

APR 03 1995

93107

STATE DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS - STATE OF COLORADO

PLAN AND PROFILE OF ~~PROPOSED~~ AS CONSTRUCTED
 FEDERAL AID PROJECT NO. I 070-3(200)
 STATE HIGHWAY NO. 70
 SUMMIT AND CLEAR CREEK COUNTIES

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	I 070-3(200)	1	24
AS CONSTRUCTED				
NO REVISIONS		REVISED	7-25-95	VOID
REVISIONS				

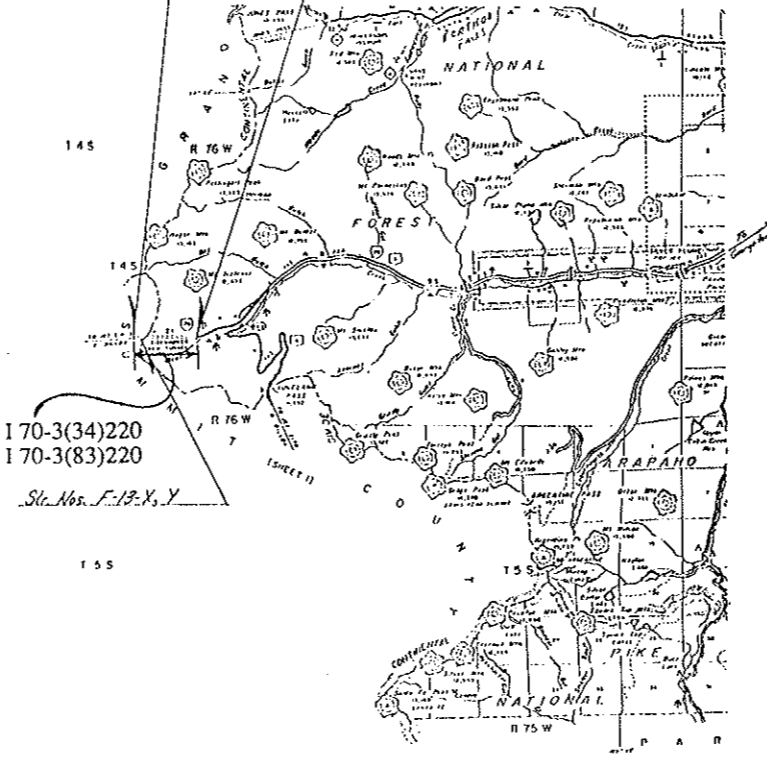
MECHANICAL? NO YES NOT APPLICABLE

TABULATION OF LENGTH AND DESIGN DATA

STATION TO STATION	ROADWAY	MAJOR STRUCTURE
	LIN. FT.	LIN. FT.
Sta. 35+90.91 W.B. Begin I 070-3(200) = Sta. 35+90.91 W.B. on I 70-3(34)220		
Sta. 35+99.51 E.B. Begin I 070-3(200) = Sta. 35+99.51 E.B. on I 70-3(83)220		
STRUCTURE NOS. F-13-X, Y		8,976.00
Sta. 124+46.46 W.B. End I 070-3(200) = Sta. 124+46.46 W.B. on I 70-3(34)200		
Sta. 125+52.09 E.B. End I 070-3(200) = Sta. 125+52.09 E.B. on I 70-3(83)220		
TOTAL	0	8,976.00
SUMMARY	LIN. FT.	MILES
ROADWAY (NET LENGTH)	0	0
MAJOR STRUCTURES	8,976.00	1.70
NET AND GROSS LENGTH	8,976.00	1.70

Sta. 35+90.91 W.B. Begin I 070-3(200) =
 Sta. 35+90.91 W.B. on I 70-3(34)220
 Sta. 35+99.51 E.B. Begin I 070-3(200) =
 Sta. 35+99.51 E.B. on I 70-3(83)220

Sta. 124+46.46 W.B. End I 070-3(200) =
 Sta. 124+46.46 W.B. on I 70-3(34)200
 Sta. 125+52.09 E.B. End I 070-3(200) =
 Sta. 125+52.09 E.B. on I 70-3(83)220



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AS CONSTRUCTED INFORMATION

CONTRACTOR FLATIRON STRUCTURES Co.
 RESIDENT ENGINEER W. W. GOFF
 (Project or Resident)
 PROJECT STARTED 3-22-94
 PROJECT COMPLETED 7-25-95
 AS CONSTRUCTED PLANS [Signature]
 APPROVED
 TITLE _____ DATE _____

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	7/25/95	REVISED	VOID	VIII	COLL.	I 070-3(200)	2
							24

PLAN NO.	TITLE	PAGE	PLAN NO.	TITLE	PAGE	PLAN NO.	TITLE	PAGE
<input type="checkbox"/> M-100-1	STANDARD SYMBOLS.....	1	<input type="checkbox"/> M-607-1	WIRE FENCES AND GATES.....(2 SHEETS)	64	<input type="checkbox"/> S-612-1	TYPICAL DELINEATOR INSTALLATIONS....(5 SHEETS)	93
<input type="checkbox"/> M-107-1	TEMPORARY EROSION CONTROL.....	2	<input type="checkbox"/> M-607-2	CHAIN LINK FENCE.....(3 SHEETS)	66	<input type="checkbox"/> S-614-1	TYPICAL GROUND SIGN PLACEMENT.....	98
<input type="checkbox"/> M-203-1	APPROACH ROADS.....	3	<input type="checkbox"/> M-607-3	BARRIER FENCE.....	69	<input type="checkbox"/> S-614-2	CLASS I GROUND SIGN INSTALLATIONS.....	99
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THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

STATE OF COLORADO
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

STANDARD PLANS LIST

M & S STANDARDS - NOVEMBER, 1992

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO DEPARTMENT OF TRANSPORTATION, APPLICABLE TO THE PROJECT.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

ALL STRUCTURAL STEEL SHALL BE AASHTO M-183 (ASTM A-36), UNLESS OTHERWISE NOTED AND SHALL BE INCLUDED IN THE COST OF ITEMS LISTED IN THE "SUMMARY OF QUANTITIES."

GRADE 60 REINFORCING STEEL IS REQUIRED FOR #4 BARS AND LARGER.

ALL REINFORCING STEEL SHALL BE NON-EPOXY COATED UNLESS OTHERWISE NOTED AND SHALL BE INCLUDED IN THE COST OF ITEMS LISTED IN THE "SUMMARY OF QUANTITIES."

UNLESS SHOWN OR NOTED OTHERWISE, THE FOLLOWING TABLE GIVES THE MINIMUM CLASS B SPLICE LENGTH FOR REINFORCING BARS AS MODIFIED FOR 6 INCH OR GREATER SPACING.

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS A OR B CONCRETE	1'-3"	1'-6"	2'-0"	2'-8"	3'-6"	4'-5"	5'-7"	6'-10"
SPLICE LENGTH FOR CLASS D OR S CONCRETE	1'-3"	1'-6"	1'-10"	2'-2"	2'-10"	3'-7"	4'-7"	5'-7"

ALL CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.

THE MINIMUM COVER, MEASURED FROM THE FACE OF THE CONCRETE TO THE SURFACE OF ANY REINFORCING BAR SHALL BE 2", EXCEPT WHERE OTHERWISE NOTED.

ANY REINFORCING STEEL SPLICES NOT SHOWN SHALL BE APPROVED BY THE ENGINEER. THE SPLICE LOCATIONS SHALL BE ALTERNATED WHEN POSSIBLE.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE PANELS DURING CONSTRUCTION.

THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE TO THEM.

ALL STATIONS AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM THE "AS CONSTRUCTED PLANS" AND FIELD SURVEYS. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIALS OR WALL PANELS, AND DIMENSIONS SHALL BE ADJUSTED TO MEET THE EXISTING STRUCTURE.

ANY ELECTRICAL WORK INVOLVING EXISTING TUNNEL ELECTRICAL SYSTEMS OR CONNECTION TO EXISTING TUNNEL ELECTRICAL SYSTEMS SHALL HAVE PRIOR APPROVAL OF THE TUNNEL ELECTRICIAN. THE CONTRACTOR SHALL COMPLY WITH ALL INSPECTION REQUIREMENTS OF ELECTRICAL WORK IMPOSED BY THE TUNNEL ELECTRICIAN. THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL POWER NEEDED TO PERFORM THE WORK.

ABBREVIATIONS:

- | | |
|------------------------|----------------------------------|
| Cl. - CLEAR | Eq.Spa. - EQUAL SPACES |
| E.W. - EACH WAY | H.C.L. - HORIZONTAL CONTROL LINE |
| E.F. - EACH FACE | P.G.L. - PROFILE GRADE LINE |
| F.F. - FAR FACE | El. or Elev. - Elevation |
| N.F. - NEAR FACE | (Typ.) - TYPICAL |
| Cont. - CONTINUOUS | Conc. - CONCRETE |
| C.I.P. - CAST-IN-PLACE | Reinf. - REINFORCING |
| Exist. - EXISTING | |

ALL EXTERIOR CONCRETE CORNERS SHALL BE CONSTRUCTED WITH 3/4" CHAMFERS, UNLESS OTHERWISE NOTED.

DESIGN DATA

CURRENT AASHTO SPECIFICATIONS:

REPLACEMENT PANELS

- LIVE LOAD : 20 POUNDS PER SQUARE FOOT
- DEAD LOAD : SELF WEIGHT
- ERECTION LOADS : BY CONTRACTOR

REINFORCED CONCRETE:

- CLASS B (MISC.) CONCRETE : f'c = 3,000 psi AT 28 DAYS f'c = 1,200 psi, n=9
- REPLACEMENT PANELS : f'c = 5,000 psi AT 28 DAYS f'c = 2,000 psi, n=8

REINFORCING STEEL:

- #4 BARS AND LARGER : fy = 60,000 psi, fs = 24,000 psi

STRUCTURAL STEEL:

- AASHTO M-183 (ASTM A-36) fy = 36,000 psi, fs = 20,000 psi

DESIGN METHODS:

- SERVICE LOAD DESIGN (WORKING STRESS)
- FACTOR OF SAFETY FOR CRACKING = 2.00

REVISIONS	

AS CONSTRUCTED	
NO REVISIONS <input type="checkbox"/>	REVISED <input checked="" type="checkbox"/> 7/25/95 VOID <input type="checkbox"/>

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	3	24

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	NORTH TUNNEL (STR. NO. F13X)	SOUTH TUNNEL (STR. NO. F13Y)	TOTAL
202	REMOVAL OF RESTRAINING BAR	L.S.	1	—	1
900	PANEL I.D. LABELS (MCR/LINE ITEM # 5)	L.S.	1	—	1
202	REMOVAL OF INSPECTION CAR RAIL	L.S.	1	—	1
514	INSTALL 4 1/2" ANCHOR BOLTS (MCR/LINE ITEM # 6)	EACH	2852	—	2852
202	REMOVAL OF EXISTING WALL PANELS	L.S.	—	—	1
210	RESET CEILING PANELS (CMO # 5)	L.S.	1	—	1
202	CLEAN DRAIN PIPE (SPECIAL)	EACH	340	—	340
210	RESET PIPE HANDRAILING, INSTALL NEW H.R. (CMO # 2)	LIN. FT.	8,585.5	—	8,585.5
210	RESET PIPE HANDRAILING (Deleted) (CMO # 2)	LIN. FT.	0 8,510	—	0 8,510
202	SANDBLASTING GD RAIL TR. 4 (MCR # 1)	SQ. FT.	1760.8	—	1760.8
210	RESET METAL PANELS	LIN. FT.	16,900.	—	16,900
514	INSTALL 18" ANCHOR BOLTS (MCR/LINE ITEM # 7)	EACH	25	—	25
210	RESET TV CAMERAS	EACH	11	—	11
509	STRUCTURAL STEEL PLATE WASHERS (MCR/LINE ITEM # 11)	L.S.	1.	—	1
210	RESET TRAFFIC CONTROLLER SIGNAL HEAD	EACH	24	—	24
509	STRUCTURAL STEEL	LB.	24915.7	—	24915.7
509	METAL PANELS (NEW)	SQ. FT.	1974.54	—	1974.54
509	SPLASH GUARD SEAL STRIP (MCR/LINE ITEM # 8)	LIN. FT.	1334	—	1334
509	AIR FLUE MODIFICATIONS	EACH	7	—	7
519	EPOXY RESIN (INJECTION)	LIN. FT.	4679.83	—	4679.83
509	1" ALL THREAD (MCR/LINE ITEM # 12)	L.S.	1	—	1
601	CONCRETE (PATCHING)	SQ. FT.	200.63	—	200.63
601	TILE-FACED PRECAST CONCRETE PANELS	SQ. FT.	19420.5	4196.5	198,400
601	REPAIR EXISTING PANELS	SQ. FT.	—	248.8	248.8
601	CONCRETE ANCHOR	EACH	186	0	430
601	STRUCTURAL CONCRETE COATING	SQ. FT.	5269.4	—	3,200
606	GUARD RAIL TYPE 4 (SPECIAL)	LIN. FT.	1014	—	1,000
509	METAL PANELS (NEW) REDUCED HEIGHT (MCR/LINE ITEM # 3)	SQ. FT.	296.09	—	296.09
625	CONSTRUCTION SURVEYING	L.S.	—	—	1
509	METAL PANELS (NEW) TAPERED (MCR/LINE ITEM # 4)	SQ. FT.	664.3	—	664.3
626	MOBILIZATION	L.S.	—	—	1
509	STRUCTURAL STEEL METAL SHIMS (CMO # 6)	L.S.	1	—	1
700	MINOR CONTRACT REVISIONS (MCR # 1)	FA	—	—	1
601	CONCRETE FINISH (SPECIAL) (MCR/LINE ITEM # 9)	SQ. FT.	362.2	—	362.2
700	OJT PILOT	FA	—	—	1
601	PLASTIC PLUG (CMO # 4)	L.S.	1	—	1
700	CONSTRUCTION TRAFFIC CONTROL (STATE FORCES)	FA	—	—	1
700	PARTNERING (MCR # 1)	L.S.	1	—	1

① Weight of steel for 2"x2 1/2"x3/8"x4'-10" L for panel connections at flue openings and weight of steel for 6" x 6" x 1/2" L at utility openings.

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S-5	NORTH TUNNEL SCHEMATIC PANEL LAYOUT (STA.87+90.08 TO STA. 114+03.08)
S-6	NORTH TUNNEL SCHEMATIC PANEL LAYOUT (STA.114+03.08 TO EAST PORTAL)
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PARSONS DE LEUW, INC. Denver, CO.

COLORADO DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT

GENERAL INFORMATION & SUMMARY OF QUANTITIES

Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	
Drawing Number <i>S-1</i> of <i>22</i> Drawings	

DATE	INITIAL	CHECKED BY	DATE	INITIAL	CHECKED BY
10/93	J.B.		10/93	J.B.	
10/93	H.H.		10/93	J.B.	
10/93	J.B.		10/93	M.S.	
11/93	M.S.		11/93		

20-DEC-1983 10:09 /usr/pd/dsk2/669751/docs/etgi.dgn PARSONS DE LEUW, INC. - DENVER, CO.

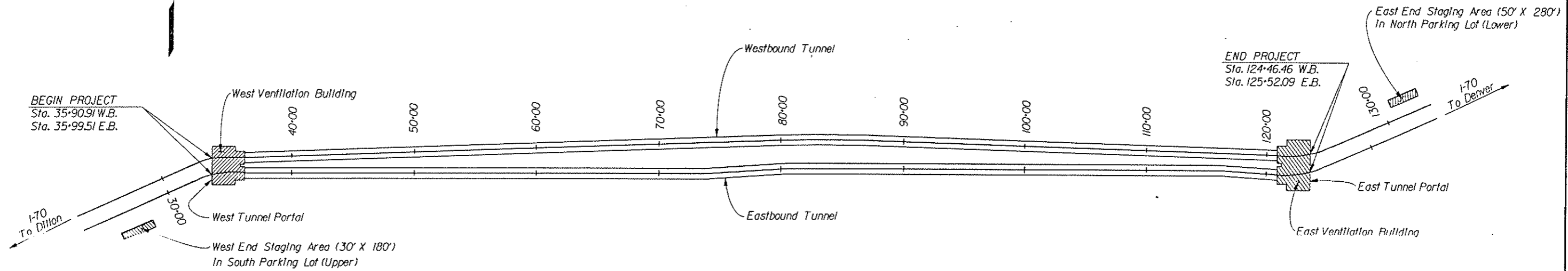
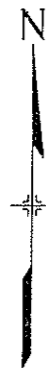
Revision	Date

REVISIONS		

AS CONSTRUCTED		
NO REVISIONS	<input checked="" type="checkbox"/> REVISED	<input type="checkbox"/> VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	4	24

UTILITIES
 CDOT
 U.S. West
 Public Service Company (Electric)



SITE PLAN
 (Not to Scale)

NOTES:

The Staging Areas, if used shall be defined with eight foot high chain link fencing. Locking gates shall be provided for access. Cost of fencing shall be incidental to the cost of the project.

The final location of Staging Areas shall be approved by the Engineer.

No storage will be allowed within the tunnel facilities.

PARSONS DE LEUW, INC. Denver, CO

COLORADO DEPARTMENT OF TRANSPORTATION	
EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT	
SITE PLAN	
Designer <i>D. Burroughs</i> Detailer <i>D. Kurschinski</i>	Structure Numbers
Drawing Number S-2 of 22 Drawings	

DESIGNED BY	CHECKED BY	DATE	INITIAL	DATE	INITIAL
D.K.B.	J.B.	4.13	D.K.B.	10/93	J.B.
CHECKED BY	QUANTITIES BY	DATE	CHECKED BY	DATE	INITIAL
D.L.K.	M.S.	4.13	D.L.K.	10/93	M.S.
DETAILED BY	CHECKED BY	DATE	DETAILED BY	DATE	INITIAL
				11/93	

