM DRAWING DATED 2-5-62

CDR-708



NOTES	ITEM	QTY.	PART NO.	DESCRIPTION
10	1	2	23491 4R2	INTERRUPTER SWITCH, 3 POLE, 600A
10	2	6	8750 R2-S103	SM-5 POWER FUSE LIVE PARTS 300A
	3	6	88	SM-5S FUSE HOLDER, NON-DISCONNECT
	4	2	CDA-1600-1	KEY OPERATED SNAPLOCK
2	5	2	TYPE-D	KIRK KEY INTERLOCK
2	6	2	13 -F	KIRK KEY INTERLOCK
	7	6	CCD-10615-2	GROUND RING
	8		9785	LAPP BUS SUPPORT
	9	8	9CD-1805	ANCHOR BRACKET
	10	2	4742	CABLE CONNECTOR, #2-500 MCM
	11			
	12			
5&10	13	6	NT-19241R	G&W 1/C PH. W/SB, 250 MCM, STYLE 18 AERIAL LUGS CAT. NO. A-522-5
	14	2	QC-4545	GROUND BAIL
8&9	15	2	38760-BGHJLMU	SWITCH OPERATOR, 125 VDC
6	16	1SET		ENGRAVED PLASTIC NAMEPLATES

NOTE TO D.O.H.
AS PER INSPECTION TRIP ON 5/5/76, BUS CONNECTIONS AND JOINTS IN THE REAR OF THE SWITCHGEAR ARE SILVER COATED USING ~~INSTEAD~~ AS THE METCO PROCESS INSTEAD OF SILVER PLATED ~~AS PER SPECIFICATIONS 630.06~~

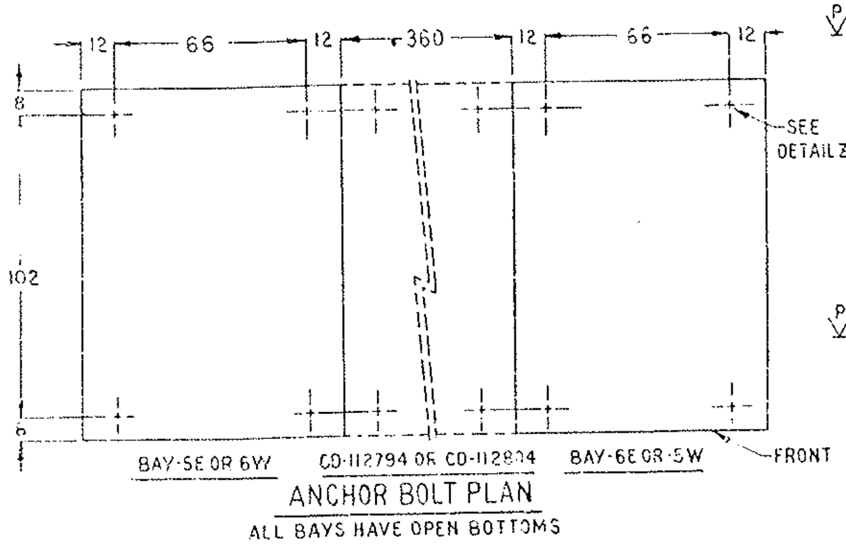
	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	1 70-3( )220	117	208

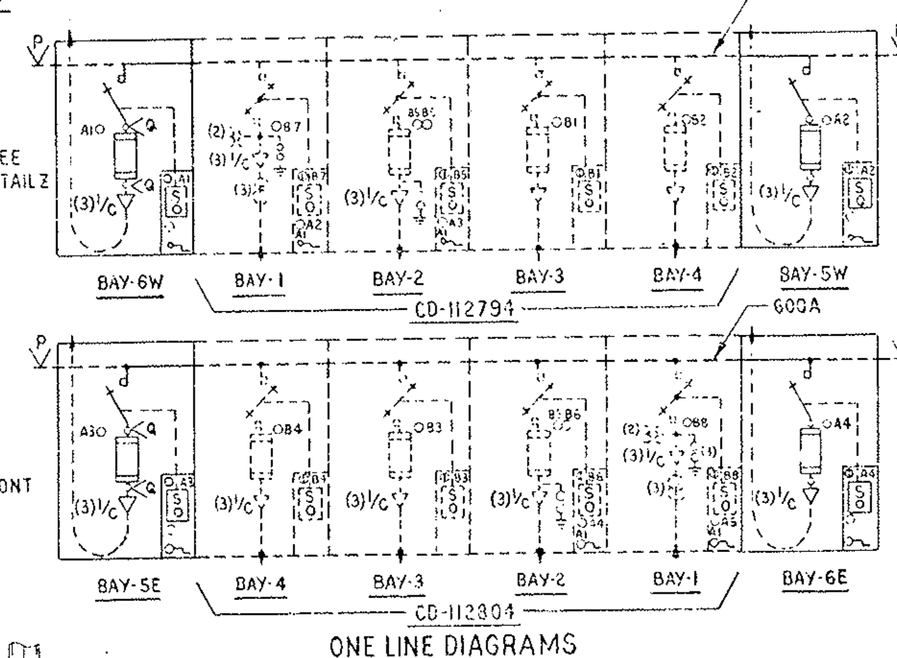
STEARNS-ROGER ... LTD.
5/19/76 DPW
4.174 630.03

RECEIVED
MAY 18 1976
stearns-roger architects

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.



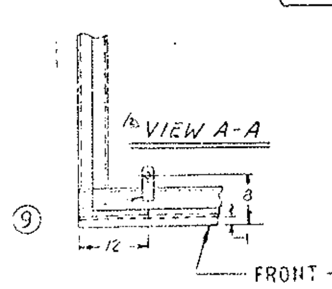


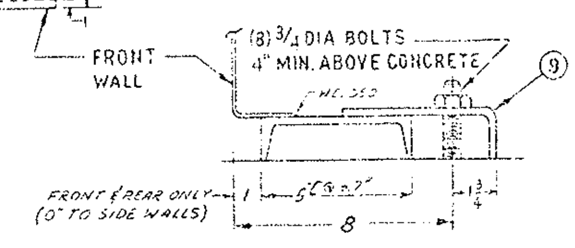
NOTES:

1. ALL HANDLES HAVE PROVISIONS FOR PADLOCKING.
2. KEY INTERLOCKS PREVENT ACCESS TO FUSES UNTIL INTERRUPTER SWITCH IS LOCKED OPEN.
3. EACH BAY TO BE SHIPPED SEPARATELY.
4. APPROXIMATE PROJECTION OF CABLE CENTERLINES, KNOCKOUTS BY OTHERS.
5. CUSTOMER TO FURNISH CABLE INFORMATION FOR POTHEADS. INFORMATION TO INCLUDE TYPE & O.D. CONDUCTOR SIZE & MATERIAL.
6. ENGRAVED PLASTIC NAMEPLATE 1" X 2 1/2", THREE LINES SPACED 7/32" APART, AND 5/32" HIGH BLACK LETTERS ON WHITE BACKGROUND TO READ AS FOLLOWS:
   BAY-5E "POWER CENTER NO.1"-"TRANSFORMER 1B"-"SOUTH TUNNEL"
   BAY-6E "POWER CENTER NO.1"-"TRANSFORMER 1A"-"SOUTH TUNNEL"
   BAY-5W "POWER CENTER NO.1"-"TRANSFORMER 1B"-"SOUTH TUNNEL"
   BAY-6W "POWER CENTER NO.1"-"TRANSFORMER 1A"-"SOUTH TUNNEL"
7. S&C TO FURNISH AND SHIP LOOSE ALL NECESSARY HARDWARE AND SPLICE PLATES FOR ASSEMBLY TO EXISTING CD-112794 OR CD-112804.
8. ITEM 15 FURNISHED, INSTALLED AND WIRED BY S&C. PER: CDR-707 SCHEMATIC WIRING DIAGRAM. QCDR-2250 INTERCONNECTION WIRING DIAGRAM CDR-708 DETAIL WIRING DIAGRAM
9. S&C TO MAKE PROVISIONS FOR TYPE D INTERLOCKS ON SWITCH OPERATOR AND OPERATOR DOOR, FURTHER COORDINATION BY OTHERS.
10. ALL SWITCH AND FUSE PADS AND ALL BUS JOINTS TO BE SILVER PLATED. SEE NOTE

NAMEPLATE DATA

CATALOG NUMBER---------------CD-159894
KV. NOMINAL-------------------34.5
KV. MAX. DESIGN---------------38
KV. BIL-----------------------200
MAIN BUS CONTINUOUS RATING. AMPERES---600
SHORT CIRCUIT RATING. MVA THREE-PHASE SYM. AT RATED NOM. VOLTAGE------1000
AMPERES INTERRUPTING. RMS ASYM.-------26,000
AMPERES MOMENTARY. RMS ASYM.----------40,000
AMPERES FAULT CLOSING. RMS ASYM.------25,000





DETAIL-Z
METHOD USED TO ANCHOR BAYS

LETTER CODE:

A. OUTDOOR ROOF ON INDOOR GEAR
B. DOOR
C. WINDOWS
D. FUSE CONTAINER
E. FUTURE EXTENSION COVER PLATE
F. KNOCKOUT FOR FUTURE GROUND BUS EXTENSION
H. GROUND CONNECTOR, (EACH BAY 1 REQ'D.)
J. CONTINUOUS GROUND BUS, 600 AMP
K. INSTRUCTION BOOK HOLDER
L. CHAIN GUARD, (ALL BAYS)
M. BENELEX BARRIER
N. STEEL PARTITION
P. FUTURE EXTENSION
Q. GROUND POINT
R. FILTERED LOUVERS WITH EXTERNAL ACCESS, FRONT & REAR
S. HINGED BOLTED PANEL
T. REMOVABLE CABLE GUIDE

REVISIONS

NO.	DATE	BY	DESCRIPTION
1		E.T.	ADDED NOTES 9 & 10, CRD-708 TO NOTE 8, KNOCKOUTS BY OTHERS TO NOTE 4, QTY OF 2 TO ITEMS 5 & 6, AND LETTER CODE T. CHANGED CABLE EXIT FROM OUT BOTTOM TO OUT THE TOP. NOTE 2 WAS: CUSTOMER TO SPECIFY KEY INTERLOCK COORDINATING INFORMATION AND SCHEME. AND NOTE 5 AND ... ITEM 10 WAS 4745 AND ITEM 1 WAS 22481R2 AND BUS WAS ALUMINUM. DELETED ITEMS 11 CDA 1654-1 & ITEM 12 SOZ TUBE PENETROX A.
2		AW / E.T.	ADDED DIMENSIONS TO DET. Z AND ADDED VIEW A-A. CHANGED CABLE SPACE FROM 33 3/4 TO 28 3/4 IN OPEN R.H. SIDE VIEW BAY-5E. ADDED LOCATIONS OF ...

MATERIAL: HAYBROOKE REINFORCED SHEET STEEL, BUS COPPER
FINISH: ... LIGHT GRAY ANSI 61, DB 601-31

S&C ELECTRIC COMPANY
GENERAL OFFICES — CHICAGO
Specialists in High-Voltage Switching and Protection

34.5KV 2BAYS INDOOR METAL ENCLOSED SWITCHGEAR

CD-159894

GENERAL ELECTRIC

75C68...

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING:—

APPLIED PRACTICES	SURFACES	TOLERANCES ON NOTED DIMENSIONS: FRACTIONS	DECIMALS	ANGLES
	✓	±	±	±

TITLE

ELEMENTARY

FIRST MADE FOR DA143C70042 & DA143C70043

ZONE CONTRL. BOXES (WEST & EAST)

I 70-3 (82) 220

JOB NAME EISENHOWER TUNNEL

CONTRACTOR HOWARD ELECTRIC

CUSTOMER GESCO

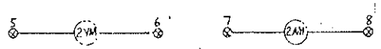
CUSTOMER'S P.O. 525-397097D

G.E. REQN 432-94070

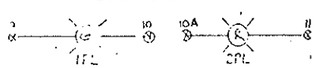
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	118	

TRANSFORMER #1A SECONDARY

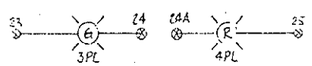
TRANSFORMER #1B SECONDARY

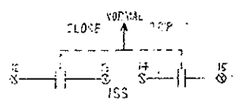


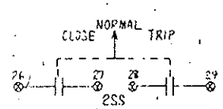
LOAD BREAK SWITCH



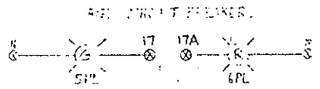
LOAD BREAK SWITCH



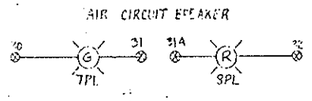


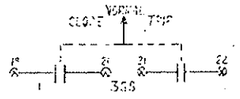


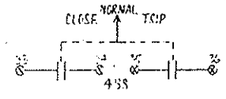
AIR CIRCUIT BREAKER



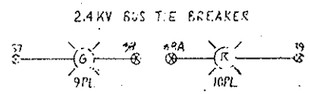
AIR CIRCUIT BREAKER

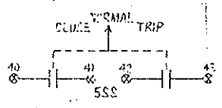






2.4 KV 60S T.E BREAKER





NOMENCLATURE

AM — AMMETER
PL — PILOT LIGHT
SS — SELECTOR SWITCH
VM — VOLTMETER
⊗ — TERMINAL BOARD POINT

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at jobsite; for information that pertains only to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation; nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected
☒ No Exception Taken ☐ Make Corrections Noted ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 5-6-77 By DPW

#534 63432

RECEIVED
APR 29 1977
Stearns-Roger Inc. Architects

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

REVISIONS			PRINTS TO
	1	Customer Revisions	

MADE BY R HOGAN 4-22-76	C P D	75C680666
TRACED	VAN NUYS	

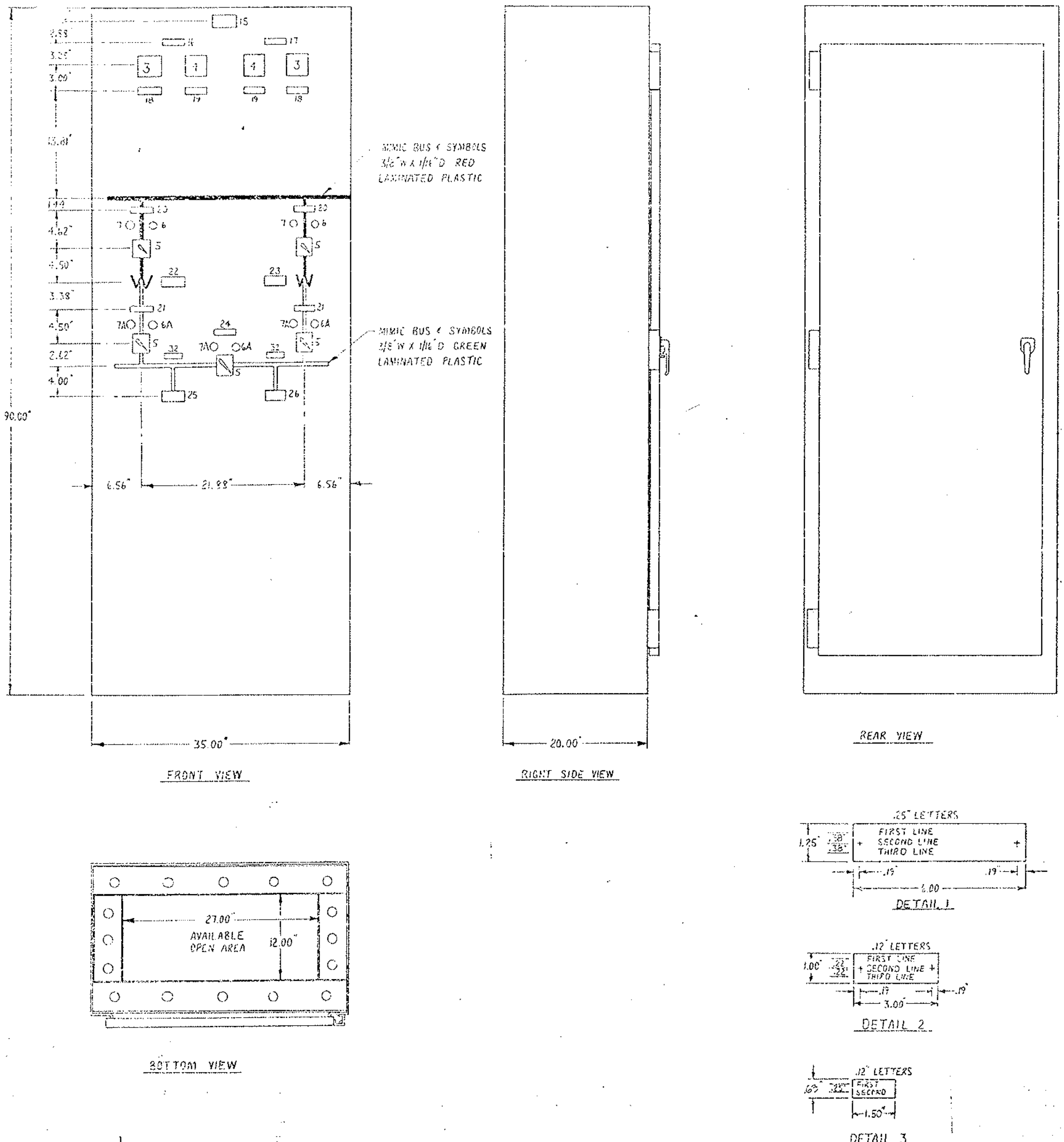
GENERAL ELECTRIC 750680702

OUTLINE

POWER CONTROL BOARD WEST

EISENHOWER TUNNEL
HOWARD ELECTRIC
GESCO
325-3970970
432-99070

[illegible]	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	119	208



Equipment List

Item	Qty.	Mfgr.	Cat. No.	Description
3	2	G.E.	[illegible]	[illegible]
4	2	G.E.	[illegible]	[illegible]
5	5	G.E.	[illegible]	[illegible]
6	6	G.E.	[illegible]	Pilot [illegible] type ET-16, [illegible]
7	2	G.E.	[illegible]	Pilot [illegible] type ET-16, [illegible]
33	5	G.E.	[illegible]	[illegible]

Nameplate Schedule

Item	Qty.	First Line	Second Line	Third Line
15	1	[illegible]	Building	[illegible]
16	1	[illegible]	[illegible]	[illegible]
17	1	[illegible]	[illegible]	[illegible]
18	2	[illegible]		
19	2	Voltmeter		
20	2	[illegible]	[illegible]	[illegible]
21	2	[illegible]	Circuit	Breaker
22	1	Transformer	No. 1A	
23	1	[illegible]	[illegible]	
24	1	[illegible]	[illegible]	Breaker
25	1	[illegible]		
26	1	[illegible]		
32	2	[illegible]		

Notes

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]

ITEM	QTY.	MFGR.	CAT. No.	DESCRIPTION
6A	3	G.E.	0116B6706G6E	SAME AS ITEM 6 EXCEPT 240VAC
7A	3	G.E.	0116B6708G6D	SAME AS ITEM 7 EXCEPT 240VAC

STEARNS-ROGER ARCHITECTS, LTD.

5477 0720

#224 630.32

APR 29 1977

FINAL

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

REVISIONS

MADE BY R. HOGAN 4-21-76

April 27, 1976

C.P.P.O.

VAN NUYS CA.

750680702

GENERAL ELECTRIC 75D680703

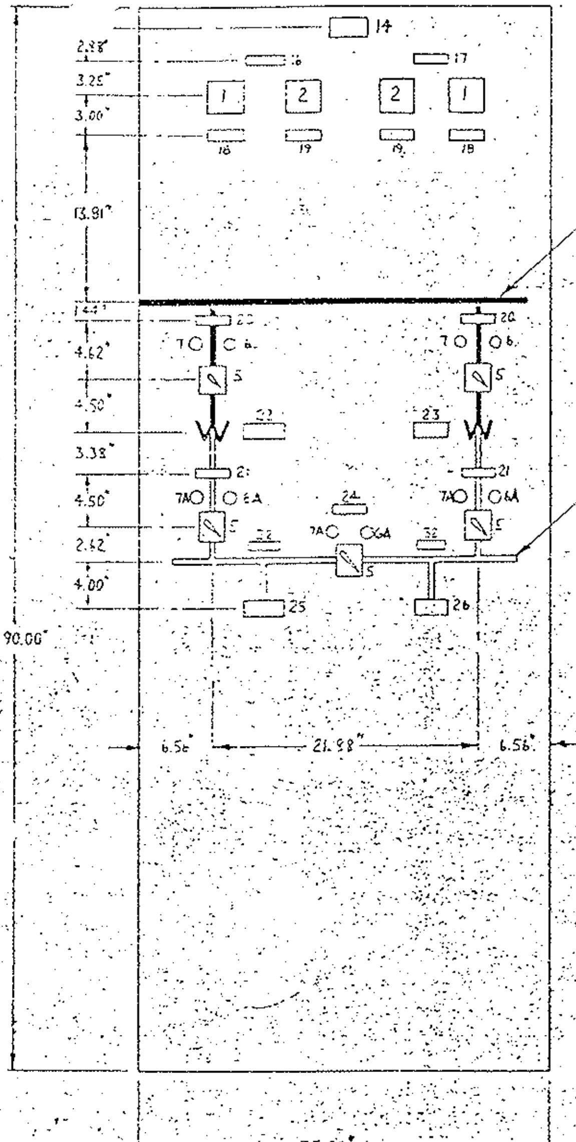
OUTLINE

FIRST MADE FOR 0A143C90813

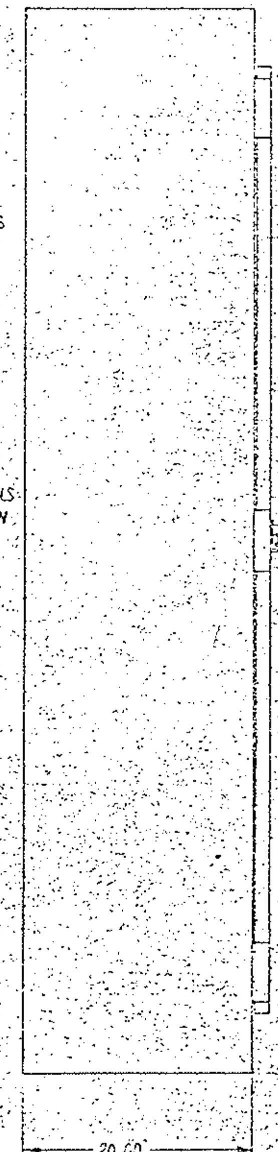
POWER CONTROL BOARD EAST

I 70-3 (82) 220
JOB NAME EISENHOWER TUNNEL
CONTRACTOR HOWARD ELECTRIC
CUSTOMER GESCO
CUSTOMER'S P.O. 325-3970970
G.E. REQN. 432-94070

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	120	208

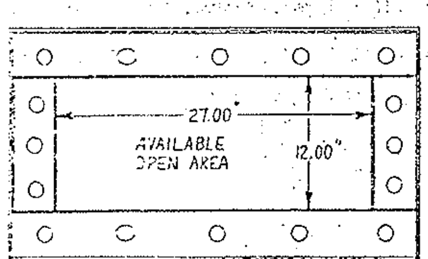


FRONT VIEW

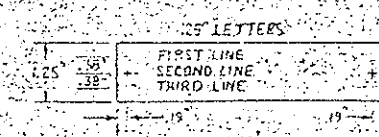


RIGHT SIDE VIEW

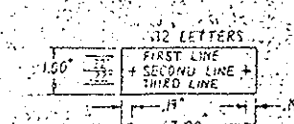
REAR VIEW



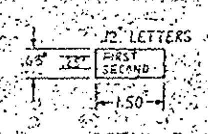
BOTTOM VIEW



DETAIL 1



DETAIL 2



DETAIL 3

Equipment List

Item	Qty.	Mfgr.	Cat. No.	Description
1	2	G.E.	50-171141LSSN	Ammeter, transformer rated 0-5 Amps, with scale 0-800 Amps AC
2	2	G.E.	50-171031PZYJ	Voltmeter, transformer rated 0-150 volts, with scale 0-3KV AC
5	5	G.E.	75A6802918	Switch, type SSI, 2 stage
6	2	G.E.	0116567086335	Pilot Light, type ET-16, Red, 125V DC
7	2	G.E.	0116367086330	Pilot light, type ET-16, green, 125V DC
38	5	G.E.	CR151B26	Terminal board, 30A., 600V, 12 point

Nameplate Schedule

Item	Qty	First Line	Second Line	Third Line	Detail
14	1	East	Building	Satunnel	1
16	1	Transformer	No. 1A	Secondary	2
17	1	Transformer	No. 1B	Secondary	2
18	2	Ammeter			2
19	2	Voltmeter			2
20	2	Load	Break	Switch	2
21	2	Air	Circuit	Breaker	2
22	1	Transformer	No. 1A		2
23	1	Transformer	No. 1B		2
24	1	2.4 Kv Bus	Tie	Breaker	2
25	1	MCC 1A			2
26	1	MCC 1B			2
32	3	2.4 Kv Bus			3

Notes

1. Nameplate material: G.E. A1985C, 3/16
2. Non-removable doors on back side, open bottom
3. Material: .120 BSA3A, finished to match existing
4. Terminal boards, item 38, to be located on right side of enclosure as viewed from rear.

ITEM	QTY.	MFGR.	CAT. NO.	DESCRIPTION
6A	3	G.E.	0116B6708866E	SAME AS ITEM 6 EXCEPT 240VAC
7A	3	G.E.	0116B6708866D	SAME AS ITEM 7 EXCEPT 240VAC

STEARNS-ROGER ARCHITECTS, LTD.
Date 5-6-77 By DPW

RECEIVED APR 29 1977 stearns-roger architects

FINAL

APR 1977 STAFF BRIDGE DESIGN - DOH

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

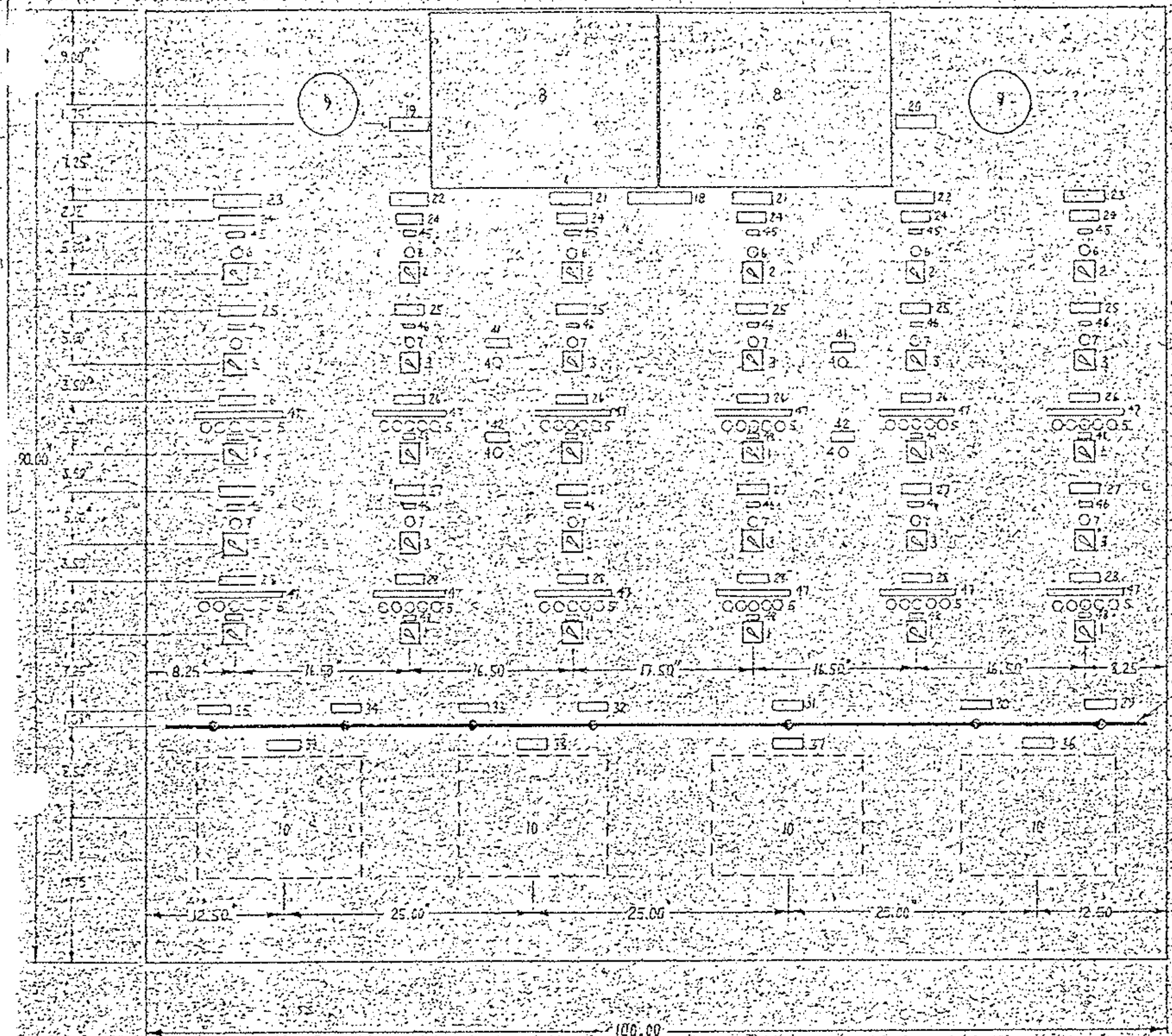
R. HOGAN 4-21-76
April 29, 1976
C.P.P.D. VAN NUYS CA

75D680703

DIVISION	PROJECT NO.	SHEET	TOTAL SHEETS
COLORADO	I 70-3(82)220	121	208

TITLE: **OUTLINE**
FIRST MADE FOR: DA1430 2004
FAN CONTROL BOARD

I 70-3 (82) 220
JOB NAME: EISENHOWER TUNNEL
CONTRACTOR: HOWARD ELECTRIC
CUSTOMER: GESCO
CUSTOMER'S P.O. 325-397097D
S.E. REQN. 432-94070



EQUIPMENT LIST

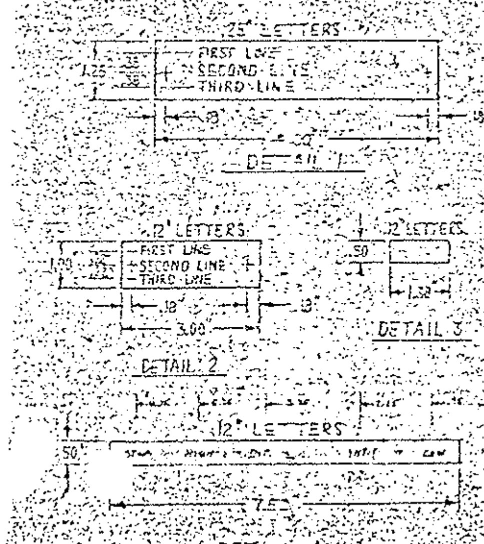
ITEM	QTY	MFR	CATALOG NUMBER	DESCRIPTION
1	12	GE	7SA680291P2	SWITCH, TYPE SB-10, 7 STAGE
2	6	GE	7SA680291P4	SWITCH, TYPE SB-1, 3 POSITION
3	12	GE	7SA680291P5	SWITCH, TYPE SB-1, 2 POSITION
4	4	GE	CR2940WA202B	PUSHBUTTON, 600V, 1 N.O. & 1 N.C.
5	60	GE	0116B6708G5	PILOT LIGHT, TYPE ET-16, 120V AC (NOTE 5)
6	6	GE	0116B6708G5C	PILOT LIGHT, TYPE ET-16, 120V AC (CLEAR)
7	12	GE	0116B6708G50	PILOT LIGHT, TYPE ET-16, 120V AC (GREEN)
8	2	PANALARM	MODEL 51845	ANNUNCIATOR, 4 UNITS HIGH BY 5 UNITS WIDE, FLUSH PANEL MOUNTING, WITH 20 EACH MODEL 30-A1 RELAY MODULES, SEQUENCE A1, 125V DC, AND 1 EACH MODEL 50-F1 PLUG-IN FLASHER, 125V DC
9	2	PANALARM	MODEL 95-2	ALARM BELL, 125V DC
10	4	LEEDS NORTHRUP	SPEEDOMAX W	CO INDICATING RECORDER, TO BE INSTALLED BY FUTURE CONTRACTOR. CUT-OUTS ONLY ARE PROVIDED IN THIS PANEL
51	12	GE	CE151A125	TERMINAL BOARD, 600V, 25A, BOX LUGS, 25-POINT

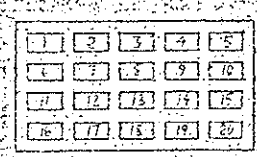
NAMEPLATE SCHEDULE

ITEM	QTY	FIRST LINE	SECOND LINE	THIRD LINE	DETAIL
18	1	FAN	CONTROL BOARD	SOUTH TUNNEL	1 (NOTE 4)
19	1	EAST FANS	CONTROL		1
20	1	WEST FANS	CONTROL		1
21	3	FAN 5			1
22	3	FAN 6			1
23	3	FAN 7			2
24	[illegible]	SUPPLY FAN	BULKHEADS	CONTROL	2
25	6	SUPPLY FAN	CONTROL	TRANSFER	2
26	6	SUPPLY FAN	CONTROL		2
27	6	EXHAUST FAN	CONTROL	TRANSFER	2
28	6	EXHAUST FAN	CONTROL		2
29	1	CO	ANALYZER 1		2
30	1	CO	ANALYZER 2		2
31	1	CO	ANALYZER 3		2
32	1	CO	ANALYZER 4		2
33	1	CO	ANALYZER 5		2
34	1	CO	ANALYZER 6		2
35	1	CO	ANALYZER 7		2
36	1	ANALYZER	1 & 2	RECORDER	2
37	1	ANALYZER	3	RECORDER	2
38	1	ANALYZER	4 & 5	RECORDER	2
39	1	ANALYZER	6 & 7	RECORDER	2
41	2	ANNUNCIATOR	LAMP TEST		2
42	2	ALARM	SILENCE		2
45	6	CLOSED			2
46	12	ECB ON			3
47	12	OFF-HIGH-INT. 1	& INT. 2 - LOW		4
48	12	PULL TO START			3

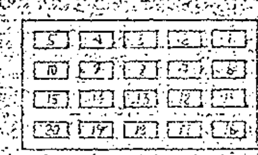
NOTES

1. NAMEPLATE MATERIAL: 1/16" ALFONOL, 1/16".
2. NON-REMOVABLE DOORS ON BACK SIDE, OPEN BOTTOM.
3. ENCLOSURE: 12G NEMA 1, FINISH TO MATCH EXISTING.
4. NAMEPLATE, ITEM 18, TO BE 8" WIDE.
5. PILOT LIGHT COLORS TO BE AS FOLLOWS:
   - GREEN — STOP
   - RED — HIGH
   - AMBER — INTERMEDIATE #2
   - BLUE — INTERMEDIATE #1
   - WHITE — LOW
6. INTERIOR BASEPLATES (EACH SIDE), 72" HIGH X 27" WIDE FOR MOUNTING OF TERMINAL BOARDS, INCOMING WIRING FROM BOTTOM.





WEST SIDE ANNUNCIATOR



EAST SIDE ANNUNCIATOR

ANNUNCIATOR WINDOW ENGRAVING (WEST SIDE)

WINDOW	FIRST LINE	SECOND LINE
1	SUPPLY FAN 5	FAILURE
2	SUPPLY FAN 6	FAILURE
3	SUPPLY FAN 7	FAILURE
4	TRANSFORMER 1A	NEUTRAL GROUND
6	EXHAUST FAN 5	FAILURE
7	EXHAUST FAN 6	FAILURE
8	EXHAUST FAN 7	FAILURE
5	TRANSFORMER 1B	NEUTRAL GROUND
10	POWER PANELS	OFF
9	EMERGENCY LIGHTS	ON
11	CO	LEVEL 1
12	CO	LEVEL 2
13	EMERGENCY GEN.	FAILURE
14	MOTOR PROTECTIVE	TRIP
15	FAN DAMPER	FAILURE
16	BEARING HIGH	TEMPERATURE
17	NATURAL GAS	IN USE
18	MIXED GAS	IN USE
19	MIXED GAS SYSTEM	SHUT-DOWN
20	APPROACHING	NATURAL GAS LIMIT

ANNUNCIATOR WINDOW ENGRAVING (EAST SIDE)

WINDOW	FIRST LINE	SECOND LINE
1	SUPPLY FAN 5	FAILURE
2	SUPPLY FAN 6	FAILURE
3	SUPPLY FAN 7	FAILURE
4	TRANSFORMER 1A	NEUTRAL GROUND
6	EXHAUST FAN 5	FAILURE
7	EXHAUST FAN 6	FAILURE
8	EXHAUST FAN 7	FAILURE
5	TRANSFORMER 1B	NEUTRAL GROUND
10	POWER PANELS	OFF
9	EMERGENCY LIGHTS	ON
11	CO	LEVEL 1
12	CO	LEVEL 2
13	(BLANK)	(BLANK)
14	MOTOR PROTECTIVE	TRIP
15	FAN DAMPER	FAILURE
16	BEARING HIGH	TEMPERATURE
17	NATURAL GAS	IN USE
18	MIXED GAS	IN USE
19	MIXED GAS SYSTEM	SHUT-DOWN
20	APPROACHING	NATURAL GAS LIMIT

STEARNS-ROGER ARCHITECTS, LTD.

FINAL

APR 1977 STAFF GROUP DESIGN, DOH

RECEIVED APR 29 1977

stearns-roger architects

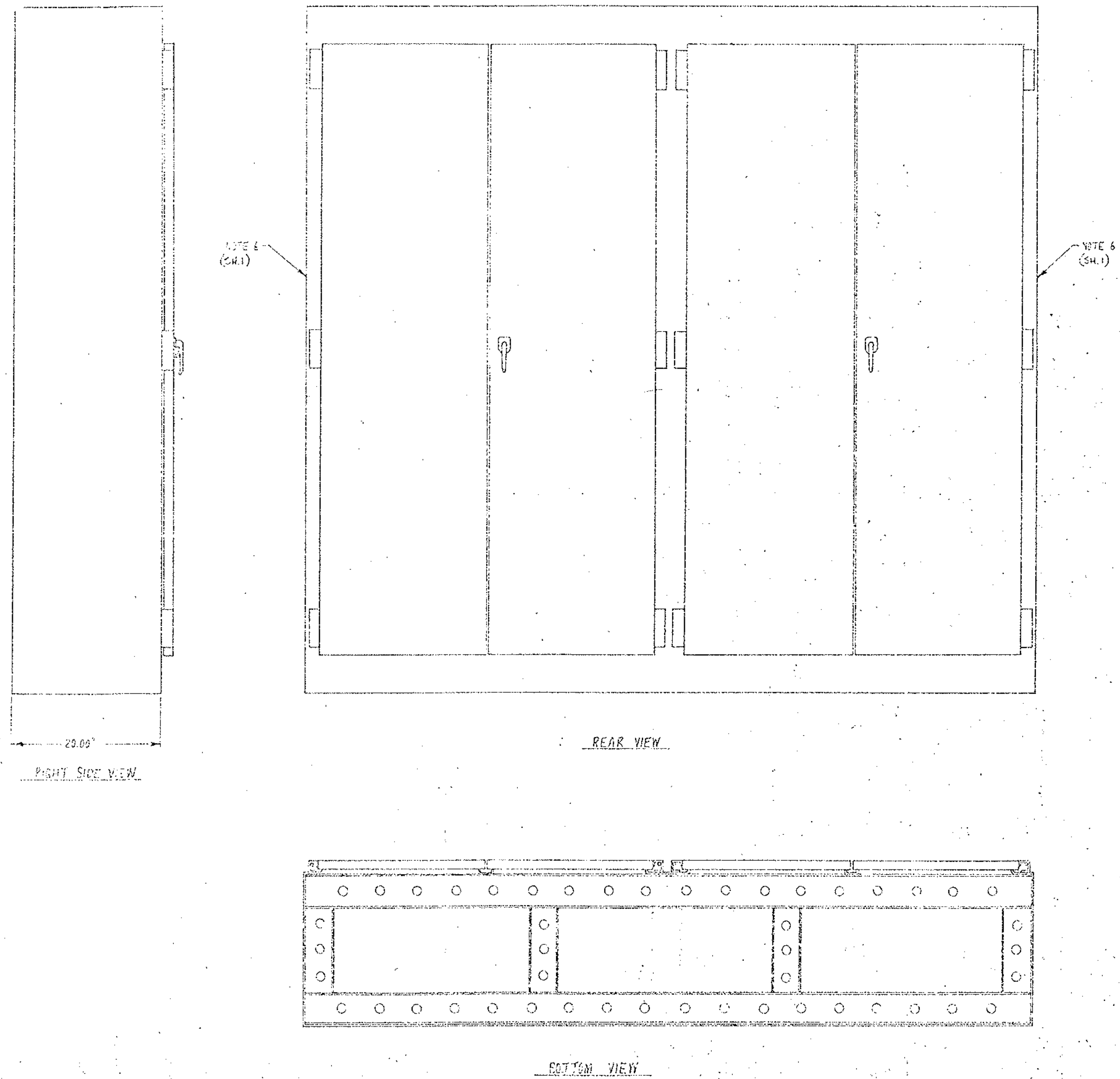
Approved: Howard Electric & Mech. Co. Proj. Mgr.

R. HOGAN 4-29-76

C. P. P. Co. VAN NUYS, CA

75D680714

OUTLINE



FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	122	208

STEARNS-ROGER ARCHITECTS, LTD.

#224
630.32

FINAL

APR 2 0 1977

stearns-roger architects

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

DESCRIPTION OF CIRCUITS	REVISIONS	PRINTS TO

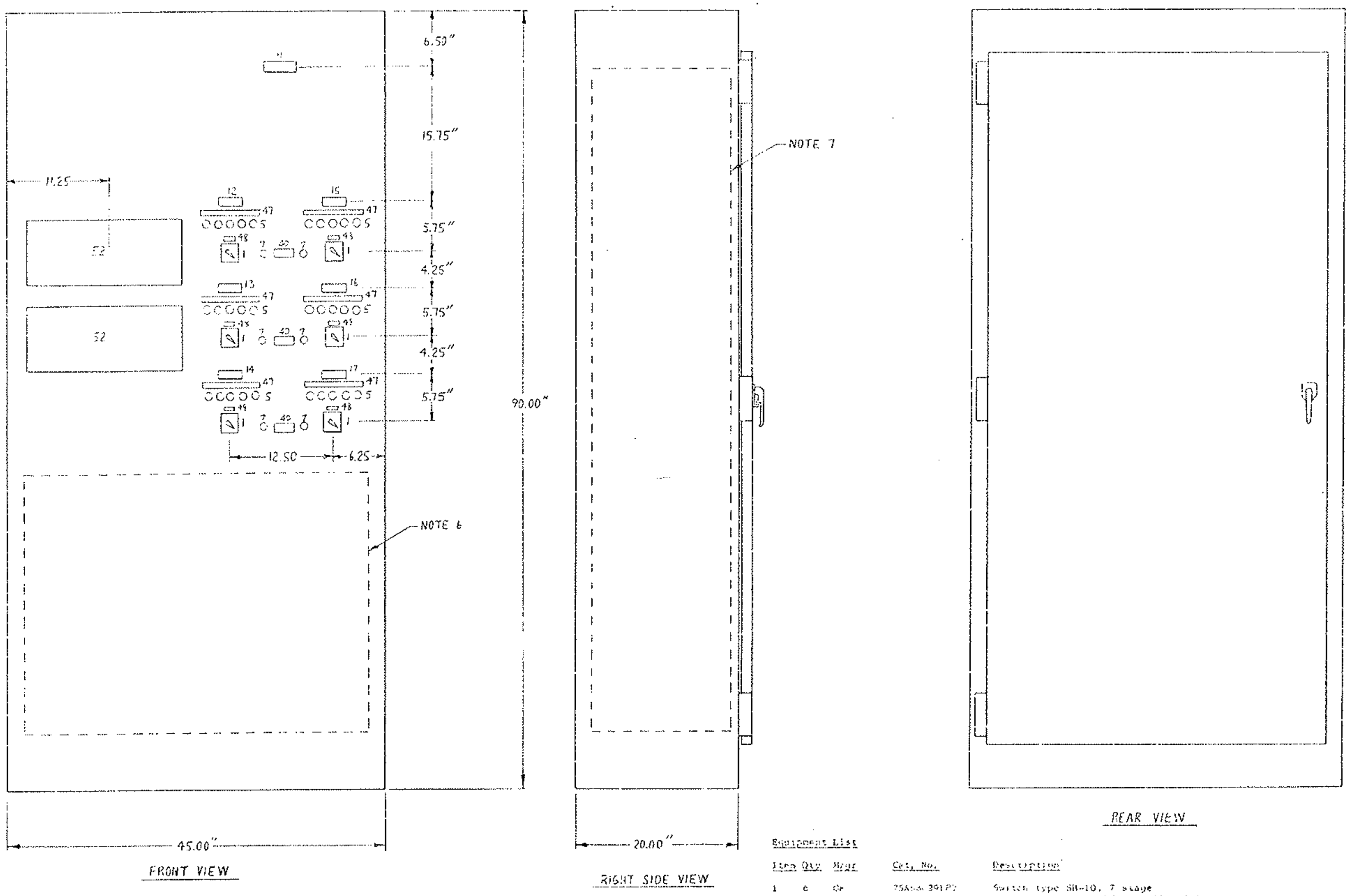
C.E.P.D. 73569776

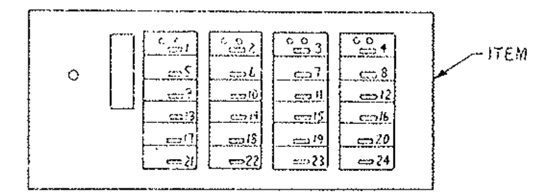
OUTLINE

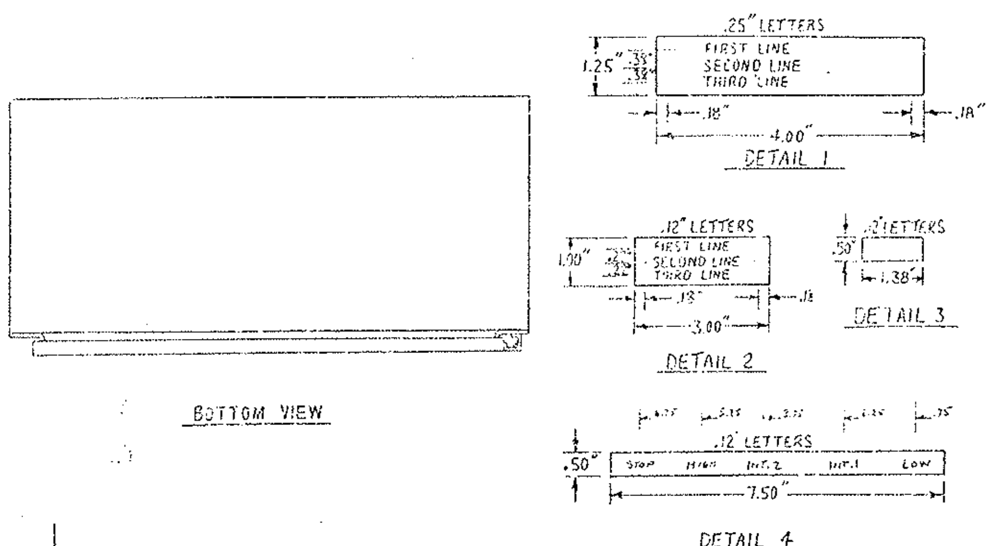
DA143C900A4 LOCAL CONTROL BOARD ASSY

I 70-3 (82) 220
JOB NAME EISENHOWER TUNNEL
CONTRACTOR HOWARD ELECTRIC
CUSTOMER GESCO
CUSTOMER'S P.O. 325-3970970
G.E. REQN. 432-94070

FEDERAL AID PROJECT NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	123	208







ALARM/CONTROLLER NAMEPLATE SCHEDULE (UPPER)

N. P. No	First Line	Second Line
1	Fan WE5	Bearing No. 1
2		Bearing No. 2
3		Bearing No. 3
4		Bearing No. 4
5		Bearing No. 5
6		Bearing No. 6
7		Bearing No. 7
8		Bearing No. 8
9	Fan WE6	Bearing No. 1
10		Bearing No. 2
11		Bearing No. 3
12		Bearing No. 4
13		Bearing No. 5
14		Bearing No. 6
15		Bearing No. 7
16		Bearing No. 8
17	Fan WE7	Bearing No. 1
18		Bearing No. 2
19		Bearing No. 3
20		Bearing No. 4
21		Bearing No. 5
22		Bearing No. 6
23		Bearing No. 7
24		Bearing No. 8

ALARM/CONTROLLER NAMEPLATE SCHEDULE (LOWER)

N. P. No.	First Line	Second Line
1	Fan WS5	Bearing No. 1
2		Bearing No. 2
3		Bearing No. 3
4		Bearing No. 4
5		Bearing No. 5
6		Bearing No. 6
7		Bearing No. 7
8		Bearing No. 8
9	Fan WS6	Bearing No. 1
10		Bearing No. 2
11		Bearing No. 3
12		Bearing No. 4
13		Bearing No. 5
14		Bearing No. 6
15		Bearing No. 7
16		Bearing No. 8
17	Fan WS7	Bearing No. 1
18		Bearing No. 2
19		Bearing No. 3
20		Bearing No. 4
21		Bearing No. 5
22		Bearing No. 6
23		Bearing No. 7
24		Bearing No. 8

Equipment List

Item	Qty	Mfgr	Cat. No.	Description
1	6	GE	25A[illegible]391P7	Switch type SB-10, 7 stage
5	30	GE	0112B[illegible]	Pilot light, type ET-16, 120V AC (note 5)
7	6	GE	0112B[illegible]G50	Pilot light, type ET-16, 120V AC, green
43	24	GE	CR120A04[illegible]AA	Relay, 300V, 4 N.O. & 4 N.C., 120V, 60 HZ coil
44	6	GE	CR120A03302AA	Relay, 300V, 3 N.O. & 3 N.C., 120V, 60 HZ coil
49	6	GE	CR122A02[illegible]AA	Time delay relay (TDOE), 300V, 1 N.O. & 1 N.C. timed, 1 N.O. & 1 N.C. inst., 120V 60 HZ coil
50	6	Zenith	Model B-1	Flasher relay, open form, 60 pulses/min., 120V, 60 HZ coil
51	12	GE	CR151A125	Terminal board, 600V, 25A, box lugs, 25 point
52	2	Sigma	Series 9321	Indicating multi-point alarm/controller
53	18	GE	CR120A0[illegible]AA	Relay, 300V, 2 N.O., 120V, 60 HZ coil
54	6	Agastat	7012AE	Time delay relay (TDOE) 4 pole, 120V, 60 HZ coil
55	3	GE	CR120[illegible]AA	Relay, 300V, 1 N.O. & 1 N.C., 120V, 60 HZ coil
56	6	GE	GS8471-3	Fuse block, 250V, 1-30A, 2 pole Black phenolic
57	12	Bussmann	MTH5	Fuse, 250V, 5A

Nameplate Schedule

Item	Qty	First Line	Second Line	Third Line	Detail
11	1	Local	Control Panel		1
12	1	Supply Fan 5	Control		2
13	1	Supply Fan 6	Control		2
14	1	Supply Fan 7	Control		2
15	1	Exhaust Fan 5	Control		2
16	1	Exhaust Fan 6	Control		2
17	1	Exhaust Fan 7	Control		2
40	3	Control	Available		2
47	6	STOP-HIGH-INT. 2 - INT. 1 - LOW			4
48	6	Pull to Start			3

Notes

1. Nameplate material: G. E. A1935CA, 1/16"
2. Non-removable doors on back side.
3. Enclosure: .120 HSA3A, finish to match existing.
4. Nameplate, item 11, to be 6" wide
5. Pilot light colors to be as follows:

   Green - Stop
   Red - High
   Amber - Intermediate #2
   Blue - Intermediate #1
   White - Low

6. Interior Baseplate, 30" high x 41" wide, for mounting of fan relays
7. Interior Baseplate (each side), 27" high x 17" wide, for mounting of fan relays, terminal boards and fuse blocks. Terminal boards and fuse blocks to be located on upper portions of baseplates; incoming wiring from top.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission ...

STEARNS-ROGER ARCHITECTS, LTD.

Date 5-6-77 By DPW

#224 630.32

APR 28 1977

FINAL

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

REVISIONS

R HOGAN 4-23-76
May 5 1976
C.P.P.D.
VAN NUYS CA
7SD630710

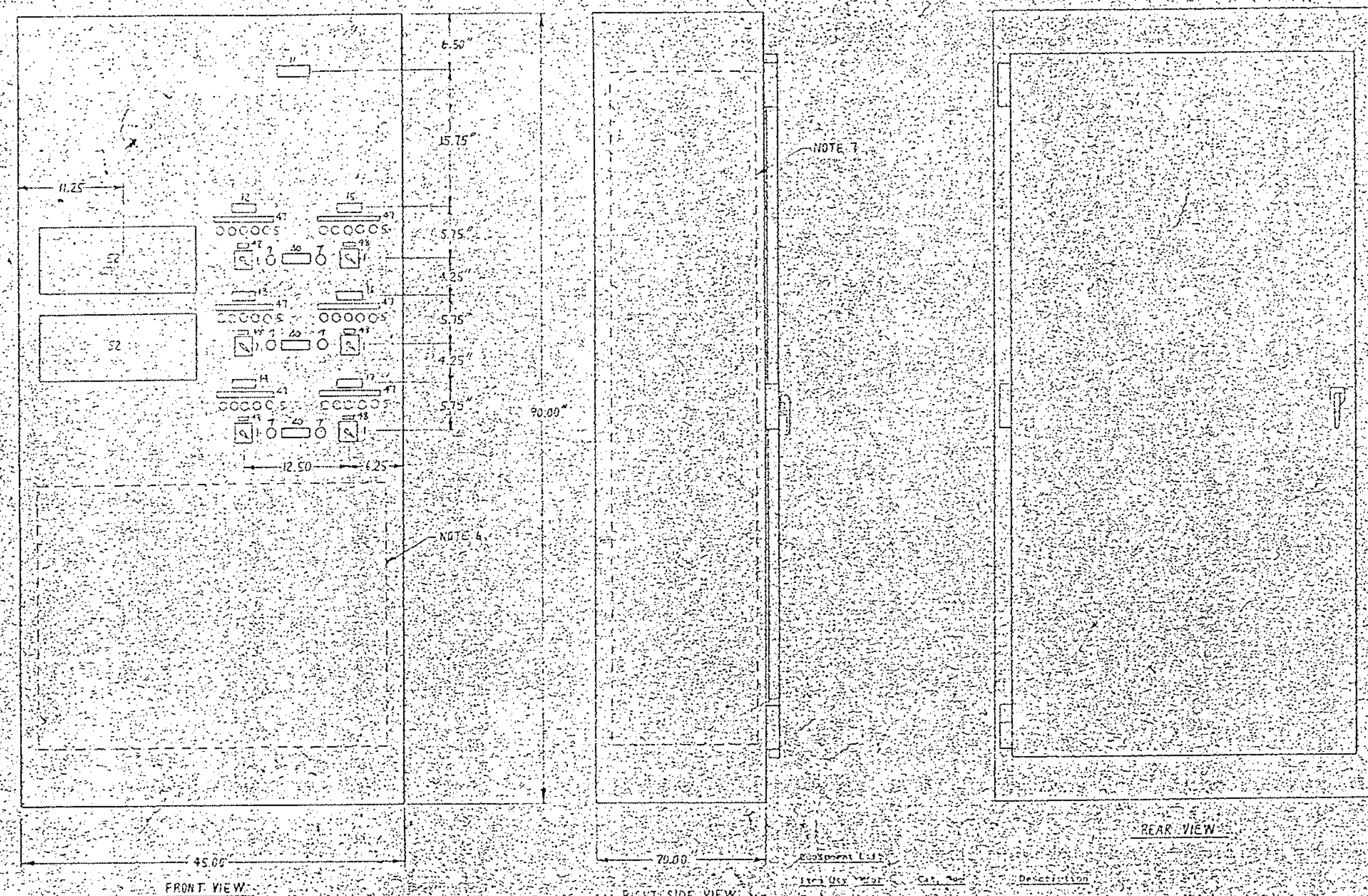
OUTLINE

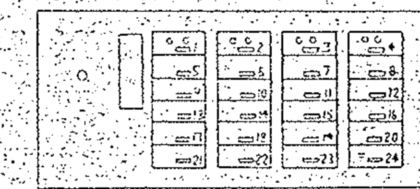
FIRST MADE FOR DA1A1E90045

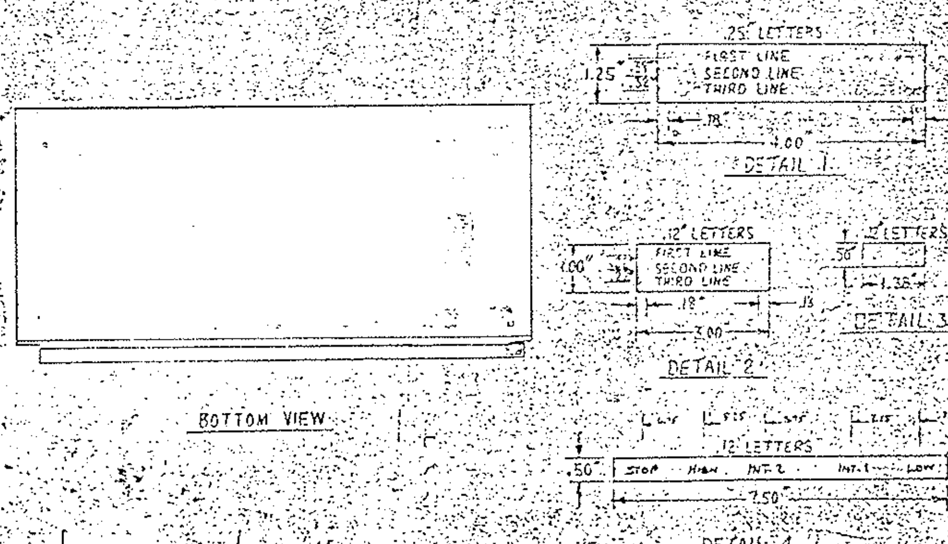
LOCAL CONTROL BOARD, EAST

I70-3 (82) 220
JOB NAME EISENHOWER TUNNEL
CONTRACTOR HOWARD ELECTRIC
CUSTOMER GESCO
CUSTOMER'S P.O. 325-3970370
G.E. REQN. 432-94070

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	124	208







ALARM/CONTROLLER NAMEPLATE SCHEDULE (UPPER)

N. P. No.	First Line	Second Line
1	Fan ES3	Bearing No. 1
2		Bearing No. 2
3		Bearing No. 3
4		Bearing No. 4
5		Bearing No. 5
6		Bearing No. 6
7		Bearing No. 7
8		Bearing No. 8
9	Fan ES9	Bearing No. 1
10		Bearing No. 2
11		Bearing No. 3
12		Bearing No. 4
13		Bearing No. 5
14		Bearing No. 6
15		Bearing No. 7
16		Bearing No. 8
17	Fan ES7	Bearing No. 1
18		Bearing No. 2
19		Bearing No. 3
20		Bearing No. 4
21		Bearing No. 5
22		Bearing No. 6
23		Bearing No. 7
24		Bearing No. 8

ALARM/CONTROLLER NAMEPLATE SCHEDULE (LOWER)

N. P. No.	First Line	Second Line
1	Fan ES5	Bearing No. 1
2		Bearing No. 2
3		Bearing No. 3
4		Bearing No. 4
5		Bearing No. 5
6		Bearing No. 6
7		Bearing No. 7
8		Bearing No. 8
9	Fan ES6	Bearing No. 1
10		Bearing No. 2
11		Bearing No. 3
12		Bearing No. 4
13		Bearing No. 5
14		Bearing No. 6
15		Bearing No. 7
16		Bearing No. 8
17	Fan ES7	Bearing No. 1
18		Bearing No. 2
19		Bearing No. 3
20		Bearing No. 4
21		Bearing No. 5
22		Bearing No. 6
23		Bearing No. 7
24		Bearing No. 8

Component List

Item	Qty	Vendor	Cat. No.	Description
1	6	GE	16SB2C291P2	Switch type SB-10, 7 stage
5	30	GE	0116B2762S	Pilot light, type ET-16, 120V AC (note 5)
7	6	GE	0116B6706G5D	Pilot light, type ET-16, 120V AC, green
47	24	GE	CR120AD440CAA	Relay, 300V, 4 N.O. & 4 N.C. (120V, 60 HZ coil)
48	6	GE	CR120AD330CAA	Relay, 300V, 3 N.O. & 3 N.C., 120V, 60 HZ coil
49	6	GE	CR122AD280CAA	Time delay relay (TDOD), 300V, 1 N.O. & 1 N.C. timed, 1 N.O. & 1 N.C. instant, 120V, 60 HZ coil
50	6	Zenith	Model A-1	Flasher relay, open frame, 60 pulses/min., 120V, 60 HZ coil
51	12	GE	CR151A125	Terminal board, 600V, 25A, box lugs, 25 point
52	2	Sigma	Series 9141	Indicating multi-point alarm/controller
53	18	GE	CR120AD200CAA	Relay, 300V, 2 N.O., 120V, 60 HZ coil
54	6	Agastat	7012AE	Time delay relay (TDOE) 4 pole, 120V, 60 HZ coil
55	3	GE	CR120AD110CAA	Relay, 300V, 1 N.O. & 1 N.C., 120V, 60 HZ coil
56	6	GE	GE8521-3	Fuse block, 250V, 1-30A, 2 pole black phenolic
57	12	Bussmann	NON5	Fuse, 250V, 5A

Nameplate Schedule

Item	Qty	First Line	Second Line	Third Line	Detail
11	1	Local	Control Board		1
12	1	Supply Fan 5	Control		2
13	1	Supply Fan 6	Control		2
14	1	Supply Fan 7	Control		2
15	1	Exhaust Fan 5	Control		2
16	1	Exhaust Fan 6	Control		2
17	1	Exhaust Fan 7	Control		2
40	3	Control	Available		2
47	6	STOP-HIGH-INT. 2-INT. 1-LOW			4
48	6	Pull to Start			3

Notes

1. Nameplate material: G.E. A19B30A [illegible]
2. Non-removable doors on back-side
3. Enclosure: 5120 BSA34, finish to match
4. Nameplate, item 11, to be 6" wide
5. Pilot light colors to be as follows:

   Green - Stop
   Red - High
   Amber - Intermediate #2
   Blue - Intermediate #1
   White - Low

6. Interior Baseplate, 30" high x 41" wide, for mounting of fan relays
7. Interior Baseplates (each side), 77" high x 17" wide, for mounting of fan relays, terminal boards and fuse blocks. Terminal boards and fuse blocks to be located on upper portions of baseplates, incoming wiring from top.

STEARNS-ROGER ARCHITECTS, LTD.
Date 5-6-77 By DPW

224
630.32

FINAL

ARCHITECT STAFF BRIDGE DESIGN - DOH

RECEIVED
APR 29 1977

stearns-roger architects
Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

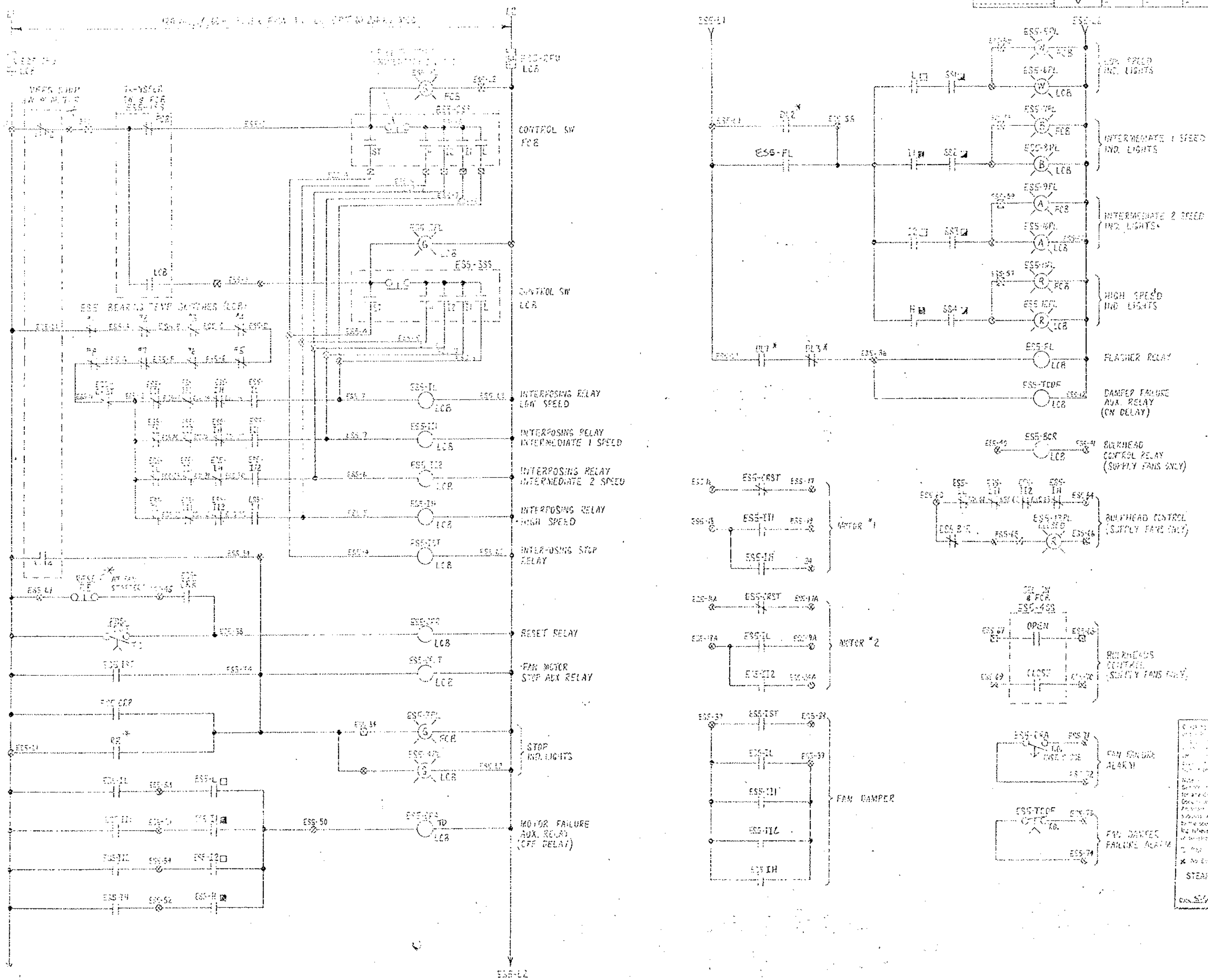
R. HOGAN 4-23-76
CPPD
VAN NUYS CA
750680711

1 2 3 4 5 6 7 8 9 10

ELEMENTARY

I 70-3 (82) 220

FEDERAL ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	125	208



NOMENCLATURE

L	LOW SPEED, 75 H.P., 600 RPM
I1	INTERMEDIATE SPEED, 150 H.P., 900 RPM
I2	INTERMEDIATE SPEED, 300 H.P., 1200 RPM
H	HIGH SPEED, 600 H.P., 1800 RPM
FCB	FAN CONTROL BOARD (EAST CONTROL ROOM)
LCB	LOCAL CONTROL BOARD
⊠	MOTOR #1 CONTROL CIRCUIT DEVICE
☐	MOTOR #2 CONTROL CIRCUIT DEVICE
◪	FAN SPEED SWITCH CONTACT
PB	PUSHBUTTON
PL	PILOT LIGHT
SS	SELECTOR SWITCH or Speed Switch
⊗	TERMINAL BOARD POINT (LOCAL CONTROL BOARD)
⊘	TERMINAL BOARD POINT (FAN CONTROL BOARD)
○	TERMINAL BOARD POINT ON ANNUNCIATOR & SUPERVISORY PANEL
DL	DAMPER LIMIT SWITCH
RR	ROTATION SWITCH
T.O.	TIMED OPENING
*	REMOTE DEVICE

NOTES

1. THIS ELEMENTARY REPRESENTS CONTROL FOR EAST SUPPLY FAN #5, TYPICAL FOR ALL SUPPLY & EXHAUST FANS.
2. WIRE NUMBER & DEVICE ID PREFIXES TO BE AS FOLLOWS:

FAN	PREFIX
EAST SUPPLY FAN #6	ES6
EAST SUPPLY FAN #7	ES7
EAST EXHAUST FAN #5	EE5
EAST EXHAUST FAN #6	EE6
EAST EXHAUST FAN #7	EE7
WEST SUPPLY FAN #5	WS5
WEST SUPPLY FAN #6	WS6
WEST SUPPLY FAN #7	WS7
WEST EXHAUST FAN #5	WE5
WEST EXHAUST FAN #6	WE6
WEST EXHAUST FAN #7	WE7

STEARNS-ROGER ARCHITECTS, LTD.

