

COLORADO STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	COMB. PROJ. NO.	SHEET NO.	TOTAL SHEETS
1	COLO.	F.A.G.M. 20-A(1) F.A.P. 20-B(1)	1	

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3	SUMMARY OF APPROXIMATE QUANTITIES
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34	DETAILS OF PERFORATED C.M.P. UNDERDRAINS
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STA. 18+80-BEGIN F.A.P. NO. 20-B (1)
END FAGM. NO. 20-A (1)

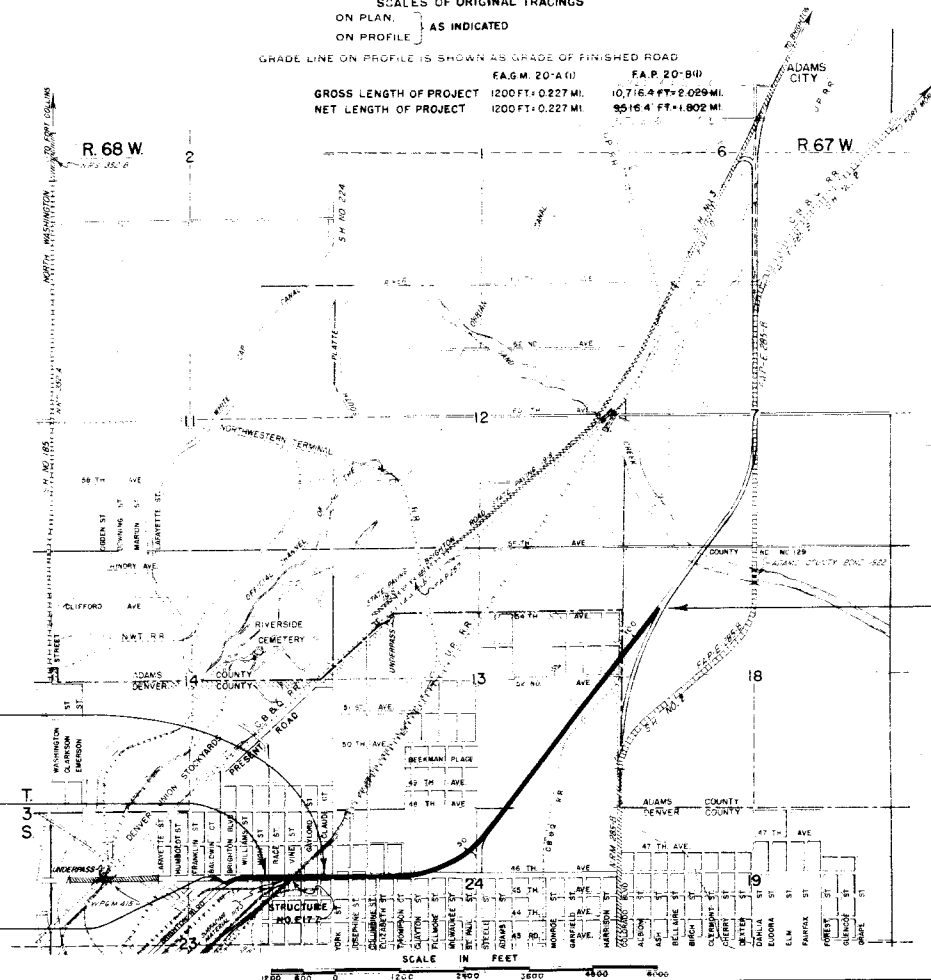
STA. 6+80-BEGIN FAGM. NO. 20-A (1)
END F.A.P. NO. 20-B (1)

STA. 0+99.06-BEGIN FED. AID PROJ. NO. 20-B (1)

PLAN AND PROFILE OF PROPOSED COMBINED FEDERAL AID GRADE CROSSING PROJECT NO. F.A.G.M. 20-A(1) & FEDERAL AID PROJECT NO. 20-B (1) STATE HIGHWAY NO. 3 DENVER & ADAMS COUNTIES

SCALES OF ORIGINAL TRACINGS
ON PLAN, AS INDICATED
ON PROFILE, AS INDICATED
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

GROSS LENGTH OF PROJECT	1200 FT. + 0.227 MI.	10,716.4 FT. + 0.209 MI.
NET LENGTH OF PROJECT	1200 FT. + 0.227 MI.	9516.4 FT. + 1.802 MI.



CONVENTIONAL SIGNS

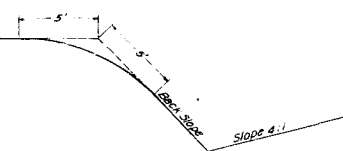
CENTER LINE OF SURVEY 20
RIGHT OF WAY LINES
TOWNSHIP OR RANGE LINES
SECTION LINES
ONE-QUARTER SECTION LINES
BARBED WIRE FENCE
POLE LINES
RAILROAD
PRESENT ROAD

NOTE
It is recommended that the proposed project be approved by the State Highway Department with one of the following conditions of approval:
Mr. E. F. Montgomery, Division Engineer, Denver, Colo.
Mr. C. M. Greene, Resident Engineer, Adams, Colo.

STA. 107+00-END FED. AID
PROJ. NO. 20-B (1)

APPROVED	<i>[Signature]</i> DATE 1/25/1924
RECOMMENDED FOR APPROVAL	<i>[Signature]</i> DATE
RECOMMENDED FOR APPROVAL	<i>[Signature]</i> DATE
RECOMMENDED FOR APPROVAL	<i>[Signature]</i> DATE
RECOMMENDED FOR APPROVAL	<i>[Signature]</i> DATE

CUT SLOPE TREATMENT IN EARTH CUTS



The intersection of cut slopes with the existing ground shall be rounded in earth cuts, beginning 5 feet outside the slope stake and extending 5 feet down the cut slope.

Where the cut slope distances less than 5 ft reduce each of the above widths of slope treatment to the actual slope distance.

Quantities involved in slope treatment shall be included in Unclassified Excavation.

GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department adopted June 1, 1937.

All quantities on preliminary plans are to be considered as approximate only.

All roadway excavation required to construct this project is to be obtained as indicated on the plans. Quantities involved beyond the limits of the ditch as shown on the Typical Section, either noted on the profile as 'ditch' or on the List of Structures as 'Embankment' are to be classified and paid for as 'Unclassified Excavation'. These quantities are to be staked as part of the original excavation at locations indicated on the plans. Slope stakes beyond the limits of the 'Typical Section' are subject to change by the Engineer to fit embankment requirements actually encountered on construction.

All poles encroaching on construction are to be removed by owners.

All corrugated metal pipe culverts are to be provided with one roadway on the inlet end unless otherwise noted on plans.

All side approach roads to the project shall be surfaced with a 4" thickness of Gravel or Crushed Rock Surfacing extending approximately 30' from edge of highway. Estimated quantities of Surfacing Material required in this operation is shown in List of Structures.

Overhaul will be paid for as measured along center line of project except as otherwise noted on plans.

All wire fences, including line posts, shall be placed approximately six (6) inches inside the boundary of the highway right of way as shown on the plans.

During construction of this project, traffic will use adjacent streets. The contractor shall, at his own expense, construct and maintain in safe condition all temporary approaches to and crossings of intersecting streets and roads.

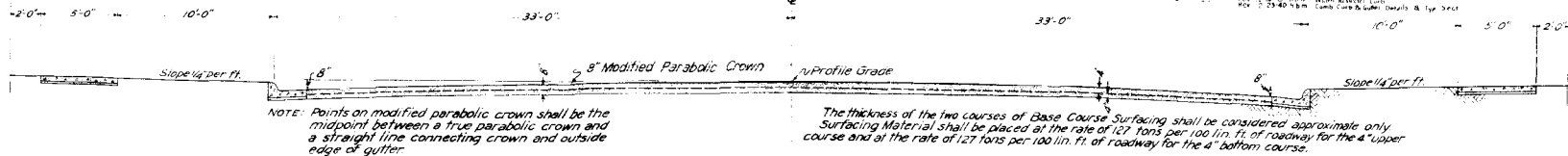
The super-elevation of curve at PC Sta 32+74.06 shall be modified as indicated on the plans. The transition to full super-elevation as provided for by the Standard Super-elevation Sheet included with plans, shall be made between Sta. 38+30 and Sta. 40+80 and balance of curve shall conform to Standard Super-elevation Sheet.

The ends of corrugated metal culvert pipes, which are not provided with headwalls, shall be covered with approximately 6" of material in such manner that a minimum of metal shall be exposed in the completed work. This shall be accomplished by warping embankment slopes around and adjacent to the culvert.

TYPICAL SECTION

STA 0+39.06 TO 6+80
STA 15+80 TO 38+00

FED. ROAD DIST. NO.	STATE	CUMULATED PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F.A.M. - 20A 10 F.A.P. 20B 10	2	

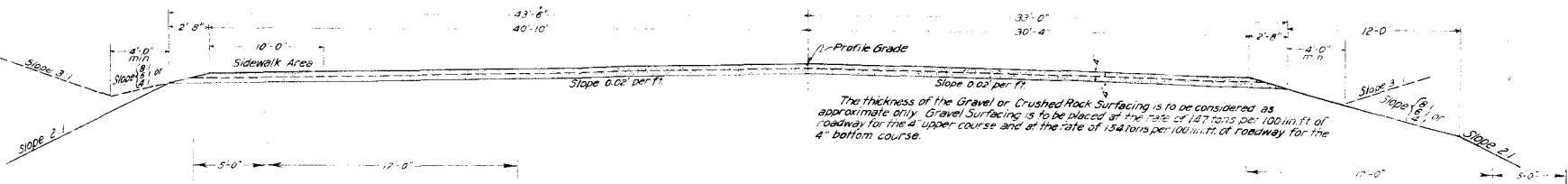


Note: Points on modified parabolic crown shall be the midpoint between a true parabolic crown and a straight line connecting crown and outside edge of gutter.

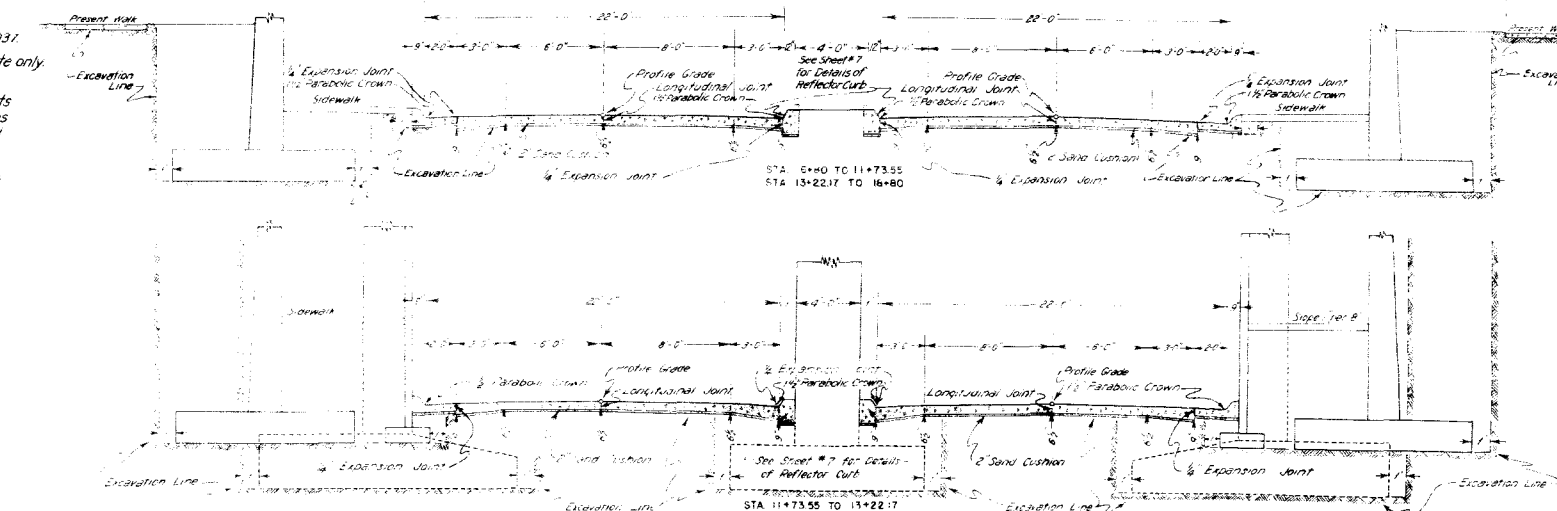
The thickness of the two courses of Base Course Surfacing shall be considered approximate, only. Surfacing Material shall be placed at the rate of 127 tons per 100 lin. ft. of roadway for the 4" upper course and at the rate of 127 tons per 100 lin. ft. of roadway for the 4" bottom course.

TYPICAL SECTION

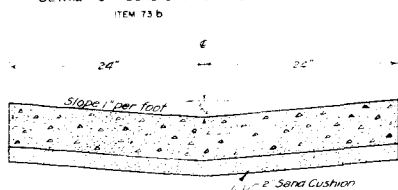
STA 38+00 TO 107+00



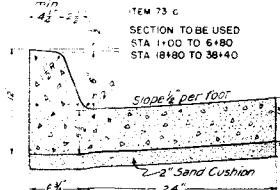
The thickness of the Gravel or Crushed Rock Surfacing is to be considered as approximate only. Gravel Surfacing is to be placed at the rate of 127 tons per 100 lin. ft. of roadway for the 4" upper course and at the rate of 127 tons per 100 lin. ft. of roadway for the 4" bottom course.



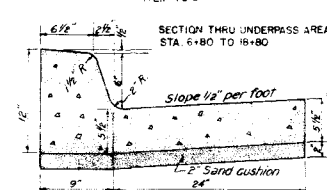
DETAIL OF CONCRETE GUTTER



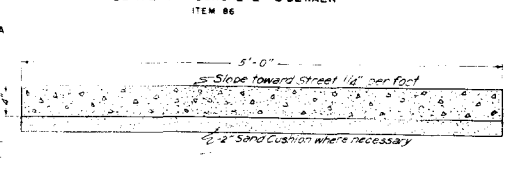
DETAIL OF CONC. COMB. CURB & GUTTER



ITEM 73 C



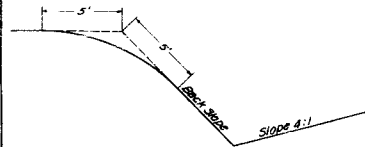
DETAIL OF CONCRETE SIDEWALK



Note: Concrete sidewalks.

Curb & Gutter, and Recessed Reflector Curb shall be constructed of Class "A" Concrete.

CUT SLOPE TREATMENT IN EARTH CUTS



The intersection of cut slopes with the existing ground surface shall be rounded in earth cuts, beginning 5 feet outside the slope stake and extending 5 feet down the cut slope. Where the cut slope distance is less than 5 feet, reduce each of the above widths of slope treatment to the actual slope distance. Quantities involved in slope treatment shall be included in unclassified excavation.

GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department adopted June 1, 1937.

All quantities on preliminary plans are to be considered as approximate only.

All roadway excavation required to construct this project is to be obtained as indicated on the plans. Quantities involved beyond the limits of the ditch as shown on the Typical Section, either noted on the profile as "Borrow" or on the List of Structures as "Embankment" are to be classified and paid for as "Unclassified Excavation". These quantities are to be staked as part of the original excavation at locations indicated on the plans. Slope stakes beyond the limits of the "Typical Section" are subject to change by the Engineer to fit embankment requirements actually encountered on construction.

All poles encroaching on a construction are to be removed by owners.

All corrugated metal pipe culverts are to be provided with one headwall on the inlet end unless otherwise noted on plans.

All side approach roads to the project shall be surfaced with a 4" thickness of Gravel or Crushed Rock Surfacing extending approximately 30' from edge of highway. Estimated quantities of Surfacing Material required in this operation is shown in List of Structures.

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All wire fences, including line posts, shall be placed approximately six (6) inches inside the boundary of the highway right of way as shown on the plans.

During construction of this project, traffic will use adjacent streets. The contractor shall, at his own expense, construct and maintain in safe condition all temporary approaches to and crossings of intersecting streets and roads.

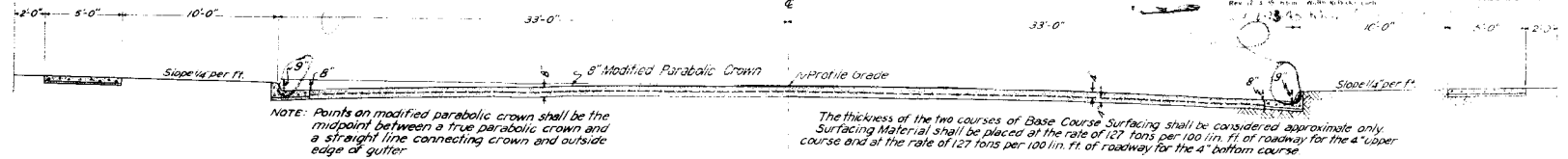
The superelevation of curve at P.C. Sta. 32+74.06 shall be modified as indicated on the plans. The transition to full superelevation as provided for by the Standard Superelevation Sheet included with plans, shall be made between Sta. 38+30 and Sta. 40+80 and balance of curve shall conform to Standard Superelevation Sheet.

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TYPICAL SECTION

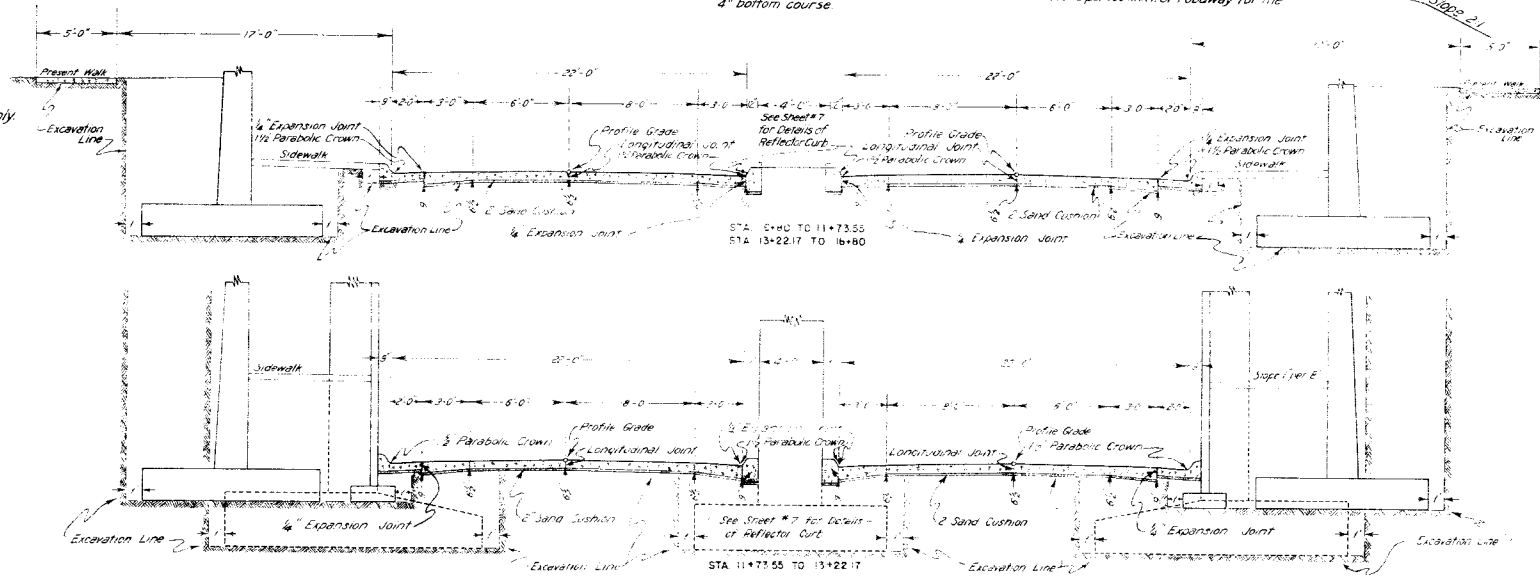
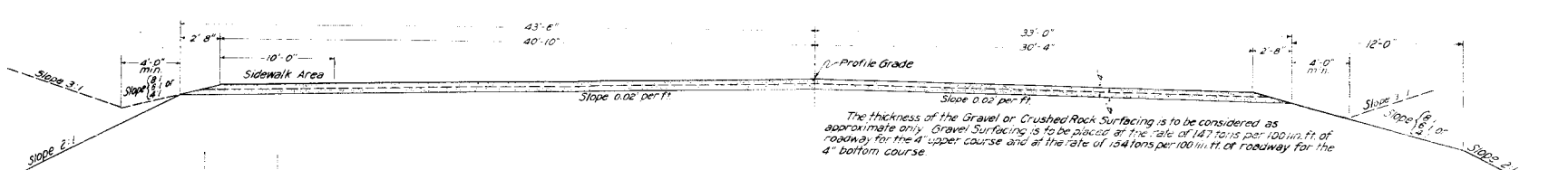
STA 0+29.76 TO 6+80
STA 15+80 TO 38+00

FED. ROAD DIST. NO. 3 STATE COLO. COMBINED PROJ. NO. 2080 SHEET NO. 2 TOTAL SHEETS

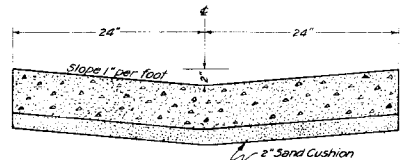


TYPICAL SECTION

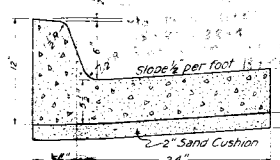
STA 3+100 TO 107+00



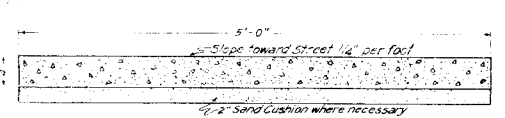
DETAIL OF CONCRETE GUTTER
ITEM 73 D



DETAIL OF CONC. COMB. CURB & GUTTER
ITEM 73 C



DETAIL OF CONCRETE SIDEWALK
ITEM 80



NOTE: Concrete sidewalks, Curb & Gutter, and Recessed Reflector Curb shall be constructed of Class 24" Concrete.

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO	DESCRIPTION	UNIT	FAGM 20-A(1)		FAP 20-B(1)		COMB. TOTAL
			ROADWAY STA. 1+*	TOTAL	66 ROWY THIS ROWY IN DENVER IN DENVER	TOTAL ROWY OUT IN DENVER	
10a	Clearing & Grubbing the Entire Project	Lump Sum					
10b	Clearing & Grubbing the Entire Project	Lump Sum					
10c	Clearing & Grubbing the Entire Project	Lump Sum					
10d	Clearing & Grubbing the Entire Project	Lump Sum					
11a	Removal of 9 Structures	Lump Sum					
11b	Removal of 9 Structures	Lump Sum					
11c	Removal of 9 Structures	Lump Sum					
11d	Removal of 9 Structures	Lump Sum					
11e	Removal of 9 Structures	Lump Sum					
11f	Removal of 9 Structures	Lump Sum					
11g	Removal of 9 Structures	Lump Sum					
11h	Removal of 9 Structures	Lump Sum					
11i	Removal of 9 Structures	Lump Sum					
11j	Removal of 9 Structures	Lump Sum					
11k	Removal of 9 Structures	Lump Sum					
11l	Removal of 9 Structures	Lump Sum					
11m	Removal of 9 Structures	Lump Sum					
11n	Removal of 9 Structures	Lump Sum					
11o	Removal of 9 Structures	Lump Sum					
11p	Removal of 9 Structures	Lump Sum					
12a	Removal of 9 Structures	Lump Sum					
12b	Removal of 9 Structures	Lump Sum					
12c	Removal of 9 Structures	Lump Sum					
12d	Removal of 9 Structures	Lump Sum					
12e	Removal of 9 Structures	Lump Sum					
12f	Removal of 9 Structures	Lump Sum					
12g	Removal of 9 Structures	Lump Sum					
12h	Removal of 9 Structures	Lump Sum					
12i	Removal of 9 Structures	Lump Sum					
12j	Removal of 9 Structures	Lump Sum					
12k	Removal of 9 Structures	Lump Sum					
12l	Removal of 9 Structures	Lump Sum					
12m	Removal of 9 Structures	Lump Sum					
12n	Removal of 9 Structures	Lump Sum					
12o	Removal of 9 Structures	Lump Sum					
12p	Removal of 9 Structures	Lump Sum					
12q	Removal of 9 Structures	Lump Sum					
12r	Removal of 9 Structures	Lump Sum					
12s	Removal of 9 Structures	Lump Sum					
12t	Removal of 9 Structures	Lump Sum					
12u	Removal of 9 Structures	Lump Sum					
12v	Removal of 9 Structures	Lump Sum					
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15r	Removal of 9 Structures	Lump Sum					
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15u	Removal of 9 Structures	Lump Sum					
15v	Removal of 9 Structures	Lump Sum					
15w	Removal of 9 Structures	Lump Sum					
15x	Removal of 9 Structures	Lump Sum					
15y	Removal of 9 Structures	Lump Sum					
15z	Removal of 9 Structures	Lump Sum					

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	FAGM 20-A(1) FAP 20-B(1)	3	

REV 12-14-99 11:01 AM Fencing & Summary

FENCING REQUIREMENTS

STA.	TO STA.	SIDE	REMOVE FENCE LIN. FT.	REMOVE & REBUILD FENCE
71'-2" RDWY.				
75+92	79+14	R	360	330
95+28		L&R	290	
49+30		X	240	
55+1		L&R	300	
58+140		X	200	
TOTAL			1390	330
96+60		L&R	290	
TOTAL			290	
GRAND TOTAL			1680	330

R.O.W. MARKERS

STATION	SIDE	NO.
20+02	L&R	2
32+74	L	1
35+85	R	1
47+40	R	1
49+00	L	1
57+90	L	1
59+00	R	1
80+50	L	1
82+00	L	1
83+50	L	1
85+00	L	1
90+00	L	1
91+15	R	1
96+50	L	1
TOTAL		15
TOTAL		1
GRAND TOTAL		16

LIST OF STRUCTURES

FED. ROAD DIST. NO. 3 STATE COLO. COMB. PROJ. NO. FAGM 20A(1) SHEET NO. 4 TOTAL SHEETS 4
 Rev 12-14-39 h.d.m. Std. 1" headlight rate & setting 75' - 100'

STATION	DESCRIPTION	REMOVE STRUCT.	EXCAVATION CU. YD.	CONCRETE CU. YD.	REIN. STEEL LB.	CORRUGATED CULV. LIN.	METAL PIPE FT.	GR OR CR RK SURF TON	TIMBER GUARD POSTS NO.	GUARD FENCE LIN. FT.	REMOVE CURB LIN. FT.	REMOVE GUTTER LIN. FT.	REMOVE CURB & GUTTER LIN. FT.	REMOVE PAVE. SQ. YD.	REMOVE SIDEWALK SQ. FT.	REMOVE VIT. PIPE LIN. FT.	REMOVE ADJ. M.H. RING & COVER NO.	REMOVE B.P. RING & COVER NO.	BUILD GUTTER LIN. FT.	BUILD CURB & CONC. LIN. FT.	BUILD SIDEWALK LIN. FT.	G.I. PIPE LIN. FT.	VITRIFIED CLAY PIPE LIN. FT.	PIPE RING & COVER EACH	MANHOLE RING & COVER EACH	BUILD BRICK MANHOLE NO.	MISCELLANEOUS	
		NO	UNCL.	EMB.	CL "A"	CL "B"	LB	18"	24"														8"	10"				
6 + 80 - 18 + 80 6 + 80	Street Drainage Street Approach Lt.			50'						(WORK BY CITY OF DENVER FORCES) 20										75'								
6 + 80 6 + 80 - 18 + 80 6 + 80 - 18 + 80 6 + 80 - 18 + 80 6 + 80 - 18 + 80	Timber Header (4"x8"x62') Remove Curb, Gutter, Curb & Gutter, Driv. Pave. & Sidewalk Lt. & Rt. Curb & Gutter Lt. & Rt. Move Fire Hydrants & Adjust Valves Move Power Poles off R.O.W.													143	92	1988	37	65										0.166 Mft/bm Treated Timber Header 40 cu. yds. of Sand Cushion
6 + 80 - 18 + 80 6 + 80 - 18 + 80 6 + 80 - 18 + 80 6 + 80 - 18 + 80	(WORK BY WATER CO. FORCES) (NOT PART OF THIS PROJECT) (WORK BY PUBLIC SERVICE CO. FORCES) (NOT PART OF THIS PROJECT) (WORK BY TELEPHONE CO. FORCES) (NOT PART OF THIS PROJECT)																			2,401								
6 + 80 - 18 + 80 6 + 80 - 18 + 80 6 + 80 - 18 + 80 6 + 90	Move Telephone Conductors & Poles off R.O.W. & Adj. M.H. Concrete Pavement & Sand Cushion Fill old Manholes Alley Approach Rt.			25	200					15																		5408 cu. yds. Conc. Pave., 370 cu. yds. Sand Cush.
7 + 15 + 17 + 17 +	Rem. & Reset Valve Boxes & install pipe work, Lt. & Rt.																											Rem. & Reset Valve Boxes & install pipe work
7 + 05 7 + 22.1 - 18 + 17	Alley Approach Lt. Recessed Reflector Curb (DETAILS SHEET NO. 7)			25						15																		1200' Sp. Recessed Reflector Curb 10 cu. yds. of Sand Cushion & 20 lin. ft. of Sp. Rec. Reflector Curb Returns
7 + 25 - 10 + 28.4	Sidewalks Lt. & Rt.																				5,264							
8 + 68 7 + 25.1 - 18 + 14	Remove Vlt. Pipe Sewer & Replace with C.I. Pipe Concrete & I-Beam Structure, Pump House & Rein. Conc. Walls (DETAILS SHEETS No. 8 to 33)															72						72						
8 + 55 9 + 78.4 - 11 + 73.6	Remove 2.5x0.5x42' W.B.C. Rt. Reinforced concrete pier guard; (DETAILS SHEET No. 35)			25	475		2250																					
8 + 68 - 11 + 65	Remove & Build Vlt. Pipe Sewer & Manholes & Remove & Reset M.H. Rings & Covers															320		3				320				3		
11 + 46 - 13 + 50 10 + 06 - 16 + 05	Rem. & rebuild tracks & Build & Remove shoofly Remove Vlt. Pipe Sewer Remove Vlt. Pipe Sewer & Replace with C.I. Pipe																											
13 + 22.2 - 15 + 17.3	Reinforced concrete pier guard; (DETAILS SHEET No. 35)			25	475		2250																					
13 + 06 - 13 + 78 16 + 05 - 19 + 04	Remove Vlt. Pipe Sewer & M.H., Build M.H. & Remove & Reset M.H. Ring & Cover Remove & Build Vlt. Pipe Sewer & M.H. & Remove & Reset Manhole Rings & Covers															148		1								1		
18 + 80 15 + 20 18 + 80 - 38 + 00 14 + 67.3 - 18 + 14	Timber Header (4"x8"x62') Street Approach Lt. Street Drainage Sidewalks Lt. & Rt.			200						150											380							0.166 Mft/bm Treated Timber Header (Total Sand Cushion 480 cu. yds. for) (FAGM 20A(1), Underpass)
TOTALS			1	300	250	95	4500		200		143	92	1988	37	65	293		6		2856	11,232	144	325	299		6		
0 + 99.06 1 + 00 - 4 + 80 1 + 03 - 4 + 80 1 + 30 1 + 60	Project Marker Curb and Gutter Rt. Adjust Manhole Rings and Covers Street Approach Lt. Driveway Approach Rt.			20 20																								1 Project Marker
1 + 00 - 6 + 80 1 + 60 - 5 + 91 2 + 00 2 + 10	Street Drainage Move Fire Hydrants & adjust Water Valves Remove & Build Curb & Gutter (Island) Lt. Remove Curb & Gutter Lt.																											
2 + 15 - 4 + 38Bk 2 + 20 - 2 + 25 2 + 33 - 3 + 28Bk 2 + 38 - 3 + 80Bk	Remove Curb & Gutter & Double Gutter Lt. Remove Sidewalk Lt. Remove Curb & Gutter Lt. Remove Sidewalk Lt. & Rt.															65				13		275						
3 + 15Bk - 3 + 25Bk 3 + 20Bk 3 + 25Bk - 3 + 43Bk 3 + 30Bk	Remove Curb & Gutter Lt. Alley Approach Lt. Remove Curb & Gutter Rt. Driveway Approach Rt.			5 5						10 10				26 54	13 18													
3 + 45Bk - 4 + 85 4 + 04Ah - 4 + 17Ah 4 + 05Ah 4 + 40 - 5 + 36 4 + 33Bk - 4 + 38Bk	Remove Curb & Gutter Rt. Remove Curb & Gutter & Build Double Gutter Lt. Alley Approach Lt. Move Poles off R.O.W. Remove Sidewalk Lt.			10																								
4 + 36Bk 4 + 73Bk 3 + (10), 4 + (10) & 4 + (10) 1' - 2'	Street Approach Lt. Remove & Build Curb & Gutter & Double Gutter Lt. Rem. & Reset Valve Boxes & install pipe work, Lt. & Rt. Move 3 floodlights off R.O.W. & reset without flood			50						45																		Rem. & Reset Valve Boxes & install pipe work Rem. & reset 3 floodlights