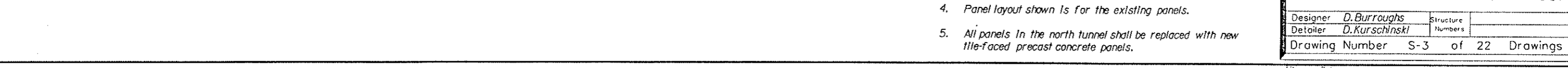
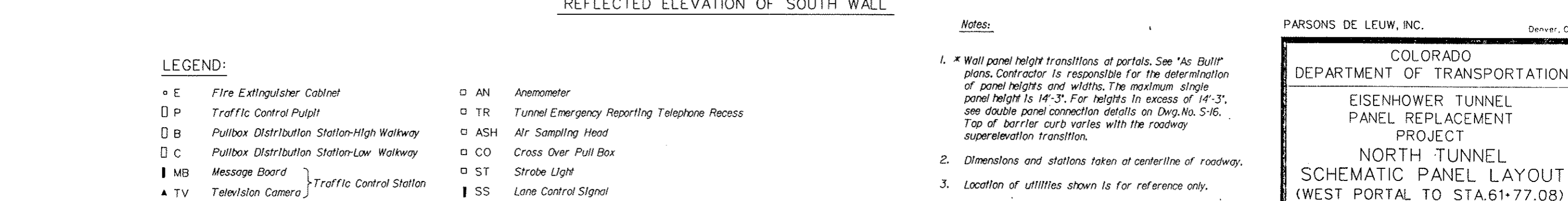
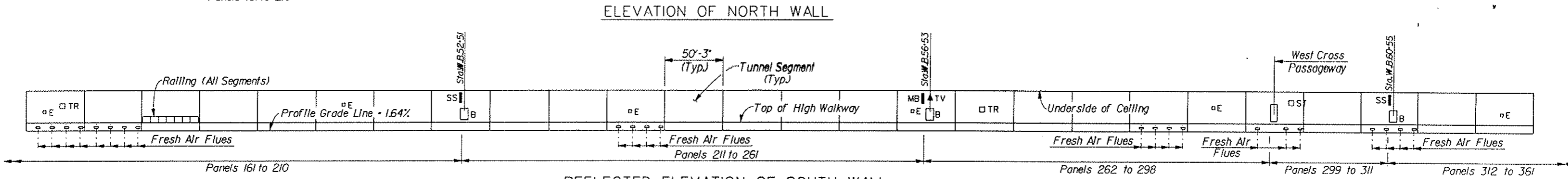
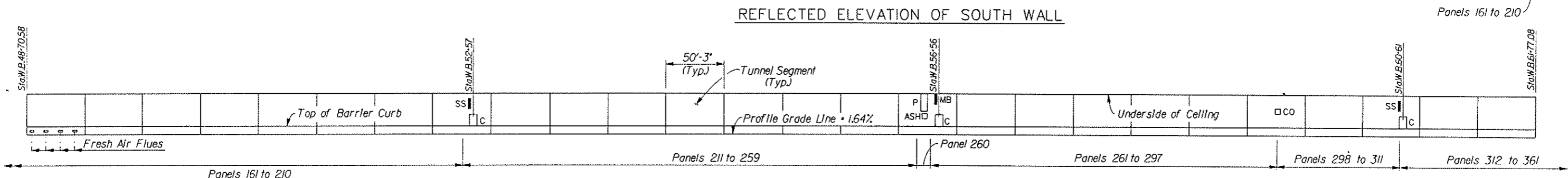
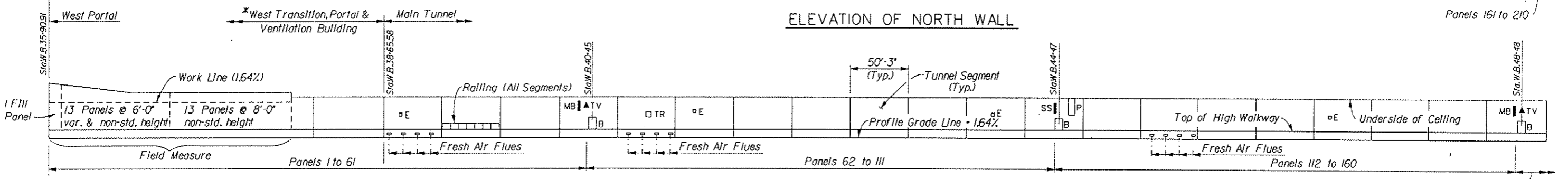
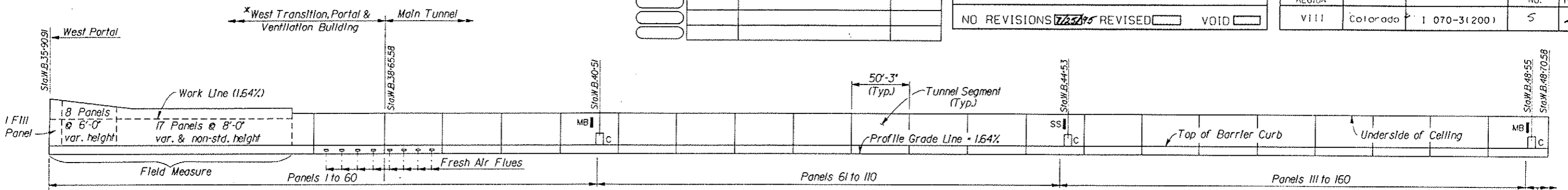
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 PARSONS DE LEUW, INC. - DENVER, CO

Revision Dates

REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-312001	5	24



DESIGNED BY	CHECKED BY	DATE	INITIAL
J.B.	J.B.	10/93	J.B.
H.H.H.	H.H.H.	10/93	H.H.H.
J.B.	J.B.	10/93	J.B.
M.S.	M.S.	11/93	M.S.

LEGEND:

- | | | | |
|------|-------------------------------------------|-------|---------------------------------------------|
| □ E | Fire Extinguisher Cabinet | □ AN | Anemometer |
| □ P | Traffic Control Pulpit | □ TR | Tunnel Emergency Reporting Telephone Recess |
| □ B | Pullbox Distribution Station-High Walkway | □ ASH | Air Sampling Head |
| □ C | Pullbox Distribution Station-Low Walkway | □ CO | Cross Over Pull Box |
| ▬ MB | Message Board | □ ST | Strobe Light |
| ▲ TV | Television Camera | ▬ SS | Lane Control Signal |
- } Traffic Control Station

Notes:

- * Wall panel height transitions at portals. See "As Built" plans. Contractor is responsible for the determination of panel heights and widths. The maximum single panel height is 14'-3". For heights in excess of 14'-3", see double panel connection details on Dwg. No. S-16. Top of barrier curb varies with the roadway super-elevation transition.
- Dimensions and stations taken at centerline of roadway.
- Location of utilities shown is for reference only.
- Panel layout shown is for the existing panels.
- All panels in the north tunnel shall be replaced with new tile-faced precast concrete panels.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

NORTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (WEST PORTAL TO STA.61+77.08)

Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	
Drawing Number <i>S-3</i> of 22 Drawings	

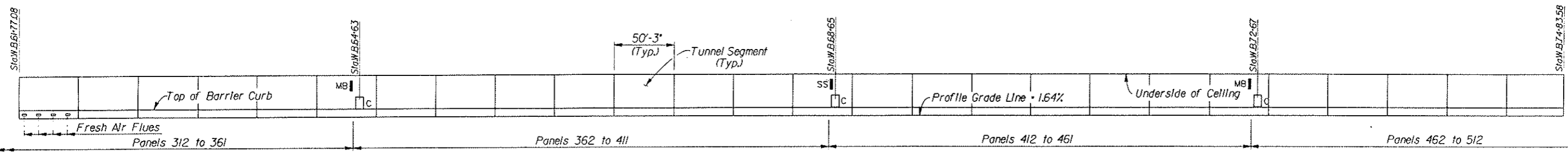
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 PARSONS DE LEUW, INC. - DENVER, CO.

Revision	Date

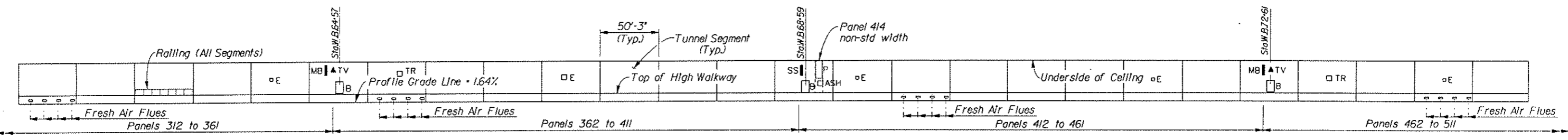
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID
7/25/93		

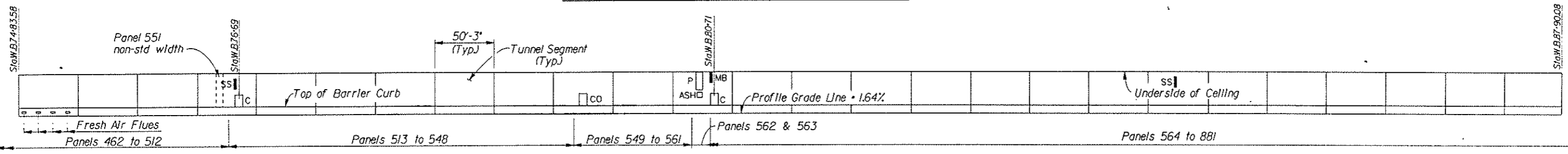
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	6	24



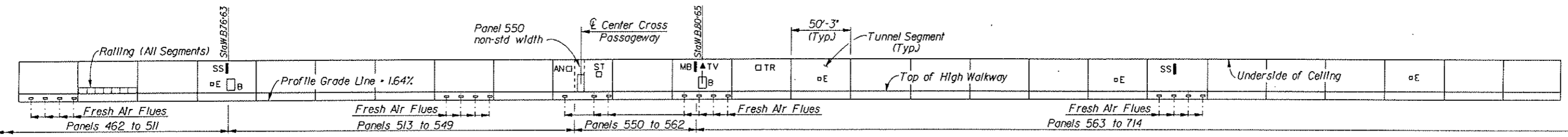
ELEVATION OF NORTH WALL



REFLECTED ELEVATION OF SOUTH WALL



ELEVATION OF NORTH WALL



REFLECTED ELEVATION OF SOUTH WALL

INITIAL	DATE	CHECKED BY	J.B.	10/93
D.K.B.	4/93	H.H.H.	H.H.H.	10/93
CHECKED BY	QUANTITIES BY	J.B.	J.B.	10/93
D.L.K.	4/93	M.S.	M.S.	10/93

Notes:
 1. For North Tunnel Panel Layout Notes and Legend, see Dwg. No. S-3.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

NORTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (STA.61+77.08 TO STA.87+90.08)

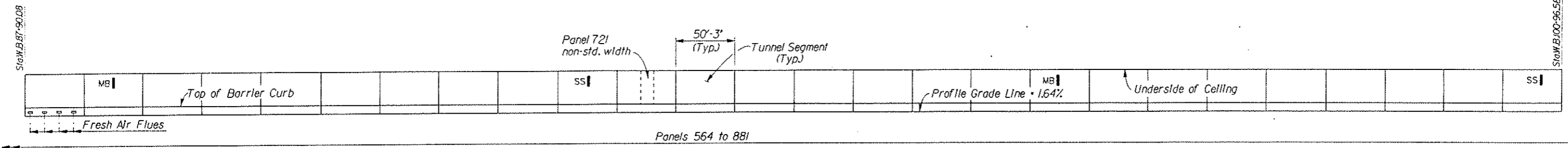
Designer	D. Burroughs	Structure Numbers	
Detailer	D. Kurschinski		
Drawing Number	S-4 of 22 Drawings		

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 PARSONS DE LEUW, INC. - DENVER, CO.

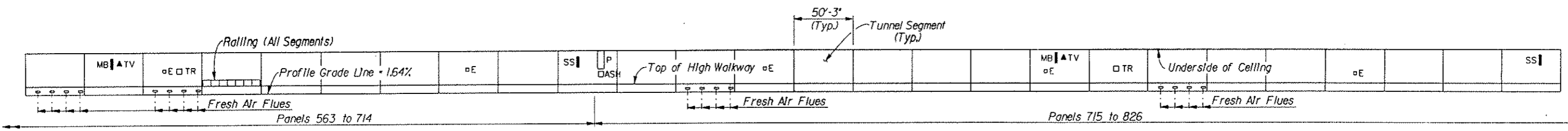
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	7/23/93	REVISED
		VOID

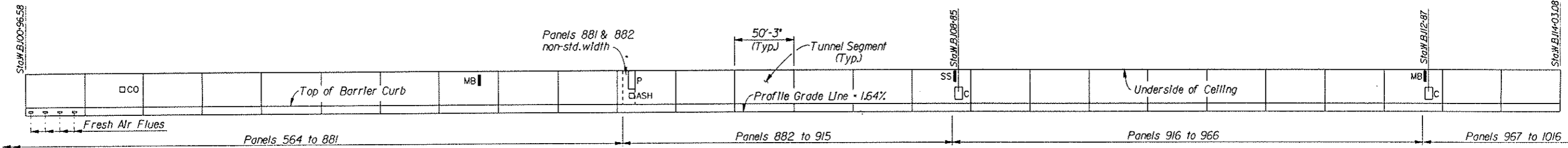
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VIII	Colorado	I 070-3(200)	7	24



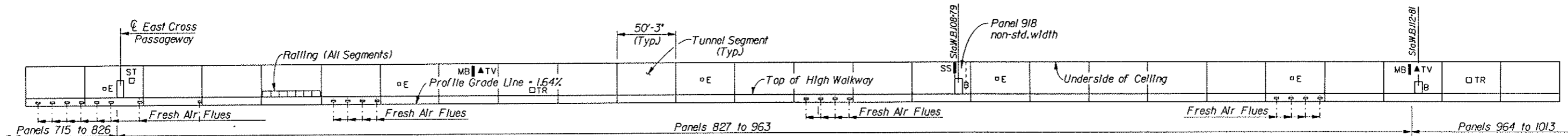
ELEVATION OF NORTH WALL



REFLECTED ELEVATION OF SOUTH WALL



ELEVATION OF NORTH WALL



REFLECTED ELEVATION OF SOUTH WALL

DESIGNED BY	D.K.B.	DATE	4/93	CHECKED BY	J.B.	DATE	10/93
CHECKED BY	J.B.	DATE	10/93	QUANTITIES BY	H.H.H.	DATE	10/93
DETAILED BY	D.L.K.	DATE	4/93	CHECKED BY	M.S.	DATE	11/93

Notes:
 1. For North Tunnel Panel Layout Notes and Legend, see Dwg. No. S-3.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

NORTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (STA.87+90.08 TO STA.114+03.08)

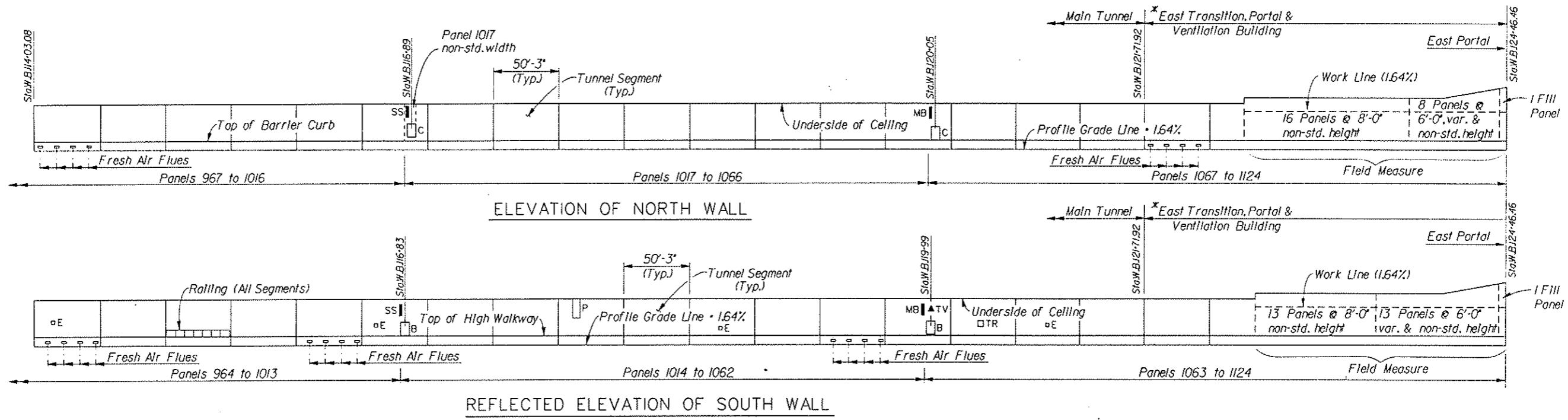
Designer	D. Burroughs	Structure Numbers	
Detailer	D. Kurschinski		
Drawing Number	S-5	of	22 Drawings

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 PARSONS DE LEUW, INC. - DENVER, CO.

REVISIONS		

AS CONSTRUCTED		
NO REVISIONS	7/23/95	REVISED
		VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	8	24



DESIGNED BY	CHECKED BY	DATE	QUANTITIES BY	CHECKED BY	DATE
D.K.B.	J.B.	4/93	J.B.	J.B.	10/93
D.L.K.	D.L.K.	4/93	D.L.K.	M.S.	11/93

Notes:
 1. For North Tunnel Panel Layout Notes and Legend, see Dwg. No. S-3.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

NORTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (STA. 114+03.08 TO EAST PORTAL)

Designer	D. Burroughs	Structure Numbers	
Detailer	D. Kurschinski		
Drawing Number	S-6	of	22 Drawings

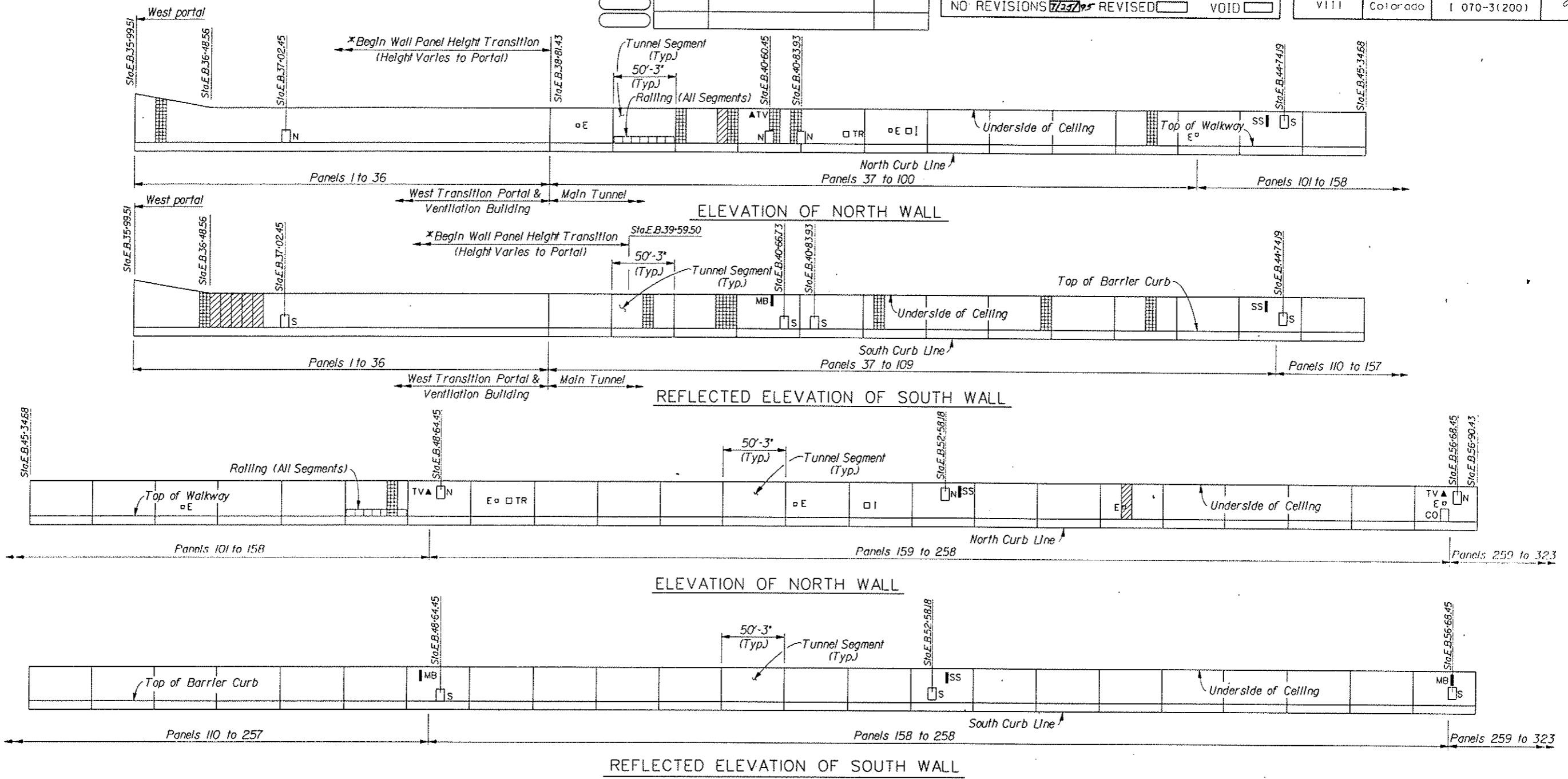
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 PARSONS DE LEUW, INC. - DENVER, CO.

REVISIONS	

AS CONSTRUCTED	NO REVISIONS <input checked="" type="checkbox"/>	REVISED <input type="checkbox"/>	VOID <input type="checkbox"/>
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	9	24

DESIGNED BY	DATE	CHECKED BY	J.B.	10/93
CHECKED BY	10/93	QUANTITIES BY	H.H.H.	10/93
DETAILED BY	4/93	CHECKED BY	J.B.	10/93
		CHECKED BY	M.S.	11/93



LEGEND:

- E Fire Extinguisher Cabinet
- N Pullbox Distribution Station-North Wall
- S Pullbox Distribution Station-South Wall
- MB Message Board
- ▲ TV Television Camera
- TR Tunnel Emergency Reporting Telephone Recess
- ASH Air Sampling Head
- CO Carbon Monoxide Analyzer Cabinet
- SS Lane Control Signal
- I Instrument Panel
- ▨ Panel Replacement
- ▧ Panel Repair

Notes:

- *Wall panel height transition at portals. See "As Built" plans. Contractor is responsible for the determination of panel heights and widths. The maximum single panel height is 14'-3". For heights in excess of 14'-3", see double panel connection details on Dwg. No. S-16.
- Dimensions and stations taken at centerline of roadway.
- Location of utilities shown is for reference only.
- Panel location shown is for the existing panels.