RECEIVED APR 29 1977 Stearns-Roger

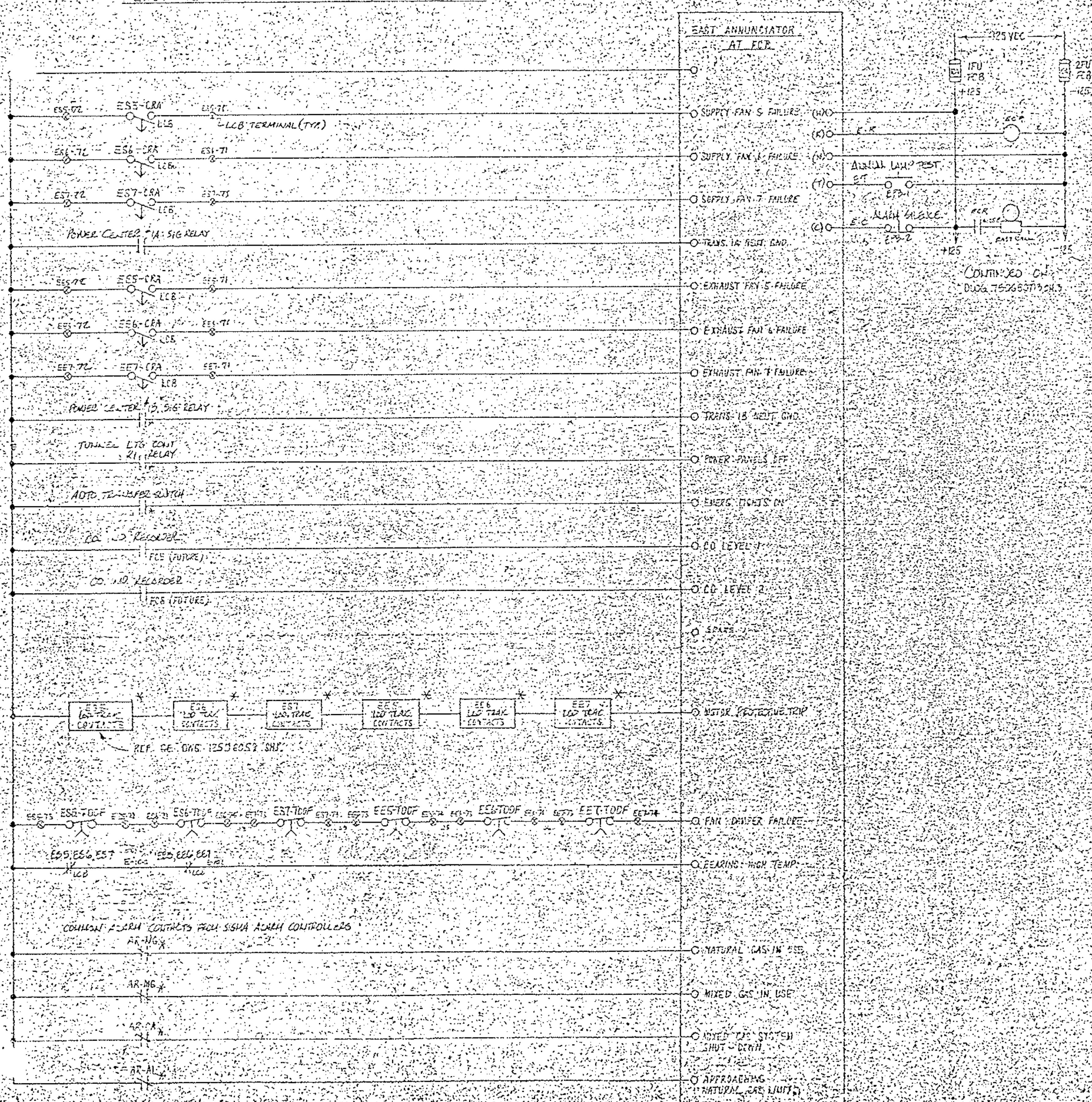
FINAL

STATE DESIGN COR.

Approved Howard Elect. & Mech. Co.

75D680713

EAST VENTILATION BUILDING ANNUNCIATION



ELEMENTARY

FIRST MADE FOR - DA143C200 41, 44, 45

FAN CONTROL BOARD, LOCAL CONTROL BOARDS (EAST & WEST)

I-70-3 (82) 220

JOB NAME EISENHOWER TUNNEL

CONTRACTOR HOWARD ELECTRIC

CUSTOMER GESCO

CUSTOMER'S P.O. 325-3970070

GE REQN. 432-94076

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I-70-3( )220	126	208

FINAL

RECEIVED APR 29 1977

stearns-roger architects

Approved Howard Elect. & Mech. Co. Proj. Mgr.

DESCRIPTION OF GROUPS	REVISIONS	PRINTS TO
	1	
	2	
	3	

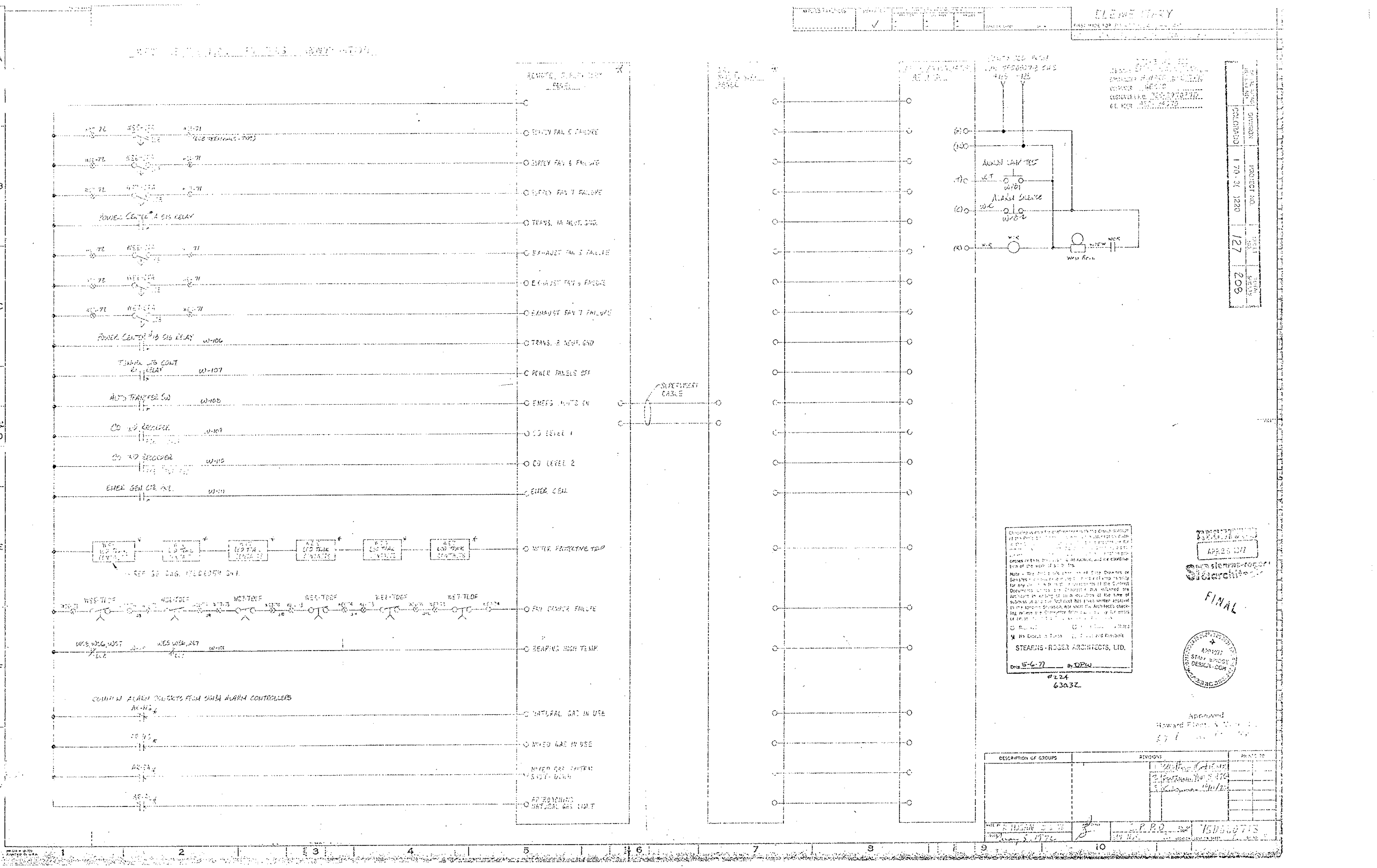
R. HOGAN 5-5-76

C. P. R. D.

VAN NUYS CA

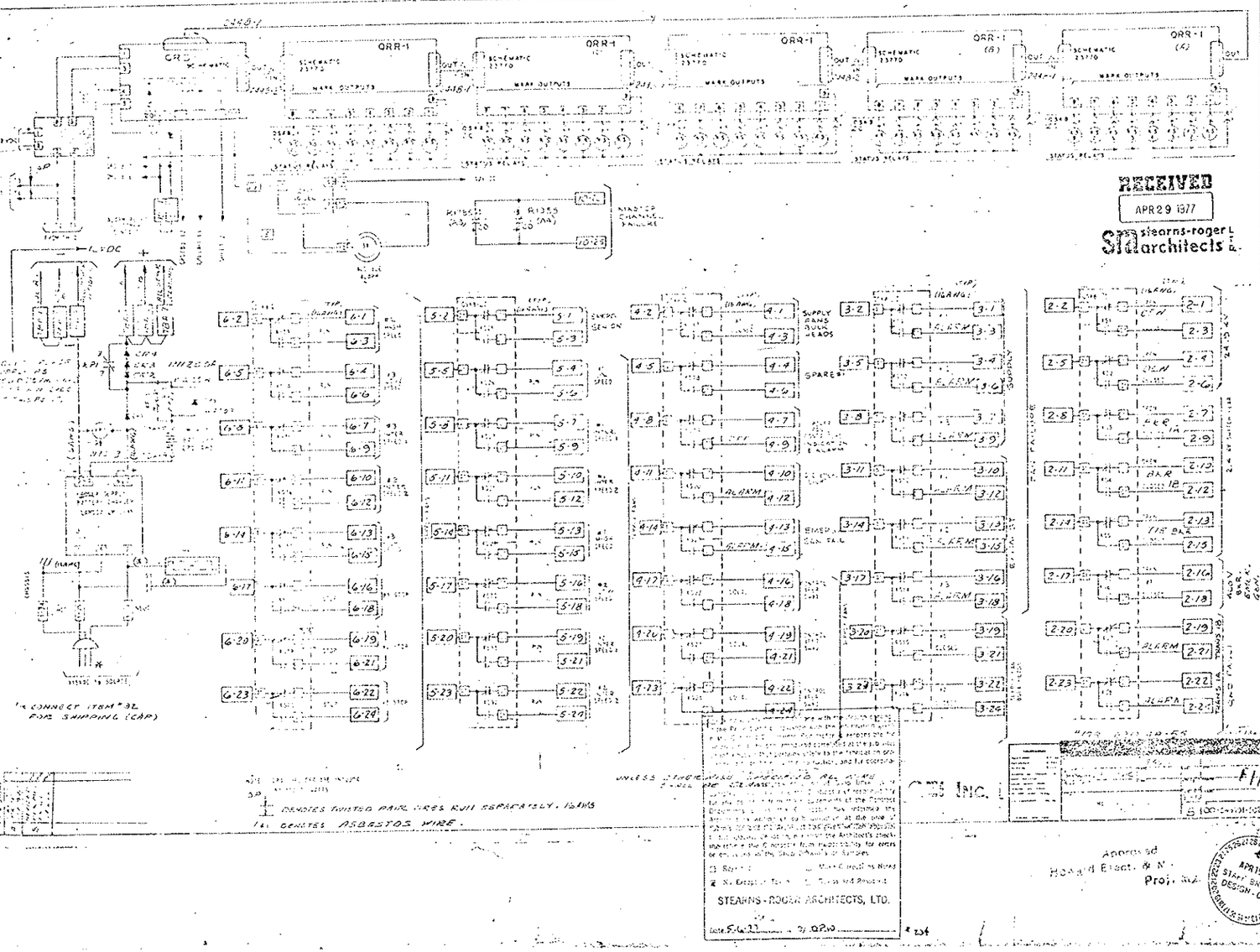
75D680713

SH. 3



SUPPLY FAN 7 FAILURE
TRANS. 1A NEUT. GND.
EXHAUST FAN 7 FAILURE
TRANS. 1B NEUT. GND
POWER PANELS OFF
CO LEVEL 2
SUPERVISORY CABLE
ALARM SILENCE
NATURAL GAS IN USE
MIXED GAS IN USE
DESCRIPTION OF GROUPS
REVISIONS
STEARNS-ROGER ARCHITECTS, LTD.
FINAL
Approved
COLORADO
127
208

	COLORADO	I 70 3( )220	128	



* CONNECT ITEM #32 FOR SHIPPING (CAP)

SP DENOTES TWISTED PAIR WIRES RUN SEPARATELY.

(A) DENOTES ASBESTOS WIRE.

UNLESS OTHERWISE INDICATED ALL WIRE SHALL BE

RECEIVED
APR 29 1977
stearns-roger architects

☐ Reject
☒ No Exceptions Taken
☐ Make Corrections Noted
☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

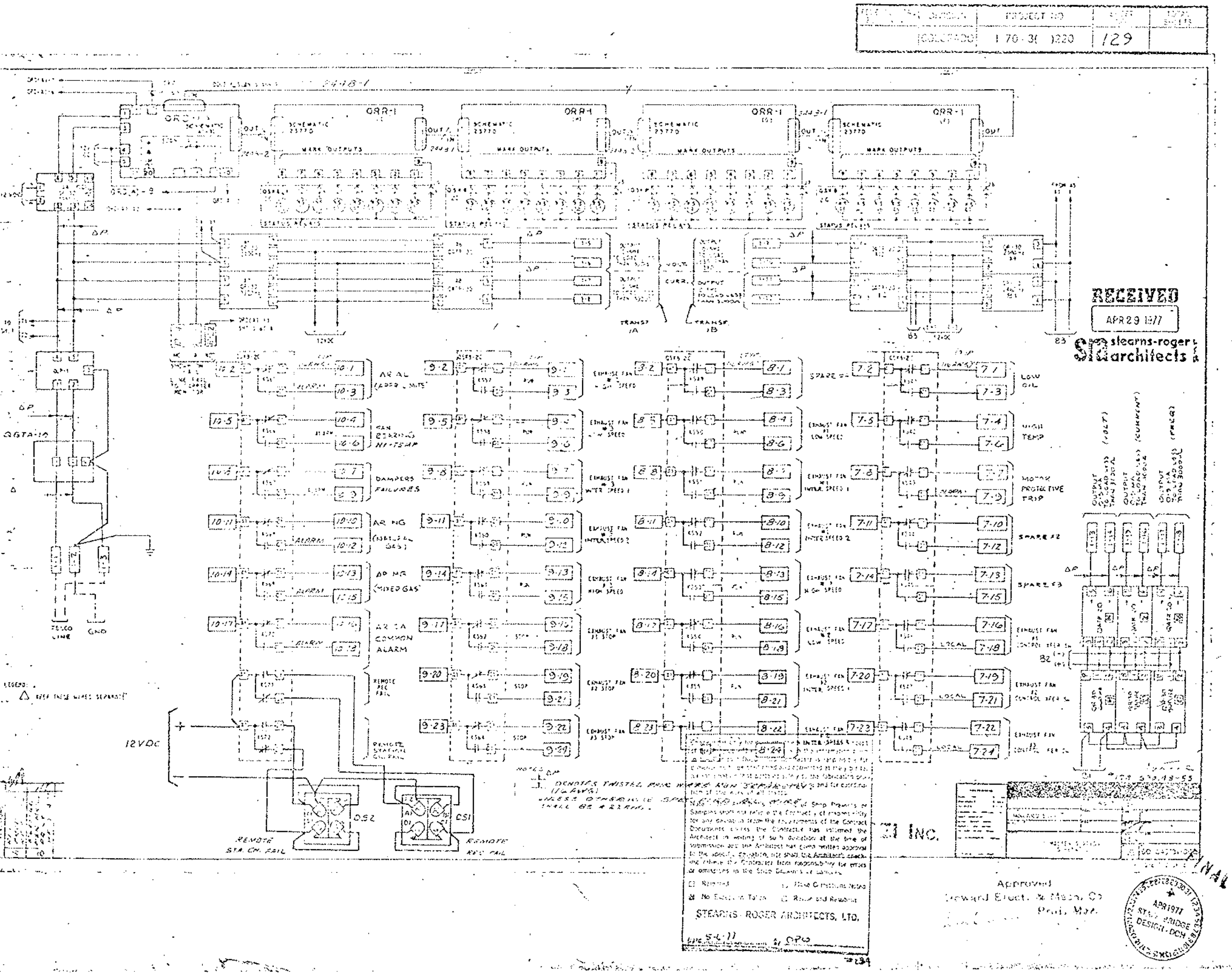
Date 5-6-77 By DPW

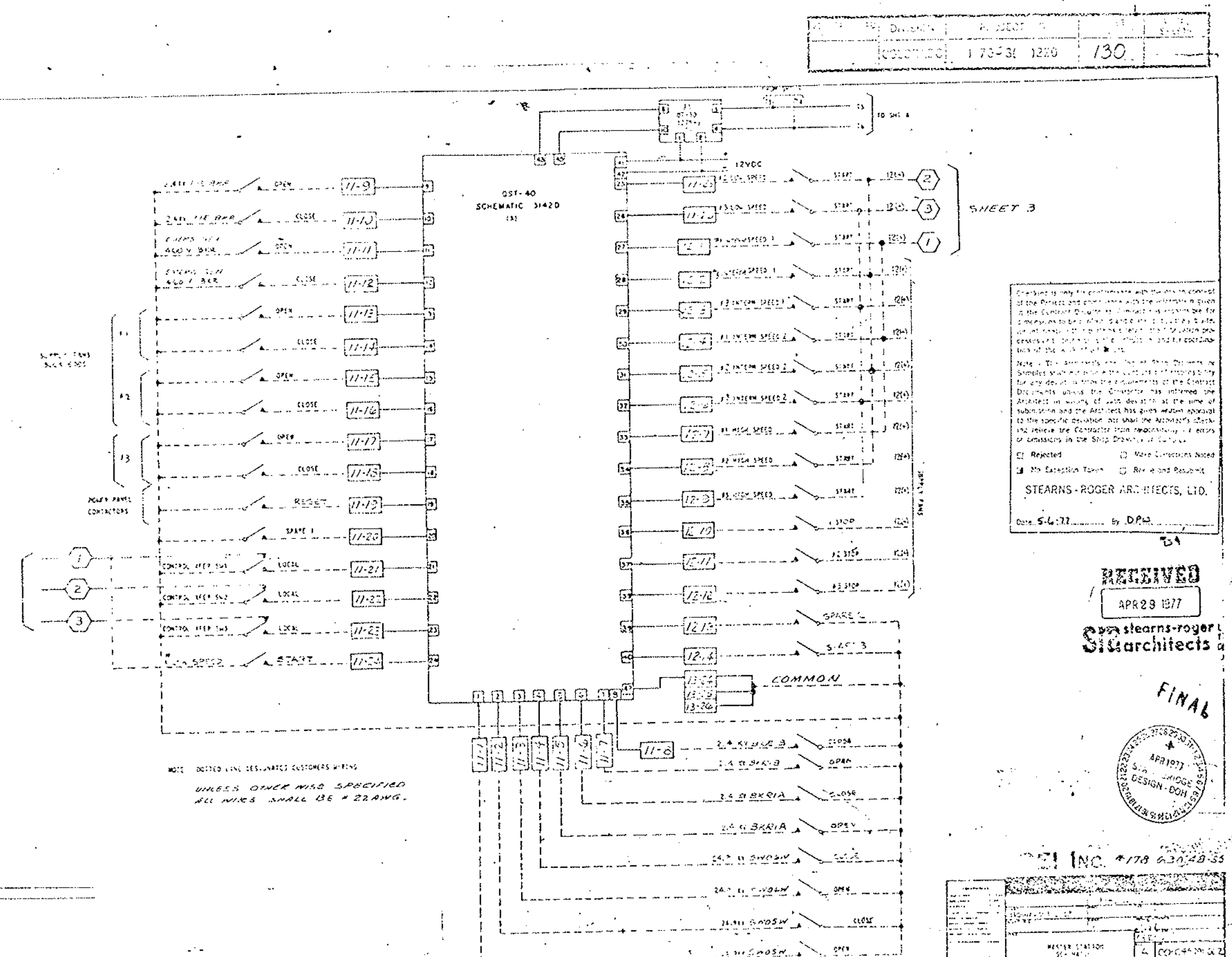
234

FINAL

Approved
Howard Elect. & M.
Proj.

APR 1977
STAFF BRIDGE DESIGN - DCH


PROJECT NO
1 70-3( )220
129
RECEIVED
APR 29 1977
stearns-roger architects
SCHEMATIC
MARK OUTPUTS
STATUS RELAYS
TRANSF.
12VDC
LEGEND:
TELCO LINE
GND
DAMPERS FAILURES
COMMON ALARM
LOW OIL
HIGH TEMP
MOTOR PROTECTIVE TRIP
REMOTE STA CH. FAIL
REMOTE REC FAIL
STEARNS-ROGER ARCHITECTS, LTD.
Approved



Rejected
No Exception Taken
Make Corrections Noted
Revise and Resubmit

STEARNS - ROGER ARCHITECTS, LTD.

Date 5-6-77 By D.P.W.

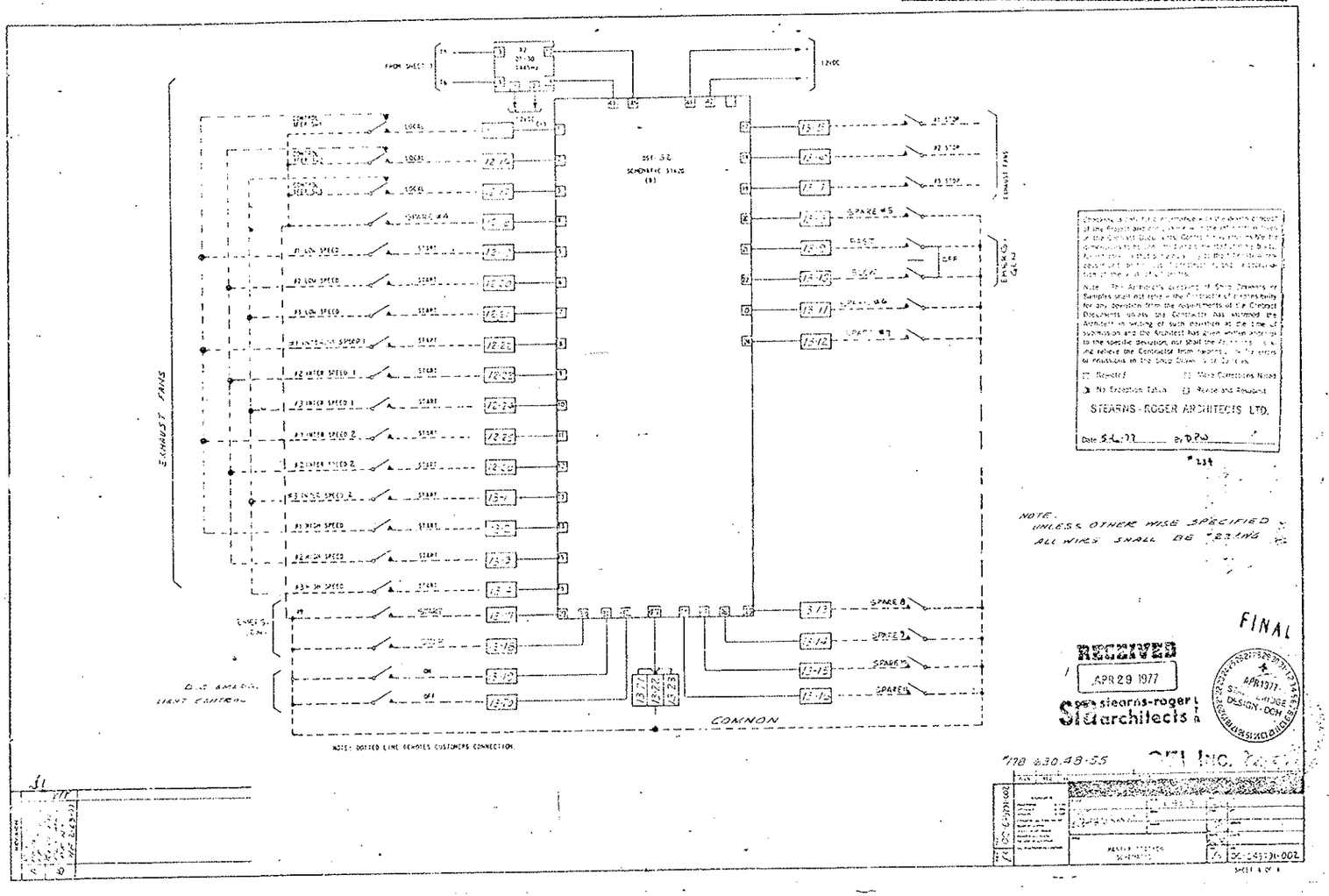
RECEIVED
APR 29 1977
stearns-roger architects

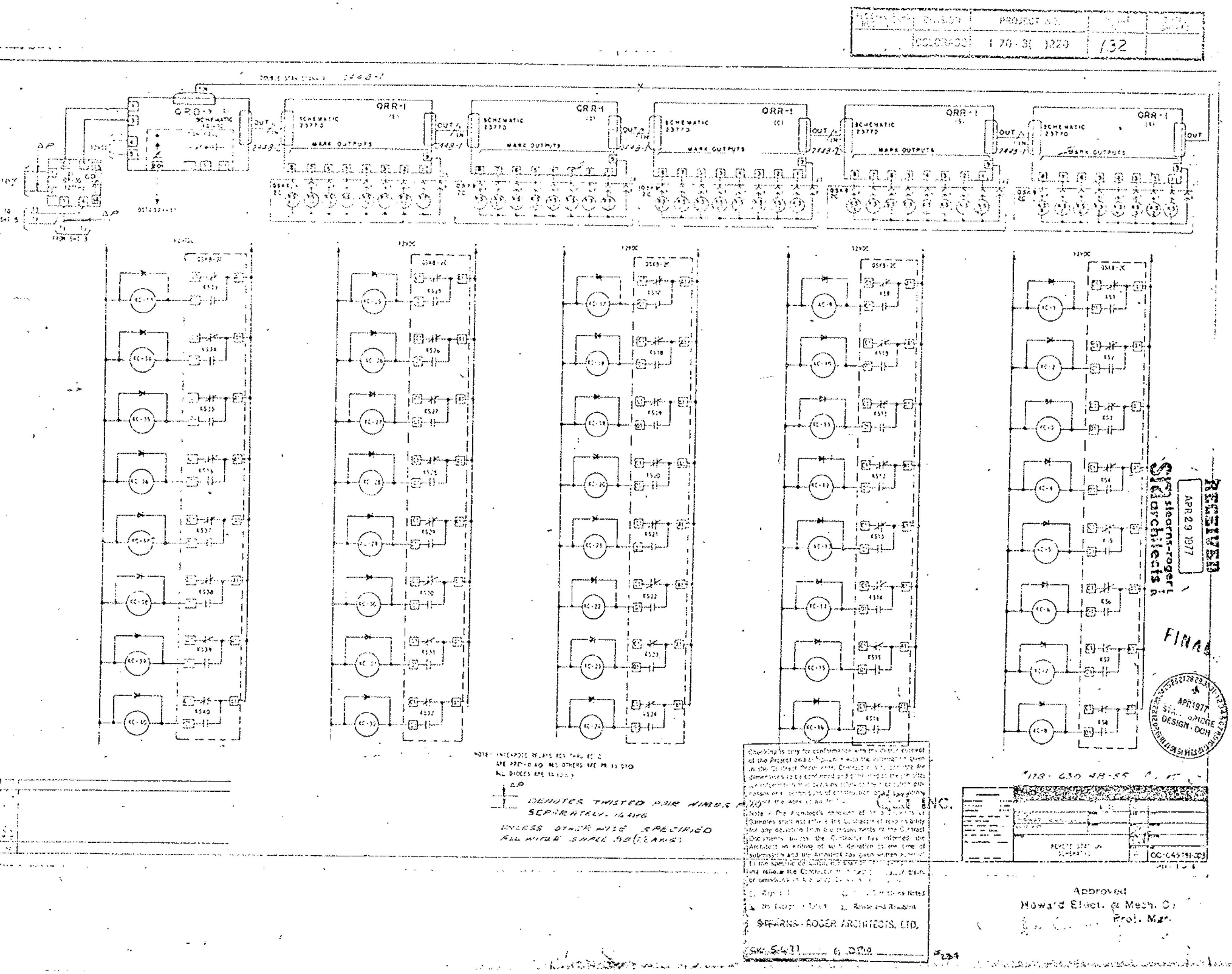
FINAL

INC. #178 63048-55

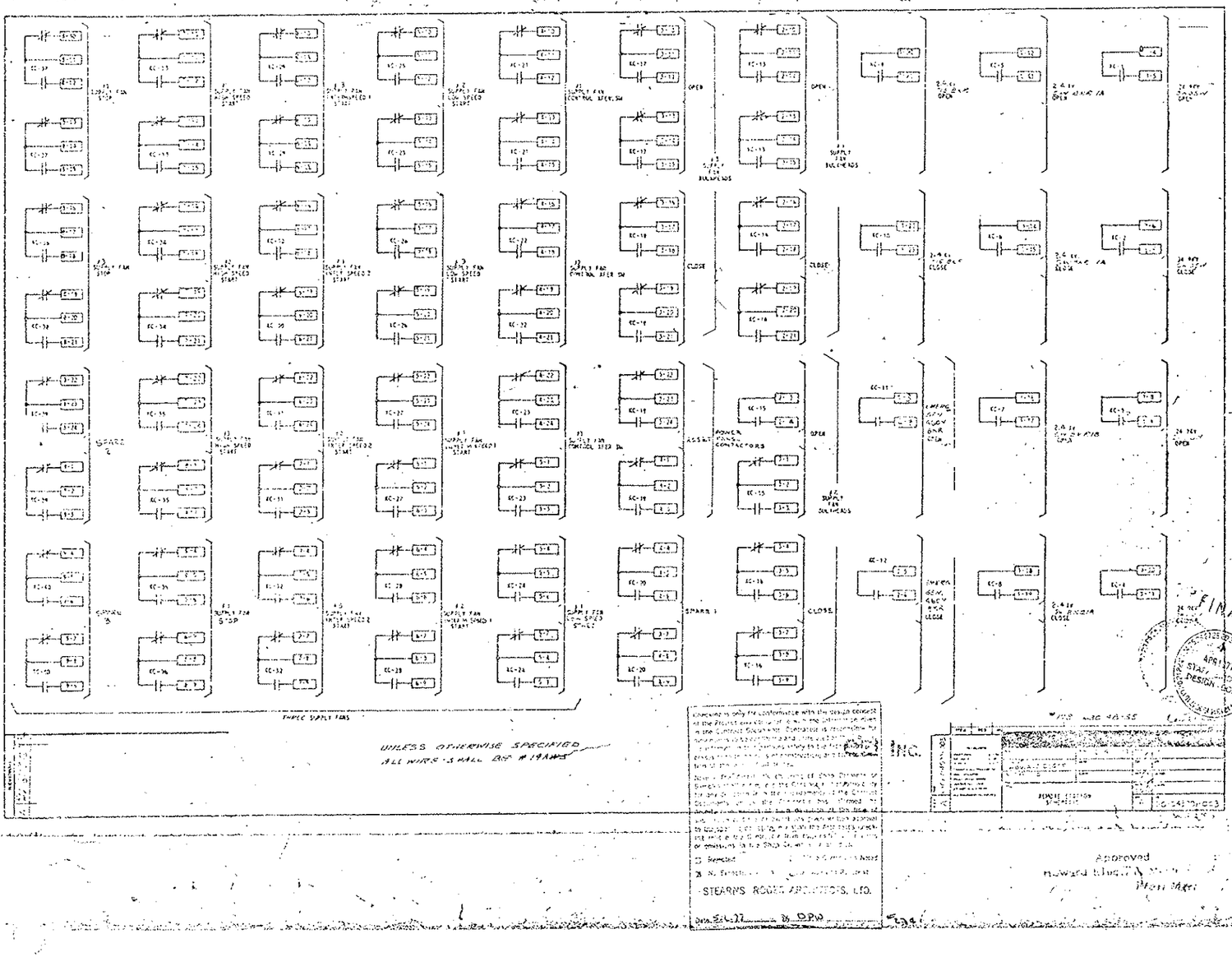
Approved

DIVISION	PROJECT NO.	SHEET	TOTAL SHEETS
COLORADO	1 70-31 1220	131	





COLORADO
/32
QRR-1
SCHEMATIC
23773
MARK OUTPUTS
OUT
DENOTES TWISTED PAIR WIRES
SEPARATELY. 16 AWG
UNLESS OTHERWISE SPECIFIED
ALL WIRE SHALL BE
INC.
RECEIVED
APR 29 1977
stearns-roger architects
FINAL
APR 1977
DESIGN · DOH
STEARNS-ROGER ARCHITECTS, LTD.
Approved
Howard Elect. & Mech. Co.
Proj. Mgr.



DIVISION	PROJECT NO.	
COLORADO	1 70-30 020	/33

stearns-roger architects

UNLESS OTHERWISE SPECIFIED ALL WIRES SHALL BE #14AWG

INC.

APR 1 77 STAFF DESIGN

☐ Rejected

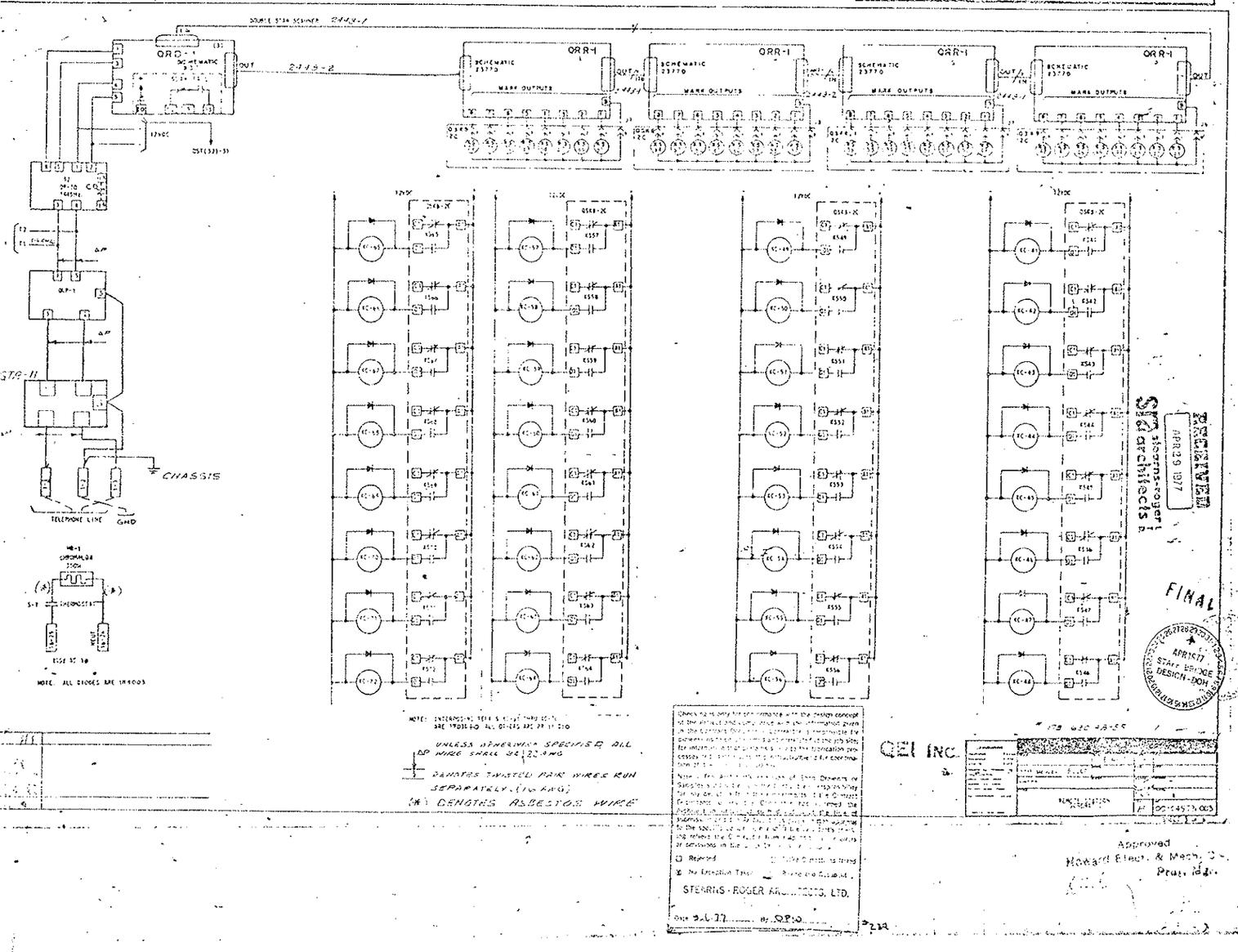
☒

STEARNS ROGER ARCHITECTS, LTD.

Date 5-6-77 By DPW

Approved

Proj Mgr



[illegible]	DISTRICT	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70 - 3(- 1289	134	

NOTE: INTERPOSING RELAYS [illegible] THRU [illegible] ARE [illegible] ALL OTHERS ARE [illegible]

UNLESS OTHERWISE SPECIFIED ALL WIRE SHALL BE 22 AWG

DENOTES TWISTED PAIR WIRES RUN SEPARATELY (16 AWG)

(*) DENOTES ASBESTOS WIRE

Checking is only for conformance with the design concept of the project and compliance with the information given in the Contract Documents. Contractor is responsible for [illegible] and [illegible] at the job site; for information that pertains solely to the fabrication processes [illegible] and for coordination of [illegible]

Note: [illegible] Shop Drawings or Samples [illegible] responsibility for any deviation [illegible] Contract Documents [illegible] the [illegible] the time of submission [illegible] to the specific [illegible] relieve the Contractor from [illegible] errors or omissions in the [illegible]

☐ Rejected ☐ [illegible]

☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 5-6-77 By OPO

* 175 630 48-55

QEI INC.

[illegible]		
[illegible]		
[illegible]		
REMOTE STATION SCHEMATIC	F	00-24573-003

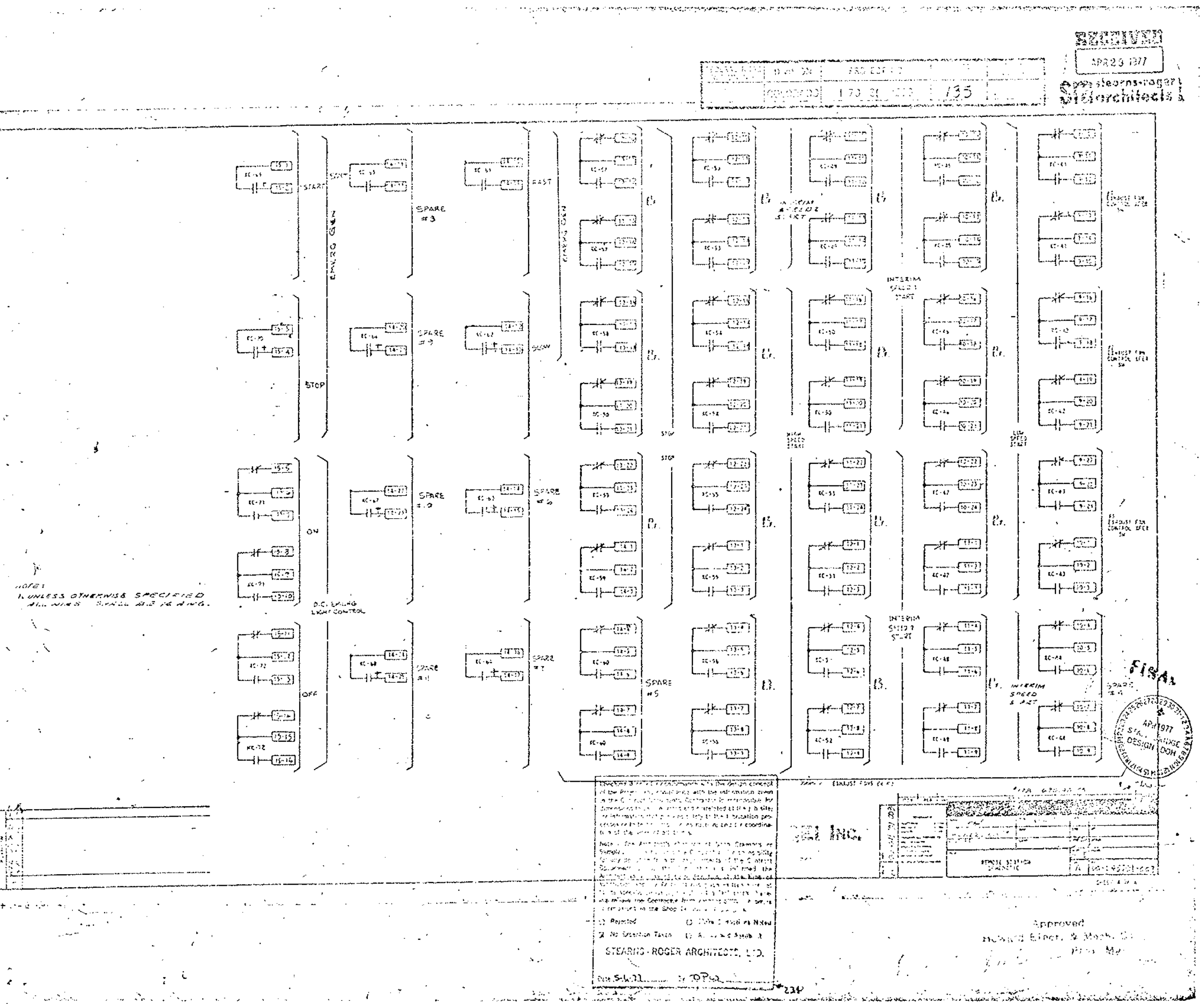
RECEIVED
APR 29 1977
stearns-roger architects

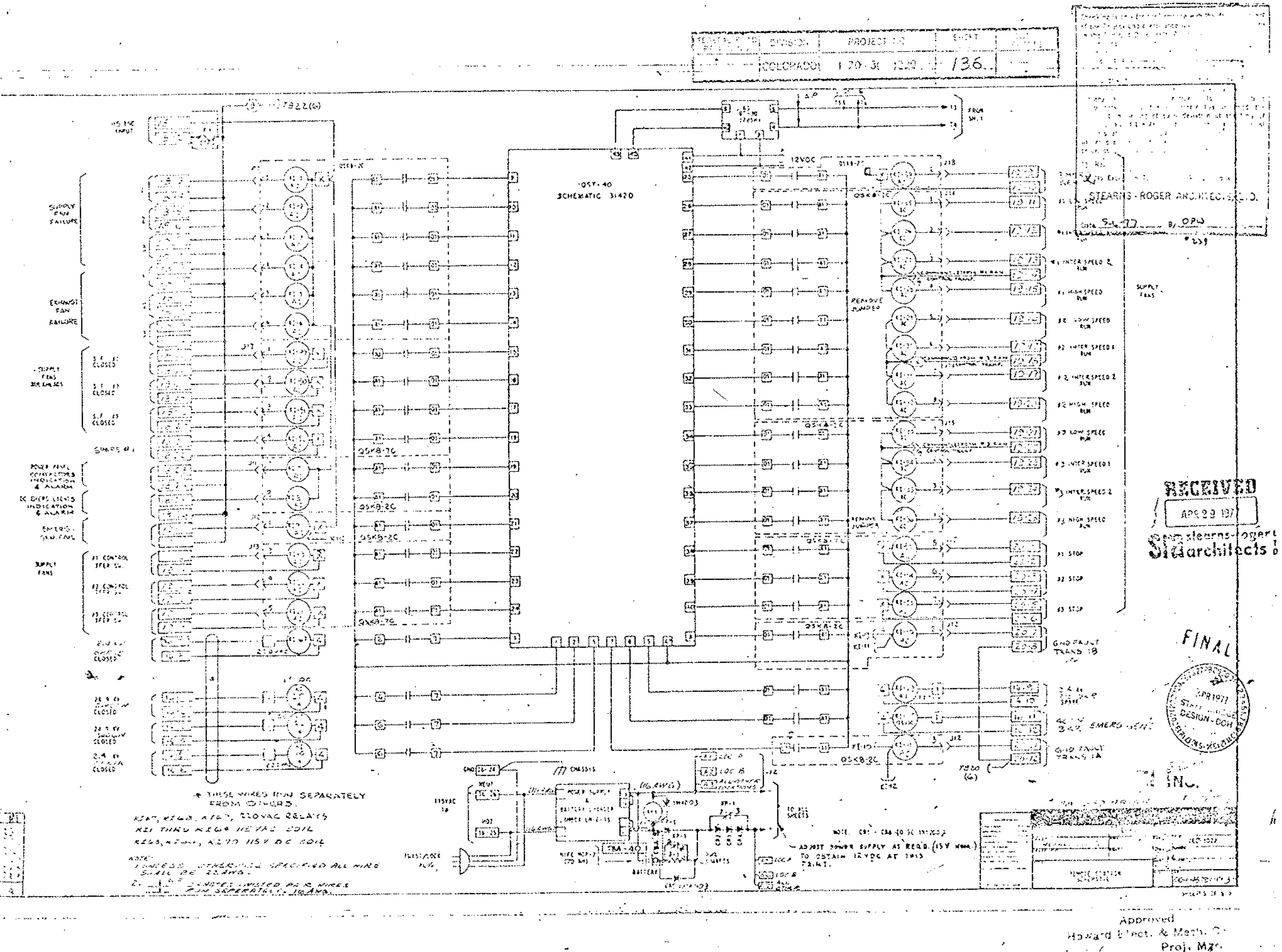
FINAL

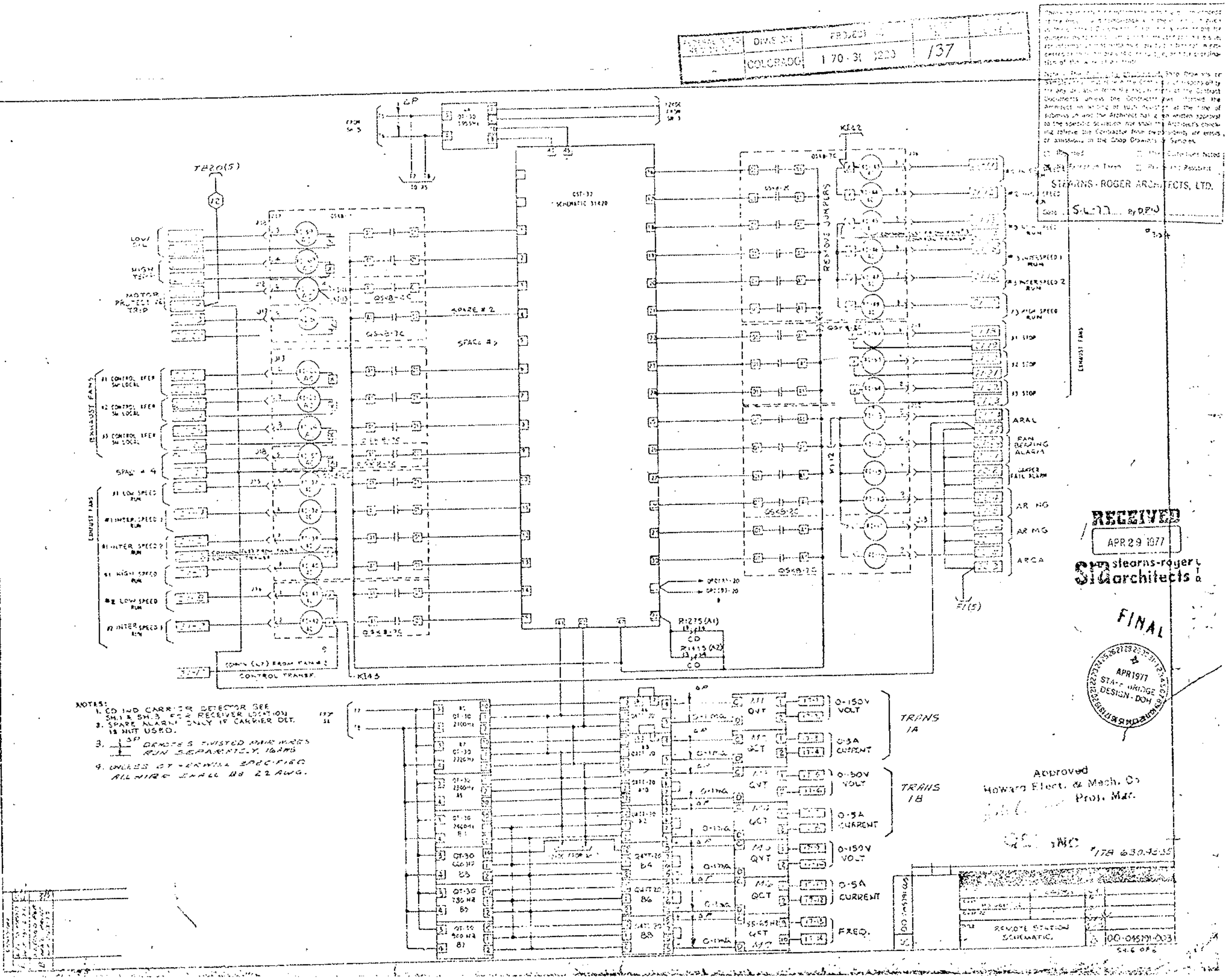
APR 1977
STATE BRIDGE DESIGN - DOH

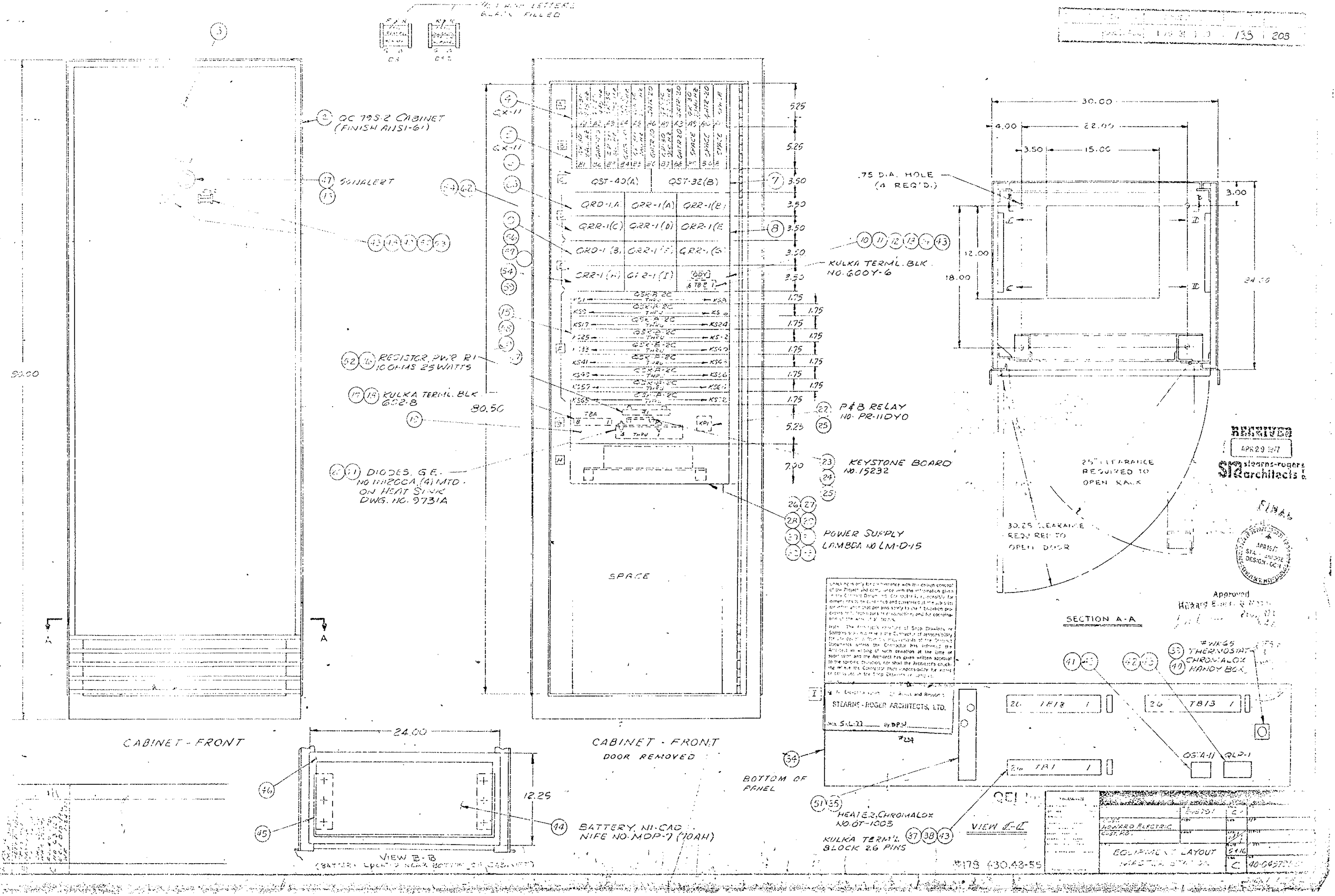
Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

238

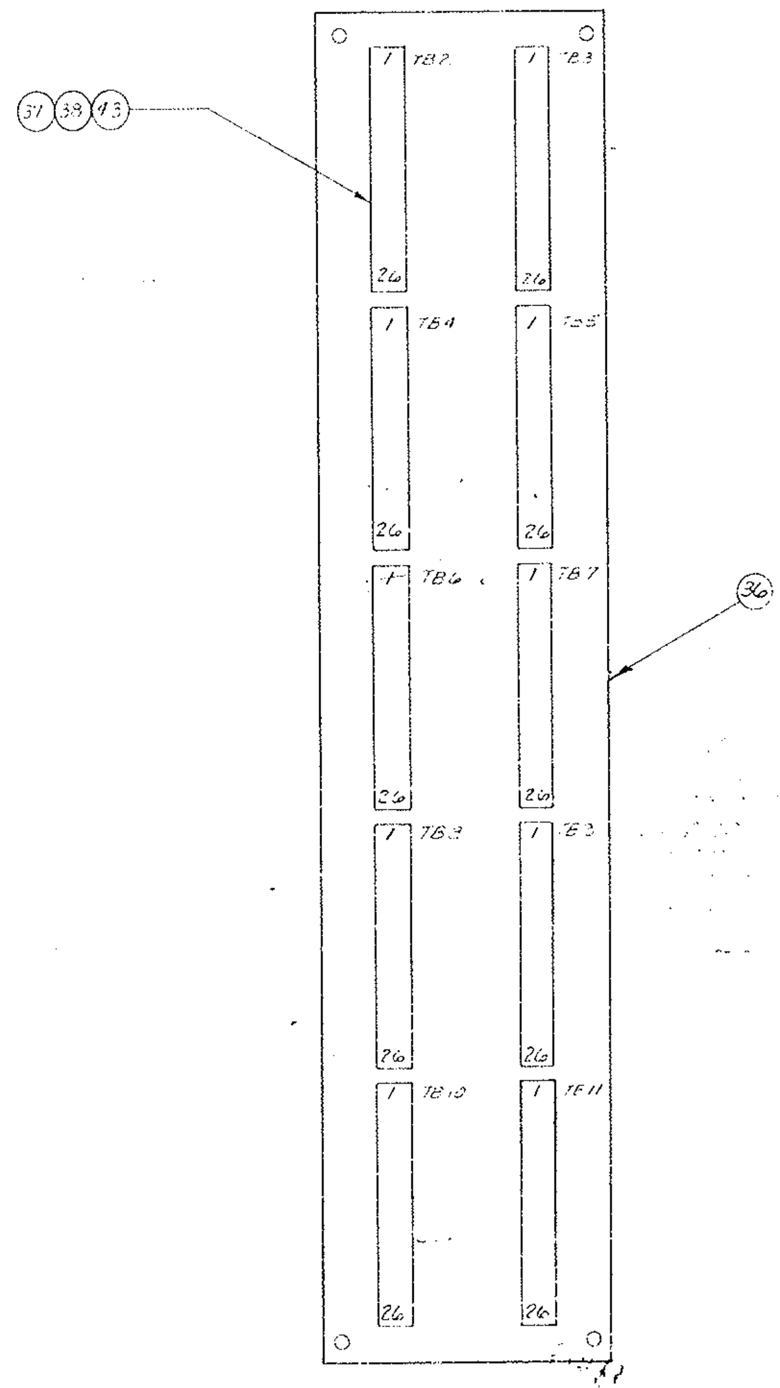

RECEIVED
APR 23 1977
stearns-roger architects
135
START
STOP
ON
OFF
SPARE #3
SPARE #9
SPARE #10
SPARE #11
SPARE #5
FAST
SLOW
INTERIM SPEED 1 START
INTERIM SPEED 2 START
INTERIM SPEED & FAST
EXHAUST FAN CONTROL SPEED
D.C. CEILING LIGHT CONTROL
NOTE:
1. UNLESS OTHERWISE SPECIFIED ALL WIRES SHALL BE 14 AWG.
FINAL
APR 1977
DESIGN
INC.
REMOTE STATION DIAGRAM
Rejected
No Exception Taken
STEARNS-ROGER ARCHITECTS, LTD.
Approved


DIVISION
PROJECT NO.
SHEET
COLORADO
136
12VDC
FROM SH. 1
1OST-40
SCHEMATIC 31420
SUPPLY FAN FAILURE
EXHAUST FAN FAILURE
REMOVE JUMPER
#1 INTER SPEED 2 RUN
#1 HIGH SPEED RUN
#2 LOW SPEED RUN
#2 HIGH SPEED RUN
#3 LOW SPEED RUN
#3 HIGH SPEED RUN
#1 STOP
#2 STOP
#3 STOP
SUPPLY FANS
GND FAULT TRANS 1B
GND FAULT TRANS 1A
CHASSIS
115VAC
TO ALL SHEETS
BATTERY
OSK8-2C
* THESE WIRES RUN SEPARATELY FROM OTHERS.
NOTE: CR1 - CR4 TO BE 1N1203
ADJUST POWER SUPPLY AS REQ'D. (15V MAX.) TO OBTAIN 12VDC AT THIS POINT.
NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL WIRE SHALL BE 22AWG.
STEARNS-ROGER ARCHITECTS LTD.
Date 5-6-77 By OPW
RECEIVED
APR 29 1977
stearns-roger architects
FINAL
STATE DESIGN
Approved
Howard Elect. & Mech. Co.
Proj. Mgr.


COLORADO
I 70-3(1223
137
STEARNS-ROGER ARCHITECTS, LTD.
TB20(5)
LOW OIL
HIGH TEMP
MOTOR PROTECT TRIP
SPARE #2
SPARE #3
SPARE #4
REMOVE JUMPERS
K142
K143
ARAL
FAN BEARING ALARM
DAMPER FAIL ALARM
AR MG
ARGA
F1(5)
R1275 (A1)
CD
CONTROL TRANSF.
0-150V VOLT
0-5A CURRENT
0-150V VOLT
0-5A CURRENT
0-150V VOLT
0-5A CURRENT
FREQ.
TRANS 1A
TRANS 1B
NOTES:
1. CD IND CARRIER DETECTOR SEE SH.1 & SH.3 FOR RECEIVER LOCATION
2. SPARE ALARM ONLY IF CARRIER DET. IS NOT USED.
3. DENOTES TWISTED PAIR WIRES RUN SEPARATELY, 16AWG
4. UNLESS OTHERWISE SPECIFIED ALL WIRE SHALL BE 22 AWG.
RECEIVED
APR 29 1977
stearns-roger architects
FINAL
APR 1977
STATE BRIDGE DESIGN - DOH
Approved
Howard Elect. & Mech. Co
Proj. Mgr.
#178 630-4235
REMOTE STATION SCHEMATIC
00-04591-003
SH 6 OF 6



CABINET - FRONT
QC 795-2 CABINET (FINISH ANSI-61)
SONALERT
80.50
CABINET - FRONT
DOOR REMOVED
QST-40(A)
QST-32(B)
QRD-1 A
QRR-1(A)
QRR-1(B)
QRR-1(C)
QRR-1(D)
QRR-1(E)
QRD-1(B)
QRR-1(F)
QRR-1(G)
QRR-1(H)
QRR-1(I)
SPACE
RESISTOR, PWR R1 10 OHMS 25 WATTS
KULKA TERM'L BLK 602-8
DIODES, G.E. NO 1N1200A (4) MTD. ON HEAT SINK DWG. NO. 9731A
KULKA TERM'L BLK NO. 600Y-6
P&B RELAY NO. PR-11DYO
KEYSTONE BOARD NO. 15232
POWER SUPPLY LAMBDA NO LM-D-15
.75 DIA. HOLE (4 REQ'D.)
30.00
22.00
15.00
SECTION A-A
25" CLEARANCE REQUIRED TO OPEN RACK
30.25 CLEARANCE REQUIRED TO OPEN DOOR
THERMOSTAT CHROMALOX
HANDY BOX
24.00
12.25
VIEW B-B
BATTERY, NI-CAD NIFE NO. MOP-7 (70AH)
BOTTOM OF PANEL
HEATER, CHROMALOX NO. OT-1005
KULKA TERM'L BLOCK 26 PINS
VIEW C-C
TB13
TB1
RECEIVED APR 29 1977
stearns-roger architects
STEARNS-ROGER ARCHITECTS, LTD.
FINAL
Approved
HOWARD ELECTRIC
EQUIPMENT LAYOUT



BAFFLE PANEL

VIEW D-D

LABEL CHART	
PART NO	DESCRIPTION
22937A	TB1-TB11, DS1, DS2 SA-1, TBA, TB B, KP-1 R1

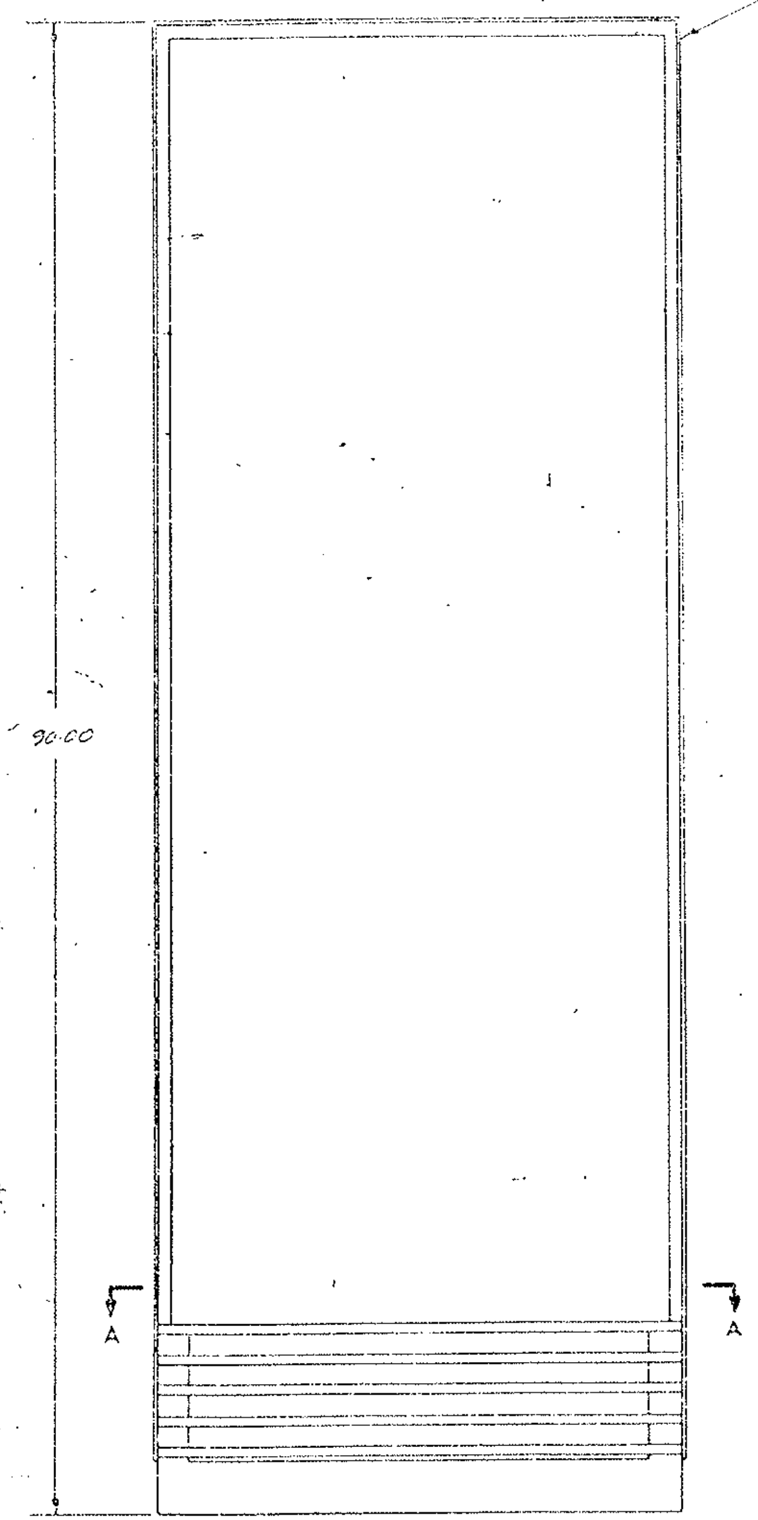
43

FINAL

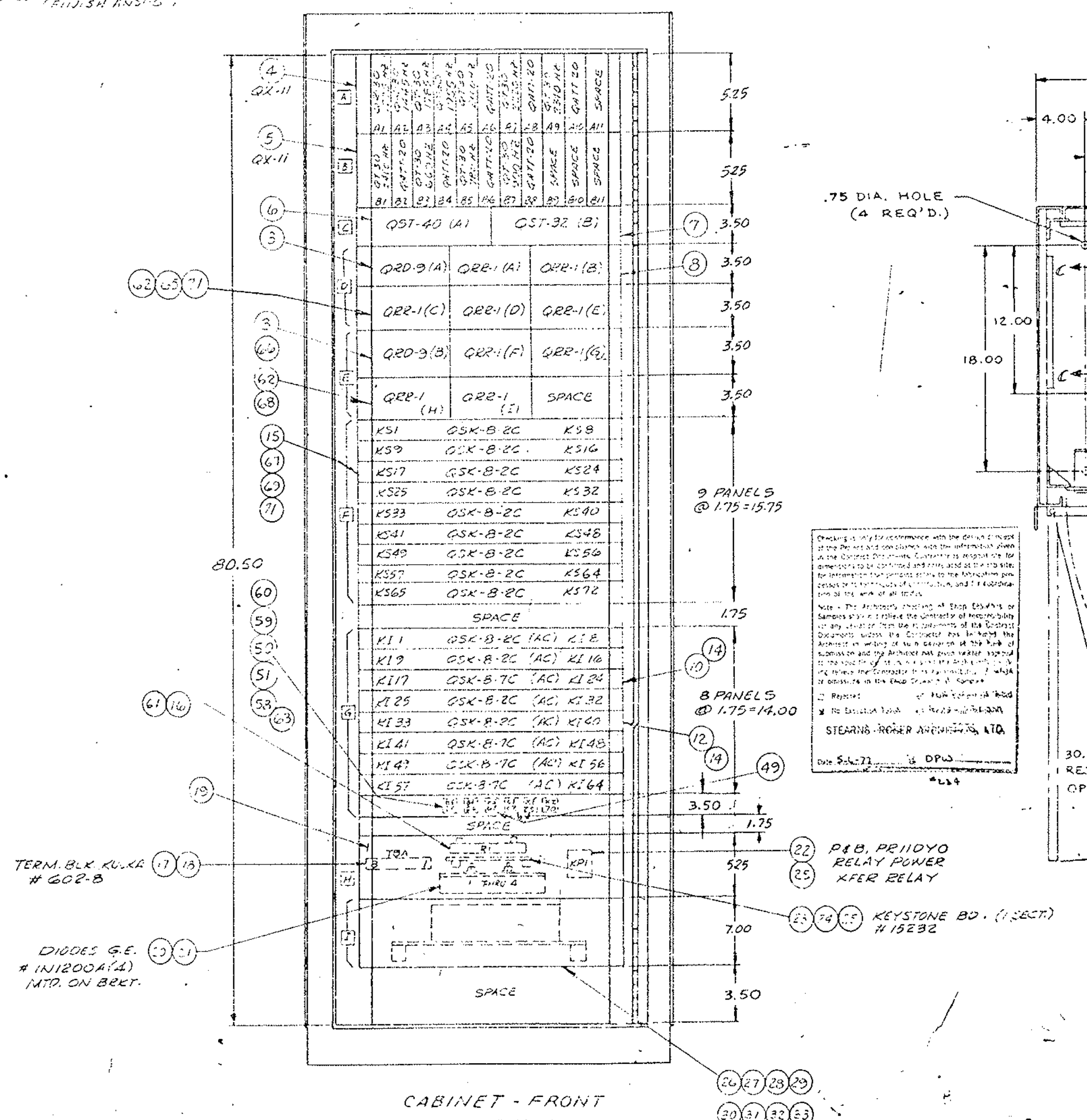
178 630.48-55

EQUIPMENT LAYOUT
MASTER STATION

		140	208

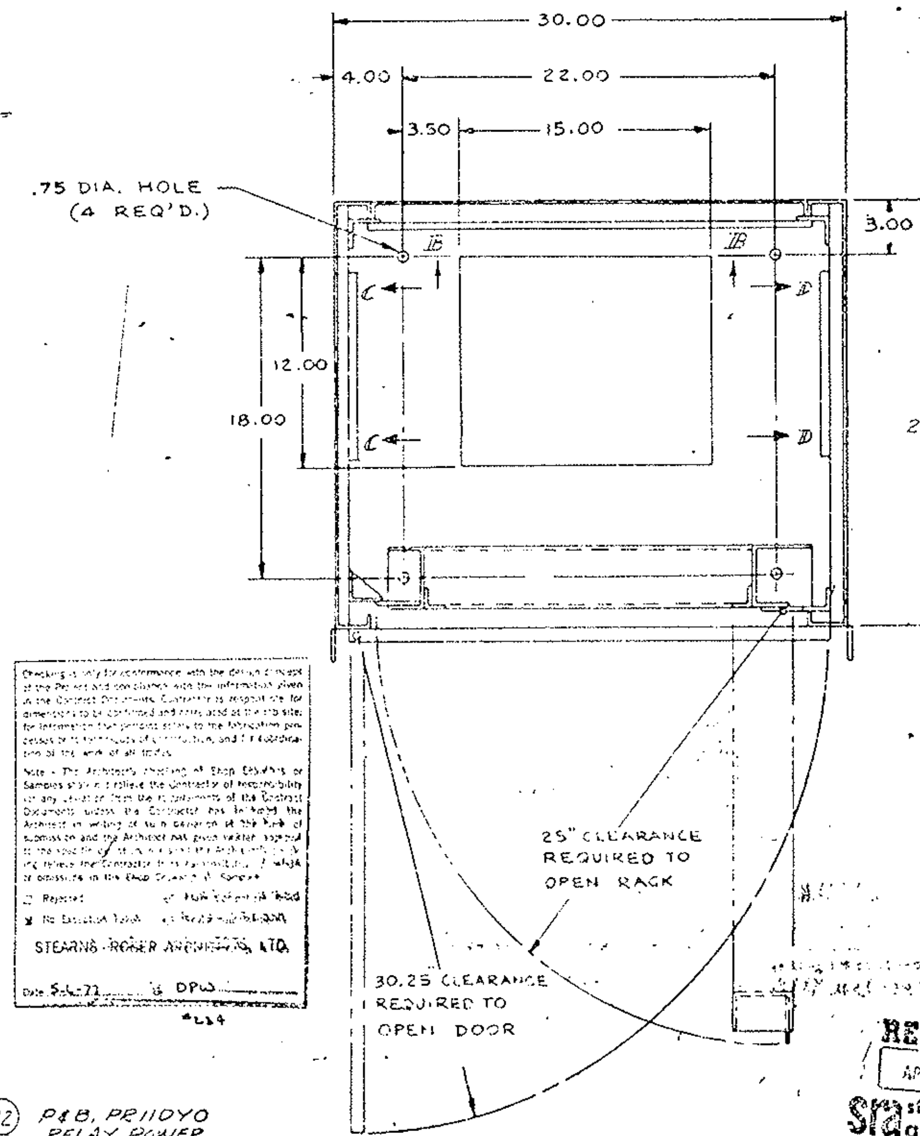


CABINET - FRONT



CABINET - FRONT
DOOR REMOVED

KI-1 THRU KI-64 T154-CC-115VAC
KI-67,68,69 T154-CC-220VAC
KI-65, KI-66, KI-70 TF154-CC-115VDC



SECTION A-A

NOTE:
1. FOR VIEWS B-B, C-C AND D-D SEE SHEET 2.

