

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEET
9	COLORADO	1-25-2(27) 143	1	

25.0227143

# COLORADO

## DEPARTMENT OF HIGHWAYS

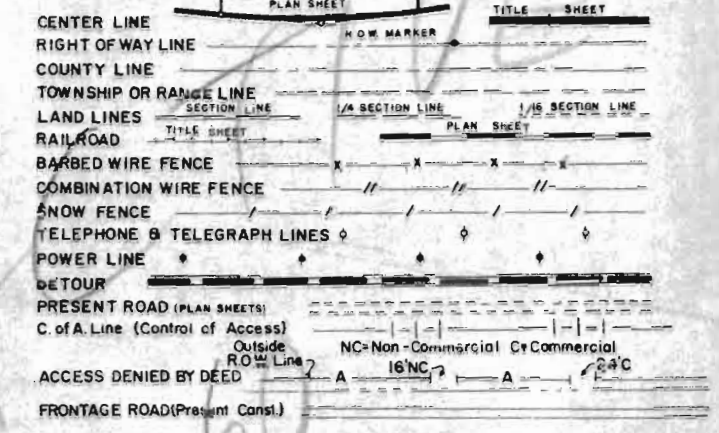
### PLAN AND PROFILE OF PROPOSED

### FEDERAL AID PROJECT NO. 1-25-2(27) 143

### STATE HIGHWAY NO. 11

### EL PASO COUNTY

#### CONVENTIONAL SIGNS



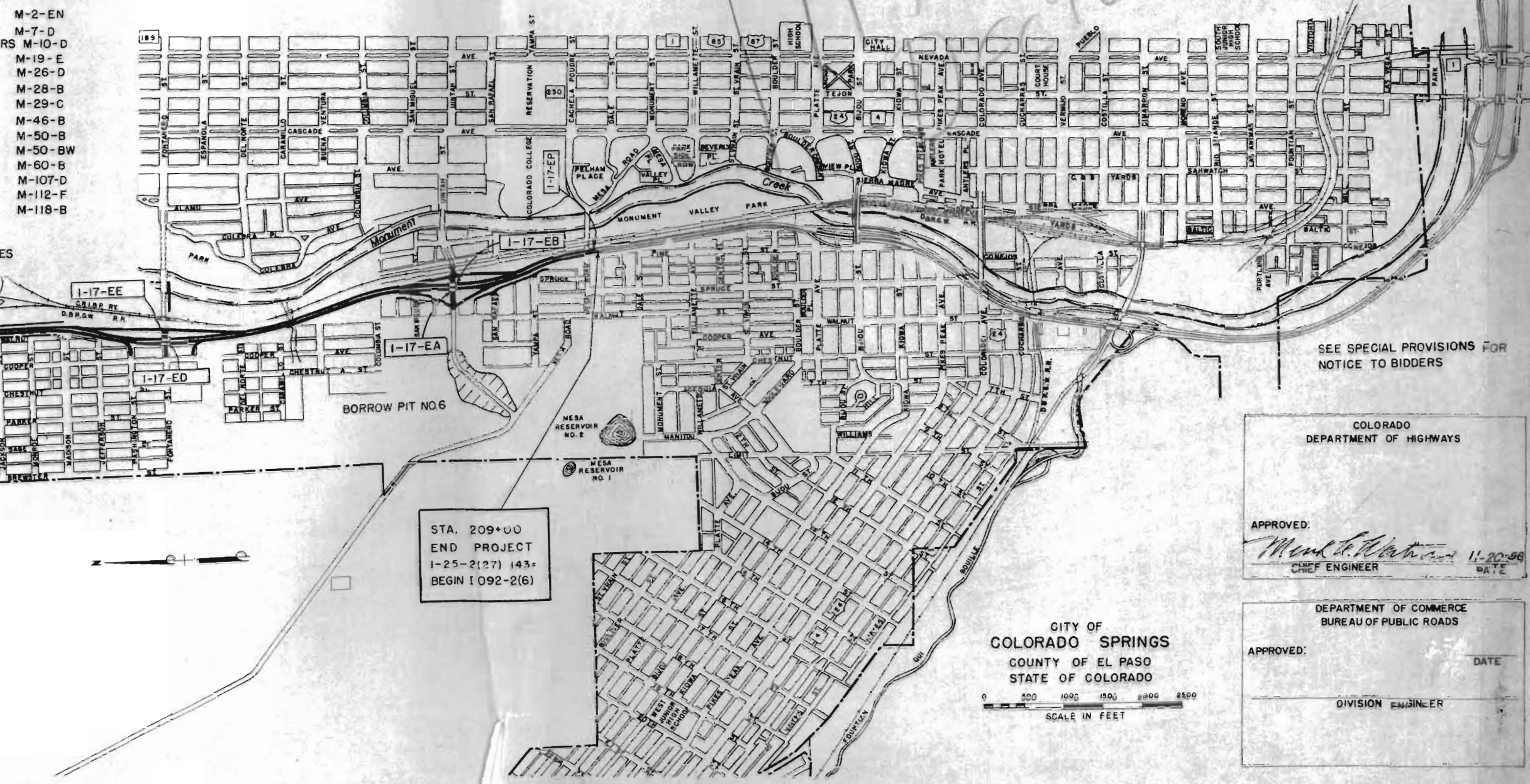
**SCALES**

ON PLAN, 1 IN. = 100 FT.  
 ON PROFILE, 1 IN. = 100 FT. HORIZONTAL  
 1 IN. = 10 FT. VERTICAL

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD  
 GROSS LENGTH OF PROJECT } 96344 FEET = 1.825 MILES  
 NET LENGTH OF PROJECT }

**INDEX OF SHEETS**

1	SKETCH MAP AND TITLE PAGE
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5	TABULATION OF LENGTH AND DESIGN DATA, GENERAL NOTES, AND TURNING MOVEMENTS OF UINTAH AND FONTANERO STREET
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23	DETAILS AND SUMMARY OF SPRINKLER MAINS AND LATERALS
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104-126	CROSS SECTIONS OF BORROW PIT NO. 6 & UINTAH STREET



SEE SPECIAL PROVISIONS FOR NOTICE TO BIDDERS

COLORADO  
DEPARTMENT OF HIGHWAYS

APPROVED: *M. L. ...* 11-20-58  
 CHIEF ENGINEER DATE

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

APPROVED: \_\_\_\_\_ DATE \_\_\_\_\_  
 DIVISION ENGINEER

CITY OF  
COLORADO SPRINGS  
COUNTY OF EL PASO  
STATE OF COLORADO

SCALE IN FEET

STA. 112+64.1  
BEGIN PROJECT  
1-25-2(27) 143

STA. 209+00  
END PROJECT  
1-25-2(27) 143  
BEGIN 1 092-2(6)

# TYPICAL SECTIONS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.
9	COLO.	1-25-2(27)-143	2

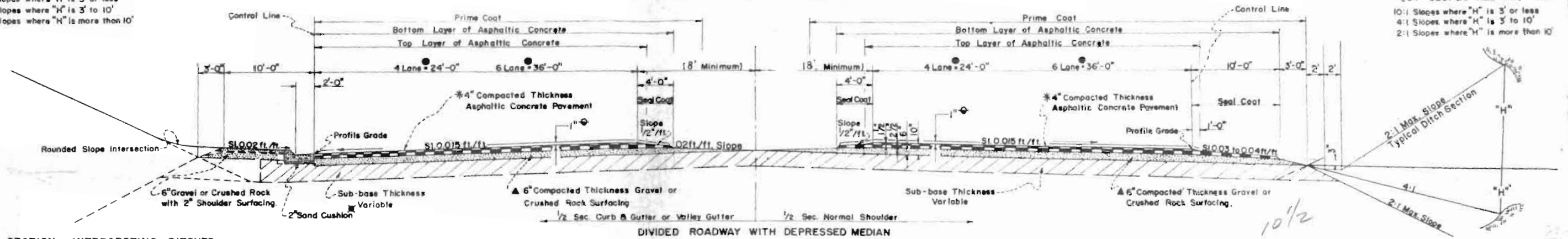
Rev. Sect. To Show Future Overlay, E.E.Q. 1-16-61

**FILL SLOPES ALL SECTIONS**  
 10:1 Slopes where "H" is 3' or less  
 4:1 Slopes where "H" is 3' to 10'  
 2:1 Slopes where "H" is more than 10'

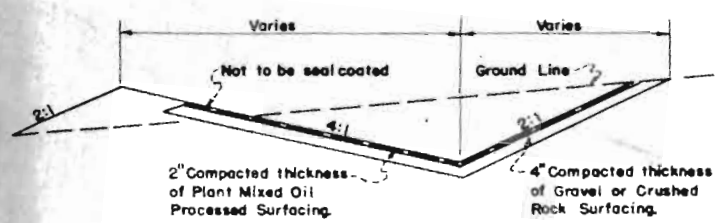
**CUT SLOPES ALL SECTIONS**  
 10:1 Slopes where "H" is 3' or less  
 4:1 Slopes where "H" is 3' to 10'  
 2:1 Slopes where "H" is more than 10'

## SECTION 2

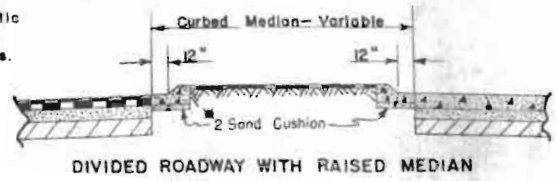
STA 124+22.84 to STA.209+00



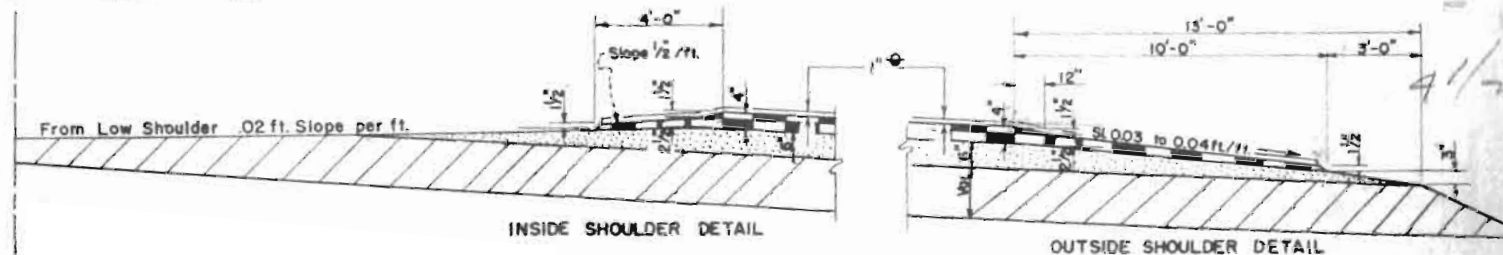
TYPICAL SECTION - INTERCEPTING DITCHES



Raised Median shall have 1" Compacted Thickness Asphaltic Surfacing over tamped earth fill where called for on Plans.



DIVIDED ROADWAY WITH RAISED MEDIAN

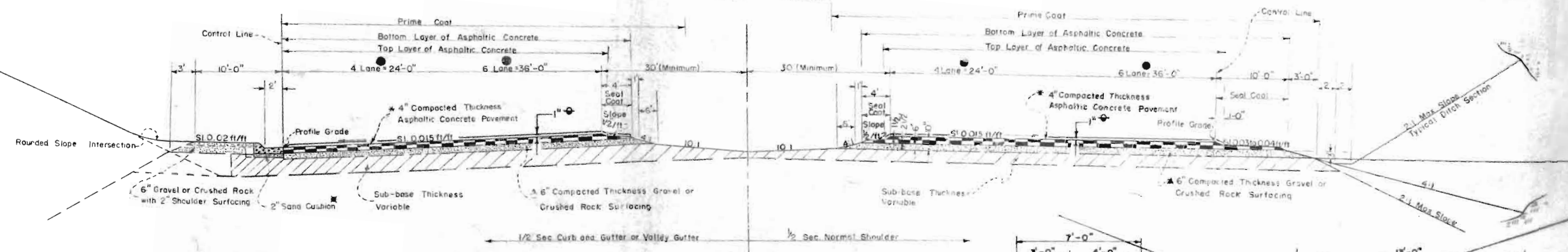


INSIDE SHOULDER DETAIL

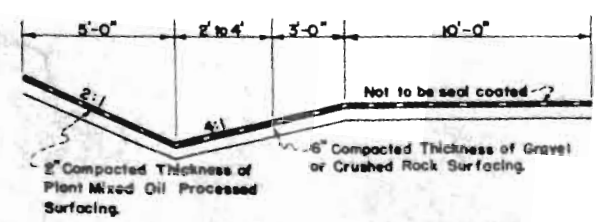
OUTSIDE SHOULDER DETAIL

## SECTION 1

STA 112+64.06 to STA 119+05.06



TYPICAL SECTION FOR ROADWAY DITCH PAVING

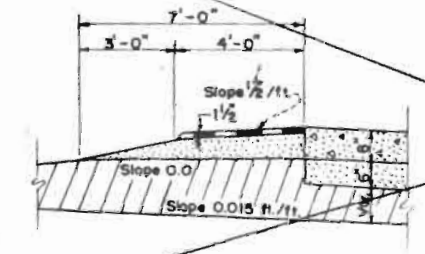


● Where speed change lanes are required the pavement shall be widened 12' outside of control line. Concrete gutter and shoulder to be constructed in same relation to either widened or standard pavement.  
 ✖ If required by the Engineer during construction.

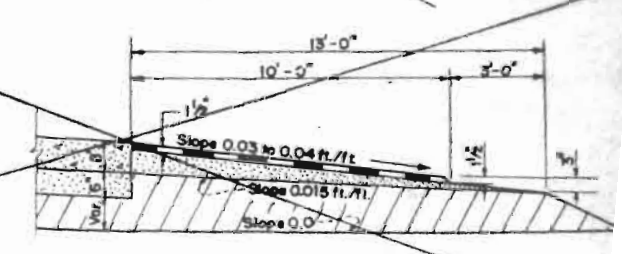
▲ 6" Compacted Thickness of Gravel or Crushed Rock Surfacing to be placed in Two 3" Courses.

\* Projects using a mat of 4" thickness shall be laid in two Courses. Bottom Course of 2 1/2". Top Course of 1 1/2".

Note: Bottom 2-1/2" Layer of Asphaltic Concrete Pavement to be "Leveling Course" and Top 1-1/2" Layer to be "Surface Type B"



INSIDE SHOULDER DETAIL



OUTSIDE SHOULDER DETAIL

(CONCRETE PAVEMENT)

NOTE: Ditches to be filled where called for on plans or as directed by the Engineer.

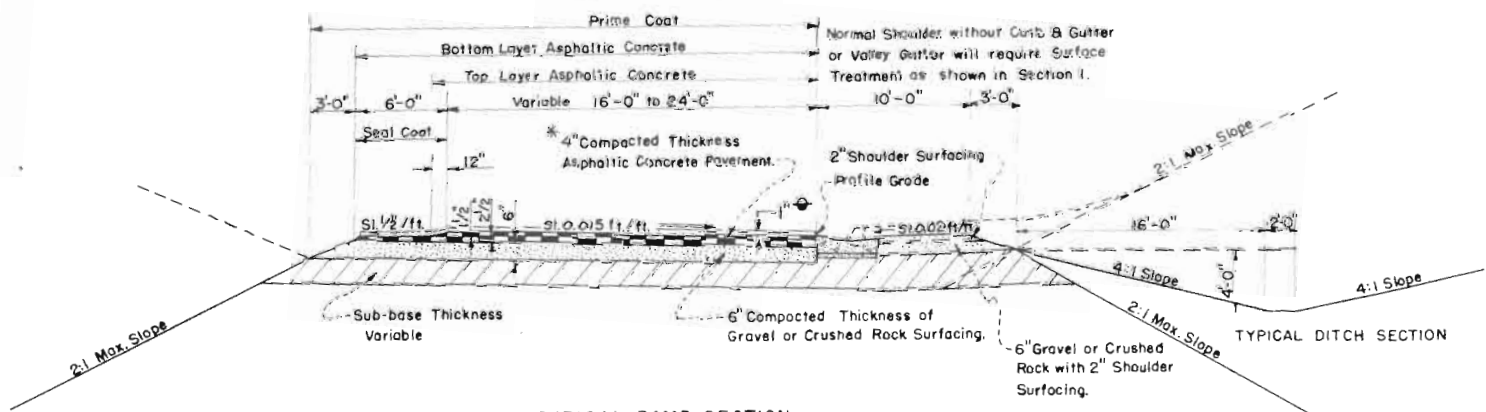
Between Sta 119+05.06 and Sta 124+22.84 Section 1 is Tapered to Section 2  
 1" Asphaltic Concrete Pavement Future Overlay

# TYPICAL SECTIONS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
5-	COLO.	1-25-2271-143	3	

Rev. Sect. To Show Future Quantity, E.E.O. 1-16-61

## SECTION 3



TYPICAL RAMP SECTION

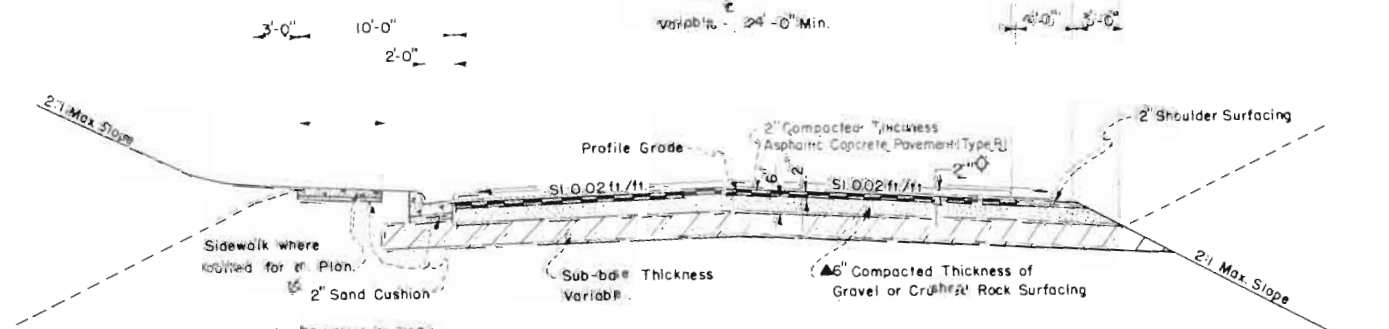
\* Project using a mat of 4\"/>

▲ 6\"/>

○ 1\"/>

NOTE: See Sheets 68 & 71 for Typical Sections of Fernero and Uintah Streets.

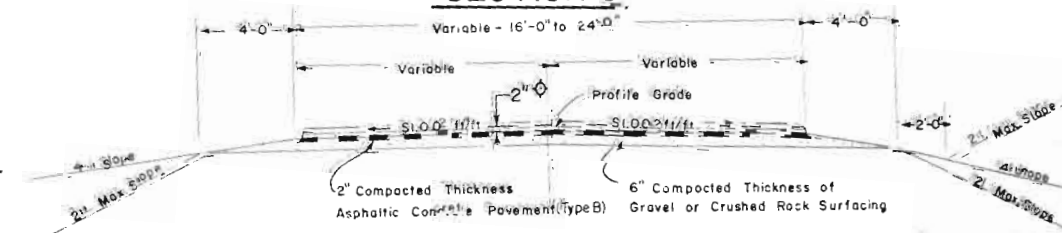
## SECTION 4



TYPICAL OUTER HIGHWAY or CROSSING STREET

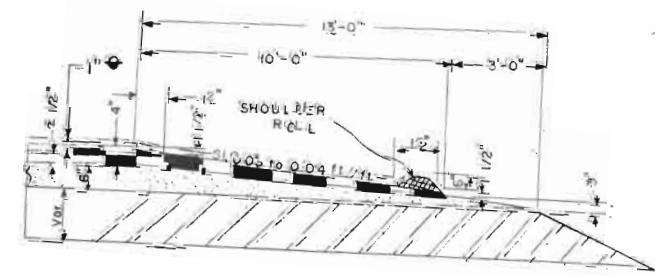
NOTE: Any change in the crown to meet existing streets shall take place gradually over sufficient distance to provide a smooth riding connection.

## SECTION 6



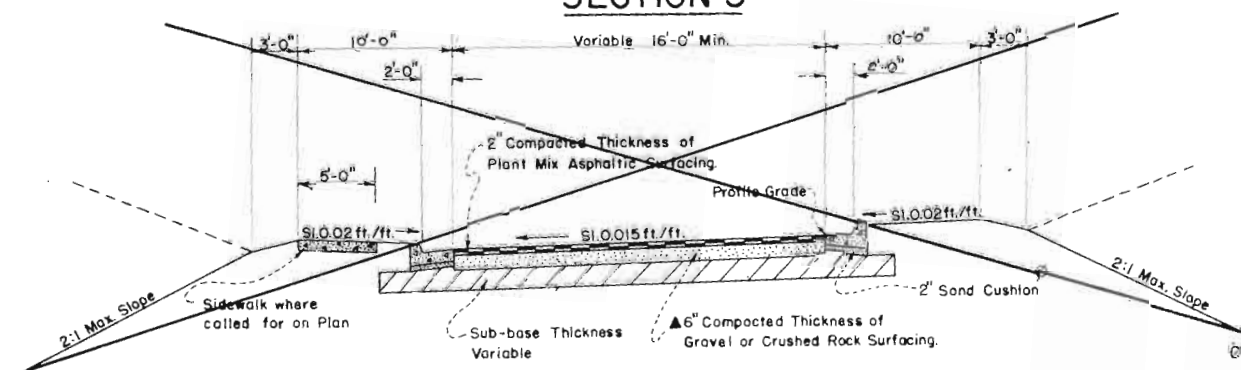
TYPICAL OUTER HIGHWAY

## DETAILS OF SHOULDER ROLL



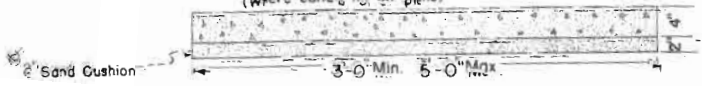
☒ If required by the Engineer during Construction

## SECTION 5

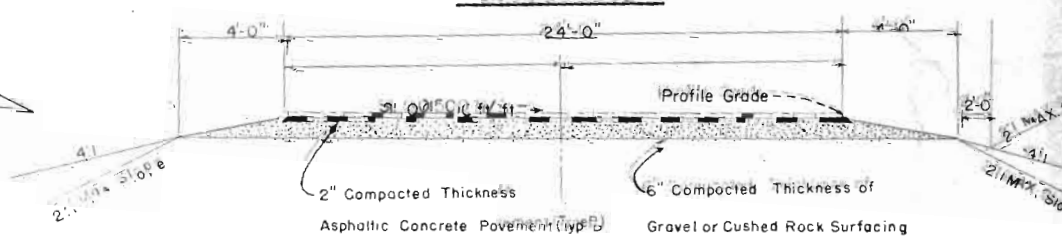


TYPICAL OUTER HIGHWAY (ONE WAY)

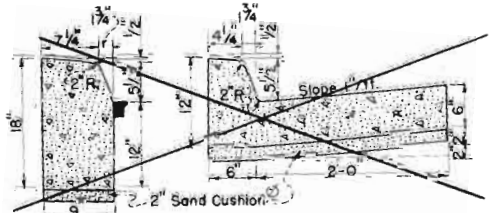
## CONCRETE SIDEWALK DETAIL (4\"/>



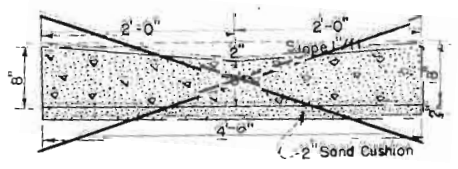
## SECTION 7



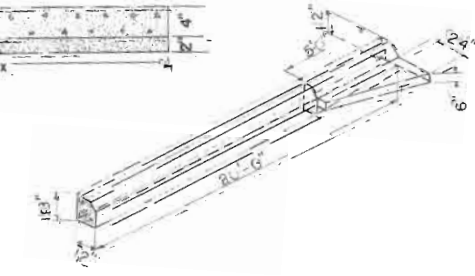
TYPICAL TEMPORARY RAMP SECTION



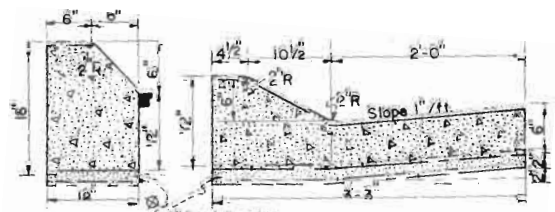
CURB ONLY



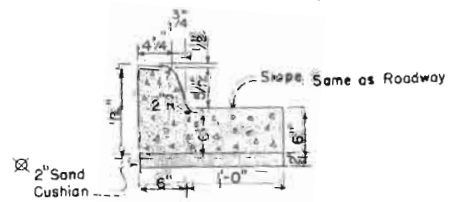
CONCRETE (VALLEY) GUTTER



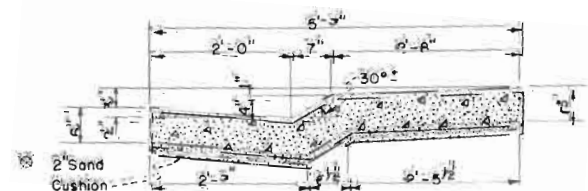
TRANSITION FROM CURB & GUTTER TO BARRIER CURB



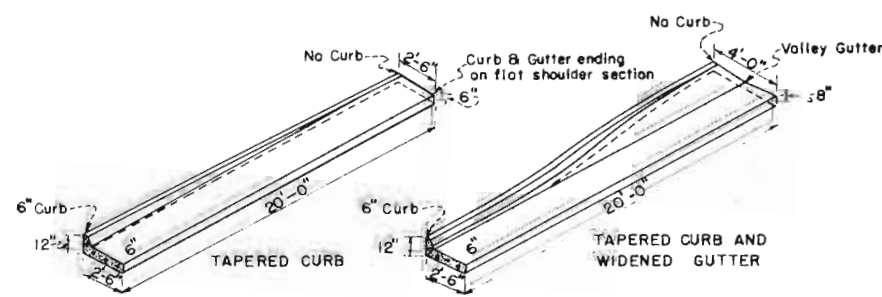
CURB & GUTTER



COMB. CURB & GUTTER TYPE I



COMB. CURB, GUTTER, & SIDEWALK (To be used to match existing Curb & Gutter only - as called for on Plan.)



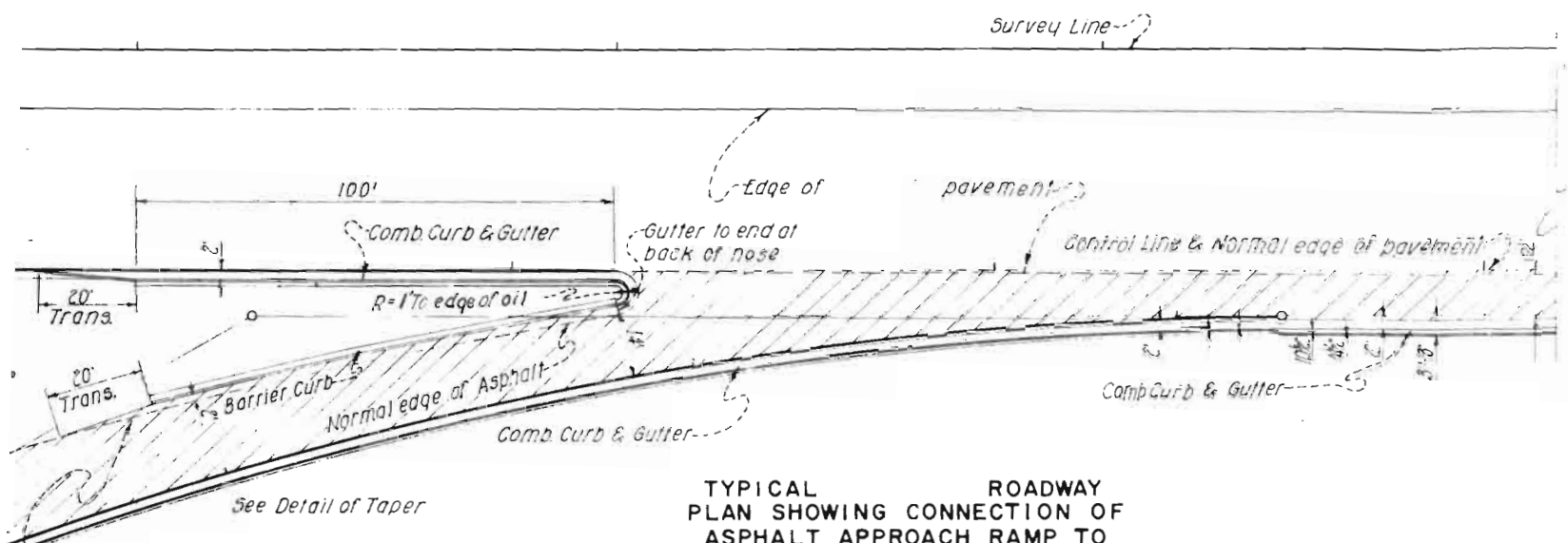
CURB TRANSITION DETAIL

Curbs shall not end abruptly but shall be tapered to Zero height over a distance of 20 ft. as shown above.  
 On High Side of Superelevated Curves the Gutter shall have the same slope as the Pavement.  
 All Transitions are to be included and paid for as Concrete Combination Curb and Gutter.

FEED ROAD DIVISION NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	44	

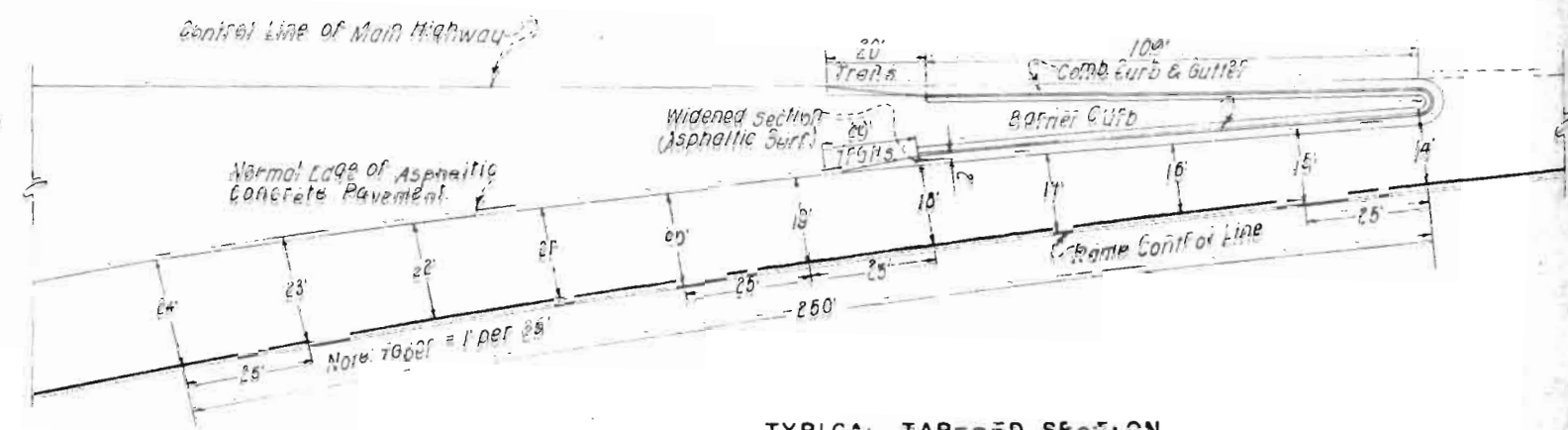
# TYPICAL RAMP DETAILS

## SHOWING CURB & GUTTER DETAIL

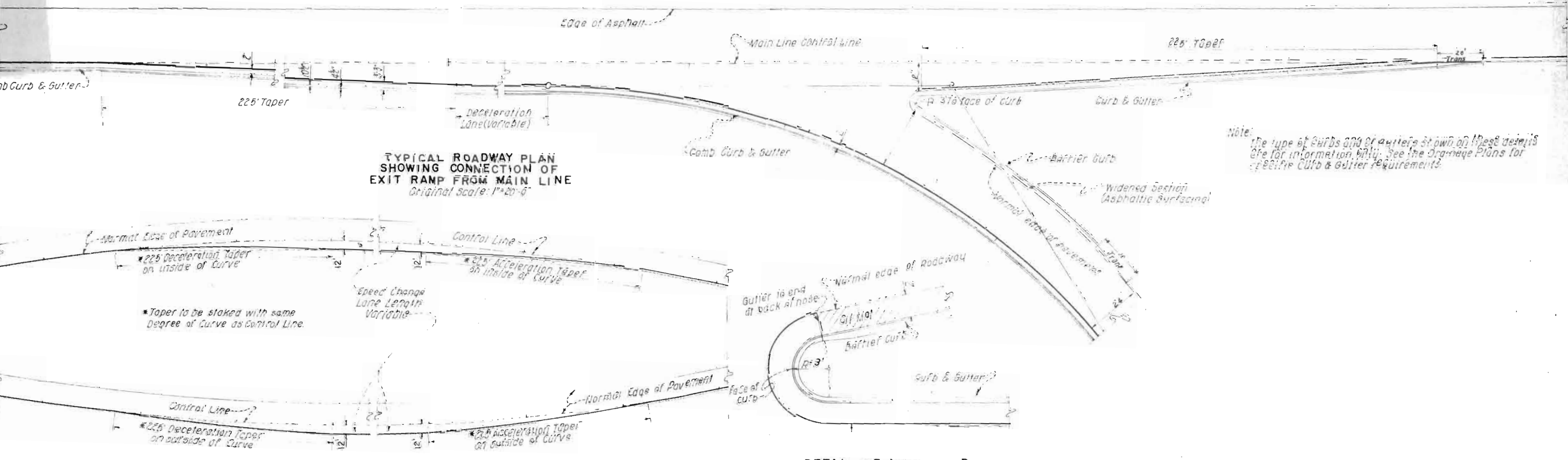


**TYPICAL ROADWAY PLAN SHOWING CONNECTION OF ASPHALT APPROACH RAMP TO MAIN LINE**  
Original Scale: 1"=20'-0"

NOTE: Where comb curb & gutter is called for in place of barrier curb, the comb curb & gutter will be placed in same relative position at normal edge of pavement.

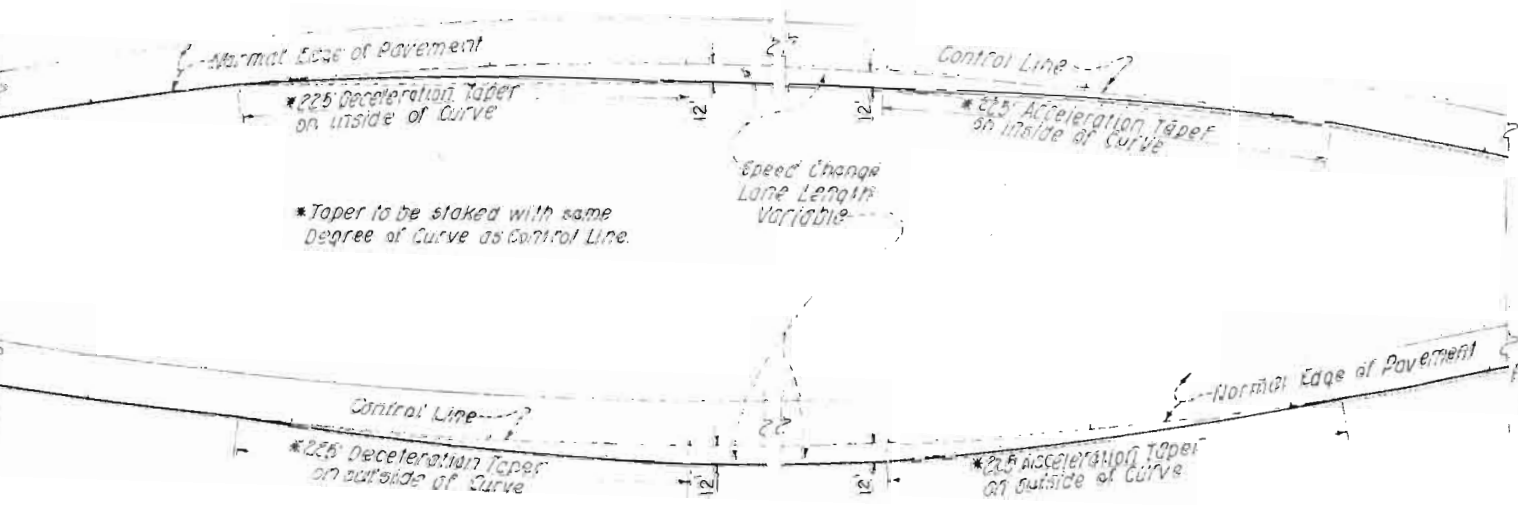


**TYPICAL TAPERED SECTION FOR RAMP APPROACHES**  
Original Scale: 1"=20'-0"

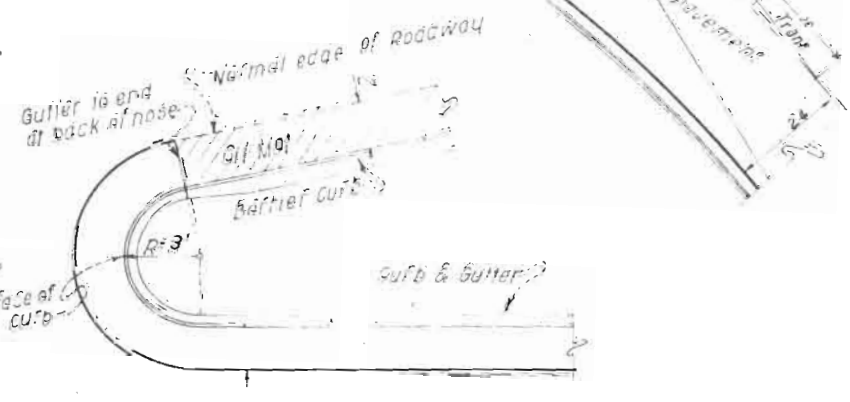


**TYPICAL ROADWAY PLAN SHOWING CONNECTION OF EXIT RAMP FROM MAIN LINE**  
Original Scale: 1"=20'-0"

Note: The type of curbs and gutters shown on these details are for information only. See the Drainage Plans for specific curb & gutter requirements.



**DETAIL OF TAPER LOCATED ON CURVE**  
Original Scale: 1"=20'-0"



**DETAIL OF NOSE CURB**  
Original Scale: 1"=4'-0"

TABULATION OF LENGTH & DESIGN DATA

STATION	ROADWAY	BRIDGE	
	LIN. FT.	LIN. FT.	
STA. 112+64.1 BEGIN I-25-2(27) 143	3,814.2		
150+78.3 BEGIN BRIDGE (Str. No's 1-17-ED & 1-17-EE)		157.0	
152+35.3 END BRIDGE			
169+79.7 BK = EQUATION	1,744.4		
169+82.3 AH.	1,825.9		
188+08.2 BEGIN BRIDGE (Str. No's 1-17-EA & 1-17-EB)		157.0	
189+65.2 END BRIDGE			
205+68.6 BK EQUATION			
205+67.5 AH.	332.5		
STA. 209+00 END I-25-2(27) 143 = BEGIN I 092-2(16)			
<b>TOTALS</b>	<b>9320.4</b>	<b>314.0</b>	
<b>SUMMARY</b>	<b>LIN. FT.</b>	<b>LIN. FT.</b>	<b>MILES</b>
ROADWAY	9320.4		1.765
BRIDGE		314.0	0.060
<b>TOTAL LENGTH</b>	<b>9,634.4</b>		<b>1.825</b>
<b>DESIGN DATA</b>			
MAXIMUM DEGREE OF CURVE		4° 00'	
MAXIMUM GRADE		3.00%	
MINIMUM NPSD - HORIZONTAL		620'	
MINIMUM NPSD - VERTICAL		420'	
MAXIMUM DESIGN SPEED		50 MPH.	

GENERAL NOTES

This project is to be constructed in conformity with the Standard Specifications of the Colorado Department of Highways adopted January 1, 1958

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

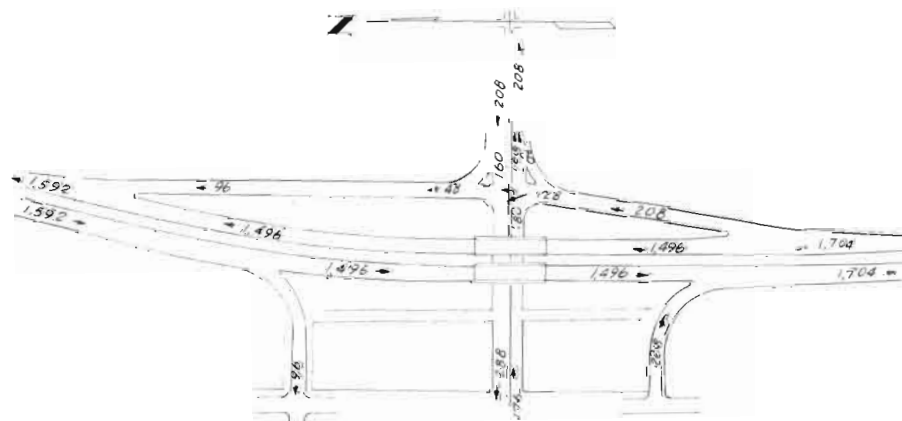
All curves are to be superelevated and widened as provided by the standard Superelevation sheet included with the plans.

For preliminary plan quantities of asphaltic road materials, & stone screenings, the following rates of application were used.

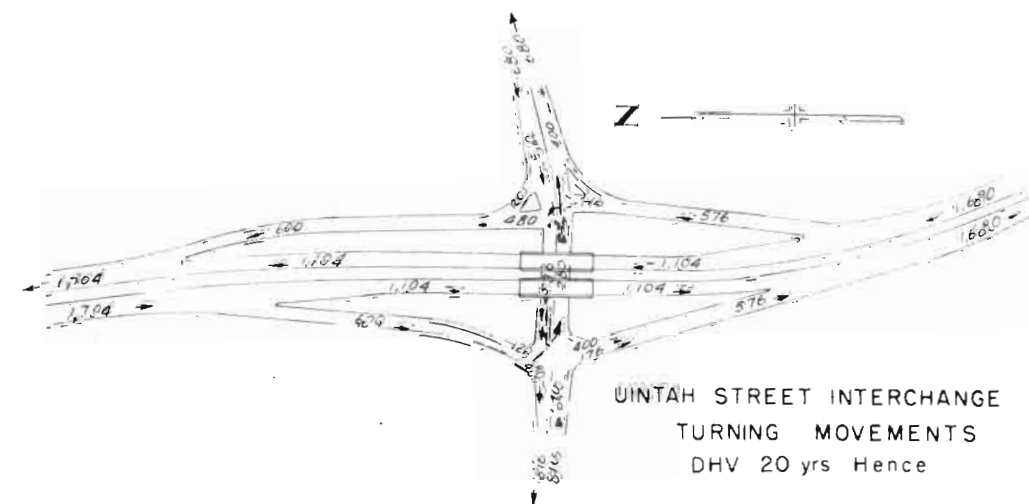
Prime Coat (over concrete) R C	at	0.10 gal. per sq. yd.
Prime Coat (over other areas) M C	at	0.40 gal. per sq. yd.
Asphaltic Concrete Pavement	at	110.00 lbs. per sq. yd. per 1" thickness
Asphalt ( 85-100 penetration)	at	6.50 lbs. per sq. yd. per 1" thickness
Seal Coat R C	at	0.25 gal. per sq. yd.
Stone Screenings (Limestone)	at	25.00 lbs. per sq. yd.

Rate of application and grade of oil shall be as determined by the engineer at the time of application

Application methods, for liquid asphaltic road material, which result in the discoloration of concrete pavement, curbs or gutters will not be permitted.



FONTANERO STREET INTERCHANGE  
TURNING MOVEMENTS  
DHV 20 yrs Hence



UINTAH STREET INTERCHANGE  
TURNING MOVEMENTS  
DHV 20 yrs Hence

# SUMMARY OF APPROXIMATE QUANTITIES

Rev. 10-26-59 Items 16 B-47 J.C.R.      Rev. 11-28-58 J.C.R.  
REV COND. DEC. 10, 1958 E.E.O.

ITEM NO.	ITEM	UNIT	ROADWAY	STRUCTURES		STRUCTURE I-17-EP	PROJECT TOTALS
				I-17-EE I-17-EE	I-17-EA I-17-EB		
10	CLEARING AND GRUBBING ENTIRE PROJECT	LUMP SUM					
11	REMOVAL OF OBSTRUCTIONS	LUMP SUM					
11	ADJUST MANHOLE RINGS AND REVER	EACH	3				3
13	UNCLASSIFIED EXCAVATION	CU. YD.	446,000				446,000
14	UNCLASSIFIED STRUCTURAL EXCAVATION - MISCELLANEOUS	CU. YD.	380				380
15	STRUCTURE BACKFILL (CLASS 1)	CU. YD.	460				460
17	COMPACTION (STANDARD)	CU. YD.	514,000				514,000
17	WETTING	M. GAL.	22,370				22,370
18	STATION YARD OVERHAUL	STA. YD.	4,407,000				4,407,000
19	YARD MILE OVERHAUL	YD. MI.	386,900				386,900
20	SUB-BASE MATERIAL (CLASS 1)	TSS	79,620				79,620
21	GRAVEL OR CRUSHED ROCK SURFACING (GRADING E)	TSS	42,300				42,300
22	ASPHALT 1 1/2" IN. PENETRATION	TON					
23	ASPHALTIC ROAD MATERIAL 1/2" (PRIME)	GAL.	54,800				54,800
24	ASPHALTIC ROAD MATERIAL 1/4"	GAL.	3,800				3,800
25	STONE SCREENINGS (LIMESTONE)	TON	260				260
26	PLANT MIXED ASPHALTIC SHOULDER ROLL	LIN. FT.	1,687				1,687
27	ASPHALTIC CONCRETE PAVEMENT (LEVELING COURSE)	TON	11,330				11,330
28	ASPHALTIC CONCRETE PAVEMENT (TYPE B)	TON	8,360				8,360
29	SAND CUSHION	CU. YD.	240				240
30	TREATED BRIDGE TIMBER	L. FT. BR.					
31	CLASS #4 CONCRETE	CU. YD.	352				352
32	REINFORCING STEEL	LB.	32,650				32,650
33	STRUCTURAL STEEL	LB.					
34	STEEL PILING (10 PP U2)	LIN. FT.					
35	CONCRETE, SLOPE AND DITCH PAVING (WIRE MESH)	CU. YD.					
36	6" PERFORATED CORRUGATED METAL PIPE, UNDERDRAIN	LIN. FT.	525				525
37	8" PERFORATED CORRUGATED METAL PIPE, UNDERDRAIN	LIN. FT.	400				400
38	BARRIER FENCE WITH METAL POSTS	LIN. FT.	9,100				9,100
39	CHAIN LINK WIRE MESH FENCE (2 1/2" HIGH)	LIN. FT.	550				550
40	CHAIN LINK WIRE MESH FENCE (6" HIGH)	LIN. FT.	19,085				19,085
41	CHAIN LINK WIRE MESH FABRIC	LIN. FT.	6406				6,406
42	CONCRETE CURB (TYPE II-M)	LIN. FT.	7,955				7,955
43	CONCRETE COMBINATION CURB & GUTTER (TYPE I-M)	LIN. FT.					
44	CONCRETE COMBINATION CURB & GUTTER (TYPE I)	LIN. FT.	1,009				1,009
45	CONCRETE COMBINATION CURB, GUTTER, AND SIDEWALK	SO. FT.	360				360
46	CONCRETE SIDEWALKS	LIN. FT.	380				380
47	1/2" ELECTRICAL CONDUIT WITH JUNCTION BOXES	EACH	145				145
48	TIMBER GUARD POSTS	EACH					
49	3" GATE VALVE AND VALVE BOX	EACH	39				39
50	6" GATE VALVE AND VALVE BOX	EACH	1				1
51	1 1/2" ANGLE VALVE AND VALVE BOX	EACH	26				26
52	3" CAST IRON WATER PIPE	LIN. FT.	2,765				2,765
53	8" CAST IRON WATER PIPE	LIN. FT.	9,634				9,634
54	DROP INLETS (SPECIAL) 5 FEET DEEP	EACH	1				1
55	DROP INLETS (STANDARD TYPE A FOR MEDIAN DITCH) 3 FEET DEEP	EACH	1				1
56	DROP INLETS (STANDARD TYPE A FOR MEDIAN DITCH) 5 FEET DEEP	EACH	2				2
57	DROP INLETS (STANDARD TYPE A FOR MEDIAN DITCH) 6 FEET DEEP	EACH	2				2
58	DROP INLETS (TYPE 3) 4 FEET DEEP	EACH	3				3
59	DROP INLETS (TYPE 3) 5 FEET DEEP	EACH	1				1
60	DROP INLETS (TYPE UC) 4 FEET DEEP	EACH	23				23
61	DROP INLETS (TYPE UC) 5 FEET DEEP	EACH	4				4
62	DROP INLETS (TYPE UC) 6 FEET DEEP	EACH	2				2
63	15" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	1614				1,614
64	18" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	336				336
65	20" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	1,338				1,338
66	30" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	836				836
67	36" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	1,800				1,800
68	42" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	256				256
69	48" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	762				762
70	60" REINFORCED CONCRETE PIPE SEWER (CLASS III)	LIN. FT.	216				216
71	MANHOLES (TYPE IA) 6 FEET DEEP	EACH	2				2
72	MANHOLES (TYPE IA) 7 FEET DEEP	EACH	3				3
73	MANHOLES (TYPE IA) 11 FEET DEEP	EACH	1				1
74	MANHOLES (TYPE 5) 5 FEET DEEP	EACH	1				1
75	MANHOLES (TYPE 5) 7 FEET DEEP	EACH	1				1
76	MANHOLES (TYPE IA) 10 FEET DEEP	EACH	2				2
77	15" FLARED END SECTIONS FOR REINF. CONCRETE CULVERT PIPE	EACH	9				9
78	24" FLARED END SECTIONS FOR REINF. CONCRETE CULVERT PIPE	EACH	5				5
79	30" FLARED END SECTIONS FOR REINF. CONCRETE CULVERT PIPE	EACH	1				1
80	36" FLARED END SECTIONS FOR REINF. CONCRETE CULVERT PIPE	EACH	2				2
81	48" FLARED END SECTIONS FOR REINF. CONCRETE CULVERT PIPE	EACH	1				1
82	60" FLARED END SECTIONS FOR REINF. CONCRETE CULVERT PIPE	EACH	2				2
83	24" DRILLED CAISSONS	LIN. FT.	475				475
84	1" ELECTRICAL CONDUIT WITH JUNCTION BOXES	LIN. FT.	1,720				1,720
85	1 1/2" ELECTRICAL CONDUIT WITH JUNCTION BOXES (PLASTIC) WITH JUNCTION BOXES	LIN. FT.	15,740				15,740
86	20,000 L. MERCURY VAPOR LUMINAIRES	EACH	84				84
87	4,000 L. INCANDESCENT LUMINAIRES	EACH					
88	4,000 L. INCANDESCENT LUMINAIRES	EACH					
89	LIGHT STANDARDS (1 ARM)	EACH	84				84
90	ALUMINUM HANDRAIL	LIN. FT.					
91	DOWNSPOUTS & GUTTERS	LIN. FT.					
92	CORRUGATED GLASS-FIBER BUILDING PANELS	SO. FT.					
93	FORCE ACCOUNT	LUMP SUM					
94	PLACE STORM SEWER UNDER R.R. ROW STA 184+ (WORK BY D.B. & R.G. R.R. FORCES)	LUMP SUM					