F.A.G.M. 20-A(1)
UNDERPASS

F.A.P. 20-B(1)
66'-0" ROADWAY IN DENVER

LIST OF STRUCTURES

STATION	DESCRIPTION	REMOVE	EXCAVATION	CONCRETE	REINF.	CORRUGATED	METAL	GR OR CR	TIMBER	GUARD		REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	BUILD	BUILD	BUILD	CI PIPE	VITRIFIED	MANHOLE	BUILD	MISCELLANEOUS
		STRUCT	CU. YD.	CU. YD.	STEEL	CULV.	PIPE	PIPE	POSTS	FENCE		CURB	GUTTER	GUTTER	PAVE.	SIDEWALK	PIPE	SEWER	SEWER	GUTTER	GUTTER	SIDEWALK	SEWER	CLAY PIPE	RING & COVER	
NO.	UNCL.	EMB.	CL. A"	CL. B"	LB.	18"	24"	TON.	NO.	LIN. FT.	LIN. FT.	LIN. FT.	SQ. YD.	SQ. FT.	LIN. FT.	NO.	NO.	NO.	NO.	SQ. FT.	NO.	NO.	NO.	NO.	NO.	
2 + 80.44 - 2 + 85.44 5 + 28 - 5 + 33 5 + 53 5 + 63 - 6 + 80	Remove Sidewalk Lt. Remove Sidewalk Lt. Street Approach Lt. & Rt. Remove & Build Curb & Gutter Rt.		50					35							120											
5 + 71 - 6 + 80 5 + 79 - 5 + 84	Remove & Build Curb & Gutter Lt. Remove Sidewalk Lt.														136											
18 + 80 - 38 + 00	Street Drainage																									
18 + 80 - 19 + 59	Remove Curb & Gutter Lt.											40	10	79												
18 + 80 - 19 + 84 19 + 10 - 19 + 68 19 + 59 - 20 + 04 19 + 59 - 20 + 17 19 + 65 - 35 + 00 19 + 65 - 37 + 64 19 + 74 - 19 + 79	Remove and Build Curb & Gutter Rt. Build Curb & Gutter Lt. Remove Alley & Driveway Pavement Lt. Remove Gutter Lt. Move Fire Hydrants & Adjust Water Valves Remove Poles off R.O.W. Remove Sidewalk Rt.														117											
19 + 04 - 33 + 21 20 + 00	Adjust Manhole Rings & Covers Rt. & Lt. Street Approach Rt.		25					10										10								
20 + 17 - 23 + 11 20 + 21 - 20 + 26 20 + 30	Remove & Build Curb & Gutter & Double Gutter Rt. Remove Sidewalk Rt. Street Approach Lt.		5					20						307								16	278			
20 + 52 - 23 + 11	Remove & Build Curb & Gutter & Double Gutter Lt.													269								16	243			
20 + 60 - 20 + 65 21 + 58 - 21 + 74 21 + 65 21 + 82 - 21 + 98 21 + 90 22 + 44 - 22 + 46	Remove Sidewalk Lt. Remove Curb & Double Gutter Rt. Alley Approach Rt. Remove Curb & Double Gutter Lt. Alley Approach Lt. Remove Sidewalk Lt.		20					5				26	16													
23 + 01 - 23 + 06 23 + 09 - 23 + 48	Remove Sidewalk Lt. & Rt. Remove Poles off R.O.W.																									
23 + 09 - 23 + 48	Remove 31" W.B. Cross Culvert Street Approach Lt. & Rt. Street Car Tracks to be removed		25					40																		
23 + 47 - 26 + 17 23 + 48 - 26 + 17 23 + 52 - 23 + 57	Remove & Build Curb & Gutter & Double Gutter Lt. & Rt. Remove 31" W.B. Cross Culvert Remove Sidewalk Lt. & Rt.																									
24 + 22 - 24 + 25 24 + 75 - 24 + 84 24 + 88 - 25 + 02 24 + 85 25 + 07 - 25 + 20 25 + 96 - 26 + 17 25 + 1 - 26 + 1	Remove Sidewalk Lt. Remove Double Gutter Lt. Remove Curb & Gutter Lt. & Rt. Alley Approach Lt. & Rt. Remove Concrete Pavement & Gutter Lt. Remove Sidewalk Lt. Transplant Trees Lt. & Rt.		20					20				26	9													
26 + 05 - 26 + 10 26 + 14.3 - 26 + 51 26 + 48 - 28 + 16 26 + 50 - 26 + 61 26 + 58 - 29 + 76 28 + 80 - 28 + 93	Remove Sidewalk Rt. Remove 25" x 0.5' W.B.C. Rt. Remove & Build Curb & Gutter Rt. Street Approaches Lt. & Rt. Remove Sidewalk Rt. Remove & Build Curb & Gutter Lt. Remove Sidewalk Lt.		75					60						183												
27 + 50	Pedestrian Underpass & San. Sewer Changes (DETAILS SHEETS 36 & 37)		460	124.0	12,030																					
28 + 03 - 28 + 08 28 + 11.7 - 28 + 45 28 + 35 28 + 46 - 31 + 42 28 + 54 - 28 + 59	Remove Sidewalk Rt. Remove 25" x 0.7' W.B.C. Rt. Street Approach Rt. Remove & Build Curb & Gutter & Double Gutter Rt. Remove Sidewalk Rt.		50					40																		

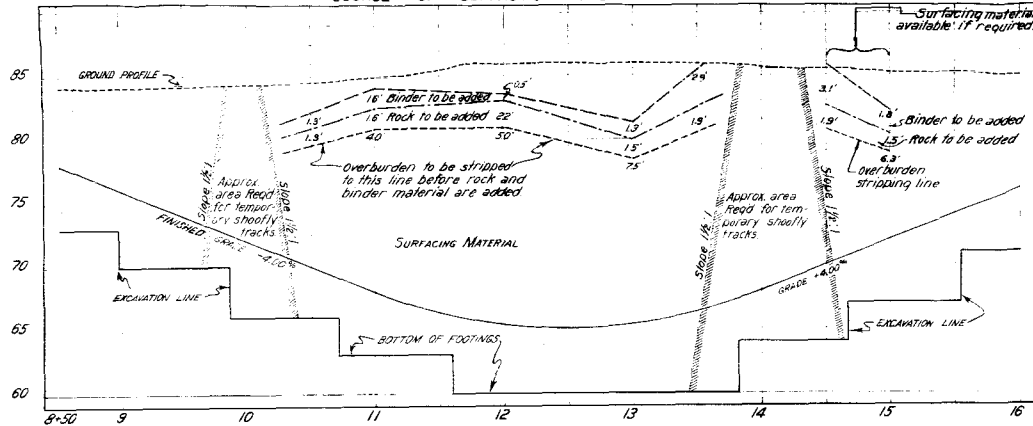
F.A.P. 20-B(1)
65'-0" ROADWAY IN DENVER

SOURCE OF SURFACING MATERIAL

SURFACING PLAN

FED. ROAD DIST. NO.	STATE	COMBINED PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F.A.M. 20-A(1)	7	

Revised 12-1-40 H.M. Smith and Richard J. Harkness Civil Engineers Denver, Colo. Foreman Joint Venture Denver



The above diagram indicates a section along center line of roadway. Surfacing Material for this Project shall be secured from material between Sta 10+6.13 of project as indicated above. In order to secure Surfacing Material meeting the mechanical analysis specifications it will be necessary to remove overburden to the approximate depth indicated, add approved rock and binder material to the approximate depths indicated before removal of Surfacing Material. Material shall then be removed by power shovel or other suitable equipment capable of working a 10' face. The use of equipment which removes material in horizontal layers will not be permitted. Surfacing Material shall be stockpiled at suitable locations to be provided by contractor until required on project.

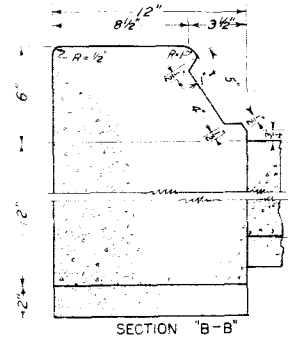
For Concrete Pavement Joint Details see Sheet No. 42

STA. TO STA.	QUANTITY OF MATERIAL TO BE REMOVED (TONS)	APPROXIMATE QUANTITY OF MATERIAL TO BE ADDED (TONS)	ESTIMATED QUANTITY OF MATERIAL TO BE ADDED (TONS)	OVERHAUL SURF. MAT. (TON MILFS)	SOURCE
F.A.M. 20-A(1) Rd Approaches	-	200	160	40	F.H.
0+99.06 6+80	254	2220	1770	450	F.H.
18+80 38+00	254	4880	3900	980	F.H.
Road Approaches	-	585	470	115	F.H.
TOTAL 66'-0" ROADWAY	-	7685	6140	1545	
38+00 66+15.01	301	8220	6580	1640	F.H.
66+15.01 93+28.3	301	8770	7020	1750	F.H.
Road Approaches	-	145	120	25	
TOTAL 71'-2" ROADWAY	-	17135	13720	3415	
TOTAL F.A.P. 20-B(1) IN DENVER	-	24820	19860	4960	
95+28.3 107+00	301	2330	1860	470	
107+00 127+00	200	800	640	160	
TOTAL ADAMS CO.	-	3130	2500	630	
TOTAL F.A.M. 20-A(1)	-	200	160	40	
TOTAL F.A.P. 20-B(1)	-	27950	22360	5590	
GRAND TOTAL	-	28150	22520	5630	

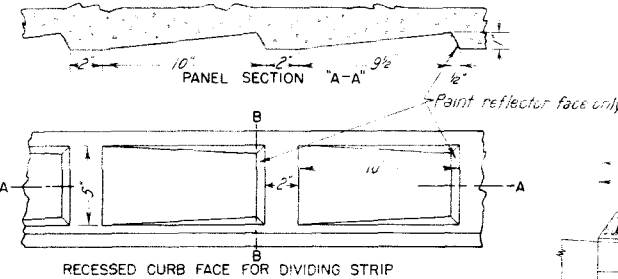
Station 10+00 to Sta 15+00 Additional Rock required to be supplied by Contr. from any available source furnishing material meeting the specifications

DETAIL OF RECESSED REFLECTOR CURB & CURB RETURNS

SCALE 3" = 1"



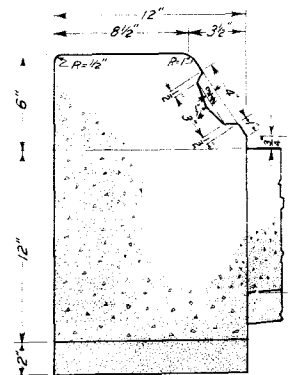
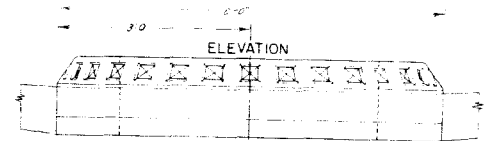
SECTION "B-B"



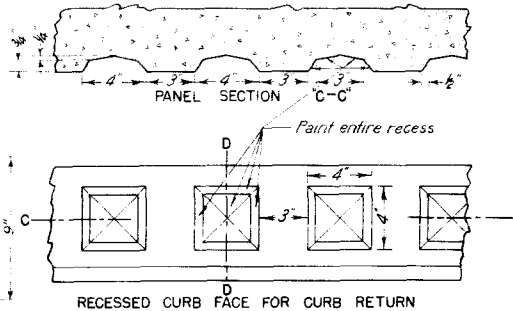
RECESSED CURB FACE FOR DIVIDING STRIP

DETAIL OF CURB RETURN

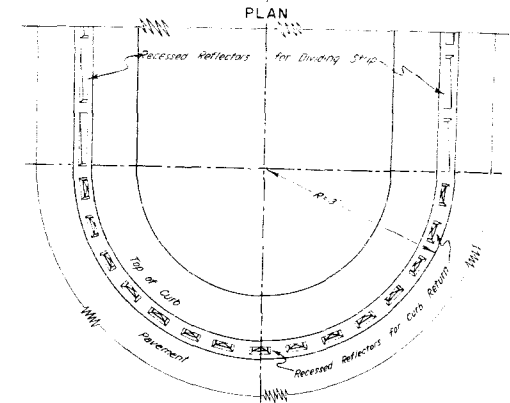
SCALE 1" = 1"



SECTION "D-D"

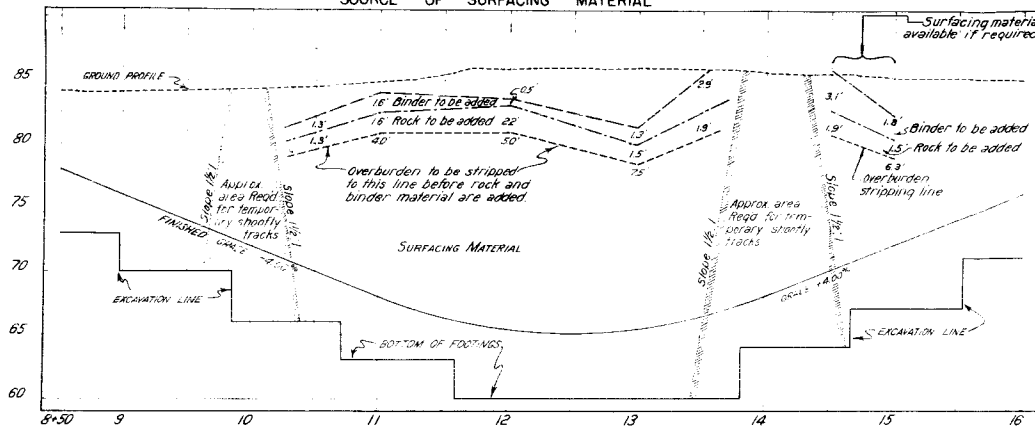


RECESSED CURB FACE FOR CURB RETURN



SOURCE OF SURFACING MATERIAL

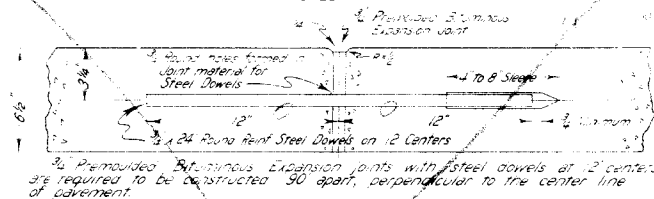
SURFACING PLAN



The above diagram indicates a section along center line of roadway. Surfacing Material for this Project shall be secured from material between Sta 10+31.37 of project as indicated above. In order to secure Surfacing Material meeting the mechanical analysis specifications it will be necessary to remove overburden to the approximate depth indicated; add approved rock and binder material to the approximate depths indicated before removal of Surfacing Material. Material shall then be removed by power shovel or other suitable equipment capable of working a 10 ft face. The use of equipment which removes material in horizontal layers will not be permitted. Surfacing Material shall be stockpiled at suitable locations to be provided by contractor until required at project.

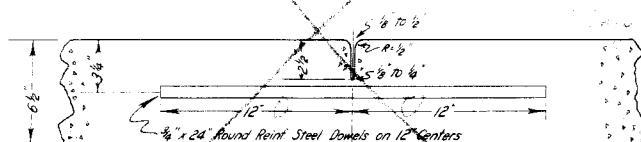
DETAIL OF TRANSVERSE EXPANSION JOINT

SCALE 3" = 1'



DETAIL OF LONGITUDINAL WEAKENED PLANE JOINT

SCALE 3" = 1'

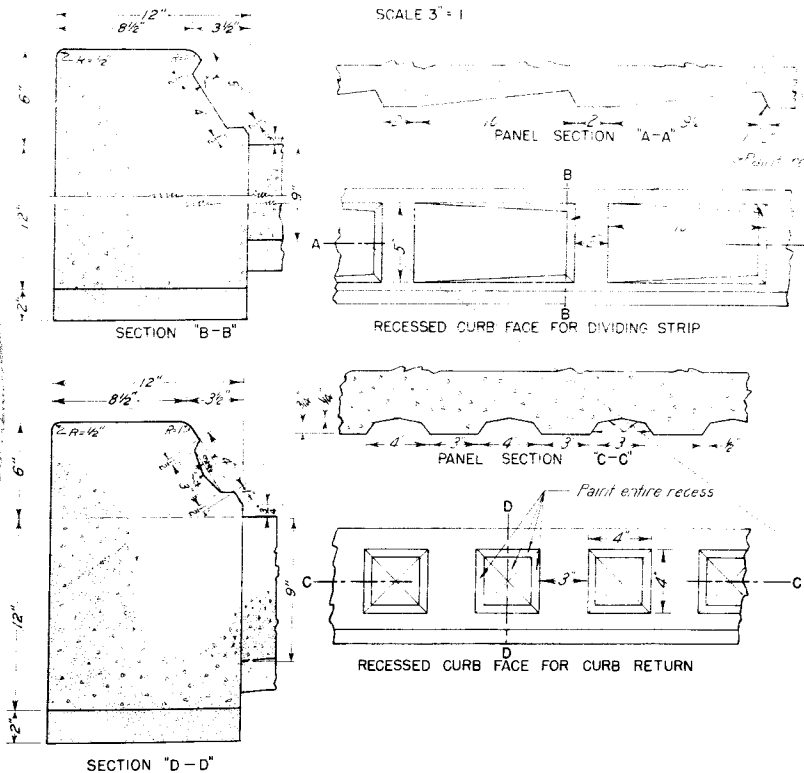


The transverse weakened plane joints with steel dowels at 12" centers are to be constructed between expansion joints at intervals of 30 ft, perpendicular to center line of pavement.

Longitudinal weakened plane joints to be constructed as above except that 1/2" round bars 4' long at 2' centers shall be used. Bars in longitudinal joints shall not be treated to break bond.

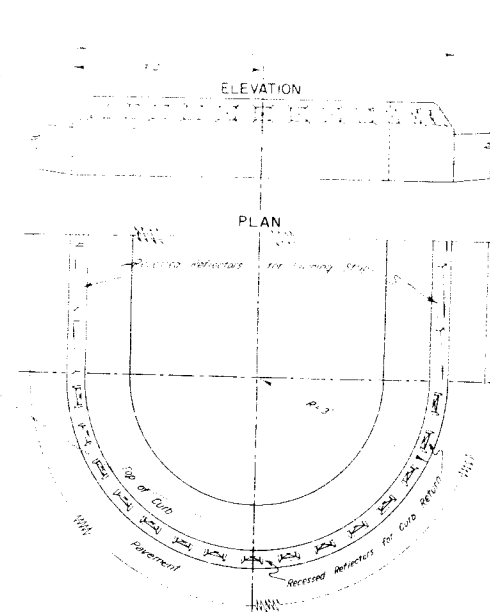
DETAIL OF RECESSED REFLECTOR CURB & CURB RETURNS

SCALE 3" = 1'



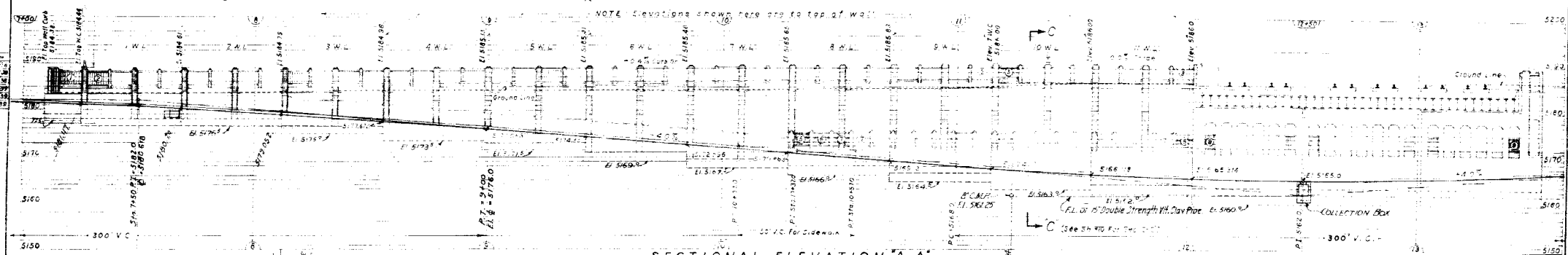
DETAIL OF CURB RETURN

SCALE 1" = 1'



STA. TO STA.	QUANTITY	APPROXIMATE	MATERIAL FROM	ESTIMATED	OVERALL	SOURCE
		QUANT. REQ'D	STA. TO STA.	QUANT. ROCK	SURF. MAT	
		TONS		TO BE ADDED	TONS	
F&M 20+00 Rd. Approaches		200		160	40	FH
0+95.06 6+80	254	2220		1770	450	FH
18+80 38+00	254	4880		3900	980	FH
Road Approaches		585		470	115	FH
TOTAL 66'-0" ROADWAY		7685		6140	1545	
38+00 66+150.1	301	8220		6580	1640	FH
66+150.1 93+25.3	301	8710		7020	1750	FH
Road Approaches		145		120	25	
TOTAL 71'-2" ROADWAY		17135		13720	3415	
TOTAL F&M 20+00 IN DENVER		24820		19860	4960	
30+25.3 103+00	30	2330		1800	470	FH
103+00 125+00	200	800		640	160	FH
TOTAL ALM 20+00		1430		1000	430	
TOTAL F&M 20+00		200		160	40	
TOTAL F&M 20+00		27950		22360	5590	
GRAND TOTAL		29150		22520	6630	

REV. 1-8-40 Part 1 Joint details deleted



NOT : 1/2" Galv. Electrical Conduit for Light Service Lines
to be located under ground behind North & South Walls and Abutments.

NOT : 1/2" Galv. Electrical Conduit for Light Service Lines
to be located under ground behind North & South Walls and Abutments.

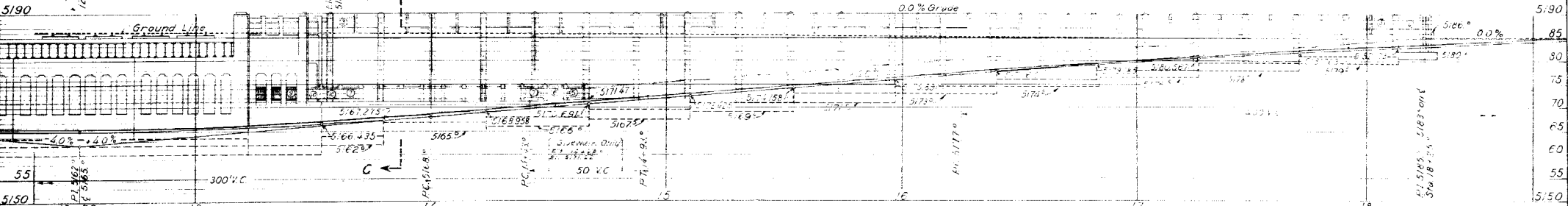


COLORADO
STATE HIGHWAY DEPARTMENT
E. 46TH AVE. UNDERPASS.

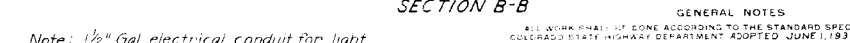
- GENERAL LAYOUT -
- WEST END -

Under U.P.R.R.
Sta. 7+25.10 to 8+13.95
In DENVER. Sec. 23 T. 3 S R. 8 W

Designed by E.W. Approved by Ed. Bailey
Made by JAV Bridge Engineer
Checked by N.M.C. Date: Oct 31st 1939



$S \rightarrow N$



Note: 1 1/2" Gal electrical conduit for light

STRUCTURE NO. *E-17-Z*

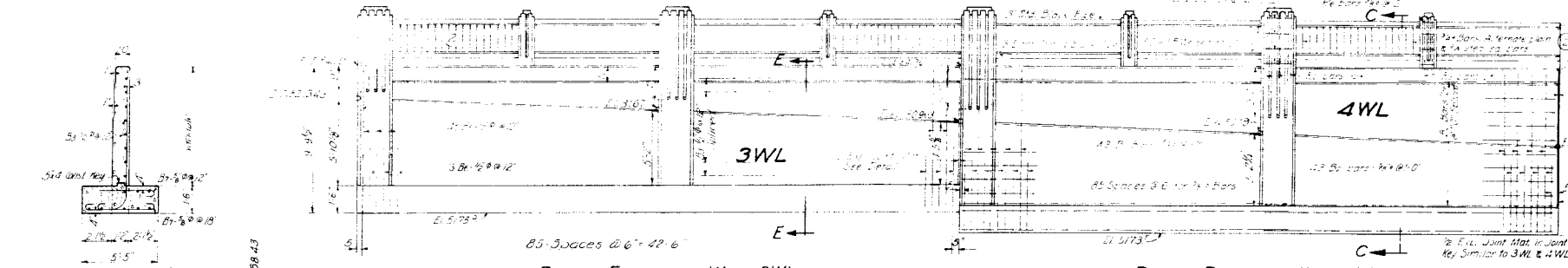
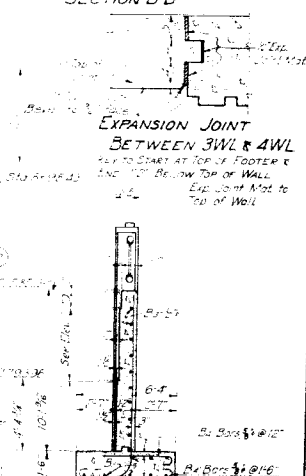
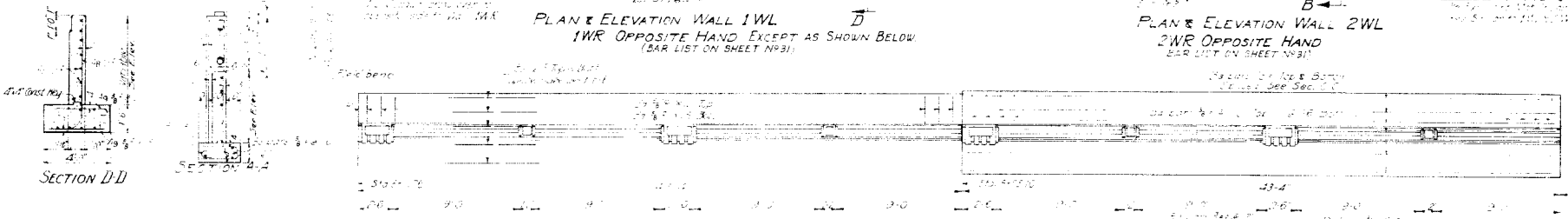
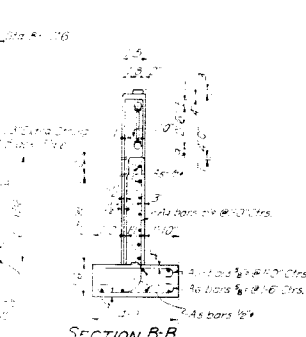
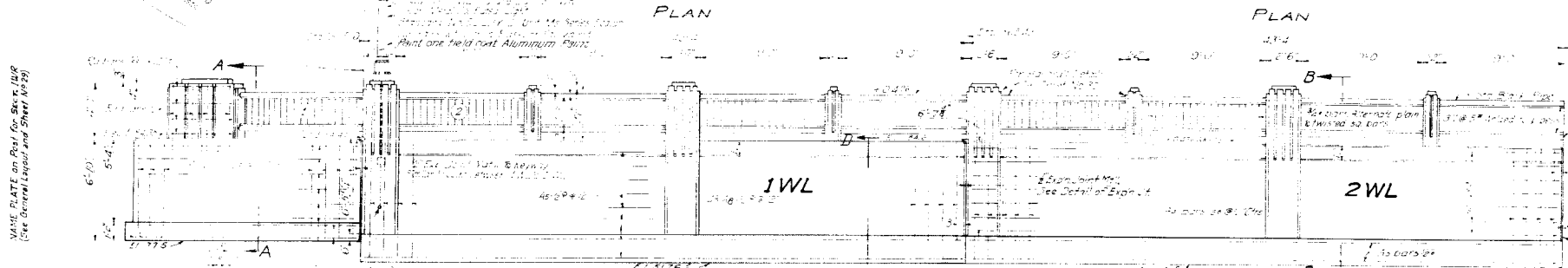
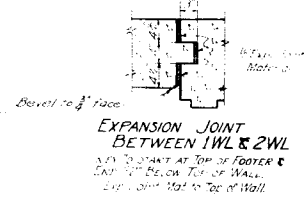
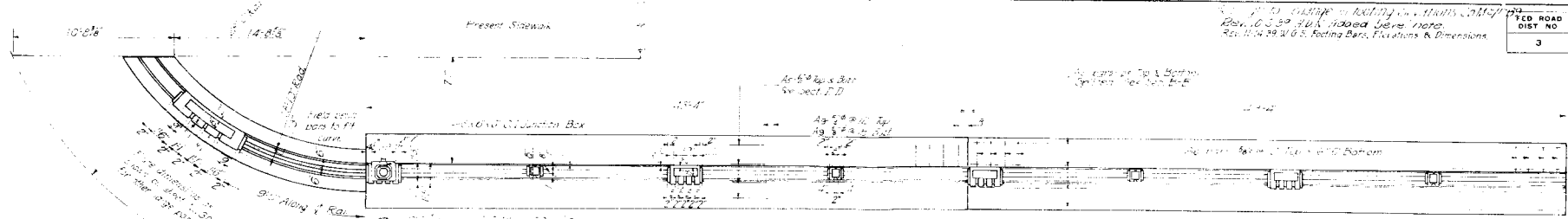
LOADING DATA.
LIVE LOAD A A S H O THIS CLASS A WITH
DEVELOPED STIFFNESS OF 1000000 LBS/INCH
A. APPROXIMATELY 1000000 LBS/INCH
A. APPROXIMATELY 1000000 LBS/INCH

DESIGNING DATA.
AASHTO TYPE 1 PORTLAND CEMENT CONCRETE
PER AASHTO AUG. 1-28

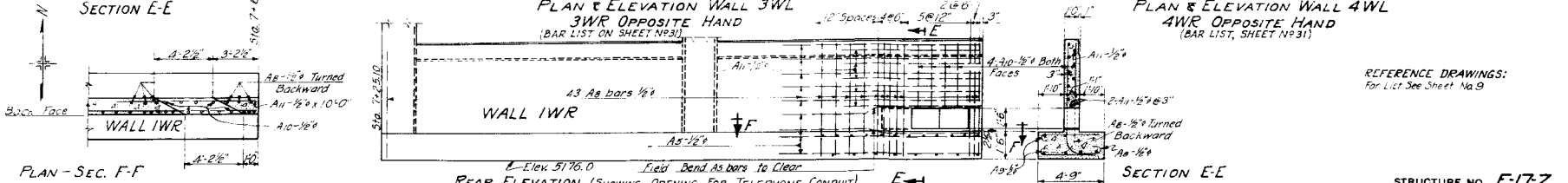
COLORADO
 STATE HIGHWAY DEPARTMENT
 E. 46th AVE UNDERPASS
 GENERAL LAYOUT
 EAST END
 UNDER WFR
 Sta. 7+25.1 to 18+13.95
 IN DENVER Sec. 23 T. 35. S. R. 85W.
 Designed by E.F.W. Approved by *G. B. Bailey*
 Made by D.M.D. Bridge Engineer
 Checked by H.M.C. Date: Oct 31st, 1939.