STEARNS-ROGER ARCHITECTS, LTD.

RECEIVED APR 29 1977 stearns-roger architects

FINAL

Approved
Howard Fleet & ...

QEI INC.

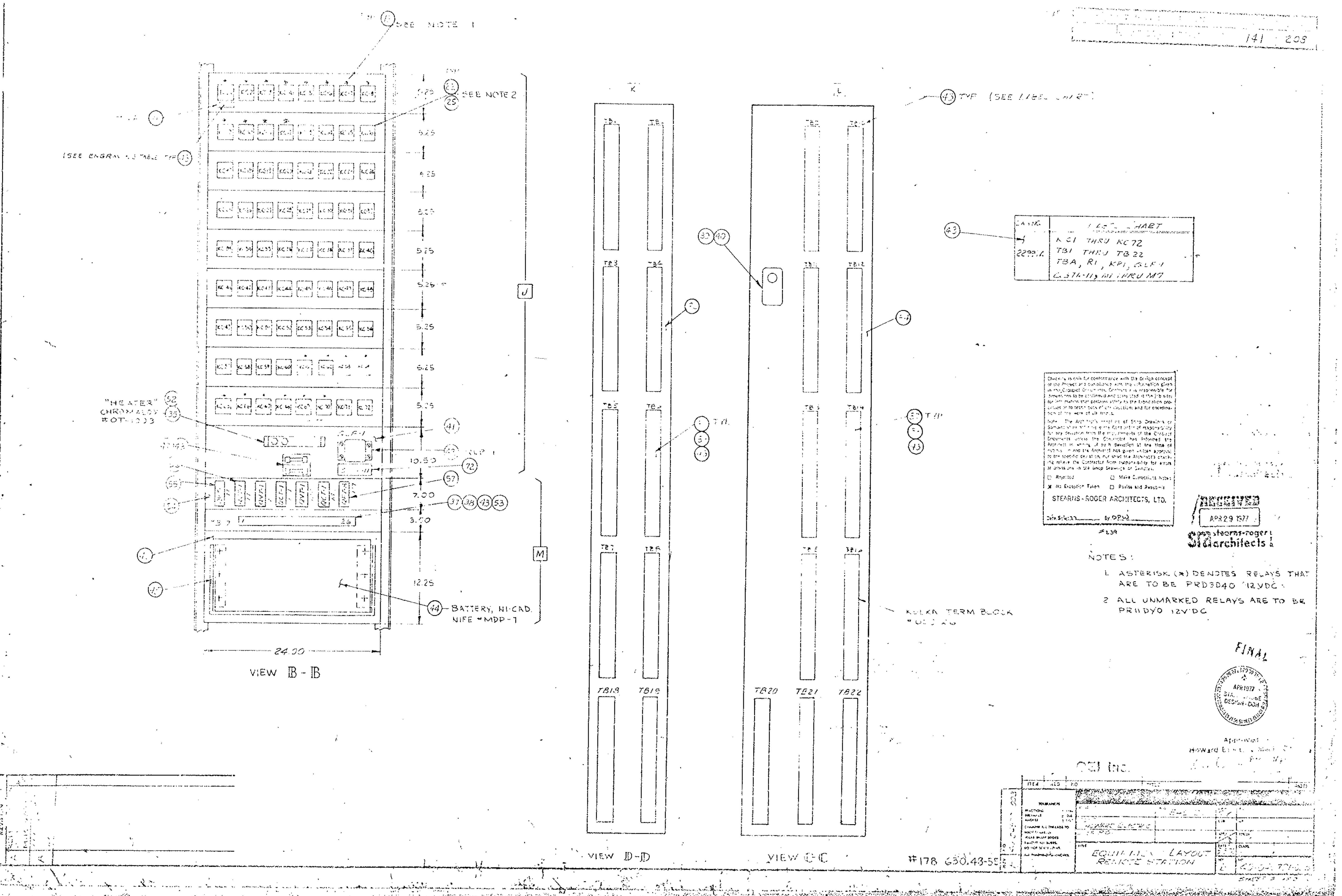
HOWARD ELECTRIC

EQUIPMENT LAYOUT REMOTE STATION

A 40-0457

#178 630.48-55

RELEASED PRODUCTION W.P. 9/6/76


141 - 203
SEE NOTE 1
SEE NOTE 2
(SEE ENGRAV. TABLE)
"HEATER"
CHROMALOY
ROT-1033
BATTERY, NI-CAD
NIFE #MDP-7
24.00
VIEW B-B
5.25
10.50
7.00
3.00
12.25
J
M
TB1
TB2
TB3
TB4
TB5
TB6
TB7
TB8
TB9
TB10
TB11
TB12
TB13
TB14
TB15
TB16
TB17
TB18
TB19
TB20
TB21
TB22
VIEW D-D
VIEW C-C
TYP (SEE LABEL CHART)
LABEL CHART
KC1 THRU KC72
TB1 THRU TB22
TBA, R1, KP1, GLF-1
M1 THRU M7
2299.A
KULKA TERM BLOCK
Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.
Note: The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.
Rejected
Make Corrections Noted
No Exception Taken
Revise and Resubmit
STEARNS-ROGER ARCHITECTS, LTD.
By DPW
#239
RECEIVED
APR 29 1977
stearns-roger architects
NOTES:
1. ASTERISK (*) DENOTES RELAYS THAT ARE TO BE PRD3D40 12VDC
2. ALL UNMARKED RELAYS ARE TO BE PR11DY0 12VDC
FINAL
Approved
Howard Electric
OEI Inc.
TOLERANCES
HOWARD ELECTRIC
EQUIPMENT LAYOUT
REMOTE STATION
#178 630.43-55

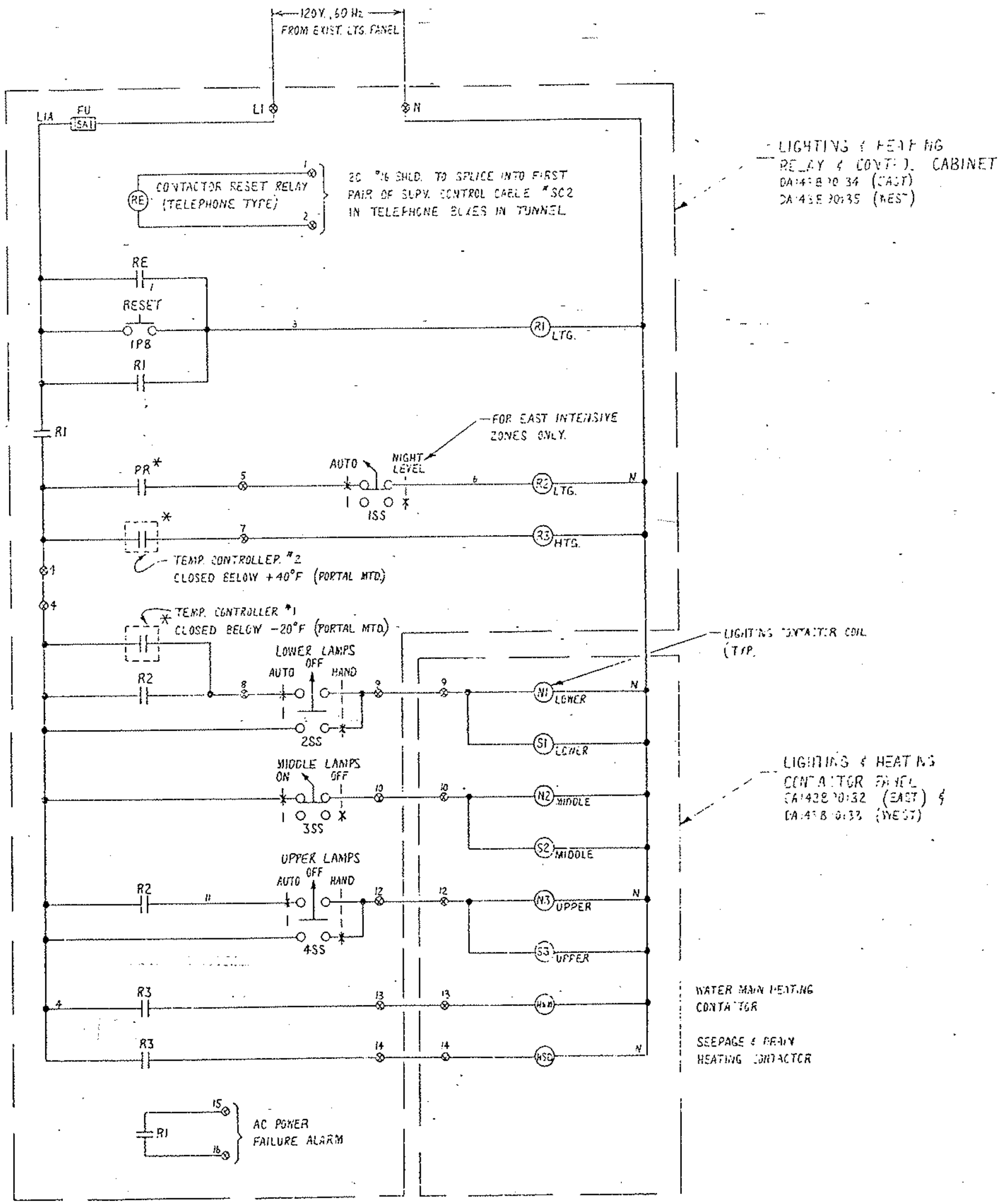
ELEMENTARY

FIRST MADE FOR DA143870132, DA143870134 & DA143870135

JOB: EISENHOWER TUNNEL
CONTRACTOR: HOWARD ELECTRIC CO.
SESCO
CUSTOMER'S P.O. 325-3370970
G.E. SON 432-94070
PROJ. No. I70-3(82)220

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3(82)220	142	208



120V, 60 Hz
FROM EXIST. LTS PANEL
L1A
FU
(5A)
L1
N
CONTACTOR RESET RELAY (TELEPHONE TYPE)
RE
SC #16 SHLD. TO SPLICE INTO FIRST PAIR OF SUPV. CONTROL CABLE #SC2 IN TELEPHONE BOXES IN TUNNEL
RESET
1PB
R1
LTG.
FOR EAST INTENSIVE ZONES ONLY.
PR*
AUTO
NIGHT LEVEL
1SS
R2
TEMP CONTROLLER #2 CLOSED BELOW +40°F (PORTAL MTD)
R3
HTG.
TEMP. CONTROLLER #1 CLOSED BELOW -20°F (PORTAL MTD)
LOWER LAMPS
AUTO
OFF
HAND
2SS
N1
LOWER
S1
LOWER
MIDDLE LAMPS
ON
OFF
3SS
N2
MIDDLE
S2
MIDDLE
UPPER LAMPS
AUTO
OFF
HAND
4SS
N3
UPPER
S3
UPPER
HWM
HSC
LIGHTING CONTACTOR COIL (TYP.)
LIGHTING & HEATING RELAY & CONTROL CABINET
DA143870134 (EAST)
DA143870135 (WEST)
LIGHTING & HEATING CONTACTOR PANEL
DA143870132 (EAST) &
DA143870133 (WEST)
WATER MAIN HEATING CONTACTOR
SEEPAGE & DRAIN HEATING CONTACTOR
AC POWER FAILURE ALARM

EAST INTENSIVE ZONES LIGHTING & HEATING CONTROL CIRCUITS
(WEST INTENSIVE ZONES SIMILAR EXCEPT AS NOTED)

NOMENCLATURE

- FUSE – FUSE
- N – CONTACTOR
- PB – PUSHBUTTON
- R – RELAY
- RE – RELAY
- S – CONTACTOR
- SS – SELECTOR SWITCH
- HWM – CONTACTOR
- HSC – CONTACTOR
- ⊗ – TERMINAL BOARD POINT
- ✱ – OFF PANEL DEVICE

STEARNS-ROGER ARCHITECTS, LTD.

FINAL

DESCRIPTION OF GROUPS	REVISIONS	PRINTS TO

R. HOGAN 12-4-75 | C.P.P.O. | VAN NUYS CA | 75D680558

GENERAL ELECTRIC 75D680559

UNLESS OTHERWISE SPECIFIED USE THE FOLLOWING — APPLIED PRACTICES | SURFACES ✓

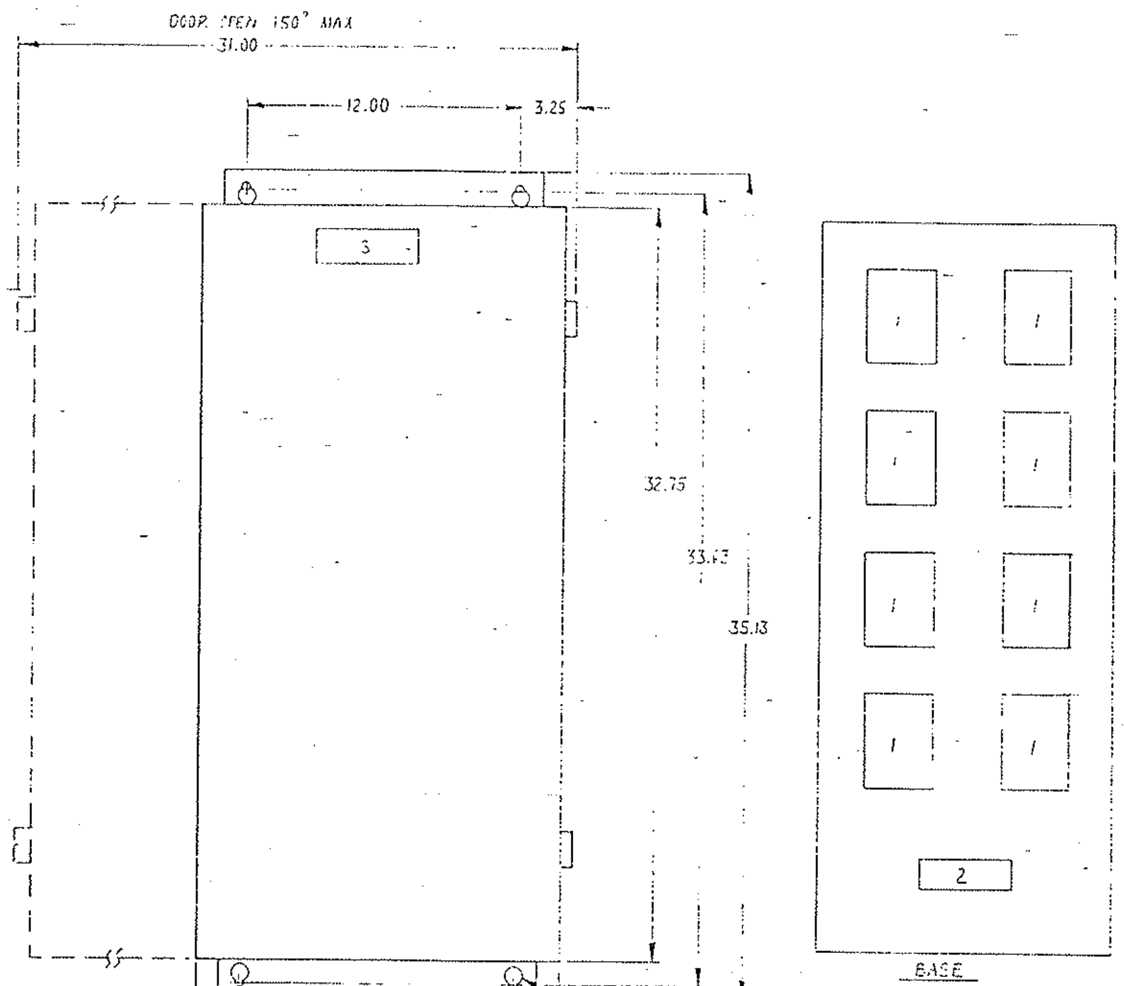
TITLE: OUTLINE — NEMA I

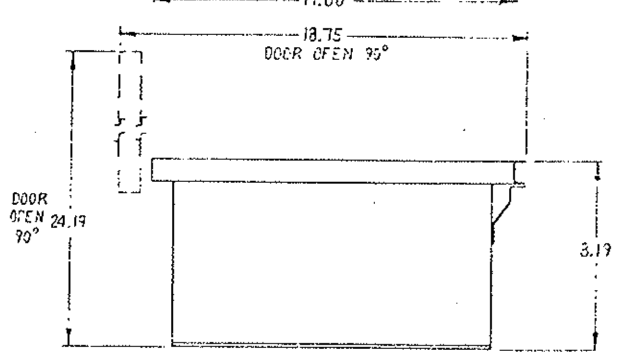
FIRST MADE FOR DA143B70132, 133, 134 & 135.

JOB NAME EISENHOWER TUNNEL
CONTRACTOR HOWARD ELECTRIC CO
GESCO
325-3776770
GE — 432-34070
PROJ. No I70-3(82)220

Checked
Howard Elect. & Mech.
Proj. Mgr.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3(82)220	143	208



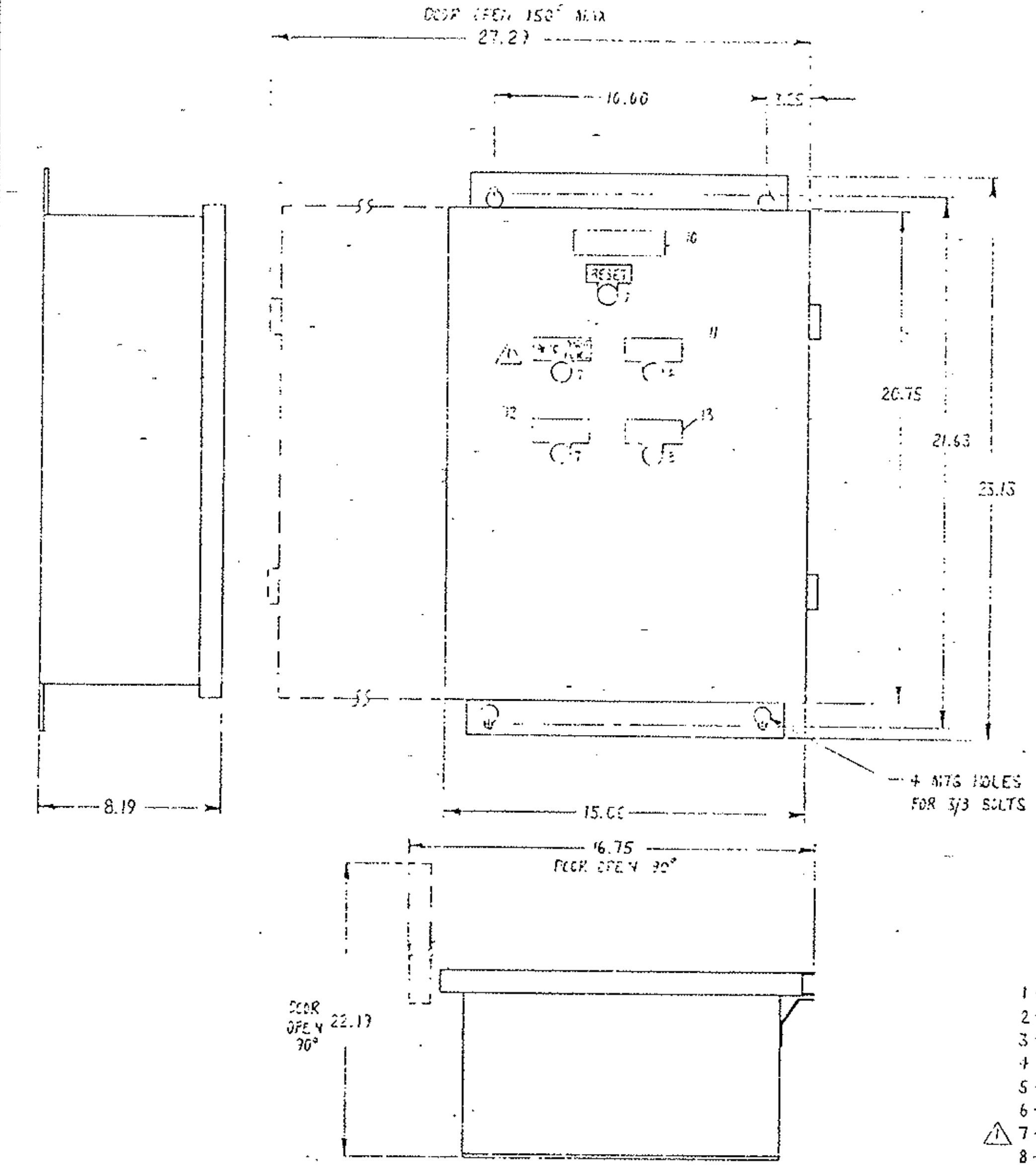


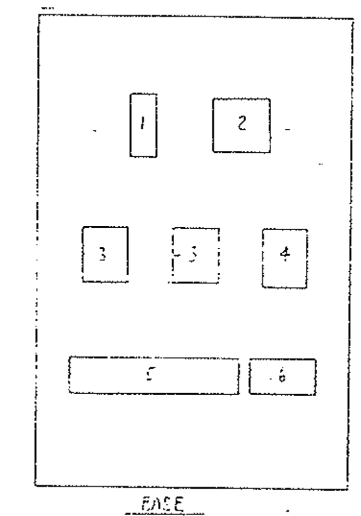
PARTS LIST
1 — CONTACTOR GE # CR160LB702AA
2 — TERMINAL BOARD GE # CR151B66
3 — NAMEPLATE —
FOR DA143B70132 TO READ:
LIGHTING & HEATING
CONTACTOR PANEL
No. LC1ES

FOR DA143B70133 TO READ:
LIGHTING & HEATING
CONTACTOR PANEL
No. LC1WS

LIGHTING & HEATING CONTACTOR PANEL
DA143B90132 (EAST) & DA143B70133 (WEST)

MATERIAL .070 BZA34
FINISH: ANSI 61 GRAY





PARTS LIST
1 — FUSE BLOCK GE 3451-3 w/ NOS 5 FUSE
2 — RELAY GE # CR120A03002AA
3 — RELAY GE # CR120A02002AA
4 — RELAY GE # CR220S300A04D
5 — TERMINAL BOARD GE # CR151B26
6 — TERMINAL BOARD GE # CR151B46
⚠ 7 — SELECTOR SWITCH GE # CR2940UB202A
8 — SELECTOR SWITCH GE # CR2910UB202B
9 — PUSHBUTTON GE # CR2940WA310B

NOTE: ⚠ OMIT ON DA143B70135 (WEST)

LIGHTING & HEATING RELAY & CONTROL PANEL
DA143B70134 (EAST) DA143B70135 (WEST)

MATERIAL: .070 BZA34
FINISH: ANSI 61 GRAY

10 — NAMEPLATE —
FOR DA143B70134 TO READ:
LIGHTING & HEATING
RELAY & CONTROL CABINET
No. LC1ES

FOR DA143B70135 TO READ:
LIGHTING & HEATING
RELAY & CONTROL CABINET
No. LC1WS

11 — NAMEPLATE — UPPER LAMPS, AUTO-OFF HAND.
12 — NAMEPLATE — MIDDLE LAMPS, ON-OFF.
13 — NAMEPLATE — LOWER LAMPS, AUTO OFF HAND

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; conformation that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Note — The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise And Resubmit

STEARNS-ROGER ARCHITECTS, LTO.

Date ______ By ______

RECEIVED
FEB 19 1976
stearns-roger architects

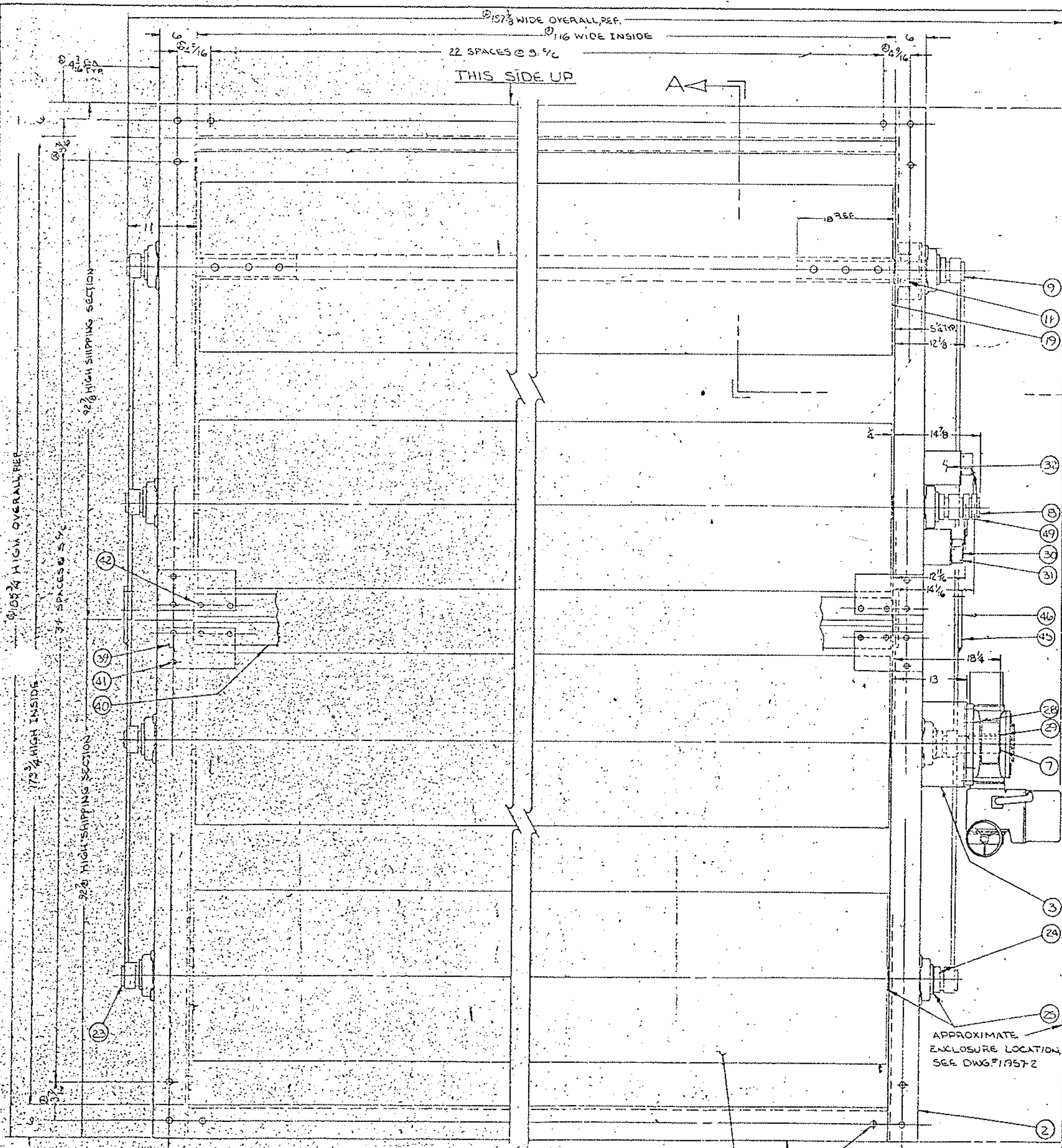
FINAL

FEB 1976 STAFF BRIDGE DESIGN - DOH

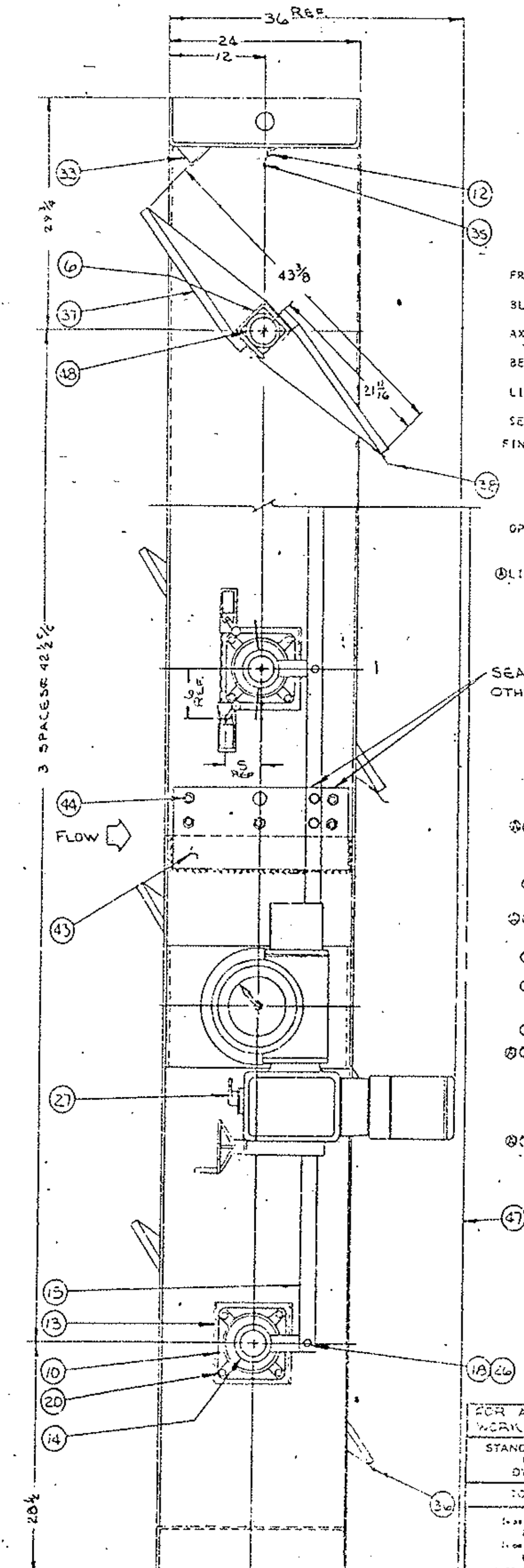
DESCRIPTION OF GROUPS | REVISIONS | PRINTS TO

MADE BY R. HOGAN 12-10-75
C P P O
VAN NUYS CA
75D680559

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	144	208



FACE VIEW
FLOW ENTERING SIDE



SECTION A~A
(W/OPERATOR ON R.H. SIDE AS VIEWED FROM FLOW ENTERING FACE, POSITION 8 OPERATOR REQ'D. MOUNTED AS SHOWN.)

SPECIFICATIONS

FRAME: 24 X 6 X 3/8 STEEL CHANNEL (1) (2)

BLADES: 10 GA. STEEL AIRFOIL (4)(5)

AXLES: TYPE 303 S.S. STUBS (7)(8)(9) WITH 1/4" STEEL REINFORCING TUBES (6)

BEARINGS: SELF-LUBRICATING CARTRIDGE (10) WITH DOUBLE GLAND STUFFING BOXES (11)

LINKAGE: HEAVY DUTY CARBON STEEL WITH S.S. PINS & O.I.B. BEARINGS

SEALS: 301 S.S. BWVA TYPE

FINISH: STEEL SURFACE OF DAMPERS TO BE CLEANED WITH POWER TOOL BRUSH FOR REMOVAL OF MILL SCALE, RUST AND ANY OTHER FOREIGN MATTER. AFTER CLEANING GIVE ONE (1) PRIME COAT OF DEREKA M-53 #5351 OR EQUAL AND ONE (1) FINISH COAT OF DECOSTEEL ALKYD NO. 595, COLOR TO BE SG-5 GREEN. EACH COAT TO HAVE A MINIMUM DRY FILM THICKNESS OF 1.5 MILS

OPERATOR: LIMITORQUE #H28C/SMB-00/10. 460 V, 60 CYCLE, 3 PHASE WITH MANUAL OVERRIDE.

(A) LIMIT SWITCH: TWO (2) ALLEN BRADLEY #802-T

NOTES

(A)(1) NO. REQUIRED: SIX (6) DAMPERS TOTAL, THREE (3) RIGHT HAND, AS SHOWN, & THREE (3) LEFT HAND, OPPOSITE AS SHOWN.

(2) DAMPERS ARE VERTICALLY MOUNTED WITH HORIZONTAL FLOW.

(A)(3) TAG DAMPERS: SUPPLY FAN DAMPERS.

(4) DAMPERS WILL BE SHIPPED IN TWO SECTIONS (1W Y 2H)

(5) ALL WELDING WILL BE PERFORMED IN ACCORDANCE WITH AWV'S STANDARD WELD DWG. #10151, UNLESS OTHERWISE SPECIFIED.

(6) SEE DWG. #11957-1 & -2 FOR OPER. ENCLOSURE ASSEMBLY.

(A)(7) DESIGN CRITERIA: MAX. DIFF. PRESS. = 9" H_2O
MAX. TEMP. = 90°F
MIN. TEMP. = -70°F
MAX. VELOCITY = 3553 AFPM
MAX. LEAKAGE = 1865 ACFM @ 9" H_2O & 90
MAX. TORQUE = 17,550"#

(A)(8) ESTIMATED WEIGHT OF EACH DAMPER IS 6800 LBS.

ROCKY MOUNTAIN AIRCOLD
P.O. 35553
HOWARD MECHANICAL CO.
P.O. 3M-1561
EISENHOWER TUNNEL
AWV QUOTE 7090-1
AWV JOB NO. 90358

STEARNS-ROGER ARCHITECTS, LTD.
Date 6-14-77 By

#252
490.08

RECEIVED
MAY 27 1977
Stearns-Roger Architects
FINAL

MAY 1977
STAFF BRIDGE
DESIGN - DOH

FOR RECORD
DEC 1 1976
A W & V

Approved
Howard Elect. & Mech. C
Proj. Mgr.

FOR AW&V USE ONLY
WORK'G SHOP BM #11957-101

STANDARD MANUFACTURING TOLERANCES UNLESS OTHERWISE SPECIFIED
DWG. DIMENSIONS ARE IN INCHES

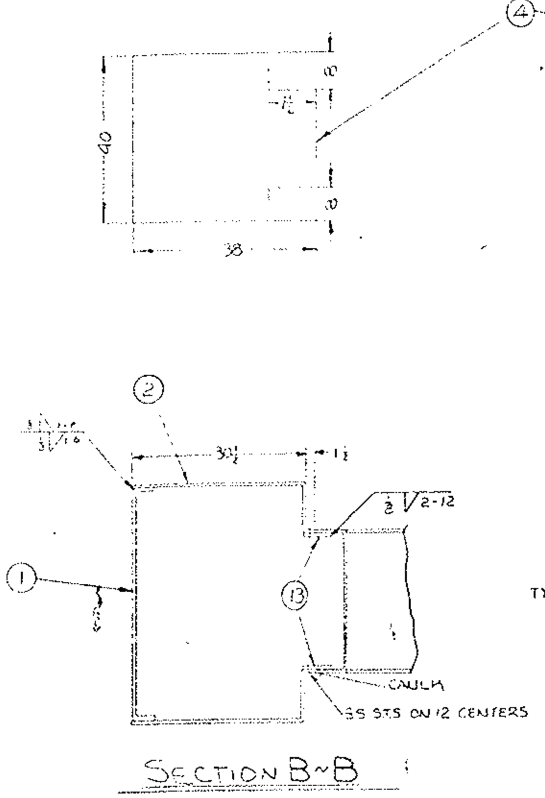
TOLERANCE	DIMENSION
±1/16	UP TO 6"
±3/32	6" TO 12"
±1/8	12" TO 24"
±1/4	ABOVE 24"
±1.5 DEG.	ANY SPECIFIED ANGLE
REF.	GIVEN AS SHOP AID DIMENSIONS MAY VARY
±1/16 TRUE LOCATION	ALL MOUNTING HOLES

	REVISION	DATE	BY
E	HANDWHEEL LOCATION REVISED		
D	OPERATOR CLARIFICATION		
C	PER APPROVAL		
B	PER APPROVAL		
A	CHNG WIDTH 116 3/8 TO 116 & LG. 174 TO 173 3/4 REMOVED ITEM 1	10-7-75	RAF

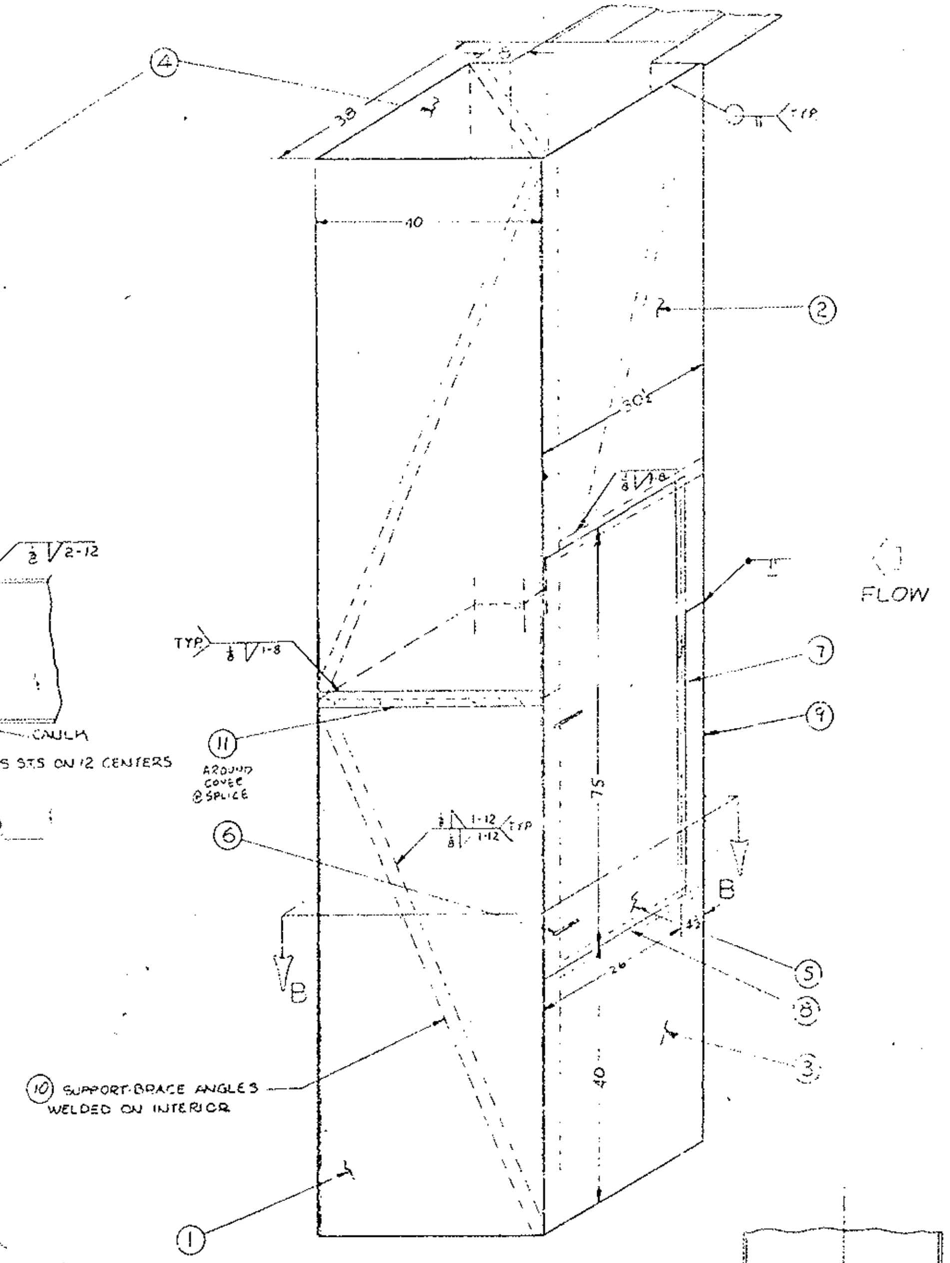
american warming and ventilating inc
1017 SUMMIT ST. TOLEDO, OHIO

DAA-P-3274 H.D. DAMPER WITH LIMITORQUE OPERATOR & BWVA SEALS "SUPPLY FAN DAMPERS" (A)

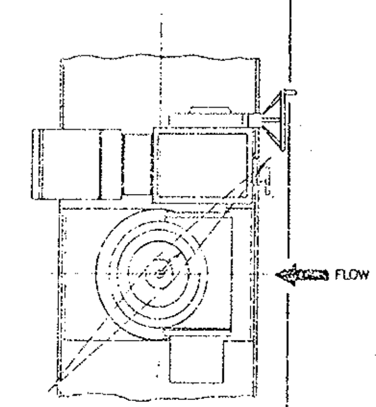
CKD. BY | APPD. BY
DRN. BY JWP | DATE 7-30-75
DWG. NO. 11957 | REV. E



SECTION B~B



POSITION "A" OPERATOR HOUSING



POSITION A OPERATOR MOUNTING DETAIL
(W/OPERATOR ON L.H. SIDE AS VIEWED FROM FLOW ENTERING FACE)

BILL OF MATERIAL

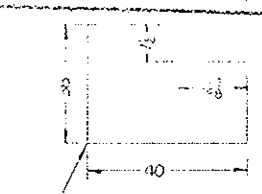
ITEM NO.	QTY PER OPR.	# OF OPRS.	TOTAL QTY.	MATERIAL	
①	1	3	3	12 GA. GALV. STEEL	
②	2	[illegible]	6	12 GA. GALV. STEEL	
③	2	3	5	12 GA. GALV. STEEL	
④	2	3	5	12 GA. GALV. STEEL	
⑤	1	3	3	12 GA. GALV. STEEL	
⑥	2	3	6	-----	VENTLOCK HINGE #102
⑦	1	3	3	GALV. STEEL	BRAUN HINGE #4813-E .090 GA. X 3" WIDE X 50 LG. W/ 1/4" PIN
[illegible]	2	3	6	12 GA. GALV. STEEL	
	[illegible]	3	3	12 GA. GALV. STEEL	
		3	[illegible]	1 X 1 X 3/16 STEEL	
⑪	1	3	3	12 GA. GALV. STEEL	
⑫	1	3	3	12 GA. GALV. STEEL	
⑬	4	3	12	10 GA. STEEL	

FINISH: STEAM CLEANED, & PRIME COAT, DEREKA 5772 RED GLAVANIZED PRIMER. FINISH COAT, #20140 MED. BROWN. TO MATCH SPEC ON DWG. 11957-3

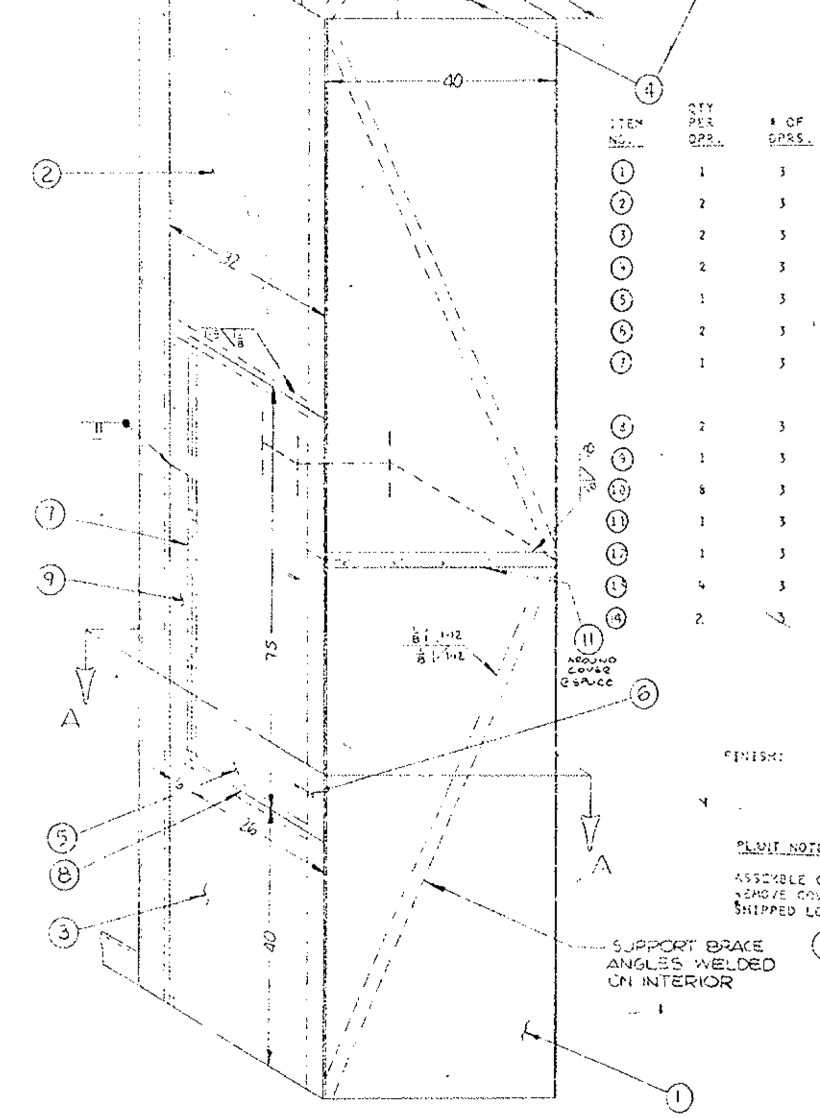
PLANT NOTE

ASSEMBLE COVERS TO THE DAMPERS. BEFORE SHIPPING, REMOVE COVERS. SHIP COVERS IN TWO PIECES WITH DOOR SHIPPED LOOSE. FOR INSTALLATION IN FIELD BY OTHERS.

	PROJECT NO.		
	179-3[illegible]	145	208



STEARNS-ROGER [illegible] LTD.
Date 1-5-79 By [illegible]
640.05(A)1
#253



POSITION "B" OPERATOR HOUSING
SEE DRAWING NO. 11957-3 FOR OPERATOR MOUNTING POSITION

BILL OF MATERIAL

ITEM NO.	QTY PER OPR.	# OF OPRS.	TOTAL QTY.	MATERIAL	
①	1	3	3	12 GA. GALV. STEEL	
②	2	3	5	12 GA. GALV. STEEL	
③	2	3	6	12 GA. GALV. STEEL	
④	2	3	6	12 GA. GALV. STEEL	
⑤	1	3	3	12 GA. GALV. STEEL	
⑥	2	3	6	-----	VENTLOCK HINGE #102
⑦	1	3	3	GALV. STEEL	BRAUN HINGE #4813-E .090 GA. X 3" WIDE X 72 LG. W/ 1/4" PIN
⑧	2	3	5	12 GA. GALV. STEEL	
⑨	1	3	3	12 GA. GALV. STEEL	
⑩	8	3	24	1 X 1 X 3/16 STEEL	
⑪	1	3	3	12 GA. GALV. STEEL	
⑫	1	3	3	12 GA. GALV. STEEL	
⑬	4	3	12	16 GA. STEEL	
⑭	2	3	6	12 GA GALV. STEEL	

FINISH: STEAM CLEANED, & PRIME COAT, DEREKA 5772 RED GALVANIZED PRIMER. FINISH COAT, #20140 MED. BROWN. TO MATCH SPEC. ON DWG. 11957-3

PLANT NOTE

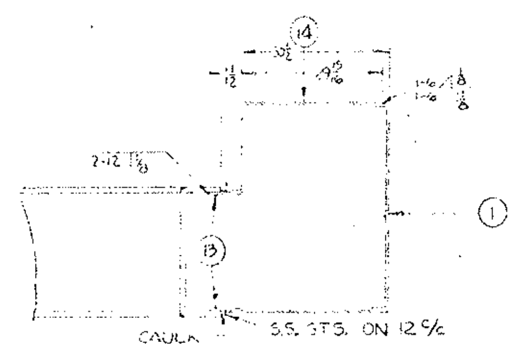
ASSEMBLE COVERS TO THE DAMPERS. BEFORE SHIPPING, REMOVE COVERS. SHIP COVERS IN TWO PIECES WITH DOOR SHIPPED LOOSE FOR INSTALLATION IN FIELD BY OTHERS.

FINAL

ROCKY MOUNTAIN AIRCOLD
P.O. #3505
HOWARD MECHANICAL CO.
P.O. #M-1451
EISENHOWER TUNNEL
AWV QUOTE 2690-1
AWV JOB NO. 90038

NOV 27 1978

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.



SECTION A~A

Approved
Howard Elect. & Mech.

	REVISION	DATE	BY
F	HANDWHEEL LOCATION REVISED		
E	OPERATOR CLARIFICATION		
D	DOOR SIZE CHANGE		
C	PAINT SPEC. ADDED		
B	REDRAWN		

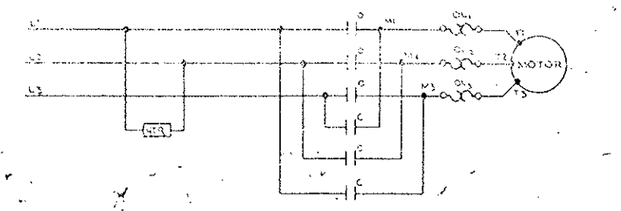
STANDARD MANUFACTURING TOLERANCES UNLESS OTHERWISE SPECIFIED DWG. DIMENSIONS ARE IN INCHES

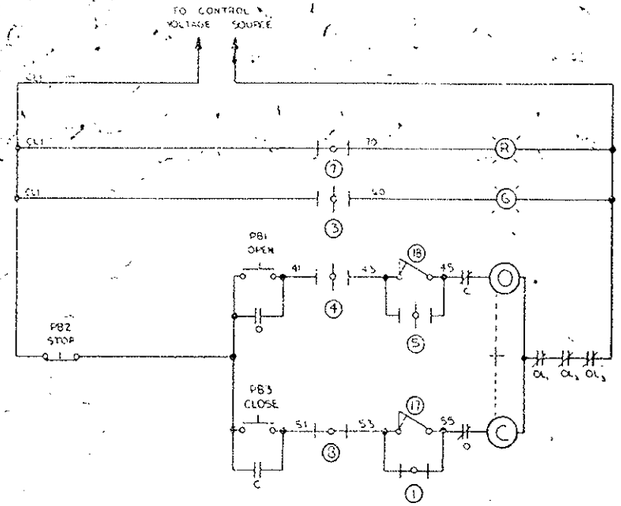
TOLERANCE	DIMENSION
± 1/16	UP TO 6"
± 3/32	6" TO 12
± 1/8	12" TO 24"
± 1/4	ABOVE 24"
± 5 DEG	ANY SPECIFIED ANGLE
	GIVEN AS SHOP AID DIMENSIONS MAY VARY
.010 TRUE LOCATION	ALL MOUNTING HOLES

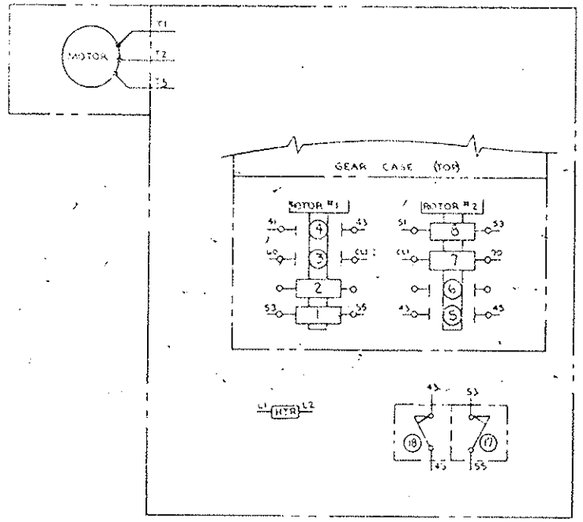
american warming and ventilating inc
1017 SUMMIT ST. TOLEDO, OHIO

OPERATOR ENCLOSURE ASS'Y
FOR EVASE STACK DAMPER - DWG. 11957-3

CKD. BY Dwm | APPD. BY EDV
DRN. BY TMB | DATE 3-24-76
DWG. NO. 11957-1 | REV. F







148 | 208

LIMIT SWITCH COMPARTMENT

Approved For Fabrication 2-19-76

VALVE SHOWN IN FULL OPEN POSITION

⑰ CLOSING TORQUE SWITCH INTERRUPTS CONTROL CIRCUIT IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE

⑱ OPENING TORQUE SWITCH INTERRUPTS CONTROL CIRCUIT IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE

NOTES:

1. ——— CLOSED CONTACT
2. – – – – OPEN CONTACT
3. WIRES 43, 45, 53, + 55 BETWEEN TORQUE SWITCHES + LIMIT SWITCHES BY LIMITORQUE CORP ALL OTHER WIRING BY OTHERS.

LEGEND:

- + - MECHANICAL INTERLOCK
- C - CLOSE CONTACT
- O - OPEN CONTACT
- Ⓒ - CLOSING COIL
- Ⓞ - OPENING COIL
- OL - OVERLOAD RELAY (1, 2, + 3)
- PB1 - OPEN PUSHBUTTON
- PB2 - STOP PUSHBUTTON
- PB3 - CLOSE PUSHBUTTON
- Ⓖ - GREEN INDICATING LIGHT
- Ⓡ - RED INDICATING LIGHT

FOR SUGGESTED OPERATION ONLY, NOT SUPPLIED BY LIMITORQUE CORP

HTR - SPACE HEATER PROVIDED FOR ALL EXPLOSION PROOF UNITS OR WHEN REQUIRED

SUPERSEDES B 40603

No	DESCRIPTION	DATE
D		
C		
B		
A	TO LIMITORQUE	12-28-73

REVISIONS

DRAWN C L A
CHECKED 9-8-67
APPROVED 9/14/67

LIMITORQUE CORPORATION

TITLE LIMITORQUE WIRING DIAGRAM

1ST ORDER NO

DATE 5-16-67

DWG. NO. 15 - 476 - 1001 -3

ORIG. Nº 15-476-1001-3

9/30/75 DATE BY MJL

CUST NAME Waldron Industries, Inc.
P.O. NO W-6204
S.O. NO
LIMITORQUE ORDER NO 392572
VALVE SIZE B/F
UNIT SIZE SMB-00 W/H2BC Manual Assem. Pos. (6) A (6) B
ENCLOSURE Weatherproof
MOTOR SIZE 10'# RPM 1800
PHASE 3 CYCLE 60 VOLT 460

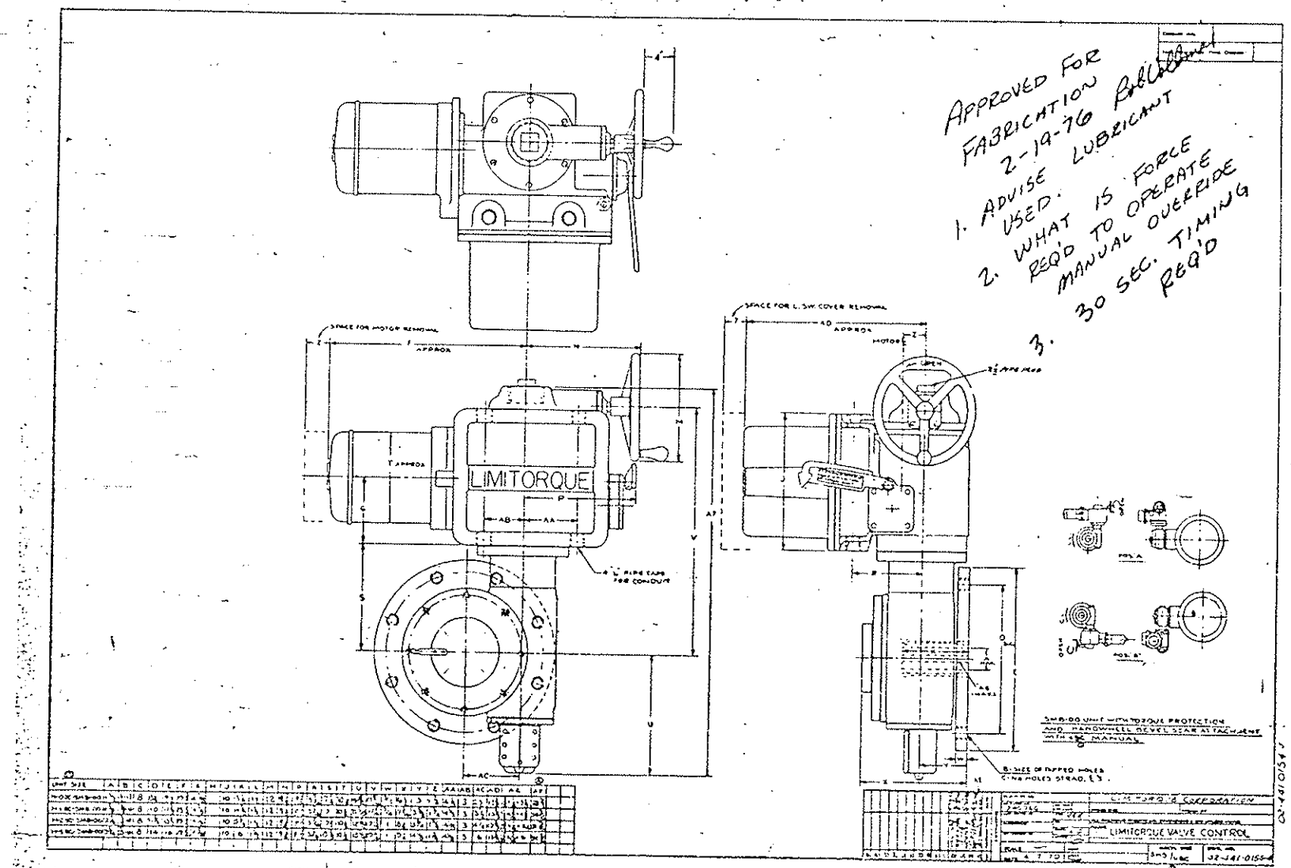
APPROX MOTOR RATINGS

FULL LOAD 2.3
LOCKED ROTOR 11.9
HORSEPOWER .7
TAG OR VALVE MARK NO. "#90058 Rocky Mt. Air Cold"

CERTIFIED FOR CONSTRUCTION
LIMITORQUE CORPORATION
(THIS SPACE FOR LIMITORQUE OFFICE USE ONLY)

Approved
Howard Needles Tammen & Bergendoff
Proj. Mgr.

FINAL



Approved For Fabrication 2-19-76

1. Advise Used Lubricant
2. What is force req'd to operate manual override
3. 30 sec. timing req'd

FEDERAL ROAD ADMIN. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	149	208

9/30/75 — DATE — MJL

CUST. NAME	Weldron Industries, Inc.
P.O. NO.	W-6204
S.O. NO.	
LIMITORQUE ORDER NO.	392572
VALVE SIZE	B/P
UNIT SIZE	SMB-00 w/H2BC Manual Assem. Pos. (5) A (6) B
ENCLOSURE	Weatherproof
MOTOR SIZE	10 H.P. RPM 1800
PHASE 3	CYCLE 50 VOLT 460
APPROX. MOTOR RATINGS	
FULL LOAD	2.3
LOCKED ROTOR	11.9
HORSEPOWER	.7
TAG OR VALVE MARK NO.	*#90058 Rocky Mt. Air Cold*

CERTIFIED FOR CONSTRUCTION
LIMITORQUE CORPORATION
(THIS SPACE FOR LIMITORQUE OFFICE USE ONLY)

FINAL
MAY 1977
STAFF BRIDGE DESIGN - DOH

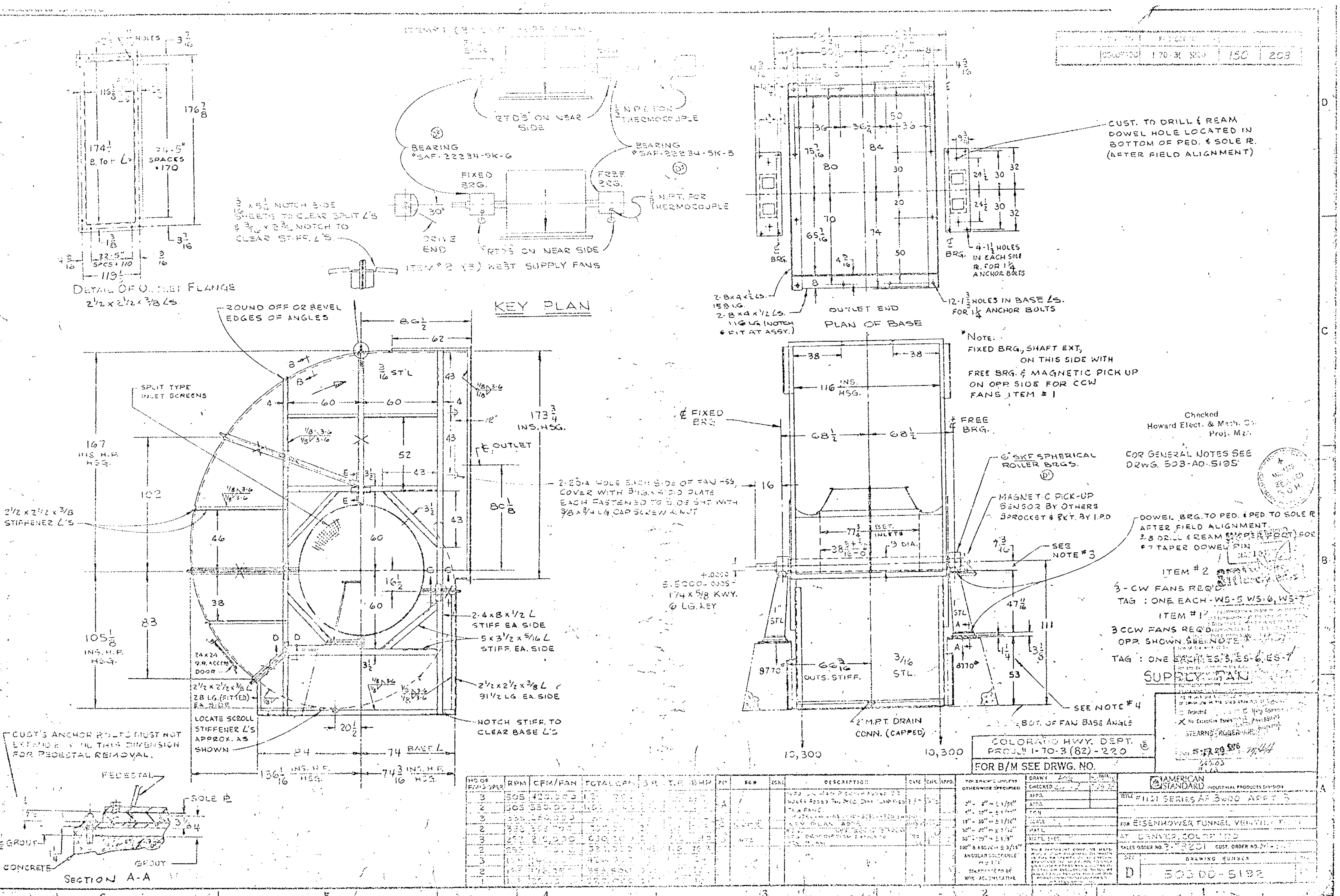
Approved
Howard Elect. & Mech.
Proj. Mgr.

