

STATE DEPARTMENT OF HIGHWAYS

DIVISION OF HIGHWAYS—STATE OF COLORADO

R.O.W. under FAP 9-R-6,
FAPE 9-R-1 and AWP 6010
P.E. and Utilities under
ERFO 108(3)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
VIII	COLORADO	ERFO 108(7)	1

AS CONSTRUCTED		
NO REVISIONS	REVISED 8-25-79	VOID

(R-1) - 4/3/78 - RLM - Index

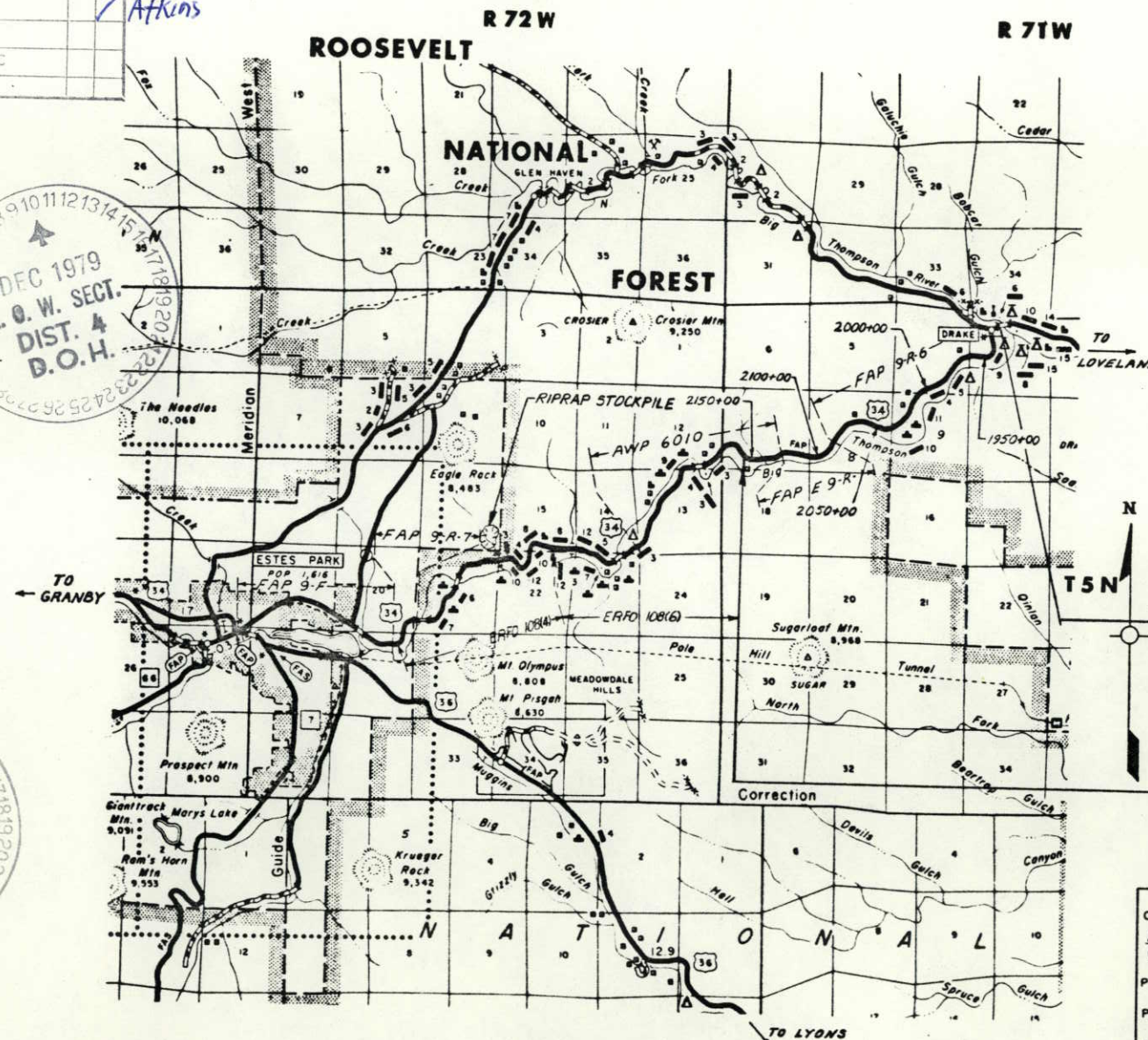
TABULATION OF LENGTH AND DESIGN DATA

STATION TO STATION	ROADWAY LIN. FT.
1930+93.8 BEGIN ERFO 108(7) = 581+10.5 BEGIN ERFO 108(8) = 581+10.8 ON 9-R-5	3,416.71
1965+10.51 BK = 965+11.31 AH EQUATION	2,601.20
1991+12.51 BK = 1991+20.32 AH EQUATION	711.88
1998+32.2 BK = 1998+31.34 AH EQUATION	1,329.81
2011+61.15 BK = 2011+60.90 AH EQUATION	2,836.84
2039+77.74 BK = 2040+00.00 AH EQUATION	1,411.56
2054+11.56 BK = 2054+12.18 AH EQUATION	3,636.63
2090+48.81 BK = 2090+54.04 AH EQUATION	1,061.63
2101+15.67 BK = 2101+17.89 AH EQUATION	206.71
2103+24.60 BK = 2103+35.31 AH EQUATION	1,689.78
2120+25.09 BK = 2120+25.84 AH EQUATION	3,199.31
2152+25.15 BK = 2155+00.00 AH EQUATION	350.00
2158+50 END ERFO 108(7) = 312+50 END ERFO 108(6) = 312+50 ON AWP 6010	
TOTAL	22,452.06
SUMMARY	
	LIN. FT. MILES
ROADWAY	22,452.06 4.252
TOTAL - NET AND GROSS LENGTH	22,452.06 4.252
DESIGN DATA	
MAXIMUM DEGREE OF CURVE	20
MAXIMUM GRADE	7.5%
MINIMUM SSD HORIZONTAL	170'
MINIMUM SSD VERTICAL	250'
MAXIMUM DESIGN SPEED	30 MPH
1976 DESIGN TRAFFIC VOLUME	ADT 2250 DHV 850

DIST. IV	FILE	COPY
DIST. ENGR.		
ASST. ENGR.		
CONSTR.		
PRE-CONST.		
ERA		
UTIL.		
DESIGN		
ROW		
MAT'L'S		
EEO		
RE-PE'S		
MAINT.		
TRAFFIC		

PLAN AND PROFILE OF PROPOSED— FEDERAL AID PROJECT NO. ERFO 108(7) STATE HIGHWAY NO. 34 LARIMER COUNTY

SCALES OF ORIGINAL DRAWINGS
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



SHEET NO.	INDEX OF SHEETS
1	TITLE PAGE, SKETCH MAP, TABULATION OF LENGTH AND DESIGN DATA
2-3	TYPICAL SECTIONS, GENERAL NOTES, SCHEDULE OF PROPOSED CONSTRUCTION
4-5	SUMMARY OF APPROXIMATE QUANTITIES
6-8	STRUCTURE QUANTITIES
9	TABULATION OF: GUARD RAIL AND ASPHALTIC CURB, SURFACING PLAN, SUMMARY OF EARTHWORK QUANTITIES
10	TABULATION OF: DELINEATORS, RIPRAP AND FILTER MATERIAL REQUIREMENTS
11	DETAIL OF: CBC WINGWALL LAYOUT, DRAINAGE DESIGN DATA
12	DETAIL OF: INLET GRATING SPECIAL, DOUBLE INLET SPECIAL, INLET SPECIAL
13-20	ALIGNMENT PLAN AND PROFILE
21-25	STANDARD M-606-AC (SPECIAL FOR THIS PROJECT) GUARD RAIL TYPE 3 (5 SHEETS)
26	CONCEPTUAL ROCK PLACEMENT IN CHANNEL
27-30	STA 20685, DETOUR
201-287	CROSS SECTIONS
M STANDARDS	
M-100-A	STANDARD SYMBOLS
M-203-B	APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, BRIDGE & CREST WIDENING
M-203-C	DITCH TYPES
M-203-SC	SUPERELEVATION OF CURVES - CROWNED HIGHWAYS
M-206-AB	EXCAVATION AND BACKFILL FOR STRUCTURES
M-601-BC1	SINGLE CONCRETE BOX CULVERT (3 SHEETS)
M-601-L	HEADWALL, INTERCEPTING HEADWALL AND CULVERT OUTLET PAVING
M-601-W	WINGWALLS FOR PIPE OR BOX CULVERTS
M-603-CA	CONCRETE AND METAL END SECTIONS
M-603-MA	METAL CULVERT PIPE - H-20 LOADING
M-604-BA	INLET, TYPE C
M-604-DA	STEPS FOR MANHOLES AND INLETS
M-609-A	CURBS AND GUTTERS
M-615-A	EMBANKMENT PROTECTOR TYPES 3 AND 4
2, 11, 12, 21-26	SHEETS NOT REVISED
S STANDARDS	
S-612-1A	TYPICAL DELINEATOR INSTALLATIONS
S-614-39A	TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION (4 SHEETS)
S-614-52A	BARRICADES, DRUMS AND VERTICAL PANEL CHANNELIZING DEVICES (4 SHEETS)
S-627-1A	TYPICAL PAVEMENT MARKINGS (2 SHEETS)

STA. 1930+93.8 BEG. ERFO 108(7) =
581+10.5 BEG. ERFO 108(8)

STA. 2158+50 END ERFO 108(7) =
312+50 END ERFO 108(6)

DIVISION OF HIGHWAYS

APPROVED: *Tom M. Cox* 2/4/79
Asst. CHIEF ENGINEER DATE

AS CONSTRUCTED INFORMATION

CONTRACTOR *Peter Kiewit Sons Co.*

RESIDENT ENGINEER *Don Atkins*
(Project or Resident) *FLOYD STARK JOHANN*

PROJECT STARTED *MAY 1, 1978*

PROJECT COMPLETED *AUGUST 25, 1979*

AS CONSTRUCTED PLANS APPROVED *Joe Peterson*
Coast Engr. 10-1-79
TITLE DATE

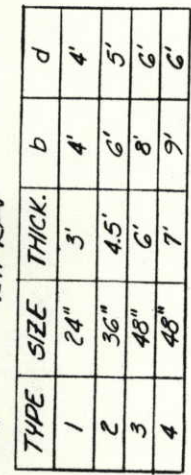
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ DATE _____

DIVISION ADMINISTRATOR

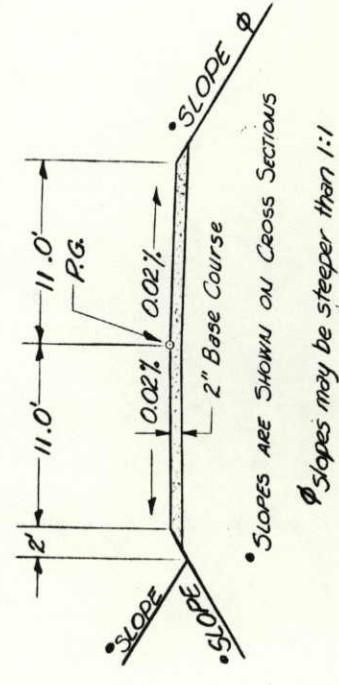
R.L.M.