PARSONS DE LEUW, INC. Denver, CO

COLORADO
DEPARTMENT OF TRANSPORTATION
 EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT
 SOUTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (WEST PORTAL TO STA.56+90.43)

Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	
Drawing Number S-7 of 22 Drawings	

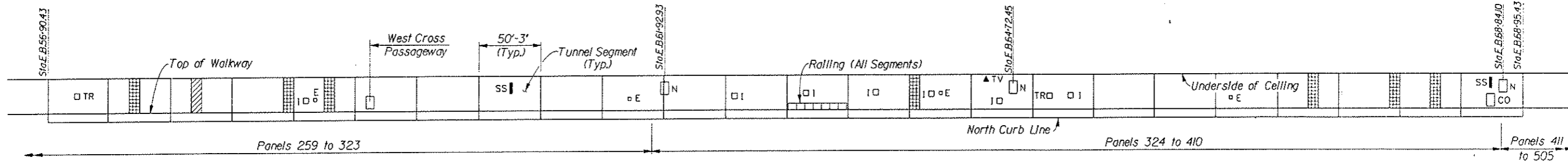
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 PARSONS DE LEUW, INC. - DENVER, CO.

Revision Dates				
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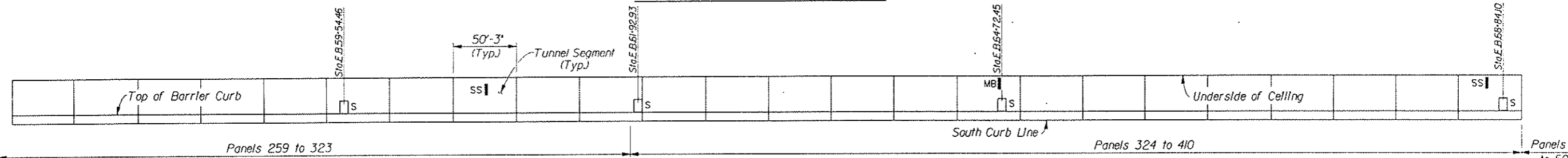
REVISIONS	

AS CONSTRUCTED	
NO REVISIONS	7/27/95 REVISED
	VOID

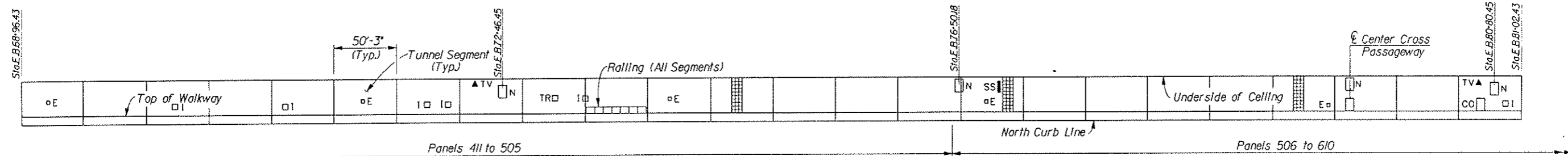
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	10	24



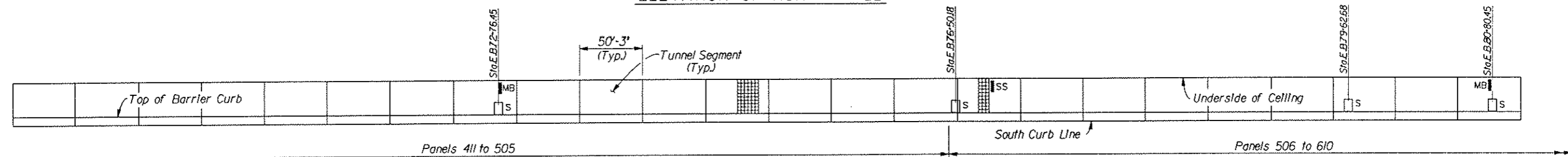
ELEVATION OF NORTH WALL



REFLECTED ELEVATION OF SOUTH WALL



ELEVATION OF NORTH WALL



REFLECTED ELEVATION OF SOUTH WALL

DESIGNED BY	CHECKED BY	DATE	INITIAL
J.B.	J.B.	10/93	J.B.
D.K.B.	H.H.H.	10/93	H.H.H.
J.B.	J.B.	10/93	J.B.
D.L.K.	M.S.	11/93	M.S.

Notes:
1. For South Tunnel Panel Layout Notes and Legend, see Dwg. No. S-7.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
PANEL REPLACEMENT
PROJECT

SOUTH TUNNEL
SCHEMATIC PANEL LAYOUT
(STA.56+90.43 TO STA.81+02.43)

Designer	D. Burroughs	Structure	
Detailer	D. Kurschinski	Numbers	
Drawing Number	S-8	of	22 Drawings

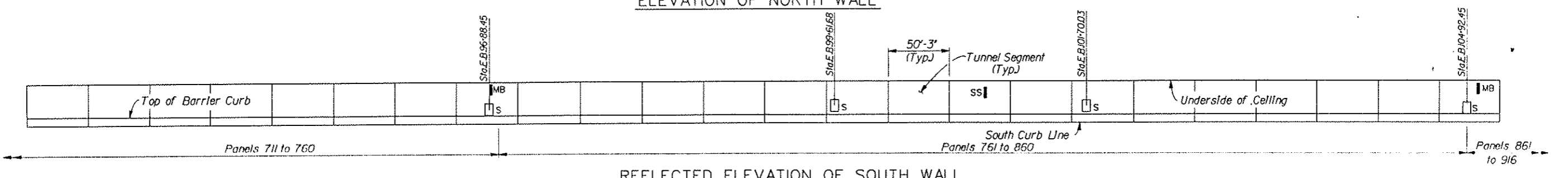
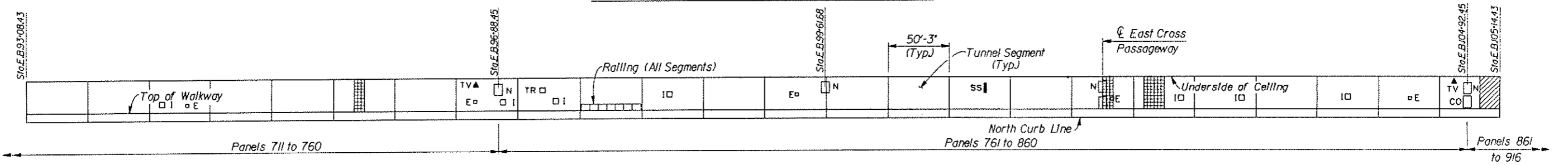
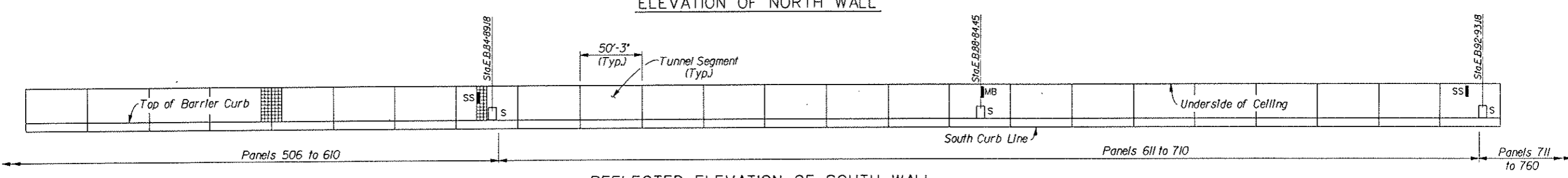
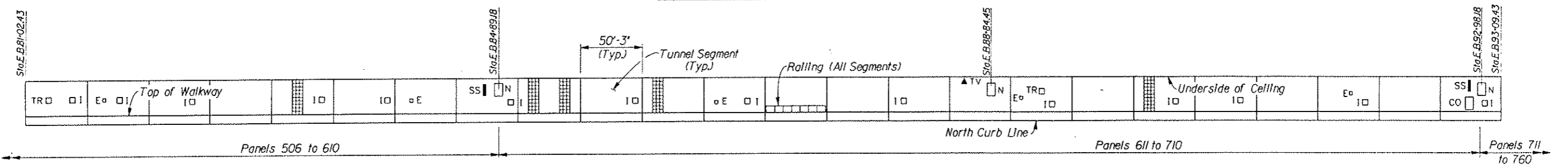
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PARSONS DE LEUW, INC. - DENVER, CO.

Revision	Date

REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISÉD	VOID
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	11	24



DESIGNED BY	CHECKED BY	DATE	QUANTITIES BY	DATE
D.K.B.	J.B.	4/93	H.M.H.	10/93
CHECKED BY	QUANTITIES BY	DATE	CHECKED BY	DATE
D.L.K.	J.B.	10/93	J.B.	10/93
DETAILD BY	CHECKED BY	DATE	M.S.	11/93

Notes:
 1. For South Tunnel Panel Layout Notes and Legend, see Dwg. No. S-7.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO DEPARTMENT OF TRANSPORTATION

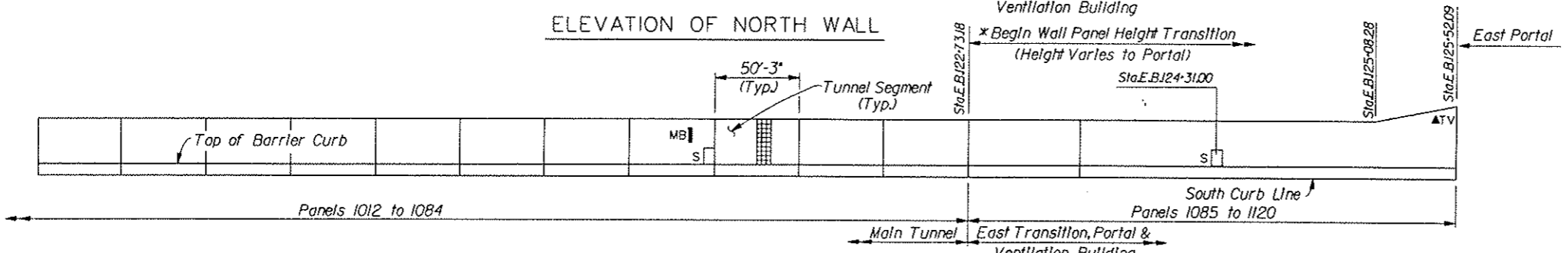
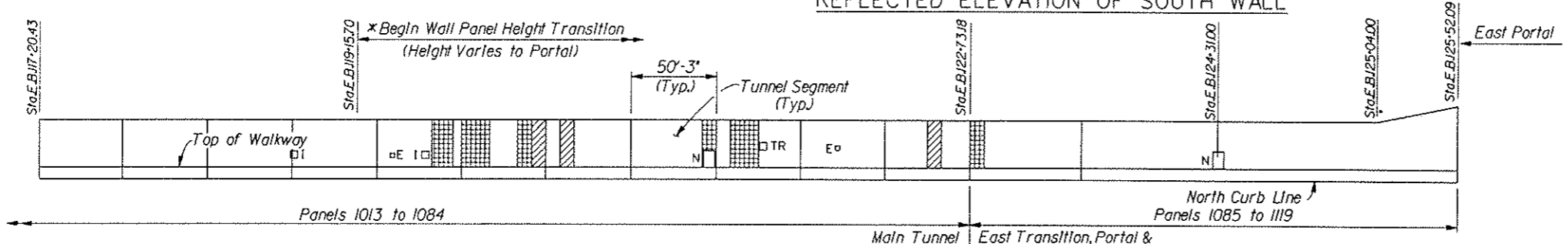
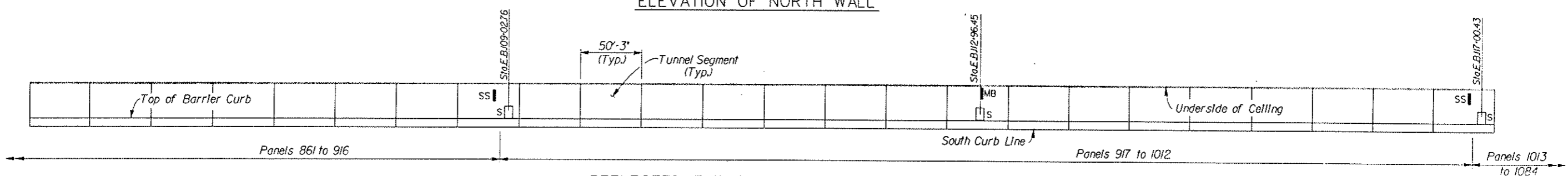
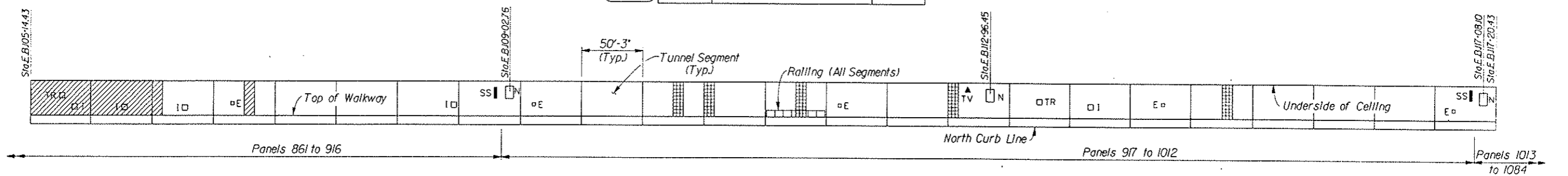
EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT
 SOUTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (STA.81+02.43 TO STA.105+14.43)

Designer *D. Burroughs* Structure Numbers
 Detailer *D. Kurschinski* Numbers
 Drawing Number S-9 of 22 Drawings

13-DEC-1993 09:30
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 PARSONS DE LEUW, INC. - DENVER, CO.

Revision	Date

REVISIONS		AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
○		NO REVISIONS	REVISED	VIII	Colorado	I 070-3(200)	12	24
○			VOID					



DESIGNED BY	DATE	CHECKED BY	DATE
D.K.B.	4/93	J.B.	10/93
CHECKED BY	QUANTITIES BY	CHECKED BY	QUANTITIES BY
J.B.	10/93	J.B.	10/93
DETAILED BY	CHECKED BY	M.S.	11/93
D.L.K.	4/93		

Notes:
 1. For South Tunnel Panel Layout Notes and Legend, see Dwg. No. S-7.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

SOUTH TUNNEL
 SCHEMATIC PANEL LAYOUT
 (STA.105+14.43 TO EAST PORTAL)

Designer D. Burroughs
 Detailer D. Kurschinski
 Drawing Number S-10 of 22 Drawings

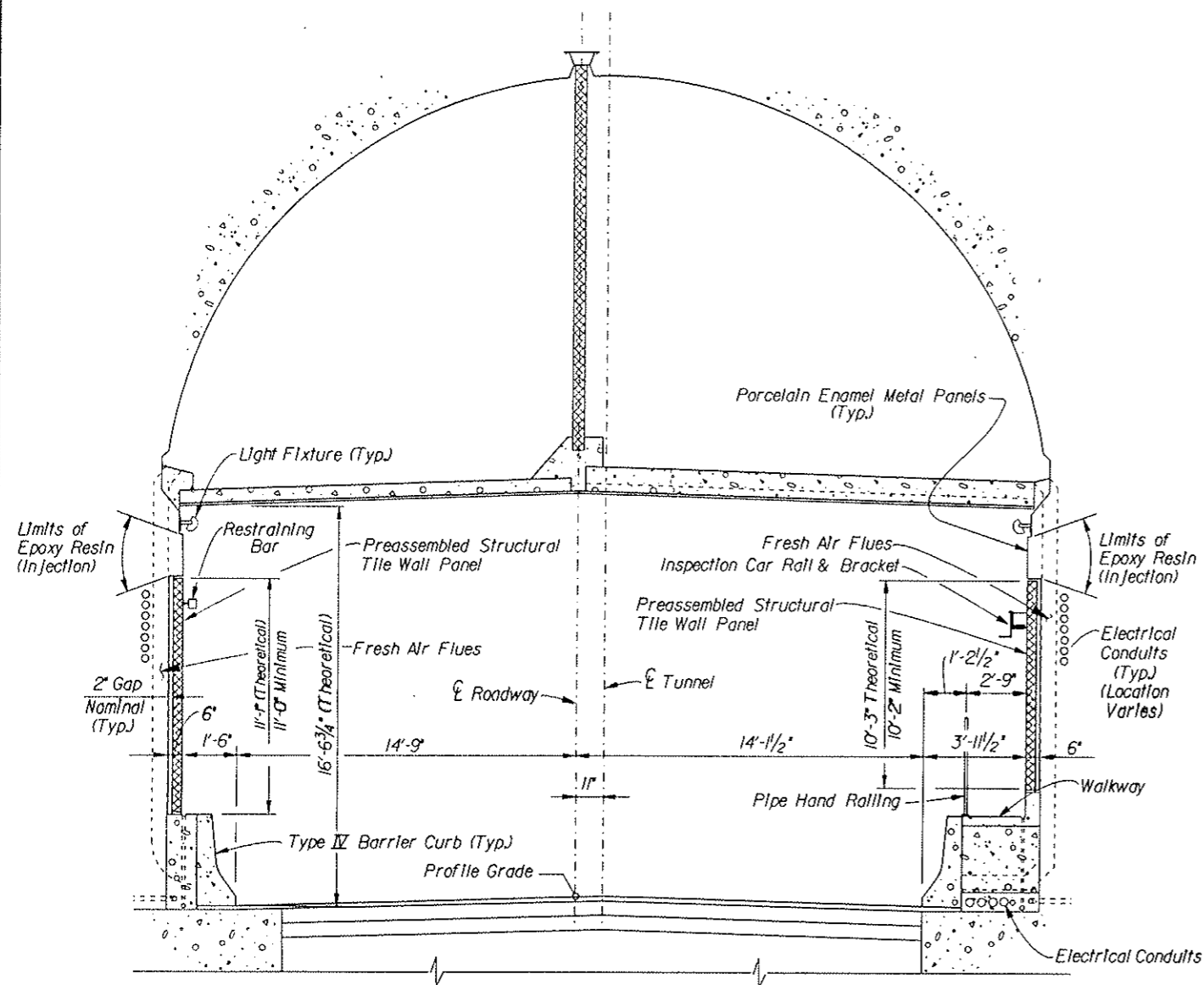
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 PARSONS DE LEUW, INC. - DENVER, CO.