Revised by: *[Signature]*
 Rev. 10-3-39 Add. Notes & Dimensions
 Rev. 10-3-39 Add. Notes & Dimensions

FED. ROAD DIST. NO.	STATE	F.A.G.M.	SHEET NO.	TOTAL SHEETS
3	COLO.	20-A-11	11	

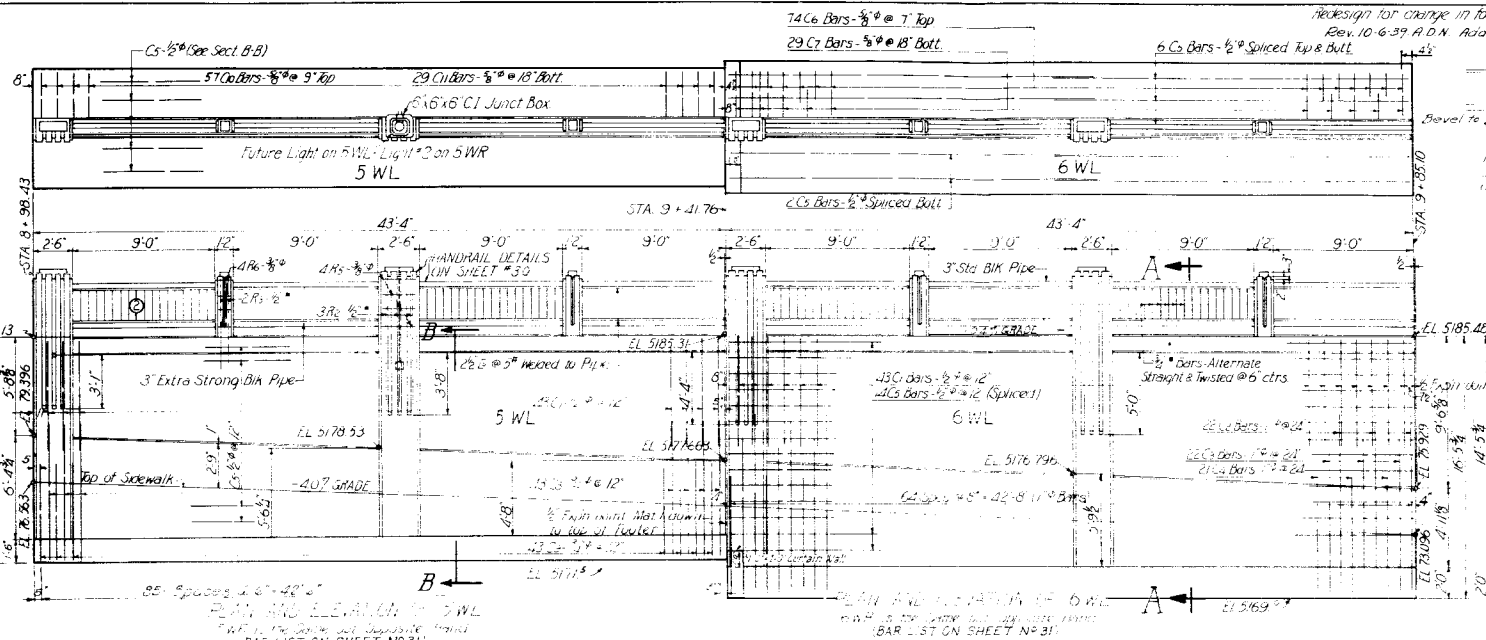


COLORADO
 STATE HIGHWAY DEPARTMENT
 E. 46th AVE UNDERPASS
 DETAILS OF WALLS
 1WL 2WL 3WL & 4WL R.E.L.
 Under U.P.R.R. Tracks
 Sta. 7+25.0 to 10+13.5
 In Drawings See 22-T-135 & 681
 Designed by E.F.M. Approved by P.R. Tandy
 Made by A.D.C. Bridge Engineer
 Checked by Date: Oct 3/2, 1939



FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	20A(1)	12	

Rev. 11/4/39 W.G.S. Footing Elev., Bars & Dimensions.



Redesign for change in footing elevation - C.B.M. 11-39
Rev. 10-6-39 A.D.N. Added bevel note
Bevel to 2" face
Joint Detail in 5 WL & 6 WL (580 W.R.)
Key to end 1'-2" below top of wall
Joint between 6 WL & 7 WL is similar.
Joint Material to top of wall

SECTION A-A

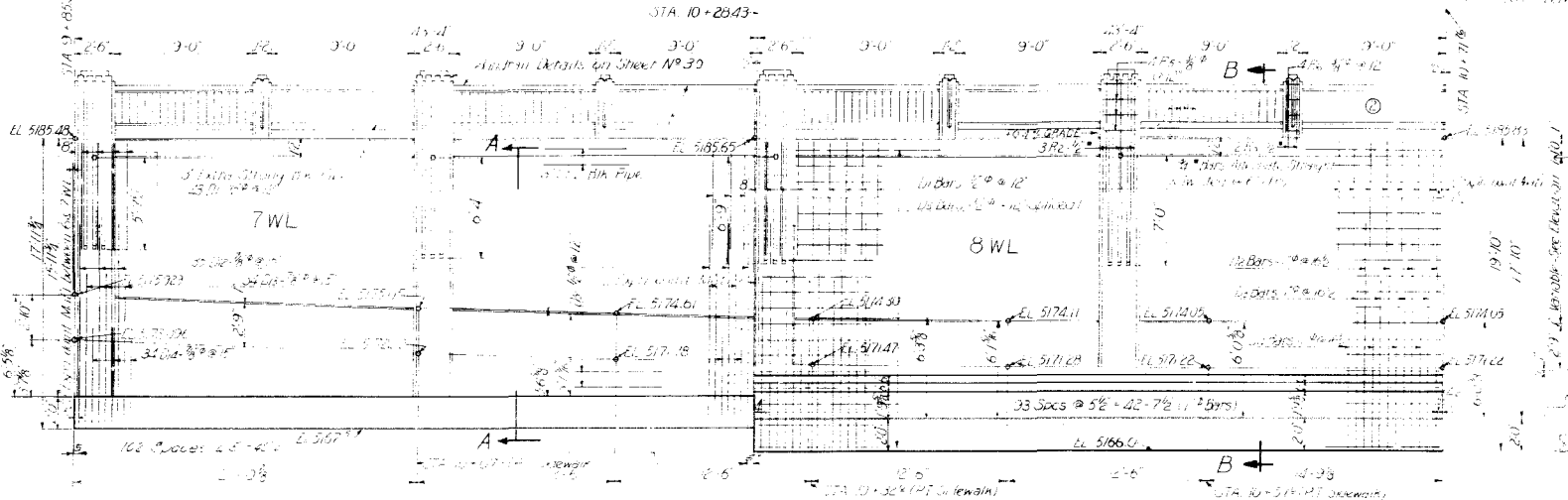
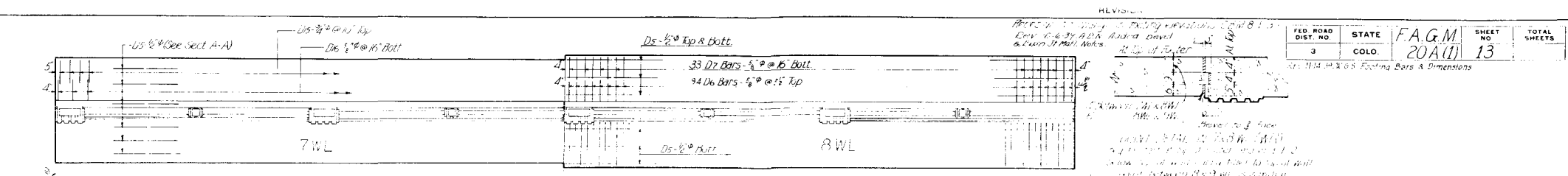
SECTION B-B

Details not shown on Sect. B-B
are shown on Sect. A-A

PREFERENCE DRAWINGS
FOR LIST SEE SHEET N° 9

COLORADO
STATE HIGHWAY DEPARTMENT
E. 46TH AVE. UNDERPASS
DETAILS OF WALLS 580 WL
580 W.R. OPPOSITE HAND
UNDER U.P.R.R.
Sta. 7+25.10/10+73.95
IN DENVER, Sec. 23 T. 35 S. R. 68 W.
Designed by E.F.W. Approved by C.B.M.
Made by C.B.M. Bridge Engineer
Checked by Date: Oct. 31st, 1939

STRUCTURE NO. E-17-Z

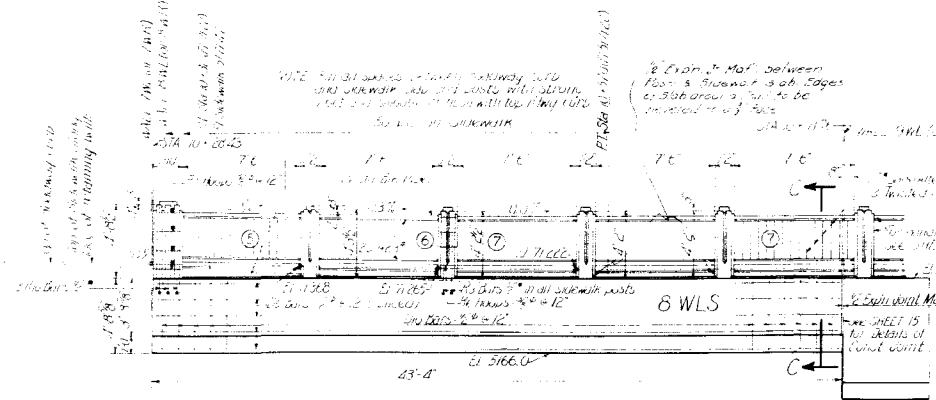


PLAN AND ELEVATION OF WALL
BAR LIST ON SHEET #3

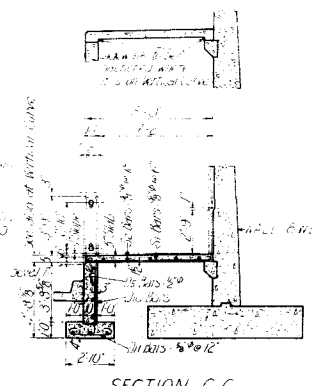
PLAN AND ELEVATION OF WALL
BAR LIST ON SHEET #3

SECTION B-B

SECTION A-A



ELEVATION OF SIDEWALK WALL AND RAILING AT PANEL 8WL
Elevation at 8WL Duplicate & Opposite Hand
REINFORCING STEEL INCLUDED IN BAR LIST FOR 7WL & 8WL



SECTION C-C

REFERENCE DRAWINGS
For List see Sheet #9

COLORADO
STATE HIGHWAY DEPARTMENT
E. 46th AVE UNDERPASS
DETAILS OF WALLS 7&8 WL
7&8 WL SIMILAR BUT OPPOSITE HAND

UNDER U.P.R.R.
Sta. 7+25.1 - 13+73.9
IN UNDERPASS 23+1.35 - 68W

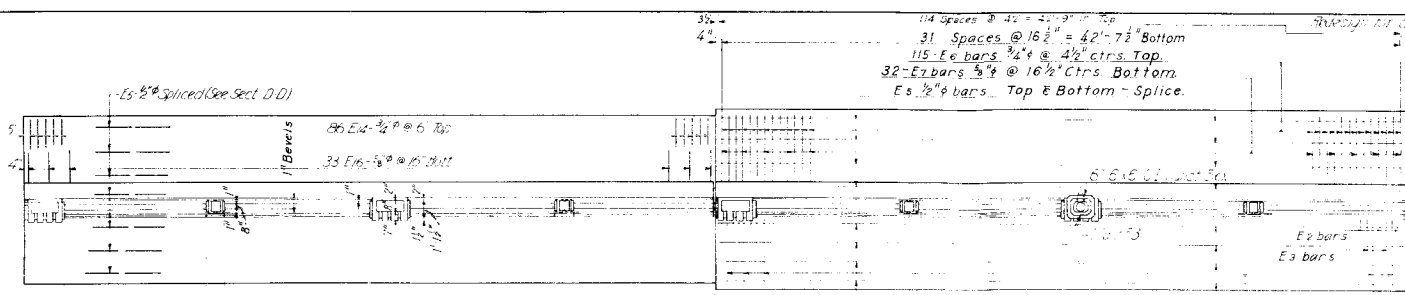
Designed by E.F.W. Approved by G.H. Bailey
Checked by C.B.M. Bridge Engineer
Date: Oct. 31st, 1939

114 Spaces @ 4" = 42'-0" Top
 31 Spaces @ 16" = 42'-7" Bottom
 115-Es bars 3/4" @ 4" ctrs. Top
 32-Es bars 3/4" @ 16" ctrs. Bottom
 Es 3/4" bars Top & Bottom - Splice.

REVISION

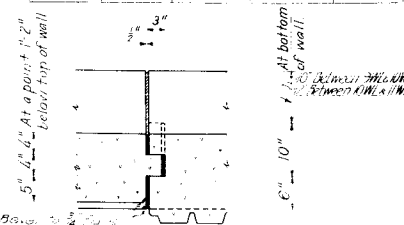
Rev. 11-14-39 Added base note
 & 1/2" Spun II Mat. in sidewalk
 Rev. 11-14-39 W.G.S. Footing Bars.

FED. ROAD DIST. NO.	STATE	F.A.G.M.	SHEET NO.	TOTAL SHEETS
3	COLO.	20-A-11	14	



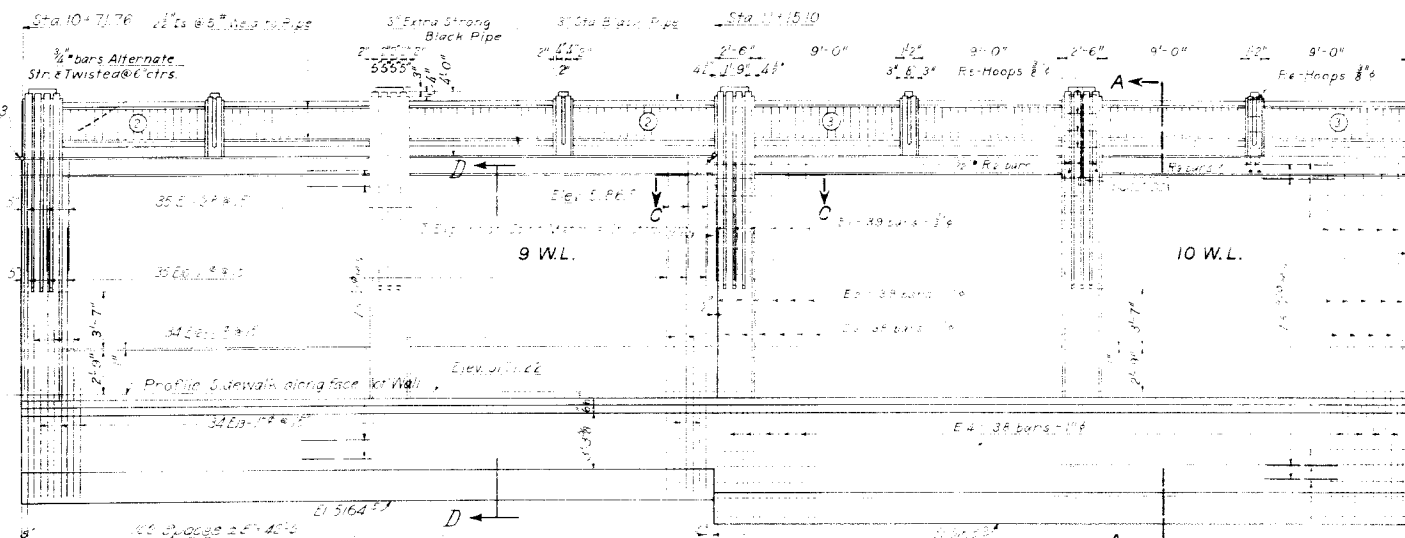
PLAN 9 W.L.

PLAN 10 W.L.



SECTION C-C.

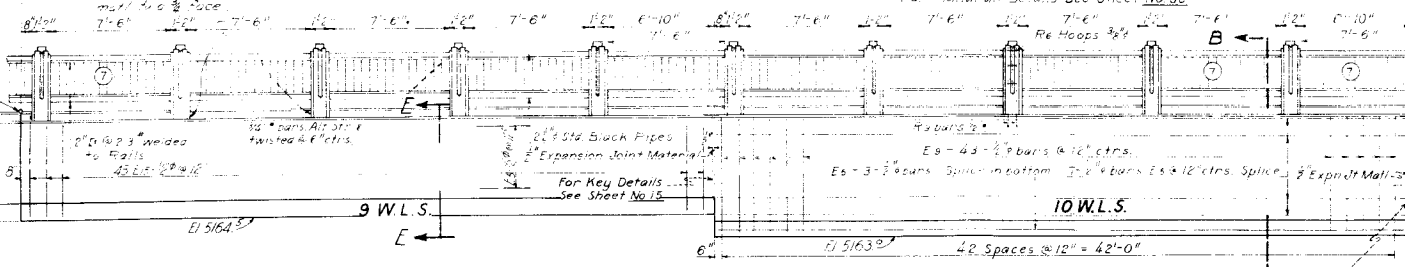
Key Extends from top of footing to a Point 11'-0" Below the top of Wall. The Extension Joint Material Continues to top of wall. 1 Pos. 12"x12" Between 9WL & 10WL. Similar between 10WL & 11WL.



ELEVATION WALLS 9 W.L. & 10 W.L.

9 W.L. Similar and Opposite Hand to 10 W.L.
 BAR LIST ON SHEET NO. 31

For Handrail Details See Sheet No. 30



ELEVATION OF SIDEWALK WALLS 9 W.L.S. & 10 W.L.S.

9 W.L.S. is Similar to 9 W.L.

REINFORCING STEEL INCLUDED IN BAR LIST FOR 9WL & 10WL.

For Handrail Details See Sheet No. 30.

Elev. 5186'

Exp. Joint Mat.

Elev. 5164'

Elev. 5163'

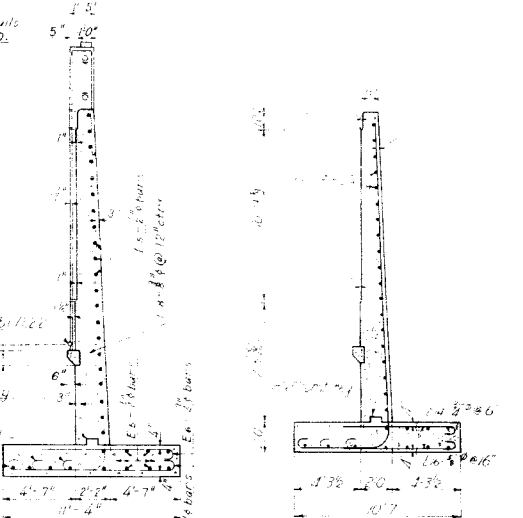
Elev. 5171'

Elev. 5171'

Elev. 5171'

Elev. 5171'

Elev. 5171'



SECTION A-A

SECTION D-D

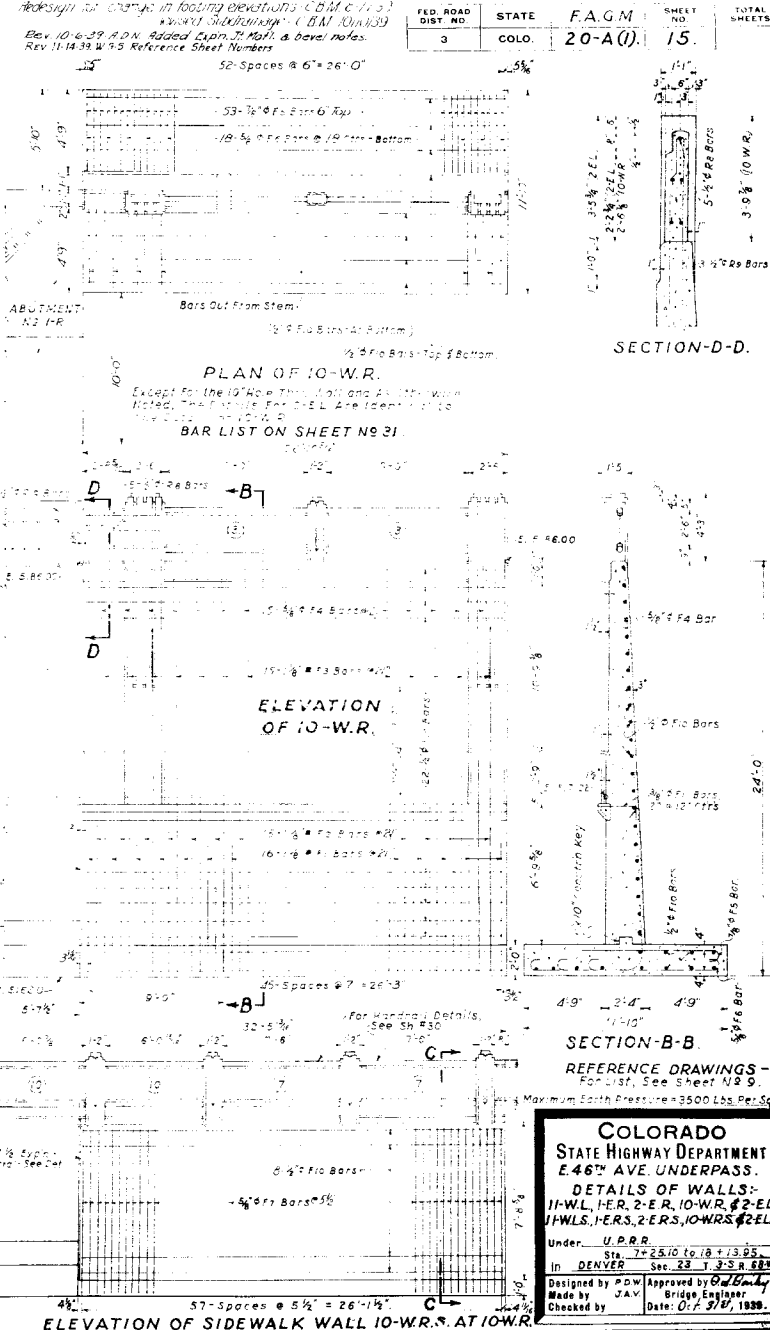
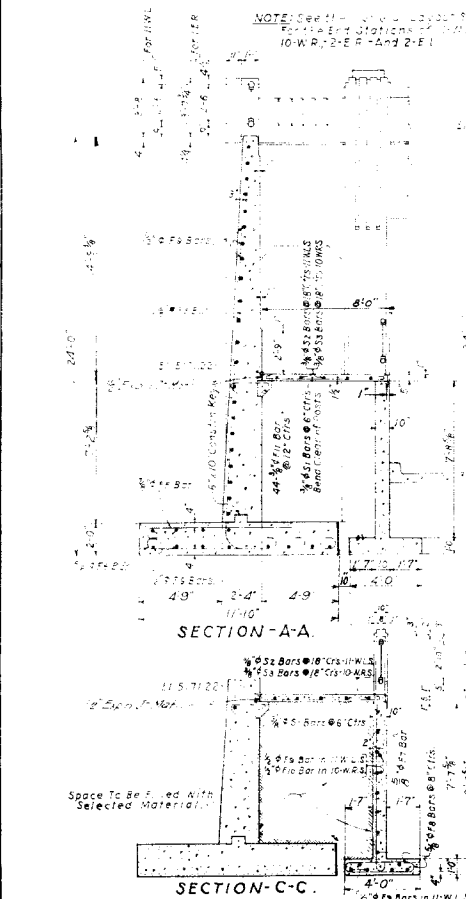
SECTION B-B

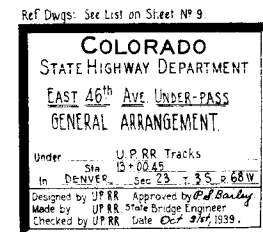
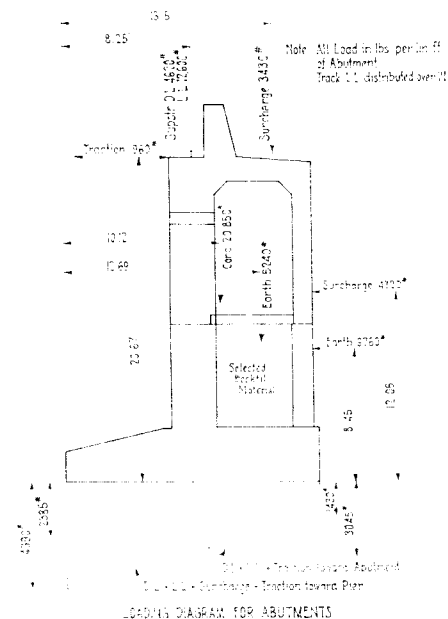
SECTION E-E

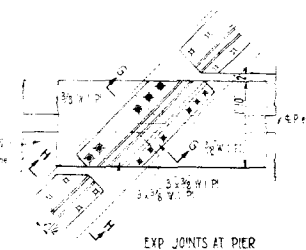
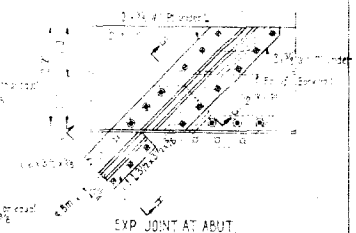
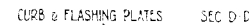
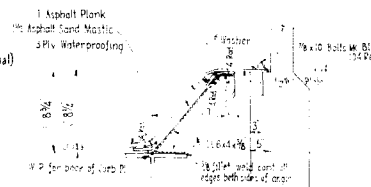
For List of REFERENCE DRAWINGS See Sheet No. 9

COLORADO
 STATE HIGHWAY DEPARTMENT
 E 46th AVE UNDERPASS
 DETAILS OF WALLS NO. 9WL,
 10WL, 9WR, 9WLS, 10WLS, 9WRS
 UNDER U.P.R.R.
 IN DENVER Sec 23 T 35 R 68W
 Designed by F.D.W. Approved by D.H. Bailey
 Made by D.M.D. Bridge Engineer
 Checked by Date: Dec 30, 1939.

STRUCTURE NO. E-17-Z



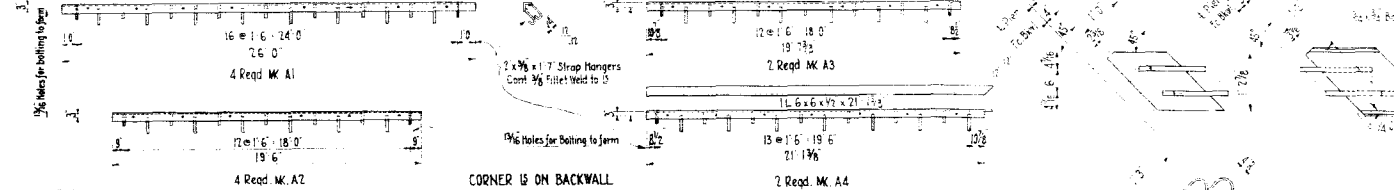
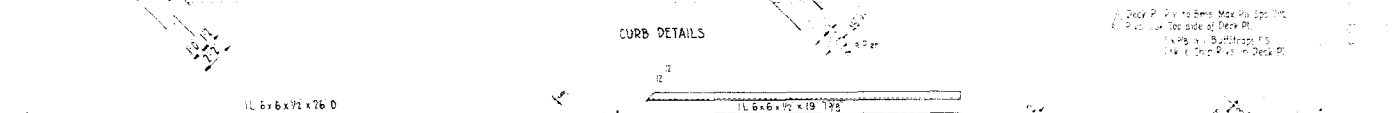
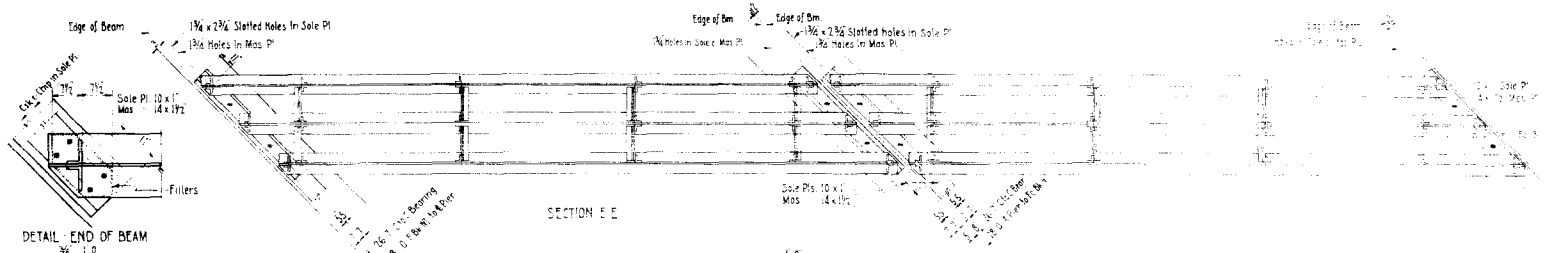
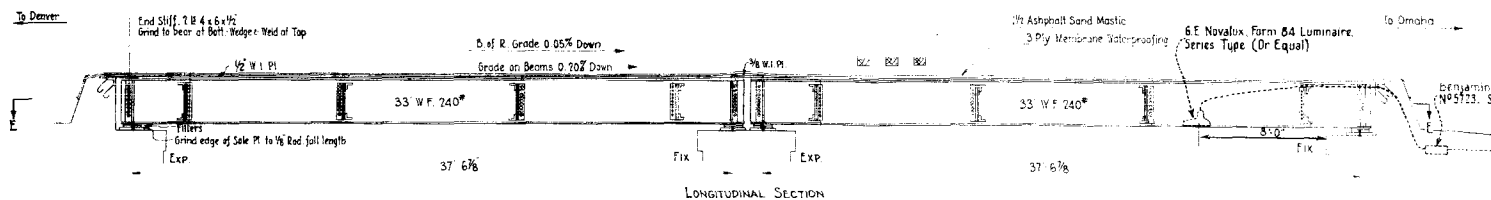




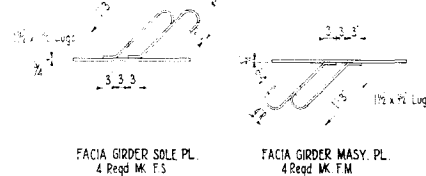
COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46th AVE UNDER-PASS.
STRUCTURAL STEEL &
BEARINGS

UNDER _____ UPRR Tracks
Sta. 13+00.45
IN DENVER _____ Sec. 23 T. 3S R. 68W

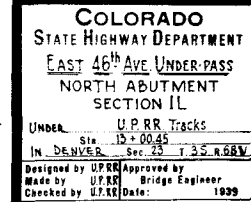
Designed by UPRR	Approved by
Made by UPRR	Bridge Engineer
Checked by UPRR	Date: 1939



LIVE LOAD COOPERS E72		Design For One Stringer	
Track Loads Per Sq Ft		LIVE Load From One Track Distributed Over 4.07 Beams	
Brack	20 lbs	Shear	For One Beam
Dustfall	150		Moment
W P & Mastic	25	D = 16,400*	D = 155,000*
Deck Pl.	26	L = 64,400	L = 573,000
Steel	134	I = 62,700	I = 510,000
Total	355	Total 143,500*	Total 1,188,000*
		e 11,000 - 13.05' Reqd	S.M. Reqd 1,188,000 x 12 = 792
		Web 33.5 x 0.83' 27.8"	18,000
			33' W.F. 240*
			S.M. Gross 811.
			S.M. Net 797



0.3



REVISIONS

Rev. 11/4 29 21/6 S. Backfill Material Note.