ϕ Approximate Thickness



SIGN CODE OR LEGEND	DIMENSIONS	PANEL SIZE		PANEL AREA SQUARE FEET	PANEL WEIGHT POUNDS	PANEL LENGTH FEET	PANEL WIDTH FEET	PANEL THICKNESS INCHES	PANEL WEIGHT POUNDS	PANEL LENGTH FEET	PANEL WIDTH FEET	PANEL THICKNESS INCHES
		A EACH	B EACH									
SW 20-1	36" x 36"	2	2	144	100	12	12	1/2	144	12	12	1/2
SW 20-7	36" x 36"	4	4	576	400	24	24	1/2	576	24	24	1/2
"BE/REPREP/STOP"	36" x 36"	4	4	576	400	24	24	1/2	576	24	24	1/2
SG 20-1	60" x 36"	2	2	432	300	30	30	1/2	432	30	30	1/2
SG 20-2	60" x 24"	2	2	288	200	24	24	1/2	288	24	24	1/2
SR 2-1(20)	36" x 40"	2	2	288	200	30	40	1/2	288	30	40	1/2
SR 2-1(40)	24" x 30"	2	2	144	100	24	30	1/2	144	24	30	1/2
SR 2-1(60)	36" x 36"	2	2	576	400	24	36	1/2	576	24	36	1/2
SW 20-3	24" x 36"	2	2	172	120	24	36	1/2	172	24	36	1/2
SW 2-1(20)	36" x 36"	2	2	576	400	24	36	1/2	576	24	36	1/2
SW 2-1(40)	24" x 30"	2	2	144	100	24	30	1/2	144	24	30	1/2
SW 2-1(60)	36" x 36"	2	2	576	400	24	36	1/2	576	24	36	1/2
SW 2-1(80)	48" x 36"	2	2	864	600	36	48	1/2	864	36	48	1/2
SW 2-1(100)	60" x 36"	2	2	1080	800	48	60	1/2	1080	48	60	1/2
SW 2-1(120)	72" x 36"	2	2	1296	900	60	72	1/2	1296	60	72	1/2
SW 21-3	36" x 36"	2	2	576	400	24	36	1/2	576	24	36	1/2
SW 2-7	30" x 30"	2	2	360	250	20	30	1/2	360	20	30	1/2
SW 2-12	48" x 30"	2	2	576	400	36	48	1/2	576	36	48	1/2
SW 4-10(R)	48" x 18"	2	2	172	120	24	48	1/2	172	24	48	1/2
SW 2-12	48" x 30"	2	2	576	400	36	48	1/2	576	36	48	1/2
SW 4-10(L)	48" x 18"	2	2	172	120	24	48	1/2	172	24	48	1/2
SW 1-6	48" x 24"	2	2	230	160	24	48	1/2	230	24	48	1/2
SW 22-1	40" x 40"	2	2	160	110	20	40	1/2	160	20	40	1/2
SW 22-2	42" x 36"	2	2	151	105	21	42	1/2	151	21	42	1/2
SW 22-3	42" x 36"	2	2	151	105	21	42	1/2	151	21	42	1/2
TYPE 1 BARRICADES		6	6	36	25	6	6	1/2	36	6	6	1/2
20 MIN DELAY		27	18	31	21	27	18	1/2	31	27	18	1/2
TOTAL		27	18	31	21	27	18	1/2	31	27	18	1/2

2066 + 70 2072 +



- SLOPES ARE SHOWN ON CROSS SECTIONS

Ø Slopes may be steeper than 1:1

GUARD POSTS AND DELINEATORS ~~WILL BE~~ REMOVED BY STATE FORCES.

IT IS ESTIMATED THAT ¹⁴⁰ ~~400~~ HOURS OF BLADING WITH A MOTOR GRADER IN THE 125 TO 135 FLYWHEEL HORSEPOWER RANGE ~~WILL BE~~ REQUIRED. *OH 305*

COMPACTION FOR THIS PROJECT ~~SHALL BE~~ AASHTO T 180

(R-1)

(E-2) Revised & Added Items 601, 4-3-78 RLM [R-1] - Revised Items 304, 4-11-78 506 3-20-78 R.L.M.

FINAL SUMMARY OF APPROXIMATE QUANTITIES

FINAL SUMMARY OF APPROXIMATE QUANTITIES																
INDEX		CONTRACT		CONTRACT ITEM		UNIT	C.M.O.	AMOUNT	TOTAL		DIFFERENCE		TOTAL		DIFFERENCE	
BOOK	SHEET	ITEM NO.					No.	+ / -	ERFO 108(7)	ERFO 108(9)	+	-	ERFO 108(9)	ERFO 108(7)	+	-
AS CONSTRUCTED																
REVISED 8-25-79																
VOID																
NO REVISIONS																
DIVISION COLORADO																
PROJECT NO. ERFO 108(7)																
SHEET NO. 4																
TOTAL SHEETS																
DIFFERENCE %																
+ / -																
-19 -4																
-33 -5																
+0.3 +9																
+250 +5																
+37 +14																
-66 -398																
+28																
-2																
-2																
-43																
+143																
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+2																
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-30																
+17,107																
+13																
-69																
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-16																
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-3																
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+3																
+422																
+11																
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~~FINAL SUMMARY OF APPROXIMATE QUANTITIES~~

[illegible]

FINAL
STRUCTURE QUANTITIES

AS CONSTRUCTED

NO REVISIONS

REVISED 8-25-79

VOID

FEDERAL ROAD
REGION NO.

DIVISION

COLORADO

PROJECT NO.

ERFD 108(7)

SHEET
NO.

6

INDEX		LOCATION	UNCLASSIFIED EXCAVATION		STRUCTURE EXCAVATION		STRUCTURE BACKFILL		REMOVAL OF STRUCTURE	AGGREGATE BASE COURSE SURFACING (CLASS 5) (TON)	HOT BITUMINOUS PAVEMENT (TON)	INLET GRATING AND FRAME EACH	CONCRETE		REINFORCING STEEL	CULVERT PIPE				OVER CULV. FT.	SLOPE AND DITCH PAVING CUBIC YARD	STEEL END SECTION EACH			
BOOK	PAGE SHEET		EXCAV.	EMB.	CUBIC YARD	DITCH	CUBIC YARD	CL. 2					CL. A	CL. 4		LB.	CORRUGATED	LINEAR FEET	STEEL			CUBIC YARD	18" 24" 30" 36" 60"	12" 18" 24" 30" 36" 60"	18" 24" 30" 36" 60"
1	8	1937+12		46	3		5			4	3	1	1.7		12										
1	12	1943+45		28	55		34						1.7		12	70			3						
1	16	1946+60		30					1	3	3														
1	18	1947+65		14	50		27			4	3	1	1.7		12	60			4						
1	22	1951+34		29	54		28			4	3	1	1.7		12	75			7						
1	26	1951+77		21					1	3	3														
1	28	1960+55		19	54		28					1	1.7		12	58			5						
1	30	1962+34		29					1																
1	34	1967+35		9	56		28			4	3	2	2.3			58			3						
1	38	1975+08		27	4		10			5	4	2	2.6			16			4						
1	42	1980+40		6	6		7					1	1.9		12				3						
1	46	1984+81		37	95		67		±0	8	7					78			6				1- Plug Culvert		
1	52	1992+29		19	3		6					1	1.8		12										
1	56	1995+78		60	7		5		±0																
1	60	1997+97		26	56		27			4	3	1	1.8		12	4			1						
1	64	2004+27		35	2		4						1.5		12										
1	66	2006+88		23			28			4	3	1	1.5		12	10			1						
1	70	2008+42								4	3	1	1.7		12	64			4				1- Removal of Headwall		
1	72	2011+40		23	92		40			5	4	2	2.6			62			5				1- Plug Structure Culvert 1- Removal of Headwall		

[illegible]

GUARD RAIL AND ASPHALTIC CURB D.O.H. FM 305

STATION TO STATION	SIDE	REMOVAL OF GUARD RAIL TYPE 1	GUARD RAIL TYPE 3 (6'3" SPACING)	ANCHORAGE TYPE 3E	CURB TYPE 6 SECTION M
1948+00 TO 1961+00	LT.	1350	1350	2'	
1961+00 TO 1995+20.31	LT.	950	950	2'	
1995+20.31 TO 2025+	LT.	337.5	337.5	2'	
2025+ TO 2032+00	LT.	425	425	2'	
2032+00 TO 2101+	LT.	950	950	2'	
2101+ TO 2111+	LT.	825	825	2'	
2111+ TO 2090+00	LT.				714
2090+00 TO 2099+50	LT.	300	2100	2'	
2099+50 TO 2151+00	LT.	47			1139
2151+00 TO 2152+	LT.	400			
2152+ TO 2151+30	LT.	75			
TOTAL		493	7187.5	14	1855

ALL POSTS FOR GUARDRAIL ARE TO BE DRIVEN OR PUNCHED.
TRIANGULAR ALTERNATE REFLECTORS AS SHOWN ON STANDARD M-606-AC SHALL BE USED.
NOTE: IN AREAS DESIGNATED BY THE ENGINEER, THE FACE OF GUARD RAIL TYPE 3 MAY BE PLACED CLOSER TO THE ROADWAY SHOULDER THAN THE MINIMUM 2 FEET SHOWN ON STANDARD M-606-AC

SURFACING PLAN D.O.H. Form 87

STATION TO STATION	SOURCE	QUANTITY - TONS				
		SHOULDER FINISHING	AGGREGATE BASE COURSE CLASS 6	BOTTOM LAYER	TOP LAYER	FINAL
1930+93.8 TO 1959+00	UNDESIGNATED	84	842	561	702	FINAL
1959+00 TO 1968+50		28	797	323	237	
1968+50 TO 2032+00		190	1903	1269	1586	
2032+00 TO 2035+00		9	252	102	75	
2035+00 TO 2038+00 (TRANS)		3	290	127	89	
2038+00 TO 2048+00		3	1088	469	339	
2048+00 TO 2068+00		60	1121	670	580	
2068+00 TO 2071+00 (TRANS)		9	25	80	80	
2071+00 TO 2111+00		119	1145	796	955	
2111+00 TO 2114+00 (TRANS)		9	149	80	49	
2114+00 TO 2125+00		83	416	163	374	
2125+00 TO 2128+00 (TRANS)		9	25	30	84	
2128+00 TO 2130+50		3	75	30	50	
2130+50 TO 2138+00		23	630	235	188	
2138+00 TO 2158+50		53	533	353	444	
ESTIMATED FOR: IRREGULARITIES IN SUBGRADE TURNOUTS AND APPROACHES FROM STRUCTURE QUANTITIES			1459	74	906	
PROJECT TOTAL		673	11,443	5,639	6,998	12,805.45

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ERF0108(7)	9	
AS CONSTRUCTED				
NO REVISIONS				
REVISED 8-2-57				
VOID				

INDEX		
BOOK	PAGE	SHEET
266 #	107	8
266 #	107	8

SUMMARY OF EARTHWORK QUANTITIES

UNCLASSIFIED EXCAVATION	CU. YD.
ROADWAY FROM CROSS SECTIONS	62.447
STRUCTURE QUANTITIES AS EXCAVATION	5.922
STRUCTURE QUANTITIES AS DITCH	318
TOTAL	68.687
EMBANKMENT MATERIAL (COMPLETE IN PLACE)	
FLATTEN SLOPES AND MISC.	33.381
EMBANKMENT (NET)	5.713
STRUCTURE QUANTITIES AS EMBANKMENT (NET)	30.553
TOTAL	38.626
ROADWAY QUANTITIES BALANCE (FOR INFORMATION ONLY)	
EXCAVATION	0
UNCLASSIFIED	40.057
BORROW EMBANKMENT MATERIAL X 1.20	40.057
TOTAL	40.057
EMBANKMENT NET	
ROADWAY (FROM CROSS SECTIONS)	33.381
TOTAL	33.381
EMBANKMENT X 1.20	
ROADWAY (FROM CROSS SECTIONS)	40.057
TOTAL	40.057
WETTING	M. GAL.
DUST PALLIATIVE	254
TOTAL	254

UNCLASSIFIED EXCAVATION IS TO BECOME THE PROPERTY OF THE CONTRACTOR.

PROJECT NO.
ERFO 108(7)

DIVISION
COLORADO

FEDERAL ROAD DISTRICT NO.
VIII

SHEET NO.
10

TOTAL SHEETS

AS CONSTRUCTED

REVISED 8-25-75

VOID

R-1 - Removed Note 3/29/78 - R.L.M.