REVISIONS	

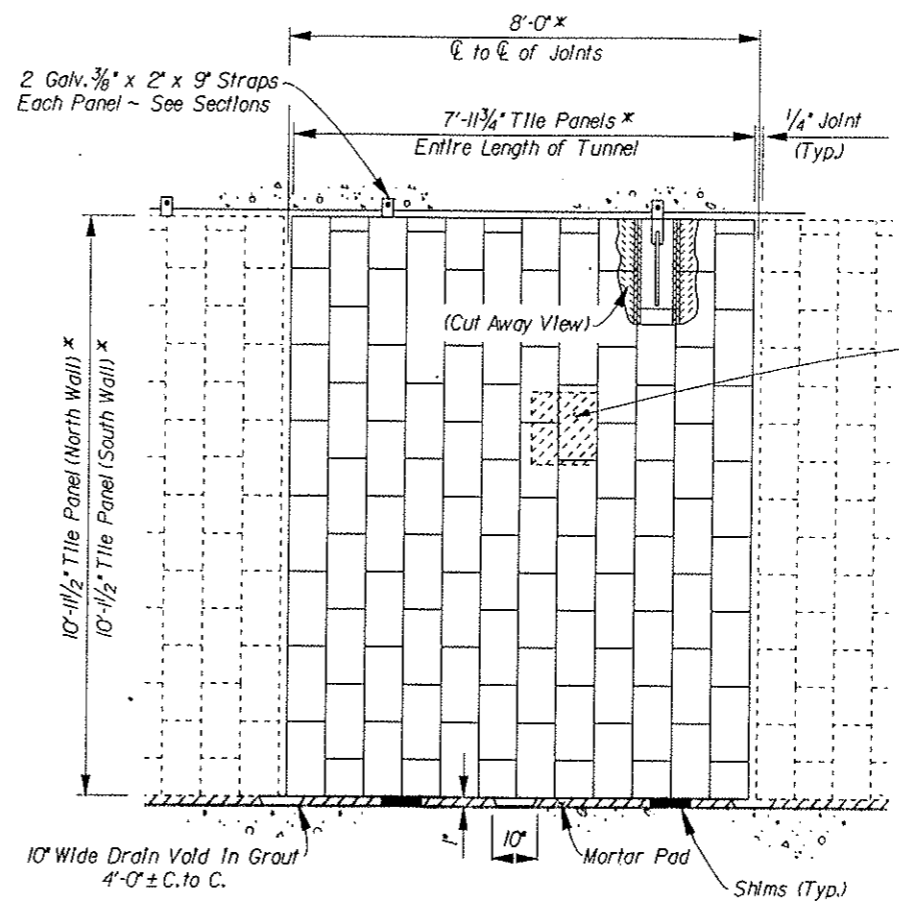
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	13	24

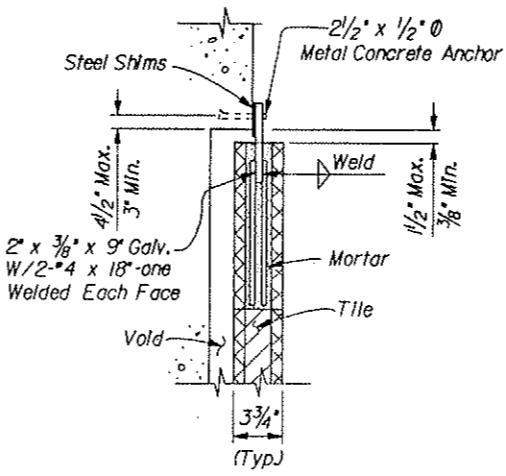
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D.K.B.	4/93	J.B.	10/93	D.L.K.	4/93
J.B.	10/93	M.S.	11/93		



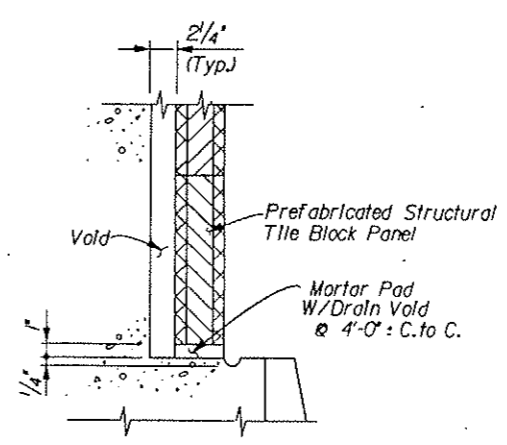
TYPICAL NORTH TUNNEL CROSS SECTION
(LOOKING EAST)



TYPICAL WALL PANEL
(NORTH TUNNEL)



SECTION SHOWING
WALL-TILE CONNECTION @ TOP



SECTION SHOWING
WALL-TILE CONNECTION @ BOTTOM

- Notes:
1. Panel placed normal to roadway profile grade.
 2. *Panel height and widths vary - see 'As Built Plans'.
 3. Panels at utility blockouts vary - see 'As Built Plans' and coordinate with site inspection.
 4. All existing anchor bolts shall be cut off flush with concrete and the hole shall be patched with epoxy grout.
 5. During Panel removal, the walkway and barrier rail shall be protected from damage. The method of protection shall be submitted to the Engineer for review and approval.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
PANEL REPLACEMENT
PROJECT

NORTH TUNNEL TYPICAL
SECTION & WALL PANEL
(EXISTING)

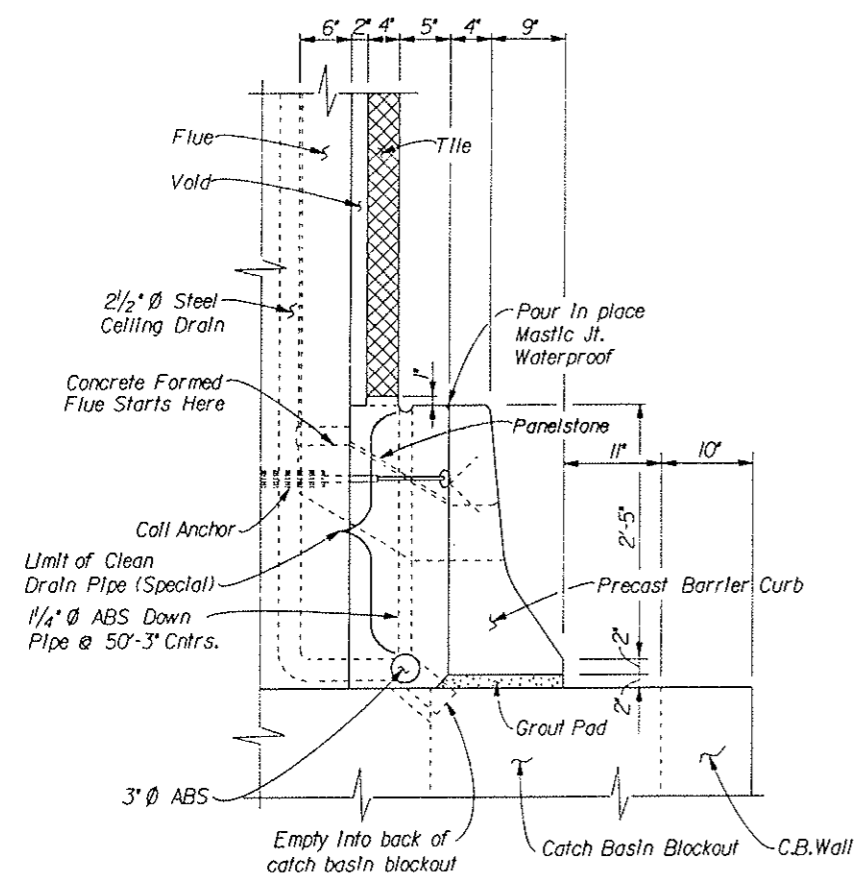
Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	
Drawing Number S-11 of 22 Drawings	

13-DEC-1993 09:58
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PARSONS DE LEUW, INC. - DENVER, CO.

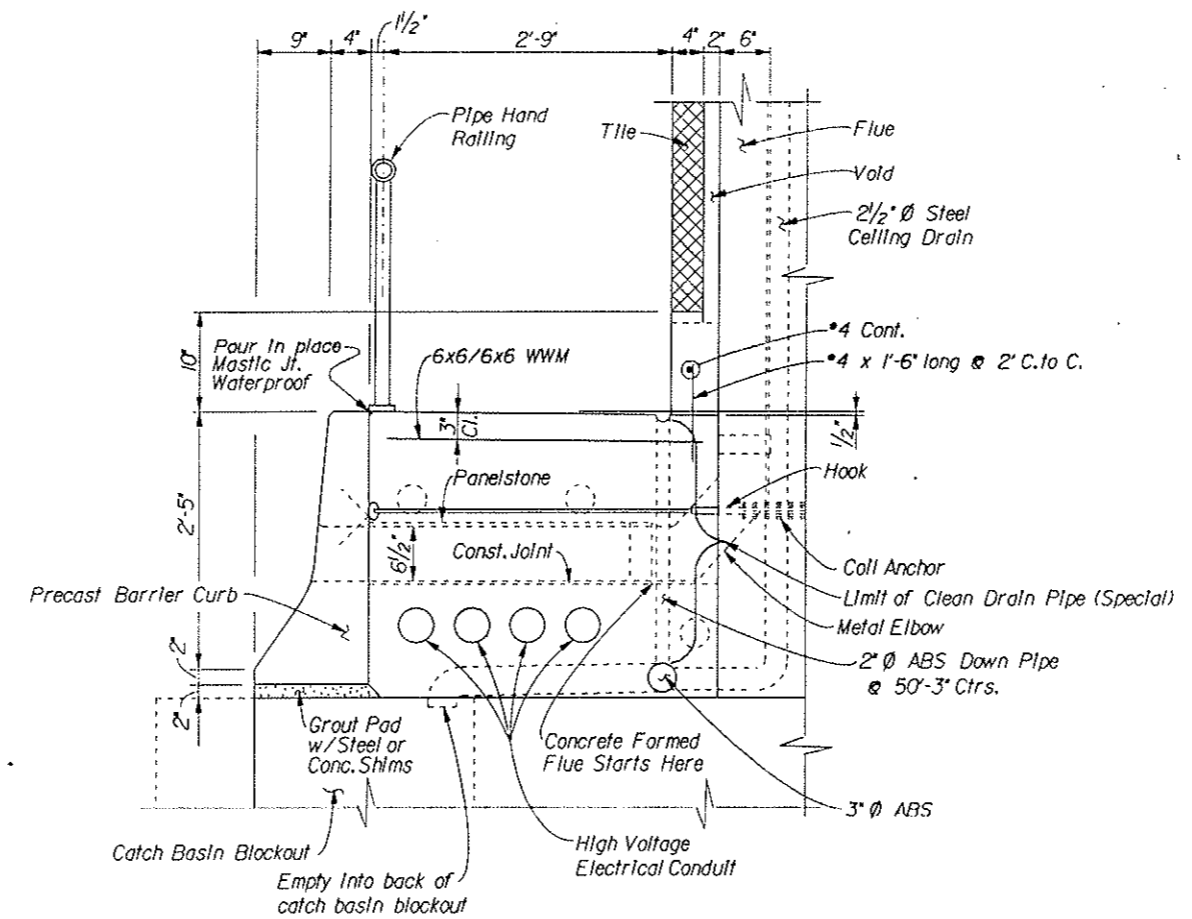
REVISIONS	

AS CONSTRUCTED
NO REVISIONS <input checked="" type="checkbox"/> REVISED <input type="checkbox"/> VOID <input type="checkbox"/>

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	1 070-3(200)	14	24

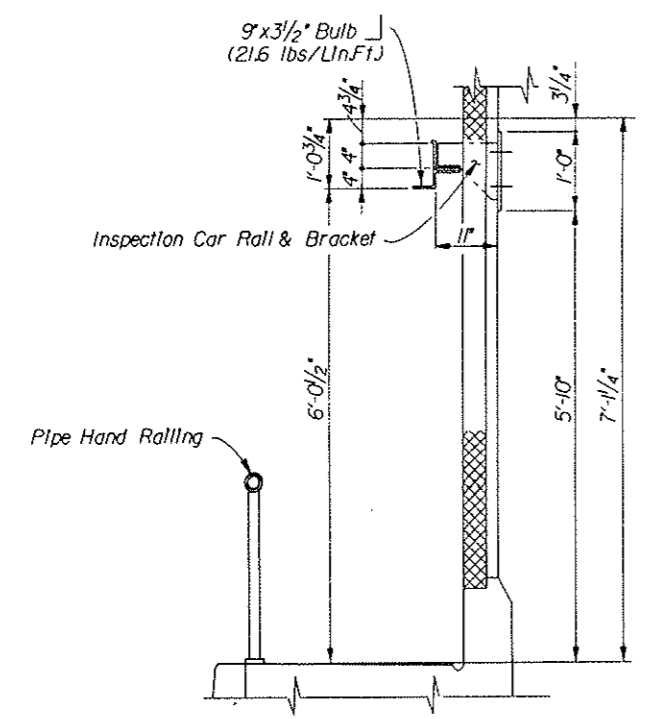


SECTION @ NORTH CURB (LOOKING EAST)

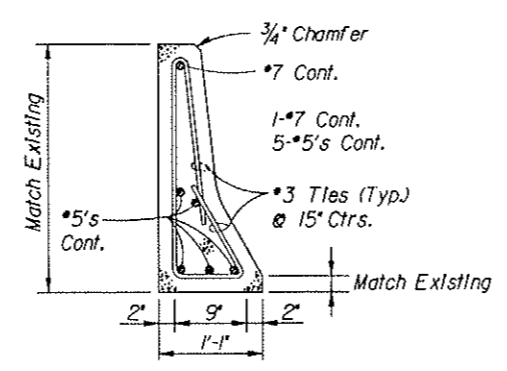


SECTION @ SOUTH CURB (LOOKING EAST)

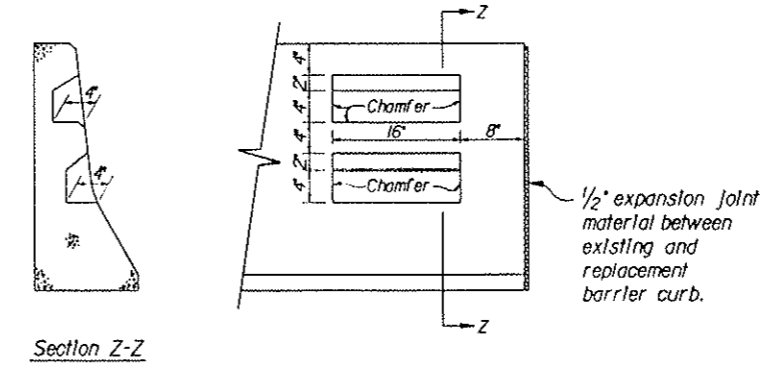
- Notes:
1. Precast Curb Panels are 25'-1" long. Place steps in Replacement Curb Panels to match location of existing steps.
 2. Drain cleaning shall not impede longitudinal flow in drain system. All chemicals used for cleaning shall be subject to approval by the Engineer.
 3. Curb section shown applies to existing and replacement barrier curb. Replacement sections shall be constructed complete with hardware to join the replacement sections to the structure behind them. Use pour-in-place mastic joint waterproofing at top of replacement barrier as shown in existing sections. Where replacement barrier curb abuts existing barrier curb, use 1/2" expansion joint material between faces, recessed 1/2", and sealed against intrusion of surface water by waterproof joint sealer as approved by the Engineer. Cost of expansion joint material and joint sealer shall be included in the cost of Guard Rail Type 4 Special and will not be paid for separately.
 4. For other notes, see Dwg. No. S-11.



DETAIL OF INSPECTION CAR RAIL



CURB SECTION SHOWING REBAR



TYPICAL STEP BLOCKOUT

PARSONS DE LEUW, INC. Denver, CO.

COLORADO DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT

NORTH TUNNEL TYPICAL SECTION (EXISTING) & PIPE CLEANING AND CURB REPLACEMENT DETAILS

Designer: D. Burroughs
 Detailer: D. Kurchnski

Drawing Number S-12 of 22 Drawings

DESIGNED BY	DATE	CHECKED BY	DATE
D.K.B.	4/93	M.H.H.	10/93
CHECKED BY	DATE	QUANTITIES BY	DATE
D.L.K.	4/93	M.S.	11/93

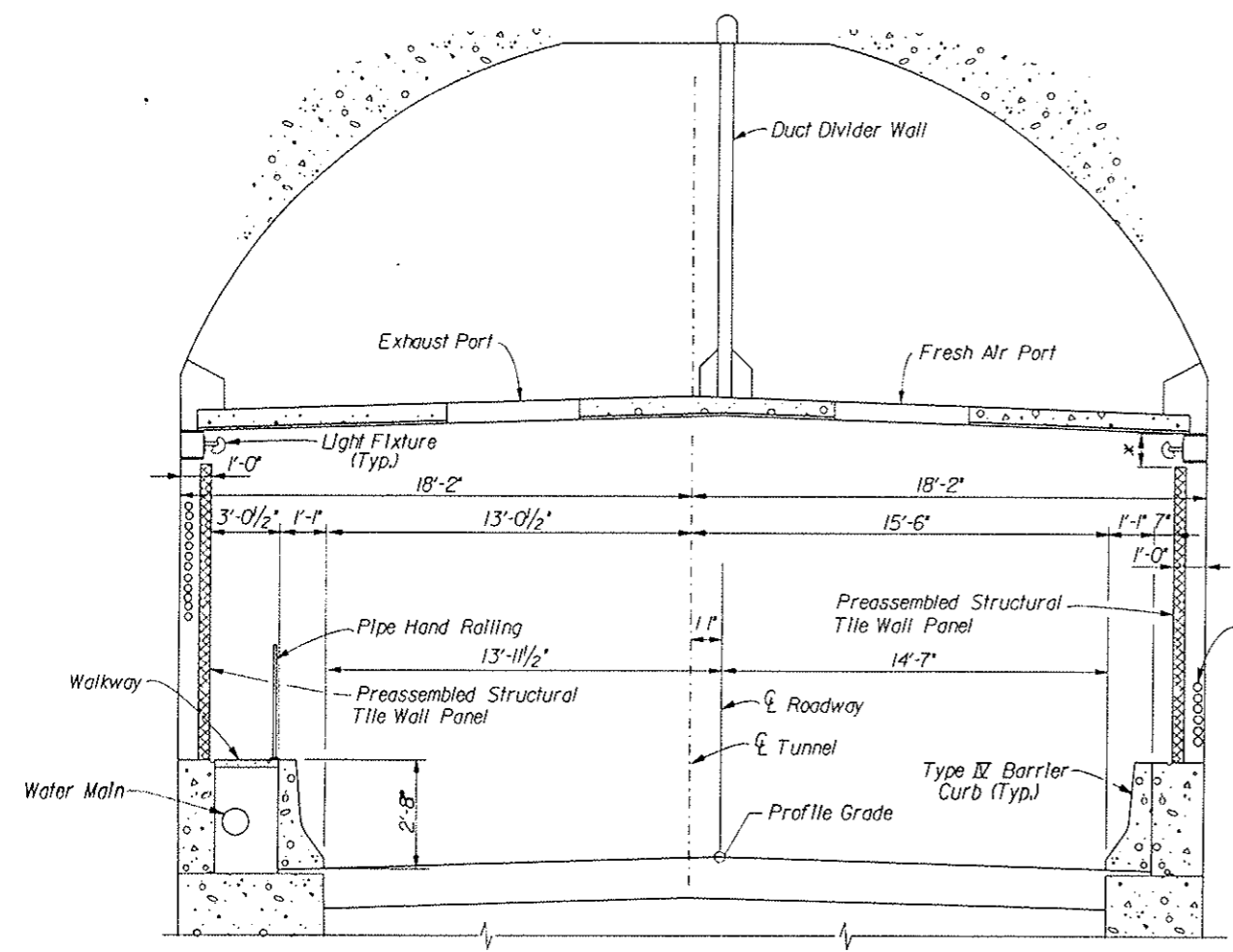
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 PARSONS DE LEUW, INC. - DENVER, CO.