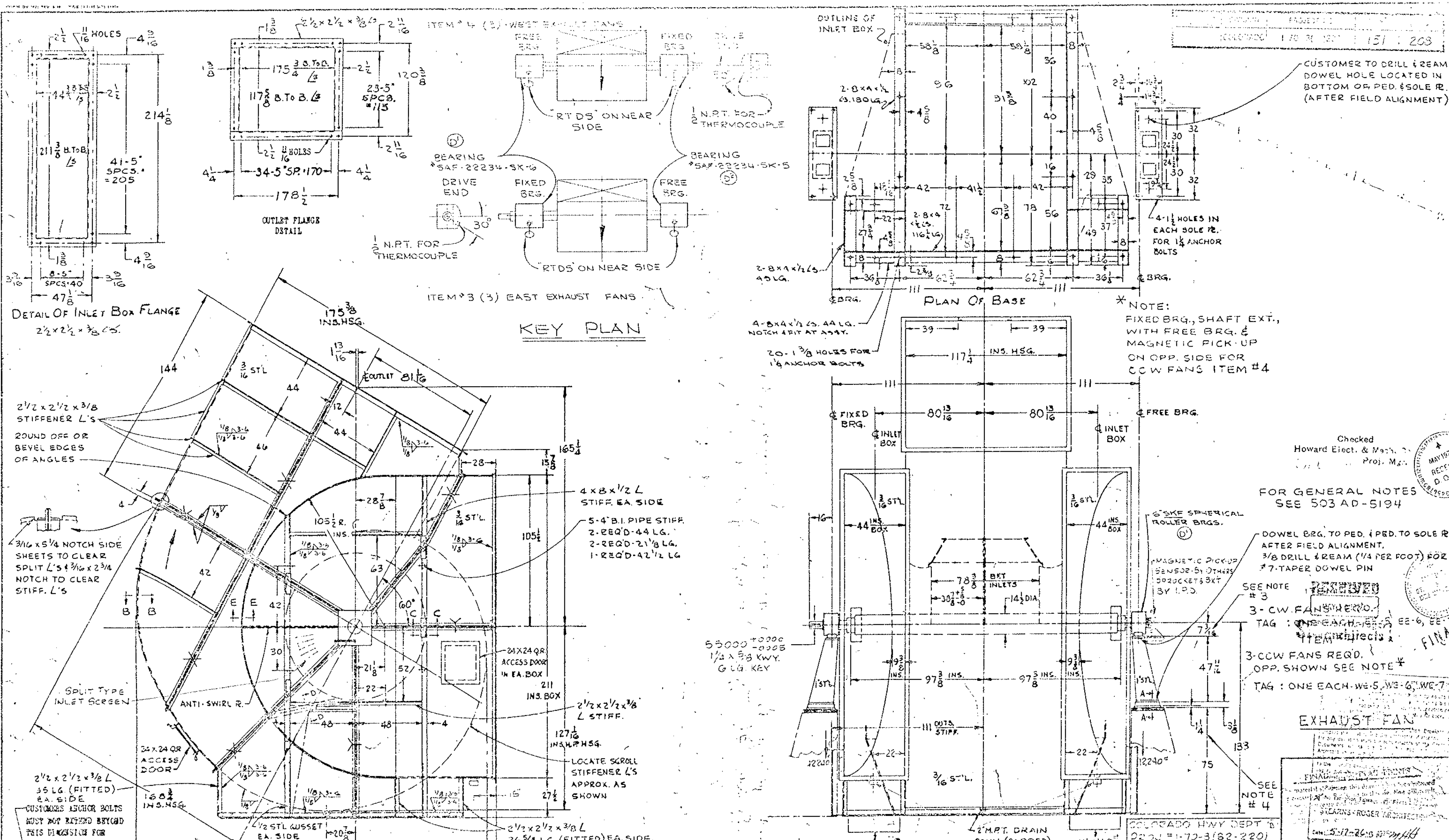
FOR RECORD
DEC 1 1976
A W & V

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; fabrication processes and techniques of construction; coordination of his work with that of all other trades and the performance of all work in a safe and satisfactory manner.
☐ Reject ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit
STEARNS-ROGER ARCHITECTS, LTD.
Date: 12-9-77 By: [illegible]

RECEIVED
MAY 27 1977
stearns-rogers architects

239


DETAIL OF OUTLET FLANGE
2 1/2 x 2 1/2 x 3/8 L'S
ITEM #2 (3) WEST SUPPLY FANS
BEARING #SAF-22234-SK-6
BEARING #SAF-22234-SK-5
FIXED BRG.
FREE BRG.
DRIVE END
RTD'S ON NEAR SIDE
1/2 N.P.T. FOR THERMOCOUPLE
KEY PLAN
ROUND OFF OR BEVEL EDGES OF ANGLES
SPLIT TYPE INLET SCREENS
3/16 STL
INS. HSG.
℄ OUTLET
2 1/2 x 2 1/2 x 3/8 STIFFENER L'S
2-4 x 8 x 1/2 L STIFF EA SIDE
5 x 3 1/2 x 5/16 L STIFF. EA. SIDE
2 1/2 x 2 1/2 x 3/8 L 91 1/2 LG. EA. SIDE
NOTCH STIFF. TO CLEAR BASE L'S
LOCATE SCROLL STIFFENER L'S APPROX. AS SHOWN
24 x 24 Q.R. ACCESS DOOR
CUST'S ANCHOR BOLTS MUST NOT EXTEND BEYOND THIS DIMENSION FOR PEDESTAL REMOVAL.
PEDESTAL
SOLE ℞
GROUT
CONCRETE
SECTION A-A
PLAN OF BASE
OUTLET END
12-1 3/8 HOLES IN BASE L'S. FOR 1 1/4 ANCHOR BOLTS
4-1 1/2 HOLES IN EACH SOLE ℞ FOR 1 1/4 ANCHOR BOLTS
CUST. TO DRILL & REAM DOWEL HOLE LOCATED IN BOTTOM OF PED. & SOLE ℞. (AFTER FIELD ALIGNMENT)
*NOTE: FIXED BRG., SHAFT EXT. ON THIS SIDE WITH FREE BRG. & MAGNETIC PICK UP ON OPP. SIDE FOR CCW FANS ITEM #1
℄ FIXED BRG.
℄ FREE BRG.
6" SKF SPHERICAL ROLLER BRGS.
MAGNETIC PICK-UP SENSOR BY OTHERS SPROCKET & BKT. BY I.P.D.
DOWEL BRG. TO PED. & PED. TO SOLE ℞ AFTER FIELD ALIGNMENT.
SEE NOTE #3
SEE NOTE #4
2" M.P.T. DRAIN CONN. (CAPPED)
OUTS. STIFF.
174 x 5/8 KWY. 6 LG. KEY
Checked Howard Elect. & Mech. Co. Proj. Mgr.
FOR GENERAL NOTES SEE DRWG. 503-A0-5195
ITEM #2
3-CW FANS REQ'D
TAG: ONE EACH-WS-5, WS-6, WS-7
ITEM #1
3 CCW FANS REQ'D
OPP. SHOWN SEE NOTE
TAG: ONE EACH-ES-5, ES-6, ES-7
SUPPLY FAN
COLORADO HWY. DEPT.
PROJ. I-70-3 (82)-220
FOR B/M SEE DRWG. NO.
AMERICAN STANDARD INDUSTRIAL PRODUCTS DIVISION
EISENHOWER TUNNEL VENTILATION
AT DENVER, COLORADO
503D0-5193



NO. OF FANS OPER	RPM	CFM/FAN	TOTAL CFM	S.P.	T.P.	BHP
3	505	450,000	1,350,000	7.75	8.2	6.5
2	505	560,000	1,120,000	4.0	[illegible]	[illegible]
3	[illegible]	305,[illegible]	[illegible]5,000	[illegible]	[illegible]	132
2	338	375,000	750,000	2.00	2.[illegible]	175
3	253	230,000	7[illegible]	1.29	2.[illegible]	83
2	253	280,000	[illegible]	1.2[illegible]	[illegible]	7[illegible]
3	168	155,[illegible]	[illegible]	[illegible]	[illegible]	24.8
2	168	185,000	370,[illegible]	[illegible]	.41	22.7
1	168	215,000	215,000	0.12	[illegible]	17

COLORADO HWY DEPT
0200 #1-70-3(82-220)

TOLERANCE UNLESS OTHERWISE SPECIFIED
0" - 6" = ± 1/64"
6" - 18" = ± 1/32"
18" - 30" = ± 1/16"
30" - 50" = ± 3/32"
50" - 100" = ± 1/8"
100" & ABOVE = ± 3/16"
ANGULAR TOLERANCE = ± 1/4°
TOLERANCE TO BE NON-ACCUMULATIVE

DRAWN RG
CHECKED

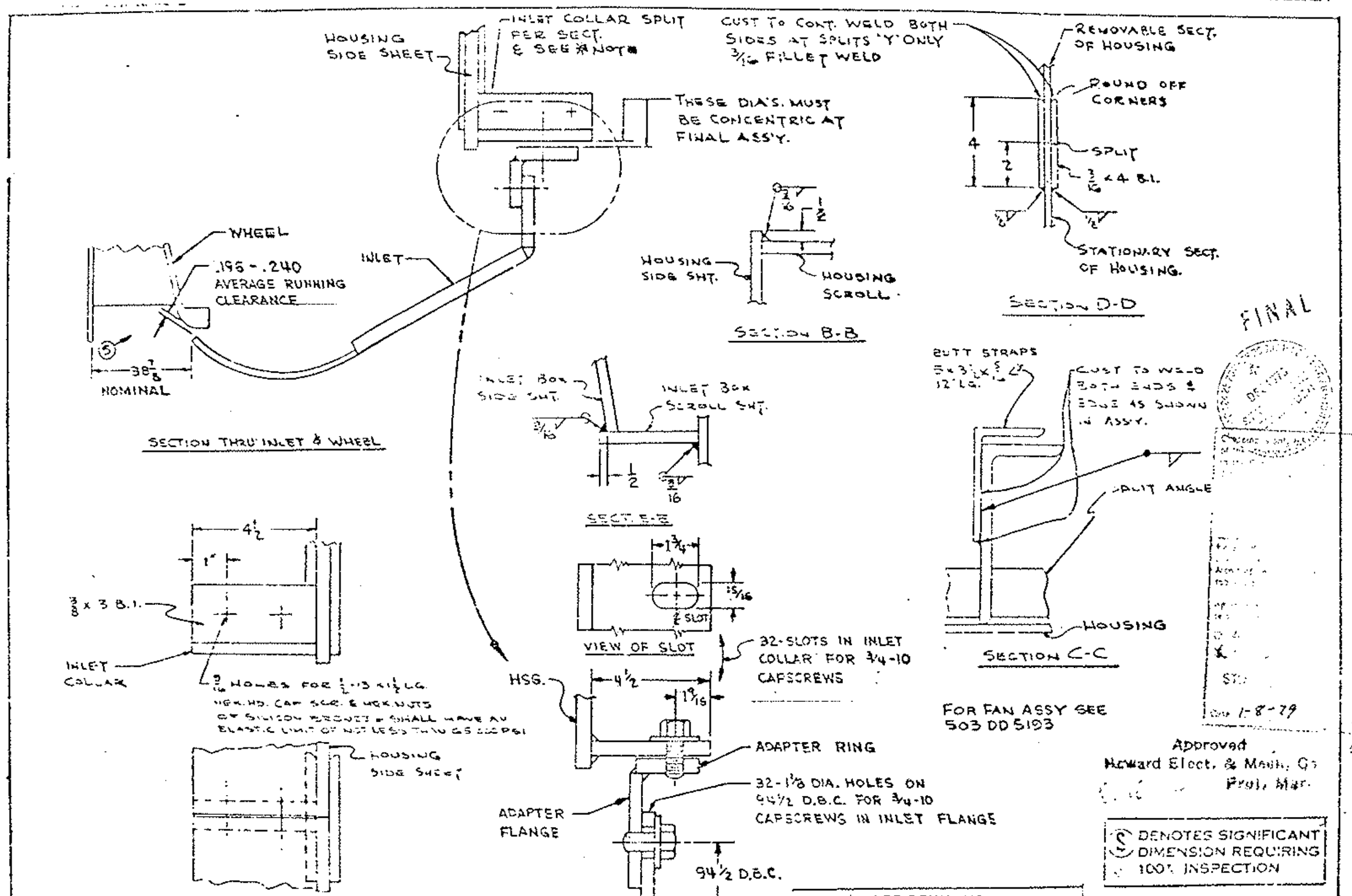
AMERICAN STANDARD INDUSTRIAL PRODUCTS DIVISION

TITLE #1172 SERIES AF 5600-B AR2T 3

FOR EISENHOWER TUNNEL VENTILATION

SALES ORDER NO. 3-78201 CUST. ORDER NO. M-1455

SIZE D DRAWING NUMBER 503DD-5193 REV. D



FINAL

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

Ⓢ DENOTES SIGNIFICANT DIMENSION REQUIRING 100% INSPECTION

* NOTE :
SPLITS X-X-X AT INLET COLLAR BOLTED ON 2" CTR'S. WITH 1/8 GASKETS IN JOINTS. SPLITS Y-Y-Y-Y-Y AT INLET COLLAR BOLTED ON 2" CENTERS WITHOUT GASKETS & SEAL WELDED IN FIELD BY OTHERS.

FOR B/M SEE DRWG. NO.

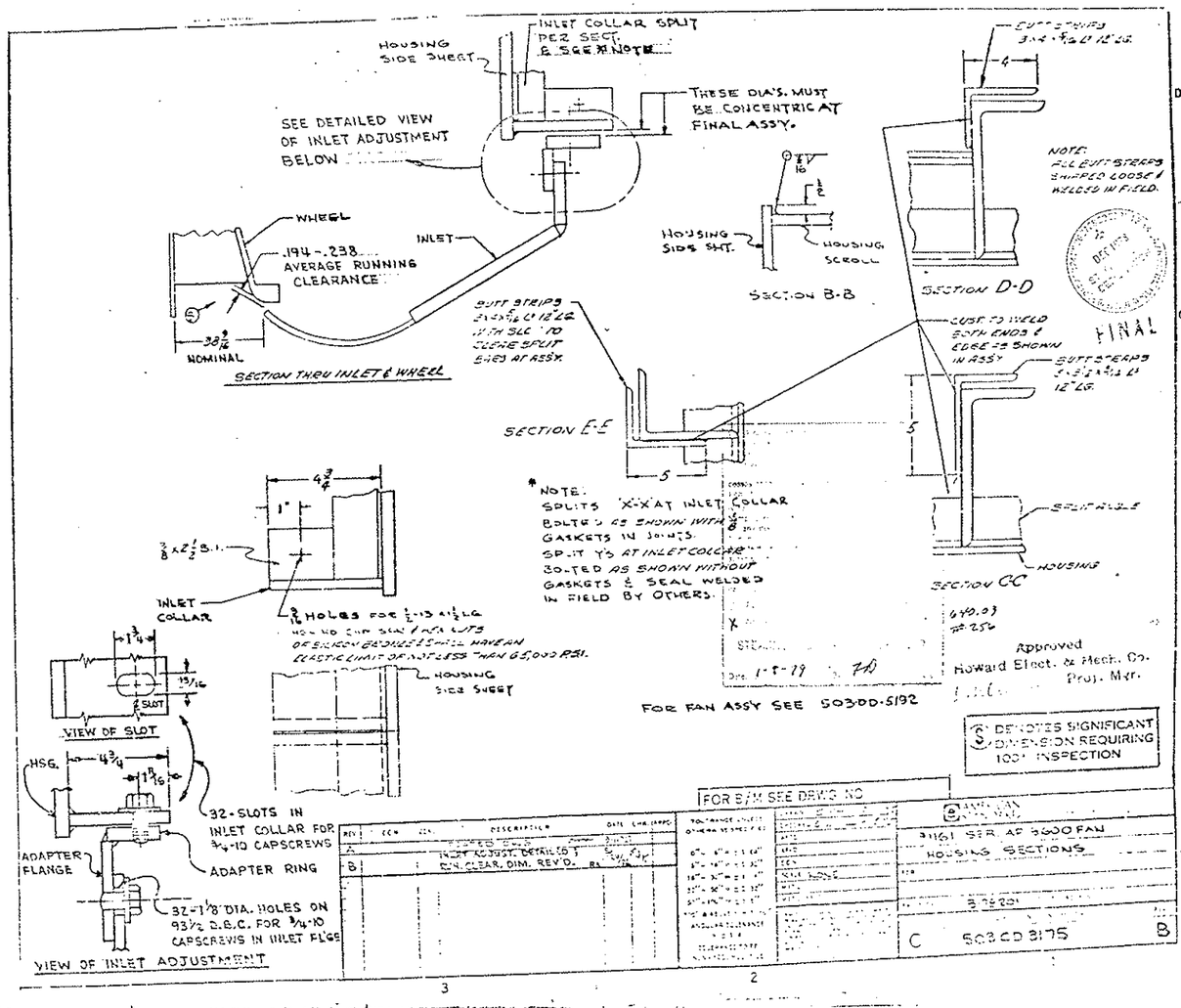
AMERICAN STANDARD

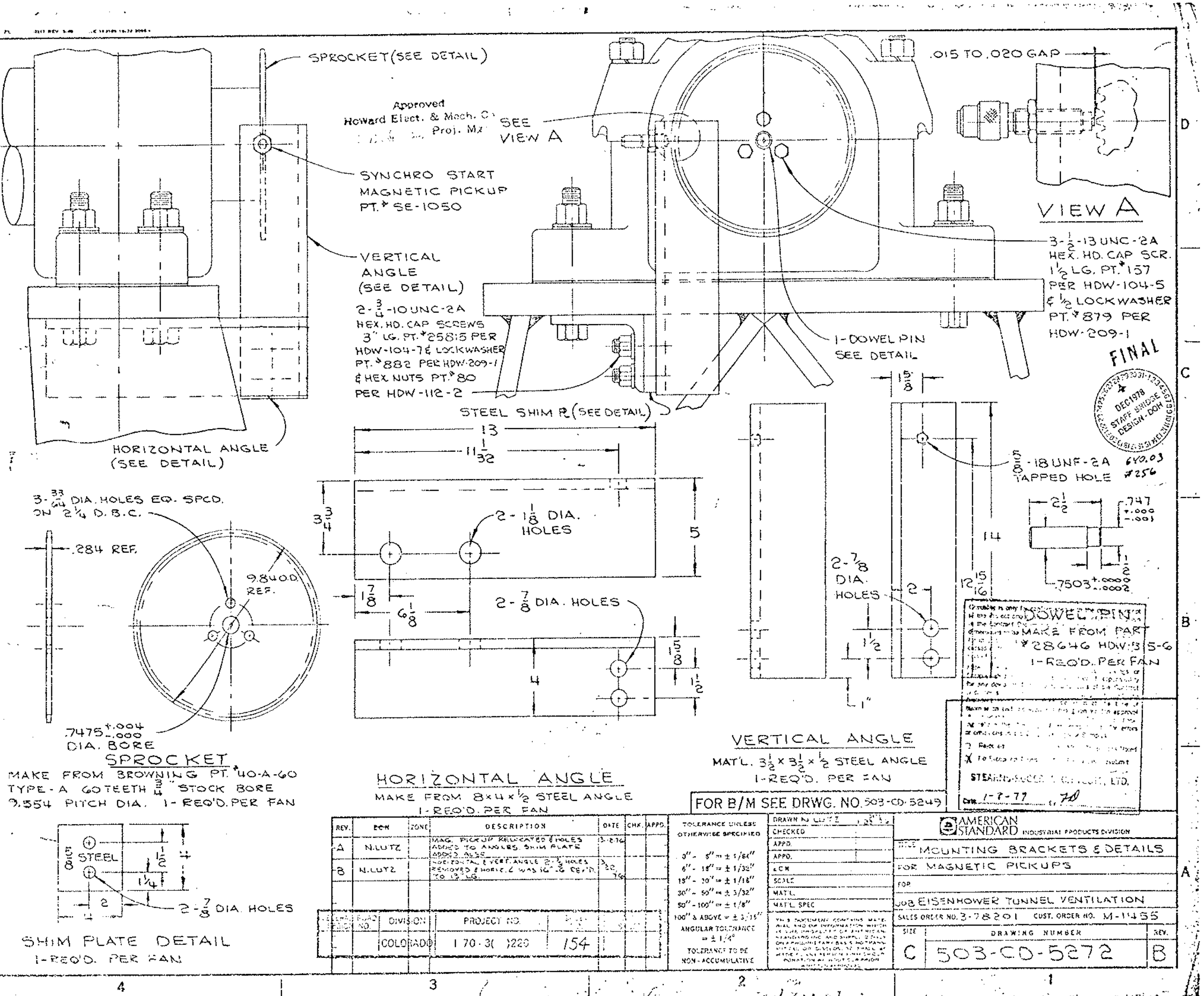
#1172 SER. AF 3600 FAN
HOUSING SECTIONS

B-73201

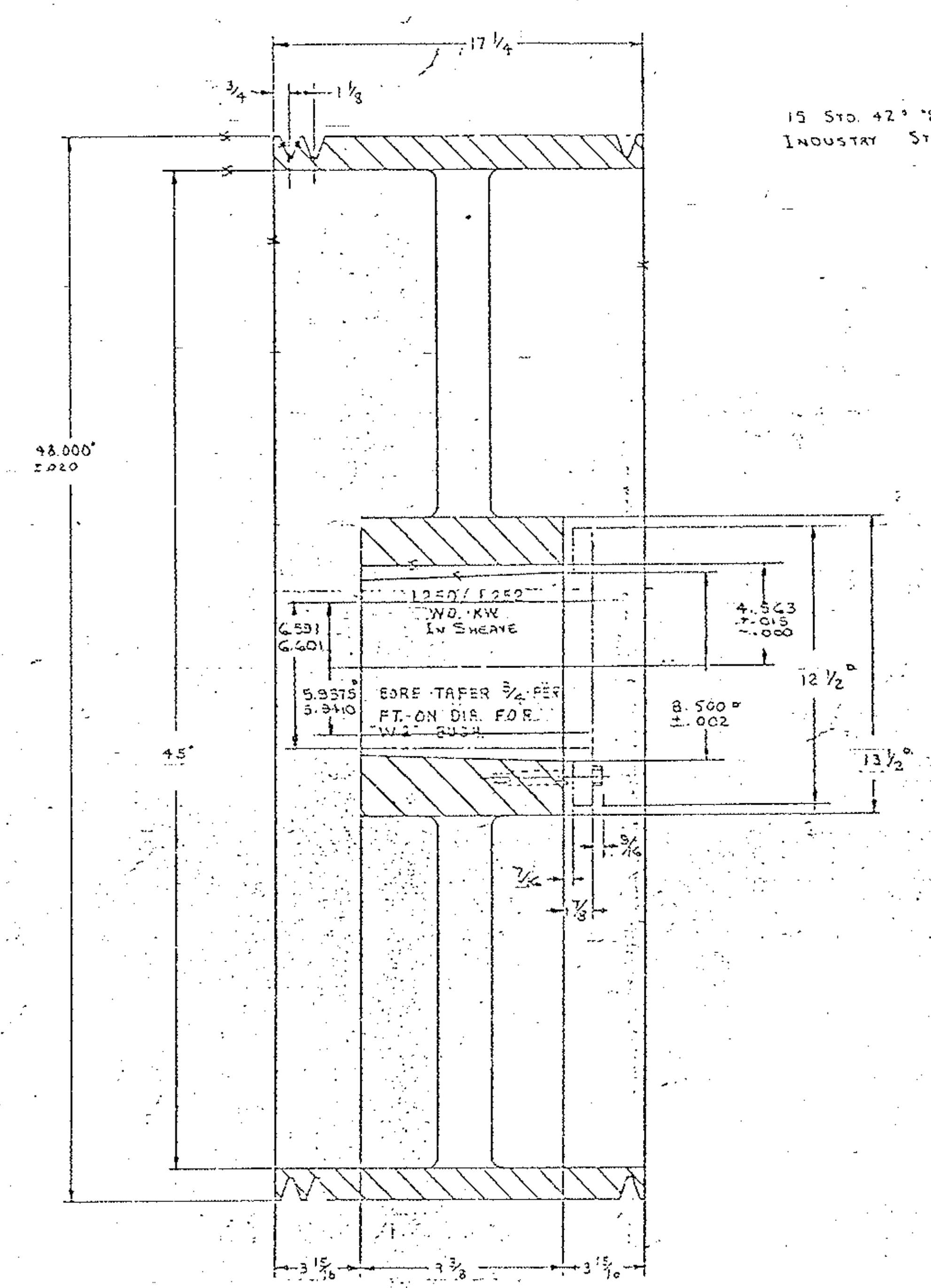
C 503 CD 3167 B

DIVISION	PROJECT NO.	SHT.	DWG.
CONCORD	[illegible]	153	

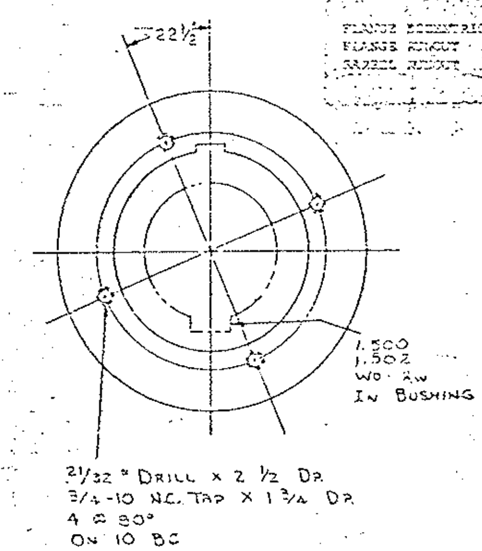


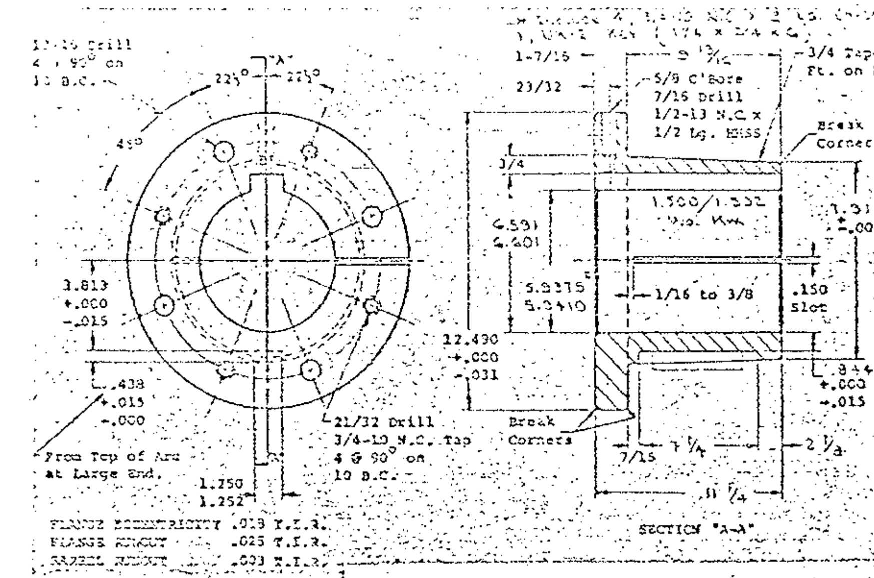

SPROCKET (SEE DETAIL)
Approved
Howard Elect. & Mech. Co.
Proj. Mgr.
SEE VIEW A
.015 TO .020 GAP
VIEW A
SYNCHRO START MAGNETIC PICKUP PT.# SE-1050
VERTICAL ANGLE (SEE DETAIL)
2-3/4-10UNC-2A HEX. HD. CAP SCREWS 3" LG. PT.#25815 PER HDW-104-7 & LOCKWASHER PT.#882 PER HDW-209-1 & HEX NUTS PT.#80 PER HDW-112-2
3-1/2-13UNC-2A HEX. HD. CAP SCR. 1 1/2 LG. PT.#157 PER HDW-104-5 & 1/2 LOCKWASHER PT.#879 PER HDW-209-1
1-DOWEL PIN SEE DETAIL
FINAL
STEEL SHIM PL (SEE DETAIL)
HORIZONTAL ANGLE (SEE DETAIL)
5/8-18UNF-2A TAPPED HOLE
3-33/64 DIA. HOLES EQ. SPCD. ON 2 1/4 D.B.C.
.284 REF.
9.8400 REF.
.7475 +.004 -.000 DIA. BORE
2-1 1/8 DIA. HOLES
2-7/8 DIA. HOLES
2-7/8 DIA. HOLES
.747 +.000 -.001
.7503 +.0000 -.0002
DOWEL PIN
MAKE FROM PART #28646 HDW-315-6
1-REQ'D. PER FAN
SPROCKET
MAKE FROM BROWNING PT. #40-A-60 TYPE-A 60 TEETH 3/4" STOCK BORE 9.554 PITCH DIA. 1-REQ'D. PER FAN
HORIZONTAL ANGLE
MAKE FROM 8x4x1/2 STEEL ANGLE 1-REQ'D. PER FAN
VERTICAL ANGLE
MAT'L. 3 1/2 x 3 1/2 x 1/2 STEEL ANGLE 1-REQ'D. PER FAN
FOR B/M SEE DRWG. NO. 503-CD-5249
STEEL
2-7/8 DIA. HOLES
SHIM PLATE DETAIL
1-REQ'D. PER FAN
STEARNS-ROGER ENGINEERING, LTD.
AMERICAN STANDARD INDUSTRIAL PRODUCTS DIVISION
MOUNTING BRACKETS & DETAILS FOR MAGNETIC PICKUPS
JOB EISENHOWER TUNNEL VENTILATION
SALES ORDER NO. 3-78201 CUST. ORDER NO. M-1455
SIZE C DRAWING NUMBER 503-CD-5272 REV. B
A N.LUTZ MAG. PICKUP RELOCATED & HOLES ADDED TO ANGLES. SHIM PLATE ADDED ALSO
B N.LUTZ HORIZONTAL & VERT. ANGLE 2-1/2 HOLES REMOVED & HOLE C WAS 10" & CENTR TO 13" LG.
DIVISION COLORADO PROJECT NO. 170-3( )220 154
TOLERANCE UNLESS OTHERWISE SPECIFIED
0"-6" = ± 1/64"
6"-18" = ± 1/32"
18"-30" = ± 1/16"
30"-50" = ± 3/32"
50"-100" = ± 1/8"
100" & ABOVE = ± 3/16"
ANGULAR TOLERANCE = ± 1/4°
TOLERANCE TO BE NON-ACCUMULATIVE
DRAWN N. LUTZ
CHECKED
APPD.
APPD.
SCALE
MAT'L.
MAT'L. SPEC

O.D. ECCENTRICITY .017 T.I.R.
FACE RUNOUT .020 T.I.R.



15 STD. 42° "5V" INDUSTRY STD GROOVES





STD. W2" x 5 15/16 B. BUSHING.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	155	208

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's approval relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 2-13-75 By V. Ward

RECEIVED
FEB 11 1975
stearns-roger architects

T-132
#640

Checked
Howard Elect. & Mach. Co.
Proj. Mgr.

DWG NO. WB-2075-SK

BROWNING MANUFACTURING COMPANY, MAYSVILLE, KENTUCKY

42.0 OD. x 15GR. 5V x W2" B. SPCL SHEAVE	MATERIAL	
WESTERN BELTING COMPANY	PART NO.	(1500 LB TU)
	BALANCE	DYNAMIC & STATIC
	FINISH	

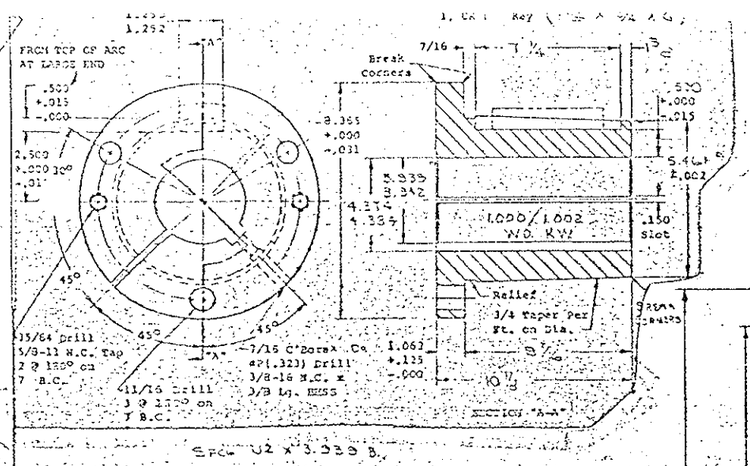
TOLERANCES UNLESS OTHERWISE SPECIFIED

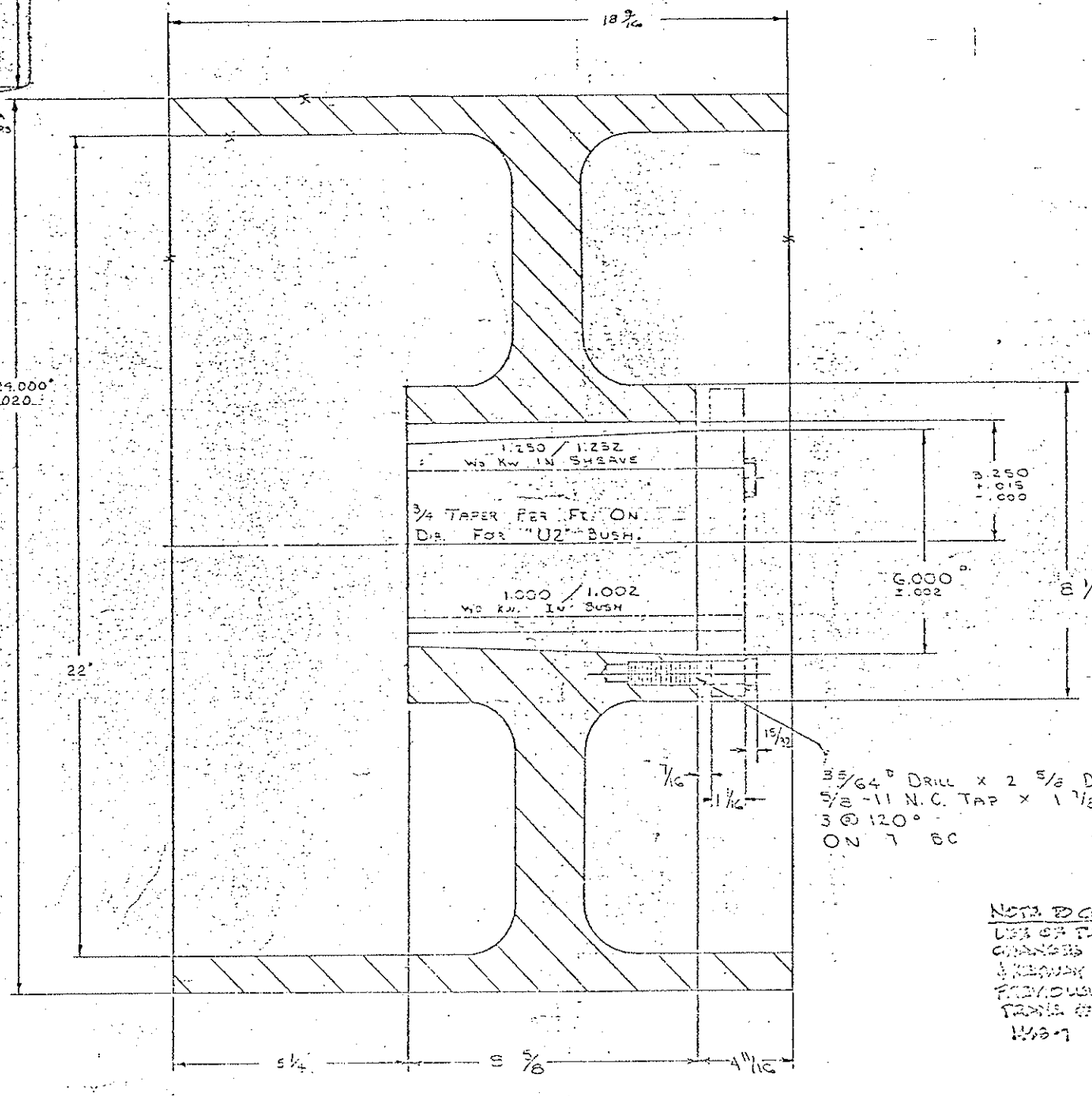
∇ FINISHED SURFACES

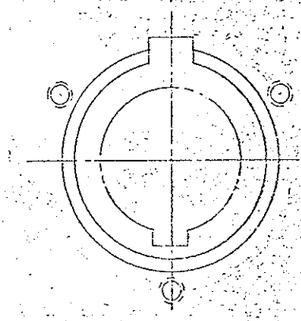
PROJECT NO. I-70-3 (82) 220
LOCATION - EISENHOWER MEMORIAL TUNNEL
CONTENTS - 42.0 OD. x 15 GR. 5V x W2 B

FINAL

FEB 1975
STAFF BRIDGE







HUB ECCENTRICITY ___ T.I.R.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	156	208

NOTE TO CONTRACTOR:
USE OF TAPERLOCK HUBS
CHANGES SHAFT TOLERANCE
& KEYWAY DIMENSIONS
PREVIOUSLY SUBMITTED ON
TRANS. #127, YOUR DWG.
1443-1

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

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☐ Rejected
☐ Make Corrections Noted
☒ No Exception Taken
☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 2-13-76 By [illegible]

FEB 2 3 1976

T-132
#640

Checked
Howard Elect. & Mech. ?
[illegible] Proj. Mgr.

WS-2076-SK

BROWNING MANUFACTURING COMPANY, MAYSVILLE, KENTUCKY

24.000 O.D. x 17 3/4 FACE x 3 3/8 &
SPCL. FLAT FACE IDLER

WESTERN BELTING COMPANY

(30000 PSI)

STATIC

STD. GRAY

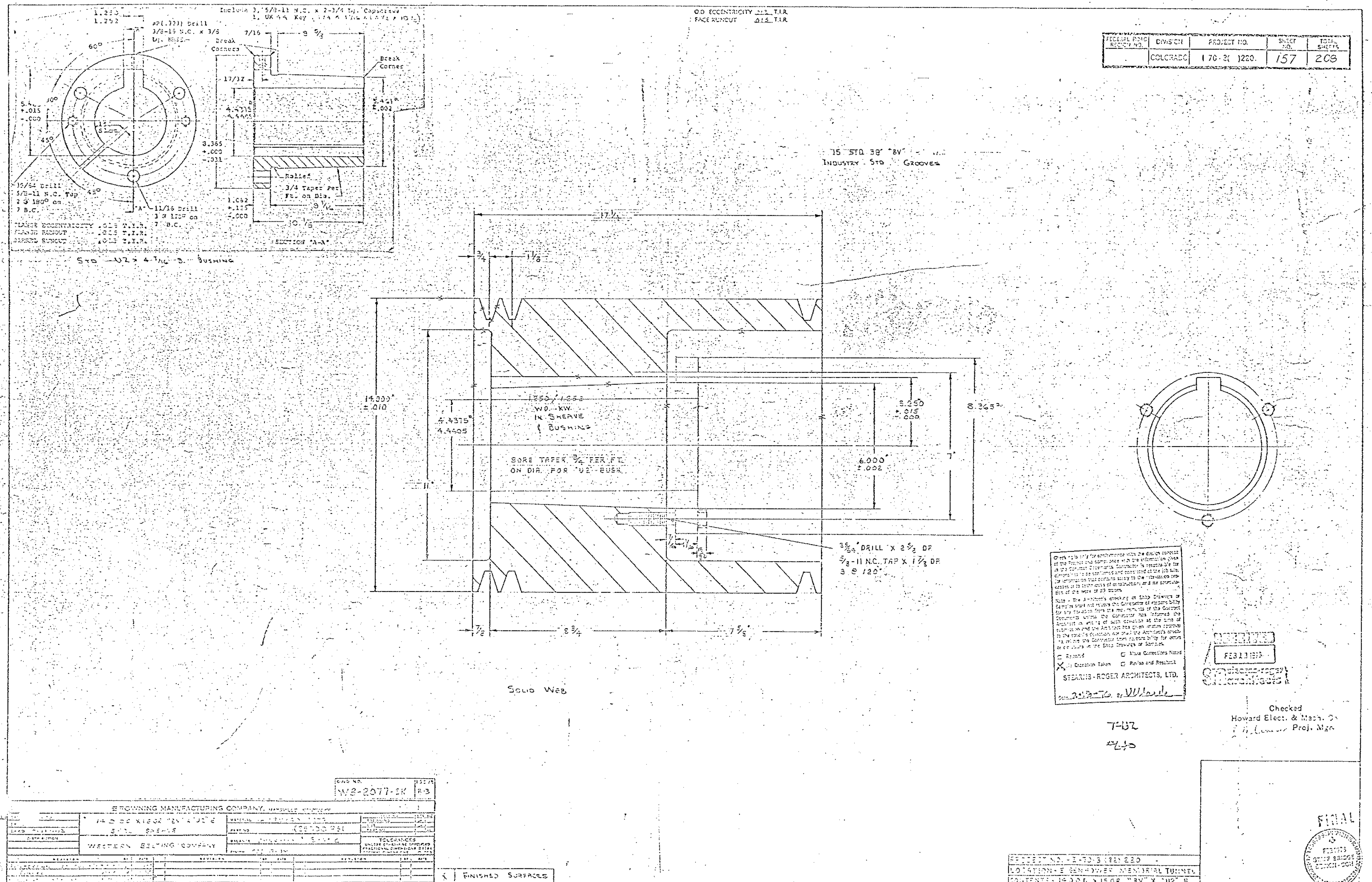
TOLERANCES UNLESS OTHERWISE SPECIFIED

Finished Surfaces

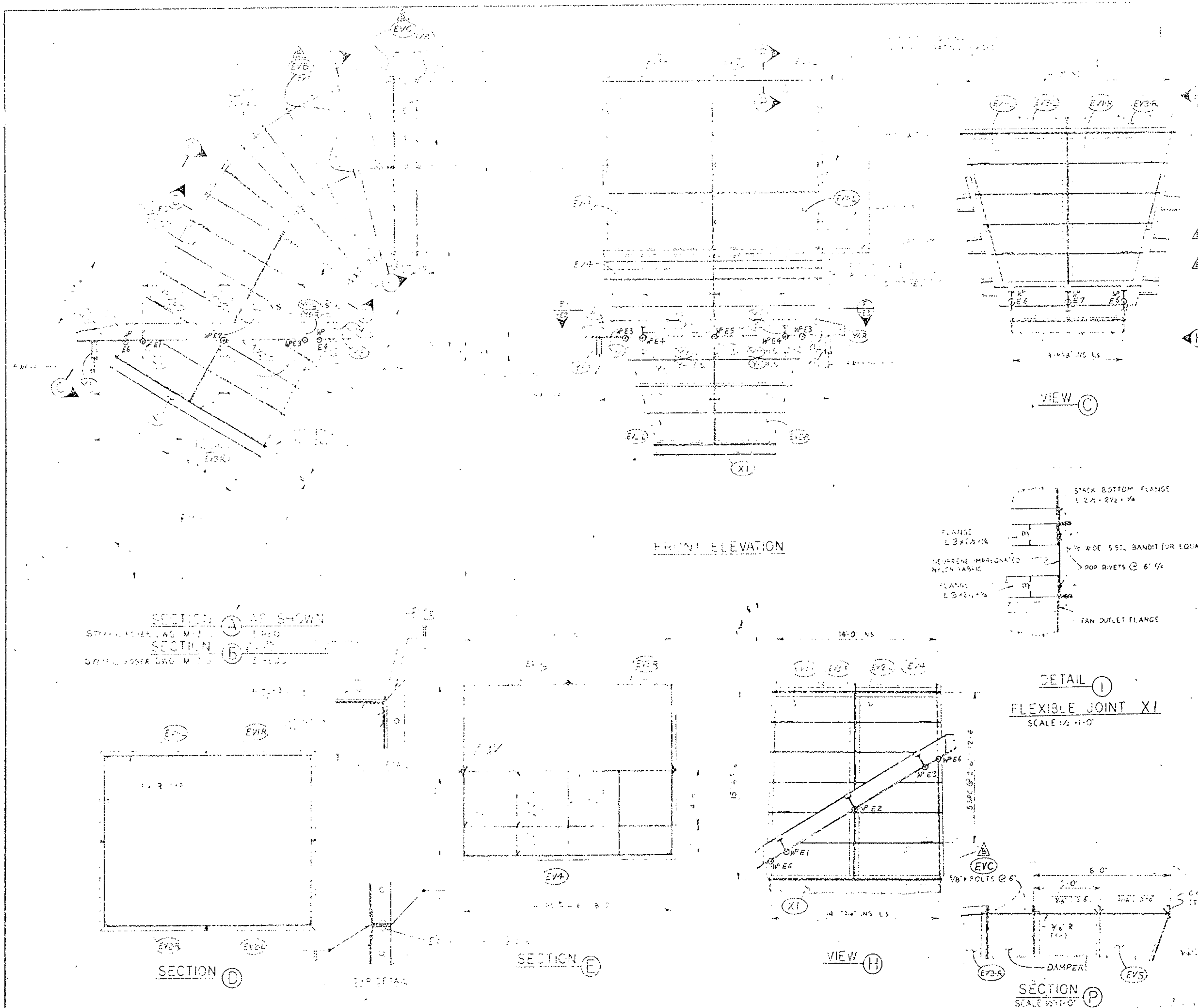
FINAL

FEB 1976
STATE BRIDGE DESIGN-DOH

PROJECT NO. - I-70-3 (22) 220
LOCATION - EISENHOWER MEMORIAL TUNNEL
CONTENTS - 24.000 X 17 3/4 FACE X 3 3/8 B.



FEDERAL ROAD REGION NO. | DIVISION | PROJECT NO. | SHEET NO. | TOTAL SHEETS
COLORADO | I 70-3( )220. | 157 | 208
O.D. ECCENTRICITY .015 T.I.R.
FACE RUNOUT .015 T.I.R.
15 STD. 3B "8V"
INDUSTRY STD. GROOVES
STD. "U2" BUSHING
Rolled
3/4 Taper Per Ft. on Dia.
SECTION "A-A"
Break Corners
Break Corner
11/16 Drill
15/64 Drill
3/8-11 N.C. Tap
FLANGE ECCENTRICITY .015 T.I.R.
FLANGE RUNOUT .015 T.I.R.
BARREL RUNOUT .015 T.I.R.
17 1/4
3/4
1 1/8
14.000" ±.010
4.4375" 4.4405
WD. KW. IN SHEAVE & BUSHING
BORE TAPER 3/4 PER FT. ON DIA. FOR "U2" BUSH.
8.250 +.015 -.000
6.000" ±.002
8.365"
7"
35/64" DRILL X 2 5/8 DP
5/8-11 N.C. TAP X 1 7/8 DP
3 @ 120°
7/8
8 3/4
7 5/8
SOLID WEB
No Exception Taken
STEARNS-ROGER ARCHITECTS, LTD.
Checked
Howard Elect. & Mech. Co
Proj. Mgr.
7-B2
FINAL
DWG NO. WB-2077-1K
BROWNING MANUFACTURING COMPANY
WESTERN BELTING COMPANY
TOLERANCES
FINISHED SURFACES
PROJECT NO. I-70-3 (92) 220
LOCATION - EISENHOWER MEMORIAL TUNNEL
CONTENTS - 14.000 X 15 GR. "8V" X "U2" S.



Job 3159 BILL OF MATERIAL for D2771 E1

SHIP PC	MARK	DESCRIPTION	D2771
6	EV1-L	EVASE SECTION	-13
6	-R	E. S.	
6	2-L		
6	2-R		-14
6	3-L		-6
6	3-R		-16
6	EV4	E. S.	-18
6	EV5	EVASE SECTION	-20
6	X1	FLEXIBLE JOINT	-3
500 (B)	EVB	EVASE ERECTION BOLTS	-18
330 (B)	EVC	DAMPER ERECTION BOLTS	-20

REF.: STEARNS-ROGER DWG'S M-35 & M-65.

NOTES: 1. WORK THIS DWG WITH D2771-E2 & D2771-E3.

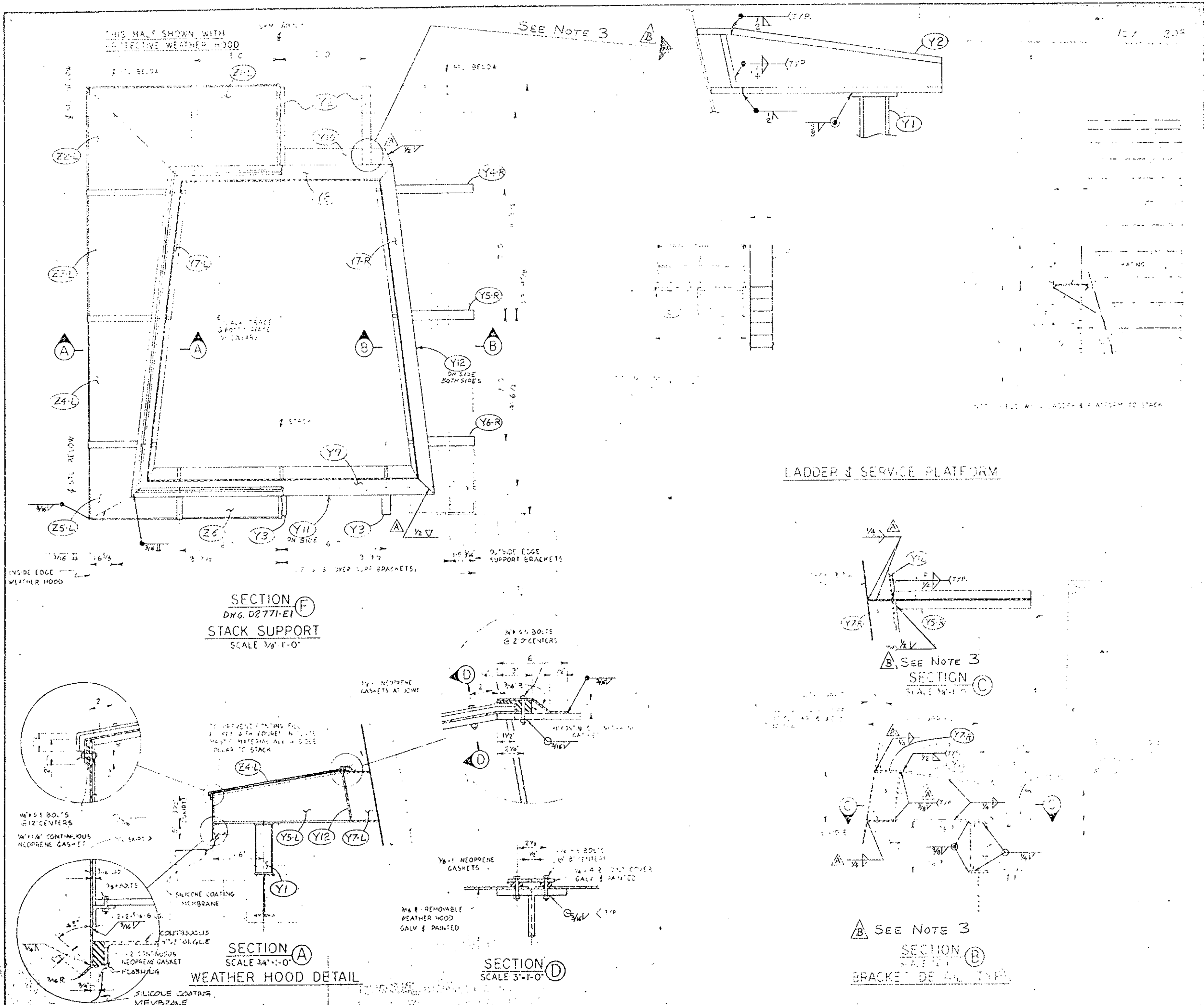
(A) 2. WP'S E1 THROUGH E7 LOCATED ON SKIN PL. AT BOTTOM OF SUPPORT COLLAR.

NO	DATE	REVISIONS
B	12-12-75	ADDED ERECTION BOLTS
A	11-11-75	ADDED LOCATIONS OF WP'S E1 THROUGH E7

	PRINT	RECORD
CHECKER		PAINT NOTE
APPROVAL		SHOP DATE
FINAL APPROVAL		

EATON METAL PRODUCTS CO.
DENVER, COLORADO — SALT LAKE CITY, UTAH

	DATE	SHOP NO.		REV
DRN BY		3959	D2771-E1	B
CHKD BY	10-27-75			



JOB 3959 BILL OF MATERIAL DWG. D2771-E2

SHIP PC	MARK	ASSM PC	DESCRIPTION	DWG. SERIES D2771	LENGTH FT	LENGTH IN
6	S		PLATFORM	-1		
12	T		BRACE	-2		
6	U		LADDER	-3		
6	Y1		SUPPORT LEG	-4		
6	Y2		SUPPORT BRACKET	-4		
6	Y3		SUPPORT BRACKET	-4		
6	Y4-R		SUPPORT BRACKET	-4		
6	Y4-L		SUPPORT BRACKET	-4		
6	Y5-R		SUPPORT BRACKET	-4		
6	Y5-L		SUPPORT BRACKET	-4		
6	Y6-R		SUPPORT BRACKET	-4		
6	Y6-L		SUPPORT BRACKET	-4		
6	Y7-R		SUPPORT COLLAR	-5		
6	Y7-L		SUPPORT COLLAR	-5		
6	Y8		SUPPORT COLLAR	-5		
6	Y9		SUPPORT COLLAR	-5		
6	Y10		SUPPORT COLLAR ℞	-5		
6	Y11		SUPPORT COLLAR ℞	-5		
12	Y12		SUPPORT COLLAR ℞	-5		
6	Z1-R		WEATHER HOOD PANEL	-6		
6	Z1-L		WEATHER HOOD PANEL	-6		
6	Z2-R		WEATHER HOOD PANEL	-6		
6	Z2-L		WEATHER HOOD PANEL	-6		
6	Z3-R		WEATHER HOOD PANEL	-7		
6	Z3-L		WEATHER HOOD PANEL	-7		
6	Z4-R		WEATHER HOOD PANEL	-9		
6	Z4-L		WEATHER HOOD PANEL	-9		
6	Z5-R		WEATHER HOOD PANEL	-8		
6	Z5-L		WEATHER HOOD PANEL	-8		
12	Z6		WEATHER HOOD PANEL	-8		

REF.: STEARNS-ROGER DWG. M-7 S.

NOTES:
1. WORK THIS DWG. WITH D2771-E1 & D2771-E3
2. DUCT SYM. ABOUT ℄ WITH RESPECT TO L-HAND & R-HAND PIECES.
3. SHOP WELD PC's Y4, Y5, & Y6 TO EVASE BOX ER-1. FIELD WELD PC's Y1, Y2, & Y3 TO EVASE BOX ER-1.

EATON METAL PRODUCTS CO.
CHECKED CORRECT

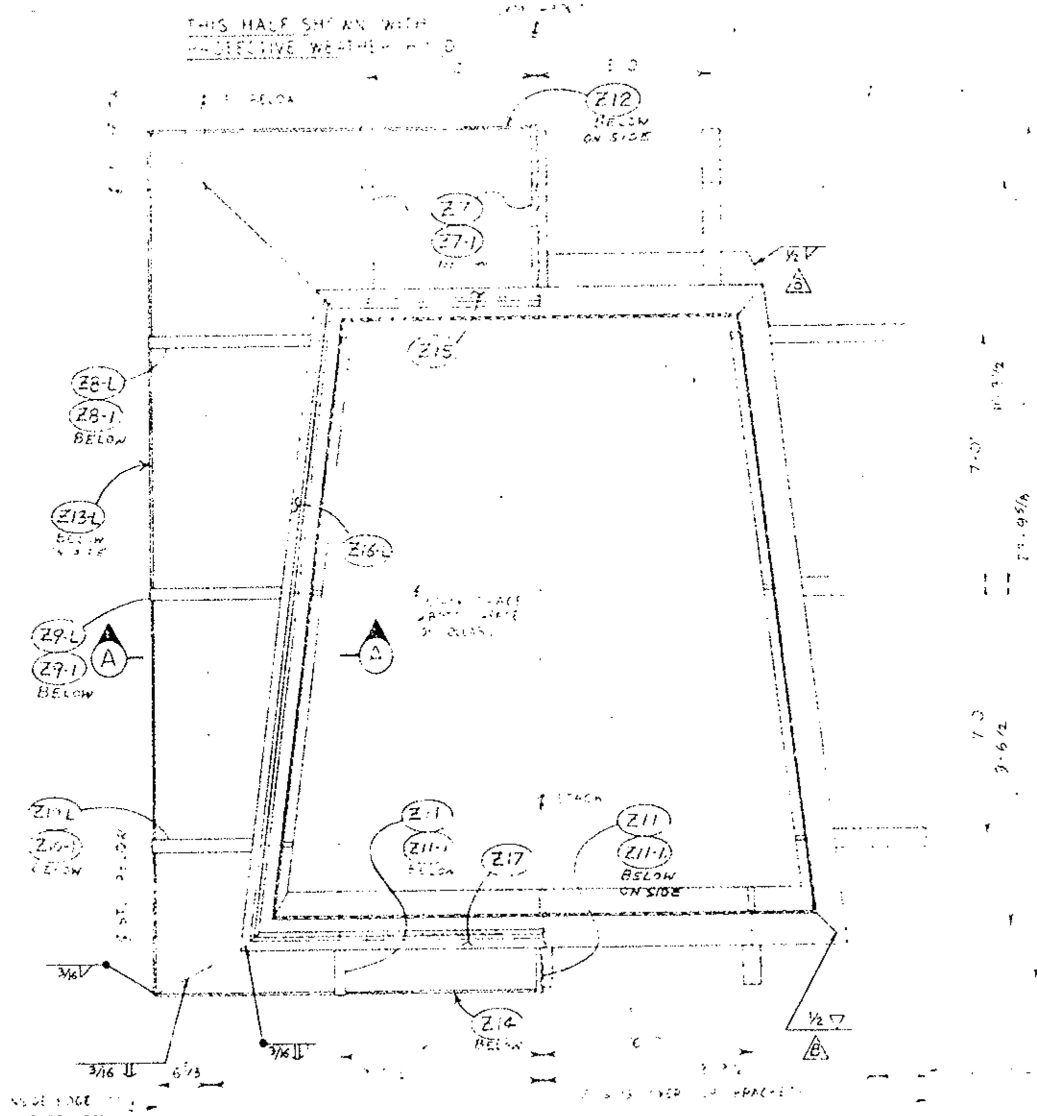
NO	DATE	REVISIONS
B	5-25-76	CHANGED TO SHOW EMP SHOP WELDS. SEE NOTE 3.
A	4-12-76	CHANGED TO SHOW EMP SHOP WELDS.

CHECKER | PRINT | RECORD
APPROVAL | | PAINT NOTE
FINAL APPROVAL | | SHOP | DATE

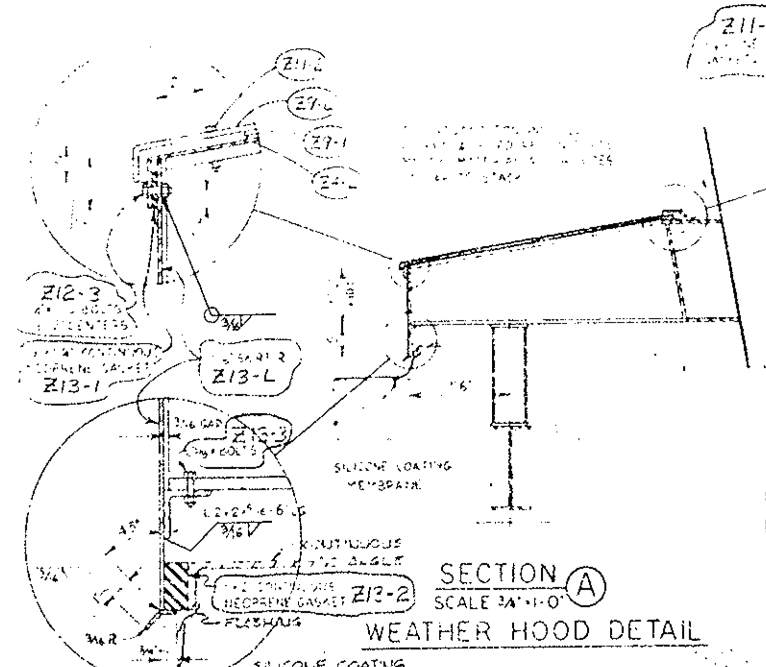
EATON METAL PRODUCTS CO.
DENVER, COLORADO — SALT LAKE CITY, UTAH

EVASE STACK SUPPORT, WEATHER HOOD, LADDER, & SERVICE PLATFORM ERECTION DETAILS
EISENHOWER TUNNEL
HOWARD MECHANICAL

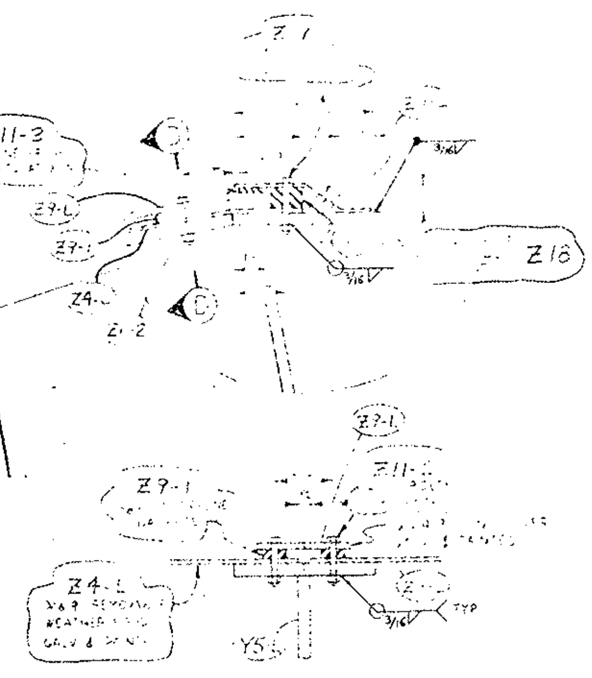
		DATE	SHOP NO		REV
DRN BY	BRENTAR	10-22-75	3959	D2771-E2	B
CHKD BY	PHIL	10-22-75			



SECTION (F)
DWG. D2771-E1
STACK SUPPORT
SCALE 3/8"=1'-0"



SECTION (A)
SCALE 3/4"=1'-0"
WEATHER HOOD DETAIL



SECTION (D)
SCALE 3"=1'-0"

NOTES

1. [Right] hand [side] opposite to left hand pieces as shown in Section (A).
2. Bolting & gaskets at all joints similar to that shown in Section A, with corresponding shipping piece numbers.
3. [Field cut] 4 [pieces] of Z18 for installation at joints.
4. Field cut Z18 to fit.
5. Work this Dwg with D2771-E1 & D2771-E2.

JOB 3959 BILL OF MATERIAL DWG. D2771-E3

SHIP PC	MARK	ASSM PC	DESCRIPTION	DWG SERIES D2771	LENGTH FT	LENGTH IN
18	Z7		Joint Cover	-10		
36	Z7-1		Neoprene Gasket	-10		
6	Z8-L		Joint Cover	-10		
6	Z8-R		Joint Cover	-10		
24	Z8-1		Neoprene Gasket	-10		
6	Z9-L		Joint Cover	-10		
6	Z9-R		Joint Cover	-10		
24	Z9-1		Neoprene Gasket	-10		
6	Z10-L		Joint Cover	-10		
6	Z10-R		Joint Cover	-10		
24	Z10-1		Neoprene Gasket	-10		
18	Z11		Joint Cover	-10		
36	Z11-1		Neoprene Gasket	-10		
(A) 735	Z11-2		3/8"ø S.S. hex head bolt 3/8"ø S.S. nut & washer	-10		
ONE	Z11-3		Neoprene Gasket	-10		
6	Z12		Skirt Panel	-11		
12	Z12-1		Neoprene Gasket	-11		
12	Z12-2		Neoprene Gasket	-11		
555	Z12-3		1/4"ø S.S. hex head bolt 1/4"ø S.S. nut & washer	-11		
6	Z13-L		Skirt Panel	-11		
6	Z13-R		Skirt Panel	-11		
12	Z13-1		Neoprene Gasket	-11		
12	Z13-2		Neoprene Gasket	-11		
145	Z13-3		3/8"ø hex head bolt 3/8"ø nut & washer	-11		
6	Z14		Skirt Panel	-11		
6	Z15		Cover Bar	-12		
6	Z16-L		Cover Bar	-12		
6	Z16-R		Cover Bar	-12		
6	Z17		Cover Bar	-12		
ONE	Z18		Neoprene Gasket	-12		
(A) 205	Z19		3/8"ø S.S. hex head bolt 3/8"ø nut & washer	-12		

Ref: Stearns-Roger Dwg M-7S.

EATON METAL PRODUCTS CO.
CERTIFIED [CORRECT]

NO	DATE	REVISIONS
(B)	4-12-76	Changed to show EMP shop welds
(A)	11-11-75	Changed 1/4" S.S. bolts to 3/8"ø.

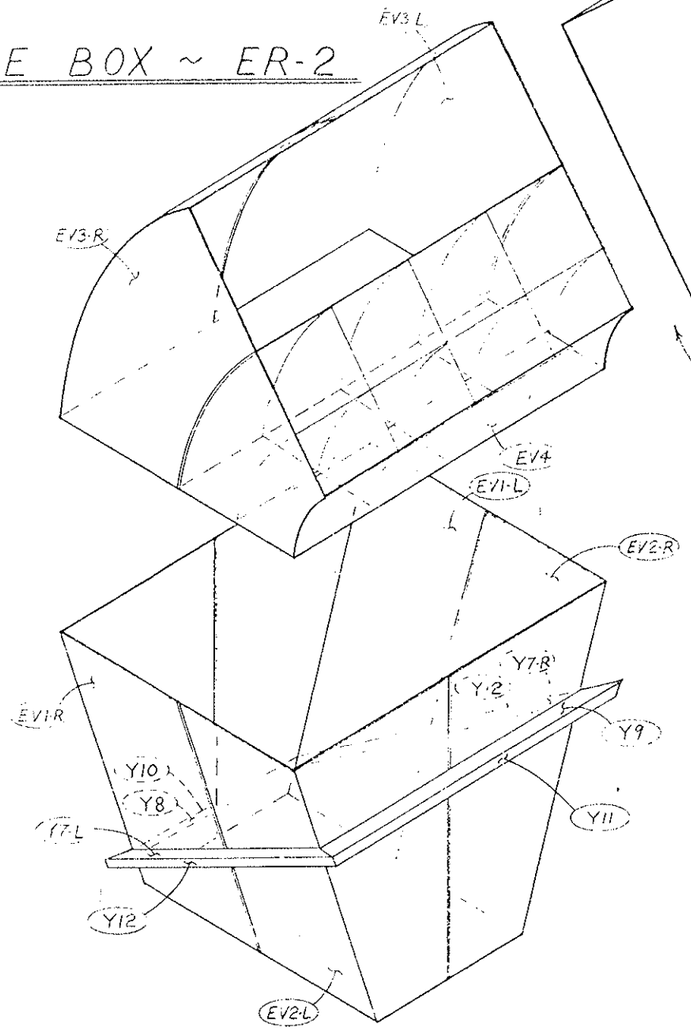
PRINT | RECORD
CHECKER | PAINT NOTE
APPROVAL | SHOP | DATE
FINAL APPROVAL

EATON METAL PRODUCTS CO.
DENVER, COLORADO — SALT LAKE CITY, UTAH

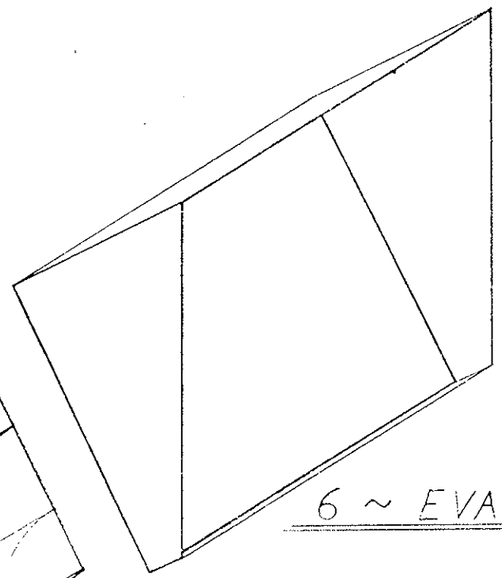
EVASE WEATHER HOOD DETAILS
EISENHOWER TUNNEL
HOWARD MECHANICAL

	DATE	SHOP NO		REV
DRN BY BRENTARI	10-21-75	3959	D2771-E3	(B)
CHKD BY PHIL	10-23-75			

6 ~ EVASE BOX ~ ER-2



6 ~ EVASE BOX ~ ER-1



6 ~ EVASE BOX ~ EV5

SAMPLE BETWEEN ER-2 & EV5

Job 3759 BILL OF MATERIAL Dwg. D2771-E4

SHIP PC	MARK	ASSY PC	DESCRIPTION	LENGTH FT	LENGTH IN
6	ER-1		EVASE BOX		
6	ER-2		EVASE BOX		
6	EV5		EVASE BOX		

NOTES:

1. SEE DWG D2771-E1 FOR S/M LISTING & DETAIL DWG LOCATIONS.
2. SEE DWG D2771-E1 & DETAIL DWG'S FOR WP LOCATIONS & DIMENSIONS.
3. SEE DWG D2771-E1 FOR SHOP WELDS.