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.
9	COLD.	1-25-2(27)-143	6

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	RDG.	1-25-2(27)-143	7	

# TABULATION OF SURFACING

LOCATION	STATION	STATION	LENGTH	SUB-BASE MATERIAL		GRAVEL OR CRUSHED ROCK SURFACING		B* CONCRETE PAVEMENT		ASPHALTIC CONC. PAVEMENT		PLANT MIXED ASPHALTIC SURF.		2" GRAVEL SHOULDER SURF.		PRIME COAT M.C.		SEAL COAT R.C.		STONE SCREENINGS.		2" SAND CUSHION		REMARKS	
				CU. FT.	TONS	CU. FT.	TONS	WIDTH	SQ. YDS.	CU. FT.	TONS	SQ. YDS.	TONS	WIDTH	TONS	SQ. YDS.	GALS.	SQ. YDS.	GALS.	SQ. FT.	TONS	CU. FT.	CU. YDS.		
MAINLINE RT. LANE																									
STANDARD SECTION WITH WIDE MEDIUM STANDARD SECTION	112+64.00	124+91.98 BK	1,227.94	68,765	4,642	25,326	1,705			12,894	846					7,516	3,000	1,904	475	17,191	2,021.5	NONE	NONE		
RAMP TAPER WITH CURB	125+00.00 AH	141+89.90	1,689.90	94,674	6,366	34,654	2,353			17,744	1,301					10,327	4,121	2,629	657	23,659	2,292.6	NONE	NONE		
WIDENED SECTION WITH CURB	144+17.50	145+89.90	172.40	14,172	687	4,719	319			2,594	190					1,416	566	101	25	912	13.47	37	1		
WIDENED SECTION	145+89.90	146+81.00	91.10	4,919	332	2,425	164			2,309	169					956	383	77	19	690	1.09	29	1		
REDUCED SECTION WITH CURB	146+81.00	149+06.00	285.00	13,275	896	6,159	416			1,321	97					547	219	47	12	364	0.85	NONE	NONE		
STANDARD SECTION WITH CURB	149+06.00	150+03.30	97.30	4,573	309	2,090	140			3,014	221					1,250	500	100	25	900	12.91	38	1		
FLARE AND CURB SECTION	150+03.30	150+79.30	75.00	2,612	176	1,406	95			662	49					248	99	NONE	NONE	NONE	NONE	14	1		
RT. LANE BRIDGE FONTANERO ST.	150+79.30	150+95.02 BK	16.72	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE			STRUCTURE	STRUCTURE					STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	
RT. LANE BRIDGE FONTANERO ST.	150+95.02	152+35.30	139.63	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE			STRUCTURE	STRUCTURE					STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	
FLARE AND CURB SECTION	152+35.30	153+10.30	75.00	2,612	176	1,406	95			662	49					248	99	NONE	NONE	NONE	NONE	14	1		
STANDARD SECTION WITH CURB	153+10.30	155+74.00	263.70	12,482	847	5,505	372			2,302	169					1,270	492	117	29	1,055	1.55	39	5		
WIDENED SECTION	155+74.00	156+16.40	42.40	2,290	155	1,179	76			615	45					254	100	17	8	170	0.28	NONE	NONE		
WIDENED SECTION WITH CURB	156+16.40	159+26.00	392.60	18,573	1,324	10,474	707			5,125	376					2,126	830	170	42	1,530	2.15	74	3		
REDUCED SECTION WITH CURB	159+26.00	162+24.00	225.00	11,925	805	5,484	370			2,564	188					1,400	560	100	25	900	1.09	38	1		
STANDARD SECTION	162+24.00	175+95.10	1,371.10	76,776	5,182	28,279	1,907			14,396	1,056					6,379	2,382	2,132	532	19,165	2,070.0	NONE	NONE		
RAMP TAPER WITH CURB	175+95.10	176+26.10	225.00	12,000	810	5,372	362			2,414	177					1,350	540	100	25	900	1.23	113	4		
WIDENED SECTION WITH CURB	176+26.10	179+20.10	175.00	10,383	701	4,702	317			2,230	164					933	373	78	20	700	1.09	88	3		
WIDENED SECTION	179+20.10	182+06.00	322.90	17,328	1,170	6,544	477			4,652	341					1,925	770	44	14	1,212	1.75	NONE	NONE		
REDUCED SECTION WITH CURB	182+06.00	184+23.00	125.00	6,607	450	2,584	201			1,342	98					750	300	50	14	500	0.75	63	2		
STANDARD SECTION WITH CURB	184+23.00	185+89.50 BK	166.50	7,851	532	3,476	235			1,452	108					777	311	74	19	660	0.95	84	3		
STANDARD SECTION WITH CURB	185+89.50	187+33.20	143.70	6,879	450	2,944	195			1,230	90					650	261	62	16	564	0.85	70	2		
FLARE AND CURB SECTION	187+33.20	188+08.20	75.00	2,612	176	1,406	95			662	49					248	99	NONE	NONE	NONE	NONE	14	1		
RT. LANE BRIDGE UINTAH	188+08.20	189+65.20	157.00	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE			STRUCTURE	STRUCTURE					STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	
FLARE AND CURB SECTION	189+65.20	190+40.20	75.00	2,612	176	1,406	95			662	49					248	99	NONE	NONE	NONE	NONE	14	1		
STANDARD SECTION WITH CURB	190+40.20	194+55.00	414.80	10,496	731	6,660	598			3,698	280					2,025	811	194	46	1,659	2.32	69	2		
WIDENED SECTION	194+55.00	196+15.00	160.00	6,100	417	3,094	210			2,175	159					1,032	360	67	17	580	0.85	NONE	NONE		
WIDENED SECTION WITH CURB	196+15.00	197+91.00	176.00	10,974	741	5,092	344			2,491	182					1,032	412	82	21	744	1.09	37	1		
WIDENED SECTION WITH CURB	197+91.00	198+61.00	70.00	3,399	234	2,445	165			1,158	85					465	194	40	10	364	0.55	46	2		
REDUCED SECTION WITH CURB	198+61.00	201+07.00	225.00	12,000	810	5,372	362			2,414	177					1,350	540	100	25	900	1.34	112	4		
STANDARD SECTION	201+07.00	205+75.00 BK	468.00	16,212	1,123	7,554	652			4,915	360					2,664	1,144	72	18	6,553	9.15	NONE	NONE		
TANDARD SECTION	205+75.00	205+67.40 AH	732.54	16,600	1,257	6,859	483			3,492	250					2,032	813	517	129	4,652	6.55	NONE	NONE		
SUB TOTAL			9,651.22		24,198		14,037			7,503						71,576		2,596		4,000			41		
MAINLINE LT. LANE																									
STANDARD SECTION WITH WIDE MEDIUM	112+64.00	125+17.09 BK	1,243.91	65,650	4,700	25,557	1,732			13,061	958					7,502	3,041	1,935	484	17,415	2,022.6	NONE	NONE		
TANDARD SECTION	125+17.09	136+50.00	1,100.00	64,964	4,385	23,025	1,615			12,160	893					7,087	2,836	1,804	451	16,240	2,262.0	NONE	NONE		
RAMP TAPER WITH CURB	136+50.00	138+85.00	225.00	11,925	805	5,484	370			2,564	188					1,400	560	100	25	900	1.34	38	1		
WIDENED SECTION WITH CURB	138+85.00	141+72.70	287.70	12,571	913	6,150	415			2,703	198					1,406	562	120	32	1,151	1.64	48	2		
WIDENED SECTION	141+72.70	142+10.00	137.30	7,414	500	3,656	247			1,990	146					824	320	61	15	549	0.87	NONE	NONE		
TANDARD SECTION WITH CURB	142+10.00	150+03.30	693.30	12,916	2,219	14,473	975			6,052	444					3,235	1,294	308	77	2,773	3.93	347	13		
FLARE AND CURB SECTION	150+03.30	150+79.30	75.00	2,612	176	1,406	95			662	49					248	99	NONE	NONE	NONE	NONE	14	1		
T. LANE BRIDGE FONTANERO ST.	150+79.30	150+95.02 BK	17.60	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE			STRUCTURE	STRUCTURE					STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	
T. LANE BRIDGE FONTANERO ST.	150+95.02	152+35.30	139.63	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE			STRUCTURE	STRUCTURE					STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	STRUCTURE	
FLARE AND CURB SECTION	152+35.30	153+10.30	75.00	2,612	176	1,406	95			662	49					248	99	NONE	NONE	NONE	NONE	14	1		
TANDARD SECTION WITH CURB	153+10.30	154+03.00	92.70	4,368	296	1,935	131			609	59					422	173	41	10	371	0.55	46	2		
RAMP TAPER WITH CURB	154+03.00	156+26.00	225.00	12,000	810	5,372	362			2,416	177					1,350	540	100	25	900	1.34	112	4		
WIDENED SECTION	156+26.00	159+26.00	351.00	18,954	1,379	9,345	630			5,090	373					2,100	842	186	47	1,404	2.01	NONE	NONE		
WIDENED SECTION WITH CURB	159+26.00	161+54.00	175.00	9,283	658	3,652	246			1,526	112					817	327	75	19	700	1.09	87	3		
REDUCED SECTION WITH CURB	161+54.00	163+79.00	225.00	12,000	810	5,372	362			2,414	177					1,350	540	100	25	900	1.34	112	4		
STANDARD SECTION	163+79.00	173+72.00	993.00	55,600	3,754	20,481	1,282			10,427	765					6,068	2,427	1,545	386	13,902	1,823.0	NONE	NONE		
RAMP TAPER WITH CURB	173+72.00	175+07.00	225.00	11,925	805	5,484	370			2,564	188					1,400	560	100	25	900	1.34	38	1		
WIDENED SECTION WITH CURB	175+07.00	178+33.50	296.50	14,034	947	6,189	418			3,588	260					1,384	554	132	33	1,166	1.64	148	5		
WIDENED SECTION	178+33.50	180+22.00	126.50	6,939	468	3,421	231			1,863	137					7									





# STORM SEWERS

LOCATION	INLET OR MANHOLE	TYPE	H	ELEVATION		PIPE SIZE & LENGTH			FLOW LINE ELEVATIONS		FITTINGS	LINE FROM TO	% GRADE	REMARKS
				RIM	INVERT	15" 18" 24" 30" 36" 42" 48" 60"	IN	OUT	7" 30" FLARE ANGLE	END				
				15"	18"	24"	30"	36"	42"	48"	60"	IN	OUT	
MANHOLE														
116+78	CENTERLINE	UC	3.5	81.10	87.50	64		216	96.30	84.00	1	118	1188	CROSSDRAIN.
116+50	CENTERLINE	UC	4.0	81.20	87.20	20			97.60	97.20		1188	1180	CROSSDRAIN.
116+50	32' LT. L.C.L.	UC	4.0	90.00	86.00				86.00	84.00		1180	OUT	CROSSDRAIN.
126+00	CENTERLINE	UC	4.0	96.00	92.00	58			92.00	90.00		126	OUT	CROSSDRAIN.
134+00	CENTERLINE	UC	4.0	91.20	87.20	72			87.20	83.00		124	OUT	CROSSDRAIN.
143+00	CENTERLINE	UC	4.0	80.00	76.00	80		156	76.00	73.30		140	OUT	CROSSDRAIN.
143+00	70' RT. M.C.L.	UC				38			69.00	62.50		140	OUT	CROSSDRAIN.
146+00	38' RT. R.C.L.	UC							70.00	69.00		146	OUT	CROSSDRAIN.
146+50	CENTERLINE	UC	5.0	70.5	65.5				65.50	64.76		146	OUT	CROSSDRAIN.
146+50	2' LT. L.C.L.	UC	6.0	70.76	64.76				64.76	61.30	3	147	1478	CROSSDRAIN.
154+70	CENTERLINE	UC	4.0	87.93	83.93	62			87.93	82.65		156A	156	CROSSDRAIN.
154+55	CENTERLINE	UC	3.5	86.15	82.65	50			86.15	82.22		156	1568	CROSSDRAIN.
156+00	CENTERLINE	UC	4.0	66.22	62.22	60			62.22	51.20		156	OUT	CROSSDRAIN.
156+00	10' LT. L.C.L.	UC	3.5	57.85	53.95	38			53.95	53.30		159	1598	CROSSDRAIN.
159+00	CENTERLINE	UC	4.0	57.30	53.30	30			53.30	49.00		159	OUT	CROSSDRAIN.
159+00	15' LT. L.C.L.	UC							46.00	47.00		164	1648	CROSSDRAIN.
163+28	CENTERLINE	UC	3.5	51.40	47.90	42			47.90	47.28		164	OUT	CROSSDRAIN.
163+79	2' LT. L.C.L.	UC	4.5	51.78	47.28	36			47.28	44.00		171	1718	CROSSDRAIN.
171+00	CENTERLINE	UC	3.5	48.00	44.00	52			44.00	41.00		1718	OUT	CROSSDRAIN.
171+00	10' LT. L.C.L.	UC	4.0	48.07	44.07	28			44.07	41.00		176	OUT	CROSSDRAIN.
176+00	CENTERLINE	UC	4.0	41.40	37.40	88			37.40	35.30		179	OUT	CROSSDRAIN.
176+00	CENTERLINE	UC	4.0	32.50	28.00	112			28.00	19.10		181	K	CROSSDRAIN.
181+00	CENTERLINE	UC	7.8	29.40	22.00				19.10	16.00		184	K	CROSSDRAIN.
181+30	105' LT. L.C.L.	UC	7.0	28.10	15.10				27.00	17.60		184	R1848	CROSSDRAIN.
181+00	CENTERLINE	UC	3.5	38.77	35.27	42			35.27	34.80		185A	185	CROSSDRAIN.
185+55	CENTERLINE	UC	4	38.80	34.80	42			34.80	34.21		185	1858	CROSSDRAIN.
185+55	2' LT. L.C.L.	UC	3	39.21	34.21	160			34.21	17.60		1858	R1858	CROSSDRAIN.
185+00	CENTERLINE	UC	7	23.00	16.00				16.00	06.90		1858	CRK	CROSSDRAIN.
185+00	130' LT. L.C.L.	UC	3	15.70	11.70	76			11.70	11.10		1858	MHP	CROSSDRAIN.
185+00	L.C.L. UNTAH	UC	3	07.27	03.27				03.27	02.73		1858	MHP	CROSSDRAIN.
185+00	R.C.L. UNTAH	UC	5	16.10	11.10				11.10	09.90		1858	MHP	CROSSDRAIN.
185+00	R.C.L. UNTAH	UC	3	06.93	02.93				02.93	00.73		1858	MHP	CROSSDRAIN.
185+00	R.C.L. UNTAH	UC	6.1	08.83	02.73				02.73	00.73		1858	MHP	CROSSDRAIN.
185+00	424' LT. L.C.L.	UC	9.5	10.20	00.13				00.13	00.23		1858	MHP	CROSSDRAIN.
185+00	CENTERLINE	UC	4	38.60	31.60	42			31.60	31.08		192	1928	CROSSDRAIN.
191+58	2' LT. L.C.L.	UC	3	36.08	31.08				31.08	17.46		192	1928	CROSSDRAIN.
191+63	CENTERLINE	UC	6.4	16.30	09.90				09.90	06.00		196	1968	CROSSDRAIN.
196+00	CENTERLINE	UC	3.5	23.28	19.41	64			19.41	15.00		196	1968	CROSSDRAIN.
196+00	2' LT. L.C.L.	UC	4	23.81	19.41	38			19.41	15.00		196	OUT	CROSSDRAIN.
196+00	33' RT. R.C.L.	SPECIAL	5	21.5	16.5				16.5			196	OUT	CROSSDRAIN.
196+00	CENTERLINE	UC	4.8	13.10	08.3				08.3	13.30		199	199	CROSSDRAIN.
196+00	8' LT. L.C.L.	UC	3.5	17.46	13.56	50			13.56	10.30		199	V	CROSSDRAIN.
199+30	CENTERLINE	UC	3.5	17.00	13.50	60			13.50	10.30		199	V	CROSSDRAIN.
206+00	CENTERLINE	UC	3.5	10.60	06.80				10.60	09.50		192	1928	CROSSDRAIN.
206+00	20' RT. R.C.L.	A	4.0	10.60	06.80				10.60	09.50		192	1928	CROSSDRAIN.
198+35	120' LT. L.C.L.	MH-5	7.3	13.30	06.00				13.30	10.30		192	1928	CROSSDRAIN.
0+68	NE #1 FONTANERO	MH-5				40			58.0	57.5		192	1928	CROSSDRAIN.
0+68	NE #1 FONTANERO	MH-5				40			58.0	57.5		192	1928	CROSSDRAIN.
7+70	SE #1 FONTANERO	MH-5				50			58.0	55.1		192	1928	CROSSDRAIN.
1+55	NE #1 UNTAH	UC	3.5	32.10	28.80	82			28.80	28.00		192	1928	CROSSDRAIN.
5+03	NE #1 UNTAH	UC	4.5	22.10	17.60	100			17.60	16.00		192	1928	CROSSDRAIN.
4+75	SE #1 UNTAH	UC	6	20.00	17.00	80			17.00	16.50		192	1928	CROSSDRAIN.
4+75	SE #1 UNTAH	UC	6	23.46	17.46	80			17.46	09.50		192	1928	CROSSDRAIN.
TOTAL						1614	336	1338	656	600	256	762	216	
196+00	368' LT. L.C.L.	MH-1A	9.9	10.10	00.23				00.23	98.98		U-1	U-2	CROSSDRAIN.
198+14	298' LT. L.C.L.	MH-1A	11.1	10.10	98.98				98.98	97.90		U-1	U-2	CROSSDRAIN.

# SANITARY SEWERS

PIPE SIZE & LENGTH
8" 10"

LOCATION	INLET OR MANHOLE	TYPE	H	RIM	INVERT	PIPE SIZE & LENGTH	ELEVATION	REMARKS
ADJ MH			5.1	6102.80	6094.70	40	6094.70	
ADJ MH			5.9	6095.70	6087.80	40	6087.80	
ADJ MH			7.6	6099.50	6091.90	40	6091.90	
NON-FEDERAL AID (WORK TO BE PAID FOR BY THE CITY OF GOLD. SPRINGS)								
NH 1A			8.8	6072.20	6063.80	40	6063.80	
NH 1A			5.3	6061.00	6055.70	40	6055.70	
NH 1A			15.5	6065.00	6049.50	40	6049.50	
NH 1A			7.9	6050.50	6043.00	40	6043.00	
NH 1A			8.8	6049.50	6040.90	40	6040.90	
NH 1A			15.5	33.50	15.50	262	15.50	
NH 1A			3.9	23.85	18.00	248	18.00	
NH 1A			5.5	19.30	13.80	306	13.80	
NH 1A			5.1	16.40	11.30	306	11.30	
NH 1A			18.8	28.70	10.90	342	10.90	
NH 1A			8.2	16.40	8.20	342	8.20	
NH 1A			2.9	26.00	23.10	342	23.10	
NH 1A			12.5	13.80	10.30	342	10.30	
NH 1A			12.5	12.80	00.30	342	00.30	
TOTAL						342	1616	

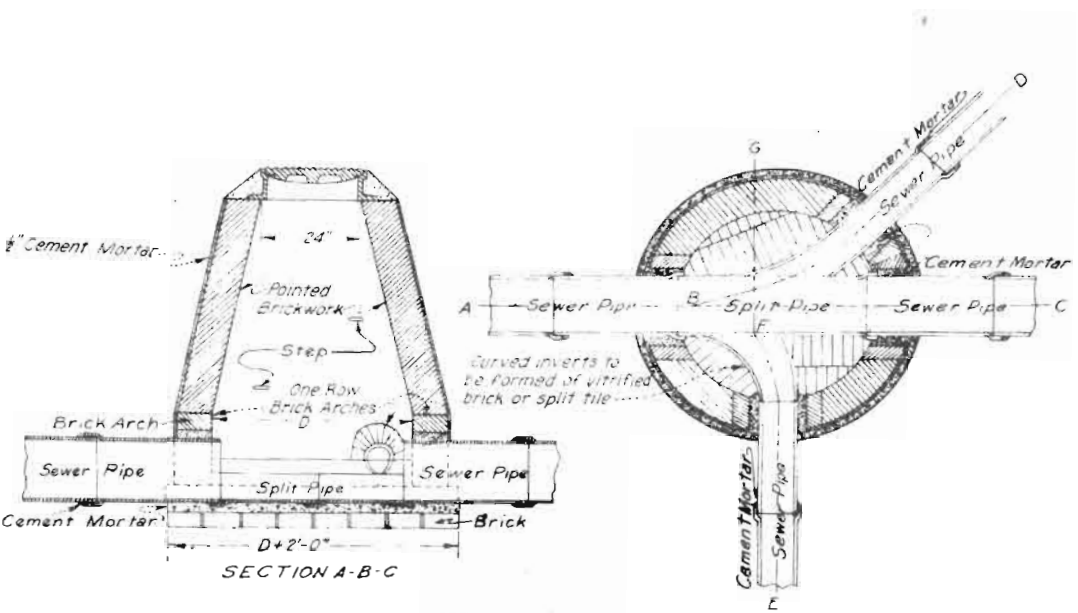
WORK TO BE DONE BY CONTRACTOR:

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	1-75-2(27)-143	10	

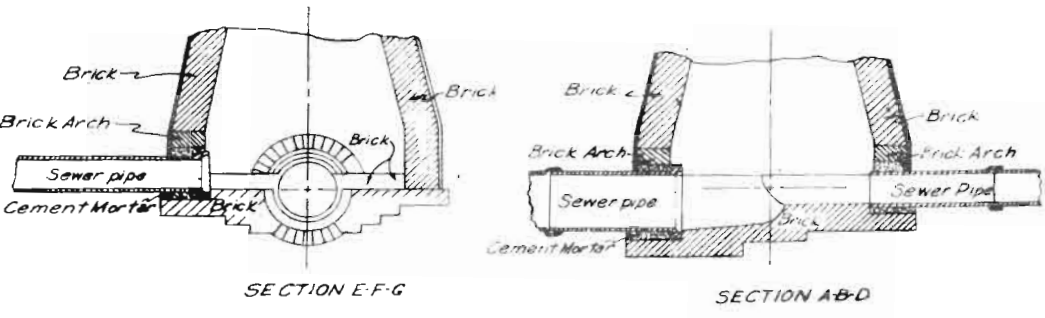
Rev 11-28-58, J.C.R. & M.H. P.U.U-1 & U-2

ELEVATION OF EXISTING MANHOLE.

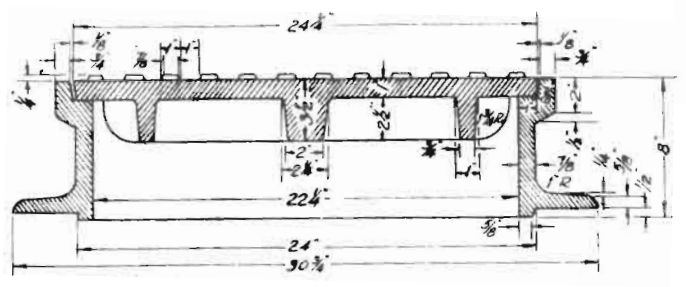
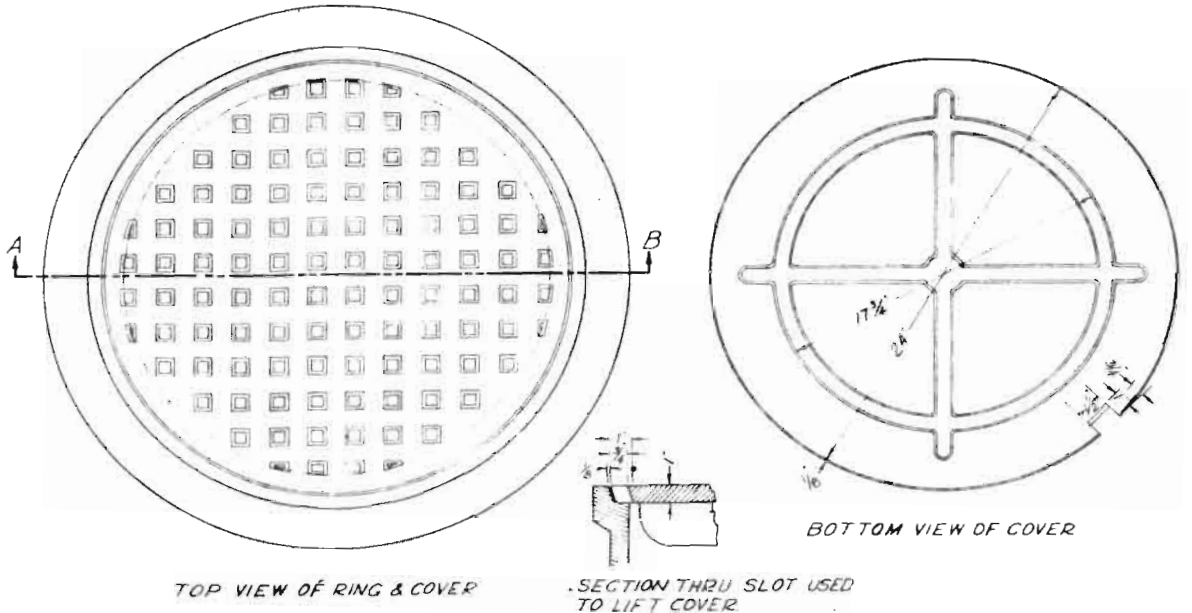
FED. ROAD DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	//	



Diameter of Manhole to be 4' for Pipe Sewers 18" & under, 5' for Pipe Sewers 21" to 36" incl, and 6' for Pipe Sewers 42" to 48" incl



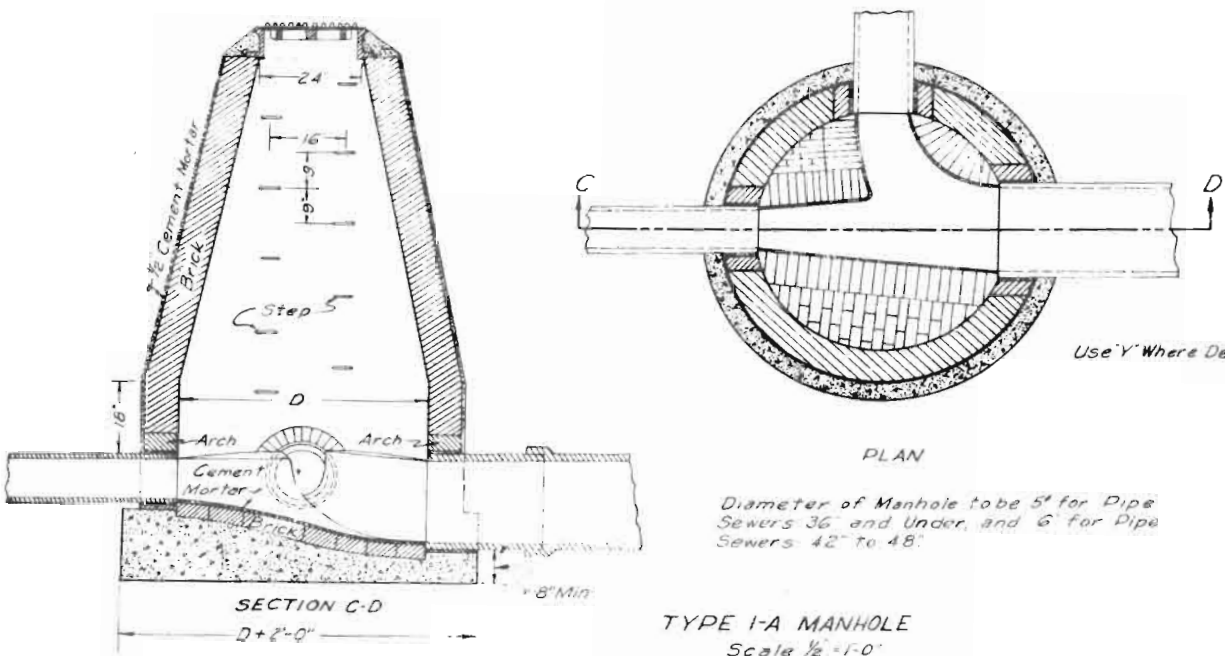
TYPE I MANHOLE (STORM & SANITARY)  
Scale 1/2"=1'-0"



DETAILS OF MANHOLE RING & COVER  
Scale 3/8"=1"

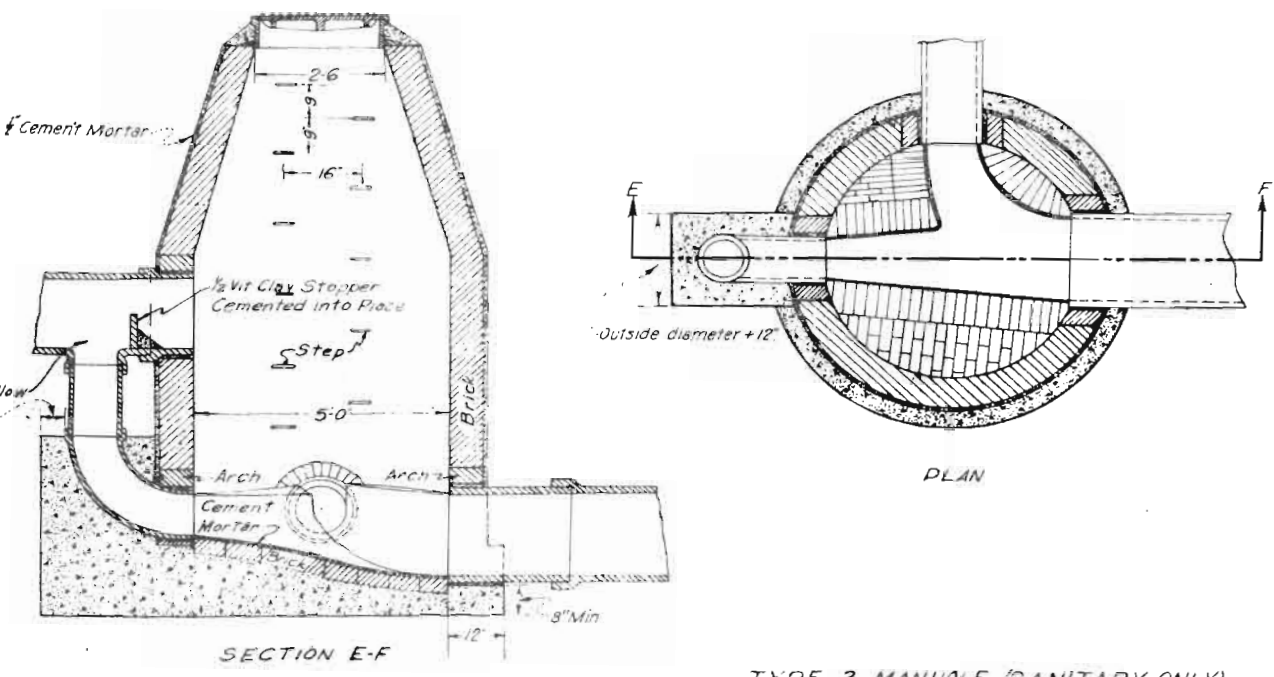
Weight - Frame Approx 224"  
Cover Approx 176"  
400"  
Dipped or Painted with Asphalt or Coal Tar & Oil

GENERAL NOTES:  
All brick in manholes to conform to requirements of grade MA of AASHTO Designation M 91-42. Manhole bottoms may be either brick or concrete. Manhole benches shall be of brick as specified.  
Alternate design for Manholes using Precast Concrete Blocks, Cast in place Concrete, or Precast Concrete Manholes will be Permitted after approval of Details by the Department.



Diameter of Manhole to be 5' for Pipe Sewers 36" and Under, and 6' for Pipe Sewers 42" to 48"

TYPE I-A MANHOLE  
Scale 1/2"=1'-0"  
SANITARY & STORM SEWERS



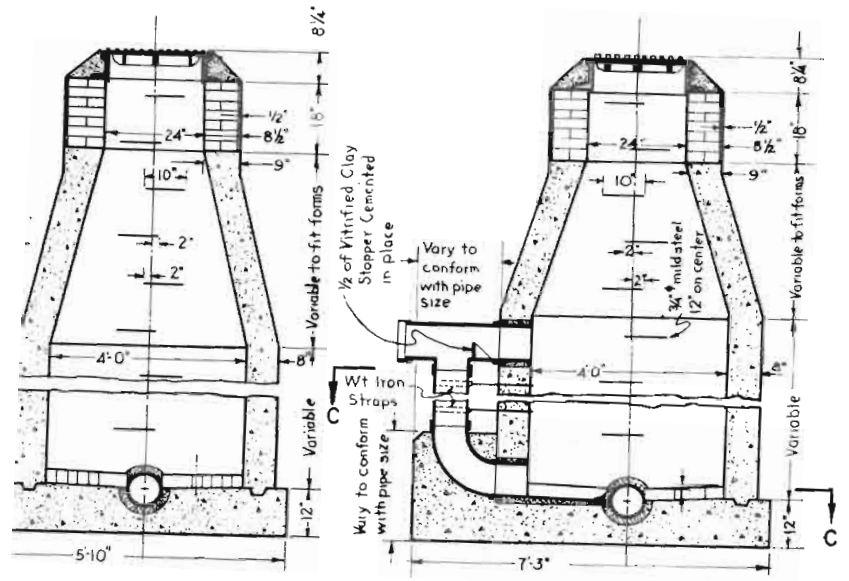
TYPE 2 MANHOLE (SANITARY ONLY)  
Scale 1/2"=1'-0"

**COLORADO**  
DEPARTMENT OF HIGHWAYS

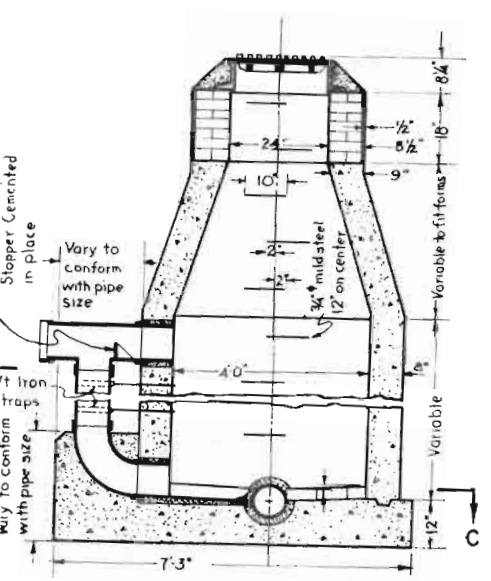
MANHOLE DETAILS  
TYPE I, IA, 2

Designed by:	Approved by:
Made by:	Date:
Checked by:	

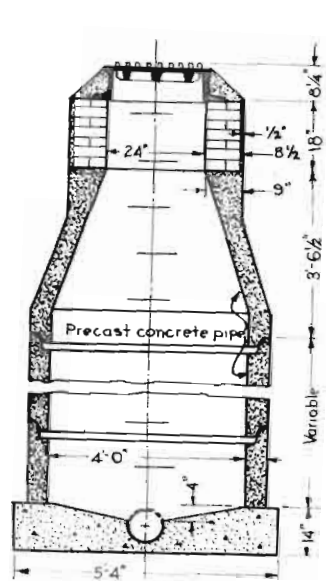
FED ROAD DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	12	



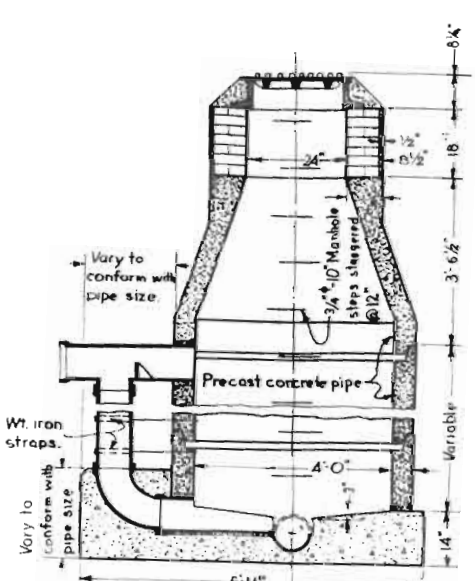
SECTION A-A



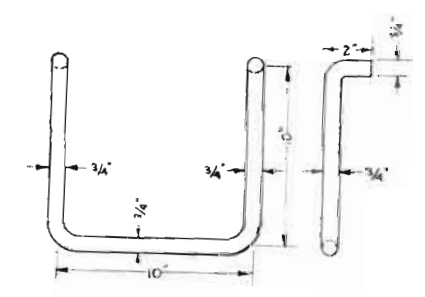
SECTION B-B



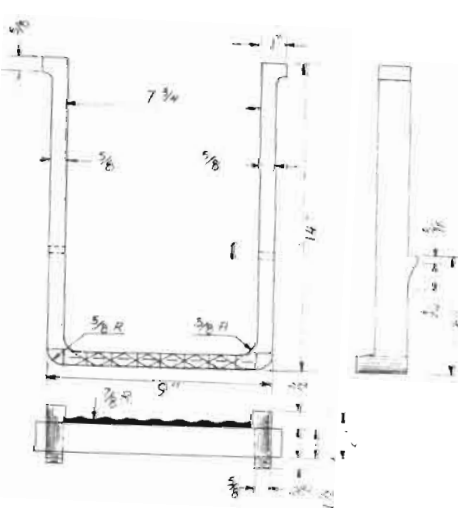
SECTION D-D



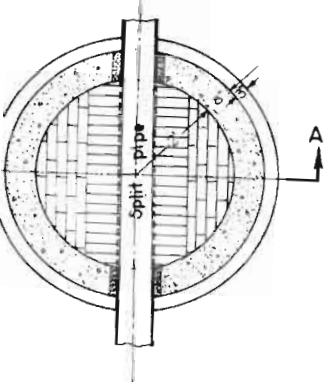
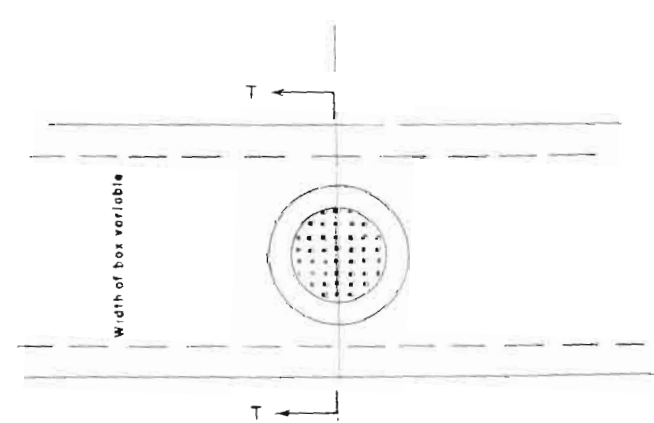
SECTION E-E



MILD STEEL STEPS  
For Concrete Manholes

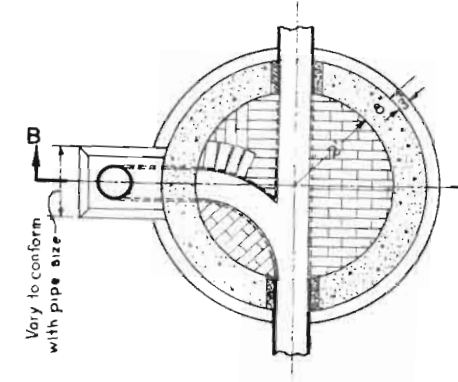


CAST IRON STEPS  
For Brick Manholes



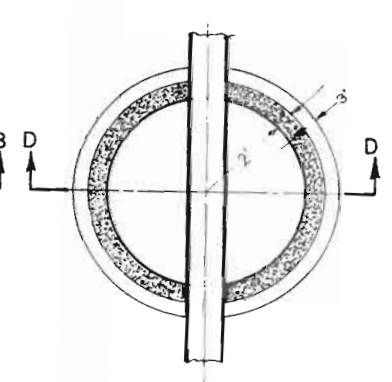
SECTIONAL PLAN

TYPE 3



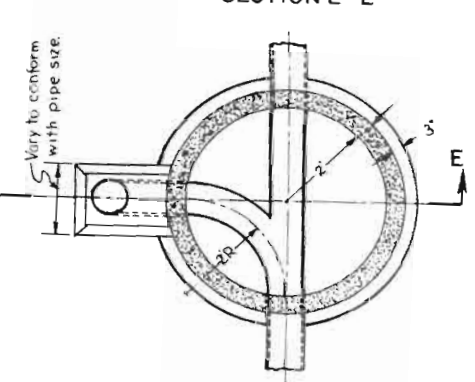
SECTIONAL PLAN

TYPE 3A



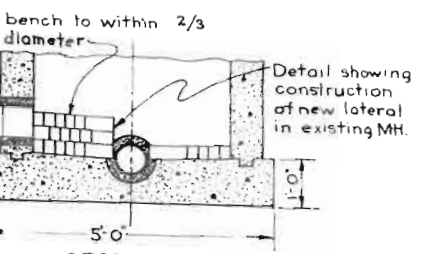
SECTIONAL PLAN

TYPE 4

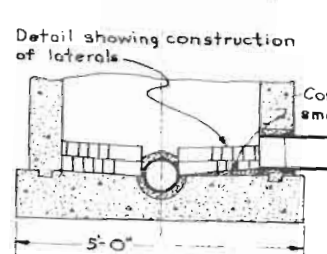


SECTIONAL PLAN

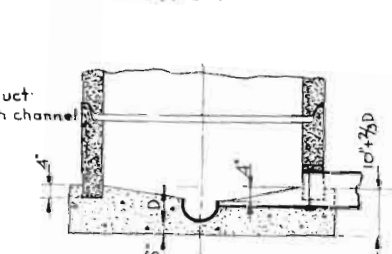
TYPE 4A



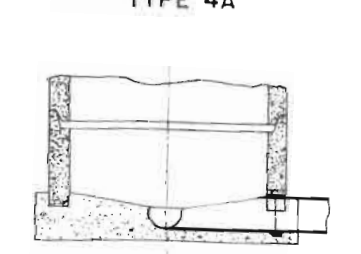
SECTION F-F



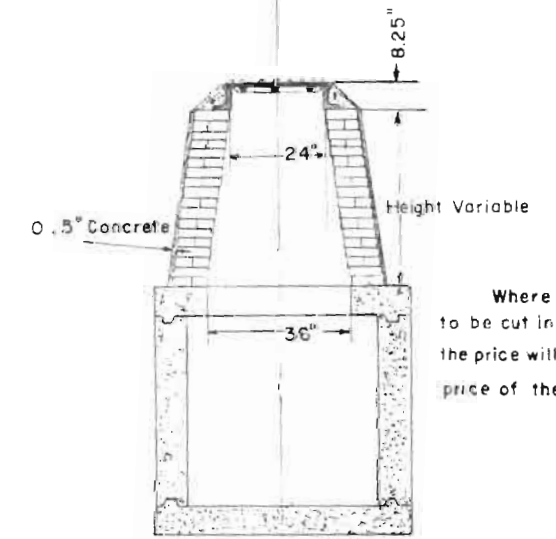
SECTION G-G



SECTION H-H



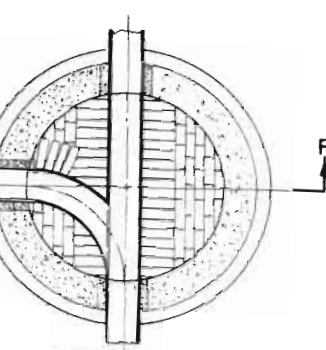
SECTION J-J



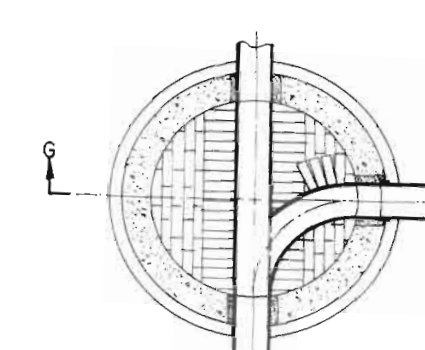
SECTION T-T

TYPE 5

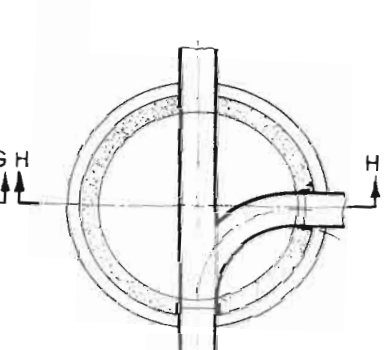
Where 36" diameter hole is to be cut in existing concrete boxes, the price will be included in the price of the manhole



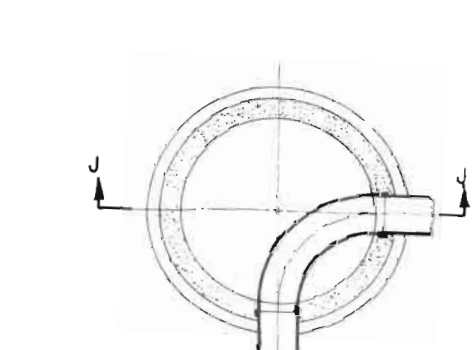
SECTIONAL PLAN  
TYPE 3B



SECTIONAL PLAN  
TYPE 3C



SECTIONAL PLAN  
TYPE 4B



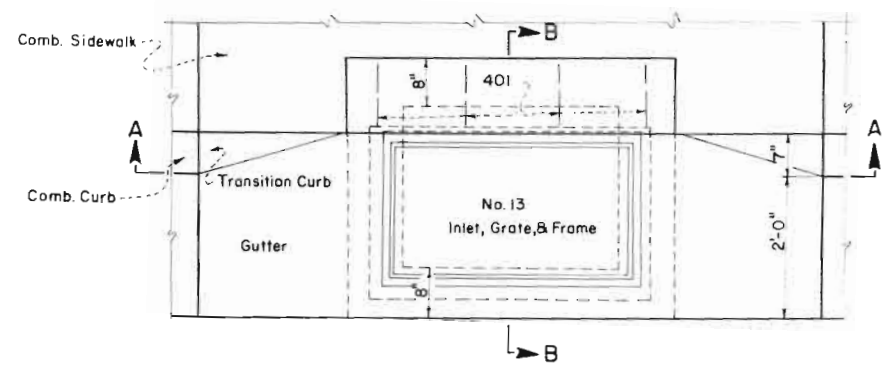
SECTIONAL PLAN  
TYPE 4C

**COLORADO**  
DEPARTMENT OF HIGHWAYS

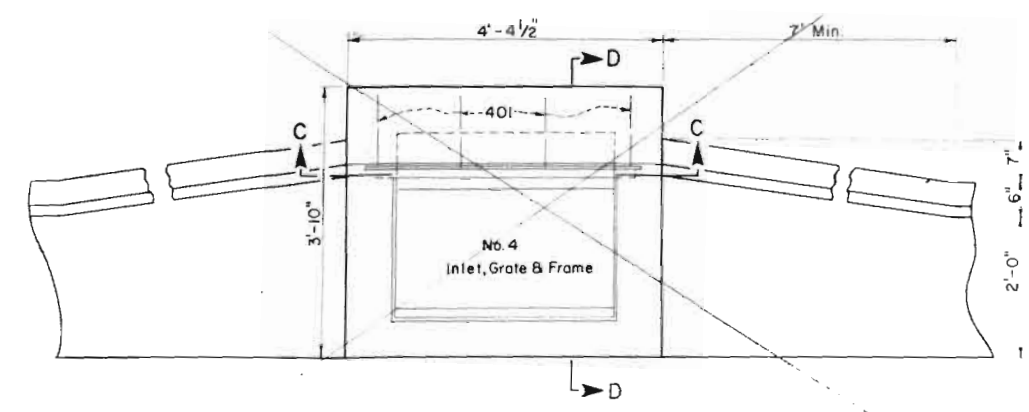
**MANHOLE DETAILS**

TYPE 3,3A,3B,3C,4,4A,4B,4C,5

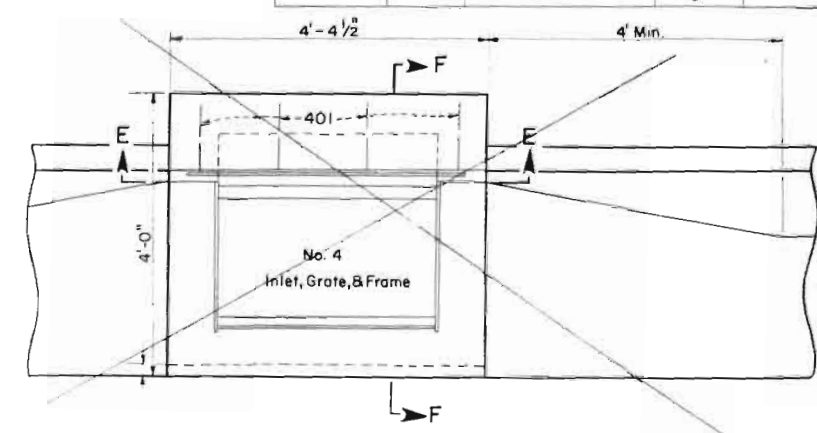
Designed by: \_\_\_\_\_ Approved by: \_\_\_\_\_  
 Made by: \_\_\_\_\_  
 Checked by: \_\_\_\_\_ Date: \_\_\_\_\_



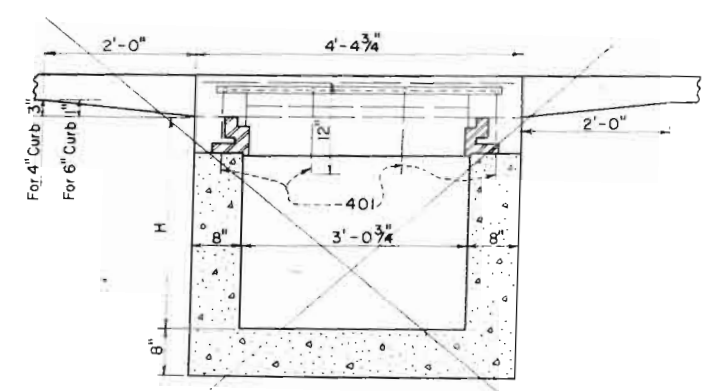
PLAN - (For Comb. Curb, Gutter & Sidewalk or Type II Curb & Gutter)



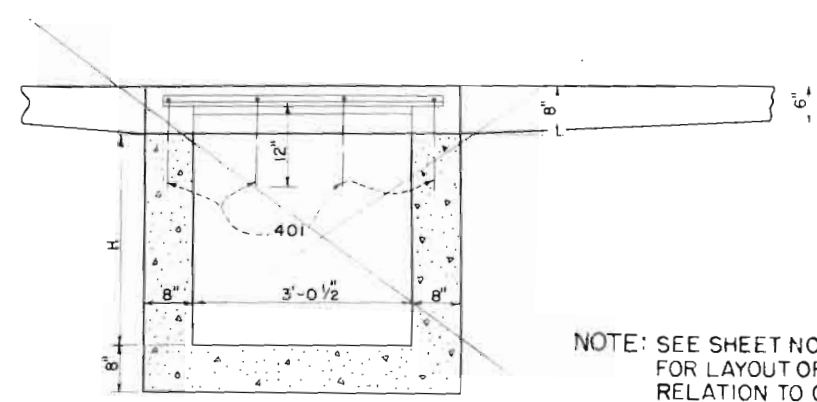
PLAN (For Type I Curb & Gutter)



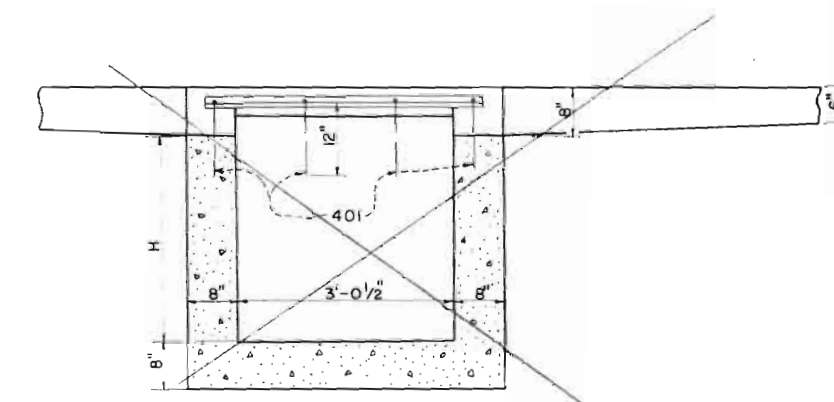
PLAN (For Type 2 Curb & Gutter)



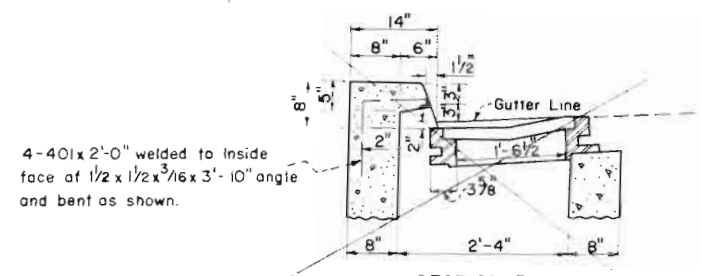
SECTION A-A (For Comb. Curb, Gutter, & Sidewalk or Type I Curb & Gutter)



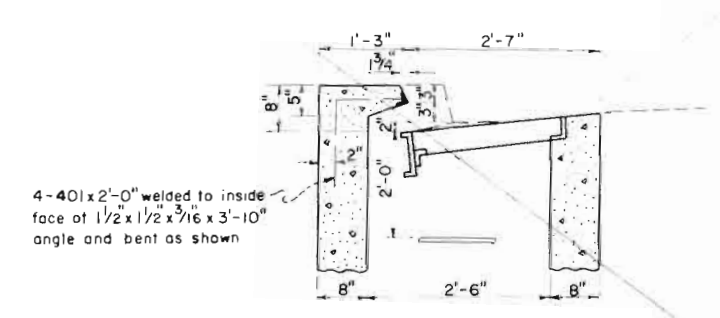
SECTION C-C (For Type I Curb & Gutter)



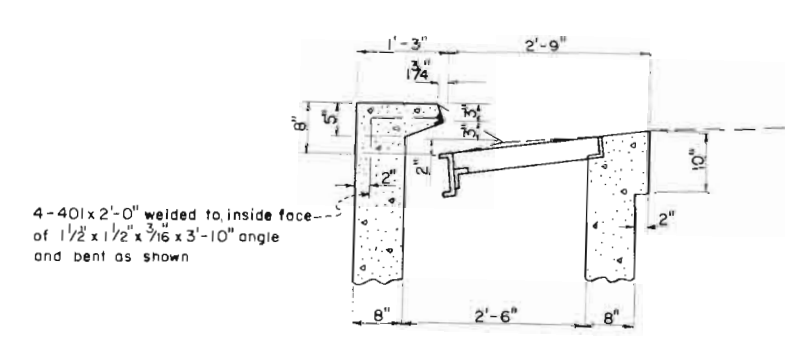
SECTION E-E (For Type 2 Curb & Gutter)



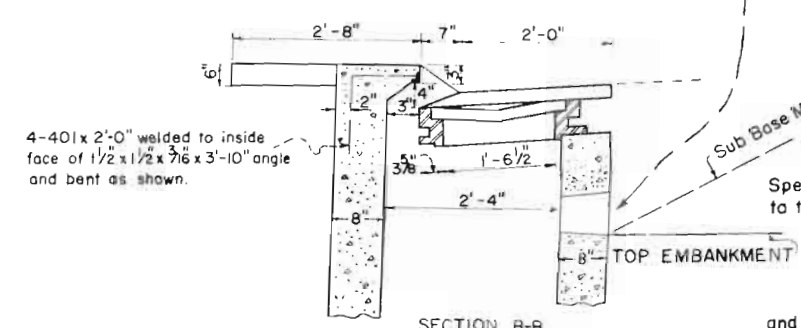
SECTION B-B Use with Type I Curb & Gutter



SECTION D-D Use with Type I Curb & Gutter



SECTION F-F Use with Type 2 Curb & Gutter



SECTION B-B Use with Comb. Curb, Gutter & Sidewalk

**INLET TYPE 3**

No. 13 Grate and Frame to be used with Type 3 Inlet

NOTE: Leave opening in front side of inlet where drainage is required before roadway is finished. Hole to be plugged with class "A" concrete.

**GENERAL NOTES**  
 All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the project.  
 All concrete shall be class "A" and air entrained as specified.  
 All concrete walls shall be formed on both sides.  
 All exposed concrete corners shall be beveled to a 1" face.  
 All reinforcing bars shall be deformed, of intermediate grade, and conform to A.S.T.M. Spec. A-305-507 or latest revision.  
 All castings shall be painted with two coats of asphalt or coal tar and oil.

NOTE: SEE SHEET NO. 14 FOR LAYOUT OF INLET IN RELATION TO CURB AND GUTTER.

No. 4 Grate and Frame to be used with Type 4B & 4C Inlets

**INLET TYPE 4-B**

**INLET TYPE 4-C**

NOTE: Use steps for all Inlets with H = 3'-6" or more. Start 2'-0" below gutter line and space equally at Minimum of 18" (See Section D-D)

\* Volumes of concrete occupied by inlet or outlet pipes are included in quantities.