RIPRAP AND FILTER MATERIAL REQUIREMENTS

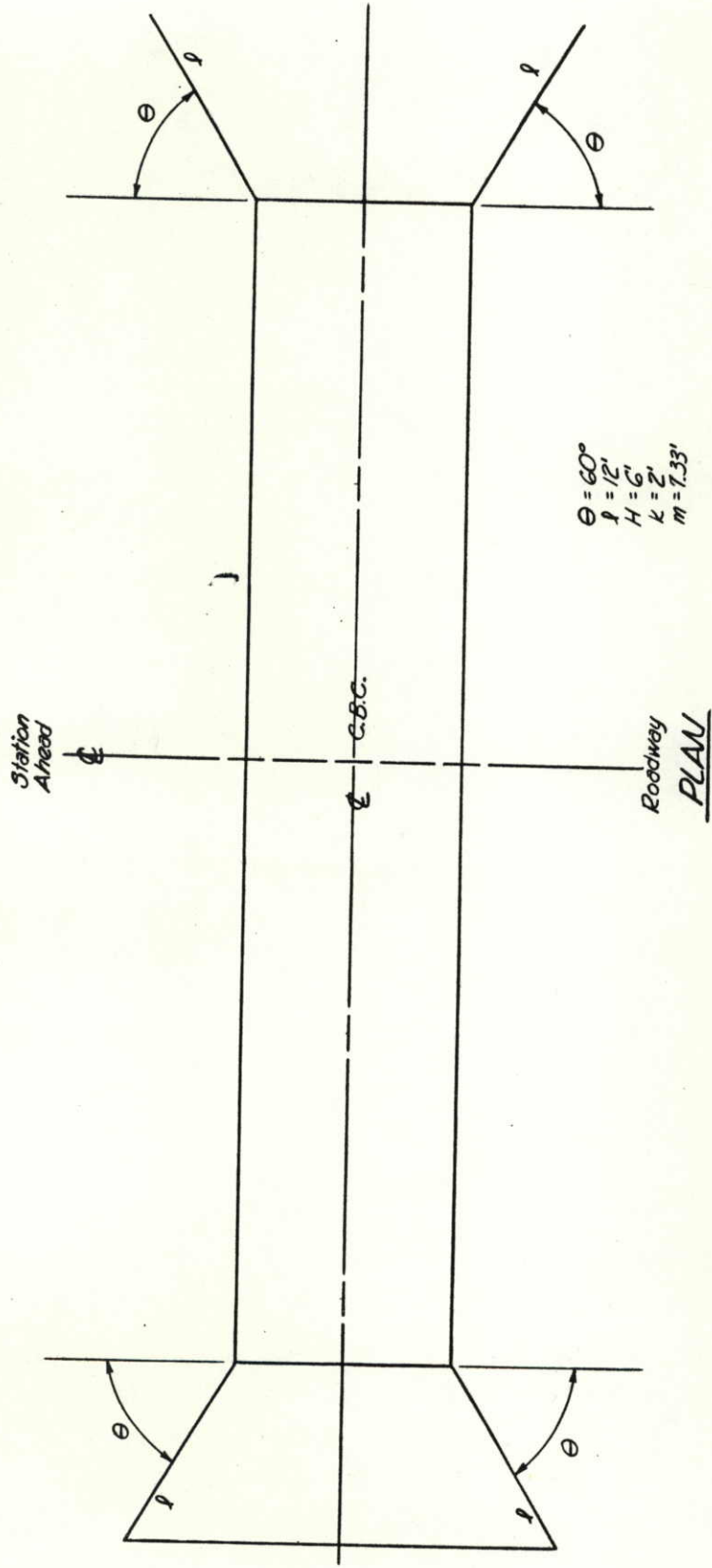
BOOK	STATION TO STATION	RIPRAP SLOPE	R-1				HEAVY RIPRAP				FILTER MATERIAL SQ. YDS.	FINAL	STRUCTURE EXCAVATION CU. YDS.	FINAL
			TYPE 1	FINAL	TYPE 2	FINAL	TYPE 3	FINAL	TYPE 4	FINAL				
4	1945+00 TO 1950+00	2:1	1,406							985		741		
45	1950+00 TO 1951+00	1-3/4:1	294							205		141		
48	1951+00 TO 1957+00	1-1/2:1	1,723							1,127	2,782	800	1,348	
	1957+00 TO 1958+00	1-1/4:1		468						169		215		
	1958+00 TO 1961+00	1:1		1,336	1,995					448	618	611	847	
	1961+00 TO 1962+00	1-1/4:1												
	1962+00 TO 1971+00	1-1/2:1		497						169		215		
	1971+00 TO 1972+00	1-3/4:1		4,887						1,711		2,040		
	1972+00 TO 1973+00	2:1		563						213		238		
	1973+00 TO 1979+00	2:1		3,561						1,493		1,625		
	1979+00 TO 1985+00	2:1		3,305						1,257		1,375		
	1985+00 TO 1993+00	2:1		8,382						1,417		1,505		
51	1993+00 TO 1994+00	1-1/2:1		504						190		227		
54	1994+00 TO 1995+00	1:1		42	20,145					7,211		204	8,087	
57	1995+00 TO 2000+00	1:1								741	841	1,711	1,757	
	2000+00 TO 2010+00	1:1								819	972	2,167	2,174	
	2010+00 TO 2014+00	1:1		2,318						874		1,222		
60	2014+00 TO 2017+00	1-1/2:1		387						157		227		
63	2017+00 TO 2024+50	2:1		3,563	8,474					1,163	2,162	1,875	2,962	
	2024+50 TO 2035+25	1-1/2:1		3,141	3,590					1,132	1,311	1,531	1,566	
	2035+25 TO 2041+75	1-1/2:1		4,46						1,754		2,098		
	2041+75 TO 2051+00	1-3/4:1								103		1,238		
66	2051+00 TO 2052+00	2:1		86						2,188	4,387	2,498	4,919	
	2052+00 TO 2062+00	2:1		5,114	9,672					1,146		2,267		
	2062+00 TO 2066+00	1-3/4:1								213		341		
69	2066+00 TO 2069+00	1-1/2:1								1,503	3,137	1,736	5,336	
	2069+00 TO 2077+00	1-1/2:1								140		367		
	2077+00 TO 2078+00	1-1/4:1								189		350		
	2078+00 TO 2080+00	1:1								2,489		5,649		
	2080+00 TO 2086+00	1:1								221		500		
	2086+00 TO 2100+00	1-1/4:1								169		350		
	2100+00 TO 2106+00	1-1/2:1								1,117		2,153		
	2106+00 TO 2107+00	1-1/4:1								169		350		
	2107+00 TO 2111+00	1:1								597		1,333		
	2111+00 TO 2112+00	1-1/4:1								169		350		
	2112+00 TO 2117+00	1-1/2:1								923	1,571	2,053	14,182	
72	2117+00 TO 2120+00	2:1								3,644	3,822	2,349	2,990	
75	2120+00 TO 2140+00	2:1	5,417	5,656						32,063	23,814	*44,695	*46,068	
	2140+00 TO 2146+00	2:1	8,840	9,376	38,600	43,876	13,523	15,505	34,645	42,051				
	TOTAL													

* CARRIED TO STRUCTURE QUANTITIES

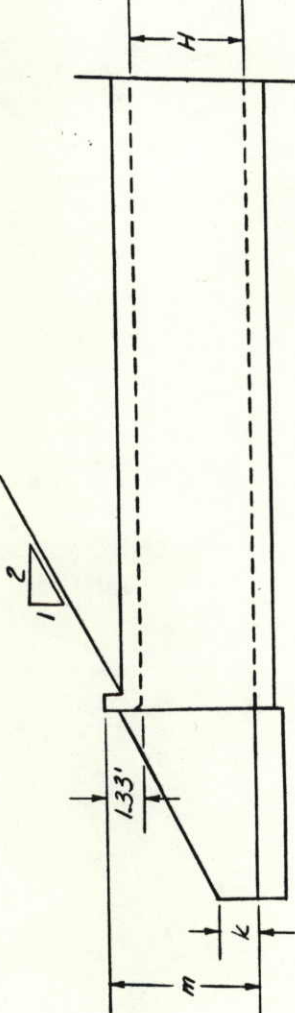
110,808 cu. yds. TOTAL

R-1

DETAIL OF CBC WINGWALL LAYOUT



$\theta = 60^\circ$
 $H = 12'$
 $k = 2'$
 $m = 7.33'$



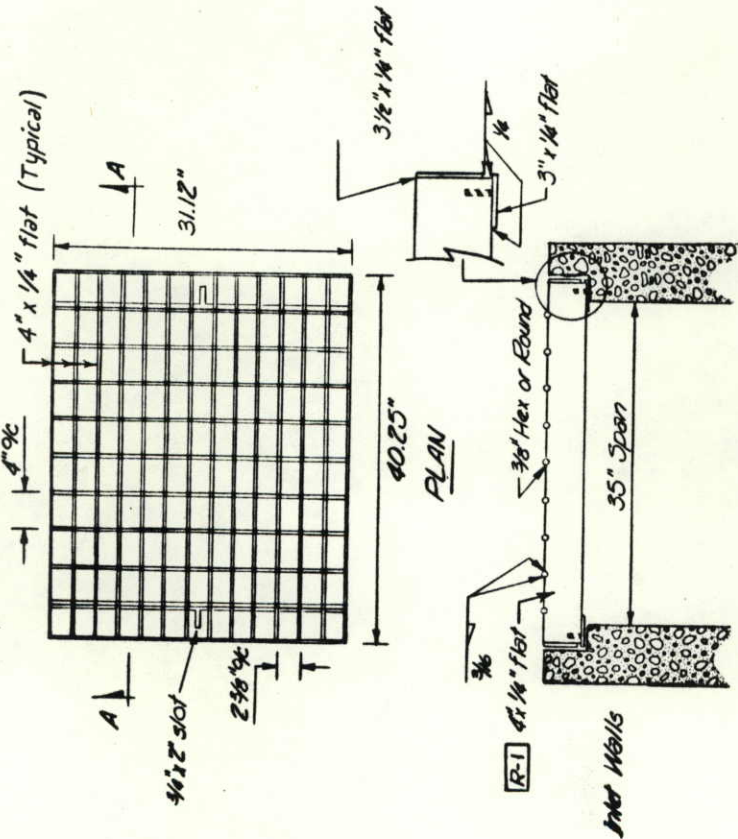
ELEVATION

DRAINAGE DESIGN DATA

STATION	STRUCTURE SIZE & TYPE	D. A. MI. ±	Q ₁₀₀	H. W.	DESIGN Q ₂₅	D.H.W.	A.H.W.
1967+40	30" CSP	.03	70	6245+	40	6244.6	6245.0
1974+90	36" CSP	.04	83	6271+	48	6269.3	6271.0
1984+85	60" CSP	.20	220	6302+	125	6299.5	6301.0
2011+40	36" CSP	.14	90	6404+	50	6403.0	6404.0
2013+00	36" CSP	.14	90	6412+	55	6410.4	6411.5
2048+59	60" CSP	.24	250	6495+	140	6494.5	6495.0
2069+25	12' x 6' CBC	1.07	625	6562.3	--	--	6563.0
2074+45	36" CSP	.16	100	6581+	55	6578.9	6580.5
2076+87	36" CSP	.16	100	6591+	55	6589.4	6590.5
2082+34	36" CSP	.06	105	6626+	62	6625.4	6625.5
2114+85	36" CSP	.05	95	6618+	55	6617.4	6618.0
2126+45	36" CSP	.16	100	6841+	55	6839.4	6841.0
2128+32	36" CSP	.16	100	6841+	55	6839.4	6841.0
2132+50	36" CSP	.08	105	6841+	55	6840.4	6841.0

INLET GRATING SPECIAL

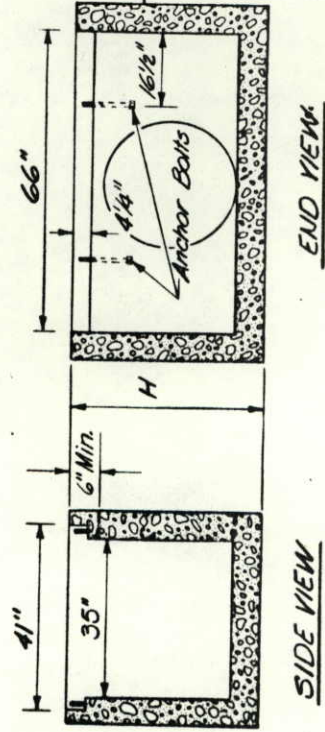
(Similar to IRVING "Heavyweight", Type HE)



SECTION A-A

Total weight ~200 lbs.
All surfaces galvanized.