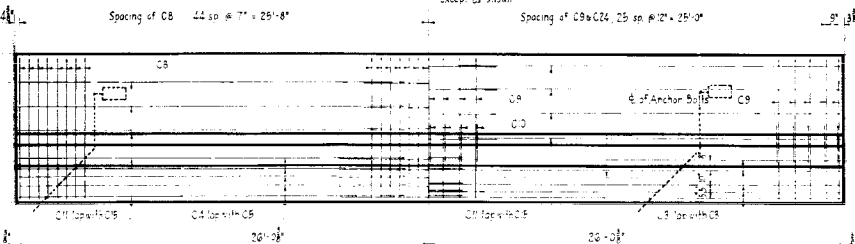
FED. ROAD DIST. NO.	STATE	FAGM	SHEET NO.	TOTAL SHEETS
3	COLO.	20-A(1)	20	

Spacing of Const. Joints in Slab

Symm about this & except as shown

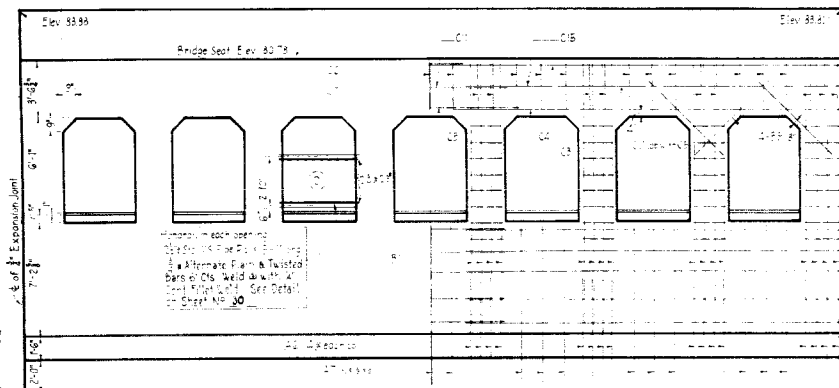
Spacing of C9 & C24, 25 sp @ 21" - 25'-0"

Spacing of C8 44 sp @ 21" - 25'-0"



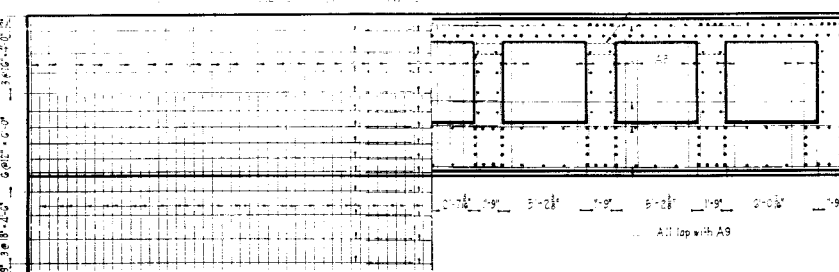
REINFORCING BOTTOM FACE OF BEAM AND ROOF SLAB REINFORCING BACK WALL TOP OF BEAM AND ROOF SLAB

A1 B1



FRONT ELEVATION ABUTMENT SECTION 2L

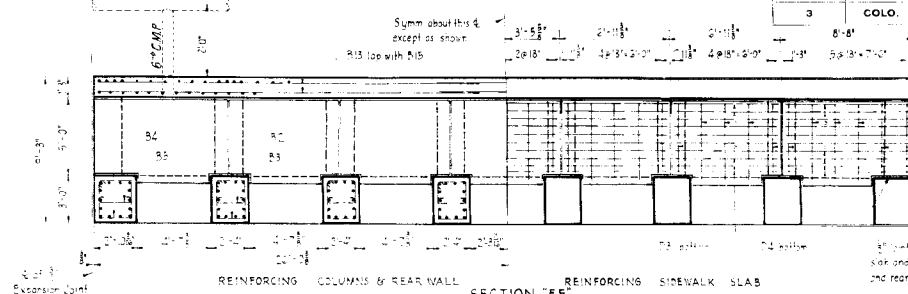
SHOWING DIMENSIONS REINFORCING FRONT WALL



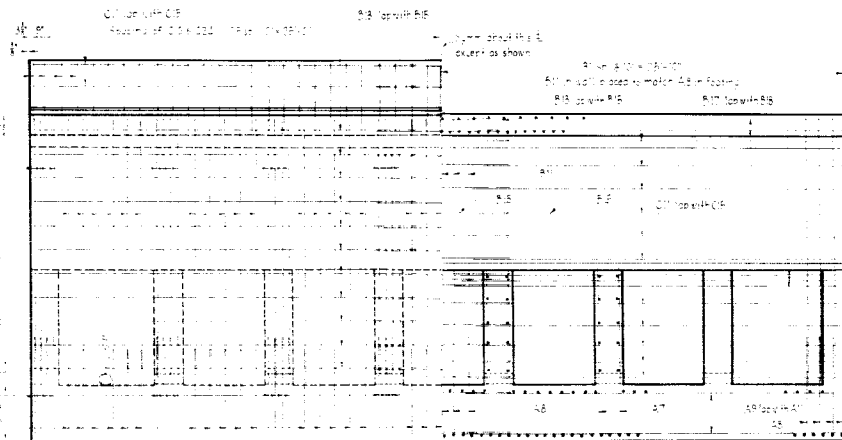
REINFORCING IN BOTTOM TOP PLAN OF FOOTING

REINFORCING IN TOP OF FOOTING SECTION 'CC'

6" Perforated C.M.P.

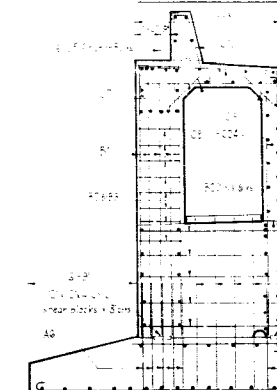


REINFORCING COLUMNS & REAR WALL REINFORCING SIDEWALK SLAB

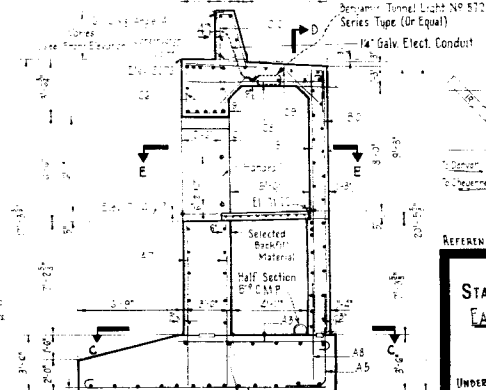


REINFORCING BACK FACE OF REAR WALL HALF REAR ELEVATION

REINFORCING INSIDE FACE OF REAR WALL SECTION 'DD'



SECTION 'BB'



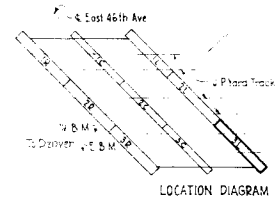
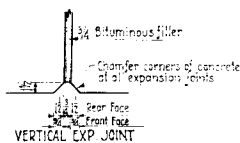
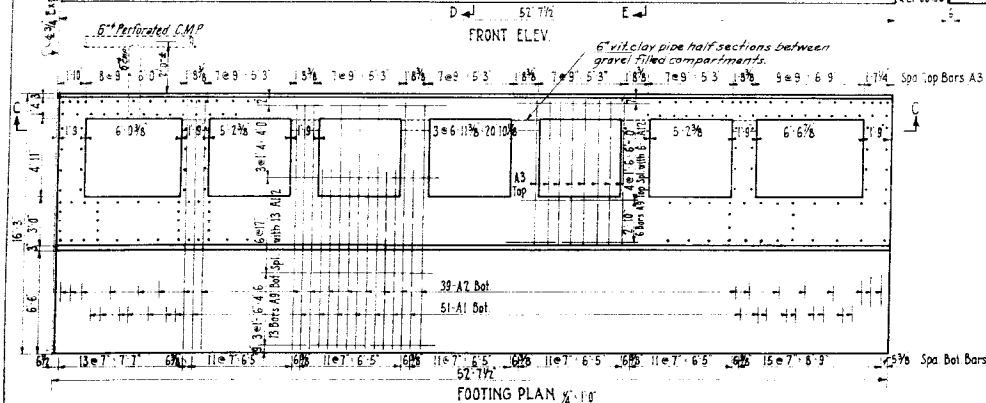
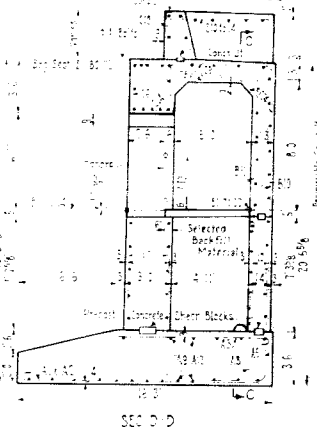
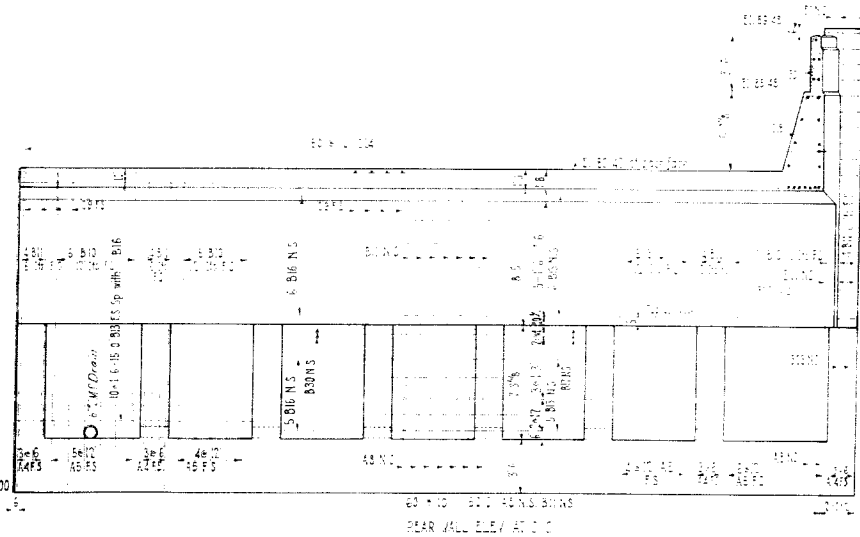
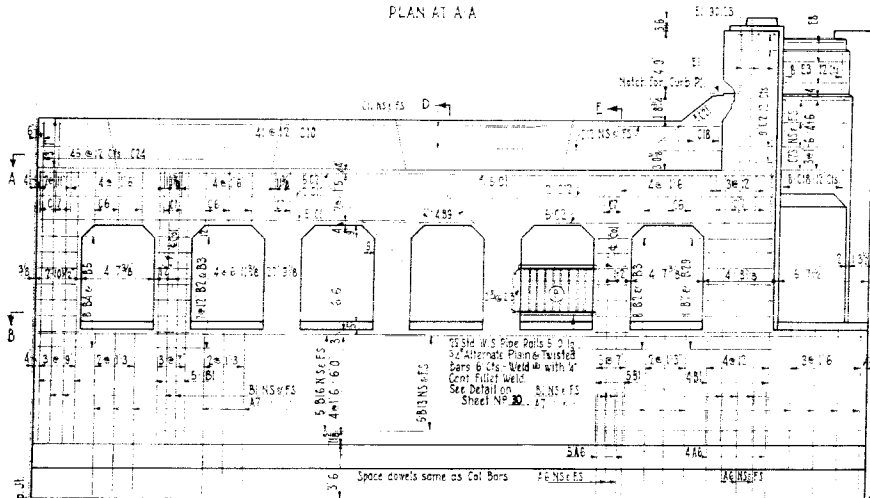
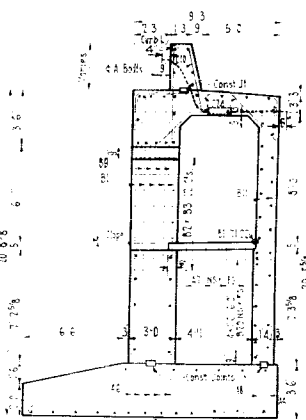
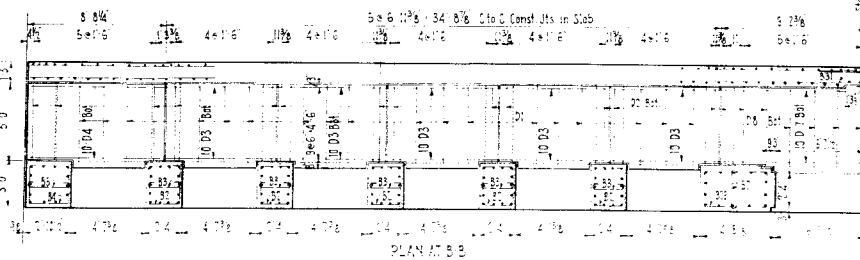
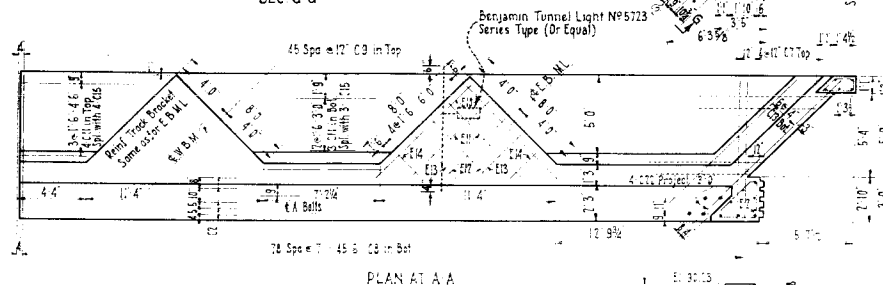
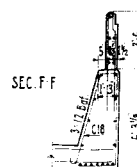
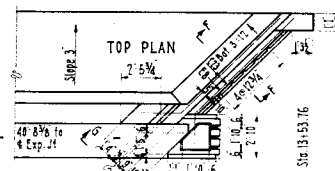
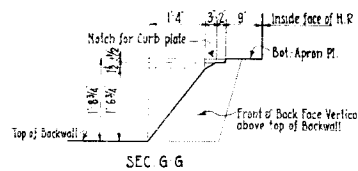
SECTION 'AA'

STRUCTURE NO. E-17-Z

REFERENCE DRAWINGS: See List On Sheet No. 9

COLORADO STATE HIGHWAY DEPARTMENT
EAST 46TH AVE. UNDERPASS
NORTH ABUTMENT
SECTION 2L

UNDER U.P. RR Tracks
Sta. 15+00.45
IN DENVER Sec. 23 T. 33 S. R. 68 W.
Designed by UPRR Approved by
Made by UPRR Bridge Engineer
Checked by UPRR Date: 1989



REFERENCE DRAWINGS: See List On Sheet No 9

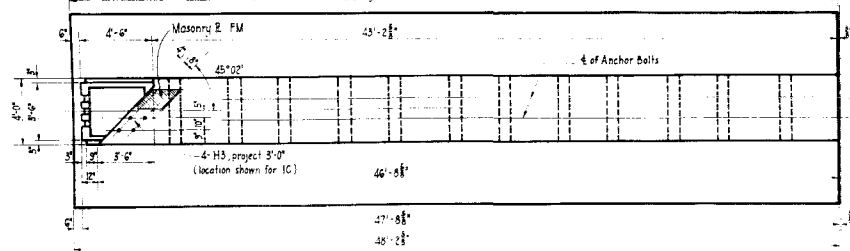
COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46th AVE. UNDERPASS
NORTH ABUTMENT
SECTION 3-L

Under	UPRR Tracks	
Sta	13+00.45	
In	DENVER	Sec 23 T 35 R 68 N
Designed by U.P.R.R.	Approved by	
Made by U.P.R.R.	Bridge Engineer	
Checked by U.P.R.R.	Date	1938

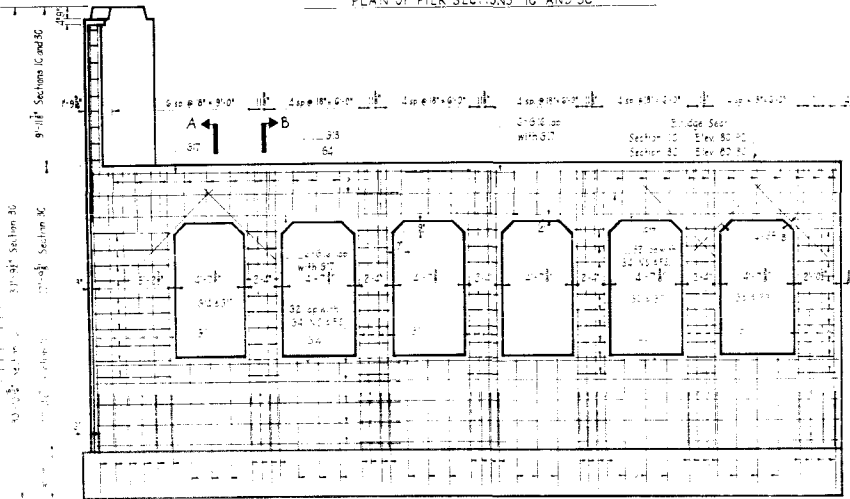
Note: For details of Pylon & Handrai
see sheet 19

STRUCTURE NO. E-17-Z

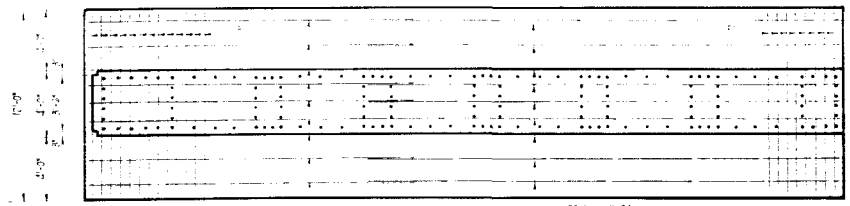
45'-3" End of Footing to E of Expansion Joint



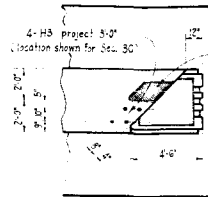
PLAN OF PIER SECTIONS 1C AND 3C



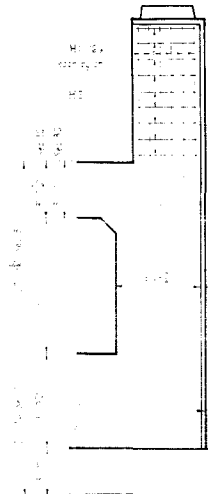
SIDE ELEVATION PIER SECTIONS 1C AND 3C



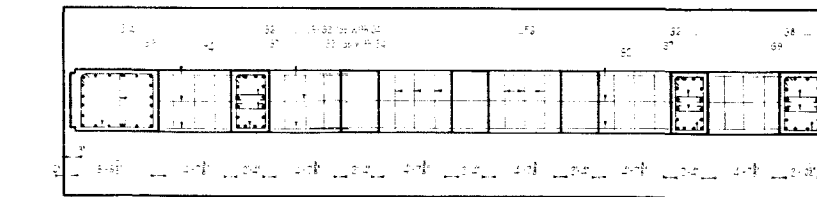
SECTION 'CC'



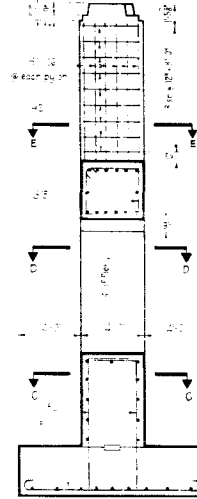
PART PLAN



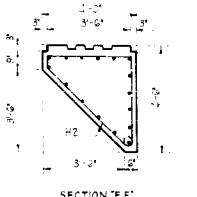
PART ELEVATION



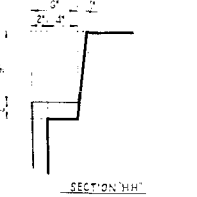
SECTION 'DD'



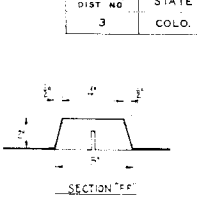
SECTION 'AA'



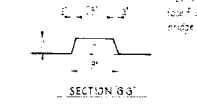
SECTION 'EE'



SECTION 'HH'



SECTION 'FF'



SECTION 'BB'

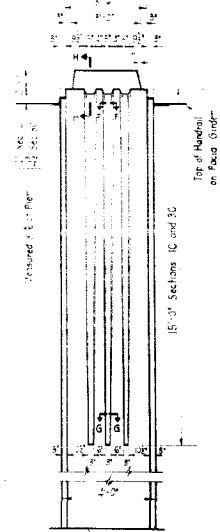
Note:

Linkages to be located
according to the forms and left
in place. When forms are
stripped, linkages and base
to them shall remain in place
undisturbed.

Note:

Linkages to be located
according to the forms and left
in place. When forms are
stripped, linkages and base
to them shall remain in place
undisturbed.

TOP VIEW OF PYLON



Top of Footing
Elev. 28'-0" Sections 1C and 3C

END VIEW OF PYLON

REFERENCE DRAWINGS: See List On Sheet No. 9

COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46TH AVE UNDERPASS
PIER SECTIONS
1C & 3C
Under: UPRR Tracks
Sta. 15+00.45
In DENVER Sec. 23 T.35S. R.68W
Designed by UPRR Approved by
Made by UPRR Bridge Engineer
Checked by UPRR Date 1959

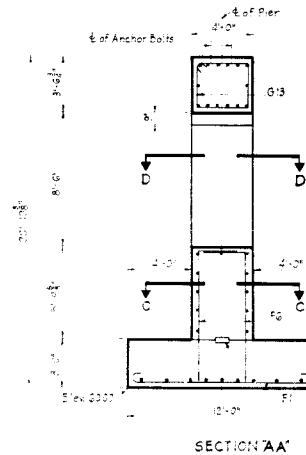
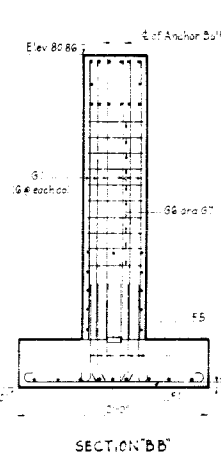
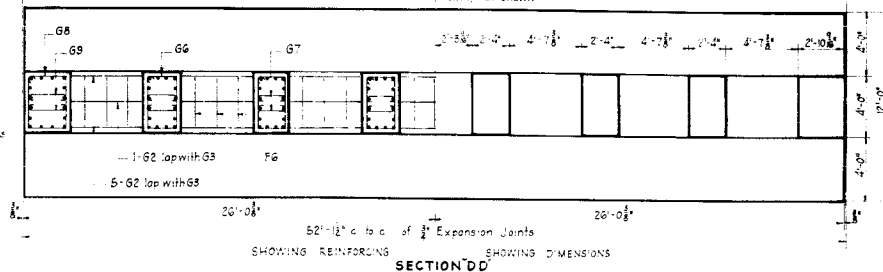
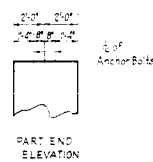
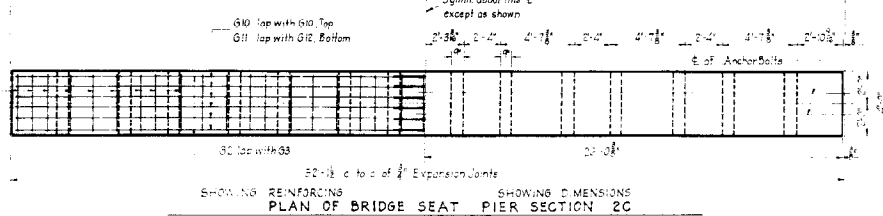
STRUCTURE NO. E-17-Z

FED. ROAD DIST. NO.	STATE	F.A.G.M.	SHEET NO.	TOTAL SHEETS
3	COLO.	20-A0	23	

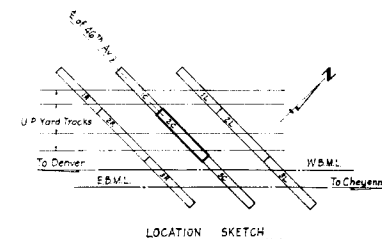
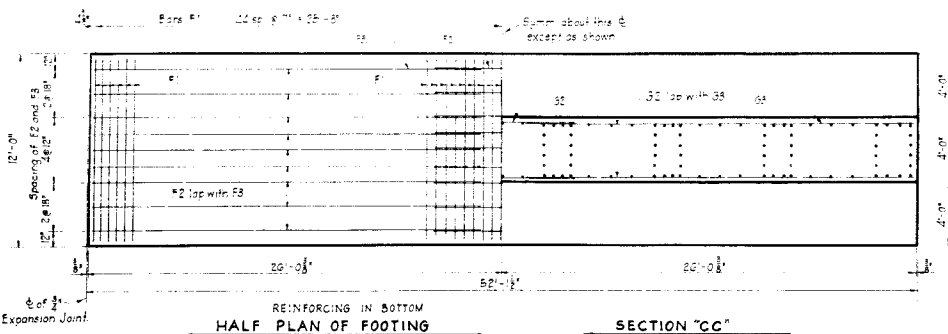
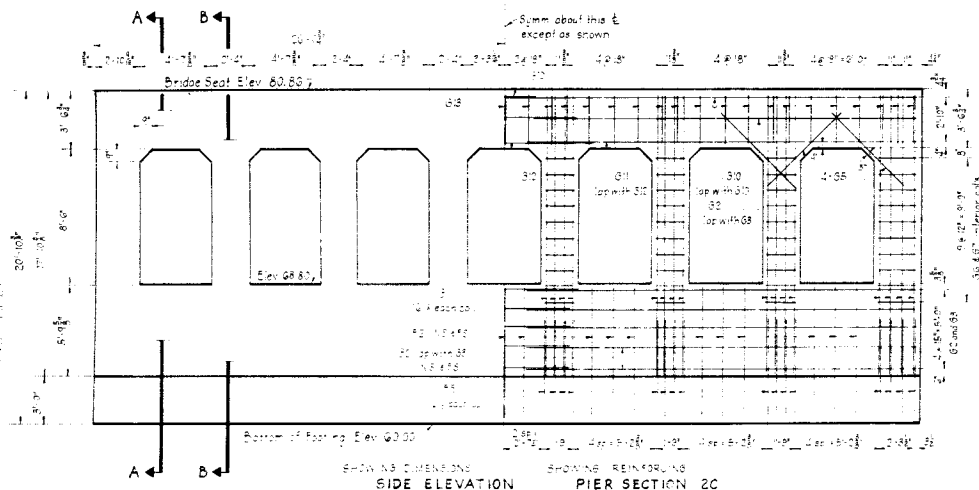
Note:
Bars #10 and #8 shall be placed accurately in accordance with the spacing shown to clear anchor bolts.