NO	DATE	REVISIONS
		PRINT RECORD
CHECKER		PAINT NOTE
APPROVAL		SHOP DATE
FINAL APPROVAL		

EATON METAL PRODUCTS CO.
DENVER, COLORADO SALT LAKE CITY, UTAH

EVASE STACK BOX ASSEMBLIES
EISENHOWER TUNNEL
HOWARD MECHANICAL

	DATE	SHOP NO.		REV
DRN BY BRENTARI	4-13-76	3959	D2771-E4	
CHKD BY [illegible]	4-13-76			

4-1¼" ANCHOR BOLTS

1½"ϕ WEEP HOLES

4-1¼" ANCHOR BOLTS MARK = 1¼ AB45

1¼"ϕ ANCHOR BOLTS OR 1¼"ϕ EXPANSION BOLTS AS REQ'D. (SEE CONTRACT DRAWINGS)

⚠ ANCHOR BOLT SCHEDULE
SUPPLY FAN & MOTOR BASES ONLY

	A	B	C	D	E	F	REMARKS
-0-	⅝"ϕ	22"	3"	3"	1½"	6"	NONE REQ'D.
48	¾"ϕ	24"	4"	4¼"	2"	8"	4¼" FOR CLUTCH
48	⅝"ϕ	*	4"	4½"	2½"	12"	4⅝" FOR MOTORS
48	1¼"ϕ	45"	5"	5"	3"	16"	5" FOR FAN PEDESTALS
24	¾"ϕ	*	4"	4¼"	2"	8"	4¾" FOR PULLEY SUPPORTS

* LENGTH TO BE DETERMINED IN FIELD

SECTION "A-A"

SECTION "B-B"

NOTES:
1. CLUTCH & MOTOR SHALL BE ANCHORED WITH ANCHOR BOLTS.
2. USE ANCHOR BOLTS PER DETAIL THIS DWG.
3. THIS DRAWING SUPERCEDES ALL PREVIOUS SHOP DRAWINGS.

FINAL

NO.	DESCRIPTION	DATE	BY
⚠	CHANGED ANCHOR BOLT SCHEDULE ADDED NOTE #3	7-25-76	RV
⚠	CHAN. TO DIMENSIONS	11-5-75	RV
⚠	REVISED PER STEENS-ROGER COMMENTS	10-17-75	RV

REVISIONS

HOWARD MECHANICAL COMPANY
6701 WEST ALAMEDA AVE. DENVER, COLORADO 80226
PROJECT CONTRACT NO. 1-70-3(82)-220
JOB: EISENHOWER TUNNEL VENTILATION
TITLE:
MOTOR & FAN BASES FOR FANS WS-5, WS-6 & WS-7 AS SHOWN ES-5, ES-6 & ES-7 OPP. HAND.

SCALE	QUANTITY	CHECKED BY	DATE	DRAWING NO.
NO SCALE	RAW		10-15-75	1463-1

2-10-76 VM
T-130

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract [illegible] Contractor is responsible for [illegible] confirmed and correlated at the job site; [illegible] fabrication processes [illegible] construction and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples [illegible] Contractor [illegible] responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted

☒ No Exception Taken ☐ Revise and Resubmit

STEARNS - ROGER ARCHITECTS, LTD.

Date 1-7-76 By

RECEIVED
DEC 3 1 1975
stearns-roger architects

JAN 1976
RECEIVED
D. O. H.

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

FINAL

NO.	DESCRIPTION	DATE	BY

REVISIONS

HOWARD MECHANICAL COMPANY
6701 WEST ALAMEDA AVE. DENVER, COLORADO 80226

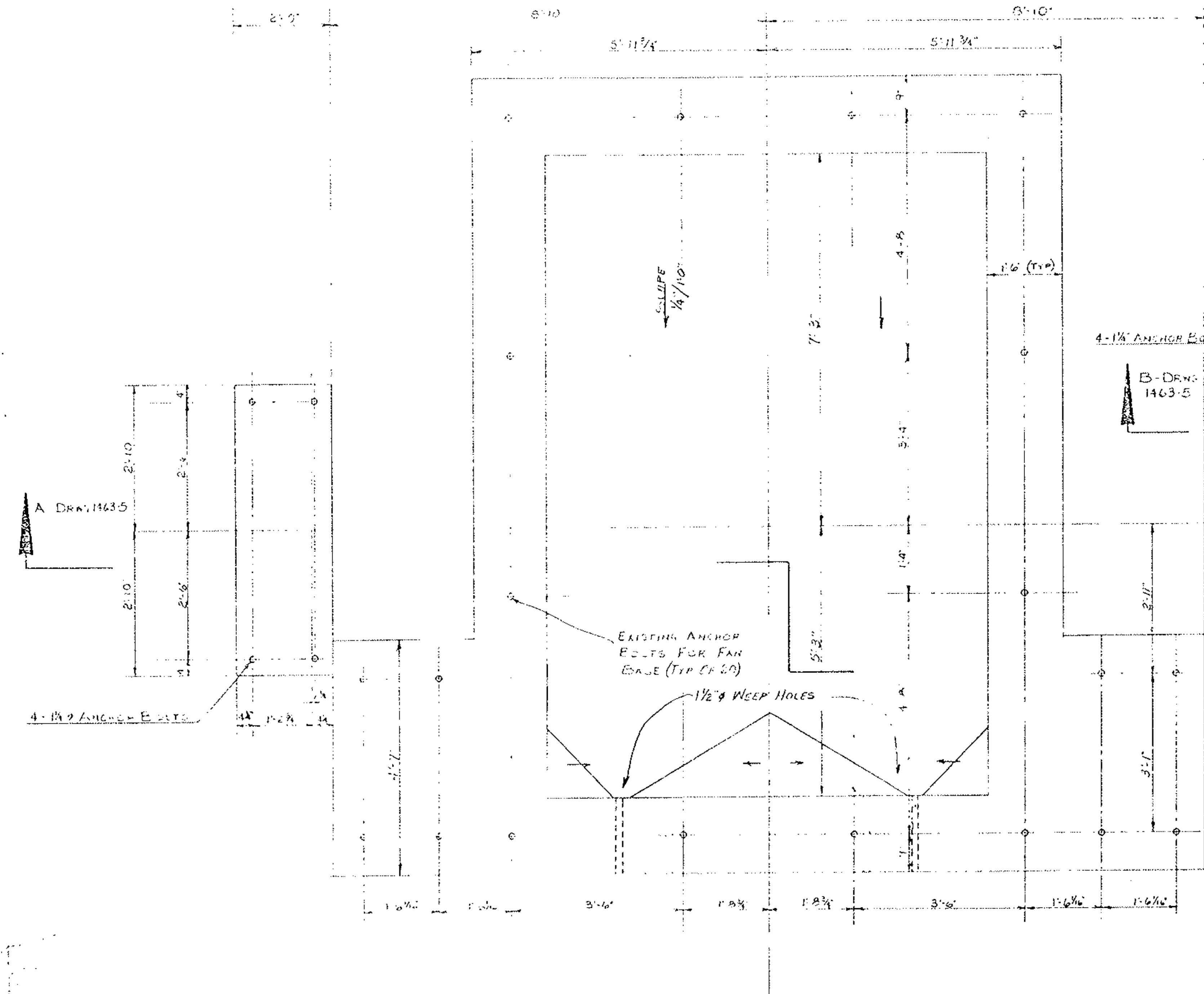
PROJECT ~~[illegible]~~ I-70-3(34)220

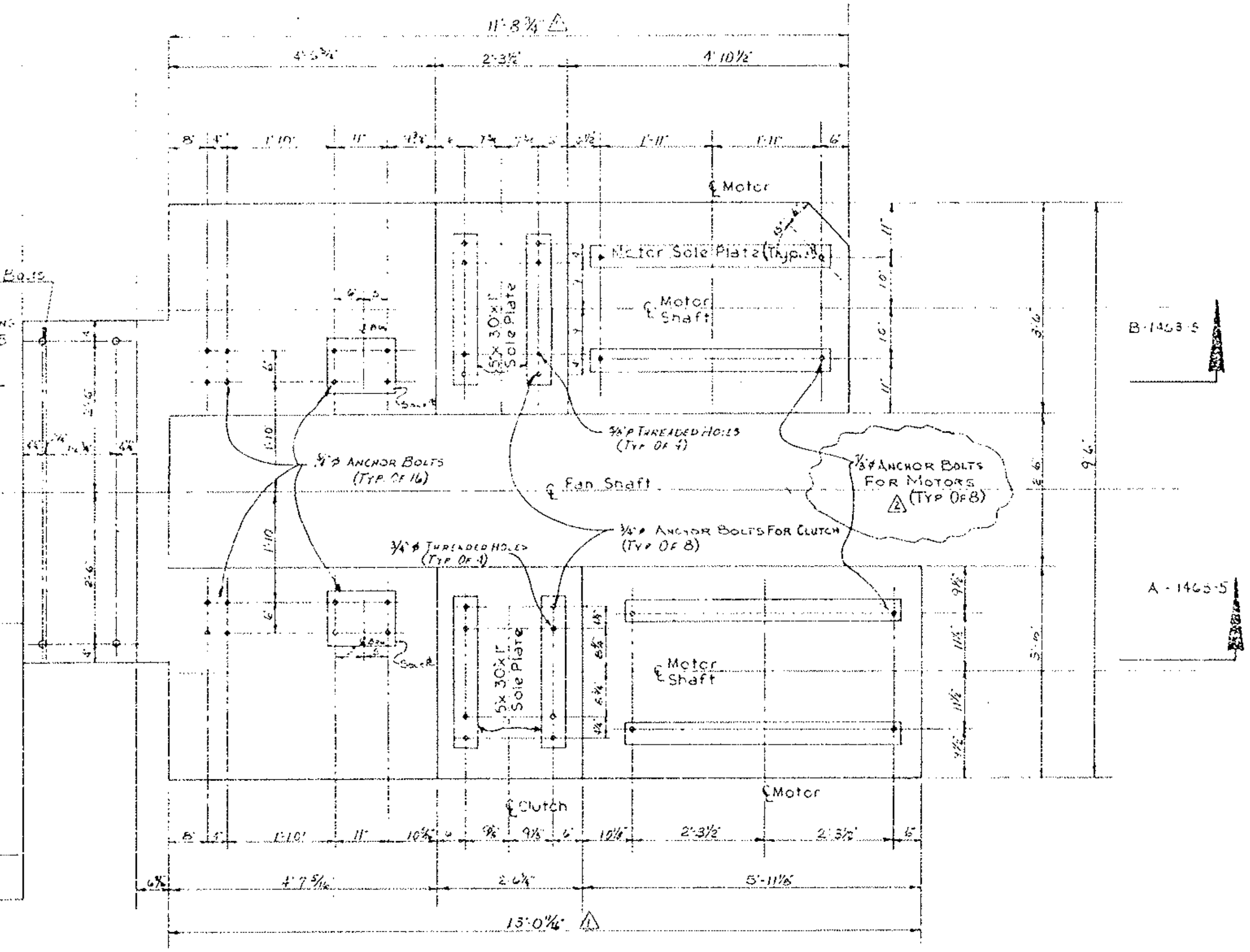
JOB EISENHOWER TUNNEL VENTILATION

TITLE:

ELEVATION OF MOTORS, BASES & FAN PEDESTAL

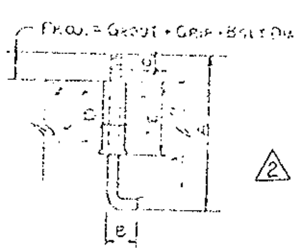
SCALE	DRAWN BY	CHECKED BY	DATE	DRAWING NO.
[illegible]	[illegible]		[illegible]	[illegible]





Anchor Bolt Schedule

Exhaust Fan & Motor Bases Only



Qnty	Size Dia	Length "A"	Hook "B"	Thread "C"	Washer Size "D"	Sleeve Length "E"	Proj.	Remarks
-0-	⅝"φ	22"	3"	3"	1½"	6"		None Req'd.
48	¾"φ	24"	4"	4¼"	2"	8"	4¼"	For Clutch
48	⅞"φ	30"	4"	4½"	2½"	12"	4⅝"	For Motors
48	1¼"φ	45"	5"	5"	3"	15"	5"	For Fan Pedestals
96	¾"φ	24"	4"	4½"	2"	8"	4¾"	For Pulley Supports

Approved For Construction

1/23/76 DMOwens

2-10-76 VM

T-130
#640

Notes

1. Clutch & Motor Shall Be Anchored With Anchor Bolts.
2. This Drawing Supercedes All Previous Shop Drawings.

No.	Description	Date	By
2	Added Anchor Bolt Schedule, Changed Size Of Motor Anchor Bolts, Revised Approval Date & Changed Note # 2	1-22-76	RW
1	Revised Dimensions	1-6-75	RW

Revisions

HOWARD MECHANICAL COMPANY
6701 West Alameda Ave Denver, Colorado 80226

PROJECT [redacted] NO.: I-70-3(62)-220

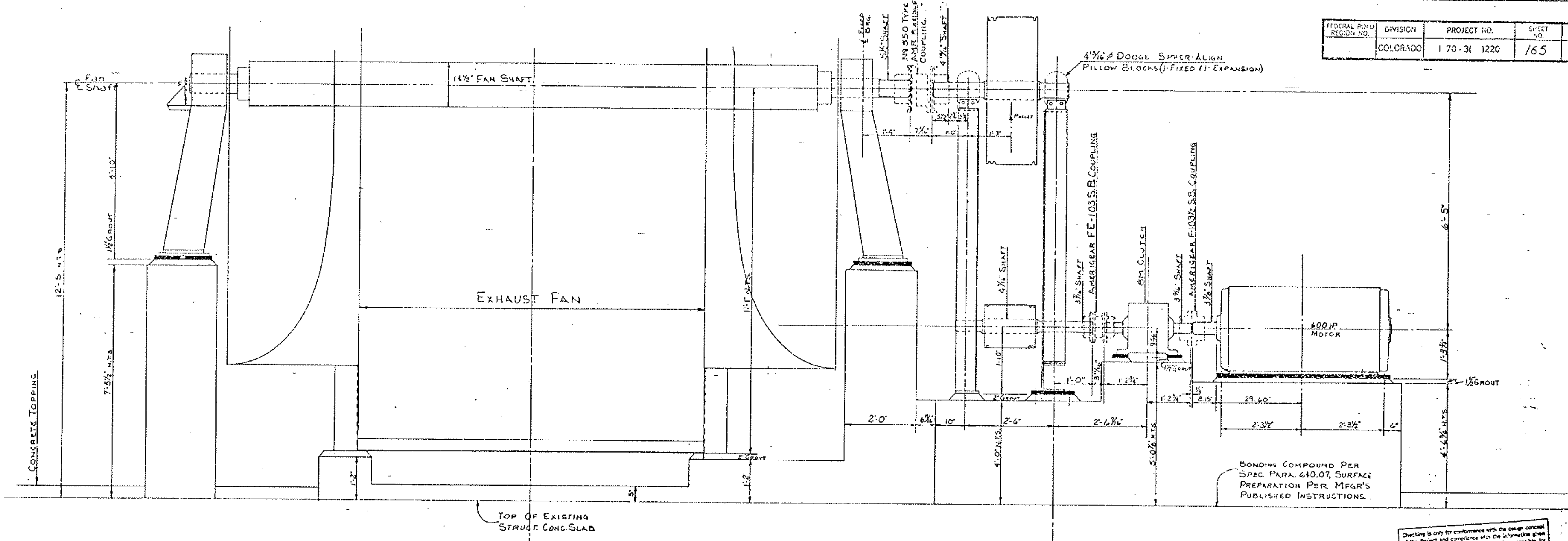
JOB. Eisenhower Tunnel Ventilation

TITLE:

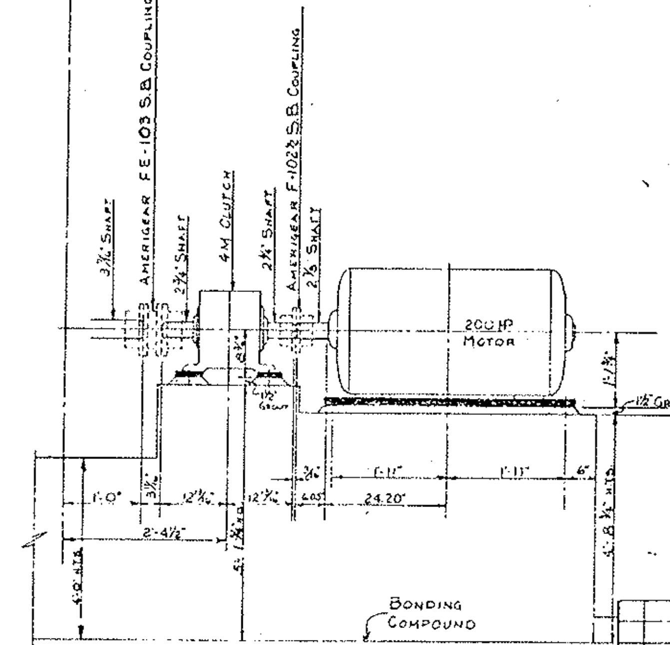
Exhaust Fan And Motor Bases
For Fans WE-5, WE-6 & WE-7 As Shown
EE-5, EE-6 & EE-7 Opp. Hand

Scale	Drawn By	Checked By	Date	Drawing No.
None	Ray W.		12-10-75	1463-4

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	165	208



Section "A-A"



Section "B-B"

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents.

- ☐ Rejected
- ☐ Make Corrections Noted
- ☒ No Exception Taken
- ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 1-9-76 By [signature]

RECEIVED
JAN 08 1976
stearns-roger architects

JAN 1976 RECEIVED D.O.H.

Checked
Howard Elect. & Mech. Co.
[signature] Proj. Mgr.

FINAL

FINAL

NO.	DESCRIPTION

REVISIONS

JAN 1976 STAFF BRIDGE

HOWARD MECHANICAL COMPANY
5701 WEST ALAMEDA AVE. DENVER, COLORADO 80226

PROJECT [redacted] NO: I-70-3(82)220

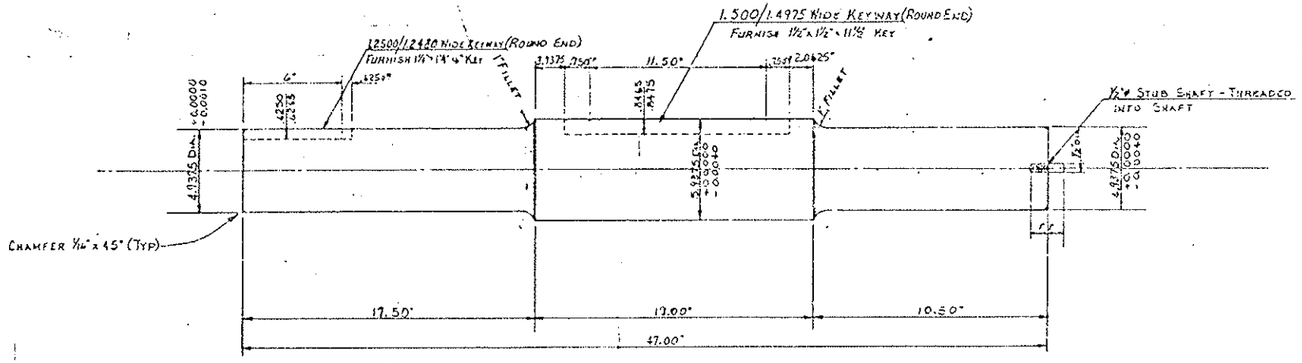
JOB: EISENHOWER TUNNEL VENTILATION

TITLE:

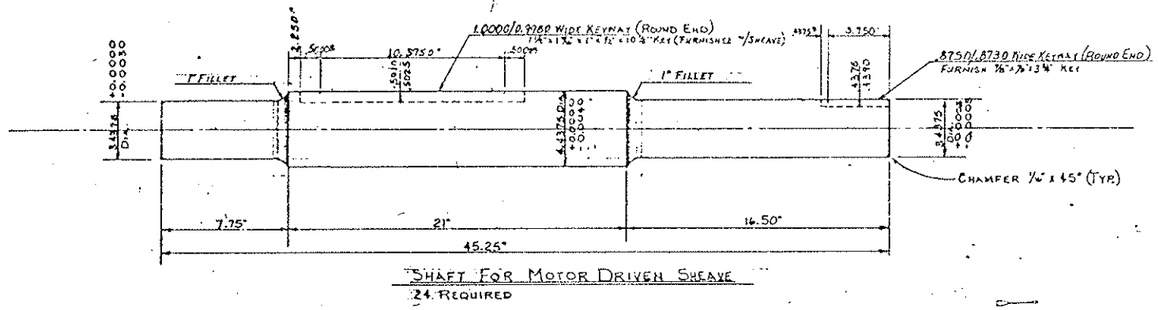
EXHAUST FAN AND MOTOR BASES

SCALE	DRAWN BY	CHECKED BY	DATE	DRAWING NO.
¾" = 1'-0"	RAY W.		12-11-75	1465-5

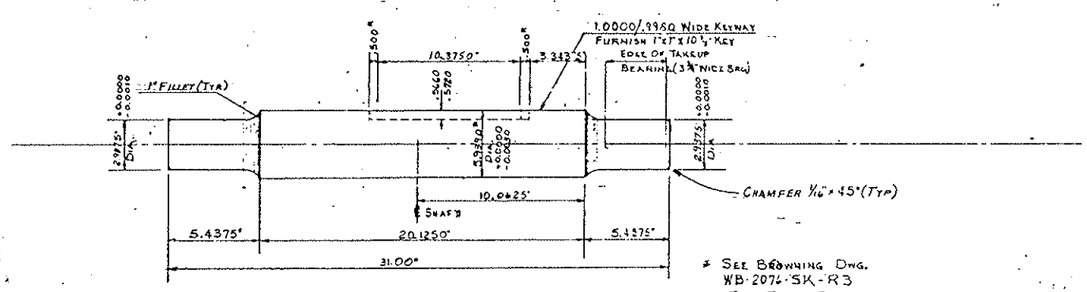
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
..	COLORADO	I 70-3( )220	166	208



SHAFT FOR 48"ø DRIVE SHEAVE
12 REQUIRED



SHAFT FOR MOTOR DRIVEN SHEAVE
24 REQUIRED



* See Browning Dwg. WB-2076-SK-R3 For Bore Size

SHAFT FOR IDLER SHEAVE
12 REQUIRED

8. Shafts shall be annealed steel (AISI - 1042 or 1045) and conform to ASTM A575 and Federal Specification QQ-S-630. The design of the shafts shall be based on unit stresses not in excess of thirty percent of the elastic limit of the material. Specimens machined from full size prolongations of the shaft material shall show the following:

minimum properties:

Tensile Strength Per Square Inch	80,000 pounds
Elastic Limit, Per Square Inch	44,000 pounds
Elongation in Two Inches	36 percent
Reductions in Area	40 percent

Shafts shall be machined throughout their entire length with maximum fillet radius and shall be free from pipes, pits, cracks, tool marks or other imperfections. The tolerance in shaft diameters and finish shall conform to the requirements of mating components, including couplings, bearings, seals and sheaves.

Checking is only for conformance with the design concepts of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site. All information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents, unless the Contractor has brought the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☑ No Exception Taken ☐ Review and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.
Date 4-5-76 By

RECEIVED
APR 01 1976
Stearns-roger architects

1160
640.05(c)8

APR 1976 RECEIVED C.D.H. STAFF BRIDGE DESIGN - DOH

Checked
Howard Elect. & Mech. Co.
DMcCann Proj. Mgr. FINAL

NO.	DESCRIPTION	DATE	BY
2	DIMENSIONS REVISED PER FINAL SUBMITTAL	7-25-76	RW
1	COORDINATED W/APPROVED SHAVE DRAWS	5-2-76	RW

REVISIONS

HOWARD MECHANICAL COMPANY
6701 WEST ALAMEDA AVE. DENVER, COLORADO 80226

PROJECT [redacted] NO: I-70-3(82)-220

JOB: EISENHOWER TUNNEL VENTILATION

TITLE:
SHEAVE SHAFT DETAILS

SCALE	DRAWN BY	CHECKED BY	DATE	DRAWING NO.
NONE	RAY K.		1-9-76	1463-E7

CERTIFIED PRINT

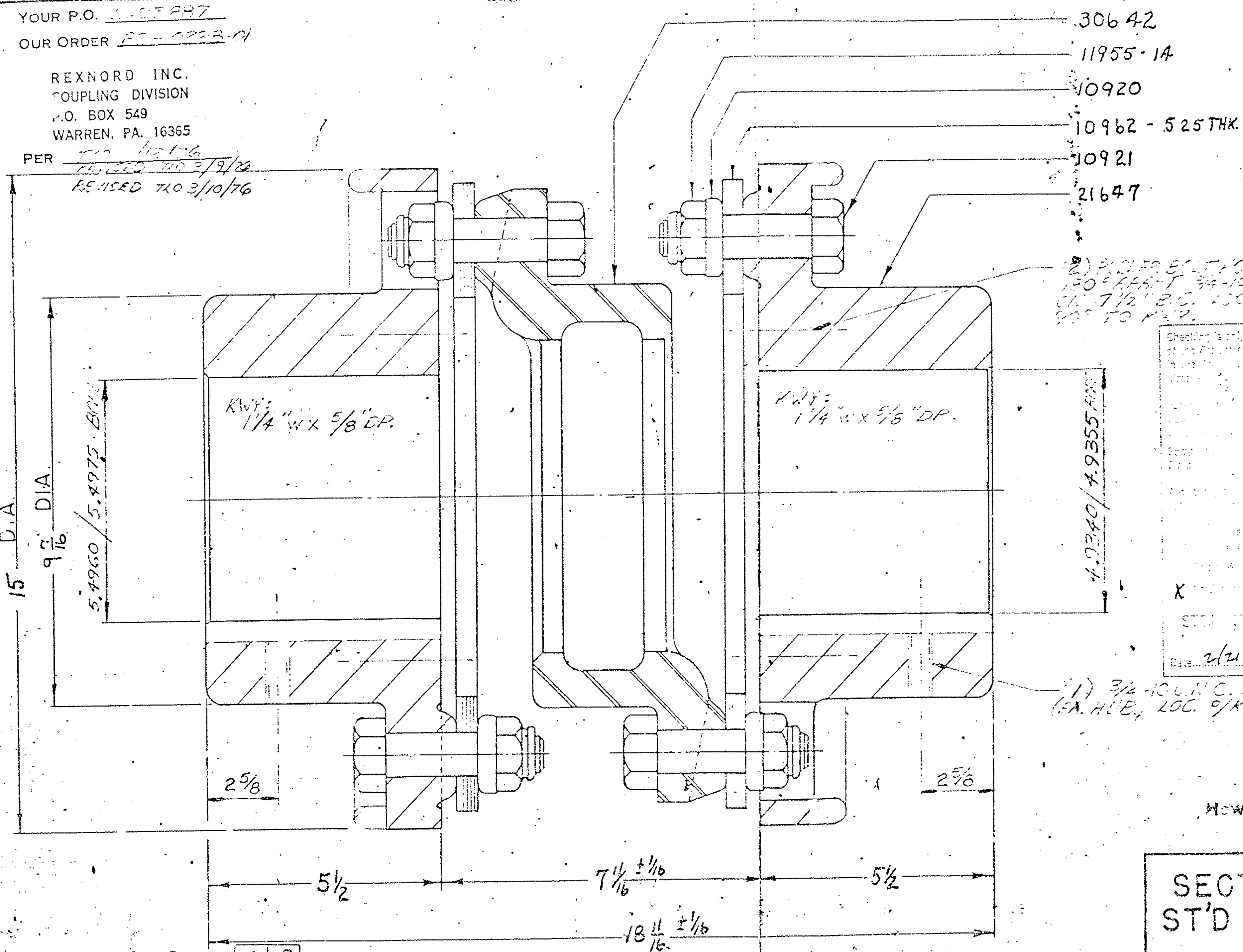
YOUR P.O. ____

OUR ORDER ____

REXNORD INC.
COUPLING DIVISION
P.O. BOX 549
WARREN, PA. 16365

PER ____
REVISED TKO 3/10/76

22077



FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
8	COLORADO	I 170-3( )220	167	

STAFF ARCHITECTS, LTD.

Date 2/21/79 By F. Dienhardt FINAL

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

SECTIONAL ASSEMBLY
ST'D No 550 AMR CPLG.

DUP. TRACING IN 10 9

D		A	9/11/75	RE 2324
E		B		
F		C		

DRAWN W.S.
TRACED TEH
CHECKED
APPROVED

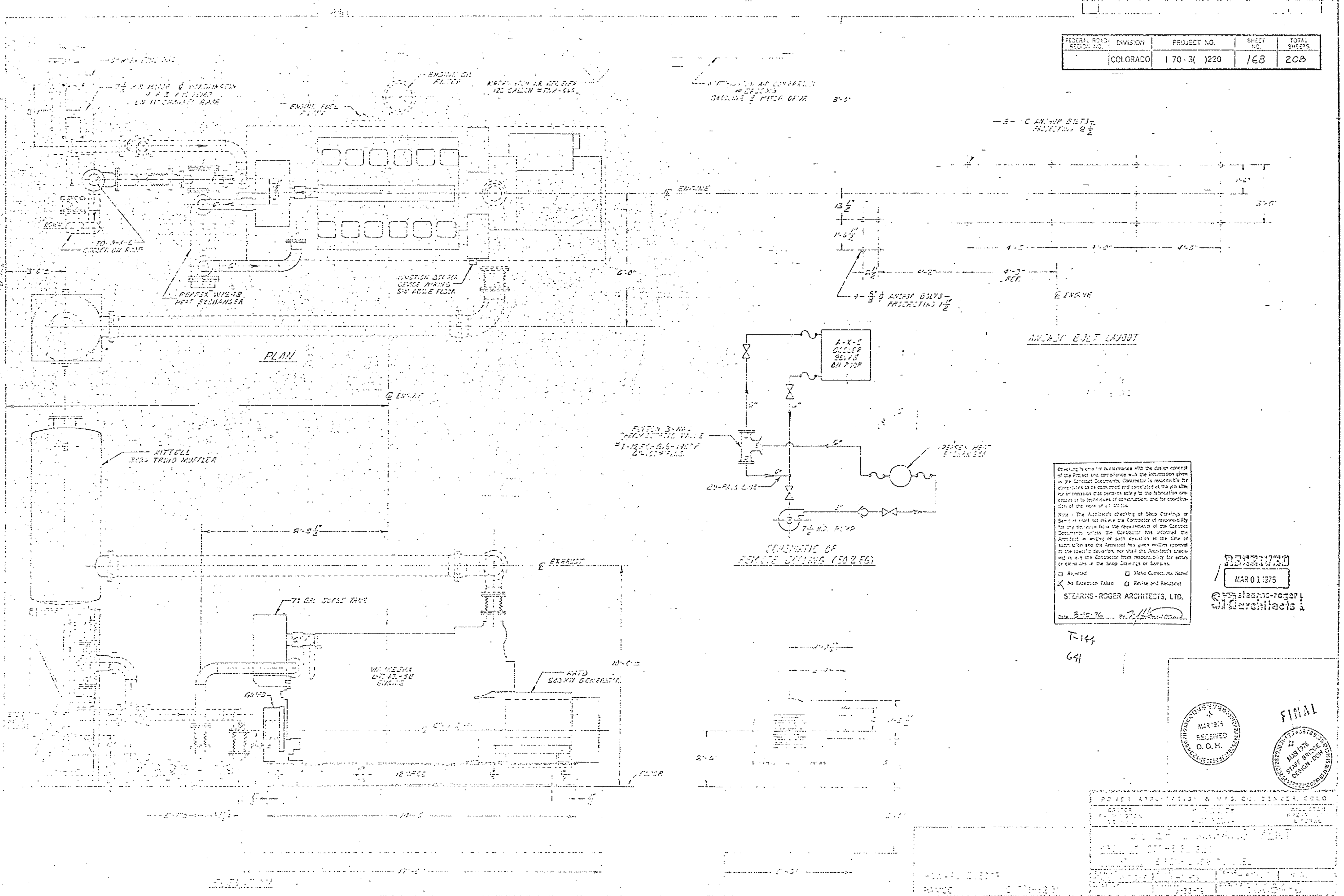
THOMAS FLEXIBLE COUPLING CO.
WARREN, PA.

SCALE NONE DATE 2-10-48

22077

DRAWING NO.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	168	208



Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

- ☐ Rejected
- ☐ Make Corrections Noted
- ☒ No Exception Taken
- ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 3-10-76 By [signature]

T-144
641

RECEIVED
MAR 01 1976
stearns-roger architects

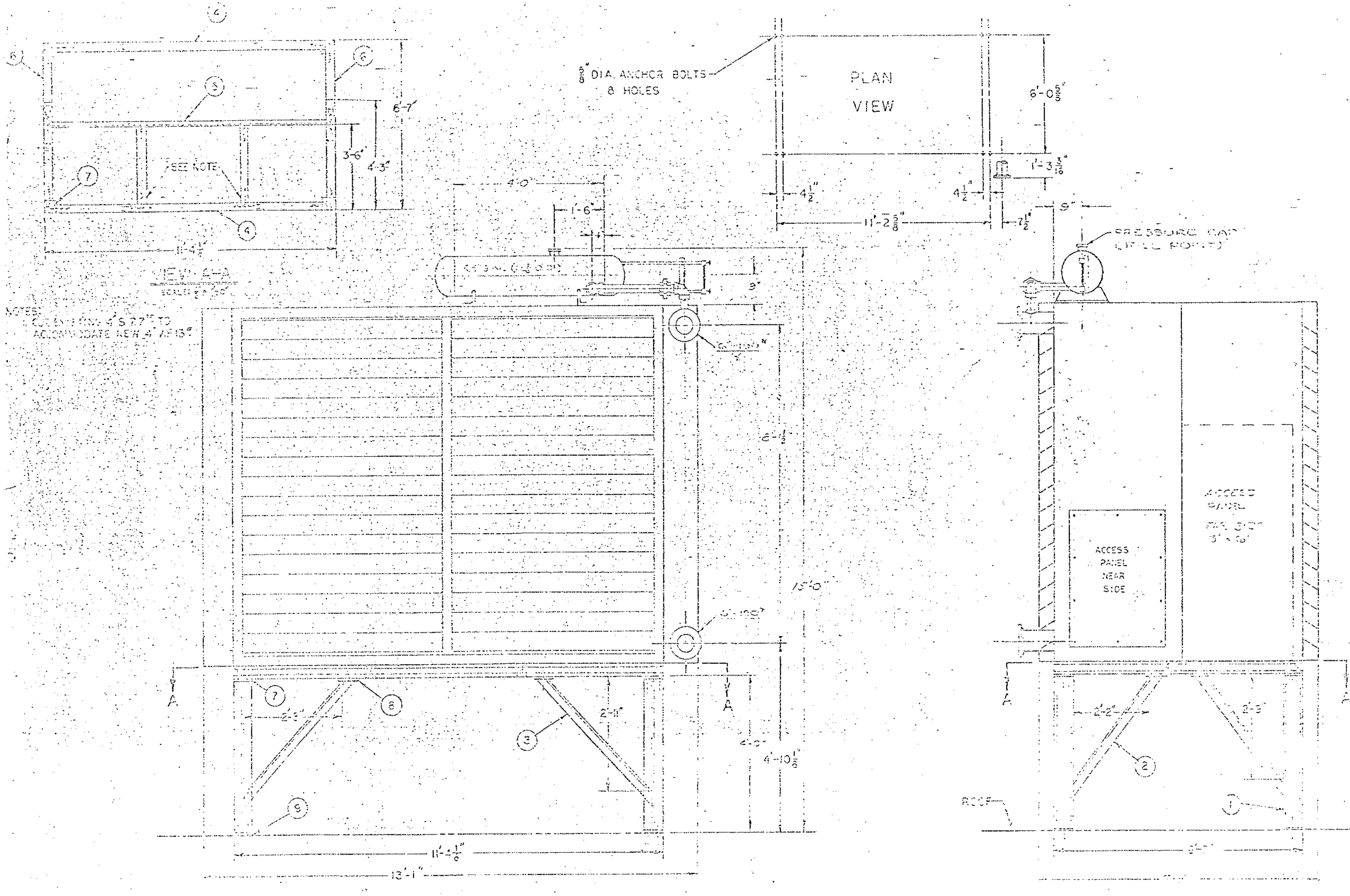
MAR 1976 RECEIVED D.O.H.

FINAL

MAR 1976 STAFF BRIDGE DESIGN-DOH

REV	DATE	SUBJECT	BY
R4	1-23-76	VIEW A-A & BILL OF MATERIAL ADDED.	PKS

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	169	208



Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

- [ ] Rejected
- [ ] Make Corrections Noted
- [x] No Exception Taken
- [ ] Revise and Resubmit

STEARNS - ROGER ARCHITECTS, LTD.

Date 3-10-76 By [signature]

RECEIVED
MAR 0 1 1976
stearns-roger architects LTD

T-144
#641

ITEM	DESCRIPTION	QUAN.
9	3/4" PLATE X 6 1/2" SQ.	4
8	1/2" PLATE X 4" X 6" LG.	8
7	1/2" PLATE X 6 1/2" SQ.	4
6	4"-13" WF X 25" LG.	2
5	4"-7.25" ⊏ X 10'-1 1/2" LG.	1
4	4"-13" WF X 10'-1 1/2" LG.	2
3	3" X 3" X 1/2" ∠ X 4'-8 1/2" LG.	4
2	3" X 3" X 1/2" ∠ X 3'-1 1/2" LG.	[illegible]
1	8"-25" WF X 3'-[illegible]" LG.	4

BILL OF MATERIAL (BOILER SUPPORT)

MAR 1976 RECEIVED D.O.H.

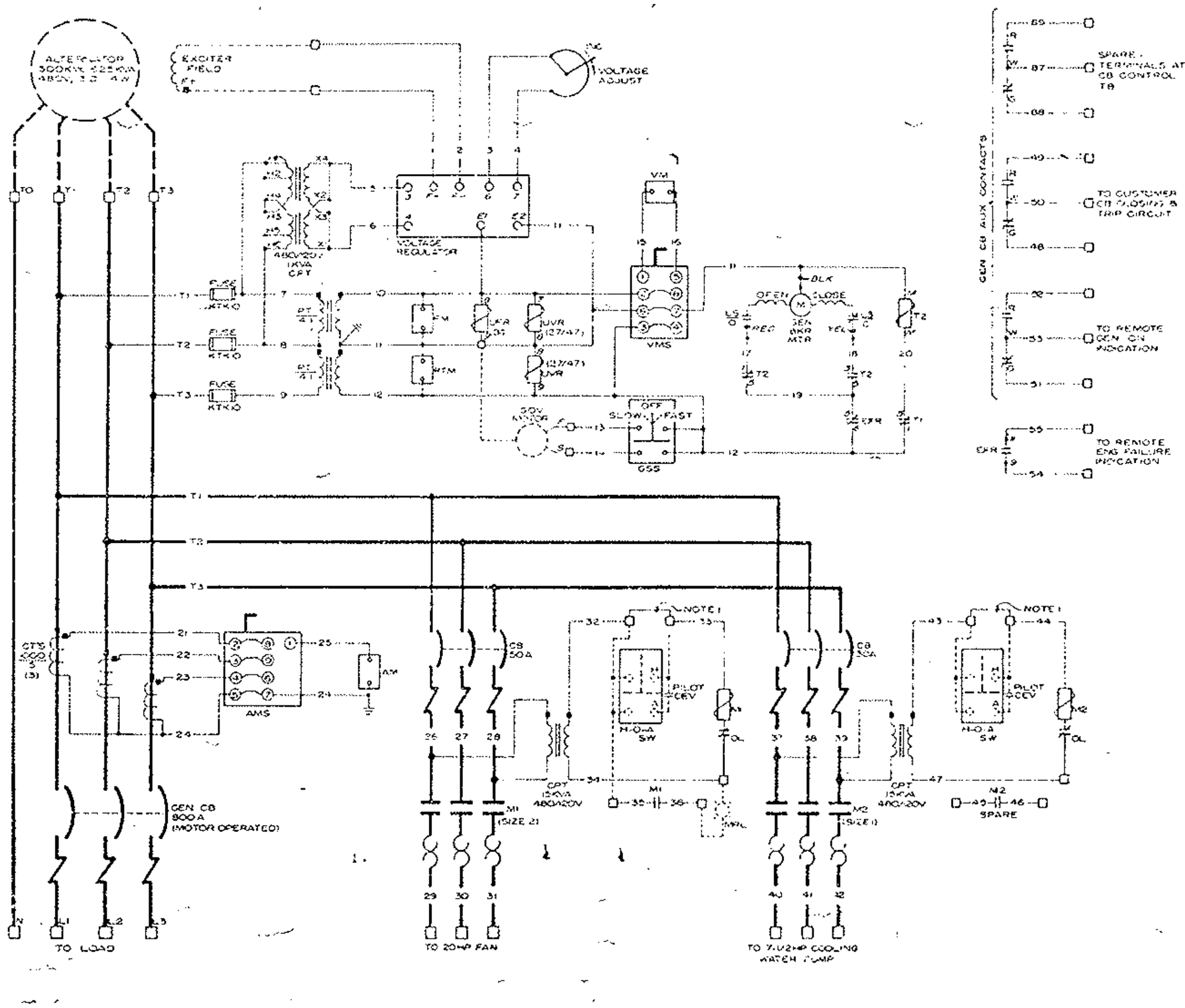
FINAL
MAR 1976 STAFF BRIDGE DESIGN - DOH

NOTE: [illegible]

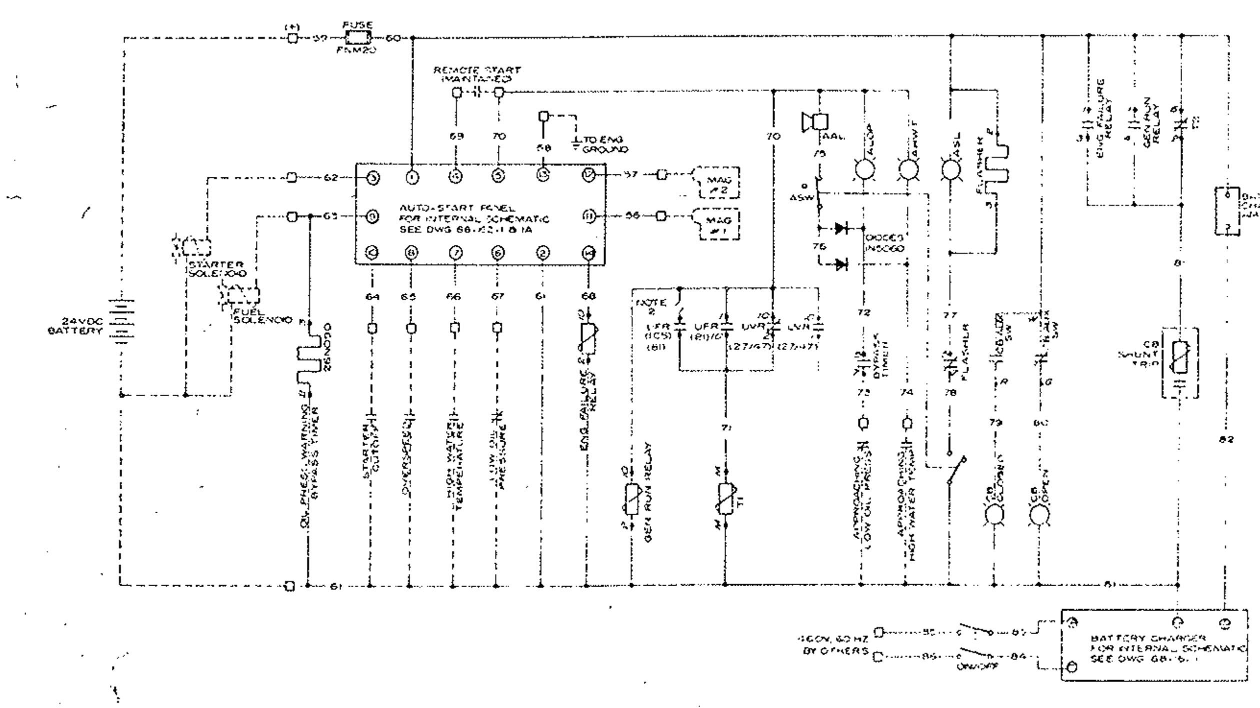
[illegible] ELECTRIC COMPANY
P.O. [illegible]

FEDERAL PROJECT I 70-3 (AC) 220
LOCATION: EISENHOWER TUNNEL
BOILER ARRANGEMENT A-X-C [illegible]

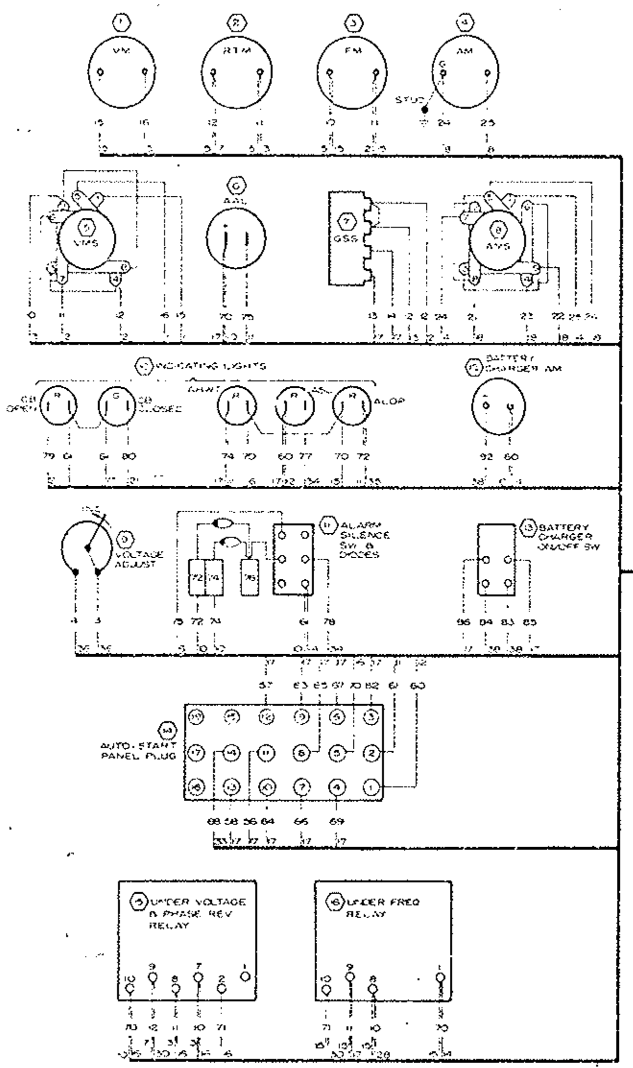
39 [illegible]



AC SCHEMATIC



DC SCHEMATIC



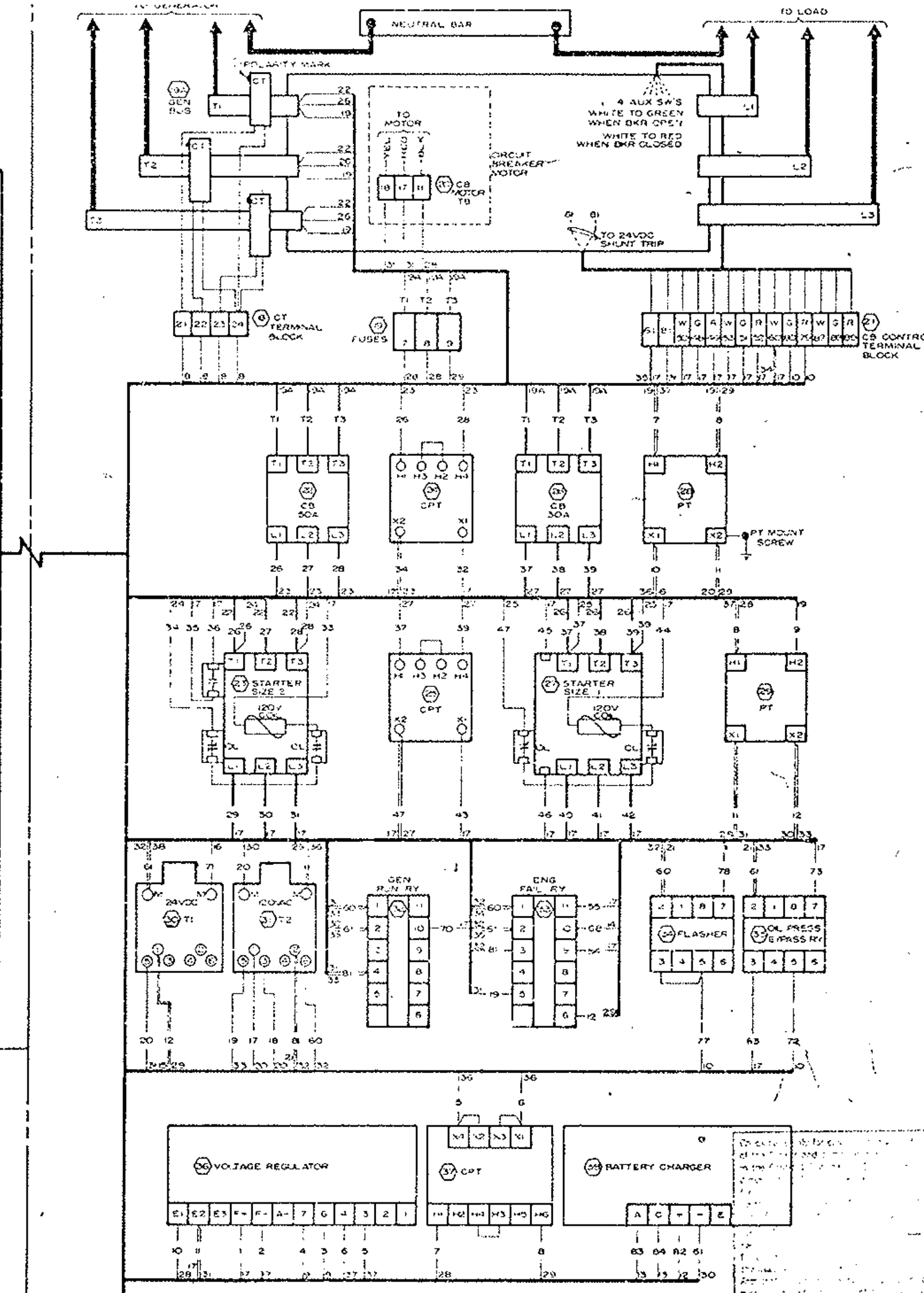
DOOR-REAR VIEW

NOTES

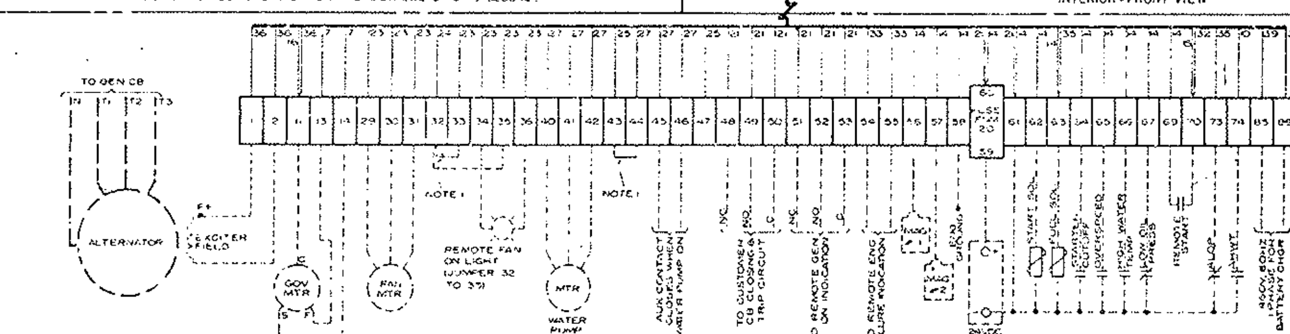
1. FOR REMOTE MOTOR OPERATION, REMOVE DESIGNATED JUMPER AT INTERCONNECTION TERMINAL BLOCK AND WIRE IN H-O-A SWITCH, PILOT DEVICE, AND LIGHT AS SHOWN IN SCHEMATIC
2. AT UNDER FREQUENCY RELAY, INTERNAL INSTANTANEOUS SEAL-IN CONTACT (ICS) MUST BE DISCONNECTED TO ALLOW AUTOMATIC RESET OF T1 ON NORMAL START UP
3. T1 TIME DELAY ON DROP OUT ADJUSTABLE 2.5 TO 50 SEC 24VDC COIL
   T2 TIME DELAY ON DROP OUT ADJUSTABLE 2.5 TO 50 SEC 120VAC COIL
4. ALL DEVICES SHOWN OFF AND/OR DE-ENERGIZED
5. ----- DENOTES CUSTOMER DEVICES AND WIRING

TIMER OPERATION
- T1 ALLOWS VOLTAGE & FREQUENCY TO STABILIZE AFTER ENGINE START BEFORE ALLOWING UFR (81) & UVR (27/47) TO FUNCTION
- T2 PREVENTS UFR (81) & UVR (27/47) FROM TRIPPING THE GENERATOR CIRCUIT BREAKER DURING MOMENTARY VOLTAGE & FREQUENCY EXCURSIONS

BOTH TIMERS: TIME DELAY ON DE-ENERGIZATION - ADJUSTABLE .5 TO 70 SECONDS



INTERIOR-FRONT VIEW



Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

ABBREVIATIONS

AAL	AUDIBLE ALARM	HOA	HAND-OFF-AUTO SWITCH
AHWT	APPROACHING HIGH WATER TEMPERATURE	LS	LIMIT SWITCH
ALOP	APPROACHING LOW OIL PRESSURE	M	MAGNETIC STARTER
AM	AMMETER	O	OPEN
AMS	AMMETER SWITCH	OL	OVERLOAD
ASL	ALARM SILENCED LIGHT	MRL	MOTOR RUN LIGHT (CUSTOMER INSTALLED)
ASW	ALARM SILENCE SWITCH	PT	POTENTIAL TRANSFORMER
C	CLOSE	RTM	RUNNING TIME METER
CB	CIRCUIT BREAKER	SW	SWITCH
CPT	CONTROL POWER TRANSFORMER	T	TIMER (SEE NOTE 3)
CT	CURRENT TRANSFORMER	UFR	UNDER FREQUENCY RELAY
EFR	ENGINE FAILURE RELAY	UVR	UNDER VOLTAGE & PHASE REVERSAL RELAY
FM	FREQUENCY METER	VM	VOLTMETER
GSS	GOVERNOR SPEED SWITCH	VMS	VOLTMETER SWITCH

REV	DATE	BY	APPROVED	DESCRIPTION

TITLE
GENERATOR CONTROL
500KW, 625KVA, 480V, 60HZ, 3Ø, 4W FOR:
COLORADO DEPT. OF HIGHWAYS
EISENHOWER TUNNEL PROJECT

SCALE NONE
CUSTOMER PAMCO
JOB No 7326802

ELECTRIC POWER EQUIPMENT CO.
515 EAST 36th AVE COMMERCE CITY, COLO
DWG No 76-471-1
SHEET 1 OF 2

EQUIP PAN
32-1/2 X 71
1" FLANGE TOP
& BOTTOM
MOUNT WITH 6
3/8" BOLTS

MATCH DBT 3/8
EXISTING ANGLE

NAMEPLATES
NP 1 ALARM
2 APPROACHING LOW OIL PRESSURE
3 ALARM SILENCED
4 APPROACHING HIGH WATER TEMP
5 CIRCUIT BREAKER CLOSED
6 CIRCUIT BREAKER OPEN
7 BATTERY CHARGER
8 ALARM SILENCE SWITCH
9 VOLTAGE ADJUST

NOTE- REMOVE EXISTING DOOR LATCH MECHANISM & REPLACE WITH HOFFMAN

X
STEARNS-ROGER [illegible] MFG. CO
Date 1/9/79 G.E.G.
641.03(a)9 # 257

Approved
Howard Electr & Mech. C
Proj. Mgr.

REV.	DATE	BY	APPROVED	DESCRIPTION

THIS PRINT LOANED IN CONFIDENCE, SUBJECT TO RETURN ON DEMAND AND UNDER THE EXPRESS CONDITION THAT IT NOT BE USED, DIRECTLY OR INDIRECTLY, DETRIMENTAL TO ELECTRIC POWER EQUIPMENT COMPANY

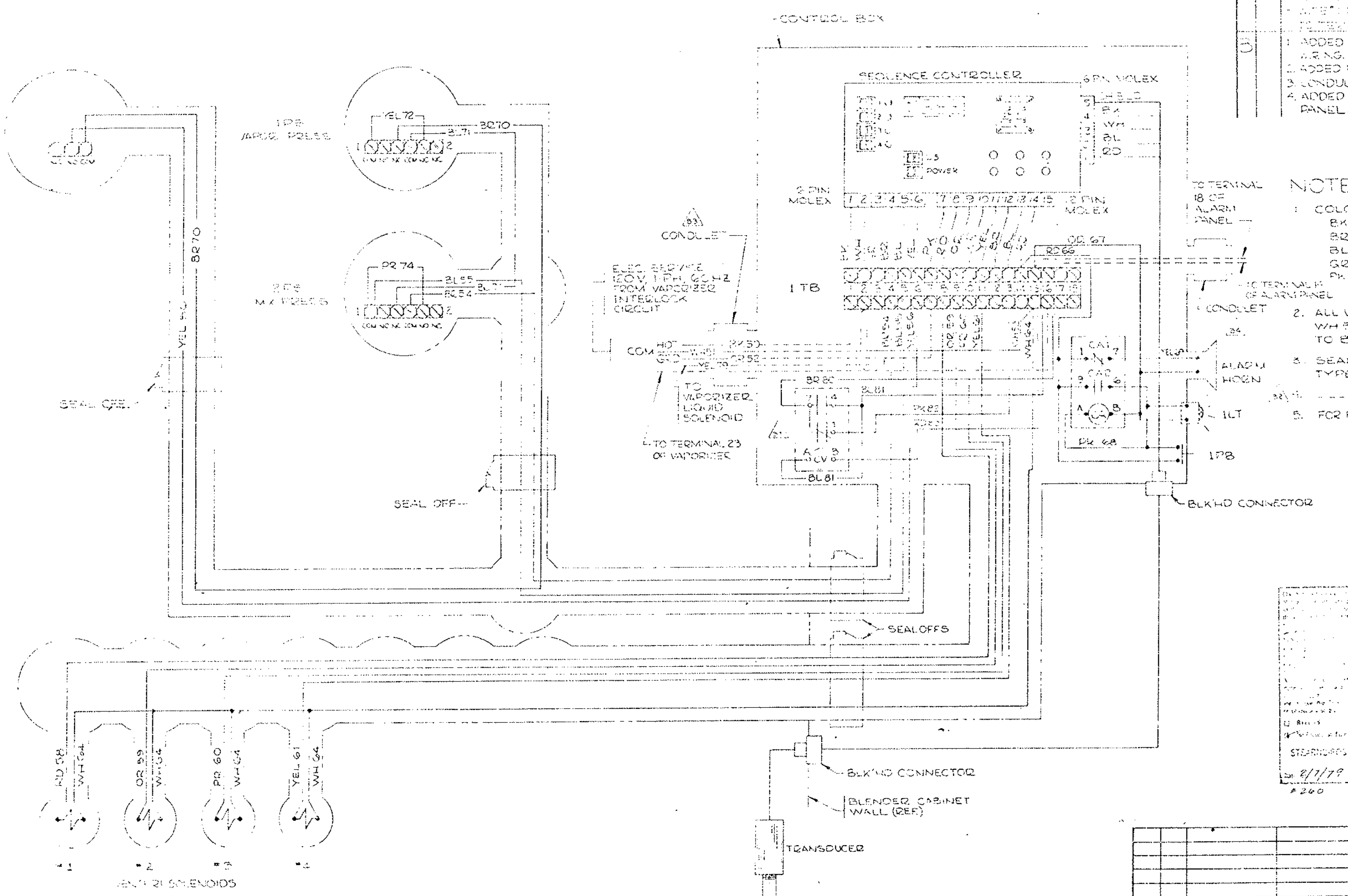
TITLE
ENCLOSURE AND EQUIP
LAYOUT

SCALE NONE
CUSTOMER PAMCO
JOB No 7500002
DWN BY

EPE

ELECTRIC POWER EQUIPMENT CO.
5151 EAST 56th AVE COMMERCE CITY, COLO
DWG No
SHEET 2 OF 2

REV		DESCRIPTION	REV. BY	APPROVED
		1. RELAY CA WAS CR	T.V.W. 10/28/75	GTL 10-28-75
3		1. ADDED CV RELAY & RELATED WIRING. 2. ADDED NOTES 4 & 5 3. CONDULET WAS SEAL OFF 4. ADDED CONDULET TO ALARM PANEL.	T.V.W 3/17/76	GTL 3-17-76



CONTROL BOX
SEQUENCE CONTROLLER
6 PIN MOLEX
POWER
9 PIN MOLEX
12 PIN MOLEX
1TS
VAPOR TEMP
1PS
VAPOR PRESS
2PS
MIX PRESS
BR 70
YEL 72
BL 71
PR 74
BL 55
BR 54
YEL 50
SEAL OFF
CONDULET
ELEC. SERVICE
120V, 1 PH, 60 HZ
FROM VAPORIZER
INTERLOCK
CIRCUIT
COM
HOT
GND
BK 50
WH 51
GR 52
YEL 79
TO VAPORIZER LIQUID SOLENOID
TO TERMINAL 23 OF VAPORIZER
1 TB
BR 80
BL 81
PK 82
PK 83
CV
OR 67
RD 66
TO TERMINAL 18 OF ALARM PANEL
TO TERMINAL 17 OF ALARM PANEL
CONDULET
ALARM HORN
1LT
1PB
PK 68
BLK'HD CONNECTOR
SEAL OFFS
RD 58
GR 59
PR 60
YEL 61
WH 64
#1
#2
#3
#4
VENTURI SOLENOIDS
BLK'HD CONNECTOR
BLENDER CABINET WALL (REF)
TRANSDUCER

NOTES:

1. COLOR CODE

BK	BLACK	RD	RED
BR	BROWN	OR	ORANGE
BL	BLUE	PR	PURPLE
GR	GREEN	YEL	YELLOW
PK	PINK	WH	WHITE

2. ALL WIRE TO BE 18GA. EXCEPT BK50, WH 51, GR 52 & YEL 79 WHICH ARE TO BE 16 GA.
3. SEAL OFFS TO BE FILLED WITH "CHICO" TYPE A SEALING COMPOUND.
4. - - - - INDICATES FIELD WIRING.
5. FOR FIELD WIRING SEE DWG. JC-1316-E

FINAL

Date 2/7/79

Approved, Howard ... Proj. Eng.

		PART NUMBER	DESCRIPTION	ZONE	ITEM
QTY. REQ'D.		BILL OF MATERIAL			

TOLERANCES	
.X ±	
.XX ±	
.XXX ±	
FRACTIONS ±	
ANGLES ± 0°30'	
EXCEPT AS NOTED	
FINISH:	

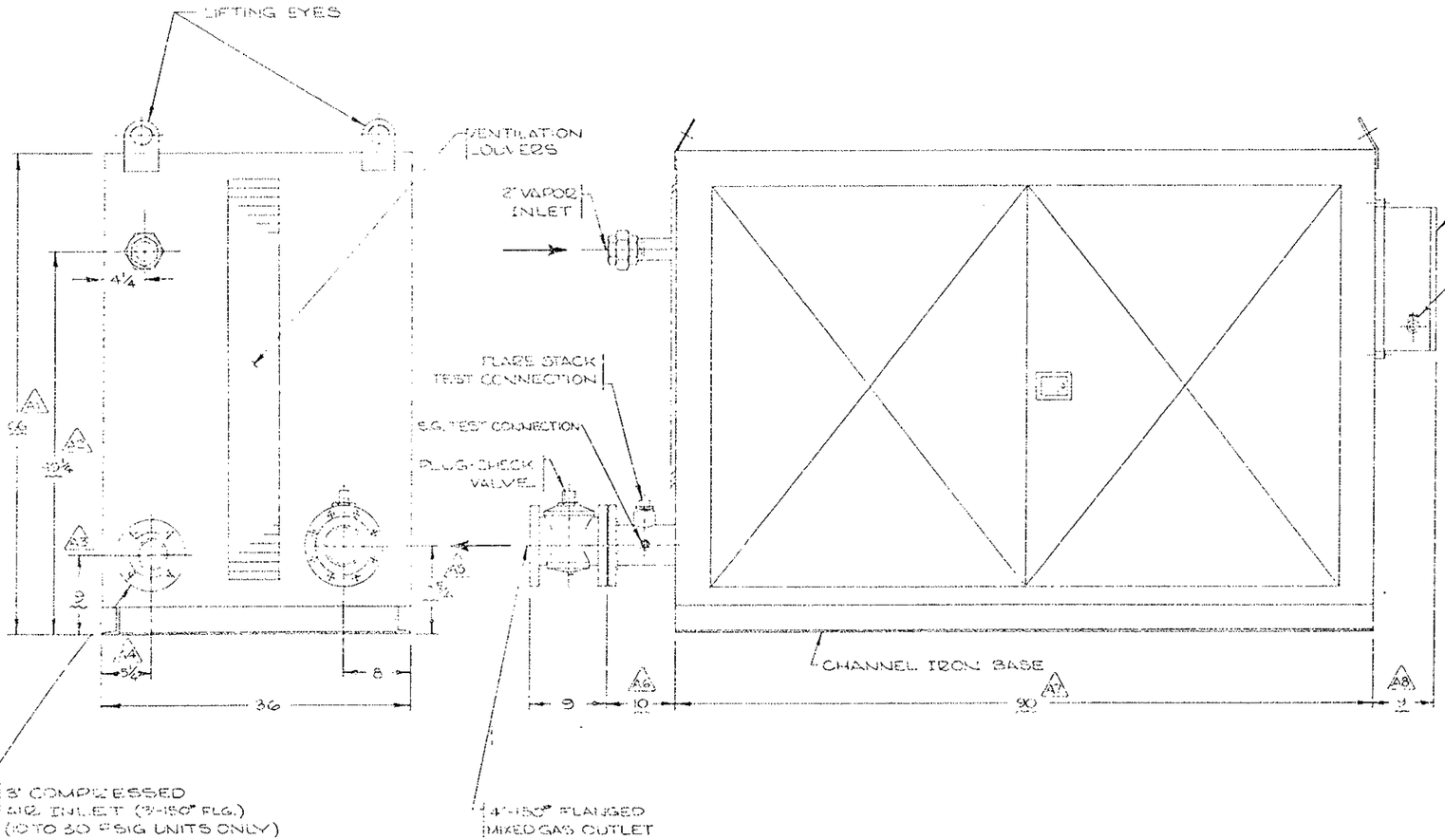
INTEREX BINARY BLENDER
WIRING DIAGRAM
SPECIAL PRINT FOR
JOB #J-5016

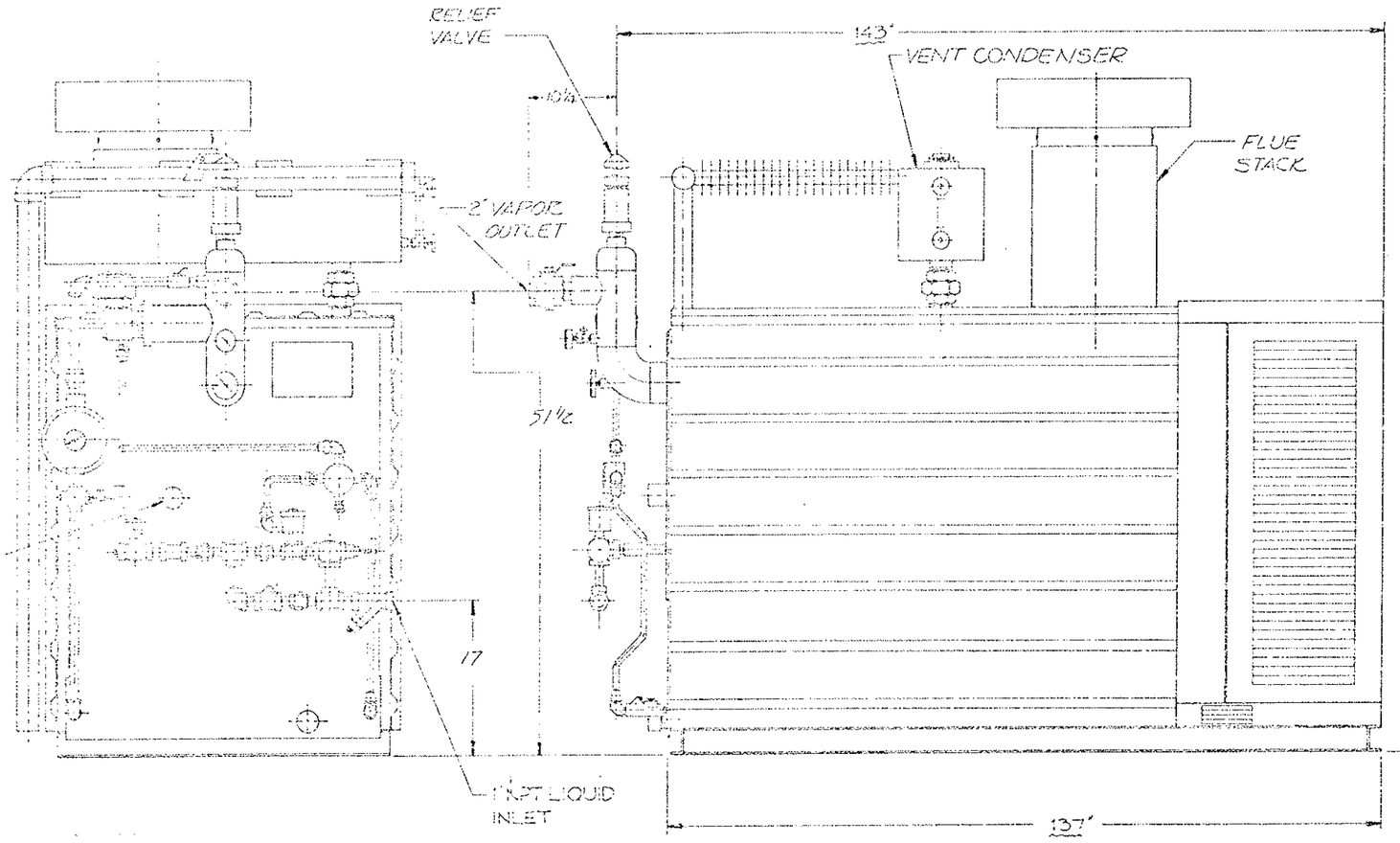
Date 5-7-75 · CONT. NO. STD · 5517-001-75

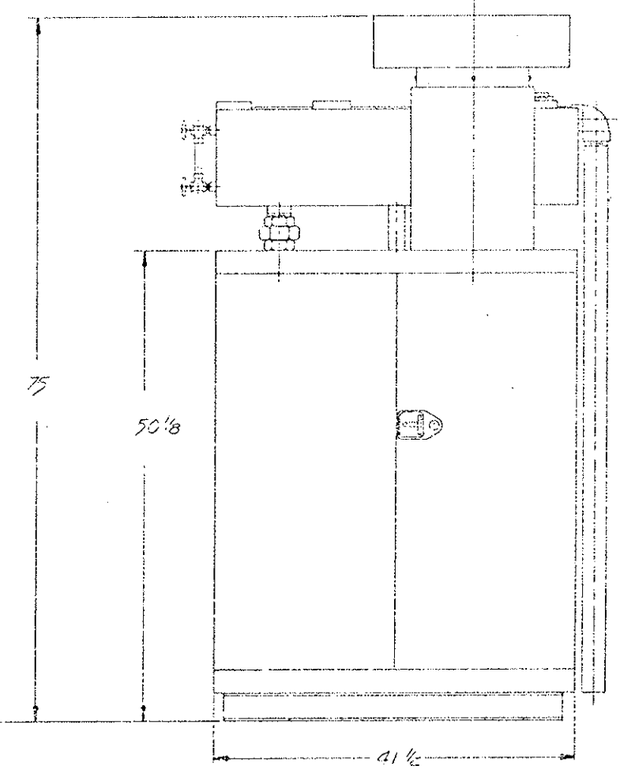
Drawing Number D015-701 · Sheet 1-1 · Rev 3

USED ON

DIVISION	PROJECT		
COLORADO	170-31 1250	173	208







		PROJECT		
	[illegible]	[illegible]	174	208

2/1/79 Gorley
F260 643.05

FINAL

NOTE:

1. A CLEARANCE OF 11'-6" SHOULD BE LEFT BETWEEN END OF VAPORIZER (PROPANE HEADER END) & ANY FIXED STRUCTURE FOR REMOVAL OF PLATECOILS

Approved
[illegible]

QTY REQ'D		PART NUMBER	DESCRIPTION	

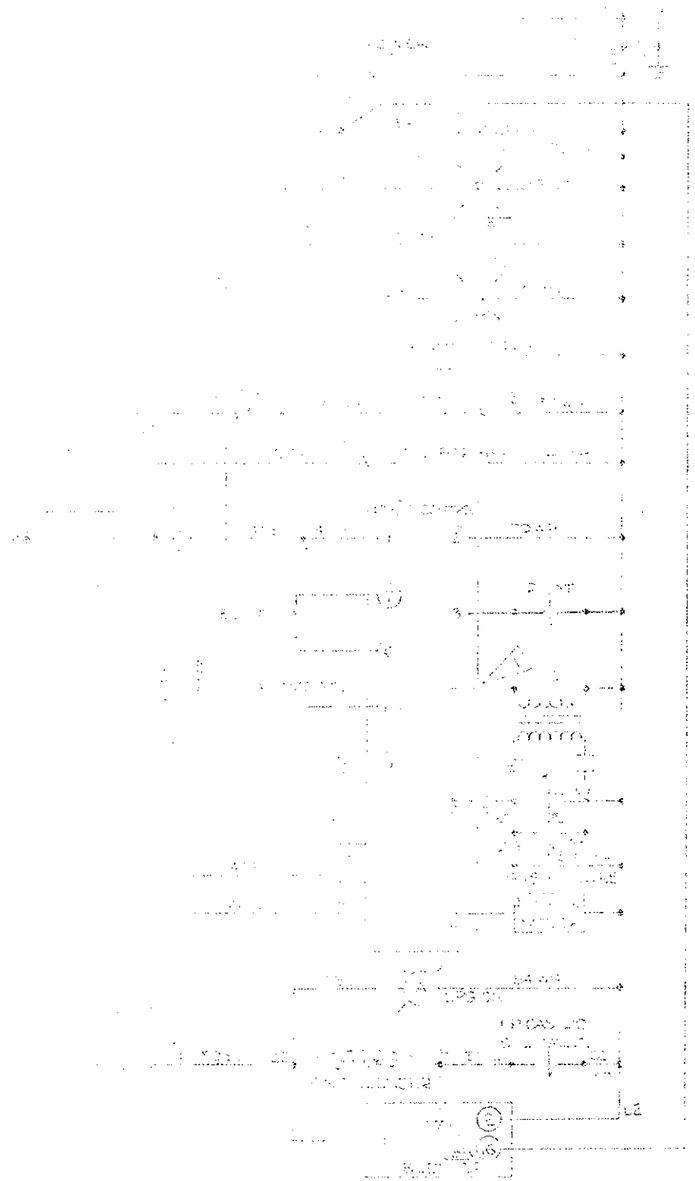
TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

HP-70
VAPORIZER
EQUIPMENT [illegible]

D-081-641

[illegible]	FINAL ASSEMBLY	[illegible]	NEXT ASSEMBLY	ITEM

FED. ROAD DIV.	STATE	PROJECT NO	SHEET NO	TOTAL SHEETS
	COLORADO	I 70-3( )220	175	208



[illegible] ARCHITECTS LTD.