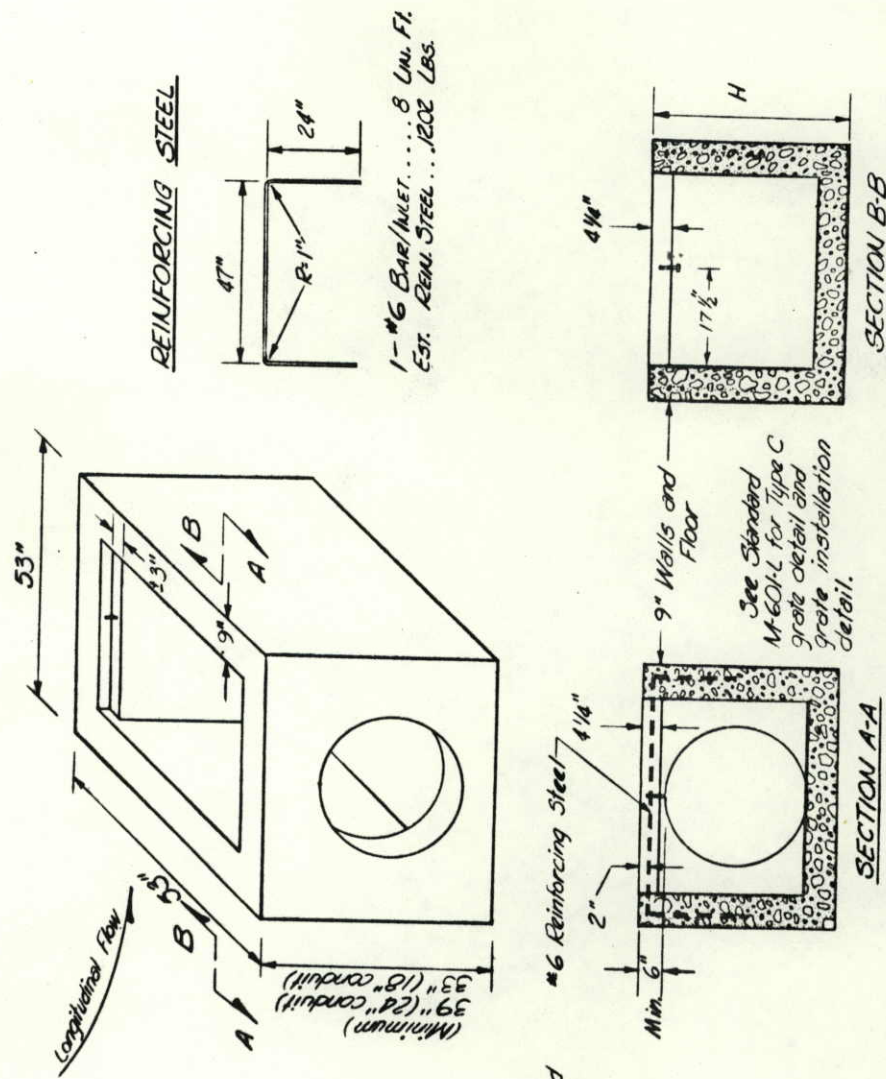
DOUBLE INLET SPECIAL



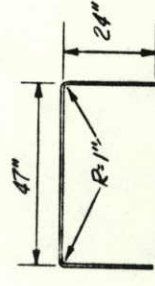
SIDE VIEW

END VIEW

INLET SPECIAL



REINFORCING STEEL



1-#6 BAR/INLET... 8 LBS. FI.
EST. REIN. STEEL... 1202 LBS.

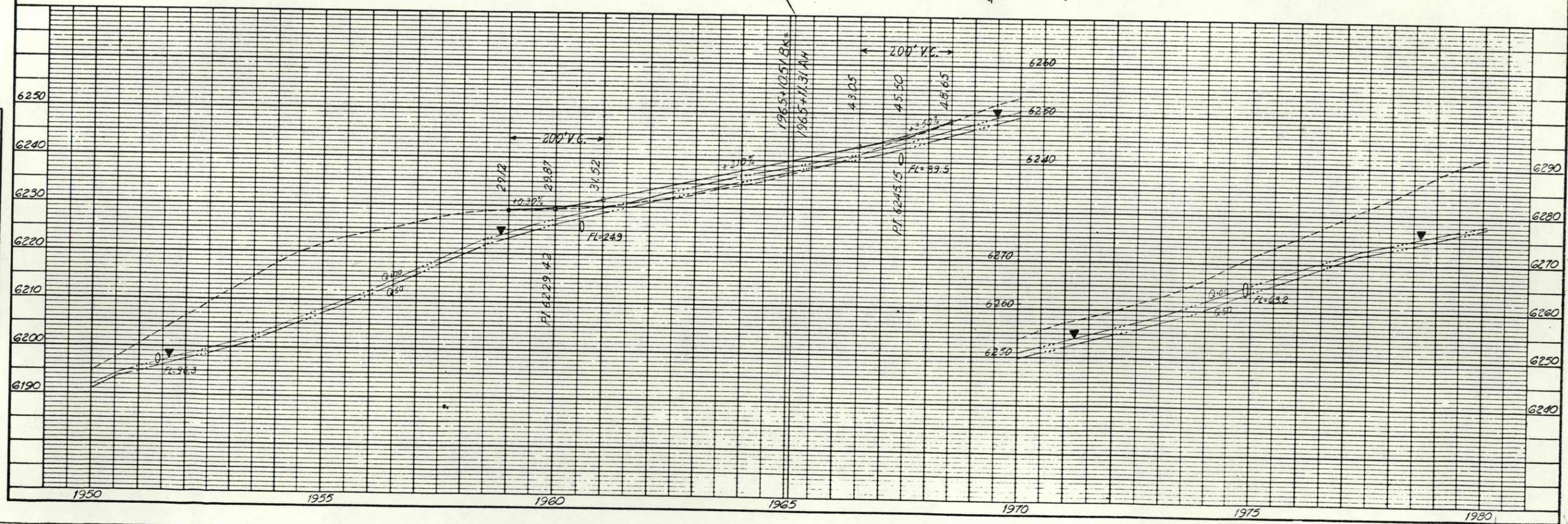
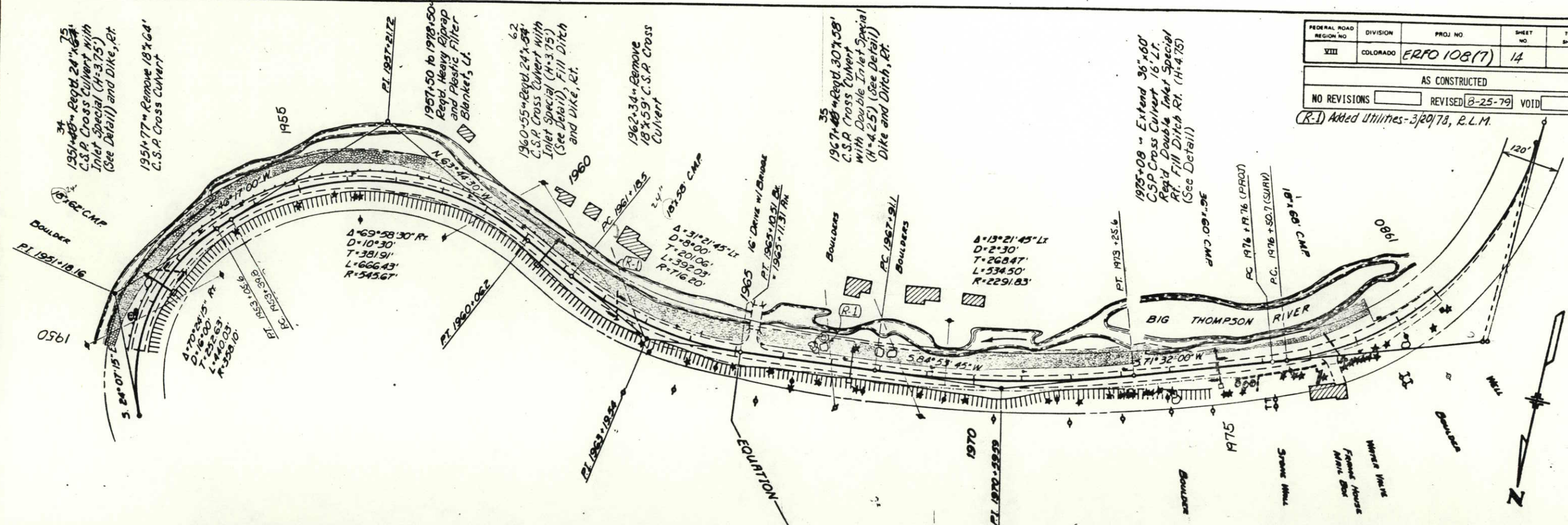
NOTE: Inlets are Paid for in accordance with Sections 601 and 602.