Summ about this & except as shown

#10, for spacing see "Side Elevation"



12" x 24" precast concrete
block cracks & joints

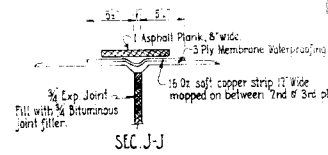
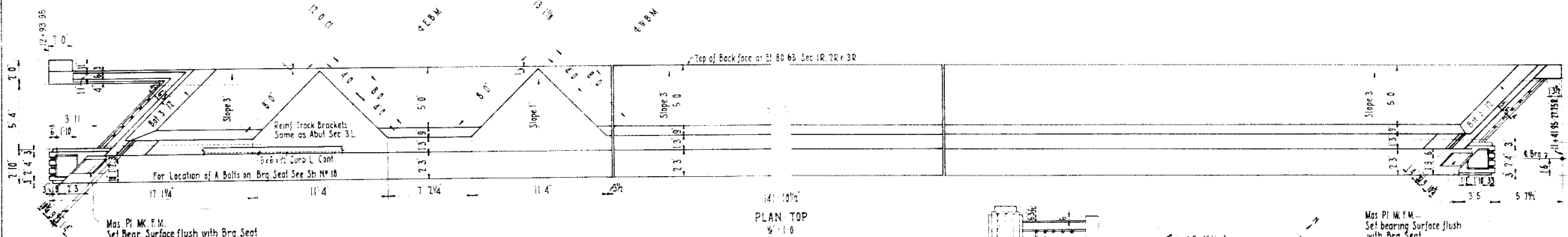
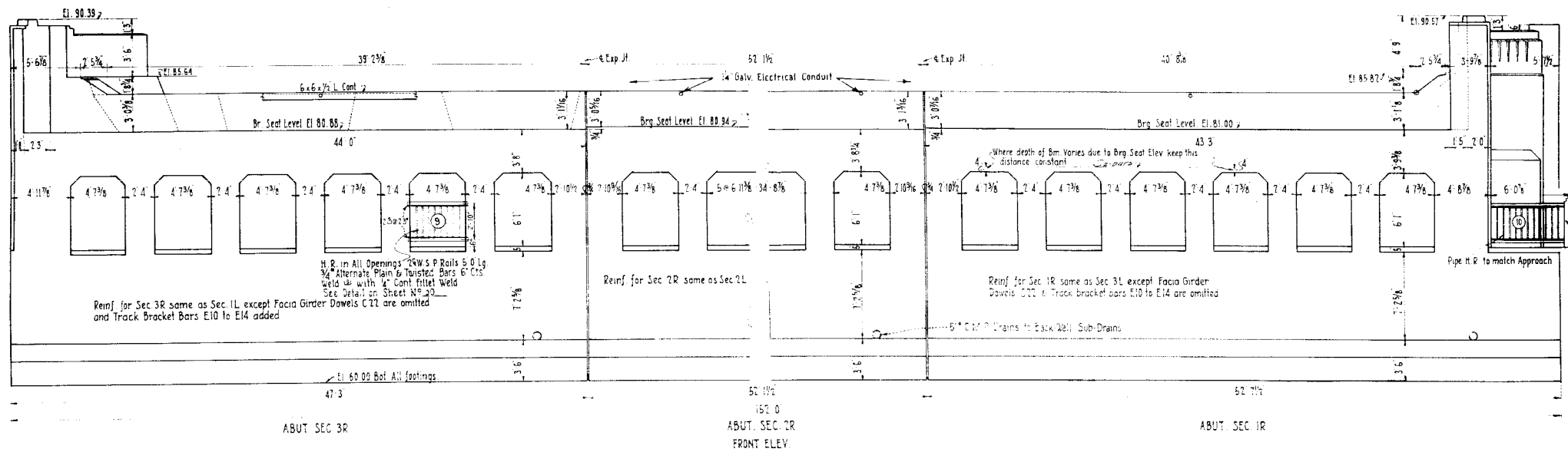


REFERENCE DRAWINGS: See List On Sheet No. 9

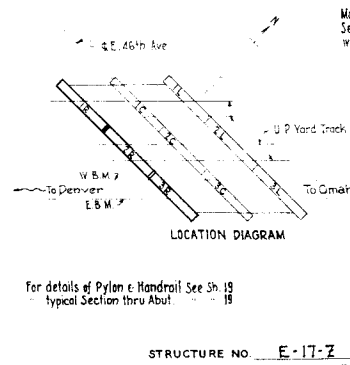
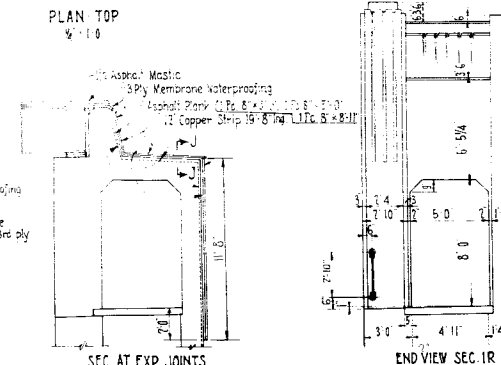
COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46th AVE UNDERPASS
PIER SECTION
2-C

Under: UPRR Tracks
Sta: 13+00.45
In: DENVER, Sec. 23, T.3S, R.65W
Designed by: UPRR
Made by: UPRR
Checked by: UPRR
Date: 1930

STRUCTURE NO. E-17-Z



PLAN TOP



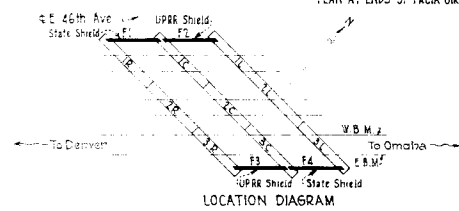
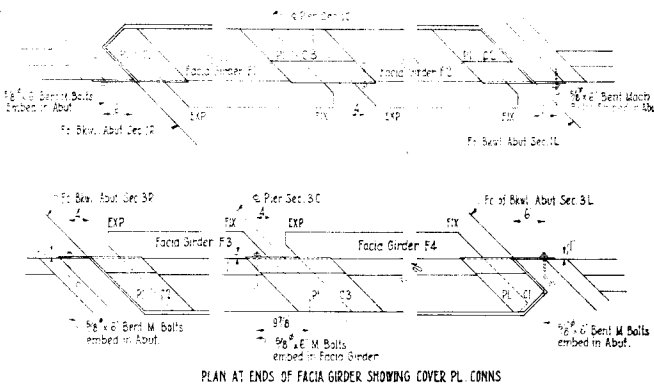
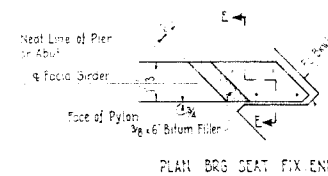
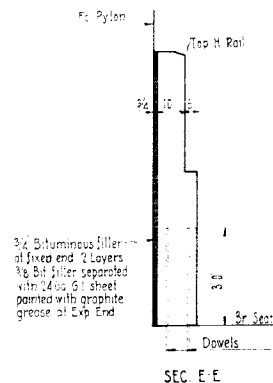
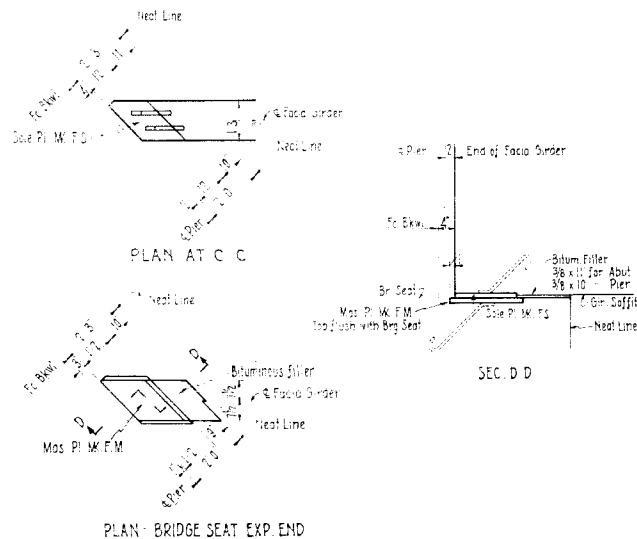
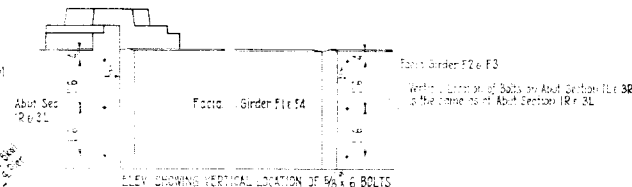
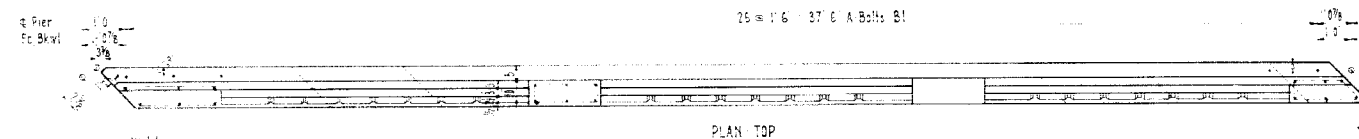
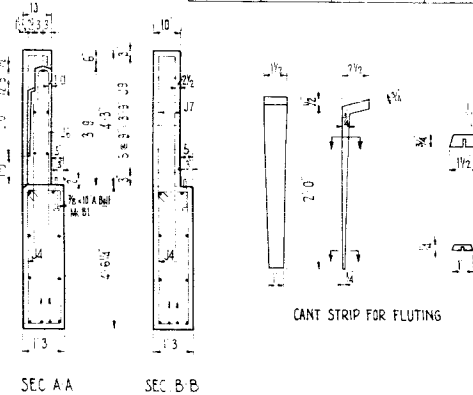
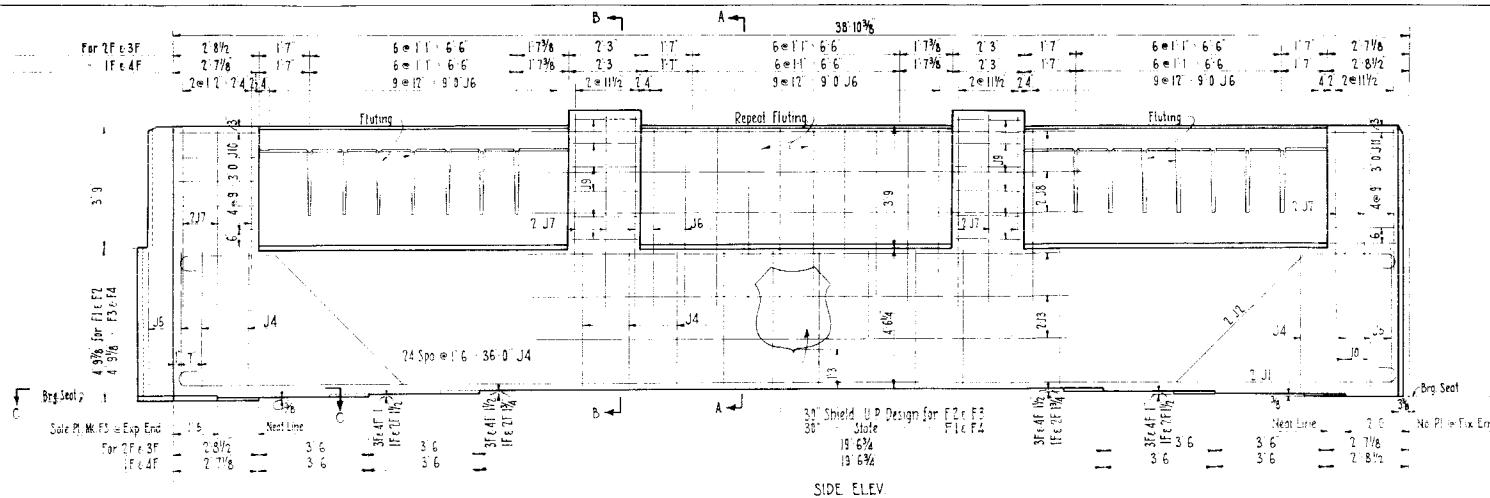
REFERENCE DRAWINGS: See List on Sheet No. 9

COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46th AVE. UNDERPASS
SOUTH ABUTMENT
SECTIONS 1-R, 2-R & 3-R
UPRR Tracks

Under Sta. 13+00.45
In DENVER Sec. 23 T.B.S. & R.W.

Designed by U.P.R.R. Approved by U.P.R.R. Bridge Engineer
Made by U.P.R.R. Checked by U.P.R.R. Date: 1939

FEED ROAD DIST. NO.	STATE	FA-G-M	SHEET NO.	TOTAL SHEETS
3	COLO.	20-A(1)	25	



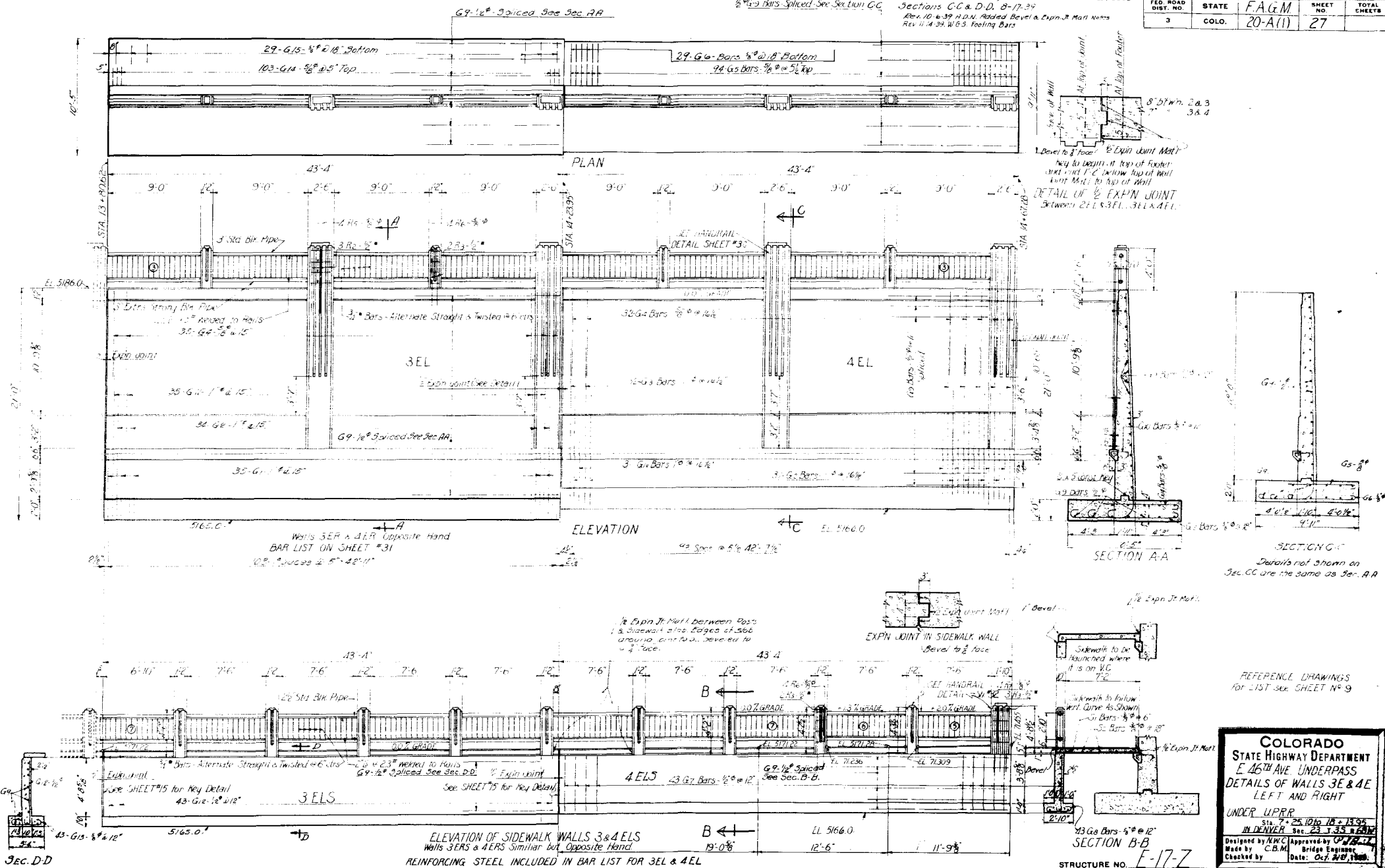
REFERENCE DRAWINGS: See List on Sheet N49

COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46th AVE. UNDERPASS
FACIA GIRDER.

Under UPRR Tracks
Sta 13+00.45
In DENVER Sec 23 T 35 R 68W

Designed by UPRR Bridge Engineer
Checked by UPRR Date: 1939

FED. ROAD DIST. NO.	STATE	F.A.G.M.	SHEET NO.	TOTAL SHEETS
3	COLO.	20-A(1)	27	

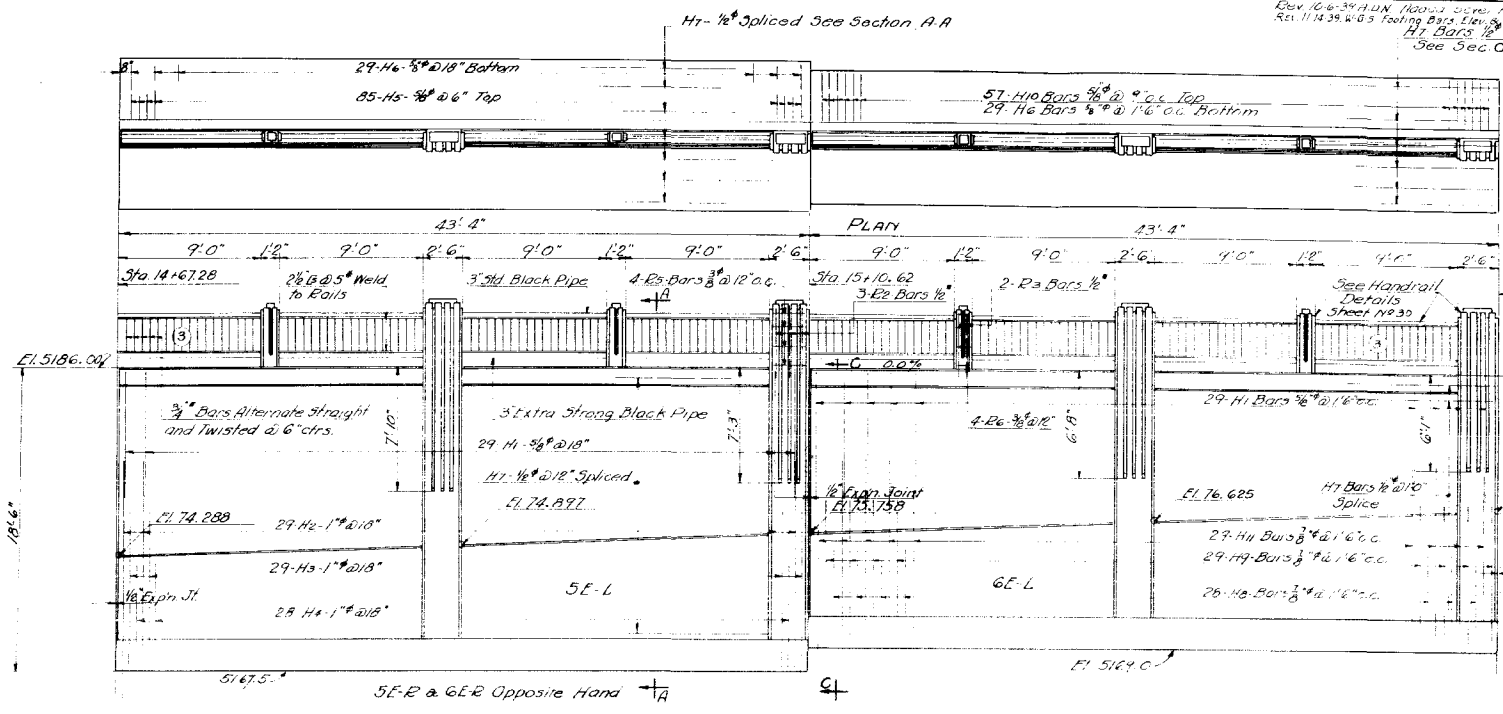


REVISIONS

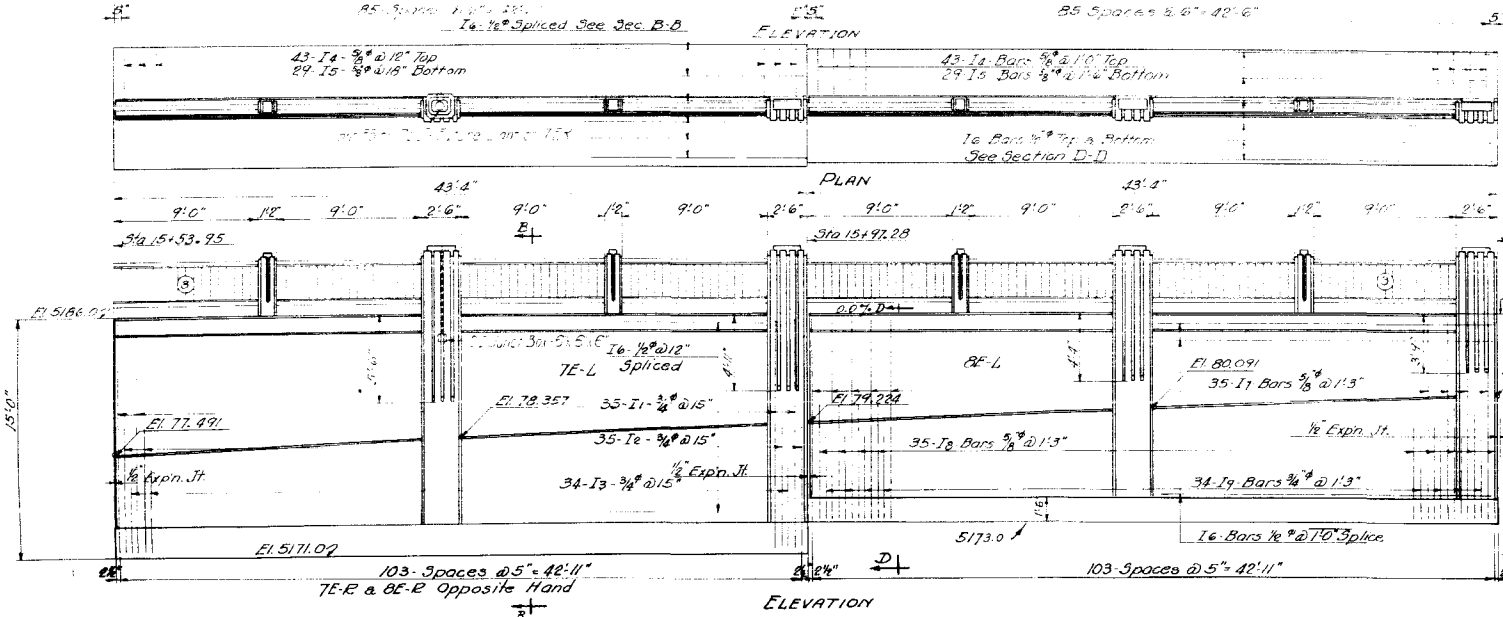
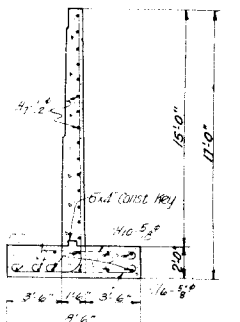
Rev. 10-6-34 A.D.N. (Rounds were made)
Ret. 11-14-39 W.D.S. Footing Bars Elev. Dimension
H7 Bars 1/2" Top & Bot
See Sec. C-C

FED. ROAD DIST. NO.	STATE	FAG. M.	SHEET NO.	TOTAL SHEETS
3	COLO.	20A (U)	28	

Rev. A.D.N. Revised from of wall sections 5E-L, 6E-L & 8E-L
See C-C & D-D. 8-17-39



Key to begin at top of footer
and 1'-2" below top of wall.
Expn. Mat. to extend to top of wall.
Expn. Jt. between 5E-L & 5E-L
a between 5E-L & 6E-L



Key to begin at top of footer
and 1'-2" below top of wall.
from Mat. to extend to top of wall
Expn. Jt. between 6E-L & 7E-L
a between 7E-L & 8E-L

DETAILS NOT SHOWN ARE SAME AS ON SECTION B-B
SECTION D-D

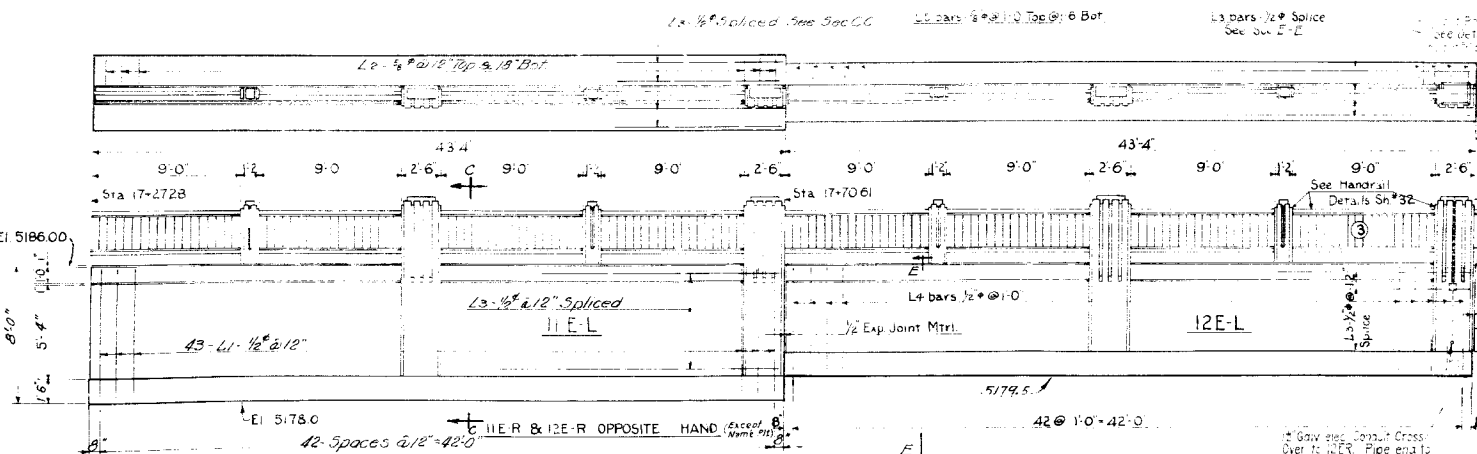
REFERENCE DRAWINGS
For list see sheet #9
Bar List on sheet #31

COLORADO
STATE HIGHWAY DEPARTMENT
E-46TH AVE UNDERPASS
DETAILS OF WALLS
5E-L, 6E-L, 7E-L, & 8E-L
UNDER U.P.R.R.
Sta. 7125.00 to 7125.95
IN Denver, Sec. 23 T. 33N. 60W.
Designed by R.W.C. Approved by C.W. Baker
Made by A.D.N. Bridge Engineer
Checked by P.D.W. Date: Oct. 1939

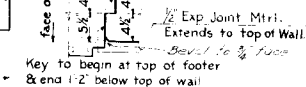
STRUCTURE NO. E17-2

[illegible]

Bar Lists on Sheet #3!

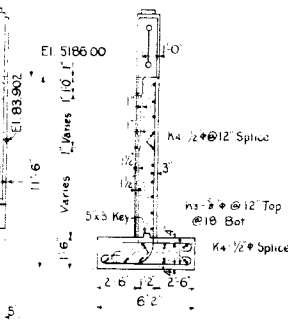


PLAN & ELEVATION OF WALLS 11E-L & 12E-L

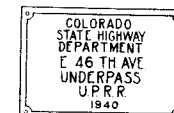


EXP. JOINT BETWEEN 8E & 9E
& BETWEEN 9E & 10E.

Sta 17+27.28

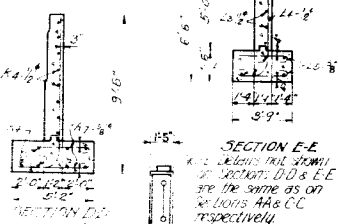


SECTION A-A

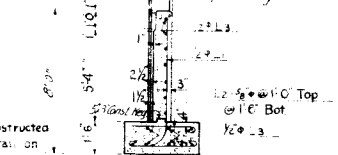


BRONZE NAME PLATE
2 REQD. SEE STD.
1 on Wall Sect. 14R
1 - 12EL

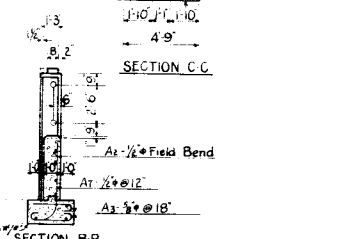
REFERENCE DRAWINGS
LISTED ON SHEET N29



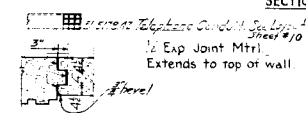
SECTION E-E
Details not shown
Sections D-D & E-E
are the same as on
Sections AA & CC
respectively.



SECTION C-C



SECTION B-B



Key to begin at top of footer
& end 1'-2" below top of wall.

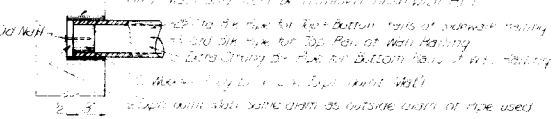
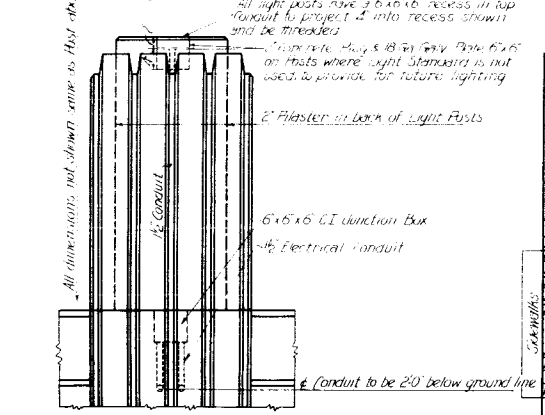
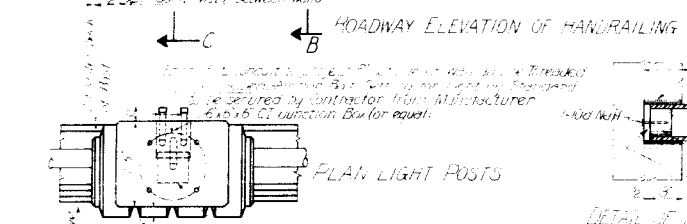
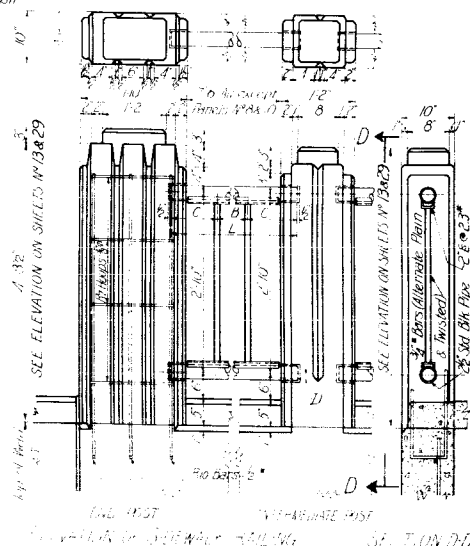
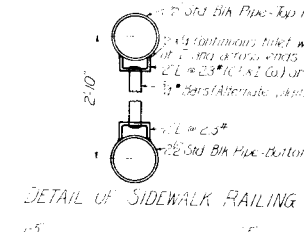
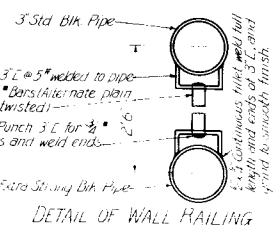
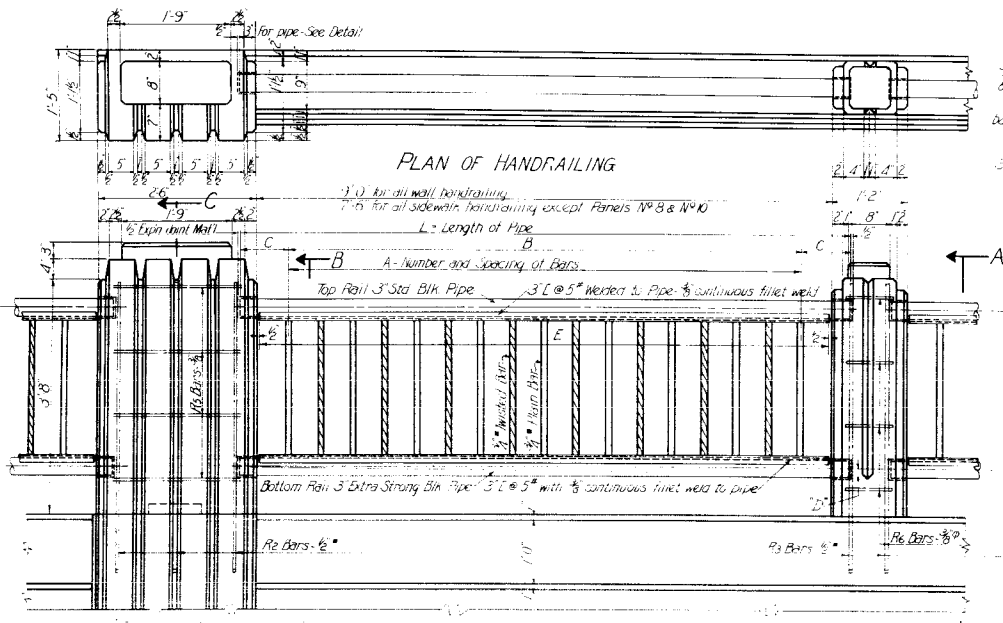
EXP. JOINT BETWEEN 10E & 11E
& BETWEEN 11E & 12E.