REVISIONS	

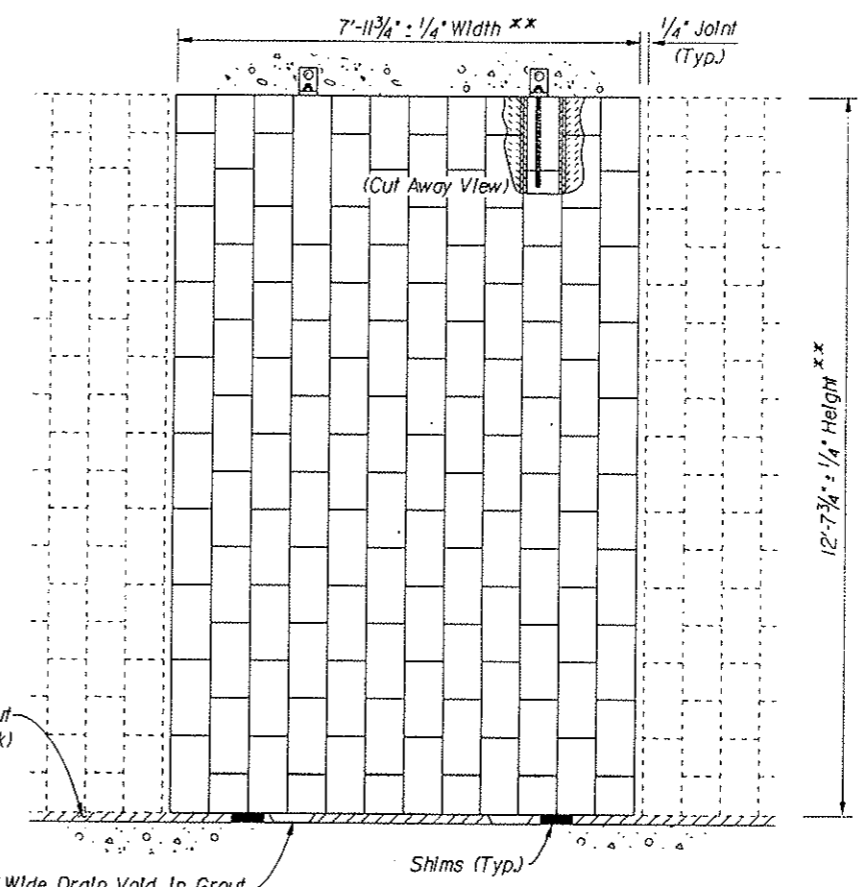
AS CONSTRUCTED		
NO REVISIONS	7/25/93	REVIS
		VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	1 070-3(200)	15	24

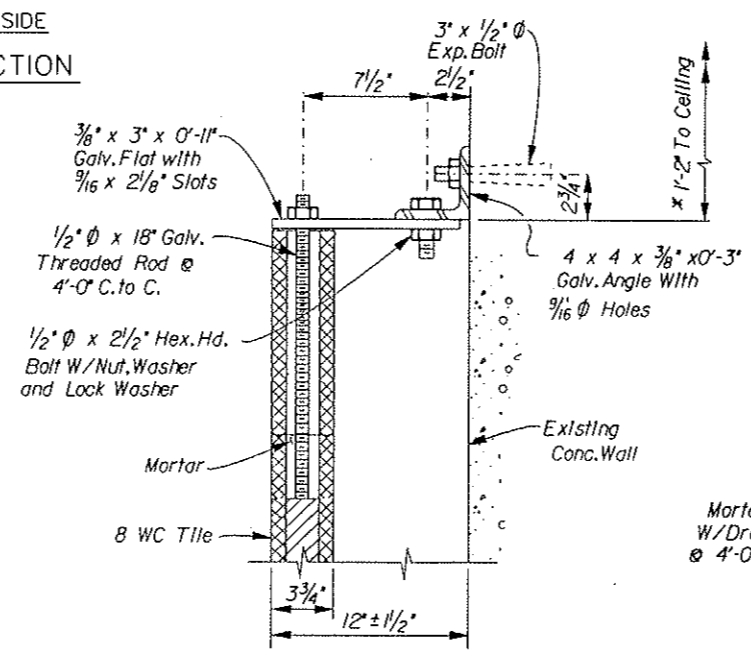
DESIGNED BY	CHECKED BY	DATE	DESIGNED BY	CHECKED BY	DATE
J.B.	H.H.H.	4/93	J.B.	H.H.H.	10/93
D.L.K.	M.S.	10/93	D.L.K.	M.S.	10/93



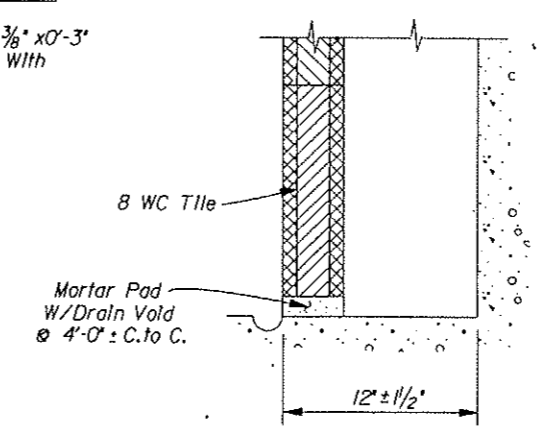
TYPICAL SOUTH TUNNEL CROSS SECTION
 (LOOKING EAST)



TYPICAL WALL PANEL
 (SOUTH TUNNEL)



SECTION SHOWING
 WALL-TILE CONNECTION @ TOP



SECTION SHOWING
 WALL-TILE CONNECTION @ BOTTOM

- Notes:
1. Panel placed normal to roadway profile grade.
 2. **Panel height and widths vary, see 'As Built Plans'.
 3. Panels at utility blockouts vary, see 'As Built Plans'.
 4. *1'-2\"
 5. All existing anchor bolts shall be cut off flush with concrete and the hole shall be patched with epoxy grout.
 6. During panel removal, the walkway and barrier rail shall be protected from damage. The method of protection shall be submitted to the Engineer for review and approval.

PARSONS DE LEUW, INC. Denver, CO

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

SOUTH TUNNEL TYPICAL
 SECTIONS & WALL PANEL
 (EXISTING)

Designer	D. Burroughs	Structure	
Detailer	D. Kurschinski	Numbers	
Drawing Number S-13 of 22 Drawings			

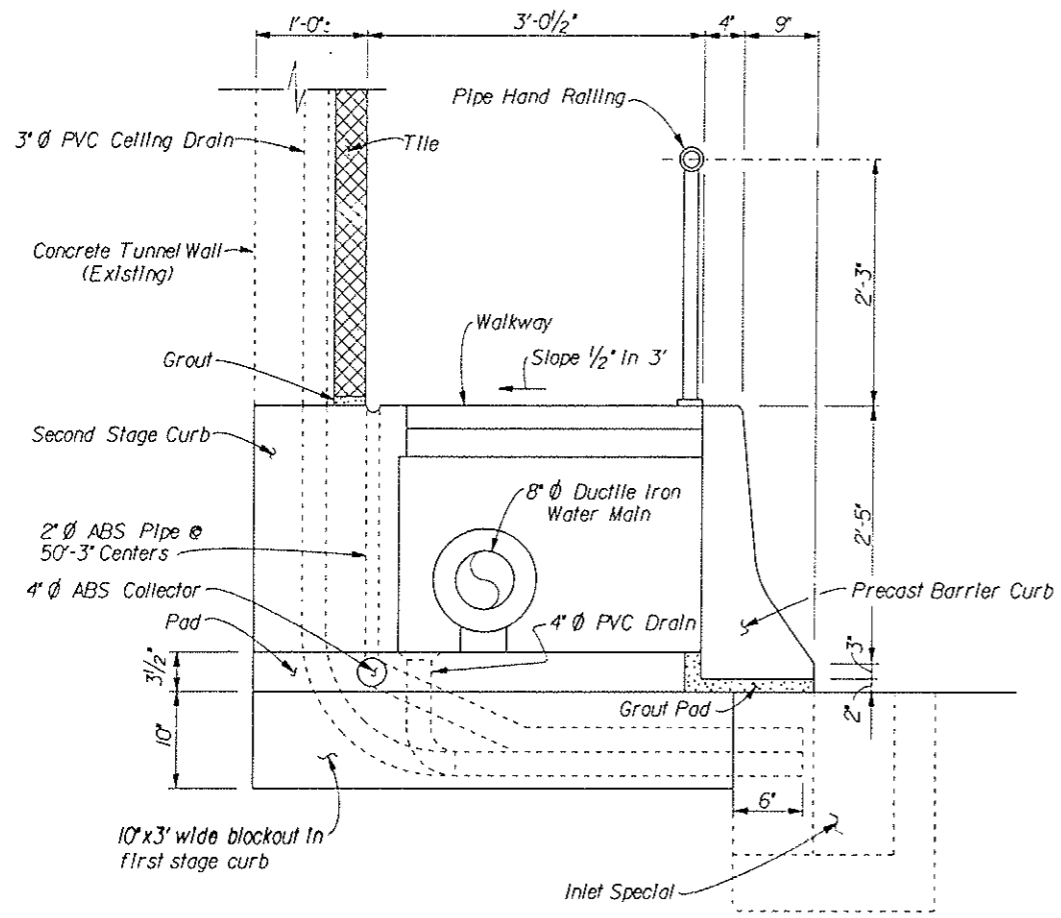
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 PARSONS DE LEUW, INC. - DENVER, CO.

Revision	Date

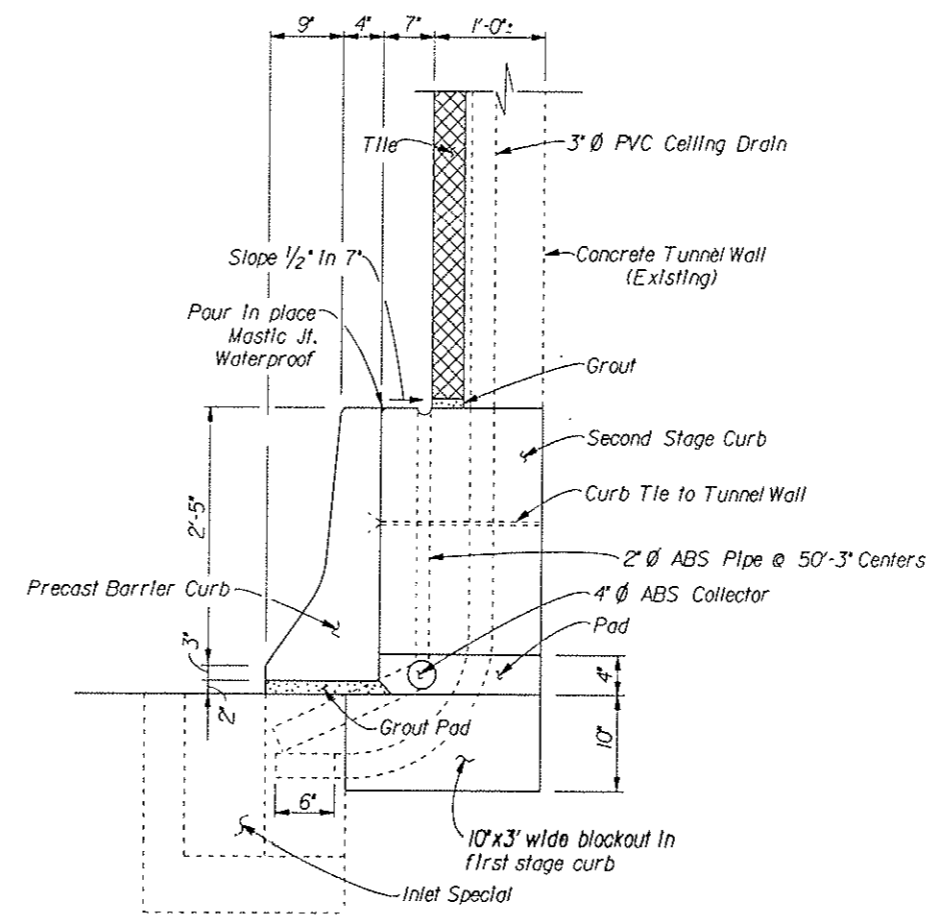
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	<input checked="" type="checkbox"/>	REVISED <input type="checkbox"/>
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	16	24



SECTION @ NORTH CURB
 (LOOKING EAST)



SECTION @ SOUTH CURB
 (LOOKING EAST)

Notes:
 1. For notes, see Dwg. No. S-13.

DESIGNED BY	CHECKED BY	DATE	INITIAL
D.K.B.	J.B.	4/93	D.K.B.
J.B.	J.B.	10/93	J.B.
D.L.K.	D.L.K.	4/93	D.L.K.

13-DEC-1993 10:59
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 PARSONS DE LEUW, INC. - DENVER, CO.

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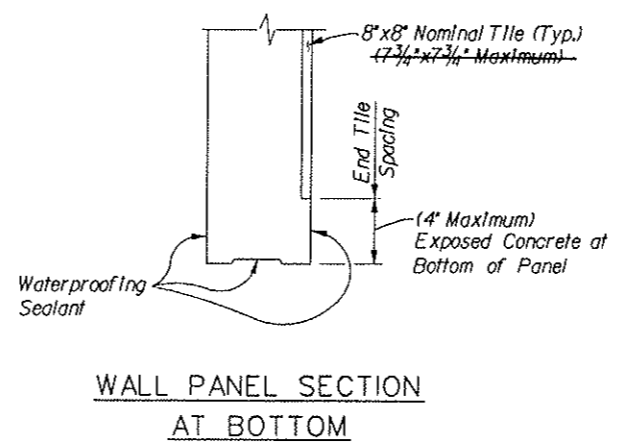
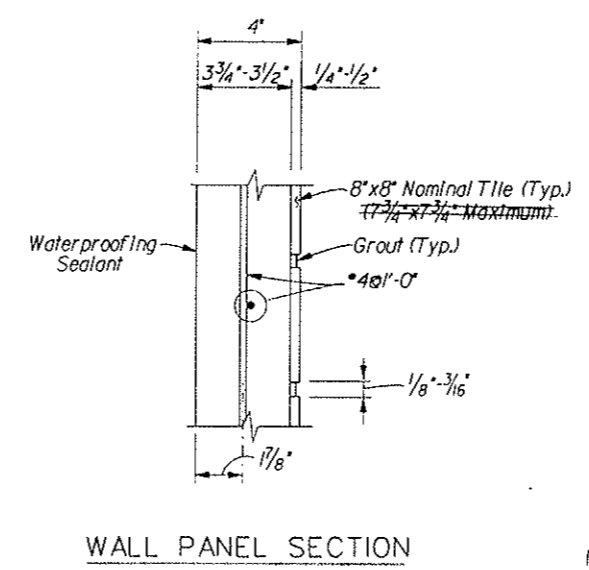
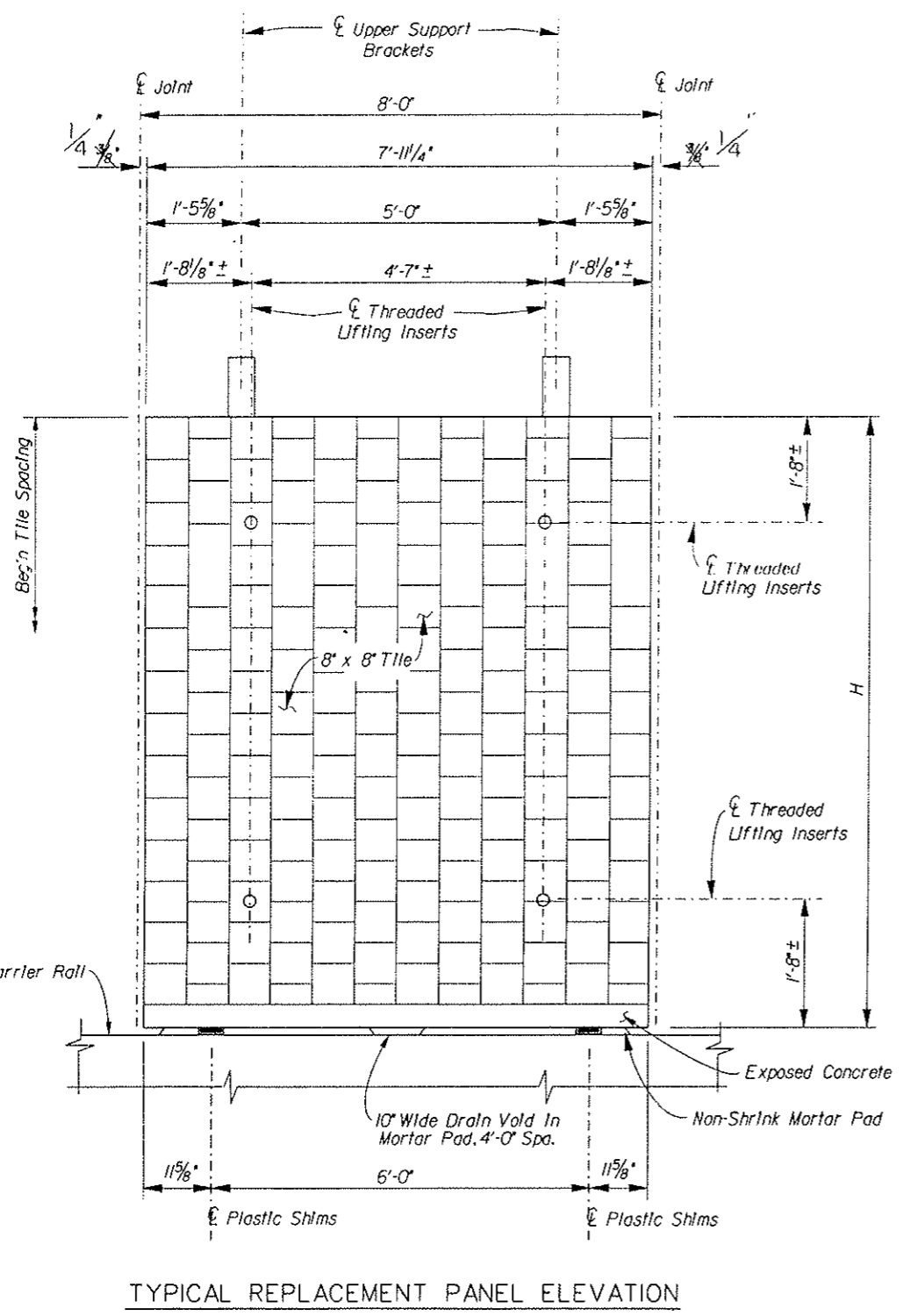
COLORADO DEPARTMENT OF TRANSPORTATION	
EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT	
SOUTH TUNNEL TYPICAL SECTION (EXISTING)	
Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	Numbers
Drawing Number S-14 of 22 Drawings	

REVISIONS	

AS CONSTRUCTED	
NO REVISIONS <input type="checkbox"/>	REVISED 7/25/93 VOID <input type="checkbox"/>

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	17	24

TABLE OF STANDARD REPLACEMENT PANEL HEIGHTS	
LOCATION	H
NORTH TUNNEL	
North	10'-10 1/2"
South	10'-0 1/2"
SOUTH TUNNEL	
North	12'-6 3/4"
South	12'-6 3/4"



NOTE: C.D.O.T TUNNEL MAINT HAS POSSESSION OF THE PLASTIC PLUG DIE

- Notes:
1. Typical replacement panel shown. Dimensions vary for non-standard replacement panels.
 2. * Panel heights vary, see Typical Sections and Details (Existing) and *As Built* Drawings for details.
 3. Cost of miscellaneous steel, shims, reinforcement and mortar pad shall be included in the cost of concrete panels.
 4. Fill lifting insert opening with screw-in type plastic plug set in an approved silicone sealant after installation of panel. Plug color shall match panel surface. Surface of plastic plug shall be flush with surface of panel face. Provide 100 additional plastic plugs prior to project completion. Cost of plastic plugs shall be included in the cost of concrete replacement panels.
 5. Cut tile as required to match both vertical and horizontal panel dimensions. Final tile layout and spacing shall be submitted to the Engineer for conceptual review and approval.
 6. Clean top of barrier roll and remove all projections greater than 1/4" prior to installation of the concrete panel. Remove existing mortar pads.
 7. Place panels so that the centerline of the joint between the panels is normal to the roadway grade.
 8. Set panels prior to drilling upper anchors and adjust for visual appearance.
 9. Waterproofing sealant (SILICONE or Approved Equal) shall be applied to the backface, top, bottom, and edges of exposed concrete surfaces of concrete replacement panels.
 10. Concrete replacement panels shall be inspected by the Engineer upon the completion of the installation. Panels with cracking, spalling, or other damage shall be replaced as directed by the Engineer.

DESIGNED BY	CHECKED BY	DATE	INITIAL	DATE	CHECKED BY	DATE	INITIAL
D.K.B.	H.H.H.	4/93	J.B.	10/93	J.B.	10/93	J.B.
J.B.	D.L.K.	10/93	D.L.K.	4/93	D.L.K.	11/93	M.S.
D.L.K.	M.S.	11/93	M.S.	11/93	M.S.	11/93	M.S.