**FOR INFORMATION ONLY**

**QUANTITIES-TYPE 3, 4-B & 4-C INLETS**

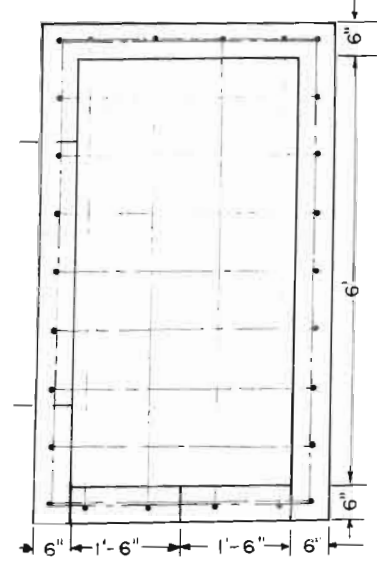
H	CLASS A CONCRETE	REINFORCING STEEL
	* CU YDS.	LBS.
3'-0"	1.37	5.4
3'-6"	1.54	5.4
4'-0"	1.71	5.4
4'-6"	1.88	5.4
5'-0"	2.05	5.4
5'-6"	2.22	5.4
6'-0"	2.39	5.4
6'-6"	2.56	5.4
7'-0"	2.73	5.4
7'-6"	2.90	5.4
8'-0"	3.07	5.4

**COLORADO**  
 DEPARTMENT OF HIGHWAYS

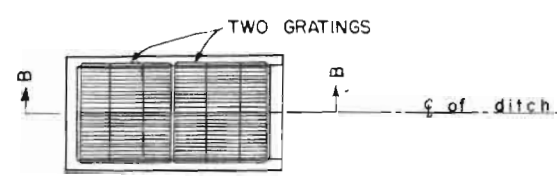
**CONCRETE INLETS**  
 No. 3, No. 4-B, & No. 4-C

Designed by: \_\_\_\_\_ Approved by: \_\_\_\_\_  
 Made by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Checked by: \_\_\_\_\_

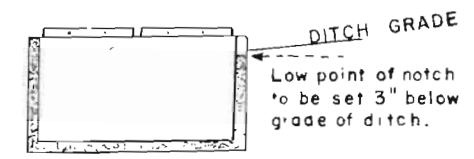
NOTE: FOR DETAIL OF GRATING SEE M STANDARD M-4E-B  
ALSO FOR DETAIL OF GRATE FASTENER



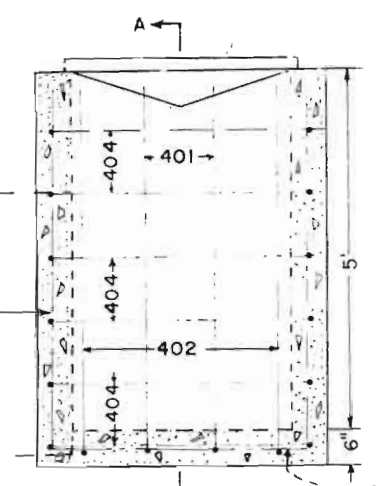
PLAN



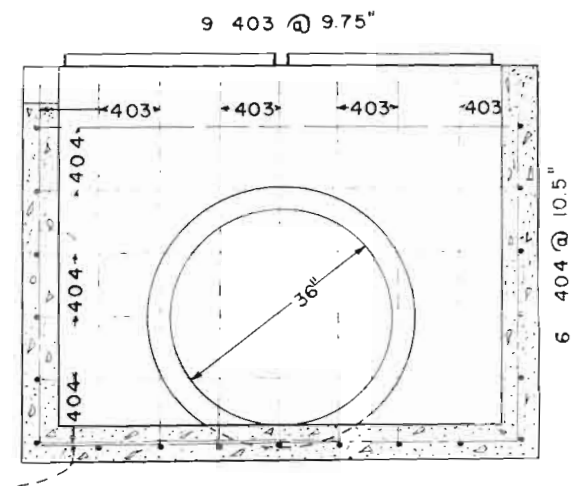
OUTLAY OF INLET IN DITCH



SECTION B-B



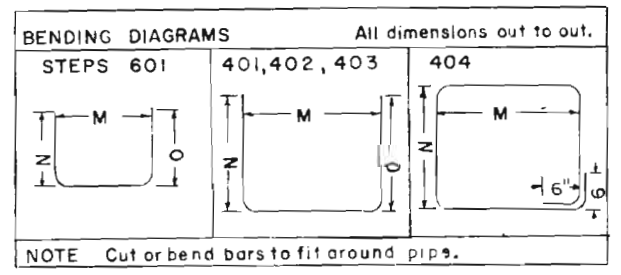
FRONT ELEVATION



SECTION A-A

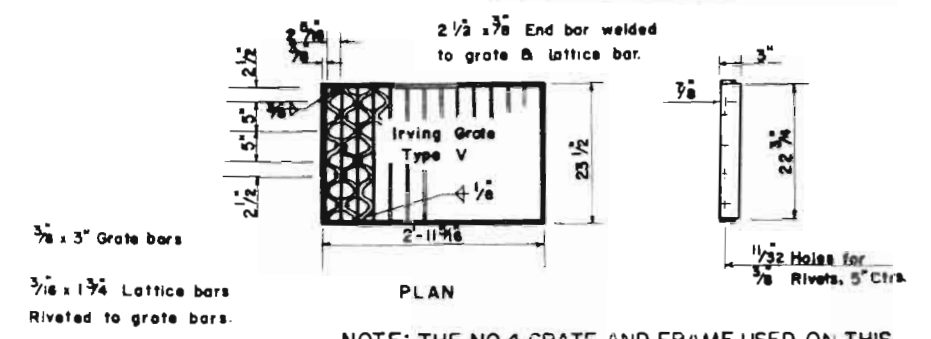
BAR LIST FOR H=5'

MARK	NO REQ'D	TYPE 130 SPECIAL DIMENSIONS			LENGTH
		M	N	O	
401	2	10'-2"	5'-1"	4'-9"	19'-11"
402	2	10'-2"	5'-1"	5'-1"	20'-3"
403	9	3'-6"	5'-1"	5'-1"	13'-7"
404	6	6'-6"	3'-6"	-	21'-0"
601	2	1'-0"	0'-10"	0'-10"	2'-6"



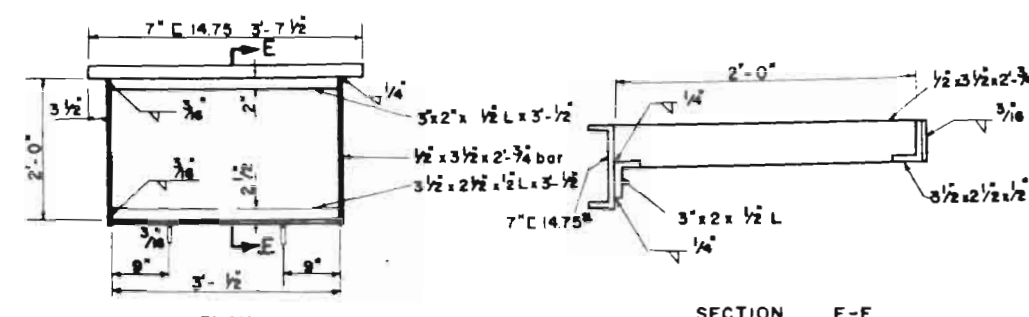
QUANTITIES FOR ONE OUTLET  
CLASS A CONCRETE 2.56 CU. FT.  
REINFORCING STEEL 226 LBS.

INLET TYPE 130 SPECIAL



PLAN

NOTE: THE NO. 4 GRATE AND FRAME USED ON THIS PROJECT MAY BE FABRICATED OPEN BAR TYPE OF THE DIMENSIONS SHOWN ABOVE.

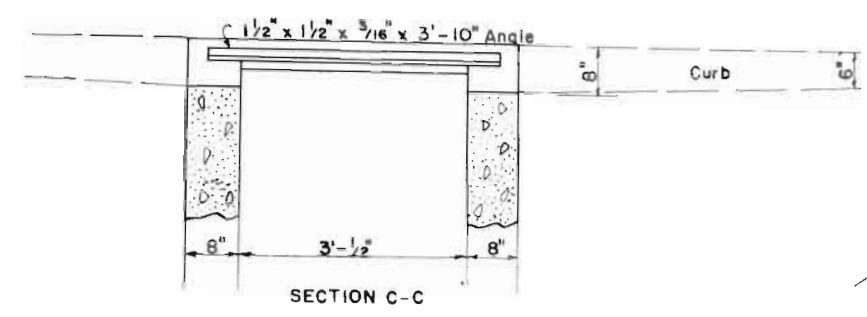


PLAN

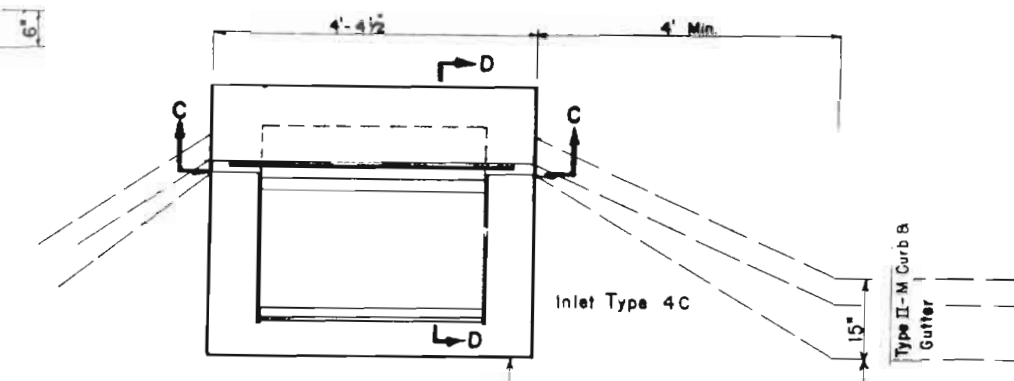
SECTION E-E SCALE: 1/2" = 1'-0"

NO. 4 FRAME

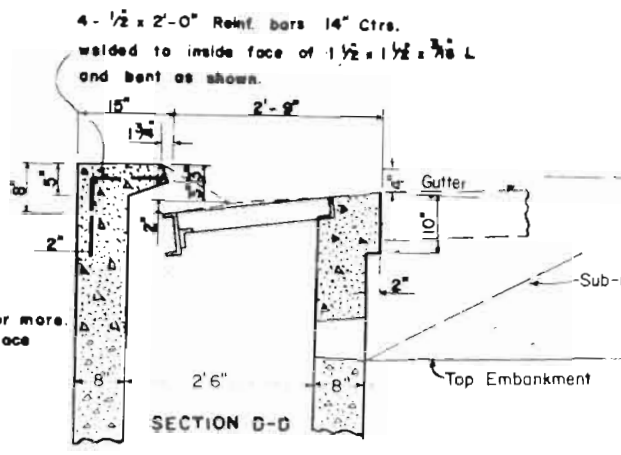
NOTE: NO. 4 GRATE AND FRAME TO BE USED WITH TYPE 4-B AND 4-C INLET.



SECTION C-C



PLAN



SECTION D-D

General Notes:  
1. Use steps for inlets with H= 3'-6" or more. Start 2'-0" below gutter line and space equally thereafter 18" Max.

Note: Leave opening in front side of inlet where drainage is required before roadway is finished.  
Hole to be plugged with class A concrete.

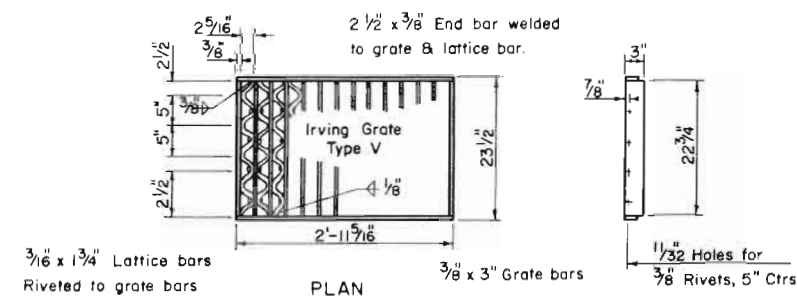
INLET TYPE 4-C

SCALE 3/4" = 1'-0" Unless otherwise noted

COLORADO DEPARTMENT OF HIGHWAYS

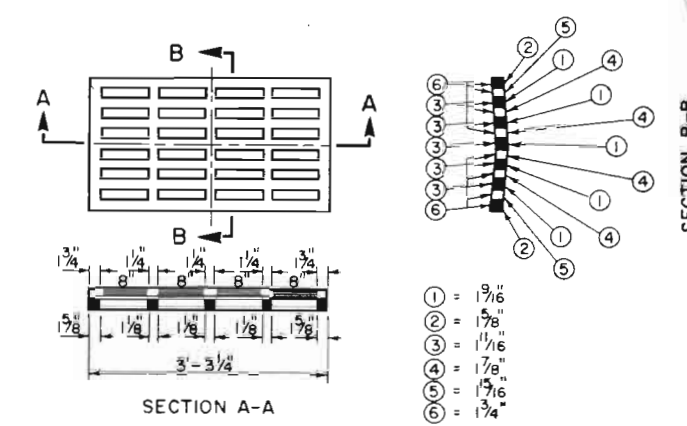
INLETS No 4B & 4C  
No 4 INLET GRATING & FRAME  
SPECIAL

Designed by: \_\_\_\_\_ Approved by: \_\_\_\_\_  
Made by: \_\_\_\_\_ Date: \_\_\_\_\_  
Checked by: \_\_\_\_\_



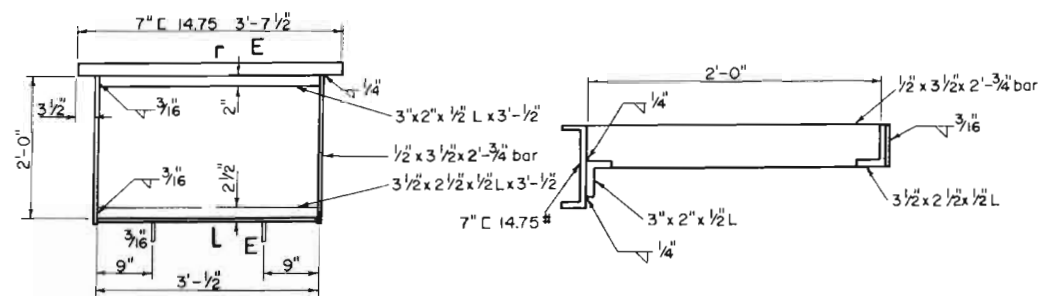
**NO. 4 GRATE**

NOTE: NO. 4 GRATE AND FRAME TO BE USED WITH TYPE 4-B AND 4-C INLET.



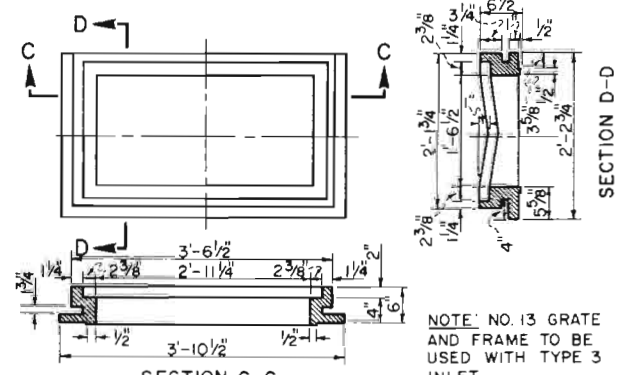
**SECTION A-A  
NO. 13 GRATE**

275 lbs.



PLAN

SECTION E-E  
SCALE: 1/2\"/>

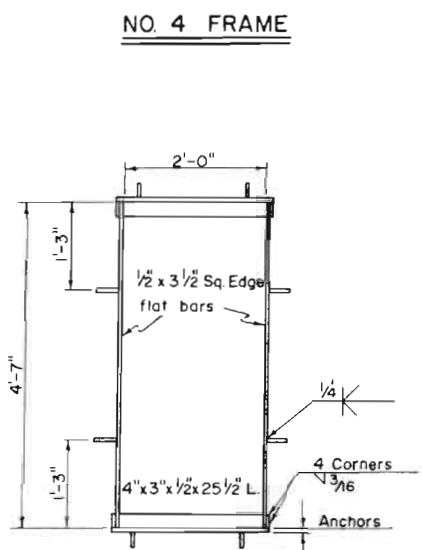


SECTION C-C

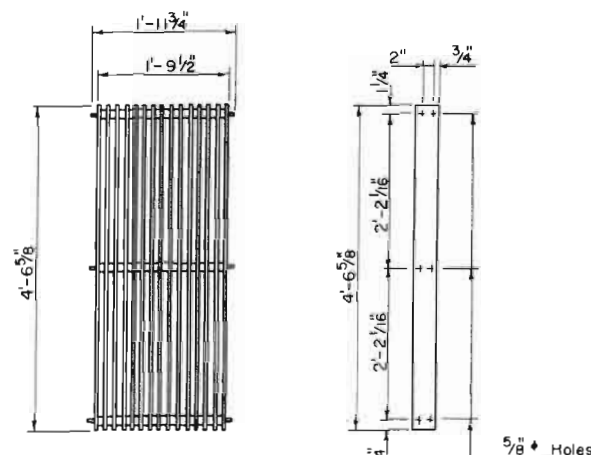
**NO. 13 FRAME**

508 lbs.

NOTE: NO. 13 GRATE AND FRAME TO BE USED WITH TYPE 3 INLET.

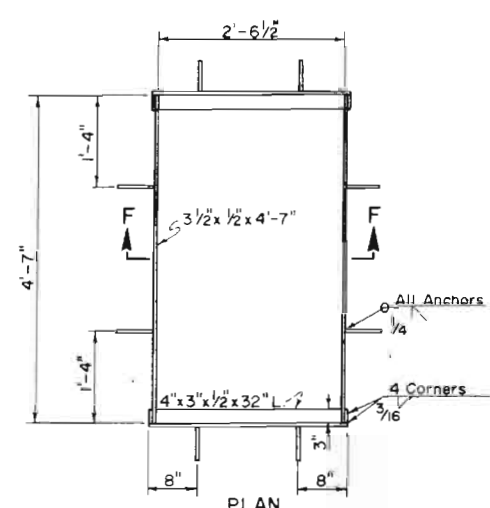


**NO. 4 FRAME**



PLAN  
SCALE 3/4\"/>

BAR DETAIL

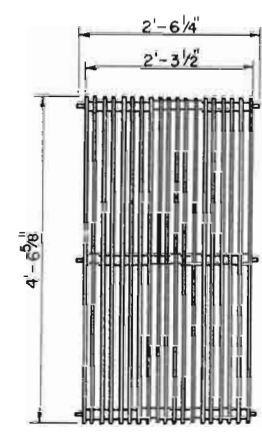


PLAN

**NO. 5A FRAME**

120 lbs.

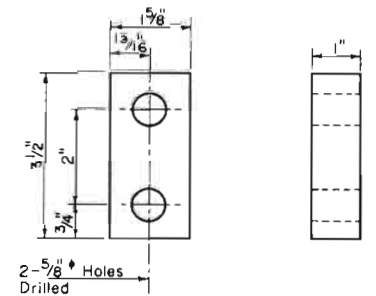
NOTE: NO. 5A GRATE AND FRAME MAY BE USED WITH INLET TYPE 2.



PLAN

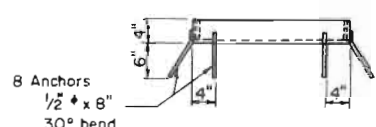
**NO. 5A GRATE**

597 lbs.



Cast Iron  
**(SPREADER)**  
SCALE 1\"/>

USE ABOVE SPREADER IN GRATE NO. 5 & NO. 5A.

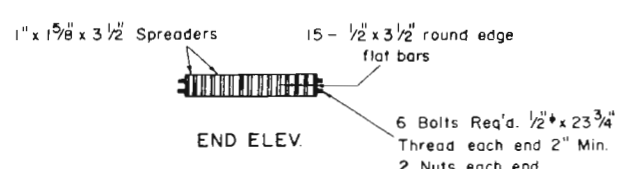


END ELEV.

**NO. 5 FRAME**

108 lbs.

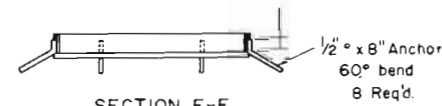
NOTE: NO. 5 GRATE & FRAME MAY BE USED WITH INLET TYPE 1.



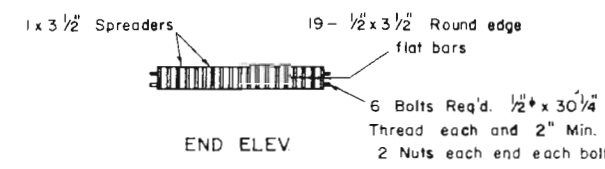
END ELEV.

**NO. 5 GRATE**

473 lbs.



SECTION F-F



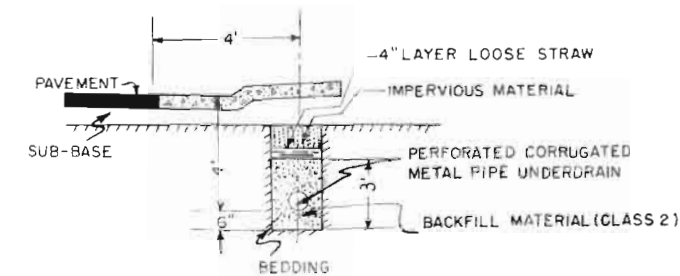
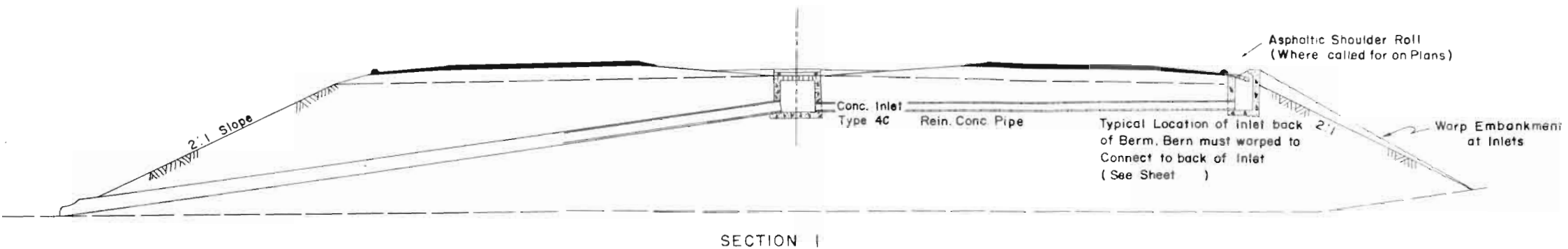
END ELEV.

**COLORADO**  
DEPARTMENT OF HIGHWAYS

**CONCRETE INLETS  
GRATES & FRAMES  
NO. 13, NO. 4, NO. 5 & 5A**

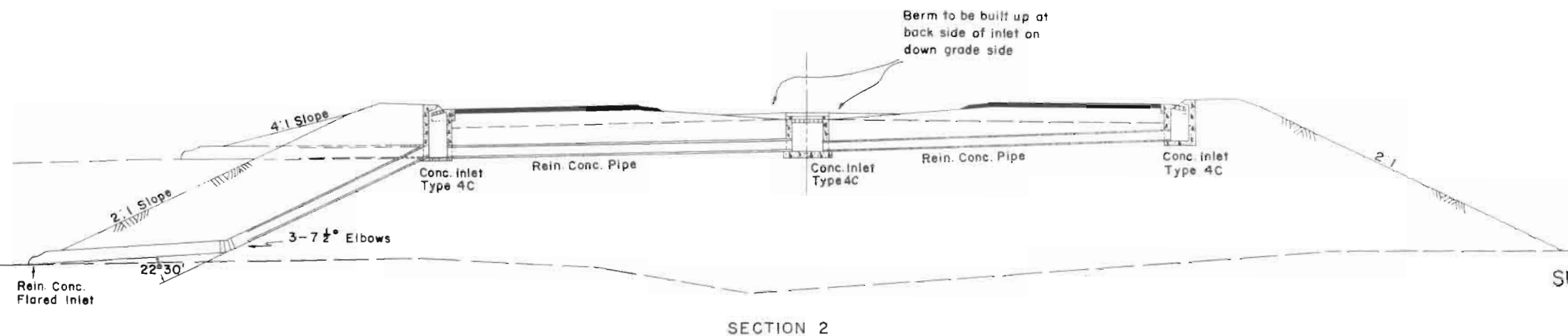
Designed by: \_\_\_\_\_  
Made by: \_\_\_\_\_  
Checked by: \_\_\_\_\_

Approved by: \_\_\_\_\_  
Date: \_\_\_\_\_



Note: For location of underdrain see Sheet No. 20

UNDERDRAIN-TYPICAL SECTION  
(NO SCALE)



SUMMARY OF APPROXIMATE QUANTITIES

FOR  
14' x 10' C.B.C. Sta. 167+50 & Perforated C.M.P. Underdrain

ITEM NO.	ITEM	UNIT	14' x 10' C.B.C. (Type 14B)	Perf. C.M.P. Underdrain	TOTAL
13	Unclassified Excavation	Cu. Yd.	250		250
14	Unclassified Structural Excavation - Miscellaneous	Cu. Yd.	106	274	380
16	Structure Backfill (Class I)	Cu. Yd.	460		460
46	Class "A" Concrete	Cu. Yd.	352		352
47	Reinforcing Steel	Lb.	32,633		32,633
71	6" Perforated Corrugated Metal Pipe Underdrain	Lin. Ft.		525	525
71	8" Perforated Corrugated Metal Pipe Underdrain	Lin. Ft.		400	400

COLORADO  
DEPARTMENT OF HIGHWAYS  
TYPICAL LAYOUT  
OF DRAINAGE

Designed by:  
Made by:  
Checked by:

Approved by:  
Date:

DATE	BY	DESCRIPTION	TOTAL SHEETS
9/10/00	COLL	1-25-2(27)-143	17

DRAINAGE PLANS



FUTURE CONSTRUCTION  
To be built under Project No.  
1-25-2(28)145

**LEGEND**

**SANITARY SEWERS**

- Existing sanitary sewer
- Existing sewers to be abandoned
- Existing sewer to be plugged
- Existing manhole requiring new work
- New sewers and manholes

**STORM SEWERS**

- Existing lines, manholes and inlets
- Existing lines to be plugged
- Existing lines to be plugged and/or inlets to be abandoned
- New lines, manholes and inlets
- Water lines

(B)  
Δ=6°00'  
Ts=275.18'  
Ls=250'  
Θs=2°30'  
Δc=1°00'  
Dc=2°00'  
Tc=25.0'  
Lc=50.0'  
Rc=2855.0

(C)  
Δ=6°03'  
Ts=175.96'  
Ls=150'  
Θs=2°15'  
Δc=1°33'  
Dc=3°00'  
Tc=28.84'  
Lc=51.67'  
Rc=1910.0'

STA 112+64.1  
BEGIN PROJECT  
1-25-2(27) 143

**LEGEND**

**CURBS**

- Barrier Curb Type II-M
- Curb and Gutter Type I
- Curb and Gutter Type II-M
- Asphaltic Shoulder Roll

MLL  
Δ=9°32' Rt  
Ts=259.33'  
Dc=3°00'  
Lc=353.333'  
Lc=117.78'  
Rc=1910'  
Ls=200'  
Θs=3°00'  
P=87  
K=99.99  
X=199.95  
Y=3.49  
Es=7.50

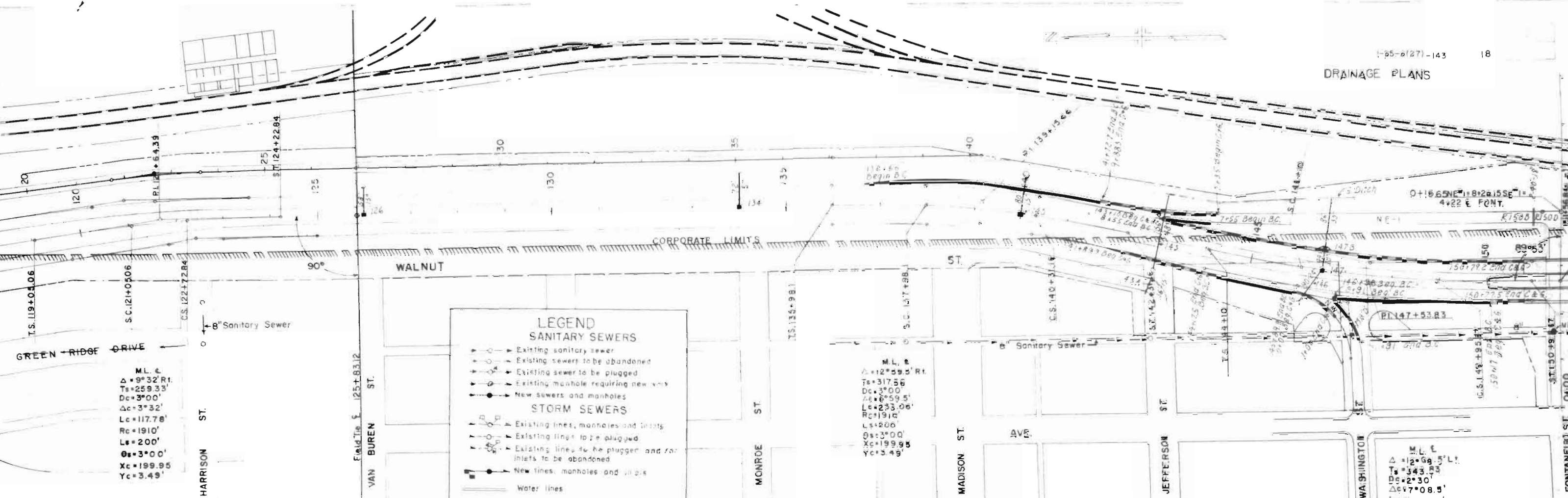
FUTURE CONSTRUCTION

STA 112+64.06  
END PROJECT

STA 112+64.06  
BEGIN PROJECT  
1-25-2(27) 143

FUTURE CONSTRUCTION

Factor	1039	125
Excavation	44,639	
Embankment	56,799	
Emp. x factor	547,745	
St. Yard Overhaul	44,882	
Yd. Mfg. Overhaul	49,735	
Borrow		
Borrow Source		



**LEGEND**  
**SANITARY SEWERS**

- Existing sanitary sewer
- Existing sewers to be abandoned
- Existing sewer to be plugged
- Existing manhole requiring new vent
- New Sewers and manholes

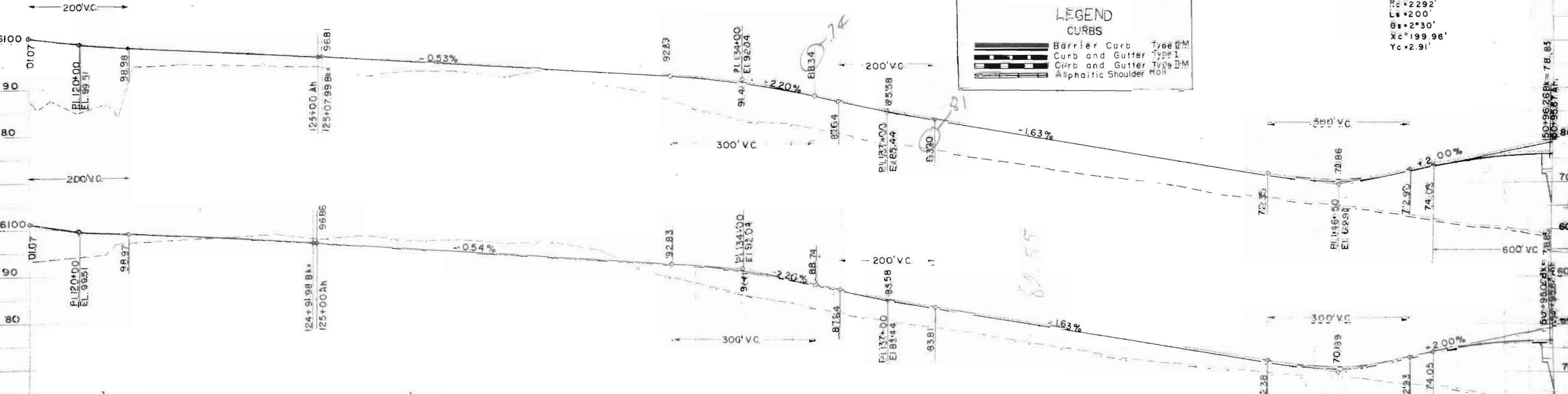
**STORM SEWERS**

- Existing lines, manholes and inlets
- Existing lines to be plugged
- Existing lines to be plugged and for inlets to be abandoned
- New lines, manholes and inlets

Water lines

**LEGEND**  
**CURBS**

- Barrier Curb Type IIM
- Curb and Gutter Type I
- Curb and Gutter Type IIM
- Asphaltic Shoulder Roll



Station	Factor	Excavation	Emb.	St. Yd. Overhaul	Yd. Mile Overhaul	Borrow Source
120	4955	7114	5691	7114	954	
130		125				
135		7114				
140		50740				
145		63425				
150						

### LEGEND

#### SANITARY SEWERS

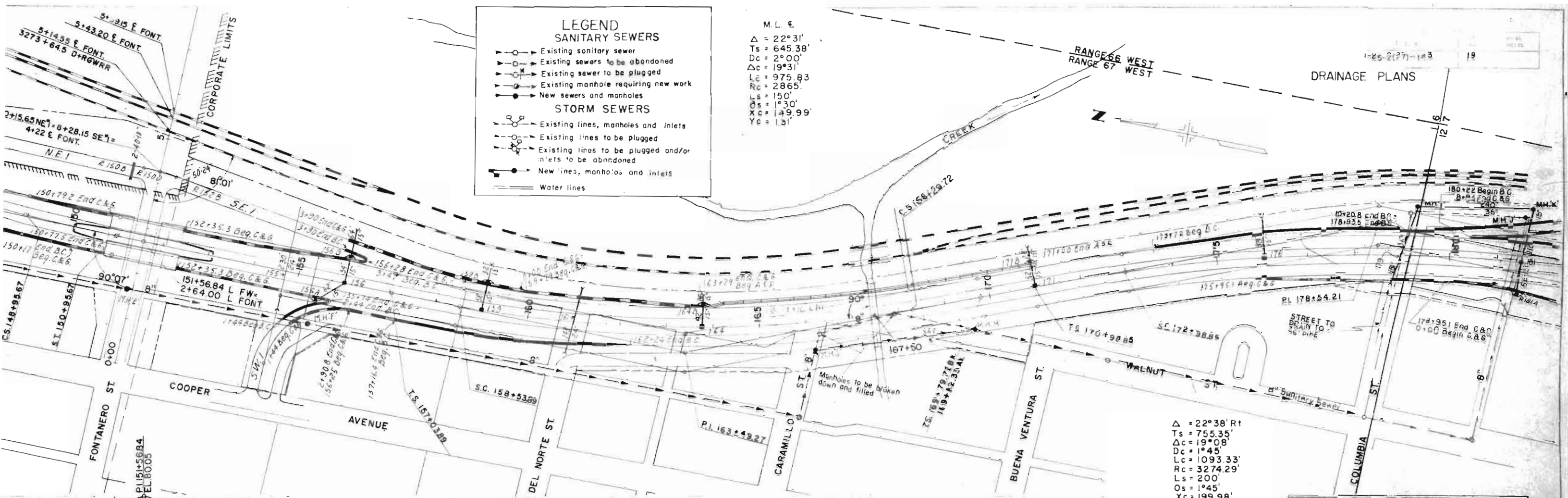
- Existing sanitary sewer
- Existing sewers to be abandoned
- Existing sewer to be plugged
- Existing manhole requiring new work
- New sewers and manholes

#### STORM SEWERS

- Existing lines, manholes and inlets
- Existing lines to be plugged
- Existing lines to be plugged and/or inlets to be abandoned
- New lines, manholes and inlets

Water lines

M.L. E  
 $\Delta = 22^\circ 31'$   
 $Ts = 645.38'$   
 $Dc = 2^\circ 00'$   
 $\Delta c = 19^\circ 31'$   
 $Lc = 975.83'$   
 $Rc = 2865'$   
 $Ls = 150'$   
 $Os = 1^\circ 30'$   
 $Xc = 149.99'$   
 $Yc = 131'$

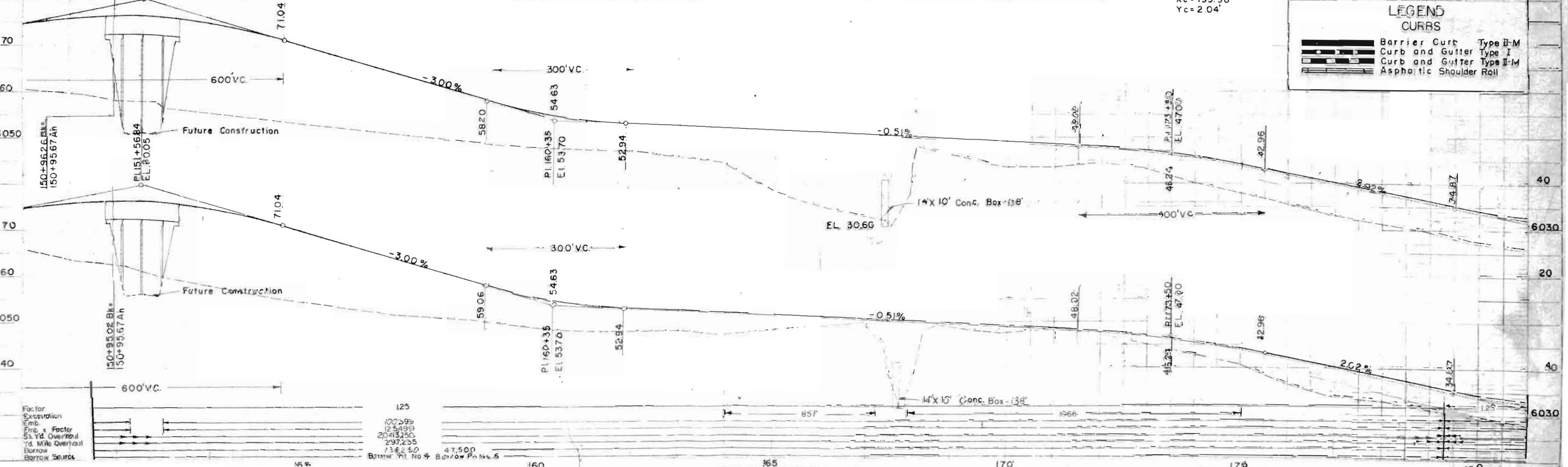


$\Delta = 22^\circ 38' R1$   
 $Ts = 755.35'$   
 $Dc = 19^\circ 08'$   
 $\Delta c = 1^\circ 45'$   
 $Lc = 1093.33'$   
 $Rc = 3274.29'$   
 $Ls = 200'$   
 $Os = 1^\circ 45'$   
 $Xc = 199.98'$   
 $Yc = 2.04'$

### LEGEND

#### CURBS

- Barrier Curb Type II-M
- Curb and Gutter Type I
- Curb and Gutter Type II-M
- Asphaltic Shoulder Roll



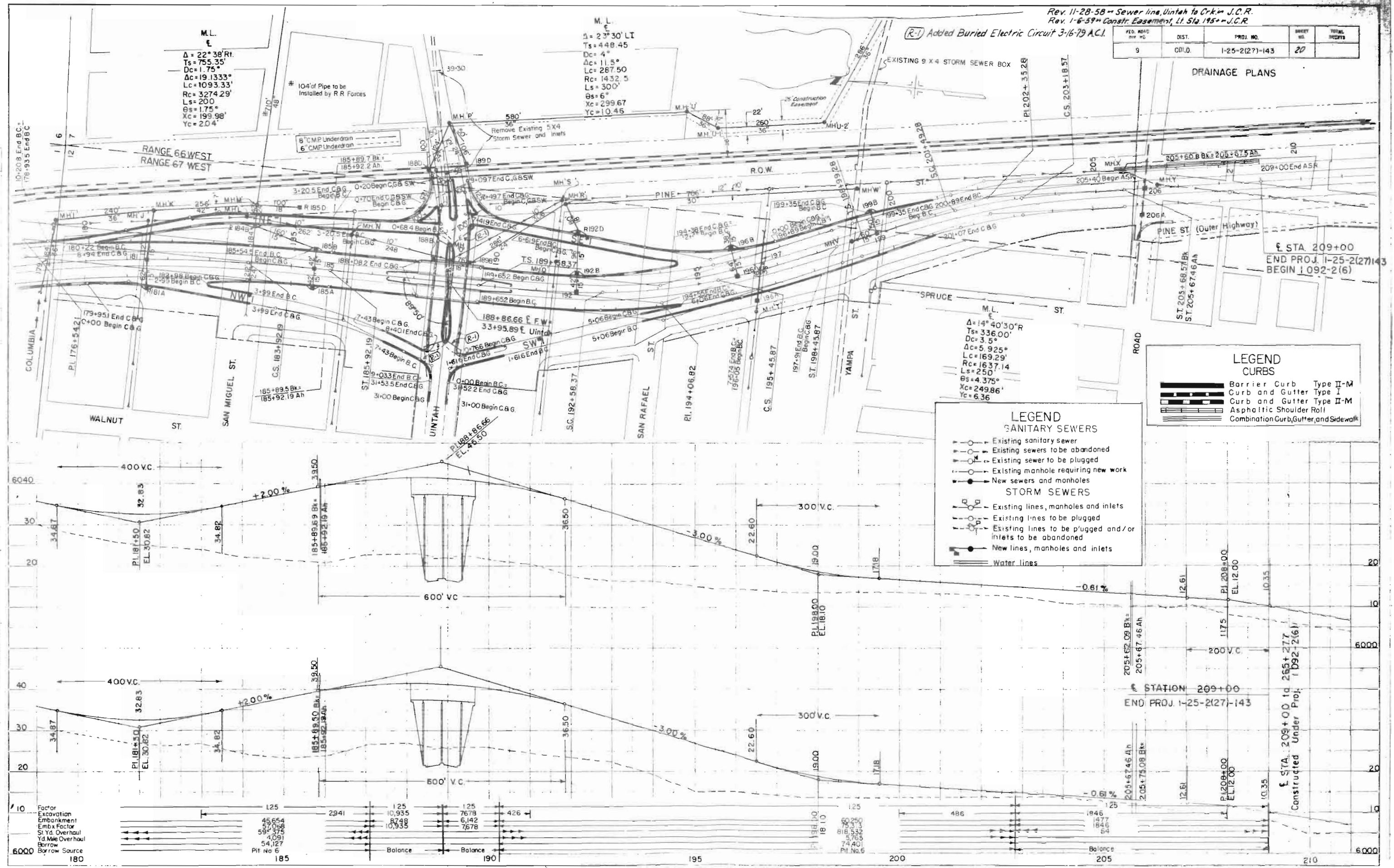
Rev. 11-28-58 - Sewer line, Uintah to Crk. in J.C.R.  
 Rev. 1-6-59 - Const. Easement, Lt. Sta. 195+ - J.C.R.

FED. ROAD DIST. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	20	

DATE	BY	REVISION

DATE	BY	REVISION

Factor	Quantity
Excavation	45,654
Embankment	57,068
5% Yd. Overhaul	59,375
Yd. Mile Overhaul	4,091
Borrow	54,127
Borrow Source	



DRAINAGE PLANS

**LEGEND CURBS**

- Barrier Curb Type II-M
- Curb and Gutter Type I
- Curb and Gutter Type II-M
- Asphaltic Shoulder Roll
- Combination Curb, Gutter, and Sidewalk

**LEGEND**

**SANITARY SEWERS**

- Existing sanitary sewer
- Existing sewers to be abandoned
- Existing sewer to be plugged
- Existing manhole requiring new work
- New sewers and manholes

**STORM SEWERS**

- Existing lines, manholes and inlets
- Existing lines to be plugged
- Existing lines to be plugged and/or inlets to be abandoned
- New lines, manholes and inlets

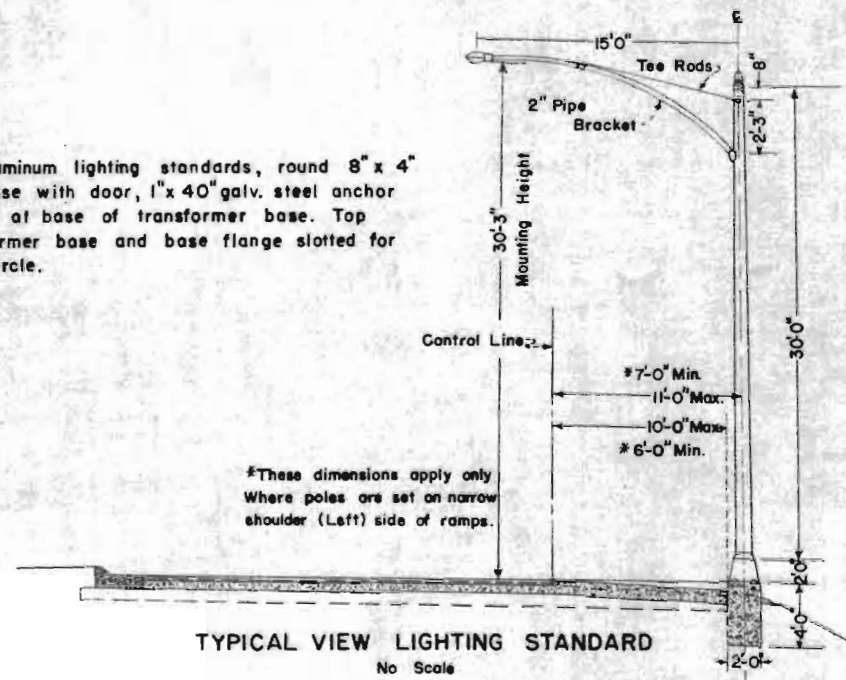
**Water lines**

STATION 209+00  
 END PROJ. 1-25-2(27)-143

ST. 209+00 to 265+277  
 Constructed Under Proj. 1-25-2(27)-143

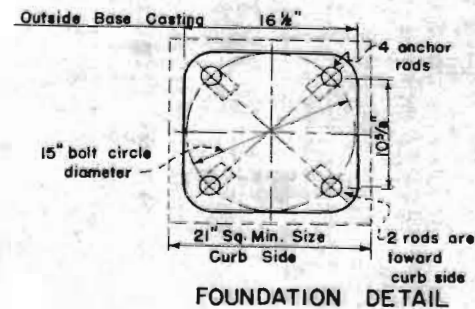
FED. ROAD DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	21	

Note: All extruded aluminum lighting standards, round 8" x 4" taper, transformer base with door, 1" x 40" galv. steel anchor bolts, 15" bolt circle at base of transformer base. Top bolt circle of transformer base and base flange slotted for 1 1/2" diameter bolt circle.



⊙	20,000 L Merc. Vapor Luminaires (Type III)
⊕	20,000 L Merc. Vapor Luminaires (Type II)
⊗	4,000 L Incandescent

SHEET NUMBER	20,000 L MERC. VAR. LUMINAIRES TYPE III	4,000 L INCAND.	30' POLES	20,000 L MERC. VAR. LUMINAIRES (TYPE II)
25	17		17	
26	22	4	24	2
27	30	4	43	13
<b>TOTAL</b>	<b>69</b>	<b>8</b>	<b>84</b>	<b>15</b>

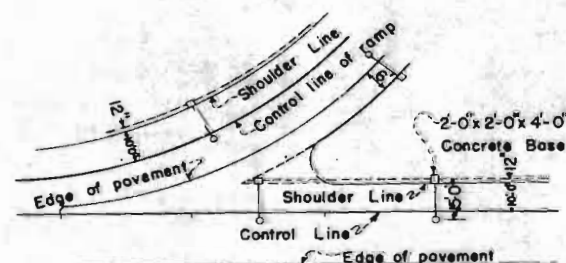


FENCING REQUIREMENTS  
PROJECT 1-25-2(27) 143

LEGEND

Chain Link Wire Mesh (School Fence)	— // — // —
Combination Wire Fence (Barrier)	— x — x —
Metal Plate Guard Fence	— . . . . .

Note: Chain link wire mesh fence to be used near Right of Way lines as shown on plans. See Std. M-26-D  
Barrier fence with Metal Posts, to be used in median, See Std. M-28-B



TYPICAL LIGHTING LAYOUT  
Spacing varies as shown on Plan Sheets

SUMMARY OF FENCING  
PROJECT 1-25-2(27)-143

SHEET NO.	CHAIN LINK WIRE FENCE 6'	COMBINATION WIRE FENCE (BARRIER)	CHAIN LINK WIRE MESH 3 1/2'	METAL PLATE GUARD FENCE
24	1470	736		
25	6,000	3,003		
26	5,810	2,687		
27	5,805	2,595	550	
<b>TOTAL</b>	<b>19,085</b>	<b>9,021</b>	<b>550</b>	

TIMBER GUARD POSTS

An estimated 145 timber guard posts will be required on this project. Locations will be staked by the engineer at time of construction.

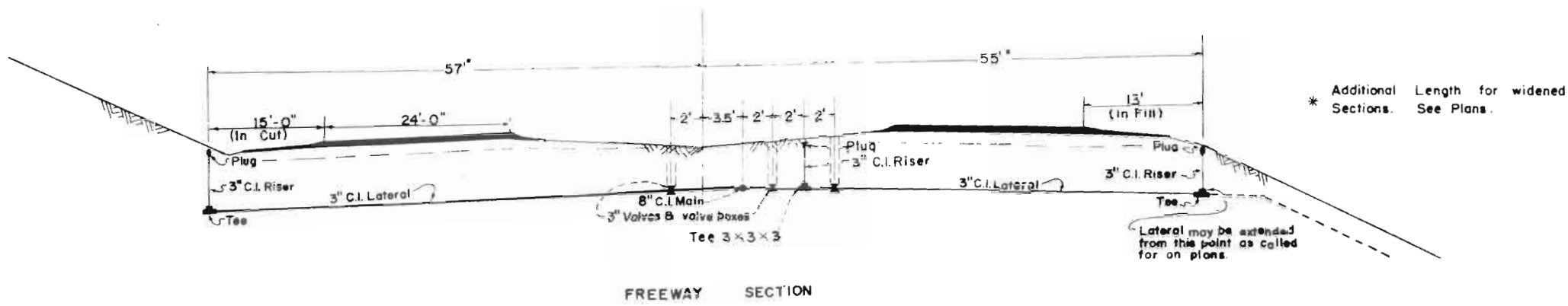
**COLORADO**  
DEPARTMENT OF HIGHWAYS

DETAILS OF  
LIGHTING & FENCING

Designed by: \_\_\_\_\_  
Made by: \_\_\_\_\_  
Checked by: \_\_\_\_\_

Approved by: \_\_\_\_\_  
Date: \_\_\_\_\_

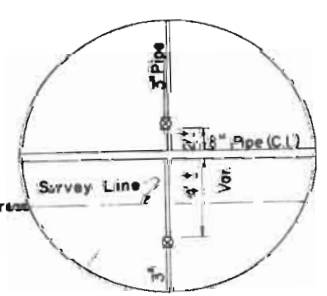
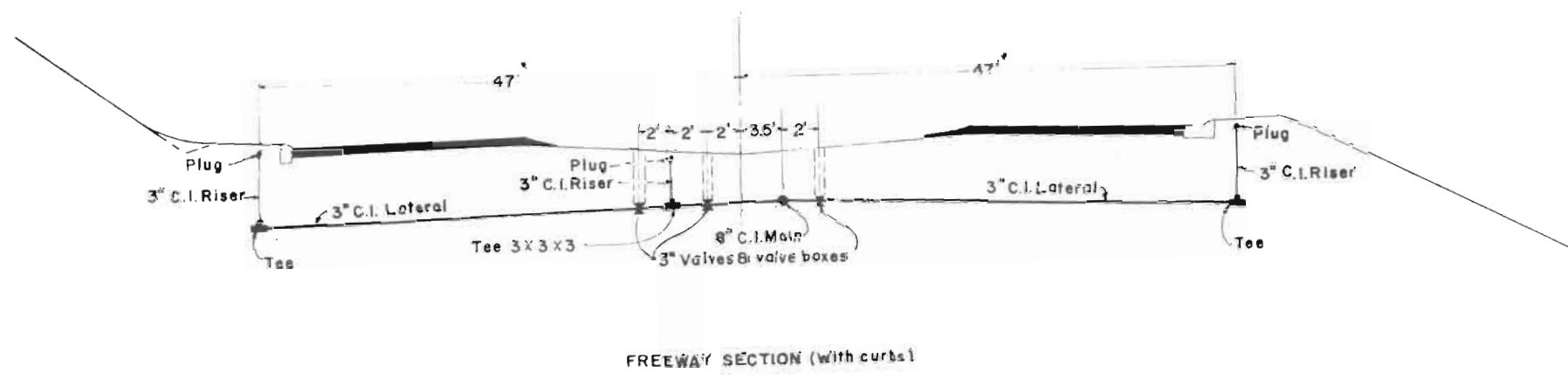




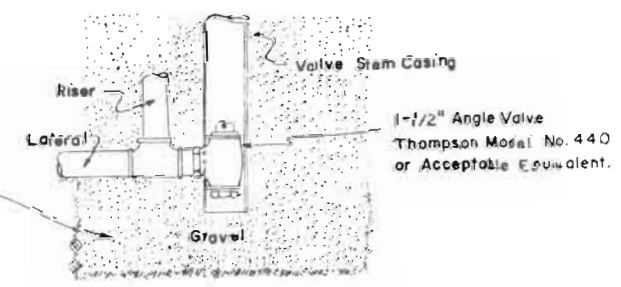
**SUMMARY OF MAINS AND PRIMARY LATERALS**  
PROJECT 1-25-2(27)-143

SHEET NUMBER	8" C.I. MAIN	3" C.I. LATERAL	3" C.I. RISER	3" GATE VALVE	6" GATE VALVE	1 1/2" ANGLE VALVE
24	736				1	
25	3050	304	27	9		6
26	2947	471	36	12		8
27	2901	1,428	102	18		12
<b>TOTAL</b>	<b>9,634</b>	<b>2,203</b>	<b>165</b>	<b>39</b>	<b>1</b>	<b>26</b>

\* 8" GATE VALVE to be installed on 8" cast iron main for testing purposes as shown on plans or as directed by Engineer, at time of construction.