2/7/79

#260 643.05

NOTE:

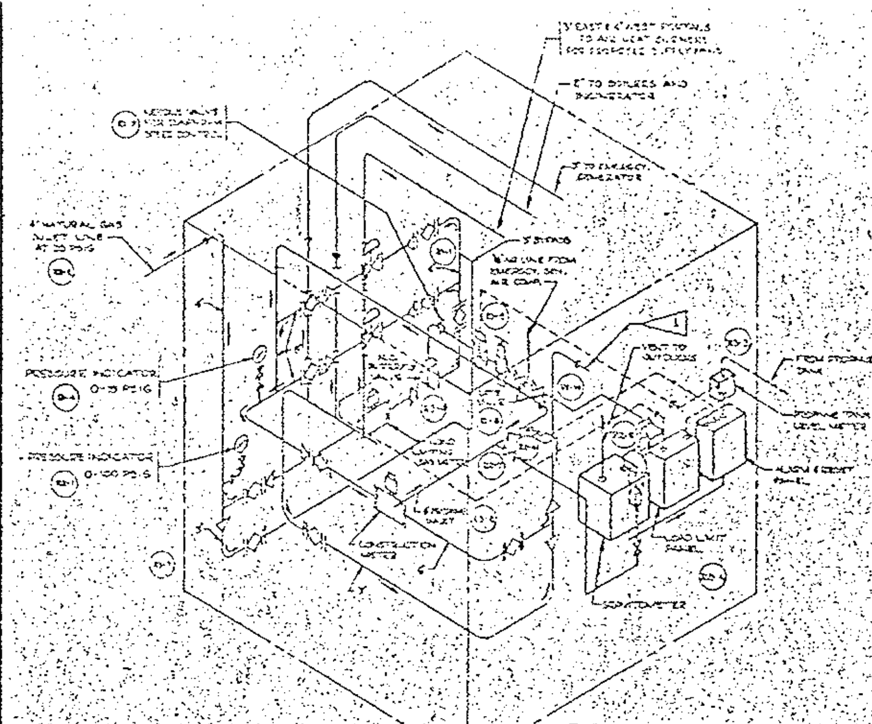
1. CHECK TO MAKE SURE L1 LINE IS ON TERMINAL 1 OF E475-D CONTROLLER.

FINAL

Approved
[illegible] Elect. & Mech. Co.
Eng. Rev.

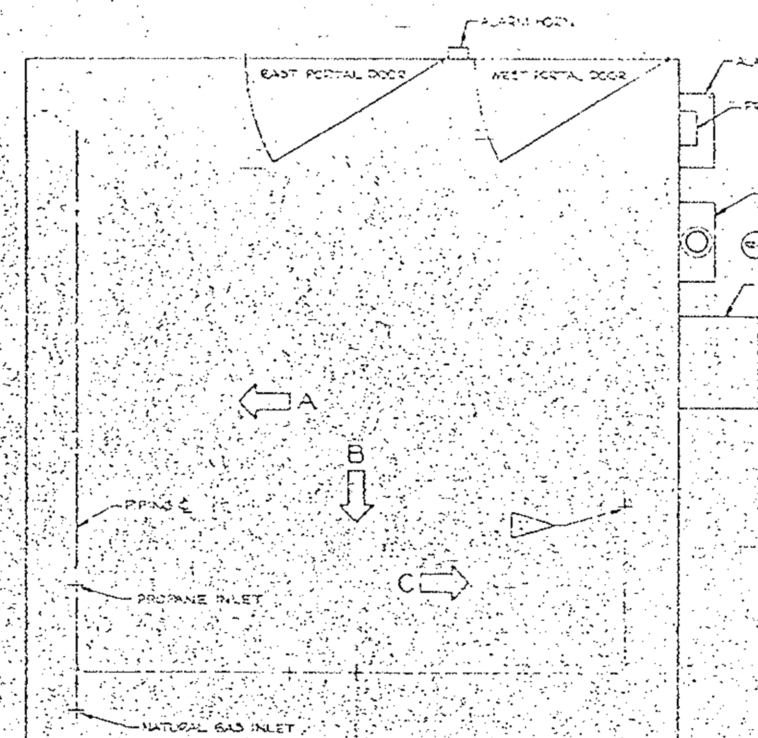
HP-70 ELECTRICAL SCHEMATIC (SPECIAL DRAWING FOR EISENHOWER TUNNEL)

B



PIPING SCHEMATIC

EAST PORTAL METER ROOM SHOWN (WEST PORTAL SIMILAR.)



PLAN

VIEW E-E

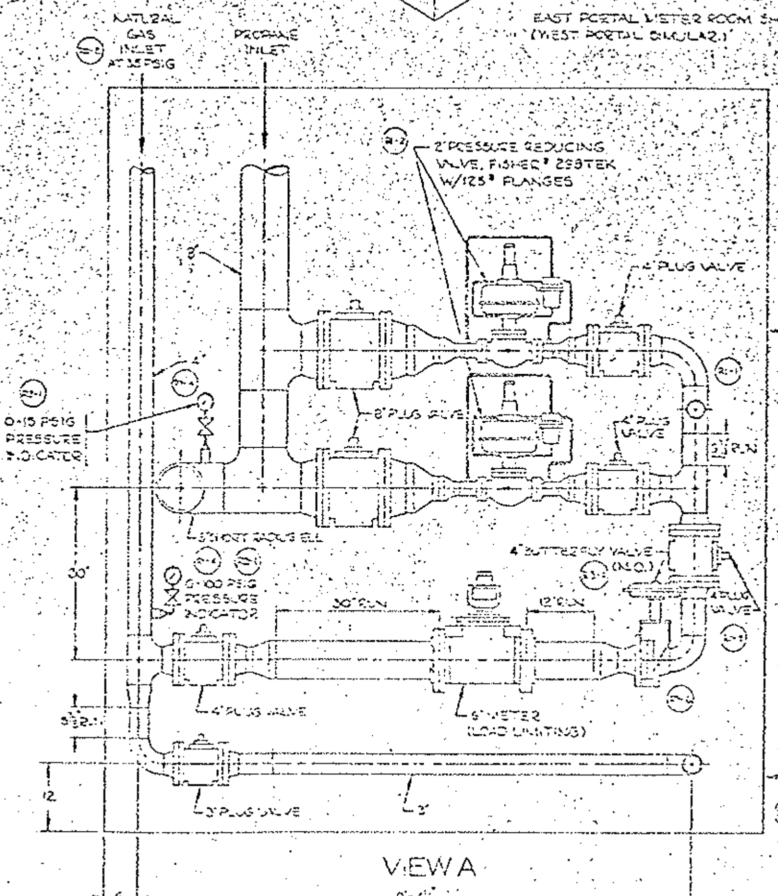
TO AIR HEAT BURNERS FOR PROPOSED SUPPLY FANS
3" LINE TO EAST PORTAL FANS: ES-5, ES-6, & ES-7.
4" LINE TO WEST PORTAL FANS: WS-5, WS-6, & WS-7.

BILL OF MATERIALS

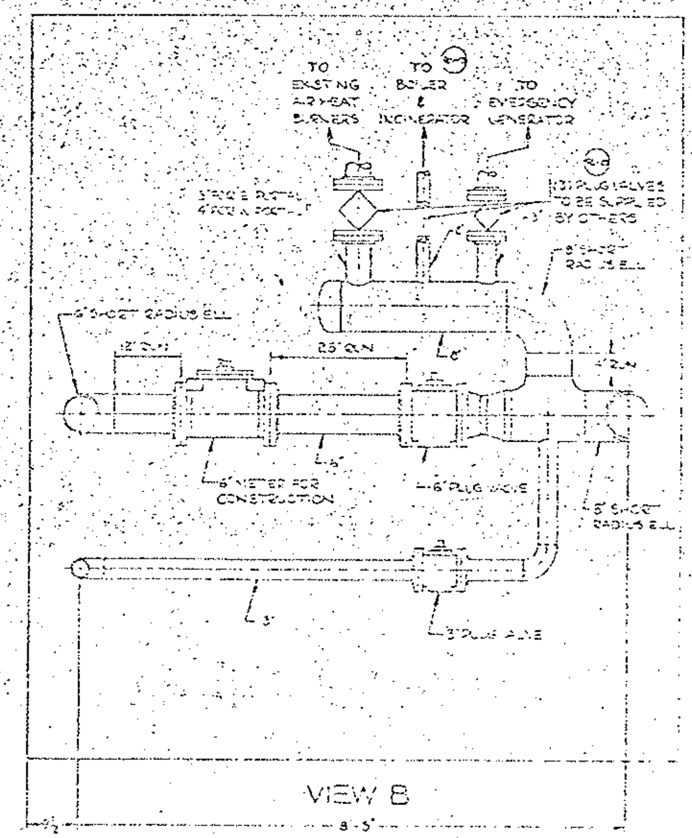
QTY.	DESCRIPTION
2	FISHER NO. 298TEK REGULATORS WITH AIL PILOTS
1	AMERICAN TURBINE METER, LOAD LIMITING METER 6"
1	AMERICAN CVM METER, WITH TOTALIZER
1	FISHER 4" BUTTERFLY VALVE, 9500 SERIES
1	ASCO LOW PRESSURE SWITCH SE10A WITH TD30A11 TRANSDUCER
2	FISHER PRESSURE INDICATORS NO. J-506
1	INTERNATIONAL ALARM AND RESET PANEL
1	ROCHESTER PROPANE TANK LIQUID LEVEL METER NO. 6531
1	AMERICAN METER, LOAD LIMITING PANEL
1	PERMUTIT, RANAREX GRAVITOMETER
1	ASCO 3-WAY SOLENOID VALVE, 115V, 60HZ. MODEL NO. 8320A23
2	FISHER FILTER REGULATOR MODEL NO. 67FR

REVISIONS

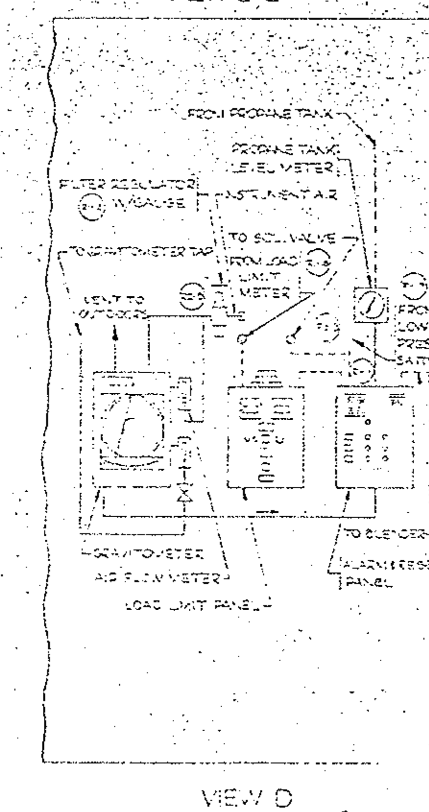
REVISION	DESCRIPTION	REV. BY	APPROVED
#1	-1 ADDED TEE FOR 3" BYPASS AND CHANGE RUN LENGTHS -2 SUBSTITUTED FISHER 298TEK VALVES FOR AMERICAN METER PRESSURE REDUCING VALVES -3 ADDED LOW PRESSURE SWITCH -4 ADDED PRESSURE INDICATORS -5 ADDED 4" PLUG VALVE AND CHANGED RUN LENGTHS -6 CHANGED TEE TO ELBOW AND ADDED 3" BY PASS LINE -7 ADDED PIPE DIMENSIONS -8 ADDED 3 GATE VALVES -9 ADDED NEEDLE VALVE FOR DIAPHRAM SPEED CONTROL -10 RELABELED CONSTRUCTION METER AND LOAD LIMITING GAS METER -11 SHOWED CONNECTION BETWEEN PROPANE TANK LEVEL METER AND ALARM AND RESET PANEL -12 LABELED FILTER REGULATOR WITH GAUGE -13 RELABELED NOMENCLATURE OF OUTGOING LINES -14 REMOVED VALVES IN AIR LINE -15 ADDED PLUG VALVES AT GAS OUTLET POINTS CONTRACTOR TO SUPPLY -16 ADDED VIEW E-E TO SHOW 3" BYPASS -17 ADD INCOMING LINE FROM LOW PRESSURE SWITCH TO ALARM AND RESET PANEL -18 ADDED INCOMING LINE FROM LOAD LIMITING METER TO LOAD LIMIT PANEL -19 ADD BILL OF MATERIALS	TVW 9-13-73	
#2	-1 ADDED PRESSURE RATING TO GAUGES -2 ADDED "AT 35 PSIG" TO NATURAL GAS INLET IN VIEW A AND PIPING SCHEMATIC -3 ADDED NOTES 2 AND 3 -4 RELOCATED CONTROL UNITS OUTSIDE METER ROOM -5 RELOCATED RANAREX REFERENCE AIR REGULATOR OUTSIDE METER ROOM -6 RELOCATED LOW PRESSURE SWITCH -7 RELOCATED 8" CHECK VALVE -8 ADDED VIEW D -9 REVISED BILL OF MATERIALS	TVW 10/23/73	
#3	-1 IN BILL OF MATERIALS SE10A WAS: SD10A AND TD11A11 WAS: TD30A11 -2 MOVED 8" PROPANE INLET FROM WALL "B" TO WALL "C" -3 LINE FROM SOL. VALVE WAS TO LOADLIMIT PANEL -4 4" BUTTERFLY VALVE WAS N.C.	TVW 1/14/74	



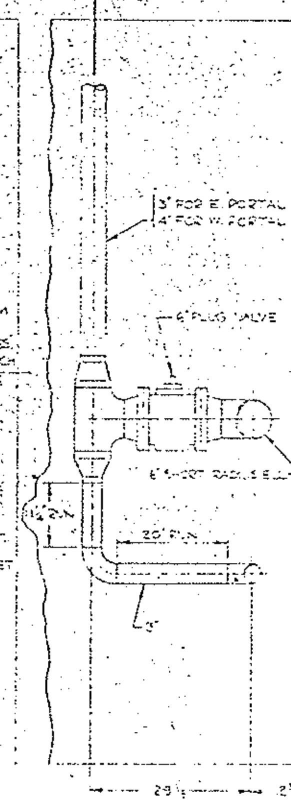
VIEW A



VIEW B



VIEW D



VIEW C

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

- ☐ Rejected
- ☐ Make Corrections Noted
- ☒ No Exception Taken SEE NOTE
- ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 6-9-76 By MHH

1. DOES SOLENOID SWITCH FOR BUTTERFLY VALVE BLEED AIR DURING POWER FAILURE?

RECEIVED APR 01 1975

stearns-rogers architects

#159 663.11

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

RECEIVED APR 1976

NOTES:

1. PLUG VALVE DIMENSIONS BASED ON F.W. 1 "PLUGARAMA" FIG. 9173
2. — — — — INDICATES FIELD WIRING.
3. THE FOLLOWING ITEMS OF EQUIPMENT ARE TO BE LOCATED OUTSIDE EXISTING METER ROOMS.
   a) INTERNATIONAL ALARM & RESET PANEL
   b) AMERICAN METER LOAD LIMITING PANEL
   c) RANAREX GRAVITOMETER
   d) ROCHESTER LIQUID LEVEL METER
   e) ASCO LOW PRESSURE SWITCH
   f) 8" CHECK VALVE

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	176	208

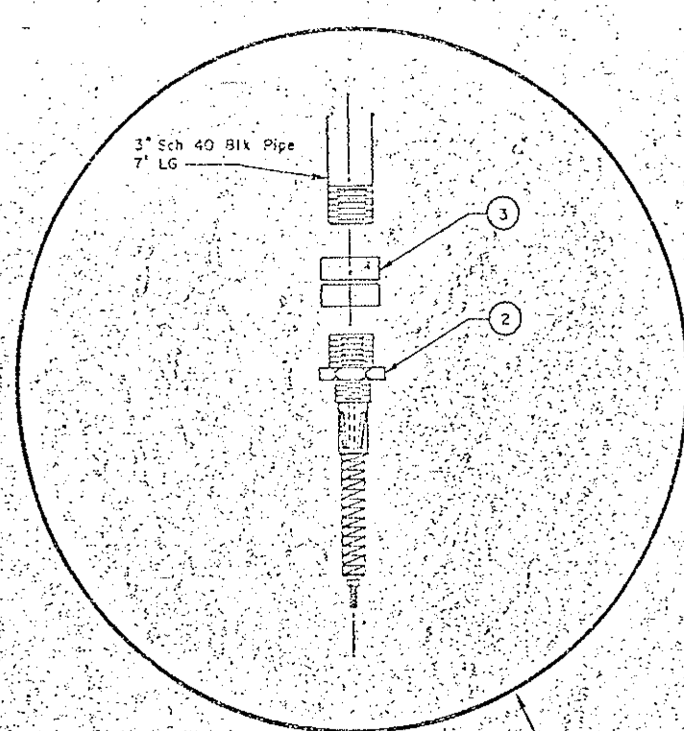
EISENHOWER TUNNEL
METER ROOM PIPING

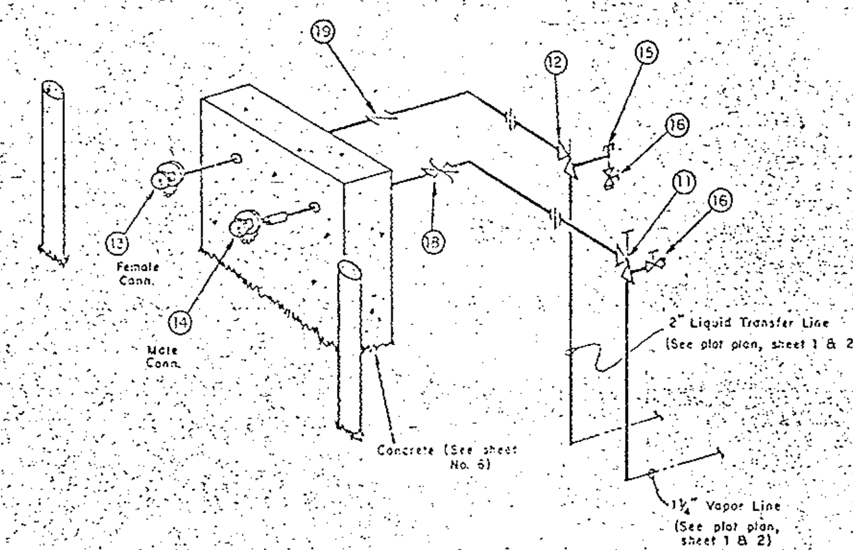
JE-1516-M

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	177	208

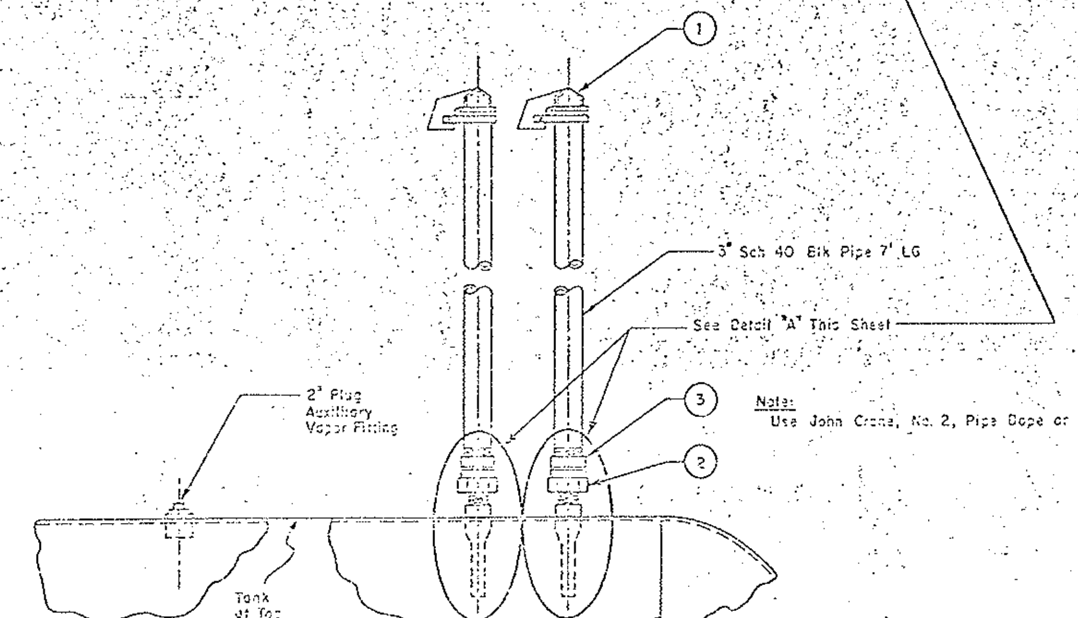
FURNISHED BY CONTRACTOR

QTY.	SIZE	DESCRIPTION
1	1/4"	Tee, BMI, 300#
10 FT.	2"	Pipe, Sch.-80
10 FT.	1 1/4"	Pipe, Sch. 80
2	1/4"	Pipe Cap, BMI, 300#
2	2"	Elbow, 90°, BMI, 300#
2	1 1/4"	Elbow, 90°, BMI, 300#
1	2"	Union, BMI, 300#
1	1 1/4"	Union, BMI, 300#
1	1 1/4"	Coupling, BMI, 300#





MECHANICAL DETAIL OF PIPING & FITTING TRUCK TRANSPORT UNLOADING STATION



Note:
Use John Crane, No. 2, Pipe Dope or Equal

AUXILLIARY VAPOR FITTING

RELIEF VALVE STACK

STANDARD PIPE & FITTING TRIM OF RELIEF VALVES & STACKS FOR 21,000 GAL. (WC) PROPANE TANK

STEARNS-ROGER ARCHITECTS, LTD.

6-9-76 MHH

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643.04
#159

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Howard Elect. & Mech. Co.
Proj. Mgr.

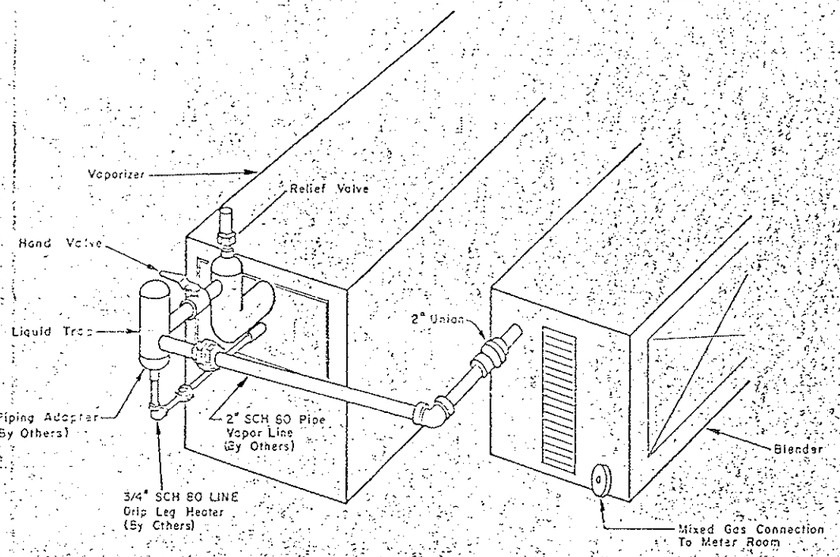
APR 1976
RECEIVED
D.O.H.

Approval:

Date:

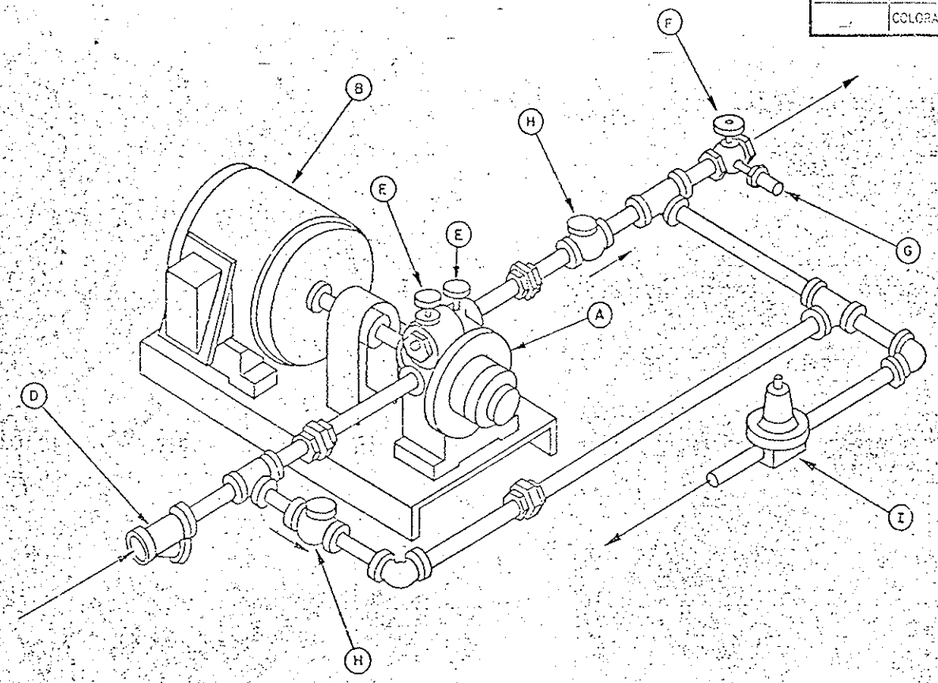
Environment, Inc. 5725 Wadsworth Blvd. Arvada Colorado 80002 303-422-7277		PROJECT NO. I 70-3(82) 220 EISENHOWER MEMORIAL TUNNEL - 2nd BORE TANK PIPING DETAIL	
Scale: None	PC No. M1415	Drawing: EI 1005.	
Date: 6-13-75	Approved	Sheet 5	Rev. No. 1 8-5-75

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
—	COLORADO	I 70-3( )220	178	208



VAPORIZER - BLENDER INTERCONNECTION

HP 70 TO 8447

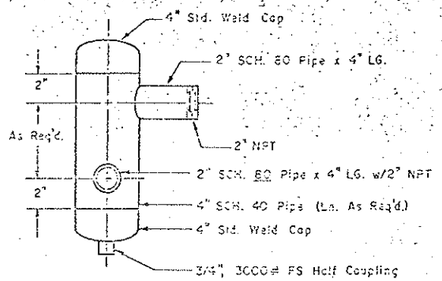


LIQUID PUMP

LSP 90-110

Note: For Manufacturers & Model Numbers see pump submittal.

ITEM NO.	QUANTITY	DESCRIPTION
A	1	LP Gas Liquid Pump
B	1	3 Hp. 1800 RPM 480V/3PH/60HZ XP Electric Motor
C	1	Starter in Nema 7 HSNG w/Disconnect (Not Shown)
D	1	Liquid Inlet Strainer
E	2	0-300 PSIG Liquid Filled Pressure Gauges
F	1	Globe Valve
G	1	Hydrostatic Relief Valve
H	2	400 WOG Check Valve
I	1	Back Pressure Regulator



HYDROSTATIC TEST AT 375 PSIG

Checked for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for all dimensions to be confirmed and correlated at the job site; for information that pertains only to the trades, for techniques, sequences and procedures of construction; for coordination of his work with that of all trades.

Note: The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents, unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. Nor shall the Architect's approval relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 6-9-76 By MHH

#159
643.03
643.06

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APR 01 1976
Stearns-Roger Architects

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

APR 1976
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D. O. H.

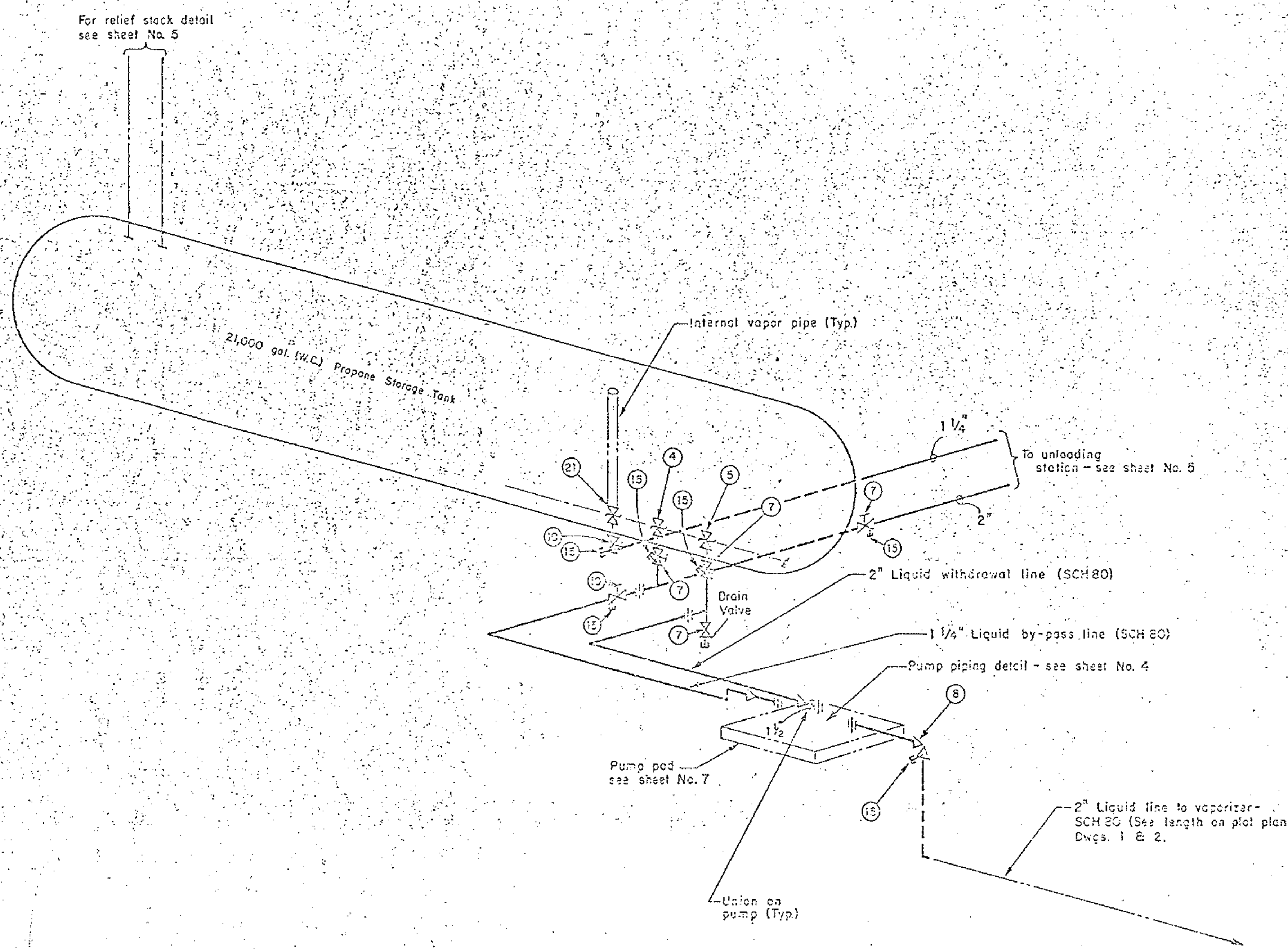
Approved:
Date:

Environment, Inc.
5765 Wadsworth Blvd. Arvada, Colorado 80002
303-423-7237

PROJECT NO. I 70-3(103)220
EISENHOWER MEMORIAL TUNNEL - 2nd BORE
EQUIPMENT PIPING DETAIL

Scale: None	PO No. M1415	Drawing: EI 1004	
Date: 7-9-75	Approved	Sheet 4	Rev. No. 1 8-9-75

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	179	208



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APR 01 1976
stearns-roger

X No Exception Taken

STEARNS-ROGER ARCHITECTS, LTD.

Date 4-9-76 By MHH

#159
643.04

FINAL

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

APPROVAL:

DATE:

RECEIVED

TANK PIPING DETAIL
BOTH EAST & WEST PORTAL
BUILDING OF EISENHOWER TUNNEL

Scale: None
Date: 6-10-75
Approved
Sheet 3
Rev. Date 0-3-76

COLORADO	179-31 3320	182	205

	-02	-01	PART NUMBER	DESCRIPTION	ITEM
1	4	4		#4 LOCK WASHER	149
	4	4		#4-40 HEX NUT	148
	4	4		#4-40 × ½ MACHINE SCREW	147
	—	—		*	146
	4	4		⅝-8 NUT HEX	145
1	A/R	A/R		¼-20 NUT, HEX	144
	—	—		*	143
	—	—		*	142
1	A/R	A/R		½ WASHER, LOCK	141
	4	4		⅝ WASHER LOCK	140
1	A/R	A/R		¼ WASHER, LOCK	139
	4	4		½ WASHER, BEVEL	138
	—	—		*	137
	—	—		*	136
	1	1		1" VALVE, SOLENOID, ASCO# 8210B54	135
	3	3		¾" VALVE SOLENOID, ASCO# 8210D95	134
	1	1		2" VALVE PLUG CHECK, FNT #75, 150# RUGAROO MANOL	133
	1	1		1" VALVE, GLOBE 400# REGO# A7507AP	132
	3	3		¾" VALVE GLOBE 400# REGO# A7505A	131
	1	1		2½" VALVE BUTTERFLY DEMCO W/FLANGE	130
	1	1		2" VALVE, BALL, JAMESBURY CLINCHER # 2111	129
	1	1		1" VALVE, BALL, JAMESBURY CLINCHER # 2111	128
	1	1		¾" VALVE, BALL, JAMESBURY CLINCHER # 2111	127
	6	6		¼" VALVE, NEEDLE M×F BOULTON # P-250-BN	126
	1	1		½" VALVE, HYDROSTATIC RELIEF, 150# SET, REGO# 3922-150	125
	—	—		*	124
		1		2" UNION, 300# BMI	123
		1		1" UNION ELL, MALE, 300# BMI	122
	3	3		¾" UNION ELL, MALE, 300# BMI	121
	1	1		½" UNION STR. M×F CONDUIT, C-H# UNY-105	120
	-02	-01	PART NUMBER	DESCRIPTION	ZONE / ITEM
	QTY REQD			BILL OF MATERIAL	

	-02	-01	PART NUMBER	DESCRIPTION	ITEM
	1	1		SWITCH, PRESSURE, 0-200# U-E MODEL H100A# 357	114
	1	1		SWITCH PRESSURE 0-50# U-E MODEL H100A# 9366	113
	1	1		SWITCH, TEMP 0-225°F, U-E MODEL 3H0 #2332 W/EA SWITCH	112
	—	—		*	111
	2	2		½" SEAL, OPEN C-H# EYS-16	110
	—	—		*	109
	4	4		#10 × 1½ CAP SCREW, CAD PLTD.	108
1	A/R	A/R		⅜-16 × 1 CAP SCREW, ALLEN HEAD	107
1	A/R	A/R		¼-20 × CAP SCREW, CAD PLTD.	106
	—	—		*	105
	—	—		*	104
	1	1		1" REGULATOR, FISHER# 63-H, PRESSURE LOADED, W/¼" ORIFICE, NYLON SEAT	103
				*	102
	1			¾" REGULATOR FISHER# 620 W/½ ORIFICE, NYLON SEAT 10-100# SPRING	101
		1		½" REGULATOR, FISHER# 620 W/½ ORIFICE, NYLON SEAT, 25-50# SPRING	100
				½" REGULATOR, FISHER# 620 W/⅜ ORIFICE, NYLON SEAT 40-100# SPRING	99
		1		½" REGULATOR, FISHER# 620 W/⅜ ORIFICE, NYLON SEAT 25-60# SPRING	98
	1			½" REGULATOR, FISHER# 620 W/¼ ORIFICE, NYLON SEAT 40-100# SPRING	97
		1		½" REGULATOR, FISHER# 620 W/¼ ORIFICE, NYLON SEAT 25-60# SPRING	96
				*	95
	—	—		*	94
	1	1		1 × ¾ REDUCER, BELL, 300# BMI	93
	1	1		½ × ¼ REDUCER, BELL, 300# BMI	92
	—	—		*	91
	1	1		⅛ PLUG, SQ HD. BMI	90
	2	2		½ PLUG, SQ HD. BMI	89
	1	1		¼ PLUG, SQ HD., F.S.	88
	—	—		*	87
	—	—		*	86
	1	1		2 × 9¾ NIPPLE, SCH. 80, WELDED, SHOP CUT	85
	1	1		2 × 5¾ NIPPLE, SCH. 80, WELDED, SHOP CUT	84
	1	1		2 × 8½ — SHOP CUT	83
	1	1		2 × 3	82
	1	1		1½ × 3	81
	1	1		1½ × 13½ — SHOP CUT	80
	1	1		1¼ × 6¾ — SHOP CUT	79
				1 × 7⅜ — SHOP CUT	78
	2	2		1 × 3	77
	2	2		1 × 2½	76
	1	1		1 × 2	75
	3	3		¾ × 8⅜ — SHOP CUT	74
	2	2		¾ × 7½ — SHOP CUT	73
	1	1		¾ × 7⅜ — SHOP CUT	72
	3	3		¾ × 3	71
	2	2		¾ × 2½	70
	2	2		¾ × 2	69
	1	1		½ × 1½	68
	1	1		¼ × 1½ NIPPLE, SCH. 80, WELDED	67
	—	—		*	66
	—	—		*	65
	—	—		*	64
	1	1		4" GASKET, 150# R.F. FLANGE, ASBESTOS	63
	2	2		GAUGE, TEMP, 50-300°F ¼ NPT × 4" STEM TEL-TRU# LN-250	62
	1	1		GAUGE, PRESS, 0-300 PSI, 2½D × ¼ B.C., LIQUID FILLED UNITED INST.# 22GX307	61
	1	1		GAUGE, PRESS 0-15 PSI 2½D × ¼ B.C., LIQUID FILLED, UNITED INST.# 22GXB-15PSI	60
					59
	—	—		*	58
	2	2		½" ELL, CONDUIT, C-H# EL-19	57
	—	—		*	56
	10	10		CONNECTOR, TUBE, 90° ELL, ¼ MNPT × ⅜ TUBE GYROLOK# 6LV4	55
	—	—		*	54
	1	1		2" COUPLING, 300# BMI	53
	4	4		⅛" COUPLING, 300# BMI	52
	—	—		*	51
	A/R	A/R		½" CONDUIT RIGID ALUMINUM	50
	A/R	A/R		½" CONDUIT, WATERPROOF FLEXIBLE, ELECTROFLEX TYPE LA-11	49
	2	2		CONNECTOR ½" LIQUIDTITE 90° ELL T&B #5252	48
	—	—		*	47
	1	1		1" CROSS, 300# BMI	46
	3	3		¾" CROSS, 300# BMI	45
	1	1		½" CROSS, 300# BMI	44
	—	—		*	43
	1	1		2" CAP PIPE 300# BMI	42
	5	5		BOX, CONDUIT ½" C-H# GUAT-16	41
	1	1		BOX, CONDUIT ¾" C-H# GUAL-16	
	-02	-01	PART NUMBER	DESCRIPTION	ZONE / ITEM
	QTY REQD			BILL OF MATERIAL	

NOTES:

1 NOT SHOWN.

STEARNS-ROGER ARCHITECTS, LTD

☐ Approved ☐ Make Corrections Noted

☑ No Exceptions Taken ☐ Revise and Resubmit

Date 2/1/79 By [illegible]

#260 643.06

-02	-01	PART NUMBER	DESCRIPTION
2	2		6" U-BOLT W/NUTS
2	2		2" U-BOLT W/NUTS
8	8		⅝-11 × 4 STUD BOLTS W/NUTS CAD PLTD. B-7
—	—		*
—	—		*
2	2		2½ × 2 BUSHING, BMI
1	1		2 × 1½ BUSHING, BMI
1	1		2 × 1¼ BUSHING, BMI
2	2		2 × 1 FLUSH BUSHING, F.S.
3	3		1½ × 1 BUSHING, BMI
	1		1¼ × 1 BUSHING, BMI
1	1		1 × ¾ BUSHING, BMI
2	2		1 × ½ BUSHING, BMI
6	6		¾ × ½ BUSHING, BMI
4	4		½ × ¼ BUSHING, BMI
1	1		¾ × ½ BUSHING, CONDUIT, C-H# RE-21
	1		½ × ⅛ BUSHING, BMI
1	1	016-405-02	1" U-TUBE ASSY.
3	3	016-405-01	¾" U-TUBE ASSY.
—	—		*
1		011-303-08	920 VENTURI ASSY.
1		011-303-06	9.5
1		011-303-04	9.0
1		011-303-02	97.5
	1	011-303-07	520
	1	011-303-05	5.5
	1	011-303-03	5.0
	1	011-303-01	575 VENTURI ASSY.
—	—		*
—	—		*
1	1	033-301-01	CONTROL BOX ASSY.
1	1	016-404-01	BASE SUB ASSY.
	1	016-403-01	VAPOR MANIFOLD SUB ASSY.
	1	016-402-01	MIXED GAS MANIFOLD SUB ASSY.
1	1	016-301-01	CABINET ASSY.
—	—		*
—	—		*
—	—		*
X		017-201-02	8447-9 PSI BINARY BLENDER FINAL ASSY.
	X	017-201-01	8447-5 PSI BINARY BLENDER FINAL ASSY.
-02	-01	PART NUMBER	DESCRIPTION
QTY REQD			BILL OF MATERIAL

Approved
[illegible] Elect. & Mech. Co.
Proj. Engr.

TOLERANCES
FRACTIONS ±
ANGLES ±
EXCEPT AS NOTED

INTEREX
International Gas Systems, Inc.

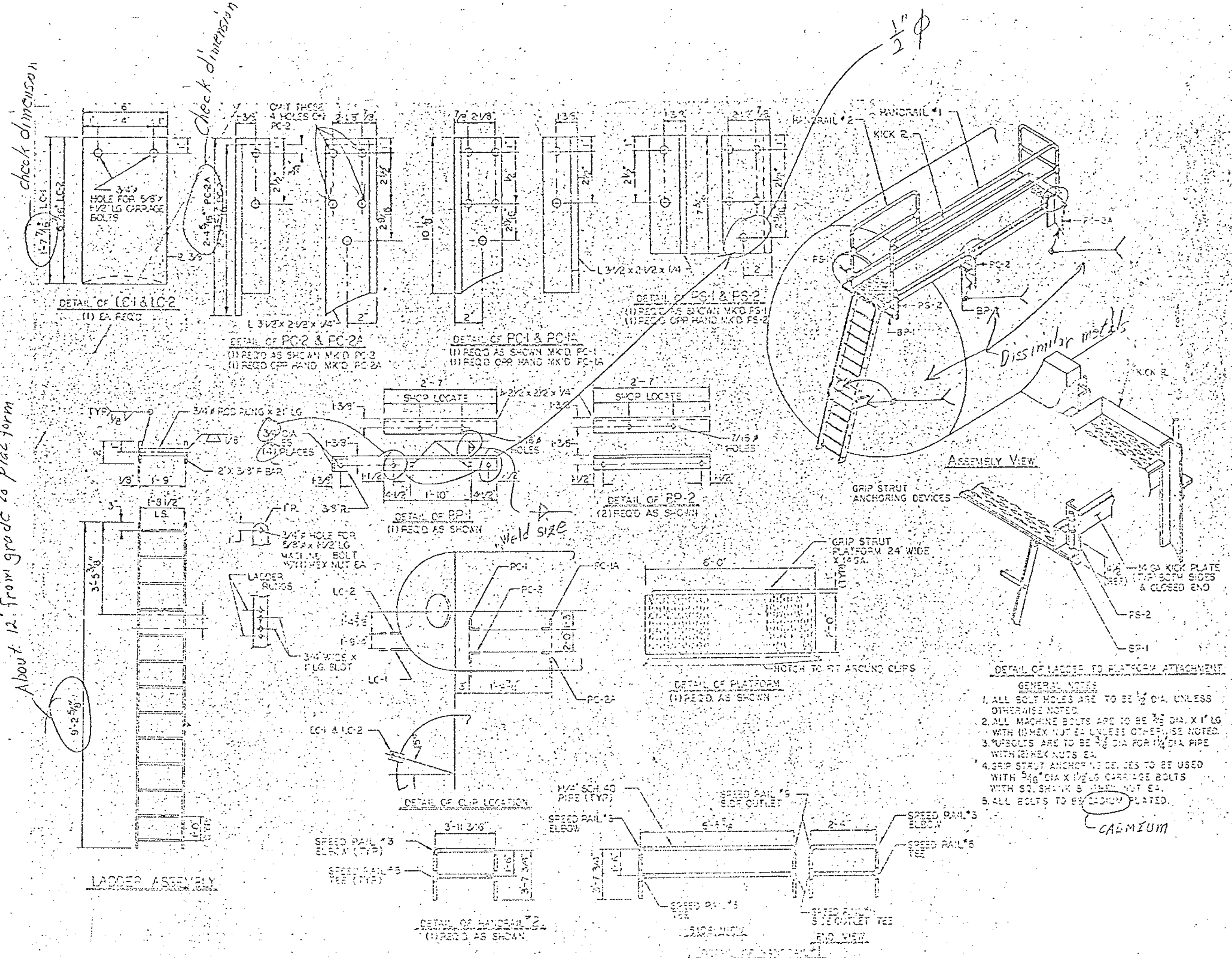
INTEREX BINARY BLEN
MODEL 8447 FINAL AS
(SPECIAL FOR EISENHOWER

Drawn N.T. LaRochelle 11-20-78
Checked G. Landau

E017-201

1 3

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	180	208



DETAIL OF LC1 & LC2
(1) EA. REQ'D
DETAIL OF PC-2 & PC-2A
(1) REQ'D AS SHOWN MK'D PC-2
(1) REQ'D OPP HAND MK'D PC-2A
DETAIL OF PC-1 & PC-1A
(1) REQ'D AS SHOWN MK'D PC-1
(1) REQ'D OPP HAND MK'D PC-1A
DETAIL OF PS-1 & PS-2
(1) REQ'D AS SHOWN MK'D PS-1
(1) REQ'D OPP HAND MK'D PS-2
L 3 1/2 x 2 1/2 x 1/4
HANDRAIL #1
HANDRAIL #2
KICK 2
ASSEMBLY VIEW
SHOP LOCATE
DETAIL OF BP-1
(1) REQ'D AS SHOWN
DETAIL OF BP-2
(1) REQ'D AS SHOWN
GRIP STRUT ANCHORING DEVICES
GRIP STRUT PLATFORM 24" WIDE X 14 GA.
DETAIL OF PLATFORM
(1) REQ'D AS SHOWN
NOTCH TO FIT AROUND CLIPS
LADDER ASSEMBLY
DETAIL OF CLIP LOCATION
DETAIL OF HANDRAIL #2
(1) REQ'D AS SHOWN
1 1/4" SCH 40 PIPE (TYP)
SPEED RAIL #3 ELBOW
SPEED RAIL #5 TEE
SIDE VIEW
END VIEW
DETAIL OF LADDER TO PLATFORM ATTACHMENT
check dimension
Check dimension
About 12' from grade to platform
weld size
Dissimilar metal
1/2" φ

GENERAL NOTES

1. ALL BOLT HOLES ARE TO BE 1/2" DIA. UNLESS OTHERWISE NOTED.
2. ALL MACHINE BOLTS ARE TO BE 3/8" DIA. X 1" LG WITH (1) HEX NUT EA UNLESS OTHERWISE NOTED.
3. "U" BOLTS ARE TO BE 3/8" DIA FOR 1 1/4" DIA PIPE WITH (2) HEX NUTS EA.
4. GRIP STRUT ANCHORING DEVICES TO BE USED WITH 5/16" DIA X 1 1/2" LG CARRIAGE BOLTS WITH SQ. SHANK & [illegible] NUT EA.
5. ALL BOLTS TO BE CADIUM PLATED. — CADMIUM

TO BE REVIEWED BY CDH

REVIEWED
D.O.H. STATE OF COLO.
STAFF BRIDGE DESIGN
By SFC Date 4-23-76

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.

APPROVAL

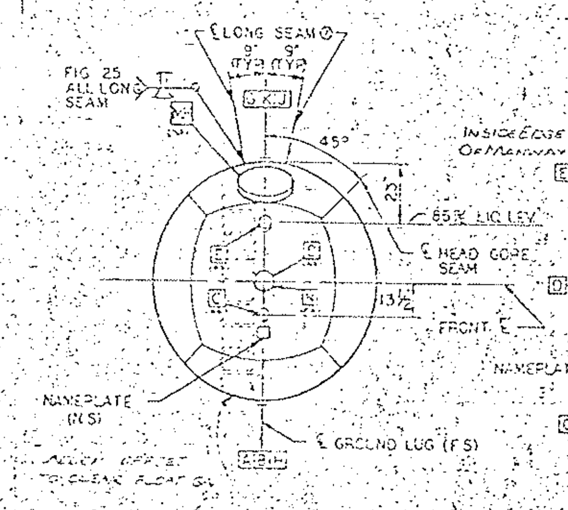
DATE

RECEIVED D.O.H.

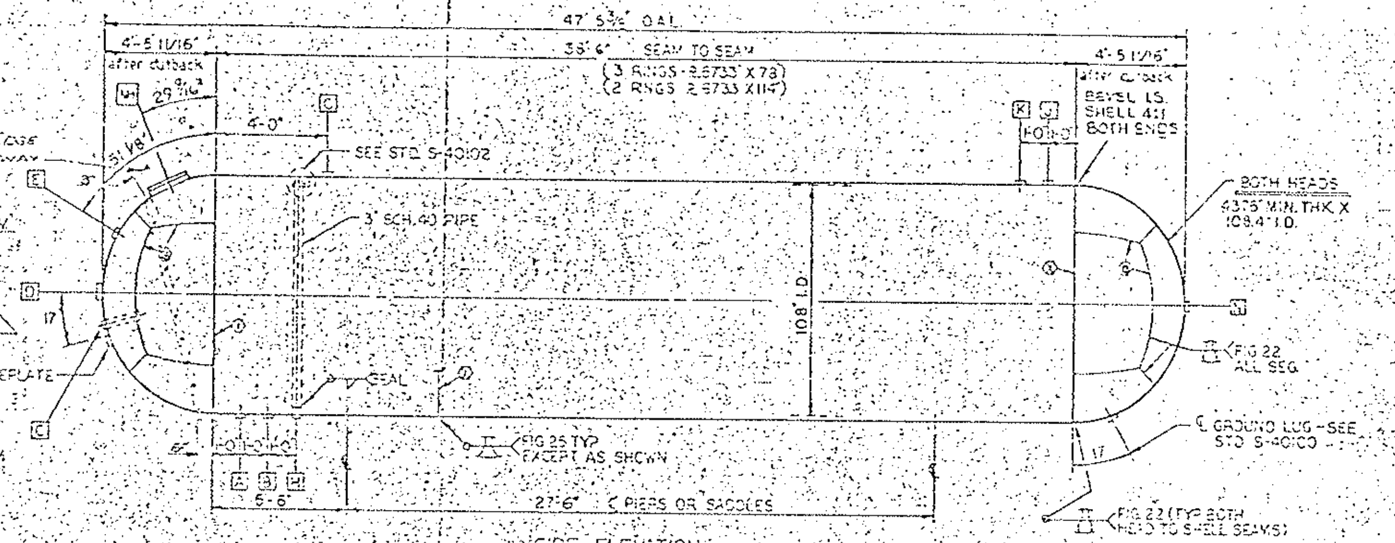
stearns-roger architects

TRINITY INDUSTRIES, INC.

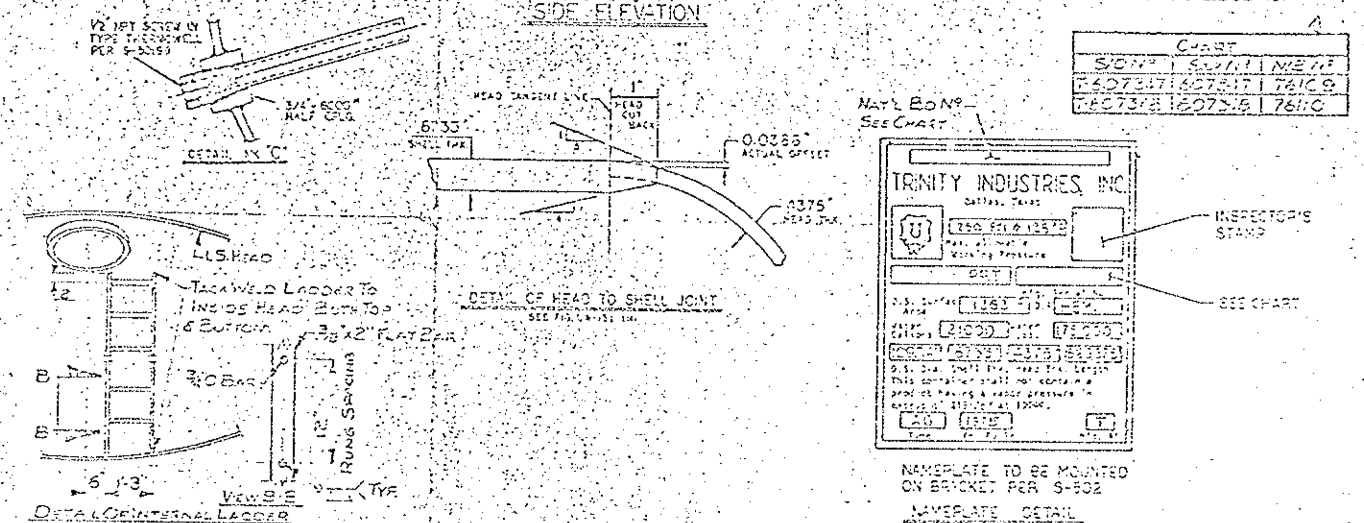
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	181	203



END VIEW



SIDE ELEVATION



GENERAL NOTES

1. Opening "C": See Detail. Fill pipe with grease before installing thermometer.
2. Opening "D":
   A Magnetel gauge is ordered, provide (1) Rochester 6342-8 gauge and (1) Rochester [illegible] adapter.
   Note: Bolt holes on adapter flange to be on vessel centerlines.
3. Opening "E": Provide full cplg with 3/4" [illegible] w/#54 drill, install with NPT [illegible] Per Std. S-50135
4. Opening "M": Furnish with pipe as shown. See Std. S-40102 for pipe support clip.
5. All dimensions given on a curved surface are along outside curvature.
6. Steel die stencil [illegible] alongside cplg. "E" as shown.
7. All long seams are to be alternated.
8.
9. LPG relief required is 19936
10. LPG relief furnished is 23360
11. Openings [illegible] These openings are to be set flush inside.
12. Opening "A": See Std. S-50129 for special cplg. detail.
13. Opening "E": When fittings are furnished provide (1) 3/4" Rego A3216C combination valve and (1) 3/4" bottom mounted press. gauge, 0# to 300#
14. Opening "MH" (See Std. S-7151). Provide [illegible] with the following:
    (1) 15" cover per Drawing S-7112
    (1) 1/16" thk. gasket x [illegible] I.D. x [illegible] O.D. [illegible] Asbestos
    (15) 3/4" [illegible] studs
    (15) 3/4" [illegible] hex nuts
15. Provide Ladder & Platform Per Dwg. S SIC83.

* Full X-Ray all long seams and head-to-shell seams. Spot X-Ray all head [illegible] seams.

CHART		
S/O N°	SER. N°	NB N°
1607347	1607347	76109
1607348	1607348	76110

Material Notes:
1. Heads - SA-455-2
2. Shell - SA-612-3
3. Couplings - SA-105-II
4. Structural - C.S.
5. Weld Pad - C.S.
6. Internal Pipe - C.S.
7. Nozzles: A. Flanges - SA-105-72 B. Cover - SA-515-70
8. Pressure Retaining: A. Studs - SA-193-B5 B. Nuts - SA-194-2H
9. Gaskets - [illegible] Asbestos

SCHEDULE OF OPENINGS

[illegible]

Note: a. For valve manufacturer & model number see valve identification submittal.
b. For location of 85% fixed level gauge see valve identification submittal.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 4-9-76 By MUK

RECEIVED APR 01 1976 Stearns-Roger Architects

#159
643.04

Checked
Howard Elect. & Mech. Co.
Proj. Mgr.
FINAL

RECEIVED D.O.H.

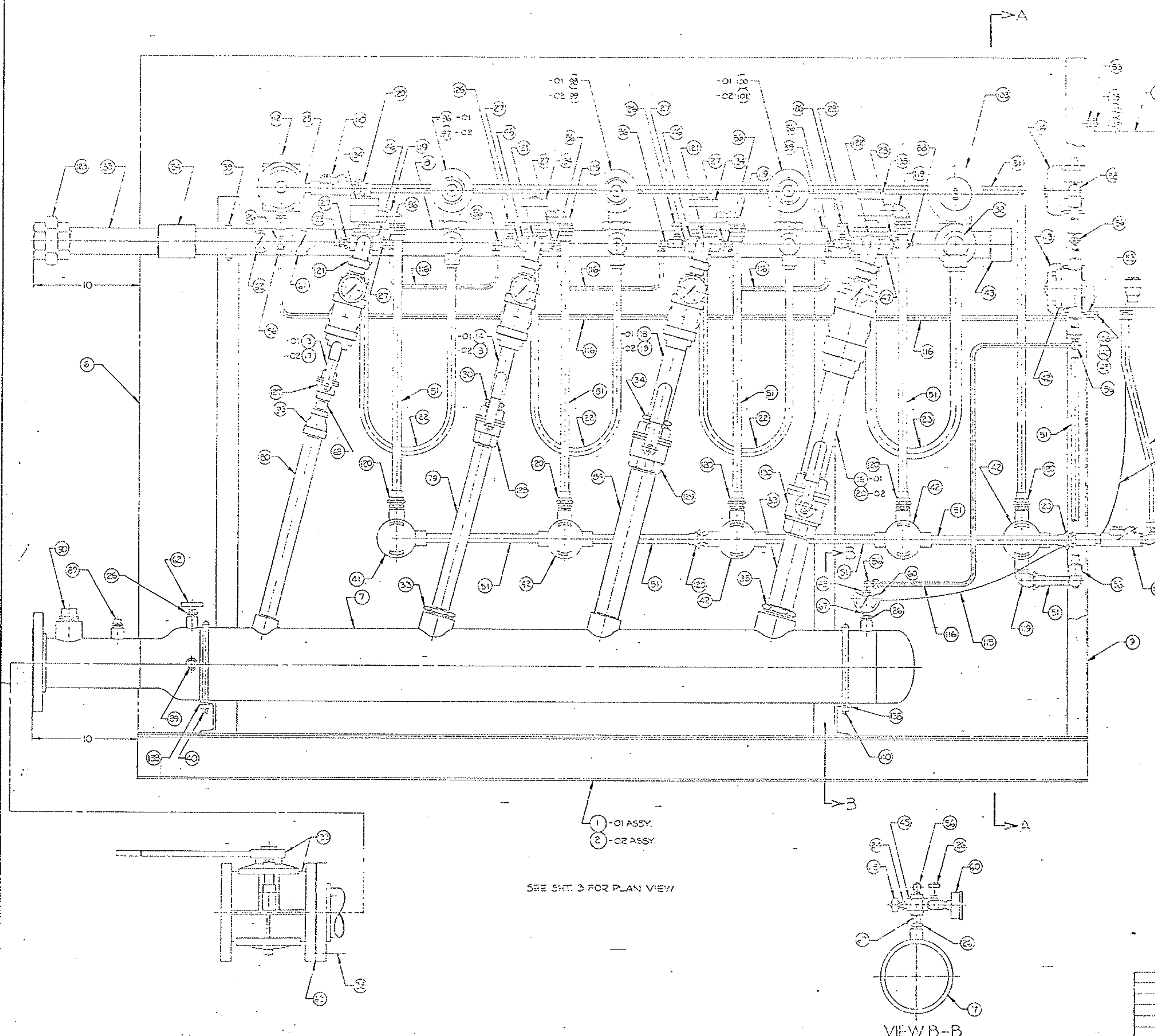
Environment, Inc.
5700 West [illegible] Ave. Arvada, Colorado 80002
303-423-7297

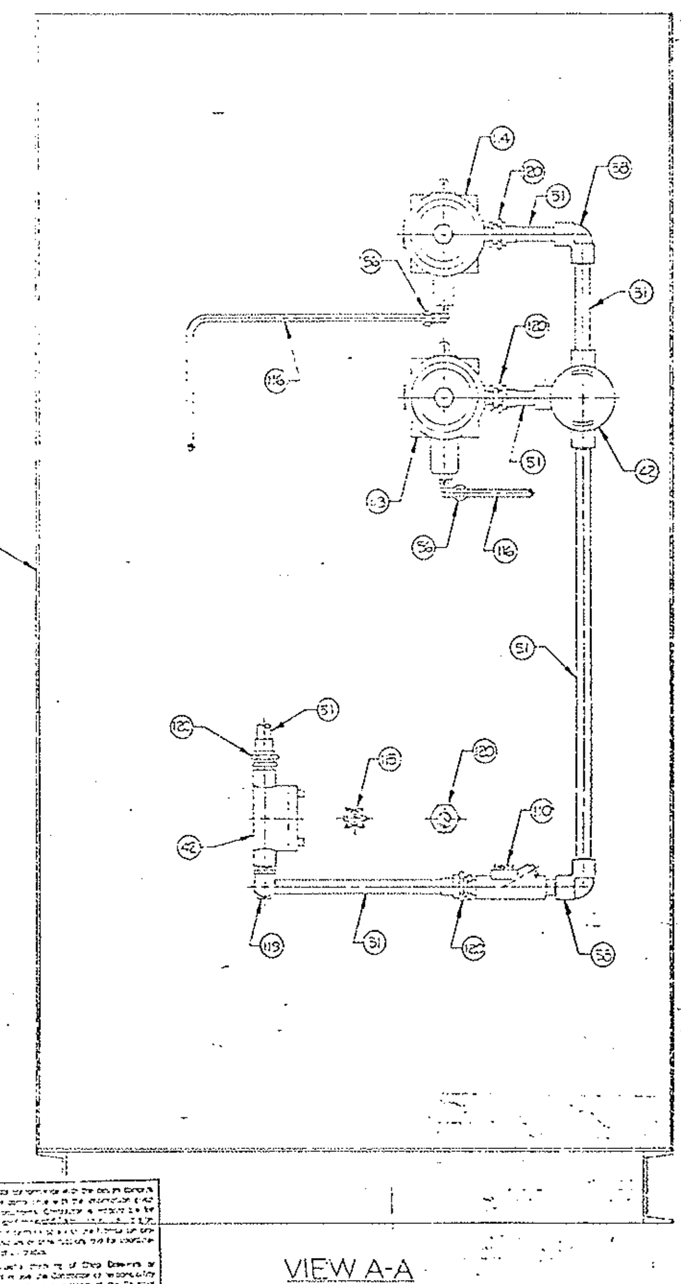
PROJECT NO. I70-3(100)220
EISENHOWER MEMORIAL TUNNEL - 2nd BORE

TANK SUBMITTAL

Scale: NONE	PO No. M1413	Drawing: E1C02
Date: 7-14-75	Approved:	Sheet: / Rev. No. 1 6-8-76

	DWG BY	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	1 70-01 3030	183	203





Reviewed – Exceptions Taken

STEARNS-ROGER ARCHITECTS, LTD.