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COLORADO DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT

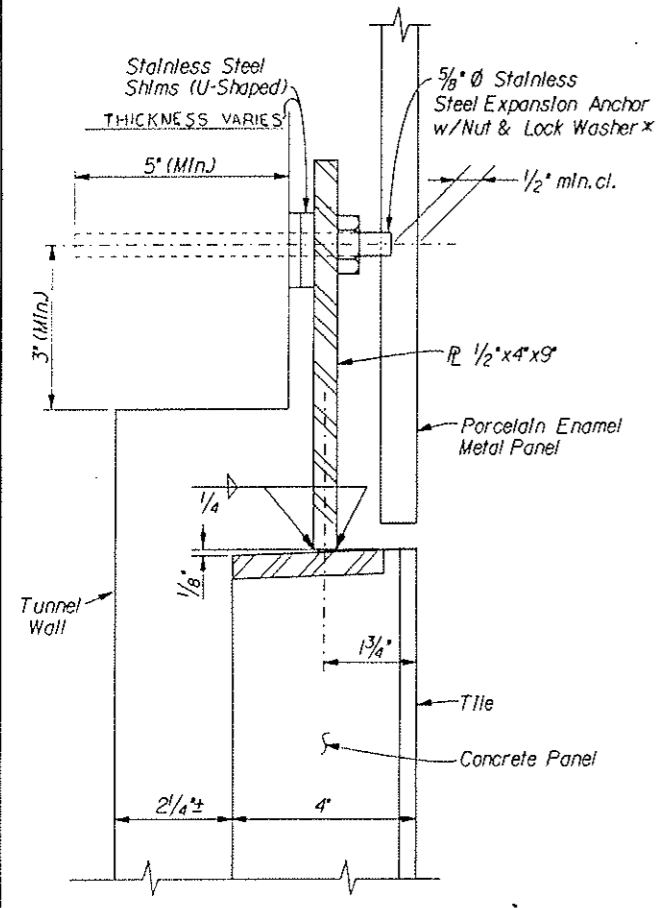
CONCRETE REPLACEMENT PANEL DETAILS (I)

Designer	D. Burroughs	Structure Numbers	
Detailer	D. Kurschinski		
Drawing Number	S-15 of 22 Drawings		

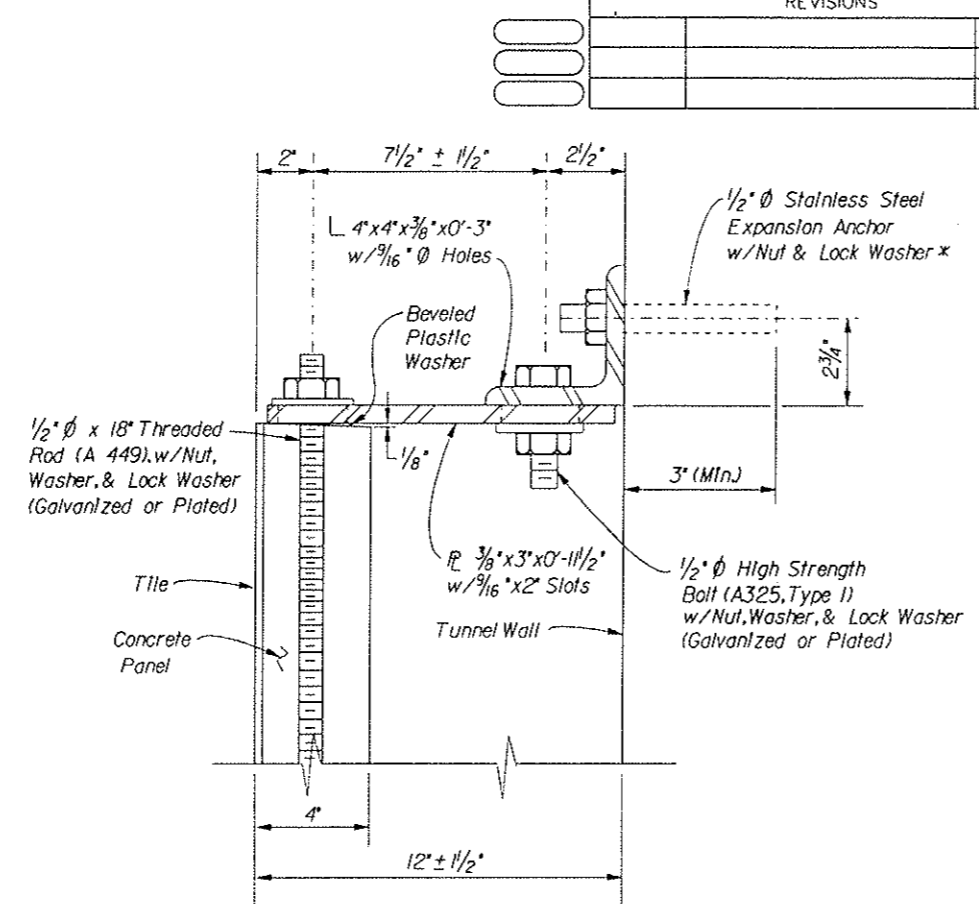
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

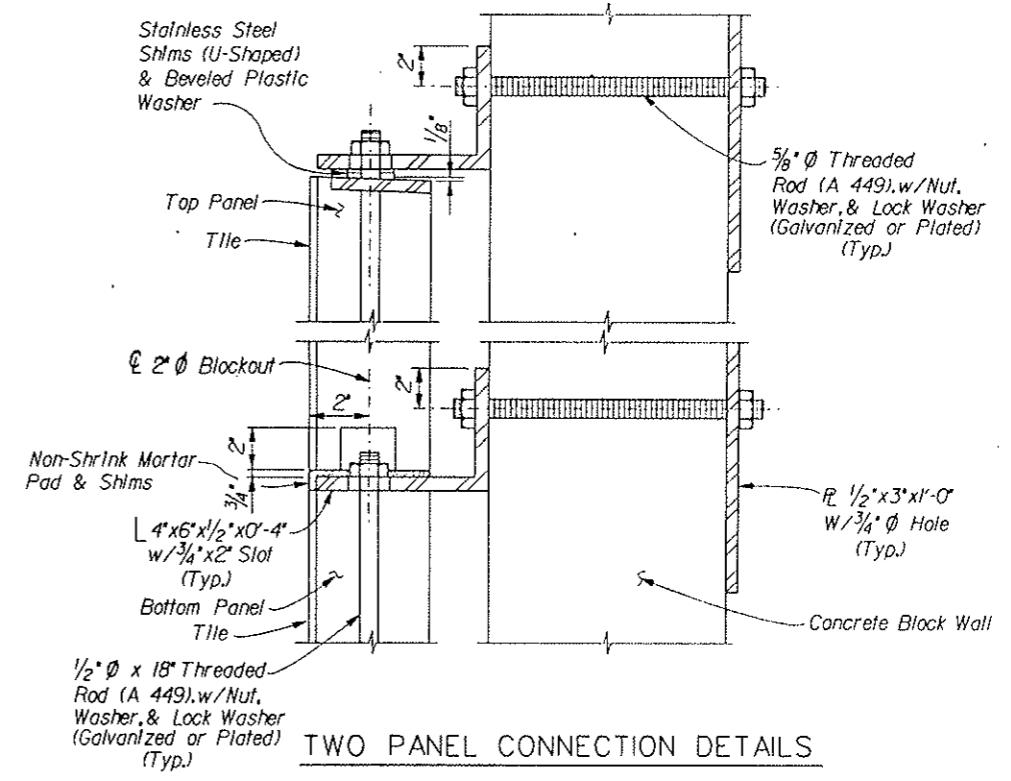
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	1 070-3(200)	18	24



DETAIL AT TOP CONNECTION
 (NORTH TUNNEL)

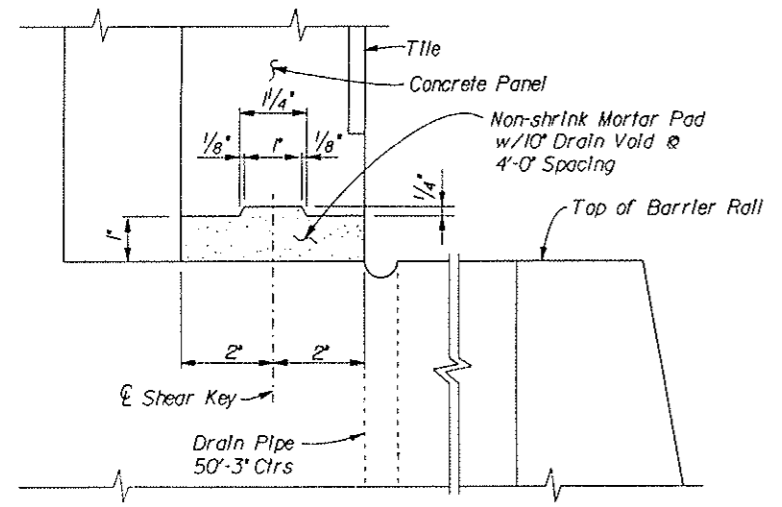


DETAIL AT TOP CONNECTION
 (SOUTH TUNNEL)

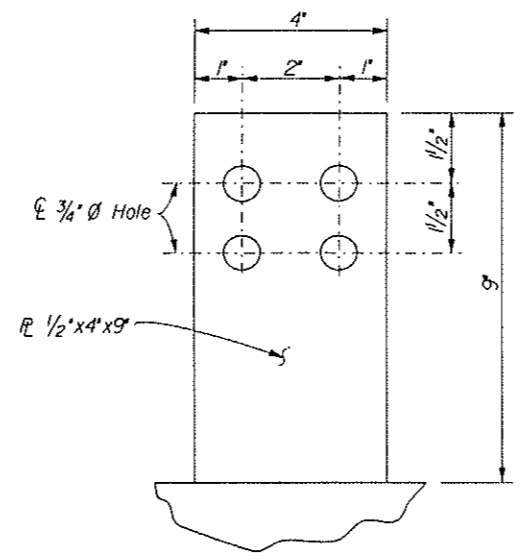


TWO PANEL CONNECTION DETAILS

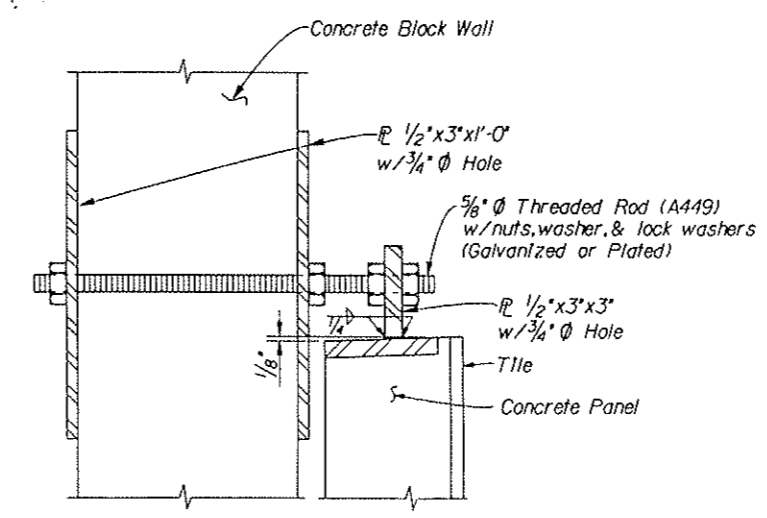
INITIAL	DATE	CHECKED BY
J.B.	10/93	
H.H.	10/93	
J.B.	10/93	
D.L.K.	4/93	



DETAIL AT PANEL BOTTOM
 (NORTH TUNNEL NORTH WALL,
 SOUTH TUNNEL-NORTH AND SOUTH WALLS
 NORTH TUNNEL-SOUTH WALL SIMILAR)



TOP PLATE DETAIL
 (NORTH TUNNEL)



DETAIL AT CONCRETE BLOCK WALLS

- Notes:
- For concrete replacement panel notes, see Dwg. No. S-15.
 - All steel exposed to the air shall be galvanized in accordance with AASHTO M 111. Cost of 1/2" plate and 5/8" threaded rod at block walls shall be included in the cost of tile-faced precast concrete panels and will not be paid for separately.
 - Concrete replacement panel steel inserts, embeds, and plates shall be designed by the contractor. Design and details shall be submitted to the Engineer for review and approval.
 - *For cases in which bond does not develop with the expansion anchor for the depth shown, a deeper anchor and/or an epoxy resin system shall be used subject to review and approval of the Engineer. See the tile-faced precast concrete panels specifications for details.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
DEPARTMENT OF TRANSPORTATION
 EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT
**CONCRETE REPLACEMENT
 PANEL DETAILS (II)**

Designer	D. Burroughs	Structure	
Detailer	D. Kurschinski	Numbers	
Drawing Number	S-16 of 22 Drawings		

REVISIONS		

AS CONSTRUCTED
 NO REVISIONS REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	1 070-3(200)	19	24

NORTH TUNNEL

TABLE OF NON-STANDARD REPLACEMENT PANELS (NORTH TUNNEL-NORTH WALL)	HEIGHT	WIDTH	UTILITY OPENINGS
PANEL NUMBER			
1-9	X	X	
10-26	X		
60-61			X
110-111,161			X
211,260-262,297-298			X
307,311-312,362			X
412-413,462-463			X
511		X	
513-514,533,549-550			X
562-564			X
663,714			X
721		X	
760,815			X
881		X	
882			X
916			X
918 ①		X	X
967			X
1017,1067-1068		X	X
1088		X	
1100-1101	X		
1102-1103	X		X
1104-1105	X		
1106	X		X
1107-1115	X		
1116-1118	X	X	
1119-1120	X	X	X
1121-1124	X	X	
# OF PANELS - 93			

① Panel 917 does not exist.
 Panel 918 is 19 tiles wide.

TABLE OF REPLACEMENT PANELS (NORTH TUNNEL-NORTH WALL)
PANEL NUMBER
1-1124
OF PANELS - 1124

TABLE OF NON-STANDARD REPLACEMENT PANELS (NORTH TUNNEL-SOUTH WALL)	HEIGHT	WIDTH	UTILITY OPENINGS
PANEL NUMBER			
1-11	X	X	
12	X	X	X
13	X	X	
14	X	X	X
15-28	X		
41-42,62,68,73			X
104,112-113,135			X
161-162,166,168,198,211-212			X
229,260-262,268			X
292,299,312,323			X
354-355,362-363,368-369			X
386,412-413			X
414		X	X
417,448-449,462-463,469			X
480,511-513,542-543,549			X
550		X	X
563-564,569,574			X
605-606,614,637,668			X
670,699-700,713,715,731			X
762-764,770,793,825-827			X
856,863-864,870,887			X
913-914,919,950,964			X
970,981,1012-1014,1031			X
1043-1044,1063-1064			X
1070,1075			X
1098-1102	X		
1103-1104	X		X
1105-1110	X		
1111	X	X	X
1112	X	X	
1113	X	X	X
1114-1123	X	X	
1124	X	X	X
# OF PANELS - 149			

TABLE OF REPLACEMENT PANELS (NORTH TUNNEL-SOUTH WALL)
PANEL NUMBER
1-1124
OF PANELS - 1124

SOUTH TUNNEL

TABLE OF NON-STANDARD REPLACEMENT PANELS (SOUTH TUNNEL-NORTH WALL)	HEIGHT	WIDTH	UTILITY OPENINGS
PANEL NUMBER			
227			X
868			X
871			X
874-875			X
1052, 1053	X		
1055, 1082	X		
# OF PANELS - 9			

TABLE OF REPLACEMENT PANELS (SOUTH TUNNEL-NORTH WALL)
PANEL NUMBER
54,227,277,475
863-878,887
1052,1053
1055
1082
OF PANELS - 24.25

TABLE OF REPLACEMENT PANELS (SOUTH TUNNEL-SOUTH WALL)
PANEL NUMBER
7-11
54
OF PANELS - 6

- Notes:**
- Non-Standard panels are not typical height or width or have utility openings as indicated.
 - The panel number shown includes both the upper and lower panel sections at the portals.
 - Contractor shall verify all locations and dimensions for replacement panels prior to panel fabrication and installation. Preliminary panel survey shall be coordinated with Tunnel Maintenance and the Engineer.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO DEPARTMENT OF TRANSPORTATION	
EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT	
TABLES OF REPLACEMENT PANELS	
Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	
Drawing Number S-17 of 22 Drawings	

DESIGNED BY	INITIAL	DATE	CHECKED BY	DATE
D.K.B.	J.B.	4/93	H.H.H.	10/93
CHECKED BY	J.B.	10/93	QUANTITIES BY	J.B.
DETAILED BY	D.L.K.	4/93	CHECKED BY	M.S.

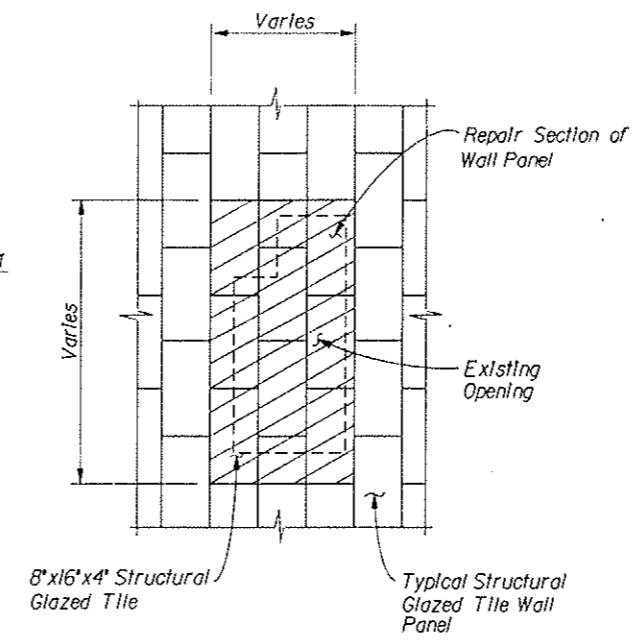
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 PARSONS DE LEUW, INC. - DENVER, CO.