NOTE: Cost of furnishing and placing Gravel backfill around drain valve shall be included in the original contract unit price for item 113 - 3" Cast iron water pipe



**COLORADO**  
DEPARTMENT OF HIGHWAYS  
DETAILS OF  
SPRINKLER MAINS  
AND LATERALS

Designed by: \_\_\_\_\_  
Made by: \_\_\_\_\_  
Checked by: \_\_\_\_\_

Approved by: \_\_\_\_\_  
Date: \_\_\_\_\_

FENCING, LIGHTING, AND SPRINKLER LATERALS



← FUTURE CONSTRUCTION →

FENCING	SHEET TOTAL
Type of Fence	sq Ft
Chain Link Wire Mesh	1147.0
Combination Wire Fence (Barrier)	736

STATION		SHEET SUMMARY							
Station	8" C.I. Main	3" C.I. Lateral	3" C.I. Riser	3" Gate Valve 1-1/2"	Angle Valve	8" Gate Valve	8" Meter	Box Comp.	
112+64.06									
120+00.00	736						1		
									736

STA 112+64.06  
BEGIN PROJECT  
I-25-2(27)-143

(B)  
Δ=6°00'  
Ts=273.18'  
Ls=250'  
Θs=2°30'  
Δc=1°00'  
Dc=2°00'  
Tc=25.0'  
Lc=50.0'  
Rc=2865.0

(C)  
Δ=6°03'  
Ts=175.96'  
Ls=150'  
Θs=2°15'  
Δc=1°33'  
Dc=3°00'  
Tc=25.64'  
Lc=51.67'  
Rc=1910.0'

LEGEND	
●	20,000 L. MERC. VAPOR
⊙	4,000 L. INCANDESCENT

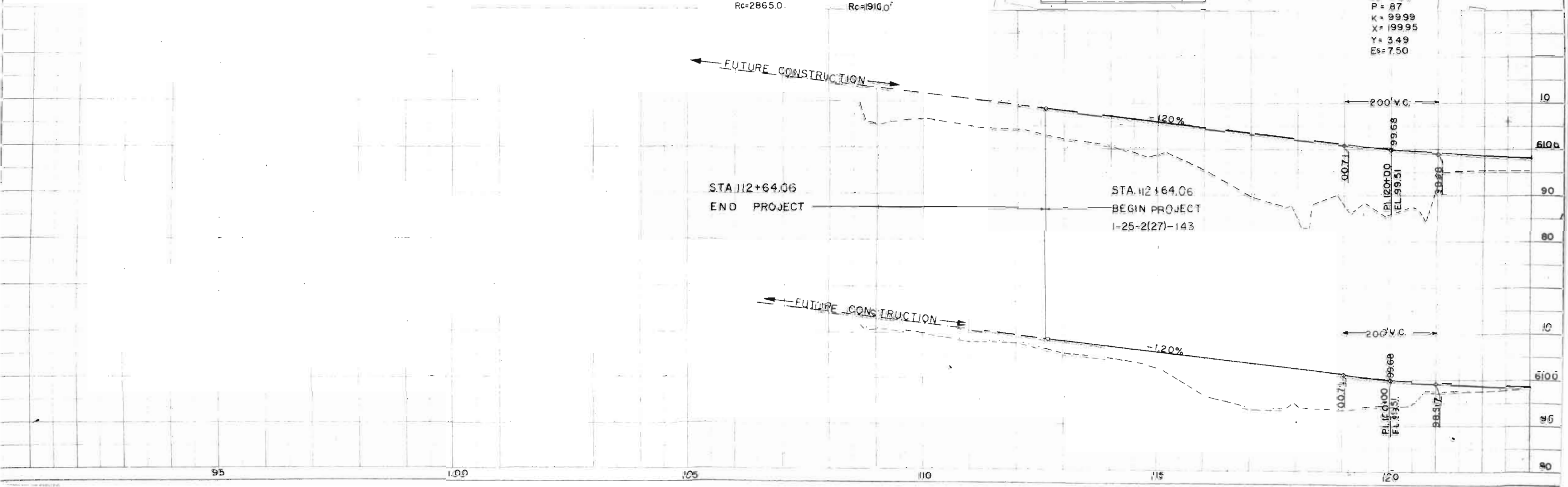
MLF  
Δ = 9°32' Rt  
Ts = 259.33  
Dc = 3°00'  
Δc = 3.53333  
Lc = 117.78  
Rc = 1910'  
Ls = 200'  
Θs = 3°00'  
P = 87  
K = 99.99  
X = 199.95  
Y = 3.49  
Es = 7.50

← FUTURE CONSTRUCTION →

STA 112+64.06  
END PROJECT

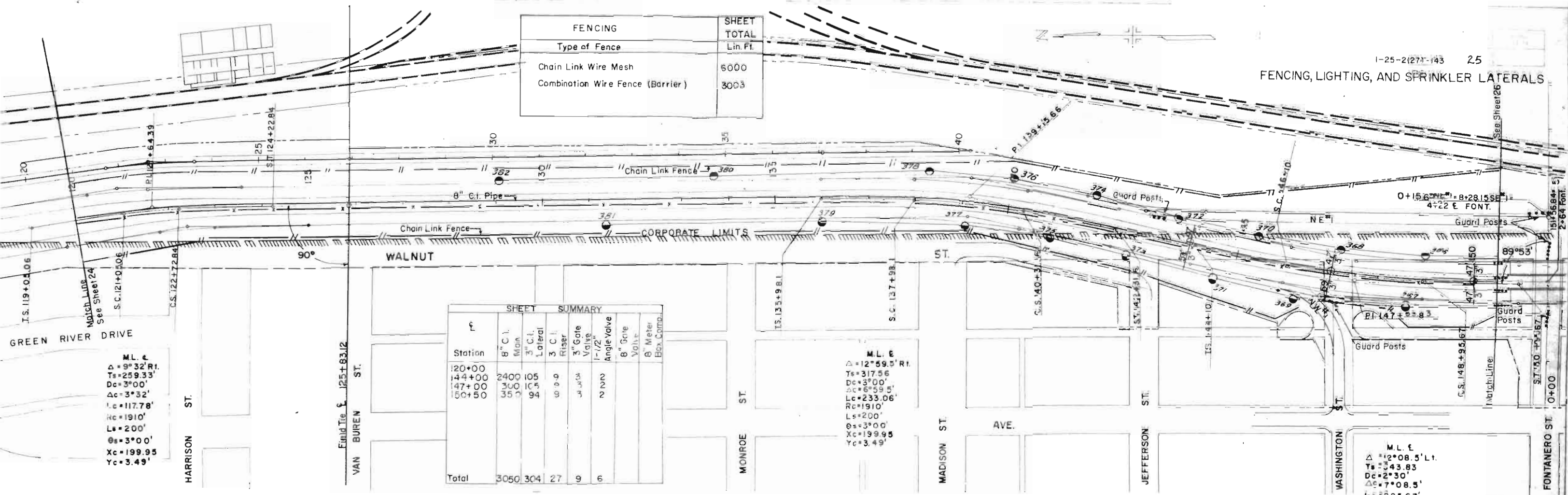
STA. 112+64.06  
BEGIN PROJECT  
I-25-2(27)-143

← FUTURE CONSTRUCTION →



FENCING, LIGHTING, AND SPRINKLER LATERALS

FENCING		SHEET TOTAL
Type of Fence		Lin. Ft.
Chain Link Wire Mesh		6000
Combination Wire Fence (Barrier)		3093

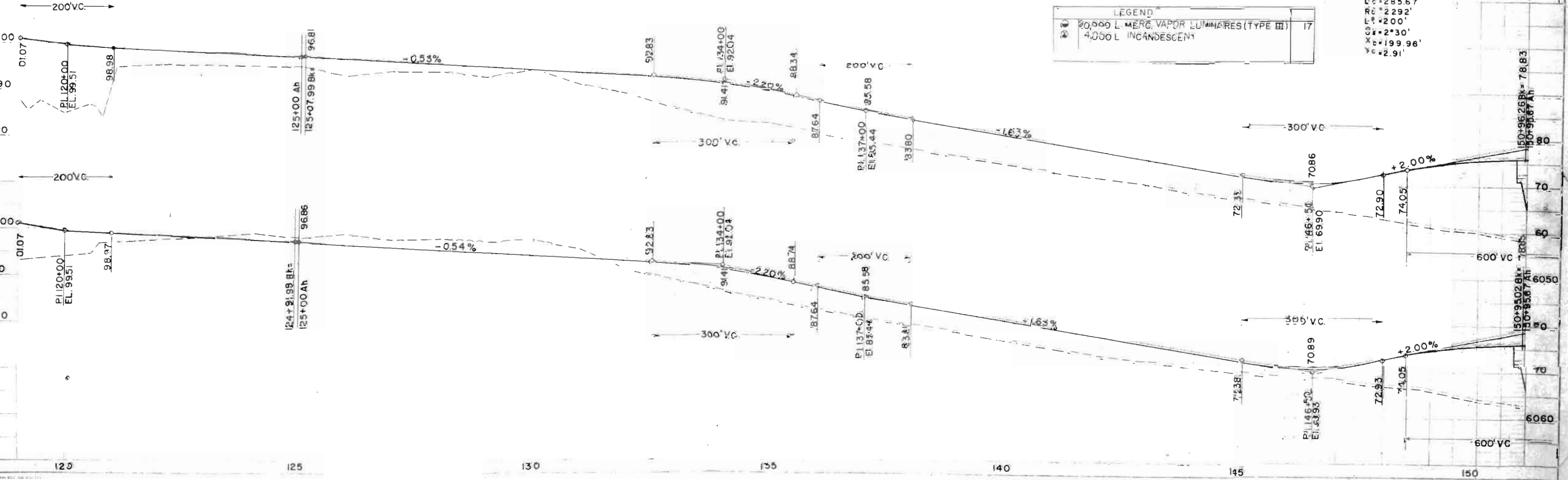


SHEET SUMMARY						
Station	8" C.I. Main	3" C.I. Lateral	3" C.I. Riser	3" Gate Valve	1-1/2" Angle Valve	8" Gate Valve
120+00						
144+00	2400	105				
147+00	350	94				
150+50						
Total	3050	304	27	9	6	

M.L. E  
 $\Delta = 12^{\circ} 59.5' \text{ R.I.}$   
 $T_s = 317.56'$   
 $D_c = 3^{\circ} 00'$   
 $\Delta_c = 6^{\circ} 59.5'$   
 $L_c = 233.06'$   
 $R_c = 1910'$   
 $L_s = 200'$   
 $O_s = 3^{\circ} 00'$   
 $X_c = 199.95'$   
 $Y_c = 3.49'$

M.L. E  
 $\Delta = 12^{\circ} 08.5' \text{ L.I.}$   
 $T_s = 443.83'$   
 $D_c = 2^{\circ} 30'$   
 $\Delta_c = 7^{\circ} 08.5'$   
 $L_c = 285.67'$   
 $R_c = 2292'$   
 $L_s = 200'$   
 $O_s = 2^{\circ} 30'$   
 $X_c = 199.96'$   
 $Y_c = 2.91'$

LEGEND	
	17

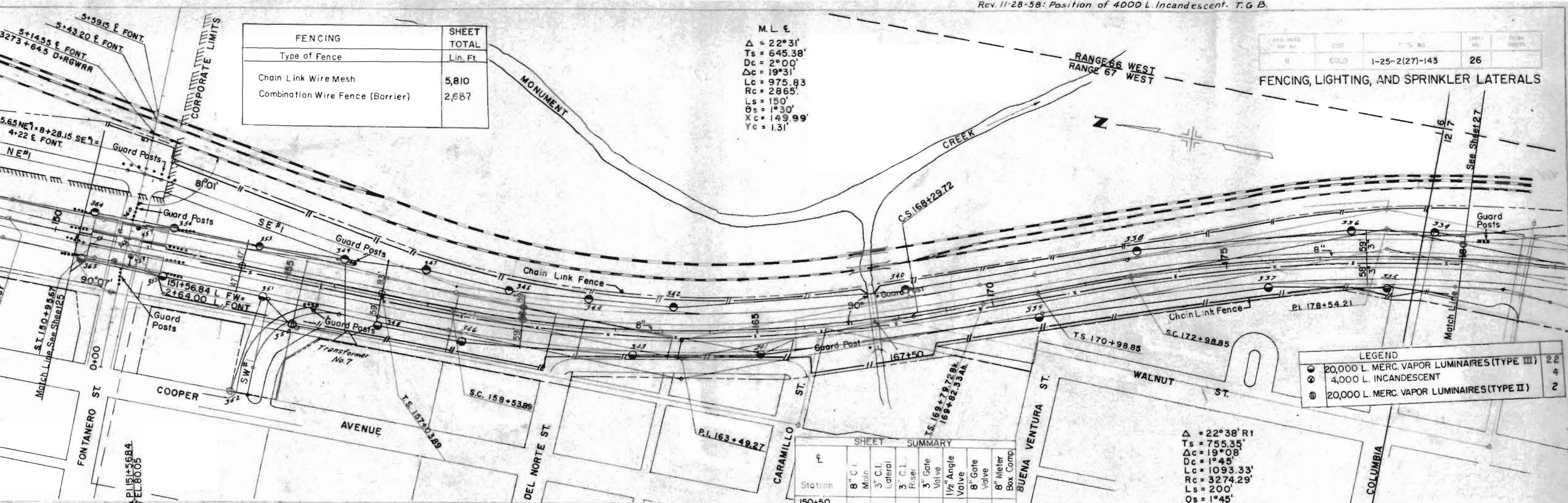


FENCING	SHEET TOTAL
Type of Fence	Lin. Ft.
Chain Link Wire Mesh	5,810
Combination Wire Fence (Barrier)	2,687

M. L. E.  
 $\Delta = 22^\circ 31'$   
 $T_s = 645.38'$   
 $D_c = 2^\circ 00'$   
 $\Delta c = 19^\circ 31'$   
 $L_c = 975.83$   
 $R_c = 2865'$   
 $L_s = 150'$   
 $O_s = 1^\circ 30'$   
 $X_c = 149.99'$   
 $Y_c = 1.31'$

DATE	BY	NO.	REVISIONS
1-25-2(27)-143	COLD	26	

FENCING, LIGHTING, AND SPRINKLER LATERALS



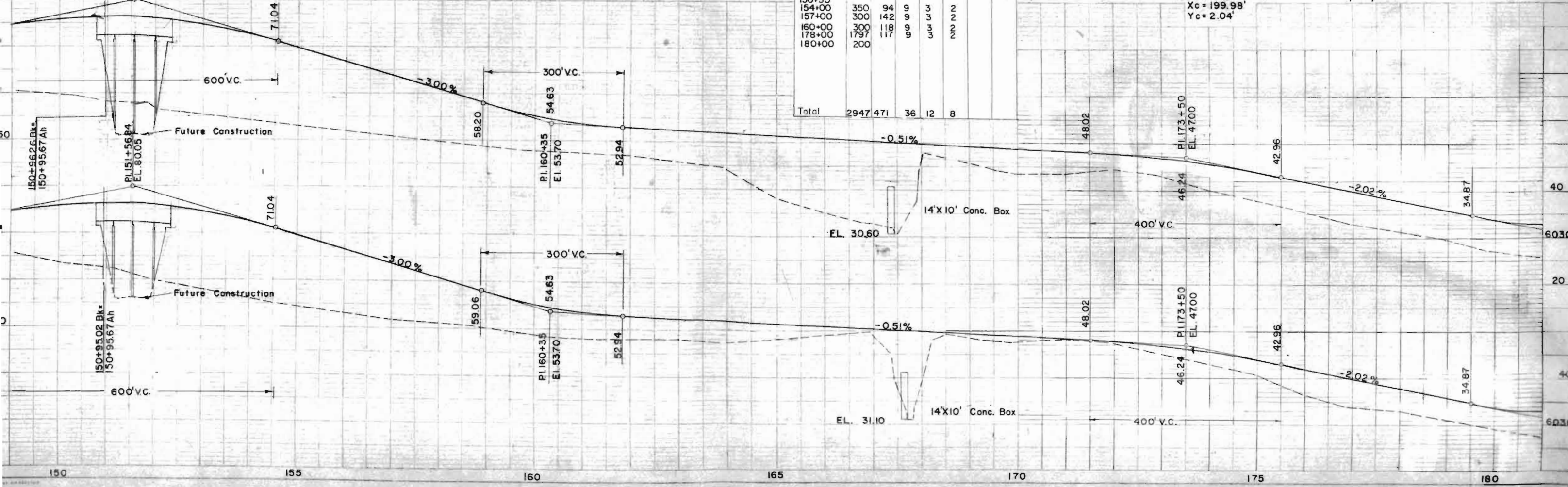
LEGEND

●	20,000 L. MERC. VAPOR LUMINAIRES (TYPE III)	22
⊗	4,000 L. INCANDESCENT	4
⊙	20,000 L. MERC. VAPOR LUMINAIRES (TYPE II)	2

$\Delta = 22^\circ 38' R1$   
 $T_s = 755.35'$   
 $D_c = 19^\circ 08'$   
 $\Delta c = 1^\circ 45'$   
 $L_c = 1093.33'$   
 $R_c = 3274.29'$   
 $L_s = 200'$   
 $O_s = 1^\circ 45'$   
 $X_c = 199.98'$   
 $Y_c = 2.04'$

SHEET SUMMARY

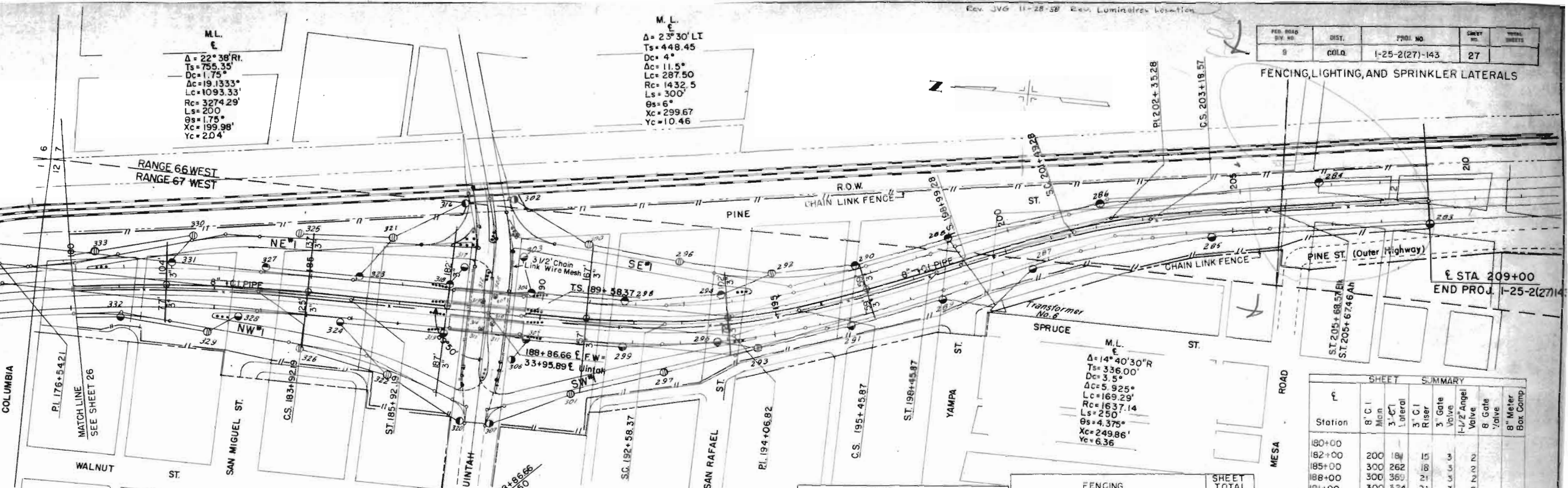
Station	8" C.I. Main	3" C.I. Lateral	3" C.I. Rise	3" Gate Valve	1/2" Angle Valve	8" Gate Valve	8" Meter Box Comp.
150+50							
154+00	350	94	9	3	2		
157+00	300	142	9	3	2		
160+00	300	118	9	3	2		
178+00	1797	117	9	3	2		
180+00	200						
Total	2947	471	36	12	8		



M.L.  
 $\Delta = 22^\circ 38' R$   
 $T_s = 755.35'$   
 $D_c = 1.75'$   
 $A_c = 19.1333^\circ$   
 $L_c = 1093.33'$   
 $R_c = 3274.29'$   
 $L_s = 200'$   
 $\theta_s = 1.75^\circ$   
 $X_c = 199.98'$   
 $Y_c = 20.4'$

M.L.  
 $\Delta = 23^\circ 30' L$   
 $T_s = 448.45'$   
 $D_c = 4'$   
 $A_c = 11.5^\circ$   
 $L_c = 287.50'$   
 $R_c = 1432.5'$   
 $L_s = 300'$   
 $\theta_s = 6^\circ$   
 $X_c = 299.67'$   
 $Y_c = 10.46'$

FED. ROAD DIV. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	27	



FENCING, LIGHTING, AND SPRINKLER LATERALS

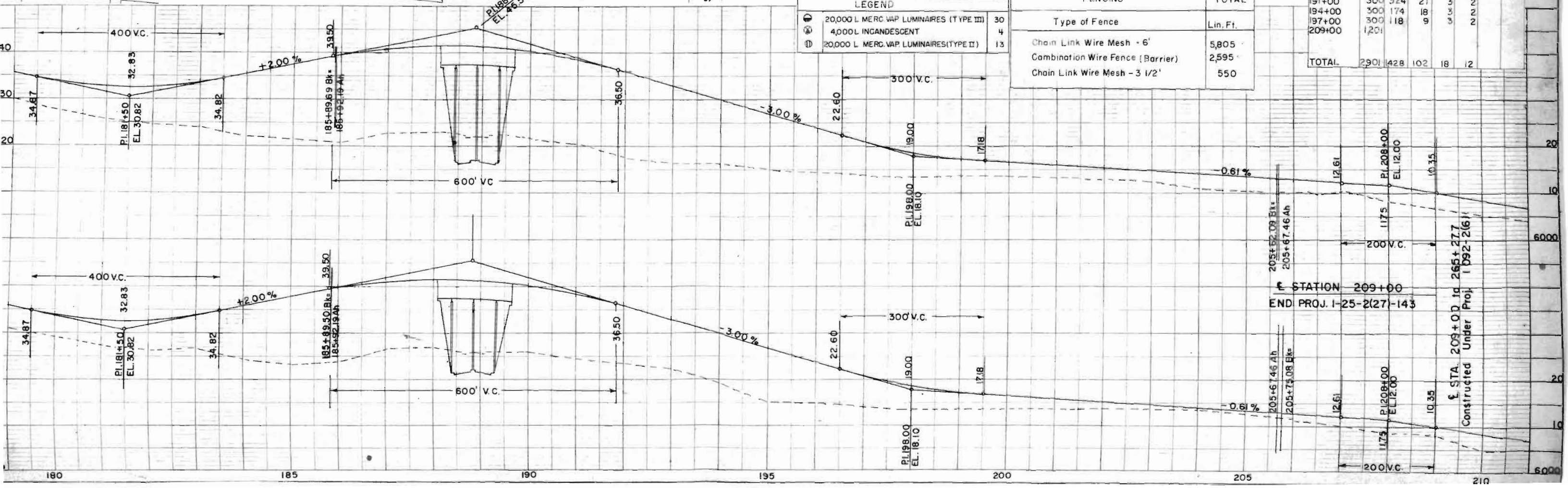
ST. 205+69.57 Bk  
 ST. 205+67.46 Ah

M.L.  
 $\Delta = 14^\circ 40' 30'' R$   
 $T_s = 336.00'$   
 $D_c = 3.5'$   
 $A_c = 5.925^\circ$   
 $L_c = 169.29'$   
 $R_c = 1637.14'$   
 $L_s = 250'$   
 $\theta_s = 4.375^\circ$   
 $X_c = 249.86'$   
 $Y_c = 6.36'$

Station	8" C.I. Man	3" C.I. Lateral	3" C.I. Riser	3" Gate Valve	1/2" Angel Valve	8" Gate Valve	8" Meter Box Comp
180+00							
182+00	200	18	15	3			
185+00	300	262	18	3			
188+00	500	369	21	3			
191+00	300	324	21	3			
194+00	300	174	18	3			
197+00	300	118	9	3			
209+00	1201						
<b>TOTAL</b>	<b>2901</b>	<b>1428</b>	<b>102</b>	<b>18</b>	<b>12</b>		

①	20,000 L. MERC. VAP. LUMINAIRES (TYPE III)	30
②	4,000 L. INCANDESCENT	4
③	20,000 L. MERC. VAP. LUMINAIRES (TYPE II)	13

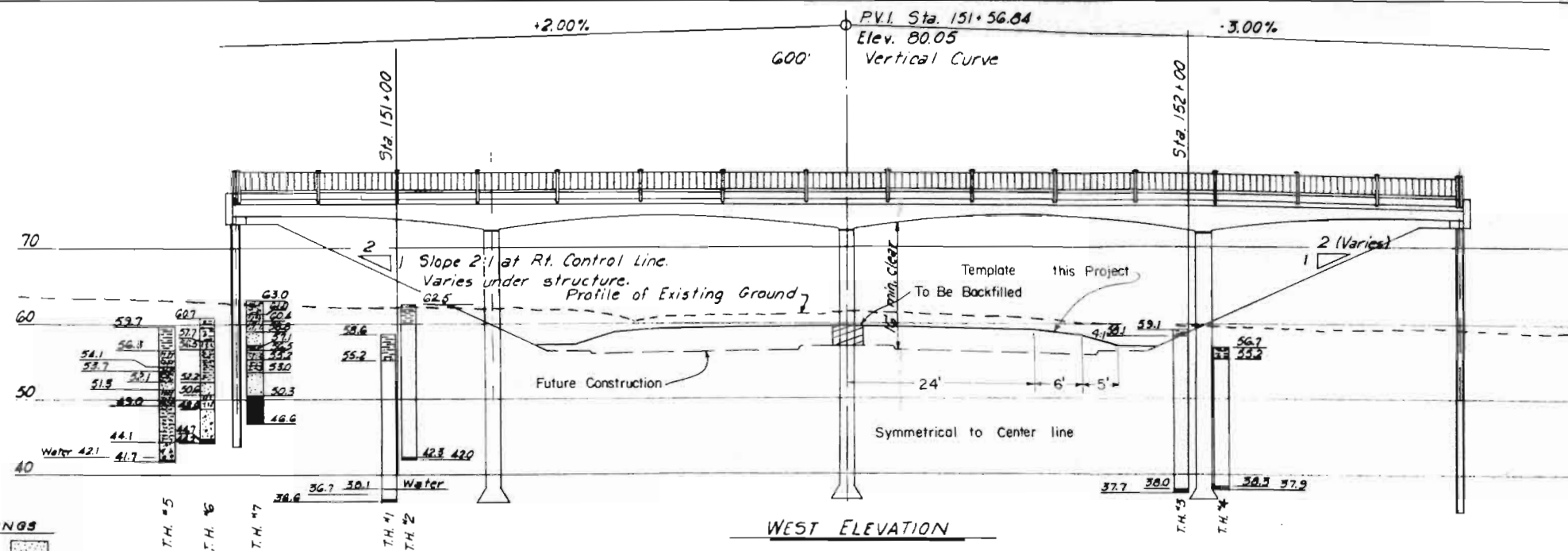
Type of Fence	Lin. Ft.
Chain Link Wire Mesh - 6'	5,805
Combination Wire Fence (Barrier)	2,595
Chain Link Wire Mesh - 3 1/2'	550



STATION 209+00  
 END PROJ. 1-25-2(27)-143

ST. 209+00 Id 265+277  
 Constructed Under Proj. 1-25-2(27)-143

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	COLO.	I-25-2(27)-143		28	

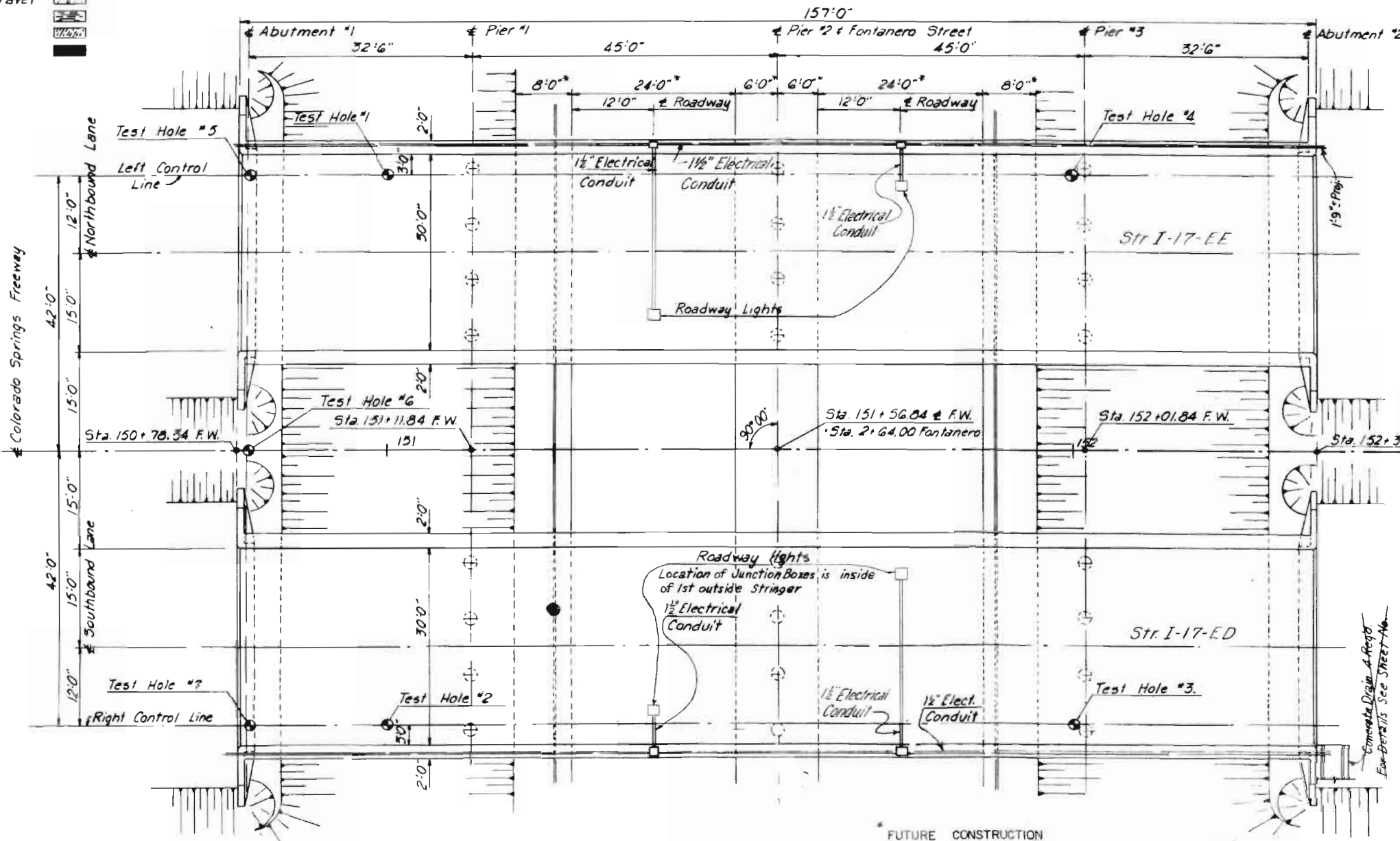


**GENERAL NOTES:**

- All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways as adopted January 1, 1958.
- All concrete shall be air-entrained, Class A.
- Surfaces marked with the symbol 'f' as shown on Sheet No. 40 shall receive Class 2 surface finish.
- Bevel all exposed edges and fillet all corners with a 3/4" triangular mounding unless otherwise noted.
- All reinforcing steel shall be intermediate grade deformed bars conforming to A.A.S.H.O. Spec. M31 and M137 (A.S.T.M. designations A15 & A305). All hooks and bends in bars shall conform to A.C.I. Standard 315-51.
- All reinforcing bars shall be tagged with structure number and mark.
- All dimensions for reinforcing steel are to center of bar unless otherwise noted.
- All dimensions shown in bending diagrams are out to out of bars.
- Main bars shall not be spliced except as shown on plans.
- All steel railing shall receive one shop coat of zinc chromate and two field coats of aluminum paint.
- The soundings and pile data shown are according to the best information available to the Colorado Department of Highways. If essentially different conditions are encountered, the Bridge Engineer will inspect and determine if redesign is necessary. All piles shall be driven to the penetration shown unless in the opinion of the Engineer such penetration cannot be secured without injury to the pile.

**SOUNDINGS**

Gravel	
Water	



**SUMMARY OF QUANTITIES**

ITEM	DESCRIPTION	UNITS	ABUT.#1	PIER #1	PIER #2	PIER #3	ABUT.#2	SUPER	TOTAL
14	Unclassified Structural Excavation-Bridges	Cu.Yd.			22				22
16	Structure Backfill (Class I)	Cu.Yd.	72	8	16	2	72		170
29	Asphalt (85-100 Penetration)	Ton						7	7
30	Asphaltic Road Material RC	Gal.						105	105
34	Asphaltic Concrete Pavement (Type B)	Ton						115	115
42	Treated Bridge Timber	MilDm	0.36				0.36		0.72
46	Class "A" Concrete	Cu.Yd.	192	270	304	266	192	393.6	3160
47	Reinforcing Steel (11% Overrun)	Lb.	1,405	5,104	5,850	5,020	1,405	112,869	131,653
48	Structural Steel (1.05% for paint)	Lb.	1,202				1,202	23,071	26,273
61	Steel Piling, 10BP42°	Lin. Ft.	256				288		544
160	24" Drilled Coissons	Lin. Ft.		161	139	175			475
90	1 1/2" Electrical Conduit & Junction Boxes	Lin. Ft.						386	386
	+ 1" Celotex	Sq. Ft.		14	14	14			42
98	4,000 L INCANDESCENT LUMINAIRES	EACH							4

o 8 @ 36'-0", 4 @ 34'-0" & 4 @ 30'-0"  
 † Include with bid price of Class A concrete.  
 Includes 20 Cu. Yds. Class "A" Concrete for Concrete Drains.

**INDEX OF SHEETS**

- Sheet No. 1 - General Plan & Elevation.
- Sheet No. 2 - Abutment Details.
- Sheet No. 3 - Piers And Misc. Details.
- Sheet No. 4 - Girder Details.
- Sheet No. 5 - Superstructure Details.
- Sheet No. 6 - Handrail And Slope Railing Details.

**Design Specifications:**  
 A.A.S.H.O. Spec., Series of 1953  
 with 1955 & 1956 amendments.  
 Design Load H20-S16-44 (Interstate Alternate)  
 f<sub>c</sub> = 1,200 psi  
 f<sub>s</sub> = 20,000 psi Reinforcing  
 f<sub>s</sub> = 18,000 psi Structural  
 Pile loading - 31 Tons.

NOTE: FONTANERO STREET WILL NOT BE BUILT TO FINISHED GRADE THIS PROJECT

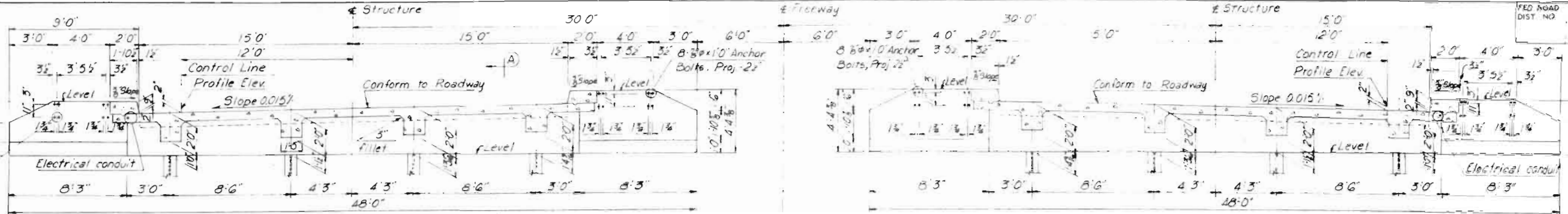
Scale: 1"=10'-0"  
 I-17-EE = East Bridge  
 I-17-ED = West Bridge

Revised 1-10-58 adss

COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY  
 FONTANERO STREET CROSSING  
 BRIDGE NO'S I-17-ED & EE

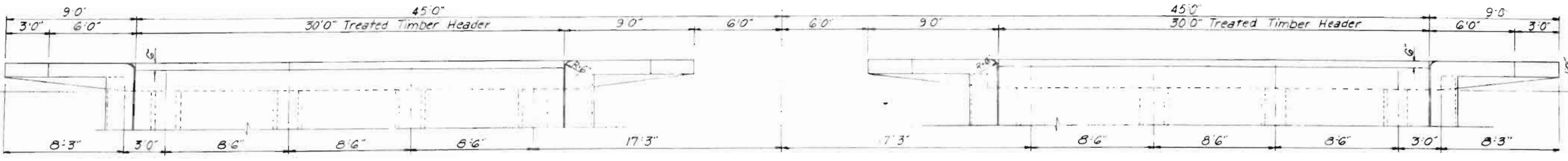
**GENERAL PLAN AND ELEVATION**

DATE: DEC. 1958  
 DRAWING: 15 E 1

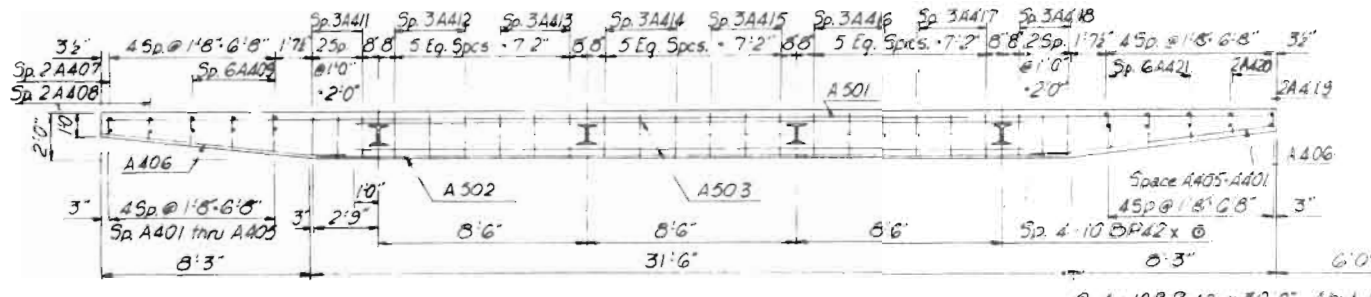


ELEVATION ABUTMENT  
 Both abutments same except elevations

Elev. A  
 Abutment No. 1 - 73.261  
 Abutment No. 2 - 72.496

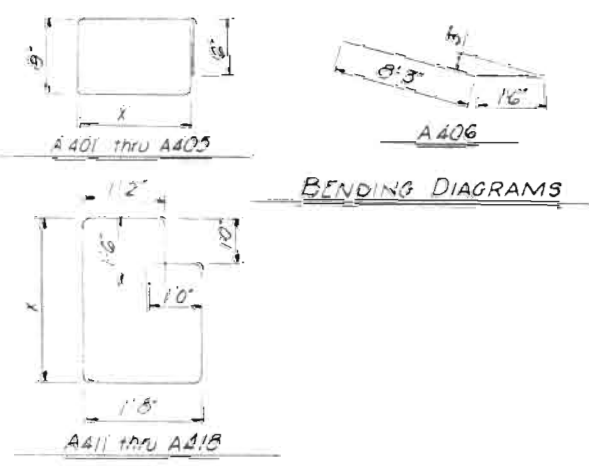


PLAN



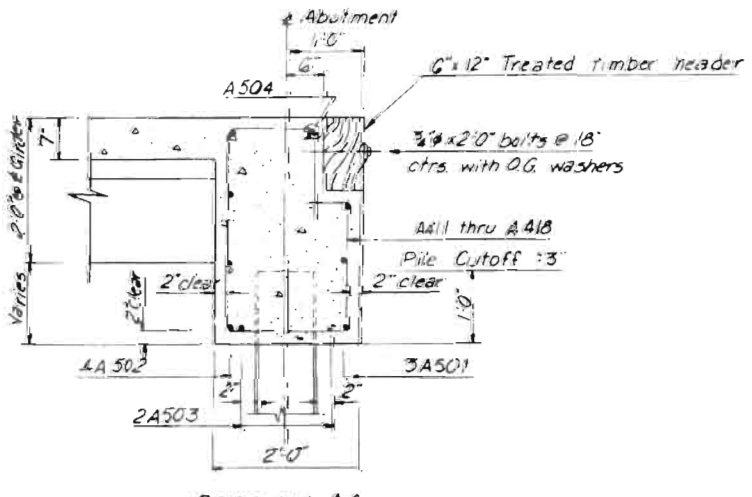
ABUTMENT FOOTING PLAN

Reverse pile & reinforcing steel patterns  
 Note: Abutments opposite hand about & freeway  
 1-10BP42 x 30'0" Abut No.1 West  
 1-10BP42 x 34'0" Abut No.1 East  
 8-10BP42 x 36'0" Abut No.2

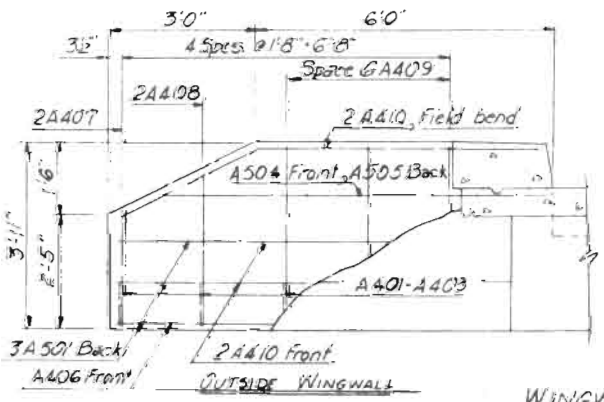


BENDING DIAGRAMS

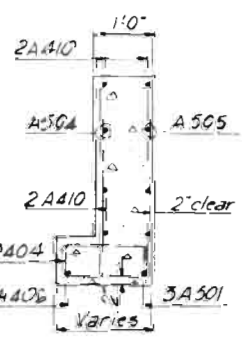
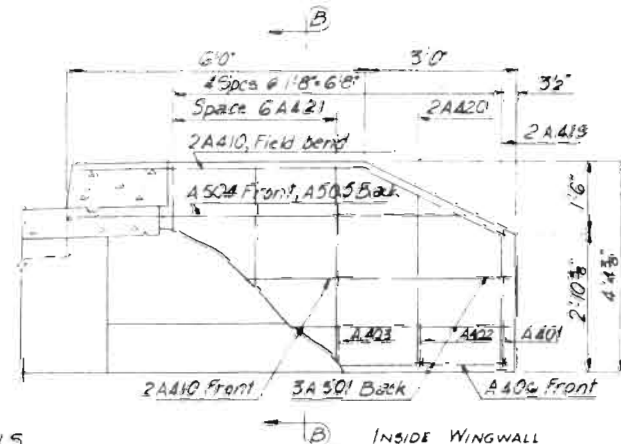
BAR LIST - BOTH ABUTMENTS				
MARK	SHAPE	X	LENGTH	No. REBAR
A501			47'-6"	12
A502			31'-0"	16
A503			27'-6"	8
A504			45'-6"	4
A505			8'-0"	8
A401		8'	3'-2"	8
A402		10'	3'-6"	8
A403		10'	3'-10"	8
A404		11'-3"	4'-4"	8
A405		11'-5"	4'-9"	8
A406			9'-9"	8
A407			2'-3"	8
A408			3'-0"	8
A409			3'-8"	24
A410			9'-0"	32
A411		2'-8"	9'-8"	12
A412		2'-9"	9'-10"	12
A413		2'-9 1/2"	9'-11"	12
A414		2'-10 1/2"	10'-1"	12
A415		2'-11"	10'-2"	12
A416		3'-0"	10'-4"	12
A417		3'-0 1/2"	10'-5"	12
A418		3'-1 1/2"	10'-7"	12
A419			2'-8"	8
A420			3'-6"	8
A421			4'-1"	24



SECTION-AA



WINGWALL DETAILS  
 Typical both abutments.



SECTION-BB

NOTES:  
 Max. pile loading - 31 tons

BAR WEIGHT SUMMARY	
*5-1532 lin. ft. @ 1.043 <sup>lb</sup> /lin. ft.	1598 <sup>lb</sup>
*4-1772 lin. ft. @ 0.668 <sup>lb</sup> /lin. ft.	1184 <sup>lb</sup>
1% Overrun	28 <sup>lb</sup>
<b>Total</b>	<b>2810<sup>lb</sup></b>

QUANTITIES, BOTH ABUTMENTS	
Structural Backfill	144 Cu. Yds.
Mechanical Tamping	14 Hrs.
Class A Concrete	38.4 Cu. Yds.
Reinforcing Steel	2,810 Lbs.
Structural Steel	240 Lbs.
Steel Piling - 10BP42	544 Lin. Ft.
Treated Timber Header	972 Ft. b.m.

\* 8 @ 36'0", 4 @ 34'0", 4 @ 30'0"

COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY

FONTANERO STREET CROSSING  
 BRIDGE NO'S I-17-ED & EE

ABUTMENT DETAILS

SCALE: \_\_\_\_\_ DATE: DEC. 1957

KUHN & TYREE  
 CONSULTING ENGINEERS  
 COLORADO SPRINGS, COLO.

DRAWING NO.  
 15 E 2

COLOrado DEPARTMENT OF TRANSPORTATION  
 COLORADO SPRINGS  
 FONTANERO STREET  
 BRIDGE NO'S 1-17-E  
 PIERs AND MISC.  
 SCALE: 1/8" = 1'-0"  
 NOONS & TYREE CONSULTING ENGINEERS COLORADO SPRINGS COLO.  
 DATE: 11-1-4

**BAR WEIGHT SUMMARY OF CLASS A CONCRETE REINFORCING STEEL CAISSONS (ESTIMATE)**

11.864 in. ft @ 26	308
7.477 in. ft @ 26	192
5.330 in. ft @ 12	132
4.3245 in. ft @ 12	132
1% Overrun	
<b>Total</b>	<b>764</b>

**BAR LIST - ALL PIERS - BOTH BRIDGES**

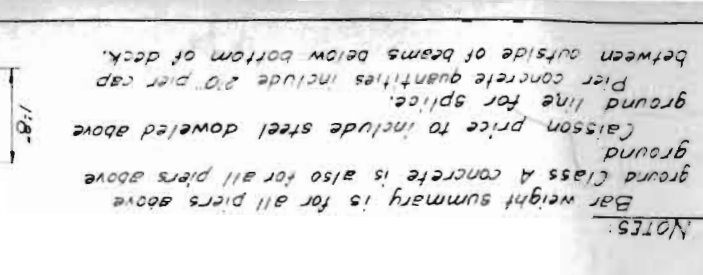
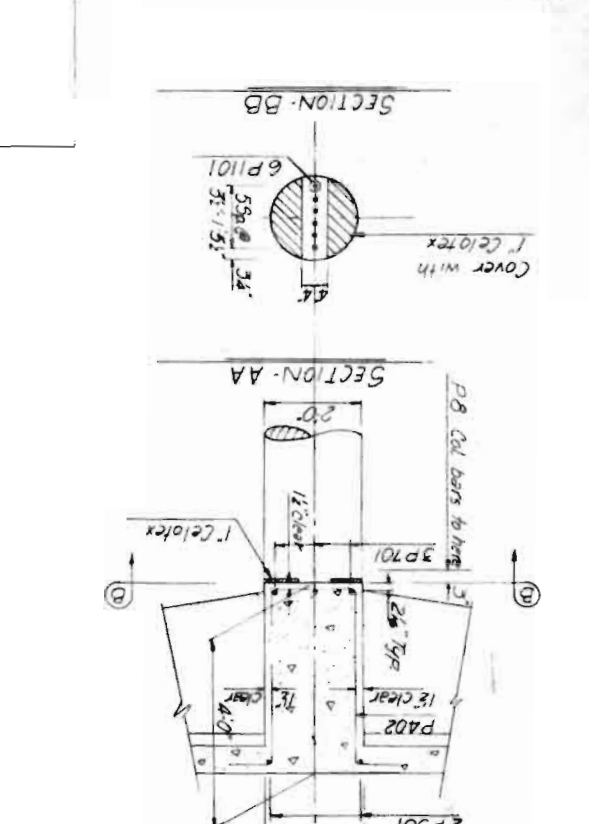
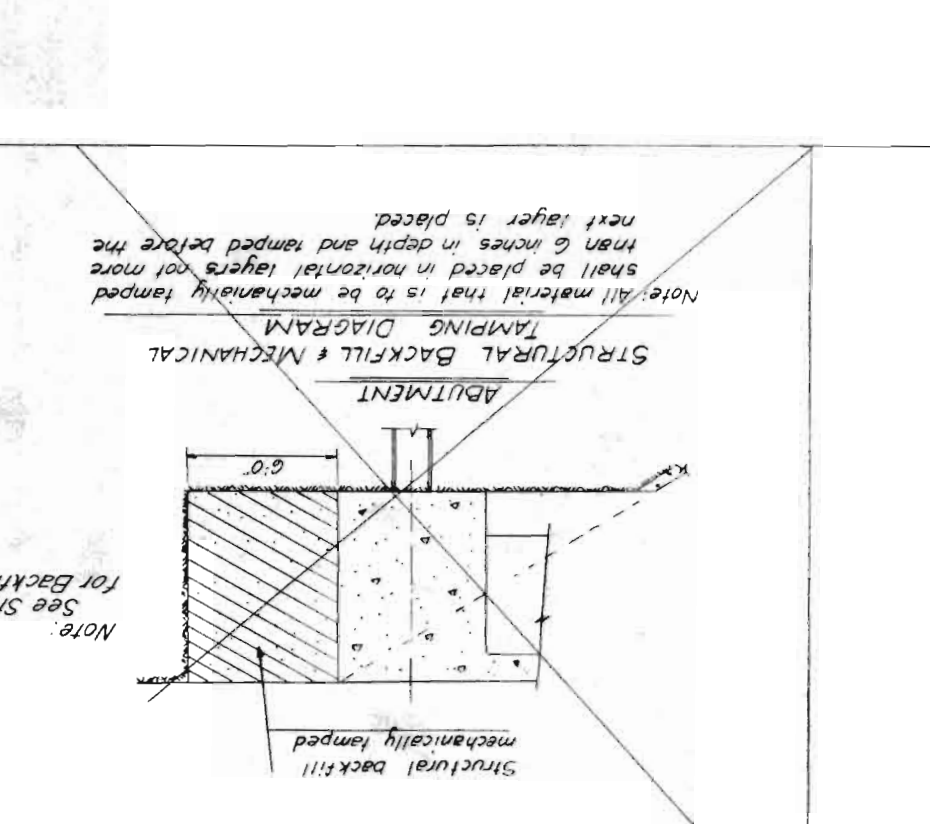
MARK	SHAPE	LENGTH	No Rep'd	MARK	SHAPE	LENGTH	No Rep'd
P101	6"Ø	11.4'	8	P815	11.4"	8	
P801	20"Ø	8	20	P816	*	132	
P802	19"Ø	8	19				
P803	18"Ø	8	18				
P804	16"Ø	8	16				
P805	16"Ø	8	16				
P806	16"Ø	8	16				
P807	15"Ø	8	15				
P808	15"Ø	8	15				
P809	15"Ø	8	15				
P810	14"Ø	8	14				
P811	13"Ø	8	13				
P812	12"Ø	8	12				
P813	12"Ø	8	12				
P814	11"Ø	8	11				

**APPROXIMATE LENGTH OF CAISSON**

Pier	No	1	2	3	4	5	6	7	8
		16	16	17	18	22	25	24	25
		14	14	15	16	19	20	20	21
		20	20	21	23	23	24	24	24

**PIER ELEVATION**

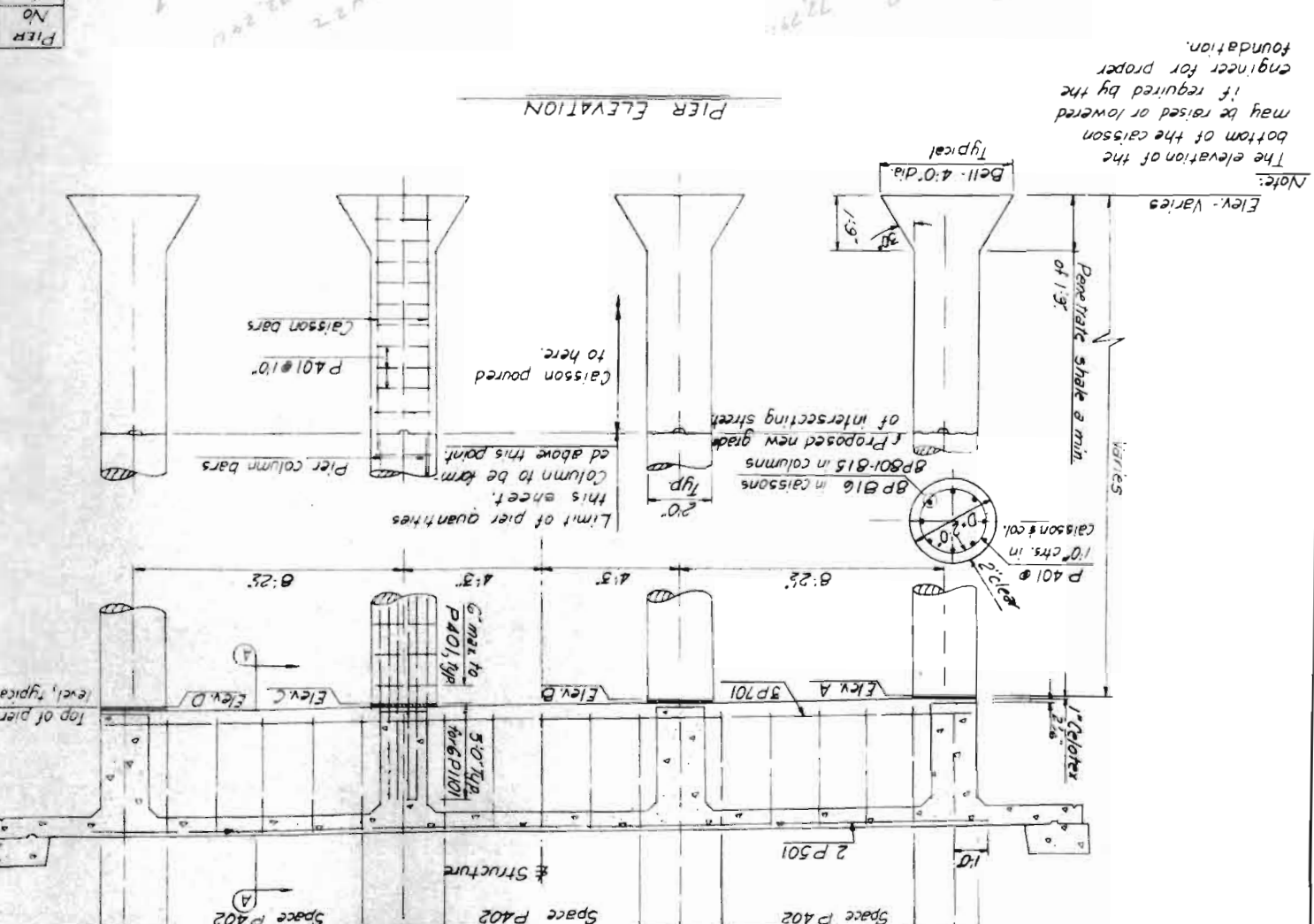
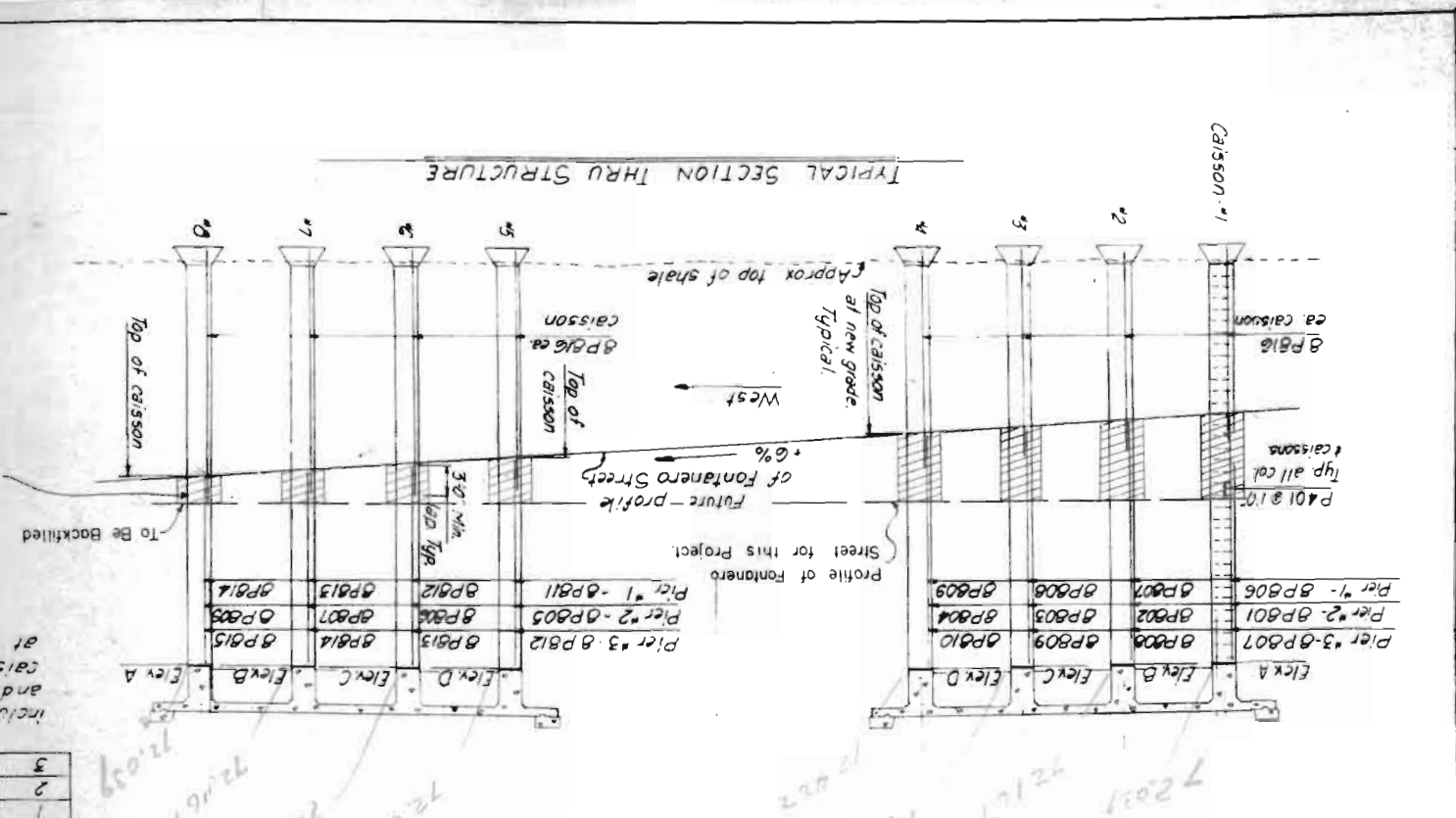
Pier	A	B	C	D
1	72.180	72.308	72.435	72.562
2	72.039	72.167	72.294	72.422
3	71.730	71.857	71.985	72.113



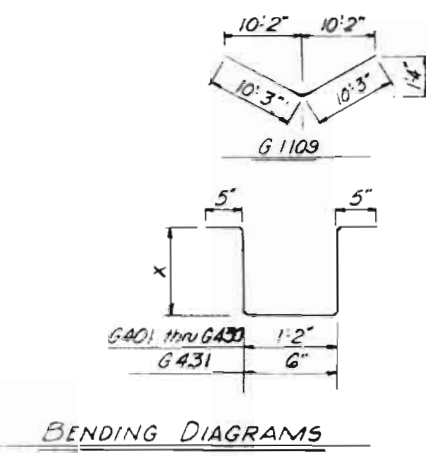
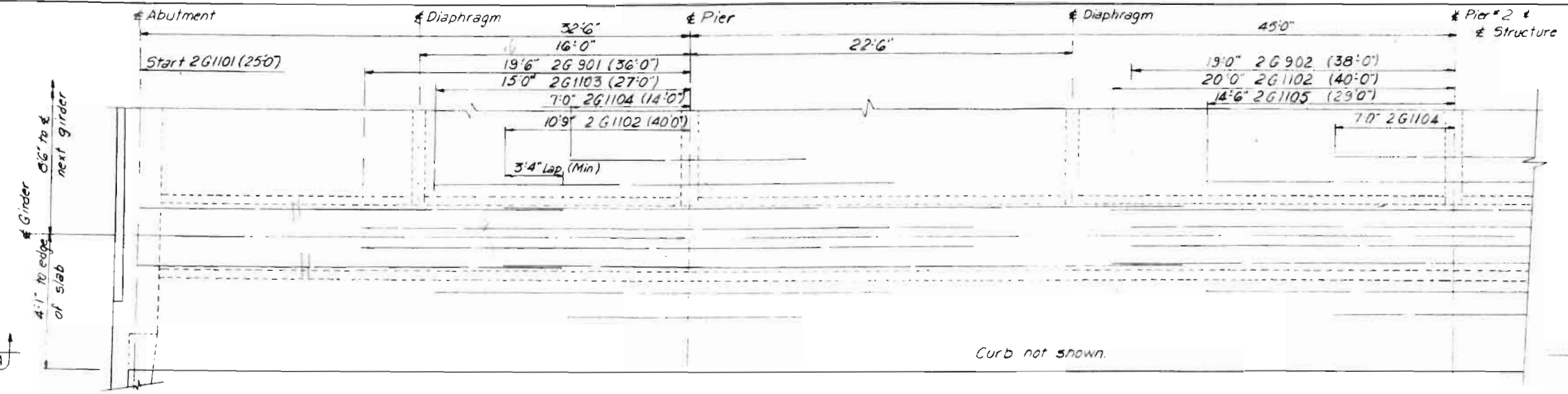
**NOTES:**  
 Bar weight summary is for all piers above ground.  
 Caisson price to include steel doweled above ground line for splice.  
 Pier concrete quantities include 2"Ø pier cap between outside of beams below bottom of deck.