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ERFO 108 (3)	12	
NO REVISIONS [3-25-79] AS CONSTRUCTED REVISED VOID				

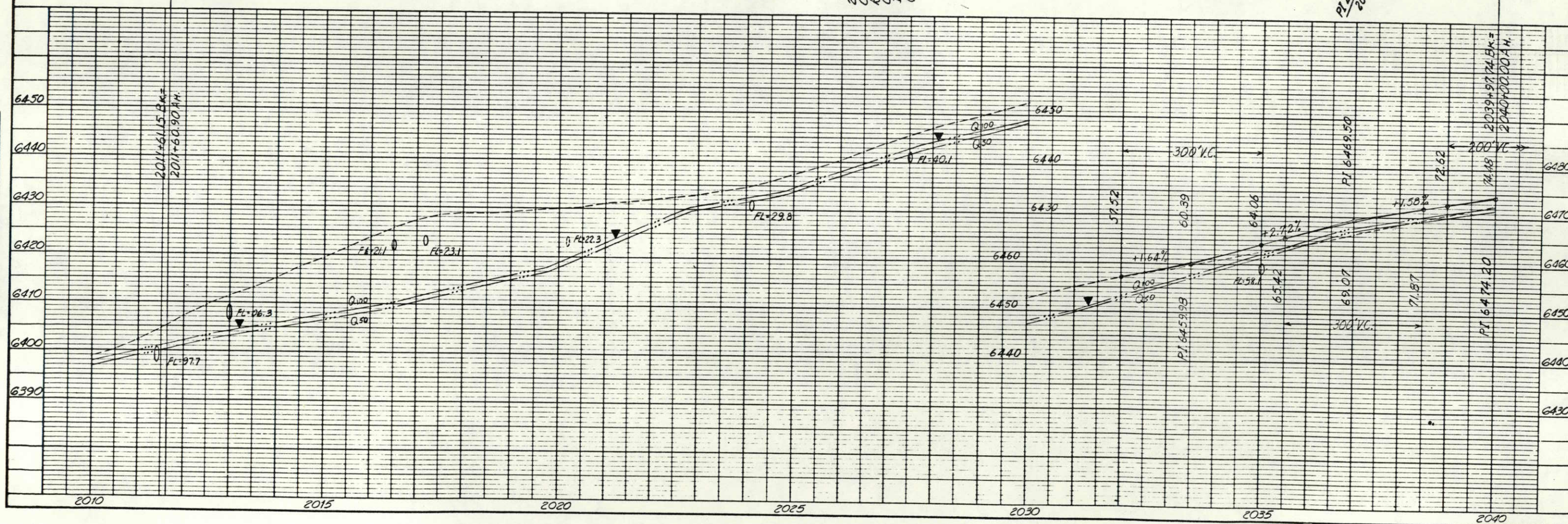
AS CONSTRUCTED

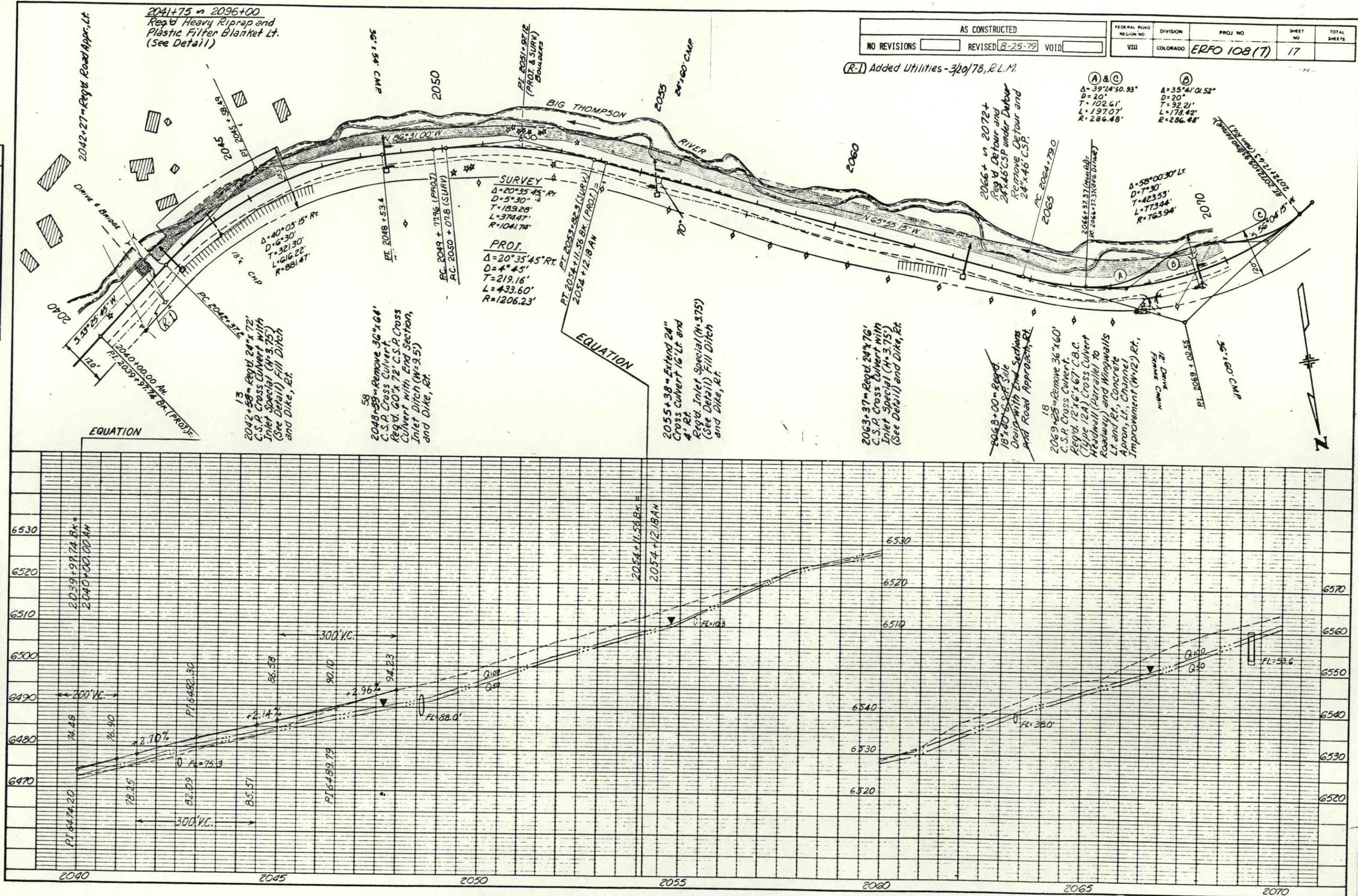
NO REVISIONS REVISED 8-25-79 VOID

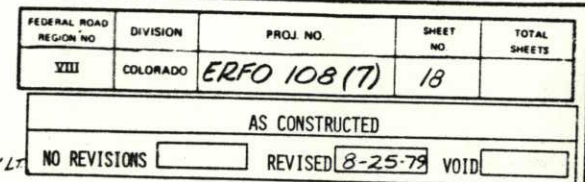
(R-1) Added Utilities-3/20/78, P.L.M.



Climbing Lanes:
Sta 2035+00 to Sta. 2071+00
(Includes 300' taper at each end).

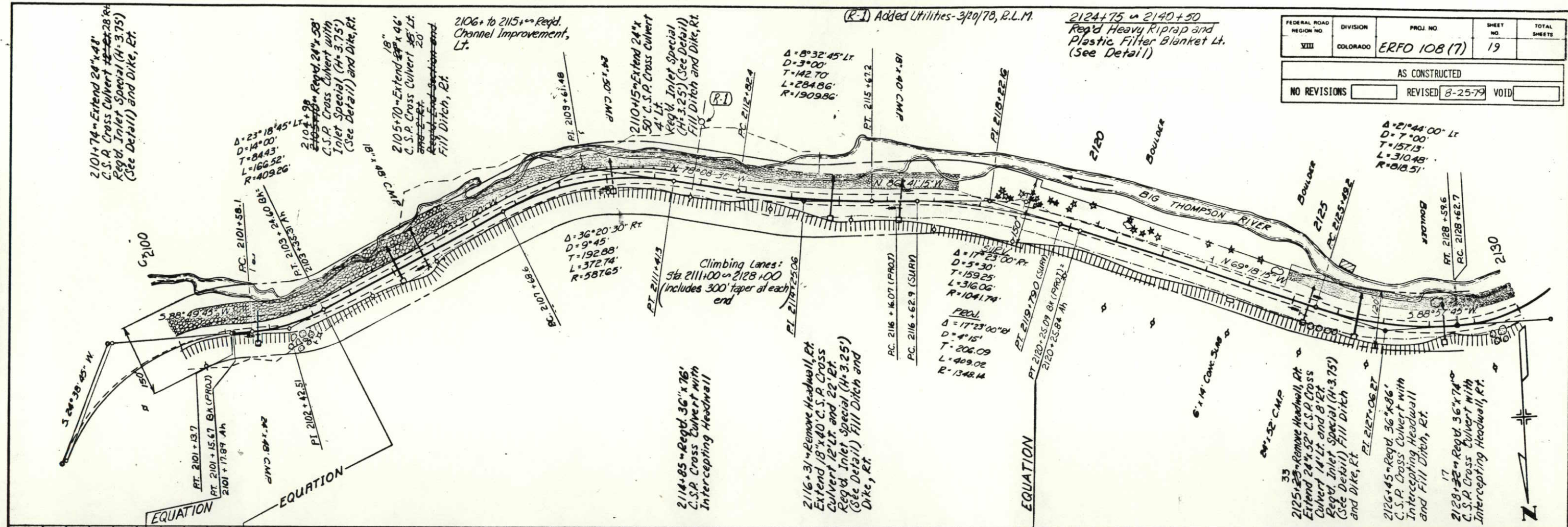






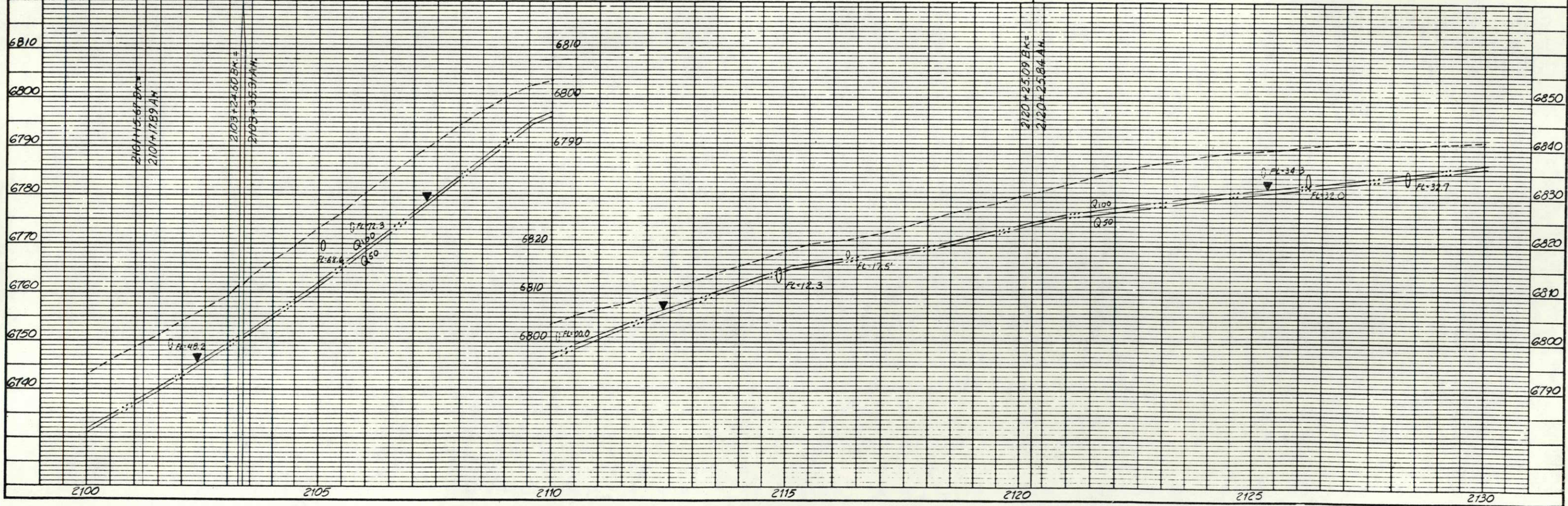
DATE	
BY	
CHECKED	
APPROVED	
NOTED	
REVISIONS	
NO. 2274	
BY	
DATE	

DATE	
BY	
CHECKED	
APPROVED	
NOTED	
REVISIONS	
NO. 2274	
BY	
DATE	



FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ERFD 108 (7)	19	

AS CONSTRUCTED	
NO REVISIONS	REVISED 8-25-79 VOID



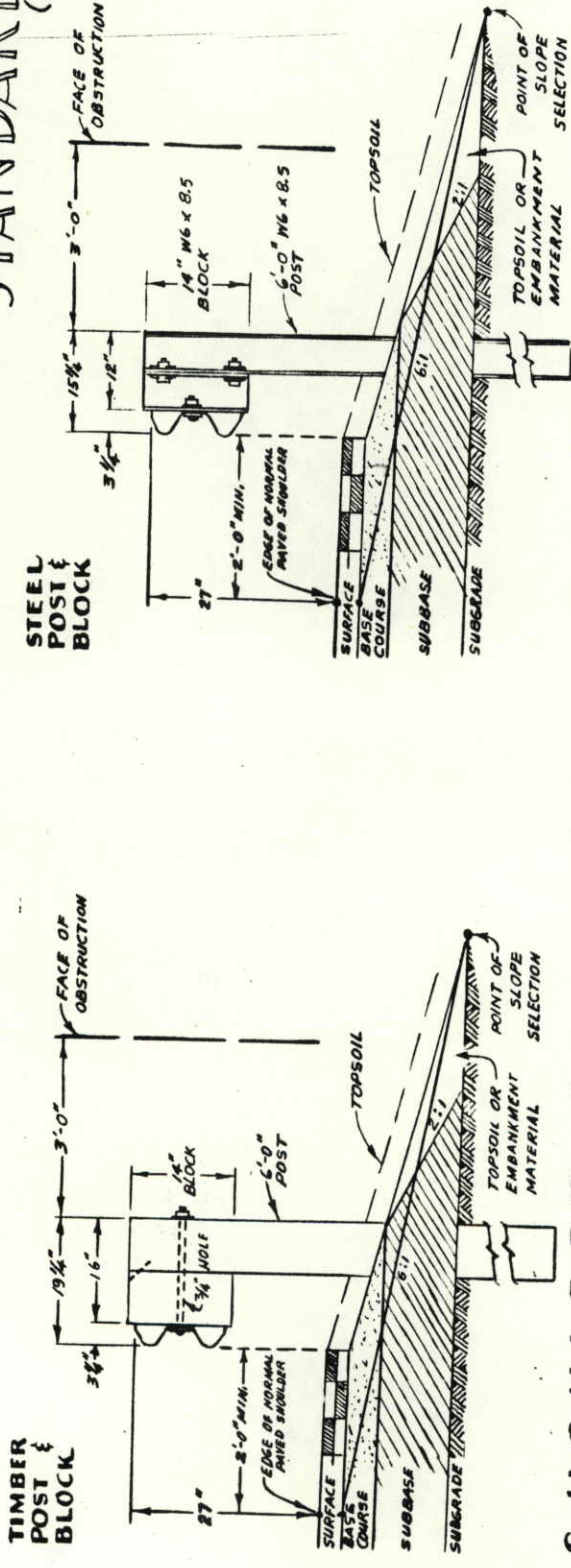
STANDARD M-606 - AC
(SHEET 1 OF 5)