2/12/79

F.260 648.06

Approved
Howard Elect. & Mech., O.
Proj. Mgr.

		SEE SHT. 1 FOR BILL OF MATERIAL	
QTY REQD.	PART NUMBER	DESCRIPTION	
	BILL OF MATERIAL		

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

FINISH: INTEREX GREEN

USED ON: MODEL | DWG NO | QTY. PER ASSY | QTY. FOR UNIT | PART DASH NO. | EFFECTIVE SERIAL NOS.

INTEREX
International Gas Systems, Inc.

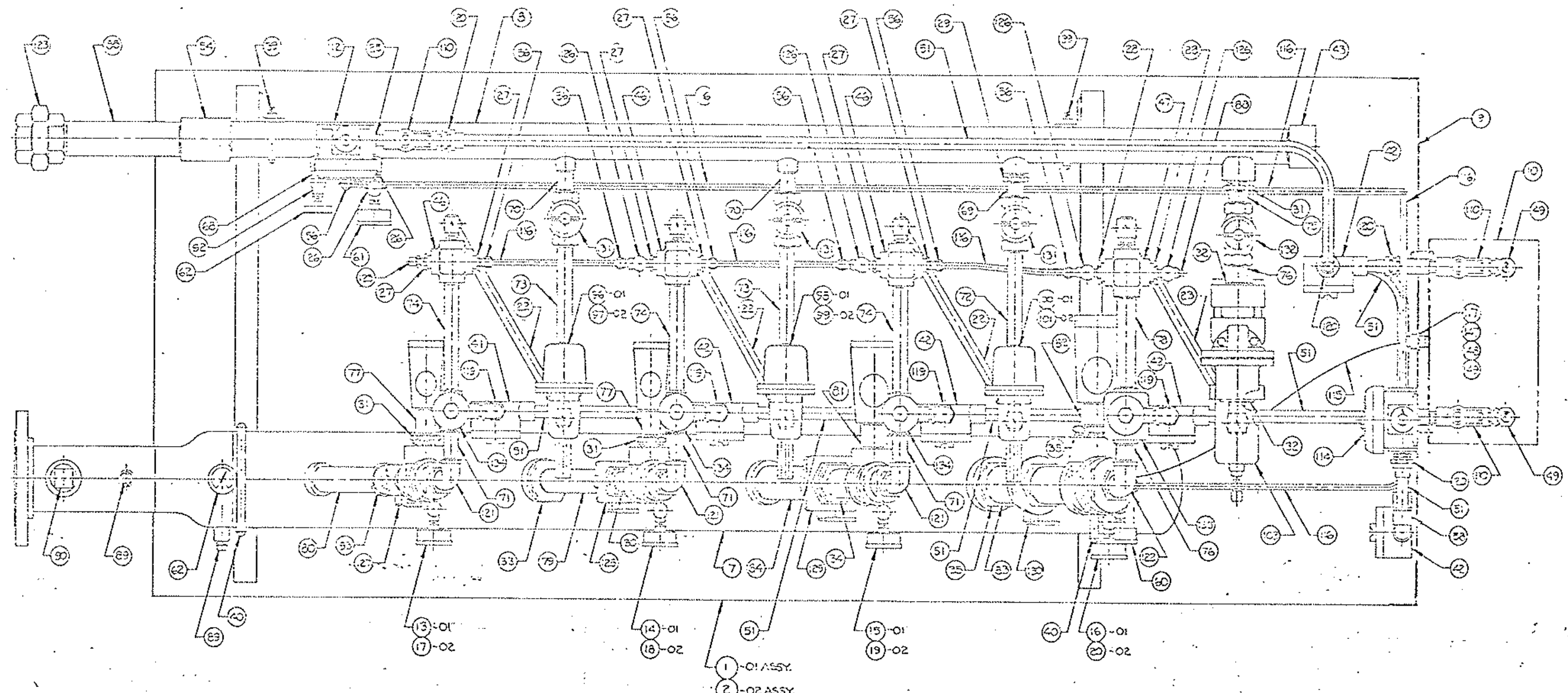
INTEREX BINARY BLENDER
MODEL B447 FINAL ASSY.
SPECIAL FOR EISENHOWER TN

Date: 11-24-78
Scale: 3"=1'0"

E017-201

2 3

	COLORADO		184	203



Approved

Proj. Mgr.

#260 643.66

STURANDROLLS ARCHITECTS, LTD.

SEE SHT 1 FOR BILL OF MATERIAL

BILL OF MATERIAL

TOLERANCES

INTEREX

International Gas Systems, Inc.

INTEREX BINARY BLENDE

MODEL 8447 FINAL ASSY.

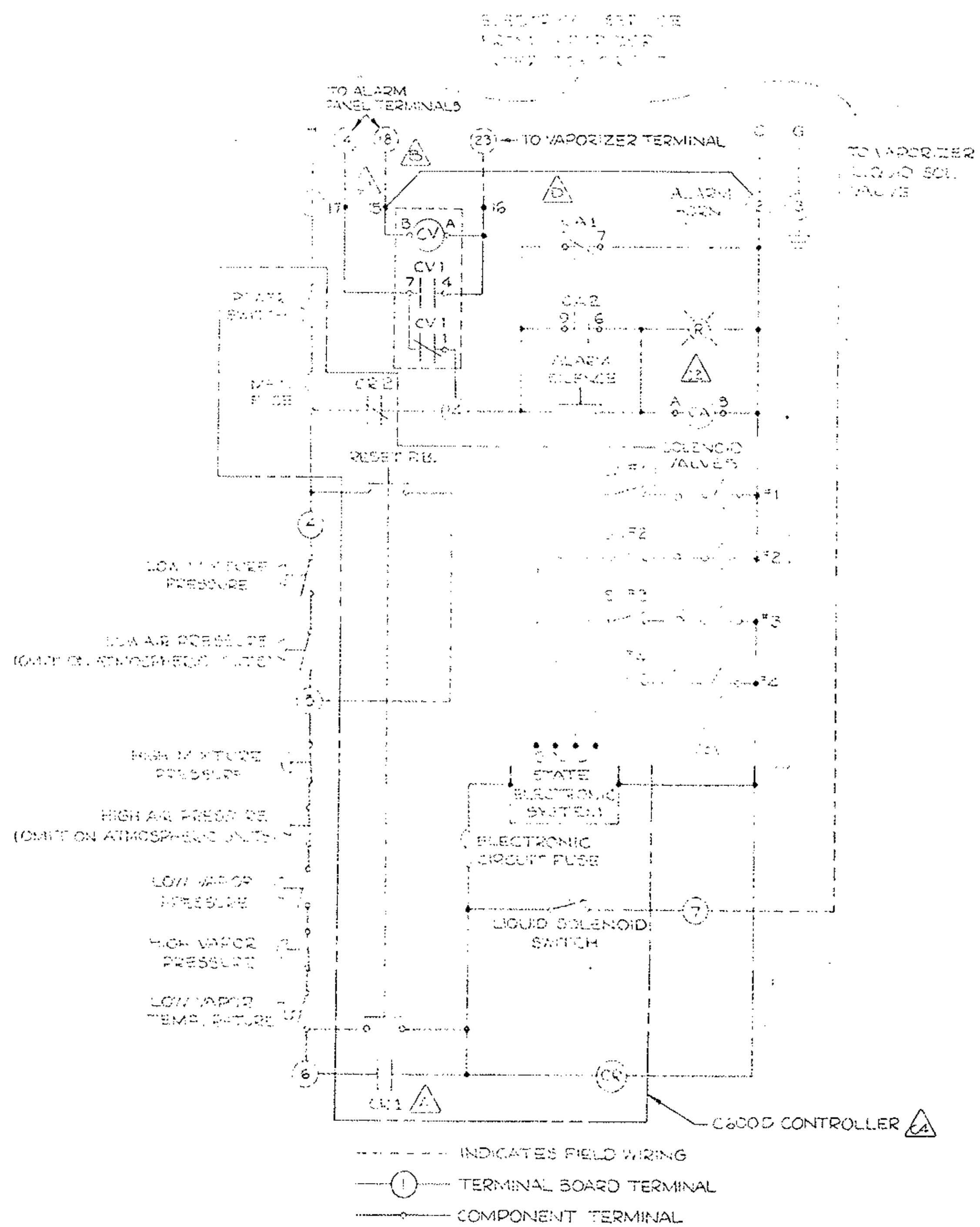
SPECIAL FOR EISENHOWER TN

E017-201

3-3

FINISH: INTEREX GREEN

USED ON



SYM	ZONE	DESCRIPTION	REV. BY	APPROVED
		[illegible]		GTL
B		ADDED CV RELAY AND TERMINALS 16, 17 AND 8	3/22/76	GTL 3-22-76
C		1. TERMINAL 5 WAS 8 2. ADDED COMPONENT TERMINAL NUMBERS TO 'CA' RELAYS 3. DELETED SW#5 & #6 AND SOLENOIDS #5, #6 & #7 4. OUTLINED ITEMS INCLUDED IN C600D CONTROLLER	6/16/76	GTL
D		1. ADDED GROUND WIRE FROM TERMINAL 2 TO TERMINAL 15.	GTL 12-21-76	GTL 12-21-76

185 208

2/7/79
#260 643.66

QTY. REQ'D.		PART NUMBER	DESCRIPTION	ZONE	ITEM

BILL OF MATERIAL

USED ON

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

FINISH:

International Gas Systems, Inc.

SPEC… PRINT FOR
EISENHOWER TUNNEL

Drawn By | Date
Checked By | Scale
Approved | Job No.
ORIGINAL EFF. SERIAL NO.

Drawing Number: FILE AS D-506 …
506-704

Size | Sheet Number 1 of 1 | Revision D

ADCN.

NOTES:

[illegible]

QTY. REQ'D	PART NUMBER	DESCRIPTION	ZONE	ITEM
		[illegible] HONEYWELL		
1	[illegible]-01	[illegible] 70		
1		[illegible] HONEYWELL [illegible]		09
		[illegible]		08
		[illegible]		07
		CONDUIT RIGID [illegible] ALLOY		06
		PIPE ¾ [illegible]		05
		PIPE ¾ X 78 LG [illegible]		04
		[illegible]		03
		BUSHING [illegible]		02
		[illegible]		01

QTY. REQ'D	PART NUMBER	DESCRIPTION	ZONE	ITEM
		REGULATOR ¾ [illegible]		
		REGULATOR ¾ [illegible]		
		[illegible]		
		[illegible]		
		[illegible]		
1		PLUG [illegible] 2000" BM		
		PLUG ¾ 2000" BM		
		PIPE CAP 1½ 2000" BM		
		PIPE CAP ¾ 2000" BM		
		PIPE 1½ X 12 LG SA-53 [illegible] SHOP CUT		
		PIPE ¾ [illegible] SA-53 [illegible] SHOP CUT		
32	[illegible]	NUT HEX [illegible]		
		NIPPLE [illegible]		
1		NIPPLE [illegible]		
1		NIPPLE ½ X [illegible] LG		
1		NIPPLE ½ X CLOSE		
1		NIPPLE [illegible] LG SHOP CUT		
1		NIPPLE [illegible] SHOP CUT		
		NIPPLE [illegible] LG		
1		NIPPLE ¾ X 8 LG SHOP CUT		
1		NIPPLE ¾ X [illegible] LG SHOP CUT		
1		NIPPLE ¾ X 6½ LG SHOP CUT		
1		NIPPLE ¾ X 4 LG		
2		NIPPLE ¾ X CLOSE		
5		NIPPLE ½ X 2 LG [illegible]		
1		NAME PLATE		
2		[illegible] SERIES 69 [illegible]		
		[illegible]		
		JUNCTION BOX [illegible]		
2		[illegible]		
2		[illegible]		
		[illegible]		
2		[illegible]		

QTY. REQ'D	PART NUMBER	DESCRIPTION	ZONE	ITEM
1		[illegible]		
2		ELBOW [illegible]		
1		ELBOW [illegible]		
		ELBOW [illegible] 2000" BM		
		ELBOW [illegible] 2000" BM		33
		[illegible] CONDUIT [illegible]		32
5		[illegible] ALUM [illegible]		31
1		[illegible]		
1		CHOKE [illegible] 2000" BM		29
		[illegible] 2000" BM		28
1		[illegible]		27
		COPPER TUBE [illegible]		
		COPPER TUBE [illegible]		
		[illegible]		
		[illegible]		
		[illegible]		23
	04-301-01	[illegible]		
1		CONNECTOR [illegible]		
2		CONNECTOR [illegible]		20
2		CONNECTOR [illegible]		
		CONDUIT RIGID [illegible]		
1		CONDUIT RIGID ¾ X [illegible] LG NIPPLE ALUM		17
		CONDUIT RIGID ¾ ALUM		16
		[illegible] ELECTROFLEX WATERPROOF FLEX		15
		[illegible]		
5		[illegible]		14
11		CONDUIT [illegible]		13
		BUSHING [illegible]		12
3		BUSHING [illegible] F.S.		11
		BUSHING [illegible] F.S.		10
		BURNER [illegible]		9
		ADAPTER 2 [illegible]		8
		[illegible] MICRO		7
1		[illegible] MICRO [illegible]		6
		[illegible] MICRO		
1	[illegible]	[illegible] CONDENSER		4
1	048-30[illegible]	[illegible]		3
1	04-303-0[illegible]	[illegible]		2
	049-201-01	FINAL ASSY HP 70		1

BILL OF MATERIAL

DASH NO.	FINAL PRODUCT	ITEM	QTY PER ASSY	NEXT ASSEMBLY	ITEM	QTY PER ASSY
01	[illegible] 70		1			

USED ON

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

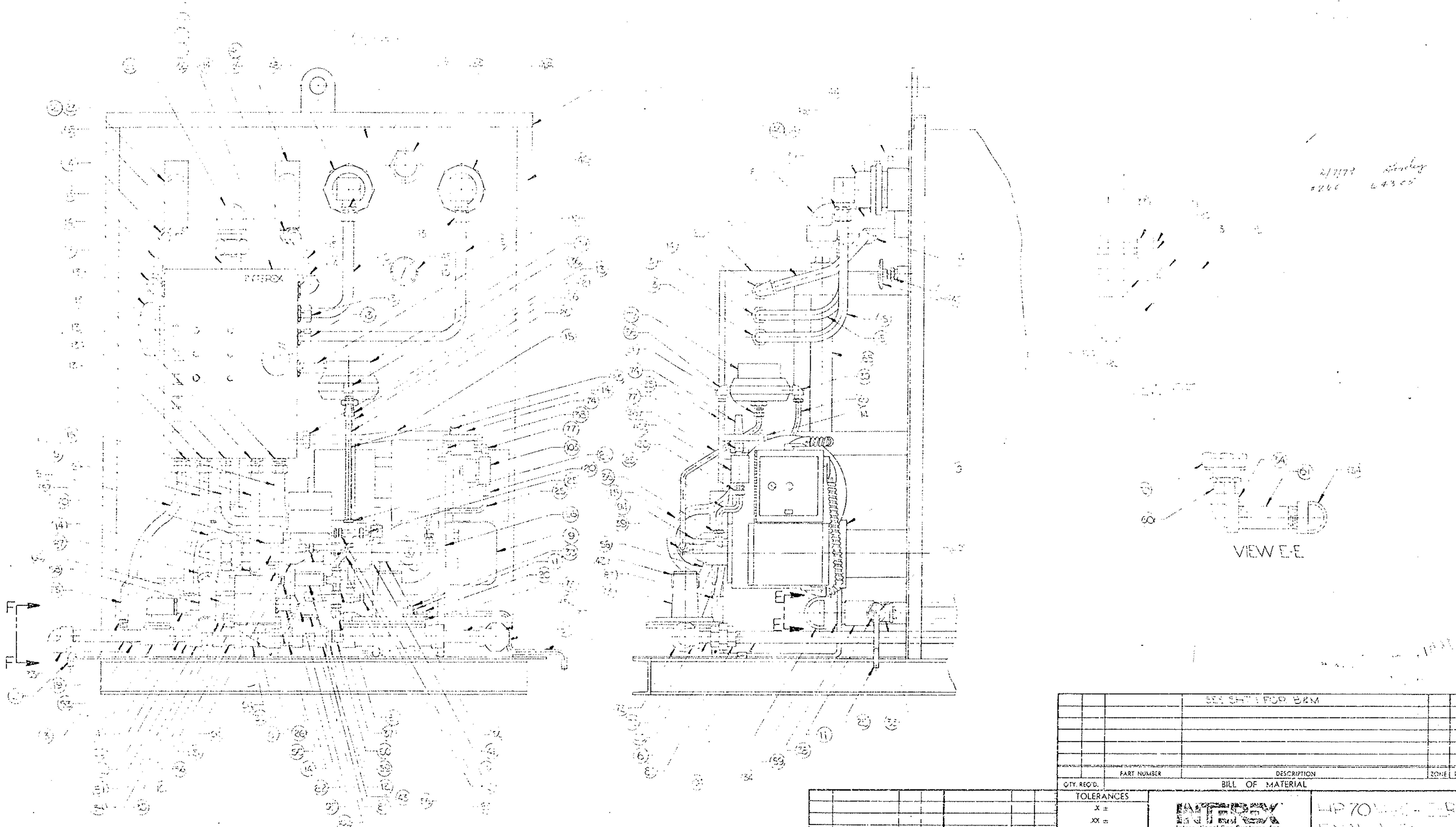
FINISH:

INTEREX
International Gas Systems, Inc.

HP 70 VAPORIZER
FINAL ASSY.

Drawn By [illegible]	Date OCT. 30, 1975	Drawing Number	049-201
Checked By	Scale		
Approved	Job No.	Size D	Sheet Number 1 of 3
ORIGINAL ENG. SERIAL NO. HP 70-001-75			Revision

ADCN.



NOTE.
THIS DWG. SHOWS BURNER END ONLY

SYM	ZONE	DESCRIPTION	REV. BY	APPROVED

SEE SHT 1 FOR B&M

QTY. REQ'D.		PART NUMBER	DESCRIPTION	ZONE	ITEM

BILL OF MATERIAL

DASH NO.	FINAL PRODUCT	ITEM	QTY PER ASSY.	NEXT ASSEMBLY	ITEM	QTY PER ASSY.
	HP-70		1			

USED ON

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

FINISH:

INTEREX
International Gas Systems, Inc.

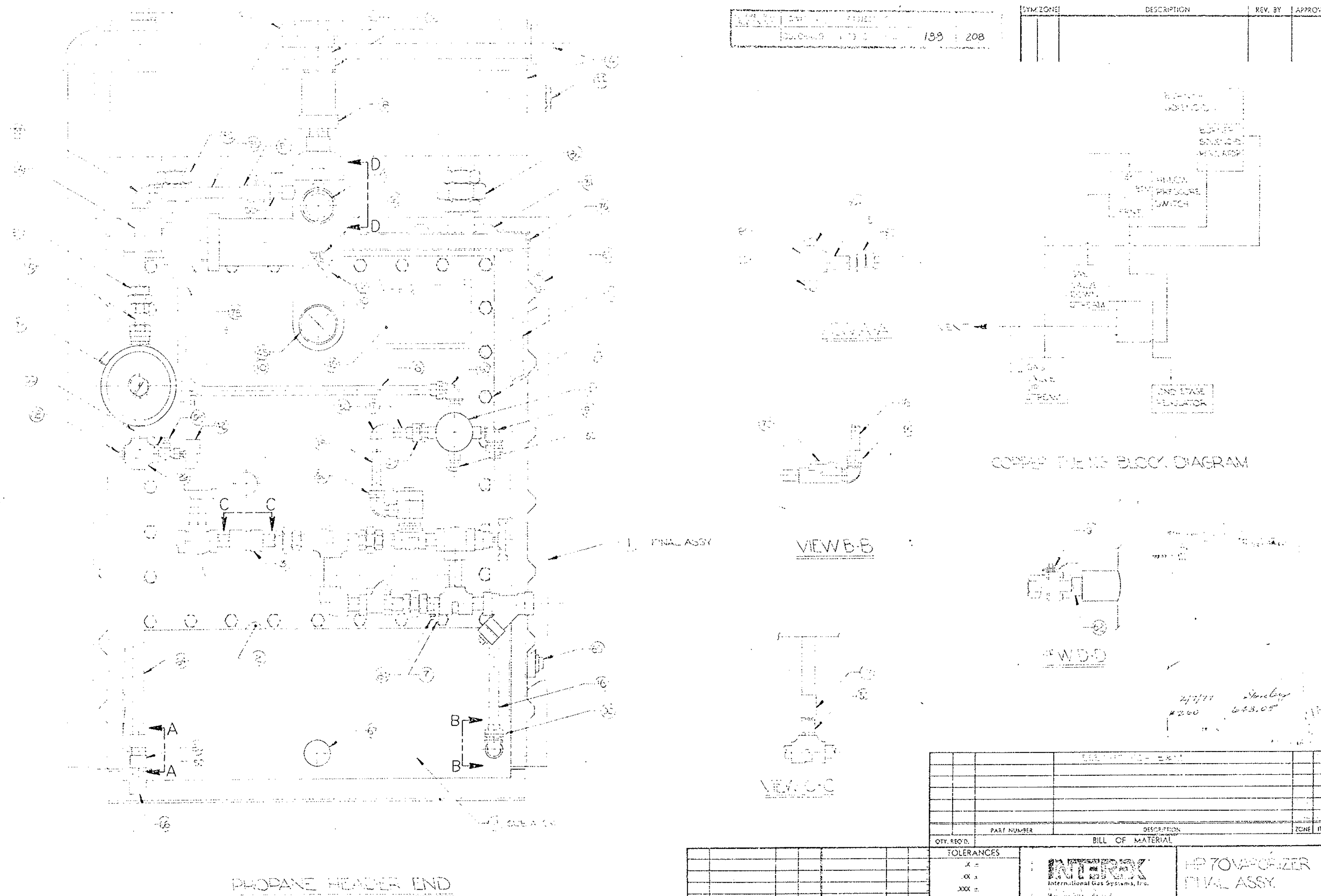
Drawn by ROLAND
Date
Checked by
Scale ¼ SCALE
Approved
Job No.
ORIGINAL EFF. SERIAL NO.
HP-70-[illegible]

HP 70 [illegible] FINAL ASSY.

Drawing Number J049-201

Size D. | Sheet Number 2 of 3 | Revision

ADCN.



QTY. REQ'D.	PART NUMBER	DESCRIPTION	ZONE ITEM

BILL OF MATERIAL

TOLERANCES

.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

FINISH:

INTERGAS International Gas Systems, Inc.

HP 70 VAPORIZER
FINAL ASSY.

Drawing Number: DO49-201

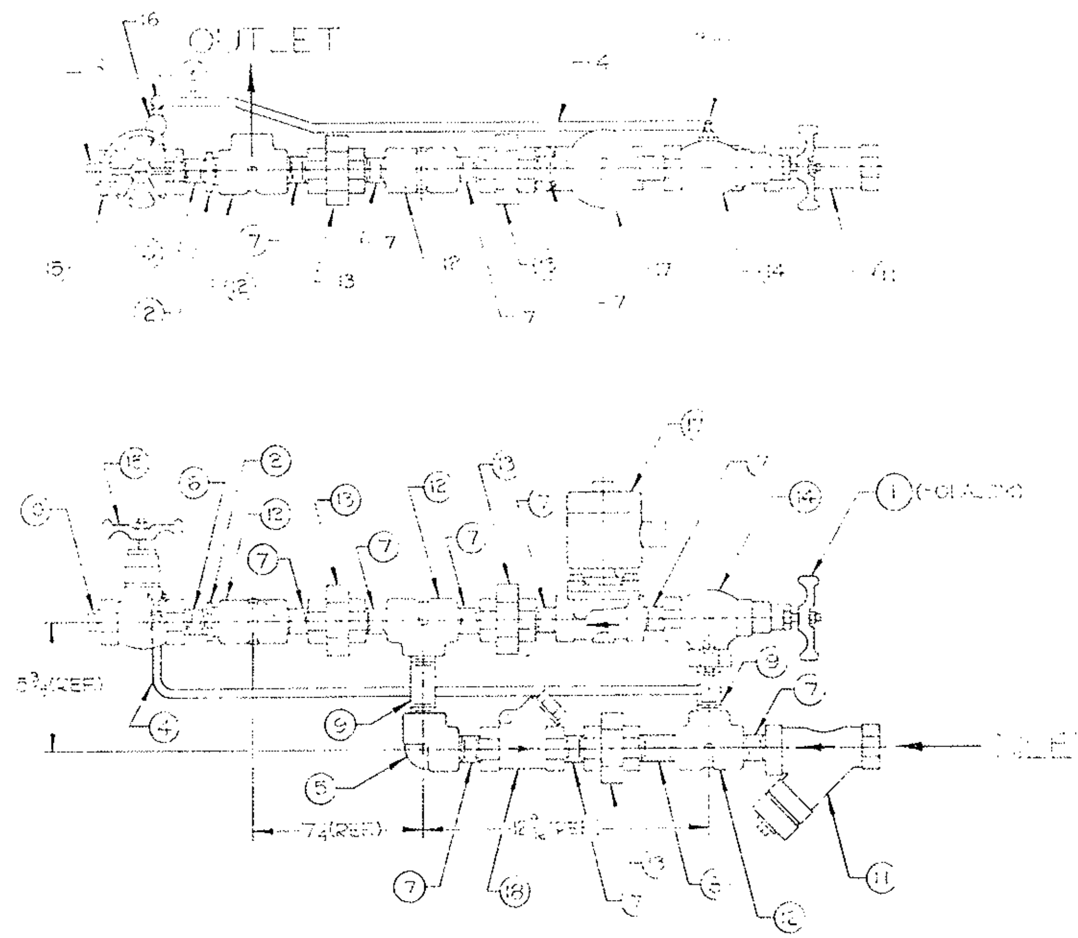
Size: D
Sheet Number: 3 of 3

USED ON

ADCN.

SYM	ZONE	DESCRIPTION	REV. BY	APPROVED
[illegible]		[illegible]	[illegible]	[illegible]

139 208



QTY. REQ'D.	PART NUMBER	DESCRIPTION	ZONE	ITEM
		[illegible]		18
		[illegible] OR EQUAL		
		[illegible]		17
		[illegible]		16
		[illegible]		15
		[illegible]		14
		[illegible]		13
		[illegible]		12
		[illegible]		11
		[illegible]		10
		[illegible]		9
		[illegible]		8
		[illegible]		7
		[illegible]		6
		[illegible]		5
		[illegible]		4
		[illegible]		3
		[illegible]		2
		[illegible]		1

BILL OF MATERIAL

DASH NO.	FINAL PRODUCT	ITEM	QTY. FOR ASSY.	NEXT ASSEMBLY	ITEM	QTY. PER ASSY.

USED ON

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

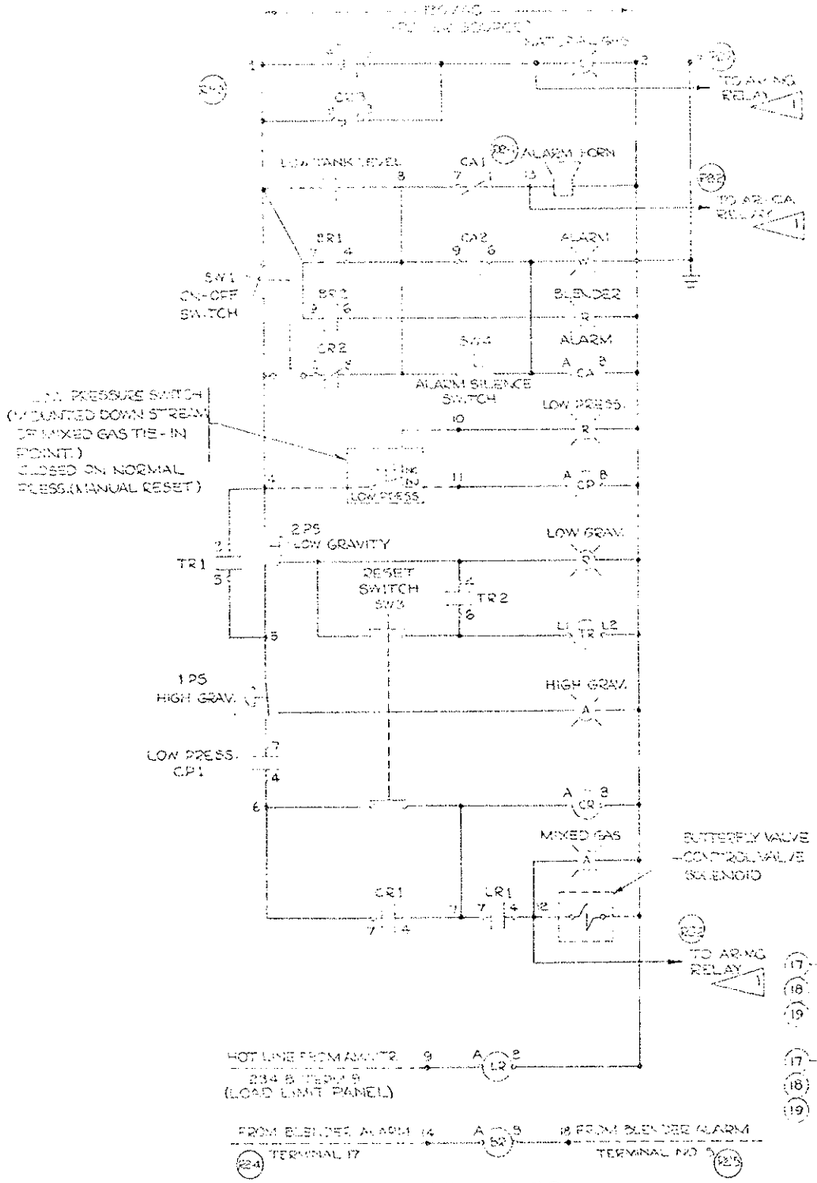
FINISH: [illegible]

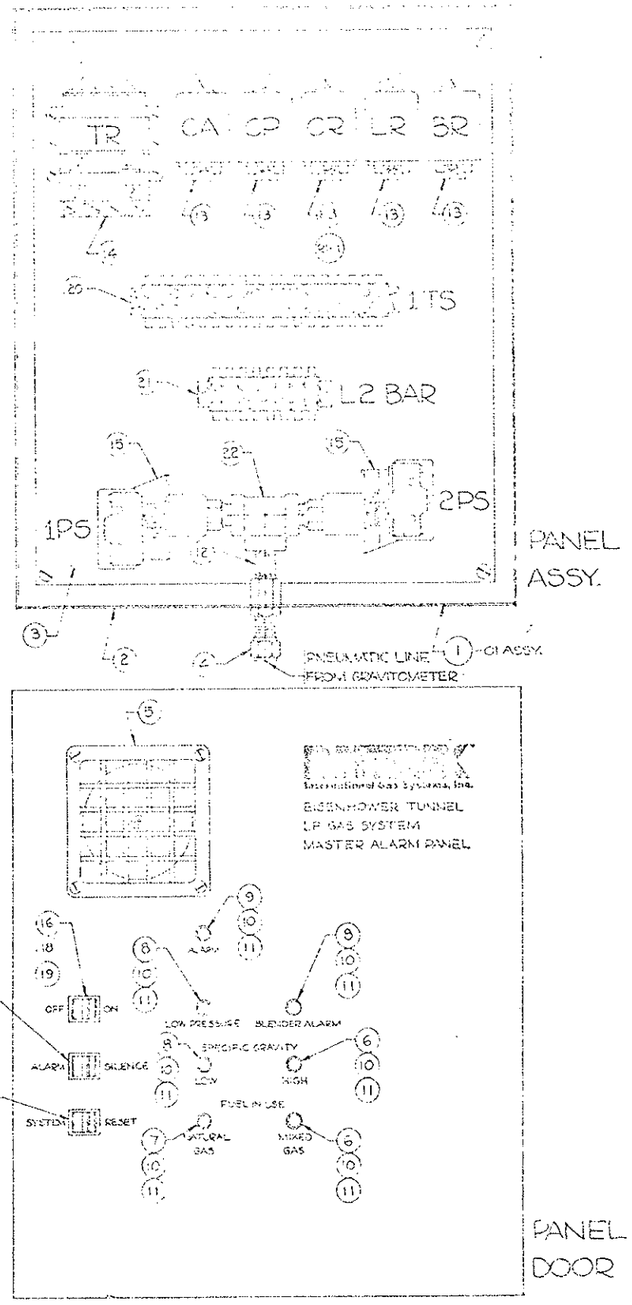
INTEREX
International Gas Systems, Inc.

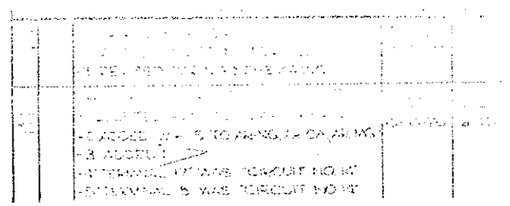
Drawn By [illegible] Date [illegible]
Checked By [illegible] Scale [illegible]
Approved [illegible] Job No.
ORIGINAL EFF. SERIAL NO. [illegible]

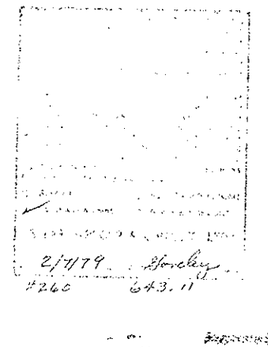
Drawing Number DC49-301
Size | Sheet Number [illegible] | Revision A

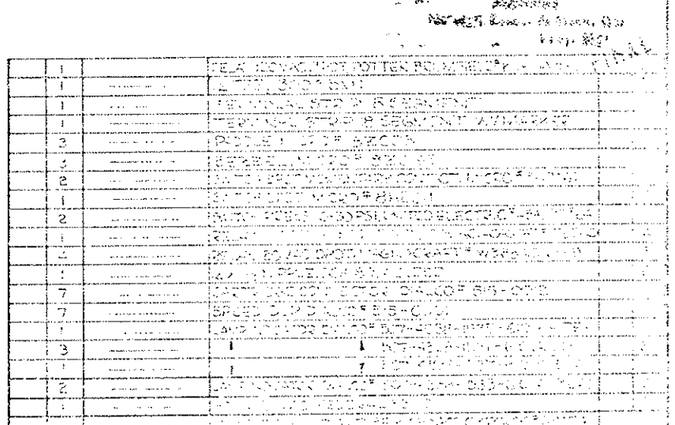
ADCN.











- 3 ADDED
- TERMINAL 17 WAS CIRCUIT NO. 17
- TERMINAL 5 WAS CIRCUIT NO. 17

	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )226	190	208

WIRING SCHEMATIC

LEGEND

- ●PANEL TERMINALS, ○ INSTRUMENT TERMINALS
- TR – TIME DELAY RELAY
- CA – ALARM RELAY
- CP – LOW PRESSURE RELAY
- CR – CONTROL RELAY
- LR – LOAD LIMITING RELAY
- BR – BLENDER ALARM RELAY
- LAMP COLORS
- W-WHITE, R-RED, A-AMBER, C-CLEAR

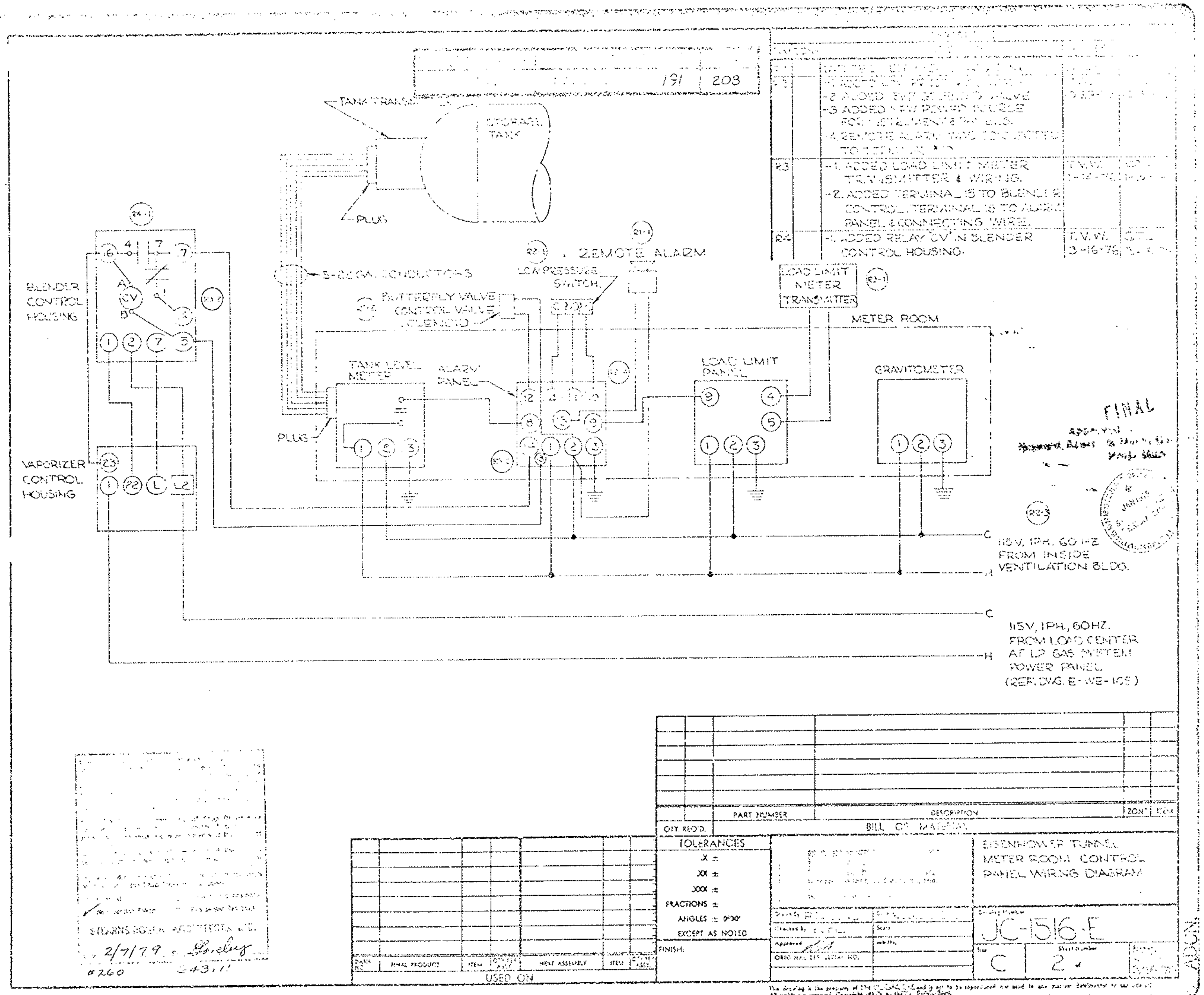
(21) RELAY CABINET FURNISHED BY OTHERS & LOCATED NEXT TO ALARM PANEL. TYP.

2/7/79
#260 643.11

1		RELAY ... POTTER BRUMFIELD ...
1		... BAR
1		TERMINAL STRIP 8 SEGMENT
1		TERMINAL STRIP 8 SEGMENT W/MARKER
3		[illegible]
3		[illegible]
2		[illegible]
1		[illegible]
2		SWITCH ... PSI ... ELECTRIC ...
1		[illegible]
4		[illegible]
1		[illegible]
7		[illegible]
7		[illegible]
1		[illegible]
3		[illegible]
1		[illegible]
2		[illegible]
1		[illegible]
1		[illegible]
1		[illegible]
1		[illegible]
	PART NO.	DESCRIPTION

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°10'
UNLESS AS NOTED

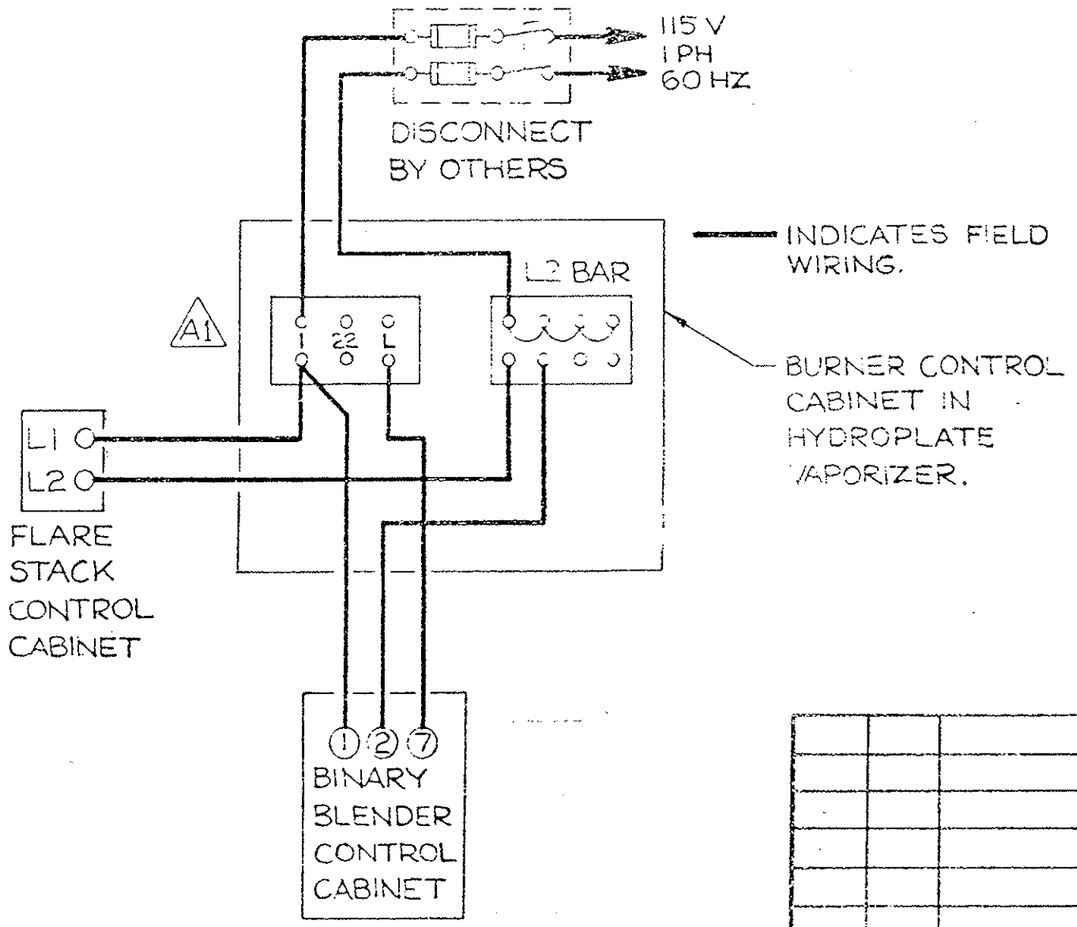
USED ON



191
208
TANK TRANS.
STORAGE TANK
PLUG
3-22 GA. CONDUCTORS
BLENDER CONTROL HOUSING
VAPORIZER CONTROL HOUSING
BUTTERFLY VALVE CONTROL VALVE SOLENOID
LOW PRESSURE SWITCH
REMOTE ALARM
LOAD LIMIT METER TRANSMITTER
METER ROOM
TANK LEVEL METER
ALARM PANEL
LOAD LIMIT PANEL
GRAVITOMETER
-2 ADDED BUTTERFLY VALVE
-3 ADDED NEW POWER SOURCE FOR INSTRUMENTS
-4 REMOTE ALARM WAS CONNECTED TO TERMINAL
R3
-1. ADDED LOAD LIMIT METER TRANSMITTER & WIRING.
-2. ADDED TERMINAL 13 TO BLENDER CONTROL TERMINAL 13 TO ALARM PANEL & CONNECTING WIRE.
T.V.W.
R4
-1. ADDED RELAY CV IN BLENDER CONTROL HOUSING.
T.V.W.
3-16-76
115V, 1PH, 60 HZ FROM INSIDE VENTILATION BLDG.
115V, 1PH, 60HZ. FROM LOAD CENTER AT LP GAS SYSTEM POWER PANEL (REF. DWG. E-WE-105)
FINAL
PART NUMBER
DESCRIPTION
ZONE
ITEM
QTY. REQ'D.
BILL OF MATERIAL
TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED
FINISH:
USED ON
FINAL PRODUCT
NEXT ASSEMBLY
EISENHOWER TUNNEL METER ROOM CONTROL PANEL WIRING DIAGRAM
JC-1516-E
C
2
STEARNS-ROGER ARCHITECTS, LTD.
2/7/79

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	192	208

REVISIONS				
SYM	ZONE	DESCRIPTION	DATE	APPROVED
A		TERMINAL 'L' W-3:24	T.W.W. 5/19/75	



ELECTRIC SERVICE REQUIRED: 115 V SINGLE PHASE, 60 HZ 10 AMPS

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

[illegible]'s checking of Shop Drawings or [illegible] relieve the Contractor of responsibility [illegible] deviation from the requirements of the Contract [illegible] unless the Contractor has informed the [illegible] of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the [illegible]'s checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Supplies.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.
Date 2/7/79 By [signature] Approved
Howard Elect. & Mech. Cr
Proj. Mgr

FINAL
JAN 1979
STATE BRIDGE DESIGN - DOH

#260
643.05

DASH NO.	FINAL PRODUCT	ITEM	QTY. PER ASSY.	NEXT ASSEMBLY	ITEM	QTY. PER ASSY.

USED ON

QTY. REQ'D.	PART NUMBER	DESCRIPTION	ZONE	ITEM

BILL OF MATERIAL

TOLERANCES
.X ±
.XX ±
.XXX ±
FRACTIONS ±
ANGLES ± 0°30'
EXCEPT AS NOTED

FINISH:

INTERGAS
International Gas Systems, Inc.
7116 220th S.W. Suite 205
Mountlake Terrace, WA 98043

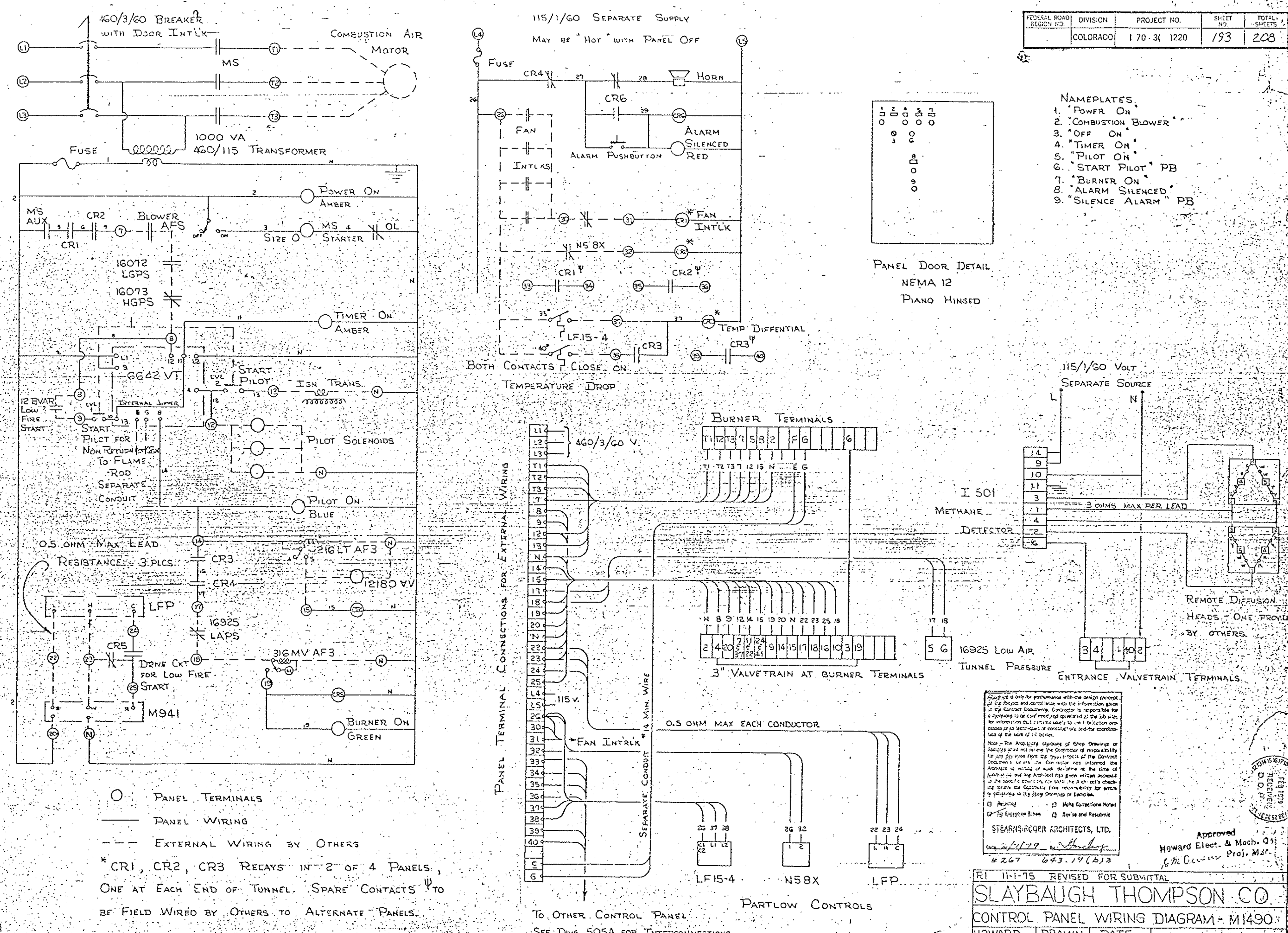
Drawn By [illegible] Date 2-15-78
Checked By [illegible] Scale
Approved [signature] Job No.
ORIGINAL EFF. SERIAL NO.

FIELD WIRING FOR SINGLE PHASE HYDROPLATE VAPORIZERS WITH BINARY BLENDER.

Drawing Number B041-701
Site
Sheet Number 1 of 4
Revision A

ADCN.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	193	208



460/3/60 Breaker with Door Int'lk
Combustion Air Motor
MS
1000 VA 460/115 Transformer
Fuse
Power On Amber
MS Aux
CR2
CR1
Blower AFS
Size 0
MS Starter
OL
16072 LGPS
16073 HGPS
Timer On Amber
6642 VT
Start Pilot
Ign Trans.
12 BVAR Low Fire Start
Start Pilot for Non Return to Flame Rod Separate Conduit
Pilot Solenoids
Pilot On Blue
0.5 ohm Max Lead Resistance 3 plcs.
CR3
CR4
1216LT AF3
12180 VV
LFP
16925 LAPS
CR5
Dsne Ckt for Low Fire Start
316MV AF3
M941
Burner On Green
115/1/60 Separate Supply
May be "Hot" with Panel Off
Fuse
Horn
CR6
Alarm Silenced Red
Alarm Pushbutton
Fan
Intlks
Fan Int'lk
N5 8X
Temp Differential
LF15-4
Both Contacts Close on Temperature Drop
Panel Door Detail
NEMA 12
Piano Hinged
Nameplates
1. "Power On"
2. "Combustion Blower"
3. "Off On"
4. "Timer On"
5. "Pilot On"
6. "Start Pilot" PB
7. "Burner On"
8. "Alarm Silenced"
9. "Silence Alarm" PB
Burner Terminals
460/3/60 V.
115 V.
Panel Terminal Connections for External Wiring
Separate Conduit #14 Min. Wire
Fan Int'lk
0.5 ohm Max Each Conductor
3" Valvetrain at Burner Terminals
16925 Low Air Tunnel Pressure
I 501 Methane Detector
3 ohms Max per Lead
115/1/60 Volt Separate Source
Remote Diffusion Heads - One Provided by Others
Entrance Valvetrain Terminals
LF15-4
N58X
LFP
Partlow Controls
To Other Control Panel
See Dwg. 505A for Interconnections
Panel Terminals
Panel Wiring
External Wiring by Others
*CR1, CR2, CR3 Relays in 2 of 4 Panels, One at Each End of Tunnel. Spare Contacts ψ to be Field Wired by Others to Alternate Panels.

STEARNS-ROGER ARCHITECTS, LTD.

#267 643.19(b)3

Approved Howard Elect. & Mech. Co. Proj. Mgr.

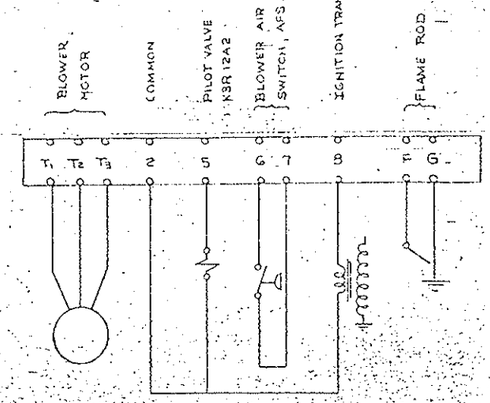
R1 11-1-75 REVISED FOR SUBMITTAL

SLAYBAUGH THOMPSON CO.

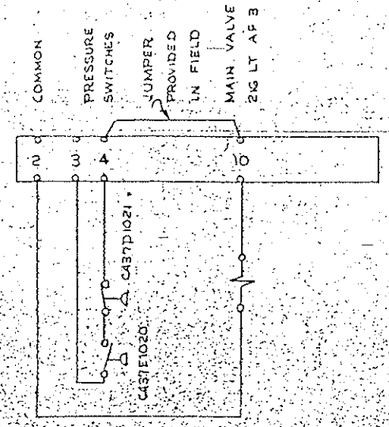
CONTROL PANEL WIRING DIAGRAM - M1490

HOWARD ELECTRIC	DRAWN	DATE 10-30-75	DWG. 505

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	194	208



BURNER TERMINALS IP643.19(b)2



ENTRANCE VALVETRAIN TERMINALS IP643.19(a)

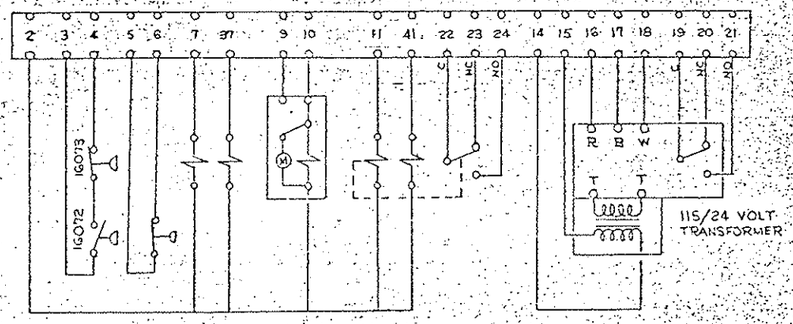
PANEL INTERCONNECTIONS

PANEL "A" WITH FAN INTERLOCK, N5-8X, & LF15-4 INPUTS

TERMINAL	CONNECT TO	TERMINAL
33	"	26
34	"	31
35	"	26
36	"	32
39	"	26
40	"	37

PANEL "B" WITH "A" INPUTS

TERMINAL



3" VALVETRAIN TERMINALS IP643.19(b)1

JUMPER WIRES TO BE ADDED IN THE FIELD.

TERMINALS:

4 - 19
12 - 15
7 - 37
11 - 22
24 - 41

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains only to the fabrication processes or to the techniques of construction and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall it relieve the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☐ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

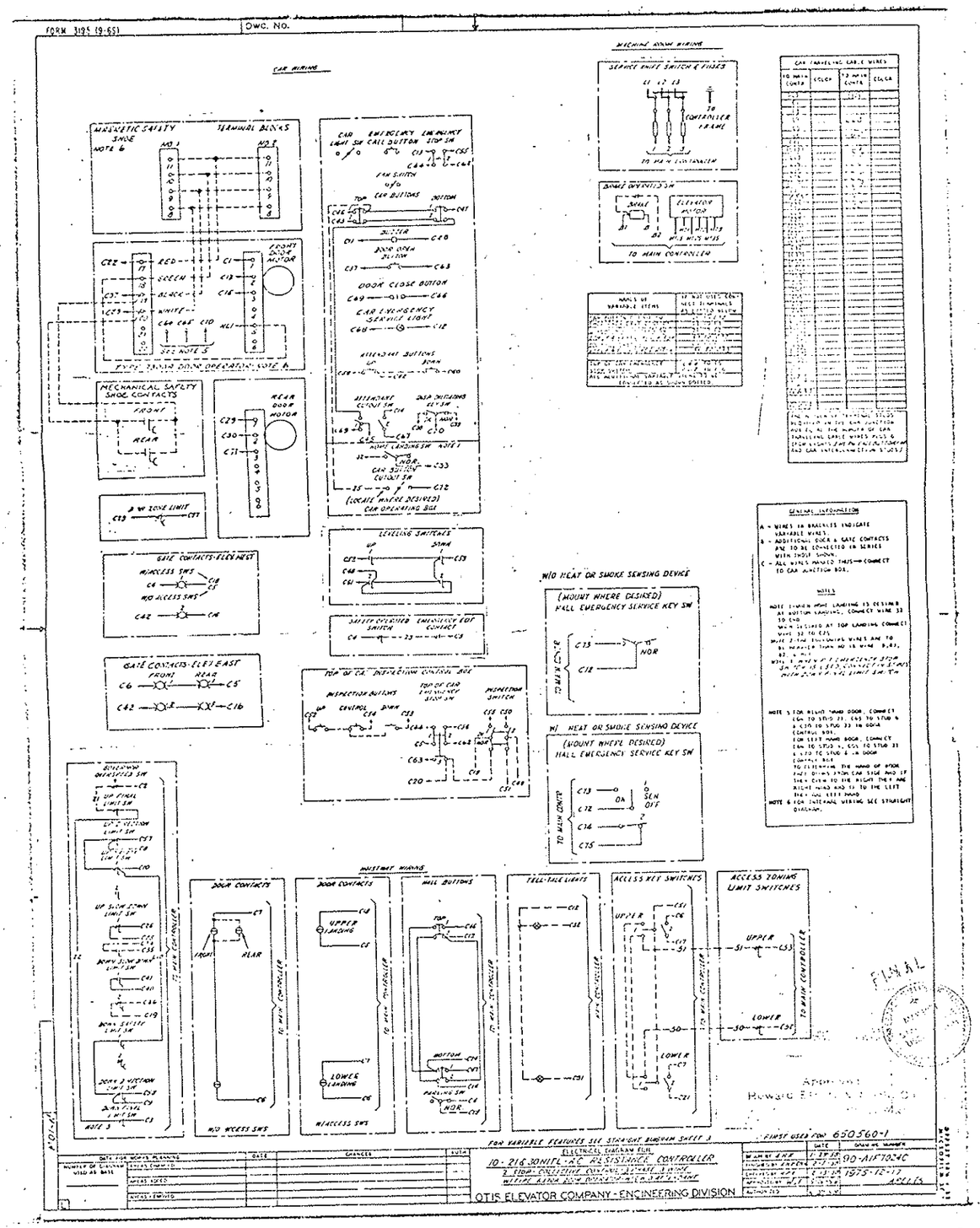
Date 2/7/79 By [signature]

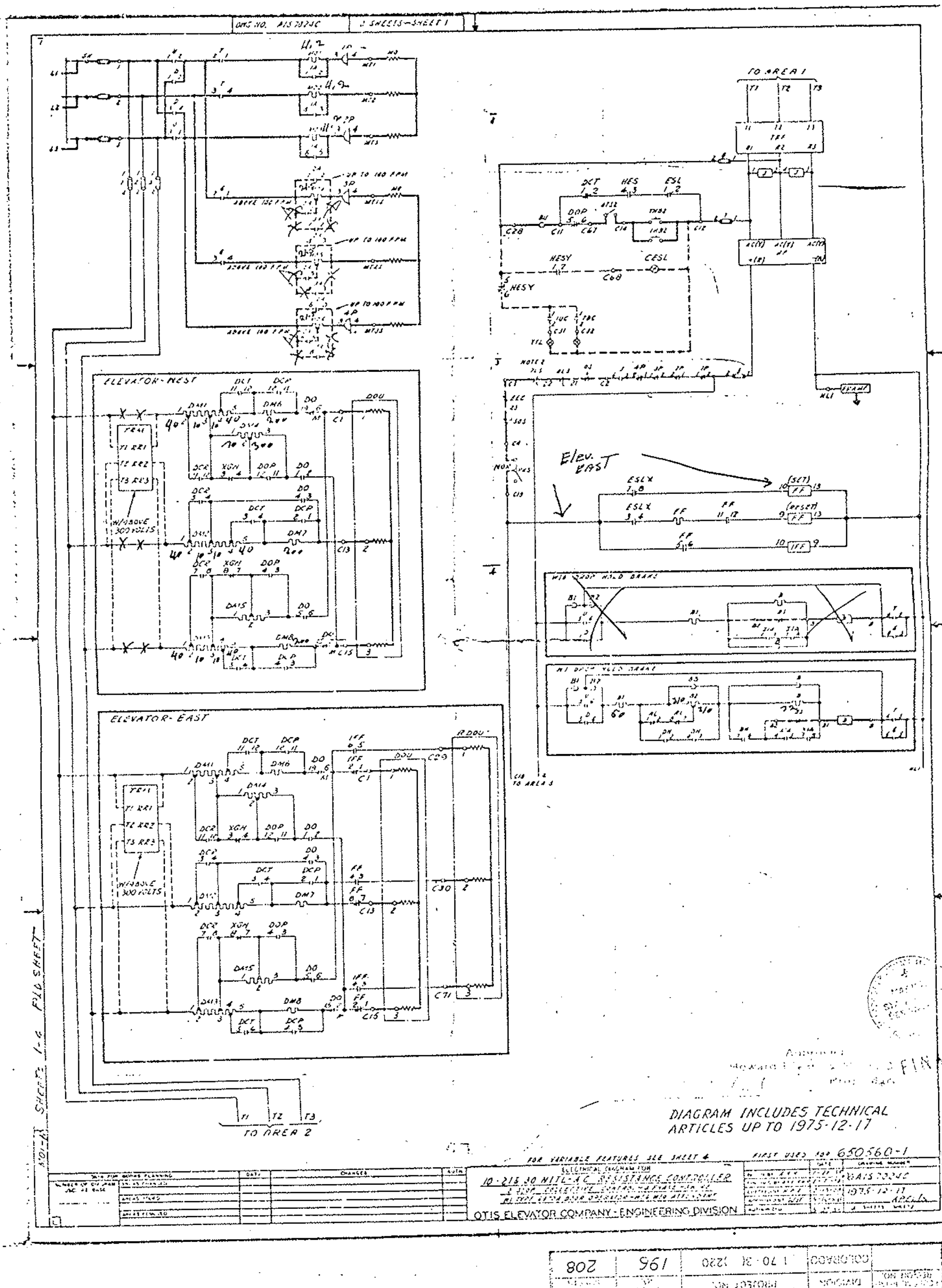
#267 643.19(b)3

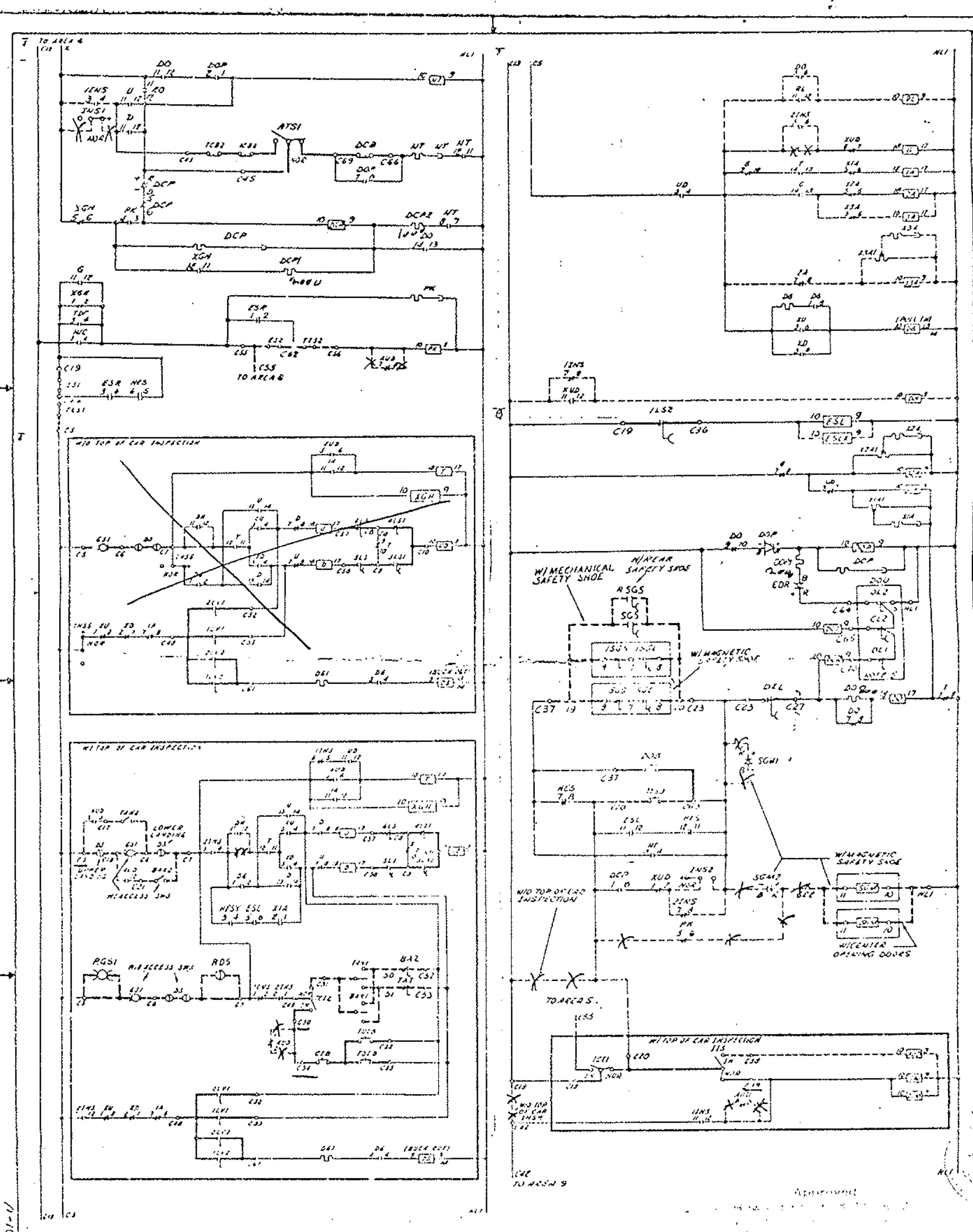
Approved
Howard Elect. & Mech. Inc.
[signature] Proj. Mgr.

REVISION	12-20-78	DELETED JUMPER 18-10 MAIN VALVETRAIN TERMINALS	
SLAYBAUGH THOMPSON CO.			
BURNER, VALVETRAIN, PANEL TERMINALS			
HOWARD ELECTRIC	DRAWN WCT	DATE 11-1-78	DWG 565A

FORM 3195 (9-65) | DWG. NO.