**NOTE: LEAVE PAPER FORMING MATERIAL ON PIERS TO GROUND LINE.**

Caissons are to be bid per lineal foot and shall include drilling notes, belling, concrete, reinforcing steel and any other items necessary to produce a finished caisson. The pay line shall be the top of the ground at the new proposed grade of the intersecting street. Estimated quantities per foot: (excluding bell)  
 Concrete: 0.1163 yd<sup>3</sup>  
 Re-steel: 25.54 lb



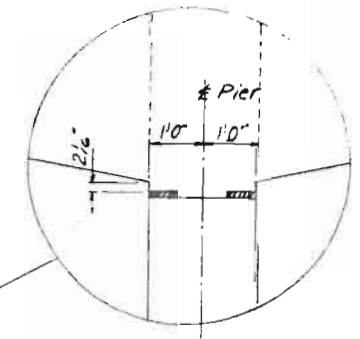
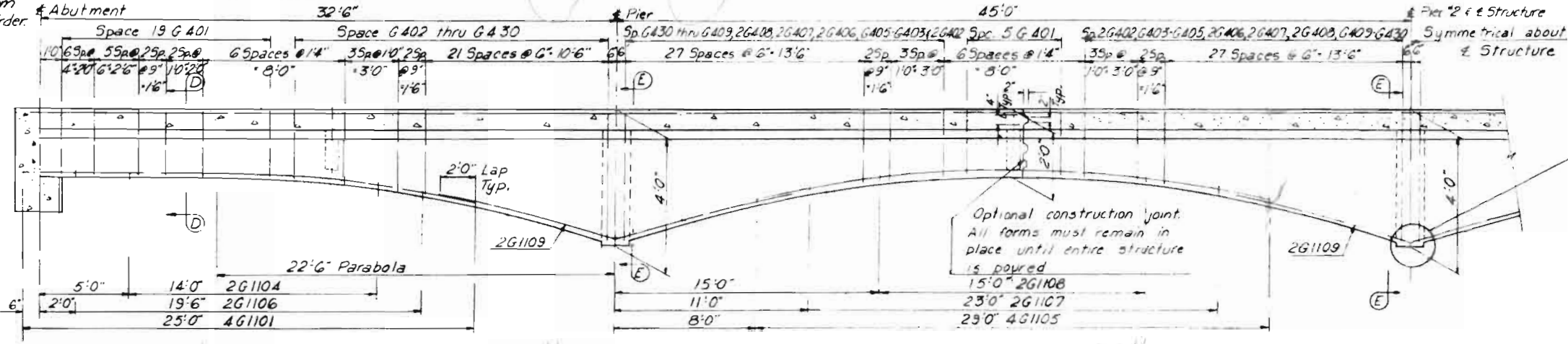
Note: The elevation of the bottom of the caisson may be raised or lowered if required by the engineer for proper foundation.  
 Elev. - Varies



**PLAN - EXTERIOR GIRDER**  
 Steel for interior girders same  
 Steel symmetrical about structure.

Point Camber for D.L. Defl. Distance from top of slab to bottom of girder @ center of girder.

0	01	02	03	04	05	06	07	08	09	0	01	02	03	04	05	06	07	08	09	0
0	0.006	0.011	0.013	0.013	0.011	0.007	0.004	0.001	0	0	0.002	0.006	0.011	0.017	0.018	0.016	0.010	0.005	0.002	0
Abt	2'-0"	2'-0"	2'-0"	2'-0 1/2"	2'-1 1/8"	2'-4 1/2"	2'-7 1/2"	3'-0 1/2"	3'-5 1/2"	4'-0"	3'-3 1/2"	2'-8 1/2"	2'-5 1/2"	2'-0 1/2"	2'-0"	2'-3 1/2"	2'-8 1/2"	3'-3 1/2"	4'-0"	



**BAR LIST - GIRDERS**

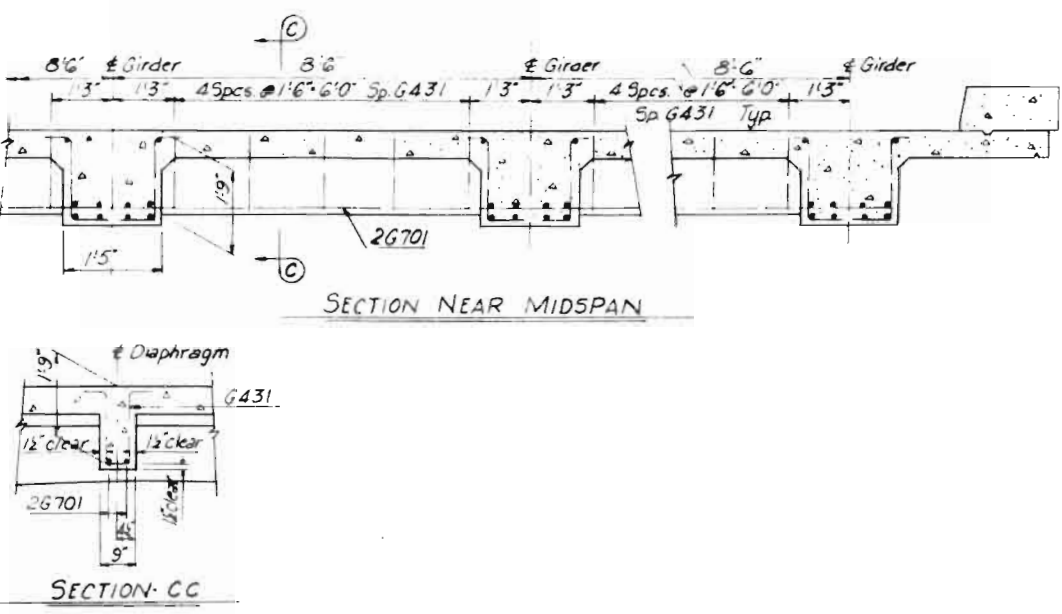
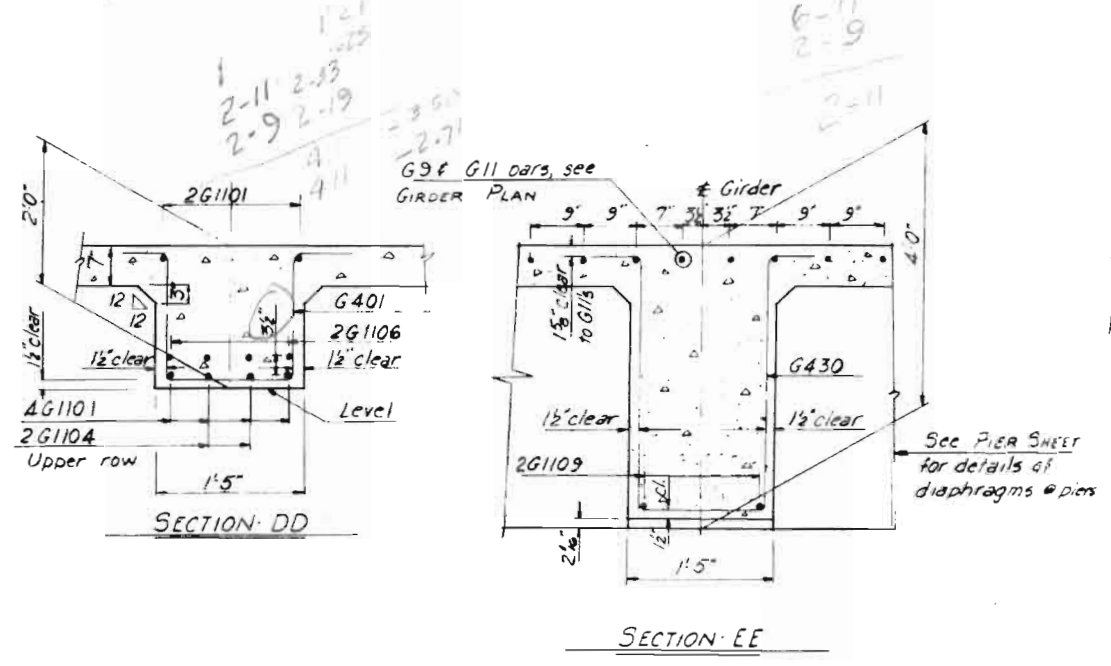
MARK	SHAPE	X	LENGTH	No REQD
G1101			23'-0"	96
G1102			40'-0"	48
G1103			27'-0"	32
G1104			14'-0"	80
G1105			29'-0"	80
G1106			19'-6"	32
G1107			23'-0"	32
G1108			15'-0"	32
G1109			20'-6"	48
G901			36'-0"	32
G902			36'-0"	16
G701			26'-6"	16
G401		1'-9 1/2"	5'-7"	384
G402		1'-10 1/2"	5'-8 1/2"	80
G403		1'-11"	5'-10"	48
G404		1'-11 1/2"	5'-11 1/2"	48
G405		2'-0 1/2"	6'-0 1/2"	48
G406		2'-1"	6'-2"	80
G407		2'-1 1/2"	6'-3 1/2"	80
G408		2'-2 1/2"	6'-5 1/2"	80
G409		2'-3 1/2"	6'-7 1/2"	48
G410		2'-4 1/2"	6'-8 1/2"	48
G411		2'-4 1/2"	6'-9 1/2"	48
G412		2'-5 1/2"	6'-11"	48
G413		2'-6"	7'-0"	48
G414		2'-6 1/2"	7'-1 1/2"	48
G415		2'-7 1/2"	7'-3"	48
G416		2'-8 1/2"	7'-4 1/2"	48
G417		2'-9 1/2"	7'-5 1/2"	48
G418		2'-9 1/2"	7'-7"	48
G419		2'-10 1/2"	7'-8 1/2"	48
G420		2'-11"	7'-10"	48
G421		3'-0"	8'-0"	48
G422		3'-0 1/2"	8'-1 1/2"	48
G423		3'-1 1/2"	8'-3"	48
G424		3'-2 1/2"	8'-5"	48
G425		3'-3 1/2"	8'-7"	48
G426		3'-4 1/2"	8'-9"	48
G427		3'-5 1/2"	8'-11"	48
G428		3'-6 1/2"	9'-0"	48
G429		3'-7 1/2"	9'-2 1/2"	48
G430		3'-8 1/2"	9'-4 1/2"	48
G431		1'-6"	4'-4"	120

**GIRDER QUANTITIES, BOTH BRIDGES**

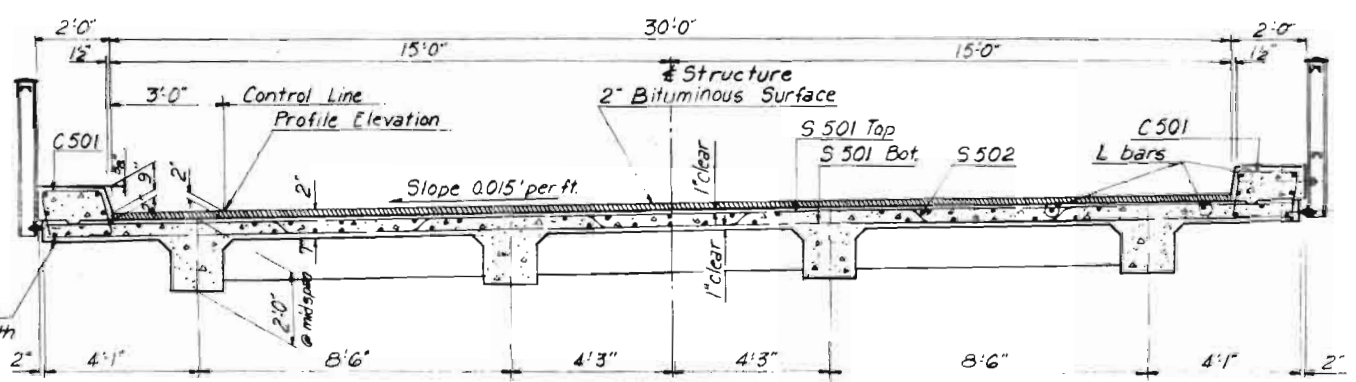
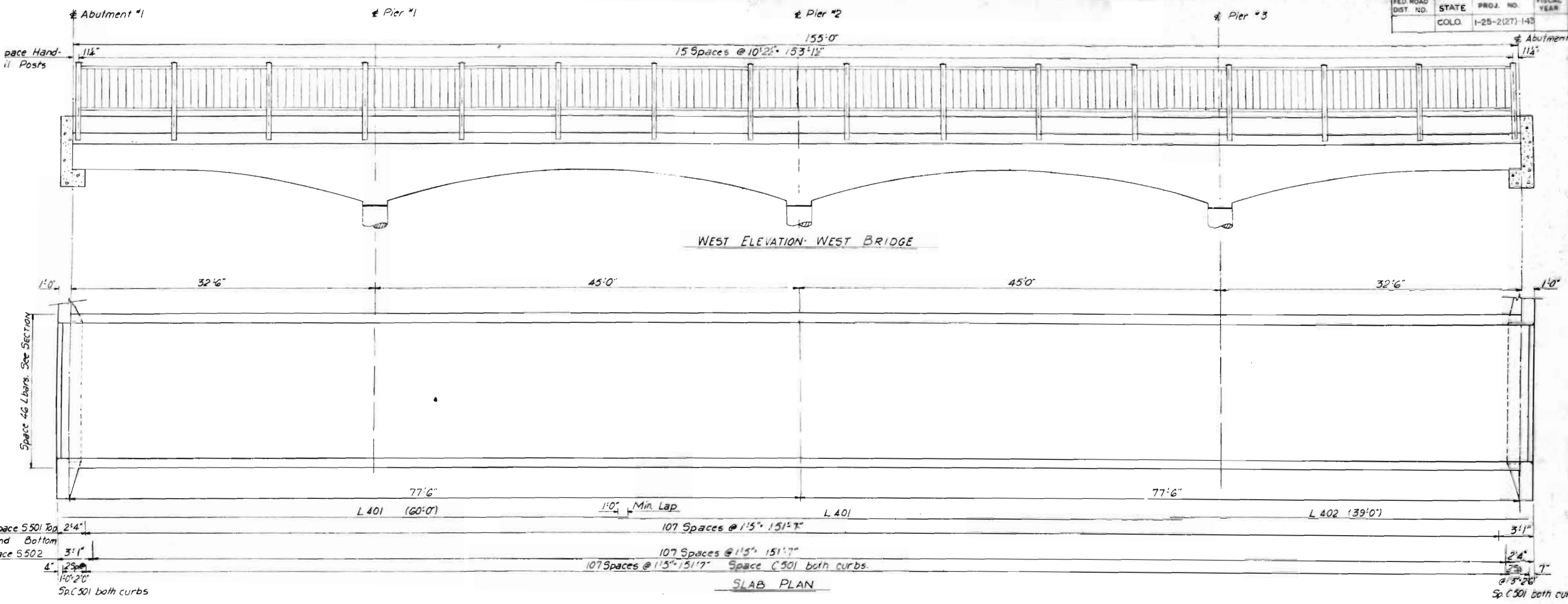
Class A Concrete	128.6 Cu. Yd
Reinforcing Steel	77,659 lbs

**BAR WEIGHT SUMMARY, BOTH B**

#11	11,448 lin ft @ 5.313 lb/lin ft	60,823 lbs
#9	1,760 lin ft @ 3.40 lb/lin ft	5,984 lbs
#7	428 lin ft @ 2.044 lb/lin ft	867 lbs
#4	13,796 lin ft @ 0.668 lb/lin ft	9,216 lbs
1% Overrun		709 lbs
<b>Total</b>		<b>77,659 lbs</b>



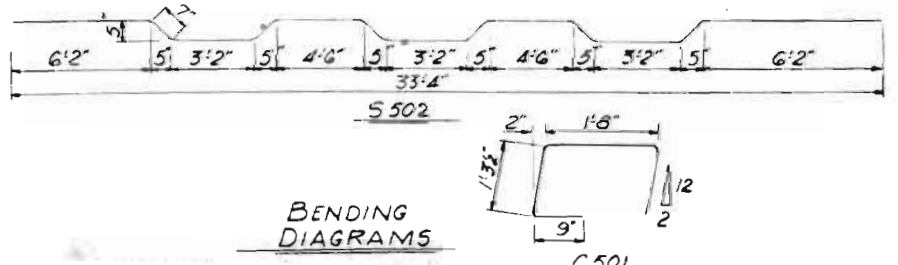
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	COLO.	I-25-2(27)-143		32	



MARK	SHAPE	LENGTH	No. REQD.
C 501	[C]	5'0"	440
S 501	[S]	33'4"	432
S 502	[S]	34'4"	216
L 401	[L]	60'0"	184
L 402	[L]	39'0"	92

Class A Concrete	2650 Cu. Yds.
Reinforcing Steel	35,210 Lbs.
Structural Steel	23,821 Lbs.
Electrical Conduit	386 Lin. Ft.

*5-2405 9/16 in. Ft. @ 1.043 1/4 in.	25,090 lbs.
*4-14,628 1/2 in. Ft. @ 0.668 1/4 in.	9,772 lbs.
1% Overrun	348 lbs.
<b>Total</b>	<b>35,210 lbs.</b>



COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY  
 FONTANERO STREET CROSSING  
 BRIDGE NO'S 1-17-ED & EE

**SUPERSTRUCTURE DETAILS**

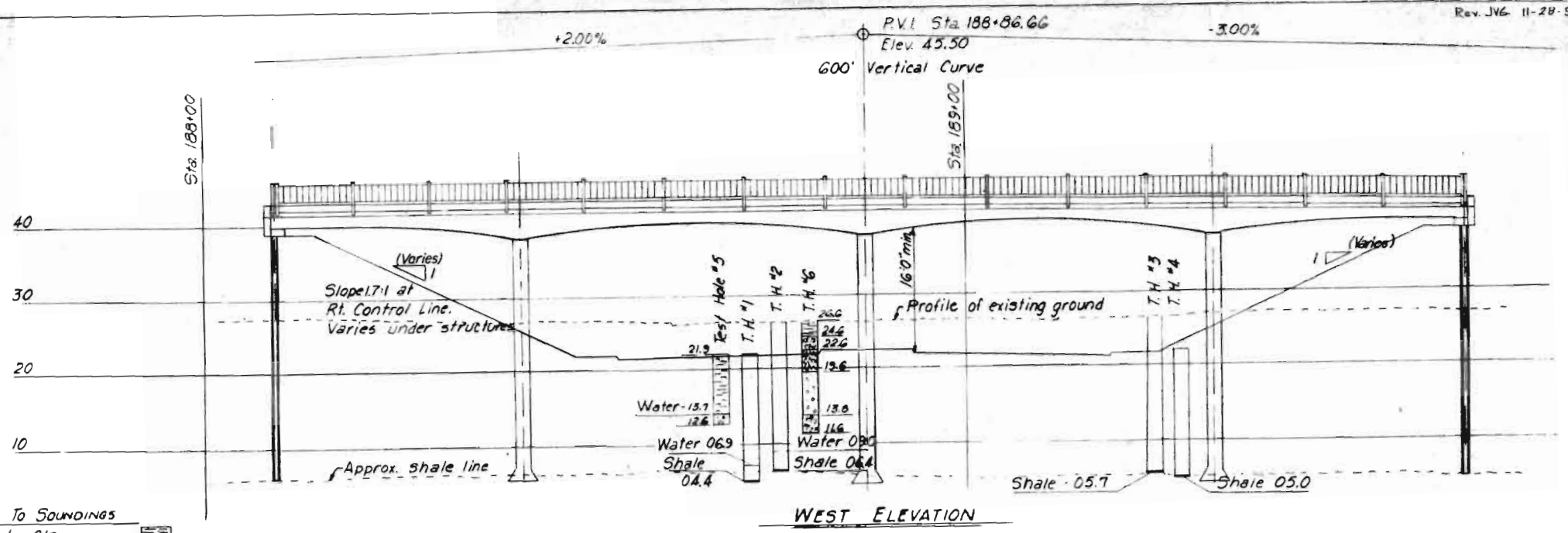
SCALE: \_\_\_\_\_ DATE: DEC. 1997

KOONS & TYREE  
 CONSULTING ENGINEERS

DRAWING NO.  
 15 C 10



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	COLO.	1-25-2(27)-143		34	



**Key To Soundings**

[Symbol]	Sandy Clay
[Symbol]	Sand & Gravel
[Symbol]	Silt & Clay
[Symbol]	Silt, Sand & Caliche
[Symbol]	Silt, Sand & Gravel
[Symbol]	Shale

**GENERAL NOTES:**

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways as adopted Jan. 1, 1958.

All concrete shall be air-entrained, Class A.

Surfaces marked with the Symbol "f" as shown on Sheet No. 40 shall receive Class 1 Surface Finish.

Bevel all exposed edges and fillet all corners with a 3/4" triangular molding unless otherwise noted.

All reinforcing steel shall be intermediate grade deformed bars conforming to A.A.S.H.O. Spec. M31 and M137 (A.S.T.M. designations A15 & A305). All hooks and bends in bars shall conform to A.C.I. Standard 315-51.

All reinforcing bars shall be tagged with structure number and mark.

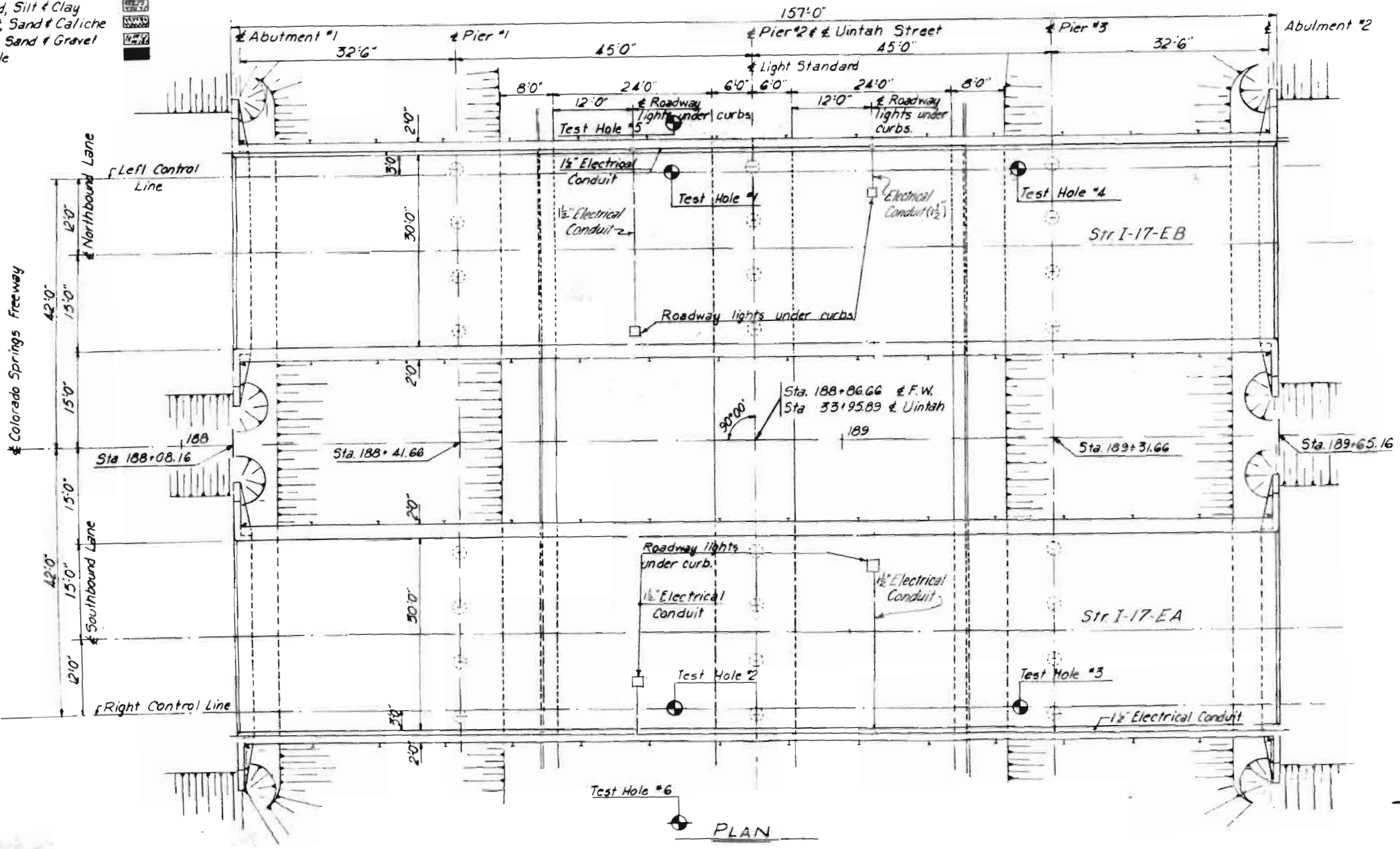
All dimensions for reinforcing steel are to 1/2" of bars unless otherwise noted.

All dimensions shown in bending diagrams are out to out of bars.

Main bars shall not be spliced except as shown on plans.

All steel railing shall receive one shop coat of zinc chromate and two field coats of aluminum paint.

The soundings and pile data are shown according to the best information available to the Colorado Department of Highways. If essentially different conditions are encountered, the Bridge Engineer will inspect and determine if redesign is necessary. All piles shall be driven to the penetration shown unless in the opinion of the Engineer such penetration cannot be secured without injury to the piles.



**SUMMARY OF QUANTITIES**

ITEM	DESCRIPTION	UNIT	ABUT #1	PIER #1	PIER #2	PIER #3	ABUT #2	SUPER	TOTAL
16	Structure Backfill (Class 1)	Cu. Yd.	72				72		144
29	Asphalt (85-100 Penetration)	Ton						7	7
30	Asphaltic Road Material RC	Gal.						105	105
34	Asphaltic Concrete Pavement (Type B)	Ton						115	115
42	Treated Bridge Timber	M/Lbm	0.36				0.36		0.72
98	4,000 L INCANDESCENT LUMINAIRES	EACH						4	4
46	Class A Concrete	Cu. Yd.	19.2	27.0	30.4	26.6	19.2	393.6	516.0
47	Reinforcing Steel (1% Overrun)	Lb.	1405	5104	5650	5020	1405	112,869	131,653
48	Structural Steel (1.05% for Paint)	Lb.	1202				1202	23,821	26,225
61	Steel Piling, 10BP 42 °	Lin. Ft.	272				272		544
160	24" Drilled Coissons	Lin. Ft.		156	129	156			441
65	Concrete Slope and Ditch Paving (Wire Mesh)	Cu. Yd.	69.5				69.5		139
90	1/2" Electrical Conduit & Junction Boxes	Lin. Ft.						400	400
	1" Celotex	Sq. Ft.		14	14	14			42

o 16 @ 34'0"  
 † Include with bid price of Class A concrete.

**INDEX OF SHEETS**

Sheet No. 1	General Plan & Elevation
Sheet No. 2	Abutment Details
Sheet No. 3	Piers And Misc. Details
Sheet No. 4	Girder Details
Sheet No. 5	Superstructure Details
Sheet No. 6	Handrail And Slope Paving Details

**Design Specifications:**

A.A.S.H.O. Spec. Series of 1953 with 1955 & 1956 amendments.

Design Load H20-516-44 (Interstate Alternate)

f<sub>c</sub> = 1,200 psi.

f<sub>s</sub> = 20,000 psi. Reinforcing

f<sub>s</sub> = 18,000 psi. Structural

Pile loading - 31 Tons

I-17-EB = East Bridge  
 I-17-EA = West Bridge

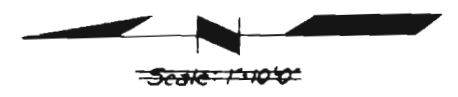
COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY

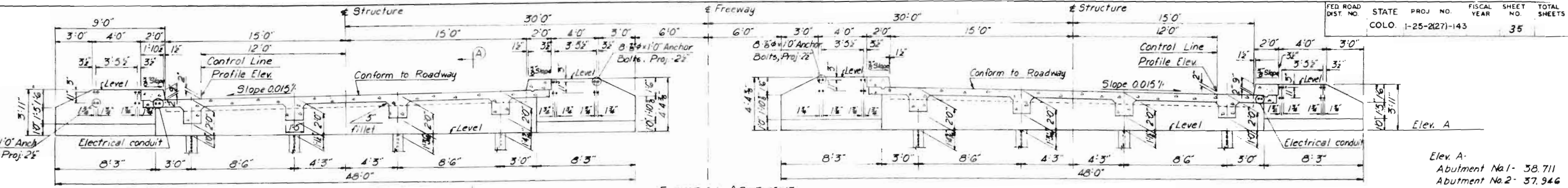
UINTAH STREET CROSSING  
 BRIDGE NO'S I-17-EA & EB

**GENERAL PLAN AND ELEVATION**

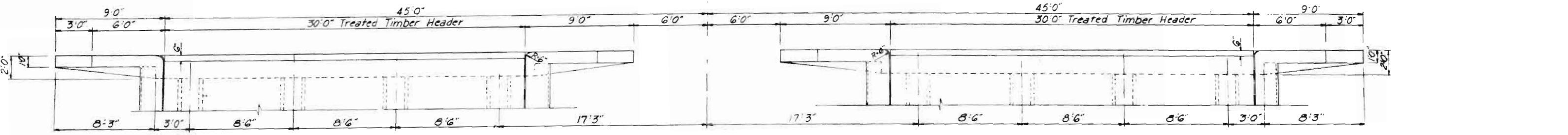
Ray Chase, Engineer  
 KOONS & TYREE  
 CONSULTING ENGINEERS  
 COLORADO SPRINGS, COLO.

DATE DEC. 1957.  
 DRAWING NO. 15D 1

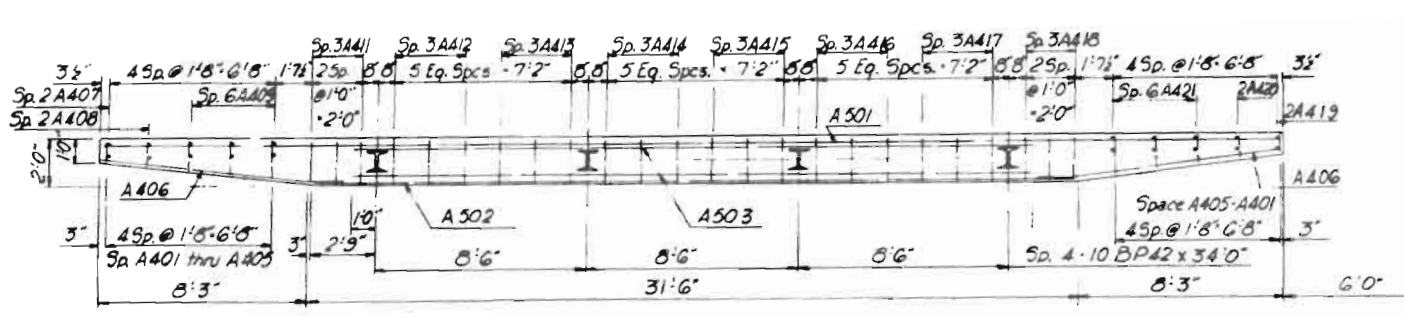




ELEVATION ABUTMENT  
 Both abutments same except elevations.

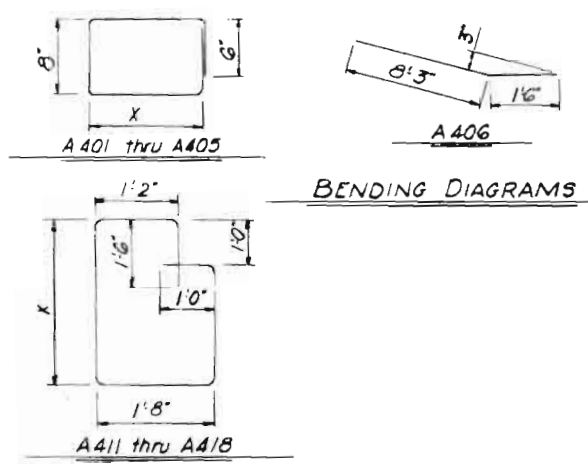


PLAN



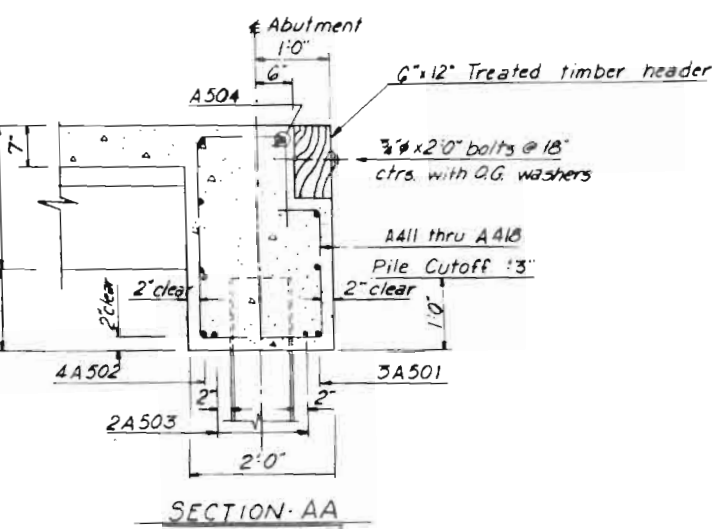
ABUTMENT FOOTING PLAN

Reverse pile reinforcing steel patterns.  
 Note: Abutments opposite hand about Freeway.

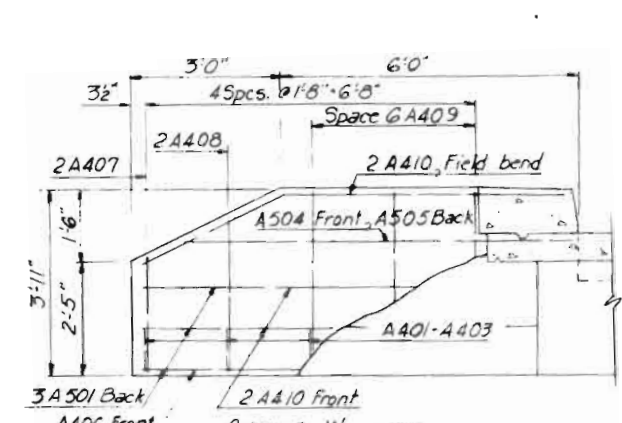


BENDING DIAGRAMS

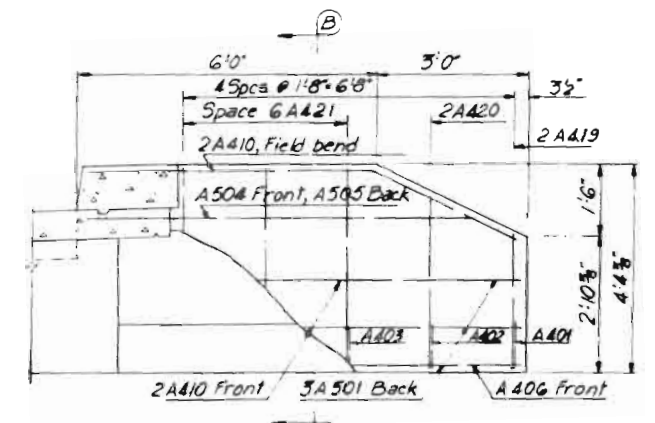
BAR LIST - BOTH ABUTMENTS				
MARK	SHAPE	X	LENGTH	No. Req'd
A 501			47'-6"	12
A 502			31'-0"	16
A 503			27'-6"	8
A 504			45'-6"	4
A 505			8'-0"	8
A 401		8"	3'-2"	8
A 402		10"	3'-6"	8
A 403		1'-0"	3'-10"	8
A 404		1'-5"	4'-4"	8
A 405		1'-5"	4'-9"	8
A 406			9'-9"	8
A 407			2'-5"	8
A 408			3'-0"	8
A 409			3'-8"	24
A 410			9'-0"	32
A 411		2'-8"	9'-8"	12
A 412		2'-9"	9'-10"	12
A 413		2'-9"	9'-11"	12
A 414		2'-10"	10'-1"	12
A 415		2'-11"	10'-2"	12
A 416		3'-0"	10'-4"	12
A 417		3'-0"	10'-5"	12
A 418		3'-1/2"	10'-7"	12
A 419			2'-8"	8
A 420			3'-6"	8
A 421			4'-1"	24



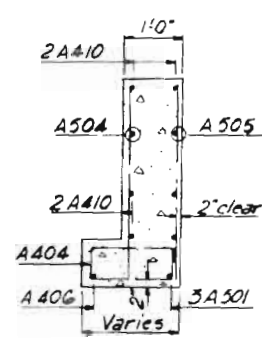
SECTION AA



WINGWALL DETAILS  
 Typical both abutments.



INSIDE WINGWALL



SECTION BB

NOTES:  
 Max. pile loading - 31 tons.

BAR WEIGHT SUMMARY	
#5 - 1532 lin. ft. @ 1.043 <sup>lb</sup> /lin. ft.	1598 <sup>lb</sup>
#4 - 1772 lin. ft. @ 0.668 <sup>lb</sup> /lin. ft.	1184 <sup>lb</sup>
1% Overrun	28 <sup>lb</sup>
<b>Total</b>	<b>2810<sup>lb</sup></b>

QUANTITIES, BOTH ABUTMENTS	
Structural Backfill	144 Cu. Yds.
Mechanical Tamping	14 Hrs.
Class A Concrete	38.4 Cu. Yds.
Reinforcing Steel	2810 Lbs.
Structural Steel	2,404 Lbs.
Steel Piling - 10BP42	544 Lin. Ft.
Treated Timber Header	472 Ft. b.m.

\* 16 @ 34'-0"

COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY

UINTAH STREET CROSSING  
 BRIDGE NO'S I-17-EA & EB

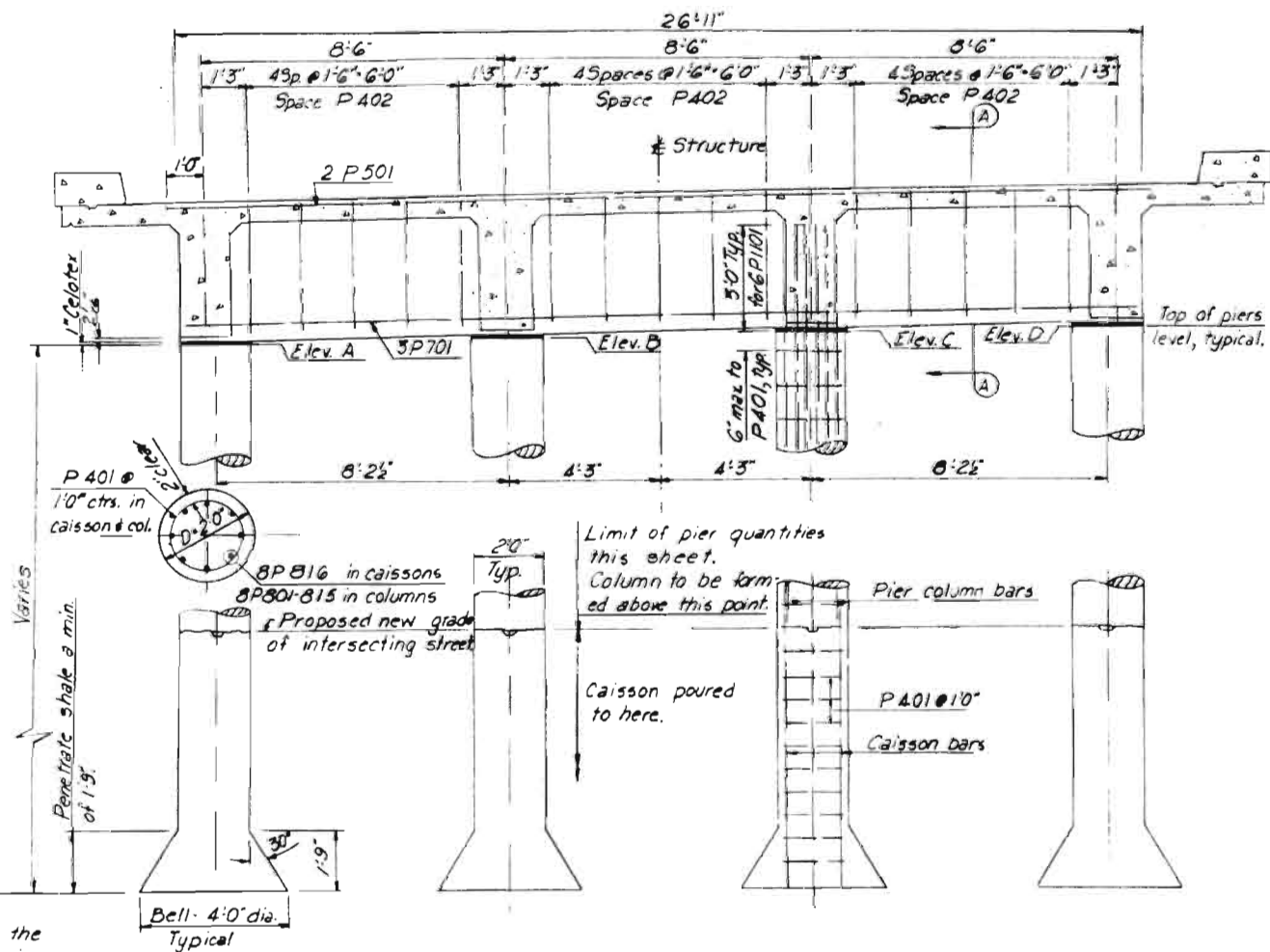
**ABUTMENT DETAILS**

SCALE: \_\_\_\_\_ DATE: DEC. 1957

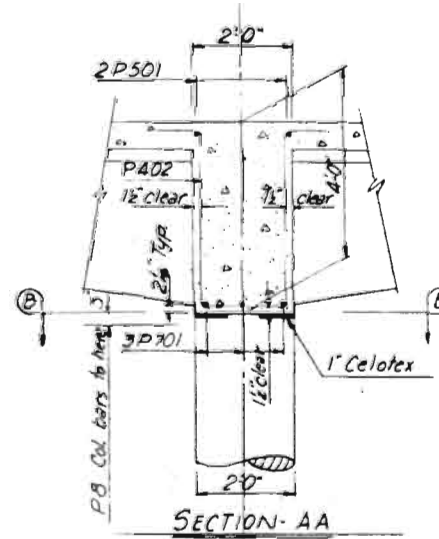
KROHN & TYREE  
 CONSULTING ENGINEERS  
 COLORADO SPRINGS, COLO.

DRAWING NO.  
 15 D 2

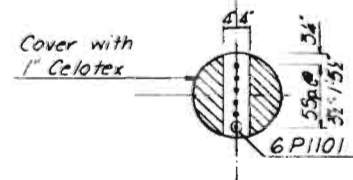
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	COLO.	1-25-2(27)-143		36	



PIER ELEVATION



SECTION AA



SECTION BB

PIER No.	ELEVATION			
	A	B	C	D
1	37.630	37.757	37.885	38.012
2	37.489	37.616	37.744	37.871
3	37.180	37.307	37.435	37.562

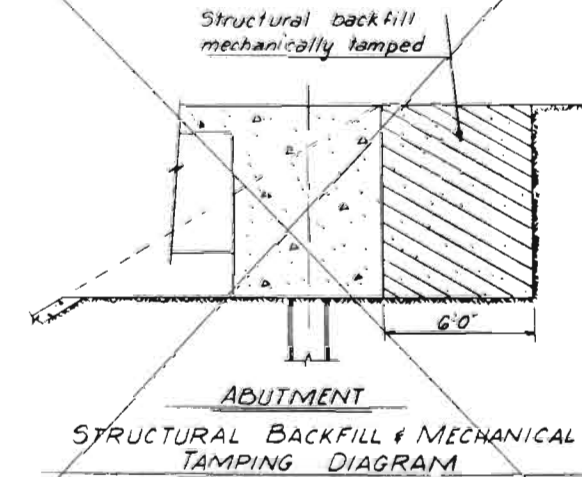
PIER No.	APPROXIMATE LENGTH OF CAISSON							
	*1	*2	*3	*4	*5	*6	*7	*8
1	18'	18'	19'	19'	20'	20'	21'	21'
2	14'	14'	15'	15'	17'	18'	18'	18'
3	16'	18'	19'	19'	20'	20'	21'	21'

Caissons are to be bid per lineal foot and shall include drilling holes, belling, concrete, reinforcing steel and any other items necessary to produce a finished caisson. The pay line shall be the top of the ground at the new proposed grade of the intersecting street.  
 Estimated quantities per foot: (excluding bell)  
 Concrete: 0.1163 yd<sup>3</sup>  
 Re. steel: 25.54 #

BAR LIST - ALL PIERS - BOTH BRIDGES			
MARK	SHAPE	LENGTH	No. REQ'D
P1101	—	6'-0"	144
P801	—	20'-0"	8
P802	—	19'-7"	8
P803	—	19'-2"	8
P804	—	18'-10"	8
P805	—	16'-10"	8
P806	—	16'-1"	16
P807	—	15'-7"	24
P808	—	15'-4"	16
P809	—	15'-0"	24
P810	—	14'-8"	8
P811	—	13'-4"	8
P812	—	12'-10"	16
P813	—	12'-4"	16
P814	—	11'-10"	16
P815	—	11'-4"	8
P816	—	*	192
P701	—	26'-6"	18
P501	—	27'-6"	12
P401	○	6'-3"	374
P402	⌋	10'-1"	90

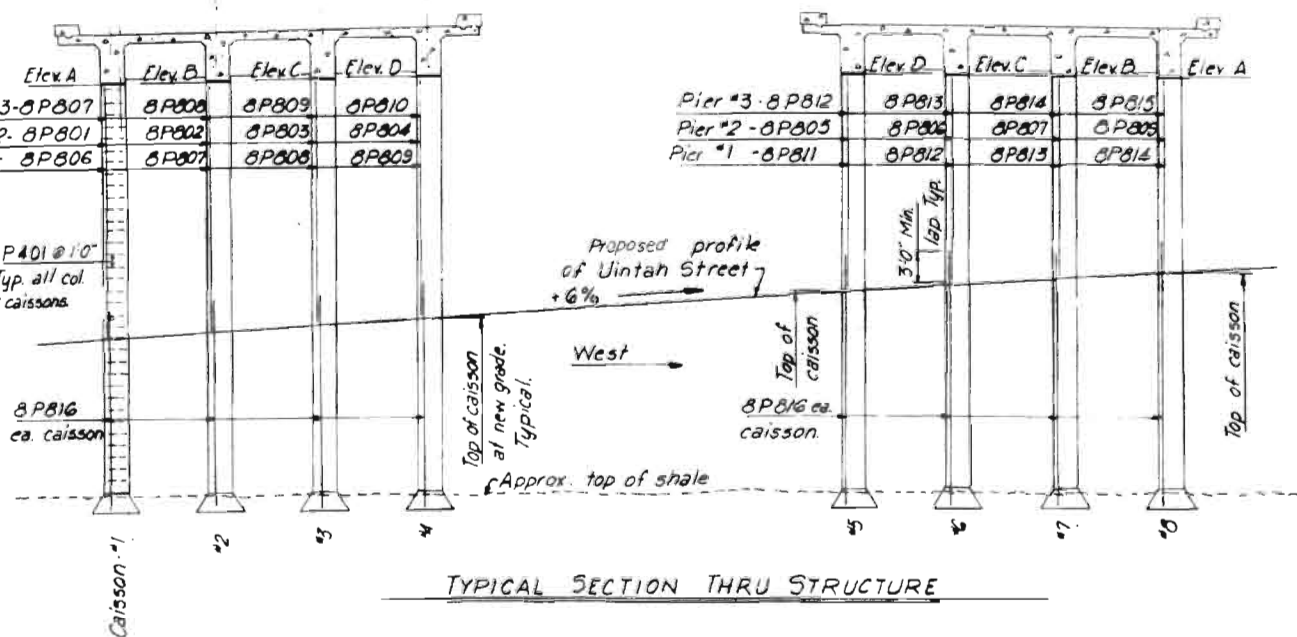
SUMMARY OF QUANTITIES	
Class A Concrete	840 Cu. Yds.
Reinforcing Steel	15,974 Lbs.
Caissons (Estimated)	441 Lin. Ft.
1" Celotex	42 Sq. Ft.

BAR WEIGHT SUMMARY	
#11 - 864 lin. ft. @ 5.313 #/ft.	4,590 #
#8 - 2,899 lin. ft. @ 2.67 #/ft.	7,739 #
#7 - 477 lin. ft. @ 2.044 #/ft.	975 #
#5 - 330 lin. ft. @ 1.043 #/ft.	344 #
#4 - 3,245 lin. ft. @ 0.668 #/ft.	2,168 #
1% Overrun	158 #
<b>Total</b>	<b>15,974 #</b>



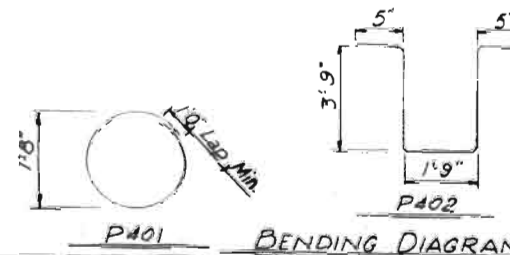
Note: All material that is to be mechanically tamped shall be placed in horizontal layers not more than 6 inches in depth and tamped before the next layer is placed.

elevation of the top of the caisson be raised or lowered if required by the engineer for proper drainage.