SPECIAL FOR THIS PROJECT

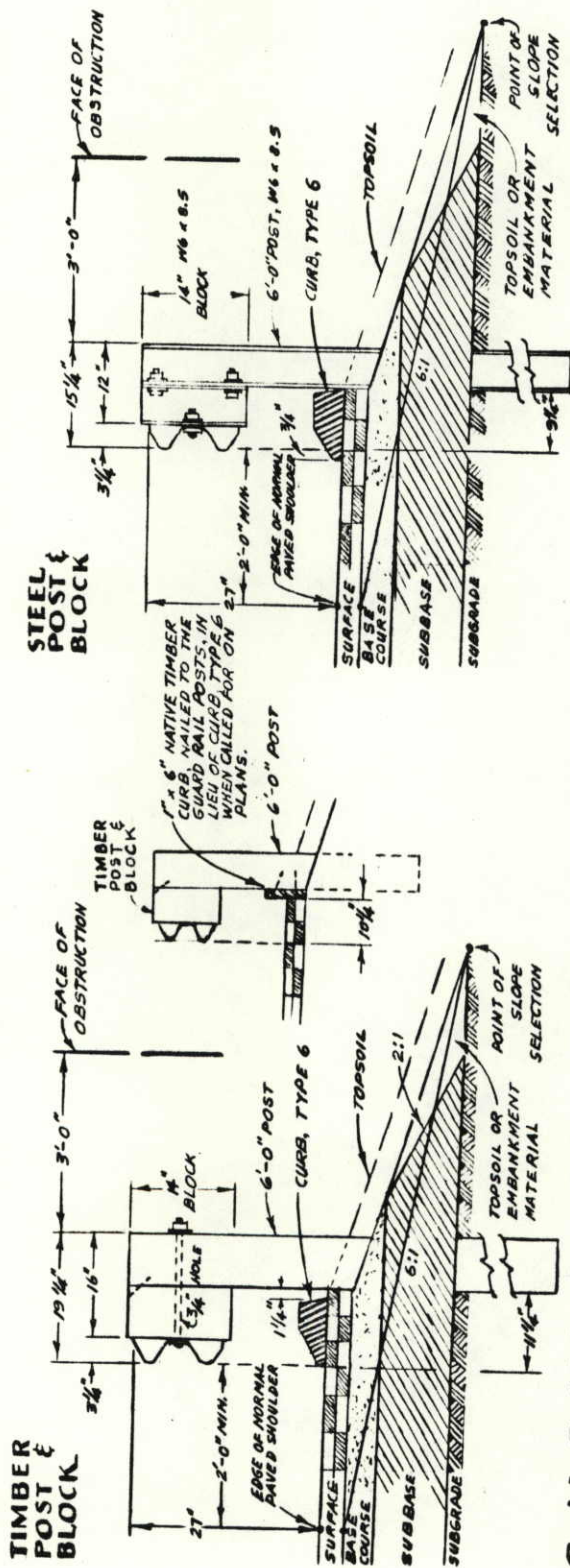
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ERFO 108(7)	21	

REVISIONS	
(R-1)	2-15-78 Post Spacing, 3' O.C. Con. Notes, T.A.L.

AS CONSTRUCTED	
NO REVISIONS 8-25-79	REVISED
	VOID



SHOULDER TREATMENT WITHOUT CURB (R-1)



SHOULDER TREATMENT WITH CURB (R-1)



MEDIA TREATMENT (R-1)

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the project.

All timber shall be close grained Douglas Fir of the Coast Region, Dense Longleaf or Shortleaf Southern Pine, Lodgepole Pine, Ponderosa Pine, Western Hemlock or Larch, and shall conform to the following grading specifications and requirements:

SPECIES	POST & BLOCK CROSS SECTION	GRADE - FREE OF POSTS & TIMBERS	GRADED UNDER CURRENT SPEC. OF:
West Coast Douglas Fir	6" x 8"	Yes	No. 1 Structural (1)
West Coast Hemlock	6" x 8"	Yes	Select Structural (1)
Larch	6" x 8"	Yes	No. 1 (a)
Southern Pine	6" x 8"	No	No. 1 SR Timber (3)
Lodgepole Pine	8" x 8"	No	Select Structural (a)
Ponderosa Pine	8" x 8"	No	Select Structural (a)
West Coast Hemlock	8" x 8"	Yes	No. 1 Structural (1)

NOTE: 1. ASHTO M 113 does not require incising of Post of WCLB. 2. 6" x 8" Posts & Blocks shall be installed with the 8" dimension perpendicular to the roadway. 3. Southern Pine Inspection Bureau.

All timber shall be rough, free of wane, square cut and full sawn.

At the time the post or block is installed, any seasoning check which extends the full length of the piece shall not exceed 1/4" in width at its maximum width.

Blocks shall be cut from timber of the same cross section, species and grade as the posts and shall receive the same treatment.

Blocks shall be nailed to posts with two 16 penny galvanized nails in the top of each block.

Timber shall be incised in accordance with AWP specifications and as designated in the above table. Pressure treatment of timber shall be in accordance with ASHTO M 113 except that blocks need not be incised. Post bolt holes are to be drilled before treatment is applied.

The preservative shall be either (a) Creosote or (b) Pentachlorophenol in a petroleum carrier (liquid or 4.2 gas), unless otherwise permitted by the Engineer, only one preservative shall be used on the project.

Posts are cut in the field, cut ends shall receive 2 coats of hot creosote.

Posts used for vertical transition shall be adjusted in length so that a minimum of 45" will be buried.

Standard galvanized wrought steel washers shall be used under all bolt heads or nuts coming in contact with wood posts.

Metal plate guard rail shall be in accordance with the latest revision of ASHTO M 180, Class A or B, Type 1 or 2.

Damaged areas of metal plate guard rail shall be painted in accordance with Standard Specifications or shall be galvanized in accordance with ASHTO M 114 or ASTM A 333, coating 620.

All guard rail components shall be lapped in the direction of traffic.

Backing plate and splice plate shall be galvanized after fabrication.

All steel posts and blocks shall conform to ASTM A 36 and shall be galvanized in accordance with ASHTO M 114. Punching, drilling or cutting will not be permitted after galvanizing.

All bolts shall conform to ASTM A 307 and nuts to ASTM A 563, Grade A. Washers shall be steel. All bolts, nuts and washers shall be galvanized in accordance with ASTM A 153.

Concrete shall be Class A or B.

Where pedestrian hazard exists and sidewalk is constructed on the roadway shoulder, guard rail shall be placed between the sidewalk and the edge of traffic lane.

NORMAL CENTER-TO-CENTER POST SPACING

LOCATION	DESIGN SPEED LESS THAN 50 MPH EADT < 750	DESIGN SPEED 50 MPH & OVER
TANGENTS (EXCEPT BRIDGE OR STRUCTURE APPROACH)	12'-6"	6'-3"
CURVES WITH RADIUS OVER 200'	12'-6"	6'-3"
CURVES WITH RADIUS 200' OR LESS	6'-3"	6'-3"
BRIDGE OR STRUCTURE APPROACH (FIRST 6 SPACES)	3'-1 1/2"	3'-1 1/2"
FLARES	6'-3"	6'-3"

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
GUARD RAIL - TYPE 3
W BEAM

Designed by T.A.L.
Made by J.R.B.
Checked by O.L.S.
Approved by J.R.B.
Staff Design Engineer
Date:

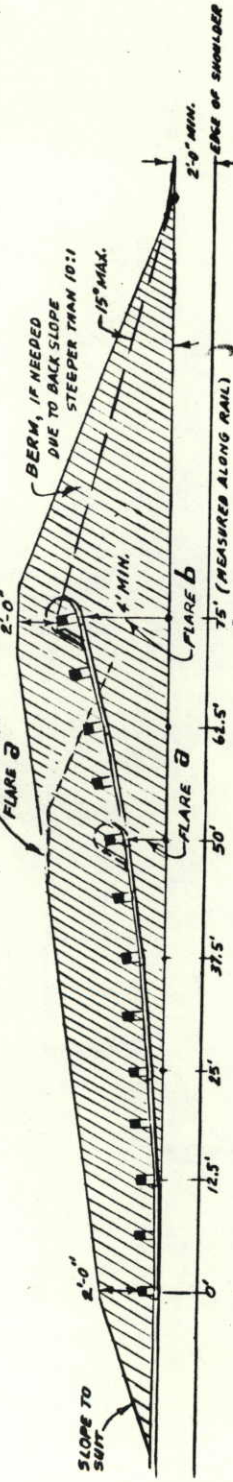
STANDARD M-606-AC
(SHEET 3)

SPECIAL FOR THIS PROJECT

NO REVISION	AS CONSTRUCTED	REVISED	VOID
8-25-79			

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ERFO 108(7)	23	

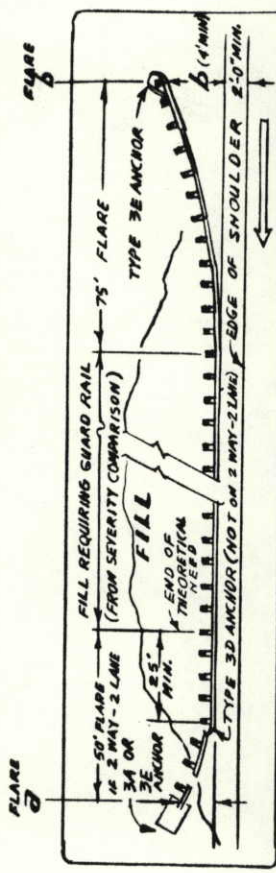
REVISIONS	
2-15-78	Legend, 100' Transition = 2' MIN. TAIL.



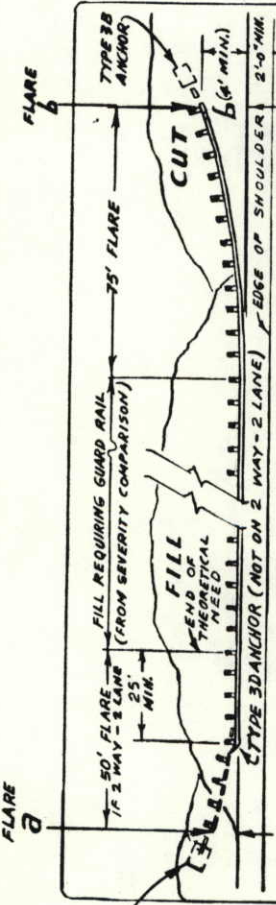
SECTION A-A
FLARE

FLARE OFFSET TABLE (R-1)									
TYPE	a	b	c	d	e	f	g	h	
PARABOLA	50'	75'	75'	75'	75'	75'	75'	100'	REVERSE PARABOLA
STRAIGHT	0'	0'	25'	37.5'	50'	75'	75'		
12.5	.063	.028	.017	.014	.012	.009	.009	.032	h
25.0	.250	.111	.067	.056	.048	.037	.037	.123	h
37.5	.563	.250	.150	.125	.107	.083	.083	.290	h
50.0	.938	.444	.267	.222	.191	.148	.148	.516	h
62.5	1.250	.694	.417	.347	.298	.232	.232	.710	h
75.0	1.563	.938	.563	.469	.400	.333	.333	.971	h
87.5	1.875	1.188	.714	.583	.500	.429	.429	1.232	h
100.0	2.188	1.438	.857	.688	.583	.500	.500	1.500	h
112.5	2.500	1.688	1.000	.833	.714	.583	.583	1.767	h
125.0	2.813	1.938	1.143	.967	.833	.714	.714	2.033	h
137.5	3.125	2.188	1.286	1.100	.967	.833	.833	2.300	h
150.0	3.438	2.438	1.429	1.233	1.100	.967	.967	2.567	h

LEGEND
a = OFFSET AT END OF 50' PARABOLIC FLARE. (4' MIN.)
b = OFFSET AT END OF 75' PARABOLIC FLARE. (4' MIN.)
c, e & f = 1/6 (MEDIAN WIDTH - 2 SHOULDER WIDTHS) - 3.2'
d = 1/5 (MEDIAN WIDTH - 2 SHOULDER WIDTHS) - 3.2'
g = 1/2 (MEDIAN WIDTH - 1 SHOULDER WIDTH) - 2'
h = 1/2 (MEDIAN WIDTH - 2 SHOULDER WIDTHS) - 2' - #
= 1/2 DOUBLE BLOCKED OUT RAIL:
1.25' FOR TIMBER SYSTEM
1.00' FOR STEEL SYSTEM