Revision Dates

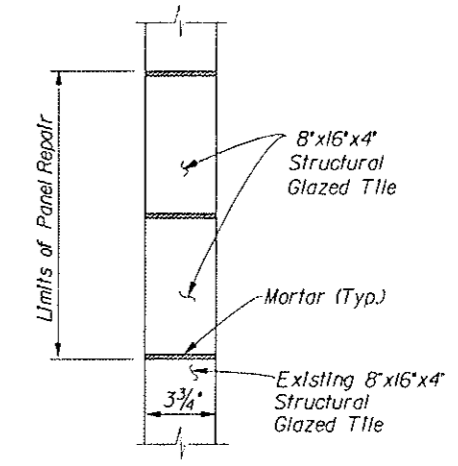
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NO REVISIONS <input type="checkbox"/>	REVISED <input checked="" type="checkbox"/>	VOID <input type="checkbox"/>		VIII	Colorado	1 070-3(200)	20	24

PANEL NUMBER	TUNNEL SEGMENT	HEIGHT*	WIDTH*	
3	-	2.00	2.00	**
50	3	2.00	2.00	**
55	3	2.00	1.33	
59	4	2.00	1.33	
61	4	2.00	2.00	**
96	10	2.00	2.00	**
154	19	2.00	3.33	
271	38	2.00	3.33	
286	40	1.33	3.33	
291	41	2.00	1.33	
350	51	2.00	2.00	**
390	57	2.00	3.00	
400	58	2.00	2.00	**
404	59	2.00	2.00	**
484	72	3.33	2.00	
511	76	2.00	2.00	
541	81	4.67	3.33	
591	89	4.00	1.33	
615	93	2.00	2.00	**
618	93	2.00	2.00	
628	95	1.33	2.67	
678	103	2.67	1.33	
748	114	2.00	4.00	
824	126	2.67	2.00	**
828	127	2.00	2.00	**
829	127	2.00	2.00	**
931	143	2.00	2.00	**
934	144	2.00	2.00	**
943	145	2.00	2.00	**
959	148	2.00	2.00	**
987	152	2.67	2.67	
1044	161	2.00	3.33	
1045	161	2.00	2.67	
1047	162	2.00	2.00	**
1048	162	4.00	2.67	**
1052	162	4.00	2.67	**
1065	164	2.67	1.33	
1067	165	2.00	4.67	
1068	165	2.00	2.67	
1085	167	2.00	3.33	

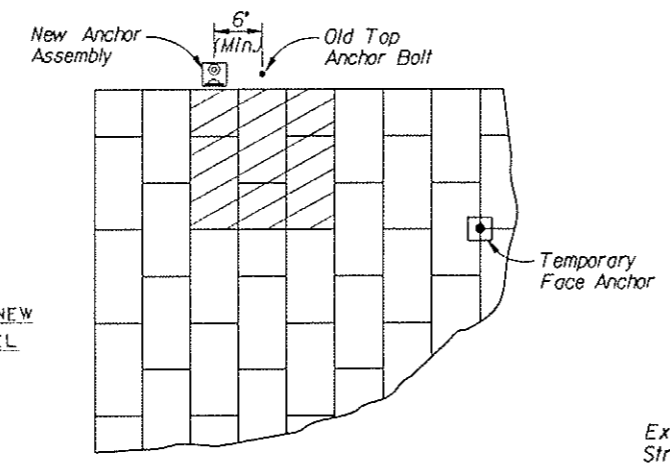
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46	2	2.67	2.00	
54	3	2.00	2.00	** REPLACED W/ NEW PRECAST
55	3	2.00	2.00	** PANEL
69	6	2.00	2.00	
86	8	2.67	2.00	**
96	10	2.67	2.00	
479	71	2.67	2.67	
480	71	2.67	2.00	**
509	76	2.67	2.67	**
588	88	2.67	2.00	
589	89	2.00	2.00	**
610	92	2.00	2.00	**
1069	165	2.00	2.00	**



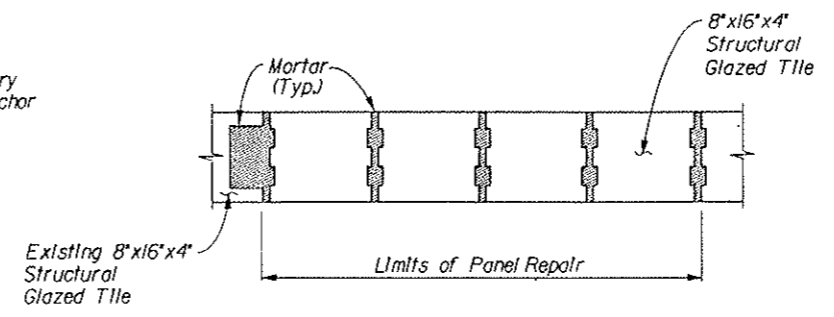
TYPICAL WALL REPAIR ELEVATION



TYPICAL WALL REPAIR SECTION



TYPICAL REPAIR IN TOP PANEL ANCHORAGE AREA



TYPICAL PLAN VIEW

- Notes:**
- * Dimensions estimated from field survey data. Contractor shall determine exact repair panel dimensions.
 - 8'x16'x4' Structural Glazed Tile to be provided by CDOT.
 - ** indicates repair in top panel anchorage area. Use configuration of top connection as shown on Dwg. S-13 with new 3" x 1/2" SS expansion anchor. Use high-bond epoxy mortar (subject to approval of engineer) to re-place structural glazed tile. Grind off existing top anchor bolt flush with concrete wall and cover with epoxy grout. Grind off existing temporary face anchor flush with tile face, taking care to prevent marking the tile face, and cover with epoxy grout.

PARSONS DE LEUW, INC. Denver, CO

COLORADO
DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
PANEL REPLACEMENT
PROJECT

TABLES OF REPAIR PANELS
AND REPAIR DETAILS

Designer <i>D. Burroughs</i>	Structure Numbers
Detailer <i>D. Kurschinski</i>	
Drawing Number S-18 of 22 Drawings	

DESIGNED BY	DATE	CHECKED BY	DATE
D.K.B.	4/93	H.M.H.	10/93
CHECKED BY	DATE	QUANTITIES BY	DATE
J.B.	12/93	J.B.	10/93
DETAILED BY	DATE	CHECKED BY	DATE
D.L.K.	4/93	M.S.	11/93

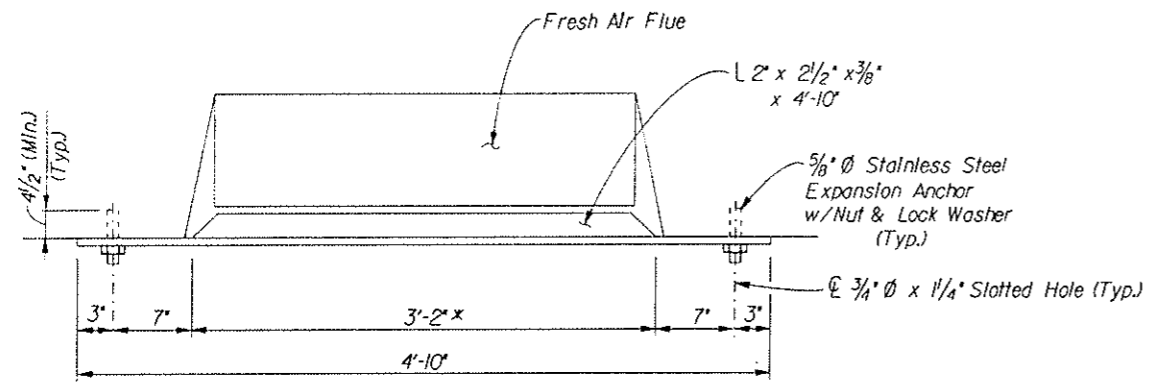
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Revision Dates								
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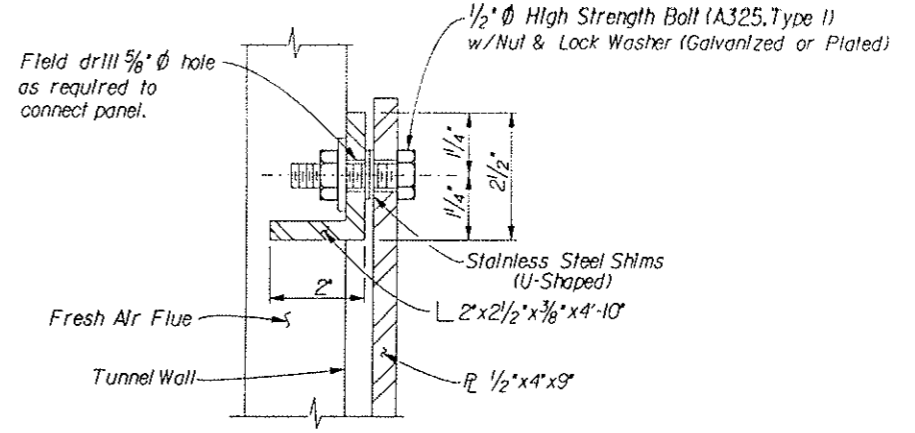
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

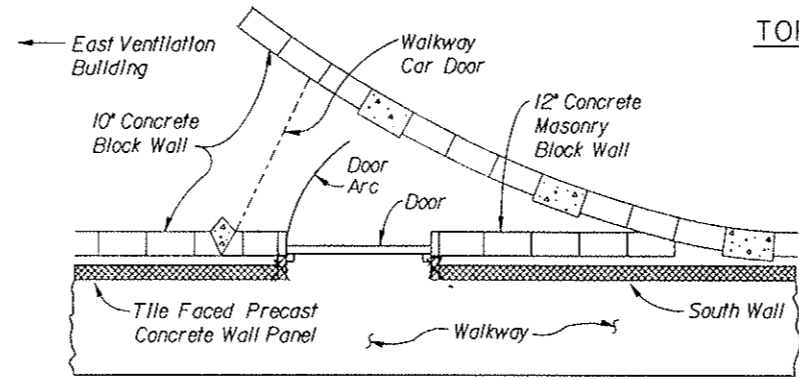
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VIII	Colorado	I 070-3(200)	21	24



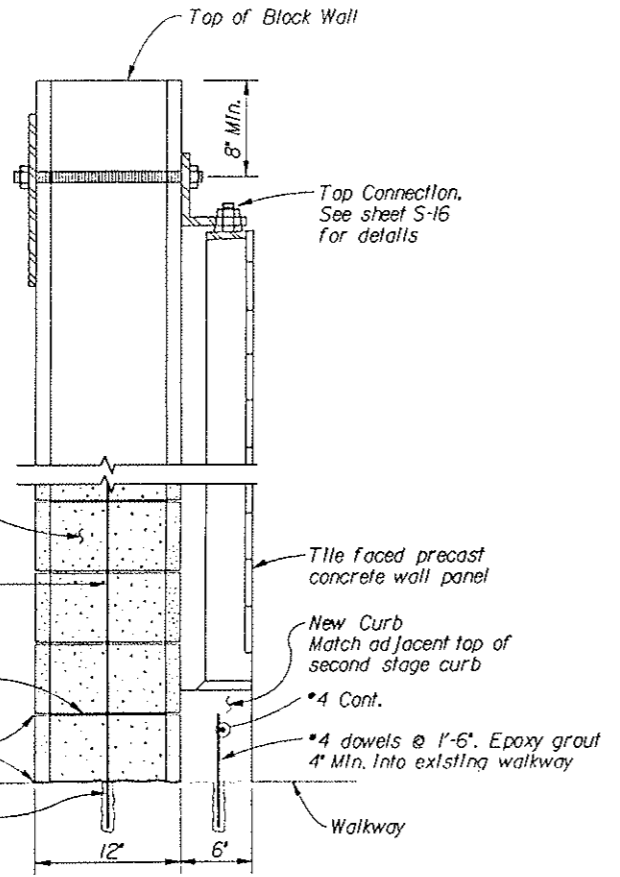
TOP CONNECTION DETAIL
 AT FLUES W/ OPENINGS
 (PLAN VIEW)



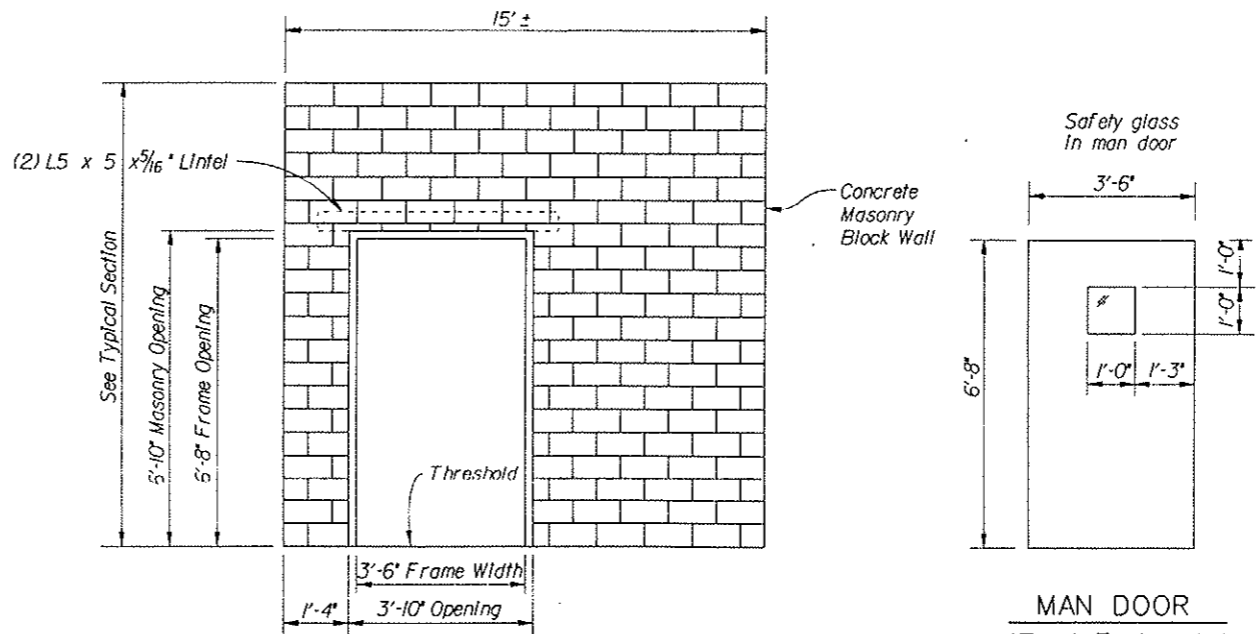
TOP CONNECTION DETAIL
 AT FLUE W/ OPENINGS



PLAN



TYPICAL SECTION AT NEW 12" BLOCK WALL



ELEVATION

South Wall Extension at Walkway Car Door (East)
 North Tunnel
 (West Extension Similar)

- Notes:
- All exposed steel shall be galvanized in accordance with AASHTO M III.
 - The Contractor shall field verify dimensions prior to fabrication of connection angle.
 - The contractor is responsible for determination of type and location of utilities prior to installation of bolts.
 - Cost of 12" Masonry Block wall extensions (East and West end of South wall of North Tunnel), man door (East end), and related new second stage curb will be included in the cost of Tile-faced Precast Concrete Panels and will not be paid for separately. Hardware for man door shown (3/4" hollow steel door) shall include lockset, closer, butt hinges, and kick plate. Concrete for new curb shall be Class B (Misc) concrete, f'c = 3000 psi.
 - The installation of a new second stage curb at the bricked-in doorway at the East end of the South wall (Panel 1124), North Tunnel, is incidental and shall be included in the work.

PARSONS DE LEUW, INC. Denver, CO

COLORADO
 DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
 PANEL REPLACEMENT
 PROJECT

MISCELLANEOUS
 DETAILS (I)

Designer	D. Burroughs	Structure Numbers	
Detailer	D. Kurschinski		
Drawing Number	S-19 of 22 Drawings		

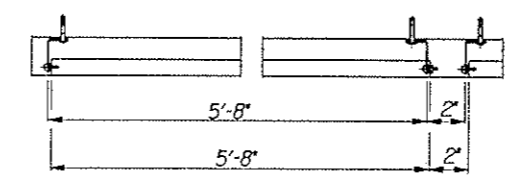
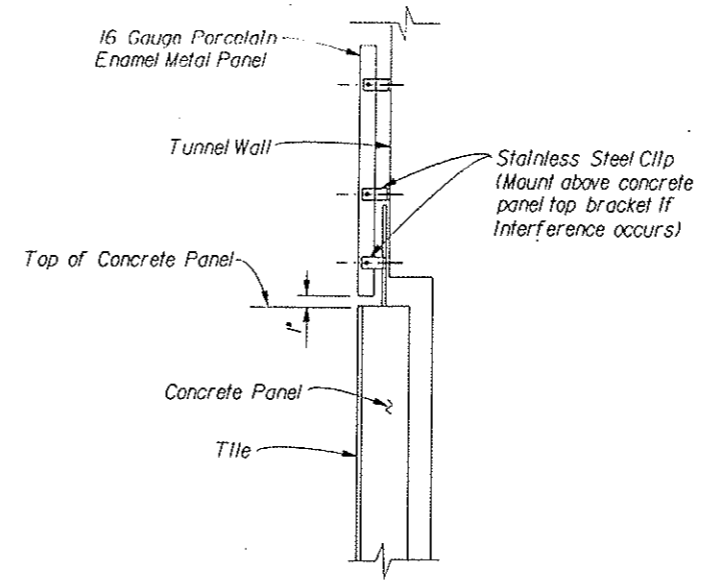
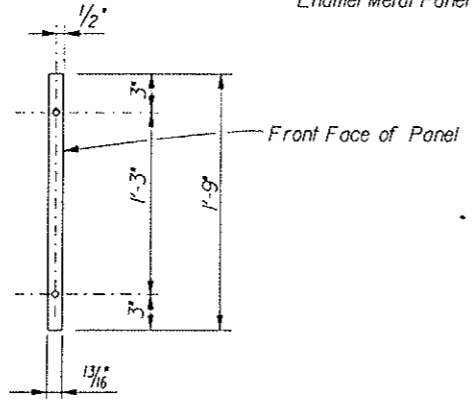
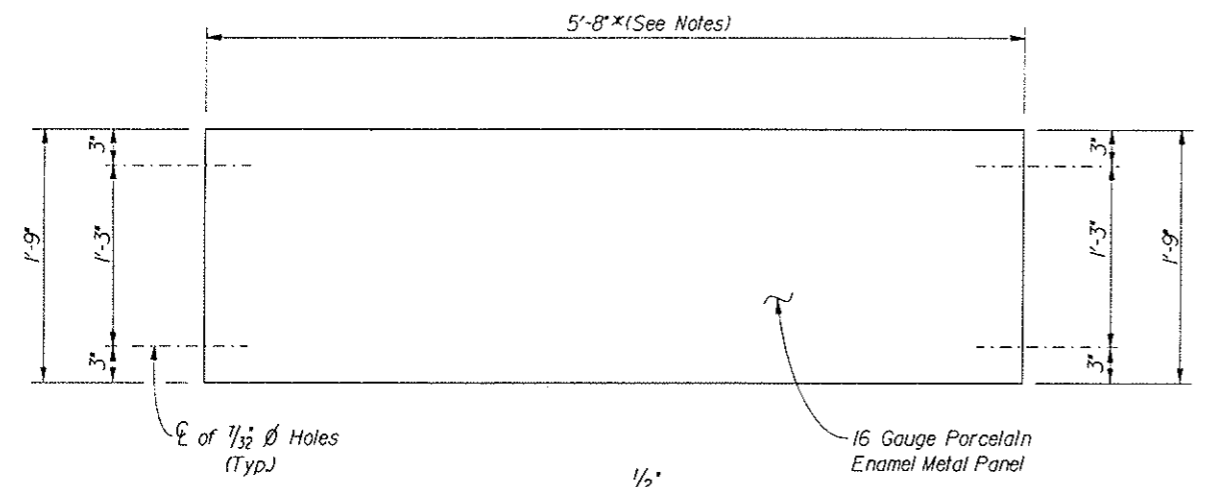
INITIAL	DATE	CHECKED BY	QUANTITIES BY
D.K.B.	4/93	J.B.	J.B.
J.B.	10/93	H.H.H.	J.B.
D.L.K.	4/93	M.S.	M.S.