TO AREA 1
ELEVATOR-WEST
ELEVATOR-EAST
TO AREA 2
Elev. EAST
DIAGRAM INCLUDES TECHNICAL
ARTICLES UP TO 1975-12-17
FOR VARIABLE FEATURES SEE SHEET 4
FIRST USED FOR 650560-1
OTIS ELEVATOR COMPANY - ENGINEERING DIVISION
FINAL
COLORADO
1 70-31 1220
196
208



FOR VARIABLE FEATURES SEE SHEET 4

ELECTRICAL DIAGRAM FOR
10-21 & 30 NIEL AC RESISTANCE CONTROLLER

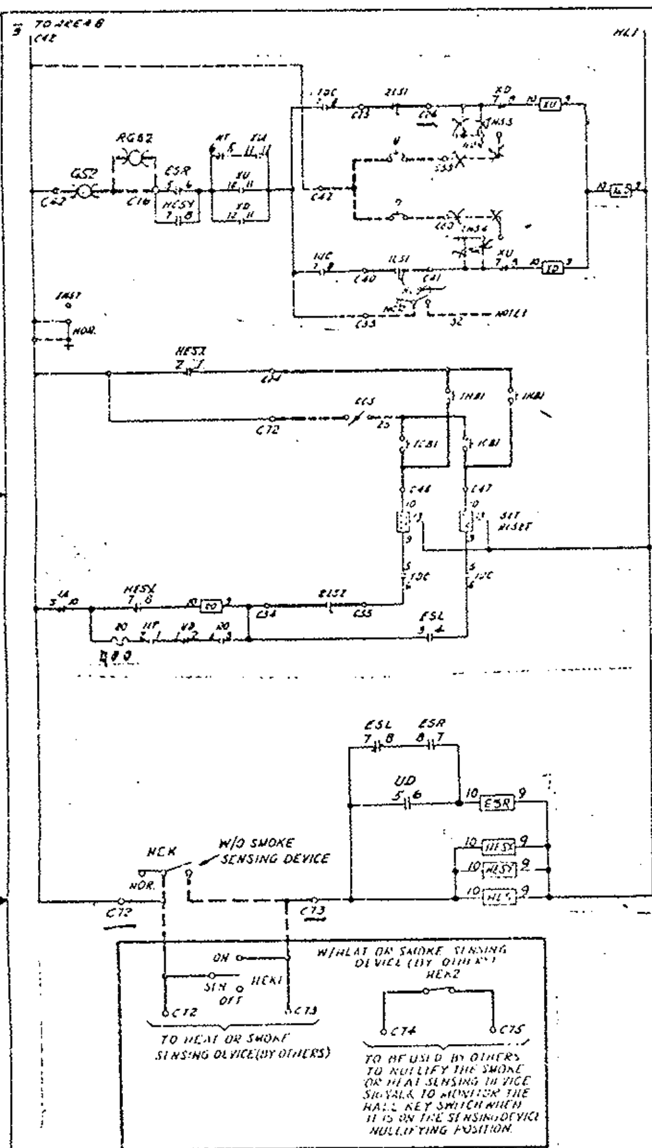
DATA FOR WORKS PLANNING		DATE	CHANGES	AUTH.
NUMBER OF DIAGRAM USED AS BASE	AREAS CHECKED			
	AREAS ADDED			
	AREAS REMOVED			

OTIS ELEVATOR COMPANY - ENGINEERING DIVISION

	DATE	DRAWING NUMBER
A.R.K.		90-A1S1024C
		1975-12-17

M01-U

DIVISION	PROJECT NO.	SHEET	TOTAL SHEETS
COLORADO	I 70-3(1220	197	208


TO 2CC4B
HL1
GS2
RG62
ESR
HCSY
HESZ
HESX
ESL
ESR
UD
HCK
W/O SMOKE
SENSING DEVICE
C72
C73
W/HEAT OR SMOKE SENSING DEVICE (BY OTHERS)
HCK2
C74
C75
ON
OFF
HCK1
C12
C13
TO HEAT OR SMOKE SENSING DEVICE (BY OTHERS)
TO BE USED BY OTHERS TO NULLIFY THE SMOKE OR HEAT SENSING DEVICE SIGNALS TO MONITOR THE HALL KEY SWITCH WHEN IT IS ON THE SENSING DEVICE NULLIFYING POSITION.

NAMES OF MAIN CONTROLLER APPARATUS	SYMBOL	LOCATION	COIL ELEC	MAKING CONTACT NUMBERS AND LOCATION	BREAKING CONTACT NUMBERS AND LOCATION
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

NAMES OF FIELD APPARATUS	SYMBOL	LOCATION	
[illegible]	[illegible]	[illegible]	[illegible]

1 - REAR ELEVATION

MAIN CONTROLLER TERMINAL STUDS

ADDITIONAL MAIN CONTROLLER TERMINAL STUDS FOR OPERATING CIRCUITS ARE TO BE MARKED IN SEQUENCE C1C2C3C 10C80 ON LEFT SIDE READING UP FROM THE BOTTOM SPARE TERMINAL STUDS: C76 TO C80

MT1 MT2 MT3 MT15 MT25 MT35

GENERAL INFORMATION

A - SYMBOL SHOWN THUS [ ] IN TABLES INDICATES THAT CONTACT IS FURNISHED ON SWITCH. THE NUMBER SHOWN IN SYMBOL REFERS TO THE AREA LOCATION ON STRAIGHT DIAGRAM AND IS PLACED IN THE UPPER LEFT HAND CORNER OF EACH AREA AN AREA EXTENDS FROM ONE AREA NUMBER TO THE ONE BELOW AND FROM THE CENTER OF THE DIAGRAM TO THE OUTSIDE, OR FROM ONE SIDE OF THE DIAGRAM TO THE OTHER

B - ALL VARIABLE ITEMS ARE SHOWN DOTTED

C - THE ODD NUMBER ON A SYMBOL INDICATES THE FOLLOWING FACING THE FRONT OF CONTROLLER:
(1) THE STATIONARY PART OF A MAIN CONTACT OR THE PART NEAREST THE CONTROLLER PANEL OF AN AUXILIARY CONTACT ON A MAGNET SWITCH
(2) THE TOP PART OF A FUSE IF IT IS MOUNTED VERTICALLY
(3) THE LEFT HAND SIDE OF A MAGNET COIL OR FUSE, IF THE FUSE IS MOUNTED HORIZONTALLY.

D - CONNECT ADDITIONAL DOOR & GATE CONTACTS IN SERIES WITH THOSE SHOWN

E - WIRING ENCLOSED BY DOT-DASH LINES INDICATES SUBASSEMBLY WIRING

F - ON FOUR LEAD COILS 9 & 10 IS THE INNER WINDING
ON THREE LEAD COILS 9 & 11 IS THE INNER WINDING

G - LETTER "M" UNDER A CONNECTION TO A COIL OR CONTACT INDICATES MECHANICAL CONNECTION WHICH CANNOT BE SEPARATED

NOTES

NOTE 1 - WHEN HOME LANDING IS DESIRED AT BOTTOM LANDING, CONNECT WIRE 32 TO C40. WHEN DESIRED AT TOP LANDING CONNECT WIRE 32 TO C25.

NOTE 2 - WHEN PIT EMERGENCY STOP SWITCH IS USED, CONNECT IN SERIES WITH DOWN FINAL LIMIT SWITCH

NOTE 3 - FOR RIGHT HAND DOOR CONNECT C64 TO STUD 21, C65 TO STUD 6 & C70 TO STUD 32 IN DOOR CONTROL BOX.
FOR LEFT HAND DOOR CONNECT C64 TO STUD 6, C65 TO STUD 21 & C70 TO STUD 6 IN DOOR CONTROL BOX.
TO DETERMINE THE HAND OF DOOR, FACE DOORS FROM CAR SIDE & IF THEY OPEN TO THE RIGHT THEY ARE RIGHT HAND AND IF TO THE LEFT THEY ARE LEFT HAND.

VARIABLE FEATURES

[illegible]

FINAL

FOR VARIABLE FEATURES SEE ABOVE

ELECTRICAL DIAGRAM FOR
10-21 & 30 NTL-AC RESISTANCE CONTROLLER

OTIS ELEVATOR COMPANY - ENGINEERING DIVISION

DRAWING NUMBER 90-A157024C

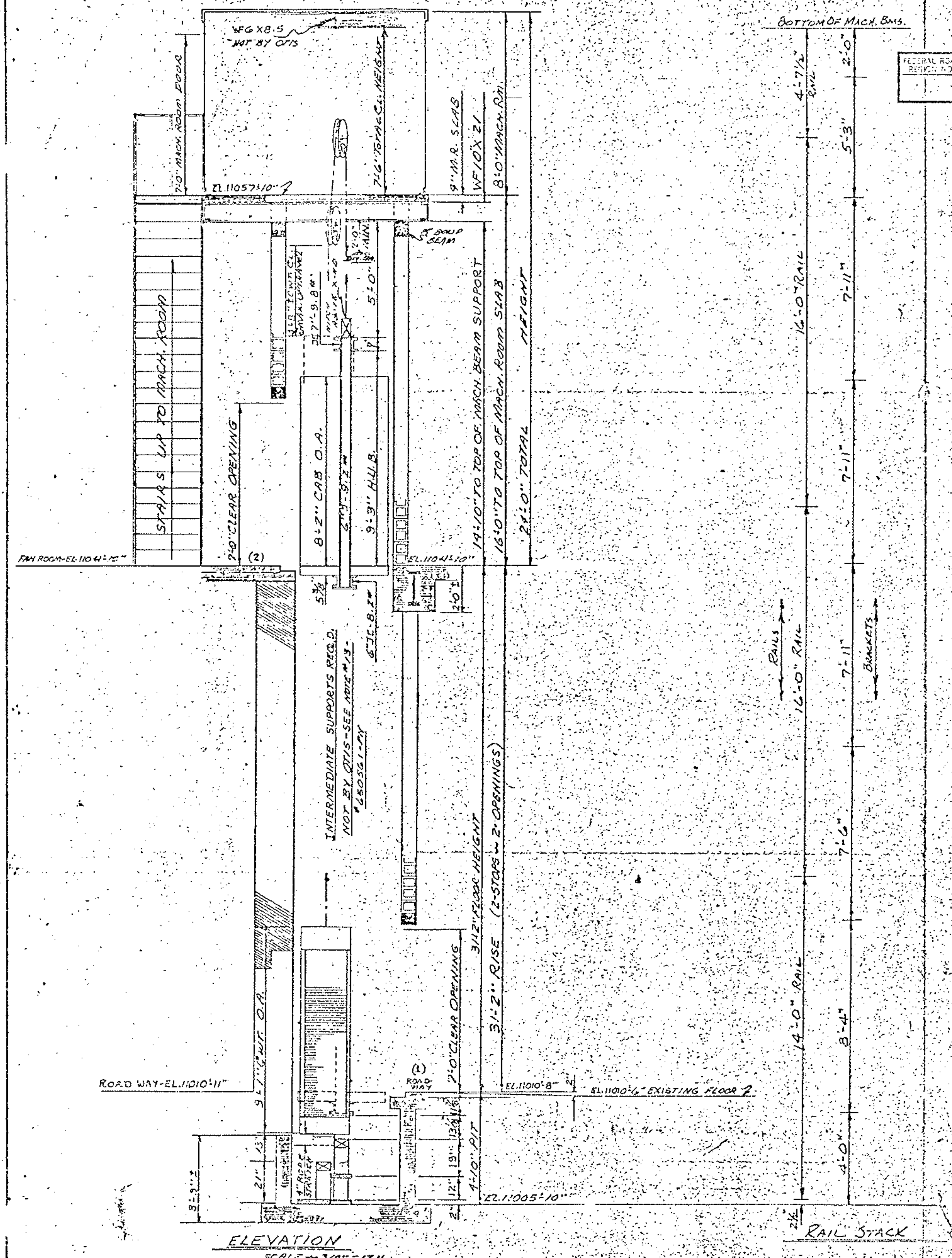
1575-12-47

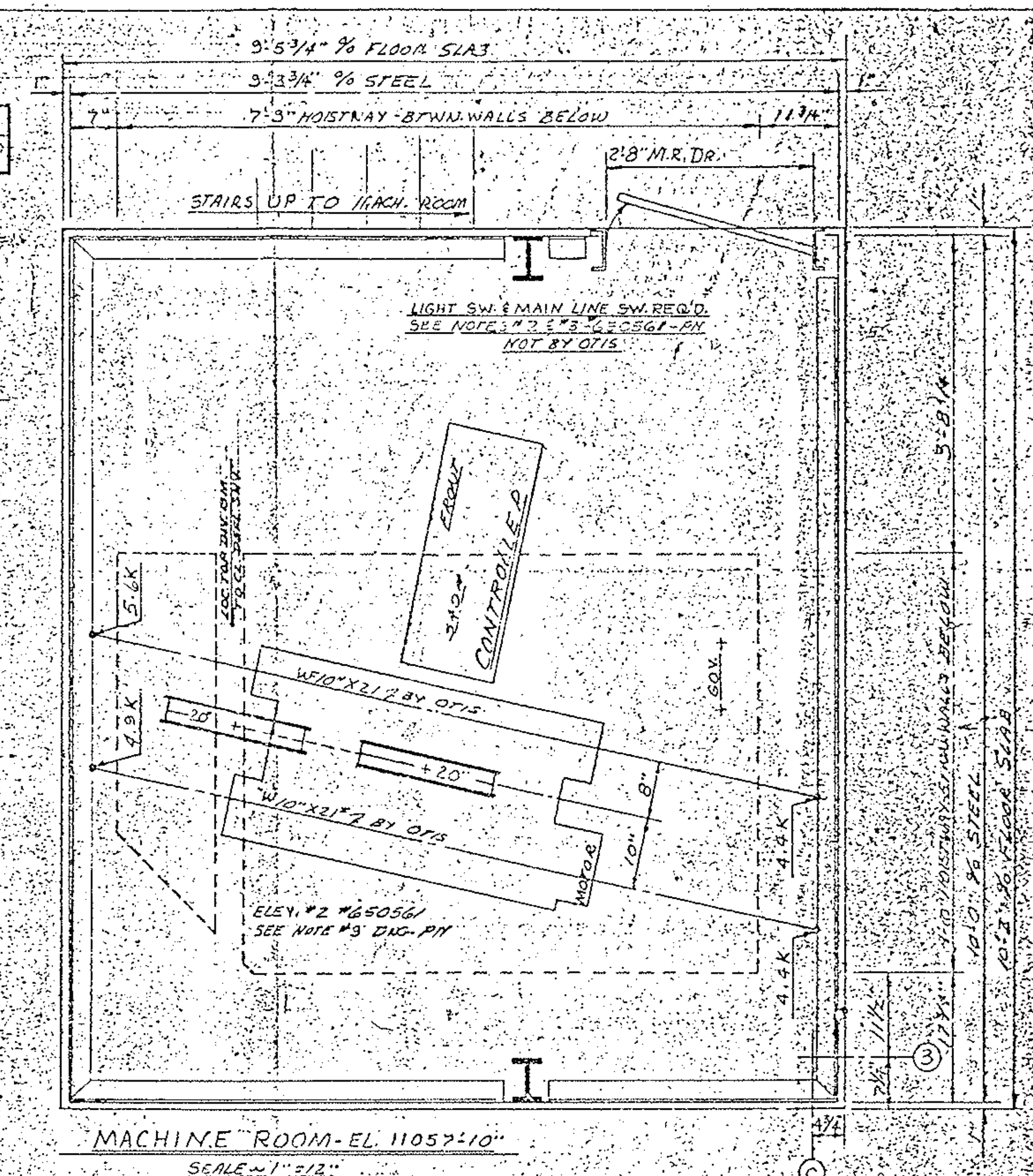
SHEETS - SHEET

DATE	CHANGES

208 | 199

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	200	208





Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades.

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- [ ] Rejected
- [ ] Make Corrections Noted
- [x] No Exception Taken
- [ ] Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 2-2-76 By CB

RECEIVED FEB 19 1976

stearns-roger architects

#137 644.01

FINAL

Checked
Howard Elect. & Mach. Co.
Proj. Mgr.

ELEVATOR @ EAST PORTAL

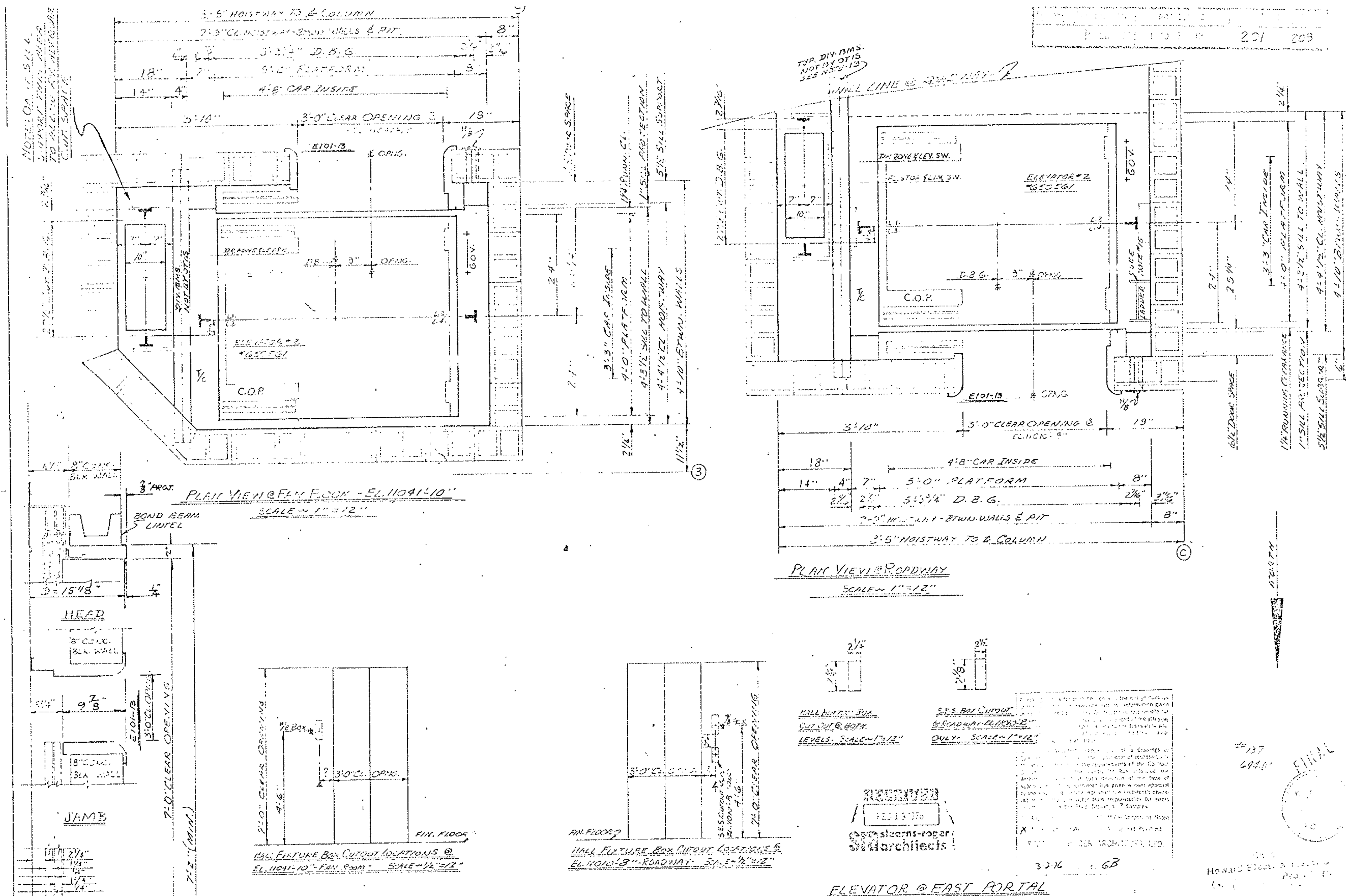
REVISIONS			
		2/5/10/22	ORDERED M.R. FINALS EQUIP.
			REVISED PER ARCH. 10-27-75

OTIS ELEVATOR COMPANY DALLAS - S/W - REGION

TYPE ELEV. ONE (1) PASSENGER ELEVATOR	BUILDING EISENHOWER MEMORIAL TUNNEL
	LOCATION NEAR DILLON, COLORADO
TYPE MACH. GEARED S.W.T. 1:1	CONT. WITH HOWARD ELECTRIC COMPANY
	OWNER STATE OF COLORADO DEPARTMENT OF HIGHWAYS
LOAD-SPEED: 1200# @ 100 F.P.M.	ARCHT. STEARNS, ROGER
	CONSULTING ENG.
OPERATION Two Stop-Collective	DATED-PRELIM. 10-3-75 FINAL
	DFTS'N R.M.Y. CHECKED BY
CONTROL: Resistance	SCALE AS NOTED SALES NO. 650561

SEE DWG. NO. 650561-PN

DWG. No. 650561-MR



CONTRACT NUMBER	650561	
MACHINE - TYPE	14HT	
MOTOR SIZE	6GES	
DRIVE/SHEAVE - DIA. - ROPS	20"	
TYPE GROOVE	90°	
DEFL. SHEAVE DIAMETER	20"	
CONTROLLER - MOTION	10NLTL	
OPERATIONAL		
SELECTOR		
MOTOR GENERATOR		
CAR GOVERNOR	R	
CWT GOVERNOR		
GOV ROPES - NO DIAM TYPE	1-3/8"-8M4	
APPROX LENGTH	120'	
HOIST ROPES NO DIAM TYPE	3-1/2"-8M1	
LOAD PER ROPE	1547	
ALLOWABLE LOAD	1324	
APPROX LENGTH	65'	
SERVICE - MAX - AVER. - INT	EVER. PASS.	
ARC OF CONTACT	1.E	
TRACTION - MAX REQ'D	1.19	
AVAILABLE	1.20	
COMPENSATION - TYPE		
NO SIZE - TYPE		
APPROX. LENGTH		
PLATFORM - TYPE	6183AH	
CAR SAFETY	6137A-A	
CWT SAFETY		
CAR BUFFERS - TYPE	320AY2	SPRING
NO & STROKE	1-4 1/4"	
CWT BUFFERS - TYPE	320AY2	SPRING
NO & STROKE	1-4 1/4"	
CWT D.B.G. - WIDTH	27 1/2" X 10"	
CWT UPR SIZE - LGTH	3'-0" X 6"	
FILLERS - QUANT - PAT NO.	(52) 345D83	
BOT WTS. - QUANT - PAT NO.		
CAR RAILS - SIZE - WT/FT	2 - 8#	
CWT RAILS - SIZE - WT/FT	2 - 8#	

IMPORTANT

DIMENSIONAL DATA ON LAYOUT COMPLIES WITH THE AMERICAN NATIONAL STANDARD SAFETY CODE A17.1. AND/OR ________________ CODE.

PROVIDE THE FOLLOWING PREPARATORY WORK AS REQUIRED BY THE GOVERNING CODE OR AUTHORITY

1. SUITABLE MACHINE ROOM — WITH LEGAL ACCESS, HEAT AND VENTILATION.
2. SUITABLE LIGHT AND CONVENIENCE OUTLETS IN MACHINE ROOM WITH LIGHT SWITCHES LOCATED WITHIN 18" OF LOCK JAMB SIDE OF ACCESS DOOR.
3. FUSED MAIN LINE SWITCH FOR EACH ELEVATOR WITH FEEDER OR BRANCH WIRING CIRCUIT TO CONTROLLER.
5. CAR LIGHT SUPPLY IN MACHINE ROOM FOR LIGHTING OF EACH ELEVATOR WITH WIRING TO EACH CONTROLLER.
7. CONVENIENCE OUTLET AND LIGHT FIXTURE IN PIT WITH SWITCH, ADJACENT TO ACCESS DOOR OR LADDER.
8. HOISTING - TROLLEY BEAM FOR A MAXIMUM NET LIVE LOAD OF 2000 LBS TO BE LOCATED PER THIS DRAWING.
9. REINFORCED CONCRETE SLAB AT THE TOP OF THE HOISTWAY. CONCRETE SLAB NOT TO BE INSTALLED UNTIL ELEVATOR EQUIPMENT IS IN PLACE.
10. ACCESS TO CAR GOVERNORS.
11. VENTING OF HOISTWAY.
12. BUILDING STRUCTURE FOR SUPPORTS OF ELEVATOR MACHINE, BUFFERS, RAILS, TO BE DESIGNED IN ACCORDANCE WITH THE GOVERNING CODE.
ALL THE LOADS SHOWN ON THESE DRAWINGS INCLUDE ALLOWANCE FOR IMPACT, EXCEPT AS NOTED.
DRY PIT REINFORCED TO SUSTAIN VERTICAL FORCE OF:
LBS ON EACH CAR RAIL.
RAIL AND BUFFER FORCES DO NOT OCCUR SIMULTANEOUSLY.
13. ADEQUATE SUPPORTS FOR GUIDE RAIL FASTENINGS NOT TO EXCEED A VERTICAL SPACING OF __ FT. FOR CAR RAILS AND __ FT. FOR CWT RAILS.
AFTER BEAMS ARE SET.
15. FIXED VERTICAL IRON LADDER TO PIT EXTENDING 30" MIN. ABOVE SILL OF BOTTOM TERMINAL ENTRANCE, AS LOCATED IN THE PLAN VIEW.
17. (a) FOR HORIZONTAL SLIDING PASSENGER ELEVATOR HOISTWAY DOORS, THE ENTRANCE WALLS MUST NOT BE CONSTRUCTED UNTIL HOISTWAY DOOR FRAMES AND SILL ARE SET.
(c) 2 1/2" MINIMUM FLOOR OF LESS FULL WIDTH OF HOISTWAY REQUIRED FOR HOISTWAY DOOR SILL. HOISTWAY EDGE OF FLOOR BEAM OR CONCRETE FIREPROOFING SHALL BE LOCATED NOT MORE THAN 1-1/2" BACK OF THE SILL LINE.
SILLS AND FRAMES ARE TO BE CAREFULLY GROUTED THEIR ENTIRE WIDTH AND LENGTH.
19. CUTOUTS TO ACCOMMODATE HALL BUTTONS AND SIGN FIXTURES, AND PATCHING AFTER FIXTURES ARE SET.

ELEVATOR @ EAST PORTAL

ESTIMATED WEIGHTS		
ENCL. - DOORS - PROT. DEV	1520	DESIGN TAKEN
PLATFORM TOTAL	625	
MISCELLANEOUS	610	
CARFRAME & SAFETY	650	
TOTAL CAR	3405	
OVERBALANCE 42.5	480	
½ T.C. WGHT	10	
TOTAL CWT	3895	
LOAD ON CAR SAFETY	4625	
RESULTANT S/S LOAD	8355	
WEIGHT OF MACHINE	1530	

POWER 460 V 3 PH 4 W 60 HZ LIGHT 120 V

REVISIONS
- 10/22 ORDERED M.R. FINALS. EQUIP
- 1/24 REV. SHS. REMOVED ALL REF. TO INDUCTOR TYPE NOT USED FOR 2 STOP. ADDED E101-B FRAME DESIGN
- REVISE & RESUBMIT

APPROVAL
THIS ARRANGEMENT AND SUPPLEMENTARY NOTES APPROVED
SIGNED ________ DATE ________

GUARANTEE
A CLEAR PLUMB HOISTWAY WITH VARIATIONS FROM THE FIGURES SHOWN NOT TO EXCEED 1" AT ANY POINT IN THE FIRST 20 FLOORS AND 1/32 INCH INCREASE FOR EACH ADDITIONAL FLOOR UP TO A MAXIMUM DISPLACEMENT OF 2 INCHES
SIGNED ________ DATE ________

SOURCE OF LAYOUT DATA (BOOK PLANS SHEET 545 WITH SPECS.)

OTIS ELEVATOR COMPANY

DALLAS - S/W REGION

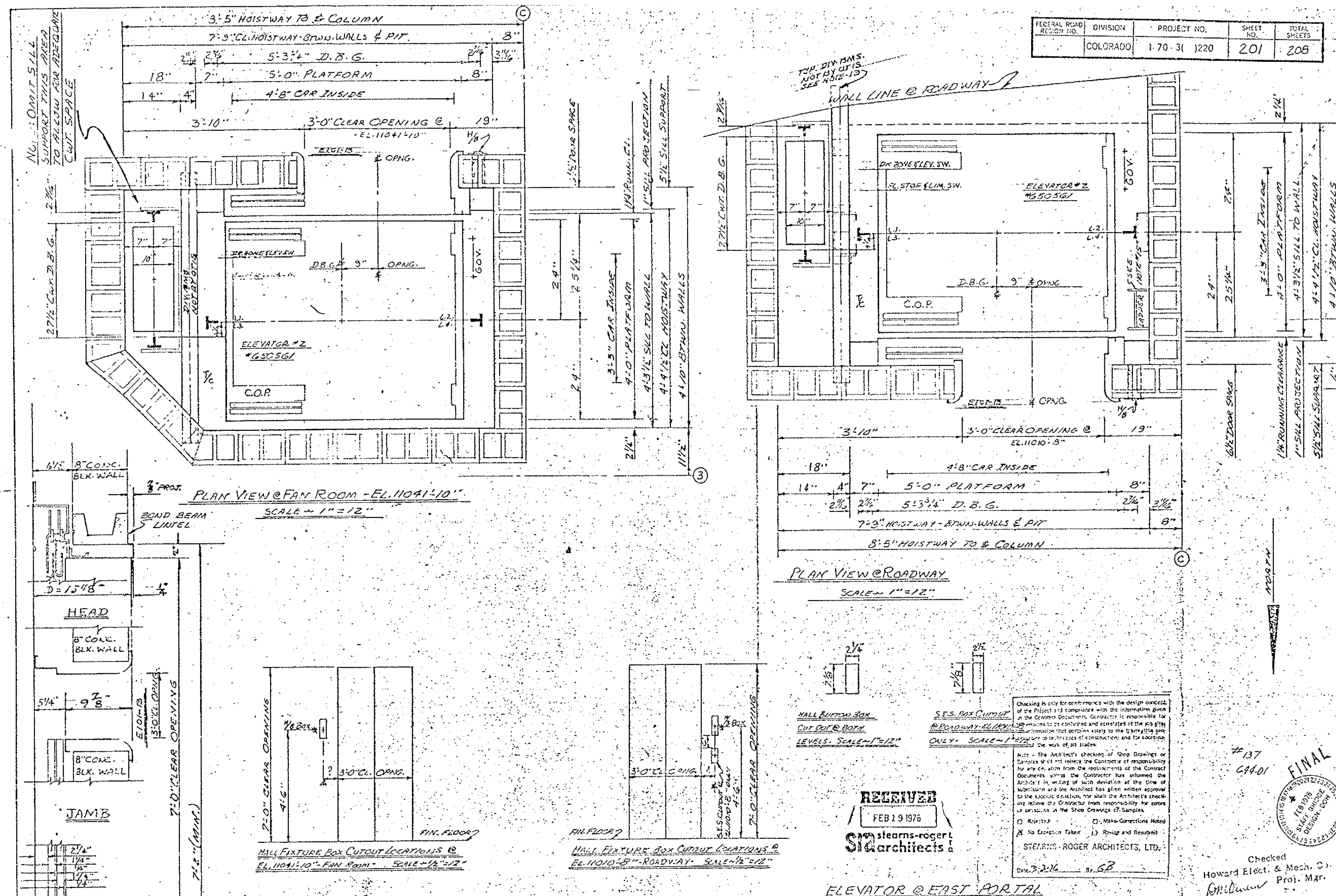
TYPE ELEV. ONE (1) PASSENGER ELEVATOR
TYPE MACH. GEARED S.W.T. 14
LOAD-SPEED: 1200# @ 100 F.P.M.
OPERATION: TWO STOP - COLLECTIVE
CONTROL: RESISTANCE

BUILDING: EISENHOWER MEMORIAL TUNNEL
LOCATION: NEAR DILLON, COLORADO
CONT. WITH:
OWNER: STATE DEPT. OF HIGHWAYS
ARCHT.: STEARNS-ROGER
DATED—PRELIM. 10-3-75 FINAL
DFTS'N. ________ CHECKED BY ________
SCALE: AS NOTED SALES NO. 2505-1

SEE DWG. NO. 650561-MR

DWG. NO. 650561-PN

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I-70-3( )220	201	208



CONTRACT DATA		
CONTRACT NUMBER	650561	
MACHINE - TYPE	14AT	
MOTOR SIZE	60ES	
DRIVER/ - DIA. -	20"	
TYPE GROOVE	90°	
DEFL./ - DIAMETER	20"	
CONTROLLER - MOTION	10NITL	
OPERATIONAL		
SELECTOR		
MOTOR GENERATOR		
CAR GOVERNOR	R	
CWT. GOVERNOR		
GOV. ROPES - NO. DIAM. TYPE	1-⅜"-8M4	
APPROX. LENGTH	120'	
HOIST ROPES NO. DIAM. TYPE	3-½"-8M1	
LOAD PER ROPE	1547	
ALLOWABLE LOAD	1824	
APPROX. LENGTH	65'	
SERVICE - MAX. - AVER. - INT.	AVER. PASS.	
ARC OF CONTACT	145°	
TRACTION - MAX. REQ'D.	1.19	
AVAILABLE	1.20	
COMPENSATION - TYPE		
NO. SIZE - TYPE		
APPROX. LENGTH		
PLATFORM - TYPE	6183AH	
CAR SAFETY	6197A-A	
CWT. SAFETY		
CAR BUFFERS - TYPE	320AY2	SPRING
NO. & STROKE	1-4¼"	
CWT BUFFERS - TYPE	320AY2	SPRING
NO. & STROKE	1-4¼"	
CWT. D.B.G. - WIDTH	27½" X 10"	
CWT. UPR. SIZE - LGTH.	9'-0" X 6"	
FILLERS - QUANT. - PAT. NO.	52 345D83	
BOT. WTS. - QUANT. - PAT. NO.		
CAR RAILS - SIZE - WT./FT.	#2-8#	
CWT. RAILS - SIZE - WT./FT.	#2-8#	

IMPORTANT

DIMENSIONAL DATA ON LAYOUT COMPLIES WITH THE AMERICAN NATIONAL STANDARD SAFETY CODE A17.1, AND/OR ______ CODE.

~~______~~ PROVIDE THE FOLLOWING PREPARATORY WORK AS REQUIRED BY THE GOVERNING CODE OR AUTHORITY

1. SUITABLE MACHINE ROOM — ~~______~~ SPACE WITH LEGAL ACCESS, HEAT AND VENTILATION.
2. SUITABLE LIGHT AND CONVENIENCE OUTLETS IN MACHINE ROOM WITH LIGHT SWITCHES LOCATED WITHIN 18" OF LOCK JAMB SIDE OF ACCESS DOOR.
3. FUSED MAIN LINE SWITCH FOR EACH ELEVATOR WITH FEEDER OR BRANCH WIRING CIRCUIT TO CONTROLLER ~~______~~.
5. CAR LIGHT SUPPLY IN MACHINE ROOM FOR LIGHTING OF EACH ELEVATOR WITH WIRING TO EACH CONTROLLER.
7. CONVENIENCE OUTLET AND LIGHT FIXTURE IN PIT WITH SWITCH, ADJACENT TO ACCESS DOOR OR LADDER.
8. HOISTING — TROLLEY BEAM FOR A MAXIMUM NET LIVE LOAD OF 2000 LBS. TO BE LOCATED PER THIS DRAWING.
9. REINFORCED CONCRETE SLAB AT THE TOP OF THE HOISTWAY. CONCRETE SLAB NOT TO BE INSTALLED UNTIL ELEVATOR EQUIPMENT IS IN PLACE.
10. ACCESS TO CAR ~~______~~ GOVERNORS.
11. VENTING OF HOISTWAY.
12. BUILDING STRUCTURE FOR SUPPORTS OF ELEVATOR MACHINE, ~~______~~ BUFFERS, RAILS, ~~______~~ TO BE DESIGNED IN ACCORDANCE WITH THE GOVERNING CODE.
    ALL THE LOADS SHOWN ON THESE DRAWINGS INCLUDE ALLOWANCE FOR IMPACT, EXCEPT AS NOTED.
    DRY PIT REINFORCED TO SUSTAIN VERTICAL FORCE OF:
    ______ LBS. ON EACH CAR RAIL
    RAIL AND BUFFER FORCES DO NOT OCCUR SIMULTANEOUSLY.
13. ADEQUATE SUPPORTS FOR GUIDE RAIL FASTENINGS NOT TO EXCEED A VERTICAL SPACING OF ___ FT. FOR CAR RAILS AND ___ FT. FOR CWT. RAILS.
    AFTER BEAMS ARE SET.
15. FIXED VERTICAL IRON LADDER TO PIT EXTENDING 30" MIN. ABOVE SILL OF BOTTOM TERMINAL ENTRANCE, AS LOCATED IN THE PLAN VIEW.
17. (a) FOR HORIZONTAL SLIDING PASSENGER ELEVATOR HOISTWAY DOORS, THE ENTRANCE WALLS MUST NOT BE CONSTRUCTED UNTIL HOISTWAY DOOR FRAMES AND SILL ARE SET.
    (d) 2-1/2" MINIMUM FLOOR RECESS FULL WIDTH OF HOISTWAY REQUIRED FOR HOISTWAY DOOR SILL. HOISTWAY EDGE OF FLOOR BEAM OR CONCRETE FIREPROOFING SHALL BE LOCATED NOT MORE THAN 1-1/2" BACK OF THE SILL LINE.
    SILLS AND FRAMES ARE TO BE CAREFULLY GROUTED THEIR ENTIRE WIDTH AND LENGTH.
18. CUTOUTS TO ACCOMMODATE HALL BUTTONS AND DOOR FIXTURES, AND PATCHING AFTER FIXTURES ARE SET.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades.

Note - The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 3-2-76 By GB

ESTIMATED WEIGHTS		
ENCL. - DOORS - PROT. DEV.	1520	DESIGN TARTAN A-I
PLATFORM TOTAL	625	
MISCELLANEOUS	610	
CARFRAME & SAFETY	650	
TOTAL CAR	3405	
OVERBALANCE 40 %	480	
W. T.C. WGHT.	10	
TOTAL CWT.	3895	
LOAD ON CAR SAFETY	4625	
RESULTANT S/S LOAD	8555	
WEIGHT OF MACHINE	1530	
POWER 460 V 3 PH 4 W 60 HZ LIGHT 120 V		

REVISIONS	
75 10/28	ORDERED M.R. FINALS - EQUIP.
76 1/24	REV. S&S. REMOVED ALL REF. TO INDICATOR TYPE. NOT USED FOR 2 STOP. ADDED E101-B FRAME DESIGN
	(REVISE & RESUBMIT)

APPROVAL MARKED REVISIONS NOTED 10-27-75

THIS ARRANGEMENT AND SUPPLEMENTARY NOTES APPROVED

SIGNED ______ DATE ______

GUARANTEE

A CLEAR PLUMB HOISTWAY WITH VARIATIONS FROM THE FIGURES SHOWN NOT TO EXCEED 1" AT ANY POINT IN THE FIRST 20 FLOORS AND 1/32 INCH INCREASE FOR EACH ADDITIONAL FLOOR UP TO A MAXIMUM DISPLACEMENT OF 2 INCHES.

SIGNED ______ DATE ______

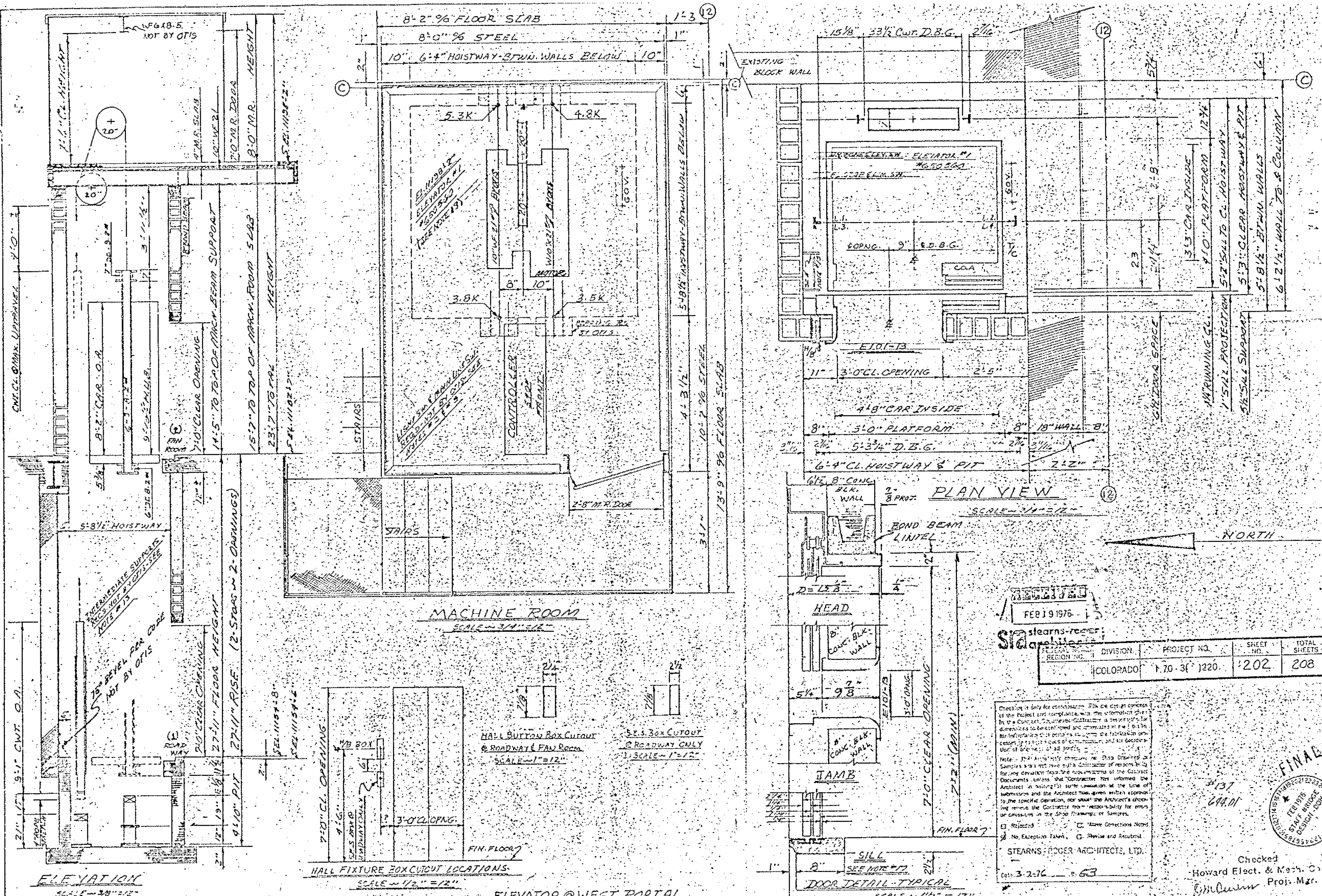
SOURCE OF LAYOUT DATA (BOOK PLANS SHEET S&S WITH SPECS.)

SEE DWG. NO. 650561-MR

OTIS ELEVATOR COMPANY DALLAS ~ S/W REGION

TYPE ELEV. (NEW) PASSENGER ELEVATOR	BUILDING EISENHOWER MEMORIAL TUNNEL
	LOCATION NEAR DILLON, COLORADO
TYPE MACH. GEARED S.W.T. 1:1	CONT. WITH HOWARD ELECTRIC COMPANY ELEV. CONTR.
LOAD-SPEED: 1200# @ 100 F.P.M.	OWNER STATE OF COLORADO DEPARTMENT OF HIGHWAYS
	ARCHT. STEARNS ROGER
OPERATION: TWO STOP - COLLECTIVE	DATED — PRELIM. 10-3-75 FINAL
	DFTS'N. K.M.Y. CHECKED BY
CONTROL: RESISTANCE	SCALE AS NOTED SALES NO. 650561

Dwg. No. 650561-PN



RECEIVED FEB 19 1976 stearns-roger architects

FEDERAL REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3( )220	202	208

STEARNS-ROGER ARCHITECTS, LTD. Date 3-2-76 By 63

Checked Howard Elect. & Mech. Co. Proj. Mgr.

FINAL — FEB 1976 STAFF BRIDGE DESIGN - DOH

CONTRACT DATA

CONTRACT NUMBER	650560	
MACHINE - TYPE	14AT	
MOTOR SIZE	60ES	
DRIVE/[illegible] - DIA. [illegible]	20"	
TYPE GROOVE	90°	
DEFL./[illegible] - DIAMETER	20"	
CONTROLLER - MOTION	10NITL	
OPERATIONAL	—	
SELECTOR	—	
MOTOR GENERATOR	—	
CAR GOVERNOR	R	
CWT. GOVERNOR	—	
GOV. ROPES - NO. DIAM. TYPE	1-3/8"-8M4	
APPROX. LENGTH	110'	
HOIST ROPES NO. DIAM. TYPE	3-1/2"-8M1	
LOAD PER ROPE	1378	
ALLOWABLE LOAD	1824	
APPROX. LENGTH	60'	
SERVICE - MAX. - AVER. - INT.	AVER. PASS.	
ARC OF CONTACT	162°	
TRACTION - MAX. REQ'D.	1.22	
AVAILABLE	1.37	
COMPENSATION - TYPE	—	
NO. SIZE - TYPE	—	
APPROX. LENGTH	—	
PLATFORM - TYPE	6183AH	
CAR SAFETY	6197A-A	
CWT. SAFETY	—	
CAR BUFFERS - TYPE	320AY1	SPRING
NO. & STROKE	1-4 1/4"	
CWT. BUFFERS - TYPE	320AY1	SPRING
NO. & STROKE	1-4 1/4"	
CWT. D.B.G. - WIDTH	33 1/2" X 7"	
CWT. UPR. SIZE - LGTH.	9'-0" X 6"	
FILLERS - QUANT. - PAT. NO.	47 345DB6	
BOT. WTS. - QUANT. - PAT. NO.	—	
CAR RAILS - SIZE - WT./FT.	#2-8#	
CWT. RAILS - SIZE - WT./FT.	#2-8#	

IMPORTANT

DIMENSIONAL DATA ON LAYOUT COMPLIES WITH THE AMERICAN NATIONAL STANDARD SAFETY CODE A17.1 AND/OR ______ CODE.

[illegible] PROVIDE THE FOLLOWING PREPARATORY WORK AS REQUIRED BY THE GOVERNING CODE OR AUTHORITY.

1. SUITABLE MACHINE ROOM — [illegible] WITH LEGAL ACCESS, HEAT AND VENTILATION.
2. SUITABLE LIGHT AND CONVENIENCE OUTLETS IN MACHINE ROOM WITH LIGHT SWITCHES LOCATED WITHIN 18" OF LOCK JAMB SIDE OF ACCESS DOOR.
3. FUSED MAIN LINE SWITCH FOR EACH ELEVATOR WITH FEEDER OR BRANCH WIRING CIRCUIT TO CONTROLLER [illegible].
4. [illegible]
5. CAR LIGHT SUPPLY IN MACHINE ROOM FOR LIGHTING OF EACH ELEVATOR WITH WIRING TO EACH CONTROLLER.
6. [illegible]
7. CONVENIENCE OUTLET AND LIGHT FIXTURE IN PIT WITH SWITCH ADJACENT TO ACCESS DOOR OR LADDER.
8. HOISTING — TROLLEY BEAM FOR A MAXIMUM NET LIVE LOAD OF 2000 LBS. TO BE LOCATED PER THIS DRAWING.
9. REINFORCED CONCRETE SLAB AT THE TOP OF THE HOISTWAY. CONCRETE SLAB NOT TO BE INSTALLED UNTIL ELEVATOR EQUIPMENT IS IN PLACE.
10. ACCESS TO CAR [illegible] GOVERNORS.
11. VENTING OF HOISTWAY.
12. BUILDING STRUCTURE FOR SUPPORTS OF ELEVATOR MACHINE, [illegible] BUFFERS, RAILS, [illegible], TO BE DESIGNED IN ACCORDANCE WITH THE GOVERNING CODE.
13. ALL THE LOADS SHOWN ON THESE DRAWINGS INCLUDE ALLOWANCE FOR IMPACT, EXCEPT AS NOTED. DRY PIT REINFORCED TO SUSTAIN VERTICAL FORCE OF: [illegible] 12,250 LBS. ON EACH CAR RAIL [illegible] RAIL AND BUFFER FORCES DO NOT OCCUR SIMULTANEOUSLY.
14. ADEQUATE SUPPORTS FOR GUIDE RAIL FASTENINGS NOT TO EXCEED A VERTICAL SPACING OF 16 FT. FOR CAR RAILS AND 16 FT. FOR CWT. RAILS. [illegible]
[illegible]
15. FIXED VERTICAL IRON LADDER TO PIT EXTENDING 30" MIN. ABOVE SILL OF BOTTOM TERMINAL ENTRANCE, AS LOCATED IN THE PLAN VIEW.
[illegible]
17. (a) FOR HORIZONTAL SLIDING PASSENGER ELEVATOR HOISTWAY DOORS, THE ENTRANCE WALLS MUST NOT BE CONSTRUCTED UNTIL HOISTWAY DOOR FRAMES AND SILL ARE SET.
[illegible]
(c) [illegible] FLOOR RECESS FULL WIDTH OF HOISTWAY REQUIRED FOR HOISTWAY DOOR SILL. HOISTWAY EDGE OF FLOOR SLAB OR CONCRETE FIREPROOFING SHALL BE LOCATED NOT MORE THAN 1-1/2" BACK OF THE SILL LINE. SILLS AND FRAMES ARE TO BE CAREFULLY GROUTED THEIR ENTIRE WIDTH AND LENGTH.
[illegible]
18. CUTOUTS TO ACCOMMODATE HALL BUTTONS AND SIGN FIXTURES, AND PATCHING AFTER FIXTURES ARE SET.

ESTIMATED WEIGHTS

INCL. DOORS - PROT. DEV.	1195	[illegible]
PLATFORM TOTAL	580	
MISCELLANEOUS	480	
CARFRAME & SAFETY	650	
TOTAL CAR	2905	
OVERBALANCE 40 %	480	
½ T.C. WGHT.	10	
TOTAL CWT.	3395	
LOAD ON CAR SAFETY	4125	
RESULTANT S/S LOAD	7550	
WEIGHT OF MACHINE	1530	
POWER 460 V. 3 PH. 4 W. 60 HZ. LIGHT 120 V.		

REVISIONS

[illegible]	ORDERED M.R. FINALS EQUIP.
[illegible]	REV. SWS. REMOVED ALL REF. TO INDUCTOR TYPE NOT USED FOR 2 STOP.
	ADDED EIDI-B FRAME DESIGN.
[illegible]	REVISE [illegible]

APPROVAL [illegible]

THIS ARRANGEMENT AND SUPPLEMENTARY NOTES APPROVED

SIGNED ______ DATE ______

GUARANTEE

A CLEAR PLUMB HOISTWAY WITH VARIATIONS FROM THE FIGURES SHOWN NOT TO EXCEED 1" AT ANY POINT IN THE FIRST 20 FLOORS AND 1/32 INCH INCREASE FOR EACH ADDITIONAL FLOOR UP TO A MAXIMUM DISPLACEMENT OF 2 INCHES.

SIGNED ______ DATE ______

SOURCE OF LAYOUT DATA: BOOK PLANS (SHEET S-5-5 WITH SPECS.)

OTIS ELEVATOR COMPANY DALLAS ~ S/W REGION

TYPE ELEV. ONE(1) PASSENGER ELEVATOR	BUILDING EISENHOWER MEMORIAL TUNNEL
TYPE MACH. GEARED S.W. [illegible]	LOCATION NEAR - DILLON, COLORADO
LOAD-SPEED 1200# @ 100 F.P.M.	CONT. WITH HOWARD ELECTRIC COMPANY ELEC. CONTR.
	OWNER STATE OF COLORADO DEPARTMENT OF HIGHWAYS
OPERATION TWO STOP - COLLECTIVE	ARCHT. STEARNS ROGER
	DATED PRELIM. 10-3-75 FINAL
CONTROL RESISTANCE	DFTS'N R.M.Y. CHECKED BY [illegible]
	SCALE As Noted SALES NO. 650560

DWG. No. 650560-PN

LOCATED IN WEST ELECT. EQUIP. ROOM.

- REMOTE QUINDAR UNIT. SEE SHEET #2.

LOCAL CONTROL BOARD

EXHAUST FAN W.E.S. DAMPER

REVERSE ROTATION SWITCH @ FAN.

EMERGENCY STOP SWITCH @ MOTOR.

SPEED SWITCH WES LOCATED AT FAN UNIT.

120V.AC. TEST POWER

MOTOR CONTROL CENTER 1A.

120V.AC. TEST POWER.

WES, MTR.#2

WES, MTR.#1

RELAY

RTD 9 CONTACT SERIES

120 V.A.C. POWER

MULTI-POINT TEMP. ALARM / CONTROLLER @ LOCAL CONTROL BOARD.

8 SET RTD LEADS / FAN.

3 BEARING RTD PER FAN.

FAN WES (TYPICAL 6 FAN)

DAMPER SWITCH WES LOCATED AT DAMPER DRIVE UNIT

NOTES:
1. SPEED INDICATION "J" BOX, REVERSE ROTATION SWITCH, R.T.D.'S. AND DAMPER SWITCH ARE TYPICAL FOR ALL UNITS.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; and for coordination of the work of all trades.

Note — The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents, unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. Any approval by the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

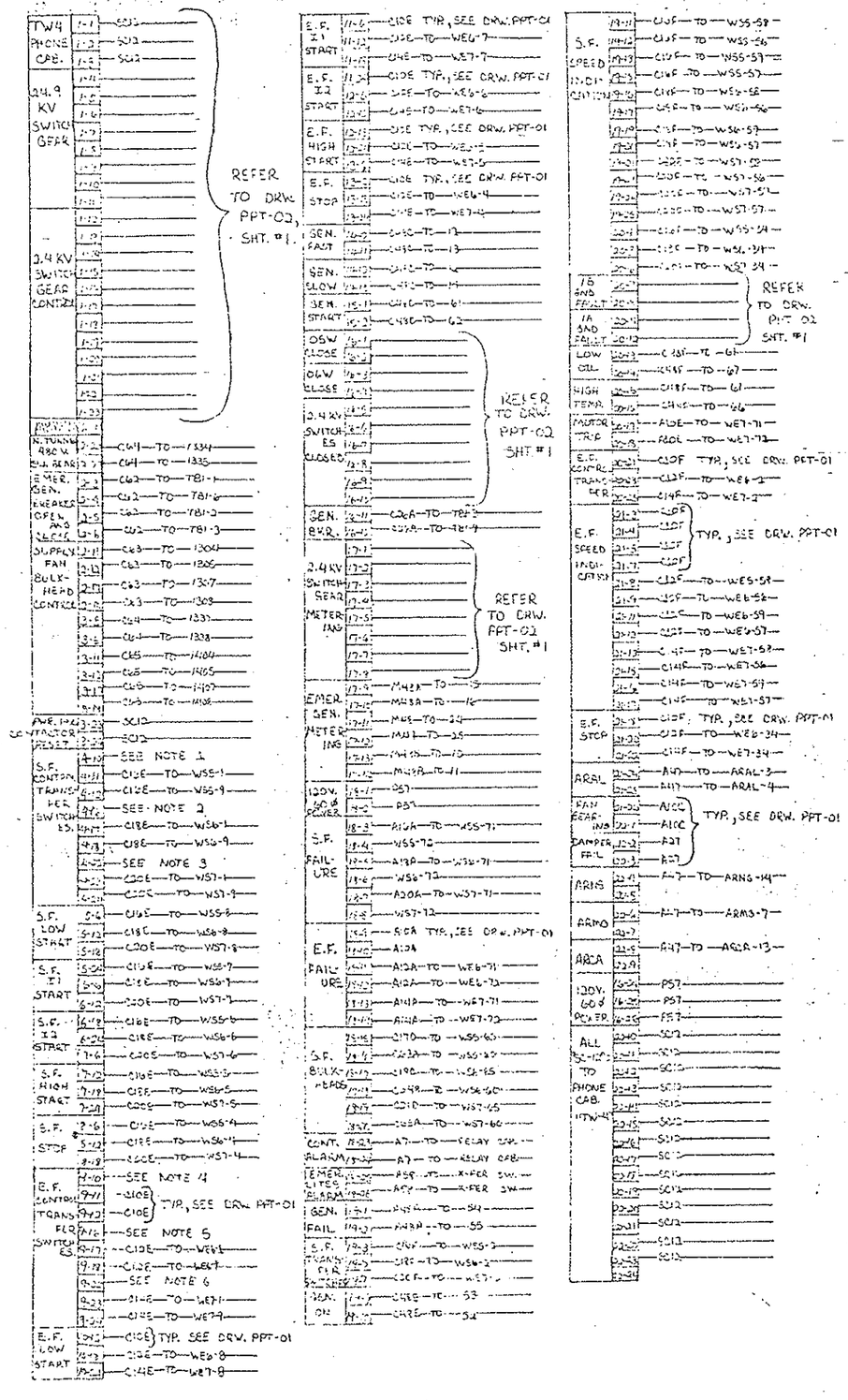
Date 8/31/79 By

FINAL

AUG 1979
STAFF BRIDGE DESIGN - DOH

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3(82)220	204	208



NOTES:

1. TERMINALS 4-6, 8-5, 5-5, 5-23, 6-17, 7-11, 19-14, 20-2, AND 19-4 ARE COMMON CONNECTIONS WITHIN QUINDAR UNIT.

2. TERMINALS 4-12, 8-11, 5-11, 6-5, 6-23, 7-7, 19-18, 20-4, AND 19-6 ARE COMMON CONNECTIONS WITHIN QUINDAR UNIT.

3. TERMINALS [illegible], [illegible], 5-[illegible], 6-11, 7-5, 7-23, 9-22, 20-6, AND 19-8 ARE COMMON CONNECTIONS WITHIN QUINDAR UNIT.

4. TERMINALS 9-10, 10-11, [illegible], 11-23, 12-17, 13-11, 21-6, 21-19, AND 20-22 ARE COMMON CONNECTIONS WITHIN QUINDAR UNIT.

5. TERMINALS 9-16, 10-17, [illegible], 12-5, 12-23, 13-17, 21-10, 21-21, AND 20-24 ARE COMMON CONNECTIONS WITHIN QUINDAR UNIT.

6. TERMINALS 9-22, 10-23, 11-17, 12-11, 13-5, 13-23, 21-15, 21-23, AND 20-26 ARE COMMON CONNECTIONS WITHIN QUINDAR UNIT.

7. ALL 1300 & 1400 SERIES NUMBERS ARE FROM EXISTING 480 VOLT MOTOR CONTROL CENTER 4S.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Note – The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

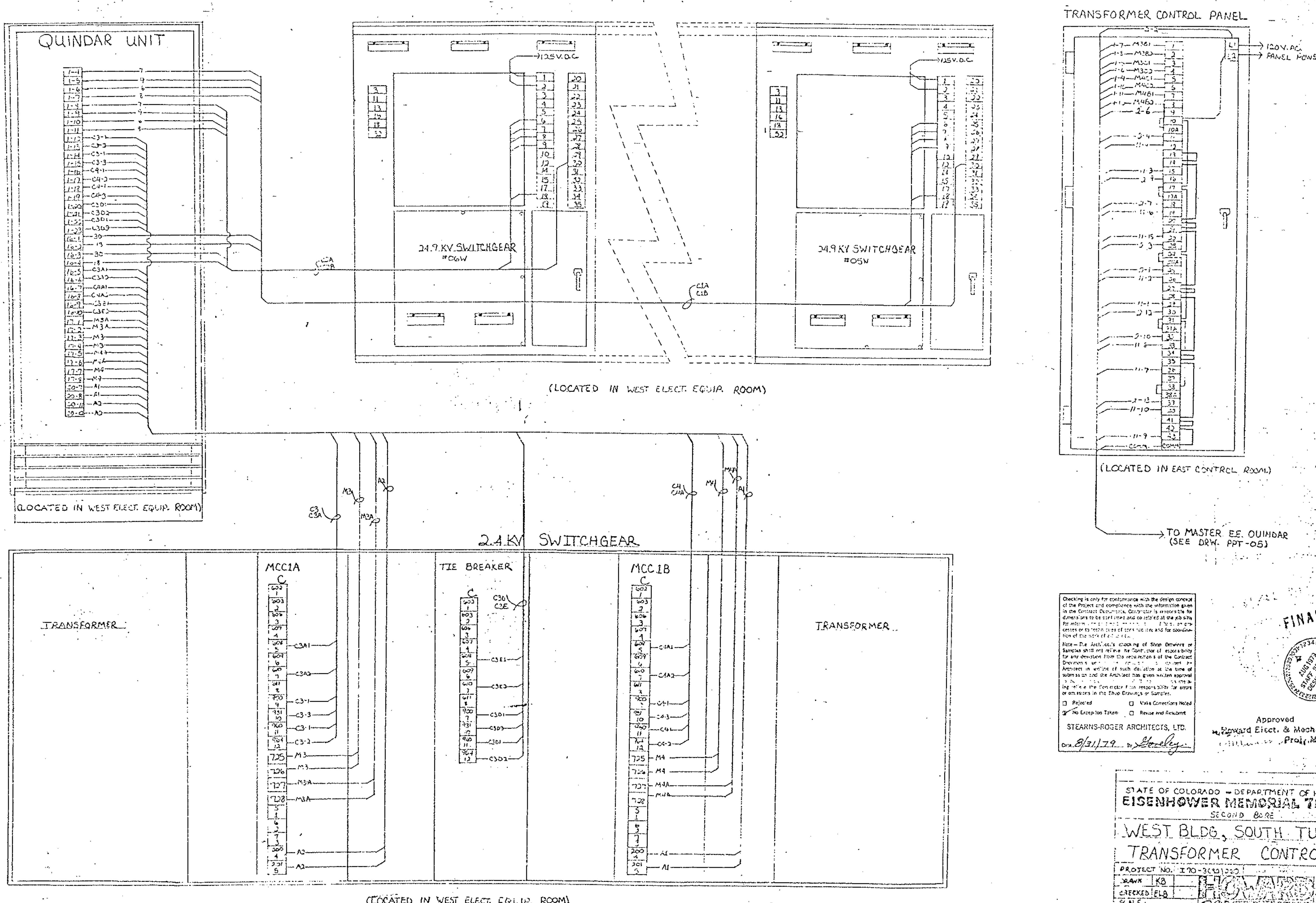
Date 8/31/79 By

FINAL

AUG 1979
STAFF BRIDGE
DESIGN-DOH

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

WEST PORTAL [illegible]
QUINDAR UNIT
[illegible] TERMINAL CONNECTIONS



FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3(82)220	205	208

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site for information ... processes or to techniques of construction and for coordination of the work of all trades.

Note — The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents ... Architect in writing of such deviation at the time of submission and the Architect has given written approval ... checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☑ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 8/31/79 By Gorley

FINAL

AUG 1973 STAFF BRIDGE DESIGN · DOH

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

STATE OF COLORADO — DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

WEST BLDG, SOUTH TUNNEL
TRANSFORMER CONTROL

PROJECT NO.	I 70-3(82)220		
DRAWN	KB	HOWARD COMPANIES	SHT. #
CHECKED	ELB		DRAWING NO.
SCALE NOT TO SCALE			PPT-02

FEDERAL AID PROJ. REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70 - 3(82)220	206	208

EAST BLDG., SOUTH TUNNEL
TRANSFORMER CONTROL

(LOCATED IN EAST CONTROL ROOM)

125V. D.C.

24.9 KV. SWITCHGEAR
1A #06E

24.9 KV. SWITCHGEAR
1B #05E

(LOCATED IN EAST ELECT. EQUIP. ROOM)

TO ANNUNCIATOR PANEL
IN CONTROL ROOM.
(SEE DRW. PPT-05)

24.9 KV. SWITCHGEAR

TRANSFORMER

MCC 1A

TIE BREAKER

MCC 1B

TRANSFORMER

(LOCATED IN EAST ELECT EQUIP. ROOM)

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains only to the means, methods, techniques, sequences or procedures of construction; and for coordination of the work of all trades.

Note - The Architect's stamping of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☑ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.
Date 8/31/79 by Hawley

FINAL

AUG 1979 STATE BRIDGE DESIGN ENGR.

Approved
Howard Elect. & Mech. Co
Proj. Mgr.

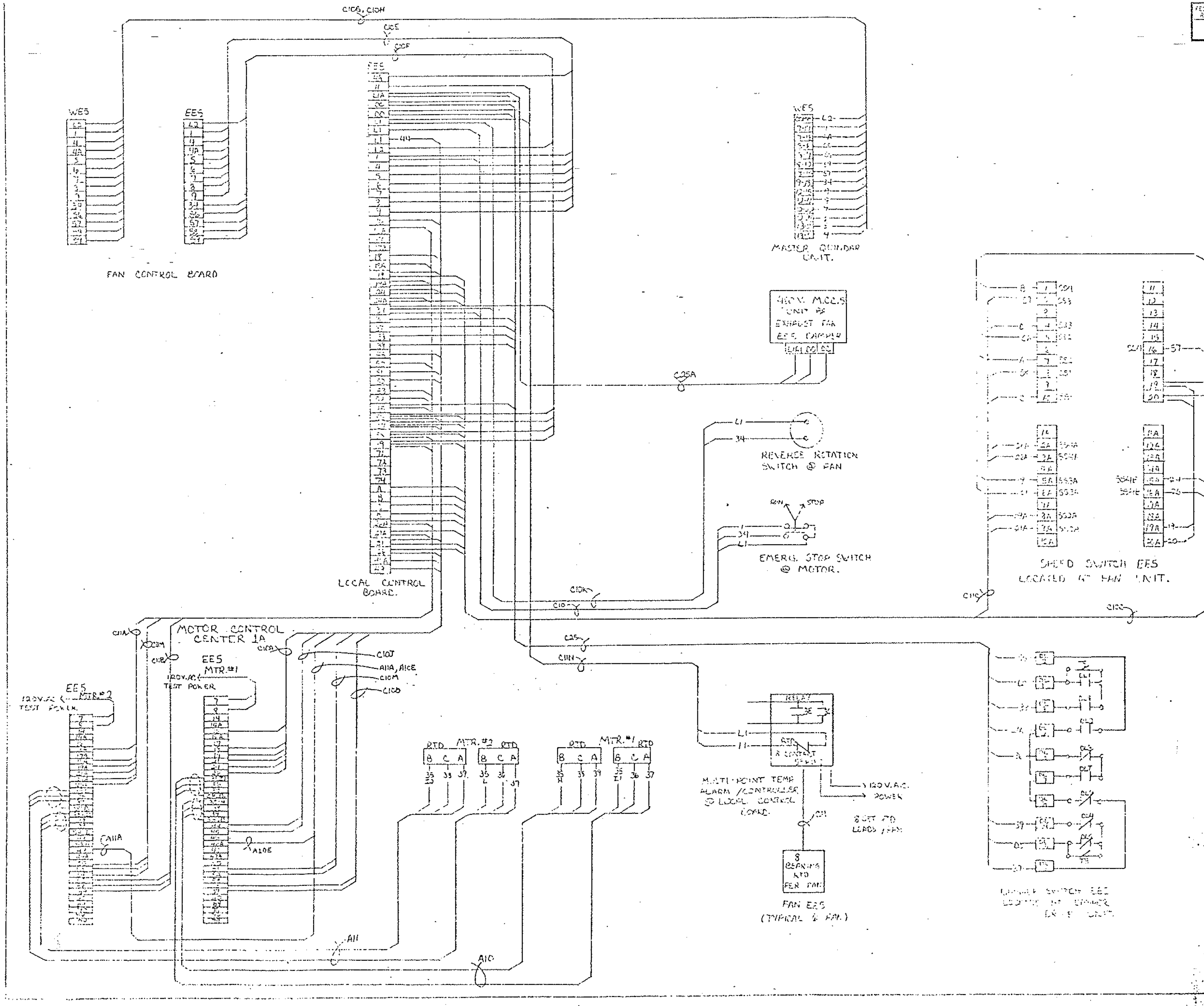
STATE OF COLORADO - DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

EAST BLDG., SOUTH TUNNEL
TRANSFORMER CONTROL

PROJECT NO.	I 70-3(82)220 I
DRAWN	KB
CHECKED	JAG
SCALE	NOT TO SCALE

SHT. 41
DRAWING NO.
PPT-03

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3(82)220	207	208



NOTES:

1. EES CONTROL CONNECTIONS TYPICAL FOR ALL EAST FAN UNITS.
2. SEE RPT.?, SHT. #1 FOR CONNECTIONS AT SPEED INDICATION "J" BOX, REVERSE ROTATION SWITCH, R.T.D.'S, AND DAMPER SWITCH.
3. WES CONTROL CONNECTIONS TYPICAL FOR ALL WEST FAN UNITS.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site; for information that pertains solely to fabrication processes or to techniques of construction; and for coordination of the work of all trades.

Note—The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation, nor shall the Architect's checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

- [ ] Rejected
- [x] No Exception Taken
- [ ] Make Corrections Noted
- [ ] Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.

Date 8/31/79 By [signature]

FINAL

AUG 1979 STAFF BRIDGE DESIGN

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

STATE OF COLORADO
EAST END FAN CONTROL
TYPICAL

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	I 70-3(82)220	208	208

NOTES:
1. TB1-24, 25, AND 26 ARE ON 120 VOLT POWER.
2. WES CONNECTIONS ARE TYPICAL FOR ALL UNITS.
3. SEE DRW. PPT-04 FOR DETAIL WIRING.

Checking is only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents. Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information [illegible] or techniques of construction and for coordination of the work of all trades.

Note – The Architect's checking of Shop Drawings or Samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval [illegible] checking relieve the Contractor from responsibility for errors or omissions in the Shop Drawings or Samples.

☐ Rejected ☐ Make Corrections Noted
☒ No Exception Taken ☐ Revise and Resubmit

STEARNS-ROGER ARCHITECTS, LTD.
Date 8/31/79 By

FINAL

AUG 1979

Approved
Howard Elect. & Mech. Co.
Proj. Mgr.

STATE OF COLORADO DEPARTMENT OF HIGHWAYS
EISENHOWER MEMORIAL TUNNEL
SECOND BORE

CONTROL ROOM
QUINDAR UNIT

PROJECT NO.	I 70-3(82)220		
DRAWN	KB	HOWARD COMPANIES	SHT. #1
CHECKED	ELB		DRAWING NO. PPT-05
SCALE NOT TO SCALE			