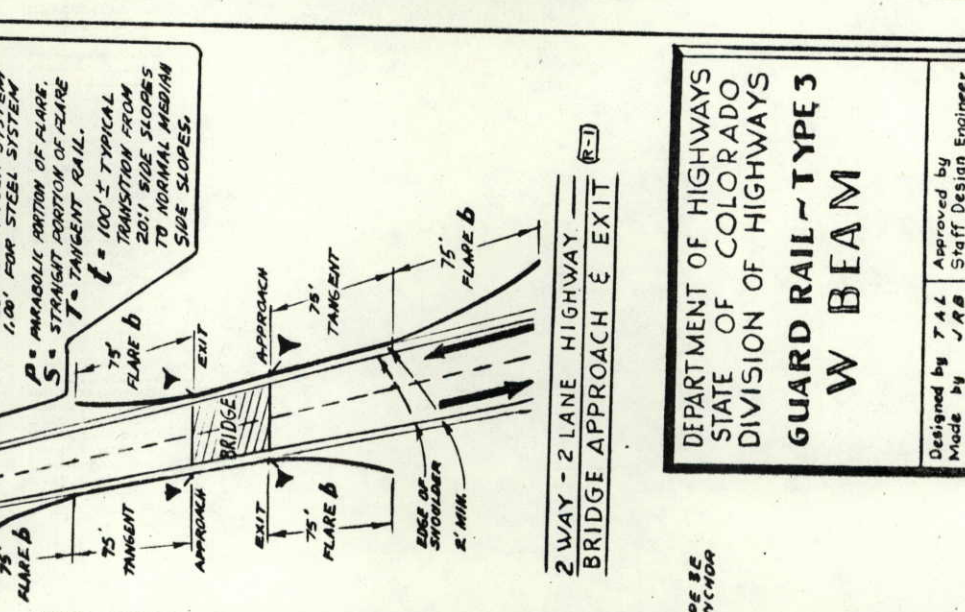
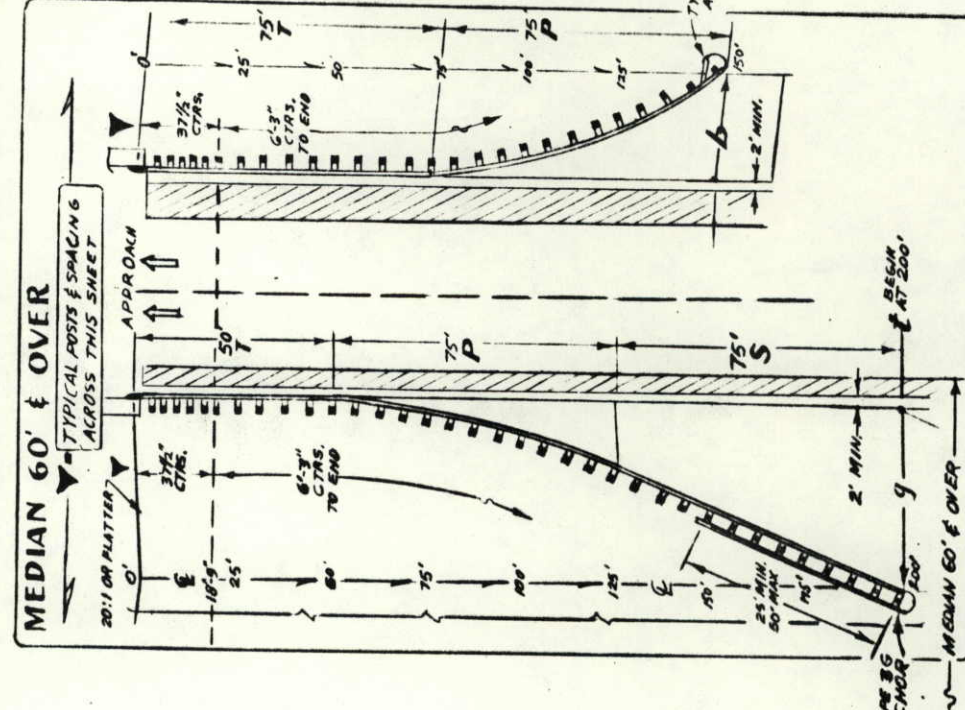
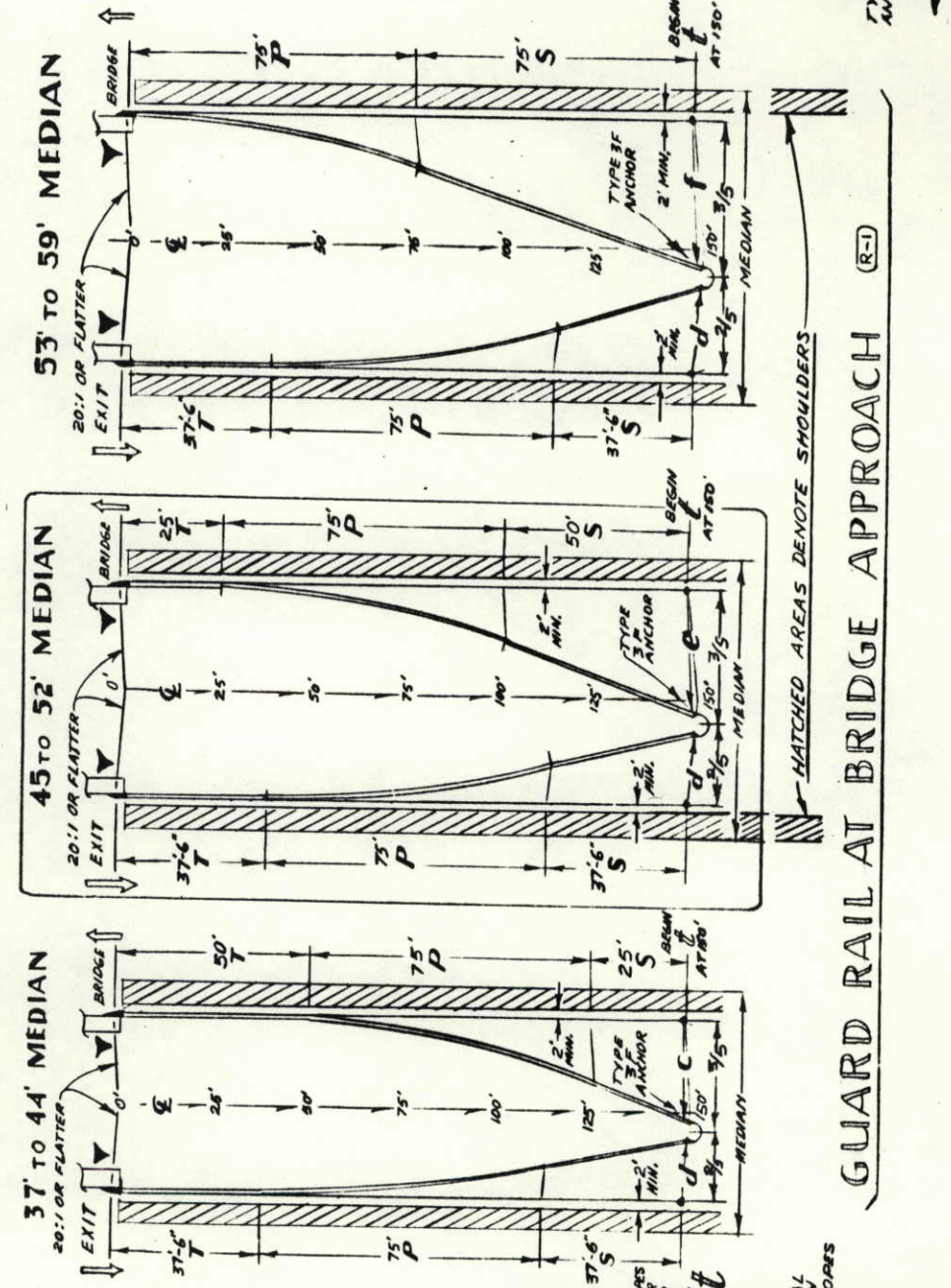
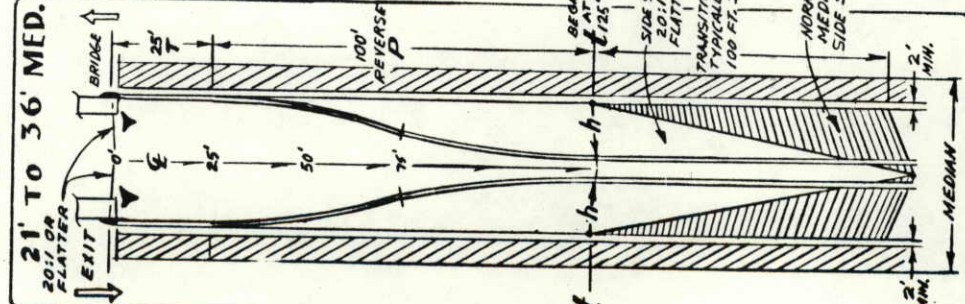


GUARD RAIL INSTALLATION - ROADSIDE FILL CONDITION (R-1)



GUARD RAIL INSTALLATION - ROADSIDE CUT TO FILL CONDITION (R-1)

(R-1)



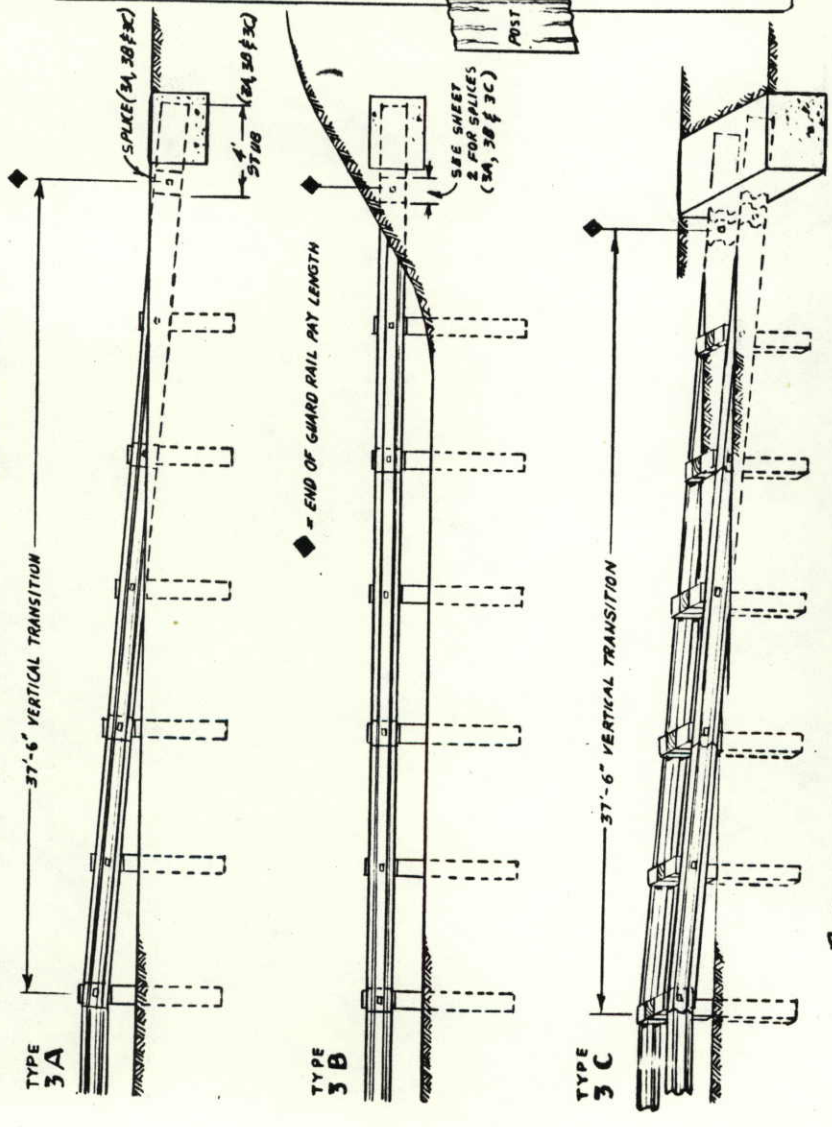
DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
GUARD RAIL - TYPE 3
W BEAM

Designed by T.A.L.
Made by J.R.B.
Checked by O.L.S.
Approved by
Staff Design Engineer
Date:

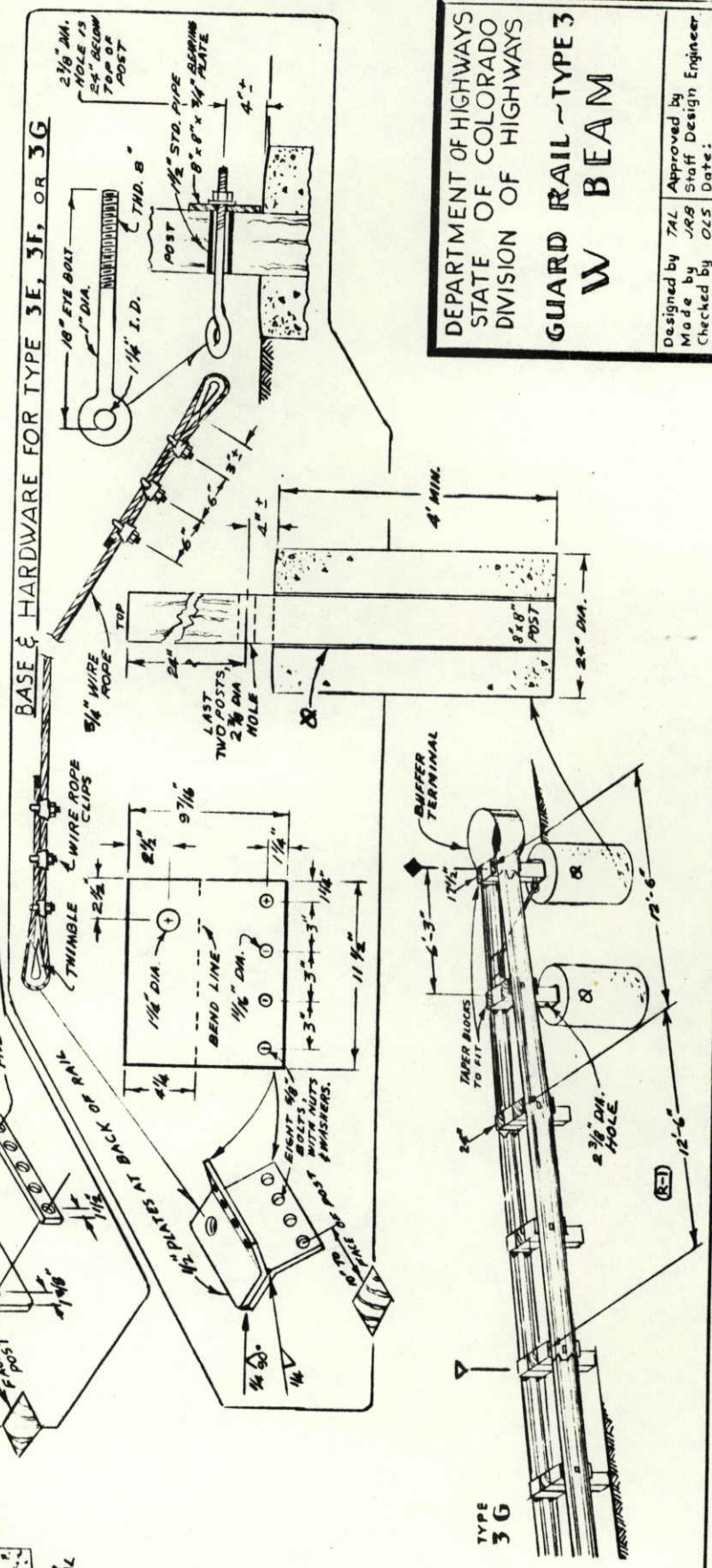
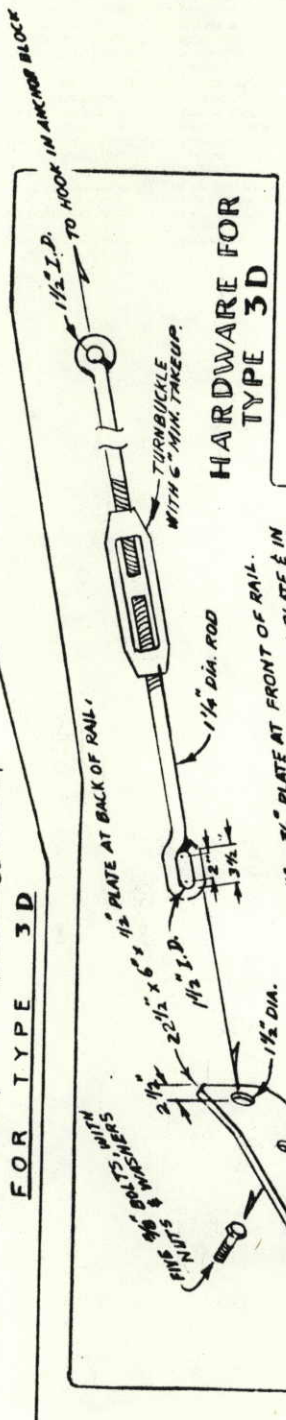
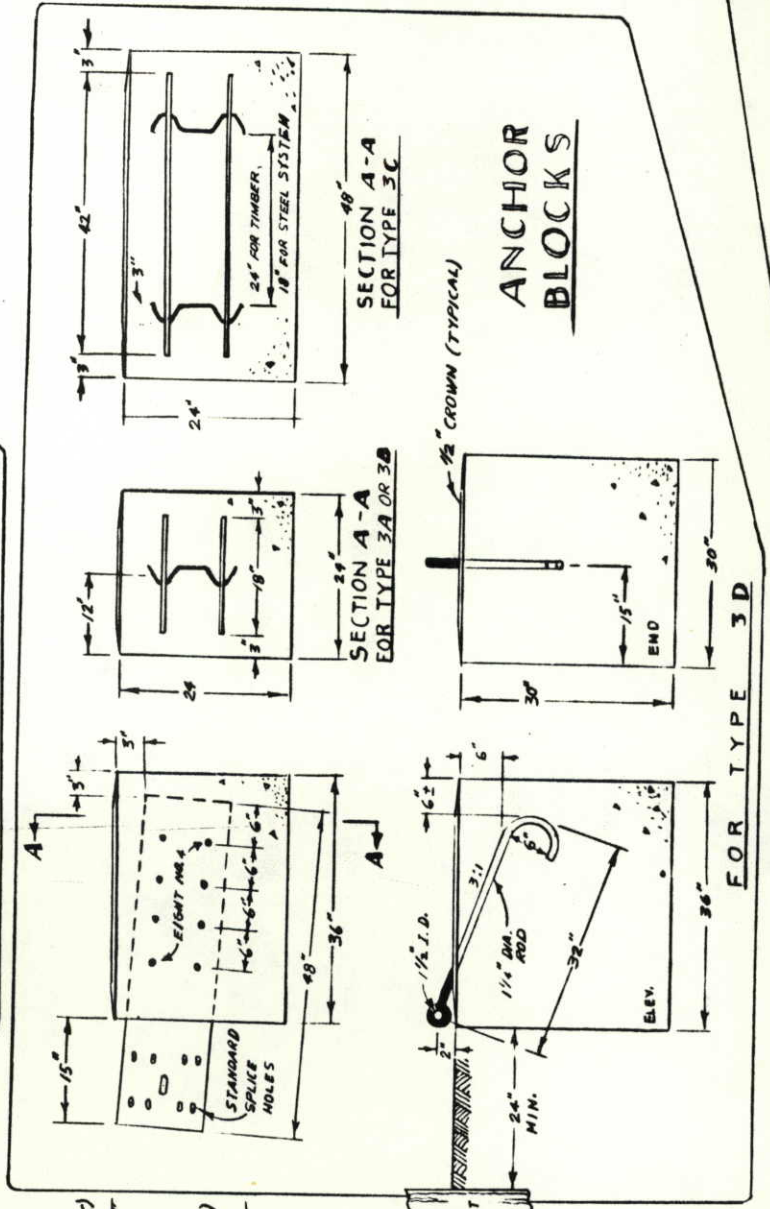
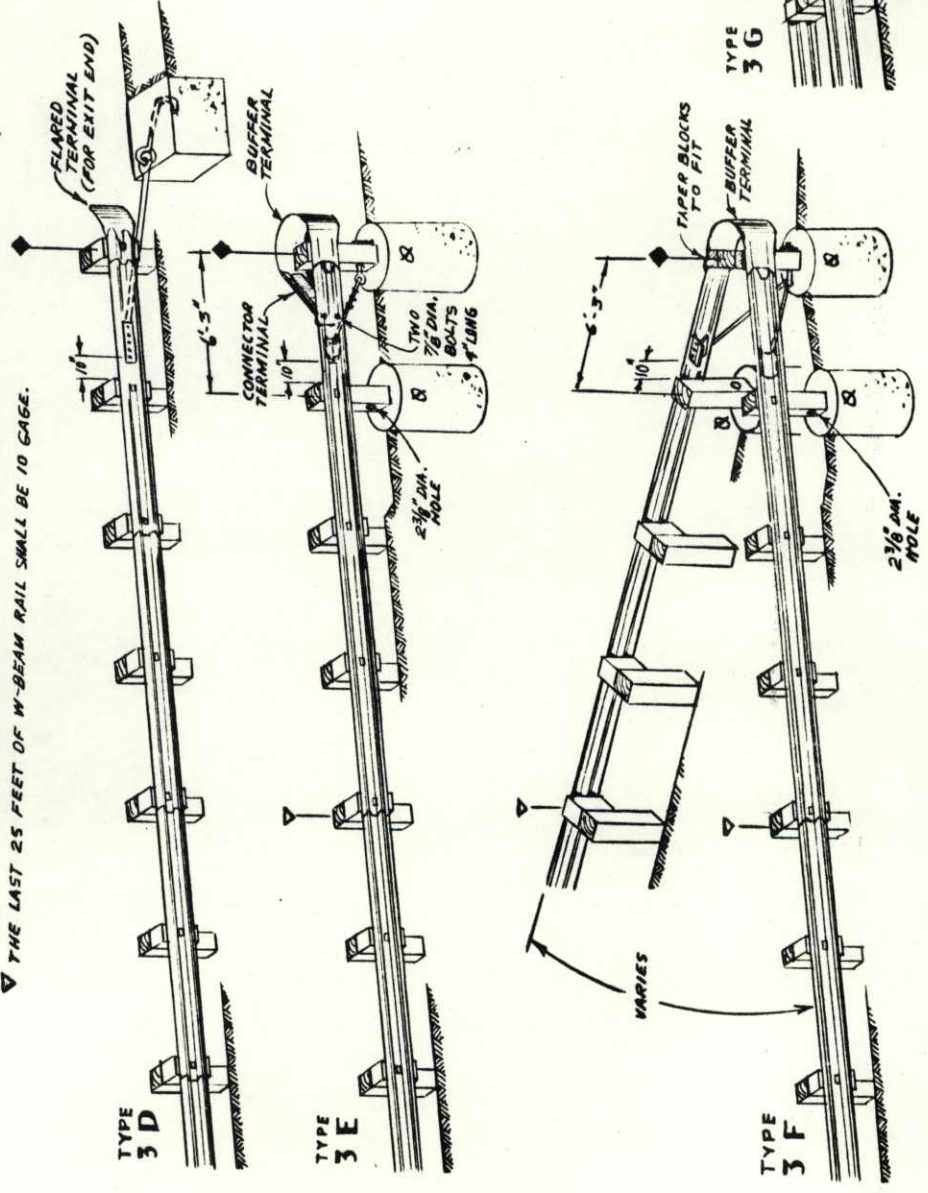
REV 12-1-77

STANDARD M-606-AC
(SHEET 4)
SPECIAL FOR THIS PROJECT

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ERFO 108(7)	24	
REVISIONS				
2-18-78 12-6" DIA. OR 36.				
AS CONSTRUCTED				
NO REVISIONS 8-25-78 REVISED VOID				



8 EMBEDDED PORTION OF LAST 2 POSTS SHALL BE WRAPPED WITH 2 TURNS OF LIGHTWEIGHT FELT ROOFING PAPER TO FACILITATE POST REMOVAL. WHEN SYSTEM IS STEEL, USE TIMBER POSTS (AND TAPERED BLOCKS FOR 3E & 3G) AT THE LAST 2 POST LOCATIONS.
▽ THE LAST 25 FEET OF W-BEAM RAIL SHALL BE 10 GAGE.



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS
GUARD RAIL - TYPE 3
W BEAM
Designed by TAL Approved by JRS Staff Design Engineer
Made by JRS Checked by OLS Date:

BIG THOMPSON

CONCEPTUAL ROCK PLACEMENT IN CHANNEL for Fish Habitat Improvement

6-1 Rev. Details of 4/3/78 or R.L.M.

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	ERFO 108 (7)	26	

NO REVISION		AS CONSTRUCTED		VOID	
8-25-79					