NOTES:

Bar weight summary is for all piers above ground. Class A concrete is also for all piers above ground.  
 Caisson price to include steel doweled above ground line for splice.  
 Pier concrete quantities include 2'-0" pier cap between outside of beams below bottom of deck.



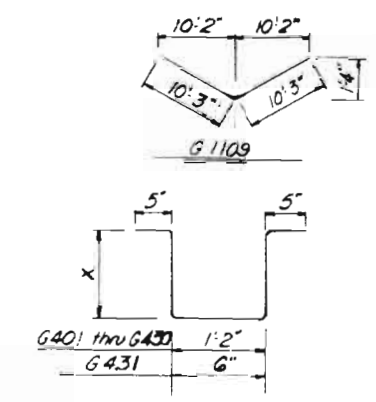
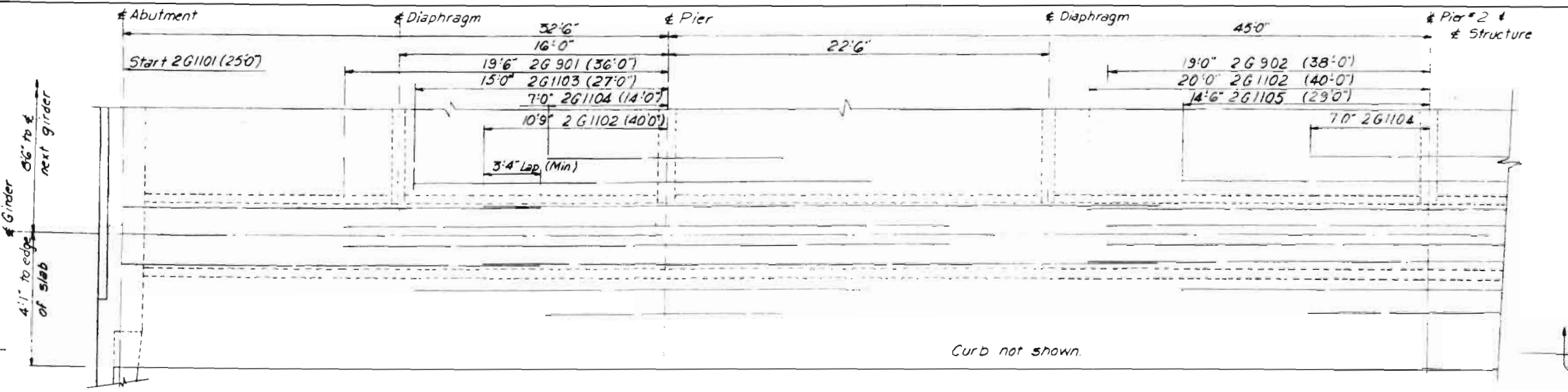
COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY  
 UINTAH STREET CROSSING  
 BRIDGE NO'S 1-17-FA & EB

PIERS AND MISC. DETAILS

SCALE: \_\_\_\_\_ DATE: DEC. 1957

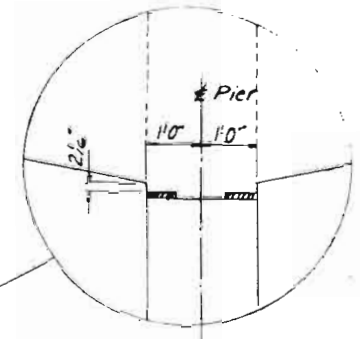
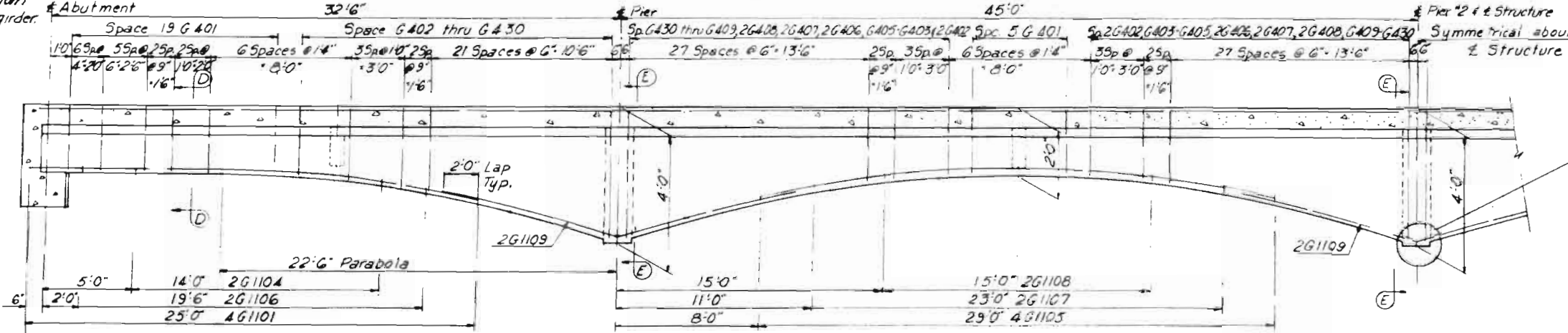
KOONS & TYREE  
 CONSULTING ENGINEERS  
 COLORADO SPRINGS, COLO.

DRAWING NO.  
 15 D 3



MARK	SHAPE	X	LENGTH	No. Req'd
G1101			25'0"	96
G1102			40'0"	48
G1103			27'0"	32
G1104			14'0"	80
G1105			29'0"	80
G1106			19'6"	32
G1107			23'0"	32
G1108			15'0"	32
G1109			20'6"	48

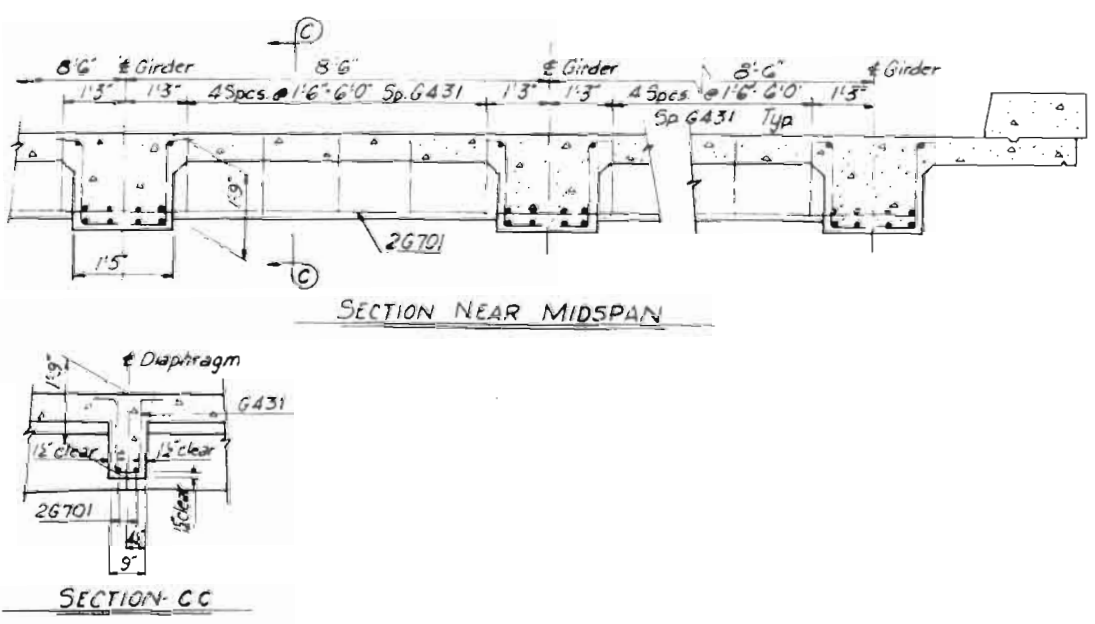
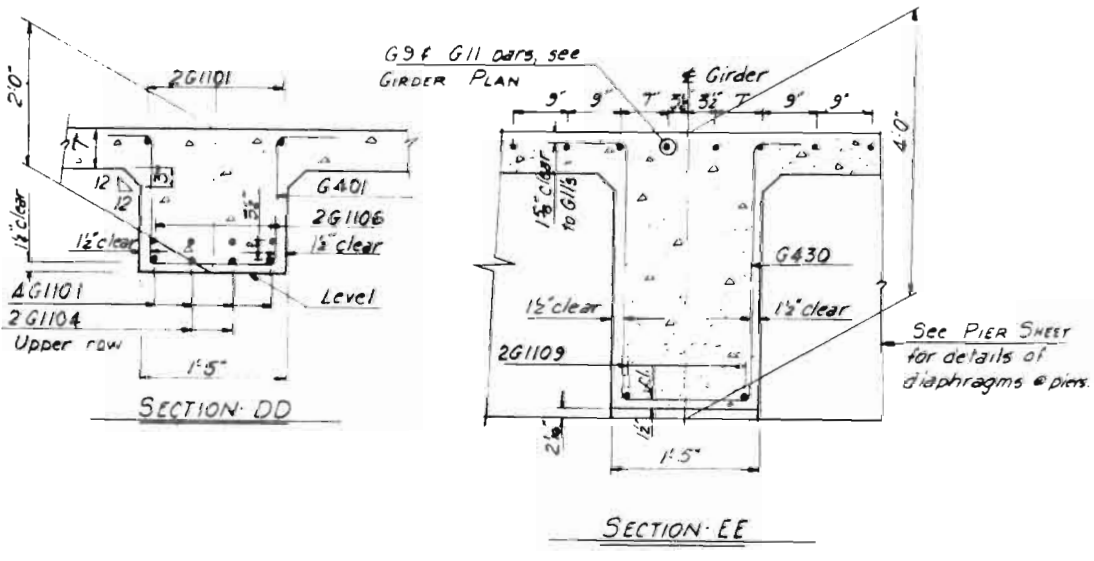
Point	0	01	02	03	04	05	06	07	08	09	0	01	02	03	04	05	06	07	08	09	0
ber for D.L. Defl.	0	0.006	0.011	0.013	0.013	0.011	0.007	0.004	0.001	0	0	0.002	0.006	0.011	0.017	0.018	0.016	0.010	0.005	0.002	0
ance from top	Abt.	2'0"	2'0"	2'0"	2'0 1/2"	2'1 1/2"	2'4 1/2"	2'7 1/2"	3'0 1/2"	3'5 1/2"	4'0"	3'3 1/2"	2'8 1/2"	2'3 1/2"	2'0 1/2"	2'0"	2'0 1/2"	2'3 1/2"	2'8 1/2"	3'3 1/2"	4'0"
to bottom	Abt.	2'0"	2'0"	2'0"	2'0 1/2"	2'1 1/2"	2'4 1/2"	2'7 1/2"	3'0 1/2"	3'5 1/2"	4'0"	3'3 1/2"	2'8 1/2"	2'3 1/2"	2'0 1/2"	2'0"	2'0 1/2"	2'3 1/2"	2'8 1/2"	3'3 1/2"	4'0"
girders	Abt.	2'0"	2'0"	2'0"	2'0 1/2"	2'1 1/2"	2'4 1/2"	2'7 1/2"	3'0 1/2"	3'5 1/2"	4'0"	3'3 1/2"	2'8 1/2"	2'3 1/2"	2'0 1/2"	2'0"	2'0 1/2"	2'3 1/2"	2'8 1/2"	3'3 1/2"	4'0"



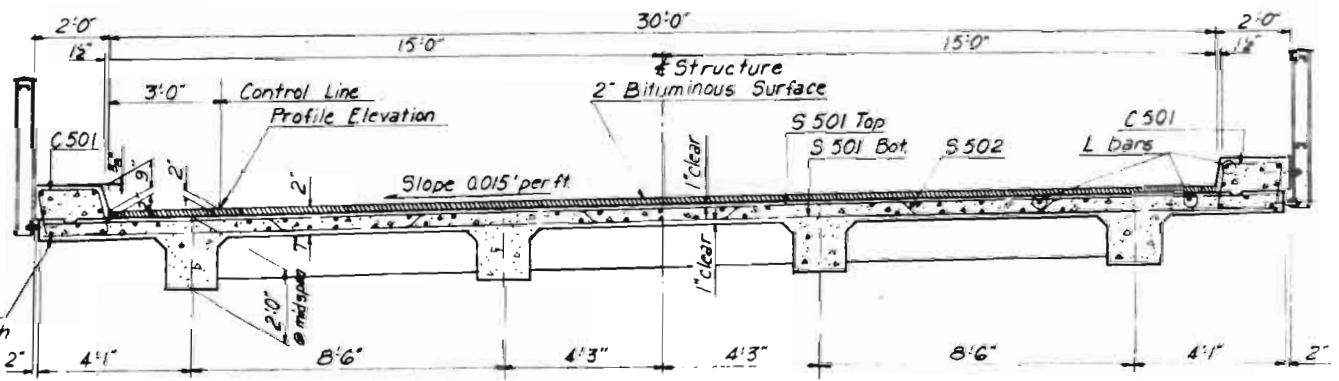
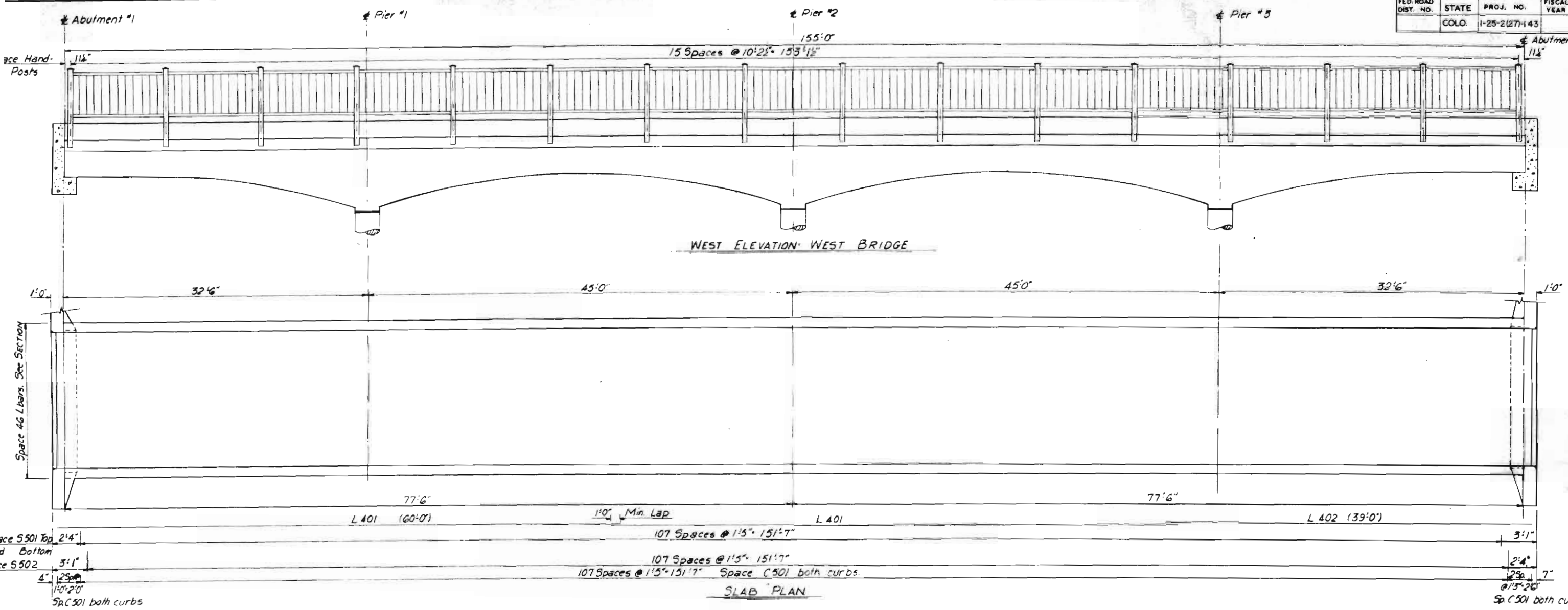
GIRDER	LENGTH	No. Req'd
G 901	36'0"	32
G 902	38'0"	16
G 701	26'6"	16
G 401	1'9 1/2"	384
G 402	1'10 1/2"	80
G 403	1'11"	48
G 404	1'11 1/2"	48
G 405	2'0 1/2"	48
G 406	2'1"	80
G 407	2'1 1/2"	80
G 408	2'2 1/2"	80
G 409	2'3 1/2"	48
G 410	2'4 1/2"	48
G 411	2'4 1/2"	48
G 412	2'5 1/2"	48
G 413	2'6"	48
G 414	2'6 1/2"	48
G 415	2'7 1/2"	48
G 416	2'8 1/2"	48
G 417	2'8 1/2"	48
G 418	2'9 1/2"	48
G 419	2'10 1/2"	48
G 420	2'11 1/2"	48
G 421	3'0"	48
G 422	3'0 1/2"	48
G 423	3'1 1/2"	48
G 424	3'2 1/2"	48
G 425	3'3 1/2"	48
G 426	3'4 1/2"	48
G 427	3'5 1/2"	48
G 428	3'6 1/2"	48
G 429	3'7 1/2"	48
G 430	3'8 1/2"	48
G 431	1'6"	120

GIRDER QUANTITIES, BOTH BRIDGES	
Class A Concrete	128.6 Cu. Yds.
Reinforcing Steel	77,659 Lbs.

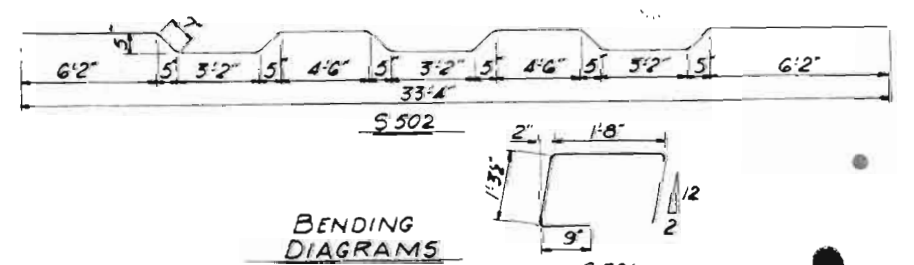
BAR WEIGHT SUMMARY, BOTH B	
#11 - 11,448 lin. ft. @ 5.313 lb/ft	60,823 lb
#9 - 1,760 lin. ft. @ 3.40 lb/ft	5,984 lb
#7 - 428 lin. ft. @ 2.044 lb/ft	867 lb
#4 - 13,796 lin. ft. @ 0.668 lb/ft	9,215 lb
1% Overrun	769 lb
<b>Total</b>	<b>77,659 lb</b>



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	COLO.	1-25-2(27)-143		38	



SLAB SECTION - NEAR MIDSPAN  
Typical both bridges.



SUPERSTRUCTURE QUANTITIES	
Class A Concrete	265.0 Cu. Yds.
Reinforcing Steel	35,210 Lbs.
Structural Steel	23,821 Lbs.
Electrical Conduit	400 Lin. Ft.

BAR WEIGHT SUMMARY	
#5 24,056 lin. ft. @ 1.043 lb./ft.	25,090 lbs.
#4 14,828 lin. ft. @ 0.650 lb./ft.	9,772 lbs.
1% Overrun	348 lbs.
<b>Total</b>	<b>35,210 lbs.</b>

BAR LIST - SLABS - BOTH BRIDGES			
MARK	SHAPE	LENGTH	No. REQ'D
C 501	[C]	5'0"	440
S 501	[S]	33'4"	432
S 502	[S]	34'4"	216
L 401	[L]	60'0"	104
L 402	[L]	39'0"	92

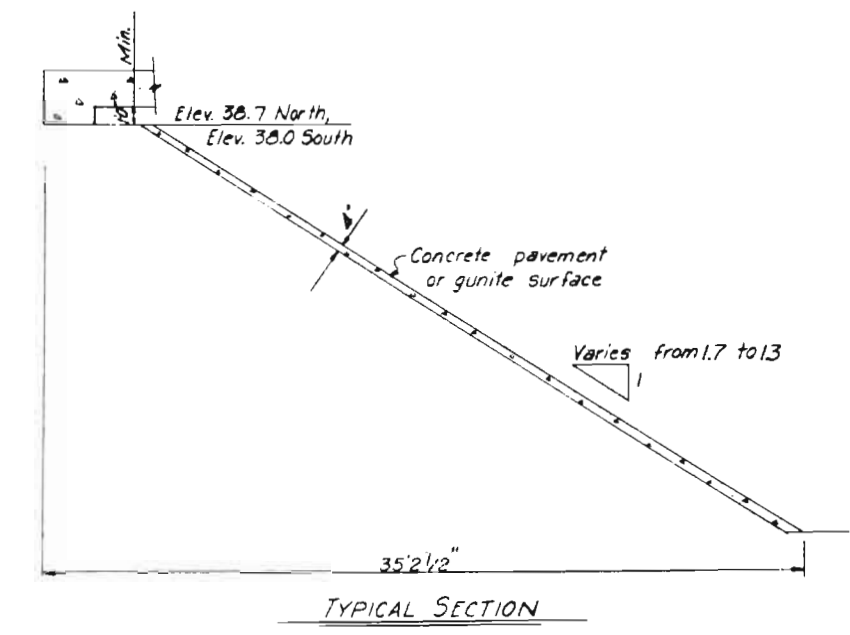
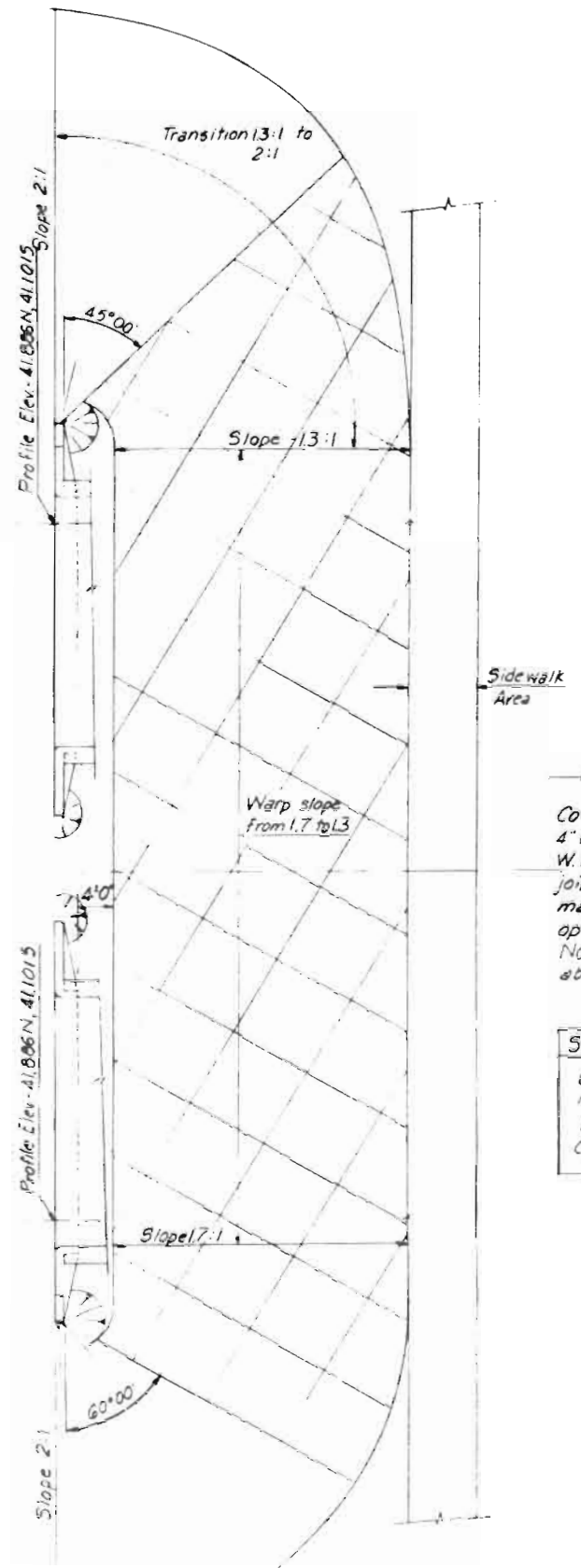
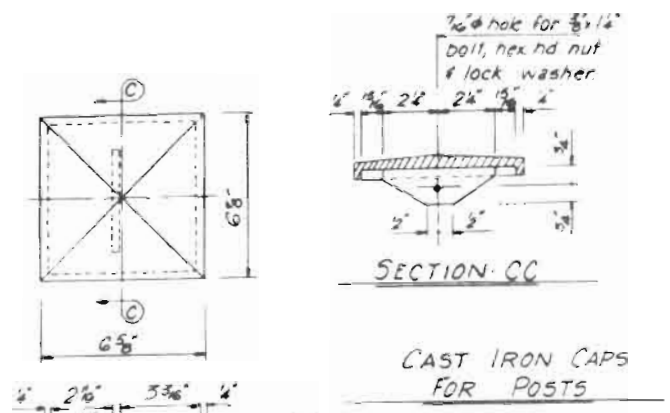
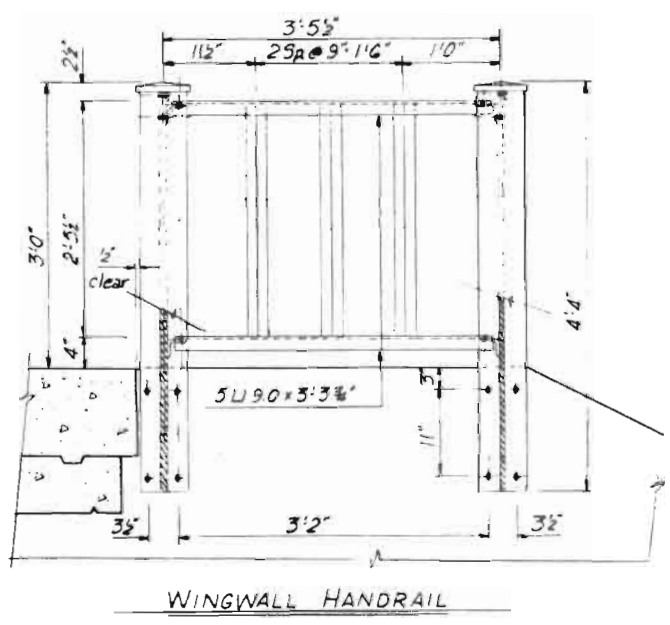
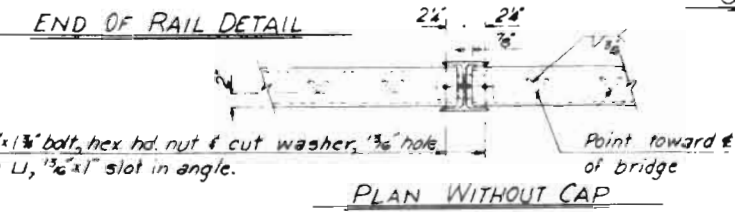
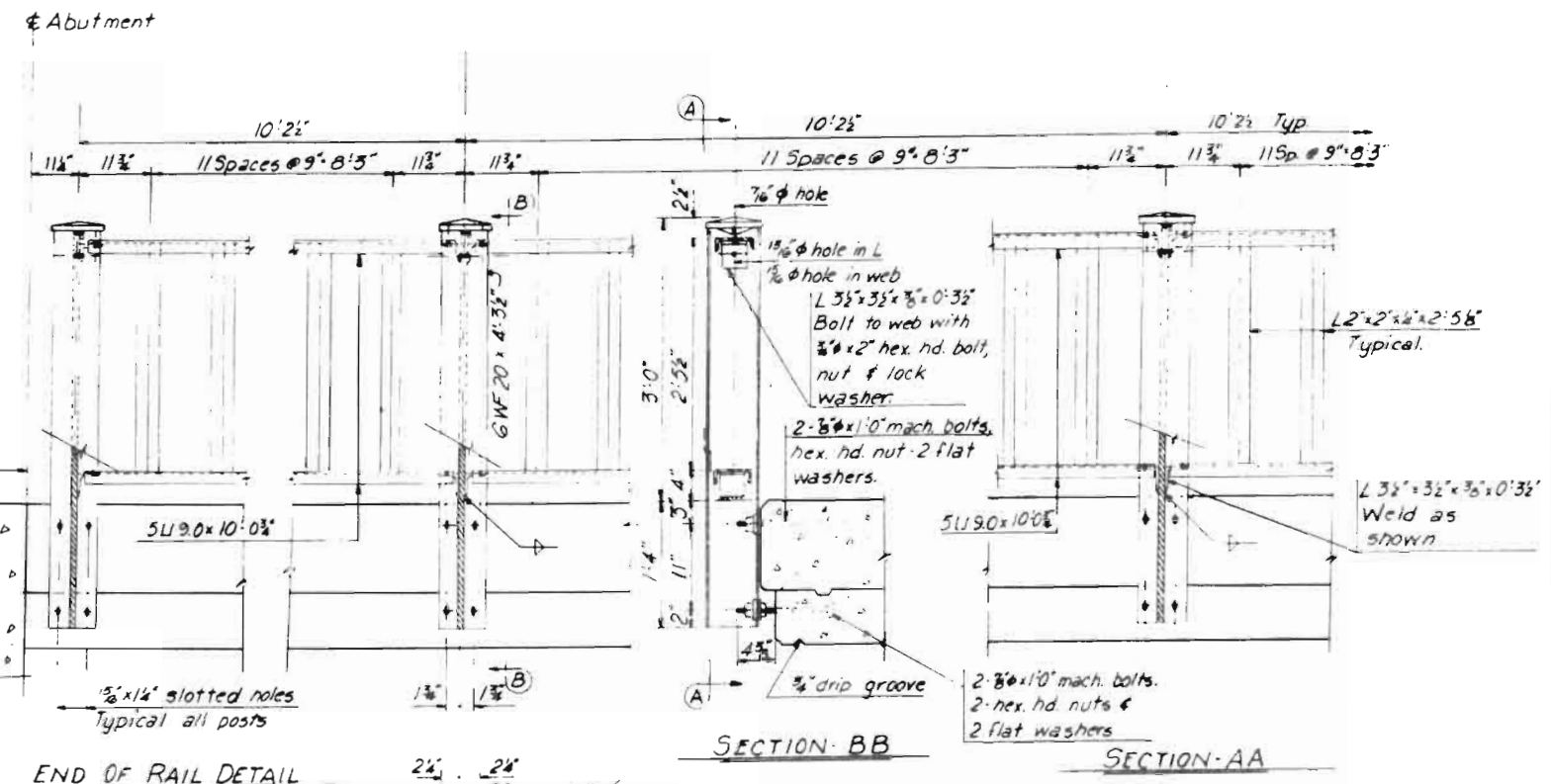
COLORADO DEPARTMENT OF HIGHWAYS  
 COLORADO SPRINGS FREEWAY  
 UINTAH STREET CROSSING  
 BRIDGE NO'S 1-17-EA & EB

**SUPERSTRUCTURE DETAILS**

SCALE: \_\_\_\_\_ DATE: DEC. 1957

ROONS & TYREE CONSULTING ENGINEERS DRAWING NO. \_\_\_\_\_

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	COLO.	I-25-2(27)-143		39	



**PLAN SLOPE PAVING**

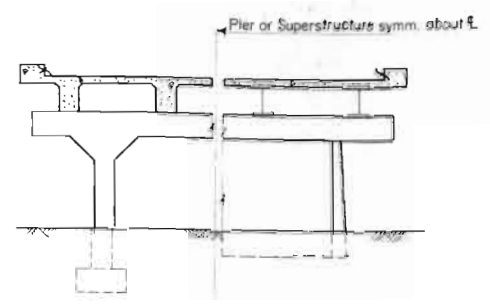
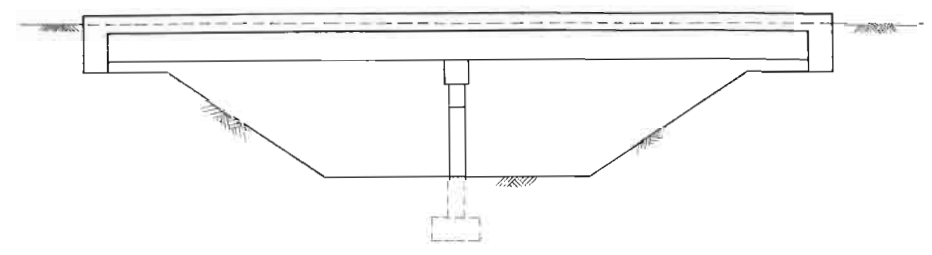
Cover slope as indicated with 4" concrete slab using 6x6-1% W.W. mesh and preformed joints in 10'0" squares. Gunite may be used at contractors option.

North abutment shown, south abutment opposite hand.

SLOPE PAVING QUANTITIES, BOTH ABTS	
Class A Concrete	139 Cu Yds.
Reinforcing Steel (Mesh)	2300 Lbs.
(Reinforcing Steel included in cost of Conc. Slope and Ditch Paving)	

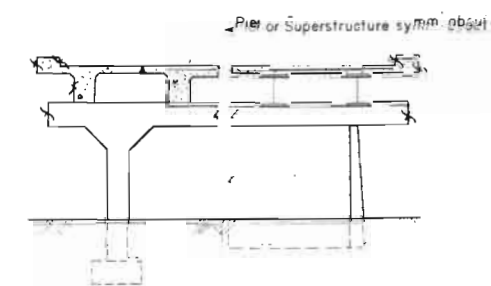
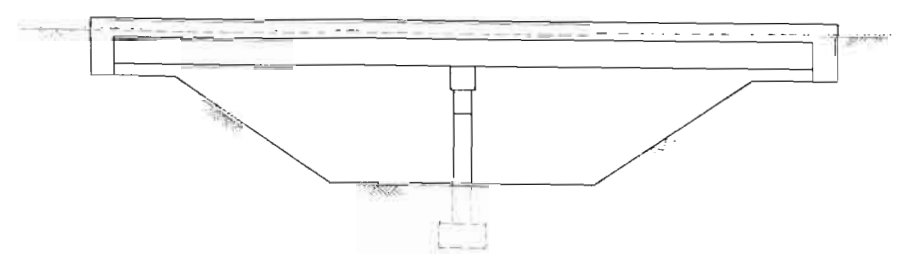
REVISIONS

FED. ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)143	40	



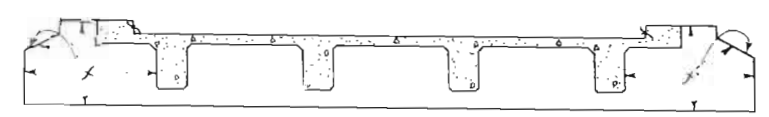
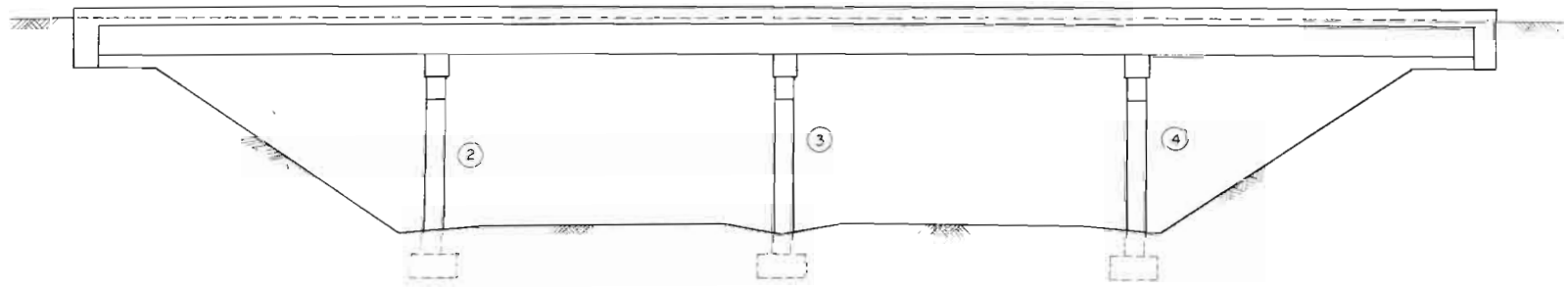
PIER AND SUPERSTRUCTURE

RURAL STREAM CROSSING

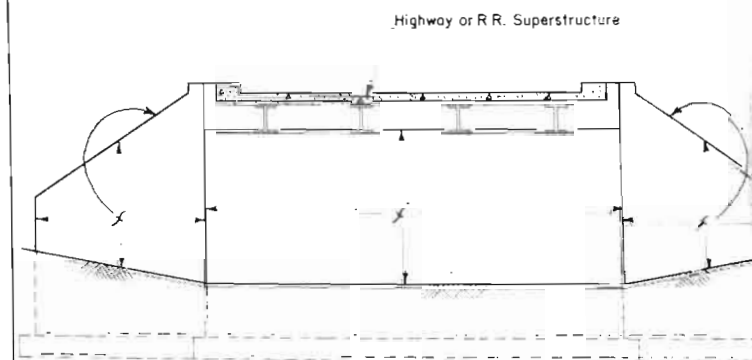


PIER AND SUPERSTRUCTURE

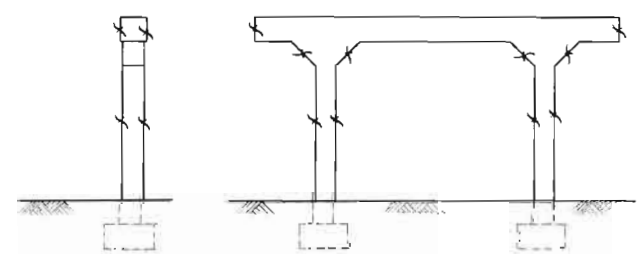
URBAN STREAM CROSSING OR NEAR URBAN AREA



STUB ABUTMENTS  
(Underpass Only)

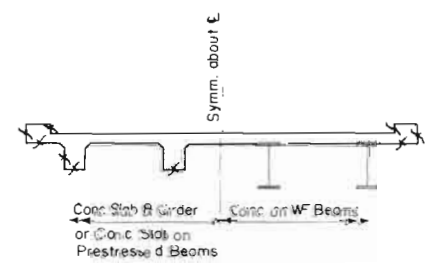


CANTILEVER ABUTMENTS  
(Underpass Only)



Piers 2, 3 & 4

All Piers



Superstructure

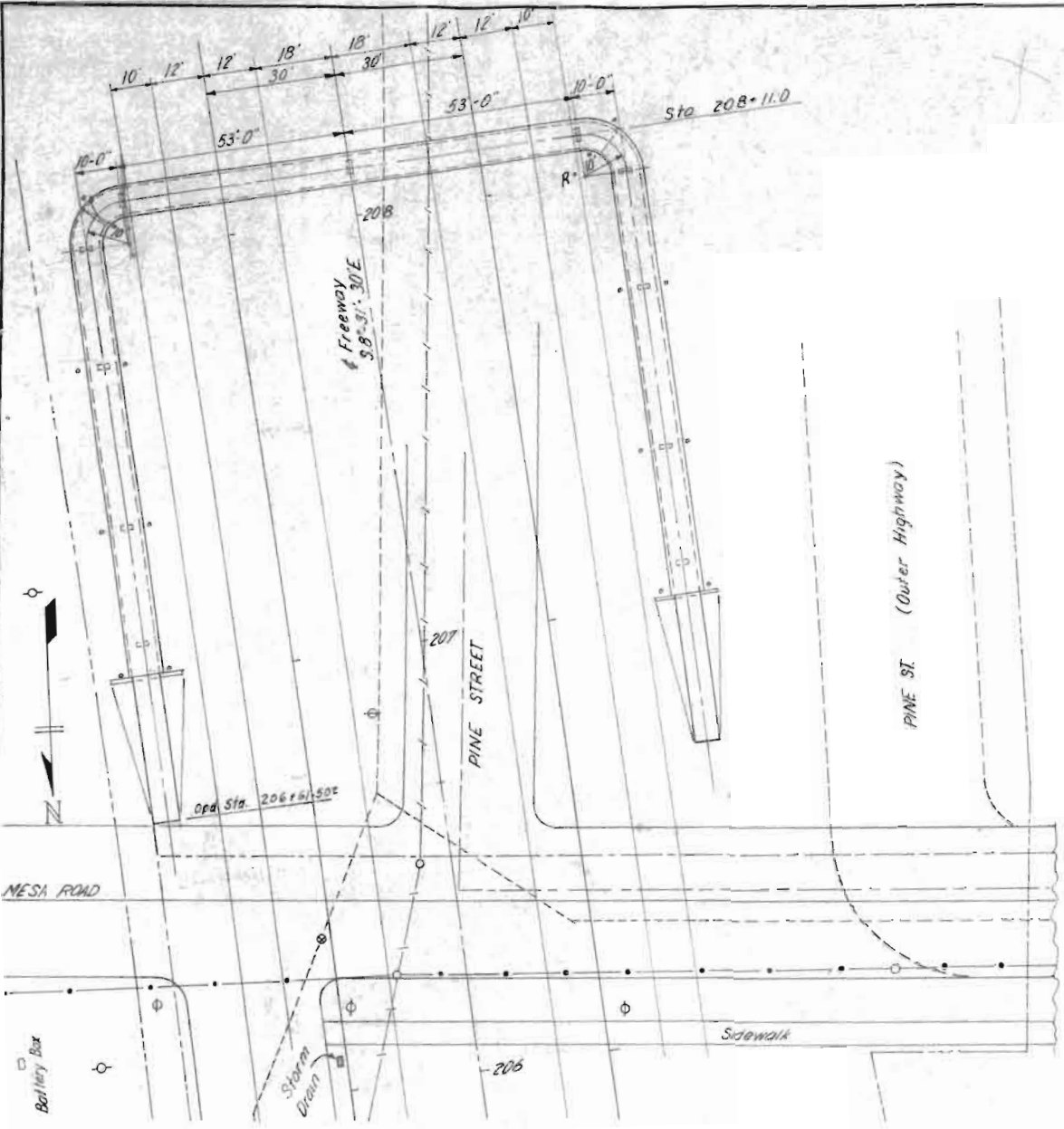
In case of round columns the whole column shall receive Class "I" finish on all Piers.

UNDERPASS

**COLORADO**  
**DEPARTMENT OF HIGHWAYS**  
 DETAILS SHOWING PORTIONS OF  
 STRUCTURE TO RECEIVE CLASS  
 "I" SURFACE FINISH.

Rev. Revised Top Elev. #  
 Changed Summary of  
 Quant. 10-24-59 D.J.S.  
 Revised: Lowered Top Elev.  
 & changed Summary of  
 Quantities. 2-3-60 RKA

FED. ROAD DIST. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLD	1-25-217143	41	

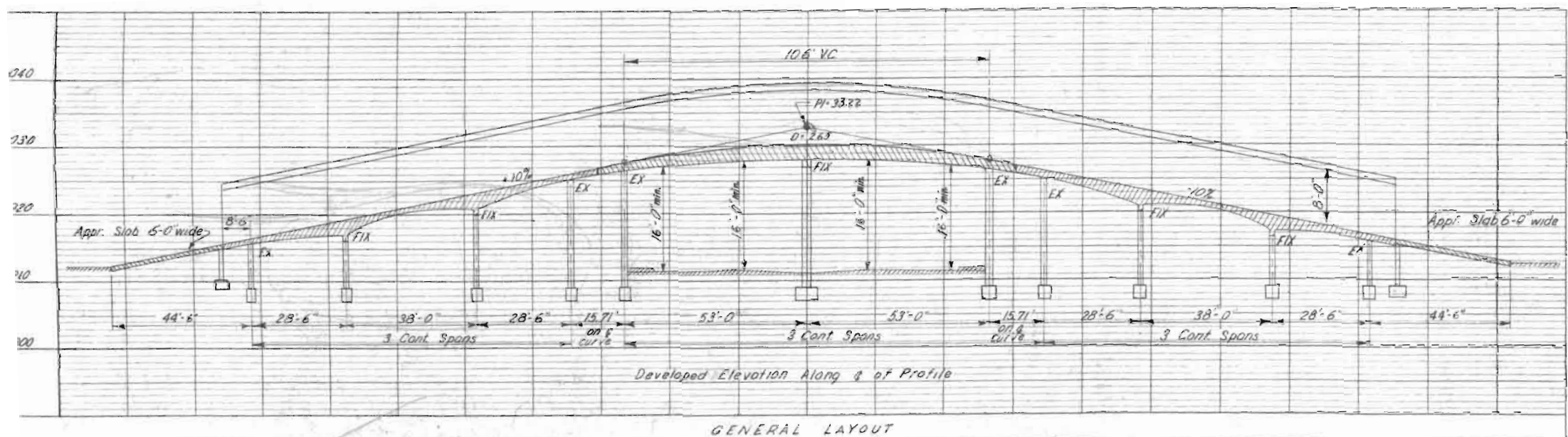


### SUMMARY OF QUANTITIES

Item	Description	Unit	Super. Structure	Abut. No. 1	Pier No. 2	Pier No. 3	Pier No. 4	Pier No. 5	Pier No. 6	Pier No. 7	Pier No. 8	Pier No. 9	Pier No. 10	Pier No. 11	Pier No. 12	Abut. No. 13	Total
14	Unclass. Struct. Excav. - Bridges	Cu Yd.		17	9	10	11	10	15	14	15	10	11	11	9	19	161
16	Structure Backfill (Class 7)	Cu Yd.		12	8	8	8	8	11	16	11	8	8	8	8	14	122
78	Station Yard Overhaul	Sq. Yd.															
48	Yard Mile Overhaul	Yd. Mile															
46	Class "A" Concrete	Cu Yd.	114.4	11.3	2.3	3.2	4.3	5.0	6.7	6.6	6.4	5.0	4.3	3.2	2.3	11.2	186.0
47	Reinforcing Steel (inc 1% Overrun)	Lb.	18,735	700	310	560	1005	1105	1310	1990	1310	1105	1205	560	310	700	30,705
48	Structural Steel	Lb.	15,400														15,400
78	Chain Link Wire Mesh Fabric	Lin. Ft.	685														685
91	Aluminum Handrail	Lin. Ft.	685														685
110	Downspouts and Gutters	Lin. Ft.	840														840
226	Corrugated Glass-Fiber Building Panels	Sq. Ft.	2750														2750
5	1" Exp'n. Jt. Mat'l Type I	Sq. Ft.		6													6
6	1/2" Exp'n. Jt. Mat'l Type III	Sq. Ft.		1													1

NOTES: ① Includes Concrete in Approach Slabs.  
 ② Includes Reinforcing Steel in Approach Slabs.  
 ③ Includes 1/2% for paint for non-galvanized steel.  
 ④ Includes 155 lin. ft. of downspouts.  
 ⑤ Exp'n. Joint Mat'l shall be in accordance to AASHTO specification M-153-54 and of the type shown and shall be included in the Bid Price for Item 46.

3-10-59  
 335  
 3285  
 44.5  
 104.5



**GENERAL NOTES**

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

ALL CONCRETE SHALL BE CLASS "A" AND AIR ENTRAINMENT AS SPECIFIED.

ALL CONCRETE SURFACES MARKED WITH THE SYMBOL F AS SHOWN ON SHEET NO. 1 SHALL HAVE A FINISH OF SURFACE FINISH.

ENGINEER'S GIRDERS, FLOOR SLABS, AND CURBS SHALL BE POLISHED MONOLITHICALLY.

FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIP LAY OR TONGUE AND GROOVE LUMBER 2" x 3" UNLESS FACED WITH PANEL BOARD.

FOOTINGS IN ROCK SHALL BE PIERS CUT TO ROCK AND NOT FORMED.

DEPTH AND BIRTH OF FOOTING SHOWN ARE IN ACCORDANCE WITH THE BEST AVAILABLE DATA AND WHEN DIFFERENT CONDITIONS ARE ENCOUNTERED THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

ALL REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A 305-30T OR THE LATEST REVISION THEREOF, AND SHALL BE INTERMEDIATE GRADE STEEL OF A DEFORMED TYPE. EACH BAR SHALL BE TAGGED WITH THE NUMBER DESIGNATION AND THE STATION NUMBER OF THE PROJECT.

SECONDARY BARS WHEN SHOWN SHALL BE 1/2" DIAMETER OF THE BAR. DIMENSIONS FOR REINFORCING STEEL NOT SHOWN AS CLEAR SHALL BE TO THE CENTER LINE OF THE BAR.

ALL STRUCTURAL STEEL SHALL BE PAINTED ONE SHOT COAT OF ZINC CHROMATE AND TWO FIELD COATS OF ALUMINUM, UNLESS OTHERWISE NOTED, EXCEPT THE UNDERSEAT PORTION OF STEEL PILING NEED NOT BE PAINTED.

HANDRAIL BOLTS SHALL HAVE HEX HEADS, NUTS, AND LOCK WASHERS UNLESS OTHERWISE SPECIFIED AND ALL BOLTS, EXCEPT AS NOTED AS "D" AND SHALL BE POWER DRIVEN.

WHEN TREATED TIMBER OR PILING IS SHOWN ON THE DRAWING THE PRESERVATIVE FOR TREATMENT SHALL BE CREOSOTE DIL.

WHEN EXCAVATING FOR FOOTINGS THE FINAL ONE FOOT DEPTH SHALL BE DONE BY HAND LABOR METHODS.

FOR DETAIL OF STRUCTURAL DRAWING AND STRUCTURE BACKFILL, SEE STD. 14-50-0.

IF BY PERMISSION OF THE ENGINEER PROMPT RIGID ARE SPECIFIED, THEY SHALL BE A MIN. OF 20 BUSH FOR SLABS NEAR TOP OF BEAMS AND 2000 PSI. THAT 1/2" MIN. OF CONCRETE UNDER THE BARS AND 1" MIN. FOR BARS NEAR BOTTOM OF MEMBERS.

GRADER SHORING SHALL REMAIN IN PLACE FULL LENGTH UNTIL ALL DIMMER PILES HAVE REACHED A MINIMUM STRENGTH OF 2500 PSI.

**DESIGNING DATA**

A.A.H.O. 1955 UNIT STRESS EXCEPT AS NOTED

Reinforcing Steel fs = 20000 lbs. per sq. in.

Structural Steel fs = 18000 lbs. per sq. in.

fc = 1500 lbs. per sq. in.

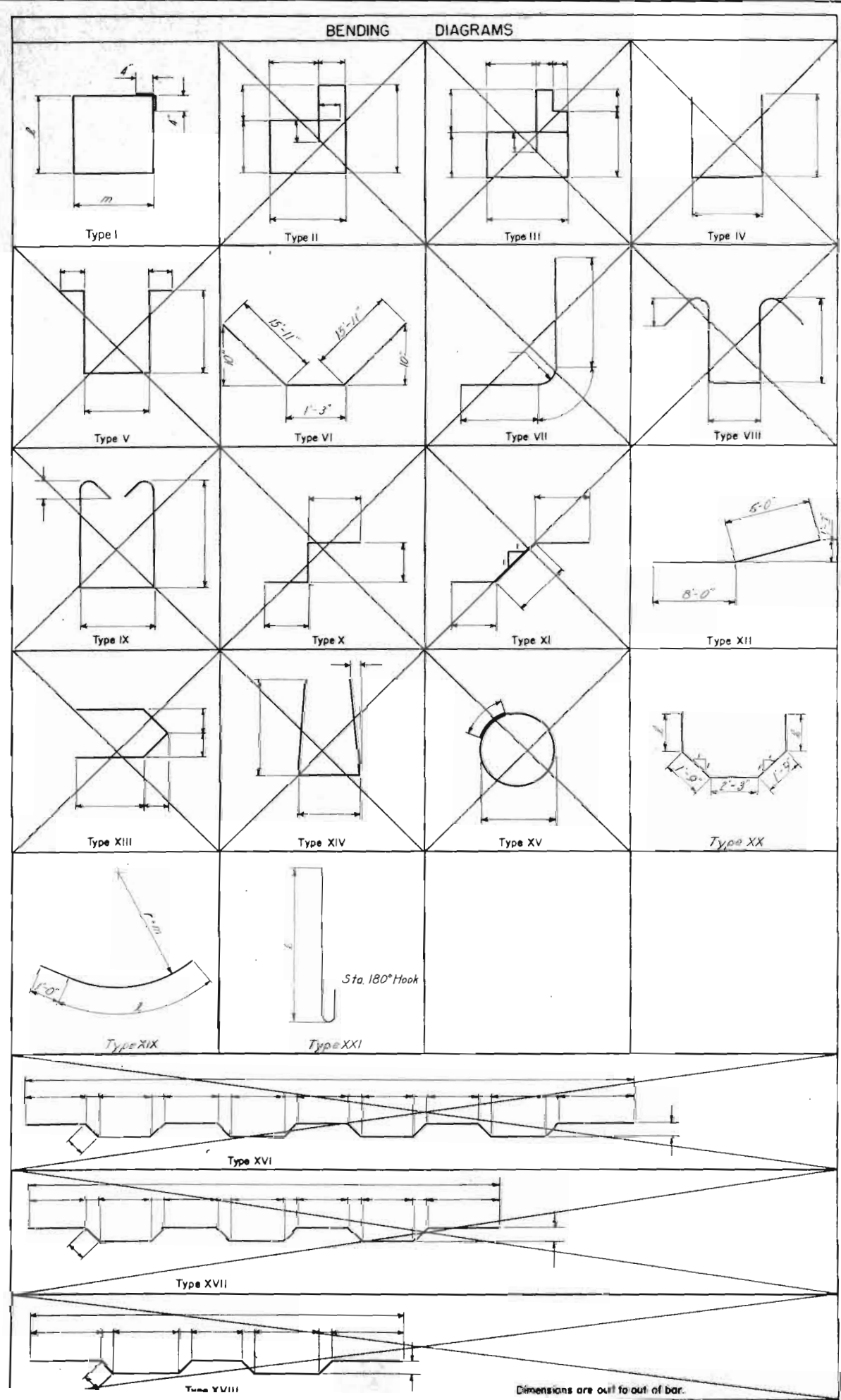
n = 10

**COLORADO DEPARTMENT OF HIGHWAYS**

Across Freeway  
 Sta. 208+11.0 & Median  
 Near Eagle Springs Sec. 7, T. 13 S. R. 60 W.

Designed by \_\_\_\_\_  
 Made by \_\_\_\_\_  
 Checked by \_\_\_\_\_

Approved by \_\_\_\_\_  
 Bridge Engineer  
 Date: \_\_\_\_\_



Dimensions are out to out of bar.