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 PARSONS DE LEUW, INC. - DENVER, CO

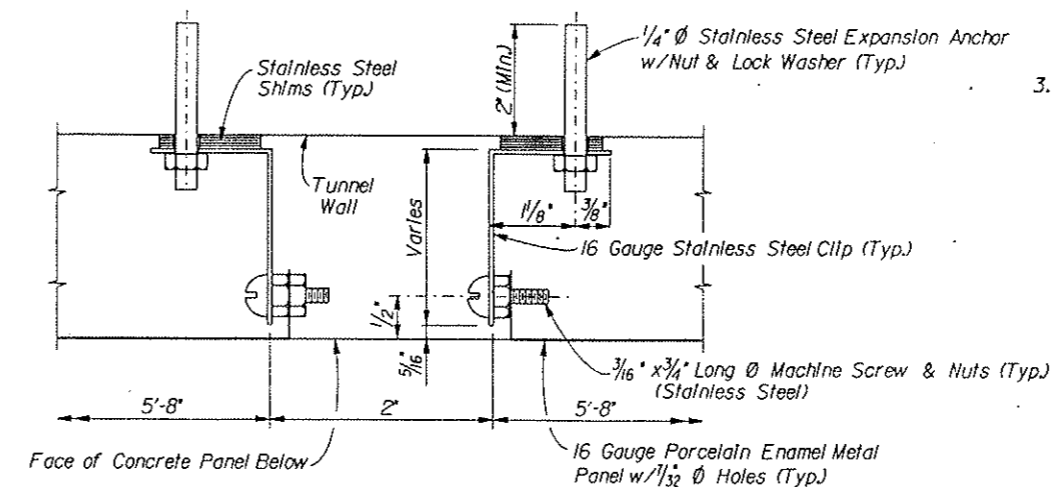
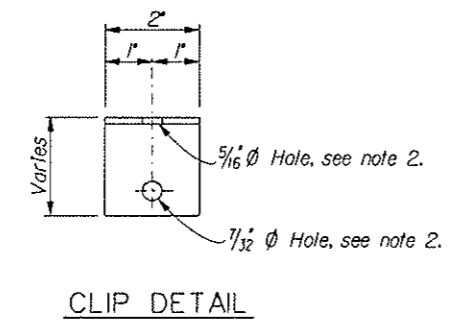
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	Colorado	I 070-3(200)	22	24



PORCELAIN ENAMEL METAL PANEL DETAILS



CONNECTION DETAILS

- Notes:**
- * Modify or replace porcelain enamel metal panels at utilities as required, subject to approval by the Engineer.
 - Porcelain enamel metal panels shall be removed and reset. All mounting hardware shall be new and provided by the contractor. Clips may be slotted for alignment, as approved by the Engineer. Panels damaged by the contractor shall be replaced at his cost, at no additional cost to the project.
 - Stainless steel expansion anchors shall be approved by the Engineer before installation.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT

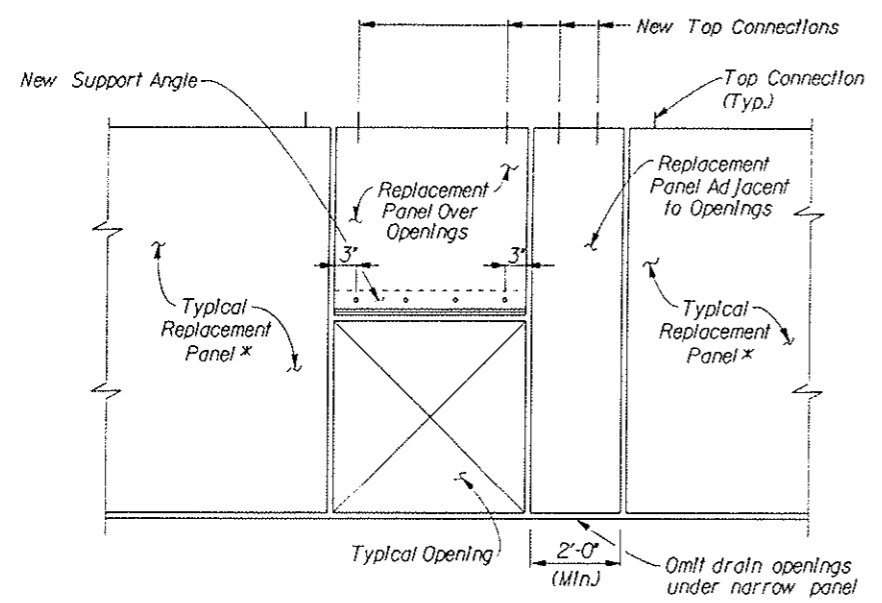
MISCELLANEOUS DETAILS (II)

Designer	D. Burroughs	Structure Numbers	
Detailer	D. Kurschinski		
Drawing Number	S-20 of 22 Drawings		

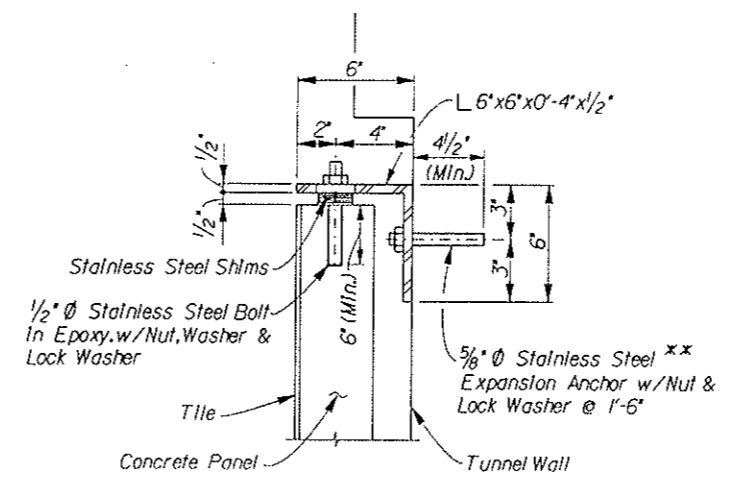
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J.B.	10/93	J.B.	10/93
D.L.K.	4/93	M.S.	11/93

04-JAN-1994 09:11
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 PARSONS DE LEUW, INC. - DENVER, CO.

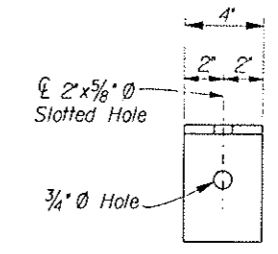
REVISIONS		AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
				VIII	Colorado	I 070-3(200)	23	24
		NO REVISIONS	REVISED	VOID				



ELEVATION AT UTILITY OPENINGS

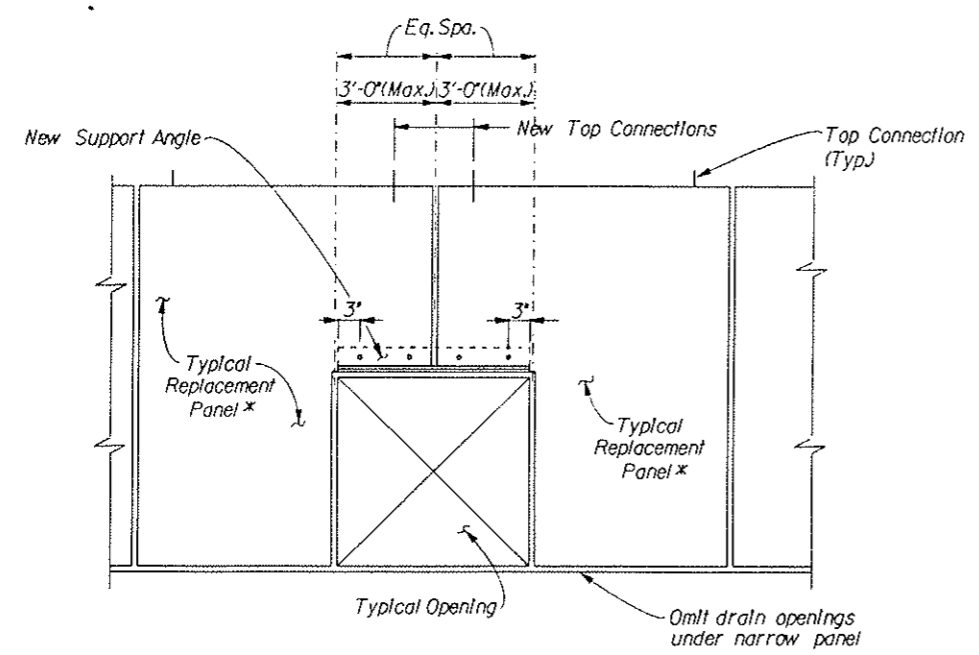


TOP CONNECTION DETAIL

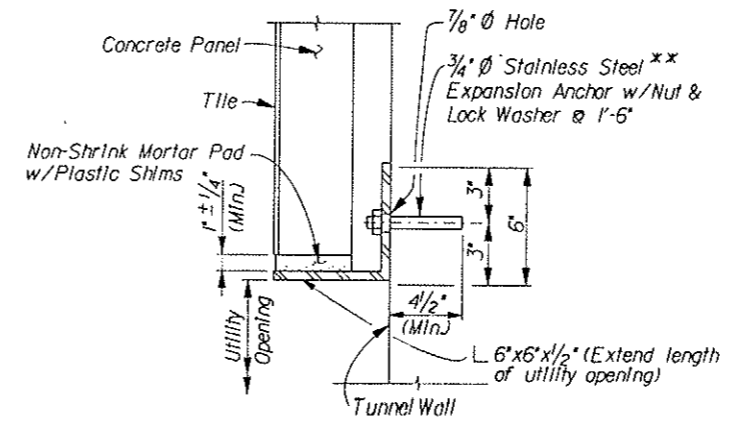


ANGLE DETAIL

- Notes:
1. Replacement panels may be saw cut in the field. All saw cuts shall be full depth.
 2. The contractor is responsible for all replacement panel layouts & dimensions at the utility openings.
 3. Openings less than 3'-0" x 3'-0" shall be saw cut out of the replacement panels as necessary.
 4. * Adjust widths of adjacent replacement panels as required.
 5. All exposed steel shall be galvanized in accordance with AASHTO M III.
 6. The contractor is responsible for determination of type and location of utilities prior to installation of bolts.
 7. The removal and resetting of all signs at the utility openings is incidental and shall be included in the work.
 8. The removal and resetting of utilities to remove and replace panels is incidental and shall be included in the work.
 9. ** For cases in which bond does not develop with the expansion anchor for the depth shown, a deeper anchor and/or an epoxy resin system shall be used subject to review and approval of the Engineer. See the tile-faced precast concrete panels specifications for details.



ELEVATION AT UTILITY OPENINGS



BOTTOM CONNECTION DETAIL

PARSONS DE LEUW, INC. Denver, CO.

COLORADO
DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL
PANEL REPLACEMENT
PROJECT

MISCELLANEOUS
DETAILS (III)

Designer *D. Burroughs* Structure Numbers
Detailer *D. Kurschlnski*

Drawing Number S-21 of 22 Drawings

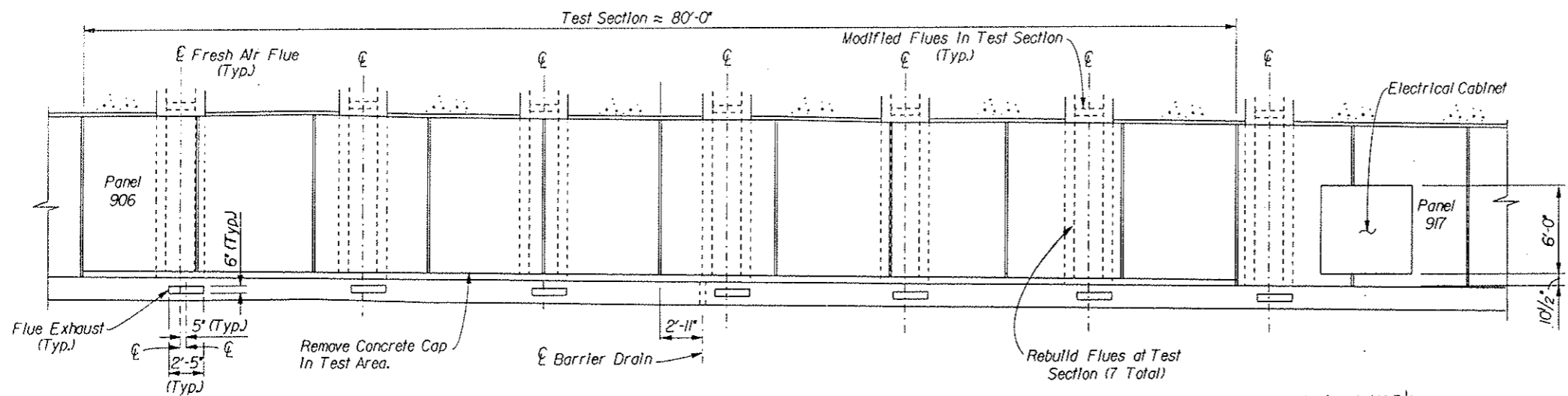
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CHECKED BY	DATE	QUANTITIES BY	DATE
D.L.K.	4/93	J.B.	10/93
DESIGNED BY	DATE	CHECKED BY	DATE
D.L.K.	4/93	M.S.	11/93

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PARSONS DE LEUW, INC. - DENVER, CO.

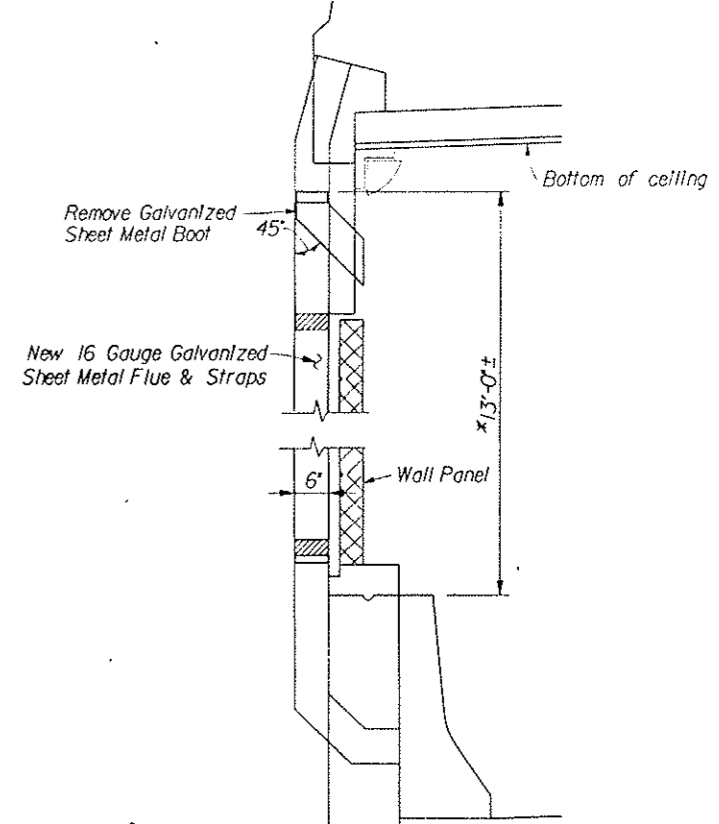
REVISIONS	

AS CONSTRUCTED		
NO REVISIONS	REVISED 7/27/73	VOID

FED. ROAD REGION: VIII	DIVISION: Colorado	PROJ. NO.: 1 070-3(200)	SHEET NO.: 24	SHEET TOTALS: 24
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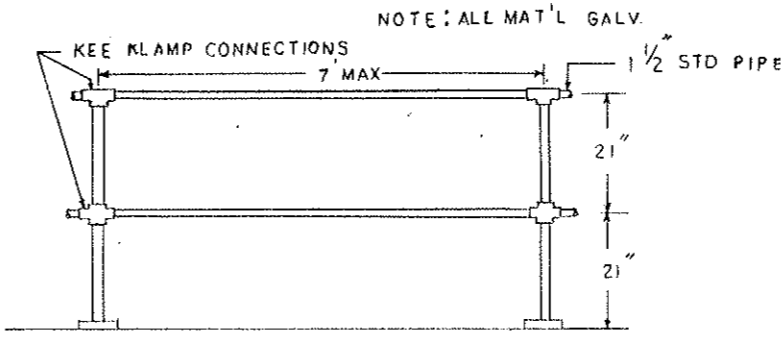


ELEVATION VIEW OF EXISTING TEST SECTION
North Wall - North Tunnel

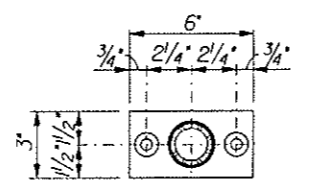


TEST AREA FLUE RECONSTRUCTION DETAIL

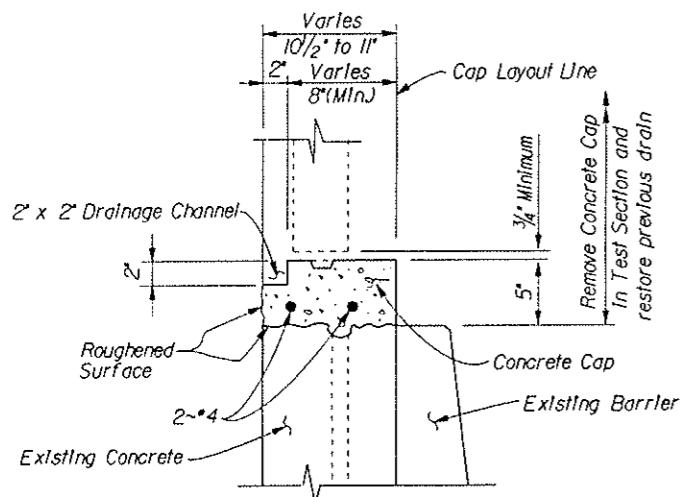
- Notes:
1. Reset pipe railing 2 1/4" up station from existing location. Install new 1/2" ϕ stainless steel expansion anchors and 1/4" ϕ set screws (cadmium plated) at each railing post connection. Anchors shall be approved by the Engineer before installation.
 2. Saw cut exposed existing expansion anchors and fill hole with epoxy grout.
 3. Cost of new expansion anchors, set screws, and epoxy grout shall be included in the work.
 4. *Field verify dimensions and connection details.
 5. The pipe railing or an approved alternate shall be in place and operational at the end of every working shift. Cost for an approved alternate shall be included in the work.
 6. Pipe railing details shown are for the north tunnel. For the south tunnel, remove and reset railing in panel replacement areas using existing hardware and connections.



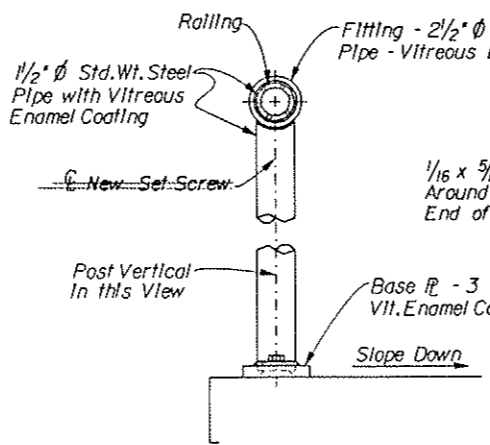
NEW HANDRAIL DETAIL



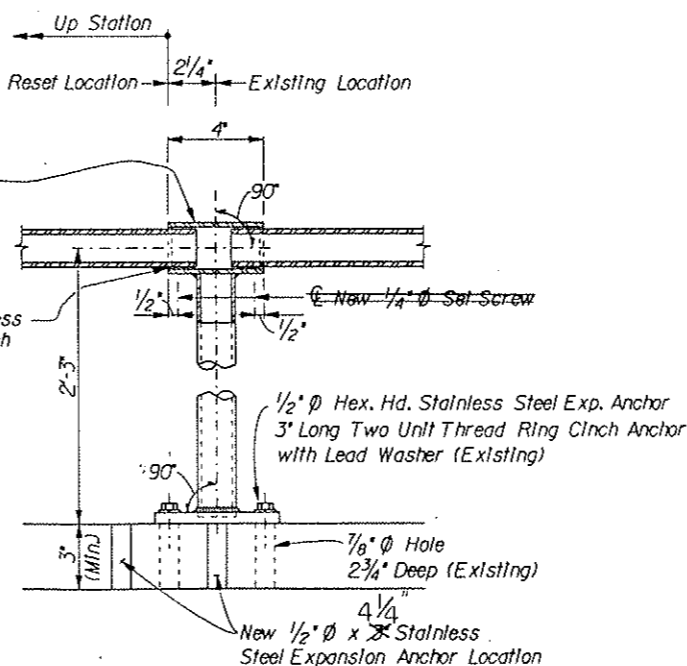
BASE PLATE DETAIL
EXISTING AND NEW



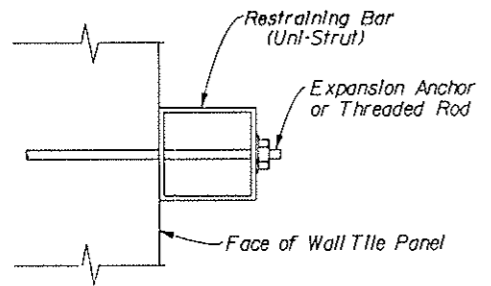
TEST AREA CAP DETAIL



VITREOUS ENAMEL COATED PIPE RAILING DETAIL



VITREOUS ENAMEL COATED PIPE RAILING DETAIL



RESTRAINING BAR DETAIL

North Wall and South Wall - North Tunnel

DESIGNED BY	DATE	CHECKED BY	DATE
D.K.B.	4/93	H.R.H.	10/93
CHECKED BY	DATE	QUANTITIES BY	DATE
J.B.	10/93	J.B.	10/93
DETAILS BY	DATE	CHECKED BY	DATE
D.L.K.	4/93	M.S.	11/93

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PARSONS DE LEUW, INC. - DENVER, CO.

PARSONS DE LEUW, INC. Denver, CO.

COLORADO DEPARTMENT OF TRANSPORTATION

EISENHOWER TUNNEL PANEL REPLACEMENT PROJECT

MISCELLANEOUS DETAILS (IV)

Designer: D. Burroughs	Structure Number:
Detailer: D. Kurchnick	
Drawing Number S-22 of 22 Drawings	