STRUCTURE NO. E-17-Z

COLORADO
STATE HIGHWAY DEPARTMENT
E 46th AVE UNDERPASS
DETAILS OF WALLS 9E, 10E,
11E & 12E, RT AND LT.

UNDER U.P.R.R.
Sta. 7+25.10 to 18+13.95
IN Denver Sec. 23 T. 3 S. R. 68 W.

Designed by N.W.C.	Approved by <i>G.J. Bailey</i>
Made by R.A.D.	Bridge Engineer
Checked by	Date: Oct. 21st, 1939.



LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA	LOADING DATA
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

LOCATION	PERCENT GRADE	NUMBER OF CURBS	NUMBER OF PIPE RAILINGS	PIPE LENGTH L	PIPE DIA. SHADING	A	B	C	GRADE OFFSET D	GRADE OFFSET E	PIPE DIA. SHADING	A	B	C	GRADE OFFSET D	GRADE OFFSET E	PIPE DIA. SHADING	A	B	C	GRADE OFFSET D	GRADE OFFSET E
INLA & TWR	0.1	0.4%	2	9'-6"	16 Spcs @ 6"	8'-0"	0'-9"	0	8'-0"	35'-4"	13'-0"	13'-0"										
INLA & TWR	0.2	0.4%	72	9'-6"	16 Spcs @ 6"	8'-0"	0'-9"	0	8'-0"	125'-0"	13'-0"	13'-0"										
INLA & TWR	0.3	0.0%	100	9'-6"	16 Spcs @ 6"	8'-0"	0'-9"	0	8'-0"	175'-4"	13'-0"	13'-0"										
INLA & TWR	0.4	0.0%	2	9'-6"	16 Spcs @ 6"	8'-0"	0'-9"	0	8'-0"	35'-4"	13'-0"	13'-0"										
INLA & TWR	0.5	1.8%	4	8'-0"	13 Spcs @ 6"	6'-6"	0'-9"	0	7'-5"	59'-4"	14'-0"	14'-0"										
INLA & TWR	0.6	1.0%	4	8'-0"	13 Spcs @ 6"	6'-6"	0'-9"	0	7'-5"	59'-4"	14'-0"	14'-0"										
INLA & TWR	0.7	0.0%	54	8'-0"	13 Spcs @ 6"	6'-6"	0'-9"	0	7'-5"	50'-0"	14'-0"	14'-0"										
INLA & TWR	0.8	0.0%	2	7'-4"	12 Spcs @ 6"	6'-0"	0'-8"	0	6'-3"	59'-4"	13'-0"	13'-0"										
INLA & TWR	0.9	0.0%	38	5'-0"	10 Spcs @ 6"	3'-6"	0'-9"	0	4'-0"	34'-0"	10'-0"	10'-0"										
INLA & TWR	1.0	0.0%	4	6'-6"	10 Spcs @ 6"	5'-0"	0'-9"	0	5'-11"	42'-11"	10'-0"	10'-0"										
TOTAL										3138'-8"	1339'-0"	1453'-11"	1672'-0"	1672'-0"								

REFERENCE DRAWINGS
FOR LIST SEE SHEET N 9

COLORADO
STATE HIGHWAY DEPARTMENT
E 46TH AVE. UNDERPASS
WALL & SIDEWALK RAILING DETAILS

UNDERPASS
Sta. 1+25.00 to 1+395
IN DENVER Sec. 23 T 33 S 66W

Designed by **CBM** Approved by **CBM**
Made by **CBM** Bridge Engineer
Checked by **CBM** Date: Oct 2/9, 1999

12:12

3'-4"

11'-4"

3'-4"

G.V. at 11' from sump with ventilator

Roof Ventilator

Roof Drain with strainer

See Dec. B-B

Hand-drawn floor plan of a rectangular room. The overall dimensions are 12'-0" wide by 12'-0" deep. The plan shows a central area with a circular feature labeled "O.C. bars" and "3-Plaster". The room is surrounded by a thick wall with "3-Plaster" and "O.C. bars" indicated. A door is shown on the left wall, labeled "12'-0\"

Technical drawing of a rectangular frame structure. The drawing shows a central rectangular opening with a width of 40 and a height of 30. The frame is composed of two vertical sections on the left and right, and two horizontal sections at the top and bottom. The left vertical section is labeled 'A' and the right vertical section is labeled 'B'. The top horizontal section is labeled 'C' and the bottom horizontal section is labeled 'D'. The drawing includes dimension lines and arrows indicating the measurements and labels.

Hand-drawn floor plan of a bathroom. The plan shows a rectangular room with a central bathtub labeled "Tub" and a toilet labeled "Toilet" to its right. A door is located on the left wall, labeled "Door Into Living Room". A window is on the right wall, labeled "Window". A vent is indicated on the right wall, labeled "Ventilator on 6\" C/Pipe 10\"". Dimensions are noted around the perimeter: 3'-4\" on the left, 5'-6\" on the top, and 3'-4\" on the right. A note at the bottom right states "Floor both rooms 1\" 2\" C/Pipe 10\"".

SECTION "C-C"~ BEAM DETAIL

SECTION "D-D" - BEAM DETAIL

A hand-drawn architectural sketch of a building facade. It features a central door with a small window above it, flanked by two larger windows. The drawing is labeled with 'B' and 'C' at the top, and 'A' and 'D' on the sides. The sketch is drawn with simple lines and includes some shading to indicate depth.

Glass Panel Taken from Window and provided to

Note: Contractor to secure from Manufacturer supplying electrical equipment for Pump House, the size of conduct & wiring diagrams of same.

[illegible]

BAR LIST FOR FIVE HANCE QUINCY STRUCTURE									
Mark	Size	% Field	Length	Type	a	r	s	Bending Diagrams	
M1	1 1/4"	2	17'-2"						
M2	1 1/4"	2	17'-2"	XYZ					
M3	1 1/4"	2	17'-2"						
M4	3/8"	2	3'-0"	II	3'-6"	3 1/2"	3"		
M5	3/8"	2	9'-0"		3'-6"	3 1/2"	3"		
M6	3/8"	22	3'-0"	XV					
M7	3/8"	32	3'-0"						
M8	3/8"	32	3'-0"						
M9	3/8"	32	3'-0"						
M10	3/8"	32	3'-0"						
M11	3/8"	32	3'-0"						
M12	3/8"	28	3'-0"						
M13	3/8"	27	11'-3"						
M14	1/2"	3	5'-2"						
M15	3/8"	6	3'-6"						
M16	3/8"	16	3'-3"						
M17	3/4"	C	4'-2"	XVI					

Summary for Bar List

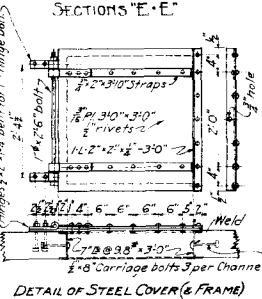
3605 Unit 3/8"	120.576 lbs. per Lin Ft.	= 889 Lbs.
847 - 1/2"	2.066	= 366
26 - 3/4"	1.502	= 36
44 - 3/8"	0.284	= 90
		= 17
Total		= 1600

-1% ± for Overrun

COLORADO
STATE HIGHWAY DEPARTMENT
PUMP HOUSE
SUPERSTRUCTURE
E. 42ND AVE. UNDERPASS.
STPPL LEFT STA. 12100 ±
UNDER UNION PACIFIC R.R.
Sta 7125.10 to 7141.95
IN DENVER Sec. 35 T. 35 N. 68 W.
Designed by **E.H.N.** Approved by **Pd. Bailey**
Made by **L.J.S.** Bridge Engineer
Checked by **R.W.** Date: **Oct. 31ST, 1955**

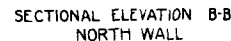
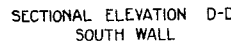
BAR LIST FOR PUMP HOUSE SUBSTRUCTURE									
MARK	SIZE	NO	LENGTH	TYPE	a	b	c	d	e
P 2	1/2"	10	4 - 3"						
P 3	1/2"	4	21' - 9"		7' - 8"	5' - 1"	2'		
P 4	1/2"	4	12' - 0"	XVIII					
P 5	1/2"	4	13' - 6"	XVIII		5' - 0"	2'		
P 6	1/2"	36	21' 5"	XX	20' - 2"		2'		
P 7	1/2"	42	11' - 6"	XX			2'		
P 8	1/2"	54	2' - 10"	XX	4' - "				
P 9	3/4"	6	13' - 0"		11' - 0"		3'		2 1/2'
P 10	3/4"	26	12' - 6"	II	11' - 0"		3'		2 1/2'
P 11	3/4"	48	13' - 0"	II	11' - 0"		3 1/2'		3'
P 12	3/4"	30	13' - 3"	II	10' - 11"		3 1/2'		3'
P 13	3/4"	20	12' - 9"	II	11' - 1"		2'		2"
P 14	3/4"	12	12' - 6"	II	11' - 2"		2'		2"
P 15	3/4"	14	21' - 6"	II	20' - 2"		2'		2"
P 16	3/4"	14	21' - 6"	XX	20' - 2"		2'		2"
P 17	3/4"	26	21' - 9"	II	20' - 1"		2 1/2'		2"
P 18	3/4"	6	13' - 0"	II	11' - 8"		2'		2"
P 19	3/4"	32	16' - 0"	II	12' - 0"		3'		2 1/2'
P 20	3/4"	24	27' - 3"	XX	7' - 6 1/2"		2 1/2'		
P 21	3/4"	108	30' - 0"						
P 22	3/4"	21	13' - 0"		11' - 0"		3'		2 1/2'
P 23	1"	18	22' - 9"	II	20' - 1"		4'		3 1/2'
P 24	3/4"	96	5' - 0"	I	4' - 2"		2 1/2'		
P 25	3/4"	42	4' - 2"	XX					
P 26	3/4"	132	4' - 2"	XX					
P 27	3/4"	40	5' - 4"	XX					

XIX BENDING DIAGRAMS	I
II	III
XV	XVI Ladder Rounds
XVII	XVIII
XX	XXI

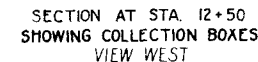


DETAIL OF STEEL COVER (& FRAME

⑦ @ 98" x 3'0"
Cut and weld I₃ to form
frame 2'8" x 2'8" clear opening
Weld 3 Carriage bolts to



Note: Center Wall designed for a
hydraulic head of 10'-0"
Waterproof Sumps & Discharge box inside and outside
with TW-1-X (Std. Specs.)



REFERENCE DRAWINGS
For List see Sheet No. 9

STRUCTURE NO. E-17-Z

COLORADO
STATE HIGHWAY DEPARTMENT
E. 46th AVE UNDERPASS
PUMP HOUSE SUBSTRUCTURE
57 ± LEFT STA 12+00±
COLLECTION BOXES

Under **UNION PACIFIC R.R.**
Sta. **7+251 to 10+1395**

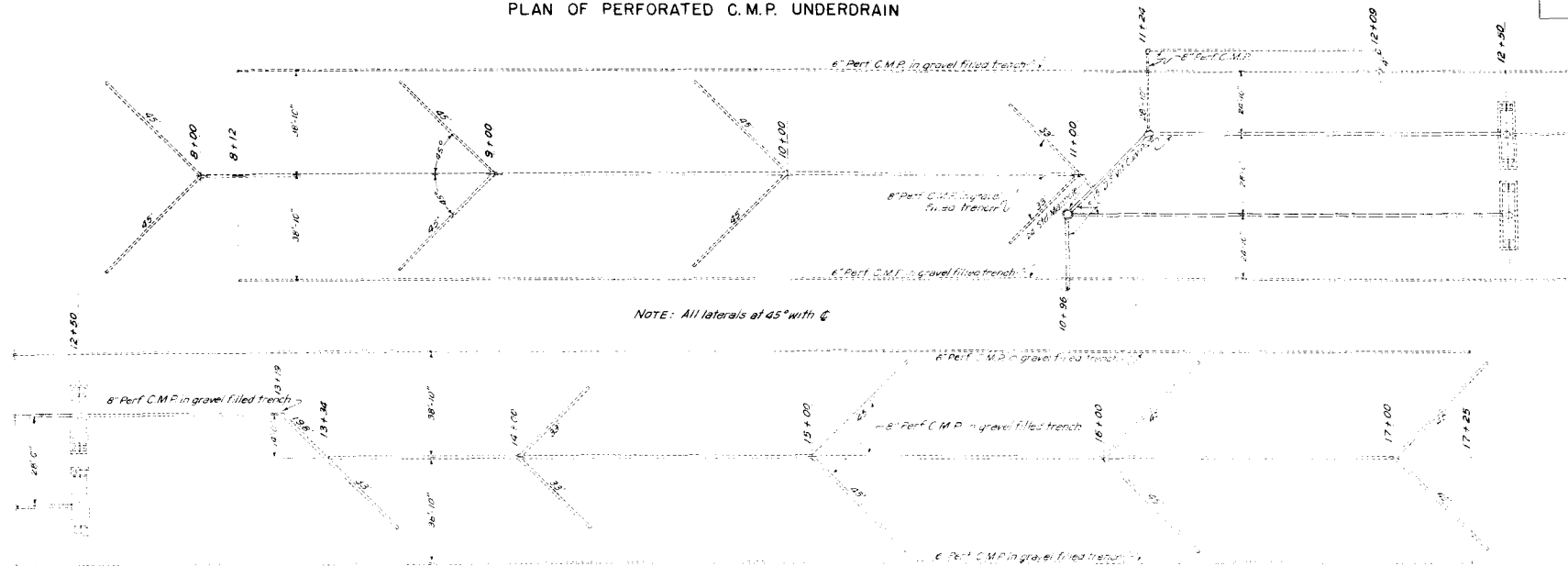
In **DENVER** **Sec. 23 T.33 S. 68W**

Designed by **EFW**
Made by **A.D.P.**
Checked by **P.D.W.**

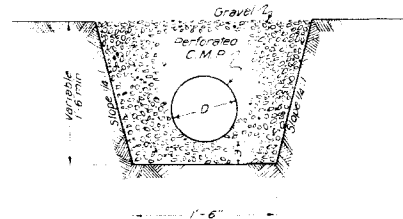
Approved by **P.D. Bailey**
Bridge Engineer
Date: **Oct. 2nd, 1953**

PLAN OF PERFORATED C.M.P. UNDERDRAIN

FED. ROAD DIST. NO.	STATE	F. A. G. M. PROJ. NO.	SHEET NO.
3	COLO.	20-A(1)	34



NOTE: All laterals at 45° with C



DETAIL OF PERFORATED C.M.P. UNDERDRAIN

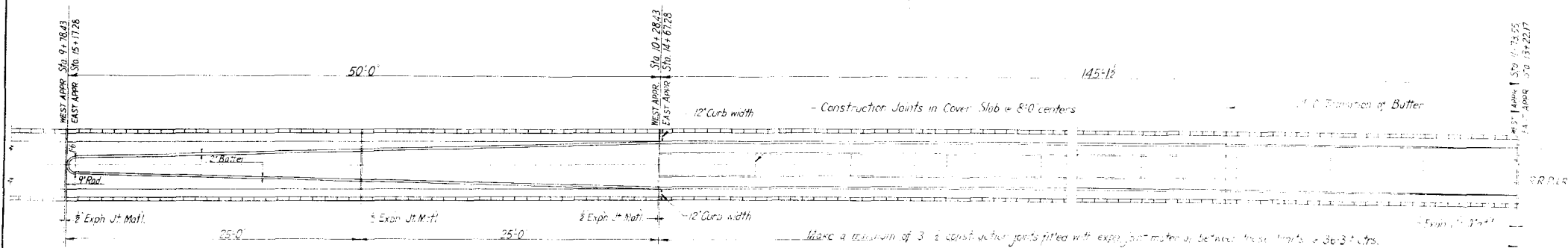
NOTES

The lengths shown on laterals of the underdrain represent the length between the end of the lateral and the outside of the main line.

All Y branches and other necessary specials incidental to complete installation of the underdrain are to be included in the price bid per linear foot for Perforated C.M.P. underdrain.

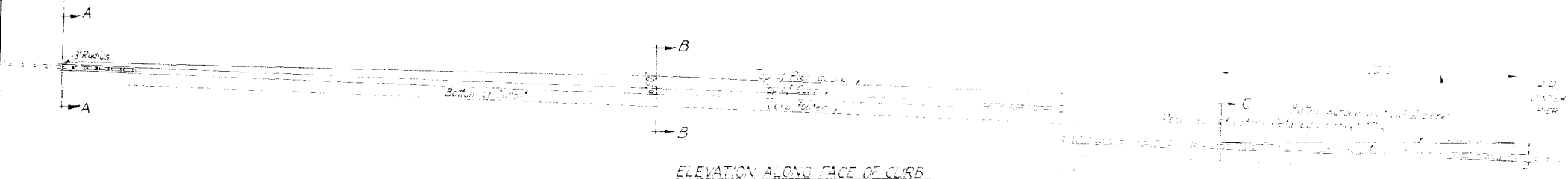
Connections to manholes are to be so constructed that the flow of the underdrain enters the manhole at an elevation above the half point on the sewer main.

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	46M20A1	35	

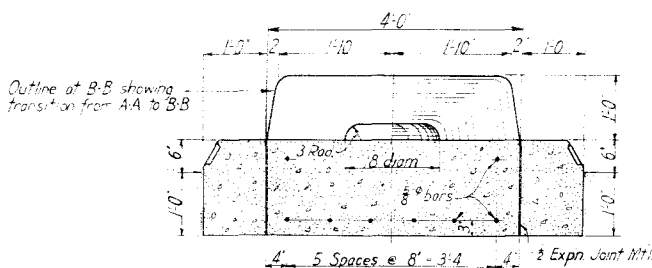


PLAN OF PIER GUARD

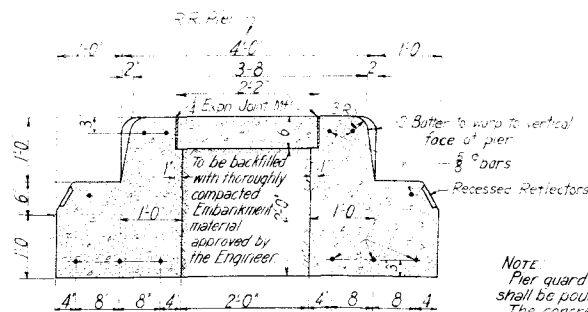
West Pier Guard shown - East Pier Guard similar one as noted



ELEVATION ALONG FACE OF CURB



SECTION AT A-A



SECTION AT B-B OR C-C

32 Bars $\frac{1}{2}$ " x 20' = 784 lin ft @ 1043" = 818"

26 Bars $\frac{1}{2}$ " x 36" = 456 lin ft @ 1043" = 436"

Recessed Reflectors

Total = 1254"

Class A Concrete (Curb not included) 45 Cu Yds

2 Expansion Joint Material 432 Sq ft

2 Expansion Joint Material 290 Sq ft

Embankment Material 43 Cu Yds

Included in bid price per cubic yard Class A Concrete

NOTE

Pier guard and recessed reflector curb shall be poured monolithically as shown. The concrete in recessed reflector curb shall be deducted from pier guard concrete. Recessed reflector curb will be paid for at the contract unit price per lin ft complete in place.

The concrete in pier guard after deducting the recessed reflector curb volume shall be the pay quantity of Class A Concrete for pier guard. Reinforcing steel in pier guard will be paid for as specified in Item 47 of the Standard Specifications.

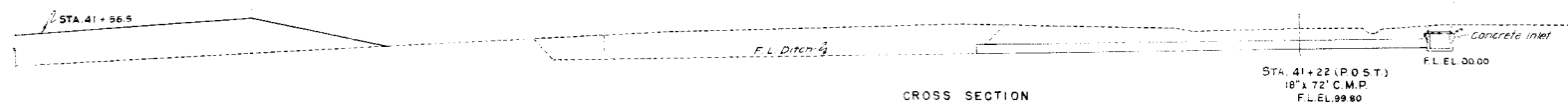
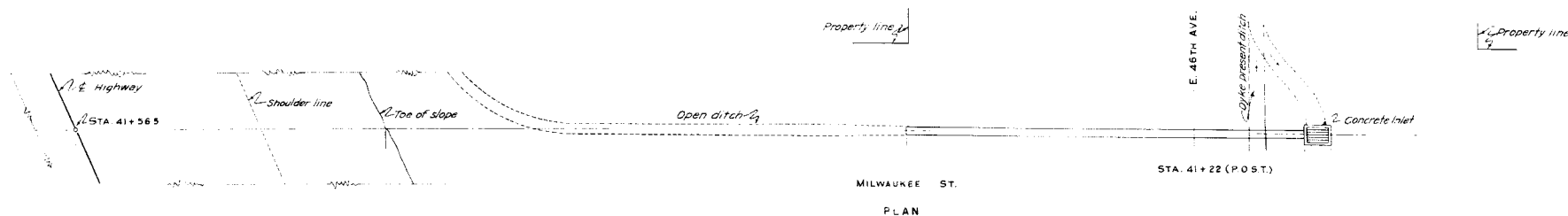
LOADING DATA
LIVE LOAD A A & H O 1934 CLASS A & H O 1934
DEAD LOAD 200 LB/SQ YD IN BRIDGE DECK ADDITION
AL WEAR SURFACE WHICH INCLUDES THE 1 INCH CONCRETE MONOLITHIC WEAR SURFACE SHOWN

DESIGNING DATA
A A & H O 1934 EXCEPT CONCRETE UNIT STRESSES PER A A & H O AUG 1920

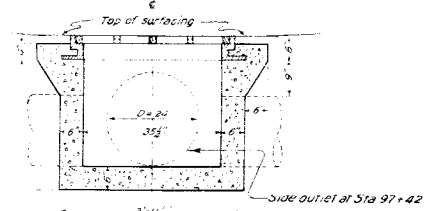
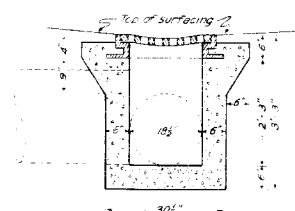
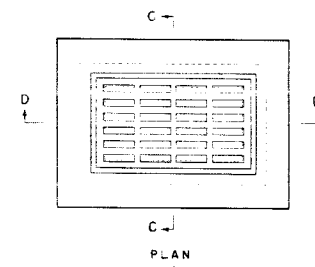
COLORADO
STATE HIGHWAY DEPARTMENT
EAST 46th AVE UNDERPASS
PIER GUARD
AND PARTING STRIP

UNDER UPRR TRACKS
Sta. 9+78.43 - 15+73.55
IN DENVER Sec. 23 T. 35 N. 68W
Designed by E. G. & W. S. M. Approved by J. J. Bailey
Made by N. J. M. Bridge Engineer
Checked by E. G. & W. S. M. Date: Dec 14 1939

FED. ROAD DIST. NO.	STATE	F.A.R. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	20-B (1)	40	



DETAILS OF CULVERT STA. 41 + 56.5



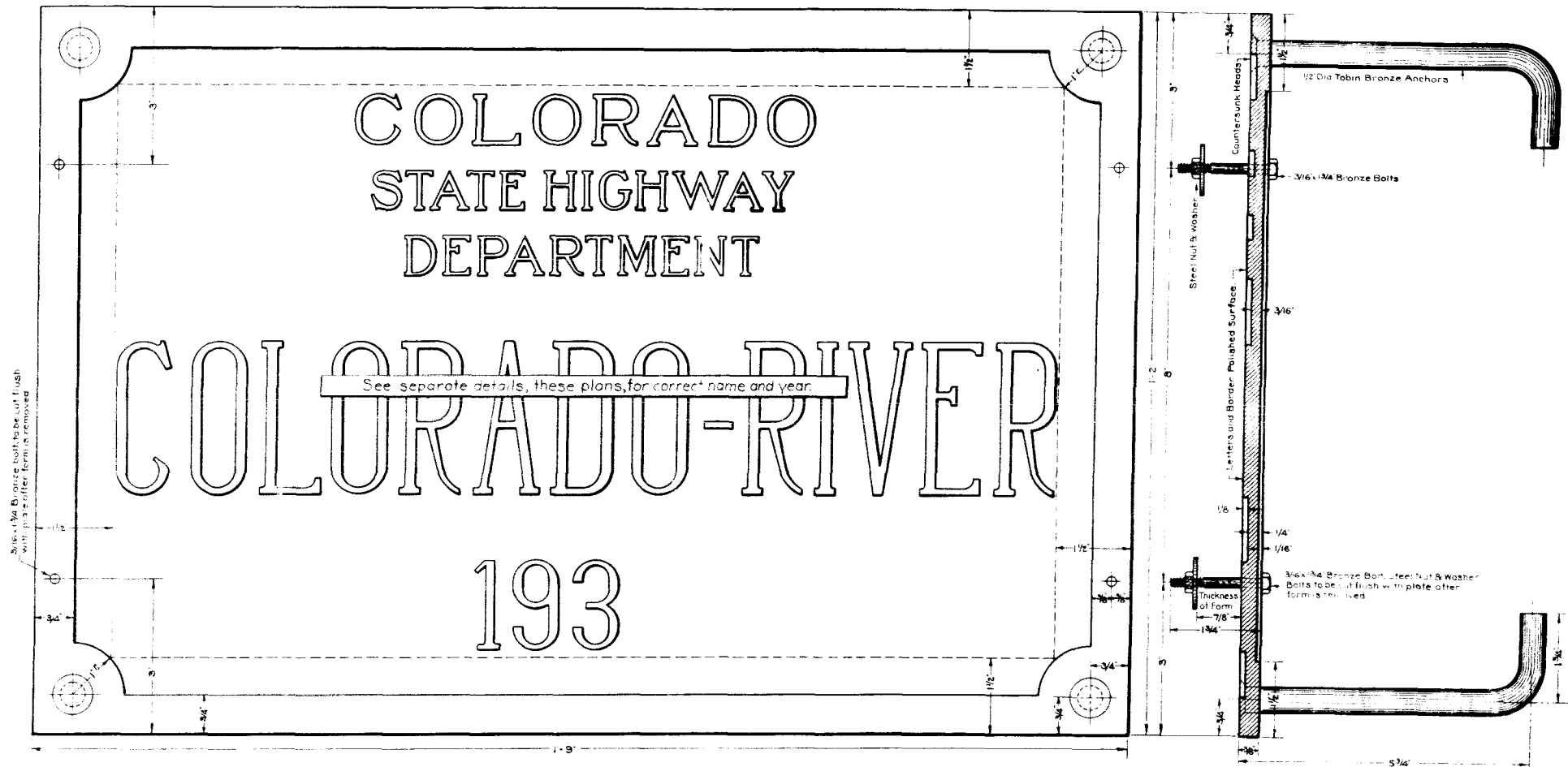
SUMMARY OF QUANTITIES

NO.	ITEM	UNIT	STA. 97+42	STA. 41+56.5
13c	Unclassified Excavation	Cu. Yd.	50	90
46a	Class "A" Concrete	Cu. Yd.	0.8	0.8
53b	18" Corrugated Metal Culvert Pipe	Lin. Ft.		72
110c	Special No. 13 Inlet Grating & Frame	Ea.	1	1
53c	24" Corrugated Metal Culvert Pipe	Lin. Ft.	106	

CONCRETE INLET
(SPECIAL NO. 13 INLET GRATING & FRAME)

FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
3	COLO.	11	11

STANDARD M-6-D



BRONZE NAME PLATE.
ITEM N° 80b

GENERAL NOTES

All work shall be done according to the standard specifications of the Colorado State Highway Department. Adopted June 1, 1937.

SECTION.

COLORADO STATE HIGHWAY DEPARTMENT TYPICAL STANDARD NAME PLATE			
Across	Sta.	Sec.	T. R.
Designed by A.G.K.	Approved by P.D. Gentry		
Made by A.G.K.	Bridge Engineer		
Checked by	Date May 20, 1937		

STANDARD CONCRETE PAVEMENT JOINT DETAILS

REVISIONS

1-2-36 - Tie Bars on each side of joint
3-24-37 - Treatment of dowel bars on Transverse Joint
4-15-37 - Longitudinal Expansion Joint detail
6-14-37 - Tie Bars (1/2 inch) C.E.F.
11-19-38 - Contractor requirement

FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
3	COLORADO	12	

STANDARD M-8-A

SEE STANDARD M-4-D (SHEET 11) FOR DETAILS OF STANDARD CONCRETE PAVING SECTIONS

GENERAL NOTES

The cost of all dowels, tie bars, metal sleeves and expansion joint material shall be included in the contract unit price per square yard for Item 31a - Concrete Pavement.

Patented tie bars of approved design may be used in lieu of the 1/2" x 24" steel tie bars provided for on details.

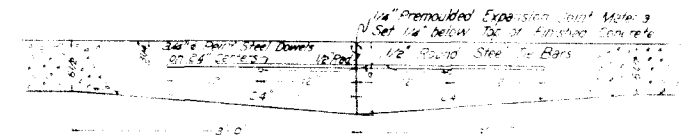
All bars must be accurately and firmly supported in proper position by means of metal chairs or other devices until concrete has been cured.

Dowel bars must be tied or clipped to tie bars in such manner that the dowels and tie bars remain in parallel positions shown on details.

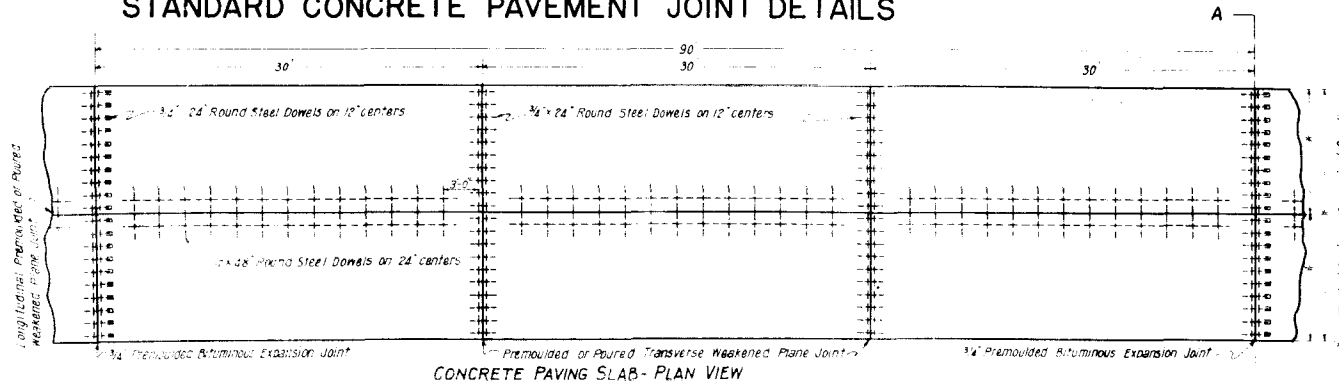
Steel in joints must be securely tied together and assembled mats at least ten (10) feet long.

The Contractor will be required to replace, at his own expense, any pavement in which dowels or tie bars assume a final position other than that shown on Plans.