#### BAR LIST Superstructure

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
401	3/8	268	7'-0"	Str		
402	3/8	290	5'-8"	Str		
501	5/8	6	36'-0"	Str		
502	1/2	4	10'-9"	XX	2'-6"	
504	1/2	8	7'-9"	XX	1'-0"	
506	1/2	12	35'-2"	Str		
509	1/2	16	9'-1"	XX	1'-8"	
510	5/8	14	6'-11"	XX	0'-7"	
601	3/8	400	11'-2"		10'-2"	13'-2"
612	3/8		6'-2"		5'-2"	6'-9"
804	1/2	12	35'-4"	Str		
805	1/2	10	30'-0"			
806	1/2	10	23'-0"			
809	1/2	14	18'-3"			
810	1/2	6	13'-6"			
811	1/2	6	30'-0"	Str		
812	1/2	12	14'-0"	XII		
813	1/2	6	28'-0"	Str		
814	1/2	8	17'-0"			
815	1/2	20	40'-0"			
816	1/2	16	20'-0"			
817	1/2	16	13'-6"			
818	1/2	14	12'-0"			
819	1/2	6	23'-6"	Str		
903	1/2	6	33'-1"	VI		
904	1/2	12	40'-0"	Str		
1101	1/2	6	40'-0"	Str		
1102	1/2	5	32'-0"	Str		
1103	1/2	5	20'-0"	Str		

#### BAR SUMMARY

3519' 3/8 @ 0.668" = 2,351 lbs
985' 1/2 @ 1.043" = 1,027 lbs
417' 1/2 @ 1.502" = 526 lbs
3588' 1/2 @ 2.67" = 9,580 lbs
679' 1/2 @ 3.40" = 2,309 lbs
500' 1/2 @ 3.313" = 2,659 lbs
+12% = 185 lbs
<b>Total = 18,735 lbs</b>

#### BAR LIST Pier 2 (12 similar)

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
420	3/8	100	6'-8"	I	2'-3"	
424	3/8	100	by 1' to 9"	I	by 1' to 9"	
425	3/8	1	7'-0"	I	2'-5"	
507	5/8	7	7'-6"	Str		
508	5/8	8	3'-0"	Str		
701	3/8	6	4'-0"	Str		
702	3/8	6	3'-0"	Str		
823	1/2	10	4'-6"	Str		
825	1/2	10	3'-0"	Str		

#### BAR SUMMARY

34' 3/8 @ 0.668" = 23 lbs
77' 1/2 @ 1.043" = 80 lbs
42' 3/8 @ 2.044" = 86 lbs
45' 1/2 @ 2.67" = 120 lbs
+12% = 1 lbs
<b>Total = 310 lbs</b>

#### BAR LIST Pier 3 (11 similar)

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
403	3/8	100	7'-8"	I	2'-3"	
409	3/8	100	by 1' to 1'-3"	I	by 1' to 1'-3"	
410	3/8	1	8'-2"	I	2'-6"	
505	5/8	8	3'-6"	Str		
614	3/8	8	7'-6"	Str		
701	3/8	6	4'-0"	Str		
702	3/8	6	3'-0"	Str		
822	1/2	18	6'-6"	Str		
825	1/2	18	3'-0"	Str		

#### BAR SUMMARY

55' 3/8 @ 0.668" = 37 lbs
29' 1/2 @ 1.043" = 29 lbs
20' 3/8 @ 1.502" = 27 lbs
42' 3/8 @ 2.044" = 50 lbs
117' 1/2 @ 2.67" = 312 lbs
+12% = 6 lbs
<b>Total = 560 lbs</b>

#### BAR LIST Pier 4 (10 similar)

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
403	3/8	100	7'-8"	I	2'-3"	
413	3/8	100	by 1' to 1'-3"	I	by 1' to 1'-3"	
414	3/8	1	8'-2"	I	2'-6"	
505	5/8	8	3'-6"	Str		
614	3/8	8	7'-6"	Str		
820	1/2	18	3'-6"	Str		
824	1/2	18	13'-6"	Str		

#### BAR SUMMARY

29' 3/8 @ 0.668" = 150 lbs
25' 1/2 @ 1.043" = 29 lbs
60' 3/8 @ 1.502" = 90 lbs
306' 1/2 @ 2.67" = 817 lbs
+12% = 9 lbs
<b>Total = 1,095 lbs</b>

Revised - Added bars marked thus \* 10-26-59 RRA  
 Revised - Removed bars marked thus \* 2-5-60 RRA

#### BAR LIST Pier 5 (9 similar)

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
403	3/8	100	7'-8"	I	2'-3"	
417	3/8	100	by 1' to 1'-3"	I	by 1' to 1'-3"	
418	3/8	1	8'-10"	I	2'-10"	
419	3/8	1	9'-0"	I	2'-11"	
505	5/8	8	3'-6"	Str		
614	3/8	8	7'-6"	Str		
701	3/8	6	4'-0"	Str		
820	1/2	18	5'-6"	Str		
821	1/2	18	14'-0"	Str		
825	1/2	18	3'-0"	Str		

#### BAR SUMMARY

124' 3/8 @ 0.668" = 83 lbs
28' 1/2 @ 1.043" = 29 lbs
20' 3/8 @ 1.502" = 90 lbs
25' 3/8 @ 2.044" = 41 lbs
315' 1/2 @ 2.67" = 841 lbs
+12% = 131 lbs
<b>Total = 1,105 lbs</b>

#### BAR LIST Pier 7

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
403	3/8	100	7'-8"	I	2'-3"	
417	3/8	100	by 1' to 1'-3"	I	by 1' to 1'-3"	
418	3/8	1	9'-0"	I	2'-11"	
419	3/8	1	9'-0"	I	2'-11"	
503	5/8	8	5'-8"	Str		
615	3/8	12	7'-8"	Str		
901	1/2	20	3'-9"	Str		
902	1/2	20	21'-1"	Str		

#### BAR SUMMARY

142' 3/8 @ 0.668" = 96 lbs
45' 3/8 @ 1.043" = 47 lbs
92' 3/8 @ 1.502" = 138 lbs
897' 1/2 @ 2.67" = 1,690 lbs
+12% = 20 lbs
<b>Total = 1,990 lbs</b>

#### BAR LIST Pier 6 (8 similar)

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
403	3/8	100	7'-8"	I	2'-3"	
418	3/8	100	by 1' to 1'-3"	I	by 1' to 1'-3"	
419	3/8	1	8'-11"	I	2'-11"	
505	5/8	8	3'-6"	Str		
615	3/8	12	7'-8"	Str		
802	1/2	18	3'-9"	Str		
803	1/2	18	15'-7"	Str		
825	1/2	18	3'-6"	Str		
905	1/2	6	4'-6"	Str		

#### BAR SUMMARY

133' 3/8 @ 0.668" = 89 lbs
45' 3/8 @ 1.043" = 47 lbs
20' 3/8 @ 1.502" = 90 lbs
348' 1/2 @ 2.67" = 929 lbs
27' 1/2 @ 3.40" = 92 lbs
+12% = 15 lbs
<b>Total = 1,310 lbs</b>

#### BAR LIST Abutment 1 (3 similar)

Mark	Size	No Req'd	Length	Type	Dimensions	
					l	m
430	3/8	22	3'-2"	Str		
431	1/2	9	22'-8"	Str		
432	1/2	1	19'-10"	Str		
433	1/2	1	15'-10"	Str		
434	1/2	1	11'-10"	Str		
435	1/2	11	6'-10"	XXI	6'-4"	
436	1/2	3	3'-2"	Str		
437	1/2	200	by 4 1/2' to 4 1/2'	XXI	by 4 1/2' to 4 1/2'	
445	1/2	6	6'-6"	Str		
446	1/2	36	5'-8"	Str		
447	1/2	6	35'-8"	Str		
448	1/2	10	3'-2"	Str		
449	1/2	15	5'-8"	Str		
450	1/2	6	15'-0"	Str		
451	1/2	200	by 4 1/2' to 4 1/2'	XXI	by 4 1/2' to 4 1/2'	
452	1/2	1	8'-0"	Str		
453	1/2	9	6'-0"	Str		
454	1/2	11	2'-2"	Str		
455	1/2	3	6'-0"	Str		
456	1/2	1	13'-10"	Str		
457	1/2	1	9'-10"	Str		

#### BAR SUMMARY

1039' 3/8 @ 0.668" = 694 lbs
+12% = 6 lbs
<b>Total = 700 lbs</b>

\* Indicates additional bars required at all bar locations.

**COLORADO**  
 DEPARTMENT OF HIGHWAYS

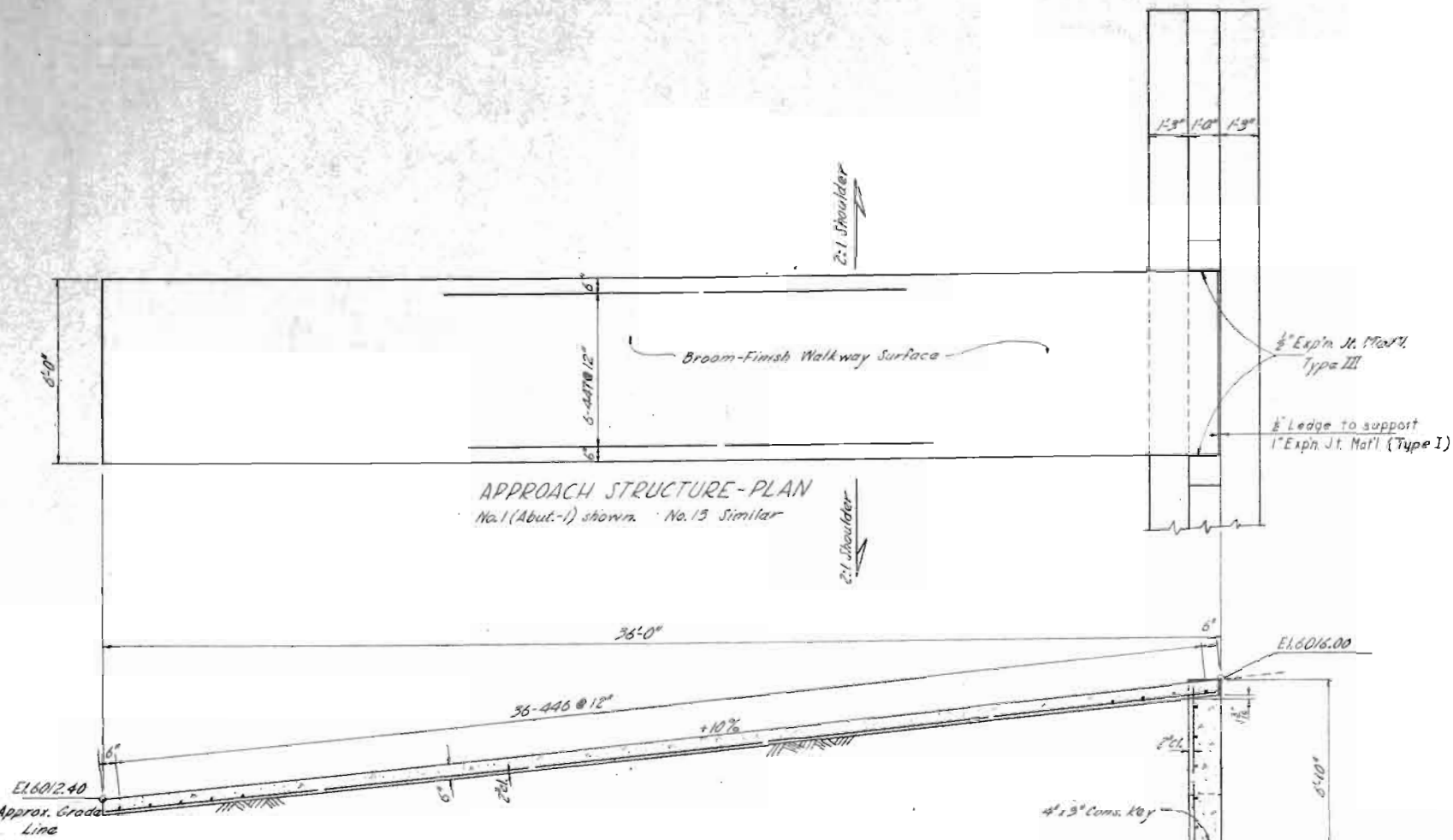
BENDING DIAGRAMS & BAR LIST

Across Freeway  
 Sta. 208+11.0 & Median  
 Near Coor Springs Sec. 7 T. 135. N. 60

Designed by *[Signature]* Approved by *[Signature]*  
 Made by J.C. Checked by *[Signature]* Bridge Engineer  
 Date: *[Date]*

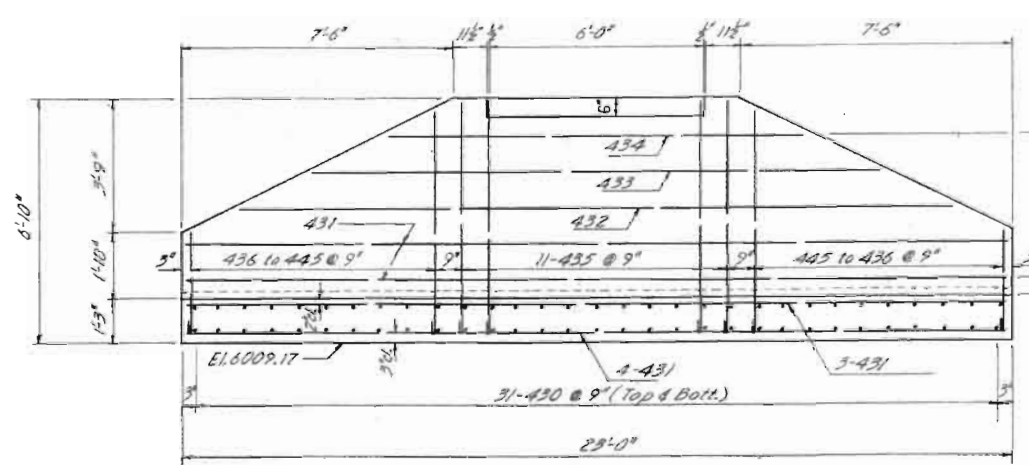
Rev. Add reinf. bars & dimension change. 10/26/59 D.L.  
 Rev. Remove reinf. bars & dimension change. 2/5/60 JGG

REV. NO.	DESCRIPTION	DATE	BY	CHECKED
1	ADD REIN. BARS & DIMENSION CHANGE	10/26/59	D.L.	
2	REMOVE REIN. BARS & DIMENSION CHANGE	2/5/60	JGG	



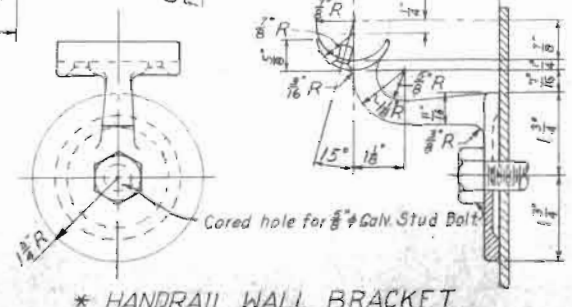
APPROACH STRUCTURE-PLAN  
 No. 1 (Abut.-1) shown. No. 13 Similar

SECTIONAL ELEVATION

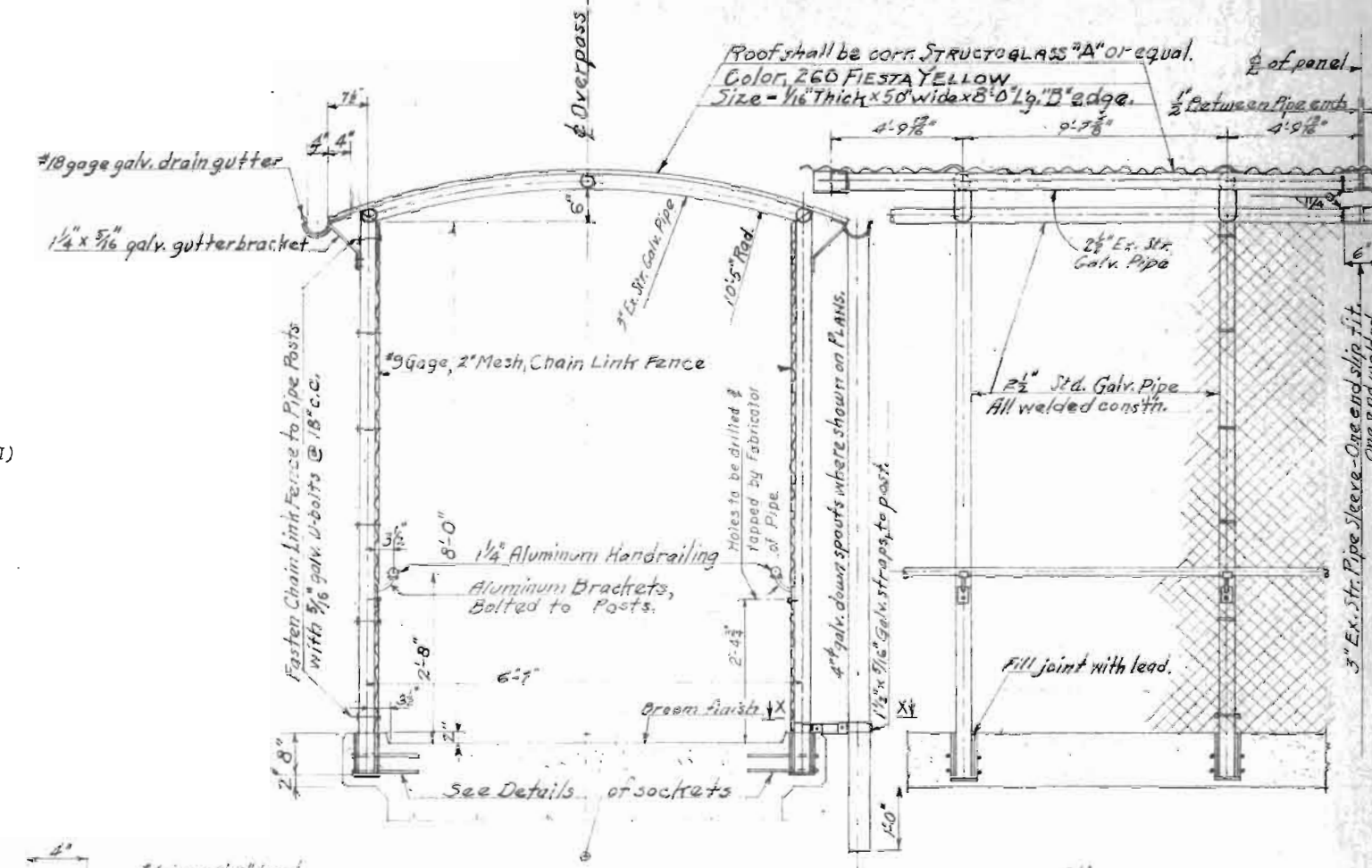


ABUTMENT-ELEVATION

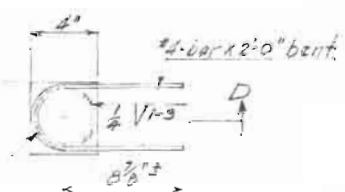
\* NOTE: Suitable commercial stock bracket will be acceptable.



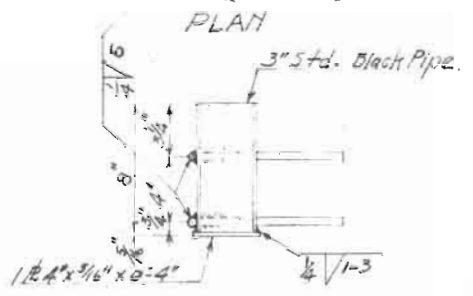
\* HANDRAIL WALL BRACKET



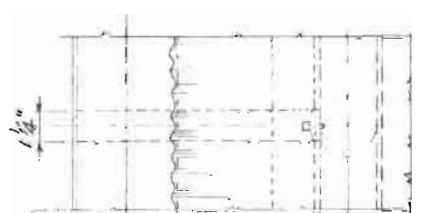
TYPICAL SECTION OF ROOF & FRAME



PLAN

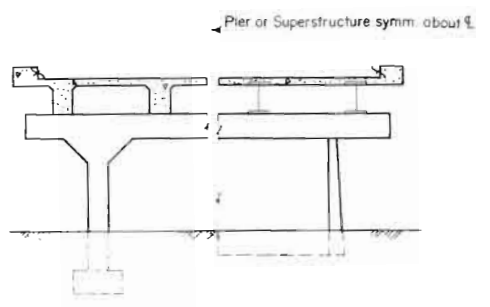
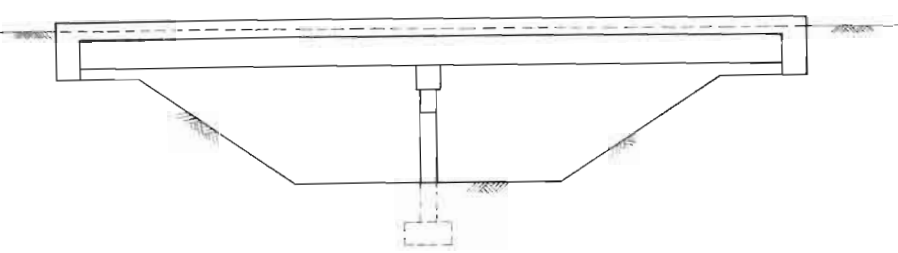


SECTION 'D-D'  
 DETAILS OF PIPE SOCKETS  
 REQ'D. BY COMPLETE



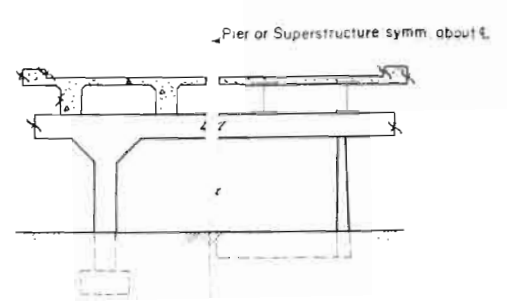
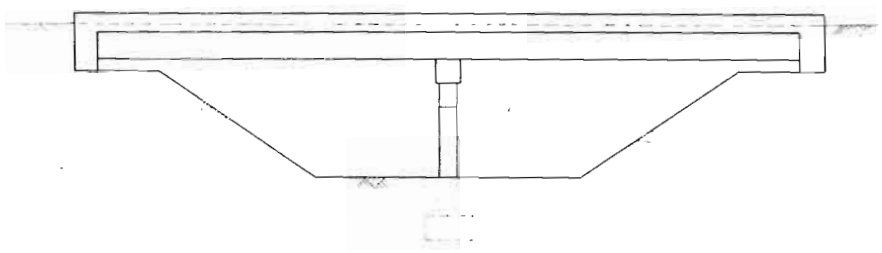






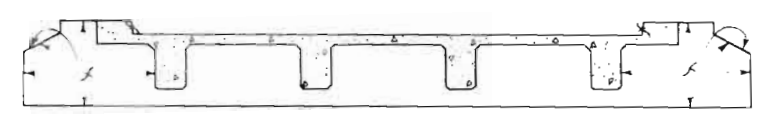
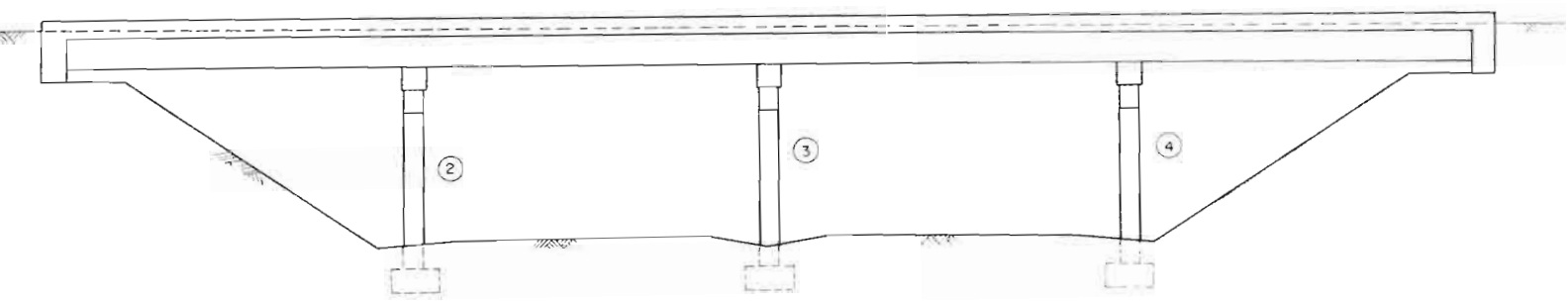
PIER AND SUPERSTRUCTURE

RURAL STREAM CROSSING

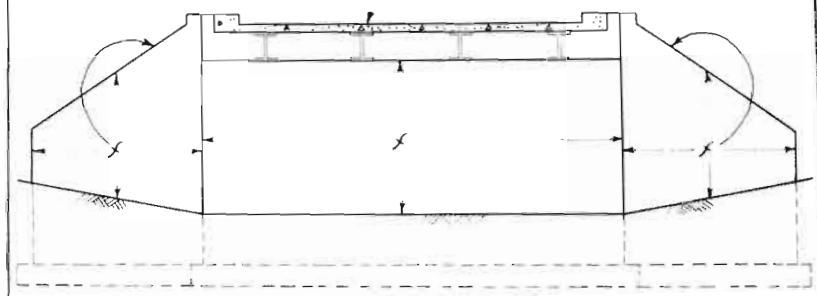


PIER AND SUPERSTRUCTURE

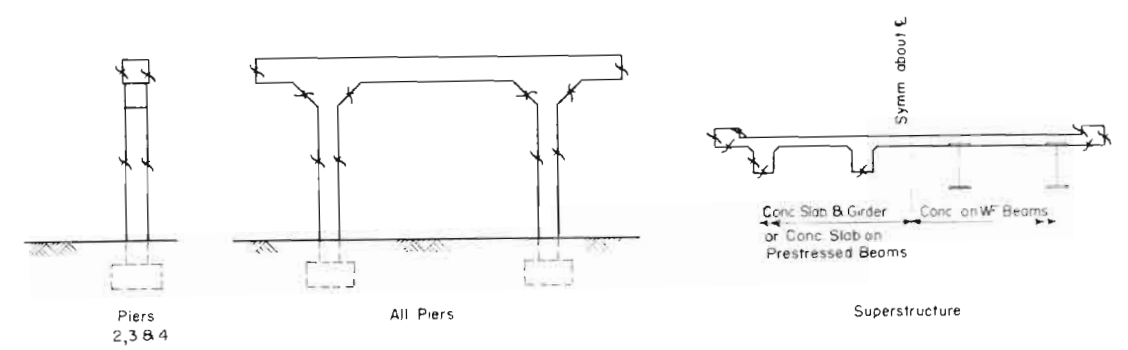
URBAN STREAM CROSSING OR NEAR URBAN AREA



STUB ABUTMENTS  
(Underpass Only)

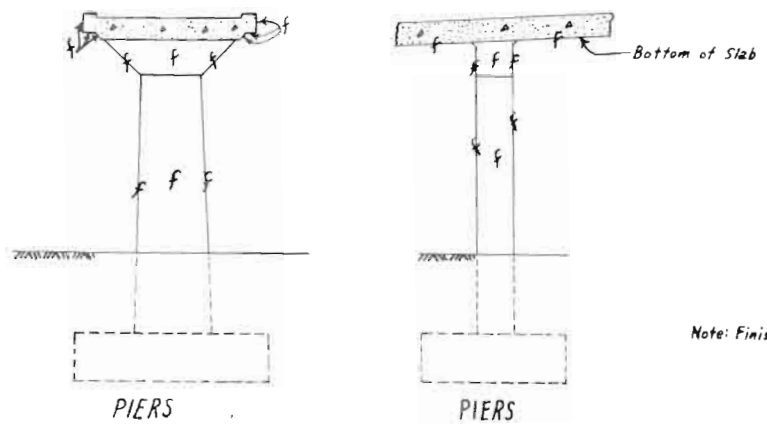


CANTILEVER ABUTMENTS  
(Underpass Only)



In case of round columns the whole column shall receive Class "I" finish on all Piers.

UNDERPASS



Note: Finish front face of Abut's only.

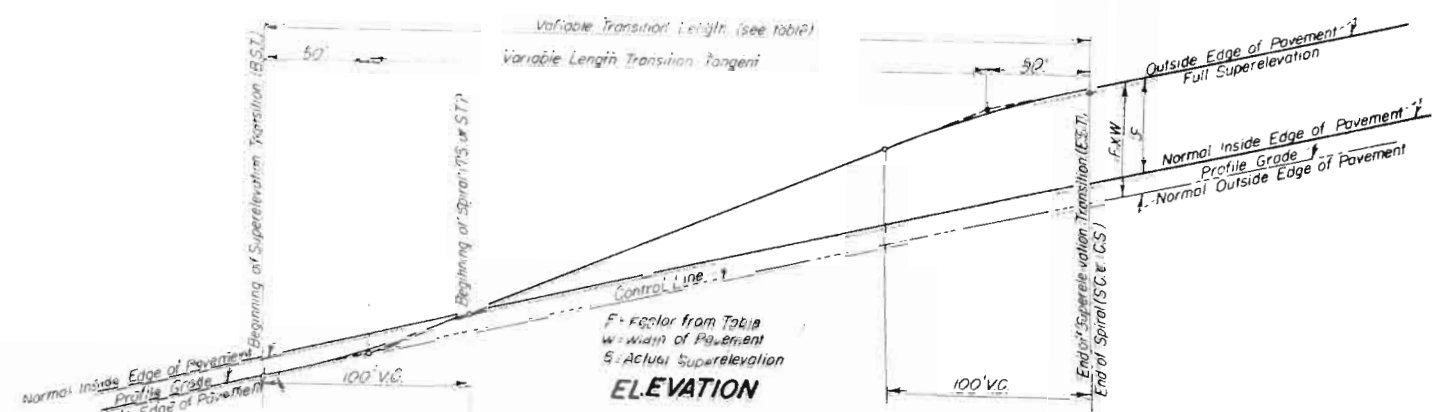
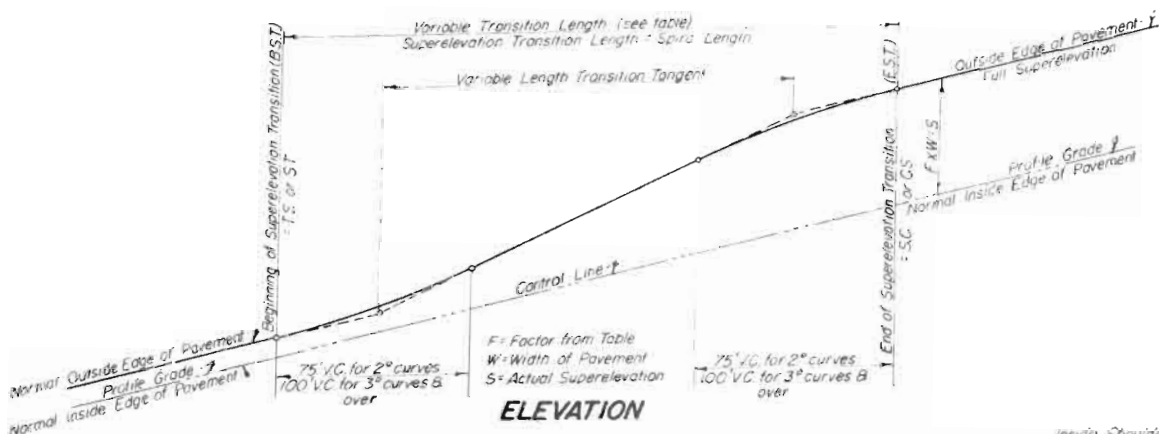
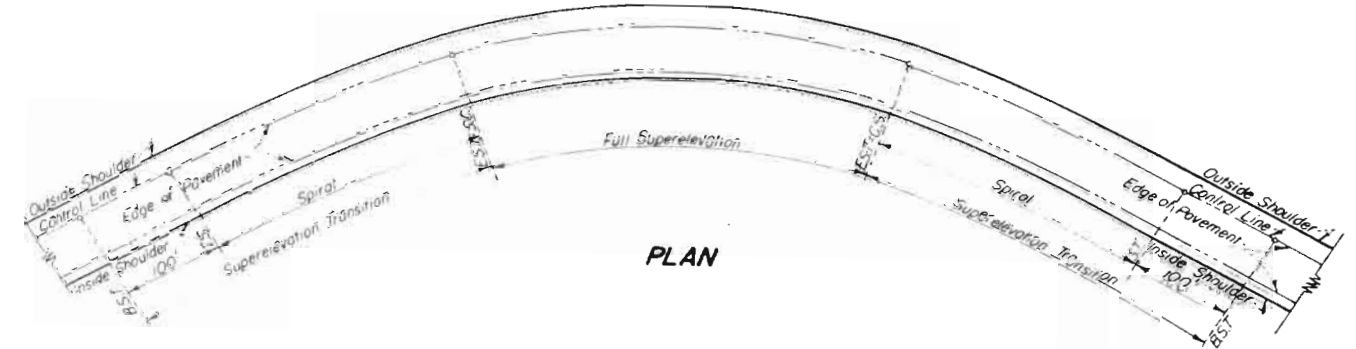
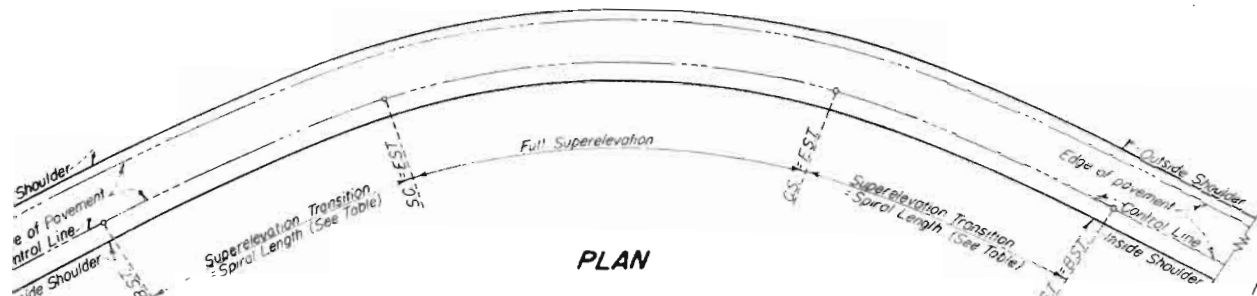
STRUCTURE NO. I-17EP

**COLORADO**  
DEPARTMENT OF HIGHWAYS

DETAILS SHOWING PORTIONS OF STRUCTURE TO RECEIVE CLASS "I" SURFACE FINISH.

Across Freeway  
Sta. 208+11.0 @ Mod.  
Near Colo. Springs Sec. 7 T13S R.66W

Designed by A.D.N. Approved by [Signature]  
Made by R.R.A.-J.B. Bridge Engineer  
Checked by [Signature] Date: Nov. 3, 1957

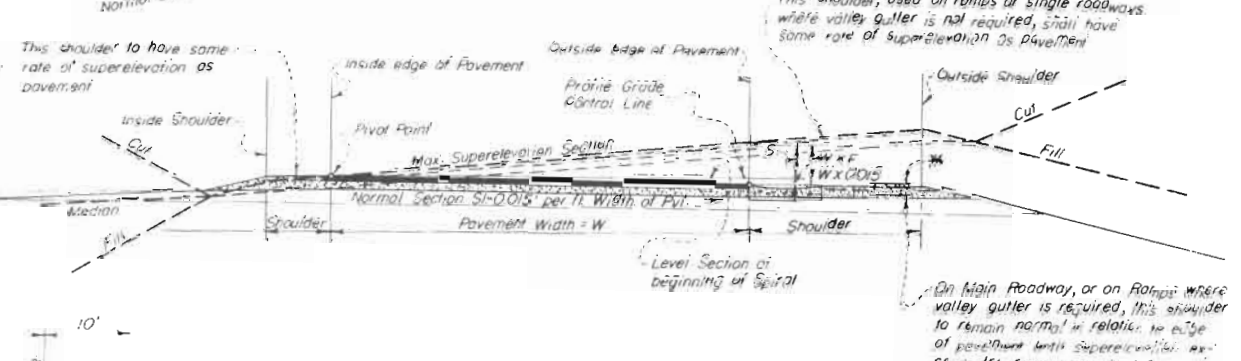
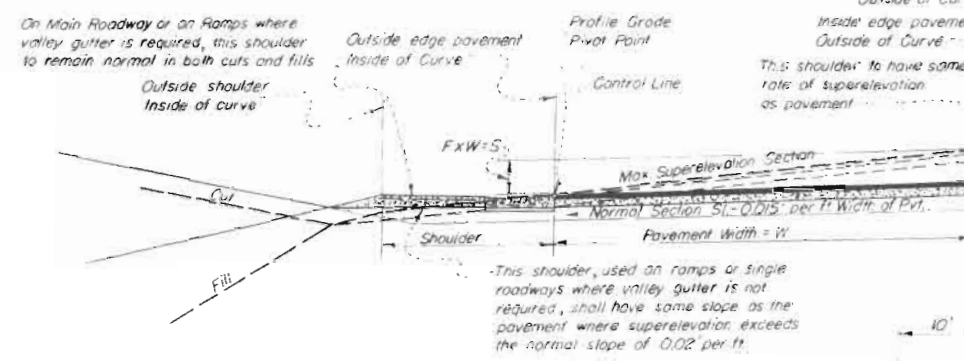


**NOTE CASE I**  
The normal roadway slope is approximately equal to the superlevation for a 1° curve. Therefore no super-elevation is required for 1° curves.  
For curves of over 1° the factors shown in the table for Case I include the normal roadway slope of 0.01 Ft per Ft., thereby giving values of actual superlevation of any point on the transition.

**NOTE CASE II**  
In order that the opposing slope of the normal roadway be eliminated before entering the horizontal curve, Case II, superlevation transitions shall begin on the tangent one hundred feet (100') from the TS and/or ST of the spiral. Case II superlevation, calculated as indicated in the table, is to be added to the normal low edge of pavement.

**NOTE CASE I & II**  
On curves where no spirals are used the superlevation transition shall be on the tangent approaching each end of the curve. Full superlevation to coincide with the P.C. or P.T. of such curve.

\* Shoulders having slopes adverse to or greater than normal pavement slope shall be raised to coincide with the pavement slope of beginning of transition. Raising of shoulder to take place gradually over a distance of not less than 50 ft.



**SECTION CASE I**  
**SUPERELEVATION TRANSITION**  
CURVES HAVING SUPERELEVATION IN SAME DIRECTION AS NORMAL ROADWAY SLOPE

**SECTION CASE II**  
**SUPERELEVATION TRANSITION**  
CURVES HAVING SUPERELEVATION IN OPPOSITE DIRECTION TO NORMAL ROADWAY SLOPE

TYPICAL SUPERELEVATED SECTION OF 4 LANE DIVIDED HIGHWAY

**SUPERELEVATION TABLE**

DEG. OF CURVE	CASE	PROPORTIONAL DISTANCE FROM BEGINNING OF TRANSITION									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Max. 1.0
1°	I	0.00760	0.0240	0.0540	0.0960	0.1500	0.2040	0.2460	0.2760	0.2940	0.3000
	II	0.1512	0.1548	0.1608	0.1692	0.1800	0.1909	0.1992	0.2052	0.2088	0.2100
2°	I	0.0073	0.0290	0.0653	0.1162	0.1800	0.2438	0.2947	0.3310	0.3527	0.3600
	II	0.1533	0.1632	0.1797	0.2028	0.2325	0.2622	0.2853	0.3018	0.3117	0.3150
3°	I	0.0097	0.0390	0.0876	0.1558	0.2325	0.3092	0.3774	0.4260	0.4553	0.4650
	II	0.1554	0.1716	0.1985	0.2364	0.2850	0.3336	0.3714	0.3984	0.4146	0.4200
4°	I	0.0127	0.0506	0.1140	0.1984	0.2850	0.3716	0.4560	0.5194	0.5573	0.5700
	II	0.1575	0.1800	0.2175	0.2700	0.3375	0.41050	0.4575	0.4950	0.5175	0.5250
5°	I	0.0160	0.0640	0.1440	0.2400	0.3375	0.4343	0.5310	0.6110	0.6590	0.6750
	II	0.1618	0.1970	0.2556	0.3228	0.3900	0.4572	0.5244	0.5830	0.6182	0.6300
6°	I	0.0194	0.0778	0.1740	0.2820	0.3900	0.4980	0.6060	0.7022	0.7606	0.7800
	II	0.1643	0.2073	0.2787	0.3605	0.4425	0.5244	0.6063	0.6777	0.7207	0.7350
7°	I	0.0225	0.0928	0.2054	0.3240	0.4425	0.5610	0.6795	0.7922	0.8645	0.8850
	II										

FACTORS SHOWN IN ABOVE TABLE ARE BASED ON TRANSITION LENGTHS SHOWN AT RIGHT

FACTORS SHOWN IN TABLE AT LEFT ARE BASED ON THE FOLLOWING TRANSITION LENGTHS

DEG. OF CURVE	LENGTH OF SPIRAL	LENGTH OF SUPERELEVATION TRANSITION	
		CASE I	CASE II
1 Degree	None	None	200'
2 Degrees	150'	150'	250'
3 Degrees	200'	200'	300'
4 Degrees	250'	250'	350'
5 Degrees	300'	300'	400'
6 Degrees	350'	350'	450'
7 Degrees	350'	350'	450'

Factors from table x W (width of pavement in ft.) = value of Superlev. to be added to normal low elev. of edge of pavement. See notes on sections above for superlevation of shoulders.

**COLORADO**  
DEPARTMENT OF HIGHWAYS

METHODS FOR  
SUPERELEVATION  
OF CURVES

Designed by: \_\_\_\_\_ Approved by: \_\_\_\_\_  
 Made by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Checked by: \_\_\_\_\_

## CASE II SUPERELEVATION

CURVE	Proportional distance from beginning of transition (TRANS.-200')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.00000	.00060	.00240	.00540	.00960	.01500	.02040	.02460	.02760	.02940	.03000
.01	.00001	.00073	.00265	.00577	.01009	.01569	.02087	.02495	.02783	.02951	
.02	.00002	.00086	.00290	.00644	.01058	.01618	.02134	.02530	.02806	.02962	
.03	.00005	.00101	.00317	.00653	.01099	.01685	.02179	.02563	.02827	.02971	
.04	.00010	.00118	.00346	.00694	.01162	.01750	.02222	.02594	.02846	.02978	
.05	.00015	.00135	.00376	.00735	.01215	.01815	.02265	.02625	.02865	.02985	
.06	.00022	.00154	.00406	.00778	.01270	.01883	.02306	.02654	.02882	.02990	
.07	.00029	.00173	.00437	.00821	.01325	.01951	.02347	.02683	.02899	.02995	
.08	.00038	.00194	.00470	.00866	.01382	.02024	.02386	.02710	.02914	.02999	
.09	.00049	.00217	.00505	.00913	.01441	.02091	.02423	.02735	.02927	.02993	

CURVE	Proportional distance from beginning of transition (TRANS.-250')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.00000	.00073	.00290	.00653	.01162	.01800	.02438	.02947	.03310	.03527	.03600
.01	.00001	.00068	.00240	.00698	.01220	.01866	.02496	.02989	.03338	.03541	
.02	.00003	.00105	.00351	.00743	.01281	.01932	.02552	.03038	.03365	.03551	
.03	.00007	.00123	.00384	.00791	.01342	.01998	.02606	.03089	.03390	.03554	
.04	.00012	.00142	.00418	.00839	.01406	.02064	.02659	.03109	.03414	.03574	
.05	.00018	.00163	.00454	.00889	.01470	.02130	.02711	.03146	.03437	.03582	
.06	.00026	.00186	.00491	.00941	.01536	.02194	.02761	.03182	.03458	.03598	
.07	.00036	.00210	.00529	.00994	.01602	.02257	.02809	.03216	.03477	.03593	
.08	.00046	.00235	.00569	.01048	.01668	.02319	.02857	.03249	.03495	.03597	
.09	.00059	.00262	.00611	.01104	.01734	.02380	.02902	.03280	.03512	.03599	

CURVE	Proportional distance from beginning of transition (TRANS.-300')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.00000	.00097	.00390	.00876	.01558	.02325	.03092	.03774	.04260	.04553	.04650
.01	.00001	.00118	.00429	.00936	.01634	.02402	.03167	.03831	.04298	.04571	
.02	.00004	.00140	.00471	.00997	.01711	.02493	.03244	.03837	.04334	.04598	
.03	.00009	.00165	.00515	.01061	.01788	.02555	.03317	.03940	.04369	.04602	
.04	.00016	.00191	.00561	.01126	.01863	.02632	.03388	.03945	.04401	.04615	
.05	.00024	.00219	.00609	.01193	.01941	.02709	.03457	.04041	.04431	.04626	
.06	.00035	.00249	.00658	.01262	.02018	.02785	.03524	.04089	.04489	.04634	
.07	.00048	.00281	.00710	.01333	.02095	.02862	.03590	.04135	.04485	.04641	
.08	.00062	.00316	.00763	.01406	.02172	.02939	.03653	.04179	.04510	.04646	
.09	.00079	.00352	.00819	.01481	.02248	.03016	.03714	.04221	.04532	.04649	

CURVE	Proportional distance from beginning of transition (TRANS.-350')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.00000	.00127	.00506	.01140	.01984	.02850	.03716	.04560	.05194	.05573	.05700
.01	.00001	.00153	.00538	.01217	.02070	.02937	.03803	.04635	.05243	.05597	
.02	.00005	.00182	.00613	.01297	.02157	.03023	.03890	.04707	.05290	.05619	
.03	.00011	.00214	.00670	.01379	.02244	.03110	.03976	.04777	.05334	.05638	
.04	.00020	.00248	.00729	.01464	.02330	.03197	.04063	.04844	.05376	.05654	
.05	.00032	.00285	.00791	.01536	.02407	.03273	.04150	.04909	.05415	.05668	
.06	.00046	.00324	.00856	.01637	.02503	.03370	.04236	.04971	.05432	.05680	
.07	.00062	.00366	.00925	.01724	.02590	.03457	.04321	.05030	.05486	.05689	
.08	.00081	.00410	.00993	.01810	.02677	.03543	.04403	.05087	.05518	.05699	
.09	.00103	.00457	.01035	.01897	.02763	.03630	.04483	.05142	.05547	.05699	

CURVE	Proportional distance from beginning of transition (TRANS.-400')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.00000	.00160	.00640	.01440	.02408	.03375	.04343	.05310	.06110	.06590	.06750
.01	.00002	.00194	.00706	.01507	.02504	.03472	.04439	.05404	.06172	.06620	
.02	.00006	.00230	.00774	.01634	.02601	.03569	.04536	.05496	.06232	.06648	
.03	.00014	.00270	.00846	.01750	.02697	.03665	.04633	.05584	.06288	.06672	
.04	.00026	.00314	.00922	.01827	.02795	.03762	.04730	.05668	.06340	.06692	
.05	.00040	.00360	.01000	.01924	.02891	.03859	.04826	.05750	.06390	.06710	
.06	.00058	.00410	.01082	.02029	.02998	.03956	.04923	.05828	.06436	.06724	
.07	.00078	.00442	.01166	.02117	.03085	.04052	.05020	.05904	.06480	.06736	
.08	.00102	.00518	.01254	.02214	.03182	.04149	.05117	.05978	.06520	.06744	
.09	.00130	.00578	.01346	.02311	.03278	.04246	.05213	.06044	.06556	.06748	

## CASE I SUPERELEVATION

FED. ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	Col.	1-25-2(271-143)	42	

CURVE	Proportional distance from beginning of transition (TRANS.-150')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.01500	.01512	.01548	.01558	.01592	.01806	.01909	.01992	.02052	.02088	.02100
.01	.01500	.01515	.01553	.01558	.01592	.01806	.01918	.01999	.02057	.02090	
.02	.01501	.01517	.01558	.01563	.01592	.01806	.01927	.01999	.02061	.02094	
.03	.01501	.01525	.01564	.01571	.01592	.01806	.01936	.01999	.02065	.02096	
.04	.01502	.01524	.01562	.01569	.01592	.01806	.01945	.01999	.02063	.02097	
.05	.01503	.01527	.01575	.01582	.01592	.01806	.01953	.01999	.02067	.02098	
.06	.01504	.01531	.01581	.01588	.01592	.01806	.01961	.01999	.02071	.02098	
.07	.01506	.01535	.01587	.01594	.01592	.01806	.01969	.01999	.02080	.02099	
.08	.01508	.01539	.01594	.01601	.01592	.01806	.01977	.01999	.02089	.02099	
.09	.01510	.01543	.01601	.01608	.01592	.01806	.01988	.01999	.02096	.02099	

CURVE	Proportional distance from beginning of transition (TRANS.-200')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.01500	.01533	.01532	.01797	.02028	.02325	.02622	.02923	.03118	.03117	.03150
.01	.01500	.01540	.01646	.01818	.02055	.02300	.02642	.02942	.03141	.03123	
.02	.01501	.01548	.01660	.01838	.02082	.02390	.02774	.03071	.03269	.03229	
.03	.01503	.01556	.01675	.01859	.02110	.02421	.02798	.03099	.03295	.03234	
.04	.01505	.01565	.01690	.01883	.02138	.02452	.02822	.03127	.03324	.03235	
.05	.01508	.01574	.01706	.01904	.02168	.02482	.02846	.03151	.03348	.03232	
.06	.01512	.01586	.01723	.01928	.02198	.02511	.02876	.03181	.03378	.03237	
.07	.01516	.01595	.01741	.01952	.02229	.02540	.02905	.03210	.03407	.03237	
.08	.01521	.01607	.01759	.01977	.02260	.02568	.02933	.03238	.03435	.03237	
.09	.01527	.01619	.01778	.02002	.02292	.02595	.02960	.03265	.03462	.03237	

CURVE	Proportional distance from beginning of transition (TRANS.-250')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.01500	.01556	.01725	.02006	.02400	.02820	.03304	.03694	.03975	.04144	.04204
.01	.01500	.01568	.01748	.02041	.02445	.02885	.03345	.03727	.03997	.04165	
.02	.01502	.01581	.01772	.02076	.02490	.02940	.03388	.03759	.04013	.04181	
.03	.01505	.01595	.01798	.02113	.02535	.02992	.03430	.03790	.04034	.04202	
.04	.01509	.01610	.01824	.02150	.02580	.03030	.03471	.03820	.04056	.04230	
.05	.01514	.01627	.01852	.02189	.02625	.03075	.03511	.03859	.04094	.04278	
.06	.01520	.01644	.01880	.02229	.02670	.03120	.03556	.03896	.04130	.04314	
.07	.01528	.01653	.01910	.02260	.02715	.03162	.03598	.03933	.04167	.04351	
.08	.01536	.01682	.01941	.02312	.02765	.03210	.03646	.03981	.04215	.04400	
.09	.01546	.01703	.01973	.02355	.02805	.03252	.03688	.04023	.04257	.04442	

CURVE	Proportional distance from beginning of transition (TRANS.-300')										
	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
.00	.01505	.01584	.01837	.02259	.02812	.03374	.03937	.04490	.04912	.05185	.05249
.01	.01501	.01602	.01872	.02310	.02868	.03431	.03993	.04440	.04845	.05118	
.02	.01503	.01621	.01908	.02364	.02925	.03487	.04049	.04508	.04878	.05151	
.03	.01507	.01642	.01946	.02418	.02981	.03543	.04106	.04564	.04908	.05181	
.04	.01513	.01665	.01986	.02475	.03037	.03599	.04162	.04619	.04933	.05206	
.05	.01521	.01690	.02030	.02531	.03093	.03656	.04218	.04675	.04959	.05232	
.06	.01530	.01716	.02070	.02587	.03149	.03712	.04274	.04731	.05004	.05277	
.07	.01541	.01744	.02115	.02643	.03206	.03769	.04332	.04789	.05042	.05315	
.08	.01554	.01773	.02161	.02700							

### CASE II SUPERELEVATION

### CASE I SUPERELEVATION

FED. ROAD DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	1-25-2(27)-143	49	

(TRANS. - 450')											
Proportional distance from beginning of transition	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Rate of superelevation (in feet) per ft. width of roadway											
.00000	.00194	.00778	.01740	.02820	.03900	.04980	.06060	.07022	.07606	.07800	
.00002	.00235	.00857	.01848	.02928	.04008	.05088	.06168	.07098	.07643		
.00008	.00280	.00941	.01956	.03036	.04116	.05196	.06276	.07170	.07676		
.00018	.00329	.01028	.02064	.03144	.04224	.05304	.06382	.07238	.07705		
.00031	.00382	.01120	.02172	.03252	.04332	.05412	.06486	.07302	.07730		
.00049	.00437	.01215	.02280	.03360	.04440	.05520	.06585	.07363	.07751		
.00070	.00498	.01314	.02388	.03468	.04548	.05628	.06680	.07418	.07770		
.00095	.00562	.01417	.02496	.03576	.04656	.05736	.06772	.07471	.07780		
.00124	.00630	.01524	.02604	.03684	.04764	.05844	.06859	.07520	.07792		
.00157	.00702	.01632	.02712	.03792	.04872	.05952	.06943	.07565	.07798		

(TRANS. - 350')											
Proportional distance from beginning of transition	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Rate of superelevation (in feet) per ft. width of roadway											
.00	.01500	.01618	.01970	.02556	.03228	.03900	.04572	.05244	.05830	.06182	.06300
.01	.01501	.01642	.02019	.02623	.03295	.03967	.04639	.05311	.05875	.06205	
.02	.01505	.01669	.02069	.02690	.03362	.04034	.04706	.05378	.05919	.06225	
.03	.01511	.01699	.02122	.02758	.03430	.04102	.04774	.05443	.05960	.06242	
.04	.01519	.01731	.02177	.02825	.03497	.04169	.04841	.05505	.05999	.06258	
.05	.01529	.01765	.02235	.02892	.03564	.04236	.04908	.05565	.06035	.06271	
.06	.01542	.01801	.02295	.02959	.03631	.04303	.04975	.05623	.06070	.06281	
.07	.01558	.01840	.02357	.03026	.03698	.04370	.05042	.05678	.06101	.06289	
.08	.01575	.01881	.02422	.03094	.03766	.04438	.05110	.05731	.06131	.06295	
.09	.01595	.01925	.02489	.03161	.03833	.04505	.05177	.05774	.06158	.06299	

(TRANS. - 450')											
Proportional distance from beginning of transition	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Rate of superelevation (in feet) per ft. width of roadway											
.00000	.00205	.00928	.02054	.03240	.04425	.05610	.06795	.07922	.08645	.08850	
.00002	.00248	.01026	.02173	.03358	.04543	.05728	.06914	.08017	.08684		
.00008	.00295	.01129	.02291	.03477	.04662	.05847	.07032	.08107	.08719		
.00018	.00352	.01236	.02410	.03595	.04780	.05965	.07151	.08193	.08749		
.00033	.00422	.01347	.02528	.03714	.04898	.06084	.07269	.08276	.08776		
.00051	.00496	.01462	.02647	.03832	.05017	.06203	.07387	.08354	.08799		
.00074	.00574	.01580	.02765	.03951	.05136	.06321	.07503	.08428	.08817		
.00101	.00656	.01699	.02884	.04069	.05254	.06440	.07614	.08497	.08832		
.00131	.00742	.01817	.03002	.04188	.05373	.06558	.07720	.08555	.08842		
.00166	.00833	.01936	.03121	.04306	.05491	.06677	.07823	.08602	.08848		

(TRANS. - 350')											
Proportional distance from beginning of transition	0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00
Rate of superelevation (in feet) per ft. width of roadway											
.00	.01500	.01643	.02073	.02787	.03606	.04425	.05244	.06063	.06777	.07207	.07350
.01	.01501	.01673	.02132	.02869	.03688	.04507	.05326	.06145	.06833	.07233	
.02	.01506	.01706	.02194	.02951	.03770	.04589	.05408	.06226	.06886	.07258	
.03	.01513	.01742	.02258	.03033	.03852	.04671	.05490	.06305	.06936	.07280	
.04	.01523	.01781	.02326	.03115	.03934	.04753	.05572	.06381	.06983	.07298	
.05	.01536	.01823	.02395	.03197	.04016	.04835	.05654	.06455	.07028	.07314	
.06	.01552	.01867	.02469	.03278	.04097	.04916	.05735	.06524	.07069	.07327	
.07	.01570	.01914	.02545	.03360	.04179	.04998	.05817	.06591	.07108	.07337	
.08	.01592	.01964	.02624	.03442	.04261	.05080	.05899	.06656	.07144	.07344	
.09	.01616	.02017	.02705	.03524	.04343	.05162	.05981	.06718	.07177	.07349	

**COLORADO**  
DEPARTMENT OF HIGHWAYS

TABLES FOR  
SUPERELEVATION  
OF CURVES

Designed by:	Approved by:
Made by:	Date
Checked by:	

FED. ROAD DIV. NO.	DIST.	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLD.	1-25-2(27)-143	65	

OUTER HIGHWAY 98+10 142+

①	②	③
$\Delta = 8^{\circ}53'$	$\Delta = 1^{\circ}44'$ RT.	$\Delta = 7^{\circ}53'$ RT.
$D = 4^{\circ}60'$	$D = 1^{\circ}00'$	$D = 4^{\circ}00'$
$T = 111.28'$	$T = 86.65'$	$T = 96.62'$
$L = 222.08'$	$L = 172.33'$	$L = 197.08'$
$R = 1432.50'$	$R = 5730'$	$R = 1432.50'$

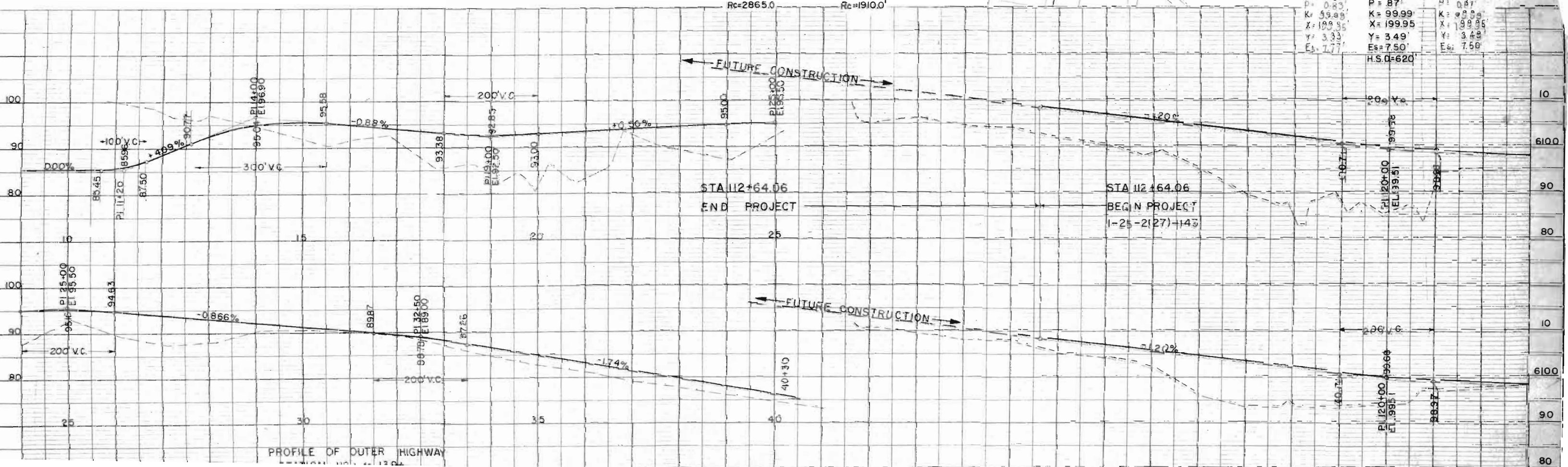
← FUTURE CONSTRUCTION →  
To be Built Under Project No. I-25-2(28)145

STA 112+64.1  
BEGIN PROJECT  
I-25-2(27) 143

LEGEND	
City Water	-----
City Gas	-----

(B)	(C)
$\Delta = 6^{\circ}00'$	$\Delta = 6^{\circ}03'$
$T_s = 275.18'$	$T_s = 175.96'$
$L_s = 250'$	$L_s = 150'$
$\Theta_s = 2^{\circ}30'$	$\Theta_s = 2^{\circ}15'$
$\Delta c = 1^{\circ}00'$	$\Delta c = 1^{\circ}33'$
$D_c = 2^{\circ}00'$	$D_c = 3^{\circ}00'$
$T_c = 250'$	$T_c = 25.84'$
$L_c = 50.0'$	$L_c = 51.67'$
$R_c = 2865.0'$	$R_c = 1910.0'$

L.C.L.	M.L.F.	F.H.
$\Delta = 9^{\circ}32'$ RT.	$\Delta = 9^{\circ}32'$ RT.	$\Delta = 9^{\circ}32'$ RT.
$T_s = 266.83'$	$T_s = 259.33'$	$T_s = 266.83'$
$D_c = 2865'$	$D_c = 3^{\circ}00'$	$D_c = 3^{\circ}00'$
$\Delta c = 3.80333'$	$\Delta c = 3.53333'$	$\Delta c = 3.53333'$
$L_c = 132.75'$	$L_c = 117.78'$	$L_c = 117.78'$
$R_c = 2000.0'$	$R_c = 1910'$	$R_c = 1910.0'$
$L_s = 200.00'$	$L_s = 200'$	$L_s = 200.00'$
$\Theta_s = 2.865'$	$\Theta_s = 3^{\circ}00'$	$\Theta_s = 3^{\circ}00'$
$P = 0.83'$	$P = 87'$	$P = 0.83'$
$K = 59.49'$	$K = 99.99'$	$K = 59.49'$
$X = 199.95'$	$X = 199.95'$	$X = 199.95'$
$Y = 3.33'$	$Y = 3.49'$	$Y = 3.49'$
$E_s = 1.77'$	$E_s = 7.50'$	$E_s = 1.77'$
	H.S.D.=620'	



PROFILE OF OUTER HIGHWAY

OUTER HIGHWAY 98+ to 142+

(3)  
Δ = 7°53' Rt.  
D = 4°00'  
T = 96.62'  
L = 197.08'  
R = 1432.5'

7-11-66, Added Tel. Line - C.L.S.  
Rev. 12-5-58, Access Control - J.C.R.