LONGITUDINAL EXPANSION JOINT FOR PAVEMENT THICKENED IN CENTER OF SLAB

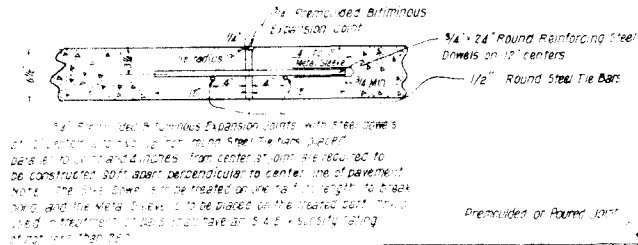


Longitudinal Expansion Joint is to be constructed with steel dowels @ 12" centers and 1/2" x 24" round steel tie bars placed parallel to joint and in center of the joint. The steel dowels and tie bars shall not be treated to break bond. This type of longitudinal joint shall be used only where the paving slab is thickened in the center.



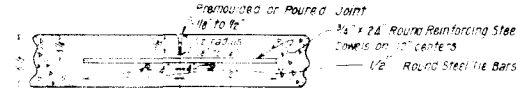
*See Typical Sections for project for dimensions

TRANSVERSE EXPANSION JOINT

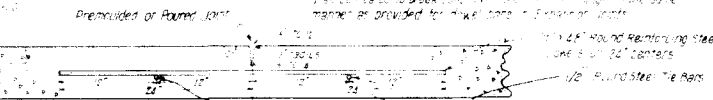


1/2" Pre-molded Bituminous Expansion Joints with steel dowels at 12" centers and two 1/2" x 24" round steel tie bars placed parallel to joint and 4 inches from joint and constructed between expansion joints at all intervals perpendicular to center line of pavement. Dowel bars in Transverse Weakened Plane Joint shall be treated to break bond with the full length in the same manner as provided for in Expansion Joints.

TRANSVERSE WEAKENED PLANE JOINT



Two Transverse Weakened Plane Joints with steel dowels at 12" centers and two 1/2" x 24" round steel tie bars placed parallel to joint and 4 inches from joint and constructed between expansion joints at all intervals perpendicular to center line of pavement. Dowel bars in Transverse Weakened Plane Joint shall be treated to break bond with the full length in the same manner as provided for in Expansion Joints.



Longitudinal Weakened Plane Joint with steel dowels at 12" centers and two 1/2" x 24" round steel tie bars placed parallel to center line and 4 inches from center line. The steel dowels and tie bars shall not be treated to break bond.

LONGITUDINAL WEAKENED PLANE JOINT

Lip Curb to be placed where called for on plans



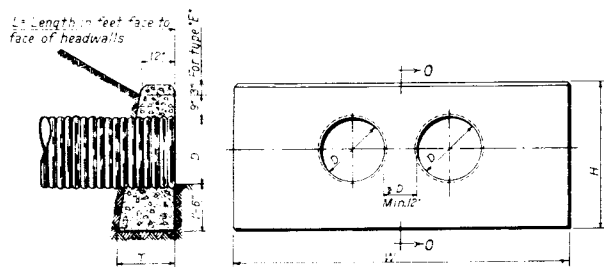
Lip Curb to be placed where called for on plans

*See Typical Sections for project for dimensions

VERTICAL SECTION PERPENDICULAR TO CENTERLINE AT A-A

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD CONCRETE
PAVEMENT
JOINT DETAILS

Designed by
Made by
Checked by
Approved by
Bridge Engineer
Date
193

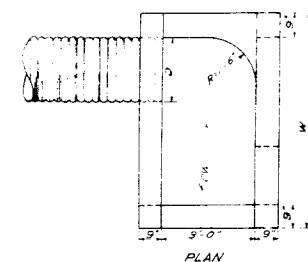
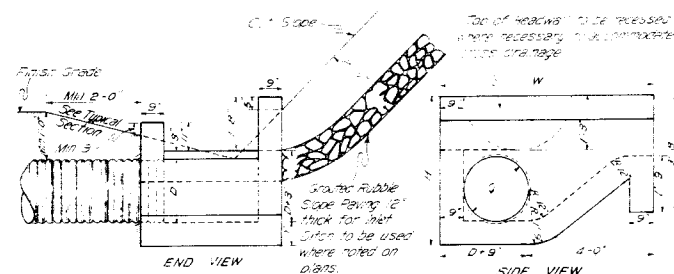


SECTIONAL ELEV. 0-0

FRONT ELEVATION

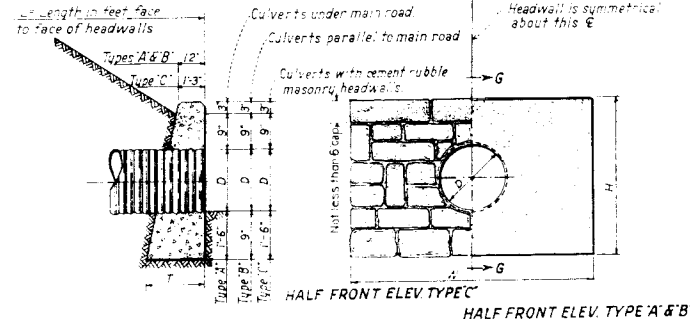
TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE E	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE F	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0

STD. HEADWALLS FOR DOUBLE CORR. METAL PIPE CULV'S.



INTERCEPTING HEADWALLS

SIZE	WIDTH	HEIGHT	QUANTITY
OF PIPE	OF WALL	OF HEADWALL	IN ONE CU YDS
15"	6'-0"	3'-9"	1.8
18"	6'-3"	4'-0"	2.0
24"	6'-9"	4'-6"	2.3
30"	7'-3"	5'-0"	2.7
36"	7'-9"	5'-6"	3.1



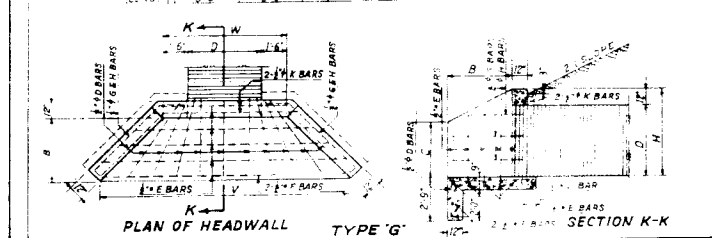
SECTIONAL ELEV. G-G

HALF FRONT ELEV. TYPE A'B'

TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE A	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE B	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0

TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE C	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE D	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0

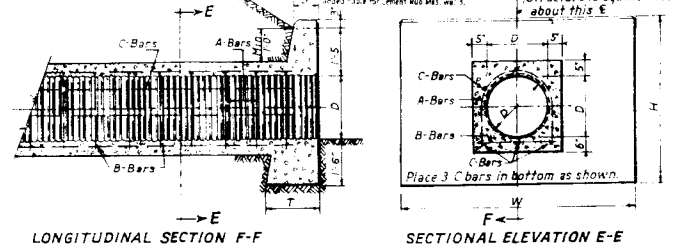
TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE E	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE F	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0



STD. HEADWALLS FOR CORRUGATED METAL PIPE CULVERTS

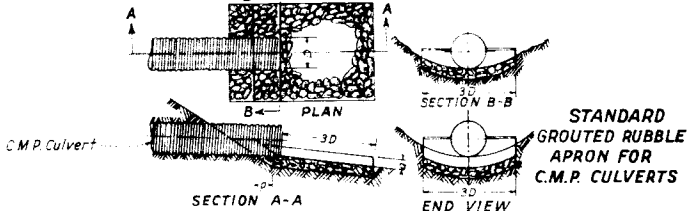
STANDARD M-102-E

Revised 3-33, M-65, Changed Masonry in Headwall
Length in feet face to face of headwalls



TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE A	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE B	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0

TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE C	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE D	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0

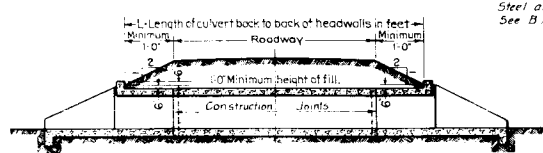


TYPE	CL. B CONCRETE FOR 2 HEADWALLS CORRUGATED METAL PIPE				CEMENT RUBBLE MASONRY			
	D	W	H	T	D	W	H	T
TYPE E	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0
TYPE F	15	7-6	3-9	1-0	16	8-0	4-0	1-0
	24	10-6	4-6	1-0	24	11-0	4-6	1-0
	30	12-0	5-0	1-0	30	12-6	5-0	1-0
	36	13-6	5-6	1-0	36	14-0	5-6	1-0
	42	15-0	6-0	1-0	42	15-6	6-0	1-0

STD. HEADWALLS FOR CORRUGATED METAL PIPE CULVERTS

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD HEADWALLS
INTERCEPTING HEADWALLS
INCASED METAL PIPE CULVERT
WITH HEADWALLS
FOR CORRUGATED
METAL PIPE CULVERTS
Designed and Approved by *Ed. Bailey*
Made by *CS-A-XX* Bridge Engineer
Checked *SHD-WMM* Date *April 27, 1937*

REINFORCEMENT BAR LIST



Note: Omit Construction Joints when fill is less than 5'-0"

up to 6' Maximum

10' 10'

REINFORCEMENT BAR LIST										BENDING DIAGRAM	
USE BARS FOR				DIMENSION P		TOTAL LENGTH		ALL DIMENSIONS ARE TO C OF BARS			
ALL SIZES	MARK	SIZE	NUMBER	DIMENSION P	Q	DIMENSION P	Q				
•	W	1/2"	4	S + 10"	S + 3"	10"	3"				
•	W	3/4"	4	H + 10"	H + 2"	10"	2"				
•	U	1/2"	4	N + 10"	N + 3"	10"	3"				
•	U	3/4"	4	L + 10"	L + 3"	10"	3"				
•	K	1/2"	4	3	5	4	5				
H=2.0 or more	K	3/4"	4	6	8	4	8				
H=3.0	K	3/4"	4	10	10	10	10				
H=5.0	K	3/4"	4	15	15	15	15				
H=6.0	K	3/4"	4	18	18	18	18				
H=7.0	K	3/4"	4	20	20	20	20				
ALL SIZES	B	1/2"	2	S + 1.6"	H + 1.3"	1.6"	1.3"				
•	B	3/4"	2	S + 2.3"	H + 2.0"	2.3"	2.0"				
•	B	4/4"	2	S + 2.8"	H + 0.9"	2.8"	0.9"				
•	B	5/4"	2	S + 3.0"	H + 0.8"	3.0"	0.8"				
•	B	6/4"	2	S + 3.5"	H + 0.6"	3.5"	0.6"				
•	B	7/4"	2	S + 4.0"	H + 0.3"	4.0"	0.3"				
•	B	8/4"	2	S + 4.7"	H + 0.0"	4.7"	0.0"				
•	B	9/4"	2	S + 5.2"	H + 0.3"	5.2"	0.3"				
H=1.6 or more	B	10/4"	2	S + 5.9"	H + 0.5"	5.9"	0.5"				
H=2.0	B	11/4"	2	S + 6.1"	H + 0.1"	6.1"	0.1"				
H=3.0	B	12/4"	2	S + 8.1"	H + 1.4"	8.1"	1.4"				
H=4.0	B	13/4"	2	S + 9.3"	H + 3.0"	9.3"	3.0"				
H=5.0	B	14/4"	2	S + 10.5"	H + 2.3"	10.5"	2.3"				
H=6.0	B	15/4"	2	S + 11.7"	H + 2.9"	11.7"	2.9"				
H=7.0	B	16/4"	2	S + 12.9"	H + 3.3"	12.9"	3.3"				
H=8.0	B	17/4"	2	S + 13.1"	H + 3.8"	13.1"	3.8"				
H=9.0	B	18/4"	2	S + 14.1"	H + 4.2"	14.1"	4.2"				
H=10.0	B	19/4"	2	S + 15.2"	H + 4.7"	15.2"	4.7"				
H=11.0	B	20/4"	2	S + 16.7"	H + 5.1"	16.7"	5.1"				
H=12.0	B	21/4"	2	S + 18.7"	H + 5.6"	18.7"	5.6"				
H=13.0	B	22/4"	2	S + 20.1"	H + 6.5"	20.1"	6.5"				
ALL SIZES	A	1/4"	3	S + 3.5"	S + 5.3"	3.5"	5.3"				

★ See table of Dimensions and Quantities

TABLE OF DIMENSIONS AND QUANTITIES

OFFICE BOXES LISTED BELOW INCLUDE ALLOWANCE FOR OVERLAP OF 1/2"													
TOTAL QUANTITIES FOR ONE BOX EQUALS THE QUANTITY FOR TWO HEADWALLS PLUS 1/2 QUANTITY FOR ONE LINEAL FT. OF BOX.													
SPAN IN FEET	HEIGHT IN FEET	HEIGHT ALLOWED	SPACING IN FEET	WIDTH IN FEET	DEPTH IN FEET	NUMBER OF HEADWALLS	QUANTITIES FOR ONE LINEAL FT. OF BOX		QUANTITIES FOR TWO HEADWALLS		STRUCTURAL ELEVATION		
							CONCRETE CU. YD.	STEEL LBS.	CONCRETE CU. YD.	STEEL LBS.	SQ. FT.	CUB. YD.	
6	1	0	24	6	1	2	6	0.24	32	45	320	16.91	4.40
6	1	0	22	6	1	2	8	0.255	33.5	61	430	33.44	5.16
6	1	0	20	6	1	2	9	0.322	35.0	50	460	16.50	4.62
6	1	0	18	6	1	2	10	0.389	36.5	39	420	12.81	3.76
6	1	0	16	6	1	2	11	0.444	38.0	18	630	230.63	6.67
6	1	0	14	6	1	2	12	0.450	49.2	85	565	195.13	6.19
6	1	0	12	6	1	2	4	0.506	52.0	120	755	272.24	7.31
6	1	0	10	6	1	2	6	0.562	56.0	160	910	353.77	8.42
6	1	0	8	6	1	2	6	0.583	60.0	16	630	280.46	8.06
6	1	0	6	6	1	2	18	0.623	62.2	17	935	385.43	9.67
6	1	0	4	6	1	2	20	0.679	66.4	21.9	1220	448.07	9.98
6	1	0	2	6	1	2	16	0.645	62.3	11.3	920	239.30	7.23
6	1	0	1	6	1	2	9	0.699	66.3	15.3	720	235.95	8.34
6	1	0	0	6	1	2	20	0.755	69.9	20.1	1090	423.67	8.45
6	1	0	0	6	1	2	23	0.811	73.5	23.2	610	242.61	7.66
6	1	0	0	6	1	2	24	0.866	76.7	31.7	1020	651.46	11.67
6	1	0	0	6	1	2	26	0.923	80.1	38.5	1900	788.18	12.79

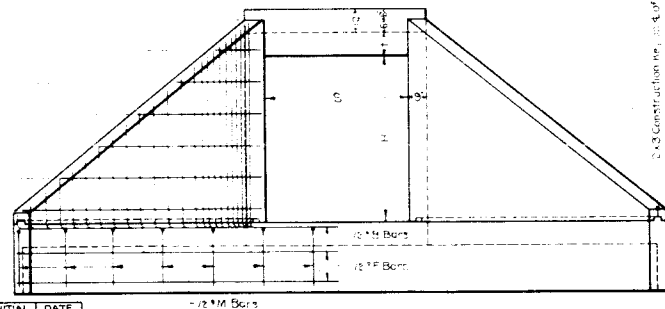
All work shall be done according to the Standard Specifications of the Colorado State Highway Department, Adopted June 1 1937

- A. concrete shall be class "A".
All exposed surfaces shall be rubbed free of form marks.
All walls shall have forms on both sides.
A minimum clearance of seven center lines of bar and edge of concrete to be 20".
All construction joints shall be thoroughly cleaned before fresh concrete is poured.
Footings in rock shall be poured out to the rock and not formed.
For rebar, rebar required and governing dimensions see sheet NV 2.
All reinforcing bars shall be deformed.
All reinforcing bars shall be laced with the start on number and letter designation.
Secondary bars when spaced shall be given a lap of 50 diameters.
Main bars shall not be spliced.
Dimensions and depth of footings shown are according to the best available data.
If any different footings are encountered, the engineer will inspect and determine if redesign is necessary.
Pouring footings monolithically with floor of box.
The use of additional construction joints undesirable, should field conditions require, construction joints may be made on a vertical plane perpendicular to centerline of vertical shaft.
The design shall be shop type (see detail).
This design not to be used when height of fill exceeds the allowable tabulated.
Supporting soils for culverts must be composed of firm and uniform material throughout.
All rock fitting in approaches, to and over culverts, shall be laid in layers not exceeding 18" in depth and each layer shall be rolled or hand tamped where inaccessible to roller, also moistened when necessary.

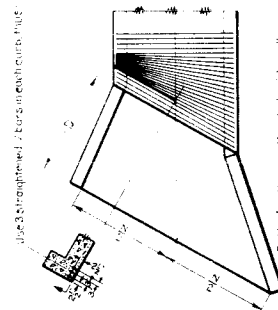
LEIAASHO 1935 Class A (H:15)

CONCRETE BOX CULVERTS			
1 1/2' x 1 1/2'	4' x 2'	5' x 4'	6' x 4'
2' x 2'	4' x 3'	5' x 5'	6' x 5'
3' x 1'	4' x 4'	6' x 2'	6' x 6'
3' x 2'	5' x 3'	6' x 3'	6' x 7'
3' x 3'			

Designed by AGK	Approved by <i>G. J. Bail</i>
Made by AGK	Bridge Engineer
Checked by	Date: May 10 th , 1937.



END VIEW.

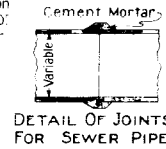


PART PLAN
FOR SKEWED HEADWALLS.

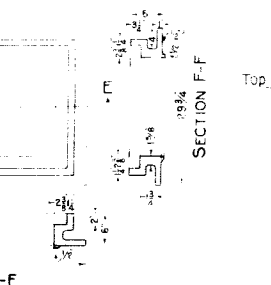
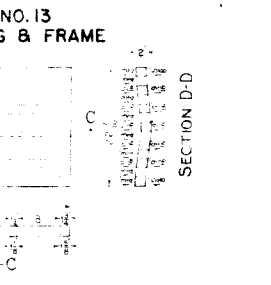
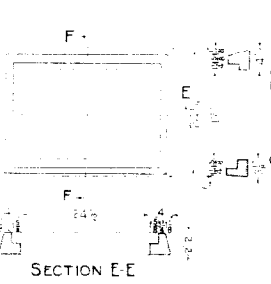
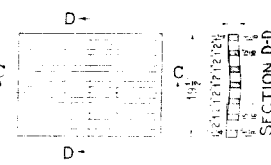
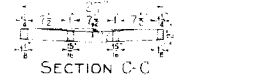
FED. ROAD DIST. NO.	STATE	COMBINED PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	FA & M 20-40 (FA & M 20-80)	45	

DENVER A GENERAL PLAN FOR MANHOLES ON PIPE SEWERS

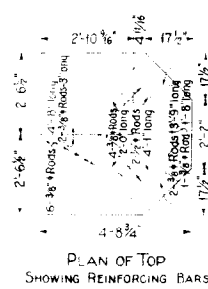
Approximate weight 350 lbs.
MANHOLE: 50-P-371, Fig. 371-A
NOTE: Inside diameter of Manholes on 12" 15" and 18" Pipe Sewers shall be 4'-0". On 21" and larger diameter pipe, Sewer Manholes shall be 5'-0" in diameter.



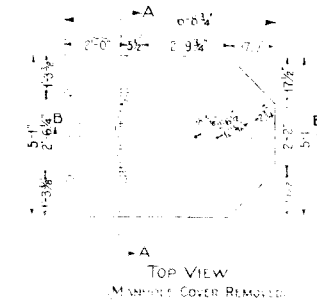
SPECIAL NO. 12 INLET GRATING & FRAME



SPECIAL NO. 8 CONCRETE INLET



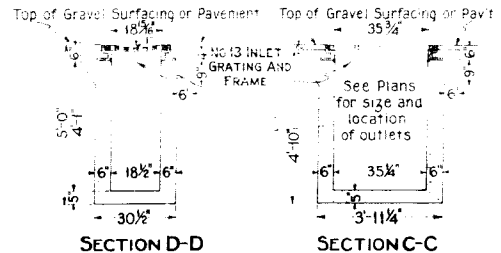
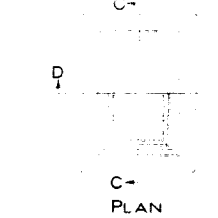
Projection of top from inner face of back of inlet showing reinforcing rods



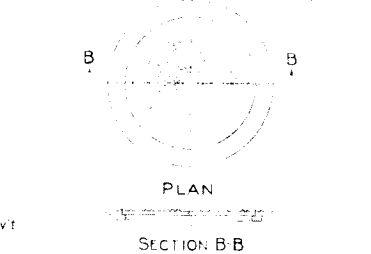
The minimum depth of gutter is here shown said depth being variable. Forms must be constructed so as to admit increasing sand depth as much as 2" on face top.

NO. 12 INLET GRATING AND FRAME WITH BACK SIDE OF FRAME CUT OUT

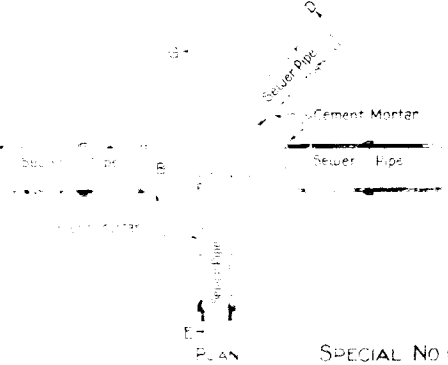
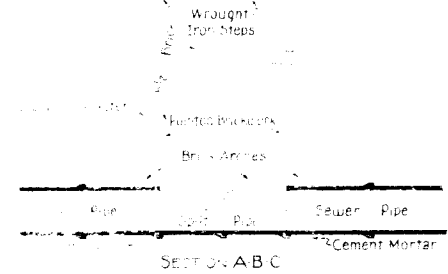
SPECIAL NO. 13 CONCRETE INLET



STORM SEWER RING AND COVER REF. NO. 6 CAT. 150-P-371, Fig. 371-C, OR EQUIVALENT

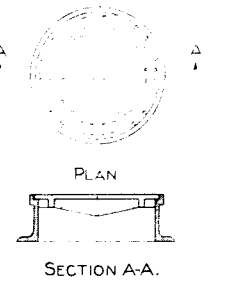


COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD MANHOLES,
INLETS & PIPE JOINTS
ON SEWERS
Designed by: HRR
Made by: HRR
Check Design: HRR
Check Detail: HRR
Approved by: Bridge Engineer
Date: 199

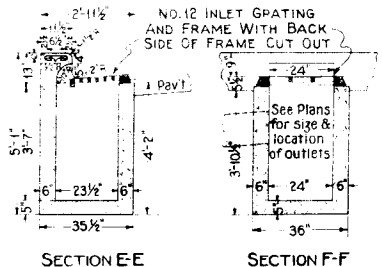
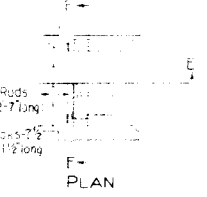


DENVER PATTERN MANHOLE RING & COVER OR EQUIVALENT

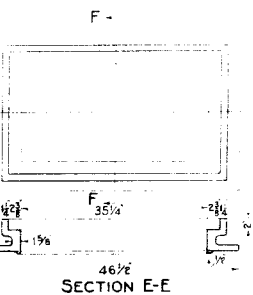
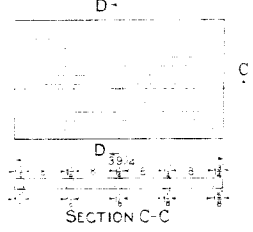
REF. NO. 6 CAT. 150-P-371, Fig. 371-A



SPECIAL NO. 12 CONCRETE INLET

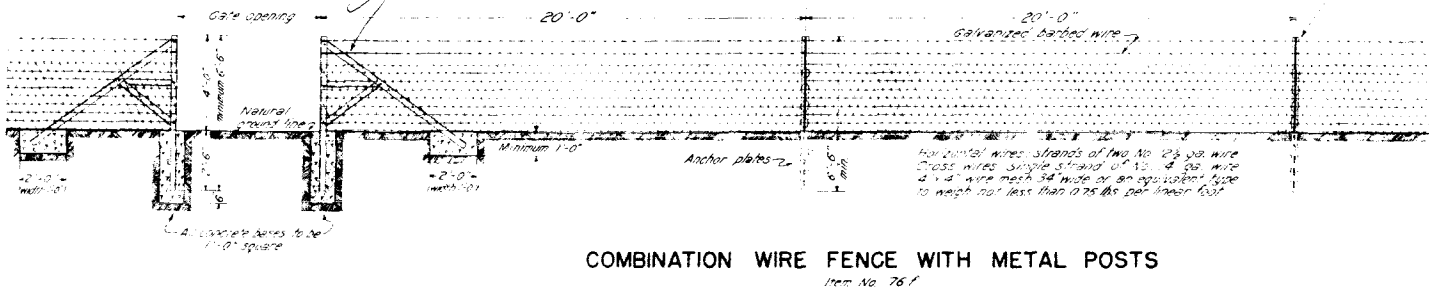
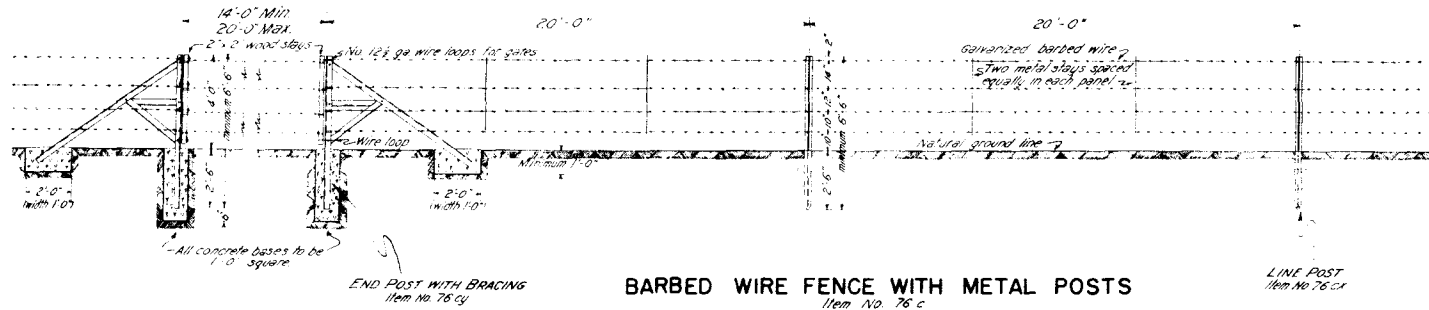


SPECIAL NO. 13 INLET GRATING & FRAME

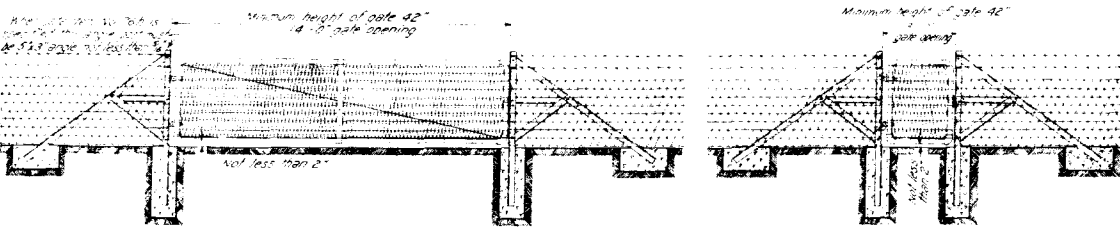


STANDARD M-27-B

FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
3	COLO.	19	

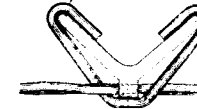


FENCE INTERSECTION WITH BRACING



Gate complete with hinges and latch to weigh not less than 70 lbs.
2" x 4" single strand wire mesh filler or an equivalent type.
Width of mesh approximately 40 inches.
Horizontal wires No. 12 gauge.
Cross wires No. 12 gauge.
Galvanized metal latch and hinges.
Minimum 1" diameter galvanized pipe frame or an equivalent.

Gate complete with hinges and latch to weigh not less than 35 lbs.
2" x 4" single strand wire mesh filler or an equivalent type.
Width of mesh approximately 40 inches.
Horizontal wires No. 12 gauge.
Cross wires No. 12 gauge.
Galvanized metal latch and hinges.
Minimum 3/4" diameter galvanized pipe frame or an equivalent.



Note: Other sections of equal weight and strength may be used in lieu of this section.

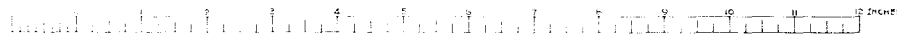
FENCE TREATMENT AT STRUCTURES
(TO BE USED AT STRUCTURES 4" x 4" AND OVER)

GENERAL NOTES

- All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
- Barbed wire shall be of standard make, not lighter than No. 12 gauge galvanized, with two point barb spaced not more than five inches apart.
- Wire mesh must be galvanized and not lighter than shown and noted on this plan.
- All line posts to be structural steel to weigh not less than 2.00 pounds per lineal foot.
- Suitable anchor plates shall be securely riveted or welded to each line post.
- All posts to be painted with an approved waterproof asphalt or mineral paint or hot dip galvanized.
- All corner, end, and gate posts including braces are to be structural steel 2" x 2" x 1/4" angles to weigh not less than 3.15 lbs. per lineal foot, except post supporting driveway gate, Item No. 76 h.
- All footings or bases shall be of class "A" concrete with crowned tops, and shall be included in the price bid per lineal foot of fence with metal posts.
- If knee braces are omitted from end, corner, and gate posts the vertical post must be at least 2 1/2" x 2 1/2" x 1/4".
- Corner posts are to be of the same detail for bracing as End Posts and shall be provided with bracing on both legs of the corner angle.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
WIRE FENCE WITH
METAL POSTS

Designed by R.E.L. Approved by J.E. Marshall
Made by P.B.B. Date: Apr 27 1939
Checked by R.E.L.



SCALE OF LETTERING

STANDARD M-10-A

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	2000	30	

A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z I 14 K
1 2 3 4 5 6 7 8 9 0

SAMPLE BRIDGE NUMBER

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO HIGHWAY DEPARTMENT, ADOPTED JUNE 1, 1931.

THE STRUCTURE NUMBER SHALL BE STENCILED ON THE RIGHT HAND SIDE OF EACH BRIDGE END AS SHOWN ON THIS STANDARD AND AS SPECIFIED.

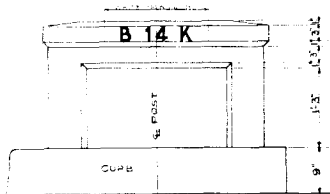
THE CORRECT NUMBER FOR EACH BRIDGE IS SHOWN IN THE LOWER RIGHT HAND CORNER OF THE STANDARD TYPE FOR THIS PARTICULAR BRIDGE.

THE SIZE, SHAPE AND SPACING OF THE LETTERS AND FIGURES SHALL BE IDENTICAL WITH THE FOLLOWING SHOWN ON THIS SHEET. ADDITIONAL COPIES OF THIS FULL SIZE SHEET CAN BE OBTAINED FROM THE DEPARTMENT WITHOUT CHARGE.

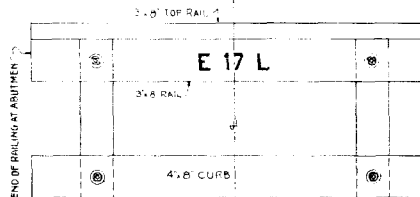
BEFORE STENCILING THE NUMBER ON THE BRIDGE THE SURFACE MUST BE THOROUGHLY CLEANED. A PROPER WHITE BACKGROUND SHALL BE PAINTED ON CONCRETE SURFACES ON TIMBER HANDRAILS THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY. ON CONCRETE ENDPOSTS THE DRY CONCRETE SURFACE SHALL BE PROPERLY SIZED BEFORE PLACING THE WHITE RECTANGULAR SURFACES AN APPROVED WHITE CONCRETE PAINT IS USED.

TWO COATS OF ACCEPTABLE WHITE PAINT SHALL BE APPLIED TO THE CONCRETE IN A NEAT RECTANGULAR SHAPE AND EXTEND THREE INCHES BEYOND THE LIMITS OF THE STRUCTURE NUMBER.

AFTER THIS WHITE BACKGROUND HAS DRIED SUFFICIENTLY, THE CORRECT STRUCTURE NUMBER SHALL BE CAREFULLY STENCILED ON IT WITH TWO COATS OF STANDARD "C" SECOND FIELD COAT DABBY AS SPECIFIED UNDER ITEM 411-STEEL BRIDGES. THE SPACES OF THE STENCILED LETTERS AND FIGURES SHALL BE CAREFULLY FILLED IN BY HAND TO MAKE SOLID FIGURES SUFFICIENT TIME BETWEEN SUCCESSIVE COATS SHALL BE ALLOWED TO PERMIT THE PRECEDING COAT TO DRY. THIS WORK WILL NOT BE PAID FOR AS A SEPARATE ITEM. COMPENSATION SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS.



TYPICAL CONCRETE ENDPOST.

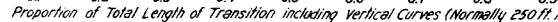


TYPICAL TIMBER WING.

COLORADO	
STATE HIGHWAY DEPARTMENT	
STANDARD STRUCTURE	
NUMBER LETTERING.	
Address	Sta.
Next	Sec. T. R.
Designed by U.H.D.	Approved by <i>Pat Bailey</i>
Made by U.H.D.	Bridge Engineer
Check Design	Date: Feb. 6, 1932.
Check Detail	



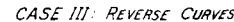
DISTANCE FROM BT (PROPERTY LINE)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	MAX 1.0
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY									
2° and Under	0.00044	0.00175	0.00394	0.00700	0.01050	0.01400	0.01706	0.01925	0.02056	0.02100
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02559	0.02988	0.03304	0.03500
4°	0.00088	0.00350	0.00788	0.01400	0.02100	0.02800	0.03413	0.03850	0.04113	0.04200
5°	0.00109	0.00438	0.00984	0.01750	0.02625	0.03500	0.04266	0.04813	0.05141	0.05200
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06169	0.06300
7°	0.00153	0.00613	0.01378	0.02450	0.03675	0.04900	0.05972	0.06738	0.07197	0.07350
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08400
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07878	0.09063	0.09523	0.09650
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09166	0.09792	0.09900
OFFSETS FOR WIDENING - W' - (IN FEET)										
Over 10° Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00
12° - 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00
15° - 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00
20°	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00



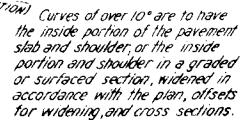
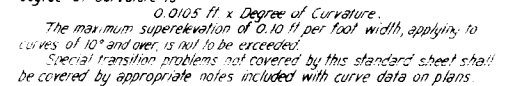
The transition in this case, from crowned section to superelevated section, shall proceed uniformly by raising the outside shoulder, over a distance of 250 ft. as shown, beginning at a point on the tangent 150 ft. from the end of the curve, and acquiring full superelevation at a point 100 ft. inside the curve.



In cases where curves in the same direction have a tangent distance of less than 300 ft between points of curve, the intervening tangent shall be super-elevated an amount equal to that of the curve of greater radius and the transition shall be made as in the case of a true compound curve.

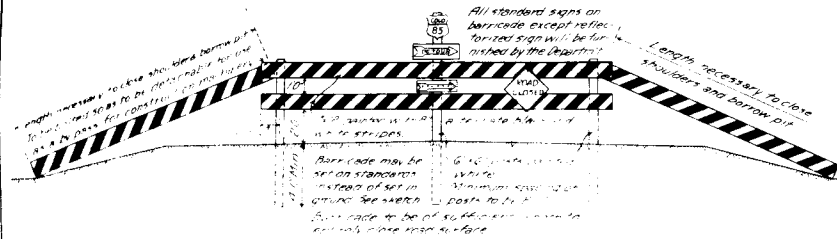


The transition tangent of the curve having the shorter radius shall be set at 100 ft. A normal crowned section 20 ft long, 10 ft on each side of the P.R.C. shall be used in cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used. The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until a maximum of 150 ft. of transition tangent for each curve is achieved.



Designed by <i>R.E.L.</i>	Approved by <i>J.S. Marshall</i>
Made by <i>P.B.B.</i>	
Checked by <i>F.E.S.</i>	Date: <i>FEB 23RD 1937</i>

DETAILS OF PERMANENT BARRICADE



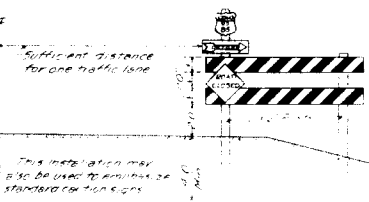
END VIEW OF PORTABLE BARRICADE



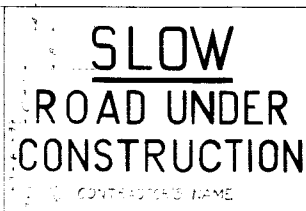
POSITION OF SIGNS RELATIVE ROAD BED

This diagram is to show the position of the signs relative to the road bed. The signs are to be placed in the following manner: 1. Advance warning signs shall be placed at least 100 feet in advance of the work zone. 2. Advance warning signs shall be placed at least 100 feet in advance of the work zone. 3. Advance warning signs shall be placed at least 100 feet in advance of the work zone.

DETAILS OF PARTIAL BARRICADE



DETAILS OF ROAD UNDER CONSTRUCTION SIGN



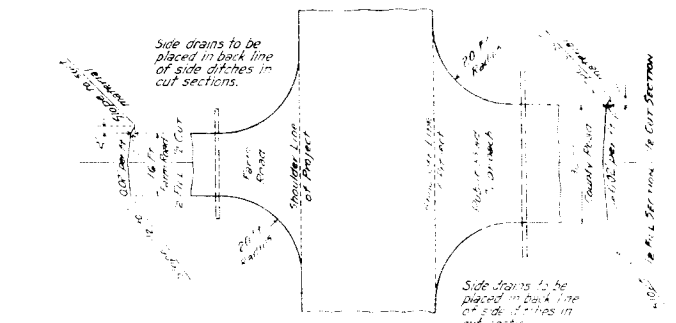
This sign is to be used on roads under construction. The sign is to be placed in the center of the road. The sign is to be placed in the center of the road.

STANDARD M-2-B

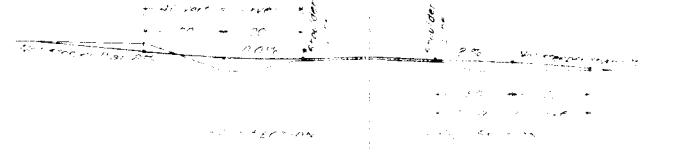
FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	1001	52	

Revised 8-18-39 - A-2 - Changed side drain rule.

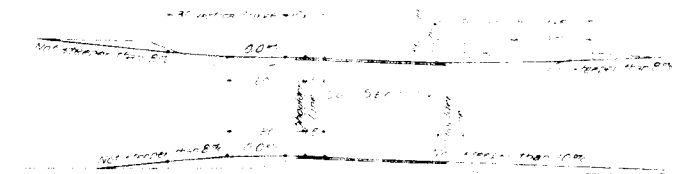
TYPICAL PLAN FOR SIDE APPROACH SPALLS



STANDARD CURVED SECTION



SUPERELEVATED SECTION



GENERAL NOTES FOR ROADWAY CONSTRUCTION TRAFFIC SIGNS

1. All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, January, 1937.
2. Whenever traffic is permitted on a road while under construction, the Contractor shall place and maintain adequate advance warning signs and barriers on the Project with well painted, well maintained barricades and standard caution and warning signs. The Contractor shall mark with a standard directional sign any places where the direction of the flow of traffic is not plain.
3. Whenever traffic is prohibited from a Project under construction, the Detour will be marked by the Department and the Contractor at either end of the Project shall be erected and maintained by the Contractor.
4. All signs and barricades shall be immediately moved, added to, removed, or changed to approximate the work hazards, or conditions altered, corrected, or changed by construction progress.
5. The Contractor shall furnish:
 - (1) All barricade material. It shall always be well painted, as per sketch, and well maintained.
 - (2) A reflectorized arrow of an approved type for each barricade at the ends of the Project, and at other barricades required where traffic is permitted on road under construction.
 - (3) "SLOW ROAD UNDER CONSTRUCTION" signs as required.
 - (4) Any special signs the Department may deem necessary for the protection of traffic over the Project.
 - (5) At least three (3) flares or torches for each barricade, and other flares to illuminate such signs as are called for on these plans, or as the Department may direct.
6. Flares or torches shall be placed between 3 and 5 feet ahead of the sign or object to be illuminated, and shall be kept burning from sunset to sunrise.
7. Costs of all of the foregoing materials and work by the Contractor shall be included in the original contract prices for the Project.
8. The Highway Department will furnish all standard signs not required to be furnished by the Contractor.

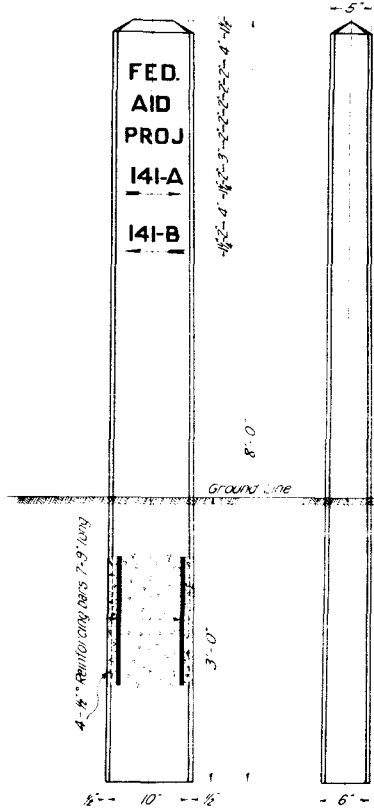
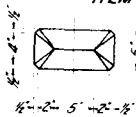
COLORADO
STATE HIGHWAY DEPARTMENT
TYPICAL
SIDE APPROACH ROADS
ROADWAY CONSTRUCTION
TRAFFIC SIGNS

Designed by J. H. M.
Made by J. H. M.
Check J. H. M.
Check R. A. K.

Approved by J. H. M.
Date: Aug. 20, 1935

PROJECT MARKER POST

ITEM N° 818

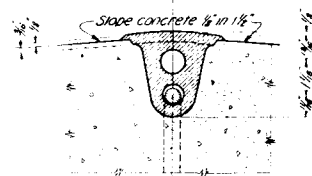


NOTES FOR PROJECT MARKER POSTS

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
Posts shall be made of Class "A" concrete, except use White Portland Cement.
All exposed surfaces shall be rubbed free of form marks.
All letters and numbers shall be 2" plain upright black, painted or stenciled on the concrete with a good quality of black paint. See item N° 41, "Second Field Coat, Dark".
Numbers and arrows shall show the proper numbers and directions of the projects each way from where the post is placed.
Post to be set with sign facing the road at the end of the project, two feet inside the R.O.W. line or at a point amply protected from traffic in such a position that the sign will indicate properly the projects to which it refers.

NOTES FOR R.O.W. MARKER POSTS

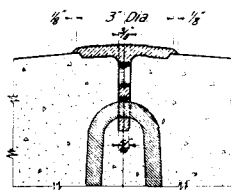
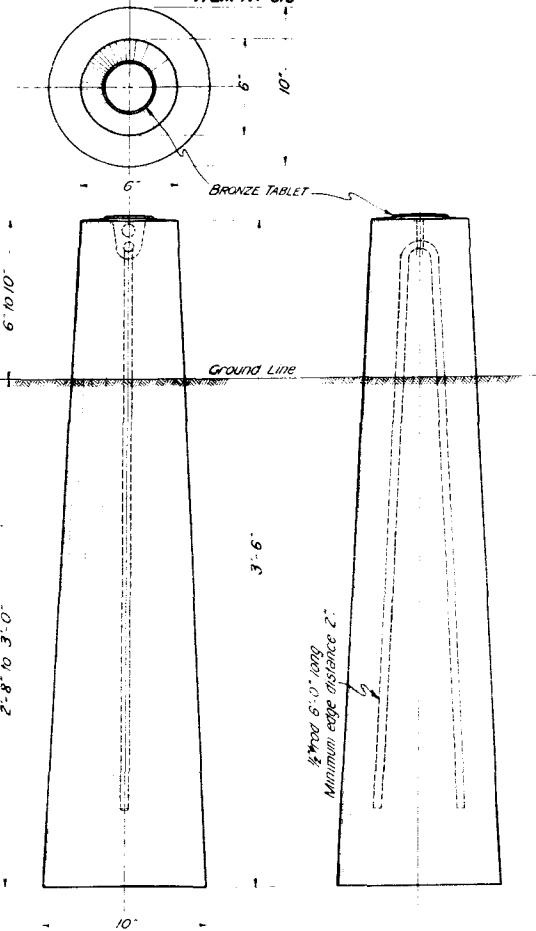
All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
Posts shall be made of Class "A" concrete.
The upper 12 inches of marker posts shall be rubbed free of form marks, and the top surface of the post must be constructed to drain thoroughly.
All exposed surfaces of the bronze tablet are to be ground to a smooth surface.
All letters are to be depressed a minimum of 1/16 inch.
Information on the bronze tablet indicated by pin lines is to be stamped in the field by the engineering party after post is placed.
1/16 inch letters and figures to be used.
Project designations on tablets shall be properly shown. Thus: F.A.P.N° for Federal Aid Projects, S.P.N° for State Projects, P.W.A. N° for P.W.A. Projects, etc.



SECTION B-B

RIGHT OF WAY MARKER POST

ITEM N° 816



SECTION A-A

STANDARD M-7-B

FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
3	COLO.		

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
MARKER POSTS

Designed by REL
Made by FAS
Checked by REL
Date: Apr 12 1939

CURB, GUTTER, SIDEWALK & PAVEMENT			REQUIREMENTS									
STA	TO STA	SIDE	REMOVE		REMOVE		REMOVE		BUILD		BUILD	
			CURB	GUTTER	CURB	GUTTER	PAVE	IF	CURB	GUTTER	PAVE	IF
			LN	FT	LN	FT	LN	FT	LN	FT	LN	FT
1+00	- 4+80	R									570	
2+00	(Island)	L									92	
2+10	- 4+40BK	L				110						
2+15	- 4+43BK	L				310					275	13
2+20	- 2+25	L										
2+53	- 3+28BK	L									63	
2+58	- 3+80BK	L&R				80					480	
3+15BK	- 3+25BK	L	26		13							
3+25BK	- 3+43BK	R	54		18							
3+45BK	- 4+85	R								345		
4+04BK	- 4+174H	L	26		13							13
4+33BK	- 4+38BK	L									65	
4+73BK	- 5+41	L								285	259	10
2+80BK	- 2+85BK	L									65	
5+28	- 5+33	L									65	
5+63	- 6+80	R								120		136
5+71	- 6+80	L								136		120
5+79	- 5+84	L									65	

NOTE: All pole lines encroaching on construction are to be moved by owners.
Gates, fencing requirements, and right of way markers are tabulated on Sheet No. 3

Sta 3+00(R) 4+00(L), 4+40(R) L - Req'd. Remove & Reset Valve Boxes & incidental pipe work on water lines.

Sta 1+00 TO 6+80 - Req'd. Street Drainage. (WORK BY CITY OF DENVER FORCES)

STREET & ALLEY APPROACHES

STATION	SIDE	UNCL. EXCAV.		EMB'K. GRAVEL	
		CU	YD	CU	YD
1+30	L	20	35		
1+60	R	20	15		
3+20BK	L	5	10		
3+30BK	R	5	10		
4+05BK	L	10	10		
4+56BK	L	50	45		
5+55	L&R	50	35		

Sta 0+99.06 - Req'd. Project Marker

STA. 0+99.06 - BEGIN FED. AID PROJ. NO. 20-B (I)

LEGEND
WATER LINES - - - - -
TELEPHONE CONDUITS - - - - -
SEWER LINES - - - - -
GAS LINES - - - - -

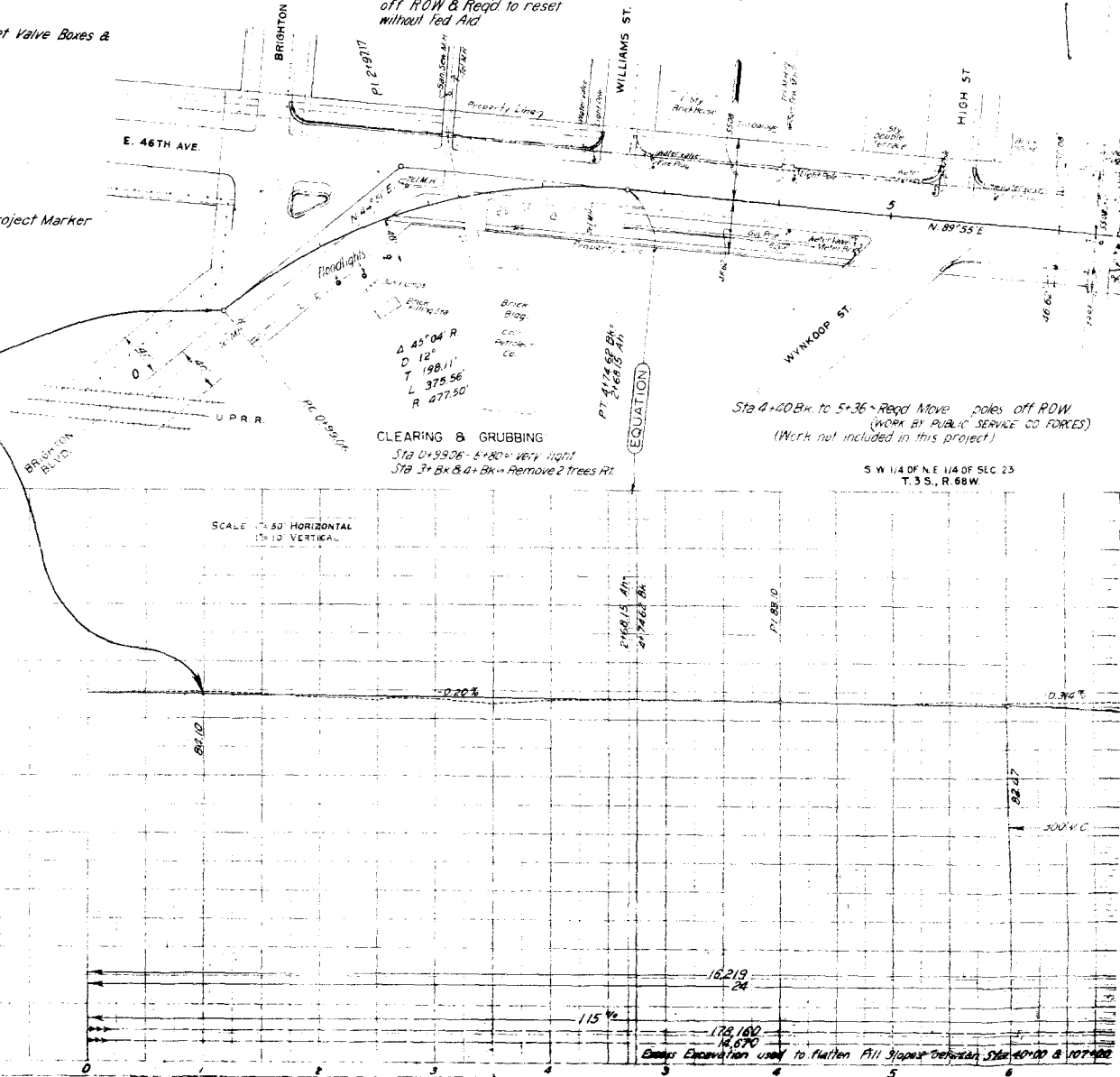
SCALE - 1" = 50'

Sta 1+03 to 4+40 - Req'd. Adjust manhole rings & covers (WORK BY MST & T. FORCES) (Work not included in this project)

N.W. 1/4 OF N.E. 1/4 OF SEC. 23
T.35. S. R. 68W.

Sta 1+60 to 5+91 - Req'd. Move fire hydrants & adjust water valves (WORK BY WATER CO. FORCES) (Work not included in this project)

Sta 1+21 - Req'd. Move 3 floodlights off ROW & Req'd. to reset without Fed Aid



Sta 4+00BK to 5+36 - Req'd. Move poles off ROW (WORK BY PUBLIC SERVICE CO. FORCES) (Work not included in this project)

S.W. 1/4 OF N.E. 1/4 OF SEC. 23
T.35. S. R. 68W.

SCALE - 1" = 50' HORIZONTAL
1" = 10' VERTICAL

CLEARING & GRUBBING

Sta 0+99.06 - 6+80 - VERY LIGHT
Sta 3+ BK & 4+ BK - Remove 2 trees RT

EXCAV.
EMB.
BORR.
EXCESS
BAL. FACT.
STA. YD.
YD. MI.
SOURCE

Excav. Excavation used to flatten All Grades between Sta 40+00 & 107+00

CURB, GUTTER, SIDEWALK & PAVEMENT REQUIREMENTS											
STA	TO STA	SIDE	REMOVE CURB	REMOVE GUTTER	REMOVE SIDEWALK	REMOVE PAVEMENT	REMOVE SIDEWALK	REMOVE GUTTER	REMOVE PAVEMENT	BUILD CURB	BUILD SIDEWALK
LINK	FT	LINK	FT	LINK	FT	LINK	FT	LINK	FT	LINK	FT
1+00	- 4+80	R								570	
2+00	(Island)	L								92	
2+10	- 4+40BK	L								310	
2+15	- 4+43BK	L								275	13
2+20	- 2+25	L								65	
2+33	- 3+28BK	L								80	
2+58	- 3+80BK L&R									480	
3+15BK	- 3+25BK	L	26	13							
3+25BK	- 3+43BK	R	54	18							
3+45BK	- 4+85	R								345	
4+04AK	- 4+17AK	L	26	13							13
4+33BK	- 4+38BK	L								65	
4+73BK	- 5+41	L								259	10
2+80AK	- 2+85AK	L								65	
5+28	- 5+33	L								65	
5+83	- 6+80	R								136	
5+71	- 6+80	L								136	
5+79	- 5+84	L								65	

NOTE: All pole lines encroaching on construction are to be moved by owners.

Gates, fencing requirements, and right of way markers are tabulated on Sheet No. 3.

LEGEND
WATER LINES
TELEPHONE CONDUITS
SEWER LINES
GAS LINES

SCALE - 1" = 50'

Sta 3+00(R), 4+00(L), 4+40(R) - Reqd Remove & Reset Valve Boxes & incidental pipe work on water lines.

Sta 1+00 TO 6+80 - Reqd Street Drainage (WORK BY CITY OF DENVER FORCES)

STREET & ALLEY APPROACHES

STATION	SIDE	UNCL	EMB'X	GRAVEL
CU	YD	CU	YD	TON
1+30	L	20		35
1+60	R	20		15
3+20BK	L	5		10
3+30BK	R	5		10
4+05AK	L	10		10
4+56BK	L	50		45
5+55	L&R	50		35

Sta 0+99.06 - Reqd Project Marker

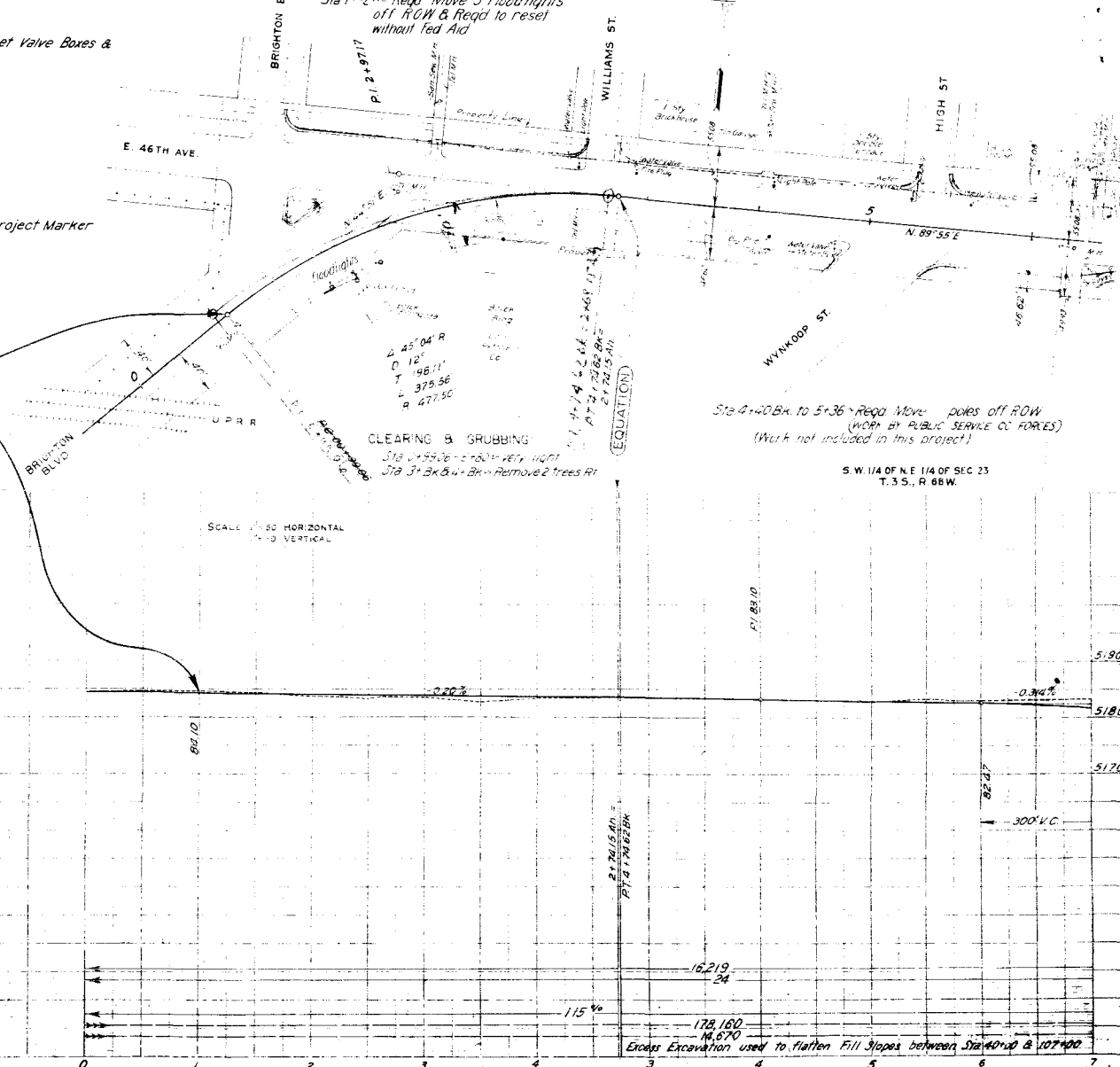
STA. 0+99.06 - BEGIN FED. AID PROJ. NO. 20-B (I)

Sta 1+03 TO 4+40 - Reqd Adjust manhole rings & covers (WORK BY M.S.T. & T. FORCES) (Work not included in this project)

Sta 1+60 TO 5+91 - Reqd Move & adjust water valves (WORK BY WATER CO FORCES) (Work not included in this project)

Sta 1+21 - Reqd Move 3 floodlights off ROW & Reqd to reset without fed Aid

Rev 12/14/39 (10:00) Add floodlight removal
R. 4-24-40 H.L.M. C. 1-1-4-4



SCALE - 1" = 50' HORIZONTAL
1" = 10' VERTICAL

CLEARING & GRUBBING
Sta 0+99.06 - 1+00 - Reqd Realign
Sta 3+20BK & 4+05AK - Remove 2 trees at

Sta 4+05BK TO 5+36 - Reqd Move poles off ROW (WORK BY PUBLIC SERVICE CO FORCES) (Work not included in this project)

S.W. 1/4 OF N.E. 1/4 OF SEC 23
T. 3 S., R. 68 W.

2+71.5 AK =
PT 4+126.2 BK

115°

Excavation used to flatten Fill Slopes between Sta 4+00 & 107+00

SANITARY SEWER CHANGE BETWEEN RACE & VINE STREETS

300' V.C. -0.314%
 76'00"
 13,000'
 8" San. Line S. South of N.P.L. 46th Ave.

SANITARY SEWER CHANGE BETWEEN GAYLORD & YORK STREETS

400' V.C. -0.34%
 77'00"
 115'00"
 8" San. Line S. South of N.P.L. 46th Ave.

Excav. used for Surfacing Material

Sta 57+00 ~ Req'd 24'x98' C.M.P. cross culvert 70 cu yds. Uncl. excav. for ditches and structure and timber guard post Rt.

Sta 58+85 ~ Req'd 200 cu yds. Embank. for road approaches Rt. & Lt. & 18'x34' C.M.P. side drain Rt.

S.W. 1/4 OF S.E. 1/4 OF SEC. 13
T. 3 S., R. 68 W.

SCALE: 1" = 100'

Sta 74+51 ~ Req'd 100 cu yds. Embank. for road approach Lt.

N.W. 1/4 OF S.E. 1/4 OF SEC. 13
T. 3 S., R. 68 W.

ROAD NO.	STATE	FED. AID DIST. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	20-B(1)	57	

Rev 12-14-39 H.M. Add. Timber & hay stack removal.

Sta 82+12 ~ Req'd 4'x4'x15' C.B.C. (SK 68") & 300 cu yds. Uncl. excav. for channel change and structure.

P.T. 51+22.984
52+07.404

Sta 52+50 to 95+00 ~ Req'd 86 timber guard posts Rt. (so'cirs)

512.39 52+50
523.97 95+00

Sta 55+ ~ Req'd Move hay & feed stack off R.O.W.

EQUATION

N.W. 1/4 OF N.E. 1/4 OF SEC. 24
T. 3 S., R. 68 W.

Sta 67+00 ~ Req'd 24'x104' C.M.P. cross culvert & 15 cu yds. Uncl. excav. for ditches and structure.

N 34° 45' E.

CLEARING & GRUBBING
Sta 53+00 ~ 65+00 ~ Very light

N.E. 1/4 OF S.E. 1/4 OF SEC. 13
T. 3 S., R. 68 W.

SCALE: 1" = 100' HORIZONTAL
1" = 10' VERTICAL

P.T. 51+22.984
52+07.404

P.I. 68.72

108.54
108.32
108.15
200' VC

52.0

52.00

51.90

51.80

P.L. 82.3

52.0

52.00

51.90

51.80

EXCAV.
EMB.
BORR.
ROADS
CULV.
DITCHES
AND
STRUCT.

274

940

115%

1802

870

330

330

13

15,850

55

60

65

70

75

80