DIVISION	PFG. NO.	SHEET NO.	TOTAL SHEETS
COLD	1-25-2(27)-143	66	

NOTE: NE No. 1 Ramp, station 0+15.65 to 7+34.77 will be temporary construction; see Typical Section 7.

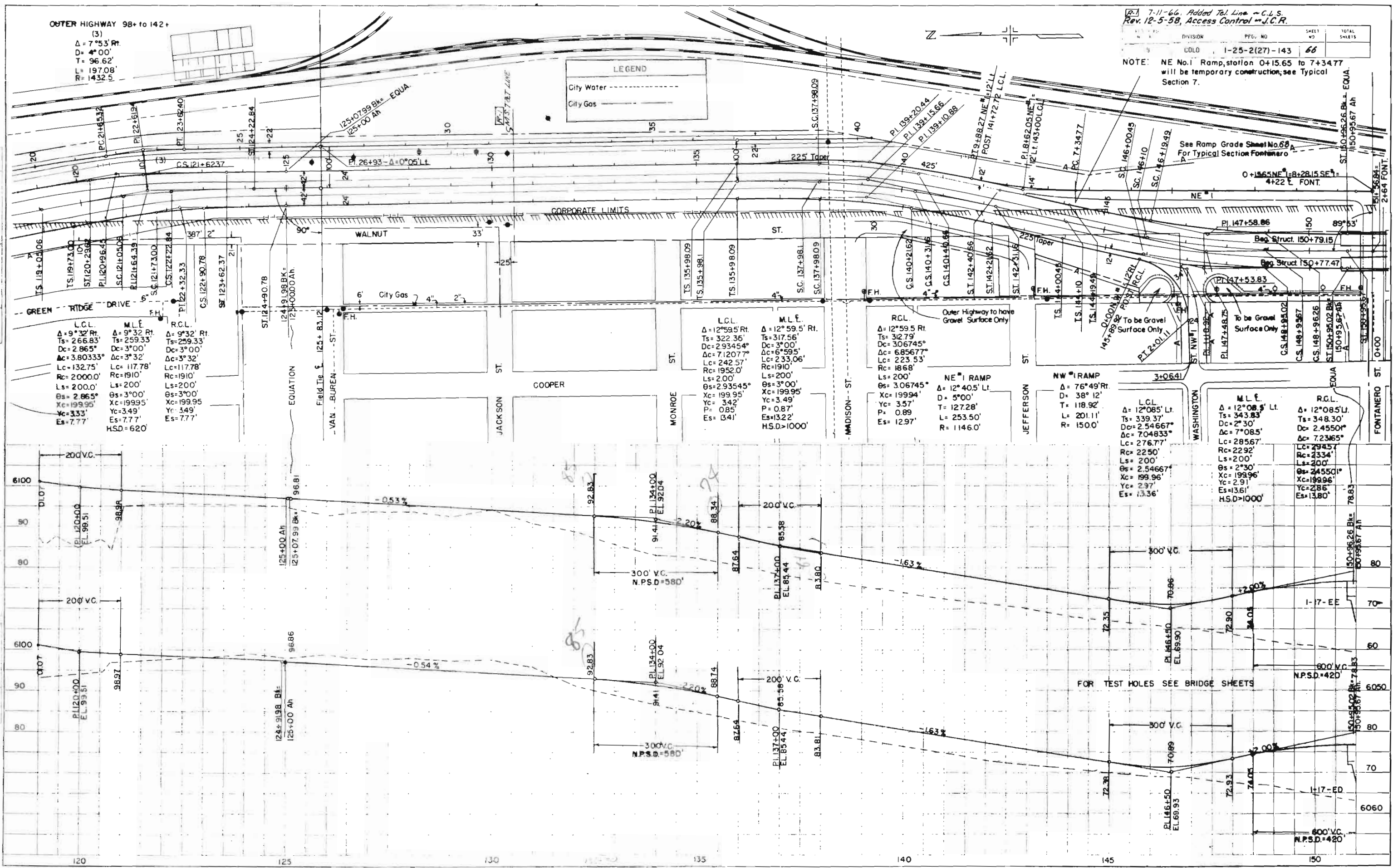
**LEGEND**

City Water - - - - -

City Gas - - - - -

PLAN SHEET PLOTTED BY DATE OF WAY CHECKED

PROFILE SHEET PLOTTED BY DATE OF WAY CHECKED



FOR TEST HOLES SEE BRIDGE SHEETS

N.P.S.D.=420'

N.P.S.D.=420'

N.P.S.D.=420'

REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	I-25-2127-143	67	

REV. 11-28-58, Access Control in J.C.R.  
 REV. 12-5-58, Access Control in J.C.R.  
 REV. ACCESS. 1-27-59, E.E.O.  
 REV. ROW. 11-3-60, E.E.O.

L.C.L.	M.L.E.	R.C.L.
$\Delta = 22^\circ 31'$	$\Delta = 22^\circ 31'$	$\Delta = 22^\circ 31'$
$T_s = 637.02'$	$T_s = 645.38'$	$T_s = 653.74'$
$D_c = 202976^\circ$	$D_c = 2^\circ 00'$	$D_c = 197110^\circ$
$\Delta_c = 1947203^\circ$	$\Delta_c = 19^\circ 31'$	$\Delta_c = 19.56001^\circ$
$L_c = 959.33'$	$L_c = 975.83'$	$L_c = 992.34'$
$R_c = 2823.0'$	$R_c = 2865'$	$R_c = 2907'$
$L_s = 150.0'$	$L_s = 150.0'$	$L_s = 150.0'$
$\theta_s = 152232^\circ$	$\theta_s = 1^\circ 30'$	$\theta_s = 147833^\circ$
$X_c = 149.99'$	$X_c = 149.99'$	$X_c = 149.99'$
$Y_c = 133'$	$Y_c = 131'$	$Y_c = 129'$
$E_s = 55.73'$	$E_s = 56.55'$	$E_s = 57.36'$
	<b>H.S.D. = 830'</b>	

**LEGEND**

City Water

City Gas

NOTE: SE No.1 Ramp, station 3+90 to 8+28.15 will be temporary construction; see Typical Section 7.

**SE #1 RAMP**

1	2
$\Delta = 11^\circ 10' L1$	$\Delta = 8^\circ 55'$
$D = 4^\circ 30'$	$D = 12^\circ 00'$
$T = 124.45'$	$T = 37.23'$
$L = 248.15'$	$L = 74.31'$
$R = 1273.33'$	$R = 477.50'$

**PLAN**

DATE: \_\_\_\_\_

BY: \_\_\_\_\_

CHECKED: \_\_\_\_\_

DATE: \_\_\_\_\_

BY: \_\_\_\_\_

CHECKED: \_\_\_\_\_

**PROFILE**

DATE: \_\_\_\_\_

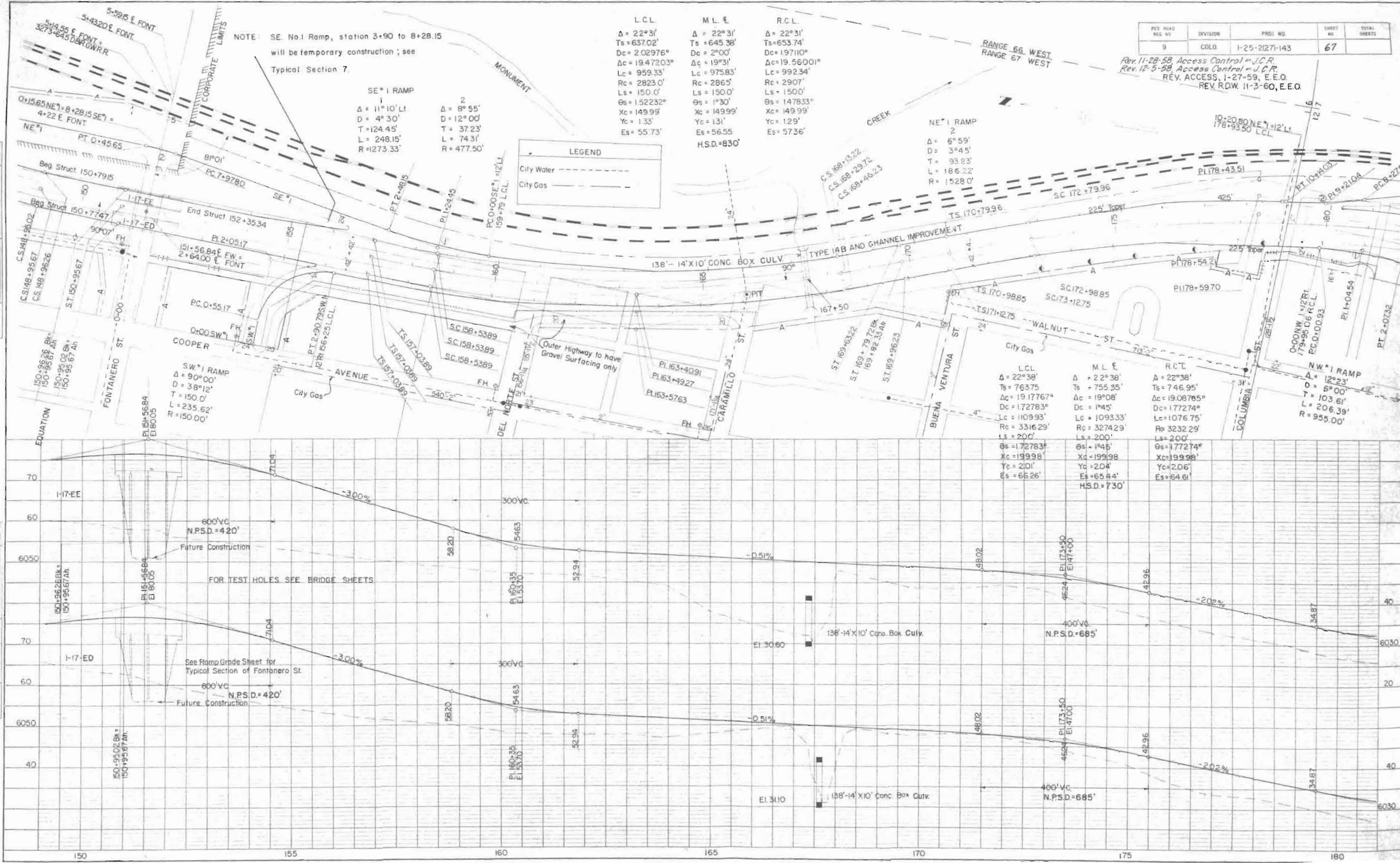
BY: \_\_\_\_\_

CHECKED: \_\_\_\_\_

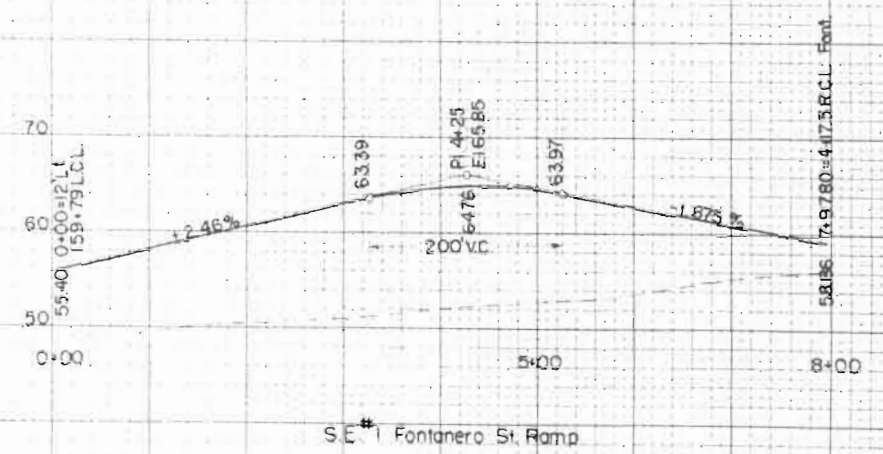
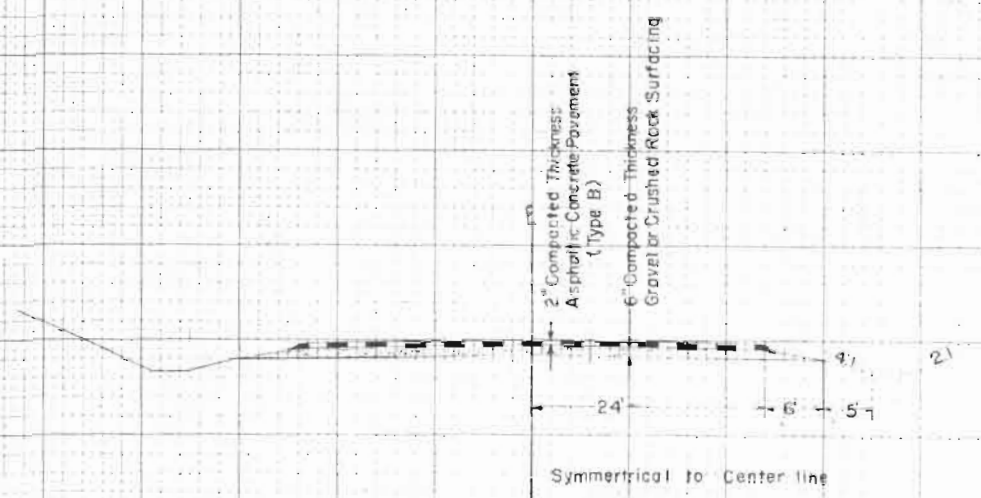
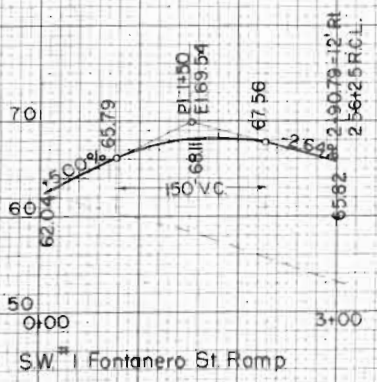
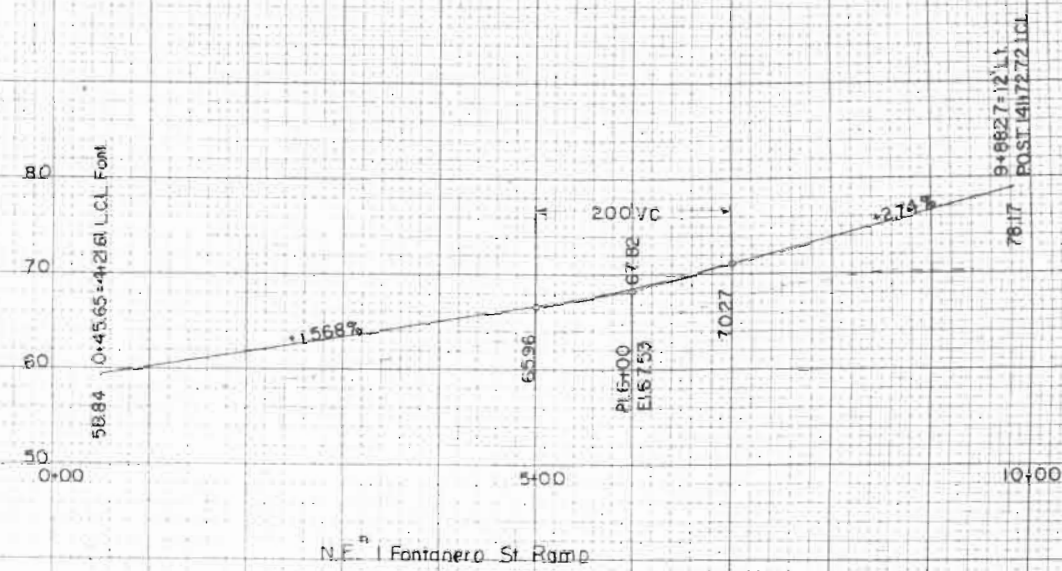
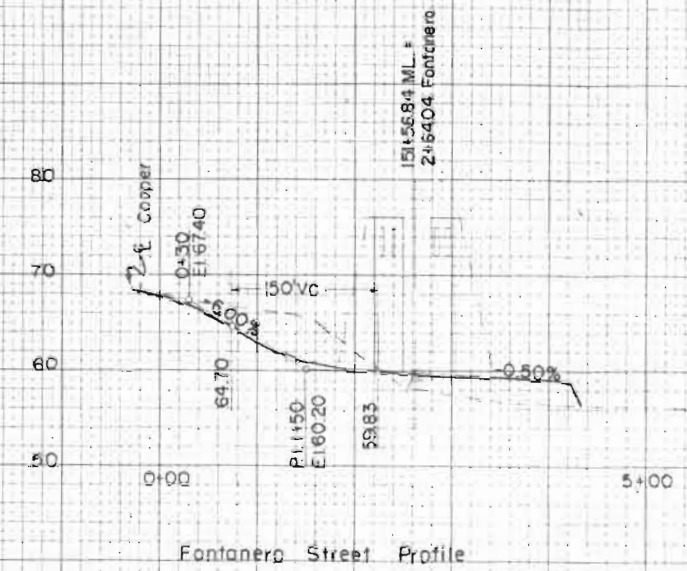
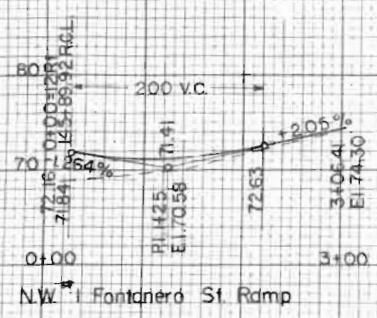
DATE: \_\_\_\_\_

BY: \_\_\_\_\_

CHECKED: \_\_\_\_\_



FED ROAD DIVISION NO	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	I-25-2(27)-143	68	



FONTANERO STREET RAMP GRADES

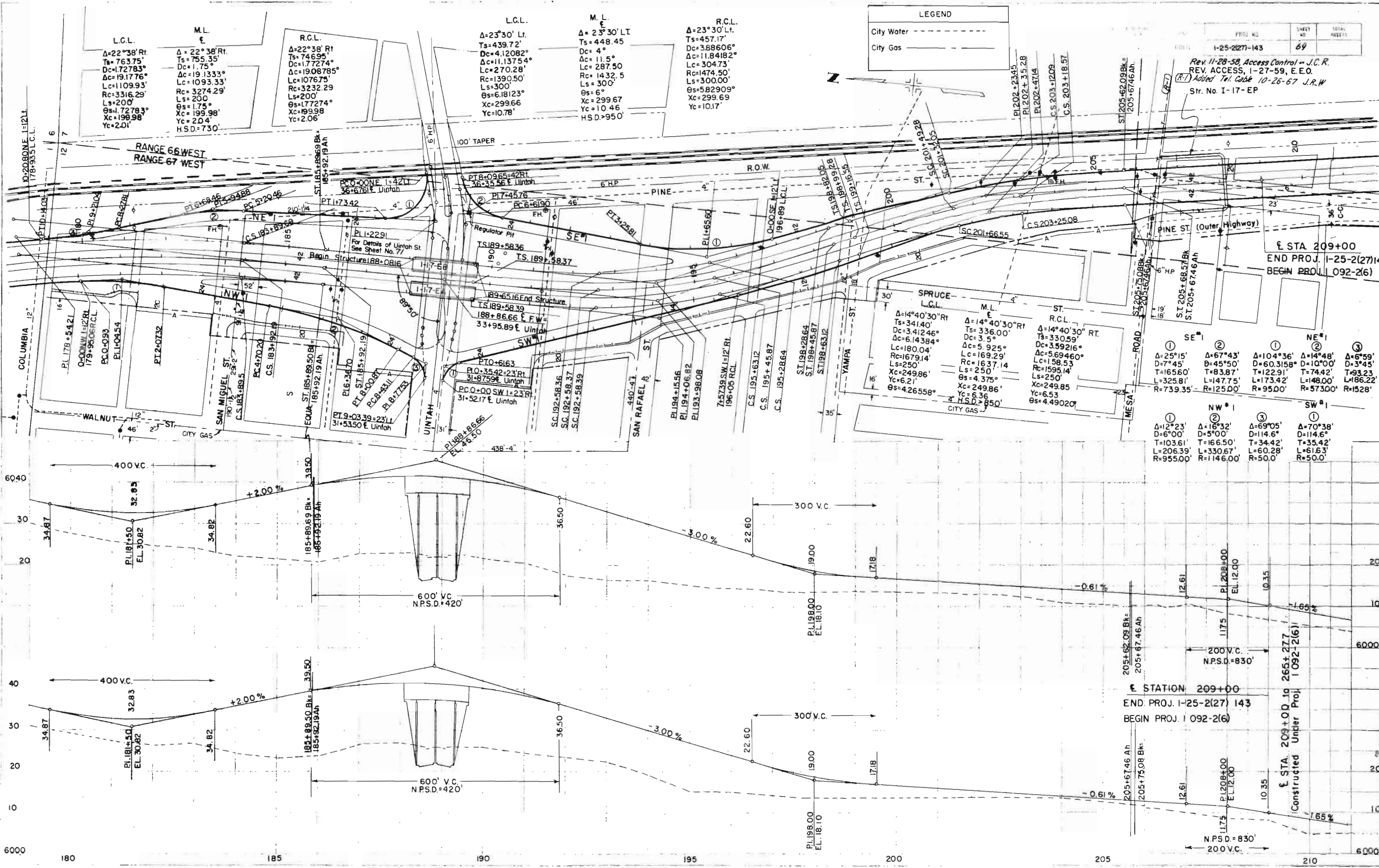
L.C.L.	M.L.	R.C.L.
$\Delta=22^{\circ}38' R$ Ts=763.75' Dc=172.783° Ac=19.1776° Lc=1109.93' Rc=3316.29' Ls=200' Cs=1.72783° Xc=199.98' Yc=2.04'	$\Delta=22^{\circ}38' R$ Ts=755.35' Dc=1.75° Ac=19.1333° Lc=1093.33' Rc=3274.29' Ls=200' Cs=1.75° Xc=199.98' Yc=2.04' H.S.D.=730'	$\Delta=22^{\circ}38' R$ Ts=746.95' Dc=1.77274° Ac=19.08785° Lc=1076.75' Rc=3232.29' Ls=200' Cs=1.77274° Xc=199.98' Yc=2.06'

L.C.L.	M.L.	R.C.L.
$\Delta=23^{\circ}30' L$ Ts=439.72' Dc=4.12082° Ac=11.13754° Lc=270.28' Rc=1390.50' Ls=300' Cs=6.18123° Xc=299.66' Yc=10.78'	$\Delta=23^{\circ}30' L$ Ts=448.45' Dc=4° Ac=11.5° Lc=287.50' Rc=1432.5' Ls=300' Cs=6° Xc=299.67' Yc=10.46' H.S.D.=950'	$\Delta=23^{\circ}30' L$ Ts=457.17' Dc=3.88606° Ac=11.84182° Lc=304.73' Rc=1474.50' Ls=300.00' Cs=5.82909° Xc=299.69' Yc=10.17'

LEGEND	
City Water	---
City Gas	---

PROJ. NO.	SHEET NO.	TOTAL SHEETS
I-25-2(27)-143	69	

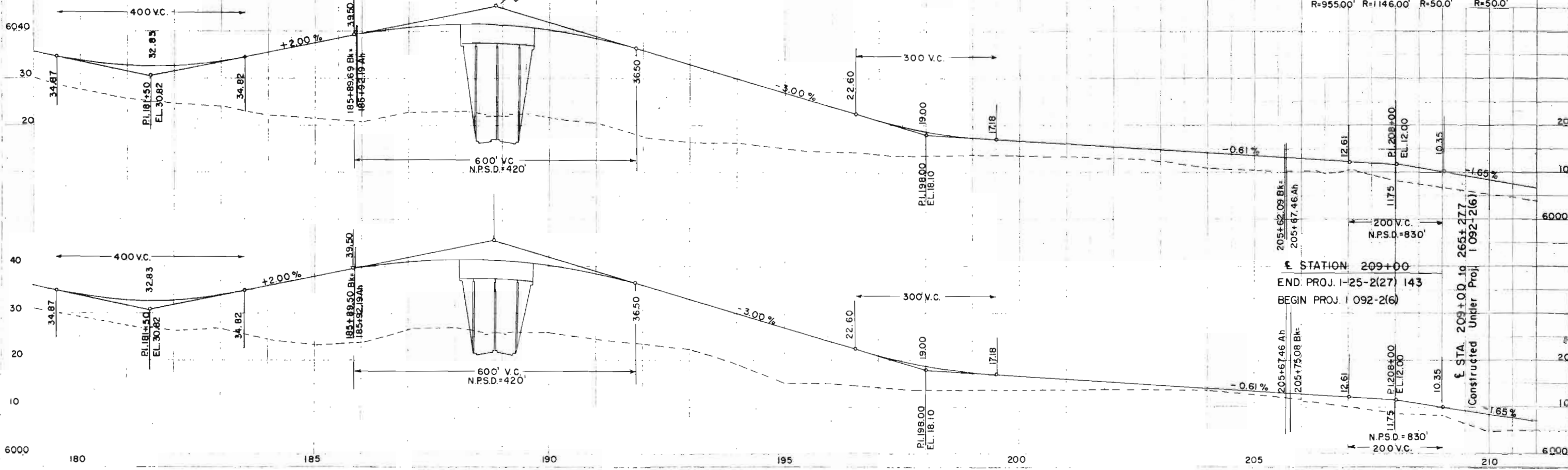
Rev. 11-28-58, Access Control - J.C.R.  
REV. ACCESS, 1-27-59, E.E.O.  
(P.T.) Added Tol. Cobb 10-26-67 J.R.W.  
Str. No. I-17-EP



STATION 209+00  
END PROJ. I-25-2(27)143  
BEGIN PROJ. I-092-2(6)

L.C.L.	M.L.	R.C.L.
$\Delta=14^{\circ}40'30'' R$ Ts=341.40' Dc=3.41246° Ac=6.14384° Lc=180.04' Rc=1679.14' Ls=250' Cs=4.26558° Xc=249.86' Yc=6.21'	$\Delta=14^{\circ}40'30'' R$ Ts=336.00' Dc=3.5° Ac=5.925° Lc=169.29' Rc=1637.14' Ls=250' Cs=4.375° Xc=249.86' Yc=6.36'	$\Delta=14^{\circ}40'30'' R$ Ts=330.59' Dc=3.59216° Ac=5.69460° Lc=159.53' Rc=1595.14' Ls=250' Cs=4.49020° Xc=249.85' Yc=6.53'

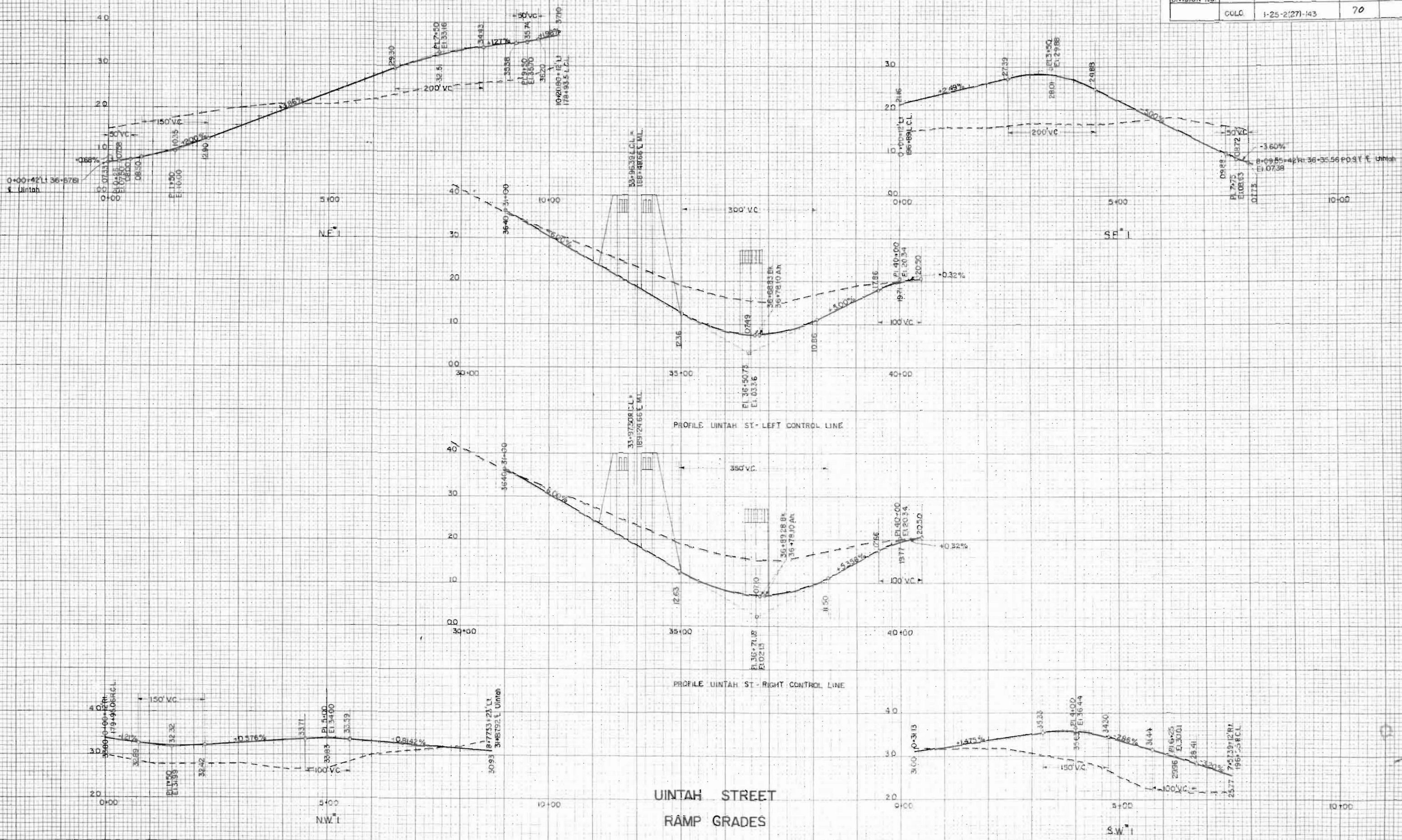
SE #1		NE #1		NW #1		SW #1			
①	②	①	②	①	②	①	②		
$\Delta=25^{\circ}15'$ D=7°45' T=165.60' L=325.81' R=739.35'	$\Delta=67^{\circ}43'$ D=45°50' T=83.87' L=147.75' R=125.00'	$\Delta=104^{\circ}36'$ D=60.3158° T=122.91' L=173.42' R=95.00'	$\Delta=14^{\circ}48'$ D=10°00' T=74.42' L=148.00' R=57300'	$\Delta=6^{\circ}59'$ D=3°45' T=93.23' L=186.22' R=1528'		$\Delta=12^{\circ}23'$ D=6°00' T=103.61' L=206.39' R=95500'	$\Delta=16^{\circ}32'$ D=5°00' T=166.50' L=330.67' R=146.00'	$\Delta=69^{\circ}05'$ D=114.6° T=34.42' L=60.28' R=50.0'	$\Delta=70^{\circ}38'$ D=114.6° T=35.42' L=61.63' R=50.0'



STATION 209+00  
END PROJ. I-25-2(27) 143  
BEGIN PROJ. I-092-2(6)

STATION 209+00 to 266+277  
Constructed Under Proj. I-092-2(6)

FED ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
	COLO.	1-25-2(27)-143	70	



UINTAH STREET  
RAMP GRADES

Rev. 11-28-58 ELK

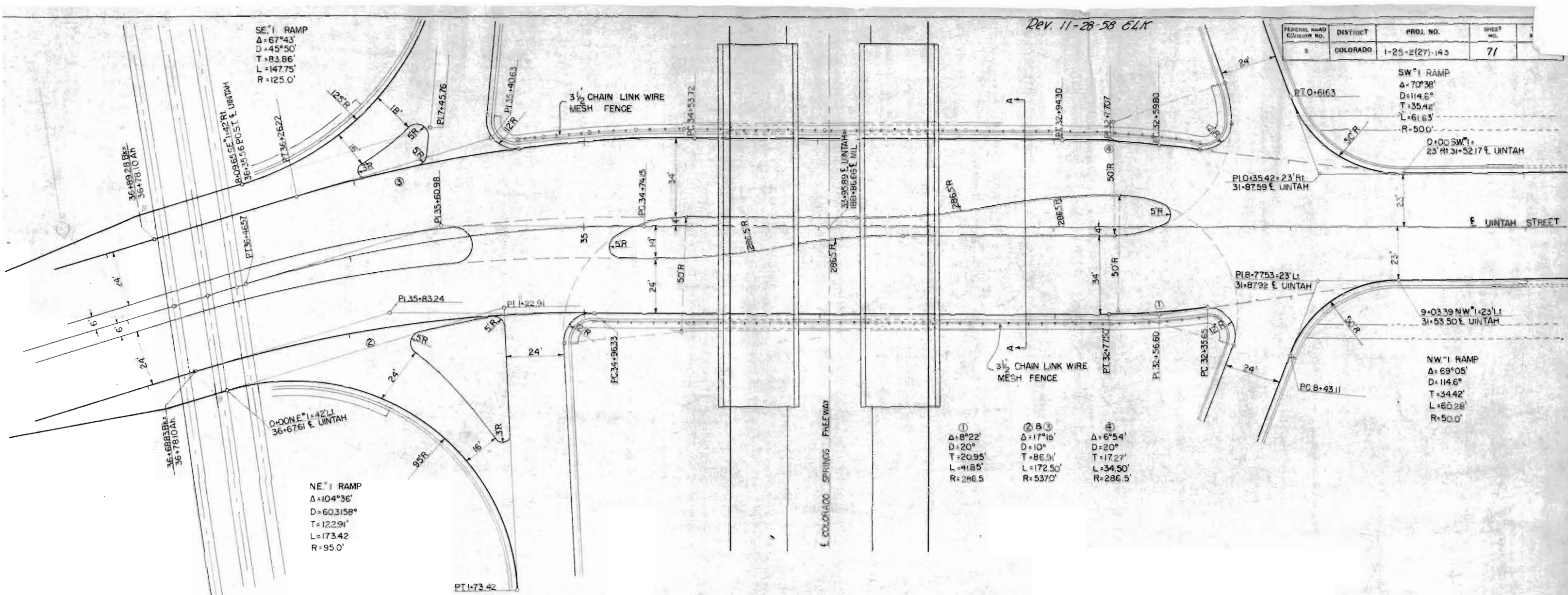
FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.
9	COLORADO	1-25-2(27)-143	71

SE. 1 RAMP  
 $\Delta = 67^{\circ}43'$   
 $D = 45^{\circ}50'$   
 $T = 83.86'$   
 $L = 147.75'$   
 $R = 125.0'$

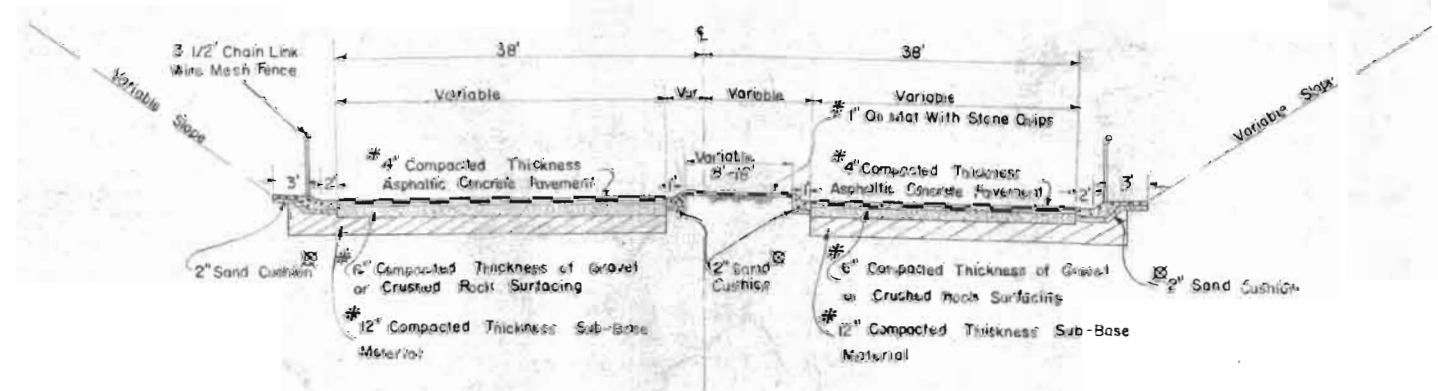
SW. 1 RAMP  
 $\Delta = 70^{\circ}38'$   
 $D = 114.6^{\circ}$   
 $T = 35.42'$   
 $L = 61.63'$   
 $R = 50.0'$   
 $D = 00 SW. 1 = 23^{\circ} R1.31 + 52.17' E UINTAH$

NE. 1 RAMP  
 $\Delta = 104^{\circ}36'$   
 $D = 603.158^{\circ}$   
 $T = 122.91'$   
 $L = 173.42'$   
 $R = 95.0'$

- ①  $\Delta = 8^{\circ}22'$   
 $D = 20^{\circ}$   
 $T = 20.95'$   
 $L = 41.85'$   
 $R = 286.5'$
- ② & ③  $\Delta = 17^{\circ}15'$   
 $D = 10^{\circ}$   
 $T = 86.91'$   
 $L = 172.50'$   
 $R = 537.0'$
- ④  $\Delta = 6^{\circ}54'$   
 $D = 20^{\circ}$   
 $T = 17.27'$   
 $L = 34.50'$   
 $R = 286.5'$



if required by the Engineer during Construction

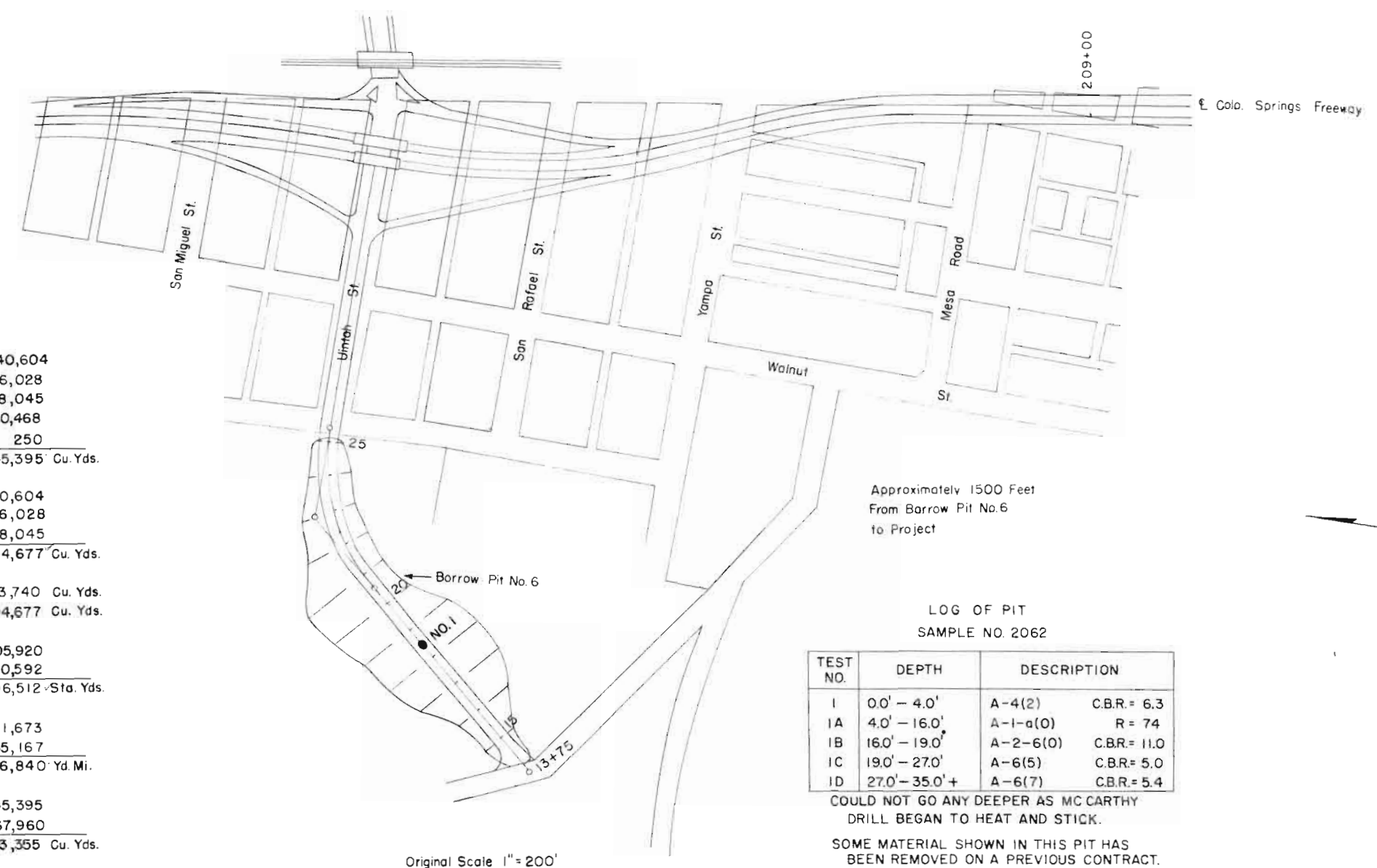


SECTION A-A

COLORADO  
 DEPARTMENT OF HIGHWAYS  
 DETAILS OF  
 UINTAH STREET AND  
 TYPICAL SECTION

**SUMMARY OF EARTHWORK QUANTITIES**

<b>EXCAVATION</b>		
From Cross Sections	40,604	
Borrow (From Pit No.6)	176,028	
(From Pit No.4)	188,045	
Estimated for Subsidence	40,468	
From Sheet No.16	250	
<b>TOTALS</b>	<b>445,395</b>	<b>Cu. Yds.</b>
<b>EXCAVATION</b>		
From Cross Sections	40,604	
Borrow (From Pit No.6)	176,028	
Borrow (From Pit No.4)	188,045	
<b>TOTALS</b>	<b>404,677</b>	<b>Cu. Yds.</b>
<b>EMBANKMENT</b>		
From Cross Sections	323,740	Cu. Yds.
<b>EMBANKMENT X FACTOR</b>	404,677	Cu. Yds.
<b>STATION YARD OVERHAUL</b>		
From Mass Diagram	4,005,920	
Estimated for Subsidence	400,592	
<b>TOTALS</b>	<b>4,406,512</b>	<b>Sta. Yds.</b>
<b>YARD MILE OVERHAUL</b>		
From Mass Diagram	351,673	
Estimated for Subsidence	35,167	
<b>TOTALS</b>	<b>386,840</b>	<b>Yd. Mi.</b>
<b>COMPACTION</b>		
Excavation	445,395	
Base of Cuts and Fills	67,960	
<b>TOTALS</b>	<b>513,355</b>	<b>Cu. Yds.</b>



LOG OF PIT  
SAMPLE NO. 2062

TEST NO.	DEPTH	DESCRIPTION
I	0.0' - 4.0'	A-4(2) C.B.R. = 6.3
IA	4.0' - 16.0'	A-1-a(0) R = 74
IB	16.0' - 19.0'	A-2-6(0) C.B.R. = 11.0
IC	19.0' - 27.0'	A-6(5) C.B.R. = 5.0
ID	27.0' - 35.0'+	A-6(7) C.B.R. = 5.4

COULD NOT GO ANY DEEPER AS MC CARTHY DRILL BEGAN TO HEAT AND STICK.

SOME MATERIAL SHOWN IN THIS PIT HAS BEEN REMOVED ON A PREVIOUS CONTRACT.

Original Scale 1" = 200'

**LOCATION OF BORROW PIT NO.6**

FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	1-25-2(27)-143	73	

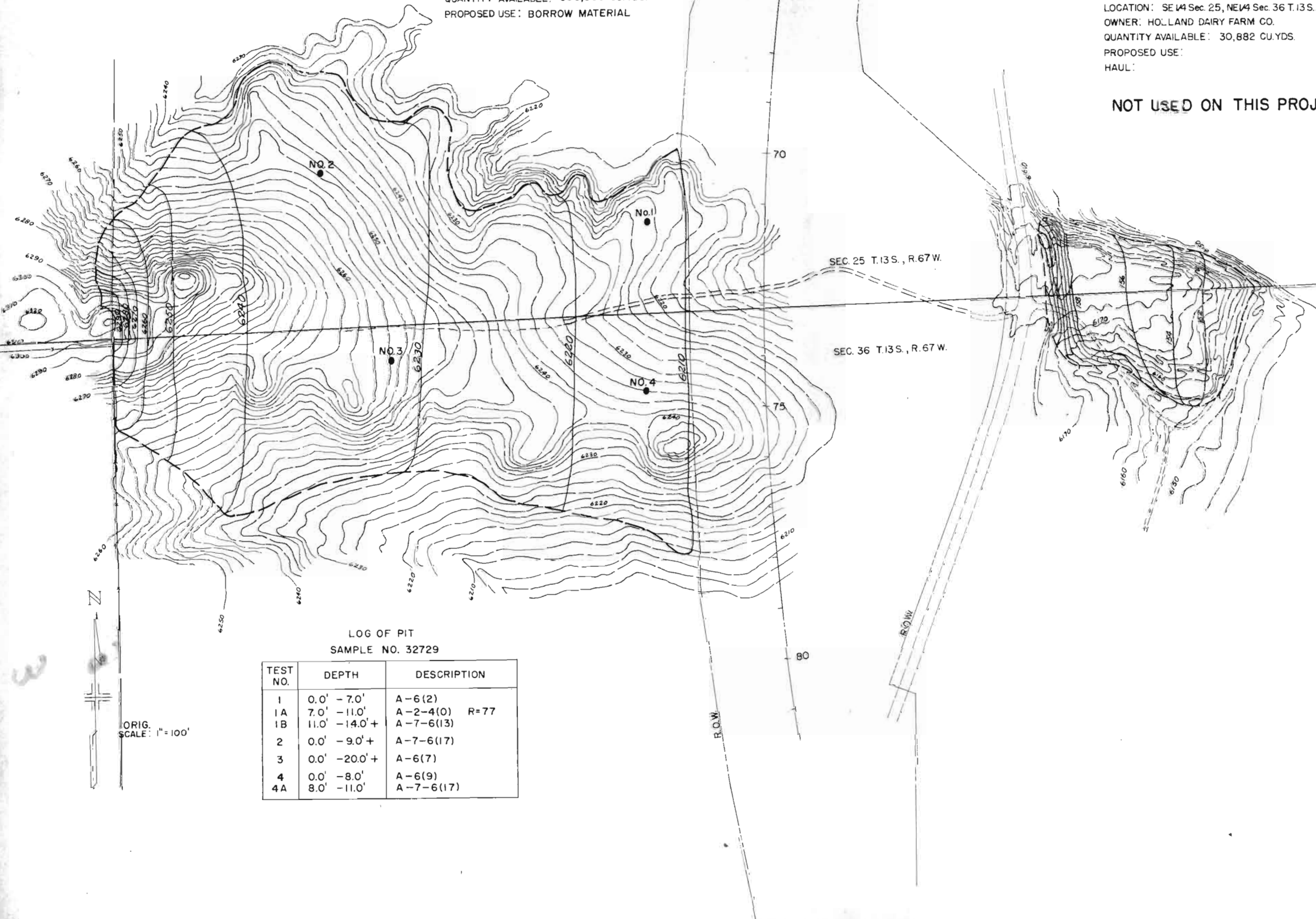
### PIT NO. 4

LOCATION: SW/2 Sec 25, NE/4 Sec 36 T.13S., R.67W.  
 OWNER: A.L. TROWBRIDGE Contract Purchaser from HOLLAND DAIRY FARM CO.  
 QUANTITY AVAILABLE: 500,000 CU.YDS.  
 PROPOSED USE: BORROW MATERIAL

### PIT NO. 3

LOCATION: SE 1/4 Sec. 25, NE 1/4 Sec. 36 T.13S., R.67W.  
 OWNER: HOLLAND DAIRY FARM CO.  
 QUANTITY AVAILABLE: 30,882 CU.YDS.  
 PROPOSED USE:  
 HAUL:

NOT USED ON THIS PROJECT



LOG OF PIT  
 SAMPLE NO. 32729

TEST NO.	DEPTH	DESCRIPTION
1	0.0' - 7.0'	A-6(2)
1A	7.0' - 11.0'	A-2-4(0) R=77
1B	11.0' - 14.0'+	A-7-6(13)
2	0.0' - 9.0'+	A-7-6(17)
3	0.0' - 20.0'+	A-6(7)
4	0.0' - 8.0'	A-6(9)
4A	8.0' - 11.0'	A-7-6(17)